TYPE 95 Series 4
Integrated Flame Scanner

$C\,E$ FM APPROVED   c(UL)us LISTED SECTION OF PRIMARY SAFETY CONTROL FOR HAZARDOUS LOCATIONS E353877
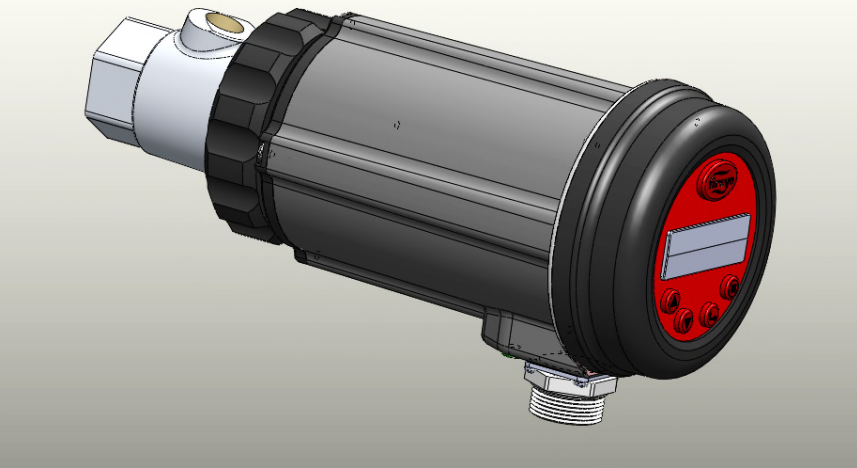
DESCRIPTION

The Fireye InSight Series 4 scanner belongs to an established family of versatile fully microprocessor based, integrated flame scanners. The InSight Series 4 scanner holds multiple worldwide safety agency approvals (see Model Listings for full details).

The InSight Series 4 scanners utilize advanced techniques for discrimination and integrate the flame detection, amplification, safety determination and flame switch functions into a single detection head. No separate amplifier or flame switch module is therefore required to interface with the main burner management system.

InSight Series 4 incorporates the superior detection and discrimination elements of the popular InSight II product with some enhanced features.

The scanner measures the amplitude of the modulations (the flame "flicker") that occur within the targeted flame. During the scanner set-up procedure, the modulation frequency that yields the best flame ON/OFF discrimination is selected. The appropriate modulation frequency and sensor gain can be either manually or automatically selected.

InSight Series 4 is a solid state detector scanner utilizing either UV or IR detector and two different available connectors which are compatible either with the 59-608 (-1WINC models) cable.

Standard features include an independently adjustable Flame Relay, 21 choices of modulation frequency, adjustable sensor gain, adjustable flame relay ON/OFF thresholds, a 4-20 mA analog signal strength output, Fault Relay, four selectable programmable files (e.g. for different fuels or firing rates), and Auto Config capability with manual override. Remote communication capability is available via optional "Fireye Explorer" PC software (CU-109).

These InSight Series 4 sensors have a two-line by sixteen-character alpha-numeric OLED display with a five-pushbutton keypad.

The -2 models of the InSight Series 4 (e.g., 95UVS4-2, 95IRS4-2) provide a Form C flame relay output contact (NO/NC).

All scanner models are powered by 24 VDC, and contain electronic self-checking (no mechanical shutter required). Electrical connection is via quick-disconnects or hard wired to terminal blocks on the explosion proof models (e.g., 95UVS4-1CEX). Fiber optics are also available for extended viewing applications.

Type 95UVS4-1WINC is the UV model and is provided with a cable quick-disconnects compatible with the 59-608 InSight I cable. Type 95UVS4-1 has an InSight II style quick disconnect compatible with the 59-547 cable. The same IR models are 95IRS4-1WINC and 95IRS4-1.

Safety Information

⚠️ **WARNING**

The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or operator to ensure that the equipment described is installed, operated and commissioned in compliance with the requirements of all national and local legislation, which may prevail.

