

FIREYE® EPD160, EPD161, EPD167 and EPD170 PROGRAMMER MODULES

AN ALTERNATIVE PROGRAMMER FOR USE
WITH THE FLAME-MONITOR™ SYSTEM



Year 2000 Compliant in accordance with BSI document DISC PD2000-I:1998

DESCRIPTION

The Fireeye EPD160, EPD161, EPD167 and EPD170 Programmer Modules are used with the FLAME-MONITOR™ Burner Management Control System. The operational characteristics are determined by the selection of the programmer. These characteristics include timing functions, switching sequences, and LED display.

The EPD programmers incorporate a series of seven (7) LED indicator lights to annunciate the current operating status of the FLAME-MONITOR control, as well as the reason for the last lockout condition. The EPD programmers include an RJ45 style connector to interface with a remote alpha-numeric display (P/N ED510) and two (2) RJ style connectors to connect to an E500 communication interface. The EPD FLAME-MONITOR System can be upgraded to include an E300 Expansion Module (remote alpha-numeric display required). The system also provides a 0-10 VDC test jack signal (located on the front bezel) to indicate flame signal strength.

The EPD160, EPD161, EPD167 and EPD170 provide start-up programming, safe-start check, and flame monitoring supervision. They insure open damper (high purge) prepurge, proof of low fire position, and fuel valve end switch safety checks. A running interlock circuit on the FLAME-MONITOR system constantly monitors the limit switches, air flow switches, and fuel pressure switches through the programmer. The control initiates a safety lockout if any of these circuits are open at the improper point in the control cycle. The EPD160, EPD161, EPD167 and EPD170 programmer modules also provide the option that requires the 3-P running interlock circuit to be proven open at the start of the operating cycle. This option is selected via a switch located on the bottom of the programmer module. (See "3-P Running Interlock Circuit - Proven Open To Start").

The programmer module will de-energize all fuel valve circuits within four (4) seconds (max.) following a flame failure or at the end of the pilot trial for ignition period if no flame is detected. An alarm circuit will be energized following a safety lockout.

The EPD programmer is the heart of the FLAME-MONITOR System and incorporates a plug-in design for easy installation. It is microprocessor based and stores the burner cycle and on-time history that is accessible with the alpha-numeric remote display (ED510) or E500 Communication Interface. If replaced, the new programmer card will begin accumulating a new history.

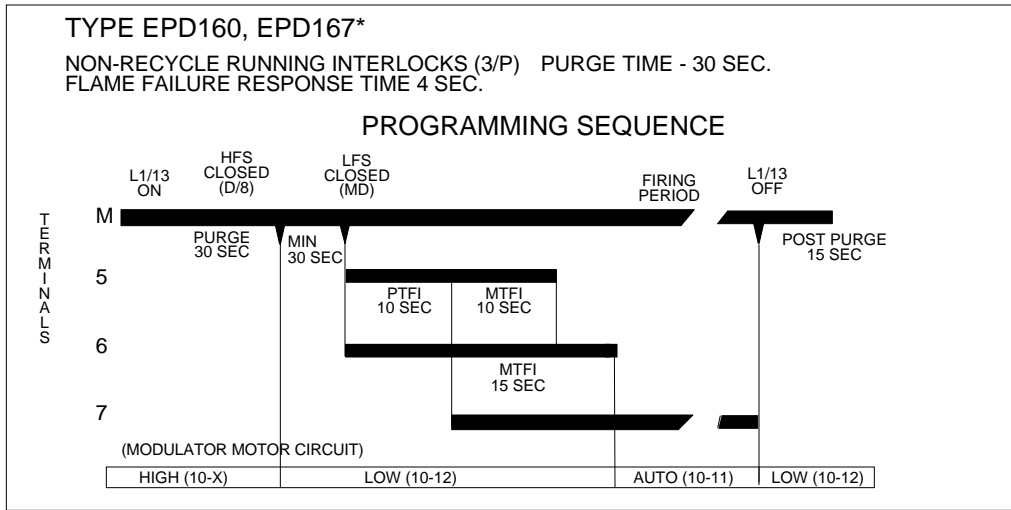
Refer to Bulletin E-1101 for detailed information on the FLAME-MONITOR System.



