

# S55XB and S55XBE Series Viewing Heads

**SPECIFICATION DATA**



## APPLICATION

The S550B(E), S552B(E) and S556B(E) can be used with Models P531, P532 and Model P520 and P522 signal processors. Refer to the respective signal processor manual for details on connection, setup and operation.

**Table 1. Available models and associated features.**

Model	Amphenol-Tuchel Connector	Turck Connector	Connector Connection	Pipe Fit Connection with 10-ft pigtail	UVTron Sensor	IR Sensor
S550B	X		X		X	X
S550BE		X	X		X	X
S550BE-PF				X	X	X
S552B	X		X			X
S552BE		X	X			X
S552BE-PF				X		X
S556B	X		X		X	
S556BE		X	X		X	
S556BE-PF				X	X	

All models include the following:

1. Electronic check (no mechanical shutter) for self-check of the system.
2. Eight (8) flicker frequency filters for IR sensor (model dependent).
3. Gain selection



# SPECIFICATIONS

**Dimensions:** See Fig. 4 and Fig. 5.

**Electrical**

Input Power: 24VDC +10%, 100mA (powered from Signal Processor)

**Environmental**

Sealing: Viewing Head Housing NEMA TYPE 4  
Operational Ambient Temperature: -40° F to 158° F (-40° C to 70° C)

**Optical**

Angle of View:  
IR 1.0°  
UV 3.0°

**Cable**

Signal Processor to 4 conductor, #16AWG with braided shield. Use Honeywell cable part number C328. Contact the factory for non-Honeywell cable use.

**Mounting:** 1 in. NPT female

**Approvals:**

**S55XB Models (Connector series, Pipe fit series [-PF])**  
CSA for CLASS I, DIV 2, GROUPS A, B, C, D, T5  
FM 7610  
SIL 3 “Fit for Use”

**S55XBE Models (Connector series, Pipe fit series [-PF])**  
CSA for CLASS I, DIV 2, GROUPS A, B, C, D, T5  
FM 7610/ NEMA 4X and CLASS 1, DIV 2, GROUPS A, B, C, D & T5  
SIL 3 “Fit for Use”  
IECEX CSA 10.0010 Ex nA IIC T5 Gc  
-40<Ta<70°C, -40<TA<158°F

NOTE: Use of a connector sleeve required for IECEX (included with S55xBE product). Refer to the Viewing Head Wiring section.

## Signal Processor Compatibility

Viewing heads described in this manual are compatible with currently manufactured P520, P522DC and P522AC signal processors. All P531 and P532 signal processors are fully compatible with the viewing heads described in this manual.

## Model S550B and BE General Description

The Honeywell Model S550B/BE is a dual channel, state-of-the-art flame monitoring viewing head capable of monitoring both the UV (ultraviolet) and IR (Infrared) radiation of a flame. This is accomplished by utilizing two types of detectors, an IR solid state sensor and a UV Photo detector, together with a unique dichroic beam-splitting mirror.

The S550B/BE produces output pulse rates proportional to the flame signal strength; the pulse rates are displayed at the front panel of the signal processor, and at the rear of the viewing head. The S550B/BE displays the two most significant digits of the pulse count shown on the connected signal

processor unit. The upper readout displays the UV count in green digits, and the lower readout displays the IR count in red. This information can readily be used to achieve maximum flame signal strength while aiming and sighting the viewing head.

Certain parameters in the S550B/BE, S552B/BE and S556B/BE viewing heads can be selected or adjusted remotely from the front panel of the connected signal processor. These parameters are:

a) UV gain	0-99
b) Filter Selection	1: 16Hz
	2: 24Hz
	3: 33Hz
	4: 52Hz
	5: 75Hz
	6: 100Hz
	7: 155Hz
	8: 215Hz
c) IR gain	0-699

Once adjusted, the new parameters are stored in an EEPROM in the connected signal processor.

## Model S552B and BE General Description

The S552B/BE viewing head is designed for IR sensing only. It is basically an S550B/BE without the UV capability, and a single line display. The S552B/BE display shows the two most significant digits of the IR pulse count in red, as shown on the connected signal processor unit. The Signal Processor detects and identifies the viewing head model to which it is connected, and will only allow adjustments related to that model to be performed. In the Model S552B/BE, these adjustments are:

a) Filter Selection	1-8
b) IR gain	0-699

In addition, signal processor features such as CAL are limited to the features of the attached viewing head, in this case the S552B/BE. For further information, refer to the applicable signal processor manual.

## Model S556B and BE General Description

The S556B/BE viewing head is designed for UV sensing only. It is basically an S550B/BE without the IR capability and a single line display. The S556B/BE display shows the two most significant digits of the UV pulse count in green, as shown on the connected signal processor unit.

The Signal Processor detects and identifies the viewing head model to which it is connected, in this case the model S556B/BE, and will only allow adjustments related to that model to be performed. In the Model S556B/BE, this adjustment is:

a) UV gain	0-99
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In addition, signal processor features such as CAL are limited to the features of the attached viewing head, in this case the S556B/BE.

## INSTALLATION

### Grounding and Shielding

**NOTE:** Installer must be a trained, experienced flame safeguard service technician and should be familiar with the equipment operation and limitations and be aware of any applicable local codes and regulations.

1. Connect a safety ground to the viewing head housing (if applicable).
2. The viewing head and all associated cable/conduit must be at least 12 inches (31 cm) from any source of high energy or voltage (for example, igniter equipment).
3. Install a ground wire from the ignition transformer case to the igniter assembly.
4. Ensure all igniter wires and cables show no signs of wear. Replace any igniter cables or wires that are frayed or cracked.
5. The viewing head must be electrically isolated from the burner front.