When this equipment is fitted to an appliance, due regard must also be given to the requirements of that appliance.

Before attempting to install, commission, or operate this equipment, all relevant sections of this document must be read and fully understood. If in doubt about any requirements consult Fireye.

Installation, commissioning or adjustment of this product **MUST** be carried out by suitably trained engineers or personnel qualified by training and experience.

After installation or modifications to the installation all functions of the equipment **MUST** be checked to ensure safe and reliable operation of the InSight Series 4 scanner.

The manufacturer of this equipment accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation, commissioning or adjustment of operating parameters of the equipment. There are no user serviceable parts.

Before attempting any work on this equipment or any equipment controlled by or connected to this equipment, all related electrical supplies **must** be isolated.

Safety interlocks **must not** be removed or overridden. Any faults once detected **must** be corrected before the control is operated.

The InSight Series 4 scanner is classified as a Type B device according to IEC 61508, having a hardware fault tolerance of 0. For detailed information regarding the Certification, see File MP1537 on the UL Online Certification Directory at www.ul.com or by following the link in the QR Code below:
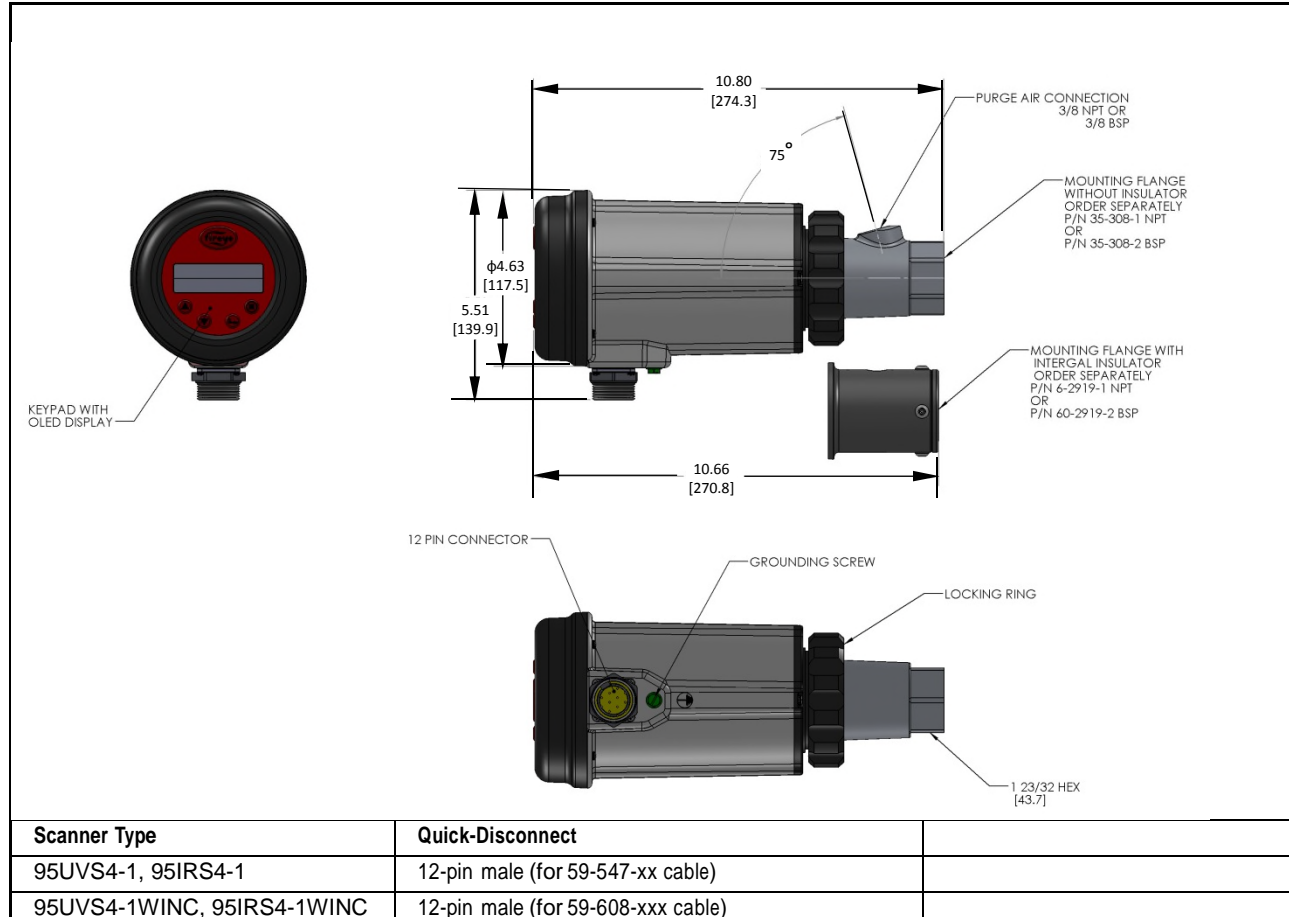
InSight 4 SCANNER FEATURES

