

### Installation Instructions

#### Model MMB-3

#### Main Control Board

### OPERATION

The **SIEMENS** Model MMB-3 board in each MXL System controls operations and monitors input device identity, network communication, and operator commands that are entered through the MKB Annunciator/ Keyboard. The MMB-3 also provides two analog loop driver circuits. Each ALD-2I loop can be used as Class B or Class A and can monitor and control up to 60 intelligent devices as well as programmable device relays. The MMB-3 module can be programmed and upgraded in the field. It is equipped with two programmable Class B (Style Y) or Class A (Style Z) notification appliance circuits. Each circuit can activate up to 1.5 amps of audible or visual notification appliances. The MMB-3 has a user-defined Style 4 or Style 7 MNET communication port.

The module also has auxiliary relays for the external monitoring of Common System Alarm, Common System Trouble, and Common Supervisory conditions. The Common Supervisory relay is user programmable.

The MMB-3 includes a built-in battery charger and transfer circuit. The charger is microprocessor controlled and incorporates a brownout circuit that switches the System to standby batteries during the loss or reduction of the primary source AC.

The System can display the real time battery voltage, the AC voltage, and the charger current on the MKB display. It also has a 1 amp, 24 VDC output that powers CZM-1/-1B6 modules.

### INSTALLATION

**Remove all system power before installation, first battery and then AC.** (To power up, connect the AC first and then the battery.)

#### Installing the MMB-3 Board

Unpack the MMB-3. Inspect the module, looking for such things as integrated circuits (ICs) not firmly seated in their sockets, bent IC pins, connectors not properly installed, dirt, packing material on the board, etc.

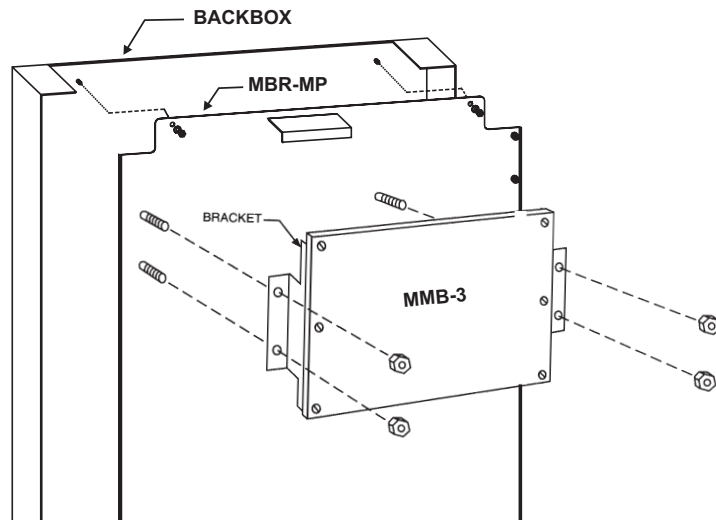
The MMB-3 includes the following installation kits:

MMB-3 Cable Kit (P/N 545-649035)
Four #10 nuts Three resistor assemblies Battery cable with wire

