

# COMBUSTION CATALOG

Honeywell Thermal Solutions

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2022

**Honeywell**

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## 7800 Series Product Selection Matrix

### Product Selection Matrix for CE Sequence Primary/Programmer Relay Modules:

For 230 Vac nominal applications —

Fuel	Burner Type	Relay Module Type
Single	Atmospheric with fan	EC7820
Combination or single	On/Off Controlled Power Burner	EC7830
Combination or single	Full Modulation Power Burner	EC7850

For 120 Vac nominal applications —

Fuel	Burner Type	Relay Module Type
Combination or single	On/Off Controlled Power Burner	RM7830
Combination or single	Full Modulation Power Burner	RM7850

**Use the following pages to select the following required devices:**

Relay Module, 1 per burner

Subbase, 1 per relay module

Purge Timer Card, 1 per relay module

Flame Amplifier, 1 per relay module

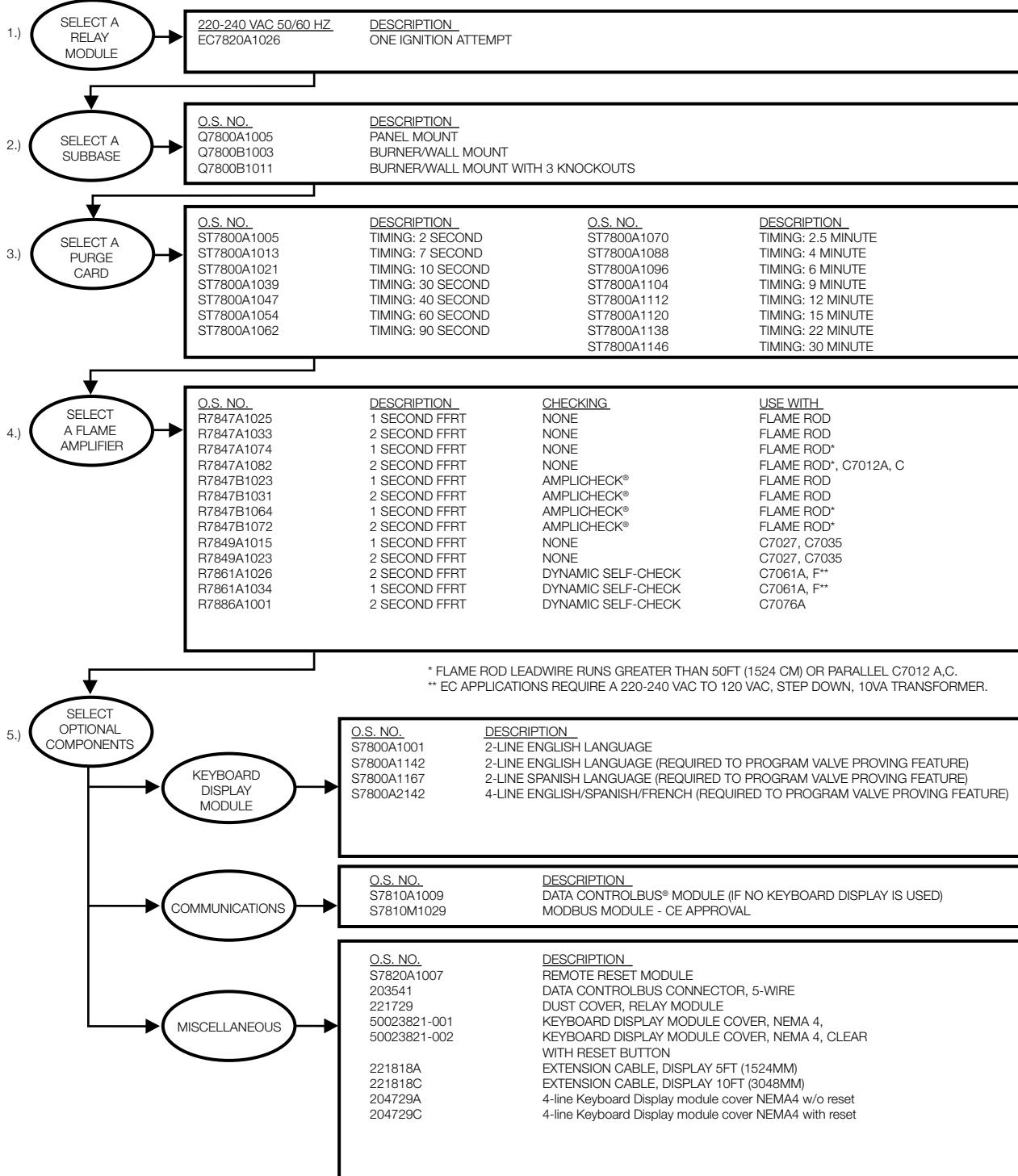
Some products are available only through Authorized Flame Safeguard Wholesalers and/or Distributors.

**Use the following pages to select the following optional devices:**

Keyboard Display module, up to 1 mounted to relay module, remote as desired network and ControlBus™ modules to service selected relays  
Miscellaneous, as required to complete installation.

# 7800 Series Product Selection Matrix

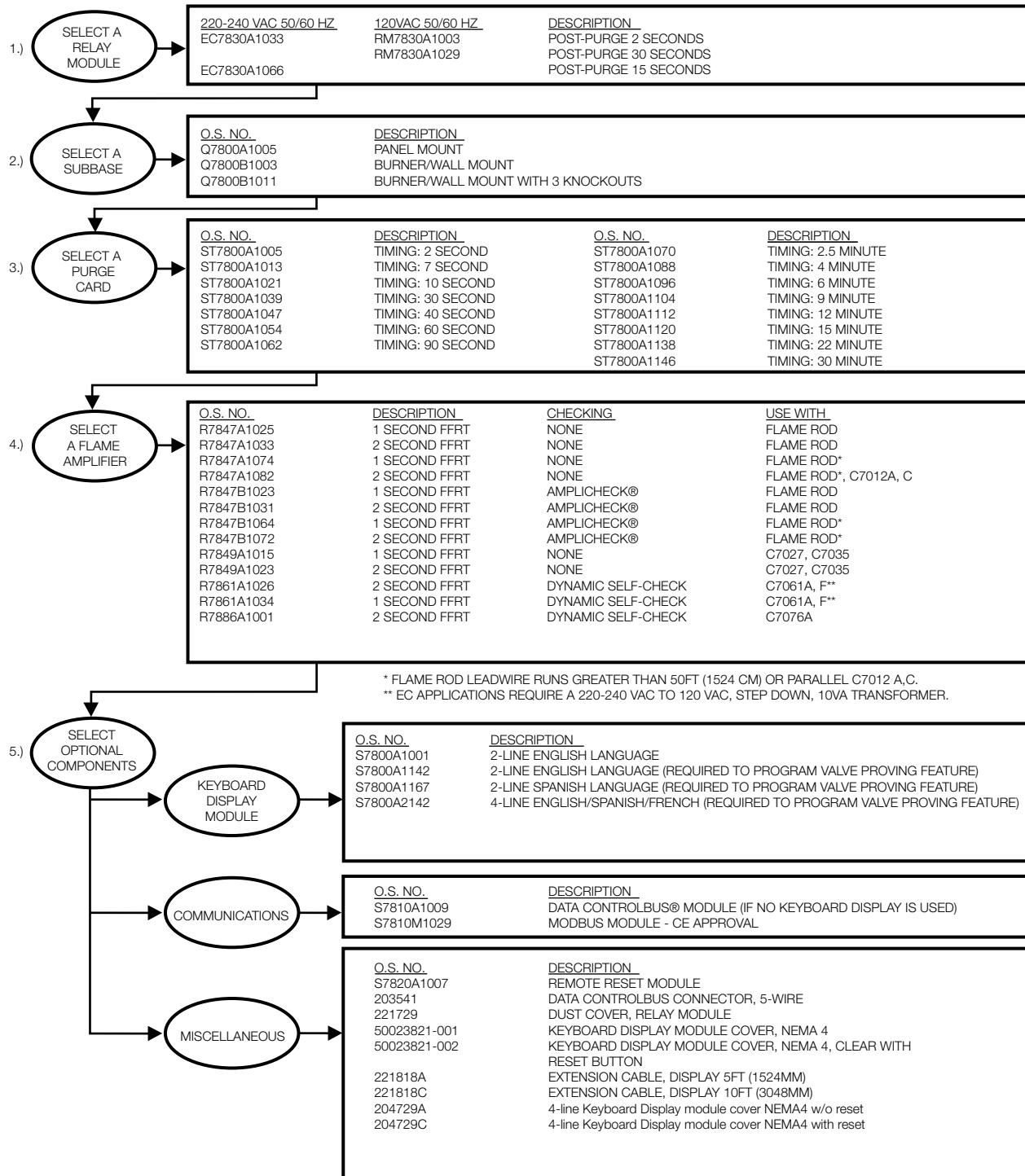
**PRODUCT SELECTION MATRIX FOR EC7820 PROGRAMMER RELAY MODULES:**



M15516G

# 7800 Series Product Selection Matrix

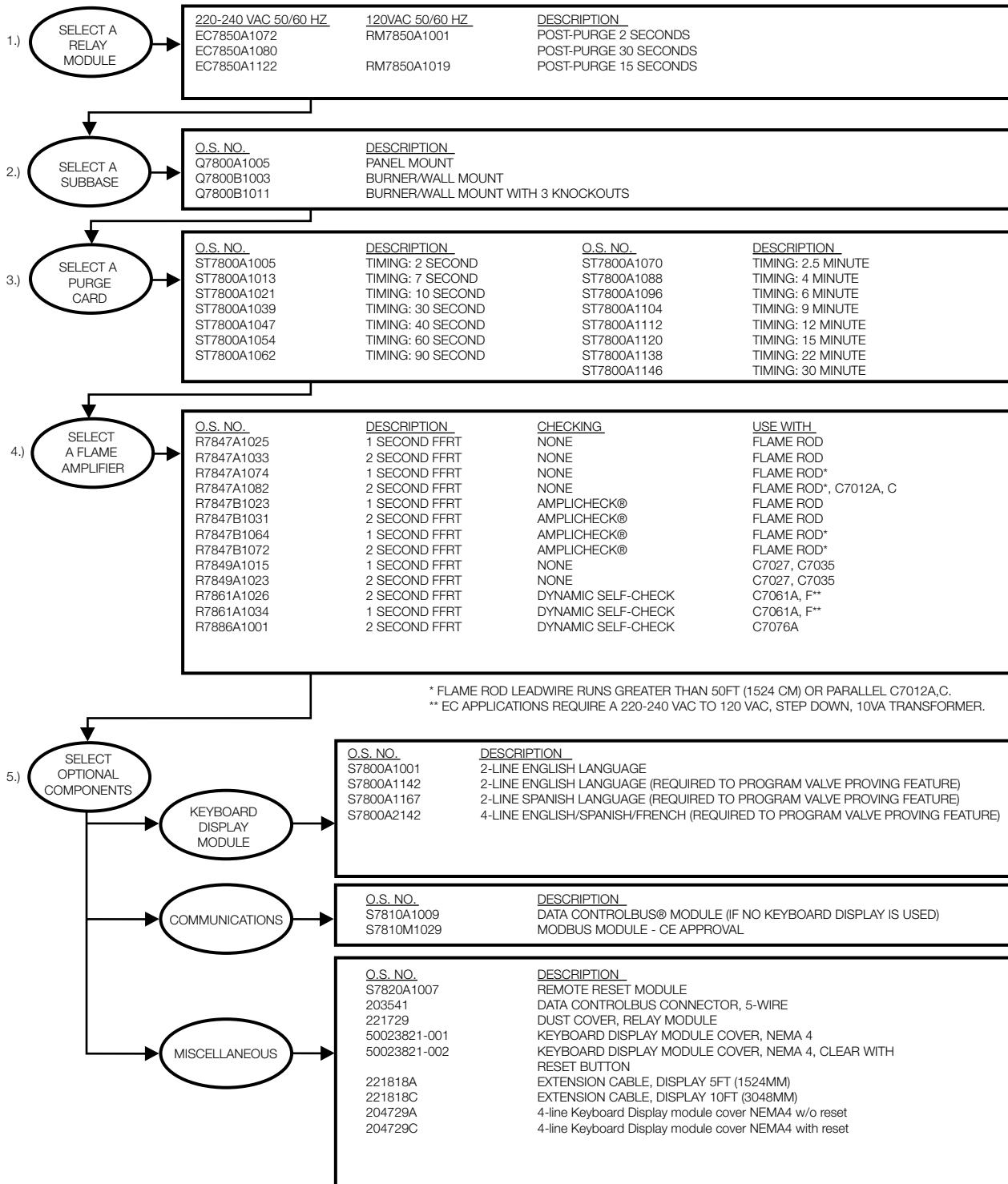
## PRODUCT SELECTION MATRIX FOR EC/RM7830 PROGRAMMER RELAY MODULES:



M15517H

# 7800 Series Product Selection Matrix

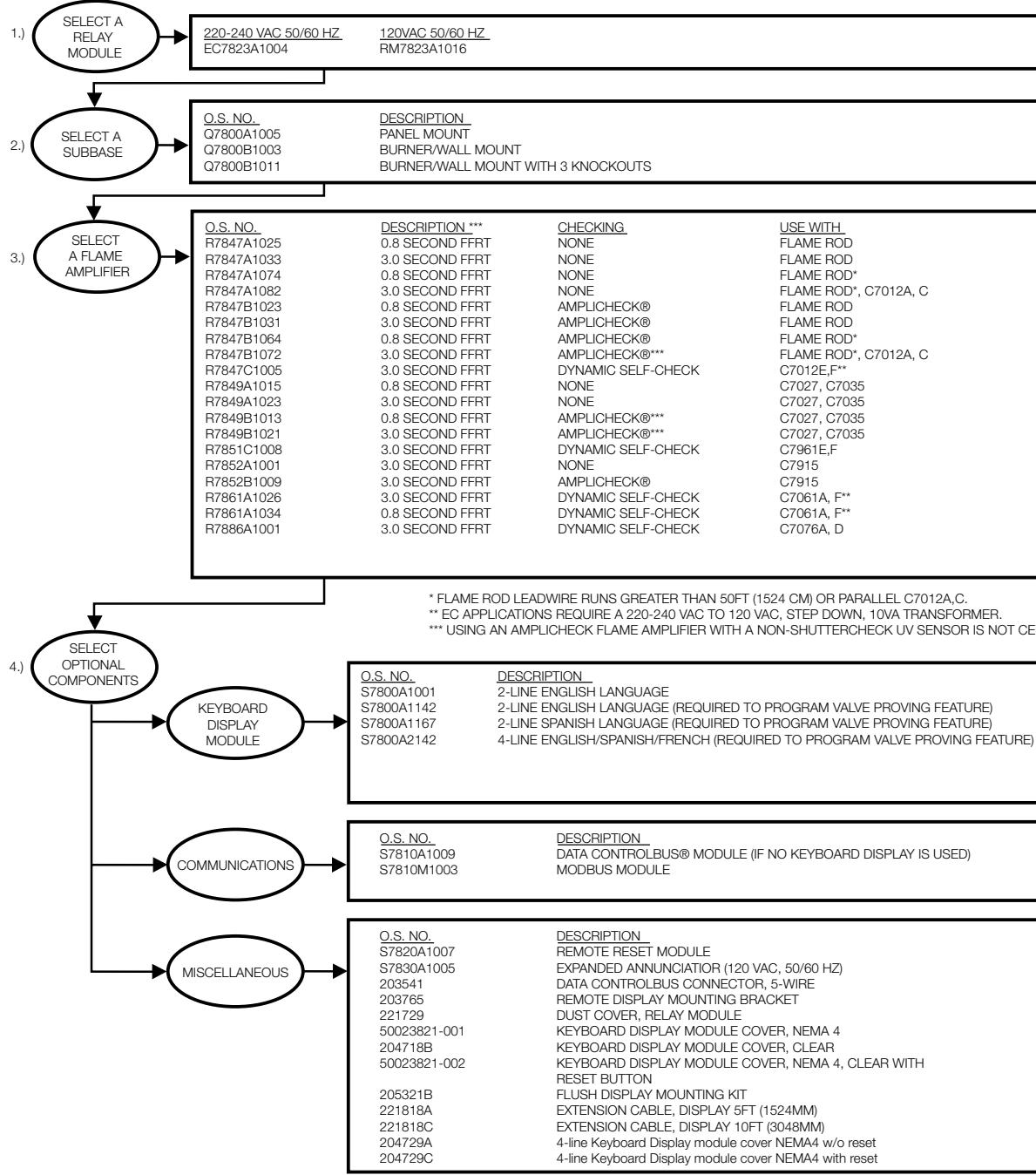
## PRODUCT SELECTION MATRIX FOR EC/RM7850 PROGRAMMER RELAY MODULES:



M15519G

# 7800 Series Product Selection Matrix

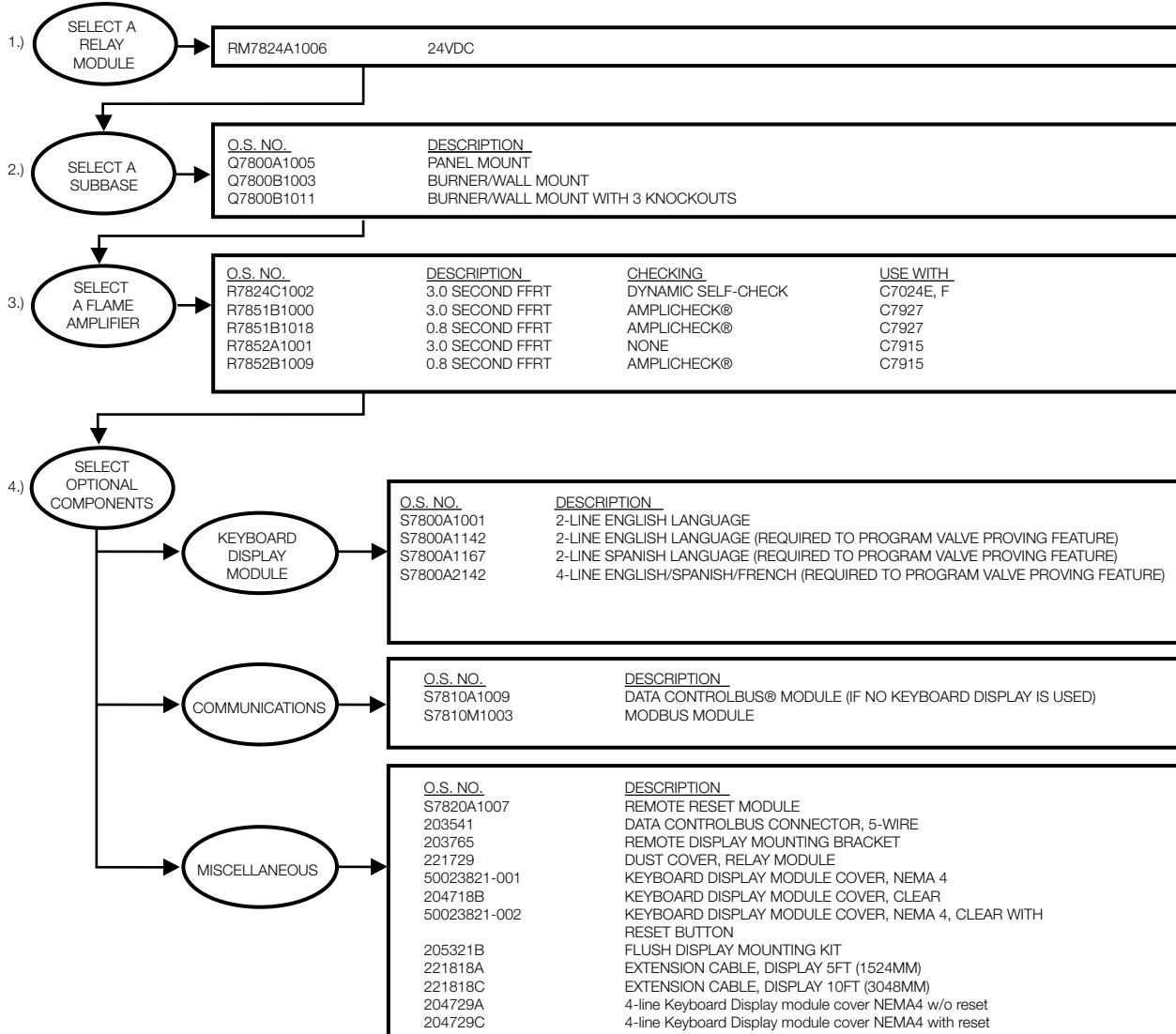
## PRODUCT SELECTION MATRIX FOR EC/RM7823 FLAME SWITCH RELAY MODULES:



M15520F

# 7800 Series Product Selection Matrix

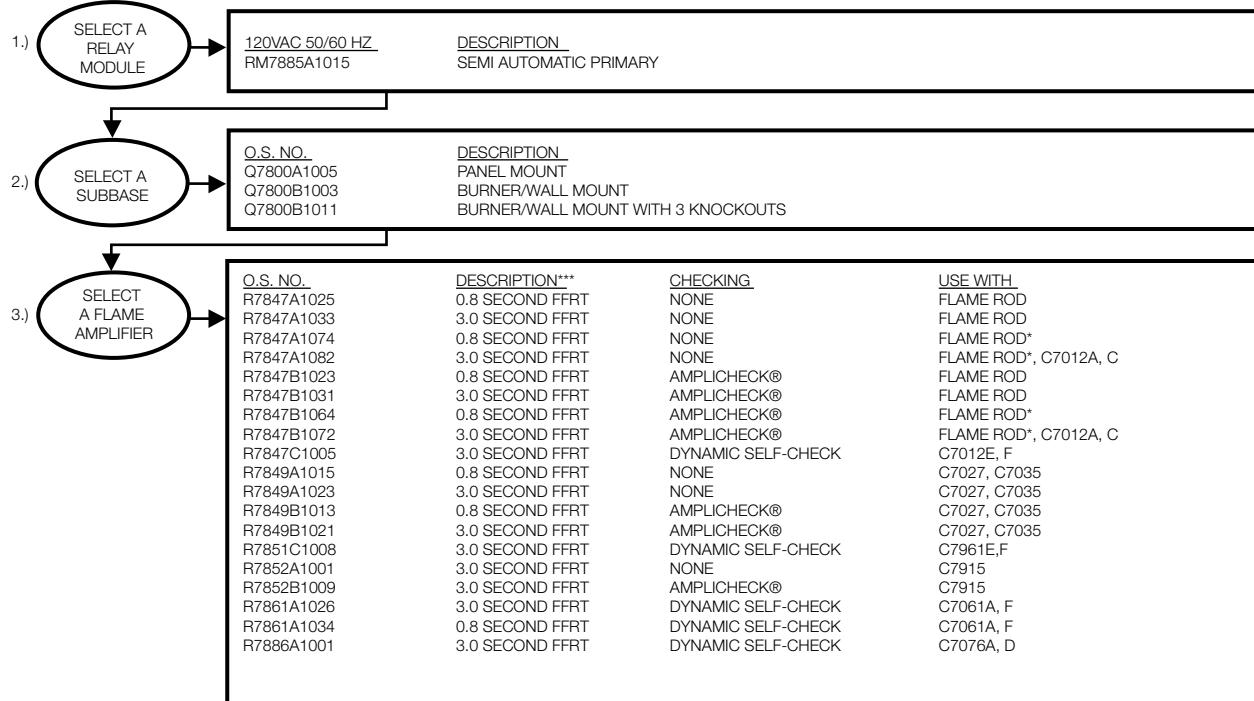
## PRODUCT SELECTION MATRIX FOR RM7824A 24VDC PRIMARY CONTROL RELAY MODULES:



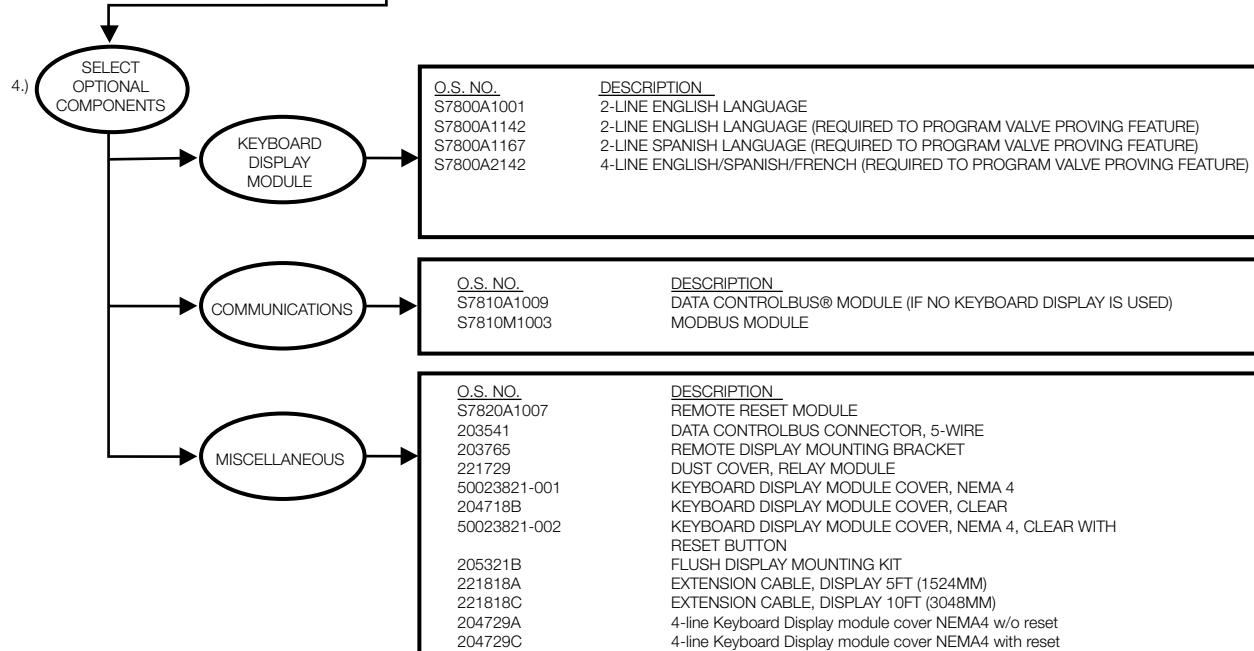
M15521D

# 7800 Series Product Selection Matrix

## PRODUCT SELECTION MATRIX FOR RM7885 MANUAL START PRIMARY RELAY MODULES:



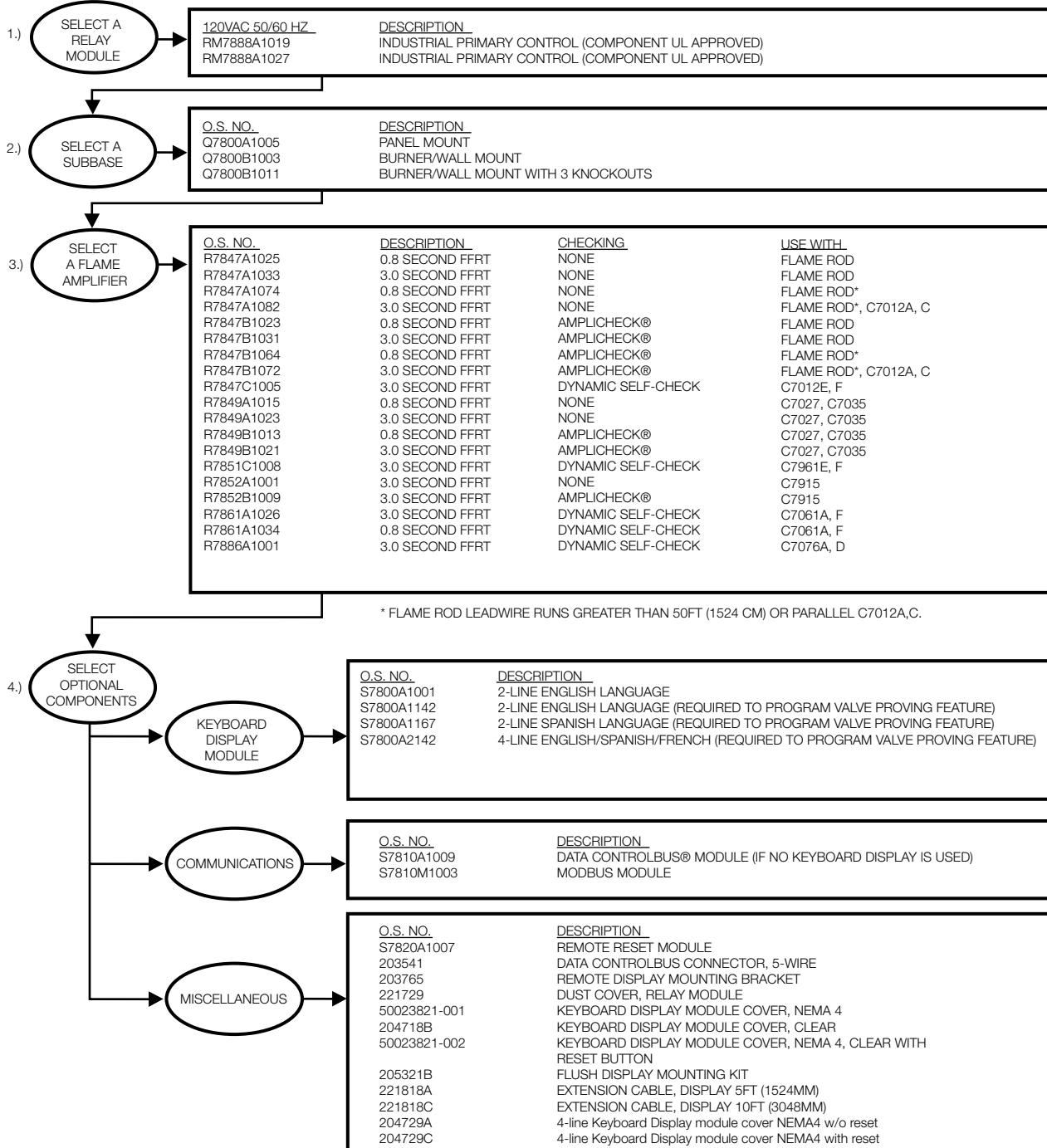
\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM) OR PARALLEL C7012A,C.



M15522F

# 7800 Series Product Selection Matrix

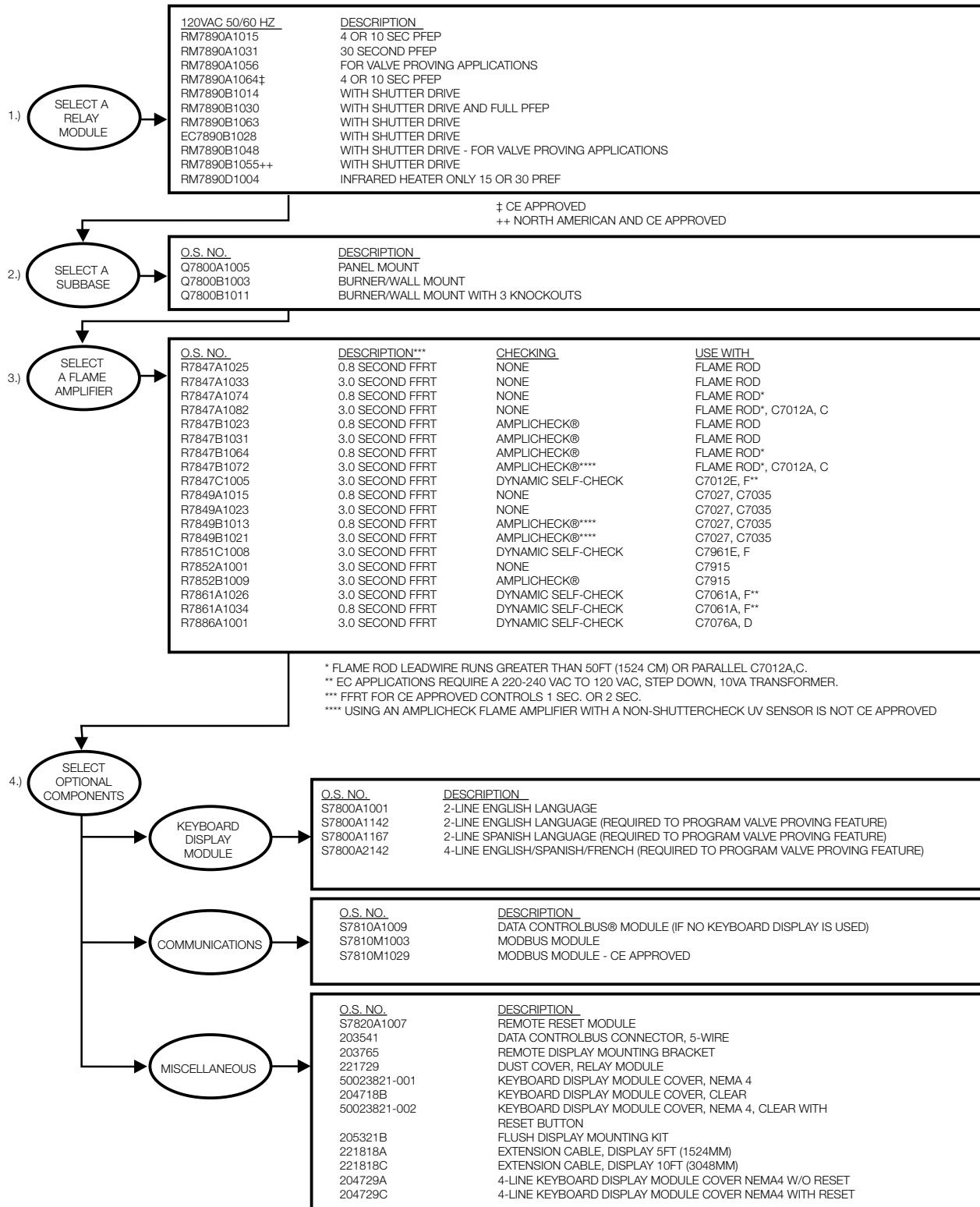
## PRODUCT SELECTION MATRIX FOR RM7888A SPECIAL FUNCTION PRIMARY CONTROL RELAY MODULES:



M15523F

# 7800 Series Product Selection Matrix

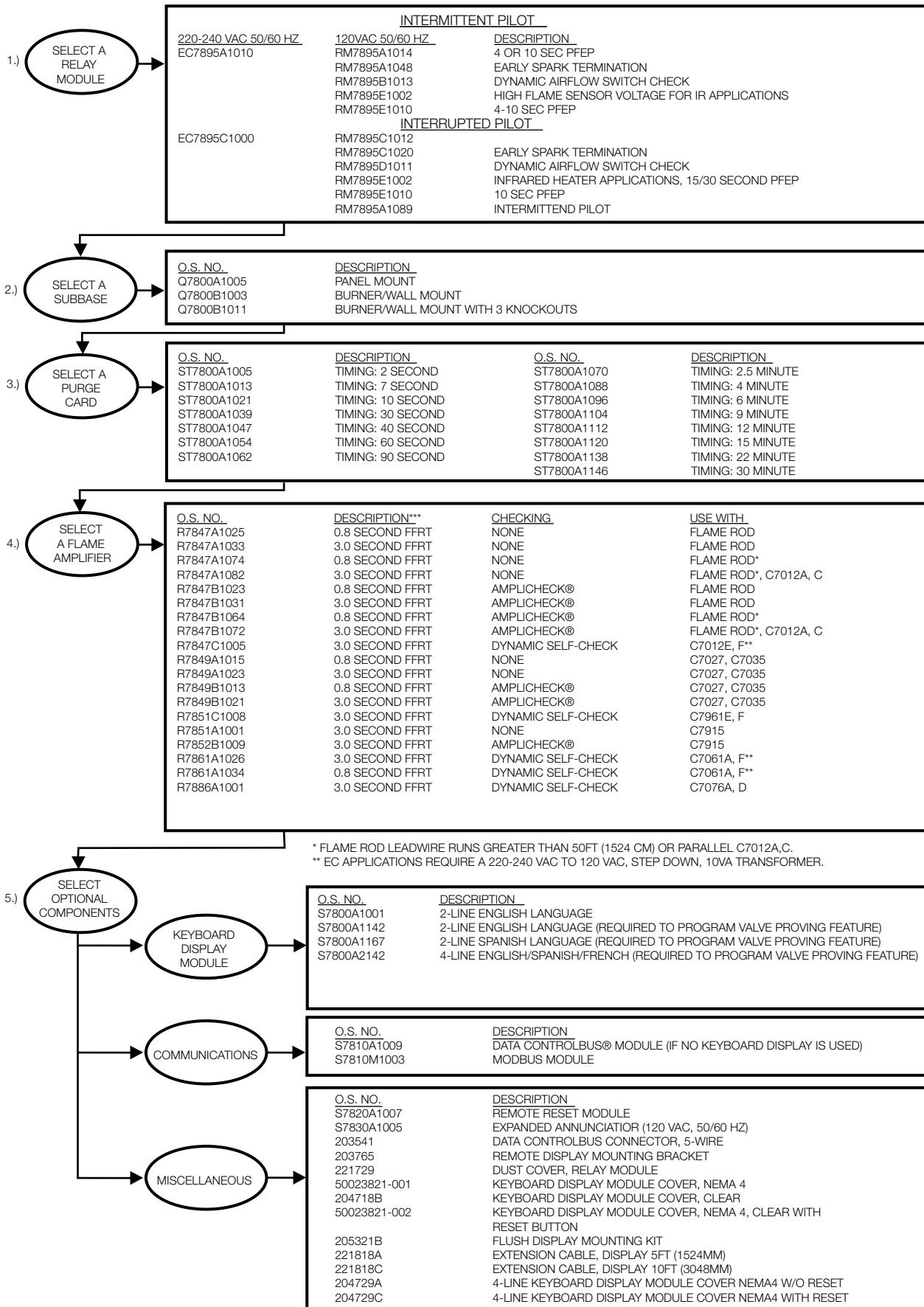
## PRODUCT SELECTION MATRIX FOR EC/RM7890 ON/OFF PRIMARY CONTROL RELAY MODULES:



M15524G

# 7800 Series Product Selection Matrix

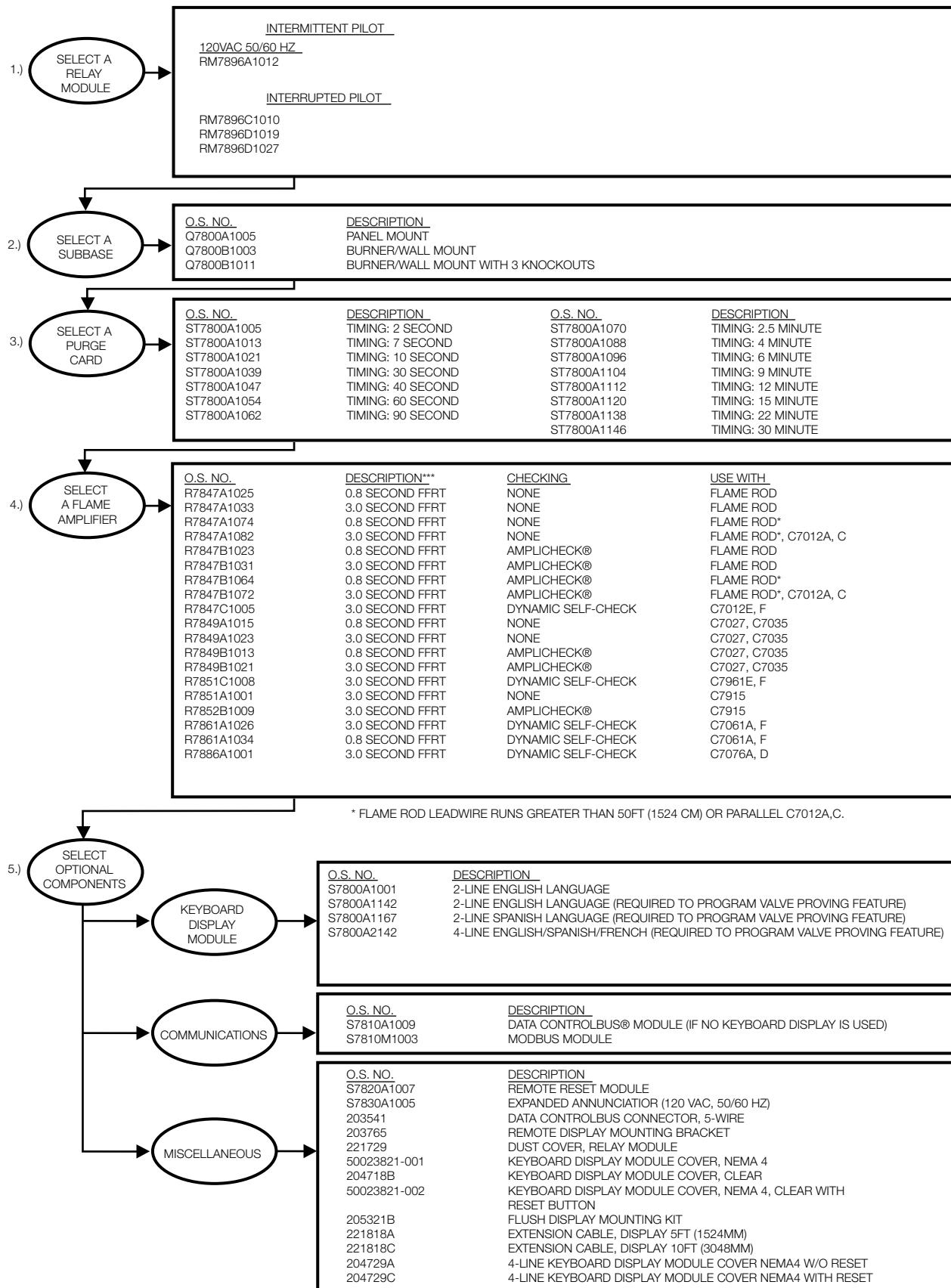
## PRODUCT SELECTION MATRIX FOR EC/RM7895 ON/OFF WITH PURGE PRIMARY RELAY MODULES:



M15525F

# 7800 Series Product Selection Matrix

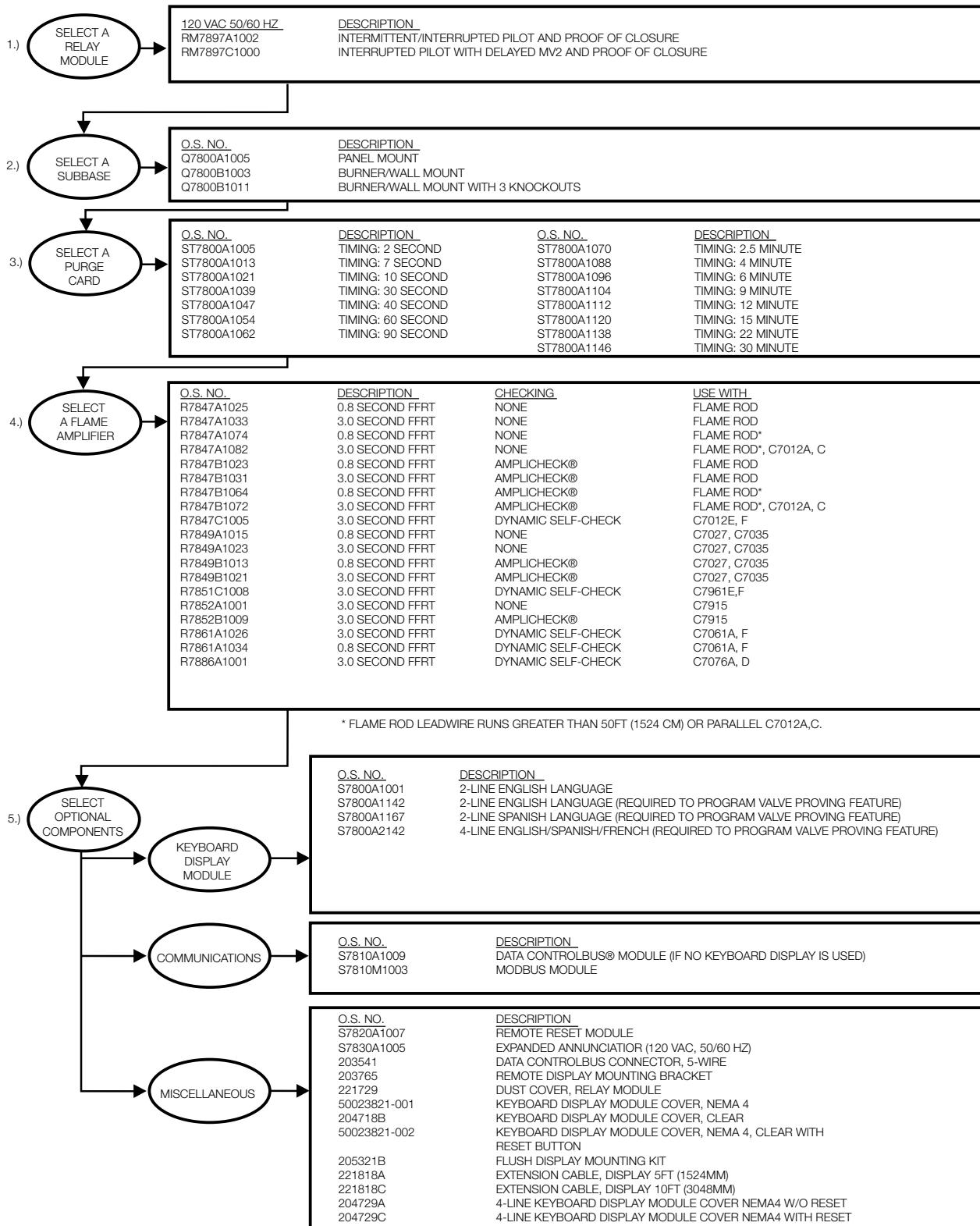
## PRODUCT SELECTION MATRIX FOR RM7896 ON/OFF WITH PRE- AND POST-PURGE PRIMARY RELAY MODULES:



M13908B

# 7800 Series Product Selection Matrix

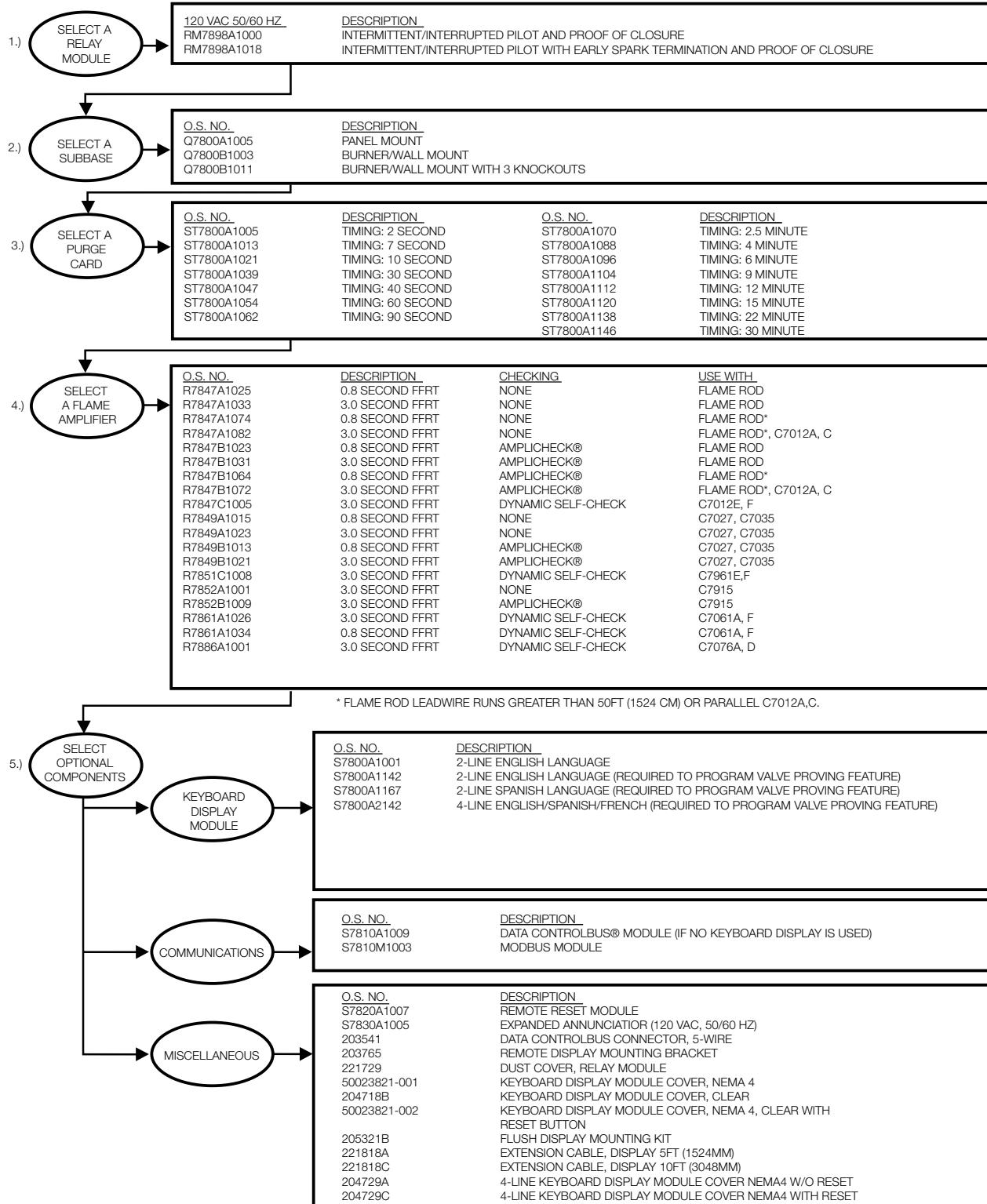
## PRODUCT SELECTION MATRIX FOR RM7897 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES:



