

Technical Data – Flame Sensor Test Unit

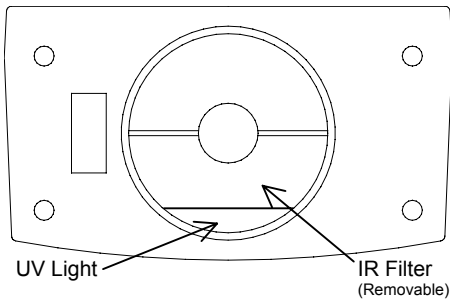


Fig. 3 Test Unit Top View of Light Source

Mechanical

Housings:	Test Unit	ABS and Noryl
	Charger	94V-O polycarbonate
Housing Colours:		Black
Text Unit Dimensions:	L	260mm (10.2")
	W	90/128mm (3.5"/5")
	D	60mm (2.4")
Test Unit Weight:		1kg

Electrical

Charger Input Voltage:	85Vac to 265Vac @ 47Hz to 440Hz
Test Unit Battery Voltage:	24Vdc Ni-Cd
Test Unit Auxiliary 24Vdc Output Current:	0.1Amp. max.

Light Source Performance

Light Source Power:	20W max.
Beam Angle:	8° Cone
Spectral Response: UV Visible Near IR Mid-IR	200nm to 4.3µm
Test Range:	5m typical

Transport Case

Part Number: 007705

Transport Case	L	375mm (14.45")
	H	295mm (11.6")
	D	75mm (3.0")
Case Colour:		Bright Blue

1. Remove the IR filter (blue glass) to increase UV output along with 100% intensity.
2. An alternative IR filter may be required with some brands of IR<sup>2</sup> and IR<sup>3</sup> flame detectors.

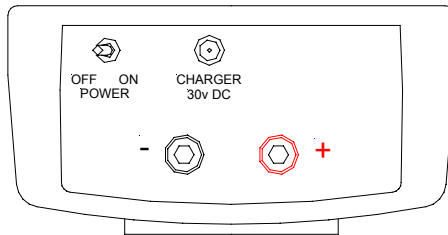


Fig. 4 Test Unit with base cover removed

Environmental

Operating Temperature:	- 15°C to +50°C	
Charger Temperature:	0°C to +50°C	
Relative Humidity:	95% Non condensing	
IP Rating:	IP54	
RFI/EMC:	Test Unit	EN61000-6-1, EN61000-6-2 EN61000-6-3, EN61000-6-4 EN 50130-4, EN 55022
	Charger	FCC 20780 Level B, EN 55022 Level B
Charger Safety Standards:	Approved according to UL 1950, CSA A22.2 no 234, IEC950, EN 60950, TÜV file No S9954870, S9954887 and S9954856	

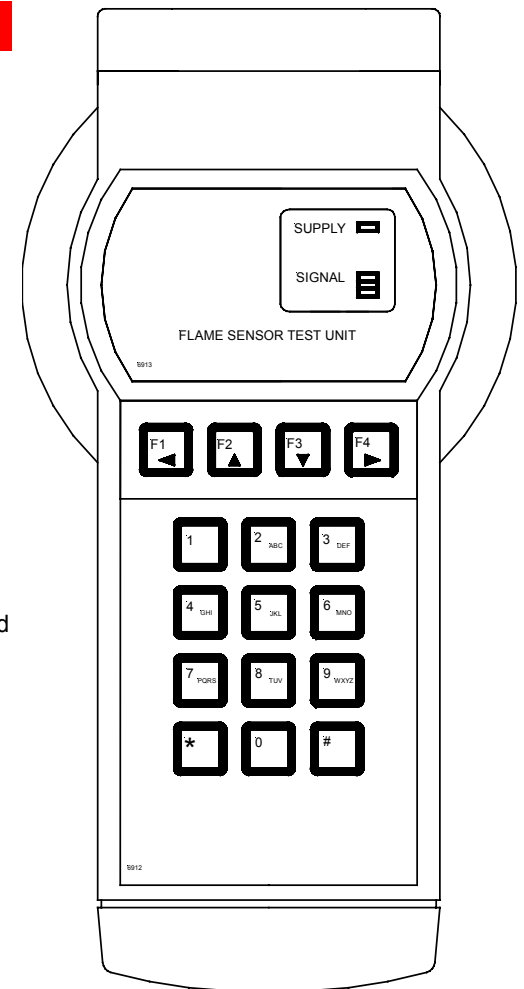
Environmental Protection

	<b>Recycle raw materials instead of disposing as waste.</b> The unit, accessories and packaging should be sorted for environmentally friendly recycling.
	<b>Nickel-cadmium batteries:</b> The batteries must be collected, recycled or disposed of in an environmentally friendly way. Defective or worn out batteries must be recycled according to the guidelines 91/157/EEC. Batteries no longer suitable for use can be returned to the manufacturer.

