



MODERNIZATION ADAPTER

For 25SU3-2100 Control
P/N 192SU3-2120 (120V)
P/N 192SU3-2220 (220V)

DESCRIPTION

The Fireye 192SU3 adapter enables users to easily upgrade many older style 25SU3 controls to the digital Fireye 25SU3-2100 Flame Safeguard Amplifier. The 192SU3 adapter contains the AC and DC power supplies required to allow the 25SU3-2100 control (24 vdc) to be compatible with the following Fireye scanners: 45UV5, 45RM1, 45RM2, 45RM4, 45FS1, 45UVFS1.

The 192SU3 adapter is electrically and mechanically compatible with the older style wiring racks used with earlier 25SU3 controls, (rack P/N 60-1499, 60-1706, and European 60E5527 and similar racks). Little or no modifications are required to the original rack wiring.

25SU3 CONTROL TO BE REPLACED:	ADAPTER MODEL REQUIRED TO UPDATE TO 25SU3-2100:
25SU3-4163	192SU3-2120 (120 VAC)
25SU3-4167(T)	
25SU3-4170	
25SU3-4172	
25SU3-5172	
25SU3-4164	192SU3-2220 (220 VAC)
25SU3-4168(T)	
25SU3-4171	
25SU3-5173	



Table of Contents

DESCRIPTION	1
SPECIFICATIONS	3
INSTALLATION	3
GENERAL APPLICATION NOTES	4
SPECIFIC APPLICATION NOTES	5
60-1706 Rack, 25SU3-4163, -4167, -4170, -5172, -5173 Controls	5
60-1499-2 Wiring Rack, 25SU3-4163, -4167, -4170 Controls	10
60-1499-11 Wiring Rack, 25SU3-4163, -4167, -4170 Controls	13
Using the Model C9707 Flame Scanner.....	16
60E5527 (or similar) European Rack.....	17
REMOTE FLAME SIGNAL METER	20
MARGINAL ALARM RELAY	20
RACK TERMINAL CROSS REFERENCE	21

SPECIFICATIONS

ELECTRICAL SUPPLY

192SU3-2120 120 VAC (+10%, - 15%), 50/60 HZ

192SU3-2220 220 VAC (+10%, - 15%), 50/60 HZ

INTERNAL FUSE

P/N 23-184 1.6 AMP, 250V, Wickman TR5, #19370-053-K

ENVIRONMENTAL

Storage Temperature: Minimum: - 20∇C
Maximum: + 80∇C

Operating Temperature: Minimum: - 20∇C
Maximum: + 60∇C

Humidity: Maximum 85% RH (Relative Humidity) Non condensing

DIMENSIONS

Height: 6.06 inches (15.4 cm)

Width: 2.91 inches (7.4 cm)

Depth: 8.18 inches (20.8 cm)

Weight: 1.47 lb. (669 grams)

INSTALLATION OVERVIEW

This bulletin illustrates the upgrade of older Fireye controls originally installed in the following wiring racks: P/N 60-1706, 60-1499-2, 60-1499-11, 60E5527 and similar racks. If the older control was installed in any other rack, please refer to the original wiring diagrams and compare the appropriate backplane card connector pin-outs (e.g. PL29, PR31, etc.)

Fireye series 25SU3-5170, -5171, -5172, and -5173 controls may be upgraded using the 192SU3 adapter, provided that one of the above listed racks was installed. If, however, these controls were mounted edge to edge (1 7/8" spacing), in an ECA 5100 Systems rack, then a new rack must be purchased (consult factory).

The following describes the general procedure for upgrading an older 25SU3 control to the 25SU3-2100 using the 192SU3 adapter:

1. **Review the General Application Notes, and the Specific Application Notes and wiring diagrams that pertain to your particular wiring rack. Determine what, if any, rack wiring changes must be made. Implement any changes prior to installing the new control.**
2. Slide the new 25SU3-2100 control into the adapter. Make sure that the amplifier connector properly mates with the adapter connector. Secure the amplifier to the adapter by tightening the two captive screws.
3. Remove the old 25SU3 control from the wiring rack.



Caution: Do not install the 192SU3 adapter into the wiring rack without first installing the 25SU3-2100 into the adapter (step 2).

4. Slide the adapter (with the 25SU3-2100 already installed) into the wiring rack making sure that the adapter connector properly mates with the wiring rack connector.
5. Program the 25SU3-2100 control per instruction bulletin CU-34.

FIGURE 1. REMOVING ADAPTER FROM THE RACK



Caution: Do not install the 192SU3 adapter into the wiring rack without first installing the 25SU3-2100 into the adapter. To then install or remove the 192SU3 adapter / 25SU3-2100 assembly into the wiring rack, use the adapter handle ONLY (labeled “Pull Handle”)! Using the amplifier handle may result in mechanical damage to the amplifier.



USE THE ADAPTER HANDLE (NOT THE AMPLIFIER HANDLE) TO REMOVE THE ADAPTER/AMPLIFIER ASSEMBLY FROM THE WIRING RACK

GENERAL APPLICATION NOTES:

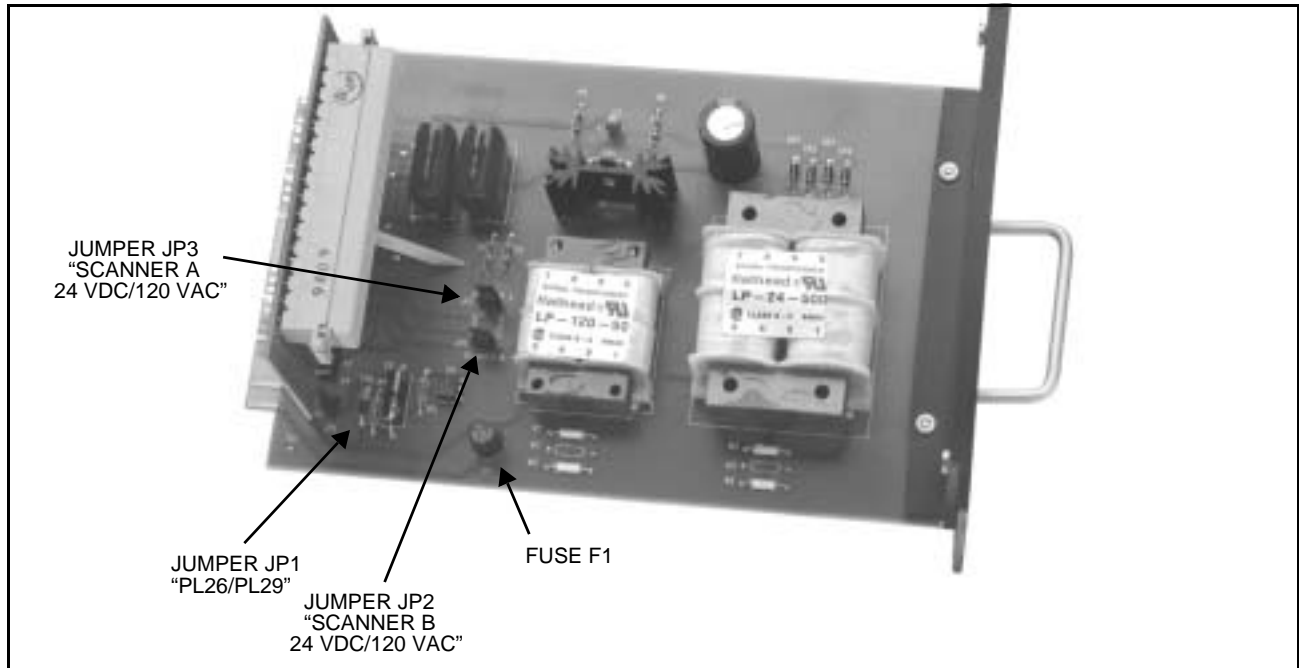
1. The 25SU3-2100 control offers a 4-20 mA output to drive an external flame signal meter. Installations using the 0-3 vdc, 0-20 mA, or bargraph meter output of older controls, must either replace these with 4-20 mA meters, or modify the existing 0-3 vdc meter to accept a 4-20 mA output (refer to figure12).
2. The 25SU3-2100 control offers two user-programmable flame relay ON / OFF thresholds. This function replaces the sensitivity “A” and “B” potentiometers of older controls, and the “Threshold Select” input of the older 25SU3-5170 controls. Depending upon the wiring rack used, this circuit will require minor modification. Refer to the appropriate wiring diagram for details (see Specific Application Section).
3. The 25SU3-2100 control has one flame relay with two sets of SPDT contacts (RF1, RF2). Contact set RF1 is internally fused and should be used as the primary input to the burner management system. Contact set RF2 is to be used for indication only.
4. The 192SU3 adapter contains three PC board jumpers to assure backward compatibility, and allow for the future addition of Fireye 24 VDC flame scanners.

Jumper JP1 (“PL26/PL29”), shipped in position “PL29”: Allows compatibility for older systems that switched amplifier sensitivity (A and B) by applying an AC neutral wire to pin PL26, (Refer to P/N 60E5527 rack, pages 17-19).

