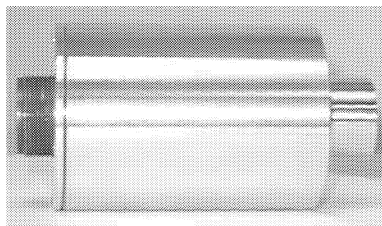
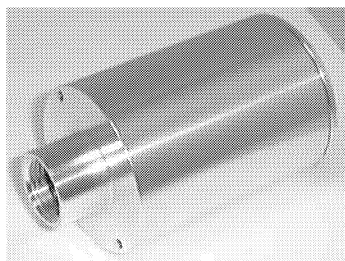


GN Electronics Inc.

***Quanta-Flame UV/IR Combination Scanner
With Relay Contact and 4 to 20mA Output***

Series 5002-21NCRC



USER MANUAL

Patent Pending

TERRACENE

INTERNATIONAL

LTD.



Terracene International Ltd.

Instrumentation Sales, Design, and Service.

#100, 18016 - 105 Ave.

Edmonton, Alberta

T5S 2P1

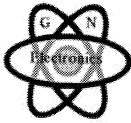
Web: www.terracene.com

Phone: 1-780-443-2299

Toll Free: 1-888-433-2299

Fax: 1-780-484-6074

e-mail: info@terracene.com



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 5002-21NC is NOT a flame safeguard.**
It is a flame-sensing detector only

SPECIFICATIONS-5002 Quanta-Flame

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: **12 to 24VDC**

Required Current: 100 mA

Output: Relay contact: (2Amp) 250V
4 to 20 mA

ENVIRONMENTAL:

Class: NEMA type 4

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

OPTICAL:

Lens: Fused Silica.

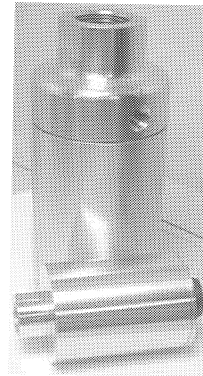
Ultra-Violet SPECTRAL SENSITIVITY:

Wavelength: 180-230 nano-meters

Infrared SPECTRAL SENSITIVITY:

Wavelength: 400-1050 nano-meters

Frequency: < 40 HZ



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



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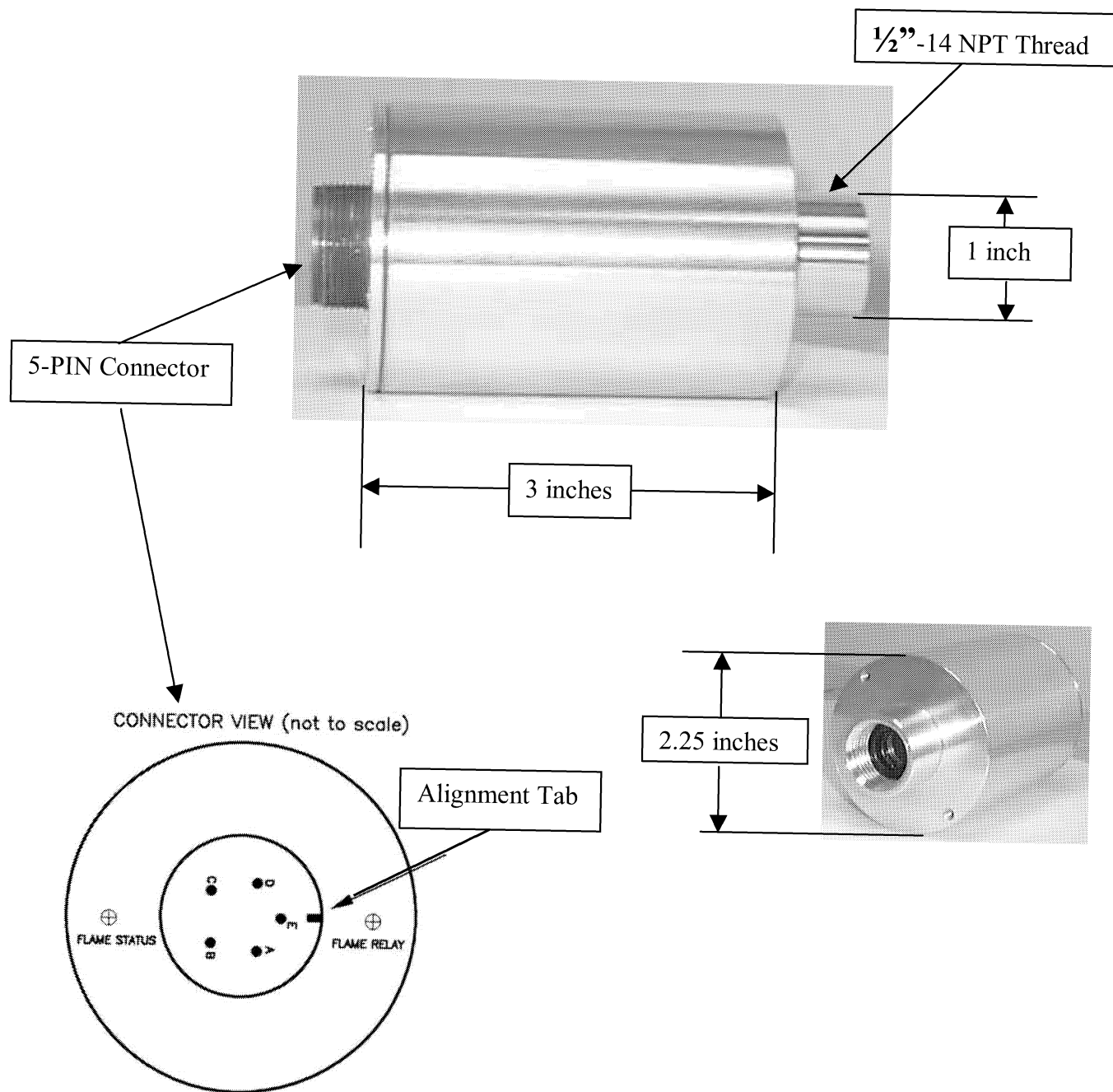
Web: www.terracene.com

