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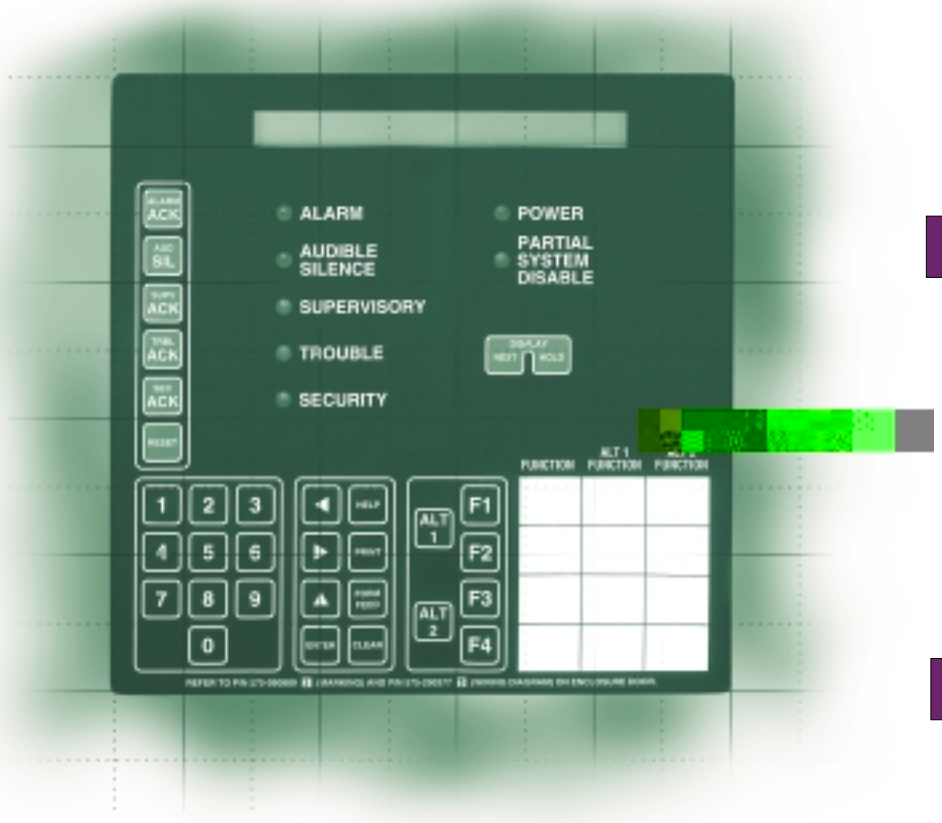
SIEMENS

Cerberus Division

Version 1.0

Table of Contents

This CD-Rom contains
the information necessary to
install, operate and maintain
the Siemens, Cerberus Division
MXL/MXLV and MXL-IQ
Fire Protection Control Panels



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MXL/MXLV Control Panel
P/N 315-092036CD-8

Personalize/ Printout Cover

MXL-IQ Control Panel
P/N 315-093624CD-9

Personalize/ Printout Cover

Navigation

There are three ways to navigate:
1) Use the left hand index column (which appears as you proceed)
2) Use the green buttons above to get to the corresponding manual
3) Use the arrows in the menu bar above

There are 2 ways to enlarge or reduce:
1) Use the magnifying glass in the menu bar above
2) Use the three different page views in the menu bar.

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CERBERUS PYROTRONICS™

MXL-IQ CONTROL PANEL

Operation, Installation, and Maintenance Manual

Siemens Building Technologies, Inc.
8 Fernwood Road
Florham Park, New Jersey 07932

Siemens Building Technologies, Ltd.
50 East Pearce Street
Richmond Hill, Ontario L4B 1B7 CN

P/N 315-093624CD-9

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Conduit ground is NOT adequate.

For additional wiring information, refer to this manual or call Siemens Building Technologies, Inc. Technical Support Department at 1-800-248-7976.

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The **CERBERUS PYROTRONICS™** MXL-IQ Control Panel is an advanced fire protection and alarm control panel that provides superior fire protection and multiplexed alarm reporting.

The MXL-IQ Control Panel can monitor up to 4 analog loops, each containing up to 60 **CERBERUS PYROTRONICS™** intelligent devices.

The MXL-IQ Control Panel can control a wide variety of System outputs, such as:

- Conventional Form C relay contacts
- Solid State outputs
- Supervised outputs to control Alarm Notification Appliances
- Municipal Tie outputs
- Leased Line outputs

The MXL-IQ Control Panel can process logical decisions based on the status of initiating devices. The System can respond with customer-specified sequences of output circuit operation.

The System continuously checks all software and hardware for proper operation. It continuously checks all System memory components, control panel electronic hardware, and the System program. A hardwire watchdog circuit is provided to ensure that System programs are functioning properly. If a problem develops with the program or processor, the watchdog circuit places the System into a trouble condition and resets it.

To ensure reliable operation, the MXL-IQ System is composed of independent modules, each with its own microprocessor. If the main panel's central processing unit stops, these modules, operating in default, still annunciate any alarm or trouble through common lines called *Any Alarm* and *Any Trouble.* All of the modules communicate with the MXL-IQ Panel through a serial communications System.

All modules are continuously supervised for their presence and for proper operation. Problems are shown on the display to aid in servicing and t0011 Teaution

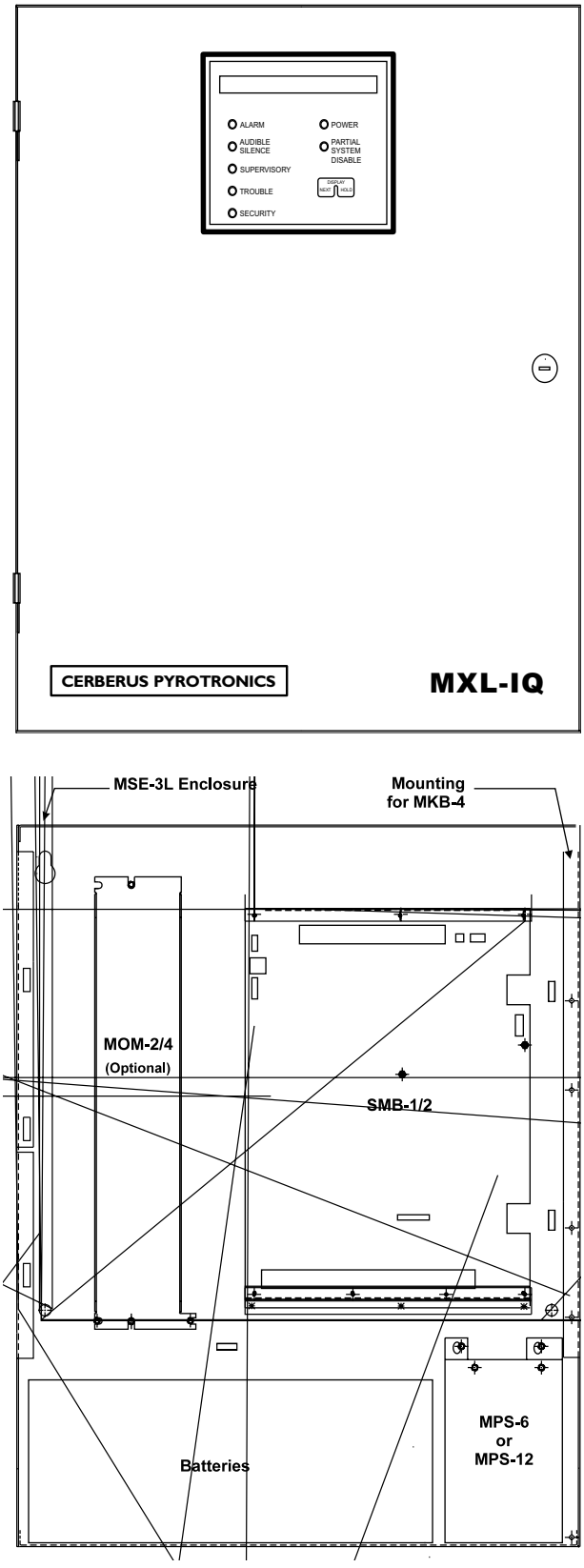


Figure 1
The MXL-IQ Control Panel

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When the MXL-IQ Control Panel receives power, the System runs a start-up procedure that sets up all initial conditions. The System then starts the operating system and the initialization routines for all of the tasks, most of which concern handling System modules. When the display task is finished initializing, it displays the default time and date at power-up. Initialization of other modules may take several seconds, but this takes place in the background and so does not affect System operation.

The MXL-IQ System polls all network addresses to see that all specified modules are present and that there are no unspecified modules. Any modules or devices that do not agree with the programmed data are reported as troubles on the annunciator.

Minimum MXL-IQ Control Panel Configuration To Meet NFPA 72 Local, Municipal Tie, Remote Station, Proprietary, And Central Station, UL 1076, And NFPA 12A, 13, And 2001

Table 1 presents the minimum configuration necessary to meet NFPA 72 Local, Municipal Tie, Remote Station, Proprietary, and Central Station, UL 1076, and NFPA 12A, NFPA 13 and NFPA 2001.

		NFPA Minimum Quantity						
Module	Description	72 Local	72 Auxiliary	72 Remote Station	72 Proprietary	72 Central Station(a)	UL 1076(b,d)	12A, 13, or 2001
SMB-2(c)	MXL-IQ Main Unit	1*	1	1*	1	1*	1	1
MPS-6/12	Power Supply	1	1	1	1	1	1	1
MKB-4	Keyboard/Annunciator Panel	1	1	1	1	1	1	1
MOM-2	Optional Module Card Cage	X	1	1	X	X	X	1
MOM-4	Optional Module Card Cage	X	1	1	X	X	X	1
CSM-4	Signal Module	X	1	1 or 2**	X	X	X	1(h)
CZM-4	Conventional Zone Module	***	***	***	***	***	X	***
ALD-2I	Analog Loop Driver	***	***	***	***	***	****	***
CZM-1B6	Remote Conventional Zone Module	***	***	***	***	***	X	***
----------	Batteries(e,f)	1(e)	1(e)	1(e)	1(e)	1	1(d)	1(e)
TSW-2	Tamper Switch	X	X	X	X	X	1(d)	X
PIM-1	Peripheral Interface Module	X	X	X	1	X	1	X
PIM-2	Peripheral Interface Module	X	X	X	1	X	1	X
PAL-1	Logging Printer	X	X	X	1	X	1	X
NET-7	Communication Interface	X	X	X	X	X	X	X
MOI-7	Voice and Annunciator Driver	X	X	X	X	X	X	X
MOD-16	Output Driver	X	X	X	X	X	X	X
MID-16	Input Module	X	X	X	X	X	X	X
CRM-4	Relay Module	X	X	X	X	X	X	X
CMI-300	MXL/CXL Interface	X	X	X	X	X	X	X

X = not required

* [illegible]

** [illegible]

[illegible]

[illegible]

NOTES:

a. See pages 7-33 to 7-34 for NFPA 72 Central Station.
b. Refer to the [illegible] P/N 575-293638 at the end of the manual.
c. The SMB-2 must be programmed by CSG-M for all System configurations (See CSG-M Programming Manual, P/N 315-090381).
d. UL 1076 requires a Model TSW-2 tamper switch and a PAL-1 printer.
e. The batteries available are: BP-61, BTX-1, and BTX-2. The BP-61 is a module consisting of four 6V, 15 AH batteries. The BTX-1 batteries are a pair of 12V, 31 AH batteries. The BTX-2 batteries are a pair of 12V, 55 AH batteries. Actual battery size depends on System configuration.
f. See Appendix C for Battery Calculations.
g. The CMI-300 is not listed for UL 1076 application.
h. Refer to the [illegible] (P/N 315-090854) for programming.

TABLE 1
Minimum MXL-IQ Configuration to Meet NFPA 72 Local, Auxiliary, Remote Station, Proprietary, and Central Station Connections, UL 1076, and NFPA 12A, NFPA 13, and NFPA 2001

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Components Of The Basic System

The basic MXL-IQ Control Panel consists of the following components:

- SMB-2 Main Board
- MPS-6 or MPS-12 Power Supply
- MKB-4 Keyboard/Annunciator
- PAL-1 Logging Printer (NFPA Proprietary and UL 1076 configurations)
- PIM-1 Peripheral Interface Module (NFPA Proprietary and UL 1076 configurations)
- PIM-2 Peripheral Interface Module (NFPA Proprietary and UL 1076 configurations)
- MSE-3L Enclosure
- TSW-2 Tamper Switch (UL 1076 configuration only)
- BP-61, BTX-1, or BTX-2 Batteries

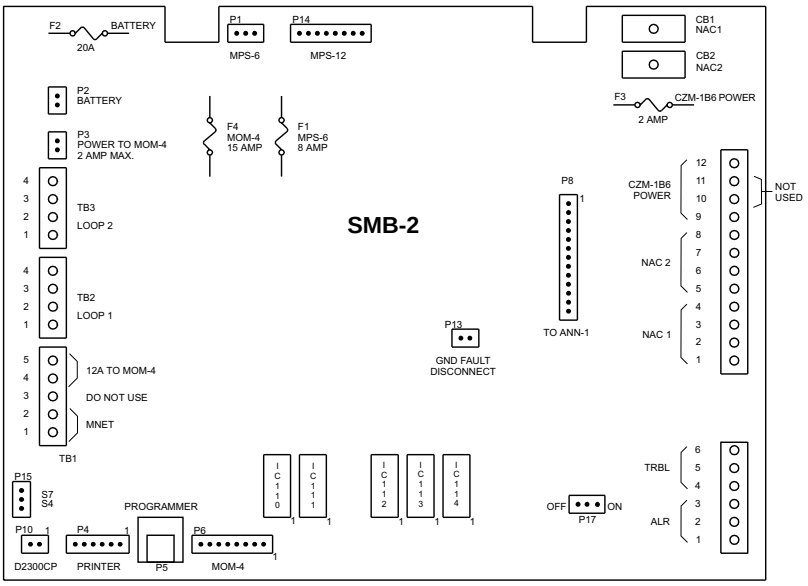


Figure 2
SMB-2 Main Board

SMB-2 Main Board

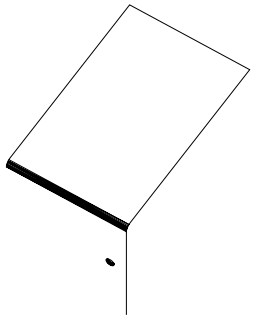
The SMB-2 Main Board contains:

- 16-bit central processing unit (CPU)
- System read-only memories (EPROMs)
- System random-access memory (RAM)
- FLASH memory for CSG-M
- Watchdog circuitry
- Network interface circuitry
- Battery charger
- 24V regulator
- AC transfer relay
- CZM-1B6 auxiliary power
- 24 VDC unregulated supply
- Two analog loops (initiating/control)
- Two notification appliance circuits (audible circuits)
- Two dry-contact relays (Form C)

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MPS-6 Power Supply

The MPS-6 is a supervised power supply that converts 120 VAC, 60 Hz to unregulated 24 VDC at 6A.



