

Relay Module	RM7838B1021 RM7838C1012	RM7890A1056 RM7890B1048	RM7897A1002 RM7897C1000	RM7898A1000 RM7898A1018	RM7840G1022	RM7840L1075 RM7800L1087
Feature	Semi-Auto Industrial Programmer	On/Off Primary Atmospheric Burners	On/Off Primary	On/Off Primary with VPS	Programmer	Programmer
1 Million Cycles History	•	•	•	•	•	•
1 Million Hours History	•	•	•	•	•	•
Blinking LED Fault Codes	•	•	•	•	•	•
Valve Proving System	Default=Never	Default=Never		Default=Never	Default=Never	Default=Never
Prepurge (using ST7800 card)	•		•	•	•	•
Programmable Postpurge	Default=Never		Default=Never	Default=Never	Default=15 Seconds	Default=15 Seconds
Start-Up Interlock Check (Dynamic Airflow Switch)			Selectable	Selectable	Selectable	Selectable
Preignition Interlock	•	•	•	•	•	•
Lockout Interlock	•		Selectable	Selectable		•
Running Interlock			Selectable	Selectable	•	
High Fire Interlock	•					•
Low Fire Interlock	•				•	•
Modulation	•				•	•
Early Spark Termination	•			A1018 only	•	•
Intermittent Pilot	•	•	RM7897A only	•	•	
Interrupted Pilot	Selectable	Selectable	Selectable	Selectable	Selectable	Selectable
Run Test Switch (for interrupted pilot setup)	•	•	•	•	•	•
Delayed Main Valve			RM7897C only			
Gas Direct Spark Ignition with VPS Enabled				Selectable	Selectable	Selectable
Relight or Lockout upon Main Flame Failure Action	Lockout	Selectable	Selectable	Selectable	Lockout	Lockout
Shutter Check	•	RM7890B only	•	•	•	•
Keyboard Display Module	•					RM7800 only

Application Note:

The Honeywell VPS programmable control function is only suitable for natural gas or liquid propane burner applications. While the Honeywell 7800 Series of integrated burner controls can be used on gas, propane, oil or combination fuel single burners, the VPS function is not intended for use in oil or burner applications other than natural gas or liquid propane and must be set to ‘Never’.

To Learn More

For more information please contact your Honeywell Distributor. Or visit <http://customer.honeywell.com>.

Automation and Control Solutions

In the U.S.:
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422-3992

In Canada:
Honeywell Limited
35 Dynamic Drive
Toronto, Ontario M1V 4Z9
www.honeywell.com

63-7525
October 2011
© 2011 Honeywell International Inc.



Enhanced 7800 SERIES



Reliable. Safe. Flexible.

Enhanced Capability in the Familiar Blue Package

The Enhanced 7800 SERIES combines enhanced safety, comprehensive diagnostics, communications and networking capabilities into one compact and affordable microcomputer control. The 7800 Series works on a wide range of applications including burners, boilers, oil, or combination fuel applications, furnaces, packaged rooftop units, oven, kilns, water heaters, and more.



Typical Applications:



Industrial -

Semi-Auto Industrial Programmer

RM7838B1021 and RM7838C1012 — Industrial Process semi-automatically fired gas, oil, coal or combination fuel single burner applications. Examples include: automotive paint booths and VOC burn-off, smelting, kilns, ceramics, driers, or any application where semi-automatic process control is desired.

On/Off primary Atmospheric Burners

RM7890A1056 and RM7890B1048 — On/Off Primary control for atmospheric automatically fired, gas, oil, or combination fuel single burner applications.



Commercial/Industrial -

Programmer

RM7840G1022 — Programmer control for automatically fired gas, oil, or combination fuel modulating power burner applications; where prepurge with preignition and running interlocks along with low fire proven ignition start are desirable. Includes post purge and valve proving functions.

RM7840L1075/RM7800L1087 — Programmer control for automatically fired gas, oil, or combination fuel modulating power burners. Used in applications where high fire prepurge with preignition, lockout interlocks, and low fire proven ignition start are desirable. Includes programmable postpurge and valve proving functions. RM7800L187 model comes with display.

On/Off Primary

RM7897A1002 and RM7897C1000 — Burner control for automatically fired gas, oil, or combination fuel on/off power burner applications requiring prepurge and proof of closure. Selectable running or lockout interlock, recycle on lockout on flame failure with optional postpurge. RM7897C1000 models has delayed (2nd stage) main valve for 2 stage firing.

On/Off Primary with VPS

RM7898A1000 and RM7898A1018 — On/Off primary control for automatically fired gas, oil, or combination fuel single on/off power burner applications where prepurge and proof of closure are desirable. Selectable running or lockout interlock, recycle or lockout on flame failure with programmable post purge and valve proving functions.

