

Automation
Power Management

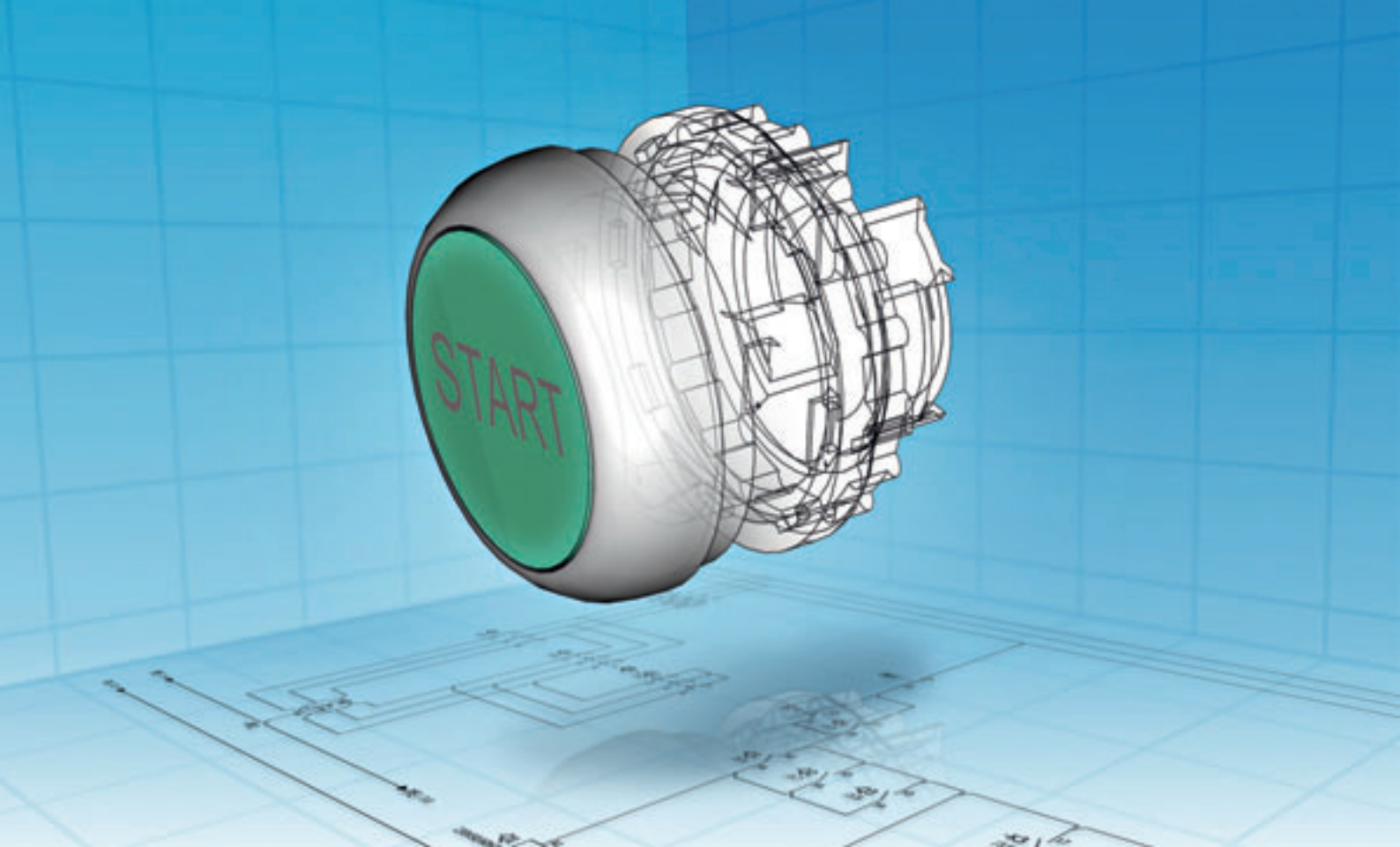
Command and Signalling
Motor Applications

Product Overview for Machinery. Build it in.



EATON

Powering Business Worldwide



Planning safety and process optimization: CAD data at the click of a mouse!



- 10,800 article data items and macros
- Convenient selection tool
- Version P8



- Models for approx. 11,000 products
- 80 different neutral & native formats

Eaton is providing its customers with CAD data to offer optimum support during planning. Both electrical and mechanical design data can be called up quickly and conveniently from the Internet at any time. This reduces processing times, minimizes errors and thus reduces costs already in the engineering phase of control panels, systems and machinery.

eCAD: Eaton has product data and macros available for EPLAN Electric P8. After downloading the small EPLANSelection program, you will not only be able to select the items you need from a database containing more than 10,800 products, but will also be able to export them and import them into your own EPLAN item database.

mCAD: Eaton makes 2D and 3D data available for more than 11,000 products. Over 80 different neutral and native formats guarantee compatibility with the project engineering systems of the customer. The models can either be integrated directly into the planning software from the Partcommunity Portal on the Internet or via the CADENAS Partsolution software.



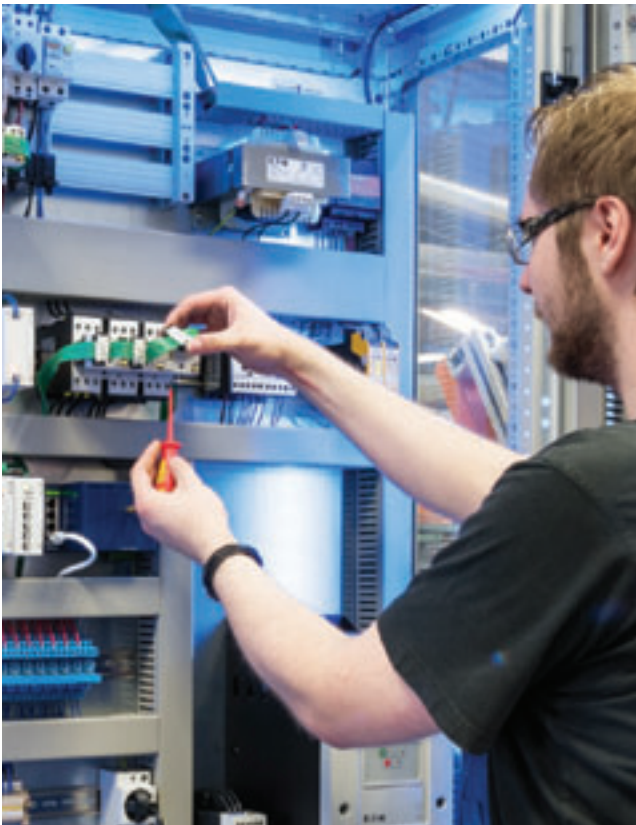
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At Eaton, we serve the needs of machine builders and their customers across the globe.

As one of the world's leading power management companies, we provide energy efficient solutions designed to help our customers use electrical, fluid and mechanical power more reliably, efficiently, safely and sustainably. With a commitment to innovation, our solutions can help you differentiate and build a more sustainable business.



Eaton brings a new dimension of expertise.

With shorter product lifecycles, customers now expect you to design and build highly customized machines, or retrofit existing ones, faster, and at a lower cost than ever before. Your customers demand machines that operate without fault for longer, and at the highest possible level of energy efficiency.

When designed with our best-in-class electrical and hydraulic solutions, your machines are guaranteed to deliver higher levels of accuracy, speed, energy efficiency, reliability, and flexibility. Eaton is the only solutions provider that combines hydraulic and electrical systems for a machine with power density and precision power control.

A legacy of innovation

As we have developed, our portfolio of solutions has diversified; integrating the unique capabilities of industry leading product ranges from the likes of Aeroquip, Moeller, Vickers, Bussmann, F&G and Heinemann we now deliver innovation on a greater scale than ever before. This gives our clients the opportunity to choose the best technologies from a broad offer.

For a more profitable business, build an integrated machine with Eaton solutions

A more simplified, compact and lower cost machine

Eaton significantly speeds time to market for machine builders and reduces the footprint and operating costs of machines without compromising performance. We reduce the time and expense of machine wiring, with our unique SmartWire-DT panel-wiring solution. Our solutions, including compact hydraulic systems, also reduce machine equipment footprint and increase the speed of the manufacturing process while reducing errors.

A safer machine

Safety needs to be a top priority as machines can create risk for your people, operation and the environment. It is vital these risks are identified and mitigated in both the design and build phases. Eaton's functional safety solutions help you meet and exceed safety regulations through product design that reduces risk of machine overload, damage and fire.

A more reliable machine

Machines and production facilities equipped with Eaton products are more reliable, minimizing costly downtime. Extend the service life of products by predicting hose failure before it happens with our intelligent hydraulic hose monitoring system. Uninterruptible power supplies at the machine level minimize production downtime and data loss caused by voltage dips, power outages or surges.

A more energy efficient machine

Increase energy efficiency with Eaton solutions that enable advanced control of electric motors and hydraulic pumps, valves and cylinders. We control and protect energy efficient IE3 and IE4 motors. Our monitoring solutions help to reduce energy consumption.



Optimise space and budget

Eaton are dedicated to offering innovative solutions that are safe, compact, reliable and financially efficient. With budgets across the sector increasingly squeezed, the importance of reducing costs across engineering, wiring, testing and commissioning is paramount to future profitability. Eaton can help you achieve this cost reduction and improve downtime in the process.

Standardize Operations

Our portfolio of standardised solutions can revolutionise your operational efficiency. Designed to meet global standards, manage costs and reduce energy consumption, Eaton can help you build state-of-the-art systems that are both easy to maintain and service.

Improve integrated performance

Offering compatibility with a wide variety of technology our solutions can be integrated into ready built systems to enhance flexibility, improve diagnostic output and increase communication between machines within a network.

Prioritize Safety

Safety is one of Eaton's greatest priorities throughout the machine building process, we are dedicated to developing safer working environments and reducing operational risks. Our solutions have been efficiently designed to meet all regulatory requirements without duplicating wiring or generating resource waste. The safeguards we implement at every stage of the process ensure risk of overload, damage or fire is minimized.





Helping you to improve all parts of the machine

Intelligent Wiring

Using state-of-the-art intelligent wiring technology Eaton can help significantly reduce the costs and downtimes of your machines and systems. Our intelligent wiring solutions enhance productivity, simplify maintenance and increase flexibility when designing, installing and commissioning a plant. With a potential cost saving of up to 85% on installation costs and a guaranteed fast, error free connection, intelligent wiring presents machine builders with a great opportunity to improve profitability and performance.



Control and operation

Human machine Interfaces can help improve ergonomic performance, maximizing user comfort, efficiency and creates a better looking machine. Our XV300 touch panel delivers intuitive operation, precise gesture control and multimedia integration enabling you to manage your system effectively. Our pilot devices help to design an attractive machine. They are flexible and can be combined for a wide range of applications.



Energy Efficiency

The implementation of new ErP directives presents significant opportunities for machine builders. Eaton enables you to achieve compliance simply and efficiently while reducing energy costs in the process.

Circuit Protection

Eaton offers a wide range of protective solutions designed to maximise safety and protect assets. Delivering a high level of reliability our broad portfolio of solutions reduces downtime and maintenance costs, improving efficiency and reducing the risk of operational issues. Designed for the worldwide market, Eaton's circuit protection solutions are ideal for machine builders operating in the engineering, production, maintenance and exporting sectors globally.



Energizing a world that demands more.

Discover today's Eaton.

Powering business worldwide

As a global power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.



Powering Business Worldwide



We deliver:

- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2014 sales of \$22.6 billion, Eaton has approximately 100,000 employees around the world and sells products in more than 175 countries.



Eaton's electrical business

Eaton is a global leader with expertise in:

- Power distribution and circuit protection
- Backup power protection
- Solutions for harsh and hazardous environments
- Lighting and security
- Structural solutions and wiring devices
- Control and automation
- Engineering services

Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges. With 100 years of electrical experience behind us, we're energized by the challenge of powering up a world that demands twice as much energy as today. We're anticipating needs, engineering products and creating solutions to energize our markets today and in the future.

We are dedicated to ensuring that reliable, efficient and safe power is available when it's needed most.

Eaton.com

Our flip catalog: Get information, select, order – the fast and easy way!



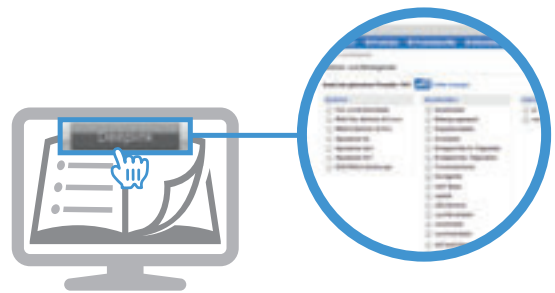
This product overview is designed as a quick selection aid for our core range of machine building products. And to make it even more powerful, we have an online version with comprehensive extra features available: our digital flip catalog. The result? Getting information and placing orders is easier and faster than ever before.

How does our digital flip catalog work? Easy: Its contents are linked to the Eaton online catalog and to the relevant product pages on the Internet, meaning that clicking on a part number or article number will take you directly to all the pertinent product information. In other words, the flip catalog is the perfect way to obtain comprehensive, up-to-date information, perfectly complementing our hard copy catalog.

Explore our flip catalog and its powerful features

Our full range of products and our product pages only a mouse click away

Often you need more than just the items in our core range of products. This is why the pages in the flip catalog feature deep links to relevant accessories, products with expanded performance ranges, and additional product versions. And when it comes to introduction pages with general information on a product, the deep link function will take you to the relevant detailed product pages on the Internet.



Technical data at a glance

Clicking on a product will show the corresponding data sheet with all technical data and dimensional drawings. In addition, you can use the available options to access CAD data, trip characteristics, manuals, instruction leaflets, and other information.



Easily generate parts lists and place orders

You can use the flip catalog to select products and group them together in a parts list. This parts list can then be used together with the online catalog to request quotations, place orders, or maintain required documentation.



The InfoPlus icon: your access to more information

Clicking on the InfoPlus icon will show additional information such as configurators, selection aids, software, tutorial videos, technical essays, and Internet pages. This information ensures that you will get a comprehensive view that perfectly complements our product overview for machinery.



Up-to-date information on the entire range of products in the online catalog

More than 25,000 data sheets, extensive selection aids, and up-to-date product information in a variety of languages – all in our online catalog <http://eaton.eu/ecat>

SmartWire-DT®



SmartWire-DT in the control panel
 "Connect, don't wire" standard devices

HMI/PLC, Open HMI



HMI and HMI/PLC XV 300

- Display sizes of 7" and 10,1"
- Gesture-based controls made possible by capacitive multi-touch technology



HMI and HMI/PLC XV102

- Display sizes of 3.5", 5.7", 7"; flush-mounting devices

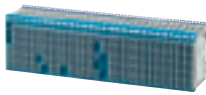
XV112

- Display sizes of 5.7", 7"; rear-mounting devices

XV152

- Display sizes: 5.7", 8.4", 10"

Remote I/O



XN300, slice-card-based modular I/O system

- Compact, up to 20 channels per slice card (12.5 x 102 mm)
- Easy and efficient to use



XI/ON ECO, modular I/O system

- Space-saving
- High channel density

PLC



EC4P compact PLC

- Centralized and decentralized expandable



Compact PLC XC152

- Onboard SmartWire-DT (depending on model)
- Control and visualization software in one single device

easyRelay, MFD-Titan



easy500 control relay

- For applications with up to 12 I/Os
- "Circuit diagram programming"



easy700 control relay

- For applications with up to 40 I/Os
- Expandable
- "Circuit diagram programming"



MFD-80 MFD-Titan display/operating unit

- Remote monochrome text display for all easyRelays



MFD-CP8/CP10 MFD-Titan power supply/CPU module

- easy800 functionality plus visualization

MFD-CP4 MFD-Titan power supply/CPU module

- For remote text display

Safety Technology



Page 96 ff.

Detect hazards quickly with the RMQ-Titan emergency-stop actuator

- A variety of emergency stop switch designs
- Self-monitoring contact elements



Page 122 ff.

Keeping movement safely under control with the LS-Titan position switch

- Safety door switches
- Safety position switch



SmartWire-DT in distributed devices
 "Connect, don't wire" sensors and actuators

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**HMI and HMI/PLC
 XV400 / XVS400**

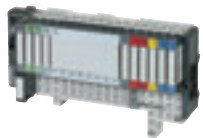
- Display sizes: 5.7", 8.4", 10.4", 12.1", 15"
- Versatile and powerful communications



**Multi-touch industrial panel PC
 XP-503**

- 10.1"; 15.6"; 21.5", wide-screen
- Same intuitive ease of use as a smartphone

Page 48



XI/ON standard, modular I/O system

- Fine granularity
- Communicative

XI/ON PLC

- Featuring a CANopen gateway that can be programmed with CODESYS



Programming and visualization software Page 88

- HMI
- HMI/PLC
- PLC



- easy control relay
- MFD-Titan

Page 60



XC101 modular PLC

- Expandable with XI/OC modules
- Fiber optic CAN interface (depending on model)



XC201/202 modular PLC

- High computing power
- High processing speed
- CODESYS Target Viso

Page 68



easy800 control relay

- Expandable, networkable via easyNet
- For applications with up to 328 I/Os
- "Circuit diagram programming"



Control relay easy800 with SmartWire-DT

- Can be networked with easyNet (depending on the model)
- Can accommodate up to a max. of 1,328 I/Os
- "Circuit diagram programming"



MFD-Titan I/O modules

- For digital and analog I/Os
- Pt100
- Ni1000



24 V DC power supplies

- Single-phase or three-phase devices with currents of 0.35 A to 40 A

Page 80

Safety manual Page 82



ESR5 Safety Relays

- A separate safety relay for each safety application



Control relays suitable for safety circuits – easySafety

- "All-in-one" versatile safety functions and easy functionality combined in a single device

Page 84 ff.

Build it in.



SmartWire-DT®: The communication and wiring system for more profitability



Catalog download:
www.eaton.eu/catalog

Customer expectations today are focused on increased performance in a more compact design, shorter delivery times, and the right price. To meet these requirements, machines need to be built in shorter time frames, using smaller control cabinets with intelligent, energy-saving devices that allow a smaller footprint compared with existing components.

For plants and systems the availability is the key to higher profitability. SmartWire-DT is a unique wiring solution that streamlines connection and communications inside and outside control panels.

Machine and system builders globally are finding that SmartWire-DT can be integrated easily into machines in a smaller control cabinet, reducing the time and effort for wiring their machines and systems by up to 85 %. In Operation the profitability of the machines and system can be raised. Digital and analog data help to improve the performance and to avoid downtimes.



Simplify wiring. Reduce costs. Improve flexibility

Today, control wires are used to connect devices like switchgear or pilot devices to PLC I/O-modules. Using SmartWire-DT, these modules and the control wiring becomes obsolete. All devices are connected to this intelligent wiring system, reducing engineering and installation costs for the machine builder.

Less complex, more compact machines

Eliminating the PLC I/O and the control wiring means more compact control panels and machines, and makes automation structures simple to design and configure.

Simplified connectivity

By replacing conventional, time-consuming control circuit wiring with one single cable, SmartWire-DT enables the simple connection of switchgear in control panels, as well as sensors and actuators outside control panels. This results in safe and error-free switchgear installations combined with significantly shorter commissioning times.

Higher flexibility

With industrial fieldbus gateways, SmartWire-DT can be connected to PLCs from any manufacturer, giving the machine builder the flexibility to easier meet customer demand.

More compact machines with Eaton controllers

For small and medium machines, Eaton offers HMI/PLCs, compact PLC and control relays with integrated SmartWire-DT communication interface. This offers machine builders the opportunity to develop simpler, more compact automation solutions.



Extended communication improves system effectiveness

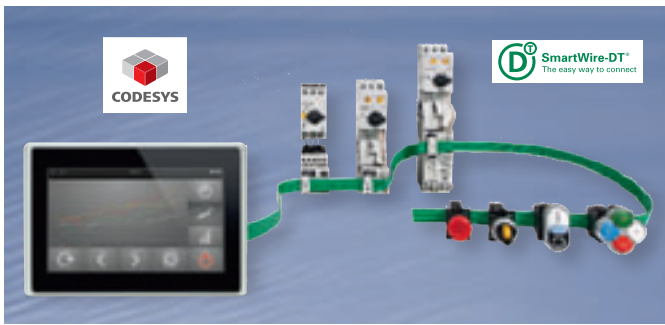
Plants need multiple drives, control and pilot devices to be designed, installed and controlled, along with distributed sensors and actuators. Automation of the process environment can be quite challenging, especially if continuous process availability is required. SmartWire-DT is an intelligent wiring system that provides more data on installed devices, central to increased availability and preventive maintenance.

More data, increased availability

More detailed information enables better process control, more detailed diagnostics, reduced downtime and increased availability. SmartWire-DT switchgear devices provide continuous real-time data information on motor load conditions that allows an interaction before an overload situation occurs and the system stops. Monitoring motor current values also helps with preventive maintenance. The overall result is improved system availability and higher economic effectiveness.

Easy expansion

SmartWire-DT makes it easy to add expansions during operation. New devices are simply connected to the communication cable inside or outside the control panel. An overall length of up to 600m simplifies distributed control architectures.



Automate with CODESYS

The compact PLC series XC152 combines a modern control architecture and comprehensive communication interfaces in a single device. Meanwhile, HMI PLCs combine the latest IT technologies with traditional PLC and HMI technologies by grouping control, visualization, and data management tasks together in a single device. In both cases, the integrated SmartWire-DT interface makes it much easier to communicate with switchgear.



SmartWire-DT – twice as easy with easySoft

Our new easy800 devices with SmartWire-DT combine the functions of an easy800 control relay with a direct connection to SmartWire-DT. Instead of having to connect switchgear inputs and outputs to the corresponding controller individually, they can simply be connected via a SmartWire-DT line instead. Programming remains the same, using ladder diagrams in easySoft-Pro.



Open for every master with different gateways

Eaton offers gateways for a wide variety of standard field bus systems so that you can establish communications with any controller. The following protocols are supported: PROFIBUS-DP, CANopen, EtherNet/IP, Modbus/TCP, PROFINET, Ethercat and Powerlink.



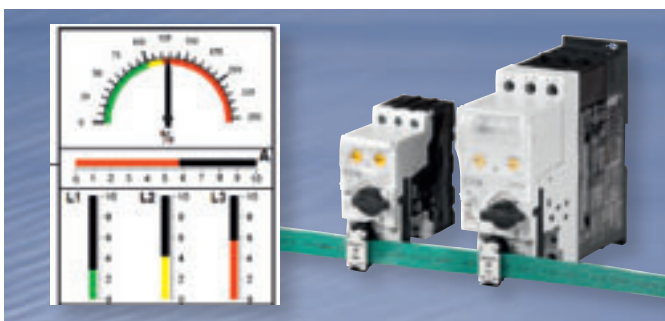
Convenient control and signaling

Due to the fact that every single contact and indicator light has to be wired individually to a controller's input/output modules, conventional pilot device wiring is associated with a high level of complexity and cost. The perfect alternative is SmartWire-DT, which instead connects pilot devices with just a single click. Functions that previously needed to be set up separately, such as those in double pushbuttons with LED indicators, now require a single SmartWire-DT function element only. Moreover, SL signal towers can also be connected to SmartWire-DT.



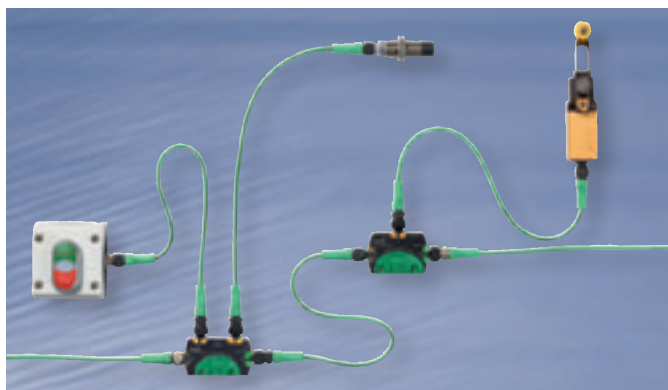
SmartWire-DT: All the information you need regarding your motors

With SmartWire-DT, PKE motor-protective circuit breakers rated for currents of up to 65 A can be easily integrated into automation systems. The function element for these circuit breakers not only reports their trip setting, but also their trip state and the cause of any trips. Moreover, it also sends data concerning the motor current and the thermal motor load, providing advance warning of potential faults and shutdowns due to overload. The result is increased availability and serviceability.



Efficient power distribution monitoring

The modular design behind PKE motor-protective circuit breakers ensures that they can also be used as circuit breakers for load currents of 15 A to 65 A in power distribution applications. In addition, combining them with the PKE-SWD-CP SmartWire-DT module makes it possible to evaluate phase current, trip state, breaker setting, and advance overload warning monitoring signals, eliminating the need for conventional measuring equipment.



Connect machine sensors directly

IP67 I/O modules provide SmartWire-DT systems with a fine-grained I/O solution that features a high degree of protection and can be used directly on machines. The small number of I/O channels means that even individual sensors and actuators can be connected to a SmartWire-DT system directly in the field by using these modules. This not only reduces the amount of wiring needed, but also renders a machine's wiring simpler. All in all, digital and analog sensors and actuators can be easily connected in any order and amount, and expansions can be conveniently added by simply adding new cards.



Compact motor start

Combining an EMS electronic motor starter with SmartWire-DT results in a compact package with a width of 30 mm that can be used to drive and monitor motor feeders carrying up to 3 kW (400 V). Moreover, integrated functions for motor DOL starting, reversing starting, motor protection, and emergency stop functionality up to SIL 3 not only eliminate the need to use several standard components, but also the need to wire them. Finally, driving and monitoring the electronic motor starter's drive via SmartWire-DT makes wiring faster and enables users to detect critical machine states in advance.



PowerXL variable frequency drives/variable speed starters – communicate efficiently

PowerXL variable frequency drives and variable speed starters can be combined with SmartWire-DT as well. To do so, it is only necessary to plug a SmartWire-DT function element into the device, completely eliminating the need for conventional control circuit wiring. The new interface makes it possible to configure the variable frequency drives centrally, and the network connection can be used to send control commands to the devices and read diagnostic data from them.



DS7 soft starters – direct access to all parameters

DS7 soft starters are available within a performance range of 1.1 to 110 kW, and by connecting them to SmartWire-DT, you can obtain easy and convenient access to all their parameters. Users can read and overwrite potentiometer settings. Extended status, error, and diagnostic messages can be retrieved directly. The result: absolute data transparency. The plug-in units make installation fast and error-free, and the resulting connection includes the soft starter's control current supply.



Visualization and logging system – BreakerVisu

Measuring electrical parameters is the foundation of any energy management system. With SmartWire-DT, the operational data of NZM circuit breakers and PKE motor-protective circuit breakers can be visualized and logged using BreakerVisu. This self-configuring system allows for up to 16 cards to be connected to it via SmartWire-DT and, alternatively, another 32 via Modbus RTU. Once connected, it can be used to read important information, such as phase currents, trip states, and configuration parameters, via SmartWire-DT. In addition, energy values can be obtained via energy measuring modules.

One system, countless possibilities.

SmartWire-DT enables distributed intelligence that changes automation. Interface modules installed on standard switchgear replace the digital and analog I/O layer on PLCs. Gateways to any industrial fieldbus make it not just possible, but simple to access the SmartWire-DT network independent of the PLC system. At the same time, SmartWire-DT technology is available as an integrated part of our controllers. The result: easy-to-configure, linear automation structures with few components.

Powerful technology

Up to 99 devices can be connected on a single SmartWire-DT line. The maximum permissible total length is 600m, while the maximum data volume for cyclic process data is 1,000 bytes. The SmartWire-DT cable also includes the required power supply for the SmartWire-DT electronics as well as for installed contactors.

Flexible integration in every automation environment

Fieldbus gateways are used to connect the SmartWire-DT communication system to your individual PLC system. SmartWire-DT can communicate via industrial fieldbus using standardised mechanisms for configuring and parameter setting.

SmartWire-DT modules

Two different types of SmartWire-DT modules are available. Special function modules replace the electrical interfaces of contactors, pushbuttons, pilot devices and auxiliary switches. Intelligent devices like electronic motor protective devices, softstarters and drives transmit digital and analog information (e.g. current, overload..) directly onto the SmartWire-DT network.



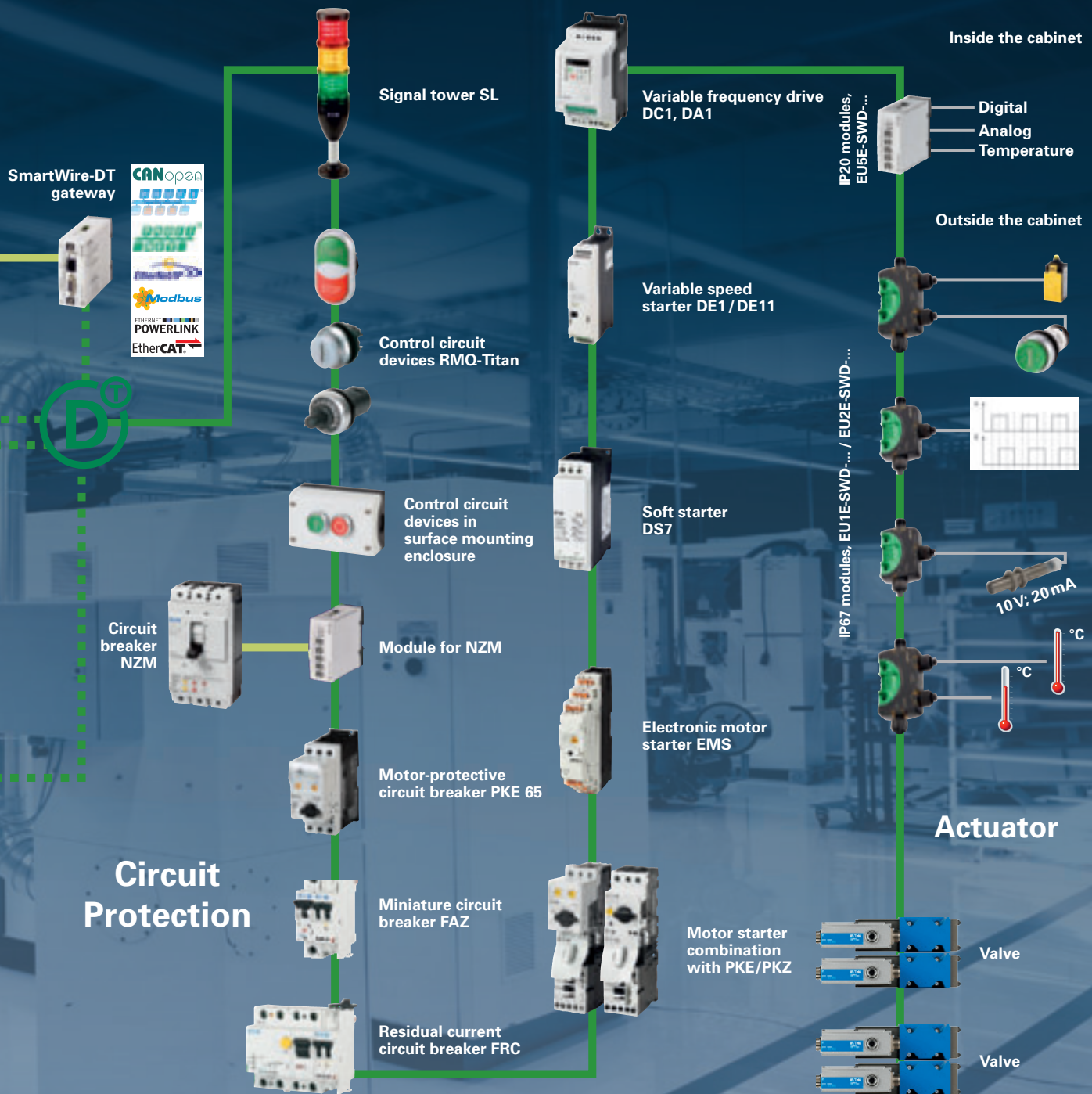
Inside and outside the cabinet

SmartWire-DT can also be used to directly connect sensors and actuators in the field. This is done with T-Connectors, available as digital and analog I/O modules with an IP67 degree of protection.

Operate

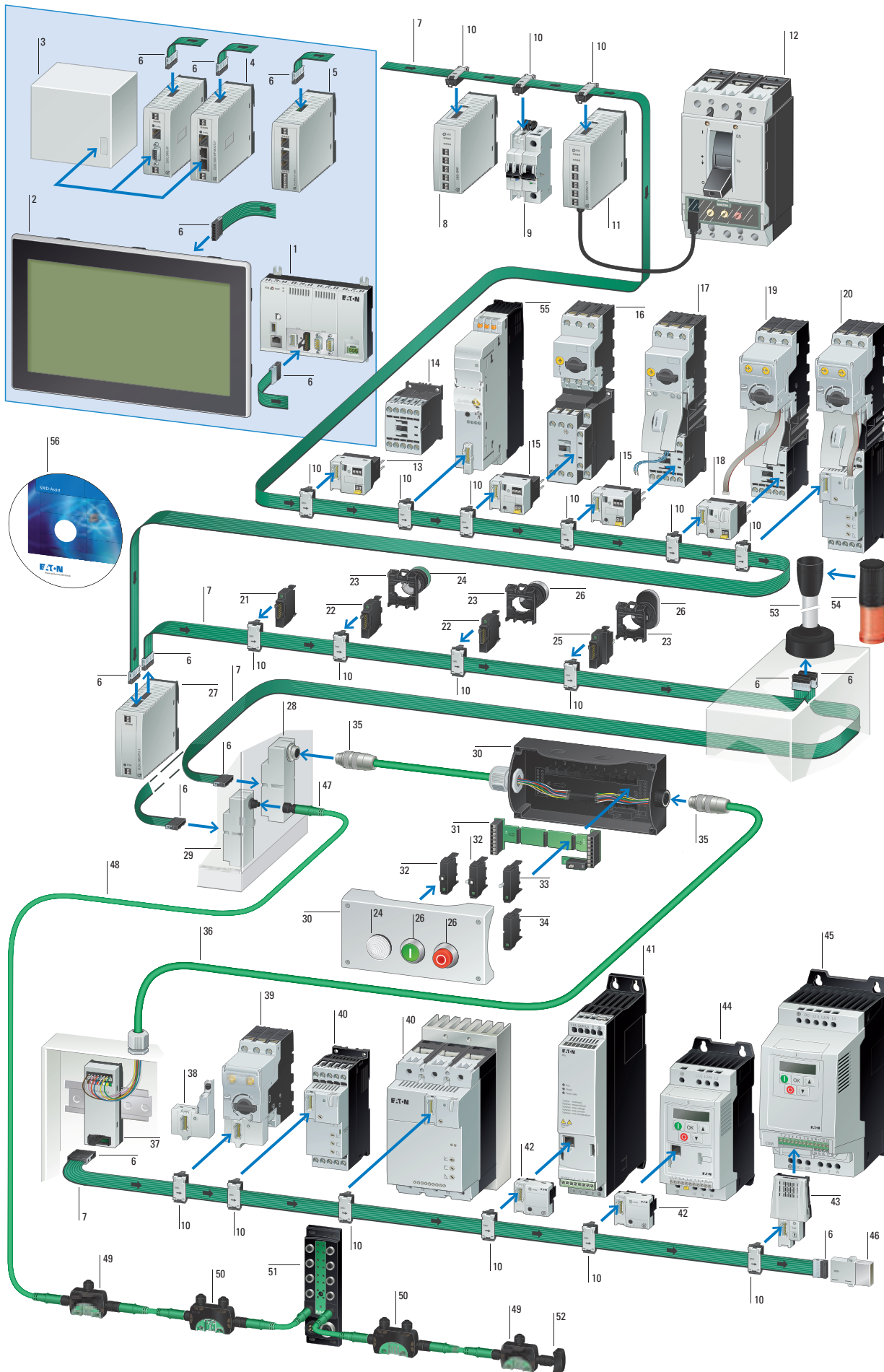
Start a motor

Input/Output



Electrical and Hydraulic

Special dedicated SmartWire-DT modules can be used to directly control 2/3-position or proportional hydraulic valves.



Moeller® series

| | | | |
|---|--|--|--|
| 1 Compact PLC | 17 MSC motor starters | 31 SWD card for function elements, base fixing | 45 DA1 variable frequency drives |
| 2 Touch panel | 18 SWD PKE module (motor starter) | 32 SWD LED elements for base fixing | 46 SWD bus termination resistor for 8 pole flat band conductor |
| 3 PLC with field bus interface | 19 Motor starters with PKE electronic motor protection | 33 SWD function elements for base fixing | 47 M12 plug connector, 5 pole |
| 4 Gateways | 20 DS7 soft starters with PKE electronic motor protection | 34 SWD universal modules, base fixing | 48 Round cable, 5-pole |
| 5 Control relays | 21 SWD universal module, front mount | 35 SWD plug-in connector, 8 pole | 49 SWD I/O module IP67, 2 I/O |
| 6 SWD blade terminal, 8 pole | 22 SWD LED element, front mount | 36 SWD round cable, 8 pole | 50 SWD I/O module IP67, 4 I/O |
| 7 SWD ribbon cable, 8 pole | 23 RMQ-Titan mounting clamps for flush mounting plates | 37 SWD adapter for flat/round cable for top-hat rail mounting | 51 SWD I/O module IP67, max. 16 I/O |
| 8 SWD I/O module | 24 RMQ-Titan indicator lights | 38 SWD PKE module (motor-protective circuit-breaker) | 52 SWD bus termination resistor IP67 for 5 pole round cable, M12 |
| 9 SWD module for circuit-breakers and residual current circuit-breakers | 25 SWD function elements for front mount | 39 PKE motor-protective circuit-breakers | 53 Base module signal tower SL4/SL7 |
| 10 SWD external device plug, 8 pole | 26 SWD operating elements | 40 Soft Starter DS7 | 54 Signal towers SL4 /SL7 |
| 11 SWD interface for NZM | 27 SWD power feeder module | 41 DE1 Variable speed starter | 55 Electronic Motor Starter EMS |
| 12 NZM circuit-breakers | 28 SWD control panel bushing ribbon cable to 8 pole round cable, M20 | 42 SWD function element for DC1 variable frequency drive, DE1 variable speed starter | 56 SmartWire-DT planning and ordering aid (SWD-Assist) |
| 13 SWD contactor module | 29 SWD control panel bushing ribbon cable to 5 pole round cable, M12 | 43 SWD function element for DA1 variable frequency drive | |
| 14 DILM contactor | 30 Surface mounting enclosure RMQ-Titan | 44 DC1 variable frequency drives | |
| 15 SWD contactor module with manual 0 automatic switch | | | |
| 16 Motor-protective circuit-breakers | | | |

Features

SmartWire-DT coordinators

Touch panel

With SWD master switch and PLC function
3.5", 5.7", 7" or 10" TFT-LCD screen, additional field bus interfaces, Ethernet, WEB server

Compact controller

With SWD master switch
Additional fieldbus interfaces, Ethernet, WEB server

Control relay

With SWD master switch

Gateways

Connection of SmartWire-DT to fieldbus (e.g. CANopen, Profibus, Profinet ...)
Supply voltage for the SmartWire-DT modules
Feeder unit for the control voltage for the motor starter or contactor
Support of up to 99 SmartWire-DT modules

SmartWire-DT module

I/O modules to connect digital and analog input/output signals in IP20, IP67 degree of protection

DS7 Soft starter with integrated connection

Function element to connect to:









- Pilot devices RMQ-Titan
- SL4/7 signal tower
- Contactor DILM
- Motor-protective circuit-breaker PKZ/PKE
- PKE32,65 circuit-breaker
- NZM2,3,4 circuit-breakers
- Miniature circuit breaker (MCB)
- DE1 Variable speed starter
- DC1, DA1 variable frequency drives


SmartWire-DT-Assist (SWD-Assist)



Easily create SmartWire-DT networks integrated validity check
Generate order lists.




Online functions:



- Configuration check and comparison
 - Display of all input/output data, setting outputs
 - Display of parameters and diagnostics
- Free download at www.eaton.eu/swd






| | Screen diagonal Inch | Resolution Pixel | Built-in interfaces | | | | | | | Part no. | Article no. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | 1 x Ethernet 10/100 Mbps | 1 x RS485 | 1 x USB host 2.0 | 1 x USB device | 1 x CANopen®/easyNet | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Touch display with integrated controller | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| XV100 Windows CE 5.0 (licence incl.), Approvals: cUL (UL508) Slots for SD card: 1 Resistive touch with TFT display, 64 k colors Standard front with standard membrane (fully enclosed) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Insulating enclosure and front plate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | 3.5 | QVGA 320 x 240 | ✓ | - | - | ✓ | - | - | ✓ | XV-102-BE-35TQRC-10 | 153524 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5.7 | VGA 640 x 480 | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-102-E6-57TVRC-10 | 153525 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | XV-102-E8-57TVRC-10 | 153526 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 | WVGA 800 x 480 | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-102-E6-70TWRC-10 | 153527 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | XV-102-E8-70TWRC-10 | 153528 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | XV150 Metal enclosure and front plate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | 5.7 | VGA 640 x 480 | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-152-E6-57TVRC-10 | 166700 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | XV-152-E8-57TVRC-10 | 166701 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8.4 | | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-152-E6-84TVRC-10 | 166702 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | 10.4 | | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-152-E6-10TVRC-10 | 166704 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ✓ | ✓ | ✓ | ✓ | - | ✓ | ✓ | XV-152-E8-10TVRC-10 | 166705 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Screen diagonal Inch</th> <th rowspan="2">Resolution Pixel</th> <th colspan="7">Built-in interfaces</th> <th rowspan="2">Part no.</th> <th rowspan="2">Article no.</th> </tr> <tr> <th>1 x Ethernet 10/100 Mbps</th> <th>2 x Ethernet 10/100 Mbps</th> <th>1 x RS232</th> <th>1 x RS485</th> <th>1 x USB host 2.0</th> <th>1 x USB device</th> <th>1 x CANopen®/easyNet</th> <th>1 x PROFIBUS/MPI</th> <th>1 x SmartWire-DT</th> </tr> </thead> <tbody> <tr> <td colspan="11">XV300 Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel PLC licence inclusive Capacitive multi-touch technology (PCT), Number of colours: 16 mil. Model: Plastic enclosure and glass panel in plastic frame</td> </tr> <tr> <td colspan="11">XV300 7"</td> </tr> <tr> <td rowspan="4"></td> <td></td> <td></td> <td>✓</td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>-</td> <td>✓</td> <td>XV-303-70-BE0-A00-1C</td> <td>179655</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>-</td> <td>✓</td> <td>XV-303-70-CE0-A00-1C</td> <td>179656</td> </tr> <tr> <td></td> <td></td> <td>✓</td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>XV-303-70-BE2-A00-1C</td> <td>179657</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>XV-303-70-CE2-A00-1C</td> <td>179658</td> </tr> <tr> <td colspan="11">XV300 10.1"</td> </tr> <tr> <td rowspan="4"></td> <td></td> <td></td> <td>✓</td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>-</td> <td>✓</td> <td>XV-303-10-BE0-A00-1C</td> <td>179667</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>-</td> <td>✓</td> <td>XV-303-10-CE0-A00-1C</td> <td>179668</td> </tr> <tr> <td></td> <td></td> <td>✓</td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>XV-303-10-BE2-A00-1C</td> <td>179669</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>XV-303-10-CE2-A00-1C</td> <td>179670</td> </tr> </tbody> </table> | | | | | | | | | | | | Screen diagonal Inch | Resolution Pixel | Built-in interfaces | | | | | | | Part no. | Article no. | 1 x Ethernet 10/100 Mbps | 2 x Ethernet 10/100 Mbps | 1 x RS232 | 1 x RS485 | 1 x USB host 2.0 | 1 x USB device | 1 x CANopen®/easyNet | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | XV300 Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel PLC licence inclusive Capacitive multi-touch technology (PCT), Number of colours: 16 mil. Model: Plastic enclosure and glass panel in plastic frame | | | | | | | | | | | XV300 7" | | | | | | | | | | |  | | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-70-BE0-A00-1C | 179655 | | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-70-CE0-A00-1C | 179656 | | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-70-BE2-A00-1C | 179657 | | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-70-CE2-A00-1C | 179658 | XV300 10.1" | | | | | | | | | | |  | | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-10-BE0-A00-1C | 179667 | | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-10-CE0-A00-1C | 179668 | | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-10-BE2-A00-1C | 179669 | | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-10-CE2-A00-1C | 179670 |
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| | | | 1 x Ethernet 10/100 Mbps | 2 x Ethernet 10/100 Mbps | 1 x RS232 | 1 x RS485 | 1 x USB host 2.0 | 1 x USB device | 1 x CANopen®/easyNet | | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| XV300 7" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-10-CE2-A00-1C | 179670 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |




| | Built-in interfaces | | | | | | | Part no. | Article no. |
|---|--------------------------|-----------|-----------|------------------|----------------------|------------------|------------------|---------------------|-------------|
| | 1 x Ethernet 10/100 Mbps | 1 x RS232 | 1 x RS485 | 1 x USB host 2.0 | 1 x CANopen®/easyNet | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | |
| XC compact PLCs | | | | | | | | | |
| 24 V DC power supply Lot for memory card RUN/STOP switch and LED displays OPC Server Integrated Web server Approvals: CE, cULus Application/marker/retain data 64 MB/4 KB/32 KB KByte Cycle time for 1 k of instructions (Bit, Byte) 0.04 ms | | | | | | | | | |
|  | ✓ | ✓ | - | ✓ | - | - | ✓ | XC-152-E3-11 | 167850 |
| | ✓ | - | ✓ | ✓ | ✓ | - | ✓ | XC-152-E6-11 | 167851 |
| | ✓ | - | ✓ | ✓ | - | ✓ | ✓ | XC-152-E8-11 | 167852 |


| | Inputs | | SmartWire-DT | Outputs | | Real time clock | Part no. | Article no. |
|--|---------|---------------------------------|--------------|------------|--------------|-----------------|-----------------------|-------------|
| | Digital | Of which can be used as outputs | | Transistor | SmartWire-DT | | | |
| easy800 control relay | | | | | | | | |
| Combines the functionality of an easy800 with direct connection to SmartWire-DT communication system Up to 99 SmartWire-DT modules with a total of up to 166 digital inputs/outputs and/or up to 128 analog inputs/outputs can be connected via a SmartWire-DT line Supply voltage 24 V DC | | | | | | | | |
|  | - | - | 83 | - | 83 | ✓ | EASY802-DC-SWD | 152901 |
|  | 4 | 2 | 83 | 2 | 83 | ✓ | EASY806-DC-SWD | 152902 |







| | | Baud Rates | Number of SmartWire-DT slaves | Part no. | Article no. |
|---|---|-----------------|-------------------------------|----------------------------|-------------|
| | | | | | |
| Gateways | | | | | |
| Used to connect the SmartWire-DT communication system to industrial field bus systems. Powers SmartWire-DT modules and switchgear | | | | | |
|  | For connection to PROFIBUS-DP field bus Field bus connection via 9 pole SUB-D socket Separate RS232 diagnostics interface (RJ45) | up to 12 MBit/s | Max. 58 | EU5C-SWD-CAN | 116307 |
| | For connection to CANopen® field bus Field bus connection via 9 pole SUB-D plug Separate RS232 diagnostics interface (RJ45) | up to 1 MBit/s | Max. 99 | EU5C-SWD-DP | 116308 |
|  | For connection to the Ethernet-IP/MODBUS-TCP field bus Field bus connection via Ethernet Switch Separate RS232 diagnostics interface (RJ45) | 10/100 MBit/s | Max. 99 | EU5C-SWD-EIP-MODTCP | 153163 |
|  | For connection to field bus PROFINET as PROFINET IO-Device Field bus connection via Ethernet Switch Separate USB diagnostics interface (Mini-USB) | 100 MBit/s | Max. 99 | EU5C-SWD-PROFINET | 170124 |
| | For connection to a POWERLINK field bus as a slave Field bus connection via Ethernet hub Separate USB diagnostics interface (Mini-USB) | 100 MBit/s | Max. 99 | EU5C-SWD-POWERLINK | 171797 |
| | For connection to an EtherCAT fieldbus as a slave Field bus connection via Ethernet Switch Separate USB diagnostics interface (Mini-USB) | 100 MBit/s | Max. 99 | EU5C-SWD-ETHERCAT | 177354 |






| | | Inputs | | Outputs | | | Part no. | Article no. |
|---|--|---------|--------|---------|------------|--------|-----------------------|-------------|
| | | Digital | Analog | Relay | Transistor | Analog | | |
| Input/output modules (IP20) | | | | | | | | |
| Digital modules IP20 For connection of digital I/O signals For use with: ribbon cable, SWD coordinators | | | | | | | | |
|  | | 8 | - | - | - | - | EU5E-SWD-8DX | 116381 |
| | The outputs are short-circuit proof. | 4 | - | - | 4 | - | EU5E-SWD-4D4D | 116382 |
| | | 4 | - | 2 | - | - | EU5E-SWD-4D2R | 116383 |
| | The outputs are short-circuit proof. | - | - | - | 8 | - | EU5E-SWD-X8D | 144061 |
| | Inputs with supply for sensor system. | 4 | - | - | - | - | EU5E-SWD-4DX | 144060 |
| Analog modules IP20 For connection of analog I/O signals For use with ribbon cable, SWD coordinators | | | | | | | | |
|  | Inputs configurable: 0 - 10 V, 0 - 20 mA | - | 4 | - | - | - | EU5E-SWD-4AX | 144062 |
| | Inputs/outputs, configurable: 0 - 10 V, 0 - 20 mA | - | 2 | - | - | 2 | EU5E-SWD-2A2A | 144063 |
| | Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -50 - +200 Ni1000: -50 - +150 | - | 4 | - | - | - | EU5E-SWD-4PT | 144064 |
| | Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -100 - +400 Ni1000: -50 - +200 | - | 4 | - | - | - | EU5E-SWD-4PT-2 | 172560 |

| | Short Description | Inputs | | Outputs | | Part no. | Article no. |
|---|--|---------|--------|------------|--------|-----------------------|-------------|
| | | Digital | Analog | Transistor | Analog | | |
| Input/output modules (IP67) | | | | | | | |
| Digital modules IP67 For connection of digital I/O signals | | | | | | | |
| | - | 2 | - | - | - | EU1E-SWD-2DX | 174711 |
|  | Freely configurable inputs/outputs, max. 2 The outputs are short-circuit proof. | ≤ 2 | - | ≤ 2 | - | EU1E-SWD-2DD | 174715 |
| | - | 4 | - | - | - | EU2E-SWD-4DX | 174726 |
|  | Freely configurable inputs/outputs, max. 4 The outputs are short-circuit proof. | ≤ 4 | - | ≤ 4 | - | EU2E-SWD-4DD | 174732 |
| Analog modules IP67 For connection of analog I/O signals | | | | | | | |
| | Input: 0 - 10 V | - | 1 | - | - | EU1E-SWD-1AX-1 | 174717 |
| | Input: 0 - 20 mA | - | 1 | - | - | EU1E-SWD-1AX-2 | 174718 |
| | Output: 0 - 10 V | - | - | - | 1 | EU1E-SWD-1XA-1 | 174719 |
| | Output: 0 - 20 mA | - | - | - | 1 | EU1E-SWD-1XA-2 | 174720 |
|  | | | | | | | |
| | Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -100 - +400 Ni1000: -50 - +200 | - | 2 | - | - | EU2E-SWD-2PT | 174733 |
|  | | | | | | | |
| Counter module IP67 For connecting a meter | | | | | | | |
| | Meter/incremental encoder 24 V DC, max. 30 kHz | - | - | - | - | EU1E-SWD-1CX | 174721 |
|  | | | | | | | |

| Contacts | Colour | Front fixing Part no. | Article no. | Base fixing Part no. | Article no. |
|--|----------------------|--------------------------|-------------------------|-------------------------|---------------------------------|
| SmartWire-DT RMQ connections | | | | | |
| For combination with RMQ-Titan operating elements M22-... | | | | | |
| Function elements | | | | | |
|  | 1 changeover contact | without LED | M22-SWD-K11 | 115964 | M22-SWD-KC11 115995 |
| | 2 changeover contact | without LED | M22-SWD-K22 | 115965 | M22-SWD-KC22 115996 |
|  | 1 changeover contact | ○ | M22-SWD-K11LED-W | 115972 | M22-SWD-K11LEDC-W 116003 |
| | | ● | M22-SWD-K11LED-B | 115973 | M22-SWD-K11LEDC-B 116004 |
| | | ● | M22-SWD-K11LED-G | 115974 | M22-SWD-K11LEDC-G 116005 |
| | | ● | M22-SWD-K11LED-R | 115975 | M22-SWD-K11LEDC-R 116006 |
| | 2 changeover contact | ○ | M22-SWD-K22LED-W | 115978 | M22-SWD-K22LEDC-W 116009 |
| | | ● | M22-SWD-K22LED-B | 115979 | M22-SWD-K22LEDC-B 116010 |
| | | ● | M22-SWD-K22LED-G | 115980 | M22-SWD-K22LEDC-G 116011 |
| | | ● | M22-SWD-K22LED-R | 115981 | M22-SWD-K22LEDC-R 116012 |
| LED elements | | | | | |
|  | - | ○ | M22-SWD-LED-W | 115966 | M22-SWD-LEDC-W 115997 |
| | - | ● | M22-SWD-LED-B | 115967 | M22-SWD-LEDC-B 115998 |
| | - | ● | M22-SWD-LED-G | 115968 | M22-SWD-LEDC-G 115999 |
| | - | ● | M22-SWD-LED-R | 115969 | M22-SWD-LEDC-R 116000 |




| Description | Tube length | For use with | Part no. | Article no. |
|---|-------------|---|----------------|-------------|
| Signal towers Basic modules | | | | |
| For horizontal mounting, including cover, max. 5 modules, | | | | |
|  | 100 mm | SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-... | SL4-SWD | 171311 |
| | 100 mm | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | SL7-SWD | 171459 |





| Description | Configuration | Part no. | Article no. |
|--|---|--------------------|-------------|
| Potentiometer | | | |
|  Front element SmartWire-DT potentiometer Only in conjunction with M22-SWD-R function element | | M22-R-SWD | 179292 |
|  Function element SmartWire-DT potentiometer Only in conjunction with M22-R-SWD front element | 14 36 25  M22-SWD-R M22-SWD-INC | M22-SWD-R | 179293 |
| Encoder | | | |
|  Front element SmartWire-DT encoder With actuation function Only in conjunction with M22-SWD-INC function element | | M22-INC-SWD | 179981 |
|  Function element SmartWire-DT encoder Only in conjunction with M22-INC-SWD front element | 14 36 25  M22-SWD-R M22-SWD-INC | M22-SWD-INC | 179982 |








| | Description | For use with | Part no. Article no. |
|--|--|---|---------------------------------|
| Contactor modules^{1,2)} | | | |
| For connecting the contactors to SmartWire-DT Per contactor 1 module necessary. | | | |
|  | Messages Switch status Contactor, status of the digital inputs 1 and 2 Commands Contactor actuation | DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC) | DIL-SWD-32-001 118560 |
|  | 1-0-A switch for manual or automatic operation. Messages Switch status Contactor, status of the digital inputs 1 and 2, 1-0-A switch position Commands Contactor actuation | DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC) | DIL-SWD-32-002 118561 |
| PKE module (motor-starter combinations)¹⁾ | | | |
| For connecting PKE motor-starter combination MSC-DEA... with PKE-XTUA... trip blocks with a rated motor output of 15 kW/400 V to SmartWire-DT SmartWire-DT module for connection of motor-starter combination, model "Extended" 24 V DC (MSC-DEA-...) up to 15 kW. 1 module per contactor and PKE. | | | |
|  | Mounting on DILM contactor with 24 V DC control voltage. One module per contactor and PKE necessary Additional SWD contactor module required for actuation of reversing starter. 1 electrical interlock for the surface mounting of reversing starters. 1-0-A switch for manual or automatic operation. Selectable overload relay function (ZMR) for switching off the contactor on overload. Connecting cable between module and trip block PKE-XTUA-... included as standard. Messages Switch position contactor/PKE/1-0-A switch Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Contactor actuation Activation Overload relay function (ZMR) | DILM(C)7... - DILM(C)32 MSC-DEA | PKE-SWD-32 126895 |
| PKE module (motor-protective circuit-breaker) | | | |
| For connecting the motor-protective circuit-breaker with PKE-XTU(W)A-... trip blocks(motor protection) to SmartWire-DT | | | |
|  | Fitted on PKE motor-protective circuit-breaker Messages Contactor state PKE Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Remote disconnection of motor-protective circuit-breaker | PKE12 PKE32 PKE65 | PKE-SWD-SP 150614 |
| PKE module (circuit-breaker) | | | |
| For connecting the PKE circuit-breaker with PKE-XTU(W)ACP-... trip blocks(motor protection) to SmartWire-DT for 2 function elements M22-SWD-K22... | | | |
|  | For attachment to PKE circuit-breakers Messages Contactor state PKE All phase currents in % Thermal load as a % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set short-circuit release value Part no. of trip block Commands Remote circuit-breaker de-energization | PKE32 PKE65 | PKE-SWD-CP 172735 |






Notes


- For current consumption of the contactor coils > 3 A (UL: 2 A) use additional power feed module.
A2 connections must not be bridged.
Wiring sets DILM 12-XRL and PKZM0-XRM12 cannot be used.
- Connection terminals for electrical interlocking are not suitable for safety technology.

| Description | Setting range of overload releases I_r A_x  | Part no. | Article no. |
|---|---|---|--|
| Electronic motor starter | | | |
| For connecting to SmartWire-DT for expanded diagnostics. | | | |
|  | DOL starters (complete devices) | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-DO-T-2,4-SWD 170106 EMS-DO-T-9-SWD 170107 |
| | Reversing starters (complete devices) | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-RO-T-2,4-SWD 170108 EMS-RO-T-9-SWD 170109 |
|  | Controlled stop via additional enable signal terminal up to SIL3/Plc. | DOL starters (complete devices) | EMS-DOS-T-2,4-SWD 170110 EMS-DOS-T-9-SWD 170111 |
| | | Reversing starters (complete devices) | EMS-ROS-T-2,4-SWD 170112 EMS-ROS-T-9-SWD 169790 |












| | Rated operational current device (AC-53) | Assigned motor rating | | Part no. Article no. |
|---|--|----------------------------|----------------------------|-----------------------------------|
| | I_e A | at 400 V, 50 Hz P kW | at 460 V, 60 Hz P HP | |
| Soft starters | | | | |
| Soft starters for three-phase loads, Mains supply voltage (50/60 Hz) U_{LN} 200 - 480 V AC Control voltage U_c = 24 V DC, Supply voltage U_s = 24 V DC | | | | |
|  | 4 | 1.5 | 2 | DS7-34DSX004N0-D 134943 |
| | 7 | 3 | 5 | DS7-34DSX007N0-D 134945 |
| | 9 | 4 | 5 | DS7-34DSX009N0-D 134946 |
|  | 12 | 5.5 | 10 | DS7-34DSX012N0-D 134947 |
| | 16 | 7.5 | 10 | DS7-34DSX016N0-D 134948 |
| | 24 | 11 | 15 | DS7-34DSX024N0-D 134949 |
|  | 32 | 15 | 25 | DS7-34DSX032N0-D 134950 |
| | 41 | 22 | 30 | DS7-34DSX041N0-D 134952 |
| | 55 | 30 | 40 | DS7-34DSX055N0-D 134953 |
| | 70 | 37 | 50 | DS7-34DSX070N0-D 134954 |
|  | 81 | 45 | 60 | DS7-34DSX081N0-D 134955 |
| | 100 | 55 | 75 | DS7-34DSX100N0-D 134956 |
| | 135 | 75 | 100 | DS7-34DSX135N0-D 134957 |
| | 160 | 90 | 125 | DS7-34DSX160N0-D 134958 |
| | 200 | 110 | 150 | DS7-34DSX200N0-D 134959 |

| Connection technique | For use with | Part no. Article no. |
|--|--|---------------------------------|
| Power XL™ variable frequency drives | | |
| Fieldbus connection (optional) | | |
|  <p>For connecting DA1 variable frequency drives (IP20/IP55) to SmartWire-DT Plug-in module with slot for SWD4-8SF2-5 external device plug</p> | DA1 (IP20, IP55) | DX-NET-SWD1 169129 |
|  <p>For connecting DE1 variable speed starter and DC1 variable frequency drives (IP20) to SmartWire-DT Plug-in module (front) with slot for SWD4-8SF2-5 external device plug</p> | DE1, DE11, DC1 (IP20) | DX-NET-SWD3 169131 |
| Description | | |
| NZM compact circuit breakers | | |
| SmartWire-DT interface for NZM The module implements the data connection between the NZM2/3/4 with electronic release and the SmartWire-DT. | | |
|  <p>A switch with a remote operator can also be remotely operated with the module. Two digital inputs for the switch status 2 transistor outputs for remote switching Retentive memory for energy data (kWh) Energy data is transmitted through digital input (S0) from an external energy measuring module NZN...-XMC-S0. A connection cable (1.90 m) for the circuit-breaker and two NZM auxiliary contacts (1 x NO, 1 x NC) are included as standard.</p> | | NZM-XSWD-704 135530 |
| Short Description | | |
| Side mounting | | Part no. Article no. |
| Safety switching devices XEffect | | |
| The module establishes the connection to miniature circuit-breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection | | |
|  <p>Fuse auxiliary contact Accessories for combined residual-current/power circuit-breakers Accessories for residual current circuit breakers Accessories for miniature circuit breaker</p> | for fitting on left to: FI for fitting on right to: LS, FI/LS | MCB-HK-SWD 177175 |
| Description | | |
| Power feeder module | | |
|  <p>For feeding control voltage in order to connect additional motor starters and contactors to the SmartWire-DT ribbon cable For the formation of emergency switching off groups for motor starters and contactors</p> | | EU5C-SWD-PF1-1 116309 |
|  <p>For feeding supply voltage in order to connect additional SmartWire-DT modules to the SmartWire-DT ribbon cable For additional control voltage feeder for the motor starter and contactors For the formation of emergency switching off groups for motor starters and contactors</p> | | EU5C-SWD-PF2-1 116380 |
|  <p>For feeding supply voltage in order to connect additional SmartWire-DT modules (IP 67) and connected sensors/actuators</p> | | EU1S-SWD-PF1-2 174724 |

| Description | Protection type (IEC/EN 60529, EN50178, VBG 4) | Length m | Part no. Article no. | |
|---|---|-------------|-------------------------|-----------------------------------|
| SWD Connection cables | | | | |
| SWD ribbon cable For connecting the SmartWire-DT modules within the control panel | | | | |
|  | 8 pole Not ready-assembled | IP20 | 100 | SWD4-100LF8-24 116026 |
| | 8 pole Prefabricated with two blade terminals SWD4-8MF2 | IP20 | 10 | SWD4-10LF8-24-2S 116029 |
| | | IP20 | 3 | SWD4-3LF8-24-2S 116027 |
| | | IP20 | 5 | SWD4-5LF8-24-2S 116028 |
| SWD round cable For connecting pilot devices in CI surface mounting enclosures | | | | |
|  | 8 pole HK-S0-Li2YY, 8 mm diameter | IP67 | 50 | SWD4-50LR8-24 116030 |
| | | IP67 | 250 | SWD4-250LR8-24 144878 |
| SWD round cable For connecting peripheral SmartWire-DT cards | | | | |
|  | 5 pole Prefabricated with M12 socket and M12 plug, A-keyed | IP67 | 0.1 | SWD4-M1LR5-2S 174760 |
| | | IP67 | 0.3 | SWD4-M3LR5-2S 174761 |
| | | IP67 | 0.6 | SWD4-M6LR5-2S 174762 |
| | | IP67 | 1 | SWD4-1LR5-2S 174763 |
| | | IP67 | 1.5 | SWD4-1M5LR5-2S 174764 |
| | | IP67 | 2 | SWD4-2LR5-2S 174765 |
| | | IP67 | 3 | SWD4-3LR5-2S 174766 |
| | | IP67 | 4 | SWD4-4LR5-2S 174767 |
| | | IP67 | 5 | SWD4-5LR5-2S 174768 |
| | | IP67 | 10 | SWD4-10LR5-2S 174769 |
| | | IP67 | 20 | SWD4-20LR5-2S 174770 |
| I/O round cable For directly connecting sensors/actuators to IP67 SWD modules | | | | |
|  | 5 pole prefabricated on one side with M12 plug, A-keyed | IP67 | 0.3 | SWD4-M3LR5-S 174771 |
| | | IP67 | 0.6 | SWD4-M6LR5-S 174772 |
| | | IP67 | 1 | SWD4-1LR5-S 174697 |
| | | IP67 | 2 | SWD4-2LR5-S 174698 |
| I/O round cable For directly connecting sensors/actuators to IP67 SWD modules | | | | |
|  | 5 pole Prefabricated with M12 socket and M12 plug, A-keyed | IP67 | 0.3 | SWD4-M3LR5-1-2S 179543 |
| | | IP67 | 0.6 | SWD4-M6LR5-1-2S 179544 |
| | | IP67 | 1 | SWD4-1LR5-1-2S 179545 |
| | | IP67 | 2 | SWD4-2LR5-1-2S 179546 |

| | Description | Function | Protection type (IEC/EN 60529, EN50178, VBG 4) | Length m | Part no. Article no. |
|---|--|---|--|-------------|--------------------------------|
| SWD enclosure and control panel cable gland | | | | | |
|  | 8 pole M20 socket 8 prefabricated cables for connection to PCB M22-SWD-I... | For flush mounting in M22-I... surface mounting enclosure | IP67 | 0.15 | SWD4-SF8-20 116031 |
|  | 8 pole M20 plug 8 prefabricated cables for connection to PCB M22-SWD-I... | | IP67 | 0.15 | SWD4-SM8-20 116032 |
|  | Connection round cable via socket Connection of ribbon cable with blade terminal SWD4-8MF2 8 pole Double conductor run pluggable Additional control voltage feeder for the motor starter and contactors. | For transition from SWD ribbon cable to SWD round cable SWD4-...LR8-24 | IP67 | - | SWD4-SFL8-20 121380 |
| | Connection round cable via plug Connection of ribbon cable with blade terminal SWD4-8MF2 8 pole Double conductor run pluggable Additional control voltage feeder for the motor starter and contactors. | | IP67 | - | SWD4-SML8-20 121381 |
| | SmartWire-DT control panel bushing for 8-conductor ribbon cable to 5-conductor round cable, separate 24 VDC 4 A power supply for round cable | For transition from SWD round cable to SWD ribbon cable SWD4-...LR5-2S | IP67 | - | SWD4-SFL8-12 174756 |
| | From IP67 to IP20, from 5-conductor round cable to 8-conductor ribbon cable, integrated 15 VDC 180 mA power supply unit for SmartWire-DT modules on the ribbon cable | For transition from SWD round cable SWD4-...LR5-2S to SWD ribbon cable | IP67 | - | SWD4-SML8-12 174755 |
|  | Control panel cable gland for 5-conductor SWD4-...LR8-24 M12 SmartWire-DT round cable, M12 plug/socket | For flush mounting in an enclosure | IP67 | - | SWD4-SML5-12 174757 |
|  | 5 pole M12 socket, A-coded 5 prefabricated cables | For flush mounting in an enclosure | IP67 | 1 | SWD4-PRF5-1-S 174758 |
| | 5 pole M12 plug, A-coded 5 prefabricated cables | For flush mounting in an enclosure | IP67 | 1 | SWD4-PRM5-1-S 174759 |
| | 5 pole M12 socket, A-coded 5 prefabricated cables | For flush mounting in an enclosure | IP67 | 0.15 | SWD4-PRF5-2-S 179541 |
| | 5 pole M12 plug, A-coded 5 prefabricated cables | For flush mounting in an enclosure | IP67 | 0.15 | SWD4-PRM5-2-S 179542 |
| SWD plugs and plug-in connections | | | | | |
|  | 8-pin SmartWire-DT external device plug that can be connected at any point on the ribbon cable. External device plugs can be used to connect the function elements of any SmartWire-DT module in a control panel. | For connecting the ribbon cable to SmartWire-DT modules in the control panel | IP20 | | SWD4-8SF2-5 116022 |
|  | 8-pin SmartWire-DT blade terminal that can be installed at both ends of the SmartWire-DT ribbon cable. The following components can be connected: SmartWire-DT coordinators such as easy800-SWD / SmartWire-DT gateway, SmartWire-DT power feeder module, SmartWire-DT coupling, SmartWire-DT bus termination resistor, SmartWire-DT control panel bushings | For connecting the ribbon cable to the gateway, power feeder module, coupling, SWD4-RC8-10 bus termination resistor | IP20 | | SWD4-8MF2 116023 |
|  | Cap with monitoring function for M12 bushings on SWD connector (IP67) | Cover cap with monitoring function for M12 socket | IP67 | | SWD4-ACAP-10 174751 |
|  | Cap for M12 sockets on SWD connector (IP67) | Cap for M12 socket | IP67 | | SWD4-PCAP-F 174752 |
|  | Cap for M12 plugs on SWD connector (IP67) | Cover cap for M12 plug | IP67 | | SWD4-PCAP-M 174753 |

| | Description | Function | Protection type (IEC/EN 60529, EN50178, VBG 4) | Part no. Article no. |
|---|---|--|--|---------------------------------|
| SWD plugs and plug-in connections | | | | |
|  | 8 pole socket Straight Soldering connection | Plug connector for 8-pole SWD4-...LR8-24 round cables | IP67 | SWD4-SF8-67 116033 |
|  | 8-pin plug connector Straight Soldering connection | | IP67 | SWD4-SM8-67 116034 |
|  | Splitter with IP67 degree of protection, M12 plug into two M12 sockets with I/O signal on pin 4 | For splitting an M12 I/O connection's I/O signals | IP67 | SWD4-SP-4124 174703 |
| | Splitter with IP67 degree of protection, M12 plug into two M12 sockets with I/O signal on pin 2 | | IP67 | SWD4-SP-4122 174704 |
| | Splitter with IP67 degree of protection, M12 plug into two 4 pole M8 sockets with I/O signal on pin 2 | | IP67 | SWD4-SP-4084 174705 |
| | Splitter with IP67 degree of protection, M12 plug into two 4 pole M8 sockets with I/O signal on pin 4 | | IP67 | SWD4-SP-4082 174706 |
| | Splitter with IP67 degree of protection, M12 plug into two 3 pole M8 sockets | | IP67 | SWD4-SP-3084 174707 |
|  | 5 pole socket Straight Screw connection | Plug connector for 5 pole SWD4-...LR5-... round cables | IP67 | SWD4-SF5-67 179547 |
|  | 5 pole plug Straight Screw connection | Plug connector for 5 pole SWD4-...LR5-... round cables | IP67 | SWD4-SM5-67 179548 |
| SWD coupling | | | | |
|  | Coupling via two 8-pin blade terminals | To connect SWD ribbon cables over SWD4-8MF2 blade terminals | IP20 | SWD4-8SFF2-5 116024 |
| SWD cable adapters | | | | |
|  | For connection flat cable (plug) on round cable (terminal) | SWD cable adapters | IP20 | SWD4-8FRF-10 121377 |
|  | SWD power supply module for modules (IP20) on a local SWD segment | SWD power supply module | IP20 | SWD4-FFR-PF1-1 168880 |
| | SmartWire-DT cable adapter for putting together a local SmartWire-DT segment | SWD cable adapters | IP20 | SWD4-FFR-ST1-1 168881 |
| | To set up a local SWD network with SWD modules (IP67) | Local SmartWire-DT branch | IP67 | EU2A-SWD-PBWN 174734 |
| SWD bus termination resistor | | | | |
|  | SmartWire-DT bus termination resistor; plugged onto SWD4-8MF2 blade terminal at the end of the SmartWire-DT ribbon cable | For the SmartWire-DT bus termination resistor on the SmartWire-DT ribbon cable | IP20 | SWD4-RC8-10 116020 |
|  | SmartWire-DT bus termination resistor with IP67 degree of protection, connected to 5-conductor SWD4-...LR5-... round cable or directly to SmartWire-DT T-Connectors (IP67 I/O modules) | For IP67, M12 SWD bus termination resistor | IP67 | SWD4-RC5-10 174754 |

| | Function | Protection type (IEC/EN 60529, EN50178, VBG 4) | Part no. Article no. |
|---|--|--|-------------------------------------|
| Link | | | |
|  | For bridging open mounting locations for SWD4-8SF2-5 external device plugs | - | SWD4-SEL8-10 116021 |
| RMQ | | | |
|  | For 2 function elements M22-SWD-K22... For two M22-SWD-NOP universal modules | - | M22-SWD-A4 116016 |
|  | For mounting 1 base function element | - | M22-SWD-I1-LP01 115990 |
| | For mounting 2 base function elements | - | M22-SWD-I2-LP01 115991 |
| | For mounting 3 base function elements | - | M22-SWD-I3-LP01 115992 |
| | For mounting 4 base function elements | - | M22-SWD-I4-LP01 115993 |
| | For mounting 6 base function elements | - | M22-SWD-I6-LP01 115994 |
|  | For bridging of open mounting locations on card | - | M22-SWD-SEL8-10 116698 |
| Universal module | | | |
|  | For configured but not yet installed SWD modules connected to the SWD ribbon cable | IP20 | M22-SWD-NOP 147637 |
|  | For configured but not yet installed SWD modules on the M22-SWD-I... card | IP20 | M22-SWD-NOPC 147638 |
| | For configured but not yet installed SWD modules connected to the SWD ribbon cable SWD4-..LR5-2S | IP67 | EU1M-SWD-NOP 174716 |
| Tools for plugs | | | |
|  | Crimping tool for joining external device plugs and ribbon cable | - | SWD4-CRP-1 116025 |
|  | Crimping tool for making contacts with blade terminals and ribbon cables | - | SWD4-CRP-2 116699 |
| Programming accessories | | | |
|  | For transferring the user program to the PLC or for diagnosing SmartWire-DT networks | - | EU4A-RJ45-CAB1 106726 |
|  | For transferring the user program to the PLC or for diagnosing SmartWire-DT networks | - | EU4A-RJ45-USB-CAB1 115735 |
|  | Programming and visualisation software | - | EASY-SOFT-PRO 266040 |

Build it in.



 Galileo


CODESYS

XV HMI/PLC: Systematic visualization and control



All devices can also be used in portrait format

With the XV HMI-PLC touch panels Eaton is offering customers in the machine and system building sector a systematically coordinated range that can be integrated perfectly into different performance classes. The smart implementation of the PLC runtime into a slim and efficient embedded platform strategy in combination with powerful processors creates a state-of-the-art, scalable and cost-efficient automation concept. The use of the CODESYS programming standard, together with a comprehensive range of ports and interfaces and the ability to use over 100 protocols as an HMI, demonstrates the system's open nature. Display sizes from 3.5" to 15"; plastic, metal, and stainless steel models; and the option of using capacitive, resistive, or infrared touch panels allow for an extremely wide range of applications.

Unique on the market: XV panels with an onboard SmartWire-DT master interface. This offers potential savings affecting all aspects of a project, from hardware planning to software creation, to wiring and commissioning.

 www.eaton.eu/xv

XV300: The new face of today's industry

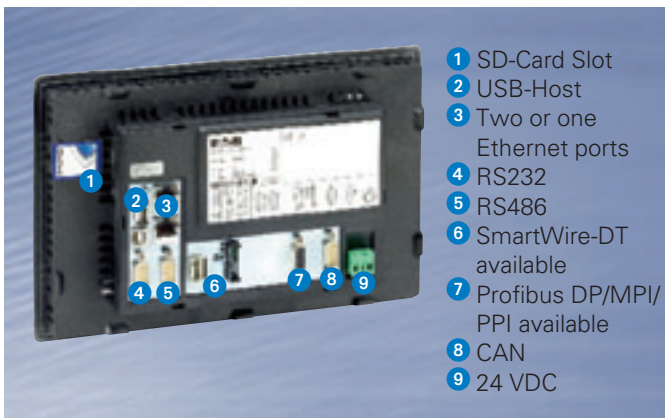
Intuitive user guidance, precise gesture-based controls, multimedia integration – the ease of use we experience every day on our smartphones and tablets has now become a reality in industrial applications as well: Our new XV300 panels with

capacitive multi-touch technology are not just tremendously intuitive – they are redefining how man and machine interact. Streamlined, high-resolution devices ready to meet your needs – even in harsh industrial conditions. The devices are cULus type approved.



XV300

- Two display sizes: 7" and 10.1" widescreen
- Available in front-mounting and rear-mounting versions
- Sleek, space-saving design
- Flat, anti-glare toughened glass panel
- The ability to switch between landscape and portrait mode as needed
- Perfect fit in control consoles, resulting in a flat surface without any sharp edges
- High system performance and a powerful graphics processing unit



Numerous interfaces and expandable memory

An impressive variety of ports and interfaces provides maximum versatility for extensive networking. Whether you need CANopen®, EtherNet/IP, EtherCAT, Modbus (TCP/RTU), PROFIBUS-DP®, or SmartWire-DT® – the wide variety of fieldbus interfaces ensures that you will be able to use the right protocol for your application. Moreover, the two Ethernet ports, which are independent from each other, make it possible to safely and reliably separate the open control layer from the function-specific field layer. An SD card slot makes it possible to expand the device's internal memory if necessary. In addition, the SD card can be used to conveniently load system updates or to boot and run the entire system from it if necessary.



One-stop hardware and software

With Galileo Version 10, Eaton has brought its visualization software to a whole new level designed to make planning and configuring systems easier than ever. Featuring design styles and gestures such as swipe, scroll, and pinch-to-zoom, Galileo is the ideal companion to the advantages provided by the XV300 series. Moreover, HMI/PLC models can be programmed with either XSoft-CODESYS Version 2 or 3.



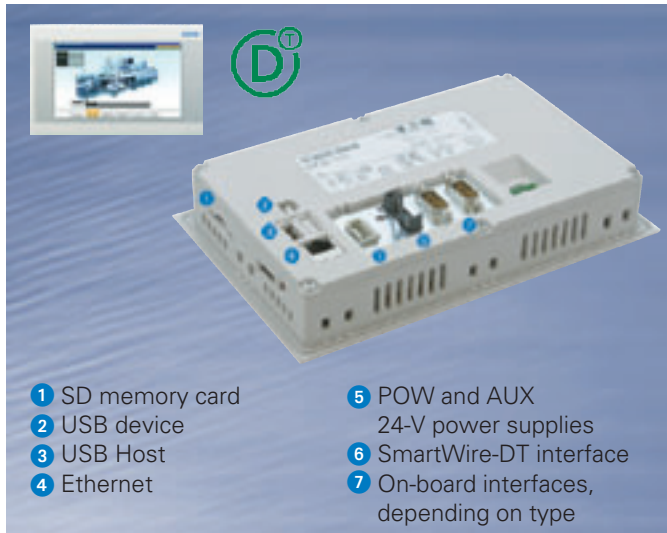
SmartWire-DT on board

SmartWire-DT supports Eaton's concept by helping create flexible automation solutions with fewer components and less engineering work. How? Simple: SmartWire-DT integrates communications and the I/O layer directly into the corresponding operating units, display devices, and switchgear. This enables PLCs to use SmartWire-DT to directly access digital and analog data from sensors all the way to circuit breakers and lets systems efficiently process control commands, eliminating the need for a separate gateway and I/O layer.

XV100: Compact and powerful operating units

XV100 touchscreen panels are based on a common hardware platform. More specifically, all of them run on Windows CE 5.0, are powered by the same high-performance 400 MHz processor, and feature a modular interface concept, which makes it possible to offer devices with a wide variety of interface and interface combinations. Moreover, all the devices in the XV100 family have been cULus type approved.

- Can be used in portrait or landscape mode
- Removable SD card
- Integrated web server
- Programmable with CODESYS V2 and V3
- CODESYS Targetvisu
- Visualization with GALILEO

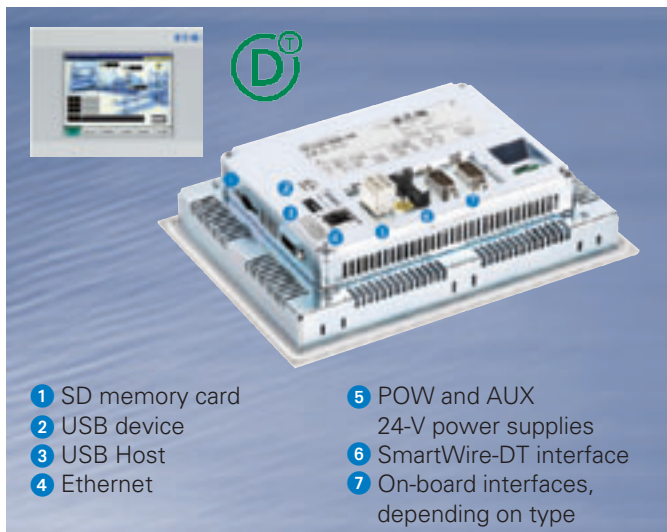


- | | |
|------------------|---|
| 1 SD memory card | 5 POW and AUX 24-V power supplies |
| 2 USB device | 6 SmartWire-DT interface |
| 3 USB Host | 7 On-board interfaces, depending on type |
| 4 Ethernet | |

XV-102

Resistive touchscreen panel in a plastic enclosure with a plastic bezel ; 3.5", 5.7", 7" wide

- Devices at the perfect price point and with the ideal functions for applications requiring pure HMIs, HMI PLCs, or HMIs that can be retrofitted with a PLC function
- Shallow mounting depth
- Interface and interface combinations: CAN, PROFIBUS/MPI, SmartWire-DT, RS485, RS232



- | | |
|------------------|---|
| 1 SD memory card | 5 POW and AUX 24-V power supplies |
| 2 USB device | 6 SmartWire-DT interface |
| 3 USB Host | 7 On-board interfaces, depending on type |
| 4 Ethernet | |

XV-152

Resistive touchscreen panel in a metal housing with an aluminum bezel; 5.7", 8.4", 10.4"

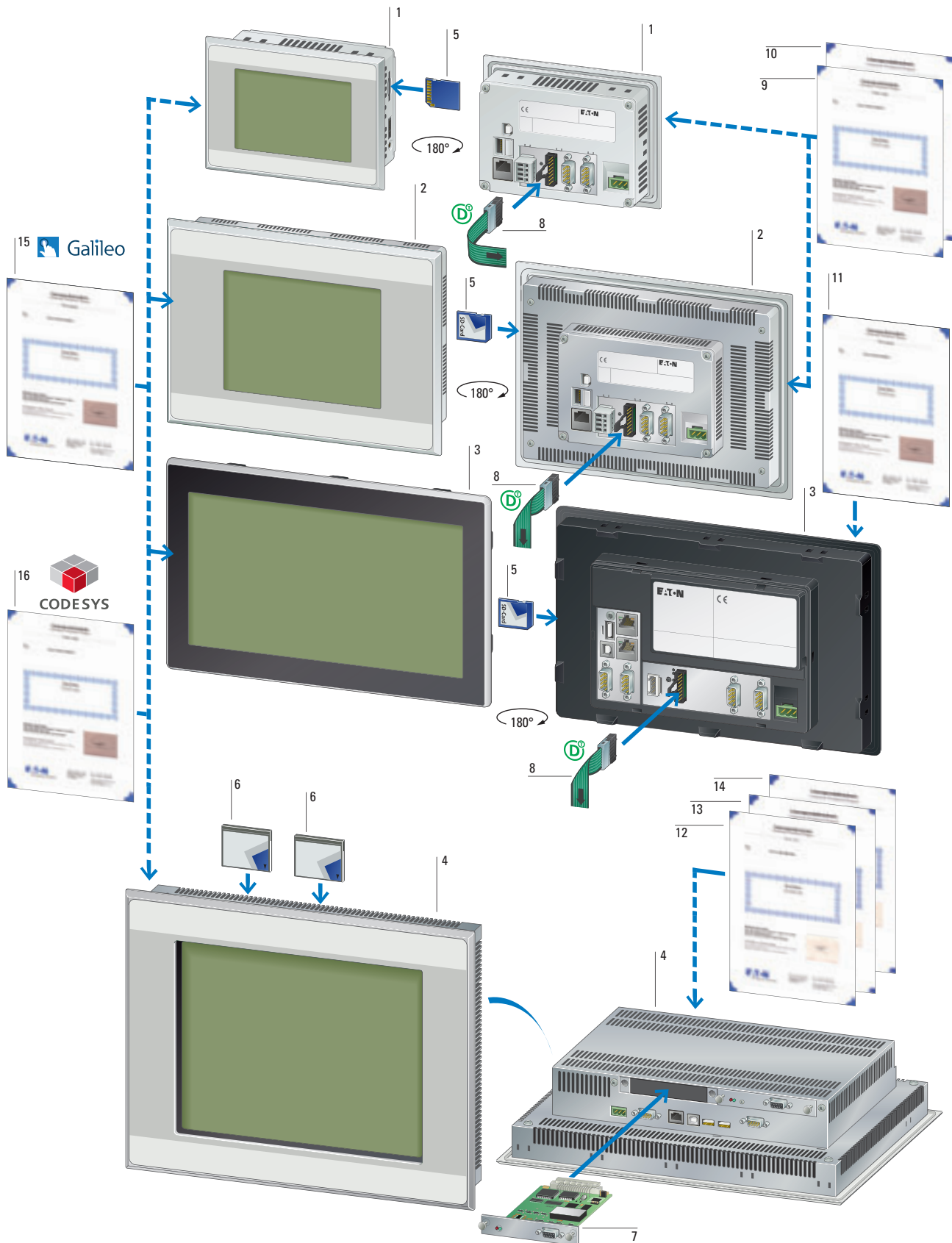
- With their shallow mounting depth, heavy-duty metal housing, fully laminated aluminum structure bezel, and plenty of basic features, XV-152 devices are as compelling as it gets.
- Versions for use as HMI PLCs or as HMIs that can be retrofitted with a PLC function
- Interface and interface combinations: CAN, PROFIBUS/MPI, SmartWire-DT, RS485, RS232
- Mounting dimensions fully compatible with XV(S)400 devices



XV-112

Resistive touchscreen panel in a metal enclosure for use as a rear-mounted unit; 5.7" and 7" wide

XV-112 devices are designed to be mounted from behind on an enclosure door or with a front frame of your choice. A film on the front, which is flexible and transparent in the display's viewing area, seals off the structure in the front. These rear-mounting devices can be used as operating and monitoring devices or as integrated operating and control devices. A 7" version meets with the approval requirements of the following classification societies: Lloyd's Register (LR), Germanischer Lloyd (GL), Det Norske Veritas (DNV), and Bureau Veritas (BV).













- 1 XV-102/XV-112 touch display with PLC, resistive touch technology 3.5", 5.7" and 7.0" widescreen
- 2 XV-152 touch display with PLC, resistive touch technology 5.7", 8.4" and 10.4"
- 3 XV-3x3 touch display with PLC, capacitive multi-touch technology, 7.0" or 10.1" widescreen
- 4 XV(S)-400 touch display with PLC, infrared or resistive touch technology, 5.7", 8.4", 10.4", 12.1", or 15"
- 5 SD memory card
- 6 Compact flash memory card
- 7 Communication module for XV-400
- 8 SmartWire-DT

- 9 License product certificate PLC for XV-1x2
- 10 License product certificate for communication expansion for XV-1x2
- 11 License product certificate PLC for XV-3x3
- 12 License product certificate PLC for XV(S)-400
- 13 License product certificate for communication expansion for XV(S)-400
- 14 License product certificate for Windows CE5
- 15 License product certificate GALILEO
- 16 License product certificate XSOFT-CODESYS-2/3

XV100










HMI/HMI-PLC touch display with PLC





| Screen diagonal Inch | PLC-licence | Built-in interfaces | | | | | Part no. | Article no. | |
|--|--|--------------------------|-----------|------------------|-------------------------------|----------------------------|-------------------------------|----------------------------|--------|
| | | 1 x RS232 | 1 x RS485 | 1 x USB host 2.0 | 1 x CANopen®/ easyNet | 1 x PROFIBUS/MPI | | | |
| XV100 without PLC | | | | | | | | | |
| Resistive-Touch Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 1 x Ethernet 10/100 Mbps 1 x USB device | | | | | | | | | |
| Number of colours: 32 grey levels | | | | | | | | | |
|  | 3.5 | No PLC function possible | - | - | - | - | - | XV-102-A0-35MQR-10 | 141759 |
| | | | - | - | - | - | ✓ | XV-102-A2-35MQR-10 | 141820 |
| | | | ✓ | - | - | - | - | XV-102-A3-35MQR-10 | 141821 |
| | | | - | ✓ | - | - | - | XV-102-A4-35MQR-10 | 141822 |
| | | | ✓ | - | - | ✓ | - | XV-102-A5-35MQR-10 | 141823 |
| Number of colours: 64 k Colours | | | | | | | | | |
|  | 3.5 | No PLC function possible | ✓ | - | - | - | - | XV-102-H3-35TQRL-10 | 171158 |
| | | | - | ✓ | - | - | - | XV-102-H4-35TQRL-10 | 171159 |
| | 5.7 | | ✓ | - | ✓ | - | - | XV-102-H3-57TVRL-10 | 171160 |
| | | | - | ✓ | ✓ | - | - | XV-102-H4-57TVRL-10 | 171161 |
| | | | ✓ | - | ✓ | - | - | XV-102-H3-70TWRL-10 | 171162 |
| 7 | - | ✓ | ✓ | - | - | XV-102-H4-70TWRL-10 | 171163 | | |
| PLC-licence | | | | | | | | | |
| Built-in interfaces | | | | | | | | | |
| Part no. | | | | | | | | | |
| Article no. | | | | | | | | | |
| XV100 3.5" | | | | | | | | | |
| Resistive-Touch, QVGA 320 x 240 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 1 x Ethernet 10/100 Mbps 1 x USB device | | | | | | | | | |
| Number of colours: 32 grey levels | | | | | | | | | |
|  | Including | - | - | - | - | - | XV-102-B0-35MQR-10-PLC | 140012 | |
| | | ✓ | - | - | - | - | XV-102-B3-35MQR-10-PLC | 140013 | |
| | | ✓ | - | ✓ | - | - | XV-102-B5-35MQR-10-PLC | 140015 | |
| | | - | ✓ | ✓ | - | - | XV-102-B6-35MQR-10-PLC | 140016 | |
| | | - | ✓ | - | ✓ | - | XV-102-B8-35MQR-10-PLC | 140017 | |
| Number of colours: 64 k Colours | | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | - | - | - | - | - | XV-102-B0-35TQR-10 | 140007 | |
| | | - | - | - | ✓ | - | XV-102-B2-35TQR-10 | 140008 | |
| | | ✓ | - | - | - | - | XV-102-B3-35TQR-10 | 140009 | |
| | | - | ✓ | - | - | - | XV-102-B4-35TQR-10 | 140010 | |
| | | ✓ | - | ✓ | - | - | XV-102-B5-35TQR-10 | 140011 | |
| | Including | - | - | - | - | - | XV-102-B0-35TQR-10-PLC | 140018 | |
| | | ✓ | - | - | - | - | XV-102-B3-35TQR-10-PLC | 140019 | |
| | | - | ✓ | - | - | - | XV-102-B4-35TQR-10-PLC | 140020 | |
| | | ✓ | - | ✓ | - | - | XV-102-B5-35TQR-10-PLC | 140021 | |
| | | - | ✓ | ✓ | - | - | XV-102-B6-35TQR-10-PLC | 140022 | |
| - | ✓ | - | ✓ | - | XV-102-B8-35TQR-10-PLC | 140023 | | | |
| - | - | - | - | ✓ | XV-102-BE-35TQRC-10 | 153524 | | | |

| PLC-licence | | Built-in interfaces | | | | | | | Part no. | Article no. |
|---|---|---------------------|-----------|----------------------|---|------------------|------------------|------------------|--|-------------|
| | | 1 x RS232 | 1 x RS485 | 1 x CANopen®/easyNet | 2 x CANopen®/easyNet (electrically isolated) | 1 x USB host 2.0 | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | |
| XV100 5.7" | | | | | | | | | | |
| Resistive-Touch, VGA 640 x 480 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB device | | | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | ✓ | - | - | - | ✓ | - | - | XV-102-D0-57TVR-10 | 142530 |
| | | ✓ | ✓ | - | - | ✓ | - | - | XV-102-D4-57TVR-10 | 150620 |
| | | ✓ | ✓ | ✓ | - | ✓ | - | - | XV-102-D6-57TVR-10 | 142531 |
| | | ✓ | ✓ | - | - | ✓ | ✓ | - | XV-102-D8-57TVR-10 | 142532 |
| | Including | ✓ | ✓ | ✓ | - | ✓ | - | - | XV-102-D6-57TVRC-10 | 142533 |
| | | ✓ | ✓ | - | - | ✓ | ✓ | - | XV-102-D8-57TVRC-10 | 142534 |
| | | - | ✓ | ✓ | - | ✓ | - | ✓ | XV-102-E6-57TVRC-10  | 153525 |
| | | - | ✓ | - | - | ✓ | ✓ | ✓ | XV-102-E8-57TVRC-10  | 153526 |
| Without front plate Rear mounting | Including | ✓ | ✓ | ✓ | - | ✓ | - | - | XV-112-D6-57TVRC-00 | 153469 |
| XV100 7" | | | | | | | | | | |
| Resistive-Touch, WVGA 800 x 480 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB device | | | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | ✓ | - | - | - | ✓ | - | - | XV-102-D0-70TWR-10 | 142535 |
| | | ✓ | ✓ | - | - | ✓ | - | - | XV-102-D4-70TWR-10 | 150621 |
| | | ✓ | ✓ | ✓ | - | ✓ | - | - | XV-102-D6-70TWR-10 | 142536 |
| | | ✓ | ✓ | - | - | ✓ | ✓ | - | XV-102-D8-70TWR-10 | 142537 |
| | Including | ✓ | ✓ | ✓ | - | ✓ | - | - | XV-102-D6-70TWRC-10 | 142538 |
| | | ✓ | ✓ | - | - | ✓ | ✓ | - | XV-102-D8-70TWRC-10 | 142539 |
| | | - | ✓ | ✓ | - | ✓ | - | ✓ | XV-102-E6-70TWRC-10  | 153527 |
| | | - | ✓ | - | - | ✓ | ✓ | ✓ | XV-102-E8-70TWRC-10  | 153528 |
| Without front plate Rear mounting | Including | ✓ | - | - | ✓ | ✓ | - | - | XV-112-DB-70TWRC-00 | 153470 |
| Without front plate Rear mounting Shipping classification GL, LR, DNV, BV | Including | ✓ | - | - | ✓ | ✓ | - | - | XV-112-DB-70TWRC-70 | 172909 |

XV150





HMI-PLC touch display with PLC


| | PLC-licence | Built-in interfaces | | | | | Part no. | Article no. | | |
|--|---|--|-----------|----------------------|------------------|------------------|----------------------------|--|--|--|
| | | 1 x RS232 | 1 x RS485 | 1 x CANopen®/easyNet | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | | | |
| XV150 5.7" | | | | | | | | | | |
| Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 198 x 142 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device | | | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | ✓ | - | - | - | - | XV-152-D0-57TVR-10 | 150525 | | |
| | | ✓ | ✓ | - | - | - | XV-152-D4-57TVR-10 | 150526 | | |
| | | ✓ | ✓ | ✓ | - | - | XV-152-D6-57TVR-10 | 150527 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-57TVR-10 | 150528 | | |
| | Including | ✓ | ✓ | ✓ | - | - | XV-152-D6-57TVRC-10 | 150529 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-57TVRC-10 | 150600 | | |
| | | - | ✓ | ✓ | - | ✓ | XV-152-E6-57TVRC-10 | 166700  | | |
| | | - | ✓ | - | ✓ | ✓ | XV-152-E8-57TVRC-10 | 166701  | | |
| | | XV150 8.4" | | | | | | | | |
| | | Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | ✓ | - | - | - | - | XV-152-D0-84TVR-10 | 150601 | | |
| | | ✓ | ✓ | - | - | - | XV-152-D4-84TVR-10 | 150602 | | |
| | | ✓ | ✓ | ✓ | - | - | XV-152-D6-84TVR-10 | 150603 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-84TVR-10 | 150604 | | |
| | Including | ✓ | ✓ | ✓ | - | - | XV-152-D6-84TVRC-10 | 150605 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-84TVRC-10 | 150606 | | |
| | | - | ✓ | ✓ | - | ✓ | XV-152-E6-84TVRC-10 | 166702  | | |
| | | - | ✓ | - | ✓ | ✓ | XV-152-E8-84TVRC-10 | 166703  | | |
| | | XV150 10.4" | | | | | | | | |
| | | Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device | | | | | | | | |
|  | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT | ✓ | - | - | - | - | XV-152-D0-10TVR-10 | 150607 | | |
| | | ✓ | ✓ | - | - | - | XV-152-D4-10TVR-10 | 150608 | | |
| | | ✓ | ✓ | ✓ | - | - | XV-152-D6-10TVR-10 | 150609 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-10TVR-10 | 150610 | | |
| | Including | ✓ | ✓ | ✓ | - | - | XV-152-D6-10TVRC-10 | 150611 | | |
| | | ✓ | ✓ | - | ✓ | - | XV-152-D8-10TVRC-10 | 150612 | | |
| | | - | ✓ | ✓ | - | ✓ | XV-152-E6-10TVRC-10 | 166704  | | |
| | | - | ✓ | - | ✓ | ✓ | XV-152-E8-10TVRC-10 | 166705  | | |


| | PLC-licence | Built-in interfaces | | | | | | | | | Part no. | Article no. |
|--|---|-----------------------------|-----------------------------|-----------|-----------|------------------|----------------|----------------------|------------------|------------------|----------------------|-------------|
| | | 1 x Ethernet 10/100 Mbps | 2 x Ethernet 10/100 Mbps | 1 x RS232 | 1 x RS485 | 1 x USB host 2.0 | 1 x USB device | 1 x CANopen®/easyNet | 1 x PROFIBUS/MPI | 1 x SmartWire-DT | | |
| XV-303 Front installation Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel Capacitive multi-touch technology (PCT), Number of colours: 16 mil. Front type: Anti-glare tempered glass in plastic bezel | | | | | | | | | | | | |
| 7" | | | | | | | | | | | | |
|  | Can be fitted by user with article no. 181585 LIC-PLC-A | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-70-B00-A00-1B | 179647 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-70-C00-A00-1B | 179648 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-70-B02-A00-1B | 179651 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-70-C02-A00-1B | 179652 |
| | PLC licence inclusive | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-70-B00-A00-1C | 179649 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-70-C00-A00-1C | 179650 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-70-B02-A00-1C | 179653 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-70-C02-A00-1C | 179654 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-70-BE0-A00-1C | 179655 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-70-CE0-A00-1C | 179656 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-70-BE2-A00-1C | 179657 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-70-CE2-A00-1C | 179658 |
| 10.1" | | | | | | | | | | | | |
|  | Can be fitted by user with article no. 181585 LIC-PLC-A | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-10-B00-A00-1B | 179659 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-10-C00-A00-1B | 179660 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-10-B02-A00-1B | 179663 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-10-C02-A00-1B | 179664 |
| | PLC licence inclusive | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-10-B00-A00-1C | 179661 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-303-10-C00-A00-1C | 179662 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-10-B02-A00-1C | 179665 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | XV-303-10-C02-A00-1C | 179666 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-10-BE0-A00-1C | 179667 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | XV-303-10-CE0-A00-1C | 179668 |
| | | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-10-BE2-A00-1C | 179669 |
| | | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | XV-303-10-CE2-A00-1C | 179670 |
| XV-313 Rear flush mounting Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots: for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel Capacitive multi-touch technology (PCT) Number of colours: 16 mil. Front type: Anti-glare tempered glass without bezel | | | | | | | | | | | | |
| 7" | | | | | | | | | | | | |
|  | PLC licence inclusive | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-313-70-B00-A00-1C | 179671 |
| 10.1" | | | | | | | | | | | | |
|  | PLC licence inclusive | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | XV-313-10-B00-A00-1C | 179672 |

XV400

HMI-PLC touch display with PLC



| | PLC-licence | Touch-technology | | Front type | | | Part no. | Article no. |
|--|--|------------------|-----------------|--------------------------------------|---------------------------------------|--|--------------------------|-------------|
| | | Infra-red touch | Resistive-Touch | Satin-finish brushed stainless steel | Standard front with standard membrane | Laminated safety glass, non-reflective | | |
| XV400 | | | | | | | | |
| Built-in interfaces - 1 x CAN - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508) | | | | | | | | |
| XV400 5.7" | | | | | | | | |
| Slots - for Compact-Flash™-Cards: 1 - for communication modules: 1 1 x USB host QVGA 320 x 240 Pixel, Recommended flush mounting cutout 198 x 142 MM | | | | | | | | |
|  | Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL | ✓ | - | - | ✓ | ✓ | XV-460-57TQB-1-10 | 139897 |
| | | ✓ | - | ✓ | - | ✓ | XV-460-57TQB-1-50 | 139898 |
| | | - | ✓ | - | ✓ | - | XV-450-57TQB-1-10 | 139899 |
| XV400 8.4" | | | | | | | | |
| Slots - for Compact-Flash™-Cards: 1 - for communication modules: 1 1 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM | | | | | | | | |
|  | Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL | ✓ | - | - | ✓ | ✓ | XV-460-84TVB-1-10 | 139900 |
| XV400 10.4" | | | | | | | | |
| Slots - for Compact-Flash™-Cards: 2 - for communication modules: 2 2 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM | | | | | | | | |
|  | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | - | ✓ | - | ✓ | - | XV-430-10TVB-1-10 | 139902 |
| | | ✓ | - | - | ✓ | ✓ | XV-440-10TVB-1-10 | 139904 |
| | | ✓ | - | ✓ | - | ✓ | XV-440-10TVB-1-50 | 139908 |
| XV400 12.1" | | | | | | | | |
| Slots - for Compact-Flash™-Cards: 2 - for communication modules: 2 2 x USB host SVGA 800 x 600 Pixel, Recommended flush mounting cutout 344 x 262 MM | | | | | | | | |
|  | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | - | ✓ | - | ✓ | - | XV-430-12TSB-1-10 | 139909 |
| | | ✓ | - | - | ✓ | ✓ | XV-440-12TSB-1-10 | 139911 |
| | | ✓ | - | - | ✓ | ✓ | XV-460-12TSB-1-10 | 169824 |
| | | ✓ | - | ✓ | - | ✓ | XV-440-12TSB-1-50 | 139915 |





| PLC-licence | Touch-technology | | Front type | | | Part no. | Article no. |
|--|--|-----------------|--------------------------------------|---------------------------------------|--|----------|---------------------------------|
| | Infra-red touch | Resistive-Touch | Satin-finish brushed stainless steel | Standard front with standard membrane | Laminated safety glass, non-reflective | | |
| XV400 | | | | | | | |
| Built-in interfaces - 1 x CAN - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508) | | | | | | | |
| XV400 15" | | | | | | | |
| Slots - for Compact-Flash™ Cards: 2 - for communication modules: 2 2 x USB host XVGA 1024 x 768 Pixel, Recommended flush mounting cutout 410 x 315 MM | | | | | | | |
|  | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | ✓ | - | - | ✓ | ✓ | XV-460-15TXB-1-10 139916 |
| | | ✓ | - | ✓ | - | ✓ | XV-460-15TXB-1-50 139918 |

| Description | Supported protocols | Part no. | Article no. |
|---|-------------------------------|---|---------------------------|
| Communication modules for XV4... | | | |
|  | Multiple protocol board MPI | Eaton Suconet Siemens MPI Matsushita FP series Mitsubishi A-Series/F-Series Omron C-H-K-Series Telemecanique Unitelway new See manual for other protocols | COM-MPB2-TP 139847 |
| | Multiple protocol board | Eaton Suconet Matsushita FP series Mitsubishi A-Series/F-Series Omron C-H-K-Series Telemecanique Unitelway new See manual for other protocols | COM-MPB1-TP 139850 |
| Log board | Profibus DP-Slave (12 MBaud) | COM-PDP-TP | 139849 |
| Log board | Profibus DP-Master (12 MBaud) | COM-DPM-MC2 | 139853 |

XVS400

HMI/HMI-PLC touch display with PLC

| PLC-licence | Touch-technology | | Front type | | | Part no. | Article no. |
|---|--|-----------------|--------------------------------------|---------------------------------------|--|----------|----------------------------------|
| | Infra-red touch | Resistive-Touch | Satin-finish brushed stainless steel | Standard front with standard membrane | Laminated safety glass, non-reflective | | |
| XVS400 | | | | | | | |
| Built-in interfaces - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x PROFIBUS/MPI - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508) | | | | | | | |
| XVS400 5.7" | | | | | | | |
| Slots - for Compact-Flash™-Cards: 1 1 x USB host QVGA 320 x 240 Pixel, Recommended flush mounting cutout 198 x 142 MM | | | | | | | |
|  | Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL | - | ✓ | - | ✓ | - | XVS-450-57MPI-1-10 139969 |
| | | ✓ | - | - | ✓ | ✓ | XVS-460-57MPI-1-10 139970 |
| XVS400 8.4" | | | | | | | |
| Slots - for Compact-Flash™-Cards: 1 1 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM | | | | | | | |
| | Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL | ✓ | - | - | ✓ | ✓ | XVS-460-84MPI-1-10 139971 |
| XVS400 10.4" | | | | | | | |
| Slots - for Compact-Flash™-Cards: 2 2 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM | | | | | | | |
| | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | - | ✓ | - | ✓ | - | XVS-430-10MPI-1-10 139972 |
| | | ✓ | - | - | ✓ | ✓ | XVS-440-10MPI-1-10 139973 |
| XVS400 12.1" | | | | | | | |
| Slots - for Compact-Flash™-Cards: 2 2 x USB host SVGA 800 x 600 Pixel, Recommended flush mounting cutout 344 x 262 MM | | | | | | | |
| | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | - | ✓ | - | ✓ | - | XVS-430-12MPI-1-10 139974 |
| | | ✓ | - | - | ✓ | ✓ | XVS-440-12MPI-1-10 139975 |
| XVS400 15" | | | | | | | |
| Slots - for Compact-Flash™-Cards: 2 2 x USB host XVGA 1024 x 768 Pixel, Recommended flush mounting cutout 410 x 315 MM | | | | | | | |
|  | Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM | ✓ | - | - | ✓ | ✓ | XVS-460-15MPI-1-10 139976 |
| | | | | | | | |

| Description | For use with | Part no. | Article no. |
|---|---|----------------------------|-------------|
| Windows CE licenses | | | |
|  License for Windows CE 5.0 Core, incl. license label | XV-4... XVS-4... | LIC-OS-CE50-C | 140406 |
| License for Windows CE 5.0 Professional Plus incl. license label | XV-4... XVS-4... | LIC-OS-CE50-PP | 140408 |
| Memory cards | | | |
|  SD memory card with min. 1 GB Without operating system | XV-3... XV-1.. | MEMORY-SD-A2-S | 181638 |
| SD memory card with min. 256 MByte Without operating system | XV-3... XV-1.. | MEMORY-SD-A1-S | 139807 |
|  Compact flash with min. 128 MByte Without operating system | XV-4... XVS-4... | MEMORY-CF-A1-S | 139528 |
| Compact flash with min. 128 MByte WINDOWS CE 5.0 CORE preinstalled Windows license, article no. 140406 LIC-OS-CE50-C, required | XV-4... XVS-4... | OS-FLASH-A1-C | 140368 |
| XV license product certificates | | | |
|  License product certificate for PLC upgrading | XV-3.3-...-1B | LIC-PLC-A | 181585 |
| License product certificate for PLC upgrading with COMPACT license label | XV-1...-B... XV-1...-D... | LIC-PLC-MXP-COMPACT | 142581 |
| License product certificate for PLC upgrading with SMALL license label | XV-4...-57... XV-4...-84... XVS-4...-57... XVS-4...-84... | LIC-PLC-MXP-SMALL | 140389 |
| License product certificate for PLC upgrading with MEDIUM license label | XV-4...-10... XV-4...-12... XV-4...-15... XVS-4...-10... XVS-4...-12... XVS-4...-15... | LIC-PLC-MXP-MEDIUM | 140390 |
| License product certificate 40 points | XV-1... XV-4... XVS-4... | LIC-OPT-1ST-LEVEL | 140391 |
| License product certificate 80 points | XV-1... XV-4... XVS-4... | LIC-OPT-2ND-LEVEL | 140392 |

Notes

Licensing for Panel XV100, XV400 and XVS400

The panels of the device series XV100, XV400 und XVS400 are supplied with license points saved to the device. License points are required to be able to perform certain functions with the device

- XSOFT-CODESYS runtime for the PLC function (not possible with: XV-102-A... and XV-102-H...)
- Galileo runtime for visualization
- Communication (e. g. Ethernet, CANopen, Siemens MPI)

Number of license points supplied with standard devices:
 - 140 license points: XV100 (without PLC function), XV400, XVS400
 - 240 license points: XV100 with PLC function

Additional license points must be purchased if the license points of the device are not sufficient for the required functions or if the XV panel is to be upgraded with the PLC function. For this you need one or more license certificates. They are:
 - License certificates for the PLC function: The LIC-PLC-MXP license certificates are required to activate the PLC function on XSOFT-CODESYS; they contain an appropriate license sticker for the device type, which must be affixed to the device for licensing reasons.
 - License certificates for the extended communication with Galileo (LIC-OPT-...)

Determining required license points

Add the required license points by function for visualization and communication options used. Communication options for several devices with the same protocol only have to be counted once. Deduct from this total the number of points already on the device (e.g. 140 points). The difference is the number of the license points that you have to install using license certificates for the communication options (LIC-OPT-...).

Detailed information and examples can be obtained at: www.eaton.eu/XV for XV devices on the "Licensing" tab

Licensing for Panel XV300

If you want to add the PLC function to the XV-3.3-...-1B panel, you will need to purchase an additional license. To do this, you will need license product certificate LIC-PLC-A. Due to licensing reasons, the license sticker must be affixed to the device.

Build it in.



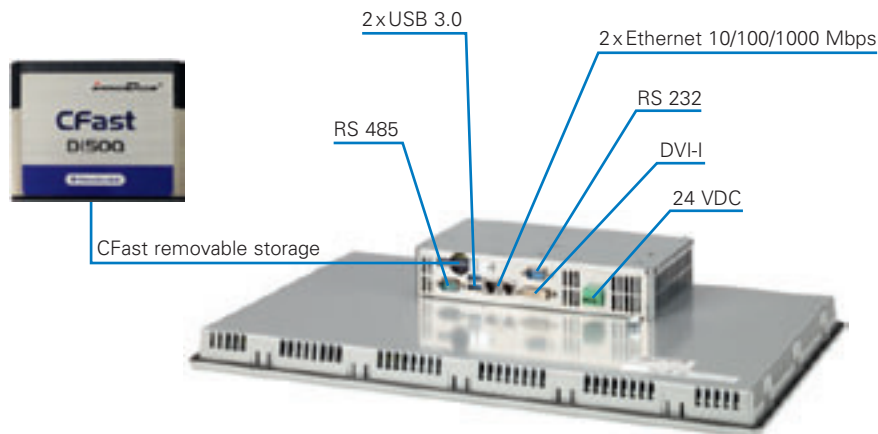
XP500 industrial touch panel PC



Zoom, scroll, swipe with two fingers – the industrial world can now enjoy the benefits of intuitive ease-of-use as well!

The XP500 series from Eaton, developed especially for the requirements of mechanical and plant engineering, enhances the field of automation with contemporary control interfaces and command methods familiar from consumer electronics. The Projected Capacitive Touch (PCT) technology provides a more intuitive user interface. This includes multitouch functionality, allowing users to press functional buttons on the screen either with multiple fingers on one hand or using two hands.




The devices are being launched onto the market with the following three widescreen display sizes: 10.1", 15.6", and 21.5". Their slim design, featuring a non-reflective glass front, delivers a modern look. In addition, their heavy-duty, scratch-resistant front and their open Windows operating system make these panel IPCs ideal for use in virtually any industrial branch in the field of machine building and plant engineering.



XP-503

- Elegant, slim design
- Heavy-duty glass front in protective aluminum bezel
- Industrial capacitive multi-touch technology (PCT)
- Widescreen display
- Tempered glass with anti-reflective coating
- Powder-coated diecast aluminum housing for flush mounting
- Passively cooled

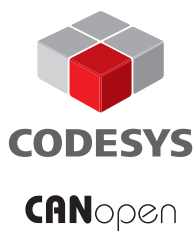
High availability guaranteed by the **Eaton ProtectMode**, even without a UPS. Thanks to the Eaton Protect Mode and two separate mass memory devices, drive C (internal solid-state drive) can be protected against data corruption and other undesirable changes. Process data can be written to the second mass memory device (CFast memory card). All three device sizes are also available with ATEX Zone 22, Cat. 3D certification.

| | Display | Resolution | Fitting dimensions | Part no. Article no. |
|---|------------------|-------------|--------------------|---------------------------------------|
| XP-503-xx-A10- | | | | |
| 1.65 GHz dual-core CPU Powerful integrated graphics processor 4GB DDR3-RAM ≥ 32 GB of internal flash memory ≥ 4 GB CFast Removable memory 2x Ethernet 10/100/1000 Mbps 2x USB 3.0 1x RS232 1x RS485 1x DVI-I Windows Embedded Standard 7 GALILEO Open Runtime License CE, cUL508 cUL Class 1 Div 2 | | | | |
|  | 10.1" widescreen | 1024 x 600 | 261 x 164mm | XP-503-10-A10-A00-1B 174474 |
|  | 15.6" widescreen | 1366 x 768 | 388 x 239mm | XP-503-15-A10-A00-1B 174475 |
|  | 21.5" widescreen | 1920 x 1080 | 519 x 313mm | XP-503-21-A10-A00-1B 174476 |

Build it in.



XN300: The slice card modular I/O system for the machine building industry

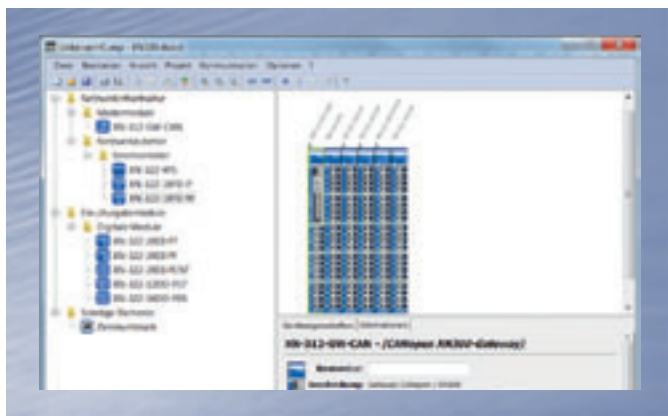


Eaton's ultra-compact, slice-card-based XN300 modular I/O system features a high channel density plug-in connection system and can be combined with HMI PLC products in order to create the ideal system solution for your applications. The secret? Application-oriented functions that result in lower device costs and make it possible to obtain the perfect system solution while taking up a minimal amount of space.

All this is combined with a sleek design and a convenient installation concept that makes handling easier and allows users to pre-assemble their I/O stations and the components they will be connecting. Moreover, the plug-in terminal system and the way in which signals are clearly identified make commissioning easier and round off the system's characteristics, making it the perfect solution for the needs of machine building applications meant for mass production.

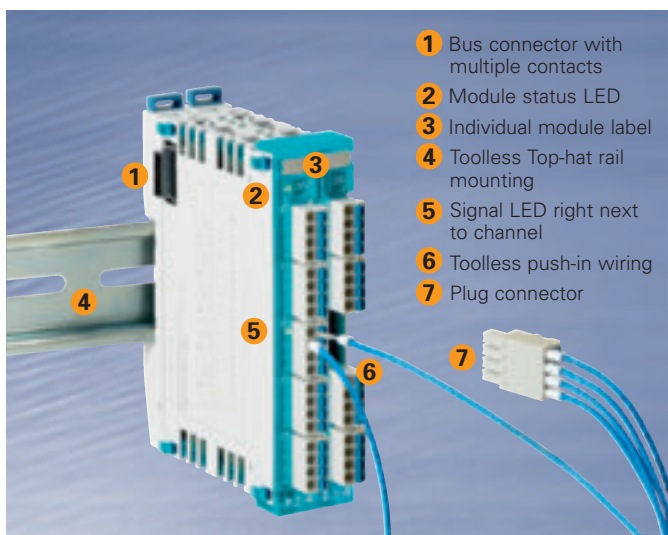


www.eaton.eu/xn300



Ideal assistance: XN300 Assist

XN300 Assist provides maximum convenience and outstanding ease of use when planning your systems. For example, the tool will run a plausibility check while you are putting together your system configuration, preventing misconfigurations from the get-go. Moreover, XN300 Assist can be used to generate order lists and device description files (e.g., EDS files) even when offline. And in addition to these offline functions, online functions such as „signal state reading and setting“ can prove invaluable during commissioning and installation.

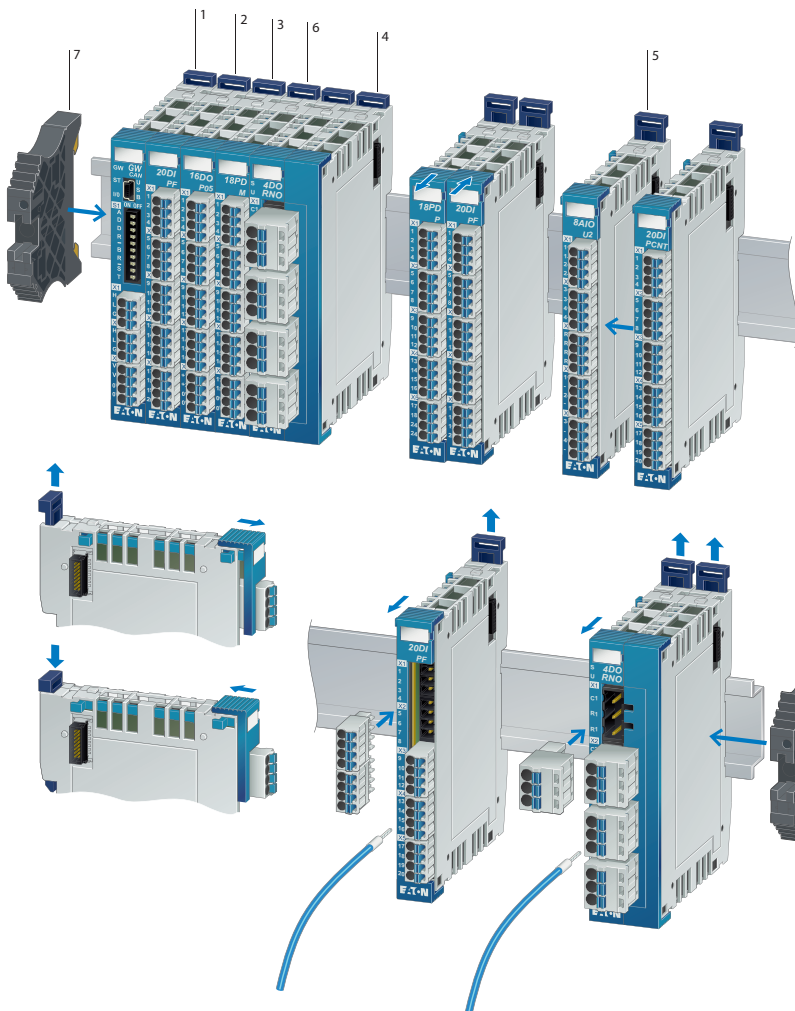


- 1 Bus connector with multiple contacts
- 2 Module status LED
- 3 Individual module label
- 4 Toolless Top-hat rail mounting
- 5 Signal LED right next to channel
- 6 Toolless push-in wiring
- 7 Plug connector

Simple, quick and intuitive

A plug-in connection system and the ability to conveniently split installation work into two different steps (putting together a block and then installing it on a mounting rail) are just two examples of how the XN300 system is unbeatable when it comes to saving time: In fact, its installation can be broken down into perfectly efficient steps that allow for pre-assembly – and all without the need for any tools!

Moreover, a clear functional layout makes it possible to easily keep track of things despite the modules' high channel density. LEDs are used to show signal states right next to where channels are connected.