MPS-12 Power Supply

The MPS-12 is a high current power supply that provides the MXL-IQ System with primary 24 VDC power. It is rated at 12 amps and is unfiltered and unregulated. The MPS-12 supplies the SMB-2 with the power required for normal operation. The module incorporates a 5 amp resettable circuit breaker on the primary input, a 15 amp fuse on the 24V output, and a built-in AC line filter for surge and noise suppression.

MKB-4 Keyboard/Annunciator Panel

The MKB-4 Annunciator communicates with the SMB-2 Main Control Board through the System network link. This module provides the MXL-IQ with its primary control and annunciation.

The MKB-4 module has an 80-character, backlit LCD alphanumeric display that continuously updates information about the System status and user-defined device messages. If there are multiple alarms, and/or troubles, including supervisories and security conditions, the MKB-4 displays the highest priority event that occurred. The user can see additional alarm and trouble data by pressing the **NEXT** key. Press the **HOLD** key at any time to stop the display from scrolling.

The Control Panel contains the following indicators:

- Alarm
- Power
- Audible Silence
- Partial System Disable
- Supervisory
- Trouble
- Security

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PIM-1 Peripheral Interface Module

The PIM-1 module is an interface for an MXL-IQ System to remote peripheral devices such as printers. It connects an RS-232C device to an MXL-IQ System without the peripheral device's protective ground causing a ground fault. The interface operates at up to 9600 baud without losing any characters.

PIM-2 Peripheral Interface Module

The PIM-2 module is an interface that allows the connection of UL listed EDP Centronics parallel printers to the MXL-IQ System. It converts the RS-232C (serial) printer output to a Centronics parallel interface. When used with the PAL-1, the PIM-2 provides a supervised parallel printer (NFPA 72 Proprietary or UL 1076) for the MXL-IQ System. However, this configuration is not supervised for data integrity.

PAL-1

The PAL-1 Logging Printer provides a paper record of the activity of the MXL-IQ System.

TSW-2 Tamper Switch

The TSW-2 Tamper Switch is a 3-position switch that monitors the opening of the MXL-IQ enclosure and reports a security alarm. Closing the door automatically returns the switch to its normal operating position. The switch can be pulled out to indicate a closed position for maintenance purposes.

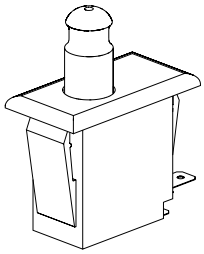
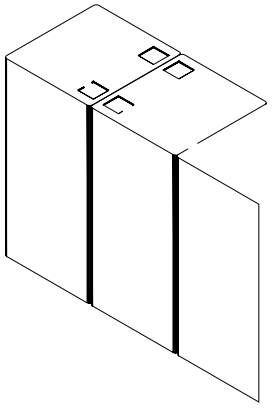


Figure 7
TSW-2 Tamper Switch



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MOM-2 Card Cage

The MOM-2 Card Cage contains 2 slots for optional module cards; it can handle 2 half-width cards or 1 full-width card. The MOM-2 provides 2 power-connector receptacles and 2 data-connector receptacles. A 24 VDC cable that provides the main power used by the optional modules, and an 8-wire ribbon cable for connection of 5 VDC and data, are provided with the MOM-2 installation kit.

MOM-4 Card Cage

The MOM-4 Card Cage contains 4 slots for optional module cards; it can handle 4 half-width cards or 2 full-width cards. The MOM-4 provides 2 power-connector receptacles and 2 data-connector receptacles. A 24 VDC cable that provides the main power used by the optional modules, and an 8-wire ribbon cable for connection of 5 VDC and data, are provided with the MOM-4 installation kit.



CSM-4 Signal Module

The CSM-4 Signal module controls 2 supervised notification appliance circuits. Each circuit is capable of either Style Z (Class A) or Style Y (Class B) operation. Each circuit can be individually configured for notification appliances, municipal tie, leased line, or releasing service per NFPA 12A, NFPA 13, and NFPA 2001.

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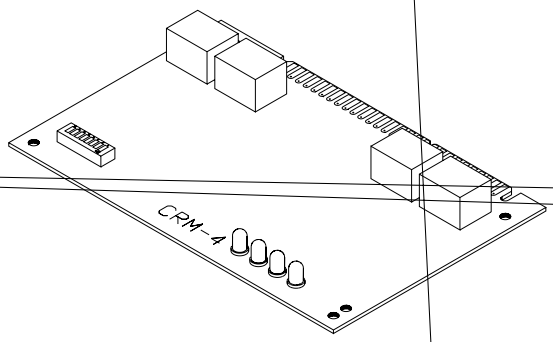
CMI-300 Interface Module

The CMI-300 provides modem communications between an MXL-IQ System and a CXL System. The CMI-300 module is located on the MOM-2/4 board in the MXL-IQ enclosure. The CMI-300 plugs into a half slot in the MOM-2/4. It translates signals from the MXL-IQ communication lines of the SMB-2 to CXL modem signals. This signal is then transmitted along suitable cable to the CXM-1 module in the CXL enclosure.

CRM-4 Relay Module

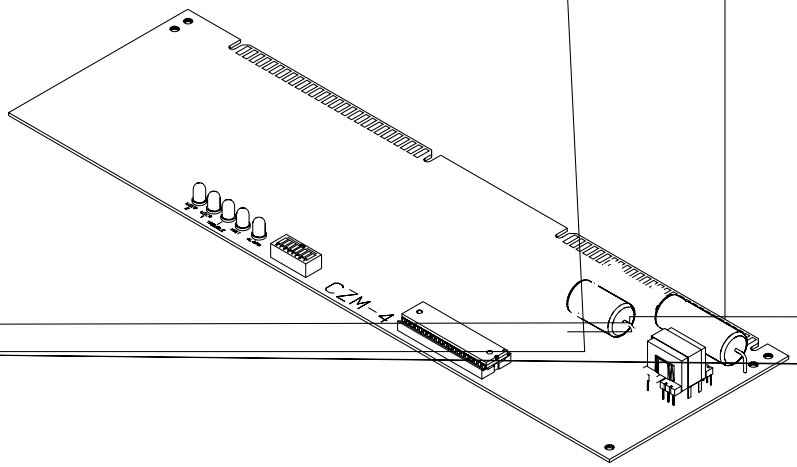
The CRM-4 Relay module is an output control module that contains 4 relay outputs. Form C contacts are rated at 2A, 30 VDC/120 VAC resistive.

The CRM-4 has 4 LEDs. Two of the LEDs are user programmable.



CZM-4 Conventional Zone Module

The CZM-4 Conventional Zone module provides four initiating device circuits capable of Style D (Class A) or Style B (Class B) operation. Each zone has its own address. You can use CSG-M to write a custom message for each zone (See *CSGM Programming Manual,* P/N 315-090381).



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ALD-2I Analog Loop Driver

The ALD-2I Analog Loop Driver provides two initiating device circuits capable of Class A or Class B operation for monitoring analog devices. Each loop is capable of monitoring up to 60 analog devices. Each device has its own address. You can use CSG-M to write a custom message for each device (See *CSG-M Programming Manual,* P/N 315-090381).

MOI-7 Voice and Annunciator Driver

The MOI-7 module is an MXL-IQ network module that connects to a graphic annunciator using MOD-16s or MID-16s.

The MOI-7 has two LEDs to indicate the status of the MXL-IQ network interface:

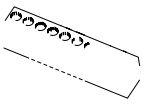
- the TRANSMIT LED blinks when the MXL-IQ/MOI-7 communication is working
- the TROUBLE LED goes to steady when MOI cannot communicate

MOD-16 Output Driver

The MOD-16 Output Driver module is an annunciator driver controlled by the MOI-7 module. Up to 8 MOD-16s can be used with an MOI-7. Each MOD-16 can activate up to 16 outputs for a total of 128 outputs.

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MID-16 Input Driver



The MID-16 module provides 16 general purpose inputs for user-defined operations for the MXL-IQ.

The MID-16 is controlled by the MOI-7 module. Up to 8 MID-16s can be used with an MOI-7. The function of each individual input is defined by the use assigned to it in CSG-M.

NIM-1R Network Interface Module

The NIM-1R provides a communication path for the following uses:

- as an MXL-IQ networking interface
- as a connection to Foreign Systems
- as a connection to AnaLASER detectors

When used as a networking interface the NIM-1R supports the connection of up to 63 MXL-IQ Systems. This network also supports a Network Command Center (NCC) that monitors all the MXL-IQs in the networked group.

Output logic between MXL-IQ panels is made using CSG-M programming. CSG-M versions 6.01 and higher include options for networked MXL-IQ systems. Each MXL-IQ System is assigned a panel number. This panel number allows interactive programming between panels using CSG-M.

The NIM-1R supports Style 4/7 connection. In the event of an NIM-1R communication failure, each MXL-IQ System continues to operate as a stand-alone panel.

The NIM-1R can also be configured as an RS-232 or RS-485 two-wire interface to foreign systems. This operation is called FSI (Foreign System Interface). The FSI responds to a protocol and gathers information about the MXL-IQ status. The interface supports both single MXL-IQ Systems and networked systems. Typical use of this interface is between the MXL-IQ and building management systems.

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The intelligent/analog devices described below are available for use with the MXL-IQ Control Panel (SMB-2).

The UL identifiers for compatibility are the same as the model names specified below.

INTELLIGENT/ ANALOG DEVICES

FP-11 Intelligent/Analog Photoelectric Detector

The FP-11 is an intelligent/analog photoelectric detector that can be used as an area or duct detector [FP-11(d)]. It uses either a DB-11 low profile mounting base or DB-3S mounting base with the DB-ADPT adapter, a DB-X11RS mounting base with relay or DB-X3RS mounting base with relay with the DB-ADPT adapter, an ADBI-60 audible base with the DB-ADPT adapter, or an AD-11P or AD-11XPR air duct housing. The FP-11 requires MXL-IQ Rev. 6.0 or higher firmware.

FPT-11 Intelligent Thermal Detector

The FPT-11 is an intelligent/analog rate-compensated/fixed-temperature type thermal and photoelectric detector. It can only be used as an area detector. It uses either a DB-11 low profile mounting base or DB-3S mounting base with the DB-ADPT adapter, a DB-X11RS mounting base with relay or DB-X3RS mounting base with relay with the DB-ADPT adapter, or an ADBI-60 audible base with the DB-ADPT adapter. The FPT-11 requires MXL-IQ Rev. 6.0 or higher firmware.

ICP Intelligent Control Point

The ICP is an intelligent control point that can be used as an independent, remotely located notification appliance circuit (NAC). It communicates through the analog loop of the MXL-IQ System.

ICP-B6 Intelligent Control Point

The ICP-B6 is an intelligent control point that can be used as an independent, remotely located notification appliance circuit (NAC). It communicates through the analog loop of the MXL-IQ System.

ID-60P Intelligent/Analog Photoelectric Detector

The ID-60P is an intelligent/analog photoelectric detector that can be used as an area or duct detector [ID-6OP(d)]. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, an AD-3P duct housing, or an ADBI-60 audible base.

ID-60PT Intelligent/Analog Photoelectric Detector with Heat Sensor

The ID-60PT is an intelligent/analog rate-compensated/fixed-temperature type thermal and photoelectric detector. It can only be used as an area detector. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ID-60I Intelligent/Analog Ionization Detector

The ID-60I is an intelligent/analog ionization detector for use in open areas at altitudes of 0 to 4000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ID-60IH Intelligent/Analog Ionization High Altitude Detector

The ID-60IH is an intelligent/analog ionization detector for use in open areas at altitudes of 3000 to 8000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ID-60IA Intelligent/Analog Ionization High Air-Velocity Detector

The ID-60IA is an intelligent/analog ionization high air-velocity detector for use in open areas, computer facilities, and air ducts at altitudes of 0 to 4000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ID-60IAH Intelligent/Analog Ionization High Air-Velocity, High Altitude Detector

The ID-60IAH is an intelligent/analog ionization high air-velocity, high altitude detector for use in open areas, computer facilities, and air ducts at altitudes of 3000 to 8000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

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ID-60IB Intelligent/Analog Ionization Air-Duct Detector

The ID-60IB is an intelligent/analog ionization detector for use in air duct applications at altitudes of 0 to 4000 feet. It uses either the AD-3I housing or the AD-3XRI housing.

ID-60IBH Intelligent/Analog Ionization Air-Duct High Altitude Detector

The ID-60IBH is an intelligent/analog ionization detector for use in air duct applications at altitudes of 3000 to 8000 feet. It uses either the AD-3I housing or the AD-3XRI housing.

