FIELD SERVICE GUIDE FOR IFT CONTROL SYSTEM

2326-960
Rev H

Introduction

This document provides detailed information for effective service of the IntelliFire Touch (IFT) Control System. The information in this document is for qualified service technicians.

Service technicians must follow appropriate codes, understand and follow manufacturer's installation instructions, and use specified replacement parts and materials when servicing gas appliances. Service parts are subject to change at any time. Refer to the service parts list for the appliance for specified replacement parts.

Technical Assistance – Dealers & Distributors

Heat & Glo 1-855-255-5448

Heatliator 1-855-255-5448

Quadrafire 1-855-255-5448

Majestic 1-877-406-9180

Outdoor Lifestyles 1-855-255-5448

Contact Tech Service for the appropriate brand dedicated to trade channel partners. Do not provide this contact information to consumers or builders. Be prepared to provide the following information:

Model and Serial #

Detailed problem description

Previous service history or HHT Reference #

Reference the warranty policy and coverage in the appliance manual. RMA requirements are subject to change.

Table of Contents / Quick Reference

IFT Control System Overview

This fireplace control system consists of the following components:

Ignition and Control Components

- Electronic Control Module (ECM): This is the primary control for the system. It controls ignition spark voltage, gas valve voltages, IPI pilot flame sensing, and other consumer-directed functions.
- AC/DC Adapter: This component transforms 120VAC power from the junction box to 6VDC as the primary power source to the ECM
- IPI Pilot Assembly: Provides ignition spark discharge, pilot flame, and flame sense electrode.
- Gas Valve: Provides gas supply to the IPI Pilot, and regulated gas supply to the main burner.
- Multi-wire Harness: Connects the ECM to the gas valve, chassis ground, back-up battery pack, and optional switching configurations including to the Powervent Pressure Switch.
- Back-up Battery Pack: Optional power source for use during power outages. Not intended as a primary power source. Cannot be used with Powervented appliances.

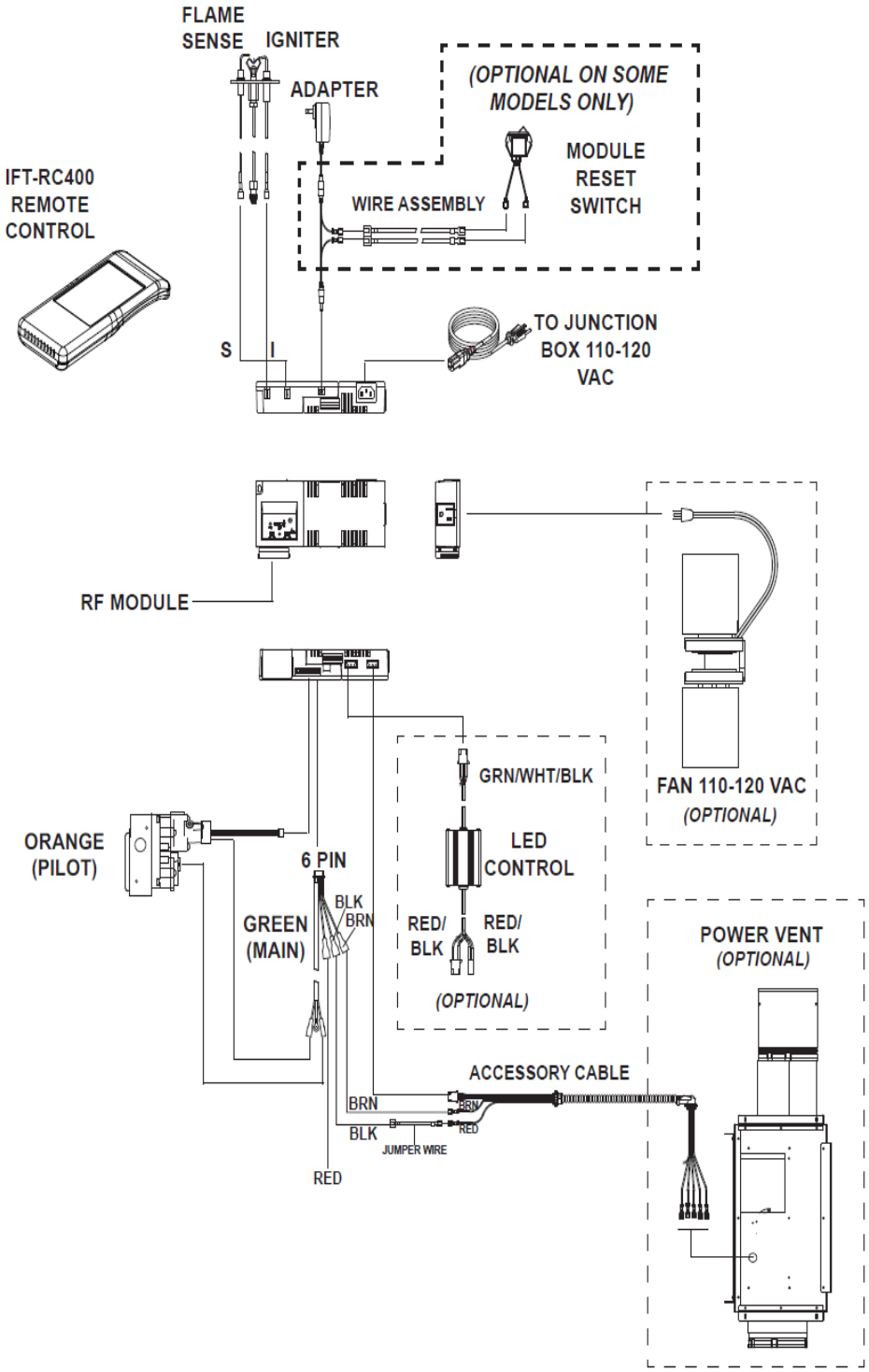
Auxiliary Control Components

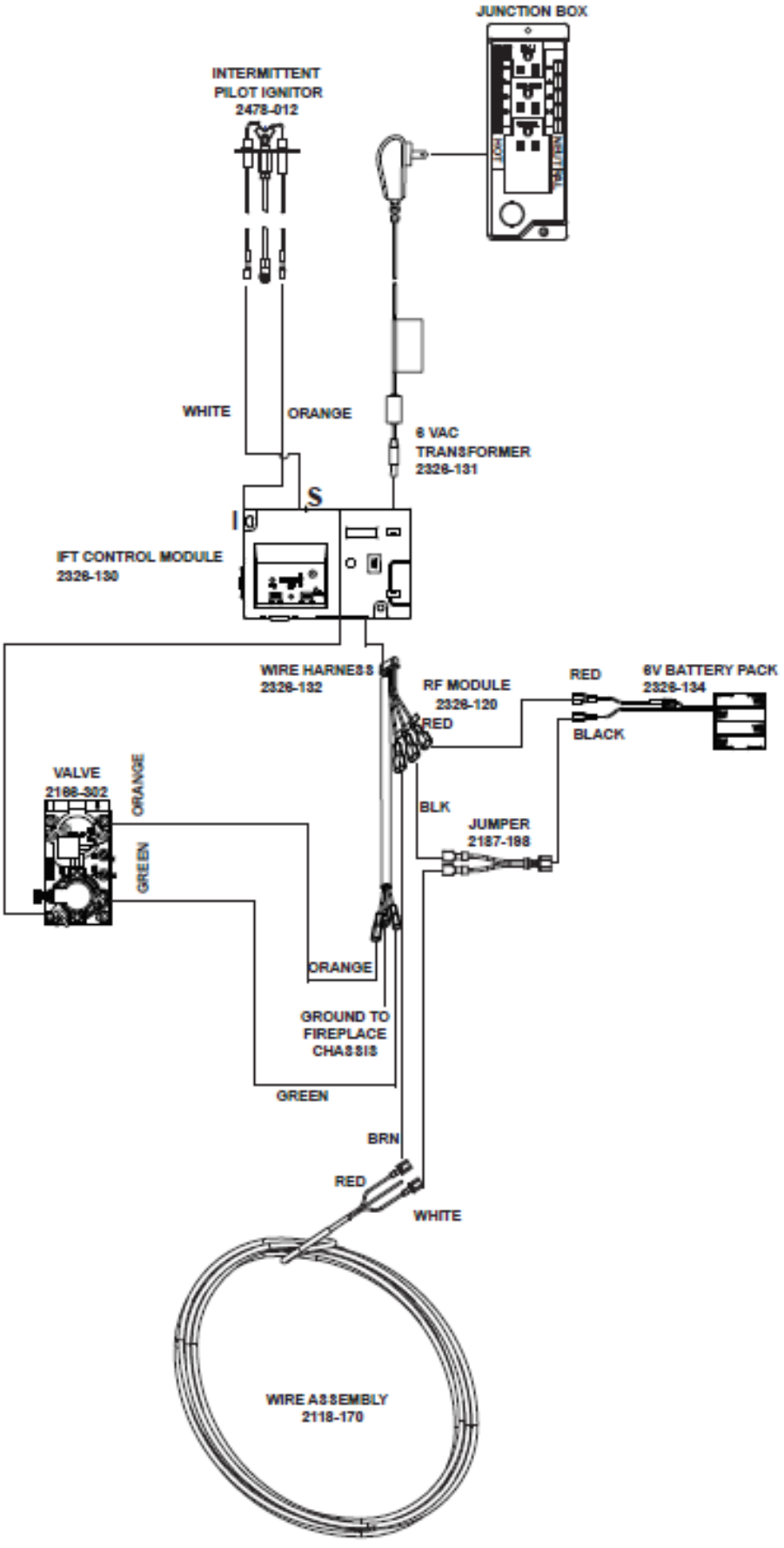
- Auxiliary Control Module (ACM) Provides voltage control to optional peripheral loads, including one convection blower, one Power Vent Kit, and/or lights. The ACM connects to the ECM. The ACM is powered by a separate 120VAC cord connected to the junction box.