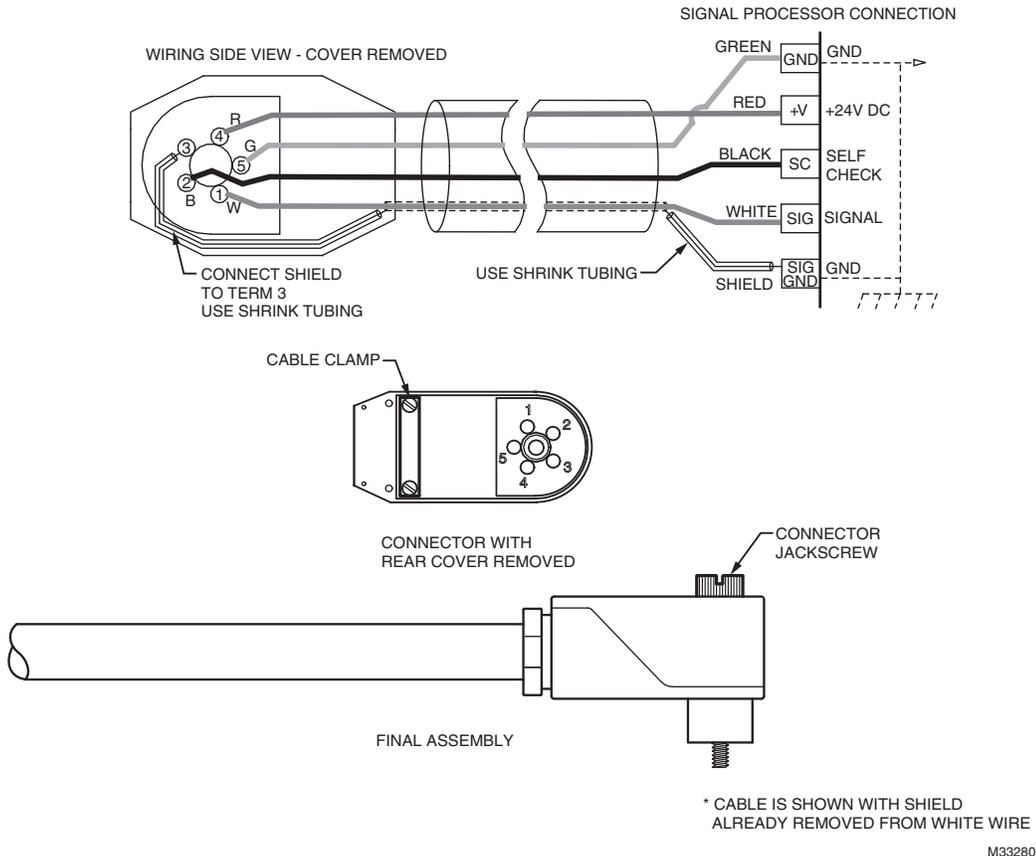
- a. Electrical isolation can be accomplished by installing an Ultem nipple (R-518-12) or an Ultem locking coupler adapter (R-518-PT12 or R-518-PT12L) in conjunction with a locking coupler (R-518-CL12-HTG or R-518-CL12-PG) between the viewing head flange and the burner mount.
- b. The purge air line should also be isolated from the viewing head. This can be accomplished by installing any insulating material, for example a rubber hose, in between the purge air line and the viewing head.

### Viewing Head Wiring

Viewing heads are wired to the appropriate terminals located on the bottom of the P522, P531 and P532 signal processors, and on the terminals located on the rear PC Board of the P520. The terminals are listed functionally in Table 2.

**Table 2. Terminal Descriptions.**

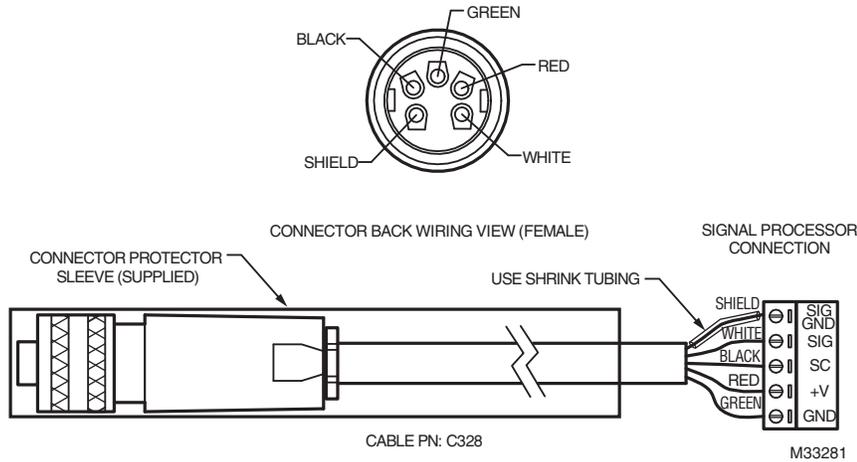
Terminal	Description
GND	Power Ground
+V	+24VDC Power to Viewing Head
SC	Shutter Drive Signal to Viewing Head
SIG	Flame Signal from Viewing Head
SIG GND	GND Signal Ground



**IMPORTANT**

Source impedance resistor required at the signal processor between SC and SIG GND terminals for proper signal transmission. For resistor value and wiring instructions, refer to the applicable signal processor manual.

**Fig. 1. Wiring connections for S550B, S552B, and S556B viewing heads.**



**IMPORTANT**

Source impedance resistor required at the signal processor between SC and SIG GND terminals for proper signal transmission. For resistor value and wiring instructions, refer to the applicable signal processor manual.

**Fig. 2. Wiring connections for S550BE, S552BE, and S556BE viewing heads.**

Fig. 1 and 2 show the wiring of the viewing head connector to the signal processor using the recommended Honeywell type C328 cable. This cable has a UL ITC rating and can be used in the US in hazardous locations. Note that the flame signal wire is shielded, and that the shield is terminated at both ends.

**NOTES:**

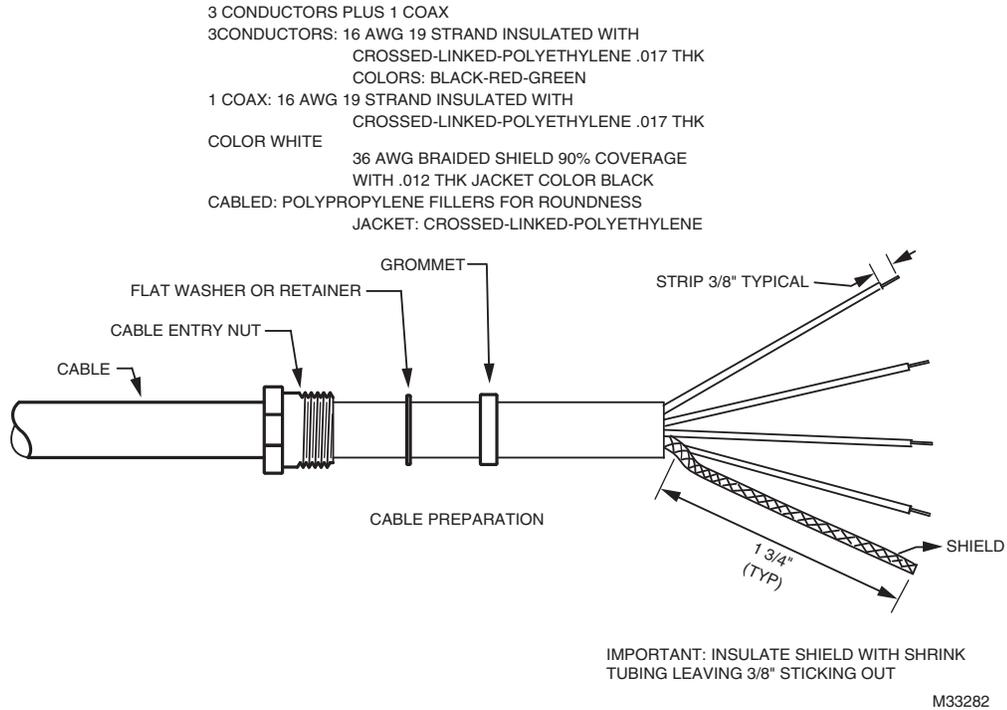
- The shield is used as the signal ground wire which goes to terminal SIG GND on the signal processor. The shield must be a braided type for this application in order to maintain an electrical path. For this reason, a foil type shield should not be used. This signal ground shield is also the self-checking or shutter drive circuit return path. It is recommended that the Honeywell C328 cable be used for all applications.
- A source impedance resistor is required at the signal processor between the SC and SIG GND terminals for proper signal transmission. For resistor value and wiring instructions, refer to the applicable signal processor manual.
- Shrink tubing is required on the SIG GND wire at both ends.
- Use the provided connector protection sleeve when installing the S55XBE connector. Use of the connector sleeve is required for IECEx approval.