ILI-1 Intelligent/Analog Ionization Detector

The ILI-1 is an intelligent/analog ionization detector for use in open areas at altitudes of 0 to 4000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ILI-1H Intelligent/Analog Ionization High Altitude Detector

The ILI-1H is an intelligent/analog ionization detector for use in open areas at altitudes of 3000 to 8000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ILI-1A Intelligent/Analog Ionization High Air-Velocity Detector

The ILI-1A is an intelligent/analog ionization high air-velocity detector for use in open areas, computer facilities, and air ducts at altitudes of 0 to 4000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ILI-1AH Intelligent/Analog Ionization High Air-Velocity, High Altitude Detector

The ILI-1AH is an intelligent/analog ionization high air-velocity, high altitude detector for use in open areas, computer facilities, and air ducts at altitudes of 3000 to 8000 feet. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, or an ADBI-60 audible base.

ILI-1B Intelligent/Analog Ionization Air-Duct Detector

The ILI-1B is an intelligent/analog ionization detector for use in air duct applications at altitudes of 0 to 4000 feet. It uses either the AD-3I housing or the AD-3XRI housing.

ILI-1BH Intelligent/Analog Ionization Air-Duct High Altitude Detector

The ILI-1BH is an intelligent/analog ionization detector for use in air duct applications at altitudes of 3000 to 8000 feet. It uses either the AD-3I housing or the AD-3XRI housing.

ILP-1 Intelligent/Analog Photoelectric Detector

The ILP-1 is an intelligent/analog photoelectric detector that can be used as an area or duct detector [ILP-1(d)]. It uses either a DB-3S low profile mounting base, a DB-X3RS mounting base with relay, an AD-3ILP or AD-3XRILP duct housing, or an ADBI-60 audible base.

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LIM-1 Loop Isolator Module

The LIM-1 is a loop isolator module that isolates short circuits on MXL-IQ analog loops. The LIM-1 operates in both Class A and Class B circuits.

MSI-10/20 Intelligent Manual Station

The MSI-10/20 is an intelligent manual station designed to interface with an analog loop. The MSI can be flush mounted or surface mounted using the SB-5R mounting box.

MSI-10B/20B Intelligent Manual Station

The MSI-10B/20B is an intelligent manual station designed to interface with an analog loop. The MSI-10B/20B can be flush mounted or surface mounted using the SB-5R mounting box.

MSI-B6F Intelligent Manual Station

The MSI-B6F is an intelligent manual station designed to interface with an analog loop. The MSI-B6F is a single-action station; when used with the MS-FD adapter, the MSI-B6F is a double-action station. The MSI-B6F can be flush mounted or surface mounted using the MS-FB backbox.

MSI-MB6 Intelligent Manual Station

The MSI-MB6 is an intelligent manual station designed to interface with an analog loop. The MSI-MB6 is a single-action station; when used with the MS-DA plate, the MSI-MB6 is a double-action station. The MSI-MB6 can be flush mounted or surface mounted using the MS-SB backbox.

MS-MI Intelligent Manual Station

The MS-MI is an intelligent manual station designed to interface with an analog loop. The MS-MI is a single-action station; when used with the MS-DA plate, the MS-MI is a double-action station. The MS-MI can be flush mounted or surface mounted using the MS-SB backbox.

TRI-60, TRI-60R, and TRI-60D Intelligent Interface Modules

The TRI-60 series modules are intelligent interface modules that interface direct shorting contact devices with the analog loops. The TRI-60 is a single-input module; the TRI-60R is a single-input module with an independently controllable Form C relay; the TRI-60D is a dual-input module.

TRI-B6, TRI-B6R, and TRI-B6D Intelligent Interface Modules

The TRI-B6 series modules are intelligent interface modules that interface direct shorting contact devices with the analog loops. The TRI-B6 is a single-input module; the TRI-B6R is a single-input module with an independently controllable Form C relay; the TRI-B6D is a dual-input module.

TRI-B6M Addressable Interface Module

The TRI-B6M addressable interface module interfaces direct shorting contact devices with the analog loops. The TRI-B6M can monitor a normally open or closed dry contact and it can report the status of the contact

TRI-S, TRI-R, and TRI-D Intelligent Interface Modules

The TRI-S/R/D series modules are intelligent interface modules that interface direct shorting contact devices with the analog loops. The TRI-S is a single-input module; the TRI-R is a single-input module with an independently controllable Form C relay; the TRI-D is a dual-input module.

CZM-1B6 Remote Conventional Zone Module

The CZM-1B6 Remote Conventional Zone Module supports one zone of non-addressable initiating devices in either Style D (Class A) or Style B (Class B) configuration, for a maximum of 15 compatible 2-wire smoke detectors and an unlimited number of shorting devices.

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The conventional devices described below are available for use with the MXL-IQ Control Panel.

The UL identifiers for compatibility are the same as the model numbers.

DI-3 Ionization Detector

The DI-3 is an ionization detector for use in open areas at altitudes of 0 to 4000 feet. It uses the DB-3S low profile surface mounting base.

DI-3H Ionization High Altitude Detector

The DI-3H is an ionization detector for use in open areas at altitudes of 3000 to 8000 feet. It uses the DB-3S low profile surface mounting base.

DI-A3 Ionization High Air-Velocity Detector

The DI-A3 is an ionization high air velocity detector for use in open areas, computer facilities, and air ducts at altitudes of 0 to 4000 feet and at air velocities of 0 to 1200 feet per minute. It uses the DB-3S low profile surface mounting base.

DI-A3H Ionization High Air-Velocity, High Altitude Detector

The DI-A3H is an ionization high air velocity, high altitude detector for use in air ducts only at altitudes of 3000 to 8000 feet and at air velocities of 300 to 1200 feet per minute. It uses the DB-3S low profile surface mounting base.

DI-B3 Ionization Air Duct Detector

The DI-B3 is an ionization detector for use only in air ducts at altitudes of 0 to 4000 feet. It must be used with a Series 3 air duct housing (AD-3I or AD-3RI).

DI-B3H Ionization Air Duct High Altitude Detector

The DI-B3H is an ionization detector for use only in air ducts at altitudes of 3000 to 8000 feet. It must be used with a Series 3 air duct housing (AD-3I or AD-3RI).

DT-11 Thermal Detector

The DT-11 is a thermal detector for use in open areas. It uses the DB-11 low profile surface mounting base or the DB-3S mounting base with the DB-ADPT adapter.

PE-3 Photoelectric Detector

The PE-3 is a photoelectric detector that responds to a wide range of both flaming and smoldering fire conditions. It uses either the DB-3S low profile surface mounting base or the AD-3ILP or AD-3XRILP air duct housing.

PE-3T Photoelectric Detector with Heat Sensor

The PE-3T is a photoelectric detector with heat sensor that responds to a wide range of both flaming and smoldering fire conditions. It uses the DB-3S low profile surface mounting base.

PE-11 Photoelectric Detector

The PE-11 is a photoelectric detector that responds to a wide range of both flaming and smoldering fire conditions. It uses the DB-11 low profile surface mounting base, the DB-3S mounting base with the DB-ADPT adapter, or the AD-11P/11PR air duct housing.

PE-11T Photoelectric Detector with Heat Sensor

The PE-11T is a photoelectric detector with heat sensor that responds to a wide range of both flaming and smoldering fire conditions. It uses the DB-11 low profile surface mounting base or the DB-3S mounting base with the DB-ADPT adapter.

PBA-1191 Linear Beam Smoke Detector

The PBA-1191 can detect light or dark smoke buildup at distances between the transmitter (X) and receiver (R) of 17 feet to 280 feet. The PBA-1191 can be used in a variety of areas, including large, narrow, or high rooms, and rooms with high air turbulence. The PBA-1191 requires the PBB-1191 base.

NOTE: Only one PBA-1191, and no additional devices, can be connected to a CZM-4 initiating zone.

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Installation

Remove all system power before installation, first battery and then AC.

This section provides general installation instructions for mounting, wiring, and checkout of the **CERBERUS PYROTRONICS™** MXL-IQ Control System.

Read this section before installing the equipment to ensure proper installation. If you are not familiar with the MXL-IQ, also read the first section of the manual. Be sure to ask Siemens Building Technologies, Inc. Technical Support or an authorized Representative if you have any questions.

Install and use the MXL-IQ System in accordance with the appropriate Local, NFPA, and NEC Code requirements.

! WARNING!

Refer to the last page of the manual for a Warning Note required by the FCC for all commercial Class A computing equipment producing a clock frequency of 10K Hz or greater.

INTRODUCTION

General Guidelines For Installing The MXL-IQ

Always remove power *(battery and AC) and wait at least 10 seconds to allow the supply voltages to decay before installing or removing any module, cable, or wiring.*

NOTE: If available, use a printer during the installation procedure as a debugging tool.

Follow Steps 1 through 13 for installation. Each step is thoroughly explained in the following pages.

1. Install the enclosure (page 2-2).
2. Install the TSW-2 Tamper Switch where required (page 2-2).
3. Pull the field wiring into the backbox and dress it to approximately where it will go (page 2-3).
4. Install the SMB-2 (page 2-3).
5. Install the MPS-6 (page 2-3).
6. Install the MKB-4 (page 2-4).
7. Install the PIM-1, PIM-2, and PAL-1 (If applicable) (page 2-5).
8. Install the MOM-2 or MOM-4 card (page 2-6).
9. Install the MOI-7, MOD-16, and MID-16 (If applicable) (page 2-9).
10. Install Field Wiring (page 2-10).
11. Check Field Wiring (page 2-10).
12. Start-up Procedure (page 2-10).
13. System Function Checkout (page 2-16).

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INSTALLATION INSTRUCTIONS FOR THE MXL-IQ CONTROL PANEL

1. Install the MSE-3L Enclosure

The MSE-3L is the enclosure for the MXL-IQ.

Consider the following when mounting the backbox:

- Mounting height for visual and manual access to the MKB-4 Keyboard/annunciator
- Weight and size of enclosure
- Local Mounting codes

Fasten the backbox securely to a clean, dry, shock-free, and vibration-free surface. Position the backbox clear of obstructions so that the door opens freely and so that the indicators and controls are easily accessible.

NOTE: When the backbox is mounted semi-flush using the MET-3L kit, be sure that the position of the backbox permits the door to swing fully open. (See *MET-3L Installation Instructions,* P/N 315-095447.)

When deadfront construction is required, use the IQ-DFL panel (See *IQ-DFL Installation Instructions,* P/N 315-095446.)

When the MSE-3L is used for remote applications, use the IQ-Blank where there is no MKB-4 installed (See *IQ-Blank Installation Instructions,* P/N 315-095482.)

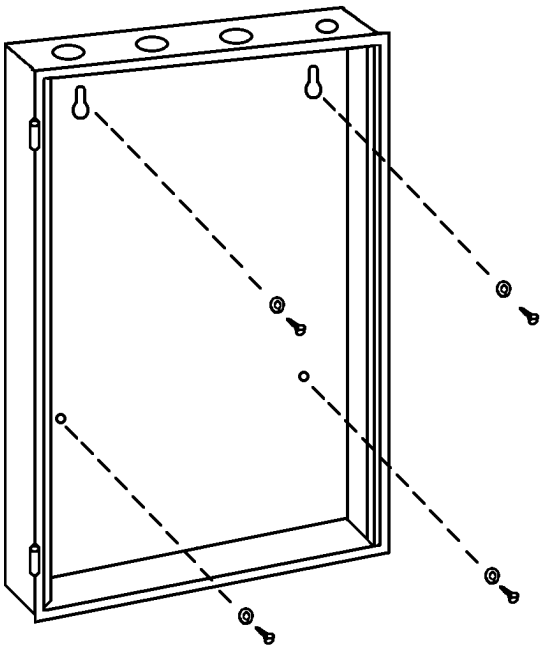


Figure 21
Mounting the MSE-3L Enclosure

(Refer to Figure 21)

a. Slip the door off the hinges of the box and put it to one side temporarily.
b. Remove the knockouts in the backbox where field wiring is required (Refer to *MSE-3L Power Limited Wiring Instructions,* P/N 315-095445, for location of knockouts).
c. Hold the empty enclosure against the wall at a height that provides easy access.
d. Mark drill points on the wall in the center of the two slots on the upper rear of the MSE-3L.
e. Drill the two holes and screw in the top screws, leaving a small gap between the wall and each top screw.
f. Mount the MSE-3L on the 2 bolts and then install the bottom bolts.
g. Slip the door back on the hinges of the enclosure.

2. Install The TSW-2 Tamper Switch

If your configuration (UL 1076) requires the TSW-2 Tamper Switch, install it now.

The TSW-2 mounts into the rectangular slot located in the lower right side of the MKB-4 panel.

1. Place the cable/connector and the switch terminals through the opening and press firmly into place.
2. Plug the cable on the TSW-2 into P9 on the SMB-2 after installing the SMB-2.

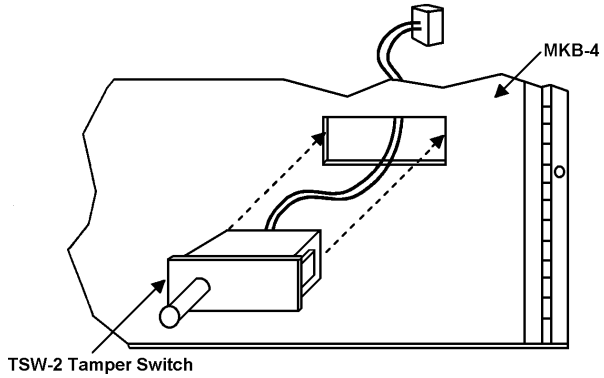


Figure 22
TSW-2 Tamper Switch

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3. Pull All Field Wiring Into The Backbox

Pull all field wiring into the backbox and dress the wiring to the approximate location to which it will go. Refer to the *MSE-3L Power Limited Wiring Instructions,* P/N 315-095445.

