

## BCS7700 Boiler Control System

### REPLACEMENT INFORMATION



### APPLICATION NOTES — BOILER CONTROL SYSTEM CROSS-REFERENCE (BCS7700)

#### **IMPORTANT**

*The BCS 7700 Boiler Control System is very unique. Consult a Qualified Consulting Engineer for a full system upgrade or contact the Original Equipment Manufacturer for their recommendations.*

*The attached cross-reference will offer some suggestions but by no means offer the whole system solution. Additional system engineering will **always** be required.*

1. Installer must be a trained, experienced flame safeguard technician.
2. After installation is complete, check out each product operation as well as the system operation as provided in applicable instructions.
3. Safety Codes and Standard requirements for each application must be considered.
4. Check the ratings given in the instruction sheets and on the products to make sure the replacement product is suitable for your application.

#### **⚠ WARNING**

**Fire or Explosion Hazard.**

**Can cause severe injury, death or equipment damage.**

Follow applicable safety requirements when installing a control on a burner to prevent death, severe injury or property damage.

#### **⚠ WARNING**

**Electrical Shock Hazard.**

**Can cause severe injury, death or equipment damage.**

Always disconnect power supply before beginning installation. More than one disconnect may be required.



### **IMPORTANT**

1. *Wiring connections for Safety Controls are unique; refer to the appropriate specifications for proper wiring.*
2. *Wiring must comply with all applicable local codes, ordinances and regulations.*
3. *Wiring must comply with NEC Class 1 (Line Voltage) Wiring.*
4. *Loads connected to the replacement devices must not exceed those listed on the device label or the specifications.*
5. *Limits and interlocks must be rated to simultaneously carry and break current to the ignition transformer, pilot valve, and main fuel valve(s).*
6. *All external timers must be listed or component-recognized by authorities that have proper jurisdiction.*
7. *For on-off gas-fired systems, some authorities that have jurisdiction prohibit the wiring of any limit or operating contacts in series between the flame safeguard control and the main fuel valve(s).*
8. *The suggest replacement device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, can cause interference with radio communications. It has been tested and found to comply with the limits for a Class B computing device of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case, the users, at their own expense, may be required to take whatever measures are required to correct this interference.*

## **MOTORS**

The M7484 Motor provided feedback to the BC7700 to assure proper position; consider a replacement system that supplies a similar feature, like the kR7999 ControlLinks™ System with its associated ML7999 Direct Coupled Actuators. Be sure to check the mechanical load ratings and temperature ratings when considering this alternative.

## **SENSORS**

The BC7700 sensors sometimes had unique mounting locations. Assure replacement sensors are located properly per their individual instructions.

## **BC7700 CHASSIS/PM7700 PROGRAM MODULE**

The BC7700/PM7700 Program Module has many unique inputs as shown in the cross-reference. It also provides expanded annunciation for quicker diagnostics of system problems that improved manpower utilization and maximized equipment use. Consider incorporating the S7830 Expanded Annunciator to provide similar functions when using the suggested RM7800 Relay Module.

Table 1. Boiler Control System Cross-Reference,.

Device	BCS7700	Notes	Functional Replacement Subcomponents	Notes
Chassis and Program Module	BC7700A1015 and PM7700A1042 PM7700A1059 PM7700A1067 PM7700A1075	UL/CSA - 60 Hz FM Kemper UL/CSA - 50 Hz	RM7800L1012 or RM7840L1018 and S7800A1001 Keyboard Display Module with Q7800A1005 Subbase and ST7800A Purge Timer	Primary Safety Control  Define Required Purge Timer
Flame Amplifier	R7747C1014	Use with C7012E or F	R7847C1005	
	R7748B1015	Use with C7015, Amplicheck	R7848B1006	
	R7749B1014	Use with C7027/35, Amplicheck	R7849B1021	
Firing Rate Motor	M7484A1010	30-sec., 90-stroke, 150 ft-lb.	M9484F1031	Must set LF/HF interlocks, preset at 5 and 54
Steam Control	P7710A1047	0-15 psi, On-Off + Modulation	L404A1354 + L91B1035 or P7810B	Requires L404C or P7810D Safety High Limit
	P7710A1054	15-150 psi, On-Off + Modulation	L404A1396 + L91B1050 or P7810B	
	P7710A1062	30-300 psi, On-Off + Modulation	L404A1404 + L91B1241 or P7810B	
	P7710A1070	70 - 750 psi, On-Off + Modulation	None	
Gas Limit	P7720A1052	.1-1 psi, (2.8-27.8 in. wc) Low and High Limit	C437D1005 High Limit; C437E1004 Low Limit	Check Pressure Settings, Switch Mounting Locations, and Contact Load Rating
	P7720A1060	.5-5 psi Low and High Limit	C437D1013 High Limit, C437E1012 Low Limit	
	P7720A1078	1.5-15 psi Low and High Limit	C437D1021 High Limit, C437E1020 Low Limit	
	P7720A1094	.2-2 psi (5.5-55.4 in. wc) Low and High Limit	C6097B1002 High Limit, C6097A1038 Low Limit	
Oil Limit	P7730A1019	15-150 psi Low and High Limit	L404W1037 High Limit, L404Y1043 Low Limit	Check Settings and Mounting Locations
	P7730A1027	30-300 psi Low and High Limit	None	
Water Temperature Limit	T7710A1025	0-300°F On-Off + Modulation	None	
	T7710A1033	0-500°F On-Off + Modulation	None	
Oil Temperature Limit	T7710A1025	0-300°F Low and High Limit	None	

**Honeywell**

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