- 1 Gateway
- 2 Digital input modules
- 3 Digital output modules
- 4 Relay modules
- 5 Analog input/output modules
- 6 Power distributor
- 7 End bracket








Other module models

- Digital input/output modules
- Analog input modules
- Analog output modules
- Technology modules
- Power supply modules

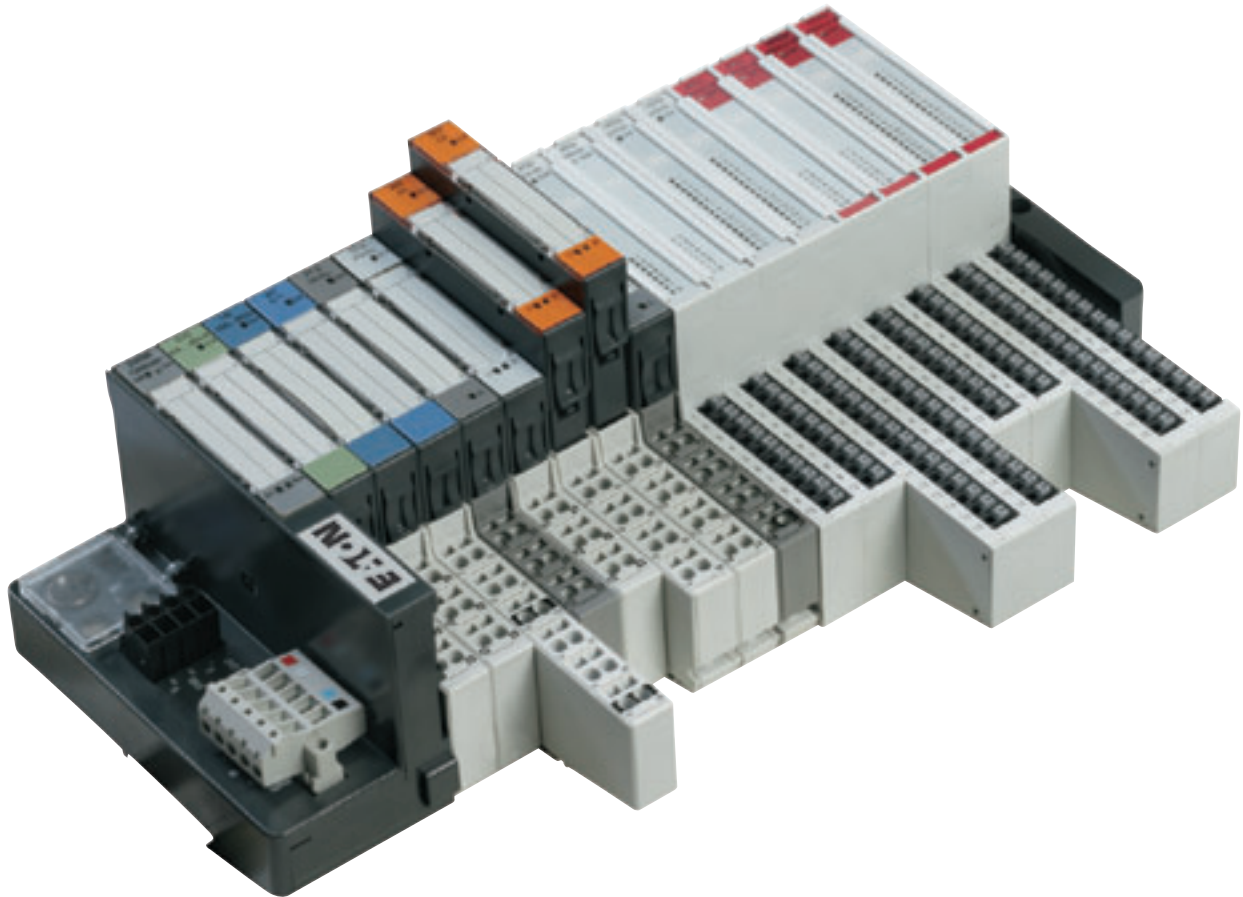
I/O system

Modular I/O system XN300

| Description | Part no. Article no. |
|--|-----------------------------------|
| XN300 gateway | |
|  <p>Digital gateway for CANopen field bus in the form of an XN300 I/O system slice module Field bus connection CANopen® Addressing DIP switches Data transfer rate 10, 20, 50, 125, 250, 500, 800, 1000 kBit/s Maximum station configuration 32 modules (XN-322) in slice design System supply 24 V DC Push-in spring-cage terminal Approvals: CE, cULus</p> | XN-312-GW-CAN 178782 |
| XN300 power supply modules | |
| Push-in spring-cage terminal Approvals: CE, cULus Field potential distributor module | |
|  <p>Power distribution with XN-322 slice module in XN300 I/O system, 18 channels, GND.</p> | XN-322-18PD-M 178769 |
|  <p>Power distribution with XN-322 slice module in XN300 I/O system, 18 channels, VCC.</p> | XN-322-18PD-P 178770 |
|  <p>Power supply module The power supply module distributes the supplied power to XN300 system components. The module features nine short-circuit proof outputs (24 VDC/GND) grouped into four power supply groups, with each group being able to handle a max. load of 2 A.</p> | XN-322-4PS-20 178796 |
| XN300 technology modules | |
| Push-in spring-cage terminal Counter module | |
|  <p>Counter module with RS422/TTL inputs for frequencies of up to 125 kHz and 4 digital inputs and 4 digital outputs with 2 A. These modules are particularly useful for reading counter values used in positioning applications.</p> | XN-322-1CNT-8DIO 178795 |
|  <p>Interface module Interface module for interpreting data from two absolute encoders via the RS422 interface, specifically designed with SSI encoders (e.g., absolute linear encoders) in mind. Natural binary and Gray code encoders (Gray code is internally converted to natural binary) are supported. 32-bit / 125 kHz, 250 kHz, 500 kHz, 1 MHz.</p> | XN-322-2SSI 178773 |
|  <p>Weigh module Weigh slice module for connecting two Wheatstone bridges (strain gauge load cells). With a 24-bit resolution, readings will be available with an accuracy of ±0.035%.</p> | XN-322-2DMS-WM 178793 |
|  <p>Motor driver module Current regulator module for operating a DC motor (brushed motor) with a supply voltage of 12–30 V and a max. motor current of 3.5 A. In addition, this module features two 20 mA / 350 mA (maximum current) LED drivers.</p> | XN-322-1DCD-B35 178794 |

| Short Description | Part no. | Article no. |
|--|--------------------------|-------------|
| Digital input cards | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  8 digital inputs 24 V DC each, pulse-switching, 5.0 ms | XN-322-8DI-PD | 183172 |
| 16 digital inputs 24 V DC each, pulse-switching, 5.0 ms | XN-322-16DI-PD | 183173 |
| 20 digital inputs 24 V DC each, pulse-switching, 5.0 ms | XN-322-20DI-PD | 178786 |
| 20 digital inputs 24 V DC each, pulse-switching, 0.5 ms | XN-322-20DI-PF | 178768 |
| 20 digital inputs 24 V DC each, pulse-switching, 2/4 CNT, 25 kHz | XN-322-20DI-PCNT | 178767 |
| 20 digital inputs 24 V DC each, negative switching, 5.0 ms | XN-322-20DI-ND | 183174 |
| Digital output modules | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  8 digital outputs short-circuit proof 24 V DC/0.5 A each, pulse-switching | XN-322-8DO-P05 | 183175 |
| 16 digital outputs short-circuit proof 24 V DC/0.5 A each, pulse-switching | XN-322-16DO-P05 | 178787 |
| 12 digital outputs short-circuit proof 24 V DC/1.7 A each, pulse-switching | XN-322-12DO-P17 | 178788 |
| Digital input/output modules | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  4 digital inputs and 4 digital outputs 24 V DC each, pulse-switching | XN-322-8DI0-PD05 | 183178 |
| 8 digital inputs and 8 digital outputs 24 V DC each, pulse-switching | XN-322-16DI0-PD05 | 183179 |
| 8 digital inputs and 8 digital outputs 24 V DC each, pulse-switching, CNT, 25 kHz | XN-322-16DI0-PC05 | 183180 |
| Relay modules | | |
| Push-in spring-cage terminal | | |
|  4 digital relay outputs, N/O | XN-322-4DO-RNO | 178779 |
| Analog input cards | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  4 analog resistance inputs, Pt/Ni/KTY/R with 2-wire or 3-wire connection | XN-322-4AI-PTNI | 178772 |
| 6 analog inputs, +/-10V, 1 PT/KTY, Uref | XN-322-7AI-U2PT | 178789 |
| 8 analog current inputs, 0/4 up to 20 mA | XN-322-8AI-I | 179288 |
| 8 analog thermocouple inputs and two KTY inputs | XN-322-10AI-TEKT | 178792 |
| Analog output modules | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  8 analog outputs, +/-10 V | XN-322-8AO-U2 | 178790 |
| Analog input/output modules | | |
| Push-in spring-cage terminal Approvals: CE, cULus | | |
|  2 analog inputs and 2 analog outputs, +/-10 V, Uref | XN-322-4AI0-U2 | 183181 |
| 4 analog inputs and 4 analog outputs, +/-10 V, Uref | XN-322-8AI0-U2 | 178791 |
| 2 analog inputs and 2 analog outputs, 0/4 to 20 mA | XN-322-4AI0-I | 183182 |
| 4 analog inputs and 4 analog outputs, 0/4 to 20 mA | XN-322-8AI0-I | 178771 |

Build it in.



XI/ON: The modular I/O system



CODESYS

CANopen

DeviceNet[™]

Ethernet



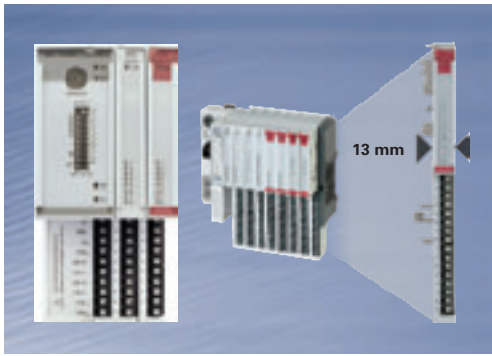
Whether for controlling movements, measuring temperature or speed, or logging currents and voltages the application ranges for remote I/Os are as extensive as the different applications involved. They are used wherever decentralized signal processing is the essential element of the automation concept.

Thanks to the high modularity of the XI/ON system and the wide range of functions, Eaton is able to offer the right I/O solution for every application. XI/ON: A modular concept with simple handling – adaptable to any application, intelligent and ready for future developments.



www.eaton.eu/xion

XI/ON ECO gateways and ECO modules



XI/ON ECO completes the XI/ON I/O system with price and space optimized I/O modules and gateways. The ECO gateways use the CAN, PROFIBUS and Ethernet bus systems.

- ECO gateways with integrated bus terminating resistors
- Full compatibility with the standard XI/ON system
- No base module required
- High channel density (up to 16 DI/DO on 13 mm width)
- "Push-In" spring-loaded terminals
- Multi-functional slices
- Diagnostics interface

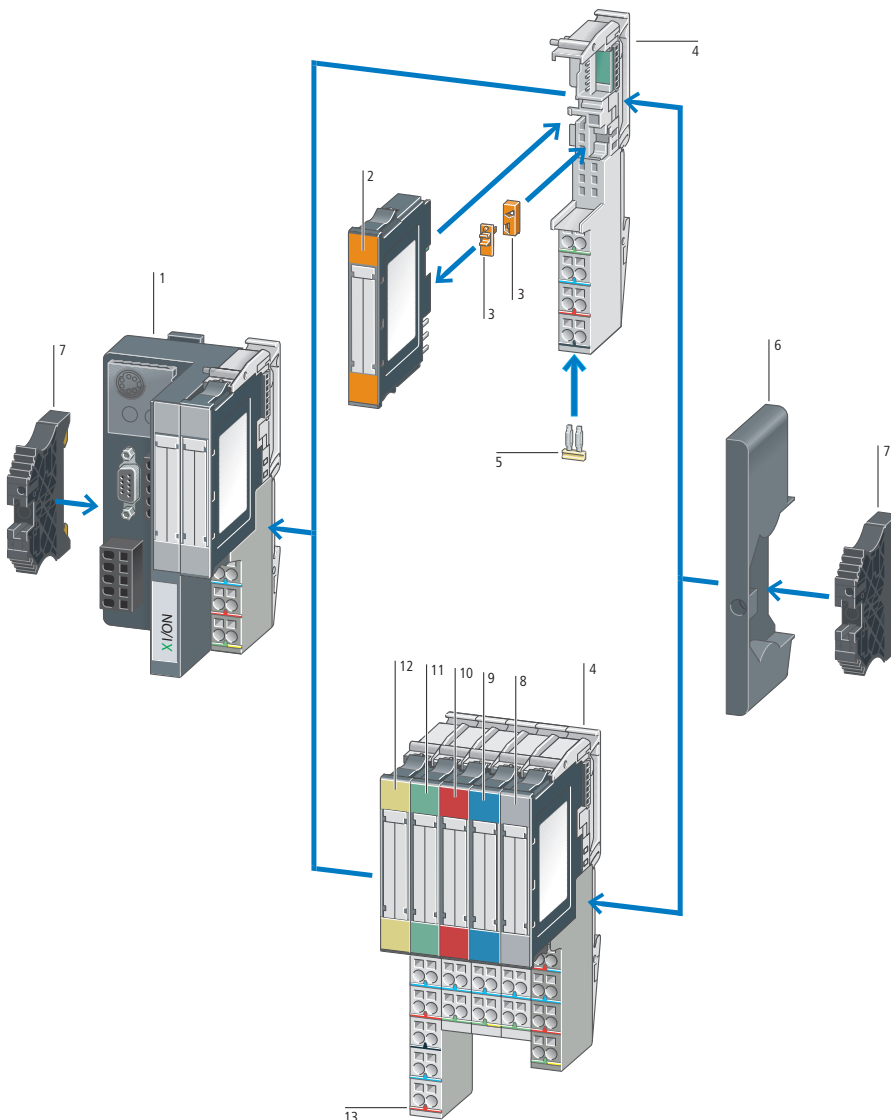
I/Oassistant – the universal configuration and diagnostics tool







The I/Oassistant provides you with a universal tool that offers interactive support with the entire planning and implementation of your XI/ON installation. The I/Oassistant is integrated in XSOFT-CODESYS.

A project is first of all created and structured on the screen. For this you choose gateways, electronic and base modules as well as the appropriate accessories. The individual stations are then configured offline or online. Once everything is set to your satisfaction, you simply put your installation into operation. The I/Oassistant also automatically generates a parts list for your order.

I/Oassistant checks the station, reads the process data, outputs values and visualizes the diagnostics data of the channel. This enables you to commission your station without a higher-level PLC and ensure that a section of the system is functioning correctly.





- 1 Gateways
- 2 Relay modules
- 3 Coding element
- 4 Base modules
- 5 Relay jumpers
- 6 Cover plate
- 7 End bracket
- 8 Power supply modules
- 9 Analog input cards
- 10 Digital output modules
- 11 Analog output modules
- 12 Technology modules
- 13 Marker





| | Field bus connection | Data transfer rate | Connection design for field bus | Addressing | Part no. Article no. | | |
|---|--|---|---|---|---|-------------------------------|-------------------------------------|
| XI/ON ECO Gateways | | | | | | | |
| | Push-In spring-cage terminals System supply 24 /5 V DC Approvals CE, cULus | | | | | | |
|  | PROFIBUS-DP (DPV0/DPV1 protocol) | 9.6 Kbit/s to 12 Mbit/s | Push-In spring-cage terminals | DIP switches | XNE-GWBR-PBDP 140045 | | |
| | CANopen® | 1000 Kbit/s, 800 Kbit/s, 500 Kbit/s, 250 Kbit/s, 125 kbit/s, 50 Kbit/s, 20 Kbit/s | Push-In spring-cage terminals | DIP switches | XNE-GWBR-CANOPEN 140044 | | |
| | Ethernet (Ethernet-IP protocol) | 10/100 MBit/s | 2 x RJ45 (Ethernet Switch) | DIP switch, BootP, DHCP or PGM | XNE-GWBR-2ETH-IP 140047 | | |
| | Ethernet (Modbus-TCP protocol) | 10/100 MBit/s | 2 x RJ45 (Ethernet Switch) | DIP switch, BootP, DHCP or PGM | XNE-GWBR-2ETH-MB 152279 | | |
| | Channels | Rated voltage through supply terminal U_L | Input delay $t_{\text{Rising edge}}$ $t_{\text{Falling edge}}$ μs | Input voltage High level U_{eH} V | Part no. Article no. | | |
| XI/ON ECO digital input modules | | | | | | | |
| | Integrated base module Approvals CE, cULus | | | | | | |
|  | 8 | 24 V DC | < 100 | < 200 | 11 - 30 V XNE-8DI-24VDC-P 140035 | | |
| | 16 | 24 V DC | < 150 | < 300 | 11 - 30 V XNE-16DI-24VDC-P 140040 | | |
| | Channels | Rated voltage through supply terminal U_L | Operating frequency at resistive load f Hz | Utilization factor % g | Part no. Article no. | | |
| XI/ON ECO digital output modules | | | | | | | |
| | Integrated base module Can be connected Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus | | | | | | |
|  | 8 | 24 V DC | 100 | 100 | XNE-8DO-24VDC-0.5A-P 140036 | | |
| | 16 | 24 V DC | 100 | 50 %, max. 4 A | XNE-16DO-24VDC-0.5A-P 140039 | | |
| | Channels | Rated voltage through supply terminal U_L | Measured variables ¹⁾ | Measurement ranges | Measured value representation | Limit frequency (-3 db) Hz | Part no. Article no. |
| XI/ON ECO analog input modules | | | | | | | |
| | Integrated base module Approvals CE, cULus | | | | | | |
|  | 8 (U/I), 4 (PT/NI/R) | 24 V DC | Voltage, current, temperature (PT, NI), resistance R | -10/0 to +10 V DC 0/4 - 20 mA PT: -200 - +850 (-328 - +1562)/ -200 - +150 (-328 - +302) °C, (°F) Ni: -60 - +250 (-76 - +482)/ -60 - +150 (-76 - +302) °C, (°F) | 16-bit signed integer 12-bit full range, flush left Standard/extended range/PA (NE43) | 1.5 | XNE-8AI-U/I-4PT/NI 140037 |



Notes


¹⁾ : Platinum sensors: Pt100, Pt500, Pt1000 (as per IEC 751) Nickel sensors: Ni100, Ni1000 (as per DIN 43760)


| | Channels | Rated voltage through supply terminal U_L | Measured variables | Measurement ranges | Measured value representation | Part no. Article no. |
|---|----------|--|--------------------|---------------------------------|--|------------------------------|
| XI/ON ECO analog output modules | | | | | | |
| Integrated base module Approvals CE, cULus | | | | | | |
|  | 4 | 24 V DC | Voltage, Current | -10/0...+10 V DC 0/4 - 20 mA | 16-bit signed integer 12-bit full range, flush left Standard/extended range/PA (NE43) | XNE-4A0-U/I 140034 |

| | Channels | Control mode | Pulse duration | Resolution Bit | Part no. Article no. |
|--|----------|--|-------------------|-------------------|--------------------------------|
| XI/ON ECO meter, PWM module | | | | | |
| Integrated base module Rated voltage through supply terminal 24 V DC Signal evaluation A, B: Pulse and direction; single/double/quadruple rotary transducer Approvals CE, cULus PWM (parameters can be defined): 0.01 Hz - 20 kHz Output Number of pulses : 32 Bit Operating modes Pulse output: Once, endless | | | | | |
|  | 2 | Infinite counter, once only count, periodic count | 32 Bit/max. 120 s | 32 | XNE-2CNT-2PWM 140038 |

| | Field bus connection | Data transfer rate | Connection design for field bus | Addressing | Part no. Article no. | |
|---|---------------------------------------|--|---|---|-------------------------------------|------------------------------------|
| XI/ON standard gateways with integrated power supply module | | | | | | |
| Spring-loaded/screw terminal System supply 24 /5 V DC Approvals CE, cULus | | | | | | |
|  | PROFIBUS-DP (DPV1 protocol) | 9.6 Kbit/s to 12 Mbit/s | 1 x D-SUB socket, 9-pin | 2 decimal rotary coding switches | XN-GWBR-DPV1 148561 | |
| | CANopen® | 10 Kbit/s, 20 Kbit/s, 50 Kbit/s, 125 kbit/s, 250 Kbit/s, 500 Kbit/s, 800 Kbit/s, 1000 Kbit/s | Open style connector | 2 decimal rotary coding switch | XN-GWBR-CANOPEN 140155 | |
| | DeviceNet | 125 kbit/s, 250 Kbit/s, 500 Kbit/s | Open style connector | 2 decimal rotary coding switch | XN-GWBR-DNET 140156 | |
| | Ethernet (Modbus-TCP protocol) | 10/100 MBit/s | RJ45-bus | Decimal rotary coding switch, BootP, DHCP or I/Oassistant | XN-GWBR-MODBUS-TCP 140162 | |
| | CANopen® | adjustable up to 1 Mbit/s | Open style connector | Software | XN-PLC-CANOPEN 140157 | |
| | Field voltage | System supply | Rated current consumption from module bus | Maximum system supply current | Part no. Article no. | |
| | U_L | U_{sys} V DC | I_{MB} mA | I_{MB} A | | |
| XI/ON Standard power supply module | | | | | | |
| Base module required Number of diagnostic bytes: 4 Approvals CE, cULus | | | | | | |
|  | 24 V DC | 24 | - | 1.5 | XN-BR-24VDC-D 140071 | |
| | 24 V DC | - | ≤ 28 | - | XN-PF-24VDC-D 140070 | |
| | 120/230 V AC | - | ≤ 25 | - | XN-PF-120/230VAC-D 140072 | |
| Channels | Rated voltage through supply terminal | Input delay | | Input voltage High level | Part no. Article no. | |
| | U_L | $t_{Rising\ edge}$ | $t_{Falling\ edge}$ | U_{eH} | | |
| | | μs | μs | V | | |
| XI/ON standard digital input modules | | | | | | |
| Base module required Approvals CE, cULus | | | | | | |
|  | 2 | 24 V DC | < 200 | < 200 | 11 - 30 V | XN-2DI-24VDC-P 140056 |
| | 2 | 24 V DC | < 200 | < 200 | 0 - 5 V | XN-2DI-24VDC-N 140057 |
| | 2 | 120/230 V AC | < 20000 | < 20000 | 79 - 265 V AC | XN-2DI-120/230VAC 140058 |
| | 4 | 24 V DC | < 200 | < 200 | 15 - 30 V | XN-4DI-24VDC-P 140052 |
| | 4 | 24 V DC | < 200 | < 200 | 0 - 5 V | XN-4DI-24VDC-N 140059 |
|  | 16 | 24 V DC | < 200 | < 200 | 15 - 30 V | XN-16DI-24VDC-P 140142 |
| | 32 | 24 V DC | < 200 | < 200 | 15 - 30 V | XN-32DI-24VDC-P 140147 |


| | Channels | Rated voltage through supply terminal U_L | Operating frequency at resistive load f Hz | Utilization factor % | Part no. Article no. |
|--|----------|--|--|----------------------------------|---|
| XI/ON Standard digital output modules | | | | | |
| Base module required Connectable: Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus | | | | | |
|  | 2 | 24 V DC | 5000 ($R_{L0} < 1 \text{ k}\Omega$) | 100 | XN-2DO-24VDC-0.5A-P 140053 |
| | 2 | 24 V DC | 100 ($R_{L0} < 1 \text{ kohm}$) | 100 | XN-2DO-24VDC-0.5A-N 140060 |
| | 2 | 120/230 V AC (45 - 65 Hz) | - | 100 (observe derating) | XN-2DO-120/230VAC-0.5A 140150 |
| | 2 | 24 V DC | 5000 ($R_{L0} < 1 \text{ k}\Omega$) | 100 | XN-2DO-24VDC-2A-P 140055 |
| | 4 | 24 V DC | 1000 ($R_{L0} < 1 \text{ k}\Omega$) | 100 | XN-4DO-24VDC-0.5A-P 140148 |
|  | 16 | 24 V DC | 100 ($R_{L0} < 1 \text{ k}\Omega$) | 100 | XN-16DO-24VDC-0.5A-P 140141 |
| | 32 | 24 V DC | 100 ($R_{L0} < 1 \text{ k}\Omega$) | Max. 10 A (total module current) | XN-32DO-24VDC-0.5A-P 140161 |


| | Channels | Measured variables | Measurement ranges | Measured value representation | Limit frequency (-3 db) Hz | Part no. Article no. |
|---|----------|--------------------|--------------------|---|----------------------------------|---|
| XI/ON Standard analog input modules | | | | | | |
| Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus | | | | | | |
|  | 1 | Current | 0/4 - 20 mA | 16-bit signed integer 12-bit full range left-justified | 200 | XN-1AI-I(0/4...20MA) 140063 |
| | 2 | Current | 0/4 - 20 mA | 16-bit signed integer 12-bit full range left-justified | > 50 | XN-2AI-I(0/4...20MA) 140144 |
| | 1 | Voltage | -10/0 to +10 V DC | 16-bit signed integer 12-bit signed integer left-justified 12-bit full range left-justified | 200 | XN-1AI-U(-10/0...+10VDC) 140064 |
| | 2 | Voltage | -10/0 to +10 V DC | 16-bit signed integer 12-bit full range left-justified | > 50 | XN-2AI-U(-10/0...+10VDC) 140145 |
| | 4 | Voltage, Current | -10/0 to +10 V DC | 16-bit signed integer 12-bit signed integer, flush-left | 20 | XN-4AI-U/I 140158 |


| | Channels | Measured variables | Temperature range $^{\circ}\text{C}$, ($^{\circ}\text{F}$) | Measured value representation | Part no. Article no. |
|---|----------|--|--|---|-----------------------------------|
| XI/ON standard temperature modules | | | | | |
| Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus | | | | | |
|  | 2 | Temperature (Thermocouple) ¹⁾ | Type B: +100 - +1820 (+212 - +3308) Type E: -270 - +1000 (-454 - +1832) Type J: -210 - +1200 (-346 - +2192) Type K: -270 - +1370 (-454 - +2498) Type N: -270 - +1300 (-454 - +2372) Type R: -50 - +1760 (-58 - +3200) Type S: -50 - +1540 (-58 - +2804) Type T: -270 - +400 (-454 - +752) | 16-bit signed integer 12-bit full range left-justified | XN-2AI-THERMO-PI 140068 |
| | 2 | Temperature (PT, NI), resistance R ²⁾ | PT: -200 - +850 (-328 - +1562)/-200 - +150 (-328 - +302) Ni: -60 - +250 (-76 - +482)/-60 - +150 (-76 - +302) | 16-bit signed integer 12-bit full range left-justified | XN-2AI-PT/NI-2/3 140067 |

Notes

- ¹⁾ According to DIN IEC 584, Class 1, 2, 3
- ²⁾ Platinum sensors: PT100, PT200, PT500, PT1000 (according to DIN IEC 751)
Nickel sensors: Ni100, Ni1000 (according to DIN 43760)

| | Channels | Measured variables | Measurement ranges | Measured value representation | Part no. Article no. |
|---|----------|--------------------|--------------------|---|---|
| XI/ON Standard analogue output modules | | | | | |
| Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus | | | | | |
|  | 1 | Current | 0/4 - 20 mA | 16-bit signed integer 12-bit full range left-justified | XN-1AO-I(0/4...20MA) 140065 |
| | 2 | Current | 0/4 - 20 mA | 16-bit signed integer 12-bit full range left-justified | XN-2AO-I(0/4...20MA) 140146 |
| | 2 | Voltage | -10/0...+10 V DC | 16-bit signed integer 12-bit signed integer left-justified 12-bit full range left-justified | XN-2AO-U(-10/0...+10VDC) 140066 |

| | Contact type art | Rated load voltage | Maximum continuous current, resistive load | Part no. Article no. |
|--|----------------------|--------------------|--|------------------------------|
| XI/ON Standard relay modules | | | | |
| Base module required Rated voltage through supply terminal: 24 V DC Connectable sensors: Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus | | | | |
|  | 2 break contacts | 230 V AC, 30 V DC | 5 A | XN-2DO-R-NC 140061 |
| | 2 make contacts | 230 V AC, 30 V DC | 5 A | XN-2DO-R-NO 140062 |
| | 2 Changeover contact | 230 V AC, 30 V DC | 5 A | XN-2DO-R-CO 140054 |

| | Type | Transmission channels | Bit transfer rate | Cable length RS232 m | Part no. Article no. |
|---|---------------|-----------------------|--|-------------------------|--------------------------------|
| XI/ON Standard interface modules | | | | | |
| Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus | | | | | |
|  | RS232 | RxD, TxD, RTS, CTS | Max. 115200 bit/s (parameterizable), default setting: 9600 Bit/s, 7 data bits, odd parity, 2 stop bits | max. 15 | XN-1RS232 140151 |
| | RS 484/RS 422 | RxD, TxD | Max. 115200 bit/s (parameterizable), default setting: 9600 Bit/s, 7 data bits, odd parity, 2 stop bits | max. 30 | XN-1RS485/422 140152 |
| | SSI | CL, D | Max. 1 MHz (parameterizable), default settings: 500 kBit/s | max. 30 | XN-1SSI 140153 |

| Electronic modules | Base modules | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--------------|--------------|---------------|---------------|---------------|------------------|----------------|----------------|----------------|--------------|--------------|---------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|--|
| | XN-S3...-SBB | XN-S3...-SBC | XN-S4...-SBBC | XN-S4...-SBBS | XN-S4...-SBCS | XN-S4...-SBBS-CJ | XN-S6...-SBBSB | XN-S6...-SBBSB | XN-S6...-SBBSB | XN-B3...-SBB | XN-B3...-SBC | XN-B4...-SBBC | XN-B6...-SBBSB | XN-B6...-SBBSB | XN-P3...-SBB | XN-P3...-SBBS-B | XN-P4...-SBBC | XN-P4...-SBBS-B | |
| Digital input cards | | | | | | | | | | | | | | | | | | | |
| XN-2DI-24VDC-P | ● | | ● | | | | | | | | | | | | | | | | |
| XN-2DI-24VDC-N | ● | | ● | | | | | | | | | | | | | | | | |
| XN-2DI-120/230VAC | ● | | ● | | | | | | | | | | | | | | | | |
| XN-4DI-24VDC-P | | | | ● | | | | ● | | | | | | | | | | | |
| XN-4DI-24VDC-N | | | | ● | | | | ● | | | | | | | | | | | |
| XN-16DI-24VDC-P | | | | | | | | | ● | | | ● | | | | | | | |
| XN-32DI-24VDC-P | | | | | | | | | | | | | ● | | | | | | |
| XNE-8DI-24VDC-P ¹⁾ | | | | | | | | | | | | | | | | | | | |
| XNE-16DI-24VDC-P ¹⁾ | | | | | | | | | | | | | | | | | | | |
| Digital output modules | | | | | | | | | | | | | | | | | | | |
| XN-2DO-24VDC-0.5A-P | | ● | | | ● | | | | | | | | | | | | | | |
| XN-2DO-24VDC-0.5A-N | | ● | | | ● | | | | | | | | | | | | | | |
| XN-2DO-24VDC-2A-P | | ● | | | ● | | | | | | | | | | | | | | |
| XN-2DO-120/230VAC-0.5A | | ● | | | ● | | | | | | | | | | | | | | |
| XN-4DO-24VDC-0.5A-P | | | | | ● | | | ● | | | | | | | | | | | |
| XN-16DO-24VDC-0.5A-P | | | | | | | | | ● | | | | | | | | | | |
| XN-32DO-24VDC-0.5A-P | | | | | | | | | | ● | | | | | | | | | |
| XNE-8DO-24VDC-0.5A-P ¹⁾ | | | | | | | | | | | | | | | | | | | |
| XNE-16DO-24VDC-0.5A-P ¹⁾ | | | | | | | | | | | | | | | | | | | |
| Relay modules | | | | | | | | | | | | | | | | | | | |
| XN-2DO-R-NC | | | | ● | ● | | | | | | | | | | | | | | |
| XN-2DO-R-NO | | | | ● | ● | | | | | | | | | | | | | | |
| XN-2DO-R-CO | | | | ● | | | | | | | | | | | | | | | |
| Analog input cards | | | | | | | | | | | | | | | | | | | |
| XN-1AI-I(0/4...20MA) | ● | | | ● | | | | | | | | | | | | | | | |
| XN-2AI-I(0/4...20MA) | ● | | | ● | | | | | | | | | | | | | | | |
| XN-1AI-U(-10/0...+10VDC) | ● | | | ● | | | | | | | | | | | | | | | |
| XN-2AI-U(-10/0...+10VDC) | ● | | | ● | | | | | | | | | | | | | | | |
| XN-2AI-PT/NI-2/3 | ● | | | ● | | | | | | | | | | | | | | | |
| XN-2AI-THERMO-PI | | | | | | ● | | | | | | | | | | | | | |
| XN-4AI-U/I | | | | | | | | ● | | | | | | | | | | | |
| XNE-8AI-U/I-4PT/NI ¹⁾ | | | | | | | | | | | | | | | | | | | |
| Analog output modules | | | | | | | | | | | | | | | | | | | |
| XN-1AO-I(0/4...20MA) | ● | | | | | | | | | | | | | | | | | | |
| XN-2AO-I(0/4...20MA) | ● | | | | | | | | | | | | | | | | | | |
| XN-2AO-U(-10/0...+10VDC) | ● | | | | | | | | | | | | | | | | | | |
| XNE-4AO-U/I ¹⁾ | | | | | | | | | | | | | | | | | | | |
| Technology modules | | | | | | | | | | | | | | | | | | | |
| XN-1RS232 | | | | ● | | | | | | | | | | | | | | | |
| XN-1RS485/422 | | | | ● | | | | | | | | | | | | | | | |
| XN-1SSI | | | | ● | | | | | | | | | | | | | | | |
| XNE-1SWIRE ¹⁾ | | | | | | | | | | | | | | | | | | | |
| XNE-2CNT-2PWM ¹⁾ | | | | | | | | | | | | | | | | | | | |
| Power supply modules | | | | | | | | | | | | | | | | | | | |
| XN-BR-24VDC-D | | | | | | | | | | | | | | | ● ²⁾ | ● ³⁾ | ● ²⁾ | ● ³⁾ | |
| XN-PF-24VDC-D | | | | | | | | | | | | | | | ● | | ● | | |
| XN-PF-120/230VAC-D | | | | | | | | | | | | | | | ● | | ● | | |

Notes

- 1) No base module required
- 2) Base modules for gateway power supply
- 3) Base modules for bus refreshing within the station

Build it in.



Compact and modular PLCs

The compact PLCs XC152 facilitate cost-effective solutions of automation tasks using their computing power, the SmartWire-DT interface as well as a whole range of further interfaces.

An important feature is their ability to be integrated in modern communication concepts. Innovative solutions can be created thanks to the possibility to exchange data with OPC clients via the Ethernet interface and the integrated web server.

The compact class with the EC4P controllers now offer the performance of a PLC in the housing of the renowned easy control relay. This enables the convenient creation of solutions for small and medium-sized control tasks.

The XC100 and XC200 modular PLCs stand out on account of their highly scalable design. Different CPU performance classes and a wide range of expansion modules are available.



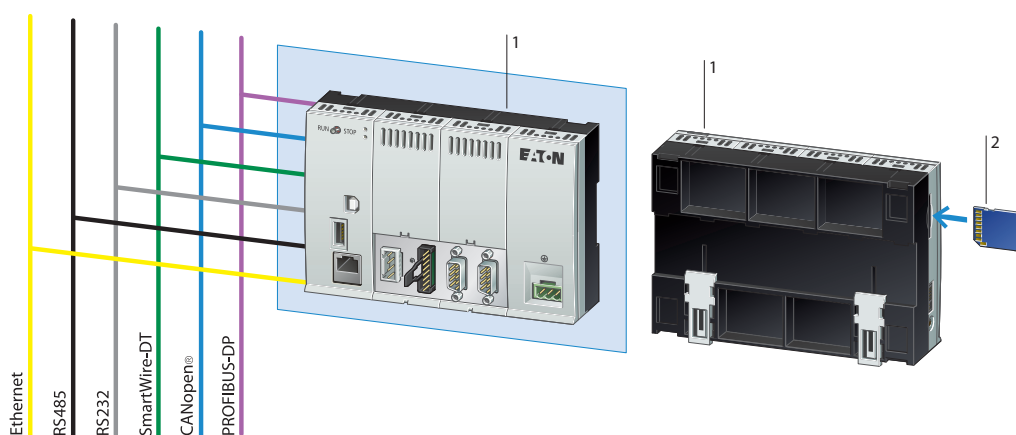
www.eaton.eu/xc152
www.eaton.eu/ec4p
www.eaton.eu/xc

XC152 – Compact PLC







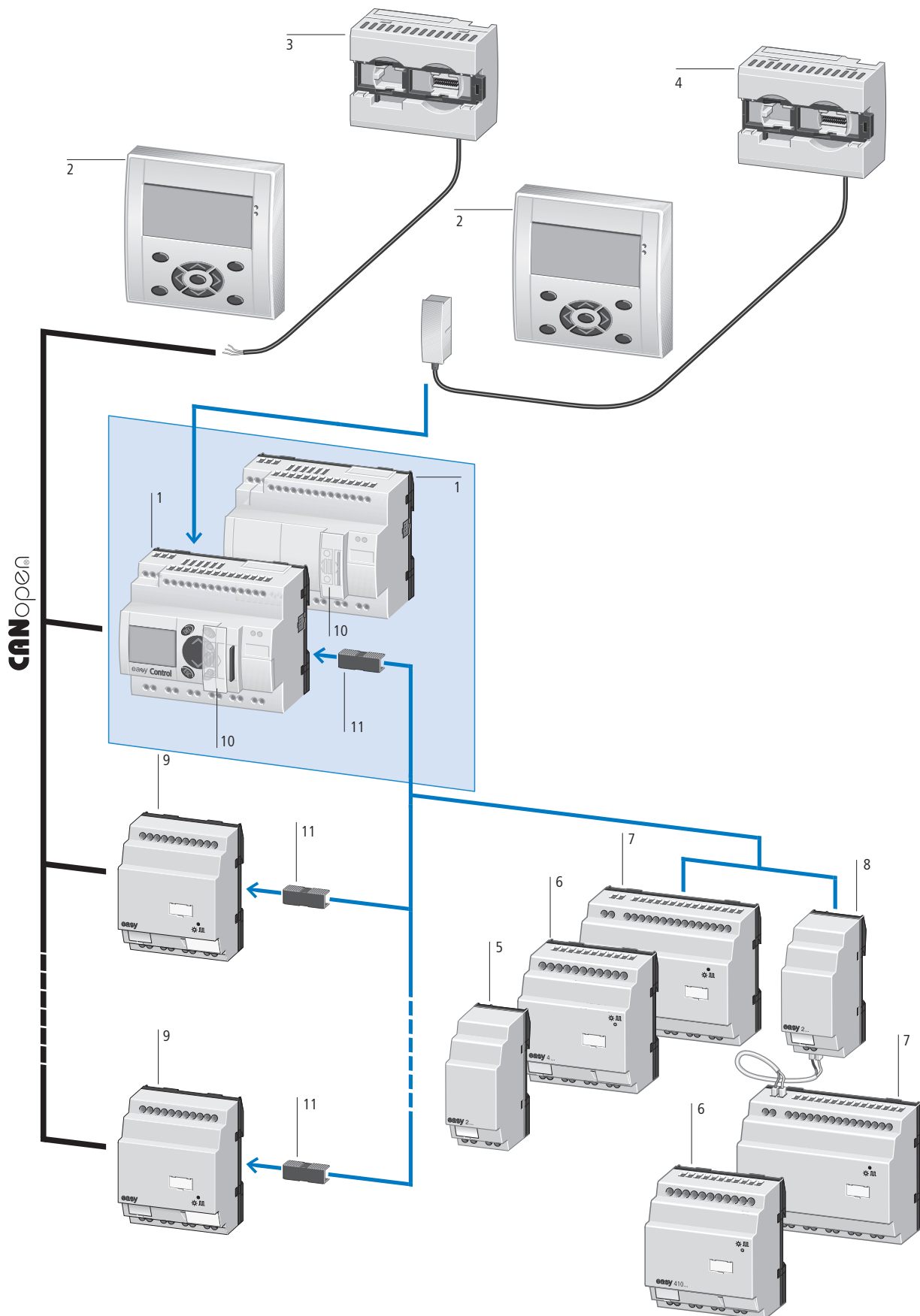
The compact PLCs combine PLC performance with a range of communication interfaces.

- OS: Windows CE 5
- Processor: RISC CPU, 32 bit, 400 MHz
- USB device, USB-Host
- Ethernet interface
- Communication interface depending on the type: RS232, RS485, Profibus/MPI and CANopen
- SmartWire-DT interface depending on the type
- Program, data and retain variable memory: 64MB
- External memory: 1 x SD card
- Programming: CODESYS
- Web server: CODESYS
- Target visualization: GALILEO/CODESYS (remotely viewable)






- 1 Compact PLCs XC152
- 2 SD-Memory Card

| | Built-in interfaces | | | | | | | Application / marker / retain data KByte | Part no. Article no. |
|---|------------------------|--------------------------|--------------|------------------|-----------|-----------|---------------------|---|---|
| | 1 x CANopen® / easyNet | 1 x Ethernet 10/100 Mbps | 1 x USB-Host | 1 x SmartWire-DT | 1 x RS232 | 1 x RS485 | 1 x PROFIBUS-DP/MPI | | |
| XC compact PLCs | | | | | | | | | |
| 24 V DC power supply Slot for memory card RUN/STOP switch and LED displays OPC Server WEB server Remote Server Approvals: CE, cULus | | | | | | | | | |
| Compact PLC XC152 | | | | | | | | | |
|  | - | ✓ | ✓ | - | ✓ | ✓ | ✓ | 64 MB / 4 KB / 32 KB | XC-152-D8-11 167849 |
| | - | ✓ | ✓ | ✓ | ✓ | - | - | 64 MB / 4 KB / 32 KB | XC-152-E3-11 167850  |
| | ✓ | ✓ | ✓ | ✓ | - | ✓ | - | 64 MB / 4 KB / 32 KB | XC-152-E6-11 167851  |
| | - | ✓ | ✓ | ✓ | - | ✓ | ✓ | 64 MB / 4 KB / 32 KB | XC-152-E8-11 167852  |
| | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | 64 MB / 4 KB / 32 KB | XC-152-D6-11 167855 |






- | | | | |
|---|---|----|-----------------------------------|
| 1 | Compact PLC EC4P | 6 | EASY410... I/O expansion, digital |
| 2 | Display/operating unit MFD-80-B | 7 | EASY6... I/O expansion, digital |
| 3 | MFD-CP4-CO CANopen® connection | 8 | EASY200-EASY Coupling module |
| 4 | Power supply unit/communication module, including connection cable for EC4P | 9 | CANopen® expansion EC4E-221-...6 |
| 5 | EASY202-RE output expansion | 10 | EU4A-MEM-CARD1 memory card |
| | | 11 | EASY-LINK-DS bus connector plug |

| | Inputs | | Outputs | | | Display & keypad | Part no. | Article no. |
|--|---------|--------------------------------|-----------------|------------|--------|------------------|----------------|-------------|
| | Digital | Of which can be used as analog | Relay 10 A (UL) | Transistor | Analog | | | |
| Compact PLC EC4P | | | | | | | | |
| Expandable: Inputs/outputs and bus systems Individual laser inscription possible with EC4-COMBINATION-* | | | | | | | | |
| Supply voltage 24 V DC | | | | | | | | |
| UL/CSA approvals | | | | | | | | |
| DNV, GL, ABS, BV, LR shipping classifications | | | | | | | | |
| easyNet/CANopen® on board | | | | | | | | |
|  | 12 | 4 | - | 8 | - | ✓ | EC4P-221-MTXD1 | 106391 |
| | 12 | 4 | - | 8 | - | - | EC4P-221-MTXX1 | 106392 |
| | 12 | 4 | 6 | - | - | ✓ | EC4P-221-MRXd1 | 106393 |
| | 12 | 4 | 6 | - | - | - | EC4P-221-MRXX1 | 106394 |
| | 12 | 4 | - | 8 | 1 | ✓ | EC4P-221-MTAD1 | 106395 |
| | 12 | 4 | - | 8 | 1 | - | EC4P-221-MTAX1 | 106396 |
| | 12 | 4 | 6 | - | 1 | ✓ | EC4P-221-MRAD1 | 106397 |
| | 12 | 4 | 6 | - | 1 | - | EC4P-221-MRAX1 | 106398 |
| easyNet/CANopen® and Ethernet on board | | | | | | | | |
|  | 12 | 4 | - | 8 | - | ✓ | EC4P-222-MTXD1 | 106399 |
| | 12 | 4 | - | 8 | - | - | EC4P-222-MTXX1 | 106400 |
| | 12 | 4 | 6 | - | - | ✓ | EC4P-222-MRXd1 | 106401 |
| | 12 | 4 | 6 | - | - | - | EC4P-222-MRXX1 | 106402 |
| | 12 | 4 | - | 8 | 1 | ✓ | EC4P-222-MTAD1 | 106403 |
| | 12 | 4 | - | 8 | 1 | - | EC4P-222-MTAX1 | 106404 |
| | 12 | 4 | 6 | - | 1 | ✓ | EC4P-222-MRAD1 | 106405 |
| | 12 | 4 | 6 | - | 1 | - | EC4P-222-MRAX1 | 106406 |
| Memory card | | | | | | | | |
| Adapter with at least 128 MByte memory card | | | | | | | | |
| | | | | | | | EU4A-MEM-CARD1 | 106409 |

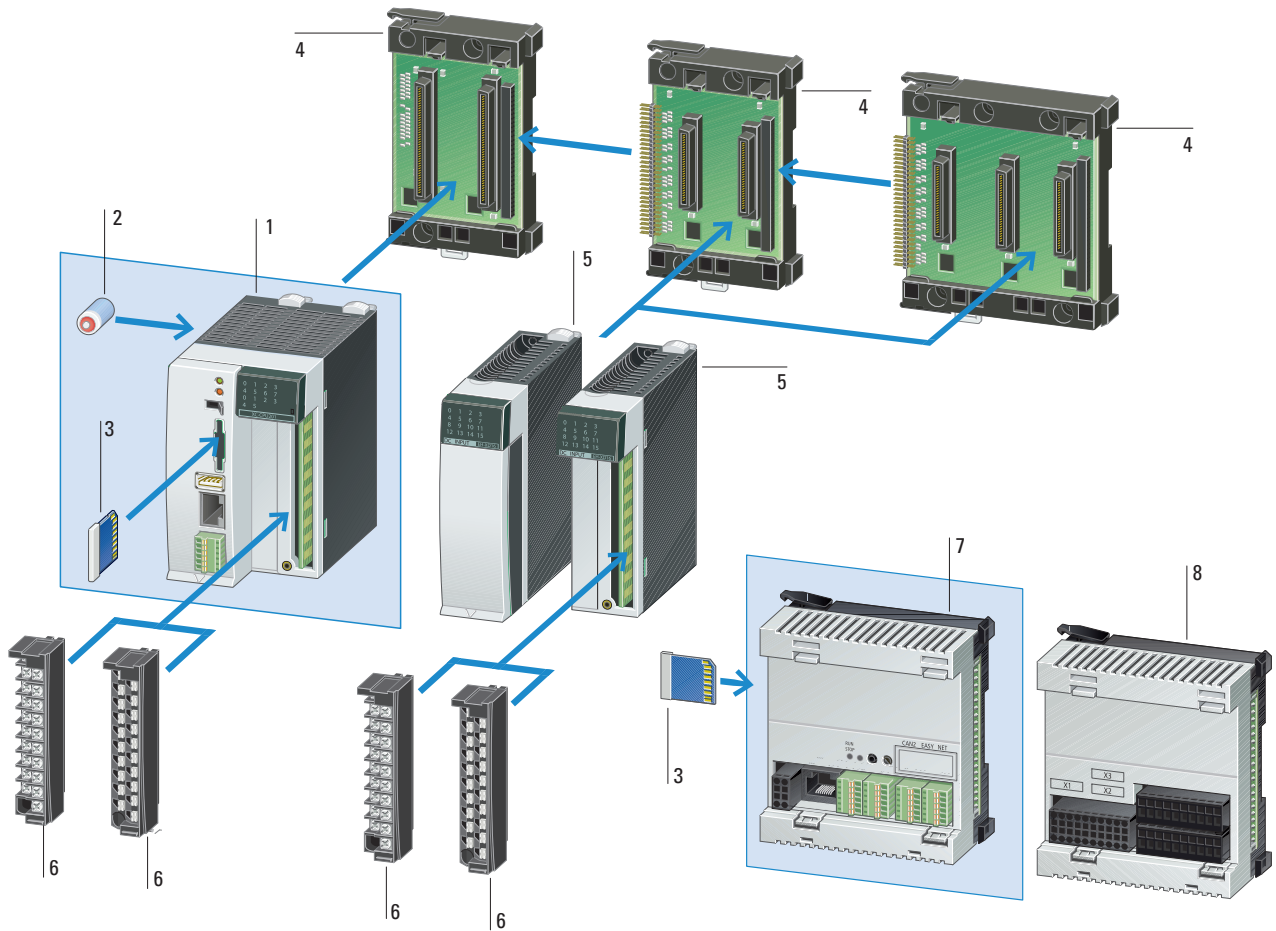
| | Inputs | | Outputs | | Supply voltage | Part no. | Article no. | |
|---|---------|---|-----------------|------------|----------------|----------------|-------------|--|
| | Digital | | Relay 10 A (UL) | Transistor | | | | |
| Expansions | | | | | | | | |
| usable via CANopen® | | | | | | | | |
|  | 6 | 4 | - | - | 24 V DC | EC4E-221-6D4R1 | 114296 | |
| | 6 | - | - | 4 | 24 V DC | EC4E-221-6D4T1 | 114297 | |

More digital and analog expansions → Page 78






| Description | | Part no. | Article no. |
|--|--|------------|-------------|
| Remote text display | | | |
| Display/operating unit Monochrome display 132 × 64 pixels with switchable backlight Removable Titan front frame Custom laser inscriptions possible with MFD-COMBINATION (article no. 2010801) product IP65 | | | |
|  | With keypad With Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm | MFD-80-B | 265251 |
|  | With keypad Without Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm | MFD-80-B-X | 284905 |
| CANopen® connection for multi-function display | | | |
|  | Communication module with CANopen® interface Automatic baud rate setting up to 1 Mbaud Up to 64 display pages can be saved For use with display/operating unit MFD-80-B(-X) and connection cable EU4A-RJ45-CAB2 Supply voltage 24 V DC | MFD-CP4-CO | 115736 |

Modular PLCs

System overview



- 1 Modular PLCs XC100/XC200
- 2 Battery
- 3 Memory card
- 4 Rack
- 5 XI/OC I/O and communications modules
- 6 XI/OC terminal block (screw or spring-cage terminal)
- 7 XC121 expandable compact PLC
- 8 I/O expansion for XC121

| Digital input count | Quantity of outputs | Built-in interfaces | Cycle time for 1 k of instructions (Bit, Byte) ms | Application/marker/retain data KByte | Integrated Web server | Part no. Article no. | |
|--|--|---|---|--------------------------------------|-----------------------|----------------------|--|
| | | CANopen®/easyNet CANopen® (FO cable) Ethernet 100Base-TX/10Base-T USB Host RS232 RS485/RS232 2 x CANopen® | | | | | |
| Modular PLCs | | | | | | | |
| 24 V DC power supply Can be locally expanded with 15 XI/OC modules and remotely extendable Slot for memory card RUN/STOP switch and LED displays UL/CSA approval The following accessory equipment is required: terminal clamps, module rack, battery | | | | | | | |
| Modular PLC XC-CPU101 | | | | | | | |
|  | Digital: 8; of which usable as interrupt: 4 | Transistor: 6 | ✓ - - - ✓ - - | < 0.5 | 64 KB/4 KB/4 KB | No | XC-CPU101-C64K-8DI-6DO 262152 |
| | | | ✓ - - - ✓ - - | < 0.5 | 128 KB/8 KB/8 KB | No | XC-CPU101-C128K-8DI-6DO 262146 |
| | | | - ✓ - - ✓ - - | < 0.5 | 128 KB/8 KB/8 KB | No | XC-CPU101-FC128K-8DI-6DO 289169 |
| | | | ✓ - - - ✓ - - | < 0.5 | 256 KB/8 KB/8 KB | No | XC-CPU101-C256K-8DI-6DO 274399 |
| Modular PLC XC-CPU201 | | | | | | | |
|  | Digital: 8; of which usable as interrupt: 6 | Transistor: 6 | ✓ - ✓ - ✓ - - | < 0.15 | 256 KB/16 KB/32 KB | No | XC-CPU201-EC256K-8DI-6DO 262155 |
| | | | ✓ - ✓ - ✓ - - | < 0.15 | 256 KB/16 KB/32 KB | Yes | XC-CPU201-EC256K-8DI-6DO-XV 262156 |
| | | | ✓ - ✓ - ✓ - - | < 0.15 | 2 MB/16 KB/32 KB | No | XC-CPU201-EC512K-8DI-6DO 262157 |
| | | | ✓ - ✓ - ✓ - - | < 0.15 | 2 MB/16 KB/32 KB | Yes | XC-CPU201-EC512K-8DI-6DO-XV 262158 |
| Modular PLC XC-CPU202 | | | | | | | |
|  | Digital: 8; of which usable as interrupt: 6 | Transistor: 6 | ✓ - ✓ ✓ ✓ - - | < 0.03 | 4 MB/16 KB/32 KB | Yes | XC-CPU202-EC4M-8DI-6DO-XV 134238 |
| Modular PLC XC-CPU121 | | | | | | | |
|  | Can be locally expandable with I/O module XIO-EXT-121-1 244 kByte data memory shipping classification: DNV, LR, BV, GL, ABS | | - - - - ✓ ✓ ✓ | < 0.3 | 256 KB/16 KB/8 KB | No | XC-CPU121-2C256K 290446 |
| I/O Expansion for XC-CPU121 | | | | | | | |
|  | Inputs expansion (number) Digital: 10; of which can be used as interrupts: 6; analog: 6 (0 - 10V: 2 or 0 - 20 mA: 2 or Pt100: 2) Digital: An additional 8 (also usable as outputs) Outputs expansion (number) Digital: 8 (also usable as inputs) Analog: 2 (0 - 10 V) | | | | | | XIO-EXT121-1 290450 |

I/O expansions

XI/OC

| Description | | Part no. | Article no. | |
|--|---|---|-------------------------|--------|
| I/O expansions XI/OC | | | | |
| Compact I/O system for connection to XC100/200 Modular PLCs XC100/200 expandable with up to 15 XI/OC modules Optionally, screw terminals or spring-loaded terminals for digital/analog modules UL/CSA approvals | | | | |
| Analog modules  | Inputs 8 Inputs 4 - 20 mA | XIOC-8AI-I2 | 262549 | |
| | Inputs 8 voltage input 0 - 10 V | XIOC-8AI-U1 | 257899 | |
| | Inputs 8 voltage inputs, ±10 V | XIOC-8AI-U2 | 257900 | |
| | Inputs 4 inputs for temperature monitoring, Pt100/1000 | XIOC-4T-PT | 257901 | |
| | Inputs 4 inputs for thermocouples Type K, J, B, N, E, R, S, T | XIOC-4AI-T | 289933 | |
| | Outputs 2 outputs, ±10 V | XIOC-2AO-U2 | 257904 | |
| | Outputs 2 Outputs 0 - 10 V 2 outputs 4 - 20 mA | XIOC-2AO-U1-2AO-I2 | 257902 | |
| | Outputs 4 Outputs 0 - 10 V | XIOC-4AO-U1 | 257903 | |
| | Combination modules 2 Inputs and 1 Output 0 - 10 V 1 ms conversion time | XIOC-2AI-1AO-U1 | 262409 | |
| | Combination modules 2 Inputs and 1 Output 0 - 10 V, 0 - 20 mA 1 ms conversion time individual changeover | XIOC-2AI-1AO-U1-I1 | 281545 | |
| | Combination modules 4 Inputs und 2 Outputs 0 - 10 V 1 ms conversion time | XIOC-4AI-2AO-U1 | 262405 | |
| | Combination modules 4 Inputs and 2 Outputs 0 - 10 V, 0 - 20 mA 1 ms conversion time individual changeover | XIOC-4AI-2AO-U1-I1 | 281544 | |
| | Digital modules  | 8 inputs, 24 V DC | XIOC-8DI | 257891 |
| | | 16 inputs, 24 V DC | XIOC-16DI | 257892 |
| 32 inputs, 24 V DC | | XIOC-32DI | 267411 | |
| 8 outputs, 24 V DC, 0.3 A | | XIOC-8DO | 257894 | |
| 12 relay outputs | | XIOC-12DO-R | 257897 | |
| 16 outputs, 24 V DC, 0.3 A | | XIOC-16DO | 257896 | |
| 16 outputs, 24 V DC, 0.8 A short-circuit proof | | XIOC-16DO-S | 257895 | |
| 16 connections, 4 inputs, 12 freely parameterizable as inputs/outputs, 24 V DC outputs 0.5 A | | XIOC-16DX | 262322 | |
| 32 outputs, 24 V DC, 0.2 A | | XIOC-32DO | 267413 | |
| Counter modules  | | 1 input up to 100 kHz, (24 V DC, 5 V DC) 2 digital transistor outputs Optocoupled, 24 V DC 30 pole connector required for counter module | XIOC-1CNT-100KHZ | 257906 |
| | 2 inputs up to 100 kHz, (24 V DC or 5 V diff), 2 inputs up to 100 kHz, (24 V DC or 5 V diff), 4 digital transistor outputs, optocoupled, 24 V DC, 30 pole connector required for counter module | XIOC-2CNT-100KHZ | 257907 | |
| | 2 incremental encoders up to 400 kHz, 5 V DC, 2 analog outputs, ±10 V | XIOC-2CNT-2AO-INC | 262417 | |
| Communication modules  | PROFIBUS-DP master module | XIOC-NET-DP-M | 257908 | |
| | PROFIBUS DP slave module | XIOC-NET-DP-S | 286419 | |
| | Suconet K master module | XIOC-NET-SK-M | 289982 | |
| | Serial interface RS232C, RS485, RS422 Modes of operation: Transparent mode MODBUS Master/Slave SUCOM-A Suconet-K slave | XIOC-SER | 267191 | |
| | Serial interface RS232C, RS485, RS422 Modes of operation: Transparent mode MODBUS Master/Slave SUCOM-A DNP3-Protocol | XIOC-TC1 | 135265 | |

| | Description | For use with | Part no. | Article no. |
|--|--|--------------------------------------|-------------------------|-------------|
| Terminations | | | | |
| One 18 pole terminal plug is required for each digital and analog module as well as XC modular PLCs. | | | | |
|  | 18 pole terminal connector with spring-cage terminals for digital or analog I/O | - | XIOC-TERM-18T | 258104 |
|  | 18-pin terminal connector with screw terminals for digital or analog I/O | - | XIOC-TERM-18S | 258102 |
|  | 30 pole connector for counter module, with 4 m cable | XIOC-1CNT-100KHZ XIOC-2CNT-100KHZ | XIOC-TERM30-CNT4 | 262248 |
|  | 40 pole connector for digital module, with 4 m cable | XIOC-32DI XIOC-32DO | XIOC-TERM32 | 267414 |
| Racks | | | | |
|  | Basic rack for mounting XC100/200 on top-hat rail, expandable Width: 2 slots for controller | - | XIOC-BP-XC | 260792 |
|  | Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 2 slots for controller | - | XIOC-BP-2 | 260794 |
|  | Basic rack for mounting XC100/200 on top-hat rail, expandable Width: 3 slots for controller and one XI/OC module | - | XIOC-BP-XC1 | 260793 |
|  | Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 3 slots for XI/OC modules | - | XIOC-BP-3 | 260795 |
|  | Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 3 slots for XI/OC modules Note: Module rack for expansion with up to 15 modules, must be plugged into the 6th slot | - | XIOC-BP-EXT | 274291 |
| Add-on functions | | | | |
|  | For storage of programs, data, recipes 512 MByte | | XT-MEM-MM512M | 138257 |
|  | For storage of programs, data, recipes 256 MByte | | XT-MEM-MM32M | 262731 |
|  | For back-up of real-time clock and retentive data | | XT-CPU-BAT1 | 256209 |
|  | Empty module to cover free XI/OC slots | | XIOC-NOP | 288894 |

Build it in.

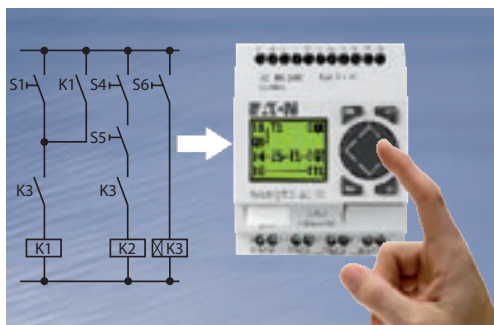


easyRelay control relays MFD-Titan multi-function display

The easy500/easy700/800 control relays as well as the MFD-Titan multi-function display come with a full range of technical resources to implement applications for industrial and building automation, machine building or plant construction. A host of different device versions with various functions, voltage types, expansion and networking options are available for implementing the right solution. As well as offering the main functions of the easy500/easy700 such as multi-function timing relays, counters, analog value comparators, time switches etc., the easy800 and MFD-Titan offer a host of function blocks such as PID controllers, maths and value scaling function blocks and many more. The MFD-Titan also offers user-friendly operator and visualization options such as button functions, bitmaps or bar graphs as well as text displays, value entry and display functions. Protection to IP65 means that the display can be used in aggressive environments.



www.eaton.eu/easy
www.eaton.eu/mfd



easy500

For small-scale applications with up to 12 I/O:

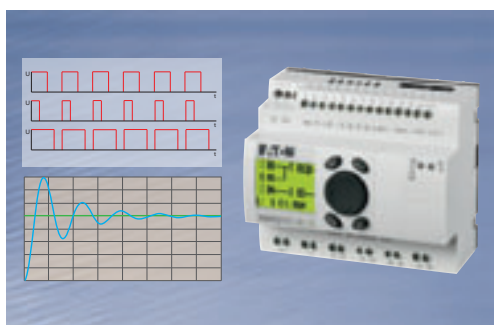
- 1:1 electronic circuit diagram entry
- Circuit diagram entry directly on the device possible
- 128 rungs with 3 contacts each and 1 coil in series
- Functions such as multi-function timing relays, impulse relays, counters, analog value comparators, week and year time switches, value entry, value display...
- Connection possible to Ethernet (programming and OPC functionality)



easy700

For solving medium-sized control tasks up to 40 I/O:

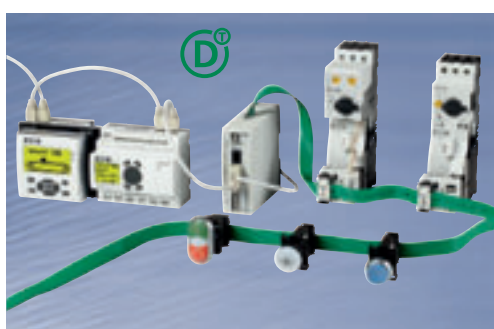
- Full functional range of an easy500
- 128 rungs with 3 contacts each and 1 coil in series
- Local and remote expansion possible for flexibility in the application
- Connection possible to standard bus systems (Profibus, CANopen, DeviceNet, Asi) and Ethernet (programming and OPC functionality)



easy800

Ideal for large open-loop and closed-loop control tasks with up to 328 I/O:

- Full functional range of an easy700
- A host of additional functions such as PID controller, maths functions, pulse width modulation, value scaling, high-speed counters (5 kHz),...
- 256 rungs with 4 contacts each and 1 coil in series
- Digital and analog expandability
- Integrated communication via easyNet (up to 8 stations – up to 1000 m)
- Connection possible to standard bus systems (Profibus, CANopen, DeviceNet, Asi) and Ethernet (programming and OPC functionality)



easy800 with SmartWire-DT

Combines the functions of an easy800 with the direct connection to the communication system for switchgear SmartWire-DT (SW-DT):

- Exchange of data as well as power supply for the SmartWire-DT devices and contactors via the communication system SmartWire-DT
- Up to 99 SmartWire-DT devices in total with up to 166 inputs/outputs can be connected
- easyNet as well as 4 additional fast inputs, 2 of which can be used as fast outputs
- Serial interface for programming or for connection of a remote text display or touch panel or for connection to the Ethernet



MFD-Titan

Combines the functions of an easy800 with user-friendly visualization for large-scale applications with more than 300 I/O:

- Display, operation, open and closed-loop control as well as communication in a single device
- Fast and easy to install in 22.5 mm standard fixing holes
- I/O modules for direct temperature measuring (Pt100 / Ni1000)
- Individual laser inscription of devices, for example with own company logo
- Digital and analog expandability
- Communication via easyNet possible (up to 8 stations – up to 1000 m)
- Connection possible to standard bus systems (Profibus, CANopen, DeviceNet, Asi) and Ethernet (programming and OPC functionality)



EASY802-DC-SWD / EASY806-DC-SWD

In addition to the easy800 features with which the industry is already familiar, these two control relays feature an integrated SmartWire-DT master. This means that the SmartWire-DT line can be configured by simply pressing a button. After this, SmartWire-DT module switching states, status messages, motor load currents, and diagnostic data can all be easily processed in the corresponding circuit diagram. On top of the functionalities featured by the EASY802-DC-SWD, the EASY806-DC-SWD comes with an additional 4 fast inputs (5 kHz), 2 of which can also be configured as fast outputs (5 kHz) (24 VDC, 0.1 A transistor). Finally, in addition to this extra I/O, the EASY806-DC-SWD can be connected to easyNet.



easySoft-Basic / easySoft-Pro

This programming software is used to program the various easyRelay output classes, as well as the MFD-Titan. To do so, the corresponding circuit diagram is created in the form of a ladder diagram with the use of straightforward dragging and dropping. Moreover, the software programs feature simulation, real-time communication, and documentation options. On top of the functions available in easySoft-Basic, easySoft-Pro features a screen editor that can be used to create screens for the MFD-Titan. The integrated SmartWire-DT Assist program is used to integrate the SmartWire-DT line into the program. Finally, the easySoft-Pro CD comes with a free OPC server that makes it possible to connect to higher-level computer systems (OPC clients) in a standardized manner. Both software programs can be installed in 13 languages.

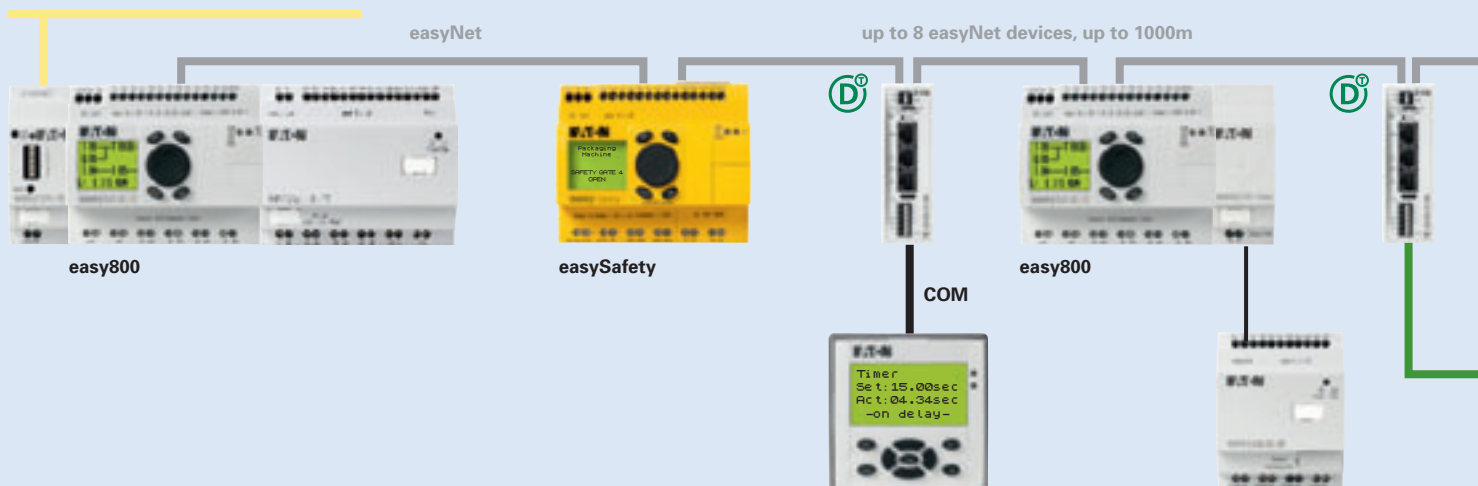


Bluetooth-Adapater and easyApps for Android Smartphones

Commissioning and operation of machines and equipment is now easier than ever – thanks to the Bluetooth adapter and easyApps. The free easyRemote Display App offers convenient access for Android smartphones to all available display and operating functions on the easy800 – almost like working on the control relay itself. The easyParameter App allows for customization of individual smartphone user interfaces. The administrator has flexibility in adjusting the user interface for the app user and determines which parameters can be read and modified from the smartphone. Thanks to the practical Bluetooth adapter, Android smartphones and easy800 can communicate directly via Bluetooth. It is also used for communications between the control relay and the computer.

Download easyApps from  Google play

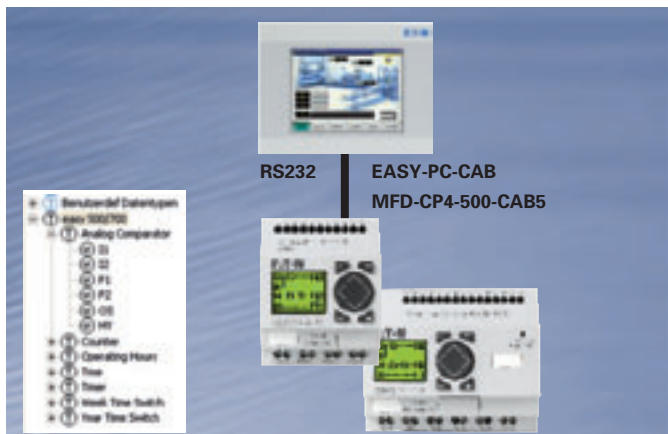
Ethernet





Remote text display

For display and operation in the control panel door, on the machine or on the operator panel up to 5 m from the basis unit. This makes it possible to remotely display texts and values and enter values. The remote text display can be used for all easyRelay, easySafety, and easyControl units. It is made up of an MFD-80(-B) display/operating unit, an MFD(-AC)-CP4 power supply unit/communication module, and an MFD-CP4-...CAB5 or EU4A-RJ45-CAB2 connecting cable. Moreover, a high degree of protection of IP65 makes it suitable for use in harsh environments as well.



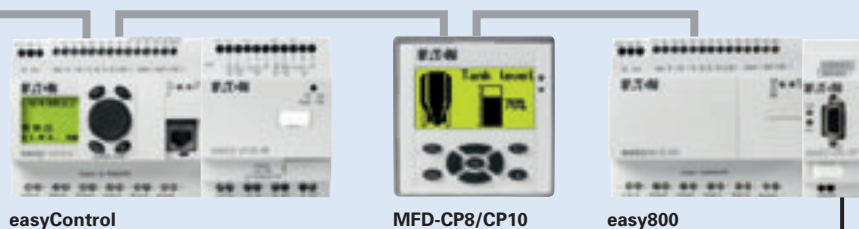
easy500/700 with XV Touch Panel as a HMI

Via the programming cable EASY-PC-CAB, control relays such as the easy500/700 can be connected to the XV Touch Panels. The touch panel reads data from the control relay or writes setting values to it. easy500/700 assumes the control of the application. Display and operation are implemented through the comfortable visualisation options of the HMIs. This was created using the GALILEO visualization software. After selecting "easy 500/700" in Communications, the corresponding data types for the control relay are automatically created in GALILEO in the correct structure. This provides the visualization software with convenient access to the function block parameters for easy, allowing them to be linked to the visualization elements.



easy800 with XV Touch Panel as a HMI

In addition to the connection of easy800 and easySafety to an XV Touch Panel via the programming cable EASY800-PC-CAB, a connection via EASY-MO-CAB is also possible. Baud transfer rates up to 57600 Baud can be implemented here. Both cables are about 2 m in length. The MFD-CP4-800-CAB facilitates an extended cable length up to 5 m between the devices. As with easy500/700, the touch panel accesses the control relay data via the GALILEO visualization software. In Communications, select "easy 800/MFD" and enjoy easy access to the function block parameter for the control relay.



Communication and data exchange

In addition to the communication via easyNet, it is possible to exchange data with higher-level automation systems. Bus modules for connection to the AS-i, PROFIBUS-DP, CANopen and DeviceNet are available for this purpose. With the EASY209-SE, a connection possibility is available from easyRelay and MFD-Titan to the Ethernet. This facilitates remote access and programming via easySoft, as well as OPC functionality.

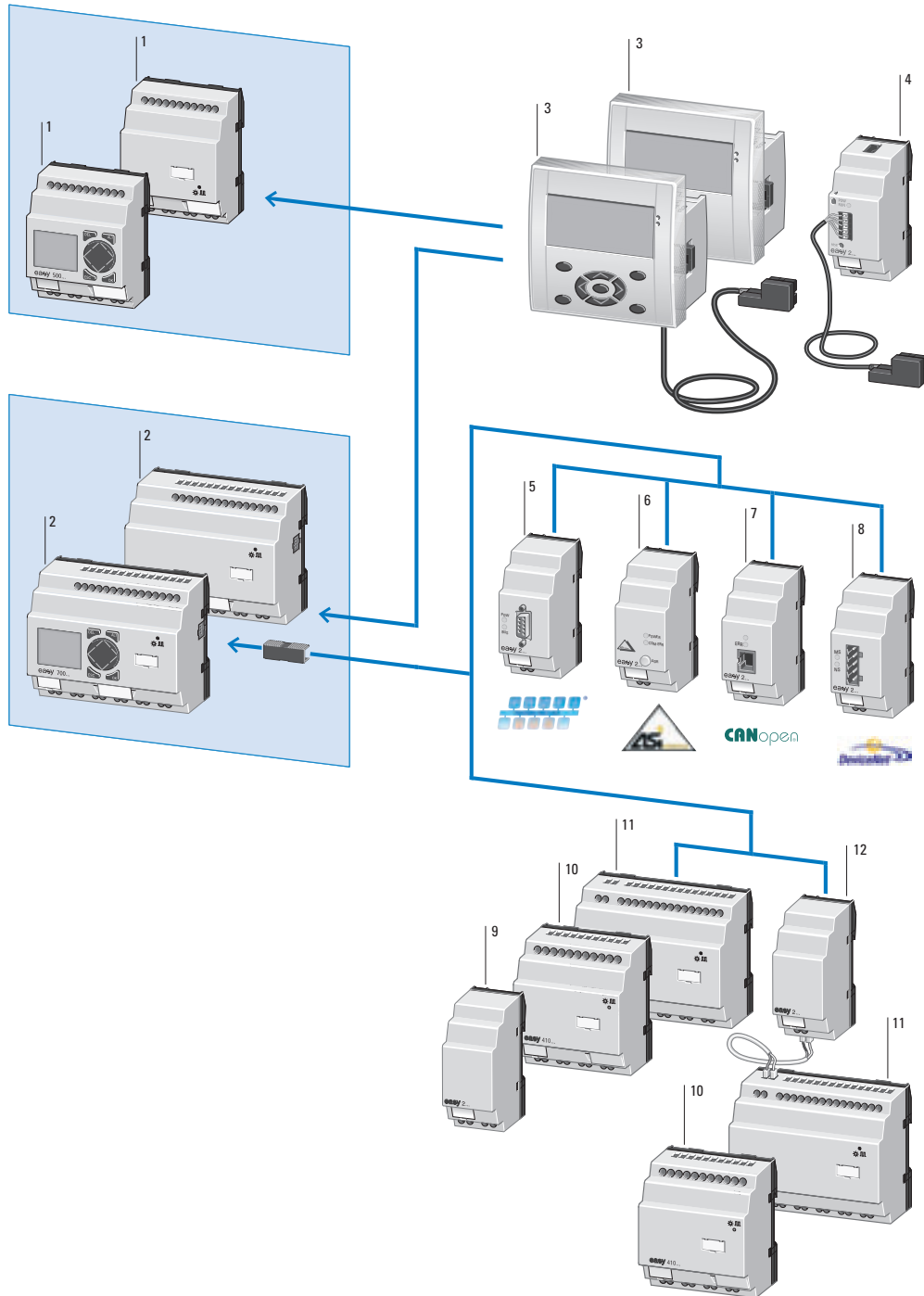
SmartWire-DT



CANopen








DeviceNet™

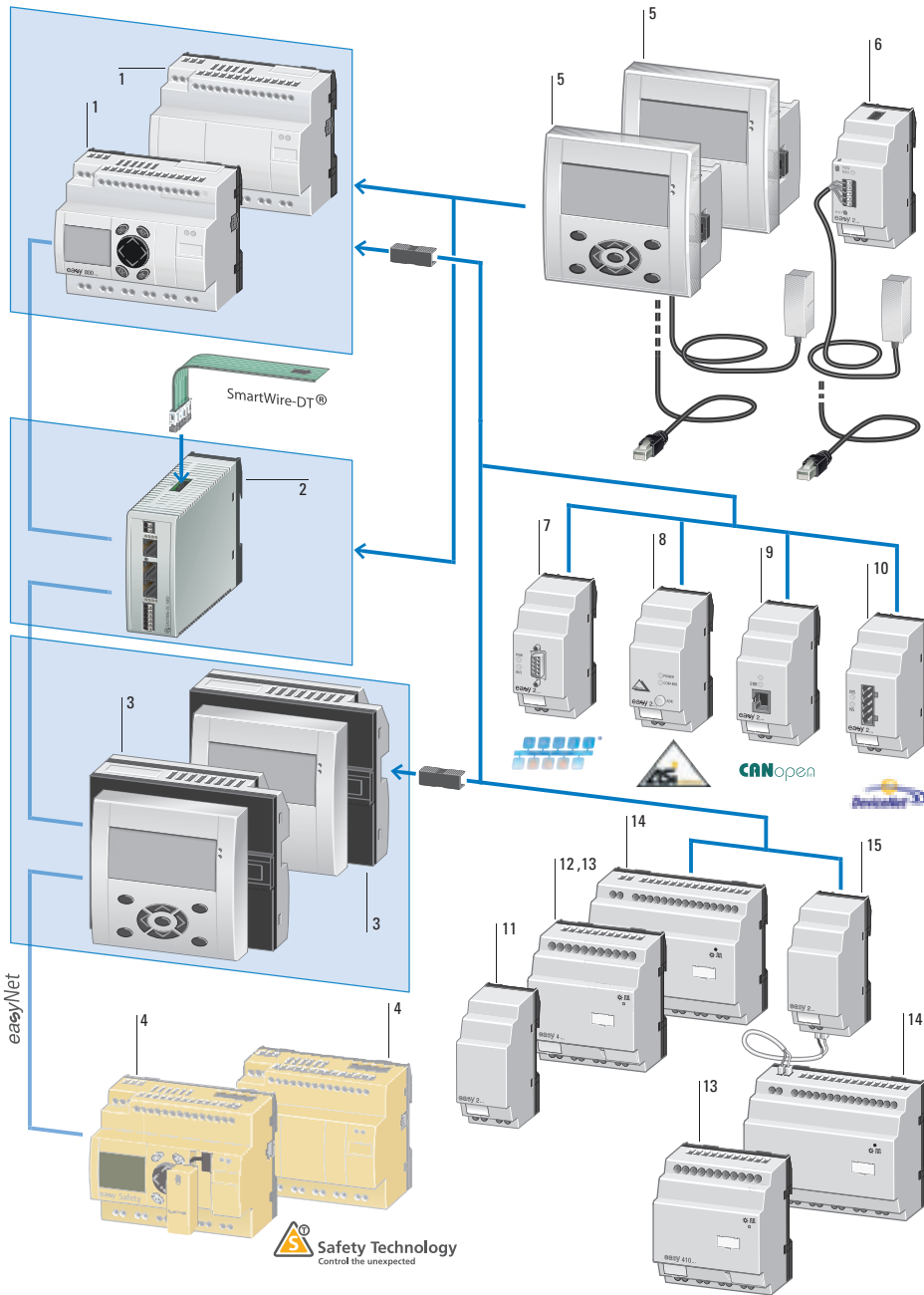


- 1 Control relay easy500
- 2 easy700 control relay
- 3 Remote text display: display/operating unit MFD-80(-B) + power supply unit/communication module with connection cable MFD-(AC)-CP4-500
- 4 Ethernet gateway EASY209-SE + connection cable MFD-CP4-500-CAB5
- 5 PROFIBUS-DP bus module-DP EASY204-DP
- 6 ASi EASY205-ASi bus module
- 7 CANopen® bus module EASY221-CO
- 8 DeviceNet bus module EASY222-DN
- 9 EASY202-RE output expansion
- 10 EASY410... I/O expansion, digital
- 11 EASY6... I/O expansion, digital
- 12 EASY200-EASY Coupling module

Functions

- 16 counting relays (0 to 32000, up and down counting)
- 2 frequency counters (max. 1 kHz)
- 2 high-speed counters (max. 1 kHz)
- 4 hours-run counters (the operating hours value is super retentive, i.e. also retained with program change)
- 8 weekly timers (4 channels per time switch, 1 on/off point per channel)
- 8 year time switches
- 16 timing relays (0.01 s – 99 h 59 min, on-delayed and/or off-delayed (optional random switching), pulse shaping, flashing)
- 8 jump function blocks
- 3 master reset function blocks
- 16 analog value comparators
- 16 comparators
- 16 text displays (4 x 12 characters, editable via programming software)
- Value entry (counter values, setpoints, ...)
- Value display (actual values, ...)
- Date and time entry
- Date and time display

| | Inputs | | Outputs | | Additional features | | Supply voltage | Part no. Article no. | |
|---|---|--------------------------------|-----------------|------------|-----------------------|------------------|----------------|----------------------------------|-------------------------------|
| | Digital | Of which can be used as analog | Relay 10 A (UL) | Transistor | Real time clock | Display & keypad | | | |
| easy500 | | | | | | | | | |
| Stand alone Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781) | | | | | | | | | |
|  | 8 | 2 | 4 | - | ✓ | ✓ | 24 V AC | EASY512-AB-RC 274101 | |
| | 8 | 2 | 4 | - | ✓ | - | 24 V AC | EASY512-AB-RCX 274102 | |
| | 8 | - | 4 | - | - | ✓ | 100 - 240 V AC | EASY512-AC-R 274103 | |
| | 8 | - | 4 | - | ✓ | ✓ | 100 - 240 V AC | EASY512-AC-RC 274104 | |
| | 8 | - | 4 | - | ✓ | - | 100 - 240 V AC | EASY512-AC-RCX 274105 | |
| | 8 | 2 | 4 | - | ✓ | ✓ | 12 V DC | EASY512-DA-RC 274106 | |
| | 8 | 2 | 4 | - | ✓ | - | 12 V DC | EASY512-DA-RCX 274107 | |
| | 8 | 2 | 4 | - | - | ✓ | 24 V DC | EASY512-DC-R 274108 | |
| | 8 | 2 | 4 | - | ✓ | ✓ | 24 V DC | EASY512-DC-RC 274109 | |
| | 8 | 2 | 4 | - | ✓ | - | 24 V DC | EASY512-DC-RCX 274110 | |
| | 8 | 2 | - | 4 | ✓ | ✓ | 24 V DC | EASY512-DC-TC 274111 | |
| | 8 | 2 | - | 4 | ✓ | - | 24 V DC | EASY512-DC-TCX 274112 | |
| easy700 | | | | | | | | | |
| Expandable: Digital inputs/outputs, bus systems AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781) | | | | | | | | | |
|  | 12 | 4 | 6 | - | ✓ | ✓ | 24 V AC | EASY719-AB-RC 274113 | |
| | 12 | 4 | 6 | - | ✓ | - | 24 V AC | EASY719-AB-RCX 274114 | |
| | 12 | - | 6 | - | ✓ | ✓ | 100 - 240 V AC | EASY719-AC-RC 274115 | |
| | 12 | - | 6 | - | ✓ | - | 100 - 240 V AC | EASY719-AC-RCX 274116 | |
| | 12 | 4 | 6 | - | ✓ | ✓ | 12 V DC | EASY719-DA-RC 274117 | |
| | 12 | 4 | 6 | - | ✓ | - | 12 V DC | EASY719-DA-RCX 274118 | |
| | 12 | 4 | 6 | - | ✓ | ✓ | 24 V DC | EASY719-DC-RC 274119 | |
| | 12 | 4 | 6 | - | ✓ | - | 24 V DC | EASY719-DC-RCX 274120 | |
| | 12 | 4 | - | 8 | ✓ | ✓ | 24 V DC | EASY721-DC-TC 274121 | |
| | 12 | 4 | - | 8 | ✓ | - | 24 V DC | EASY721-DC-TCX 274122 | |
| Programming and visualization software | | | | | | | | | |
|  | 13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700 | | | | | | | EASY-SOFT-BASIC 284545 | |
| | 13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700/800/MFD-...-CP8/CP10 | | | | | | | EASY-SOFT-PRO 266040 | |
| Function | | Description | | | | Length | | | |
| Programming cable | | | | | | | | | |
|  | For downloading the user program from PC to device For use with easy500, easy700 | | | | SUB-D, 9 pole, serial | | 2 m | | EASY-PC-CAB 202409 |
|  | For downloading the user program from PC to device For use with easy500, easy700 | | | | USB | | 2 m | | EASY-USB-CAB 107926 |




- 1 Control relay easy800
- 2 Control relay easy800 with SmartWire-DT
- 3 Multi-function display MFD-Titan
- 4 easySafety safety relays
- 5 Remote text display: display/operating unit MFD-80(-B) + power supply unit/communication module MFD-(AC)-CP4 + connection cable MFD-CP4-800-CAB5 and EU4A-RJ45-CAB2
- 6 Ethernet gateway EASY209-SE + connection cable MFD-CP4-800-CAB5 and EU4A-RJ45-CAB2
- 7 PROFIBUS-DP bus module EASY204-DP
- 8 ASi EASY205-ASi bus module
- 9 CANopen® bus module EASY221-CO
- 10 DeviceNet bus module EASY222-DN
- 11 EASY202-RE output expansion
- 12 I/O expansion, analog EASY406-DC-ME / EASY411-DC-ME
- 13 EASY410... I/O expansion, digital
- 14 EASY6... I/O expansion, digital
- 15 EASY200-EASY Coupling module



Functions easy800 / MFD-Titan (MFD-CP8/CP10)

- 32 counter relays (+/-2³¹, up, down counting)
- 4 frequency counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 4 high-speed counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 2 incremental counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 4 hours-run counters (operating hours value is super retentive, i.e., also retained after program change)
- 32 weekly timers (4 channels per time switch, 1 on/off point per channel)
- 32 year time switches
- 1 set cycle time
- 32 timing relays (0.005 s – 2³² min, on-delayed and/or off-delayed (optional random switching), pulse shaping, flashing)
- 32 jump function blocks
- 32 conditional jumps
- 32 master resets
- 32 analog value comparators
- 32 comparators (ADD, SUB, MUL, DIV)
- 32 PID controllers
- 32 PT1 signal smoothing filters
- 32 value scaling function blocks
- 32 numerical converters
- 2 pulse outputs (easy800)
- 2 pulse width modulations
- 32 value limitations
- 32 block comparisons
- 32 block transfers
- 32 Boolean sequences (AND, OR, NOT)
- 32 comparators
- 32 data function blocks
- 32 data multiplexers (easy800 and MFD-CP10..)
- 32 shift registers
- 32 table functions
- 32 get values from NET
- 32 put values to NET
- 32 Bit outputs via NET
- 32 Bit inputs via NET
- 32 serial protocols (easy800)
- 9 diagnostic alarms
- 1 synchronize clock via NET
- 32 text displays (4 x 16 characters) (easy800)
- Value entry (counter values, setpoints, etc.) (easy800)
- Value display (actual values, ...) (easy800)
- Date and time input (easy800)
- Date and time display (easy800)


Visualization elements MFD-Titan (MFD-CP8/CP10)





- Static text
- Message text
- Screen menu
- Running text
- Rolling text
- Date and time display
- Numerical value display (actual values, ...)
- Timing relay value display
- Value entry (counter values, setpoints, etc.)
- Timing relay value entry
- Date and time entry
- Weekly timer entry
- Year time switch entry
- Latching pushbutton
- button field
- Bit display
- Bitmap
- Message bitmap
- Bargraph

| | Inputs | | Outputs | | | Additional features | | Supply voltage | Part no. Article no. |
|--|---------|--------------------------------|-----------------|------------|--------|---------------------|------------------|----------------|---------------------------------|
| | Digital | Of which can be used as analog | Relay 10 A (UL) | Transistor | Analog | Real time clock | Display & keypad | | |
| easy800 | | | | | | | | | |
| Expandable: Digital/analog inputs/outputs and AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet bus systems Bus system easyNet on board Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781) | | | | | | | | | |
|  | 12 | 4 | 6 | - | - | ✓ | ✓ | 24 V DC | EASY819-DC-RC 256269 |
| | 12 | 4 | 6 | - | - | ✓ | - | 24 V DC | EASY819-DC-RCX 256270 |
| | 12 | 4 | 6 | - | 1 | ✓ | ✓ | 24 V DC | EASY820-DC-RC 256271 |
| | 12 | 4 | 6 | - | 1 | ✓ | - | 24 V DC | EASY820-DC-RCX 256272 |
| | 12 | 4 | - | 8 | - | ✓ | ✓ | 24 V DC | EASY821-DC-TC 256273 |
| | 12 | 4 | - | 8 | - | ✓ | - | 24 V DC | EASY821-DC-TCX 256274 |
| | 12 | 4 | - | 8 | 1 | ✓ | ✓ | 24 V DC | EASY822-DC-TC 256275 |
| | 12 | 4 | - | 8 | 1 | ✓ | - | 24 V DC | EASY822-DC-TCX 256276 |
| | 12 | - | 6 | - | - | ✓ | ✓ | 100 - 240 V AC | EASY819-AC-RC 256267 |
| | 12 | - | 6 | - | - | ✓ | - | 100 - 240 V AC | EASY819-AC-RCX 256268 |


| | Inputs | | SmartWire-DT | Outputs | | Additional features | | Supply voltage | Part no. Article no. |
|--|---------|---------------------------------|--------------|------------|--------------|---------------------|------------------|----------------|---------------------------------|
| | Digital | Of which can be used as outputs | | Transistor | SmartWire-DT | Real time clock | Display & keypad | | |
| easy800 with SmartWire-DT | | | | | | | | | |
| Combines the functionality of an easy800 with direct connection to SmartWire-DT communication system Up to 99 SmartWire-DT modules with a total of up to 166 digital inputs/outputs and/or up to 128 analog inputs/outputs can be connected via a SmartWire-DT line | | | | | | | | | |
|  | - | - | 83 | - | 83 | ✓ | - | 24 V DC | EASY802-DC-SWD 152901 |
|  | 4 | 2 | 83 | 2 | 83 | ✓ | - | 24 V DC | EASY806-DC-SWD 152902 |


Programming and visualization software


| | | | | | | | | |
|---|---|--|--|--|--|--|--|--------------------------------|
|  | 13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700/800/MFD-...-CP8/CP10 | | | | | | | EASY-SOFT-PRO 266040 |
|---|---|--|--|--|--|--|--|--------------------------------|



| | Function | Description | Length m | Part no. Article no. |
|---|---|-----------------------|----------|-------------------------------------|
| Programming cable | | | | |
|  | For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, ES4P | SUB-D, 9 pole, serial | 2 | EASY800-PC-CAB 256277 |
|  | For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, EC4P, ES4P | USB | 2 | EASY800-USB-CAB 106408 |
|  | For transferring the user program to the PLC or for diagnosing SmartWire-DT networks For use with EC4P, XC100, XC200, XC121, easy800-SWD, EU5C | SUB-D, 9 pole, serial | 2 | EU4A-RJ45-CAB1 106726 |
|  | For transferring the user program to the PLC or for diagnosing SmartWire-DT networks For use with EC4P, XC100 XC200, XC121, easy800-SWD, EU5C | USB | 2 | EU4A-RJ45-USB-CAB1 115735 |



Bluetooth adapter





| | | | | |
|---|--|--|--|----------------------------------|
|  | For secure radio connection between control relay and PC (programming and online communication)/Android smartphone and tablet (easyRemote display app, easyParameter app) For use with easy81..., easy82..., MFD-CP8, MFD-CP10 ≥ V. 3.0, EC4P | | | EASY800-BLT-ADP 167651 |
|---|--|--|--|----------------------------------|


| Description | Part no. Article no. |
|---|-----------------------------|
| Display/keypad | |
| Monochrome display 132 × 64 pixels with switchable backlight, removable Titan front frame, Custom laser inscriptions possible with MFD-COMBINATION (article no. 2010801) product IP65 | |
|  With keypad, with Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm | MFD-80-B 265251 |
| With keypad, without Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm | MFD-80-B-X 284905 |
| Without keypad, with Eaton company logotype NEMA type 3R, NEMA type 12, NEMA type 4x | MFD-80 265250 |
| Without keypad, without Eaton company logotype NEMA type 3R, NEMA type 12, NEMA type 4x | MFD-80-X 284904 |

| Supply voltage | Description | Part no. Article no. |
|--|---|--------------------------------|
| Power supply unit/CPU modules | | |
| Can be combined with display/operating unit MFD-80.. and I/O module, Expandable: Digital/analog inputs/outputs and AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet bus systems, Bussystem easyNet optional on board, Program and screen memory, Delivery with user program possible with MFD-COMBINATION product (Article no. 201801) IP20, Spring-cage terminals | | |
|  100 - 240 V AC | Program and screen memory | MFD-AC-CP8-ME 274091 |
| 100 - 240 V AC | Program and screen memory, with easyNet | MFD-AC-CP8-NT 274092 |
| 24 V DC | Program and screen memory | MFD-CP8-ME 267164 |
| 24 V DC | Program and screen memory, with easyNet | MFD-CP8-NT 265253 |
| 24 V DC | Double program and screen memory like MFD-CP8... | MFD-CP10-ME 133801 |
| 24 V DC | Double program and screen memory, as MFD-CP8..., with easyNet | MFD-CP10-NT 133800 |

| Supply voltage | Description | For use with | Part no. Article no. |
|---|---|--------------------|---------------------------------|
| Power supply unit/communication module | | | |
| Degree of protection IP20 Can be combined with display/operating unit MFD-80...as stand-alone text display | | | |
|  24 V DC | With connection cable (5 m, can be cut to length) | easy500 easy700 | MFD-CP4-500 274094 |
| 24 V DC | With connection cable (5 m, can be cut to length) | easy800 ES4P | MFD-CP4-800 274095 |
| 100 - 240 V AC | With connection cable (5 m, can be cut to length) | easy500 easy700 | MFD-AC-CP4-500 286823 |
| 100 - 240 V AC | With connection cable (5 m, can be cut to length) | easy800 ES4P | MFD-AC-CP4-800 286824 |
|  24 V DC | Without connection cable | MFD-80... | MFD-CP4 280888 |
| 100 - 240 V AC | Without connection cable | MFD-80... | MFD-AC-CP4 286822 |






| | Supply voltage | For use with | Inputs | | | Outputs | | | Temperature range | Part no. Article no. |
|---|----------------|---|---------|--------------------------------|-------|-----------------|------------|--------|-------------------------------|---------------------------------|
| | | | Digital | Of which can be used as analog | Pt100 | Relay 10 A (UL) | Transistor | Analog | | |
| I/O modules | | | | | | | | | | |
|  | 24 V DC | MFD-CP8.. MFD-CP10.. | 12 | 4 | - | 4 | - | - | - | MFD-R16 265254 |
| | 24 V DC | | 12 | 4 | - | - | 4 | - | - | MFD-T16 265255 |
| | 24 V DC | | 12 | 4 | - | 4 | - | 1 | - | MFD-RA17 265364 |
| | 24 V DC | | 12 | 4 | - | - | 4 | 1 | - | MFD-TA17 265256 |
| | 100 - 240 V AC | MFD-AC-CP8... | 12 | - | - | 4 | - | - | - | MFD-AC-R16 274093 |
| I/O modules with temperature measuring | | | | | | | | | | |
|  | 24 V DC | MFD-CP8... from device version 08 MFD-CP10.. | 6 | 2 | 2 | - | 4 | - | -40...+90 °C 0...+250 °C | MFD-TP12-PT-A 106042 |
| | 24 V DC | | 6 | 2 | 2 | - | 4 | 1 | 0...+400 °C | MFD-TAP13-PT-A 106045 |
| | 24 V DC | | 6 | 2 | 2 | - | 4 | - | -200...+200 °C 0...+850 °C | MFD-TP12-PT-B 106043 |
| | 24 V DC | | 6 | 2 | 2 | - | 4 | 1 | | MFD-TAP13-PT-B 106046 |
| | 24 V DC | | 6 | 2 | - | - | 4 | - | -40...+90 °C 0...+250 °C | MFD-TP12-NI-A 106044 |
| | 24 V DC | | 6 | 2 | - | - | 4 | 1 | | MFD-TAP13-NI-A 106047 |

| | Inputs | | Outputs | | Supply voltage | Part no. | Article no. |
|---|--|--|-----------------|------------|----------------|--------------------------------|-------------|
| | Digital | | Relay 10 A (UL) | Transistor | | | |
| I/O expansions, digital | | | | | | | |
| Can be used through easyLink | | | | | | | |
|  | 12 | | 6 | - | 100 - 240 V AC | EASY618-AC-RE | 212314 |
| | 12 | | - | 8 | 24 V DC | EASY620-DC-TE | 212313 |
| | 12 | | 6 | - | 24 V DC | EASY618-DC-RE | 232112 |
|  | - | | 2 | - | 24 V DC | EASY202-RE¹⁾ | 232186 |
|  | 6 | | 4 | - | 24 V DC | EASY410-DC-RE | 114293 |
| | 6 | | - | 4 | 24 V DC | EASY410-DC-TE | 114294 |
|  | For remote connection of a digital I/O extension up to 30 m. | | | | | EASY200-EASY | 212315 |

| | Inputs | | | Outputs | | | Supply voltage | Part no. | Article no. |
|---|---------|-----------------|-----------------------------------|-----------------|------------|--------|----------------|----------------------|-------------|
| | Digital | Analog | Of which usable as digital inputs | Relay 10 A (UL) | Transistor | Analog | | | |
| I/O expansions, analog | | | | | | | | | |
| Can be used through easyLink | | | | | | | | | |
|  | 1 | 2 ²⁾ | 2 | - | 2 | 1 | 24 V DC | EASY406-DC-ME | 114295 |
| | 1 | 6 ³⁾ | 2 | - | 2 | 2 | 24 V DC | EASY411-DC-ME | 116567 |

Notes

- ¹⁾ Not for use in combination with EASY719-DA-... basic devices
Cannot be used on the EASY200-EASY coupling module
- ²⁾ 2 x 0 - 10 V or 2 x 0 - 20 mA or 2 x RTD (2/3-wire connection);
Voltage inputs (0 - 10 V), optionally usable as digital inputs
- ³⁾ 2 x 0 - 10 V and 2 x 0 - 20 mA and 2 x RTD (2/3-wire connection);
Voltage inputs (0 - 10 V), optionally usable as digital inputs






| Inputs | | Supply voltage | | Part no. Article no. |
|--|---|---|---------|------------------------------|
| Bus modules | | | | |
| Can be used through easyLink | | | | |
|  | AS-Interface | Slave 4 inputs 4 outputs 4 parameter bits Addresses available: 0 - 31 | - | EASY205-ASI 221598 |
|  | PROFIBUS-DP | Slave Addresses available: 1 - 126 | 24 V DC | EASY204-DP 212316 |
|  | CANopen® | Addresses available: 1 - 127 | 24 V DC | EASY221-CO 233539 |
|  | DeviceNet | Addresses available: 0 - 63 | 24 V DC | EASY222-DN 233540 |
| Ethernet gateway | | | | |
|  | Serial interface easyRelay or MFD-...CP8/CP10... to Ethernet for connection to easyOPC server, easySoft, or easyCom | | 24 V DC | EASY209-SE 101520 |

Build it in.



easyPower, ELC-PS and PSG power supply units

Whether at the machine or plant, in the control cabinet or service distribution board – the easyPower, ELC-PS and PSG 24 V DC power supply units provide the right solution and design for any requirement. These rail-mounted power supply units provide a reliable 1-phase and 3-phase supply for efficient operation. In addition to the wide range inputs and approvals for worldwide use, these devices stand out on account of their optimum efficiency and large temperature range. The short-circuit proof design and overload withstand capability ensure a safe power supply. The compact housing saves space and costs. The adjustable output voltage range of the PSG power supply units ensures optimum adaptability. With an output current of 1 A to 40 A, the power supply units are designed to supply machines and plants with low power requirements as well as large current loads.

| | Input voltage range | Rated output voltage | Rated output power W | Rated output current A | Part no. Article no. |
|--|--|----------------------------------|-------------------------|---------------------------|------------------------------|
| Single-phase power supplies | | | | | |
| Nominal input voltage: 100 - 240 V AC | | | | | |
|  | 85 - 264 V AC | 24 V DC (± 3%) 12 V DC (± 4%) | - | 0.35 0.02 | EASY200-POW 229424 |
| | | 24 V DC (± 3%) | - | 1.25 | EASY400-POW 212319 |
| | | 24 V DC (± 3%) | - | 2.5 | EASY500-POW 110941 |
|  | 85 - 264 V AC | 24 V DC (± 3%) | 24 | 1 | ELC-PS01 135239 |
| | | | 48 | 2 | ELC-PS02 135240 |
| Setting range for the output voltage: 22-28 V DC  | 85 - 264 V AC (120 - 375 V DC) | 24 V DC (± 2%) | 60 | 2.5 | PSG60N24RP 172890 |
| | | | 60 | 2.5 | PSG60E24RM 172891 |
| | | | 120 | 5 | PSG120E24RM 172892 |
| | | | 240 | 10 | PSG240E24RM 172893 |
| | | | 480 | 20 | PSG480E24RM 172894 |
| 3-phase power supplies | | | | | |
| Nominal input voltage: 3 x 400 - 500 V AC Setting range for the output voltage: 24 - 28 V DC | | | | | |
|   | 320 - 600 V AC (450 - 800 V DC) | 24 V DC (± 2%) | 60 | 2.5 | PSG60F24RM 172882 |
| | | | 120 | 5 | PSG120F24RM 172883 |
| | | | 240 | 10 | PSG240F24RM 172884 |
| | | | 480 | 20 | PSG480F24RM 172885 |
| | | | 960 | 40 | PSG960F24RM 172886 |
| Power supplies PSG, Redundancy module | | | | | |
| For decoupling power supplies of the same type that are connected in parallel on the output side for redundancy purposes Input voltage range 22 - 60 V DC | | | | | |
|  | Rated output current 20 A | | | | PSG480R24RM 172888 |
| | Rated output current 40 A | | | | PSG960R24RM 172889 |
| Power supplies PSG, Buffer module | | | | | |
| For maintaining operation during brief power failures; the backup time can be multiplied by connecting in parallel | | | | | |
|  | Input voltage range 22,8 - 28,8 V DC Rated output current 20 A Backup time depends on load current 250 ms (20 A) to max. 5 s (1 A) | | | | PSG480B24RM 172887 |

Build it in.



Functional safety for persons, machine and environment



Safety Technology

Control the unexpected



A machine poses dangers to persons, machinery and the environment over the entire life cycle of a machine – from manufacture to dismantling. It is therefore vital that these dangers are identified already during the design phase of the machine and reduced with suitable measures.

The Machinery Directive 2006/42/EC requires that machines do not pose any dangers. However, as there is no such thing as 100 % safety in engineering, the objective is to reduce these sources of danger to a tolerable level of residual risk. The overall safety of a machine defines the state which is deemed to be free of unwarranted risks for persons or which is deemed to be danger free. The functional safety describes the proportion of the overall safety of a system that is dependent on the correct function of the safety-related systems and external devices in order to reduce the risks.



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Risk reduction through the use of safety-related parts of control systems

The elements of machine controls which assume safety-related tasks are designated by international standards as “safety-related parts of control systems” (SRP/CS). Safety-related parts of control systems each incorporate the entire functional chain of a safety function, consisting of the input level (sensor), the logic (safe signal processing) and the output level (actuator).

The general objective is to design these parts so that the safety of the control functions as well as the reaction of the control system in the event of a malfunction complies with the degree of risk reduction determined in the risk analysis. The higher the level of risk reduction to be provided by the safety-related parts of a control system, the higher the safety level or the technical safety performance level demanded of the control section.

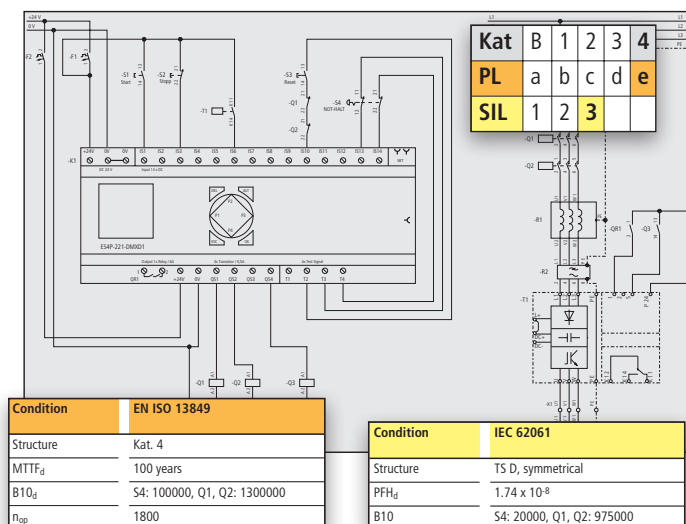


Safety manual for machines and plants in accordance with EN ISO 13849-1 and IEC 62061

Eaton has written the Safety Manual for machine and plant builders, trainers and trainees as well as interested customers having to deal with the issue of “machine and plant safety”.

This provides an easy entry level into the extensive range of material on safety technology. The Eaton Safety Manual contains an overview of the most important factors involved in directives, standards and regulations that have to be taken into consideration when using safety equipment on machines. The safety-related contents in this manual have been checked by TÜV Rheinland Industrie Service GmbH.

The manual uses example circuits to show how the functional safety can be implemented with electrical, electronic and programmable components and systems in safety applications.



The Safety Manual also provides a description of the functions as well as a clear presentation of a possible evaluation of each circuit example.

The calculated characteristic values apply to the assumptions made in the safety applications and the safety-related switchgear in use.

Simply register online at www.eaton.eu/shb and work online with the safety manual or download the safety manual free-of-charge.

For safety-relevant characteristic values for our products, please visit our website www.eaton.eu/fusi

Build it in.



Safe monitoring and processing



Machines and plants contain potentially dangerous motion sequences that require a technical solution to make them safe. Safety devices such as emergency-stop pushbuttons, guard doors, light curtains and operating elements for safe setting must be controlled and monitored, and the installation may have to be switched to a safe state. For these tasks, Eaton is offering two safety logic series, the ESR5 electronic safety relay and the easySafety control relay.

Whether on a simple or complex machine, the required protection of personnel and process can be ensured using these Eaton safety products that have been approved by TÜV Rheinland:

- Performance Level PL e to EN ISO 13849-1
- Safety Integrity Level SILCL 3 according to IEC 62061



Designing logic processes safely

ESR5 series safety relays monitor the signals of safety devices reliably and switch off safely and rapidly in the event of an emergency. The internal logic of the safety relays monitors the wired safety circuits and activates the enable paths when no faults are present.

The easySafety control relay monitors all typically used safety devices and also performs the control tasks required for the machine. Armed with a host of conventional safety relays in the form of safety function blocks, easySafety not only integrates safety but also standard functions in a single all-in-one device.



Economical monitoring with the ESR5 safety relay

- Many safety switch contacts with up to 5 enable and 2 signal current paths
- Immediate (stop category 0) or delayed (stop category 1) stopping
- Duplication using contact expansion modules
- Optimum space saving thanks to slim 22.5 mm mounting width
- Pluggable screw terminals for fast and fault-free exchange
- Multi-voltage versions 24 – 230 V AC/DC for flexible application range
- World market devices with UL, cUL and TÜV Rheinland certification





All in one – safety and control relay rolled into one



- Safety circuit diagram and standard circuit diagram integrated in the same device
- TÜV-approved safety function blocks
- 14 safety inputs
- 4 safety transistor outputs and 1 redundant relay output or 4 safety relay outputs
- 4 test signals
- Local expandable via integrated easyLink interface
- Remotely expandable via integrated easyNet interface
- With or without display
- Additional stand-alone display can be connected via integrated RS232 interface



Functional safety

Monitoring and Processing

| | Stopping in the event of an emergency | Protective door | OSSD input | Contact expansion module | Feedback circuit | Reset button monitoring | Single-channel | Dual-channel | Non-delayed enable current paths | Delayed enable current paths | Delayed signal current path | Non-delayed signal current path | PL / Category according to EN ISO 13849-1 | SILCL in accordance with 62061 | Part no. Article no. |
|---|---------------------------------------|-----------------|------------|--------------------------|------------------|-------------------------|----------------|--------------|----------------------------------|------------------------------|-----------------------------|---------------------------------|---|--------------------------------|---------------------------------------|
| ESR5 | | | | | | | | | | | | | | | |
| Overall width: 22.5 mm or 45 mm | | | | | | | | | | | | | | | |
|  | ✓ | ✓ | - | - | ✓ | - | ✓ | ✓ | 2 | - | 1 | - | PL e / Kat. 4 | SILCL 3 | ESR5-NO-21-24VAC-DC 118700 |
|  | ✓ | ✓ | - | - | ✓ | - | ✓ | ✓ | 2 | - | 1 | - | PL e / Kat. 4 | SILCL 3 | ESR5-NO-31-24VAC-DC 118702 |
|  | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | ✓ | 3 | - | 1 | - | PL e / Kat. 4 | SILCL 3 | ESR5-NO-31-230VAC 119380 |
|  | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | ✓ | 3 | - | 1 | - | PL e / Kat. 4 | SILCL 3 | ESR5-NO-31-AC-DC 118704 |
|  | ✓ | ✓ | - | - | ✓ | - | ✓ | - | 4 | - | 1 | - | PL c / Kat. 1 | SILCL 1 | ESR5-NO-41-24VAC-DC 118701 |
|  | ✓ | ✓ | - | - | ✓ | - | ✓ | - | 3 | - | 1 | - | PL c / Kat. 1 | SILCL 1 | ESR5-NOS-31-230VAC 153152 |
|  | ✓ | ✓ | ✓ | - | ✓ | ✓ | ✓ | ✓ | 2 | 2 | - | - | PL e / Kat. 4 | SILCL 3 | ESR5-NV3-30 118705 |
|  | ✓ | ✓ | ✓ | - | - | - | ✓ | ✓ | 3 | 2 | - | 1 | PL e / Kat. 4 | SILCL 3 | ESR5-NV3-300 171858 |
|  | - | ✓ | - | - | ✓ | - | - | ✓ | 2 | - | - | 1 | PL e / Kat. 4 | SILCL 3 | ESR5-NZ-21-24VAC-DC 118703 |
|  | - | - | - | ✓ | - | - | ✓ | - | 5 | - | 1 | - | PL e / Kat. 4 | SILCL 3 | ESR5-NE-51-24VAC-DC 118707 |
|  | - | - | - | ✓ | - | - | ✓ | - | - | 4 | 1 | - | PL d / Kat. 3 | SILCL 3 | ESR5-VE3-42 118706 |
| With light curtain functionality | | | | | | | | | | | | | | | |
|  | ✓ | ✓ | - | - | ✓ | ✓ | - | - | 3 | - | - | 1 | PL e / Kat. 4 | SILCL 3 | ESR5-BWS-31-24VAC-DC 180413 |

| | Transistor outputs | Relay outputs | Display & keypad | Part no. Article no. |
|---|--------------------|---------------|------------------|---------------------------------|
| ES4P | | | | |
| <ul style="list-style-type: none"> - Stopping in the event of an emergency - Protective door - ESPE with muting function - Two-hand control - Highest speed monitoring - Zero speed monitoring - Safety timing relay - Mode selection - Enabling switch - Feedback circuit - Mounting width: 107.5 mm - 14 Inputs (safety) 24 V DC - Rated operational voltage: 24 V DC <p>Safety related characteristics</p> <ul style="list-style-type: none"> - Performance level according to EN ISO 13849-1 PL e / Cat. 4 - Safety integrity level claim limit in accordance with 62061 SILCL 3 | | | | |
|  | 4 | 1 (redundant) | ✓ | ES4P-221-DMXD1 111017 |
| | - | 4 | ✓ | ES4P-221-DRXD1 111019 |
|  | 4 | 1 (redundant) | - | ES4P-221-DMXX1 111016 |
| | - | 4 | - | ES4P-221-DRXX1 111018 |

| Description | Part no. Article no. |
|--|---------------------------------|
| ES4P add-on functions | |
| Programming Software | |
|  easySoft-Safety Menu selection in German, English, French, and Italian Operating systems: Windows XP SP3, Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) | ESP-SOFT 111460 |
| Memory card | |
|  256-kB module | ES4A-MEM-CARD1 111461 |

| Function | Description | Length m | Part no. Article no. | |
|---|---|-----------------------|----------------------|----------------------------------|
| Programming cable | | | | |
|  | For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, ES4P | SUB-D, 9 pole, serial | 2 | EASY800-PC-CAB 256277 |
|  | For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, EC4P, ES4P | USB | 2 | EASY800-USB-CAB 106408 |

Build it in.



GALILEO: Visualization at a whole new Level



A single visualization program for all XV/XP families

Eaton's GALILEO is a powerful and comprehensive visualization program that can be used to configure any XV or XP touch panel.

GALILEO is an intuitive and powerful engineering environment that not only takes little time to master, but that also meets virtually every requirement involved in on-site machine operation. The visualization software, developed by Eaton, is designed to meet the needs of any industry while providing comprehensive configuration options for all XV devices and PC runtime solutions. As part of this approach, GALILEO puts its full functionality at the disposal of design engineers at all times, avoiding nested variable and screen limitations.



Easy and intuitive to use and test

- An intuitive and powerful design environment
- There are no limits on the number of tags and images that can be used by functions
- Project simulations on the development computer reduce design and commissioning times
- Thanks to the full forward compatibility of all your projects, you can rest assured knowing your investment will yield dividends for a long time



Custom-tailored for international mechanical engineering

- Pre-defined, language-specific keypad configurations
- Change languages online
- Change units in runtime (e.g., °C to °F or cm to inches)
- Unicode support (also Asian character sets)
- The ability to import text from and export text to Excel makes it possible to quickly create error-free translations
- All devices are UL approved



Varied communication possibilities

- Over 100 protocols for almost all current PLCs makes it possible to use GALILEO in conjunction with PLC systems from other makers as well
- Communication to CODESYS-V2 and CODESYS-V3
- Easily import PLC variables in XML format
- Secure, reliable, and easy connection to your control system level and to Office
- Up to eight simultaneous communication processes
- Remote client/server and OPC client
- Remote control via smartphone




Further Galileo highlights

- Powerful and easy-to-use design features such as styles, color gradients, semi-transparency, and full transparency
- Gesture-based controls (swipe, scroll, zoom)
- The ability to reuse object groups
- The ability to scroll through subscreens (that cannot be displayed in their entirety) by using a viewing window
- Supports switching between 16:9 and 4:3 panel aspect ratios
- Single-line and multi-line alarm messages with integrated variables
- Variables, objects, bitmaps, and styles can be copied between projects

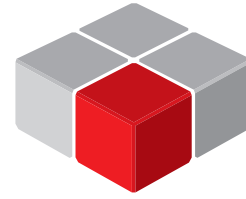
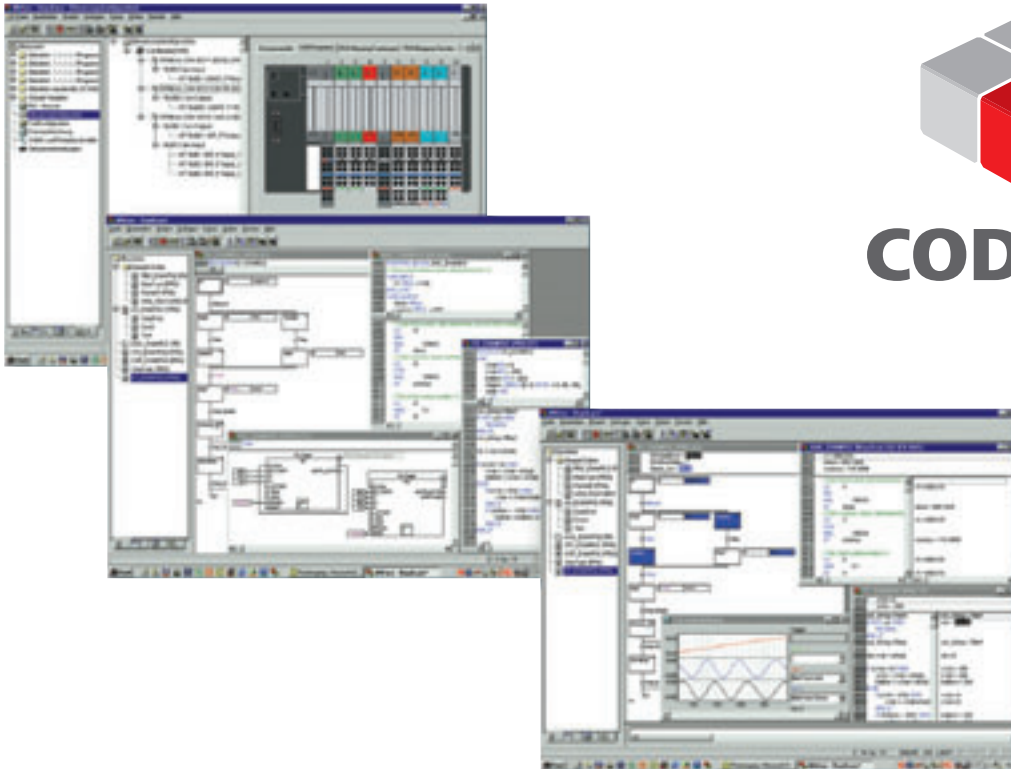
Which visualization software for which device?

| | XV-102-A... | XV-102-H... | XV-102-B/-D/-E... | XV-112... | XV-152... | XV-3x3-... | XV(S)-4... | XC-152-... | XP-503-...-1B |
|----------------------|-------------|-------------|-------------------|-----------|-----------|------------|----------------|------------|---------------|
| Galileo 8 | • | • | • | • | • | | • | • | • |
| Galileo 10 | | • | • ¹ | • | • | | • ² | • | • |
| Galileo 10 Webserver | | | | | | • | | | • |

¹ Except XV-102 with monochrome 3.5" displays ² Except XV(S) devices with 256 colors

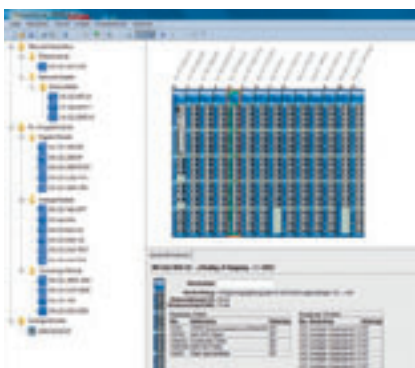
| Description | Part no. Article no. |
|---|--------------------------------------|
| GALILEO | |
|  License certificate for visualization software GALILEO MS Windows™-based intelligent and intuitive visualization tool, single-workstation license | SW-GALILEO-S 171500 |
| License certificate for visualization software GALILEO MS Windows™-based intelligent and intuitive visualization tool, multi-workstation license | SW-GALILEO 140379 |
| GALILEOopen license for PC For continuous, unrestricted operation of the GALILEO runtime systems on a standard PC. | LIC-GALILEO-OPEN-PC 140385 |

Build it in.



CODESYS

XSOFT-CODESYS: PLC programming to international standards



Software tools make both engineering and commissioning easier:

- XN300 Assist
- I/O-Assist
- SWD-Assist

Download free of charge at www.eaton.eu/software

CODESYS is a programming system that is based on 3S' CODESYS standard. And with its sophisticated technical features, ease of use, and popularity as a programming system for automation components from a wide variety of manufacturers, it is no surprise that it has become the system of choice for many a successful company. Eaton offers both **CODESYS Version 2** and **Version 3**, and most XV/XC controllers can be programmed with either version.

CODESYS is the ideal programming tool for applications in which a powerful PLC or HMI PLC with various field bus connections is required. The reason why is its integrated field bus configurators for PROFIBUS, CAN, SmartWire-DT, Modbus TCP/RTU (in Version 3), and EtherNet/IP (in Version 3), which make it possible to quickly, intuitively, and easily connect devices to the field bus of your choice. In short, the software is the ideal programming tool for all machine and process-relevant applications in mechanical and plant engineering environments.