4. Install the SMB-2

Unpack the SMB-2. 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 installation kit consists of the following items:

Two #6 nuts
Four #6 screws
Six #6 washers
Six #6 lockwashers
Two resistors
Battery cable with a wire

a. Place the SMB-2 over the two studs in the upper right-hand portion of the backbox (See Figure 23).

b. Secure in place using the hardware provided.

Be sure the screws and nuts are tight, as they provide the earth ground connection for the SMB-2

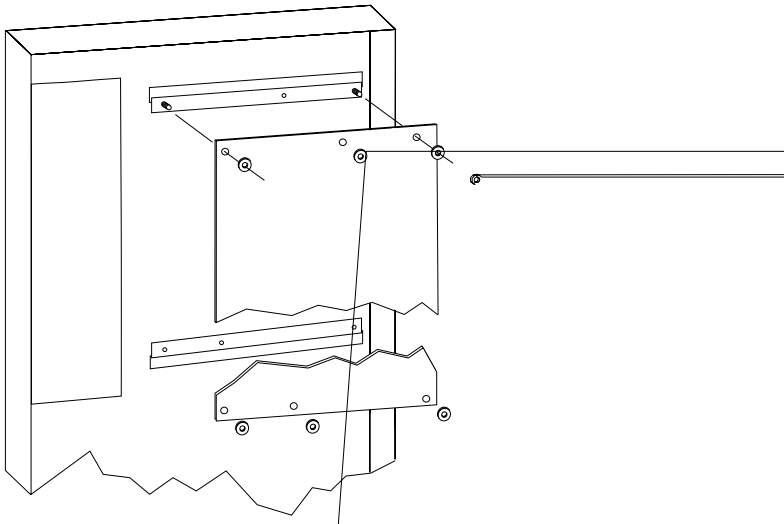


Figure 23
Installing the SMB-2

5. Install the MPS-6/12

The MXL-IQ is designed to operate from a 120 VAC, 60 Hz power source. Use a separate or dedicated circuit-breaker. Wire in accordance with local codes and Article 760 of the NEC, NFPA 70, latest edition.

Run the earth ground from a suitable source to the MPS-6/12. Check local requirements. **Conduit is not an acceptable conductor.**

Make sure that the dedicated circuit-breaker for the MXL-IQ is turned off at the mains.

Place the mounting bracket for the MPS-6/12 over the two studs provided in the enclosure as shown in Figure 24.

Secure the MPS-6/12 to the MSE-3L by slipping the flat washers, then the

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lockwashers, and finally the nuts over the two studs. Tighten them securely.

Connect the AC mains to MPS-6/12 as follows:

	Terminal
Black (hot)	1
White (neutral)	2
Green (earth ground)	3

Install the 14 gauge green ground strap spade lug side to Terminal 3 (green, earth ground) of the MPS-6 or MPS-12. Secure the ring lug side of the ground strap to the nearest available stud in the enclosure. The stud size may vary depending on the actual system modules and enclosure used. Because the stud may be either a #10 thread of ¼" thread, nuts for both have been provided. The ground strap provided is long enough for all applications and the ring lug is good for both #10 and ¼" studs. If possible, install the ring lug under one of the lockwashers and nuts which secure the MPS-6 or MPS-12 itself.

Connect the 3-wire cable coming from the MPS-6 to the SMB-2, P1, or connect the 8-wire cable coming from the MPS-12 to the SMB-2, P14.250

6. Install the MKB-4 Keyboard/ Annunciator

Remove all system power before installation, first battery and then AC.

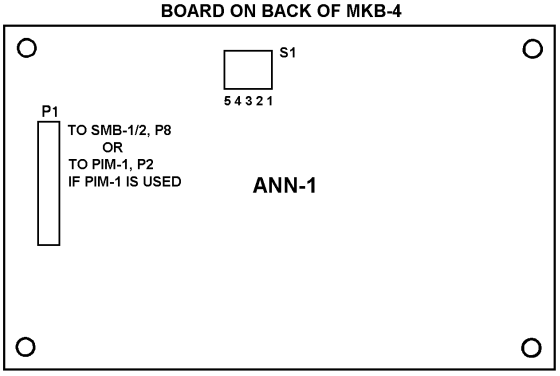


Figure 25
Setting S1 on the ANN-1 Board

Unpack the MKB-4. Inspect the module for such things as integrated circuits (ICs) not firmly seated in their sockets, bent IC pins, connectors not properly installed, dirt, and packing material on the board.

NOTE: The MKB-4 is supplied with the keyboard/annunciator mounted to the hinged panel.

(See Figure 25)

a. Before installing the MKB-4 panel, set its network address on S1, the switch on the ANN-1 board located on the back of the MKB-4. Use dipswitches SW1 and SW2 on switch S1 to set the network address of the MKB-4. Refer to Table 2 for switch settings.

b. The MKB-4 module address is always set within network addresses 248 through 251.

c. **One supervised MKB-4 must be installed at network address 251. Other supervised MKBs may be at the other addresses.**

TABLE 2
SWITCH SETTINGS ON THE ANN-1

	ADDRESS SETTINGS FOR:			
SWITCH	**248**	**249**	**250**	**251**
S1-SW1	Open-OFF	Closed-ON	Open-OFF	Closed-ON
S1-SW2	Open-OFF	Open-OFF	Closed-ON	Closed-ON
S1-SW3	Closed-ON	Closed-ON	Closed-ON	Closed-ON
S1-SW4	Closed-ON	Closed-ON	Closed-ON	Closed-ON
S1-SW5	*See Setting Supervision*			

NOTE: Switches S1-SW3 and S1-SW4 are for future use. Switch S1-SW5 is used to select suptervision.

Use switch S1-SW5 on the ANN-1 to select or deselect supervision. If your ANN-1 has a switch with position 1 indicated on the left-hand side, ignore the printing on the switch. SW1 on S1 is at the extreme right-hand side of S1, regardless of any other marking.

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NOTE: When you select non-supervision for an annunciator, there must also be **one and only one** supervised annunciator at the same address. The supervisory mode is independent of the network address.

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S1-SW5 = Closed (ON)

□□□□□□□□□□□□□□□□□□□□□□□

S1-SW5 = Open (OFF)

□□□□□□□□□□□□□□□□

(Refer to Figure 26)

1. Install three screws in the first group of three tapped holes in the right flange. Leave a 1/8-inch gap between the head of the screw and the flange. Slide the slots of the MKB-4 panel hinge under the head of the screws and tighten.
2. After the MKB-4 is mounted to the enclosure, connect the cable (P/N 555-192238) between P1 on the ANN-1 (on the back of the MKB-4) and P8 on the SMB-2.

CAUTION:
Be sure the black tracer wire on the edge of the cable is close to the **1** on position 1 of connector P1 on the ANN-1 and the **1** on position 1 of P8 on the SMB-2.

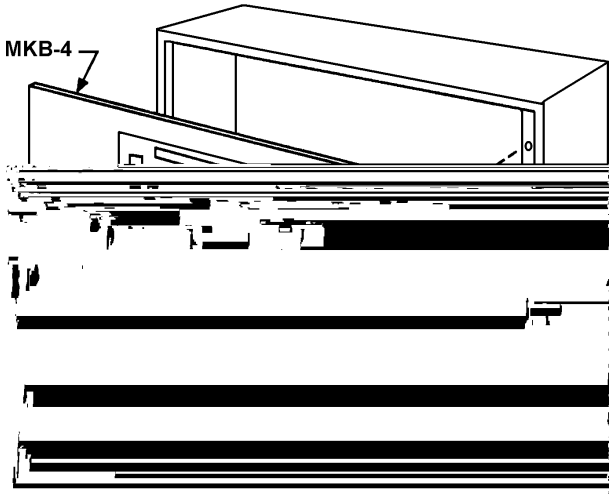


Figure 26
Installing the MKB-4 Keyboard/Annunciator

7. Install the PIM-1, PIM-2, and PAL-1

□□□□

1. Install the PIM-1 on the back of the MKB-4 panel as shown in Figure 27. Position the PIM-1 so the TB1 is on the left side of the board.
2. Mount the PIM-1 module on the raised studs with the hardware provided.
3. Using the cable supplied with the PIM-1, connect PIM-1, P-1 to ANN-1, P1 (See Figure 27).
4. Using the cable supplied with the MKB-4, connect PIM-1, P2 to SMB-2, P8 (See Figure 27).

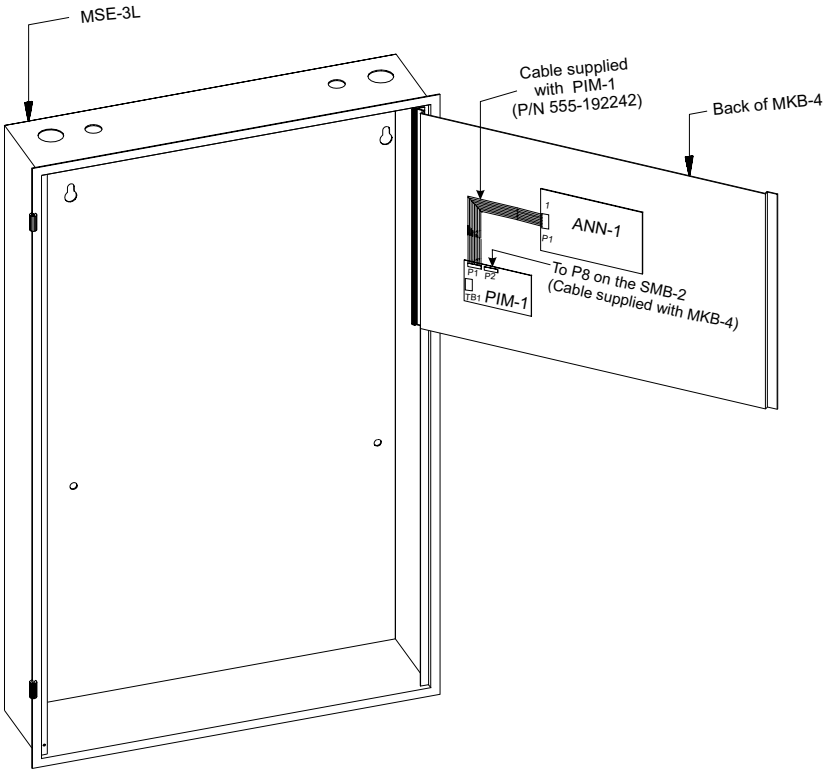
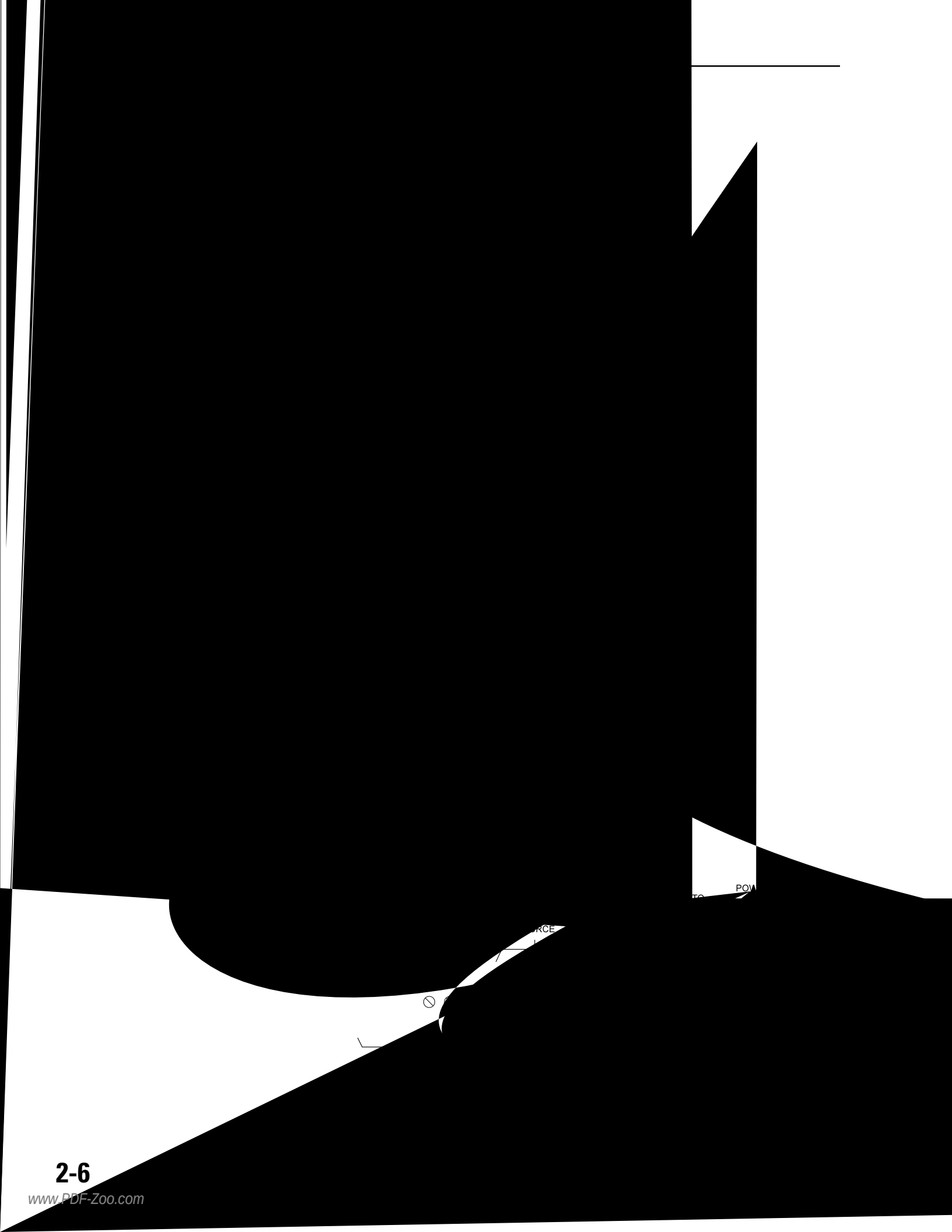