Wireless Control Components

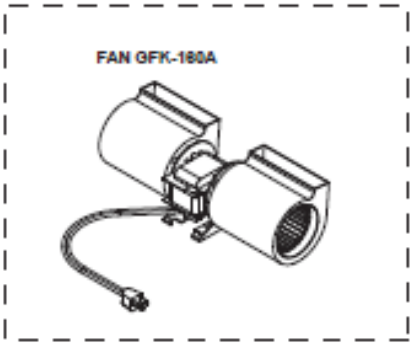
- RF Module: Provides wireless radio-frequency capability to the ECM. The RF module must be connected to the ECM to communicate with the RC400 or RC150 remote controls.
- RC400: Multifunction ‘touch-screen’ remote control
- RC150: Wireless wall switch, with ON/OFF and cold-climate switching function

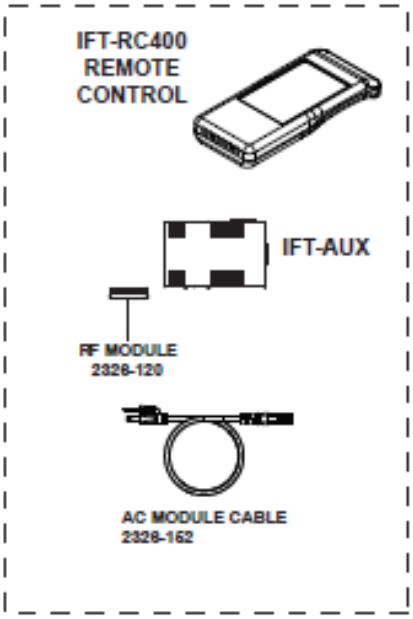
This fireplace control system can be configured to multiple installation scenarios:

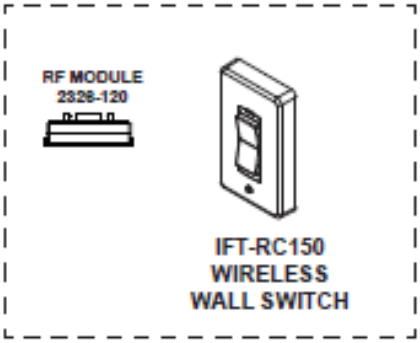



JUNCTION BOX
INTERMITTENT
PILOT IGNITOR
2478-012
WHITE
ORANGE
6 VAC
TRANSFORMER
2328-131
IFT CONTROL MODULE
2328-130
WIRE HARNESS
2328-132
RF MODULE
2328-120
RED
6V BATTERY PACK
2328-134
BLACK
VALVE
2188-302
ORANGE
GREEN
BLK
JUMPER
2187-188
ORANGE
GROUND TO
FIREPLACE
CHASSIS
GREEN
BRN
RED
WHITE
WIRE ASSEMBLY
2118-170

OPTIONS


FAN GFK-160A


IFT-RC400
REMOTE
CONTROL
IFT-AUX
RF MODULE
2328-120
AC MODULE CABLE
2328-162

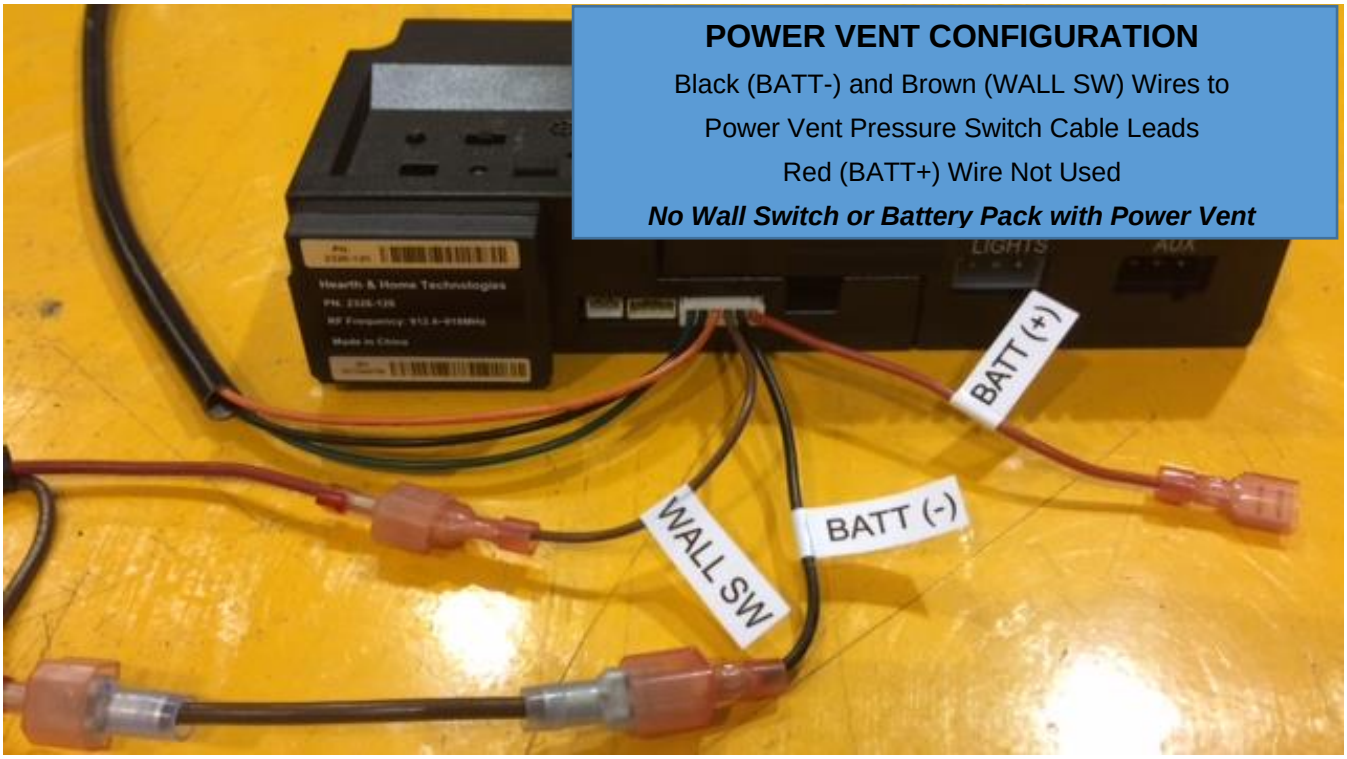

RF MODULE
2328-120
IFT-RC150
WIRELESS
WALL SWITCH


WI-FI OPTION

STANDARD CONFIGURATION

Black (BATT-) and Brown (WALL SW) Wires to Optional Wired Wall Switch

Red (BATT+) and Black (BATT-) Wires Connected to Battery Pack



POWER VENT CONFIGURATION

Black (BATT-) and Brown (WALL SW) Wires to

Power Vent Pressure Switch Cable Leads

Red (BATT+) Wire Not Used

No Wall Switch or Battery Pack with Power Vent

ACM and ECM Power Connections

- The ACM is connected to the ECM. The connection is a low-voltage data connection.
- The ACM must be connected to 120VAC power source at the appliance J-Box.
- The ECM must be connected to 6VDC power source via the AC/DC Adapter.
- Grounding is critical to IFT Control performance and safety. When servicing product, always verify that the J-Box is securely attached to the appliance chassis.

Remote Control Pairing Instructions and FAQ

VERIFY ALL ELECTRICAL CONNECTIONS BEFORE PAIRING REMOTE TO ECM. BEFORE ATTEMPTING TO PAIR, VERIFY THE FOLLOWING FIVE CONDITIONS:

1. RF Module must be connected to the ECM.
2. If ACM is part of the control installation, it must be connected to the ECM. ACM must be powered by 120VAC thru the junction box at the time of pairing. Verify that ACM power supply cord is securely connected to the ACM.
3. All loads, including blower, lights, or Power Vent need to be connected to ACM.
4. If an additional component is added to an existing system, the pairing process must be repeated to pair the added component to the system.
5. After pairing, always function test the appliance to ensure the blower, lights, and/or power vent functions with the remote control.

Installing New Products that Include Standard IFT Remote

If the hearth appliance was shipped from factory standard with IFT Remote, that remote was paired to the IFT-ECM module and tested at the factory. The remote does not need to be re-paired, unless an accessory kit will be added at the time of installation. If no additional accessory will be added, simply follow steps 1 thru 7 below:

1. If installed, remove batteries from remote.
2. Verify that the appliance has power and secure electrical connections. Verify that the power supply cord is securely engaged into the back side of the IFT-ACM (if equipped).
3. Adjust the ECM selector switch to 'REMOTE' mode. Verify that the ECM beeps.
4. Switch the master reset switch to 'ON' (if equipped).
5. Wait to verify the LED indicator on the ECM stops flashing This can take several minutes.
6. After the LED indicator stops flashing, install batteries in the RC400.
7. The RC400 remote will automatically pair to the IFT-ECM as pre-set at the factory, within four minutes.

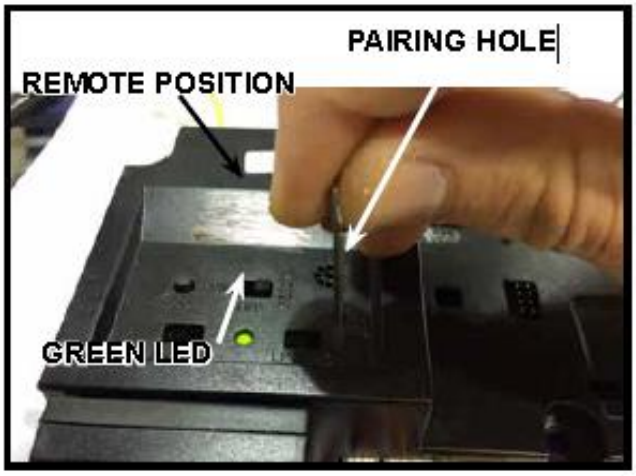
If adding a new remote and/or accessory, follow the installation instructions for pairing the remote control.

RC400 Pairing Procedure

1. On the IFT-ECM, move the ON/OFF/REMOTE switch to the REMOTE position. The green LED will blink three times. A few seconds later, an audible “beep” will occur to indicate that the system is ready. **Note:** If the green LED continues to blink slowly (system is searching for a clear channel), wait until it stops before proceeding to Step 2.

2. Locate the pairing hole on the IFT-ECM. Using a paper clip or similar item, press and release the pairing button. The IFT-ECM will “beep” once and the green LED will blink for 14 seconds. During the 14 seconds, it is normal for accessories such as lights or fan to energize momentarily. Verify that optional accessories are being energized. If there is any question, repeat Step 2 to verify the lights, fan, and/or powervent energize. This is required for the IFT control to recognize the loads, which will cause the system to show the correct ICONs on the touch-screen display.

3. While the green LED on the IFT-ECM is blinking, tap anywhere on the gray indicator bar located at the top of the IFT-RC400 screen. Tap on the pairing function icon. If the IFT-RC400 has been paired successfully to the IFT-ECM, a double audible ‘beep” will be heard from the IFT-ECM. If the 14 sec sequence elapses before the audible double “beep” occurs, repeat the process.



