

Process Instrumentation



PROCESS CONTROL
MADE EASY

**Analytical Measurements,
Field Measurements, Process Controls,
and Corrosion Solutions**

Honeywell

5 Supervisory Software

Honeywell offers Supervisory Software to satisfy a wide range of requirements. These requirements can vary from monitor and control of a single process unit to a large scale process operation.

6-13 Smart Sensors and Analytical Instruments

Honeywell offers a broad line of advanced sensors and instruments for measuring pH, ORP, specific ions, conductivity, dissolved oxygen and others. Directline sensors and transmitters offer significant life cycle savings.

14-17 Field Instruments

Measuring pressures, temperatures, and flows effectively, accurately, and economically are the hallmarks of Honeywell field instruments. This comprehensive range of technically advanced field instruments, including innovative wireless transmitters, offers major advantages for improving your process, complying with regulations and attaining high-quality standards. In addition, the life-cycle costs of buying and maintaining these sturdy instruments are lower than other comparable products.

Honeywell instruments supply the precise field measurements that keep a process performing at its peak, producing high-quality products.

18-19 Controllers

Honeywell single and dual loop digital controllers and indicators provide precise control and indication of process variables with a wide choice of functionality. With Honeywell's complete line, we can offer a versatile solution for a variety of applications. All Honeywell controllers and indicators are highly reliable, easy to configure, flexible and versatile.

20 Programmers and Indicators

Digital control programmers perform pre-determined processing or testing schedules on a time-versus-set point program. Honeywell offers programmers that perform basic to complex recipes and feature universal inputs, and multi-channel models.

21-23 Recorders and Data Acquisition

Honeywell offers a comprehensive portfolio for all of your recording and data acquisition needs. Choose your format: strip chart, circular chart or paperless recorders for viewing, storing and managing your process data. In addition, Honeywell's powerful software suite provides networking capability and real time archiving.

24-25 Hybrid Control Solutions

The HC900 Hybrid Controller provides integrated loop and logic control for unit processes. Its separate operator interface, featuring a color LCD with an array of pre-formatted displays, is available in Type 12 and Type 4X models. Both models are available with a floppy drive for data storage. The HC900 features "Hybrid Control Designer," a Windows-based software tool for graphic configuration of control strategies using function blocks. The software also tightly integrates the unit's operator interface configuration to simplify display setup.

26 Electric Actuators

Honeywell's HercuLine® actuators are the perfect solution for applications that require high reliability, low installation and lifetime costs, and lower maintenance costs without sacrificing performance, accuracy and ease of use. The HercuLine Smart Actuator's added Enhanced Electronic Unit (EEU) makes it easier to set up and to monitor the health of the actuator for proactive maintenance planning.

27 Corrosion Solutions

Global process control industries spend an average of US\$50 billion a year on corrosion problems. Honeywell's corrosion solutions can reduce these costs by up to 20 percent.

“Honeywell designs versatile products that are easy to configure, easy to operate and easy to maintain.”

HONEYWELL'S NETWORKED SOLUTIONS



Many companies make controls, but only Honeywell is **the easy choice**.

If your application requires sensors, field instruments, actuators, controls, displays and communications, Honeywell, backed up by world-wide full-service stocking distributors, can provide off-the-shelf or customized solutions to automate your industrial process equipment. Think about it. Our solutions offer the value you're looking for today: Easy to own, easy to use and easy to startup and maintain.

That's what makes Honeywell **the easy choice**.

Your Strategic Supplier

Let's get right to the point. The bottom line is... you don't make controls. They're not your core competency, but they are an integral part of the performance of your system—they are "system critical." System critical measurement and control is our core competency. They're what we specialize in. As your strategic supplier, we will take the risk and high costs out of system critical measurement and control. You have enough things to worry about. We make sure your control system isn't one of them.

What do you expect from a supplier?

- Best total cost?
- Quality?
- Reliability?
- Delivery?
- Global support?

We could keep going, but we cover it all in our pledge to customers.

We take the risk and high costs out of system critical measurement and control.

You can trust Honeywell for:

- The right products for your application
- Delivered on time
- That work right the first time
- And every time
- Anywhere in the world

...Enough said.

Honeywell: The Total Package

The Total Package

Honeywell's comprehensive portfolio of measurement and control products, combined with our software solutions and open interfaces for data access, enable you to manage your plant assets and even optimize your enterprise by providing the bedrock system critical measurement, control and data acquisition. Whether you are responsible for one location or multiple locations, your process requires measurement, control and data acquisition. From the sensor to the actuator—and everything in between—we can help you to improve your quality and productivity and reduce total costs.

The elements of a total control solution. Networked or stand alone. We have them all.



Honeywell Instruments – Typical Applications

Thermal Processing

- Heat Treat Furnaces
- Ovens
- Incinerators
- Tunnel Kilns
- Vacuum Furnaces
- Lehrs
- Thermal Oxidizers

Pulp and Paper

- Pulping
- Digesters
- Chemical Injection
- Bleaching
- Web Control
- Head Box Control
- Specialty Papers

Chemicals

- Batch Reactors
- Distillation
- Blending
- Inventory Management

Power/Distributed Energy

- Combustion Control
- Drum Level Control
- Data Acquisition
- Emissions Monitoring
- Scrubbers
- Feedwater Control
- Water Treatment

Manufactured Goods

- Paint Drying Ovens
- Thermal Oxidizers
- Roller Hearths
- Autoclaves
- Environmental Chambers
- Boilers

Oil and Gas

- Production
- Transportation
- Custody Transfer
- Gas Plants

Pharmaceutical/Biotech

- Sterilizers
- Clean Room Monitoring
- Lyophilizers
- Animal Room Environmental Control
- Pilot Plants
- Fermenters

Water Treatment

- Clarification
- Flocculation
- Aeration
- Filtration
- Dewatering

Semiconductor

- Diffusion Furnaces
- High Purity Water
- De-Ionization
- Water Treatment
- Clean Room Monitoring

Refining

- Crude Delivery
- Catalytic Cracking
- Distillation
- Reforming
- Alkylation
- Tank Farm Management
- Tanker Car/Truck Loading

Food and Beverage

- Baking Ovens
- Retorts
- Freeze Dryers
- Distillation
- Clean in Place
- Sterilization
- Smokehouses
- Fermentation
- Off Gas/Flares

Supervisory & Configuration Software

Vista 400 Supervisory Control System

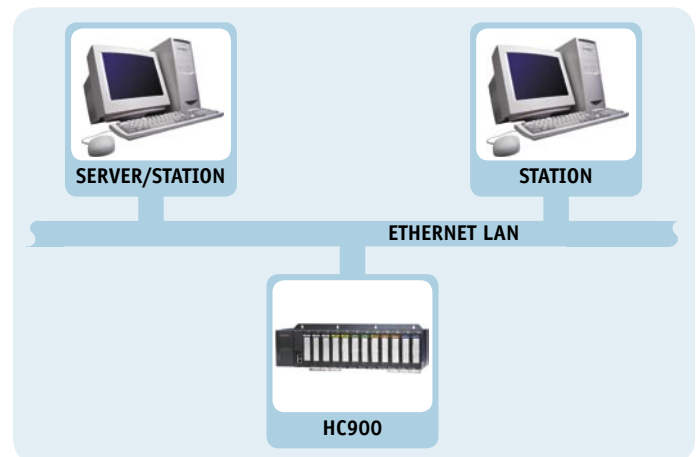
Vista 400 is a modular, flexible, supervisory control system that incorporates leading edge, open-system technologies. Vista 400 provides comprehensive facilities in an economical and easy-to-use package that integrates with a wide range of Honeywell and Third Party devices.

- Open client/server architecture
- Standard displays, HTML graphics, trending, batch reporting (option)
- Universal Modbus driver supports Honeywell devices using:
 - Uses familiar “acronyms” for database build, e.g., Tag1, Loop1 PV
- Standard SP Programmer/Recipe Interface for HC900
 - Support for Programmers 1 to 4 – display & edit
 - Storage and selection for 1000 recipes, profiles
 - SP Programmer trend display with SP profile pre-plot

TrendManager Pro

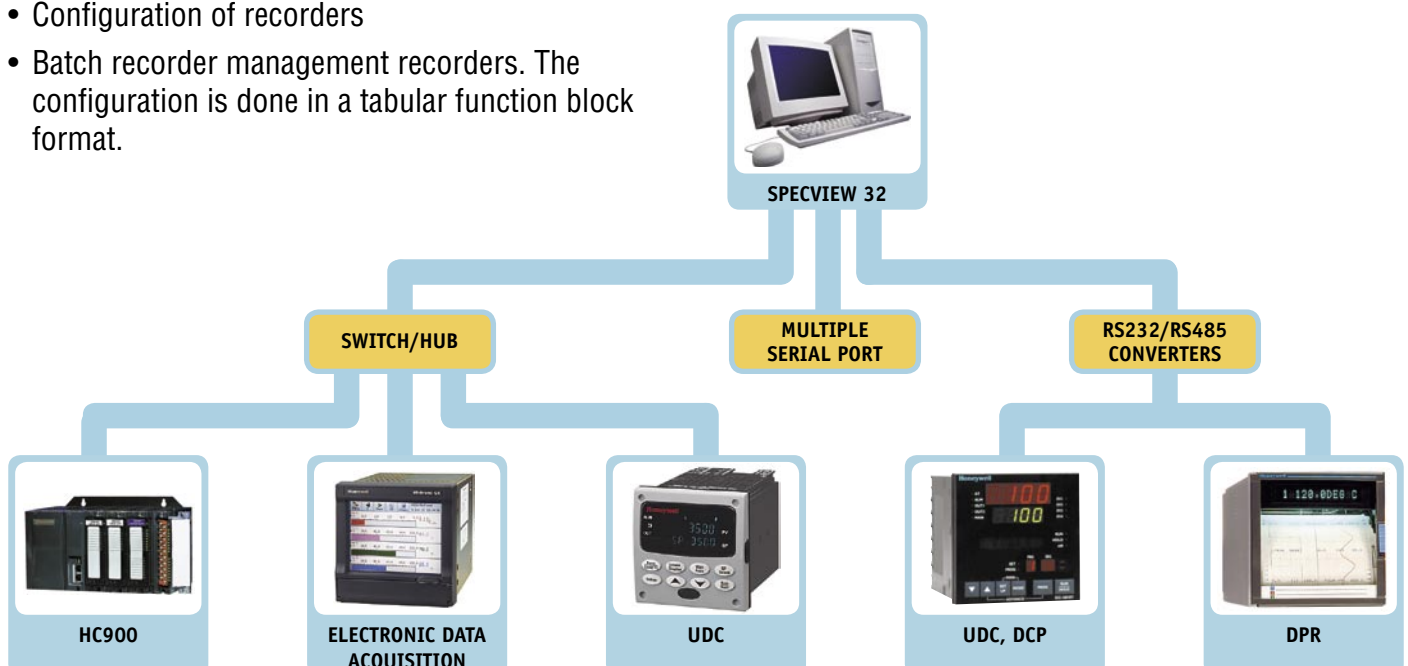
Industry leading PC based data analysis package that support:

- Importing data from any recorder
- Importing data from any Honeywell solutions such as DPR180, DPR250 and HC900 hybrid controller
- Archiving data
- Multi-level, multi-user passwords
- Graph, plot and export data across any recorder, pen or time frame
- Audit trails
- Configuration of recorders
- Batch recorder management recorders. The configuration is done in a tabular function block format.