Push-button



flush, titanium ring
IP67, IP69K – spring-return / stay-put



extended, titanium ring
IP67, IP69K – spring-return / stay-put

Mushroom actuator



IP67, IP69K – spring-return / stay-put

Double actuator



IP66 extended / flush

4 position push-button

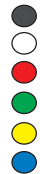


IP66
– opposing buttons not mechanically interlocked
– opposing buttons mechanically interlocked

Indicator lights



flush
IP67, IP69K



extended
IP67, IP69K

Illuminated push-button actuators



flush, titanium ring
IP67, IP69K spring-return / stay-put



extended, titanium ring
IP67, IP69K spring-return / stay-put

Potentiometer



IP66 Selectable resistance value



Thumb-grip selector switch



IP66 spring-return / stay-put



Illuminated thumb-grip selector switch



IP66 spring-return / stay-put



Key-operated actuator



IP66 spring-return / stay-put 2 / 3 positions



Selector switch



IP66 spring-return / stay-put 2 / 3 / 4 positions

Joystick



IP66 spring-return / stay-put 2 and 4 positions horizontal and vertical

RMQ compact solution

Push-button



IP66, IP67, IP69k (front)
IP65 (on-rear)

Indicator lights



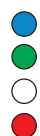
IP66, IP67, IP69k (front)
IP65 (on-rear)



Illuminated push-button actuators



IP66, IP67, IP69k (front)
IP65 (on-rear)



Foot and palm switch



IP67, IP67K spring-return


Emergency-Stop button



IP67, IP67K tamper proof spring-return

EMERGENCY-STOP/OFF actuators

Mushroom actuator, 38 mm
IP66, IP69K
pull or turn to reset
illuminated /
not-illuminated



Palm switch 45 and 60 mm
IP66, IP69K
pull or turn to reset,
mechanical switch
position indication



Accessories


Sealable shroud



Guard ring




Encoder
IP65
Confirmation function
Adjustable 16-bit
value range




Page 26

Built-in sockets

for USB 3.0
IP65 with closed
cover
IP20 open



RJ45 cat 5e
IP65 with closed
cover
IP20 with plug
connected



Contact and LED elements

Front and base
fixing, screw /
spring-loaded
terminals,
LED elements



SW-DT interface

Front and
base fixing
with and
without LED



Self-monitoring contacts (SMC)

Single-channel, dual-
channel, dual-channel
with signaling contact
for front and base
fixing

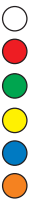


Signal towers



Card with continuous / flashing light

LED,
High Performance
LED,
Filament lamp

Acoustic modules

8 tones adjustable



Basic modules

Basic modules for
9 different assembly
options



Control circuit devices RMQ 16

 See Online Catalog

Illuminated actuators

IP65
flush / extended
18 x 18 mm and
25 x 25 mm



Illuminated push-button actuators

IP65
spring-return /
stay-put
18 x 18 mm and
25 x 25 mm



Push-button actuators

IP65
spring-return /
stay-put
18 x 18 mm and
25 x 25 mm



Selector switch actuators

IP65
spring-return /
stay-put
2 / 3 positions
18 x 18 mm and
25 x 25 mm



Key-operated actuators

IP65
spring-return /
stay-put
2 / 3 positions
18 x 18 mm and
25 x 25 mm




EMERGENCY-STOP/OFF buttons

IP65, 25 x 25 mm
illuminated /
not-illuminated



Emergency-Stop labels

in four languages /
blank



Contact blocks

N/O / N/C
terminal connection

Screw connection
with screw
connection adapter
for N/O, N/C, and
lamp sockets



Position switches LS-Titan



Operating heads

Roller lever



Adjustable roller lever



Actuating rod



Analog electronic position switch



Door flap safety switch



Safety position switch

Spring-powered or magnet-powered interlock



Complete unit



Safety switches RS-Titan



Comet series photoelectric sensors / emitters



E58 Harsh Duty



Intelligent and compact E65-SM series



E67 Long Range Serie



E71 NanoView Serie



E76 IntelliView Serie



Inductive metal detection

Page 132

Miniature series



Global series



E52 and E56 series



Premium Plus series



See Online Catalog

Intelligent sensor adaption

Page 133

iProx series



ProxView software



Checking capacitive fill levels

Page 133

E 53 series



Monitoring pressure

See Online Catalog

Pressure switch

Monitoring of liquid and gaseous media



Detection of times, fill levels and currents

Page 136

Electronic timing relay ETR 2



Electronic timing relay ETR 4



Electronic measuring and monitoring relays EMR4



Build it in.



In great shape: The ergonomic control circuit devices RMQ-Titan®



Catalog download:
www.eaton.eu/catalog



Modern styling has been combined with an optimum range of functions. The perfect outfit for use at machines and on panels. The ergonomically shaped button elements are matched to the shape of a fingertip for even more comfortable operation.

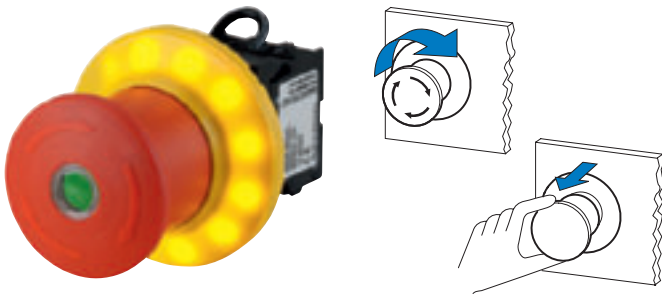
RMQ-Titan pilot devices can be flexibly used in a wide range of applications thanks to their IP67/IP69K degree of protection. The RMQ compact solution series is not only characterized by *compact* dimensions, but also by an unbeatably high degree of protection (IP65) at the back of its devices.

The Emergency-STOP buttons¹⁾ for the worldwide usable control circuit device product range RMQ-Titan are available as palm switches/ mushroom actuators with a diameter of 38, 45 or 60 mm.

RMQ-Titan pilot devices have been granted numerous national approvals and ship classifications, meaning they are ready for use anywhere in the world.

Control circuit devices RMQ-Titan are ingeniously simple to connect with SmartWire-DT.

¹⁾ The EMERGENCY-STOP devices from Eaton can also be used as EMERGENCY-OFF devices.



Safe shutdown with RMQ-Titan

The EMERGENCY-STOP or EMERGENCY-OFF buttons are available with and without a key, turn-release, non-illuminated, illuminated with standard LED or with mechanical switch position display (green/red) in the centre of the actuation element. Self-monitoring contact blocks guarantee comprehensive operational safety: even with incorrect installation or after unduly powerful actuation.



Flush RMQ pushbuttons

RMQ-Titan units with a flush design are the perfect complement to the industry's move towards stylish front panels for machines. These flush pushbuttons feature a modular design and are the perfect match for the RMQ-Titan series, flush contacts, and LED elements. Moreover, the flush transition between their operator and bezel make these units ideal when it comes to sleek looks and cutting-edge applications.



Fast, flexible labelling – The Labeleditor

Use the Labeleditor program to easily and conveniently create your own custom company-specific and project-specific labels, logos, and images for RMQ button plates.



Direct installation in machine rooms

The new devices in the RMQ *compact* solution series come with their cables, plug connector, and housing already integrated and installed in a non-detachable manner. This turns them into an all-in-one solution that provides full protection against dust, fine foreign particles, and liquids thanks to IP67 and IP69K degrees of protection in the front and IP65 in the back. In other words, these devices can be used right where the corresponding machines are, without the need for any extra enclosures.



Flush and modular: flat rear elements

The flush contact and LED elements, which have a mounting depth of only 30 mm, are perfect for control panels in which every bit of space counts. These elements feature a one-of-a-kind modular design when it comes to operators, contacts, LED colors, and accessories, making it possible to make customer-specific changes in control panels in record time and without any extra effort.



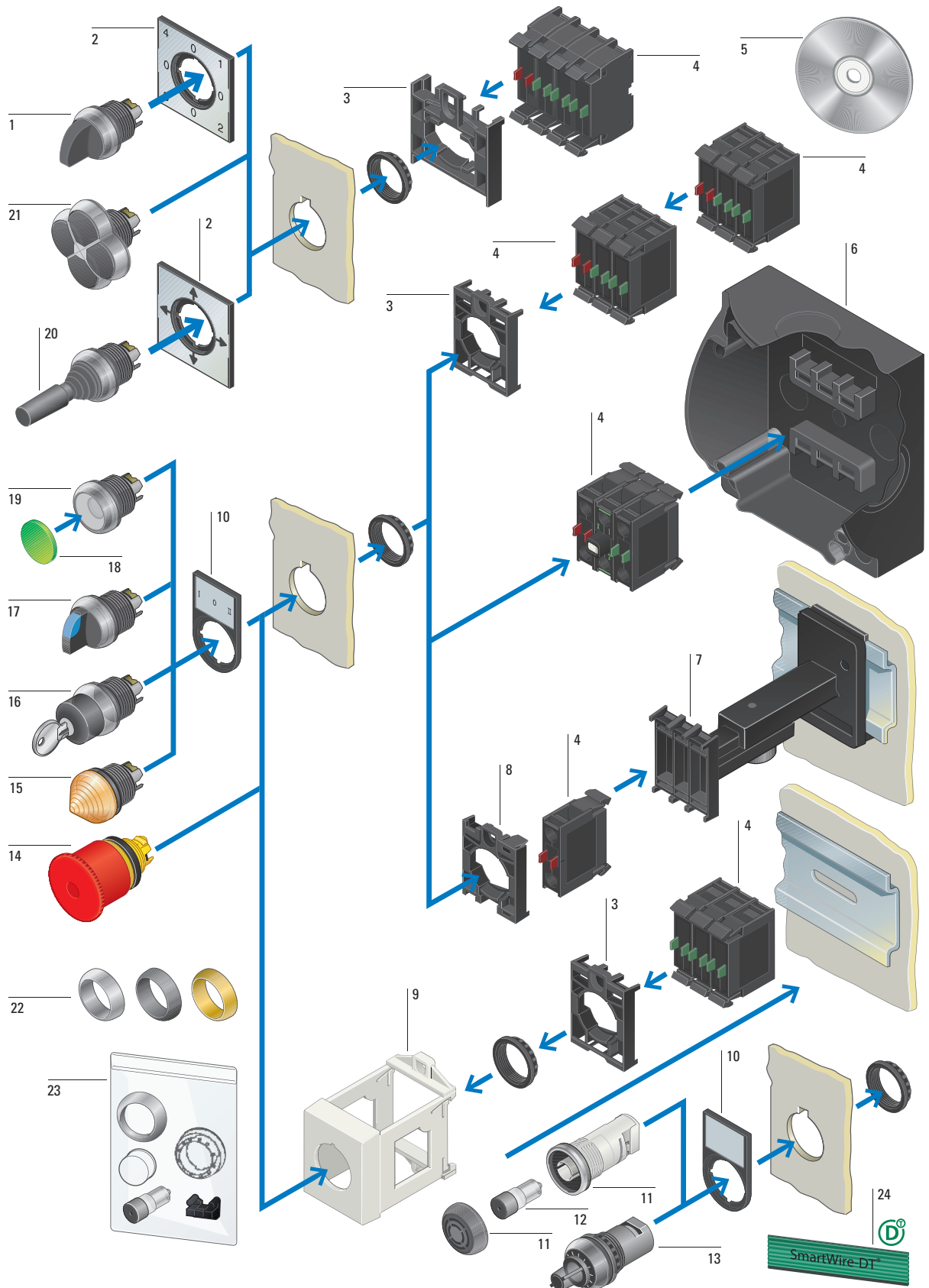
High-precision settings made easy

The M22-SWD encoder makes it possible to set extremely precise settings on machines by simply turning it and confirming. Moreover, its modular design, combined with a direct SmartWire-DT connection, allows for maximum installation flexibility and ease of diagnostics. The M22-SWD encoder also completely eliminates any potential extra costs that would normally be associated with the use of an encoder, such as those involved in establishing a connection to a PLC. And to top it all off, it is tremendously easy to use with gloves on.















RMQ-Titan pilot devices

System overview

Moeller® series






































- | | | | | | | | |
|---|---------------------------------|----|--------------------------|----|--|----|---------------------------|
| 1 | 4-way selector switch actuators | 7 | Telescopic clip | 13 | Potentiometer | 19 | Pushbutton actuators |
| 2 | Labels with label mounts | 8 | Centring adapter | 14 | Controlled stop pushbuttons/ emergency-stop buttons | 20 | Joystick |
| 3 | Mounting clamp | 9 | IVS top-hat rail adapter | 15 | Indicator light | 21 | 4-way pushbutton |
| 4 | Contact/LED elements | 10 | Label mounts | 16 | Key-operated actuators | 22 | Bezels |
| 5 | Individual inscription | 11 | Acoustic device | 17 | Changeover switches | 23 | Accessories |
| 6 | Surface mounting enclosure | 12 | Buzzer | 18 | Button plates/lenses | 24 | SmartWire-DT ribbon cable |

| | Button plate | Part no. | Article no. | | |
|---|--|--|---|--------------------------|--------|
| Double actuators | | | | | |
| IP66 White lens | | | | | |
|  | Actuators and indicator lights non-flush | Momentary | | | |
| | |  | M22-DDL-GR | 216698 | |
| | |  | M22-DDL-GR-X1/X0 | 216700 | |
| | |  | M22-DDL-GR-GB1/GB0 | 216702 | |
| | |  | M22-DDL-WS | 216704 | |
| | |  | M22-DDL-WS-X1/X0 | 216706 | |
| | |  | M22-DDL-WS-GB1/GB0 | 216708 | |
| | |  | M22-DDL-S-X4/X5 | 218145 | |
| | |  | M22-DDL-S-X7/X7 | 216710 | |
| | |  | M22-DDL-S-X226/X26 | 105227 | |
| | | Actuators and indicator lights flush |  | M22-DDLF-GR-X1/X0 | 284814 |
| | | |  | M22-DDLF-WS-X1/X0 | 284816 |
| | | Pushbutton actuator I and indicator light flush, pushbutton actuator O non-flush |  | M22-DDLM-GR-X1/X0 | 284830 |
| | | |  | M22-DDLM-WS-X1/X0 | 284832 |

RMQ-Titan pilot devices







Pushbutton actuators, Mushroom-headed pushbutton














Moeller® series

| | | Button plate | Part no. | Article no. | Part no. | Article no. |
|---|--------------------|---|--------------------|---|--------------------------------|-------------|
| Pushbutton actuators | | | | | | |
| IP67, IP69K | | | | | | |
|  | Flat |  | Momentary | | Maintained¹⁾ | |
| | |  | M22-D-S | 216590 | M22-DR-S | 216613 |
| | |  | M22-D-W | 216592 | M22-DR-W | 216615 |
| | |  | M22-D-R | 216594 | M22-DR-R | 216617 |
| | |  | M22-D-G | 216596 | M22-DR-G | 216619 |
| | |  | M22-D-Y | 216598 | M22-DR-Y | 216621 |
| | |  | M22-D-B | 216600 | M22-DR-B | 216623 |
| | | - | M22-D-GR | 132671 | | |
| | |  | M22-D-X | 216602 | M22-DR-X | 216625 |
| | |  | M22-D-R-X0 | 216605 | M22-DR-R-X0 | 216628 |
| | |  | M22-D-G-X1 | 216607 | M22-DR-G-X1 | 216630 |
| | |  | M22-D-S-X0 | 216609 | M22-DR-S-X0 | 216632 |
| | |  | M22-D-W-X1 | 216611 | M22-DR-W-X1 | 216634 |
| | |  | Extended |  | M22-DH-S | 216636 |
|  | M22-DH-W | | | 216638 | M22-DRH-W | 216665 |
|  | M22-DH-R | | | 216641 | M22-DRH-R | 216667 |
|  | M22-DH-G | | | 216643 | M22-DRH-G | 216669 |
|  | M22-DH-Y | | | 216646 | M22-DRH-Y | 216671 |
|  | M22-DH-B | | | 216649 | M22-DRH-B | 216673 |
|  | M22-DH-R-X0 | | | 216655 | M22-DRH-R-X0 | 216675 |
|  | M22-DH-G-X1 | | | 216657 | M22-DRH-G-X1 | 216677 |
|  | M22-DH-S-X0 | | | 216659 | M22-DRH-S-X0 | 216679 |
|  | M22-DH-W-X1 | | | 216661 | M22-DRH-W-X1 | 216681 |
|  | Guard-ring | | | - | M22-DG-X | 220921 |
| Mushroom-headed pushbutton | | | | | | |
| IP67, IP69K | | | | | | |
|  | Mushroom |  | Momentary | | Maintained¹⁾ | |
| | |  | M22-DP-S | 216712 | M22-DRP-S | 216743 |
| | |  | M22-DP-R | 216714 | M22-DRP-R | 216745 |
| | |  | M22-DP-G | 216716 | M22-DRP-G | 216747 |
| | |  | M22-DP-Y | 216718 | M22-DRP-Y | 216749 |
| | |  | M22-DP-R-X0 | 216720 | M22-DRP-R-X0 | 216751 |
| | |  | M22-DP-G-X1 | 216722 | M22-DRP-G-X1 | 216753 |
| | |  | M22-DP-S-X0 | 216724 | M22-DRP-S-X0 | 216755 |
| | |  | M22-DP-W-X1 | 216726 | M22-DRP-W-X1 | 216757 |

Notes

¹⁾ Stay-put/spring-return function can be changed on device

| | | | | Mushroom head | Part no. | Article no. |
|---|------------------------------|--------------------------|---|------------------|----------|-------------|
| Stop buttons | | | | | | |
| Diameter 38 mm Base yellow IP66, IP69K | | | | | | |
|  | Non-illuminated | Pull-to-release function |  | M22S-PV | 225528 | |
| | Non-illuminated | Turn-to-release function |  | M22S-PVT | 271499 | |
| | Illuminated with LED element | Pull-to-release function |  | M22S-PVL | 230962 | |
| | Illuminated with LED element | Turn-to-release function |  | M22S-PVLT | 271540 | |
| | Non-illuminated | Turn-to-release function |  | M22Y-PVT | 147403 | |

| | | | | Function: | Button plate | Part no. | Article no. |
|---|------------------|---------------------------|---|--|--------------------|----------|-------------|
| | | | | ↳ = spring-return | | | |
| | | | | └ = stay-put | | | |
| Selector switch actuators | | | | | | | |
| IP66 Stay-put/spring-return function, can be changed with coding parts M22-XC-Y | | | | | | | |
|  | With rotary head | 2 positions | ↳ 40° |  | M22-W | 216853 | |
| | | 2 positions | └ 60° |  | M22-WR | 216855 | |
| | | 2 positions | └ 60° |  | M22-WR-X92 | 216857 | |
| | | 2 positions | └ 60° | AUTO HAND  | M22-WR-X91 | 216859 | |
| | | 3 positions ¹⁾ | 40° ↙ ↘ 40° |  | M22-W3 | 216861 | |
| | | 3 positions ¹⁾ | 60° ↙ ↘ 60° |  | M22-WR3 | 216863 | |
| | | 3 positions ¹⁾ | 60° ↙ ↘ 60° |  | M22-WR3-X94 | 226838 | |
| | | 4 positions ²⁾ |  |  | M22-WR4 | 279419 | |
|  | With thumb-grip | 2 positions | ↳ 40° | - | M22-WK | 216865 | |
| | | 2 positions | └ 60° | - | M22-WRK | 216867 | |
| | | 2 positions (V position) | └ 60° | - | M22-WKV | 216874 | |
| | | 3 positions ¹⁾ | 40° ↙ ↘ 40° | - | M22-WK3 | 216870 | |
| | | 3 positions ¹⁾ | 60° ↙ ↘ 60° | - | M22-WRK3 | 216872 | |
| | | 4 positions ²⁾ |  |  | M22-WRK4 | 279431 | |







Notes
¹⁾ With plunger bridge for the middle contact
²⁾ Not suitable for coding adapters
 Use M22-A4 fixing adapter → accessories













Command and Signalling

RMQ-Titan pilot devices



Key-operated buttons, Joystick, Pushbuttons

Moeller® series



| | | | | | | Key withdrawable in position | Part no. | Article no. |
|---|-------------|---|-----|---|---|------------------------------|-----------------|-------------|
| Key-operated buttons | | | | | | | | |
| IP66 Not suitable for master key systems With 1 key Stay-put/spring-return function, can be changed with coding parts M22-XC-Y Key withdraw convertible with coding adapters M22-XC-... | | | | | | | | |
|  | 2 positions |  | 40° | - | 0 | - | M22-WS | 216881 |
| | 2 positions |  | 60° | - | 0 | I | M22-WRS | 216887 |
|  | 3 positions |  | 40° | - | 0 | - | M22-WS3 | 216894 |
| | 3 positions |  | 60° | I | 0 | II | M22-WRS3 | 216900 |

| | | | | Function: | Description | Part no. | Article no. |
|--|-------------|---|--|---|-----------------|----------|-------------|
| | | | |  | = spring-return | | |
| | | | |  | = stay-put | | |
| Joystick | | | | | | | |
| With metal shaft IP66 | | | | | | | |
|  | 2 positions |  | With one operating point per operating direction | M22-WJS2H | 178570 | | |
| | |  | With 2 operating points per operating direction | M22-WJS2H-2P¹⁾ | 178565 | | |
| | |  | With one operating point per operating direction | M22-WJS2V | 178571 | | |
| | |  | With 2 operating points per operating direction | M22-WJS2V-2P¹⁾ | 178564 | | |
| | |  | With one operating point per operating direction | M22-WRJS2H | 178574 | | |
| | |  | With one operating point per operating direction | M22-WRJS2V | 178575 | | |
| | 4 positions |  | With one operating point per operating direction | M22-WJS4 | 178568 | | |
| | |  | With 2 operating points per operating direction | M22-WJS4-2P¹⁾ | 178563 | | |
| | |  | With one operating point per operating direction | M22-WRJS4 | 178566 | | |

Notes ¹⁾ These joysticks are combined with normal normally open contacts M22-K10 and NO early-make contacts M22-K10P.



| | | | Part no. | Article no. |
|---|--------|---|---------------------|-------------|
| Pushbuttons | | | | |
| Actuators non-flush IP66 | | | | |
|  | 4-fold | Opposing pushbuttons not mechanically interlocked | M22-D4-S | 279411 |
| | 4-fold | Opposing pushbuttons not mechanically interlocked | M22-D4-S-X7 | 286336 |
|  | 4-fold | Opposing pushbuttons mechanically interlocked | M22-D14-S-X7 | 286338 |





| | | Lens | Part no. | Article no. |
|---|-------------------|---|-----------------|-------------|
| Indicator lights | | | | |
| IP67, IP69K | | | | |
|  | Flush |  | M22-L-W | 216771 |
| | |  | M22-L-R | 216772 |
| | |  | M22-L-G | 216773 |
| | |  | M22-L-Y | 216774 |
| | |  | M22-L-B | 216775 |
| | |  | M22-L-A | 164374 |
| | | Without lens | M22-L-X | 216776 |
| | Extended, conical |  | M22-LH-W | 216778 |
| | |  | M22-LH-R | 216779 |
| | |  | M22-LH-G | 216780 |
| | |  | M22-LH-Y | 216781 |
| | |  | M22-LH-B | 216782 |
| | |  | M22-LH-A | 164375 |

| | | Button plate | Part no. | Article no. | Part no. | Article no. | |
|--|---|---|---|---------------------|--------------------------------|----------------------|--------|
| Illuminated pushbutton actuators | | | | | | | |
| IP67, IP69K | | | | | | | |
| Flush  | Flush |  | momentary | | maintained¹⁾ | | |
| | |  | M22-DL-W | 216922 | M22-DRL-W | 216944 | |
| | |  | M22-DL-R | 216925 | M22-DRL-R | 216946 | |
| | |  | M22-DL-G | 216927 | M22-DRL-G | 216948 | |
| | |  | M22-DL-Y | 216929 | M22-DRL-Y | 216950 | |
| | |  | M22-DL-B | 216931 | M22-DRL-B | 216952 | |
| | |  | M22-DL-A | 167429 | M22-DRL-A | 167431 | |
| | | Without button plate | M22-DL-X | 216933 | M22-DRL-X | 216954 | |
| | |  | M22-DL-R-X0 | 216936 | M22-DRL-R-X0 | 216957 | |
| | |  | M22-DL-G-X1 | 216938 | M22-DRL-G-X1 | 216959 | |
| |  | M22-DL-W-X0 | 216940 | M22-DRL-W-X0 | 216961 | | |
| |  | M22-DL-W-X1 | 216942 | M22-DRL-W-X1 | 216963 | | |
| | Extended |  |  | M22-DLH-W | 216965 | M22-DRLH-W | 216788 |
| | |  |  | M22-DLH-R | 216967 | M22-DRLH-R | 216789 |
| | |  |  | M22-DLH-G | 216969 | M22-DRLH-G | 216796 |
| | |  |  | M22-DLH-Y | 216971 | M22-DRLH-Y | 216799 |
| | |  |  | M22-DLH-B | 216973 | M22-DRLH-B | 216802 |
| | |  |  | M22-DLH-A | 167433 | M22-DRLH-A | 167435 |
| | |  |  | M22-DLH-R-X0 | 216975 | M22-DRLH-R-X0 | 216804 |
| | |  | M22-DLH-G-X1 | 216977 | M22-DRLH-G-X1 | 216805 | |
| | |  | M22-DLH-W-X0 | 216979 | M22-DRLH-W-X0 | 216806 | |
| | |  | M22-DLH-W-X1 | 216981 | M22-DRLH-W-X1 | 216807 | |
| Guard-ring | Without button plate |  | M22-DGL-X | 230961 | | | |

Notes




¹⁾ Stay-put/spring-return function can be changed on device

| Function: | | | Part no. | Article no. |
|---|------------|---|--------------------|-------------|
| ↳ = spring-return | | | | |
| └ = stay-put | | | | |
| Illuminated selector switch actuator | | | | |
| With thumb-grip IP66 Stay-put/spring-return function, can be changed with coding parts M22-XC-Y | | | | |
| 2 positions  | ↳ 40° | ○ | M22-WLK-W | 216812 |
| | ↳ 40° | ● | M22-WLK-R | 216814 |
| | ↳ 40° | ● | M22-WLK-G | 216816 |
| | ↳ 40° | ● | M22-WLK-Y | 216818 |
| | ↳ 40° | ● | M22-WLK-B | 216820 |
| | └ 60° | ○ | M22-WRLK-W | 216823 |
| | └ 60° | ● | M22-WRLK-R | 216825 |
| | └ 60° | ● | M22-WRLK-G | 216827 |
| | └ 60° | ● | M22-WRLK-Y | 216829 |
| | └ 60° | ● | M22-WRLK-B | 216831 |
| | ∨ 60° | ○ | M22-WLKV-W | 284393 |
| | ∨ 60° | ● | M22-WLKV-R | 284394 |
| | ∨ 60° | ● | M22-WLKV-G | 284395 |
| | ∨ 60° | ● | M22-WLKV-Y | 284396 |
| | ∨ 60° | ● | M22-WLKV-B | 284397 |
| 3 positions  | 40° <↳ 40° | ○ | M22-WLK3-W | 216833 |
| | 40° <↳ 40° | ● | M22-WLK3-R | 216835 |
| | 40° <↳ 40° | ● | M22-WLK3-G | 216837 |
| | 40° <↳ 40° | ● | M22-WLK3-Y | 216839 |
| | 40° <↳ 40° | ● | M22-WLK3-B | 216841 |
| | 60° ∨ 60° | ○ | M22-WRLK3-W | 216843 |
| | 60° ∨ 60° | ● | M22-WRLK3-R | 216845 |
| | 60° ∨ 60° | ● | M22-WRLK3-G | 216847 |
| | 60° ∨ 60° | ● | M22-WRLK3-Y | 216849 |
| | 60° ∨ 60° | ● | M22-WRLK3-B | 216851 |

| | | Contacts | | Part no. | Article no. | Part no. | Article no. |
|---|--------------|---------------------|-------------------------------------|------------------------|-------------|--------------------------------|-------------|
| | | N/O = Normally open | N/C = Normally closed ¹⁾ | | | | |
| Contact elements | | | | | | | |
| IP20 | | | | | | | |
| Single contact | | | | Screw terminals | | Cage Clamp²⁾ | |
|  | Front fixing | 1 N/O | - | M22-K10 | 216376 | M22-CK10 | 216384 |
| | | - | 1 NC ⊕ | M22-K01 | 216378 | M22-CK01 | 216385 |
| | | 1 NO early-make | - | M22-K10P | 110835 | | |
| | Base fixing | - | 1 NC late-break | M22-K01D | 262165 | M22-CK01D | 262510 |
| | | 1 N/O | - | M22-KC10 | 216380 | M22-CKC10 | 216386 |
| | | - | 1 NC ⊕ | M22-KC01 | 216382 | M22-CKC01 | 216387 |
| Double contact | | | | | | | |
|  | Front fixing | 2 N/O | - | | | M22-CK20 | 107898 |
| | | - | 2 NC ⊕ | | | M22-CK02 | 107899 |
| | | 1 N/O | 1 NC ⊕ | | | M22-CK11 | 107940 |
| Self-monitoring contact elements³⁾ | | | | | | | |
|  | Front fixing | 1 N/O | 1 NC ⊕ | M22-K01SMC10 | 121472 | | |
| | | 1 N/O | 2 NC ⊕ | M22-K02SMC10 | 121474 | | |
| | Base fixing | 1 N/O | 1 NC ⊕ | M22-KC01SMC10 | 121473 | | |
| | | 1 N/O | 2 NC ⊕ | M22-KC02SMC10 | 121720 | | |
| | | 1 N/O | 3 NC ⊕ | M22-KC03SMC10 | 173028 | | |
| | | 2 N/O | 2 NC ⊕ | M22-KC12SMC10 | 173029 | | |
| Combination of contact element with screw terminals, M22-A fixing adapter and M22-XSMC indication contact actuator.³⁾ | | | | | | | |
|  | Front fixing | 1 N/O | 3 NC ⊕ | M22-AK03SMC10 | 173026 | | |
| | | 2 N/O | 2 NC ⊕ | M22-AK12SMC10 | 173027 | | |

Notes












- ¹⁾ ⊕ = safety function, by positive opening to IEC/EN 60947-5-1
- ²⁾ Cage Clamp is a registered trademark of Wago Kontakttechnik GmbH/Minden, Germany
- ³⁾ The N/O is actuated when mounted on the pushbutton.

| | | Part no. | Article no. |
|---|--|-------------------|-------------|
| Mounting adapter | | | |
| Mounting clamp (front mounting) for 3-contact LED elements | | | |
|  | - | M22-A | 216374 |
| Mounting clamp (front mounting) for 4-contact LED elements | | | |
|  | - | M22-A4 | 279437 |
| Front fixing | | | |
|  | For 2 function elements M22-SWD-K22... For use with M22-WR4, -WRJ4, -D4 in conjunction with M22-(SWD)-K | M22-SWD-A4 | 116016 |

RMQ-Titan pilot devices


LED elements, Potentiometer, Acoustic device



Moeller® series






| Rated operational voltage U_g V | | Part no. | Article no. | Part no. | Article no. |
|--|---------------------------|---|----------------------|----------|------------------------------|
| LED elements | | | | | |
| IP20 | | | | | |
| Front fixing  | 12 - 30 V AC/DC, 50/60 Hz |  | M22-LED-W | 216557 | M22-CLED-W 216569 |
| | |  | M22-LED-R | 216558 | M22-CLED-R 216570 |
| | |  | M22-LED-G | 216559 | M22-CLED-G 216571 |
| | |  | M22-LED-B | 218057 | M22-CLED-B 218061 |
| | 85 - 264 V AC, 50/60 Hz |  | M22-LED230-W | 216563 | M22-CLED230-W 216575 |
| | |  | M22-LED230-R | 216564 | M22-CLED230-R 216576 |
| | |  | M22-LED230-G | 216565 | M22-CLED230-G 216577 |
| | |  | M22-LED230-B | 218059 | M22-CLED230-B 218063 |
| Base fixing ²⁾  | 12 - 30 V AC/DC, 50/60 Hz |  | M22-LEDC-W | 216560 | M22-CLEDC-W 216572 |
| | |  | M22-LEDC-R | 216561 | M22-CLEDC-R 216573 |
| | |  | M22-LEDC-G | 216562 | M22-CLEDC-G 216574 |
| | |  | M22-LEDC-B | 218058 | M22-CLEDC-B 218062 |
| | 85 - 264 V AC, 50/60 Hz |  | M22-LEDC230-W | 216566 | M22-CLEDC230-W 216578 |
| | |  | M22-LEDC230-R | 216567 | M22-CLEDC230-R 216579 |
| | |  | M22-LEDC230-G | 216568 | M22-CLEDC230-G 216580 |
| | |  | M22-LEDC230-B | 218060 | M22-CLEDC230-B 218064 |


Notes

- ¹⁾ Cage Clamp is a registered trademark of Wago Kontakttechnik GmbH/Minden, Germany
- ²⁾ Can be used for M22-I... surface mounting enclosure

















| Impedance R kΩ | | Part no. | Article no. |
|---|-----|------------------|-------------|
| Potentiometer | | | |
| IP66 | | | |
|  | 1 | M22-R1K | 229489 |
| | 2.2 | M22-R2K2 | 171157 |
| | 4.7 | M22-R4K7 | 229490 |
| | 10 | M22-R10K | 229491 |
| | 47 | M22-R47K | 229492 |
| | 100 | M22-R100K | 229493 |
| | 470 | M22-R470K | 229494 |

| | | Part no. | Article no. |
|---|------------------------------------|-----------------|-------------|
| Acoustic device | | | |
|  | Without buzzer | M22-AMC | 229015 |
| | With BA 9s lamp socket | | |
| Buzzer for acoustic device | | | |
|  | Continuous tone, 18 - 30 V AC/DC | M22-XAM | 229025 |
| | Pulsed tone, 24 V DC (+10 %/-15 %) | M22-XAMP | 229028 |

| | For use with | Width mm | Height mm | Part no. | Article no. |
|---|---|-------------|--------------|-----------------------|-------------|
| Legend holder | | | | | |
| IP66 | | | | | |
|  | For actuators | 30 | 50 | M22S-ST-X | 216392 |
| | For double actuators | 30 | 75 | M22S-STDD-X | 216394 |
| Insert label | | | | | |
| - | | | | | |
|  | | 27 | 18 | M22-XST | 216480 |
| Bulkhead interface, RJ45 socket | | | | | |
| IP65 (with closed cover) IP20 (with plug connected) | | | | | |
|  | Front mounting RJ45, socket to socket 8/8, CAT5e | - | - | M22-RJ45-SA | 107413 |
| | Front mounting USB 3.0, Type A socket to socket | - | - | M22-USB | 147539 |
|  | | | | | |
| Bulkhead interface, USB socket | | | | | |
| IP65 (with closed cover) IP20 (with plug connected) | | | | | |
|  | Front mounting Prefabricated cable with permanently connected USB 2.0 Type A plug, 60 cm. | - | - | M22-USB-SA | 107412 |
| | Front mounting Type A socket with prefabricated cable (150 cm) with permanently connected USB 3.0, Type A plug | - | - | M22-USB-SA-150 | 147543 |

| Number of locations | | Degree of Protection | | Part no. | Article no. | | | |
|---|-----------------------------|----------------------|-------|---------------|-------------|--|--------------------------|--------|
| Surface mounting enclosure | | | | | | | | |
| With high-grade steel screws | | | | | | | | |
|  | 1 | IP67, IP69K | | M22-I1 | 216535 | | | |
| | 2 | IP67, IP69K | | M22-I2 | 216537 | | | |
| | 3 | IP67, IP69K | | M22-I3 | 216538 | | | |
| | 4 | IP67, IP69K | | M22-I4 | 216539 | | | |
| | 6 | IP66 | | M22-I6 | 216540 | | | |
| | Pushbutton actuators | | | | | | | |
| IP67, IP69K | | | | | | | | |
|  | 1 | 1 NC ⊖ | 1 N/O | - | - |  | M22-D-G-X1/KC11/I | 216522 |
| | 1 | 1 NC ⊖ | 1 N/O | - | - |  | M22-D-R-X0/KC11/I | 216521 |
| | 2 | 2 NC ⊖ | 2 N/O | - | - |  | M22-I2-M1 | 216529 |
| | 3 | 3 NC ⊖ | 3 N/O | - | - |  | M22-I3-M1 | 216532 |
| Key-operated buttons | | | | | | | | |
| IP66 | | | | | | | | |
|  | 1 | 1 NC ⊖ | 1 N/O | 0 | I | - | M22-WRS/KC11/I | 216526 |

Notes ⊖ = safety function, by positive opening to IEC/EN 60947-5-1

| | | | | Part no. | Article no. | Part no. | Article no. |
|---|--------------------------|------------------------------|---|------------------------------------|-------------|------------------------------------|-------------|
| Controlled stop pushbuttons/emergency-stop buttons | | | | | | | |
| Tamper-proof according to ISO 13850/EN 418 IP66, IP69K | | | | | | | |
| | | | | Diameter 38 mm | | Diameter 60 mm | |
| Mushroom-shaped  | Pull-to-release function | Non-illuminated |  | M22-PV-ESS | 178983 | | |
| | | Non-illuminated |  | M22-PV | 216876 | | |
| | | Illuminated with LED element |  | M22-PVL | 216878 | | |
| | Turn-to-release function | Non-illuminated |  | M22-PVT | 263467 | | |
| | | Illuminated with LED element |  | M22-PVLT | 263469 | | |
| | Key-release | Non-illuminated |  | M22-PVS | 216879 | | |
| | | | | Diameter 45 mm | | Diameter 60 mm | |
| Palm-tree shape  | Pull-to-release function | Non-illuminated |  | M22-PV45P | 152862 | M22-PV60P | 152864 |
| | | Illuminated with LED element |  | M22-PVL45P | 152860 | M22-PVL60P | 152861 |
| | | Non-illuminated |  | M22-PV45P-MPI¹⁾ | 152863 | M22-PV60P-MPI¹⁾ | 152865 |
| | Turn-to-release function | Non-illuminated |  | M22-PVT45P | 121462 | M22-PVT60P | 121464 |
| | | Illuminated with LED element |  | M22-PVLT45P | 121460 | M22-PVLT60P | 121461 |
| | | Non-illuminated |  | M22-PVT45P-MPI¹⁾ | 121463 | M22-PVT60P-MPI¹⁾ | 121465 |
| | Key-release | Non-illuminated |  | M22-PVS45P-MS1 | 121468 | M22-PVS60P-MS1 | 121469 |
| | | Non-illuminated |  | M22-PVS45P-RS | 121466 | M22-PVS60P-RS | 121467 |

Notes


Max. number of contacts: four M22-(C)K01, ...10 or two M22-(C)K02, ...20, ...11

¹⁾ With mechanical switch position indication
 Switch position indicator red → pushbutton actuated
 Switch position indication green → pushbutton released

RMQ-Titan pilot devices

Complete units EMERGENCY STOP/EMERGENCY SWITCHING OFF

Moeller® series

| For use with | Part no. | Article no. |
|---|----------------------|-------------|
| Surface mounting enclosure | | |
| With high-grade steel screws IP67, IP69K | | |
|  | | |
| - | M22-IY1 | 216536 |
| M22-XPV60... illuminated ring | M22-IY1-XPV60 | 167798 |






























| | Lock mechanism | Contacts | | Part no. | Article no. | Part no. | Article no. |
|---|----------------|---------------------|-----------------------|---------------------------|-------------|---------------------------|-------------|
| | | N/O = Normally open | N/C = Normally closed | | | | |
| Controlled stop pushbuttons/emergency-stop buttons | | | | | | | |
| Tamper-proof according to ISO 13850/EN 418 Non-illuminated | | | | | | | |
| Mushroom-shaped | | | | Diameter 38 mm | | | |
| Pull-to-release function | - | 1 N/O | 1 NC ⊕ | M22-PV/KC11/IY | 216525 | | |
|  | | | | | | | |
| Key-release | - | 1 N/O | 1 NC ⊕ | M22-PVS/KC11/IY | 216523 | | |
|  | | | | | | | |
| Palm-tree shape | | | | Diameter 45 mm | | Diameter 60 mm | |
| Key-release | MS1 | - | 2 NC ⊕ | C22-PVS45P-MS1-K02 | 121619 | C22-PVS60P-MS1-K02 | 121621 |
| | MS1 | 1 N/O | 1 NC ⊕ | C22-PVS45P-MS1-K11 | 121618 | C22-PVS60P-MS1-K11 | 121620 |
| Turn-to-release function | - | - | 2 NC ⊕ | C22-PVT45P-K02 | 121611 | C22-PVT60P-K02 | 121613 |
| | - | 1 N/O | 1 NC ⊕ | C22-PVT45P-K11 | 121610 | C22-PVT60P-K11 | 121612 |
|  | | | | | | | |
|  | | | | | | | |

Notes ⊕ = safety function, by positive opening to IEC/EN 60947-5-1

RMQ pilot devices compact solution

Pushbutton actuators, Indicator lights

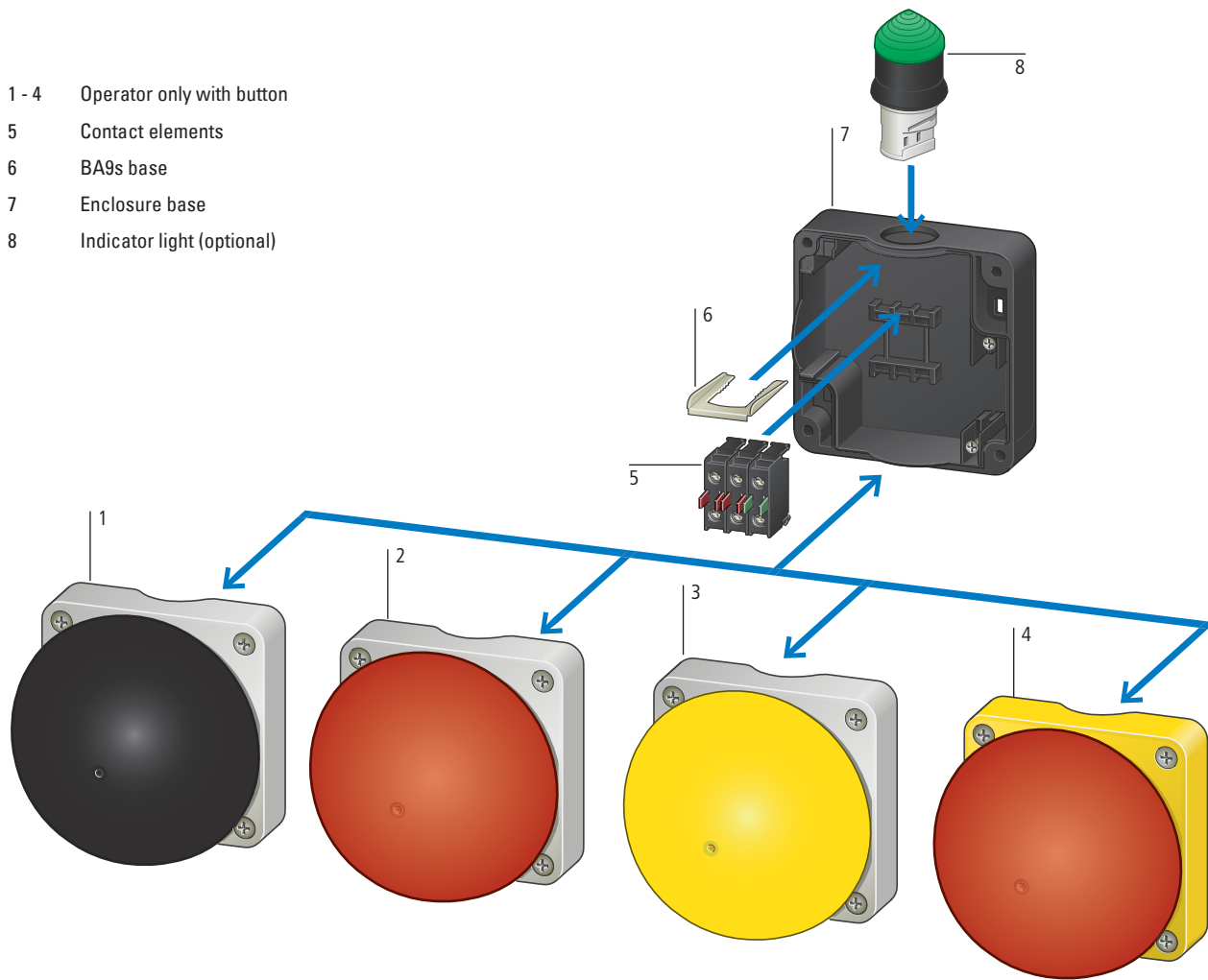
Moeller® series

| | Cable Length m | Button plate | Contacts | | Momentary | | Maintained | |
|---|----------------------|---|-------------------------------------|-----------------------|---------------------------|------------------------|----------------------------|-------------|
| | | | N/C = Normally closed ¹⁾ | N/O = Normally open | Part no. | Article no. | Part no. | Article no. |
| Complete unit | | | | | | | | |
| IP66, IP67, IP69K (front) IP65 (on rear) M12A plug with cable (black) Flat | | | | | | | | |
| Pushbutton actuators | | | | | | | | |
|  | 0.5 |  | - | 1 N/O | C22-D-G-K10-P3 | 181632 | C22-DR-G-K10-P3 | 181610 |
| | 1 |  | - | 1 N/O | C22-D-G-K10-P5 | 181041 | C22-DR-G-K10-P5 | 181079 |
| | 0.5 |  | - | 1 N/O | C22-D-W-K10-P3 | 181635 | C22-DR-W-K10-P3 | 181613 |
| | 1 |  | - | 1 N/O | C22-D-W-K10-P5 | 181047 | C22-DR-W-K10-P5 | 181085 |
| | 0.5 | Without button plate | - | 1 N/O | C22-D-X-K10-P3 | 181607 | C22-DR-X-K10-P3 | 181616 |
| | 1 | Without button plate | - | 1 N/O | C22-D-X-K10-P5 | 181051 | C22-DR-X-K10-P5 | 181089 |
| | 0.5 |  | 1 NC ⊕ | - | C22-D-R-K01-P3 | 181633 | C22-DR-R-K01-P3 | 181611 |
| | 1 |  | 1 NC ⊕ | - | C22-D-R-K01-P5 | 181043 | C22-DR-R-K01-P5 | 181081 |
| | 0.5 |  | 1 NC ⊕ | - | C22-D-S-K01-P3 | 181634 | C22-DR-S-K01-P3 | 181612 |
| | 1 |  | 1 NC ⊕ | - | C22-D-S-K01-P5 | 181045 | C22-DR-S-K01-P5 | 181083 |
| | 0.5 | Without button plate | 1 NC ⊕ | - | C22-D-X-K01-P3 | 181605 | C22-DR-X-K01-P3 | 181614 |
| | 1 | Without button plate | 1 NC ⊕ | - | C22-D-X-K01-P5 | 181049 | C22-DR-X-K01-P5 | 181087 |
| | 0.5 | Without button plate | 1 NC ⊕ | 1 N/O | C22-D-X-K11-P3 | 181608 | C22-DR-X-K11-P3 | 181617 |
| | 1 | Without button plate | 1 NC ⊕ | 1 N/O | C22-D-X-K11-P5 | 181052 | C22-DR-X-K11-P5 | 181090 |
| | 0.5 | Without button plate | - | 2 N/O | C22-D-X-K20-P3 | 181609 | C22-DR-X-K20-P3 | 181618 |
| | 1 | Without button plate | - | 2 N/O | C22-D-X-K20-P5 | 181053 | C22-DR-X-K20-P5 | 181091 |
| 0.5 | Without button plate | 2 NC ⊕ | - | C22-D-X-K02-P3 | 181606 | C22-DR-X-K02-P3 | 181615 | |
| 1 | Without button plate | 2 NC ⊕ | - | C22-D-X-K02-P5 | 181050 | C22-DR-X-K02-P5 | 181088 | |
| Illuminated pushbutton actuators | | | | | | | | |
| Rated operational voltage LED: 24 V AC/DC | | | | | | | | |
|  | 0.5 |  | - | 1 N/O | C22-DL-B-K10-24-P3 | 181624 | C22-DRL-B-K10-24-P3 | 181628 |
| | 1 |  | - | 1 N/O | C22-DL-B-K10-24-P5 | 181298 | C22-DRL-B-K10-24-P5 | 181364 |
| | 0.5 |  | - | 1 N/O | C22-DL-G-K10-24-P3 | 181625 | C22-DRL-G-K10-24-P3 | 181629 |
| | 1 |  | - | 1 N/O | C22-DL-G-K10-24-P5 | 181300 | C22-DRL-G-K10-24-P5 | 181366 |
| | 0.5 |  | - | 1 N/O | C22-DL-W-K10-24-P3 | 181627 | C22-DRL-W-K10-24-P3 | 181631 |
| | 1 |  | - | 1 N/O | C22-DL-W-K10-24-P5 | 181307 | C22-DRL-W-K10-24-P5 | 181370 |
| | 0.5 |  | 1 NC ⊕ | - | C22-DL-R-K01-24-P3 | 181626 | C22-DRL-R-K01-24-P3 | 181630 |
| | 1 |  | 1 NC ⊕ | - | C22-DL-R-K01-24-P5 | 181303 | C22-DRL-R-K01-24-P5 | 181368 |
| Indicator lights | | | | | | | | |
| Rated operational voltage LED: 24 V AC/DC | | | | | | | | |
|  | 0.5 |  | - | - | C22-L-B-24-P3 | 181619 | | |
| | 1 |  | - | - | C22-L-B-24-P5 | 181137 | | |
| | 0.5 |  | - | - | C22-L-G-24-P3 | 181620 | | |
| | 1 |  | - | - | C22-L-G-24-P5 | 181139 | | |
| | 0.5 |  | - | - | C22-L-R-24-P3 | 181621 | | |
| | 1 |  | - | - | C22-L-R-24-P5 | 181141 | | |
| | 0.5 |  | - | - | C22-L-W-24-P3 | 181622 | | |
| | 1 |  | - | - | C22-L-W-24-P5 | 181059 | | |
| | 0.5 |  | - | - | C22-L-Y-24-P3 | 181623 | | |
| | 1 |  | - | - | C22-L-Y-24-P5 | 181061 | | |


Notes

¹⁾ ⊕ = safety function, by positive opening to IEC/EN 60947-5-1

- 1 - 4 Operator only with button
- 5 Contact elements
- 6 BA9s base
- 7 Enclosure base
- 8 Indicator light (optional)



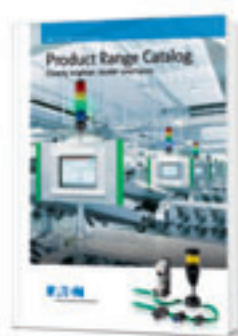
Command and Signalling

| | Function | Colour | | | Contacts | | Part no. Article no. |
|---|------------|--------|---------------|----------------|---------------------|-----------------------|----------------------------------|
| | | Button | Enclosure top | Enclosure base | N/O = Normally open | N/C = Normally closed | |
| Foot and palm switches, IP67, IP69K | | | | | | | |
|  | Momentary | ● | ● | ● | 1 N/O | 1 NC ⊕ | FAK-S/KC11/I 229749 |
|  | Momentary | ● | ● | ● | 1 N/O | 1 NC ⊕ | FAK-R/KC11/I 229746 |
|  | Maintained | ● | ● | ● | - | 1 NC ⊕ | FAK-R/V/KC01/IY 229747 |
| | | ● | ● | ● | 1 N/O | 1 NC ⊕ | FAK-R/V/KC11/IY 229748 |
| | | ● | ● | ● | - | 2 NC ⊕ | FAK-R/V/KC02/IY 256790 |

Build it in.



Implement efficient signaling and see your equipment's availability soar



Catalog download:
www.eaton.eu/catalog

Signal towers are just as essential to the smooth and safe operation of machines and systems as they are at airports and supermarkets. Moreover, the tasks they have to perform are as varied as the locations where they have to be used. This is why Eaton has designed its signal towers in such a way as to be able to accommodate extremely versatile light and acoustic modules. On top of this, their high IP66 degree of protection ensures that they can be used virtually anywhere.

In terms of signaling systems, light intensity and signal strength are as crucial to a system's efficiency as are the speed and ease with which complete towers can be assembled and disassembled, e.g., in order to transport a machine.

Moreover, this efficiency can be increased even further by effectively integrating signal towers into an automation solution. Within this context, a SmartWire-DT connection not only significantly reduces wiring complexity, but also considerably enhances a system's communication capabilities. Intelligent switchgear can send alarm messages through the system – when, for example, overloading is imminent – in order to avoid stops and downtimes. Following these signals, signal towers can output their own clearly recognizable signals, thus ensuring higher machine and system availability.





Two signal tower configurations: SL4 and SL7

The signal towers are available with a compact diameter of 40 mm or with a standard diameter of 70 mm. In this way Eaton provides an optimal solution for your signaling tasks, even in places where space is scarce.



Significantly brighter and louder signals

All six lamp modules are available with filament lamps, continuous light LEDs, flashing LEDs, strobe LEDs, or high-performance LEDs. This way, the modules' brightness and colors can be adapted to the specific needs of customers and to varying international market requirements. The same holds true for the acoustic modules. 8 different signals and volume that can be adjusted up to 100 dB allow for optimal adaptation to any ambient conditions.



Seamless style

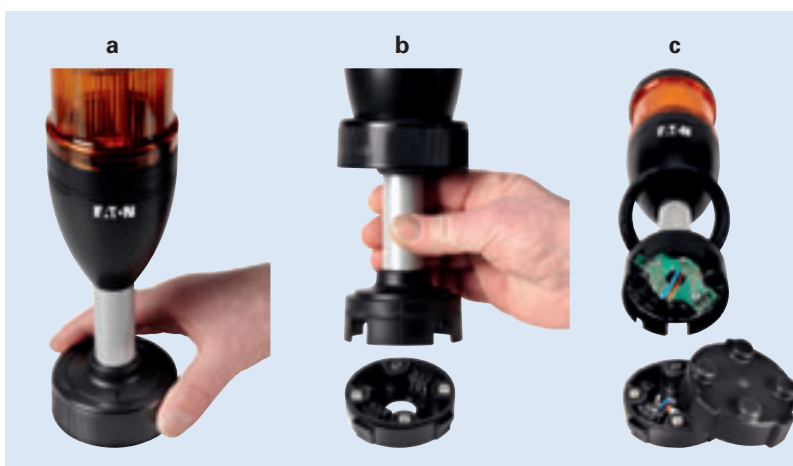
Actuators and indicator lamps have a decisive impact on a machine's appearance. In fact, they are the first thing an operator notices. Because of this, Eaton has designed these elements with a common style, featuring such appealing design elements as sleek, smoothly rounded shapes.



Extremely flexible mounting options

Our new signal towers can be installed in any of 11 different ways. Not only can the cup-shaped base be mounted on the side of equipment, but it can also be mounted directly in a variety of other configurations. If there is not enough clearance to the ceiling, for example, the modules can be installed horizontally. Tubes with lengths of 100, 250, 400 and 800 mm, make the system even more flexible.

www.eaton.eu/selectiontools



Assemble and disassemble in a matter of seconds

Signal towers can be disassembled in order to transport the corresponding machine. With Eaton's rapid mounting system, this can be done in a matter of seconds:

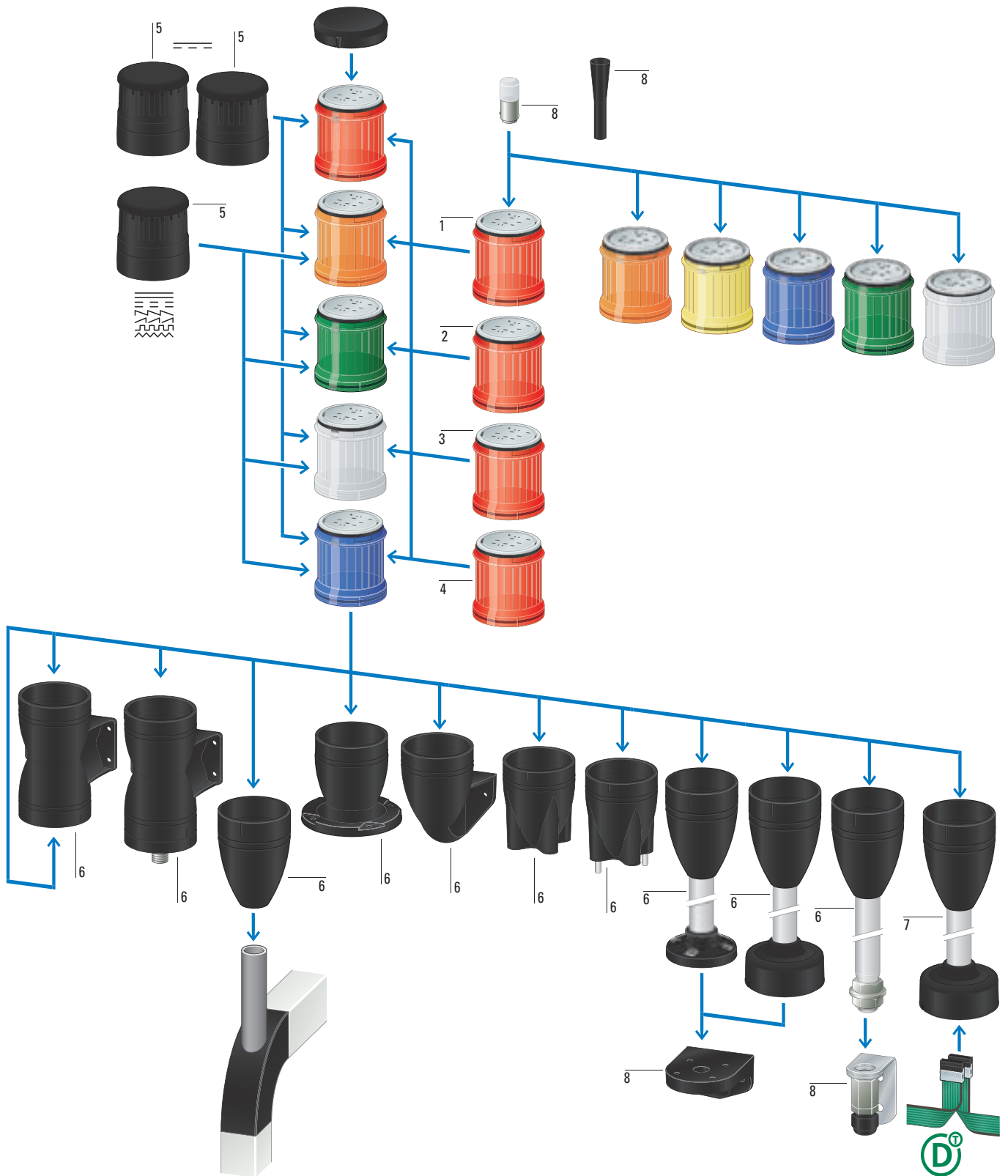
- a) Loosen the mounting ring.
- b) Remove the signal tower.
- c) Put the protection cap on. You are ready to go!

Re-assembling and mounting the signal tower, both electrically and mechanically, is just as simple.

Signal towers SL7, SL4



System overview













Moeller® series























- 1 Card for filament lamp, continuous light
- 2 Module with LED/high power LED, continuous light
- 3 Card with LED, flashing light
- 4 Module with LED/high power LED, strobe light

- 5 Acoustic module
- 6 Base module
- 7 Base module with SWD connection
- 8 Accessory consideration

| Rated operational voltage U_e V | Number of modules | Colour | Module width 70 mm | Module width 40 mm |
|--|-------------------|---|--------------------------------------|--------------------------------------|
| | | | Part no. Article no. | Part no. Article no. |
| IP66 complete units | | | | |
| Continuous light, LED, IP66, Base module with foot and 100 mm tube | | | | |
| 24 V AC/DC | 2 |  | SL7-100-L-RG-24LED 171424 | SL4-100-L-RG-24LED 171295 |
| | 3 |  | SL7-100-L-RYG-24LED 171425 | SL4-100-L-RYG-24LED 171296 |
| Customised complete unit | | | | |
| Order on request | | | SL7-COMBINATION 2011955 | SL4-COMBINATION 2011956 |








| Rated operational voltage ¹⁾ U_e V | Colour | Continuous light | Flashing light 2 Hz | Strobe light 1.4 Hz |
|---|---|---|------------------------------|------------------------------|
| | | Part no. Article no. | Part no. Article no. | Part no. Article no. |
| Module with LED, IP66 | | | | |
| 24 V AC/DC |  | SL7-L24-B 171461 | SL7-BL24-B 171439 | SL7-FL24-B 171402 |
| |  | SL7-L24-G 171462 | SL7-BL24-G 171440 | SL7-FL24-G 171403 |
| |  | SL7-L24-R 171463 | SL7-BL24-R 171441 | SL7-FL24-R 171404 |
| |  | SL7-L24-W 171464 | SL7-BL24-W 171442 | SL7-FL24-W 171405 |
| |  | SL7-L24-Y 171465 | SL7-BL24-Y 171388 | SL7-FL24-Y 171406 |
| |  | SL7-L24-A 171466 | SL7-BL24-A 171389 | SL7-FL24-A 171407 |
| | 230/240 V AC |  | SL7-L230-B 171473 | SL7-BL230-B 171396 |
|  | | SL7-L230-G 171474 | SL7-BL230-G 171397 | SL7-FL230-G 171415 |
|  | | SL7-L230-R 171475 | SL7-BL230-R 171398 | SL7-FL230-R 171416 |
|  | | SL7-L230-W 171476 | SL7-BL230-W 171399 | SL7-FL230-W 171417 |
|  | | SL7-L230-Y 171477 | SL7-BL230-Y 171400 | SL7-FL230-Y 171418 |
|  | | SL7-L230-A 171426 | SL7-BL230-A 171401 | SL7-FL230-A 171419 |















Notes ¹⁾ 110/120 V AC → Online Catalog

| Rated operational voltage ¹⁾ U _e V | Colour | Continuous light | Flashing light 2 Hz | Strobe light 1.4 Hz | Multistrobe light 1 - 2.6 Hz | |
|---|--|---|-----------------------------|--------------------------------|---------------------------------|---|
| | | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. | |
| Card with high power LED, IP66 | | | | | | |
| 24 V AC/DC  |  | SL7-L24-B-HP 171427 | - | SL7-FL24-B-HP 171420 | SL7-FL24-B-HPM 171275 | |
| |  | SL7-L24-G-HP 171428 | - | SL7-FL24-G-HP 171421 | SL7-FL24-G-HPM 171276 | |
| |  | SL7-L24-R-HP 171429 | - | SL7-FL24-R-HP 171422 | SL7-FL24-R-HPM 171277 | |
| |  | SL7-L24-W-HP 171430 | - | SL7-FL24-W-HP 171423 | SL7-FL24-W-HPM 171278 | |
| |  | SL7-L24-Y-HP 171431 | - | SL7-FL24-Y-HP 171273 | SL7-FL24-Y-HPM 171279 | |
| |  | SL7-L24-A-HP 171432 | - | SL7-FL24-A-HP 171274 | SL7-FL24-A-HPM 171280 | |
| Module with LED, IP66 | | | | | | |
| 24 V AC/DC  |  | SL4-L24-B 171313 | SL4-BL24-B 171337 | SL4-FL24-B 171355 | SL4-FL24-B-M 171373 | |
| |  | SL4-L24-G 171314 | SL4-BL24-G 171338 | SL4-FL24-G 171356 | SL4-FL24-G-M 171374 | |
| |  | SL4-L24-R 171315 | SL4-BL24-R 171339 | SL4-FL24-R 171357 | SL4-FL24-R-M 171375 | |
| |  | SL4-L24-W 171316 | SL4-BL24-W 171340 | SL4-FL24-W 171358 | SL4-FL24-W-M 171376 | |
| |  | SL4-L24-Y 171317 | SL4-BL24-Y 171341 | SL4-FL24-Y 171359 | SL4-FL24-Y-M 171377 | |
| |  | SL4-L24-A 171318 | SL4-BL24-A 171342 | SL4-FL24-A 171360 | SL4-FL24-A-M 171378 | |
| | 230/240 V AC |  | SL4-L230-B 171325 | SL4-BL230-B 171349 | SL4-FL230-B 171367 | - |
| | |  | SL4-L230-G 171326 | SL4-BL230-G 171350 | SL4-FL230-G 171368 | - |
| | |  | SL4-L230-R 171327 | SL4-BL230-R 171351 | SL4-FL230-R 171369 | - |
| | |  | SL4-L230-W 171328 | SL4-BL230-W 171352 | SL4-FL230-W 171370 | - |
| | |  | SL4-L230-Y 171329 | SL4-BL230-Y 171353 | SL4-FL230-Y 171371 | - |
| | |  | SL4-L230-A 171330 | SL4-BL230-A 171354 | SL4-FL230-A 171372 | - |



Notes

¹⁾ 110/120 V AC → Online Catalog

| Rated operational voltage U _e V | Colour | Continuous light Filament lamp max. 7 W | Continuous light Filament lamp max. 4 W |
|--|---|--|--|
| | | Part no. Article no. | Part no. Article no. |
| Card for filament lamp, IP66 | | | |
| Without light elements, Filament bulbs → Accessories | | | |
| < 250 V AC/DC  |  | SL7-L-B 171433 | SL4-L-B 171331 |
| |  | SL7-L-G 171434 | SL4-L-G 171332 |
| |  | SL7-L-R 171435 | SL4-L-R 171333 |
| |  | SL7-L-W 171436 | SL4-L-W 171334 |
| |  | SL7-L-Y 171437 | SL4-L-Y 171335 |
| |  | SL7-L-A 171438 | SL4-L-A 171336 |

| Description | Rated operational voltage ¹⁾ U _e V | Rated operational current I _e mA | Colour | Sound type | Part no. Article no. | |
|---|---|---|----------|---|---|------------------------------|
| Acoustic modules, IP66 | | | | | | |
| Place only at the highest position on a pole | | | | | | |
|  | Continuous tone or pulsed tone, adjustable with internal dip switches. Sound pressure 100 db, adjustable with internal potentiometer. f = 2800 Hz | 24 V AC/DC | max. 92 |  |  | SL7-AP24 171281 |
| | | 230/240 V AC | max. 43 |  | | SL7-AP230 171283 |
| | Continuous tone or pulsed tone, external actuation. Assigned two inputs (2 modules). Sound pressure 100 db, adjustable with internal potentiometer. f = 2800 Hz | 24 V AC/DC | max. 92 |  |  | SL7-AP24-E 171284 |
| | | 230/240 V AC | max. 43 |  | | SL7-AP230-E 171286 |
| | Multi-tone; 8 tones, adjustable with internal dip switch. Sound pressure 100 db, adjustable with internal potentiometer. f = 500 - 2700 Hz | 24 V AC/DC | max. 115 |  |  | SL7-AP24-M 171287 |
| | | 230/240 V AC | max. 43 |  | | SL7-AP230-M 171289 |
|  | Continuous tone or pulsed tone, adjustable with internal dip switches. Sound pressure 80 dB. f = 4000 Hz | 24 V AC/DC | max. 39 |  |  | SL4-AP24 171379 |
| | | 230/240 V AC | max. 21 |  | | SL4-AP230 171381 |

Notes ¹⁾ 110/120 V AC → Online Catalog

| Description | Tube length | For use with | Part no. Article no. | For use with | Part no. Article no. | |
|---|---|--------------|---|--------------------------------|--------------------------------|---|
| Basic modules | | | | | | |
| For horizontal mounting Including cover Max. 5 modules | | | | | | |
|  | Base with aluminium tube and plastic foot | 100 mm | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | Spring-loaded terminals | Push in terminals | |
| | | 250 mm | | SL7-CB-100 171443 | | SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-... |
| | | 400 mm | | SL7-CB-250 171444 | | |
| | | 800 mm | | SL7-CB-400 171445 | | |
|  | Base with aluminum tube and banjo bolt | 100 mm | | SL7-CB-800 177312 | SL4-PIB-100 171297 | |
| | | 250 mm | | SL7-CB-T-100 171452 | SL4-PIB-T-100 171305 | |
| | | 400 mm | | SL7-CB-T-250 171453 | SL4-PIB-T-250 171306 | |
| | | 800 mm | | SL7-CB-T-400 171454 | SL4-PIB-T-400 171307 | |
| | | | SL7-CB-T-800 178460 | SL4-PIB-T-800 178461 | | |

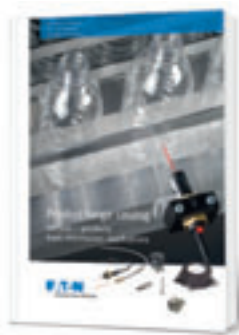
| Description | Tube length | For use with | Part no. Article no. | For use with | Part no. Article no. |
|--|-------------|---|--|---|---|
| Basic modules | | | | | |
| For horizontal mounting Including cover Max. 5 modules | | | Spring-loaded terminals | | Push in terminals |
|  Base with internal (on the inside) fixing holes | - | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | SL7-CB-IMH 171447 | SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-... | SL4-PIB-IMH 171300 |
|  Base with built-in (pre-assembled) fixing screws | - | | SL7-CB-IMS 171448 | | SL4-PIB-IMS 171301 |
|  Base with external fixing holes | - | | SL7-CB-EMH 171449 | | SL4-PIB-EMH 171302 |
|  Base: Can hold tubes with a diameter of 25 mm (±0.5) | - | | SL7-CB-TM 179987 | | SL4-PIB-TM 179986 |
|  Base with base adapter for slipping onto place (rapid mounting and wiring system) | 100 mm | | Screw terminals SL7-FMS-100 171456 | | Screw terminals SL4-FMS-100 171308 |
| | 250 mm | | SL7-FMS-250 171457 | | SL4-FMS-250 171309 |
| | 400 mm | | SL7-FMS-400 171458 | | SL4-FMS-400 171310 |
| | 800 mm | | SL7-FMS-800 178462 | | SL4-FMS-800 178463 |
| | 100 mm | | Blade terminal SL7-SWD 171459 | | Blade terminal SL4-SWD 171311 |
| Base with base adapter for slipping onto place (rapid mounting and wiring system) Max. 0.3 A per module External power supply connectable (24 V DC) Configurable with SWD-Assist (planning and ordering help) | | |  | |  |
| For vertical mounting Including cover | | | Spring-loaded terminals | | Push in terminals |
|  One-sided base with bracket Max. 5 modules | | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | SL7-CB-FW 171450 | SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-... | SL4-PIB-FW 171303 |
| For vertical mounting on both sides Including cover | | | Spring-loaded terminals | | Push in terminals |
|  Base with external fixing holes Max. 2 x 5 modules | | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | SL7-CB-D 171451 | SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-... | SL4-PIB-D 171304 |
| For vertical mounting on one sides Including cover | | | M12 plug, 4 pole | | |
|  Base with external fixing holes Max. 3 modules | | SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-... | SL7-CB-D-M12A4 177351 | | |

| | Lifespan h | Rated operational voltage U _e V | Power | For use with | Part no. Article no. |
|---|---------------|--|-------|---|-----------------------------|
| Magnetic base including M20 cable gland | | | | | |
| For vertical mounting, Metal and plastic | | | | | |
|  | - | - | - | SL4-PIB-100(250)(400) SL7-CB-100(250)(400) | SL7/4-MMS 172954 |
| Mounting brackets | | | | | |
| For vertical mounting, Plastic | | | | | |
|  | - | - | - | SL4-PIB-100(250)(400) SL4-FMS... | SL7/4-FW 171446 |
| Including mounting bracket M20 cable gland | | | | | |
| For vertical mounting, Metal | | | | | |
|  | - | - | - | SL4-PIB-T... SL7-CB-T... | SL7/4-FW-T 171455 |
| Tool for replacing filament lamp | | | | | |
|  | - | - | - | - | SL7/4-BET 171294 |
| Filament bulbs | | | | | |
| Mounting: Ba15d | | | | | |
|  | > 3000 | 12 V | 5 W | SL7-L-... | SL7-L12 171290 |
| | | 24 V | 6.5 W | | SL7-L24 171291 |
| | | 120 V | 7 W | | SL7-L120 171292 |
| | | 230 V | 6.5 W | | SL7-L230 171293 |
| | > 3000 | 12 V | 4 W | SL4-L-... | SL4-L12 171382 |
| | | 24 V | | | SL4-L24 171383 |
| | | 120 V | | | SL4-L120 171384 |
| | | 230 V | | | SL4-L230 171385 |

Build it in.



Movements safely under control detect positions mechanically, optically and inductively



Catalog download:
www.eaton.eu/catalog

Wherever exact positioning is required, safety/position switches from Eaton with positively opening contacts are used. They are equipped with Cage Clamp or screw terminals and are available with metal and insulated enclosures. Their large connection area ensures that they can be wired quickly. Easy to fit and flexible operating heads are a further feature. Safety-door switches and safety position switches protect persons and processes. They are used to ensure that protective doors are safely locked and ensure a safe shutdown.

A variety of sensors makes it possible to use inductive, capacitive, or photoelectric object detection as necessary. These sensors are available in AC and DC versions, as well as in various cubic and tubular designs that make it easy to adapt to any type of location. One of the main highlights of this range consists of the programmable iProx series, which can be easily configured for any application at hand. In fact, E59 iProx can be used to replace a wide variety of standard sensors, e.g., when a replacement is necessary due to servicing.



www.eaton.eu/positionswitches
www.eaton.eu/sensors



More than a mechanical switch LSE-Titan

- Variable, adjustable switching point
- Precisely defined and reproducible
- Quick and bounce-free PNP-switching outputs facilitate high operating frequency
- Analog voltage output for precise position control
- Certified by the TÜV Rheinland
- With variable switching point or analog output



Reliable machine protection with non-contacting safety switches

The non-contacting safety switches of the RS-Titan model series from Eaton were specially developed for monitoring of protective coverings.

- Non-contacting: long lifespan, easy installation, high tolerance for doors and hinged flaps that do not close precisely, low maintenance
- High IP67, IP69K degree of protection: easy to clean, rugged, and reliable
- Symmetrical enclosure: easy mounting, low inventory levels
- 2 or 3 switching contacts: suitable for many applications
- Potential-free contacts: easy connection
- SILCL3, PLe: safe and reliable
- M12 plug or cable: quick and easy connection



Eaton sensors: versatile and reliable

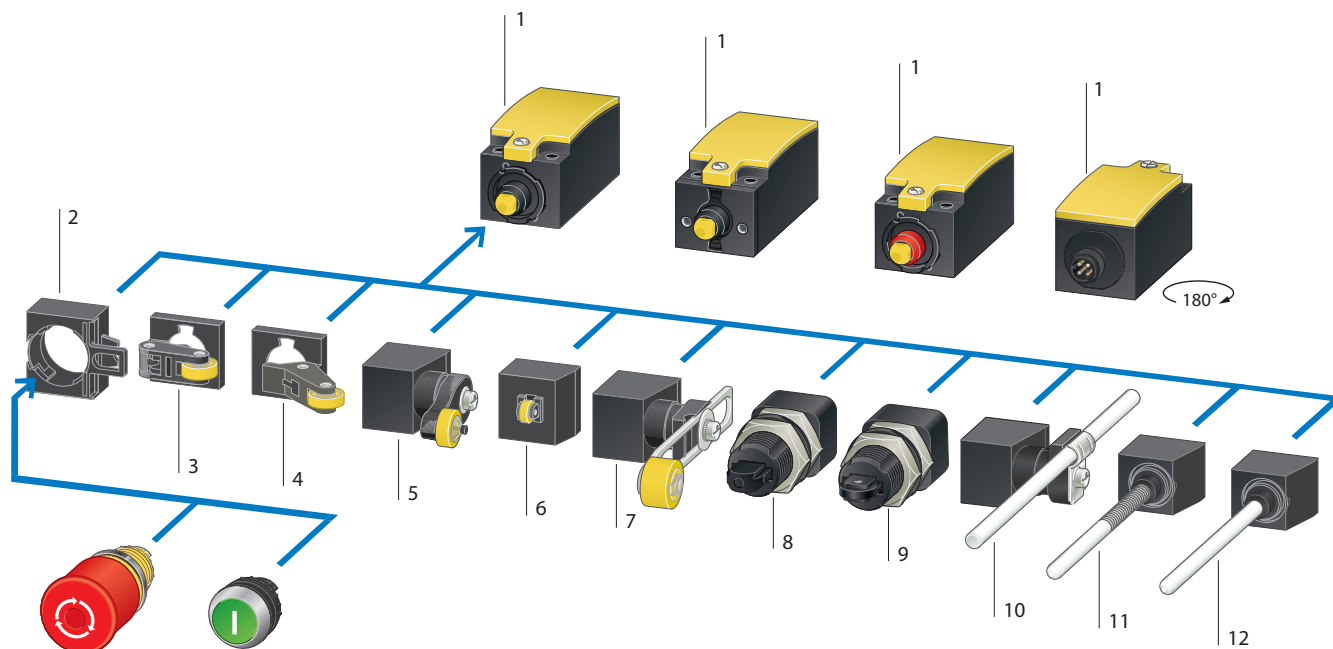
Eaton inductive and photoelectric sensors are available in a variety of designs and versions and are characterized by their unmatched reliability.

- Rugged design
- Nine different inductive sensor series
- E59 AccuProx with analog output
- E56 Pancake with a nominal range of 100 mm
- Opposed mode, refracted-light and diffused mode light barriers and more
- Perfect Prox technology for unparalleled background suppression
- A large signal reserve prevents failures and downtimes and extends maintenance intervals

Position switches






Safety position switches LS-Titan

Moeller® series



- 1 Basic device LS, LSM
- 2 Mounting clamp
- 3 Roller lever
- 4 Angled roller lever
- 5 Rotary lever
- 6 Roller plunger

- 7 Adjustable roller lever
- 8 Rounded plunger, centre fixing
- 9 Roller plunger, centre fixing
- 10 Actuating rod
- 11 Spring-rod actuator
- 12 Actuating rod

| | Contacts | Contact travel | Housing | Cage Clamp ¹⁾ Part no. Article no. | Screw terminal Part no. Article no. | |
|--|--|--|--------------------|---|---|-------------------------|
| | ⊕ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | ■ = Contact closed □ = Contact open Contact sequence | | | | |
| Basic device, expandable | | | | | | |
| Operating heads → Page 129 | | | | | | |
| IP66, IP67 analog electronic position switches | | | | | | |
| Visual status indication Q1 = analog output Q2 = diagnostics output | | | Insulated material | LSE-AU 274096 | | |
|  |  | | | | | |
| IP66, IP67 operating point electronically adjustable | | | | | | |
| Visual status indication, comparable with positive opening function Partly short-circuit proof, Restart after reset | 1 N/O | 1 NC | | Insulated material | LSE-11 266121 | |
|  |  | - | 2 NC | | Insulated material | LSE-02 266122 |
| Rounded plunger, IP66, IP67 | | | | | | |
|  | - | 2 NC ⊕ | | Insulated material | LS-S02 266107 | |
| | - | 2 NC ⊕ | | Metal | LSM-02 266142 | |
| | - | 2 NC ⊕ | | Insulated material | LS-02A 116702 | |
| | 1 N/O | 1 NC ⊕ | | Insulated material | LS-11 266109 | |
| | 1 N/O | 1 NC ⊕ | | Metal | LSM-11 266144 | |
| | 1 N/O | 1 NC ⊕ | | Insulated material | LS-11A 116704 | |
| | 1 N/O | 1 NC ⊕ | | Insulated material | LS-11D 266114 | |
| | 1 N/O | 1 NC ⊕ | | Metal | LSM-11D 266149 | |
| | 1 N/O | 1 NC ⊕ | | Insulated material | LS-11DA 292361 | |
| | 1 N/O | 1 NC ⊕ | | Metal | LSM-11DA 292363 | |
| | 1 N/O | 1 NC ⊕ | | Insulated material | LS-11S 266105 | |
| | 1 N/O | 1 NC ⊕ | | Metal | LSM-11S 266140 | |
| | 2 N/O | - | | Insulated material | LS-20 266120 | |
| | 2 N/O | - | | Metal | LSM-20 266155 | |
| | 2 N/O | - | | Insulated material | LS-20A 292362 | |
| | 2 N/O | - | | Metal | LSM-20A 100051 | |
| | 2 N/O | - | | Insulated material | LS-20B 116706 | |

Notes

¹⁾ Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.
Accessories for the Cage-Clamp terminals from Wago:power comb, gray, Wago Article No. 264-402

Position switches


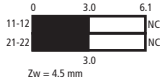
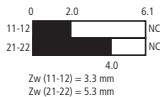
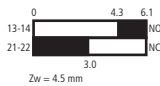
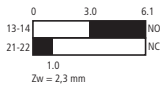
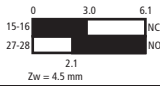
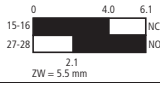
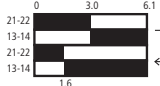
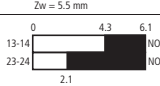

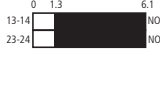

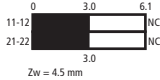
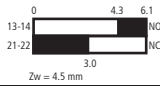
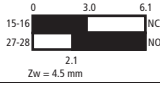
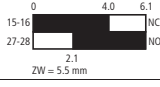
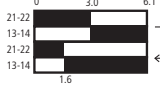
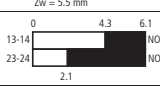
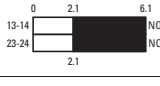

Safety position switches LS-Titan

Moeller® series

| | | Contacts | | Housing | Snap-action contact | Connection type ¹⁾ | | Screw terminal | |
|---|-------|--|---|---------|---------------------|-------------------------------|--------------------|----------------|-------------|
| | | ⊖ Positive opening safety function according to IEC/EN 60947-5-1 | N/O = Normally open N/C = Normally closed | | | Part no. | Article no. | Part no. | Article no. |
| Complete devices | | | | | | | | | |
| Roller plungers, IP66, IP67 | | | | | | | | | |
|  | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/P | 266112 | LS-S11/P | 106788 | |
| | 1 N/O | 1 NC ⊖ | Metal | - | LSM-11/P | 266147 | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | Yes | LS-11S/P | 266118 | LS-S11S/P | 106801 | |
| | 1 N/O | 1 NC ⊖ | Metal | Yes | LSM-11S/P | 266153 | | | |
| Spring-rod actuator IP66, IP67 | | | | | | | | | |
| Not to be used as a safety position switch | | | | | | | | | |
|  | 1 N/O | 1 NC | Insulated material | Yes | LS-11S/S | 266104 | LS-S11S/S | 106805 | |
| | 1 N/O | 1 NC | Metal | Yes | LSM-11S/S | 266139 | | | |
| Roller lever IP66, IP67 | | | | | | | | | |
| Long | | | | | | | | | |
|  | - | 2 NC ⊖ | Insulated material | - | LS-02/L | 266108 | LS-S02/L | 106781 | |
| | - | 2 NC ⊖ | Metal | - | LSM-02/L | 266143 | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/L | 266110 | LS-S11/L | 106785 | |
| | 1 N/O | 1 NC ⊖ | Metal | - | LSM-11/L | 266145 | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | Yes | LS-11S/L | 266116 | LS-S11S/L | 106800 | |
| | 1 N/O | 1 NC ⊖ | Metal | Yes | LSM-11S/L | 266151 | | | |
| Short | | | | | | | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/LS | 290173 | LS-S11/LS | 106787 | |
| | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11D/LS | 290174 | LS-S11D/LS | 106794 | |
| Large | | | | | | | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/LB | 290175 | LS-S11/LB | 106786 | |
| Rotary lever, IP66, IP67 | | | | | | | | | |
|  | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/RL | 266111 | LS-S11/RL | 106789 | |
| | 1 N/O | 1 NC ⊖ | Metal | - | LSM-11/RL | 266146 | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | Yes | LS-11S/RL | 266117 | LS-S11S/RL | 106802 | |
| | 1 N/O | 1 NC ⊖ | Metal | Yes | LSM-11S/RL | 266152 | | | |
| Adjustable roller levers, IP66, IP67 | | | | | | | | | |
|  | 1 N/O | 1 NC ⊖ | Insulated material | - | LS-11/RLA | 266113 | LS-S11/RLA | 106790 | |
| | 1 N/O | 1 NC ⊖ | Metal | - | LSM-11/RLA | 266148 | | | |
| | 1 N/O | 1 NC ⊖ | Insulated material | Yes | LS-11S/RLA | 266119 | LS-S11S/RLA | 106803 | |
| | 1 N/O | 1 NC ⊖ | Metal | Yes | LSM-11S/RLA | 266154 | | | |
| IP66, IP67 actuating rod | | | | | | | | | |
|  | 1 N/O | 1 NC ⊖ | Insulated material | Yes | LS-11S/RR | 266106 | LS-S11S/RR | 106804 | |
| | 1 N/O | 1 NC ⊖ | Metal | Yes | LSM-11S/RR | 266141 | | | |

Notes

¹⁾ Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.
Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

| | | Contacts | Snap-action contact | Contact travel | Cage Clamp ¹⁾ | Screwed terminal | |
|---|---------------------------------|---|---------------------|---|---|----------------------------|---------------------------|
| | | ☉ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | | ■ = Contact closed □ = Contact open Contact diagram | Part no. Article no. | Part no. Article no. | |
| Basic device, expandable | | | | | | | |
| -40 - +70, IP65, Insulated material | | | | | | | |
|  | Rounded plunger | - | 2 NC ☉ | - |  | LS-02-CC 176880 | LS-S02-CC 176890 |
| | | - | 2 NC ☉ | - |  | LS-02A-CC 176886 | LS-S02A-CC 176895 |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11-CC 176879 | LS-S11-CC 176889 |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11A-CC 176887 | LS-S11A-CC 176896 |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11D-CC 176882 | LS-S11D-CC 176891 |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11DA-CC 176884 | LS-S11DA-CC 176893 |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11S-CC 176881 | LS-S11S-CC 144118 |
| | | 2 N/O | - | - |  | LS-20-CC 176883 | LS-S20-CC 176892 |
| | | 2 N/O | - | - |  | LS-20A-CC 176885 | LS-S20A-CC 176894 |
| | | 2 N/O | - | - |  | LS-20B-CC 176888 | LS-S20B-CC 176897 |
| | Basic device, expandable | | | | | | |
| With M12 connector, IP66 | | | | | | | |
|  | Rounded plunger | - | 2 NC ☉ | - |  | LS-02-M12A 178128 | |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11-M12A 178129 | |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11D-M12A 178130 | |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11DA-M12A 178131 | |
| | | 1 N/O | 1 NC ☉ | - |  | LS-11S-M12A 178132 | |
| | | 2 N/O | - | - |  | LS-20-M12A 178133 | |
| | | 2 N/O | - | - |  | LS-20A-M12A 178134 | |
| | | 2 N/O | - | - |  | LS-20B-M12A 178135 | |







Notes

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Accessories for the Cage-Clamp terminals from Wago:power comb, gray, Wago Article No. 264-402

Position switches

Safety position switches LS-Titan

Moeller® series

| | Contacts ⊕ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | | Snap-action contact | Contact travel ■ = Contact closed □ = Contact open Contact diagram | Cage Clamp ¹⁾ Part no. | Article no. |
|---|--|--------|---------------------|---|--------------------------------------|-------------|
| Complete device | | | | | | |
| With M12 connector, IP66 | | | | | | |
| Roller plunger  | 1 N/O | 1 NC ⊕ | - | Zw = 4.5 mm | LS-11/P-M12A | 178137 |
| | 1 N/O | 1 NC ⊕ | Yes | Zw = 5.5 mm | | |
| Spring-rod actuator Not to be used as a safety position switch  | 1 N/O | 1 NC | Yes | Zw = 8.7 mm | LS-11/S-M12A | 178145 |
| Roller lever  | 1 N/O | 1 NC ⊕ | - | Zw = 7.1 mm | LS-11/L-M12A | 178136 |
| | 1 N/O | 1 NC ⊕ | Yes | Zw = 8.7 mm | | |
| Rotary lever  | 1 N/O | 1 NC ⊕ | - | Zw = 48° | LS-11/RL-M12A | 178138 |
| | 1 N/O | 1 NC ⊕ | Yes | Zw = 60° | | |
| Adjustable roller lever  | 1 N/O | 1 NC ⊕ | - | Zw = 48° | LS-11/RLA-M12A | 178139 |
| | 1 N/O | 1 NC ⊕ | Yes | Zw = 60° | | |
| Actuating rod  | 1 N/O | 1 NC ⊕ | Yes | Zw = 60° | LS-11S/RR-M12A | 178144 |

Notes

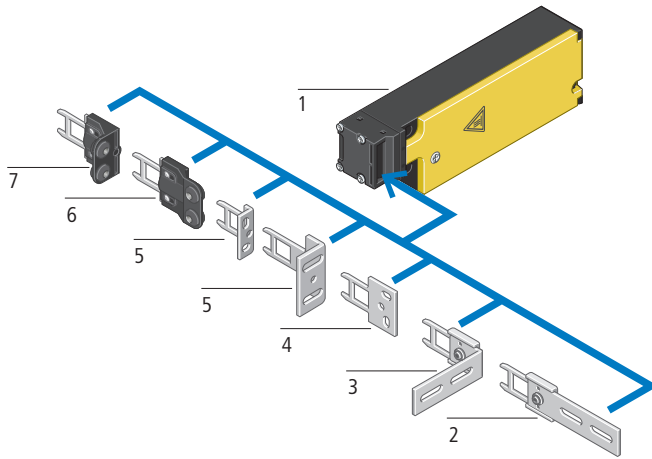
¹⁾ Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.
 Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

| | | Insulated material Part no. Article no. | Metal Part no. Article no. | Notes |
|---|---|---|----------------------------------|--|
| Roundet plunger, centre fixing | | | | |
|  | For mounting in enclosure wall or mounting plate drilling M18 x 1 | LS-XZS 114024 | | The operating head can be rotated at 90° intervals to adapt to the specified approach direction. |
| Roller plunger, centre fixing | | | | |
|  | For mounting in enclosure wall or mounting plate drilling M18 x 1 | LS-XZRS 114025 | | |
| Roller plungers | - | LS-XP 266125 | LSM-XP 266158 | |
| Roller lever | | | | |
|  | Large | LS-XLB 290178 | | |
| | Short | LS-XLS 290177 | | |
| | Long | LS-XL 266123 | LSM-XL 266156 | |
| Angled roller lever | - | LS-XLA 266124 | LSM-XLA 266157 | |
|  | | | | |
| Rotary lever | - | LS-XRL 266126 | LSM-XRL 266159 | |
|  | | | | |
| Adjustable roller levers | | | | |
|  | ∅ 18 mm | LS-XRLA 266127 | LSM-XRLA 266160 | |
| | ∅ 30 mm | LS-XRLA30 266128 | | |
| | ∅ 40 mm Roller: Rubber | LS-XRLA40R 266130 | | |
| | ∅ 40 mm | LS-XRLA40 266129 | | |
| Actuating rods | | | | |
|  | Bar: Insulated material | LS-XRR 266131 | LSM-XRR 266161 | |
| | Bar: Metal | LS-XRRM 266132 | LSM-XRRM 266162 | |
| Spring-rod | | | | |
|  | Not to be used as a safety position switch Only permissible with snap-action contact | LS-XS 266133 | LSM-XS 266163 | |
| Actuating rod | - | LS-XOR 290190 | | |
|  | | | | |

Position switches







Safety position switch LS-ZBZ





Moeller® series






- 1 Basic device
- 2 Flat flexible actuator
- 3 Angled flexible actuator
- 4 Flat actuator
- 5 Angled actuator
- 6 Flat compensating actuator
- 7 Angled compensating actuator

Order actuators separately → online catalog

| | Contacts | Rated control voltage for magnetic drive U_s | Part no. Article no. | Notes | |
|---|--|--|----------------------|--------------------------------------|---|
| | ⊕ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | V | | | |
| Basic units with spring-powered interlock (closed-circuit principle) IP65 | | | | | |
|    | 1 N/O | 1 NC ⊕ | 24 V DC | LS-S11-24DFT-ZBZ/X 106829 | Switch must never be used as a mechanical stop! The operating head can be rotated manually in 90° steps without tools to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length. In the event of power failure (e.g., during commissioning), the device can be released with a screwdriver. The auxiliary release mechanism must be sealed! → Instructional leaflet IL 05208005Z |
| | - | 2 NC ⊕ | 24 V DC | LS-S02-24DFT-ZBZ/X 106823 | |
| | 1 N/O | 1 NC ⊕ | 120 V 50/60 Hz | LS-S11-120AFT-ZBZ/X 106825 | |
| | - | 2 NC ⊕ | 120 V 50/60 Hz | LS-S02-120AFT-ZBZ/X 106778 | |
| | 1 N/O | 1 NC ⊕ | 230 V 50/60 Hz | LS-S11-230AFT-ZBZ/X 106827 | |
| | - | 2 NC ⊕ | 230 V 50/60 Hz | LS-S02-230AFT-ZBZ/X 106821 | |
| Basic devices with magnet-powered interlock (open-circuit principle) IP65 | | | | | |
|    | 1 N/O | 1 NC ⊕ | 24 V DC | LS-S11-24DMT-ZBZ/X 106830 | Switch must never be used as a mechanical stop! The operating head can be rotated manually in 90° steps without tools to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length. |
| | - | 2 NC ⊕ | 24 V DC | LS-S02-24DMT-ZBZ/X 106824 | |
| | 1 N/O | 1 NC ⊕ | 120 V 50/60 Hz | LS-S11-120AMT-ZBZ/X 106826 | |
| | - | 2 NC ⊕ | 120 V 50/60 Hz | LS-S02-120AMT-ZBZ/X 106820 | |
| | 1 N/O | 1 NC ⊕ | 230 V 50/60 Hz | LS-S11-230AMT-ZBZ/X 106828 | |
| | - | 2 NC ⊕ | 230 V 50/60 Hz | LS-S02-230AMT-ZBZ/X 106822 | |

| Contacts | | Approval | Connection type | Part no. Article no. | Notes |
|--|-------|----------|-----------------|----------------------------------|---|
| ⊕ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | | | | | |
| Safety door flap switch LSR-.../TKG. IP65 | | | | | |
|  | - | 2 NC ⊕ | Screw terminal | LSR-S02-1-I/TKG 106848 | |
| | 1 N/O | 1 NC ⊕ | | LSR-S11-1-I/TKG 106847 | |
| Hinge-operated safety switch LSR-.../TS, IP65 | | | | | |
|  | - | 2 NC ⊕ | Screw terminal | LSR-S02-1-I/TS 106852 | |
| | 1 N/O | 1 NC ⊕ | | LSR-S11-1-I/TS 106851 | |
| Safety position switches LS...-ZB, IP65 | | | | | |
|  | - | 2 NC ⊕ | Cage Clamp | LS-02-ZB 106817 | Switch must never be used as a mechanical stop! Actuator can be repositioned for horizontal or vertical mounting. The operating heads can be turned manually in 90° steps to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length. |
| | - | 2 NC ⊕ | Screw terminal | LS-S02-ZB 106874 | |
| | 1 N/O | 1 NC ⊕ | Cage Clamp | LS-11-ZB 106819 | |
| | 1 N/O | 1 NC ⊕ | Screw terminal | LS-S11-ZB 106876 | |
| | 1 N/O | 1 NC ⊕ | Cage Clamp | LS-11S-ZB 106870 | |
| | 1 N/O | 1 NC ⊕ | Screw terminal | LS-S11S-ZB 106877 | |
| Safety/ position switch LS4.../ZB, IP65 | | | | | |
|  | 1 N/O | 1 NC ⊕ | Screw terminal | LS4/S11-1/I/ZB 106857 | |
| | 1 N/O | 1 NC ⊕ | | LS4/S11-1/IA/ZB 106858 | |
| | 1 N/O | 2 NC ⊕ | | LS4/S12-7/IB/ZB 106859 | |

Command and Signalling






| Contacts | | Part no. | Article no. | Part no. | Article no. | |
|---|------------------------------|--------------------|-----------------------------|----------|-----------------------------------|--------|
| N/O = Normally open N/C = Normally closed | | | | | | |
| Non-contacting safety switch | | | | | | |
| IP67, IP69K Reed contacts | | | | | | |
|  | - | 2 NC | 3 m connection cable | | Plug-in connection M12 x 1 | |
| | 1 N/O | 1 NC | RS2-02-C3 | 177286 | RS2-02-Q4 | 177289 |
| | 1 N/O | 2 NC | RS2-11-C3 | 177287 | RS2-11-Q4 | 177290 |
|  | - | 2 NC | RS2-12-C3 | 177288 | RS2-12-Q6 | 177291 |
| | 1 N/O | 1 NC | RS2R-02-C3 | 177292 | RS2R-02-Q4 | 177295 |
| | 1 N/O | 2 NC | RS2R-11-C3 | 177293 | RS2R-11-Q4 | 177296 |
|  | 1 N/O | 2 NC | RS2R-12-C3 | 177294 | RS2R-12-Q6 | 177297 |
| | 10 m connection cable | | | | | |
| | - | 2 NC | RS2-02-C10 | 177300 | | |
| | 1 N/O | 1 NC | RS2-11-C10 | 177301 | | |
| | 1 N/O | 2 NC | RS2-12-C10 | 177302 | | |
| | - | 2 NC | RS2R-02-C10 | 177303 | | |
| 1 N/O | 1 NC | RS2R-11-C10 | 177304 | | | |
| 1 N/O | 2 NC | RS2R-12-C10 | 177305 | | | |







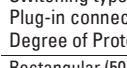













| | Design (outer dimensions) mm | Rated switching distance S_n mm | Type of mounting | Contacts | | Degree of Protection | Part no. | Article no. |
|---|---------------------------------|---|------------------|-----------------------|---------------------|----------------------|-----------------------|-------------|
| | | | | N/C = Normally closed | N/O = Normally open | | | |
| E52 Cube Series | | | | | | | | |
| 2 LEDs for current and output status Housing adapter, 4-wire, Plug-in connection M12 x 1, Rated operational voltage U_e 10 – 48 V DC Switching type: NPN, PNP Zinc/Insulated material | | | | | | | | |
|  | 40 x 40 x 40 | 15 | Flush | 1 NC | 1 N/O | IP67 | E52Q-DL15SAD01 | 135804 |
| | | 15 | Non-flush | | | | E52Q-DL15UAD01 | 135805 |
| | | 20 | Flush | | | | E52Q-DL20SAD01 | 135806 |
| | | 20 | Non-flush | | | | E52Q-DL20UAD01 | 135807 |
| | | 25 | | | | | E52Q-DL25UAD01 | 135808 |
| | | 30 | | | | | E52Q-DL30UAD01 | 135809 |
| | | 35 | | | | | E52Q-DL35UAD01 | 135810 |
| | | 40 | | | | | E52Q-DL40UAD01 | 135811 |
| E56 Pancake Series | | | | | | | | |
| 2 LEDs for current and output status 4-wire, Plug-in connection M12 x 1, Rated operational voltage U_e 10 – 48 V DC Switching type: NPN, PNP Insulated material | | | | | | | | |
|  | 79 x 79 x 39 | 40 | Flush | 1 NC | 1 N/O | IP67 | E56ADL40SAD01 | 136234 |
| | 79 x 79 x 39 | 40 | Non-flush | | | | E56ADL40UAD01 | 136235 |
|  | 109 x 110 x 41 | 70 | Non-flush | - | - | - | E56BDL70UAD01 | 136236 |
| | 171.5 x 171.5 x 67.4 | 100 | Non-flush | | | | E56CDL100UAD01 | 136237 |
| E57 Global Series | | | | | | | | |
| LED for output status 3-wire, Plug-in connection M12 x 1, Rated operational voltage U_e 10 - 30 V DC Switching type: PNP Metal | | | | | | | | |
|  | M8 x 1 | 1 | Flush | - | 1 N/O | IP67, IP69K | E57-08GS01-GDB | 135862 |
| | | 2 | Non-flush | | | | E57-08GU02-GDB | 135866 |
| | | 3 | Flush | | | | E57-08GE03-GDB | 135854 |
| | | 6 | Non-flush | | | | E57-08GE06-GDB | 135858 |
|  | M12 x 1 | 2 | Flush | - | - | - | E57-12GS02-GDB | 135886 |
| | | 4 | Non-flush | | | | E57-12GU04-GDB | 135895 |
| | | 5 | Flush | | | | E57-12GE05-GDB | 135870 |
| | | 10 | Non-flush | | | | E57-12GE10-GDB | 135878 |
|  | M18 x 1 | 5 | Flush | - | - | - | E57-18GS05-GDB | 135932 |
| | | 8 | Flush | | | | E57-18GE08-GDB | 135915 |
| | | 8 | Non-flush | | | | E57-18GU08-GDB | 135940 |
| | | 18 | Non-flush | | | | E57-18GE18-GDB | 135924 |
|  | M30 x 1.5 | 10 | Flush | - | - | - | E57-30GS10-GDB | 135978 |
| | | 15 | Flush | | | | E57-30GE15-GDB | 135960 |
| | | 15 | Non-flush | | | | E57-30GU15-GDB | 135986 |
| | | 29 | Non-flush | | | | E57-30GE29-GDB | 135968 |

| | Design (outer dimensions) mm | Rated switching distance S_n mm | Type of mounting | Contacts | | Degree of Protection | Part no. | Article no. |
|--|---------------------------------|---|------------------|-----------------------|---------------------|-----------------------|--------------------------|-------------|
| | | | | N/C = Normally closed | N/O = Normally open | | | |
| E57 miniature series (inductive) | | | | | | | | |
| 3-wire, 2 m connection cable, Rated operational voltage U_e 10 - 30 V DC Switching type: PNP Stainless steel | | | | | | | | |
|  | M5 x 1 | 0.8 | Flush | - | 1 N/O | IP67 | E57EAL5T111SP | 136241 |
|  | Ø 4 | 0.8 | Flush | - | | | E57EAL4T111SP | 136239 |
|  | Ø 6,5 | 1 | Flush | - | | | E57EAL6T111SP | 136245 |
| | Ø 6,5 | 2 | Non-flush | - | | | E57EAL6T111EP | 136244 |
| iProx Series (inductive) | | | | | | | | |
| 3-wire, Plug-in connection M12 x 1, Rated operational voltage U_e 6 - 48 V DC Switching type: NPN, PNP Stainless steel | | | | | | | | |
|  | M12 x 1 | 4 | Flush | - | 1 N/O | IP67, IP69K | E59-M12A105D01-D1 | 136207 |
|  | M18 x 1 | 8 | Flush | - | | | E59-M18A108D01-D1 | 136215 |
| | M18 x 1 | 18 | Non-flush | - | | | E59-M18C116D01-D1 | 136219 |
|  | M30 x 1.5 | 15 | Flush | - | | | E59-M30A115D01-D1 | 136223 |
| Programming cable | | | | | | | | |
| For use with iProx | | | | | | | | |
|  | - | - | - | - | - | - | E59RP1 | 136229 |
| Programming software | | | | | | | | |
| For use with iProx | | | | | | | | |
|  | - | - | - | - | - | - | E59SW1 | 136230 |
| E53 Serie (capacitive) | | | | | | | | |
| 4-wire Plug-in connection M12 x 1 Rated operational voltage: U_e 10 – 48 V DC Switching type: NPN, PNP Zinc/Insulated material | | | | | | | | |
|  | M18 x 1 | 8 | Flush | 1 NC | - | IP65 | E53KBL18T111SD | 134802 |
| | | 8 | Flush | - | 1 N/O | | E53KAL18T111SD | 134768 |
| | | 15 | Non-flush | 1 NC | - | | E53KBL18T111ED | 134801 |
| | | 15 | Non-flush | - | 1 N/O | | E53KAL18T111ED | 134767 |
|  | M30 x 1.5 | 20 | Flush | 1 NC | - | E53KBL30T111SD | 134814 | |
| | | 20 | Flush | - | 1 N/O | E53KAL30T111SD | 134780 | |
| | | 25 | Non-flush | 1 NC | - | E53KBL30T111ED | 134813 | |
| | | 25 | Non-flush | - | 1 N/O | E53KAL30T111ED | 134779 | |
|  | 34 Ø | 25 | Flush | 1 NC | - | E53KBL34T111SD | 134824 | |
| | | 25 | Flush | - | 1 N/O | E53KAL34T111SD | 134790 | |
| | | 35 | Non-flush | 1 NC | - | E53KBL34T111ED | 134823 | |
| | | 35 | Non-flush | - | 1 N/O | E53KAL34T111ED | 134789 | |

Sensors

Optical sensors

| | Function | Description | Rated switching distance S_n mm | Type of light | Switching principle | Part no. | Article no. | |
|--|--------------------------------|--|--|---------------|----------------------------------|-------------------------|------------------------|--------|
| Comet Series | | | | | | | | |
| 4-wire, Rated operational voltage U_e 10 - 30 V DC Switching type: NPN, PNP Insulated material Plug-in connection M12 x 1 Degree of Protection IP67 | | | | | | | | |
|  | Reflected-light beam | Beam: straight With background suppression (Perfect Prox) | 50 | Visible red | Adjustable bright/dark switching | 13104AQD07 | 135605 | |
| | | Beam: straight Can be expanded with fiber optic cable→Accessories | 200 | | | Infra-red | 13106AQD07 | 135621 |
| | | Beam: straight With background suppression (Perfect Prox) | 225 | | | 13103AQD07 | 135597 | |
| | | Beam: straight Can be expanded with fiber optic cable→Accessories | 610 | | | 13100AQD07 | 135581 | |
| | Reflex photoelectric sensor | For combination with reflector Non-polarized Beam: straight | 7600 | Visible red | | 14102AQD07 | 135657 | |
| | Thru-beam photoelectric sensor | Detector (for combination with source) Beam: straight | 24000 | | | 12102AQD07 | 135577 | |
| | | | Source (for combination with detector) Beam: straight | 24000 | | - | 11102AQD07 | 135565 |
| E58 Harsh Duty Series | | | | | | | | |
| 4-wire, Rated operational voltage U_e 10 - 30 V DC Switching type: NPN, PNP Stainless steel Plug-in connection M12 x 1 Degree of Protection IP69K | | | | | | | | |
|  | Reflected-light beam | With background suppression (Perfect Prox) | 50 | Visible red | Light switching | E58-18DP50-HLP | 135673 | |
| | | | 50 | | Dark switching | E58-18DP50-HDP | 135671 | |
| | | | 100 | | Light switching | E58-18DP100-HLP | 135667 | |
| | | | 100 | | Dark switching | E58-18DP100-HDP | 135665 | |
| | | | 280 | | Dark switching | E58-30DPS280-HDP | 135681 | |
| | | | 280 | | Light switching | E58-30DPS280-HLP | 135683 | |
|  | Reflex photoelectric sensor | For combination with reflector | 18000 | Visible red | Dark switching | E58-30RS18-HDP | 135689 | |
| | Reflex photoelectric sensor | | 18000 | | Light switching | E58-30RS18-HLP | 135691 | |
|  | Thru-beam photoelectric sensor | Source (for combination with detector) | 250000 | Visible red | - | E58-30TS250-HAP | 135697 | |
| | | Detector (for combination with source) | 250000 | | - | Dark switching | E58-30TD250-HDP | 135693 |
| | | 250000 | - | | Light switching | E58-30TD250-HLP | 135695 | |
| E67 Long Range Series | | | | | | | | |
| 4-wire, Rated operational voltage U_e 18 - 30 V DC Switching type: NPN Plug-in connection M12 x 1, PNP Degree of Protection IP67 | | | | | | | | |
|  | Reflected-light beam | with background suppression (Perfect Prox) | 1000 | Infra-red | Light switching | E67-LRDP100-HLD | 100548 | |
| | | with background suppression (Perfect Prox) | 1000 | | Dark switching | E67-LRDP100-HDD | 100547 | |

| Function | Description | Rated switching distance S_n mm | Type of light | Switching principle | Part no. | Article no. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------|--|---------------|--|----------------------------------|------------------------|-------------------|------------------|-----------|--------------|----------|-------------|--------------------------|--|--|--|--|--|---|-----------------|--------------------|------|--|----------------------|--------|------|----------------------|--------|-------|----------------------|--------|---|-----------------|------------------|------|--|----------------------|--------|------|----------------------|--------|-------|----------------------|--------|---|----------------|--------------------|------|--|--------------------------|--------|------|------------------------|--------|------|------------------------|--------|---|--------------|--------------------|------|--|--------------------------|--------|------|------------------------|--------|------|------------------------|--------|
| E65 SM Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-wire, Rated operational voltage U_e 10 - 30 V DC Switching type: NPN, PNP Insulated material Plug-in connection M12 x 1 Degree of Protection IP68, IP69K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Reflected-light beam | With background suppression (Perfect Prox) | 100 | - | Light switching | E65-SMPP100-HLD | 135713 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | With background suppression (Perfect Prox) | 100 | - | Dark switching | E65-SMPP100-HDD | 135711 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Thru-beam photoelectric sensor | Source (for combination with detector) | 15000 | - | Light switching | E65-SMTD15-HLD | 135733 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Detector (for combination with source) | 15000 | - | Dark switching | E65-SMTD15-HDD | 135731 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Source (for combination with detector) | 15000 | - | - | E65-SM15-HAD | 135735 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E71 NanoView Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4-wire, Rated operational voltage U_e 10 - 30 V DC Switching type: PNP Insulated material Rectangular (20 x 12 x 32) Degree of Protection IP66/IP67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Reflected-light beam | Beam: focused, forward viewing | 100 | Visible red | Adjustable bright/dark switching | E71-FFDP-M8 | 100518 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Beam: straight | 350 | Infra-red | | E71-SDP-M8 | 100530 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Reflex photoelectric sensor | For combination with reflector | 800 | Visible red | - | E71-COP-M8 | 100428 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Detection of transparent objects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Thru-beam photoelectric sensor | Source (for combination with detector) | 1500 | Infra-red | - | E71-NTBS-CA | 100521 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Reflex photoelectric sensor | Polarized light | 2500 | Visible red | - | E71-PRP-M8 | 100526 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Thru-beam photoelectric sensor | Detector (for combination with source) | 6000 | Infra-red | - | E71-TBRP-M8 | 100534 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E76 IntelliView Series | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 conductor, Rated operational voltage U_e 10 - 30 V DC Switching type: PNP Plug-in connection M12 x 1 Degree of Protection IP67 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Reflected-light beam | Color sensing 3 NO PNP outputs | 450 | Infra-red | - | E76-CLRMKP-M12 | 166927 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Style output side</th> <th>Style input side</th> <th>Length mm</th> <th>For use with</th> <th>Part no.</th> <th>Article no.</th> </tr> </thead> <tbody> <tr> <td colspan="6">Connecting cables</td> </tr> <tr> <td rowspan="3"></td> <td rowspan="3">Cable end, open</td> <td rowspan="3">Coupling, straight</td> <td>2000</td> <td rowspan="3">DC sensors, 4 pole, 2, 3 or 4-wire connection, M12</td> <td>CSDS4A4CY2202</td> <td>136292</td> </tr> <tr> <td>5000</td> <td>CSDS4A4CY2205</td> <td>136294</td> </tr> <tr> <td>10000</td> <td>CSDS4A4CY2210</td> <td>136296</td> </tr> <tr> <td rowspan="3"></td> <td rowspan="3">Cable end, open</td> <td rowspan="3">Coupling, angled</td> <td>2000</td> <td rowspan="3">DC sensors, 4 pole, 2, 3 or 4-wire connection, M12</td> <td>CSDR4A4CY2202</td> <td>136279</td> </tr> <tr> <td>5000</td> <td>CSDR4A4CY2205</td> <td>136282</td> </tr> <tr> <td>10000</td> <td>CSDR4A4CY2210</td> <td>136284</td> </tr> <tr> <td rowspan="3"></td> <td rowspan="3">Plug, straight</td> <td rowspan="3">Coupling, straight</td> <td>1500</td> <td rowspan="3">DC sensors, 4 pole, 2, 3 or 4-wire connection, M12</td> <td>CSDS4A4CY2201.5-D</td> <td>136316</td> </tr> <tr> <td>3000</td> <td>CSDS4A4CY2203-D</td> <td>136293</td> </tr> <tr> <td>5000</td> <td>CSDS4A4CY2205-D</td> <td>136295</td> </tr> <tr> <td rowspan="3"></td> <td rowspan="3">Plug, angled</td> <td rowspan="3">Coupling, straight</td> <td>1500</td> <td rowspan="3">DC sensors, 4 pole, 2, 3 or 4-wire connection, M12</td> <td>CSDR4A4CY2201.5-D</td> <td>136313</td> </tr> <tr> <td>3000</td> <td>CSDR4A4CY2203-D</td> <td>136315</td> </tr> <tr> <td>5000</td> <td>CSDR4A4CY2205-D</td> <td>136283</td> </tr> </tbody> </table> | | | | | | | Style output side | Style input side | Length mm | For use with | Part no. | Article no. | Connecting cables | | | | | |  | Cable end, open | Coupling, straight | 2000 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDS4A4CY2202 | 136292 | 5000 | CSDS4A4CY2205 | 136294 | 10000 | CSDS4A4CY2210 | 136296 |  | Cable end, open | Coupling, angled | 2000 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDR4A4CY2202 | 136279 | 5000 | CSDR4A4CY2205 | 136282 | 10000 | CSDR4A4CY2210 | 136284 |  | Plug, straight | Coupling, straight | 1500 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDS4A4CY2201.5-D | 136316 | 3000 | CSDS4A4CY2203-D | 136293 | 5000 | CSDS4A4CY2205-D | 136295 |  | Plug, angled | Coupling, straight | 1500 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDR4A4CY2201.5-D | 136313 | 3000 | CSDR4A4CY2203-D | 136315 | 5000 | CSDR4A4CY2205-D | 136283 |
| Style output side | Style input side | Length mm | For use with | Part no. | Article no. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connecting cables | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Cable end, open | Coupling, straight | 2000 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDS4A4CY2202 | 136292 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5000 | | CSDS4A4CY2205 | 136294 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 10000 | | CSDS4A4CY2210 | 136296 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Cable end, open | Coupling, angled | 2000 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDR4A4CY2202 | 136279 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5000 | | CSDR4A4CY2205 | 136282 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 10000 | | CSDR4A4CY2210 | 136284 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Plug, straight | Coupling, straight | 1500 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDS4A4CY2201.5-D | 136316 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3000 | | CSDS4A4CY2203-D | 136293 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5000 | | CSDS4A4CY2205-D | 136295 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Plug, angled | Coupling, straight | 1500 | DC sensors, 4 pole, 2, 3 or 4-wire connection, M12 | CSDR4A4CY2201.5-D | 136313 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3000 | | CSDR4A4CY2203-D | 136315 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5000 | | CSDR4A4CY2205-D | 136283 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Build it in.



Safe and reliable: Timing relay, measuring relay and monitoring relay



The range of electronic timing relay incorporates two different construction designs, which are adapted for differing application fields. All timing relays are mounted on DIN top-hat rails. The measuring and monitoring relay EMR range is approved for worldwide use. Most of the relays feature multi-voltage coils.

They cover a wide range of applications:

- Current monitors for universal use
- Phase monitors for monitoring damage protection for individual system sections
- Phase sequence relays monitoring the rotating field
- Unbalance relays for reliable phase loss detection
- Multifunctional three-phase monitors for space-saving monitoring of a rotating field
- Level monitoring relays for monitoring fill levels
- Earth leakage monitors for enhanced operational safety.



www.eaton.eu/Relays

**Timing Relay ETR –
Precision and Economic Switching**



- Large choice of setting ranges
- Many timing functions for every requirement
- Remote setting via potentiometer
- Flexible connection using wide voltage range power supply
- Additional signal input even for different control voltage levels



**Multi-functional three-phase monitor –
compact rotary field monitoring**



- Monitoring of phase sequence, phase loss, phase unbalance, overvoltage and undervoltage to protect the motor
- With optional neutral conductor monitoring
- Thresholds for overvoltage and undervoltage can be adjusted or fixed
- 2 changeover contacts for higher flexibility



**Earth-leakage monitor and level relay EMR –
the right solution for every application**



- Enhanced safety by monitoring for earth-leakage using an earth-leakage monitor
- Fault correction without long standstill times
- Test button facilitates simple function testing
- Simple level monitoring and/or dry running protection
- Enhanced safety via open circuit principle










**Single-phase current monitor EMR –
for universal use**



- Precision current monitoring in AC and DC networks
- Adjustable triggering delay for bridging transitory current peaks.
 - Status display via colored LEDs
 - Expansion of the measurement range possible via external current transformers








| Function | | Time range | Number of change-over contacts | Width mm | 24 - 240 V AC, 50/60 Hz 24 - 240 V DC Part no. Article no. | 400 V AC, 50/60 Hz Part no. Article no. | | | | | | | | | | |
|---|---|-------------|----------------------------------|-------------------------------------|--|---|---------------|------------------|----------------------|----------------------------|----------------|---|------|----------------------------|----------------------------|----------------------------|
| On-delayed | Multi-functional | Off-delayed | Fleeting contact on energization | Fleeting contact on de-energization | Flashing, pulse initiating | On- and Off-delayed | Pulse forming | Pulse generating | Star-delta switching | Flashing, pause initiating | | | | | | |
| ETR4 timing relays | | | | | | | | | | | | | | | | |
|  | Changeover contact with a changeover time of 50 ms | - - - - - | - | - | - | - | - | - | ✓ | - | 3 - 60 s | 1 | 22.5 | ETR4-51-A 031884 | ETR4-51-W 031885 | |
| | Fixed timing function | ✓ | - | - | - | - | - | - | - | - | 0.05 s - 100 h | | | ETR4-11-A 031882 | ETR4-11-W 031883 | |
| | Adjustable timing functions | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | | | | - | ETR4-69-A 031891 | ETR4-69-W 031887 |
| | With connection for potentiometer Changeover contact can be converted to 2 timed contacts or 1 non-delayed contact and 1 timed contact | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | 2 | ETR4-70-A 031888 | - | |
| | | | | | 12 - 240 V AC, 50/60 Hz 12 - 240 V DC | 24 - 240 V AC, 50/60 Hz 24 - 48 V DC | | | | | | | | | | |
| ETR2 timing relays | | | | | | | | | | | | | | | | |
|  | Fixed timing function | ✓ | - | - | - | - | - | - | - | - | 0.05 s - 100 h | 1 | 17.5 | - | ETR2-11 262684 | |
| | | ✓ | - | - | - | - | - | - | - | - | | 2 | | - | ETR2-11-D 119426 | |
| | | - | - | ✓ | - | - | - | - | - | - | | - | | 1 | - | ETR2-12 262686 |
| | | - | - | ✓ | - | - | - | - | - | - | | - | | 2 | - | ETR2-12-D 119427 |
| | | - | - | - | ✓ | - | - | - | - | - | | - | | 1 | - | ETR2-21 262687 |
| | | - | - | - | - | ✓ | - | - | - | - | | - | | - | - | ETR2-42 262688 |
| | Pulse and pause times independently adjustable | - | - | - | - | ✓ | - | - | - | - | ✓ | - | - | - | ETR2-44 262730 | |
| Adjustable timing functions | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | - | - | ✓ | - | - | - | ETR2-69 262689 | |
| | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | - | ✓ | - | - | ✓ | 2 | - | ETR2-69-D 119428 | - | |

| | | Monitoring of | | | | | | Monitoring voltage per phase | Adjustable threshold values | Threshold value | Supply voltage | Part no. Article no. | | |
|--|--|----------------|---------------|-----------|-------------|--------------|---------------------|------------------------------|-----------------------------|-----------------|----------------|--|--------------------------------|----------------------------------|
| | | Phase sequence | Phase failure | Imbalance | Overvoltage | Undervoltage | Neutral cable break | U_N V AC | Imbalance | Overvoltage | Undervoltage | | | |
| Phase sequence relays | | | | | | | | | | | | | | |
|  | Monitoring of three-phase networks Phase failure detection at $< 0.6 \times U_g$ Power supply from the measuring circuit | ✓ | ✓ | - | - | - | - | 200 - 500 V AC, 50/60 Hz | - | - | - | 200 - 500 V AC, 50/60 Hz | EMR4-F500-2 221784 | |
| Phase imbalance monitoring relays | | | | | | | | | | | | | | |
|  | Power supply from the measuring circuit On delay: None = 0 or adjustable from 0.1 to 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages | ✓ | ✓ | ✓ | - | - | - | 160 - 300 V AC, 50/60 Hz | ✓ | - | - | 160 - 300 V AC, 50/60 Hz | EMR5-A300-1-C 134230 | |
| | | ✓ | ✓ | ✓ | - | - | - | 300 - 500 V AC, 50/60 Hz | ✓ | - | - | 300 - 500 V AC, 50/60 Hz | EMR5-A400-1 134222 | |
| Phase monitoring relays | | | | | | | | | | | | | | |
| Multi-functional Power supply from the measuring circuit On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages | | | | | | | | | | | | | | |
|  | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 90 - 170 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 120 - 170 V AC U_{min} 90 - 130 V AC | 90 - 170 V AC, 50/60 Hz | EMR5-AWN170-1-E 134225 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | - | 160 - 300 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC | 160 - 300 V AC, 50/60 Hz | EMR5-AW300-1-C 134223 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 180 - 280 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC | 180 - 280 V AC, 50/60 Hz | EMR5-AWN280-1-F 134226 |
| 22.5 mm | Automatic phase sequence correction | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 180 - 280 V AC, 50/60/400 Hz | ✓ | ✓ | ✓ | U_{max} 240 - 280 V AC U_{min} 180 - 220 V AC | 180 - 280 V AC, 50/60/400 Hz | EMR5-AWN280-1 134233 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | - | 300 - 500 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC | 300 - 500 V AC, 50/60 Hz | EMR5-AW500-1-D 134224 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | - | 300 - 500 V AC, 50/60/400 Hz | ✓ | ✓ | ✓ | U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC | 300 - 500 V AC, 50/60/400 Hz | EMR5-AWN500-1 134234 |
|  | Automatic phase sequence correction | ✓ | ✓ | ✓ | ✓ | ✓ | - | 350 - 580 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 480 - 580 V AC U_{min} 350 - 460 V AC | 350 - 580 V AC, 50/60 Hz | EMR5-AWM580-2 134235 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | - | 450 - 720 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 600 - 720 V AC U_{min} 450 - 570 V AC | 450 - 720 V AC, 50/60 Hz | EMR5-AWM720-2 134236 |
| | | ✓ | ✓ | ✓ | ✓ | ✓ | - | 530 - 820 V AC, 50/60 Hz | ✓ | ✓ | ✓ | U_{max} 690 - 820 V AC U_{min} 530 - 660 V AC | 530 - 820 V AC, 50/60 Hz | EMR5-AWM820-2 134237 |
| 45 mm | | | | | | | | | | | | | | |
| On- and Off-delayed | | | | | | | | | | | | | | |
|  | Power supply from the measuring circuit On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s | ✓ | ✓ | - | ✓ | ✓ | - | 160 - 300 V AC, 50/60 Hz | - | ✓ | ✓ | U_{max} 220 - 300 V AC U_{min} 160 - 230 V AC | 160 - 300 V AC, 50/60 Hz | EMR5-W300-1-C 134227 |
| | | ✓ | ✓ | - | ✓ | ✓ | - | 300 - 500 V AC, 50/60 Hz | - | ✓ | ✓ | U_{max} 420 - 500 V AC U_{min} 300 - 380 V AC | 300 - 500 V AC, 50/60 Hz | EMR5-W500-1-D 134221 |
| | | ✓ | ✓ | - | ✓ | ✓ | - | 380 V AC, 50/60 Hz | - | - | - | U_{max} 418 V AC, fixed U_{min} 342 V AC, fixed | 380 V AC, 50/60 Hz | EMR5-W380-1 134228 |
| | | ✓ | ✓ | - | ✓ | ✓ | - | 400 V AC, 50/60 Hz | - | - | - | U_{max} 440 V AC, fixed U_{min} 360 V AC, fixed | 400 V AC, 50/60 Hz | EMR5-W400-1 134229 |

Electronic relays

EMR Measuring and monitoring relays

| | | Monitoring of | Adjustable pick-up time | Supply voltage | Width mm | Part no. Article no. |
|---|--|--|--|--|-------------------------------|--------------------------------|
| Level monitoring relays | | | | | | |
|  | Selectable: protection against running dry or overflowing | Fill level of conductive liquids | 5 - 100 kΩ | 220 - 240 V AC, 50/60 Hz | 22.5 | EMR4-N100-1-B 221789 |
| | On-delay/off-delay: adjustable between 0.1 - 10 s | Fill level of conductive liquids Mixture ratio of conductive liquids | 250 Ω - 500 kΩ | 24 - 240 V AC, 50/60 Hz 24 - 240 V DC | 45 | EMR4-N500-2-A 221791 |
|  | | | 250 Ω - 500 kΩ | 220 - 240 V AC, 50/60 Hz | 45 | EMR4-N500-2-B 221790 |
| | | | 5 - 100 kΩ | 220 - 240 V AC, 50/60 Hz | 22.5 | EMR5-N80-1-B 134232 |
| Insulation monitoring relays | | | | | | |
|  | Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory | Insulation resistance in non-earthed AC supply systems (two-phase, three-phase, four-phase systems) Insulation resistance in non-earthed DC supply systems (two-phase, three-phase systems) | 1 - 110 kΩ | 24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC | 22.5 | EMR5-R250-1-A 153442 |
| | Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory | Insulation resistance in non-earthed AC supply systems (two-phase, three-phase, four-phase systems) | 1 - 110 kΩ | 24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC | 22.5 | EMR5-R400-1-A 153443 |
|  | Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory Wire break detection | Insulation resistance in non-earthed AC supply systems (three-phase, four-phase systems) insulation resistance in non-earthed DC supply systems (three-phase systems) | 1 - 110 kΩ 2 - 200 kΩ Activation by dip switch | 24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC | 45 | EMR5-R400-2-A 153444 |
| | Coupling module Expands the rated voltage range for the EMR5-400-2-A to 690 V AC or 1000 V DC no supply voltage required | - | - | - | 45 | EMR5-RC690 153445 |
| Current monitoring relays | | | | | | |
|  | Monitoring of single-phase DC and AC networks Switching hysteresis adjustable from 3 – 30 % On delay: None = 0 or adjustable from 0.1 to 30 s Extension of the measurement range possible with current transformers | | Current measuring range I~/I= A | Supply voltage | Width mm | Part no. Article no. |
| | | | 3 - 30 mA 10 - 100 mA 0.1 - 1 A | 24 - 240 V AC, 50/60 Hz 24 - 240 V DC | 22.5 | EMR4-I1-1-A 106942 |
| | | | 0.3 - 1.5 A 1 - 5 A 3 - 15 A | 24 - 240 V AC, 50/60 Hz 24 - 240 V DC | 22.5 | EMR4-I15-1-A 106943 |
| | | 0.3 - 1.5 A 1 - 5 A 3 - 15 A | 220 - 240 V AC, 50/60 Hz | 22.5 | EMR4-I15-1-B 106944 | |

Motors switching and protecting



DIL M Contactors and overload relays Z

- Operational motor switching
- Overload protection
 - Trip indication auxiliary contact

Page 146 ff.



