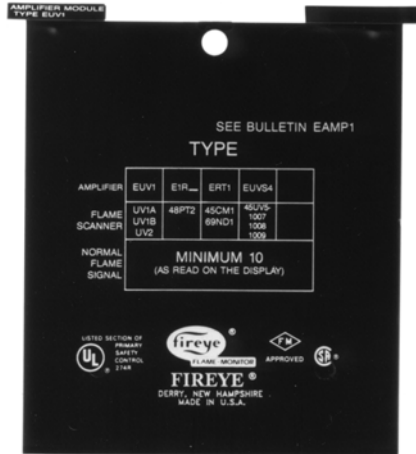


FLAME AMPLIFIER MODULES

Bulletin EAMP-1



The Fireye Flame Amplifier Modules are used in conjunction with the appropriate flame scanner to provide flame scanning capability in the FLAME-MONITOR system. Fireye offers ultraviolet amplifiers (EUV1), self-check ultraviolet amplifiers (EUVS4), flame rectification amplifiers for use with flame rods and photocells (ERT1), and auto-check infrared amplifiers: E1R1 (standard model), E1R2 (high sensitivity - consult factory before use), and E1R3 (for solid fuels).

Self-checking ultra-violet scanners and amplifiers should be used in applications where burner firing operation is continuous or where the burner is on for long periods of time (e.g. 24 hours) without cycling.

The flame amplifier must be used with the appropriate flame scanners as shown below.

When replacing any flame scanner or amplifier, the burner should be cycled on and off several times to ensure proper operation.

PART NUMBER	DESCRIPTION
EUV1	UV Amplifier for UV1A, UV8A, UV2, 45UV3, UV90
E1R1	Infrared Amplifier for 48PT2 Scanner
E1R2	Infrared Amplifier (High Sensitivity) for 48PT2 Scanner. Consult factory before use.
E1R3	Infrared Amplifier (for solid fuels) for 48PT2 Scanner.
EUVS4	Self-Check UV Amplifier for 45UV5-1007, -1008, -1009, -1005
ERT1	Rectification Amplifier for 45CM1, 69ND1
EDC1	Amplifier for use with the EP178/EP378 and one or two 85UVF4-1QDWR or InSight flame scanners (with 59-497-020WR cable).
EDC2	Amplifier for use with the EP178/EP378 and one or two 85UVF4-1QDWR or InSight flame scanners (with 59-497-020WR cable) to monitor pilot and main. Scanners automatically switched at appropriate time.



The Fireye **NEXUS PPC4000** is a state of the art stand-alone parallel positioning system for all types of liquid or gaseous fuel fired combustion systems. When combined with a Fireye flame safeguard system such as the Fireye BurnerLogix control, the PPC4000 offers the most compact and advanced parallel positioning system available. Four fuel profiles allow the PPC4000 to accommodate a variety of applications such as two fuels, with and without the optional variable frequency/speed drive (VFD/VSD). With each profile having up to 24 points entered to assure a smooth "curve", the microprocessor interpolates points between entered values and precisely positions fuel and air to within ± 0.1 degree. This eliminates hysteresis for improved efficiency. The PPC4000 is capable of powering up to ten 24 volt dc servomotors powered from the control. All servomotors and displays operate on a secure Modbus communications protocol and can be "daisy chained" together for simplified wiring. Two independent PID control loops for temperature or pressure control provide precise, accurate control of fir-

ing rate for unmatched response to load changes. Ten safety rated user definable line voltage inputs are standard and can be configured for functions such as burner on, setpoint select, lead lag, night setback, cold start thermal shock protection, etc. Built in lead lag sequencing for up to four boilers is included in every PPC4000.

The **NXD410 User Interface** provides the means to setup, monitor, and display all information from the PPC4000 Control and connected accessories. The NXD410 provides a four-line backlit LCD display screen and a multi-function tactile feel keypad. The NXD410 is panel mounted and connects directly to the PPC4000 using Fireye cable 59-562-2.

The optional **NXCESVFD** plug-in daughter board provides two independent VFD/VSD channels. Each channel provides a precision 4-20 mA output to control the VFD, a calibrated 4-20 mA input, and an encoder input for VFD positional feedback.

The optional **NXCES02** Oxygen Probe provides continuous oxygen concentration readings using Fireye's proven heated zirconium dioxide technology. The NXCES02 allows the PPC4000 to trim the air or fuel servo to obtain optimum combustion efficiency.