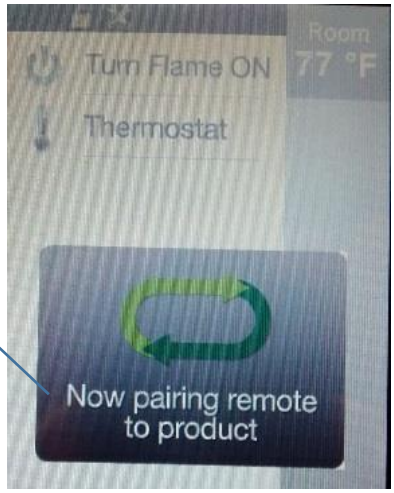
Re-Pairing RC400 after adding an IFT-ACM, optional RC150, Fan Kit, Lights Kit, Smartwall, or Powervent

Whenever adding an accessory to an IFT system, the ECM must be re-paired, to complete the installation.

Ensure that all the wire connections are complete and verify that the ACM is powered by 120V thru the junction box.

During re-pairing, the RC400 may display 'Now pairing remote to product' ***before*** the tech is able to reach the diagnostic menu on remote. This message will impair the ability to access the pairing ICON button.

If the RC400 displays the following message, use the following procedure to make re-pairing easier:



Bypassing 'Now pairing remote to product' display when re-pairing RC400:

1. Remove one AAA battery from the RC400. Press the pairing button on the IFT-ECM.
2. Quickly install the battery into the RC400.
3. As soon as the RC400 beeps and main screen appears, tap on the RC400 gray indicator bar. Then immediately tap the pairing icon. Successful pairing will be indicated by a double beep from the IFT-ECM.
4. If re-pairing is not confirmed by the double-beep, repeat the process.

RC150 Pairing Procedure

1. Separate the top case from the RC150

2. On the IFT-ECM, move the ON/OFF/REMOTE switch to the REMOTE position. The green LED will blink three times. A few seconds later, an audible “beep” will occur to indicate that the system is ready. **Note:** If the green LED continues to blink slowly (system is searching for a clear channel), wait until it stops before proceeding to step 3.

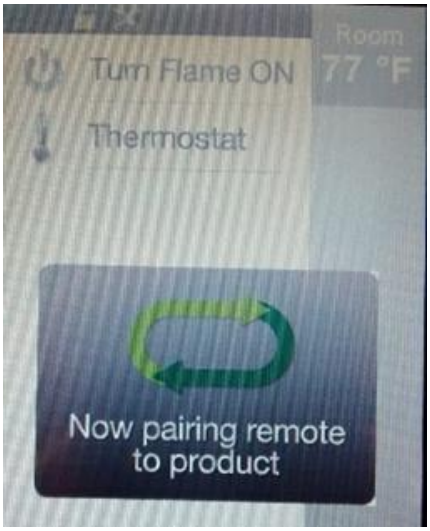
3. Locate the pairing hole on the IFT-ECM. Using a paper clip or similar item, press and release the pairing button. The IFT-ECM will “beep” once and a green LED will blink for 14 seconds.

While the green LED on the IFT-ECM is blinking, press and release the pairing button on the IFT-RC150 with a paper clip or similar item. The device will indicate it is in pairing mode by blinking red LED. If the device has been paired successfully to the IFT-ECM, an audible double “beep” will be heard from the IFT-ECM.

4. If pairing is unsuccessful, repeat step 3. Replace IFT-RC150 cover removed in Step 1.

IFT Pairing FAQ's

FAQ: Why does my RC400 screen lock-up with the "Now pairing remote to product" Icon?



Answer: The RC400 has been previously paired to its IFT-ECM, but the RC400 has lost communication with its IFT-ECM. There are several common causes for this issue:

1. The appliance was shipped from the factory with IFT-ECM set in 'OFF' mode, and/or the Master Reset Switch is 'OFF'. In either condition, the IFT-ECM does not have power, so it cannot communicate with the RC400.
2. There is no power to the appliance, such as the circuit breaker is switched off, or a power outage.

Take the following steps to restore communication between the RC400 and the IFT-ECM:

1. Verify that there is power to the appliance, and that the 6V AC/DC adapter is securely plugged into the junction box. If there is a power outage, install new batteries into the 4xAA case.
2. Verify all electrical connections at the IFT-ECM control.
3. Verify that the RF Module is securely connected to the IFT-ECM.
4. Verify that the IFT-ECM is switched to 'REMOTE' mode, and the Master Reset Switch is 'ON'.
5. Verify that the IFT-ECM is NOT slow blinking Green – if it is, wait until it stops blinking (ECM is searching for a clear communication channel).
6. Install the batteries into the RC400. Verify the RC400 automatically pairs up to the IFT-ECM within four minutes.

FAQ: Why does 'Fan Speed' Icon not display after pairing?

Answer: The 'Fan Speed' Icon will not display on the main menu screen unless the Flame ON is active. Turn the Flame ON to verify the 'Fan Speed' Icon is on the display.

FAQ: Why does 'Fan Speed' or 'Lights' not display after pairing?

Answer: The most common cause is that the IFT control did not detect the Fan and/or Lights during pairing. This most often occurs when the IFT-ACM does not have power, or either the Lights or Fan are not connected to the IFT-ACM. In these scenarios, the IFT control cannot detect the load(s) during pairing. It is unlikely that this is caused by the RC400, IFT-ECM, or RF Module.

Take the following steps to troubleshoot this issue:

1. Verify that the IFT-ACM is securely latched to the IFT-ECM.
2. Verify that the IFT-ACM power cord is securely connected to the back of the IFT-ACM.
3. Verify that the IFT-ACM power cord is plugged into the live receptacle on the junction box.
4. Verify that the Lights and/or Fan(s) are plugged into the IFT-ACM.
5. Press the pairing button on the IFT-ECM, and carefully observe that the Lights and/or Fan momentarily energize during the 14 seconds pairing cycle. If unsure, repeat the pairing cycle to verify that the loads are momentarily energized. This will verify that the circuit and the loads have power.
6. Repeat the steps to re-pair the RC400. The 'Lights' and/or 'Fan Icons' should display once the product is switched to the Flame ON.
7. If #1-6 are not successful, replace the IFT-ACM.

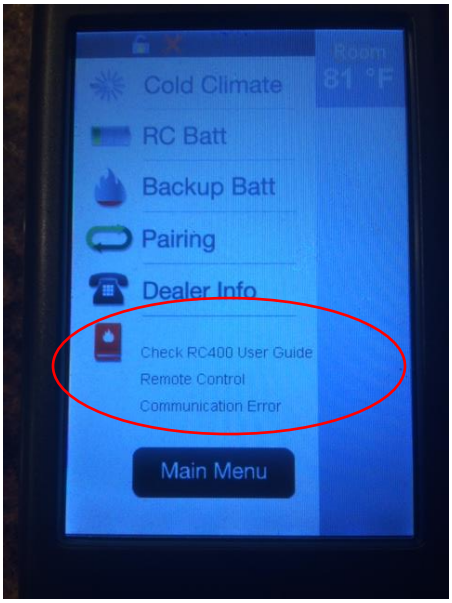
FAQ: Why does the green LED blink for a while after the IFT-ECM is switch to 'Remote' mode?

Answer: The IFT-ECM is searching for a secure RF channel. This is normal. This channel scan can sometimes take several minutes. The technician should wait for the channel scan to complete, before attempting to establish RC400 communication.

FAQ: Does the remote control need to be re-paired after a power outage?

Answer: No. The IFT control is designed and tested to remain paired, even after an extended power outage. Once power is restored, or emergency battery backup is loaded with 4xAA batteries, the RC400 will automatically establish communication with its paired IFT-ECM within four minutes.

FAQ: What are the common ways to fix a product where the RC400 displays 'Check RC400 User Guide – Remote Control Communication Error'



Answer: The RC400 has lost communication with its paired IFT-ECM. The most common cause is that the IFT-ECM has lost power. Verify that the IFT-ECM has power, is switched to 'REMOTE' mode, and the Master Reset Switch is 'ON'. Once the IFT-ECM has power, the RC400 should automatically pair up to the system within four minutes.

If the condition persists, follow the installation instructions to re-pair the RC400 to the IFT-ECM. If this is unsuccessful, then it is possible that the RF Module is malfunctioning, and the RF Module should be replaced.

IFT Troubleshooting Diagnostics

System Error Codes & Built-in Diagnostics

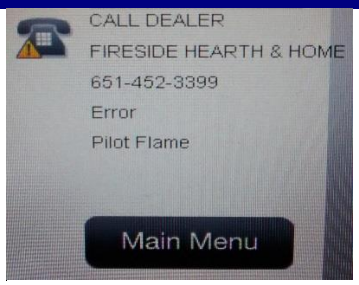
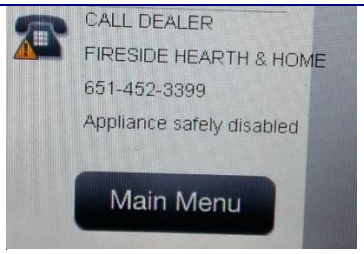
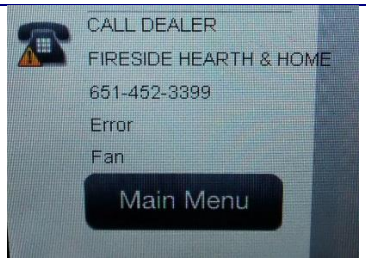
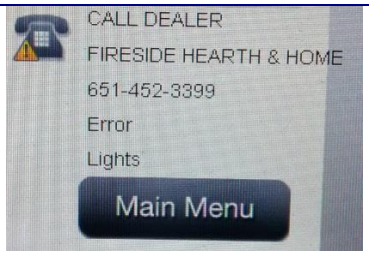
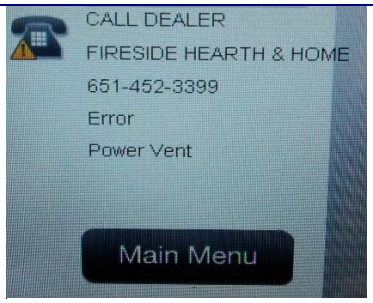
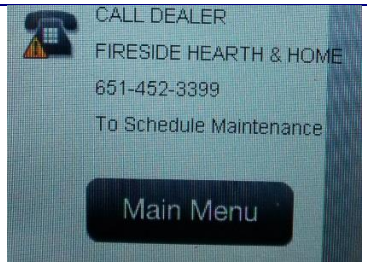
The IFT has enhanced system diagnostic capabilities in two forms, the ECM LED Error Codes and the RC400 (if equipped). The authorized service technician shall utilize the information from these sources to direct actions & document the findings.