Jumpers JP2 & JP3 (“24 vdc/120 vac”), shipped in position “120 vac”. Many older mounting racks did not have terminals to access the control’s internal 24 vdc circuitry. Access to 24 vdc is

required if the user wants to operate a Fireye 24 vdc flame scanner (e.g. 45RM4, 45FS1, 45UVFS1, C9707). Jumpers JP2 & JP3 allow the user to select between a 24 vdc or a 120 vac output on the older rack's flame scanner power terminal(s). (Refer to P/N 60-1499-2, -11 racks, pages 10-15).

FIGURE 2. 192SU3 JUMPER AND FUSE LOCATION



SPECIFIC APPLICATION NOTES

Before installing the 192SU3 adapter and 25SU3-2100 control, read and understand the Specific Application Notes, and the "Original" and "Upgrade, 192SU3" wiring schematics for your particular Fireye control type and wiring rack part number. Determine what, if any, wiring changes must be made. Implement any changes prior to installing the adapter and new control.

SPECIFIC APPLICATION NOTES: P/N 60-1706 Wiring Rack and 25SU3-4163, -4167, -4170 Controls

Figure 3 illustrates the typical field wiring of a 25SU3-4163, -4167, -4170 control when originally installed into a P/N 60-1706 two-position rack. Figure 5 illustrates the field wiring after the 192SU3 upgrade.

1. **Flame Scanner Input.** The 60-1706 wiring rack accepted two 25SU3-4163, -4167, -4170 controls (only one is shown). Terminals were available for two scanners per control, although the two scanner signal leads were both connected to the same amplifier pin (via rack terminals 14A & 14D) and the amplifier summed the signals.

With the adapter, you have two choices:

A. (Preferred) *Separate the two scanner signal wires, connecting scanner "A" to rack terminal 14A, and connecting scanner "B" to rack terminal 14B.* The 25SU3-2100 will now indicate separate scanner "A" and "B" inputs. You may duplicate the signal "summing" if desired when programming the new control.

B. *Leave the scanner signal wires as is:* The 25SU3-2100 control will indicate the sum of the two scanner's signal output as "Scanner A".

2. **Sensitivity Adjustment.** The sensitivity adjustment potentiometers (A and B) of the old control were selected in one of the following three ways:

- a. S.P.D.T. relay or switch contacts were wired between rack terminals S3, S4, and S5. *With the adapter, you must remove the wires from S3, S4, and S5 and install two of them between rack terminals S5 and FM1.* An open circuit selects scanner logic option 1, a closed circuit selects scanner logic option 2.
-or-
- b. The auxiliary relay contacts (RX or RY) within the old control were used as the S.P.D.T switch between rack terminals S3, S4, and S5. The auxiliary relay was energized by closing a contact between rack terminals L1 and 42. *With the adapter, this circuit is unchanged.* Adapter pc board jumper JP3 remains in the “PL29” position.
-or-
- c. The auxiliary relay contacts (RX or RY) within the old control were used as the S.P.D.T switch between rack terminals S3, S4, and S5. The auxiliary relay was energized by closing a contact between rack terminals 43 and AX or AY. *With the adapter, you must isolate this contact and connect it to rack terminals S5 and FM1.*
4. **Flame Signal Meter (0-3 vdc).** An external 0-3 vdc flame signal meter may have been wired between rack terminals FM1 (-) and FM2 (+). With the adapter, the 25SU3-2100 outputs 4-20 mA across these terminals. *You must either replace the dc voltmeter with a mA meter, or modify the dc meter per figure 12.*
5. **Flame Signal Meter (0-20 mA).** An external 0-20 mA flame signal meter or recorder may have been wired between rack terminals FM3 (+) and FM4 (-). *With the adapter, this output is no longer available (see note 3 above).*
6. **Auxiliary Relays, RX, RY.** The older controls contained internal auxiliary relays (RX and RY) not available in the 25SU3-2100 control. *If RX or RY were used for any purpose other than switching amplifier sensitivity, their function must be duplicated externally.*
7. **C9707 Flame Scanner.** If a model C9707 All-fuel flame scanner is going to be used, refer to page 16 for specific application details.

SPECIFIC APPLICATION NOTES: P/N 60-1706 Wiring Rack and 25SU3-5172, -5173 Controls:

Figure 4 illustrates the typical field wiring of a 25SU3-5172, -5173 when originally installed into a P/N 60-1706 two-position rack. Figure 5 illustrates the field wiring after the 192SU3 upgrade.

1. **Before installing the new control: Remove the jumper wire from rack terminals S4 and FM3 (pins PR6 and PL4) Remove any wires from rack terminals S5, SCB, and 2SC (pins PR3, PR10, and PR11)**
2. **Flame Scanner Input.** *With the adapter, the signal inputs from two scanners will remain on terminals 14A and 14B.*
3. **Sensitivity Adjustment.** The 25SU3-5172 control had two adjustable “Threshold” settings, selected by applying either 24 vdc or line voltage (AC) onto rack terminal “S5”.
With the adapter, you must remove this wiring, and either install a dry contact between rack terminals “S5” and “FM1”, or apply line voltage to rack terminal 42 to select “Scanner Logic Option 2”.
4. **Flame Signal Meter (0-3 vdc).** An external 0-3 vdc flame signal meter may have been wired between rack terminals C(-) and FM2 (+). With the adapter, the 25SU3-2100 outputs 4-20 mA across terminals FM1 (-) and FM2 (+). *You must either replace the dc voltmeter with a mA meter, or modify the dc meter per figure 12, and connect to rack terminals FM1 and FM2.*
5. **Flame Signal Meter (0-20 mA).** An external 0-20 mA flame signal meter or recorder may have been wired between rack terminals FM3 (+) and AX (-). *With the adapter, this output is no longer available, (see note 4).*
6. **Flame Signal Bargraph Meter (P/N 61-5560).** The P/N 61-5560 Bargraph meter was connected to rack terminals FM3, FM4, and C. *This meter is not compatible with the adapter and new control and should be replaced with a 4-20 mA meter connected to rack terminals FM1 and FM2.*
7. **Serial Communication.** The 25SU3-5172,-5173 used rack terminals X3, X4, S4, and + (pins PR13, PR14, PR6, and PR8) for serial communications. *This function is not available with the adapter and new control.*
8. **C9707 Flame Scanner.** If a model C9707 All-fuel flame scanner is going to be used, refer to page 16 for specific application details.