Figure 27
Installing a PIM-1 on the Back of an MKB-4

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	Dipswitch Position (SW1) -Located at rear of PIM-2							
	1	2	3	4	5	6	7	8
BAUD RATE 9600 4800 2400 1200 300	 OFF ON OFF ON ON	 ON ON OFF OFF ON	 OFF OFF ON ON ON					
DATA BITS 8 7				 OFF ON				
PARITY Even Odd					 OFF ON			
PARITY Disable Enable						 OFF ON		
FLOW CONTROL Hardware Software							 OFF ON	
PORT TYPE								OFF

NOTE:
When setting Switch S1,
OFF=UP=OPEN
ON=DOWN=CLOSED

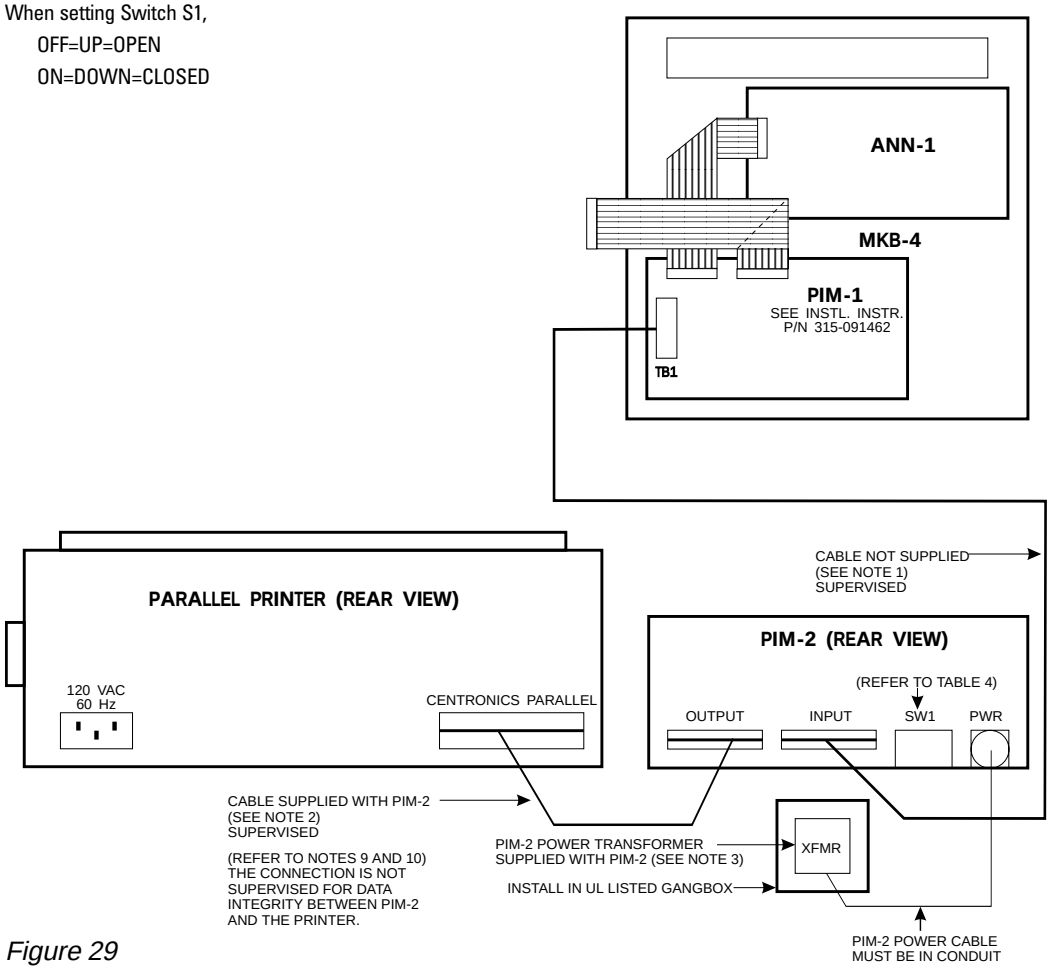
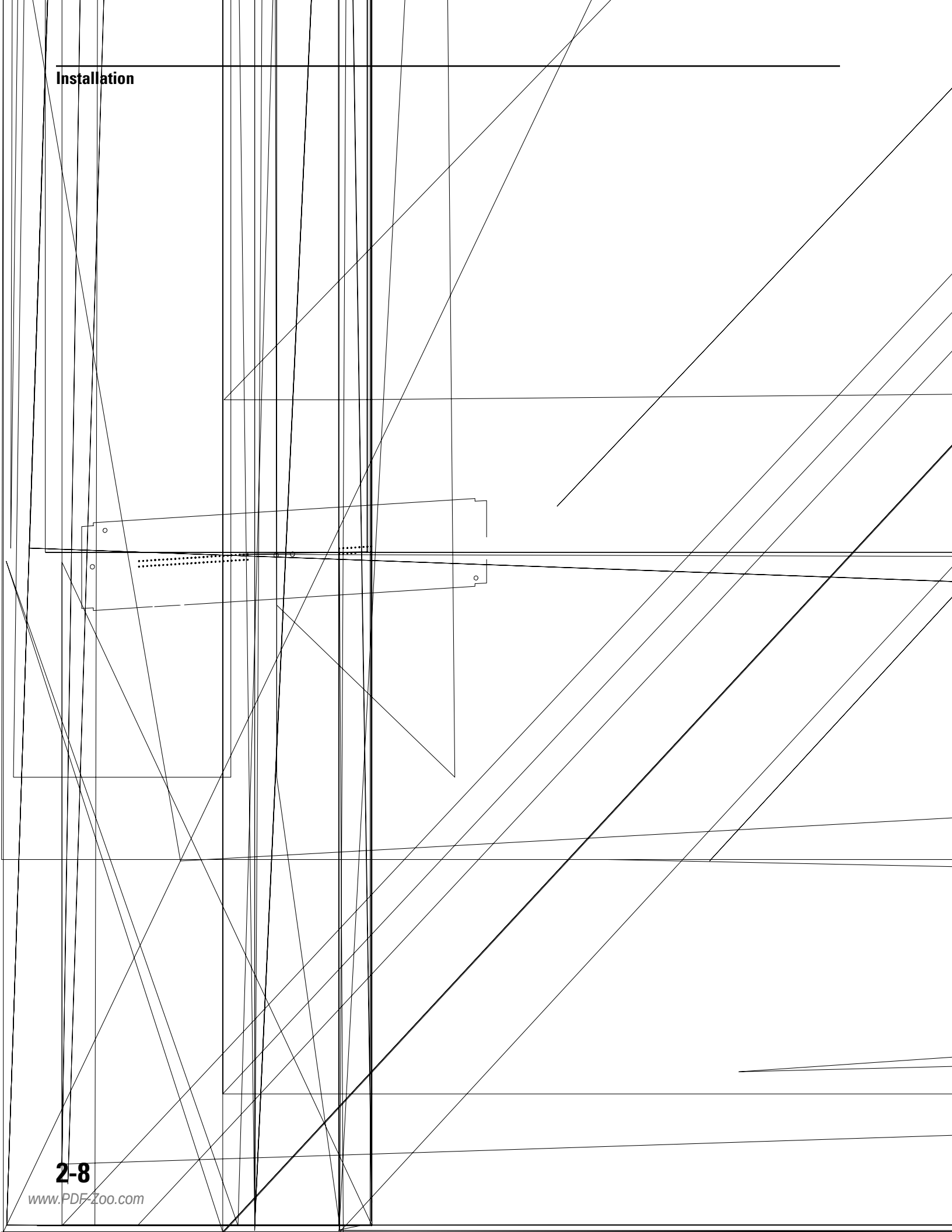


Figure 29
PIM-2 to MXL-IQ Wiring Diagram

NOTES:

1. Maximum cable distance from PIM-1 to PIM-2 cable is 25 feet. The two modules must be in the same room.
2. The maximum distance from the PIM-2 to the parallel printer is 6 feet. The two modules must be in the same room.
3. PIM-2 power (PWR) is connected to the 5 VDC, 600mA transformer supplied with the PIM-2. The transformer requires 120 VAC, 60 Hz, 0.5A max.
4. For NFPA 72 Local, Auxiliary, and Remote Station configurations, connect the output of the PIM-2 to any UL listed EDP Centronics parallel printer.
5. The parallel printer must support the EPSON FX command set.
6. The PIM-2 input and output connectors are DB-25 female.
7. Pressing RESET on the PIM-2 causes the unit to read the SW1 settings. The status LED is lit when the unit is powered. Do not use the COPY button.
8. For NFPA Proprietary and UL 1076 configurations, use parallel printer Model PAL-1, a UL listed for fire Centronics parallel printer.
9. The parallel printer is supervised for AC, on/off line, paper out, paper jam, and connection to the PIM-2.
10. The PIM-2 is supervised for power, connection to the printer, and connection to the PIM-1.
11. After loading paper in the PAL-1 printer, turn off the power and follow the steps below:
    - While pressing the LOAD PARK button, turn on the power to the PAL-1 printer. Continue pressing the LOAD PARK button for 5 seconds.
    - Release the LOAD PARK button.
    - The current setting will print.
    - When printing is completed, the ON LINE indicator will be lit. If the ON LINE indicator is not lit, press the ON LINE button.

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4. Connect the other end of the 2-wire cable into P5 on the MOM-2/4. The 2-wire cable that attaches P5 on the MOM-2/4 with P3 on the SMB-2 feeds 24 VDC full-wave unfiltered DC power to the MOM-2/4. This is the main power used by the optional modules. The 8-conductor ribbon cable supplies 5 VDC and communication between the SMB-2 and the MOM-2/4.

9. Install the MOI-7, MOD-16, and MID-16

[illegible]

1. Mount the MOI-7.

   The MOI-7 mounts on a System 3 rail in two module spaces. Mount the MOI-7 using the four screws provided.

2. Set the network address on S1.

   Set the address according to Table 16 at the end of this chapter so that it agrees with the address assigned in CSG-M.

3. Use P6 to set the mode for common alarm relay K1. (See Figure 17, page 1-10, for the location of P6.)

   K1 is a common alarm relay that can be programmed to transfer back to normal when the MXL-IQ is silenced.

Use jumper P6 on the MOI-7 to select the desired mode according to the table below.

[illegible]	[illegible]
A	Alarm Relay Silenceable
B	Alarm Relay Non-silenceable

[illegible]

1. Mount the MOD-16 in one System 3 type module space using the four screws provided.
2. Connect the MOD-16 to the MOI-7 with the 10-position ribbon cable P/N 555-190940 provided with the MOI-7.

TABLE 5
MAXIMUM MODULE LOAD CURRENTS

ALD-2I	90mA (120 devices in alarm)
CMI-300	96mA
CRM-4	75mA (4 relays energized)
CSM-4	34mA (no alarm indicating appliances connected)
CZM-4	720mA (maximum with 4 zones in alarm)
NIM-1R	0mA

The following example assumes that no power is drawn from SMB-2 TB5 (CZM-1B6 power and NAC #1, NAC #2).

Example:

With 1 CZM-4 + 1 CRM-4 + 1 CSM-4, the total load current = 0.72 + 0.075 + 0.034 = 0.83A

The remaining available current = 12.0 (MPS-12) or 6.0 (MPS-6) - 0.83 = 11.83 (MPS-12) or 5.83 (MPS-6).

The remaining current may be used for NAC power.

3. If a connection to a MOD-16 module on another rail is required, use the optional cable P/N 555-190941.

[illegible]

1. Mount the MID-16 in one System 3 type module space using the four screws provided.
2. Connect the MID-16 to the module to its left with the 10-position ribbon cable P/N 555-190940 provided. This module may be either an MOI-7, MOD-16, or MID-16.
3. If a connection to a module on another rail is required, use the optional cable P/N 555-190941.

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TABLE 6
WIRING TO THE SMB-2

Screw Terminal	Application
TB5 12-9	CZM-1B6 Power
TB5 8-5	Notification Appliance Circuit 2
TB5 4-1	Notification Appliance Circuit 1
TB4 6-4	Trouble Relay
TB4 3-1	Alarm Relay
TB3 4-1	Analog Loop 2
TB2 4-1	Analog Loop 1
TB1 1-2	MXL-IQ Network for MOI-7 and RCC-1/1F
TB1 3	Do Not Use
TB1 4-5	MPS-6/12 and MOM-2/4

NOTE: See **SMB-2 Connections and Ratings** for a more detailed description of the screw terminals.

TABLE 7
WIRING TO THE MOM-2/4 OPTIONAL MODULES

Module	Screw Terminal	Application
CSM-4	1-4	Notification Appliance Circuit 1
	9-12	Notification Appliance Circuit 2
NOTE: See **CSM-4 Connections and Ratings** for a more detailed description of the screw terminals.		
CRM-4	1-3	Dry Contact 1
	4-6	Dry Contact 2
	11-13	Dry Contact 3
	14-16	Dry Contact 4
NOTE: See **CRM-4 Connections and Ratings** for a more detailed description of the screw terminals.		
CZM-4	1-4	Conventional Zone 1
	5-8	Conventional Zone 2
	9-12	Conventional Zone 3
	13-16	Conventional Zone 4
NOTE: See **CZM-4 Connections and Ratings** for a more detailed description of the screw terminals.		
CMI-300	1-4	CXL Modem Connection
NOTE: See **CMI-300 Connections and Ratings** for a more detailed description of the screw terminals.		
NIM-1R	1-2	XNET Network Pair A / FSI / AnaLASER
	3-4	XNET Network Pair B
	12-16	NCC XNET Interface
NOTE: See **NIM-1R Connections and Ratings** for a more detailed description of the screw terminals.		
ALD-2I	1-4	Analog Loop 1
	5-8	Analog Loop 2
NOTE: See **ALD-2I Connections and Ratings** for a more detailed description of the screw terminals.		