M15526H

# 7800 Series Product Selection Matrix

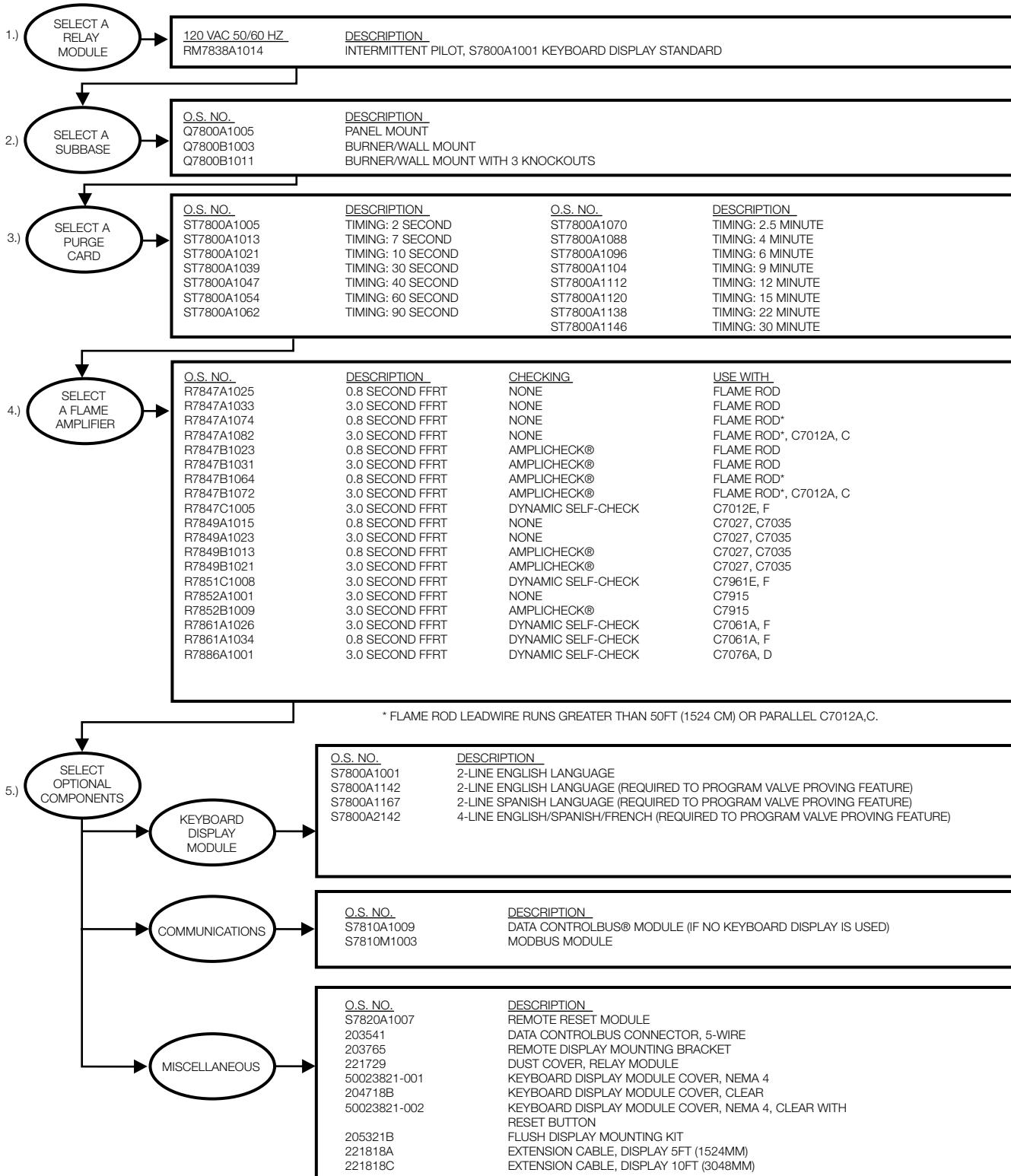
## PRODUCT SELECTION MATRIX FOR RM7898 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES FOR VALVE PROVING APPLICATIONS:



M23254C

# 7800 Series Product Selection Matrix

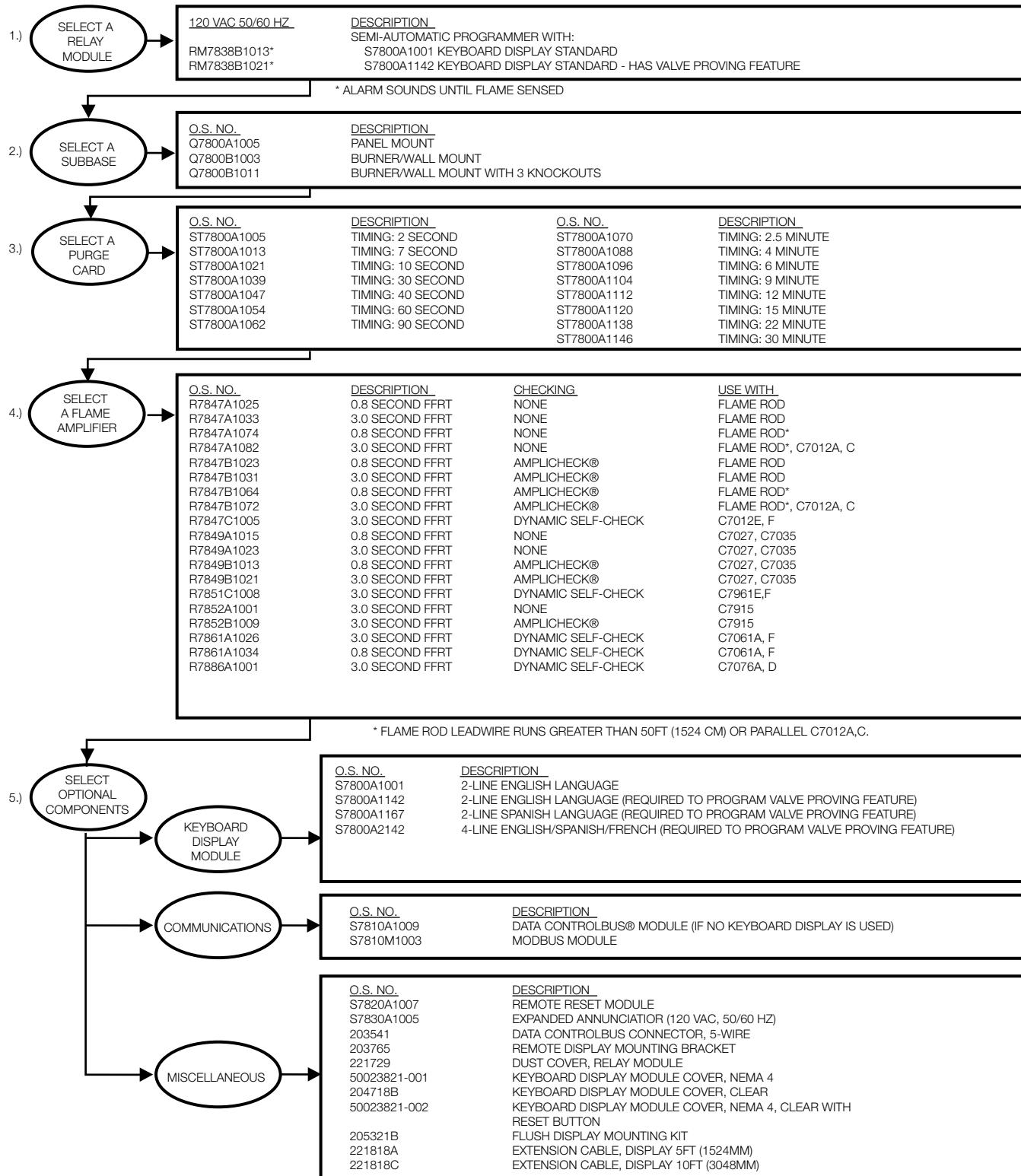
## PRODUCT SELECTION MATRIX FOR RM7838A MANUAL START WITH PURGE INDUSTRIAL PRIMARY RELAY MODULE:



M15527F

# 7800 Series Product Selection Matrix

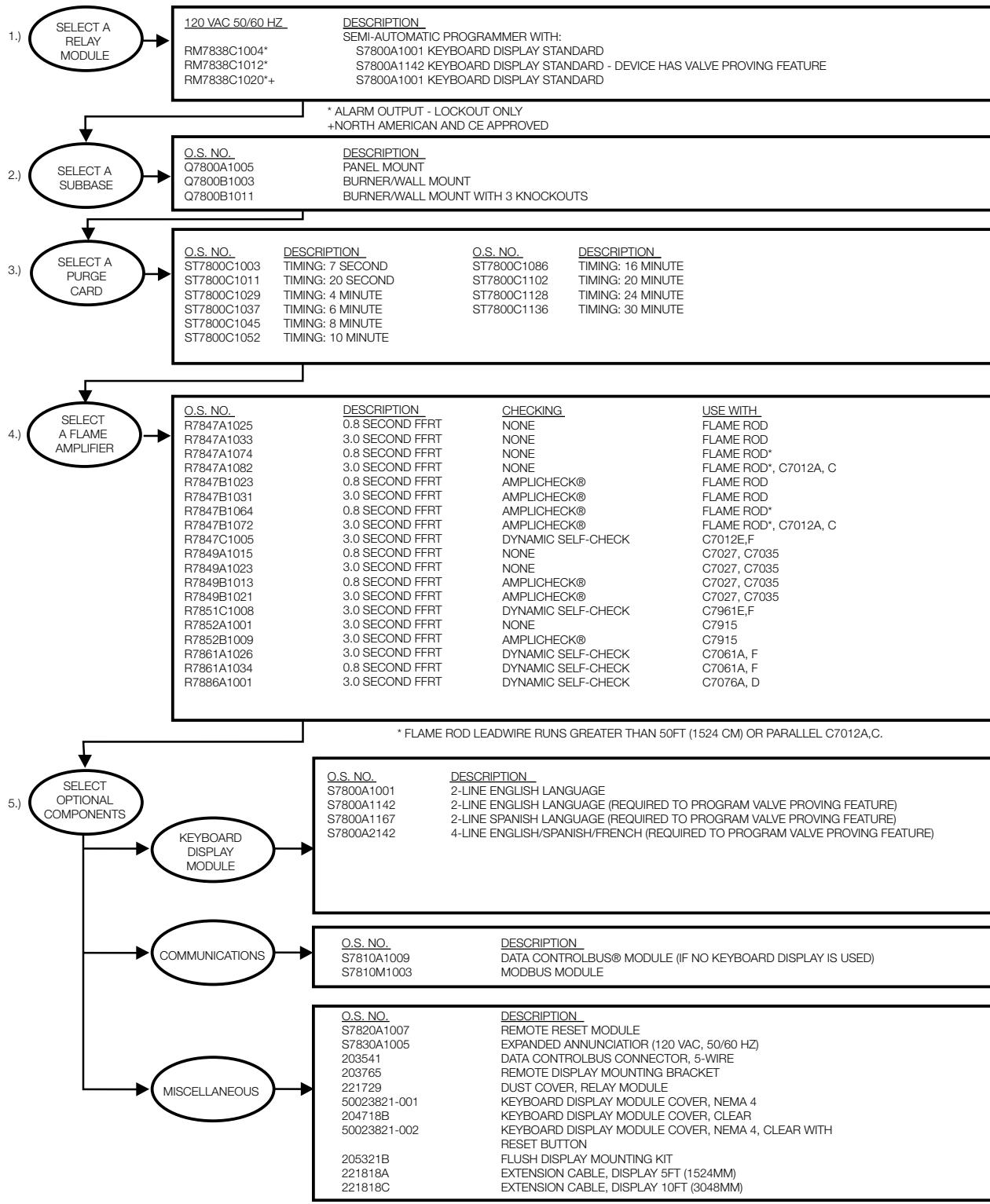
## PRODUCT SELECTION MATRIX FOR RM7838B MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:



M15528F

# 7800 Series Product Selection Matrix

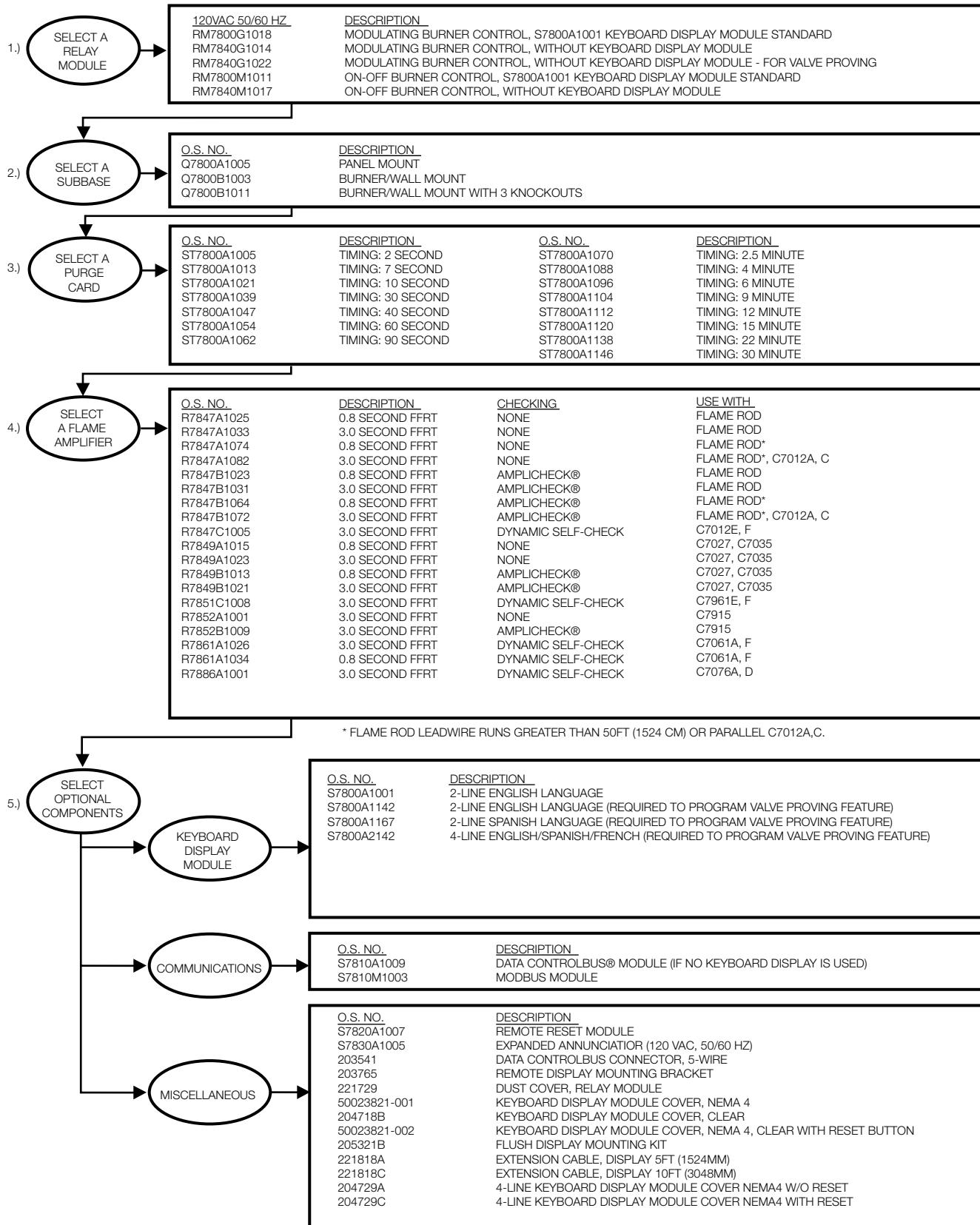
## PRODUCT SELECTION MATRIX FOR RM7838C MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:



M18830F

# 7800 Series Product Selection Matrix

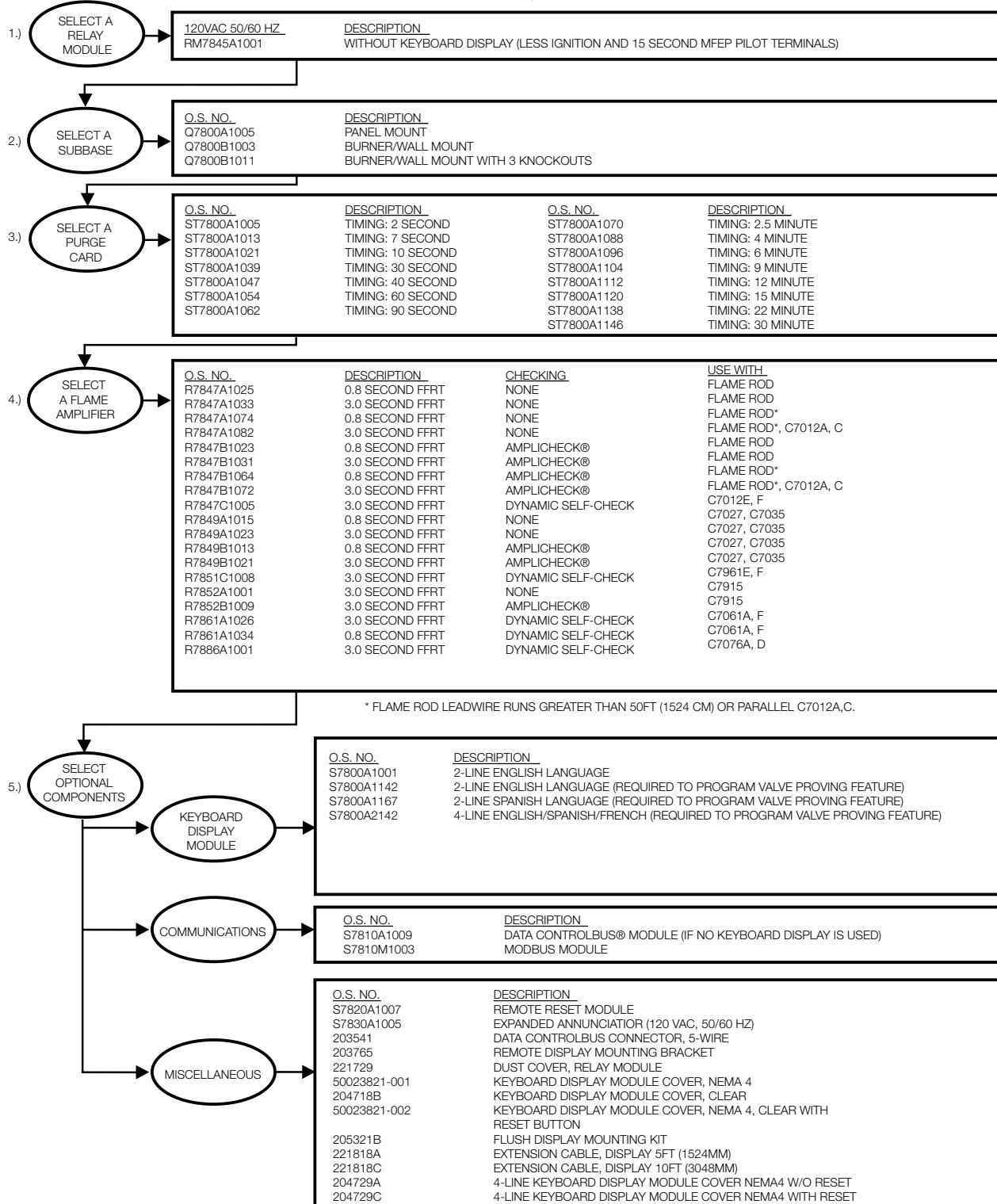
## PRODUCT SELECTION MATRIX FOR UL/CSA RM78XXG,M PROGRAMMER RELAY MODULE:



M15529F

# 7800 Series Product Selection Matrix

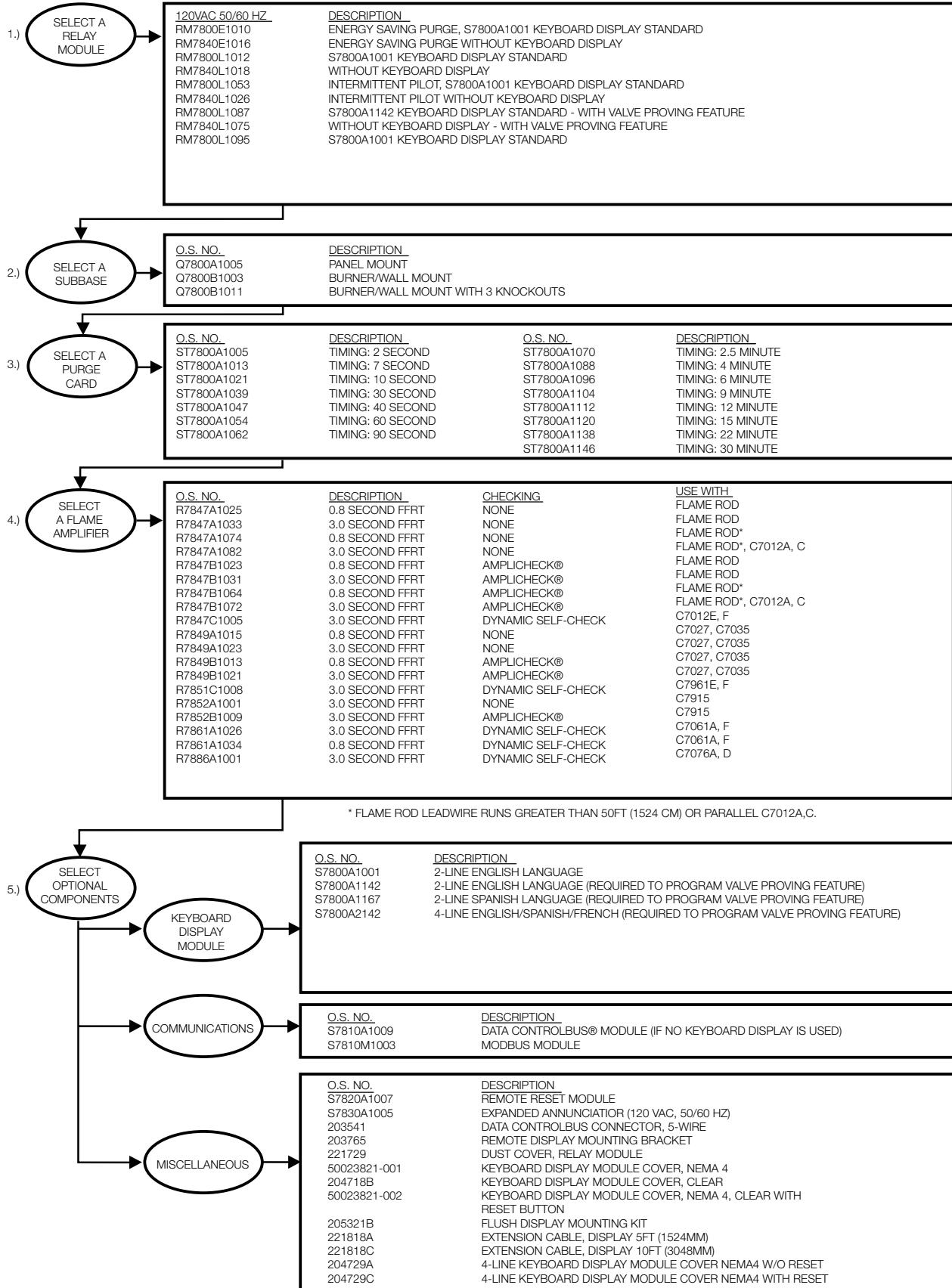
**PRODUCT SELECTION MATRIX FOR FM/IRI RM78XXE, L PROGRAMMER RELAY MODULE:**



M34645

# 7800 Series Product Selection Matrix

## PRODUCT SELECTION MATRIX FOR FM/IRI RM78XXE, L PROGRAMMER RELAY MODULE:



M15530G

# 7800 Series Product Selection for legacy and competitor replacements

## 7800 Series Product Selection for legacy and competitor replacements

Honeywell Device to be Replaced	Replace With	Amplifier
RA890E, F	RM7895A	R7847A
RA890G	RM7895A	R7849A
R4795A, D/W-R7290 AMP	RM7895A	
R4795A, D/W-R7289 AMP	RM7895B	R7847A
R7795A	RM7895A	R7849
R7795B	RM7895A	R7847
R7795C	RM7895C	R7849
R7796D	RM7895C	R7847
R4140P	RM7895C	R7847A or R7849A
R4140Y	RM7895A	
Fireye Device to be Replaced	Replace With	Amplifier
TFM1, 2, 3H	RM7895A	R7847A
UVM1, 2, 3, 3H		R7849A
UVM5	RM7895C	R7849A

**IMPORTANT:** For on-off, gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series with the main fuel valve(s).

### CONVERSION CHART FOR RM7895 120 VOLT ONLY

Q7800 TERMINAL	L1	L2	3	4	6	7	8	9	10	21	F	G
<b>Programmer to be Converted</b>												
RA890 (All)	1 <sup>a</sup>	2	c	b, d	6	b	3 <sup>d</sup>	5	4	—	F	G
R4795 (All)	a	2	c	8, 7	1	6 <sup>b</sup>	3	5	4	—	F	G
R7795A, B	L1	L2	9	8	16	3	5	6	18	—	F	G
R7795C, D	L1	L2	9	8	16	3	5	6	18	7	F	G
R4140P	L1	L2	A	M	3	P	5	7	—	6	S1	S2
R4140Y	L1	L2	9	8	4	3	6	7	5	—	F <sup>e</sup>	G
Fireye: UVM/TFM (All models)/MII	1	1	A	8	7	6	3	5	4	—	S2 <sup>f</sup>	S1
UVM-1 (Prior to 1968)	a	2	A	b, d	1	b	3	5	4	—	S <sup>f</sup>	S
UVM-2 (Prior to 1968), All others	a	2	A	8	1	6	3	5	4	—	S <sup>f</sup>	S

a Connect power to terminal L1.

b If no airflow switch is used, jumper Q7800 terminal 6 to 7.

c Replace low voltage alarm (if used) with line voltage alarm. Connect alarm directly to Q7800 terminal 3.

d On power burners, identify burner motor wire on terminal 3 and connect it to Q7800 terminal 4.

e Select amplifier to match detector being used.

f On UVM models, the detector must be changed to a Honeywell C7027 or C7035.

### REPLACEMENT DIRECTIONS:

1. Disconnect all power to programmer.
2. Remove old programmer from subbase (trade-in to Honeywell Authorized Flame Safeguard Distributor).
3. Mark all wires on subbase; i.e., wires connected to terminal "1" should be marked "1." Disconnect wires as they are marked.
4. Remove old subbase.
5. Mount Q7800A Subbase.
6. Connect wires to subbase per attached cross reference. Pay close attention to footnotes. For example: to convert a Fireye UVM-2 to a RM7895, the wire marked "A" would connect to terminal #9 on the Q7800. The wire marked "8" would connect to Q7800 terminal #8.
7. A superscript letter, such as "a" designates a footnote. Study these footnotes carefully.
8. Plug in the RM7895. Make sure you select the proper ST7800A Purge Timer and Detector for the application.
9. There are 2 wires on the amplifier section of the RM7895, which are used to select the desired trial for ignition timing and mode (lock-out or recycle). Refer to the RM7895 instruction sheet (form 66-1090) for assistance with proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. The line voltage controller should be connected in series with the limits.
11. If a low voltage airflow switch is used on the RM7895, it must be replaced with a line voltage airflow switch.
12. The following models are recommended for replacements:

# Commercial/Industrial Combustion Controls

## 7800 Series Burner Controls

### EC7820 Primary Control Meeting European Community Timings



**Application:** Primary Control

**Interlocks:** Lockout

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 5 sec

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A  
Plug-in Purge Timer Card.

**Frequency:** 60 Hz ( $\pm 10\%$ ), 50 Hz

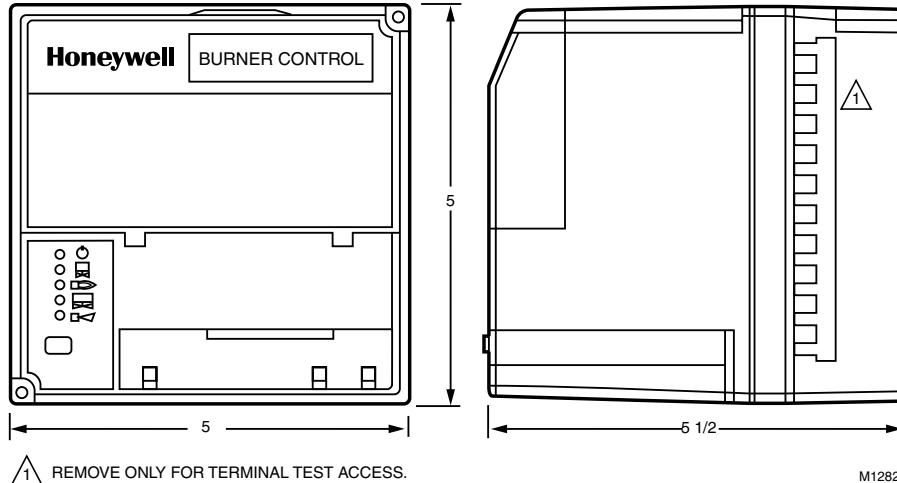
**AirFlow Check:** User selectable

**Second Stage Pilot Valve:** Intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C  
to +60°C)

Dimensions in inches (millimeters)



M12821

Integrated burner control for automatically fired gas, oil, or combination, single burner atmospheric with fan applications. Has automatic burner sequencing, flame supervising system status indication, system or self-diagnostics, and troubleshooting.

- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch. Interchangeable plug-in amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Non-volatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep  
with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase  
(127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase  
x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

**Approvals, Gastec/European:** CE approved PIN-0063CT1466 against  
EN 298:2012 under GAR 2016/426.



Material Number	Voltage	Pilot Type	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
EC7820A1026/U	220 to 240 Vac (+10, -15%)	interrupted	5 sec, or 8 sec, or Intermittent	5 sec or 10 sec	1 ignition attempt, Includes Modulation w/ Fan Output

# 7800 Series Burner Controls

## EC7830; EC7850; RM7830; RM7850 Programming Control Meeting European Community Timings



### Application: Programming Control

**Flame Establishing Period - Main:** 3 sec, or 5 sec, or Intermittent

**Flame Establishing Period - Pilot:** 3 sec or 5 sec

**Interlocks:** Lockout

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A,B Universal Wiring Subbases.

R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**AirFlow Check:** User selectable

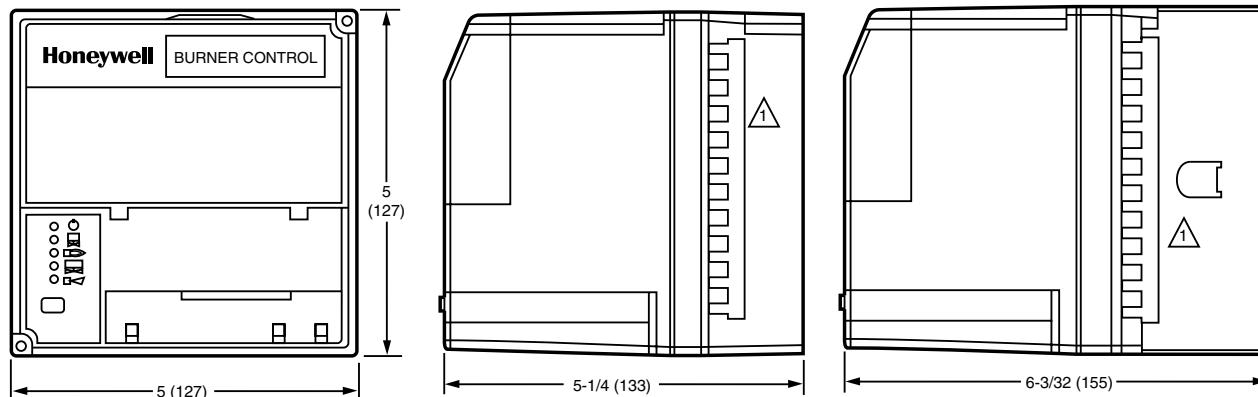
**Second Stage Pilot Valve:** Intermittent

**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Dimensions in inches (millimeters)**



M15532A

Material Number	Voltage	Frequency	PostPurge	Comments
EC7830A1033/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz	2 sec	On/Off Power Burner
EC7830A1066/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz	15 sec	On/Off Power Burner
EC7850A1072/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz	2 sec	LHL-LF & HF Proven
EC7850A1080/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz	30 sec	LHL-LF & HF Proven
EC7850A1122/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz	15 sec	LHL-LF & HF Proven
RM7830A1029/U	120 Vac (+10, -15%)	50 Hz; 60 Hz (±10%)	30 sec	On/Off Power Burner
RM7850A1001/U	120 Vac (+10, -15%)	50 Hz; 60 Hz (±10%)	2 sec	LHL-LF & HF Proven
RM7850A1019/U	120 Vac (+10, -15%)	50 Hz; 60 Hz (±10%)	15 sec	LHL-LF & HF Proven

## RM7800 Programmers



Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- Includes Keyboard Display Module.

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.



**Application:** Programming Control

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 15 sec

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**AirFlow Check:** User selectable

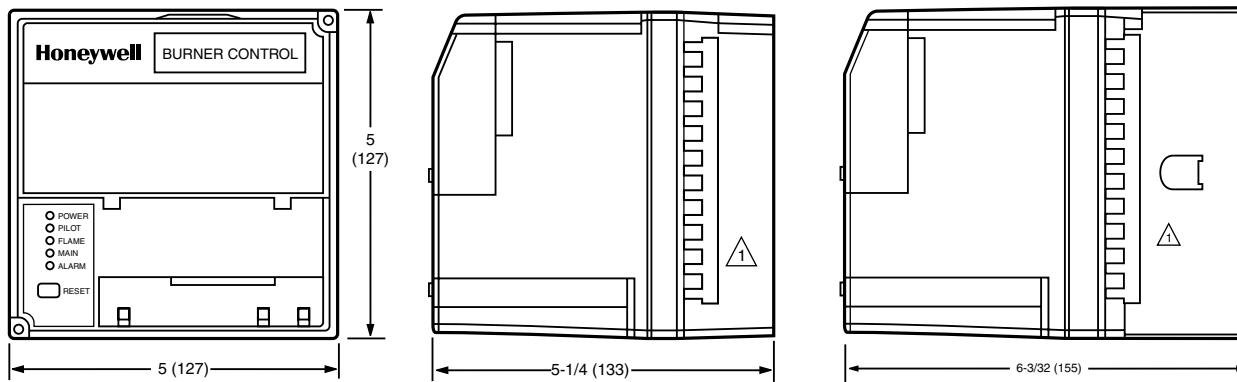
**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Dimensions in inches (millimeters)**



MODULE WITH SUBBASE

M15518B

⚠ REMOVE ONLY FOR TERMINAL TEST ACCESS.

Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Second Stage Pilot Valve	Interlocks	Comments
RM7800E1010/U	120 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF & HF Proven
RM7800G1018/U	120 Vac (+10, -15%)	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	Selectable	Running	Includes S7800 Display, LHL-LF Proven
RM7800L1012/U	120 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF & HF Proven
RM7800L1053/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Lockout	Includes S7800 Display, LHL-LF & HF Proven
RM7800M1011/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	Includes S7800 Display, On/Off-LF proven

# 7800 Series Burner Controls

## RM7800 Programmers with VPS



**Integrated burner control for gas, oil, coal or combination fuel single burner uses. With Valve Proving Feature. RM7800L comes standard with S7800A1142 Keyboard Display.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.



**Application:** Programming Control w/VPS

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**AirFlow Check:** User selectable

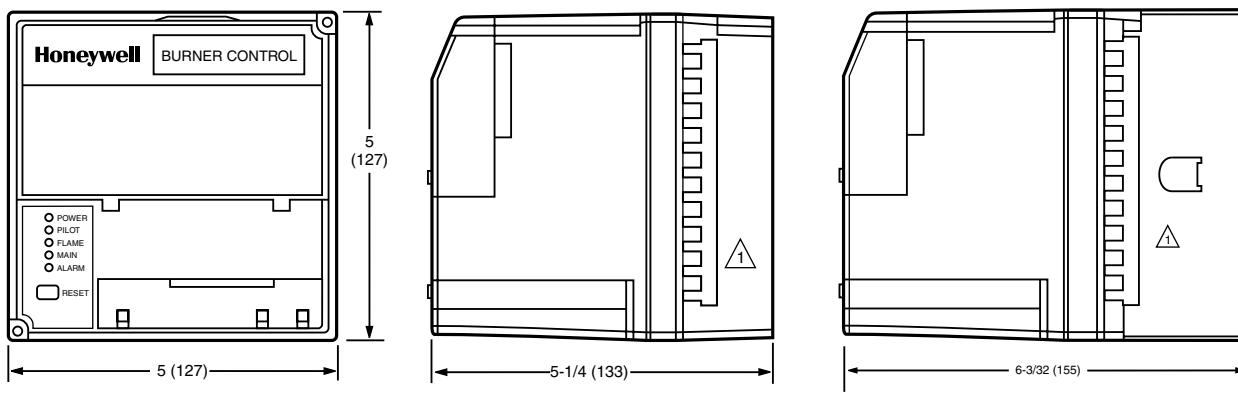
**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Dimensions in inches (millimeters)**

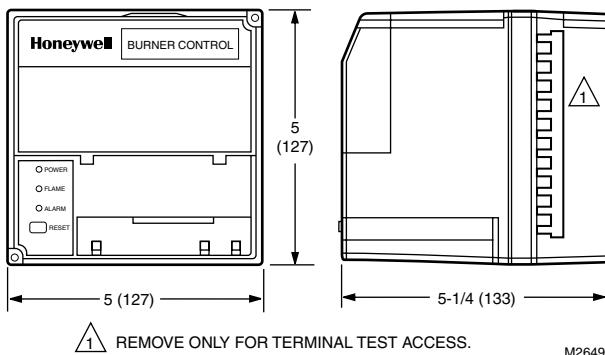


Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Second Stage Pilot Valve	Interlocks	Comments
RM7800L1087/U	120 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800A1142 Display, LHL-LF & HF Proven

## RM7823; EC7823 Flame Switch



Dimensions in inches (millimeters)



M2649

**Microprocessor-based integrated flame switch for detecting a flame using rectification, ultraviolet (UV) or infrared (IR) source. Provides level of safety, functional capability and features beyond conventional controls.**

- Can be fitted with any 7800 Series Amplifier to provide relay action from two single pole, double throw (SPDT) relays when flame is present or not present. RM7823A and EC7823 are a flame detector relays only.
- Suitable primary control must be used to provide safe-start check, safety lockout, load switching and other functions required in flame safeguard systems.
- Three LEDs to indicate power, flame and alarm.
- Access for external electrical voltage checks.
- Nonvolatile memory.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.

**Application:** Flame Switch

**Required Components:** Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Swiss RE:** Acceptable,

**GASTEC/European:** CE approved against EN 298:2012 - PIN 0063CU1745 under GAR 2016/426

**Comments:** two SPDT outputs



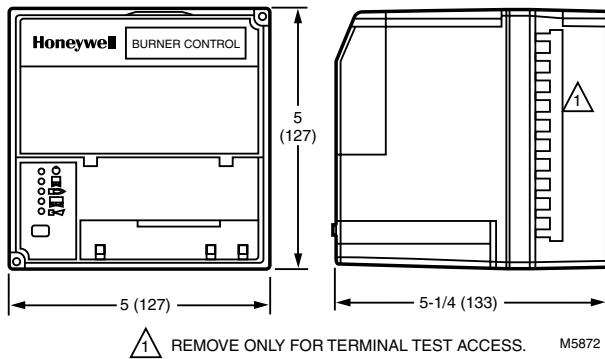
Material Number	Voltage	Frequency	Approvals, Underwriters Laboratories Inc.	Approvals, CSA	Approvals, FCC	Approvals, Factory Mutual
EC7823A1004/U	220 to 240 Vac (+10, -15%)	60 Hz (±10%), 50 Hz				Report No. OY0A9.AF.
RM7823A1016/U	120 Vac (+10, -15%)	50 Hz, 60 Hz (±10%)	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	FCC Part 15, Class B, Emissions.	Report No. OX4A5.AF.

# 7800 Series Burner Controls

## RM7824 On-Off Primary Control



Dimensions in inches (millimeters)



**24 Vdc microprocessor-based integrated burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond the capacity of conventional controls.**

- For use with R7824C Amplifier with C7024E, F Flame Detectors; R7848A, B with C7015A Flame Detectors; R7851B with C7927 Flame Detectors; or R7852A, B with C7915 Flame Detectors.
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Five LEDs provide sequence information.
- Selectable recycle or lockout on loss of flame.
- Shutter drive output for use with dynamic self-check flame detectors.
- Access for external electrical voltage checks.
- Plug-in flame amplifier.
- Nonvolatile memory retains history files and lockout status after loss of power.

**Application:** Primary Control 24 Vdc

**Required Components:** Q7800A, B Universal Wiring Subbases. R7824 or R7848 Flame Signal Amplifier.

**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.

Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot
RM7824A1006/U	24 Vdc (+10, -15%)	Intermittent	4 sec or 10 sec

## RM7838A Manual Start Industrial Primary Control with Purge



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.



**Application:** Semi Automatic Primary Control with Purge

**Interlocks:** Running

**PrePurge:** Determined by ST7800A Purge Timer Card

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

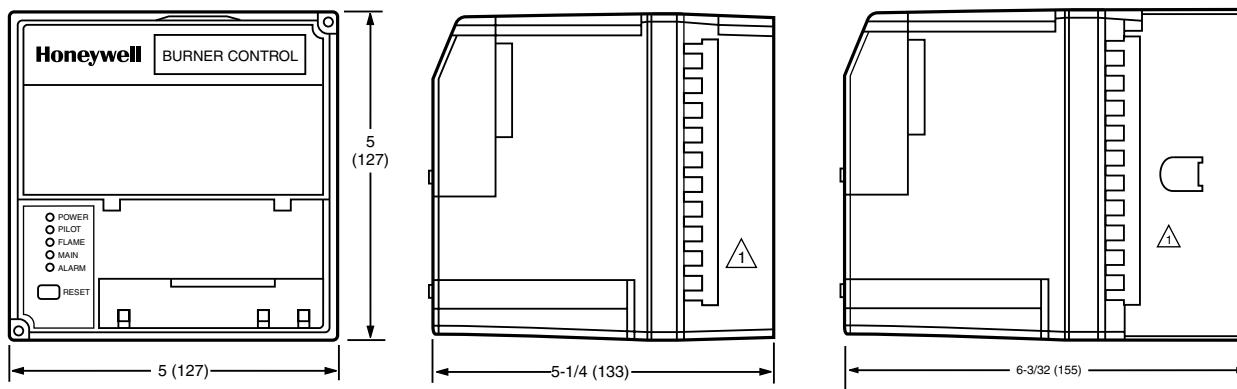
**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Dimensions in inches (millimeters)**



M15518B

Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
RM7838A1014/U	120 Vac (+10, -15%)	Intermittent	4 sec or 10 sec	Includes S7800 Display

# 7800 Series Burner Controls

## RM7838B, C Manual Start Industrial Programmers



**Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

**Application:** Semi Automatic Programming Control

**Interlocks:** Lockout

**Preignition:** Yes

**Early Spark Termination:** Yes, 5 sec

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

Dimensions in inches (millimeters)

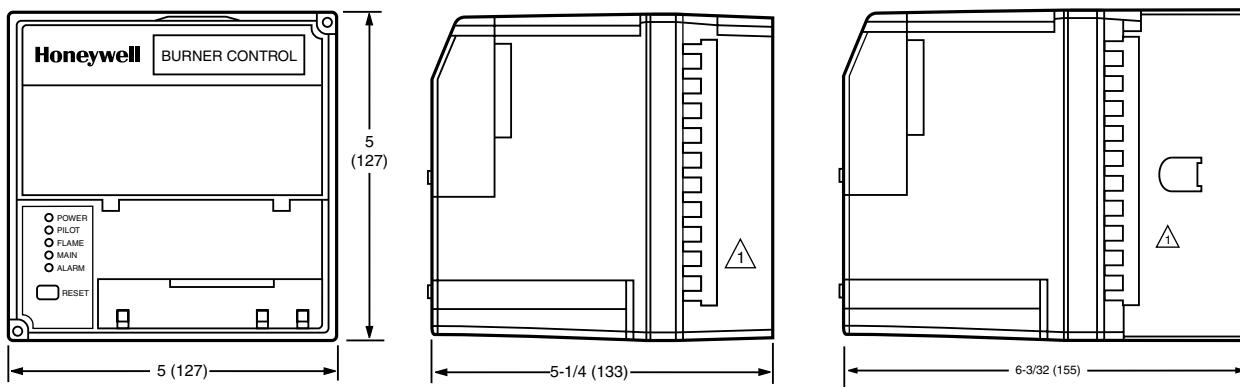
**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.



M15518B

Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	PrePurge	Required Components	Approvals, Gastec/European	Comments
RM7838B1013/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Determined by ST7800A Purge Timer Card	Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.		Includes S7800 Display
RM7838C1004/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Determined by ST7800C Purge Timer Card	Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800C Plug-in Purge Timer Card.		Includes S7800 Display
RM7838C1020/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Determined by ST7800C Purge Timer Card	Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800C Plug-in Purge Timer Card.	Gastec EN268 Report 1156791	Includes S7800 Display

## RM7838B, C Manual Start Industrial Programmers with VPS



Integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Includes Valve Proving Feature with S7800A1142 Keyboard Display.

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes S7800A1142 Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.
- With Valve Proving Feature and Programmable Post Purge Time.
- Power LED blinks a fault code on system lockout.

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.



**Application:** Semi Automatic Programming Control w/VPS

**Interlocks:** Lockout

**Preignition:** Yes

**PostPurge:** programmed with S7800A1142 display

**Early Spark Termination:** Yes, 5 sec

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

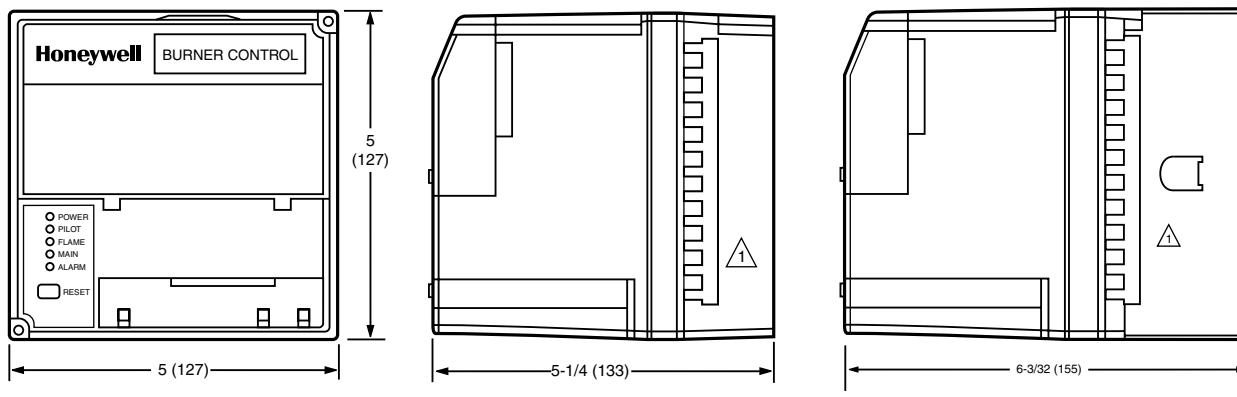
**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Dimensions in inches (millimeters)**



1 REMOVE ONLY FOR TERMINAL TEST ACCESS.

MODULE WITH SUBBASE

M15518B

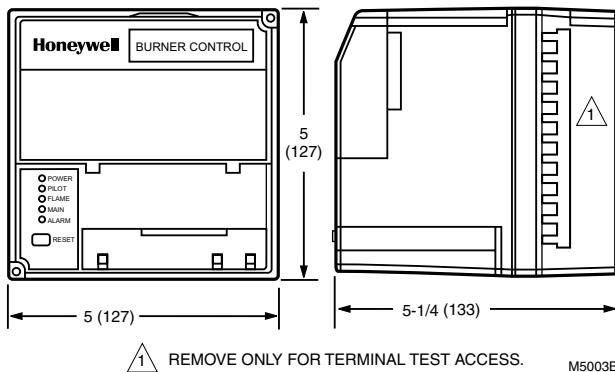
Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	PrePurge	Required Components	Comments
RM7838B1021/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Determined by ST7800A Purge Timer Card	Q7800A, B Universal Wiring Subbases, R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier, ST7800A Plug-in Purge Timer Card.	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7838C1012/U	120 Vac (+10, -15%)	10 sec or Intermittent	4 sec or 10 sec	Determined by ST7800C Purge Timer Card	Q7800A, B Universal Wiring Subbases, R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier, ST7800C Plug-in Purge Timer Card.	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation

# 7800 Series Burner Controls

## RM7840 Programmers



Dimensions in inches (millimeters)



**Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of RM7840 operation and fault information.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

**Application:** Programming Control

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 15 sec

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz (±10%)

**AirFlow Check:** User selectable

**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.

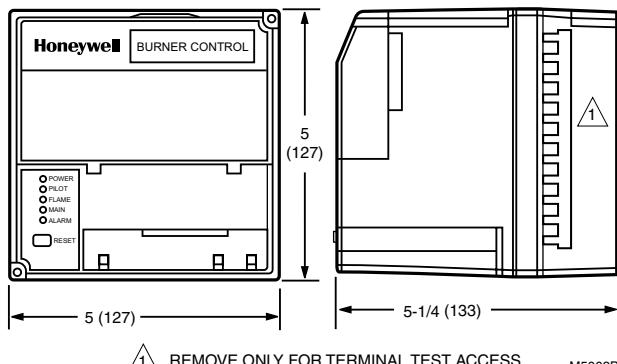


Material Number	Interlocks	Second Stage Pilot Valve	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
RM7840E1016/U	Lockout	Interrupted	10 sec or 15 sec	4 sec or 10 sec	LHL-LF & HF Proven
RM7840G1014/U	Running	selectable	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	LHL-LF Proven
RM7840L1018/U	Lockout	Interrupted	10 sec or 15 sec	4 sec or 10 sec	LHL-LF & HF Proven
RM7840L1026/U	Lockout	Intermittent	10 sec or Intermittent	4 sec or 10 sec	LHL-LF & HF Proven
RM7840M1017/U	Running	Intermittent	10 sec or Intermittent	4 sec or 10 sec	On/Off-LF Proven

## RM7840 Programmers with VPS



Dimensions in inches (millimeters)



**Integrated burner control for gas, oil, coal or combination fuel single burner uses. Provides safety, functional capability and features beyond normal controls. With Valve Proving Feature. Requires S7800A1142 Keyboard Display.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

**Application:** Programming Control w/VPS

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Early Spark Termination:** Yes, 5 sec

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**AirFlow Check:** User selectable

**Second Stage Pilot Valve:** selectable

**Pilot Type:** interrupted

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, FCC:** FCC Part 15, Class B, Emissions.



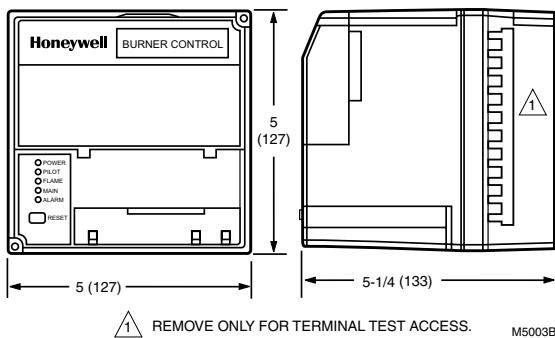
Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Interlocks	Comments	Approvals, Underwriters Laboratories Inc.	Approvals, Factory Mutual
EC7840L1014/U	220 to 240 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Lockout	Requires S7800A1142 Display, LHL-LF & HF Proven		
RM7840G1022/U	120 Vac (+10, -15%)	10 sec, 15 sec, 30 sec, or Intermittent	4 sec or 10 sec	Running	Requires S7800A1142 Display, LHL-LF Proven	Component Recognized, File No. MP268; Guide No. MCCZ.	Report No. 1V9AO.AF.
RM7840L1075/U	120 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Lockout	Requires S7800A1142 Display, LHL-LF & HF Proven	Component Recognized, File No. MP268; Guide No. MCCZ.	Report No. 1V9AO.AF.