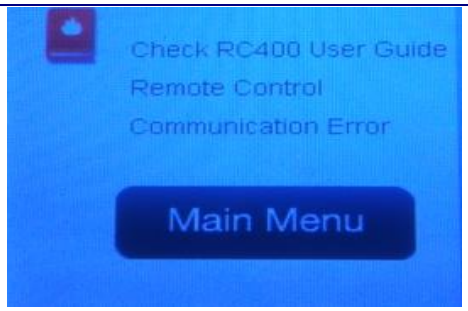
ECM LED Error Codes

ECM LED Error Codes	Description
3 Red: 1 Green	IFT-RC400 error message: 'Appliance Safely Disabled', no ignition and/or flame rectification during ignition trial. Technician shall follow applicable IPI Pilot Ignition and Flame Sensing Rectification troubleshooting guide to resolve the issue.
2 Red: 1 Green	IFT-RC400 display: 'Error Pilot Flame', pilot valve solenoid not detected. Technician shall follow applicable gas valve troubleshooting guide to resolve the issue.
2 Red: 2 Green	Sparking feedback signal error, spark coil failure. The module has an internal hardware failure that cannot be repaired. Replace the control module
5 Red: 1 Green	IFT-RC400 display: 'Error Power Vent'. This Error Code only occurs in systems equipped with an approved Powervent Kit. There are multiple possible causes for this Error Code. Service Technician shall follow applicable troubleshooting guide for the powervent system to resolve the issue.

RC400 Diagnostic Aids

The errors and alerts associated with the RC400 are displayed in the table below:

Function/fault	Text Display	Screen display
Pilot Valve Solenoid	Call dealer Error: Pilot Flame	
No pilot ignition or flame rectification, valve not working, or flame detected before expected. ECM responds with hard lockout, 3:Red:1Green Hard Lockout.	Appliance safely disabled.	
Fan Malfunction	Call dealer Error: Fan	
Light Malfunction	Call dealer Error: Light	
Power Vent or Vacuum switch doesn't work, or ECM is in manual ON.	Call dealer Error: Power Vent	
Maintenance	Display icon. Call Dealer Your fireplace is scheduled for a regular maintenance. Please call your dealer to schedule one.	

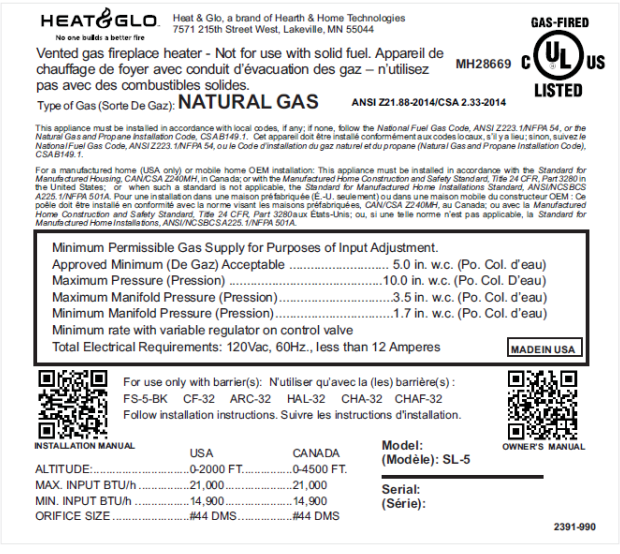
Remote Control Communication Error		
ECM with Firmware Level G. NG Appliance and ECM set to NG mode. Soft lockout after failed 90 second ignition trial. No ECM reset required.	Sorry your appliance did not start. Try again by pressing Flame ON	

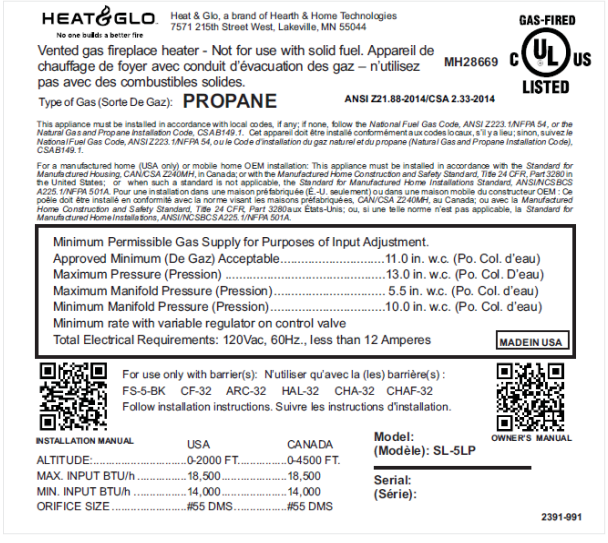
Gas Valve Troubleshooting

Pilot won't light, there is no noise or spark, 2 Red/1 Green Lockout.	Pilot solenoid not detected.	Verify that valve harness orange wire is securely connected to pilot solenoid valve. Verify pilot solenoid resistance is between 38 to 42 ohms. If resistance is low, open lead, or shorted, replace valve. Check valve harness wire continuity, if open replace 6-pin harness.
IFT-RC400 displays the following message on-screen: Call Dealer Error: Pilot Flame In addition, the LED indicator on the IFT-ECM will flash twice red and once green indefinitely.	Valve harness orange wire is not attached to gas valve.	Verify that all wires are correctly installed between the gas valve and the IFT-ECM.
	IFT-ECM is not grounded.	Verify that the black wire from the 6-pin wiring harness on the IFT-ECM is securely attached to the metal chassis.
	Wire is damaged and open.	Verify continuity of the green and orange valve wires, and the black ground wire. Replace wire harness if open lead exists.
	Wires damaged due to heat.	Verify that none of the wires are melted, and/or shorted. Replace damaged wiring if it exists.
	Gas valve is damaged.	Verify the pilot valve solenoid resistance by measuring across the pilot spade and any non-oxidized metal surface of the gas valve. If open, or coil resistance less than 38 ohms, replace the gas valve.

Working Supply and Manifold Gas Pressures

- Refer to the appliance rating plate for specified working inlet and outlet pressure for appliance/gas-type.
- IFT Controls require working pressures within the tolerances on the appliance rating plate. Make any necessary adjustments to the supply working pressure.

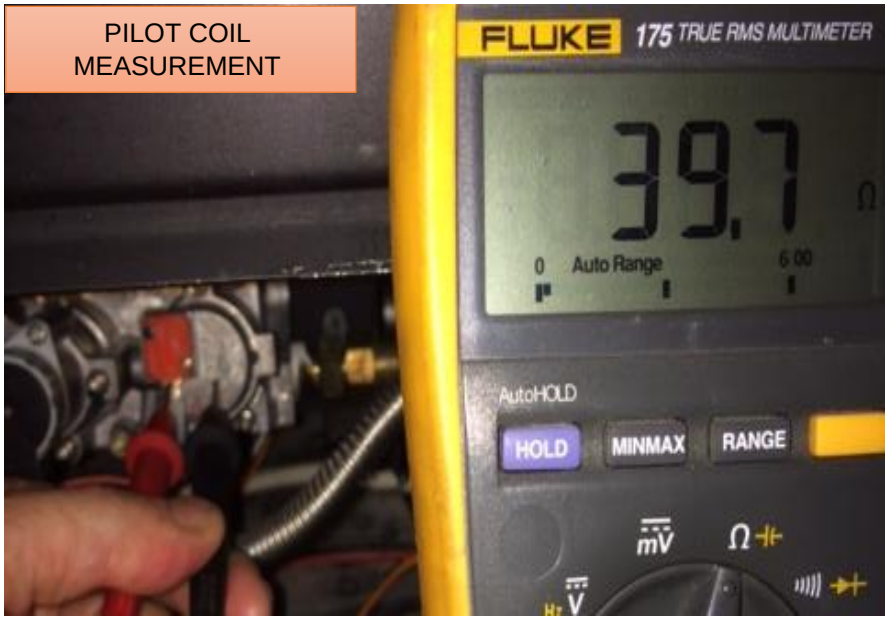

HEAT&GLO
No one builds a better fire
Heat & Glo, a brand of Hearth & Home Technologies
7571 215th Street West, Lakeville, MN 55044
GAS-FIRED
Vented gas fireplace heater - Not for use with solid fuel. Appareil de chauffage de foyer avec conduit d'évacuation des gaz – n'utilisez pas avec des combustibles solides.
MH28669
c UL us LISTED
Type of Gas (Sorte De Gaz): NATURAL GAS
ANSI Z21.88-2014/CSA 2.33-2014
This appliance must be installed in accordance with local codes, if any; if none, follow the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1. Cet appareil doit être installé conformément aux codes locaux, s'il y a lieu; sinon, suivez le National Fuel Gas Code, ANSI Z223.1/NFPA 54, ou le Code d'installation du gaz naturel et du propane (Natural Gas and Propane Installation Code), CSA B149.1.
For a manufactured home (USA only) or mobile home OEM installation: This appliance must be installed in accordance with the Standard for Manufactured Housing, CAN/CSA Z240MH, in Canada; or with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 in the United States; or when such a standard is not applicable, the Standard for Manufactured Home Installations Standard, ANSI/NCSBCS A225.1/NFPA 501A. Pour une installation dans une maison préfabriquée (É.-U. seulement) ou dans une maison mobile du constructeur OEM : Ce poêle doit être installé en conformité avec la norme visant les maisons préfabriquées, CAN/CSA Z240MH, au Canada; ou avec la Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 aux États-Unis; ou, si une telle norme n'est pas applicable, la Standard for Manufactured Home Installations, ANSI/NCSBCS A225.1/NFPA 501A.
Minimum Permissible Gas Supply for Purposes of Input Adjustment.
Approved Minimum (De Gaz) Acceptable ..... 5.0 in. w.c. (Po. Col. d'eau)
Maximum Pressure (Pression) .....10.0 in. w.c. (Po. Col. D'eau)
Maximum Manifold Pressure (Pression).....3.5 in. w.c. (Po. Col. d'eau)
Minimum Manifold Pressure (Pression).....1.7 in. w.c. (Po. Col. d'eau)
Minimum rate with variable regulator on control valve
Total Electrical Requirements: 120Vac, 60Hz., less than 12 Amperes
MADE IN USA
For use only with barrier(s): N'utiliser qu'avec la (les) barrière(s) :
FS-5-BK CF-32 ARC-32 HAL-32 CHA-32 CHAF-32
Follow installation instructions. Suivre les instructions d'installation.
INSTALLATION MANUAL
OWNER'S MANUAL
USA CANADA
ALTITUDE:.....0-2000 FT.....0-4500 FT.
MAX. INPUT BTU/h .....21,000.....21,000
MIN. INPUT BTU/h .....14,900.....14,900
ORIFICE SIZE.....#44 DMS.....#44 DMS
Model: (Modèle): SL-5
Serial: (Série):
2391-990