10. Install Field Wiring

Refer to Table 6. Dress the field wiring that will be going to the SMB-2. Strip the insulation from the wiring, but ***do not connect*** the wires to the screw terminals.

Refer to Table 7. Dress the field wiring that will be going to the MOM-2/4 modules. Strip the insulation from the wiring and connect the wires to the appropriate screw terminals.

11. Check Field Wiring

Install all initiating device bases and end-of-line devices where applicable. Install all initiating devices. Refer to the specific installation instructions provided with each device.

Install all notification appliances (bells, strobes, etc.) Refer to the specific installation instructions provided with each device.

Start with the wire that goes to TB5-12 on the SMB-2. Check the resistance between that wire and all other field wires that will be connected to the SMB-2. Also, check the resistance between that wire and all wires connected to the screw terminals on the MOM-2/4. Refer to Table 8 for acceptable resistance readings. If the readings are good, connect the wire to TB5-12. Repeat the above procedure for the next wire on the SMB-2.

When the SMB-2 is complete, continue with the MOM-2/4 (if it is installed).

12. Start Up Procedure

NOTE: Throughout this section, refer to the TROUBLESHOOTING GUIDE as an aid to resolving trouble conditions.

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1. System Status

When beginning the start-up procedure, the condition of the system is as follows:

- All field wiring is connected to all screw terminals, except for the analog loops—they should be disconnected. All field devices are installed.
- No modules are installed in the MOM-2/4 cage.

2. Create a Test Configuration

Create a test configuration on your CSG-M that includes every module that will be on your final system. Do not include any initiating devices. You will use this test configuration in checking out the System.

3. SMB-2 Checkout Minus the Analog Loops

Turn on the AC power to the system.

- The power light on the MKB-4 turns on
- the System displays the default message:

```
CERBERUS PYR0TR0NICS
        MXL
```

Transfer the test configuration from your computer to the MXL-IQ. Refer to the *CSGM Manual* (P/N 315-090381) for the correct procedure.

After the transfer process is complete, MXL-IQ resets itself; after 5 minutes, the state of the system should be as follows:

- No trouble sfer the t7lf; after 5 minutes, the

- Check the trouble list on the MKB for troubles on the devices that were just added. The troubles will be from among the following (See Appendix J for a complete list of Trouble Messages):

  Device multiple response

  Input device not responding

  Incorrect device ID

  Unspecified device responding

- Identify the addresses of the devices with troubles and eliminate them, reset the system, and verify that the troubles have cleared before proceeding.

  Modify your test configuration by adding to it the analog devices that are connected to analog loop 2.

- Turn off the power and connect the field wiring to analog loop 2 on the SMB-2.
- Turn on the power. Wait for the System to initialize (approximately 3 minutes).
- Check the trouble list on the MKB for troubles on the devices that were just added. The troubles will be from among the following (See Appendix J for a complete list of Trouble Messages):

  Device multiple response

  Input device not responding

  Incorrect device ID

  Unspecified device responding

- Identify the addresses of the devices with troubles and eliminate them, reset the system, and verify that the troubles have cleared.

5. MOM-2/4 Optional Modules Checkout

Remove all system power before installing any optional module

(*ALD-2I, CMI-300, CRM-4, CSM-4, CZM-4, NIM-1R).*

Unpack each module just before installation. 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, and packing material on the board.

To install the card guide that comes with the CRM-4 and the CSM-4 module:

a Loosen the appropriate screw in the center of the MOM-2/4 and set the card guide in place.

Make sure that the locating pin on the bottom of the card guide is in the hole on the MOM-2/4.

b. Tighten the screw on the MOM-2/4 to secure the card guide.

6. ALD-2I Checkout

Set the address of each ALD-2I. Refer to the CSG-M printout of the final configuration for the address to which each ALD-2I should be set. Refer to the *ALD-2I Installation Instructions* (P/N 315-091464) to set the address dipswitch.

Install the ALD-2Is one at a time by inserting them in the appropriate card guides on the MOM-2/4. Make sure that the card is firmly seated in the card edge connector. Eliminate all troubles from each module before installing the next one.

Modify your test configuration by adding to it any initiating devices that are connected to the first analog loop on the ALD-2I.

Turn off the power; connect the field wiring to analog loop 1 on the ALD-2I. Turn on the power.

- Turn off the power and connect the field wiring to analog loop 1 on the SMB-2.
- Turn on the power. Wait for the System to initialize (approximately 3 minutes).
- Check the trouble list on the MKB for troubles on the devices that were just added. The troubles will be from among

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the following (See Appendix J for a complete list of Trouble Messages):

Device multiple response

Input device not responding

Incorrect device ID

Unspecified device responding

- Identify the addresses of the devices with troubles and eliminate them, reset the system, and verify that the troubles have cleared before proceeding.

Modify your test configuration by adding to it any initiating devices that are connected to the second analog loop on the ALD-2I.

Turn off the power; connect the field wiring to analog loop 2 on the ALD-2I. Turn on the power.

- Turn off the power and connect the field wiring to analog loop 1 on the SMB-2.
- Turn on the power. Wait for the System to initialize (approximately 3 minutes).
- Check the trouble list on the MKB for troubles on the devices that were just added. The troubles will be from among the following (See Appendix J for a complete list of Trouble Messages):

  Device multiple response

  Input device not responding

  Incorrect device ID

  Unspecified device responding

- Identify the addresses of the devices with troubles and eliminate them, reset the system, and verify that the troubles have cleared before proceeding.

Before install2.

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2. Set the CMI-300 network address by using the dipswitch settings on switch SW1. Use Table 16 at the end of this chapter to set the network address.

Plug the CMI-300 module in the MOM-2/4 card cage and connect the wiring as shown in **CMI-300 Connections and Ratings.** Eliminate all troubles from each module prior to installing the next one.

[illegible]

Set the address of each module. Refer to the CSG-M printout of the final configuration for each module address setting. Refer to the installation instructions for each module to set the address dipswitch.

Install the optional modules one at a time by inserting them in the appropriate card guides on the MOM-2/4. Eliminate all troubles from each module prior to installing the next one.

[illegible]

The NIM-1R installs into the MOM-2/4 card cage where it occupies one full width slot. The wiring is connected to TB4 of the MOM-2 or TB3 of the MOM-4.

The NIM-1R has two configuration dipswitches. **Set the dipswitches before installing the NIM-1R into the MOM-2/4.**

Use switch SW1 to set the MXL-IQ network address. Set this switch according to the address where the NIM-1R is installed in the MXL-IQ's network map. Refer to the CSG-M configuration printout for the address of the module. See Table 16 at the end of this chapter for settings.

Use switch SW2 to set either the panel number for networked systems or to select FSI or AnaLASER operation. Refer to Table 9 for panel settings, Table 10 for FSI settings, or Table 11 for AnaLASER settings.

1. When installing the NIM-1R in a networked system, set the panel number to agree with the panel number for the NIM-1R assigned to the MXL-IQ System in CSG-M.
2. Switch position 8 selects Style 4 or 7 operation for the NIM-1R network.
3. When installing the NIM-1R for FSI operation, set the switch to all open (or OFF).

[illegible]	
[illegible]	[illegible]
000	O O O O O O O O
O = Open or OFF	

4. When installing the NIM-1R for AnaLASER connection, set the switch as follows:

[illegible]	
[illegible]	[illegible]
AnaLASER	X O O O O O O O
O = Open or OFF X = Closed or ON	

After setting the switches, install the NIM-1R into the MOM-2/4 card cage. Make sure that the module is in the card guides and the card edge is firmly seated in the connectors on the MOM-2/4.

[illegible]

Before installing the CSM-4 in the MOM-2/4, you must set the network address, configure each circuit according to the CSG-M program [as Local (NACs), Municipal Tie, Leased Line, or Releasing Service], and set the default modes (trouble and alarm) as follows. Refer to Table 12 for the Modes of Operation.

[illegible]

The network address is set on dipswitch S1 (See Figure 12, page 1-8). See the CSG-M printout for the proper address. Use Table 16 at the end of this chapter to set the switches.

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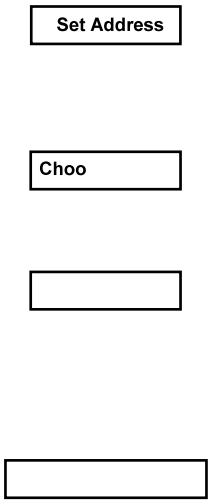


TABLE 12
Modes of Operation

The CSM-4 has one programming slide switch and one jumper for each of its two circuits. (See slide switches S3 and S4 and jumpers G1 and G2 on the CSM-4 board, Figure 12, page 1-8.) Setting these slide switches and jumpers allows the selection of four possible modes of operation. These modes correspond with NFPA standards 72 Local, Municipal Tie, Leased Line, and NFPA 12A, 13, and 2001 Releasing Service.

Each circuit on the CSM-4 can be set independently for the type of operation desired. Table 12 shows how to set the switches and jumpers for circuits 1 and 2. The CSG-M printout shows the mode for each circuit.

There are two sources of degrade activation, the degrade alarm bus and the degrade trouble bus. These two buses *become active ONLY when* the MXL-IQ communication network fails. Dipswitch S2 on the CSM-4 sets the degrade mode of operation for each circuit.

Each circuit operates independently in the degrade mode. Dipswitch S2, positions SW1 and SW2, determines the degrade mode of operation when the trouble bus activates. Dipswitch S2, positions SW3-SW6, determines the degrade mode of operation when the alarm bus activates.

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[illegible]

The degrade trouble bus may ONLY be used when the circuit is used as a Leased Line **trouble** indicating circuit. (See Table 12.) When enabled, this trouble degrade mode ensures that a trouble will be transmitted to the receiving station even when the MXL-IQ communication network fails.

Using the CSG-M printout, determine if either of the circuits is configured as a Leased Line trouble. Table 14 shows how to set dipswitch S2 (SW1 and SW2) to enable the degrade trouble activation for the desired circuit.

[illegible]	[illegible]
Leased Line Trouble No Trouble Activation	On (Closed) Off (Open)
Leased Line Trouble No Trouble Activation	On (Closed) Off (Open)

Note:
If Circuit 1 or Circuit 2 is not used for Leased Line trouble, switches SW1 or SW2 must be off (open).

[illegible]

Each circuit on the CSM-4 can be set with dipswitch S2, positions SW3-SW6, to determine when the degrade alarm bus activates (See Table 12). There are three degrade alarm modes. Each circuit can be set independently from the other.

[illegible]	[illegible]	[illegible]
OFF (no degrade activation) CONTINUOUS (active on degrade alam) 1 SEC ON, 1 SEC OFF (infinite repeat) DO NOT USE	OFF (Open) OFF (Open) ON (Closed) ON (Closed)	OFF (Open) ON (Closed) OFF (Open) ON (Closed)
OFF (no degrade activation) CONTINUOUS (active on degrade alam) 1 SEC ON, 1 SEC OFF (infinite repeat) DO NOT USE	OFF (Open) OFF (Open) ON (Closed) ON (Closed)	OFF (Open) ON (Closed) OFF (Open) ON (Closed)

NOTE: When circuits are used for leased line supervisory, the alarm degrade modes must be OFF (Open).

Determine which type of degrade mode you want for each circuit and set dipswitch S2 (SW3-SW6) as shown in Table 15.

13. System Function Checkout

The status of the MXL-IQ before checkout must be as listed below:

1. AC and battery power connected and turned on.
2. All modules installed and all field wiring connected.
3. All initiating devices installed and addressed.
4. All field wiring checked out.
5. The start-up procedure completed.
6. An CSG-M printout of the summary of the System Configuration available.
7. For documentation purposes, set the MXL-IQ time before proceeding.
8. Transfer the final version of the System Configuration to MXL-IQ.

Follow the steps listed in **System Operation Checkout**.

[illegible]

WARNING!

Prior to activating any initiating device, take steps to prevent output circuits from being activated. Failure to do so may result in building EVAC (bells), notification of fire department, elevator recall, etc.

Test these operations in accordance with local codes and follow the direction of the authority having jurisdiction. Observe all safety precautions.

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Test	Response

1. Observe the display on the MKB-4.	• The POWER LED should be on steady.
	• The TROUBLE LED should be off.
	• The following message should appear on the alphanumeric display:
	`(Time and Date) SYSTEM`
	`(System Custom Message) NORMAL`
	(It may take a few minutes after power-up before the message *System Normal* appears.)

2. Activate every alarm causing initiating device on the System in groups of 100 or fewer. Reset the System prior to activating each group of 100.	• Every device alarms and there are no troubles annunciated. • Device LEDs should come on when the device is in alarm. • As each device is alarmed, the custom message appears on the display, is recorded on the printer (if installed), and corresponds to the CSG-M printout for that device. • The messages listed on the printer are in the order in which the devices were alarmed. • Pressing the **NEXT** key on the MKB-4 displays the devices in reverse order. • Check that all appropriate responses are activated.
3. Activate all supervisory devices on the System.	• Each device should cause a supervisory. • As each device changes state, the custom message appears on the display, is recorded on the printer (if installed), and corresponds to the CSG-M printout for that device. • The messages listed on the printer are in the order in which the devices were activated. • Pressing the **NEXT** key displays the devices in reverse order. • Check that all the appropriate responses are activated.
4. Activate all security devices on the System.	• Each device should cause a security condition. • As each device is activated, the custom message appears on the display, is recorded on the printer (if installed), and corresponds to the CSG-M printout for that device. • Check that all appropriate responses are activated.