Connection of the Honeywell type C328 cable to the viewing head plug is shown in Fig. 1 and 2, and should be done as follows:

- Remove the cable entry nut from the plug housing.
  - Remove the rubber grommet and flat sealing washer or retainer.
  - With a pair of long-nosed pliers remove the center ring only of the rubber grommet.
1. Strip 2 inches of the C328 cable outer cover from the cable removing any cellophane wrap or filler material. Strip the insulation from the shielded wire (if insulated over shield) a full 2 inches to expose the shield.
  2. Slide the shield back until a bulge develops close to where the wire exits the cable outer covering.

3. Carefully spread a few strands of the shield at the bulge (making sure not to break any strands) to create an opening and pull the wire out of shield through opening.
4. Carefully return shield to original shape and length by pulling gently, then cover the shield with heat shrink tubing to insulate it.
5. Slide the nut (with threads toward the cable end), the washer or retainer and the grommet approximately six inches onto the cable.
6. Slip the cable through the bottom opening of the connector making sure that the cable outer jacket is secure under the cable clamp and tighten the two screws on the cable clamp.
7. Reassemble the grommet, flat washer, and cable entry nut and tighten.
8. Strip each wire 3/8" as shown in the assembly drawing Fig. 3 on page 5.
9. Proceed to wire the connector as follows: (Refer to Fig. 1 and 2 for terminal locations.)
  - a. Connect the viewing head signal wire (the shielded wire) WHT into the designated terminal by inserting into opening and then tightening the retaining screw.
  - b. Connect the self-checking signal wire BLK to its designated terminal.
  - c. Connect the signal ground shield from WHT wire with shrink tubing to its designated terminal.
  - d. Connect the + 24VDC power wire RED to its designated terminal.
  - e. Connect the power ground wire GRN to the proper terminal.
  - f. If using the Amphenol-Tuchel plug, assemble the back of the plug and insert the jackscrew through plug assembly. If using the Turck connector, screw the connector body to the plug front.
  - g. For the S55XBE viewing heads, slide the connector protective sleeve over the connector.

The cable at the signal processor end should be prepared in a similar way to the plug end, particularly the shield from the WHT wire. Follow the wiring connections as shown in Fig. 1 and 2, making sure that the shield does not touch the other adjacent terminals.



**Fig. 3. C328 cable preparation.**

## Mounting and Sighting

Mounting is 1-in. NPT (F) with a 1/2-in. NPT (F) purge air connection. Before beginning the actual installation, determine the best location for mounting the viewing head based upon the following factors:

### Pressure

The viewing head lens will withstand 5 psi. If the lens assembly is exposed to greater than 5 psi through the sight pipe or process connection, then an isolation unit must be used. Honeywell isolation units with purge air entrance are available as accessories; ISO-UNIT, ISO-UNITSS and ISO-UNITHPGT. Each has a quartz window, two 1-in. NPTF connections and a 1/2-in. NPTF purge port.

### Temperature

The viewing head can withstand an ambient temperature of 158F (70C). The case temperature of the housing must not exceed 158F (70C).

Purge air will help reduce conducted heat through the sight pipe and flange. A heat insulating ultem nipple (Honeywell part R-508-12) or insulating locking coupler adapter (R-518-PT12 or R-518-PT12L) will reduce the conducted heat, but direct radiation can cause the housing case temperature to exceed limits. If the ambient heat (direct radiation) is excessive, then a fiber optic extension should be considered. The extension uses a fiber optic cable assembly between the sight pipe and the viewing head, allowing the viewing head to be placed further away from the heat source. Refer to the Fiber Optic Manual 69-2683 or contact your distributor or the factory for assistance with fiber optic selection and pricing.

The model S55XB and S55XBE series of viewing heads have in place a sensor for sensing the internal temperature of the head, which can be displayed on the attached signal processor. For the P520/P522, press the "Reset" and the "Down" arrow key at the same time. The temperature reading will be displayed in the four-digit readout. The reading (indicated in °C) will disappear and the normal reading will continue after several seconds. For the P532, a dedicated key is provided for each S55XB/BE to display temperature.

### Purge Air

Use a flexible air supply line, to allow for repositioning of the viewing head and sight pipe until a final and permanent position has been decided. A continuous flow of air must be maintained in order to reduce conducted heat and to keep the sight pipe and viewing head lens free of dirt and debris. Air required is about 0.13 Nm<sup>3</sup> / min (5 SCFM) delivered at 25 mm (1 in.) above the maximum pressure as measured at the "Y" or "T" section of the purge air connection for each viewing head. The air supply must be clean, free of oils and water, and preferably cool. In order to electrically isolate the viewing head, the purge air line should be installed using an insulating material, such as a rubber hose, in between the purge air line and the viewing head.

### Vibration

Do not install the viewing head where it could be subject to high vibration. Provide an anti-vibration mount if excessive vibrations are present.

### Clearance

Make sure there will be sufficient room to remove the viewing head housing for servicing.

## Mounting

Honeywell offers a range of swivel mounts, both pipe thread or flange mounting for use with sight pipes or direct windbox mounting. Refer to the Accessories section of this document or the Honeywell website for further details.