# 7800 Series Burner Controls

## RM7845 Programmers



Dimensions in inches (millimeters)



**Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.

- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of RM7840 operation and fault information.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

**Application:** Programming Control

**Interlocks:** Lockout

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 15 sec

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz (±10%)

**AirFlow Check:** User selectable

**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

**Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.**

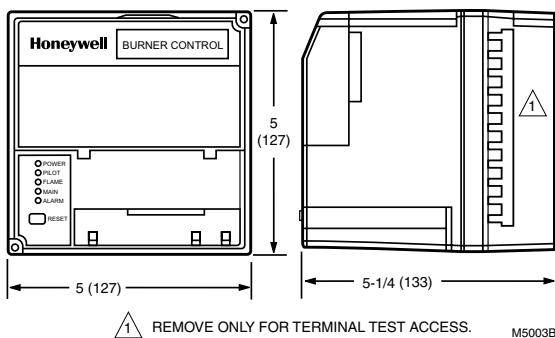
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.

Material Number	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
RM7845A1001/U	10 sec	4 sec or 10 sec	LHL-LF & HF Proven

## RM7885 Manual Start Industrial Primary Control



Dimensions in inches (millimeters)



**Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Adaptable to continuous firing, high-low or modulating firing rate for semi-automatic burner sequencing.
- Operates with the following: Torch-ignited main burner or torch-ignited pilot using S445A Start-Stop Station, or conventional knee or foot operated station.
- Direct-ignition oil burner or electrically ignited pilot, using S445A Start-Stop Station.
- Five LEDs provide sequence information.
- Nonvolatile memory.
- Flame signal check during standby.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.
- Terminal provided for external alarm to sound on flame failure.

**Application:** Semi Automatic Primary Control

**Required Components:** Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

**Frequency:** 50 Hz; 60 Hz (±10%)

**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

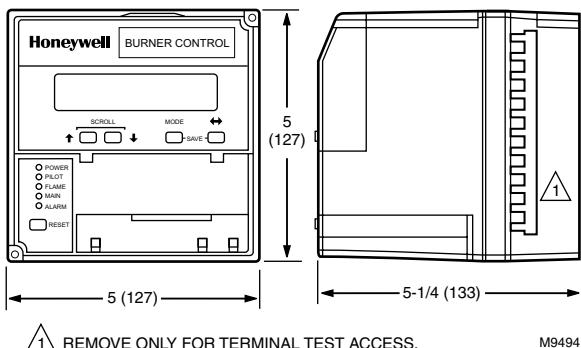
**Approvals, Factory Mutual:** Report No. OX4A5.AF.

Material Number	Voltage	Flame Establishing Period - Main	Flame Establishing Period - Pilot
RM7885A1015/U	120 Vac (+10, -15%)	Intermittent	15 min

## RM7888 PLC Adaptable Primary Control



Dimensions in inches (millimeters)



**Integrated burner control for industrial process semi-automatically fired gas, oil, coal, or combination fuels for single and multiple burner applications. PLC Adaptable.**

- Functions include automatic burner startup sequencing, five user selectable run sequences, four line-voltage sequence control inputs, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Requires a relay module, subbase, and amplifier for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display mounting, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Use with master system control which determines purge timing and confirms air supply and air flow.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.

**Application:** Primary Control - PLC Adaptable

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Pilot Type:** selectable

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 10 oz (0.7 kg)

**Approvals, Factory Mutual:** Approved.

Material Number	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
RM7888A1019/U	15 sec	4 sec	Selectable sequences
RM7888A1027/U	15 sec	10 sec	For 10 sec DSI applications, selectable sequences

# 7800 Series Burner Controls

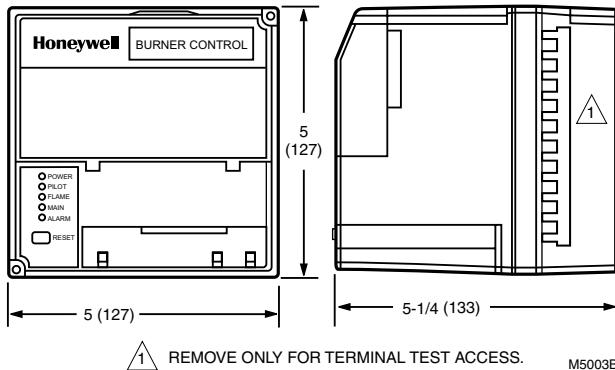
## RM7890 On-Off Primary Control with VPS



**Integrated on/off primary burner control for automatically fired gas, oil or combination fuel single burner applications. Contains Valve Proving Feature. Requires S7800A1142 Display to program VPS feature.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.
- Power LED blinks Fault Code on lockout.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Contains Valve Proving Feature - require S7800A1142 Keyboard Display (not provided) to set up.

Dimensions in inches (millimeters)



**Application:** On-Off Primary Control w/VPS

**Preignition:** Yes

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz (±10%)

**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.

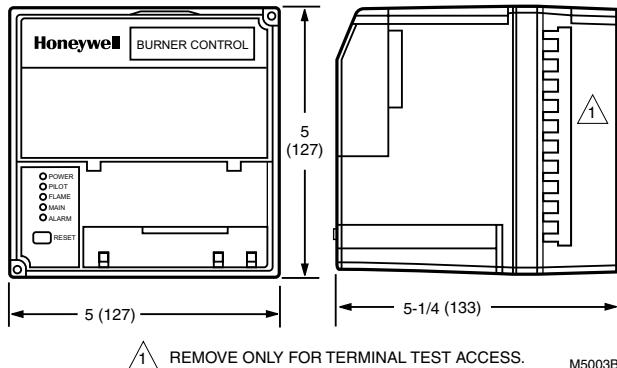


Material Number	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Comments
RM7890A1056/U	Intermittent	4 sec or 10 sec	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7890B1048/U	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability, VPS (Valve Proving Switch) check and blinking LED fault annunciation

## RM7890; EC7890 On-Off Primary Controls



Dimensions in inches (millimeters)



**Micropressor-based integrated primary burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.

- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.

**Application:** On-Off Primary Control

**Flames Establishing Period - Main:** Intermittent

**Required Components:** Q7800A, B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Pilot Type:** intermittent

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 13 oz (0.8 kg)

**Approvals, Swiss RE:** Acceptable



Material Number	Voltage	Flame Establishing Period - Pilot	Approvals, Underwriters Laboratories Inc.	Approvals, CSA	Approvals, Factory Mutual	Approvals, Gastec/ European	Comments
EC7890B1028/U	220 to 240 Vac (+10, -15%)	4 or 10 sec			Report No. 1V9A0.AF.	CE approval model EC7890B1028/U: PIN-0063CT1466 against EN 298:2012 under GAR 2016/426	Includes Shutter Drive Capability
RM7890A1015/U	120 Vac (+10, -15%)	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.		
RM7890A1031/U	120 Vac (+10, -15%)	30 sec fixed	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.		
RM7890A1064/U	120 Vac (+10, -15%)	4 or 10 sec			Report No. 1D0A1.AF		
RM7890B1014/U	120 Vac (+10, -15%)	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.		Includes Shutter Drive Capability
RM7890B1030/U	120 Vac (+10, -15%)	Fixed 4 or 10 sec PFEP	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.		Includes Shutter Drive Capability, Alarm sounds when Reset pushed.
RM7890B1055/U	120 Vac (+10, -15%)	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.	CE approval model RM7890B1055/U: PIN-0063CT1466 against EN 298:2012 under GAR 2016/426	Includes Shutter Drive Capability
RM7890D1004/U	120 Vac (+10, -15%)	15 or 30 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Report No. OX4A5.AF.		Higher Flame Sensor Voltage for Infra Red Heater Applications
RM7890B1048	120 Vac (+10, -15%)	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.		Report No. OX4A5.AF.		Includes Shutter Drive Capability
RM7890B1063	120 Vac (+10, -15%)	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.				Includes Shutter Drive Capability

# 7800 Series Burner Controls

## RA890 Replacement Options using RM/EC7890 Components

The Honeywell RA890 Protectorelay® Flame Safeguard product line has reached end-of-life and is going to go obsolete the first quarter of 2020. Critical components have become difficult to source, limiting our ability to continue to build and offer this line to our customers.

Obsolete Products	Replacement Products
The RA890 line of products will be replaced with comparable models in the RM/EC7800 SERIES*	
<b>Group A</b> RA890G1245/U, RA890F1304/U, RA890G1278/U, RA890G1040/U, RA890G1260/U, RA890F1288/U.	<b>Group A</b> 6 replacement kits that covers most RA890 applications. (see below for details on replacement kit sku numbers)
<b>Group B</b> RA890F1296/U, RA890F1270/U, RA890F1411/U, RA890G1286/U, RA890G1229/U, RA890F1346/U, RA890F1338/U, RA890F1718/U, RA890G1336/U, RA890F1387/U, RA890F1478/U	<b>Group B</b> Replacement components must be ordered separately. To replace the RA890 the following will be required: RM/EC7890 Flame Relay R78xx Flame Amplifier Q7800F1004/U Subbase adapter please reference below charts for replacement options

### Replacement components

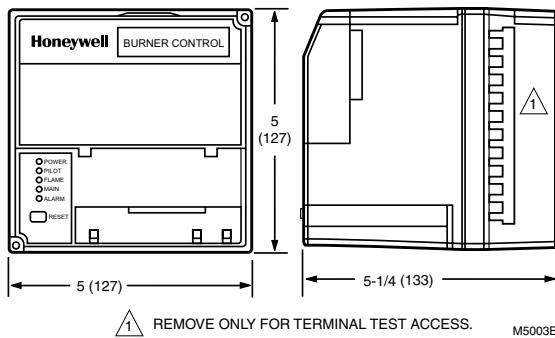
RA890 MODEL	RELAY MODULE	SUBBASE	FLAME AMPLIFIER	REPLACEMENT OPTIONS	NOTES
RA890G1245/U	EC7890B1028/U	Q7800F1004/U	R7849A1015/U	RA890K1245/U	Order KIT
RA890F1304/U	EC7890B1028/U	Q7800F1004/U	R7847A1025/U	RA890K1304/U	Order KIT
RA890G1278/U	EC7890B1028/U	Q7800F1004/U	R7849A1023/U	RA890K1278/U	Order KIT
RA890G1040/U	RM7890B1063/U	Q7800F1004/U	R7849A1023/U	RA890K1040/U	Order KIT
RA890G1260/U	RM7890A1015/U	Q7800F1004/U	R7849A1023/U	RA890K1260/U	Order KIT
RA890F1288/U	RM7890A1015/U	Q7800F1004/U	R7847A1033/U	RA890K1288/U	Order KIT
RA890F1296/U	EC7890B1028/U	Q7800F1004/U	R7847A1033/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1270/U	RM7890A1015/U	Q7800F1004/U	R7847A1025/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1411/U	RM7890B1063/U	Q7800F1004/U	R7847A1033/U	Relay/Subbase/Flame Amp	Order Separately
RA890G1286/U	EC7890B1028/U	Q7800F1004/U	R7849A1023/U	Relay/Subbase/Flame Amp	Order Separately
RA890G1229/U	RM7890A1015/U	Q7800F1004/U	R7849A1015/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1346/U	RM7890A1031/U	Q7800F1004/U	R7847A1033/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1338/U	RM7890A1031/U	Q7800F1004/U	R7847A1025/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1718/U	RM7890A1031/U	Q7800F1004/U	R7847A1033/U	Relay/Subbase/Flame Amp	Order Separately
RA890G1336/U	RM7890A1015/U	Q7800F1004/U	R7849A1023/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1387/U	EC7890B1028/U	Q7800F1004/U	R7847A1033/U	Relay/Subbase/Flame Amp	Order Separately
RA890F1478/U	RM7890A1015/U	Q7800F1004/U	R7847A1025/U	Relay/Subbase/Flame Amp	Order Separately

\* Please contact your regional Honeywell sales representative for more information on replacement parts ordering process.

## RM7895; EC7895 On-Off Primary Control with Prepurge



Dimensions in inches (millimeters)



**Microprocessor-based integrated primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.

- Subbase, amplifier, and prepurge timer are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation. Selectable relight or lockout on loss of flame.
- Airflow switch check.

**Application:** On-Off Primary Control with Prepurge

**Interlocks:** Selectable

**PrePurge:** Determined by ST7800A Purge Timer Card

**Required Components:** Q7800 Universal Wiring Subbases, Flame Signal Amplifier and ST7800A Plug-in Purge Timer Card

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 15 oz (0.9 kg)

**Approvals, Swiss RE:** Acceptable

**Used With:** 7800 Series Amplifiers (Except RM7895E1002/U uses R7847 ONLY)

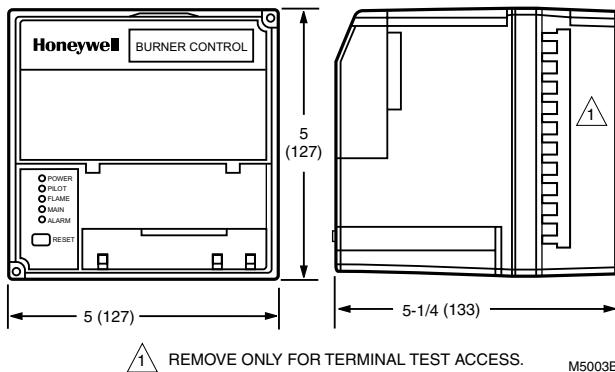
Material Number	Voltage	Pilot Type	AirFlow Check	Delayed Main Valve	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Approvals, Underwriters Laboratories Inc.	Approvals, CSA	Approvals, Control Safety Devices	Approvals, Factory Mutual	Comments
EC7895A1010/U	220 to 240 Vac (+10, -15%)	intermittent		No	Intermittent	4 or 10 sec				Report No. 1D0A1.AF	
EC7895C1000/U	220 to 240 Vac (+10, -15%)	interrupted		Yes	10 sec	4 or 10 sec				Report No. 1D0A1.AF	
RM7895A1014/U	120 Vac (+10, -15%)	intermittent		No	Intermittent	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	
RM7895A1048/U	120 Vac (+10, -15%)	intermittent		No	Intermittent	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	Includes ignition cut-out during PFEP and special sequence for early spark termination
RM7895B1013/U	120 Vac (+10, -15%)	intermittent	Dynamic	No	Intermittent	4 to 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	
RM7895C1012/U	120 Vac (+10, -15%)	interrupted		Yes	10 sec	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	
RM7895C1020/U	120 Vac (+10, -15%)	interrupted		Yes	10 sec	10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	Includes ignition cut-out during PFEP and special sequence for early spark termination
RM7895D1011/U	120 Vac (+10, -15%)	interrupted	Dynamic	Yes	10 sec	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	
RM7895E1002/U	120 Vac (+10, -15%)	intermittent		No	Intermittent	15 or 30 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	Higher Flame Sensor Voltage for Infra Red Heater Applications
RM7895E1010	120 Vac (+10, -15%)	intermittent		No	Intermittent	15 or 30 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1		
RM7895A1089	100 Vac (+10, -15%)	intermittent	Dynamic	No	Intermittent	4 or 10 sec	Component Recognized, File No. MP268; Guide No. MCCZ.	Certified, File No. LR95329-3.	Acceptable: CSD-1	Report No. OX4A5.AF	100 V version for Japan

# 7800 Series Burner Controls

## RM7896 On-Off Primary Control with Pre- and Post-Purge



Dimensions in inches (millimeters)



**Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUSTM MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- 15 second postpurge.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.

**Application:** On-Off Primary Control with Pre- and Post-purge

**Interlocks:** Selectable

**PrePurge:** Determined by ST7800A Purge Timer Card

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 15 oz (0.9 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.

Material Number	Pilot Type	AirFlow Check	Flame Establishing Period - Main	Flame Establishing Period - Pilot	Delayed Main Valve	PostPurge	Comments
RM7896A1012/U	intermittent		Intermittent	4 sec or 10 sec	No	15 sec	Includes Pre- and Post-Purge.
RM7896C1010/U	interrupted		10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post-Purge.
RM7896D1019/U	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post-Purge.
RM7896D1027/U	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	60 sec	Blinking Fault code LED, early spark termination when flame sensed, pre- and post-purge

## RM7897 Automatic Primary Control with Programmable Post-Purge



Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Programmable Post-Purge. Requires S7800A1142 Display to program post-purge feature.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information. Power LED blinks fault code on Safety Shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.
- Programmable post-purge using S7800A1142 Keyboard Display (not provided).

**Weight lb. (kg):** 1 lb 15 oz (0.9 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, Control Safety Devices:** Acceptable: CSD-1

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.



**Application:** On-Off Primary Control with Pre- and Programmable Post-purge

**Flame Establishing Period - Pilot:** 4 sec or 10 sec

**Interlocks:** Selectable

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep

with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase

(127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

Material Number	Voltage	Pilot Type	Delayed Main Valve	Comments	Used With
RM7897A1002/U	120 Vac (+10, -15%)	selectable		Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7897C1000/U	120 Vac (+10, -15%)	selectable	Yes	Includes blinking LED fault annunciation feature	7800 Series Amplifiers

# 7800 Series Burner Controls

## RM7898 On-Off Primary Control with VPS



**Integrated full-function primary burner control for gas, oil, or combination fuel single burner applications. Include Programmable Post-Purge and Valve Proving Feature. Requires S7800A1142 Display to program VPS and post-purge features.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUSTM MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Programmable post-purge.
- Five LEDs provide sequence information. Power LED Blinks Fault code on safety shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Programmable post-purge and Valve Proving feature with S7800A1142 Keyboard Display (not supplied).

**Application:** On-Off Primary Control w/VPS

**Flame Establishing Period - Pilot:** 4 sec or 10 sec

**Interlocks:** Selectable

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Required Components:** Q7800A, B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Pilot Type:** selectable

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase (127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase)

**Weight lb. (kg):** 1 lb 15 oz (0.9 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. OX4A5.AF.



Material Number	Voltage	Early Spark Terminations	Comments	Used With
RM7898A1000/U	120 Vac (+10, -15%)		Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7898A1018/U	120 Vac (+10, -15%)	Special Sequence	Includes blinking LED fault annunciation feature, with early spark termination	7800 Series Amplifiers

## Q7800 22 Terminal Universal Wiring Subbases



Burner, panel or wall mount subbases for 7800 SERIES relay modules and S7830A Expanded Announcer.

- Makes electrical connections for 7800 SERIES relay modules or S7830A Expanded Announcer through bifurcated contacts.
- Provides terminals for field wiring.
- Twenty-two terminals.

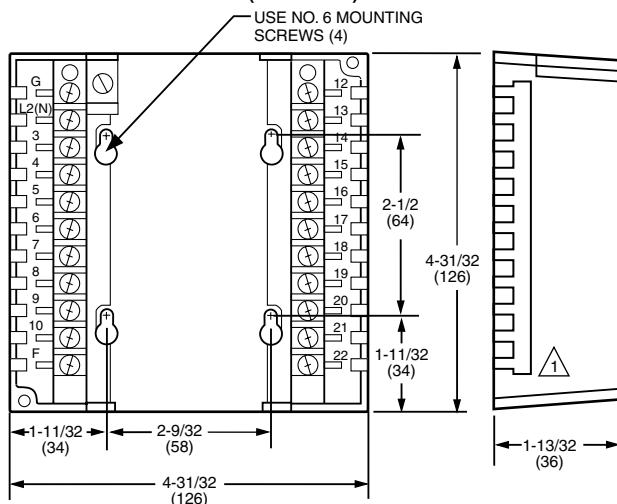
**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

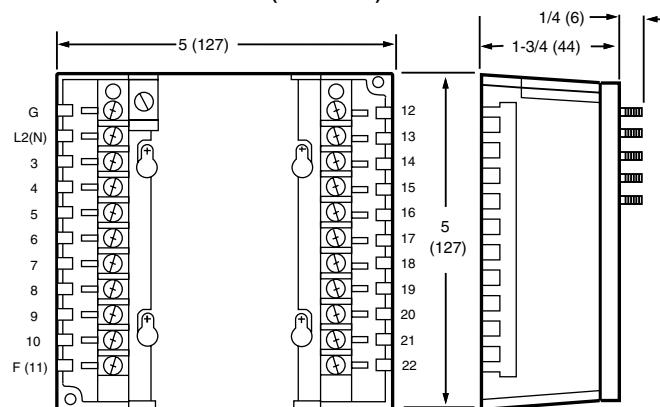
**Approvals, CSA:** Certified, File No. LR95329-3.

Material Number	Application	Approximate Dimensions	Weight lb. (kg)	Approvals, Underwriters Laboratories Inc.	Comments	Used With
Q7800A1005/U	Wiring Subbase	4 31/32 in. wide x 4 31/32 in. high x 1 13/32 in. deep (126 mm wide x 126 mm high x 36 mm deep)	7 oz (0.20 kg)	Component Recognized, File No. MP268; Guide No. MCCZ2.	Panel mount	
Q7800B1003/U	Wiring Subbase	4 31/32 in. wide x 4 31/32 in. high x 1 13/32 in. deep (126 mm wide x 126 mm high x 36 mm deep)	1 lb 3 oz (0.54 kg)	Component Recognized, File No. MP268; Guide No. MCCZ.	Burner/wall mount 2 knockouts each end	
Q7800B1011/U	Wiring Subbase	4 31/32 in. wide x 4 31/32 in. high x 3 in. deep (126 mm wide x 126 mm high x 76 mm deep)	1 lb 3 oz (0.54 kg)	Component Recognized, File No. MP268; Guide No. MCCZ.	Burner/wall mount 3 knockouts each end	
Q7800F1004/U	Wiring Adapter Subbase	5 in. high x 5 in. wide x 1 3/4 in. deep (127 mm high x 127 mm wide x 44 mm deep)	15 oz (0.43 kg)	Component Recognized, File No. MP268; Guide No. MCCZ.	Burner/wall mount adapter subbase for RA890	RM7890 EC7890

**Q7800A dimensions in inches (millimeters)**



**Q7800F dimensions in inches (millimeters)**

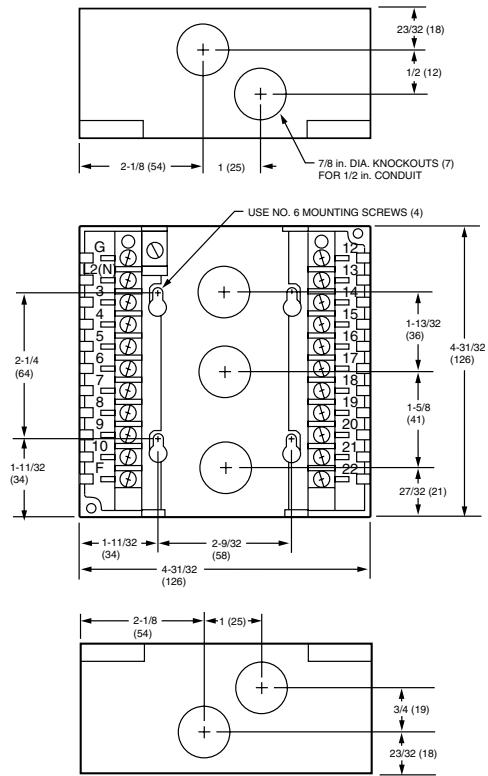


⚠ OPTIONAL TERMINAL TEST ACCESS COVER.

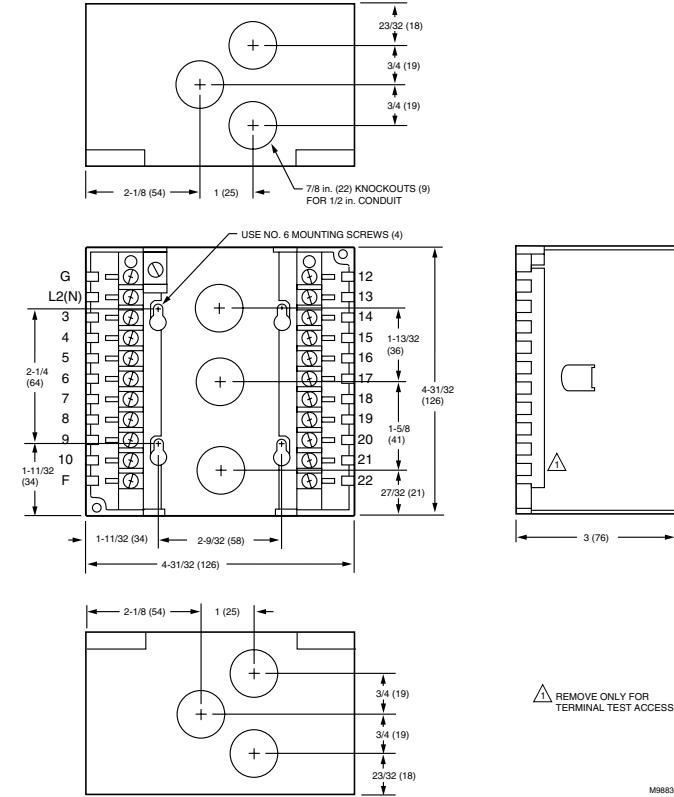
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# 7800 Series Burner Controls

Q7800B1003 dimensions in inches (millimeters)



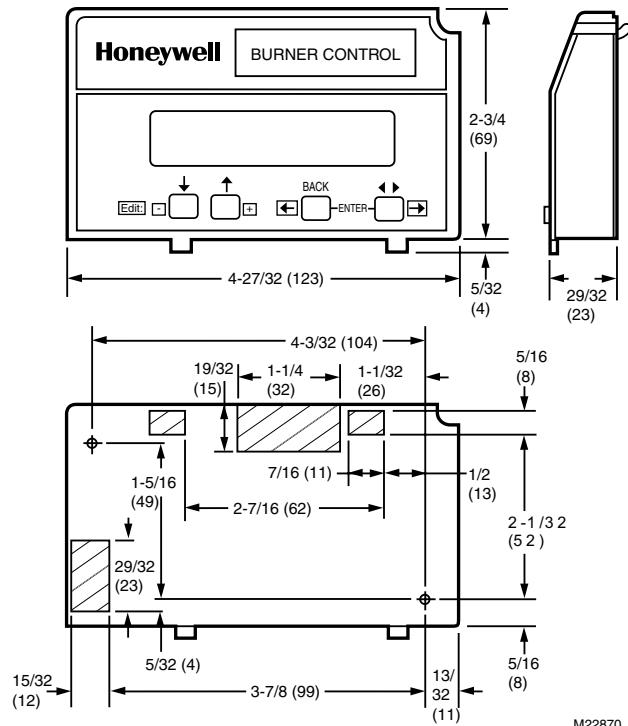
Q7800B1011 dimensions in inches (millimeters)



## S7800 Keyboard Display Module



Dimensions in inches (millimeters)



Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- S7800A1001 offers "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- S7800A1001 series 5 and greater has selectable ModBus Feature.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information.
- Remote reset.

**Application:** Keyboard Display

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate, Dimensions:** 4 27/32 in. wide x 2 29/32 in. high x 29/32 in. deep (123 mm wide x 73 mm high x 23 mm deep)

**Weight lb. (kg):** 4 oz (0.11 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, CSA:** Certified, File No. LR95329-3.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

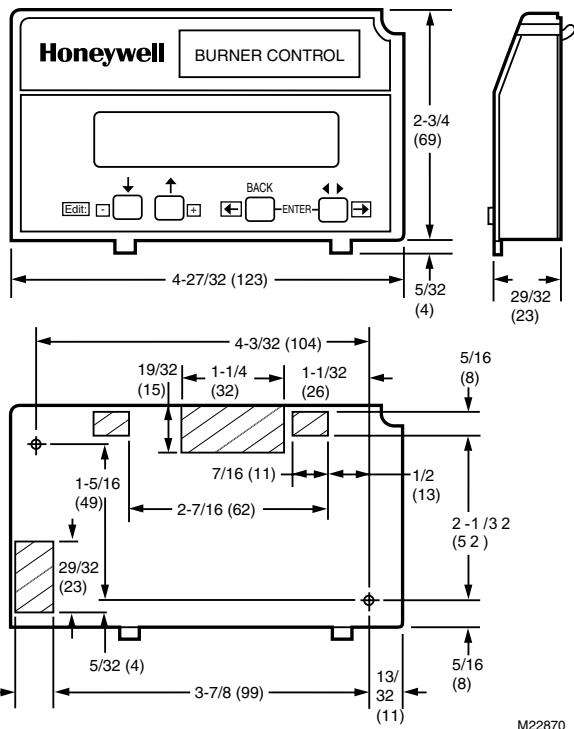
Material Number	Voltage	Comments
S7800A1001/U	13 Vdc peak fullwave rectified (+20/-15%).	English Language

# 7800 Series Burner Controls

## S7800 Keyboard Display Module for VP Programming



Dimensions in inches (millimeters)



**Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.**

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information. Display can be programmed to customize the expanded annunciator messages to the system.
- Required to program Valve Proving and Post Purge feature on selected 7800 Series devices.
- Can be setup for ModBus Communication.
- Provides burner controller data.
- Remote reset.

**Application:** Keyboard Display for VP setup

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 4 27/32 in. wide x 2 29/32 in. high x 29/32 in. deep (123 mm wide x 73 mm high x 23 mm deep)

**Weight lb. (kg):** 4 oz (0.11 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ.

**Approvals, CSA:** Certified, File No. LR95329-3.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Swiss RE:** Acceptable

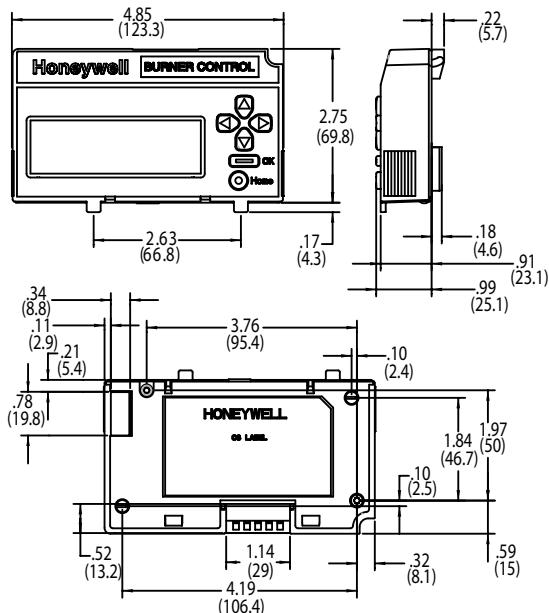
**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

Material Number	Voltage	Comments
S7800A1142/U	13 Vdc peak fullwave rectified (+20/-15%).	English Language, Capable of displaying special "Call Service" messages, allows setup of S7830A1005 Expanded Annunciator messages, used for VPS programming, and programming Post Purge on select 7800 Devices
S7800A1167/U	13 Vdc peak fullwave rectified (+20/-15%).	Spanish Language with Valve Proving, Post-purge, "Call Service", and Expanded Annunciator programming ability

## S7800 Keyboard Display Module 4-LINE LCD



Dimensions in inches (millimeters)



The S7800A2142 Keyboard Display Module is the newest and most intuitive way to interact with any 7800 Series Flame Relay module. The new display is packed full of features and best of all – it's compatible with all 7800 SERIES burner controls.

- Larger, easier to read hi-contrast backlit display
- View current system status, firstout remote annunciation, remote reset, report generation, fault information, burner control data, and real-time system
- Diagnostics with plain text explanations of how to fix potential lock-out issues.
- 3 language options with one part number – English, Spanish and French.

The new display offers many pass code protected enhancements including:

- Valve Proving Feature - Allows for programming the Valve Proving Control feature and timing.
- Post Purge Feature - Allows for programming the post purge time.
- Expanded Announcer Set Up - Allows for naming the S7830 Expanded Announcer terminals to match your system's drawings.

**Application:** Keyboard Display 4-line LCD

**Vibration:** 0.5 G environment

**Operating Temperature:** 0°F (-18°C) to +140°F (+60°C).

**Storage Temperature:** -22°F (-30°C) to +158°F (+70°C).

**Humidity:** 85% relative humidity continuous, noncondensing.

UL NEMA Class 4 rating when P/N 204729A, C NEMA 4 Cover is used.

**Weight lb. (kg):** 4 oz (0.12 kg)

**Approvals, Underwriters Laboratories Inc.:** File No. MP268, guide No. MCCZ.

**Approvals, FCC:** FCC Part 15, Class B, Emissions.

**Approvals, Factory Mutual:** Report No. J.I.1V9A0.AF. IRI: Acceptable.

**Approvals, EN 60730**

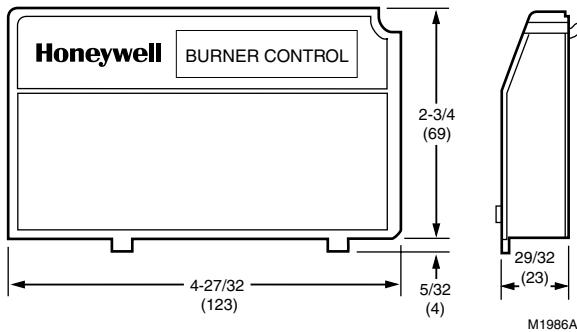
Material Number	Voltage	Comments
S7800A2142/U	13 Vdc peak fullwave rectified (+20/-15%).	English, Spanish and French Language with Valve Proving, Post-purge, "Call Service", and Expanded Announcer programming ability

# 7800 Series Burner Controls

## S7810A Data ControlBus™ Module



Dimensions in inches (millimeters)



**Supports remote mounting of S7800 Keyboard Display Module, personal computer communications interface and remote reset.**

- Use with remotely mounted S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides communications bus interface and remote reset.

**Application:** ControlBus™ Module

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 4 27/32 in. wide x 3 11/32 in. high x 29/32 in. deep (123 mm wide x 84 mm high x 23 mm deep)

**Weight lb. (kg):** 4 oz (0.11 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ2.

**Approvals, CSA:** Certified, File No. LR95329-3.

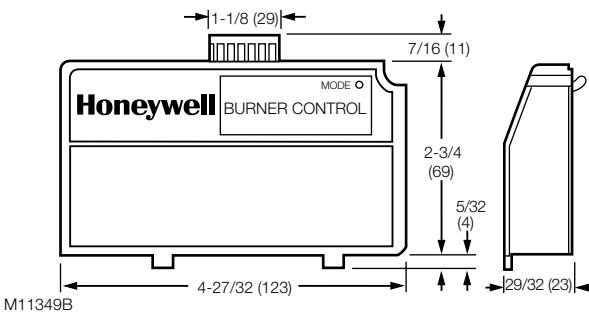
**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

Material Number	Voltage	Comments
S7810A1009/U	13 Vdc peak fullwave rectified (+20/-15%).	Includes 203541 5-wire Connector

## S7810M ModBus Module



Dimensions in inches (millimeters)



**S7810M ModBus Module operates as ModBus RTU slave device.**

- Provides ability to remotely mount the S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides ModBus communications bus interface.
- Remote reset.

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 4 27/32 in. wide x 2 29/32 in. high x 29/32 in. deep (123 mm wide x 73 mm high x 23 mm deep)

**Weight lb. (kg):** 4 oz (0.11 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ2.

**Approvals, CSA:** Certified, File No. LR95329-3.

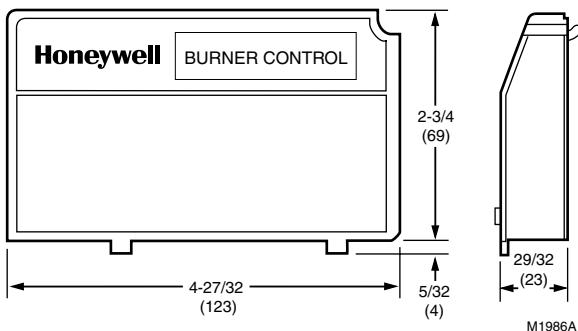
**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

Material Number	Voltage	Application	Comments	Approvals, Gastec/European
S7810M1003/U	13 Vdc peak fullwave rectified (+20/-15%).	ControlBus™ Module-MODBUS	Includes 208727 8 pin electrical connector	
S7810M1029/U	13 Vdc peak fullwave rectified (+20/-15%).	ControlBus™ Module-MODBUS - CE Certified (no reset allowed)	Includes 208727 8 pin electrical connector	CE approved, report 170101466

## S7820 Remote Reset Module



Dimensions in inches (millimeters)



**Serves as link between remote reset pushbutton and relay module. Allows 7800 SERIES relay module to be reset from a remote location.**

- Reset button can be installed up to 1000 feet away.
- Installs directly on the front of 7800 SERIES relay module.

**Vibration:** 0.5 G environment

**Shipping and Storage Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approximate Dimensions:** 4 27/32 in. wide x 2 29/32 in. high x 29/32 in. deep (123 mm wide x 73 mm high x 23 mm deep)

**Weight lb. (kg):** 3 oz (0.09 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ2.

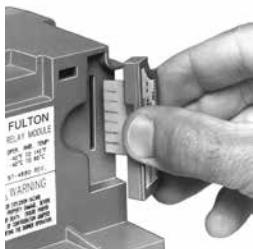
**Approvals, CSA:** Certified, File No. LR95329-3.

**Approvals, Factory Mutual:** Report No. 1V9AO.AF.

Material Number	Application	Comments
S7820A1007/U	Remote Reset Module	Includes 203541 5-wire Connector

# 7800 Series Burner Controls

## ST7800 Plug In Purge Timer



Provides the prepurge timing for select 7800 SERIES relay modules. ST7800C used with the RM7838C only.

**Approvals, Underwriters Laboratories Inc.:** Component Recognized, File No. MP268; Guide No. MCCZ2.

**Approvals, CSA:** Certified, File No. LR95329-3.

**Approvals, Factory Mutual:** Approved: Report No. 2X0A1.AF.

Material Number	PrePurge	Application
ST7800A1005/U	2 seconds	Purge Timer
ST7800A1013/U	7 seconds	Purge Timer
ST7800A1021/U	10 seconds	Purge Timer
ST7800A1039/U	30 seconds	Purge Timer
ST7800A1047/U	40 seconds	Purge Timer
ST7800A1054/U	60 seconds	Purge Timer
ST7800A1062/U	90 seconds	Purge Timer
ST7800A1070/U	2.5 minutes	Purge Timer
ST7800A1088/U	4.0 minutes	Purge Timer
ST7800A1096/U	6.0 minutes	Purge Timer
ST7800A1104/U	9.0 minutes	Purge Timer
ST7800A1112/U	12.0 minutes	Purge Timer
ST7800A1120/U	15.0 minutes	Purge Timer
ST7800A1138/U	22.0 minutes	Purge Timer
ST7800A1146/U	30.0 minutes	Purge Timer
ST7800C1003/U	7 seconds	Purge Timer for RM7838C Only
ST7800C1011/U	20 seconds	Purge Timer for RM7838C Only
ST7800C1029/U	4.0 minutes	Purge Timer for RM7838C Only
ST7800C1037/U	6.0 minutes	Purge Timer for RM7838C Only
ST7800C1045/U	8.0 minutes	Purge Timer for RM7838C Only
ST7800C1052/U	10.0 minutes	Purge Timer for RM7838C Only
ST7800C1086/U	16.0 minutes	Purge Timer for RM7838C Only
ST7800C1102/U	20.0 minutes	Purge Timer for RM7838C Only
ST7800C1128/U	24.0 minutes	Purge Timer for RM7838C Only
ST7800C1136/U	30.0 minutes	Purge Timer for RM7838C Only
ST7800C1060/U	12.0 Minutes	Purge Timer for RM7838C Only
ST7800C1078/U	14.0 Minutes	Purge Timer for RM7838C Only
ST7800C1094/U	18.0 Minutes	Purge Timer for RM7838C Only
ST7800C1110/U	22.0 Minutes	Purge Timer for RM7838C Only

## 7800 Series Accessories or Parts

**Application:** Accessory or Replacement Part

Material Number	Comments	Used With	
203541/U		S7800 Display	
203765/U	Includes 203541 5-wire Connector	S7800 Display	
205321B/U	Includes 203541 5-wire Connector	S7800 Display	
206311/U	Carrying Case for S7800 Display	S7800 Display	
208727/U		S7810M	
221729A/U		7800 Relay Modules	
221818A/U		S7800 Display	
221818C/U		S7800 Display	
50023821-001/U	Includes 203541 5-wire Connector	S7800 Display	
50023821-002/U	Includes 203541 5-wire Connector	S7800 Display	
204729A	NEMA 4 Cover Assembly for S7800A KDM	S7800 Display 4-line LCD	
204729C	NEMA 4 Cover Assembly for S7800A KDM with reset button	S7800 Display 4-line LCD	

# 7800 Series Burner Controls

## 7800 SERIES Flame Signal Amplifiers



**Solid state plug-in amplifiers that respond to flame detector inputs to indicate the presence of flame when used with 7800 SERIES relay modules.**

- Flame failure response time of 0.8 or 3.0 seconds (1.0 or 2.0 for CE approved devices).
- Flame signal strength ranges from 0.0 to 5.0 Vdc.
- Plug into 7800 relay module through printed circuit board edge connector keyed for proper orientation.
- Flame signal test jacks to measure amplifier flame signal voltage.
- Color-coded labels identify flame detection type.
- Dynamic Self-Check Amplifier test the detectors and all electronic components in the flame detection system.
- Ampli-check tests the amplifier and 7800 SERIES Relay.
- None (standard) is just tested at normal system startup.
- 7800 SERIES relay module locks out on safety shutdown with flame detection system failure.
- Compatible with existing Honeywell flame detectors (order separately).

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP268, Guide No. MCCZ

**Approvals, CSA:** Certified: File No. LR95329-3

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. 1V9A0.AF

**Approvals, GASTEC/European (EN 298:2012):**

Intermittent operation: R7847A, R7849A, R7852A

Continuous operation: R7847B, R7851C, R7852B, R7861, R7886

Material Number	Type	Flame Failure Response Time (sec)	Self Checking	Use With Primary Safety Control	Use With Flame Sensor	Comments
R7847A1025/U	Rectification	0.8 or 1.0 sec	None (standard)	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods	Color: Green
R7847A1033/U	Rectification	2.0 or 3.0 sec	None (standard)	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods; Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	Color: Green
R7847A1074/U	Rectification	0.8 or 1.0 sec	None (standard)	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods for impedance matching for leadwire runs > 50'	Color: Green
R7847A1082/U	Rectification	2.0 or 3.0 sec	None (standard)	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	Color: Green
R7847B1023/U	Rectification	0.8 or 1.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods	Color: Green
R7847B1031/U	Rectification	2.0 or 3.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods; Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	Color: Green
R7847B1064/U	Rectification	0.8 or 1.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods for impedance matching for leadwire runs > 50'	Color: Green
R7847B1072/U	Rectification	2.0 or 3.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas: Rectifying Flame Rods for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	Color: Green
R7847C1005/U	Rectification	2.0 or 3.0 sec	Dynamic Self-Check	7800 SERIES Relay Modules	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	Color: Green
R7849A1015/U	Ultraviolet	0.8 or 1.0 sec	None (standard)	7800 SERIES Relay Modules	Gas, Oil: Minipeeper C7027A, C7035A, C7044	Color: Purple
R7849A1023/U	Ultraviolet	2.0 or 3.0 sec	None (standard)	7800 SERIES Relay Modules	Gas, Oil: Minipeeper C7027A, C7035A, C7044	Color: Purple
R7849B1013/U	Ultraviolet	0.8 or 1.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas, Oil: Minipeeper C7027A, C7035A, C7044	Color: Purple
R7849B1021/U	Ultraviolet	2.0 or 3.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas, Oil: Minipeeper C7027A, C7035A, C7044	Color: Purple
R7851B1000/U	Optical	2.0 or 3.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962B	Color: White
R7851B1018/U	Optical	0.8 or 1.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962B	Color: White
R7851C1008/U	Optical	2.0 or 3.0 sec	Dynamic Self-Check	7800 SERIES Relay Modules	Gas, oil, coal: Optical (UV only) C7961E, F	Color: White
R7852A1001/U	Infrared	2.0 or 3.0 sec	None (standard)	7800 SERIES Relay Modules	Gas, oil, coal: Infrared (lead sulfide) C7915	Color: Red/White
R7852B1009/U	Infrared	2.0 or 3.0 sec	Ampli-Check	7800 SERIES Relay Modules	Gas, oil, coal: Infrared (lead sulfide) C7915	Color: Red/White
R7861A1026/U	Ultraviolet	2.0 or 3.0 sec	Dynamic Self-Check	7800 SERIES Relay Modules	Gas, oil, coal: Ultraviolet Flame Sensor C7061	Color: Purple
R7861A1034/U	Ultraviolet	0.8 or 1.0 sec	Dynamic Self-Check	7800 SERIES Relay Modules	Gas, oil, coal: Ultraviolet Flame Sensor C7061	Color: Purple
R7886A1001/U	Ultraviolet	2.0 or 3.0 sec	Dynamic Self-Check	7800 SERIES Relay Modules	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	Color: Blue

## Flame Amplifier Accessories

Material Number	Description	Used With
32005301-001/U	T Filter for Rectification Applications	R7847

## R8001 SLATE Combustion System



**Microprocessor based integrated combustion management system, in a modular format, that provides configurable safety with programmable logic for automatic boiler sequencing, circulation pump control, fan control, electronic ignition, flame supervision, system status indication, firing rate control, load control and limit control. Provides level of safety, functional capability and features beyond conventional controls.**

- Modular concept that is DIN Rail mountable for easy assembly
- 24 VDC to 240 VAC in one system
- Configurable safety modules include: Base, Burner Control, Flame Amp modules, Fuel Air Ratio and Limit
- Programmable logic modules include: Analog I/O and Digital I/O modules, and Annunciation
- Actuators that provide 50 in/lb and 150 in/lb in NEMA 1 or NEMA 4 (300 and 900 in/lb available through Durastep Actuators from Maxon specifically configured for SLATE)
- Function block programming via SLATEAXTOOL or SLATE-N4-TOOL
- 2 Fuel capability
- Valve Proving
- BACNet, Modbus, and web services capability through SLATE Base
- 10 inch color touch screen display

### SLATE Applications

- Industrial and Commercial Burner Boiler Controls
- Air Handling
- Drying Applications
- Automotive Paint Booths
- Single Stage Furnaces and Kilns
- And more

### Dimensions Approximate

#### SLATE Base:

6 3/32 in. Wide x 7 3/32 in. High x 5 19/64 in. Deep

**Weight oz. (g):** 2.1 oz (60 g)

**Ambient Temperature:** -20°F to +150°F (-29°C to +66°C)

**Vibration:** 0.5 G environment

**Frequency:** 50/60 Hz (±10%)

#### SLATE Modules (does not include sub-base)

2 11/16 in. Wide x 7 3/32 in. High x 4 19/32 in. x 4 19/32 in Deep

**Weight oz. (g):** 16 oz (454 g)

**Ambient Temperature:** -20°F to +150°F (-29°C to +66°C)

**Vibration:** 0.5 G environment

**Frequency:** 50/60 Hz (±10%)

#### SLATE Sub-Base:

3 13/32 in. Wide x 7 7/32 in. High x 1 5/32 in Deep

**Weight oz. (g):** 5 oz (142 g)

**Ambient Temperature:** -20°F to +150°F (-29°C to +66°C)

#### SLATE Display

12-3/16 in. Wide x 6-63/64 in. High (panel mounted)

**Weight oz. (g):** 21 oz (595 g)

**Ambient Temperature:** +32°F to +158°F (0°C to +70°C)

**Humidity:** 95% continuous non-condensing

**Approvals, Underwriters Laboratories:** Listed US Canada File No. MP286

**Approvals, Factory Mutual:** Approved

**Approvals, CE:** Approved

**Approvals, ISO23552-1:** Approved

Product Number	Description
R8001A1001/U	SLATE Base Module-Provides power and external communications (Modbus/TCP, BACnet MSTP or IP, and web services), overall health, web based pages, event log and trend logs
R8001B2001/U	SLATE Burner Control Module-Flame safeguard controls, valve proving, dual fuel capability, configurable safety, and safety relay
R8001S1071/U	SLATE UV Flame Amp with Ampli-Check Module- responds to ultraviolet signal from an ultraviolet type flame detector. Used with C7027 and C7035 detector series
R8001S1051/U	SLATE UV Flame Amp with Shutter-Check Module-responds to ultraviolet signal from an ultraviolet type flame detector. Used with the C7061 detector series.
R8001V1091/U	SLATE UV/Visible Flame Amp with Ampli-Check Module- responds to an ultraviolet/visible light signal from a UV/visible light type flame detector. Used with the C7927 detector series.
R8001V1031/U	SLATE Rectification Flame Amp with Ampli-Check Module- responds a rectified signal from a rectification type flame detector. Used with the C7000X detector series.
R8001F1041/U	SLATE Infrared Flame Amp with Ampli-Check Module- responds to an infrared signal from an infrared type flame detector to indicate the presence of flame. This flame amplifier is used with the C7915 detector series
R8001C6001/U	SLATE Fuel Air Ratio Control Module- monitors and controls the air fuel ratio for combustion applications
R8001M1050	SLATE Low Torque Actuator- 50 in/lb torque size in NEMA 1 enclosure to be used with SLATE Fuel Air Ratio Module (R8001C6001/U)
R8001M1150	SLATE Low Torque Actuator- 150 in/lb torque size in NEMA 1 enclosure to be used with SLATE Fuel Air Ratio Module (R8001C6001/U)
R8001M4050	SLATE Low Torque Actuator- 50 in/lb torque size in NEMA 4 enclosure to be used with SLATE Fuel Air Ratio Module (R8001C6001/U)
R8001M4150	SLATE Low Torque Actuator- 150 in/lb torque size in NEMA 4 enclosure to be used with SLATE Fuel Air Ratio Module (R8001C6001/U)
R8001L8001/U	SLATE Limit Module- 12 limit block capability. Choose from high limit, low limit or dual track limit. Can monitor any sensor or pair sensors.
R8001U3001/U	SLATE Digital I/O Module- Digital input/output module with up to 14 opto inputs or 6 relays.
R8001D4001/U	SLATE Analog I/O Module- Universal analog input/output module with configurability
R8001N7001/U	SLATE Annunciator Module- Provides first out annunciation
R8001K1010/U	SLATE 10 inch color touchscreen display
SLATE-N4-TOOL	SLATE-N4-TOOL for programming of the SLATE system, configuration of the safety modules and creating display graphics
32008001-002/U	SLATE connector bag assembly that contains connectors for sub-base for remote flame amplifier module or remote reset button connections. This assembly also contains the 2 pin-power connector for the SLATE display
50096820-001/U	SLATE Extension Cable. Allows for connection between one SLATE systems and subsequent SLATE modules on another DIN Rail for space savings in an electrical enclosure.

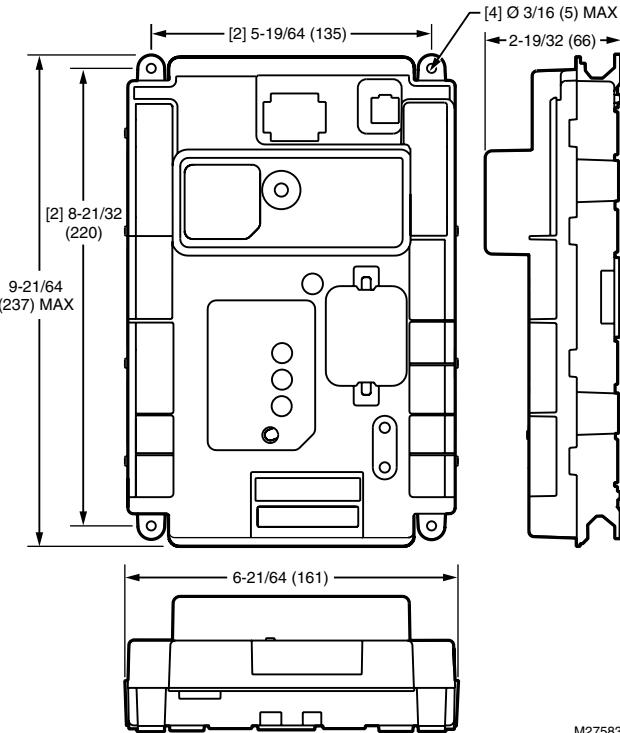
# SOLA Controllers

## SOLA Controllers

### SOLA™ Hydronic Control



Dimensions in inches (millimeters)



The R7910A SOLA HC is a hydronic boiler control system that provides heat control, flame supervision, circulation pump control, fan control, boiler control, and electric ignition function. It will also provide boiler status and error reporting.

