

G N Electronics Inc

9958 N. Alpine Rd #104

Machesney Park, IL 61115

Tel: (815) 637-8624

www.gnelectronics.com

Ultra Violet self-checking Scanner

Model #5000-01

USER MANUAL

5000-01 -E-090

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

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A. Description

The Ultra Violet scanner is based on a U.V. detector tube as a sensing element. The detector and pulse processor are continuously supervised by means of a magnetically biased shutter which breaks the U.V. light path between the lens and the detector tube. The integrated circuit pulse processor transforms the flame intensity into a normalized frequency modulated signal. This signal is transmitted to the control unit via a prefabricated cable with a military spec. 5 pin connector.

Incoming U.V. radiation from the flame is focused and thereby amplified optically. The radiation in turn fires the detector tube which works on the Geiger-Mueller principle. The pulsating anode voltage is used to trigger the pulse processor which normalizes the pulses as to length and amplitude. The amplified pulses are available at pin D of the connector.

An electro-magnetically operated photo shutter interrupts the light path to the sensor tube thereby simulating a "No Flame" condition. This scheme permits the controller (5501-11 or 5501-11-1) to detect a so-called "run away" detector tube. Any failure mode results in a total loss of signal as the scanner pulse processor is fail-safe by nature.



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B. Specifications

MECHANICAL:

Length Overall	7" (178mm)
Diameter	3.25" (82.5mm)
Housing	Machined 6061 Alum. Alloy
Finish	Clear Anodized
Sight Tube Entrance	1" Pipe Thread
Air Entrance	3/8" Pipe Thread

ELECTRICAL:

Processor Supply	12V to 18VDC 20mA max
Solid State Shutter	20V to 28VDC 6mA max
U.V. Supply	520VDC
Output	Pulses, normalized as to length and amplitude
Output Load	2000 Ohms 0.1 microfarad max (this represents approx cable length of 500 ft. or 152 m)

ENVIRONMENT:

Class	NEMA type 4
Temperature	-20°C to 60°C
Lens	Fused Silica spec #7940
Spectral Sensitivity	180 nanometer to 230 nanometer wavelength

ELECTRICAL CONNECTOR:

Type	M53102A (MIL-C-5015)
Description	5 pin box mounting receptacle
Operating Voltage	700 VDC
Test Voltage	2000V RMS 60Hz for 1 minute



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D. 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
3. Close any shut off valve in downstream of the scanner.
4. Keeping the scanner housing front solidly attached to the sight pipe, unscrew the cylinder rear portion of the scanner. 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:

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Machesney Park, IL 61115**

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Fax: (815) 637-8626**

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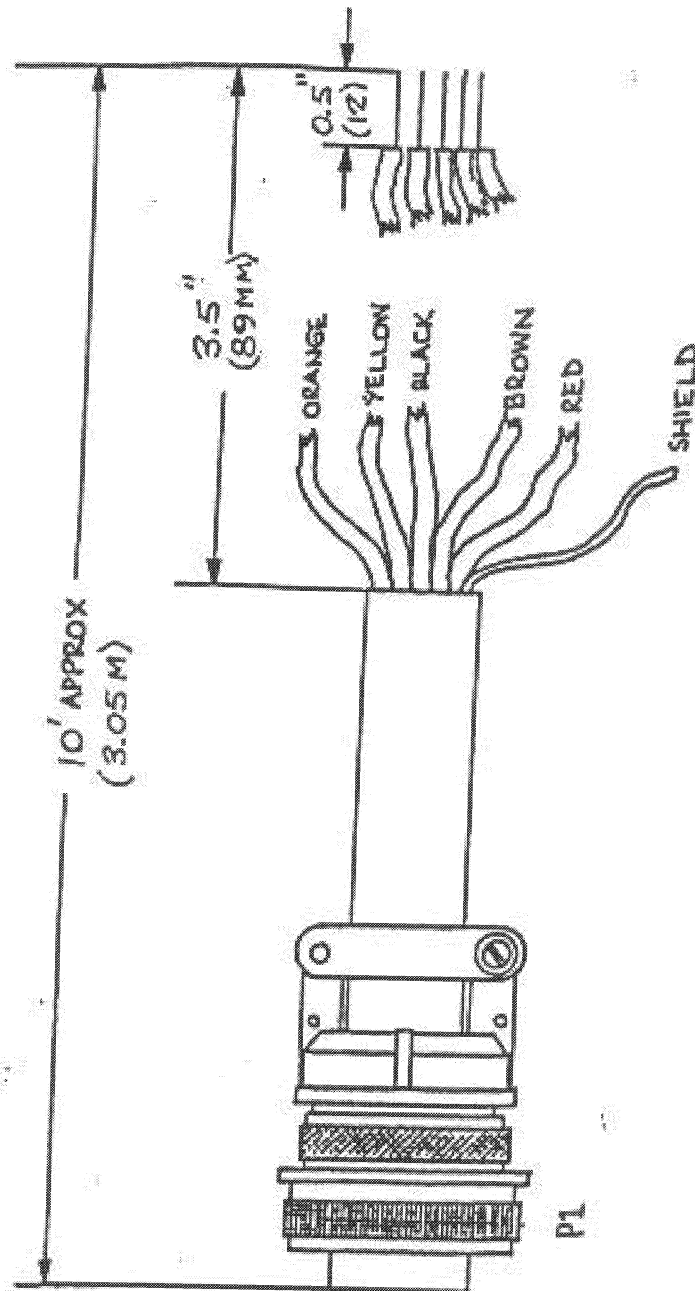


