

North American Flame Detector Adapters 8832 through 8839 and Series R

Adapters simplify installation of flame detectors on North American burners. They also facilitate access to detectors for servicing.

Most adapters include a purge air connection. All adapters and flame detector combinations come with a means of removing the flame detector without twisting or disconnecting wires.

Review the flame detector manufacturer's installation and operation literature to insure all limitations and regular maintenance are addressed when using flame detector equipment.

Selection: Refer to Table A for a list of flame detectors commonly used with North American burners. Determine the adapter series number based on your specific flame detector model. If your specific model is not listed or you are using another brand of flame detector, refer to the manufacturer's literature to determine the flame detector's connection type and specific thread size. Table B determines the adapter suffix based on the specific burner being used.

Examples: When using a Honeywell C7027A on a 6514-4 burner, specify an 8836-D adapter.

When using a Honeywell C7007A on a 4422-4 burner, specify an 8832-B adapter.

See Page 4 for Series R Adapters for smaller size Flame Detectors.



8835-R with C7061A U. V. Scanner

Table A. Adapter Numbers for Various Honeywell and Fireye Devices^①

Manufacturer	Mfgr's P/N	Device Connection	Device	Adapter No.
Honeywell	C7007A	½" male NPT	Flame rod holder ♦	8832
Honeywell	C7004B	1¼" female NPT	Flame rod holder ♦	8833
Honeywell	C7061A&F	¾" female NPT	Ultraviolet	8835
Honeywell	C7027A	½" female NPSM	Ultraviolet	8836
Honeywell	C7035A	1" female NPSM	Ultraviolet	8837
Fireye	65UV5	1" female NPT	Ultraviolet	8837*
Fireye	95UVS2	1" female NPT	Ultraviolet	8837*

NOTE: Some Honeywell flame detectors that do not fit or are not recommended with North American burners are: C7004B1002, 1010, and 1028, C7004B5, C7007A2, C7008A, C7009.

① Adapters do not include detectors--order separately.

♦ See Sheet 8832-1

* Device is also compatible with 8833-R adapter

Table B. ADAPTER SUFFIX LETTERS for North American Burners^①

4343..... ^⑤	4723..... 8838-E ^③	5514..... D	6527-7..... A
4422-2 thru -6..... B	4724..... 8838-E ^③	5795..... D	6562 (Obsolete)..... H
4422-7-A thru -8-A..... A	4725..... 8838-E ^③	5796..... B	6570 Pilot..... B
4423, 4424..... B	4726..... C	5819..... G ^②	6570 Main Flame..... D
	4762..... B ^⑥		6575..... B
4425-2 thru -6..... B	4777..... H	6421..... B	
4425-7-A thru -8-A..... A	4795..... D	6422-2 thru -6..... B	6736..... B
4431-8-A..... B	4796..... B	6422-7-A thru -8-A..... A	6758..... B
4441, 4442, 4442A..... A		6423..... B	6795..... D
	4808..... B	6425-2 thru -6..... B	
4514..... D	4818..... G ^②		6819..... G ^②
4545-6 thru -8..... D	4819..... G ^②	6425-7-A thru -8-A..... A	6820..... G ^②
4545-9 FR only..... L	4825..... F ^②	6427-8-A..... B	6825..... F ^②
4558/4558- V..... B	4828..... B	6435..... B ^④	6832..... B
	4831..... B	6514..... D	6833..... B
4630 w/4630-P..... J	4832, 4833, 4836..... B	6520..... D	6836..... B
4630 w/4021-15 or -16..... M	4841..... B		6841..... B
4659..... B		6521..... D	6843..... B
4682..... H	5422-2 thru -6..... B	6526..... B	6855..... B
	5422-7-A thru -8-A..... A		

① Adapters do not include detectors--order separately.

② Use C7035A UV only with 8837-F or -G Adapter because of ambient temperature considerations. Adapter includes Honeywell Heat Block.

③ Or Series R. Also, R can be used in place of any A or B.

④ When flame supervision is mounted, Sensitrol™ Oil Valve cannot be close-coupled because of interference with handle.

⑤ See Sheet 4343-3 for TwinBed® II flame detector assemblies.

⑥ Requires modified version of adapter shown in Fig 1, page 3. Use adapter 4-6153-1

RADIANT TUBE BURNERS

Flame supervision can be used with 4723 and 4725 Radiant Tube Burners. The 8838-E-UV Adapter-Detector assembly includes a modified C7035A-1080 Detector and 8790-0 Observation Port.

The 8838-E-UV assembly is threaded into the back of a standard 4723 or 4725 Burner in place of its observation port. An integral observation port is mounted in the upper leg of the "Y", while the lower leg holds the C7035A Detector.