SpecView 32 Centralized PC Software

SpecView 32 is a low cost, easy-to-use, centralized PC software that provides supervisory control, data acquisition, recipe management and batch reporting. SpecView 32 operates in all current Windows operating systems environments – 98, Me, NT, XP, and 2000. The optional OPC client capability allows easy linkage to other OPC server products. SpecView’s instrument view capability minimizes database creation for easy configuration.



The Most Versatile Multiple Input Analyzer

Get MORE value & performance . . .

- *Mix-n-Match process measurements*
- *Fast & Easy commissioning – even wireless configuration*
- *Entire status at a glance – graphic LED display*
- *Full global support of Honeywell Process Solutions*



UDA2182 Series Analyzers

The UDA2182 Series is a versatile, dual or single input analyzer that measures pH, ORP, contacting Conductivity and Dissolved Oxygen. The “mix-and-match” PWB design offers the user flexibility for a wide range of applications. Its common form, fit and function to older Honeywell analyzers make it a quick and easy retrofit into existing panels and installations.

- Single or dual input for pH, ORP, contacting Conductivity or Dissolved oxygen
- Dual input in any combination of measurements
- PID control option
- Up to 3 analog outputs
- Up to 4 alarm relays
- Backlit graphical LED display
- Nema 4X/IP66 case
- Infrared PC & Pocket PC configuration
- FM/CSA Class 1, Div 2 approval

pH input

The pH input will accept a wide variety of sensors – non-glass Durafet® and traditional glass Meredian® electrodes, ORP combination electrodes and the HPW700 high purity system. In addition to the basic unit the pH input has:

- Auto buffer Calibration
- High purity water solution compensation
- 0.2 sec update rate for fast responding Durafet pH electrodes

Conductivity input

The Conductivity input will accept signals from Honeywell’s standard selection of contacting conductivity cells. The Conductivity unit also has:

- Temperature compensation curves
- Calculation of % Rejection/Passage & Difference of two cells
- Conversions to ppm, ppb or ppt Total dissolved Solids (TDS)
- USP 26 alarm capability

Dissolved Oxygen input

The Dissolved Oxygen input is from Honeywell’s unique equilibrium probe. The Dissolved Oxygen unit has these additional features:

- ppm or ppb measurement
- Automatic or manual calibration
- ambient temperature & atmospheric pressure compensation

Honeywell designs versatile products that are easy to configure, easy to operate and easy to maintain.

Honeywell's complete line of sensors, transmitters, transducers, analyzers and controllers are ideal for measuring pH, ORP, specific ions, conductivity, resistivity, salinity, hydrogen purity, gas, temperature, pressure, humidity, moisture and chemical concentrations in your process. These sensors and instruments are the perfect complement to the complete line of Honeywell control products. The new DirectLine® sensors offer unequaled savings during installation, start-up, operation and maintenance.

Honeywell designs versatile products that are easy to configure, easy to operate and easy to maintain. We have been in the process controls business for over 100 years. Our experienced team can help you every step of the way—before and after the sale. That's why Honeywell is the easy choice.

DirectLine® - Changing the game in pH, ORP, Conductivity & D.O. Measurement

Yesterday

PLANT-WIDE MONITORING SYSTEM

Hard-Wired

Conventional Sensors

- Large Panel
- High Equipment Cost
- High Maintenance Cost
- High Installation Cost
- High Installation Cost

Today

PLANT-WIDE MONITORING SYSTEM

Modbus / Internet Connection

DirectLine Sensors/transmitters

- Small Panel
- Lower Equipment Cost
- Simplified Maintenance
- Lower Installation/Wiring
- **Lower Total Cost**

Elimination of Dedicated Analyzers and Associated Panel Space Results in Lower Total Cost!

Smart Sensors and Analytical Instruments



pH/ORP/SPECIFIC ION	DirectLine® Model DL421	APT 2000/4000pH Transmitter/Analyzer	UDA2182 Universal Dual Analyzer	9782S Analyzer/Controller
MEASUREMENT	pH	pH/ORP	pH/ORP	Sodium, Chloride or Fluoride ions
CASE (HxWxD)	Plastic Polysulfone enclosure, NEMA4X, 123 x 48 x 46 mm (4.84 x 1.89 1.81 in)	Plastic enclosure made of PBT NEMA4X, IP65 rating	Plastic enclosure made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Grey noryl plastic, weather proof and corrosion-resistant EMI/RFI shielding
DISPLAY	LCD 4-digit, 7-segment	7-segment LCD display	LCD dot matrix, 128 x 64 dpi	LCD dot matrix, 128 x 64 dpi
DISPLAY ACCURACY	pH: ±0.02, Temp: ±1.0 (C or F)	pH: ±0.02 pH, Temp: ±0.1 (C or F)	0.05% of reading	Concentration: 13 counts Millivolts: ±2mV
CONTROL CAPABILITIES/ ADVANCED FEATURES	Integral electronics/sensor design, one or two point calibration, Auto Buffer Recognition	Electronics & sensor diagnostics, Auto Buffer Recognition, Hart comm. for transmitter	PID control, Pocket PC and infrared configuration, auto-buffer calibration, high purity water solution compensation, 0.2 sec update rate	On/Off, CAT or PFT control types, Auto Clean, Auto Calibration software
OPERATING CONDITIONS	-20° to 85°C (-4° to 185°F)	-20° to 55°C (-4° to 131°F)	0° to 60°C (32° to 140°F)	0° to 60°C (32° to 140°F)
OPERATING VOLTAGE	16-42 Vdc	2000: 14-40 Vdc 4000: 20-253 Vdc	90-264 Vac 47-63 Hz	108-132/216-264 Vac
ANALOG OUTPUTS	One 4 to 20 mA	2000: One 4 to 20 mA 4000: Two 4 to 20 mA (one dedicated to temp)	Up to three 4 to 20mA	One 4 to 20 mA
RELAYS	N/A	2000: N/A 4000: Hi/Lo alarm relays	Up to 4 relays	4 relays
MOUNTINGS	Integral: no electronics mounting needed. Remote: pipe, wall or DIN rail	Pipe, wall, or panel	Pipe, wall, or panel	Pipe, wall, or panel
APPROVALS	CE for Industrial Applications, UL-General Purpose; CSA General Purpose FM Class I, Div 1, Groups A-D (IS); FM Class I, Div 2, Groups A-D (N.I. Field Wiring)	CE; FM Class 1, Div. 2; FM Class I, Div. 1 IS and Cenelec	CE; FM Class 1, Div. 2; UL/CSA General Purpose	CE; FM/CSA Class I, Div 2





pH/ORP/Specific Ion




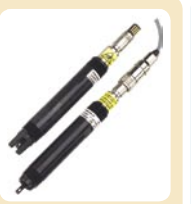
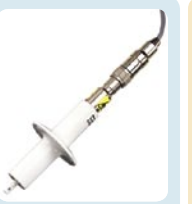

A range of analyzers and transmitters for use with Honeywell glass and non-glass sensors and mountings to measure pH, ORP, or specific ions. Included in this offering is the Durafet II pH electrode; the only industrial, solid state pH electrode on the market. For pure water applications, the HPW7000 Hi-pHurity pH measurement system guarantees a 0.1 pH accuracy in water samples with conductivity less than 10 uS. All the above mentioned measurements can be used in process, wastewater and pure water applications.

Conductivity

A range of analyzers and transmitters for use with Honeywell contacting and toroidal conductivity cells and mountings to measure conductivity, resistivity, salinity and chemical concentrations. These measurements can be made in many industrial process and pure water applications.

Measurements can be made in many industrial process, wastewater and pure water applications.

				
pH/ORP Sensors	Durafet® Solid State pH Electrode	Meridian II Glass pH Electrode	Oxidation Reduction Potential (ORP) Electrode	HPW7000 Hi-pHurity pH Measurement System
Measurement Range	0-14 pH	0-14 pH	1999 to 1999 mV	4-10 pH
Temperature Range	-10° to 130°C (14° to 266°F)	0° to 110°C (32° to 230°F)	-5° to 110°C (23° to 230°F)	-20° to 150°C (-4° to 302°F)
Pressure & Temperature Ratings	Based on mounting assembly	Based on mounting assembly	Based on mounting assembly	1 to 10 in. WC (24.9 to 241.9 kPa) 10° to 80°C (40° to 176°F)
Materials of Construction	Ryton body, solid state electrode, viton and EPDM seals	Ryton body, glass electrode, EPDM seals	Ryton body, gold or platinum electrode, EPDM seals	316L SS
Special Features	Response 10X faster than glass, replaceable reference junction, VarioPin waterproof connector option	Long lasting combination reference electrode, integral cable	–	0.1 pH accuracy in process with conductivity <10 uS/cm
Mountings	See mounting types	See mounting types	See mounting types	Panel mounting option

