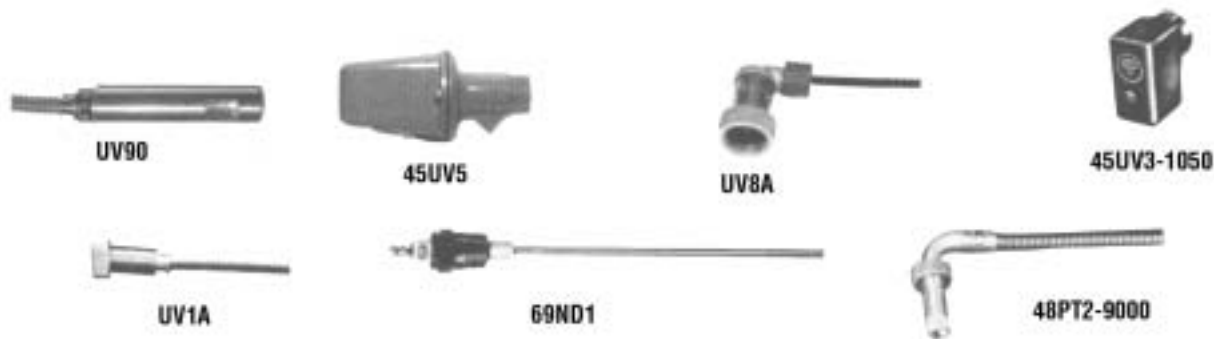




# FIREYE<sup>®</sup> E1R1, EUV1, ERT1 and EUVS4 Flame Amplifier Modules

FOR USE WITH THE  
FLAME-MONITOR<sup>™</sup> CONTROL

(For use with the Phoenix Scanners see 133-674)



## DESCRIPTION

The FIREYE E1R1, EUV1, ERT1 and EUVS4 Amplifier Modules are used in conjunction with the FIREYE FLAME-MONITOR system. These modules provide flame scanning using any of the FIREYE AutoCheck infrared scanners, standard ultraviolet scanners, flame rod, and ultraviolet self-check scanners. After scanner selection the proper amplifier module must be inserted in the Flame-Monitor chassis.

Refer to Fireye Bulletin E-1101 for more detailed information concerning the FIREYE FLAME-MONITOR system and operation. Also, follow the scanner installation and wiring suggestions found in E-1101 for proper flame scanning operation.

## APPROVALS

UNDERWRITERS LABORATORIES, INC.  
CANADIAN STANDARDS ASSOCIATION  
ACCEPTABLE BY: INDUSTRIAL RISK INSURERS (I.R.I.)  
FACTORY MUTUAL APPROVED



## FLAME AMPLIFIER SELECTION

| FIREYE PART NUMBER | DESCRIPTION   | USE WITH SCANNER        |
|--------------------|---|-------------------------|
| EUV1               | STANDARD UV AMPLIFIER   | UV1A, UV8A, 45UV3, UV90 |
| E1R1 *             | AUTOCHECK INFRARED AMPLIFIER  | 48PT2                   |
| E1R2               | AUTOCHECK INFRARED AMPLIFIER<br>(FOR SPECIAL APPLICATIONS ONLY) CONSULT FACTORY | 48PT2                   |
| ERT1               | RECTIFICATION AMPLIFIER   | 69ND1                   |
| EUVS4              | SELF-CHECK UV AMPLIFIER   | 45UV5-1007/1008/1009    |
| E1R3 *             | AUTOCHECK INFRARED AMPLIFIER  | 48PT2                   |

\* The E1R1 is not to be used with solid fuel applications. It is designed for oil fog rejection. The E1R3 is suitable for all fuel applications and *does not* contain oil fog rejection. Equipment should be tested for the proper application of this amplifier to avoid property damages or personal injury.



**WARNING: E1R2 and E1R3 are not replacements for E1R1. E1R2 has increased flame sensitivity which may result in unsafe operation if not properly applied. E1R3 does not provide oil spray rejection protection which may result in unsafe operation if not properly applied.**

**Consult factory before installation.**

## FLAME SCANNERS



**CAUTION: The UV1, UV2, UV8A, UV90 and 45UV3 ultra-violet flame scanners and associated amplifier modules are non self-checking UV systems and should be applied only to burners that cycle after (e.g.: a minimum of once per 12 hours) in order for the safety checking circuit to be exercised. If component checking is required during burner operation for constantly fired burners, utilize the self-checking ultra-violet flame scanners (45UV5) with associated amplifier module (EUVS4) or the infrared flame scanner (48PT2) with associated AutoCheck amplifier (E1R1).**