Motor starter MSC-D

- Operational motor switching
- Overload protection
 - Short-circuit protective device
 - Disconnecter

Page 174 ff., 186 ff.



Motor starter MSC-DE

- Operational motor switching
- Electronic wide-range overload protection
 - Short-circuit protective device
 - Disconnecter
 - Current range can be changed with interchangeable trip blocks

Page 174 ff., 186 ff.



EMS Electronic motor starter

- DOL and reversing starter functionality
- Integrated emergency stop contactor for PLe / SIL 3 applications
- Wide-range overload protection
- Toolless push-in connection

Page 188 ff.

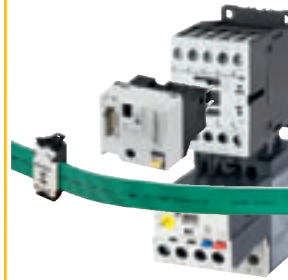


Circuit breaker NZM and contactor DIL M

- Overload protection
- Short-circuit protective device

Page 230 ff.

Networked motors switching and protection



DIL M Contactor with SmartWire-DT and electronic overload relay

- Remote actuation of the contactor
- Switching state read back

Page 14 ff., 146 ff.



Motor starter MSC with SmartWire-DT

- Remote actuation of the contactor
- Read back of the contactor switch state and PKZ

Page 14 ff., 174 ff., 186 ff.



Motor starter MSC-DEA with SmartWire-DT

- Remote actuation of the contactor
- Read back
 - Contactor switch state and PKE
 - Motor current
 - Settings
 - Motor thermal image
 - Trip indication, overload/short circuit/phase failure

Page 14 ff., 174 ff., 186 ff.



EMS Electronic motor starters with SmartWire-DT

- Integrated control circuit supply
- Clockwise/counterclockwise actuation
- Feedback motor direction
- Toolless push-in connection

Page 14 ff., 188 ff.



Circuit breaker NZM with SmartWire-DT and contactor DIL M

- Contactor PLC actuation
- Read back
 - Circuit breaker switching state
 - Motor current
 - Load warnings
 - Settings
 - Trip reason

Page 14 ff., 230 ff.

Soft motor start and drives



Motor-protective circuit breakers PKZ and soft starter DS 7

- Overload protection
- Short-circuit protective device
- Soft start

Page 174 ff., 198 ff.



PowerXL DE1 Variable speed starter to 7.5 kW

- Out-of-the-box commissioning without parameterization
- No special drives engineering skills or knowledge required
- Parameters can be set with a screwdriver when using the DXE-EXT-SET optional module
- Maximum machine availability thanks to trip-free design

Page 204 ff.



PowerXL DC1 Variable frequency drives up to 22 kW

- V/Hz control with voltage boost
- Speed control for three-phase motors and AC motors
- Degree of protection to IP20 and IP66

Page 204 ff.



PowerXL DA1 Variable frequency drives up to 250 kW

- V/f, SLV, CLV motor control
- 200 % torque @ 0 rpm
- EMC filter and braking transistor integrated
- Master/Slave communication
- Degree of protection IP20, IP55 or IP66

Page 204 ff.



PowerXL DG1 Variable frequency drives to 160 kW

- For constant and variable torque applications
- Multi-pump and fan control
- Integrated DC link choke
- Two freely usable slots for expansion cards

Page 204 ff.

Networking motors soft motor start and drives



Motor starter MSC-DE with SmartWire-DT and soft starter DS 7

- Electronic wide-range overload protection
- Short-circuit protective device
- Soft start
- Read back status information

Page 14 ff., 174 ff., 198 ff.



PowerXL DE1 Variable speed starter to 7.5 kW

Communication:

- CANopen (variant DE11)
- Integrated Modbus RTU
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DC1 Variable frequency drives up to 22 kW

Communication:

- Integrated CANopen, Modbus RTU
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DA1 Variable frequency drives up to 250 kW

Communication:

- Integrated CANopen, Modbus RTU
- Fieldbus modules optional
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DG1 Variable frequency drives to 160 kW

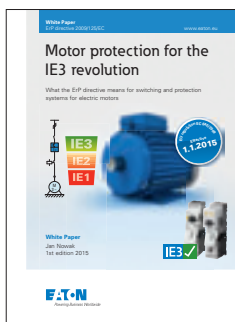
Communication

- Integrated EtherNet/IP
- Integrated Modbus RTU/TCP
- Fieldbus modules (PROFIBUS, PROFINET, etc.) optional
- Full integration into SmartWire-DT (optional)

Page 204 ff.

Switch, protect, and drive your motors: Today and tomorrow

Using Eaton devices is the best way to make sure you are ready for the new ErP Directive. Our existing range of products for safely switching, protecting and driving motors has not only been re-engineered in order to meet the Directive's requirements, but has also been expanded with ingenious new solutions, including the new PowerXL™ DE1 variable speed starter.



Successfully Implement the ErP Directive

The third stage of the ErP directive will come into effect on 01/01/2017. After this date, the directive will not only govern the use of IE2, IE3, and IE4 motors, but will also place new requirements on motor starters and drives for the entire output range of 0 to 375 kW. For detailed information, please consult the white paper found at the following address: www.eaton.eu/moem-ee



IE3 motors – a new challenge for switchgear

IE3 premium efficiency motors are characterized not only by significantly improved efficiency, but also by lower internal resistance. As a result, their inrush currents can reach magnitudes of 14 x I_N. This means that the contact mechanism in contactors may wear out very quickly and that nuisance tripping may become a problem with protective devices when used with these motors. To consult our white paper on the subject, please visit: www.eaton.eu/moem-ee

On the safe side with Eaton motor starters

Eaton motor starters rated up to 375 kW have been specifically tested for operation with IE3 motors. The results show that the higher inrush currents produced by these motors pose no problem for our motor starters, meaning that there is absolutely no risk of having to deal with faster wear or increased maintenance. For detailed information, please visit our IE3 page: www.eaton.eu/IE3

Ingeniously connected with SmartWire-DT

The SmartWire-DT intelligent connection system is designed to lower wiring costs by up to 85%. Moreover, it helps eliminate installation faults and reduces the amount of planning work required, not to mention it provides greater flexibility when it comes to selecting a PLC. In addition, connected devices can send analog and digital data concerning states, motor currents, and/or energy consumption, helping improve machine and system availability and optimize the use of power.

Build it in.

BreakerVisu – monitoring & analysis



NZM – circuit breaker



Module NZM – for SmartWire-DT



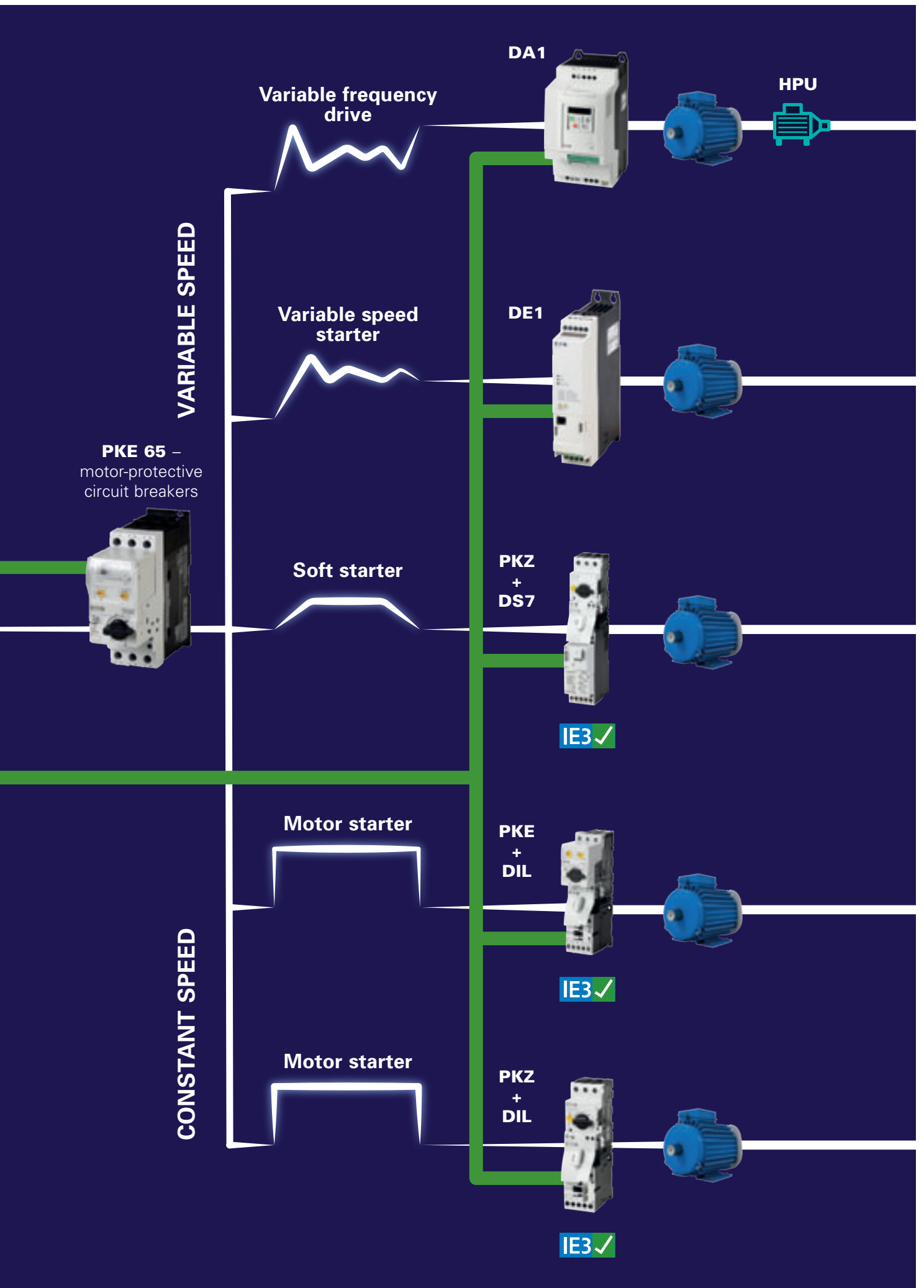
XV300 – HMI/PLC with multi-touch technology

KEY

 SmartWire-DT

 Data

 Power



Build it in.



Contactors DIL up to a high-performance 2600 A, efficiently and flexibly combinable

 www.eaton.eu/moem-ee



The contactor series covers the entire performance range from mini-contactor relay with 7 A up to a vacuum contactor at 2600 A. The combination with electronic overload relays or bimetal relays provides motor starters for the most varied of applications. All circuit breakers fulfil the demands for world-wide use and are compliant to UL/CSA, CCC and shipping classifications. The motor protection systems are also ATEX certified. The contactors are becoming more efficient, particularly due to the new Eco types for 15.5, 38, 72, 170 und 570 A, as well as through the many innovations with the motor starters, for example, such as SmartWire-DT.

An even higher level of operational safety is now guaranteed, for example, by the auxiliary contacts for electronic signals, which can reliably switch even the smallest signals such as feedback to the PLC.

 www.eaton.eu/dil



Contactor DILM up to 170 A

The contactor series up to 170 A stands out with its compact dimensions. Contactors with DC and AC operation now have identical geometries.

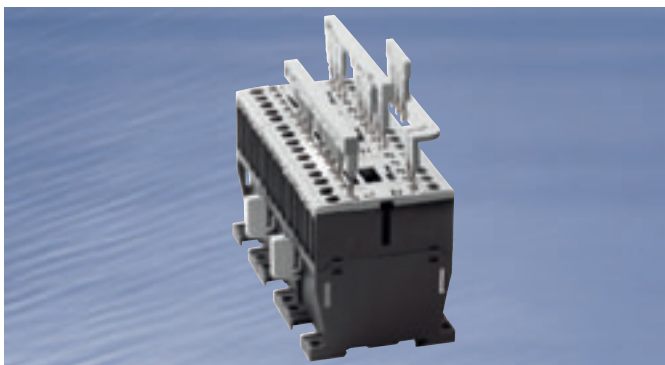
- An identical range of accessories available for AC and DC operated devices simplifies engineering requirements
- All contactor with DC actuation from DILM17 or higher feature an electronically controlled drive unit.
- Significantly less heat dissipation due to reduced sealing consumption
- Smaller control transformers because of lower pick-up consumption
- Direct actuation from the PLC without coupling contactors up to 38 A.



New electronic overload relay ZEB

The new electronic overload relay can be fitted directly to the contactors DILM. They cover a current range up to 175 A.

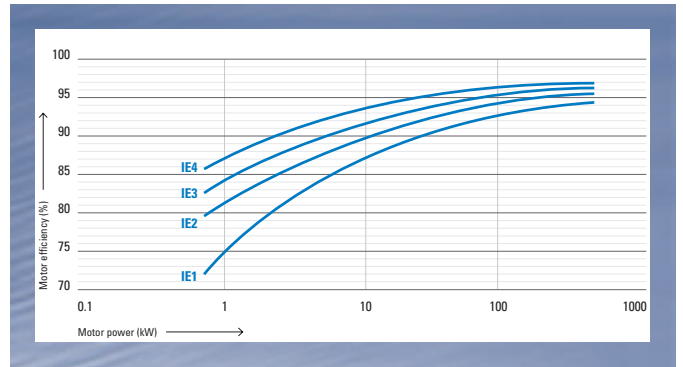
- Adjustable Class setting for protection at heavy duty start
- Manual or automatic reset can be selected to enable universal application
- GF devices provide enhanced protection with earth faults.



Speedier wiring using spring-loaded terminals

Eaton provides proven quality with spring-loaded terminals. The main current paths on PKZM0 and motor contactors up to 15.5 A all use spring-loaded terminals.

- Speedy wiring
- Highly reliable even with machines that vibrate excessively.



IE3-ready with Eaton switchgear

Eaton contactors have been optimized for use with IE3 motors. The contactors' increased contact pressure force is designed to achieve an ideal balance between switchgear safety and energy efficiency, ensuring that the high-efficiency motors' higher inrush currents can be safely and reliably.

Simple, fast and reliable wiring

- The universally used standard components are combined for tool-less plug connection technology. On contactors up to 15.5 A, the DILM12-XSL or DILM12-XRL are fitted into the connectors rapidly and with optimum space savings without the need for tools.
- Front coil connections enable quick and reliable wiring operations.
- Double box terminals on all contactors DILM up to 170 A guarantee reliable wiring even with different conductor cross-sections.

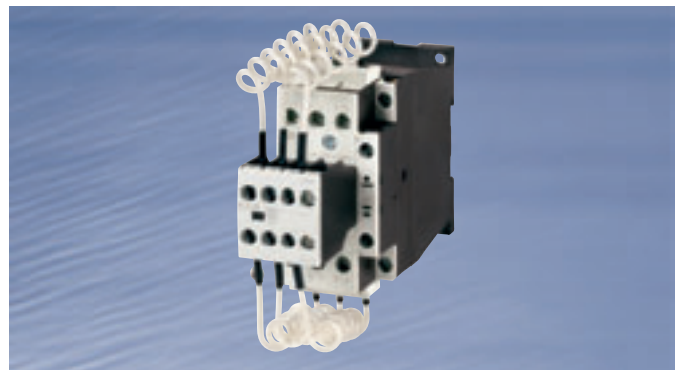


4-pole contactors

The new 4-pole contactors from Eaton are optimized for AC-1 switched loads.

They are the specialists for applications, where the mains power is switched off or over, heating systems are switched and 4-pole loads are switched.

- Four compact contactors cover the performance range up to 200 A
- Identical accessories for 3 and 4-pole contactors guarantee efficient engineering.



Contactors for reactive current compensation systems

The contactors for capacitor DILK have been developed on the basis of the DILM contactors. The installation and connection as well as the handling are identical with the standard contactors. These contactors feature series resistors in addition to special, weld-free contact material. The capacitors are pre-charged via a special early-make auxiliary switch, and only then do the main contacts close and conduct continuous current.



Mini Contactor Relays DILE Contactor relays DILA

The range of mini contactor relays has been extended by three performance ranges. The new DILEM12 allows motors up to 5.5 kW to be controlled reliably.

- Compact dimensions for small installation spaces
- Extension of the small contactor relay range up to 5.5 kW

The auxiliary contactor DILA perfectly complements the motor contactors DILM.

- Auxiliary contacts specially designed for the contactor relays ensure safe identification.



Safety technology

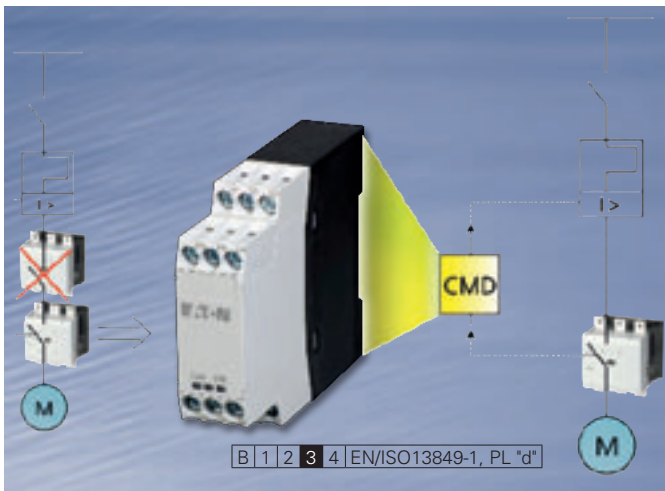
Safety technology is constantly increasing in significance. Contactors for a safe standstill are used here.

- Reliable feedback of the switching state of the contactor using mirror contacts.
- Long enabling circuits with low magnitude signals are switched reliably by the new electronic-enabled auxiliary switches. The integrated microswitches safely switch through the lowest signals.



Thermistor overload relay EMT6

Remarkable functional versatility in the smallest possible space. The EMT 6 thermistor overload relay protects machines against overtemperatures during severe starting duty, braking duty, undervoltage and overvoltage and high switching frequency. The temperature is monitored by means of a thermistor, directly on the motor winding. Another field of application for the EMT 6 is the monitoring of temperatures in bearings, gearboxes, oils and coolants. Three types with differing functions are available: EMT6, EMT6-DB, EMT6-DBK. The EMT 6-DBK is the most versatile with functions such as automatic or manual operation, recognition of short circuits in the sensor circuit and zero-voltage safety.



Contactors monitoring device CMD

The CMD (Contactors Monitoring Device) monitors the main contacts of a contactor for welding. For this purpose, it compares the contactor control voltage with the state of the main contacts, which are indicated reliably by a mirror contact (IEC EN 60947-4-1 Ann. F). If the contactor coil is de-energized and the contactor does not drop out, the CMD trips the backup circuit breaker, motor-protective circuit breaker or switch-disconnector via an undervoltage release.



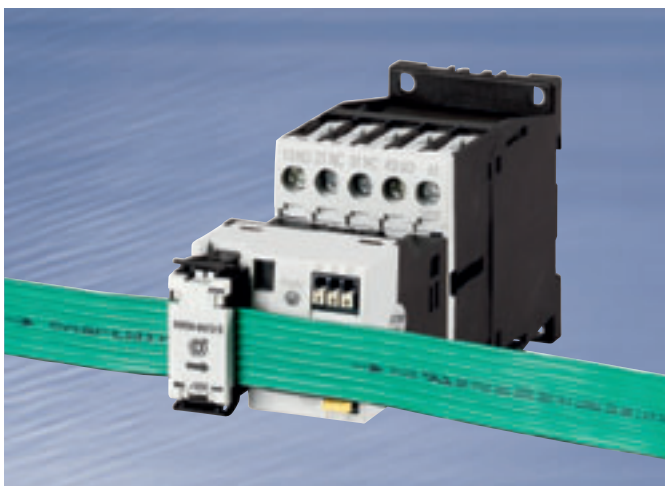
Large contactors up to 2600 A

All contactors DILM and DILH from 185 A to 2200 A are available with electronically-controlled drives. This provides outstanding benefits for your application:

- Flexible actuation
- Considerably lower control panel temperatures due to reduced sealing power
- Considerably greater control voltage tolerance than required by the standard, ensuring greater reliability with voltage deviations
- Integrated suppressor
- Auxiliary contact contacts: 2 NO, 2 NC
- In the premium version, four wide-range devices cover the entire voltage range.

Contactors DILM from 580 A and DILH from 1400 A are vacuum contactors with significant benefits in comparison to air contactors:

- The electrical service life is significantly longer than on air contactors.
- A higher packing density and cleaner distribution compartment are possible, since there are no open arcs and therefore no escaping gases.







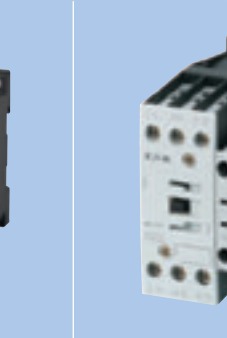

Intelligent networking

The conventional wiring used in control circuits for motor starters and contactors requires considerable time and effort: each motor starter or contactor needs to be wired individually and then separately connected to the PLC's input/output modules. This not only takes a lot of time, but also makes wiring and operating faults much more likely. When used together with SmartWire-DT, our xStart contactors eliminate the need for this control wiring, as well as for the PLC's input/output modules, minimizing the time required for wiring and commissioning.



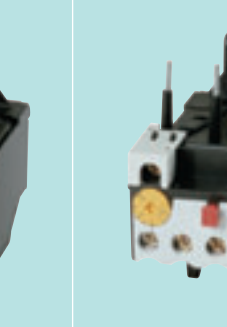
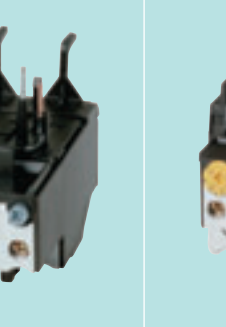
Overview of motor protection up to 1000 A




Electronic and electrical overload relays, thermistor protective relays

Moeller® series

| Contactor | | | | | | | | | | | | | | | | |
|--|------|-----|----|-------|----|----|-----|------|-----|-----|-----|------|------|-----|-----|------|
|   | | | | | | | | | | | | | | | | |
|     | | | | | | | | | | | | | | | | |
| TYPE | DIL | EEM | EM | EM12* | M7 | M9 | M12 | M15* | M17 | M25 | M32 | M38* | M40 | M50 | M65 | M72* |
| Rated operational power AC-3 | 400V | 3 | 4 | 5.5 | 3 | 4 | 5.5 | 7.5 | 7.5 | 11 | 15 | 18.5 | 18.5 | 22 | 30 | 37 |
| Rated operational current AC-3 | 400V | 6.6 | 9 | 12 | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 | 38 | 40 | 50 | 65 | 72 |
| Rated operational power AC-1 | 40°C | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 40 | 45 | 45 | 45 | 60 | 80 | 98 | 98 |

*For motors up to IE2!

| Bimetal relays | | | | | | | | |
|--|------------|--|------------|--|------------|--|----------|--|
|     | | | | | | | | |
| TYPE | ZE | | ZB12 | | ZB32 | | ZB65 | |
| Overload release setting range | 0.1 - 12 A | | 0.1 - 16 A | | 0.1 - 38 A | | 6 - 75 A | |





| Electronic overload relays | | | | | | |
|--|-------------|--|-------------|--|-----------|--|
|    | | | | | | |
| TYPE | ZEB12 | | ZEB32 | | ZEB65 | |
| Overload release setting range | 0.33 - 20 A | | 0.33 - 45 A | | 9 - 100 A | |



| Thermistor overload relay | |
|--|----------------------------|
|   | |
| TYPE | EMT6, EMT6-K, EMT6-DB, ... |



| M80 | M95 | M115 | M150 | M170* | M185A | M225A | M250 | M300A | M400 | M500 | M580 | M650 | M750 | M820 | M1000 |
|-----|-----|------|------|-------|-------|-------|------|-------|------|------|------|------|------|------|-------|
| 37 | 45 | 55 | 75 | 90 | 90 | 110 | 132 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 560 |
| 80 | 95 | 115 | 150 | 170 | 185 | 225 | 250 | 300 | 400 | 500 | 580 | 650 | 750 | 820 | 1000 |
| 110 | 130 | 160 | 190 | 225 | 337 | 356 | 400 | 430 | 612 | 857 | 980 | 1041 | 1102 | 1225 | 1225 |

*For motors up to IE2!

| | | | |
|--|--|--|---|
|  |  |  |  |
| ZB150 | Z5-../FF225A | Z5-../FF250 | ZW7 |
| 35 - 175 A | 50 - 250 A | 50 - 300 A | 42 - 630 A |

| | |
|---|---|
|  |  |
| ZEB150 | ZEB225A |
| 20 - 175 A | 35 - 175 A |














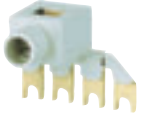
... EMT6KDB, EMT6-DBK

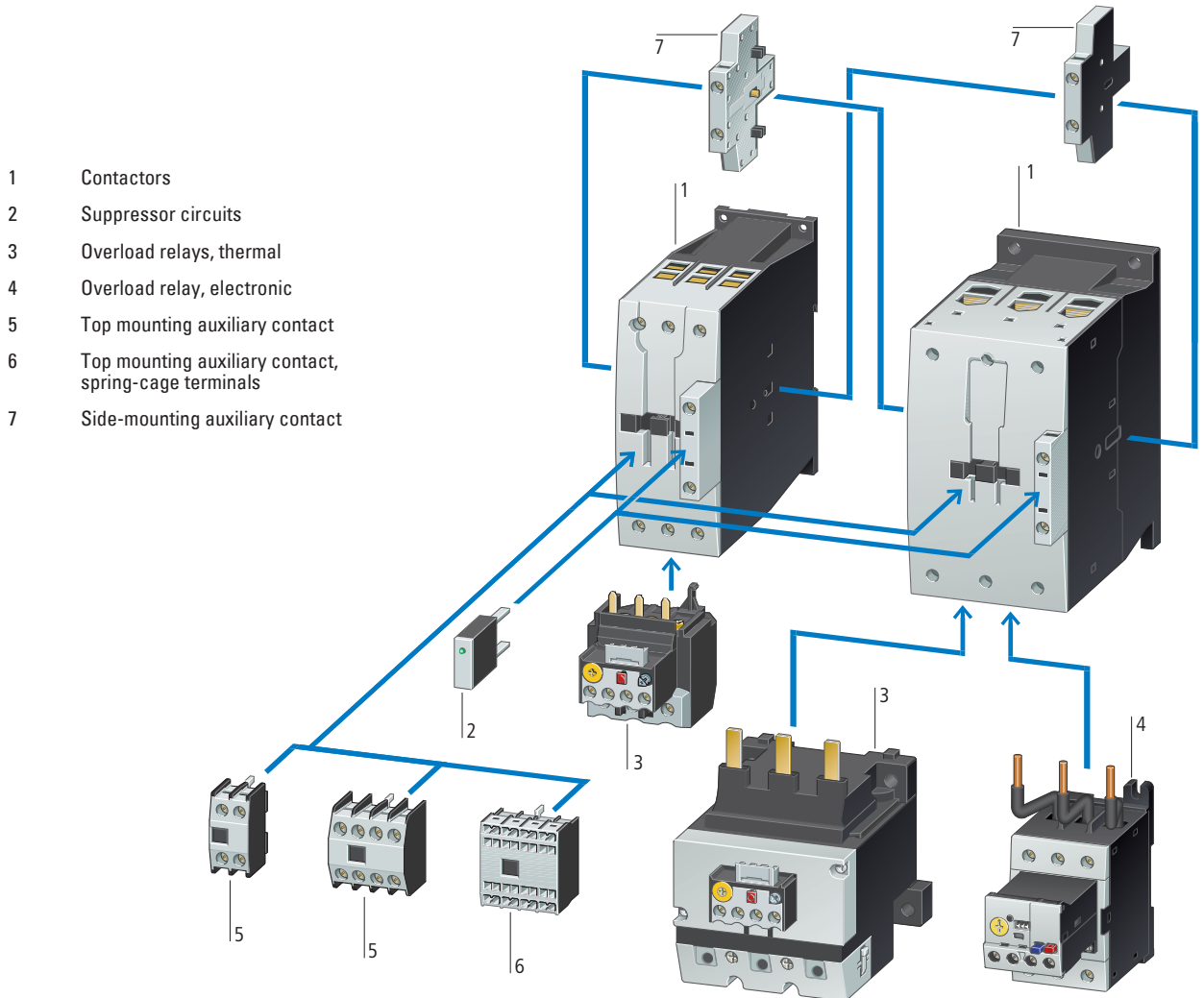
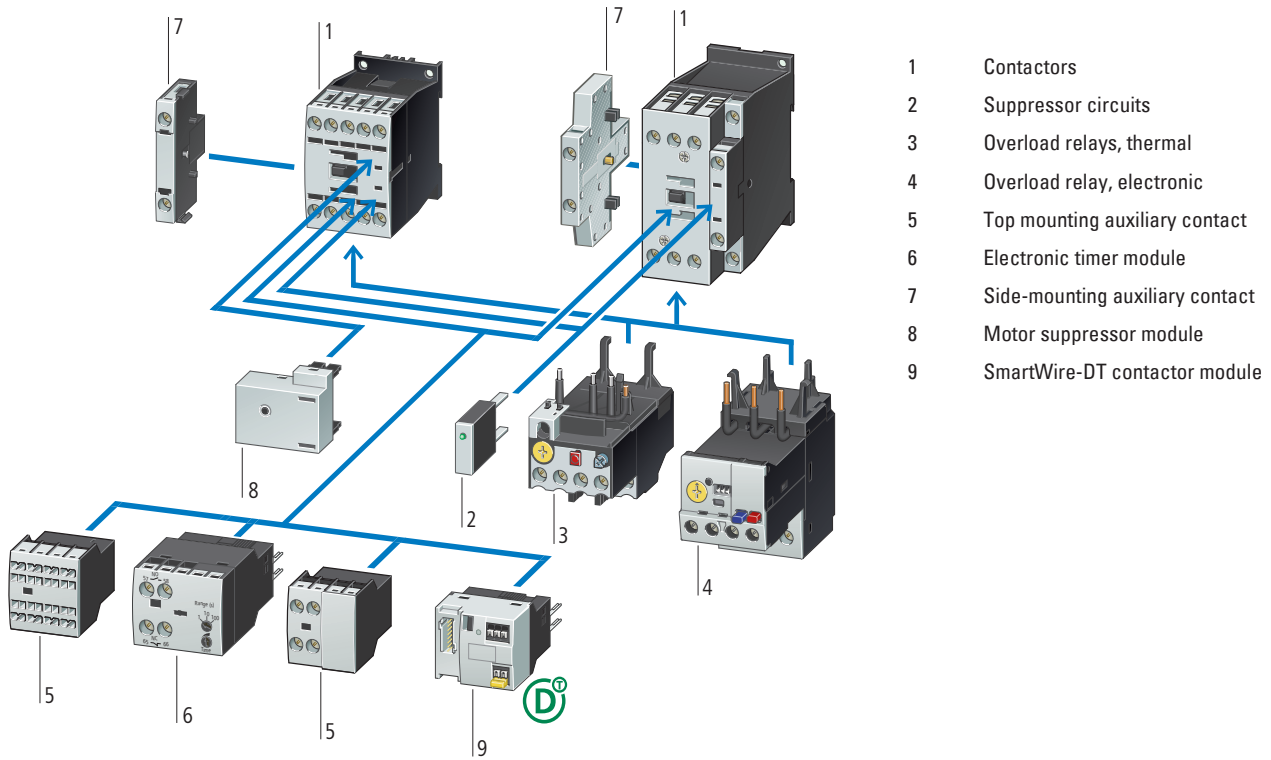
Mini contactor relays, contactor relays





Contactors, miniature contactors, Contactor relays





Moeller® series





| | Max. rating for three-phase motors, 50 - 60 Hz | Rated operational current | Contacts | AC operation | AC operation | DC operation | |
|---|--|---------------------------|---|--------------------------|---|---|---------------------------------------|
| | AC-3 | AC-1 | N/O = Normally open N/C = Normally closed | 230 V 50 Hz, 240 V 60 Hz | 110 V 50 Hz, 120 V 60 Hz | 24 V DC | |
| | 380 V 400 V | 660 V 690 V | Conventional free air thermal current, 3 pole, 50 - 60 Hz | Part no. Article no. | Part no. Article no. | Part no. Article no. | |
| | P kW | P kW | Open at 40 °C $I_{th}=I_e$ A | | | | |
| DILEM contactors | | | | | | | |
| Screw terminals | | | | | | | |
|  | 3 | 3 | 22 | 1 N/O - | DILEEM-10(230V50HZ,240V60HZ) 051608 | DILEEM-10(110V50HZ,120V60HZ) 051611 | DILEEM-10-G(24VDC) 051643 |
| | 3 | 3 | 22 | - 1 NC | DILEEM-01(230V50HZ,240V60HZ) 051633 | DILEEM-01(110V50HZ,120V60HZ) 051636 | DILEEM-01-G(24VDC) 051650 |
| | 4 | 4 | 22 | 1 N/O - | DILEEM-10(230V50HZ,240V60HZ) 051786 | DILEEM-10(110V50HZ,120V60HZ) 051783 | DILEEM-10-G(24VDC) 010213 |
| | 4 | 4 | 22 | - 1 NC | DILEEM-01(230V50HZ,240V60HZ) 051795 | DILEEM-01(110V50HZ,120V60HZ) 051792 | DILEEM-01-G(24VDC) 010343 |
| | 5.5 | 4 | 22 | 1 N/O - | DILEM12-10(230V50HZ,240V60HZ) 127075 | DILEM12-10(110V50HZ,120V60HZ) 127072 | DILEM12-10-G(24VDC) 127132 |
| | 5.5 | 4 | 22 | - 1 NC | DILEM12-01(230V50HZ,240V60HZ) 127091 | DILEM12-01(110V50HZ,120V60HZ) 127088 | DILEM12-01-G(24VDC) 127137 |
| Spring-loaded terminals | | | | | | | |
|  | 3 | 3 | 22 | 1 N/O - | DILEEM-10-C(230V50HZ,240V60HZ) 230042 | - | DILEEM-10-G-C(24VDC) 230052 |
| | 3 | 3 | 22 | - 1 NC | DILEEM-01-C(230V50HZ,240V60HZ) 230135 | - | DILEEM-01-G-C(24VDC) 230155 |
| | 4 | 4 | 22 | 1 N/O - | DILEEM-10-C(230V50HZ,240V60HZ) 230164 | DILEEM-10-C(110V50HZ,120V60HZ) 231658 | DILEEM-10-G-C(24VDC) 230165 |
| | 4 | 4 | 22 | - 1 NC | DILEEM-01-C(230V50HZ,240V60HZ) 230166 | DILEEM-01-C(110V50HZ,120V60HZ) 231681 | DILEEM-01-G-C(24VDC) 230167 |
| DILER Mini-contactors | | | | | | | |
| Screw terminals | | | | | | | |
|  | - | - | 10 | 4 N/O - | DILER-40(230V50HZ,240V60HZ) 051759 | DILER-40(110V50HZ,120V60HZ) 051756 | DILER-40-G(24VDC) 010223 |
| | - | - | 10 | 3 N/O 1 NC | DILER-31(230V50HZ,240V60HZ) 051768 | DILER-31(110V50HZ,120V60HZ) 051765 | DILER-31-G(24VDC) 010157 |
| | - | - | 10 | 2 N/O 2 NC | DILER-22(230V50HZ,240V60HZ) 051777 | DILER-22(110V50HZ,120V60HZ) 051774 | DILER-22-G(24VDC) 010042 |
| Spring-loaded terminals | | | | | | | |
|  | - | - | 10 | 4 N/O - | DILER-40-C(230V50HZ,240V60HZ) 230239 | DILER-40-C(110V50HZ,120V60HZ) 231841 | DILER-40-G-C(24VDC) 230241 |
| | - | - | 10 | 3 N/O 1 NC | DILER-31-C(230V50HZ,240V60HZ) 230178 | DILER-31-C(110V50HZ,120V60HZ) 231818 | DILER-31-G-C(24VDC) 230179 |
| | - | - | 10 | 2 N/O 2 NC | DILER-22-C(230V50HZ,240V60HZ) 230176 | DILER-22-C(110V50HZ,120V60HZ) 231793 | DILER-22-G-C(24VDC) 230177 |
| DILA relays | | | | | | | |
| Screw terminals | | | | | | | |
|  | - | - | 16 | 4 N/O - | DILA-40(230V50HZ,240V60HZ) 276329 | DILA-40(110V50HZ,120V60HZ) 276326 | DILA-40(24VDC) 276344 |
| | - | - | 16 | 3 N/O 1 NC | DILA-31(230V50HZ,240V60HZ) 276364 | DILA-31(110V50HZ,120V60HZ) 276361 | DILA-31(24VDC) 276379 |
| | - | - | 16 | 2 N/O 2 NC | DILA-22(230V50HZ,240V60HZ) 276399 | DILA-22(110V50HZ,120V60HZ) 276396 | DILA-22(24VDC) 276414 |
| Spring-loaded terminals | | | | | | | |
|  | - | - | 16 | 4 N/O - | DILAC-40(230V50HZ,240V60HZ) 276441 | DILAC-40(110V50HZ,120V60HZ) 276438 | DILAC-40(24VDC) 276456 |
| | - | - | 16 | 3 N/O 1 NC | DILAC-31(230V50HZ,240V60HZ) 276473 | DILAC-31(110V50HZ,120V60HZ) 276470 | DILAC-31(24VDC) 276488 |
| | - | - | 16 | 2 N/O 2 NC | DILAC-22(230V50HZ,240V60HZ) 276505 | DILAC-22(110V50HZ,120V60HZ) 276502 | DILAC-22(24VDC) 276520 |

| For use with | Contacts | | | | Part no. | Article no. |
|--|----------------------------|----------------------------------|-----------------------|--------------------------------|-----------------------|-------------------------|
| | N/O = Normally open | N/O _E : NO early-make | N/C = Normally closed | NC _L =NC late-break | | |
| Auxiliary contact modules | | | | | | |
| Screw terminals | | | | | | |
|  | DILEM-10(-G)(...) | - | - | 2 NC | - | 02DILEM 010064 |
| | DILEM-4(-G)(...) | 1 N/O | - | 1 NC | - | 11DILEM 010080 |
| | DILEEM-10(-G)(...) | 2 N/O | - | 2 NC | - | 22DILEM 010112 |
| | DILEM12-10(-G)(...) | - | - | - | - | |
| | DILEM-10(-G)(...) | - | - | 2 NC | - | 02DILE 010240 |
| | DILEM-01(-G)(...) | 1 N/O | - | 1 NC | - | 11DILE 010224 |
| | DILEM-4(-G)(...) | 2 N/O | - | - | - | 20DILE 010208 |
| | DILER40(-G) | - | 1 N/O _E | - | 1 NC _L | 11DDILE 049824 |
| | DILER31(-G) | - | - | 4 NC | - | 04DILE 010256 |
| | DILER22 | - | - | - | - | |
| | DILEEM-10(-G)(...) | 1 N/O | - | 3 NC | - | 13DILE 002397 |
| | DILEEM-01(-G)(...) | 2 N/O | - | 2 NC | - | 22DILE 010288 |
| | DILEM12-10(-G)(...) | 3 N/O | - | 1 NC | - | 31DILE 048912 |
| | DILEM12-01(-G)(...) | 4 N/O | - | - | - | 40DILE 010304 |
| | 1 N/O | 1 N/O _E | 1 NC | 1 NC _L | 22DDILE 049823 | |
| Spring-loaded terminals | | | | | | |
|  | DILE(E)M-10-C(-G)(...) | 1 N/O | - | 1 NC | - | 11DILE-C 230257 |
| | DILE(E)M-01-C(-G)(...) | - | - | 4 NC | - | 04DILE-C 230258 |
| | DILER40(-G)-C | 1 N/O | - | 3 NC | - | 13DILE-C 230259 |
| | DILER31(-G)-C | 2 N/O | - | 2 NC | - | 22DILE-C 230260 |
| | DILER22-C | 3 N/O | - | 1 NC | - | 31DILE-C 230262 |
| | | 4 N/O | - | - | - | 40DILE-C 230263 |
| | | 1 N/O | 1 N/O _E | 1 NC | 1 NC _L | 22DDILE-C 230264 |
| | | | | | | |
| Suppressor circuit | | | | | | |
| Varistor suppressor | | | | | | |
|  | DILE... | - | - | - | - | VGDILE250 010336 |
| RC suppressor | | | | | | |
|  | DILE... | - | - | - | - | RCDILE250 046320 |
| Mechanical interlock | | | | | | |
| For contactors with the same or different magnet system. 0 mm distance between relays. Mechanical lifespan 2.5 x 10 ⁶ Operations. Additional auxiliary contact modules possible. | | | | | | |
|  | | - | - | - | - | MVDILE 010113 |
| Paralleling link | | | | | | |
| Consisting of two 4 pole paralleling links | | | | | | |
|  | DILEEM DILEM12 DILEM | - | - | - | - | P1DILEM 019095 |



| | | | AC operation | AC operation | DC operation | |
|---|-------|---------------------------|--------------------------------|---|---|-----------------------------------|
| Max. rating for three-phase motors, 50 - 60 Hz | | | 230 V 50 Hz, 240 V 60 Hz | 110 V 50 Hz, 120 V 60 Hz | 24 V DC | |
| AC-3 | | | Part no. Article no. | Part no. Article no. | Part no. Article no. | |
| 380 V | 660 V | Rated operational current | | | | |
| 400 V | 690 V | AC-1 | | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | | | | |
| Open at 40 °C | | | | | | |
| P | P | $I_{th} = I_e$ | | | | |
| kW | kW | A | | | | |
| Basic device | | | | | | |
| Screw terminals | | | | | | |
|  | 3 | 3.5 | 22 | DILM7-10(230V50HZ,240V60HZ) 276550 | DILM7-10(110V50HZ,120V60HZ) 276547 | DILM7-10(24VDC) 276565 |
| | 3 | 3.5 | 22 | DILM7-01(230V50HZ,240V60HZ) 276585 | DILM7-01(110V50HZ,120V60HZ) 276582 | DILM7-01(24VDC) 276600 |
| | 4 | 4.5 | 22 | DILM9-10(230V50HZ,240V60HZ) 276690 | DILM9-10(110V50HZ,120V60HZ) 276687 | DILM9-10(24VDC) 276705 |
| | 4 | 4.5 | 22 | DILM9-01(230V50HZ,240V60HZ) 276725 | DILM9-01(110V50HZ,120V60HZ) 276722 | DILM9-01(24VDC) 276740 |
| | 5.5 | 6.5 | 22 | DILM12-10(230V50HZ,240V60HZ) 276830 | DILM12-10(110V50HZ,120V60HZ) 276827 | DILM12-10(24VDC) 276845 |
| | 5.5 | 6.5 | 22 | DILM12-01(230V50HZ,240V60HZ) 276865 | DILM12-01(110V50HZ,120V60HZ) 276862 | DILM12-01(24VDC) 276880 |
| | 7.5 | 7 | 22 | DILM15-10(230V50HZ,240V60HZ) 290058 | DILM15-10(110V50HZ,120V60HZ) 290055 | DILM15-10(24VDC) 290073 |
| | 7.5 | 7 | 22 | DILM15-01(230V50HZ,240V60HZ) 290093 | DILM15-01(110V50HZ,120V60HZ) 290090 | DILM15-01(24VDC) 290108 |
|  | 7.5 | 11 | 40 | DILM17-10(230V50HZ,240V60HZ) 277004 | DILM17-10(110V50HZ,120V60HZ) 277001 | DILM17-10(RDC24) 277018 |
| | 7.5 | 11 | 40 | DILM17-01(230V50HZ,240V60HZ) 277036 | DILM17-01(110V50HZ,120V60HZ) 277033 | DILM17-01(RDC24) 277050 |
| | 11 | 14 | 45 | DILM25-10(230V50HZ,240V60HZ) 277132 | DILM25-10(110V50HZ,120V60HZ) 277129 | DILM25-10(RDC24) 277146 |
| | 11 | 14 | 45 | DILM25-01(230V50HZ,240V60HZ) 277164 | DILM25-01(110V50HZ,120V60HZ) 277161 | DILM25-01(RDC24) 277178 |
| | 15 | 17 | 45 | DILM32-10(230V50HZ,240V60HZ) 277260 | DILM32-10(110V50HZ,120V60HZ) 277257 | DILM32-10(RDC24) 277274 |
| | 15 | 17 | 45 | DILM32-01(230V50HZ,240V60HZ) 277292 | DILM32-01(110V50HZ,120V60HZ) 277289 | DILM32-01(RDC24) 277306 |
| | 18.5 | 21 | 45 | DILM38-10(230V50HZ,240V60HZ) 112428 | DILM38-10(110V50HZ,120V60HZ) 112425 | DILM38-10(RDC24) 112442 |
| | 18.5 | 21 | 45 | DILM38-01(230V50HZ,240V60HZ) 112456 | DILM38-01(110V50HZ,120V60HZ) 112453 | DILM38-01(RDC24) 112470 |
|  | 18.5 | 23 | 60 | DILM40(230V50HZ,240V60HZ) 277766 | DILM40(110V50HZ,120V60HZ) 277763 | DILM40(RDC24) 277780 |
| | 22 | 30 | 80 | DILM50(230V50HZ,240V60HZ) 277830 | DILM50(110V50HZ,120V60HZ) 277827 | DILM50(RDC24) 277844 |
| | 30 | 35 | 98 | DILM65(230V50HZ,240V60HZ) 277894 | DILM65(110V50HZ,120V60HZ) 277891 | DILM65(RDC24) 277908 |
| | 37 | 35 | 98 | DILM72(230V50HZ,240V60HZ) 107670 | DILM72(110V50HZ,120V60HZ) 109191 | DILM72(RDC24) 107671 |
|  | 37 | 63 | 110 | DILM80(230V50HZ,240V60HZ) 239402 | DILM80(110V50HZ,120V60HZ) 239399 | DILM80(RDC24) 239416 |
| | 45 | 75 | 130 | DILM95(230V50HZ,240V60HZ) 239480 | DILM95(110V50HZ,120V60HZ) 239477 | DILM95(RDC24) 239510 |
| | 55 | 90 | 160 | DILM115(RAC240) 239548 | DILM115(RAC120) 239547 | DILM115(RDC24) 239555 |
| | 75 | 96 | 190 | DILM150(RAC240) 239588 | DILM150(RAC120) 239587 | DILM150(RDC24) 239591 |
| | 90 | 96 | 225 | DILM170(RAC240) 107013 | DILM170(RAC120) 107012 | DILM170(RDC24) 107016 |

| | | | AC operation | AC operation | DC operation | |
|---|-------|---------------------------|--------------------------------|--|--|------------------------------------|
| Max. rating for three-phase motors, 50 - 60 Hz | | | 230 V 50 Hz, 240 V 60 Hz | 110 V 50 Hz, 120 V 60 Hz | 24 V DC | |
| AC-3 | | | Part no. Article no. | Part no. Article no. | Part no. Article no. | |
| 380 V | 660 V | Rated operational current | | | | |
| 400 V | 690 V | AC-1 | | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | | | | |
| Open at 40 °C | | | | | | |
| P | P | $I_{th} = I_e$ | | | | |
| kW | kW | A | | | | |
| Basic device | | | | | | |
| Spring-loaded terminals | | | | | | |
|  | 3 | 3.5 | 22 | DILMC7-10(230V50HZ,240V60HZ) 277389 | DILMC7-10(110V50HZ,120V60HZ) 277386 | DILMC7-10(24VDC) 277404 |
| | 3 | 3.5 | 22 | DILMC7-01(230V50HZ,240V60HZ) 277421 | DILMC7-01(110V50HZ,120V60HZ) 277418 | DILMC7-01(24VDC) 277436 |
| | 4 | 4.5 | 22 | DILMC9-10(230V50HZ,240V60HZ) 277453 | DILMC9-10(110V50HZ,120V60HZ) 277450 | DILMC9-10(24VDC) 277468 |
| | 4 | 4.5 | 22 | DILMC9-01(230V50HZ,240V60HZ) 277485 | DILMC9-01(110V50HZ,120V60HZ) 277482 | DILMC9-01(24VDC) 277500 |
| | 5.5 | 6.5 | 22 | DILMC12-10(230V50HZ,240V60HZ) 277517 | DILMC12-10(110V50HZ,120V60HZ) 277514 | DILMC12-10(24VDC) 277532 |
| | 5.5 | 6.5 | 22 | DILMC12-01(230V50HZ,240V60HZ) 277549 | DILMC12-01(110V50HZ,120V60HZ) 277546 | DILMC12-01(24VDC) 277564 |
| | 7.5 | 7 | 22 | DILMC15-10(230V50HZ,240V60HZ) 293911 | DILMC15-10(110V50HZ,120V60HZ) 293908 | DILMC15-10(24VDC) 293926 |
| | 7.5 | 7 | 22 | DILMC15-01(230V50HZ,240V60HZ) 293946 | DILMC15-01(110V50HZ,120V60HZ) 293943 | DILMC15-01(24VDC) 293961 |
| Spring-cage terminals on auxiliary and control circuit terminals | | | | | | |
|  | 7.5 | 11 | 40 | DILMC17-10(230V50HZ,240V60HZ) 277581 | DILMC17-10(110V50HZ,120V60HZ) 277578 | DILMC17-10(RDC24) 277595 |
| | 7.5 | 11 | 40 | DILMC17-01(230V50HZ,240V60HZ) 277611 | DILMC17-01(110V50HZ,120V60HZ) 277608 | DILMC17-01(RDC24) 277625 |
| | 11 | 14 | 45 | DILMC25-10(230V50HZ,240V60HZ) 277641 | DILMC25-10(110V50HZ,120V60HZ) 277638 | DILMC25-10(RDC24) 277655 |
| | 11 | 14 | 45 | DILMC25-01(230V50HZ,240V60HZ) 277671 | DILMC25-01(110V50HZ,120V60HZ) 277668 | DILMC25-01(RDC24) 277685 |
| | 15 | 17 | 45 | DILMC32-10(230V50HZ,240V60HZ) 277701 | DILMC32-10(110V50HZ,120V60HZ) 277698 | DILMC32-10(RDC24) 277715 |
| | 15 | 17 | 45 | DILMC32-01(230V50HZ,240V60HZ) 277731 | DILMC32-01(110V50HZ,120V60HZ) 277728 | DILMC32-01(RDC24) 277745 |
|  | 18.5 | 23 | 60 | DILMC40(230V50HZ,240V60HZ) 277965 | DILMC40(110V50HZ,120V60HZ) 277962 | DILMC40(RDC24) 277979 |
| | 22 | 30 | 80 | DILMC50(230V50HZ,240V60HZ) 277995 | DILMC50(110V50HZ,120V60HZ) 277992 | DILMC50(RDC24) 278009 |
| | 30 | 35 | 98 | DILMC65(230V50HZ,240V60HZ) 278025 | DILMC65(110V50HZ,120V60HZ) 278022 | DILMC65(RDC24) 278039 |
|  | 37 | 63 | 110 | DILMC80(230V50HZ,240V60HZ) 239618 | - | DILMC80(RDC24) 239652 |
| | 45 | 75 | 130 | DILMC95(230V50HZ,240V60HZ) 239685 | - | DILMC95(RDC24) 239715 |
| | 55 | 90 | 160 | DILMC115(RAC240) 239736 | - | DILMC115(RDC24) 239741 |
| | 75 | 96 | 190 | DILMC150(RAC240) 239751 | - | DILMC150(RDC24) 239765 |

| | | | | AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no. | DC operation 24 V DC Part no. Article no. |
|---|-------------|--|-----|---|--|
| Max. rating for three-phase motors, 50 - 60 Hz | | Rated operational current | | | |
| AC-3 | | AC-1 | | | |
| 380 V 400 V | 660 V 690 V | Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C | | | |
| P kW | P kW | I _{th} = I _e A | | | |
| DILM complete units | | | | | |
| Screw terminals | | | | | |
|  | 3 | 3.5 | 22 | DILM7-32(230V50HZ,240V60HZ) 276655 | DILM7-32(24VDC) 276670 |
| | 4 | 4.5 | 22 | DILM9-32(230V50HZ,240V60HZ) 276795 | DILM9-32(24VDC) 276810 |
| | 5.5 | 6.5 | 22 | DILM12-32(230V50HZ,240V60HZ) 276935 | DILM12-32(24VDC) 276950 |
|  | 7.5 | 11 | 40 | DILM17-32(230V50HZ,240V60HZ) 277100 | DILM17-32(RDC24) 277114 |
| | 11 | 14 | 45 | DILM25-32(230V50HZ,240V60HZ) 277228 | DILM25-32(RDC24) 277242 |
| | 15 | 17 | 45 | DILM32-32(230V50HZ,240V60HZ) 277356 | DILM32-32(RDC24) 277370 |
|  | 18.5 | 23 | 60 | DILM40-22(230V50HZ,240V60HZ) 277798 | DILM40-22(RDC24) 277812 |
| | 22 | 30 | 80 | DILM50-22(230V50HZ,240V60HZ) 277862 | DILM50-22(RDC24) 277876 |
| | 30 | 35 | 98 | DILM65-22(230V50HZ,240V60HZ) 277926 | DILM65-22(RDC24) 277940 |
|  | 37 | 63 | 110 | DILM80-22(230V50HZ,240V60HZ) 239449 | DILM80-22(RDC24) 239463 |
| | 45 | 75 | 130 | DILM95-22(230V50HZ,240V60HZ) 239527 | DILM95-22(RDC24) 239541 |
| | 55 | 90 | 160 | DILM115-22(RAC240) 239578 | DILM115-22(RDC24) 239581 |
| | 75 | 96 | 190 | DILM150-22(RAC240) 239598 | DILM150-22(RDC24) 239601 |

Contactors and contactor relays

Basic devices with screw terminals

Moeller® series

| AC3 380 V 400 V P kW | AC3 660 V 690 V P kW | AC1 $I_{th}=I_e$ A ¹ | Part no. Article No. | Part no. Article No. | Part no. Article No. | Part no. Article No. |
|----------------------------------|----------------------------------|---------------------------------------|---|---|---|--|
| - | - | 10 | DILER-40(230V50/60HZ) 52725 | DILER-40(110V50/60HZ) 21961 | DILER-40(42V50HZ,48V60HZ) 51755 | DILER-40(24V50/60H) 21924 |
| - | - | 10 | DILER-31(230V50/60HZ) 52509 | DILER-31(110V50/60HZ) 21624 | DILER-31(42V50HZ,48V60HZ) 51764 | DILER-31(24V50/60HZ) 21594 |
| - | - | 10 | DILER-22(230V50/60HZ) 52508 | DILER-22(110V50/60HZ) 21871 | DILER-22(42V50HZ,48V60HZ) 51773 | DILER-22(24V50/60HZ) 21704 |
| - | - | 16 | DILA-40(230V50/60HZ) 276337 | DILA-40(110V50/60HZ) 276335 | DILA-40(42V50HZ,48V60HZ) 276325 | DILA-40(24V50/60HZ) 276333 |
| - | - | 16 | DILA-31(230V50/60HZ) 276372 | DILA-31(110V50/60HZ) 276370 | DILA-31(42V50HZ,48V60HZ) 276360 | DILA-31(24V50/60HZ) 276368 |
| - | - | 16 | DILA-22(230V50/60HZ) 276407 | DILA-22(110V50/60HZ) 276405 | DILA-22(42V50HZ,48V60HZ) 276395 | DILA-22(24V50/60HZ) 276403 |
| 3 | 3 | 22 | DILEEM-10(230V50/60HZ) 56674 | DILEEM-10(110V50/60HZ) 51592 | DILEEM-10(42V50HZ,48V60HZ) 51612 | DILEEM-10(24V50/60HZ) 51596 |
| 3 | 3 | 22 | DILEEM-01(230V50/60HZ) 58771 | DILEEM-01(110V50/60HZ) 51618 | DILEEM-01(42V50HZ,48V60HZ) 51637 | DILEEM-01(24V50/60HZ) 51621 |
| 4 | 4 | 22 | DILEM-10(230V50/60HZ) 52302 | DILEM-10(110V50/60HZ) 21455 | DILEM-10(42V50HZ,48V60HZ) 51782 | DILEM-10(24V50/60HZ) 21417 |
| 4 | 4 | 22 | DILEM-01(230V50/60HZ) 51114 | DILEM-01(110V50/60HZ) 20436 | DILEM-01(42V50HZ,48V60HZ) 51791 | DILEM-01(24V50/60HZ) 20402 |
| 3 | 3.5 | 22 | DILM7-10(230V50/60HZ) 276558 | DILM7-10(110V50/60HZ) 276556 | DILM7-10(42V50HZ,48V60HZ) 276546 | DILM7-10(24V50/60HZ) 276554 |
| 3 | 3.5 | 22 | DILM7-01(230V50/60HZ) 276593 | DILM7-01(110V50/60HZ) 276591 | DILM7-01(42V50HZ,48V60HZ) 276581 | DILM7-01(24V50/60HZ) 276589 |
| 4 | 4.5 | 22 | DILM9-10(230V50/60HZ) 276698 | DILM9-10(110V50/60HZ) 276696 | DILM9-10(42V50HZ,48V60HZ) 276686 | DILM9-10(24V50/60HZ) 276694 |
| 4 | 4.5 | 22 | DILM9-01(230V50/60HZ) 276733 | DILM9-01(110V50/60HZ) 276731 | DILM9-01(42V50HZ,48V60HZ) 276721 | DILM9-01(24V50/60HZ) 276729 |
| 5.5 | 6.5 | 22 | DILM12-10(230V50/60HZ) 276838 | DILM12-10(110V50/60HZ) 276836 | DILM12-10(42V50HZ,48V60HZ) 276826 | DILM12-10(24V50/60HZ) 276834 |
| 5.5 | 6.5 | 22 | DILM12-01(230V50/60HZ) 276873 | DILM12-01(110V50/60HZ) 276871 | DILM12-01(42V50HZ,48V60HZ) 276861 | DILM12-01(24V50/60HZ) 276869 |
| 7.5 | 11 | 40 | DILM17-10(230V50/60HZ) 277012 | DILM17-10(110V50/60HZ) 277010 | DILM17-10(42V50HZ,48V60HZ) 277000 | DILM17-10(24V50/60HZ) 277008 |
| 7.5 | 11 | 40 | DILM17-01(230V50/60HZ) 277044 | DILM17-01(110V50/60HZ) 277042 | DILM17-01(42V50HZ,48V60HZ) 277032 | DILM17-01(24V50/60HZ) 277040 |
| 11 | 14 | 45 | DILM25-10(230V50/60HZ) 277140 | DILM25-10(110V50/60HZ) 277138 | DILM25-10(42V50HZ,48V60HZ) 277128 | DILM25-10(24V50/60HZ) 277136 |
| 11 | 14 | 45 | DILM25-01(230V50/60HZ) 277172 | DILM25-01(110V50/60HZ) 277170 | DILM25-01(42V50HZ,48V60HZ) 277160 | DILM25-01(24V50/60HZ) 277168 |
| 15 | 17 | 45 | DILM32-10(230V50/60HZ) 277268 | DILM32-10(110V50/60HZ) 277266 | DILM32-10(42V50HZ,48V60HZ) 277256 | DILM32-10(24V50/60HZ) 277264 |
| 15 | 17 | 45 | DILM32-01(230V50/60HZ) 277300 | DILM32-01(110V50/60HZ) 277298 | DILM32-01(42V50HZ,48V60HZ) 277288 | DILM32-01(24V50/60HZ) 277296 |
| 18.5 | 23 | 60 | DILM40(230V50/60HZ) 277806 | DILM40(110V50/60HZ) 277772 | DILM40(42V50HZ,48V60HZ) 277762 | DILM40(24V50/60HZ) 277770 |
| 22 | 30 | 80 | DILM50(230V50/60HZ) 277870 | DILM50(110V50/60HZ) 277836 | DILM50(42V50HZ,48V60HZ) 277826 | DILM50(24V50/60HZ) 277834 |
| 30 | 35 | 98 | DILM65(230V50/60HZ) 277902 | DILM65(110V50/60HZ) 277900 | DILM65(42V50HZ,48V60HZ) 277890 | DILM65(24V50/60HZ) 277898 |
| 37 | 63 | 110 | DILM80(230V50/60HZ) 239410 | DILM80(110V50/60HZ) 239408 | DILM80(42V50HZ,48V60HZ) 239394 | DILM80(24V50/60HZ) 239406 |
| 45 | 75 | 130 | DILM95(230V50/60HZ) 239488 | DILM95(110V50/60HZ) 239486 | DILM95(42V50HZ,48V60HZ) 239476 | DILM95(24V50/60HZ) 239484 |
| 55 | 90 | 160 | DILM115(RAC240) 239548 | DILM115(RAC120) 239547 | DILM115(RAC48) 239546 | DILM115(RAC24) 239545 |
| 75 | 96 | 190 | DILM150(RAC240) 239588 | DILM150(RAC120) 239587 | DILM150(RAC48) 239586 | DILM150(RAC24) 239585 |

¹ Conventional thermal current, 3 pole, 50-60 Hz, open at 40 °C
RAC240±190-240V 50/60Hz; RAC±100-120V 50/60Hz; RAC±42-48V 50/60Hz; RAC24±24V 50/60Hz
For more contactors and coil voltages please look in our [Online catalog: www.eaton.eu/ecat](http://www.eaton.eu/ecat)

| AC3 380 V 400 V P kW | AC3 660 V 690 V P kW | AC1 $I_{th}=I_e$ A*1 | Part no. Article No. | Part no. Article No. | Part no. Article No. |
|--|----------------------------------|----------------------------|---|--------------------------------------|---|
| | | 10 | DILER-40-C(230V50/60HZ) 231850 | DILER-40-C(48V50HZ) 231835 | DILER-40-C(24V50/60HZ) 231847 |
| - | - | 10 | DILER-31-C(230V50/60HZ) 231827 | DILER-31-C(48V50HZ) 231812 | DILER-31-C(24V50/60HZ) 231824 |
| - | - | 10 | DILER-22-C(230V50/60HZ) 231802 | DILER-22-C(48V50HZ) 231787 | DILER-22-C(24V50/60HZ) 231799 |
| - | - | 16 | DILAC-40(230V50/60HZ) 276449 | DILAC-40(48V50HZ) 276432 | DILAC-40(24V50/60HZ) 276445 |
| - | - | 16 | DILAC-31(230V50/60HZ) 276481 | DILAC-31(48V50HZ) 276464 | DILAC-31(24V50/60HZ) 276477 |
| - | - | 16 | DILAC-22(230V50/60HZ) 276513 | DILAC-22(48V50HZ) 276496 | DILAC-22(24V50/60HZ) 276509 |
| 3 | 3 | 22 | DILEEM-10-C(230V50/60HZ) 230049 | - | - |
| 4 | 4 | 22 | DILEM-10-C(230V50/60HZ) 231667 | DILEM-10-C(48V50HZ) 231652 | DILEM-10-C(24V50/60HZ) 231664 |
| 4 | 4 | 22 | DILEM-01-C(230V50/60HZ) 231690 | DILEM-01-C(48V50HZ) 231675 | DILEM-01-C(24V50/60HZ) 231687 |
| 3 | 3.5 | 22 | DILMC7-10(230V50/60HZ) 277397 | DILMC7-10(48V50HZ) 277380 | DILMC7-10(24V50/60HZ) 277393 |
| 3 | 3.5 | 22 | DILMC7-01(230V50/60HZ) 277429 | DILMC7-01(48V50HZ) 277412 | DILMC7-01(24V50/60HZ) 277425 |
| 4 | 4.5 | 22 | DILMC9-10(230V50/60HZ) 277461 | DILMC9-10(48V50HZ) 277444 | DILMC9-10(24V50/60HZ) 277457 |
| 4 | 4.5 | 22 | DILMC9-01(230V50/60HZ) 277493 | DILMC9-01(48V50HZ) 277476 | DILMC9-01(24V50/60HZ) 277489 |
| 5.5 | 6.5 | 22 | DILMC12-10(230V50/60HZ) 277525 | DILMC12-10(48V50HZ) 277508 | DILMC12-10(24V50/60HZ) 277521 |
| 5.5 | 6.5 | 22 | DILMC12-01(230V50/60HZ) 277557 | DILMC12-01(48V50HZ) 277540 | DILMC12-01(24V50/60HZ) 277553 |
| Spring-cage terminals on auxiliary and control circuit terminals | | | | | |
| 7.5 | 11 | 40 | DILMC17-10(230V50/60HZ) 277589 | DILMC17-10(48V50HZ) 277571 | DILMC17-10(24V50/60HZ) 277585 |
| 7.5 | 11 | 40 | DILMC17-01(230V50/60HZ) 277619 | DILMC17-01(48V50HZ) 277601 | DILMC17-01(24V50/60HZ) 277615 |
| 11 | 14 | 45 | DILMC25-10(230V50/60HZ) 277649 | DILMC25-10(48V50HZ) 277631 | DILMC25-10(24V50/60HZ) 277645 |
| 11 | 14 | 45 | DILMC25-01(230V50/60HZ) 277679 | DILMC25-01(48V50HZ) 277661 | DILMC25-01(24V50/60HZ) 277675 |
| 15 | 17 | 45 | DILMC32-10(230V50/60HZ) 277709 | DILMC32-10(48V50HZ) 277691 | DILMC32-10(24V50/60HZ) 277705 |
| 15 | 17 | 45 | DILMC32-01(230V50/60HZ) 277739 | DILMC32-01(48V50HZ) 277721 | DILMC32-01(24V50/60HZ) 277735 |
| 18.5 | 23 | 60 | DILMC40(230V50/60HZ) 277973 | DILMC40(48V50HZ) 277955 | DILMC40(24V50/60HZ) 277969 |
| 22 | 30 | 80 | DILMC50(230V50/60HZ) 278003 | DILMC50(48V50HZ) 277985 | - |
| 30 | 35 | 98 | DILMC65(230V50/60HZ) 278033 | DILMC65(48V50HZ) 278015 | - |
| 37 | 63 | 110 | - | DILMC80(48V50HZ) 239606 | - |
| 45 | 75 | 130 | - | DILMC95(48V50HZ) 239657 | - |





*1 Conventional thermal current, 3 pole, 50-60 Hz, open at 40 °C





For more contactors and coil voltages please look in our [Online catalog: www.eaton.eu/ecat](http://www.eaton.eu/ecat)

Contactors

Comfort devices and standard devices greater than 170 A

Moeller® series

| | | | AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no. | AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no. | DC operation 24 V DC Part no. Article no. | |
|---|-----|---------------------------------|---|---|--|--------------------------------------|
| Max. rating for three-phase motors, 50 - 60 Hz | | | | | | |
| AC-3 | | | | | | |
| 380 V 660 V | | | | | | |
| 400 V 690 V | | | | | | |
| Rated operational current | | | | | | |
| AC-1 | | | | | | |
| Conventional free air thermal current, 3 pole, 50 - 60 Hz | | | | | | |
| Open at 40 °C | | | | | | |
| P | P | I _{th} =I _e | | | | |
| kW | kW | A | | | | |
| Comfort devices DILM | | | | | | |
| Screw connection | | | | | | |
|  | 90 | 140 | 337 | DILM185A/22(RAC240) 139537 | DILM185A/22(RAC120) 139536 | DILM185A/22(RDC24) 139540 |
| | | 110 | 150 | 386 | DILM225A/22(RAC240) 139547 | DILM225A/22(RAC120) 139546 |
|  | 132 | 240 | 430 | DILM250/22(RA250) 208201 | DILM250/22(RA110) 208200 | DILM250/22(RDC48) 208199 |
| | 160 | 240 | 490 | DILM300A/22(RA250) 139556 | DILM300A/22(RA110) 139555 | DILM300A/22(RDC48) 139554 |
| | 200 | 344 | 612 | DILM400/22(RA250) 208209 | DILM400/22(RA110) 208208 | DILM400/22(RDC48) 208207 |
| | 250 | 344 | 800 | DILM500/22(RA250) 208213 | DILM500/22(RA110) 208212 | DILM500/22(RDC48) 208211 |
|  | 315 | 560 | 980 | DILM580/22(RA250) 208216 | DILM580/22(RA110) 208215 | - |
| | 355 | 630 | 1041 | DILM650/22(RA250) 208219 | DILM650/22(RA110) 208218 | - |
| | 400 | 720 | 1102 | DILM750/22(RA250) 208222 | DILM750/22(RA110) 208221 | - |
| | 450 | 750 | 1225 | DILM820/22(RA250) 208225 | DILM820/22(RA110) 208224 | - |
| | 560 | 1000 | 1225 | DILM1000/22(RA250) 267214 | - | - |
| | | | | | | |
| Screw connection | | | | | | |
|  | 132 | 240 | 430 | DILM250-S/22(220-240V50/60HZ) 274190 | DILM250-S/22(110-120V50/60HZ) 274189 | - |
| | 160 | 240 | 490 | DILM300A-S/22(220-240V50/60HZ) 139559 | DILM300A-S/22(110-120V50/60HZ) 139558 | - |
| | 200 | 344 | 612 | DILM400-S/22(220-240V50/60HZ) 274196 | DILM400-S/22(110-120V50/60HZ) 274195 | - |
| | 250 | 344 | 800 | DILM500-S/22(220-240V50/60HZ) 274199 | DILM500-S/22(110-120V50/60HZ) 274198 | - |

| | | Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Open | | AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no. | AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no. | DC operation 24 V DC Part no. Article no. |
|---|---|---|--------------|--|--|---|
| | | at 40 °C | at 60 °C | | | |
| | | $I_{th}=I_e$ | $I_{th}=I_e$ | | | |
| | | A | A | | | |
| Basic devices DILMP | | | | | | |
| Screw terminals | | | | | | |
|  | 22 | 20 | | DILMP20(230V50HZ,240V60HZ) 276970 | DILMP20(110V50HZ,120V60HZ) 276967 | DILMP20(24VDC) 276985 |
| |  | 32 | 28 | | DILMP32-01(230V50HZ,240V60HZ) 118911 | DILMP32-01(110V50HZ,120V60HZ) 118912 |
| 32 | | 28 | | DILMP32-10(230V50HZ,240V60HZ) 109797 | DILMP32-10(110V50HZ,120V60HZ) 109790 | DILMP32-10(RDC24) 109811 |
| 45 | | 39 | | DILMP45-01(230V50HZ,240V60HZ) 118914 | DILMP45-01(110V50HZ,120V60HZ) 118915 | DILMP45-01(RDC24) 118916 |
| 45 | | 39 | | DILMP45-10(230V50HZ,240V60HZ) 109826 | DILMP45-10(110V50HZ,120V60HZ) 109819 | DILMP45-10(RDC24) 109840 |
|  | 63 | 54 | | DILMP63(230V50HZ,240V60HZ) 109855 | DILMP63(110V50HZ,120V60HZ) 109848 | DILMP63(RDC24) 109869 |
| | 63 | 54 | | DILMP63(RAC240) 167512 | - | - |
| | 80 | 69 | | DILMP80(230V50HZ,240V60HZ) 109884 | DILMP80(110V50HZ,120V60HZ) 109877 | DILMP80(RDC24) 109898 |
| | 80 | 69 | | DILMP80(RAC240) 167513 | - | - |
|  | 125 | 108 | | DILMP125(RAC240) 109905 | DILMP125(RAC120) 109903 | DILMP125(RDC24) 109910 |
| | 160 | 138 | | DILMP160(RAC240) 109915 | DILMP160(RAC120) 109913 | DILMP160(RDC24) 109920 |
| | 200 | 172 | | DILMP200(RAC240) 109925 | DILMP200(RAC120) 109923 | DILMP200(RDC24) 109930 |

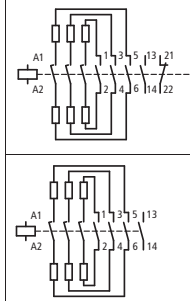
| | | | | | | |
|--|---|-------|-------|-------|------------------|-------------------------|
| | Rated power of three-phase capacitors 50 - 60 Hz | | | | Contact sequence | Part no. Article no. |
| | Open | | | | | |
| | 230 V | 400 V | 525 V | 690 V | | |
| | kVAr | kVAr | kVAr | kVAr | | |

DILK contactors for capacitors

With series resistors
Basic Units



| | | | |
|-----|------|------|------|
| 7.5 | 12.5 | 16.7 | 20 |
| 11 | 20 | 25 | 33.3 |
| 15 | 25 | 33.3 | 40 |
| 20 | 33.3 | 40 | 55 |
| 25 | 50 | 65 | 85 |



| |
|---|
| DILK12-11(230V50HZ,240V60HZ) 293988 |
| DILK20-11(230V50HZ,240V60HZ) 294010 |
| DILK25-11(230V50HZ,240V60HZ) 294032 |
| DILK33-10(230V50HZ,240V60HZ) 294054 |
| DILK50-10(230V50HZ,240V60HZ) 294076 |

| | | | | | | |
|--|---------------------------|-------------|-------------|-------------|---|-------------------------|
| | Rated operational current | | | | Conventional free air thermal current, 3 pole, 50 - 60 Hz AC-1 | Part no. Article no. |
| | AC-5a | | AC-5b | | at 60 °C | |
| | 220 V 230 V | 380 V 400 V | 220 V 230 V | 380 V 400 V | Open | |
| | I_e | I_e | I_e | I_e | $I_{th} = I_e$ | |
| | A | A | A | A | A | |

Lighting contactors DILL



| | | | | |
|----|----|----|----|----|
| 12 | 12 | 14 | 14 | 24 |
| 18 | 18 | 21 | 21 | 35 |
| 20 | 20 | 27 | 27 | 40 |


| |
|--|
| DILL12(230V50HZ,240V60HZ) 104402 |
| DILL18(230V50HZ,240V60HZ) 104405 |
| DILL20(230V50HZ,240V60HZ) 104408 |

Switchgear for lighting systems

| | DIL | L12 | L18 | L20 | M7 | M9 | M12 | M17 | M25 | M32 | M40 | M50 |
|--|----------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|
| Permissible compensation capacitance | C_{max} [mF] | 470 | 470 | 470 | 47 | 80 | 100 | 220 | 330 | 470 | 470 | 500 |
| Filament lamp | I_e [A] | 14 | 21 | 27 | 6 | 7.5 | 10 | 14 | 21 | 27 | 33 | 42 |
| Mercury blended lamps | I_e [A] | 12 | 16 | 23 | 5 | 6.5 | 8.5 | 12 | 16 | 23 | 30 | 38 |
| Fluorescent lamps, conventional -reactor – starter – connection | I_e [A] | 20 | 26 | 35 | 9 | 10 | 15 | 20 | 26 | 35 | 41 | 45 |
| Fluorescent lamps, duo circuit (series compensated) | I_e [A] | 20 | 26 | 35 | 5.5 | 8 | 13 | 15 | 22.5 | 29 | 36 | 47 |
| Electronic upstream devices | I_e [A] | 12 | 18 | 20 | 5 | 6.5 | 8.5 | 12 | 17.5 | 22.5 | 28 | 35 |
| High-pressure mercury-arc lamps | I_e [A] | 12 | 18 | 20 | 3.5 | 6 | 10 | 12 | 17.5 | 20 | 25 | 30 |
| Metal-halide lamps | I_e [A] | 12 | 18 | 20 | 3.5 | 6 | 10 | 12 | 17.5 | 20 | 25 | 30 |
| High-pressure sodium lamps | I_e [A] | 12 | 18 | 20 | 3.5 | 6 | 10 | 12 | 17.5 | 20 | 25 | 30 |
| Low-pressure sodium lamps | I_e [A] | 7.5 | 10 | 12 | 3 | 4 | 6 | 7.5 | 10 | 12 | 15 | 22 |


































| | DIL | M65 | M80 | M95 | M115 | M150 | M185A | M225A | M250 | M300A | M400 | M500 |
|--|----------------|------|-----|------|------|------|-------|-------|------|-------|------|------|
| Permissible compensation capacitance | C_{max} [mF] | 500 | 550 | 620 | 830 | 970 | 2055 | 2300 | 2600 | 3000 | 3250 | 3500 |
| Filament lamp | I_e [A] | 55 | 67 | 79 | 95 | 125 | 153 | 187 | 208 | 249 | 332 | 415 |
| Mercury blended lamps | I_e [A] | 45 | 65 | 67 | 80 | 110 | 123 | 150 | 167 | 200 | 266 | 332 |
| Fluorescent lamps, conventional -reactor – starter – connection | I_e [A] | 55 | 95 | 100 | 125 | 145 | 207 | 237 | 263 | 300 | 375 | 525 |
| Fluorescent lamps, duo circuit (series compensated) | I_e [A] | 59 | 71 | 95 | 100 | 138 | 186 | 213 | 236 | 270 | 338 | 473 |
| Electronic upstream devices | I_e [A] | 45.5 | 56 | 66.5 | 80.5 | 105 | 130 | 158 | 175 | 210 | 280 | 350 |
| High-pressure mercury vapor lamps | I_e [A] | 36 | 55 | 60 | 80 | 95 | 138 | 158 | 175 | 200 | 250 | 350 |
| Metal-halide lamps | I_e [A] | 36 | 55 | 60 | 80 | 95 | 138 | 158 | 175 | 200 | 250 | 350 |
| High-pressure sodium lamps | I_e [A] | 36 | 55 | 60 | 80 | 95 | 138 | 158 | 175 | 200 | 250 | 350 |
| Low-pressure sodium lamps | I_e [A] | 25 | 35 | 40 | 50 | 70 | 100 | 111 | 123 | 140 | 175 | 245 |

In compensated lamps, the sum of the capacitances must not exceed the contactors' max. permissible capacitor load (C_{max})!
The values in the table are for each contact in the contactors.

| Rated operational current AC-3 | Max. rating for three-phase motors, 50 - 60 Hz | | | | | Max. changeover time s | Part no. Article no. |
|---|--|-------------|-------------|---------|-------------|---------------------------|--|
| | AC-3 | | | | | | |
| | 380 V 400 V | 220 V 230 V | 380 V 400 V | 500 V | 660 V 690 V | | |
| I _e A | P kW | P kW | P kW | P kW | | | |
| Star-delta combinations SDAINL | | | | | | | |
| Operating frequency: maximum 30 starts per hour | | | | | | | |
|  | 12 | 3 | 5.5 | 5.5 | 5.5 | < 20 | SDAINLM12(230V50HZ,240V60HZ) 278286 |
| | 16 | 4 | 7.5 | 7.5 | 7.5 | < 20 | SDAINLM16(230V50HZ,240V60HZ) 278311 |
| | 22 | 5.5 | 11 | 11 | 11 | < 20 | SDAINLM22(230V50HZ,240V60HZ) 278336 |
| | 30 | 7.5 | 15 | 18.5 | 18.5 | < 20 | SDAINLM30(230V50HZ,240V60HZ) 278361 |
| | 45 | 11 | 22 | 30 | 22 | < 20 | SDAINLM45(230V50HZ,240V60HZ) 278386 |
| | 55 | 15 | 30 | 37 | 30 | < 20 | SDAINLM55(230V50HZ,240V60HZ) 278411 |
| | 70 | 18.5 | 37 | 45 | 37 | < 20 | SDAINLM70(230V50HZ,240V60HZ) 239895 |
| | 90 | 22 | 45 | 55 | 45 | < 20 | SDAINLM90(230V50HZ,240V60HZ) 239937 |
| | 115 | 30 | 55 | 75 | 55 | < 20 | SDAINLM115(230V50HZ,240V60HZ) 239963 |
| | 140 | 37 | 75 | 90 | 90 | < 20 | SDAINLM140(230V50HZ,240V60HZ) 240009 |
| | 165 | 45 | 90 | 110 | 132 | < 20 | SDAINLM165(230V50HZ,240V60HZ) 240035 |
| | 200 | 55 | 110 | 132 | 160 | < 20 | SDAINLM200(230V50HZ,240V60HZ) 101010 |
| | 260 | 75 | 132 | 160 | 160 | < 20 | SDAINLM260(230V50HZ,240V60HZ) 101031 |




Components for self-assembly of star-delta combinations









Max. motor rating for three-phase motors 50 – 60 Hz

| AC-3 | | | | | Changeover time ¹⁾ | | | Individual components of the combination | | | | Spare auxiliary contacts | | |
|-------|-------|-------|-------|--------|-------------------------------|------------|------------|--|-------------------------------------|------------------------------------|-----------------------------|---|---|---|
| 230 V | 400 V | 500 V | 690 V | 1000 V | up to 12 s | up to 20 s | up to 30 s | Mains contactor Q11 Part no. DIL | Delta contactor Q15 Part no. DIL | Star contactor Q13 Part no. DIL | Timing relay K1 Part no. | Q11 | Q15 | Q13 |
| kW | kW | kW | kW | kW | | | | | | | | | | |
| 90 | 160 | 200 | 250 | 132 | ● | ● | ● | M185A/22 | M185A/22 | M115/22 | ETR4-51 |  |  |  |
| 110 | 200 | 250 | 315 | 160 | ● | ● | – | M225A/22 | M225A/22 | M150/22 | ETR4-51 |  |  |  |
| 132 | 250 | 315 | 400 | 200 | ● | ● | ● | M250/22 | M250/22 | M185A/22 | ETR4-51 |  |  |  |
| 160 | 300 | 355 | 450 | 200 | ● | ● | ● | M300A/22 | M300A/22 | M185A/22 | ETR4-51 |  |  |  |
| 200 | 355 | 450 | 560 | 220 | ● | ● | – | M400/22 | M400/22 | M250/22 | ETR4-51 |  |  |  |
| 250 | 450 | 560 | 600 | 220 | ● | ● | ● | M500/22 | M500/22 | M300A/22 | ETR4-51 |  |  |  |
| 300 | 560 | 710 | 900 | 355 | ● | ● | ● | M580/22 | M580/22 | M400/22 | ETR4-51 |  |  |  |
| 350 | 630 | 750 | 950 | 355 | ● | ● | ● | M650/22 | M650/22 | M400/22 | ETR4-51 |  |  |  |
| 400 | 710 | 900 | 1200 | 1400 | ● | ● | ● | M750/22 | M750/22 | M580/22 | ETR4-51 |  |  |  |
| 450 | 800 | 950 | 1300 | 1400 | ● | ● | ● | M820/22 | M820/22 | M580/22 | ETR4-51 |  |  |  |
| 560 | 1000 | 1200 | 1700 | 1700 | ● | ● | – | M1000/22 | M1000/22 | M650/22 | ETR4-51 |  |  |  |






Notes





¹⁾ Longer changeover times please enquire





| | Rated operational current AC-3 380 V 400 V I_e A | Max. rating for three-phase motors, 50 - 60 Hz | | | | | | Part no. Article no. |
|--|--|--|------------------------|------------------------|------------------------|------------------------|---|--|
| | | AC-3 | | | AC-4 | | | |
| | | 220 V 230 V P kW | 380 V 400 V P kW | 660 V 690 V P kW | 220 V 230 V P kW | 380 V 400 V P kW | 660 V 690 V P kW | |
| DIUL reversing combinations | | | | | | | | |
| AC operation | | | | | | | | |
|  | 9 | 2.2 | 4 | 4 | 1.5 | 3 | 3 | DIULEM/21(MV)(230V50HZ,240V60HZ) 051849 |
| | 9 | 2.2 | 4 | 4 | 1.5 | 3 | 3 | DIULEM/21(MV-G)(24VDC) 214655 |
|  | 7 | 2.2 | 3 | 3.5 | 1 | 2.2 | 2.9 | DIULM7/21(230V50HZ,240V60HZ) 278061 |
| | 7 | 2.2 | 3 | 3.5 | 1 | 2.2 | 2.9 | DIULM7/21(24VDC) ²⁾ 107021 |
| | 9 | 2.5 | 4 | 4.5 | 1.5 | 2.5 | 3.6 | DIULM9/21(230V50HZ,240V60HZ) 278086 |
| | 9 | 2.5 | 4 | 4.5 | 1.5 | 2.5 | 3.6 | DIULM9/21(24VDC) 107022 |
| | 12 | 3.5 | 5.5 | 6.5 | 2 | 3 | 4.4 | DIULM12/21(230V50HZ,240V60HZ) 278111 |
| | 12 | 3.5 | 5.5 | 6.5 | 2 | 3 | 4.4 | DIULM12/21(24VDC) 107023 |
|  | 18 | 5 | 7.5 | 11 | 2.5 | 4.5 | 6.5 | DIULM17/21(230V50HZ,240V60HZ) 278136 |
| | 18 | 5 | 7.5 | 11 | 2.5 | 4.5 | 6.5 | DIULM17/21(RDC24) 107024 |
| | 25 | 7.5 | 11 | 14 | 3.5 | 6 | 8.5 | DIULM25/21(230V50HZ,240V60HZ) 278161 |
| | 25 | 7.5 | 11 | 14 | 3.5 | 6 | 8.5 | DIULM25/21(RDC24) 107025 |
| | 32 | 10 | 15 | 17 | 4 | 7 | 10 | DIULM32/21(230V50HZ,240V60HZ) 278186 |
| | 32 | 10 | 15 | 17 | 4 | 7 | 10 | DIULM32/21(RDC24) 107026 |
| | 40 | 12.5 | 18.5 | 23 | 5 | 9 | 12 | DIULM40/11(230V50HZ,240V60HZ) 278211 |
| | 50 | 15.5 | 22 | 30 | 6 | 10 | 14 | DIULM50/11(230V50HZ,240V60HZ) 278236 |
| 65 | 20 | 30 | 35 | 7 | 12 | 17 | DIULM65/11(230V50HZ,240V60HZ) 278261 | |








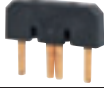


| Contacts | | For use with | | Part no. | Article no. | |
|---|--|--------------------|---|--|-------------------|--------|
| N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break | | | | | | |
| SmartWire-DT protective modules | | | | | | |
| For connecting the contactors to SmartWire-DT Per contactor 1 module necessary. | | | | | | |
|   | Messages Switch status Contactor, status of the digital inputs 1 and 2 Commands Contactor actuation | | DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC) | DIL-SWD-32-001 | 118560 | |
| | Messages Contactor switching position, status of the digital inputs 1 and 2, 1-0-A switch position Commands Contactor actuation | | | DIL-SWD-32-002 | 118561 | |
| Auxiliary contact modules | | | | | | |
| With interlocked opposing contacts, except for ...XHI(C)V | | | | | | |
| Top mounting auxiliary contacts | | | | | | |
| Screw terminals  | 1 N/O | 1 NC | DILM(C)7-10... DILM(C)9-10... DILM(C)12-10... DILM(C)15-10... DILM(C)17-10... DILM(C)25-10... DILM(C)32-10... DILM38-10... DILMP20... DILMP32-10... DILMP45-10... | DILM32-XHI11 | 277376 | |
| | - | 2 NC | | DILM32-XHI02 | 277375 | |
|  | 2 N/O | 2 NC | | DILM32-XHI22 | 277377 | |
| | 3 N/O | 1 NC | | DILM32-XHI31 | 106112 | |
| Spring-loaded terminals  | 1 N/O | 1 NC | | DILM32-XHIC11 | 277751 | |
| | - | 2 NC | | DILM32-XHIC02 | 277750 | |
|  | 2 N/O | 2 NC | | DILM32-XHIC22 | 277752 | |
| | | | | | | |
| Screw terminals  | 2 N/O | - | | DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45... | DILA-XHI20 | 276422 |
| | 1 N/O | 1 NC | | | DILA-XHI11 | 276421 |
| - | 2 NC | DILA-XHI02 | | | 276420 | |
| 1 N/O _E | 1 NC _L | DILA-XHIV11 | | | 276423 | |
|  | 4 N/O | - | | | DILA-XHI40 | 276428 |
| | 3 N/O | 1 NC | | | DILA-XHI31 | 276427 |
| | 2 N/O | 2 NC | DILA-XHI22 | | 276426 | |
| | 1 N/O | 3 NC | DILA-XHI13 | | 276425 | |
| | - | 4 NC | DILA-XHI04 | | 276424 | |
| | 1 N/O | 1 NC | DILA-XHIV22 | | 276429 | |
| | 1 N/O _E | 1 NC _L | | | | |
| | | | | | | |



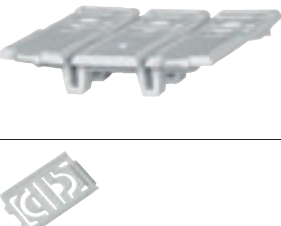


Switching, Protecting and Driving Motors

| | Contacts N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break | For use with | Part no. | Article no. | | |
|---|--|---|--|--|---|----------------------|
| Auxiliary contact modules | | | | | | |
| With interlocked opposing contacts, except for ...XHI(C)V | | | | | | |
| Top mounting auxiliary contacts | | | | | | |
| Screw terminals  | 1 N/O (for electronic applications) | 1 NC (for electronic applications) | DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45... | DILA-XHIR11 | 110140 | |
| | 2 N/O (1 N/O above microswitch for electronic applications) | 2 NC (1 NC above microswitch for electronic applications) | | DILA-XHIR22 | 139580 | |
| Spring-loaded terminals  | 2 N/O | - | | DILA-XHIC20 | 276528 | |
| | 1 N/O | 1 NC | | DILA-XHIC11 | 276527 | |
| | - | 2 NC | | DILA-XHIC02 | 276526 | |
| | 1 N/O _E | 1 NC _L | | DILA-XHICV11 | 276529 | |
| Spring-loaded terminals  | 4 N/O | - | | DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45... | DILA-XHIC40 | 276534 |
| | 3 N/O | 1 NC | | | DILA-XHIC31 | 276533 |
| | 2 N/O | 2 NC | | | DILA-XHIC22 | 276532 |
| | 1 N/O | 3 NC | | | DILA-XHIC13 | 276531 |
| | - | 4 NC | DILA-XHIC04 | | 276530 | |
| | 1 N/O | 1 NC | DILA-XHICV22 | | 276535 | |
| | 1 N/O _E | 1 NC _L | | | | |
| | Screw terminals  | 2 N/O | - | | DILM40... DILM50... DILM65... DILM72... DILM80... DILM95... DILM115... DILM150... DILM170... DILMP63... DILMP80... DILMP125... DILMP160... DILMP200... | DILM150-XHI20 |
| 1 N/O | | 1 NC | DILM150-XHI11 | | | 277946 |
| 1 N/O | | 1 NC | DILM150-XHIA11 | | | 283463 |
| - | | 2 NC | DILM150-XHI02 | 277947 | | |
| 4 N/O | | - | DILM150-XHI40 | 277948 | | |
| Screw terminals  | 3 N/O | 1 NC | DILM150-XHI31 | 277949 | | |
| | 2 N/O | 2 NC | DILM150-XHI22 | 277950 | | |
| | 2 N/O | 2 NC | DILM150-XHIA22 | 283464 | | |
| | 1 N/O | 3 NC | DILM150-XHI13 | 277951 | | |
| | - | 4 NC | DILM150-XHI04 | 277952 | | |
| | 1 N/O | 1 NC | DILM150-XHIV22 | 277953 | | |
| | 1 N/O _E | 1 NC _L | | | | |

| Contacts | | For use with | | Part no. | Article no. | |
|--|--------------------|-------------------|--|--------------------------|---------------------------|--------|
| N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break | | | | | | |
| Auxiliary contact modules | | | | | | |
| With interlocked opposing contacts, except for ...XHI(C)V | | | | | | |
| Side-mounting auxiliary contact | | | | | | |
|  | 1 N/O | - | DILM7... DILM9... DILM12... DILM15... DILMP20... DILA... | DILA-XHI10-S | 115948 | |
| | - | 1 NC | | | DILA-XHI01-S | 115949 |
|  | 1 N/O | 1 NC | DILM17... DILM25... DILM32... DILM38... DILM250 - DILH2600 | DILM32-XHI11-S | 101371 | |
| | 1 N/O | 1 NC | | | DILM820-XHI11-SI | 208281 |
| | 1 N/O | 1 NC | | | DILM820-XHI11-SA | 208282 |
| | 1 N/O _E | 1 NC _L | | | DILM820-XHI11V-SI | 208283 |
|  | 1 N/O | 1 NC | DILM40 - DILM225A DILMP63 - DILMP200 | DILM1000-XHI11-SI | 278425 | |
| | 1 N/O _E | 1 NC _L | | | DILM1000-XHIV11-SI | 278426 |
| | 1 N/O | 1 NC | | | DILM1000-XHI11-SA | 278427 |
|  | 1 N/O | - | DILMC7... DILMC9... DILMC12... DILMC15... DILAC... | DILA-XHIC10-S | 115950 | |
| | | 1 NC | | | DILA-XHIC01-S | 115951 |

| For use with | | AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no. | AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no. | DC operation 24 V DC Part no. Article no. |
|---|---------------------------------------|--|--|---|
| Suppressors | | | | |
| RC suppressors | | | | |
|  | DILM7 - DILM15 DILMP20 DILA | DILM12-XSPR240 281200 | DILM12-XSPR240 281200 | - |
| | DILM17 - DILM32 DILMP32 - DILMP45 | DILM32-XSPR240 281203 | DILM32-XSPR240 281203 | - |
| | DILM40 - DILM95 DILMP63 - DILMP200 | DILM95-XSPR240 281206 | DILM95-XSPR240 281206 | - |
| Varistor suppressors | | | | |
|  | DILM7 - DILM15 DILMP20 DILA | DILM12-XSPV240 281210 | DILM12-XSPV130 281209 | - |
| | DILM17 - DILM32 DILMP32 - DILMP45 | DILM32-XSPV240 281214 | DILM32-XSPV130 281213 | - |
| | DILM40 - DILM95 DILMP63 - DILMP200 | DILM95-XSPV240 281218 | DILM95-XSPV130 281217 | - |
| Varistor suppressors with integrated LED | | | | |
|  | DILM7 - DILM12 DILMP20 DILA | DILM12-XSPVL240 281221 | DILM12-XSPVL240 281221 | - |
| | DILM17 - DILM32 DILMP32 - DILMP45 | DILM32-XSPVL240 281223 | DILM32-XSPVL240 281223 | - |
| | DILM40 - DILM95 DILMP63 - DILMP200 | DILM95-XSPVL240 281225 | DILM95-XSPVL240 281225 | - |
| Free-wheel diode suppressor | | | | |
|  | DILM7 - DILM15 DILMP20 DILA | - | - | DILM12-XSPD 101672 |

| | For use with | Part no. Article no. |
|---|--|------------------------------|
| Mechanical interlock | | |
|  | DILM7 - DILM15 DILMP20 DILA | DILM12-XMV 281196 |
|  | DILM17 - DILM38 DILMP32 - DILMP45 | DILM32-XMV 281197 |
| | DILM40 - DILM72 DILMP63 - DILMP80 | DILM65-XMV 281198 |
| | DILM80 - DILM170 DILMP125 - DILMP200 | DILM150-XMV 240081 |
|  | DILM185A, DILM225A, DILM250, DILM300A, DILM400, DILM500, | DILM500-XMV 208289 |
| | DILM580, DILM650 DILM750, DILM820 DILM1000 | DILM820-XMV 208288 |
| Paralleling links for main contacts | | |
| Consisting of 2 paralleling links | | |
|  | DILM7 - DILM15 | DILM12-XP1 281193 |
|  | DILM17 - DILM32 | DILM32-XP1 281194 |
|  | DILM40 - DILM72 | DILM65-XP1 281195 |
| | DILM80 - DILM170 | DILM150-XP1 284769 |
| | DILM185A | DILM185-XP1 208292 |
| Star-point bridges | | |
|  | DILM7 - DILM15 | DILM12-XS1 281190 |
|  | DILM17 - DILM32 | DILM32-XS1 281191 |
|  | DILM40 - DILM72 | DILM65-XS1 281192 |
| | DILM80 - DILM170 | DILM150-XS1 284768 |
| | DILM185A - DILM400 | DILM400-XS1 208291 |
|  | DILM500 | DILM500-XS1 208290 |

| | For use with | Part no. Article no. |
|--|--|---------------------------------|
| Star-delta wiring kit Including star-point bridge | | |
| Main current wiring for star-delta combination | | |
|  | DILM7/9/12/15 mains contactor DILM7/9/12/15 delta contactor DILM7/9/12/15 star contactor | DILM12-XSL 283130 |
| | DILM17/25/32 mains contactor DILM17/25/32 delta contactor DILM17/25/32 star contactor | DILM32-XSL 283131 |
| | DILM40/50/65 mains contactor DILM40/50/65 delta contactor DILM40/50/65 star contactor | DILM65-XSL 101058 |
| Reversing wiring kits | | |
| Main current wiring for reversing combinations | | |
|  | DILM7 DILM9 DILM12 | DILM12-XRL 283108 |
| | DILM17 DILM25 DILM32 | DILM32-XRL 283109 |
| | DILM40 DILM50 DILM65 | DILM65-XRL 101057 |
| IP2X cover | | |
|  | DILM17 DILM25 DILM32 DILM38 DILMP32 DILMP45 | DILM32-XIP2X 118855 |
| | DILM40 DILM50 DILM65 DILM72 DILMP63 DILMP80 | DILM65-XIP2X 106491 |
| | DILM80 DILM95 DILM115 DILM150 DILM170 DILMP125 DILMP160 DILMP200 ZB150 | DILM150-XIP2X 106492 |
| Covers | | |
|  | DILM185A DILM225A Z5-... FF225A | DILM225A-XHB 139560 |
| | DILM250 DILM300A DILM400 | DILM400-XHB 208287 |
| | DILM500 DILM570 | DILM500-XHB 208286 |
| | DILM580 DILM650 | DILM650-XHB 208285 |
| | DILM750 DILM820, DILM1000 | DILM820-XHB 208284 |
| Cable terminal block | | |
| With control cable connection consisting of 3 box terminals Connection options: round conductors, flexible and stranded, ribbon cables. | | |
|  | DILM185A DILM225A | DILM225A-XKU-S 139561 |
| | DILM250 DILM300A DILM400 | DILM400-XKU-S 208293 |



Setting range
Overload releases

I_r
A



| For use with DILEM | | DILM7 - DILM15 | | DILM17 - DILM38 | | DILM40 - DILM72 | | DILM80 - DILM170 | |
|------------------------------|-------------|-----------------------|-------------|------------------------|-------------|------------------------|-------------|-------------------------|-------------|
| Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |

Overload relay ZE, ZB

| | | | | | | | | | | |
|-------------|----------------|--------|------------------|--------|------------------|--------|----------------|--------|------------------|--------|
| 0.1 - 0.16 | ZE-0,16 | 014263 | ZB12-0,16 | 278431 | ZB32-0,16 | 278442 | - | - | - | - |
| 0.16 - 0.24 | ZE-0,24 | 014285 | ZB12-0,24 | 278432 | ZB32-0,24 | 278443 | - | - | - | - |
| 0.24 - 0.4 | ZE-0,4 | 014300 | ZB12-0,4 | 278433 | ZB32-0,4 | 278444 | - | - | - | - |
| 0.4 - 0.6 | ZE-0,6 | 014333 | ZB12-0,6 | 278434 | ZB32-0,6 | 278445 | - | - | - | - |
| 0.6 - 1 | ZE-1,0 | 014376 | ZB12-1 | 278435 | ZB32-1 | 278446 | - | - | - | - |
| 1 - 1.6 | ZE-1,6 | 014432 | ZB12-1,6 | 278436 | ZB32-1,6 | 278447 | - | - | - | - |
| 1.6 - 2.4 | ZE-2,4 | 014479 | ZB12-2,4 | 278437 | ZB32-2,4 | 278448 | - | - | - | - |
| 2.4 - 4 | ZE-4 | 014518 | ZB12-4 | 278438 | ZB32-4 | 278449 | - | - | - | - |
| 4 - 6 | ZE-6 | 014565 | ZB12-6 | 278439 | ZB32-6 | 278450 | - | - | - | - |
| 6 - 9 | ZE-9 | 014708 | - | - | - | - | - | - | - | - |
| 6 - 10 | - | - | ZB12-10 | 278440 | ZB32-10 | 278451 | ZB65-10 | 278455 | - | - |
| 9 - 12 | ZE-12 | 014752 | ZB12-12 | 278441 | - | - | - | - | - | - |
| 10 - 16 | - | - | - | - | - | - | ZB65-16 | 278456 | - | - |
| 12 - 16 | - | - | ZB12-16 | 290168 | - | - | - | - | - | - |
| 16 - 24 | - | - | - | - | ZB32-24 | 278453 | ZB65-24 | 278457 | - | - |
| 24 - 32 | - | - | - | - | ZB32-32 | 278454 | - | - | - | - |
| 24 - 40 | - | - | - | - | - | - | ZB65-40 | 278458 | - | - |
| 32 - 38 | - | - | - | - | ZB32-38 | 112474 | - | - | - | - |
| 35 - 50 | - | - | - | - | - | - | - | - | ZB150-50 | 278462 |
| 40 - 57 | - | - | - | - | - | - | ZB65-57 | 278459 | - | - |
| 50 - 65 | - | - | - | - | - | - | ZB65-65 | 278460 | - | - |
| 50 - 70 | - | - | - | - | - | - | - | - | ZB150-70 | 278463 |
| 65 - 75 | - | - | - | - | - | - | ZB65-75 | 108792 | - | - |
| 70 - 100 | - | - | - | - | - | - | - | - | ZB150-100 | 278464 |
| 95 - 125 | - | - | - | - | - | - | - | - | ZB150-125 | 278465 |
| 120 - 150 | - | - | - | - | - | - | - | - | ZB150-150 | 278466 |
| 145 - 175 | - | - | - | - | - | - | - | - | ZB150-175 | 107316 |

Overload relays

Overload relay, thermistor overload relay for machine protection

Moeller® Series

| | Setting range Overload releases I_r A | For use with | Part no. | Article no. |
|--|---|--------------|----------|-------------|
| | | | | |

Overload relay Z5



| |
|-----------|
| 50 - 70 |
| 70 - 100 |
| 95 - 125 |
| 120 - 160 |
| 160 - 220 |
| 200 - 250 |

DILM185A
DILM225A

| | |
|---------------|--------|
| Z5-70/FF225A | 139572 |
| Z5-100/FF225A | 139573 |
| Z5-125/FF225A | 139574 |
| Z5-160/FF225A | 139575 |
| Z5-220/FF225A | 139576 |
| Z5-250/FF225A | 139577 |



| |
|-----------|
| 50 - 70 |
| 70 - 100 |
| 95 - 125 |
| 120 - 160 |
| 160 - 220 |
| 200 - 250 |
| 200 - 300 |

DILM250

DILM250
DILM300A

DILM300A

| | |
|--------------|--------|
| Z5-70/FF250 | 210070 |
| Z5-100/FF250 | 210071 |
| Z5-125/FF250 | 210072 |
| Z5-160/FF250 | 210073 |
| Z5-220/FF250 | 210074 |
| Z5-250/FF250 | 210075 |
| Z5-300/FF250 | 139578 |

| | Function | Part no. | Article no. |
|--|----------|----------|-------------|
|--|----------|----------|-------------|

EMT6 thermistor overload relay for machine protection



| | | |
|--|------------|--------|
| Without manual reset Mains and fault LED display | EMT6 | 066166 |
| Without manual reset Mains and fault LED display With 2 sensor circuits | EMT6(230V) | 066400 |
| Without manual reset Mains and fault LED display Trip with short-circuit in the sensor cable | EMT62 | 171889 |

| | |
|--------|--------|
| EMT6-K | 269470 |
|--------|--------|



| | | |
|---|---------------|--------|
| Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display | EMT6-DB | 066167 |
| Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display With 2 sensor circuits | EMT6-DB(230V) | 066401 |
| Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display Trip with short-circuit in the sensor cable | EMT62-DB | 171890 |
| Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display Trip with short-circuit in the sensor cable | EMT6-KDB | 269471 |
| Multifunction device Selector switch with/without manual reset Trip with short-circuit in the sensor cable Zero-voltage safe For manual or remote resetting Test button Short-circuit recognition and zero-voltage safety can be deactivated Mains and fault LED display | EMT6-DBK | 066168 |

| | |
|---------------|--------|
| EMT6-DB | 066167 |
| EMT6-DB(230V) | 066401 |
| EMT62-DB | 171890 |
| EMT6-KDB | 269471 |
| EMT6-DBK | 066168 |



| | | For use with | | | | |
|---------------------------------------|-------------------|------------------------------|-----------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| | | DILM7 - DILM15 | DILM17 - DILM38 | DILM40 - DILM72 | DILM80 - DILM150 | DILM185A - DILM225A |
| Earth-fault protection | Setting range | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. |
| | Overload releases | | | | | |
| | I_r | | | | | |
| | A | | | | | |
| | | | | | | |
| Electronic overload relays ZEB | | | | | | |
| Direct mounting | | | | | | |
| None | 0.33 - 1.65 | ZEB12-1,65 136480 | ZEB32-1,65 136486 | - | - | - |
| | 1 - 5 | ZEB12-5 136481 | ZEB32-5 136487 | - | - | - |
| | 4 - 20 | ZEB12-20 136482 | ZEB32-20 136488 | - | - | - |
| | 9 - 45 | - | ZEB32-45 136489 | ZEB65-45 136502 | - | - |
| | 20 - 100 | - | - | ZEB65-100 136504 | ZEB150-100 136506 | - |
| | 35 - 175 | - | - | - | ZEB150-175 164303 | ZEB225-175 164307 |
| | With | 0.33 - 1.65 | ZEB12-1,65-GF 136483 | ZEB32-1,65-GF 136490 | - | - |
| | 1 - 5 | ZEB12-5-GF 136484 | ZEB32-5-GF 136491 | - | - | - |
| | 4 - 20 | ZEB12-20-GF 136485 | ZEB32-20-GF 136492 | - | - | - |
| | 9 - 45 | - | ZEB32-45-GF 136493 | ZEB65-45-GF 136503 | - | - |
| | 20 - 100 | - | - | ZEB65-100-GF 136505 | ZEB150-100-GF 136507 | - |
| | 35 - 175 | - | - | - | ZEB150-175-GF 164304 | ZEB225-175-GF 164308 |
| Separate mounting | | | | | | |
| None | 0.33 - 1.65 | - | ZEB32-1,65/KK 136494 | - | - | - |
| | 1 - 5 | - | ZEB32-5/KK 136495 | - | - | - |
| | 4 - 20 | - | ZEB32-20/KK 136496 | - | - | - |
| | 9 - 45 | - | ZEB32-45/KK 136497 | - | - | - |
| | 20 - 100 | - | - | - | ZEB150-100/KK 136508 | - |
| | 35 - 175 | - | - | - | ZEB150-175/KK 164305 | - |
| With | 0.33 - 1.65 | - | ZEB32-1,65-GF/KK 136498 | - | - | - |
| | 1 - 5 | - | ZEB32-5-GF/KK 136499 | - | - | - |
| | 4 - 20 | - | ZEB32-20-GF/KK 136500 | - | - | - |
| | 9 - 45 | - | ZEB32-45-GF/KK 136501 | - | - | - |
| | 20 - 100 | - | - | - | ZEB150-100-GF/KK 136509 | - |
| | 35 - 175 | - | - | - | ZEB150-175-GF/KK 164306 | - |

Build it in.



Motor-protective circuit breakers PKZ and PKE: Simple, intelligent, pluggable, versatile



Motor-protective circuit breakers PKZ have been manufactured by Eaton since 1932. Our ideas and developments have decisively influenced the trends in the protection of motors since then. The results are progressive concepts and marketable product innovations that again and again assume the role of international trendsetting, pioneering products, e.g. such as the motor-protective circuit breaker PKE. Standstill times of machines and installation should be as short as possible. The fuseless motor-protective circuit breakers PKZ combine short-circuit protection and overload protection in a single device. This enables a short recovery time. PKZM0, PKZM01, PKZM4 and PKE feature the same range of accessories. They can be easily combined with contactors DILM and soft starters DS7. Switching technology can be this easy.



Perfect for actuation by pressing or hitting

The motor-protective circuit breaker PKZM01 for motors up to 25 A is ideal for small machines and other applications, which primarily prefer the use of push or impact operation. In addition to the auxiliary contacts from the PKZM0 range, there are also special enclosures in IP65 and IP40 degree of protection, also with an EMERGENCY STOP button. The short-circuit breaking capacity is 50 kA.



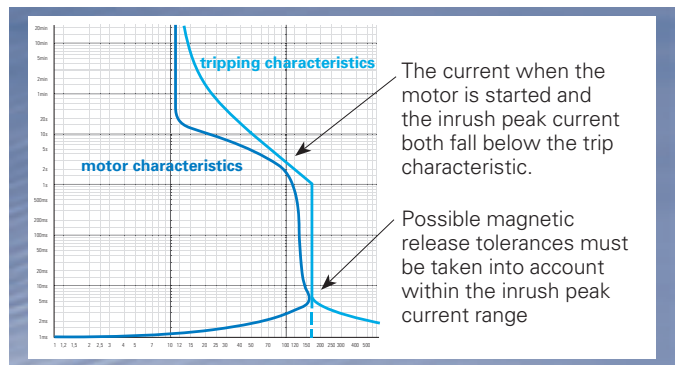
Common accessories – tool-less installation

Only two motor-protective circuit breakers are required to cover the range from 0.1 to 63 A. And this with only 20 different types. The motor-protective circuit breakers are matched to the contactor series DIL and can be easily combined to motor starters.



Modular design. Highest level of flexibility. Highest level of performance

Motor- and system-protective circuit breaker PKE with electronic overload protection offers here an interesting alternative to the bimetal solution and complements the intelligent PKZ series. The motor-protective circuit breaker PKE provides the highest level of flexibility featuring a compact and modular design with plug-in control unit for motor currents up to 65 A.



IE3-ready with Eaton switchgear

Eaton's PKZM0, PKZM4, and PKE motor-protective circuit breakers are IE3-ready, and will safely and reliably switch and protect motors in the event of overloads and short-circuits. The pick-up values for the short-circuit releases have been adjusted in line with the higher starting currents of IE3 motors. This not only effectively prevents nuisance tripping, but also ensures safe operation.



Information at your fingertips thanks to SmartWire-DT

Motor starter combinations with PKZ and PKE enable integration into the automation environment via SmartWire-DT. The actual flow of current in the PKE can also be detected via the modular COM circuits. The data can be transferred directly into the control and is available across the system.

3 basic units + 8 trip blocks = current range up to 65 A

12 A (45 mm)
PKE 12



32 A (45 mm)
PKE 32



65 A (55 mm)
PKE 65



Motor protection
0.3 A → 12 A
0.09 - 5.5 kW (400 V)

1 A → 32 A
0.37 - 15 kW (400 V)

8 A → 65 A
4 - 30 kW (400 V)

System protection

15 A → 36 A

15 A → 65 A

8 plug-in trip blocks up to 65 A in 2 versions

0.3 A → 1.2 A

1 A → 4 A

3 A → 12 A

8 A → 32 A

 16 A → 65 A

15 A → 36 A

16 A → 65 A



Modular with a wide setting range

The functional safety and the service life of a motor depends mainly on the motor protection. Motor-protective circuit breaker PKE with electronic overload protection offers here an interesting alternative to the bimetal solution and complements the intelligent PKZ series from Eaton. The motor-protective circuit breaker PKE provides the highest level of flexibility featuring a compact and modular design with plug-in control unit for motor currents up to 65 A. The large current setting ranges decisively reduce the number of variants and minimise the engineering work and costs accordingly.

PKZ and PKE in system xStart

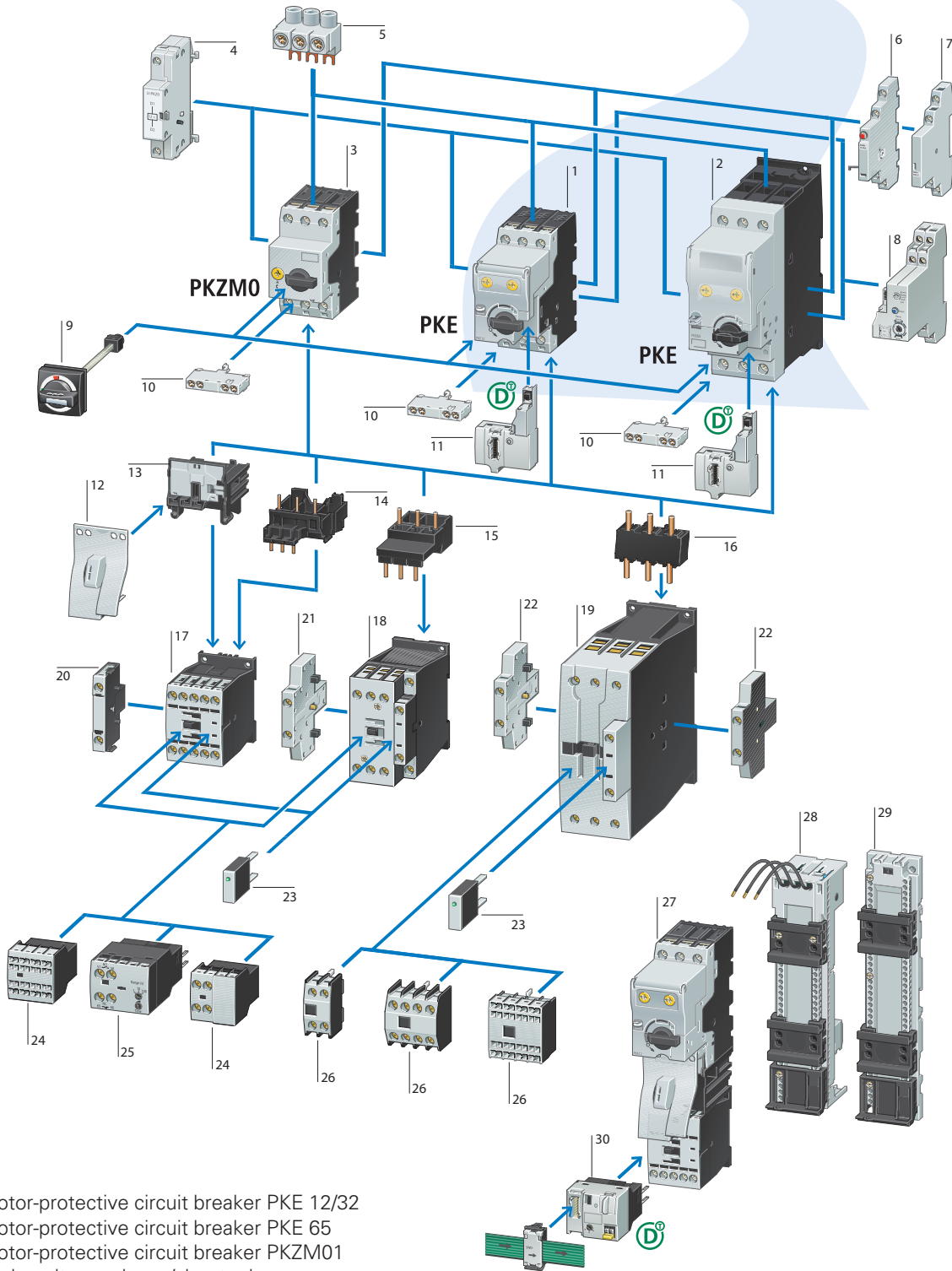
The motor-protective circuit breakers PKZ and PKE feature versatile, approved accessories available from the xStart range for safe and rational control panel construction. With most applications, an auxiliary switch is required with varying contact assignment for interlock or for signalling purposes. The motor starter design with two separate contact systems including visible isolating gaps enables a unique assignment of the protective devices PKZ or PKE and switching device DIL, whereby switchgear devices can be exchanged individually. A universal accessory series from the system xStart facilitates economy in logistical terms and reduces engineering costs.

Information at your fingertips thanks to SmartWire-DT

Motor starter combinations with PKZ and PKE enable integration into the automation environment via SmartWire-DT. The most varying array of signalling functions can be transferred with the PKZ using the modular COM circuits. The motor-protective circuit breaker PKE also utilizes diagnostics, status and overload messages and detects the current flow. The data can be transferred directly into the control and is available across the system. The data transparency created enhances the efficiency and the operational reliability of the drives in the operation environment of the motor-protective circuit breaker.