## Viewing Head Sighting

The sighting of the viewing head should be parallel to the center line of the burner in the direction of the flame. If used, the sight pipe should be mounted as close to the center line as possible so as to sight along the flame rather than across the flame. Doing so will ensure continuing flame detection under changing load conditions. Refer to Fig. 6, 7, and 8.

Utilizing a sighting or the sight pipe aimed at the root of the flame (where the turbulent combustion air mixes with the flame) is a good starting point for optimizing the sighting. Where practical, using a swivel mount to “zero-in” on the highest signal will assure maximum performance. The optimum scanner location is parallel to the burner center line. The use of a swivel mount allows for line of sight adjustment, where practical to use.

Examples of viewing head installation with and without a swivel mount are shown in Fig. 9 and Fig. 10. If using a sight pipe, the diameter should be large enough to allow a reasonable field of view, and to allow for adjustment of the swivel mount angle. The S550B/BE has two angles of view, one for the IR detector, which is 1.0° and one for the UV detector which is about 3.0°; this translates into a circle of view that varies with the viewing distance as shown in the following table.

**Table 3. Circle of View.**

Distance in ft (m)	Distance in in. (cm)	Diameter of IR View in in. (mm)	Diameter of UV View in in. (mm)
2 (0.6)	24 (61.0)	.64 (16)	1.3 (33)
3 (0.9)	36 (91.4)	.73 (19)	1.9 (48)
6 (1.8)	72 (182.9)	1.45 (37)	3.8 (97)
12 (3.6)	144 (365.8)	2.9 (74)	7.6 (193)
18 (5.5)	216 (548.6)	4.35 (110)	11.4 (290)

As an example of proper sighting challenges, detecting flame in a sulfur recovery unit can present a challenge for IR flame monitors. The IR detector will detect natural gas used for the warm-up of the reactor. Usually the combustion air is turbulent enough to cause a good flicker signal.

When the sour gas is introduced and the natural gas is shut down, the flame signal could drop off or drop out entirely due to a complete change in the flicker content for the existing viewing head sighting. In this case, optimizing the flame signal for the sour gas by “zeroing-in” on this flame, and not the warm-up burner may be beneficial.

Once optimizing the sighting for the sour gas has been completed, the signal level could be too low on the natural gas. In this case, using the UV detector for this application may be beneficial. It may be beneficial to use two sets of set points for flame ON and flame OFF, one set for proving and detecting the natural gas flame and the other for proving and detecting the sour gas flame. The switch-over from Channel A to Channel B should be done when removing the natural gas

burner. The switch-over can be implemented from the burner control system. The switch-over and the use of Channels A and B with their independent settings is explained in the applicable signal processor manual.

## ACCESSORIES

### Orifice disks (kit M-702-6)

Used to reduce the signal brightness in cases where the signal brightness is too strong. Located immediately in front of the lens, it will reduce the amount of signal to the sensors. Bag assembly contains orifice disks and retaining rings. Orifice disks come with 3/8, 1/4, 3/16 and 1/8 inch diameter holes. Contact the factory for guidance in using orifice disks.

### Insulating nipple (R-518-12)

1 in. NPT Ultem heat and electrical insulating nipple typically used in conjunction with a swivel mount or isolation unit.

### Swivel mounts (M-701-1, M-701-2, M-701-2-FLG, M-701-2-SS, M-701-3, M-701-3P, M-701-4)

All have 1 in NPTF viewing head connections on one end with varying process connections including 2 in. pipe slip on, 2 in. NPTF, 2 in. flanged, 2 in. NPT in stainless steel construction, 4.5 in. flanged with 3 bolts, 3 in. NPTF and 2-bolt flanged.

### Insulating locking coupler adapters (R-518-PT12, R-518-PT12L)

1 in. NPTM Ultem adapters insulate the viewing head electrically and thermally and are used with the R-518-CL12-PG purge air adapter or the R-518-CL12-HTG locking coupler. The R-518-PT12L has a quartz lens.

### Locking coupler (R-518-CL12-HTG)

Used with the R-518-PT12 and R-518-PT12L insulating locking coupler adapters. Process connection end in 1 in. NPTF.

### Locking coupler with purge port (R-518-CL12-PG)

Adapter is a 1 in. NPTM locking quick disconnect/cam and groove coupler with 1/2 in. NPTF purge port. Used with R-518-PT12 and R-518-PT12L insulating locking coupler adapters.

NOTE: The S55XB/BE models have a built-in 1/2 in. NPTF purge port.

### Connector (R-519-09)

Replacement quick disconnect connector for all S55XBE models. All S55XB/BE models ship with connectors (excluding -PF versions).

### Cable (C328)

4 conductor cable with braided shield. Sold per foot.

### Isolation Units (ISO-UNIT, ISO-UNITSS, ISO-UNITHPGT)

All have 1 in. NPTF connections with 1/2 in. NPTF purge ports and quartz window. Painted aluminum or stainless steel construction. The HPGT version has a 1/2 in. thick quartz window for higher pressures.

### Liquid tight cable adapters (LTA5XX, LTA55XBE)

Viewing head cable adapters with 1/2 in. NPTF conduit connection. The LTA5XX is used with the S55XB viewing head models while the LTA55XBE is used with the S55XBE models.

**Air cooling canister (ACC5XX)**

For S55XB models only. 1/4 inch air inlet port. Use with vortex coolers.

**Vortex coolers (M3204, M3208, M3210, M4025)**

Used with air cooling canister. Contact your distributor or the factory for selection assistance.

**Cable restraints (S5XXCR, S5XXCRLT)**

Standard and liquid tight cable restraint versions.

**Fiber Optic System Compatibility**

The S55XB/BE viewing heads are compatible with the Honeywell FASA fiber optic extension products. The S550FOAD, S550FOADY-FT and S550FOADY-FT-AL adapters are applicable. Contact your distributor or the factory for assistance with fiber optic selection and pricing.

## OPERATION

### IR Detector

The IR solid state detector in the S550B/BE and S552B/BE viewing heads responds to IR radiation/flicker in the flame. Flame flicker is caused by the combustion, or forced air injected into the flame. This combustion air can be mixed with the fuel (pulverized coal) or can be introduced separately. In either case, forced air is introduced in such a way as to aid the combustion process. This air is usually made turbulent by causing it to swirl with spin vanes located in the burner barrel. Flame flicker is created when turbulent air mixes with the flame. It is composed of random frequencies and the amount of high frequency flicker is dependent on the fuel and burner.

