

ELECTRONIC FLAME SUPERVISION ULTRA VIOLET DETECTOR

MODEL: Low Profile Scanner

Revision: 1

BULLEN
7155

DESCRIPTION

The 7155-0001 Ultra Violet Detector is a photo-sensitive flame sensor for use with the Pyronics Sens-A-Flame II and flame monitoring system. The detector tube has a peak spectral response in the short wave ultra-violet region and, therefore, will not be activated by visible light, infra-red energy or sunlight, ect. The detector responds to the ultra-violet radiation generated by all flames.

The detector electronics have been designed to be compatible with the standard Sens-A-Flame II systems. The system may be used with either 7150, 7155 Detectors of Flame Rods without modification. Both Detectors and Flame Rods may be used intermixed on the same installation. Dual sensing means UV detectors and/or Flame Rods may be used on any flame input terminal.

ACCESSORIES

The 7155-0001 Purge Air Nipple provides a 1/8" inlet for a supply of cool air to control the temperature of the detector. The air also helps keep dirt and moisture out of the sighting port. The purge air nipple is threaded on both sides and is installed between the burner port and the detector.

SPECIFICATIONS

OUTPUT - Varies with flame condition :

Minimum : 1 micro Amp Dc required for proper operation

Maximum : 100 micro Amps DC (Std.) 150 micro amps DC (Hi-intensity)

MAXIMUM LEAD LENGTH : 200' under optimum conditions, see installation

AMBIENT TEMPERATURE : -4 to 140 Degrees F (-20 to 60 Degrees C)

CONNECTIONS :

Burner sighting : 1/2" NPT

Electrical connection : 1/2" flex conduit fitting

Wire : 36" stranded No. 18 AWG with 105 degree C insulation

ENCLOSURE : .030" Aluminum with 1" hex mounting nut, the housing is sealed
Overall length 4.1" Diameter 7/8"

FURNACE ATMOSPHERE SEAL :

Standard : 5 PSIG

7155-0001 Purge Air Nipple :

Connections : 1/2" NPT both sides

Air Inlet : 1/8" NPT

Material : aluminum

APPROVALS:



U.L Component listed
File MH 8818



For use with
Sens-A-Flame only



FEATURES

- Small Size
- Standard 5 PSIG Pressure seal
- 1/2" Sighting Connection for maximum aperture
- Optional Provisions for air purge

CAUTION Operation of combustion equipment can be hazardous resulting in bodily injury or equipment damage. Each burner should be supervised by a combustion safeguard and only qualified personnel should install, make system adjustments and perform any required service.



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NOTICE: PYRONICS practices a policy of continuous improvement in the design of its products. It reserves the right to change the specifications at any time without prior notice.

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INSTALLATION

Locate the detector where the ambient temperature is between -4 and 140 degrees F. Where the upper limit may be exceeded, use an air purge to keep the detector temperature below 140 degrees F.

The detector will operate in any position, however, avoid positions where dirt and moisture may accumulate in the sighting port.

Wiring must conform with electrical codes, regulations, and ordinances. Use NEC Class 1 wiring. Type TW moisture-resistant wire is strongly recommended.

The Detectors's supply wire (the white wire) must be connected to terminal "U" of a Pyronics Sens-A-Flame II. The Detector's signal wire (the black wire) must be connected to either terminal 10 on a single burner Sens-A-Flame II or a flame sensor terminal on a multiple burner Sens-A-Flame II or Flame Monitor. DO NOT GROUND TERMINAL "U".

If terminal "U", or the UV, white wire does ground, damage to the Sens-A-Flame II transformer will result.

To prevent damage, install a 1/8 Amp Slo-Blo fuse in-line with Terminal L1 of Sens-A-Flame II.

DO NOT RUN DETECTOR WIRES WITH LINE VOLTAGE OR IGNITION WIRES., isolate the UV black wire(s) from all other wires including the UV white wire(s). For multiple detector installations, it is recommended that single supply (white) wire be run from the Sens-A-Flame II terminal "U" to the detectors. Then supply each detector from the common supply (white) wire.

When the detectors are a long distance from the Sens-A-Flame II, using shielded wire with the shield grounded at the Sens-A-Flame II will improve the flame current signal quality. DO NOT PAIR THE SUPPLY (WHITE) AND SIGNAL (BLACK) WIRES IN THE SAME SHIELD AS LOSS OF SIGNAL OR INTERFERENCE MAY RESULT.

Ultra Violet radiation does not penetrate glass, moisture, oil, dust and dirt. therefore, clean the lens periodically or when detector signal strength weakens. An air purge can help maintain a clear sighting port.

CHECKOUT

CHECK ALL WIRING. See installation instructions above.

Test to prove the detector can view only the burner being monitored, and not other sources of UV, such as ignition spark.

Perform pilot turndown test for all pilot burners :

1. Adjust the pilot so that it may be viewed by the detector.
2. Verify that the pilot remains in full view for the full range of burner operation.
3. If a DC microammeter is available, measure the flame current signal generated by the detector over the full range of burner operation. For reliable operation, adjust the pilot to ensure a flame current signal in excess of 1 microampere at the maximum turndown position. NOTE : Current fluctuation is normal with Ultra Violet detection. The actual reading is an average. A heavily dampened meter will average readings and reduce fluctuation.
4. ENSURE THAT THE SMALLEST PILOT PROVEN BY THE SENS-A-FLAME II WILL RELIABLY IGNITE THE MAIN BURNER.

Interrupted Pilot :

The Main flame must be sighted by the detector when using interrupted pilots. A second detector must be used when the main flame is not visible through the pilot monitoring port.

Perform the safety shutdown test on all burners :

1. Place the system in operation for several minutes.
2. Manually shut off burner.
3. The Sens-A-Flame II "Flame On" light will go out, and terminals 3, 8, 13 and 14 will de-energize to shut down all valves.
4. Alarm terminal 4 should power.

Basic Operational Test :

1. Remove a detector from its burner port.
2. Put the Sens-A-Flame II in the "Purging" mode.
3. Put a match or other flame source in front of the detector. If the detector/wiring/combustion safeguard system is operating properly, the Sens-A-Flame II "Flame On" light will come on, and the "Purging:" cycle will be stopped.

NOTE : THIS TEST SHOULD ONLY BE PERFORMED WHEN THE SENS-A-FLAME II IS IN THE "PURGING" MODE..