Honeywell S8610U3009

Honeywell S8610U Integrated Pilot Module Ignition Control Circuit Board Instruction Manual

Model: S8610U3009

Introduction

This manual provides essential information for the proper installation, operation, and maintenance of the Honeywell S8610U Integrated Pilot Module Ignition Control Circuit Board. This control module is designed to provide ignition sequence, flame monitoring, and safety shutoff for intermittent pilot central furnaces, residential boilers, and other heating appliances. Please read this manual thoroughly before attempting any installation or service.

Important Safety Information

WARNING: Explosion Hazard. Can cause serious injury or death. These devices should only be installed and serviced by licensed, experienced technicians, due to the risk of fire and explosion. This device can malfunction if it gets wet. Never try to use a device that has been wet - replace it.

Always disconnect power to the appliance before installing or servicing this control module. Failure to do so can result in electrical shock, fire, or explosion.

Product Overview

The Honeywell S8610U is an integrated pilot module ignition control circuit board. It is designed to manage the ignition and flame sensing processes in compatible heating systems. Note that newer units may be labeled Resideo, as Honeywell spun off its residential division in 2018.

Figure 1: Honeywell S8610U Integrated Pilot Module Ignition Control Circuit Board. This image shows the top view of the control board with various terminal connections and warning labels. Key labels visible include "resideo", "S8610U Continuous Retry", "MV", "MV/PV", "PV", "GND", "24V (GND)", "24V", "TH-W", "DAMPER", "SPARK", and "SENSE". It also displays LED Flame Indication and LED Flash Codes information.

Terminal Connections and Indicators

The S8610U module features several terminals for electrical connections and indicators for operational status and diagnostics:

- **MV:** Main Valve connection.
- **MV/PV:** Main Valve / Pilot Valve common connection.
- **PV:** Pilot Valve connection.
- **GND:** Ground connection.
- **24V (GND):** 24 Volt Ground connection.
- **24V:** 24 Volt power input.
- **TH-W:** Thermostat 'W' (Call for Heat) connection. Note: On this model, the transformer secondary hot (switched leg) typically connects to TH-W, not 24V, especially if no automatic vent damper is present.
- **DAMPER:** Connection for an optional vent damper. If a module has been used with a vent damper, it will only work with the damper connected.
- **SPARK:** Output for the ignition spark electrode.
- **SENSE:** Input for the flame sense electrode.

LED Indicators

The module includes an LED for flame indication and diagnostic flash codes:

- **LED Flame Indication:** A 4-second pulse followed by a 1-second flash indicates flame current in microamperes (uA). Ensure at least 1 uA to avoid lockout.
- **LED Flash Codes:** These codes assist in diagnosing operational issues:

    1. (2) retry

2. (3) recycle
3. (4) flame out of sequence
4. (5) damper error
5. (6) internal error
6. (7) flame rod shorted
7. (8) low input voltage

Setup and Installation

Installation of the S8610U control module should only be performed by a licensed, experienced technician. Incorrect installation can lead to serious injury, death, or property damage.
Before beginning installation, ensure the main power supply to the heating appliance is disconnected. The package typically includes an IOM (Installation, Operation, Maintenance) manual, a rajah to spade adapter, labels, and wire nuts to assist with the installation process.
Pay close attention to wiring diagrams specific to your heating system. As noted, the transformer secondary hot (switched leg - call for heat from thermostat) typically connects to the **TH-W** terminal, not the 24V terminal, especially if an automatic vent damper is not present. Refer to accompanying documentation for detailed wiring instructions.

Operating Principles

The S8610U control module manages the intermittent pilot ignition system. Upon a call for heat from the thermostat, the module initiates a prepurge cycle (0 seconds default), followed by a 90-second trial for ignition. During this period, the pilot flame is established and sensed. Once the pilot flame is proven, the main burner is ignited.
The module continuously monitors the flame signal. If the flame is lost during operation or fails to establish within the trial period, the module will initiate a safety shutoff sequence to prevent uncombusted fuel from accumulating.
This control module is **NOT** designed to replace controls in applications with:

- Flame Sensing other than by flame rectification.
- Standing pilot appliances.
- Direct main burner ignition.

Maintenance

The Honeywell S8610U control module is a robust electronic component designed for long-term reliability. Regular maintenance of the overall heating system, including cleaning of the pilot and main burner assemblies, flame sensor, and electrical connections, is crucial for optimal performance and longevity of the control module.
Ensure the module remains dry and free from dust and debris. Do not attempt to repair the module yourself; if it is malfunctioning, it should be replaced by a qualified technician. Periodically inspect wiring connections for tightness and signs of corrosion.

Troubleshooting

If your heating appliance is not operating correctly, refer to the LED Flash Codes on the S8610U module (as described in the Product Overview section) to help diagnose the issue. Common issues and their potential indicators include:

- **No Ignition or Intermittent Ignition:** Check for proper flame sensor operation and cleanliness. A weak flame signal (below 1 uA) can cause erratic performance. Refer to LED Flame Indication.
- **Lockout:** If the module enters lockout, it typically requires a power cycle to reset. Identify and resolve the underlying issue before resetting.

- **Wiring Issues:** Double-check all electrical connections, especially the TH-W terminal, as incorrect wiring is a common cause of malfunction.
- **Damper Error (Code 5):** If your system uses a vent damper, ensure it is functioning correctly and properly connected to the module.
- **Internal Error (Code 6):** This indicates a fault within the module itself, often requiring replacement.
- **Flame Rod Shorted (Code 7):** Inspect the flame sensor and its wiring for shorts or damage.
- **Low Input Voltage (Code 8):** Verify the 24V power supply to the module.

For complex issues or if you are unsure about any diagnostic steps, always consult a licensed HVAC technician.

Specifications

Attribute	Detail
Model Number	S8610U3009
Manufacturer	Honeywell Resideo
Input Voltage	24V AC, 60 Hz
Pilot Valve Current	1A Max.
Main Valve Current	2A Max.
Prepurge Time	0 Seconds (default)
Trial for Ignition	90 Seconds (default)
Product Dimensions	4 x 4 x 6 inches
Weight	11 ounces

Warranty Information

Specific warranty terms for the Honeywell S8610U control module are provided by the manufacturer, Honeywell Resideo, or the seller at the time of purchase. Please retain your proof of purchase and refer to the documentation included with your product for detailed warranty coverage and claim procedures. For any warranty-related inquiries, contact the original point of purchase or Honeywell Resideo customer service.

Support

For technical assistance, troubleshooting beyond the scope of this manual, or professional installation and service, it is highly recommended to contact a licensed and experienced HVAC technician. You may also visit the official Honeywell Resideo website for additional resources or to locate authorized service providers in your area.