016091 FLAME SENSOR TEST UNIT

Features

- Wide Spectral Output UV, Visible, Near IR, Mid-IR
- Tests many Flame Sensors Types UV, UV/IR, UV/IR<sup>2</sup>, IR<sup>3</sup>, IR<sup>2</sup>, IR
- Portable with Rechargeable NiCd Battery Pack and Charger
- Selectable Optical Output Type
  - Constant Illumination
  - Regular Flashing Sources (Range of Frequencies)
  - Irregular Flickering Sources (Resembling Flames)
- Selectable Optical Output Intensity With LED Bar Graph Indication
- Range typically 3 metres and beyond
- 30 Second Timeout on Each Test
- Auxiliary 24Vdc Supply for Testing



Operating Principles

This test unit has been designed to generate a wide range of optical output signals. Flame sensors for fire detection and flame monitoring applications can be activated and tested.

Functions

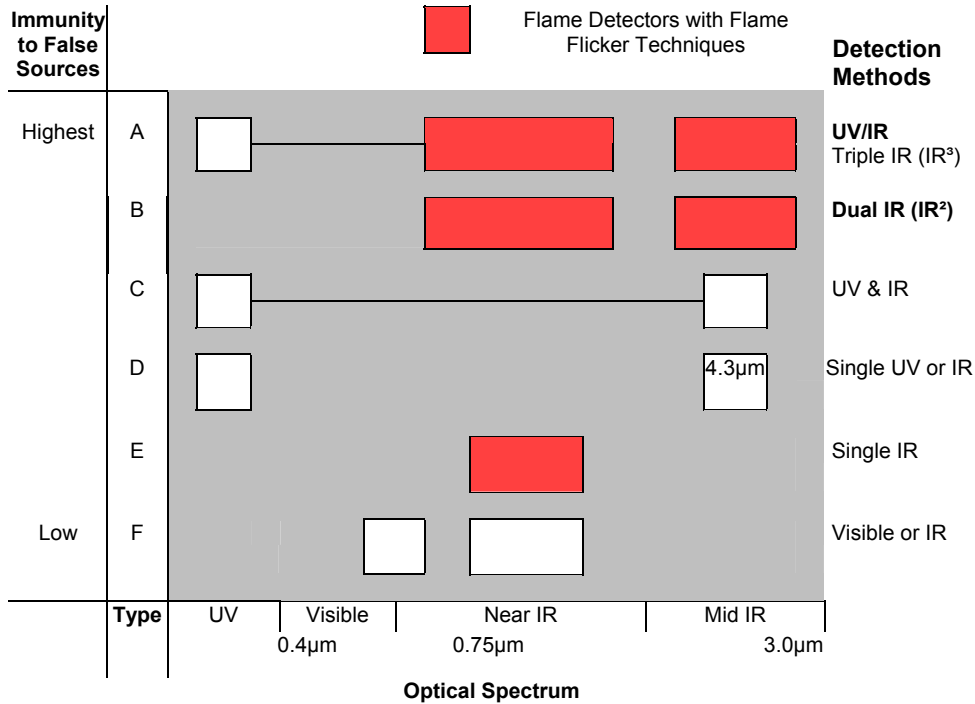
Press 1 for constant illumination, 2 for regular flashing or 3 for irregular flicker. Entering a single digit will illuminate the output to 100% when on. The signal bar graph LED's will display the signal type selected. To activate the main output source the \* button must be held down. See Fig. 2

## Flame Detector Characteristics

Most optical flame sensors respond to Ultra Violet (UV) and or Infra Red (IR) radiation emitted from flames during combustion.

Many sensors also use flame flicker techniques to distinguish between flames and other optical false sources.

The test unit simulates the flickering flame signal by modulating the output of a filament lamp. The thermal time constant of a filament lamp prevents the generation of a perfect flame flicker signal. The slow response of the filament lamp will mean that some flame sensors many require more time to activate under test than they would with a real flame.



**Fig. 1** Examples of Immunity to False Sources - Flame Detector Applications

## Operation

To power up the unit remove the clip on base and operate the power switch.

See **Fig. 4**

With the power on the green supply LED will illuminate if the battery has sufficient charge and flash if the battery is low.

The yellow signal bar graph LED's display the intensity and frequency selected.

The unit is intended for service engineers to use, when performing commissioning and routine maintenance. As the test unit does not have an (Ex) approval for hazardous areas, a permit would be required to check a detector in such areas. The service engineer could also carry a portable flammable gas alarm to indicate if the area is safe for testing.

Test Unit Output Options		Intensity		
		◀ F1	F4 ▶	
		25%	50%	100%
		<b>Keypad Entry</b>		
<b>Constant Illumination:</b>		1→2	1→1	1
<b>Regular Flashing:</b>				
Flame Monitoring Applications		0.5Hz	2→2	2→1
		1.0Hz	2→2→1	2→1→1
	↑	2.0Hz	2→2→2	2→1→2
	▲ F2	4.0Hz	2→2→3	2→1→3
	▼ F3	6.0Hz	2→2→4	2→1→4
	↓	8.0Hz	2→2→5	2→1→5
		10.0Hz	2→2→6	2→1→6
		20.0Hz	2→2→7	2→1→7
<b>Flickering Flame (With IR filter fitted):</b>				
Fire Detection		With no UV	-	3
Applications (Default on switch on)		With UV pulses.	-	4
		Spare 1	-	5
		Spare 2	-	6

Press \* to activate output.

Press ▲▼ to scroll up or down the table.

Press # to clear last keypad entry.

Press ◀▶ to adjust lamp intensity.

**Fig. 2** Test Unit Output Signal Options