Quanta-Flame Self-Check

UV Scanner

Model 5002-01
Version 1

Specifications

Parameter	Specification
Part Number	Eclipse P/N 10003946
Overall Length	7" (177,8 mm)
Diameter	3-1/4" (83 mm)
Housing Material	Machined 5052 aluminum alloy
Finish	Clear anodized
Sight Tube Entrance	1" (25mm) pipe thread
Purge Air Entrance	3/8" (10 mm) pipe thread
Purge Air Flow	10 psi (5 cfm) maximum
Supply Voltage	120V 50/60 Hz
Supply Wiring	Eclipse P/N 49000-2 cable required is 10 ft in length. Extension beyond 10 ft: Belden 9368
Temperature Range	0° to 140°F (-18° to 60°C) case temperature
Shipping Weight	4.5 lbs (2 kilograms)
Optical	Angle of view @ 2.5° depending on sight pipe size and length. Spectral sensitivity: 180 to 230 nano meters; scanner is solar blind.

Application

This self-check scanner can be used on flame safeguards with flamerod input where local regulations accept North American standards. Factory Mutual (FM) and XL GAPS recommends self-check scanners be used when any fired equipment is operated continuously, where the burner is on for more than 24 hours without shutdown. The combination of this scanner with the Trilogy T400 series of flame safeguards is approved by UL, file MH47376.

Sensor Installation

⚠ CAUTION

■ **Incorrect sensor installation may cause the sensor to generate a false flame signal. This can cause unburned fuel to collect in the combustion chamber, resulting in explosions, injuries, and property damage. Be certain that the flame sensor detects only the pilot and main flames, not glowing refractory or burner parts.**

ECLIPSE®
Innovative Thermal Solutions

Sensor Wiring

Route sensor wiring a sufficient distance from ignition and other high voltage wiring to avoid electrical interference. To reduce interference, ground both braided shields.

If sensor wiring is to extend beyond the 10 ft (305 cm) cable length, use #14 to #18 AWG wire suitable for 167°F (75°C) and 600 volt insulation, and run each pair of leads in its own shielded cable. Multiple shielded cables can be run in a common conduit, but only on short distances.

Table 1 illustrates how the sensor should be wired to the Eclipse T400. Near the end of the four sensor cable leads is a letter tag for identification. Connect the wires to the terminal as listed in Table 1.

⚠ CAUTION

■ **Cable lead "B" should only be connected to power (120 VAC); connecting it to any other terminal will bypass the safe-start check of the scanner.**

Table 1 - UV Scanner Wiring to T400			
5002-01 Scanner	Scanner Leads		
Lead Tag	Scanner	Color	T400 Connector
A	Neutral	Orange	X3-04 PIN 4
B	120 VAC	Yellow	X3-04 PIN 5 (or X10-05 PIN 5)
C	Ground	Black	X3-04 PIN 3
D	Not Used	Blue	Isolate
E	Signal	Red	X10-05 PIN 2

Wiring the 5002-01 UV Scanner to the Trilogy T400 Flame Safety
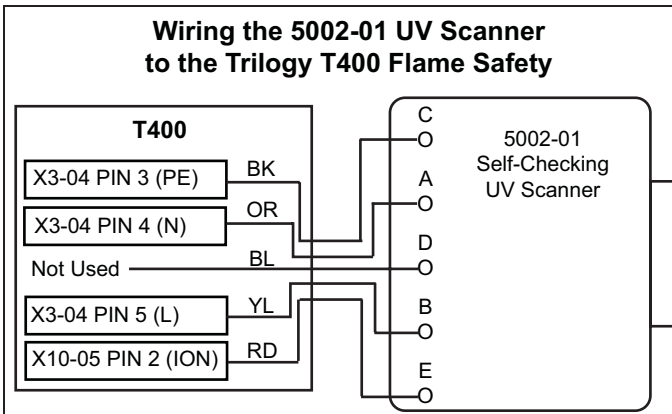

Figure 1. Wiring Information

Sensor Installation

Consult the burner manufacturer's instructions for mounting location.

- Position the scanner within 30" (762 mm) of the flame.
- Scanner threads are 1" F.N.P.T.
- Ambient temperature limits are 0° to 140°F (-18° to +60°C). For higher temperatures, the scanner includes a 3/8" NPT purge air entrance.
- Maximum furnace pressure is 60 psig.
- A small hole drilled in the scanner sighting pipe (not the scanner housing) will aid in keeping the sight tube clear.

Pilot & Main Sensors Installation

Aim the scanners at the third of the flame closest to the burner nozzle, especially with oil flames which typically have less UV radiation in the outer flame. The scanner should view the intersection of the pilot and main flames, as shown in Figure 2.

Sight the scanner away from the ignition spark. Sighting the spark or its reflections from burner internals can cause nuisance shutdowns during burner ignition. If necessary, use a scanner orifice to reduce spark pickup.
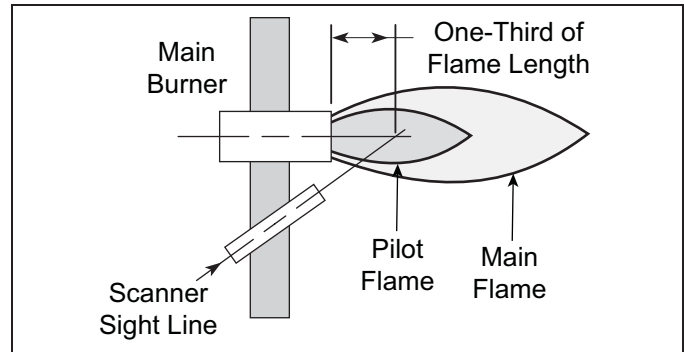

Figure 2. UV Scanner Sighting

Test Procedures

Follow the test procedures outlined in the Maintenance and Troubleshooting section of the T400 Instruction Manual.

Maintenance

Follow the procedures outlined in the Maintenance and Troubleshooting section of the T400 Instruction Manual.

ECLIPSE®
Innovative Thermal Solutions

Offered By:
Power Equipment Company
2011 Williamsburg Road
Richmond, Virginia 23231
Phone (804) 236-3800
Fax   (804) 236-3882

www.peconet.com