- Always well informed
- Current values
 - Diagnostics data
 - Status messages
 - Overload relay function











- 1 Motor-protective circuit breaker PKE 12/32
- 2 Motor-protective circuit breaker PKE 65
- 3 Motor-protective circuit breaker PKZM01
- 4 Undervoltage release/shunt release
- 5 Feeder terminal block
- 6 Trip-indicating auxiliary contact
- 7 Side mounted auxiliary contact
- 8 PKE-XZMR electronic overload relay module
- 9 Door-coupling rotary handle and shaft extension
- 10 Front mounted auxiliary contact
- 11 SmartWire-DT communication interface for PKE
- 12 Combination plug-in connector
- 13 Mechanical plug-in connector
- 14 Motor starter link
- 15 Electrical plug-in connector
- 16 Electrical plug-in connector
- 17 Contactor up to 15 A
- 18 Contactor up to 38 A
- 19 Contactor up to 65 A
- 20 Side mounted auxiliary contact
- 21 Side mounted auxiliary contact
- 22 Side mounted auxiliary contact
- 23 Suppressor
- 24 Surface mounted auxiliary contact
- 25 Electronic timer
- 26 Surface mounted auxiliary contact
- 27 DOL starter MSC-DEA up to 5.5 kW with PKE
- 28 Busbar adapter
- 29 DIN rail adapter plate
- 30 SmartWire-DT PKE module

Switching, Protecting and Driving Motors

Motor-protective circuit-breakers

Basic devices

Moeller® series

| Setting range Overload releases  | Screw terminals | | Incoming side screw terminals outgoer side springloaded terminals | | Spring-loaded terminals | | |
|--|-----------------|--------------|---|---------------|-------------------------|--------------|--------|
| | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | |
| PKZM01 motor-protective circuit-breaker, Type "1" and "2" coordination | | | | | | | |
|  | 0.1 - 0.16 | PKZM01-0,16 | 278475 | - | - | - | |
| | 0.16 - 0.25 | PKZM01-0,25 | 278476 | - | - | - | |
| | 0.25 - 0.4 | PKZM01-0,4 | 278477 | - | - | - | |
| | 0.4 - 0.63 | PKZM01-0,63 | 278478 | - | - | - | |
| | 0.63 - 1 | PKZM01-1 | 278479 | - | - | - | |
| | 1 - 1.6 | PKZM01-1,6 | 278480 | - | - | - | |
| | 1.6 - 2.5 | PKZM01-2,5 | 278481 | - | - | - | |
| | 2.5 - 4 | PKZM01-4 | 278482 | - | - | - | |
| | 4 - 6.3 | PKZM01-6,3 | 278483 | - | - | - | |
| | 6.3 - 10 | PKZM01-10 | 278484 | - | - | - | |
| | 8 - 12 | PKZM01-12 | 278485 | - | - | - | |
| | 10 - 16 | PKZM01-16 | 283390 | - | - | - | |
| | 16 - 20 | PKZM01-20 | 283383 | - | - | - | |
| | 20 - 25 | PKZM01-25 | 288893 | - | - | - | |
| PKZM0 motor-protective circuit-breaker, Type "1" and "2" coordination | | | | | | | |
|  | 0.1 - 0.16 | PKZM0-0,16 | 072730 | PKZM0-0,16-SC | 229828 | PKZM0-0,16-C | 229669 |
| | 0.16 - 0.25 | PKZM0-0,25 | 072731 | PKZM0-0,25-SC | 229829 | PKZM0-0,25-C | 229670 |
| | 0.25 - 0.4 | PKZM0-0,4 | 072732 | PKZM0-0,4-SC | 229830 | PKZM0-0,4-C | 229671 |
| | 0.4 - 0.63 | PKZM0-0,63 | 072733 | PKZM0-0,63-SC | 229831 | PKZM0-0,63-C | 229672 |
| | 0.63 - 1 | PKZM0-1 | 072734 | PKZM0-1-SC | 229832 | PKZM0-1-C | 229673 |
| | 1 - 1.6 | PKZM0-1,6 | 072735 | PKZM0-1,6-SC | 229833 | PKZM0-1,6-C | 229674 |
| | 1.6 - 2.5 | PKZM0-2,5 | 072736 | PKZM0-2,5-SC | 229834 | PKZM0-2,5-C | 229675 |
| | 2.5 - 4 | PKZM0-4 | 072737 | PKZM0-4-SC | 229835 | PKZM0-4-C | 229676 |
| | 4 - 6.3 | PKZM0-6,3 | 072738 | PKZM0-6,3-SC | 229836 | PKZM0-6,3-C | 229677 |
| | 6.3 - 10 | PKZM0-10 | 072739 | PKZM0-10-SC | 229837 | PKZM0-10-C | 229678 |
| | 8 - 12 | PKZM0-12 | 278486 | PKZM0-12-SC | 278487 | PKZM0-12-C | 278488 |
| | 10 - 16 | PKZM0-16 | 046938 | PKZM0-16-SC | 229838 | PKZM0-16-C | 229679 |
| | 16 - 20 | PKZM0-20 | 046988 | - | - | - | - |
| | 20 - 25 | PKZM0-25 | 046989 | - | - | - | - |
| | 25 - 32 | PKZM0-32 | 278489 | - | - | - | - |
| PKZM4 motor-protective circuit-breaker, Type "1" and "2" coordination | | | | | | | |
|  | 10 - 16 | PKZM4-16 | 222350 | - | - | - | |
| | 16 - 25 | PKZM4-25 | 222352 | - | - | - | |
| | 24 - 32 | PKZM4-32 | 222353 | - | - | - | |
| | 32 - 40 | PKZM4-40 | 222354 | - | - | - | |
| | 40 - 50 | PKZM4-50 | 222355 | - | - | - | |
| | 50 - 58 | PKZM4-58 | 222394 | - | - | - | |
| | 55 - 65 | PKZM4-63 | 222413 | - | - | - | |
| UL circuit-breaker in accordance with NFPA 79 | | | | | | | |
|  | 10 - 16 | PKZM4-16-CB | 132591 | - | - | - | |
| | 16 - 25 | PKZM4-25-CB | 132592 | - | - | - | |
| | 24 - 32 | PKZM4-32-CB | 132593 | - | - | - | |
| Transformer-protective circuit-breaker | | | | | | | |
|  | 0.1 - 0.16 | PKZM0-0,16-T | 088907 | - | - | - | |
| | 0.16 - 0.25 | PKZM0-0,25-T | 088908 | - | - | - | |
| | 0.25 - 0.4 | PKZM0-0,4-T | 088909 | - | - | - | |
| | 0.4 - 0.63 | PKZM0-0,63-T | 088910 | - | - | - | |
| | 0.63 - 1 | PKZM0-1-T | 088911 | - | - | - | |
| | 1 - 1.6 | PKZM0-1,6-T | 088912 | - | - | - | |
| | 1.6 - 2.5 | PKZM0-2,5-T | 088913 | - | - | - | |
| | 2.5 - 4 | PKZM0-4-T | 088914 | - | - | - | |
| | 4 - 6.3 | PKZM0-6,3-T | 088915 | - | - | - | |
| | 6.3 - 10 | PKZM0-10-T | 088916 | - | - | - | |
| | 8 - 12 | PKZM0-12-T | 278492 | - | - | - | |
| | 10 - 16 | PKZM0-16-T | 088917 | - | - | - | |
| | 16 - 20 | PKZM0-20-T | 088918 | - | - | - | |
| | 20 - 25 | PKZM0-25-T | 278493 | - | - | - | |



Setting range of overload releases



| Basic device with standard knob | | Trip block motor protection Standard | | Trip block motor protection Advanced Connection to SmartWire-DT with PKE-SWD-32 or PKE-SWD-SP | | Complete device with standard knob | |
|---------------------------------|-------------|--------------------------------------|-------------|--|-------------|------------------------------------|-------------|
| Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |

Motor-protective circuit-breakers PKE, type "1" and "2" coordination

| | | | | | | | | |
|-----------|-------|--------|-------------|--------|--------------|--------|---------------|--------|
| 0.3 - 1.2 | PKE12 | 121721 | PKE-XTU-1,2 | 121723 | PKE-XTUA-1,2 | 121727 | PKE12/XTU-1,2 | 121731 |
| 1 - 4 | PKE12 | 121721 | PKE-XTU-4 | 121724 | PKE-XTUA-4 | 121728 | PKE12/XTU-4 | 121732 |
| 3 - 12 | PKE12 | 121721 | PKE-XTU-12 | 121725 | PKE-XTUA-12 | 121729 | PKE12/XTU-12 | 121733 |
| 8 - 32 | PKE12 | 121721 | PKE-XTU-32 | 121726 | PKE-XTUA-32 | 121730 | PKE32/XTU-32 | 121734 |

Setting range of overload releases



| Basic device with standard knob | | Trip block system protection Standard | | Trip block system protection Advanced Connection to SmartWire-DT with PKE-SWD-CP | | Complete device with standard knob | |
|---------------------------------|-------------|---------------------------------------|-------------|---|-------------|------------------------------------|-------------|
| Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |

PKE system protective circuit-breaker, short-circuit release 5-8 x I_r

| | | | | | | | | |
|---------|-------|--------|--------------|--------|---------------|--------|----------------|--------|
| 15 - 36 | PKE32 | 121722 | PKE-XTUCP-36 | 153164 | PKE-XTUACP-36 | 168795 | PKE32/XTUCP-36 | 168972 |
|---------|-------|--------|--------------|--------|---------------|--------|----------------|--------|



Setting range of overload releases



| Basic device with standard knob | | Trip block motor protection Standard | | Trip block motor protection Advanced Connection to SmartWire-DT with PKE-SWD-SP | | Complete device with standard knob | |
|---------------------------------|-------------|--------------------------------------|-------------|--|-------------|------------------------------------|-------------|
| Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |

Motor-protective circuit-breakers PKE, type "1" and "2" coordination

| | | | | | | | | |
|---------|-------|--------|-------------|--------|--------------|--------|---------------|--------|
| 8 - 32 | PKE65 | 138258 | PKE-XTUW-32 | 138261 | PKE-XTUWA-32 | 138262 | PKE65/XTUW-32 | 138517 |
| 16 - 65 | PKE65 | 138258 | PKE-XTU-65 | 138259 | PKE-XTUA-65 | 138260 | PKE65/XTU-65 | 138516 |

Setting range of overload releases



| Basic device with standard knob | | Trip block system protection Standard | | Trip block system protection Advanced Connection to SmartWire-DT with PKE-SWD-CP | | Complete device with standard knob | |
|---------------------------------|-------------|---------------------------------------|-------------|---|-------------|------------------------------------|-------------|
| Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |










PKE system protective circuit-breaker, short-circuit release 5-8 x I_r










| | | | | | | | | |
|---------|-------|--------|---------------|--------|----------------|--------|-----------------|--------|
| 15 - 36 | PKE65 | 138258 | PKE-XTUWCP-36 | 168796 | PKE-XTUWACP-36 | 168797 | PKE65/XTUWCP-36 | 168973 |
| 30 - 65 | PKE65 | 138258 | PKE-XTUCP-65 | 168798 | PKE-XTUACP-65 | 168799 | PKE65/XTUCP-65 | 168974 |



















Motor-protective circuit-breakers








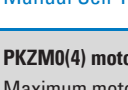
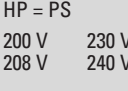
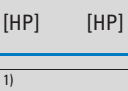
SmartWire-DT® PKE modules, busbar adapter

Moeller® series

| | | | Part no. | Article no. |
|--|--|--|-------------------|-------------|
| SmartWire-DT PKE (motor-protective circuit-breaker) | | | | |
| For connecting the motor-protective circuit-breaker with PKE-XTU(W)A-... trip blocks(motor protection) to SmartWire-DT | | | | |
|  | Fitted on PKE motor-protective circuit-breaker | | PKE-SWD-SP | 150614 |
|  | <p>Messages</p> <ul style="list-style-type: none"> Contactor state PKE Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block <p>Commands</p> <ul style="list-style-type: none"> Remote disconnection of motor-protective circuit-breaker | | | |
| SmartWire-DT PKE module (circuit-breakers) | | | | |
| For connecting the PKE circuit-breaker with PKE-XTU(W)ACP-... trip blocks(motor protection) to SmartWire-DT | | | | |
|  | For attachment to PKE circuit-breakers | | PKE-SWD-CP | 172735 |
|  | <p>Messages</p> <ul style="list-style-type: none"> Contactor state PKE All phase currents in % Thermal load as a % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set short-circuit release value Part no. of trip block <p>Commands</p> <ul style="list-style-type: none"> Remote circuit-breaker de-energization | | | |
| | | | Part no. | Article no. |
| | Rated operational current I_e A | For use with | | |
| Busbar adapters for PKZ and PKE | | | | |
|  | 25 | PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15 MSC-D-0.25-M7... - MSC-D-16-M15... | BBA0-25 | 101451 |
|  | 25 | PKZM0, PKE + 2 x DILM7-01 PKZM0, PKE + 2 x DILM9-01 PKZM0, PKE + 2 x DILM12-01 MSC-R-0,25-M7... - MSC-R-12-M12... | BBA0R-25 | 101453 |
|  | 32 | PKZM0, PKE + DILM(C)17 PKZM0, PKE + DILM(C)25 PKZM0, PKE + DILM(C)32 | BBA0-32 | 101452 |
|  | 32 | PKZM0, PKE + 2 x DILM(C)17-01 PKZM0, PKE + 2 x DILM(C)25-01 PKZM0, PKE + 2 x DILM(C)32-01 | BBA0R-32 | 101454 |
|  | 63 | PKZM4, PKE65 + DILM(C)17 PKZM4, PKE65 + DILM(C)25 PKZM4, PKE65 + DILM(C)32 PKZM4, PKE65 + DILM(C)40 PKZM4, PKE65 + DILM(C)50 PKZM4, PKE65 + DILM(C)65 | BBA4L-63 | 101459 |

| | Contacts | | For use with | Part no. | Article no. |
|---|---|-----------------------|---|---------------------------|-------------|
| | N/O = Normally open | N/C = Normally closed | | | |
| Standard auxiliary contact | | | | | |
|  | 1 N/O | 1 NC | PKZM01 PKZM0 PKZM4 PKZM0-T PKM0 PKE | NHI11-PKZ0 | 072896 |
| | 1 N/O | 1 NC | | NHI11-PKZ0-C | 229680 |
| | 1 N/O | 2 NC | | NHI12-PKZ0 | 072895 |
| | 2 N/O | 1 NC | | NHI21-PKZ0 | 072894 |
|  | 1 N/O | 1 NC | | NHI-E-11-PKZ0 | 082882 |
| | 1 N/O | - | | NHI-E-10-PKZ0 | 082884 |
| | 1 N/O | - | | NHI-E-10-PKZ0-C | 229681 |
| | - | 1 NC | | NHI-E-01-PKZ0-C | 229682 |
| Trip-indicating auxiliary contacts | | | | | |
|  | 2 x 1 N/O | - | PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE | AGM2-10-PKZ0 | 072898 |
| | - | 2 x 1 NC | | AGM2-01-PKZ0 | 072899 |
| Auxiliary contacts, early-make | | | | | |
|  | 2 N/O | - | PKZM0 PKZM0-T PKM0 PKZM4 | VHI20-PKZ0 | 203595 |
|  | 2 N/O | - | PKZM01 | VHI20-PKZ01 | 278495 |
| Shunt release | | | | | |
|  | - | - | PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE | A-PKZ0(230V50HZ) | 073187 |
| | - | - | | A-PKZ0(24VDC) | 073200 |
| Undervoltage release | | | | | |
|  | - | - | PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE | U-PKZ0(230V50HZ) | 073135 |
| | - | - | | U-PKZ0(24VDC) | 157862 |
| Overload relay function module | | | | | |
|  | 1 N/O | 1 NC | PKE12 PKE32 PKE65 with XTUA trip block with release 04 and higher | PKE-XZMR(24VDC) | 173425 |
| | 1 N/O | 1 NC | | PKE-XZMR(230V50HZ) | 173416 |
| Rotary handle, lockable | | | | | |
|  | For locking motor-protective circuit-breakers PKZM0, PKZM4 and PKE as a main switch in compliance with EN 60204 Can be padlocked in the "0" position with a padlock Hasp thickness: 3 – 6.35 mm | | | AK-PKZ0 | 030851 |

| | For use with | Part no. | Article no. |
|---|--|----------------------|-------------|
| Three-phase commoning link, incoming unit via terminals 1, 3, 5 | | | |
| For PKZM0... or PKE without side mounted auxiliary contacts or shunt releases | | | |
|  | - | B3.0/2-PKZ0 | 063961 |
|  | - | B3.0/3-PKZ0 | 232289 |
|  | - | B3.0/4-PKZ0 | 063960 |
|  | - | B3.0/5-PKZ0 | 232290 |
| Attached on the right, for motor-protective circuit-breakers, with an auxiliary contact or trip-indicating auxiliary contact | | | |
|  | - | B3.1/2-PKZ0 | 044945 |
|  | - | B3.1/3-PKZ0 | 044946 |
|  | - | B3.1/4-PKZ0 | 044947 |
|  | - | B3.1/5-PKZ0 | 044948 |
| For PKZM0... or PKE: attached with an auxiliary contact and a trip-indicating auxiliary contact on the right or attached on the left with a shunt release | | | |
|  | - | B3.2/2-PKZ0 | 063963 |
|  | - | B3.2/4-PKZ0 | 063959 |
| Incoming terminal | | | |
|  | PKZM0 PKE | BK25/3-PKZ0 | 032720 |
| | PKZM0 | BK25/3-PKZ0-E | 262518 |
| Shroud for unused terminals | | | |
|  | Protection against direct contact. For covering unused terminals on three-phase commoning link B3...-PKZ0 | H-B3-PKZ0 | 032721 |
| Wiring set | | | |
| For DOL Starter | | | |
| Plug-in  | PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15 | PKZM0-XDM12 | 283149 |
| Screwable  | PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15 | PKZM0-XDM15ME | 179646 |
|  | PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32 | PKZM0-XDM32 | 283153 |
|  | PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15 | PKZM4-XDM65 | 101053 |
| For reversing starters | | | |
|  | PKZM0, PKE + DILM7-01 PKZM0, PKE + DILM9-01 PKZM0, PKE + DILM12-01 | PKZM0-XRM12 | 283185 |
|  | PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32 | PKZM0-XRM32 | 283189 |

| Description | For use with | Part no. | Article no. |
|---|--|---------------------|----------------------------|
| Wiring set | | | |
| Electric contact module | | | |
|  | PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32 DS7-34...SX016... DS7-34...SX024... DS7-34...SX032... | PKZM0-XM32DE | 239349 |
|  | PKZM4, PKE65 + DILM40 PKZM4, PKE65 + DILM50 PKZM4, PKE65 + DILM65 | PKZM4-XM65DE | 101056 |
| Door coupling handles | | | |
|  | For use as main switch to IEC/EN 60204 | PKZM0 PKZM4 | PKZ0-XH 106132 |
|  | For use as a main switch to EN 60204 in MCC power distribution systems and with PKZM0 installed when rotated by 90° | PKZM0 PKZM4 | PKZ0-XH-MCC 106136 |
|  | For use as main switch to IEC/EN 60204 | PKE | PKE-XH 142416 |
|  | For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90° | PKE | PKE-XH-MCC 142418 |
|  | For use as a main switch with Emergency-Stop function, to EN 60204 | PKZM0 PKZM4 | PKZ0-XRH 106133 |
|  | For use as a main switch with Emergency-Stop function to EN 60204 in MCC power distribution systems and with PKZM0 installed when rotated by 90° | PKZM0 PKZM4 | PKZ0-XRH-MCC 106137 |
|  | For use as a main switch with Emergency-Stop function, to EN 60204 | PKE | PKE-XRH 142417 |
|  | For use as a main switch with Emergency-Stop function to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90° | PKE | PKE-XRH-MCC 142419 |

Manual Self-Protected Combination Controller UL 60947-4-1, Type E

| PKZM0(4) motor-protective circuit-breakers, used as "Manual self-protected Motor Starters" – UL 508 Type E | | | | | | | | | | |
|--|-------|-------|-------|-------------------|------------------------|--|------------------------------|------------------------------|-------------------|----------------------|
| Maximum motor output HP = PS | | | | Setting ranges | | Interrupting Capacity = Short Circuit Current Rating SCCR | | | Components | |
| 200 V | 230 V | 460 V | 575 V | Overload releases | Short-circuit releases | 240 V | 480Y/ 277 V ²⁾ | 600Y/ 347 V ²⁾ | Motor Protector | Accessories |
| 208 V | 240 V | 480 V | 600 V | | | [kA] | [kA] | [kA] | Type | Type |
| [HP] | [HP] | [HP] | [HP] | [A] | [A] | [kA] | [kA] | [kA] | Type | Type |
| 1) | | | | 0.1 – 0.16 | 2.5 | 65 | 65 | 50 | PKZM0-0.16 | BK25/3-PKZ0-E |
| | | | | 0.16 – 0.25 | 3.9 | 65 | 65 | 50 | PKZM0-0.25 | BK25/3-PKZ0-E |
| | | | | 0.25 – 0.4 | 6.2 | 65 | 65 | 50 | PKZM0-0.4 | BK25/3-PKZ0-E |
| | | | | 0.4 – 0.63 | 9.8 | 65 | 65 | 50 | PKZM0-0.63 | BK25/3-PKZ0-E |
| | | | | 0.63 – 1 | 16 | 65 | 65 | 50 | PKZM0-1 | BK25/3-PKZ0-E |
| ¾ ¾ | | | | 1 – 1.6 | 25 | 65 | 65 | 50 | PKZM0-1.6 | BK25/3-PKZ0-E |
| | | | | 1.6 – 2,5 | 39 | 65 | 65 | 50 | PKZM0-2.5 | BK25/3-PKZ0-E |
| ½ ½ | 1 | 1½ | | 2.5 – 4 | 62 | 65 | 65 | 50 | PKZM0-4 | BK25/3-PKZ0-E |
| ¾ ¾ | 2 | 3 | | 4 – 6.3 | 98 | 65 | 65 | 50 | PKZM0-6.3 | BK25/3-PKZ0-E |
| ½ 1½ | 3 | 5 | | 6.3 – 10 | 155 | 65 | 65 | 50 | PKZM0-10 | BK25/3-PKZ0-E |
| 2 3 | 5 | 7½ | | 8 – 12 | 186 | 65 | 65 | – | PKZM0-12 | BK25/3-PKZ0-E |
| 3 3 | 7½ | 10 | | 10 – 16 | 248 | 42 | 42 | – | PKZM0-16 | BK25/3-PKZ0-E |
| 5 – | – | 15 | | 16 – 20 | 310 | 18 | 18 | – | PKZM0-20 | BK25/3-PKZ0-E |
| – 7½ | 15 | 20 | | 20 – 25 | 388 | 18 | 18 | – | PKZM0-25 | BK25/3-PKZ0-E |
| 7½ 10 | 20 | 25 | | 25 – 32 | 496 | 18 | 18 | – | PKZM0-32 | BK25/3-PKZ0-E |
| 3 5 | 10 | 10 | | 10 – 16 | 248 | 65 | 65 | 25 | PKZM4-16 | BK50/3-PKZ4-E |
| 5 7½ | 15 | 20 | | 16 – 25 | 388 | 65 | 65 | 25 | PKZM4-25 | BK50/3-PKZ4-E |
| 7½ 10 | 20 | 30 | | 25 – 32 | 496 | 65 | 65 | 25 | PKZM4-32 | BK50/3-PKZ4-E |
| 10 – | 30 | 30 | | 32 – 40 | 620 | 65 | 65 | 25 | PKZM4-40 | BK50/3-PKZ4-E |
| – 15 | 30 | 40 | | 40 – 50 | 775 | 65 | 65 | – | PKZM4-50 | BK50/3-PKZ4-E |
| – – | 40 | 50 | | 50 – 58 | 899 | 65 | 65 | – | PKZM4-58 | BK50/3-PKZ4-E |
| – – | 40 | 50 | | 55 – 65 | 977 | 65 | 65 | – | PKZM4-63 | BK50/3-PKZ4-E |

Notes

- ¹⁾ Calculate instance motor power in this range according to the rated operational current. Stated values to NEC Table 430 -150
- ²⁾ Suitable for networks with earthed star-point

Motor-protective circuit-breakers

PKZM0 switching capacity

Moeller® series

Circuit-breaker switching capacity from serial no. 04

Rated uninterrupted current I_u

Rated conditional short-circuit current I_q IEC/EN 60947-4-1

Rated ultimate short-circuit breaking capacity I_{cu} IEC/EN 60947-2

Rated service short-circuit breaking capacity I_{cs} IEC/EN 60947-2

| I_u A | 230 V | | | | 400 V | | | | 440 V | | | | 500 V | | | | 690 V | | | |
|------------|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|
| | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ |

PKZM0, PKZM0...-T, PKM0 with type 1 and 2 coordination

| | | | | | | | | | | | | | | | | | | | | |
|----------|-----|-----|-----|----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0.16 – 1 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | | | | N | | | | N | | | | N |
| 1.6 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | | | | N | | | | N | | | | N |
| 2.5 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | | | | N | | | | N | | | | N |
| 4 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | | | | N | | | | N | | | | N |
| 6.3 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | | | | N | | | | N | 50 | 50 | 50 | 50 |
| 10 | 150 | 150 | 150 | N | 150 | 150 | 150 | N | 50 | 50 | 50 | 50 | 42 | 42 | 11 | 50 | 3 | 3 | 2 | 50 |
| 12 | 50 | 50 | 38 | 50 | 50 | 50 | 38 | 50 | 50 | 15 | 12 | 50 | 15 | 15 | 4 | 50 | 3 | 3 | 2 | 50 |
| 16 | 50 | 50 | 38 | 50 | 50 | 50 | 38 | 50 | 50 | 15 | 12 | 50 | 15 | 15 | 4 | 50 | 3 | 3 | 2 | 50 |
| 20 | 50 | 50 | 38 | 50 | 50 | 50 | 38 | 50 | 50 | 10 | 3 | 50 | 10 | 3 | 3 | 50 | 3 | 3 | 1 | 50 |
| 25 | 50 | 50 | 38 | 50 | 50 | 50 | 38 | 50 | 50 | 10 | 3 | 50 | 10 | 3 | 3 | 50 | 3 | 3 | 1 | 50 |
| 32 | 50 | 40 | 10 | 50 | 50 | 40 | 10 | 50 | 50 | 10 | 3 | 50 | 10 | 3 | 3 | 50 | 3 | 3 | 1 | 50 |

PKZM0 (PKZM0...-T, PKM0) + CL-PKZ0

| | | | | | | | | | | | | | | | | | | | | |
|----------|--|--|--|---|--|--|--|---|--|--|--|---|----|----|----|---|----|----|-----|---|
| 0.16 – 1 | | | | N | | | | N | | | | N | | | | N | | | 20 | N |
| 1.6 | | | | N | | | | N | | | | N | | | | N | | | 20 | N |
| 2.5 | | | | N | | | | N | | | | N | | | | N | 20 | 20 | 20 | N |
| 4 | | | | N | | | | N | | | | N | | | | N | 20 | 20 | 20 | N |
| 6.3 | | | | N | | | | N | | | | N | | | 50 | N | 20 | 20 | 20 | N |
| 10 | | | | N | | | | N | | | | N | | | 20 | N | 20 | 20 | 20 | N |
| 12 | | | | N | | | | N | | | | N | | | 20 | N | 5 | 5 | 2.5 | N |
| 16 | | | | N | | | | N | | | | N | | | 20 | N | 5 | 5 | 2.5 | N |
| 20 | | | | N | | | | N | | | | N | 10 | 10 | 10 | N | 5 | 5 | 2.5 | N |
| 25 | | | | N | | | | N | | | | N | 10 | 10 | 10 | N | 5 | 5 | 2.5 | N |
| 32 | | | | N | | | | N | | | | N | 10 | 10 | 10 | N | 5 | 5 | 2.5 | N |

PKZM0 (PKZM0...-T, PKM0) + 2 CL-PKZ0

| | | | | | | | | | | | | | | | | | | | | |
|----------|--|--|--|---|--|--|--|---|--|--|--|---|----|----|----|---|----|----|-----|---|
| 0.16 – 1 | | | | N | | | | N | | | | N | | | | N | | | 20 | N |
| 1.6 | | | | N | | | | N | | | | N | | | | N | | | 20 | N |
| 2.5 | | | | N | | | | N | | | | N | | | | N | 40 | 40 | 20 | N |
| 4 | | | | N | | | | N | | | | N | | | | N | 40 | 40 | 20 | N |
| 6.3 | | | | N | | | | N | | | | N | | | 50 | N | 20 | 20 | 20 | N |
| 10 | | | | N | | | | N | | | | N | | | 40 | N | 20 | 20 | 20 | N |
| 12 | | | | N | | | | N | | | | N | | | 40 | N | 10 | 10 | 2.5 | N |
| 16 | | | | N | | | | N | | | | N | | | 40 | N | 10 | 10 | 2.5 | N |
| 20 | | | | N | | | | N | | | | N | 20 | 20 | 20 | N | 10 | 10 | 2.5 | N |
| 25 | | | | N | | | | N | | | | N | 20 | 20 | 20 | N | 10 | 10 | 2.5 | N |
| 32 | | | | N | | | | N | | | | N | 20 | 20 | 20 | N | 10 | 10 | 2.5 | N |

Notes

■ No upstream protective device required, as it is the auto-protected range (100/150 kA)

N Not Required

¹⁾ Necessary back-up fuse when the short-circuit current exceeds the rated conditional short-circuit current of the device ($I_{cc} \cdot I_q$).

Circuit-breaker switching capacity

Rated uninterrupted current I_u

Rated conditional short-circuit current I_q IEC/EN 60947-4-1

Rated ultimate short-circuit breaking capacity I_{cu} IEC/EN 60947-2

Rated service short-circuit breaking capacity I_{cs} IEC/EN 60947-2

| I_u A | 230 V | | | | 400 V | | | | 440 V ²⁾ | | | | 500 V ²⁾ | | | | 690 V ²⁾ | | | |
|---------------------------------------|-------------|----------------|----------------|-----------------|-------------|----------------|----------------|-----------------|---------------------|----------------|----------------|-----------------|---------------------|----------------|----------------|-----------------|---------------------|----------------|----------------|-----------------|
| | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ | I_q kA | I_{cu} kA | I_{cs} kA | A ¹⁾ |
| PKZM01 with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | | | |
| 0.16 – 1 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 1.6 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2.5 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 4 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 6.3 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 10 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 42 | 42 | 10 | 50 | 42 | 42 | 10 | 50 | 42 | 42 | 10 | 50 |
| 12 | 50 | 50 | 10 | 50 | 50 | 50 | 10 | 50 | 15 | 15 | 10 | 50 | 15 | 15 | 10 | 50 | 15 | 15 | 10 | 50 |
| 16 | 50 | 50 | 10 | 50 | 50 | 50 | 10 | 50 | 15 | 15 | 10 | 50 | 15 | 15 | 10 | 50 | 15 | 15 | 10 | 50 |
| 20, 25 | 50 | 50 | 10 | 50 | 50 | 50 | 10 | 50 | 10 | 10 | 3 | 50 | 10 | 10 | 3 | 50 | 10 | 10 | 3 | 50 |
| PKZM4 with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | | | |
| 16 | 150 | 150 | 25 | N | 150 | 150 | 25 | N | 45 | 45 | 25 | 100 | 15 | 15 | 100 | 8 | 8 | 2.5 | 100 | |
| 25 | 150 | 150 | 25 | N | 150 | 150 | 25 | N | 45 | 45 | 25 | 100 | 15 | 15 | 100 | 8 | 8 | 2.5 | 100 | |
| 32 | 50 | 50 | 25 | 100 | 50 | 50 | 25 | 100 | 45 | 45 | 25 | 100 | 15 | 15 | 100 | 5 | 5 | 2.5 | 100 | |
| 40 | 50 | 50 | 25 | 100 | 50 | 50 | 25 | 100 | 45 | 45 | 25 | 100 | 15 | 15 | 100 | 5 | 5 | 2.5 | 100 | |
| 50 | 50 | 50 | 25 | 100 | 50 | 50 | 25 | 100 | 45 | 45 | 25 | 100 | 15 | 15 | 100 | 5 | 5 | 2.5 | 100 | |
| 58 | 50 | 50 | 25 | 160 | 50 | 50 | 25 | 160 | 45 | 45 | 25 | 160 | 15 | 15 | 160 | 5 | 5 | 2.5 | 160 | |
| 63 | 50 | 50 | 25 | 160 | 50 | 50 | 25 | 160 | 45 | 45 | 25 | 160 | 15 | 15 | 160 | 5 | 5 | 2.5 | 160 | |

Notes

No upstream protective device required, as it is the auto-protected range (150 kA)

N Not Required

1) Fuse (A gG/gL) for enhancing the switching capacity of the motor-protective circuit-breaker to 100 kA

2) Please enquire for additional information regarding voltages > 400 V and device combinations with CL-PKZ0.

| I_u A | 230/400 V | | | 415 V | | | 440 V | | | 500 V | | | 525 V | | | 690 V | | |
|--|-------------|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|-------------|----------------|----------------|
| | I_q kA | I_{cu} kA | I_{cs} kA | I_q kA | I_{cu} kA | I_{cs} kA | I_q kA | I_{cu} kA | I_{cs} kA | I_q kA | I_{cu} kA | I_{cs} kA | I_q kA | I_{cu} kA | I_{cs} kA | I_q kA | I_{cu} kA | I_{cs} kA |
| PKE12/XTU(A)-... with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | |
| 1.2 | 100 | | | 50 | | | 15 | | | 10 | | | 10 | | | 3 | | |
| 4 | 100 | | | 50 | | | 50 | | | 10 | | | 10 | | | 3 | | |
| 12 | 100 | | | 50 | | | 20 | | | 20 | | | 10 | | | 3 | | |
| PKE32/XTU(A)-... with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | |
| 32 | 100 | | | 50 | | | 25 | | | 6 | | | 3 | | | 3 | | |
| PKE32/XTUCP(A)-... with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | |
| 36 | - | 50 | 12.5 | - | | | - | | | - | | | - | | | - | | |
| PKE65/XTU(W)(A) with type 1 and 2 coordination | | | | | | | | | | | | | | | | | | |
| 32 - 65 | 80 | | | 80 | | | 45 | | | 15 | | | 10 | | | 5 | | |
| Motor-starter combinations MSC-DE(A)-...-M7(12)... with type 1 coordination | | | | | | | | | | | | | | | | | | |
| 1.2 | 100 | | | 50 | | | 15 | | | 10 | | | - | | | - | | |
| 4 | 100 | | | 50 | | | 50 | | | 50 | | | - | | | - | | |
| 12 | 100 | | | 50 | | | 50 | | | 20 | | | - | | | - | | |
| Motor-starter combinations MSC-DE(A)-...-M17(32)... with type 1 coordination | | | | | | | | | | | | | | | | | | |
| 12 | 100 | | | 65 | | | 65 | | | 50 | | | 50 | | | 3 | | |
| 32 | 100 | | | 100 | | | 65 | | | 50 | | | 5 | | | 5 | | |
| Motor-starter combinations MSC-DE(A)-...-M17(32)... with type 2 coordination | | | | | | | | | | | | | | | | | | |
| 1.2 | 100 | | | 65 | | | 65 | | | 10 | | | 3 | | | - | | |
| 4 | 100 | | | 65 | | | 65 | | | 50 | | | 3 | | | - | | |
| 12 | 100 | | | 65 | | | 65 | | | 50 | | | 50 | | | - | | |
| 32 | 100 | | | 100 | | | 65 | | | 50 | | | 20 | | | 5 | | |
| PKE12/XTU-...+DILM17+CL-PKZ0 with type 2 coordination | | | | | | | | | | | | | | | | | | |
| 1.2 - 12 | 100 | | | 100 | | | 100 | | | 100 | | | - | | | - | | |
| PKE32/XTU-32+DILM32+CL-PKZ0 with type 2 coordination | | | | | | | | | | | | | | | | | | |
| 32 | 100 | | | 100 | | | 100 | | | 100 | | | - | | | - | | |
| PKE65/XTU(A)-65+DILM(40, 50)65 with type 2 coordination | | | | | | | | | | | | | | | | | | |
| 65 | 80 | | | 50 | | | 50 | | | 50 | | | 10 | | | 10 | | |

Build it in.



Motor starter system xStart Fast and flexible assembly and connection

 www.eaton.eu/moem-ee



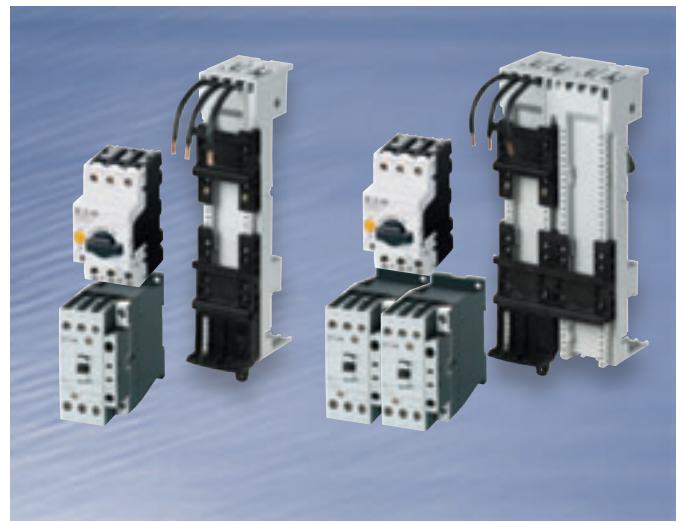
Eaton offers a comprehensive offer for starting the motor with the motor start system xStart: From protective to soft starting devices and motor protection using bimetal relays, to motor-protective circuit breakers with electronic wide-range overload protection. All of these standard components can be easily combined using simple mechanical and electronic connectors. Three-phase commoning links offer comfortable assistance for motor current wiring. SmartWire-DT also replaces the control current wiring and integrates comprehensive communication options into the system.

 www.eaton.eu/xstart



Just a short step to a starter combination

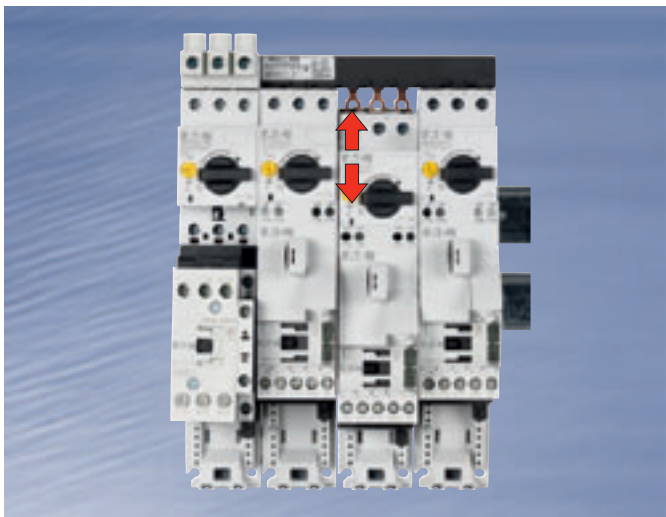
On xStart switchgear up to 15.5 A, plug-in main and auxiliary current connections replace the classical wiring. With the standard individual components PKZM0 / PKE and the wiring set for direct-on-line starters or reversing starters for contactors or soft start devices with screw terminals, DOL starters, soft starters or reversing starters can be created in seconds. The wiring kits include the complete main current wiring between the motor-protective circuit breaker and contactor DIL up to 15.5 A or the soft starter DS7. The electrical interlock and the reversing links are included in addition to the main current connection with the reversing starter set PKZM0-XRM12.



Flexible energy distribution

Whether it's a motor starter, soft starter or just motor-protective circuit breakers, with the product-specific BBA busbar adapters from Eaton, a flexible energy supply/distribution can be quickly and easily established. The users have the specific adapters for the motor-protective circuit breakers, such as the PKZM0, PKE and PKZM4 with rated currents of 0.1 to 63 A, as well as other universal adapters up to 80 A. Their standard-compliant dimensions fit on all 60 mm busbar systems from leading manufacturers. They are approved for both the European and North American markets with their UL/ CSA approvals. The new busbar adapters support installation of starter combinations, which have been assembled using tool-less plug connection technology from the motor starter range. They are available as individual units or complete motor starters.

→ Complete solutions save time and money



The wiring classic

Eaton offers the optimum wiring links for every motor-protective circuit breaker type such as the PKZM0, PKZM4 or PKE. Optionally, several motor-protective circuit breakers are available on cut-to-fit three-phase commoning links for parallel power feed. Matched to the corresponding application, whether it is a side-mounted auxiliary contact or undervoltage or shunt release.



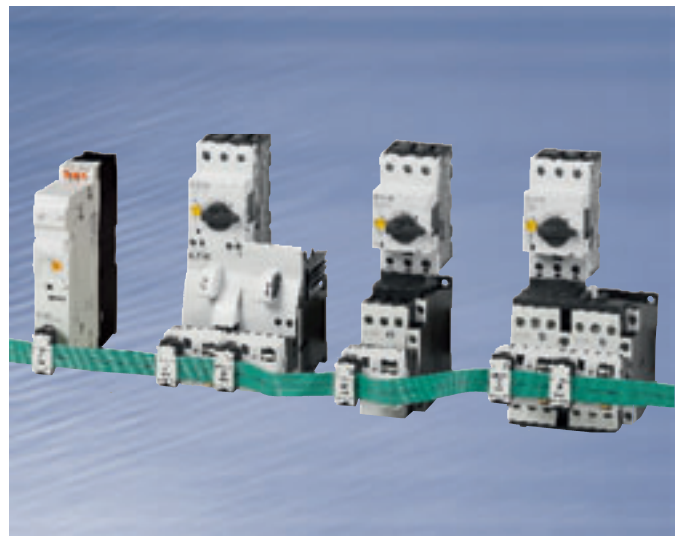
Important for machine export to North America! New National Electrical Code (NEC 2011) for the USA.

The UL 508 Type E – Manual Self-Protected Combination Motor Controllers – used in great numbers in the USA, and for even longer in Canada, must be equipped with a padlockable knob. The levers can be exchanged with padlockable types on the motor-protective circuit breakers from Eaton.



Motor-starter combinations with PKE, all information accessible

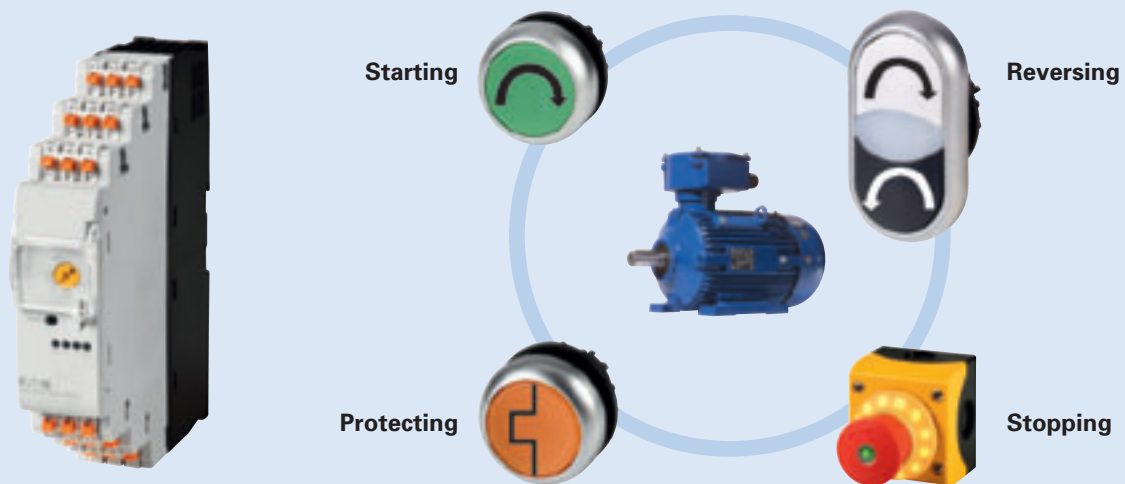
The motor-protective circuit breaker PKE with electronic wide-range overload protection can be integrated in just a few simple steps via SmartWire-DT into the communication structure of the automation system. This facilitates a more in-depth view of the motor output circuit load and provides additional optimization potential for system availability. The respective SmartWire-DT modules facilitate the communication connection for compact PKE motor starter combinations up to 32 A motor current and the direct connection to the motor-protective circuit breaker PKE up to 65 A motor current.



Connection technology in the control panel

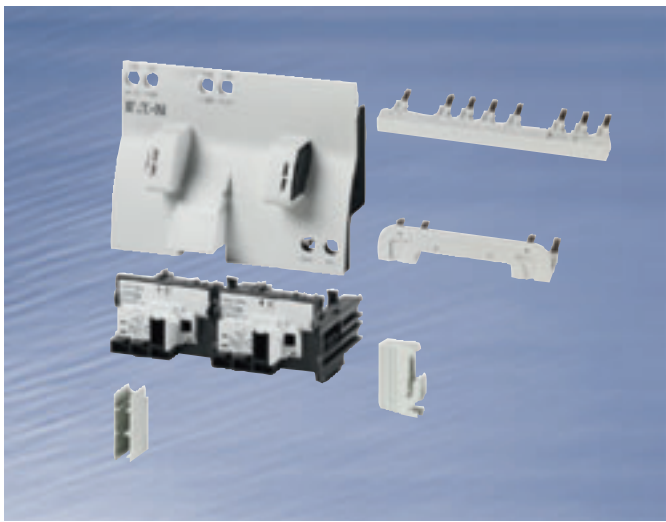
Manufacturers of machines and systems strive to achieve a balance between the maximum level of functionality and cost optimization. SmartWire-DT is a communication system for industrial switchgear based on the concept of continued development in the control panel and peripherals: from control through to protection and switching, and extending to driving, operation and monitoring.

Electronic motor starter EMS – longer life at only 30 mm



A key requirement in machinery construction is the availability of compact, multifunctional switchgear that saves space in today's ever smaller control panels as well as cutting engineering and installation times. With electronic motor starter EMS Eaton offers a multifunctional device complete with built-in motor protection in a device that measures only 30 mm in width. The electronic motor starter offers up to four motor starter functions in a single device, which saves space in the control panel as well as time in installation and commissioning.

The standardized push-in technology for main and control current terminals further minimizes the time needed to install the electronic motor starter. The electronic motor starter is used for reliably controlling and protecting motors in the performance range of 0.06 kW/400 V to 3 kW/400 V.



The multifunctional interface

Unbeatable time-saving applications such as reversing starters or star-delta combinations can be implemented with the integrated tool-less plug connection interface of the contactors DILM(C) up to 15.5 A. The plug-on accessories or the wiring sets for the tool-less plug connections also offer the opportunity for motor interference suppression, the adaptation of customized contactor controls using solder pin adapters or the external motor cables with the PE connection of the contactor.

Lean solutions: Direct-on-line starters/Reversing starters made of standard components

Direct-on-line starters made of standard components are available in four narrow sizes. Contactors and circuit breakers feature the same compact width. No precious millimeter of control panel space is wasted. The convenient MSC motor starters using tool-less plug connection technology are available up to 15 A and require only a top-hat rail for mounting. The mechanical connector ensures a secure hold, and the electrical connector provides optimum reliability and safety. Complete mounting connectors are offered for DOL and reversing starters from 16 up to 32 A. This prevents fitting errors and cuts down on wiring time.

- Up to a rating of 170 A, the circuit breaker and the contactor will have the same width. This ensures that the motor starter will take up as little space as possible when installed in an enclosure.
- Compact motor starters with a rating of up to 65 A can be implemented by using the PKE motor-protective circuit breaker with electronic wide-range overload protection.

Tested motor-starter combinations: quick selection – easy ordering

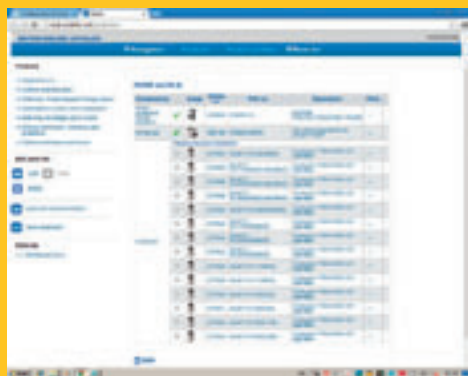
Enter motor data



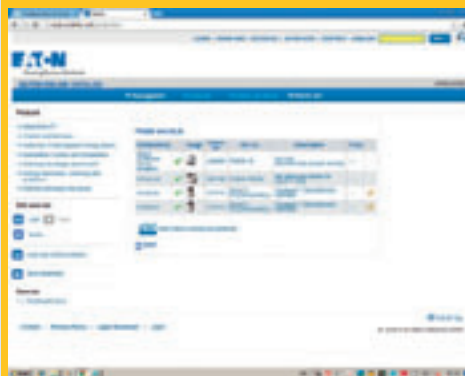
Select a motor starter



Select a contactor



Generate order list



Whether you want to configure your motor starter as a DOL, reversing, or wye-delta starter. Whether you prefer a fused or fuseless configuration. Whether you want an electromechanical motor starter or an electronic motor starter: Eaton's motor starter configurator will take you through the process step by step in just a few clicks. You can have only IE3-ready switchgear and combinations be shown. Moreover, the configurator is linked to our online catalog, ensuring that you will enjoy convenient access to our entire range of products, including wiring sets.

Once finished, you can then send the finished list to your sales partner – it's as simple as that.



www.eaton.eu/selectiontools

Motor-starter combinations

Standard

Moeller® series



Motor data

| | | |
|------|---------------------------|-----------------------------|
| AC-3 | Rated operational current | Rated short-circuit current |
| 380V | 400V | 380-415V |
| 400V | 400V | |
| 415V | | |
| P | I_e | I_q |
| kW | A | kA |

Motor-protective circuit breaker

Contactors coordination type "1"

Contactors coordination type "2"

| PKZM0 ...+DIL M7 to DIL M15 | PKZM0 ...+DIL M17 to DIL M32 | PKZM4 ...+DIL M17 to DIL M65 | NZM...+DIL M72 to DIL M500 | 0.06 | 0.21 | 150/50* | PKZM0-0,25 | DILM7-... | DILM7-... |
|-----------------------------|------------------------------|------------------------------|----------------------------|------|------|---------|-------------|------------|------------|
| | | | | 0.09 | 0.31 | 150/50* | PKZM0-0,4 | DILM7-... | DILM7-... |
| | | | | 0.12 | 0.41 | 150/50* | PKZM0-0,63 | DILM7-... | DILM7-... |
| | | | | 0.18 | 0.6 | 150/50* | PKZM0-0,63 | DILM7-... | DILM7-... |
| | | | | 0.25 | 0.8 | 150/50* | PKZM0-1 | DILM7-... | DILM7-... |
| | | | | 0.37 | 1.1 | 150/50* | PKZM0-1,6 | DILM7-... | DILM7-... |
| | | | | 0.55 | 1.5 | 150/50* | PKZM0-1,6 | DILM7-... | DILM7-... |
| | | | | 0.75 | 1.9 | 150/50* | PKZM0-2,5 | DILM7-... | DILM7-... |
| | | | | 1.1 | 2.6 | 150/50* | PKZM0-4 | DILM7-... | DILM7-... |
| | | | | 1.5 | 3.6 | 150/50* | PKZM0-4 | DILM7-... | DILM7-... |
| | | | | 2.2 | 5 | 150/50* | PKZM0-6,3 | DILM7-... | DILM7-... |
| | | | | 3 | 6.6 | 150/50* | PKZM0-10 | DILM7-... | DILM17-... |
| | | | | 4 | 8.5 | 150 | PKZM0-10 | DILM9-... | DILM17-... |
| | | | | 5.5 | 11.3 | 50 | PKZM0-12 | DILM12-... | DILM17-... |
| | | | | 7.5 | 15.2 | 50 | PKZM0-16 | DILM17-... | DILM17-... |
| | | | | 11 | 21.7 | 50 | PKZM0-25 | DILM25-... | DILM25-... |
| | | | | 15 | 29.3 | 50 | PKZM0-32 | DILM32-... | DILM32-... |
| | | | | 18.5 | 36 | 50 | PKZM4-40 | DILM40 | DILM40 |
| | | | | 22 | 41 | 50 | PKZM4-50 | DILM50 | DILM50 |
| | | | | 30 | 55 | 50 | PKZM4-58 | DILM65 | DILM65 |
| | | | | 34 | 63 | 50 | PKZM4-63 | DILM65 | DILM65 |
| | | | | 37 | 68 | 50 | NZMN1-M80 | DILM80 | DILM80 |
| | | | | 45 | 81 | 50 | NZMN1-M100 | DILM95 | DILM95 |
| | | | | 55 | 99 | 50 | NZMN1-M100 | DILM115 | DILM115 |
| | | | | 75 | 134 | 50 | NZMN2-M160 | DILM150 | DILM150 |
| | | | | 90 | 161 | 50 | NZMN2-M200 | DILM185A | DILM185A |
| | | | | 110 | 196 | 50 | NZMN2-M200 | DILM225A | DILM225A |
| | | | | 132 | 231 | 50 | NZMN3-ME350 | DILM250 | DILM250 |
| | | | | 160 | 279 | 50 | NZMN3-ME350 | DILM300A | DILM300A |
| | | | | 200 | 349 | 50 | NZMN3-ME350 | DILM400 | DILM400 |
| | | | | 250 | 437 | 50 | NZMN3-ME450 | DILM500 | DILM500 |

* Coordination type 2



Motor data

| | | |
|------|---------------------------|-----------------------------|
| AC-3 | Rated operational current | Rated short-circuit current |
| 380V | 400V | 380-415V |
| 400V | 400V | |
| 415V | | |
| P | I_e | I_q |
| kW | A | kA |

Motor-protective circuit breaker

Contactor coordination type "1"

Contactor coordination type "2"






| | | | | | | | |
|---------------------------------|--|------|------|-----|---------------|------------|------------|
| PKE ...+DIL M7 to DIL M12 | | 0.06 | 0.21 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.09 | 0.31 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.12 | 0.41 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.18 | 0.6 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.25 | 0.8 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.37 | 1.1 | 100 | PKE12/XTU-1,2 | DILM7-... | DILM17-... |
| | | 0.55 | 1.5 | 100 | PKE12/XTU-4 | DILM7-... | DILM17-... |
| PKE ...+DIL M17 to DIL M32 | | 0.75 | 1.9 | 100 | PKE12/XTU-4 | DILM7-... | DILM17-... |
| | | 1.1 | 2.6 | 100 | PKE12/XTU-4 | DILM7-... | DILM17-... |
| | | 1.5 | 3.6 | 100 | PKE12/XTU-4 | DILM7-... | DILM17-... |
| | | 2.2 | 5 | 100 | PKE12/XTU-12 | DILM7-... | DILM17-... |
| | | 3 | 6.6 | 100 | PKE12/XTU-12 | DILM7-... | DILM17-... |
| | | 4 | 8.5 | 100 | PKE12/XTU-12 | DILM9-... | DILM17-... |
| | | 5.5 | 11.3 | 100 | PKE12/XTU-12 | DILM12-... | DILM17-... |
| PKE 65 ...+DIL M40 to DIL M65 | | 7.5 | 15.2 | 100 | PKE32/XTU-32 | DILM17-... | DILM17-... |
| | | 11 | 21.7 | 100 | PKE32/XTU-32 | DILM25-... | DILM25-... |
| | | 15 | 29.3 | 100 | PKE32/XTU-32 | DILM32-... | DILM32-... |
| | | 18.5 | 36 | 80 | PKE65/XTUW-65 | DILM40 | DILM40 |
| | | 22 | 41 | 80 | PKE65/XTUW-65 | DILM50 | DILM50 |
| | | 30 | 55 | 80 | PKE65/XTUW-65 | DILM65 | DILM65 |
| | | 34 | 63 | 80 | PKE65/XTUW-65 | DILM65 | DILM65 |
| NZM...ME...+DIL M80 to DIL M500 | | 37 | 68 | 100 | NZMH2-ME90 | DILM80 | DILM80 |
| | | 45 | 81 | 100 | NZMH2-ME90 | DILM95 | DILM95 |
| | | 55 | 99 | 100 | NZMH2-ME140 | DILM115 | DILM115 |
| | | 75 | 134 | 100 | NZMH2-ME140 | DILM150 | DILM150 |
| | | 90 | 161 | 100 | NZMH2-ME220 | DILM185A | DILM185A |
| | | 110 | 196 | 100 | NZMH2-ME220 | DILM225A | DILM225A |
| | | 132 | 231 | 100 | NZMH3-ME350 | DILM250 | DILM250 |
| | | 160 | 279 | 100 | NZMH3-ME350 | DILM300A | DILM300A |
| | | 200 | 349 | 100 | NZMH3-ME350 | DILM400 | DILM400 |
| | | 250 | 437 | 100 | NZMH3-ME450 | DILM500 | DILM500 |



Switching, Protecting and Driving Motors

Motor-starter combinations


DOL starters, reversing starters

Moeller® series

| | Motor ratings | | Setting range of overload releases I_r A  | AC operation 230 V 50 Hz | | DC operation 24 V DC | | |
|---|---|--------------------------|--|-----------------------------|-------------------------|-------------------------|----------------------|-------------|
| | Rated short-circuit current 380 - 415 V | Type of coordination "1" | | Type of coordination "2" | Part no. | Article no. | Part no. | Article no. |
| | I_q kA | I_q kA | | | | | | |
| Complete units MSC-D | | | | | | | | |
|  | 150 | 50 | 0.16 - 0.25 | MSC-D-0,25-M7(230V50HZ) | 281925 | MSC-D-0,25-M7(24VDC) | 283154 | |
| | 150 | 50 | 0.25 - 0.4 | MSC-D-0,4-M7(230V50HZ) | 281926 | MSC-D-0,4-M7(24VDC) | 283155 | |
| | 150 | 50 | 0.4 - 0.63 | MSC-D-0,63-M7(230V50HZ) | 281927 | MSC-D-0,63-M7(24VDC) | 283156 | |
| | 150 | 50 | 0.63 - 1 | MSC-D-1-M7(230V50HZ) | 281929 | MSC-D-1-M7(24VDC) | 283158 | |
| | 150 | 50 | 1 - 1.6 | MSC-D-1,6-M7(230V50HZ) | 283140 | MSC-D-1,6-M7(24VDC) | 283159 | |
| | 150 | 50 | 1.6 - 2.5 | MSC-D-2,5-M7(230V50HZ) | 283142 | MSC-D-2,5-M7(24VDC) | 283161 | |
| | 150 | 50 | 2.5 - 4 | MSC-D-4-M7(230V50HZ) | 283143 | MSC-D-4-M7(24VDC) | 283162 | |
| | 150 | 50 | 4 - 6.3 | MSC-D-6,3-M7(230V50HZ) | 283145 | MSC-D-6,3-M7(24VDC) | 283164 | |
| | 150 | - | 6.3 - 10 | MSC-D-10-M7(230V50HZ) | 283146 | MSC-D-10-M7(24VDC) | 283165 | |
| | 150 | - | 6.3 - 10 | MSC-D-10-M9(230V50HZ) | 283147 | MSC-D-10-M9(24VDC) | 283166 | |
| | 50 | - | 8 - 12 | MSC-D-12-M12(230V50HZ) | 283148 | MSC-D-12-M12(24VDC) | 283167 | |
| | 50 | - | 10 - 16 | MSC-D-16-M15(230V50HZ) | 100414 | MSC-D-16-M15(24VDC) | 100415 | |
|  | 50 | 50 | 6.3 - 10 | MSC-D-10-M17(230V50HZ) | 101045 | MSC-D-10-M17(24VDC) | 101047 | |
| | 50 | 50 | 8 - 12 | MSC-D-12-M17(230V50HZ) | 101046 | MSC-D-12-M17(24VDC) | 101048 | |
| | 50 | 50 | 10 - 16 | MSC-D-16-M17(230V50HZ) | 283150 | MSC-D-16-M17(24VDC) | 283168 | |
| | 50 | 50 | 20 - 25 | MSC-D-25-M25(230V50HZ) | 283151 | MSC-D-25-M25(24VDC) | 283169 | |
| | 50 | 50 | 25 - 32 | MSC-D-32-M32(230V50HZ) | 283152 | MSC-D-32-M32(24VDC) | 283170 | |
| | Complete devices MSC-R | | | | | | | |
| |  | 150 | 50 | 0.16 - 0.25 | MSC-R-0,25-M7(230V50HZ) | 283171 | MSC-R-0,25-M7(24VDC) | 283190 |
| | | 150 | 50 | 0.25 - 0.4 | MSC-R-0,4-M7(230V50HZ) | 283172 | MSC-R-0,4-M7(24VDC) | 283191 |
| 150 | | 50 | 0.4 - 0.63 | MSC-R-0,63-M7(230V50HZ) | 283173 | MSC-R-0,63-M7(24VDC) | 283192 | |
| 150 | | 50 | 0.63 - 1 | MSC-R-1-M7(230V50HZ) | 283175 | MSC-R-1-M7(24VDC) | 283194 | |
| 150 | | 50 | 1 - 1.6 | MSC-R-1,6-M7(230V50HZ) | 283176 | MSC-R-1,6-M7(24VDC) | 283195 | |
| 150 | | 50 | 1.6 - 2.5 | MSC-R-2,5-M7(230V50HZ) | 283178 | MSC-R-2,5-M7(24VDC) | 283197 | |
| 150 | | 50 | 2.5 - 4 | MSC-R-4-M7(230V50HZ) | 283179 | MSC-R-4-M7(24VDC) | 283198 | |
| 150 | | 50 | 4 - 6.3 | MSC-R-6,3-M7(230V50HZ) | 283181 | MSC-R-6,3-M7(24VDC) | 283200 | |
| 150 | | - | 6.3 - 10 | MSC-R-10-M7(230V50HZ) | 283182 | MSC-R-10-M7(24VDC) | 283201 | |
| 150 | | - | 6.3 - 10 | MSC-R-10-M9(230V50HZ) | 283183 | MSC-R-10-M9(24VDC) | 283202 | |
| 50 | | - | 8 - 12 | MSC-R-12-M12(230V50HZ) | 283184 | MSC-R-12-M12(24VDC) | 283203 | |
|  | | 50 | 50 | 6.3 - 10 | MSC-R-10-M17(230V50HZ) | 101049 | MSC-R-10-M17(24VDC) | 101051 |
| | 50 | 50 | 8 - 12 | MSC-R-12-M17(230V50HZ) | 101050 | MSC-R-12-M17(24VDC) | 101052 | |
| | 50 | 50 | 10 - 16 | MSC-R-16-M17(230V50HZ) | 283186 | MSC-R-16-M17(24VDC) | 283204 | |
| | 50 | 50 | 20 - 25 | MSC-R-25-M25(230V50HZ) | 283187 | MSC-R-25-M25(24VDC) | 283205 | |
| | 50 | 50 | 25 - 32 | MSC-R-32-M32(230V50HZ) | 283188 | MSC-R-32-M32(24VDC) | 283206 | |

| | Motor ratings | | Setting range of overload releases I_r A  | AC operation | | DC operation | |
|---|---|--------------------------|--|--------------------------------|-------------|-----------------------------|-------------|
| | Rated short-circuit current 380 - 400 V | | | 230 V 50 Hz | | 24 V DC | |
| | Type of coordination "1" | Type of coordination "2" | | Part no. | Article no. | Part no. | Article no. |
| | I_q | I_q | | | | | |
| | kA | kA | | | | | |
| MSC-DE complete devices with PKE | | | | | | | |
|  | 100 | - | 0.3 - 1.2 | MSC-DE-1,2-M7(230V50HZ) | 121735 | MSC-DE-1,2-M7(24VDC) | 121736 |
| | 100 | - | 1 - 4 | MSC-DE-4-M7(230V50HZ) | 121737 | MSC-DE-4-M7(24VDC) | 121738 |
| | 100 | - | 3 - 12 | MSC-DE-12-M7(230V50HZ) | 121739 | MSC-DE-12-M7(24VDC) | 121740 |
| | 100 | - | 3 - 12 | MSC-DE-12-M9(230V50HZ) | 121741 | MSC-DE-12-M9(24VDC) | 121742 |
| | 100 | - | 3 - 12 | MSC-DE-12-M12(230V50HZ) | 121743 | MSC-DE-12-M12(24VDC) | 121744 |
| | 100 | 100 | 3 - 12 | MSC-DE-12-M17(230V50HZ) | 121745 | MSC-DE-12-M17(24VDC) | 121746 |
| | 100 | 100 | 8 - 32 | MSC-DE-32-M17(230V50HZ) | 121747 | MSC-DE-32-M17(24VDC) | 121748 |
| | 100 | 100 | 8 - 32 | MSC-DE-32-M25(230V50HZ) | 121749 | MSC-DE-32-M25(24VDC) | 121750 |
| | 100 | 100 | 8 - 32 | MSC-DE-32-M32(230V50HZ) | 121751 | MSC-DE-32-M32(24VDC) | 121752 |

Combination Motor Starter UL 60947-4-1, Type F

| Maximum motor rating | | | | Setting range | | Rated short-circuit breaking capacity I_{cn} | | | Extension terminal | Motor protective circuit breakers | Contactor |
|-----------------------------|-------|-------|-------|--|------------------------|--|-------|-------|--------------------|-----------------------------------|-----------|
| Alternating current HP = PS | | | | Overload trip | Short-circuit releases | 240 V | 480 V | 600 V | | | |
| 200 V | 230 V | 460 V | 575 V | I_r A  | Non-delayed | kA | kA | kA | Type | Type | Type |
| 208 V | 240 V | 480 V | 600 V | | | | | | | | |
| HP | HP | HP | HP | | | | | | | | |

PKZM0, DIL, BK modules

| | | | | | | | | | | | |
|----|----|----|-------------|-----------|-----|----|----|-------------|-------------|----------------|-----------------|
| 1) | | | 0.1 - 0.16 | 2.2 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-0,16 | DILEM...(...) | |
| | | | 0.1 - 0.16 | 2.2 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-0,16 | DILM7-...(...) | |
| | | | 0.16 - 0.25 | 3.4 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-0,25 | DILEM...(...) | |
| | | | 0.16 - 0.25 | 3.4 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-0,25 | DILM7-...(...) | |
| | | | 0.25 - 0.4 | 5.6 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-0,4 | DILEM...(...) | |
| | | | 0.25 - 0.4 | 5.6 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-0,4 | DILM7-...(...) | |
| | | | 0.4 - 0.63 | 8.8 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-0,63 | DILEM...(...) | |
| | | | 0.4 - 0.63 | 8.8 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-0,63 | DILM7-...(...) | |
| | | ½ | ½ | 0.63 - 1 | 14 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-1 | DILEM...(...) |
| | | ½ | ½ | 0.63 - 1 | 14 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-1 | DILM7-...(...) |
| | ¾ | 1 | 1 - 1.6 | 22 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-1,6 | DILEM...(...) | |
| | ¾ | 1 | 1 - 1.6 | 22 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-1,6 | DILM7-...(...) | |
| ½ | ½ | 1 | 1½ | 1.6 - 2.5 | 35 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-2,5 | DILEM...(...) |
| ½ | ½ | 1 | 1½ | 1.6 - 2.5 | 35 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-2,5 | DILM7-...(...) |
| 1 | 1 | 2 | 3 | 2.5 - 4 | 56 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-4 | DILEM...(...) |
| 1 | 1 | 2 | 3 | 2.5 - 4 | 56 | 50 | 50 | 18 | BK25/3-PKZ0 | PKZM0-4 | DILM7-...(...) |
| 1½ | 1½ | 3 | 5 | 4 - 6.3 | 88 | 50 | 50 | 50 | BK25/3-PKZ0 | PKZM0-6,3 | DILEM...(...) |
| 1½ | 1½ | 3 | 5 | 4 - 6.3 | 88 | 65 | 65 | 18 | BK25/3-PKZ0 | PKZM0-6,3 | DILM7-...(...) |
| 3 | 3 | 7½ | 10 | 6.3 - 11 | 140 | 65 | 65 | 18 | BK25/3-PKZ0 | PKZM0-10 | DILM9-...(...) |
| 3 | 3 | 7½ | - | 9 - 12 | 168 | 65 | 65 | 18 | BK25/3-PKZ0 | PKZM0-12 | DILM12-...(...) |
| 3 | 5 | 10 | - | 10 - 16 | 224 | 18 | 18 | - | BK25/3-PKZ0 | PKZM0-16 | DILM17-...(...) |
| 5 | 5 | 10 | - | 16 - 20 | 280 | 18 | 18 | - | BK25/3-PKZ0 | PKZM0-20 | DILM25-...(...) |
| 5 | 7½ | 15 | - | 20 - 25 | 350 | 18 | 18 | - | BK25/3-PKZ0 | PKZM0-25 | DILM25-...(...) |
| 7½ | 10 | 20 | - | 25 - 32 | 448 | 18 | 18 | - | BK25/3-PKZ0 | PKZM0-32 | DILM32-...(...) |

PKZM4, DIL, BK modules

| | | | | | | | | | | | |
|----|----|----|----|---------|-----|----|----|----|---------------|----------|-----------------|
| 3 | 5 | 10 | 15 | 10 - 16 | 224 | 65 | 65 | 30 | BK50/3-PKZ4-E | PKZM4-16 | DILM17-...(...) |
| 5 | 7½ | 15 | 20 | 16 - 27 | 350 | 65 | 65 | 30 | BK50/3-PKZ4-E | PKZM4-25 | DILM25-...(...) |
| 7½ | 10 | 25 | 30 | 24 - 34 | 448 | 65 | 65 | 50 | BK50/3-PKZ4-E | PKZM4-32 | DILM32-...(...) |
| 10 | 15 | 30 | 30 | 32 - 40 | 560 | 65 | 65 | 50 | BK50/3-PKZ4-E | PKZM4-40 | DILM40(...) |
| 10 | 15 | 30 | - | 40 - 52 | 700 | 65 | 65 | - | BK50/3-PKZ4-E | PKZM4-50 | DILM50(...) |
| 15 | 15 | 40 | - | 50 - 56 | 812 | 65 | 65 | - | BK50/3-PKZ4-E | PKZM4-58 | DILM65(...) |
| 15 | 15 | 40 | - | 52 - 58 | 882 | 65 | 65 | - | BK50/3-PKZ4-E | PKZM4-63 | DILM65(...) |



Notes



1) Calculate motor power in this range according to the rated operational current. Stated values to NEC Table 430 - 150.





Motor-starter combinations

DOL starters, connection to SmartWire-DT

Moeller® series

| Motor ratings | | Setting range of overload releases | AC operation | | DC operation | |
|--|--------------------------|------------------------------------|--------------|-------------|--------------|-------------------------------------|
| Rated short-circuit current 380 - 400 V | | | 230 V 50 Hz | Article no. | 24 V DC | Article no. |
| Type of coordination "1" | Type of coordination "2" | | Part no. | | Part no. | |
| I_q | I_q | I_r | | | | |
| kA | kA | A | | | | |
| MSC-DEA complete devices with PKE, prepared for SmartWire-DT connection | | | | | | |
|  | 100 | - | 0.3 - 1.2 | - | - | MSC-DEA-1,2-M7(24VDC) 121753 |
| | 100 | - | 1 - 4 | - | - | MSC-DEA-4-M7(24VDC) 121754 |
| | 100 | - | 3 - 12 | - | - | MSC-DEA-12-M7(24VDC) 121755 |
| | 100 | - | 3 - 12 | - | - | MSC-DEA-12-M9(24VDC) 121756 |
| | 100 | - | 3 - 12 | - | - | MSC-DEA-12-M12(24VDC) 121757 |
|  | 100 | 100 | 3 - 12 | - | - | MSC-DEA-12-M17(24VDC) 121758 |
| | 100 | 100 | 8 - 32 | - | - | MSC-DEA-32-M17(24VDC) 121759 |
| | 100 | 100 | 8 - 32 | - | - | MSC-DEA-32-M25(24VDC) 121760 |
| | 100 | 100 | 8 - 32 | - | - | MSC-DEA-32-M32(24VDC) 121761 |






| | | Part no. | Article no. |
|---|---|---|--------------------------|
| SmartWire-DT PKE module (motor-starter combinations) | | | |
| For connecting PKE motor-starter combination MSC-DEA... with PKE-XTUA... trip blocks with a rated motor output of 15 kW/400 V to SmartWire-DT | | | |
|  |  | <p>Mounting on DILM contactor with 24 V DC control voltage. One module per contactor and PKE necessary Additional SWD contactor module required for actuation of reversing starter. 1 electrical interlock for the surface mounting of reversing starters. 1-0-A switch for manual or automatic operation. Selectable overload relay function (ZMR) for switching off the contactor on overload. Wiring sets DILM 12-XRL and PKZM0-XRM12 cannot be used. For current consumption of the contactor coils > 3 A (UL/CSA > 2 A) use additional power feeder module. A2 connections must not be bridged.</p> <p>Messages Switch position contactor/PKE/1-0-A switch Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block</p> <p>Commands Contactor actuation Activation Overload relay function (ZMR)</p> | PKE-SWD-32 126895 |




| Motor ratings | Setting range of overload releases | AC operation | | DC operation | | | |
|---|------------------------------------|--------------|-------------|-----------------------------|-------------|--------------------------|--------|
| | | 230 V 50 Hz | 24 V DC | 230 V 50 Hz | 24 V DC | | |
| Rated short-circuit current 380 - 415 V | | Part no. | Article no. | Part no. | Article no. | | |
| Type of coordination "1" | Type of coordination "2" | | | | | | |
| I_q | I_q | | | | | | |
| kA | kA | | | | | | |
| PKZ and DILM complete devices on BBA for DOL starters | | | | | | | |
|  | 100 | 50 | 0.16 - 0.25 | MSC-D-0,25-M7(230V50HZ)/BBA | 102737 | MSC-D-0,25-M7(24VDC)/BBA | 102964 |
| | 100 | 50 | 0.25 - 0.4 | MSC-D-0,4-M7(230V50HZ)/BBA | 102738 | MSC-D-0,4-M7(24VDC)/BBA | 102965 |
| | 100 | 50 | 0.4 - 0.63 | MSC-D-0,63-M7(230V50HZ)/BBA | 102739 | MSC-D-0,63-M7(24VDC)/BBA | 102966 |
| | 100 | 50 | 0.63 - 1 | MSC-D-1-M7(230V50HZ)/BBA | 102950 | MSC-D-1-M7(24VDC)/BBA | 102967 |
| | 100 | 50 | 1 - 1.6 | MSC-D-1,6-M7(230V50HZ)/BBA | 102951 | MSC-D-1,6-M7(24VDC)/BBA | 102968 |
| | 100 | 50 | 1.6 - 2.5 | MSC-D-2,5-M7(230V50HZ)/BBA | 102952 | MSC-D-2,5-M7(24VDC)/BBA | 102969 |
| | 100 | 50 | 2.5 - 4 | MSC-D-4-M7(230V50HZ)/BBA | 102953 | MSC-D-4-M7(24VDC)/BBA | 102970 |
| | 100 | 50 | 4 - 6.3 | MSC-D-6,3-M7(230V50HZ)/BBA | 102954 | MSC-D-6,3-M7(24VDC)/BBA | 102971 |
| | 100 | - | 6.3 - 10 | MSC-D-10-M7(230V50HZ)/BBA | 102955 | MSC-D-10-M7(24VDC)/BBA | 102972 |
| | 100 | - | 6.3 - 10 | MSC-D-10-M9(230V50HZ)/BBA | 102956 | MSC-D-10-M9(24VDC)/BBA | 102973 |
| | 100 | - | 8 - 12 | MSC-D-12-M12(230V50HZ)/BBA | 102957 | MSC-D-12-M12(24VDC)/BBA | 102974 |
| | 50 | - | 10 - 16 | MSC-D-16-M15(230V50HZ)/BBA | 102958 | MSC-D-16-M15(24VDC)/BBA | 102975 |
|  | 100 | 50 | 6.3 - 10 | MSC-D-10-M17(230V50HZ)/BBA | 102959 | MSC-D-10-M17(24VDC)/BBA | 102976 |
| | 100 | 50 | 8 - 12 | MSC-D-12-M17(230V50HZ)/BBA | 102960 | MSC-D-12-M17(24VDC)/BBA | 102977 |
| | 50 | 50 | 10 - 16 | MSC-D-16-M17(230V50HZ)/BBA | 102961 | MSC-D-16-M17(24VDC)/BBA | 102978 |
| | 50 | 50 | 20 - 25 | MSC-D-25-M25(230V50HZ)/BBA | 102962 | MSC-D-25-M25(24VDC)/BBA | 102979 |
| | 50 | 50 | 25 - 32 | MSC-D-32-M32(230V50HZ)/BBA | 102963 | MSC-D-32-M32(24VDC)/BBA | 102980 |
| PKZ and DILM complete devices on BBA for reversing starters | | | | | | | |
|  | 100 | 50 | 0.16 - 0.25 | MSC-R-0,25-M7(230V50HZ)/BBA | 102981 | MSC-R-0,25-M7(24VDC)/BBA | 102997 |
| | 100 | 50 | 0.25 - 0.4 | MSC-R-0,4-M7(230V50HZ)/BBA | 102982 | MSC-R-0,4-M7(24VDC)/BBA | 102998 |
| | 100 | 50 | 0.4 - 0.63 | MSC-R-0,63-M7(230V50HZ)/BBA | 102983 | MSC-R-0,63-M7(24VDC)/BBA | 102999 |
| | 100 | 50 | 0.63 - 1 | MSC-R-1-M7(230V50HZ)/BBA | 102984 | MSC-R-1-M7(24VDC)/BBA | 103000 |
| | 100 | 50 | 1 - 1.6 | MSC-R-1,6-M7(230V50HZ)/BBA | 102985 | MSC-R-1,6-M7(24VDC)/BBA | 103001 |
| | 100 | 50 | 1.6 - 2.5 | MSC-R-2,5-M7(230V50HZ)/BBA | 102986 | MSC-R-2,5-M7(24VDC)/BBA | 103002 |
| | 100 | 50 | 2.5 - 4 | MSC-R-4-M7(230V50HZ)/BBA | 102987 | MSC-R-4-M7(24VDC)/BBA | 103003 |
| | 100 | 50 | 4 - 6.3 | MSC-R-6,3-M7(230V50HZ)/BBA | 102988 | MSC-R-6,3-M7(24VDC)/BBA | 103004 |
| | 100 | - | 6.3 - 10 | MSC-R-10-M7(230V50HZ)/BBA | 102989 | MSC-R-10-M7(24VDC)/BBA | 103005 |
| | 100 | - | 6.3 - 10 | MSC-R-10-M9(230V50HZ)/BBA | 102990 | MSC-R-10-M9(24VDC)/BBA | 103006 |
| | 100 | - | 8 - 12 | MSC-R-12-M12(230V50HZ)/BBA | 102991 | MSC-R-12-M12(24VDC)/BBA | 103007 |
|  | 100 | 50 | 6.3 - 10 | MSC-R-10-M17(230V50HZ)/BBA | 102992 | MSC-R-10-M17(24VDC)/BBA | 103008 |
| | 100 | 50 | 8 - 12 | MSC-R-12-M17(230V50HZ)/BBA | 102993 | MSC-R-12-M17(24VDC)/BBA | 103009 |
| | 50 | 50 | 10 - 16 | MSC-R-16-M17(230V50HZ)/BBA | 102994 | MSC-R-16-M17(24VDC)/BBA | 103010 |
| | 50 | 50 | 20 - 25 | MSC-R-25-M25(230V50HZ)/BBA | 102995 | MSC-R-25-M25(24VDC)/BBA | 103011 |
| | 50 | 50 | 25 - 32 | MSC-R-32-M32(230V50HZ)/BBA | 102996 | MSC-R-32-M32(24VDC)/BBA | 103012 |

Motor-starter combinations

Electronic motor starter

Moeller® series

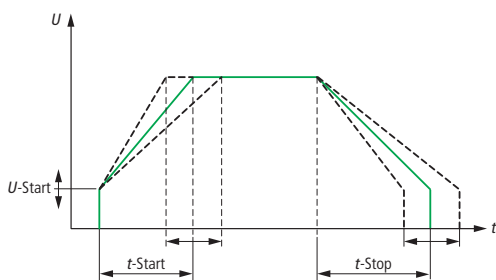
| Description | | Max. rating for three-phase motors, 50 - 60 Hz AC-53a 380 V 400 V 415 V P kW | Setting range of overload releases I_r A  | DC operation 24 V DC Part no. | Article no. |
|---|--|---|---|--|------------------|
| EMS complete devices | | | | | |
|  | DOL starting, Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 6,5 (AC-53a) 9 (AC-51) | EMS-DO-T-2,4-24VDC EMS-DO-T-9-24VDC | 170099 170100 |
| | DOL starting, Motor protection, Emergency-stop actuator Circuit design: safety output stage with bypass, three-phase disconnect. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 6,5 (AC-53a) 9 (AC-51) | EMS-DOS-T-2,4-24VDC EMS-DOS-T-9-24VDC | 170103 170104 |
|  | DOL starting Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. For connecting to SmartWire-DT for expanded diagnostics. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-DO-T-2,4-SWD EMS-DO-T-9-SWD | 170106 170107 |
| | DOL starting Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. Controlled stop via additional enable signal terminal up to SIL3/Pl.e. For connecting to SmartWire-DT for expanded diagnostics. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-DOS-T-2,4-SWD EMS-DOS-T-9-SWD | 170110 170111 |
|  | DOL starting, Reversing start, Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 6,5 (AC-53a) 9 (AC-51) | EMS-RO-T-2,4-24VDC EMS-RO-T-9-24VDC | 170101 170102 |
| | DOL starting, Reversing start, Motor protection, Emergency-stop actuator Circuit design: safety output stage with bypass, three-phase disconnect. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 6,5 (AC-53a) 9 (AC-51) | EMS-ROS-T-2,4-24VDC EMS-ROS-T-9-24VDC | 170105 169789 |
|  | DOL starting Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. For connecting to SmartWire-DT for expanded diagnostics. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-RO-T-2,4-SWD EMS-RO-T-9-SWD | 170108 170109 |
| | DOL starting Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. Controlled stop via additional enable signal terminal up to SIL3/Pl.e. For connecting to SmartWire-DT for expanded diagnostics. | 0.06 - 0.75 0.55 - 3 | 0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51) | EMS-ROS-T-2,4-SWD EMS-ROS-T-9-SWD | 170112 169790 |

| | Pole | Devices Number | For use with | Part no. | Article no. |
|--|------|----------------|--------------------|-------------------|-------------|
| Three-phase current connector with plug | | | | | |
|  | 3 | 2 | EMS-D... | EMS-XBR3-2 | 177248 |
| | | 3 | EMS-D...-SWD-... | EMS-XBR3-3 | 177249 |
| | | 4 | EMS-R... | EMS-XBR3-4 | 177250 |
| | | 5 | EMS-R...-SWD-... | EMS-XBR3-5 | 177251 |
| | | | | | |
| Connection links | | | | | |
|  | 3 | 2 | EMS-D... | EMS-XBR-2 | 171268 |
| | | 3 | EMS-D...-SWD-... | EMS-XBR-3 | 171269 |
| | | 4 | EMS-R... | EMS-XBR-4 | 171270 |
| | | 5 | EMS-R...-SWD-... | EMS-XBR-5 | 171271 |
| | | 10 | | EMS-XBR-10 | 171272 |
|  | 1 | 2 | EMS-D... | EMS-XCW-2 | 172741 |
| | | 3 | EMS-DOS...-SWD-... | EMS-XCW-3 | 172742 |
| | | 4 | EMS-R... | EMS-XCW-4 | 172743 |
| | | 5 | EMS-ROS...-SWD-... | EMS-XCW-5 | 172744 |
| | | | | | |

Build it in.



DS7, S801+ and S811+ soft starter a soft start for any task



Soft starters make it possible to perfectly adapt motors to any application, as well as to configure stop functions and a start voltage.

The soft starter has become increasingly established as an alternative to the star-delta starter. Electronic soft starters fulfil the customer demand for an impact free rise in torque and a determined reduction in current during the start phase. You control the power supply of the three-phase motor in the start phase so that the motor matches the load behaviour of the load machine. The mechanical equipment is accelerated with the minimum of stress as a result. The operating behaviour and the work processes are influenced positively which means that negative influences are avoided.

With its DS7 devices for currents of up to 200 A and S801+/S811+ devices for currents of up to 1,700 A, Eaton offers two different soft starter series with different strengths: DS7 units are ideal for standard applications, while S811+ models make a compelling case with their powerful range of functionalities.



www.eaton.eu/softstarters



DS7 soft starters – soft starting and powerful torque all in one

Soft starters have become increasingly popular as an alternative to the star-delta starter. DS7 units not only replace the mechanical contactor, but also add a “soft motor startup” function to it. A patented method ensures that motor run-ups will be exceptionally soft while providing a higher torque than other available solutions. Longer service intervals and reduced operating costs are welcome side effects of this. DS7 compact soft starters are designed for normal applications, such as those involving pumps, fans, and small conveyor belts.

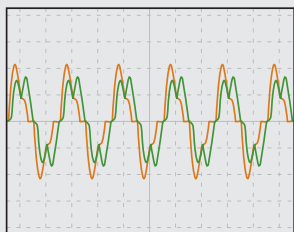
S801+/S811+ soft starters – a powerful presence in a small design

These three-phase-controlled soft starters, which feature an internal bypass and comprehensive monitoring and protection mechanisms, provide a soft start and ensure that three-phase motors can remain safely in continuous operation even in applications with large load torques. In addition, they can be used not only in a standard line (outside the delta) configuration, but also with inside-the-delta connection. S801+ soft starters have been specifically designed for standard applications and make a strong case with their ease of use, while S811+ devices feature a digital control and display unit that provides access to advanced functions for sophisticated applications. With only five sizes and rated operational currents of 37 A to 1,000 A for mains voltages of 200 V to 690 V, S801+ and S811+ units are some of the world’s smallest compact soft starters.

Application examples

- Three-phase inductive loads
- Noiseless and soft motor start in transport and conveying systems
- Soft starting of pumps reduces the load on the entire installation (water impact)
- Solid-state switching of pumps in the extreme environments of chemical plants and filling stations
- Smooth start that reduces wear on V-belts in fan drives.

Current characteristic in the uncontrolled phase



Conventional methods:

- Symmetrical control with high level of DC components

New process from Eaton:

- Asymmetric control without DC components

Asymmetric control: It does not get any softer

The special starting method (asymmetrical trigger control) for the soft starter function prevents DC components that normally occur with a two-phase controlled starter (Eaton patent). They suppress the formation of an elliptical rotating field, which leads to an irregular acceleration of the motor and unnecessarily extends acceleration times. The smooth starting behaviour of the DS7 is thus similar to that of a three-phase soft starter.

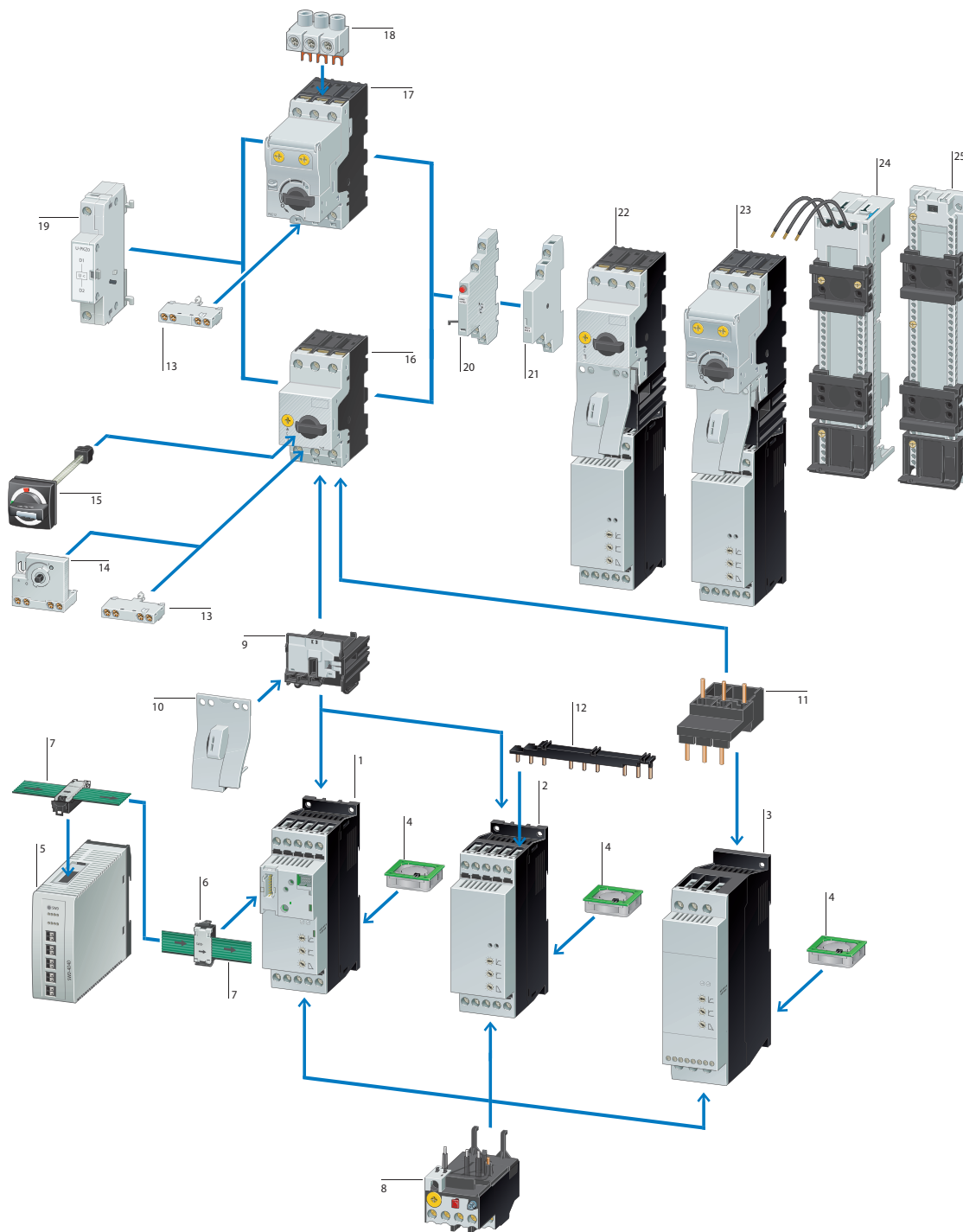
DS7 soft starters with SmartWire-DT® – Direct access to all parameters

Being able to use a controller to directly access all of a soft starter’s parameters via SmartWire-DT is the epitome of ease of operation. Users can read and overwrite potentiometer settings. Extended status, error, and diagnostic messages can be retrieved directly. The result: absolute data transparency. The plug-in units make installation fast and foolproof, and the resulting connection includes the soft starter’s control current supply.

Advantages:

- Reduced I/O level
- Plug-in control wiring prevents wiring errors
- Integrated solution does not require any additional options






- | | | | |
|-------|--|----|---|
| 1 | Soft starter DS7 with SmartWire-DT | 14 | Early-make auxiliary contact |
| 2 | DS7 soft starters in construction size 1 for assigned motor current up to 12 A | 15 | Door coupling handle |
| 3 | DS7 soft starters in construction size 2 for assigned motor current up to 32 A | 16 | PKZM0 motor-protective circuit-breakers |
| 4 | Device fan (DS7-FAN-32) | 17 | PKE motor-protective circuit-breakers |
| 5 | SmartWire-DT gateway | 18 | Connection clamp |
| 6 | SmartWire-DT external device plug | 19 | Voltage release |
| 7 | SmartWire-DT flat band conductor | 20 | Trip indicator |
| 8 | Overload relay | 21 | Standard auxiliary contacts |
| 9, 10 | PKZM0-XDM wiring set in tool-less plug connection | 22 | Motor-starter combination with PKZ |
| 11 | PKZM0-XM wiring set | 23 | Motor-starter combination with PKE |
| 12 | Three-phase commoning link | 24 | Busbar adapter |
| 13 | Standard auxiliary contacts | 25 | Top-hat rail adapter |





- 1 Soft starter S811+
- 2 Fuse bases and fuses
- 3 Connection terminals
- 4 Fieldbus connection
- 5 Operating unit

| Rated operational current device (AC-53) | Assigned motor rating at 400 V, 50 Hz | | Part no. | Article no. | Part no. | Article no. |
|---|---------------------------------------|-----|--|-------------|---|---|
| | I_e | P | | | | |
| A | kW | HP | U_c 24 V AC/DC U_s 24 V AC/DC Standard temperature range | | U_c 24 V AC/DC U_s 24 V AC/DC Expanded temperature range down to -40 °C | |
| Soft starters | | | | | | |
| Soft starters for three-phase loads Mains supply voltage (50/60 Hz) U_{LN} 200 - 480 V AC | | | | | | |
| 4 | 1.5 | 2 | DS7-340SX004N0-N | 134847 | DS7-340SX004N0-L | 171740 |
| 7 | 3 | 5 | DS7-340SX007N0-N | 134849 | DS7-340SX007N0-L | 171741 |
| 9 | 4 | 5 | DS7-340SX009N0-N | 134910 | DS7-340SX009N0-L | 171742 |
| 12 | 5.5 | 10 | DS7-340SX012N0-N | 134911 | DS7-340SX012N0-L | 171743 |
| 16 | 7.5 | 10 | DS7-340SX016N0-N | 134912 | DS7-340SX016N0-L | 171744 |
| 24 | 11 | 15 | DS7-340SX024N0-N | 134913 | DS7-340SX024N0-L | 171745 |
| 32 | 15 | 25 | DS7-340SX032N0-N | 134914 | DS7-340SX032N0-L | 171746 |
| 41 | 22 | 30 | DS7-340SX041N0-N | 134916 | DS7-340SX041N0-L | 171747 |
| 55 | 30 | 40 | DS7-340SX055N0-N | 134917 | DS7-340SX055N0-L | 171748 |
| 70 | 37 | 50 | DS7-340SX070N0-N | 134918 | DS7-340SX070N0-L | 171749 |
| 81 | 45 | 60 | DS7-340SX081N0-N | 134919 | DS7-340SX081N0-L | 171750 |
| 100 | 55 | 75 | DS7-340SX100N0-N | 134920 | DS7-340SX100N0-L | 171751 |
| 135 | 75 | 100 | DS7-340SX135N0-N | 134921 | DS7-340SX135N0-L | 171752 |
| 160 | 90 | 125 | DS7-340SX160N0-N | 134922 | DS7-340SX160N0-L | 171753 |
| 200 | 110 | 150 | DS7-340SX200N0-N | 134923 | DS7-340SX200N0-L | 171754 |
| | | | U_c 110 - 230 V AC U_s 110 - 230 V AC | | U_c 24 V DC U_s 24 V DC |  |
| 4 | 1.5 | 2 | DS7-342SX004N0-N | 134925 | DS7-34DSX004N0-D | 134943 |
| 7 | 3 | 5 | DS7-342SX007N0-N | 134927 | DS7-34DSX007N0-D | 134945 |
| 9 | 4 | 5 | DS7-342SX009N0-N | 134928 | DS7-34DSX009N0-D | 134946 |
| 12 | 5.5 | 10 | DS7-342SX012N0-N | 134929 | DS7-34DSX012N0-D | 134947 |
| 16 | 7.5 | 10 | DS7-342SX016N0-N | 134930 | DS7-34DSX016N0-D | 134948 |
| 24 | 11 | 15 | DS7-342SX024N0-N | 134931 | DS7-34DSX024N0-D | 134949 |
| 32 | 15 | 25 | DS7-342SX032N0-N | 134932 | DS7-34DSX032N0-D | 134950 |
| 41 | 22 | 30 | DS7-342SX041N0-N | 134934 | DS7-34DSX041N0-D | 134952 |
| 55 | 30 | 40 | DS7-342SX055N0-N | 134935 | DS7-34DSX055N0-D | 134953 |
| 70 | 37 | 50 | DS7-342SX070N0-N | 134936 | DS7-34DSX070N0-D | 134954 |
| 81 | 45 | 60 | DS7-342SX081N0-N | 134937 | DS7-34DSX081N0-D | 134955 |
| 100 | 55 | 75 | DS7-342SX100N0-N | 134938 | DS7-34DSX100N0-D | 134956 |
| 135 | 75 | 100 | DS7-342SX135N0-N | 134939 | DS7-34DSX135N0-D | 134957 |
| 160 | 90 | 125 | DS7-342SX160N0-N | 134940 | DS7-34DSX160N0-D | 134958 |
| 200 | 110 | 150 | DS7-342SX200N0-N | 134941 | DS7-34DSX200N0-D | 134959 |

Notes



| For use with | | Part no. | Article no. |
|---|--|--------------------|-------------|
| Device fans | | | |
| Device fan for increasing the load cycle (more starts per hour higher or longer-lasting starting current) | | | |
|  Flush-mounted fan | DS7-34...SX004... DS7-34...SX007... DS7-34...SX009... DS7-34...SX012... DS7-34...SX016... DS7-34...SX024... DS7-34...SX032... | DS7-FAN-032 | 135553 |
|  Bottom fans | DS7-34...SX041... DS7-34...SX055... DS7-34...SX070... DS7-34...SX081... DS7-34...SX100... DS7-34...SX135... DS7-34...SX160... DS7-34...SX200... | DS7-FAN-100 | 169021 |
| | | DS7-FAN-200 | 169022 |

| Frame size | Rated operational current | Assigned motor rating | | | | Part no. | Article no. |
|------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------|-------------|
| | AC-53 | at 230 V, 50 Hz kW | at 230 V, 60 Hz HP | at 400 V, 50 Hz kW | at 460 V, 60 Hz HP | | |
| | I _e A | | | | | | |

| Soft starters S811+ | | | | | | | |
|---|------|------|-----|------|-----|--------------------|--------|
| Soft starter for three-phase loads, with control unit | | | | | | | |
| Mains supply voltage (50/60 Hz) U _{LN} : 200 - 600 V AC | | | | | | | |
| In-line configuration/In-delta configuration | | | | | | | |
| Supply voltage U _s : 24 V DC | | | | | | | |
| Control voltage U _c : 24 V DC | | | | | | | |
| With internal bypass contacts | | | | | | | |
| Terminal blocks for the terminals are required for frame sizes T, U, and V -> Accessories | | | | | | | |
| N | 37 | 7.5 | 10 | 18.5 | 25 | S811+N37N3S | 168976 |
| | 66 | 18.5 | 20 | 30 | 50 | S811+N66N3S | 168978 |
| R | 105 | 30 | 40 | 55 | 75 | S811+R10N3S | 168980 |
| | 135 | 37 | 50 | 75 | 100 | S811+R13N3S | 168982 |
| T | 180 | 55 | 60 | 90 | 150 | S811+T18N3S | 168984 |
| | 240 | 75 | 75 | 132 | 200 | S811+T24N3S | 168987 |
| | 304 | 90 | 100 | 160 | 250 | S811+T30N3S | 168990 |
| U | 361 | 110 | 125 | 200 | 300 | S811+U36N3S | 169869 |
| | 420 | 132 | 150 | 200 | 350 | S811+U42N3S | 169870 |
| V | 361 | 110 | 125 | 200 | 300 | S811+V36N3S | 168993 |
| | 420 | 132 | 150 | 200 | 350 | S811+V42N3S | 168996 |
| | 500 | 160 | 200 | 250 | 400 | S811+V50N3S | 168999 |
| | 650 | 200 | 250 | 315 | 500 | S811+V65N3S | 169002 |
| | 720 | 250 | - | 400 | 600 | S811+V72N3S | 169005 |
| | 850 | - | - | 450 | 600 | S811+V85N3S | 169008 |
| | 1000 | - | - | 560 | 750 | S811+V10N3S | 169011 |

Notes

Sizes S811+



Switching, Protecting and Driving Motors

Build it in.



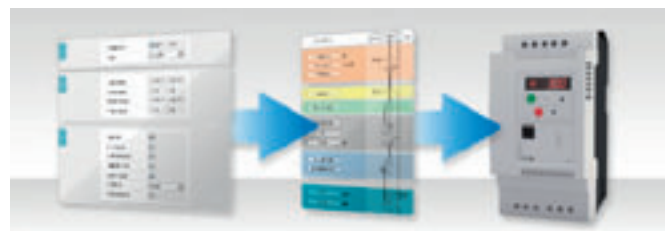
PowerXL™: The right drive for each application



Catalog download:
www.eaton.eu/catalog

Our customers have a wide range of requirements that is only matched by the wide range of devices and functionalities in Eaton's range of high-efficiency drives engineering products – from starting motors in simple machines to speed control for complex applications and heavy loads.

In fact, the PowerXL™ and 9000X* device families cover every single application from variable speed starters to liquid-cooled variable frequency drives. Especially now that the PowerXL family has been expanded with two impressive new additions: the extremely efficient DE1 variable speed starter and the general-purpose DG1 variable frequency drive.



*For more detailed information on 9000X variable frequency drives, please refer to our product range catalog.

PowerXL™ selection aid Simple planning and engineering

An electronic selection aid provides simple planning, helping you quickly select the drive required for your application and the associated switchgear, protective elements, chokes, and filters complete with the corresponding article number.

www.eaton.eu/selectiontools

 www.eaton.eu/powerxl

PowerXL™ DE1/DE11 variable speed starters



PowerXL™ DE1/DE11 variable speed starters combine ease of use and maximum reliability with variable motor speeds and improved machine energy efficiency. With them, Eaton offers a device class that closes the gap between conventional motor starters and variable frequency drives while combining all the advantages of both in a single unit. The DE11 is the latest addition to this product range, and adds CANopen, plug-in control signal terminals, and a configurable output relay to the list of features already found in its predecessor.

Performance range:

- 0.25 ... 2.2 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.37 ... 7.5 kW (Ue: 3~ 400 V, U2: 3~ 400 V)

Features:

- Compact: 45-mm width
- Out-of-the-box commissioning without parameterization
- No special drives engineering skills or knowledge required

- Screwdriver parameterization can be set with DXE-EXT-SET optional configuration module
- Trip-free-design ensures maximum machine availability
- Suitable for use in ambient temperatures of up to 60°C
- International standards (CE, UL, cUL, cTick, RoHS)
- DE11: CANopen, plug-in control signal terminals, configurable output relay

Commissioning

As easy to use as a motor starter

No special knowledge of drives is required for the new DE1 Variable Speed Starter – either for installation or commissioning. The compact Variable Speed Starter is as easy and convenient to use as a conventional motor starter.

The device is unpacked and simply wired like a motor starter – that's it. The DE1 Variable Speed Starter is ready to go. It couldn't be easier! In addition, the "out-of-the-box commissioning" reduces the chances of installation faults to a minimum and at the same time it makes installation faster and more cost-efficient!



1 Snap the variable speed starter on the DIN-Rail.



2 Connect mains and motor cables.



3 Wire control terminals.



4 Switch on and the motor runs with its speed controlled.

Parameterization by screwdriver

DXE-EXT-SET (plug-in configuration module)

Beyond the out-of-the-box commissioning that eliminates the need for parameterization, the user also has the option of using the plug-in DXE-EXT-SET configuration module to adjust the default settings of key parameters such as ramp time, motor protection and control terminal function to fit the current application. All that is needed is a screwdriver.



PowerXL™ DC1 variable frequency drives – Compact machinery drive



The compact PowerXL™ variable frequency drive is particularly well-suited for use with simple pump, fan, and conveyor belt systems. It can be quickly and easily configured and commissioned, resulting in tangible savings.

Performance range:

- 0.37 ... 0.55 kW (Ue: 1~ 115 V, U2: 1~ 115 V)
- 0.37 ... 1.1 kW (Ue: 1~ 115 V, U2: 3~ 230 V)
- 0.37 ... 1.1 kW (Ue: 1~ 230 V, U2: 1~ 230 V)
- 0.37 ... 4 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.37 ... 11 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 22 kW (Ue: 3~ 400 V, U2: 3~ 400 V)

Features:

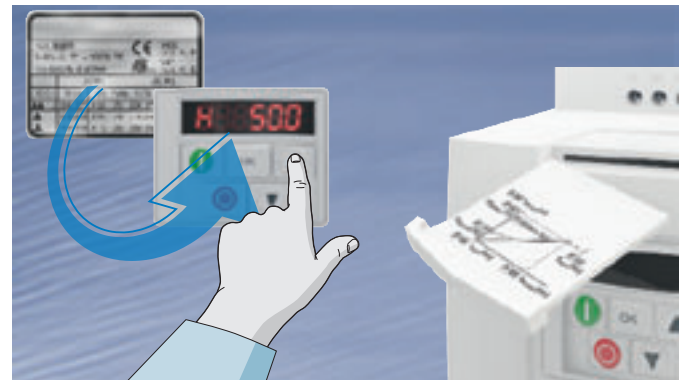
- Fast commissioning with 14 basic parameters
- Large overload capability: 150% for 60 seconds, 175% for 2 seconds

- Ambient air temperature up to 50 °C without derating
- Integrated CANopen and Modbus RTU
- Degrees of protection IP20 and IP66
- Integrated EMC filter
- Integrated braking transistor
- Integrated PI controller
- V/F control
- Voltage boost
- DC braking
- Detachable control signal terminal strip
- International standards (CE, UL, cUL, c-Tick, RoHS, EAC, UkrSEPRO)



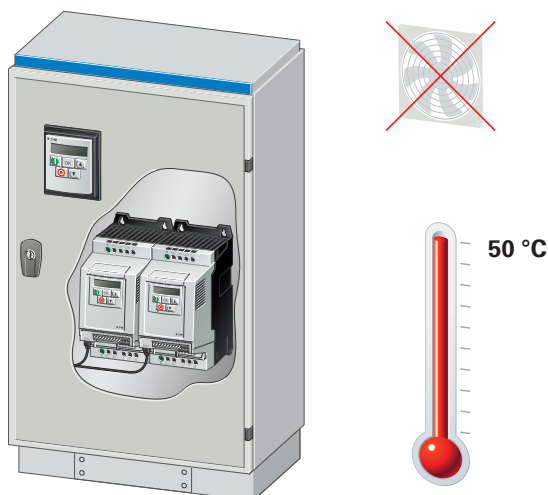
Simply use a COM stick to copy parameter configurations

Our communications stick makes it possible to quickly and easily transfer parameters from your laptop to PowerXL variable frequency drives using Bluetooth. The convenience of this feature is only matched by the stick's copy function, which can be used to transfer parameters from one variable frequency drive to another.



Communicate like never before

Our new variable frequency drives also come with the latest in communication features, including a CANopen and Modbus RTU interface as standard. In addition, DA1 drives can also be connected to Ethernet-based protocols (PROFINET, Ethernet/IP, EtherCAT, Modbus TCP, BACnet/IP), the widespread PROFIBUS, and, for American markets, DeviceNet.



No derating at 50 °C

All DE1, DC1, and DA1 IP20 devices are able to work at an ambient air temperature of 50 °C without derating, i.e., the units can be operated at their rated current even under these conditions. In addition, the option of installing the devices side by side ensures that the space inside your control panel will be used as efficiently as possible.

The advantages:

- Optimized control cabinet configuration
- Eliminates the costs of additional ventilation/cooling

PowerXL™ DA1 variable frequency drive – Advanced machinery drive



The PowerXL™ DA1 variable frequency drive, designed for the machine and system building industry, is characterized by its enormous flexibility in terms of communications protocols, a function block editor (PLC) that makes it possible to configure the drive as necessary for specific applications, and a powerful vector control mode for highly dynamic applications.

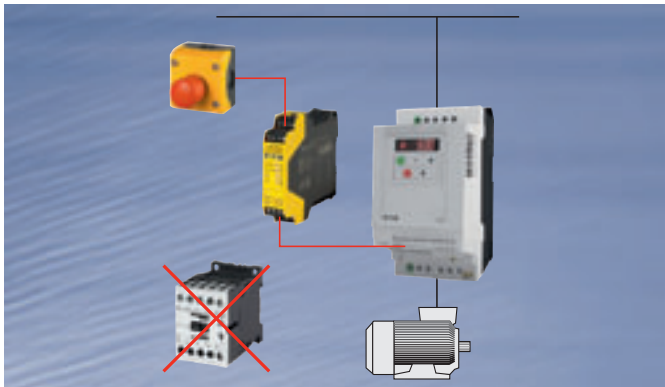
Performance range:

- 0.75 ... 2.2 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.75 ... 75 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 250 kW (Ue: 3~ 400 V, U2: 3~ 400 V)
- 0.75 ... 110 kW (Ue: 3~ 575 V, U2: 3~ 575 V)

Features:

- Large overload capability: 150 % for 60 seconds, 200 % for 4 seconds.
- Integrated Modbus RTU and CANopen
- Ambient air temperature up to 50 °C without derating
- Integrated EMC filter

- Integrated braking transistor
- Various I/O expansions
- V/F control, vector SL and CL, PM motors, BLDC motors, SynRel motors
- Optional field bus connections
- Safe Torque Off (STO, SIL 2/PI d)
- Optional high-resolution OLED display
- International standards (CE, UL, cUL, c-Tick, RoHS, EAC, UkrSEPRO, DNV)



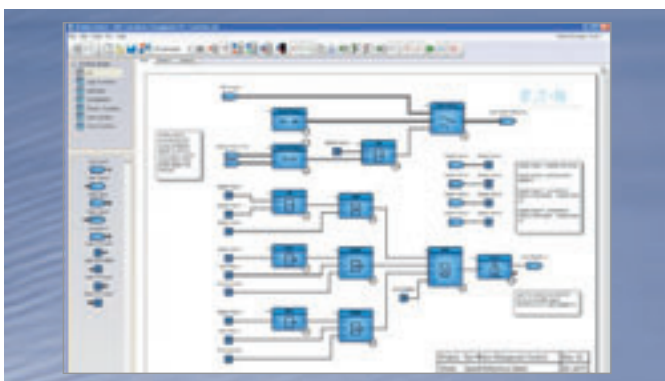
The built-in STO (Safe Torque Off) safety function

The Safe Torque-Off (STO) function is how the most fundamental drive-integrated safety function is implemented in the DA1, ensuring that torque will be fully removed from the motor and preventing accidental starts. This also eliminates the need for an additional mains contactor.



High communications flexibility

The new DE1 series comes with Modbus RTU as its integrated default communications protocol, while the DC1 and DA1 series come with the CANopen protocol already integrated at the factory. Moreover, all the variable frequency drives in these three series can be expanded with SmartWire-DT modules. SmartWire-DT can be used with cyclic and acyclic services in order to control, configure and diagnose these drives by using the corresponding PROFIdrive profile. In addition, the DA1 series specifically comes with an expansion slot that can be used to expand its communication capabilities with a PROFIBUS, PROFINET, Ethernet/IP, EtherCAT, DeviceNet, or Modbus/TCP plug-in module. Finally, there are function blocks available for connecting DE1, DC1, and DA1 devices to PLCs or HMIs.



Function block editor – Simple programming

The function block editor can be used to create separate logic operations for the DA1 – with time dependencies, for example - within the variable frequency drive in order to generate original applications. This makes it possible to configure the variable frequency drive for any application, cutting down on additional hardware costs in the process.

PowerXL™ DG1 variable frequency drive – General purpose drive



PowerXL™ DG1 multi-purpose drives are variable frequency drives belonging to Eaton's next-generation PowerXL™ series. They are specifically designed for modern, sophisticated applications: In fact, a patented energy-saving algorithm, high short-circuit specifications, and a heavy-duty design all enable them to provide maximum efficiency, safety, and reliability – all combined with a conformal coating designed to provide protection against aggressive environments.

Performance range::

- 0.75 ... 90/132 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 160 kW (Ue: 3~ 400 V, U2: 3~ 400 V)
- 1.5 ... 150 kW (Ue: 3~ 575 V, U2: 3~ 575 V)
- Dual Rating (150% and 110% overload)

Features:

- Can be used within a temperature range of -30 °C to +50 °C (60 °C with derating)
- STO
- Internal EMC filter (C2)
- Internal DC link choke (5%)
- On Board:
 - Extensive I/O: 8 DIs, 1 DO, 3 ROs, 2 AIs, 2 AOs
 - 2 expansion slots
 - Internal braking chopper (with the option of not having one for 61 A and higher)
 - Modbus RTU&TCP, Bacnet MSTP and Ethernet IP
- All sizes available in IP21 and IP54
- LCD graphic display
- Real-time clock (with battery backup)

Can be flexibly configured as required for your application:

- 4 applications with custom-tailored parameter sets
- Comprehensive monitor functions: 43 monitor values
- 2 PID
- Comprehensive multi-pump functionality (single master, multi-master, multi-follower, time control)

Expandable:

- Profibus
- In brief:
 - Profinet, SWD, CANopen, DeviceNet

IO expansions

- Digital IO (3DI, 3DO, 1 thermistor)
- Analog IO (1AI, 2AO)
- Digital IO 240V (6DI)
- Relay board (3RO)
- PT100 board (3PT100)

Flange mounting

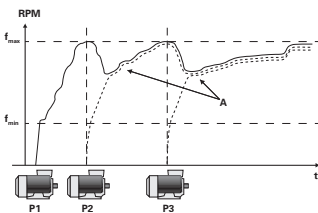
Global acceptance:

- CE, UL, cUL, C-Tick, EAC, UkrSepso, RoHS



The same ease of use as in all other PowerXL variable frequency drives

Startup Wizard with standard parameters just like in DC1 and DA1 units; efficient diagnostics; switching between local and remote operation; removable control panel with copy & paste functionality. Extensive I/O and on-board COM can be expanded further with two slots.



Control algorithms for complex pump systems already integrated

The internal multi-pump functionality makes it possible to use the DG1 to control virtually any pump system without the need for any expansions. When the unit is used this way, its real-time clock controls the uniform use of all available pumps.



Power Xpert inControl

The new PC software platform for all future communication-capable Eaton devices. It is designed to assist users with programming, control, and monitoring. The following functions are included: loading, saving, and printing parameter sets; setting setpoints; controlling the variable frequency drive. Monitoring is done in text or graphic format.