- Frost Protection, Slow Start, Anti-condensate, Boiler Delta-T, Stack Limit, Boiler Limit, DHW Limit, Outlet T-Rise Limit
- Primary Flame Safeguard Control
- Internal or external spark generator.
- Analog NTC Sensor Inputs (10 kohm or 12 kohm).
- Other Analog Inputs
- PID Load Control
- Digital Inputs
- Digital Outputs
- Analog Outputs
- Algorithm Prioritization
- Two Temperature Loops of Control (CH and DHW)
- High Limit Control-CH, DHW, & Stack (Meets UL 353) using dual 10 kohm NTC sensors.
- Fifteen Item Fault Code History including equipment status at time of lockout
- Fifteen Item Alert Code Status including equipment status at time of internal alerts
- 24 Vac Device Power
- 24 or 120 Vac Digital I/O models available.
- Flame Signal test jacks (Vdc)
- Three Status LEDs.
- UV or Flame rod Flame Sensing.
- Flap Valve Check
- Condensate Check
- Neighboring Burner Interaction
- Modbus Heartbeat
- DBI Early Spark Termination
- Flow Switch Input

**Application:** Hydronic

**Frequency:** 50-60 Hz ± 5%

**Approximate Dimensions:** 9 21/64 in. x 6 21/64 in. x 2 19/32 in.  
(237 mm x 161 mm x 66 mm)

**Comments:** Includes Programmable features

**Approvals, Control Safety Devices:** Acceptable

**Approvals, FCC:** Part 15, Class B Emissions

**Approvals, Underwriters Laboratories (RU)(cRU):** File No. MP268 (MCCZ2, MCCZ8).

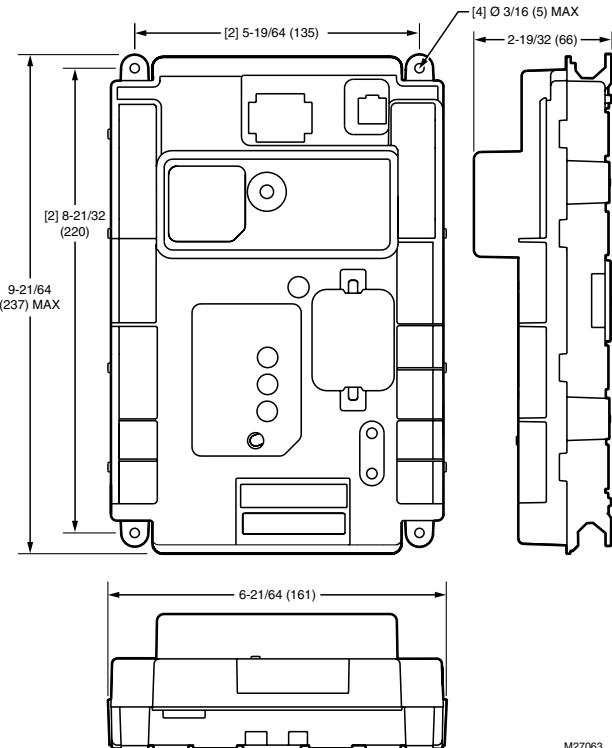
M27583

Material Number	Enclosure Rating	Firing Rate Switch	Flame Sensor Type	Modulation Output	Voltage	Approvals, Underwriters Laboratories
R7910A1001/U	NEMA 1/IP 40		FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 24 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1019/U	NEMA 1/IP 40	High Fire Switch; Low Fire Switch	FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 120 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1027/U	NEMA 1/IP 40		FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 120 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1084/U	NEMA 1/IP 40		FR	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 24 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1118/U	NEMA 1/IP 40		FR, High Energy Spark	Yes (PWM)	24 Vac Operating; 24 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1138/U			FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 24 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).
R7910A1183/U			FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 120 Vac Load	Underwriters Laboratories (RU) (cRU); File No. MP268 (MCCZ2, MCCZ8).

## SOLA™ Steam Control



Dimensions in inches (millimeters)



M27063

**The R7911A SOLA SC is a steam boiler control system that provides heat control, flame supervision, fan control, boiler control, and electric ignition function. It will also provide boiler status and error reporting.**

- Slow Start, Stack Limit, Boiler Limit
- Primary Flame Safeguard Control
- Internal or external spark generator.
- Analog Stack Temp NTC Sensor Inputs (10kohm or 12kohm).
- Other Analog Inputs
- PID Load Control
- Digital Inputs
- Digital Outputs
- Analog Outputs
- Algorithm Prioritization
- High Limit Control - Stack (Meets UL 353) using dual 10 kohm NTC sensors.
- Fifteen Item Fault Code History including equipment status at time of lockout
- Fifteen Item Alert Code Status including equipment status at time of internal alerts
- 24 Vac Device Power
- 24 or 120 Vac Digital I/O models available.
- Flame Signal test jacks (Vdc)
- Three Status LEDs.
- UV or Flame rod Flame Sensing.

**Application:** Steam

**Frequency:** 50-60 Hz  $\pm$  5%

**Approximate Dimensions:** 9 21/64 in. x 6 21/64 in. x 2 19/32 in. (237 mm x 161 mm x 66 mm)

**Comments:** Includes Programmable features

**Approvals, Control Safety Devices:** Acceptable

**Approvals, FCC:** Part 15, Class B Emissions

**Approvals, Underwriters Laboratories (RU)(cRU):** File No. MP268 (MCCZ2, MCCZ8).

Material Number	Enclosure Rating	Firing Rate Switch	Flame Sensor Type	Modulation Output	Voltage
R7911A1000/U	NEMA 1/IP 40		FR/UV	Yes (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 120 Vac Load
R7911A1026/U	NEMA 1/IP 40	High Fire Switch; Low Fire Switch	FR/UV	No (PWM); Yes (4-20 mA); Yes (0-10 Vdc)	24 Vac Operating; 120 Vac Load

# SOLA Controllers

ITEM	R7910A1001	R7910A1019	R7910A1027	R7910A1084	R7910A1118	R7910A1138	R7910A1183	R7911A1000	R7911A1026
24 Vac Control Power Input 24 Vac Control Power Input	•	•	•	•	•	•	•	•	•
24 Vac Demand Circuit (STAT) 24 Vac Demand Circuit (STAT)	•	•	•	•	•	•	•	•	•
24 Vac Load Circuit 24 Vac Load Circuit	•			•	•	•			
120 Vac Load Circuit 120 Vac Load Circuit		•	•				•	•	•
Modulation Output: PWM Modulation Output: PWM	•	•	•	•	•	•	•	•	•
Modulation Output: 4-20 mA or 0-10 Vdc Modulation Output: 4-20 mA or 0-10 Vdc	•	•	•	•		•	•	•	•
High/Low fire Switch Inputs High/Low fire Switch Inputs		•							•
Flame Rod Flame Detection Flame Rod Flame Detection	•	•	•	•	•	•	•	•	•
UV Flame Detection UV Flame Detection	•	•	•			•	•	•	•
S10 Input S10 Input					•				
Flap Valve Input Flap Valve Input						•			
Condensate Input Condensate Input						•			
Neighboring Burner Interaction						•			
Pilot Valve	•	•	•	•		•	•	•	•
Main Valve	•	•	•	•	•	•	•	•	•
External Ignition Option	•	•	•	•		•	•	•	•
Thermostat Input/Heat Anticipator				•	•				
PII Input	•	•	•	•		•	•	•	•
TOD (Time of Day Input)	•	•	•	•	•	•	•	•	•
Hydronic Control	•	•	•	•	•	•	•		
Steam Control								•	•
Lead-Lag (Cascade) Control	•	•	•	•	•	•	•	•	•
Expanded Annunciation Capability	•	•	•	•		•	•	•	•
CSD-1 Compliant	•	•	•	•	•	•	•	•	•
Modbus Heartbeat						•			
DBI with Early Spark Termination							•		
Flow Switch Input							•		

## S7999D SOLA™ System Operator Interface



The S7999D can be used to monitor an individual boiler and also used for multiple boiler applications in a lead/lag arrangement. It consists of 2 RS485 ports and a USB port. The S7999D display can be flush front or mounted behind in a panel cutout. Wiring connections are through a removable 8-pin wiring connector.

- Individual boiler status, configuration, history and diagnostics
- Allows configuration and monitoring of the Sola Controls (R7910 Hydronic Controls or R7911 Steam Control) burner control sequence, flame signal, diagnostics, historical files, and faults
- Allows switching view between multiple boilers and lead-lag master/slaves
- Real-time data trending analysis and transferring saved trend data to Excel spreadsheet
- 7" 800 x 480, 24 bit high resolution color LCD touch screen for clarity
- Audio output with integral speaker for sound output.
- Adjustable backlight control
- Real time clock with coin-cell battery back-up (CR2032)
- Volume control
- Screen Capture function to capture screen images
- USB port for file transfers and software updates
- 2 RS-485 (COM1 & 2) ports for Modbus™ interface to Sola controls and BAS Gateway.
- Windows® CE 6.0 Operating System
- 8-pin connector, back-up battery and mounting hardware are provided

**Application:** Interface Display

**Frequency:** 50-60 Hz ± 5%

**Ambient Temperature Range:** 14°F to 122°F (-10°C to 50°C)

**Shipping and Storage Temperature Range:** -13°F to 155°F (-25°C to 60°C)

**Approximate, Dimensions:** 9-13/32 in. wide x 6-21/32 in. high x 1-9/16 in. deep (239 mm wide x 169 mm high x 40 mm deep)

**Operating Humidity Range (% RH):** 85% RH continuous, non-condensing

**Comments:** Black Plastic Border

**Approvals, FCC:** FCC Part 15, Class A digital device

**Approvals, Canadian Underwriters Inc.:** Component Recognized: File Number MH20613 (MCCZ)

**Approvals, Underwriters Laboratories (RU)(cRU):** File No. MP268 (MCCZ2, MCCZ8).

Material Number	Voltage	Description	Used With
S7999D1006/U	24 Vac	System Operator Interface with Black Plastic Border	R7910/R7911

# SOLA Controllers

## PM7910 Program Module



The PM7910 Program Module is an optional plug-in for the R7910 SOLA HC and R7911 Sola SC. From the system level the S7999 System Operator Interface can direct the R7910/R7911 to transfer or retrieve parameter information with the Program Module.

- Can be removed or installed while the R7910 or R7911 is powered.
- Facilitate multiple controller setups.
- Backup and restore the R7910 programmable data including:
  - Non-safety parameter values — Parameter Control Blocks (information on how the parameter values may be modified.)

Material Number	Application	Comments
PM7910A1013/U	Support backup and restore	Indicator LEDs - One (Status LED) Blinking LED indicated the Program Module is properly seated and powered from the R7910/R7911

## SOLA™ Accessories or Parts

**Application:** Single element sensor with 6" leadwire with socket.

Material Number	Application
32003971-002/U	10K Ohm Single element sensor with 6" Leadwire with Socket
32003971-003/U	10K Ohm Single element sensor with 42" leadwires, includes wire nuts (2), #8 mounting screws (3), anchors (2), sensor clip (1), tie strap (2)
50001464-006/U	10K Ohm Dual Element Sensor with 6" leadwires with Female Socket
50001464-007/U	10K Ohm Dual Element Sensor with 42" leadwires without connector
50032893-001/U	Bag of connectors for R7910 and R7911 Controllers
50063482-001/U	Replacement Bag Assembly for S7999D, includes: connector, battery, mounting screws, clamp filters.

## Flame Detectors

### C7012 Solid State Purple Peepers® Ultraviolet Flame Detector



Solid state electronic flame detectors for use with Honeywell Flame Safeguard controls and amplifiers. Sense ultraviolet radiation produced by combustion of gas, oil, coal or other fuels.

- Mount horizontally, vertically or at any angle in between.
- Provide quick electrical hookup with threaded conduit fitting and color-coded leadwires.
- Reduced nuisance shutdowns by wiring two in parallel.
- C7012A, E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7012C, F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.
- Pipe connection (all models) 1 in. NPT, includes 1 in. to 3/4 in. bushing adapter for 3/4 in. viewing pipe mounting.

**Type:** Ultraviolet, Purple Peepers

**Application:** Gas, Oil or Coal fired burners

**Lead Length:** 96 in. (2438 mm)

**Power Consumption:** 2.5 W

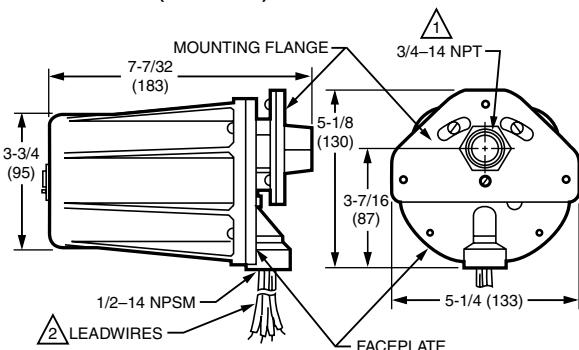
**Approvals, CSA:** Certified: Master Report LR95329-1

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. 14740.01

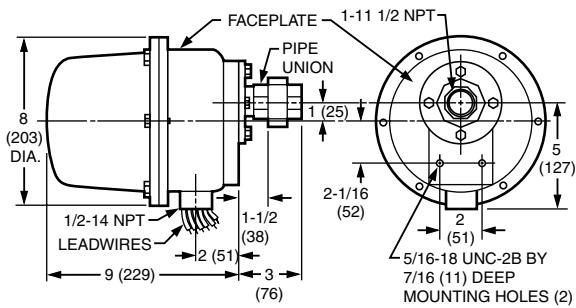
Material Number	Frequency	Weight	NEMA Rating	Electrical Connections	Mounting	Electrical Ratings	Ambient Temperature Range	Approvals, Underwriters Laboratories Inc.	Approvals, Others	Includes	Used With
C7012A1152/U	50 Hz; 60 Hz	4.25 lb (1.9 kg)	NEMA 4	4 NEC Class 1 Color-coded lead wires.	1 in. NPT	120 Vac	25°F to 175°F (-4°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover	Flame Amplifiers: R7247A, B; R7847A, B; R7257
C7012A1186/U	50 Hz; 60 Hz	4.25 lb (1.9 kg)	NEMA 4	4 NEC Class 1 Color-coded lead wires.	1 in. NPT	208 Vac	25°F to 175°F (-4°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover	Flame Amplifiers: R7247A, B; R7847A, B; R7257
C7012C1042/U	50 Hz; 60 Hz	14.5 lb (6.6 kg)	Explosion Proof	4 NEC Class 1 Color-coded lead wires.	1 in. NPT	120 Vac	25°F to 175°F (-4°C to +79°C)	Listed: File No. E34649, Guide No. ZTSZ			Flame Amplifiers: R7247A, B; R7847A, B; R7257
C7012G1019/U	50 Hz	4.25 lb (1.9 kg)	NEMA 4	5 NEC Class 1 Color-coded lead wires.	1 in. NPT	220 Vac	25°F to 175°F (-4°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover	Flame Amplifiers: R7247C, R7847C

Dimensions in inches (millimeters)



C7061A1046, C7061A1053: INCH NPT

C7061A1038 AND C7061A1046: TYPE CONNECTOR.



M1963A

M10167D

# Flame Detectors

## C7012 Solid State Purple Peepers® Ultraviolet Flame Detector (Self-Checking)



**Solid state electronic flame detectors for use with Honeywell Flame Safeguard controls and amplifiers. Sense ultraviolet radiation produced by combustion of gas, oil, coal or other fuels.**

- Mount horizontally, vertically or at any angle in between.
- Provide quick electrical hookup with threaded conduit fitting and color-coded leadwires.

- Reduced nuisance shutdowns by wiring two in parallel.
- Connector not supplied nor available through Honeywell.
- C7012A, E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7012C, F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.
- Pipe connection (all models) 1 in. NPT, includes 1 in. to 3/4 in. bushing adapter for 3/4 in. viewing pipe mounting.

**Type:** Ultraviolet, Purple Peepers, Self-Checking

**Application:** Gas, Oil or Coal fired burners

**Lead Length:** 96 in. (2438 mm)

**Power Consumption:** 7.0 W

**Approvals, CSA:** Certified: Master Report LR95329-1

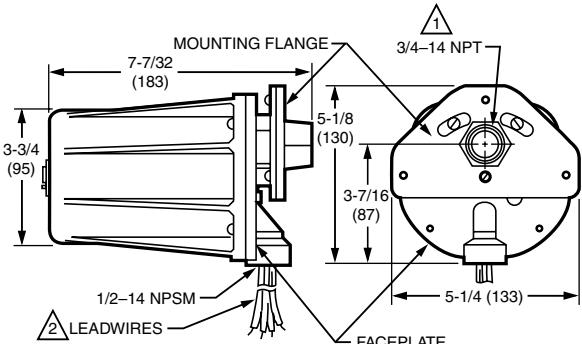
**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. 14740.01

**Used With:** Flame Amplifiers: R7247C, R7847C

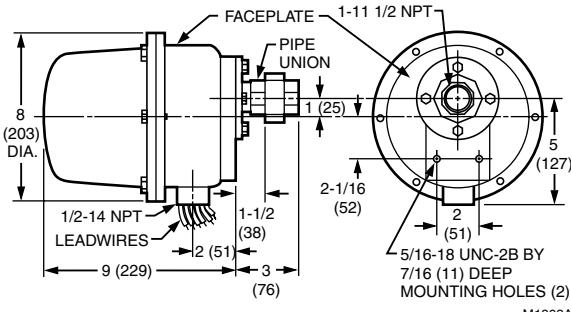
Material Number	Frequency	Weight	NEMA Rating	Electrical Connections	Mounting	Electrical Ratings	Ambient Temperature Range	Approvals, Underwriters Laboratories Inc.	Approvals, Others	Includes
C7012E1112/U	50 Hz; 60 Hz	4.25 lb (1.9 kg)	NEMA 4	6 NEC Class 1 Color-coded lead wires.	1 in. NPT	120 Vac	-20°F to +175°F (-20°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover
C7012E1153/U	50 Hz; 60 Hz	4.25 lb (1.9 kg)	NEMA 4	6 NEC Class 1 Color-coded lead wires.	1 in. NPT	240 Vac	-20°F to +175°F (-20°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover
C7012E1187/U	50 Hz	4.25 lb (1.9 kg)	NEMA 4	6 NEC Class 1 Color-coded lead wires.	1 in. NPT	220 Vac	-20°F to +175°F (-20°C to +79°C)	Listed: File No. MP268, Guide No. MCCZ		Cast case and cover
C7012F1052/U	50 Hz; 60 Hz	14.5 lb (6.6 kg)	Explosion Proof	6 NEC Class 1 Color-coded lead wires.	1 in. NPT	120 Vac	-20°F to +175°F (-20°C to +79°C)	Listed: File No. E34649, Guide No. ZTSZ		Explosion-proof, two piece, violet, cast aluminum enclosure

**Dimensions in inches (millimeters)**



1 C7061A1046, C7061A1053: INCH NPT

2 C7061A1038 AND C7061A1046: TYPE CONNECTOR.



M1963A

M10167D

## C7027; C7044 Minipeeper Ultraviolet Flame Detector



Compact Flame Detector for use with flame safeguard controls with ultraviolet amplifiers.

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- C7027 mounts on a 1/2 in. sighting pipe by using an integral collar.
- Detectors can be wired in parallel for difficult sighting applications.
- C7027 seals against pressures up to 5 psi (34.5 kPa) when correctly installed.
- Allows for blast tube mounting due to compact size.
- C7044 mounts with a two screw bracket.
- The C7044 UV sensor tube is enclosed in a stainless steel housing.
- C7044 has the capability of side or end viewing in flame monitoring applications.

**Type:** Ultraviolet, Minipeeper

**Electrical Connections:** 2 NEC Class 1 leadwires

**Vibration:** 0.5 G max

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP268, Guide No. MCCZ

**Approvals, CSA:** Certified: Master Report LR95329-1

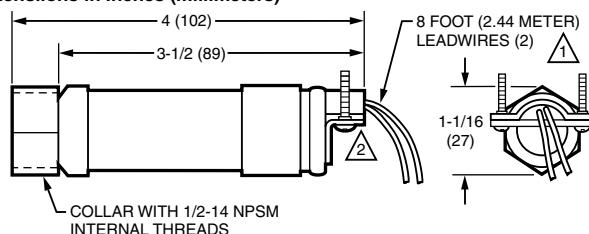
**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. 24181.03

**Used With:** Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290

Material Number	Application	Lead Length	Mounting	Ambient Temperature Range	Approvals, Others	Includes	Comments
C7027A1023/U	Coal fired burners; Gas fired burners; Oil fired burners	96 in. (2438 mm)	Integral nut for 1/2 in. sighting pipe.	0°F to 215°F (-18°C to +102°C)			Detects ultraviolet radiation in flames
C7027A1031/U	Coal fired burners; Gas fired burners; Oil fired burners	96 in. (2438 mm)	Integral nut for 1/2 in. sighting pipe.	-40°F to 215°F (-40°C to 102°C)			Detects ultraviolet radiation in flames
C7027A1049/U	Coal fired burners; Gas fired burners; Oil fired burners	96 in. (2438 mm)	Integral nut for 1/2 in. sighting pipe.	0°F to 215°F (-18°C to +102°C)		1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1056/U	Coal fired burners; Gas fired burners; Oil fired burners	96 in. (2438 mm)	Integral nut for 1/2 in. sighting pipe.	0°F to 215°F (-18°C to +102°C)			Detects ultraviolet radiation in flames
C7027A1064/U	Coal fired burners; Gas fired burners; Oil fired burners	288 in. (7315 mm)	Integral nut for 1/2 in. sighting pipe.	-40°F to 215°F (-40°C to 102°C)		1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1072/U	Coal fired burners; Gas fired burners; Oil fired burners	96 in. (2438 mm)	Integral nut for 1/2 in. sighting pipe.	-40°F to 215°F (-40°C to 102°C)		1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1114/U	Coal fired burners; Gas fired burners; Oil fired burners	44 in. (1118 mm)	Integral nut for 1/2 in. sighting pipe.	0°F to 215°F (-18°C to +102°C)		installed 22" flexible conduit	Detects ultraviolet radiation in flames
C7044A1006/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	Mounting Bracket provided	0°F to 215°F (-18°C to +102°C)		Mounting bracket	Detects ultraviolet radiation in flames - Side Viewing

### Dimensions in inches (millimeters)



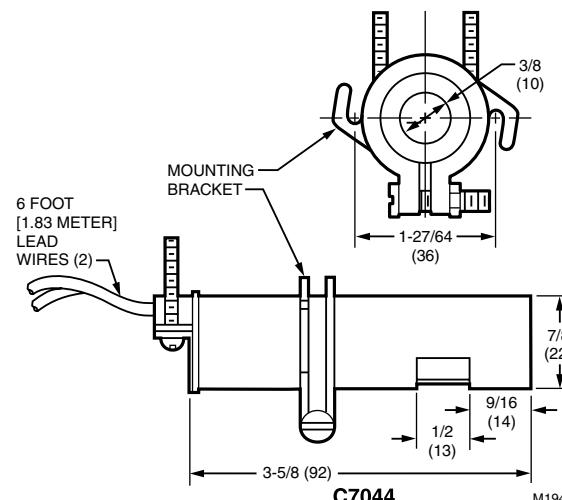
COLLAR WITH 1/2-14 NPSM INTERNAL THREADS

**1** C7027A1064 HAS 24 FOOT (7.32 METER) LEADWIRES. C7027A1114 HAS 44 IN. (1.118 M) LEADWIRES WITH 22 IN. (558 MM) FLEXIBLE CONDUIT.

**2** MODELS AVAILABLE WITH SPUD CONNECTOR (1/2-14 NPSM INTERNAL THREADS) INSTEAD OF CLAMP TYPE CONNECTOR.

**C7027**

M1943G

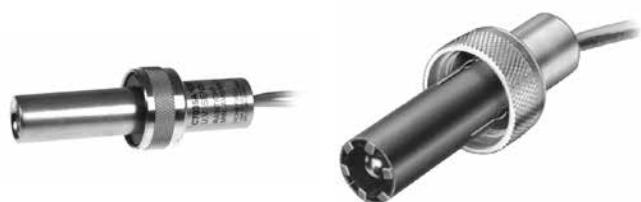


**C7044**

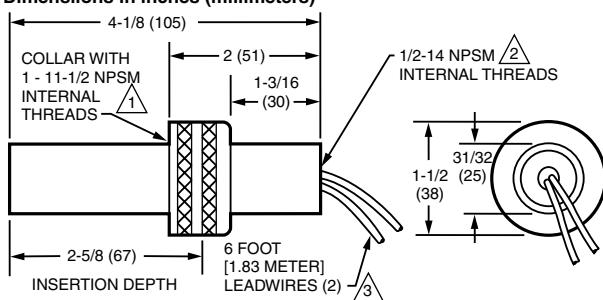
M1944D

# Flame Detectors

## C7035 Minipeeper Ultraviolet Flame Detector



Dimensions in inches (millimeters)



- 1** DIN APPROVED C7035A1064 HAS 1-11 BSP.P1 INTERNAL MOUNTING THREADS.
- 2** DIN APPROVED C7035A1064 HAS 1/2-14 BSP-F INTERNAL MOUNTING THREADS.
- 3** C7035A1056 HAS 12 FOOT (3.66 METER) LEADWIRES.

C7035

M1945E

Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- Mounts on a 1 in. sighting pipe by using an integral collar.
- Protects the sensing tube with a shield.
- Meets outdoor rain tight requirements of Underwriters Laboratories Inc., NEMA 4 and NEMA 4X.
- Wires in parallel for difficult sighting applications.
- Seals against pressures as high as 5 psi (34.5 kPa) when correctly installed.
- Field-replaceable ultraviolet sensing tube.

**Type:** Ultraviolet, Minipeeper

**NEMA Ratings:** NEMA 3 and NEMA 4

**Electrical Connections:** 2 NEC Class 1 leadwires

**Vibration:** 0.5 G max

**Mounting:** Integral nut for 1 in. sighting pipe.

**Approximate Dimensions:** 1 1/2 in. diameter x 4 1/8 in. long (38 mm diameter x 105 mm long)

**Weight:** 6 oz (0.17 kg)

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP268, Guide No. MCCZ

**Approvals, CSA:** Certified: Master Report LR95329-1

**Approvals, Swiss RE:** Acceptable

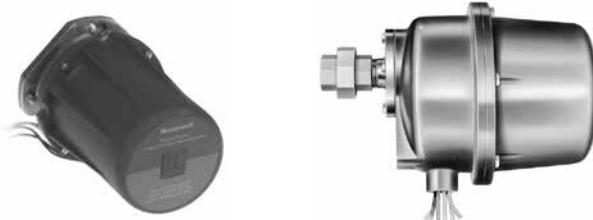
**Approvals, Factory Mutual:** Approved: Report No. 24181.03

**Comments:** Detects ultraviolet radiation in flames

**Used With:** Flame Amplifiers: R7249, R7849, R7749B, R7259, R7290, R7323

Material Number	Application	Lead Length	Ambient Temperature Range	Approvals, Others	Includes
C7035A1023/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	0°F to 250°F (-18°C to +121°C)		
C7035A1031/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	-40°F to +250°F (-40°C to +121°C)		
C7035A1049/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	0°F to 250°F (-18°C to +121°C)		1" BSP collar
C7035A1056/U	Coal fired burners; Gas fired burners; Oil fired burners	144 in. (3658 mm)	-40°F to +250°F (-40°C to +121°C)		
C7035A1064/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	-40°F to +250°F (-40°C to +121°C)		1" BSP collar
C7035A1080/U	Coal fired burners; Gas fired burners; Oil fired burners	72 in. (1829 mm)	0°F to 250°F (-18°C to +121°C)		600F leads

## C7061 Dynamic Self-Check Ultraviolet Flame Detector

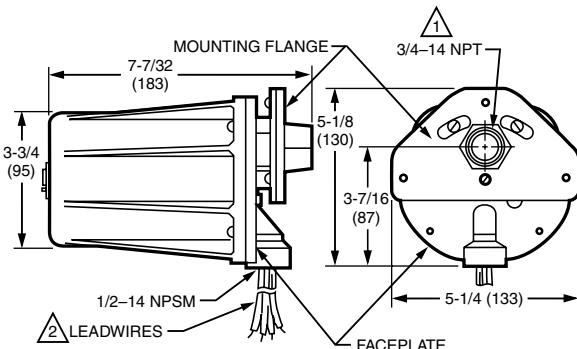


**Dynamic self-checking flame detector used with R7861 Dynamic Self-check Amplifiers for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.**

- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the UV sensor tube checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.
- Field replaceable ultraviolet sensing tube and quartz viewing window.
- Models with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- C7061A1046 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- Two detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Protective heat block built into mounting flange.

Material Number	NEMA Rating	Lead Length	Electrical Connections	Mounting	Electrical Ratings	Frequency	Ambient Temperature Range
C7061A1020/U	NEMA 4		Terminal block	1 in. NPT	120 or 230 Vac	52 Hz; 60 Hz	-40°F to +175°F (-40°C to +79°C)
C7061A1046/U	NEMA 4		Brad Harrison type number 41310 connector	1 in. NPT	120 Vac	54 Hz; 60 Hz	-40°F to +175°F (-40°C to +79°C)
C7061A1053/U	NEMA 4	96 in. (2438 mm)	Color-coded leadwires	1 in. NPT	120 Vac	55 Hz; 60 Hz	-40°F to +175°F (-40°C to +79°C)
C7061F2001/U	Explosion Proof	96 in. (2438 mm)	Color-coded leadwires	1 in. NPT	120 Vac	57 Hz; 60 Hz	-40°F to +175°F (-40°C to +79°C)

Dimensions for C7061A in inches (millimeters)

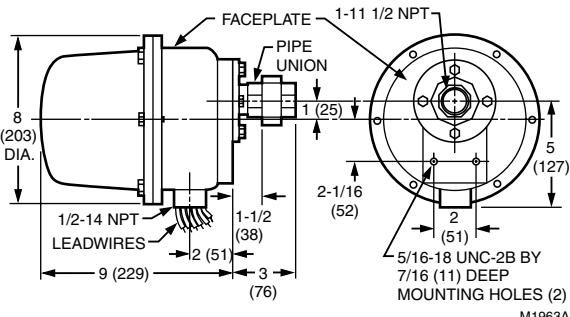


1 C7061A1046, C7061A1053: INCH NPT

2 C7061A1038 AND C7061A1046: TYPE CONNECTOR.

M10167D

Dimensions for C7061F in inches (millimeters)



M1963A

# Flame Detectors

## C7076 Adjustable Sensitivity Ultraviolet Flame Detector



**Type:** Ultraviolet, Adjustable Sensitivity

**Application:** Gas fired burners; Oil fired burners

**Electrical Connections:** Terminal block

**Vibration:** 0.5 G max

**Mounting:** 1 in. NPT

**Power Consumption:** 7.0 W

**Ambient Temperature Range:** -40°F to +160°F (-40°C to +71°C)

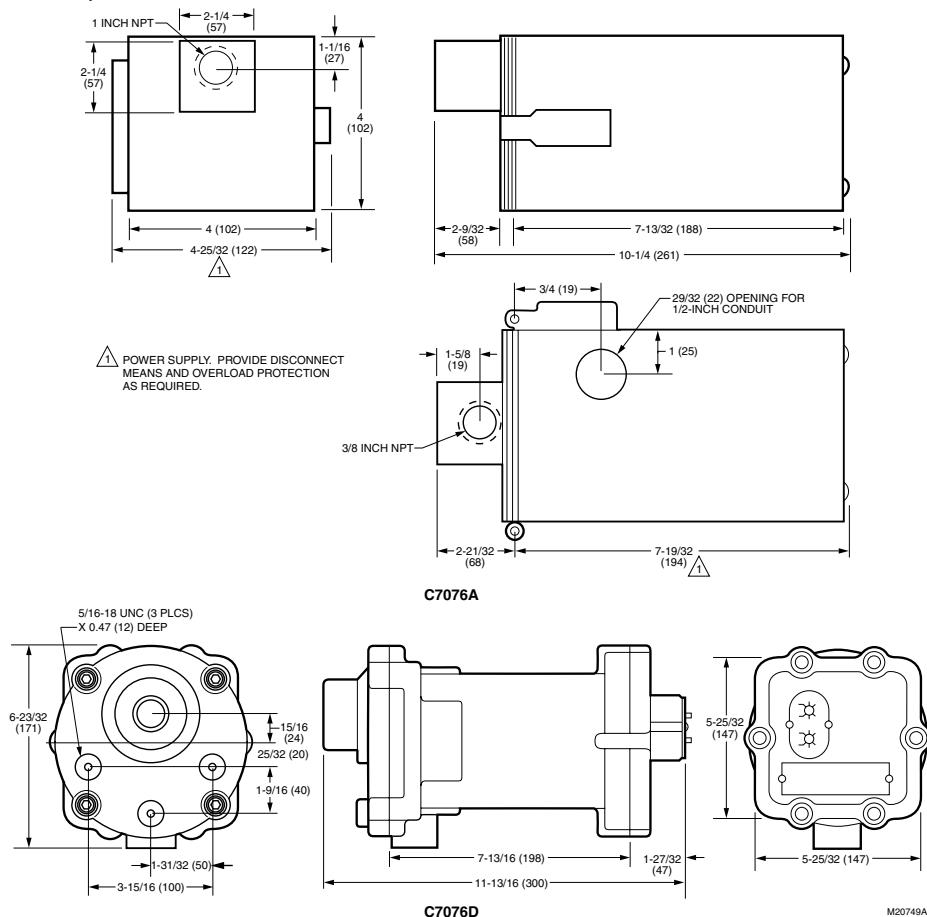
**Approvals, CSA:** Certified: Master Report LR1620

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. FM26980

**Comments:** Dynamic self-checking flame detector with adjustable sensitivity

**Dimensions in inches (millimeters)**



**Solid state dynamic self check flame detectors for use with BC7000, R4140 or FSP5075 with R7476 Amplifier and 7800 SERIES with R7886 Amplifier.**

- Use Honeywell Flame Safeguard primary safety controls requiring adjustable sensitivity ultraviolet flame detection.
- Detect ultraviolet radiation from flames.
- Include dual sensitivity adjustment.
- C7076A meets NEMA 4 standards with viewing window rated to 20 psi.
- C7076D has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

**Used With:** Flame Amplifiers: R7476, R7886

**Replacement Parts:**

190971F/U – 100 Vac Coil and Shutter Assembly for C7076A, D

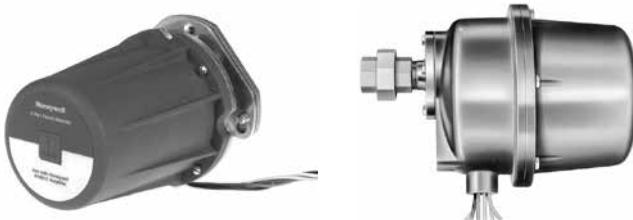
190998A/U – Aspiration assembly for C7076A

191002R/U – 120 Vac Plug in Electronics less UV Sensing Tube for C7076D

191050/U – Quartz Viewing Window for C7076

191053/U – UV Sensing Tube for C7076

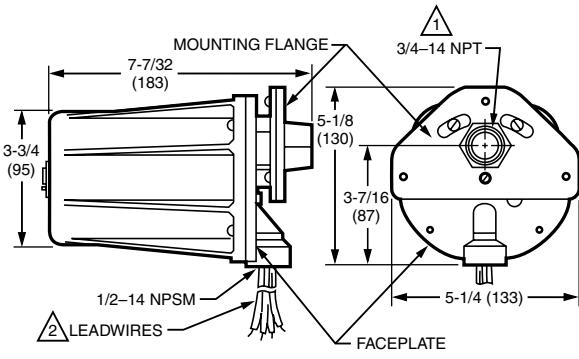
## C7961 Dynamic Self-checking Solid State Ultraviolet Flame Detector



**A self-checking flame detector using a solid state UV sensor to detect ultraviolet radiation in flames for supervision of gas, oil or combination gas-oil burners.**

- Designed for use with 7800 series controls with the R7851C flame amp.
- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the solid state UV sensor checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.

### Dimensions in inches (millimeters)



C7061A1046, C7061A1053: INCH NPT

C7061A1038 AND C7061A1046: TYPE CONNECTOR.

M10167D

- Models available with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- Incorporates UV sensor tube checking feature; used with R7851C1008 Dynamic Self-check Amplifiers.
- Protective heat block built into mounting flange.
- -40°F (-40°C) rated ultraviolet sensing cell is supplied.
- C7961E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7961F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.
- Pipe connection (all models) 1 in. NPT, includes 1 in. to 3/4 in. bushing adapter for 3/4 in. viewing pipe mounting.

**Type:** Ultraviolet, Self-Checking

**Application:** Gas, Oil or other fuels

**Electrical Ratings:** 120 Vac (-15% +10%)

**Frequency:** 50 Hz; 60 Hz

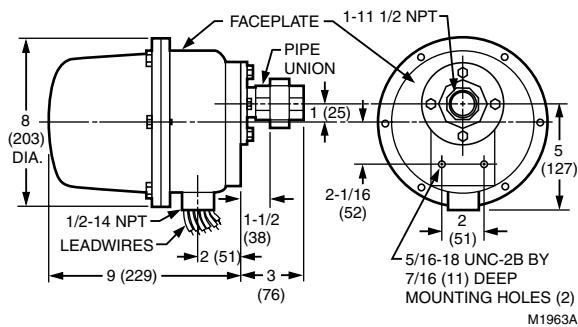
**Ambient Temperature Range:** -40°F to +175°F (-40°C to +80°C)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized: File No. MP268

**Comments:** Detects ultraviolet radiation generated by combustion of gas, oil, or other fuels

**Approvals, Swiss RE:** Acceptable

**Used With:** R7851C Dynamic Self-Check Amplifier



Material Number	NEMA Rating	Lead Length	Electrical Connections	Mounting	Approximate, Dimensions	Weight	Approvals, CSA	Approvals, Factory Mutual	Includes
C7961E1014/U	NEMA 4	96 in. (2438 mm)	NEC Class 1 color-coded	1 in. NPT	3 3/4 in. diameter (5 1/4 in. diameter including mounting flange) x 7 7/32 in. long (95 mm diameter (133 mm diameter including mounting flange) x 183 mm long)	2.6 lb (1.2 kg)	Certified: Pending	Pending	Quartz Viewing Window rated for 20 psi (138 kPa)
C7961F1004/U	Explosion Proof	96 in. (2438 mm)	NEC Class 1 color-coded	1 in. NPT	8 in. diameter x 12 in. long (203 mm diameter x 305 mm long)	14.5 lb (6.6 kg)	Approved: Report No. 14740.01	Approved: Report No. 14740.01	Quartz Viewing Window rated for 100 psi

# Flame Detectors

## C7915 Infrared Flame Detector



**The C7915 Combination mount Lead Sulfide cell senses infrared radiation from gas, oil, and coal or dual-fuel flames.**

- Used for combination or dual-fuel applications.
- Detects pilot and main flame.
- Mounts quickly and easily on a standard 3/4 in. sighting pipe.
- Works where flame rod or rectifying photocell mounts are difficult to apply.

**Type:** Infrared (Lead Sulfide)

**Application:** Used for combination or dual-fuel applications

**Electrical Connections:** Two no. 18 AWG wires

**Mounting:** 3/4 in. NPT

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP268, Guide No. MCCZ

**Approvals, CSA:** Certified: Master Report LR95329-1

**Approvals, Swiss RE:** Acceptable

**Approvals, Factory Mutual:** Approved: Report No. 24181.03

**Comments:** Infrared (Lead Sulfide) Flame Detector

**Approvals, GASTEC/European:** CE approved (EN 298:2012) with R7852A/B

### Replacement Parts:

32007255-001/U – Lead Sulfide Cell for C7915

50019469-001/U – Magnifying Lens Assembly for C7915A

Material Number	Lead Length	Approximate, Dimensions	Ambient Temperature Range	Includes	Used With
C7915A1010/U	30 in. (762 mm)	1 1/4 in. diameter x 2 1/4 in. long (32 mm diameter x 58 mm long)	-20°F to 125°F operating range (-18°C to 52°C operating range)	With magnifying lens, 32007255-001 Cell	Flame Amplifiers: R7852
C7915A1028/U	48 in. (1219 mm)	1 1/4 in. diameter x 2 1/4 in. long (32 mm diameter x 58 mm long)	-20°F to 125°F operating range (-18°C to 52°C operating range)	With magnifying lens, 32007255-001 Cell, Orifice, heat block, and reducer bushing	Flame Amplifiers: R7852
C7915A1036/U	96 in. (2438 mm)	1 1/4 in. diameter x 2 1/4 in. long (32 mm diameter x 58 mm long)	-20°F to 125°F operating range (-18°C to 52°C operating range)	With magnifying lens, 32007255-001 Cell	Flame Amplifiers: R7852

## Optical Flame Detector Accessories or Parts

Material Number	Description	Used With
113228/U	UV Sensing Tube (-20°F to 175°F) for C7012; C7024	C7012; C7024
114372/U	Bulk Pack -20 PSI window for C7012E, F; C7024; C7061	C7024; C7012; C7061
120739/U	Flange Gasket for C7012, C7024, C7061	C7024; C7012; C7061
120930/1662/F	Cover for C7012A,G, C7024E, C7061A, C7961E	C7012A,G, C7024E, C7061A, C7961E; C7012
122748/U	50 PSI Quartz Window for C7012, C7061	C7012; C7061; C7024
124198/U	Mounting Flange (1") for C7012A, E; C7024A; C7061A; C7961E	C7012A,G, C7024E, C7061A, C7961E
129464M/U	UV Power Tube (0°F to 250°F) for C7035	C7035
129464N/U	UV Power Tube (-40°F to 250°F) for C7035, C7061	C7061; C7035
129811B/U	Socket Assembly w/NPT threads	C7035
190971B/U	120 Vac Coil and Shutter Assembly for C7012E, F, C7061A, F	C7012E, F; C7061A, F
190971D/U	110 Vac 50 Hz Coil and Shutter Assembly for C7012E1187, 1195	C7012E
190971F/U	100 Vac Coil and Shutter Assembly for C7076A, D	C7076A, D
190971G/U	24 Vdc Coil and Shutter Assembly for C7024E, F; C7961	C7024; C7961
191002D/U	220/240 Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A
191002R/U	120 Vac Plug in Electronics less UV Sensing Tube for C7076D	C7076D
191050/U	Quartz Viewing Window for C7076	C7076
191053/U	UV Sensing Tube for C7076	C7076
191284/U	Aluminum Shield for C7035	C7035
32004080-001/U	120 Vac Electronics less UV Sensing Tube and Shutter for C7012C	C7012C
32007255-001/U	Lead Sulfide Cell for C7915	C7915
191286/U	UV Sensing Tube (-40°F to 175°F) for C7012; C7024	C7012; C7024
191002B/U	120 Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A

# Pilot Burners

## Pilot Burners

### Q179A Flame Rectifier Gas Pilots



**Q179A Gas Pilot Burner Assemblies** use the flame rectification principle to prove the flame. Q179A are used in conjunction with a suitable electronic flame safeguard control on industrial or commercial gas and gas pilot ignited oil burners.

- Q179A is a gas pilot assembly (with a flame electrode rod) and ignition electrode, making it suitable for applications requiring an interrupted or intermittent electrically ignited gas pilot burner.
- Primary aerated type burner is equipped with stainless steel fins that provide the proper flame rod area to ground area ratio for maximum flame signal and flame stabilization.
- Stainless steel electrode(s) are mounted in ceramic insulators, which permit electrode adjustment.
- Rajah connectors facilitate disconnecting (A1126 has terminal screws).
- Bracket permits side or end mounting.

**Type of Gas:** Natural gas; Gas consumption – 2.0 cfh (0.06 m<sup>3</sup>/hr)

**Aeration:** Primary

**Compression Fitting Size:** 1/4 in. compression coupling, 6.4 mm compression coupling

**Mounting:** side or end mount

**Approximate Dimensions:** 4 5/8 in. high x 1 11/16 in. wide x 3 in. deep (118 mm high x 43 mm wide x 76 mm deep)

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP268, Guide No. MCCZ

**Approvals, CSA:** Certified: File No. LR1620, Guide No. 140-A-2

**Approvals, Factory Mutual:** Approved: Report No. 22961

Material Number	Application	Orifice	Wiring Terminal Type	Tip Style	Includes	Used With
Q179A1001/U	For Intermittent or Interrupted Ignition	0.025 in. dia. (0.635 mm dia.)	Rajah	I	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1035/U	For Intermittent or Interrupted Ignition	0.025 in. dia. (0.635 mm dia.)	Rajah	45 degree right hand	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1050/U	For Intermittent or Interrupted Ignition	0.028 in. dia. (0.711 mm dia.)	Rajah	T	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1076/U	For Intermittent or Interrupted Ignition	0.028 in. dia. (0.711 mm dia.)	Rajah	45 degree Y	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1092/U	For Intermittent or Interrupted Ignition	0.028 in. dia. (0.711 mm dia.)	Rajah	45 degree T	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1118/U	For Intermittent or Interrupted Ignition	0.025 in. dia. (0.635 mm dia.)	Rajah	45 degree left hand	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1126/U	For Intermittent or Interrupted Ignition	0.025 in. dia. (0.635 mm dia.)	Screw Terminal	I	Flame electrode and ignition electrode with screw terminal connections	Q624 or other suitable ignition transformer.
Q179A1183/U	For Intermittent or Interrupted Ignition	0.025 in. dia. (0.635 mm dia.)	Rajah	I	Ignition Electrode Only	Q624 or other suitable ignition transformer.

## Ignition Transformers

### Q624 Solid State Ignition Transformer



**Temperature Range:** -40°F to +125°F

**Approximate, Dimensions:** 6 3/4 in. high x 4 1/4 in. wide x 3 in. deep (171.5 mm high x 108 mm wide x 76 mm deep)

**Weight lb. (kg):** 3 lb (1.4 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized

**Approvals, CSA:** Certified: File No. LR95329

**Operating Humidity Range (% RH):** 95% RH

#### Accessories:

**32004766-001/U** – 24 inch Ignition Cable for Q624 and Q652

**32004766-002/U** – 120 inch Ignition Cable used with Q624 and Q652

**32004766-003/U** – Ignition Cable for Q624 and Q652 (order by foot – enter the number of feet in the Quantity box)

**32004766-004/U** – 60 inch Ignition Cable with straight boots

**32004766-005/U** – 8 inch Ignition Cable w/90 degree and straight boot

**32004766-006/U** – 36 inch Ignition Cable w/90 degree and straight boot

#### Used to ignite pilots on commercial or industrial gas burners.

- Ignite gas pilots with spark gaps up to 1/4 in. (6.5 mm).
- Reliable light off with 15,000 peak voltage.
- Prevent detection of the ignition spark when properly applied in a flame detection system with the C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector.
- For use only in interrupted ignition applications.
- Mount in same space used by conventional ignition transformer.
- Light weight, 3 lbs. (1.4 kg) versus 8-1/2 lbs. (3.9 kg) for standard transformers.

**50060793-001/U** – 24 inch Ignition Cable for Q624 and Q652

**50060793-002/U** – 120 inch Ignition Cable used with Q624 and Q652

**50060793-003/U** – Ignition Cable for Q624 and Q652 (order by foot – enter the number of feet in the Quantity box)

**50060793-004/U** – 60 inch Ignition Cable with straight boots

**50060793-005/U** – 8 inch Ignition Cable w/90 degree and straight boot

**50060793-006/U** – 36 inch Ignition Cable w/90 degree and straight boot

**50060793-007/U** – 36 inch ignition cable w/90 degree boot on one end only

**50060793-008/U** – Ignition Cable w/90 degree boot on one end only

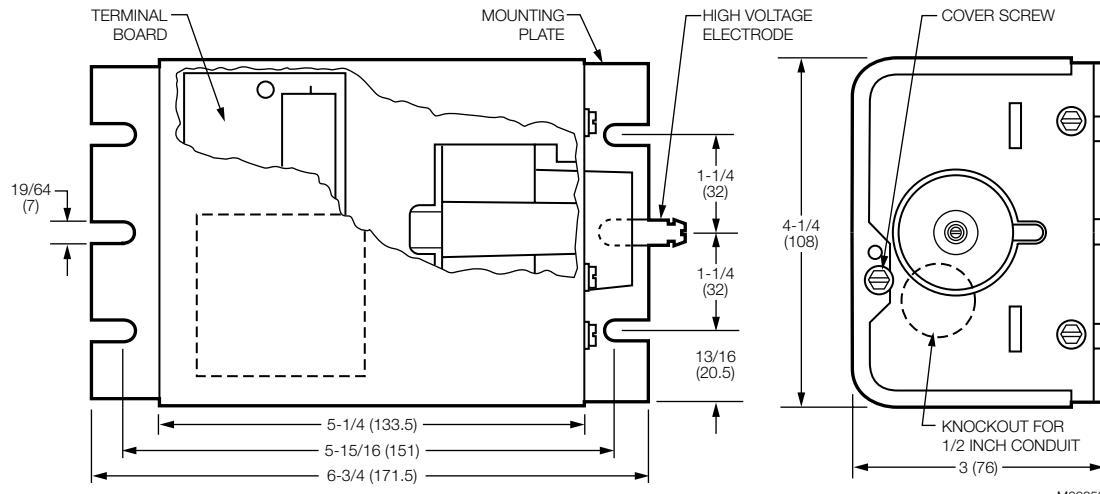
**50060793-009/U** – Ignition Cable w/90 degree boot on one end only

**50060793-010/U** – Ignition Cable w/90 degree boot on one end only

**50060793-011/U** – 19 inch Ignition Cable w/90 degree and ring end used with Q624 and Q652

**50060793-012/U** – 36 inch Ignition Cable with 90 degree boot and 1/4 in. spad terminal used with Q624 and Q652

#### Dimensions in inches (millimeters)



M20858

Material Number	Application	Voltage	Frequency
Q624A1014/U	Gas Ignition Transformer	120 Vac	50 Hz; 60 Hz

# Ignition Transformers

## ET401A1 Ignition Transformer



**ET401A1** is a Ignition Transformer that is suitable to be installed in burner control boxes for gas fuel burner systems.

- Ignites interrupted gas pilots with electrode spacings between 0.12 to 0.20 inches (3 and 5 mm).
- ET401A1 has 14.0 kV output peak voltage for a reliable light-off.
- Generates the lowest electromagnetic interferences of all known electronic ignition devices; especially important if the burner has to comply with EN 55014-2.
- ET401A1 ignition transformer combines low power consumption with a low inrush current.
- The dimensions of the housing and mounting holes are such that the ET401A1 can be mounted underneath the burner control box.
- Meets UL Standards 1012 and 506.