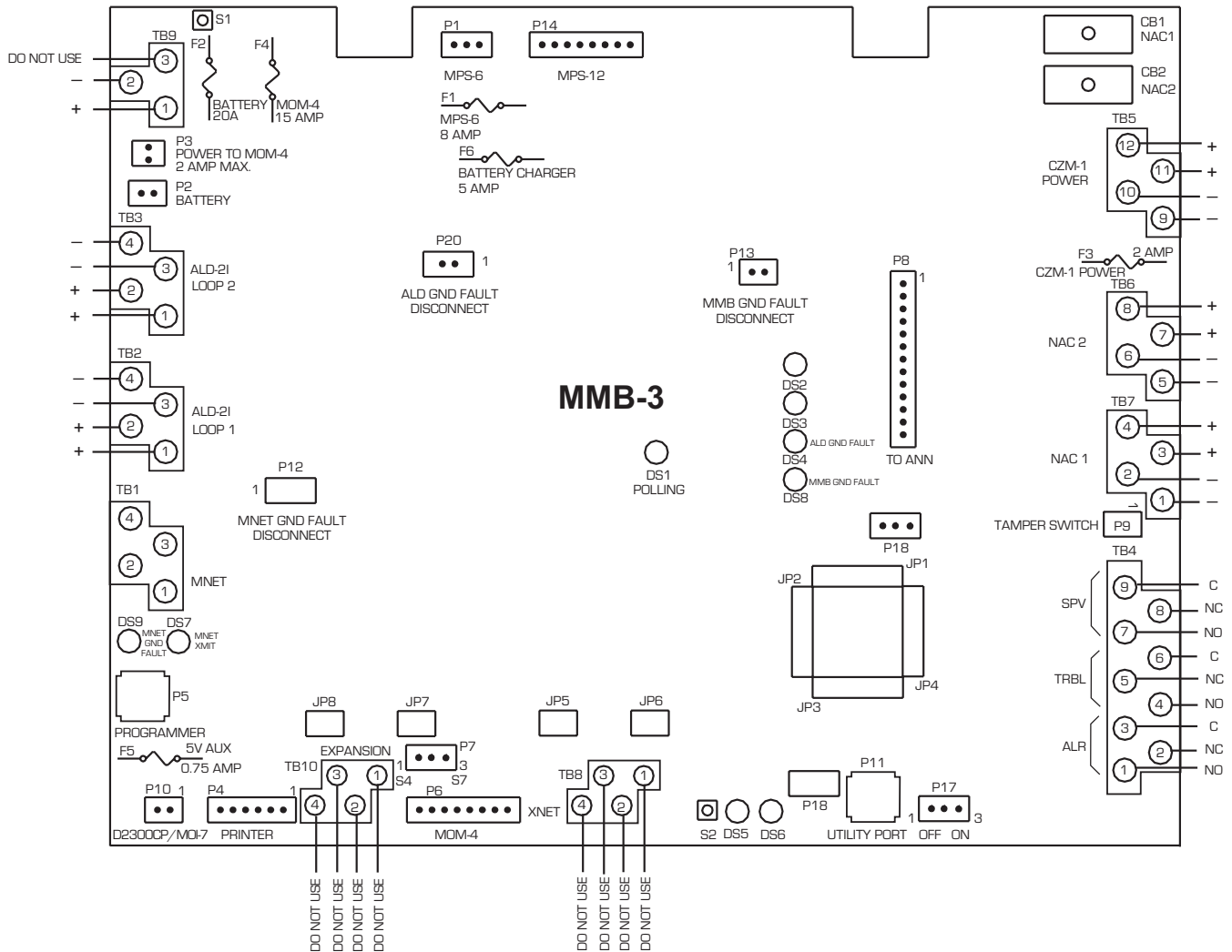
MMB-3 Hardware Kit (P/N 545-649036)	
Contents	Used For
One 3-position removable screw terminal block	TB 9
Six 4-position removable screw terminal blocks	TB 1, 2, 3, 5, 6, 7
One 9-position removable screw terminal block	TB 4

#### To install the MMB-3:

1. Place the MMB-3 with the mounting bracket over the four standoffs on the MBR-MP mounting plate in the upper left portion of the backbox (See Figure 1).



**Figure 1**  
**Installing the MMB-3**



**Figure 2**  
**MMB-3 Main Board**

2. Secure in place using the hardware provided. Be sure the screws and nuts are tight, as they provide the earth ground connection for the MMB-3.
3. Place the removable terminal blocks from Hardware kit P/N 545-649036 on the appropriate terminals and secure in place.

## CONFIGURATION

The MMB-3 has two jumpers—jumper P7 for MNET and jumper P17 for Real Time clock—which must be set for proper operation. Refer to Figure 2 for the location of the jumpers.

### MNET

To configure the MNET port (TB1) for either Style 4 or Style 7 operation, set jumper P7 on the MMB-3 to one of the four settings listed below that is applicable to your system configuration.