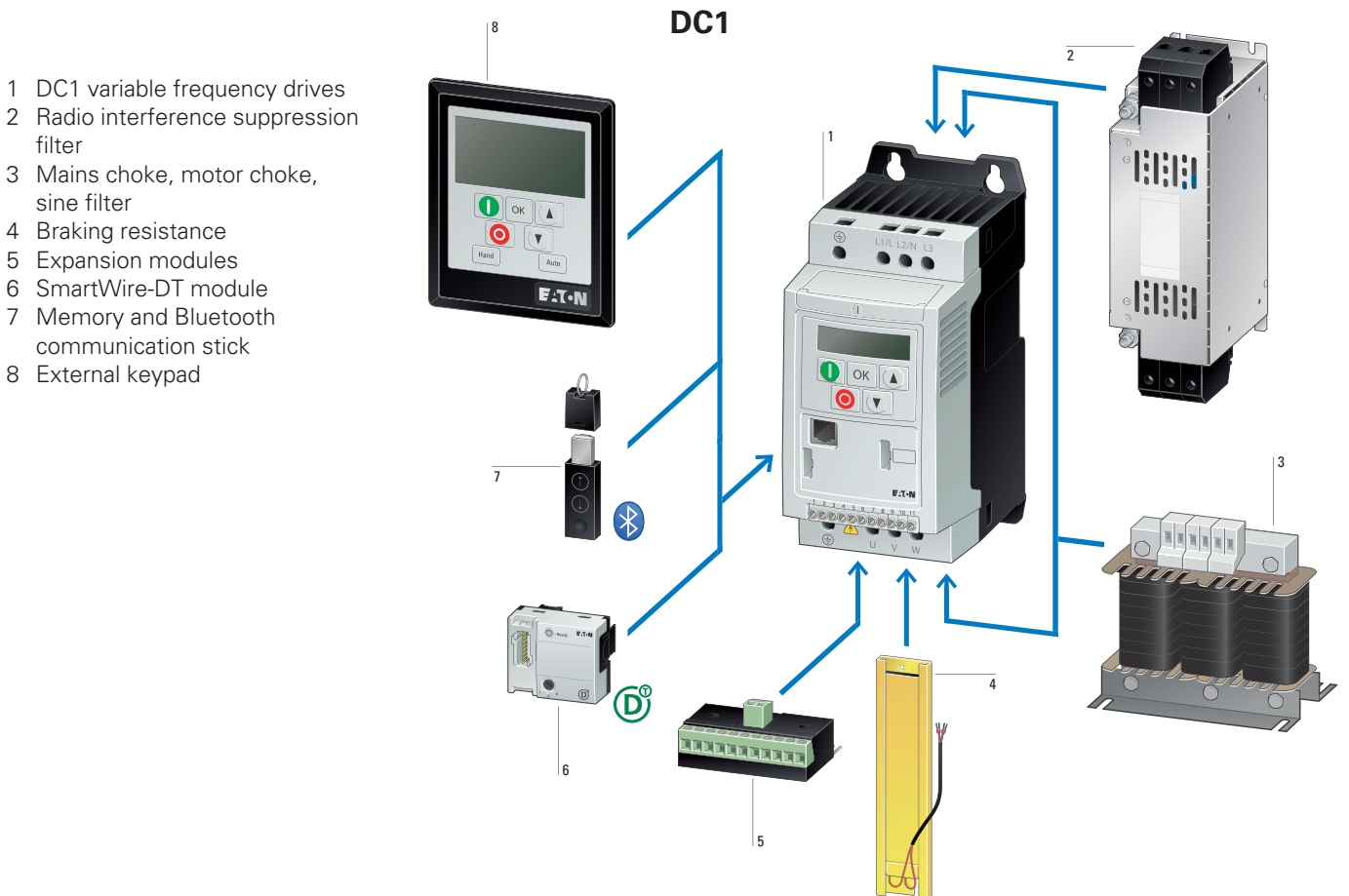
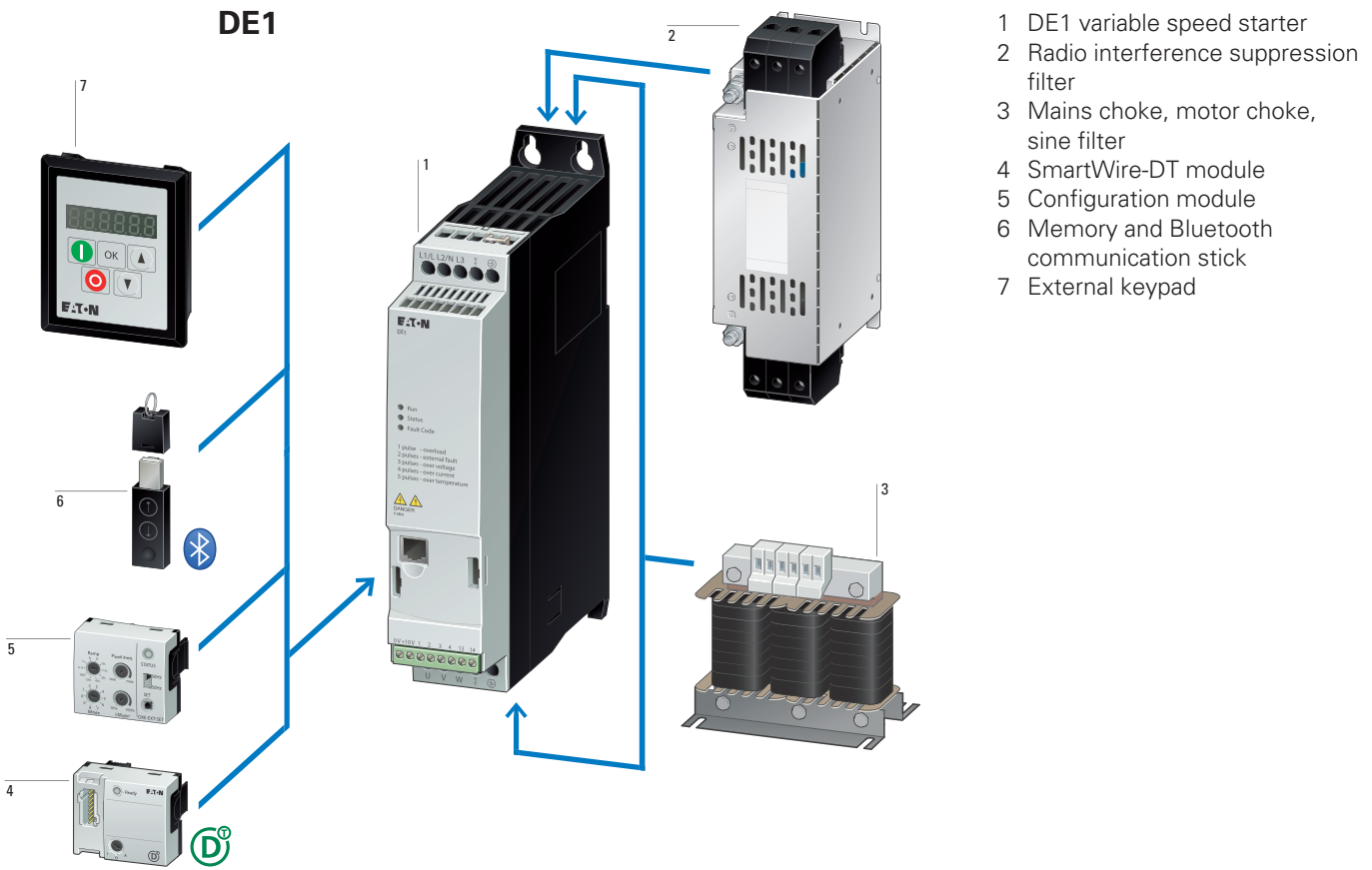
Supported products as of this writing:

- PowerXL DG1 drives
- C445 overload relays



PowerXL™ variable speed starters DE1, variable frequency drives DC1

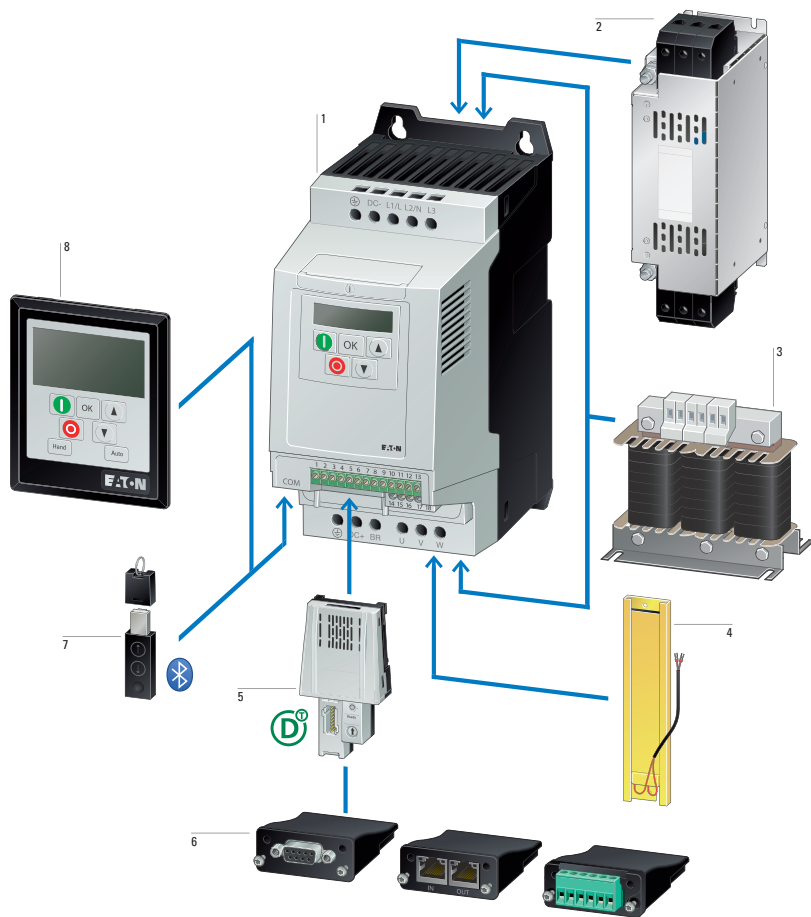
System overview



Switching, Protecting and Driving Motors

PowerXL™ DA1, DG1 variable frequency drives

System overview



- 1 DA1 variable frequency drive
- 2 Radio interference suppression filter
- 3 Mains choke, motor choke, sine filter
- 4 Brake Resistor
- 5 SmartWire-DT module
- 6 Communication modules, expansion modules
- 7 Memory and Bluetooth communication stick
- 8 External keypad

- 1 DG1 Variable frequency drive
- 2 Mounting frame for push-through mounting
- 3 Radio interference suppression filter
- 4 Brake Resistor
- 5 Mains choke, motor choke, sine filter
- 6 Communication modules, expansion modules
- 7 Mounting frame for operating unit



| Rated operational current ¹⁾ I_e A | Assigned motor rating ^{1), 2), 3)} P kW P HP | | Radio interference suppression filter | Frame size | Degree of Protection | Part no. | Article no. |
|---|---|------|---------------------------------------|------------|----------------------|---------------------------------|-------------|
| Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V $U_e = 1 \text{ phase} / U_2 = 3 \text{ phase}$ | | | | | | | |
| 1.4 | 0.25 | 0.33 | ✓ | FS1 | IP20/NEMA 0 | DE1-121D4FN-N20N | 174327 |
| 2.3 | 0.37 | 0.5 | ✓ | | | DE1-122D3FN-N20N | 174328 |
| 2.7 | 0.55 | 0.5 | ✓ | | | DE1-122D7FN-N20N | 174329 |
| 4.3 | 0.75 | 1 | ✓ | | | DE1-124D3FN-N20N | 174330 |
| 7 | 1.5 | 2 | ✓ | | | DE1-127D0FN-N20N | 174331 |
| 9.6 | 2.2 | 3 | ✓ | FS2 | | DE1-129D6FN-N20N | 174332 |
| Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V $U_e = 3 \text{ phase} / U_2 = 3 \text{ phase}$ | | | | | | | |
| 1.3 | 0.37 | 0.5 | ✓ | FS1 | IP20/NEMA 0 | DE1-341D3FN-N20N | 174333 |
| 2.1 | 0.75 | 1 | ✓ | | | DE1-342D1FN-N20N | 174334 |
| 3.6 | 1.5 | 2 | ✓ | | | DE1-343D6FN-N20N | 174335 |
| 5 | 2.2 | 3 | ✓ | FS2 | IP20/NEMA 0 | DE1-345D0FN-N20N | 174336 |
| 6.6 | 3 | 3 | ✓ | | | DE1-346D6FN-N20N | 174337 |
| 8.5 | 4 | 5 | ✓ | | | DE1-348D5FN-N20N | 174338 |
| 11.3 | 5.5 | 7.5 | ✓ | | | DE1-34011FN-N20N | 174339 |
| 16 | 7.5 | 10 | ✓ | | | DE1-34016FN-N20N | 174340 |
| Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V $U_e = 1 \text{ phase} / U_2 = 3 \text{ phase}$ | | | | | | | |
| 1.4 | 0.25 | 0.33 | ✓ | FS1 | IP20/NEMA 0 | DE11-121D4FN-N20N ⁴⁾ | 180650 |
| 2.3 | 0.37 | 0.5 | ✓ | | | DE11-122D3FN-N20N ⁴⁾ | 180651 |
| 2.7 | 0.55 | 0.5 | ✓ | | | DE11-122D7FN-N20N ⁴⁾ | 180652 |
| 4.3 | 0.75 | 1 | ✓ | | | DE11-124D3FN-N20N ⁴⁾ | 180653 |
| 7 | 1.5 | 2 | ✓ | | | DE11-127D0FN-N20N ⁴⁾ | 180654 |
| 9.6 | 2.2 | 3 | ✓ | FS2 | | DE11-129D6FN-N20N ⁴⁾ | 180655 |
| Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V $U_e = 3 \text{ phase} / U_2 = 3 \text{ phase}$ | | | | | | | |
| 1.3 | 0.37 | 0.5 | ✓ | FS1 | IP20/NEMA 0 | DE11-341D3FN-N20N ⁴⁾ | 180662 |
| 2.1 | 0.75 | 1 | ✓ | | | DE11-342D1FN-N20N ⁴⁾ | 180663 |
| 3.6 | 1.5 | 2 | ✓ | | | DE11-343D6FN-N20N ⁴⁾ | 180664 |
| 5 | 2.2 | 3 | ✓ | FS2 | IP20/NEMA 0 | DE11-345D0FN-N20N ⁴⁾ | 180665 |
| 6.6 | 3 | 3 | ✓ | | | DE11-346D6FN-N20N ⁴⁾ | 180666 |
| 8.5 | 4 | 5 | ✓ | | | DE11-348D5FN-N20N ⁴⁾ | 180667 |
| 11.3 | 5.5 | 7.5 | ✓ | | | DE11-34011FN-N20N ⁴⁾ | 180668 |
| 16 | 7.5 | 10 | ✓ | | | DE11-34016FN-N20N ⁴⁾ | 180669 |

Notes

- ¹⁾ Overload cycle: 150 % for 60 s every 600 s
- ²⁾ DE1/DE11-12...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz
DE1/DE11-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz
- ³⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz
- ⁴⁾ DE11... with additional features in comparison to DE1...: CANopen, plug-in control signal terminals, configurable output relay



DE1/DE11, FS1



DE1/DE11, FS2

PowerXL™ variable frequency drives

DC1, for AC motors, 115 V/230 V, IP20

Moeller® series

| Rated operational current ¹⁾ <i>I_e</i> A | Assigned motor rating ^{1), 2), 3)} | | Fitted with | | | Frame size | Degree of Protection | Part no. | Article no. |
|--|---|---------|--|------------------|-------------------------------|-------------------------|-------------------------|-------------------------|-------------|
| | P kW | P HP | Radio interference suppression filter | Brake chopper | 7-digital display assembly | | | | |
| Mains voltage (50/60Hz) U_{LN} 110 (-10%) - 115 (+10%) V U _e = 1 phase / U ₂ = 1 phase | | | | | | | | | |
| 7 | 0.37 | 0.5 | - | - | ✓ | FS1 | IP20/NEMA 0 | DC1-S17D0NN-A20N | 169497 |
| 10.5 | 0.55 | 0.75 | - | ✓ | ✓ | FS2 | | DC1-S1011NB-A20N | 169500 |
| Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V U _e = 1 phase / U ₂ = 1 phase | | | | | | | | | |
| 4.3 | 0.37 | 0.5 | - | - | ✓ | FS1 | IP20/NEMA 0 | DC1-S24D3NN-A20N | 169512 |
| | | | ✓ | - | ✓ | | | DC1-S24D3FN-A20N | 169521 |
| 7 | 0.75 | 1 | - | - | ✓ | DC1-S27D0NN-A20N | | 169515 | |
| | | | ✓ | - | ✓ | DC1-S27D0FN-A20N | | 169524 | |
| 10.5 | 1.1 | 1.5 | - | ✓ | ✓ | FS2 | DC1-S2011NB-A20N | 169518 | |
| | | | ✓ | ✓ | ✓ | | DC1-S2011FB-A20N | 169527 | |

Notes

¹⁾ Overload cycle: 150 % for 60 s every 600 s

²⁾ DC1-S1...: at 115 V, 50 Hz/at 110 - 120 V, 60 Hz

DC1-S2...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz

³⁾ For AC motors with internal and external ventilation with 50/60 Hz without additional start capacitor



| Rated operational current ¹⁾ <i>I_e</i> A | Assigned motor rating ^{1), 2), 3)} | | Fitted with Radio interference suppression filter Brake chopper 7-digital display assembly | Frame size | Degree of Protection | Part no. | Article no. |
|--|---|---------|---|------------|----------------------|------------------|-------------|
| | P kW | P HP | | | | | |
| Mains voltage (50/60Hz) U_{LN} 110 (-10%) - 115 (+10%) V | | | | | | | |
| U _e = 1 phase / U ₂ = 3 phase The mains voltage of 115 V is raised to 230 V (output voltage) through an internal voltage double connection. | | | | | | | |
| 2.3 | 0.37 | 0.5 | - - ✓ | FS1 | IP20/NEMA 0 | DC1-1D2D3NN-A20N | 169503 |
| 4.3 | 0.75 | 1 | - - ✓ | | | DC1-1D4D3NN-A20N | 169506 |
| 5.8 | 1.1 | 1.5 | - ✓ ✓ | FS2 | | DC1-1D5D8NB-A20N | 169509 |
| Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V | | | | | | | |
| U _e = 1 phase / U ₂ = 3 phase | | | | | | | |
| 2.3 | 0.37 | 0.5 | - - ✓ ✓ - ✓ | FS1 | IP20/NEMA 0 | DC1-122D3NN-A20N | 169222 |
| 4.3 | 0.75 | 1 | - - ✓ ✓ - ✓ | | | DC1-122D3FN-A20N | 169240 |
| 7 | 1.5 | 2 | - - ✓ ✓ - ✓ | FS2 | | DC1-124D3NN-A20N | 169225 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-124D3FN-A20N | 169243 |
| 10.5 | 2.2 | 3 | - ✓ ✓ ✓ ✓ ✓ | FS3 | | DC1-127D0NN-A20N | 169228 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-127D0FN-A20N | 169246 |
| 15 | 4 | 5 | - ✓ ✓ ✓ ✓ ✓ | FS2 | | DC1-127D0NB-A20N | 169231 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-127D0FB-A20N | 169249 |
| 10.5 | 2.2 | 3 | - ✓ ✓ ✓ ✓ ✓ | FS3 | | DC1-12011NB-A20N | 169234 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-12011FB-A20N | 169252 |
| 15 | 4 | 5 | - ✓ ✓ ✓ ✓ ✓ | FS3 | | DC1-12015NB-A20N | 169237 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | | |
| Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V | | | | | | | |
| U _e = 3 phase / U ₂ = 3 phase | | | | | | | |
| 2.2 | 0.75 | 1 | - - ✓ ✓ - ✓ | FS1 | IP20/NEMA 0 | DC1-342D2NN-A20N | 169453 |
| 4.1 | 1.5 | 2 | - - ✓ ✓ - ✓ | | | DC1-342D2FN-A20N | 169475 |
| 5.8 | 2.2 | 3 | - ✓ ✓ ✓ ✓ ✓ | FS2 | | DC1-344D1NN-A20N | 169456 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-344D1FN-A20N | 169478 |
| 9.5 | 4 | 5 | - ✓ ✓ ✓ ✓ ✓ | FS2 | | DC1-344D1NB-A20N | 169459 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-344D1FB-A20N | 169481 |
| 5.8 | 2.2 | 3 | - ✓ ✓ ✓ ✓ ✓ | FS2 | | DC1-345D8NB-A20N | 169462 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-345D8FB-A20N | 169484 |
| 9.5 | 4 | 5 | - ✓ ✓ ✓ ✓ ✓ | FS2 | | DC1-349D5NB-A20N | 169465 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-349D5FB-A20N | 169487 |
| Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V | | | | | | | |
| U _e = 3 phase / U ₂ = 3 phase | | | | | | | |
| 14 | 5.5 | 10 | - ✓ ✓ ✓ ✓ ✓ | FS3 | IP20/NEMA 0 | DC1-34014NB-A20N | 169468 |
| 18 | 7.5 | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34014FB-A20N | 169490 |
| 24 | 11 | 15 | - ✓ ✓ ✓ ✓ ✓ | FS4 | | DC1-34018NB-A20N | 169471 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34018FB-A20N | 169493 |
| 30 | 15 | 20 | - ✓ ✓ ✓ ✓ ✓ | FS4 | | DC1-34024NB-A20N | 169474 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34024FB-A20N | 169496 |
| 39 | 18.5 | 25 | - ✓ ✓ ✓ ✓ ✓ | FS4 | | DC1-34030NB-A20N | 180464 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34030FB-A20N | 180461 |
| 46 | 22 | 30 | - ✓ ✓ ✓ ✓ ✓ | FS4 | | DC1-34039NB-A20N | 180465 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34039FB-A20N | 180462 |
| 46 | 22 | 30 | - ✓ ✓ ✓ ✓ ✓ | FS4 | | DC1-34046NB-A20N | 180466 |
| | | | - ✓ ✓ ✓ ✓ ✓ | | | DC1-34046FB-A20N | 180463 |

Notes

- ¹⁾ Overload cycle: 150 % for 60 s every 600 s
- ²⁾ DC1-1D..., DC1-12..., DC1-32...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz
DC1-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz
- ³⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz

Switching, Protecting and Driving Motors

| Rated operational current ¹⁾ I _e A | Assigned motor rating ^{1), 2), 3)} | | Fitted with | | | | | | | Frame size | Degree of Protection | Part no. | Article no. |
|---|---|---------|---------------------------------------|---------------|---------------|----------------------------|--------------|---------------------------|----------------|------------|----------------------|------------------|-------------|
| | P kW | P HP | Radio interference suppression filter | Brake chopper | DC link choke | 7-digital display assembly | OLED display | Additional PCB protection | Local controls | | | | |
| Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V | | | | | | | | | | | | | |
| U _e = 1 phase / U ₂ = 3 phase | | | | | | | | | | | | | |
| 4.3 | 0.75 | 1 | ✓ | ✓ | - | ✓ | - | ✓ | - | FS2 | IP20/NEMA 0 | DA1-124D3FB-A20C | 169078 |
| 7 | 1.5 | 2 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-127D0FB-A20C | 169081 |
| 10.5 | 2.2 | 3 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-12011FB-A20C | 169084 |
| Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V | | | | | | | | | | | | | |
| U _e = 3 phase / U ₂ = 3 phase | | | | | | | | | | | | | |
| 2.2 | 0.75 | 1 | ✓ | ✓ | - | ✓ | - | ✓ | - | FS2 | IP20/NEMA 0 | DA1-342D2FB-A20C | 169117 |
| 4.1 | 1.5 | 2 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-344D1FB-A20C | 169120 |
| 5.8 | 2.2 | 3 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-345D8FB-A20C | 169051 |
| 9.5 | 4 | 5 | ✓ | ✓ | - | ✓ | - | ✓ | - | FS3 | IP20/NEMA 0 | DA1-349D5FB-A20C | 169054 |
| 14 | 5.5 | 10 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-34014FB-A20C | 169057 |
| 18 | 7.5 | 10 | ✓ | ✓ | - | ✓ | - | ✓ | - | | | DA1-34018FB-A20C | 169060 |
| 24 | 11 | 15 | ✓ | ✓ | - | ✓ | - | ✓ | - | FS4 | IP55/NEMA 12 | DA1-34024FB-A20C | 169063 |
| | | | ✓ | ✓ | - | - | ✓ | ✓ | - | | | DA1-34024FB-B55C | 169390 |
| 30 | 15 | 20 | ✓ | ✓ | - | - | ✓ | ✓ | - | | | DA1-34030FB-B55C | 169391 |
| 39 | 18.5 | 25 | ✓ | ✓ | - | - | ✓ | ✓ | - | FS5 | IP55/NEMA 12 | DA1-34039FB-B55C | 169392 |
| 46 | 22 | 30 | ✓ | ✓ | - | - | ✓ | ✓ | - | | | DA1-34046FB-B55C | 169393 |
| 61 | 30 | 40 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34061FB-B55C | 169394 |
| 72 | 37 | 50 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | FS6 | IP55/NEMA 12 | DA1-34072FB-B55C | 169395 |
| 90 | 45 | 60 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34090FB-B55C | 169397 |
| 110 | 55 | 75 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34110FB-B55C | 169399 |
| 150 | 75 | 100 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | FS7 | IP55/NEMA 12 | DA1-34150FB-B55C | 169401 |
| 180 | 90 | 150 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34180FB-B55C | 169403 |
| 202 | 110 | | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34202FB-B55C | 169405 |
| 240 | 132 | 200 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | FS8 | IP20/NEMA 0 | DA1-34240FB-B55C | 169407 |
| 302 | 160 | 250 | ✓ | ✓ | ✓ | - | ✓ | ✓ | - | | | DA1-34302FB-B55C | 169217 |
| 370 | 200 | 300 | ✓ | ✓ | - | - | ✓ | ✓ | - | | | DA1-34370FB-B20C | 169219 |
| 450 | 250 | 350 | ✓ | ✓ | - | - | ✓ | ✓ | - | | | DA1-34450FB-B20C | 169221 |

Notes

¹⁾ Overload cycle for 60 s every 600 s

²⁾ DA1-12...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz
DA1-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz

³⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz



DA1, FS2



DA1, FS3



DA1, FS4



DA1, FS5



DA1, FS6



DA1, FS7



DA1, FS8

PowerXL™ variable frequency drives

DG1, for three-phase motors 400 V, IP21

| Rated operational current ¹⁾ | Assigned motor rating 1), 2), 3) | | | Rated operational current ¹⁾ | Assigned motor rating 1), 2), 3) | | | Fitted with | | | | | Frame size | Degree of Protection | Part no. | Article no. |
|---|-------------------------------------|--------------------------|--------------------------|---|-------------------------------------|--------------------------|--------------------------|--|---------------|----------------------------|---------------------------|------------------|------------------|----------------------|----------|-------------|
| | $I_H = 150\%$ I_e A | $I_H = 150\%$ P kW | $I_H = 150\%$ P HP | | $I_L = 110\%$ I_e A | $I_L = 110\%$ P kW | $I_L = 110\%$ P HP | Radio interference suppression filter Brake chopper | DC link choke | Multi-line graphic display | Additional PCB protection | | | | | |
| Mains voltage (50/60Hz) U_{LN}: 380 (-15%) - 500 (+10%) V | | | | | | | | | | | | | | | | |
| $U_e = 3 \text{ phase} / U_2 = 3 \text{ phase}$ | | | | | | | | | | | | | | | | |
| 2.2 | 0.75 | 1 | 3.3 | 1.1 | 1.5 | ✓ | ✓ | ✓ | ✓ | ✓ | FS1 | IP21/ NEMA1 | DG1-342D2FB-C21C | 9702-1002-00P | | |
| 3.3 | 1.1 | 1.5 | 4.3 | 1.5 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | | | DG1-343D3FB-C21C | 9702-1004-00P | | |
| 4.3 | 1.5 | 2 | 5.6 | 2.2 | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-344D3FB-C21C | | 9702-1006-00P | | | |
| 5.6 | 2.2 | 3 | 7.6 | 3 | | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-345D6FB-C21C | | 9702-1008-00P | | | |
| 7.6 | 3 | | 9 | 4 | 5 | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-347D6FB-C21C | | 9702-1001-00P | | | |
| 9 | 4 | 5 | 12 | 5.5 | 7.5 | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-349D0FB-C21C | | 9702-1011-00P | | | |
| 12 | 5.5 | 7.5 | 16 | 7.5 | 10 | ✓ | ✓ | ✓ | ✓ | ✓ | FS2 | | DG1-34012FB-C21C | 9702-2002-00P | | |
| 16 | 7.5 | 10 | 23 | 11 | 15 | ✓ | ✓ | ✓ | ✓ | ✓ | | | DG1-34016FB-C21C | 9702-2004-00P | | |
| 23 | 11 | 15 | 31 | 15 | 20 | ✓ | ✓ | ✓ | ✓ | ✓ | | | DG1-34023FB-C21C | 9702-2001-00P | | |
| 31 | 15 | 20 | 38 | 18.5 | 25 | ✓ | ✓ | ✓ | ✓ | ✓ | FS3 | | DG1-34031FB-C21C | 9702-3002-00P | | |
| 38 | 18.5 | 25 | 46 | 22 | 30 | ✓ | ✓ | ✓ | ✓ | ✓ | | DG1-34038FB-C21C | 9702-3004-00P | | | |
| 46 | 22 | 30 | 61 | 30 | 40 | ✓ | ✓ | ✓ | ✓ | ✓ | | DG1-34046FB-C21C | 9702-3001-00P | | | |
| 61 | 30 | 40 | 72 | 37 | 50 | ✓ | ✓ | ✓ | ✓ | ✓ | FS4 | DG1-34061FB-C21C | 9702-4002-00P | | | |
| 72 | 37 | 50 | 87 | 45 | 60 | ✓ | - | ✓ | ✓ | ✓ | | DG1-34072FN-C21C | 9702-4008-00P | | | |
| | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | DG1-34072FB-C21C | 9702-4006-00P | | | |
| 87 | 45 | 60 | 105 | 55 | 75 | ✓ | - | ✓ | ✓ | ✓ | FS5 | DG1-34087FN-C21C | 9702-4001-00P | | | |
| | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | DG1-34087FB-C21C | 9702-4010-00P | | | |
| 105 | 55 | 75 | 140 | 75 | 100 | ✓ | - | ✓ | ✓ | ✓ | | DG1-34105FN-C21C | 9702-5004-00P | | | |
| | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-34105FB-C21C | 9702-5002-00P | | | | |
| 140 | 75 | 100 | 170 | 90 | 125 | ✓ | - | ✓ | ✓ | ✓ | FS5 | DG1-34140FN-C21C | 9702-5008-00P | | | |
| | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | DG1-34140FB-C21C | 9702-5006-00P | | | |
| 170 | 90 | 125 | 205 | 110 | 150 | ✓ | - | ✓ | ✓ | ✓ | | DG1-34170FN-C21C | 9702-5001-00P | | | |
| | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | DG1-34170FB-C21C | 9702-5010-00P | | | | |

Notes

¹⁾ Overload cycle for 60 s every 600 s

²⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz

³⁾ DG1-34...: at 400 V, 50 Hz/at 480 V, 60 Hz

PowerXL™ variable frequency drives

DG1, for three-phase motors 400 V/500 V, IP21



DG1, FS1



DG1, FS2






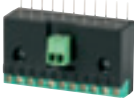



DG1, FS3













DG1, FS4



DG1, FS5

| | Description | For use with | Part no. | Article no. |
|---|--|---------------------|-------------------------|---------------|
| External keypad | | | | |
|  | With 7-digit display assembly Front IP54 With approx. 3 m-long, plug-in connection cable (RJ45, 8-pin) | DE1, DE11, DC1, DA1 | DX-KEY-LED | 169132 |
|  | With OLED display Front IP54 Multilingual With approx. 3 m-long, plug-in connection cable (RJ45, 8-pin) | DC1, DA1 | DX-KEY-OLED | 169133 |
|  | With LCD display Front IP54 Multilingual | DG1 | DXG-KEY-LCD | 730-32047-00P |
|  | Mounting frame With approx. 0.5 m-long, plug-in connection cable Mounting frame | DXG-KEY-LCD | DXG-KEY-RMTKIT | 730-32033-00P |
| | | | DXG-KEY-HOLDER | 730-32032-00P |
|  | Cover for RJ45 interface | | DXG-KEY-N12PLUG | 730-32038-00P |
| Configuration module | | | | |
|  | With selector switch for ramp time and operating mode With potentiometer for motor protection and fixed frequency | DE1, DE11 | DXE-EXT-SET | 174621 |
| Expansion modules | | | | |
| Output expansion | | | | |
|  | 2 relay outputs (N/O, 250 V AC/220 V DC, max. 1 A) 1 analog output (0 - +10 V, max. 20 mA) For connecting to the control signal terminals on the DC1 | DC1 | DXC-EXT-2R01A0 | 169030 |
|  | 2 relay outputs (N/O, 250 V AC/220 V DC, max. 1 A) For connecting to the control signal terminals on the DC1 | DC1 | DXC-EXT-2R0 | 169031 |
|  | Plug-in module with plug-in terminal block, 5 pole 3 relay outputs (N/O, 250 V AC, max. 6 A/ 30 V DC, max. 5 A) | DA1 | DXA-EXT-3R0 | 169121 |
|  | 3 relay outputs | DG1 | DXG-EXT-3R0 | 744-A2614-00P |
| I/O expansion | | | | |
|  | Plug-in module with plug-in terminal blocks, 6 pole 3 digital inputs (+24 V) 1 relay output (N/O, 250 V AC, max. 6 A/ 30 V DC, max. 5 A) | DA1 | DXA-EXT-3DI1R0 | 169036 |
|  | 3 digital inputs 3 Digital outputs 1 Thermistor input | DG1 | DXG-EXT-3DI3DO1T | 744-A2612-00P |
|  | 1 Analog input 2 Analog outputs | DG1 | DXG-EXT-1AI2A0 | 744-A2613-00P |

| | Description | For use with | Part no. | Article no. |
|---|--|------------------|---------------------------|---------------|
| Expansion modules | | | | |
| Input expansion | | | | |
|  | Thermistor input | DG1 | DXG-EXT-THER1 | 744-A2615-00P |
|  | 240-V-AC input (electrically isolated) for 6 digital inputs | DG1 | DXG-EXT-6DI | 744-A2616-00P |
| Encoder module | | | | |
|  | Plug-in module with plug-in terminal block, 5 pole 2-channel Max. 500 kHz 5 V TTL, A & B, /A & /B, 5 V DC, max. 200 mA 24 V HTL, A & B, /A & /B, 24 V DC, external power supply required, max. 30 V DC | DA1 | DXA-EXT-ENCOD | 169035 |
| Coupling module | | | | |
|  | 115-V-AC input (electrically isolated) For 4 digital inputs For connecting to the control signal terminals on the DC1 | DC1 | DXC-EXT-IO110 | 169032 |
| | 230-V-AC input (electrically isolated) For 4 digital inputs For connecting to the control signal terminals on the DC1 | DC1 | DXC-EXT-IO230 | 169033 |
| Simulator | | | | |
| Commissioning and testing simulator | | | | |
|  | 3 digital inputs (+24 V) 1 relay output (max. 30 V DC) 3 microswitches 1 reference value potentiometer (0 - +10 V / = 0 - f _{max}) For connecting to the control signal terminals on the DC1 | DC1 | DXC-EXT-LOCSIM | 169034 |
| Fieldbus modules | | | | |
|  | PROFIBUS-DP SUB-D socket, 9-pole | DA1 | DX-NET-PROFIBUS | 169124 |
|  | PROFINET 2 x RJ45, 8 pole Plug-in module | DA1 | DX-NET-PROFINET-2 | 169125 |
| | Modbus TCP 2 x RJ45, 8 pole | DA1 | DX-NET-MODBUSTCP-2 | 169126 |
| | EtherNet-IP 2 x RJ45, 8 pole | DA1 | DX-NET-ETHERNET-2 | 169122 |
| | EtherCAT 2 x RJ45, 8 pole | DA1 | DX-NET-ETHERCAT-2 | 169127 |
|  | DeviceNet | DA1 | DX-NET-DEVICENET | 169123 |
|  | PROFIBUS-DP SUB-D socket, 9-pole | DG1 | DXG-NET-PROFIBUS | 744-A2617-00P |
|  | Interface converter from 9-pin SUB-D plug to 3-pin control signal terminal | DXG-NET-PROFIBUS | DXG-MNT-PROFIBUS | 744-A2618-00P |
| SmartWire-DT Modules | | | | |
|  | Plug-in module with slot for SWD4-8SF2-5 external device plug | DA1 (IP20, IP55) | DX-NET-SWD1 | 169129 |

| | Description | For use with | Part no. | Article no. | | | | | | | | |
|---|--|------------------------------------|-------------------------|---------------------|------------------------|---------------|------------------------|--------------------|---------------------|------------------------|--------------------|---------------|
|  | Plug-in module (front) with slot for SWD4-8SF2-5 external device plug | DE1, DE11, DC1 (IP20) | DX-NET-SWD3 | 169131 | | | | | | | | |
| PC communication | | | | | | | | | | | | |
| Parameter storage unit and Bluetooth communication stick | | | | | | | | | | | | |
|  | For storage, copying parameters, and/or transferring parameters to a PC with the drivesConnect software via Bluetooth With 2 function keys for uploading and downloading parameters With configuration memory | DE1, DE11, DC1, DA1 | DX-COM-STICK | 169134 | | | | | | | | |
| Interface converter | | | | | | | | | | | | |
|  | Interface converter USB/RS485 with connection cable, RJ45, 8 pole Electrically isolated 1 × SUB-D plug, 9-pole Terminal strip, 5-terminal Status-LED | DE1, DE11, DC1, DA1 | DX-COM-PCKIT | 169135 | | | | | | | | |
|  | Interface converter USB/RS485 with connection cable, RJ45, 8 pole electrically isolated | DE1, DE11, DC1, DA1 | DX-CBL-PC-1M5 | 171018 | | | | | | | | |
|  | RJ45/USB, with CD | DG1 | DXG-CBL-PCCABLE | 730-32037-00P | | | | | | | | |
| License Keys | | | | | | | | | | | | |
| To activate the function block editor in the DrivesConnect software | | | | | | | | | | | | |
|  | USB flash drive | DA1 | DX-COM-SOFT | 169136 | | | | | | | | |
| Connection cable | | | | | | | | | | | | |
|  | <table border="1"> <tr> <td rowspan="3">Patch cord with RJ45 plugs, 8 pole</td> <td>Length 0.5 m</td> <td rowspan="3">DE1, DE11, DC1, DA1</td> <td rowspan="3">DX-CBL-RJ45-0M5</td> <td rowspan="3">169137</td> </tr> <tr> <td>Length 1 m</td> </tr> <tr> <td>Length 3 m</td> </tr> </table> | Patch cord with RJ45 plugs, 8 pole | Length 0.5 m | DE1, DE11, DC1, DA1 | DX-CBL-RJ45-0M5 | 169137 | Length 1 m | Length 3 m | DE1, DE11, DC1, DA1 | DX-CBL-RJ45-1M0 | 169138 | |
| Patch cord with RJ45 plugs, 8 pole | Length 0.5 m | | DE1, DE11, DC1, DA1 | | | | DX-CBL-RJ45-0M5 | 169137 | | | | |
| | Length 1 m | | | | | | | | | | | |
| | Length 3 m | | | | | | | | | | | |
|  | <table border="1"> <tr> <td rowspan="2">Patch cord with RJ45 plugs, 8 pole</td> <td>Length 1 m</td> <td rowspan="2">DG1</td> <td rowspan="2">DXG-CBL-1M0</td> <td rowspan="2">730-32034-00P</td> </tr> <tr> <td>Length 3 m</td> <td>DXG-CBL-3M0</td> <td>730-32035-00P</td> </tr> </table> | Patch cord with RJ45 plugs, 8 pole | Length 1 m | DG1 | DXG-CBL-1M0 | 730-32034-00P | Length 3 m | DXG-CBL-3M0 | 730-32035-00P | DG1 | DXG-CBL-3M0 | 730-32035-00P |
| Patch cord with RJ45 plugs, 8 pole | Length 1 m | | DG1 | | | | DXG-CBL-1M0 | 730-32034-00P | | | | |
| | Length 3 m | DXG-CBL-3M0 | | 730-32035-00P | | | | | | | | |
| Parameter software | | | | | | | | | | | | |
|  | - | DG1 | DXG-ACC-SOFTWARE | 730-32036-00P | | | | | | | | |
| Bus terminating resistor | | | | | | | | | | | | |
|  | RJ45 8 pole Connection to CANopen® (pin 1/2, 124 Ω) or to Modbus RTU (pin 7/8, 120 Ω) | easyNet DX-SPL-RJ45-2SL-1PL | EASY-NT-R | 256281 | | | | | | | | |

| | Description | For use with | Part no. | Article no. |
|--|--|---------------------------------------|---------------------------|---------------|
| PC communication | | | | |
| Splitter | | | | |
|  | RJ45, 8-pin, 3 sockets For CANopen® and Modbus RTU | DX-CBL-RJ45... | DX-SPL-RJ45-3SL | 169141 |
|  | RJ45, 8-pin, 2 sockets/1 plug With cable approx. 10 cm For CANopen® and Modbus RTU | DE1, DE11, DC1, DA1 | DX-SPL-RJ45-2SL1PL | 169142 |
|  | RJ45, 8-pin, 2 sockets/1 plug For CANopen® and Modbus RTU | DE1, DE11, DC1, DA1 | DX-SPL-RJ45 | 179313 |
|  | RJ45, 8 pin, 1 socket/1 plug For CANopen® and Modbus RTU With 2 resistors, 120 Ω | DE1, DE11, DC1, DA1 | DX-SPL-RJ45-TERM | 179314 |
| Battery | | | | |
|  | Battery for real-time clock | - | DXG-ACC-RTBATT | 730-32039-00P |
| Mounting accessories | | | | |
| Mounting frame For the power section's push-through installation outside the control panel | | | | |
|  | Frame parts and fixing screws | DG1 (frame size FS1) | DXG-ACC-FR1N12FK | 730-32022-00P |
| | | DG1 (frame size FS2) | DXG-ACC-FR2N12FK | 730-32023-00P |
| | | DG1 (frame size FS3) | DXG-ACC-FR3N12FK | 730-32024-00P |
| | | DG1 (frame size FS4) | DXG-ACC-FR4N12FK | 730-32025-00P |
| | | DG1 (frame size FS5) | DXG-ACC-FR5N12FK | 730-32026-00P |
| Mounting set For increasing the degree of protection from IP21/NEMA 1 to IP54/NEMA 12 | | | | |
|  | Enclosure cover with seals and extra fan | DG1-34... (frame size FS1, 400/480 V) | DXG-ACC-4FR1N12KIT | 730-32029-00P |
| | | DG1 (frame size FS2) | DXG-ACC-FR2N12KIT | 730-32030-00P |
| | | DG1 (frame size FS3) | DXG-ACC-FR3N12KIT | 730-32031-00P |
| | | DG1-32... (frame size FS1, 230 V) | DXG-ACC-2FR1N12KIT | 744-A2815-00P |

Build it in.



Hydraulic solutions for productive and economic machines



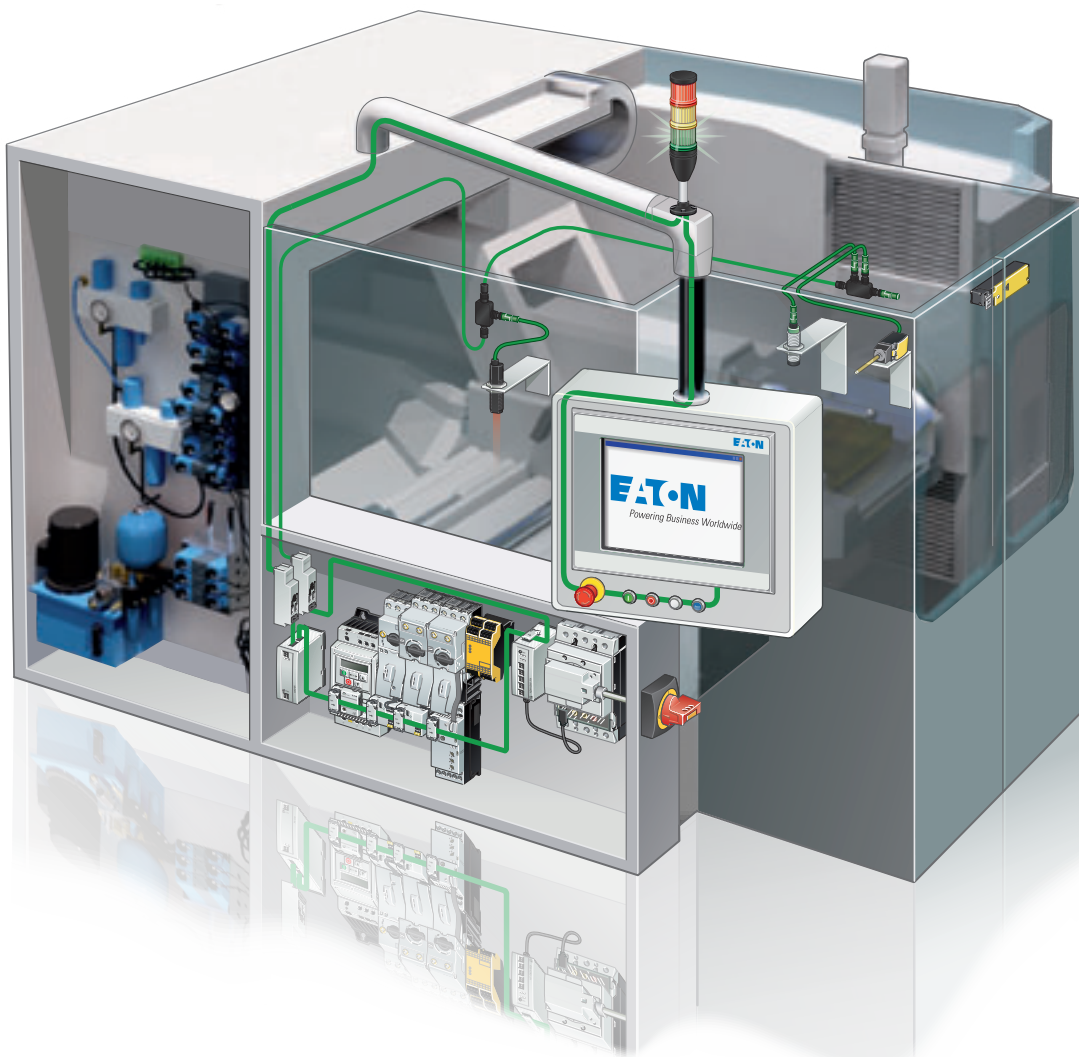
In a world of increasing pressure for “better, faster, cheaper,” manufacturers face more significant challenges than ever before. Whether making automobiles, clothing, computer chips, plastic bottles, or anything in between, you need every cell in your fine-tuned operation working at its optimal state. When Eaton is on the inside, you can experience the assurance of tireless production.

Produce at peak efficiency with the superior precision and repeatability of Eaton products. Eaton hydraulic components provide the precise control and consistent operation required for virtually every step in your manufacturing operation. With Eaton, we’ll help you redefine the meaning of productivity.

Whether your primary business is mass production or mass customisation, you can count on superior precision and repeatability for increased uptime, year after year.

Perfect interaction of electrical and hydraulic technology

Lean Solution ultimately brings together the world of hydraulics and the world of electrical engineering in automation. A fully integrated electro-hydraulic system is a complete solution for your machine. Automation components such as HMI/PLCs communicate perfectly via CANopen with intelligent Eaton hydraulic valves. The brain of the system is implemented by the HMI/PLC which combines control, visualization and data management tasks with state-of-the-art networking features in a single device. Via a CANopen fieldbus, the HMI/PLC communicates with drives, I/Os and now with the new AxisPro Proportional Hydraulic valves as well, thus providing full control of machine axis movement. The HMI/PLC can also communicate on SmartWire-DT with pushbutton actuators, indicator lights, and switchgear right up to the sensors, thus providing an efficient solution for connectivity. Eaton's fully integrated electro-hydraulic system enhances in every respect the machine productivity and performance and simultaneously reduces the wiring, test and commissioning requirement.





What are your requirements?

Irrespective of whether you supply original parts for machine components or are an end customer, Eaton is aware of the most critical energy management requirements in the machine-building sector. We are aware of your requirement to reduce the time to market due to the increasingly shorter time-spans between the market launch of new models. We also know that the operating costs must be reduced ensuring that you remain a valuable and preferred supplier. Just as we know that you place great emphasis on efficiency, reliability and sustainability. And this is why we can develop the best solutions together with you, employing products complying to global standards and thus assuring world-wide availability.



Open-Circuit Piston Pumps

Featuring robust bearing designs, Eaton medium-duty PVM pumps deliver longer life and reliable operation for CNC machining tools in metal-cutting applications. The pressure/flow-compensated pumps provide dependable component and system operation without costly breakdowns and maintenance. Special design techniques reduce both structure- and fluid-born noise and yield extended pump life.



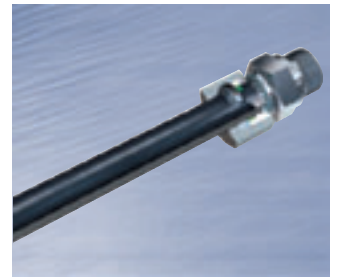
Eaton AxisPro™ Proportional Valve

Eaton AxisPro proportional valves provide integrated programmable control capabilities in sophisticated electro-hydraulic axis control applications. These valves contain both programmable onboard electronics and integral spool Linear Voltage Differential Transformer (LVDT) sensors to provide precise, accurate, responsive axis control capabilities. Their modular design delivers four levels of control ranging from an entry level valve that is quick and easy to configure, right through to a valve that can be customized by uploading application code created by Eaton's Pro-FX Control software.



Hydraulic Hoses

Eaton offers a wide variety of hose constructions that are ideally suited to a vast array of applications. Our hoses are designed to meet the most demanding applications providing maximum durability and long-lasting performance.



Walterscheid® Fittings and Connectors

Eaton is known worldwide for the breadth, quality, and ease of use of its product line, Walterscheid® fittings and connectors. They are used in a broad range of mobile and industrial equipment including agricultural and construction vehicles and machine tools.



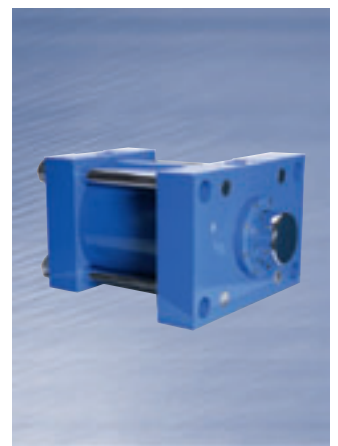
Proportional Directional Valves

Eaton's specially designed injection P/Q valves provide precise control of injection velocity, smooth transition from velocity to pressure control, and back pressure control that is highly repeatable to produce parts with tight dimensional accuracy and high quality. The valves are pre-wired with ruggedly constructed onboard electronics. Factory-set adjustments, including gain, spool dead-band compensation, and offset, ensure high valve-to-valve reproducibility.



LifeSense™ Hose

Eaton is an industry leader in developing new hydraulic hose solutions. Our hydraulic hose products are suitable for nearly any application, pressure level, and fluid type. With Eaton's new LifeSense™ condition-based hydraulic hose monitoring system, hydraulic hose failures will no longer be a major concern. LifeSense hose monitors the health of hydraulic hose assemblies, detects events that have been shown to be symptomatic of the hose beginning to fail, and notifies the user prior to failure with enough time to replace the hose before it fails.



Tie Rod Cylinders

Eaton's Vickers and Hydro-Line G, N, I, and L Series cylinders include a broad range of NFPA and ISO hydraulic, pneumatic, and electro-hydraulic styles focused on industrial markets. This comprehensive line features a proven design coupled with the Eaton SureSeal™ system for improved performance and better serviceability. Virtually unlimited options are available.

Safe switching and isolation.



Cam switch T flush mounting

- Main switch
- maintenance / manual override switch
- Control switch
- Powers up to 132 kW
- Non-standard switches possible

Page 288 ff.



Switch-disconnector P surface mounting

- IP65
- Main switch
- maintenance / manual override switch
- Safety switches
- Powers up to 110 kW

Page 288 ff.



Switch-disconnector P, N

- Four switches up to 1600 A
- 3 and 4-pole
- Diverse installation and actuation options

Page 230



INX switch-disconnector

- Disconnectors up to 6300 A



See online catalog

Recording energy consumption and communication



Circuit breakers NZM Energy measuring module XMC

- Simple installation
- Measured value display on location
- Data transfer via fieldbus

Page 230 ff.



Circuit breaker with SmartWire-DT

- Alarm messages
- Remote operator control
- Energy data acquisition
- Overload warnings
- BreakerHealth: contact wear indicator

Page 231



Visualization and logging software – BreakerVisu

- Data acquisition for up to 48 devices
- 7" or 3.5" touchscreen display
- Automatic configuration and logging
- Import of 3rd party devices possible
- Gateway function: can forward data to supervisory system

Page 232

Line and system protection



Miniature circuit breaker FAZ

- Only 80 mm in height
- Installation / extension without removal from the rail
- Switching capacity 15 kA

Page 248 ff.



Digital RCCB

- Preventative information
- Warning before trip
- Integrated auxiliary contact
- Display with error current trip

Page 249 ff.



Hydraulic-Magnetic Circuit Breaker

- 0.1 to 63 Amp
- 1 to 4 poles
- Up to 22xIn start-up current
- No derating with T° variation

Page 244 ff.



Circuit breakers NZM and IZM

- Four NZM switches up to 1600 A
- 3 and 4-pole
- Very versatile installation and actuation
- Motor, system and generator protection
- IZMX circuit breaker to 6300 A

Page 230 ff.

IZM see Online catalog



Circuit breakers NZM + RCCB

- Up to 250 A
- Pulse current sensitive/ AC/DC sensitive
- Rated fault current $I_{\Delta n} = 0.003 \text{ A} \dots 3.0 \text{ A}$

See online catalog

Enclosures



Ci-K enclosure IP65

- Reliable protection for all types of distributed switching and automation devices
- Robust and high resistance to chemicals
- Glass-fibre reinforced polycarbonate
- Individual facility for inscription
- Total insulation
- Metric cable entry knockouts

Page 295



CS housing

- Degree of protection IP66/IK09
- High-quality sheet steel
- UL/CSA approval NEMA types 1, 4, 12
- Sizes of 250 x 200 x 150 mm to 1200 x 1200 x 250 mm.
- Standardized locking system

Page 296 ff.



Sasy 60i

- Busbars with flat or TT-shaped section
- Innovative device adapters and NH fuse switch-disconnectors
- Modular system covers
- Adapters establish an electrical contact without the need to drill holes up to a current of 630 A

Page 266 ff.



CI enclosure

- Protection on six fronts: dust, moisture, water, corrosive substances, mechanical damage, extreme short-circuits
- Cover lifting mechanism with overpressure compensation



See online catalog

Bussmann series fuses



D & DO Fuse links and fuse bases

- 400 and 500 VAC
- 2 to 100 Amps
- Sizes: DI to DIV, D01 to D03
- IEC 60269 and VDE 0636
- Full range of bases and accessories

Page 272 ff.



Cylindrical fuse links and fuse holders

- 400, 500 and 690 VAC
- 0.25 to 125 Amps
- Sizes: 10 x 38, 14 x 51 and 22 x 58 mm
- IEC 60269
- Full range of fuse holders

Page 272 ff.



UL Branch circuit and supplementary fuse links

- Up to 600 V a.c. / 600 V d.c.
- Up to 1200 A
- CE, UL Listed and CSA Certified
- Full range of fuse holders and fuse blocks

Page 272 ff.



High Speed - Square body fuse links

- 690 and 1250 VAC
- 10 to 7500 Amps
- Sizes: 000 to 5
- IEC 60269-4, DIN 43653 and 43620, UL Recognition and CSA Component

Page 272 ff.



High speed - British standard fuse links

- 240 and 690 VAC
- 6 to 710 Amps
- BS88 part 4 and IEC 60269-4



Assuring Power Quality



Single-phase UPS

- Power from 500 VA to 20 kVA
- Compact protection from mains power problems
- Diverse communication options
- Up to 3 kVA Plug & Play
- Batteries are hot swappable

Page 304 ff.



Three-phase UPS

- Power from 8 kVA to 4,400 kVA
- High efficiency
- Diverse communication options
- Paralleling capability using HotSync technology
- Battery life management with the Eaton ABM technology

Page 304 ff.



Software + Accessories

- Free-of-charge shutdown and management software
- Ordered shutdown – even for VMware systems
- Management of large numbers of UPS's
- Intelligent power distribution

Page 304 ff.

Circuit protection

Our comprehensive range of circuit protection to reliably protect people, machines and plant, in order to have a safe, productive production line.

Solutions to meet your circuit protection needs

Our expertise and our value-added, modular approach to circuit protection means that we have a reliable solution to meet every application need regardless of machine complexity. Helping you to speed the machine design and build process while significantly reducing complexity and cost.

Breadth and depth

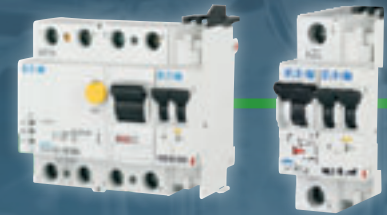
Our comprehensive range of solutions enables you to overcome increasing complexity and risk to protect for short circuit, overload, overvoltage, arc fault or residual current and cover every aspect of circuit safety:

- Cable and system protection
- Operator protection
- Power conversion protection
- Long distance cable protection

Single supplier

To keep you ahead of complex, changing customer needs and meet global acceptable standards, it's useful to be able to consolidate your supply network and source components from a single supplier. With Eaton, you can do exactly this.

Cable and system protection



Residual current circuit breaker

Miniature circuit breaker

Long distance cable protection



Modular fuse holder and fuse link

Operator protection

in standard applications

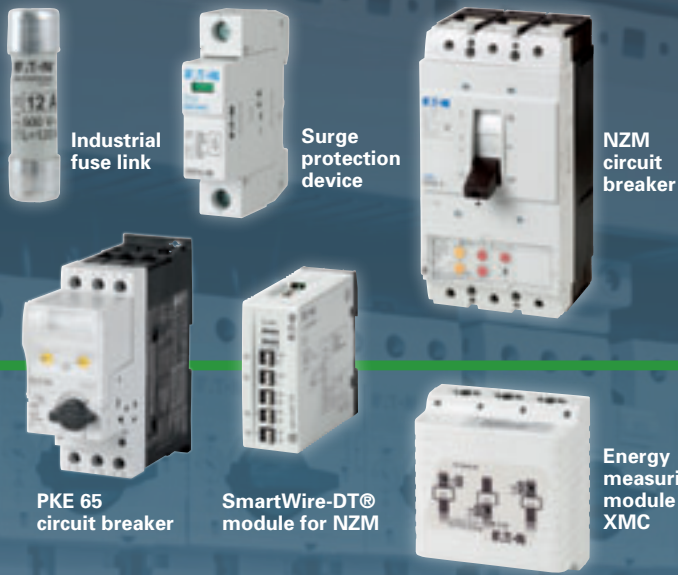


Residual current circuit breaker



Communication and visualization for more energy efficiency

BreakerVisu our logging and visualization system collect the data coming from single devices. This helps to control and optimize energy consumption. SmartWire-DT is only one solution to communicate in the system.



Communication and visualization



BreakerVisu visualization and logging



Heinemann hydraulic magnetic circuit breaker



Use the right technologies to minimize downtime

Power conversion protection



in variable frequency drive application



All protection technologies available for circuit protection:

- Electronic
- Thermomagnetic
- Hydraulic magnetic
- Fuses

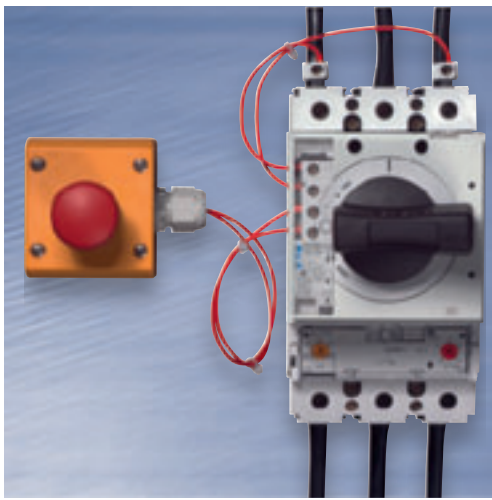
Build it in.



Provide, log, and visualize main switch energy data



Eaton NZM circuit breakers and P switch-disconnectors are used as main switches for a wide variety of machines. On top of this, NZM circuit breakers provide reliable short-circuit and overload protection. But they also offer much more: Their field bus interfaces make it possible to send advance warnings and transmit diagnostic data, as well as energy consumption values. Critical current warnings make it possible to take countermeasures and prevent overload tripping. Diagnostic data provides information regarding the cause behind faults and malfunctions and makes it possible to obtain trend analyses designed to identify load peaks. Moreover, NZM circuit breakers make it easy to tackle today's focus on energy consumption by measuring and communicating operational data. This data, in turn, can be easily integrated into the BreakerVisu visualization and logging system in a user-friendly manner.



Rear operator

If a power disconnecting device with door coupling rotary handle is to be used in a confined space: up to 300 A rated operational current can be quickly mounted using the compact mechanical features and comfortably operated using the solid rotary handle. All switch variants from the NZM1 and NZM2 range – regardless of if they are circuit breakers or switch-disconnectors – can be combined with a rear operator.

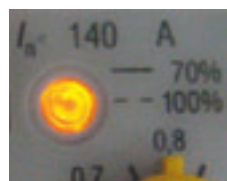
Main switch application

The voltage is switched off on all current conducting circuits when the switch is switched off using the undervoltage release with two integrated early-make auxiliary contacts. This makes it possible to use Eaton's new products in order to easily and cost-effectively implement a main switch application with an emergency stop function for currents of up to 1,600 A that complies with standard IEC 60204-1, VDE 0113, Part 1.



Flange operator

Up to 1600 A, the flange operator enables the switch to be operated from the right or left hand side as desired. Optional fitting of our mounting bracket results in optimum use of space in the control panel. The mounting plate can thus be used for other machine control elements.



Load warnings



Remote switching



Flexible measuring points

Measuring electrical parameters is the foundation of energy management in machine main switches. This is where NZM-XMC measuring and communication modules come in as an ideal alternative to integrated measuring systems. In fact, the new NZM-XMC-TC-MB measuring transducer is particularly well-suited to being retrofitted in existing systems thanks to the use of external current transformers. Moreover, its compact design and top hat DIN rail mounting system mean that it can be installed pretty much anywhere.



Smaller NZM-XMC designs

With its NZM-XMC-MB-250 unit, Eaton offers a compact frame size for currents of up to 250 A that is specifically customized for size 2 NZM devices. In fact, the unit's clearance between cables and busbars is perfectly configured for NZM2 models. This eliminates the need for cable and bar bends and cuts down on both costs and installation times.

Preventive safety

By providing valuable real-time diagnostic information regarding connected devices, BreakerVisu works together with the reliable short-circuit and overload protection provided by NZM circuit breakers in order to help prevent expensive production downtimes. This setup not only includes standard alarm messages, but also ensures that the advance overload warning function in the PKE motor-protective circuit breaker will send a warning before tripping and make it possible to determine how close the circuit breaker is to tripping. If a trip does occur, the BreakerHealth function will indicate the condition of the NZM circuit breakers' main contacts, making it possible to schedule preventive maintenance appropriately.

BreakerVisu – Functionality overview

Operational data acquisition

With its BreakerVisu system, Eaton offers a cost-effective solution for state-of-the-art power management needs. The system features a multi-breaker display that shows all the operational data for connected circuit breakers and measuring devices in a centralized and clearly laid out manner. This ability to have all important operational data be displayed on a single 3.5" or 7" touch panel human-machine interface has multiple advantages, not the least of which is the fact that the availability of this data is automatically increased. Moreover, it significantly lowers costs in comparison to conventional switchgear with individual indicators and displays for each individual circuit breaker. And to top it all off, BreakerVisu is a turnkey solution that is immediately ready for operation out of the box.

The menu guidance is simple and clearly structured. The menu bar used to select the individual menu items is located in the upper area. A simple “touch” is all it takes to get to an overview screen for one of the field bus networks, e.g. Modbus.



Function overview

- Collects data from multiple devices (up to 32 Modbus RTU & 16 SmartWire-DT)
- Visualizes data locally or via remote Ethernet access
- Logs data (data, energy, and event logging)
- Can be connected to a control system via Modbus TCP, as well as to a CoDeSys OPC server
- Can accommodate non-Moeller devices through Modbus RTU
- New version with turnkey design (hardware and software)
- Plug & play
- Visit www.eaton.eu/breakervisu

Network overview

This screen lists all connected devices. A compact overview shows information on the circuit breaker types and states, as well as on the current currents and power meters. In addition to this, the screen also shows alarm messages and a custom name.

This view provides users with a quick and compact overview of their switchgear or machine, as well as the corresponding measuring points. More extensive operational data is displayed if a switch is selected. Moreover, the logging function can be enabled and diagnostic data can be displayed and exported.

Logging function

With BreakerVisu, logging operational data is as simple as never before. You can select which specific data you want to log, with three ready-to-use settings making things easier:

1. Event logging:
Automatically collects status and error messages from the entire system. Always active.
2. Energy logging:
Collects power consumption data from all connected devices with a single click.
3. Data logging:
Collects all measured data for a connected device. Can be enabled individually for each device.

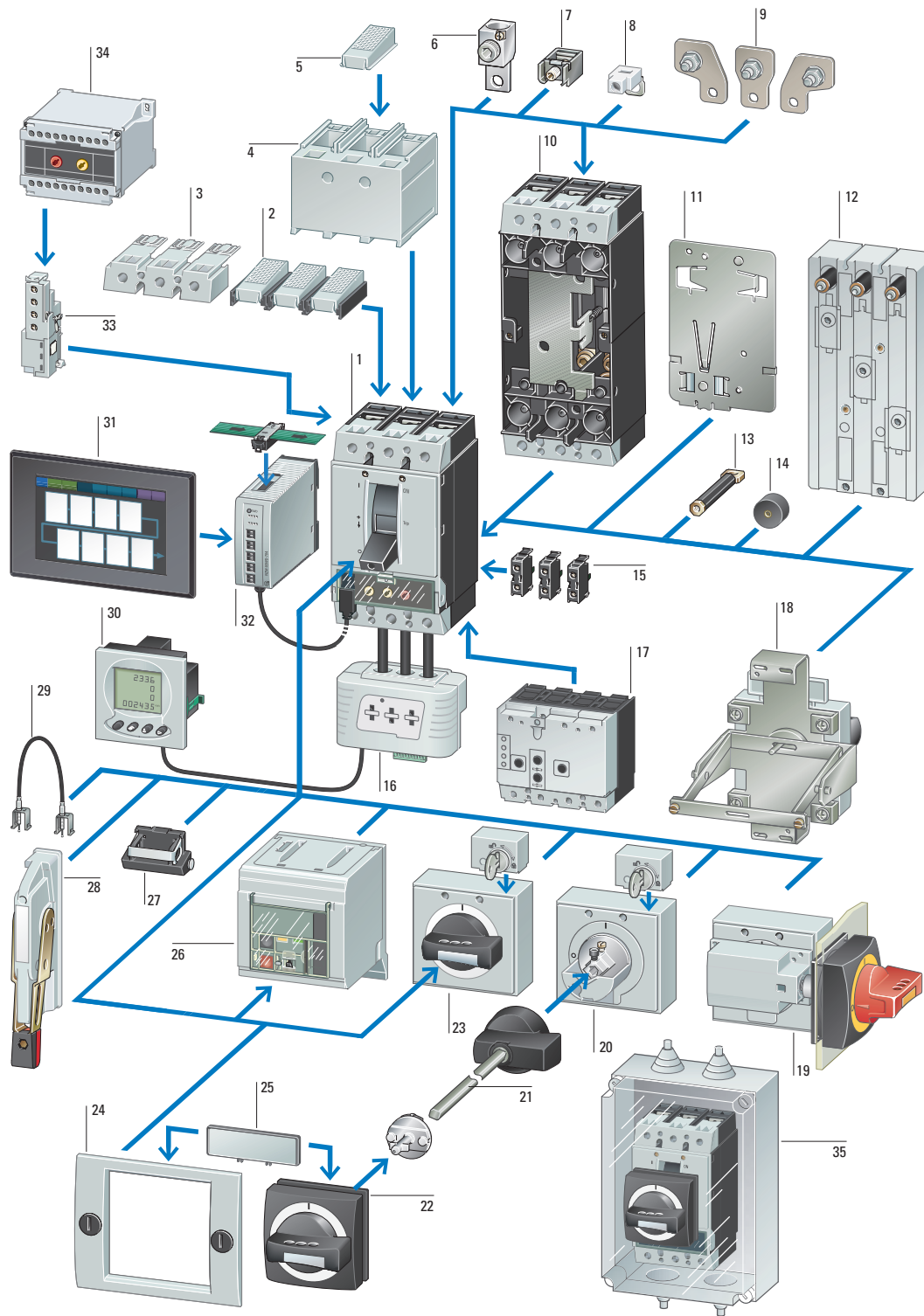


BreakerVisu speaks many languages





BreakerVisu's default language is English. It also comes with German and French out of the box. You can select a language the first time you start BreakerVisu or later on from the home screen. But BreakerVisu is not limited to just three languages: additional language packages, such as English – Russian – Polish, can be downloaded and installed. English is included in all language packages as the default language.






As of this writing, BreakerVisu has a total of 18 different languages available. Additional language packages can be created if necessary.

Language packages are available at www.eaton.eu/breakervisu.



- | | | | | | | | |
|---|---|----|---|----|---|----|--|
| 1 | Switch-disconnector; circuit breaker; circuit breaker for North America; Molded case switches for North America | 8 | Control circuit terminal | 17 | Residual-current protection device | 27 | Toggle lever interlock device |
| 2 | IP2X protection against contact with a finger | 9 | Connection width extension | 18 | Rear operator | 28 | Side operator handle |
| 3 | Terminal cover, knockout | 10 | Plug-in and withdrawable unit | 19 | Main switch rotary handle for side panel mounting | 29 | Mechanical interlock |
| 4 | Terminal cover | 11 | Adapter plate | 20 | Door coupling rotary handle | 30 | Display |
| 5 | IP2X protection against contact with a finger | 12 | Busbar adapter | 21 | Extension shaft | 31 | BreakerVisu Display |
| 6 | Tunnel terminals | 13 | Connection on rear | 22 | Standard auxiliary contacts, trip-indicating auxiliary switches | 32 | NZM communication module for SmartWire-DT |
| 7 | Box terminals | 14 | Spacer | 23 | Rotary handle | 33 | Voltage release/Early-make auxiliary contact |
| | | 15 | Standard auxiliary contacts, trip-indicating auxiliary switches | 24 | Insulating surround | 34 | Delay unit for undervoltage releases |
| | | 16 | Measuring and communication module | 25 | External warning plate/ marking plate | 35 | Insulated enclosure |






| Rated current = rated uninterrupted current $I_n = I_u$ A | Setting range | | Short-circuit releases | | Switching capacity 400/415 V 50/60 Hz | | Switching capacity 400/415 V 50/60 Hz | |
|---|---------------|-----------|--------------------------|-----------------------------|--|-------------|--|-------------|
| | Overload trip | | Non-delayed | Delayed | Part no. | Article no. | Part no. | Article no. |
| | I_r | | $I_i = I_n \times \dots$ | $I_{sd} = I_r \times \dots$ | | | | |
| | A | A | | | | | | |
| System and cable protection: Thermomagnetic release | | | | | | | | |
| Fixed, Box terminal | | | | | Basic switching capacity 25 kA | | Normal switching capacity 50 kA | |
|  | 20 | 15 - 20 | 350 A fixed | - | NZMB1-A20 | 280987 | NZMN1-A20 | 281231 |
| | 25 | 20 - 25 | 350 A fixed | - | NZMB1-A25 | 280988 | NZMN1-A25 | 281232 |
| | 32 | 25 - 32 | 350 A fixed | - | NZMB1-A32 | 280989 | NZMN1-A32 | 281233 |
| | 40 | 32 - 40 | 8 - 10 | - | NZMB1-A40 | 259075 | NZMN1-A40 | 259081 |
| | 50 | 40 - 50 | 6 - 10 | - | NZMB1-A50 | 259076 | NZMN1-A50 | 259082 |
| | 63 | 50 - 63 | 6 - 10 | - | NZMB1-A63 | 259077 | NZMN1-A63 | 259083 |
| | 80 | 63 - 80 | 6 - 10 | - | NZMB1-A80 | 259078 | NZMN1-A80 | 259084 |
| | 100 | 80 - 100 | 6 - 10 | - | NZMB1-A100 | 259079 | NZMN1-A100 | 259085 |
| | 125 | 100 - 125 | 6 - 10 | - | NZMB1-A125 | 259080 | NZMN1-A125 | 259086 |
| | 160 | 125 - 160 | 1280 A fixed | - | NZMB1-A160 | 281230 | NZMN1-A160 | 281234 |
| Fixed, Screw connection | | | | | | | | |
|  | 160 | 125 - 160 | 6 - 10 | - | NZMB2-A160 | 259088 | NZMN2-A160 | 259092 |
| | 200 | 160 - 200 | 6 - 10 | - | NZMB2-A200 | 259089 | NZMN2-A200 | 259093 |
| | 250 | 200 - 250 | 6 - 10 | - | NZMB2-A250 | 259090 | NZMN2-A250 | 259094 |
| | 300 | 240 - 300 | 5 - 8.3 | - | NZMB2-A300 | 107518 | NZMN2-A300 | 107580 |
| | 320 | 250 - 320 | 6 - 10 | - | - | - | NZMN3-A320 | 109669 |
| | 400 | 320 - 400 | 6 - 10 | - | - | - | NZMN3-A400 | 109670 |
| | 500 | 400 - 500 | 6 - 10 | - | - | - | NZMN3-A500 | 109671 |
| Systems, cable, selectivity and generator protection: Electronic release | | | | | | | | |
| Fixed, Screw connection | | | | | Normal switching capacity 50 kA | | High switching capacity 150 kA | |
|  | 100 | 50 - 100 | 1200 A fixed | 2 - 10 | NZMN2-VE100 | 259122 | NZMH2-VE100 | 259125 |
| | 160 | 80 - 160 | 1920 A fixed | 2 - 10 | NZMN2-VE160 | 259123 | NZMH2-VE160 | 259126 |
| | 250 | 125 - 250 | 3000 A fixed | 2 - 10 | NZMN2-VE250 | 259124 | NZMH2-VE250 | 259127 |
|  | 250 | 125 - 250 | 2 - 11 | 2 - 10 | NZMN3-VE250 | 259131 | NZMH3-VE250 | 259134 |
| | 400 | 200 - 400 | 2 - 11 | 2 - 10 | NZMN3-VE400 | 259132 | NZMH3-VE400 | 259135 |
| | 630 | 315 - 630 | 2 - 8 | 1.5 - 7 | NZMN3-VE630 | 259133 | NZMH3-VE630 | 259136 |











| Rated current = rated uninterrupted current $I_n = I_u$ A | Setting range | | Motor rating AC-3 50/60 Hz 380 V 400 V P kW | Rated operational current AC-3 50/60 Hz 400 V I_e A | Switching capacity 400/415 V 50/60 Hz | | Switching capacity 400/415 V 50/60 Hz | |
|--|-----------------------------|--|--|--|--|---------------------------|--|-------------|
| | Overload trip I_r A | Short-circuit releases Non-delayed $I_i = I_n \times \dots$ | | | Part no. | Article no. | Part no. | Article no. |
| Motor protection: Thermomagnetic release | | | | | | | | |
| Tripping class 10 A | | | | | | | | |
| Fixed, Box terminal With phase-failure sensitivity | | | | | Basic switching capacity 25 kA | | Normal switching capacity 50 kA | |
|  | 40 | 32 - 40 | 8 - 14 | 18.5 | 36 | NZMB1-M40 265710 | NZMN1-M40 265718 | |
| | 50 | 40 - 50 | 8 - 14 | 22 | 41 | NZMB1-M50 265711 | NZMN1-M50 265719 | |
| | 63 | 50 - 63 | 8 - 14 | 30 | 55 | NZMB1-M63 265712 | NZMN1-M63 265720 | |
| | 80 | 63 - 80 | 8 - 14 | 37 | 68 | NZMB1-M80 265713 | NZMN1-M80 265721 | |
| | 100 | 80 - 100 | 8 - 12.5 | 45 | 81 | NZMB1-M100 265714 | NZMN1-M100 265722 | |
| Fixed, Screw connection | | | | | NZMB2-M125 265715 | | NZMN2-M125 265723 | |
|  | 125 | 100 - 125 | 8 - 14 | 55 | 99 | NZMB2-M125 265715 | NZMN2-M125 265723 | |
| | 160 | 125 - 160 | 8 - 14 | 75 | 134 | NZMB2-M160 265716 | NZMN2-M160 265724 | |
| | 200 | 160 - 200 | 8 - 14 | 110 | 196 | NZMB2-M200 265717 | NZMN2-M200 265725 | |
| Motor protection: Electronic release | | | | | | | | |
| Fixed, Screw connection With phase-failure sensitivity, Adjustable release class | | | | | Normal switching capacity 50 kA | | High switching capacity 150 kA | |
|  | 220 | 110 - 220 | 2 - 14 | 110 | 196 | NZMN3-ME220 265781 | NZMH3-ME220 265789 | |
| | 350 | 175 - 350 | 2 - 14 | 200 | 349 | NZMN3-ME350 265782 | NZMH3-ME350 265790 | |
| | 450 | 225 - 450 | 2 - 14 | 250 | 437 | NZMN3-ME450 284468 | NZMH3-ME450 284469 | |
| Rated current = rated uninterrupted current $I_n = I_u$ A | | | | | Short-circuit protection max. fuse gL-characteristic A gL | | Part no. Article no. | |
| Switch-disconnectors | | | | | | | | |
| 3 contactor states I, +, 0 Can be remotely operated with voltage release XU/XA, remote operator XR, Can be equipped with M22-K... trip-indicating auxiliary switch | | | | | | | | |
| Fixed, Box terminal | | | | | | | | |
|  | 63 | | | | 125 | N1-63 | 259143 | |
| | 100 | | | | 125 | N1-100 | 259144 | |
| | 125 | | | | 125 | N1-125 | 259145 | |
| | 160 | | | | 160 | N1-160 | 281236 | |
| Fixed, Screw connection | | | | | | | | |
|  | 160 | | | | 250 | N2-160 | 266008 | |
| | 200 | | | | 250 | N2-200 | 266009 | |
| | 250 | | | | 250 | N2-250 | 266010 | |
| | 400 | | | | 630 | N3-400 | 266019 | |
| | 630 | | | | 630 | N3-630 | 266020 | |













NZM circuit-breakers, switch-disconnectors









UL/CSA, IEC circuit-breaker, Molded case switches for North America, 3 pole










Moeller® series







| | | | | Switching capacity 480 V 60 Hz | | Switching capacity 480 V 60 Hz | |
|---|-----------|-----------|---------------|--|---|---|-------------|
| Rated current = rated uninterrupted current | | | | Part no. | Article no. | Part no. | Article no. |
| Setting range | | | | | | | |
| Overload trip | | | | | | | |
| Short-circuit releases | | | | | | | |
| Non-delayed | | | | | | | |
| $I_n = I_u$ | | | | | | | |
| A | | | | | | | |
| I_r | | | | | | | |
| A | | | | | | | |
| $I_i = I_n \times \dots$ | | | | | | | |
| System and cable protection: Thermomagnetic release | | | | | | | |
| Adjustable overload releases I_r | | | | | | | |
| Fixed, Box terminal | | | | | | | |
|  | 20 | 15 - 20 | 350 A fixed | Normal switching capacity 35 kA | | | |
| | 25 | 20 - 25 | 350 A fixed | NZMN1-A20-NA | 281570 | - | |
| | 32 | 25 - 32 | 350 A fixed | NZMN1-A25-NA | 281571 | - | |
| | 40 | 32 - 40 | 8 - 10 | NZMN1-A32-NA | 281572 | - | |
| | 50 | 40 - 50 | 6 - 10 | NZMN1-A40-NA | 274237 | - | |
| | 63 | 50 - 63 | 6 - 10 | NZMN1-A50-NA | 274239 | - | |
| | 80 | 63 - 80 | 6 - 10 | NZMN1-A63-NA | 274240 | - | |
| | 100 | 80 - 100 | 6 - 10 | NZMN1-A80-NA | 274241 | - | |
| 125 | 100 - 125 | 6 - 10 | NZMN1-A100-NA | 274242 | - | | |
| | | | NZMN1-A125-NA | 281573 | - | | |
| Fixed, Screw connection | | | | | | | |
|  | 20 | 15 - 20 | 350 A fixed | | | High switching capacity 150 kA | |
| | 25 | 20 - 25 | 350 A fixed | NZMN2-A20-NA | 269217 | NZMH2-A20-NA | 269228 |
| | 32 | 25 - 32 | 350 A fixed | NZMN2-A25-NA | 269218 | NZMH2-A25-NA | 269229 |
| | 40 | 32 - 40 | 8 - 10 | NZMN2-A32-NA | 269219 | NZMH2-A32-NA | 269230 |
| | 50 | 40 - 50 | 6 - 10 | NZMN2-A40-NA | 269220 | NZMH2-A40-NA | 269231 |
| | 63 | 50 - 63 | 6 - 10 | NZMN2-A50-NA | 269221 | NZMH2-A50-NA | 269232 |
| | 80 | 63 - 80 | 6 - 10 | NZMN2-A63-NA | 269222 | NZMH2-A63-NA | 269233 |
| | 100 | 80 - 100 | 6 - 10 | NZMN2-A80-NA | 269223 | NZMH2-A80-NA | 269234 |
| | 125 | 100 - 125 | 6 - 10 | NZMN2-A100-NA | 269224 | NZMH2-A100-NA | 269235 |
| | | | | NZMN2-A125-NA | 269225 | NZMH2-A125-NA | 269236 |
| | | | | | High switching capacity 100 kA | | |
| | 160 | 125 - 160 | 6 - 10 | NZMN2-A160-NA | 269226 | NZMH2-A160-NA | 269237 |
| | 200 | 160 - 200 | 6 - 10 | NZMN2-A200-NA | 269227 | NZMH2-A200-NA | 269238 |
| | 250 | 200 - 250 | 6 - 10 | NZMN2-A250-NA | 271106 | NZMH2-A250-NA | 271107 |
| System and cable protection: Electronic release | | | | | | | |
| Adjustable overload releases I_r | | | | | | | |
| R.m.s. value measurement and "thermal memory" | | | | | | | |
| Fixed, Screw connection | | | | | | | |
|  | 250 | 125 - 250 | 2 - 11 | Normal switching capacity 42 kA | | High switching capacity 100 kA | |
| | 400 | 200 - 400 | 2 - 11 | NZMN3-AE250-NA | 269299 | NZMH3-AE250-NA | 269302 |
| | 600 | 300 - 600 | 2 - 8 | NZMN3-AE400-NA | 269300 | NZMH3-AE400-NA | 269303 |
| | | | | NZMN3-AE600-NA | 269301 | NZMH3-AE600-NA | 269304 |
| Molded case switches for North America | | | | | | | |
| Fixed short-circuit release (self-protection) | | | | | | | |
| 3 contactor states I, +, 0 | | | | | | | |
| Can be remotely operated with voltage release XU/XA, remote operator XR, | | | | | | | |
| Can be equipped with M22-K... trip-indicating auxiliary switch | | | | | | | |
| Fixed, Box terminal | | | | | | | |
|  | 63 | - | 1250 A fixed | High switching capacity 35 kA | | | |
| | 100 | - | 1250 A fixed | NS1-63-NA | 102681 | - | |
| | 125 | - | 1250 A fixed | NS1-100-NA | 102682 | - | |
| | | | | NS1-125-NA | 102683 | - | |
| Fixed, Screw connection | | | | | | | |
|  | 160 | - | 2500 A fixed | High switching capacity 100 kA | | | |
| | 200 | - | 2500 A fixed | NS2-160-NA | 102684 | - | |
| | 250 | - | 2500 A fixed | NS2-200-NA | 102685 | - | |
| | 400 | - | 6600 A fixed | NS2-250-NA | 102686 | - | |
| | 600 | - | 6600 A fixed | NS3-400-NA | 102687 | - | |
| | | | | NS3-600-NA | 102688 | - | |










| | For use with | Terminal capacities Connection | Terminal capacities mm ² | Part no. suffix | Article no. When ordering with basic device | Part no. | Article no. When ordered separately |
|---|---------------------|--|--|-----------------|--|---------------------|--|
| Connection types NZM1 | | | | | | | |
| Control circuit terminal  | NZM1, PN1, N(S)1 | Box terminal | 1 x 0.75 - 2.5 2 x 0.75 - 1.5 | - | - | NZM-XSTK | 266739 |
| | NZM1, N(S)1 ≤ 160 A | Cu cable | 6 x 2.5 - 16 | - | - | NZM1-XKAM | 144112 |
| Terminal cover, knockout, not UL/CSA approved For box terminal  | NZM1, N1 | - | - | - | - | NZM1-XKSFA | 100780 |
| Shroud  | NZM1, N(S)1 | - | - | - | - | NZM1-XKSA | 260021 |
| IP2X protection against contact with a finger For box terminal  | NZM1, N1 | - | - | - | - | NZM1-XIPK | 266744 |
| For cover NZM1-XKSA or NZM1 or NZM1...(C)NA und N(S)1...NA  | NZM1, N(S)1 | - | - | - | - | NZM1-XIPA | 266748 |
| Phase isolators  | NZM1, N(S)1 | - | - | - | - | NZM1-XKP | 119862 |
| Connection types NZM2 | | | | | | | |
| Box terminal  | NZM2, N(S)2 ≤ 160 A | Cu cable | 1 x 10 - 185 2 x 4 - 70 | +NZM2-160-XKCO | 262218 | NZM2-160-XKC | 262240 |
| | NZM2, N(S)2 > 160 A | | | +NZM2-160-XKCU | 262223 | - | - |
| | | | | +NZM2-250-XKCO | 262242 | NZM2-250-XKC | 262244 |
| | | | | +NZM2-250-XKCU | 262243 | - | - |
| Multi tunnel terminal  | NZM2, N(S)2 ≤ 250 A | Cu cable | 6 x 2.5 - 35 | - | - | NZM2-XKAM | 144113 |
| Control circuit terminal  | NZM2, PN2, N(S)2 | Screw connection | 1 x 0.75 - 2.5 2 x 0.75 - 1.5 | - | - | NZM2-XSTS | 260156 |
| | NZM2, PN2, N(S)2 | Box terminal | 1 x 0.75 - 2.5 2 x 0.75 - 1.5 | - | - | NZM-XSTK | 266739 |
| Cable lug-cover  | NZM2, N(S)2 | Copper cable lugs Aluminium cable lug | 1 x 10 - 185 2 x 4 - 70 1 x 10 - 50 2 x 10 - 50 | - | - | NZM2-XKSAE | 119868 |



| | For use with | Terminal capacities Connection | Terminal capacities mm ² | Part no. suffix | Article no. When ordering with basic device | Part no. | Article no. When ordered separately |
|--|------------------|--|--|-------------------|---|--------------------|--|
| Phase isolators | | | | | | | |
|  | NZM2, N(S)2 | - | - | - | - | NZM2-XKP | 119864 |
| IP2X protection against contact with a finger | | | | | | | |
| For box terminal | | | | | | | |
|  | NZM2, PN2, N2 | - | - | - | - | NZM2-XIPK | 266773 |
| For cover NZM2-XKSA or NZM2 or NZM2...(C)NA und N(S)2...NA | | | | | | | |
|  | NZM2, PN2, N(S)2 | - | - | - | - | NZM2-XIPA | 266777 |
| CU-Cable lug Not UL/CSA approved. When using without cover NZM2 (-4)-XKSA, the cable lug must be insulated. | | | | | | | |
|  | NZM2, N2 | - | 95 | - | - | KS95-NZM7 | 059775 |
| | | - | 120 | - | - | KS120-NZM7 | 059776 |
| | | - | 150 | - | - | KS150-NZM7 | 059777 |
| | | - | 185 | - | - | NZM2-XKS185 | 260032 |
| Connection types NZM3 | | | | | | | |
| Box terminal | | | | | | | |
|  | NZM3, N(S)3 | Cu cable | 1 x 35 ... 240 | +NZM3-XKCO | 262246 | NZM3-XKC | 260042 |
| | | | 2 x 16 ... 120 | +NZM3-XKCU | 262245 | | - |
| Control circuit terminal | | | | | | | |
|  | NZM3, PN3, N(S)3 | Screw connection | 1 x 0.75 ... 2.5 2 x 0.75 ... 1.5 | - | - | NZM3/4-XSTS | 266797 |
|  | | Box terminal | 1 x 0.75 - 2.5 2 x 0.75 - 1.5 | - | - | | |
| Cable lug-cover | | | | | | | |
|  | NZM3, N(S)3 | Copper cable lugs Aluminium cable lug | 1 x 16 - 240 2 x 16 - 240 1 x 10 - 120 2 x 10 - 120 | - | - | NZM3-XKSAE | 119869 |
| Phase isolator | | | | | | | |
|  | NZM3, N(S)3 | - | - | - | - | NZM3-XKP | 100512 |
| IP2X protection against contact with a finger | | | | | | | |
| For box terminal | | | | | | | |
|  | NZM3, N3 | - | - | - | - | NZM3-XIPK | 266804 |
| For cover NZM3-XKSA or NZM3 or NZM3...(C)NA und N(S)3...NA | | | | | | | |
|  | NZM3, N(S)3 | - | - | - | - | NZM3-XIPA | 266808 |
| CU-Cable lug Not UL/CSA approved. When using without cover NZM3(-4)-XKSA, the cable lug must be insulated. | | | | | | | |
|  | NZM3, N3 | - | 185 | - | - | NZM3-XKS185 | 260040 |
| | | - | 240 | - | - | NZM3-XKS240 | 260041 |
| | | - | 300 | - | - | NZM3-XKS300 | 153186 |


| | | For use with | Contacts ⊖ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed | | Part no. | Article no. |
|--|--|---------------------------|--|--------|------------------------------|-------------|
| Auxiliary contact with screw connection/spring-cage terminal | | | | | | |
| Standard auxiliary contact (HIN) Switching with the main contacts Used for indicating and interlocking tasks. | | | | | | |
|  | Single contact | NZM1, 2, 3 N(S)1, 2, 3 | 1 N/O | - | M22-K10 | 216376 |
| | | | - | 1 NC ⊖ | M22-K01 | 216378 |
| Early-make auxiliary contact For interlocking and load shedding circuits, as well as for early make of the undervoltage release in main switch/Emergency-stop applications | | | | | | |
|  | with terminal block on the left-hand switch side | NZM1 N(S)1 | 2 N/O | - | NZM1-XHIV | 259426 |
| | | | - | - | NZM2/3-XHIV | 259430 |
|  | - | NZM2, 3 N(S)2, 3 | 2 N/O | - | NZM2/3-XHIV | 259430 |
| | | | - | - | | |
| Trip-indicating auxiliary switch (HIA) General trip indication '+', when tripped by shunt release, overload release, short-circuit release or by the residual-current release due to residual-current. | | | | | | |
|  | Single contact | NZM1, 2, 3 N(S)1, 2, 3 | 1 N/O | - | M22-K10 | 216376 |
| | | | - | 1 NC ⊖ | M22-K01 | 216378 |
| | | For use with | Rated control voltage U _s V | | Part no. | Article no. |
| Undervoltage releases | | | | | | |
| Without auxiliary contacts Non-delayed disconnection of NZM circuit-breaker or N switch-disconnector when the control voltage sinks below 35 – 70% U _s . For use with emergency switching off devices in conjunction with Emergency switching off button. | | | | | | |
|  | With terminal block on the left-hand switch side | NZM1 N(S)1 | 208 - 240 V 50/60 Hz | | NZM1-XU208-240AC | 259442 |
| | | | 380 - 440 V 50/60 Hz | | NZM1-XU380-440AC | 259444 |
| | | | 24 V DC | | NZM1-XU24DC | 259452 |
|  | With bolt connection | NZM2, 3 N(S)2, 3 | 208 - 240 V 50/60 Hz | | NZM2/3-XU208-240AC | 259499 |
| | | | 380 - 440 V 50/60 Hz | | NZM2/3-XU380-440AC | 259501 |
| | | | 24 V DC | | NZM2/3-XU24DC | 259509 |
| Shunt releases | | | | | | |
| Without auxiliary contacts Switches are tripped by a voltage pulse or by the application of uninterrupted voltage. | | | | | | |
|  | With terminal block on the left-hand switch side | NZM1 N(S)1 | 24 V AC/DC | | NZM1-XA24AC/DC | 259708 |
| | | | 208 - 250 V AC/DC | | NZM1-XA208-250AC/DC | 259726 |
|  | With bolt connection | NZM2, 3 N(S)2, 3 | 24 V AC/DC | | NZM2/3-XA24AC/DC | 259754 |
| | | | 208 - 250 V AC/DC | | NZM2/3-XA208-250AC/DC | 259763 |

| | For use with | Part no. | Article no. | Notes | |
|---|--|-------------|------------------------|--------|---|
| Door coupling rotary handles | | | | | |
| Complete including rotary drive and coupling parts Extension shaft additionally required. Protection class IP66 UL/CSA Type 4X, Type 12 | | | | | |
| Standard, black/grey | | | | | |
|  | Lockable on the 0 position on the handle using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVD | 260166 | Door interlock <ul style="list-style-type: none"> • Not defeated in the locked OFF and ON positions • Can be modified in the unlocked ON position • Can be modified such that it can be defeated from the outside using a screwdriver • Door can be opened in OFF • External warning plate/designation label can be clipped on. |
| | | NZM2, N(S)2 | NZM2-XTVD | 260168 | |
| | | NZM3, N(S)3 | NZM3-XTVD | 260170 | |
|  | Lockable on the handle on the switch using up to 3 padlocks Modifiable on handle in I position as well With door interlock | NZM1, N(S)1 | NZM1-XTVDV | 260172 | |
| | | NZM2, N(S)2 | NZM2-XTVDV | 260174 | |
| | | NZM3, N(S)3 | NZM3-XTVDV | 260176 | |
| Red-yellow for emergency switching off | | | | | |
|  | Lockable on the handle on the switch using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVDVR | 260178 | Door interlock <ul style="list-style-type: none"> • Not defeated in the locked OFF position. • Can be modified in the unlocked ON position • Can be modified such that it can be defeated from the outside using a screwdriver • Door can be opened in OFF • External warning plate/designation label can be clipped on. |
| | | NZM2, N(S)2 | NZM2-XTVDVR | 260180 | |
| | | NZM3, N(S)3 | NZM3-XTVDVR | 260182 | |
|  | Lockable on the handle on the switch using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVDVVR | 260178 | |
| | | NZM2, N(S)2 | NZM2-XTVDVVR | 260180 | |
| | | NZM3, N(S)3 | NZM3-XTVDVVR | 260182 | |
| Door coupling rotary handle for North America | | | | | |
| Complete including rotary drive and coupling parts Extension shaft additionally required. Protection class IP66 UL/CSA Type 4X, Type 12 | | | | | |
| Standard, black/grey | | | | | |
|  | Lockable on the 0 position on the handle using up to 3 padlocks With door interlock | NZM1, N1 | NZM1-XTVD-NA | 271445 | Door interlock <ul style="list-style-type: none"> • Not defeated in the locked OFF position. • Door opens only with active rotation beyond the 0 position • Cannot be combined with mechanical interlock • External warning plate/designation label can be clipped on. |
| | | NZM2, N2 | NZM2-XTVD-NA | 271446 | |
| | | NZM3, N3 | NZM3-XTVD-NA | 271447 | |
|  | Lockable on the handle on the switch using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVDV-NA | 271449 | |
| | | NZM2, N(S)2 | NZM2-XTVDV-NA | 271450 | |
| | | NZM3, N(S)3 | NZM3-XTVDV-NA | 271451 | |
| Red-yellow for emergency switching off | | | | | |
|  | Lockable on the handle on the switch using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVDVR-NA | 271449 | Door interlock <ul style="list-style-type: none"> • Not defeated in the locked OFF position. • Door opens only with active rotation beyond the 0 position • Cannot be combined with mechanical interlock • External warning plate/designation label can be clipped on. |
| | | NZM2, N(S)2 | NZM2-XTVDVR-NA | 271450 | |
| | | NZM3, N(S)3 | NZM3-XTVDVR-NA | 271451 | |
|  | Lockable on the handle on the switch using up to 3 padlocks With door interlock | NZM1, N(S)1 | NZM1-XTVDVVR-NA | 271449 | |
| | | NZM2, N(S)2 | NZM2-XTVDVVR-NA | 271450 | |
| | | NZM3, N(S)3 | NZM3-XTVDVVR-NA | 271451 | |
| Extension shaft | | | | | |
|  | 400 mm max. mounting depth | NZM1, N(S)1 | NZM1/2-XV4 | 261232 | Length 290 mm, can be cut to desired length |
| | | NZM2, N(S)2 | NZM3/4-XV4 | 261234 | |
| | | NZM3, N(S)3 | NZM3/4-XV4 | 261234 | |
| | 600 mm max. mounting depth | NZM1, N(S)1 | NZM1/2-XV6 | 260191 | Length 425 mm, can be cut to desired length |
| | | NZM2, N(S)2 | NZM3/4-XV6 | 260193 | |
| | | NZM3, N(S)3 | NZM3/4-XV6 | 260193 | |

| | | For use with | Rated control voltage U _s V | Part no. Article no. |
|---|--|--------------|--|------------------------------------|
| Main switch assembly kit for IEC, UL/CSA | | | | |
| <p>Equipment supplied</p> <ul style="list-style-type: none"> • Door coupling rotary handle with rotary drive • NZM...-XV4 extension shaft • External warning plate/marketing plate in German/English • Black and yellow lightning symbol <p>Protection class IP66 UL/CSA Type 4X, Type 12</p> | | | | |
| With black door coupling rotary handle | | | | |
|  | Door interlock on OFF with max. 3 padlocks Can also be modified in I position | NZM1, N(S)1 | - | NZM1-XHB 266626 |
| | After the door interlock is activated, must not be opened while on ON or TRIP. Must only be opened on OFF | NZM2, N(S)2 | - | NZM2-XHB 266627 |
| | Can be modified such that it can be defeated from the outside using a screwdriver Not defeated in the locked OFF position. Can only be switched ON when the door is closed | NZM3, N(S)3 | - | NZM3-XHB 266628 |
| With red door coupling rotary handle for use of switch as emergency switching off device to IEC/EN 60204-1, VDE 0113 part 1 | | | | |
|  | Door interlock on OFF with max. 3 padlocks | NZM1, N(S)1 | - | NZM1-XHBR 266632 |
| | After the door interlock is activated, must not be opened while on ON or TRIP. Must only be opened on OFF | NZM2, N(S)2 | - | NZM2-XHBR 266633 |
| | Can be modified such that it can be defeated from the outside using a screwdriver Not defeated in the locked OFF position. Can only be switched ON when the door is closed | NZM3, N(S)3 | - | NZM3-XHBR 266634 |
| Main switch assembly kit with additional rotary handle for IEC, UL/CSA | | | | |
| <p>Equipment supplied</p> <ul style="list-style-type: none"> • Door coupling rotary handle with rotary drive • Add-on rotary handle on switch with "Deliberate Action" operation as per NFPA79 and UL508A Part 2 • NZM1/2-XV4 shaft extension for mounting depth of 400 mm • External warning plate/marketing plate in German/English • Black and yellow lightning symbol <p>Protection class IP66 UL/CSA Type 4X, Type 12</p> | | | | |
| With black door coupling rotary handle | | | | |
|  | Door interlock on OFF with max. 3 padlocks | NZM1, N(S)1 | - | NZM1-XHB-DA-NA 125958 |
| | With activated door interlock. Cannot be opened in ON, OFF, or TRIP. Can only be opened in RESET. | NZM2, N(S)2 | - | NZM2-XHB-DA-NA 116897 |
| | Can be modified such that it can be defeated from the outside using a screwdriver Not defeated in the locked OFF position. | NZM3, N(S)3 | - | NZM3-XHB-DA-NA 119000 |
| With red door coupling rotary handle for use of switch as emergency switching off device | | | | |
|  | Door interlock on OFF with max. 3 padlocks | NZM1, N(S)1 | - | NZM1-XHB-DAR-NA 125959 |
| | With activated door interlock. Cannot be opened in ON, OFF, or TRIP. Can only be opened in RESET. | NZM2, N(S)2 | - | NZM2-XHB-DAR-NA 116898 |
| | Can be modified such that it can be defeated from the outside using a screwdriver Not defeated in the locked OFF position. | NZM3, N(S)3 | - | NZM3-XHB-DAR-NA 119001 |
| Remote operator | | | | |
| <p>For remote switching of circuit-breakers and switch-disconnectors. ON and OFF switching and resetting by means of two-wire or three-wire control. Local switching by hand possible. Lockable in the 0 position of the remote operator with up to 3 padlocks (hasp thickness: 4 – 8 mm)</p> | | | | |
| Closing delay 110 - 170 ms, Break time 110 - 170 ms | | | | |
|  | Sliding switch for "Auto" or "Manual" | NZM2, N(S)2 | 208 - 240 V 50/60 Hz | NZM2-XRD208-240AC 115391 |
| | Max. number auxiliary contacts: 2 standard auxiliary contacts, 1 trip-indicating auxiliary switches | NZM2, N(S)2 | 24 - 30 V DC | NZM2-XRD24-30DC 115393 |
| Closing delay 60 - 100 ms, Break time 300 - 3000 ms | | | | |
| Synchronized | | | | |
|  | - | NZM3, N(S)3 | 208 - 240 V 50/60 Hz | NZM3-XR208-240AC 259850 |
| | - | NZM3, N(S)3 | 24 - 30 V DC | NZM3-XR24-30DC 259854 |

| Description | Part no. Article no. | Notes |
|---|--|--|
| Diagnostics and configuration software for NZM and DMI (local) | | |
|  <p>PC software for direct connection to all NZM circuit-breakers with electronic releases (IEC and UL/CSA devices), including the connection cable required in order to connect to an NZM device.</p> | <p>NZM-XPC-KIT 265631</p> | <p>Only in combination with circuit-breakers with electronic trip blocks.</p> |
| Touch display with integrated controller BreakerVisu (HMI-PLC) | | |
| <p>Visualize and log circuit-breaker and/or measuring device data Read diagnostic memories Create energy logs Connect NZM using NZM-XSWD-704 Connect all NZM...-XMC-MB... measuring modules and NZM-XMC-TC-MB Connection of IZMX16/40 using IZMX-MCAM Connect IZM26... using IZM-MMINT Connect PKE with XTUA or XTUWA using PKE-SWD-SP Connect PKE with XTUACP or XTUWACP using PKE-SWD-CP Connect RCCBs, MCBs, RCBOs using MCB-HK-SWD Ethernet connection for display on web browsers FTP connection for data transfers Gateway function for forwarding data Non-Eaton devices can be connected</p> | | |
|  <p>Max. 8 devices via MODBUS RTU 3.5 Inch Color display, TFT</p> | <p>NZM-XMC-MDISP35-MOD 172764</p> | |
|  <p>Max. 8 devices via SmartWire-DT 3.5 Inch Color display, TFT</p> | <p>NZM-XMC-MDISP35-SWD 172765</p> |  |
|  <p>Max. 32 devices via MODBUS RTU and/or max. 16 devices via SmartWire-DT 7 Inch Color display, TFT</p> | <p>NZM-XMC-MDISP70 172766</p> |  |
| SmartWire-DT interface for NZM circuit-breakers | | |
|  <p>The module implements the data connection between the NZM2/3/4 with electronic release and the SmartWire-DT.</p> <ul style="list-style-type: none"> • Status data NZM: ON/OFF/TRIPPED • Load warnings • Reason for last trip • Actual current value in A • Switch type • Actual settings of the rotary coding switches | <p>NZM-XSWD-704 135530</p> | <p>A connection cable (1.90 m) for the circuit-breaker and two NZM auxiliary contacts (1 x NO, 1 x NC) are included as standard.</p>  |
| Measuring and communication module | | |
|  <p>For measuring current, voltage, power and energy. The module has three built-in current transformers and three voltage taps, which are contacted with self-tapping screws, which penetrate the cable insulation. Power supply 24 VDC Two SO pulse outputs Modbus interface (Slave) The total energy consumption value is permanently stored in the module. Display device NZM-XMC-DISP can be connected for local indication of the readings.</p> | <p>NZM2-XMC-MB-250 156641 NZM2-XMC-MB 129961 NZM3-XMC-MB 129962</p> | <p>The minimum clearances relative to the NZM circuit-breaker need to be maintained for installation. The module can be installed on the input or outgoer side and can be set up using the Eaton Modbus Configurator(www.eaton.eu).</p> |


| Description | Part no. Article no. | Notes |
|---|--------------------------------|--|
| Measuring and communication module for external current transformers | | |
|  <p>For measuring current, voltage, power, and energy. In addition, the module requires three current transformers and three voltage taps wired externally. X/5A standard current transformers rated for up to 6,300 A are suitable. 230 VAC power supply 2 configurable outputs (S0 pulse, alarm, etc.) RS-485 Modbus port (slave) The total energy consumption value will be stored in retentive memory on the module. BreakerVisu displays (NZM-XMC-MDISP...) can be used for visualization and logging purposes.</p> | NZM-XMC-TC-MB 169832 | The minimum clearances relative to the NZM circuit-breaker need to be maintained for installation. The module can be installed on the input or outgoing side, as well as on a top hat DIN rail. The Eaton Modbus Configurator (www.eaton.eu) can be used to set up the module. Cannot be combined with NZM-XMC-DISP display device. |
| Digital display device | | |
|  <p>For flush mounting on doors (connection to local display) For all measuring and communication modules with a Modbus interface Phase-specific indication of currents, voltages, power, and energy values Pre-configured screens available Cannot be combined with NZM-XMC-TC-MB Front dimensions 96 x 96 mm Front cutout 92 x 92 mm</p> | NZM-XMC-DISP 129967 | Connection to NZM...XMC-MB using four-wire data cable (not included as standard). Cannot be combined with NZM-XMC-TC-MB. |

| Number of poles | Rated current = rated uninterrupted current $I_n = I_u$ A | Setting range | | High switching capacity 150 kA Part no. Article no. Screw connection |
|-----------------|---|-----------------------------|--|---|
| | | Overload trip I_r A | Short-circuit releases I_i A | |
| | | |  | |

Circuit-breakers with earth-fault release

For equipment with power electronics, such as inverters and variable frequency drives
Not UL/CSA approved
Suitability for the application in three-phase systems
Rated operating voltage 400 V 50 Hz (+/- 10 %)
Rated fault current $I_{\Delta n} = 0.03$ A
Internal power supply $U_e = 50 - 400$ V
AC/DC sensitive according to core-balance principle in range of 0 - 100 kHz residual-current frequency.
Prefabricated combination of current-limiting circuit-breaker and residual current device
Adjusting buttons can be sealed.



| | | | | | |
|---|--------|-----|-----------|-------------|-----------------------------------|
|  | 3 pole | 125 | 100 - 125 | 750 - 1250 | NZMH2-A125-FIA30 129710 |
| | | 160 | 125 - 160 | 960 - 1600 | NZMH2-A160-FIA30 112627 |
| | | 200 | 160 - 200 | 1200 - 2000 | NZMH2-A200-FIA30 112628 |
| | | 250 | 200 - 250 | 1500 - 2500 | NZMH2-A250-FIA30 112629 |

Build it in.



Hydraulic magnetic circuit breakers to design a more reliable machine



Catalog download:
www.eaton.eu/HMCB

Hydraulic magnetic circuit breakers offer optimal protection for your equipment avoiding risks of unexpected tripping due to starting current peaks (motor) or caused by inductive circuits with long cables: it therefore also enables cable cross-section optimization.

It's difficult to get low DC voltage on long cables right. This can be because of T° variation modifying circuit resistivity, interferences caused by the long wiring acting like an antenna or just a peak generated by inductive circuits or motor start. Configuration like this can often lead to unexpected tripping of the circuit protection.

By design, this technology offers an accurate, robust and repeatable means of protecting your electrical equipment without creating a nuisance tripping. The benefits of Eaton Heinemann's hydraulic magnetic circuit breakers include the ability to manage current peaks generated by motor starts, a fixed tripping point insensitive to ambient T° variations, proven resistance to shocks and vibrations and no derating over time and usage.



Special tripping characteristics prevent the nuisance tripping

Triggering of the mechanism in hydraulic magnetic circuit breakers is based on the solenoid principle. The coil is wired around an hermetic tube containing a movable core, damped with silicon oil and held by a spring, and moves by the attraction of a magnetic field. The combined action of the spring and oil's viscosity gives a specific dynamic to the core's movement and allows special tripping characteristics that prevent the nuisance tripping while ensuring accurate and repeatable protection over time and usage.

What makes this technology different

In the event of overload or fault condition, the increase of the current in the coil makes the core moves toward a pole piece: the reluctance of the magnetic circuit that contains the armature is then reduced. Once the core reaches the pole piece, the armature is attracted and the mechanism of the breaker trips, causing the separation of contact. In the event of a short circuit, the magnetic field generated by the current in the coil immediately attracts the armature without any delay. This is what makes the technology different: two different actions using only one technology and the principles of magnetism.



ADS – DIN mounted Hydraulic magnetic circuit breaker

The ADS Supplementary Protector is a dual rated product for both AC and DC supplies, in accordance with UL 1077, CSA 22.2, VDE 0660 and IEC 60947-2 standards.

It is to be applied in conjunction with a branch protector (if branch protection is required) and can be a replacement for similarly applied fuses. Its advantages over fuses are that it is resettable and the device's status is easily and clearly identified by the position of the handle.

In addition to this, the user is able to select a device that precisely fits the application (of which here are many) due to the availability of a wide range of current ratings, three levels of inrush tolerance (8 x, 15 x, 22 x for 50 Hz) and flexible time characteristic curves (Short, Medium and Long Delay).

In addition to this, the ADS's protection performance is not adversely affected and is resistant to abnormal or changing ambient temperatures or even excessive environmental factors.

The design allows it to be utilized in environments that can expose it to fungus, shock or out of the ordinary vibration.

Accessories

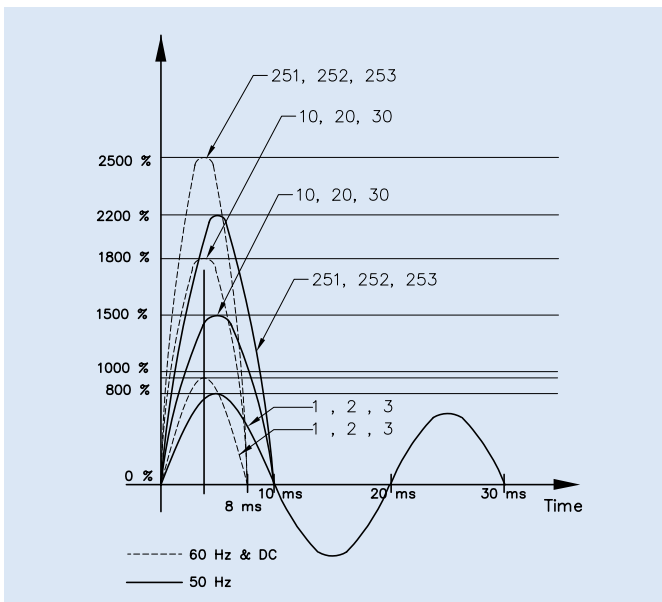
The large choice of internal circuits, handles, terminals, auxiliary contacts, mounting styles and range of protections makes those circuit breakers the ideal choice for demanding applications.





Features, Benefits and Functions

- Used to provide overcurrent protection where branch protection (for example UL 489 MCCB) is already provided or not required
- Installed as a component within or part of an appliance or a piece of electrical equipment
- Ideal replacement for uses that are applied as a supplementary protector i.e., in addition to branch protection (if required)
- Light Gray case with White handle, that is marked "O" for OFF and "I" for ON
- Environmental, Vibration and Shock Resistant: Mil-spec qualification for fungus resistance, humidity, salt spray resistance and shock vibration resistance
- **Heat Induced Nuisance Tripping Eliminated:**
The protector is designed to "hold in" at 100 % continuous rated current, regardless of ambient temperatures from -40 °C to +85 °C
- **Immediate Reset After Trip:**
The circuit breaker can be reset (closed) immediately after an overcurrent trip without a "cooling off" period
- **1/2 Cycle High Inrush Tolerance – 8 x (standard), 15 x and 22 x for 50 Hz (20 - 18 - 25 x for 60 Hz):**
The protector is available with different levels of tolerance to 1/2 cycle current pikes – standard tolerance is 8 x the continuous current rating; in addition 18 x and 25 x are also available
- **Overcurrent curves, Long, Medium or Short Delay:**
Time characteristic curves are available as Short, Medium and Long Delay
- **Integral Auxiliary Switch (optional selection):**
One auxiliary switch (NO or NC) can be factory installed per pole – a separate pole for auxiliary is NOT required.
- **Precise Overcurrent Calibration:**
The protector can be precisely calibrated to a wide variety of current ratings, from 0.1 to 63 continuous amperes
- **DIN Rail Mountable:**
The protector can be easily mounted, utilizing its quick release spring clip to attach it to a 35 mm DIN rail.
- **Standards and Certifications**
 - UL recognized under UL 1077
 - UL File No. E69553
 - CSA 22.2 No. 235
 - IEC 60947-2
 - CE marked
 - CCC marked



Inrush

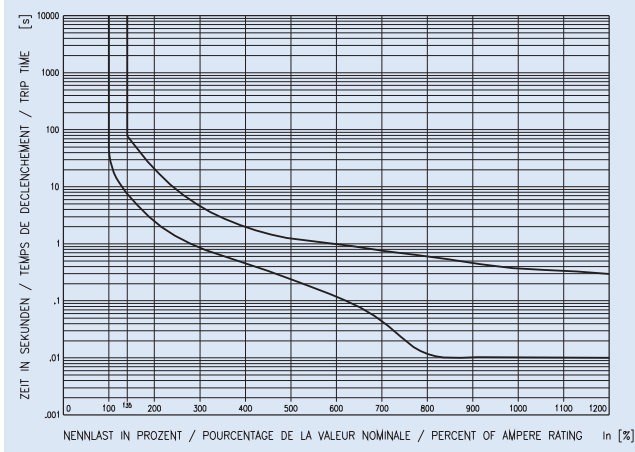
ADS circuit breakers are available with various levels of high-inrush currents avoiding nuisance trip during short starting periods at turn on.

In case of motor protections for example causing a steep wave front transient of very high current amplitude and short duration of overload, the breaker does not trip.

By using AS high-inrush types, unnecessary and dangerous overcalibrations involving use of thicker cables or wires can be avoided, thus saving energy and money.

The magnetic shunt used offers maximum possibilities on half wave which is 10 ms when frequency is 50 Hz.

At 60 Hz half wave periode is 8 ms based on value of 1800 % instead of 1500 % and 2500 % instead of 2200 % at 50 Hz.



Medium delay

Approvals

VDE 60947-2 : 80 VDC / 400 VAC

1-2 Poles

63 A maxi

Ic 1500 A

UL 1077 : 65 VDC / 250 – 277 VAC

1-4 Poles

50 A maxi

Ic 5000 A

| In.% | 135 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 85.0 | 20.0 | 4.50 | 2.00 | 1.20 | 1.00 | .750 | .600 | .450 | .290 | - | - |
| MIN | 8.0 | 2.5 | .85 | .45 | .25 | .13 | .045 | .012 | .010 | .010 | - | - |

Ordering data

15x InRush (50 Hz) – Medium Delay Curve 20 (AC/DC)

| Amps | Part no. 1 Pole | Part no. 2 Poles | Part no. 3 Poles | Part no. 4 Poles |
|------|--------------------|---------------------|---------------------|---------------------|
| 0.16 | AD1S-Y50x-1 | AD2S-Y50x-1 | AD3S-Y50x-1 | AD4S-Y50x-1 |
| 0.25 | AD1S-Y50x-2 | AD2S-Y50x-2 | AD3S-Y50x-2 | AD4S-Y50x-2 |
| 0.5 | AD1S-Y50x-3 | AD2S-Y50x-3 | AD3S-Y50x-3 | AD4S-Y50x-3 |
| 0.75 | AD1S-Y50x-4 | AD2S-Y50x-4 | AD3S-Y50x-4 | AD4S-Y50x-4 |
| 1 | AD1S-Y50x-5 | AD2S-Y50x-5 | AD3S-Y50x-5 | AD4S-Y50x-5 |
| 1.5 | AD1S-Y50x-6 | AD2S-Y50x-6 | AD3S-Y50x-6 | AD4S-Y50x-6 |
| 1.6 | AD1S-Y50x-7 | AD2S-Y50x-7 | AD3S-Y50x-7 | AD4S-Y50x-7 |
| 2 | AD1S-Y50x-8 | AD2S-Y50x-8 | AD3S-Y50x-8 | AD4S-Y50x-8 |
| 2.5 | AD1S-Y50x-9 | AD2S-Y50x-9 | AD3S-Y50x-9 | AD4S-Y50x-9 |
| 3 | AD1S-Y50x-10 | AD2S-Y50x-10 | AD3S-Y50x-10 | AD4S-Y50x-10 |
| 3.5 | AD1S-Y50x-11 | AD2S-Y50x-11 | AD3S-Y50x-11 | AD4S-Y50x-11 |
| 4 | AD1S-Y50x-12 | AD2S-Y50x-12 | AD3S-Y50x-12 | AD4S-Y50x-12 |
| 5 | AD1S-Y50x-13 | AD2S-Y50x-13 | AD3S-Y50x-13 | AD4S-Y50x-13 |
| 6 | AD1S-Y50x-14 | AD2S-Y50x-14 | AD3S-Y50x-14 | AD4S-Y50x-14 |
| 7 | AD1S-Y50x-15 | AD2S-Y50x-15 | AD3S-Y50x-15 | AD4S-Y50x-15 |
| 8 | AD1S-Y50x-16 | AD2S-Y50x-16 | AD3S-Y50x-16 | AD4S-Y50x-16 |
| 10 | AD1S-Y50x-17 | AD2S-Y50x-17 | AD3S-Y50x-17 | AD4S-Y50x-17 |
| 12 | AD1S-Y50x-18 | AD2S-Y50x-18 | AD3S-Y50x-18 | AD4S-Y50x-18 |
| 13 | AD1S-Y50x-19 | AD2S-Y50x-19 | AD3S-Y50x-19 | AD4S-Y50x-19 |
| 15 | AD1S-Y50x-20 | AD2S-Y50x-20 | AD3S-Y50x-20 | AD4S-Y50x-20 |
| 16 | AD1S-Y50x-21 | AD2S-Y50x-21 | AD3S-Y50x-21 | AD4S-Y50x-21 |
| 20 | AD1S-Y50x-22 | AD2S-Y50x-22 | AD3S-Y50x-22 | AD4S-Y50x-22 |
| 25 | AD1S-Y50x-23 | AD2S-Y50x-23 | AD3S-Y50x-23 | AD4S-Y50x-23 |
| 30 | AD1S-Y50x-24 | AD2S-Y50x-24 | AD3S-Y50x-24 | AD4S-Y50x-24 |
| 32 | AD1S-Y50x-25 | AD2S-Y50x-25 | AD3S-Y50x-25 | AD4S-Y50x-25 |
| 35 | AD1S-Y50x-26 | AD2S-Y50x-26 | AD3S-Y50x-26 | AD4S-Y50x-26 |
| 40 | AD1S-Y50x-27 | AD2S-Y50x-27 | AD3S-Y50x-27 | AD4S-Y50x-27 |
| 50 | AD1S-Y50x-28 | AD2S-Y50x-28 | AD3S-Y50x-28 | AD4S-Y50x-28 |
| 63 | AD1S-Y50x-29 | AD2S-Y50x-29 | AD3S-Y50x-29 | AD4S-Y50x-29 |



This is only given as example but large choice of internal circuits, tripping characteristics, Inrush are available.
Information on: www.eaton.eu/HMCB

0 : Without Aux Contact
X choice 1 : With Aux contact NO
2 : With Aux contact NC

“Aux contact on first pole per default, but other configuration are possible”.

Build it in.



up to 25 kA

to IEC/EN 60947-2

Protection for all applications: Safety up to 125 A



Industry, system builders and the trade sector worldwide place their trust in Eaton products and solutions. Tested quality, approvals and shipping register classifications vouch for the functional scope and reliability of xEffect industrial miniature circuit breakers being suitable for world markets. In conjunction with the versatile complete range of modular installation devices and accessories, the user is provided with more options for solving complex technical problems.

Eaton offers a comprehensive range of residual current devices for residual current protection of persons against electrical shock and to protect installations against fire.



When it comes to protection and switching, industry in many countries relies on Eaton products

Optimum product quality and tested reliability and safety stand for optimum protection of personnel, installations and plant. Approvals in many countries confirm that Eaton builds its products to comply with the latest national and international regulations. The high IEC/EN 60947-2 switching capacity of 15 kA with FAZ and 15 to 25 kA with AZ and FAZT, as well as effective current limitation and selectivity provide optimum system protection and maximum availability.



Powerful range for machine and system builders

The xEffect Industrial FAZ is available with B, C and D characteristic to IEC/EN 60898-1. An additional special characteristic has become necessary for effective protection, due to the growing proportion of sensitive electronics. The Z characteristic with a short-circuit response current of 2 to 3 x I_n offers quick overload protection reaction for this purpose. The K characteristic with a high short-circuit response current of 8 to 12 x I_n prevents nuisance tripping during connection of three-phase loads. The S characteristic with a limited response current of 13 to 17 x I_n has become established in system building.



Digital residual-current protection designed to keep your equipment running

Whether using three-pole or four-pole standards, Eaton's new digital residual current devices are powerful multifunctional "bodyguards" designed to ensure safety in distributed environments and work with a wide variety of machines and systems. They are as intelligent as they are vigilant, and will prevent even the smallest fault current from passing. Moreover, these digital guardians will immediately indicate any inconsistencies. This advance warning function is designed to enable operators to intervene and ensure that operations keep running smoothly. If there really is any danger, the digital residual current device will trip with utmost precision – much more accurately, in fact, than conventional analog circuit breakers. This high-precision tripping behavior keeps accidental tripping to a minimum and will improve the continuity of your operations.



Gradual fault warning

Digital circuit breakers use a potential-free switching contact to communicate with their surroundings. This means that it will not be necessary to run all the way to the distribution board to figure out what the system's status is, as an automatic advance warning can be issued when $I_{\Delta} > 0,3 \times I_{\Delta n}$, for example. From driving external lights and/or buzzers to establishing a connection to monitoring systems able to send SMS notifications to your cell phone: the sky's the limit when it comes to the ways you can use this option.

Continuous electrical system monitoring

An LED traffic light indicator on the device makes it possible to immediately determine the system's status locally.

- Green = Normal range
- Yellow = The leakage current or fault current is 30 – 50 % of $I_{\Delta n}$
- Red = The leakage current or fault current is > 50 % of $I_{\Delta n}$.
The device will trip very closely to the 100 % value.



Combine convenience with efficiency and safety

The test button on the digital residual current circuit breaker only needs to be pressed once a year. In addition, an integrated overload functionality makes it possible to eliminate the need for a thermal back-up fuse for the residual current device, while an integrated short time delay (type G) ensures that it will not trip in response to short transient overvoltages (e.g., caused by a lightning strike). The upper and lower ring tongue/spring clamp double terminals provide added convenience, matched by the added safety provided by the accessories for the device. Both the integrated red/green position indicator and the white/blue tripped current indicator provide all the necessary information right on the unit. Finally, a wide range of accessories, such as the Z-HK, can be retrofitted, and the fact that the device can be sealed provides even greater levels of safety.



The key to effortless connections and smart communication

The SmartWire-DT auxiliary contact module makes it possible to easily connect a circuit breaker, fault current switch or combination protective switch to the SmartWire DT line using plug-in connection and to in this way easily and quickly integrate the protective switching devices. This eliminates the need for an I/O interface, with the required information being implemented in controllers and drives. SmartWire-DT auxiliary contacts can be used to relay the ON, OFF, and Tripped (by a fault) states.



Flexibility using modular installation devices

Eaton offers a broad range of modular installation devices for the control circuit and for switching, as well as for signaling and alarms. All these devices are suitable for DIN-rail mounting and offer tangible installation and wiring benefits for industrial applications.



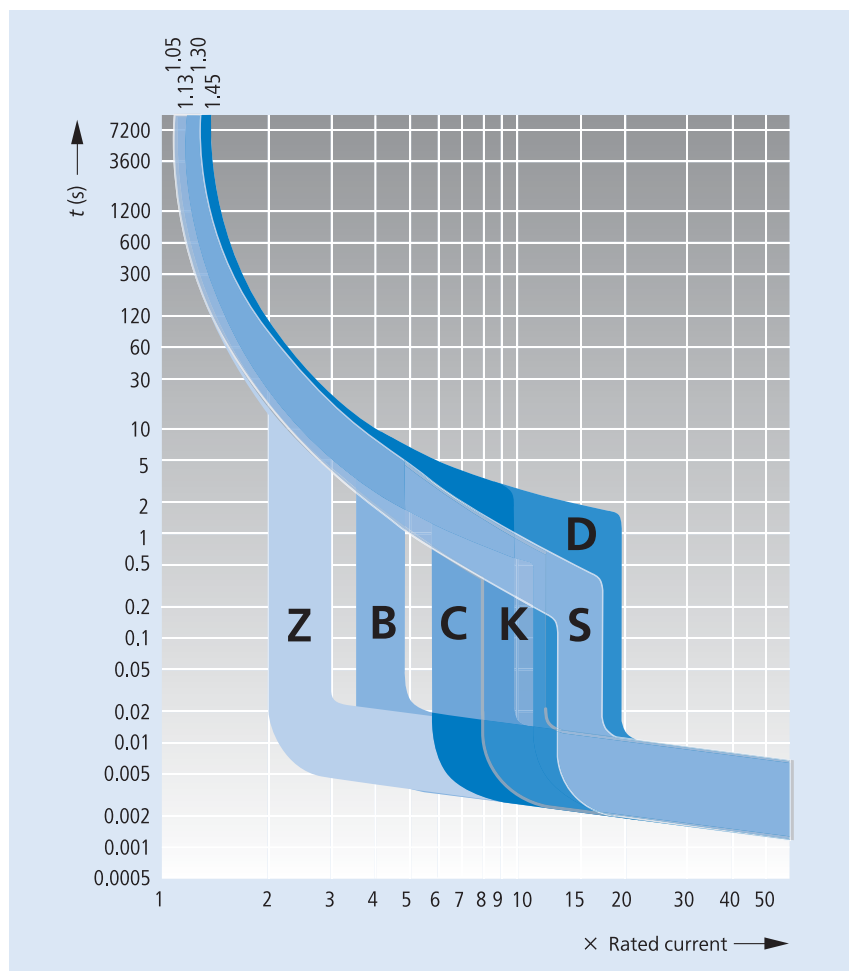
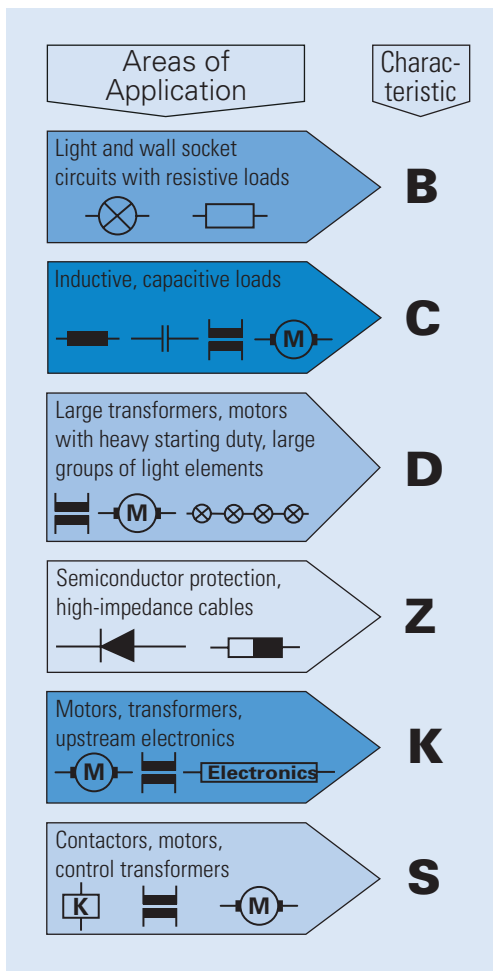
Lightning and surge protection

The lightning and surge protective device SPB-12/280 is a combined lightning and surge arrester (arrester class B+C) in just one space unit. The world's first complies with required lightning surge currents of protection classes III and IV of the IEC 62305 and thus achieves the required minimum lightning surge current of 12.5 kA per protected circuit specified in standard IEC 60364-5-53. The transient voltage surge suppression is achieved with a nominal impulse discharge current of 25 kA that greatly exceeds the minimum requirement of 5 kA per protected circuit.



