



DESCRIPTION AND INSTALLATION FOR FIREYE[®] FOCUS[™] SCANNER CS200

DESCRIPTION

The CS200 is a flame scanner used with the Fireeye[®] FOCUS[™] Combustion Efficiency System.¹ The scanner detects the presence or absence of flame as well as calculates a fuel efficiency ratio and adjusts the air damper accordingly. The scanner optically measures components within the flame to determine the combustion efficiency. These signals are then transmitted via a serial link to the Fireeye FOCUS CES1000 controller for further processing.

The flame scanner has two infrared (IR) detectors. Each IR detector has a different filter that lets only a specific wavelength or color of light energize its detector. The CS200 provides a signal to the CES1000 in applications of automatic fuel / air ratio control. This automatic control is based on a calculated efficiency ratio.

A flame signal generated by the CS200 and processed in the CES1000 can be used by the E1R1 amplifier of a Fireeye FLAME-MONITOR.[™] Use of both features offers the ability to maintain combustion efficiency, while detecting the flame with one control package.

The CS200 Scanner is a part of a total system consisting of the following components:

- Combustion Efficiency Scanner CS200
- Controller CES1000
- Actuator Module AM300
- Actuator CA202
- FOCUS software

SPECIFICATIONS

Operating Voltage:	24VDC.
Storage Temperature Limits:	Maximum: 176° F (80° C) Minimum: - 40° F (-40° C)
Operating Temperature Limits:	Maximum: 140° F (60° C). Minimum: - 40° F (-40° C).
Humidity:	85% RH maximum non-condensing.

¹. Patent Pending

IMPORTANT NOTE

The information provided in this bulletin is directed to competent boiler and combustion service technicians experienced in the installation and operation of Fireye Flame Safety equipment. Persons not familiar with Fireye products should contact the nearest Fireye representative or other qualified service group.

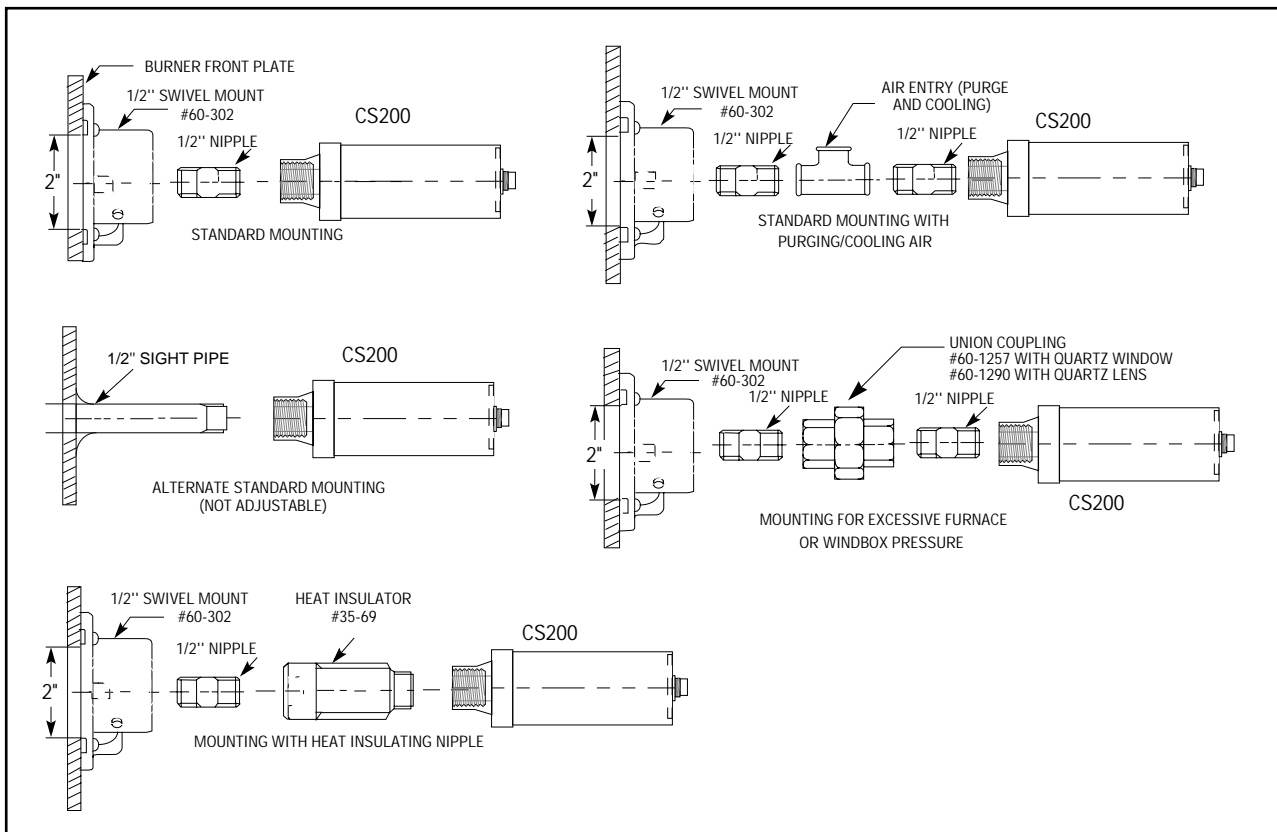
The CS200, as well as all other Fireye scanners, are designed to be used exclusively with the appropriate Fireye controls. The application of these scanners to equipment other than Fireye should be reviewed for approval by Fireye.