Summary of PPC4000 Features

- State of the art surface mount technology
- Small footprint: 5.0"W x 8.0"H x 4.0"D
- Capable of powering up to ten servomotors
- Two PID loops for precise process control
- Simple four wire Modbus wiring reduces time and mistakes
- Optional NXCESVFD card provides two VFD/VSD outputs
- Optional NXCES02 Oxygen Probe provides O2 trim
- Built in lead/lag sequencing for up to four boilers
- User interface: four line LCD display screen with multifunction keypad.
- SD (secure digital) card interface for backup and restore.
- Unparalleled worldwide support

Part Number	Control
PPC4000	Stand-alone parallel positioning controller, with up to ten (10) selectable function Modbus servo-motor outputs. User interface ordered separately.
NXCESVFD	Plug-in assembly provides variable frequency (VFD/VSD) capability
60-2926	Enclosure, 12.5" x 10.5" x 6.5", UL listed, fitted for PPC4000
129-190	Kit, fan replacement
User Interface for PPC4000	
NXD410	User Interface with keypad, 24 VDC operation, 4 line back lit LCD display, panel mount only, includes mounting brackets.
59-562-2	Cable assembly, 10 feet length, for interfacing NXD410 to PPC4000
Servos for PPC4000	
FX04	Servo motor, 24 VDC operation, 4Nm, 3 lb.-ft. torque, without connectors, accepts 1/2 inch NPT fitting, minimum travel time of 30 seconds for 90°
FX04-1	Servo motor, 24 VDC operation, 4Nm, 3 lb.-ft. torque, with connectors, minimum travel time of 30 seconds for 90°
FX20	Servo motor, 24 VDC operation, 20Nm, 15 lb.-ft. torque, without connectors, accepts 1/2 inch NPT fitting, minimum travel time of 30 seconds for 90°
FX20-1	Servo motor, 24 VDC operation, 20Nm, 15 lb.-ft. torque, with connectors, minimum travel time of 30 seconds for 90°
FX50	Servo motor, 24 VDC operation, 50Nm, 37 lb.-ft. torque, without connectors, accepts 1/2 inch NPT fitting, minimum travel time of 30 seconds for 90°
FX50-1	Servo motor, 24 VDC operation, 50Nm, 37 lb.-ft. torque, with connectors, minimum travel time of 30 seconds for 90°
Servo Cables for PPC4000	
59-565-6	Cordset, 6 feet, 1/2" NPT connectors on both ends, PVC jacket, temperature rating -40°C to 105°C, meets NEMA 1,3,4,6P and IEC67
59-565-40	Cordset, 40 feet, 1/2" NPT connectors on both ends, PVC jacket, temperature rating -40°C to 105°C, meets NEMA 1,3,4,6P and IEC67
Connector Kit for PPC4000	
129-192	Connector, field wireable. Used for FX04-1, FX20-1, FX50-1 servos with connectors. Use cable 59-565
59-565	Cable, 1 twisted pair, 2 power wires, suitable for servo hookup
O2 Probe for PPC4000	
NXCES02-8	O2 probe assembly, 8" insertion
NXCES02-16	O2 probe assembly, 16" insertion
NXCES02-30	O2 probe assembly, 30" insertion
NXCES02P42, -1	Cartridge, probe replacement (model -1 for engineering code 00 only)
35-381-2	Flange, O2 probe mounting
129-189	Cover, mounting flange
Pressure Transducers for PPC4000	
BLPS-15, -25, -30	Pressure transducer, 0 to 15 psi (0 to 1030 mb), -14.7 to 25 psi (-1013 to 1720 mb), 0 to 30 psi (0 to 2070 mb), 4-20 mA output linear with pressure. 1/4" NPTF mounting. Screw terminal connections and conduit adapter cover.
BLPS-200	Pressure transducer, 0 to 200psi (0 to 13.8 Bar), 4-20 mA output linear with pressure. 1/4" NPTF mounting. Screw terminal connections and conduit adapter cover.
BLPS-300	Pressure transducer, 0 to 300 psi (0 to 20.7 Bar), 4-20 mA output linear with pressure. 1/4" NPTF mounting. Screw terminal connections and conduit adapter cover.
Temperature Transducers for PPC4000	
TS350-2, -4, -8	Temperature sensor, Range 32°F to 350°F (0°C to 176°C), 4-20 mA output, linear with temperature. Insertion length is 2, 4, 8 inches. Stainless steel thermowell included.
TS752-2, -4, -8	Temperature sensor, Range 32°F to 752°F (0°C to 400°C), 4-20 mA output, linear with temperature. Insertion length is 2, 4, 8 inches. Stainless steel thermowell included.