						
Mountings	TL1000 TwistLock	7773 Mounting	7774 Mounting	7777 Mounting	7794 Mounting	7758 Mounting
Measurement Range	0-14 pH	0-14 pH ±1600 mV ORP	0-14 pH ±1600 mV ORP	0-14 pH ±1600 mV ORP	0-14 pH	0-14 pH ±1600 mV ORP
Temperature Range	-10° to 110°C (14° to 230°F)	Depends on sensor	Depends on sensor	Depends on sensor	-10° to 110°C (14° to 230°F)	Depends on sensor
Pressure & Temperature Ratings	Up to 1034 kPa @ 80°C (Up to 150 psi @ 176°F)	Immersion/Polypropylene: 689 kPa @ 60°C (100 psig @ 140°F) 316 SS: 689 kPa @ 80°C (100 psig @ 176°F) Flow-through/Polypropylene: 689 kPa @ 60°C (100 psig @ 140°F) 316 SS: 515 kPa @ 80°C (150 psig @ 176°F)	316 SS: Determined by electrode CPVC: 689 kPa @ 50°C (100 psig @ 122°F)	Up to 689 kPa @ 50°C (100 psig @ 122°F)	Up to 689 kPa @ 100°C (100 psig @ 212°F)	316 SS: 1034 kPa @ 100°C (150 psig @ 212°F) Polypropylene: 689 kPa @ 35°C (100 psig @ 95°F)
Materials of Construction	Bushing: 316 SS, Kynar and CPVC	Polypropylene, Ryton, or 316 SS	Ball valve, mounting nipple & extension tube, 316 SS or CPVC o-rings: EPDM & Viton	Durafet & glass electrode bodies: Ryton	Body: Polysulfone	Cover: 316 SS, Wetted bushings: 316 SS or Polypropylene, O-rings: Viton
Special Features	1/4 turn required for installation or removal	Allows separate measuring & reference electrodes in one mounting	Insertion/removal under pressure without interrupting process		Sanitary 3-A approval for food & dairy applications	Allows variable immersion depths in pipe.
Mountings	Immersion or in-line tee (3/4 & 1 in. MNPT fitting)	Immersion or flow-through	1 1/4 in. NPT (316 SS) or 1 1/2 in. NPT (CPVC) pipe nipple through ball valve	Immersion or in-line tee (3/4 in. NPT fitting)	1 1/2, 2 or 3 inch tri-clamp flange mounting	3/4 in. NPT bushing

Smart Sensors and Analytical Instruments

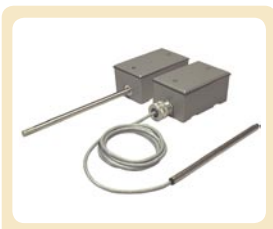


Conductivity	DirectLine Model DL423	UDA2182 Universal Dual Analyzer	APT 2000/4000CC Contacting Conductivity Transmitter	APT 2000/4000TC Toroidal Conductivity
Case (HxWxD)	Plastic polysulfone enclosure, IP66, 123 x 48 x 46 mm (4.84 x 1.89 x 1.81 in)	Plastic enclosure made of GE Valox® 357 CSA Type 4X (NEMA 4X)	Plastic enclosure made of PBT NEMA4X, IP65 rating	Plastic enclosure made of PBT NEMA4X, IP65 rating
Display	LCD 4-digit, 7 segment	LCD dot matrix, 128 x 64 dpi	7-segment LCD display	7-segment LCD display
Display Accuracy	Conductivity/resistivity: greater of ±2 counts or ±0.5% of reading. Concentration: ±0.5% of reading. Temperature: ±0.1°C from -10° to 99°C, ±1°C from 100° to 140°C	0.05% of reading Temperature: 0.1% from -10° to 100°C ±1.0°C from 101° to 140°C	Conductivity: 1% of measured value or ±(0.4 microS/cm * cell constant)	Conductivity: 1% of measured value ±(0.2 microS/cm ±1 Significant digit)
Control capabilities /advanced features	Integral electronics/sensor design; trim value or 1 point solution calibration	PID control; Pocket PC & infrared configuration, temp. compensation curves; CO ₂ concentration; ppm, ppb or TDS conversions	Measures conductivity, resistivity, or salinity; electronics & sensor diagnostics, Hart comm. for transmitter	Measures conductivity, or chemical concentration; electronics & sensor diagnostics, Hart comm. option
Operating Conditions	-20° to 85°C (-4° to 185°F)	0° to 60°C (32° to 140°F)	-20° to 55°C (-4° to 131°F)	-20° to 55°C (-4° to 13°F)
Operating Voltage	16-42 Vdc	90-264 Vac 47-63 Hz	2000: 14-42 Vdc 4000: 20-253 V, AC or DC	2000: 14-42 Vdc 4000: 20-253 V, AC or DC
Analog Outputs	One 4 to 20 mA	Up to three 4 to 20mA	2000: One 4 to 20 mA 4000: Two 4 to 20 mA (one dedicated to temp)	One 4 to 20 mA
Relays	N/A	Up to 4 relays	2000: N/A 4000: Hi/Lo alarm relays	2000: N/A 4000: Hi/Lo alarm relays
Mountings	Integral, no electronics mount-ing needed. Remote: pipe, wall or DIN rail	Pipe, wall, or panel	Pipe, wall or panel	Pipe, wall or panel
Approvals	CE for industrial applications; UL & CSA general purpose FM	CE; FM Class 1, Div. 2; UL/CSA General Purpose	CE; FM Class 1, Div. 2; FM Class 1, Div. 1 IS; CENELEC.	CE; FM Class 1, Div. 2



Sensors	4973 Contacting Conductivity Cells	4974 Contacting Conductivity Cells	4905 Contacting Conductivity Cells	4909 Contacting Conductivity Cells	5000TC Toroidal Conductivity Cells
Measurement Range	0.01, 0.1, 1.0, 10.0 cell constants, 0.055µS/cm to 250 mS/cm	0.01, 0.1, 1.0, 10.0 cell constants, 0.055µS/cm to 250 mS/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.01, 0.1, 10.0, 50 cell constants, 0.055µS/cm to 1S/cm	0.2 to 200 milliSiemens/cm
Pressure & Temperature	1724 kPa @ 140°C (250 psig @ 284°F)	1034 kPa @ 130°C (150 psig @ 266°F)	1034 kPa @ 130°C (150 psig @ 266°F)	SS: 3.45 bar @ 140°C (50 psi @ 284°F) CPVC: 2.07 bar @ 140°C (30 psi @ 284°F)	Polypropylene: 6.9 bar @ 100°C (100psi @ 212°F) PVDF: 6.9 bar @ 120°C (100psi @ 248°F) PEEK: 13.8 bar @ 150°C (200psi @ 302°F) PFA Teflon: 13.8 bar @ 150°C (200psi @ 302°F)
Materials of Construction	Titanium or graphite	Titanium or graphite with food-grade silicone rubber & polished 316 SS	Nickel or platinum	Nickel or platinum	Polypropylene, PVDF, PEEK, PFA Teflon
Mountings	3/4 inch NPT threaded fitting	1 1/2 or 2 inch 316 SS tri-clamp fitting	1 inch. NPT threaded fitting	Insertion/Removal assembly in CPVC or SS allows insertion/removal of cell without stopping process	Immersion, union adapter, sanitary 2 inch flange or insertion/removal

Moisture measurements can be made in a variety of applications including dryers, food, pulp & paper, ovens and natural gas.



Moisture	4111 Relative Humidity Transmitter	4112 Dew Point & Temp. Transmitter	4114 Dew Point Transmitter	4129/4129R Relative Humidity & Temp. Transmitter
Case	NEMA4X/IP65, cast aluminum	NEMA4X/IP65, cast aluminum	NEMA4X/IP65, coated steel	Cast alloy suitable for outdoor use
Display	Available	LCD Display	N/A	N/A
Measurements	0-100% Relative Humidity with temp. compensation	Dew point, dry bulb temp; also % RH, humidity ratio & wet bulb temp	Dew point, dry bulb temp; also % RH, humidity ratio & wet bulb temp	0 to 100% RH with temperature compensation
Moisture Sensing Element	Thin film capacitive	Thin film capacitive	Thin film capacitive	Monolithic RHIC
Temp. Sensing Element	1000 ohm Pt. RTD	1000 ohm Pt. RTD	1000 ohm Pt. RTD	N/A
Operating Temperature	-40°C to 80°C (-40°F to 176°F)	-50°C to 185°C (-58°F to 365°F)	-50°C to 185°C (-58°F to 365°F)	-23°C to 85°C (-10°F to 185°F)
Operating Voltage	12 to 45 Vdc	11 to 45 Vdc or 115 ±10% Vac	11 to 45 Vdc	9.4 to 45 Vdc
Analog Outputs	One 4 to 20 mA	Two 4 to 20 mA outputs for dew point & temp.	Two 4 to 20 mA outputs for dew point & temp.	One 4 to 20 mA output for %RH
Special Features	Fully recovers from saturation	Fully recovers from saturation, 0 to 350 psi; (24.1 bar) optional probe up to 2,000 psi (137.9 bar)	0 to 350 psi (34.1 bar) 0 to 50 psi (3.45 bar)	Accuracy up to 1% as option, fully recovers from complete saturation, use of optional jack allows plug-in digital indicator, remote cable for sensor location flexibility
Mountings	Insitu; Wall or pipe	Insitu; Wall or pipe	Insitu; Wall or pipe	Insitu; Wall or pipe
Approvals	FM Explosion Proof	FM Explosion Proof/IS approved; CE approved	N/A	UL 459L

Gas Analyzer	7866 Analyzer
Accuracy	±2% of span
Response Time (for H2)	Initial, <1 sec 63%, 13 sec, 90%, 23 sec, 99%, 40 sec
Measuring Range	1, 2 or 3 as specified
Sample Requirement (Sensing Unit)	0.2 to 4.2 cfh flow 37 mm Hg Pressure min.
Power Requirement (Control Unit)	Universal 90 to 264 Vac, 50 to 60 Hz
Weight (Sensing Unit/Control Unit)	8.5 kg (18 3/4 lb)/1.3 kg (3.0 lbs)
Sampling System	7872 Sample Panel
Construction	12 gauge steel, enamel finish, with components mounted, piped & tested
Dimensions (W x H x D)	52 x 76 x 115 cm (30 x 30 x 51 in.)
Weight (approx.)	50 lbs (22.5 kg)
Calibrating Gases	CO ₂ , H ₂ and 75% H ₂ in N ₂
Sample Temperature	Up to 104°C (220°F)
Sample Pressure	1 to 100 psig (6.9 to 69 kPa)



Moisture

A range of transmitters that provide in-line moisture and temperature measurements without costly and intensive maintenance. The unique patented sensors accurately and reliably measure dew point, temperature, and/or relative humidity without frequent cleaning, calibration or replacement due to saturation. These moisture measurements can be made in a variety of applications including dryers, food, pulp and paper, ovens and natural gas.