The S550B/BE and S552B/BE viewing heads respond to flicker frequencies 16 Hz and above. The lower frequencies are ignored so it is important to sight the viewing head on the highly turbulent portion of the flame that contains the higher frequencies. The location of the higher frequencies can be predicted by examining the burner with regard to where the flame envelope begins and where the turbulent air enters the flame. The optimum scanner location is parallel to the burner center line. The use of a swivel mount is encouraged to allow for line of sight adjustment.

### UV Detector

The UV tube detector in the S550B/BE and S556B/BE viewing heads have a spectral response of 190-215nm. The output of the detector is a pulse stream of randomly spaced pulses whose average rate is proportional to the UV radiation present in the flame.

The spectral range of the UV tube makes it ideal for discriminating between flame and glowing refractory. As with any UV radiation, it can be absorbed or masked by pulverized coal, unburned fuel, smoke, oil mist, dirt, dust and other impurities in the fuel. As well, sour gas (H<sub>2</sub>S) can readily absorb 200nm UV wavelengths, reducing the amount of ultraviolet radiation reaching the detector. Care should be taken to select the proper viewing head for the fuel used. Additionally, the contaminants that mask UV can be diluted by providing a strong flow of air through the sight pipe to clear a viewing path through the attenuating material. Refer to the Purge Air section of this manual.

It may also be desirable to sight the detector at an area containing fewer masking agents such as near the burner nozzle or near the entrance of the combustion air. Increasing the viewing area of the detector by shortening the sight pipe or by increasing the diameter of the sight pipe can also reduce the attenuating effects of masking agents.

In general, the UV viewing heads will work well on natural gas and light oil fuel flames. The sighting for both oil and gas flames should be parallel to the axis of the burner and aimed at the root of the flame, as with the IR detector. (See previous section "IR DETECTOR".) The highest UV intensity occurs near the root of the flame. In addition, the zone of higher UV intensity does not overlap the same zones of adjacent or opposing burners so that, with proper sighting, discrimination can be achieved.

With low NO<sub>x</sub> gas burners, the UV radiation is usually much less in intensity and spread out. Relatively high readings can be obtained from all over the furnace when many burners are on. This is particularly true when flue gas recirculation is used. There will however, be a relatively stronger signal near the "root" of the flame and the more intense spot should be located during the aiming or sighting process. This "root" or intense spot may be further out than with the standard gas burner so it is imperative that a swivel mount be used when making sighting adjustments.

Another factor that needs to be considered when aiming the viewing head is the load condition of the boiler. The flames from a burner can be radically different at different loads. This is one of the reasons for choosing an optimum sighting initially that will minimize signal swing due to changing loads.

## Self-Checking

There is a small processor in all viewing heads and it is possible that it could fail and produce erroneous viewing head pulses. The self-check circuitry guards against such an occurrence. There are several tasks that require intelligent interaction between the viewing heads and the signal processor. If all of the interactions do not occur properly, the viewing head will not send pulses back to the signal processor and the flame relay will open.

Verifying the validity of the gain code received is one of the tasks performed by the processor in the viewing heads. The self-check pulse from the signal processors is a 100ms-wide, 20V to 24V pulse with two "notches" or breaks in it. The position of each of the two notches communicates a gain code one to nine plus parity to the viewing head. The viewing head sends back an ID pulse in the first half of the 100ms self-check time. One viewing head expects to receive data with one parity and the other expects to receive data with the other parity. If a viewing head does not receive its correct parity plus the gain code once per second, it produces no output pulses.

## Orificing

Orifice disks have been used in applications with older viewing heads that did not have adjustable gain in order to reduce the extreme brightness of certain burner flames. Orifice disks come with 3/8, 1/4, 3/16 and 1/8 inch diameter holes. Contact the factory for guidance in using orifice disks. The discs are installed with retaining rings in the flange at the edge of the 1/2 inch NPT female pipe thread for the purge air. An internal type retaining ring is first installed by positioning a ring in the machined groove inside flange opening from the housing side.

The orifice disc is then inserted. Use a second retaining ring to hold it in place so that it is sandwiched tightly between the two retaining rings.

Table 4 shows the signal reducing characteristics of the different orifice disks.

**Table 4. Signal Reducing Characteristics.**

Aperture Hole	Fn (f Stop)	Relative light passing power
1"	2	1
3/8"	5.3	1/8
1/4"	8	1/16
3/16"	10.7	1/32
1/8"	16	1/64

### Default Settings For the S550B/BE

A new signal processor will set the attached viewing head default values as follow:

- UV Gain = 32 (out of 0-99 range)
- Filter = Filter 3 (high pass above 33Hz)
- IR Gain = 451 (out of 0- 699 range)

These are nominal settings that should allow for initial sightings and adjustments. Both UV and IR sensors are active in the default mode. If the settings for the viewing head has been changed from the default values, they can be reset to the factory default from the P520 / P522 / P532 control panel. (See "RETURN TO DEFAULT SETTINGS.")

**NOTE:** The following sections referencing the P520, P522, P531 and P532 signal processors are for reference only. For detailed viewing head programming and adjustment instructions, refer to the appropriate signal processor manual.

### Stored Viewing Head Settings

Viewing Head settings are stored in an EEPROM in the particular signal processor to which it is attached. In the event of a power down or power loss, these settings will be restored upon power up. If an S550B/BE viewing head is replaced with another, the stored settings will be applied to the replacement upon power up of the signal processor.