## SCANNER SELECTION

| FIREYE PART NUMBER   | DESCRIPTION  | USE WITH AMPLIFIER      | BULLETIN |
|--|--|-------------------------|----------|
| 48PT2-1003<br>48PT2-9003<br>48PT2-1007<br>48PT2-9007   | Infrared 1/2" straight mount 96" (2438mm) flex conduit<br>Infrared 1/2" 90°angle mount 96" (2438mm) flex conduit<br>Infrared 1/2" straight mount 48" (1219mm) flex conduit<br>Infrared 1/2" 90°angle mount 48" (1219mm) flex conduit   | E1R1, E1R2 * and E1R3 * | SC-103   |
| UV1A3<br>UV1A6<br>UV8A<br>UV2<br>UV2A6<br>UV2C<br>45UV2-1020<br>45UV3-1050<br>UV90-3<br>UV90-6<br>UV90-9 | 1/2" NPT, 36" (915mm) shielded leads<br>1/2" NPT, 72" (1830mm) shielded leads<br>1/2" NPT, 72" (1830mm) unshielded leads, 90°right angle mount<br>3/8" NPT, 36" (915mm) shielded leads<br>3/8" NPT, 72" (1830mm) shielded leads<br>3/8" NPT, 36" (915mm) unshielded leads<br>1" NPT mount 60 Hz, 72" (1830mm) unshielded leads<br>3/4" Sleeve/setscrew mount, 72" (1830mm) unshielded leads<br>36" (915mm) shielded leads<br>72" (1828mm) shielded leads<br>108" (2742mm) shielded leads | EUV1                    | SC-102   |
| 69ND1-1000K4<br>69ND1-1000K6<br>69ND1-1000K8   | Flame rod 12", 1/2" NPT mount<br>Flame rod 18", 1/2" NPT mount<br>Flame rod 24", 1/2" NPT mount  | ERT1                    | SC-103   |
| 45UV5-1007<br>45UV5-1008<br>45UV5-1009   | Self-check UV 1" BSP, 72" (1830mm) unshielded leads, 230 VAC<br>Self-check UV 1" BSP, 72" (1830mm) unshielded leads, 120 VAC<br>Self-check UV 1" NPT, 72" (1830mm) unshielded leads, 120 VAC   | EUVS4                   | SC-101   |



**\* WARNING: E1R2 and E1R3 are not replacements for E1R1.**

**Consult factory before installation.**

The flame amplifier module is installed in the third set of guide channels found in the EB700 FLAME-MONITOR chassis. It is marked "AMPLIFIER MODULE." Do **not** force the module into position.

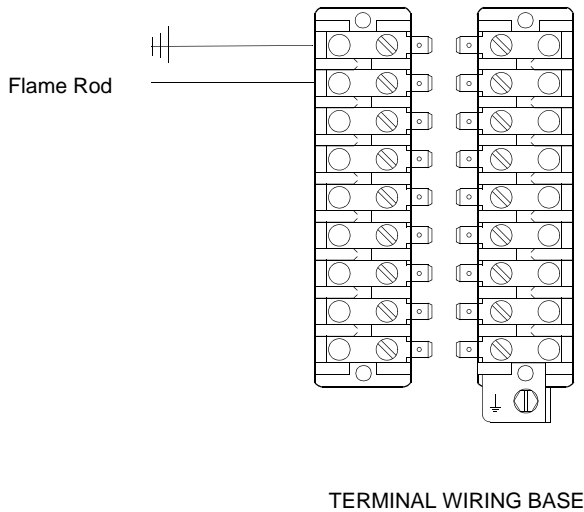
**Amplifier Module** (One Required)

E1R1  
E1R2  
E1R3  
EUV1  
EUVS4  
ERT1



**CAUTION: REMOVE POWER FROM THE WIRING BASE BEFORE TRYING TO REPLACE THE FLAME AMPLIFIER MODULE.**

## IMPORTANT



When wiring to the FLAME-MONITOR control wiring base, scanner terminal S2 must be grounded when using a flame rod. When using an infrared scanner (48PT2), ground S2 on all EB700's labeled "ENG CODE 00." All other ENG CODE models do not require that S2 be grounded. *Do not* ground S2 when using ultra violet scanners.

Voltage measurements, S1-S2 with no flame present:

| AMPLIFIER | S1-S2       |
|-----------|-------------|
| EUV1      | 560 VAC     |
| EUVS4     |             |
| ERT1      | 270 VAC     |
| E1R1      | 12 - 15 VDC |
| E1R2      |             |
| E1R3      |             |

Refer to Service Note SN-100 for recommended grounding techniques.

## NOTICE

When Fireye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireye warranty, as stated in its General Terms and Conditions of Sale, pertains only to the Fireye 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 installation or 18 months from 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 Fireye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireye be liable for consequential or special damages of any nature that may arise in connection with such product or part.



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