# RM7840L1075/RM7800L1087
## Commercial/Industrial Combustion Controls

**Reliable. Safe. Flexible.**

Honeywell

# RM7840L1075/RM7800L1087 Integrated Burner Control:
## Enhanced Capability in the Familiar Blue Package



### Typical Applications

Programmer control with display 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 lockout interlocks and High/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 with Enhanced S7800 Keyboard Display Module, Valve Proving Sequence and Valve Proving Demand Input, Programmable Post Purge, Pre Purge, Visual Fault Code Annunciation, Pre Ignition Interlock Input (Proof of Closure Switch), Modulated High Fire/Low Fire Proven Purge, Selectable Dynamic Airflow Switch Check, Selectable Pilot Flame Establishing Period, 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 Keyboard Display (127 Possible Codes with 6 Historical Files) or Power LED
- Selectable Pilot Flame Establishing Period (PFEP) with Interrupted Pilot Valve
- Includes S7800A1142 Enhanced Keyboard Display Module (RM7800L only)
- Modulated High Fire/Low Fire Proven Purge, Pre ignition and Lockout Interlocks
- Selectable Gas Direct Spark Ignition Input
- 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. 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 S7800A1142 enhanced keyboard display 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

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| • 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

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| • 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 | 10 or 15 seconds Interrupted via Terminals 8 or 21 |
| • Interlocks | Lockout, Pre Ignition (Proof of Closure Switch), High Fire 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 S7800A1142 display (included with RM7800L control). 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 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, 10 oz (0.7kg) |
| • 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.

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| • 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 Semi-Auto Industrial Programmer | RM7890A1056 RM7890B1048 On/Off Primary Atmospheric Burners | RM7897A1002 RM7897C1000 On/Off Primary | RM7898A1000 RM7898A1018 On/Off Primary with VPS | RM7840G1022 Programmer | RM7840L1075 RM7800L1087 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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