**Ambient Temperature Range:** 5°F to 140°F (-15°C to 60°C).

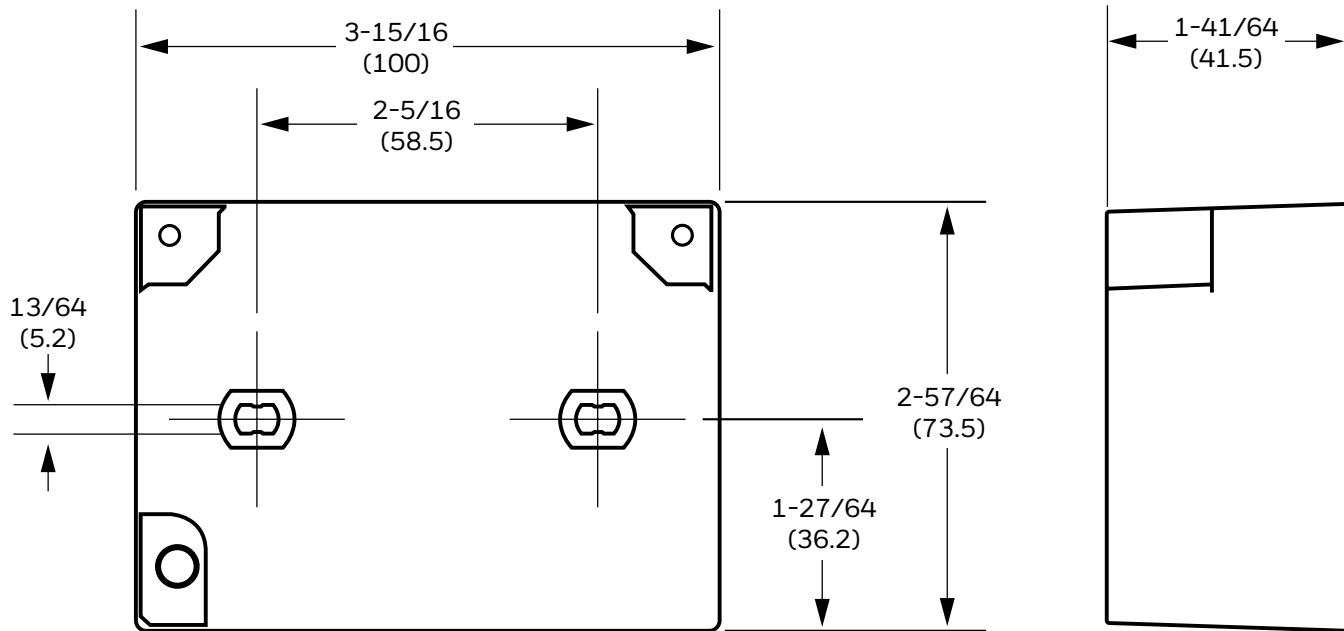
**Approximate Dimensions:** 2 57/64 in. high x 3 15/16 in. wide x 1 41/64 in. deep (73.5 mm high x 100 mm wide x 41.5 mm deep)

**Weight lb (kg):** 1.2 lb (0.55 kg)

**Approvals, Underwriters Laboratories Inc.:** Component Recognized

Certificate No. 20180201-E494797

Dimensions in inches (millimeters)



Material Number	Application	Voltage	Frequency
ET401A1/B	Gas Ignition Transformer, Bulk	110–120 Vac	50/60 Hz
ET401A1/U	Gas Ignition Transformer, Unit	110–120 Vac	50/60 Hz
ET401A	Gas Ignition Transformer	230 Vac	50/60Hz
ET402A	Oil Ignition transformer	230 Vac	50/60Hz
ET402A1	Oil Ignition Transformer	110–120 Vac	50/60Hz
ET401RC	Gas Ignition Transformer with Rajah Connector, Bulk	110–120 Vac	50/60 Hz

**Ignition Transformer Accessories or Parts**

Material Number	Description	Used With
134666/510/U	High voltage terminal insulator for Q652 and Q624	Q652; Q624
32004766-001/U	24 inch Ignition Cable for Q624 and Q652	Q652; Q624
32004766-002/U	120 inch Ignition Cable used with Q624 and Q652	Q652; Q624
32004766-003/U	Ignition Cable for Q624 and Q652 (order by foot – enter the number of feet in the Quantity box)	Q652; Q624
32004766-004/U	60 inch Ignition Cable with straight boots	Q652; Q624
32004766-005/U	8 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
32004766-006/U	36 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
32004766-007/U	36 inch ignition cable w/90 degree boot on one end only	Q652; Q624
32004766-008/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
32004766-009/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
32004766-010/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
32004766-011/U	19 inch Ignition Cable w/90 degree and ring end used with Q624 and Q652	Q652; Q624
32004766-012/U	36 inch ignition cable w/90 degree boot on one end only	Q652; Q624
4074BTN/U	Bag assembly consisting of washer (103218), cap terminal (135793) and ferrule (37356) for Q624	Q624A
50060793-001/U	24 inch Ignition Cable for Q624 and Q652	Q652; Q624
50060793-002/U	120 inch Ignition Cable used with Q624 and Q652	Q652; Q624
50060793-003/U	Ignition Cable for Q624 and Q652 (order by foot – enter the number of feet in the Quantity box)	Q652; Q624
50060793-004/U	60 inch Ignition Cable with straight boots	Q652; Q624
50060793-005/U	8 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
50060793-006/U	36 inch Ignition Cable w/90 degree and straight boot	Q652; Q624
50060793-007/U	36 inch ignition cable w/90 degree boot on one end only	Q652; Q624
50060793-008/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
50060793-009/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
50060793-010/U	Ignition Cable w/90 degree boot on one end only	Q652; Q624
50060793-011/U	19 inch Ignition Cable w/90 degree and ring end used with Q624 and Q652	Q652; Q624
50060793-012/U	36 inch Ignition Cable with 90 degree boot and 1/4 in. spad terminal used with Q624 and Q652	Q652; Q624
50060793-013/U	48 inch Ignition Cable with 90 degree boot and 1/4 in. spad terminal used with Q624 and Q652	Q652; Q624

# Firing Rate Motors

## Firing Rate Motors

### M9484D, E, F; M9494D, F Modutrol® IV Motors



Reversing, proportional motors used to drive burner firing rate valves, dampers or auxiliary equipment. Replaces M941A, C, D motors.

- Designed for flame safeguard applications in commercial/industrial oil or gas burner system.
- Vibration resistant electronic drive circuit.
- Regulated by three-wire proportional controller.
- Stroke is field-adjustable to 90 or 160 degrees.

**Frequency:** 50 Hz; 60 Hz

**Stroke:** Adjustable; 90 to 160 degrees, Symmetrical

**Power Consumption:** 15 W

**Input Signal:** 135 ohm

**Shaft Dimensions:** double-ended, 3/8 in. square (double-ended, 9.5 mm square)

**Deadweight Load on Shaft:** Either End – 200 lb (300 lb combined power and auxiliary shafts); 90.8 kg (136 kg combined power and auxiliary shafts)

**Approximate Dimensions:** 6.45 in high x 5.5 in wide x 7.3 in deep (164 mm high x 140 mm wide x 185 mm deep)

**Ambient Temperature Range:** -40°F to +150°F (-40°C to +66°C)

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Supply Voltage:** 24 Vac

#### Accessories:

**Q100B1006/U** – Linkage to connect Modutrol motor to V51E Butterfly Valve. Includes 10 3/4 inch Linkage Rod.

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Additional Torque Ratings (lb-in.)	Additional Torque Ratings (Nm)	Internal Auxiliary Switch	Auxiliary Switch Setting	Auxiliary Switch Ratings	Switch Ratings	Timing	Factory Stroke Setting
M9484D1010/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm				At 120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact	90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	160 degrees
M9484E1009/U	75 lb-in.	8.5 Nm	Breakaway – 150 lb-in.	Breakaway – 17.0 Nm	1	11 degrees	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 15 seconds, 160 degree stroke – 30 seconds	90 degrees
M9484E1017/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	1	1 degree	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	90 degrees
M9484E1033/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	1	7 degrees	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	90 degrees
M9484F1007/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	2	7 and 80 degrees	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	90 degrees
M9484F1023/U	75 lb-in.	8.5 Nm	Breakaway – 150 lb-in.	Breakaway – 17.0 Nm	2			At 120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact	90 degree stroke – 15 seconds, 160 degree stroke – 30 seconds	90 degrees

# Firing Rate Motors

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Additional Torque Ratings (lb-in.)	Additional Torque Ratings (Nm)	Internal Auxiliary Switch	Auxiliary Switch Setting	Auxiliary Switch Ratings	Switch Ratings	Timing	Factory Stroke Setting
M9484F1031/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	2	7 and 80 degrees	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	90 degrees
M9484F1049/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	2	35 and 120 degrees	120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact		90 degree stroke – 30 seconds, 160 degree stroke – 60 seconds	160 degrees
M9484F1057/U	150 lb-in.	17 Nm	Breakaway – 300 lb-in.	Breakaway – 34.0 Nm	2			At 120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact	90 degree stroke – 30 seconds, 160 degree stroke – 53 seconds	
M9494D1000/U	300 lb-in.	34 Nm	Breakaway – 600 lb-in.	Breakaway – 68.0 Nm				At 120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact	90 degree stroke – 60 seconds, 160 degree stroke – 120 seconds	90 degrees
M9494F1003/U	300 lb-in.	34 Nm	Breakaway – 600 lb-in.	Breakaway – 68.0 Nm	2			At 120 Vac – 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact; At 240 Vac – 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact	90 degree stroke – 60 seconds, 160 degree stroke – 107 seconds	90 degrees

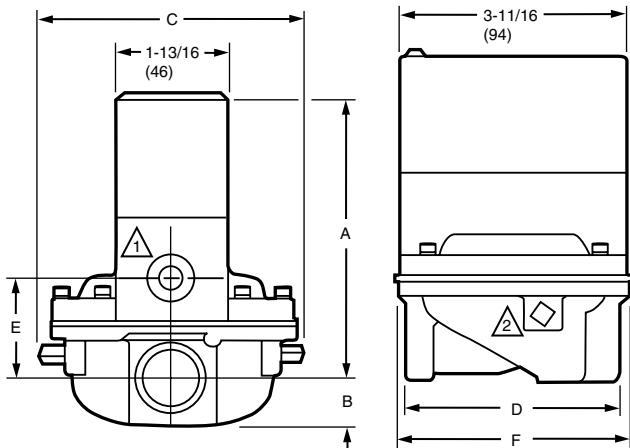
# Diaphragm Gas Valves

## Diaphragm Gas Valves

### V48A; V88A Diaphragm Gas Valves



Dimensions in inches (millimeters)



Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.

- V48 for line voltage service; V88 for 24 Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.
- Valve position indicator available for 1-1/4 in. V48A2227.

**Type of Fuel:** Natural; LP; Manufactured

**Bleed Tapping:** 1/8-27 NPT

**Body Pattern:** Straight-through

**Valve Opening Time:** 5 sec max

**Valve Closing Time:** 2 sec max

**Mounting:** Upright (horizontal)

**Materials:** Body – Aluminum

**Frequency:** 60 Hz

**Power Consumption:** 9 W; 15 VA max

**Electrical Connections:** 6 in. Leadwires

**Operating Temperature Range:** 32°F to 125°F (0°C to 52°C)

**Approvals, Underwriters Laboratories Inc.:** File No. MH1639, Guide No. YIOZ

**Approvals, CSA:** Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)

VALVE SIZE (IN.)	APPROXIMATE DIMENSIONS											
	A		B		C		D		E		F	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	4-11/16	119.1	3/4	19.1	4-5/8	117.5	3-1/2	88.9	1-5/8	41.3	3-13/16	96.8
1	5-1/16	128.6	1	25.4	5	127.0	3-11/16	93.7	2-1/16	52.4	4-5/16	109.5
1-1/4	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
1-1/2	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	5-5/16	236.5
2-1/2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5
3	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5

**BLEED TAPPING:** 1/8-27 NPT.

**PILOT TAPPING (2):** 1/8-27 NPT FOR 3/4 THROUGH 1-1/2 IN. SIZES, 1/4-18 NPT FOR 2 THROUGH 3 IN. SIZES.

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Material Number	Pipe Size (inch)	Pipe Size (DN)	Pilot Tapping	Voltage	Approximate Dimensions	Pressure Rating (psi)	Pressure Rating (kPa)	Current Ratings	Comments	Includes
V48A2151/U	3/4 in.	DN20	1/8-27 NPT	120 Vac	5 7/16 in. high x 3 13/16 in. wide x 4 5/8 in. deep (138 mm high x 97 mm wide x 118 mm deep)	1/2 psi	3.4 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V48A2169/U	1 in.	DN25	1/8-27 NPT	120 Vac	6 1/16 in. high x 4 5/16 in. wide x 5 in. deep (154 mm high x 127 mm wide x 109 mm deep)	1/2 psi	3.4 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V48A2177/U	1 1/4 in.	DN32	1/8-27 NPT	120 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1/2 psi	3.4 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V48A2185/U	1 1/2 in.	DN40	1/8-27 NPT	120 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1/2 psi	3.4 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V48A2243/U	2 in.	DN50	1/4-18 NPT	120 Vac	9 3/16 in. high x 9 5/16 in. wide x 9 1/2 in. deep (233 mm high x 237 mm wide x 241 mm deep)	1 psi	6.9 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V48A2276/U	1 1/2 in.	DN40	1/8-27 NPT	120 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1 psi	6.9 kPa	0.13 max amps at rated Vac/Hz		Ground terminal

# Diaphragm Gas Valves

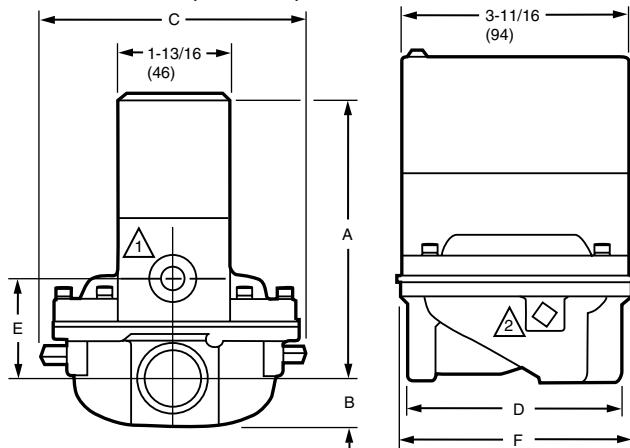
Material Number	Pipe Size (inch)	Pipe Size (DN)	Pilot Tapping	Voltage	Approximate, Dimensions	Pressure Rating (psi)	Pressure Rating (kPa)	Current Ratings	Comments	Includes
V48A2334/U	1 in.	DN25	1/8-27 NPT	120 Vac	6 1/16 in. high x 4 5/16 in. wide x 5 in. deep (154 mm high x 127 mm wide x 109 mm deep)	1 psi	6.9 kPa	0.13 max amps at rated Vac/Hz		Ground terminal
V88A1618/U	1 in.	DN25	1/8-27 NPT	24 Vac	6 1/16 in. high x 4 5/16 in. wide x 5 in. deep (154 mm high x 127 mm wide x 109 mm deep)	1/2 psi	3.4 kPa	0.62 max amps at rated Vac/Hz		
V88A1626/U	1 1/4 in.	DN32	1/8-27 NPT	24 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1/2 psi	3.4 kPa	0.62 max amps at rated Vac/Hz		
V88A1634/U	1 1/2 in.	DN40	1/8-27 NPT	24 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1/2 psi	3.4 kPa	0.62 max amps at rated Vac/Hz		
V88A1659/U	3/4 in.	DN20	1/8-27 NPT	24 Vac	5 7/16 in. high x 3 13/16 in. wide x 4 5/8 in. deep (138 mm high x 97 mm wide x 118 mm deep)	1/2 psi	3.4 kPa	0.62 max amps at rated Vac/Hz		
V88A1667/U	3/4 in.	DN20	1/8-27 NPT	24 Vac	5 7/16 in. high x 3 13/16 in. wide x 4 5/8 in. deep (138 mm high x 97 mm wide x 118 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		
V88A1675/U	1 in.	DN25	1/8-27 NPT	24 Vac	6 1/16 in. high x 4 5/16 in. wide x 5 in. deep (154 mm high x 127 mm wide x 109 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		
V88A1683/U	1 1/4 in.	DN32	1/8-27 NPT	24 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		
V88A1691/U	1 1/2 in.	DN40	1/8-27 NPT	24 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		
V88A1709/U	2 in.	DN50	1/4-18 NPT	24 Vac	9 3/16 in. high x 9 5/16 in. wide x 9 1/2 in. deep (233 mm high x 237 mm wide x 241 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		
V88A1717/U	2 1/2 in.	DN65	1/4-18 NPT	24 Vac	9 3/16 in. high x 9 5/16 in. wide x 9 1/2 in. deep (233 mm high x 237 mm wide x 241 mm deep)	1 psi	6.9 kPa	0.62 max amps at rated Vac/Hz		

# Diaphragm Gas Valves

## V88J High Temperature Diaphragm Gas Valves



Dimensions in inches (millimeters)



Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.

- Rated for 150°F (66°C) maximum temperature applications.
- V88 for 24 Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.

**Type of Fuel:** Natural; LP; Manufactured

**Bleed Tapping:** 1/8-27 NPT

**Pilot Tapping:** 1/8-27 NPT

**Body Pattern:** Straight-through

**Valve Opening Time:** 5 sec max

**Valve Closing Time:** 2 sec max

**Mounting:** Upright (horizontal)

**Materials:** Body – Aluminum

**Frequency:** 60 Hz

**Electrical Connections:** 6 in. Leadwires

**Operating Temperature Range:** 32°F to 150°F (0°C to 66°C)

**Approvals, Underwriters Laboratories Inc.:** File No. MH1639, Guide No. Y10Z

**Approvals, CSA:** Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)

**Pressure Ratings (psi):** 1 psi

**Pressure Ratings (kPa):** 6.9 kPa

**Current Ratings:** 0.62 max amps at rated Vac/Hz

VALVE SIZE (IN.)	APPROXIMATE DIMENSIONS											
	A		B		C		D		E		F	
IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	
3/4	4-11/16	119.1	3/4	19.1	4-5/8	117.5	3-1/2	88.9	1-5/8	41.3	3-13/16	96.8
1	5-1/16	128.6	1	25.4	5	127.0	3-11/16	93.7	2-1/16	52.4	4-5/16	109.5
1-1/4	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
1-1/2	5-9/16	141.3	1-1/4	31.8	5-7/8	149.2	5-5/16	134.9	2-3/8	60.3	5-5/16	134.9
2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	5-5/16	236.5
2-1/2	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5
3	6-15/16	176.2	2-1/4	57.2	9-1/2	241.3	8-3/8	212.7	3-9/16	90.5	9-5/16	236.5

**BLEED TAPPING:** 1/8-27 NPT.

**PILOT TAPPING (2):** 1/8-27 NPT FOR 3/4 THROUGH 1-1/2 IN. SIZES, 1/4-18 NPT FOR 2 THROUGH 3 IN. SIZES.

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Material Number	Pipe Size (inch)	Pipe Size (DN)	Voltage	Approximate, Dimensions	Power Consumption
V88J1006/U	1 in.	DN25	24 Vac	6 1/16 in. high x 4 5/16 in. wide x 5 in. deep (154 mm high x 127 mm wide x 109 mm deep)	9 W; 15 VA max
V88J1022/U	1 1/4 in.	DN32	24 Vac	6 13/16 in. high x 5 5/16 in. wide x 5 7/8 in. deep (173 mm high x 135 mm wide x 149 mm deep)	9 W; 15 VA max

## V4943/V8943A On/Off Diaphragm Gas Valves



**Type of Fuel:** Natural; LP

**Bleed Tapping:** Internal Bleed

**Pilot Tapping:** 1/8-27 NPT

**Body Pattern:** Straight-through, non-offset

**Opening Characteristics:** Rapid Opening On-Off

**Valve Opening Time:** 6 sec max

**Valve Closing Time:** 3 sec max

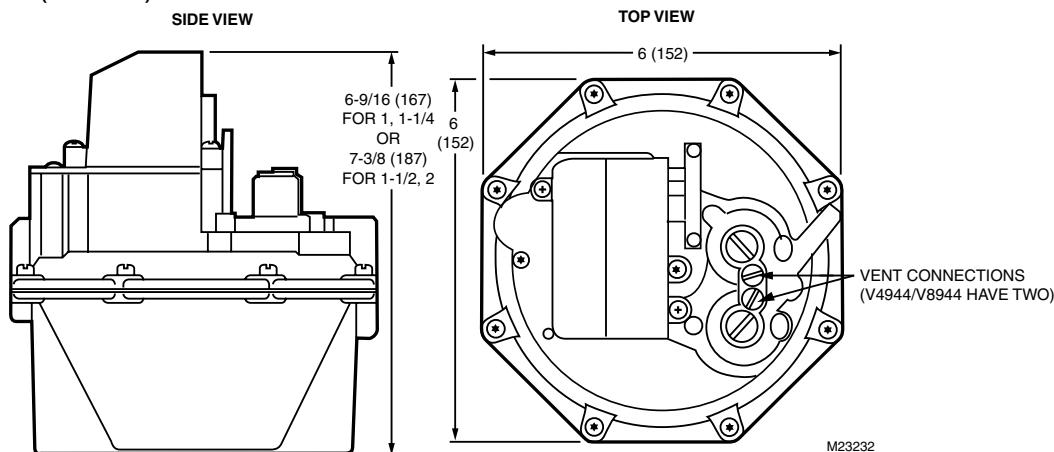
**Mounting:** Upright (horizontal)

**Materials:** Body – Aluminum

**Frequency:** 60 Hz

**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

### Dimensions in inches (millimeters)



Material Number	Pipe Size (inch)	Pipe Size (DN)	Voltage	Approximate, Dimensions	Power Consumption
V4943A1011/U	1 in.	DN25	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 VA max
V4943A1029/U	1 1/4 in.	DN32	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 VA max
V4943A1037/U	1 1/2 in.	DN40	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	6 VA max
V4943A1045/U	2 in.	DN50	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	6 VA max
V8943A1012/U	1 in.	DN25	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	8 VA max
V8943A1020/U	1 1/4 in.	DN32	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	8 VA max
V8943A1038/U	1 1/2 in.	DN40	24 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	8 VA max
V8943A1046/U	2 in.	DN50	24 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	8 VA max

**V4943A/V8943A** are on/off diaphragm gas valve used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843A/V8843A Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V8943A/V4943A models are solenoid-operated diaphragm valves for on/off flow control of natural or LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943A are used with 24 Vac thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

**Operating Temperature Range:** -40°F to +150°F (-40°C to +66°C)

**Approvals, Underwriters Laboratories Inc.:** File No. MH1639, Guide No. YIOZ (60 Hz only)

**Approvals, CSA:** Certificate No. 158158-1042930, Guide No. 3371-03, 83 (Z21.21, Z21.78)

**Pressure Ratings (psi):** 1/2 psi

**Pressure Ratings (kPa):** 3.4 kPa

**Comments:** (2) 30" leadwires

**Current Ratings:** 0.055 max amps at rated Vac/Hz

# Diaphragm Gas Valves

## V4943/V8943B, C, N Single Stage Pressure Regulating Valves



**V4943B, N/8943B, C, N are Single-stage Pressure Regulating Valves.** These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843/V8843 Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V4943/V8943B, C, N models are solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- V4943/V8943B, N are for use with natural gas.
- V4943/V8943C are for use with LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943 are used with 24 Vac thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

**Bleed Tapping:** 5/16-24 UNF

**Pilot Tapping:** 1/8-27 NPT

**Body Pattern:** Straight-through, non-offset

**Valve Closing Time:** 2 sec max

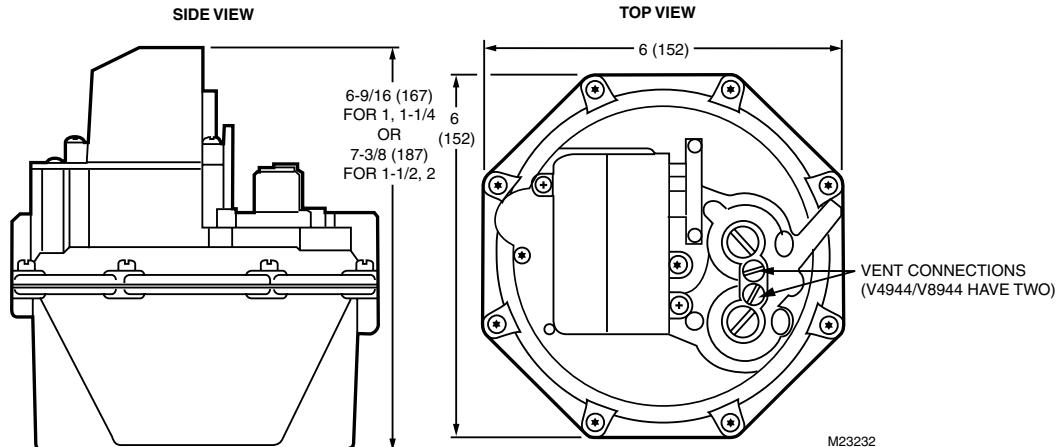
**Mounting:** Upright (horizontal)

**Materials:** Body – Aluminum

**Frequency:** 60 Hz

**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

**Dimensions in inches (millimeter)**



Material Number	Type of Fuel	Pipe Size (inch)	Pipe Size (DN)	Opening Characteristics	Voltage	Approximate Dimensions	Valve Opening Time	Current Ratings	Pressure Regulator Setpoint (in. wc)	Power Consumption
V4943B1019/U	Natural	1 in.	DN25	Slow Opening 1-stage	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max; 6.6 VA
V4943B1027/U	Natural	1 1/4 in.	DN32	Slow Opening 1-stage	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V4943B1035/U	Natural	1 1/2 in.	DN40	Slow Opening 1-stage	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V4943B1043/U	Natural	2 in.	DN50	Slow Opening 1-stage	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V4943N1012/U	Natural	1 in.	DN25	Rapid Opening 1-stage	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V4943N1020/U	Natural	1 1/4 in.	DN32	Rapid Opening 1-stage	120 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max

# Diaphragm Gas Valves

Material Number	Type of Fuel	Pipe Size (inch)	Pipe Size (DN)	Opening Characteristics	Voltage	Approximate, Dimensions	Valve Opening Time	Current Ratings	Pressure Regulator Setpoint (in. wc)	Power Consumption
V4943N1038/U	Natural	1 1/2 in.	DN40	Rapid Opening 1-stage	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V4943N1046/U	Natural	2 in.	DN50	Rapid Opening 1-stage	120 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.055 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	6.6 VA max
V8943B1010/U	Natural	1 in.	DN25	Slow Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943B1028/U	Natural	1 1/4 in.	DN32	Slow Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943B1036/U	Natural	1 1/2 in.	DN40	Slow Opening 1-stage	24 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943B1044/U	Natural	2 in.	DN50	Slow Opening 1-stage	24 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943C1018/U	LP	1 in.	DN25	Slow Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, High Fire – 10.0 in. wc	9 VA max
V8943C1026/U	LP	1 1/4 in.	DN32	Slow Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	3 to 25 sec	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, High Fire – 10.0 in. wc	9 VA max
V8943N1013/U	Natural	1 in.	DN25	Rapid Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943N1021/U	Natural	1 1/4 in.	DN32	Rapid Opening 1-stage	24 Vac	6 9/16 in. high x 6 in. wide x 6 in. deep (167 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max
V8943N1039/U	Natural	1 1/2 in.	DN40	Rapid Opening 1-stage	24 Vac	7 3/8 in. high x 6 in. wide x 6 in. deep (187 mm high x 152 mm wide x 152 mm deep)	6 sec max	0.363 max amps at rated Vac/Hz	Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, High Fire – 3.5 in. wc	9 VA max

# Diaphragm Gas Valves

## V4944/V8944B, C, L, N Two Stage Pressure Regulating Gas Valves



**Bleed Tapping:** Two 5/16-24 UNF

**Pilot Tapping:** 1/8-27 NPT

**Body Pattern:** Straight-through, non-offset

**Valve Closing Time:** 2 sec max

**Mounting:** Upright (horizontal)

**Materials:** Body – Aluminum

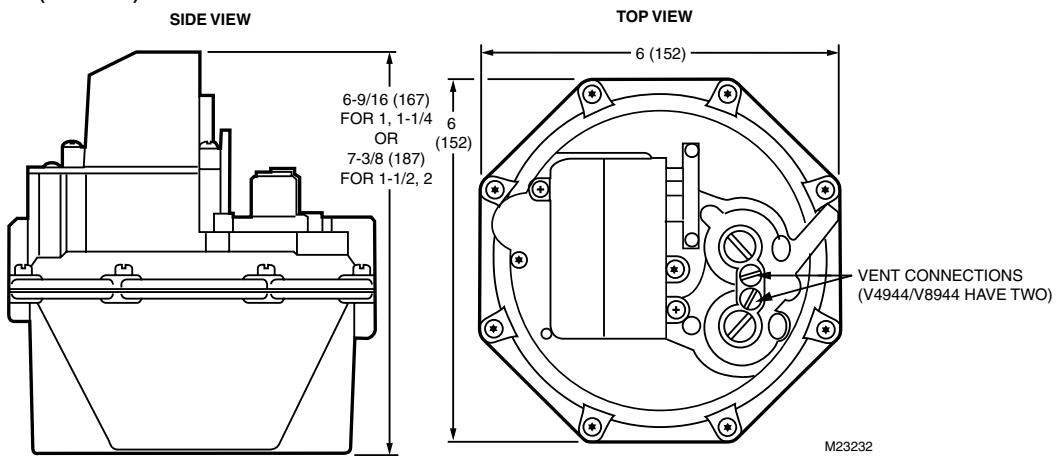
**Voltage:** V4944-120 Vac; V8944-24 Vac

**Frequency:** 60 Hz

**Power Consumption:** V4944-9 VA max; V8944-12.4 VA max

**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects), leadwires and cover for electrical conduit connection provided.

**Dimensions in inches (millimeter)**



M23232

Material Number	Type of Fuel	Pipe Size (inch)	Pipe Size (DN)	Opening Characteristics	Valve Opening Time	Pressure Regulator Setpoint (in. wc)	Comments
V4944B1026/U	Natural	1 1/4 in.	DN32	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V4944B1059/U	Natural	1 in.	DN25	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.7 in. wc; Factory Setting, High Fire – 3.0 in. wc	(3) 30" leadwires
V4944B1075/U	Natural	1 in.	DN25	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 1.6 in. wc to 4. in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 1.6 in. wc; Factory Setting, High Fire – 3.5 in. wc	
V4944B1091/U	Natural	1 1/2 in.	DN40	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 1.6 in. wc to 4. in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 1.6 in. wc; Factory Setting, High Fire – 3.5 in. wc	
V4944L1024/U	LP	1 1/4 in.	DN32	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 1.4 in. wc to 4.2 in. wc; Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, Low Fire – 1.4 in. wc; Factory Setting, High Fire – 10.0 in. wc	(3) 30" leadwires
V4944N1011/U	Natural	1 in.	DN25	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires

# Diaphragm Gas Valves

Material Number	Type of Fuel	Pipe Size (inch)	Pipe Size (DN)	Opening Characteristics	Valve Opening Time	Pressure Regulator Setpoint (in. wc)	Comments
V8944B1019/U	Natural	1 in.	DN25	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944B1027/U	Natural	1 1/4 in.	DN32	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944B1035/U	Natural	1 1/2 in.	DN40	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944B1043/U	Natural	2 in.	DN50	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944C1017/U	LP	1 in.	DN25	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 1.4 in. wc to 4.2 in. wc; Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, Low Fire – 1.4 in. wc; Factory Setting, High Fire – 10.0 in. wc	(3) 30" leadwires
V8944C1025/U	LP	1 1/4 in.	DN32	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 1.4 in. wc to 4.2 in. wc; Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, Low Fire – 1.4 in. wc; Factory Setting, High Fire – 10.0 in. wc	(3) 30" leadwires
V8944C1033/U	LP	1 1/2 in.	DN40	Slow Opening 2-stage	3 to 25 sec	Adj. Range, Low Fire – 1.4 in. wc to 4.2 in. wc; Adj. Range, High Fire – 8.8 in. wc to 11.5 in. wc; Factory Setting, Low Fire – 1.4 in. wc; Factory Setting, High Fire – 10.0 in. wc	(3) 30" leadwires
V8944N1012/U	Natural	1 in.	DN25	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944N1020/U	Natural	1 1/4 in.	DN32	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944N1038/U	Natural	1 1/2 in.	DN40	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944N1046/U	Natural	2 in.	DN50	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 0.8 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944N1053/U	Natural	1 in.	DN25	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 1.2 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires
V8944N1061/U	Natural	1 1/4 in.	DN32	Rapid Opening 2-stage	6 sec max	Adj. Range, Low Fire – 0.8 in. wc to 2 in. wc; Adj. Range, High Fire – 3 in. wc to 4.5 in. wc; Factory Setting, Low Fire – 1.2 in. wc; Factory Setting, High Fire – 3.5 in. wc	(3) 30" leadwires

# Diaphragm Gas Valves

## Diaphragm Gas Valve Replacement Parts or Accessories

Material Number	Description	Used With
116930/U	24 Vac, 60 Hz Replacement Coil for V88A Solenoid Operated Valve	V88A
116931/U	120 V/60 Hz Replacement Coil for V48A Solenoid Operated Valve	V48; V48A
116932/U	220-240 V/50-60 Hz Replacement Coil for V48A Solenoid Operated Valve	V48A
118888/U	24V 60 Hz Replacement Coil for V88J	V88J
122160/U	Orifice - .018" for V48, V88	V48, V88
124674/U	Orifice - .011" for V48, V88	V48, V88
126590/U	Adjustable Bleed Valve Assembly for V48, V88, V4004. V8004. 1/8 in. NPT to 1/4 in. compression fitting	V48, V88
204480/U	Regulator vent pipe fitting to be used with V4843/V8843B, C, L, N and V4844/V8844B, C, L, N and V4943/V8943, V4944/V8944	V4843B; V4843C; V4843L; V4843N; V8843B; V8843C; V8843L; V8843N; V4844B; V4844C; V4844L; V4844N; V8844B; V8844C; V8844L; V8844N; V4943; V4944; V8944

## Gas Valve Actuators

### Selection Chart: V5055 and V5097 Industrial Gas Valves with V4055 or V4062 Fluid Power Actuators

The chart below describes every model of V5055 or V5097 Valve in the left column, and every model of Fluid Power Actuator across the top. While it's possible to combine any valve with any actuator, we've marked the recommended valve/actuator combinations which cover most applications with a •.

*Each valve described in the left column is available:*

- In these sizes: 3/4 to 3 in. (NPT or parallel BSP). V5055A, B, C are also available in 4 in. size (flange connection only).
- With upstream and/or downstream tap.

*Options available on some Fluid Power Actuators include:*

- Damper arm shaft, with or without spring return.
- NEMA 4 enclosure.
- Fast or slow open time (13 or 26 seconds).
- Auxiliary switch.
- Valve seal overtravel interlock switch.

For complete specifications and ordering information on V5055 and V5097 Valves and V4055 and V4062 Fluid Power Actuators, refer to Index for specific page numbers.

Fluid Power Actuators/Industrial Gas Valves			Standard pressure <sup>a</sup>			High Pressure <sup>a</sup>	
Type	Model	Pressure Rating <sup>a</sup>	V5055A, F <sup>b</sup> , V5097A	V5055B, V5097B	V5055C, V5097C	V5055E	
Type	Model	Pressure Rating <sup>a</sup>	On-Off	Characterized Guide <sup>c</sup>	VSOI <sup>d</sup>	VSOI <sup>d</sup>	VSOI <sup>d</sup>
V4055 On-Off	A, Ge	Standard	•	•			
	B	High	• f	• f			
	D <sup>d</sup> F <sup>d</sup> E <sup>e</sup>	Standard			•	•	
	E <sup>d</sup>	High			• f	•	
V4062 Hi-Lo-Off	A	Standard		•	•		
	B	High		• f	• f	•	
	D <sup>d</sup>	Standard			•		

<sup>a</sup> Refer to the table below for actual pressure ratings of the various combinations of valves and actuators.

<sup>b</sup> V5055F models meet EN161 leakage requirements.

<sup>c</sup> Characterized guide provides a more linear relationship between stem travel and gas flow. Check Honeywell form 70-8311 to verify that flow curve characteristics match application requirements.

<sup>d</sup> Valve Seal Overtravel Interlock. Valve has two shutoff seals, actuator has a proof-of-closure switch.

<sup>e</sup> V4055F, G models include switch for manual control.

<sup>f</sup> These combinations have higher pressure ratings; see the table below.

The following combinations of V5055 and V5097 Valves, and V4055 and V4062 Fluid Power Actuators are approved by these agencies.

**Underwriters Laboratories, Inc:** Listed: MH1639

- V4055A/V5055A-E (3/4-4 in.) or V5097A-C (3/4-3 in.).
- V4055B/V5055A-E (3/4-4 in.) or V5097A-C (3/4-3 in.).
- V4055D/V5055A-E (3/4-4 in.) or V5097A-C (3/4-3 in.).
- V4055E/V5055A-E (3/4-4 in.) or V5097A-C (3/4-3 in.).
- V4055F/V5055A-E (3/4-4 in.<sup>a</sup>) or V5097A-C (3/4-3 in.).
- V4055G/V5055A-E (3/4-4 in.<sup>a</sup>) or V5097A-C (3/4-3 in.).
- V4062A, D/V5055A-E (3/4-4 in.) or V5097A-C (3/4-3 in.).

# Gas Valve Actuators

**Factory Mutual Approved:** Report No. 20698, 20835, 21172 and 24061:

**Valve Actuator Approvals:**

V4055A/V5055A and V5097A.

V4055D/V5055C and V5097C.

V4055A/V5055B and V5097B.

V4055B.

V4055E/V5055E.

V4055F/V5055C<sup>a</sup> and V5097C.

V4055G/V5055A, B<sup>a</sup> and V5097A, B.

<sup>a</sup> Manual reset safety shut-off valves.

**Pressure Ratings of Valve-Actuator Combinations**

Model	Pipe Size	Standard Pressure Actuators V4055A, D, F, G, V4062A, D				High Pressure Actuators V4055B, E, V4062B			
		M.O.P.D. <sup>a</sup>	Max. Rated Pressure <sup>b</sup>	M.O.P.D. <sup>a</sup>	Max. Rated Pressure <sup>b</sup>				
Standard Pressure Valves V5055A, B, C, F, V5097A, B, C	3/4" to 1-1/2" <sup>c</sup>	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	2" to 3" <sup>d</sup>	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	4" flanged <sup>e</sup>	3 PSI	207 mbar	15 PSI	1.0 Bar	5 PSI	340 mbar	15 PSI	1.0 Bar
High Pressure Valves V5055E	3/4" to 1-1/2"	5 PSI	340 mbar	75 PSI	5.0 Bar	25 PSI	1720 mbar	75 PSI	5.0 Bar
	2" to 3"	5 PSI	340 mbar	45 PSI	3.0 Bar	15 PSI	1030 mbar	45 PSI	3.0 Bar

<sup>a</sup> Max Operating Pressure Differential (UL) or Max Operating Pressure (CSA); maximum allowable pressure drop from inlet to outlet for proper operation.

<sup>b</sup> Max Rated Pressure (UL) or Max Close-off Pressure (CSA); maximum pressure that the valve can be exposed to without leakage or damage to the valve.

<sup>c</sup> Applies for small-body V5097 valves 3/4" up to 2" pipe size.

<sup>d</sup> Applies for large-body V5097 valves 2" up to 3" pipe size.

<sup>e</sup> V5055A, B, C only.

## V4055A, B, D, E On-Off Fluid Power Gas Valve Actuator



**Use in combination with V5055 or V5097 Gas Valves to control gas supply to commercial and industrial burners.**

- Use where smooth light off is important.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

**Operating Temperature Ratings:** 60 Hz Models: -40°F to +150°F (-40°C to +66°C). 50 Hz, 50/60 Hz Models: -10°F to +158°F (-23°C to +70°C).

**Contact Ratings:** V4055D, E ONLY-Proof of Closure (Factory Mutual) Switch - 9.8 AFL, 58.8 ALR, 1/2 hp; 4.9 AFL, 29.4 ALR, 1/2 hp

**Used With:** V5055; V5097 Gas Valves

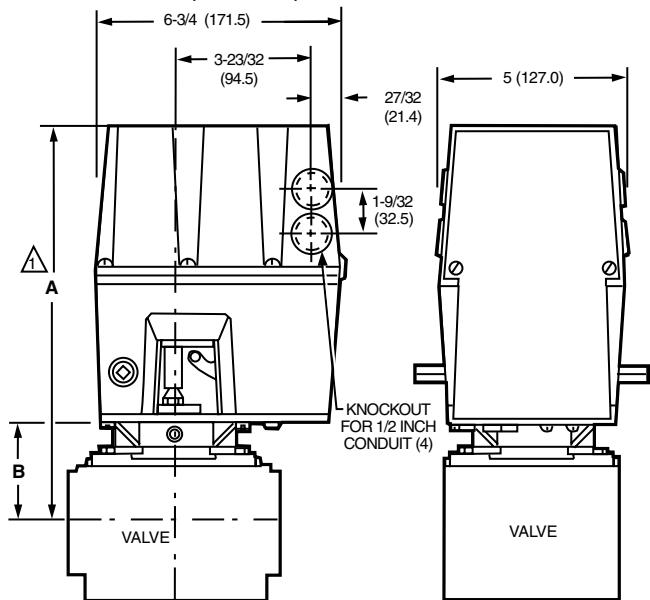
**Approvals, CSA:** When used with V5055 and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**Approvals, Underwriters Laboratories Inc.:** When used with V5055A-E (3/4 to 4 in.) or V5097A-C (3/4 to 3 in.): Listed, File No. MH1639 Guide No. Y10Z

**Approvals, Factory Mutual:** V4055A-When used with the V5055A, B or V5097A, B: Approved, Report Nos. 20698, 20835, 21172, and 24061; V4055B, D, E

**Approvals, Swiss RE:** When used with V5055 or V5097: Acceptable

Dimensions in inches (millimeters)



ALLOW 4 IN. (101.6 MM) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/2	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
2	11-1/4	285.8	2-7/8	73.0	11-3/4	298	3-3/8	86
2-1/2	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
3	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
4	14-1/8	358.8	5-13/16	147.6	—	—	—	—

M10981A

Material Number	Electrical Ratings	Frequency	Timing	Internal Auxiliary Switch	Maximum Safe Operating Pressure (psi)	Maximum Safe Operating Pressure (kPa)	Auxiliary Switch Ratings	Comments	Includes
V4055A1007/U	120 Vac	60 Hz	Opening - 26 sec; Closing - < 1 sec	No	5 psi	34 kPa			
V4055A1031/U	120 Vac	50 Hz; 60 Hz	Opening - 13 sec; Closing - < 1 sec	No	5 psi	34 kPa			
V4055A1064/U	120 Vac	50 Hz; 60 Hz	Opening - 26 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055A1080/U	240 Vac	50 Hz; 60 Hz	Opening - 26 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055A1098/U	120 Vac	50 Hz; 60 Hz	Opening - 13 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055A1114/U	240 Vac	50 Hz; 60 Hz	Opening - 13 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055A1296/U	120 Vac	60 Hz	Opening - 13 sec; Closing - < 1 sec	Yes - adjusted to 90% stroke	5 psi	34 kPa	120 Vac - 9.8 AFL, 58.8 ALR, 1/2 hp; 240 Vac - 4.9 AFL, 29.4 ALR, 1/2 hp		
V4055B1039/U	120 Vac	60 Hz	Opening - 13 sec; Closing - < 1 sec	No	15 or 25 psi	103 or 172 kPa			Damper Shaft
V4055D1001/U	120 Vac	60 Hz	Opening - 26 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055D1019/U	120 Vac	60 Hz	Opening - 13 sec; Closing - < 1 sec	No	5 psi	34 kPa			Damper Shaft
V4055D1027/U	120 Vac	60 Hz	Opening - 13 sec; Closing - < 1 sec	Yes	5 psi	34 kPa	120 Vac - 9.8 AFL, 58.8 ALR, 1/2 hp; 240 Vac - 4.9 AFL, 29.4 ALR, 1/2 hp	Nema 4 Enclosure	

## Gas Valve Actuators

Material Number	Electrical Ratings	Frequency	Timing	Internal Auxiliary Switch	Maximum Safe Operating Pressure (psi)	Maximum Safe Operating Pressure (kPa)	Auxiliary Switch Ratings	Comments	Includes
V4055D1035/U	120 Vac	60 Hz	Opening – 13 sec; Closing – < 1 sec	Yes	5 psi	34 kPa	120 Vac – 9.8 AFL, 58.8 ALR, 1/2 hp; 240 Vac – 4.9 AFL, 29.4 ALR, 1/2 hp		
V4055D1043/U	120 Vac	60 Hz	Opening – 13 sec; Closing – < 1 sec	No	5 psi	34 kPa			
V4055E1016/U	120 Vac	60 Hz	Opening – 13 sec; Closing – < 1 sec	No	15 or 25 psi	103 or 172 kPa			Damper Shaft
V4055E1040/U	120 Vac	60 Hz	Opening – 13 sec; Closing – < 1 sec	No	15 or 25 psi	103 or 172 kPa		Nema 4 Enclosure	Damper Shaft

## V4062 Off-Lo-Hi Fluid Power Gas Valve Actuators



Use with V5055 or V5097 Gas Valves to control gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Provide final safety shutoff service when used with V5055 or V5097 gas valve.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

**Electrical Ratings:** 120 Vac

**Frequency:** 60 Hz

**Maximum Safe Operating Pressure (psi):** 5 psi

**Maximum Safe Operating Pressure (kPa):** 34 kPa

**Temperature Range:** -40°F to +150°F (-40°C to +66°C)

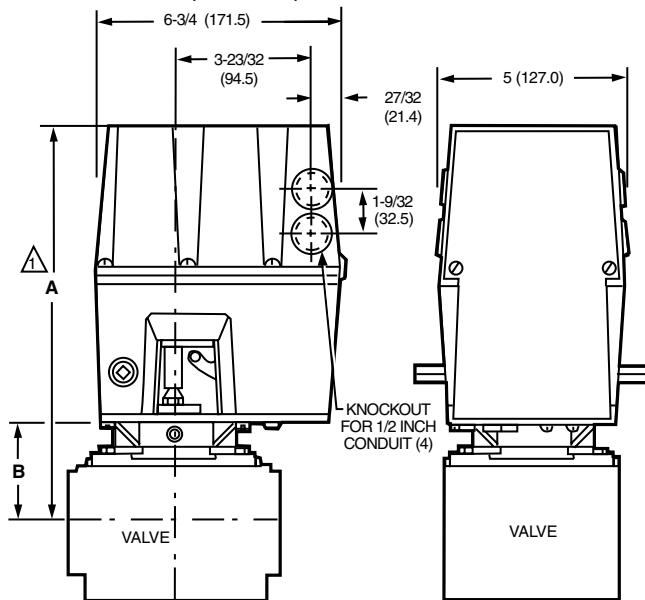
**Used With:** V5034; V5055; V5097

**Approvals, CSA:** When used with V5055 and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**Approvals, Underwriters Laboratories Inc.:** When used with V5055A-E (3/4 to 4 in.) or V5097A-C (3/4 to 3 in.): Listed, File No. MH1639 Guide No. Y10Z

**Approvals, Swiss RE:** When used with V5055 or V5097: Acceptable

Dimensions in inches (millimeters)



ALLOW 4 IN. (101.6 MM) CLEARANCE FOR ACTUATOR REMOVAL.