Thermal Conductivity

A thermal conductivity system that measures concentrations of hydrogen purity and CO₂ gas. This measurement is typically made in hydrogen-cooled generators.

Smart Sensors and Analytical Instruments



Dissolved Oxygen (DO) Instrumentation	DL424 ppm	DL425 ppb	UDA2182 Universal Dual Analyzer
Case	Same as DL423	Same as DL423	Plastic enclosure made of GE Valox® 357 CSA Type 4X (NEMA 4X)
Display	Same as DL423	Same as DL423	LCD dot matrix, 128 x 64 dpi
Display Accuracy	0.01 ppm	0.1 ppb in 0-20 ppb range 1.0 ppb in 0-200 ppb range	D.O.: 0.5% of reading Temp.: ±1.0°C
Operating Conditions	-20° to 60°C (-4° to 185°F)	-20° to 60°C (-4° to 185°F)	0° to 60°C (32° to 140°F)
Control capabilities /advanced features	Integral electronics/sensor design	Integral electronics/sensor design	PID control; Pocket PC and infrared configuration; ppb or ppm measurement, automatic or manual calibration; temp & pressure compensation
Operating Voltage	16-42 Vdc	16-42 Vdc	90-264 Vac; 47-63 Hz
Analog Outputs	One (1) 4 to 20 ma	One (1) 4 to 20 ma	Up to three 4 to 20mA
Relays	N/A	N/A	Up to 4 relays
Mountings	Same as DL423	Same as DL423	Pipe, wall, or panel
Approvals	UL and CSA general purpose	UL and CSA general purpose	CE; FM Class 1, Div. 2; UL/CSA General Purpose









Sensor	DL5000 Equilibrium probe for ppm & ppm application
Measurement Range	0-25,000 ppb or 0-25 ppm
Temperature Range	2° to 60°C (35.6° to 140°F)
Pressure & Temp. Ratings	316SS: 50 psi (345 kPa) CPVC: 30 psi (207 kPa)
Materials of Construction	316SS or CPVC housing
Special Features	Equilibrium probe design requires no internal probe maintenance
Mountings	Immersion in tank, in-line or sample flow chamber
Dimensions (OD)	219 x 34mm (8.62 x 1.32 in), 1 inch NPT pipe size, 20 feet waterproof cable
Response Time	90% in 60 seconds

These analyzers/probe systems determine the levels of dissolved oxygen in water. The patented Equilibrium dissolved oxygen probe design is unaffected by inert fouling or changes in flow conditions. The system's analyzer/controller measures either ppb DO levels in power plant and semiconductor applications for corrosion detection or deaerator efficiency or ppm DO levels in wastewater, environmental and process applications for control and compliance.

Range of analog temperature transmitters that provide a cost effective, proven, reliable instrument for the industrial marketplace.

H4800 SERIES PLATINUM RTD TRANSMITTERS

A range of analog temperature transmitters that provide a cost effective, proven, reliable instrument for the industrial marketplace.

						
Temperature Transmitters	H4801	H4805	H4807	H4809	H4815	H4859
Description	High performance, fixed range	Miniature potted	High performance, fixed range	Switch rangeable	Miniature Potted	High performance, rangeable, space mount
Compatible Sensor	100 ohm RTD	100 ohm RTD	1000 ohm RTD	1000 ohm RTD	1000 ohm RTD	Integral 1000 ohm RTD
Accuracy	± 0.05% of span	± 0.08% of span	± 0.05% of span	± 0.05% of span	± 0.08% of span	± 0.8% of span
Operating Environment	-50° to 80°C (-58° to 176°F)	-50° to 70°C (-58° to 158°F)	-50° to 80°C (-58° to 176°F)	-50° to 70°C (-58° to 158°F)	-50° to 70°C (-58° to 158°F)	-50° to 80°C (-58° to 176°F)
Connections	Terminal screw or pigtail leads	Terminal screw or pigtail leads	Terminal screw or pigtail leads	Terminal screws	Terminal screws	Terminal screws
Zero/Span Adjustment	Non-interacting	Non-interacting	Non-interacting	Non-interacting	Non-interacting	Non-interacting

TEMPERATURE SENSORS

A range of sensors to make temperature measurements in various applications in the heat treating industry, auto & aerospace, power, thermal processing, food & beverage, metals, gas, ceramics glass, cement, chemicals and paper.

Temperature Sensors	Megopak Thermocouples	Thermocouples w/ Protecting tubes	Platinum 100 ohm RTD's	Rayotubes	Radiamatic II
Type	J, K, T, JJ, KK, TT with Mineral Insulation (MI)	E, J, K, T, R, S in various assemblies & mountings	Plain, General purpose, Spring loaded. 100 sh RTDs	Radiation-type temp detector, comprising single-mirror optical system with image-viewing lens	Infrared
Measurement Ranges	-200° to 1093°C (-300° to 2000°F)	-200° to 1950°C (-300° to 345°F)	-185° to 480°C (-300° to 900°F)	93° to 2760°C (200° to 5000°F)	-40° to 3000°C (-40° to 5000°F)
Ambient Temp Range	N/A	N/A	N/A	0° to 100°C (32° to 212°F)	Up to 315°C (600°F)
Sheath/Tube Materials of Construction	Type 310, 316 SS Inconel or Teflon coated sheath	Carbon steel, 316 SS, 304 SS, Resistat, Inconel, Cast Iron, Nickel, Sillramic, Cast T	316 SS	N/A	316 SS, Inconel, Silicon Carbide, Aluminium, Alumina
Sheath/Tube Length	Any length up to 1.22m (4 ft) in increments of 25mm (1 in)	Up to 3.05m (10 ft)	Up to 597mm (23.5 in)	N/A	30, 46, 61, 75mm (12, 18, 24, 30 in)



ST 2000® Pressure Transmitter

Designed as a direct replacement for conventional analog transmitters & indicators. The ST 2000 uses existing signal lines for power and transmission. A thick film ceramic sensor measures ranges of -14 to 6671psi.

- Eight gauge models
- Three absolute models
- Accuracy of $\pm 0.2\%$
- 10:1 turndown ratio
- Temperature compensated



ST 3000® Series 100 Pressure Transmitters

- Highest performance and functionality in the industry
- Ideal for critical process loops, ISO 9000, custody & material transfer
- Models available for high-temp & high-pressure applications
- Lifetime Transmitter: accuracy of $\pm 0.0375\%$ for lifetime, stability of 0.01% per year for lifetime, MTBF of 470 years
- Broad turndown ratio of 400:1



ST 3000® Series 900 Pressure Transmitters

- Smart performance at conventional analog prices
- Used for process loops and data acquisition
- Accuracy of ± 0.075 of span
- 40:1 turndown ratio



SMV 3000 Smart Multivariable Transmitter

SMV 3000 provides four outputs with one instrument—differential pressure, absolute or gauge pressure, process temperature, and compensated mass flow rate.

- Ideal for accurate flow applications
- Accuracy of $\pm 0.075\%$ of span for DP and AP(GP)
- Dynamic compensation for liquids and gases
- Reduced installation and maintenance costs
- ASM steam tables for saturated and superheated steam flow

ST 3000® Smart Pressure Transmitters

Offering the best value available today, ST 3000 Smart Pressure Transmitters include differential pressure, absolute pressure, gauge pressure, draft range, liquid level flange units and remote seal transmitters. ST 3000 Lifetime Transmitters™ deliver unsurpassed accuracy, stability, reliability, and rangeability, as well as the industry's best warranty.

ST 3000 Lifetime Transmitters™ deliver exceptional accuracy, stability, and reliability with the industry's best warranty.



**STT 170
Smart Temperature Transmitters**

- Cost-effective, low-tier solution with 4-20 mA communications
- Universally PC programmable for both RTDs and thermocouples
- PC configuration
- Ultra compact size fits into the smallest DIN B head mount housing
- Sensor library with over a dozen of the most-used temperature sensor curves
- HART/4-20 mA output
- FOUNDATION™ fieldbus protocol



**STT 250
Smart Temperature Transmitters**

- Universal sensor inputs
- Compact size allows direct head mounting
- Broad selection of housings and materials
- Remote communications
- Available with integral engineering units meter
- Dual input model with advanced diagnostics and redundant sensor for critical applications



**STT 350
Smart Temperature Transmitters**

- For applications requiring the ultimate in performance and advanced solutions
- One model for most thermocouples or RTDs (2-, 3-, or 4- wire)
- No board change, potentiometer adjustment, or calibration required
- Remote configurability and rangeability
- Explosion-proof housing on DIN rail mounting
- Remote communications for configuration or diagnostics, Delta T, and redundant sensor capabilities are standard

Smartline® Meters

These dependable meters enable troubleshooting in the field.

- Provide local display of process variables
- Digital meters show transmitter and loop status, and engineering units
- Analog and digital meters for integral or remote mounting

**STT 3000
Lifetime Transmitters™**

Honeywell offers a complete line of STT 3000 thermal solution products. STT 3000 Lifetime Transmitters deliver exceptional accuracy, stability, and reliability with the industry's best warranty.



**SCT 3000
Smartline Configuration Toolkit**

This PC-based tool allows quick, error-free configuration of Smartline products.

- Access to configuration database parameters
- Verifies all parameters are correct
- Enables "Management of Change"
- Microsoft Windows 95b, 98, NT (4.0), 2000 and XP



SFC® **Smartline Field Communicator**

The SFC reduces the time to install, configure, and maintain Smartline® instruments.

- Hand-held device communicates remotely with all Smartline instruments
- Access to devices without entering hazardous areas
- Complete configuration and diagnosis of Smartline devices and control loops

MTS **Multi-Variable Trip Switch**

The MTS provides a stand-alone safety shutdown solution that can range from simple shut-off of a pump or motor to inclusion as part of a large system solution.

- Zero error digital PV trip
- Supports digital DE or analog inputs
- One or two relays, 5A @ 240VAC
- Independent transmitter status relay positively differentiates maintenance from process problems
- Optional analog repeat output



Honeywell MC Toolkit

The Pocket PC-based Honeywell MC Toolkit handles multiple communication protocols, letting you configure, monitor, diagnose, and manage smart devices from Honeywell and other suppliers.

- Configures both DE and HART protocols
- Automatically verifies device identification and database configuration
- Provides full self-diagnostic and device diagnostic support

MVA **Multi-Variable Analog Interface**

The MVA provides an interface between DE Smartline transmitters and analog instrumentation, such as safety shutdown systems, trip switches, indicators, recorders, backup or critical loop single-loop controllers, and more.