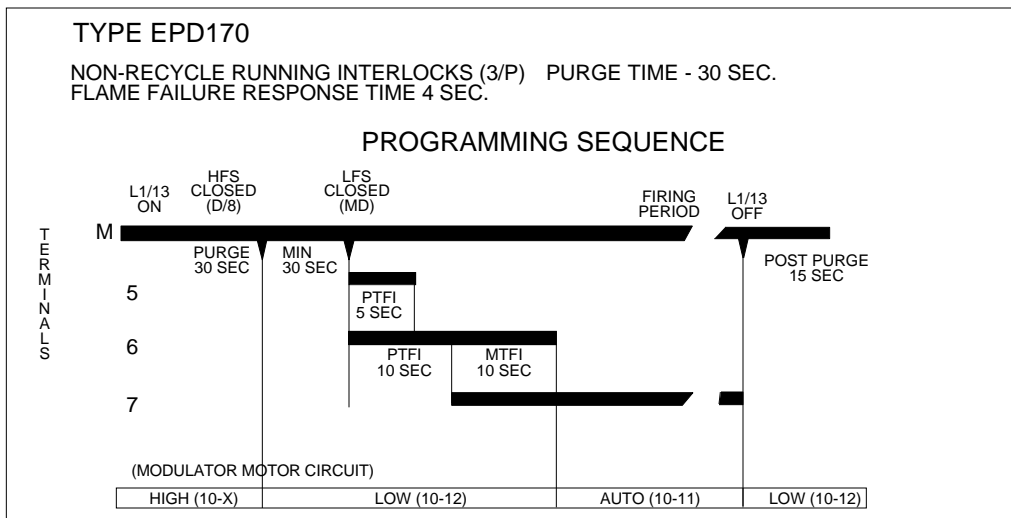
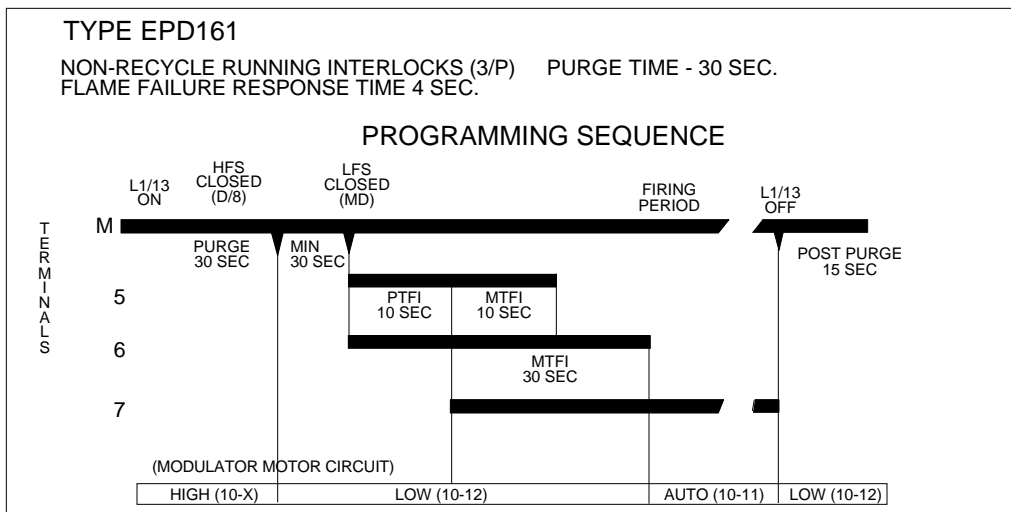
WARNING: While all controls are mechanically interchangeable because they mate with a common wiring base, you must select the correct model for your application. Inappropriate application of a control could result in an unsafe condition hazardous to life and property. Selection of a control for a particular application should be made by a competent professional, such as a Boiler/Burner Service technician licensed by a state or other government agency.



TIMING CHARTS



**The EPD167 does not initiate a lockout if the M-D low fire start interlock remains open indefinitely during purge.*





OPERATING TEMPERATURE LIMITS				
CONTROL	MAXIMUM		MINIMUM	
E110, EB700, EB701	140°F	60°C	-40°F	-40°C
EP, EPD Programmers	140°F	60°C	-40°F	-40°C
All Amplifiers	140°F	60°C	-40°F	-40°C
ED510 Display	140°F	60°C	32°F	0°C
ED500* Display	140°F	60°C	-40°F	-40°C
Scanner UV1A, UV2, UV8A, 45UV3	200°F	93°C	-40°F	-40°C
45UV5-1007, 45UV5-1009	200°F	93°C	-40°F	-40°C
Photocell 45CM1	165°F	74°C	-40°F	-40°C
Flame Rod (Tip 2460° F)	1500°F	816°C	-40°F	-40°C
48PT2	125°F	52°C	-40°F	-40°C
Humidity: 85% R.H. (Non-condensing)				

*Obsolete



LED INDICATOR LIGHTS

The EPD programmer modules have seven (7) LED indicator lights to annunciate the operating status of the control, as well as provide the reason for the last lockout condition. The “Open Damper” and “Close Damper” LED's provide easy set-up of the modulating motor end switches. Each LED has a graphic symbol to describe its function (see Table 1).

ALARM	In the event of a lockout condition, the Alarm LED will blink, the remaining LED's will light up to indicate the lockout condition. See “Safety Lockout Codes.”
FAN	Lights when the blower motor is energized (terminal M) and flashes when the RUN/CHECK switch is in the “Check” position during purge, PTFI and AUTO.
OPEN DAMPER	Will blink when the modulator motor is being driven to the high fire position. (circuit 10-X made). Once the high purge switch closes (D-8), this LED will light constant. This LED provides the status of the high fire purge interlock circuit (D-8). This LED lights anytime the D-8 circuit closes during pre-purge, PTFI, MTFI, post purge.
CLOSE DAMPER	Will blink when the modulator motor is being driven to the low fire position (circuit 10-12 made). Once the low fire switch closes (M-D), this LED will light constant. This LED provides the status of the low fire start interlock circuit (M-D). This LED lights anytime the M-D circuit closes during pre-purge, PTFI, MTFI, post purge.
IGNITION	Will blink during Pilot Trial For Ignition (PTFI). Will light constant during Main Trial For Ignition (MTFI).
AUTO	Will light when the control releases to automatic modulating control (circuit 10-11 made) and blinks when the RUN/CHECK switch is in the “Check” mode during the standby or run period.
FLAME	Will light whenever flame is detected by the flame scanner.

BLINKING LEDs

When the burner is off, the LED's shall blink in succession every 60 seconds to indicate the off condition. Pressing the Reset button with the burner off will also blink the LED's in succession.

Table 2:

ALARM	FAN	OPEN DAMPER	CLOSE DAMPER	IGNITION	AUTO	FLAME