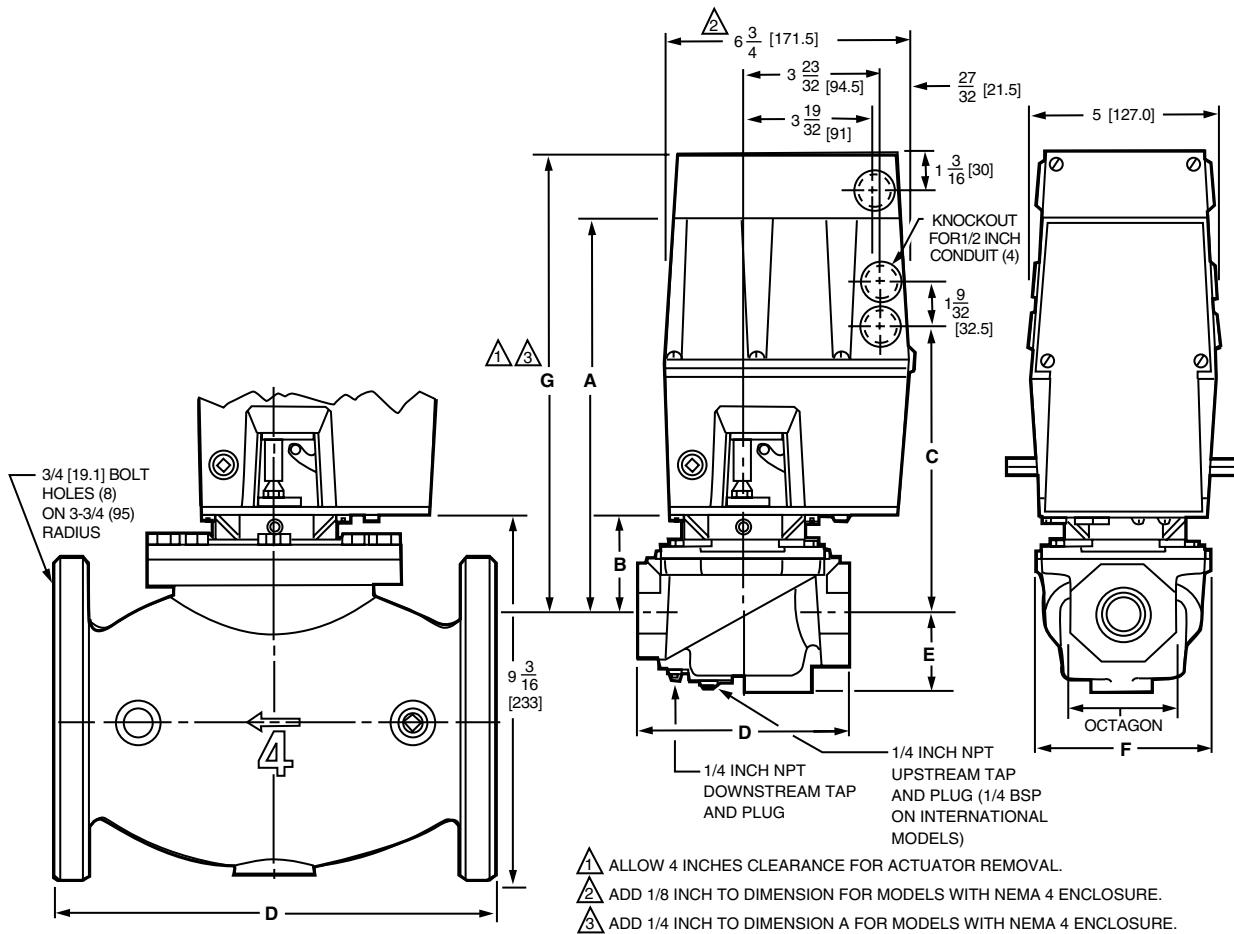
VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/4	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
1-1/2	11-1/8	282.6	2-3/4	69.9	11-1/8	283	2-3/4	70
2	11-1/4	285.8	2-7/8	73.0	11-3/4	298	3-3/8	86
2-1/2	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
3	11-3/4	298.5	3-3/8	85.7	11-3/4	298	3-3/8	86
4	14-1/8	358.8	5-13/16	147.6	—	—	—	—

M10981A

Material Number	Internal Auxiliary Switch	Timing	Contact Ratings	Auxiliary Switch Range	Description	Comments	Includes
V4062A1008/U	No	Opening – 26 sec; Closing – < 1 sec			Low pressure HI-LO-OFF actuator for use with V5055B and V5097B valve bodies		Damper Shaft
V4062A1131/U	No	Opening – 13 sec; Closing – < 1 sec			Low pressure HI-LO-OFF actuator for use with V5055B and V5097B valve bodies		Damper Shaft
V4062A1198/U	Yes - adjusted to 90 degree stroke	Opening – 13 sec; Closing – < 1 sec		120 Vac – 9.8 AFL, 58.8 ALR, 1/2 hp; 240 Vac – 4.9 AFL, 29.4 ALR, 1/2 hp	Low pressure HI-LO-OFF actuator for use with V5055B and V5097B valve bodies		Damper Shaft with return spring installed
V4062D1002/U	No	Opening – 26 sec; Closing – < 1 sec	Proof of Closure (Factory Mutual) Switch – 9.8 AFL, 58.8 ALR, 1/2 hp; 4.9 AFL, 29.4 ALR, 1/2 hp		HI-LO-OFF actuator with Proof of Closure normally used on V5055C, E/V5907C, E valve bodies (Low Pressure)		Damper Shaft
V4062D1010/U	No	Opening – 13 sec; Closing – < 1 sec	Proof of Closure (Factory Mutual) Switch – 9.8 AFL, 58.8 ALR, 1/2 hp; 4.9 AFL, 29.4 ALR, 1/2 hp		HI-LO-OFF actuator with Proof of Closure normally used on V5055C, E/V5907C, E valve bodies (Low Pressure)		Damper Shaft

# Gas Valve Actuators

Dimensions in inches (millimeters)



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		DIM G		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1-1/4	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
1-1/2	11-1/8	282.6	2-3/4	69.9	8-3/16	208.0	5-3/4	146.1	2-1/4	57.2	4-13/16	122.2	13-1/8	333.4	2-13/16	71.4
2	11-1/4	285.8	2-7/8	73.0	8-5/16	211.1	8-3/8	212.7	2-3/4	69.9	7-19/32	192.9	13-1/4	336.5	3-1/2	88.9
2-1/2	11-3/4	298.5	3-3/8	85.7	8-13/16	223.8	9-1/4	235.0	2-3/4	69.9	7-19/32	192.9	13-3/4	349.3	4-1/2	114.3
3	11-3/4	298.5	3-3/8	85.7	8-13/16	223.8	9-1/4	235.0	2-3/4	69.9	7-19/32	192.9	13-3/4	349.3	4-1/2	114.3
4	14-1/8	358.8	5-13/16	147.6	11-7/32	285.0	12-1/2	317.5	4-5/8	117.5	—	—	16-3/16	411.0	—	—

M7321

## Fluid Actuator Accessories and Parts

Material Number	Description	Used With
133568/U	Auxiliary Switch (Adjustable Valve Position) for V4055, V4062	V4055; V4062
133569/U	Replacement Pre-ignition Interlock (Proof of Closure) Switch for V4055D, E; V4062D	V4055; V4062
7616BR/U	Crank Arm assembly with clip for Damper Arm of V4055, V4062	V4055; V4062

## Industrial Gas Valves

### V5055 Industrial Gas Valves



**Safety shutoff valves used with V4055 and V4062 fluid power actuators to control gas flow to commercial and industrial burners.**

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Include 1/4 in. NPT upstream and downstream taps and plug.
- 4 in. models have only flanged connections.
- V5055 normally closed valves are rated for final shutoff service safety shutoff.

- V5055A, C, E Valves are for On-Off service.
- V5055B Valve has a characterized guide and in combination with the V4055 and V4062 Fluid Power Actuators, provides slow-opening, hi-lo-off, and modulating functions respectively.
- V5055C, E, F Valves have a double seal and are used with V4055D, E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- V5055E, F Valves are for high pressure applications.

**Operating Temperature Range:** -40°F to +150°F (-40°C to +65°C)

**Approvals, Underwriters Laboratories Inc.:** When used with V4055A, B, D, E, V4062: Listed, File No. MH1639 Guide No. YIOZ

**Approvals, CSA:** When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**Approvals, Swiss RE:** When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061

**Used With:** V4055; V4062

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Connection Type	Maximum Operating Differential Pressure	Approvals, Factory Mutual	Comments	Includes
V5055A1004/U	1 in.	DN25	960 cfh	27.2 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055A1012/U	1 1/4 in.	DN32	1406 cfh	39.8 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055A1020/U	1 1/2 in.	DN40	1717 cfh	48.6 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055A1038/U	2 in.	DN50	3620 cfh	102.5 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055A1046/U	2 1/2 in.	DN65	4250 cfh	120 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055A1053/U	3 in.	DN80	5230 cfh	148 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055A1228/U	4 in.	DN100	10200 cfh	288.8 m <sup>3</sup> /hr	Flanged	With V4055A, D or V4062 - 3 psi (20.7 kPa); With V4055B or E - 5 psi (340 mbar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055A1343/U	3/4 in.	DN20	665 cfh		NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055B1002/U	1 in.	DN25	960 cfh	27.2 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055B1010/U	1 1/4 in.	DN32	1406 cfh	39.8 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 - 5 psi (340 mbar); With V4055B or E - 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug

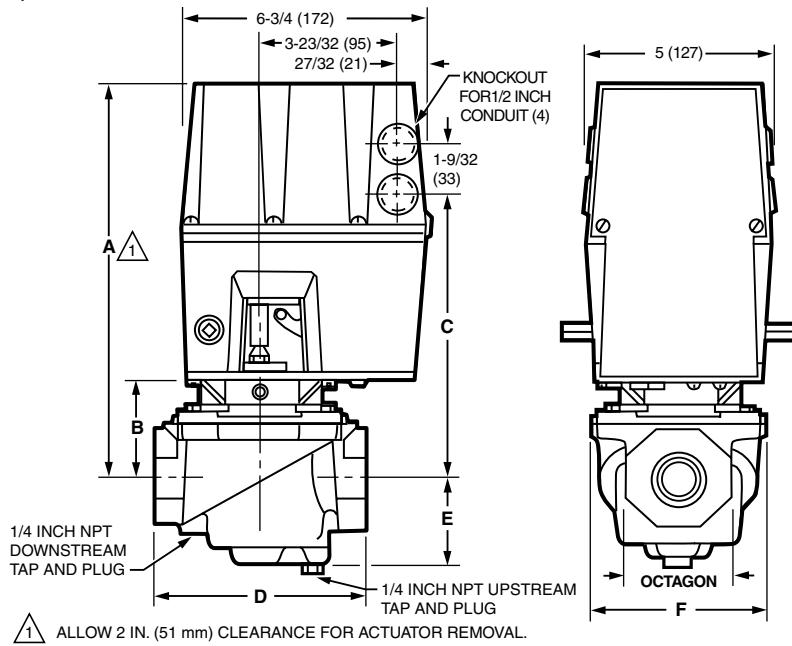
# Industrial Gas Valves

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Connection Type	Maximum Operating Differential Pressure	Approvals, Factory Mutual	Comments	Includes
V5055B1028/U	1 1/2 in.	DN40	1717 cfh	48.6 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055B1069/U	2 in.	DN50	3620 cfh	102.5 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055B1077/U	2 1/2 in.	DN65	4250 cfh	120 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055B1085/U	3 in.	DN80	5230 cfh	148 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055B1150/U	4 in.	DN100	9180 cfh	259.9 m <sup>3</sup> /hr	Flanged	With V4055A, D or V4062 – 3 psi (20.7 kPa); With V4055B or E – 5 psi (340 mbar)	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1000/U	2 in.	DN50	3620 cfh	102.5 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1018/U	2 1/2 in.	DN65	4250 cfh	120 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1026/U	3 in.	DN80	5230 cfh	148 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055C1034/U	1 in.	DN25	960 cfh	27.2 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1042/U	1 1/4 in.	DN32	1406 cfh	39.8 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055C1059/U	1 1/2 in.	DN40	1717 cfh	48.6 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1109/U	4 in.	DN100	9180 cfh	259.9 m <sup>3</sup> /hr	Flanged	With V4055A, D or V4062 – 3 psi (20.7 kPa); With V4055B or E – 5 psi (340 mbar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055C1182/U	3/4 in.	DN20	665 cfh		NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24061		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055E1005/U	2 in.	DN50	3620 cfh	102.5 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055E1013/U	2 1/2 in.	DN65	4250 cfh	120 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Connection Type	Maximum Operating Differential Pressure	Approvals, Factory Mutual	Comments	Includes
V5055E1021/U	3 in.	DN80	5230 cfh	148 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055E1039/U	1 in.	DN25	960 cfh	27.2 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055E1047/U	1 1/4 in.	DN32	1406 cfh	39.8 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055E1054/U	1 1/2 in.	DN40	1717 cfh	48.6 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055E1062/U	3/4 in.	DN20	665 cfh		NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)	When used with the V4055E: Approved, Report Nos. 20698, 20835, 21172, and 24068		1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug
V5055F1003/U	1 in.	DN25	960 cfh	27.2 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)		Meets Intent of DIN Seat Leakage Requirements	1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055F1011/U	1 1/2 in.	DN40	1717 cfh	48.6 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)		Meets Intent of DIN Seat Leakage Requirements	1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug
V5055F1037/U	1 1/4 in.	DN32	1406 cfh	39.8 m <sup>3</sup> /hr	NPT	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 25 psi (1.6 bar)		Meets Intent of DIN Seat Leakage Requirements	1/4 in. -18 NPT downstream tap and plug, 1/4 in. -18 NPT upstream tap and plug

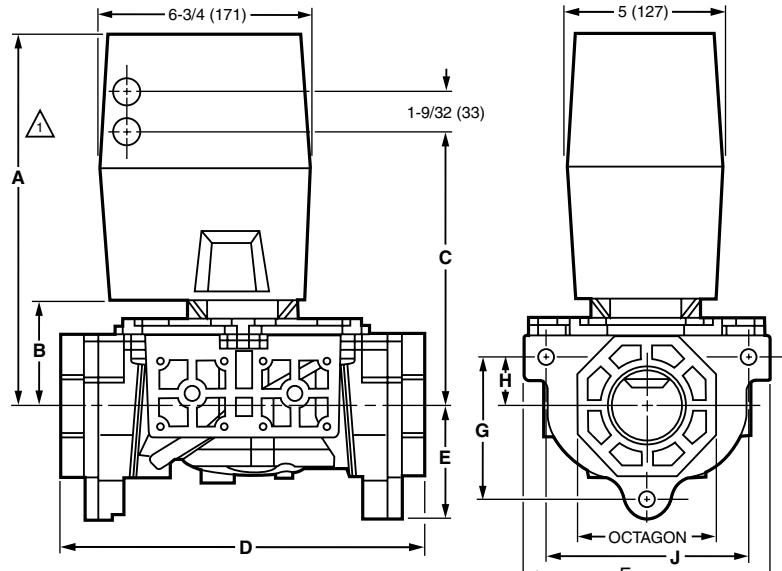
# Industrial Gas Valves

Dimensions in inches (millimeters)



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1-1/4	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
1-1/2	11-1/8	283	2-3/4	70	8-3/16	208	5-3/4	146	2-1/4	57	4-7/8	124	2-13/16	71
2	11-1/4	286	2-7/8	73	8-5/16	211	8-3/8	213	2-3/4	70	7-19/32	193	3-1/2	89
2-1/2	11-3/4	299	3-3/8	86	8-13/16	224	9-1/4	235	2-3/4	70	7-19/32	193	4-1/2	114
3	11-3/4	299	3-3/8	86	8-13/16	224	9-1/4	235	2-3/4	70	7-19/32	193	4-1/2	114

M27268A



VALVE SIZE (IN.)	DIM. A		DIM. B		DIM. C		DIM. D		DIM. E		DIM. F		DIM. G		DIM. H		DIM. J		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1-1/4	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1-1/2	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
2	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114
2-1/2	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114
3	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114

M27581

## V5097 Integrated Valve Train



**Safety shutoff valves used with V4055 and V4062 fluid power actuators to control gas flow to commercial and industrial burners.**

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Two Valve body types. Small body type for 3/4 in., 1 in., 1-1/4 in., 1-1/2 in., 2 in. pipes. Large body types for 2 in., 2-1/2 in. and 3 in. pipes.
- Seven pipe adapter sizes from 3/4 in. to 3 in. have NPT or BSP threaded connections.
- Provides three 1/4 in. upstream and two 1/4 in. downstream tap and plug.
- CE version provides an additional downstream tap and plug.
- Yellow SHUT indicator attached to the valve stem provides an indication of the valve closed position.

- V5097A, C Valves are for on-off service.
- V5097B Valve has a characterized guide and in combination with the V4055, V4062 and V9055 Fluid Power Actuators, provides slow-opening, HI-LO-OFF, and modulating functions, respectively.
- V5097C Valves have a double seal and are used with V4055D, E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- Two valve body types (small and large) applicable to server pipe size.

**Operating Temperature Range:** -40°F to +150°F; When used with V9055 – 40°F to +125°F (-40°C to +66°C); When used with V9055 – -40°C to +52°C

**Approvals, Underwriters Laboratories Inc.:** When used with V4055A, B, D, E, V4062: Listed, File No. MH1639 Guide No. YIOZ

**Approvals, CSA:** When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**Approvals, Swiss RE:** When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061

**Approvals, CE:** CE #E3070 (Gastec)

**Comments:** Select Proper Pipe Adapter

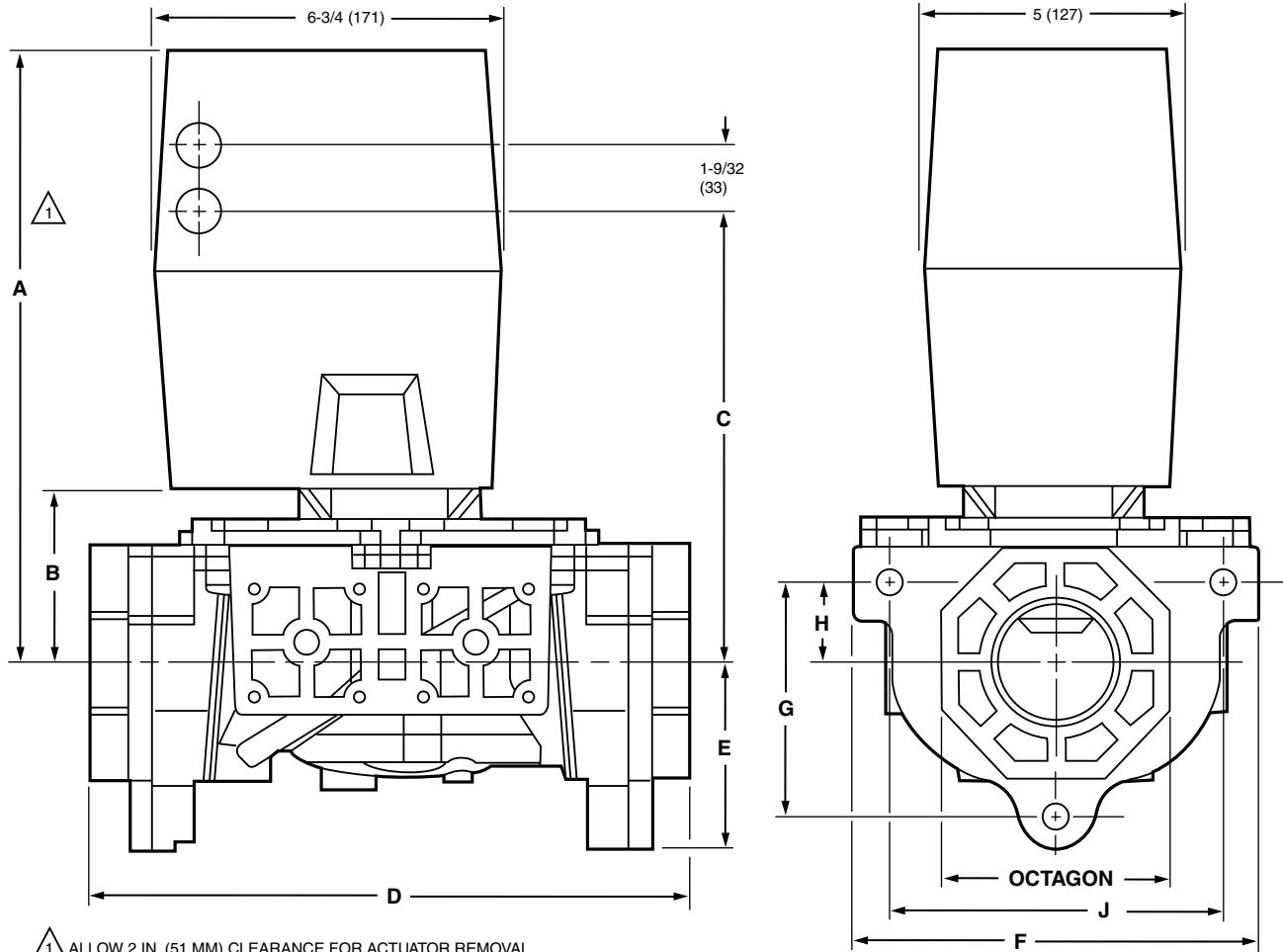
**Includes:** Three 1/4 in. -18 NPT upstream and two 1/4 in. -18 NPT downstream taps

**Used With:** V4055; V4062

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Maximum Operating Differential Pressure	Integrated Valve Train Body Size	Approvals, Factory Mutual
V5097A1004/U	3/4 in. or 1 in. or 1 1/4 in. or 2 in.	DN20 or DN25 or DN32 or DN50	665 cfh to 3620 cfh	18.8 to 102.5 m <sup>3</sup> /hr	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Small body	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061
V5097A1012/U	2 in. or 2 1/2 in. or 3 in.	DN50 or DN65 or DN80	3620 cfh to 5230 cfh	102.5 to 148.0 m <sup>3</sup> /hr	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Large body	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061
V5097B1002/U	3/4 in. or 1 in. or 1 1/4 in. or 2 in.	DN20 or DN25 or DN32 or DN50	665 cfh to 3620 cfh		With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Small body	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061
V5097B1010/U	2 in. or 2 1/2 in. or 3 in.	DN50 or DN65 or DN80	3620 cfh to 5230 cfh	102.5 to 148.0 m <sup>3</sup> /hr	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Large body	When used with the V4055A, G: Approved, Report Nos. 20698, 20835, 21172, and 24061
V5097C1000/U	3/4 in. or 1 in. or 1 1/4 in. or 2 in.	DN20 or DN25 or DN32 or DN50	665 cfh to 3620 cfh	18.8 to 102.5 m <sup>3</sup> /hr	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Small body	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24066
V5097C1018/U	2 in. or 2 1/2 in. or 3 in.	DN50 or DN65 or DN80	3620 cfh to 5230 cfh	102.5 to 148.0 m <sup>3</sup> /hr	With V4055A, D or V4062 – 5 psi (340 mbar); With V4055B or E – 15 psi (1 bar)	Large body	When used with the V4055D, F: Approved, Report Nos. 20698, 20835, 21172, and 24066

# Industrial Gas Valves

Dimensions in inches (millimeters)



VALVE SIZE (IN.)	DIM. A		DIM. B		DIM. C		DIM. D		DIM. E		DIM. F		DIM. G		DIM. H		DIM. J		OCTAGON	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
3/4	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1-1/4	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
1-1/2	11-1/8	283	2-3/4	70	8-3/16	208	8-1/4	210	2-7/16	62	5	127	2-5/16	58	7/8	23	3-15/16	100	2-13/16	71
2	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114
2-1/2	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114
3	11-3/4	298	3-3/8	86	8-5/16	211	11-3/4	298	3-5/8	91	8	203	4-7/16	113	1-1/2	38	6-1/2	165	4-1/2	114

M11682B

## Integrated Valve Train Pipe Adapters

Material Number	Pipe Size (inch)	Pipe Size (DN)	Connection Type	Integrated Valve Train Body Size	Description	Used With
32000109-001/U	3/4 in.	DN20	NPT	Small body	3/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-002/U	1 in.	DN25	NPT	Small body	1 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-003/U	1 1/4 in.	DN32	NPT	Small body	1 1/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-004/U	1 1/2 in.	DN40	NPT	Small body	1 1/2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-005/U	2 in.	DN50	NPT	Small body	2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-006/U	3/4 in.	DN20	BSP	Small body	3/4 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32000109-007/U	1 in.	DN25	BSP	Small body	1 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32001605-001/U	2 in.	DN50	NPT	Large body	2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32001605-002/U	2 1/2 in.	DN65	NPT	Large body	2 1/2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297
32001605-003/U	3 in.	DN80	NPT	Large body	3 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297

## V5055/5097 Replacement Parts or Accessories

Material Number	Description	Used With
133392A/U	O-Ring Assembly for 2 in., 2 1/2 in., and 3 in. V5055 valves	V5055/V5097 valves
133393A/U	O-Ring Assembly for 1 in., 1 1/4 in., and 1 1/2 in. V5055 valves	V5055/V5097 valves
133398AA/U	Replacement Bonnet Assembly with 133393A Seal Assembly for 3/4, 1, 1-1/4, 1-1/2 in. V5055A valves	V5055/V5097 valves
133398BA/U	Replacement Bonnet Assembly with 133393A Seal Assembly for 3/4, 1, 1-1/4, 1-1/2 in. V5055B valves	V5055/V5097 valves
133398CA/U	Replacement Bonnet Assembly, with 137253A replacement Seal Assembly for small body (3/4, 1, 1 1/2 in.) V5055/V5097C.	V5055/V5097 valves
133417AA/U	Replacement Bonnet Assembly with 133392A Seal Assembly for 2, 2 1/2, and 3 in. V5055A valves	V5055/V5097 valves
133417BA/U	Replacement Bonnet Assembly with 133392A Seal Assembly for 2, 2 1/2, and 3 in. V5055B valves	V5055/V5097 valves
133417CA/U	Bonnet Assembly for 2, 2 1/2, or 3 in. V5055C or V5097C valves	V5055C/V5097C valves
137253A/U	Replacement seal assembly. For 4 inch V5055.	V5055
4074EYE/U	Bag assembly for V5097 (large body) includes 6 ea bolts, nuts and washers.	Large Body V5097
4074EYF/U	Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.	Small Body V5097
4074EYK/U	Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.	Small Body V5097
4074EYL/U	Bag assembly for V5097 (large body) includes (2) O-rings, (1) grease capsule.	Large Body V5097

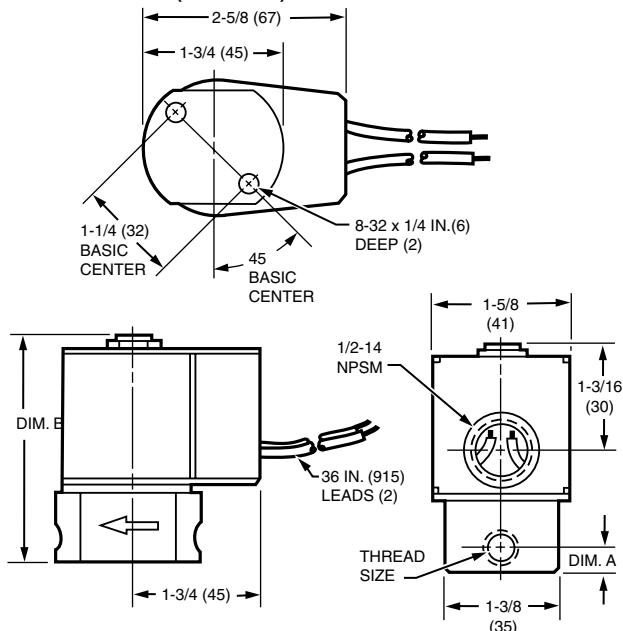
# Pilot Gas Valves

## Pilot Gas Valves

### V4046C; V8046C Pilot Gas Valves



Dimensions in inches (millimeters)



MODEL	BODY SIZE	THREAD SIZE	DIM. A		DIM. B	
			IN	MM	IN	MM
V4046C, V8046C	SMALL	1/8-27 NPT	5/16	8	2-3/4	70
	SMALL	1/4-18 NPT	3/8	10	3	76
	LARGE	1/4-18 NPT	1/2	13	3-1/4	83
	LARGE	3/8-18 NPT	1/2	13	3-1/4	83

Provide on-off control of natural, LP and manufactured gases to pilot burners in industrial and commercial applications.

- Magnetically operated, normally closed.
- Provide instantaneous action when energized.
- On power failure, valve closes in one second maximum.
- Use in any position, directly in pipe line or on support bracket.
- Replace the solenoid coil without removing the valve body from the piping connections.
- Straight-through valve pattern.
- Available in line voltage or low voltage models.

**Type of Fuel:** Air; natural; manufactured; LP

**Body Pattern:** Straight-through

**Valve Opening Time:** 1 sec max

**Valve Closing Time:** 1 sec max

**Mounting:** Directly in pipe or on support bracket

**Materials:** Body – Aluminum

**Power Consumption:** 8 W

**Operating Temperature Range:** -40°F to +125°F (-40°C to +52°C)

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MH1639, V3, S3 - Guide No. Y10Z

**Approvals, CSA:** Certificate No. 158158-2500006058, Guide No. C3371-03, 83

**Approvals, Factory Mutual:** Approved: Report No. 17450

**Pressure Ratings (psi):** 10 psi

**Pressure Ratings (kPa):** 68.9 kPa

M16595A

Material Number	Pipe Size (inch)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Voltage	Frequency	Electrical Connections	Approvals, Swiss RE
V4046C1005/U	1/8 in.	20 cfh	0.57 m <sup>3</sup> /hr	110 Vac; 120 Vac	50 Hz; 60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	Acceptable
V4046C1021/U	1/4 in.	20 cfh	0.57 m <sup>3</sup> /hr	110 Vac; 120 Vac	50 Hz; 60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	Acceptable
V4046C1047/U	1/4 in.	55 cfh	1.56 m <sup>3</sup> /hr	110 Vac; 120 Vac	50 Hz; 60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	Acceptable
V4046C1054/U	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	110 Vac; 120 Vac	50 Hz; 60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	Acceptable
V4046C1120/U	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	120 Vac	60 Hz	Two 10 ft. leadwires and 1/2 in. conduit bushing	Acceptable
V8046C1006/U	1/8 in.	20 cfh	0.57 m <sup>3</sup> /hr	24 Vac	60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	
V8046C1014/U	1/4 in.	20 cfh	0.57 m <sup>3</sup> /hr	24 Vac	60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	
V8046C1022/U	1/4 in.	55 cfh	1.56 m <sup>3</sup> /hr	24 Vac	60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	
V8046C1030/U	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	24 Vac	60 Hz	Two 36-in. leadwires and 1/2 in. conduit bushing	

## Solenoid Gas Valves

### V4295; V8295 Solenoid Gas Valves



**Type of Fuel:** Air; natural; manufactured; mixed; LP

**Pressure Tapping:** Inlet and outlet pressure taps – 1/4 in. NPT

**Body Pattern:** Straight-through, non-offset

**Valve Opening Time:** less than 1 sec

**Valve Closing Time:** less than 1 sec

**Mounting:** Vertical to 90 degrees from vertical

V4295A/V8295A normally closed and V4295S/V8295S normally open (vent) solenoid gas valves, are suitable for furnaces, ovens, atmospheric burners, commercial water heaters, rooftop make-up air units, power burners, and commercial/industrial boilers.

- V8295A, S are used with 24 Vac controllers.
- V4295A, S are used with 120 Vac controllers.
- Positive close off of gas flow when de-energized.
- High valve spring force allows up to 0.7 psi back pressure at valve seat.
- No inlet pressure influence at valve seat.
- Inlet pressure changes do not affect ability to close valve.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.

**Materials:** Body – Die-cast aluminum

**Frequency:** 50 Hz; 60 Hz

**Electrical Connections:** Screw terminals

**Operating Temperature Range:** -40°F to +140°F (-40°C to +60°C)

**Approvals, Swiss RE:** Acceptable

**Approvals, Control Safety Devices:** Acceptable

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Voltage	Approximate Dimensions	Current Ratings	Pressure Ratings (psi)	Pressure Ratings (kPa)	Approvals, Underwriters Laboratories Inc.	Approvals, CSA
V4295A1015	1/2 in.	DN15	250 cfh	7.1 m <sup>3</sup> /hr	120 Vac	4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep (113 mm high x 73 mm wide x 56 mm deep)	0.16 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1023	3/4 in.	DN20	645 cfh	18.3 m <sup>3</sup> /hr	120 Vac	5 1/4 in. high x 3 7/16 in. wide x 2 3/4 in. deep (133 mm high x 87 mm wide x 70 mm deep)	0.16 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1031	1 in.	DN25	790 cfh	22.4 m <sup>3</sup> /hr	120 Vac	5 1/4 in. high x 3 15/16 in. wide x 3 in. deep (133 mm high x 100 mm wide x 76 mm deep)	0.16 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1049	1 1/4 in.	DN32	1450 cfh	41.0 m <sup>3</sup> /hr	120 Vac	8 in. high x 5 15/16 in. wide x 4 3/8 in. deep (203 mm high x 151 mm wide x 111 mm deep)	0.34 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1056	1 1/2 in.	DN40	2190 cfh	62.0 m <sup>3</sup> /hr	120 Vac	8 3/8 in. high x 5 15/16 in. wide x 4 3/8 in. deep (213 mm high x 151 mm wide x 111 mm deep)	0.3 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1064	2 in.	DN50	3465 cfh	98.1 m <sup>3</sup> /hr	120 Vac	8 3/8 in. high x 6 11/16 in. wide x 5 3/8 in. deep (213 mm high x 170 mm wide x 137 mm deep)	0.525 max amps at rated Vac/Hz	2 psi	13.8 kPa		Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1072	2 1/2 in.	DN65	5070 cfh	143.5 m <sup>3</sup> /hr	120 Vac	12 3/4 in. high x 9 1/2 in. wide x 7 7/8 in. deep (324 mm high x 241 mm wide x 200 mm deep)	0.575 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1080	3 in.	DN80	6100 cfh	172.7 m <sup>3</sup> /hr	120 Vac	12 3/4 in. high x 9 1/2 in. wide x 7 7/8 in. deep (324 mm high x 241 mm wide x 200 mm deep)	0.675 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1098	3/8 in.		210 cfh	5.9 m <sup>3</sup> /hr	120 Vac	4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep (113 mm high x 73 mm wide x 56 mm deep)	0.16 max amps at rated Vac/Hz	5 psi	34.5 kPa	Listed: File No. MH18476, V1, S1 - Guide No. Y10Z	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83

# Solenoid Gas Valves

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Voltage	Approximate, Dimensions	Current Ratings	Pressure Ratings (psi)	Pressure Ratings (kPa)	Approvals, Underwriters Laboratories Inc.	Approvals, CSA
V4295A1106	1/2 in.	DN15	290 cfh	8.2 m <sup>3</sup> /hr	120 Vac	4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep (113 mm high x 73 mm wide x 56 mm deep)	0.16 max amps at rated Vac/Hz	5 psi	34.5 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1114	3/4 in.	DN20	610 cfh	17.3 m <sup>3</sup> /hr	120 Vac	3 3/16 in. high x 3 7/16 in. wide x 2 3/4 in. deep (81 mm high x 87 mm wide x 70 mm deep)	0.2 max amps at rated Vac/Hz	5 psi	34.5 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1122	1 in.	DN25	825 cfh	23.4 m <sup>3</sup> /hr	120 Vac	6 5/16 in. high x 3 15/16 in. wide x 3 in. deep (160 mm high x 100 mm wide x 76 mm deep)	0.2 max amps at rated Vac/Hz	5 psi	34.5 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1130	1 1/4 in.	DN32	1950 cfh	55.2 m <sup>3</sup> /hr	120 Vac	8 9/16 in. high x 5 15/16 in. wide x 4 3/8 in. deep (217 mm high x 151 mm wide x 111 mm deep)	0.55 max amps at rated Vac/Hz	5 psi	34.5 kPa		Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1148/U	1 1/2 in.	DN40	2270 cfh	64.3 m <sup>3</sup> /hr	120 Vac	8 9/16 in. high x 5 15/16 in. wide x 4 3/8 in. deep (217 mm high x 151 mm wide x 111 mm deep)	0.55 max amps at rated Vac/Hz	5 psi	34.5 kPa		Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295A1155	2 in.	DN50	3740 cfh	105.9 m <sup>3</sup> /hr	120 Vac	9 3/16 in. high x 6 11/16 in. wide x 5 3/8 in. deep (233 mm high x 170 mm wide x 137 mm deep)	0.54 max amps at rated Vac/Hz	5 psi	34.5 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83
V4295S1005	3/4 in.	DN20	350 cfh	9.9 m <sup>3</sup> /hr	120 Vac	5 1/2 in. high x 3 7/16 in. wide x 2 3/4 in. deep (140 mm high x 87 mm wide x 70 mm deep)	0.16 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 83
V4295S1013	1 in.	DN25	420 cfh	11.9 m <sup>3</sup> /hr	120 Vac	5 1/2 in. high x 3 15/16 in. wide x 3 in. deep (140 mm high x 100 mm wide x 76 mm deep)	0.16 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 83
V4295S1021	1 1/4 in.	DN32	1100 cfh	31.1 m <sup>3</sup> /hr	120 Vac	8 3/4 in. high x 5 15/16 in. wide x 4 3/8 in. deep (222 mm high x 151 mm wide x 111 mm deep)	0.34 max amps at rated Vac/Hz	2 psi	13.8 kPa	Listed: File No. MH18476, V1, S1 - Guide No. YIOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 83
V8295A1016	1/2 in.	DN15	250 cfh	7.1 m <sup>3</sup> /hr	24 Vac	4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep (113 mm high x 73 mm wide x 56 mm deep)	0.8 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85
V8295A1024	3/4 in.	DN20	645 cfh	18.3 m <sup>3</sup> /hr	24 Vac	5 1/4 in. high x 3 7/16 in. wide x 2 3/4 in. deep (133 mm high x 87 mm wide x 70 mm deep)	0.8 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85
V8295A1032	1 in.	DN25	790 cfh	22.4 m <sup>3</sup> /hr	24 Vac	5 1/4 in. high x 3 15/16 in. wide x 3 in. deep (133 mm high x 100 mm wide x 76 mm deep)	0.8 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85
V8295A1040	1 1/4 in.	DN32	1450 cfh	41.0 m <sup>3</sup> /hr	24 Vac	8 in. high x 5 15/16 in. wide x 4 3/8 in. deep (203 mm high x 151 mm wide x 111 mm deep)	1.6 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85
V8295A1057	1 1/2 in.	DN40	2190 cfh	62.0 m <sup>3</sup> /hr	24 Vac	8 3/8 in. high x 5 15/16 in. wide x 4 3/8 in. deep (213 mm high x 151 mm wide x 111 mm deep)	1.7 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85
V8295A1065	2 in.	DN50	3465 cfh	98.1 m <sup>3</sup> /hr	24 Vac	8 3/8 in. high x 6 11/16 in. wide x 5 3/8 in. deep (213 mm high x 170 mm wide x 137 mm deep)	2.8 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85

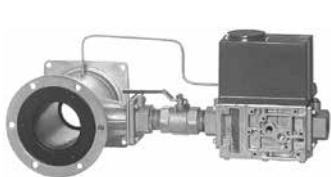
## Solenoid Gas Valves

Material Number	Pipe Size (inch)	Pipe Size (DN)	Capacity (cfh)	Capacity (m <sup>3</sup> /hr)	Voltage	Approximate, Dimensions	Current Ratings	Pressure Ratings (psi)	Pressure Ratings (kPa)	Approvals, Underwriters Laboratories Inc.	Approvals, CSA
V8295S1006	3/4 in.	DN20	350 cfh	9.9 m <sup>3</sup> /hr	24 Vac	5 1/2 in. high x 3 7/16 in. wide x 2 3/4 in. deep (140 mm high x 87 mm wide x 70 mm deep)	0.8 max amps at rated Vac/Hz	2 psi	13.8 kPa	Component Recognized; File No. YLOZ	Certificate No. 158158-1154280, Guide No. C3371-03, 85

# Servo Regulated Gas Valves

## Servo Regulated Gas Valves

### V4730C; V4734C; V8730C Gas/Air Servo Regulated Gas Valves



**Body Pattern:** Straight flange

**Valve Opening Time:** Dead time maximum: 1 s; First valve – < 1 s

**Materials:** Body: Aluminum alloy, die-cast

**Frequency:** 50 Hz; 60 Hz

**Ambient Temperature Range:** 5°F to 140°F (-15°C to +60°C)

**Approvals, CSA:** File: Certificate No: 158158-1227192

**Approvals, Others:** Gas Appliance Directive: 90.396/EEC, PIN: 0063AT1198, Low Voltage Directive: 73/23/EEC, Electro Magnetic Compatibility Directive: 89/336/EEC

**Maximum Safe Operating Pressure (psi):** 0.5 psi (CSA approved), 1.45 psi for 120V

**Maximum Operating Pressure (mbar):** 35 mbar (CSA approved)

**Comments:** The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.

**Coil Insulation Solenoid Valves:** Class H insulation system

Material Number	Pipe Size (inch)	Capacity (kW)	Capacity (kBtuh)	Voltage	Electrical Connections	Pipe Connection	Includes	Max. Capacity with Strainer (cfh)
V4730C1006-0000	1/2 in.	Natural Gas 0.64 sp.gr – 22-150 KW	Natural Gas 0.64 sp.gr – 73-512 kBtuh	120 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-001 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 221 cfh
V4730C1014-0000	3/4 in.	Natural Gas 0.64 sp.gr – 43-300 KW	Natural Gas 0.64 sp.gr – 146-1024 kBtuh	120 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-002 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1024 cfh
V4730C1022-0000	1 in.	Natural Gas 0.64 sp.gr – 43-300 KW	Natural Gas 0.64 sp.gr – 146-1024 kBtuh	120 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-003 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1024 cfh
V4730C1030-0000	1 1/4 in.	Natural Gas 0.64 sp.gr – 55-382 KW when used with VMU335, 71-500KW	Natural Gas 0.64 sp.gr – 185-1300 kBtuh when used with VMU335,245-1710 kBtuh	120 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-004 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1300 cfh

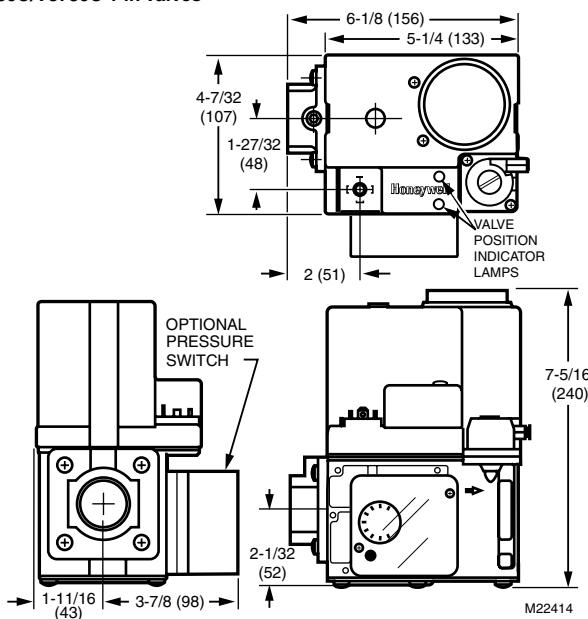
# Servo Regulated Gas Valves

Material Number	Pipe Size (inch)	Capacity (kW)	Capacity (kBtuh)	Voltage	Electrical Connections	Pipe Connection	Includes	Max. Capacity with Strainer (cfh)
V4734C1002-0000	1 1/4 in.	Natural Gas 0.64 sp.gr – 97-680 KW when used with VMU680	Natural Gas 0.64 sp.gr – 326-2287 kBtuh when used with VMU680	120 Vac (+10%, -15%)			Mesh screen filter and 32006652-004 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	
V8730C1007-0000	1/2 in.	Natural Gas 0.64 sp.gr – 22-150 KW	Natural Gas 0.64 sp.gr – 73-512 kBtuh	24 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-001 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 221 cfh
V8730C1015-0000	3/4 in.	Natural Gas 0.64 sp.gr – 43-300 KW	Natural Gas 0.64 sp.gr – 146-1024 kBtuh	24 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-002 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1024 cfh
V8730C1023-0000	1 in.	Natural Gas 0.64 sp.gr – 43-300 KW	Natural Gas 0.64 sp.gr – 146-1024 kBtuh	24 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-003 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1024 cfh
V8730C1031-0000	1 1/4 in.	Natural Gas 0.64 sp.gr – 55-382 KW when used with VMU335, 71-500 KW	Natural Gas 0.64 sp.gr – 185-1300 kBtuh when used with VMU335, 245-1710 kBtuh	24 Vac (+10%, -15%)	Standard DIN plug connector with 36 in. (914 mm) leadwires, included.	1/8 in. (3mm) NPT pressure taps at inlet and outlet flanges. Six flange pressure taps connections are provided at the main body to mount either a pressure switch (low or high) or a Valve Proving System (VPS).	Mesh screen filter and 32006652-004 Flange kit. (Kit includes 1 pipe adapter, 1 O-ring, 4 mounting screws, 1 DIN connector and wiring harness kit.)	Nat. Gas (Delta P= 1 in. w.c.) – 1300 cfh

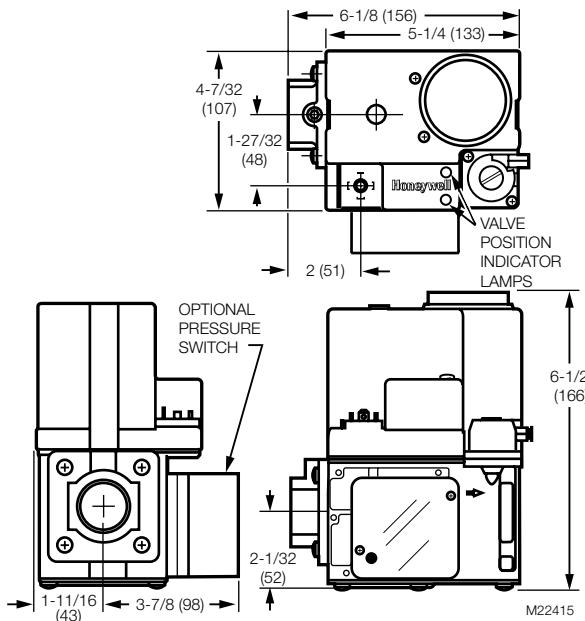
# Servo Regulated Gas Valves

Dimensions in inches (millimeters)

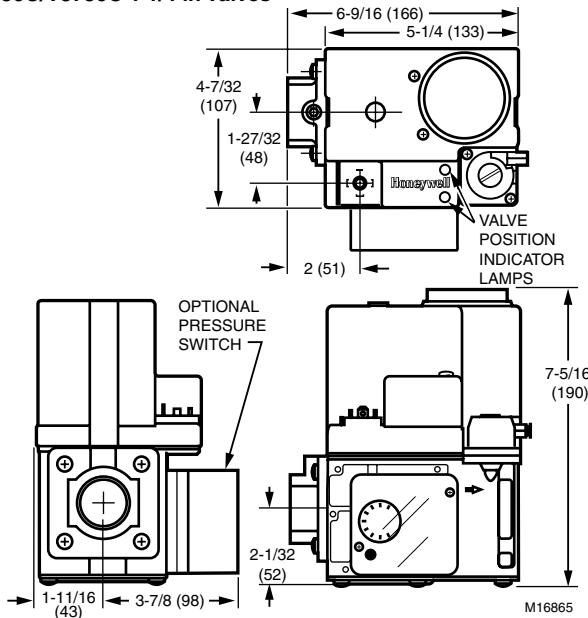
V4730C/V8730C 1 in Valves



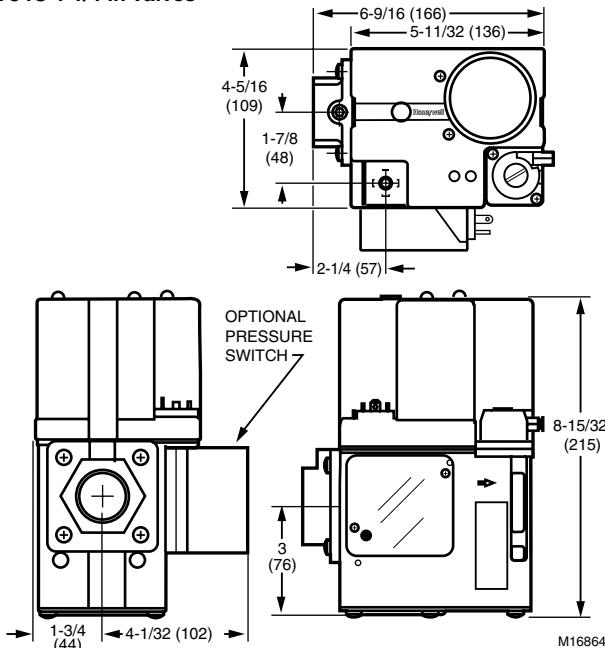
V4730C/V8730C 1/2 in to 3/4 in Valves



V4730C/V8730C 1 1/4 in Valves



V4734C 1 1/4 in Valves



## V4730C; V4734C; V8730C Accessories and Parts

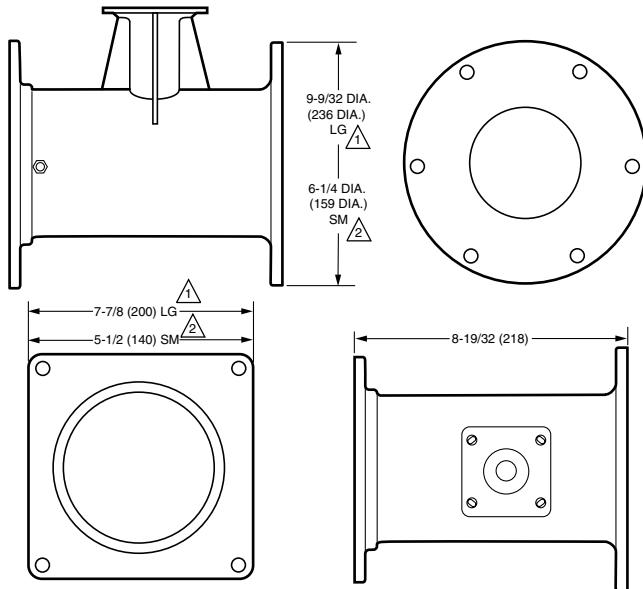
Material Number	Description
50002653-001/U	Manual Shut-Off Valve Kit (1 in. NPT or smaller valves)
50002653-002/U	Manual Shut-Off Valve Kit (1 1/4 in. NPT valves)
KTBA001	Sensing Tube Kit contains one short and one long sensing for use without and with MSOV (1 in. NPT or smaller valves).
KTBA002	Sensing Tube Kit contains one short and one long sensing for use without and with MSOV (1 1/4 in. NPT valves).
KTBA003	Sensing Tube Kit contains one short and one long sensing for use without and with Conbraco ball valve
32006652-001	Flange Kit 1/2 in NPT contains 1 flange with pressure tap + 1 O-ring + 4 screws.
32006652-002	Flange Kit 3/4 in NPT contains 1 flange with pressure tap + 1 O-ring + 4 screws.
32006652-003	Flange Kit 1 in NPT contains 1 flange with pressure tap + 1 O-ring + 4 screws.
32006652-003B	Bulk Qty 50 Flange Kit 1 in NPT contains flange with pressure tap + O-ring + screws.
32006652-004	Flange Kit 1 1/4 in NPT contains 1 flange with pressure tap + 1 O-ring + 4 screws.
32006652-004B	Bulk Qty 50 Flange Kit 1 1/4 in NPT contains flange with pressure tap + O-ring + screws.
32006653-001	Replacement venturi O-ring kit contains 1 O-ring + 5 bolts.

## Venturi Mixing Unit

### Venturi Mixing Unit



Dimensions in inches (millimeters)



**1** LG (LARGE) IS VENTURI MIXING UNIT VMU500.

**2** SM (SMALL) ARE VENTURI MIXING UNITS VMU150/300/335.

M22417D

The venturi mixing unit (VMU), combined with the V4730C/ V8730C gas valves and specific direct current (dc) fan, has been developed for modulating premix appliances like gas burners and gas boilers.

- Has a wide modulation band (14 to 100% of the boiler load).
- Flexible mounting positions of gas control to venturi manifold and venturi manifold to fan.
- Two stainless steel sensing tubes are provided for use with or without manual safety shutoff valve.

**Materials:** Housing: Aluminum, Venturi: Statically dissipative statcon PF, Seals: Rubber (NBR).

**Ambient Temperature Range:** 32°F to 212°F (0°C to 100°C)

**Approvals, CSA:** File: Certificate No: 158158-1227192

**Pipe Connection:** Four M5 screws and a rubber O-ring are provided with the venturi to assemble it to the V4730C/V8730C gas valve. The stainless steel tube provided with the venturi has to be connected between the venturi inlet (connection provided) and the gas valve regulator. Longer sensing tube for use with manual safety shutoff valve (KTTBA002). Shorter sensing tube for use without manual safety shutoff valve (KTTBA001).

Material Number	Body Pattern	Maximum Safe Operating Pressure (psi)	Maximum Operating Pressure (mbar)	Comments	Reference Load
VMU150A1011	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	150 kW (512,000 Btuh)
VMU185A1084	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	185 kW (632,000 Btuh)
VMU300A1046	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	300 kW (1,024,000 Btuh)
VMU335A1018	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	335 kW (1,143,000 Btuh)
VMU500A1033	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	500 kW (1,706,500 Btuh)
VMU680A1017	Straight flange	1/2 psi (CSA approved)	35 mbar (CSA approved)	Pressure Drop: Approximately 3.2 in. wc (800 Pa) across the venturi at reference load. The minimum load for which the system can be used is 14-17% of the reference load, which equals a minimum pressure differential of 0.2 in. wc (50 Pa) of the 1:1 venturi/servo regulator gas control.	680 kW (2,320,840 Btuh)

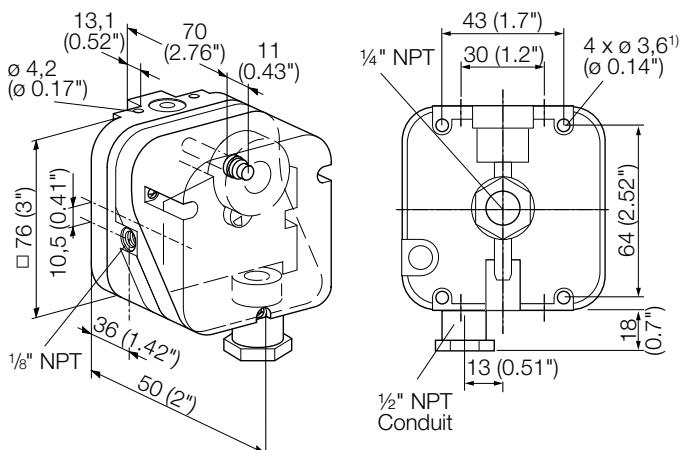
# Pressure Switches

## Pressure Switches

### C6097 Pressure Switch



Dimensions in millimeters (inches)



1) Holes 10 mm (0.4") deep, for self-tapping screws.