1. If the MNET port (TB1) is not being used on the MMB-3 and there is no NET-7/7M in the system configuration, then set the jumper to positions 1 and 2.
2. If the MNET port (TB1) is configured as Style 4, then set the jumper to positions 1 and 2.
3. If the MNET port is (TB1) configured as Style 7, then set the jumper to positions 1 and 2.

**NOTE:** In settings 1-3, the user can upload a CSG-M configuration in the customary method through P5 (To Programmer).

4. If you are not using the MNET port, but are using a NET-7/7M in your MMB-3 configuration, then set the jumper to positions 2 and 3.

**NOTE:** If setting 4 is used, the CSG-M configuration **MUST** be uploaded through P2 on any NET-7/7M that is on the Style 7 MNET. You cannot upload a CSG-M configuration through P5 on the MMB-3 in this configuration.

### IMPORTANT NOTE

An MXL panel cannot have a NET-7/7M in the system and use the MNET Port (TB1) on the MMB-3.

### Real Time Clock

The second jumper on the MMB-3 is P17 which must be set for the real time clock to operate properly.

- Move the jumper to the *on* position (position 2 and 3) to provide backup battery power to the real time clock.

### Internal Wiring

To complete the MMB-3 internal wiring connections, follow the steps below, skipping those that do not apply to your MXL System.

#### 1. Main Power Connections

Primary power for the MMB-3 is provided by the MPS-6 or MPS-12. Both of these mount in the lower right-hand corner of the MXL enclosure. Follow the instructions below for the appropriate power supply.

**MPS-6** — Install the MPS-6 (See MPS-6 Instructions, P/N 315-090334). With the AC mains disconnected, connect the MPS-6 power cable to P1 of the MMB-3. **Be sure that the jumper assembly is installed in P14 of the MMB-3. If this jumper is not installed, the MMB-3 will detect a permanent AC fail or indicate auxiliary power voltage is low.**

**MPS-12** — Install the MPS-12 (See MPS-12 Instructions, P/N 315-092030). Remove and discard the jumper assembly installed in P14 of the MMB-3. Disconnect the AC mains. Connect the MPS-12 power cable to P14 of MMB-3.

#### 2. Battery Power Connection

The MMB-3 kit includes a battery cable (wiring harness). Use the harness to connect the 24V backup batteries to P2 of MMB-3.

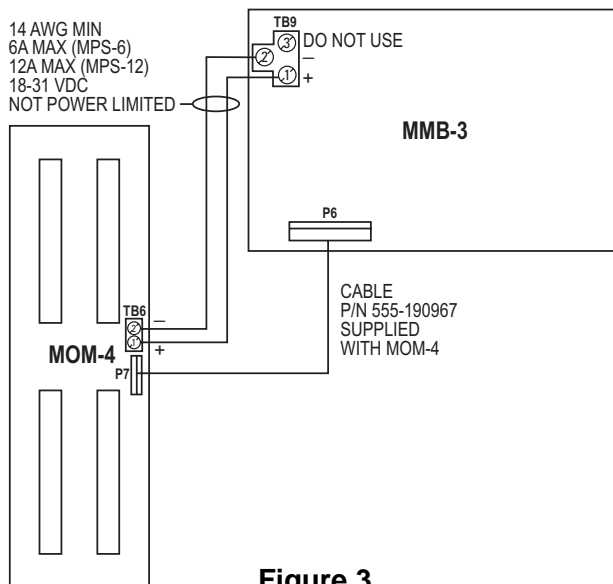
#### 3. MOM-4 Optional Module Card Cage

There are two connections between the MMB-3 and the MOM-4 board.