FIGURE 3. ORIGINAL WIRING DIAGRAM: 60-1706 RACK WITH 25SU3-4170 CONTROL

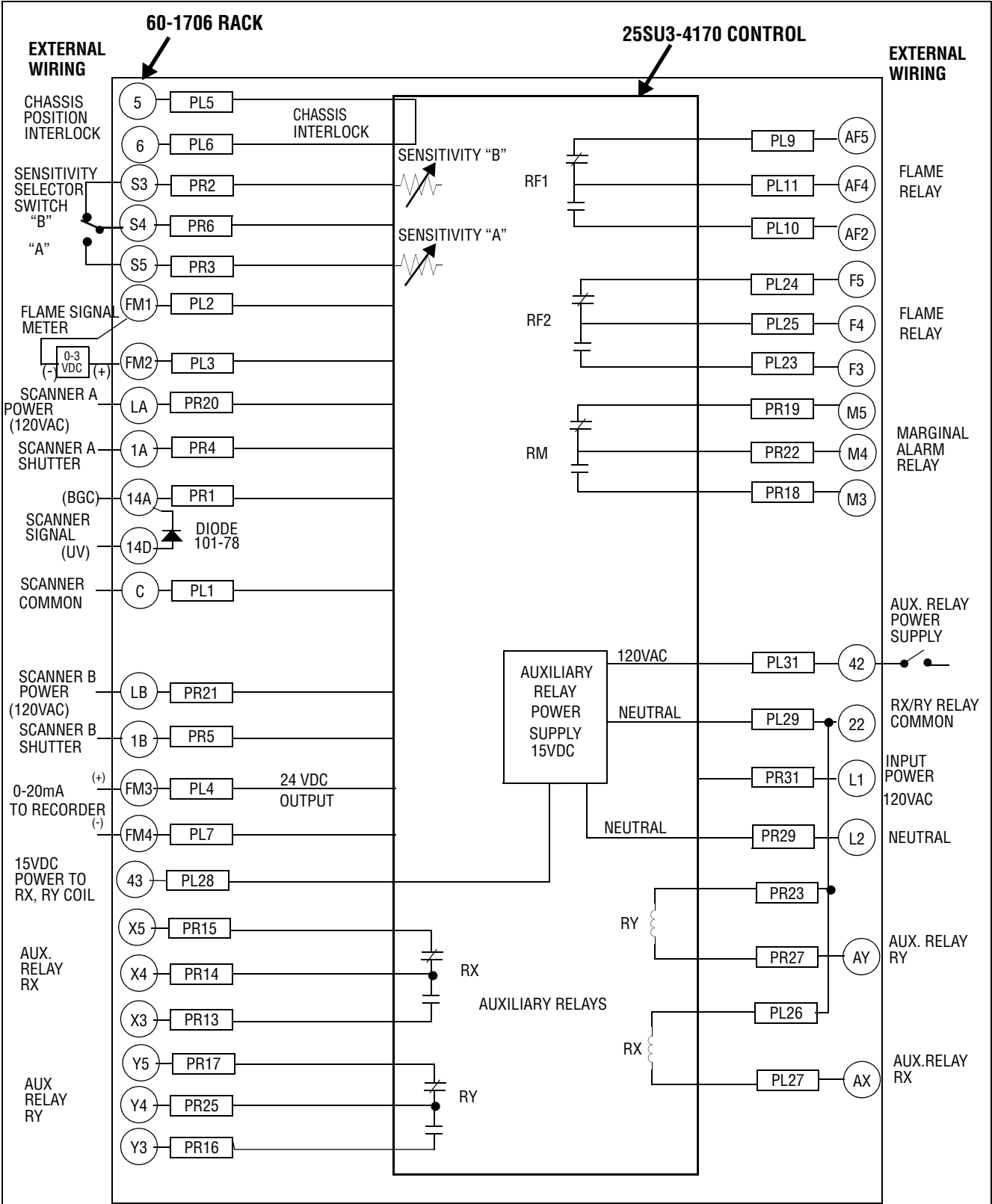
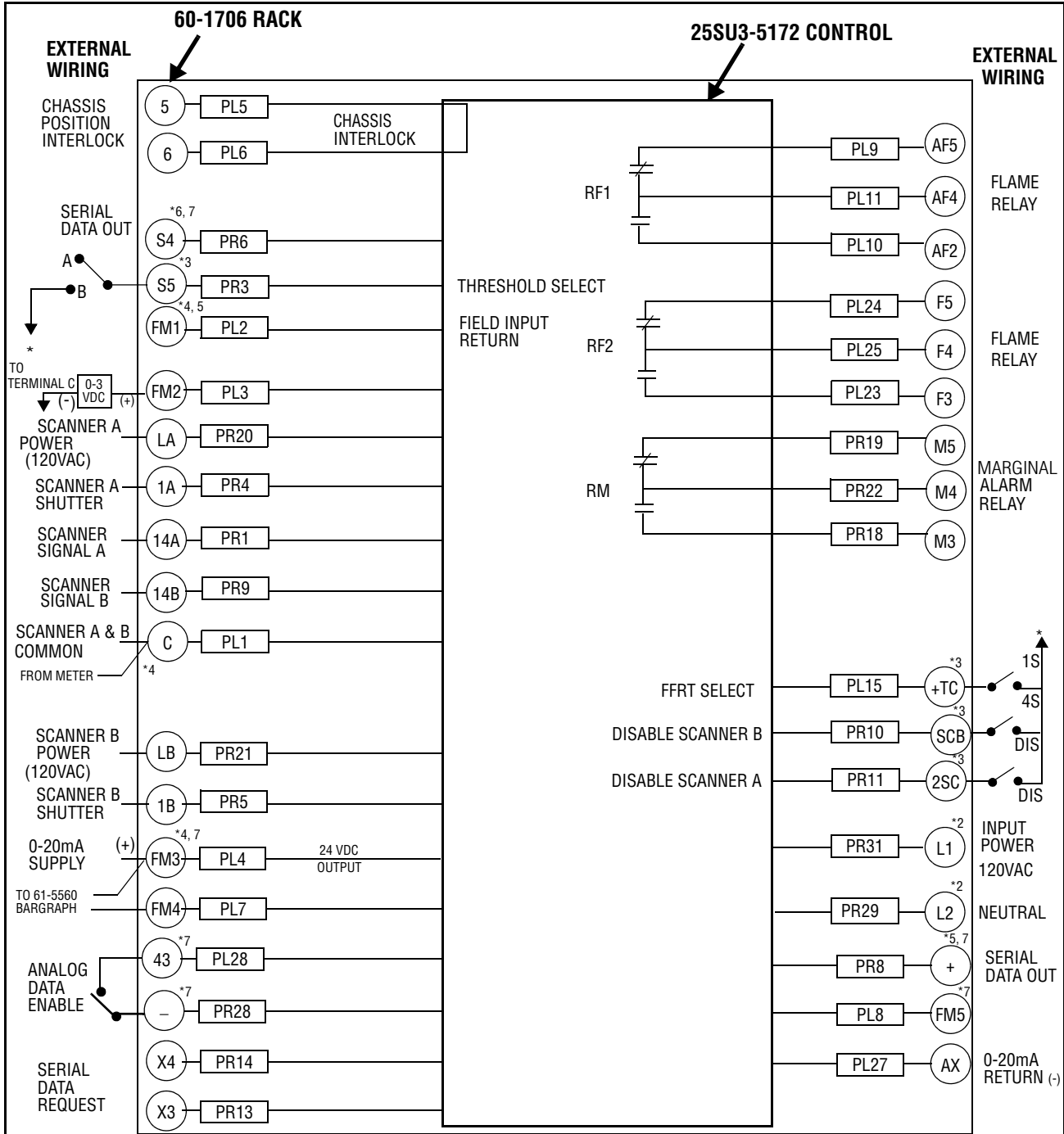


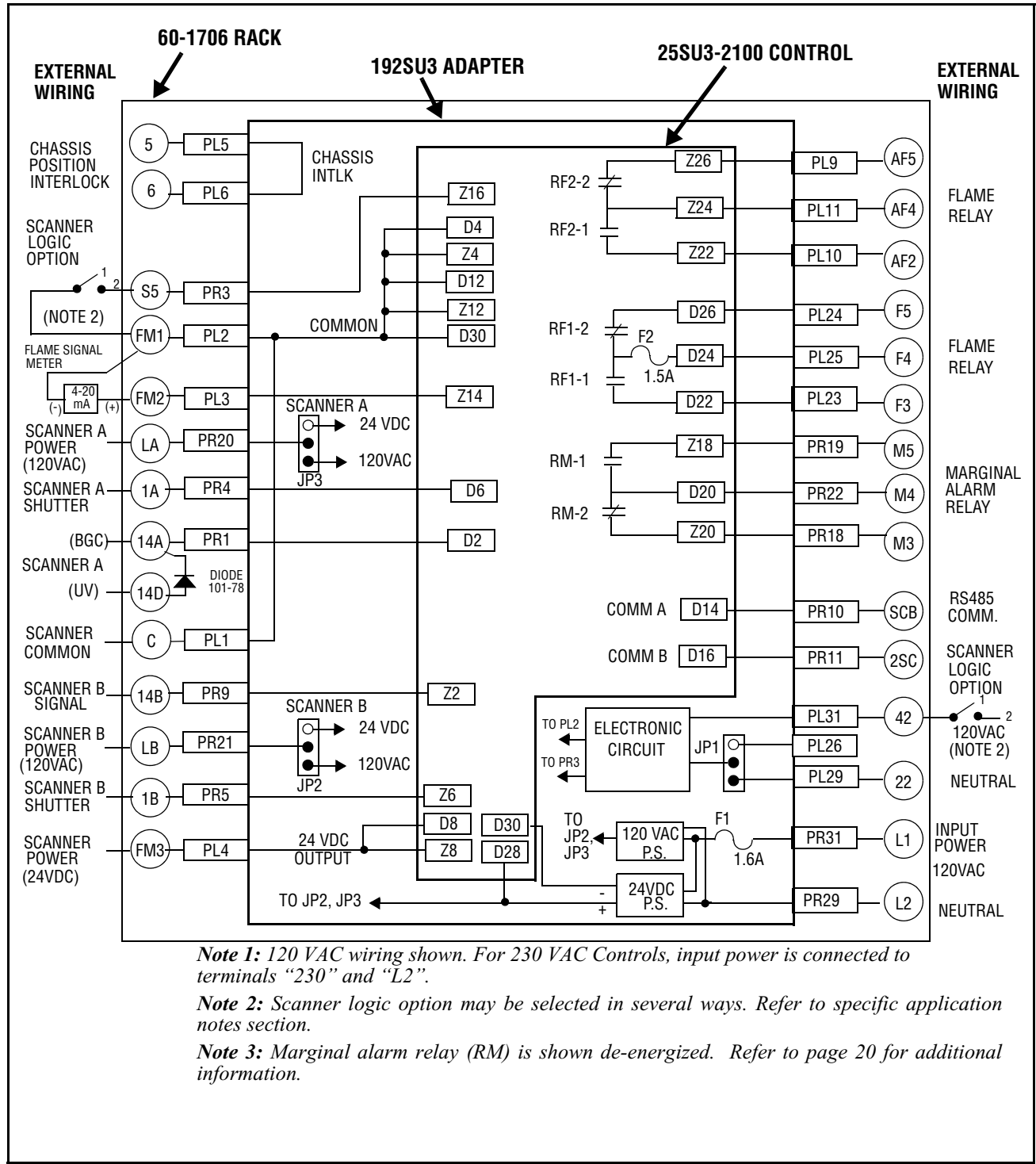
FIGURE 4. ORIGINAL WIRING DIAGRAM: 60-1706 RACK WITH 25SU3-5172 CONTROL



***Notes:**

1. 25SU3-5170 control was wired similarly.
2. 120 VAC wiring shown. For 230 vac controls, input power was connected to terminal "230" and "L2".
3. Four external input switches could be connected to the 25SU3-5172 control: "Threshold Select" to terminal S5 (PR3), "Disable Scanner B" to terminal SCB (PR10), "Disable Scanner A" to terminal 2SC (PR11), and "FFRT Select" to terminal +TC (PL15).
4. If the voltage source for the field input switches was +24 vdc (terminal FM3 (PL4)), terminal FM1 (PL2) was connected to terminal C (PL1).
5. If the voltage source for the field input switches was line voltage (terminal L1 (PR31)), terminal FM1 (PL2) was connected to terminal L2 (PR29).
6. Either analog data output or serial data output was available (not both).
7. If analog data output was required (0-3 vdc & 0-20 mA), terminal S4 (PR6) was connected to terminal FM3 (PL4), terminal FM5 (PL8) to terminal + (PR8), and terminal 43 (PL28) to terminal - (PR28).