**Pressure Switches** are safety devices used in positive-pressure, negative pressure (Air, Flue gas) or differential-pressure systems to sense gas or air pressure systems.

- For use with Gas or Air
- Diaphragm-actuated safety-limit switch.
- Switch can be wired to turn on alarm.
- C6097A models break control circuit at set point on pressure fall.
- C6097B models break control circuit at set point on pressure rise.
- Lockout with manual reset and recycle options.
- Lockout models have external manual reset button.
- Removable transparent cover protects scaleplate and adjusting knob.
- Optional switch position indicator lamp available.
- IP65 enclosure standard.
- Ranges: 0.4 to 4 in. wc, 1 to 20 in. wc, 12 to 60 in. wc or 40 to 200 in. wc.
- Integral 0.2 mm vent limiter on all models.
- FM and UL certified

**Application:** Safety devices used in positive-pressure, negative (Air & Flue Gas Only) or differential pressure systems to sense gas or air pressure changes

**Operating Temperature Range:** -40 to +140°F (-40 to +60°C)

**Electrical Connections:**

Screw terminals

Line entrance: 1/2" NPT conduit

**Electrical Specifications:**

- 24 – 240 V AC (Gold contact options for lower voltages available)
- I = 5 A at cos φ = 1,
- I = 0.5 A at cos φ = 0.6
- Cable diameter: AWG 24 to AWG 13, 0.02 to 0.07" (0.5 to 1.8 mm)

**Max. inlet pressure:** With Venting Line 8.5 psi/600 mbar  
Without Venting Line 7 psi/480 mbar

**Pipe connection:** Vent or Low pressure – 1/8 in. NPT internal thread  
**Mounting:** 1/4 in. NPT internal thread

**Approvals, Underwriters Laboratories Inc.:** For US and Canada; UL 353 Limit Control; Cert. Nr. - MH16048

**Approvals, Factory Mutual:** Factory Mutual Research Class: 3510

Material Number	Adjusting range * in WC (mbar)	Mean switching differential at min. and max. setting	Difference between switching pressure and possible reset	Differential type	Switch Operation	Switch Action at Setpoint
C6097A3004/U	0.4 - 4 in. wc 1 - 10 mbar	0.1 - 0.16 in. wc 0.25 - 0.4 mbar	-	Additive	Auto Recycle	Breaks NO to COM on pressure fall.
C6097A3012/U	1 - 20 in. wc 2.5 - 50 mbar	-	0.4 - 0.8 in. wc 1 - 2 mbar		Manual Reset	
C6097A3038/U	12 - 60 in. wc 30 - 150 mbar	-	0.8 - 4.8 in. wc 2 - 12 mbar		Manual Reset	
C6097A3053/U	1 - 20 in. wc 2.5 - 50 mbar	0.3 - 0.6 in. wc 0.8 - 1.5 mbar	-		Auto Recycle	
C6097A3079/U	12 - 60 in. wc 30 - 150 mbar	1.2 - 2 in. wc 3 - 5 mbar	-		Auto Recycle	
C6097A3095/U	0.4 - 4 in. wc 1 - 10 mbar	-	0.16 - 0.4 in. wc 0.4 - 1 mbar		Manual Reset	
C6097A3111/U	40 - 200 in. wc 100 - 500 mbar	-	2 - 7.2 in. wc 5 - 18 mbar		Manual Reset	
C6097A3137/U	40 - 200 in. wc 100 - 500 mbar	3.2 - 6.8 in. wc 8 - 17 mbar	-		Auto Recycle	
C6097B3002/U	12 to 60 in. wc 30 - 150 mbar	-	0.8 - 4.8 in. wc 2 - 12 mbar	Subtractive	Manual Reset	Breaks NC to COM on pressure rise.
C6097B3028/U	1 to 20 in. wc 2.5 - 50 mbar	-	0.4 - 0.8 in. wc 1 - 2 mbar		Manual Reset	
C6097B3051/U	40 - 200 in. wc 100 - 500 mbar	-	2 - 7.2 in. wc 5 - 18 mbar		Manual Reset	
C6097B3085/U	12 to 60 in. wc 30 - 150 mbar	1.2 - 2 in. wc 3 - 5 mbar	-		Auto Recycle	
C6097B3101/U	40 - 200 in. wc 100 - 500 mbar	3.2 - 6.8 in. wc 8 - 17 mbar	-		Auto Recycle	
C6097B3119/U	1 to 20 in. wc 2.5 - 50 mbar	0.3 - 0.6 in. wc 0.8 - 1.5 mbar	-		Auto Recycle	

## Pressure and Limit Controllers

### L404F Pressuretrol® Controllers



**Application:** Provide control of steam, air, non-combustible gases or non-corrosive fluids

**Differential Type:** Subtractive

**Mounting:** 1/4 inch-18 NPT internal thread connection on diaphragm assembly, 1/4 -19 BSPT internal thread on models with BSPT ground screw; or surface mount through back of case

**Switch Operation:** Auto recycle

**Sensor Element:** Stainless steel diaphragm standard; Brass Bellows on models with 20 to 300 psi

**Operating Temperature Range:** -35°F to +150°F (-37°C to +66°C)

**Electrical Connections:** Screw terminals

**Provide operating control with automatic limit protection for pressure systems up to 300 psi (2068 kPa).**

- Use with steam, air, noncombustible gases, or fluids non-corrosive to pressure sensing element.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- Have adjustable differentials.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

**Contact Ratings:** 120 Vac Switch Contact – 8.0 AFL, 48.0 ALR, 10.0 A resistive; 240 Vac Switch Contact – 5.1 AFL, 30.6 ALR, 5.0 A resistive

**Pipe Connection - Main or High Pressure:** 1/4 inch-18 NPT internal thread standard; 1/4 -19 BSPT internal thread on models with BSPT ground screw

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP466, Guide No. MBPR

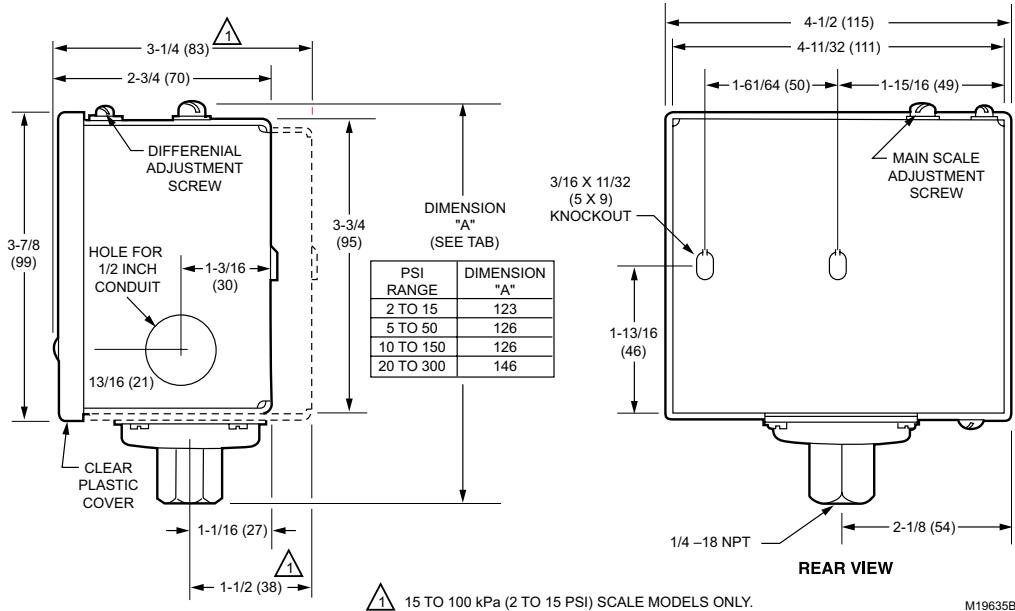
**Approvals, CSA:** Certified: File No. LR1620, Guide No. 400-E-O; or Certified: File No. LR95329 for Miss-wiring Compliant models

**Approvals, Swiss RE:** Acceptable

Material Number	Operating Range (psi)	Operating Range (kPa)	Maximum Sustained Pressure (psi)	Maximum Sustained Pressure (kPa)	Differential Pressure Range (psi)	Differential Pressure Range (kPa)	Switching Action	Includes	Comments
L404F1060/U	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	2 to 6 psi	14 to 41 kPa	SPDT snap action, make R-W, break R-B on pressure rise		
L404F1078/U	5 to 50 psi	35 to 345 kPa	85 psi	586 kPa	6 to 14 psi	41 to 97 kPa	SPDT snap action, make R-W, break R-B on pressure rise		
L404F1094/U	20 to 300 psi	138 to 2068 kPa	350 psi	2413 kPa	20 to 50 psi	138 to 345 kPa	SPDT snap action, make R-W, break R-B on pressure rise		
L404F1102/U	10 to 150 psi	69 to 1034 kPa	225 psi	1151 kPa	10 to 22 psi	60 to 152 kPa	SPDT snap action, make R-W, break R-B on pressure rise		
L404F1219/U	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	2 to 6 psi	14 to 41 kPa	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure	
L404F1227/U	10 to 150 psi	69 to 1034 kPa	225 psi	1151 kPa	10 to 22 psi	60 to 152 kPa	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure	
L404F1235/U	20 to 300 psi	138 to 2068 kPa	350 psi	2413 kPa	20 to 50 psi	138 to 345 kPa	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure	
L404F1243/U	5 to 50 psi	35 to 345 kPa	85 psi	586 kPa	6 to 14 psi	41 to 97 kPa	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure	
L404F1367/U	1 to 8 psi	7 to 55 kPa	25 psi	172 kPa	0.75 to 2 psi	5 to 14 kPa	Snap switch breaks R-B (closes R-W) on pressure rise. Make-on devices omit terminal B.		Range Stop installed at 8 PSI
L404F1375/U	5 to 50 psi	35 to 350 kPa	85 psi	586 kPa	6 to 14 psi	40 to 100 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)	
L404F1383/U	10 to 150 psi	70 to 1035 kPa	225 psi	1151 kPa	10 to 22 psi	70 to 150 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)	
L404F1391/U	20 to 300 psi	140 to 2070 kPa	350 psi	2413 kPa	20 to 50 psi	140 to 345 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)	
L404F1409/U	2 to 15 psi	14 to 103 kPa	25 psi	172 kPa	2 to 6 psi	15 to 40 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)	

# Pressure and Limit Controllers

## Dimensions in inches (millimeters)



M19635B

## L404T, V Oil Pressuretrol® Limit Controllers



**Application:** Oil pressure limit switch for fuel oil, including heavy oil applications

**Differential Type:** Subtractive

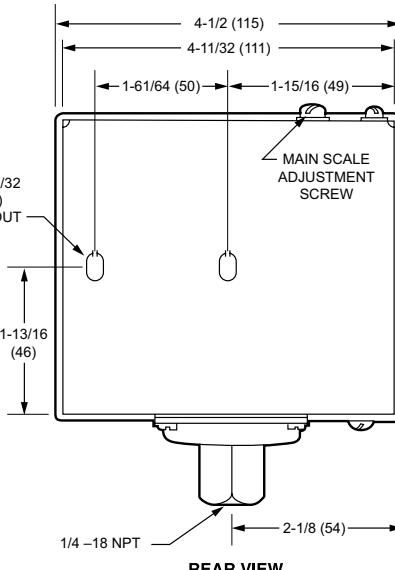
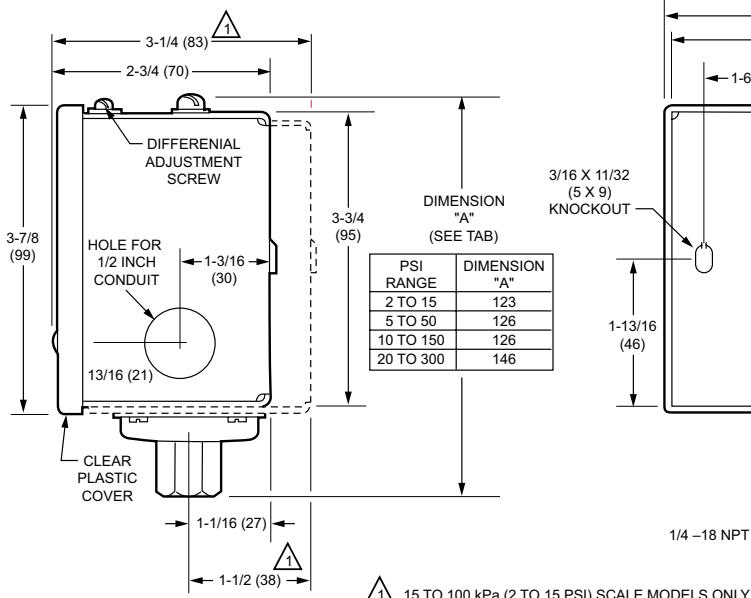
**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Switch Operation:** Auto recycle

**Sensor Element:** Stainless Steel diaphragm

**Approximate, Dimensions:** 4 31/32 in. high x 4 1/2 in. wide x 2 3/4 in. deep (126 mm high x 114 mm wide x 70 mm deep)

**Dimensions in inches (millimeters)**



M19635B

Material Number	Operating Range (psi)	Operating Range (kPa)	Differential Pressure Range (psi)	Differential Pressure Range (kPa)	Switching Action	Includes
L404T1055/U	5 to 50 psi; 85 psi - Maximum Sustained	35 to 350 kPa; 586 kPa - Maximum Sustained	6 to 14 psi	40 to 100 kPa	SPST snap-acting break on pressure rise	
L404T1063/U	10 to 150 psi; 225 psi - Maximum Sustained	70 to 1035 kPa; 1151 kPa - Maximum Sustained	10 to 22 psi	70 to 150 kPa	SPST snap-acting break on pressure rise	
L404V1087/U	10 to 150 psi; 225 psi - Maximum Sustained	70 to 1035 kPa; 1151 kPa - Maximum Sustained	10 to 22 psi	70 to 150 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)
L404V1095/U	5 to 50 psi; 85 psi - Maximum Sustained	35 to 350 kPa; 586 kPa - Maximum Sustained	6 to 14 psi	40 to 100 kPa	Snap switch makes R-W on pressure rise	Miss-wiring Compliant (less B terminal)

**Oil pressure sensing devices for use on oil burner systems using any type of fuel oil, including heavy pretreated oils.**

- Clear plastic cover allows observation of the pressure settings.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- L404T High pressure limit, break a circuit on oil pressure rise above setpoint.
- L404V Low Pressure limit, makes a circuit on oil pressure rise above setpoint.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

**Operating Temperature Range:** -35°F to +150°F (-37°C to +66°C)

**Electrical Connections:** Screw terminals

**Contact Ratings:** 120 Vac Switch Contact – 8.0 AFL, 48.0 ALR, 10.0 A resistive; 240 Vac Switch Contact – 5.1 AFL, 30.6 ALR, 5.0 A resistive;

**Pipe Connection:** Main or High Pressure – 1/4 in. NPT internal thread

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP2168, Guide No. MFHX

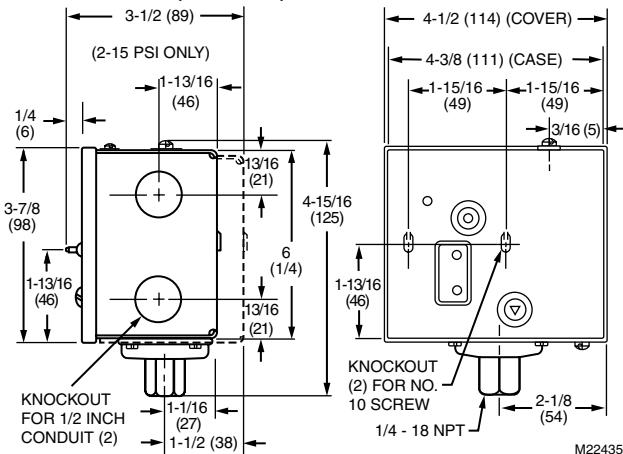
**Approvals, CSA:** Certified: File No. LR95329

# Pressure and Limit Controllers

## L4079 Pressuretrol® Limit Controllers



Dimensions in inches (millimeters)



### High pressure limit switches.

- Stainless steel diaphragm for use with steam, air, noncombustible gases and fluids non-corrosive to stainless steel.
- L4079W is for Oil Applications.
- Micro Switch™ snap-acting switches open automatically on pressure rise; must be manually reset.
- Mount using 1/4 in. NPT female fitting on diaphragm assembly or surface mount through back of case.

**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Sensor Element:** Stainless Steel diaphragm

**Approximate Dimensions:** 5 in. high x 4 1/2 in. wide x 3 1/2 in. deep.  
(127 mm high x 114 mm wide x 89 mm deep.)

**Temperature Ratings:** 150°F - Maximum Ambient (66°C - Maximum Ambient)

**Electrical Connections:** Screw terminals

**Contact Ratings:** 120 Vac Switch Contact - 9.8 AFL, 58.8 ALR; 240 Vac Switch Contact - 4.9 AFL, 29.4 ALR

**Pipe Connection:** Main or High Pressure - 1/4 in. NPT internal thread

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP466, Guide No. MBPR

**Approvals, Swiss RE:** Acceptable

Material Number	Application	Operating Range (psi)	Operating Range (kPa)	Switch Operation	Switching Action
L4079A1035/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	2 to 15 psi; 25 psi - Maximum Sustained	14 to 103 kPa; 172 kPa - Maximum Sustained	Manual Reset	SPST (two) break simultaneously on pressure rise
L4079A1050/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	10 to 150 psi; 225 psi - Maximum Sustained	69 to 1034 kPa; 1151 kPa - Maximum Sustained	Manual Reset	SPST (two) break simultaneously on pressure rise
L4079B1033/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	2 to 15 psi; 25 psi - Maximum Sustained	14 to 103 kPa; 172 kPa - Maximum Sustained	Manual Reset	SPST break on pressure rise
L4079B1041/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	10 to 150 psi; 225 psi - Maximum Sustained	70 to 1035 kPa; 1151 kPa - Maximum Sustained	Manual Reset	SPST break on pressure rise
L4079B1058/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	5 to 50 psi; 85 psi - Maximum Sustained	35 to 350 kPa; 586 kPa - Maximum Sustained	Manual Reset	SPST break on pressure rise
L4079B1066/U	Provide limit control of steam, air, non-combustible gases or non-corrosive fluids	20 to 300 psi; 350 psi - Maximum Sustained	140 to 2070 kPa; 2413 kPa - Maximum Sustained	Manual Reset	SPST break on pressure rise
L4079W1000/U	High oil pressure limit switch for heavy oil applications.	10 to 150 psi; 225 psi - Maximum Sustained	35 to 350 kPa; 1151 kPa - Maximum Sustained	Manual Reset	SPST break on pressure rise - Oil Applications

## L408J Vaporstat® Controllers



**Application:** Provide operating control and automatic limit protection for pressure systems with pressures up to 4 psi (8 kPa)

**Differential Type:** Subtractive

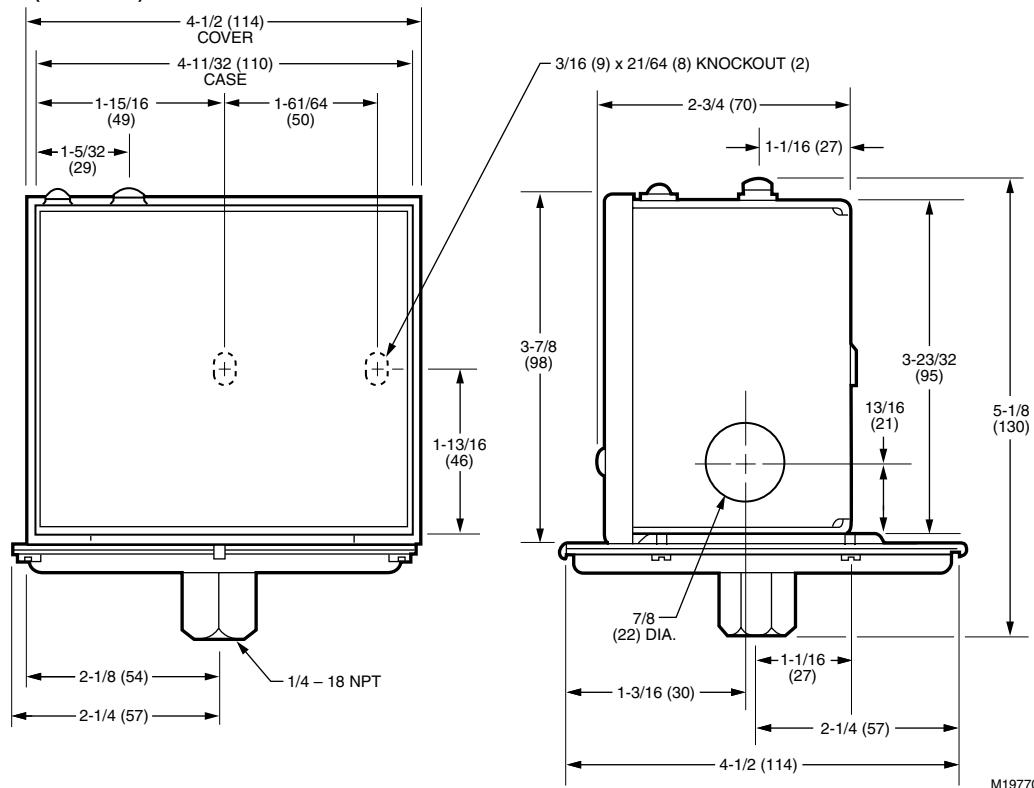
**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Sensor Element:** Stainless Steel diaphragm

**Approximate, Dimensions:** 5 1/8 in. high x 4 1/2 in. wide x 4 1/2 in. deep. (130 mm high x 114 mm wide x 114 mm deep.)

**Operating Temperature Range:** -35°F to +150°F (-37°C to +66°C)

**Dimensions in inches (millimeters)**



**Provide operating control and automatic high limit protection for vapor heating systems with pressures up to 4 psi (8 kPa). All models have Microswitch snap switches to open or close a circuit on a pressure rise.**

- Stainless steel diaphragm for use with liquids, air, noncombustible gases, ammonia, oxygen, distilled water and similar media.
- Provide SPDT switching.
- Clear plastic cover allows observation of the pressure settings.
- Mount using hexagonal fitting with 1/4 in. NPT internal threads for direct mounting to the 14026 (steel) or 50024585-001 (brass) Steam Trap (siphon loop).
- Ground Screw terminal.

**Electrical Connections:** Screw terminals

**Contact Ratings:** 120 Vac Switch Contact – 8.0 AFL, 48.0 ALR, 10.0 A resistive; 240 Vac Switch Contact – 5.1 AFL, 30.6 ALR, 5.0 A resistive

**Pipe Connection:** Main or High Pressure – 1/4 in. NPT internal thread

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. MP466, Guide No. MBPR

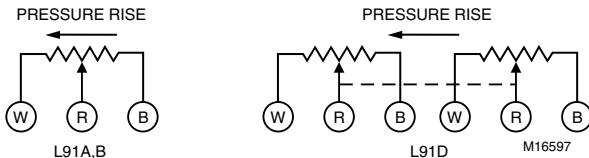
**Approvals, CSA:** Certified: File No. LR1620, Guide No. 400-E-O

**Approvals, Swiss RE:** Acceptable

Material Number	Operating Range (psi)	Operating Range (kPa)	Differential Pressure Range (psi)	Differential Pressure Range (kPa)	Switch Operation	Switching Action	Comments
L408J1009/U	0 to 16 oz/in <sup>2</sup>	0 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	Auto recycle	SPDT make R-W, break R-B on pressure rise	
L408J1017/U	0 to 4 psi	0 to 28 kPa	2 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	Auto recycle	SPDT make R-W, break R-B on pressure rise	
L408J1025/U	0 to 16 oz/in <sup>2</sup>	0 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	Auto recycle	SPST make on pressure rise Only	Miss-wiring Compliant
L408J1033/U	0 to 4 psi	0 to 28 kPa	2 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	Auto recycle	SPST make on pressure rise Only	Miss-wiring Compliant

# Pressure and Limit Controllers

## L91 Proportional Pressuretrol® Controllers



**Modulating pressure operating control for regulation of liquid or air and other non-corrosive gases.**

- Use with steam, air, noncombustible gases, or other fluids non-corrosive to the brass or phos-bronze (300 psi models) bellows.
- Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (10-300 psi models) or brass bellows (all other pressure range models).

**Application:** Modulating pressure control for regulation of liquid, air, or other non-corrosive gases.

**Switch Operation:** Modulating

**Operating Temperature Range:** 32°F to 150°F (0°C to 66°C)

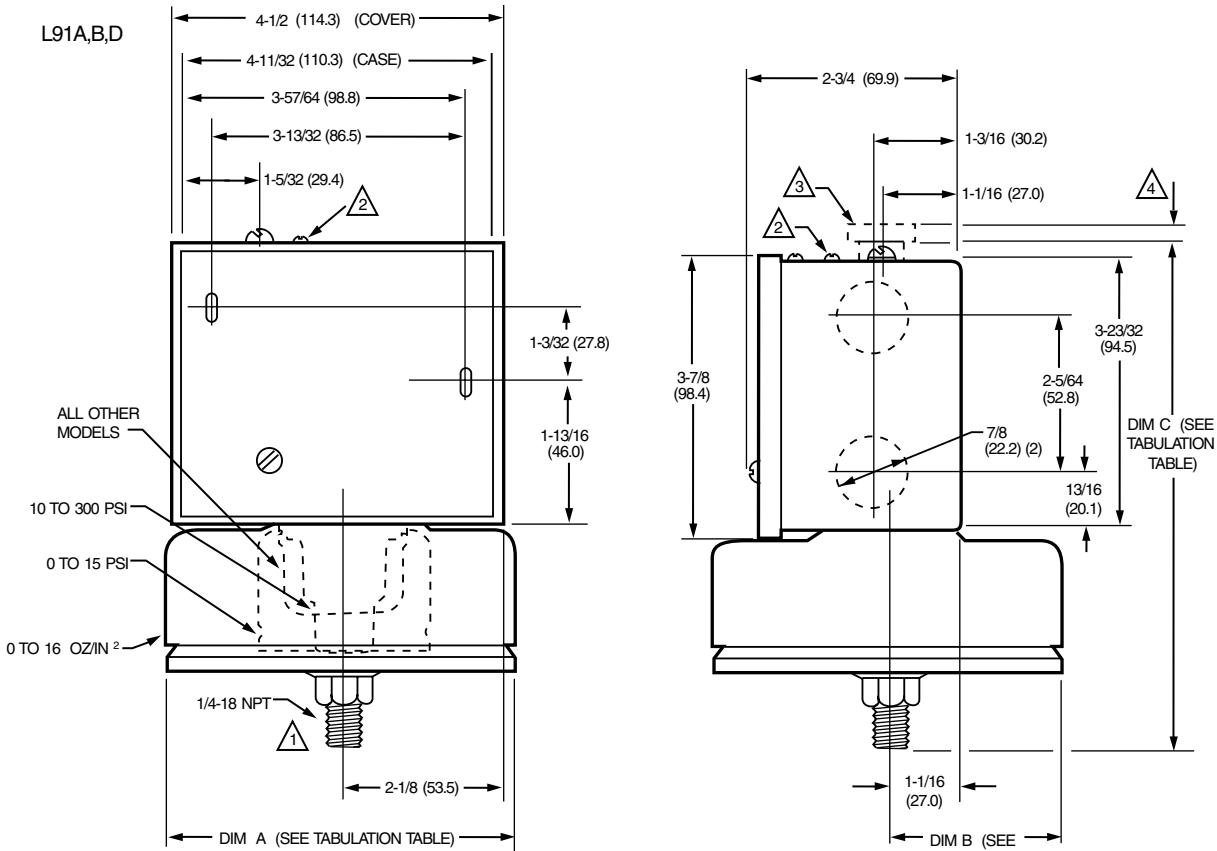
**Electrical Connections:** Screw terminals

**Pipe Connection:** Main or High Pressure – 1/4 in. NPT external thread

Material Number	Operating Range (psi)	Operating Range (kPa)	Differential Pressure Range (psi)	Differential Pressure Range (kPa)	Mounting	Sensor Element	Approximate Dimensions	Modulation Output
L91A1037/U	0 to 15 psi; 25 psi - Maximum Sustained	0 to 103 kPa; 172 kPa - Maximum Sustained	0.5 psi	3.4 kPa	optional surface mount through back of case	Brass bellows	6 7/8 in. high x 4 1/2 in. wide x 2 7/8 in. deep (175 mm high x 114 mm wide x 73 mm deep)	Single potentiometer, 140 ohms
L91A1052/U	5 to 150 psi; 225 psi - Maximum Sustained	34 to 1034 kPa; 1151 kPa - Maximum Sustained	5 psi	34 kPa	optional surface mount through back of case	Brass bellows	5 3/4 in. high x 4 1/2 in. wide x 2 3/4 in. deep (146 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91A1078/U	10 to 300 psi; 325 psi - Maximum Sustained	69 to 2068 kPa; 2241 kPa - Maximum Sustained	12 psi	83 kPa	optional surface mount through back of case	Phos-bronze bellows	6 1/16 in. high x 4 1/2 in. wide x 2 3/4 in. deep (154 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91A1136/U	10 to 300 psi; 325 psi - Maximum Sustained	69 to 2068 kPa; 2241 kPa - Maximum Sustained	12 psi	83 kPa	optional surface mount through back of case	Phos-bronze bellows	6 1/16 in. high x 4 1/2 in. wide x 2 3/4 in. deep (154 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91B1035/U	0 to 15 psi; 25 psi - Maximum Sustained	0 to 103 kPa; 172 kPa - Maximum Sustained	1.5 to 12 psi	10 to 83 kPa	optional surface mount through back of case	Brass bellows	6 7/8 in. high x 4 1/2 in. wide x 2 7/8 in. deep (175 mm high x 114 mm wide x 73 mm deep)	Single potentiometer, 140 ohms
L91B1050/U	5 to 150 psi; 225 psi - Maximum Sustained	34 to 1034 kPa; 1151 kPa - Maximum Sustained	5 to 23 psi	35 to 160 kPa	optional surface mount through back of case	Brass bellows	5 3/4 in. high x 4 1/2 in. wide x 2 3/4 in. deep (146 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91B1068/U	10 to 300 psi; 325 psi - Maximum Sustained	69 to 2068 kPa; 2241 kPa - Maximum Sustained	28 to 110 psi	193 to 758 kPa	optional surface mount through back of case	Phos-bronze bellows	6 1/16 in. high x 4 1/2 in. wide x 2 3/4 in. deep (154 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91B1100/U	5 to 150 psi; 225 psi - Maximum Sustained	0 - 1 MPa; 1151 kPa - Maximum Sustained	5 to 23 psi	35 to 160 kPa	1/4 in BSP-TR thread Mounting	Brass bellows	5 3/4 in. high x 4 1/2 in. wide x 2 3/4 in. deep (146 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 135 ohms
L91B1118/U	10 to 300 psi; 325 psi - Maximum Sustained	0 - 2 MPa; 2241 kPa - Maximum Sustained	28 to 110 psi	193 to 758 kPa	1/4 in BSP-TR thread Mounting	Phos-bronze bellows	6 1/16 in. high x 4 1/2 in. wide x 2 3/4 in. deep (154 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91B1241/U	10 to 300 psi; 325 psi - Maximum Sustained	69 to 2068 kPa; 2241 kPa - Maximum Sustained	12 to 48 psi	85 to 330 kPa	optional surface mount through back of case	Phos-bronze bellows	6 1/16 in. high x 4 1/2 in. wide x 2 3/4 in. deep (154 mm high x 114 mm wide x 70 mm deep)	Single potentiometer, 140 ohms
L91D1015/U	0 to 15 psi; 25 psi - Maximum Sustained	0 to 103 kPa; 172 kPa - Maximum Sustained	1.5 to 12 psi	10 to 83 kPa	optional surface mount through back of case	Brass bellows	6 7/8 in. high x 4 1/2 in. wide x 2 7/8 in. deep (175 mm high x 114 mm wide x 73 mm deep)	Dual potentiometer, 140 ohms
L91D1031/U	5 to 150 psi; 225 psi - Maximum Sustained	34 to 1034 kPa; 1151 kPa - Maximum Sustained	11 to 52 psi	76 to 359 kPa	optional surface mount through back of case	Brass bellows	5 3/4 in. high x 4 1/2 in. wide x 2 3/4 in. deep (146 mm high x 114 mm wide x 70 mm deep)	Dual potentiometer, 140 ohms

# Pressure and Limit Controllers

## Dimensions in inches (millimeters)



**1** EXTERNAL THREADS ON 0 TO 15 PSI MODELS; INTERNAL THREADS ON ALL OTHER MODELS. SOME MODELS ARE ALSO AVAILABLE WITH 1/4-19 BSP-TR INTERNAL THREADS; SEE TABLE 1.

**2** PROPORTIONING RANGE ADJUSTING SCREW ON L91B,D MODELS ONLY.

**3** 33312B KNURELED ADJUSTMENT SCREW KNOB, 7/8 IN. [22.2 MM] DIAMETER., KNOB IS INCLUDED WITH 10 TO 300 PSI [0.07 TO .07 MPa] MODELS; OPTIONAL ACCESSORY FOR OTHER MODELS.

**4** FOR 10 TO 300 PSI [0.07 TO 2.07 MPa] MODELS. DIM C INCLUDES THE KNURELED ADJUSTMENT KNOB.

TABULATION OF DIMENSIONS A, B, AND C

OPERATING RANGE		DIM A		DIM B		DIM C	
CUSTOMARY UNITS	METRIC UNITS	IN.	MM	IN.	MM	IN.	MM
0 TO 15 PSI	0 TO 103 kPa	2-7/16	61.9	1-7/32	31.0	6-7/8	174.6
5 TO 150 PSI	0.03 TO 1.03 MPa	1-5/8	41.3	13/16	20.6	5-3/4	146.1
10 TO 300 PSI	0.07 to 2.07 MPa	1-1/4	31.8	5/8	15.9	6-1/16 <b>4</b>	154.0 <b>4</b>

M29781

# Pressure and Limit Controllers

## Pressure Controls and Limits Accessories

Material Number	Description	Used With
129178E/U	Cover Assembly	L404, L604
14026/U	Steam Trap "Black Iron Siphon Loop" for L404, L408, L91 or P7810A, B	L404, L91, L604
23176CB/U	L91 Potentiometer - 135 ohm	L91
23176CF/U	L91 Potentiometer - 135 ohm	L91
4074BWJ/U	Pressure Control/Limits, Limit Stop Assembly - to limit setpoint. Includes 129564 Range Stop, 107194 Range Stop Screw and 23466 Wrench.	L404, L604, L91, L4079
50024585-001/U	Steam Trap "1/4 in. NPT Brass Siphon Loop" for L404, L408, or L91	L404, L91, L604

## Testers and Demonstrators

### A7800 Tester



**Provides quick operational check of the 7800 SERIES System components.**

- Allows testing different 7800 SERIES devices using configuration plugs and functional switches to simulate interlocks and control functions.
- Indicator lamps represent outputs as activated.

**Application:** Tester

**Voltage:** 120 Vac

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:** -30°F to +150°F (-34.5°C to +65°C)

Material Number	Required Components	Includes	Used With
A7800A1010/U	Configuration Plugs, Included	Configuration Plugs	7800 SERIES Relay Modules with Valve Proving System or New Optical Detector Amplifiers

### A7800 and DSP2672 Replacement Parts

Material Number	Application	Used With	Comments
203579A/U	Tester; DSP2672 RM7800/40/45 (non VPS side) Configuration Plug	RM7800; RM7840	Configures A7800 and DSP2672
203579B/U	Tester; DSP2672 RM7838A Configuration Plug		Configures A7800 and DSP2672
203579C/U	Tester; DSP2672 RM7838B, C Configuration Plug		Configures A7800 and DSP2672
203579D/U	Tester; DSP2672 RM7885A Configuration Plug		Configures A7800 and DSP2672
203579E/U	Tester; DSP2672 RM7890 (non VPS models) Configuration Plug		Configures A7800 and DSP2672
203579F/U	Tester; DSP2672 RM7895, 96, 97, 98 (non VPS side) Configuration Plug		Configures A7800 and DSP2672
203579G/U	Tester; DSP2672 RM7823 Configuration Plug		Configures A7800 and DSP2672
203579H	Tester; DSP2672 RM7865 Configuration Plug		Configures A7800 and DSP2672
203579J/U	Tester; DSP2672 RM7838B, C (VPS) Configuration Plug	A7800A1010 Tester	Configures A7800 and DSP2672
203579K/U	Tester; DSP2672 RM7890 (VPS) Configuration Plug	A7800A1010 Tester	
203579L/U	Tester; DSP2672 RM7800/40G,L (VPS side) Configuration Plug	A7800A1010 Tester	
203579M/U	Tester; DSP2672 RM7898 (VPS Side) Configuration Plug	A7800A1010 Tester	

### Demonstrators or Trainers



DSP3452

**The DSP3452 is designed for training and demonstration of Honeywell Burner and Boiler Controls with auxiliary devices that are typically used with commercial and industrial burners. It demonstrates the wiring and operation of primary safety controls.**

- The trainer can be used with Honeywell primary controls or programming controls (not included with the trainer).
- The nine trouble switches simulate a range of faults from a burned out pilot valve to a faulty flame detector to an inoperative firing rate motor.
- The trainer measures 20 1/2 in. x 32 in. x 12 1/2 in. It weighs approximately 30 lbs.

**Color:** Black

Material Number	Application	Voltage	Frequency	Approximate, Dimensions	Required Components	Includes	Used With	Comments
DSP3452/U	Primaries, Programmers or 7800 Series Trainer	120 Vac	50 Hz; 60 Hz	20 1/2 in. x 32 in. x 12 1/2 in.	Devices for wiring and training	jumper wires, propane gas hose with regulator, detector mounting adapters	Primaries, Programmers and 7800 SERIES Relay Modules	Complete Flame Safeguard Training Package

# Testers and Demonstrators

## SOLA Demonstrators



The DSP3943 is used as a SOLA commissioning or monitoring tool when a System or Local Operator Interface is not required for operation. The DSP contains the S7999B1026 touchscreen display which uses a wizardlike process to assist you through the commissioning process.

The DSP3980 contains an S7999D1006 Touchscreen Display to commission or monitor the SOLA system when a System or Local Operator Interface is not required for operation. The DSP3980 includes the power supply for operation and cable with connector for the SOLA system. A USB storage drive is provided to save display screen snapshots or trending information.

**Voltage:** 120 Vac

**Color:** Black

Material Number	Application	Frequency	Includes	Used With	Comments
DSP3943/U	Demonstrator, SOLA	60 Hz	S7910A1001 SOLA HC; S7999 Touchscreen Display; S7910 Keyboard display, system switches and ports		
DSP3980/U	Demonstrator	50 Hz; 60 Hz		SOLA Controls	Touchscreen for R7910/R7911 SOLA Monitoring or Programming

## Flame Simulator



**Flame simulators simplify the troubleshooting of flame safeguard controls by providing a quick method to check the flame detection function.**

Material Number	Application	Color	Comments	Used With
123514A/U	Flame Simulator, Rectification Flame Amplifiers	Brown	Applications with test jack in G circuit	R4075B; R4181A; R4138A, B; R7253A; R8169B; R7257A; R7247A; R7847A
203659/U	Simulates C7027, C7035, C7044 Flame Simulators for 7800 SERIES	Purple	Simulates Minipeeper Flame Detectors	7800 SERIES Relay modules

## SLATE Demo Kit



- The DSP3983/U is an all-inclusive SLATE™ demonstration and training case prewired to a variety of components intended to showcase the SLATE modules capabilities.
- The DSP3983 is preloaded with a functional kit (program). The prewired components and program are intended to simulate a generic burner application. As the user becomes more familiar with SLATE programming and additional I/O are desired, they can be added by the user and new kits can be created and loaded to incorporate the new I/O.
- The included SLATE Display may be used to control and maneuver through the modules to gain access to the sensor readings, terminal states, and register values as well as input commands via the built-in SLATE pages. In addition, user defined web pages can be programmed to suit the users' needs.
- The SLATE system can be networked to a computer for additional access and can be interfaced with other SLATE Demo cases for more complex application simulations.

**Voltage:** 110/220 Vac

**Frequency:** 50 Hz; 60 Hz

Material Number	Application	Includes	Comments	Used With
DSP 3883/U	Demonstrator, Trainer	R8001A1001/U R8001B2001/U R8001U3001/U R8001D4001/U R8001C6001/U R8001N7001/U R8001L8001/U R8001F1091/U R8001K1010/U System simulation switches and sensors.	Complete SLATE training system	SLATE

# Signal Processors

## Industrial Flame Monitoring

### Signal Processors

#### P531; P532 3-channel, Signal Processors



The P532/P531 supports three separate viewing heads, two S55XBE and one S70X. Independent 2 x SPDT Flame On relay contacts are provided for each viewing head (6 total). 0-20 or 4-20mA scalable analog output also provided for each viewing head. **SIL 3 capable.**

- 3 channels.
- Two SPDT flame relay outputs, one SPDT self-check relay output and one N.O. alarm relay output per channel.
- FM and CSA approved.
- Monitor the UV and IR flame component simultaneously or separately when using the S550BE viewing head .
- Monitor 3 viewing heads simultaneously.
- Independent configuration for each viewing head.
- 2 sets of configuration data per viewing head.
- Viewing head temperature indication.
- Automatic set-up functionality.

- Automatic viewing head detection.
- Modbus and RS422 protocol compatible.
- NEMA 1 Enclosure Rated.

**Output:** 4-20mA

**Communications:** ModBus and RS422 Compatible

**Mounting:** Cabinet mounting tabs

**Connection Type:** Removable terminals

**Dimensions:** 4.3 in. wide x 5.8 in. deep x 5.5 in. high (109 mm wide x 147 mm deep x 117 mm high)

**Enviromental:** Ambient Temperature -40 to 140°F (-40 to 60°C) (FM) or 32 to 125°F; (0 to 52°C) (CSA)

**Used With:** S55X, S70X, S80X Viewing heads

Material Number	Description	Application	Keypad	Status Monitoring	Electrical Ratings	Frequency	Required Components
P531AC	AC Signal Processor	Signal Processor with 3 channels without keypad	P532UI	LEDs	85-265 Vac + 24 Vdc backup	50 Hz; 60 Hz	Appropriate Flame Detector
P531DC	DC Signal Processor	Signal Processor with 3 channels without keypad	P532UI	LEDs	22-26 Vdc+ 24 Vdc backup		Appropriate Flame Detector
P532AC	AC Signal Processor	Signal Processor with 3 channels and keypad	Integrated	tri-color display	85-265 Vac + 24 Vdc backup	50 Hz; 60 Hz	Appropriate Flame Detector
P532DC	DC Signal Processor	Signal Processor with 3 channels and keypad	Integrated	tri-color display	22-26 Vdc+ 24 Vdc backup		Appropriate Flame Detector
P532UI	Program module/keypad used with the P531	Program module/keypad used with the P531					

### 600U Flame Rod Signal Processor



**Model 600 Ultra Flame Rod** is a reliable Flame Detecting system based on the proven principle of measuring rectified current flow through a flame rod when a flame touches it. The Model 600 Flame Detector measures the rectified current and closes the flame relay if the current exceeds the value for the flame-on set-point.

**Output:** 175 Vac for flame rod

**Mounting:** DIN rail, 35mm

**Connection Type:** Removable terminals

**Dimensions:** 2-63/64 in. wide x 3-1/4 in. deep x 5-31/64 in. high (76 mm wide x 83 mm deep x 139 mm high)

**Used With:** Flame Rod

Material Number	Description	Application	Keypad	Status Monitoring	Electrical Ratings	Frequency
600U	Flame rod signal processor with DPDT flame relay contacts, DPST ignition transformer relay or ignition coil drive	Flame rod signal processor	Integrated	LEDs	85 to 132Vac or 170 to 264Vac	50 Hz; 60 Hz

## P522 Signal Processor with 2 Channels and Keypad



**Application:** Signal Processor with 2 channels and keypad

**Keypad:** Integrated

**Status Monitoring:** LEDs

**Output:** 4-20mA

**Communications:** ModBus and RS422 Compatible

**Mounting:** Cabinet mounting tabs

**Connection Type:** Removable terminals

The P522 supports two switched (not simultaneously) S55XBE viewing heads. 2 x SPDT Flame On relay contacts and 0-20 or 4-20mA scalable analog output is also provided. SIL 3 capable.

- 2 channels.
- Integrated keypad.
- Two SPDT flame relay outputs and one SPDT self-check relay output.
- FM, CSA and EAC approved.
- Flame failure response and time delay on set-up.
- Connect 2 viewing heads, monitoring 1 at a time.
- Independent configuration for each viewing head.
- 2 sets of configuration data per viewing head.
- Viewing head temperature indication.
- Modbus and RS422 protocol compatible.
- NEMA 1 Enclosure Rating.

**Dimensions:** 4.3 in. wide x 6.4 in. deep x 6.7 in. high (109 mm wide x 162 mm deep x 170 mm high)

**Approvals, CSA:** Approved

**Approvals, Factory Mutual:** Approved (Temperature Range -32 to +122°F; 0 to +50°C)

Material Number	Description	Electrical Ratings	Frequency	Used With	Required Components
P522AC	AC Signal Processor	85-265 Vac + 24 Vdc backup	50 Hz; 60 Hz	S550B/BE, S552B/BE, S556B/BE viewing heads	Appropriate Flame Detector
P522DC	DC Signal Processor	22-26 Vdc+ 24 Vdc backup		S550B/BE, S552B/BE, S556B/BE viewing heads	Appropriate Flame Detector

# Signal Processors

## WATCHDOGIIBE Flare Stack Signal Processor



The P222 is used with S256BE viewing head for remote monitoring of flare flame. 2 x SPDT Flame On relay contacts for T1 timer and 1 x SPDT for T2 timer. 0-20 or 4-20mA scalable analog output is also provided. Two timers are included for flame delay off settings one 0 to 60 seconds (T1) and one 0 to 3600 seconds (T2).

**Application:** Flare Stack signal processor with 1 channel and keypad

**Keypad:** Integrated

**Status Monitoring:** LEDs

**Output:** 0/4-20mA

**Communications:** ModBus and RS422 Compatible

**Mounting:** Cabinet mounting tabs

**Connection Type:** Removable terminals

**Dimensions:** 4.3 in. wide x 6.4 in. deep x 6.7 in. high (109 mm wide x 162 mm deep x 170 mm high)

Material Number	Description	Electrical Ratings	Frequency	Used With	Required Components
P222	Watchdog Signal Processor	85-265 Vac + 24 Vdc backup	50 Hz; 60 Hz	S256BE WATCHDOGIIBE flare stack viewing head	Appropriate Flame Detector

## S256BE Flare Stack Viewing Head



S256BE is a UV flare stack viewing head/flame detector, that detects the presence or absence of flame at the flare stack tip. Used for continuous UV flare stack monitoring to ensure no unburned toxic or waste gas releases into the atmosphere.

- Not adversely affected by Gamma Rays or X-Rays.
- Solar blind.
- Ground mounted, up to 1000 feet away from flare stack tip.
- UV gain selection of 0-99.
- Digital display.
- Quick disconnect plug.
- Easy to install with no plant shutdown.
- Ambient temperature: -40 to 176°F (-40 to 80°C).
- Viewing head housing: NEMA type 4X / IP 66.
- 22-26 VDC supplied by signal processor.
- Used with P222 signal processor.

**Approvals, QPS:** QPS to CSA 22.2

**Comments:** One color monitoring

**Used With:** P222 Processor

**Accessory:** ASY55XBE cable/connector accessory, cable length: 50'

**Application:** Flame Detector for use with P222 processor

**NEMA Rating:** 4X

**Electrical Connections:** Quick disconnect plug

**Mounting:** 2" Pipe mount

**Electrical Ratings:** 22 to 26Vdc from signal processor

**Dimensions:** 3.7 in. wide x 20.3 in. deep x 13.7 in. high (94 mm wide x 516 mm deep x 348 mm deep)

Material Number	UV Gain Adjustment	IR Gain Adjustment	Digital Displays	Description
S256BE	0-99		Yes (1)	UV viewing head for use with P222

## 700 Signal Processor with 1 Channel



The 700 supports one UV or IR viewing head model S70X or S80X. 2 x SPDT Flame On relay contacts and 0-20 or 4-20mA scalable analog output is also provided. SIL 3 capable.

- 1 channel.
- Two SPDT flame relay outputs and one SPDT self-check relay output.
- FM and CSA approved.
- Status LEDs.
- DIN rail mounting.
- Modbus and RS422 protocol compatible.
- NEMA 1 Enclosure Rating.

**Application:** Signal processor with 1 channel and keypad

**Status Monitoring:** LEDs

**Output:** 4-20mA

**Communications:** ModBus and RS422 Compatible

**Mounting:** DIN rail

**Connection Type:** Removable terminals

**Dimensions:** 2.9 in. wide x 3.3 in. deep x 5.5 in. high (74 mm wide x 84 mm deep x 140 mm high)

**Approvals, CSA:** Approved

**Approvals, Factory Mutual:** Approved (Temperature Range 32 to 140°F; 0 to 60°C)

Material Number	Description	Keypad	Electrical Ratings	Frequency	Used With	Required Components
700ACSP	AC Signal Processor	Integrated	85-265 Vac +24 Vdc Backup	50 Hz; 60 Hz	All models of S702, S706, S802, S806 viewing heads	Appropriate Flame Detector
700DCSP	DC Signal Processor	Integrated	22-26 Vdc		All models of S702, S706, S802, S806 viewing heads	Appropriate Flame Detector

# All-in-One Viewing Head and Processor

## All-in-One Viewing Head and Processor



**U2-101xS and U2-101xS PF** are integrated viewing head and processor (All in One) with integral touch screen for operator interface. One Normally Open Flame relay contact and one Normally Open Fault relay contact is provided for interlock. 0-20 or 4-20 mA scalable analog output is also provided. Power input is 24 VDC @120 mA. Temperature sensor is included that provides display in degree F and C. System is self checking (no mechanical shutter) fit for use in SIL3 application. Approvals include (IP66), Class I Div 1 (IEC Ex d-ATEX Zone 1) for PF version and Class I, Div 2 (IEC Ex nA) for quick disconnect type models. For remote monitoring and configuration, FLAMETOOL -HMI (support 32 loops) or FLAMETOOL-PC (Supports 248 loops) is available. Available models are UVtron only (clean gases), IR only (oil and coal), UVtron, IR and UVSS (for all fuels- all applications including SRU, Kiln etc.).