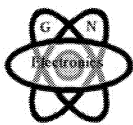
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Flame Status LED

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 or Infrared signal and flicker frequency 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

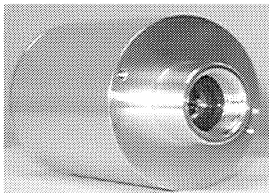
Notes:

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.

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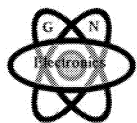
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WIRING and CONNECTIONS

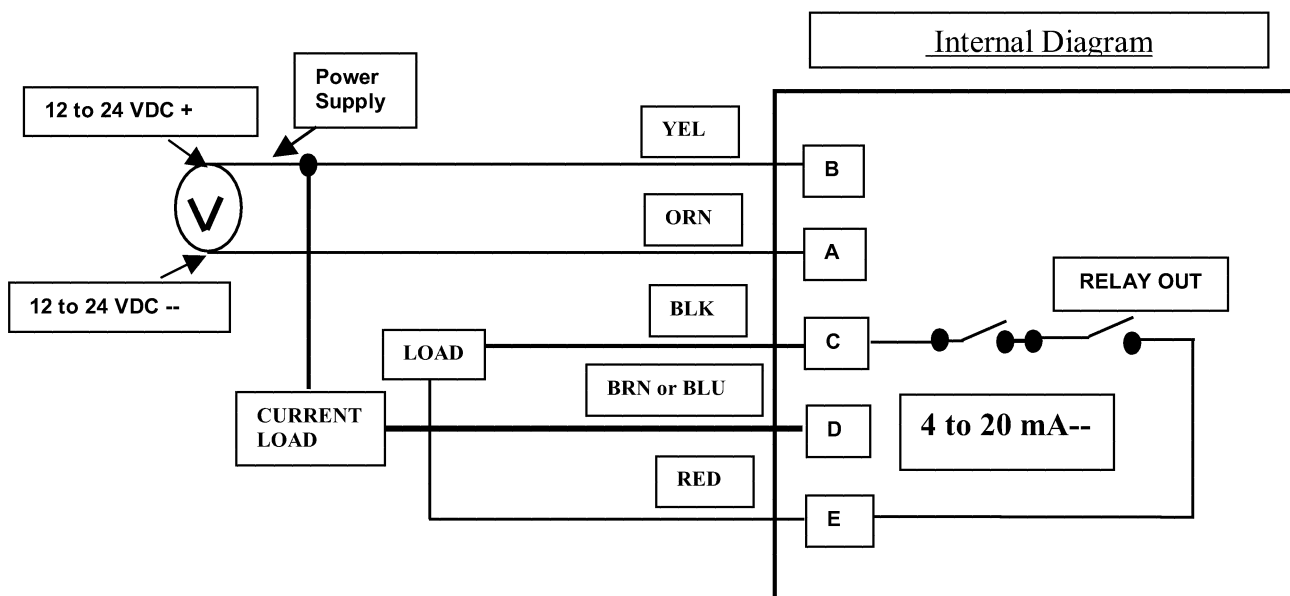
Note: Scanner cable colors on charts and diagrams below. For the pin “D” connection to the scanner some of the 5000-02 scanner cables will have a blue colored conductor and some will have a brown colored conductor

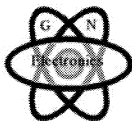
5002-01NC

Connector Pin	Function	5 Conductor Cable Color GNE# 5000-02/5 (5 feet)*
A	Ground	Orange
B	Supply Voltage (12 to 24VDC)	Yellow
C	Contact Output Normally open side	Black
D	4 to 20 mA -	Brown or Blue
E	Contact Output Common side	Red
Shield		Bare

*Longer lengths are also available- contact GN Electronics

Wiring Diagram





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 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.



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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.

Repair of Scanners

Defective scanners should be returned to G N Electronics for repair. Controls should be well packed in a suitable container encased in appropriate stuffing.

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

**G N Electronics Inc
9958 N. Alpine Rd Suite #104
Machesney Park, IL 61115**

**Tel: (815) 637-8624
Fax: (815) 637-8626**

www.gnelectronics.com



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