resideo

S8610U Universal Intermittent Pilot Gas Ignition Control

TECHNICIAN'S QUICK REFERENCE GUIDE

The following service procedure provides a quick overview for the S8610U series control. For more information, refer to form 69-1955.

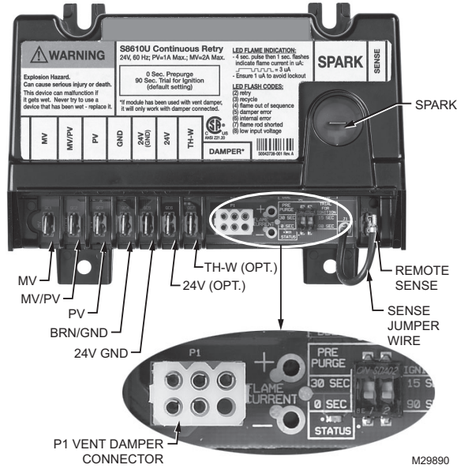


Fig. 1. Typical wiring connections.

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Table 1. Typical Wiring Connections.

Connector Label	Size or Type	Description
MV	1/4 inch	Main Valve connection
MV/PV	1/4 inch	Common terminal for gas valves
PV	1/4 inch	Pilot Valve connection
BRN GND	1/4 inch	Burner Ground
24V GND	1/4 inch	Return path to transformer
24V	1/4 inch	Optional— 24 Vac power connection for Vent Damper
TH-W	1/4 inch	Connector for "Call for Heat" signal from thermostat
P1	6-pin keyed plug	Connector for Vent Damper connection (used to control a connected damper in atmospheric appliances)
METER (µA)	Ammeter probes	Connection for ammeter probes for measuring flame current in µAmp DC.
SENSE JUMPER WIRE	Wire with 3/16 inch quick connect	Connects to the REMOTE SENSE connector for installations with a single spark rod (local flame sensing) NOTE: For installations with remote flame sensing (separate spark and sensor rods), this jumper wire is clipped as close to the circuit board as possible and the wire is discarded.
REMOTE SENSE	3/16 inch	Flame Sensor connector For single rod installations, connect the SENSE JUMPER WIRE to this terminal connector. For dual rod installations, connect the flame sense wire from the burner/igniter to this terminal connector.
SPARK	1/4 inch	High voltage sparking electrode

SETTINGS AND ADJUSTMENTS

DIP Switch (S1) Settings

When replacing an existing ignition control with the S8610U, refer to 69-1955 for the correct DIP switch settings.

IMPORTANT

Do not power the ignition control prior to setting the DIP switches.

The following timing parameters may be set with this 2-position DIP switch.

Prepurge

To select Prepurge, set **SW1** according to Table 2.

Trial for Ignition (TFI)

To select the Trial for Ignition timing, set **SW2** according to Table 2.

Table 2. DIP Switch (S1) Settings.

Prepurge	Trial For Ignition	SW1	SW2
None	90 seconds	**OFF**	**OFF**
30 seconds	90 seconds	ON	OFF
None	15 seconds	OFF	ON
30 seconds	15 seconds	ON	ON

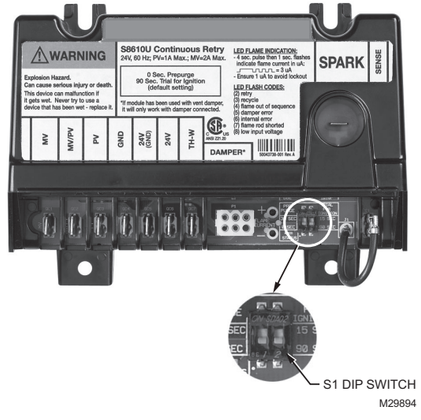


Fig. 2. DIP Switch (S1) Location.

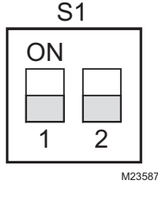


Fig. 3. DIP Switch (S1) - shown with factory default settings (OFF) for SW1 and SW2.

LED STATUS AND TROUBLESHOOTING

The ignition control module has one LED used for flame sensing and system status.

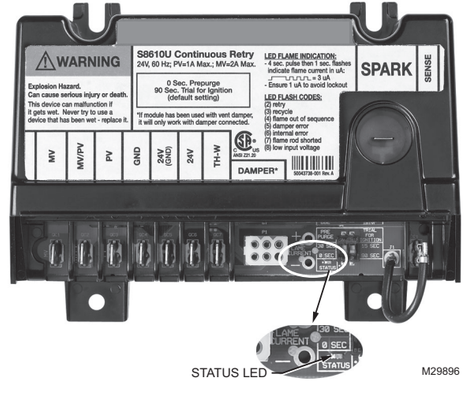


Fig. 4. Location of LED.

Table 3. Green LED Status Codes.