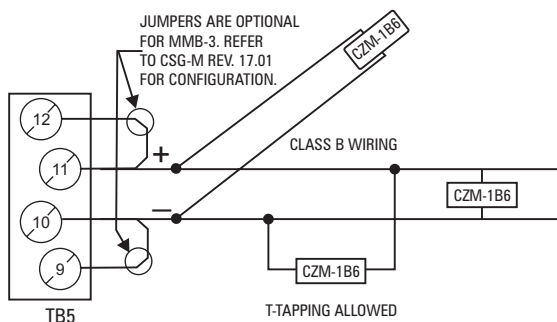
- a. The first is the 24V power connection. P3 provides backward compatibility with the MMB-1 and should only be used when replacing an MMB-1. P3 is limited to 2 amps. The MMB-3 allows the use of either

an MPS-6 or an MPS-12. TB9 terminals 1 and 2 supply 24V to the MOM-4 with a maximum of 6 amps (MPS-6) or 12 amps (MPS-12) available. This output must be derated by the total current drawn from NAC1 (1.5A max), NAC2 (1.5A max) and the CZM-1/-1B6, power (1A max) on the MMB-3. Connect TB9, 1 and 2 on the MMB-3 to TB6, 1 and 2 on the MOM 4. Refer to Figure 3 for the wiring diagram.

- b. The second connection provides 5V power and the communication interface. Connect the 8-wire ribbon cable from P7 on the MOM-4 to P6 on the MMB-3.



**Figure 3**  
**MOM-4 24V Connection**



**Figure 4**  
**CZM-1B6 Supervised Auxiliary Power – Class B Wiring**

## Field Wiring (Refer to Figure 2)

The screw terminals for the field wiring circuits are located on the left, right and bottom edges of the MMB-3. They are labeled TB1 through TB9.

The field wiring circuits available are:

- CZM-1/-1B6 power
- Analog device loop 1
- Analog device loop 2
- Notification appliance circuit 1 (Styles Y and Z)
- Notification appliance circuit 2 (Styles Y and Z)
- Common alarm relay
- Common supervisory relay
- Common trouble relay
- Style 4 RS-485 Network (MNET)

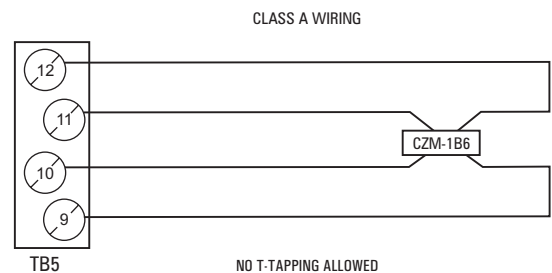
The following sections describe each circuit type and give the related instructions. Refer also to the wiring diagrams.

## Auxiliary 24V Power

Auxiliary power is available on TB5, terminals 9 through 12. The circuit is power limited per NEC Article 760 and is rated at 1 amp, 18-31 VDC.

This power supply is for use with the CZM-1/-1B6 Remote Conventional Zone module. Figure 4 shows Class B wiring; Figure 5 shows Class A wiring. The jumpers shown in Figure 4 are optional. They are not required if the proper settings are made in CSG-M Rev. 17.01 or higher.

Class B wiring can be used to obtain the maximum of 20 CZM-1B6s. Each Class B wire run can support a maximum of 10 CZM-1B6s, 4 ohms max. Multiple Class B power connections can be used provided you do not exceed the rating above (20 CZM-1B6s max and 4 ohms per run max). For example, you could have four individual Class B power runs, for a total of 20 devices (6, 4, 3, and 7 CZM-1B6s), each of the four runs not exceeding 4 ohms resistance.



**Figure 5**  
**CZM-1B6 Supervised Auxiliary Power – Class A Wiring**

## Analog Device Loops 1 and 2 (TB2 and TB3)

These two ALD-2I loops each support up to 60 analog type devices.

To install a device for Class B, refer to Figure 6 and the electrical specifications.

To install a device for Class A, refer to Figure 6 and the electrical specifications.