The "Y" fitting can be removed without disturbing the quartz sealing lens in the front of the adapter. The quartz sealing lens must remain in-place to prevent fuel leakage.

Since no burner modification is involved, an 8838-E-UV Adapter-Detector can be added to many existing burners.

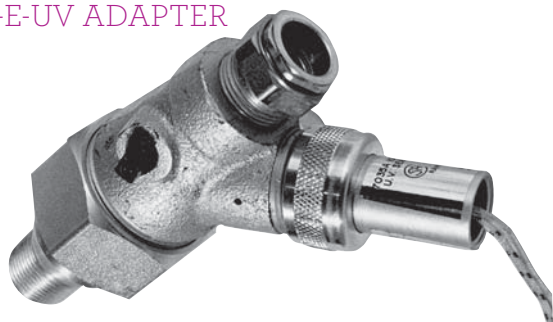
A radiant tube burner flame supervision concept must take into account the fact the UV detector will **not** pick up the pilot flame. Sequence begins trial for ignition simultaneously with both pilot and main flame.

During operation, direct spark ignition or gas pilot **must be interrupted** after normal ignition interval. Pilot air can be left on under all normal operating conditions.

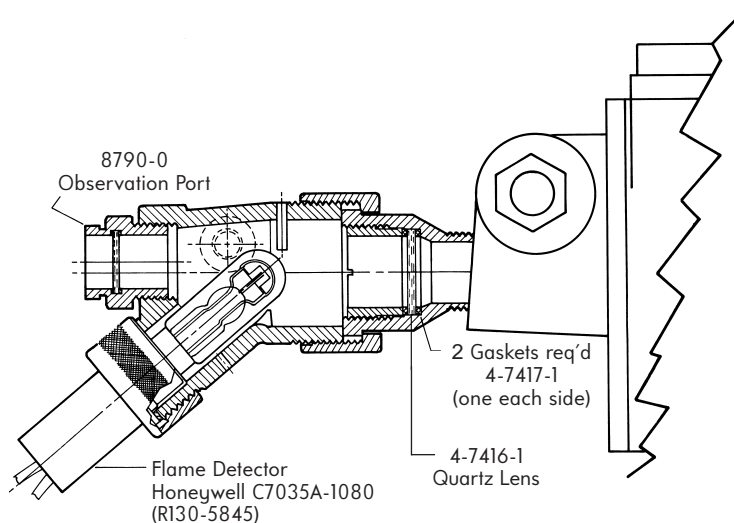
When replacing a UV detector in the field, modify the C7035A-1080 by removing the tubular shield from the UV tube to allow adequate signal strength. Position the detector tube for maximum grid exposure with upright plates at sides.

The 8838-E is rated for up to 10 psig backpressure.

8838-E-UV ADAPTER



To order, specify: 8838-E-UV Flame Adapter-Detector including C7035A-1080 UV Detector, or 8838-E Flame Detector Adapter only. Remove tubular shield and install gasket supplied with C7035A when installing adapter and flame detector.



Flame Detector Adapter Dimensions in inches

Adapter designation	For a burner having	For a detector having ^⑨	Overall length	Radius max. ^⑧	Cooling Air connection ^⑦
8832-A	3/4" NPT	1/2" male pipe thread	6 7/8"	2 1/8"	1/4" NPT
8832-B	3/4" NPT	1/2" male pipe thread	5"	2 1/8"	
8832-C	1/2" NPT		4 3/4"	2"	
8832-D	1" NPT		5 1/2"	2 1/8"	
8832-H	3/8-16 ANT		3 7/8"	See Fig. 1	None
8832-J	1/4-20 UNC		See Fig. 3	See Fig. 3	1/4" NPT
8832-M	1/4-20 UNC		See Fig. 2	See Fig. 2	
8832-P	1" NPT		6 13/16"	2 5/8"	
8833-A	3/4" NPT	1 1/4" female pipe thread	9"	2 3/8"	
8833-B	3/4" NPT	1 1/4" female pipe thread	7 3/8"	2 3/8"	
8833-D	1" NPT		7 3/8"	2 5/8"	
8833-H	3/8-16 ANT		5 1/8"	See Fig. 1	None
8833-J	1/4-20 UNC		1 7/8"	See Fig. 3	1/4" NPT
8833-L	1" NPT		11"	2 1/4"	
8833-M	1/4-20 UNC		1 7/8"	See Fig. 2	
8835-A	3/4" NPT	3/4" female pipe thread	7 15/16"	2 1/2"	
8835-B	3/4" NPT	3/4" female pipe thread	6 5/16"	2 1/2"	
8835-C	1/2" NPT		6 1/4"	2 1/2"	
8835-D	1" NPT		7"	2 1/2"	
8835-H	3/8-16 ANT		7 1/8"	See Fig. 1	
8835-J	1/4-20 UNC		5 1/2"	See Fig. 3	
8835-L	1" NPT		10 3/8"	2 1/4"	
8835-M	1/4-20 UNC		5"	See Fig. 2	
8836-A	3/4" NPT	1/2" female pipe thread	6 1/16"	2 1/4"	
8836-B	3/4" NPT	1/2" female pipe thread	4 9/16"	2 1/4"	
8836-C	1/2" NPT		3 3/8"	2"	
8836-D	1" NPT		4 13/16"	2 1/4"	
* 8836-F	3/4" NPT		5 11/16"	2 1/4"	
8836-H	3/8-16 ANT		6 1/8"	See Fig. 1	
8836-J	1/4-20 UNC		5 1/16"	See Fig. 3	
8836-M	1/4-20 UNC		4 3/4"	See Fig. 2	
8837-A	3/4" NPT	1" female pipe thread	5 15/16"	2 5/8"	
8837-B	3/4" NPT	1" female pipe thread	4 15/16"	2 5/8"	
8837-D	1" NPT		4 7/8"	2 5/8"	
* 8837-F	3/4" NPT		8 3/4"	2 5/8"	
* 8837-G	1" NPT		8 3/4"	2 5/8"	