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CABLE ASSEMBLY



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CABLE CONNECTIONS

<u>CONNECTOR PIN</u>	<u>WIRE END</u>
A (Chopper Drive)	ORANGE
B (+30V max, +12V min)	YELLOW
C (GND)	BLACK
D (Signal)	BROWN
E (520V)	RED
SHIELD	BARE



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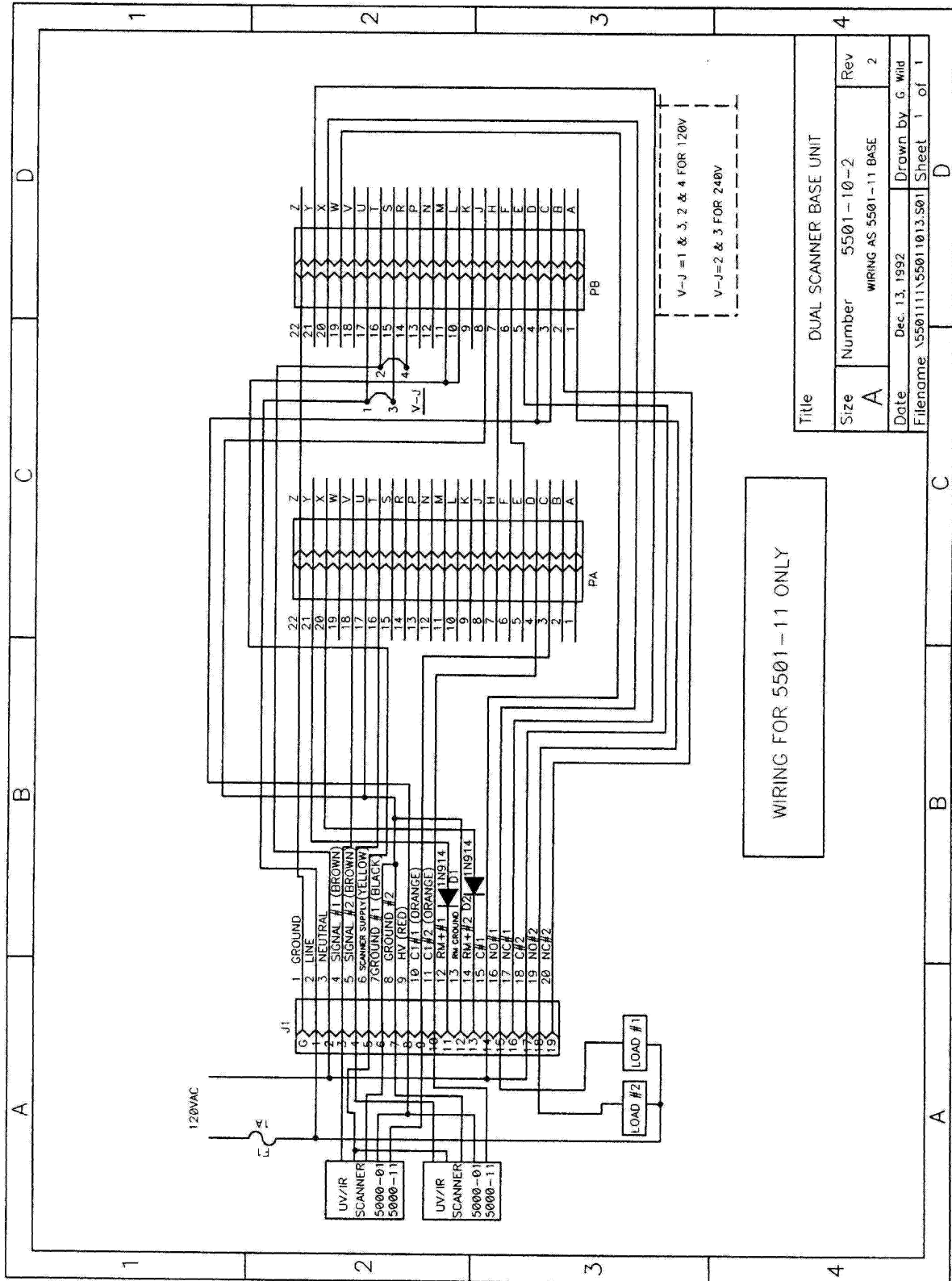
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WIRING TO 5501 BASES