- Robust, bumpless, and accurate communications
- Low-cost access to all measured variables
- Enables mix of DE and analog products



H₂Oil Analyzer System

Designed for use in the petroleum recovery industry, the H₂Oil Analyzer System provides in-line, real time measurement of percent water in oil. It accurately measures the amount of water in continuous-oil phase or continuous-water phase conditions through the entire composition range of 0% to 100% water.

- Superior, non-intrusive sensor design
- Compensated for temperature and salinity effects
- Tolerant to sand, grit, or entrained gases
- Models available: 50mm (2in), 75mm (3in), 100mm (4in), 150mm (6in), 200mm (8in)

Honeywell XYR5000 Wireless Transmitters deliver needed information easily, flexibly, and affordably.



XYR5000 wireless transmitter
Honeywell XYR5000 wireless transmitter enables automated monitoring of variables in areas where traditional hard-wired transmitters are too costly, difficult to reach, or in hazardous areas. Honeywell XYR5000 Wireless Transmitters deliver needed information easily, flexibly, and affordably.

Wireless Management Toolkit

The toolkit software provides transmitter configuration management, real-time process monitoring and data acquisition. Data can be exported for analysis and report generation in spreadsheet compatible format.

Product	WG510	WA510	WN571	WT530	WI550
Type	Gauge Pressure	Absolute Pressure	Acoustic	Temperature	Analog Input
Range	30-5000 psig	30-250 psia	5kHz bandwidth	Various	4-20mA, 0-1 DV
Accuracy	0.1% FS	0.1% FS	0.1% FS	0.1% FS	0.1% FS
Signal Range	Up to 2000 feet from Base Radio with clear line of sight	Up to 2000 feet from Base Radio with clear line of sight	Up to 2000 feet from Base Radio with clear line of sight	Up to 2000 feet from Base Radio with clear line of sight	Up to 2000 feet from Base Radio with clear line of sight
Humidity	99% RH (non condensing)	99% RH (non condensing)	99% RH (non condensing)	99% RH (non condensing)	99% RH (non condensing)
Operation Temp	-40° to 85°C (-40° to 185°F)	-40° to 85°C (-40° to 185°F)	-40° to 85°C (-40° to 185°F)	-40° to 85°C (-40° to 185°F)	-40° to 85°C (-40° to 185°F)
Storage Temp	-50° to 85°C (-58° to 185°F)	-50° to 85°C (-58° to 185°F)	-50° to 85°C (-58° to 185°F)	-50° to 85°C (-58° to 185°F)	-50° to 85°C (-58° to 185°F)
Power	3.6V Lithium battery (up to 5 yrs lifetime)	3.6V Lithium battery (up to 5 yrs lifetime)	3.6V Lithium battery (up to 5 yrs lifetime)	3.6V Lithium battery (up to 5 yrs lifetime)	3.6V Lithium battery (up to 5 yrs lifetime)
Environmental	NEMA 4X, IP66	NEMA 4X, IP66	NEMA 4X, IP66	NEMA 4X, IP66	NEMA 4X, IP66
Approvals	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I; ATEX EEx ia IIC, nI IIC with CE mark	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I

Product	WD520	WW591
Type	Differential Pressure	Discrete Input
Range	Various	Dry Contact
Accuracy	0.2% FS	Sampled 11 times/sec
Signal Range	Up to 2000 feet from Base Radio with clear line of sight	Up to 2000 feet from Base Radio with clear line of sight
Humidity	99% RH (non condensing)	99% RH (non condensing)
Operation Temp	-40° to 85°C (-40° to 185°F)	-40° to 85°C (-40° to 185°F)
Storage Temp	-50° to 85°C (-58° to 185°F)	-50° to 85°C (-58° to 185°F)
Power	3.6V Lithium battery (up to 5 yrs lifetime)	3.6V Lithium battery (up to 5 yrs lifetime)
Environmental	NEMA 4X, IP66	NEMA 4X, IP66
Approvals	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I; ATEX EEx ia IIC, nI IIC with CE mark	CSA and FM, Class I, Group A, B, C, D; Class II, Div. I, Group E, F, G; Class III, Div. I

Product	Base Radio
Input	Up to 50 Transmitters
Output	RS485 Modbus, 420mA, RS232
Communication	902-928 MHz Frequency Hopping Spread Spectrum (FHSS) FCC Certified ISM license-free band
RF Power	31mW, 17.8mW typical
Options	Integrated Yagi antenna (analog & temperature units) for ranges up to 5000 ft. Base radio remote high gain antenna for ranges up to 5000 ft. Up to 25 base radio analog/digital output modules; 3 options: 4AO, 8AO, 4AO/8AO



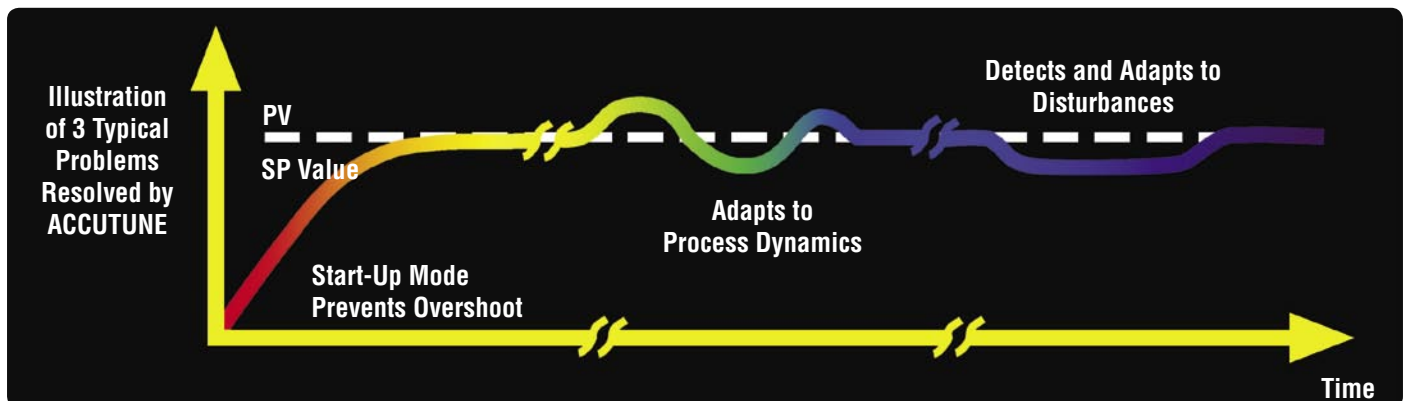
Controllers	DC 1000	UDC 100	UDC 700	UDC 1200
Product Description	The DC 1000 family of microprocessor based controllers combine a high degree of functionality and reliability at a very low price in 4 different DIN sizes.	The UDC 100 is a 1/4 DIN temperature controller designed for low cost/high performance applications. An optional timer is also available.	The UDC 700 is a 1/32 DIN format, OEM controller designed for a large number of applications.	The UDC 1200 provides a high degree of functionality and reliability in a small format (1/16 DIN) at a very low price. A limit control model is also available.
Front Face Format	48 x 48 mm (1.89 x 1.89 in) 48 x 96 mm (1.89 x 3.78 in) 72 x 72 mm (2.83 x 2.83 in) 96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	49 x 25 mm (1.93 x 0.98 in)	48 x 48 mm (1.89 x 1.89 in)
Analog Inputs	1 or 2	1 or 2 low levels	1	1
Input Signal Types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, mA	Thermocouples, RTDs, mV, mA	Thermocouples, RTDs, mV, V, mA
Digital Inputs	N/A	N/A	N/A	1
Analog Outputs	Up to 2	(Pending)	N/A	Up to 3
Digital Outputs Control	Up to 2	Up to 2	Up to 2	Up to 2
Digital Outputs Alarm	Up to 3	1	Up to 2	Up to 2
Accuracy (at ref. cond.)	±0.5% of F.S.	±0.5% of F.S.	±0.1% of span	±0.1% of span
Loops	1	Up to 2	1	1
Networking	RS232 or RS485 ASCII	N/A	RS485 Modbus	RS485 ASCII or Modbus

ACCUTUNE™ II with Fuzzy Logic (Available on the UDC 2500, 3200 & 3500 Controllers)

Accutune II provides a new truly plug-and-play tuning algorithm which will, at the touch of a button or through a digital input, accurately identify and tune any process including integrating processes and those with dead-time. This speeds up and simplifies startup, plus allows retuning at any setpoint. Also included is the original Accutune adaptive tuning algorithm that can automatically and continuously retune whenever a setpoint step change is implemented or whenever a

process variable disturbance occurs.

Fuzzy logic is used to suppress process variable overshoot due to setpoint changes or externally induced process disturbances. It operates independently from Accutune tuning. It does not change PID constants, but temporarily modifies the internal controller response to suppress overshoot. This allows more aggressive tuning to co-exist with smooth process variable responses. It can be enabled or disabled depending on the application or the control criteria.



Fuzzy logic eliminates process variable overshoot due to setpoint changes or externally induced process disturbances.



Controllers	UDC 1700	UDC 2500	UDC 3200	UDC 3500
Product Description	The UDC 1700 is a 1/8 DIN microprocessor based controller. It provides high quality and performance at low cost.	The UDC 2500 is a low-cost digital controller providing multi-language prompts (FR, EN, GE, IT, SP) and code for unmatched operating simplicity.	The UDC 3200 is a 1/4 DIN general purpose digital controller offering a high degree of functionality and operating simplicity.	The UDC 3500 with dual loop and math capability is ideal for process applications
Front Face Format	48 x 96 mm (1.89 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)
Analog Inputs	1	1 high level, 1 universal	2 universal	4 high levels, 1 universal
Input Signal Types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen	Thermocouples, RTDs, mV, V, mA, RH, Radiamatic, carbon, oxygen
Digital Inputs	1	2	2	4
Analog Outputs	Up to 3	2 (4 to 20 mA)	2 (4 to 20 mA)	3 (4 to 20 mA)
Digital Outputs Control	Up to 2	Up to 2	Up to 2	Up to 4
Digital Outputs Alarm	Up to 2	Up to 2	Up to 2	Up to 4
Accuracy (at ref. cond.)	±0.1% of span	±0.25% of span	±0.2% of span	±0.10% of span
Loops	1	1	1	2
Networking	RS485 ASCII or Modbus	Ethernet or Modbus RTU	Ethernet or Modbus RTU	Ethernet or Modbus RTU
Infrared Port	Yes	Yes	Yes	Yes

Every Honeywell Controller, Programmer and Indicator offers you the best price/performance ratio compared with any competitive instrument in its class. Our complete line is engineered to provide you with “targeted functionality” – solutions tailored to your specific process control requirements – so you only buy what you need.