Fig. 1. "H" adapter mounted on 4682 burner



Fig. 2. "M" adapter for 4021-15 or 4021-16 Pilot Tip on 4630 Main Burner Sections.



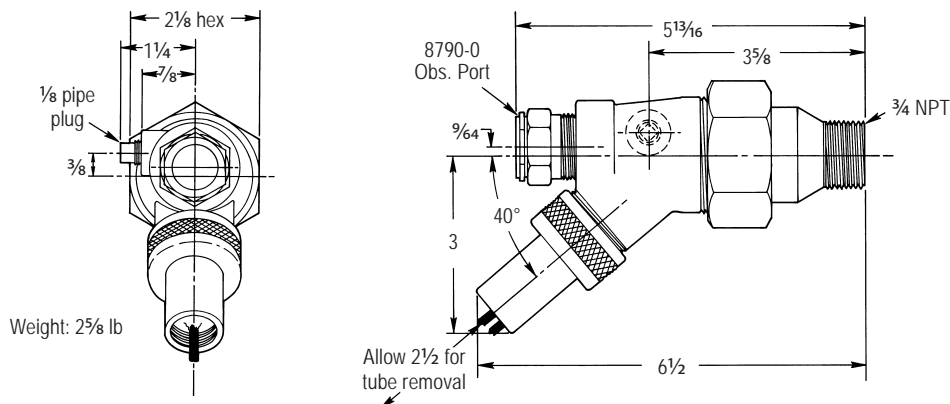
Fig. 3. "J" adapter mounted on 4630-P pilot section

To order, specify: Adapter number with appropriate letter suffix.

Example: 8836-B Adapter

- ⑦ A throttling valve in the cooling air line is suggested for limiting air flow to minimum amount required.
- ⑧ "Radius max." applies to adapters not dimensioned above: It is the radius of a cylinder in space the adapter would occupy while being screwed into mounting.
- ⑨ 8832 and 8833 adapters for flame rods only. See Sheet 8832-1, page 2
- * Includes a non-conducting adapter (Honeywell Heat Block).

8838-E-UV Adapter-Detector assembly including C7035A UV Detector and 8790-0 Observation Port



"R" ADAPTERS for FLAME DETECTORS

Flame detector adapters are available for specific flame detectors. Adapters have a sealing window and a 1/4" tube (1/8" NPT) connector for cooling or purging air.

The most common configuration is to use purge air, where approximately 2 to 3 cfm of air is used to keep the fire side of the quartz sealing lens clean as well as to provide cooling to the UV scanner and adapter assembly. In the purge air configuration, the flame detector is isolated from the purging air and burner environment/combustion chamber by the quartz sealing lens. When using the purging configuration on a burner developing backpressure and/or firing into a positive combustion chamber, use sufficient air pressure to assure positive purge air flow through the adapter. Purge air flow can influence the lighting characteristics of certain burners and/or limit their performance range at reduced firing rate. Care must be taken to adjust the purge air flow for adequate purge and cooling without introducing an undesirable limitation in burner ignition reliability or performance.

The alternate configuration is to use cooling air, where approximately 1 cfm of air (at 8 psig pressure) is used to cool the adapter as it passes through the space between the quartz sealing lens and the flame detector. This configuration is only used when no purge air flow can be tolerated by the burner.

"R" Adapters are shipped with a setscrew plugging the hole that vents cooling air. Leave the setscrew in place for purging air. Remove the setscrew if cooling air is employed and mount the detector on the tube side of the adapter, opposite of the sealing window.