APPLICATION REFERENCE

CS200 can be used only with the following FIREYE flame safeguard controls through the CES1000 controller.

FIREYE FLAME-MONITOR	D SERIES	PFM ADAPTOR KITS
To be used with E1R1 Amplifier Card	All D-Series using 72D1R1 Amplifier	PFM2IR PFM3IR

TYPICAL SCANNER MOUNTING



ACCESSORIES

PART NUMBER	DESCRIPTION
60-302	1/2 in. Swivel Mount
35-69	Heat Insulator 1/2 in. NPT threads each end, (male x female).
60-801	1/2 NPT Union with pyrex window
35-75	Water cooled adapter for excessive heat applications

INSTALLATION OF CS200 SCANNER



WARNING: THE CABLE FROM THE CS200 SCANNER SHOULD BE RUN INDEPENDENTLY FROM ALL OTHER WIRING.

Where possible, obtain the Burner Manufacturer's Instructions for mounting the scanner. This information is available for most standard burners. The scanner mounting should comply with the following General Instructions:

1. Care must be exercised to avoid dropping or otherwise striking the scanner with force. Keep the scanner protected until mounted.
2. Position the scanner within 36 inches of the flame to be monitored or locate in place of existing scanner.
3. Select a scanner location that will remain within the ambient temperature limits of the Scanner (140°F).
4. The Scanners are designed to seal off against pressures up to one PSI. To seal against higher pressures, install a union coupling with pyrex window (#60-801). Add cooling air to reduce the scanner sight pipe temperature.
5. Install the scanner on a standard 1/2 NPT pipe whose position is rigidly fixed. If the scanner mounting pipe sights through the refractory, do not extend it more than halfway through. Swivel flanges are available if desired (#60-302). The sight pipe must permit an unobstructed view of the pilot and/or main flame, and both pilot and main flames must completely cover the scanner field of view.
6. On installations having a negative pressure combustion chamber, a small hole drilled in the scanner sight pipe will assist in keeping the pipe clean and free of smoke. For positive pressure furnaces, provide clean air to pressurize the sight pipe, if necessary.
7. Request the assistance of any Fireye Field Office for recommendations of a proper scanner installation on a non-standard application.

WIRING CS200 SCANNER

All scanners use prefabricated cables. These cables should be installed away from all other wires.



CAUTION: Keep scanner leads well clear of ignition high voltage wiring or any other HV or high current wiring in order to prevent false signal pickup in the scanner leads.

WARNING: Protective filtered lenses should be worn when viewing flame. Infrared and ultraviolet energy can be damaging to the eyes.

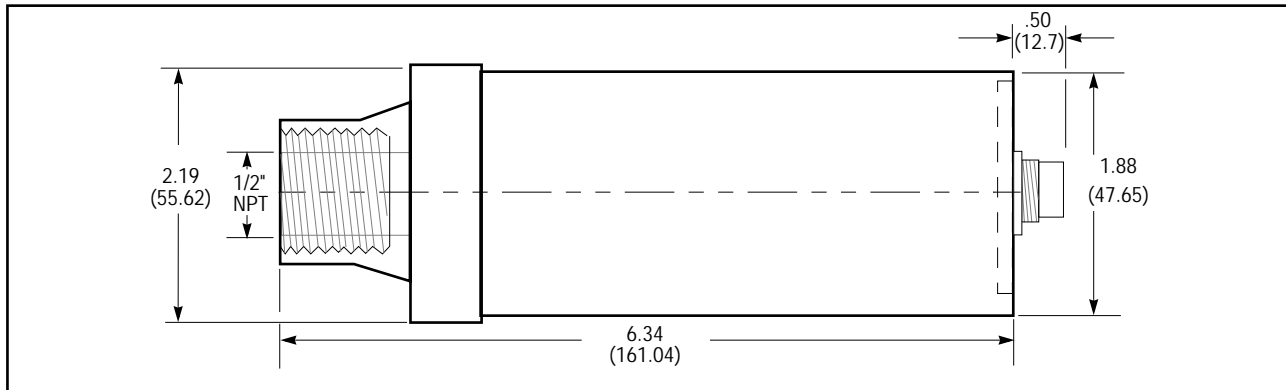


MAINTENANCE

CS200 Scanner

The viewing area of the scanner must be kept clean. Even a small amount of contamination on the lens will reduce the flame signal reaching the detector by a measurable amount. Wipe the viewing area routinely using a soft cloth dampened with concentrated detergent, then wipe dry.

CS200 SCANNER OUTLINE DIMENSIONS



NOTICE

When Fireeye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireeye warranty, as stated in its General Terms and Conditions of Sale, pertains only to the Fireeye products and not to any other equipment or to the combined system or its overall performance.

WARRANTIES

FIREYE guarantees for one year from the date of manufacture of its products to replace, or, at its option, to repair any product or part thereof (except lamps, electronic tubes and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. **THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES AND FIREYE MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.** Except as specifically stated in these general terms and conditions of sale, remedies with respect to any product or part number manufactured or sold by Fireeye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireeye be liable for consequential or special damages of any nature which may arise in connection with such product or part.



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