### Electrical Specifications for the Analog Device Loops

- Electrical ratings:  
SUPERVISORY: 30 VDC peak, 30mA max  
ALARM: 30 VDC peak, 30mA max  
(60 devices in alarm)
- All wiring must be in accordance with Article 760 of NEC or the local building codes. Refer to Figure 6.
- Only the list of devices in Table 1 may be used. A maximum of 60 devices may be connected to a single loop.
- No end of line device is required.
- Both circuits are power limited per NFPA 70, NEC. Each detector, or group of detectors, requires a two-wire circuit of 18 AWG minimum. For additional wiring information, refer to the Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772.
- Total circuit resistance must not exceed 100 ohms.  
Maximum capacitance:  
0.4 $\mu$ F line to line  
0.8 $\mu$ F line to ground
- T-tapping is NOT allowed on Class A loops.
- The jumpers shown in Figure 6 for Class B wiring are optional. They are not required if the

TABLE 1  
COMPATIBLE DEVICES

Compatible Devices	Base	Installation Instructions
CZM-1	—	P/N 315-090725-8
CZM-1B6	—	P/N 315-095355-6
FP-11/FPT-11*	DB-3S with DB-ADPT DB-11	P/N 315-095921-8 P/N 315-095921-8
ID-60I/60IH	DB-3S, DB-X3RS	P/N 315-090287-2
ID-60IA/60IAH	DB-3S, DB-X3RS	P/N 315-090287-2
ID-60IB/60IBH	AD-3I AD-3XRI	P/N 315-093234-6 P/N 315-093235-5
ILI-1/1H	DB-3S, DB-X3RS	P/N 315-095387-4
ILI-1A/1AH	DB-3S, DB-X3RS	P/N 315-095387-4
ILI-1B/1BH	AD-3I AD-3XRI	P/N 315-093234-6 P/N 315-093235-5
ILP-1/ILPT-1	DB-3S, DB-X3RS	P/N 315-092594-8
ILP-1(d)	AD-3ILP AD-3XRILP	P/N 315-093234-6 P/N 315-093235-5
ILP-2**	DB-3S, DB-X3RS	P/N 315-095028-5
ILP-2**(d)†	AD-3ILP AD-3XRILP	P/N 315-093234-6 P/N 315-093235-5
ILT-1	DB-3S	P/N 315-093336-1
MSI-10/20	—	P/N 315-090903-3
MSI-10B/20B	—	P/N 315-093329-7
MSI-B6F	—	P/N 315-095302-5
MSI-MB6	—	P/N 315-093613-1
TRI-B6/B6D/B6R	—	P/N 315-093315-3
TRI-B6M	—	P/N 315-094547-3
TRI-MMS	—	P/N 315-699547-1
TRI-MTD	—	P/N 315-699548-1
TRI-S/D/R	—	P/N 315-096242-5

\* The FP/FPT-11 is only compatible with MXL/MXLV Rev. 10.0 or greater firmware.

\*\*The ILP-2 is only compatible with MXL/MXLV Rev. 8.0 or greater firmware.

† When the CSG-M is configured, the DUCT application must be selected when the device is used in an air duct housing or in a spot duct application.

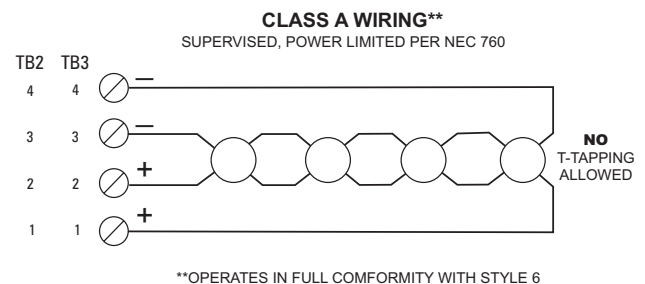
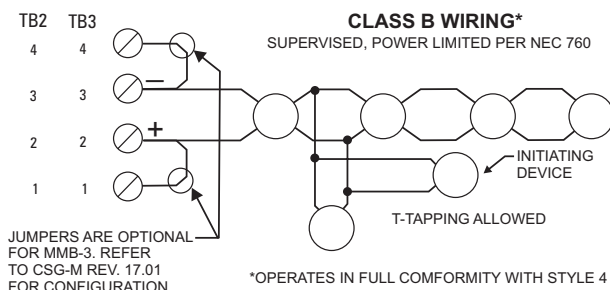