Features	95UVS4-1WINC	95IRS4-1WINC	95UVS4E-1WINC	95IRS4E-1WINC	95UVS4-1 95UVS4-2	95IRS4-1 95IRS4-2	95UVS4-1CEX 95UVS4-2CEX	95IRS4-1CEX 95IRS4-2CEX
UV or IR Sensor	UV	IR	UV	IR	UV	IR	UV	IR
Flame Relay	YES	YES	YES	YES	YES	YES	YES	YES
Fault Relay	YES	YES	YES	YES	YES	YES	YES	YES
4-20 mA Output	YES	YES	YES	YES	YES	YES	YES	YES
Modulation Frequency Selectors	21	21	21	21	21	21	21	21
Memory Files	4	4	4	4	4	4	4	4
Communications	YES	YES	YES	YES	YES	YES	YES	YES
Auto Config	YES	YES	YES	YES	YES	YES	YES	YES
2 X 16 Alpha Display	YES	YES	YES	YES	YES	YES	YES	YES
Housing Material	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum

DIMENSIONS

FIGURE 1.   SCANNER 95UVS4-1WINC, 95UVS4E-1WINC, **95IRS4-1WINC, 95IRS4E-1WINC, 95UVS4-1, 95IRS4-1**

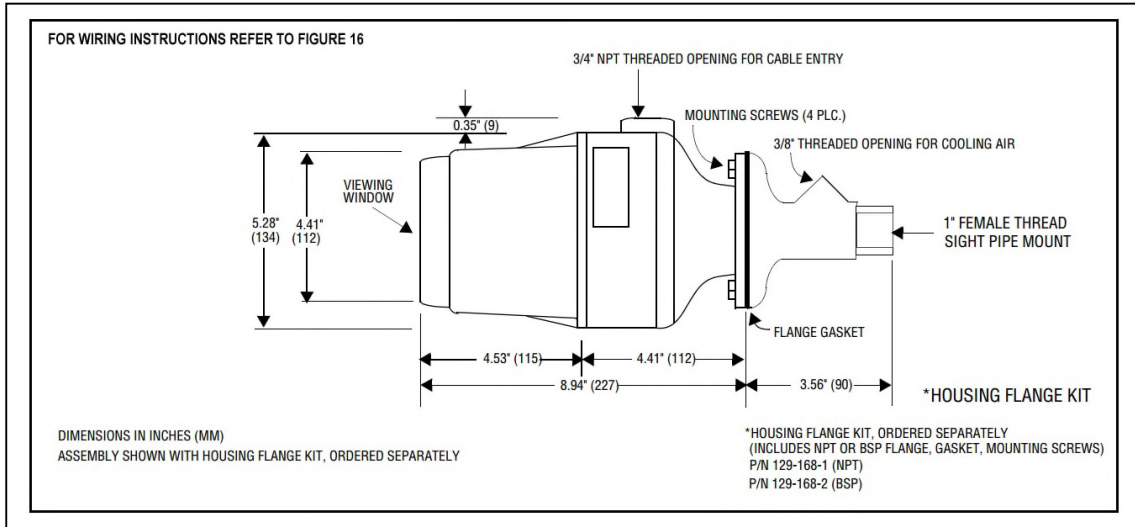| Scanner Type	Quick-Disconnect	
95UVS4-1, 95IRS4-1	12-pin male (for 59-547-xx cable)	
95UVS4-1WINC, 95IRS4-1WINC	12-pin male (for 59-608-xxx cable)	