Green LED Flash Code[a]	Indicates	Next System Action	Recommended Service Action
OFF	No "Call for Heat"	Not applicable	None
Flash Fast	Power up - internal check	Not applicable	None
Heartbeat	Normal startup - ignition sequence started (including prepurge)	Not applicable	None
4 Seconds ON then "x" flashes	Device in run mode. "x" = flame current to the nearest µA.	Not applicable	None
2	5 minute Retry Delay – Pilot flame not detected during trial for ignition	Initiate new trial for ignition after retry delay completed.	If system fails to light on next trial for ignition check gas supply, pilot burner, spark and flame sense wiring, flame rod contaminated or out of position, burner ground connection.
3	Recycle – Flame failed during run	Initiate new trial for ignition. Flash code will remain through the ignition trial until flame is proved.	If system fails to light on next trial for ignition, check gas supply, pilot burner, flame sense wiring, contamination of flame rod, burner ground connection.
4	Flame sensed out of sequence	If situation self corrects within 10 seconds, control module returns to normal sequence. If flame out of sequence remains longer than 10 seconds, control will resume normal operation 1 hour after error is corrected.	Check for pilot flame. Replace gas valve if pilot flame present. If no pilot flame, cycle "Call for Heat." If error repeats, replace control.
5	Damper Error: – Damper required but not present – Damper failed to open within 60 seconds – Damper failed to close within 60 seconds	If damper error corrects, ignition control resumes normal operation.	Check damper connection, damper wiring, and 24V connection on control. Replace damper if necessary.
6	Control Internal Error	Control module remains in wait mode. When the fault corrects, control module resumes normal operation.	Cycle "Call for Heat." If error repeats, replace control.
7	Flame rod shorted to ground	Control module remains in wait mode. When the fault corrects, control module resumes normal operation.	Check flame sense lead wire for damage or shorting. Check that flame rod is in proper position. Check flame rod ceramic for cracks, damage or tracking.
8	Low secondary voltage supply	Control module remains in wait mode. When the fault corrects, control module resumes normal operation.	Check transformer and AC line for proper input voltage to the control. Check with full system load on the transformer.

[a]Flash Code Descriptions:
- Flash Fast: rapid blinking.
- Heartbeat: Constant ½-second bright, ½-second dim cycles.
- 4-second solid on pulse followed by "x" 1-second flashes indicates flame current to the nearest mA. This is only available in run mode.
- A single flash code number signifies that the LED flashes X times at 2 Hz, remains off for two seconds, and then repeats the sequence.

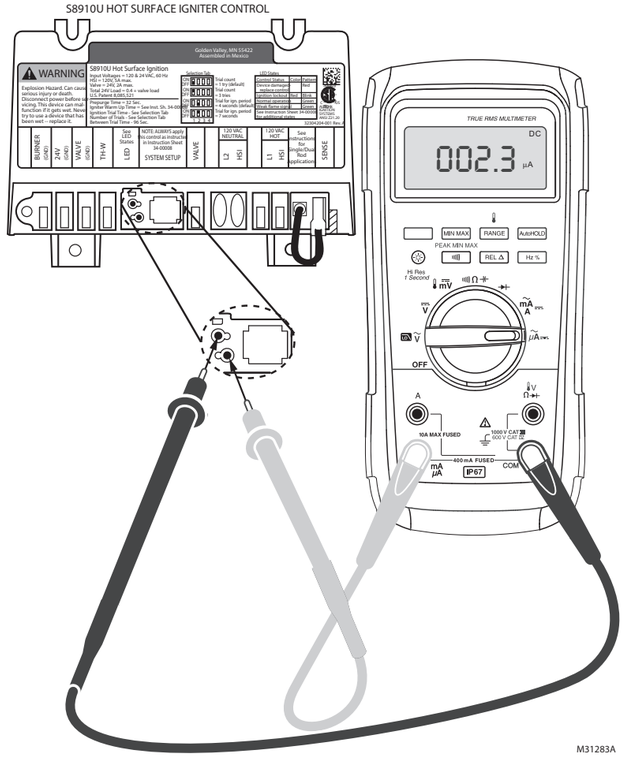


Fig. 5. Measuring flame current with micro-ammeter.

FLAME CURRENT MEASUREMENT

Flame current of the device can be meaured using a standard micro-ammeter by simply inserting the meter probes into the holes labeled FLAME CURRENT, as shown in Fig. 5.

- Flame current must be measured with pilot valve lit but no main gas flowing.
- Disconnect MV leadwire from the control before measuring flame current.
- Set meter to DC µAmp scale.
- Ensure meter leads are positioned correctly [+/-].

NOTE: Trying to measure the pilot flame current in series with the wiring will not be accurate.

Recommended Minimum Pilot Only Flame Current:
- Must read steady 1 µAmp DC minimum.
- Flame current should be 2 µAmp or greater for reliable appliance operation.

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