**Application:** Combination DC signal processor and dual UV/IR Viewing head

**Keypad:** Integrated

**Electrical Ratings:** 22-26 Vdc

**Output:** 4-20mA

**Communications:** ModBus RS485

**Dimensions:** 4.3 in. wide x 5.8 in. deep x 5.5 in. high (109 mm wide x 147 mm deep x 117 mm high)

**Approvals, CSA:** Approved (Temperature Range -40 to 158°F; -40 to 70°C)

**Approvals, Factory Mutual:** Approved (Temperature Range -40 to 158°F; -40 to 70°C)

**Approvals, Others:** SIL3 (Temperature Range -40 to 158°F; -40 to 70°C), INMETRO, EN298 & KTL

Material Number	Description	Status Monitoring	Mounting	Connection Type	Used With	Required Components
<b>Combination DC signal processor and triple UV/IR/UVss Viewing head</b>						
U2-1010S	Combination DC signal processor and triple UV/IR/UVss Viewing head.	LED for each sensor, flame relay, and self check.	1" NPT process connection	12 pin connector		Cable and connector, PT adapter and purge air coupler sold separately.
U2-1010S-PF	Combination DC signal processor and triple UV/IR/UVss Viewing head with 10-ft pigtail.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 10-ft (3m)		PT adapter and purge air coupler sold separately.
U2-1010S-PF-050	Combination DC signal processor and triple UV/IR/UVss Viewing head with 50-ft (15m) pigtail.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 50-ft (15m)		PT adapter and purge air coupler sold separately.
U2-1010S-PF-100	Combination DC signal processor and triple UV/IR/UVss Viewing head with 100-ft (30m) pigtail.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 100-ft (30m)		PT adapter and purge air coupler sold separately.
<b>Combination DC signal processor and IR Viewing head</b>						
U2-1012S	Combination DC signal processor and IR Viewing head.	LED for each sensor, flame relay, and self check.	1" NPT process connection	12 pin connector		Cable and connector, PT adapter and purge air coupler sold separately.
U2-1012S-PF	Combination DC signal processor and IR Viewing head with 10-ft pigtail. Pipe fitting connection.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 10-ft (3m)		PT adapter and purge air coupler sold separately.
<b>Combination DC signal processor and UV Viewing head</b>						
U2-1016S	Combination DC signal processor and UV Viewing head.	LED for each sensor, flame relay, and self check.	1" NPT process connection	12 pin connector		Cable and connector, PT adapter and purge air coupler sold separately.
U2-1016S-PF	Combination DC signal processor and UV Viewing head with 10-ft pigtail. Pipe fitting connection.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 10-ft (3m)		PT adapter and purge air coupler sold separately.
<b>Combination DC signal processor and dual UV/IR Viewing head</b>						
U2-1018S	Combination DC signal processor and dual UV/IR Viewing head	LED for each sensor, flame relay, and self check.	1" NPT process connection	12 pin connector		Cable and connector, PT adapter and purge air coupler sold separately.
U2-1018S-PF	Combination DC signal processor and dual UV/IR Viewing head with 10-ft pigtail. Pipe fitting connection.	LED for each sensor, flame relay, and self check.	1" NPT process connection	pigtail, 10-ft (3m)		PT adapter and purge air coupler sold separately.

## Viewing Heads

### 700 and 800 Series Viewing Heads



**Available in single sensor only, UVTron or IR. Options include quick disconnect with two LEDs or factory installed cable.**

**Application:** Flame Detector for Oil Fired burners

**Mounting:** 1/2" NPTF or 1" NPTF with 1/4" NPT Purge connection

**Electrical Ratings:** 22 to 26Vdc from signal processor

**Sight Pipe (NPT):** 1/2 in.

**Purge Air Pipe (NPT):** 1/4 in.

#### Environmental:

Viewing Head Sealing: IP 64 rated when the metallic connector ring is tightened with pliers and a UV protection is provided for the cable by installing in conduit.

Ambient Temperature: -40 to 185°F (-40 to 85°C) CSA for CLASS I, DIV 2, GROUPS A, B, C, D, T4A

-40 to 149°F (-40 to 65°C) IECEx CSA Ex nA IIC T4 Gc

**Approvals, Factory Mutual:** Approved

**Environmental, Electrical, or Ingress Protection Rating:** IP64

**Required Components:** Order ASY785 (50foot) or ASY785-200 (200ft) for molded, shielded cable assemblies. ASY785 or ASY785-200 are recommended for new installations.

Material Number	Type	Electrical Connections	Shutter	UV Gain Adjustment	IR Gain Adjustment	Dimensions	Comments	Used With
S702	IR Compact viewing head with 15-foot cable	Quick disconnect plug	Electronic		1-9	2.0 in. wide x 9.7 in. deep x 2.0 in. high (51 mm wide x 246 mm deep x 51 mm high)	Removable connector cover for diagnostic LED viewing during installation.	Use with 700 AC SP or 700DC SP or P53xAC/DC
S702PF	IR Compact viewing head with 10-foot pigtail	Factory installed cable	Electronic		1-9	2.0 in. wide x 9.7 in. deep x 2.0 in. high (51 mm wide x 246 mm deep x 51 mm high)		Use with 700 AC SP or 700DC SP or P53xAC/DC
S706	UV Compact viewing head with 15-foot cable	Quick disconnect plug	Electronic	1-9		2.0 in. wide x 9.7 in. deep x 2.0 in. high (51 mm wide x 246 mm deep x 51 mm high)	Removable connector cover for diagnostic LED viewing during installation.	Use with 700 AC SP or 700DC SP or P53xAC/DC
S706PF	UV Compact viewing head with 10-foot pigtail	Factory installed cable	Electronic	1-9		2.0 in. wide x 9.7 in. deep x 2.0 in. high (51 mm wide x 246 mm deep x 51 mm high)		Use with 700 AC SP or 700DC SP or P53xAC/DC
S802	IR Compact viewing head with 15-foot cable	Quick disconnect plug	Electronic		1-9	1.8 in. wide x 9.2 in. deep x 1.8 in. high (46 mm wide x 234 mm deep x 46 mm high)	Removable connector cover for diagnostic LED viewing during installation.	Use with 700 AC SP or 700DC SP or P53xAC/DC
S806	UV Compact viewing head with 15-foot cable	Quick disconnect plug	Electronic	1-9		1.8 in. wide x 9.2 in. deep x 1.8 in. high (46 mm wide x 234 mm deep x 46 mm high)	Removable connector cover for diagnostic LED viewing during installation.	Use with 700 AC SP or 700DC SP or P53xAC/DC

# Viewing Heads

## S55xBE Series Viewing Heads



The S550BE is provided with UVTron and IR sensors. System is self checking, no mechanical shutters, not adversely affected by X or Gamma rays generated by pipe check welding. Suitable for all fuel flames, single or multiple fuels. Optional pipe fitting (PF) versions provided with factory installed cable. Suitable for hazardous location duty. SIL 3 capable.

- Not adversely affected by Gamma Rays or X-Rays.
- Mount in any orientation.
- IR gain selection of 0-699.
- UV gain selection of 0-99.
- 2 digital displays.
- Quick disconnect plug.
- Parameters stored in signal processor EEPROM.
- Ultraviolet and infrared with electronic shutter.
- 22-26 VDC supplied by signal processor.
- CSA Rated IP64 Enclosure.
- Used with P532, P532, P531, P531, P522, P522 signal processors.

**Application:** Flame Detector for All fuels multiple burners

**Mounting:** 1" NPTF burner front with 1/2" purge connection

**Electrical Ratings:** 22 to 26Vdc from signal processor

**Sight Pipe (NPT):** 1 in.

**Purge Air Pipe (NPT):** 1/2 in.

**Dimensions:** 4.1 in. wide x 8.1 in. deep x 5.4 in. high (104 mm wide x 206 mm deep x 137 mm high)

**Ambient Temperature Range:** -40 to 158°F (-40 to 70°C)

**Approvals, CSA:** Approved CSA

**Approvals, Others:** SIL3 (Temp rating -40 to 149°F/ -40 to 65°C)

IECEx IEC: Approved, KCS, INMETRO, EAC (S550BE Only)

**Approvals, Factory Mutual:** Approved

**Environmental, Electrical, or Ingress Protection Rating:** IP64

**Used With:** P522, P531 and P532 Processors

Material Number	Type	Electrical Connections	Shutter	UV Gain Adjustment	IR Gain Adjustment	Digital Displays	Comments	Required Components
<b>Flame Detector for All fuels multiple burners</b>								
S550BE	UV/IR Viewing Head	Quick disconnect plug	Electronic of IR only	0-99	0-699	Yes (2)	2 digit display for UV and IR	Use with molded cable ASY55XBE, ASY55XBE-100, ASY55XBE-200 or ASY55XBE-300. P522 or P532 signal processor.
S550BE-PF	UV/IR Viewing Head	10 foot pigtail	Electronic of IR only	0-99	0-699	Yes (2)	2 digit display for UV and IR	Factory installed 10' cable. P522 or P532 signal processor.
<b>Flame Detector for Gas multiple Burners</b>								
S556BE	UV Viewing Head with Digital Display	Quick disconnect plug		0-99		Yes (1)	2 digit display for UV	Use with molded cable ASY55XBE, ASY55XBE-100, ASY55XBE-200 or ASY55XBE-300. P522 or P532 signal processor.
S556BE-PF	UV Viewing Head with Digital Display	10 foot pigtail		0-99		Yes (1)	2 digit display for UV and IR	P522 or P532 signal processor.
<b>Flame Detector for Oil and Coal multiple burners</b>								
S552BE	IR Viewing Head	Quick disconnect plug	Electronic		0-699	Yes (1)	2 digit display for IR	Use with molded cable ASY55XBE, ASY55XBE-100, ASY55XBE-200 or ASY55XBE-300. P522 or P532 signal processor.
S552BE-PF	IR Viewing Head	10 foot pigtail	Electronic		0-699	Yes (1)	2 digit display for IR	P522 or P532 signal processor.

## GHE Igniter System



The GHE High Energy Ignitor is a non fouling high energy device, designed to directly ignite all gaseous fuels. The GHE High Tension Ignitor is designed to provide reliable ignition and or warm up when and where required. It can be applied to boiler applications from industrial to utility lime and cement kiln heaters, etc.

### GHE Igniter System - GHE1-3

1-3 MMBtu/Hr capacity, 1-7/8" O.D. pilot igniter; 2' to 10' lengths available in 1' increments. Includes 3/4" x 36" gas inlet and 1" x 36" flexible stainless steel air inlet hoses and high energy probe igniter. 12 joule powerpack, igniter cable and enclosures are available options.

#### Configurable Options

- Igniter Length (in feet):  
2, 3, 4, 5, 6, 7, 8, 9, 10
- Igniter Cable (in feet):  
10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- Mounting:  
Flange
- Powerpack:  
No, Yes
- Enclosure:  
None, NEMA 4, NEMA 4X, NEMA 12

### GHE Igniter System - GHE2-5

2-5 MMBtu/Hr capacity, 2-7/8" O.D. pilot igniter; 2' to 10' lengths available in 1' increments. Includes 3/4" x 36" gas inlet and 1-1/2" x 36" flexible stainless steel air inlet hoses and high energy probe igniter. 12 joule powerpack, igniter cable and enclosures are available options.

#### Configurable Options

- Igniter Length (in feet):  
2, 3, 4, 5, 6, 7, 8, 9, 10
- Igniter Cable (in feet):  
None, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- Mounting:  
Flange, Quick Disconnect
- Powerpack:  
No, Yes
- Enclosure:  
None, NEMA 4, NEMA 4X, NEMA 12

## GHE Igniter System Accessoires

### HV-HT

Replacement high energy probe igniter internal cable; 2'-10' lengths available in 1' increments.

#### Configurable Options

- Igniter Length (in feet):  
2, 3, 4, 5, 6, 7, 8, 9, 10

### IGN-CPC-10

Replacement high energy probe igniter external cable; 10'-20' lengths available in 1' increments.

#### Configurable Options

- Cable Length (in feet):  
10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

### IPASS

High energy probe igniter assembly, includes probe igniter, cable, stainless steel sheath and junction box. 2' - 10' lengths available in 1' increments.

#### Configurable Options

- Igniter Length (in feet):  
2, 3, 4, 5, 6, 7, 8, 9, 10

### GT-LITE

Replacement high energy probe igniter.

### IGN-CPC-LB

Replacement high energy probe junction box.

### POWERPACK-12-CS

Replacement dual voltage 12 joule power pack.

# IFM Accessories

## IFM Accessories

### Industrial Flame Monitoring Accessories

Material Number	Application	Description	Used With	
700-1	Swivel Mount	Swivel Mount, 1" NPT to 1/2" NPT	S700 and S800 Viewing heads	
700-2	Swivel Mount	Swivel mount for S700 and S800 series viewing heads. Flanged connection to 1/2 in. NPTM connection.	S700 and S800 series viewing heads	
700-3	Swivel Mount	Swivel mount for S700 and S800 series viewing heads. 1/2 in. NPTF to 1/2 in. NPTM connection.	S700 and S800 series viewing heads	
700ACC	Model S700 viewing head cooling jacket	Model S700 viewing head cooling jacket. Use with vortex coolers.	Vortex coolers	
700DA	Delrin adapter replacement	Delrin adapter replacement for S700 series viewing heads. 1/2 in. NPTF process and 1/4 in. NPTF purge connections.	S700 series viewing heads	
700DA-1	Delrin adapter replacement	Delrin adapter replacement for S700 series viewing heads. 1 in. NPTF process and 1/4 in. NPTF purge connections.	S700 series viewing heads	
700RAA	Model S700/S800 viewing head right angle adapter	Model S700/S800 viewing head right angle adapter. 1/2 in. NPTF to 1/2 in. NPTM connection.		
700UA	Ultem heat insulating adapter	Ultem heat insulating adapter for S700 series viewing heads. 1/2 in. NPTF process and 1/4 in. NPTF purge connections.	S700 series viewing heads	
800DA	Delrin adapter replacement	Delrin adapter replacement for S800 series viewing heads. 1/2 in. NPTF process and 1/4 in. NPTF purge connections.	S800 series viewing heads	
800UA	Ultem heat insulating adapter	Ultem heat insulating adapter for S800 series viewing heads. 1/2 in. NPTF process and 1/4 in. NPTF purge connections.	S800 series viewing heads	

Material Number	Application	Description	Used With	
ACC55XBE	Air cooling canister for Model S55XBE viewing heads	Air cooling canister for Model S55XBE viewing heads. 1/4 inch air inlet port. Use with vortex coolers.	Model S55XBE viewing heads; Vortex coolers	
ASY55XBE	Model S55xBE viewing head installation.	Cable Assembly, 50 foot C330S with overmolded S55xBE connector. Includes 50 foot 4 conductor cable with foil/braid shield and coupling nut tied to shield. Use with Model S55xBE Viewing Heads	Model S55xBE Viewing Heads	
ASY55XBE-50	Model S55xBE viewing head installation.	Cable Assembly, 50 foot C330S with overmolded S55xBE connector. Includes 50 foot 4 conductor cable with foil/braid shield and coupling nut tied to shield. Use with Model S55xBE Viewing Heads	Model S55xBE Viewing Heads	
ASY55XBE-100	Model S55xBE viewing head installation	Cable Assembly, 100 foot C330S with overmolded S55xBE connector. Includes 200 foot 4 conductor cable with foil/braid shield and coupling nut tied to shield. Use with Model S55xBE Viewing Heads	Model S55xBE Viewing Heads	
ASY55XBE-200	Model S55xBE viewing head installation.	Cable Assembly, 200 foot C330S with overmolded S55xBE connector. Includes 200 foot 4 conductor cable with foil/braid shield and coupling nut tied to shield. Use with Model S55xBE Viewing Heads	Model S55xBE Viewing Heads	
ASY55XBE-300	Model S55xBE viewing head installation	Cable Assembly, 300 foot C330S with overmolded S55xBE connector. Includes 300 foot 4 conductor cable with foil/braid shield and coupling nut tied to shield. Use with Model S55xBE Viewing Heads	Model S55xBE Viewing Heads	
ASY785	Model S70x/S80x viewing head installation.	Cable Assembly, 50 foot C330S with pre-wired S70x/S80x connector. Includes 50 foot 4 conductor, 22g cable with drain, foil/braid shield and connector housing tied to shield. Use with Model S70x/S80x Viewing Heads	Model S70x/S80x Viewing Heads	
ASY785-200	Model S70x/S80x viewing head installation.	Cable Assembly, 200 foot C330S with pre-wired S70x/S80x connector. Includes 50 foot 4 conductor, 22g cable with drain, foil/braid shield and connector housing tied to shield. Used with Model S70x/S80x Viewing Heads	Model S70x/S80x Viewing Heads	
ASY786	Model S70x/S80x viewing head installation.	Field Wireable Shielded Connector for S70x/S80x Viewing Heads. Used with Model S70x/S80x Viewing Heads	Model S70x/S80x Viewing Heads	
ASYU2S	Cable for U2S Series	Factory molded cable 50 feet (15 m) long with 12 conductors	U2S models only	
ASYU2S-100	Cable for U2S Series	Factory molded cable 100 feet (30 m) long with 12 conductors	U2S models only	
ASYU2S-200	Cable for U2S Series	Factory molded cable 200 feet (60 m) long with 12 conductors	U2S models only	
ASYU2S-300	Cable for U2S Series	Factory molded cable 300 feet (90 m) long with 12 conductors	U2S models only	
C22S	Field extension cable for U2S	12 conductor cable with braided shield	U2S models only. Used with -pf models for cable extension.	
C330S	4 Conductor Cable with braided shield for S70x, S80x and S55xBE Viewing heads	4 Conductor Cable with braided shield	S550XBE, S70x/S80x, S256BE viewing heads	
C330S-0500	Full spool with 500' C330S cable	4 Conductor Cable with braided shield	S550XBE, S70x/S80x, S256BE viewing heads	
M3204	Vortex air cooler, model 3204.	Vortex air cooler, model 3204 -4SCFM (113SLPM) for maximum refrigeration 275 BTU/HR (69 Kcal/hr)	All cooling jackets	
M3208	Vortex air cooler, model 3208.	Vortex air cooler, model 3208 -8SCFM (227 SLPM) for maximum refrigeration 550 BTU/HR (139 Kcal/hr)	All cooling jackets	

# IFM Accessories

Material Number	Application	Description	Used With	
M-701-1	Swivel Mount	Swivel mount, 2 in. pipe slip-on to 1 in. NPT connection.	All viewing heads- S70x with DA-1	
M-701-2	Swivel Mount	Swivel Mount, 2" NPT to 1" NPT	All viewing heads- S70X with DA-1	
M-701-2-FLG	Flanged swivel mount	Flanged swivel mount, 2 in. flanged to 1 in. NPTF.	All viewing heads- S70X with DA-1	
M-701-2-SS	Swivel Mount	Swivel mount, 2 in. NPT female to 1 in. NPT female, Stainless steel construction.	All viewing heads- S70X with DA-1	
M-701-3	Flanged swivel mount	Flanged swivel mount, 3-bolt, 4.5 in. flanged to 1 in. NPTF.	All viewing heads- S70X with DA-1	
M-701-3P	Swivel Mount	Swivel mount, 3 in. NPTF to 1 in. NPTF connection.	All viewing heads- S70X with DA-1	
M-701-4	Swivel Mount	Swivel mount, 2-bolt to 1 in. NPTF connection.	All viewing heads- S70X with DA-1	
M-702-6	Orifice and retaining ring set.	Orifice and retaining ring set. Used for all viewing heads.	Used for all viewing heads.	

Material Number	Application	Description	Used With	
PT-GA1	High temperature gasket for 1 in. locking coupler.	High temperature gasket for 1 in. locking coupler.	1 in. locking coupler	
PT-QL1	Quartz lens for 1 in. locking coupler.	Quartz lens for 1 in. locking coupler.	1 in. locking coupler	
R-518-11	Model S55xBE viewing head installation.	S55xBE Field Wireable Cable with 6-8mm cable bushing for use with C330S cable. Includes Field wireable with proper bushing size to provide IP seal with C330S cable. No shield at connector, less robust version. Used with Model S55xBE Viewing Heads	Model S55xBE viewing head, and C330S cable.	
R-518-12	Heat Block-1" NPT	All viewing heads with 1" NPTF connection	All viewing heads with 1" NPTF connection	
R-518-13	Heat insulating nipple for S70X/S80X series viewing heads.	1/2 in. NPT Ultem heat insulating nipple for S70X/S80X series viewing heads.	S70X/S80X series viewing heads	
R-518-CL12-HTG	Locking coupler	1 in. NPT locking coupler with high temperature gasket. Must be used with R-518-PT12 or R-518-PT12L	All viewing head that has 1" NPTF	
R-518-CL12-PG	Locking quick disconnect/cam and groove coupler adapter	1 in. NPT aluminum locking quick disconnect/cam and groove coupler adapter with 1/2 in. NPT purge. Must be used with R-518-PT12 and R-518-PT12L	All viewing head that has 1" NPTF	
R-518-PT12	Insulating locking coupler adapter	1 in. NPT Ultem insulating locking coupler adapter. Used with U2S processor/viewing head.	1 in. NPT Ultem insulating locking coupler adapter use with R-518-CL12-HTG and R-518-CL12PG	
R-518-PT12L	Locking coupler adapter with quartz lens.	1 in. NPT Ultem locking coupler adapter with quartz lens.	1 in. NPT Ultem insulating locking coupler adapter with quartz lens for use with R-518-CL12-HTG and R-518-CL12PG	
R-518-PT13	Locking coupler adapter only.	1/2 in. NPT Ultem insulating locking coupler adapter use with R-518-CL12-HTG or R-518-CL12-PG		
R-518-PT13L	Locking coupler adapter with quartz lens.	1/2 in. NPT Ultem locking coupler adapter with quartz lens. Use with R-518-CL12-HTG or R-518-CL12-PG		

# Fiberoptic System

## Fiberoptic System



The Fiberoptic System is a configure to order item. Please contact Honeywell Customer Care at (765) 254-1041 for assistance with configuring and placing your order.

### Fiberoptics - FASA

5' to 20' fiber optics assembly for IR or UV flame detection, available in 1' increments. Outer carrier assembly for 3" schedule 40 threaded pipe stub w/ 1" NPT purge air inlet and 3' flexible section. Inner carrier assembly w/ quick-disconnect to outer carrier, 1/2" NPT purge air inlet and 3' flexible section. Adapter included for S55xBE/U2S, S70x or S80x viewing heads.

#### Configurable Options

- Application: IR (Glass), UV (Quartz)
- Lens Cartridge: Straight Connection, 9° Connection\*
- Fiber Optic Length (in feet): 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- Viewing Head: S55x/U2S, S70x, S80x
- Adapter Type: Aluminum Y Purge, Delrin Straight, Delrin Y Purge

Note: not all adapter types are available for all viewing heads.

\* 9° Connection only available for use in rigid assemblies by special order.

### Fiberoptics - FASA-INT

5' to 20' fiber optics assembly for IR or UV flame detection, available in 1' increments. Inner carrier assembly w/ quick-disconnect to outer carrier, 1/2" NPT purge air inlet and 3' flexible section. Adapter included for S55xBE/U2S, S70x or S80x viewing heads. Replacement fiber optic bundles also available (select "No" for Inner Assembly Required).

#### Configurable Options

- Application: IR (Glass), UV (Quartz)
- Inner Assembly Required: No, Yes
- Lens Cartridge: Straight Connection, 9° Connection\*
- Fiber Optic Length (in feet): 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- Viewing Head: S55x/U2S, S70x, S80x
- Adapter Type: Aluminum Y Purge, Delrin Straight, Delrin Y Purge

Note: not all adapter types are available for all viewing heads.

\* 9° Connection only available for use in rigid assemblies by special order.

Material Number	Application	Description	Used With	
FLEX-HOSE	Hose for fiber optics assembly.	1/2 in. NPT x 36 in. long flex hose for fiber optics assembly.		
FOLC-9C	Fiber optic lens cartridge and coupler	Fiber optic lens cartridge and coupler - 9 degree viewing angle	FASA and FASA-INT	
FOLC-HS	Replacement fiber optic lens cartridge mounting hood/lens housing	Replacement fiber optic lens cartridge mounting hood/lens housing with 1/2 inch NPT connection.		
FOLC-SC	Fiber optic lens cartridge and coupler	Fiber optic lens cartridge and coupler - straight connection.		

Material Number	Application	Description	Used With	
S550FOAD	Fiber optics adapter viewing head side	Fiber optics adapter for S55XB/S55XBE viewing head and U2S models.	S55XB/S55XBE viewing heads, and U2S models	
S550FOADY-FT	Fiber optics adapter	Fiber optics adapter with air purge connection for all viewing heads with 1" NPT connection	S55XB/S55XBE viewing heads, and U2S models	
S550FOADY-FT-AL	Fiber optics adapter	Fiber optics adapter with air purge connection for all viewing heads with 1" NPT connection	S55XB/S55XBE viewing heads, and U2S models	
S592-OR	Spare Parts for FOLC-SC and FOLC-9C	Metal O-Ring Spare Parts for FOLC-SC and FOLC-9C	FOLC-SC and FOLC-9C	
S592-PC	Spare Parts for FOLC-SC and FOLC-9C	Fiber assembly quartz lens (plano/convex) for FOLC-SC and FOLC-9C	FOLC-SC and FOLC-9C	
S592-PP	Spare Parts for FOLC-SC and FOLC-9C	Plano/Plano window For FOLC-SC and FOLC-9C	FOLC-SC and FOLC-9C	
S592-RR	Spare Parts for FOLC-SC and FOLC-9C	Retainer clip for FOLC-SC and FOLC-9C	FOLC-SC and FOLC-9C	
S700FOAD	Fiber optics adapter	Fiber optics adapter for S70X viewing heads.	Any 1/2" viewing head/FASA	
S800FOAD	Fiber optics adapter	Fiber optics adapter for S80X viewing heads.	S80X viewing heads	

## Fiberoptic System

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# General Information

## Approval Bodies

Most of the devices described in this catalog have been approved or listed by one or more of the approval bodies listed below.

### Underwriters Laboratories Inc.

Underwriters Laboratories Inc., is a Limited Liability Corporation (LLC) that examines and tests devices, systems and materials. Its membership represents a broad cross section of industry, education, and government.

Field inspectors for Underwriters Laboratories Inc., do not normally inspect equipment installed on job sites, but restrict their activities entirely to periodic inspections of products coming off manufacturers' assembly lines.

The three general categories of acceptance of a product by Underwriters Laboratories Inc., are:

1. Listing
2. Component Recognition
3. Classification

Listed devices are structurally and functionally complete and suitable for field installation.

Component Recognized devices are incomplete in some way that makes them unsuitable for general field installation. They are intended to be factory installed as part of some other piece of equipment.

Classified devices or products have been evaluated as to specific hazards only.

**Underwriters Laboratories of Canada** can also provide certification services to Canadian standards, which is displayed as a "c" adjacent to the UL mark (cUL).

### CSA - Canadian Standards Association

The Canadian Standards Association is a not-for-profit, membership-based, non-governmental organization which provides a national standardizing body for Canada.

The Canadian Standards Association Testing Laboratories, inaugurated in May 1940, is a division of the Canadian Standards Association, and is recognized as a testing and investigating agency by Inspection Authorities and by Fire Marshals and Fire Commissioners throughout Canada.

The Canadian Standards Association Laboratories test and examine electrical products submitted for approval in compliance with pertinent Canadian Standards Association codes and standards.

The Canadian Standards Association now includes International Approval Services (IAS).

CSA can also provide certification services to UL standards, which is indicated by a "US" adjacent to the CSA mark.

### International Approval Services—U.S.

IAS, now part of CSA and no longer known as IAS, is the testing organization of the American gas industry with laboratories in Cleveland, Ohio and Irvine, Calif. The CSA sponsors the American National Standards Institute Z21 and Z83 Committees on standards for gas-fired equipment.

Any manufacturer of gas appliances or gas appliance accessories may submit their products to the Laboratories and secure certification of their designs upon compliance with the appropriate national standards. Upon such compliance, the manufacturer is granted an Appliance Certificate or an Accessory Certificate and is permitted to display the trademarked Laboratories' Certification Seal or trademarked Laboratories' Certification Symbol on the appliance or accessory.

### International Approval Services—Canada

IAS, now part of CSA and no longer known as IAS, represents all segments of the Canadian gas industry, has been accredited by the Standards Council of Canada and the Standards Advisory Committee to prepare National Standards in the area of equipment for use with natural gas and propane. CSA has laboratories in Toronto, Canada.

Each standard is intended to be used within the scope of the standard by the manufacturing sector, those applying the equipment or those responsible for its application. It is the responsibility of the user to determine in each case that the standard is suitable for the application.

IAS operates a certification program for gas appliances, equipment, and accessories.

Canadian Gas Association (CGA), is now part of CSA and is no longer known as CGA, although some legacy products still may display the CGA mark.

American Gas Association (AGA) is also now part of CSA and is no longer known as AGA, although some legacy products still may display the AGA mark.

### Factory Mutual

Factory Mutual is an association of mutual insurance companies dedicated to loss prevention. Through its research arm, the Factory Mutual Research Corporation, it investigates means of preventing and minimizing fire and other losses. Factory Mutual Laboratories test and approve two broad categories of devices and materials:

1. Those used for the control or prevention of property damage.
2. Those that in themselves would present serious hazards if not properly designed.

Factory Mutual Acceptance refers to a specific installation or arrangement of equipment. Installations using approved devices, if found satisfactory following review of plans and inspection of completed work, are "accepted."

A continuing follow-up program is carried out through periodic plant inspections and reports of performance in actual use.

### CE Mark ("Conformité Européene" European Self-Certification mark)

CE marking is mandatory for products covered by one or more Directives or Regulations. The manufacturer must apply the CE mark and declare conformity to the applicable Directives or Regulations in order to bring a product on the market in the European Union.

Some of the Directives or Regulations (e.g. Gas Appliance Regulation) require third party testing by Notified Bodies, in which case a product surveillance contract with a Notified Body is also mandatory. Other Directives or Regulations can be satisfied by Declarations of Conformity provided by the manufacturer as a result of internal testing and documentation.

### C-Tick

The Australian C-Tick mark is intended for use on products that comply with EMC standards. The C-Tick mark is a certification trademark registered to the ACA by the Trademarks Office and is only to be used in accordance with conditions laid down by the ACA (Australian Communications Authority). The C-Tick mark is valid for both countries and may be applied by either a New Zealand supplier or an Australian supplier.

### AGA – Australia Gas Association

AGA reviews a product's CE Mark EMC report and/or Declarations and issues a certificate allowing import into Australia and New Zealand.

The approved product will bear the C-Tick mark with the assigned number of the importer.

# Reference Information

## Reference Information

### Date Code

A date code is stamped on each device to identify the date of manufacture.

Honeywell uses the industry standard date code system of a 4 digit code (YYWW). The first 2 digits represent the year the second 2 digits the week of the year. Example: 9752 is week 52 of 1997 and 2112 is week 12 of 2021.

### Horsepower Ratings

Ratings of Honeywell controls listed herein are in amperes, and correspond generally to the values for various horsepowers as shown in this chart. Full load ratings are taken from the National Electrical Code, 1978 edition; locked motor ratings are 6 times full load rating (ac) or 10 times full load rating (dc).

All motors do not necessarily come within the maximum ampere ratings shown in the table, and control devices must be used which have a rating equal to, or greater than, the actual motor running and starting currents.

Approximate Horsepower	120V		240V	
	Full Load	Locked Rotor	Full Load	Locked Rotor
1/6 ac dc	4.4 —	26.4 —	2.2 —	13.2 —
1/4 ac dc	5.8 3.1	34.8 31.0	2.9 1.6	17.4 16.0
1/3 ac dc	7.2 4.1	43.2 41.0	3.6 2.0	21.6 20.0
1/2 ac dc	9.8 5.4	58.8 54.0	4.9 2.7	29.4 27.0
3/4 ac dc	13.8 7.6	82.8 76.0	6.9 3.8	41.4 38.0
1 ac dc	16.0 9.5	96.0 95.0	8.0 4.7	48.0 47.0
1 to 1-1/2 ac	20.0 13.2	120.0 132.0	10.0 6.6	60.0 66.0
2 ac dc	24.0 17.0	144.0 170.0	12.0 8.5	72.0 85.0
3 ac dc	34.0 25.0	204.0 250.0	17.0 12.2	102.0 122.0

### Product literature

Visit [www.docuthek.com](http://www.docuthek.com) to see the full list of brochures, training booklets and other product information available for self-printing or delivery.

## NEMA Standard Classification Code for Flame Safeguard Enclosures

**NEMA 1**—General purpose. For indoor protection, where conditions are not unusually severe.

**NEMA 2**—Driptight. Designed to exclude falling moisture or dirt. Particularly applicable to cooling rooms, laundries, etc., where condensation is prevalent. For indoor use.

**NEMA 3**—Weather Resistant (weatherproof). For outdoor use; designed to withstand all normal exposure to natural elements. Controls mounted on pullout racks for easy access. With rain hood and weather seals.

**NEMA 4**—Watertight. Withstands water pressure from 1 in. hose nozzle, 65 gallons per minute, from distance of not less than 10 ft. for five minutes. Suitable for maritime applications, breweries, etc.

**NEMA 5**—Dust-tight. Equipped with dust-tight gaskets. Suitable for mills and other high-dust atmospheres.

**NEMA 6**—Submersible. For submerged operation under specified pressures and time.

**NEMA 7**—Hazardous Locations, National Electrical Code Class 1 (circuit breaks in air).

**NEMA 8**—Hazardous Locations, National Electrical Code Class 1 (circuit breaks immersed in oil).

**NEMA 9**—Hazardous Locations, National Electrical Code Class 2.

**NEMA 10**—Explosion-proof. Meets U.S. Bureau of Mines requirements for explosive atmospheres.

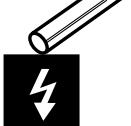
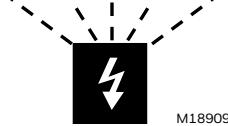
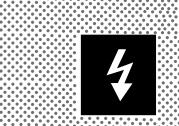
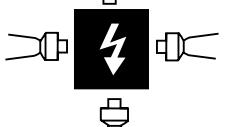
**NEMA 11**—Acid or Fume Resistant. Provides for immersion of enclosed equipment in oil.

**NEMA 12**—Industrial Use. Excludes oils, dust, moisture, to satisfy individual requirements.

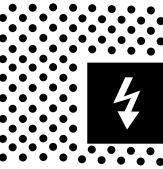
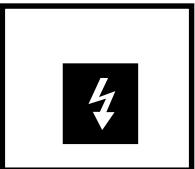
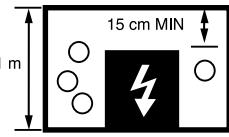
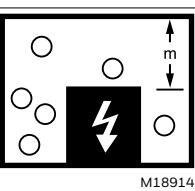
## IP Standard Classification

- The IP classification system is used to indicate the degree of protection provided by the housings of electrical products operating on low and middle voltages (up to 1000 V ~ and 1500 V =).

- A classification consists of the letters IP followed by two digits which indicate conformity with test conditions as defined in the table below.

First Digit		Second Digit			
Protection against Solid Objects		Protection against Water			
IP	Tests	IP	Tests		
0	 M18900	No special protection	0	 M18900	No special protection
1	 M18901	A large surface of the body, such as a hand (but no protection against deliberate access). Solid objects exceeding 50 mm in diameter.	1	 M18907	Dripping water (vertically falling drops) shall have no harmful effect.
2	 M18902	Fingers or similar objects not exceeding 80 mm in length. Solid objects exceeding 12 mm in diameter.	2	 M18908	Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15° from its normal position.
3	 M18903	Tools, wires etc., of diameter or thickness greater than 2.5 mm. Solid objects exceeding 2.5 mm in diameter.	3	 M18909	Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect.
4	 M18904	Wires or strips of thickness greater than 1.0 mm. Solid objects exceeding 1.0 mm in diameter.	4	 M18910	Water splashed against the enclosure from any direction shall have no harmful effect.
5	 M18905	Ingress of dust is not totally prevented by dust does not enter in sufficient quantity to interfere with satisfactory operation of the equipment.	5	 M18911	Water projected by a nozzle against the enclosure from any direction shall have no harmful effect.

# Reference Information

First Digit		Second Digit	
Protection against Solid Objects		Protection against Water	
IP	Tests	IP	Tests
6	 M18906	6	 M18912
	No ingress of dust	7	 M18913
		8	 M18914
			Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities.  Ingress of water in a harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time.  The equipment is suitable for continuous submersion in water under conditions which shall be specified by the manufacturer. NOTE: Normally, this will mean that the equipment is hermetically sealed. However with certain types of equipment it can mean that water can enter but only in such a manner that it produces no harmful effects.

## Conversion of Pressure Units

(Convert by multiplying value in known pressure units by factor listed under required pressure unit.)  
see [www.adlatus.org](http://www.adlatus.org)

Known Pressure Unit	Required Pressure Unit								
	Kilo-pascals	Pounds per sq in.	Ounces per sq in.	Millimeters of Mercury	Kilograms per sq cm	Inches of Water	Inches of Mercury	Feet of Water	Centimeters of Water
Centimeters of Water	0.0981	0.0142	0.227	0.735	0.000999	0.394	0.0289	0.0328	—
Feet of Water	2.99	0.433	6.94	22.4	0.0305	12.0	0.883	—	30.5
Inches of Mercury	3.39	0.491	7.86	25.4	0.0345	13.6	—	1.13	34.6
Inches of Water	0.249	0.0361	0.578	1.87	0.00254	—	0.0735	0.0833	2.54
Kilograms per sq cm	98.1	14.2	228.0	735.0	—	394.0	29.0	32.8	1000.0
Millimeters of Mercury	0.133	0.0193	0.308	—	0.00136	0.535	0.0394	0.0446	1.36
Ounces per sq in.	0.431	0.0625	—	8.24	0.00439	1.73	0.128	0.144	4.40
Pounds per sq in.	6.89	—	16.0	51.7	0.0703	27.7	2.04	2.31	70.4
Kilo-pascals	—	0.145	2.32	7.52	0.010	4.02	0.295	0.334	10.2

Absolute Pressure = Gauge Pressure +14.74 psi.

## Capacities

Most gas capacities listed in this catalog are stated for natural gas, based on 1,000 Btu per cu ft, 0.64 sp. gr. nat. gas, at a pressure drop of 1.0 in. w.c. (37.3 MJ/m<sup>3</sup>, 0.64 sp. gr. at a pressure drop of 0.25 kPa).

To calculate the Btu/h capacity for other gases, multiply the listed Btu/h capacity by the conversion factor.

Total Heating Value for Gas X		At sp. gr.	Conversion Factor (multiply)
Btu/cu ft	MJ/m <sup>3</sup>		
500 to 800	18.7 to 29.8	0.60	0.516 <sup>a</sup>
800 to 950	29.8 to 35.4	0.70	0.765 <sup>a</sup>
2500	93.3	1.53 (LP gas)	1.62

<sup>a</sup> Nominal conversion factor for range of total heat value.

For gases not listed in table, use one of the following formulas:

$$\left( \frac{\text{Btu/h Capacity}}{(0.64 \text{ sp. gr.})} \right) \left( \sqrt{\frac{0.64}{\text{sp. gr. gas X}}} \right) \left( \frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas X)}}{1000 \text{ Btu/cu ft (37.3 MJ/m}^3)} \right) = \frac{\text{Btu/h Capacity}}{\text{gas X}}$$

or

$$\left( \frac{\text{Btu/h Capacity}}{(\text{gas A})} \right) \left( \sqrt{\frac{\text{sp. gr. gas A}}{\text{sp. gr. gas B}}} \right) \left( \frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas B)}}{\text{Btu/cu ft (MJ/m}^3 \text{ gas A)}} \right) = \frac{\text{Btu/h Capacity}}{\text{gas B}}$$

M18317

**Power & Heat**

1 Btu	776 ft-lb 0.293 Watt-hr 252 cal
1 cal	0.003968 Btu 0.0011619 Watt-hr
1 Btu/h	0.293 Watt 4.2 cal/min
1 Watt	3.413 Btu/h
1 Watt-hr	3.413 Btu
1 kW (1000 Watts)	3413 Btu/h
1 kW-hr	3413 Btu
1 hp	0.746 kW 2544.65 Btu/h 33,000 ft-lb./min
1 Bop <sup>a</sup>	9.809 kW 33,479 Btu/h 34.5 lb of steam per hour

<sup>a</sup> Boiler Output Horsepower is the equivalent of the heat required to evaporate 34.5 lb of water per hour into dry, saturated steam at 212°F.

**Btu Contents of Fuels**

Grade or Type	Unit	Btu
No. 1 Oil	Gallon	137,400
No. 2 Oil	Gallon	139,600
No. 3 Oil	Gallon	141,800
No. 4 Oil	Gallon	145,100
No. 5 Oil	Gallon	148,800
No. 6 Oil	Gallon	152,400
Nat. Gas	cu ft	950 to 1,150
Propane	cu ft	2,550
Butane	cu ft	3,200

**Commercial/Industrial Combustion Conversion Factors**

Simplified method of determining combustion air required to completely burn a given amount of fuel.

$$\text{Cf/h Air} = \frac{\text{Btu/hr input}}{100}$$

M18318

To correct gas volume from one set of conditions to another.

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

P = Absolute pressure.

= 14.7 + gauge psi.

T = Absolute temperature in -R = 460.

V = Volume in any consistent terms.

Normally useful for determining standard cubic feet of fuel consumed when metering pressure is other than standard; e.g., gas passing through a volumetric gas meter at 5 psig. (The heating value of fuel gases is based on Btu/cf at standard gas conditions.)

Turndown ratio of fixed area burner.

$$\text{T.D.} = \sqrt{\frac{\text{Maximum Pressure Drop across Burner}}{\text{Minimum Pressure Drop across Burner}}} = \frac{\text{Maximum Firing Rate}}{\text{Minimum Firing Rate}}$$

M18319

Where pressure drops are expressed in the same units.

**Relationship between flow capacity at a specified pressure drop and C<sub>v</sub> factor.**

C<sub>v</sub> = Flow Factor. Defined as the amount of water at 60°F in gallons per minute which will flow through a valve in the open position with a pressure drop through the valve of 1 pound per square inch.

For capacity conversion to gases the following may be used for pressure ratios less than critical ratios.

$$Q = 1360 C_v \sqrt{\frac{(P_1 - P_2) P_2}{GT}}$$

M18320

Q = Standard cubic feet per hour at 14.7 psia and 60°F.

P<sub>1</sub> = Inlet pressure, psia.

P<sub>2</sub> = Outlet pressure, psia.

T = Absolute temperature in -R = -F+460.

G = Specific gravity of the gas.

# Buying Rebuilt? Proceed with CAUTION

## Buying Rebuilt? Proceed with CAUTION

We would like to address a subject that is a concern to all of us—safety—specifically burner and boiler safety controls.

As an industry leader in the manufacture of Flame Safeguard controls, Honeywell feels obligated to inform you of the difference between Honeywell controls and controls repaired by an independent rebuilder.

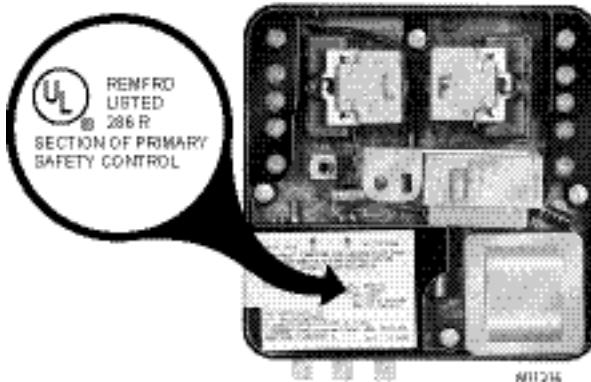
There are a number of standards and codes for burners and boilers and the controls for burner and boiler equipment. Among the most familiar are those established by Underwriters Laboratories Inc. (U.L.). The U.L. standards are often the basis used for local, city, state, insurance, and other codes. Chances are that when a burner or boiler was originally purchased, it met the U.L. standard in effect at the time.

When controls fail, they are replaced with new controls or repaired controls. There are potential safety concerns regarding controls repaired by an independent rebuilder.

1. The controls purchased from independent rebuilders may utilize parts from old controls or other parts that may not meet approved specifications required for safety.
2. Honeywell remanufactured controls were upgraded to the latest code revisions and engineering specifications. Independently rebuilt controls typically are not.
3. Honeywell new and remanufactured Flame Safeguard controls are U.L. Listed or Component Recognized. Independently rebuilt controls are not. Do not be misled by rebuilders who do not remove the original U.L. or other listing identification when they "repair" the control.
4. Since rebuilt controls are not approved by a nationally recognized testing agency, they do not meet CSD-1, the standard adopted by many states and municipalities. Therefore, equipment with rebuilt controls does not meet code in these locations. This could leave you without insurance should the rebuilt control fail and cause damage.
5. When parts meeting Honeywell specifications and quality standards became difficult to obtain, we discontinued the remanufacture of Flame Safeguard controls. For replacement purposes, Honeywell provides a new control, often through a replacement exchange program. Independent Rebuilders, however, frequently continue to repair these controls.

The products in this catalog are protected by U.S. and foreign patents. Illustrations and product descriptions published in this catalog are not binding in detail. To determine the suitability of a product for a specific application, the customer should consult the product data sheets provided with the product, or contact Honeywell directly. In keeping with its policy of continued improvement, Honeywell reserves the right to change or modify design or specifications of products without notice or obligation.

Although we no longer remanufacture Flame Safeguard controls, there are many Honeywell remanufactured controls still operating safely and reliably. How do you differentiate genuine Honeywell remanufactured controls from independent rebuilt controls? How do you recognize an independently rebuilt control? Typically, it has all of the approval body designators removed. A rebuilder will often put his own label on the device, but this label may be removed later; therefore, a rebuilt control can be difficult to identify. The only way to be sure you have a Honeywell remanufactured control is if it is stamped "REMFRD" or "REMFRD Listed" near the U.L. or Component Recognized symbol, and if the letter "R" follows the date code (e.g., 8850R) or the serial number (e.g., S/N8906Q018R).



Honeywell Flame Safeguard controls are specifically designed to supervise the safe operation of a boiler. Therefore, safety is involved. If you have any doubts that you have a genuine, Honeywell device, please call the nearest Honeywell Home and Building Control Representative or Authorized Honeywell Flame Safeguard Distributor for verification and to discuss your options.

If you have any other questions about rebuilt controls, please contact your Honeywell sales representative.

## Lab Trainers

A lab trainer requires the student to actually perform point-to-point wiring to achieve a properly functioned control system.

### Demonstrators

#### Flame Safeguard Trainer



The DSP3452 is designed for training and demonstration of Honeywell Burner and Boiler Controls with auxiliary devices that are typically used with commercial and industrial burners. It demonstrates the wiring and operation of primary safety controls. The nine trouble switches simulate a range of faults from a burned out pilot valve to a faulty flame detector to an inoperative firing rate motor.

**DSP3452**

#### SOLA Demonstrator



The DSP3943 is used as a SOLA commissioning or monitoring tool when a System or Local Operator Interface is not required for operation. The DSP contains the S7999B1026 touchscreen display which uses a wizard-like process to assist you through the commissioning process.

**DSP3943/U**

#### SOLA Demonstrator



The DSP3980 contains an S7999D1006 Touchscreen Display to commission or monitor the SOLA system when a System or Local Operator Interface is not required for operation. The DSP3980 includes the power supply for operation and cable with connector for the SOLA system. A USB storage drive is provided to save display screen snapshots or trending information.

**DSP3980/U**

#### Burner and Boiler Controls Demonstrator Instructors Manual



This Manual is the Instructor's version of the Operating Training Board Exercises for the DSP3472. Orderable in packs of 25 from: <http://literature.honeywell.com/>

**71-97117**

#### Burner and Boiler Controls Demonstrator Student Workbook



This Manual contains the Operating Training Board Exercises for the student for the DSP3472. Orderable in packs of 25 from: <http://literature.honeywell.com/>

**71-97116**

#### Standard IFM demo case



The demo case consists of 700ACSP Signal Processor, P532AC Signal Processor, P522AC Signal Processor, S550BE Viewing Head, S806 Viewing Head (includes 15 ft. assembly), ASY55XBE (Display Arts will cut to 15' length), ASY785 (Display Arts will cut to 15' length), R-518-12 Ultem heat insulating nipple and documentation

**DSP3992/U**

#### WATCHDOG IFM Demo Case



WATCHDOGGIIIBE Kit includes: P222 processor, S256BE Viewing Head, ASY55XBE 50' cable (Display Arts will cut to 15'), Display Arts and documentation

**DSP3993/U**

#### U2 IFM Demo Case



The Demo Case includes: U2-1010S, ASYU2S (Display Arts will cut to 15'), R-518-CL12-PG – Purged 1" NPT Aluminum Locking PT Coupler Adapter, R-518-PT12 – 1" NPT Ultem Nipple, Display Arts and documentation

**DSP3994/U**

## Lab Trainers



### UV Light and Accessories Demo Case

The Demo Case includes: ISO/UNIT SS - 1" NPT High Pressure Air Purge Quartz Isolation Unit - Stainless, M-701-2 SS - 2" Pipe Thread Swivel Mount - Stainless, Display Arts and documentation

**DSP3995/U**



### SLATE Demo Kit

Demo case including SLATE modules, display and program

**DSP3983/U**

# Ordering Information for Training Materials

## Ordering Information for Training Materials

### Order online

You can order online at <http://customer.honeywell.com>

If you are already a Honeywell customer, please login with your name and password. You can then go to the quick order form and fill it out to place your order.

Some products are available through the Print-On-Demand site at <http://Literature.honeywell.com>

### Shipping

All U.S. orders for training materials are shipped freight collect, UPS ground. Please pay with a credit card and the charges will be added to your total.

### Expedited Orders

When requested, we will expedite an order and ship by air, but you must pay by credit card and you will be billed for the shipping costs.

### International Orders

International orders *MUST* be placed through your local Honeywell subsidiary. They can advise you on ordering and shipping procedures. We cannot accept or ship international orders.

### Returns

Returned items are accepted within four months of purchase. There are no cash refunds, and a \$30 restocking fee *per item* will be deducted from your credit. You are responsible for return shipping costs. The address for returns is printed on the bill of lading. Please call or fax in advance of your return and provide a list of the items that you are returning and a reason as to why you are returning them.

### Form of Payment

For online orders, payment must be made by VISA, MasterCard, or American Express card or a company purchase order.

### Inquiries

If it is necessary to contact us regarding your order, please provide the following information:

The date the order was placed, your account number, the web order number (found on the order confirmation) and the reference number.

Contact us at:

	Phone	Customer Service Email	Fax	Quotes and Orders Email
Trade	800.475.7515	cbordermanagementustrade@honeywell.com	844.621.7870	ACSUTradeOrdersandQuotesOnly@Honeywell.com
OEM	800.475.7515	cbordermanagementusoe@honeywell.com	844.621.7870	ACSU OEM Orders and Quotes Only@Honeywell.com
Canada	800.475.7515	cbordermanagementcanada@honeywell.com	844.621.7870	ACSCanadaOrdersandQuotesOnly@Honeywell.com

**Note: Please allow 1 to 2 weeks to process and fill your order.**

## Terms and Conditions

Honeywell's standard terms and conditions are located at:

<https://customer.honeywell.com/en-US/pages/honectermsconditions.aspx>

<https://customer.honeywell.com/fr-CA/pages/honectermsconditions.aspx>