What is the Enhanced 7800 SERIES?

The Enhanced 7800 SERIES offers the functionality and safety known in our 7800 burner controls but now with more enhanced capabilities in safety, diagnostics, and communication. Plus, the Enhanced Series has the added capability of Honeywell's Valve Proving Systems(VPS).

Enhanced 7800 Series Features	
• Valve Proving Feature, Selectable To Occur at 5 Different Times	• 5 LEDs Provide Sequence Information; Power/Pilot/Flame/Main/Alarm
• Fault Code Annunciation via Power LED (20 Possible Codes)	• Shutter Drive Output for Dynamic Self-Checking UV Flame Detectors (except RM7890A)
• Selectable Relight or Lockout Action upon Flame Failure	• Compatible with Existing Honeywell Flame Detectors and
• Selectable Pilot Flame Establishing Period (PFEP)	• Interchangeable 7800 Series Plug-in Amplifiers
• Selectable Intermittent or Interrupted Pilot Valve	• 1,000,000 Total Cycles and Total Hours History
• Preignition Interlock (Proof of Closure Switch)	

What is Valve Proving?

Valve Proving System (VPS) provides an automatic means of testing valve seat integrity of a double valve series arrangement. VPS verifies the effective closure of automatic safety shut-off valves each burner cycle. When a failing valve is detected, the VPS will go into automatic lockout status, generating alarm while preventing burner start-up, thereby avoiding a potentially unsafe condition. Honeywell's VPS is designed to detect a leak greater than 0.1% of the burner input capacity.

VPS programming is integral to the device; meaning a separate module is not required to accomplish VPS, saving you time and money. VPS may be scheduled to occur at one of five different intervals; Never, Before, After, Both or Split, providing maximum user fallibility. Activation of VPS logic is accomplished through user set-up (optional enhanced S7800A1142 keyboard display required). Please refer to installation instructions for more details.

Why Valve Proving Is Desirable	
• Safety	Each burner cycle tests to identify a failing valve, avoiding a potentially unsafe condition.
• Installation Cost	Eliminates installation and maintenance costs associated with vent valves and piping from a traditional double block and bleed system (where regulations permit).
• Utility Cost	Cost of natural gas escaping from a leaky or stuck open vent valve during burner firing.
• Reduced Emissions	Reduces natural gas escaping from a leaky or stuck open vent valve during burner firing.



Enhanced Capability and Flexibility

Flexibility in VPS set-up and use allows multiple uses for a single control, including replacing several legacy devices with minimal or no modifications. Additionally, with VPS, a vent valve is not required for a double block system, and thus reduces installation costs. VPS meets NFPA 85/86 and UL795 as an equivalent level of safety to a vent valve in a traditional double block and bleed system (where regulations permit). Control enhancements include increasing history files for total cycles and hours to 1,000,000 while adding a preignition interlock and LED fault code (blinkum) annunciation on safety shutdown, with 20 possible codes.