FIGURE 3. | **TYPE 95UVS4-1CEX, 95UVS4-2CEX, 95IRS4-1CEX, 95IRS4-2CEX SCANNERS, OPTIONAL FLAME-PROOF HAZARDOUS AREA HOUSING**

- Housing Flange Kit ordered separately, includes NPT or BSP flange, gasket, mounting screws, PN 129-168-1 (NPT) or PN 129-168-2 (BSP).
- Suitably rated blanking elements must be used on all unused openings.
- Supply connection wiring shall have a temperature rating of at least +105°C

Note: The above items are suitable for the InSight Series 4 scanners rated environment and conditions of use.

⚠ **Warning! - Risk of electrostatic discharge. Make sure that all personnel and equipment are correctly grounded when installing, or handling the InSight Series 4 scanner in potentially explosive atmospheres.**

FIGURE 17. **WIRING FOR 95UVS4-1CEX and 95IRS4-1CEX scanners (shown with housing cover removed))**

TB1
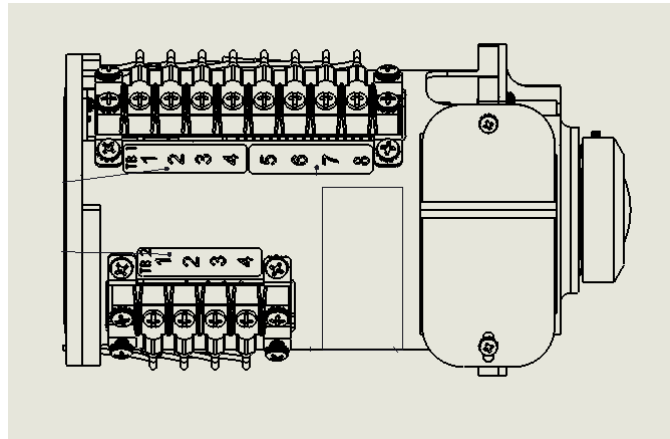
TB2

Connector Pin	Function for -1 Version	Function for -2 Version	59-547 Cable Color (if used)
Terminal Block 1 (TB1)			
TB1-1	RFS2	Flame Relay NC	Black/Yellow stripe
TB1-2	RFS1	RFS1	Blue/Black stripe
TB1-3	Comm (A)	Comm (A)	Brown/Orange stripe
TB1-4	Comm (B)	Comm (B)	Orange/Black stripe
TB1-5	4-20mA (+)	4-20mA (+)	Red/White stripe
TB1-6	4-20mA (-)	4-20mA (-)	Black / Orange stripe
TB1-7	24v Supply (-)	24v Supply (-)	Yellow/Black stripe
TB1-8	24V Supply (+)	24V Supply (+)	Blue/Red stripe
Terminal Block 2 (TB2)			
TB2-1	Fault Relay NC	Fault Relay	Brown/Black stripe
TB2-2	Fault Relay COM	Fault Relay	Red/Black stripe
TB2-3	Flame Relay COM	Flame Relay	Orange/White stripe
TB2-4	Flame Relay-NO	Flame Relay	Violet/White stripe