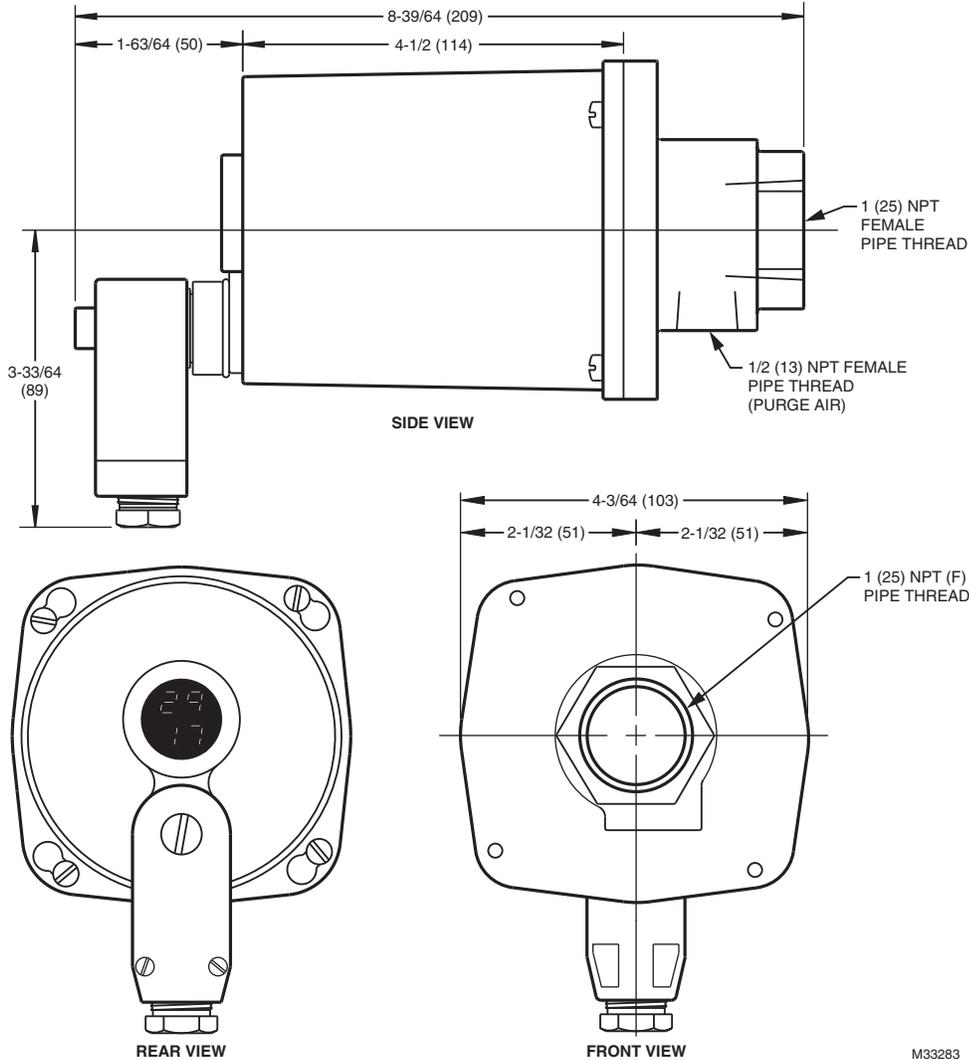
### S55XB/BE Setup

For setup of the S55XB/BE viewing heads, refer to the appropriate signal processor manual. The S55XB/BE viewing heads are compatible with the P520, P522, P531 and P532 signal processors.

## MAINTENANCE

The UV sensor has a limited lifespan. Under extreme conditions, the lifespan can be as low as 10,000 hours. However in the most favorable conditions, the lifespan is 50,000 hours or more. The service life of the UV sensor is considered terminated when the sensitivity becomes lower than 50% of the initial value.

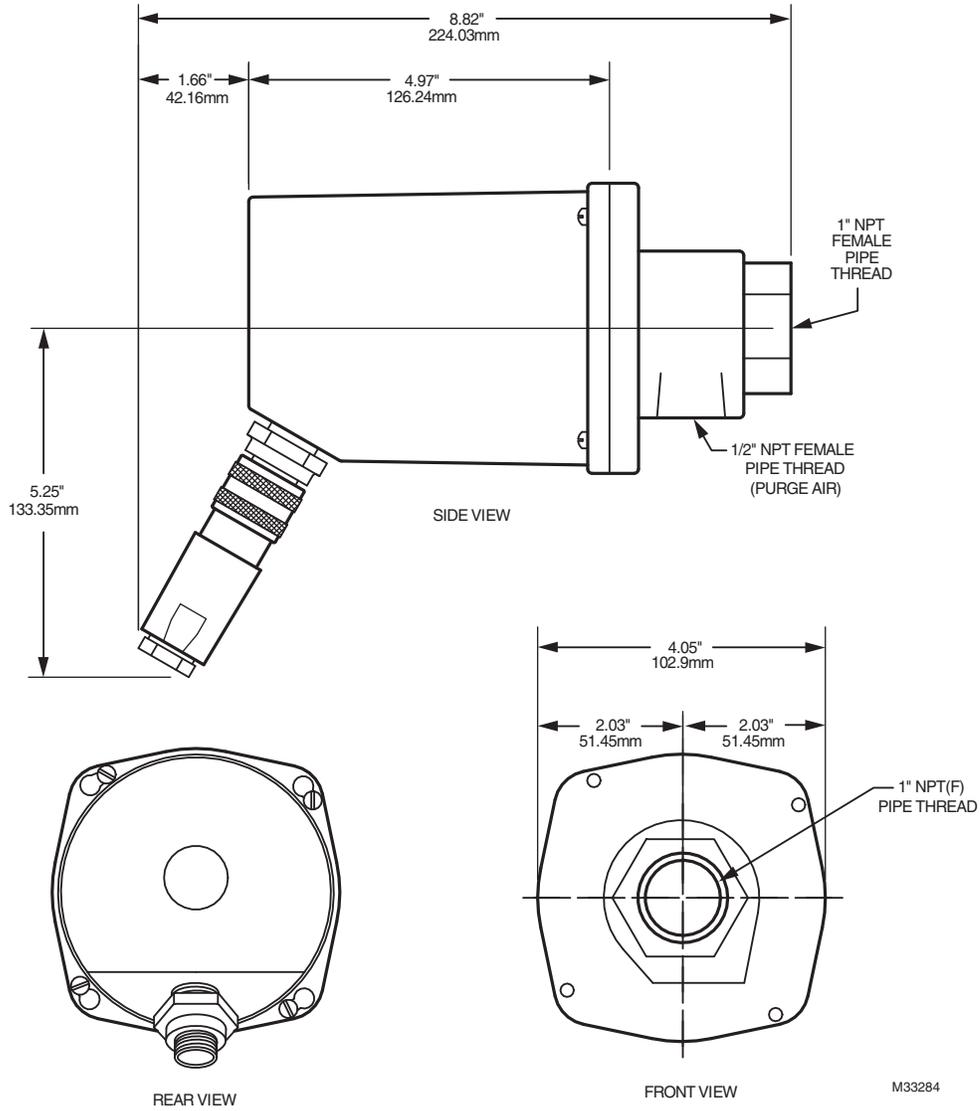
A monthly sensitivity check is suggested to determine if the UV sensor's life is terminated. The reading of the signal processor digital display should be compared to the initial reading of the unit when it was installed. Ensure similar burner fire conditions of the application, and that the same gain settings of the viewing head, are used during each sensitivity check. If it is determined that the sensitivity is below 50% of the initial value (terminated life of the sensor), the sensor should be replaced.



M33283

Fig. 4. S550B, S552B and S556B dimensions in in. (mm).

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Fig. 5. S550BE, S552BE, and S556BE dimensions in in. (mm).