Honeywell Controller Value

- Clear and informative operator interface
- Easy to setup and operate
- Straightforward installation and maintenance
- single-button turning for precise control
- Fuzzy logic overshoot suppression
- Unsurpassed quality and support

Process Instrument Explore (P.I.E.) Software

P.I.E. is a PC based, intuitive software program that runs on a Pocket PC, desktop or laptop. It can be used either online or offline to create UDC2500, UDC3200 and UDC3500 configurations. Configurations can be easily downloaded to the controller via its communication or infrared port.

Infrared Communication Port

Each UDC2500, UDC3200 and UDC3500 has an infrared communications port that provides a non-intrusive connection to the controller while maintaining Type 4X and IP66 integrity. You can duplicate an instrument’s configuration, obtain maintenance information just by pointing your Pocket PC in the direction of the instrument.

Programmers and Indicators







Programmers	DCP 50	DCP 100	DCP 300	DCP 550
Product Description	The low-cost DCP 50 is ideal for set point programming applications where space is at a premium.	The low-cost, 1/4 DIN format DCP 100 programmer is an entry-level product in the Set Point Programmer range. It provides an attractive price/performance ratio.	The general-purpose DCP 300 programmer is fully dedicated to execute control of temperature, humidity, pressure, flow and other variables.	The high-performance DCP 550 programmer provides advanced setpoint programming, sensing, SP generation, ramp and soak switch-ing and timing in one unit.
Front Face Format	48 x 48 mm (1.89 x 1.89 in)	96 x 96 mm (3.78 x 3.78 in)	96 x 96 mm (3.78 x 3.78 in)	144 x 144 mm (5.67 x 5.67 in)
Programs	4	8	19	99
Segments Per Program	16	16	30	99 (2000 total max)
Analog Inputs	1	1	1 or 2	1 or 2
Digital Inputs	1	6	12	16
Analog Outputs	Up to 3	Up to 3	Up to 3	Up to 3
Digital Outputs	Up to 2	8	8	16 events
Accuracy (at ref. cond.)	±0.25% of span	±0.25% of span	±0.1% of span	±0.1% of span
Loops	1	1	1 or 2	1 or 2
PID Group	1	1	8	9
Networking	RS485 Modbus	RS485 ASCII or Modbus	-	RS485 ASCII







Programmers	IPC 5000	Indicators	UDC 730	UDI 1700
Product Description	High-function dual loop programmer; 5.7 inch touchscreen LCD simplifies monitoring and control.	Product Description	The UDC 703 is a 1/32 DIN format indicator for small space requirements.	The UDI 1700 is a horizontal, 1/8 DIN format, low-cost indicator for most process variable types.
Front Face Format	48 x 48 mm (1.89 x 1.89 in)	Size (L x H x D)	48 x 25 x 100 mm (1.93 x 0.98 x 3.94 in)	96 x 48 x 100 mm (3.78 x 1.89 x 3.94 in)
Programs	32	Accuracy	±0.10% of span	±0.10% of span
Segments Per Program	100	Analog Inputs	1 universal	1 universal
Analog Inputs	2	Input Signal Types	Thermocouples, RTDs, mV, V, mA	Thermocouples, RTDs, mV, V, mA
Digital Inputs	12	Display Types	4 digits-LED (red)	4 digits-LED (red)
Analog Outputs	12	Alarm Set Points	2	3
Digital Outputs	12	Digital Input	No	Yes
Accuracy (at ref. cond.)	±0.25% of span	Transmitter Power	No	Yes
Loops	2	Networking	RS485 Modbus	RS485 ASCII or Modbus
PID Group	N/A			
Networking	RS232, RS485, Ethernet			

Chart Recorders

Strip Chart Recorders are most commonly chosen for continuous processes where the chart record allows the operator to quickly detect out-of-tolerance deviations over a long-term trend. The long length of the strip chart allows recorders to run unattended for long periods without the necessity for frequent chart replacement.

				
Strip Chart Recorders	DPR100A / DPR100B	DPR100C / DPR100D	DPR180	DPR250
Display	Analog	Digital	Digital	Digital
Paper Width	100 mm (3.94 in)	100 mm (3.94 in)	180 mm (7.09 in)	250 mm (9.84 in)
Reference Accuracy	0.25%	0.10%	0.05%	0.05%
Multipoint Channels	6 (DPR100B)	6 (DPR100B)	24	64
Continuous Pens	1-3 (DPR100A)	1-3 (DPR100A)	N/A	N/A
Roll or Fan-Fold Charts	Yes	Yes	Yes	Yes
Configuration	PC or Keyboard	PC or Keyboard	PC or Keyboard	PC or Keyboard
Data Storage	N/A	N/A	PCMCIA; Compact Flash	PCMCIA; Compact Flash
Networking	N/A	ASCII, Modbus, RTU	ASCII, Modbus, RTU	ASCII, Modbus, RTU Modbus TCP/IP
Optional Software	N/A	LPCS	LPCS; Trend Manager Pro	LPCS; Trend Manager Pro

Circular Chart Recorders are preferred for batch processes. The circular chart record displays the entire batch operation over a specific unit of time, from one hour to 31 days. An additional advantage of the circular chart record is easy filing and copying for reference. Compared to the strip chart record, the circular chart has a shorter calibrated chart width.

				
Circular Chart Recorders	DR4300 Basic	DR4300	DR4500 Classic	DR4500 Truline
Chart Size	254 mm (10 in)	254 mm (10 in)	305 mm (12 in)	305 mm (12 in)
Reference Accuracy	0.35%	0.10%	0.10%	0.10%
Analog Inputs	2	2	2	4
Digital Display	N/A	Yes	Yes	Yes
Chart Type	Preprinted	Preprinted	Preprinted	Self-printing thermal paper
Control	N/A	2 loops	2 loops	2 loops
Math	N/A	Totalization	Yes	Yes
Networking	N/A	Modbus RTU	Modbus RTU	Modbus RTU
Optional Software	N/A	SpecView	SpecView	SpecView

The Paperless Advantage

Easy to Use

Dedicated display keys and full screen menus allow operators to quickly access and interpret information.

Improved Decision Making

On-line data analysis allows fast operator response during process upsets.

Meet Documentation Requirements

Permanent archived records of process and configuration data can be stored to disk and easily replayed on the recorder or personal computer using the data analysis software.

Easy to Operate and Maintain

Reduced maintenance costs, elimination of consumable pens and paper and increased reliability since mechanical print assemblies have been eliminated.

Easy to Own

Paperless recorders offer significant improvements over traditional paper recorders. Their inexpensive storage media and full-color LCD display reduces operating costs and improves data analysis. The lack of vulnerable print mechanisms and other mechanical parts improves reliability.

Easy to Network

Products can be connected directly to the Local Area Network (LAN) via Ethernet using Modbus TCP/IP protocol. Using the LAN, multiple departments can access these instruments for real time data acquisition.

TrendManager Software Suite

The TrendManager Software Suite includes the standard TrendViewer software package; the Trendmanager Pro advanced data analysis and archiving software; the Trend-server Pro fully network aware software for communications with recorders; and the Screen Designer software for creating customized screen layouts. This low-cost, flexible, easy-to-use software suite sets the “-trend” recorders apart from all the others.

TrendViewer

- View, graph and print stored data
- Print configurations and process data
- Export data files in CSV format

TrendManager Pro

Industry leading PC based data analysis package that support:

- Importing data from any recorder
- Importing data from any Honeywell solutions such as DPR180, DPR250 and HC900 hybrid controller
- Archiving data
- Multi-level, multi-user passwords
- Graph, plot and export data across any recorder, pen or time frame
- Audit trails
- Configuration of recorders
- Batch recorder management

TrendServer Pro

Industry leading PC based communications software to network your recorder:

- Handles client/server architecture
- Schedule downloads of recorder data (FTP transfers)
- Remotely configure recorders
- Real time data acquisitions
- Communicate via RS485 and/or Ethernet
- Integrated OPC Server support
- Modbus, FTO, web browser

Database Management Tool

Provided with TrendServer Pro

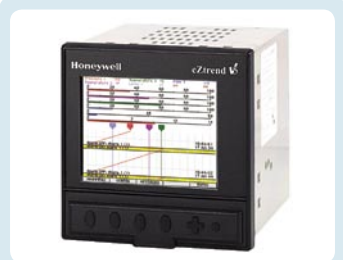


- Provides safe administration of data
- Archive, sort, move, copy or delete data in local or remote database
- Use tree structure for easy understanding of where files are located
- Data viewed by recorders or monthly archive
- Allows storage of data to secure server

