



Quanta-Flame UV Scanner

Model 5002-01NC
120V



USER MANUAL

Note: All rights and privileges to the design of this product including the circuit layout and software are the exclusive property of Preferred Utilities Manufacturing Corp. No part of which can be sold, used, or modified without the expressed written permission of Preferred Instruments.

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FEATURES

- **Internal Microcomputer** which controls internal functions
- High quality fused silica quartz flat lens
- Machined alloy housing with seals NEMA 4
- Replacement scanner can be replaced without disturbing wiring
 - Flame relay contacts
 - Status LEDs
 - Flame intensity
 - Output on indicator

Note: **The Quanta-Flame Series 5002-01NC is NOT a flame safeguard.**

SPECIFICATIONS

MECHANICAL:

Length Overall: 3" (76.2 mm)

Diameter: 2.25" (57.15 mm)

Housing: Machined 5052 Aluminum Alloy

Finish: Clear

Sight Tube Entrance: 1/2"-14 NPT Thread

ELECTRICAL:

Supply Voltage:

5002-01NC-120V: 120 V 50/60 Hz

Required Current: 100 mA

Output: Relay contact: (2Amp) 250V
UV or FR amplifier output

ENVIRONMENTAL:

Temperature: -20°C to +60°C (0°F to 140°F).

OPTICAL:

Lens: Fused Silica.

Ultra-Violet SPECTRAL SENSITIVITY:

Wavelength: 180-230 nano-meters



5002-11NC next to the larger
5002-01 Self-Check scanner



PRODUCT CERTIFICATIONS:

Note: Product certification only for models below as indicated in table:

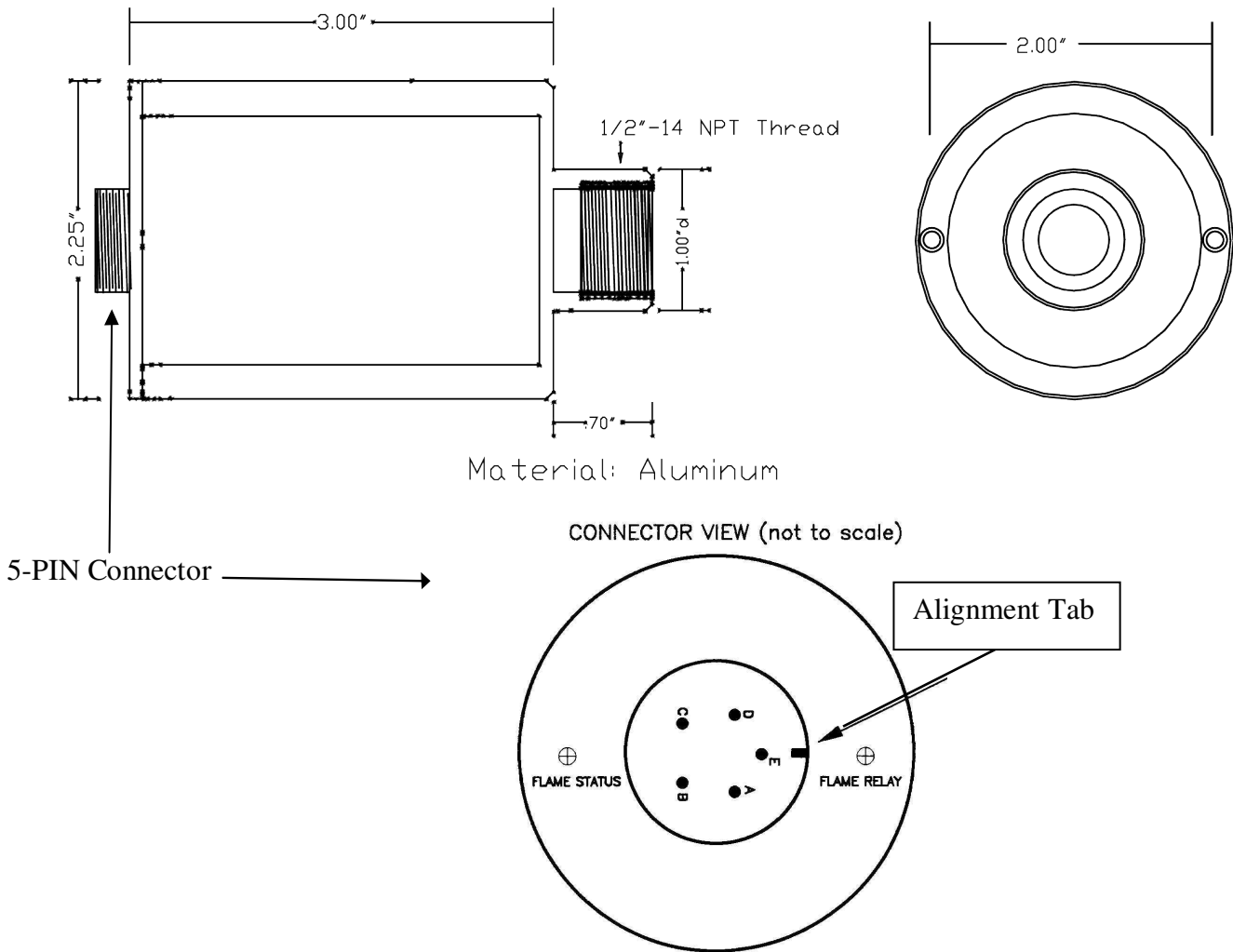
5002-01NC	Microcomputer controlled UV Scanner (120VAC) Relay & Flame Amplifier Output	UL
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UL file Number: E233069