Product Number	Condensed Specifications																
	Application	Flame Establishing Period-Pilot	Flame Establishing Period-Main	Interlocks	Flame Failure Action	Early Spark Termination	Prepurge	Postpurge	Valve Proving System	Required Components	Voltage	Frequency	Vibration	Ambient Temperature Range	Dimensions (inches)	Dimensions (mm)	Approvals
RM7890A1056/B1048	On/Off Primary Control with VPS for Atmospheric Burners	Selectable 10 seconds or 4 seconds via JR1.	Selectable Intermittent or 10 second Interrupted via JR3	Preignition (Proof of Closure Switch)	Selectable Relight or Lockout via JR2 (during burner run only)	None	None	None	Yes. Selectable to occur at 5 different times. Default 'Never'. Detects leaks >0.1% of burner input capacity.	Q7800A,B Universal Wiring Subbasses. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier.	120 Vac (+10%, -15%)	50 Hz; 60Hz (±10%)	0.5 G	-40° F to +140° F (-40° C to +60° C)	5" W x 5" H x 5 1/4" D with Q7800A, B Subbase (x 6 3/32" D with Q7800B1011 Subbase)	127mm W x 127mm H x 133mm D with Q7800A, B Subbase (155mm D with Q7800B1011 Subbase)	UL Listed (file no. MP268; guide no. MCCZ), CSA (Pending), FCC (Part 15,Class B,Emissions)
RM7838B1021/C1012	Semi-Automatic Industrial Programmer with VPS		Selectable Intermittent or 10 second Interrupted via JR2 (15 seconds on 7838C)	Lockout, Preignition (Proof of Closure Switch), High Fire and Low Fire.	Lockout	Yes, 5 seconds	Yes. Determined by chosen ST7800A/C Purge Timer Card (2 sec to 45 min)	Yes. Default 0, Programmable 0–600 seconds or 10–60 minutes. Programmed via S7800A1142 display (included with control). Pass code protected feature.		Q7800A,B Universal Wiring Subbasses. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier. ST7800A/C Plug-in Purge Timer Card.							UL Listed (file no. MP268; guide no. MCCZ), CSA (Pending), FCC (Part 15,Class B,Emissions), Swiss Re Acceptable, FM
RM7898A1000/A1018	On/Off Primary Control With VPS & Programmable Postpurge for Power Burners		Selectable Intermittent or 10 second Interrupted via terminals 8 and 19	Preignition (Proof of Closure Switch) and Recycle/ Lockout (Selectable via JR3)	Selectable Recycle or Lockout via JR2 (during burner run only)	Yes, Ignition shuts off when flame is sensed (RM7898A1018 only).	Yes. Determined by chosen ST7800A Purge Timer Card (2 sec to 30 min)	Yes. Default 0, Programmable 0–600 seconds or 10–60 minutes. Programmed via optional S7800A1142 display. Pass code protected feature.		Q7800A,B Universal Wiring Subbasses. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card. Q7800A,B Universal.							UL Listed (file no. MP268; guide no. MCCZ), CSA (Pending), FCC (Part 15,Class B,Emissions), Swiss Re Acceptable, FM
RM7840G1022	Programmer Control with VPS & Programmable Postpurge for Power Burners		Intermittent or 10/15/30 second Interrupted via JR2 & Terminals 8 or 21	Running, Preignition (Proof of Closure Switch), and Low Fire.	Lockout	Yes, 5 seconds	Yes. Determined by chosen ST7800A Purge Timer Card (2 sec to 30 min)	Yes. Default 15 seconds, Programmable 0–600 seconds or 10–60 minutes. Programmed via optional S7800A1142 display. Pass code protected feature.		Q7800A,B Universal Wiring Subbasses. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.							UL Listed (file no. MP268; guide no. MCCZ), CSA, FCC (Part 15, Class B,Emissions), Swiss Re Acceptable, FM
RM7840L1075/ RM7800L1087	Programmer Control with VPS & Programmable Postpurge for Power Burners		10 or 15 seconds Interrupted via Terminals 8 or 21	Lockout, Preignition (Proof of Closure Switch), High Fire and Low Fire.	Lockout	Yes, 5 seconds	Yes. Determined by chosen ST7800A Purge Timer Card (2 sec to 30 min)	Yes. Default 15 seconds, Programmable 0–600 seconds or 10–60 minutes. Programmed via S7800A1142 display (included with RM7800L control). Pass code protected feature.		Q7800A,B Universal Wiring Subbasses. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.							UL Listed (file no. MP268; guide no. MCCZ), CSA, FCC (Part 15, Class B,Emissions), Swiss Re Acceptable, FM
RM7897A1002/C1000	On/Off Primary Control With Programmable Postpurge for Power Burners		Selectable Intermittent or 10 second Interrupted via terminals 8 and 21 (A only) 10 second Interrupted (C only)	Preignition (Proof of Closure Switch) and Recycle/ Lockout (Selectable via JR3)	Selectable Recycle or Lockout via JR2 (during burner run only)	None	Yes. Determined by chosen ST7800A Purge Timer Card(2 sec to 30 min)	Yes. Default 0, Programmable 0–600 seconds or 10–60 minutes. Programmed via S7800A1142 display (included with control). Pass code protected feature.	None	Q7800A,B Universal Wiring Subbases. R7847, R7849, R7851, R7852, R7861 or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.							UL Listed (file no. MP268; guide no. MCCZ), CSA, FCC (Part 15, Class B Emissions), Swiss Re Acceptable, FM

Enhanced 7800 SERIES: The Smart Choice.
Intelligent and Reliable Control any way you want it.



Options	
Several options are available to further enhance the Honeywell flame safeguard family. Please refer to the applicable document for further information.	
• 66-1150, 66-7890 • 66-1162: RM7800L; RM7840G, L, • 66-1152: R7838B, C • 66-1151: RM7897 • 66-1161: RM7898	Installation Instructions
• 65-0288	S7800A1142 Keyboard Display Module Product Data
• 65-0109	Amplifiers for 7800 Series Relay Modules Product Data
• 65-0084	Q7800A/B Universal Subbase Product Data
• Download from:	customer.honeywell.com