FIGURE 5. UPGRADE WIRING DIAGRAM: 192SU3 ADAPTER AND 60-1706 RACK



Note 1: 120 VAC wiring shown. For 230 VAC Controls, input power is connected to terminals "230" and "L2".

Note 2: Scanner logic option may be selected in several ways. Refer to specific application notes section.

Note 3: Marginal alarm relay (RM) is shown de-energized. Refer to page 20 for additional information.



SPECIFIC APPLICATION NOTES: P/N 60-1499-2 Wiring Rack and 25SU3-4163, -4167, -4170 Controls

Figure 6 illustrates the typical field wiring of a 25SU3-4163, -4167, -4170 when originally installed into a 60-1499-2 two position rack. Figure 7 illustrates the field wiring after the 192SU3 upgrade.

- 1. Flame Scanner Input.** The 60-1499-2 wiring rack accepted two 25SU3-4163, -4167, -4170 controls (only one is shown). Terminals were available for only one scanner per control. If two scanners were used, the scanner shutter leads (1), and power leads (L or P) were switched in and out of the circuit via an external relay or switch.
With the adapter, this circuitry is not changed. The 25SU3-2100 control will indicate the signal output of the connected scanner as "Scanner A".
- 2. Sensitivity Adjustment.** The sensitivity adjustment potentiometers (A and B) of the old control were selected by applying 120 vac to rack terminal X1. With 120 vac present on X1, the auxiliary relay (RX) was energized, selecting sensitivity "A".
With the adapter, this circuitry is not changed. The adapter pc board jumper JP3 remains in the "PL29" position. When 120 vac is applied to rack terminal X1, the 25SU3-2100 will select "Scanner Logic Option 2". When voltage is removed from X1, the 25SU3-2100 will select "Scanner Logic Option 1".
- 3. Flame Signal Meter (0-3 vdc).** An external 0-3 vdc flame signal meter may have been wired between rack terminals C (-) and X2 (+). With the adapter, the 25SU3-2100 outputs 4-20 mA across these terminals. *You must either replace the dc voltmeter with a mA meter, or modify the dc meter per figure 12.*
- 4. Scanner Power.** The 192SU3 adapter pc board jumper JP3 is shipped from the factory in the "120 vac" position, supplying 120 vac on rack terminal "LA" for use with high voltage scanners (e.g. 45UV5, 45RM1, or 45RM2). If the user wishes to connect a 24 vdc scanner (e.g. 45RM4, 45FS1, or 45UVFS1) adapter pc board jumper JP3 must be placed in the 24 vdc position.
- 5. C9707 Flame Scanner.** If a model C9707 All-fuel flame scanner is going to be used, refer to page 16 for specific application details.

FIGURE 6. ORIGINAL WIRING DIAGRAM: 60-1499-2 RACK WITH 25SU3-4170 CONTROL

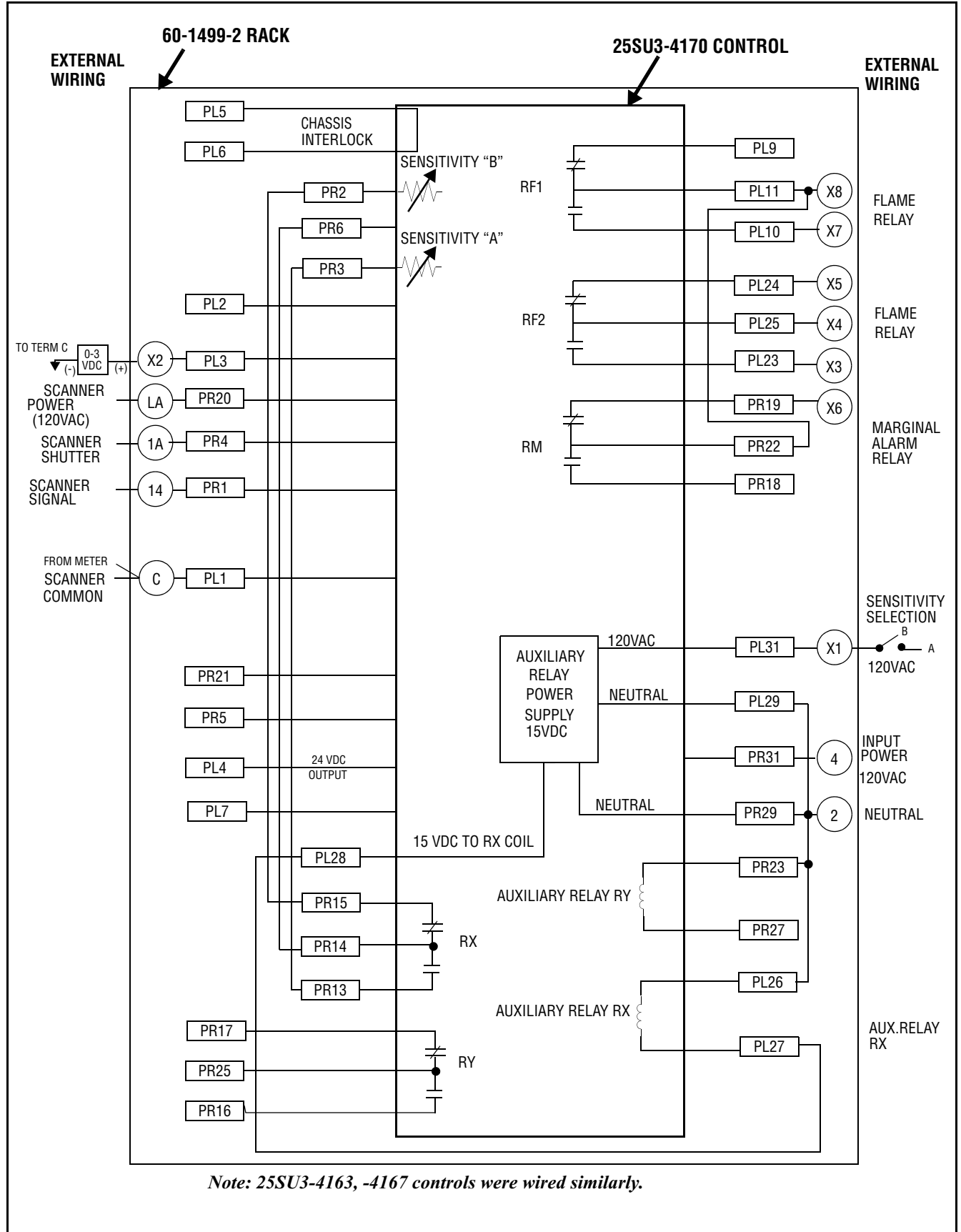
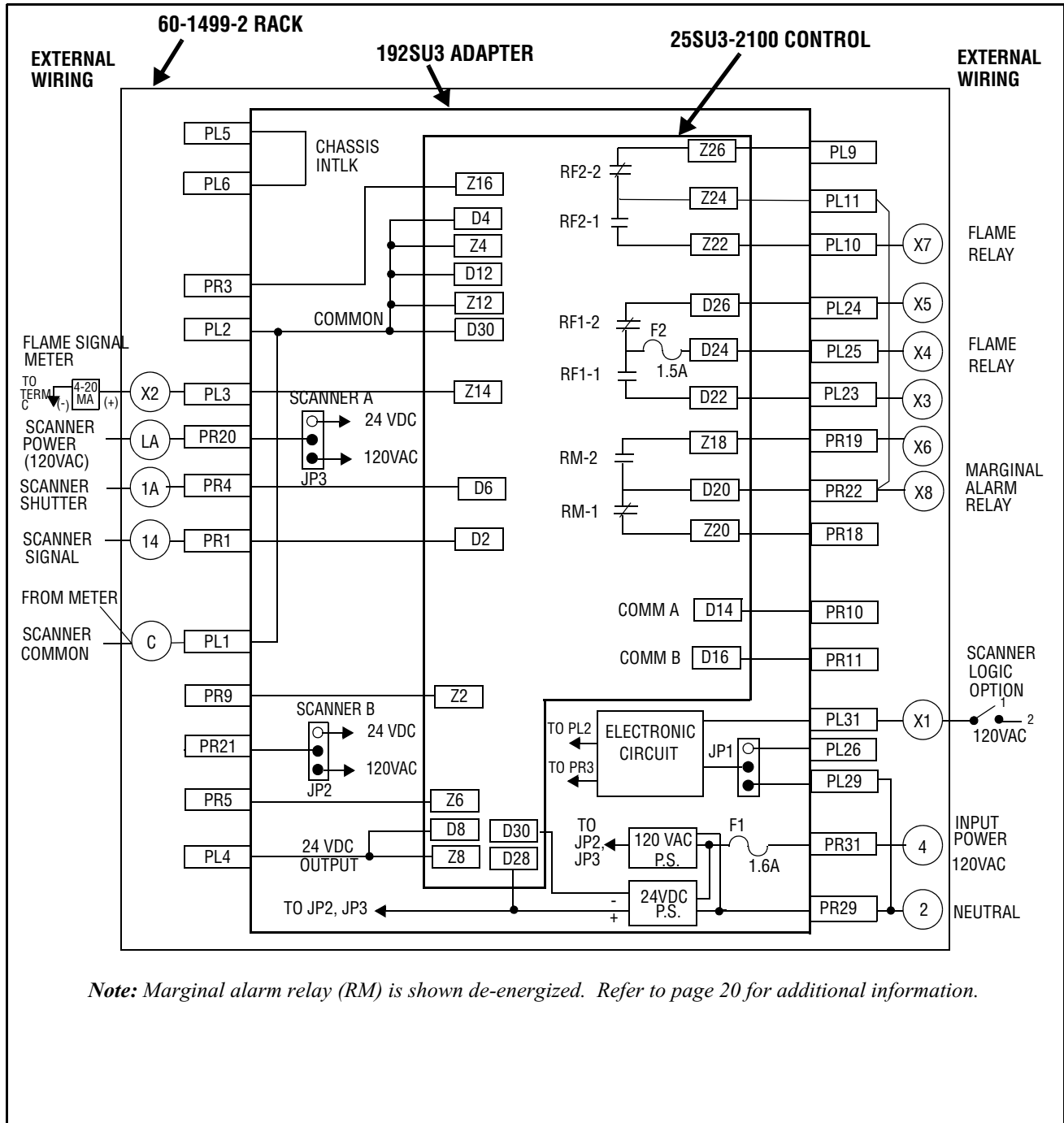