Practical complete product range

The comprehensive range is complemented by equipment required in industrial installations, such as DIN-rail mounting Schuko sockets, ammeters and voltmeters, power consumption and operational hours meters, as well as analog and digital timers, staircase timers, light intensity switches, buzzers and bells. Eaton offers an extensive product range for the perfect installation, all from a single source.



Tripping characteristics of the xEffect Industrial FAZ miniature circuit breaker

The versatile, individual tripping characteristics offer cable protection, individual device protection and protection in the control circuit.

The high levels of rated switching capacity from 10 to 25 kA, as well as effective current limitation and selectivity ensure optimum system protection and availability.

The B characteristic is utilised in the protection of light and wall socket circuits.

The C characteristic is utilised wherever operational current peaks and other surges occur that must not lead to tripping.

For large transformers, motors with heavy starting duty or extensive groups of light elements, the D characteristic is the correct solution.

The characteristics are available on single- and multi-pole component versions in all the ratings up to 63 A.

Enhanced cable protection at high operational continuity

The K characteristic trips out at short circuits of 8 to 12 times rated current and is utilised wherever operational current peaks and other current surges can occur, but must not cause tripping.

Thus it lies in the upper reach of the C and in the lower reach of the D characteristic. This allows motors, capacitors, welding transformers and electronically controlled upstream devices to be connected in the optimum way. The K characteristic from Eaton offers enhanced cable protection due to its narrower bimetal tripping range for overload protection.

Safety for control circuits

The control circuit protective switch with S characteristic is designed for the protection of control circuits with high inrush currents. At 13 to 17 x I_n , the magnitude of the short-circuit current here lies in a limited band of the D characteristic above the starting peak of the typical control transformer. Thus, unintentional tripping is prevented by the S characteristic device, which is tested to IEC/EN 60947-2. Compliant with this Standard, the control circuit protective switch only permits an overload of between 5 and 30 %.

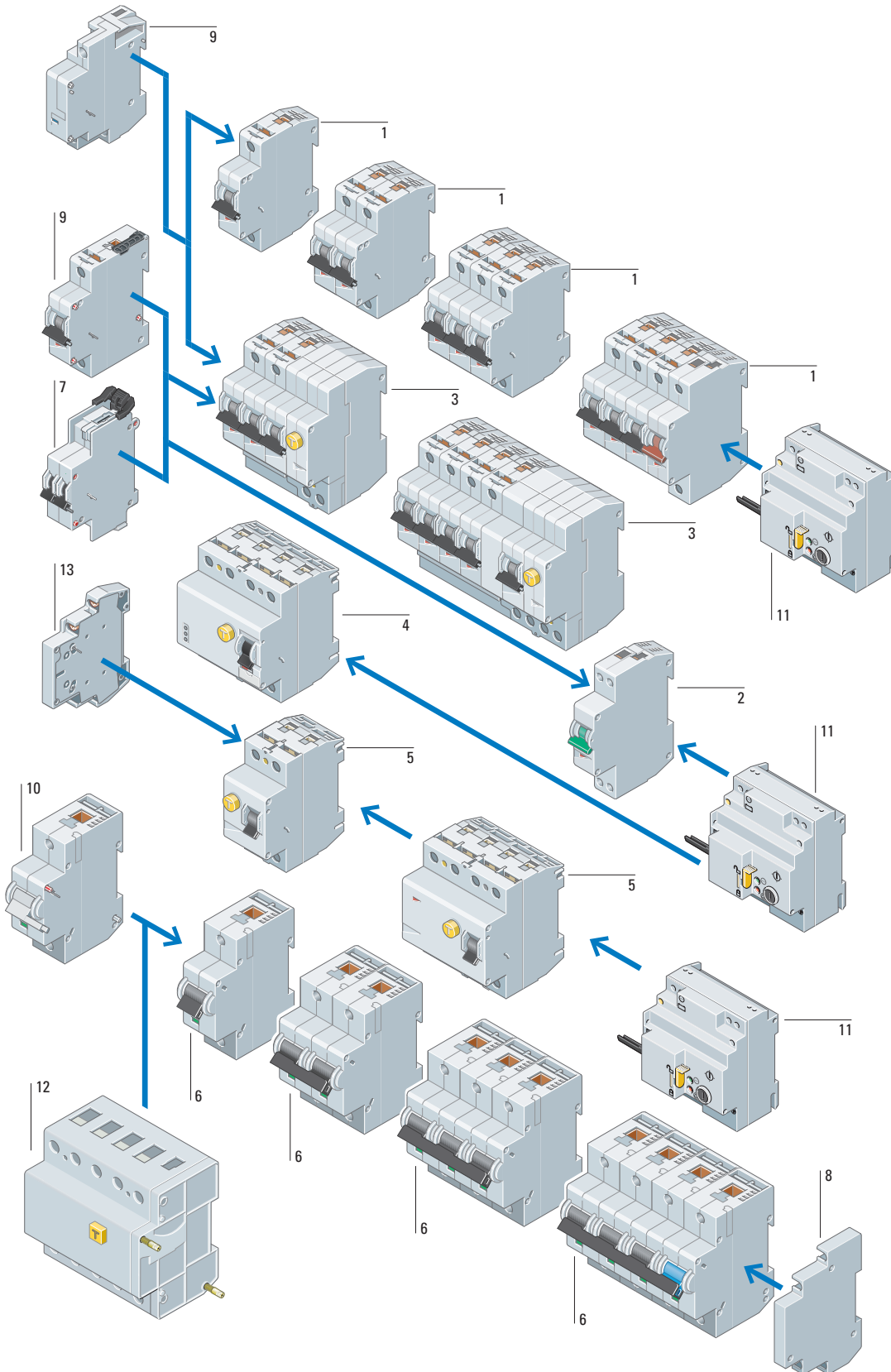
Rapid-response protection for electronics

Electronic components and devices can be destroyed by even small current surges. The protective switches xEffect Industrial FAZ with Z characteristic trip out instantly even at surges of 2 to 3 times rated current. This property also renders these protective circuit breakers suitable for the protection of high-impedance cables.

Miniature circuit-breaker, residual current circuit-breaker

System overview

Moeller® series



- | | | | |
|---|--|----|---|
| 1 | FAZ miniature circuit-breakers | 7 | FAZ auxiliary contact module or SmartWire-DT connection module |
| 1 | FAZT miniature circuit-breakers | 8 | AZ auxiliary contacts |
| 2 | FAZ-PN miniature circuit-breaker | 9 | FAZ voltage releases |
| 3 | FBSmV residual-current protective modules for fitting to FAZ | 10 | AZ voltage releases |
| 4 | FRBmM combination switch | 11 | Remote switching module |
| 5 | FRCmM residual current circuit breaker | 12 | FBHmV residual-current protective modules for fitting to AZ |
| 6 | AZ miniature circuit-breakers | 13 | Residual-current auxiliary contact module or SmartWire-DT connection module |



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 1 pole+N | | 2 pole | | 3 pole | |
|--|--|-------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| FAZ miniature circuit-breakers | | | | | | | | | |
| (please enquire for circuit-breakers with 3+N and 4 poles) | | | | | | | | | |
| Characteristic B Instantaneous release response current 3 - 5 x I_n | | | | | | | | | |
| 1 | 15 | FAZ-B1/1 | 278520 | FAZ-B1/1N | 278633 | FAZ-B1/2 | 278719 | FAZ-B1/3 | 278832 |
| 1.5 | 15 | FAZ-B1,5/1 | 278521 | FAZ-B1,5/1N | 278634 | FAZ-B1,5/2 | 278720 | FAZ-B1,5/3 | 278833 |
| 1.6 | 15 | FAZ-B1,6/1 | 278522 | FAZ-B1,6/1N | 278635 | FAZ-B1,6/2 | 278721 | FAZ-B1,6/3 | 278834 |
| 2 | 15 | FAZ-B2/1 | 278523 | FAZ-B2/1N | 278636 | FAZ-B2/2 | 278722 | FAZ-B2/3 | 278835 |
| 2.5 | 15 | FAZ-B2,5/1 | 278524 | FAZ-B2,5/1N | 278637 | FAZ-B2,5/2 | 278723 | FAZ-B2,5/3 | 278836 |
| 3 | 15 | FAZ-B3/1 | 278525 | FAZ-B3/1N | 278638 | FAZ-B3/2 | 278724 | FAZ-B3/3 | 278837 |
| 3.5 | 15 | FAZ-B3,5/1 | 278526 | FAZ-B3,5/1N | 278639 | FAZ-B3,5/2 | 278725 | FAZ-B3,5/3 | 278838 |
| 4 | 15 | FAZ-B4/1 | 278527 | FAZ-B4/1N | 278640 | FAZ-B4/2 | 278726 | FAZ-B4/3 | 278839 |
| 5 | 15 | FAZ-B5/1 | 278528 | FAZ-B5/1N | 278641 | FAZ-B5/2 | 278727 | FAZ-B5/3 | 278840 |
| 6 | 15 | FAZ-B6/1 | 278529 | FAZ-B6/1N | 278642 | FAZ-B6/2 | 278728 | FAZ-B6/3 | 278841 |
| 8 | 15 | FAZ-B8/1 | 278530 | FAZ-B8/1N | 278643 | FAZ-B8/2 | 278729 | FAZ-B8/3 | 278842 |
| 10 | 15 | FAZ-B10/1 | 278531 | FAZ-B10/1N | 278644 | FAZ-B10/2 | 278730 | FAZ-B10/3 | 278843 |
| 12 | 15 | FAZ-B12/1 | 278532 | FAZ-B12/1N | 278645 | FAZ-B12/2 | 278731 | FAZ-B12/3 | 278844 |
| 13 | 15 | FAZ-B13/1 | 278533 | FAZ-B13/1N | 278646 | FAZ-B13/2 | 278732 | FAZ-B13/3 | 278845 |
| 15 | 15 | FAZ-B15/1 | 278534 | FAZ-B15/1N | 278647 | FAZ-B15/2 | 278733 | FAZ-B15/3 | 278846 |
| 16 | 15 | FAZ-B16/1 | 278535 | FAZ-B16/1N | 278648 | FAZ-B16/2 | 278734 | FAZ-B16/3 | 278847 |
| 20 | 15 | FAZ-B20/1 | 278536 | FAZ-B20/1N | 278649 | FAZ-B20/2 | 278735 | FAZ-B20/3 | 278848 |
| 25 | 15 | FAZ-B25/1 | 278537 | FAZ-B25/1N | 278650 | FAZ-B25/2 | 278736 | FAZ-B25/3 | 278849 |
| 32 | 15 | FAZ-B32/1 | 278538 | FAZ-B32/1N | 278651 | FAZ-B32/2 | 278737 | FAZ-B32/3 | 278850 |
| 40 | 15 | FAZ-B40/1 | 278539 | FAZ-B40/1N | 278652 | FAZ-B40/2 | 278738 | FAZ-B40/3 | 278851 |
| 50 | 15 | FAZ-B50/1 | 278540 | FAZ-B50/1N | 278653 | FAZ-B50/2 | 278739 | FAZ-B50/3 | 278852 |
| 63 | 15 | FAZ-B63/1 | 278541 | FAZ-B63/1N | 278654 | FAZ-B63/2 | 278740 | FAZ-B63/3 | 278853 |
| Characteristic C Instantaneous release response current 5 - 10 x I_n | | | | | | | | | |
| 0.16 | 15 | FAZ-C0,16/1 | 278542 | FAZ-C0,16/1N | 278655 | FAZ-C0,16/2 | 278741 | FAZ-C0,16/3 | 278854 |
| 0.25 | 15 | FAZ-C0,25/1 | 278543 | FAZ-C0,25/1N | 278656 | FAZ-C0,25/2 | 278742 | FAZ-C0,25/3 | 278855 |
| 0.5 | 15 | FAZ-C0,5/1 | 278544 | FAZ-C0,5/1N | 278657 | FAZ-C0,5/2 | 278743 | FAZ-C0,5/3 | 278856 |
| 0.75 | 15 | FAZ-C0,75/1 | 278545 | FAZ-C0,75/1N | 278658 | FAZ-C0,75/2 | 278744 | FAZ-C0,75/3 | 278857 |
| 1 | 15 | FAZ-C1/1 | 278546 | FAZ-C1/1N | 278659 | FAZ-C1/2 | 278745 | FAZ-C1/3 | 278858 |
| 1.5 | 15 | FAZ-C1,5/1 | 278547 | FAZ-C1,5/1N | 278660 | FAZ-C1,5/2 | 278746 | FAZ-C1,5/3 | 278859 |
| 1.6 | 15 | FAZ-C1,6/1 | 278548 | FAZ-C1,6/1N | 278661 | FAZ-C1,6/2 | 278747 | FAZ-C1,6/3 | 278860 |
| 2 | 15 | FAZ-C2/1 | 278549 | FAZ-C2/1N | 278662 | FAZ-C2/2 | 278748 | FAZ-C2/3 | 278861 |
| 2.5 | 15 | FAZ-C2,5/1 | 278550 | FAZ-C2,5/1N | 278663 | FAZ-C2,5/2 | 278749 | FAZ-C2,5/3 | 278862 |
| 3 | 15 | FAZ-C3/1 | 278551 | FAZ-C3/1N | 278664 | FAZ-C3/2 | 278750 | FAZ-C3/3 | 278863 |
| 3.5 | 15 | FAZ-C3,5/1 | 278552 | FAZ-C3,5/1N | 278665 | FAZ-C3,5/2 | 278751 | FAZ-C3,5/3 | 278864 |
| 4 | 15 | FAZ-C4/1 | 278553 | FAZ-C4/1N | 278666 | FAZ-C4/2 | 278752 | FAZ-C4/3 | 278865 |
| 5 | 15 | FAZ-C5/1 | 278554 | FAZ-C5/1N | 278667 | FAZ-C5/2 | 278753 | FAZ-C5/3 | 278866 |
| 6 | 15 | FAZ-C6/1 | 278555 | FAZ-C6/1N | 278668 | FAZ-C6/2 | 278754 | FAZ-C6/3 | 278867 |
| 8 | 15 | FAZ-C8/1 | 278556 | FAZ-C8/1N | 278669 | FAZ-C8/2 | 278755 | FAZ-C8/3 | 278868 |
| 10 | 15 | FAZ-C10/1 | 278557 | FAZ-C10/1N | 278670 | FAZ-C10/2 | 278756 | FAZ-C10/3 | 278869 |
| 12 | 15 | FAZ-C12/1 | 278558 | FAZ-C12/1N | 278671 | FAZ-C12/2 | 278757 | FAZ-C12/3 | 278870 |
| 13 | 15 | FAZ-C13/1 | 278559 | FAZ-C13/1N | 278672 | FAZ-C13/2 | 278758 | FAZ-C13/3 | 278871 |
| 15 | 15 | FAZ-C15/1 | 278560 | FAZ-C15/1N | 278673 | FAZ-C15/2 | 278759 | FAZ-C15/3 | 278872 |
| 16 | 15 | FAZ-C16/1 | 278561 | FAZ-C16/1N | 278674 | FAZ-C16/2 | 278760 | FAZ-C16/3 | 278873 |
| 20 | 15 | FAZ-C20/1 | 278562 | FAZ-C20/1N | 278675 | FAZ-C20/2 | 278761 | FAZ-C20/3 | 278874 |
| 25 | 15 | FAZ-C25/1 | 278563 | FAZ-C25/1N | 278676 | FAZ-C25/2 | 278762 | FAZ-C25/3 | 278875 |
| 32 | 15 | FAZ-C32/1 | 278564 | FAZ-C32/1N | 278677 | FAZ-C32/2 | 278763 | FAZ-C32/3 | 278876 |
| 40 | 15 | FAZ-C40/1 | 278565 | FAZ-C40/1N | 278678 | FAZ-C40/2 | 278764 | FAZ-C40/3 | 278877 |
| 50 | 15 | FAZ-C50/1 | 278566 | FAZ-C50/1N | 278679 | FAZ-C50/2 | 278765 | FAZ-C50/3 | 278878 |
| 63 | 15 | FAZ-C63/1 | 278567 | FAZ-C63/1N | 278680 | FAZ-C63/2 | 278766 | FAZ-C63/3 | 278879 |



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 1 pole+N | | 2 pole | | 3 pole | |
|--|--|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| FAZ miniature circuit-breakers | | | | | | | | | |
| (please enquire for circuit-breakers with 3+N and 4 poles) | | | | | | | | | |
| Characteristic D Instantaneous release response current 10 - 20 x I_n | | | | | | | | | |
| 0.5 | 15 | FAZ-D0,5/1 | 278568 | FAZ-D0,5/1N | 278681 | FAZ-D0,5/2 | 278767 | FAZ-D0,5/3 | 278880 |
| 1 | 15 | FAZ-D1/1 | 278569 | FAZ-D1/1N | 278682 | FAZ-D1/2 | 278768 | FAZ-D1/3 | 278881 |
| 1.5 | 15 | FAZ-D1,5/1 | 278570 | FAZ-D1,5/1N | 278683 | FAZ-D1,5/2 | 278769 | FAZ-D1,5/3 | 278882 |
| 1.6 | 15 | FAZ-D1,6/1 | 278571 | FAZ-D1,6/1N | 278684 | FAZ-D1,6/2 | 278770 | FAZ-D1,6/3 | 278883 |
| 2 | 15 | FAZ-D2/1 | 278572 | FAZ-D2/1N | 278685 | FAZ-D2/2 | 278771 | FAZ-D2/3 | 278884 |
| 2.5 | 15 | FAZ-D2,5/1 | 278573 | FAZ-D2,5/1N | 278686 | FAZ-D2,5/2 | 278772 | FAZ-D2,5/3 | 278885 |
| 3 | 15 | FAZ-D3/1 | 278574 | FAZ-D3/1N | 278687 | FAZ-D3/2 | 278773 | FAZ-D3/3 | 278886 |
| 3.5 | 15 | FAZ-D3,5/1 | 278575 | FAZ-D3,5/1N | 278688 | FAZ-D3,5/2 | 278774 | FAZ-D3,5/3 | 278887 |
| 4 | 15 | FAZ-D4/1 | 278576 | FAZ-D4/1N | 278689 | FAZ-D4/2 | 278775 | FAZ-D4/3 | 278888 |
| 5 | 15 | FAZ-D5/1 | 278577 | FAZ-D5/1N | 278690 | FAZ-D5/2 | 278776 | FAZ-D5/3 | 278889 |
| 6 | 15 | FAZ-D6/1 | 278578 | FAZ-D6/1N | 278691 | FAZ-D6/2 | 278777 | FAZ-D6/3 | 278890 |
| 8 | 15 | FAZ-D8/1 | 278579 | FAZ-D8/1N | 278692 | FAZ-D8/2 | 278778 | FAZ-D8/3 | 278891 |
| 10 | 15 | FAZ-D10/1 | 278580 | FAZ-D10/1N | 278693 | FAZ-D10/2 | 278779 | FAZ-D10/3 | 278892 |
| 12 | 15 | FAZ-D12/1 | 278581 | FAZ-D12/1N | 278694 | FAZ-D12/2 | 278780 | FAZ-D12/3 | 278893 |
| 13 | 15 | FAZ-D13/1 | 278582 | FAZ-D13/1N | 278695 | FAZ-D13/2 | 278781 | FAZ-D13/3 | 278894 |
| 15 | 15 | FAZ-D15/1 | 278583 | FAZ-D15/1N | 278696 | FAZ-D15/2 | 278782 | FAZ-D15/3 | 278895 |
| 16 | 15 | FAZ-D16/1 | 278584 | FAZ-D16/1N | 278697 | FAZ-D16/2 | 278783 | FAZ-D16/3 | 278896 |
| 20 | 15 | FAZ-D20/1 | 278585 | FAZ-D20/1N | 278698 | FAZ-D20/2 | 278784 | FAZ-D20/3 | 278897 |
| 25 | 15 | FAZ-D25/1 | 278586 | FAZ-D25/1N | 278699 | FAZ-D25/2 | 278785 | FAZ-D25/3 | 278898 |
| 32 | 15 | FAZ-D32/1 | 278587 | FAZ-D32/1N | 278700 | FAZ-D32/2 | 278786 | FAZ-D32/3 | 278899 |
| 40 | 15 | FAZ-D40/1 | 278588 | FAZ-D40/1N | 278701 | FAZ-D40/2 | 278787 | FAZ-D40/3 | 278900 |
| 50 | 10 | FAZ-D50/1 | 115370 | FAZ-D50/1N | 115378 | FAZ-D50/2 | 115372 | FAZ-D50/3 | 115374 |
| 63 | 10 | FAZ-D63/1 | 115371 | FAZ-D63/1N | 115379 | FAZ-D63/2 | 115373 | FAZ-D63/3 | 115375 |
| Characteristic K Instantaneous release response current 8 - 12 x I_n | | | | | | | | | |
| 0.5 | 15 | FAZ-K0,5/1 | 278589 | FAZ-K0,5/1N | 278702 | FAZ-K0,5/2 | 278788 | FAZ-K0,5/3 | 278901 |
| 1 | 15 | FAZ-K1/1 | 278590 | FAZ-K1/1N | 278703 | FAZ-K1/2 | 278789 | FAZ-K1/3 | 278902 |
| 1.6 | 15 | FAZ-K1,6/1 | 278591 | FAZ-K1,6/1N | 278704 | FAZ-K1,6/2 | 278790 | FAZ-K1,6/3 | 278903 |
| 2 | 15 | FAZ-K2/1 | 278592 | FAZ-K2/1N | 278705 | FAZ-K2/2 | 278791 | FAZ-K2/3 | 278904 |
| 3 | 15 | FAZ-K3/1 | 278593 | FAZ-K3/1N | 278706 | FAZ-K3/2 | 278792 | FAZ-K3/3 | 278905 |
| 4 | 15 | FAZ-K4/1 | 278594 | FAZ-K4/1N | 278707 | FAZ-K4/2 | 278793 | FAZ-K4/3 | 278906 |
| 6 | 15 | FAZ-K6/1 | 278595 | FAZ-K6/1N | 278708 | FAZ-K6/2 | 278794 | FAZ-K6/3 | 278907 |
| 8 | 15 | FAZ-K8/1 | 278596 | FAZ-K8/1N | 278709 | FAZ-K8/2 | 278795 | FAZ-K8/3 | 278908 |
| 10 | 15 | FAZ-K10/1 | 278597 | FAZ-K10/1N | 278710 | FAZ-K10/2 | 278796 | FAZ-K10/3 | 278909 |
| 13 | 15 | FAZ-K13/1 | 278598 | FAZ-K13/1N | 278711 | FAZ-K13/2 | 278797 | FAZ-K13/3 | 278910 |
| 16 | 15 | FAZ-K16/1 | 278599 | FAZ-K16/1N | 278712 | FAZ-K16/2 | 278798 | FAZ-K16/3 | 278911 |
| 20 | 15 | FAZ-K20/1 | 278600 | FAZ-K20/1N | 278713 | FAZ-K20/2 | 278799 | FAZ-K20/3 | 278912 |
| 25 | 15 | FAZ-K25/1 | 278601 | FAZ-K25/1N | 278714 | FAZ-K25/2 | 278800 | FAZ-K25/3 | 278913 |
| 32 | 15 | FAZ-K32/1 | 278602 | FAZ-K32/1N | 278715 | FAZ-K32/2 | 278801 | FAZ-K32/3 | 278914 |
| 40 | 15 | FAZ-K40/1 | 278603 | FAZ-K40/1N | 278716 | FAZ-K40/2 | 278802 | FAZ-K40/3 | 278915 |
| 50 | 15 | FAZ-K50/1 | 278604 | FAZ-K50/1N | 278717 | FAZ-K50/2 | 278803 | FAZ-K50/3 | 278916 |
| 63 | 15 | FAZ-K63/1 | 278605 | FAZ-K63/1N | 278718 | FAZ-K63/2 | 278804 | FAZ-K63/3 | 278917 |



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 2 pole | | 3 pole | |
|---|--|--------------|-------------|--------------|-------------|------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| FAZ miniature circuit-breakers | | | | | | | |
| Characteristic S Instantaneous release response current 13 - 17 x I_n | | | | | | | |
| 1 | 10 | FAZ-S1/1 | 278606 | FAZ-S1/2 | 278805 | - | - |
| 2 | 10 | FAZ-S2/1 | 278607 | FAZ-S2/2 | 278806 | - | - |
| 3 | 10 | FAZ-S3/1 | 278608 | FAZ-S3/2 | 278807 | - | - |
| 4 | 10 | FAZ-S4/1 | 278609 | FAZ-S4/2 | 278808 | - | - |
| 6 | 10 | FAZ-S6/1 | 278610 | FAZ-S6/2 | 278809 | - | - |
| 10 | 10 | FAZ-S10/1 | 278611 | FAZ-S10/2 | 278810 | - | - |
| 16 | 10 | FAZ-S16/1 | 278612 | FAZ-S16/2 | 278811 | - | - |
| 20 | 10 | FAZ-S20/1 | 278613 | FAZ-S20/2 | 278812 | - | - |
| 25 | 10 | FAZ-S25/1 | 278614 | FAZ-S25/2 | 278813 | - | - |
| 32 | 10 | FAZ-S32/1 | 278615 | FAZ-S32/2 | 278814 | - | - |
| 40 | 10 | FAZ-S40/1 | 278616 | FAZ-S40/2 | 278815 | - | - |
| Characteristic Z Instantaneous release response current 2 - 3 x I_n | | | | | | | |
| 0.5 | 15 | FAZ-Z0,5/1 | 278617 | FAZ-Z0,5/2 | 278816 | FAZ-Z0,5/3 | 278918 |
| 1 | 15 | FAZ-Z1/1 | 278618 | FAZ-Z1/2 | 278817 | FAZ-Z1/3 | 278919 |
| 1.6 | 15 | FAZ-Z1,6/1 | 278619 | FAZ-Z1,6/2 | 278818 | FAZ-Z1,6/3 | 278920 |
| 2 | 15 | FAZ-Z2/1 | 278620 | FAZ-Z2/2 | 278819 | FAZ-Z2/3 | 278921 |
| 3 | 15 | FAZ-Z3/1 | 278621 | FAZ-Z3/2 | 278820 | FAZ-Z3/3 | 278922 |
| 4 | 15 | FAZ-Z4/1 | 278622 | FAZ-Z4/2 | 278821 | FAZ-Z4/3 | 278923 |
| 6 | 15 | FAZ-Z6/1 | 278623 | FAZ-Z6/2 | 278822 | FAZ-Z6/3 | 278924 |
| 8 | 15 | FAZ-Z8/1 | 278624 | FAZ-Z8/2 | 278823 | FAZ-Z8/3 | 278925 |
| 10 | 15 | FAZ-Z10/1 | 278625 | FAZ-Z10/2 | 278824 | FAZ-Z10/3 | 278926 |
| 16 | 15 | FAZ-Z16/1 | 278626 | FAZ-Z16/2 | 278825 | FAZ-Z16/3 | 278927 |
| 20 | 15 | FAZ-Z20/1 | 278627 | FAZ-Z20/2 | 278826 | FAZ-Z20/3 | 278928 |
| 25 | 15 | FAZ-Z25/1 | 278628 | FAZ-Z25/2 | 278827 | FAZ-Z25/3 | 278929 |
| 32 | 15 | FAZ-Z32/1 | 278629 | FAZ-Z32/2 | 278828 | FAZ-Z32/3 | 278930 |
| 40 | 15 | FAZ-Z40/1 | 278630 | FAZ-Z40/2 | 278829 | FAZ-Z40/3 | 278931 |
| 50 | 15 | FAZ-Z50/1 | 278631 | FAZ-Z50/2 | 278830 | FAZ-Z50/3 | 278932 |
| 63 | 15 | FAZ-Z63/1 | 278632 | FAZ-Z63/2 | 278831 | FAZ-Z63/3 | 278933 |
| FAZ miniature circuit-breakers for DC applications | | | | | | | |
| Characteristic C Instantaneous release response current 5 - 10 x I_n | | | | | | | |
| 2 | 10 | FAZ-C2/1-DC | 279122 | FAZ-C2/2-DC | 279134 | - | - |
| 3 | 10 | FAZ-C3/1-DC | 279123 | FAZ-C3/2-DC | 279135 | - | - |
| 4 | 10 | FAZ-C4/1-DC | 279124 | FAZ-C4/2-DC | 279136 | - | - |
| 6 | 10 | FAZ-C6/1-DC | 279125 | FAZ-C6/2-DC | 279137 | - | - |
| 10 | 10 | FAZ-C10/1-DC | 279126 | FAZ-C10/2-DC | 279138 | - | - |
| 13 | 10 | FAZ-C13/1-DC | 279127 | FAZ-C13/2-DC | 279139 | - | - |
| 16 | 10 | FAZ-C16/1-DC | 279128 | FAZ-C16/2-DC | 279140 | - | - |
| 20 | 10 | FAZ-C20/1-DC | 279129 | FAZ-C20/2-DC | 279141 | - | - |
| 25 | 10 | FAZ-C25/1-DC | 279130 | FAZ-C25/2-DC | 279142 | - | - |
| 32 | 10 | FAZ-C32/1-DC | 279131 | FAZ-C32/2-DC | 279143 | - | - |
| 40 | 10 | FAZ-C40/1-DC | 279132 | FAZ-C40/2-DC | 279144 | - | - |
| 50 | 10 | FAZ-C50/1-DC | 279133 | FAZ-C50/2-DC | 279145 | - | - |



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 1 pole+N | | 2 pole | | 3 pole | |
|---|--|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| FAZ-T miniature circuit-breaker | | | | | | | | | |
| (please enquire for circuit-breakers with 3+N and 4 poles) | | | | | | | | | |
| Characteristic B Response current of short-circuit release 3-5 x I_n | | | | | | | | | |
| 1 | 25 | FAZT-B1/1 | 240770 | FAZT-B1/1N | 240994 | FAZT-B1/2 | 240820 | FAZT-B1/3 | 240874 |
| 2 | 25 | FAZT-B2/1 | 240771 | FAZT-B2/1N | 240995 | FAZT-B2/2 | 240821 | FAZT-B2/3 | 240875 |
| 3 | 25 | FAZT-B3/1 | 240772 | FAZT-B3/1N | 240996 | FAZT-B3/2 | 240822 | FAZT-B3/3 | 240876 |
| 4 | 25 | FAZT-B4/1 | 240777 | FAZT-B4/1N | 240997 | FAZT-B4/2 | 240823 | FAZT-B4/3 | 240877 |
| 6 | 25 | FAZT-B6/1 | 240782 | FAZT-B6/1N | 240998 | FAZT-B6/2 | 240824 | FAZT-B6/3 | 240878 |
| 10 | 25 | FAZT-B10/1 | 240787 | FAZT-B10/1N | 240999 | FAZT-B10/2 | 240825 | FAZT-B10/3 | 240879 |
| 12 | 25 | FAZT-B12/1 | 240792 | FAZT-B12/1N | 241000 | FAZT-B12/2 | 240826 | FAZT-B12/3 | 240880 |
| 13 | 25 | FAZT-B13/1 | 240793 | FAZT-B13/1N | 241001 | FAZT-B13/2 | 240827 | FAZT-B13/3 | 240881 |
| 15 | 25 | FAZT-B15/1 | 240794 | FAZT-B15/1N | 241005 | FAZT-B15/2 | 240828 | FAZT-B15/3 | 240882 |
| 16 | 25 | FAZT-B16/1 | 240795 | FAZT-B16/1N | 241009 | FAZT-B16/2 | 240829 | FAZT-B16/3 | 240883 |
| 20 | 25 | FAZT-B20/1 | 240796 | FAZT-B20/1N | 241015 | FAZT-B20/2 | 240830 | FAZT-B20/3 | 240884 |
| 25 | 25 | FAZT-B25/1 | 240797 | FAZT-B25/1N | 241019 | FAZT-B25/2 | 240831 | FAZT-B25/3 | 240885 |
| 32 | 20 | FAZT-B32/1 | 141907 | FAZT-B32/1N | 142509 | FAZT-B32/2 | 142485 | FAZT-B32/3 | 142493 |
| 40 | 20 | FAZT-B40/1 | 141908 | FAZT-B40/1N | 142510 | FAZT-B40/2 | 142486 | FAZT-B40/3 | 142494 |
| Characteristic C Response current of short-circuit release 5-10 x I_n | | | | | | | | | |
| 1 | 25 | FAZT-C1/1 | 240798 | FAZT-C1/1N | 241022 | FAZT-C1/2 | 240832 | FAZT-C1/3 | 240886 |
| 2 | 25 | FAZT-C2/1 | 240799 | FAZT-C2/1N | 241023 | FAZT-C2/2 | 240833 | FAZT-C2/3 | 240887 |
| 3 | 25 | FAZT-C3/1 | 240800 | FAZT-C3/1N | 241024 | FAZT-C3/2 | 240838 | FAZT-C3/3 | 240888 |
| 4 | 25 | FAZT-C4/1 | 240801 | FAZT-C4/1N | 241025 | FAZT-C4/2 | 240843 | FAZT-C4/3 | 240889 |
| 6 | 25 | FAZT-C6/1 | 240802 | FAZT-C6/1N | 241026 | FAZT-C6/2 | 240850 | FAZT-C6/3 | 240890 |
| 10 | 25 | FAZT-C10/1 | 240803 | FAZT-C10/1N | 241027 | FAZT-C10/2 | 240855 | FAZT-C10/3 | 240891 |
| 12 | 25 | FAZT-C12/1 | 240804 | FAZT-C12/1N | 241028 | FAZT-C12/2 | 240858 | FAZT-C12/3 | 240892 |
| 13 | 25 | FAZT-C13/1 | 240805 | FAZT-C13/1N | 241029 | FAZT-C13/2 | 240859 | FAZT-C13/3 | 240893 |
| 15 | 25 | FAZT-C15/1 | 240806 | FAZT-C15/1N | 241030 | FAZT-C15/2 | 240860 | FAZT-C15/3 | 240894 |
| 16 | 25 | FAZT-C16/1 | 240807 | FAZT-C16/1N | 241034 | FAZT-C16/2 | 240861 | FAZT-C16/3 | 240895 |
| 20 | 25 | FAZT-C20/1 | 240808 | FAZT-C20/1N | 241038 | FAZT-C20/2 | 240862 | FAZT-C20/3 | 240896 |
| 25 | 25 | FAZT-C25/1 | 240809 | FAZT-C25/1N | 241044 | FAZT-C25/2 | 240863 | FAZT-C25/3 | 240897 |
| 32 | 20 | FAZT-C32/1 | 141909 | FAZT-C32/1N | 142511 | FAZT-C32/2 | 142487 | FAZT-C32/3 | 142495 |
| 40 | 20 | FAZT-C40/1 | 142480 | FAZT-C40/1N | 142512 | FAZT-C40/2 | 142488 | FAZT-C40/3 | 142496 |
| Characteristic D Response current of short-circuit release 10-20 x I_n | | | | | | | | | |
| 1 | 25 | FAZT-D1/1 | 240810 | FAZT-D1/1N | 241048 | FAZT-D1/2 | 240864 | FAZT-D1/3 | 240898 |
| 2 | 25 | FAZT-D2/1 | 240811 | FAZT-D2/1N | 241051 | FAZT-D2/2 | 240865 | FAZT-D2/3 | 240899 |
| 3 | 25 | FAZT-D3/1 | 240812 | FAZT-D3/1N | 241052 | FAZT-D3/2 | 240866 | FAZT-D3/3 | 240900 |
| 4 | 25 | FAZT-D4/1 | 240813 | FAZT-D4/1N | 241053 | FAZT-D4/2 | 240867 | FAZT-D4/3 | 240901 |
| 6 | 25 | FAZT-D6/1 | 240814 | FAZT-D6/1N | 241054 | FAZT-D6/2 | 240868 | FAZT-D6/3 | 240902 |
| 10 | 25 | FAZT-D10/1 | 240815 | FAZT-D10/1N | 241055 | FAZT-D10/2 | 240869 | FAZT-D10/3 | 240903 |
| 12 | 25 | FAZT-D12/1 | 240816 | FAZT-D12/1N | 241056 | FAZT-D12/2 | 240870 | FAZT-D12/3 | 240904 |
| 13 | 25 | FAZT-D13/1 | 240817 | FAZT-D13/1N | 241057 | FAZT-D13/2 | 240871 | FAZT-D13/3 | 240905 |
| 15 | 20 | FAZT-D15/1 | 240818 | FAZT-D15/1N | 241058 | FAZT-D15/2 | 240872 | FAZT-D15/3 | 240910 |
| 16 | 20 | FAZT-D16/1 | 240819 | FAZT-D16/1N | 241059 | FAZT-D16/2 | 240873 | FAZT-D16/3 | 240915 |
| 20 | 20 | FAZT-D20/1 | 142481 | FAZT-D20/1N | 142513 | FAZT-D20/2 | 142489 | FAZT-D20/3 | 142497 |
| 25 | 15 | FAZT-D25/1 | 142482 | FAZT-D25/1N | 142514 | FAZT-D25/2 | 142490 | FAZT-D25/3 | 142498 |
| 32 | 15 | FAZT-D32/1 | 142483 | FAZT-D32/1N | 142515 | FAZT-D32/2 | 142491 | FAZT-D32/3 | 142499 |
| 40 | 15 | FAZT-D40/1 | 142484 | FAZT-D40/1N | 142516 | FAZT-D40/2 | 142492 | FAZT-D40/3 | 142500 |



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 2 pole | | 3 pole | |
|--|--|---------------|-------------|---------------|-------------|---------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| Miniature circuit-breakers FAZ for North America | | | | | | | |
| Characteristic B Response current of short-circuit release 3-5 x I_n | | | | | | | |
| 1 | 10 | FAZ-B1/1-NA | 132414 | FAZ-B1/2-NA | 132693 | FAZ-B1/3-NA | 132712 |
| 1.5 | 10 | FAZ-B1,5/1-NA | 132415 | FAZ-B1,5/2-NA | 132694 | FAZ-B1,5/3-NA | 132713 |
| 2 | 10 | FAZ-B2/1-NA | 132416 | FAZ-B2/2-NA | 132695 | FAZ-B2/3-NA | 132714 |
| 3 | 10 | FAZ-B3/1-NA | 132417 | FAZ-B3/2-NA | 132696 | FAZ-B3/3-NA | 132715 |
| 4 | 10 | FAZ-B4/1-NA | 132418 | FAZ-B4/2-NA | 132697 | FAZ-B4/3-NA | 132716 |
| 5 | 10 | FAZ-B5/1-NA | 132419 | FAZ-B5/2-NA | 132698 | FAZ-B5/3-NA | 132717 |
| 6 | 10 | FAZ-B6/1-NA | 132680 | FAZ-B6/2-NA | 132699 | FAZ-B6/3-NA | 132718 |
| 7 | 10 | FAZ-B7/1-NA | 132681 | FAZ-B7/2-NA | 132700 | FAZ-B7/3-NA | 132719 |
| 8 | 10 | FAZ-B8/1-NA | 132682 | FAZ-B8/2-NA | 132701 | FAZ-B8/3-NA | 132720 |
| 10 | 10 | FAZ-B10/1-NA | 132683 | FAZ-B10/2-NA | 132702 | FAZ-B10/3-NA | 132721 |
| 13 | 10 | FAZ-B13/1-NA | 132684 | FAZ-B13/2-NA | 132703 | FAZ-B13/3-NA | 132722 |
| 15 | 14 | FAZ-B15/1-NA | 132685 | FAZ-B15/2-NA | 132704 | FAZ-B15/3-NA | 132723 |
| 16 | 14 | FAZ-B16/1-NA | 132686 | FAZ-B16/2-NA | 132705 | FAZ-B16/3-NA | 132724 |
| 20 | 14 | FAZ-B20/1-NA | 132687 | FAZ-B20/2-NA | 132706 | FAZ-B20/3-NA | 132725 |
| 25 | 14 | FAZ-B25/1-NA | 132688 | FAZ-B25/2-NA | 132707 | FAZ-B25/3-NA | 132726 |
| 30 | 10 | FAZ-B30/1-NA | 132689 | FAZ-B30/2-NA | 132708 | FAZ-B30/3-NA | 132727 |
| 32 | 10 | FAZ-B32/1-NA | 132690 | FAZ-B32/2-NA | 132709 | FAZ-B32/3-NA | 132728 |
| 35 | 10 | FAZ-B35/1-NA | 132691 | FAZ-B35/2-NA | 132710 | FAZ-B35/3-NA | 132729 |
| 40 | 10 | FAZ-B40/1-NA | 132692 | FAZ-B40/2-NA | 132711 | FAZ-B40/3-NA | 132730 |
| Characteristic C Response current of short-circuit release 5-10 x I_n | | | | | | | |
| 0.5 | 10 | FAZ-C0,5/1-NA | 102077 | FAZ-C0,5/2-NA | 102157 | FAZ-C0,5/3-NA | 102237 |
| 1 | 10 | FAZ-C1/1-NA | 102078 | FAZ-C1/2-NA | 102158 | FAZ-C1/3-NA | 102238 |
| 1.5 | 10 | FAZ-C1,5/1-NA | 102079 | FAZ-C1,5/2-NA | 102159 | FAZ-C1,5/3-NA | 102239 |
| 2 | 10 | FAZ-C2/1-NA | 102080 | FAZ-C2/2-NA | 102160 | FAZ-C2/3-NA | 102240 |
| 3 | 10 | FAZ-C3/1-NA | 102081 | FAZ-C3/2-NA | 102161 | FAZ-C3/3-NA | 102241 |
| 4 | 10 | FAZ-C4/1-NA | 102082 | FAZ-C4/2-NA | 102162 | FAZ-C4/3-NA | 102242 |
| 5 | 10 | FAZ-C5/1-NA | 102083 | FAZ-C5/2-NA | 102163 | FAZ-C5/3-NA | 102243 |
| 6 | 10 | FAZ-C6/1-NA | 102084 | FAZ-C6/2-NA | 102164 | FAZ-C6/3-NA | 102244 |
| 7 | 10 | FAZ-C7/1-NA | 102085 | FAZ-C7/2-NA | 102165 | FAZ-C7/3-NA | 102245 |
| 8 | 10 | FAZ-C8/1-NA | 102086 | FAZ-C8/2-NA | 102166 | FAZ-C8/3-NA | 102246 |
| 10 | 10 | FAZ-C10/1-NA | 102087 | FAZ-C10/2-NA | 102167 | FAZ-C10/3-NA | 102247 |
| 13 | 10 | FAZ-C13/1-NA | 102088 | FAZ-C13/2-NA | 102168 | FAZ-C13/3-NA | 102248 |
| 15 | 14 | FAZ-C15/1-NA | 102089 | FAZ-C15/2-NA | 102169 | FAZ-C15/3-NA | 102249 |
| 16 | 14 | FAZ-C16/1-NA | 102090 | FAZ-C16/2-NA | 102170 | FAZ-C16/3-NA | 102250 |
| 20 | 14 | FAZ-C20/1-NA | 102091 | FAZ-C20/2-NA | 102171 | FAZ-C20/3-NA | 102251 |
| 25 | 14 | FAZ-C25/1-NA | 102092 | FAZ-C25/2-NA | 102172 | FAZ-C25/3-NA | 102252 |
| 30 | 10 | FAZ-C30/1-NA | 102093 | FAZ-C30/2-NA | 102173 | FAZ-C30/3-NA | 102253 |
| 32 | 10 | FAZ-C32/1-NA | 102094 | FAZ-C32/2-NA | 102174 | FAZ-C32/3-NA | 102254 |
| 35 | 10 | FAZ-C35/1-NA | 102095 | FAZ-C35/2-NA | 102175 | FAZ-C35/3-NA | 102255 |
| 40 | 10 | FAZ-C40/1-NA | 102096 | FAZ-C40/2-NA | 102176 | FAZ-C40/3-NA | 102256 |

Circuit-breaker

FAZ-NA, FAZ-NA-DC miniature circuit-breakers for North America

Moeller® series



| Rated current I_n A | Switching capacity (IEC/EN 60947-2) kA | 1 pole | | 2 pole | | 3 pole | |
|--|--|-----------------|-------------|-----------------|-------------|---------------|-------------|
| | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| FAZ miniature circuit-breakers for North America | | | | | | | |
| Characteristic D Response current of short-circuit release 10-20 x I_n | | | | | | | |
| 0.5 | 10 | FAZ-D0,5/1-NA | 102097 | FAZ-D0,5/2-NA | 102177 | FAZ-D0,5/3-NA | 102257 |
| 1 | 10 | FAZ-D1/1-NA | 102098 | FAZ-D1/2-NA | 102178 | FAZ-D1/3-NA | 102258 |
| 1.5 | 10 | FAZ-D1,5/1-NA | 102099 | FAZ-D1,5/2-NA | 102179 | FAZ-D1,5/3-NA | 102259 |
| 2 | 10 | FAZ-D2/1-NA | 102100 | FAZ-D2/2-NA | 102180 | FAZ-D2/3-NA | 102260 |
| 3 | 10 | FAZ-D3/1-NA | 102101 | FAZ-D3/2-NA | 102181 | FAZ-D3/3-NA | 102261 |
| 4 | 10 | FAZ-D4/1-NA | 102102 | FAZ-D4/2-NA | 102182 | FAZ-D4/3-NA | 102262 |
| 5 | 10 | FAZ-D5/1-NA | 102103 | FAZ-D5/2-NA | 102183 | FAZ-D5/3-NA | 102263 |
| 6 | 10 | FAZ-D6/1-NA | 102104 | FAZ-D6/2-NA | 102184 | FAZ-D6/3-NA | 102264 |
| 7 | 10 | FAZ-D7/1-NA | 102105 | FAZ-D7/2-NA | 102185 | FAZ-D7/3-NA | 102265 |
| 8 | 10 | FAZ-D8/1-NA | 102106 | FAZ-D8/2-NA | 102186 | FAZ-D8/3-NA | 102266 |
| 10 | 10 | FAZ-D10/1-NA | 102107 | FAZ-D10/2-NA | 102187 | FAZ-D10/3-NA | 102267 |
| 13 | 10 | FAZ-D13/1-NA | 102108 | FAZ-D13/2-NA | 102188 | FAZ-D13/3-NA | 102268 |
| 15 | 14 | FAZ-D15/1-NA | 102109 | FAZ-D15/2-NA | 102189 | FAZ-D15/3-NA | 102269 |
| 16 | 14 | FAZ-D16/1-NA | 102110 | FAZ-D16/2-NA | 102190 | FAZ-D16/3-NA | 102270 |
| 20 | 14 | FAZ-D20/1-NA | 102111 | FAZ-D20/2-NA | 102191 | FAZ-D20/3-NA | 102271 |
| 25 | 14 | FAZ-D25/1-NA | 102112 | FAZ-D25/2-NA | 102192 | FAZ-D25/3-NA | 102272 |
| 30 | 10 | FAZ-D30/1-NA | 102113 | FAZ-D30/2-NA | 102193 | FAZ-D30/3-NA | 102273 |
| 32 | 10 | FAZ-D32/1-NA | 102114 | FAZ-D32/2-NA | 102194 | FAZ-D32/3-NA | 102274 |
| 35 | 10 | FAZ-D35/1-NA | 102115 | FAZ-D35/2-NA | 102195 | FAZ-D35/3-NA | 102275 |
| 40 | 10 | FAZ-D40/1-NA | 102116 | FAZ-D40/2-NA | 102196 | FAZ-D40/3-NA | 102276 |
| Miniature circuit-breaker for North America for DC applications | | | | | | | |
| Characteristic C Response current of short-circuit release 5-10 x I_n | | | | | | | |
| 2 | 10 | FAZ-C2/1-NA-DC | 113752 | FAZ-C2/2-NA-DC | 137239 | - | - |
| 3 | 10 | FAZ-C3/1-NA-DC | 113753 | FAZ-C3/2-NA-DC | 137250 | - | - |
| 4 | 10 | FAZ-C4/1-NA-DC | 113754 | FAZ-C4/2-NA-DC | 137251 | - | - |
| 5 | 10 | FAZ-C5/1-NA-DC | 113755 | FAZ-C5/2-NA-DC | 137252 | - | - |
| 6 | 10 | FAZ-C6/1-NA-DC | 113756 | FAZ-C6/2-NA-DC | 120638 | - | - |
| 7 | 10 | FAZ-C7/1-NA-DC | 113757 | FAZ-C7/2-NA-DC | 120639 | - | - |
| 8 | 10 | FAZ-C8/1-NA-DC | 113758 | FAZ-C8/2-NA-DC | 120640 | - | - |
| 10 | 10 | FAZ-C10/1-NA-DC | 113759 | FAZ-C10/2-NA-DC | 120641 | - | - |
| 13 | 10 | FAZ-C13/1-NA-DC | 113760 | FAZ-C13/2-NA-DC | 120642 | - | - |
| 15 | 10 | FAZ-C15/1-NA-DC | 113761 | FAZ-C15/2-NA-DC | 120643 | - | - |
| 16 | 10 | FAZ-C16/1-NA-DC | 113762 | FAZ-C16/2-NA-DC | 120644 | - | - |
| 20 | 10 | FAZ-C20/1-NA-DC | 113763 | FAZ-C20/2-NA-DC | 120645 | - | - |
| 25 | 10 | FAZ-C25/1-NA-DC | 113764 | FAZ-C25/2-NA-DC | 120646 | - | - |
| 30 | 10 | FAZ-C30/1-NA-DC | 113765 | FAZ-C30/2-NA-DC | 120647 | - | - |
| 32 | 10 | FAZ-C32/1-NA-DC | 113766 | FAZ-C32/2-NA-DC | 120648 | - | - |
| 35 | 10 | FAZ-C35/1-NA-DC | 113767 | FAZ-C35/2-NA-DC | 120649 | - | - |
| 40 | 10 | FAZ-C40/1-NA-DC | 113768 | FAZ-C40/2-NA-DC | 120650 | - | - |



| Rated current I_n A | Rated fault current $I_{\Delta N}$ A | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
|--|--|---|-------------|--|-------------|---|-------------|
| Residual current circuit breakers FRCdM, digital (please enquire for 60-Hz products) | | Type B, All current sensitive, 240/415 V | | Type B+, All current sensitive, 240/415 V | | Type Bfq, All current sensitive - frequency converter-proof, 240/415 V | |
| Type G, Short time-delayed | | | | | | | |
| 25 | 0.03 | FRCdM-25/4/003-G/B | 167892 | FRCdM-25/4/003-G/B+ | 167880 | FRCdM-25/4/003-G/BFQ | 179530 |
| 40 | 0.03 | FRCdM-40/4/003-G/B | 167893 | FRCdM-40/4/003-G/B+ | 167881 | FRCdM-40/4/003-G/BFQ | 179531 |
| 63 | 0.03 | FRCdM-63/4/003-G/B | 167894 | FRCdM-63/4/003-G/B+ | 167882 | FRCdM-63/4/003-G/BFQ | 179532 |
| 25 | 0.3 | FRCdM-25/4/03-G/B | 167896 | FRCdM-25/4/03-G/B+ | 167884 | FRCdM-25/4/03-G/BFQ | 167904 |
| 40 | 0.3 | FRCdM-40/4/03-G/B | 167897 | FRCdM-40/4/03-G/B+ | 167885 | FRCdM-40/4/03-G/BFQ | 167905 |
| 63 | 0.3 | FRCdM-63/4/03-G/B | 167898 | FRCdM-63/4/03-G/B+ | 167886 | FRCdM-63/4/03-G/BFQ | 167906 |
| Type S, selective switch off | | | | | | | |
| 25 | 0.3 | FRCdM-25/4/03-S/B | 167900 | FRCdM-25/4/03-S/B+ | 167888 | FRCdM-25/4/03-S/BFQ | 167908 |
| 40 | 0.3 | FRCdM-40/4/03-S/B | 167901 | FRCdM-40/4/03-S/B+ | 167889 | FRCdM-40/4/03-S/BFQ | 167909 |
| 63 | 0.3 | FRCdM-63/4/03-S/B | 167902 | FRCdM-63/4/03-S/B+ | 167890 | FRCdM-63/4/03-S/BFQ | 167910 |
| Residual current circuit breakers FRCmM-125 | | | | | | | |
| 125 | 0.03 | FRCmM-125/4/003-G/B | 171188 | FRCmM-125/4/003-G/B+ | 171189 | - | - |
| 125 | 0.03 | FRCmM-125/4/003-B | 171184 | - | - | - | - |
| 125 | 0.1 | FRCmM-125/4/01-B | 171185 | - | - | - | - |
| 125 | 0.3 | FRCmM-125/4/03-B | 171186 | - | - | FRCmM-125/4/03-S/BFQ | 171190 |
| 125 | 0.5 | FRCmM-125/4/05-B | 171187 | - | - | FRCmM-125/4/05-S/BFQ | 171191 |
| FRCdM residual current circuit-breaker, digital | | Type U, pulse-current sensitive, suitable for variable frequency drives, 240/415 V | | Type R, Radiography applications, 240/415 V | | Type A, Pulse-current sensitive, 240/415 V | |
| Type G, Short time-delayed | | | | | | | |
| 25 | 0.03 | - | - | - | - | FRCdM-25/4/003-G/A | 168646 |
| 40 | 0.03 | FRCdM-40/4/003-U | 168643 | - | - | FRCdM-40/4/003-G/A | 168648 |
| 63 | 0.03 | FRCdM-63/4/003-U | 168640 | FRCdM-63/4/003-R | 168636 | FRCdM-63/4/003-G/A | 168650 |
| 80 | 0.03 | - | - | - | - | FRCdM-80/4/003-G/A | 168634 |
| 25 | 0.3 | - | - | - | - | FRCdM-25/4/03-G/A | 168647 |
| 40 | 0.3 | - | - | - | - | FRCdM-40/4/03-G/A | 168649 |
| 63 | 0.3 | - | - | - | - | FRCdM-63/4/03-G/A | 168651 |
| 80 | 0.3 | - | - | - | - | FRCdM-80/4/03-G/A | 168635 |
| Type S, selective switch off | | | | | | | |
| 40 | 0.3 | FRCdM-40/4/03-U | 168644 | - | - | FRCdM-40/4/03-S/A | 168637 |
| 63 | 0.3 | FRCdM-63/4/03-U | 168641 | - | - | FRCdM-63/4/03-S/A | 168638 |
| 80 | 0.3 | FRCdM-80/4/03-U | 168642 | - | - | FRCdM-80/4/03-S/A | 168639 |
| FRCmM Residual current circuit-breaker | | | | | | | |
| Type G, Short time-delayed | | | | | | | |
| 16 | 0.03 | FRCmM-16/4/003-U | 170452 | FRCmM-16/4/003-R | 170308 | - | - |
| 25 | 0.03 | FRCmM-25/4/003-U | 170453 | FRCmM-25/4/003-R | 170309 | - | - |
| 40 | 0.03 | FRCmM-40/4/003-U | 170454 | FRCmM-40/4/003-R | 170310 | - | - |
| 63 | 0.03 | FRCmM-63/4/003-U | 170455 | FRCmM-63/4/003-R | 170311 | - | - |
| 80 | 0.03 | FRCmM-80/4/003-U | 170456 | FRCmM-80/4/003-R | 170312 | - | - |
| 100 | 0.03 | FRCmM-100/4/003-U | 170457 | FRCmM-100/4/003-R | 170313 | - | - |
| Type S, selective switch off | | | | | | | |
| 16 | 0.1 | FRCmM-16/4/01-U | 170458 | - | - | - | - |
| 25 | 0.1 | FRCmM-25/4/01-U | 170459 | - | - | - | - |
| 40 | 0.1 | FRCmM-40/4/01-U | 170460 | - | - | - | - |
| 63 | 0.1 | FRCmM-63/4/01-U | 170461 | - | - | - | - |
| 16 | 0.3 | FRCmM-16/4/03-U | 170462 | - | - | - | - |
| 25 | 0.3 | FRCmM-25/4/03-U | 170463 | - | - | - | - |
| 40 | 0.3 | FRCmM-40/4/03-U | 170464 | - | - | - | - |
| 63 | 0.3 | FRCmM-63/4/03-U | 170465 | - | - | - | - |
| 80 | 0.3 | FRCmM-80/4/03-U | 170466 | - | - | - | - |
| 100 | 0.3 | FRCmM-100/4/03-U | 170467 | - | - | - | - |



| Rated current I_n A | Rated fault current $I_{\Delta N}$ A | 2 pole 240/415 V Part no. | Article no. | 4 pole 240/415 V Part no. | Article no. |
|---|--|---------------------------------------|-------------|---------------------------------------|-------------|
| FRCmM Residual current circuit-breaker | | | | | |
| (please enquire for products for other voltage ranges) | | | | | |
| Type A, Pulse-current sensitive | | | | | |
| 16 | 0.03 | FRCMM-16/2/003-A | 170430 | FRCMM-16/4/003-A | 170285 |
| 25 | 0.03 | FRCMM-25/2/003-A | 170431 | FRCMM-25/4/003-A | 170332 |
| 40 | 0.03 | FRCMM-40/2/003-A | 170432 | FRCMM-40/4/003-A | 170333 |
| 63 | 0.03 | FRCMM-63/2/003-A | 170433 | FRCMM-63/4/003-A | 170334 |
| 80 | 0.03 | FRCMM-80/2/003-A | 170434 | FRCMM-80/4/003-A | 170335 |
| 100 | 0.03 | FRCMM-100/2/003-A | 170435 | FRCMM-100/4/003-A | 170336 |
| 125 | 0.03 | FRCMM-125/2/003-A | 171164 | FRCMM-125/4/003-A | 171174 |
| 16 | 0.3 | FRCMM-16/2/03-A | 170278 | FRCMM-16/4/03-A | 170340 |
| 25 | 0.3 | FRCMM-25/2/03-A | 170279 | FRCMM-25/4/03-A | 170341 |
| 40 | 0.3 | FRCMM-40/2/03-A | 170280 | FRCMM-40/4/03-A | 170342 |
| 63 | 0.3 | - | - | FRCMM-63/4/03-A | 170343 |
| 80 | 0.3 | - | - | FRCMM-80/4/03-A | 170344 |
| 100 | 0.3 | - | - | FRCMM-100/4/03-A | 170345 |
| 125 | 0.3 | FRCMM-125/2/03-A | 171166 | FRCMM-125/4/03-A | 171176 |
| 16 | 0.5 | FRCMM-16/2/05-A | 170281 | FRCMM-16/4/05-A | 170346 |
| 25 | 0.5 | FRCMM-25/2/05-A | 170282 | FRCMM-25/4/05-A | 170347 |
| 40 | 0.5 | FRCMM-40/2/05-A | 170283 | FRCMM-40/4/05-A | 170348 |
| 63 | 0.5 | FRCMM-63/2/05-A | 170284 | FRCMM-63/4/05-A | 170349 |
| 80 | 0.5 | - | - | FRCMM-80/4/05-A | 170350 |
| 100 | 0.5 | - | - | FRCMM-100/4/05-A | 170351 |
| 125 | 0.5 | FRCMM-125/2/05-A | 171167 | FRCMM-125/4/05-A | 171177 |
| Type G/A (ÖVE E 8601), Short time-delayed | | | | | |
| 16 | 0.03 | FRCMM-16/2/003-G/A | 170382 | FRCMM-16/4/003-G/A | 170293 |
| 25 | 0.03 | FRCMM-25/2/003-G/A | 170383 | FRCMM-25/4/003-G/A | 170294 |
| 40 | 0.03 | FRCMM-40/2/003-G/A | 170384 | FRCMM-40/4/003-G/A | 170295 |
| 63 | 0.03 | FRCMM-63/2/003-G/A | 170385 | FRCMM-63/4/003-G/A | 170296 |
| 80 | 0.03 | FRCMM-80/2/003-G/A | 170386 | FRCMM-80/4/003-G/A | 170297 |
| 100 | 0.03 | FRCMM-100/2/003-G/A | 170387 | FRCMM-100/4/003-G/A | 170298 |
| 125 | 0.03 | FRCMM-125/2/003-G/A | 171168 | FRCMM-125/4/003-G/A | 171178 |
| 16 | 0.3 | FRCMM-16/2/03-G/A | 170290 | FRCMM-16/4/03-G/A | 170302 |
| 25 | 0.3 | FRCMM-25/2/03-G/A | 170291 | FRCMM-25/4/03-G/A | 170303 |
| 40 | 0.3 | FRCMM-40/2/03-G/A | 170292 | FRCMM-40/4/03-G/A | 170304 |
| 63 | 0.3 | - | - | FRCMM-63/4/03-G/A | 170305 |
| 80 | 0.3 | - | - | FRCMM-80/4/03-G/A | 170306 |
| 100 | 0.3 | - | - | FRCMM-100/4/03-G/A | 170307 |
| 125 | 0.3 | FRCMM-125/2/03-G/A | 171170 | FRCMM-125/4/03-G/A | 171180 |
| Type S/A, selective switch off | | | | | |
| 40 | 0.3 | - | - | FRCMM-40/4/03-S/A | 170448 |
| 63 | 0.3 | - | - | FRCMM-63/4/03-S/A | 170449 |
| FRCmM-NA residual current circuit-breakers for North America | | IEC: 240/415 V; UL: 480Y/277 V | | IEC: 240/415 V; UL: 480Y/277 V | |
| Type A, Pulse-current sensitive | | | | | |
| 25 | 0.03 | FRCMM-25/2/003-A-NA | 167113 | FRCMM-25/4/003-A-NA | 167125 |
| 40 | 0.03 | FRCMM-40/2/003-A-NA | 167114 | FRCMM-40/4/003-A-NA | 167102 |
| 63 | 0.03 | FRCMM-63/2/003-A-NA | 167115 | FRCMM-63/4/003-A-NA | 167103 |
| 25 | 0.3 | FRCMM-25/2/03-A-NA | 167116 | FRCMM-25/4/03-A-NA | 167104 |
| 40 | 0.3 | FRCMM-40/2/03-A-NA | 167117 | FRCMM-40/4/03-A-NA | 167105 |
| 63 | 0.3 | FRCMM-63/2/03-A-NA | 167118 | FRCMM-63/4/03-A-NA | 167106 |
| Type G/A (ÖVE E 8601), Short time-delayed | | | | | |
| 25 | 0.03 | FRCMM-25/2/003-G/A-NA | 167119 | FRCMM-25/4/003-G/A-NA | 167107 |
| 40 | 0.03 | FRCMM-40/2/003-G/A-NA | 167120 | FRCMM-40/4/003-G/A-NA | 167108 |
| 63 | 0.03 | FRCMM-63/2/003-G/A-NA | 167121 | FRCMM-63/4/003-G/A-NA | 167109 |
| 25 | 0.3 | FRCMM-25/2/03-G/A-NA | 167122 | FRCMM-25/4/03-G/A-NA | 167110 |
| 40 | 0.3 | FRCMM-40/2/03-G/A-NA | 167123 | FRCMM-40/4/03-G/A-NA | 167111 |
| 63 | 0.3 | FRCMM-63/2/03-G/A-NA | 167124 | FRCMM-63/4/03-G/A-NA | 167112 |



| Rated current I_n A | Rated fault current $I_{\Delta N}$ A | 2 pole Part no. | Article no. | 4 pole Part no. | Article no. |
|---|--|---------------------------|-------------|---------------------------|-------------|
| Residual current circuit breakers FRCmM-NA-110 for North America | | | | | |
| IEC: 110/190 V; UL: 208/120 V | | | | | |
| Type A, Pulse-current sensitive | | | | | |
| 25 | 0.03 | - | - | FRCMM-25/4/003-A-NA-110 | 167699 |
| 40 | 0.03 | - | - | FRCMM-40/4/003-A-NA-110 | 167700 |
| 63 | 0.03 | - | - | FRCMM-63/4/003-A-NA-110 | 167701 |
| 25 | 0.3 | - | - | FRCMM-25/4/03-A-NA-110 | 167702 |
| 40 | 0.3 | - | - | FRCMM-40/4/03-A-NA-110 | 167703 |
| 63 | 0.3 | - | - | FRCMM-63/4/03-A-NA-110 | 167704 |
| Type G/A (ÖVE E 8601), Short time-delayed | | | | | |
| 25 | 0.03 | FRCMM-25/2/003-G/A-NA-110 | 167693 | FRCMM-25/4/003-G/A-NA-110 | 167705 |
| 40 | 0.03 | FRCMM-40/2/003-G/A-NA-110 | 167694 | FRCMM-40/4/003-G/A-NA-110 | 167706 |
| 63 | 0.03 | FRCMM-63/2/003-G/A-NA-110 | 167695 | FRCMM-63/4/003-G/A-NA-110 | 167707 |
| 25 | 0.3 | FRCMM-25/2/03-G/A-NA-110 | 167696 | FRCMM-25/4/03-G/A-NA-110 | 167708 |
| 40 | 0.3 | FRCMM-40/2/03-G/A-NA-110 | 167697 | FRCMM-40/4/03-G/A-NA-110 | 167709 |
| 63 | 0.3 | FRCMM-63/2/03-G/A-NA-110 | 167698 | FRCMM-63/4/03-G/A-NA-110 | 167710 |
| Add-on residual current protection unit FBSmV | | | | | |
| 240/415 V (please enquire for products for 120 V and 440 V) | | | | | |
| Type A, Pulse-current sensitive | | | | | |
| 40 | 0.03 | FBSMV-40/2/003-A | 170207 | FBSMV-40/4/003-A | 170227 |
| 63 | 0.03 | FBSMV-63/2/003-A | 170208 | FBSMV-63/4/003-A | 170228 |
| 40 | 0.1 | FBSMV-40/2/01-A | 170209 | FBSMV-40/4/01-A | 170229 |
| 63 | 0.1 | FBSMV-63/2/01-A | 170210 | FBSMV-63/4/01-A | 170230 |
| 40 | 0.3 | FBSMV-40/2/03-A | 170211 | FBSMV-40/4/03-A | 170231 |
| 63 | 0.3 | FBSMV-63/2/03-A | 170212 | FBSMV-63/4/03-A | 170232 |
| 40 | 0.5 | FBSMV-40/2/05-A | 170213 | FBSMV-40/4/05-A | 170233 |
| 63 | 0.5 | FBSMV-63/2/05-A | 170214 | FBSMV-63/4/05-A | 170234 |
| 40 | 1 | FBSMV-40/2/1-A | 170215 | FBSMV-40/4/1-A | 170235 |
| 63 | 1 | FBSMV-63/2/1-A | 170216 | FBSMV-63/4/1-A | 170236 |
| Type S/A, selective switch off | | | | | |
| 40 | 0.1 | FBSMV-40/2/01-S/A | 170158 | FBSMV-40/4/01-S/A | 170166 |
| 63 | 0.1 | FBSMV-63/2/01-S/A | 170159 | FBSMV-63/4/01-S/A | 170167 |
| 40 | 0.3 | FBSMV-40/2/03-S/A | 170160 | FBSMV-40/4/03-S/A | 170168 |
| 63 | 0.3 | FBSMV-63/2/03-S/A | 170161 | FBSMV-63/4/03-S/A | 170169 |
| Add-on residual current protection unit FBHmV | | | | | |
| 240/415 V (please enquire for products for 440 V) | | | | | |
| Type A, Pulse-current sensitive | | | | | |
| 80 | 0.03 | FBHmV-80/2/003-A | 170257 | FBHmV-80/4/003-A | 170265 |
| 125 | 0.03 | FBHmV-125/2/003-A | 170258 | FBHmV-125/4/003-A | 170130 |
| 80 | 0.3 | FBHmV-80/2/03-A | 170259 | FBHmV-80/4/03-A | 170131 |
| 125 | 0.3 | FBHmV-125/2/03-A | 170260 | FBHmV-125/4/03-A | 170132 |
| 80 | 0.5 | FBHmV-80/2/05-A | 170261 | FBHmV-80/4/05-A | 170133 |
| 125 | 0.5 | FBHmV-125/2/05-A | 170262 | FBHmV-125/4/05-A | 170134 |
| 80 | 1 | FBHmV-80/2/1-A | 170263 | FBHmV-80/4/1-A | 170135 |
| 125 | 1 | FBHmV-125/2/1-A | 170264 | FBHmV-125/4/1-A | 170136 |
| Type A, selective switch off | | | | | |
| 80 | 0.3 | FBHmV-80/2/03-S/A | 170137 | FBHmV-80/4/03-S/A | 170171 |
| 125 | 0.3 | FBHmV-125/2/03-S/A | 170138 | FBHmV-125/4/03-S/A | 170172 |
| 80 | 0.5 | FBHmV-80/2/05-S/A | 170139 | FBHmV-80/4/05-S/A | 170173 |
| 125 | 0.5 | FBHmV-125/2/05-S/A | 170140 | FBHmV-125/4/05-S/A | 170174 |
| 80 | 1 | FBHmV-80/2/1-S/A | 170141 | FBHmV-80/4/1-S/A | 170175 |
| 125 | 1 | FBHmV-125/2/1-S/A | 170170 | FBHmV-125/4/1-S/A | 170176 |




| Rated current | Rated fault current | Tripping characteristic: B Response current of short-circuit release 3-5 x I _n | | Tripping characteristic: C Response current of short-circuit release 5-10 x I _n | | Tripping characteristic: D Response current of short-circuit release 10-20 x I _n | |
|---|---------------------|---|-------------|--|-------------|---|-------------|
| I _n | I _{ΔN} | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| A | A | | | | | | |
| Digital FRBmM residual current operated circuit-breakers with overcurrent protection | | | | | | | |
| Type A, Pulse-current sensitive, 240 V | | | | | | | |
| 1 pole+N, Short time-delayed | | | | | | | |
| 6 | 0.01 | - | - | FRBDM-C6/1N/001-G/A | 168252 | FRBDM-D6/1N/001-G/A | 168258 |
| 10 | 0.01 | FRBDM-B10/1N/001-G/A | 168249 | FRBDM-C10/1N/001-G/A | 168253 | FRBDM-D10/1N/001-G/A | 168259 |
| 13 | 0.01 | FRBDM-B13/1N/001-G/A | 168250 | FRBDM-C13/1N/001-G/A | 168254 | FRBDM-D13/1N/001-G/A | 168260 |
| 16 | 0.01 | FRBDM-B16/1N/001-G/A | 168251 | FRBDM-C16/1N/001-G/A | 168255 | FRBDM-D16/1N/001-G/A | 168261 |
| 20 | 0.01 | - | - | FRBDM-C20/1N/001-G/A | 168256 | FRBDM-D20/1N/001-G/A | 168262 |
| 25 | 0.01 | - | - | FRBDM-C25/1N/001-G/A | 168257 | FRBDM-D25/1N/001-G/A | 168263 |
| 6 | 0.03 | - | - | FRBDM-C6/1N/003-G/A | 168267 | FRBDM-D6/1N/003-G/A | 168273 |
| 10 | 0.03 | FRBDM-B10/1N/003-G/A | 168264 | FRBDM-C10/1N/003-G/A | 168268 | FRBDM-D10/1N/003-G/A | 168274 |
| 13 | 0.03 | FRBDM-B13/1N/003-G/A | 168265 | FRBDM-C13/1N/003-G/A | 168269 | FRBDM-D13/1N/003-G/A | 168275 |
| 16 | 0.03 | FRBDM-B16/1N/003-G/A | 168266 | FRBDM-C16/1N/003-G/A | 168270 | FRBDM-D16/1N/003-G/A | 168276 |
| 20 | 0.03 | - | - | FRBDM-C20/1N/003-G/A | 168271 | FRBDM-D20/1N/003-G/A | 168277 |
| 25 | 0.03 | - | - | FRBDM-C25/1N/003-G/A | 168272 | FRBDM-D25/1N/003-G/A | 168278 |
| 6 | 0.1 | - | - | FRBDM-C6/1N/01-G/A | 168282 | FRBDM-D6/1N/01-G/A | 168288 |
| 10 | 0.1 | FRBDM-B10/1N/01-G/A | 168279 | FRBDM-C10/1N/01-G/A | 168283 | FRBDM-D10/1N/01-G/A | 168289 |
| 13 | 0.1 | FRBDM-B13/1N/01-G/A | 168280 | FRBDM-C13/1N/01-G/A | 168284 | FRBDM-D13/1N/01-G/A | 168290 |
| 16 | 0.1 | FRBDM-B16/1N/01-G/A | 168281 | FRBDM-C16/1N/01-G/A | 168285 | FRBDM-D16/1N/01-G/A | 168291 |
| 20 | 0.1 | - | - | FRBDM-C20/1N/01-G/A | 168286 | FRBDM-D20/1N/01-G/A | 168292 |
| 25 | 0.1 | - | - | FRBDM-C25/1N/01-G/A | 168287 | FRBDM-D25/1N/01-G/A | 168293 |
| 2 pole, Short time-delayed | | | | | | | |
| 6 | 0.01 | - | - | FRBDM-C6/2/001-G/A | 168297 | FRBDM-D6/2/001-G/A | 168303 |
| 10 | 0.01 | FRBDM-B10/2/001-G/A | 168294 | FRBDM-C10/2/001-G/A | 168298 | FRBDM-D10/2/001-G/A | 168304 |
| 13 | 0.01 | FRBDM-B13/2/001-G/A | 168295 | FRBDM-C13/2/001-G/A | 168299 | FRBDM-D13/2/001-G/A | 168305 |
| 16 | 0.01 | FRBDM-B16/2/001-G/A | 168296 | FRBDM-C16/2/001-G/A | 168300 | FRBDM-D16/2/001-G/A | 168195 |
| 20 | 0.01 | - | - | FRBDM-C20/2/001-G/A | 168301 | FRBDM-D20/2/001-G/A | 168196 |
| 25 | 0.01 | - | - | FRBDM-C25/2/001-G/A | 168302 | FRBDM-D25/2/001-G/A | 168197 |
| 6 | 0.03 | - | - | FRBDM-C6/2/003-G/A | 168201 | FRBDM-D6/2/003-G/A | 168207 |
| 10 | 0.03 | FRBDM-B10/2/003-G/A | 168198 | FRBDM-C10/2/003-G/A | 168202 | FRBDM-D10/2/003-G/A | 168208 |
| 13 | 0.03 | FRBDM-B13/2/003-G/A | 168199 | FRBDM-C13/2/003-G/A | 168203 | FRBDM-D13/2/003-G/A | 168209 |
| 16 | 0.03 | FRBDM-B16/2/003-G/A | 168200 | FRBDM-C16/2/003-G/A | 168204 | FRBDM-D16/2/003-G/A | 168210 |
| 20 | 0.03 | - | - | FRBDM-C20/2/003-G/A | 168205 | FRBDM-D20/2/003-G/A | 168211 |
| 25 | 0.03 | - | - | FRBDM-C25/2/003-G/A | 168206 | FRBDM-D25/2/003-G/A | 168212 |
| 6 | 0.1 | - | - | FRBDM-C6/2/01-G/A | 168216 | FRBDM-D6/2/01-G/A | 168222 |
| 10 | 0.1 | FRBDM-B10/2/01-G/A | 168213 | FRBDM-C10/2/01-G/A | 168217 | FRBDM-D10/2/01-G/A | 168223 |
| 13 | 0.1 | FRBDM-B13/2/01-G/A | 168214 | FRBDM-C13/2/01-G/A | 168218 | FRBDM-D13/2/01-G/A | 168224 |
| 16 | 0.1 | FRBDM-B16/2/01-G/A | 168215 | FRBDM-C16/2/01-G/A | 168219 | FRBDM-D16/2/01-G/A | 168225 |
| 20 | 0.1 | - | - | FRBDM-C20/2/01-G/A | 168220 | FRBDM-D20/2/01-G/A | 168226 |
| 25 | 0.1 | - | - | FRBDM-C25/2/01-G/A | 168221 | FRBDM-D25/2/01-G/A | 168227 |
| FRBmM combined residual-current/power circuit-breakers | | | | | | | |
| Type A, Pulse-current sensitive, 240 V (please enquire for products for other voltage ranges) | | | | | | | |
| 1 pole+N, non-delayed | | | | | | | |
| 2 | 0.03 | - | - | FRBMM-C2/1N/003-A | 170614 | FRBMM-D2/1N/003-A | 170643 |
| 4 | 0.03 | - | - | FRBMM-C4/1N/003-A | 170615 | FRBMM-D4/1N/003-A | 170644 |
| 6 | 0.03 | FRBMM-B6/1N/003-A | 170702 | FRBMM-C6/1N/003-A | 170616 | FRBMM-D6/1N/003-A | 170645 |
| 10 | 0.03 | FRBMM-B10/1N/003-A | 170703 | FRBMM-C10/1N/003-A | 170617 | FRBMM-D10/1N/003-A | 170646 |
| 13 | 0.03 | FRBMM-B13/1N/003-A | 170704 | FRBMM-C13/1N/003-A | 170618 | FRBMM-D13/1N/003-A | 170647 |
| 16 | 0.03 | FRBMM-B16/1N/003-A | 170705 | FRBMM-C16/1N/003-A | 170619 | FRBMM-D16/1N/003-A | 170648 |
| 20 | 0.03 | FRBMM-B20/1N/003-A | 170706 | FRBMM-C20/1N/003-A | 170620 | FRBMM-D20/1N/003-A | 170649 |
| 25 | 0.03 | FRBMM-B25/1N/003-A | 170707 | FRBMM-C25/1N/003-A | 170621 | - | - |
| 32 | 0.03 | FRBMM-B32/1N/003-A | 170708 | FRBMM-C32/1N/003-A | 170622 | - | - |
| 40 | 0.03 | FRBMM-B40/1N/003-A | 170709 | FRBMM-C40/1N/003-A | 170623 | - | - |



| Rated current | Rated fault current | Tripping characteristic: B Response current of short-circuit release 3-5 x I _n | | Tripping characteristic: C Response current of short-circuit release 5-10 x I _n | | Tripping characteristic: D Response current of short-circuit release 10-20 x I _n | |
|---|---------------------|---|-------------|--|-------------|---|-------------|
| I _n | I _{ΔN} | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| A | A | | | | | | |
| FRBmM combined residual-current/power circuit-breakers | | | | | | | |
| Type A, Pulse-current sensitive, 240 V (please enquire for products for other voltage ranges) | | | | | | | |
| 1 pole+N, non-delayed | | | | | | | |
| 2 | 0.1 | - | - | FRBMM-C2/1N/01-A | 170682 | FRBMM-D2/1N/01-A | 170544 |
| 4 | 0.1 | - | - | FRBMM-C4/1N/01-A | 170683 | FRBMM-D4/1N/01-A | 170545 |
| 6 | 0.1 | FRBMM-B6/1N/01-A | 170664 | FRBMM-C6/1N/01-A | 170684 | FRBMM-D6/1N/01-A | 170546 |
| 10 | 0.1 | FRBMM-B10/1N/01-A | 170665 | FRBMM-C10/1N/01-A | 170685 | FRBMM-D10/1N/01-A | 170547 |
| 13 | 0.1 | FRBMM-B13/1N/01-A | 170666 | FRBMM-C13/1N/01-A | 170686 | FRBMM-D13/1N/01-A | 170548 |
| 16 | 0.1 | FRBMM-B16/1N/01-A | 170667 | FRBMM-C16/1N/01-A | 170687 | FRBMM-D16/1N/01-A | 170549 |
| 20 | 0.1 | FRBMM-B20/1N/01-A | 170668 | FRBMM-C20/1N/01-A | 170688 | FRBMM-D20/1N/01-A | 170550 |
| 25 | 0.1 | FRBMM-B25/1N/01-A | 170669 | FRBMM-C25/1N/01-A | 170689 | - | - |
| 32 | 0.1 | FRBMM-B32/1N/01-A | 170670 | FRBMM-C32/1N/01-A | 170690 | - | - |
| 40 | 0.1 | FRBMM-B40/1N/01-A | 170671 | FRBMM-C40/1N/01-A | 170691 | - | - |
| 2 | 0.3 | - | - | FRBMM-C2/1N/03-A | 170571 | FRBMM-D2/1N/03-A | 170594 |
| 4 | 0.3 | - | - | FRBMM-C4/1N/03-A | 170572 | FRBMM-D4/1N/03-A | 170595 |
| 6 | 0.3 | FRBMM-B6/1N/03-A | 170607 | FRBMM-C6/1N/03-A | 170573 | FRBMM-D6/1N/03-A | 170596 |
| 10 | 0.3 | FRBMM-B10/1N/03-A | 170608 | FRBMM-C10/1N/03-A | 170574 | FRBMM-D10/1N/03-A | 170597 |
| 13 | 0.3 | FRBMM-B13/1N/03-A | 170609 | FRBMM-C13/1N/03-A | 170575 | FRBMM-D13/1N/03-A | 170598 |
| 16 | 0.3 | FRBMM-B16/1N/03-A | 170610 | FRBMM-C16/1N/03-A | 170576 | FRBMM-D16/1N/03-A | 170599 |
| 20 | 0.3 | FRBMM-B20/1N/03-A | 170611 | FRBMM-C20/1N/03-A | 170577 | FRBMM-D20/1N/03-A | 170888 |
| 25 | 0.3 | FRBMM-B25/1N/03-A | 170552 | FRBMM-C25/1N/03-A | 170578 | - | - |
| 32 | 0.3 | FRBMM-B32/1N/03-A | 170553 | FRBMM-C32/1N/03-A | 170579 | - | - |
| 40 | 0.3 | FRBMM-B40/1N/03-A | 170554 | FRBMM-C40/1N/03-A | 170580 | - | - |
| 1 pole+N, Short time-delayed | | | | | | | |
| 13 | 0.03 | FRBMM-B13/1N/003-G/A | 170716 | - | - | FRBMM-D13/1N/003-G/A | 170653 |
| 16 | 0.03 | FRBMM-B16/1N/003-G/A | 170717 | FRBMM-C16/1N/003-G/A | 170631 | FRBMM-D16/1N/003-G/A | 170654 |
| 20 | 0.03 | FRBMM-B20/1N/003-G/A | 170528 | FRBMM-C20/1N/003-G/A | 170632 | FRBMM-D20/1N/003-G/A | 170655 |
| 25 | 0.03 | FRBMM-B25/1N/003-G/A | 170529 | FRBMM-C25/1N/003-G/A | 170633 | - | - |
| 32 | 0.03 | FRBMM-B32/1N/003-G/A | 170530 | FRBMM-C32/1N/003-G/A | 170634 | - | - |
| 40 | 0.03 | FRBMM-B40/1N/003-G/A | 170531 | FRBMM-C40/1N/003-G/A | 170635 | - | - |
| 2 pole, non-delayed | | | | | | | |
| 6 | 0.03 | - | - | FRBMM-C6/2/003-A | 170785 | - | - |
| 10 | 0.03 | FRBMM-B10/2/003-A | 170879 | FRBMM-C10/2/003-A | 170786 | - | - |
| 13 | 0.03 | FRBMM-B13/2/003-A | 170880 | FRBMM-C13/2/003-A | 170787 | - | - |
| 16 | 0.03 | FRBMM-B16/2/003-A | 170881 | FRBMM-C16/2/003-A | 170788 | - | - |
| 20 | 0.03 | FRBMM-B20/2/003-A | 170882 | FRBMM-C20/2/003-A | 170789 | - | - |
| 25 | 0.03 | FRBMM-B25/2/003-A | 170883 | - | - | - | - |
| 32 | 0.03 | FRBMM-B32/2/003-A | 170884 | - | - | - | - |
| 40 | 0.03 | FRBMM-B40/2/003-A | 170885 | - | - | - | - |
| 6 | 0.1 | - | - | FRBMM-C6/2/01-A | 170819 | - | - |
| 10 | 0.1 | FRBMM-B10/2/01-A | 170803 | FRBMM-C10/2/01-A | 170820 | - | - |
| 13 | 0.1 | FRBMM-B13/2/01-A | 170804 | FRBMM-C13/2/01-A | 170821 | - | - |
| 16 | 0.1 | FRBMM-B16/2/01-A | 170805 | FRBMM-C16/2/01-A | 170822 | - | - |
| 20 | 0.1 | FRBMM-B20/2/01-A | 170806 | FRBMM-C20/2/01-A | 170823 | - | - |
| 6 | 0.3 | - | - | FRBMM-C6/2/03-A | 170863 | - | - |
| 10 | 0.3 | FRBMM-B10/2/03-A | 170844 | FRBMM-C10/2/03-A | 170864 | - | - |
| 13 | 0.3 | FRBMM-B13/2/03-A | 170845 | FRBMM-C13/2/03-A | 170865 | - | - |
| 16 | 0.3 | FRBMM-B16/2/03-A | 170846 | FRBMM-C16/2/03-A | 170866 | - | - |
| 20 | 0.3 | FRBMM-B20/2/03-A | 170847 | FRBMM-C20/2/03-A | 170867 | - | - |

| Rated current | Rated fault current | Tripping characteristic: B Response current of short-circuit release 3-5 x I _n | | Tripping characteristic: C Response current of short-circuit release 5-10 x I _n | | Tripping characteristic: D Response current of short-circuit release 10-20 x I _n | |
|--|---------------------|---|-------------|--|-------------|---|-------------|
| I _n | I _{ΔN} | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| A | A | | | | | | |
| FRBmM combined residual-current/power circuit-breakers | | | | | | | |
| Type A, Pulse-current sensitive (please enquire for products for other voltage ranges) | | | | | | | |
| 2 pole, Short time-delayed, 240 V | | | | | | | |
| 6 | 0.03 | - | - | FRBMM-C6/2/003-LIA | 170795 | - | - |
| 10 | 0.03 | FRBMM-B10/2/003-LIA | 170886 | FRBMM-C10/2/003-LIA | 170796 | - | - |
| 13 | 0.03 | FRBMM-B13/2/003-LIA | 170887 | FRBMM-C13/2/003-LIA | 170797 | - | - |
| 16 | 0.03 | FRBMM-B16/2/003-LIA | 170888 | FRBMM-C16/2/003-LIA | 170798 | - | - |
| 20 | 0.03 | FRBMM-B20/2/003-LIA | 170889 | FRBMM-C20/2/003-LIA | 170799 | - | - |
| 6 | 0.1 | - | - | FRBMM-C6/2/01-LIA | 170829 | - | - |
| 10 | 0.1 | FRBMM-B10/2/01-LIA | 170810 | FRBMM-C10/2/01-LIA | 170830 | - | - |
| 13 | 0.1 | FRBMM-B13/2/01-LIA | 170811 | FRBMM-C13/2/01-LIA | 170831 | - | - |
| 16 | 0.1 | FRBMM-B16/2/01-LIA | 170812 | FRBMM-C16/2/01-LIA | 170832 | - | - |
| 20 | 0.1 | FRBMM-B20/2/01-LIA | 170813 | FRBMM-C20/2/01-LIA | 170833 | - | - |
| 3 pole, non-delayed, 415 V | | | | | | | |
| 6 | 0.03 | - | - | FRBMM-C6/3/003-A | 170737 | FRBMM-D6/3/003-A | 170774 |
| 10 | 0.03 | FRBMM-B10/3/003-A | 170733 | FRBMM-C10/3/003-A | 170738 | FRBMM-D10/3/003-A | 170775 |
| 13 | 0.03 | FRBMM-B13/3/003-A | 170734 | FRBMM-C13/3/003-A | 170739 | FRBMM-D13/3/003-A | 170776 |
| 16 | 0.03 | FRBMM-B16/3/003-A | 170735 | FRBMM-C16/3/003-A | 170740 | FRBMM-D16/3/003-A | 170777 |
| 20 | 0.03 | FRBMM-B20/3/003-A | 170736 | FRBMM-C20/3/003-A | 170741 | FRBMM-D20/3/003-A | 170778 |
| 25 | 0.03 | - | - | FRBMM-C25/3/003-A | 170772 | FRBMM-D25/3/003-A | 170779 |
| 32 | 0.03 | - | - | FRBMM-C32/3/003-A | 170773 | - | - |
| 6 | 0.1 | - | - | FRBMM-C6/3/01-A | 170742 | FRBMM-D6/3/01-A | 170749 |
| 10 | 0.1 | FRBMM-B10/3/01-A | 170780 | FRBMM-C10/3/01-A | 170743 | FRBMM-D10/3/01-A | 170750 |
| 13 | 0.1 | FRBMM-B13/3/01-A | 170781 | FRBMM-C13/3/01-A | 170744 | FRBMM-D13/3/01-A | 170751 |
| 16 | 0.1 | FRBMM-B16/3/01-A | 170782 | FRBMM-C16/3/01-A | 170745 | FRBMM-D16/3/01-A | 170752 |
| 20 | 0.1 | FRBMM-B20/3/01-A | 170783 | FRBMM-C20/3/01-A | 170746 | FRBMM-D20/3/01-A | 170753 |
| 25 | 0.1 | - | - | FRBMM-C25/3/01-A | 170747 | FRBMM-D25/3/01-A | 170754 |
| 32 | 0.1 | - | - | FRBMM-C32/3/01-A | 170748 | - | - |
| 6 | 0.3 | - | - | FRBMM-C6/3/03-A | 170759 | FRBMM-D6/3/03-A | 170766 |
| 10 | 0.3 | FRBMM-B10/3/03-A | 170755 | FRBMM-C10/3/03-A | 170760 | FRBMM-D10/3/03-A | 170767 |
| 13 | 0.3 | FRBMM-B13/3/03-A | 170756 | FRBMM-C13/3/03-A | 170761 | FRBMM-D13/3/03-A | 170768 |
| 16 | 0.3 | FRBMM-B16/3/03-A | 170757 | FRBMM-C16/3/03-A | 170762 | FRBMM-D16/3/03-A | 170769 |
| 20 | 0.3 | FRBMM-B20/3/03-A | 170758 | FRBMM-C20/3/03-A | 170763 | FRBMM-D20/3/03-A | 170770 |
| 25 | 0.3 | - | - | FRBMM-C25/3/03-A | 170764 | FRBMM-D25/3/03-A | 170771 |
| 32 | 0.3 | - | - | FRBMM-C32/3/03-A | 170765 | - | - |
| 3 pole+N, non-delayed, 240/415 V | | | | | | | |
| 6 | 0.03 | - | - | FRBM6-C6/3N/003-A | 170996 | FRBM6-D6/3N/003-A | 171008 |
| 10 | 0.03 | - | - | FRBM6-C10/3N/003-A | 170997 | FRBM6-D10/3N/003-A | 170892 |
| 13 | 0.03 | FRBM6-B13/3N/003-A | 170987 | FRBM6-C13/3N/003-A | 170998 | FRBM6-D13/3N/003-A | 170893 |
| 16 | 0.03 | FRBM6-B16/3N/003-A | 170988 | FRBM6-C16/3N/003-A | 170999 | FRBM6-D16/3N/003-A | 170894 |
| 20 | 0.03 | - | - | FRBM4-C20/3N/003-A | 171000 | FRBM4-D20/3N/003-A | 170895 |
| 25 | 0.03 | - | - | FRBM4-C25/3N/003-A | 171001 | - | - |
| 32 | 0.03 | - | - | FRBM4-C32/3N/003-A | 171002 | - | - |
| 6 | 0.1 | - | - | FRBM6-C6/3N/01-A | 170926 | FRBM6-D6/3N/01-A | 170938 |
| 10 | 0.1 | - | - | FRBM6-C10/3N/01-A | 170927 | FRBM6-D10/3N/01-A | 170939 |
| 13 | 0.1 | FRBM6-B13/3N/01-A | 170898 | FRBM6-C13/3N/01-A | 170928 | FRBM6-D13/3N/01-A | 170940 |
| 16 | 0.1 | FRBM6-B16/3N/01-A | 170899 | FRBM6-C16/3N/01-A | 170929 | FRBM6-D16/3N/01-A | 170941 |
| 20 | 0.1 | - | - | FRBM4-C20/3N/01-A | 170930 | FRBM4-D20/3N/01-A | 170942 |
| 25 | 0.1 | - | - | FRBM4-C25/3N/01-A | 170931 | - | - |
| 32 | 0.1 | - | - | FRBM4-C32/3N/01-A | 170932 | - | - |
| 6 | 0.3 | - | - | FRBM6-C6/3N/03-A | 170954 | FRBM6-D6/3N/03-A | 170966 |
| 10 | 0.3 | - | - | FRBM6-C10/3N/03-A | 170955 | FRBM6-D10/3N/03-A | 170967 |
| 13 | 0.3 | FRBM6-B13/3N/03-A | 170945 | FRBM6-C13/3N/03-A | 170956 | FRBM6-D13/3N/03-A | 170968 |
| 16 | 0.3 | FRBM6-B16/3N/03-A | 170946 | FRBM6-C16/3N/03-A | 170957 | FRBM6-D16/3N/03-A | 170969 |
| 20 | 0.3 | - | - | FRBM4-C20/3N/03-A | 170958 | FRBM4-D20/3N/03-A | 170970 |
| 25 | 0.3 | - | - | FRBM4-C25/3N/03-A | 170959 | - | - |
| 32 | 0.3 | - | - | FRBM4-C32/3N/03-A | 170960 | - | - |

| Description | Part no. | Article no. |
|--|---|-------------|
| Accessories for circuit-breakers, IEC | | |
| SmartWire-DT connection module for miniature-circuit breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection | MCB-HK-SWD  | 177175 |
| Auxiliary contact, screwable | | |
| Auxiliary contact for FI, 1 N/O/1 N/C | Z-HK | 248432 |
| Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 N/O / 1 N/C | Z-AHK | 248433 |
| Tripping signal contact for miniature-circuit breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection, 2 W | Z-NHK | 248434 |
| Auxiliary contact, snap-on | | |
| Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 N/O / 1 N/C | ZP-IHK | 286052 |
| Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 W | ZP-WHK | 286053 |
| Tripping signal contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 2 W | ZP-NHK | 248437 |
| Shunt release, snap-on | | |
| 12 - 110 V DC | ZP-ASA/24 | 248438 |
| 110 - 415 V DC | ZP-ASA/230 | 248439 |
| Undervoltage release, non-delayed | | |
| 115 V DC | Z-USA/115 | 248288 |
| 230 V DC | Z-USA/230 | 248289 |
| 400 V DC | Z-USA/400 | 248290 |
| Accessories for circuit-breakers, UL/CSA | | |
| Auxiliary contact for FAZ-NA, -RT | Z-IHK-NA | 113895 |
| Shunt release for FAZ-NA, -RT, 12 - 110 V AC | FAZ-XAA-NA12-110VAC | 102037 |
| Shunt release for FAZ-NA, -RT, 110 - 415 V AC | FAZ-XAA-NA110-415VAC | 102036 |

| Description | Devices Number | Type | Part no. | Article no. |
|--|----------------|----------------------------------|---------------------------------|-------------|
| Busbars | | | | |
| Busbar for FAZ, can be cut, 100 A | | | | |
| Cross-section: 18 mm ² | - | Single phase | BB-UL-18/1P-1M/57 | 121981 |
| Cross-section: 18 mm ² | - | 2 phase | BB-UL-18/2P-2M/56 | 121982 |
| Cross-section: 18 mm ² | - | Three-phase | BB-UL-18/3P-3M/57 | 121983 |
| Cross-section: 25 mm ² | - | Single phase | BB-UL-25/1P-1M/57 | 121989 |
| Cross-section: 25 mm ² | - | 2 phase | BB-UL-25/2P-2M/56 | 121990 |
| Cross-section: 25 mm ² | - | Three-phase | BB-UL-25/3P-3M/57 | 121991 |
| Busbar for FAZ-NA and -RT, can be cut, 100 A | | | | |
| Cross-section: 25 mm ² | - | Single phase | Z-BB/UL25/1P1MU/57 | 171131 |
| Cross-section: 25 mm ² | - | Single-phase + auxiliary contact | Z-BB/UL25/1P1MU+AUX/37 | 171137 |
| Cross-section: 25 mm ² | - | 2 x single-phase + HS | Z-BB/UL25/2X1P1MU+AUX/38 | 171143 |
| Cross-section: 25 mm ² | - | 3 x single-phase + HS | Z-BB/UL25/3X1P1MU+AUX/39 | 171141 |
| Cross-section: 25 mm ² | - | 2 phase | Z-BB/UL25/2P1MU/56 | 171132 |
| Cross-section: 25 mm ² | - | 2-phase + auxiliary contact | Z-BB/UL25/2P1MU+AUX/46 | 171138 |
| Cross-section: 25 mm ² | - | Three-phase | Z-BB/UL25/3P1MU/57 | 171133 |
| Cross-section: 25 mm ² | - | 3-phase + auxiliary contact | Z-BB/UL25/3P1MU+AUX/48 | 171139 |
| End cap for shroud section | - | - | Z-ECUL | 171145 |
| Extension terminals | - | - | Z-TEUL35 | 171144 |
| Busbar tag shroud | - | - | Z-FPUL | 171146 |
| Z-SV/UL busbar for FAZ-NA and -RT, 80 A | | | | |
| Cross-section: 16 mm ² | 6 | Single phase | Z-SV/UL-16/1P-1TE/6 | 104892 |
| Cross-section: 16 mm ² | 12 | Single phase | Z-SV/UL-16/1P-1TE/12 | 104893 |
| Cross-section: 16 mm ² | 18 | Single phase | Z-SV/UL-16/1P-1TE/18 | 104894 |
| Cross-section: 16 mm ² | 6 | 2 phase | Z-SV/UL-16/2P-2TE/6 | 104895 |
| Cross-section: 16 mm ² | 12 | 2 phase | Z-SV/UL-16/2P-2TE/12 | 104896 |
| Cross-section: 16 mm ² | 18 | 2 phase | Z-SV/UL-16/2P-2TE/18 | 104897 |
| Cross-section: 16 mm ² | 6 | Three-phase | Z-SV/UL-16/3P-3TE/6 | 104898 |
| Cross-section: 16 mm ² | 12 | Three-phase | Z-SV/UL-16/3P-3TE/12 | 104899 |
| Cross-section: 16 mm ² | 18 | Three-phase | Z-SV/UL-16/3P-3TE/18 | 104900 |
| Connection terminal 2,5 - 35 mm ² | - | - | Z-EK/35/UL | 104901 |
| Connection terminal 1,5 - 50 mm ² | - | - | Z-EB/50/UL | 104902 |
| Busbar tag shroud for 3 pins | - | - | ZV-BS-UL | 104904 |

Build it in.



SASY 60i busbar system provides highest efficiency in the control panel



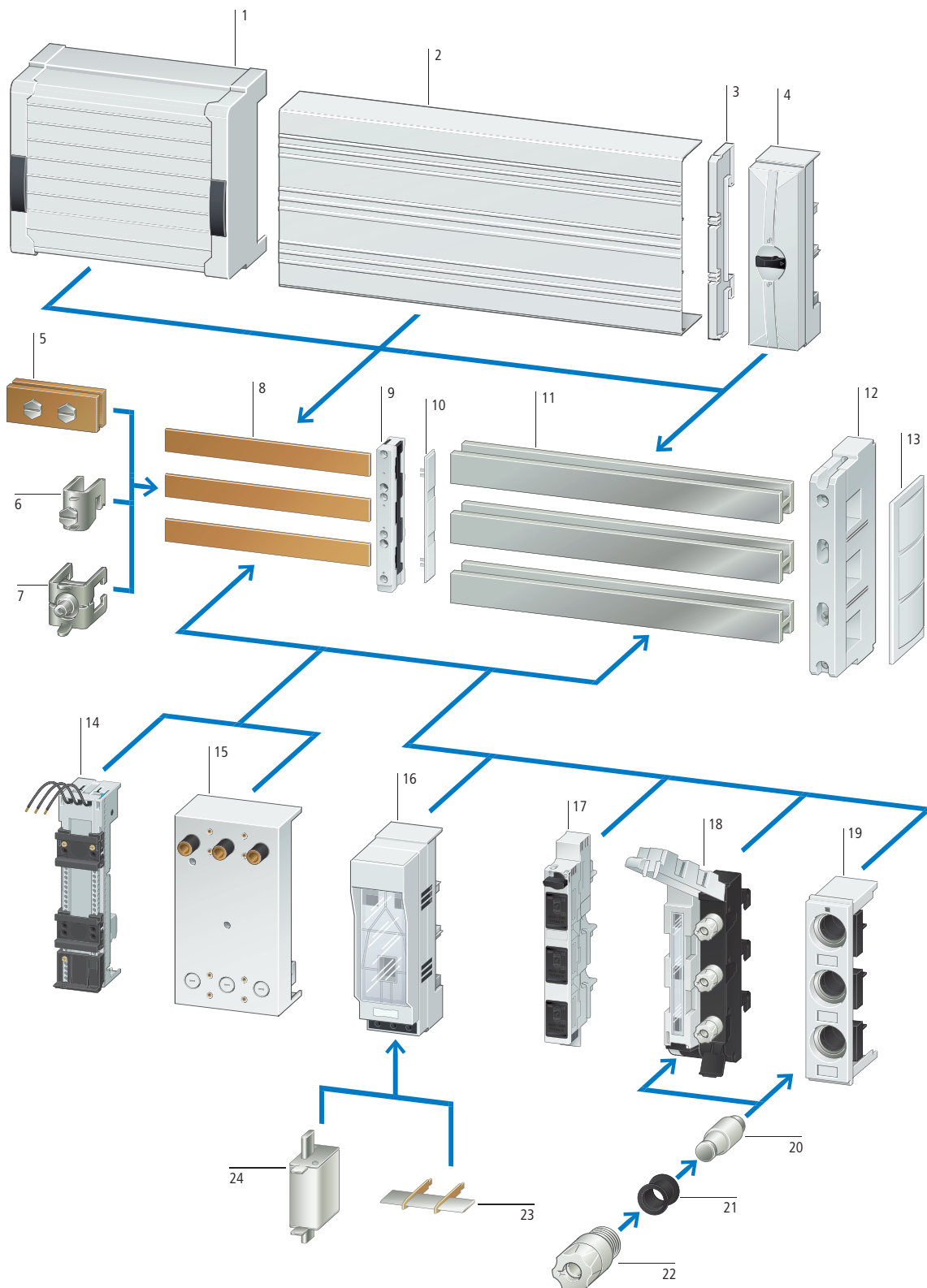
SASY 60i – safety and reliability in a single product: SASY 60i is a comprehensive UL-certified solution for switching, controlling, protecting, and distributing power that is designed for use with motor-protective circuit breakers and molded-case circuit breakers.

More specifically, the SASY 60i modular busbar system has been designed for efficient power distribution in control panels. And thanks to its busbar adapter, feeder and outgoing circuit breakers can be quickly and easily mounted directly on its busbar system while saving space.

On top of this, the SASY 60i system's double-T profiled DIN busbars reduce the amount of work required in order to prepare contact points. In addition, they combine an extremely high rated peak withstand current with a small number of busbar supports, meaning that they take full advantage of every inch of control cabinet space available. The large surface of the busbar profile allows optimum heat dissipation.



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- | | | | |
|-------------------------------------|------------------------------------|--|-----------------------------------|
| 1 System cover | 7 Expansion terminals | 15 Busbar adapters for NZM | 19 D busbar mounting fuse devices |
| 2 Cover for empty sections, modular | 8 Profile busbars | 16 NH fuse switch-disconnector | 20 Fuse links |
| 3 Cover for empty sections support | 9 Double T profile busbar supports | 17 D fuse switch-disconnectors with flashing function | 21 Fuse adapters |
| 4 Terminal plates | 10 End shroud | 18 D fuse switch-disconnectors without flashing function | 22 Screw caps |
| 5 Busbar end-to-end connectors | 11 Flat busbars | | 23 Disconnecting blades |
| 6 Universal conductor terminals | 12 Busbar supports | | 24 NH fuse-link |
| | 13 End shroud | | |
| | 14 Busbar adapters for PKZ and PKE | | |

SASY busbar system 60 mm

System for flat and profiled busbars

Moeller® series








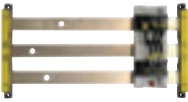
| Description | Pole | Rated operational current I_e A | For use with | Part no. Article no. | |
|---|--|---|--------------|-------------------------------------|--------------------------------|
| Busbar supports | | | | | |
| Thermoplast, silicon free, chlorine free Halogen free | | | | | |
| IEC busbar supports | | | | | |
|  | Can be fitted to all busbar sizes using concertina system With screw block inside | 3 | 630 | Flat busbars | BBS-3/FL 107066 |
| | | 4 | 630 | Flat busbars | BBS-4/FL 138381 |
| UL busbar supports | | | | | |
|  | Can be fitted to all busbar sizes using concertina system With screw block inside | 3 | 630 | Flat busbars | BBS-3/FL-NA 107067 |
| PE/N busbar carrier | | | | | |
|  | Can be fitted to all busbar sizes using concertina system Can be mounted individually | 1 | 630 | Flat busbars | BBS-1/FL 107161 |
| | | 2 | 630 | Flat busbars | BBS-2/FL 107069 |
| Double T profile busbar carrier | | | | | |
|  | Suitable for assembly of PE or N bar With screw block inside | 1 | 1600 | Double T profile | BBS-1/PR 107165 |
| | Suitable for outside and middle carrier With screw block inside | 3 | 1600 | Double T profile | BBS-3/PR 107162 |
| End shroud | | | | | |
|  | For covering the busbars | - | - | BBS-3/FL BBS-3/FL-NA | ES-BBS-3/FL 107068 |
| | | - | - | BBS-3/PR | ES-BBS-3/PR 107164 |
| UL bottom plate | | | | | |
|  | For use when the air gap between the busbars and the mounting plate is not sufficient. | - | - | BBS-3/FL BBS-3/FL-NA BBS-3/PR | BBC-BT-NA 107172 |
| Bar covers | | | | | |
|  | - | - | - | All 5 mm thick flat busbars | BBC-FL5 107173 |
| | - | - | - | All 10 mm thick flat busbars | BBC-FL10 107174 |
| | - | - | - | Double T profile | BBC-CU-BAR/PR 107175 |
| Profiled busbars | | | | | |
| E-CU double T profile busbars | | | | | |
|  | Cross-section 500 mm ² , 2400 mm long, tin-plated | - | 1250 | BBS-3/PR, BBS-1/PR, BBS-3/FL-185 | CU-BAR-500/T 107166 |
| | Cross-section 720 mm ² , 2400 mm long, tin-plated | - | 1600 | BBS-3/PR, BBS-1/PR, BBS-3/FL-185 | CU-BAR-720/T 107167 |
| System covers, complete | | | | | |
|  | Length 228 mm | 3 | - | - | BBC-CS1 107209 |
| | Length 228 mm | 4 | - | - | BBC-CS4 138387 |






| Description | Width mm | Pole | Rated operational current I_e A | Terminal capacity | For use with | Part no. Article no. |
|---|-------------|------|---|---|---|-----------------------------|
| Clamp plate | | | | | | |
|  <p>The terminal can be removed for the connection of uncut conductors Looping is not possible</p> | 54 | 3 | 300 | 6 - 50 mm ² AWG 10 - AWG 2/0. | Double T profile 12 x 5/10 15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 | BBA-TP3/50 107183 |
| Clamp terminals | | | | | | |
|  <p>Termination to busbars without drilling</p> | 38 | - | 480 | 35 - 150 mm ² AWG2/0 - MCM 300. | 12 x 5/10 20 x 5/10 | AKS150 138374 |
|  <p>Termination to busbars without drilling</p> | 38 | - | 500 | 95 - 185 mm ² AWG3/0 - MCM 350. | Double T profile 20 x 5/10 25 x 5/10 30 x 5/10 | AKS185 107195 |
| Profile terminals | | | | | | |
|  <p>Termination to busbars without drilling</p> | 72 | - | 1600 | 800 mm ² , terminal area 41 x 20 - 42 | Double T profile | AKP800 107198 |
| Universal conductor connection terminals | | | | | | |
|  <p>With integrated retaining spring, open terminal chamber and captive terminal screw</p> | 11.5 | - | 180 | 1.5 - 16 mm ² AWG 14 - AWG 6. | All 5 mm thick flat busbars | AKU16/5 107187 |
| | 23.5 | - | 440 | 16 - 120 mm ² AWG 4 - MCM 250. | All 10 mm thick flat busbars | AKU120/10 107194 |
| | 38 | - | 630 | Cable lugs M10 | All 10 mm thick flat busbars Double T profile | AKU-M10/10 138361 |

SASY busbar system 60 mm

Busbar adapters for NZM, DIN devices

Moeller® series

| | Number of poles | Rated operational current I_e A | Adapter width mm | For use with | Part no. Article no. |
|---|-----------------|---|---------------------|---|-----------------------------------|
| Component adapter for circuit-breakers and switch-disconnectors | | | | | |
| For surface mounting on flat copper busbars 12 – 30 x 5 – 10, double T and triple T profile | | | | | |
|  | 3 pole | 160 | 92 | NZM1, PN1, N(S)1 | NZM1-XAD160 104554 |
|  | | 250 | 106 | NZM2, PN2, N(S)2 | NZM2-XAD250 104555 |
|  | | 630 | 140 | NZM3, PN3, N(S)3 | NZM3-XAD630 107206 |
|  | 4 pole | 250 | 140 | NZM2, PN2, N2 NZM2(-4), PN2(-4), N2(-4) | NZM2-4-XAD250 138388 |
|  | | 630 | 185 | NZM3, PN3, N3 NZM3(-4), PN3(-4), N3(-4) | NZM3-4-XAD630 138389 |
| Connection block for component adapters | | | | | |
|  | 3 pole | 250 | - | NZM2, PN2, N(S)2 | NZM2-XKR4 281666 |
| | | 630 | - | NZM3, PN3, N(S)3 | NZM3-XKR13 281668 |
|  | 4 pole | 250 | - | NZM2-4, PN2-4, N2-4 | NZM2-4-XKR4 118907 |
| | | 630 | - | NZM3-4, PN3-4, N3-4 | NZM3-4-XKR13 119020 |
| Busbar adapter for DIN devices | | | | | |
| Dual adapters | | | | | |
|  | 3 pole | 35 | 54 | Double T profile 12x5/10 15x5/10 20x5/10 25x5/10 30x5/10 | Z-SS-60-ADD/6-54 288791 |

| | Rated operational current I_e A | Frame size | Connection | Part no. Article no. | | |
|---|---|------------|---------------------------------------|-------------------------------------|---|-----------------------------------|
| NH fuse-switch disconnectors | | | | | | |
| IEC/EN 60947-3 3-pole With reach-over guard Rated conditional short-circuit currents of 120 kA (500 V) and 100 kA (690 V) Flammability characteristics as per UL94 (self-extinguishing) Cable connection can be either at the top or bottom Contacts made of electrolytic copper, silver-plated | | | | | | |
| NH fuse switch-disconnectors without flashing function | | | | | | |
|  | 160 | NH00 | Box terminal 1.5 - 95 mm ² | XNH00-S160-BT1 183034 | | |
| | 250 | NH1 | Box terminal 35 - 150 mm ² | XNH1-S250-BT 183052 | | |
| | 400 | NH2 | Box terminal 95 - 300 mm ² | XNH2-S400-BT 183066 | | |
| | 630 | NH3 | Box terminal 95 - 300 mm ² | XNH3-S630-BT 183078 | | |
| NH fuse switch-disconnectors with flashing function The flash function indicates the blowing of fuse link | | | | | | |
|  | 160 | NH00 | Box terminal 1.5 - 95 mm ² | XNH00-FCL-S160-BT1 183037 | | |
| | 250 | NH1 | Box terminal 35 - 150 mm ² | XNH1-FCL-S250-BT 183054 | | |
| | 400 | NH2 | Box terminal 95 - 300 mm ² | XNH2-FCL-S400-BT 183068 | | |
| | 630 | NH3 | Box terminal 95 - 300 mm ² | XNH3-FCL-S630-BT 183080 | | |
| D busbar mounted fuse devices | | | | | | |
| Guage ring Delivery, empty, without screw cap | | | | | | |
|  | 63 | 400 | E18, D 02 | 27 | 12 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double T profile | D02-S0/63/3-R-27 114315 |
| D fuse switch-disconnectors without flashing function | | | | | | |
| Guage ring Delivery, empty, without screw cap | | | | | | |
|  | 63 | 400 | E18, D 02 | 36 | 20 x 5/10 30 x 5/10 Double T profile | D02-S/63/3-RS 284649 |
| D fuse switch-disconnectors with flashing function | | | | | | |
| The flash function indicates the blowing of fuse link Supplied empty, without adapter sleeves and fuse links Contact position indicator Switches the load on all poles and without touching by hand Sealable and lockable | | | | | | |
|  | 63 | 400 | E18, D02 | 27 | 12 x 5/10 15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double T profile | D02-LTS/63/3-R 114316 |

Build it in.



One range: complete circuit protection

Eaton's Bussmann series range of NH DIN style fuse links and bases offers unrivalled choice and performance for industrial applications.

Available in a comprehensive range of voltage, current and sizes. The fuses' dual indication system saves time and money as the operated fuses can be quickly identified and replaced. The insulated metal gripping lugs enhance the safety of the fuses as the lug is voltage free.

It's a range that sets the standard for protecting electrical systems.

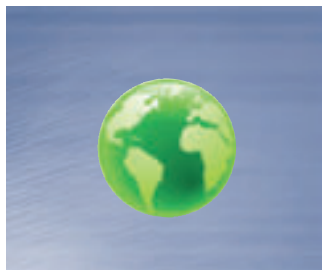


www.eaton.com/bussmannseries



Dual indicator system

Eaton's patented dual indicator system provides clear indication, ensuring extremely reliable local and remote signalling, decreasing fuse link replacement time and costs.



Low power loss

Eaton's 'low watts loss' fuse links reduce overall operating costs and carbon footprint through lower energy consumption and heat transfer to equipment.



Globally compliant

Eaton's Bussmann series NH fuse links are tested and comply with IEC 60269-1 and 2, DIN 43620, VDE, CE, CCC ensuring global acceptance.



Recycling

Eaton is dedicated to produce recyclable products and is a member of an industry recognised recycling scheme. The HRC symbol certifies that the product is suitable for recycling. The fuses are also lead and cadmium free and suitable for use in RoHS compliant applications.



NH400 Volts

Eaton's Bussmann series range of class gG 400 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial applications.

- 2 to 630 Amps
- Class gG/gL
- Breaking capacity 120 kA AC
- Sizes 000 to 3
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs or insulated metal gripping lugs



NH500 Volts

Eaton's Bussmann series range of class gG and aM 500 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial and motor protection applications.

- 2 to 1250 Amps
- Class gG/gL and aM
- Breaking capacity 120 kA AC
- Sizes 000 to 4
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs or insulated metal gripping lugs



NH690 Volts

Eaton's Bussmann series range of class gG and aM 690 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial and motor protection applications.

- 2 to 800 Amps
- Class gG/gL and aM
- Breaking capacity 120 kA AC
- Sizes 000 to 4
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs



NHBases

Eaton's Bussmann series range of NH bases has been designed with thermoplastic bodies, DIN-Rail and/or screw mounting. This range comes with a complete range of accessories: phase barriers, IP20 fingersafe protection kits and neutral links.

- 160 to 1600 Amps
- 690 VAC
- Rated for fuse links with breaking capacity 120 kA
- Sizes 00 to 4
- IEC 60269-1 and 2, VDE 0636-1 and 2

Build it in.



A complete line of circuit protection solutions for UL markets



Catalog download:
www.eaton.com/bussmannseries

Eaton's Bussmann series UL Listed fuse links, bases and blocks offer unrivalled choice and performance for industrial and commercial applications.





Available in a comprehensive range of voltage, current and sizes. They are suitable for applications or equipment to be exported to the USA or other UL markets.