Applicable Requirements: 199-M89, UL 372, UL1998,

Note: Handle with care. Internal sensing element may be damaged if scanner is dropped.

Dimensions:



Flame Status LED

When a flame is detected the Flame Status LED (FSL) will illuminate with a **red color**. This light will vary in intensity proportional to the level of flame signal (flame strength) detected.

Flame Relay LED

When a flame of sufficient intensity of Ultra-Violet signal is detected the 5002 control will activate the output signal.

While the output is activated the Flame Relay LED (FRL) will illuminate. Should the flame signal fall below the minimum threshold or should one of the internal circuit tests fail the output will deactivate and the FRL will shut off.

Installation

Notes:

The Quanta-Flame Series 5002 is NOT a flame safeguard.

It is a flame-sensing detector only

- All installation, wiring, or service activities must only be performed by knowledgeable and qualified technicians.
- All system wiring to and from the control and scanner should be run in accordance with the National Electrical Code and all local code requirements.
- Always remove all power to the system before wiring and never connect or disconnect scanner when power is present.

Choose a sighting location providing an unobstructed view of the flame under all firing conditions. **UNDER NO CONDITIONS SHOULD THE SCANNER SEE IGNITOR SPARK.**



A scanner monitoring a pilot flame should be positioned so that no flame will be detected if the pilot flame is too small to reliably and safely light the main flame.

In multiple burner furnaces, choose a sighting angle with the best possible view of the flame of interest and the poorest possible view of other flames in the furnace.

The sighting pipe should be inclined slightly downward toward the furnace floor so that unburned particles will not fall, or moisture will not drain, into the scanner cavities.

WIRING and CONNECTIONS

Note: Scanner cable colors on charts and diagrams below. For the pin “D” connection to the scanner some of the 5000-02 scanner cables will have a blue colored conductor and some will have a brown colored conductor.

Caution: Do not reverse line and neutral when wiring the scanner.
Doing so will damage the unit