FIGURE 7. UPGRADE WIRING DIAGRAM: 192SU3 ADAPTER AND 60-1499-2 RACK



Note: Marginal alarm relay (RM) is shown de-energized. Refer to page 20 for additional information.

SPECIFIC APPLICATION NOTES: P/N 60-1499-11 Wiring Rack and 25SU3-4163, 4167, 4170 Controls:

Figure 8 illustrates the typical field wiring of a 25SU3-4163, -4167, -4170 when originally installed into a 60-1499-11 two position rack. Figure 9 illustrates the field wiring after the 192SU3 upgrade.

- 1. Flame Scanner Input.** The 60-1499-11 wiring rack accepted two 25SU3-4163, -4167, -4170 controls (only one is shown). Terminals were available for two scanner per control, although the two scanner signal leads were both connected to rack terminal 14.
With the adapter, this circuitry is not changed. The 25SU3-2100 control will indicate the sum of the two scanner's signal output as "Scanner A".
- 2. Sensitivity Adjustment.** The sensitivity adjustment potentiometers (A and B) of the old control were selected by applying 120 vac to rack terminal X5. With 120 vac present on X5, the auxiliary relay (RX) was energized, selecting sensitivity "A".
With the adapter, this circuitry is not changed. The adapter pc board jumper JP3 remains in the "PL29" position. When 120 vac is applied to rack terminal X5, the 25SU3-2100 will select "Scanner Logic Option 2". When voltage is removed from X5, the 25SU3-2100 will select "Scanner Logic Option 1".
- 3. Flame Signal Meter (0-3 vdc).** An external 0-3 vdc flame signal meter may have been wired between rack terminals C (-) and X8 (+). With the adapter, the 25SU3-2100 outputs 4-20 mA across these terminals. You must either replace the dc voltmeter with a mA meter, or modify the dc meter per figure 12.
- 4. Scanner Power.** The 192SU3 adapter pc board jumpers JP2 and JP3 are shipped from the factory in the "120 vac" position, supplying 120 vac on rack terminals "X1" and "LA" for use with high voltage scanners (e.g. 45UV5, 45RM1, or 45RM2). If the user wishes to connect 24 vdc scanners (e.g. 45RM4, 45FS1, or 45UVFS1) JP2 and / or JP3 must be placed in the 24 vdc position.
- 5. C9707 Flame Scanner.** If a model C9707 All-fuel flame scanner is going to be used, refer to page 16 for specific application details.