Figure 6  
Wiring the ALD-2I Analog Loops

## Notification Appliance Circuits (TB7, 1-4 and TB6, 5-8) (Refer to Figure 7)

1. These circuits are for notification appliances only, NFPA 72 Local. For NFPA 72 Municipal Tie or NFPA 72 Leased Line, use the Model CSM-4.
2. All wiring must be in accordance with Article 760 of NEC or local building codes.
3. Both notification appliance circuits are power limited to NFPA 70 and NEC.
4. Electrical ratings:  
Supervisory: 18 to 31 VDC, 12mA max  
Alarm: 18 to 31 VDC, 1.5A max
5. Resistor end of line assembly:  
P/N 140-049098
6. Line Resistance:  
Must not exceed 3 ohms max
7. For a list of Compatible Notification Appliances, refer to P/N 315-096363.
8. The jumpers for Class B NAC circuits can be removed if the resistor assembly is placed on terminals 1 and 4 and/or 5 and 8.

### Common Alarm Relay

The common alarm relay changes state whenever a fire alarm is detected. The relay is rated 2A, 30 VDC/120 VAC resistive. See Figure 8 for the wiring connections. Use only with power limited/Class 2 circuits.

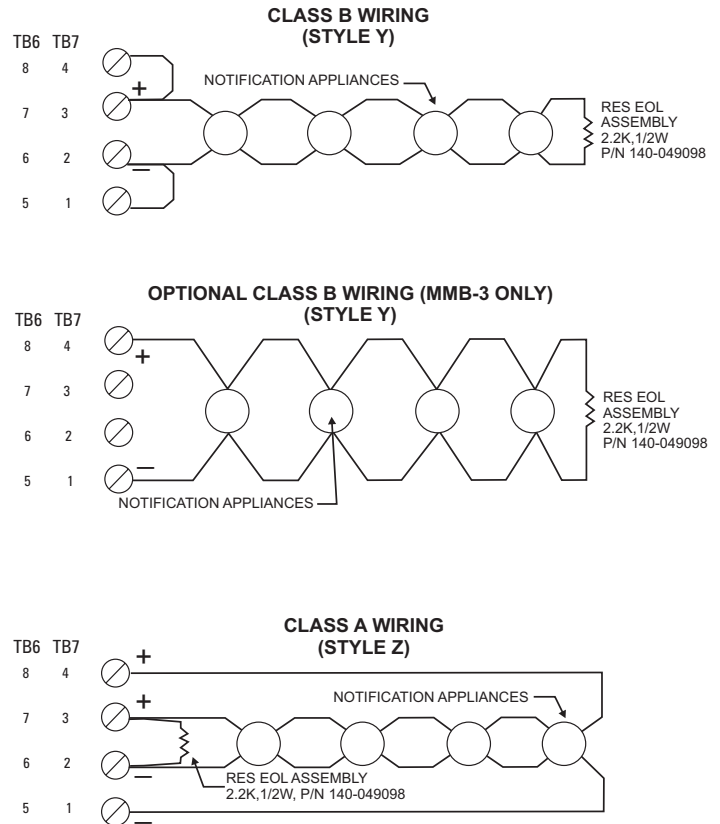
### Common Supervisory Relay

The supervisory relay changes state whenever a supervisory trouble is detected. It may be used for alternate functions if programmed by CSG-M for them. The relay is rated 2A, 30 VDC/120 VAC resistive. Refer to Figure 8 for wiring connections. Use only with power limited/Class 2 circuits.