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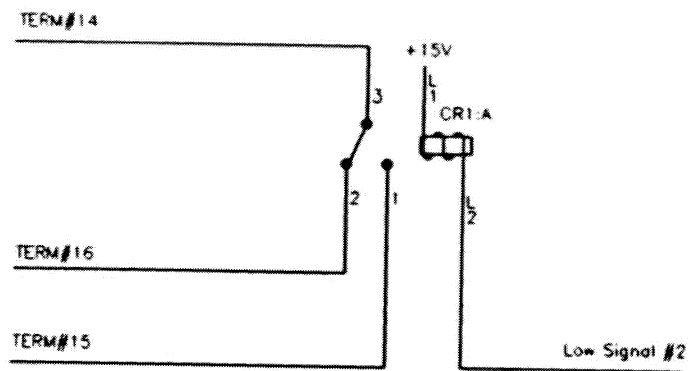
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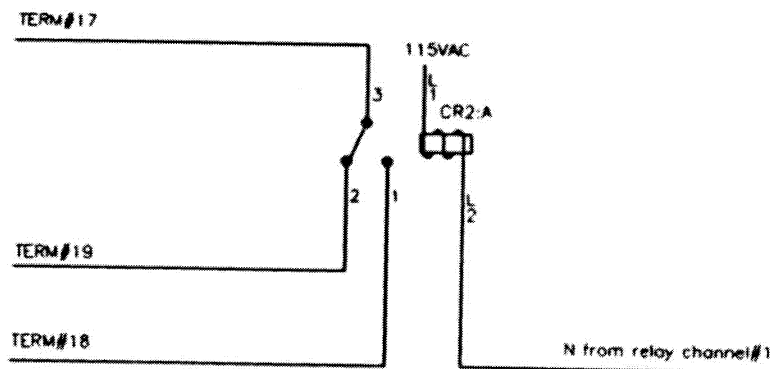
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5501-01/03 RELAY LOGIC



Relay CR1 is activated when a flame is NOT detected on CH#1



Relay CR2 is activated when flame is detected on CH#1 OR CH#2



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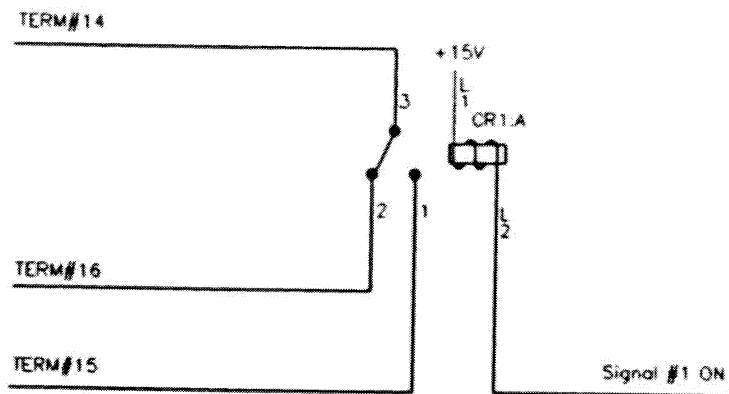
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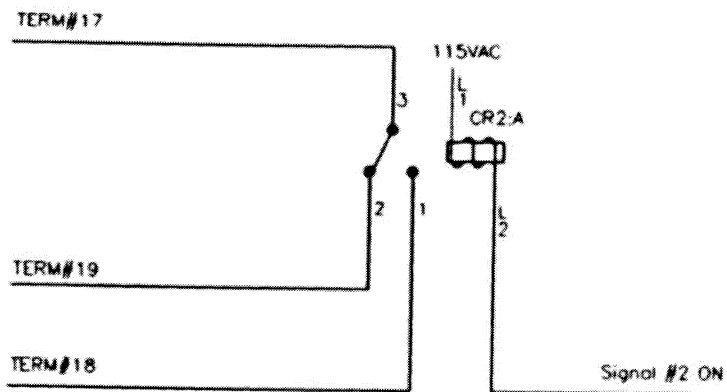
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5501-11 RELAY LOGIC



Relay CR1 is activated when a flame is detected on CH₁



Relay CR2 is activated when flame is detected on CH₂



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