With global capability and accreditation, our extensive portfolio helps deliver safe electricity, protecting assets and people.





www.eaton.com/bussmannseries

UL Low voltage – branch circuit fuse links overview




| | Class CC | Class J | Class RK1 | Class T |
|-------------------|--|--|--|---|
| |  |  |  |  |
| Catalog numbers | LP-CC, FNQ-R, KTK-R | LPJ-SP(I), JKS | LPN-RK-SP(I), LPS-RK-SP(I), KTN-R, KTS-R | JJN, JJS |
| Rated voltage | V AC | 600 | 600 | 600 |
| | V DC | 300 | 300 | 160/170 |
| Rated current | Up to 30 A | Up to 600 A | Up to 600 A | Up to 1200 A |
| Breaking capacity | RMS Sym | 200 kA | 200/300 kA | 200 kA |
| | DC | 20 kA | 100 kA | 20/100 kA |
| Operating class | Time delay, fast acting | Time delay, fast acting | Time delay, fast acting | Fast acting |
| Fuse holders | Optima, CHCC, HPF, HPS | CUBEFuse, CH Class J modular holders, Safety J™ | N/A | N/A |
| Fuse blocks | BCM | Power distribution, modular knifeblade, JM600, JP Pyramid blocks panel mount, modular type, BH modular-style | Modular knifeblade, RM250 and RM600 | BH Modular style, T300 and T600 panel mount |
| Standards | CE, UL Listed and CSA Certified | | | |
| Applications | Specialised circuits, industrial control, isolated in-line fuse holder, line protection small control transformers | Power panelboards, branch circuit breaker panelboard mains, machinery disconnects, industrial control | Large distribution switchboards, power panelboards, motor control centers, machinery disconnect switches | Large apartment complexes, multi family meter stacks, VFD line protection |




UL Low voltage – supplementary fuse links overview

| | Fast acting | Time delay |
|-------------------|---|---|
| |  |  |
| Catalogue numbers | KTK | KLM |
| Rated voltage | V AC | 600 |
| | V DC | - |
| Rated current | Up to 30 A | Up to 30 A |
| Breaking capacity | RMS Sym | 100 kA |
| | DC | N/A |
| Operating class | Fast acting fuse links | Time delay fuse links |
| Fuse holders | Optima, CH, HPG, HPC, HPS, HPM, HPF, HEB, HEX, HEY, NDNF1-WH, CCP | Optima, CH, HPG, HPC, HPS, HPM, HPF, HEB, HEX, HEY, NDNF1-WH, CCP |
| Fuse blocks | BCM, 4421 and 4515 | BCM, 4421 and 4515 |
| Standards | CE, UL Listed and CSA Certified | |
| Applications | Control circuits, lightning circuit protection, meter circuits | Circuit with high inrush currents (motor/transformer loads). Supplemental protection for 125 V AC and 250 V AC inductive circuits |

Bussmann series fuses

Cylindrical fuses

| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. | | |
|---|---|-----------------|-------------------|-----------------|------------|----------------|-----------------|---------------|
| | A | VAC | kA | | mm | | | |
| Cylindrical fuses 10 x 38 mm and 14 x 51 mm | | | | | | | | |
|  | 0,5 | 500 | 120 | gG | 10 x 38 | C10G0-5 | | |
| | 1 | | | | | C10G1 | | |
| | 2 | | | | | C10G2 | | |
| | 4 | | | | | C10G4 | | |
| | 6 | | | | | C10G6 | | |
| | 8 | | | | | C10G8 | | |
| | 10 | | | | | C10G10 | | |
| | 12 | | | | | C10G12 | | |
| | 16 | | | | | C10G16 | | |
| | 20 | | | | | C10G20 | | |
| | 25 | | | | | C10G25 | | |
| | 32 | | | | | C10G32 | | |
| |  | 0.16 | 500 | 120 | aM | 10 x 38 | C10M0-16 | |
| 0.25 | | C10M0-25 | | | | | | |
| 0.5 | | C10M0-5 | | | | | | |
| 1 | | C10M1 | | | | | | |
| 2 | | C10M2 | | | | | | |
| 4 | | C10M4 | | | | | | |
| 6 | | C10M6 | | | | | | |
| 8 | | C10M8 | | | | | | |
| 10 | | C10M10 | | | | | | |
| 12 | | C10M12 | | | | | | |
| 16 | | C10M16 | | | | | | |
| 20 | | 400 | | | | | C10M20 | |
| 25 | | | | | | | C10M25 | |
| 32 | | | C10M32 | | | | | |
|  | 1 | 690 | 80 | gG | 14 x 51 | C14G1 | | |
| | 2 | | | | | C14G2 | | |
| | 4 | | | | | C14G4 | | |
| | 6 | | | | | C14G6 | | |
| | 8 | | | | | C14G8 | | |
| | 10 | | | | | C14G10 | | |
| | 12 | | | | | C14G12 | | |
| | 16 | | | | | C14G16 | | |
| | 20 | | | | | C14G20 | | |
| | 25 | | | | | C14G25 | | |
| | 32 | | | | | 500 | 120 | C14G32 |
| | 40 | | | | | 500 | | C14G40 |
| | 50 | | | | | 400 | | C14G50 |

| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. | |
|---|---------------|---------------|-------------------|-----------------|------------|----------|--------|
| | A | VAC | kA | | mm | | |
| Cylindrical fuses 14 x 51 mm and 22 x 58 mm | | | | | | | |
|  | 0.25 | 500 | 80 | aM | 14 x 51 | C14M0-25 | |
| | 0.5 | | | | | C14M0-5 | |
| | 1 | | | | | C14M1 | |
| | 2 | | | | | C14M2 | |
| | 4 | | | | | C14M4 | |
| | 6 | | | | | C14M6 | |
| | 8 | | | | | C14M8 | |
| | 10 | | | | | C14M10 | |
| | 12 | | | | | C14M12 | |
| | 16 | | | | | C14M16 | |
| | 20 | | | | | C14M20 | |
| | 25 | | | | | C14M25 | |
| | 32 | | | | | 120 | C14M32 |
| | 40 | | | | | | C14M40 |
| | 45 | C14M45 | | | | | |
| 50 | 400 | | | | C14M50 | | |
|  | 2 | 690 | 80 | gG | 22 x 58 | C22G2 | |
| | 4 | | | | | C22G4 | |
| | 6 | | | | | C22G6 | |
| | 8 | | | | | C22G8 | |
| | 10 | | | | | C22G10 | |
| | 12 | | | | | C22G12 | |
| | 16 | | | | | C22G16 | |
| | 20 | | | | | C22G20 | |
| | 25 | | | | | C22G25 | |
| | 32 | | | | | C22G32 | |
| | 40 | | | | | C22G40 | |
| | 50 | | | | | C22G50 | |
| | 63 | | | | | C22G63 | |
| | 80 | | | | | 500 | 120 |
| | 100 | 500 | C22G100 | | | | |
| 125 | 400 | C22G125 | | | | | |
|  | 2 | 690 | 80 | aM | 22 x 58 | C22M2 | |
| | 4 | | | | | C22M4 | |
| | 6 | | | | | C22M6 | |
| | 8 | | | | | C22M8 | |
| | 10 | | | | | C22M10 | |
| | 12 | | | | | C22M12 | |
| | 16 | | | | | C22M16 | |
| | 20 | | | | | C22M20 | |
| | 25 | | | | | C22M25 | |
| | 32 | | | | | C22M32 | |
| | 40 | | | | | C22M40 | |
| | 50 | | | | | C22M50 | |
| | 63 | | | | | C22M63 | |
| | 80 | | | | | 500 | 120 |
| | 100 | 500 | C22M100 | | | | |
| 125 | 400 | C22M125 | | | | | |

Bussmann series fuses

Cylindrical fuse holders for cylindrical fuses

| Design as illustrated | Rated current A | Rated voltage V/VAC | Function | Part no. | | | |
|--|-------------------------|---------------------------|--|-------------|---------------|--------|---------|
| Cylindrical fuse holders for 10 x 38 mm cylindrical fuses | | | | | | | |
| 1 | 30 | 600 V (UL) | 1-pole with indicator | CHCC1DIU | | | |
| | | | 2-pole with indicator | CHCC2DIU | | | |
| | | | 3-pole with indicator | CHCC3DIU | | | |
| | | | 1-pole | CHCC1DU | | | |
| | | | 2-pole | CHCC2DU | | | |
| | | | 3-pole | CHCC3DU | | | |
| 2 | 32 | 690 VAC (IEC), 600 V (UL) | 1-pole | CHM1DU | | | |
| | | | 2-pole | CHM2DU | | | |
| | | | 3-pole | CHM3DU | | | |
| | | | 4-pole | CHM4DU | | | |
| | | | 1-pole with indicator | CHM1DIU | | | |
| | | | 2-pole with indicator | CHM2DIU | | | |
| | | | 3-pole with indicator | CHM3DIU | | | |
| | | | 4-pole with indicator | CHM4DIU | | | |
| | | | Cylindrical fuse holders for 14 x 51 mm cylindrical fuses | | | | |
| | | | 3 | 50 | 690 VAC (IEC) | 1-pole | CH141DU |
| 3 | 2-pole | CH142DU | | | | | |
| 4 | 3-pole | CH143DU | | | | | |
| - | 4-pole | CH144DU | | | | | |
| 5 | 1-pole with microswitch | CH141DMSU-F | | | | | |
| 5 | 3-pole with microswitch | CH143DMSU-F | | | | | |
| Cylindrical fuse holders for 22 x 58 mm cylindrical fuses | | | | | | | |
| 6 | 125 | 690 VAC (IEC) | 1-pole | CH221DU | | | |
| 7 | | | 2-pole | CH222DU | | | |
| 8 | | | 3-pole | CH223DU | | | |
| 9 | | | 4-pole | CH224DU | | | |
| - | | | 3-pole with neutral | CH223DNU | | | |
| - | | | 3-pole with neutral and microswitch | CH223DMSU-L | | | |

Notes



1







2



3



6






| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. ¹⁾ |
|---|---------------|---------------|-------------------|-----------------|------------|------------------------|
| | A | VAC | kA | | | |
|  | 2 | 500 | 120 | gG/gl | 000 | 2NHG000B |
| | 4 | | | | | 4NHG000B |
| | 6 | | | | | 6NHG000B |
| | 10 | | | | | 10NHG000B |
| | 16 | | | | | 16NHG000B |
| | 20 | | | | | 20NHG000B |
| | 25 | | | | | 25NHG000B |
| | 32 | | | | | 32NHG000B |
| | 35 | | | | | 35NHG000B |
| | 40 | | | | | 40NHG000B |
| | 50 | | | | | 50NHG000B |
| | 63 | | | | | 63NHG000B |
| | 80 | | | | | 80NHG000B |
| | 100 | | | | | 100NHG000B |
|  | 50 | 500 | 120 | gG/gl | 00 | 50NHG00B |
| | 63 | | | | | 63NHG00B |
| | 80 | | | | | 80NHG00B |
| | 100 | | | | | 100NHG00B |
| | 125 | | | | | 125NHG00B |
| | 160 | | | | | 160NHG00B |
|  | 6 | 500 | 120 | gG/gl | 0 | 6NHG0B |
| | 10 | | | | | 10NHG0B |
| | 16 | | | | | 16NHG0B |
| | 20 | | | | | 20NHG0B |
| | 25 | | | | | 25NHG0B |
| | 32 | | | | | 32NHG0B |
| | 35 | | | | | 35NHG0B |
| | 40 | | | | | 40NHG0B |
| | 50 | | | | | 50NHG0B |
| | 63 | | | | | 63NHG0B |
| | 80 | | | | | 80NHG0B |
| | 100 | | | | | 100NHG0B |
| | 125 | | | | | 125NHG0B |
| | 160 | | | | | 160NHG0B |
|  | 6 | 500 | 120 | gG/gl | 01 | 6NHG01B |
| | 10 | | | | | 10NHG01B |
| | 16 | | | | | 16NHG01B |
| | 20 | | | | | 20NHG01B |
| | 25 | | | | | 25NHG01B |
| | 32 | | | | | 32NHG01B |
| | 35 | | | | | 35NHG01B |
| | 40 | | | | | 40NHG01B |
| | 50 | | | | | 50NHG01B |
| | 63 | | | | | 63NHG01B |
| | 80 | | | | | 80NHG01B |
| | 100 | | | | | 100NHG01B |
| | 125 | | | | | 125NHG01B |
| | 160 | | | | | 160NHG01B |

Notes

¹⁾ Insulated metal gripping lugs options also available







Busmann series fuses

NH fuses

| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. ¹⁾ |
|---|---------------|---------------|-------------------|-----------------|------------|------------------------|
| | A | VAC | kA | | | |
| NH fuses | | | | | | |
|  | 50 | 500 | 120 | gG/gl | 1 | 50NHG1B |
| | 63 | | | | | 63NHG1B |
| | 80 | | | | | 80NHG1B |
| | 100 | | | | | 100NHG1B |
| | 125 | | | | | 125NHG1B |
| | 160 | | | | | 160NHG1B |
| | 200 | | | | | 200NHG1B |
| | 224 | | | | | 224NHG1B |
| | 250 | | | | | 250NHG1B |
| | 315 | | | | | 440 |
| | 355 | 440 | | | | 355NHG1B |
|  | 35 | 500 | 120 | gG/gl | 02 | 35NHG02B |
| | 40 | | | | | 40NHG02B |
| | 50 | | | | | 50NHG02B |
| | 63 | | | | | 63NHG02B |
| | 80 | | | | | 80NHG02B |
| | 100 | | | | | 100NHG02B |
| | 125 | | | | | 125NHG02B |
| | 160 | | | | | 160NHG02B |
| | 200 | | | | | 200NHG02B |
| | 224 | | | | | 224NHG02B |
| | 250 | | | | | 250NHG02B |
|  | 250 | 500 | 120 | gG/gl | 2 | 250NHG2B |
| | 300 | | | | | 300NHG2B |
| | 315 | | | | | 315NHG2B |
| | 355 | | | | | 355NHG2B |
| | 400 | | | | | 400NHG2B |
| | 425 | | | | | 425NHG2B |
| | 450 | | | | | 450NHG2B |
| | 500 | 440 | | | | 500NHG2B |
|  | 250 | 500 | 120 | gG/gl | 03 | 250NHG03B |
| | 315 | | | | | 315NHG03B |
| | 355 | | | | | 355NHG03B |
| | 400 | | | | | 400NHG03B |
|  | 315 | 500 | 120 | gG/gl | 3 | 315NHG3B |
| | 355 | | | | | 355NHG3B |
| | 400 | | | | | 400NHG3B |
| | 425 | | | | | 425NHG3B |
| | 500 | | | | | 500NHG3B |
| | 630 | | | | | 630NHG3B |




Notes



¹⁾ Insulated metal gripping lugs options also available

| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. |
|---|---------------|---------------|-------------------|-----------------|------------|---------------|
| | A | VAC | kA | | | |
| NH fuses | | | | | | |
|  | 500 | 500 | 120 | gG/gL | 4 | 500NHG4G |
| | 630 | 500 | 120 | gG/gL | 4 | 630NHG4G |
|  | 6 | 690 | 120 | aM | 000 | 6NHM00B-690 |
| | 10 | | | | | 10NHM00B-690 |
| | 16 | | | | | 16NHM00B-690 |
| | 20 | | | | | 20NHM00B-690 |
| | 25 | | | | | 25NHM00B-690 |
| | 32 | | | | | 32NHM00B-690 |
| | 35 | | | | | 35NHM00B-690 |
| | 40 | | | | | 40NHM00B-690 |
| | 50 | | | | | 50NHM00B-690 |
|  | 63 | 690 | 120 | aM | 00 | 63NHM00B-690 |
| | 80 | | | | | 80NHM00B-690 |
| | 100 | | | | | 100NHM00B-690 |
|  | 50 | 690 | 120 | aM | 1 | 50NHM1B-690 |
| | 63 | | | | | 63NHM1B-690 |
| | 80 | | | | | 80NHM1B-690 |
| | 100 | | | | | 100NHM1B-690 |
| | 125 | | | | | 125NHM1B-690 |
| | 160 | | | | | 160NHM1B-690 |
|  | 125 | 690 | 120 | aM | 2 | 125NHM2B-690 |
| | 160 | | | | | 160NHM2B-690 |
| | 200 | | | | | 200NHM2B-690 |
| | 224 | | | | | 224NHM2B-690 |
| | 250 | | | | | 250NHM2B-690 |
| | 315 | | | | | 315NHM2B-690 |
| | 355 | | | | | 355NHM2B-690 |
|  | 315 | 690 | 120 | aM | 3 | 315NHM3B-690 |
| | 355 | | | | | 355NHM3B-690 |
| | 400 | | | | | 400NHM3B-690 |
| | 500 | | | | | 500NHM3B-690 |

Bussmann series fuses






NH fuses, high speed fuses



| | Rated current | Rated voltage | Breaking capacity | Operating class | Frame size | Part no. |
|--|---------------------|---------------------|-------------------|-----------------|------------------|---------------------|
| | A | V/VAC | kA | | | |
| NH fuses | | | | | | |
|  | 160 | 690 VAC | - | - | 00 | SD00-D |
| | 250 | | - | - | 1 | SD1-D |
| | 400 | | - | - | 2 | SD2-D |
| | 630 | | - | - | 3 | SD3-D |
|  | 160 | 690 VAC | - | - | 00 | TD00-D |
| | 250 | | - | - | 1 | TD1-D |
| | 400 | | - | - | 2 | TD2-D |
| | 630 | | - | - | 3 | TD3-D |
| European square body DIN 43620 - dual indicator fuses | | | | | | |
|  | 10 | 690 (IEC), 700 (UL) | 200 | aR | 000 | 170M1558D |
| | 16 | | | | | 170M1559D |
| | 20 | | | | | 170M1560D |
| | 25 | | | | | 170M1561D |
| | 32 | | | | | 170M1562D |
| | 40 | | | | | 170M1563D |
| | 50 | | | | | 170M1564D |
| | 63 | | | | | 170M1565D |
| | 80 | | | | | 170M1566D |
| | 100 | | | | | 170M1567D |
| | 125 | | | | | 170M1568D |
| | 160 | | | | | 170M1569D |
| | 200 | | | | | 170M1570D |
| | 250 | | | | | 170M1571D |
| | 315 | | | | | 690 (IEC), 700 (UL) |
| | 40 | 690 (IEC), 700 (UL) | 200 | aR | 1 | 170M3808D |
| | 50 | | | | | 170M3809D |
| | 63 | | | | | 170M3810D |
| | 80 | | | | | 170M3811D |
| | 100 | | | | | 170M3812D |
| | 125 | | | | | 170M3813D |
| | 160 | | | | | 170M3814D |
| | 200 | | | | | 170M3815D |
| | 250 | | | | | 170M3816D |
| | 315 | | | | | 170M3817D |
| 350 | 170M3818D | | | | | |
| 400 | 170M3819D | | | | | |
| 450 | 170M4863D | | | | | |
| 500 | 170M4864D | | | | | |
| 550 | 170M4865D | | | | | |
| 630 | 170M4866D | | | | | |
| 400 | 690 (IEC), 700 (UL) | 200 | aR | 2 | 170M5808D | |
| 450 | | | | | 170M5809D | |
| 500 | | | | | 170M5810D | |
| 550 | | | | | 170M5811D | |
| 630 | | | | | 170M5812D | |
| 500 | 690 (IEC), 700 (UL) | 200 | aR | 3 | 170M6808D | |
| 550 | | | | | 170M6809D | |
| 630 | | | | | 170M6810D | |

| Rated current | Rated voltage | Operating class | -/80 Visual indicator | -TN/80 type T Indicator for micro switch | | |
|--|---------------|---------------------------------|--------------------------|---|----------|----------|
| A | V/VAC | | Part no. | Part no. | | |
| European square body DIN 43653 fuses - stud mount | | | | | | |
| Breaking capacity: 200 kA (VAC), 50 kA (VDC) Frame size: 000 | | | | | | |
|  | 10 | 690 VAC (IEC), 700 VAC/VDC (UL) | gR | 170M1358 | 170M1408 | |
| | 16 | | | 170M1359 | 170M1409 | |
| | 20 | | | 170M1360 | 170M1410 | |
| | 25 | | | 170M1361 | 170M1411 | |
| | 32 | | | 170M1362 | 170M1412 | |
| | 40 | | | 170M1363 | 170M1413 | |
| | 50 | | | 170M1364 | 170M1414 | |
| | 63 | | | 170M1365 | 170M1415 | |
| | 80 | | | 170M1366 | 170M1416 | |
| | 100 | | | 170M1367 | 170M1417 | |
| | 125 | | | 170M1368 | 170M1418 | |
| | 160 | | | 170M1369 | 170M1419 | |
| | 200 | | | 170M1370 | 170M1420 | |
| | 250 | | | 170M1371 | 170M1421 | |
| | 315 | | | 170M1372 | 170M1422 | |
| Breaking capacity: 200 kA Frame size: 00 | | | | | | |
|  | 25 | 690 VAC (IEC) | gR | - | 170M2658 | |
| | 32 | | | - | 170M2659 | |
| | 40 | | | - | 170M2660 | |
| | 50 | | | - | 170M2661 | |
| | 63 | | | - | 170M2662 | |
| | 80 | | | - | 170M2663 | |
| | 100 | | | 690 VAC (IEC), 700 VAC (UL) | - | 170M2664 |
| | 125 | | | | - | 170M2665 |
| | 160 | - | 170M2666 | | | |
| | 200 | - | 170M2667 | | | |
| | 250 | - | 170M2668 | | | |
| | 315 | - | 170M2669 | | | |
| | 350 | - | 170M2670 | | | |
| | 400 | - | 170M2671 | | | |

Bussmann series fuses


High speed fuses

| | Rated current | Rated voltage | Breaking capacity | Operating class | -TN/80 type T Indicator for micro switch | -TN/110 type T Indicator for micro switch |
|---|---------------|-----------------------|-------------------|-----------------|--|---|
| | A | VAC | kA | | Part no. | Part no. |
| European square body DIN 43653 fuses - stud mount | | | | | | |
|  | Frame size: 1 | | | | | |
| | 40 | 690 (IEC), 700 (UL) | 200 | gR | 170M3058 | 170M3208 |
| | 50 | | | | 170M3059 | 170M3209 |
| | 63 | | | | 170M3060 | 170M3210 |
| | 80 | | | | 170M3061 | 170M3211 |
| | 100 | | | | 170M3062 | 170M3212 |
| | 125 | | | | 170M3063 | 170M3213 |
| | 160 | | | | 170M3064 | 170M3214 |
| | 200 | | | | 170M3065 | 170M3215 |
| | 250 | | | | 170M3066 | 170M3216 |
| | 315 | | | | 170M3067 | 170M3217 |
| | 350 | | | | 170M3068 | 170M3218 |
| | 400 | | | | 170M3069 | 170M3219 |
| | 450 | | | | 170M3070 | 170M3220 |
| | 500 | | | | 170M3071 | 170M3221 |
| | 550 | | | | 170M3072 | 170M3222 |
| | 630 | | | | 170M3073 | 170M3223 |
|  | Frame size: 1 | | | | | |
| | 200 | 690 (IEC), 700 (UL) | 200 | gR | 170M4058 | 170M4208 |
| | 250 | | | | 170M4059 | 170M4209 |
| | 315 | | | | 170M4060 | 170M4210 |
| | 350 | | | | 170M4061 | 170M4211 |
| | 400 | | | | 170M4062 | 170M4212 |
| | 450 | | | | 170M4063 | 170M4213 |
| | 500 | | | | 170M4064 | 170M4214 |
| | 550 | | | | 170M4065 | 170M4215 |
| | 630 | | | | 170M4066 | 170M4216 |
|  | Frame size: 2 | | | | | |
| | 400 | 690 (IEC), 700 (UL) | 200 | gR | 170M5058 | 170M5208 |
| | 450 | | | | 170M5059 | 170M5209 |
| | 500 | | | | 170M5060 | 170M5210 |
| | 550 | | | | 170M5061 | 170M5211 |
| 630 | 170M5062 | | | | 170M5212 | |
|  | Frame size: 3 | | | | | |
| | 500 | 690 (IEC), 700 (UL) | 200 | gR | 170M6058 | 170M6208 |
| | 550 | | | | 170M6059 | 170M6209 |
| 630 | 170M6060 | | | | 170M6210 | |
|  | Frame size: 2 | | | | | |
| | 250 | 1250 (IEC), 1300 (UL) | 200 | gR | - | 170M5188 |
| | 280 | | | | - | 170M5189 |
| | 315 | | | | - | 170M5190 |
| | 350 | | | | - | 170M5191 |
| | 400 | | | | - | 170M5192 |
| | 450 | | | | - | 170M5193 |
| | 500 | | | | - | 170M5194 |
| | 550 | | | | - | 170M5195 |
| | 630 | | | | - | 170M5196 |

| Rated current | Rated voltage | Operating class | -/80 Visual indicator | -TN/80 type T Indicator for micro switch | |
|--|---------------|---------------------------------|--------------------------|---|----------|
| A | V/VAC | | Part no. | Part no. | |
| European square body DIN 43653 fuses - stud mount | | | | | |
| Breaking capacity: 200 kA (VAC), 50 kA (VDC) Frame size: 000 | | | | | |
|  | 10 | 690 VAC (IEC), 700 VAC/VDC (UL) | gR | 170M1358 | 170M1408 |
| | 16 | | | 170M1359 | 170M1409 |
| | 20 | | | 170M1360 | 170M1410 |
| | 25 | | | 170M1361 | 170M1411 |
| | 32 | | | 170M1362 | 170M1412 |
| | 40 | | | 170M1363 | 170M1413 |
| | 50 | | | 170M1364 | 170M1414 |
| | 63 | | | 170M1365 | 170M1415 |
| | 80 | | | 170M1366 | 170M1416 |
| | 100 | | | 170M1367 | 170M1417 |
| | 125 | | | 170M1368 | 170M1418 |
| | 160 | | | 170M1369 | 170M1419 |
| | 200 | | | 170M1370 | 170M1420 |
| | 250 | | | 170M1371 | 170M1421 |
| | 315 | | | 170M1372 | 170M1422 |
| Breaking capacity: 200 kA Frame size: 00 | | | | | |
|  | 25 | 690 (IEC) | gR | 170M2608 | 170M2658 |
| | 32 | | | 170M2609 | 170M2659 |
| | 40 | | | 170M2610 | 170M2660 |
| | 50 | | | 170M2611 | 170M2661 |
| | 63 | | | 170M2612 | 170M2662 |
| | 80 | | | 170M2613 | 170M2663 |
| | 100 | 690 (IEC), 700 (UL) | gR | 170M2614 | 170M2664 |
| | 125 | | | 170M2615 | 170M2665 |
| | 160 | | | 170M2616 | 170M2666 |
| | 200 | | | 170M2617 | 170M2667 |
| | 250 | | | 170M2618 | 170M2668 |
| | 315 | | | 170M2619 | 170M2669 |
| | 350 | | | 170M2620 | 170M2670 |
| | 400 | | | 170M2621 | 170M2671 |

Busmann series fuses

North American UL fuses links

| | Rated current | Rated voltage | Breaking capacity | Operating class | Part No |
|---|---------------|------------------------|-------------------------------|-----------------|--------------|
| | A | V | kA | | |
| Low peak dual element, time delay fuse links | | | | | |
|  | 1 | 600 V a.c./ 300 V d.c. | 300 Ka RMS Sym. / 100 kA d.c. | Time delay | LPJ-1SP |
| | 1.25 | | | | LPJ-1-1-4SP |
| | 1.6 | | | | LPJ-1-6-10SP |
| | 1.8 | | | | LPJ-1-8-10SP |
| | 2 | | | | LPJ-2SP |
| | 2.25 | | | | LPJ-2-1-4SP |
| | 2.5 | | | | LPJ-2-1-2SP |
| | 2.8 | | | | LPJ-2-8-10SP |
| | 3 | | | | LPJ-3SP |
| | 3.2 | | | | LPJ-3-2-10SP |
| | 3.5 | | | | LPJ-3-1-2SP |
| | 4 | | | | LPJ-4SP |
| | 4.5 | | | | LPJ-4-1-2SP |
| | 5 | | | | LPJ-5SP |
| | 5.6 | | | | LPJ-5-6-10SP |
| | 6 | | | | LPJ-6SP |
| | 7 | | | | LPJ-7SP |
| | 8 | | | | LPJ-8SP |
| | 9 | | | | LPJ-9SP |
| | 10 | | | | LPJ-10SP |
| | 12 | | | | LPJ-12SP |
| | 15 | | | | LPJ-15SP |
| | 17.5 | | | | LPJ-17-1-2SP |
| | 20 | | | | LPJ-20SP |
| | 25 | | | | LPJ-25SP |
| | 30 | | | | LPJ-30SP |
| | 35 | | | | LPJ-35SP |
| | 40 | | | | LPJ-40SP |
| | 45 | | | | LPJ-45SP |
| | 50 | | | | LPJ-50SP |
| 60 | LPJ-60SP | | | | |
| 70 | LPJ-70SP | | | | |
| 80 | LPJ-80SP | | | | |
| 90 | LPJ-90SP | | | | |
| 100 | LPJ-100SP | | | | |
| 110 | LPJ-110SP | | | | |
| 125 | LPJ-125SP | | | | |
| 150 | LPJ-150SP | | | | |
| 175 | LPJ-175SP | | | | |
| 200 | LPJ-200SP | | | | |
| 225 | LPJ-225SP | | | | |
| 250 | LPJ-250SP | | | | |
| 300 | LPJ-300SP | | | | |
| 350 | LPJ-350SP | | | | |
| 400 | LPJ-400SP | | | | |
| 450 | LPJ-450SP | | | | |
| 500 | LPJ-500SP | | | | |
| 600 | LPJ-600SP | | | | |

| Design as illustrated | Rated current A | Rated voltage kA | Function kA | Part No |
|---------------------------------------|--------------------|---------------------|----------------------------|-------------|
| Class J Modular fuse holders | | | | |
| 1 | 30 | 600 | 1 pole | CH30J1 |
| | | | 1 pole with neon indicator | CH30J1I |
| | | | 2 pole | CH30J2 |
| | | | 2 pole with neon indicator | CH30J2I |
| | | | 3 pole | CH30J3 |
| | | | 3 pole with neon indicator | CH30J3I |
| 2 | 60 | 600 | 1 pole | CH60J1 |
| | | | 1 pole with neon indicator | CH60J1I |
| | | | 2 pole | CH60J2 |
| | | | 2 pole with neon indicator | CH60J2I |
| | | | 3 pole | CH60J3 |
| | | | 3 pole with neon indicator | CH60J3I |
| Modular knifeblade fuse blocks | | | | |
| 3 | 70 - 100 | 600 | 1 pole | JM60100-1CR |
| | | | 2 pole | JM60100-2CR |
| | | | 3 pole | JM60100-3CR |
| 4 | 110 - 200 | 600 | 1 pole | JM60200-1CR |
| | | | 2 pole | JM60200-2CR |
| | | | 3 pole | JM60200-3CR |
| 5 | 225 - 400 | 600 | 1 pole | JM60400-1CR |
| | | | 2 pole | JM60400-2CR |
| | | | 3 pole | JM60400-3CR |
| 6 | 450 - 600 | 600 | 1 pole | JM60600-1CR |
| | | | 2 pole | JM60600-2CR |
| | | | 3 pole | JM60600-3CR |

Notes



1



2



3



4



5



6

Build it in.



Safe switching, isolating and control with rotary switch T and switch disconnecter P



The high-performance, robust and compact T rotary switches and P switch-disconnectors are used in industry, trade and building engineering applications. The degree of protection IP65 with the switch mounts and the switch front enables use in harsh environments. Ten basic switch types in four different construction types, in a whole range of standard switches and across a wide performance range are available.

Customised circuits can also be implemented in addition to the standard configurations. The possibilities are almost unlimited. A comprehensive accessory range complements the switch range and rounds off the range of applications. All contacts feature double breaking contacts.

With the metal extension shafts our reliable P1 and P3 switches can be mounted in electrical cabinets of up to 600 mm deep and with several Handle and Shaft options a solution can be found for every application. Also the most common types are available as a complete switch/shaft/handle package.



Rotary switch T

The rotary switch T represents a very flexible, compact and robust modular system. The TM, T0, T3, T5B, T5, T6, T8 rating sizes are available in four different construction types. The rating of the T switch ranges from 6.5 kW to 132 kW with AC 23 A at 400/415 V, 50-60 Hz. The rated uninterrupted current I_u is between 10 A and 315 A. The rotary switch T has a widely varied range of application uses. Customized circuits on request.



Switch-disconnector P

The switch-disconnectors P1 up to 32 A, P3 up to 100 A, P5 up to 315 A are very compact and robust. The manual operator acts directly on the contacts. The contacts are positively opened on de-energization. In addition to their use as switch disconnectors with and without the Emergency-Stop function, switch-disconnectors P can be used as On-Off switches as well as maintenance, manual override or safety switches.



Main switch with Emergency-Stop function¹⁾

Process and processing machines require a power disconnecting device conform to EN 60204-1. Furthermore, standstill in an emergency must also be assured. As shown in the above textile processing machine, both of these functions are assumed by a switch-disconnector P3. Standstill in an emergency requires:

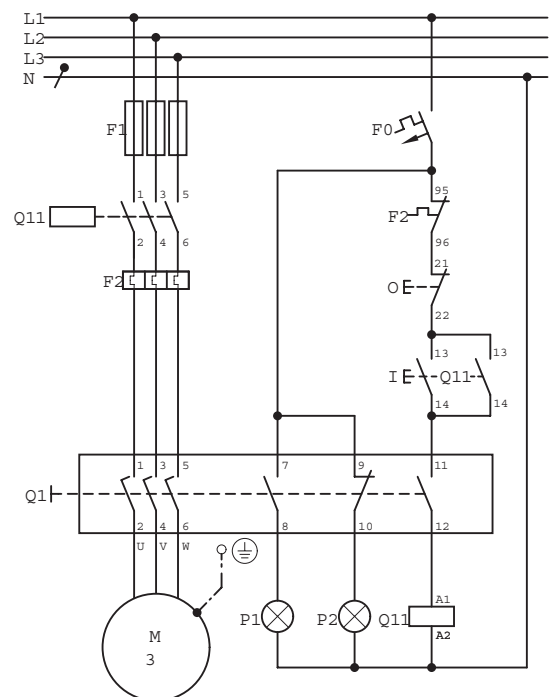
- priority function and operation in all operating modes
- the power supply, which is connected to the machine states which produce the danger, must switch off as quickly as possible.

¹⁾ The EMERGENCY-STOP devices from Eaton can also be used as EMERGENCY-OFF devices.



Safety switch with load shedding and signalling

The safety switches P and T are functionally designed as maintenance and manual override switches. Safe isolation of a load from the mains is the primary function. The switch can be loaded with rated uninterrupted current I_u due to the load shedding circuit. The switch switches without a load! The additional signalling contacts can be used for indicating the switch position. The respective processing and use in the application program of the system enhances safety.



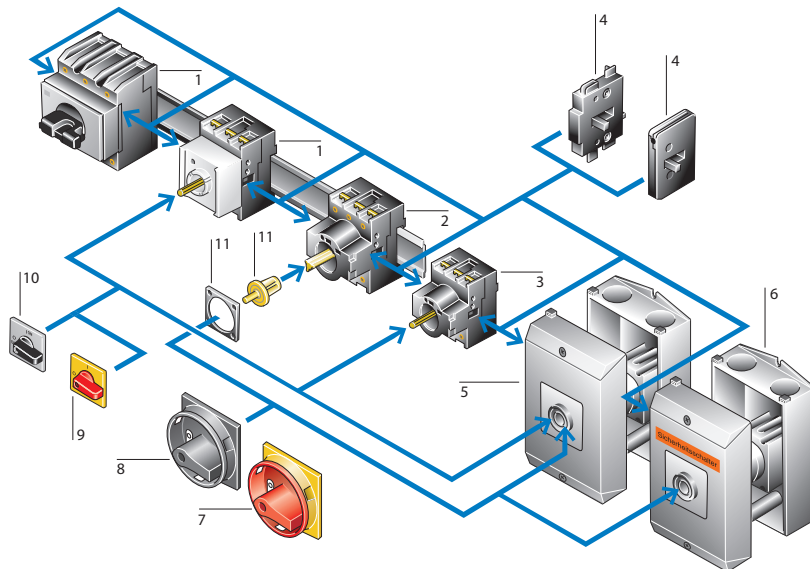
P1 = On
P2 = Off
Q11 = Load shedding

Cam switches, switch-disconnectors

System overview

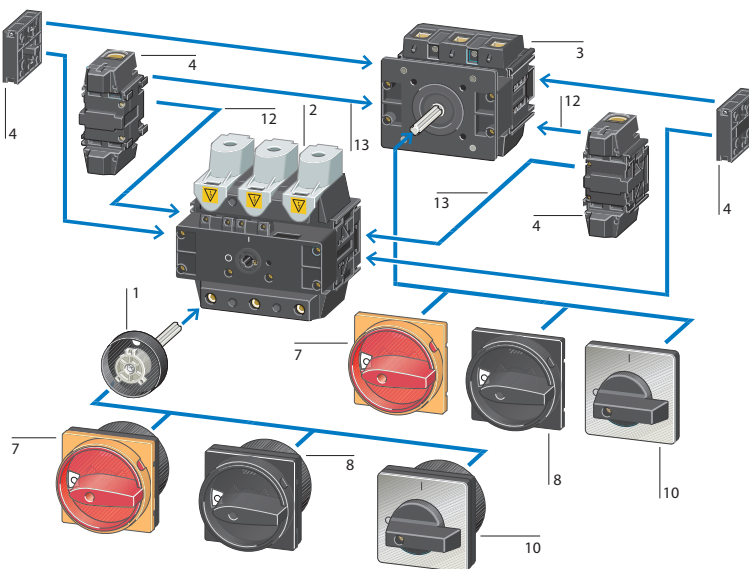
Moeller® series

ON-OFF switches P1, P3



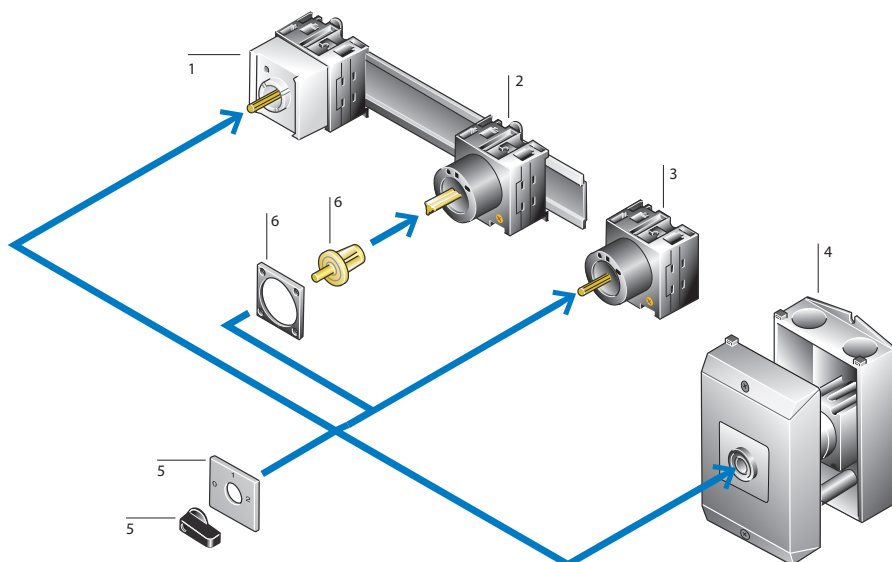
- 1 Service distribution board mounting
- 2 Rear mounting
- 3 Flush mounting
- 4 Neutral conductors, auxiliary contacts
- 5 Surface mounting
- 6 Safety switch
- 7 Main switch (kit) for use as emergency switching off device
- 8 Main switch (kit)
- 9 Thumb-grip, for use as emergency switching off device
- 10 Thumb-grip
- 11 Coupling drive
- 12 Protective conductor terminal
- 13 Neutral terminal

ON OFF switches P5



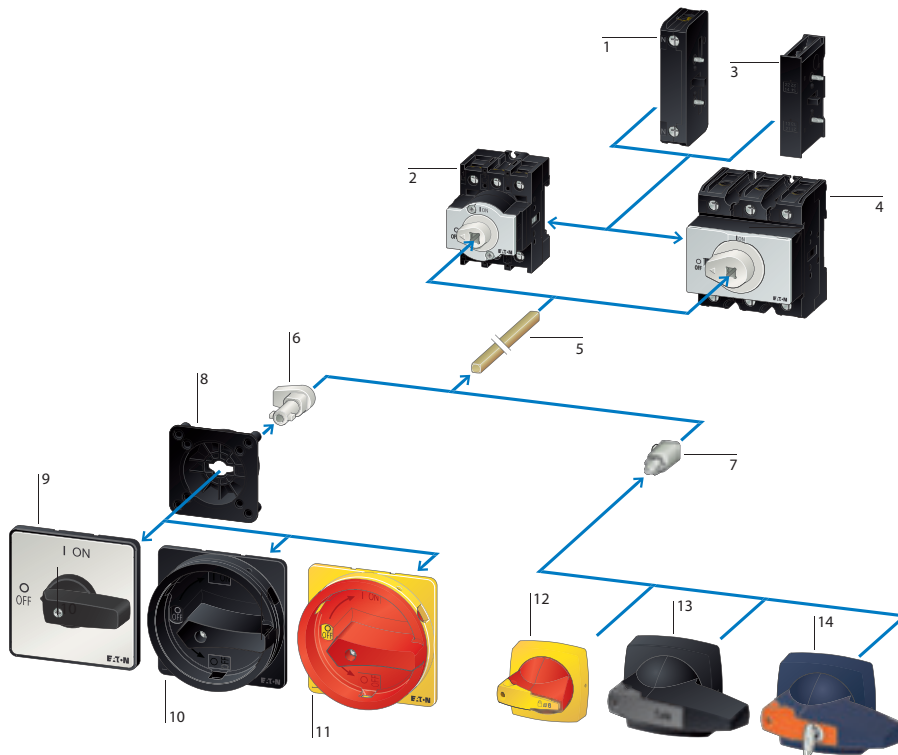
- 1 Service distribution board mounting
- 2 Rear mounting
- 3 Flush mounting
- 4 Surface mounting
- 5 Thumb-grip
- 6 Coupling drive

Control switches T0, T3, T5B, T5



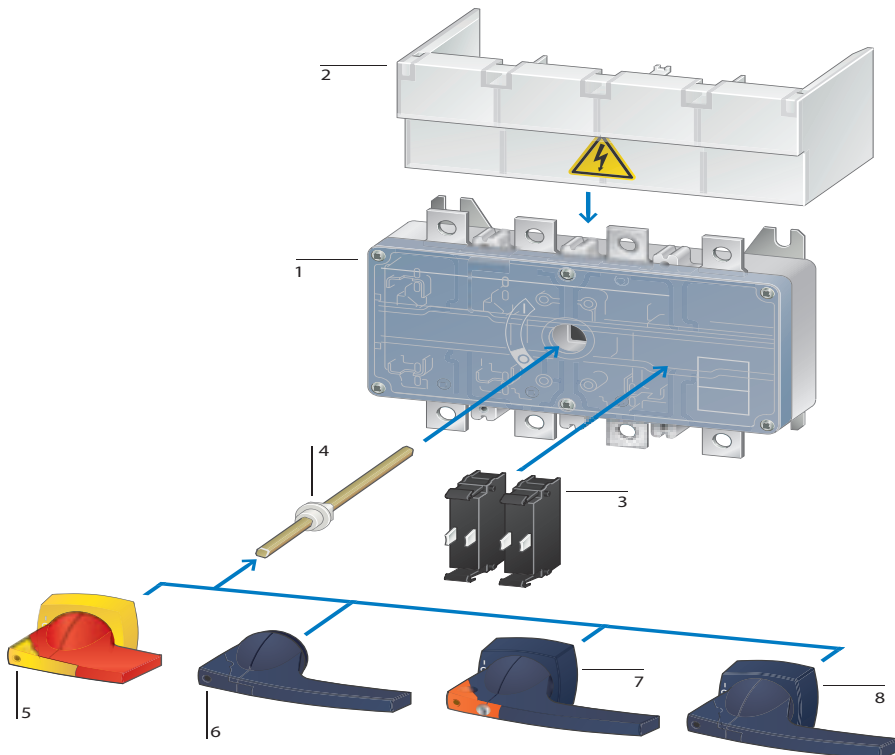
Moeller® series

On-Off switch P1, P3 with metal shaft



- 1 Neutral conductor
- 2 P1 rear-mounting switch
- 3 Auxiliary contact
- 4 P3 rear-mounting switch
- 5 Metal shaft
- 6, 7 Centring tip
- 8 Centring adapter
- 9 Thumb-grip
- 10 Main switch kit (black)
- 11 Main switch kit for use as emergency switching off device (red)
- 12 Thumb-grip kit, for use as emergency switching off device (red)
- 13 Thumb-grip kit for padlock (grey)
- 14 Thumb-grip kit with cylinder lock (blue)

On-Off switch DMM, DMV



- 1 On-Off switch DMM, DMV
- 2 Clamp cover
- 3 Auxiliary contact
- 4 Metal shaft
- 5 Thumb-grip, for use as emergency switching off device (red)
- 6 Thumb-grip for direct mounting
- 7 Thumb-grip for door mounting, with cylinder lock
- 8 Thumb-grip for door mounting with padlock

Cam switches, switch-disconnectors

Main switch, maintenance switch, Repair switch

Moeller® series

| Main circuits Poles | Auxiliary circuits | Rated uninterrupted current I _u A | Surface mounting | | Flush mounting | | Rear mounting | | Rear mounting | |
|---------------------|--------------------|--|------------------|-------------|----------------|-------------|---------------|-------------|---------------|--|
| | | | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. | Part no. | Article no. |
| | | | IP65 | | Front IP65 | | Front IP65 | | | With metal shaft for a control panel depth of 400 mm |
| | | | | | | | | | | |

Main switch, maintenance switch, Repair switch

With red rotary handle and yellow locking ring
 Note: All types are available with a black thumb-grip → Online Catalog.
 Lockable in the 0 (Off) position






| | | | | | | | | | | | |
|-------|---|---|-----|----------------------|--------|----------------------|--------|---------------------|--------|------------------------|---------|
| 1 | - | - | 20 | T0-1-8200/I1/SVB | 207145 | T0-1-8200/EA/SVB | 053110 | T0-1-8200/V/SVB | 057856 | - | |
| | | | 32 | T3-1-8200/I2/SVB | 207200 | T3-1-8200/EA/SVB | 066576 | T3-1-8200/V/SVB | 007255 | - | |
| | | | 63 | T5B-1-8200/I4/SVB | 207240 | T5B-1-8200/EA/SVB | 094279 | T5B-1-8200/V/SVB | 094273 | - | |
| | | | 100 | - | - | T5-1-8200/EA/SVB | 097224 | T5-1-8200/V/SVB | 097222 | - | |
| 2 | - | - | 20 | T0-1-102/I1/SVB | 207143 | T0-1-102/EA/SVB | 091078 | T0-1-102/V/SVB | 095824 | - | |
| | | | 32 | T3-1-102/I2/SVB | 207198 | T3-1-102/EA/SVB | 014374 | T3-1-102/V/SVB | 019120 | - | |
| | | | 63 | T5B-1-102/I4/SVB | 207238 | T5B-1-102/EA/SVB | 094469 | T5B-1-102/V/SVB | 094463 | - | |
| | | | 100 | T5-1-102/I5/SVB | 207273 | T5-1-102/EA/SVB | 098808 | T5-1-102/V/SVB | 098806 | - | |
| 3 | - | - | 20 | T0-2-1/I1/SVB | 207147 | T0-2-1/EA/SVB | 038873 | T0-2-1/V/SVB | 043619 | - | |
| | | | 25 | P1-25/I2/SVB | 207293 | P1-25/EA/SVB | 041097 | P1-25/V/SVB | 055335 | P1-25/M4/SVB | 172875 |
| | | | 32 | P1-32/I2/SVB | 207314 | P1-32/EA/SVB | 081438 | P1-32/V/SVB | 095676 | P1-32/M4/SVB | 172865 |
| | | | 63 | P3-63/I4/SVB | 207343 | P3-63/EA/SVB | 031607 | P3-63/V/SVB | 048218 | P3-63/M4/SVB | 172784 |
| | | | 100 | P3-100/I5/SVB | 207373 | P3-100/EA/SVB | 074320 | P3-100/V/SVB | 088558 | P3-100/M4/SVB | 172818 |
| | | | 125 | DMM-125/3/I5/P-R | 172851 | P5-125/EA/SVB | 280898 | P5-125/V/SVB | 280914 | DMM-125/3/M4/P-R | 6094964 |
| | | | 160 | DMM-160/3/I5/P-R | 172794 | P5-160/EA/SVB | 280922 | P5-160/V/SVB | 280928 | DMM-160/3/M4/P-R | 6094965 |
| | | | 250 | - | - | P5-250/EA/SVB | 280936 | P5-250/V/SVB | 280942 | DMV-250/3/M4/P-R | 6094966 |
| | | | 315 | - | - | P5-315/EA/SVB | 280950 | P5-315/V/SVB | 280956 | - | - |
| | | | 400 | - | - | - | - | - | - | DMV-400/3/M4/P-R | 6094967 |
| 3 + N | - | - | 20 | T0-2-8900/I1/SVB | 207151 | - | - | - | - | | |
| | | | 25 | P1-25/I2/SVB/N | 207298 | P1-25/EA/SVB/N | 081587 | P1-25/V/SVB/N | 086333 | P1-25/M4/SVB/N | 172877 |
| | | | 32 | P1-32/I2/SVB/N | 207319 | P1-32/EA/SVB/N | 091079 | P1-32/V/SVB/N | 095825 | P1-32/M4/SVB/N | 172867 |
| | | | 63 | P3-63/I4/SVB/N | 207349 | P3-63/EA/SVB/N | 010398 | P3-63/V/SVB/N | 015144 | P3-63/M4/K2-PR/N | 172812 |
| | | | 100 | P3-100/I5/SVB/N | 207379 | P3-100/EA/SVB/N | 019890 | P3-100/V/SVB/N | 024636 | P3-100/M4/K2-PR/N | 172828 |
| | | | 125 | DMM-125/4/I5/P-R | 172854 | P5-125/EA/SVB/N | 280910 | P5-125/V/SVB/N | 280916 | DMM-125/4/M4/P-R | 6094968 |
| | | | 160 | DMM-160/4/I5/P-R | 172797 | P5-160/EA/SVB/N | 280924 | P5-160/V/SVB/N | 280930 | DMM-160/4/M4/P-R | 6094969 |
| | | | 250 | - | - | P5-250/EA/SVB/N | 280938 | P5-250/V/SVB/N | 280944 | DMV-250/4/M4/P-R | 6094970 |
| | | | 315 | - | - | P5-315/EA/SVB/N | 280952 | P5-315/V/SVB/N | 280958 | - | - |
| | | | 400 | - | - | - | - | - | - | DMV-400/4/M4/P-R | 6094971 |
| 3 | 1 | 0 | 20 | T0-2-15679/I1/SVB | 207149 | T0-2-15679/EA/SVB | 081588 | T0-2-15679/V/SVB | 086334 | - | |
| 3 | 1 | 1 | 25 | P1-25/I2/SVB/HI11 | 207297 | P1-25/EA/SVB/HI11 | 091080 | P1-25/V/SVB/HI11 | 095826 | P1-25/M4/SVB/HI11 | 172767 |
| | | | 32 | P1-32/I2/SVB/HI11 | 207318 | P1-32/EA/SVB/HI11 | 072567 | P1-32/V/SVB/HI11 | 015145 | P1-32/M4/SVB/HI11 | 172869 |
| | | | 63 | P3-63/I4/SVB/HI11 | 207348 | P3-63/EA/SVB/HI11 | 019891 | P3-63/V/SVB/HI11 | 024637 | P3-63/M4/SVB/HI11 | 172788 |
| | | | 100 | P3-100/I5/SVB/HI11 | 207378 | P3-100/EA/SVB/HI11 | 029383 | P3-100/V/SVB/HI11 | 034129 | P3-100/M4/SVB/HI11 | 172822 |
| 3 + N | 1 | 1 | 20 | T0-3-15680/I1/SVB | 207153 | T0-3-15680/EA/SVB | 038875 | T0-3-15680/V/SVB | 043621 | - | |
| | | | 25 | - | - | P1-25/EA/SVB/N/HI11 | 048367 | P1-25/V/SVB/N/HI11 | 053113 | P1-25/M4/SVB/N/HI11 | 172769 |
| | | | 32 | T3-3-15680/I2/SVB | 207202 | P1-32/EA/SVB/N/HI11 | 057859 | P1-32/V/SVB/N/HI11 | 062605 | P1-32/M4/SVB/N/HI11 | 172871 |
| | | | 63 | P3-63/I4/SVB/N/HI11 | 207350 | P3-63/EA/SVB/N/HI11 | 067351 | P3-63/V/SVB/N/HI11 | 072097 | P3-63/M4/K2-PR/N/HI11 | 172816 |
| | | | 100 | P3-100/I5/SVB/N/HI11 | 207380 | P3-100/EA/SVB/N/HI11 | 076843 | P3-100/V/SVB/N/HI11 | 081589 | P3-100/M4/K2-PR/N/HI11 | 172832 |
| 3 | 2 | 1 | 20 | T0-3-15683/I1/SVB | 207157 | T0-3-15683/EA/SVB | 015571 | T0-3-15683/V/SVB | 015634 | - | |
| 6 | - | - | 20 | T0-3-8342/I1/SVB | 207159 | T0-3-8342/EA/SVB | 029382 | T0-3-8342/V/SVB | 034128 | - | |
| | | | 32 | T3-3-8342/I2/SVB | 207208 | T3-3-8342/EA/SVB | 071326 | T3-3-8342/V/SVB | 076072 | - | |
| | | | 63 | T5B-3-8342/I4/SVB | 207242 | T5B-3-8342/EA/SVB | 092308 | T5B-3-8342/V/SVB | 092300 | - | |
| | | | 100 | T5-3-8342/I5/SVB | 207279 | T5-3-8342/EA/SVB | 096383 | T5-3-8342/V/SVB | 096381 | - | |








Molded case switch (UL/CSA) as main switch in accordance with NFPA 79

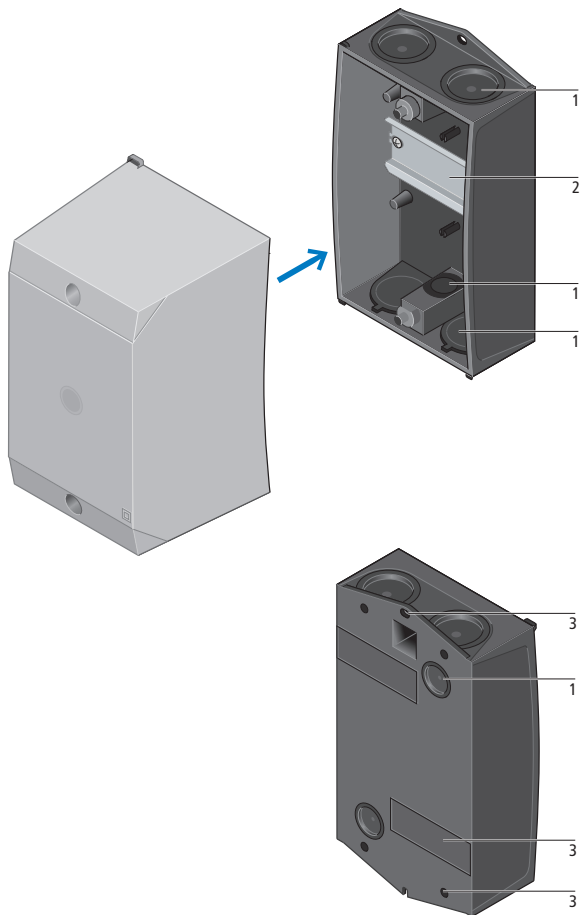
| | | | | | | | | | |
|---|---|---|----|---|-----------------------------------|--------|--------------------|--------|---|
| 3 | - | - | 30 | - | P3-30/EA/SVB-MCS | 237892 | P3-30/V/SVB-MCS | 237894 | - |
| | | | | - | P3-30/EA/SVB-SW-MCS ¹⁾ | 237893 | P3-30/V/SVB-SW-MCS | 237895 | - |

Notes

¹⁾ With black handle

| Front plate no. | Main circuits Poles | N/O | N/C | Flush mounting | | Centre mounting | | Surface mounting | | Service distribution board mounting | | Rear mounting | |
|--|---------------------|-----|-----|---------------------------------------|--------------------------------|---------------------------------------|---------------------------------|---------------------------------|---------------------------------------|---------------------------------------|--|---------------|--|
| | | | | Front IP65 Part no. Article no. | Part no. Article no. | Front IP65 Part no. Article no. | Part no. Article no. | IP65 Part no. Article no. | Front IP30 Part no. Article no. | Front IP65 Part no. Article no. | | | |
| On-Off switch | | | | | | | | | | | | | |
|  FS 908 | 1 | - | - | T0-1-8200/E 067352 | T0-1-8200/EZ 069725 | T0-1-8200/I1 207074 | T0-1-8200/IVS 074471 | T0-1-8200/Z 076844 | | | | | |
| | 2 | - | - | T0-1-102/E 088709 | T0-1-102/EZ 091082 | T0-1-102/I1 207061 | T0-1-102/IVS 015147 | T0-1-102/Z 095828 | | | | | |
| | 3 | - | - | T0-2-1/E 024639 | T0-2-1/EZ 027012 | T0-2-1/I1 207081 | T0-2-1/IVS 031758 | T0-2-1/Z 036504 | | | | | |
| | 3 | 1 | 0 | T0-2-15679/E 029387 | T0-2-15679/EZ 031760 | T0-2-15679/I1 207094 | T0-2-15679/IVS 036506 | T0-2-15679/Z 041252 | | | | | |
| | 3 + N | - | - | T0-2-8900/E 207398 | T0-2-8900/EZ 207402 | T0-2-8900/I1 207109 | T0-2-8900/IVS 207403 | T0-2-8900/Z 207407 | | | | | |
| Changeoverswitches | | | | | | | | | | | | | |
|  FS 684 | 1 | - | - | T0-1-8210/E 012742 | T0-1-8210/EZ 048337 | T0-1-8210/I1 207076 | T0-1-8210/IVS 074440 | T0-1-8210/Z 019862 | | | | | |
| | 2 | - | - | T0-2-8211/E 022234 | T0-2-8211/EZ 053083 | T0-2-8211/I1 207102 | T0-2-8211/IVS 076813 | T0-2-8211/Z 029354 | | | | | |
| | 3 | - | - | T0-3-8212/E 029353 | T0-3-8212/EZ 057829 | T0-3-8212/I1 207123 | T0-3-8212/IVS 079186 | T0-3-8212/Z 036473 | | | | | |
| | 4 | - | - | T0-4-8213/E 031726 | T0-4-8213/EZ 062575 | T0-4-8213/I1 207136 | T0-4-8213/IVS 081559 | T0-4-8213/Z 043592 | | | | | |
|  FS 943 | 1 | - | - | T0-1-8220/E 031728 | T0-1-8220/EZ 095799 | T0-1-8220/I1 207078 | T0-1-8220/IVS 055459 | T0-1-8220/Z 086312 | | | | | |
| | 2 | - | - | T0-2-8221/E 038847 | T0-2-8221/EZ 010372 | T0-2-8221/I1 207104 | T0-2-8221/IVS 057832 | T0-2-8221/Z 074450 | | | | | |
| | 3 | - | - | T0-3-8222/E 048339 | T0-3-8222/EZ 015118 | T0-3-8222/I1 207124 | T0-3-8222/IVS 060205 | T0-3-8222/Z 088686 | | | | | |
| | 4 | - | - | T0-4-8223/E 050712 | T0-4-8223/EZ 019864 | T0-4-8223/I1 207137 | T0-4-8223/IVS 062578 | T0-4-8223/Z 086315 | | | | | |
|  FS 4011 | 1 | - | - | T0-1-8214/E 019863 | T0-1-8214/EZ 076815 | T0-1-8214/I1 207077 | T0-1-8214/IVS 045967 | T0-1-8214/Z 050720 | | | | | |
| | 2 | - | - | T0-2-8215/E 022236 | T0-2-8215/EZ 081561 | T0-2-8215/I1 207103 | T0-2-8215/IVS 048340 | T0-2-8215/Z 053093 | | | | | |
| | 3 | - | - | T0-3-8216/E 024609 | T0-3-8216/EZ 086307 | T0-3-8216/I1 207434 | T0-3-8216/IVS 050713 | T0-3-8216/Z 055466 | | | | | |
| Reversing switches | | | | | | | | | | | | | |
|  FS 684 | 3 | - | - | T0-3-8401/E 091047 | T0-3-8401/EZ 093420 | T0-3-8401/I1 207132 | T0-3-8401/IVS 098166 | T0-3-8401/Z 010366 | | | | | |

| Front plate no. | Main circuits Poles | Flush mounting | | Centre mounting | | Surface mounting | | Service distribution board mounting | | Rear mounting | |
|---|------------------------|-------------------------------|--------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------|--|--|---------------|--|
| | | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. | Part no. Article no. | | | | |
|  | | | | | | | | | | | |
| ON-OFF switches | | | | | | | | | | | |
|  FS 415 | 1 | T0-1-15401/E 038854 | T0-1-15401/EZ 041227 | T0-1-15401/I1 207067 | T0-1-15401/IVS 045973 | T0-1-15401/Z 048346 | | | | | |
| | 2 | T0-1-15402/E 053092 | T0-1-15402/EZ 055465 | T0-1-15402/I1 207068 | T0-1-15402/IVS 060211 | T0-1-15402/Z 062584 | | | | | |
| | 3 | T0-2-15403/E 067330 | T0-2-15403/EZ 069703 | T0-2-15403/I1 207088 | T0-2-15403/IVS 074449 | T0-2-15403/Z 076822 | | | | | |
| Voltmeter selector switches | | | | | | | | | | | |
|  FS 1410759 | 3 + N | T0-3-8007/E 095813 | T0-3-8007/EZ 098186 | T0-3-8007/I1 207120 | T0-3-8007/IVS 012759 | T0-3-8007/Z 015132 | | | | | |
| Ammeter selector switches | | | | | | | | | | | |
|  FS 9440 | 3 | T0-3-8048/E 034116 | T0-3-8048/EZ 036489 | - | T0-3-8048/IVS 041235 | T0-3-8048/Z 043608 | | | | | |
| Step switches | | | | | | | | | | | |
|  FS 606 | 1 | T0-2-8231/E 012750 | T0-2-8231/EZ 015123 | T0-2-8231/I1 207106 | T0-2-8231/IVS 019869 | T0-2-8231/Z 022242 | | | | | |
|  FS 420 | 1 | T0-2-8241/E 050716 | T0-2-8241/EZ 053089 | T0-2-8241/I1 207107 | T0-2-8241/IVS 057835 | T0-2-8241/Z 062581 | | | | | |
| Changeoverswitches | | | | | | | | | | | |
|  FS 1401 | 1 | T0-1-15431/E 019872 | T0-1-15431/EZ 022245 | T0-1-15431/I1 207070 | T0-1-15431/IVS 026991 | T0-1-15431/Z 029364 | | | | | |
| | 2 | T0-2-15432/E 034110 | T0-2-15432/EZ 036483 | T0-2-15432/I1 207091 | T0-2-15432/IVS 041229 | T0-2-15432/Z 043602 | | | | | |
| | 3 | T0-3-15433/E 048348 | T0-3-15433/EZ 050721 | T0-3-15433/I1 207115 | T0-3-15433/IVS 055467 | T0-3-15433/Z 057840 | | | | | |



Degree of protection IP65

- 1 Metric cable entries: push-through membrane or hard knockouts
- 2 Mounting systems for basic enclosures mounting rail or mounting plate
- 3 Mounting: horizontal and vertical slot apertures for wall mounting, captive cover screws, rubber feet to compensate for uneven walls for CI-K1 and CI-K2

| | Width mm | Height mm | Depth mm | Cable entry | Part no. | Article no. | | |
|---|--|--------------|-------------|------------------------------------|----------------------|------------------------------------|---------------------|--------|
| CI-K empty enclosures | | | | | | | | |
| With mounting rail to IEC/EN 60715 | | | | | | | | |
| | 80 | 120 | 95 | Push-through cable entry diaphragm | CI-K1-95-TS | 206881 | | |
| | 100 | 160 | 100 | | CI-K2-100-TS | 206882 | | |
| | 100 | 160 | 145 | | CI-K2-145-TS | 206883 | | |
| | 80 | 120 | 95 | Hard knockout version | CI-K1H-95-TS | 105853 | | |
| | 100 | 160 | 100 | | CI-K2H-100-TS | 229304 | | |
| | 100 | 160 | 145 | | CI-K2H-145-TS | 229305 | | |
| | 120 | 200 | 125 | | CI-K3-125-TS | 206884 | | |
| | 120 | 200 | 160 | | CI-K3-160-TS | 206885 | | |
| | 160 | 240 | 125 | | CI-K4-125-TS | 206886 | | |
| | 160 | 240 | 160 | | CI-K4-160-TS | 206890 | | |
| | 200 | 280 | 125 | | CI-K5-125-TS | 206891 | | |
| | 200 | 280 | 160 | | CI-K5-160-TS | 206892 | | |
| | With adapter plate for contactors DILE with motor-protective relay ZE | | | | | | | |
| | | 100 | 160 | | 145 | Push-through cable entry diaphragm | CI-K2-145-AD | 207632 |
| | 100 | 160 | 145 | Hard knockout version | CI-K2H-145-AD | 229308 | | |
| With mounting plate | | | | | | | | |
| | 100 | 160 | 100 | Push-through cable entry diaphragm | CI-K2-100-M | 206893 | | |
| | 100 | 160 | 145 | | CI-K2-145-M | 206894 | | |
| | 100 | 160 | 100 | Hard knockout version | CI-K2H-100-M | 229306 | | |
| | 100 | 160 | 145 | | CI-K2H-145-M | 229307 | | |
| | 120 | 200 | 125 | | CI-K3-125-M | 206895 | | |
| | 120 | 200 | 160 | | CI-K3-160-M | 206896 | | |
| | 160 | 240 | 125 | | CI-K4-125-M | 206897 | | |
| | 160 | 240 | 160 | | CI-K4-160-M | 206898 | | |
| | 200 | 280 | 125 | | CI-K5-125-M | 206899 | | |
| | 200 | 280 | 160 | | CI-K5-160-M | 206900 | | |

Build it in.



CS sheet steel wall-mount enclosures: Safe and reliable enclosure technology for people who value their time



Eaton's second generation of CS sheet steel enclosures is characterized by maximum ruggedness and can be used anywhere where a high level of protection is required, both to effectively protect against direct contact with live parts and to protect all installed components from damaging external factors such as liquids. The enclosures' IP66 degree of protection (UL/CSA types 1, 4, 12) – achieved with a continuous CNC foamed polyurethane gasket – prevents water, oil, and dirt from entering them. This, together with other characteristics, makes the CS series of enclosures a perfect match for sub-distribution systems in control systems for industrial buildings, as well as for machine building environments. In addition, these heavy-duty steel sheet enclosures meet the requirements set forth in IEC/EN 62208, i.e., they are approved for use in switchgear assemblies as defined in IEC/EN 61439-2.

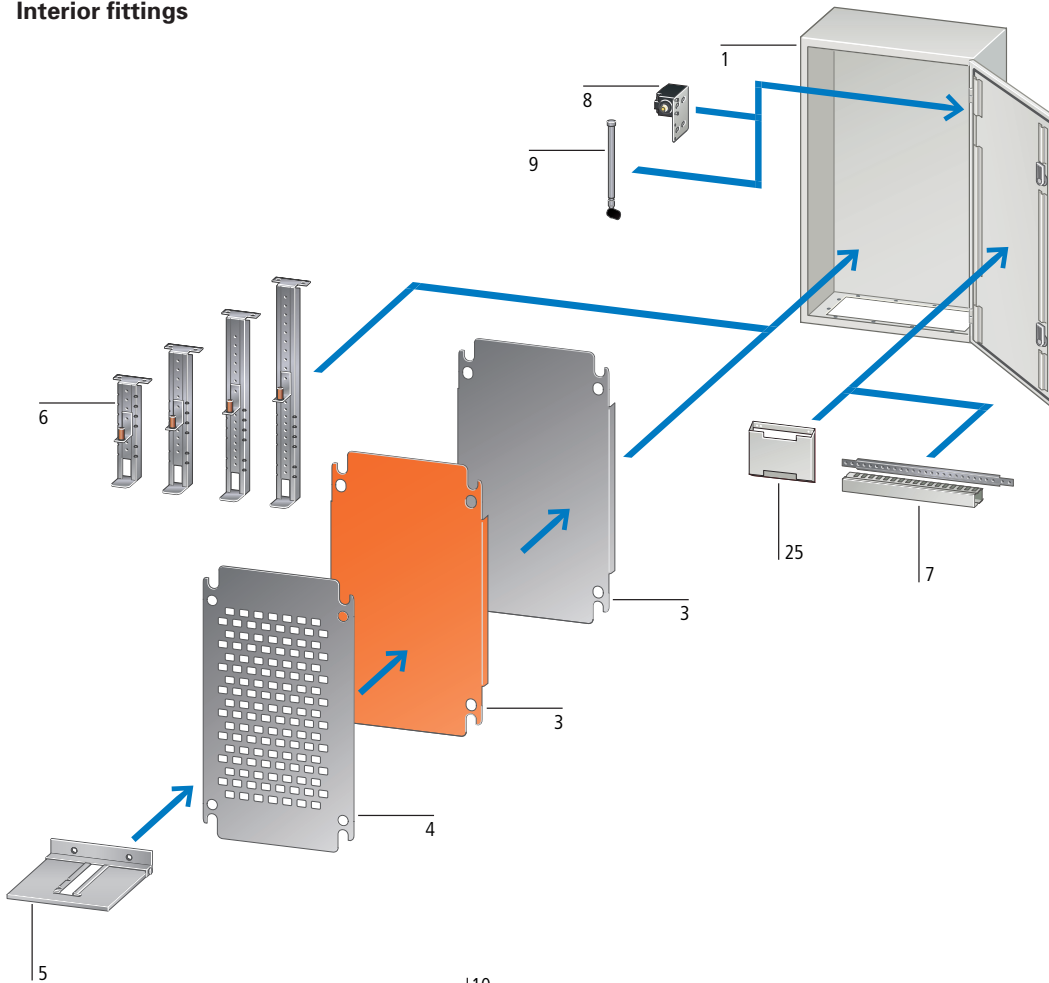


www.eaton.eu/boxcs

Sheet steel wall-mounting enclosure

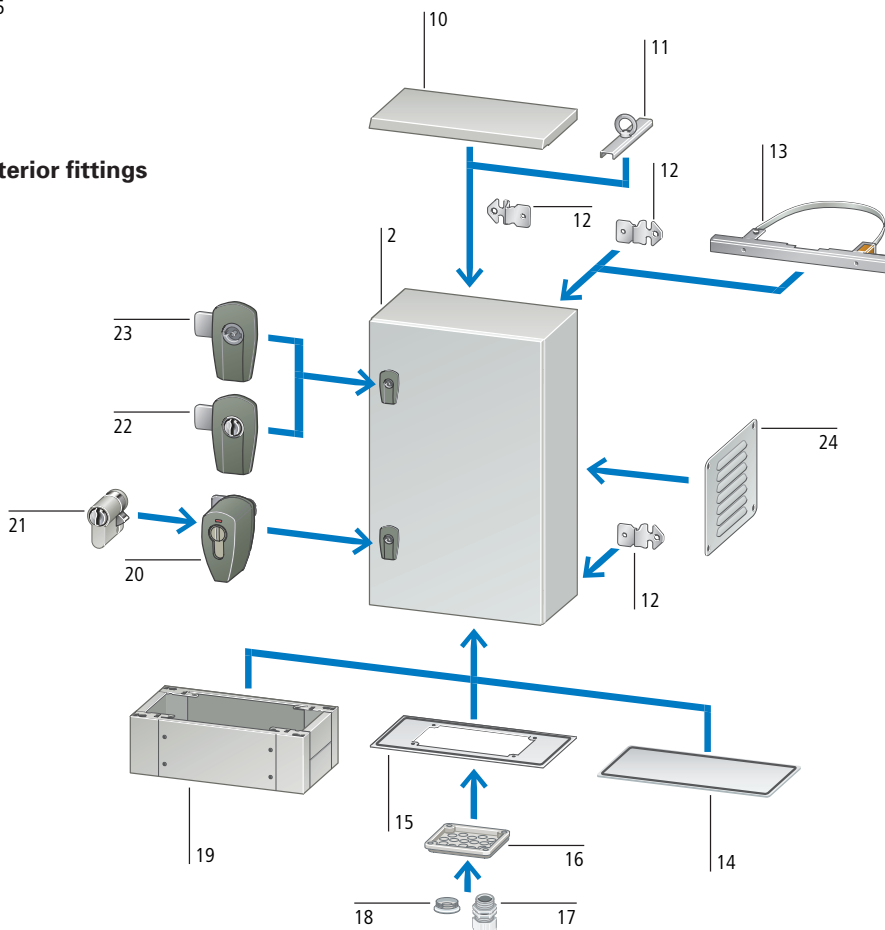
System overview

Interior fittings



- 1 CS sheet steel wall-mount enclosure (interior fittings)
- 2 CS sheet steel wall-mounting enclosure (exterior fittings)
- 3 Mounting plate, unperforated, galvanized or RAL 2000
- 4 Mounting plate, perforated, galvanized, for cage nuts
- 5 Mounting rail module for soft starters
- 6 Depth adjustment elements for mounting plates
- 7 Mounting bars for door profile moldings and cable ducts

Exterior fittings



- 8 Universal brackets for door contact switches and cable conduit holders
- 9 Quick-C hinge pin
- 10 Rain canopy
- 11 Lift eye kit with profile bracket
- 12 Wall fixing bracket
- 13 Mast fastening
- 14 Bottom plates without apertures
- 15 Bottom plates with apertures for F3A flanges
- 16 F3A flanges
- 17 Metric cable glands to EN 50262, metric ventilation cable gland
- 18 Metric diaphragm grommets, cable grommet
- 19 Cable interconnect frame
- 20 Lock for half-cylinder, comfort rotary handle
- 21 Cylinder lock
- 22 Locks with inserts, lock cylinder
- 23 Locks with inserts, two-way key bit
- 24 Ventilation louvers
- 25 Circuit diagram pockets insulating material

Overview of technical advantages

1 Rainwater drain profile



2 Continuous CNC foamed gasket



3 Solid enclosure construction

4 Wall fixing bracket



12 RAL 7035



5 Standardised lock system



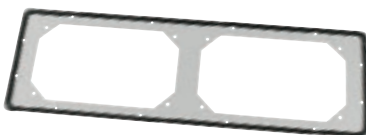
11 Mounting plate



6 PHZ-A comfort rotary handle



10 Flange plates



7 Door profile molding



9 Hinge pin with quick-change technology



8 Accessories



1 Rainwater drain profile

Sealing is guaranteed by a continuous CNC foamed polyurethane gasket. A surrounding rainwater drain profile protects against the ingress of liquids such as water or oil as well as dirt when the door is opened.

2 Continuous CNC foamed gasket

A high IP66 degree of protection provides absolute safety for the equipment and components inside the enclosure under most ambient conditions. One of the elements ensuring this is the continuous CNC foamed polyurethane gasket applied.

3 Solid enclosure construction

A rugged enclosure structure made of strong quality sheet steel provides effective protection against direct contact with live parts. Moreover, the back plate features holes with a diameter of 10 mm that are designed to make it easy to mount the enclosure on a wall. The enclosures come with two M6 threaded weld studs on the inside for protective earth connections. Also, their IK09 mechanical impact rating, as defined in EN 62262, means that their interior is effectively protected against mechanical damage. There are 45 enclosure sizes available, ranging from 250 x 200 x 150 mm to 1200 x 1200 x 250 mm. Finally, the enclosures do not have a designated top or bottom face, which means they can be installed in such a way as to route in cables from the top or bottom as necessary.

4 Wall fixing bracket

The innovative WFB-SET-CS wall fixing bracket makes it easier to place the enclosure on a wall, as it can be mounted either vertically or horizontally as necessary.

5 Standardised lock system

The new impact-resistant locks, which are completely made of metal, provide additional safety and security.

6 PHZ-A comfort rotary handle

One of the enclosures' highlights is the PHZ-A comfort rotary handle, which features a lock position indicator. The rotary handle can accommodate any standard euro profile half cylinder on the market. Also, its lock position indicator is one of its most compelling features, as it makes it possible to easily see whether the cylinder is in the "open" or "closed" position. In addition, the PHZ-A handle can be quickly fitted without having to remove the CS wall-mount enclosures' standard lock, avoiding the use of locking rotary levers that require time-consuming installation procedures.

7 Door profile molding

Door profile rail with perforations every 25 mm. For mounting DIN rails or securing conduits and cables. Precise-fit mounting brackets for door profile rails, used to secure cable ducts without having to drill any holes.

8 Accessories

Rational additional equipment for versatile use of the wall-mounted enclosures CS.

Depth adjustment sections for vertically adjustable mounting plates

(Accessories)

Equipment supplied

- Mounting plate with fixing material
- Flange plate with installation material
- Hermetic plugs for closure of the wall mounting holes
- Fixing material for protective earth connection
- 1 key

9 Hinge pin with quick-change technology

The new hinge pins with Quick Change technology enable users to quickly hinge the door left or right, as each metal pin can be easily removed without any tools, preventing damage to the door gasket.

10 Flange plates

The large gland plate openings provide electricians and technicians with greater flexibility. In addition, the flange plates' foamed-in-place gasket does away with long installation times, as it eliminates the need for users to glue foam rubber gaskets in place. Moreover, both gland plates and mounting plates are automatically incorporated into the enclosures' grounding system, eliminating the need for additional protective earth connection. As a special service, Eaton also offers individual solutions tailored to customer specifications.

11 Mounting plate

The three millimeter-thick mounting plate, which is made of galvanized sheet steel, ensures that switchgear can be safely and securely installed and provides basic EMC protection. The two millimeter-thick mounting plate, which is used in the series' small enclosures, can also be inserted quickly and without tilting. In addition, it allows for switchgear to be safely and securely installed and provides basic EMC protection as well.



12 RAL 7035


Internal and external powder coated surface provides an abrasion and corrosion resistant protection (structured surface) in the color RAL 7035.



CS sheet steel wall-mounting enclosure







Wall-mounting housing CS



Moeller® series

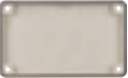

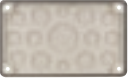





| | Dimensions | | | Locks | Door profile molding | Flange plates | | Mounting plates | | Part no. Article no. |
|--|--------------|-------------|-------------|--------|----------------------|---------------|-------------|-----------------|----------------------------|------------------------------|
| | Height mm | Width mm | Depth mm | Number | Number | Width mm | Depth mm | Height mm | Width mm | |
| Wall-mounting housing with mounting plate | | | | | | | | | | |
| Degree of Protection IP66 IP23 (with ventilating plates) Foamed polyurethane sealing throughout. Impact resistance category IK09 to EN 62262. Sheet steel mounting plate Bottom plate with foamed gasket. Single door, door stop on the right, door opening angle 120° Door hinge pins with quick change technology. Standardized locking system with sash fastener. Powder coating RAL 7035 inside and outside | | | | | | | | | | |
|  | 250 | 200 | 150 | 1 | 1 | 112 | 182 | 220 | 150 | CS-2520/150 111646 |
| | 300 | 200 | 150 | 1 | 1 | 112 | 182 | 270 | 150 | CS-32/150 111647 |
| | 300 | 300 | 150 | 1 | 2 | 112 | 232 | 270 | 250 | CS-33/150 111648 |
| | 300 | 300 | 200 | 1 | 2 | 172 | 262 | 270 | 250 | CS-33/200 111649 |
| | 300 | 400 | 200 | 1 | 2 | 172 | 332 | 270 | 350 | CS-34/200 111680 |
| | 400 | 300 | 150 | 1 | 2 | 112 | 232 | 370 | 250 | CS-43/150 111681 |
| | 400 | 300 | 200 | 1 | 2 | 172 | 262 | 370 | 250 | CS-43/200 111682 |
| | 400 | 400 | 150 | 1 | 2 | 112 | 332 | 370 | 350 | CS-44/150 111683 |
| | 400 | 400 | 200 | 1 | 2 | 172 | 332 | 370 | 350 | CS-44/200 111684 |
| | 400 | 600 | 200 | 1 | 2 | 172 | 532 | 370 | 550 | CS-46/200 111685 |
| 400 | 600 | 250 | 1 | 2 | 172 | 532 | 370 | 550 | CS-46/250 111686 | |
| 400 | 600 | 300 | 1 | 2 | 172 | 532 | 370 | 550 | CS-46/300 111687 | |
|  | 500 | 400 | 150 | 2 | 2 | 112 | 332 | 470 | 350 | CS-54/150 111688 |
| | 500 | 400 | 200 | 2 | 2 | 172 | 332 | 470 | 350 | CS-54/200 111689 |
| | 500 | 400 | 250 | 2 | 2 | 172 | 332 | 470 | 350 | CS-54/250 111690 |
| | 500 | 500 | 250 | 2 | 2 | 172 | 432 | 470 | 450 | CS-55/250 111691 |
| | 600 | 400 | 150 | 2 | 2 | 112 | 332 | 570 | 350 | CS-64/150 111692 |
| | 600 | 400 | 200 | 2 | 2 | 172 | 332 | 570 | 350 | CS-64/200 111693 |
| | 600 | 400 | 250 | 2 | 2 | 172 | 332 | 570 | 350 | CS-64/250 111694 |
| | 600 | 500 | 150 | 2 | 2 | 112 | 332 | 570 | 450 | CS-65/150 111695 |
| | 600 | 500 | 200 | 2 | 2 | 172 | 432 | 570 | 450 | CS-65/200 111696 |
| | 600 | 500 | 250 | 2 | 2 | 172 | 432 | 570 | 450 | CS-65/250 111697 |
| | 600 | 600 | 200 | 2 | 2 | 172 | 532 | 570 | 550 | CS-66/200 111698 |
| | 600 | 600 | 250 | 2 | 2 | 172 | 532 | 570 | 550 | CS-66/250 111699 |
| | 600 | 600 | 300 | 2 | 2 | 172 | 532 | 570 | 550 | CS-66/300 111700 |
| | 600 | 800 | 300 | 2 | 2 | 172 | 732 | 570 | 750 | CS-68/300 111701 |
| | 700 | 500 | 200 | 2 | 2 | 172 | 432 | 670 | 450 | CS-75/200 111702 |
| | 700 | 500 | 250 | 2 | 2 | 172 | 432 | 670 | 450 | CS-75/250 111703 |
| 800 | 400 | 200 | 2 | 2 | 172 | 332 | 770 | 350 | CS-84/200 111704 | |
| 800 | 400 | 250 | 2 | 2 | 172 | 332 | 770 | 350 | CS-84/250 111705 | |

| | Dimensions | | | Locks | Door profile molding | Flange plates | | Mounting plates | | Part no. Article no. |
|--|--------------|-------------|-------------|-------------|----------------------|---------------|-------------|-----------------|-------------|------------------------------|
| | Height mm | Width mm | Depth mm | Number | Number | Width mm | Depth mm | Height mm | Width mm | |
| Wall-mounting housing with mounting plate | | | | | | | | | | |
| | 800 | 600 | 200 | 2 | 2 | 172 | 532 | 770 | 550 | CS-86/200 111706 |
| | 800 | 600 | 250 | 2 | 2 | 172 | 532 | 770 | 550 | CS-86/250 111707 |
| | 800 | 600 | 300 | 2 | 2 | 172 | 532 | 770 | 550 | CS-86/300 111708 |
| | 800 | 800 | 200 | 2 | 2 | 172 | 732 | 770 | 750 | CS-88/200 111709 |
| | 800 | 800 | 300 | 2 | 2 | 172 | 732 | 770 | 750 | CS-88/300 111710 |
| | 800 | 1000 | 300 | 2 | 2 | 172 | 932 | 770 | 950 | CS-810/300 111711 |
|  | 1000 | 600 | 250 | 1 (3-point) | 2 | 172 | 532 | 970 | 550 | CS-106/250 111712 |
| | 1000 | 600 | 300 | 1 (3-point) | 2 | 172 | 532 | 970 | 550 | CS-106/300 111713 |
| | 1000 | 800 | 250 | 1 (3-point) | 2 | 172 | 732 | 970 | 750 | CS-108/250 111714 |
| | 1000 | 800 | 300 | 1 (3-point) | 2 | 172 | 732 | 970 | 750 | CS-108/300 111715 |
| | 1000 | 1000 | 300 | 1 (3-point) | 2 | 172 | 932 | 970 | 950 | CS-1010/300 111716 |
| | 1200 | 600 | 250 | 1 (3-point) | 2 | 172 | 532 | 1170 | 550 | CS-126/250 111717 |
| | 1200 | 800 | 300 | 1 (3-point) | 2 | 172 | 732 | 1170 | 750 | CS-128/300 111718 |
| | 1200 | 1000 | 300 | 1 (3-point) | 2 | 172 | 932 | 1170 | 950 | CS-1210/300 111719 |
| | 1200 | 1200 | 250 | 1 (3-point) | 2 | 2 x 172 | 532 | 1170 | 1150 | CS-1212/250 111720 |

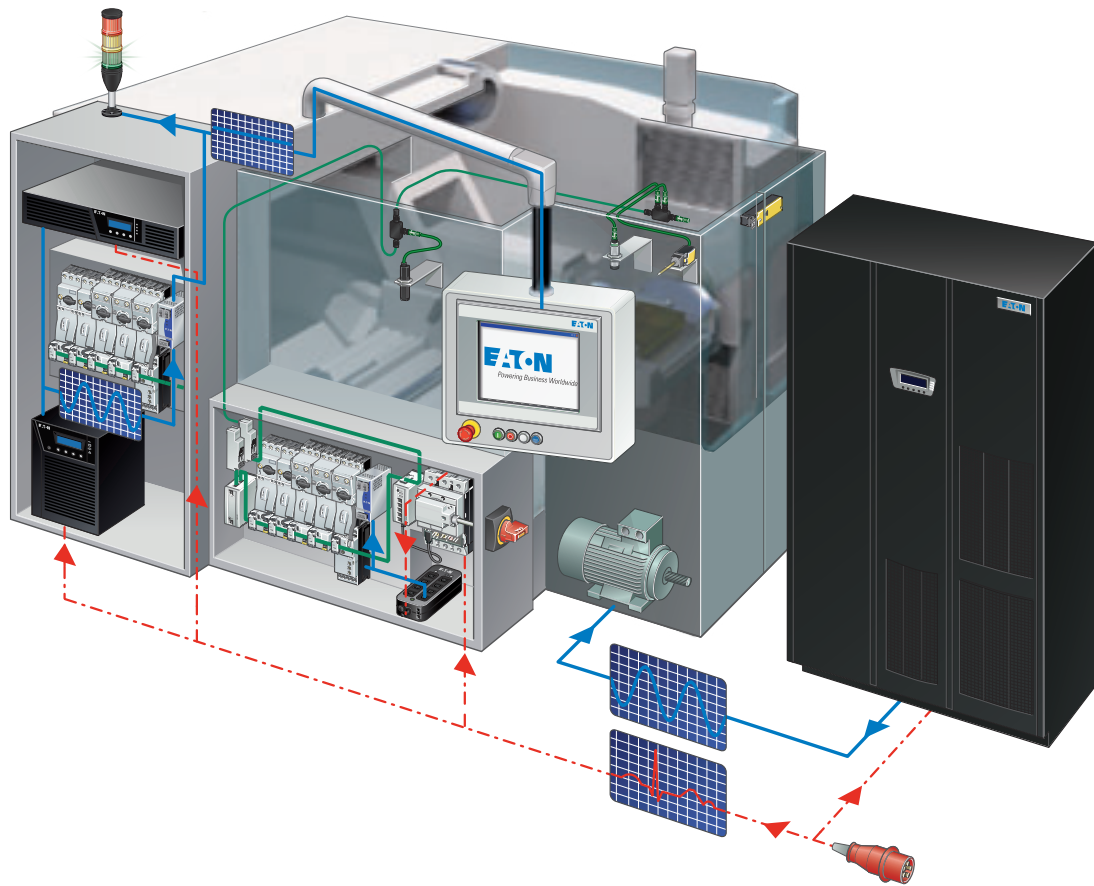
| | For use with enclosure Width mm | Depth mm | Part no. Article no. |
|---|---------------------------------------|-------------|---------------------------------|
| Mounting bars for door profile moldings/cable ducts | | | |
| For fitting to vertical door profiles For screwless mounting of cabling ducts KL... through snap fitting of cable duct covers on rear Fixing holes M6 spaced at 25 mm Steel plate Galvanized | | | |
|  | 300 | - | MTR-D3-CS 140530 |
| | 400 | - | MTR-D4-CS 140531 |
| | 500 | - | MTR-D5-CS 140532 |
| | 600 | - | MTR-D6-CS 140533 |
| | 800 | - | MTR-D8-CS 140534 |
| Depth adjustment elements | | | |
| Depth-adjustable in 25-mm-grid Steel plate Galvanized Including fixing sundries | | | |
|  | - | 150 | DAS-SET/150-CS 138656 |
| | - | 200 | DAS-SET/200-CS 138657 |
| | - | 250 | DAS-SET/250-CS 138658 |
| | - | 300 | DAS-SET/300-CS 138659 |

| Description | Part no. Article no. |
|---|--|
| <p>Wall fixing bracket set</p> <p>For fixing on the wall Vertical or horizontal mounting Sheet steel 3 mm, Galvanized One set contains 4 wall fixing brackets with fixing material and gasket IP66.</p> | |
|  | <p>WFB-SET-CS 112639</p> |
| <p>Comfort rotary handles</p> <p>Rotary handle for standardized cylinder locks Complete kit With built-in locked indication Suitable for all universal locks LC-... Handle made from high-grade, impact-resistant pressure-cast zinc For standardized door cut-outs 22.5 x 20.4 mm Colour dusty grey RAL 7037, with powder coating Order cylinder locks separately</p> | |
|  | <p>Complete kit, Cylinder lock</p> <p>PHZ-A-COMP 133105</p> |
|  | <p>Retrofitting kit, Cylinder lock</p> <p>PHZ-A-ADD-ON 133106</p> |
| <p>Cylinder locks for comfort handles</p> <p>For use with Comfort rotary and toggle handles Lock cylinder designed to DIN 18252 and DIN EN 1303 Cylinder lock 10/30 with nickel silver tumblers Lock bit with eight adjustment positions, five pin pairs</p> | |
|  | <p>Common locking</p> <p>PHZ-E10/30-GS 138574</p> |
|  | <p>Individual keys</p> <p>PHZ-E10/30-VS 138575</p> |
| <p>Spare key for cylinder lock</p> <p>PHZ-E...-GS cylinder locks</p> | |
|  | <p>Common locking, Cylinder lock</p> <p>KEY-E10/30-GS 138576</p> |

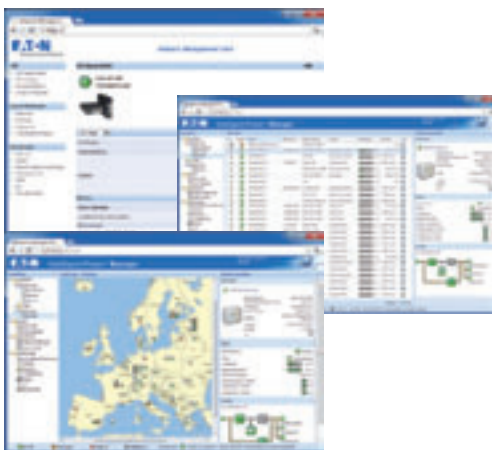
| | For use with enclosure | | Flange apertures | Part no. | Article no. |
|--|------------------------|-------------|------------------|--------------------------|-------------|
| | Width mm | Depth mm | Number | | |
| Bottom plates with flange apertures | | | | | |
| For flange F3A Usable as a roof plate by turning the enclosure through 180° Not suitable for enclosure CS-.../150 Material: Steel plate Surface finish: With powder coating RAL 7035 | | | | | |
|  | 300 | - | 1 | AFP-3-CS | 112914 |
| | 400 | - | 1 | AFP-4-CS | 112915 |
| | 500 | - | 1 | AFP-5-CS | 112916 |
| | 600 | - | 2 | AFP-6-CS | 112917 |
| | 800 | - | 3 | AFP-8-CS | 112918 |
| | 1000 | - | 3 | AFP-10-CS | 112919 |
| | 1200 | - | 2 x 2 | AFP-12-CS | 112920 |
| Cable marshalling bases | | | | | |
| Height 200 mm Steel plate Powder-spray painted RAL 7035 Front and side walls removable Including fixing sundries | | | | | |
|  | 600 | 250 | - | PLI-6/250-200-CS | 140472 |
| | 600 | 300 | - | PLI-6/300-200-CS | 140473 |
| | 800 | 250 | - | PLI-8/250-200-CS | 140474 |
| | 800 | 300 | - | PLI-8/300-200-CS | 140475 |
| | 1000 | 300 | - | PLI-10/300-200-CS | 140476 |
| | 1200 | 250 | - | PLI-12/250-200-CS | 140477 |

| | Material | Description | Cable entry | Part no. | Article no. |
|---|---------------------|--|---|----------------|-------------|
| Flanges | | | | | |
|  | Insulating material | Blank plate | - | F3A-0 | 074182 |
|  | Insulating material | With metric cable entry knockouts | 6 x M25/16; 8 x M32/20, 4 x M16 | F3A-4 | 081301 |
|  | Insulating material | With metric cable entry knockouts | 2 x M20 8 x M25/16 4 x M32/20 1 x M50/32 | F3A-8 | 091468 |
|  | Insulating material | With metric cable entry knockouts | 12 x M20, 2 x M16 2 x M40/25 2 x M50/32 | F3A-12 | 076555 |
|  | Insulating material | With metric cable entry knockouts | 24 x M16 13 x M20 | F3A-34 | 078928 |
|  | Insulating material | With cable grommets | 2 cables up to 70 mm Ø | F3A-KTD | 083674 |
|  | Insulating material | Sponge-rubber flange | 40 cables, 10 – 13 mm Ø 4 cables, 17 – 21 mm Ø 2 cables, 27 - 30 mm Ø | F3A-D | 010145 |
|  | Steel plate | Blank plate 2 mm, with powder coating RAL 7035, sponge-rubbered gasket | - | F3A-XP | 113426 |

Build it in.



Backup power solutions for machines and production lines



Intelligent Power Software helps monitor, manage and gracefully shut down UPSs remotely. Visit www.eaton.eu/intelligentpower to view demos and download software

Eaton's Uninterruptible Power Supplies (UPS) help you minimise production downtime and data loss caused by voltage dips, power outages or surges, minimising ramp-up times and related costs. Our UPSs also contribute to the continuous operation of all critical operational safety systems.

High productivity and availability of machinery as well as energy monitoring and reduction requirements are key priorities. Our broad range of machine level power quality and energy management products and solutions help machine operators' track, manage and secure power safely and efficiently.



Safe and reliable manufacturing with Eaton

Production reliability

- Prevent downtimes
- Reduce start-up times

Employee protection

- Keep safety functions and circuit breakers running
- Increase operational machine safety

Machine Safeguarding

- Protect sensitive electronic assembly parts from power outages and “dirty” power

Product protection

- Keep cooling and refrigeration systems running while you start your backup generators

Environmental protection

- Improve effectiveness and save energy
- The growing use of renewable energies means that mains power is likely to become less stable in the future. Eaton UPS systems not only “clean” voltage and improve its quality, but also supply power instantaneously in the event of a power failure.

Building protection


- Keep safety systems going, e.g., process monitoring at anaerobic digestion plants and building monitoring systems

Data security

- Prevent data loss caused by power failures
- low operating cost → high efficiency







For more information about Eaton power quality products and solutions, visit www.eaton.eu/powerquality.

| Power problem | Type of UPS | Topology | Product details |
|--------------------------------------|--|------------------|---|
| Power outage | Series 3 single-phase UPSs | Offline | <ul style="list-style-type: none"> • Cost-effective • Compact design • Plug with protective contact (SCHUKO) • Replaceable batteries • 500 – 1600 VA |
| Voltage dip | | | |
| Overvoltage peaks | | | |
| Secondary voltage (voltage drop) | Series 5 single-phase UPSs | Line Interactive | <ul style="list-style-type: none"> • Extremely compact design • Graphic LCD display • Measures energy consumption • Efficiency of up to 99% • Replaceable batteries • 500 – 3000 VA |
| Overvoltage | | | |
| Electrical interference signals | Series 9 single-phase and three-phase UPSs | Online | <ul style="list-style-type: none"> • Maximum voltage protection • Multi-language graphic display • Remote monitoring • 700 VA–1200 kVA |
| Frequency instability | | | |
| Peaks caused by switching operations | | | |
| Harmonic distortion (harmonics) | | | |






Uninterruptible Power Supply (UPS)






Single phase UPS

| | UPS rating VA | UPS rating W | Input connections Type | Output connections (Quantity) Type | Article no. |
|--|------------------|-----------------|---------------------------|---------------------------------------|----------------|
| Eaton 5P Line Interactive UPS | | | | | |
| Communication: USB, serial port, slot for optional management card Remote power off, remote on/off Output signal: 3 optocouplers | | | | | |
|  | 650 | 420 | IEC320 10 A | (4) IEC320 10 A | 5P650i |
| | 850 | 600 | | (6) IEC320 10 A | 5P850i |
| | 1150 | 770 | | (8) IEC320 10 A | 5P1150i |
| | 1550 | 1100 | | | 5P1550i |
|  | 650 | 420 | IEC320 10 A | (4) IEC320 10 A | 5P650iR |
| | 850 | 600 | | | 5P850iR |
| | 1150 | 770 | | (6) IEC320 10 A | 5P1150iR |
| | 1550 | 1100 | | | 5P1550iR |
| Eaton 5PX Line Interactive UPS | | | | | |
| Communication: USB, serial port, slot for optional management card (network management card included with 5PX3000iRTN) Remote power off, remote on/off Output signal: 3 optocouplers | | | | | |
|  | 1500 | 1350 | IEC320 10 A | (8) IEC320 10 A | 5PX1500iRT |
| | 2200 | 1980 | IEC320 16 A | (8) IEC320 10 A, (1) IEC320 16 A | 5PX2200iRT |
| | 3000 | 2700 | | | 5PX3000iRTN |
|  | 3000 | 2700 | IEC320 16 A | (8) IEC320 10 A, (1) IEC320 16 A | 5PX3000iRT3U |
| | | | | | |
| Eaton 9130 Online Double Conversion UPS | | | | | |
| Communication: USB, serial port, slot for optional management card Remote power off Output signal: 2 optocouplers, 1 relay Input signal: 1 configurable (on DB9 port) | | | | | |
|  | 700 | 630 | IEC320 10 A | (6) IEC320 10 A | 103006433-6591 |
| | 1000 | 900 | | | 103006434-6591 |
| | 1500 | 1350 | | | 103006435-6591 |
| | 2000 | 1800 | IEC320 16 A | (8) IEC320 10 A, (1) IEC320 16 A | 103006436-6591 |
| | 3000 | 2700 | | | 103006437-6591 |
| | 5000 | 4500 | | | Hard-wired |
| 6000 | 5400 | 103007842-6591 | | | |
|  | 1000 | 900 | IEC320 10 A | (6) IEC320 10 A | 103006455-6591 |
| | 1500 | 1350 | | | 103006456-6591 |
| | 2000 | 1800 | IEC320 16 A | (8) IEC320 10 A, (1) IEC320 16 A | 103006457-6591 |
| | 3000 | 2700 | | | 103006463-6591 |

Uninterruptible Power Supply (UPS)




Single phase UPS, Three phase UPS

| | UPS rating VA | UPS rating W | Input connections Type | Output connections (Quantity) Type | Article no. |
|---|------------------|-----------------|---------------------------|--|-------------|
| Eaton 9PX Online Double Conversion UPS | | | | | |
| Communication: USB, serial port, slot for optional management card Remote power off, remote on/off Output signal: 4 relays Maintenance bypass switch | | | | | |
| 1:1 topology | | | | | |
|  | 5000 | 4500 | Hard-wired | (3) IEC320 10 A, (2) IEC320 16 A, hard-wired | 9PX5KiBP |
| | 6000 | 5400 | | | 9PX6KiBP |
| 1:1 topology | | | | | |
|  | 8000 | 7200 | Hard-wired | (4) IEC320 16 A, hard-wired | 9PX8KiBP |
| | 11000 | 10000 | | | 9PX11KiBP |
| 3:1 topology | | | | | |
|  | 6000 | 5400 | Hard-wired | (4) IEC320 16 A, hard-wired | 9PX6KiBP31 |
| | 8000 | 7200 | | | 9PX8KiBP31 |
| | 11000 | 10000 | | | 9PX11KiBP31 |

| | UPS rating VA | UPS rating W | Battery equipment Quantity (blocks or strings), capacity | Article no. | Part no. |
|---|------------------|-----------------|---|-------------------------|----------|
| Eaton 9155 Online UPS, 8-30 kVA | | | | | |
| Input connection: 3 phases, output connection: 1 phase With standard batteries and maintenance bypass switch | | | | | |
|  | 8000 | 7200 | 32 x 7 Ah | 9155-8-N-10-32x7Ah-MBS | 1022507 |
| | | | 32 x 9 Ah | 9155-8-N-15-32x9Ah-MBS | 1022508 |
| | | | 64 x 7 Ah | 9155-8-N-28-64x7Ah-MBS | 1022509 |
| | | | 64 x 9 Ah | 9155-8-N-33-64x9Ah-MBS | 1022510 |
|  | 10000 | 9000 | 32 x 7 Ah | 9155-10-N-6-32x7Ah-MBS | 1022467 |
| | | | 32 x 9 Ah | 9155-10-N-10-32x9Ah-MBS | 1022511 |
| | | | 64 x 7 Ah | 9155-10-N-20-64x7Ah-MBS | 1022512 |
| | | | 64 x 9 Ah | 9155-10-N-26-64x9Ah-MBS | 1022513 |
|  | 15000 | 13500 | 32 x 9 Ah | 9155-15-N-5-32x9Ah-MBS | 1022517 |
| | | | 64 x 7 Ah | 9155-15-N-10-64x7Ah-MBS | 1022518 |
| | | | 64 x 9 Ah | 9155-15-N-15-64x9Ah-MBS | 1022519 |
|  | 20000 | 18000 | 1 x 9 Ah | 9155-20-N-5-1x9Ah-MBS | 1026598 |
| | | | 2 x 9 Ah | 9155-20-N-13-2x9Ah-MBS | 1026599 |
| | | | 3 x 9 Ah | 9155-20-N-22-3x9Ah-MBS | 1026600 |
| | | | 4 x 9 Ah | 9155-20-N-31-4x9Ah-MBS | 1026601 |
|  | 30000 | 27000 | 2 x 9 Ah | 9155-30-N-7-2x9Ah-MBS | 1026602 |
| | | | 3 x 9 Ah | 9155-30-N-13-3x9Ah-MBS | 1026603 |
| | | | 4 x 9 Ah | 9155-30-N-20-4x9Ah-MBS | 1026604 |



Uninterruptible Power Supply (UPS)

Three phase UPS

| | UPS rating kVA | UPS rating kW | Maintenance bypass switch | Input switch | With internal batteries | Battery breaker | Article no. | Part no. |
|---|-------------------|------------------|------------------------------|--------------|----------------------------|--------------------|-------------------------------|---------------------------|
| Eaton 93E Online UPS, 15-80 kVA | | | | | | | | |
| Input connection: 3 phases, output connection: 3 phases With standard maintenance bypass switch and optional batteries | | | | | | | | |
|  | 15 | 13.5 | ✓ | ✓ | - | - | 93E 15 kVA battery kit | 93E15KMBSB |
| | | | ✓ | ✓ | ✓ | - | 93E 15 kVA 2 x 9 Ah batteries | 93E15KMBSBI |
| | 20 | 18 | ✓ | ✓ | - | - | 93E 20 kVA battery kit | 93E20KMBSB |
| | | | ✓ | ✓ | ✓ | - | 93E 20 kVA 2 x 9 Ah batteries | 93E20KMBSBI |
| | 30 | 27 | ✓ | ✓ | - | - | 93E 30 kVA battery kit | 93E30KMBSB |
| | | | ✓ | ✓ | ✓ | - | 93E 30 kVA 3 x 9 Ah batteries | 93E30KMBSBI |
| | 40 | 36 | ✓ | ✓ | - | - | 93E 40 kVA battery kit | 93E40KMBSB |
| | | | ✓ | ✓ | ✓ | - | 93E 40 kVA 4 x 9 Ah batteries | 93E40KMBSBI |
| | 60 | 54 | ✓ | ✓ | - | - | 93E 60 kVA | 93E60KMBSN |
| | 80 | 72 | ✓ | ✓ | - | - | 93E 80 kVA | 93E80KMBSN |
| Eaton 93E Online UPS, 100-200 kVA | | | | | | | | |
|  | 100 | 90 | - | - | - | - | 93E-100kVA | 93E100K |
| | 100 | 90 | ✓ | ✓ | - | - | 93E-100kVA-MBS | 93E100KMBS |
| | 120 | 108 | - | - | - | - | 93E-120kVA | 93E120K |
| | 120 | 108 | ✓ | ✓ | - | - | 93E-120kVA-MBS | 93E120KMBS |
| | 160 | 144 | - | - | - | - | 93E-160kVA | 93E160K |
| | 200 | 180 | - | - | - | - | 93E-200kVA | 93E200K |
| Eaton 93PS Online UPS, 8-40 kVA | | | | | | | | |
|  | 8 | 8 | - | ✓ | - | ✓ | 93PS-8(20)-20-0-6 | BA80A0206A01000000 |
| | 8 | 8 | - | ✓ | ✓ | ✓ | 93PS-8(20)-20-2x9Ah-6 | BA80AB206A01000000 |
| | 8 | 8 | ✓ | ✓ | - | ✓ | 93PS-8(20)-20-0-MBS-6 | BA80A0306A01000000 |
| | 8 | 8 | ✓ | ✓ | ✓ | ✓ | 93PS-8(20)-20-2x9Ah-MBS-6 | BA80AB306A01000000 |
| | 10 | 10 | - | ✓ | - | ✓ | 93PS-10(20)-20-0-6 | BA01A0206A01000000 |
| | 10 | 10 | - | ✓ | ✓ | ✓ | 93PS-10(20)-20-2x9Ah-6 | BA01AB206A01000000 |
| | 10 | 10 | ✓ | ✓ | - | ✓ | 93PS-10(20)-20-0-MBS-6 | BA01A0306A01000000 |
| | 10 | 10 | ✓ | ✓ | ✓ | ✓ | 93PS-10(20)-20-2x9Ah-MBS-6 | BA01AB306A01000000 |
| | 15 | 15 | - | ✓ | - | ✓ | 93PS-15(20)-20-0-6 | BA51A0206A01000000 |
| | 15 | 15 | - | ✓ | ✓ | ✓ | 93PS-15(20)-20-2x9Ah-6 | BA51AB206A01000000 |
| | 15 | 15 | ✓ | ✓ | - | ✓ | 93PS-15(20)-20-0-MBS-6 | BA51A0306A01000000 |
| | 15 | 15 | ✓ | ✓ | ✓ | ✓ | 93PS-15(20)-20-2x9Ah-MBS-6 | BA51AB306A01000000 |
| | 20 | 20 | - | ✓ | - | ✓ | 93PS-20(20)-20-0-6 | BA02A0206A01000000 |
| | 20 | 20 | - | ✓ | ✓ | ✓ | 93PS-20(20)-20-2x9Ah-6 | BA02AB206A01000000 |
| | 20 | 20 | ✓ | ✓ | - | ✓ | 93PS-20(20)-20-0-MBS-6 | BA02A0306A01000000 |
| | 20 | 20 | ✓ | ✓ | ✓ | ✓ | 93PS-20(20)-20-2x9Ah-MBS-6 | BA02AB306A01000000 |
| | 30 | 30 | - | ✓ | - | ✓ | 93PS-30(40)-40-0-6 | BD03A0206A01000000 |
| | 30 | 30 | - | ✓ | ✓ | ✓ | 93PS-30(40)-40-4x9Ah-6 | BD03AD206A01000000 |
| | 30 | 30 | ✓ | ✓ | - | ✓ | 93PS-30(40)-40-0-MBS-6 | BD03A0306A01000000 |
| | 30 | 30 | ✓ | ✓ | ✓ | ✓ | 93PS-30(40)-40-4x9Ah-MBS-6 | BD03AD306A01000000 |
| | 40 | 40 | - | ✓ | - | ✓ | 93PS-40(40)-40-0-6 | BD04A0206A01000000 |
| | 40 | 40 | - | ✓ | ✓ | ✓ | 93PS-40(40)-40-4x9Ah-6 | BD04AD206A01000000 |
| | 40 | 40 | ✓ | ✓ | - | ✓ | 93PS-40(40)-40-0-MBS-6 | BD04A0306A01000000 |
| | 40 | 40 | ✓ | ✓ | ✓ | ✓ | 93PS-40(40)-40-4x9Ah-MBS-6 | BD04AD306A01000000 |

Uninterruptible Power Supply (UPS)

Three phase UPS

| | UPS rating | UPS rating | Maintenance bypass switch | Input switch | With internal batteries | Battery breaker | Article no. | Part no. |
|---|------------|------------|------------------------------|--------------|-------------------------|-------------------------|--------------------------|-----------------|
| | kVA | kW | | | | | | |
| Eaton 93PM Online UPS, 30-200 kVA | | | | | | | | |
|  | 30 | 30 | - | ✓ | - | ✓ | 93PM-30(50)-BB-0 | P-105000007-001 |
| | 30 | 30 | - | ✓ | ✓ | ✓ | 93PM-30(50)-BB-6x9Ah | P-105000007-005 |
| | 30 | 30 | ✓ | ✓ | - | ✓ | 93PM-30(50)-MBS-BB-0 | P-105000007-009 |
| | 30 | 30 | ✓ | ✓ | ✓ | ✓ | 93PM-30(50)-MBS-BB-6x9Ah | P-105000007-013 |
| | 40 | 40 | - | ✓ | - | ✓ | 93PM-40(50)-BB-0 | P-105000007-016 |
| | 40 | 40 | - | ✓ | ✓ | ✓ | 93PM-40(50)-BB-6x9Ah | P-105000007-020 |
| | 40 | 40 | ✓ | ✓ | - | ✓ | 93PM-40(50)-MBS-BB-0 | P-105000007-024 |
| | 40 | 40 | ✓ | ✓ | ✓ | ✓ | 93PM-40(50)-MBS-BB-6x9Ah | P-105000007-028 |
| | 50 | 50 | - | ✓ | - | ✓ | 93PM-50(50)-BB-0 | P-105000007-031 |
| | 50 | 50 | - | ✓ | ✓ | ✓ | 93PM-50(50)-BB-6x9Ah | P-105000007-034 |
| | 50 | 50 | ✓ | ✓ | ✓ | ✓ | 93PM-50(50)-MBS-BB-6x9Ah | P-105000007-040 |
| | 50 | 50 | ✓ | ✓ | - | ✓ | 93PM-50(50)-MBS-BB-0 | P-105000007-037 |
| | 60 | 60 | - | ✓ | - | ✓ | 93PM-60(60)-BB-0 | P-105000043-001 |
| | 60 | 60 | - | ✓ | ✓ | ✓ | 93PM-60(60)-BB-6x9Ah | P-105000043-003 |
| | 60 | 60 | ✓ | ✓ | ✓ | ✓ | 93PM-60(60)-MBS-BB-6x9Ah | P-105000043-006 |
| | 60 | 60 | ✓ | ✓ | - | ✓ | 93PM-60(60)-MBS-BB-0 | P-105000043-004 |
| | 80 | 80 | - | - | - | - | 93PM-80(100) | P-105000011-005 |
| | 80 | 80 | ✓ | ✓ | - | - | 93PM-80(100)-IS-MBS | P-105000011-006 |
| | 80 | 80 | - | ✓ | - | ✓ | 93PM-80(100)-IS-BB | P-105000011-007 |
| | 80 | 80 | ✓ | ✓ | - | ✓ | 93PM-80(100)-IS-MBS-BB | P-105000011-008 |
| 100 | 100 | - | - | - | - | 93PM-100(100) | P-105000011-009 | |
| 100 | 100 | ✓ | ✓ | - | - | 93PM-100(100)-IS-MBS | P-105000011-010 | |
| 100 | 100 | - | ✓ | - | ✓ | 93PM-100(100)-IS-BB | P-105000011-011 | |
| 100 | 100 | ✓ | ✓ | - | ✓ | 93PM-100(100)-IS-MBS-BB | P-105000011-012 | |
| 120 | 120 | - | - | - | - | 93PM-120(150) | P-105000014-005 | |
| 120 | 120 | ✓ | ✓ | - | - | 93PM-120(150)-IS-MBS | P-105000014-006 | |
| 120 | 120 | - | ✓ | - | ✓ | 93PM-120(150)-IS-BB | P-105000014-007 | |
| 120 | 120 | ✓ | ✓ | - | ✓ | 93PM-120(150)-IS-MBS-BB | P-105000014-008 | |
| 150 | 150 | - | - | - | - | 93PM-150(150) | P-105000014-009 | |
| 150 | 150 | ✓ | ✓ | - | - | 93PM-150(150)-IS-MBS | P-105000014-010 | |
| 150 | 150 | - | ✓ | - | ✓ | 93PM-150(150)-IS-BB | P-105000014-011 | |
| 150 | 150 | ✓ | ✓ | - | ✓ | 93PM-150(150)-IS-MBS-BB | P-105000014-012 | |
| 160 | 160 | - | - | - | - | 93PM-160(200) | P-105000016-002 | |
| 200 | 200 | - | - | - | - | 93PM-200(200) | P-105000016-003 | |
| Power Xpert 9395P Online UPS, 250-1200 kVA | | | | | | | | |
|  | 250 | 250 | - | - | - | - | 9395P-300-250-U | P-105000046-001 |
| | 300 | 275 | - | - | - | - | 9395P-300 | P-105000047-001 |
| | 300 | 275 | ✓ | - | - | - | 9395P-300-MBS | P-105000047-005 |
| | 500 | 500 | - | - | - | - | 9395P-600-500-U | P-105000049-001 |
| | 600 | 550 | - | - | - | - | 9395P-600 | P-105000050-001 |
| | 750 | 750 | - | - | - | - | 9395P-900-750-U | P-105000056-001 |
| | 900 | 825 | - | - | - | - | 9395P-900 | P-105000057-001 |
| | 1000 | 1000 | - | - | - | - | 9395P-1200-1000-U | P-105000073-001 |
| | 1200 | 1100 | - | - | - | - | 9395P-1200 | P-105000074-001 |



Worldwide export of machines and plants

European machine and system building and worldwide exports are closely related. Even if you don't export your machines at present, you should be prepared for it in the future. Eaton provides switchgear and protective devices with all the essential approvals and certificates for machine and system building. In most countries around the world, conformity with international standards is the sole requirement for successful exports. This is because components in these locations are governed by compliance with well known and established IEC standards. In this respect, the European CE mark is not only the passport for exports within Europe but also far beyond its borders.



World market equipment for machine building

Nearly all the switchgear and protective devices of Eaton's Moeller® series are world market devices. Each product line thus carries all the approvals and certification marks required for worldwide use.

These product lines include those for

- Pilot devices, limit switches
- Contactors and various timing and special relays
- Motor-protective circuit breakers and relays
- Electronic components and systems.

With circuit breakers and switch-disconnectors, Eaton offers IEC devices for use in most countries in the world and NA devices with virtually the same dimensions and the same accessories for the North American market. This considerably simplifies device selection since the North American standards often involve the need for considerably different technical specifications.

Electrical engineering products and their applications are not harmonized internationally.



The greatest differences to the IEC world are in North America, i.e. the USA and Canada. For many newcomers to the export business, it is initially surprising to experience the very different approaches and solutions.

Special components, such as handles for main switches that can only be operated by the intentional switching of an

additional handle when the control panel door is opened, may sometimes be required for export to North America. Likewise, the European motor-protective circuit breaker is only accepted with an upstream protective device (e.g., a UL 248 fuse) or with larger clearances and creepage distances at the input terminals. Eaton is the competent partner of choice for export-related issues here.

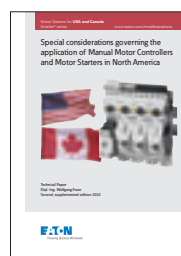
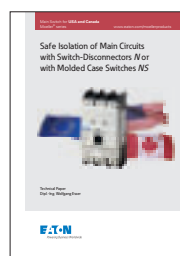
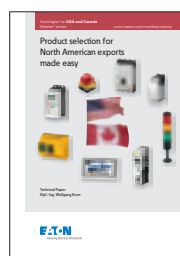
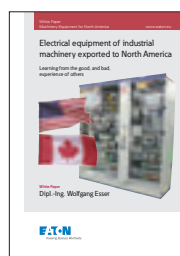
Qualified information is a critical key to success

| Insulated enclosure open above/below, HxWxD=296x236x150mm, NA type | | EATON | |
|---|---|---------------------------|--|
| Part no. | C22-125-NA | Article no. | 002234 |
| Delivery programme | | | |
| Product range | Insulated enclosures C for North America | Basic function | Basic enclosure |
| Product function | Distribution board enclosures for North America | Single unit/Complete unit | Single unit |
| Degree of Protection | IP65 | Description | Front with removable smooth flanges on all 4 sides Flange areas for wall fixing Sealable cover fasteners |
| Type cover | Transparent | Surface finish | RAL 9002 Silver |
| Dimensions | | | |
| Width | mm | 234 | |
| Height | mm | 296 | |
| Depth | mm | 150 | |
| Mounting depth | mm | 125 | |
| Model base | Enclosure side plates with flanges | | |
| Model base | Enclosure side plates with removable smooth flanges | | |
| Approvals | | | |
| Product Standards | UL 508A, CSA C22.2 No.94, IEC/EN60529, CE marking | | |
| UL File No. | E54120, E337418 | | |
| UL Category Control No. | NITW | | |
| CSA File No. | 27130 | | |
| CSA Class No. | 3211-07 | | |
| North America Certification | UL listed, CSA certified | | |
| Specially designed for North America | Yes | | |
| Suitable for | Industrial Control Panels | | |
| Current Limiting Circuit-Breaker | No | | |
| Degree of Protection | IEC: IP65; UL/CSA Types 1, 12, 13, 4X, indoor only | | |
| Design verification as per IEC/EN 61439 | | | |
| Technique data for design verification | | | |
| Heat dissipation, at an ambient temperature of 20°C, data 1-20 degrees, calculated as per IEC 60909 | | | |
| Individual enclosure for wall mounting | Pv | CO | 12 |
| Storing enclosure for wall mounting | Pv | CO | 11 |
| Mobile enclosure for wall mounting | Pv | CO | 10 |
| Heat dissipation, at an ambient temperature of 20°C, data 1-20 degrees, calculated as per IEC 60909 | | | |
| Individual enclosure for wall mounting | Pv | CO | 24 |

For reliable information concerning the approval of components for export to North America, please refer to the Eaton online catalog. The catalog provides the following information for each product: the applicable product standard, the E-File Number, the Category Control Number, or the CSA Class Number. You can incorporate this information into your bills of materials and documentation in order to be well prepared for all relevant acceptance procedures.

| Approvals | |
|--------------------------------------|--|
| Product Standards | UL 508A; CSA C22.2 No.94; IEC/EN60529; CE marking |
| UL File No. | E54120, E337418 |
| UL Category Control No. | NITW |
| CSA File No. | 27130 |
| CSA Class No. | 3211-07 |
| North America Certification | UL listed, CSA certified |
| Specially designed for North America | Yes |
| Suitable for | Industrial Control Panels |
| Current Limiting Circuit-Breaker | No |
| Degree of Protection | IEC: IP65; UL/CSA Types 1, 12, 13, 4X, indoor only |

Up to 13 data items are listed here for each product, such as the suitability for use in feeders or branch circuits, the maximum operating voltage, or the North American degree of protection, such as UL / CSA Type 4X.



The link <http://applications.eaton.eu> shows the relevant approvals or permits for each component type. This therefore enables you to view the certificates provided or, depending on the test authority, also the product report. The information given is the same as what is provided in the databases of the authorities.

Anyone wishing to avoid unfortunate experiences, should make use beforehand of the large number of publications that Eaton is offering on the issue of exports to North America. They contain the implementation of the codes & standards and a description of different practices.

These technical articles can be accessed via <http://www.eaton.eu/publications>. They can be downloaded free of charge.

All-around service for your machine control systems

Powering Business: For Eaton, this promise means more than just providing reliable products and technologies. It means using our support expertise and services to provide you with an engineering solution that is perfectly tailored to your own specific needs. Or, put more simply, turnkey solutions designed to drive your success.

Engineering for your machine control systems

From the initial idea to bringing your application to life – Eaton will accompany you through every step involved in developing your machine, providing unparalleled support all throughout. The Lean Solution expert's know-how, combined with the innovation of Eaton products, ensures that you will be able to take advantage of our engineering edge to establish a solid competitive advantage on the market.

Eaton will not only help you select products, but will also provide advice concerning your machine's electrical and hydraulic design and be there for you every step of the way while you implement your applications and programs and commission your system. By combining these services with Eaton components, you can rest assured knowing that your needs will be fully met.

Enabling businesses to successfully export their products to North America

Our long business partnership with SAE Schaltanlagenbau Erfurt, which has the required certifications for building control panels for export to North America, enables us to provide our customers with solutions that are ideal for use in that region. In addition to our products and to the production of control panels built in accordance with UL 508A and NFPA 79, Eaton's and SAE's range of services includes workshops designed to provide the special know-how required to successfully export electrical equipment to North America.



Our Service, Your Benefit

- Warehouse processes, inventory & supply chain will be optimized
- Focus on core competencies
- Reduction of resources and investments
- Reduction of assembly costs & time
- Failure reduction via correct product combinations
- Less packaging waste

VAS-EMEA@eaton.com



Increased efficiency means eliminating unnecessary work. This can be particularly valuable to logistics operations, where valuable time is often lost due to unnecessary operator intervention. By using our value-added services, you can streamline the logistics processes in your company so that they will be as smooth and efficient as possible.

Intralogistics: We will supply you with products exactly as you need them – even unpacked in reusable transport containers if necessary. And if you use items assembled from multiple Eaton products, we will be more than glad to deliver them to you pre-assembled.

Production: We will package your goods exactly as you need – even if that means you need them in unusual configurations. And if you need to export those goods, we will make sure to deliver them in appropriate special packaging suitable for international shipping. We can, of course, add as well customer specific labels with your own item number system to the products.

Our service, your benefit:

- Harmonized logistics concepts
- Product range optimization for your warehouse
- Special packaging concepts
- Set delivery days as agreed
- Support with all questions concerning logistics
- Customer-oriented logistics reports
- Customs clearance
- Help with compliance screening (compliance with anti-terrorism regulations)
- Order management services in multiple languages every day from 7:00 AM to 8:00 PM
- Shipment tracking
- Returns management





To find the right contact person:

At Eaton, we believe that building and maintaining strong relationships with our customers is something that deserves our undivided attention.

This is why you can rest assured knowing that you will be able to count on us for every project from the very start. To find out whom to contact for your needs, please visit our website:

In just a few steps, we will get you the contact information for the person or team in charge of support for your specific industry in your region.

To find the right contact person anywhere in the world, visit:

→ www.eaton.eu/contact

Support and service for UPS systems and hydraulic system solutions

Building a strong relationship with you is of utmost importance to us. This is why you can count on us to quickly get your questions, requests, and suggestions to the relevant specialists. After all, your challenges are our challenges.

Questions regarding uninterrupted power supplies (UPS)?

Our Technical Service staff will be more than glad to assist you if you are experiencing any difficulties with an Eaton UPS, DC power supply system, or any other Power Quality product.

Our Technical Support staff is there to answer any questions you may have regarding our products.

To find the right contact person anywhere in the world, please visit

www.eaton.eu/contact

Questions regarding hydraulic system solutions?

Simply contact our customer service head office in Baden-Baden and our staff will be glad to put you in contact with a local contact person.

Customer Service:

Eaton Hydraulics Group
Dr.-Reckeweg-Straße 1
D-76532 Baden-Baden
Germany

Phone: +49 (0)7221 682 - 0

Fax: +49 (0)7221 682 - 788

E-mail: customersupportemea@eaton.com



Eatons after sales service

Eaton is known for its unparalleled after-sales support for all low-voltage switchgear, switchgear systems, and services. For more detailed information, as well as to view our terms and conditions, please visit www.eaton.eu/aftersales

Europe, Middle East, Africa24/7

Hotline

For immediate support please call +49 (0) 180 5 223822* (24/7). You will receive competent and fast, round the clock assistance, with unplanned machine and system stand stills, system malfunctions and device failures.

(* 0,14 Euro per minute from the Deutsche Telekom network AG)

Helpdesk

Eaton specialists: +49 (0) 228 602 3640 (Monday–Friday from 08:00–16:00 CET) or contact your local Eaton representative.

We offer extensive support from commissioning to application queries as well as in the area of fault analysis, which can also include remote diagnostics.

We can also offer you an individual consulting service contract which is tailor-made to suit your requirements. If you would like to communicate your service queries in writing, please use the following e-mail address:

AfterSalesEGBonn@eaton.com

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

We power businesses with reliable, efficient and safe electrical power management solutions. Combined with our personal service, support and bold thinking, we are answering tomorrow's needs today. Follow the charge with Eaton. **Visit eaton.eu.**

To contact an Eaton salesperson or local distributor/agent, please visit www.eaton.eu/electrical/customersupport

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