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Test	Response

TABLE 16
NETWORK ADDRESS PROGRAMMING

ADDR	87654321	ADDR	87654321	ADDR	87654321	ADDR	87654321
000	ILLEGAL	064	0X000000	128	X0000000	192	XX000000
001	ILLEGAL	065	0X00000X	129	X0000000X	193	XX00000X
002	ILLEGAL	066	0X0000X0	130	X000000X0	194	XX0000X0
003	000000XX	067	0X0000XX	131	X000000XX	195	XX0000XX
004	00000X00	068	0X000X00	132	X0000X00	196	XX000X00
005	00000X0X	069	0X000X0X	133	X0000X0X	197	XX000X0X
006	00000XX0	070	0X000XX0	134	X0000XX0	198	XX000XX0
007	00000XXX	071	0X000XXX	135	X0000XXX	199	XX000XXX
008	0000X000	072	0X00X000	136	X000X000	200	XX00X000
009	0000X00X	073	0X00X00X	137	X000X00X	201	XX00X00X
010	0000X0X0	074	0X00X0X0	138	X000X0X0	202	XX00X0X0
011	0000X0XX	075	0X00X0XX	139	X000X0XX	203	XX00X0XX
012	0000XX00	076	0X00XX00	140	X000XX00	204	XX00XX00
013	0000XX0X	077	0X00XX0X	141	X000XX0X	205	XX00XX0X
014	0000XXX0	078	0X00XXX0	142	X000XXX0	206	XX00XXX0
015	0000XXXX	079	0X00XXXX	143	X000XXXX	207	XX00XXXX
016	000X0000	080	0X0X0000	144	X00X0000	208	XX0X0000
017	000X000X	081	0X0X000X	145	X00X000X	209	XX0X000X
018	000X00X0	082	0X0X00X0	146	X00X00X0	210	XX0X00X0
019	000X00XX	083	0X0X00XX	147	X00X00XX	211	XX0X00XX
020	000X0X00	084	0X0X0X00	148	X00X0X00	212	XX0X0X00
021	000X0X0X	085	0X0X0X0X	149	X00X0X0X	213	XX0X0X0X
022	000X0XX0	086	0X0X0XX0	150	X00X0XX0	214	XX0X0XX0
023	000X0XXX	087	0X0X0XXX	151	X00X0XXX	215	XX0X0XXX
024	000XX000	088	0X0XX000	152	X00XX000	216	XX0XX000
025	000XX00X	089	0X0XX00X	153	X00XX00X	217	XX0XX00X
026	000XX0X0	090	0X0XX0X0	154	X00XX0X0	218	XX0XX0X0
027	000XX0XX	091	0X0XX0XX	155	X00XX0XX	219	XX0XX0XX
028	000XXX00	092	0X0XXX00	156	X00XXX00	220	XX0XXX00
029	000XXX0X	093	0X0XXX0X	157	X00XXX0X	221	XX0XXX0X
030	000XXXX0	094	0X0XXXX0	158	X00XXXX0	222	XX0XXXX0
031	000XXXXX	095	0X0XXXXX	159	X00XXXXX	223	XX0XXXXX
032	00X00000	096	0XX00000	160	X0X00000	224	XXX00000
033	00X0000X	097	0XX0000X	161	X0X0000X	225	XXX0000X
034	00X000X0	098	0XX000X0	162	X0X000X0	226	XXX000X0
035	00X000XX	099	0XX000XX	163	X0X000XX	227	XXX000XX
036	00X00X00	100	0XX00X00	164	X0X00X00	228	XXX00X00
037	00X00X0X	101	0XX00X0X	165	X0X00X0X	229	XXX00X0X
038	00X00XX0	102	0XX00XX0	166	X0X00XX0	230	XXX00XX0
039	00X00XXX	103	0XX00XXX	167	X0X00XXX	231	XXX00XXX
040	00X0X000	104	0XX0X000	168	X0X0X000	232	XXX0X000
041	00X0X00X	105	0XX0X00X	169	X0X0X00X	233	XXX0X00X
042	00X0X0X0	106	0XX0X0X0	170	X0X0X0X0	234	XXX0X0X0
043	00X0X0XX	107	0XX0X0XX	171	X0X0X0XX	235	XXX0X0XX
044	00X0XX00	108	0XX0XX00	172	X0X0XX00	236	XXX0XX00
045	00X0XX0X	109	0XX0XX0X	173	X0X0XX0X	237	XXX0XX0X
046	00X0XXX0	110	0XX0XXX0	174	X0X0XXX0	238	XXX0XXX0
047	00X0XXXX	111	0XX0XXXX	175	X0X0XXXX	239	XXX0XXXX
048	00XX0000	112	0XXX0000	176	X0XX0000	240	XXXX0000
049	00XX000X	113	0XXX000X	177	X0XX000X	241	XXXX000X
050	00XX00X0	114	0XXX00X0	178	X0XX00X0	242	XXXX00X0
051	00XX00XX	115	0XXX00XX	179	X0XX00XX	243	XXXX00XX
052	00XX0X00	116	0XXX0X00	180	X0XX0X00	244	XXXX0X00
053	00XX0X0X	117	0XXX0X0X	181	X0XX0X0X	245	XXXX0X0X
054	00XX0XX0	118	0XXX0XX0	182	X0XX0XX0	246	XXXX0XX0
055	00XX0XXX	119	0XXX0XXX	183	X0XX0XXX	247	XXXX0XXX
056	00XXX000	120	0XXXX000	184	X0XXX000	248	ILLEGAL
057	00XXX00X	121	0XXXX00X	185	X0XXX00X	249	ILLEGAL
058	00XXX0X0	122	0XXXX0X0	186	X0XXX0X0	250	ILLEGAL
059	00XXX0XX	123	0XXXX0XX	187	X0XXX0XX	251	ILLEGAL
060	00XXXX00	124	0XXXXX00	188	X0XXXX00	252	ILLEGAL
061	00XXXX0X	125	0XXXXX0X	189	X0XXXX0X	253	ILLEGAL
062	00XXXXX0	126	0XXXXXX0	190	X0XXXXX0	254	ILLEGAL
063	00XXXXXX	127	0XXXXXXX	191	X0XXXXXX	255	ILLEGAL

O = OPEN (or OFF) X = CLOSED (or ON)

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Operation

This section provides instructions for operating the MXL-IQ Control Panel. Please review the introduction to the MXL-IQ Control Panel at the beginning of this manual.

NOTE: See the Table of Contents pages at the beginning of this manual for the order of this chapter. Use it to find the answers to specific questions when you are working with the System.

□□□□□□□□□

All modules and devices annunciated on the MXL-IQ are identified by an address *(MMM-DDD)*. Each address is in two parts—a module address *(MMM)* and a device address *(DDD)*. The number identifying the module may be as high as 254, and the number identifying the device may be as high as 248. Thus a device on a module may be identified by any number between 001-001 and 253-250. (See Table 17.)

□□□□□□□□□□□□□

A module may be assigned to any address on the System, except for some fixed addresses that have already been assigned (See Table 17). The modules communicate to the MXL-IQ Control Panel through a serial communications network. The System continuously supervises all of the modules for presence and proper operation.

You may assign a module to any address on the System, and assign addresses in any order, mixing different types of modules and leaving gaps in the numbering, provided you do not use the fixed addresses.

The specific addresses of the System modules are described in Table 17.

□□□□□□□□□□□□

TABLE 17
Fixed Module Addresses

Module Address	Module	Device Address (Range)
0	Do not use	
1	Analog loop 1 (SMB-2)	001-060
2	Analog loop 2 (SMB-2)	001-060
3		
*		
*		
*		
248	MKB-4	
249	MKB-4	
250	MKB-4	
251	MKB-4, No. 1	
252	Reserved	
253	SMB-2	001 to 250
254	Programmer CSG-M	
255	Global (reserved)	

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□□□□□□□□□□□□□

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The ALD-2I takes two adjoining module addresses. Loop 1 of the ALD-2I is at any module address and loop 2 at the next address. The analog loops on the SMB-2 are at module addresses 1 and 2 (See Table 17, page 3-1) and cannot be moved. The table below illustrates ALD-2I module addresses:

ALD at Module Addresses 3 and 4	**Devices**
Loop 1	003-001 to 003-060
Loop 2	004-001 to 004-060

ALD at Module Addresses 15 and 16	**Devices**
Loop 1	015-001 to 015-060
Loop 2	016-001 to 016-060

□□□□□□□□□□□□□□□□□□□□

The CSM-4 module contains two circuits and two programmable LEDs.

Their device addresses on the module are as follows:

Circuit 1	001
Circuit 2	002
LED 1	005
LED 2	006

For example, the address of circuit 2 on the CSM-4 at module address 3 is 003-002.

□□□□□□□□□□□□□□□□□□

The CRM-4 Relay module contains four relays and two controllable LEDs.

Their device addresses on the module are as follows:

Relay 1	001
Relay 2	002
Relay 3	003
Relay 4	004
LED 1	005
LED 2	006

For example, the address of relay 4 on the CRM-4 at module address 20 is 020-004.

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

The CZM-4 Conventional Zone module contains four conventional initiating device zones and two programmable LEDs. Their device addresses on the module are as follows:

Zone 1	001
Zone 2	002
Zone 3	003
Zone 4	004
LED 1	005
LED 2	006

For example, the address of zone 1 on the CZM-4, at module address 105, is 105-001.

□□□□□□□□□□□□□□□□□□□□□□□□□□

The MKB-4 Keyboard/Annunciator occupies the fixed module address 251 (See Table 17, page 3-1).

□□□□□□□□□□□□□□

The SMB-2 occupies module addresses 1, 2, and 253. The module addresses 1 and 2 are analog loops.

Module address 253 contains two notification appliance circuits (NACs) and two relays. The device addresses at module 253 are as follows:

Common alarm relay	001
Common trouble relay	002
NAC 1	004
NAC 2	005

For example, the address of the common alarm relay at module address 253 is 253-001.

□□□□□□□□□□□□□□□□□□

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

The MOI-7 occupies one network address and one network node in the MXL-IQ System. Set the address on S1 (See Figure 17, page 1-10) according to Table 16, page 2-19, so that it agrees with the address assigned in CSG-M.

The MOI-7 has a set of 128 subaddresses reserved for the MOD-16 open collector

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outputs and MID-16 general purpose inputs. This gives a maximum of 8 MOD-16 boards and 8 MID-16 boards.

The MOI-7 subaddress map is as follows.

001-016	MOD-16/MID-16	#1
017-032	MOD-16/MID-16	#2
033-048	MOD-16/MID-16	#3
049-064	MOD-16/MID-16	#4
065-080	MOD-16/MID-16	#5
081-096	MOD-16/MID-16	#6
097-112	MOD-16/MID-16	#7
113-128	MOD-16/MID-16	#8

The MOI-7 has two status LEDs:

The TRANSMIT LED indicates that the MOI-7 is sending information to the SMB-2. During normal operation this LED flashes periodically when the SMB-2 requests the MOI-7's status.

The TROUBLE LED only lights when the MOI-7 cannot communicate with the MXL-IQ. This is an indication that the network connection between the MOI-7 and SMB-2 is damaged.

[illegible]

The MOD-16 does not occupy a network address. The MOD-16 is at a subaddress of the MOI-7 to which it is connected. The subaddresses of any given MOD-16s are determined by their position in the string of MOD-16s.

The output cable from the MOI-7 connects to the first MOD-16, which has the subaddress of 001-016 as shown above. Each additional MOD-16 in the chain has the next block of 16 addresses.

You may connect a maximum of 8 MOD-16s and MID-16s to an individual MOI-7 for a total of 128 open collector outputs and 128 general purpose inputs.

[illegible]

See Figure 32, page 3-4, for the location of the display keys and LEDs.

When the MKB-4 Keyboard/ Annunciator Panel is installed, only the display, LEDs, and display control keys are visible. The ACKnowledge keys and other controls are hidden behind a locked door. Unlock and open the door to gain access to those keys and controls.

[illegible]

The display has two lines of 40 characters each. What is shown on the display depends on the state of the System. The display contains a back light which turns on automatically when any key is pressed or an event is reported. The back light turns off automatically after 5 minutes of system inactivity.

The System has several displays. When the System is Normal, the display shows:

[time/date] [illegible]
[system message] [illegible]

When an event has been annunciated, the System alternates between the following three displays:

[address] [custom message] [illegible]
[event number] [device type] [trouble type] [illegible]

[illegible]

[illegible]

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The terms used in the displays described above are defined as follows:

- **ACK** appears if the event has been acknowledged; otherwise, the field is blank.
- **IN** is displayed when a condition occurs.
- **OUT** is displayed when a normal state is restored.
- ***[time/date]*** shows the time and date the event occurred.

□□□□□□□□□□□□□□□□□□□□□□

The internal audible alarm (not visible) sounds steadily when there is an unacknowledged fire alarm. It pulses if all alarms are acknowledged, but there is at least one supervisory, trouble, or security condition.

① □□□□□□□□□□□□

A 2-line display of 40 characters each that shows the state of the System. A back light turns on when any key is pressed or an event is reported.

② □□□□□□□□□□□□□□□□□□□□

ALARM ACK - Press to acknowledge a fire alarm.

AUD SIL - Press to silence or unsilence a notification appliance circuit.

SUPV ACK - Press to acknowledge a supervisory.

TRBL ACK - Press to acknowledge a trouble.

SEC ACK - Press to acknowledge a security condition.

RESET - Press to reset the System.

③ □□□□□□□□□□□□□

Use the numeric keypad (keys 0 through 9) when the System asks for a model number, device number, password, time, date, or other information. The display shows each number as you press the key (except when you enter a password; the System shows an asterisk for each digit of the password that you type).