FIGURE 8. ORIGINAL WIRING DIAGRAM: 60-1499-11 RACK WITH 25SU3-4170 CONTROL

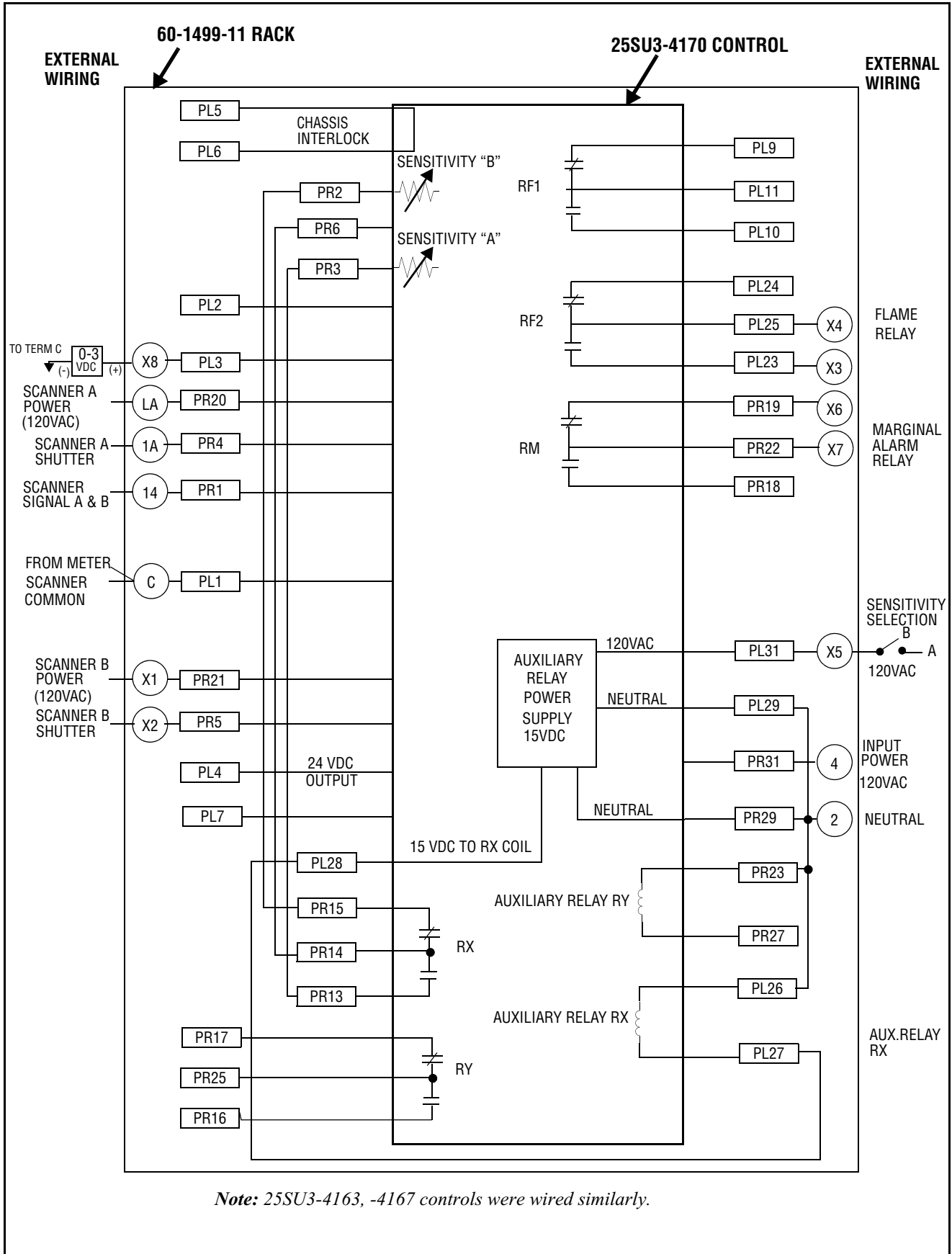
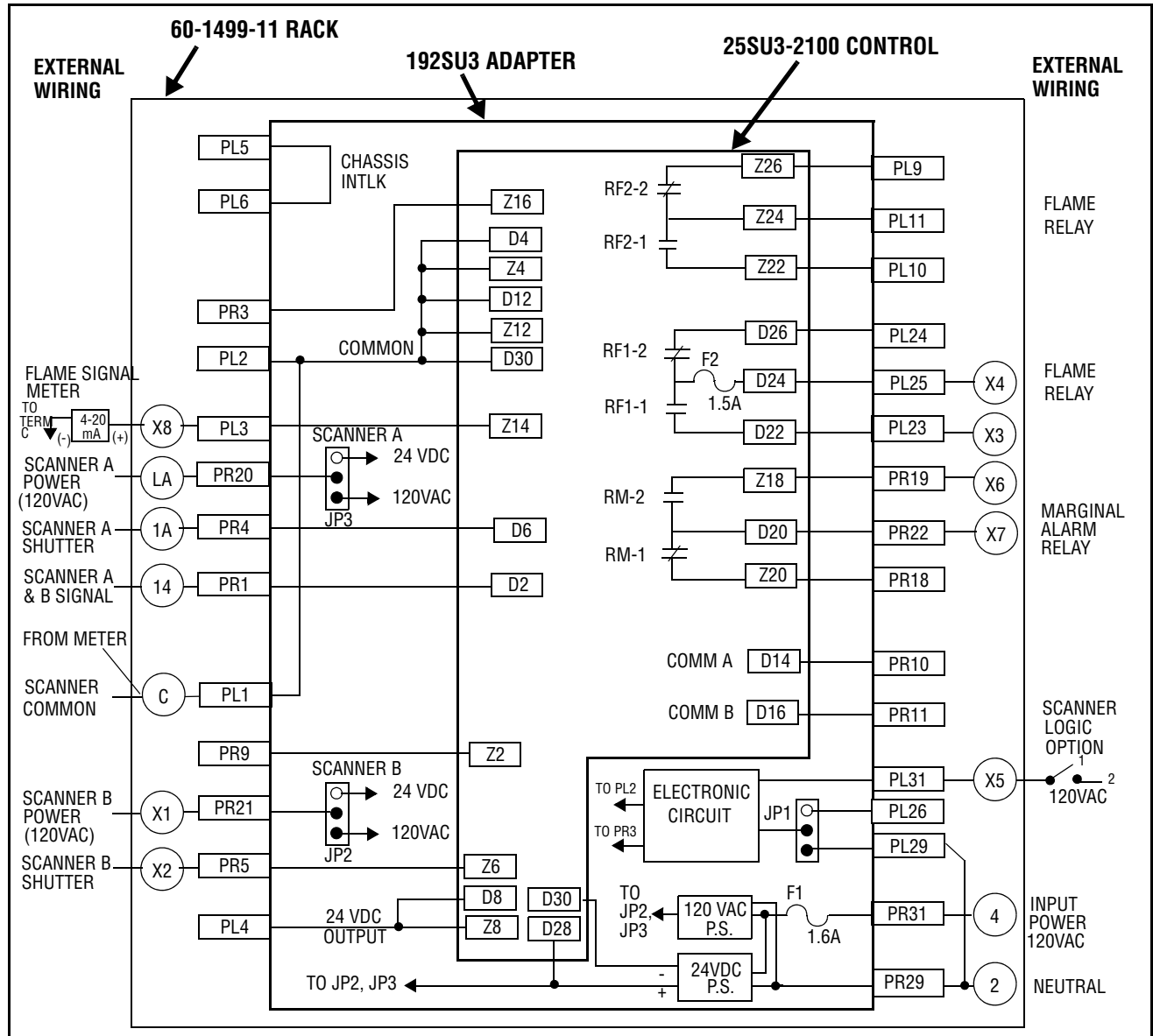


FIGURE 9. UPGRADE WIRING DIAGRAM: 192SU3 ADAPTER AND 60-1499-11 RACK



Note: Marginal alarm relay (RM) is shown de-energized. Refer to page 20 for additional information.



SPECIFIC APPLICATION NOTES: Using the Model C9707 Scanner

1. The C9707 All-Fuel Scanner requires 24 vdc power. The scanner will be damaged if it is connected to 120 vac.
 - a. When the C9707 scanner is used with the 60-1706 Rack, connect the C9707 "Power" lead to rack terminal "FM3" (+24 vdc).
 - b. When the C9707 scanner is used with the 60-1499 Rack, move the 192SU3 adapter jumpers JP2 and JP3 to the "24 vdc" position prior to installing the 25SU3 amplifier into the adapter. Then connect the C9707 power lead to rack terminal "LA" or "LB".

2. The C9707 scanner has both an ultraviolet and an infrared flame sensor. The scanner will switch to infrared when 12 vdc is applied to connector pin D on the scanner base. When voltage is removed from scanner-base pin D, the scanner will switch to ultraviolet. The 12 vdc originates on connector pin Z16 of the 25SU3-2100 amplifier. Amplifier pin Z16 makes connection with 192SU3 adapter pin PR3, and then to rack connector pin PR3.
 - a. When the C9707 scanner is used with the 60-1706 Rack, connect the scanner's "IR/UV Select" lead to rack terminal "S5" (internally connected to pin PR3).
 - b. When the C9707 scanner is used with the 60-1499 Rack, there is no terminal connection to pin PR3. You must remove the rack and modify the backplane wiring to access pin PR3, as described below:
 1. Remove the 60-1499 rack.
 2. View the rear side of the rack with the wire-wrapped backplane connections. Each amplifier position will have two vertical rows of 32 pins. Each amplifier position will have its own pin PR3. Viewed from the rear of the rack, pin PR3 is the third pin from the top on the right-hand vertical row.
 3. Attach (solder) a new 18-gage wire to pin PR3. The wire must be long enough to reach a new or unused (spare) terminal block in the cabinet.
 4. Re-install the rack.
 5. Connect the new wire to the scanner's "IR/UV Select" lead going to the scanner-base pin D.

3. With the above connections made, the C9707 scanner will switch from IR to UV when the amplifier switches from Scanner Logic Option 1 to Logic Option 2 as shown:

RACK	RACK INPUT TERMINALS	C9707: INFRARED 25SU3: LOGIC OPTION 1	C9707: ULTRAVIOLET 25SU3: LOGIC OPTION 2
60-1706	"S5" to "FM1" Switch Open (or 0 vdc to "42")	X	
	"S5" to "FM1" Switch Closed (or 120 vac to "42")		X
60-1499-2	0 vac to "X1"	X	
	120 vac to "X1"		X
60-1499-11	0 vac to "X5"	X	
	120 vac to "X5"		X

SPECIFIC APPLICATION NOTES: P/N 60E5527 (or similar) Rack and 25SU3-4163, -4167, -4170 Controls

Figure 10 illustrates the typical field wiring of a 25SU3-4163, -4167, -4170 when originally installed into a 60E5527 (or similar) European rack. Figure 11 illustrates the field wiring after the 192SU3 upgrade.

1. **Flame Scanner Input.** The 60E5527 wiring rack accepted two or more 25SU3-4163, -4167, -4170 controls (only one is shown). Terminals were available for two scanner per control, although the two scanner signal leads were both connected to the same amplifier pin (via rack terminals 13 & 17).

