Please consult this guide for any questions regarding Flame Detection or Flame Quality. For futher info please call our toll free number listed below. If you need additional information on setting up your Profire system please visit our website for our full selection of troubleshooting guides, quick start guides and product manuals.

SYSTEM IS NOT DETECTING FLAME

QUESTION ARE IN WHITE RECTANGLES

? → NO → NO, ALWAYS MOVES TO THE RIGHT

↓ YES → YES, ALWAYS MOVES DOWN

1 Does the flame quality drop from 100% (Pilot) when the main comes on? — NO →

— YES ↓

Does the system stay running with the flame arrestor open? — NO → The draft from the main could be pulling the pilot flame away from the flame rod. Reposition the flame rod.

— YES ↓

Clean the arrestor and look for other air restrictions

2 Ensure that the pilot orifice is correct for the gas used. (#54 for natural gas)

3 Ensure that there is a metal-on-metal connection from the pilot nozzle to the housing and a ground wire from the housing to the 2100

4 Ensure that the ignition rod is fully immersed in the flame

With the system powered and in idle mode, set a Multi-Meter to read AC voltage and measure across the ION + and ION - terminals. The voltage will fluctuate a bit due to the flame test.

Take note of the maximum voltage

Is the voltage greater than 25VAC? — NO → Remove the wire from ION + and measure the AC voltage between the ION + and ION - terminals again.

— YES ↓

Is the voltage above 35VAC? — NO → It is possible that the terminal card is faulty

— YES ↓

Is the wire run length from the burner to the PF2100 longer than 25′ — NO → Something is loading the signal. Ensure that the wire type is not shielded. Look for partial ground shorts or nicked wires.

— YES ↓

The length loading on the wire is too high. Using ignition wire for ION + will allow the signal to be run up to 50′. Using separate rods for flame detection and ignition can also reduce the ION + load by bypassing the coil.

5 Measure the AC volatage from the flame rod to ground if the rod is accessible. If it is not accesible remove the wire from the flame rod and measure on the connector.

Is the voltage measured at the rod close to the voltage measured across the ION + and ION - terminals? — NO → Is the same rod being used for both flame detection and ignition? — NO → **THERE ARE TWO RODS** Check the ION + wire for shorts to ground or nicks.

— YES ↓ (for "Is the same rod...")

Measure the AC voltage on the ION + wire where it connects to the coil.

Is it close to the same voltage that was measured across the ION + and ION - terminals? — NO → Check the ION + wire for shorts to ground or nicks.

— YES ↓

Replace the coil.

(Main path) — YES ↓

6 Set the Multi-Meter to measure DC voltage across ION + and ION - with the system in manual mode.

Is the reading across ION + and ION - around +5VDC? — NO → Remove the wire from ION + and measure the DC voltage between the ION + and ION - terminals again.

Is the voltage across the ION + and ION - terminals around +5VDC? — NO → It is possible that the terminal card is faulty

— YES ↓

Check the ION + wire for nicks or other faults.

(Main path) — YES ↓

7 Put the system into Auto Mode and monitor the voltage on the Multi-Meter. While sparking the voltage will jump around, ignore this.

Take note of the voltage after the sparking while the flame is present.

Did the voltage drop below +5V when the flame was present? — NO → The system is not seeing the flame at all. The circuit from the rod through the flame to the nozzle to ground is not being completed.

Check the grounding to the pilot nozzle.

Check for cracked ceramic on the flame rod.

— YES ↓

8 The system is sensing flame, just not enough. The DC voltage should drop to -5VDC or lower (-8VDC is better) for stable flame detection.

9 Adjust the flame rod positioning to try to decrease the voltage while the flame is present.

The problem could be related to flame anchoring. To verify this place a grounded rod in the flame.

Did placing the grounded rod in the flame improve the DC voltage reading? — NO → Recheck the orifice size and increase the pilot pressure

— YES ↓

Try replacing the pilot nozzle

— YES ↓

Set the system up to use separate rods for flame detection and ignition

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