Robertshaw 10-760

Robertshaw Universal Flame Sensor 10-760 Instruction Manual

Model: 10-760

INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of the Robertshaw Universal Flame Sensor, Model 10-760. This device is designed to detect the presence of a flame in heating systems, ensuring safe and efficient operation by signaling the control board when a flame is present.

SAFETY PRECAUTIONS

Always observe the following safety guidelines to prevent personal injury or property damage:

- **Disconnect Power:** Always disconnect the main power supply to the appliance before installing, servicing, or cleaning the flame sensor.
- **Qualified Personnel:** Installation and service should only be performed by a qualified service technician.
- **Wear Safety Gear:** Use appropriate personal protective equipment, such as gloves and eye protection.
- **Follow Local Codes:** Adhere to all local codes and ordinances for electrical and HVAC installations.
- **Handle with Care:** The sensor probe can be fragile. Avoid excessive bending or impact.

PRODUCT OVERVIEW

The Robertshaw Universal Flame Sensor 10-760 is a critical component for various heating appliances, including furnaces and boilers. It is designed to be a universal replacement part, offering broad compatibility. It features a durable metallic probe, a 30-inch Teflon insulated lead wire for high-temperature resistance, and a 1/4-inch female spade terminal for secure electrical connection. The sensor is built to withstand operating temperatures up to 250°C (482°F).

This image displays the Robertshaw Universal Flame Sensor, Model 10-760, held in a human hand for scale. It highlights the metallic probe, the Teflon-insulated lead wire, and the 1/4-inch female spade terminal. The image also includes a measurement graphic indicating a length of 3.5 inches (8 cm) for the sensor assembly.

TECHNICAL SPECIFICATIONS

Brand	Robertshaw
Model Number	10-760
Material	Polytetrafluoroethylene (Teflon insulation)
Upper Temperature Rating	250°C (482°F)
Lead Wire Length	30 inches
Terminal Type	1/4 inch Female Spade
Approximate Dimensions (L x W x H)	1 x 2 x 3 inches (overall product)
Item Weight	9.07 g (0.32 ounces)
Mounting Type	Flange Mount
Output Type	Analog
UPC	782247849207, 785577672804, 662013644963

INSTALLATION INSTRUCTIONS

Before Installation

- Ensure the replacement sensor matches the specifications of the original part.
- Gather necessary tools, which may include screwdrivers, wrenches, and wire strippers.

- Familiarize yourself with the appliance's wiring diagram.

Installation Steps

1. **Disconnect Power:** Turn off the main power supply to the heating appliance at the circuit breaker or fuse box. Verify power is off using a voltage tester.
2. **Access Sensor:** Locate the existing flame sensor within the burner assembly. This typically involves removing an access panel.
3. **Remove Old Sensor:** Carefully disconnect the wire from the old sensor and unmount it from its position. Note its orientation and depth within the flame path.
4. **Install New Sensor:** Mount the new Robertshaw 10-760 flame sensor in the same position and orientation as the old one. Ensure the probe extends into the flame path correctly.
5. **Connect Wiring:** Connect the 1/4-inch female spade terminal of the new sensor to the corresponding wire from the control board. Ensure a secure connection.
6. **Secure Components:** Re-secure any removed panels or covers.
7. **Restore Power:** Turn the main power supply back on.
8. **Test Operation:** Initiate a heating cycle and observe the burner. The flame should ignite and remain lit. If the burner cycles on and off rapidly (short cycling), refer to the troubleshooting section.

OPERATION

The Robertshaw Universal Flame Sensor operates on the principle of flame rectification. When a flame is present, it ionizes the air, allowing a small electrical current to flow through the sensor probe to ground. The control board detects this current, confirming the presence of a flame. This signal is crucial for the safe operation of the heating appliance. If the control board does not detect a flame within a specified time after ignition, it will shut off the gas supply to prevent unburnt fuel accumulation, initiating a safety lockout. The sensor itself is a passive component; its proper function is integrated into the overall control logic of the heating system. It does not actively generate a signal but rather completes a circuit when exposed to a flame.

MAINTENANCE

Regular inspection and cleaning of the flame sensor are recommended to ensure reliable operation and prevent nuisance shutdowns. Perform maintenance at least once a year, or more frequently depending on appliance usage and environmental conditions.

- **Disconnect Power:** Always turn off the power to the appliance before performing any maintenance.
- **Inspect Probe:** Visually inspect the metallic probe for any signs of carbon buildup, corrosion, or physical damage.
- **Clean Probe:** If carbon deposits are present, gently clean the metallic probe with fine-grit sandpaper or steel wool. Avoid using harsh chemicals or abrasive cleaners that could damage the sensor. Do not bend the probe during cleaning.
- **Check Insulator:** Inspect the ceramic insulator for cracks or chips. A damaged insulator can cause a ground fault and prevent proper flame detection.
- **Examine Wiring:** Check the lead wire for any signs of fraying, cuts, or heat damage. Ensure the terminal connection is secure and free from corrosion.
- **Reassemble and Test:** After cleaning and inspection, reassemble the sensor and restore power. Test the appliance's operation to confirm proper flame detection.

TROUBLESHOOTING

If your heating appliance is experiencing issues related to flame detection, consult the table below for common problems and solutions.

Issue	Possible Cause	Solution
Burner ignites, then shuts off rapidly (short cycling)	Dirty or faulty flame sensor; weak flame signal.	Clean the flame sensor probe. If the issue persists, replace the sensor. Ensure the flame is strong and consistent.
Appliance fails to ignite or locks out immediately	No flame signal detected; open circuit in sensor wiring.	Check all wiring connections to the sensor and control board. Ensure the sensor is properly positioned in the flame path. Test the sensor for continuity.
Intermittent operation or random shutdowns	Loose electrical connections; damaged lead wire; intermittent flame.	Secure all wiring connections. Inspect the lead wire for damage and replace if necessary. Verify consistent flame presence.
Sensor not detecting flame despite visible flame	Incorrect sensor positioning; ceramic insulator cracked.	Adjust the sensor's position to ensure the probe is fully immersed in the flame. Inspect the ceramic insulator for damage.

WARRANTY AND SUPPORT

For specific warranty information regarding the Robertshaw Universal Flame Sensor Model 10-760, please refer to the documentation provided with your purchase or visit the official Robertshaw website. For technical assistance or customer support, please contact Robertshaw customer service directly. When contacting support, please have your model number (10-760) and purchase details readily available.