



BurnerPRO Retrofit for Honeywell RM7800/RM7840 E/G/L/M

October 14, 2021

The easiest method available for converting a Honeywell RM7800/RM7840 type E, G, L or M control to a BurnerPRO is to use Fireeye part number 60-2991-1. This is an adapter that connects directly to the Honeywell 7800 SERIES wiring base and includes a tethered BurnerPRO wiring base. By default, this wiring base is attached to the adapter but has long enough wire connections to allow alternate placement beside the Honeywell wiring base adapter, as space permits.



60-2991-1 Wiring Base Adapter

This document outlines a wire-by-wire conversion to allow replacing the Honeywell wiring base with a BurnerPRO wiring base. This method will require using two DPDT line voltage relays to convert the actuator drive from the BurnerPRO (line voltage) to voltage-free relay connections. This allows the use of the existing Honeywell Series 90 modulating motor with the BurnerPRO. Note that these relays are part of the 60-2991-1 Wiring Base Adapter and do not need to be included when using that method.

The wiring example shown uses the existing Honeywell terminal numbers to show where they should connect to the BurnerPRO wiring base. When making the conversion, mark the removed wires with the number of the terminal they were connected to, then use this document as a reference to connect to the BurnerPRO wiring base.

Honeywell uses fixed ignition and pilot timings, with three different connection options. These operate as follows:

- **Honeywell terminal 8:** This terminal is energized for 10 seconds into the MFEP period.
- **Honeywell terminal 10:** This terminal is energized for the first 5 seconds of the PFEP period. This is known as “early spark termination”.
- **Honeywell terminal 21:** This terminal is energized for 15 seconds into the MFEP period. On certain models this terminal is energized until the end of the run cycle (intermittent pilot).



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There are only two corresponding terminals on the BurnerPRO to duplicate these three Honeywell terminals. With BurnerPRO models ending in M or MP, it is possible to change the timings using the *Config Wizard for BurnerPRO* application as required.

- **BurnerPRO terminal 16:** This terminal is energized for the duration of $t3'$ (preignition time) plus TSA' (first safety time). Only terminal 16 is energized during $t3'$, while both terminals 16 and 17 are energized during TSA' . The default for S6 timings is $1s (t3') + 10s (TSA') = 11s$. This terminal also offers early spark termination since it will de-energize before the pilot output.
- **BurnerPRO terminal 17:** This terminal is energized for the duration of $t4$ (pilot to main fuel time). The default for S6 timings is 5s.
- **BurnerPRO terminal 18:** Connect this terminal to terminal 17 if an intermittent pilot is required. This will keep the pilot output energized until the end of the run cycle. Note that intermittent pilot can also be activated using *Config Wizard for BurnerPRO* software by activating feature "Continuous Pilot".

Note that the BurnerPRO is not compatible with the existing Honeywell UV scanner. A Fireeye UV1AL scanner must be fitted to the existing sight port using the $\frac{1}{2}$ " NPT threaded connection. The UV1AL comes with an attached shielded cable in various lengths, so choose the one that best suits the application. The shielded UV cabling should not be extended and should always be connected directly to the BurnerPRO wiring base. The BurnerPRO has two terminals for the UV cable and neither lead is grounded. **Always take precautions while handling UV cabling to ensure that the BurnerPRO is powered down. The UV circuit operates at a high voltage and can cause personal injury if touched.**

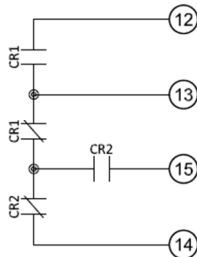
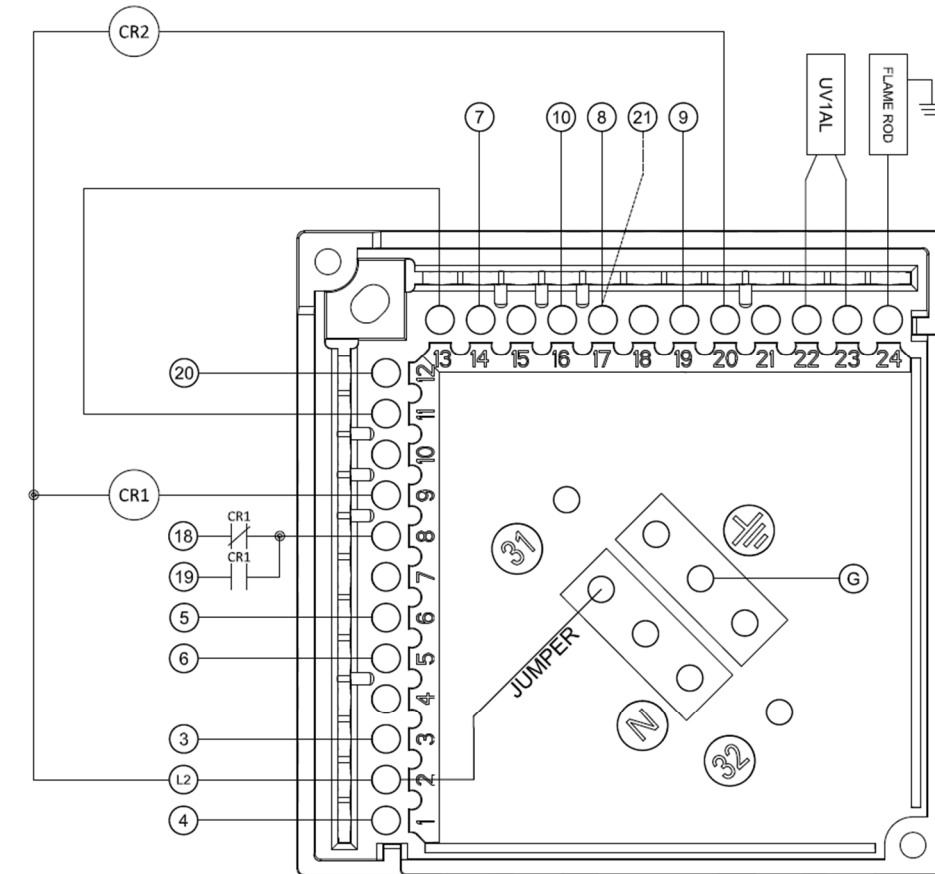
If the burner uses a flame rod, the existing flame rod can be retained. The flame rod should be grounded with a good mechanical connection and the sensing lead connected to BurnerPRO terminal 24.



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WIRING EXAMPLE



HONEYWELL RM7800/RM7840 E/G/L/M TERMINAL DESIGNATIONS

(G) EARTH GROUND	(10) 5 SECOND IGNITION (EARLY SPARK TERMINATION)
(L2) LINE VOLTAGE COMMON	(12) MOD MOTOR HIGH FIRE
(3) 120V ALARM	(13) MOD MOTOR COMMON
(4) LINE VOLTAGE SUPPLY	(14) MOD MOTOR LOW FIRE
(5) BURNER MOTOR (BLOWER)	(15) MOD MOTOR MODULATE
(6) BURNER CONTROLLER/LIMITS	(18) LOW FIRE SWITCH INPUT
(7) LOCKOUT INTERLOCKS (INC. AIR FLOW SWITCH)	(19) HIGH FIRE SWITCH INPUT
(8) 10 SEC. INTERRUPTED PILOT/IGNITION	(20) PREIGNITION INTERLOCK INPUT
(9) MAIN FUEL VALVE(S)	(21) 15 SEC. INTERRUPTED PILOT