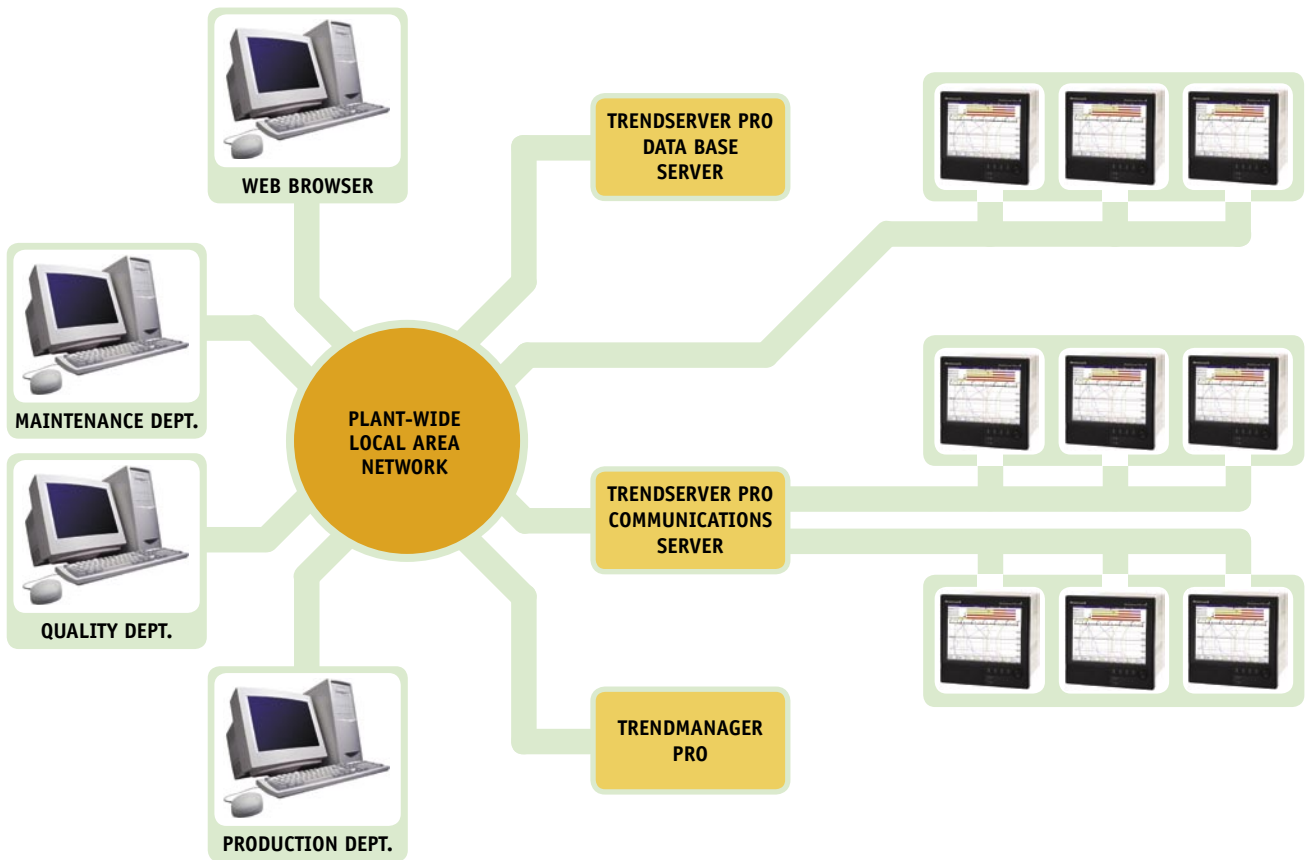
Screen Designer

Custom displays to exactly suit your application

- Total design flexibility to produce customized screen layouts
- Design the screen that will best monitor your process
- Includes bitmap picture input for easy process understanding

Title 21 CFR Part 11 of Federal Regulatory Affairs details the acceptability of electronic records.

			
Paperless Recorders	eZtrend®	Minitrend QX	Multitrend SX
Displays	127 mm (5.0 in) Color (QVGA)	140 mm (5.5 in) Color TFT (QVGA)	307 mm (12.1 in) Color (SVGA)
Analog Inputs	2,4,6	Up to 16	Up to 48
Data Storage	1.44MB Floppy	Compact flash/USB	Compact flash/USB
Sample Rate	100ms	20ms to 100ms	20ms to 100 ms
Digital I/O	Up to 2DI/6DO	Up to 16DI/16DO	Up to 48DI/48DO
Networking	Ethernet Trendbus/Modbus	Ethernet or RS485 Modbus, OPC Server	Ethernet or RS485 Modbus, OPC Server
Math	200 character free form math	200 character free form math	200 character free form math
Reference Accuracy	±0.1%	±0.1%	±0.1%
Configuration	PC or front panel	PC or front panel	PC or front panel



Electronic data acquisition instruments are the perfect solution for applications within the Power, Water Treatment, Thermal Processing, Food & Beverage, Pharmaceutical/Biotech and Manufacturing industries.

U.S. regulatory agencies have accepted electronic data storage. Title 21 CFR Part 11 of Federal Regulatory Affairs details the acceptability of electronic records.

Controller:

- Modular I/O design
- Multiloop PID Control
- Setpoint programmers, scheduler
- Process logic, timers, counters
- Process algorithms, calculations
- Universal analog inputs
- Stores setpoint profiles, recipes
- Remote Terminal Panels (RTP)
- Redundant CPU's, power supplies

Operator Interface:

- Control loop supervision
- Load/monitor setpoint programs, recipes
- View analog & digital status
- View bar graph groups
- View trends
- View alarm and event status
- Initiate operator push-button actions
- Data storage to floppy disk
- Type 4X

Hybrid Control Designer Software:

- Windows NT, 2000 or XP
- Drag & drop soft wiring of function block objects
- Configures operator displays
- Load configuration via ethernet, serial communication modem or floppy disk
- Graphic hard copy records
- Load/upload, monitor configuration via modem
- Database export in CSV or TAB DELIMITED formats

Communications:

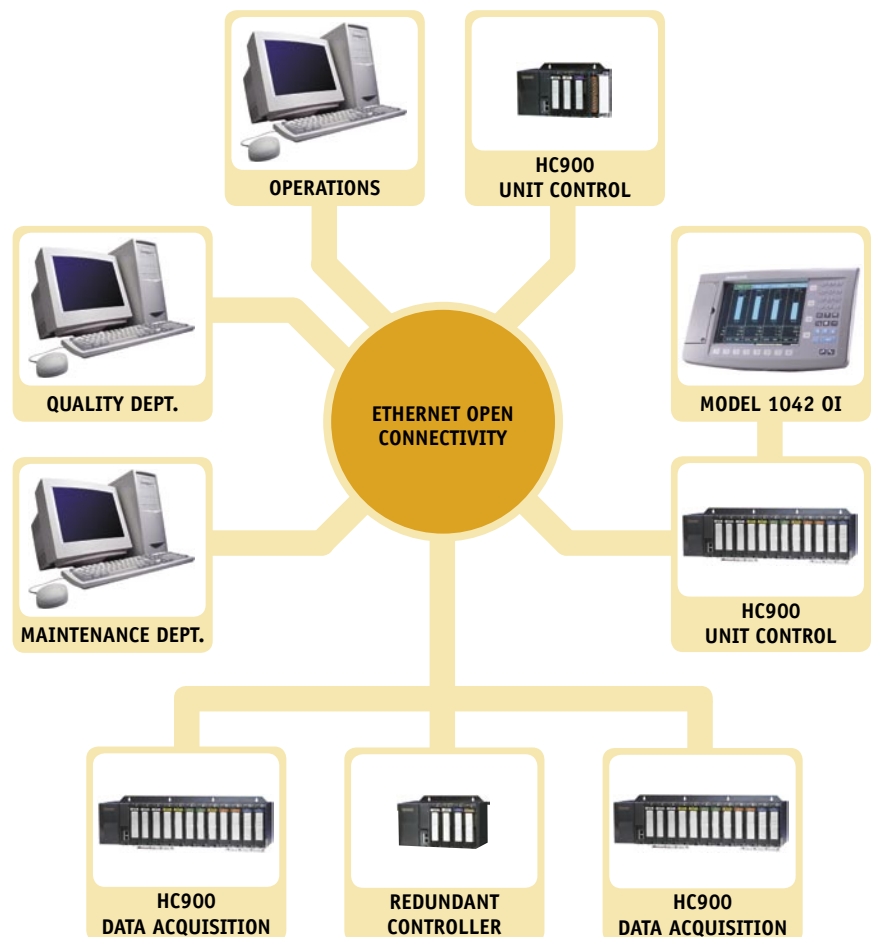
- Ethernet 10baseT
- Modbus/TCP protocol
- Up to 9 peer to peer controllers
- Serial Modbus RTU
- Redundant networks

HC900 Hybrid Controller

The versatile HC900 Hybrid Controller is the perfect solution for unit control requiring integrated loop and logic processing. It is also the ideal data acquisition package with up to 480 universal analog inputs, extensive math and free form calculations. Intuitive function block software allows you to quickly get up and running, saving you time and money. Ethernet Open Connectivity simplifies plant network integration. Redundant CPU's, Power Supplies and Networks maximize process uptime.

The HC900 offers an integrated solution that cost-effectively performs loop and logic control of stand-alone, unit processes. The combination of analog control loops, setpoint programs, function block configuration, data acquisition and an extensive assortment of predefined analog and digital blocks make the HC900 the ideal choice for thermal processing, water treatment, food & beverage processing, power generation, pharmaceutical, manufactured goods, semiconductor industries and other processes with similar control requirements.

The HC900 consists of three components: a powerful controller with modular I/O; a hardened operator interface with color display and disk drive; and intuitive configuration software.



The versatile HC900 is the perfect solution for unit control requiring integrated loop and logic processing.



HC900 Hybrid Controller

The rack-based HC900 is a modular, scalable platform available in 3 rack sizes (4, 8 and 12 I/O slots) and three CPU performance choices (C70R, C50, C30) to handle a wide range of automation requirements. To maximize installation flexibility, up to 4 remote I/O racks may be connected to a single controller to reduce wiring and installation costs. A variety of analog and digital modules are available to support up to a total of 1920 I/O points. Up to 480 universal analog inputs minimize the number of input cards and spare parts required.

HC900 Hybrid Controller

Analog Inputs	Up to 480 universal analog inputs, 960 high level		
Accuracy	±0.1% of span (field calibration to ±0.05% of span)		
Analog Outputs	Up to 200; user specified span from 0 to 20 mA maximum, 12 bits, 0.1% Accuracy		
Digital Inputs/Outputs	Up to 1920, contact DI, 24 Vdc DI/DO 120 Vac DI/DO, 240 Vac DI/DO, relay DO		
I/O Racks Per System	Up to 5 total		
Control Loops	PID, on/off, cascade, ratio, %C, RH, dewpoint		
Control Output Types	Current, time-proportioning, position proportioning, three-position step		
Setpoint Programmers	Up to 8, 50 segments each, 16 event outputs, profiles stored in controller		
Setpoint Scheduler	Two: 50 segments, 8 ramp/soak outputs, 8 auxiliary outputs, 16 events, schedules stored in controller		
Recipes	50 variables each		
Communication	Ethernet 10baseT; Modbus/TCP protocol; up to 5 Ethernet hosts; up to 9 peer to peer controllers; Serial Modbus RTU, RS485 or RS232, Slave (up to 16) or master operation		
Power Supply	120 Vac to 240 Vac or 24Vdc		
Operating Temp.	0° to 60°C (0° to 140°F)		
Humidity	10% RH to 90% RH, non-condensing		
Rack Size	4 Slot 266.7 mm (10.5 in)	8 Slot 419.1 mm (16.5 in)	12 Slot 571.5 mm (22.5 in)

Operator Interface

The Model 1042 and Model 559 Operator Interfaces provide a wide selection of over 100 operator-friendly preformatted displays, and use direct access display keys. The use of preformatted displays shortens design time, reduces engineering costs and facilitates easy operator interaction with the process. Both analog data and digital status information are viewed in multiple formats on an LCD display (5.5 inch Model 559, 10.4 inch Model 1042) for clear process monitoring. Displays are available for viewing and changing control loops, setpoint programs, recipes, alarm groups, trends and other analog and digital functions. A standard floppy disk drive or optional zip drive stores process data, stores and retrieves configuration information, recipes, setpoint profiles or schedules. Stored process data may be viewed using the TrendManager Software Suite.

