

# RM7890A1056/B1048 Commercial/Industrial Combustion Controls



**Reliable. Safe. Flexible.**

**Honeywell**

# RM7890A1056B1048 Integrated Burner Control: Enhanced Capability in the Familiar Blue Package



## Typical Applications

On/Off Primary control for atmospheric automatically fired, gas only, single burner applications. The RM7890B has a shutter drive for dynamic self-check ultraviolet flame detector applications.

## Product Overview

Microprocessor-based on/off primary control with Valve Proving Sequence, LED Fault Code (Blinkum) annunciation, Pre Ignition Interlock Input (Proof of Closure Switch), Selectable Pilot Flame Establishing Period, Selectable Intermittent or Interrupted Pilot Valve with 10 second MFEP, Run/Test Switch, Selectable Relight or Lockout Action upon Flame Failure, 120Vac, 50/60Hz. For a complete system, relay module requires wiring subbase and plug-in flame signal amplifier. Six historical fault files and self-diagnostic information.

## Key Features

- Valve Proving Feature, Selectable To Occur at 5 Different Times
- Fault Code Annunciation via Power LED (20 Possible Codes)
- Selectable Relight or Lockout Action upon Flame Failure
- Selectable Pilot Flame Establishing Period (PFEP)
- Selectable Intermittent or Interrupted Pilot Valve
- Pre Ignition Interlock (Proof of Closure Switch)
- 5 LEDs Provide Sequence Information; Power/Pilot/Flame/Main/Alarm
- Shutter Drive Output for Dynamic Self-Checking UV Flame Detectors (RM7890B only)
- Compatible with Existing Honeywell 7800 Series Flame Detectors and Amplifiers
- Interchangeable Plug-in Amplifiers
- 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 each burner cycle. 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 is accomplished through user set-up (optional enhanced S7800A1142 keyboard display required). 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. 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 Pre Ignition interlock and LED fault code (blinkum) annunciation on safety shutdown, with 20 possible codes. The optional S7800A1142 enhanced keyboard display module allows for programming the VPS 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                     | On/Off Primary Control with VPS for Atmospheric Burners   |
| • Flame Establishing Period-Pilot | Selectable 10 seconds or 4 seconds via JR1.   |
| • Flame Establishing Period-Main  | Selectable Intermittent or 10 second Interrupted via JR3  |
| • Interlocks                      | Pre Ignition (Proof of Closure Switch)  |
| • Flame Failure Action            | Selectable Relight or Lockout via JR2 (during burner run only)  |
| • Early Spark Termination         | None  |
| • Pre Ignition                    | Yes   |
| • Pre Purge                       | None  |
| • Post Purge                      | None  |
| • 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 Subbases. R7847, R7848, R7849, R7851, R7861 or R7886 Flame Signal Amplifier.  |
| • 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.

- 66-1150 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: [www.customer.honeywell.com](http://www.customer.honeywell.com)



## The Enhanced RM7800 Family

| Relay Module                                      | RM7838B1021<br>RM7838C1012      | RM7890A1056<br>RM7890B1048         | RM7897A1002<br>RM7897C1000 | RM7898A1000<br>RM7898A1018 | RM7840G1022    | RM7840L1075<br>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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