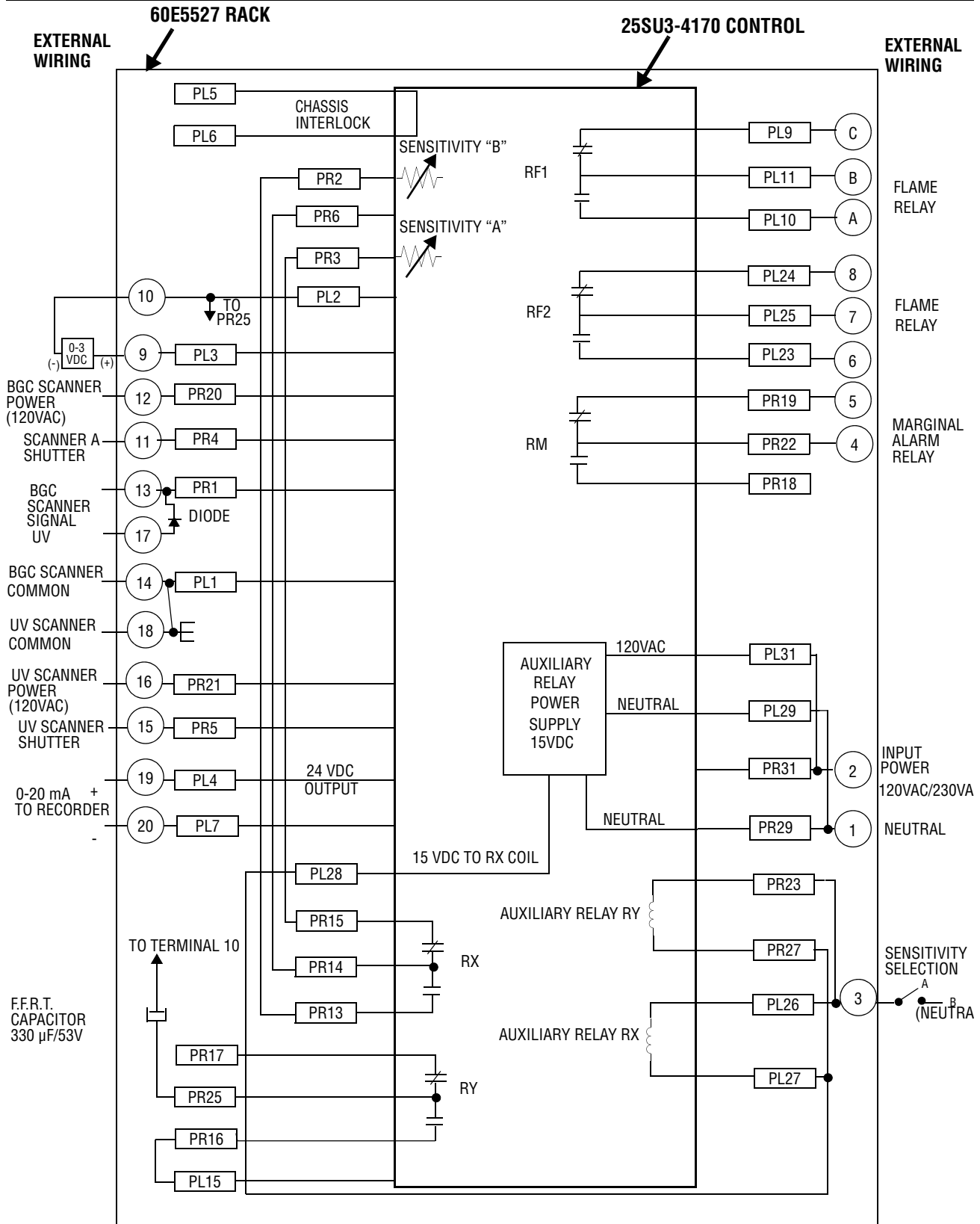
With the adapter, this circuitry is not changed. The 25SU3-2100 control will indicate *the sum* of the two scanner's signal output as "Scanner A".

2. **Sensitivity Adjustment.** The sensitivity adjustment potentiometers (A and B) of the old control were selected by applying an AC NEUTRAL wire to rack terminal 3. With an AC neutral present on 3, the auxiliary relays (RX and RY) were energized, selecting sensitivity "B", *and* selecting a 3 second FFRT. With the neutral removed, sensitivity "A" *and* a 1 second FFRT was selected.

With the adapter, the external circuitry is not changed. The adapter pc board jumper JP1, however, must be moved to the "PL26" position. When an AC neutral is applied to rack terminal 3, the 25SU3-2100 will select "Scanner Logic Option 2". When the neutral is removed from 3, the 25SU3-2100 will select "Scanner Logic Option 1". Program the desired FFRT values into the 25SU3-2100.

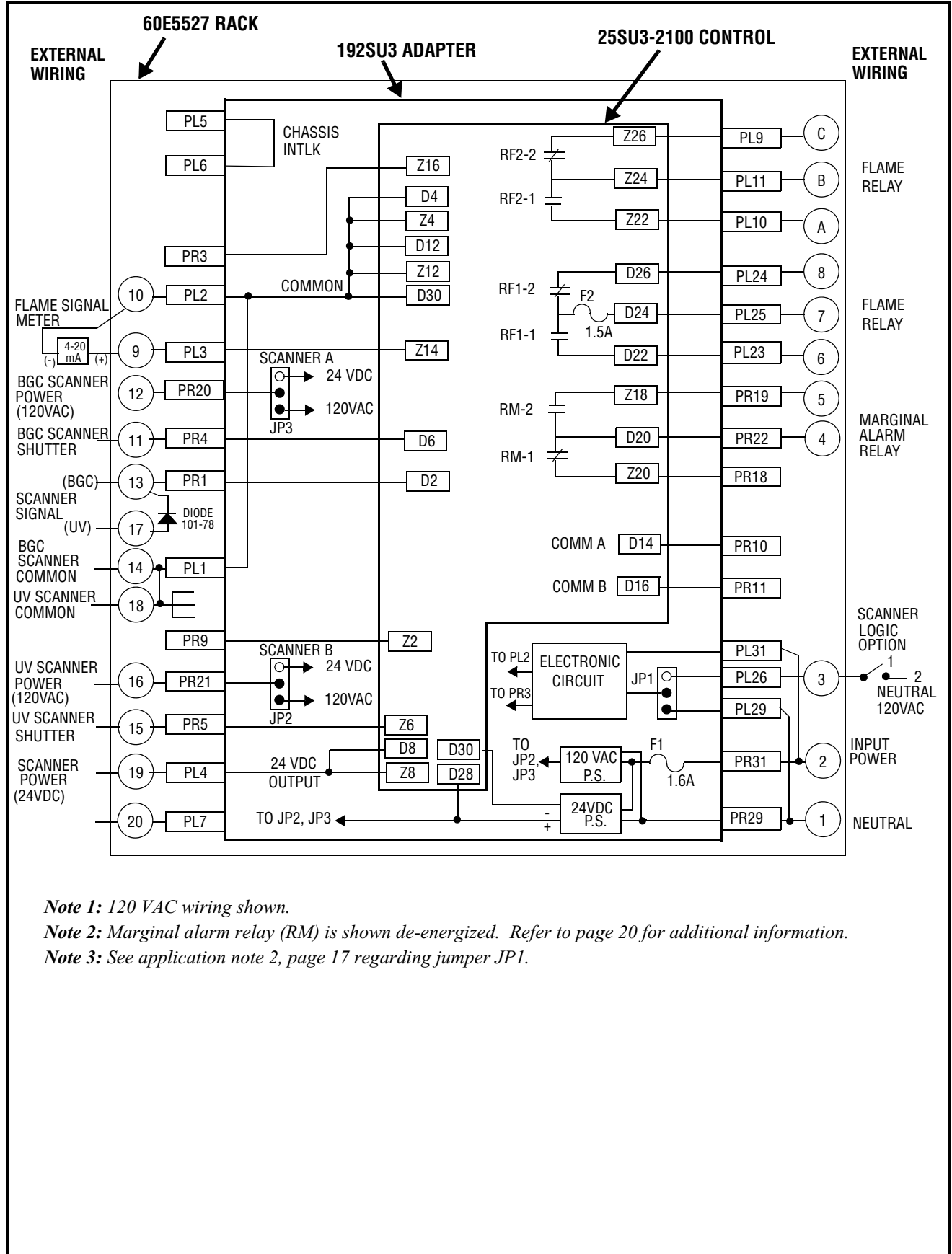
3. **Flame Signal Meter (0-3 vdc).** An external 0-3 vdc flame signal meter may have been wired between rack terminals 10 (-) and 9 (+). With the adapter, the 25SU3-2100 outputs 4-20 mA across these terminals. *You must either replace the dc voltmeter with a mA meter, or modify the dc meter per figure 12.*
4. **Flame Signal Meter (0-20 mA).** An external 0-20 mA flame signal meter or recorder may have been wired between rack terminals 19 (+) and 20 (-). *With the adapter, this output is no longer available (see note 3 above).*

FIGURE 10. ORIGINAL WIRING DIAGRAM: 60E5527 RACK WITH 25SU3-4170 CONTROL



Note: 25SU3-4163, -4167 controls were wired similarly.

FIGURE 11. UPGRADE WIRING DIAGRAM: 192SU3 ADAPTER AND 60E5527 RACK



Note 1: 120 VAC wiring shown.