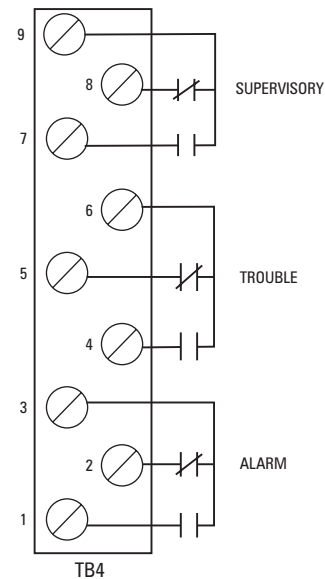
### Common Trouble Relay

The trouble relay changes state whenever a System trouble is detected. The relay is rated for 2A, 30 VDC/120 VAC resistive. Refer to Figure 8 for the wiring connections. Use only with power limited/Class 2 circuits.

NOTE: This relay is normally energized.



**Figure 7**  
**Wiring Notification Appliance Circuits**  
**(Polarity Shown In Supervisory)**



**RATINGS**  
2A, 30 VDC/120 VAC RESISTIVE  
CONTACTS ARE SHOWN IN NORMAL STATE

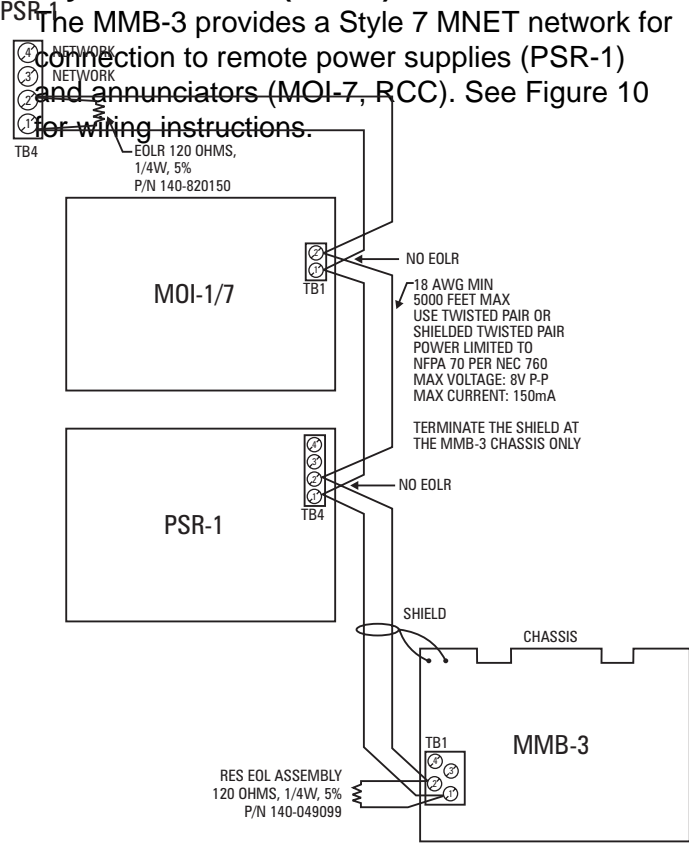
**Figure 8**  
**MMB-3 Relay Connections**

**Style 4 Network (MNET)**

The MMB-3 provides a Style 4 MNET network for connection to remote power supplies (PSR-1) and annunciators (MOI-1/7, RCC). See Figure 9 for wiring instructions.

**Style 7 Network (MNET)**

The MMB-3 provides a Style 7 MNET network for connection to remote power supplies (PSR-1) and annunciators (MOI-7, RCC). See Figure 10 for wiring instructions.



**Figure 9**  
**Style 4 Network (MNET)**

**FUSE REPLACEMENT IN THE MXL SYSTEM**

FUSE RATINGS		
F1	MPS-6 Input	8A, 3 AG, Normal Blow
F2	Battery Reversal	20A, 3 AG, Normal Blow
F3	CZM-1B6 Power	2A, 3 AG, Normal Blow
F4	24V Output (TB9, terminals 1 and 2)	15A, 3 AG, Normal Blow
F5	5V Aux	0.75A, 3 AG, Normal Blow
F6	Battery Charger	5A, 3 AG Normal Blow

For additional wiring information, refer to the Wiring Specification for MXL, MXL-IQ and MXLV Systems, P/N 315-092772.

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