Rheem 62-21744-01

Instruction Manual

Upgraded Replacement for Rheem Furnace Flame Sensor
Model: 62-21744-01

1. Product Overview

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Upgraded Replacement Flame Sensor for Rheem Furnaces, Model 62-21744-01. This component is designed to replace original Rheem flame sensors, ensuring proper furnace operation and safety.

Image: The Rheem Furnace Flame Sensor, Model 62-21744-01. This image shows the elongated white ceramic body with a metal

tip at one end and a flat metal connector at the other, typical of a flame sensor.

2. Safety Information

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death. Read the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment.

- Always disconnect power to the furnace before attempting any installation, maintenance, or service.
- Wear appropriate personal protective equipment (PPE), such as gloves and eye protection.
- Ensure the furnace is cool before handling components.
- If you are unsure about any step, consult a qualified HVAC technician.
- Avoid touching the ceramic or metal tip of the flame sensor with bare hands, as oils can affect its performance.

3. Installation (Setup)

This flame sensor is a direct replacement for Rheem furnaces. Follow these general steps for installation:

1. **Power Disconnection:** Locate the main power switch for your furnace and turn it OFF. For added safety, turn off the circuit breaker supplying power to the furnace.
2. **Locate Existing Sensor:** Open the furnace access panel. The flame sensor is typically located near the burners, often a single rod extending into the flame path, secured by one screw.
3. **Disconnect Wiring:** Carefully disconnect the wire connected to the existing flame sensor.
4. **Remove Old Sensor:** Use a screwdriver to remove the screw holding the old flame sensor in place. Gently pull the sensor out of its mounting bracket.
5. **Inspect New Sensor:** Before installing, visually inspect the new 62-21744-01 flame sensor for any damage. Ensure the ceramic insulator is intact and clean.
6. **Install New Sensor:** Insert the new flame sensor into the mounting bracket. Secure it with the screw removed earlier. Ensure it is firmly seated but do not overtighten.
7. **Connect Wiring:** Reconnect the wire to the terminal on the new flame sensor. Ensure a secure connection.
8. **Close Panel & Restore Power:** Close the furnace access panel. Restore power to the furnace by turning on the main power switch and the circuit breaker.
9. **Test Operation:** Initiate a call for heat from your thermostat to test the furnace operation. Observe the ignition sequence to ensure the burners light and remain lit.

Note: Some furnace models may require slight adjustments or careful fitting due to manufacturing tolerances. If the sensor does not fit easily, do not force it. Consult your furnace's specific service manual or a professional.

4. Operating Principles

The flame sensor is a critical safety device in your furnace. Its primary function is to detect the presence of a flame after the gas valve opens and ignition occurs. It operates on the principle of flame rectification:

- When the furnace calls for heat, the igniter heats up, and the gas valve opens.
- Once the gas ignites, the flame creates a conductive path for a small electrical current (microamps) that flows through the flame sensor.
- The furnace control board monitors this current. If a sufficient current is detected, it confirms the presence of a

flame and allows the furnace to continue its heating cycle.
- If the control board does not detect a flame within a specified time (typically a few seconds), it will shut off the gas supply to prevent unburnt gas from accumulating, which is a safety hazard. This is often referred to as a "flame sensor lockout" or "furnace short cycling."

A properly functioning flame sensor ensures that the furnace only operates when a stable flame is present, preventing dangerous situations.

5. Maintenance

Regular maintenance of your flame sensor can extend its lifespan and prevent furnace malfunctions. It is recommended to clean the flame sensor annually, preferably before the heating season.

1. **Power Disconnection:** As with installation, always turn off power to the furnace at the main switch and circuit breaker.
2. **Remove Sensor:** Carefully remove the flame sensor as described in the installation section.
3. **Clean Sensor:** Use fine-grit sandpaper (e.g., 400-grit) or a Scotch-Brite pad to gently clean the metal rod of the flame sensor. Do not use steel wool or abrasive cleaners, as they can leave residue that interferes with conductivity. The goal is to remove any carbon buildup or oxidation.
4. **Reinstall Sensor:** Reinstall the cleaned flame sensor, reconnect the wire, and secure it in place.
5. **Restore Power & Test:** Restore power and test the furnace operation.

Note: If the sensor appears corroded, cracked, or severely damaged, replacement is recommended over cleaning.

6. Troubleshooting

A common symptom of a faulty or dirty flame sensor is the furnace lighting for a few seconds and then shutting off (short cycling).

Symptom	Possible Cause	Solution
Furnace lights, then shuts off after a few seconds.	Dirty or faulty flame sensor; weak flame; poor ground connection.	Clean the flame sensor (see Maintenance section). If the issue persists, replace the flame sensor. Check furnace ground wire. Ensure burners are clean and producing a strong flame.
New sensor does not fit into the mounting bracket.	Manufacturing tolerance variations; incorrect part for specific furnace model.	Do not force the sensor. Verify the part number against your furnace's requirements. Gentle filing of the ceramic base may be necessary in some cases, but proceed with caution to avoid damage. If significant modification is needed, the part may be incompatible.
Furnace does not light at all.	No power; thermostat issue; igniter failure; gas supply issue; control board error.	Check power supply and thermostat settings. This symptom is less likely to be solely a flame sensor issue. Consult a professional.

If troubleshooting steps do not resolve the issue, it is recommended to contact a certified HVAC technician for diagnosis and repair.

7. Specifications

Model: 62-21744-01

Type: Furnace Flame Sensor

Compatibility: Designed as an upgraded replacement for Rheem furnaces.

Dimensions: Approximately 6 x 6 x 6 inches (packaging dimensions); actual sensor dimensions are smaller.

Weight: Approximately 0.01 ounces.

Manufacturer: Replacement for Rheem

ASIN: B00ECEEWH2

8. Warranty and Support

For specific warranty information regarding this replacement part, please refer to the documentation provided by the seller or the manufacturer, "Replacement for Rheem". Warranty terms can vary depending on the point of purchase and the specific seller.

If you require technical support or have questions not covered in this manual, please contact the seller or a qualified HVAC professional. Always provide the model number (62-21744-01) and a detailed description of your issue when seeking assistance.