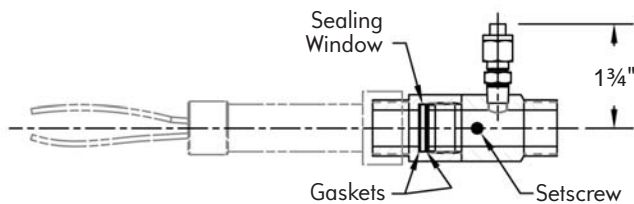
Adapters have a 3/4" NPT thread to fit the 3/4" NPT flame detector mounting provision of most North American burners. The basic 8835-R unit is common to all "R" adapters. It has a 3/4" NPT on both ends. Other adapters are made from the 8835-R by adding the appropriate fitting to one end. The 8835-R adapter is also available with 1" NPT connection as 8833-R. All "R" adapters are rated for up to 10 psig backpressure.

ADAPTERS and DETECTORS

Adapter	Detector Connection Size	Burner Connection Size
8831-R	3/8" MNPT	3/4" MNPT
8833-R	1" MNPT	1" MNPT
8834-R	3/4" FNPT	3/4" MNPT
8835-R	3/4" MNPT	3/4" MNPT
8836-R	1/2" MNPSM	3/4" MNPT
8837-R	1" MNPSM	3/4" MNPT
8839-R	1" MNPT	3/4" MNPT

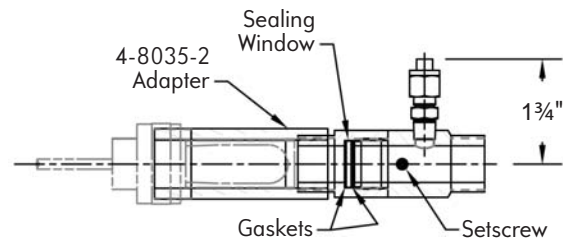
All Series R adapters have the following parts in common:

Cooling Air Connector	R916-2211
Sealing Window	4-7628-1
Gasket (2 req'd)	4-7629-1
Body	4-9770-2
3/4" Mtg. Adapter	4-7932-1
#8-32 Setscrew	R776-1431-N



8835-R

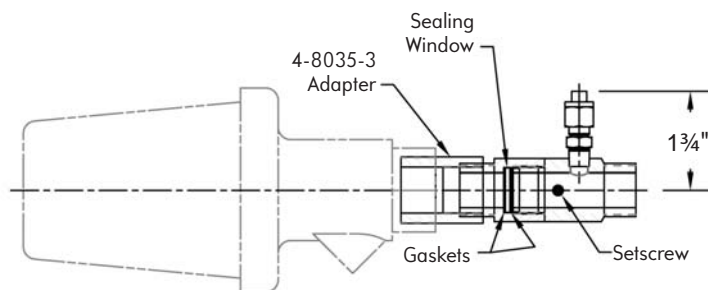
3 1/2" long
Shown with PC11 UV Scanner



8837-R

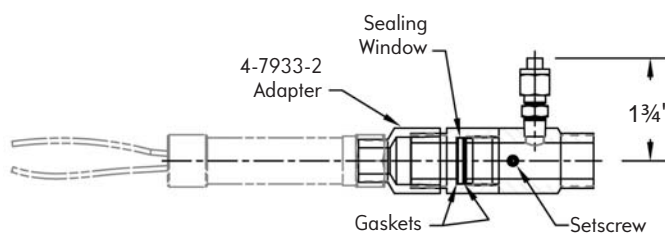
6 1/4" long
Shown with C7035A-1080 UV Scanner

ADAPTERS and DETECTORS continued



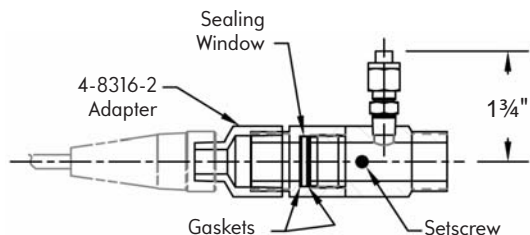
8839-R

4 1/2" long
Shown with 45UV5 UV Scanner



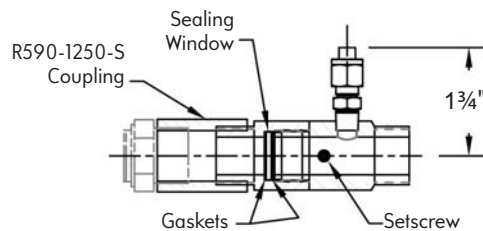
8836-R

4 1/2" long
Shown with C7027A UV Scanner



8831-R

4 1/2" long
Shown with UV-2 UV Scanner



8834-R

5" long
Shown with 8790-0 Observation Port

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters' recommendations, and care in operation.



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