HEAT&GLO
No one builds a better fire
Heat & Glo, a brand of Hearth & Home Technologies
7571 215th Street West, Lakeville, MN 55044
GAS-FIRED
Vented gas fireplace heater - Not for use with solid fuel. Appareil de chauffage de foyer avec conduit d'évacuation des gaz – n'utilisez pas avec des combustibles solides.
MH28669
c UL us LISTED
Type of Gas (Sorte De Gaz): PROPANE
ANSI Z21.88-2014/CSA 2.33-2014
This appliance must be installed in accordance with local codes, if any; if none, follow the National Fuel Gas Code, ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Code, CSA B149.1. Cet appareil doit être installé conformément aux codes locaux, s'il y a lieu; sinon, suivez le National Fuel Gas Code, ANSI Z223.1/NFPA 54, ou le Code d'installation du gaz naturel et du propane (Natural Gas and Propane Installation Code), CSA B149.1.
For a manufactured home (USA only) or mobile home OEM installation: This appliance must be installed in accordance with the Standard for Manufactured Housing, CAN/CSA Z240MH, in Canada; or with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 in the United States; or when such a standard is not applicable, the Standard for Manufactured Home Installations Standard, ANSI/NCSBCS A225.1/NFPA 501A. Pour une installation dans une maison préfabriquée (É.-U. seulement) ou dans une maison mobile du constructeur OEM : Ce poêle doit être installé en conformité avec la norme visant les maisons préfabriquées, CAN/CSA Z240MH, au Canada; ou avec la Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280 aux États-Unis; ou, si une telle norme n'est pas applicable, la Standard for Manufactured Home Installations, ANSI/NCSBCS A225.1/NFPA 501A.
Minimum Permissible Gas Supply for Purposes of Input Adjustment.
Approved Minimum (De Gaz) Acceptable.....11.0 in. w.c. (Po. Col. d'eau)
Maximum Pressure (Pression) .....13.0 in. w.c. (Po. Col. D'eau)
Maximum Manifold Pressure (Pression).....5.5 in. w.c. (Po. Col. d'eau)
Minimum Manifold Pressure (Pression).....10.0 in. w.c. (Po. Col. d'eau)
Minimum rate with variable regulator on control valve
Total Electrical Requirements: 120Vac, 60Hz., less than 12 Amperes
MADE IN USA
For use only with barrier(s): N'utiliser qu'avec la (les) barrière(s) :
FS-5-BK CF-32 ARC-32 HAL-32 CHA-32 CHAF-32
Follow installation instructions. Suivre les instructions d'installation.
INSTALLATION MANUAL
OWNER'S MANUAL
USA CANADA
ALTITUDE:.....0-2000 FT.....0-4500 FT.
MAX. INPUT BTU/h .....18,500.....18,500
MIN. INPUT BTU/h .....14,000.....14,000
ORIFICE SIZE.....#55 DMS.....#55 DMS
Model: (Modèle): SL-5LP
Serial: (Série):
2391-991

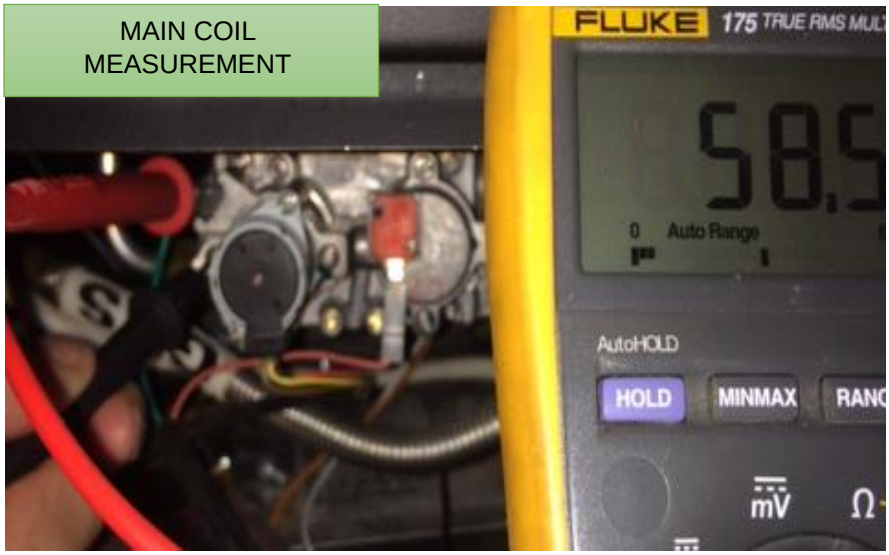
Valve Solenoid Resistance Checks

- Gas valve coil resistance is a fast and effective measurement of the valve function.
- Pilot solenoid resistance range 38 - 42 Ohms
- Main solenoid resistance range 58 – 62 ohms
- If solenoid measures outside of range, or is open, replace the gas valve.
- If solenoid resistance is normal, then the valve should not be suspected as direct cause of problem.

PILOT COIL MEASUREMENT



MAIN COIL MEASUREMENT



Valve Stepper Motor Resistance Checks

- Stepper Motor is not serviceable. Must replace the regulator assembly.
- Stepper Motor requires 5 VDC to energize, so it can malfunction during system operation when powered during emergency battery backup. As batteries deplete to < 5 V, the ability to energize the Stepper Motor is compromised.
- The Stepper Motor coil resistance is a fast and effective measurement to determine if the valve is malfunctioning. Decision to replace valve should be based on motor resistance measurements. It is highly unlikely that the ECM is the source of a suspected valve stepper motor issue.
- Stepper Motor is bi-directional, with two coils, as measured across RED and YELLOW wire pair, and BLACK and BROWN wire pair. Access wires on back of 4-pin connector as connected to the ECM. Each pair should exhibit resistance of 4.5 to 5.5 ohms. If out of range, or open, replace the Stepper Motor Regulator assembly.

AC/DC Adapter Troubleshooting

Symptoms	Possible Cause	Corrective Action
Pilot won't light, there is no noise or spark. IFT-ECM abnormal or no function when switched to 'ON' or 'REMOTE' mode.	No 110-120 VAC power to appliance AC/DC adaptor faulty	Verify AC power available to junction box. Verify that AC/DC adapter is plugged into the correct receptacle at junction box. Verify AC/DC adaptor is plugged into ECM. Verify AC/DC adaptor output voltage is between 5.7-6.3 VDC. If voltage is less than 5.5 VDC, or is unstable, then the device is faulty and should be replaced.

AC/DC Adapter Voltage Verification

- Set multimeter to Volts DC (VDC).
- Measure output voltage (VDC) of the AC/DC Adapter at the jack plug.
- Verify the output voltage is stable and between 5.7 and 6.3 VDC

Pilot Ignition Troubleshooting

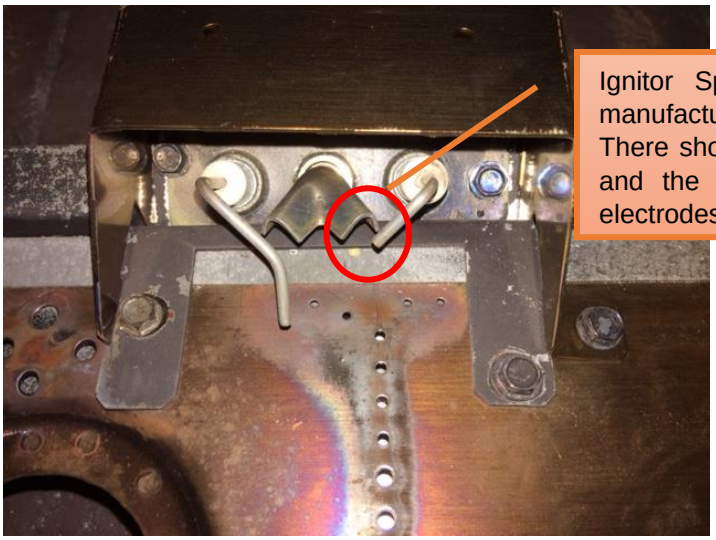
Symptom	Possible Cause	Corrective Action
Pilot won't light, module clicks but no spark, 3 Red/1 Green Lock out.	Incorrect wiring.	Verify 'S' (White) sense wire and 'I' (orange) ignitor wire are connected to correct terminals on IFT-ECM.
	Loose connections or electrical shorts in wiring.	Verify no loose connections or electrical shorts in wiring from module to pilot assembly. Verify secure connection between orange 'I' lead and the ECM. Verify wire insulation is not damaged. Verify wires are not grounding out to chassis, pilot burner, or any other metal object. Replace any damaged wires.
	Ignitor gap is too large.	Verify spark gap is approximately 0.095" (2.41 mm) to 0.135" (3.43 mm).
Pilot won't light, there is no noise or spark.	No AC power, AC/DC adaptor faulty, backup batteries (if being used) depleted, IFT-ECM slider switch in OFF position.	Verify IFT-ECM slider switch is in ON or IFT-REM position. Verify AC power available to junction box. Verify AC/DC adaptor is plugged into junction box and ECM. Verify AC/DC adaptor output voltage is between 5.7-6.3 DC. If battery pack is used, check battery pack voltage is >4.2 V (if not, replace batteries).
	Shorted or loose connection in system wiring or wiring harness.	Verify system wiring configuration. Remove and reinstall wiring harness that plugs into module. Check continuity of wires in valve wiring harness. Replace any damaged components.
	Poor or no system ground.	Verify black ground wire in valve harness is connected to metal chassis of fireplace.
Pilot won't light, there is no noise or spark, 2 Red/1 Green Lockout.	Pilot solenoid not detected.	Check if valve harness orange wire is connected to pilot solenoid valve. Check pilot solenoid resistance, nominal is 40 ohms. If open or shorted, replace valve. Check valve harness wire continuity, if open replace 6-pin harness.
Pilot won't light, there is no noise or spark, 2 Red/2 Green Lockout.	Spark coil failure.	Replace ECM.

IFT Ignition Spark Sequence

The IFT-ECM has either a 60 or 90 second trial for pilot ignition/rectification, depending on the module version level. During pilot ignition and then flame rectification, the module will generate spark discharge at the IPI Pilot Assembly. The IFT-ECM produces semi-continuous spark discharge, *with a two second pause every eight seconds*. In other words, the IFT-ECM is designed to generate spark at the pilot for eight seconds, followed by a two second pause, followed by another ten second cycle.