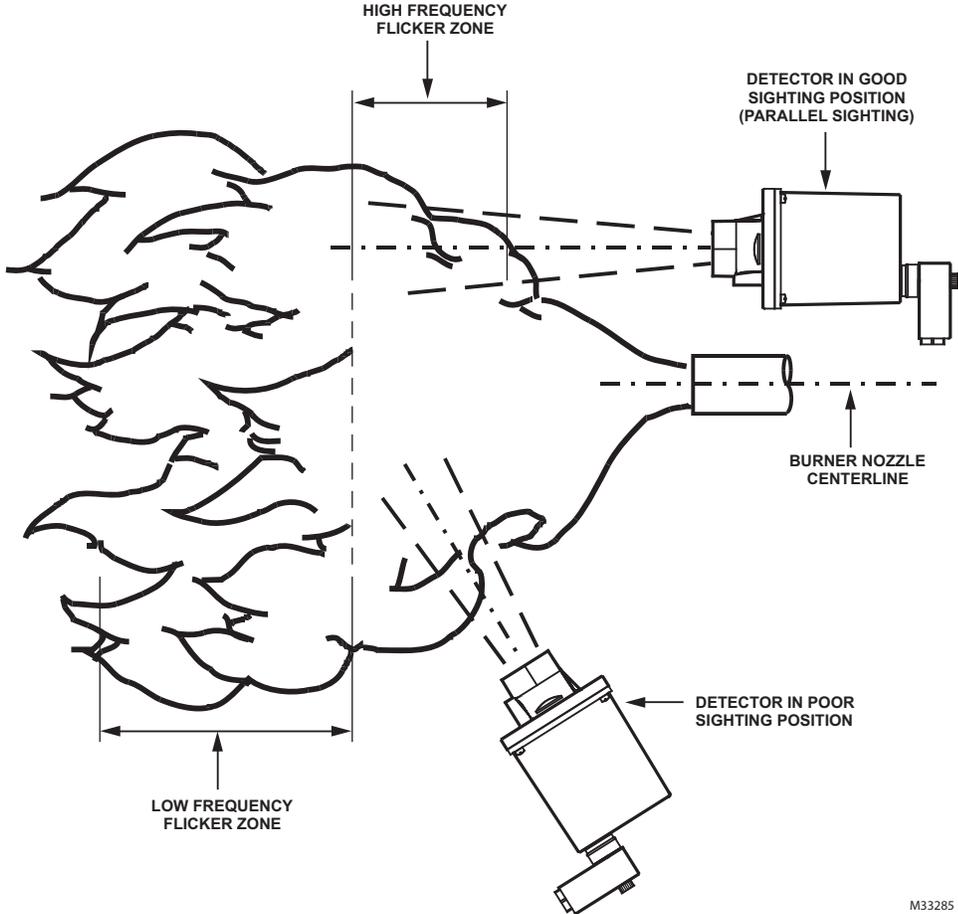


Fig. 6. IR viewing head location.

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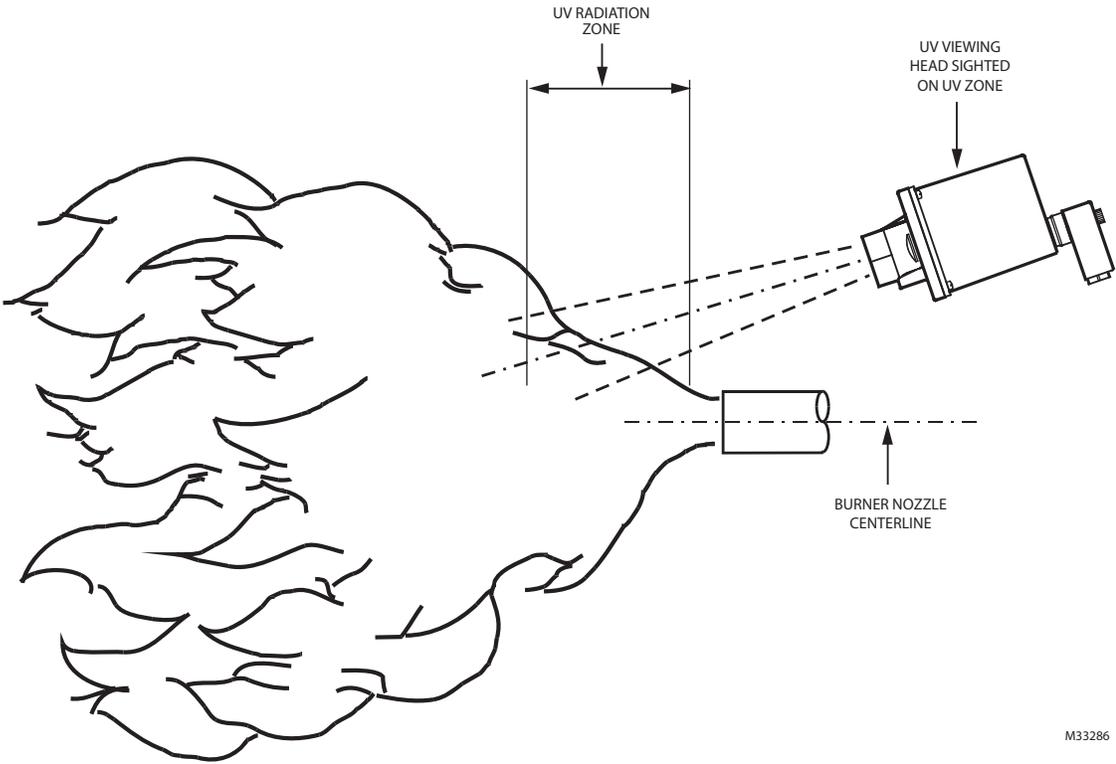
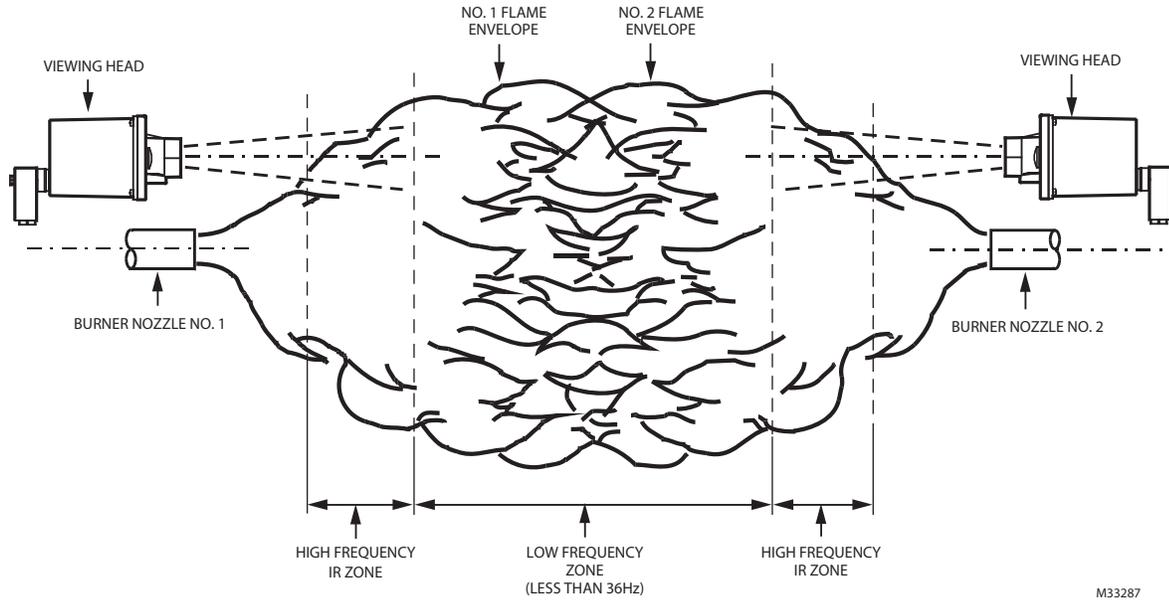