Operator Interface

Display	Model 559	Model 1042
	140 mm (5.5 in) Color LCD	264 mm (10.4 in) TFT Active Matrix Color LCD
Distance from Controller	Up to 2000 feet (600 meters)	Up to 2000 feet (600 meters)
Zip Drive (1042)	Data archiving & configuration, setpoint profile, recipe file transfer	Data archiving & configuration, setpoint profile, recipe file transfer
Power Supply	24 VDC	24 VDC
Size (WxHxD)	240 x 159 x 136 mm (9.4 x 6.2 x 5.4 in)	400 x 248 x 183 mm (15.8 x 9.8 x 7.2 in)
Operating Temp.	0° to 50°C (32° to 122°F)	0° to 45°C (32° to 113°F)
Humidity (non condensing)	Rated: 10% to 90% Extreme: 5% to 95%	Rated: 20% to 80% Extreme: 5% to 90%
Hybrid Control Designer Software		
Configuration	Off-line, with run mode editing	
Operating Environment	Windows NT, 2000 or XP	
PC	Pentium, 200mHz with 64 MB Ram minimum, SVGA or greater screen resolution	
Cable	9-pin RS232 null modem cable to configuration port or Ethernet 10Base T (crossover)	
Modem Support	Monitor, upload, download configuration	

Electric Actuators – HercuLine®



HercuLine Electric Actuators	HercuLine 2000	HercuLine 2001/2002	HercuLine 10260A & S
Product Description	Low torque electric actuator	Low torque electric actuator	Medium torque industrial electric actuator
Torque	50 to 400 in-lb (6 to 45 N-M)	50 to 400 in-lb (6 to 45 N-M)	10 to 300 lb-ft (14 to 400 N-M)
Stroke/Speed	90° to 150°/6 to 75 sec	90° to 150°/7.5 to 120 sec	90°/10/20/40/60 sec
Input Signals	Floating, Pos. prop., Open/Close	1-5 Vdc, 4 to 20 mA	0/1-5 Vdc, 0/4-20 mA, Floating, Pos. prop., Open/Close
Position Feedback	1000 ohms potentiometer	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation	0/1-5 Vdc, 0-16 Vdc, 0/4-20 mA, SW emulation 1000 ohms potentiometer
Position Sensing	1000 ohms potentiometer	2001: slidewire 2002: contactless	Contactless
Environmental	-40° to 185°F (-40° to 85°C)	-40° to 170°F (-40° to 75°C)	-20° to 170°F (-30° to 75°C)
Duty Cycle	Continuous	Continuous	Continuous
Repeatability	N/A	0.2% of 90° span	0.2% span
Dead-Band	N/A	Adj. 2% to 5% span	Adj. 0.2% to 5% span
Local Auto/Man Switch	Optional	Optional	Optional
Local Keypad/Display	N/A	Optional	10260S: Optional
RS485 Modbus Comms.	N/A	Yes	10260S: Yes

HercuLine Electric Actuators

Honeywell's HercuLine Electric Actuators are engineered for exceptional reliability, accurate positioning, and low maintenance. Designed for very precise positioning of dampers and quarter-turn valves, they perform especially well in extremely demanding environments requiring continuous duty, high reliability, and low maintenance. With non-contact sensing, the maintenance problems and unexpected shutdowns associated with slidewires and potentiometer wear are eliminated.

HercuLine Palm Software lowers ownership cost

- Use your Palm PDA for
 - Calibration
 - Configuration
 - Maintenance data
- Eliminates local display and keypad

HercuLine Smart Actuators

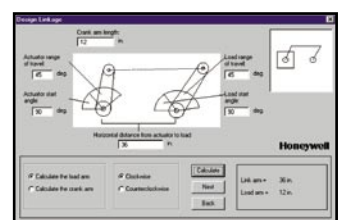
Honeywell's new actuators incorporate all of the quality and reliability features of the HercuLine actuators with

the added benefits of microprocessor-based electronics. These benefits make it easier to install, set up and commission the actuator, while allowing you to monitor the health parameters for proactive maintenance planning.

- RS485/Modbus communications for remote access
- Programmable:
 - Alarm and relay outputs
 - Characterization, failsafe functions, dead-band, and filtering
 - Direction of rotation
- Diagnostic Parameters:
 - Maximum Hi and Lo temperature
 - Stall and accumulated stall time
 - Total travel

HAL (Honeywell Actuator Linkage software)

Helps you size, select and install your Honeywell actuator. The software lets you choose the actuator and design the linkage that best fits your application.



Honeywell Corrosion Solutions

Global process control industries spend an average of US\$50 billion a year on corrosion problems that can hinder their abilities to operate at optimal levels. Honeywell's Proprietary On-line Corrosion Technology Can Reduce Corrosion Costs to Process Control Customers by up to 20 Percent.

Benefits

Honeywell field-proven corrosion solution offers measurable improvements and benefits:

- Increased plant uptime due to improved reliability of assets
- Reduction in maintenance costs by moving from scheduled to reliability-centered maintenance
- Maximized production throughput while protecting plant assets
- Improved safety by minimizing the effects of process upsets and excursions
- Significant reduction in inhibitor costs

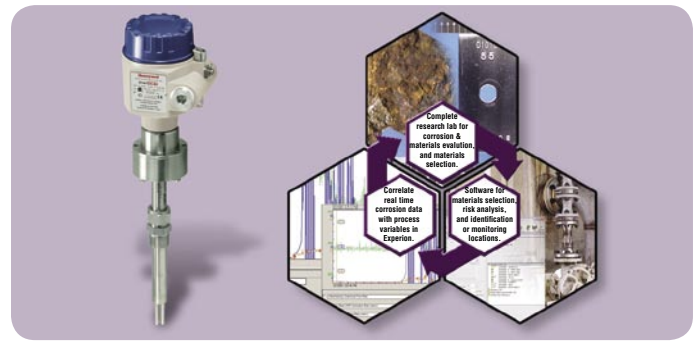
A Winning Combination

With Honeywell's acquisition of InterCorr International, Inc. in 2005, Honeywell Process Solutions became the first and only automation and control supplier to offer real-time on-line corrosion detection for integration with the process control system. The integration of InterCorr technology with Honeywell's Experion® Process Knowledge System (PKS) will enable Honeywell customers to shift from traditional off-line corrosion assessment to on-line, real-time measurement, allowing them to realize significant reductions in corrosion expenditures and manage plant assets more effectively.

Corrosion as a Process Variable

Through integration with Honeywell's Experion Process Knowledge System (PKS), operators can transform raw corrosion monitoring data into high-value process knowledge. Operators can correlate corrosion data with process data to gain an awareness of their plant conditions, make critical business decisions quickly and take proactive actions to optimize short-term and long-term plant performance.

An integral part of the Process Knowledge System is the use of advanced applications, like Honeywell's asset, control and operations applications. Advanced applications with real time corrosion data are a further source of high-value process knowledge for the process engineer to make the right decision at the right time.



Corrosion Solution Consists of Three Elements Systems, Expert Corrosion Services and Software

Detecting corrosion is just the first step toward solving a plant's corrosion problems. Honeywell offers an integrated approach to corrosion problem solving with a solution that provides the correct and most efficient combination of products, services and software to our customers.

Systems

SmartCET® (Smart Corrosion Evaluation Technology) is the new Honeywell corrosion transmitter that embeds proprietary corrosion measuring technology to provide a convenient and efficient method to bring corrosion data to the process control system.

Services

Honeywell's corrosion experts can complement your in-house corrosion resource and are fully capable of solving your tough plant corrosion problems. Our corrosion expertise ranges from lab services for metallurgical failure analysis to inhibitor screening to materials consultation with an emphasis on specific plant operating conditions to analysis of a plant's real-time corrosion conditions.

Software

Our software product offerings reflect over 20 years of corrosion expertise derived from our laboratory corrosion research benchmarked with actual field data and experience. Plant and consulting engineers have found tremendous value in our software products that aid in materials selection, corrosion rate prediction within pipelines and process equipment, and analysis of plant asset integrity and risk.

Serving customers in oil & gas, refining, chemicals, power generation, pulp & paper, aerospace, pharmaceuticals/biotech, and metals and mining industries, we offer a strong track record of creating value every day for major clients the world over.



Sales & Application Support

Our team of field sales engineers, local stocking representatives and technical support specialists are available to serve you in 95 countries on six continents. We back all of our products with a comprehensive warranty and a Technical Assistance Center staffed with engineers and technicians with solid product knowledge.

Teaming with our direct sales force, Honeywell's Authorized Representatives provide total solutions for your control needs. With offices located throughout the world, our extensive distribution network provides responsive, local service and support before, during and after the sale. Honeywell reps provide many value-added services including:

- Local inventory with quick delivery
- Application and technical support
- On-site training
- 24-hour emergency service

To find the Honeywell Authorized Representative nearest you, visit our on-line Rep Locator at: <http://locator.micro.honeywell.com>



Honeywell offers a complete portfolio of products and solutions for process and machine control ap-

plications, including controllers, recorders, transmitters, actuators, smart sensors, and analytical instruments. To learn more about these offerings and how they can help your organization achieve breakthrough results, contact your local Honeywell representative, or contact us at the following phone numbers:

USA: 1-800-343-0228	France: 33 1 60 19 80 75
Canada: 1-800-461-0013	Italy: 39 02 9214 6503
UK: 44 1344 655251	Spain: 34 91313.61.00
Germany: 49 69 8064-336	Asia/Pacific: 65 6355 2828
Latin America: 1-305-805-8188	

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective.

The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

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Honeywell Process Solutions

Honeywell International Inc.
2500 West Union Hills Drive
Phoenix, AZ 85027
Tel: 800-343-0228
www.honeywell.com

