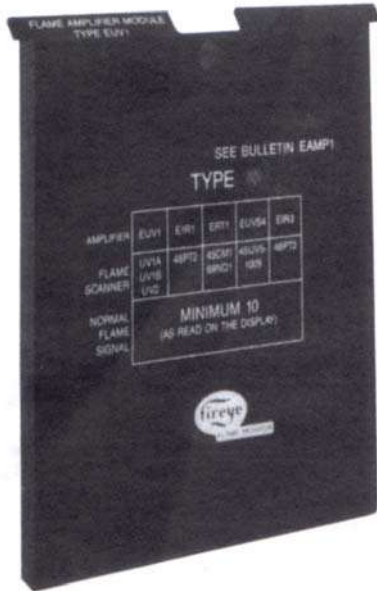




EAMP1  
APRIL 3, 2013



# FIREYE® E1R1, EUV1, ERT1, EUVS4, EDC1 and EDC2 Flame Amplifier Modules

FOR USE WITH THE  
FLAME-MONITOR™ CONTROL

(For use with the Phoenix Scanners see 133-732)



UV90



45UV5



UV8A



45UV3-1050



UV1A



69ND1



48PT2-9000

## 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.:

- MCCZ File MP 1537
- Controls, Primary Safety - Listed
- MCCZ2 File MP1537
- Controls, Primary Safety - Component
- MCCZ7 File MP1537
- Controls, Primary Safety Certified for Canada
- MCCZ8 file MP1537
- Controls, Primary Safety Certified for Canada - Component

**Acceptable by:** Industrial Risk Insurers (I.R.I.)

Factory Mutual Approved

## FLAME AMPLIFIER SELECTION

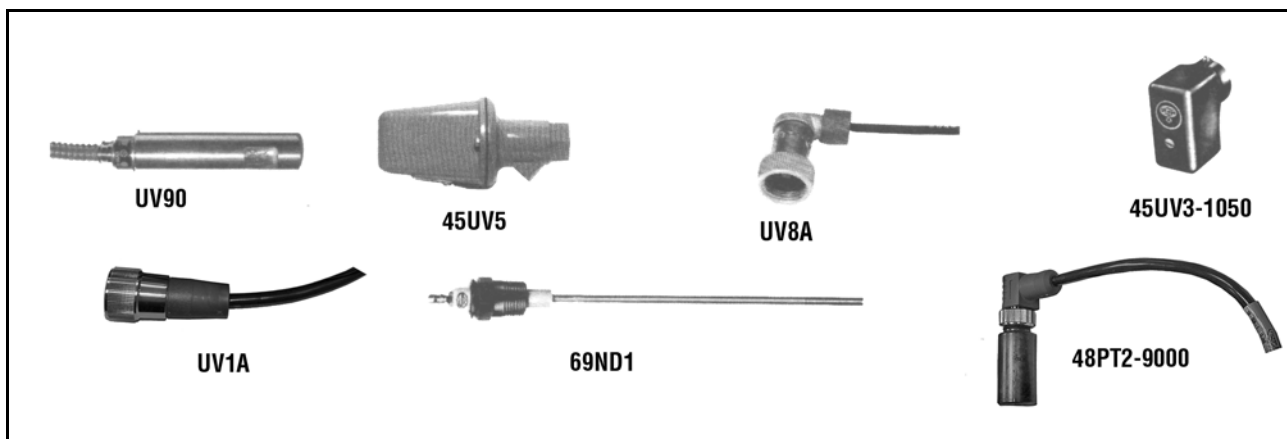
FIREYE PART NUMBER	DESCRIPTION	USE WITH SCANNER
EUV1	STANDARD UV AMPLIFIER	UV1A, UV8A, 45UV3, UV90
E1R1 *	AUTOCHECK INFRARED AMPLIFIER	48PT2
E1R2	AUTOCHECK INFRARED AMPLIFIER (FOR SPECIAL APPLICATIONS ONLY) CONSULT FACTORY	48PT2
ERT1	RECTIFICATION AMPLIFIER	69ND1
EUVS4	SELF-CHECK UV AMPLIFIER	45UV5-1007/1008/1009
E1R3 *	AUTOCHECK INFRARED AMPLIFIER	48PT2
EDC1	Direct coupled amplifier	Insight, Phoenix
EDC2	Direct coupled amplifier	Insight, Phoenix

\* 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 48PT2-9003 48PT2-1007 48PT2-9007	Infrared 1/2" straight mount 96" (2438mm) TC-ER cable Infrared 1/2" 90° angle mount 96" (2438mm) TC-ER cable Infrared 1/2" straight mount 48" (1219mm) TC-ER cable Infrared 1/2" 90° angle mount 48" (1219mm) TC-ER cable	E1R1, E1R2 * and E1R3 *	SC-103
UV1A3 UV1A6 UV8A UV2 UV2A6 UV2C 45UV2-1020 45UV3-1050 UV90-3 UV90-6 UV90-9	1/2" NPT, 36" (915mm) TC-ER cable 1/2" NPT, 72" (1830mm) TC-ER cable 1/2" NPT, 72" (1830mm) unshielded leads, 90° right angle mount 3/8" NPT, 36" (915mm) TC-ER cable 3/8" NPT, 72" (1830mm) TC-ER cable Replaced with UV2 1" NPT mount 60 Hz, 72" (1830mm) unshielded leads 3/4" Sleeve/setscrew mount, 72" (1830mm) unshielded leads 36" (915mm) shielded leads 72" (1828mm) shielded leads 108" (2742mm) shielded leads	EUV1	SC-102
69ND1-1000K4 69ND1-1000K6 69ND1-1000K8	Flame rod 12", 1/2" NPT mount Flame rod 18", 1/2" NPT mount Flame rod 24", 1/2" NPT mount	ERT1	SC-103
45UV5-1007 45UV5-1008 45UV5-1009	Self-check UV 1" BSP, 72" (1830mm) unshielded leads, 230 VAC Self-check UV 1" BSP, 72" (1830mm) unshielded leads, 120 VAC 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.

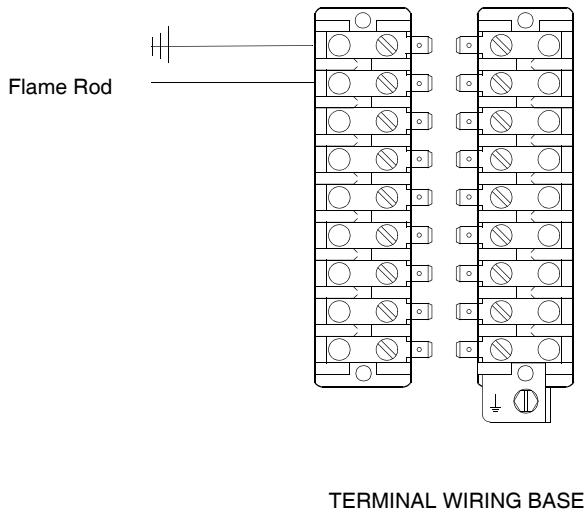
**Amplifier Module** (One Required)

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 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 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 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 that may arise in connection with such product or part.



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