RM7840G1022
Commercial/Industrial Combustion Controls

Reliable. Safe. Flexible.

Honeywell

RM7840G1022 Integrated Burner Control:
Enhanced Capability in the Familiar Blue Package

Typical Applications

Programmer control for automatically fired gas, oil or combination fuel single power burner applications where pre purge and proof of closure are desirable with pre ignition and running interlocks and Low Fire Proven Purge. Programmable post purge and valve proving functions. Control has a shutter drive for dynamic self-check ultraviolet flame detector applications.

Product Overview

Microprocessor-based Programmer, Valve Proving Sequence and Valve Proving Demand Input, Programmable Post Purge, Pre Purge, Visual LED Fault Code (Blinkum) annunciation, Pre Ignition Interlock Input (Proof of Closure Switch), Modulated Low Fire Proven Purge, Selectable Pilot Flame Establishing Period, Intermittent or Interrupted Pilot Valve, Gas DSI Input, Run/Test Switch, 120Vac, 50/60Hz. For a complete system, relay module requires wiring subbase, plug-in flame signal amplifier and plug-in purge timer card. Six historical fault files and self diagnostic information.

Key Features
• Valve Proving Feature, Selectable To Occur at 5 Different Times
• Valve Proving Demand Selectable Input
• Post Purge Programmable between 0–600 seconds or 10–60 minutes
• Fault Code Annunciation via Power LED (20 Possible Codes)
• Selectable Pilot Flame Establishing Period (PFEP) with Selectable Intermittent/Interrupted Pilot Valve
• 5 LEDs Provide Sequence Information; Power/Pilot/Flame/Main/Alarm
• Modulated Low Fire Proven Purge, Pre ignition and Running Interlocks
• Selectable Gas Direct Spark Ignition
• Shutter Drive Output for Dynamic Self-Checking UV Flame Detectors
• Compatible with Existing Honeywell 7800 Series Flame Detectors, Amplifiers and Pre Purge Cards
• 1,000,000 Total Cycles and Total Hours History

Enhanced Capability and Flexibility

The self-checking valve proving system (VPS) verifies the effective closure of automatic safety shut-off valves. When a failing valve is detected, the VPS will go into automatic lockout status, generating an alarm while preventing burner start-up, thereby avoiding a potentially unsafe condition. VPS programming is integral to the device; meaning a separate module is not required to accomplish VPS — saving you time and money. Device VPS default is 'Never', meaning valve proving does not occur. Activation of the VPS logic as well as the programmable post purge is accomplished through user set-up (optional enhanced S7800A1142 keyboard display required). Flexibility in VPS set-up and post purge 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. Further, VPS is accepted by NFPA 85/86 and UL795 (pending) as an equivalent level of safety to a vent valve in a traditional double block and bleed system (where regulations permit). Further control enhancements include increasing history files for total cycles and hours to 1,000,000 while adding a LED fault code (blinkum) annunciation on safety shutdown, with 20 possible codes. The optional S7800A1142 enhanced keyboard display module allows for programming the VPS and post purge as well as configuring of S7830 expanded annunciator terminals to match user system drawings, providing a valuable troubleshooting aid. A "Call Service" business card alpha/numeric feature, which is pass code protected, was added as well.

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.

What is Valve Proving?

VPS provides an automatic means of testing valve seat integrity of a double valve series arrangement. The test occurs each burner cycle during Pre Purge, Post Purge and/or Standby, depending on the control and the user selected interval schedule. Providing maximum user flexibility, VPS may be scheduled to occur at one of five different intervals; Never, Before, After, Both or Split. Refer to the Installation Instructions for further detail. Honeywell's VPS process consists of systematically sequencing first the downstream main safety shut-off valve (MV2) and then the upstream main safety shut-off valve (MV1), and monitoring reaction of the pressure switch, which is located between them. System Lockout and Alarm occurs if either valve fails its pressure monitoring sequence, preventing burner start-up. Honeywell's VPS is designed to detect a leak greater than 0.1% of the burner input capacity.

Condensed Specifications

• Application	Programmer Control with VPS & Programmable Post Purge for Power Burners
• Flame Establishing Period-Pilot	Selectable 10 seconds or 4 seconds via JR1.
• Flame Establishing Period-Main	Intermittent or 10/15/30 second Interrupted via JR2 & Terminals 8 or 21
• Interlocks	Running, Pre Ignition (Proof of Closure Switch), and Low Fire.
• Flame Failure Action	Lockout
• Early Spark Termination	Yes, 5 seconds.
• Pre Ignition	Yes.
• Pre Purge	Yes. Determined by chosen ST7800A Purge Timer Card (2 sec to 45 min)
• Post Purge	Yes. Default 15 seconds, Programmable 0–600 seconds or 10–60 minutes. Programmed via optional S7800A1142 display. Pass code protected feature.
• Valve Proving System	Yes. Selectable to occur at 5 different times. Default 'Never'. Detects leaks >0.1% of burner input capacity. Programmed via optional S7800A1142 display. Pass code protected feature.
• Required Components	Q7800A,B Universal Wiring Subbasses. R7847, R7848, R7849, R7851, R7861 or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.
• Voltage	120 Vac (+10%, -15%)
• Frequency	50 Hz; 60Hz (±10%)
• Vibration	0.5 G environment
• Ambient Temperature Range	-40˚ F to +140˚ F (-40˚ C to +60˚ C)
• Dimensions (inches)	5" W x 5" H x 5 1/4" D with Q7800A Subbase (x 6 3/32" D with Q7800B Subbase)
• Dimensions (mm)	127mm W x 127mm H x 133mm D with Q7800A Subbase (x 155mm D with Q7800B Subbase)
• Weight	1 lb, 13 oz (0.8kg)
• Approvals	UL Listed (file no. MP268; guide no. MCCZ), CSA (Pending), FCC (Part 15,Class B,Emissions), IRI Acceptable, FM (Pending)

Options

Several options are available to further enhance the Honeywell flame safeguard family. Please refer to the applicable document for further information.

• 66-1162	Installation Instructions
• 65-0288	S7800A1142 Keyboard Display Module Product Data
• 65-0109	Amplifiers for 7800 Series Relay Modules Product Data
• 65-0089	ST7800A/C Plug-In Purge Timer Installation Instructions
• 65-0084	Q7800A/B Universal Subbase Product Data
• Download from:	www.customer.honeywell.com

The Enhanced RM7800 Family

Relay Module / Feature	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						
LED Fault Codes						
Valve Proving System	Default=Never	Default=Never		Default=Never	Default=Never	Default=Never
Pre Purge (using ST7800 card)						
Programmable Post Purge	Default= 0 Sec		Default= 0 Sec	Default= 0 Sec	Default= 15 Sec	Default= 15 Sec
Start-Up Interlock Check (Dynamic Airflow Switch)						Selectable
Pre Ignition 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			
Call for Heat / Valve Proving Demand Trigger						
Gas Direct Spark Ignition with VPS Enabled				Selectable	Selectable	Selectable
Flame Failure Action	Lockout	Selectable	Selectable	Selectable	Lockout	Lockout
Shutter Check		RM7890B only				
Keyboard Display Module						RM7800 only

☐ Equals feature included

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.**

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