8 seconds SPARKING – 2 seconds NO SPARK – *repeated for up to 90 seconds*

This sequence is normal – do not change the module.



Ignitor Spark Gap is set during manufacturing at 0.1 to 0.13 inch. There should be no need to adjust, and the spark and flame sensor electrodes are not adjustable.

Power Source Effect on Spark Discharge

The power source to the IFT-ECM affects the ignition sparking characteristics. If “weak” or “slow” spark occurs, verify that the power source is 6+/-0.3 VDC. Reduced voltage, primarily when operating on battery backup, will cause the less spark energy intensity at the pilot. If operating on batteries, replace with new AA cells, and verify performance with full battery voltage.

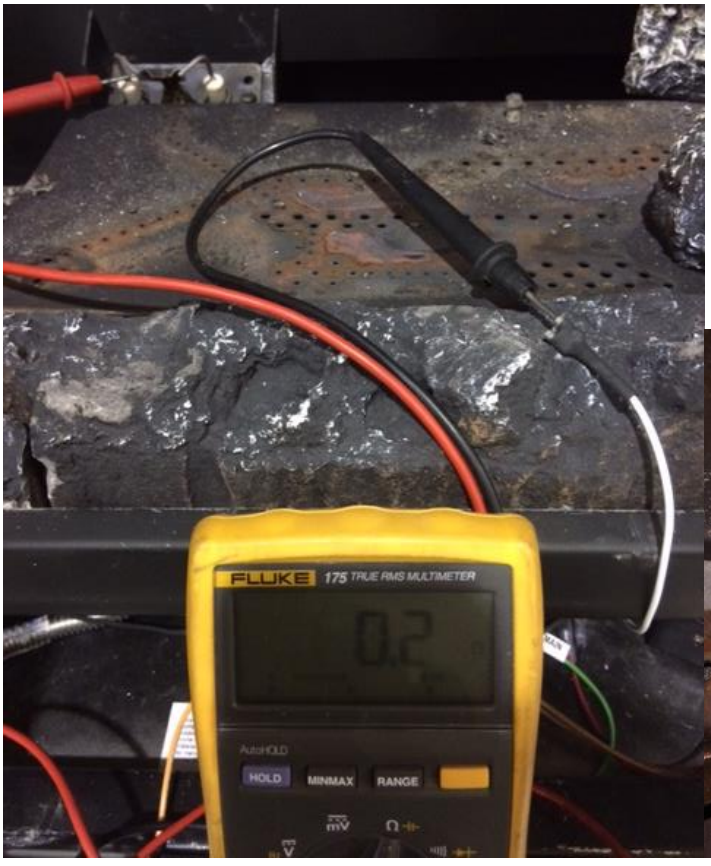
Pilot Flame Sense Rectification Troubleshooting

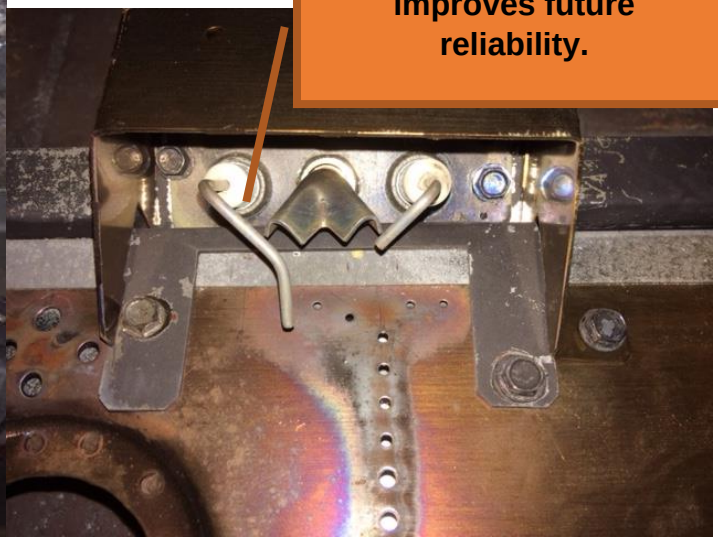
ECM LED Error Codes	Description	
3 Red: 1 Green	IFT-RC400 error message: 'Appliance Safely Disabled', pilot sparks, no either no ignition or flame rectification.	
Pilot sparking, but will not light, 3 Red/1 Green Lockout.	No gas supply.	Verify incoming gas line ball valve is 'Open'. Verify inlet pressure is within requirement for gas type used. Contact gas supplier.
	ECM has poor ground.	Verify wiring, check valve harness black wire is securely grounded to metal chassis.
	Gas valve defective.	Check pilot valve solenoid kick and hold voltages during ignition cycle. Kick V should be >1 V, hold V minimum 0.26 V. If voltages are OK, replace gas valve.
Pilot lights but main burner does not light. Pilot continues to spark for then goes into 3 Red/1 Green Lockout.	No flame detected. Flame rectification issue.	Check if white sense lead is securely connected to 'S' terminal of IFT-ECM. Check resistance of sense lead between sense rod tip and connector to IFT-ECM, should be less than 1 ohm - if not, replace pilot assembly. Check system ground, ensure black valve harness wire is securely attached to metal chassis. Check wiring for damage. With system OFF, check resistance between tip of sense rod and pilot hood, should be resistance (>1 M-ohm).
	No flame detected or sense rod contamination.	With glass assembly installed, verify pilot flame is engulfing flame sense rod on pilot assembly. Verify inlet gas pressure is correct for gas type. Polish flame sense rod with fine steel wool to remove any contaminants that may have accumulated.
Pilot lights and rectifies, but main burner does not light.	Main valve solenoid.	Check if green wire in valve harness is connected to green main valve solenoid. Check main valve solenoid resistance, nominal is 60 ohms. If open or shorted, replace valve. Verify valve inlet pressure is correct for gas type.
Pilot and main do not light, ECM goes into 5 Red/1 Green Lockout.	Power Vent (PV) Failure.	Power Vent blower defective - check wiring to IFT-ACM, check if blower is working. Check if PV pressure switch is connected to brown and black wire in 6-pin valve wire harness. Check if pressure switch is closed (shorted) when PV blower is running. Refer to PV troubleshooting instructions.
Appliance lights and runs for a few minutes then shuts down and/or appliance cycle ON and OFF with less than 90 sec of ON time.	Shorted or loose connection in flame detection circuit.	Check if white sense lead is securely connected to 'S' terminal of IFT-ECM. Check resistance of sense lead between sense rod tip and connector to IFT-ECM, should be less than 1 ohm - if not, replace pilot assembly. Check system ground, ensure black valve harness wire is securely attached to metal chassis. Check wiring for damage. With system OFF, check resistance between tip of sense rod and pilot hood, should be resistance (>1 M-ohm).

	Poor flame rectification or contaminated sense rod.	With glass assembly installed, verify pilot flame is engulfing flame sense rod on pilot assembly. Verify inlet gas pressure is correct for gas type. Polish flame sense rod with 200 grit emery cloth and/or Scotchbrite™ pad to remove any contaminants that may have accumulated. Verify no soot deposits are in sense rod to pilot hood gap.
	Logs are set up wrong.	Remove and re-install logs per the log placement instructions.
	Damaged pilot assembly.	Verify the pilot assembly ceramic insulator around the flame sensing rod is not cracked, damaged or loose. Check resistance between tip of sense rod and IFT-ECM connector, should be less than 1 ohm. Replace pilot assembly if damage is detected.

IPI Pilot Flame Sensor Resistance Checks

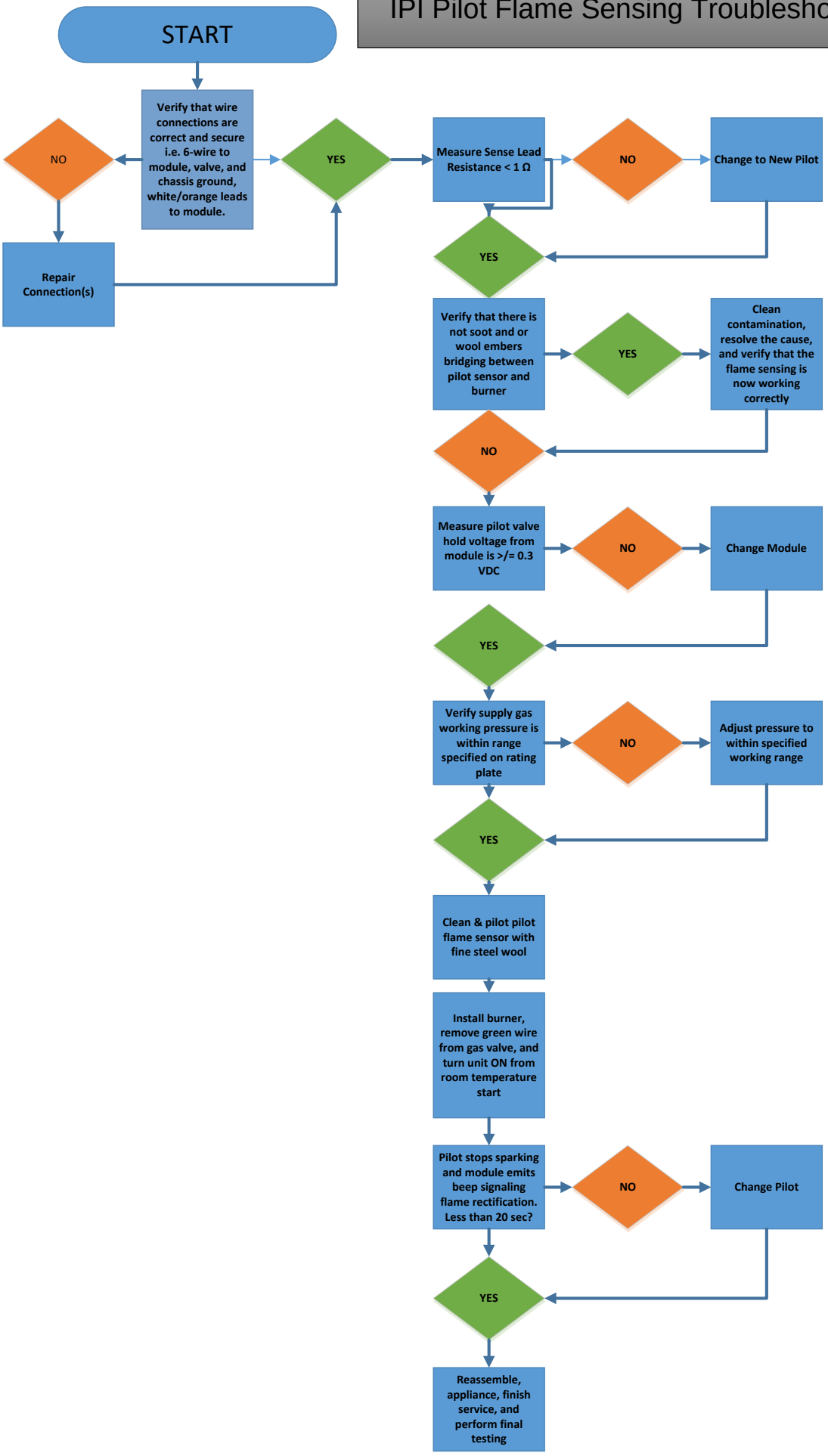
- Sensor wire resistance is a fast and effective measurement of the pilot function.
- Normal resistance, at room temperature, is < 1 Ohm. With this measurement, it is unlikely that the IPI Pilot is the direct cause of delayed flame rectification.
- High resistance of > 1 Ohm may affect the rectification sensing rate of the pilot flame. If the sensing rate is slow, and resistance is > 1 Ohm, clean and polish the sensor electrode with 200 grit emery cloth of Scotchbrite™ pad. If this does not improve the sensing rate and lower resistance, then it is likely that changing the pilot will improve reliability.
- Verify that the pilot has not been painted. Never paint the pilot. If re-painting a firebox during service, always cover the pilot to protect it from paint contamination.