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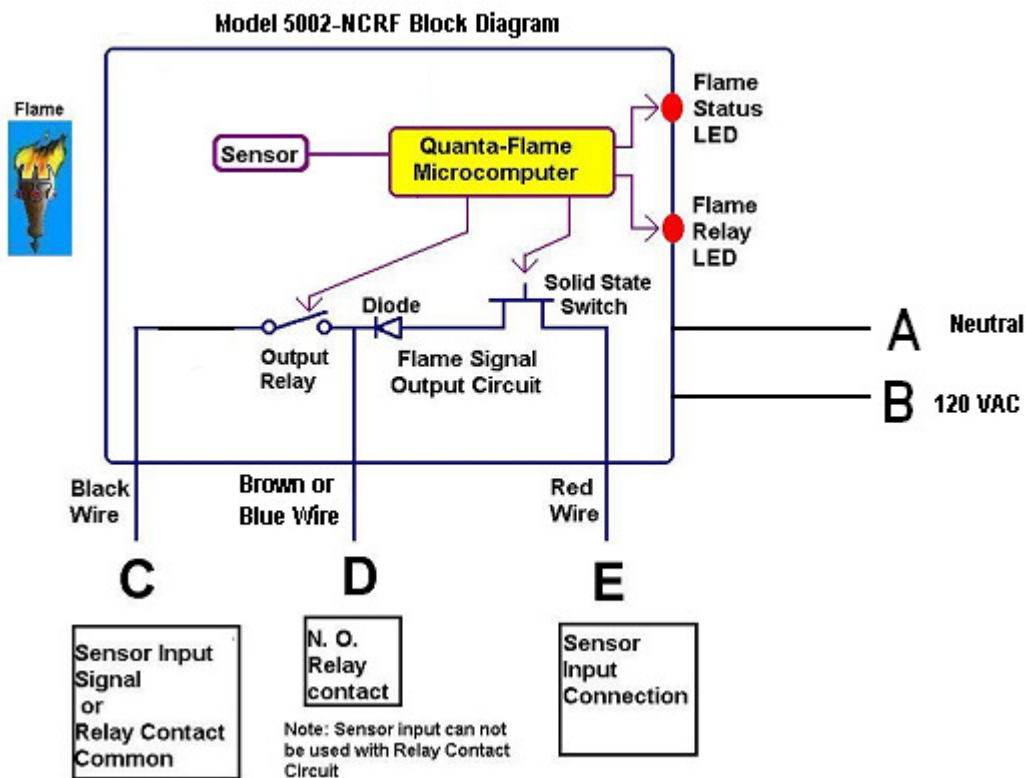
5002-01NC-120V

Connector Pin	Function			5 Conductor Cable Color GNE# 5000-02/05 (5 feet)*
A	Neutral			Orange
B	120 VAC 50/60Hz			Yellow
C	Output (Output Contact Rating: 120VAC, 1 amp)	<u>For Contact Output:</u> Common side		Black
D	Output (Output Contact Rating: 120VAC, 1 amp)	<u>For Contact Output:</u> Normally open side		Brown or Blue
E	Sensor Signal Output	(Flame Rod, Infrared & Ultraviolet type)		Red
Shield				Bare

*Longer lengths are also available- contact GN Electronics

Wiring for Contact Output Model 5002-01NC-120V (120VAC only)

Note: “E” is the flame control output for UV or FR controls: If E is used then “C” is the common for the sensor circuit and “D” must remain unconnected.



Caution: Do not reverse line and neutral when wiring the scanner.
Doing so will damage the unit

General Wiring Considerations

Depending on the output option used the wiring requirements will vary somewhat.

Output type	Suggested wire	Wiring run considerations
Contact	14 to 16 AWG	THHN or equivalent Nothing special- can be run with other wires in conduit
4 to 20 ma 1 to 5 volts 0 to 10 volts Flame Signal RS 232 RS 485	14 to 16 AWG	THHN if wire is run in separate conduit
		Shielded cable if multiple wires are in one conduit
		Coax cable if long distance runs are required or if high level of electrical noise is present

Note

All wiring runs to the field on, or near, hot surfaces should be rated for 90°C (195°F) or at least 25°C (50°F) higher than the surface temperature.

Maintenance

Lens Cleaning

This is the only routine maintenance required. It is suggested a good lens cleaning fluid and lint free tissue be used for this operation. Remove the scanner as follows:

1. Disengage the scanner cable from the scanner.
2. Turn off the purge air supply (If attached)
3. Close any shut off valve in downstream of the scanner.
4. Unscrew the scanner from its mounting. The lens is now accessible for cleaning.

When the lens has been cleaned the scanner should be put back into service by reversing the above removal instructions.

WARRANTY:

This product (5002 Series) is warranted for one (1) year from the date of delivery against manufacturing defects only. Preferred Utilities Manufacturing Corporation standards terms and conditions apply. Preferred Utilities Manufacturing Corporation's liability for its products, whether due to breach of warranty, negligence, strict liability, or otherwise, is limited to the furnishing of replacement parts and Preferred Utilities Manufacturing Corporation will not be liable for any other injury, loss, damage or expenses, whether direct or consequential, including but not limited to loss of use, income of, or damage to material arising in connection with the sale, installation, use of, inability to use or the repair or replacement of Preferred Utilities Manufacturing Corporation's products.

Units should be returned to Preferred Utilities Manufacturing Corporation. Controls should be well packed in a suitable container encased in appropriate stuffing.

All scanners should **be shipped prepaid to:**

**Preferred Utilities Manufacturing Corporation
31-35 South Street
Danbury, CT 06810**

Notes: