FLAME-MONITOR™ SYSTEM ACCESSORIES

129-145 Remote Display Mounting Kit
ED610 Multi-port Cable Connector
and Terminal Strip
ED580 Remote Display Cables
ED512 Remote Mounting Cables
ED150 Remote Reset Cables

129-145 REMOTE MOUNTING KIT

The 129-145-1, -2 and -3 mounting kits provide an easy, efficient method to panel mount the ED510 display module. Each kit contains a mounting plate, gasket, two (2) 8-32 x 1 1/4" mounting screws, and connection cable: ED580-4 (4 foot cable) with the 129-145-1, ED580-8 (8 foot cable) with the 129-145-2, and ED580-2 (2 foot cable) with the 129-145-3.

ED610 MULTI-PORT CABLE CONNECTOR WITH TERMINAL STRIP

The ED610 is a multi-port adapter with two RJ45 and one RJ12 (4P4C) telephone jack connectors and a 10-connector terminal strip. It facilitates remote cable connections between the E110 control, ED510 Display Module, and the E500 Communication Interface. The ED610 is mounted on a flat surface with two screws and is recommended where cable runs greater than eight (8) feet are required.

ED580 REMOTE DISPLAY CABLES

The ED580 remote display cable is a cable in varying lengths (2', 4', and 8') with an RJ45 connector on each end of the cable. The ED580 is used to mount the ED510 display module remote from the Flame-Monitor control (with EP programmers, Engineering code 28 or later or EPD programmers, Engineering code 02 or later).

ED512 REMOTE MOUNTING CABLES

The ED512 remote mount cable is a cable in varying lengths (2', 4', and 8') with an RJ12 (4P4C) connector on each end of the cable. The ED512 is used with the ED610 multi-port connector for connecting the Flame-Monitor control (with EP programmers, Engineering code 28 or later or EPD programmers) to the E500 Communication Interface. The ED512 cables are also used to customize E300 messages. Refer to bulletins E-3001 and EC-3451.

ED150 REMOTE RESET CABLES

The Remote Reset Cables are 10 conductor flat ribbon cables with a connector on one end and with two stripped and tinned conductors on the opposite end. Maximum length available is 25 feet (7.62m). A momentary contact switch connected to the stripped end of the cable will allow for remote reset of the FLAME-MONITOR.

See CAUTION on Page 3.

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
129-145-1	Remote mounting kit (includes ED580-4)
129-145-2	Remote mounting kit (includes ED580-8)
129-145-3	Remote mounting kit (includes ED580-2)
ED610	Multi-port connector with terminal strip and phone jacks.
ED512-2	2 foot cable with RJ12 (4P4C) connectors for connection to E500.
ED512-4	4 foot cable with RJ12 (4P4C) connectors for connection to E500.
ED512-8	8 foot cable with RJ12 (4P4C) connectors for connection to E500.
ED580-2	2 foot cable with RJ45 connectors for remote display.
ED580-4	4 foot cable with RJ45 connectors for remote display.
ED580-8	8 foot cable with RJ45 connectors for remote display.
ED150-3	3 foot remote reset cable
ED150-6	6 foot remote reset cable
ED150-15	15 foot remote reset cable
ED150-25	25 foot remote reset cable
EC485	RS485 to RS232 Converter with optional RJ12 (4P4C) connector and power supply

REMOTE MOUNT THE ED510 DISPLAY USING 129-145 MOUNTING KIT

See Figure 1. The 129-145-1, -2, or -3 is used to panel mount the ED510 display.

To install the ED510 display module using the remote mounting kit (129-145-1, -2 and -3):

1. Cut an opening in the front panel face 3.62 inches square (92.0 mm). The width of the panel face cannot exceed 5/64."
2. Slide the gasket over the rear side of the display.
3. Insert the ED510 display and gasket through the panel opening.
4. Insert the mounting plate over the rear side of the display. Slide the two (2) mounting tabs on the mounting plate over the slots on the ED510 display. Then move the mounting plate until the tab on top of the ED510 display snaps into position under the opening on the mounting plate.

NOTE: Align the mounting plate so when the mounting screws are installed and tightened, the threaded inserts are not pushed out of the mounting plate.

The mounting plate has a 1/2" circular opening to allow access to the contrast adjustment potentiometer on the rear of the ED510 display.

5. Insert the mounting screws into the threaded inserts and tighten.
6. Insert the 2 foot cable (129-145-3), 4 foot cable (129-145-1) or 8 foot cable (129-145-2) into the RJ45 style connectors on both the ED510 display and the EP Programmer Module (Engineering code 28 or later). A ferrite core is provided on the ED580 cable to improve the electrical noise immunity of the FLAME-MONITOR system.**The connector nearest to the ferrite core must be plugged into the EP Programmer.**
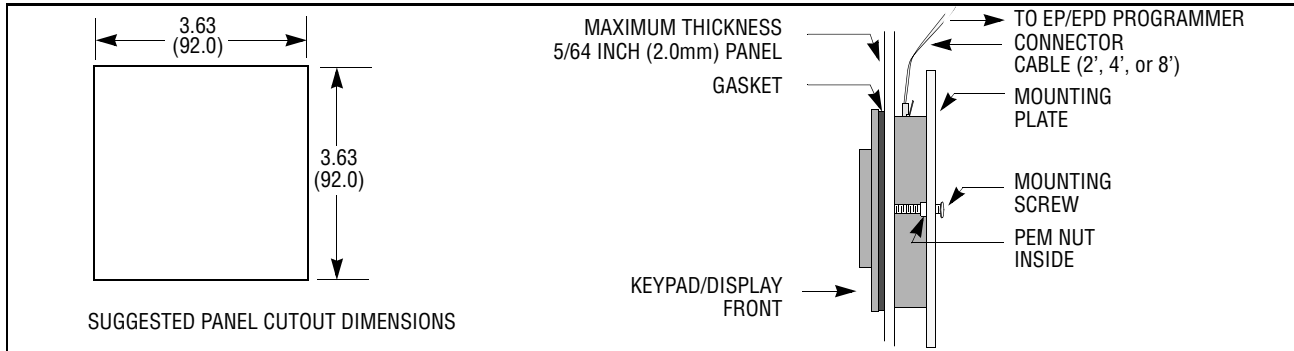
TO ENSURE THE SYSTEM IS PROPERLY GROUNDED:

1. Connect the back plane of the mounting cabinet to a proper earth ground.
2. Ground the FLAME-MONITOR wiring base to the mounting cabinet by using mounting screws with star washers to ensure proper electrical contact.
3. Connect the green grounding screw on the wiring base to a proper earth ground.
   NOTE: A PROPER EARTH GROUND CONSISTS OF A METAL ROD DRIVEN INTO THE GROUND AT A LOCATION NEAR THE ELECTRICAL DISTRIBUTION PANEL PROVIDING POWER TO THE FLAME-MONITOR CONTROL SYSTEM. REFER TO SN-100.

Refer to the ED610 to remote mount the display greater than 8 feet away from the control.

FIGURE 1.   **INSTALLATION AND MOUNTING DIAGRAM OF ED510 WITH 129-145**

3.63 (92.0)

3.63 (92.0)

SUGGESTED PANEL CUTOUT DIMENSIONS

MAXIMUM THICKNESS 5/64 INCH (2.0mm) PANEL

GASKET

TO EP/EPD PROGRAMMER CONNECTOR CABLE (2', 4', or 8')

MOUNTING PLATE

MOUNTING SCREW

PEM NUT INSIDE

KEYPAD/DISPLAY FRONT

WIRING CONNECTIONS FOR ED610 AND ED510 REMOTE DISPLAY

See Figure 2. Use the ED610 multi-port connector to remote mount the ED510 display greater than eight (8) feet away from the Flame-Monitor control. An eight (8) conductor, 18 gage, low capacitance, overall shielded cable (Belden 9554 or equivalent) must be used between the ED610 at the burner site and the ED610 at the remote site. An ED580 cable is required between the ED510 display module and the ED610 connector as well as the ED610 connector and FLAME-MONITOR control. A ferrite core is provided on the ED580 cable to improve the electrical noise immunity of the FLAME-MONITOR system.**The connector nearest to the ferrite core must be plugged into the EP Programmer.**

MAKE SURE THE FLAME-MONITOR SYSTEM IS PROPERLY GROUNDED. REFER TO THE WARNING BOX ON PAGE 2 TO ENSURE THE SYSTEM IS PROPERLY GROUNDED.
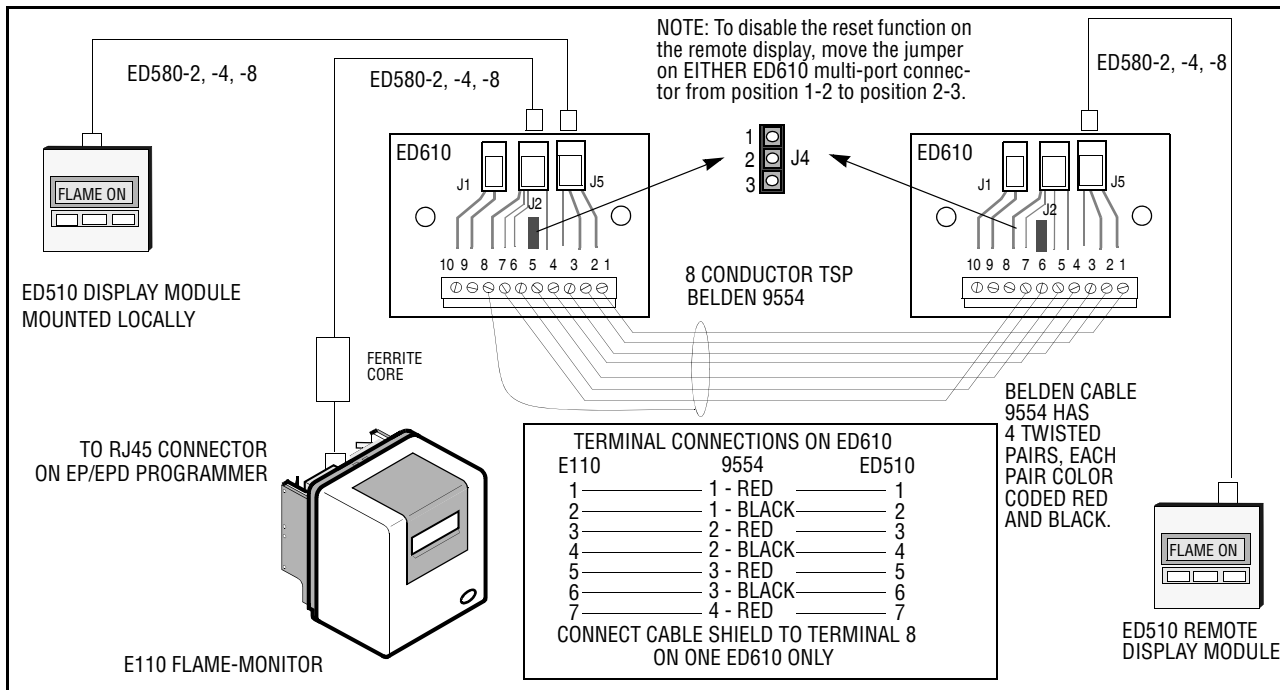
The position of the ferrite core is not critical on the ED580 cable connected between the ED510 display and ED610 adapter. The Flame-Monitor control will drive two (2) ED510 display modules.

The Belden cable 9554 has 4 twisted pairs with an overall shield. Conductor pairs are color coded red and black and numbered at one (1) inch intervals (e.g. 1-black, 2-red). Maximum cable distance of the ED510 from the Flame-Monitor control is 700 feet. Do not ground shield at both ED610's.

⚠️ **CAUTION: When the remote display or the remote reset is installed, make sure that the remote location is within sight and sound of the fired equipment. Safety procedures require that the operator be at the burner to reset the safety controls in order that any unsafe conditions can be discovered and corrected prior to resetting the safety controls or devices. Fireye does not recommend remote reset locations beyond sight and sound of the burner.**

FIGURE 2.   **Wiring Connections for ED610 and ED510 Remote Display**

NOTE: To disable the reset function on the remote display, move the jumper on EITHER ED610 multi-port connector from position 1-2 to position 2-3.

ED580-2, -4, -8

ED580-2, -4, -8

ED580-2, -4, -8

ED510 DISPLAY MODULE MOUNTED LOCALLY

FLAME ON

ED610   J1   J2   J5
10 9 8 7 6 5 4 3 2 1

1
2 J4
3

ED610   J1   J2   J5
10 9 8 7 6 5 4 3 2 1

8 CONDUCTOR TSP
BELDEN 9554

FERRITE CORE

TO RJ45 CONNECTOR ON EP/EPD PROGRAMMER

BELDEN CABLE 9554 HAS 4 TWISTED PAIRS, EACH PAIR COLOR CODED RED AND BLACK.

TERMINAL CONNECTIONS ON ED610

E110	9554	ED510
1	1 - RED	1
2	1 - BLACK	2
3	2 - RED	3
4	2 - BLACK	4
5	3 - RED	5
6	3 - BLACK	6
7	4 - RED	7

CONNECT CABLE SHIELD TO TERMINAL 8 ON ONE ED610 ONLY

E110 FLAME-MONITOR

FLAME ON

ED510 REMOTE DISPLAY MODULE
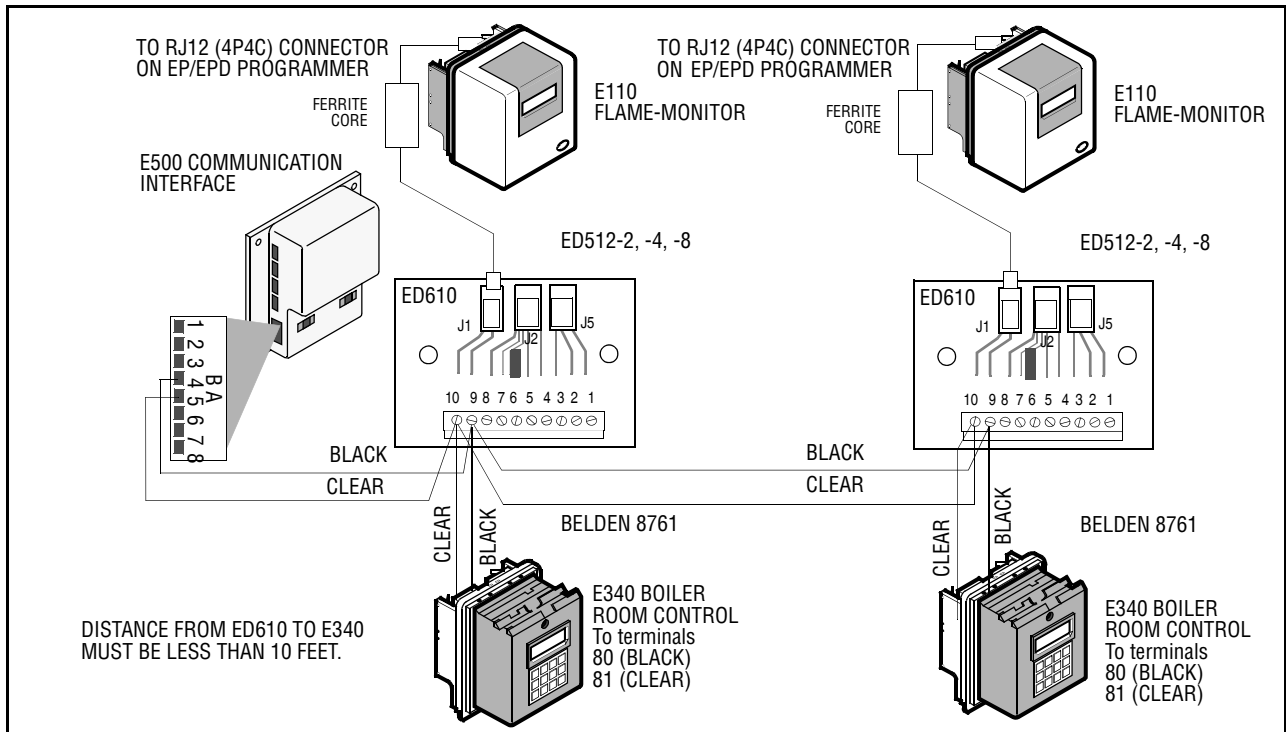
WIRING FOR E500 COMMUNICATION INTERFACE

See Figure 3. Use an ED610 multi-port connector for each Flame-Monitor or E340 Boiler Control unit connected in a multi-drop wiring configuration to the E500 Communication Interface. A two (2) conductor, 22 gage, low capacitance shielded cable (Belden 8761 or equivalent) must be used between the E500 Communication Interface and each ED610 multi-port connector and E340 Boiler Control. An ED512 cable is required between the ED610 and the Flame-Monitor. A ferrite core is provided on the ED512 cable to improve the electrical noise immunity of the FLAME-MONITOR system.**The connector nearest to the ferrite core must be plugged into the EP Programmer.**

MAKE SURE THE FLAME-MONITOR SYSTEM IS PROPERLY GROUNDED. REFER TO THE WARNING BOX ON PAGE 2 TO ENSURE THE SYSTEM IS PROPERLY GROUNDED.

Ground the shield at one end only of each individual wiring run. Total maximum cable distances shall not exceed 4,000 feet.

NOTE: Cable should be routed within the cabinet so that it doesn't come in close proximity with ignition wires, high energy contactors or solenoids.

FIGURE 3. Wiring for E500 Communication Interface

BELDEN 8761	**TERMINAL CONNECTIONS**		
	E500	**ED610**	**E340**
BLACK	4 (B)	9	80
CLEAR	5 (A)	10	81

WIRING FOR E110'SFOR MODBUS PROTOCOL

See Figure 4. Use an ED610 multi-port connector for each Flame-Monitor unit connected in a multi-drop wiring configuration. A two (2) conductor, 22 gage, low capacitance shielded cable (Belden 8761 or equivalent) must be used between each ED610 multi-port connector. An ED512 cable is required between the ED610 and the Flame-Monitor. A ferrite core is provided on the ED512 cable to improve the electrical noise immunity of the FLAME-MONITOR system.**The connector nearest to the ferrite core must be plugged into the EP Programmer.**

Each Flame Monitor must be assigned its own unique address. Refer to bulletin E-1101 for specific information. The baud rate of each Flame Monitor is fixed at 4800 bits per second. Modbus is available on all EP programmers having an engineering code of 38 or greater and EPD programmers having and engineering code of 4 or greater.

MAKE SURE THE FLAME-MONITOR SYSTEM IS PROPERLY GROUNDED. REFER TO THE WARNING BOX ON PAGE 2 TO ENSURE THE SYSTEM IS PROPERLY GROUNDED.

Ground the shield at one end only of each individual wiring run. Total maximum cable distances shall not exceed 4,000 feet.

NOTE: Cable should be routed within the cabinet so that it doesn't come in close proximity with ignition wires, high energy contactors or solenoids.

FIGURE 4.   **Wiring for Modbus Protocol**
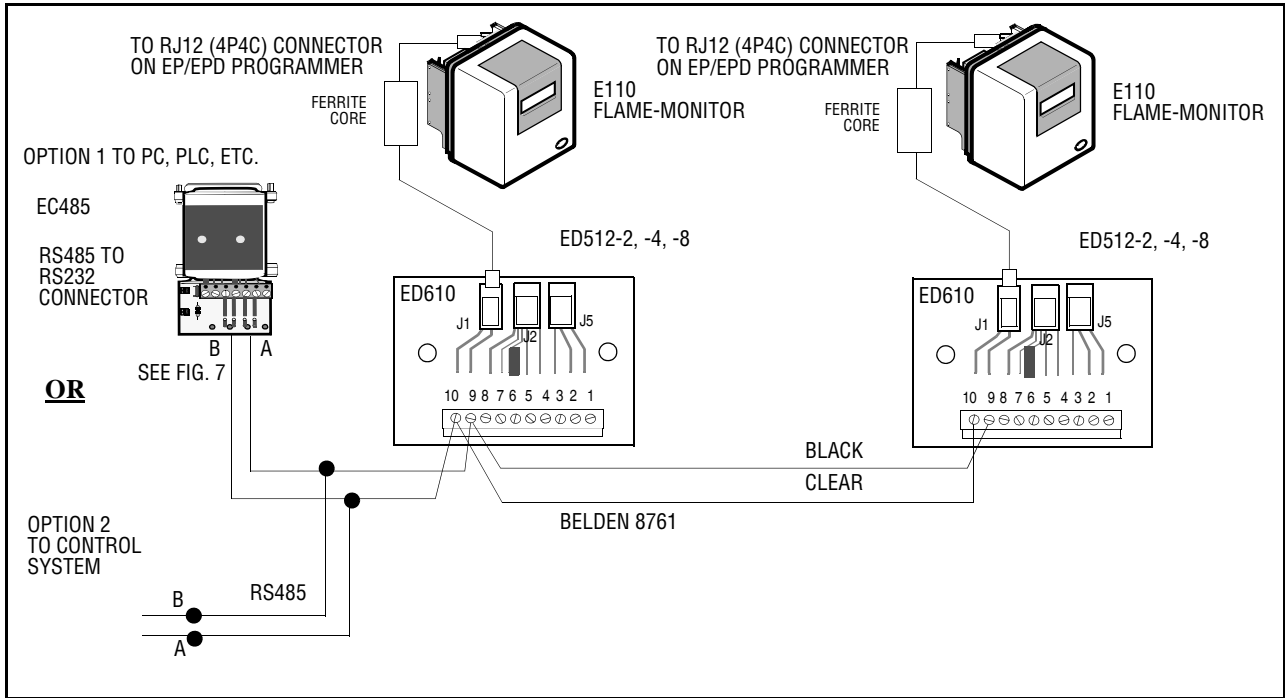
WIRING FOR REMOTE RESET

A remote reset button can be added when using the ED610 multi-port connector. Wire a normally open momentary push button across terminals 8 & 4 on the ED610. Jumper J4 must be in position 1-2. Refer to Figure 6.

REFER TO "CAUTION" FOR REMOTE RESET ON PAGE 3.
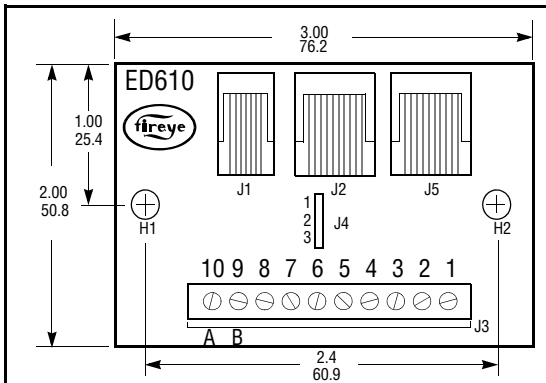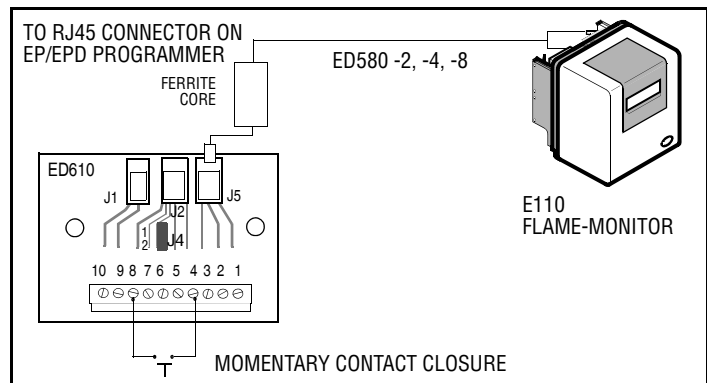

FIGURE 5.   **ED610 DIMENSIONS**
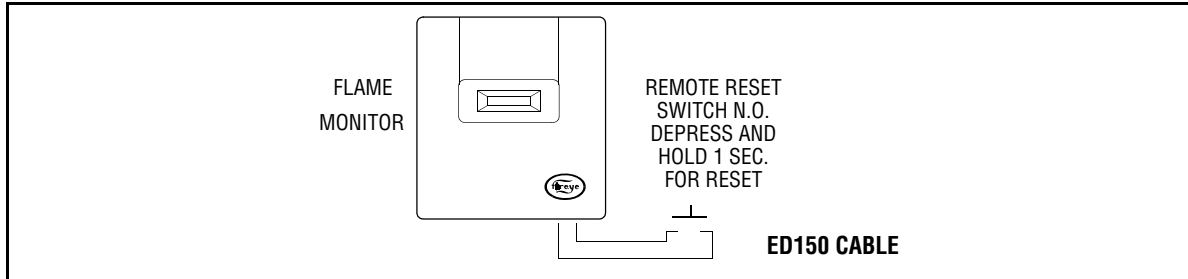

FIGURE 6:   **WIRING FOR REMOTE RESET**

The ED611 multi-port connector provides for remote reset at the terminal block, but inhibits the lockout reset capability at the ED510. This is useful for applications that may want to use a key lock switch in lieu of the reset button located on the ED510 display. Connect the E110 and ED510 as shown using the ED580 cables. Wire a normally open momentary push button switch across terminals 8 & 4. Jumper J4 on the ED611 must be in position 1 to 2. Refer to Figure 8.
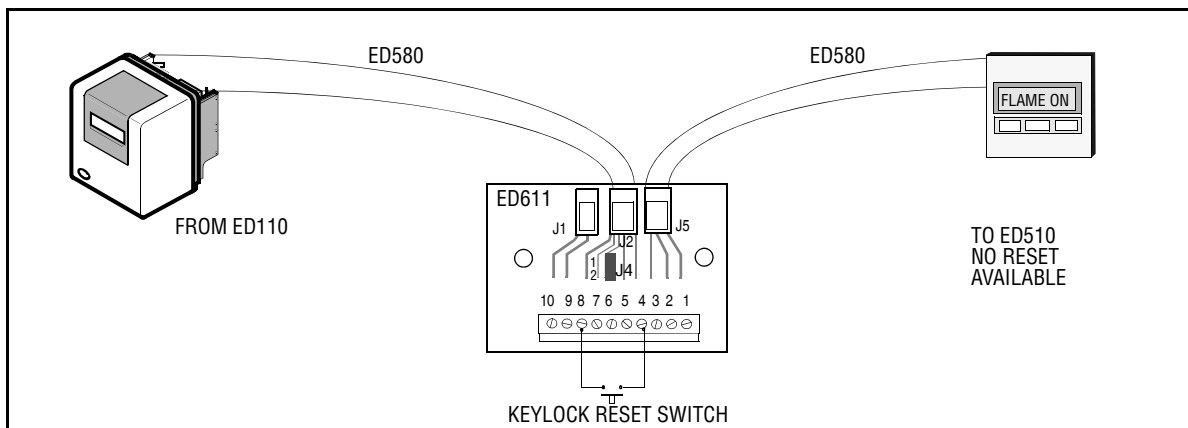
REFER TO "CAUTION" FOR REMOTE RESET ON PAGE 3.

FIGURE 7:   **REMOTE RESET CONNECTION**

FLAME
MONITOR

REMOTE RESET
SWITCH N.O.
DEPRESS AND
HOLD 1 SEC.
FOR RESET

ED150 CABLE

REFER TO "CAUTION" FOR REMOTE RESET ON PAGE 3.

FIGURE 8:   **WIRING FOR REMOTE RESET**

ED580   ED580

FLAME ON

ED611
J1   J2 J5
1
2 J4

FROM ED110

TO ED510
NO RESET
AVAILABLE

10 9 8 7 6 5 4 3 2 1

KEYLOCK RESET SWITCH

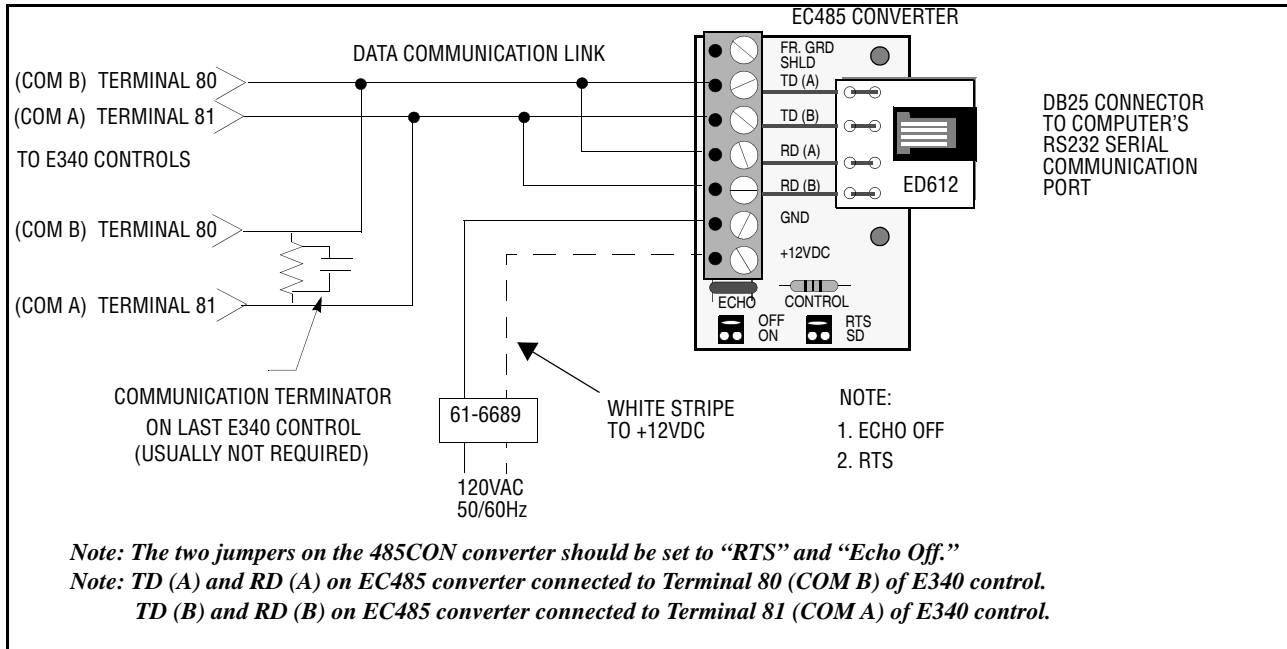## COMMUNICATING WITH THE E340 BOILER CONTROL

The E340 Boiler Control also communicates over an RS485 communication data link. The data link uses a single, twisted shielded pair wire (Belden 8761) with the E340 controls wired in a multi-drop (e.g. daisy-chain) wiring configuration. The Fireye communication software program (P/N E720) running on an IBM compatible PC is required for communication with the E340 controls.

Fireye recommends using the E500 Communication interface when communicating with the E340 controls, since the E500 provides communication with the Flame-Monitor™ flame safeguard controls as well. However, the EC485 converter can be used to communicate only with the E340 controls.

Wire the EC485 converter to the E340 controls in the following manner:
FIGURE 9:

For complete details on wiring and communicating with the E340 controls refer to bulletin BW-1000 (BoilerWorx™ Communication Software Program).

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 which may arise in connection with such product or part.