Clean and polish the flame sensor with 200 grit emery cloth and/or Scotchbrite™ pad during service events. This removes oxidation and improves future reliability.

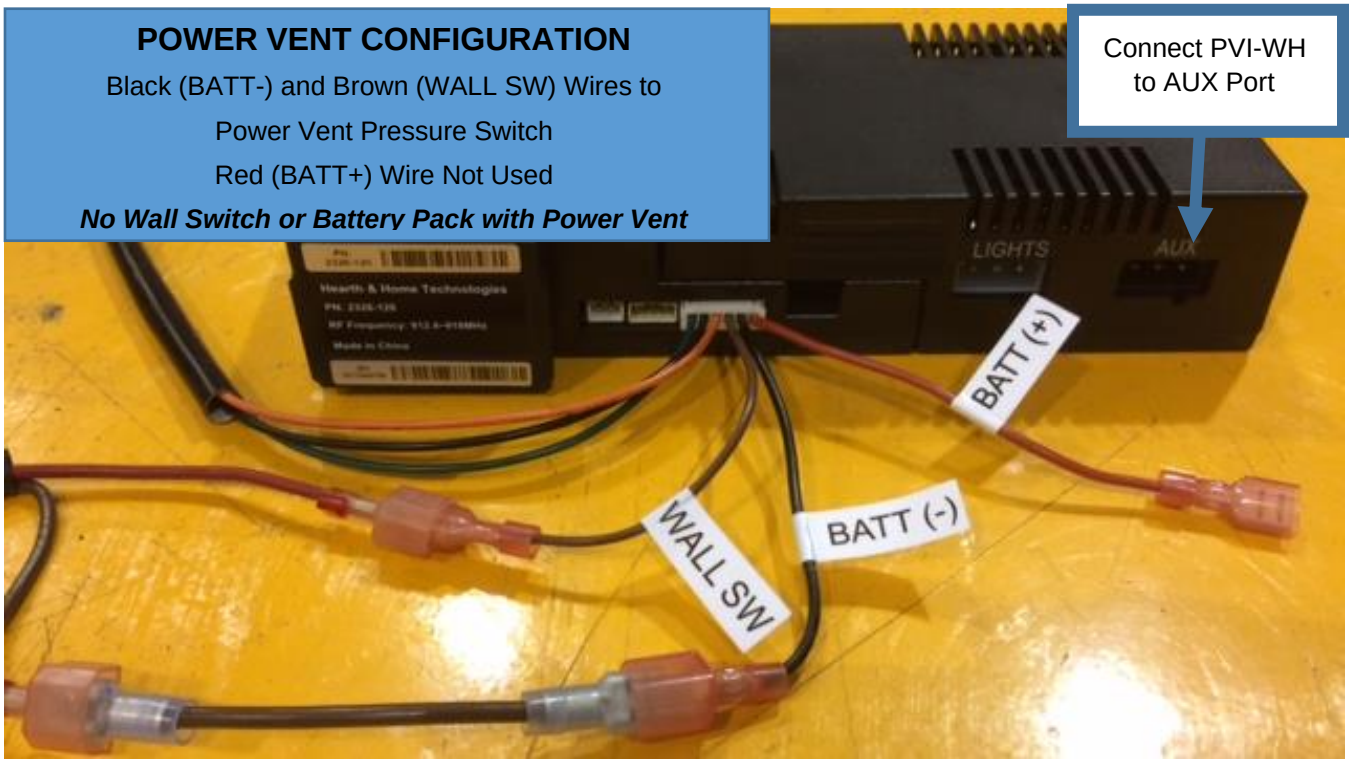
IPI Pilot Flame Sensing Troubleshooting Flowchart



IFT Appliance Equipped with Powervents

- PVI-WH Wire harness connects to the 'AUX' port on the ACM, and the black and brown wires on the ECM. A jumper wire include in the Powervent Kit is needed to complete the connections.
- RC150 or RC400 required to operate Powervented appliance.
- Wired wall switch and battery backup are not available with Powervented appliance.

WARNING! AFTER INSTALLATION OF POWERVENT KIT, THE RC400/RC150 IFT ECM MUST BE RE-PAIRED FOR SAFE OPERATION!



- For the Powervent installation to be complete:
  - The ECM and Remote(s) must be re-paired after the Powervent is added to the appliance. Refer to the RF and Pairing section for the procedures.
  - The appliance and Powervent must be operated to verify function of the Powervent fan motor and pressure switch. See Page 22 for this required function test procedure.

Powervent Appliance Function Testing with the IFT/RC400

- Activate touch screen on RC400. Touch ‘Turn Flame ON’ Icon.
- Observe touch screen – if system is configured properly for Power Vent operation, a two-minute countdown icon will be displayed next to ‘Turn Flame OFF’.

After Powervent installation and re-pairing, function test to verify that the Pre-Purge ICON exists during FLAME ON state.

- If the RC400 display is correct, the Power Vent will be running and the two-minute countdown timer will run, after which the pilot will ignite followed by the main burner. If RC400 display is incorrect, touch ‘Turn Flame OFF’ and refer to troubleshooting section.
- Touch ‘Turn Flame OFF’ on the RC400. The pilot and main will extinguish. The Power Vent will continue to run for 20 min.

Powervent Appliance Function Testing with the IFT/RC400

- Press upper switch of RC150.
- Verify that the system is configured properly for Power Vent operation, the Power Vent will be running, and a two-minute countdown timer will occur with the Power Vent running, after which the pilot will ignite followed by the main burner.
- Press Lower toggle on the RC150. The pilot and main will extinguish. The Power Vent will continue to run for 20 min.

FAQ/Troubleshooting with IFT Controls

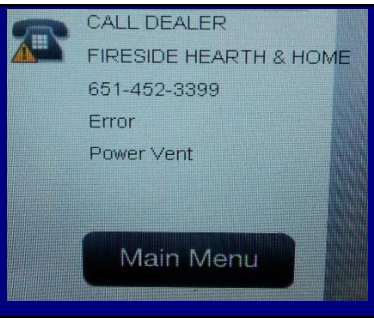
FAQ/Troubleshooting – Appliance Controlled with IFT Controls & Powervent

ECM LED Error Code	Description
5 Red: 1 Green	IFT-RC400 display: 'Error Power Vent'. This Error Code only occurs in systems equipped with an approved Powervent Kit. There are multiple possible causes for this Error Code. Service Technician shall follow applicable troubleshooting guide for the powervent system to resolve the issue.

Power Vent or Vacuum switch doesn't work or ECM is in manual ON.

Call dealer

Error: Power Vent



Symptom(s)	Possible Cause(s)	Corrective Action
System will not respond to 'ON' command. IFT-ECM in lockout with 5 RED: 1 GREEN LED Error Code. RC400 shows 'Call Dealer - Powervent Error' Message	1. Power Vent Motor Failure 2. Power Vent Over Heating 3. Power Vent Pressure Switch Open 4. Blocked Flue 5. Insufficient Draft 6. IFT-ECM selector switch in 'ON' Mode	1. Verify that the wiring within the Power Vent is correct. Verify that the PVI/PLP-SLP Cord assembly is correctly connected to the IFT switch wires, and the AUX port on the IFT-ACM. 2. Verify that blower operates during 'ON' command. 3. Verify that the PVI/PLP-SLP is correctly installed such that it is properly vented and will not overheat. 4. Verify that venting is connected and sealed properly. Verify termination is not blocked. 5. Verify the Teflon tube between the blower and pressure switch is securely connected. 6. Verify that the 'ON' command is provided with IFT-ECM in 'REMOTE' mode with approved remote control.
System responds to 'ON' command. After PVI/PLP-SLP completes 120 second pre-purge, IFT system fails to rectify proven pilot flame. IFT-ECM in lockout with 3 RED: 1 GREEN LED. RC400 shows 'Call Dealer - Appliance safety disabled' Message	Pilot Rectification Failure resulting from: 1. Soot or embers contaminating pilot and burner 2. Shorted/melted pilot white 'S' sensor wire 3. Disconnected pilot white 'S' sensor wire 4. Excessive draft turbulence acting on the pilot flame 5. Oxidation or resistance on the IPI pilot flame sense electrode 6. Supply gas pressure out of specification	1. Verify that the IPI Pilot is clean. If necessary, remove any soot or ember deposits, and clean/polish flame sensor electrode with fine steel wool. If sooting is present, determine possible causes to correct issue. 2. Verify that the IPI pilot white 'S' wire is securely connected to the IFT-ECM and is not melted/pinched/shorted along its length. Replace pilot is damage exists. 3. Verify that the gas supply working inlet pressure is within the specification range. 4. Verify that the black wire on the IFT wiring harness is securely attached to the chassis ground. 5. Verify that the pilot flame is igniting easily, and the pilot flame is not compromised by excessive draft. With glass assembly fully installed, verify that the pilot flame is stable and fully engulfing the flame sensor electrode. 6. Verify that the pilot sensor/wire resistance is < 1 ohm. If > 1 ohm, and flame rectification is occurring slowly, replace the pilot.
Pilot ignites and rectifies flame, but burner fails to light, or does not fully light.	Excessive draft.	1. Verify that the glass is properly installed and all latches are engaged. 2. Place ember material along the back side of the affected burner ports – that can reduce draft affect and promote ignition.