Fig. 7. UV viewing head location.

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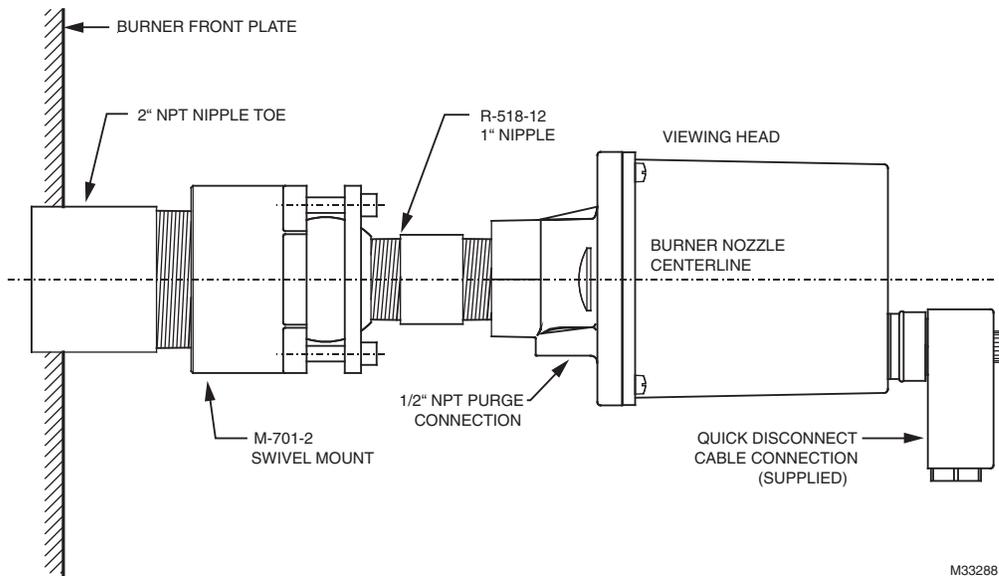


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Fig. 8. Sighting opposed fired burners.

### Mounting Examples

For electrical and heat insulation requirements, the Honeywell R-518-12 nipple, the R-518-PT12 or R-518-PT12L locking coupler adapter accessories or similar product must be used for mounting, attached directly to the S55XB/BE viewing head. Cooling air should be provided via the purge air connection to reduce conducted heat and to keep the sight pipe and viewing head lens free of dirt and debris. Refer to the Mounting and Sighting section on purge air requirements. For electrical isolation reasons, the purge air line should be installed using an insulating material, such as a rubber hose, in between the purge air line and the viewing head. Note that an extension pipe may be required to locate the viewing head further from the burner front plate to avoid high temperatures.



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Fig. 9. Viewing head mounting example.

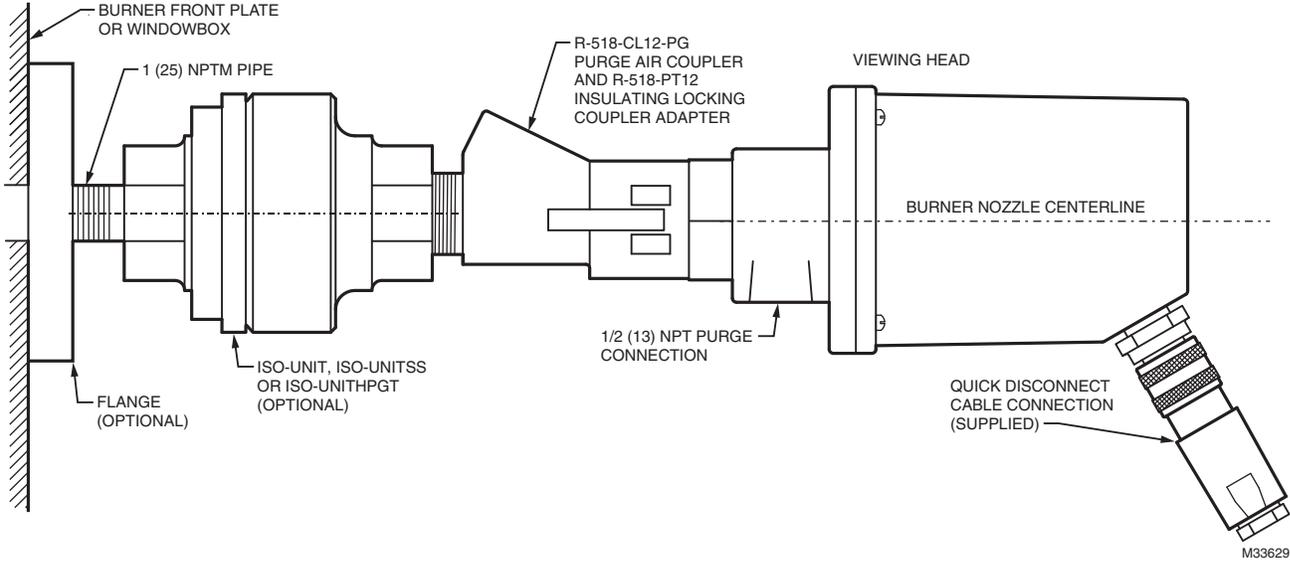


Fig. 10. Viewing head mounting example 2.





**Automation and Control Solutions**

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