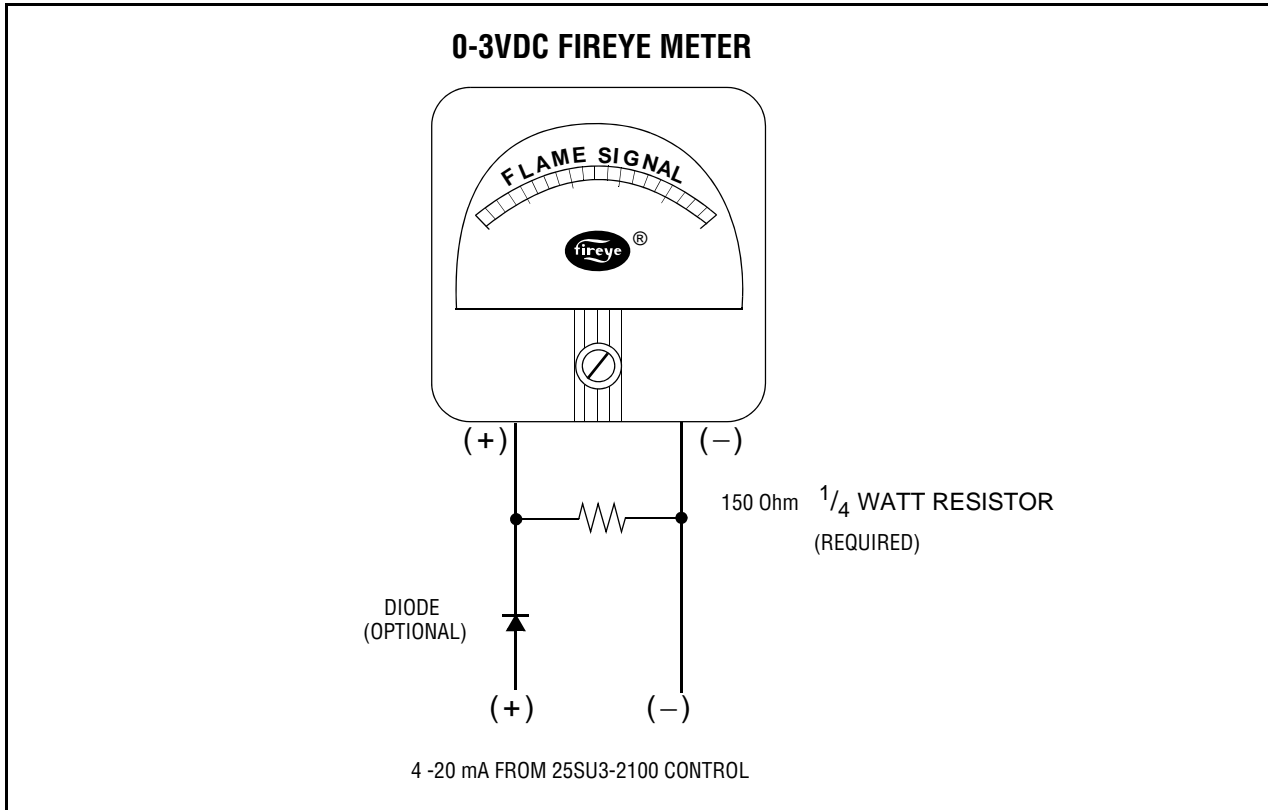
Note 2: Marginal alarm relay (RM) is shown de-energized. Refer to page 20 for additional information.

Note 3: See application note 2, page 17 regarding jumper JP1.

Remote Flame Signal Meter

To allow an *existing* 0-3 vdc Flame Signal Meter to be used with a 4-20 mA output, install a 150 ohm, 1/4 watt resistor across the meter (+) and (-) terminals. This will result in a 0.6 - 3.0 vdc meter movement. If a 0.0 - 2.4 vdc meter movement is preferred, in addition to the resistor, connect a diode in series with the meter (+) terminal (see figure 12). Alternately, you may replace the 0-3 vdc meter with a 4-20 mA Fireye meter, P/N 38-96.

FIGURE 12.



Marginal Alarm Relay (RM)

The marginal alarm relay (RM) is a pre-trip alarm, providing notification of a deteriorating flame signal such as may be caused by poor combustion or a contaminated scanner lens. The RM contacts in the 25SU3-2100 operate the same as in the older controls *once the flame relay (RF) is energized*. With the flame relay (RF) de-energized, the RM contacts in the two controls are opposite per the following table. The "PR" designation refers to the pc board pins that access the RM contacts.

AMPLIFIER TYPE		FLAME SIGNAL LEVEL		
		SIGNAL BELOW RF THRESHOLD	RF ENERGIZED, BUT SIGNAL MARGINAL	RF ENERGIZED AND SIGNAL NOT MARGINAL
25SU3-4170	RM COIL	DE-ENERGIZED	DE-ENERGIZED	ENERGIZED
	PR22-PR19	CLOSED	CLOSED	OPEN
	PR22-PR18	OPEN	OPEN	CLOSED
25SU3-2100	RM COIL	DE-ENERGIZED	ENERGIZED	DE-ENERGIZED
	PR22-PR19	OPEN	CLOSED	OPEN
	PR22-PR18	CLOSED	OPEN	CLOSED

FIGURE 13. RACK TERMINAL CROSS REFERENCE

PC Board Pin Nos.	Wiring Rack Terminal Numbers				Amplifier Function		
	Rack p/n 60-1499-2	Rack p/n 60-1499-11	Rack p/n 60-1706	Rack p/n 60E5527	Original 25SU3-4170	Original 25SU3-5172	New 25SU3-2100
PL1	C	C	C	14	Scanner Common	Scanner Common	Scanner Common
PL2			FM1	10	Meter Common	Field Input Return	Meter Common, 4-20mA(-)
PL3	X2	X8	FM2	9	3V Meter+	3V Meter+	4-20mA (+)
PL4			FM3	19	0-20 mA +	0-20 mA + 24 vdc	24 vdc Scanner Power
PL5			5		Position Interlock	Position Interlock	Position Interlock
PL6			6		Position Interlock	Position Interlock	Position Interlock
PL7			FM4	20	0-20 mA -	61-5560 bargraph signal	
PL8			FM5			Analog data	
PL9			AF5	C	RF1 (NC)	RF1 (NC)	RF2 (NC)
PL10	X7		AF2	A	RF1 (NO)	RF1 (NO)	RF2 (NO)
PL11	X8		AF4	B	RF1(Com)	RF1(Com)	RF2(Com)
PL13			X3			Serial Data Request	
PL14			X4			Serial Data Request	
PL15			+TC	*		FFRT Select	
PL23	X3	X3	F3	6	RF2 (NO)	RF2 (NO)	RF1 (NO)
PL24	X5		F5	8	RF2 (NC)	RF2 (NC)	RF1 (NC)
PL25	X4	X4	F4	7	RF2(Com)	RF2(Com)	RF1(Com)
PL26	2	2	*	3	RX coil -		Scanner Logic Option
PL27	*	*	AX	*	RX coil +	0-20 mA -	
PL28	*	*	43	*	16 vdc for RX, RY	Analog data enable	
PL29	2	2	22	1	RX,RY coil common		Scanner Logic Option
PL31	X1	X5	42	2	Aux. Relay PS input		Scanner Logic Option

NOTE 1: Refer to Specific Application Notes section for additional information.

NOTE 2: Blank section indicates no rack connection.

NOTE 3: An asterisk (*) indicates a rack connection without external (terminal) access.



RACK TERMINAL CROSS REFERENCE continued

PC Board Pin Nos.	Wiring Rack Terminal Numbers				Amplifier Function		
	Rack p/n 60-1499-2	Rack p/n 60-1499-11	Rack p/n 60-1706	Rack p/n 60E5527	Original 25SU3-4170	Original 25SU3-5172	New 25SU3-2100
PR1	14	14	14A	13	Scanner signal	Scanner "A" signal	Scanner "A" signal
			14D		Scanner signal		
PR2	*	*	S3	*	Sensitivity "B"		
PR3	*	*	S5	*	Sensitivity "A"	Threshold Select	Scanner Logic Option
PR4	1A	1A	1A	11	Scanner "A" shutter	Scanner "A" shutter	Scanner "A" shutter
PR5		X2	1B	15	Scanner "B" shutter	Scanner "B" shutter	Scanner "B" shutter
PR6	*	*	S4	*	Sensitivity (common)	Serial Data Out	
PR8			(+)			Serial Data Out	
PR9			14B			Scanner "B" signal	Scanner "B" signal
PR10			SCB			Disable Scanner "B"	RS485 Comm. A
PR11			2SC			Disable Scanner "A"	RS485 Comm. B
PR13	*	*	X3	*	RX (NO)	Serial Data Request	
PR14	*	*	X4	*	RX (Com)	Serial Data Request	
PR15	*	*	X5	*	RX (NC)		
PR16			Y3	*	RY (NO)		
PR17			Y5		RY (NC)		
PR18			M3		RM (NO)	RM (NO)	RM (NC)
PR19	X6	X6	M5	5	RM (NC)	RM (NC)	RM (NO)
PR20	LA	LA	LA	12	Scanner "A" power	Scanner "A" power	Scanner "A" power
PR21		X1	LB	16	Scanner "B" power	Scanner "B" power	Scanner "B" power
PR22	X8	X7	M4	4	RM (Com)	RM (Com)	RM (Com)
PR23	2	2	*	3	RY coil -		
PR25			Y4	*	RY (Com)		
PR27			AY	*	RY coil +		
PR28			(-)			Analog Data Enable	
PR29	2	2	L2	1	120 vac input neutral	120 vac input neutral	AC input neutral
PR31	4	4	L1	2	120 vac input hot	120 vac input hot	AC input hot
			230		230 vac input hot	230 vac input hot	230 vac input hot

NOTE 1: Refer to Specific Application Notes section for additional information.

NOTE 2: Blank section indicates no rack connection.

NOTE 3: An asterisk (*) indicates a rack connection without external (terminal) access.



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.



TM FIREYETM
3 Manchester Road
Derry, New Hampshire 03038 USA
www.fireeye.com

CU-36
AUGUST 10, 2005
Supersedes Jan. 2001