FAQ/Troubleshooting – Appliance Controlled with RC150 Wireless Wall Switch

Symptom	Possible Cause	Corrective Action
The appliance does not respond to commands from the IFT-RC150 and the LED does not blink.	Batteries are depleted.	Verify batteries are new.
	Batteries are incorrectly installed.	Verify batteries are installed in correct orientation as shown on battery receptacle.
The appliance does not respond to commands from the IFT-RC150 but the LED blinks. **Note:** In this state, the LED may blink once every 2 seconds for a duration of 2 minutes, for every 12 minutes.	The IFT-ECM is not in "REMOTE" position or is not powered.	Verify the IFT-ECM has the three-way position switch set to REMOTE and is connected to power (AC/DC Transformer or Batteries)
	The IFT-RC150 is not paired to the IFT-ECM.	To pair the IFT-RC150 to IFT-ECM, follow the instructions in installation manual.
	There is a power outage and the appliance is operating with the emergency backup batteries.	Verify that the backup batteries in the appliance are installed in the correct orientation.
	Defective IFT-ECM or RF module.	Replace module.
The IFT-RC150 LED blinks randomly even though no command is given.	Communicating with IFT-ECM.	This is normal operation. The IFT-RC150 communicates periodically with the IFT-ECM to send or receive information.
The IFT-RC150 LED blinks in a pattern of every 3 seconds continuously for longer than 5 minutes.	Low battery indicator.	Replace the batteries in the IFT-RC150 with new batteries.
The appliance turns OFF the flame after extended periods of operation.	9 hours safety shutdown timer.	This is normal operation. The appliance will automatically turn the flame OFF after 9 hours of uninterrupted operation. See Section 3A.
IFT-RC150 does not pair with the IFT-ECM.	IFT-ECM is not connected to its power source.	Verify IFT-ECM is connected to power and the three position switch is set to REMOTE. Follow pairing process listed in the installation manual.
	Noisy radio environment is preventing IFT-ECM and IFT-RC150 from communicating.	The IFT-ECM and IFT-RC150 operate on the 915MHz radio band. Allow up to 10 minutes for the IFT-ECM and IFT-RC150 to establish contact. If the problem does not get resolved, try powering OFF and ON both the IFT-ECM and IFT-RC150 and perform pairing function listed in the installation manual

FAQ/Troubleshooting – Appliance Controlled with IFT-RC400

Symptom	Possible Cause	Corrective Action
The appliance does not respond to commands from the IFT-RC400 - display does not light up when screen is touched.	Batteries are depleted.	Verify batteries are new.
	Batteries are incorrectly oriented.	Verify batteries are installed in correct orientation as shown on batteries receptacle.
The display on IFT-RC400 lights up when screen is touched but it does not respond to commands.	Child Lock is ON.	Check child lock icon located at the top of the RC400 display. If ON, it will show as a 'locked' symbol. To unlock, remove battery compartment door, locate child lock switch and move to 'unlock' position. Verify child lock icon on screen is now displayed in 'unlock' position.
	IFT-ECM selection switch is not in "Remote" mode	Verify IFT-ECM selector switch is in "Remote" mode.
	IFT-ECM has had a safety shutdown.	Look for 'diagnostics' icon located at the top of RC400 display. If red, touch anywhere on the gray indicator bar to access a secondary menu and check for any error messages. Address the error messages and power cycle the IFT-ECM by moving the slider switch from REMOTE to OFF and back to REMOTE.
	IFT-RC400 is not paired to IFT-ECM.	Tap anywhere on the gray indicator bar to access a secondary menu and verify if the pairing icon is green. If it is not green, then the RC400 has not been paired yet. Follow section F on pairing to successfully pair the RC400 with the IFT-ECM.
	Optional components such fan, lights or power vent are not installed correctly.	Verify peripheral component connections to IFT-ACM. Follow section F on pairing to successfully pair the RC400 with the IFT-ECM.
IFT-RC400 displays the following message on-screen: No dealer info available	Dealer information not programmed into remote.	Remote will still provide all available function, and appliance fully available for use. Call dealer to have them program the IFT-RC400.
IFT-RC400 displays the following message on-screen: Call "Dealer Name & Number" to schedule maintenance. Your fireplace is due for a regular maintenance. Please call your dealer to schedule one.	300 hrs. of use. Appliance is still fully functional.	The appliance has been burning for 300 hours and is due for maintenance. Call dealer to have them perform maintenance.
The room temperature displayed on the IFT-RC400 is either slow or quick to respond while operating in thermostat mode.	IFT-RC400 is placed at a very short distance or too far away from the appliance.	Try to keep the IFT-RC400 close to the appliance but not directly in front of it.
	IFT-RC400 is placed in the path of an air draft or vent.	Move the IFT-RC400 away from the direct path of air flow.
	Flame Modulation	The IFT system is designed to automatically adjust the flame intensity based on the difference between the desired room temperature, and actual temperature. In thermostat mode,

		the hearth appliance will start in HI flame, but as the actual temperature approaches the desired set temperature on the remote, the flame intensity will automatically decrease. Automatic flame modulation will result in more control of the temperature but will cause the appliance to cycle OFF/ON less.
The appliance turns OFF the flame after extended periods of operation	9 hour safety shutdown timer	This is normal behavior. The appliance has a safety timer that will automatically turn OFF the flame after nine hours of uninterrupted operation.
IFT-RC400 does not pair or un-pair from the IFT-ECM	IFT-ECM is not connected to its power source	Verify IFT-ECM is connected to power and the three position switch is set to REMOTE. If operating off battery backup, ensure that all four batteries are NEW. Follow pairing process listed in section F.
	Noisy radio environment is preventing IFT-ECM and IFT-RC400 from communicating.	The IFT-ECM and IFT-RC400 operate on the 915MHz radio band. Allow up to 10 minutes for the IFT-ECM and IFT-RC400 to establish contact. If the problem does not get resolved try powering OFF and ON both the IFT-ECM and IFT-RC400 and perform pairing function listed in section 2F.
IFT-RC400 displays the following message on-screen: Fan will turn on within 3 minutes"	Functioning as intended.	The appliance has a three minute delay timer before the fan is turned ON. This allows the air surrounding the appliance to be heated before being pushed into the room.
IFT-RC400 displays the following message on-screen: “Replace remote batteries."	Low battery in IFT-RC400.	Install new batteries in the IFT-RC400.
The flame height on the IFT-RC400 does not appear to be doing anything.	Stepper motor is not connected.	Check if the 4 pin wiring harness from the stepper motor is connected to the IFT-ECM.
IFT-RC400 is displaying an incorrect brand.	IFT-RC400 was programmed incorrectly.	Call dealer to have them program the IFT-RC400 with correct branding. IFT-RC400 is still fully functional and the appliance is unaffected.
After turning flame ON using display, the flame does not turn ON immediately and instead a two minute timer is displayed.	Power vent is installed on the appliance.	This is expected behavior and the two minute timer is called a pre-purge timer. The flame will turn ON at the expiration of the timer.
RC400 displays “Sorry your appliance did not start. Try pressing flame on again”.	Failed ignition trial on NG Appliance, with ECM set to NG mode, on appliances equipped with ECM with Firmware G	If this occurs repeatedly, verify gas supply, then gas valve, then pilot flame sensing.

Symptom	Possible Cause	Corrective Action
IFT-RC400 displays the following message on-screen: "Remote Control Communication Error."	No power to Appliance	Verify home circuit breaker is on and master reset is on (if equipped).
	Power Outage	Install new batteries in battery backup.
	IFT-ECM Mode	Verify selector switch in "Remote" mode.
	IFT-ECM Power	Verify IFT-ECM connected to AC adapter and AC adapter is plugged into the Junction Box.
The IFT-ACM does not respond to commands from the IFT-RC400	IFT-ACM was newly installed and not paired.	Refer to Section D7 and make sure that the pairing procedure has been followed especially if the IFT-ACM was newly installed.
	The power cord between IFT-ACM and junction box is disconnected.	Refer to Section D7 and make sure the power cable is properly inserted into the IFT-ACM and the junction box.
	IFT-ACM and IFT-ECM are not latched.	Refer to Section D5 and check the connection between the IFT-ACM and IFT-ECM by making sure they are latched together.
IFT-RC400 display the following message on-screen: Call Dealer Error: Fan	Convection blower malfunction.	Using an RMS voltage meter, check the voltage coming out of the fan port on the IFT-ACM when the fan is set to highest level on the IFT-RC400. If the voltage measured is close to 120V AC then power down the appliance and install a new fan and verify if the issue has been resolved.
	Fuse in IFT-ACM is blown.	Using an RMS voltage meter, check the voltage coming out of the fan port on the IFT-ACM when the fan is set to highest level on the IFT-RC400. If voltage measured is closer to zero, then replace the IFT-ACM itself
	IFT-ACM is not responding to IFT-RC400.	Follow steps listed in the previous symptom.
	Fan is not plugged into IFT-ACM.	Check wiring and connections
	Spade connectors are mis-wired.	Some Fans may be connected to the IFT-ACM using spade connectors. For safety, turn off the power to the appliance and check to see if the wires on either end of the spade connector do not match in color as they might be mis-wired.
IFT-RC400 display the following message on-screen: Call Dealer Error: Lights	Ember/backlighting malfunction.	Using an RMS voltage meter, check the voltage coming out of the lights port on the IFT-ACM when the lights are set to highest level on the IFT-RC400. If the voltage measured is close to 120V AC then power down the appliance and install a new light kit and verify if the issue has been resolved.
	Fuse in IFT-ACM is blown.	Using an RMS voltage meter, check the voltage coming out of the lights port on the IFT-ACM when the lights are set to highest

		level on the IFT-RC400. If voltage measured is closer to zero, then replace the IFT-ACM itself.
	IFT-ACM is not responding to IFT-RC400.	Follow steps listed in the second symptom.
	Lights are not plugged into IFT-ACM.	Check wiring and connections.
	LED controller is not functioning.	Some appliances come with an LED controller that plugs into the Lights port on the IFT-ACM. Verify its wiring and that it is functioning and if not replace it and verify if the problem is resolved.
Lights are blinking and/or fan and Power Vent blowers are fluctuating.	Poor quality of power from local power station.	Check with customer if they are also noticing issues with other unrelated appliances and if other lighting fixtures are also blinking/dimming randomly. If so, install a surge suppressor between the hearth appliance and its power source.