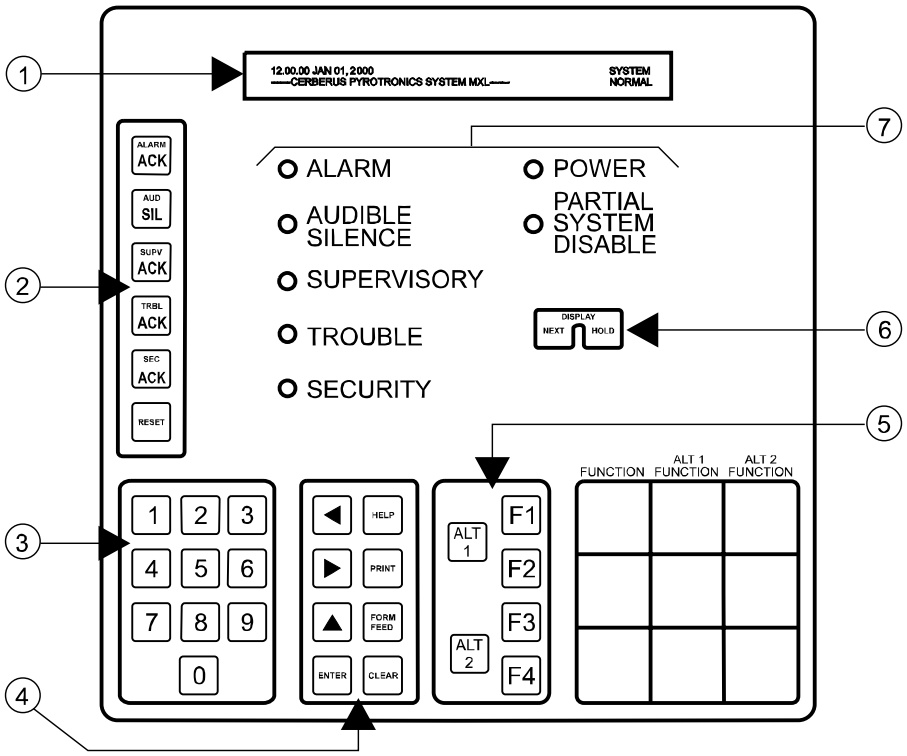


Figure 32
MKB-4 Keyboard/Annunciator Panel

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⑥ Display Keys

The MXL-IQ has two display keys, **NEXT** and **HOLD**, located on the MKB-4.

NEXT - Press NEXT to show the previous item in a list of Alarms, Supervisories, Troubles, or Security conditions.

HOLD - Press HOLD at any time to freeze the present display. The display remains frozen until HOLD is released.

⑦ LEDs

ALARM - This red LED flashes when there is at least one unacknowledged fire alarm; it glows steadily when all fire alarms are acknowledged.

AUDIBLE SILENCE - This red LED flashes when at least one notification appliance circuit (NAC) is active; it glows steadily when all silenceable NACs are silenced. Under normal conditions, the LED is off.

SUPERVISORY - This yellow LED flashes when there is at least one unacknowledged supervisory; it glows steadily when all supervisories are acknowledged.

TROUBLE - This yellow LED flashes when there is at least one unacknowledged trouble; it glows steadily when all troubles are acknowledged.

SECURITY - This yellow LED flashes when there is at least one unacknowledged security condition; it glows steadily when all security conditions are acknowledged.

POWER - This green LED glows steadily to indicate that the AC power is on; it flashes when the System is on battery backup.

PARTIAL SYSTEM DISABLE - This yellow LED glows steadily when any device is disabled.

This order ensures that fire alarms always take priority over all other conditions. In turn, supervisories always take priority over troubles and troubles always take priority over security conditions. All of the above modes take priority over Normal mode, which is the absence of any alarms, supervisories, troubles, or security conditions.

[illegible]

The alphanumeric display shows an alarm message when a fire alarm is received. See **Alarm**.

[illegible]

The alphanumeric display shows a supervisory message when the system receives a supervisory and no higher priority event is present. See **Supervisories,** page 3-8.

[illegible]

The alphanumeric display shows a trouble message when a trouble is present and no higher priority event is present. See **Troubles,** page 3-9.

[illegible]

The alphanumeric display shows a security message when a security condition is received and no higher priority event is present. See **Security Conditions,** page 3-10.

[illegible]

Normal mode is the absence of any alarms, supervisories, troubles, or security conditions.

In normal mode the display shows the following message:

[illegible]

The **POWER** LED glows steadily in normal mode when the system has AC power. The **ALARM, AUDIBLE SILENCE, SUPERVISORY, TROUBLE,** and **SECURITY** LEDs are off and the internal audible is off.

If your System has the printer option, the System prints a message in the following format every day at midnight, even when there are alarms or other conditions:

[illegible]

[illegible]

[illegible]

1. Follow the response plan approved by the local authority having jurisdiction.
2. When the MXL-IQ is installed, the **ACK**nowledge key and Audible Alarm Silence key (**AUD SIL**) on the MKB-4 are behind a locked door. The display, LEDs, and display control keys are visible and accessible. To acknowledge an alarm or trouble, or to silence an audible alarm, first unlock and open the door.

[illegible]

When a fire is detected, the System causes the **ALARM** LED on the MKB-4 to flash, the System's internal audible to sound, the **AUD SIL** LED to flash, and the alphanumeric display on the MKB-4 to alternate in a sequence among the three messages shown below. This example assumes that two fire alarms were received (Refer to the explanations below).

Message 1:

[illegible]

Message 2:

[illegible]

Message 3:

[illegible]

In addition, the System responds to alarms with programmed output functions such as other audible signals.

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In the messages above, **1-001** represents the address of the device reporting the alarm.

NOTE: On the display, not all leading zeros are shown. If your System includes a printer, note that the leading zeros are not shown.

002 in the first message tells you that this is the second (and the most recent) of two alarms received.

The status information in the third message reports the total of alarms, supervisories, troubles, and security conditions.

If your System includes a printer, it prints a message from two to four lines long similar to the following:

[illegible]

In the preceding printed message, **ALARM** indicates that the type of occurrence is a fire alarm; **1-1** is the device address; **#1** is the number of the alarm in the list of fire alarms; ***[custom message]*** is a custom message entered using the CSG-M Custom Software Generator (See the CSG-M Programming Manual, P/N 315-090381); ***[device type]*** is the type of device which reported the alarm.

[illegible]

To see the alarm list when there is more than one alarm, press **NEXT** on the MKB-4 (the System displays the most recent alarm first).

[illegible]

1. Note the specific location of the alarm(s) by using the procedures described above.
2. Unlock and open the door.
3. Press **ALARM ACK** to acknowledge **all** alarms. The System displays the following message:

[illegible]

4. If your System includes the printer option, it prints the following message:

[illegible]

5. If you press **ALARM ACK** again, the System displays ALL ALARMS ACKNOWLEDGED.

   The **ALARM** LED glows steadily to indicate that all alarms are acknowledged. If there are no supervisories, troubles, or security conditions in the System, the internal audible goes silent; if any of those conditions still exist, the internal audible pulses.

[illegible]

1. Press **ALARM ACK**. The System acknowledges the alarm displayed and then displays the next unacknowledged alarm.

   If your System has the printer option, it prints an alarm acknowledgment message similar to the following:

[illegible]

   Note that the acknowledgments message includes the term ACK to indicate this alarm was acknowledged.

2. Continue acknowledging alarms as explained above until the System displays the following message: ALL ALARMS ACKNOWLEDGED.

   The **ALARM** LED glows steadily to indicate that all alarms are acknowledged. If there are no supervisories, troubles, or security conditions still in the System, the internal audible goes silent; if any of those conditions still exist, the internal audible pulses.

3. If your System includes a printer, it prints a message similar to the following:

[illegible]

[illegible]

Press **AUD SIL** after all alarms are acknowledged. The System displays the following message: AUDIBLES SILENCED. (Pressing **AUD SIL** a second time causes the internal audible and the System to unsilence and the message AUDIBLES UNSILENCED to appear on the display;

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thus, pressing **AUD SIL** alternately silences and unsilences the System.)

If your System has a printer, it prints a message similar to the following:

[illegible]

[illegible]

[illegible]

When a supervisory is detected, the System causes the **SUPERVISORY** LED on the MKB-4 to flash, the System's internal audible to sound, and the alphanumeric display on the MKB-4 to alternate in a sequence among the three messages shown below. This example assumes that two supervisories were received (See the explanations below).

Message 1:

[illegible] *[custom message]*
[illegible] *[device type]* [illegible]

Message 2:

[illegible] *[custom message]*
[illegible] *[time/date]* [illegible]

Message 3:

[illegible]

In addition, the System responds to supervisories with programmed output functions such as other audible signals.

In the messages above, **1-001** represents the address of the device reporting the supervisory.

002 in the first message tells you that this is the second (and the most recent) of two supervisories received.

The status information in the third message reports the total of alarms, supervisories, troubles, and security conditions.

If your System includes a printer, it prints a message from two to four lines long similar to the following:

[illegible]

In the preceding message, **SUPERV** indicates that the type of occurrence is a supervisory; **1-1** is the device address; **#1** is the number of the supervisory in the list of supervisories; ***[custom message]*** is a custom message entered using the CSG-M Custom Software Generator (See the *CSG-M Programming Manual,* P/N 315-090381); ***[device type]*** is the type of device which reported the supervisory.

[illegible]

To see the supervisory list when there is more than one supervisory, press **NEXT** on the MKB-4 (the System displays the most recent supervisory first).

[illegible]

1. Note the specific location of the supervisories by using the procedures described above.
2. Unlock and open the door.
3. Press **SUPV ACK** to acknowledge **all** supervisories. The System displays the following message:

[illegible]

4. If your System includes a printer, it prints the following message:

[illegible]

5. If you press **SUPV ACK** again, the System displays ALL SUPERVISORIES ACKNOWLEDGED.

   The **SUPERVISORY** LED glows steadily to indicate that all supervisories are acknowledged. If there are no troubles or security conditions in the System, the internal audible goes silent; if any of those conditions still exist, the internal audible pulses.

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[illegible]

1. Press **SUPV ACK.** The System acknowledges the supervisory displayed and then displays the next unacknowledged supervisory.

   If your system has a printer, it prints an acknowledgment message similar to the following:

   [illegible]

   Note that the acknowledgment message includes the term ACK to indicate this supervisory was acknowledged.

2. Continue acknowledging supervisories as explained above until the System displays the following message: ALL SUPERVISORIES ACKNOWLEDGED.

   The **SUPERVISORY** LED glows steadily to indicate that all supervisories are acknowledged. If there are no troubles or security conditions still in the System, the internal audible goes silent; if any of those conditions still exist, the internal audible pulses.

3. If your System includes a printer, it prints the following message:

   [illegible]

[illegible]

[illegible]
When a trouble is detected, the System causes the **TROUBLE** LED on the MKB-4 to flash, the System's internal audible to sound, and the alphanumeric display on the MKB-4 to alternate in a sequence among the three messages shown below. This example assumes that two troubles were received (See the explanations below).

Message 1:

[illegible] *[custom message]*
[illegible] *[trouble type]* [illegible]

Message 2:

[illegible] *[device type]*
[illegible] *[time/date]* [illegible]

Message 3:

[illegible] [illegible]
[illegible] [illegible]

In addition, the System responds to troubles with programmed output functions.

In the messages above, **1-001** represents the address of the device reporting the trouble.

002 in the first message tells you that this is the second (and the most recent) of two troubles received.

The status information in the third message reports the total of alarms, supervisories, troubles, and security conditions.

If your System includes a printer, it prints a message from two to four lines long similar to the following:

[illegible]
[illegible]

In the above printed message, **TROUBLE** indicates that the type of occurrence is a trouble; **1-1** is the device address; and **#1** is the number of troubles in the list of troubles; ***[custom message]*** is a custom message entered using the CSG-M Custom Software Generator (See the *CSG-M Programming Manual,* P/N 315- 090381); ***[trouble type]*** is the type of trouble which reported; ***[device type]*** is the type of device in trouble.

[illegible]
To see the trouble list when there is more than one trouble, press **NEXT** on the MKB-4 (the System displays the most recent trouble first).

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[illegible]

1. Note the specific location of the trouble(s) by using the procedures described above.
2. Unlock and open the door.
3. Press **TRBL ACK** to acknowledge **all** troubles. The System displays the following message: ALL TROUBLES ACKNOWLEDGED.
4. If your System includes a printer, it prints the following message:

   [illegible]

5. If you press **TRBL ACK** again, the System displays

   [illegible]

   The **TROUBLE** LED glows steadily to indicate that all troubles are acknowledged. If there are no security conditions in the System, the internal audible goes silent; if any security conditions still exist, the internal audible pulses.

[illegible]

1. Press **TRBL ACK**. The System acknowledges the trouble displayed and then displays the next unacknowledged trouble.

   If your System has a printer, it prints an acknowledgment message similar to the following:

   [illegible]

   Note that the acknowledgment message includes the term ACK to indicate this trouble was acknowledged.
2. Continue acknowledging troubles as explained above until the System displays the following message:

   [illegible]

   The **TROUBLE** LED glows steadily to indicate that all troubles are acknowledged. If there are no security conditions still in the System, the internal audible goes silent; if any of those conditions still exist, the internal audible pulses.
3. If your System includes a printer, it prints the following message:

   [illegible]

[illegible]

[illegible]

When a security condition is detected, the System causes the **SECURITY** LED on the MKB-4 to flash, the System's internal audible to sound, and the alphanumeric display on the MKB-4 to alternate in a sequence among the three messages shown below. This example assumes that two security conditions were received (See the explanations below the messages).

Message 1:

[illegible] *[custom message]*
[illegible] *[device type]* [illegible]

Message 2:

[illegible] *[custom message]*
[illegible] *[time/date]* [illegible]

Message 3:

[illegible]

In addition, the System responds to security conditions with programmed output functions.

In the messages above, **1-001** represents the address of the device reporting the security condition.

002 in the first message tells you that this is the second (and the most recent) of two security conditions received.

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The status information in the third message reports the total number of alarms, supervisories, troubles, and security conditions.

If your System includes a printer, it prints a message from two to four lines long similar to the following:

[illegible]

In the preceding printed message, **SECURITY** indicates that the type of occurrence is a security condition; **1-1** is the device address; **#1** is the number of the security condition in the list of security conditions; ***[custom message]*** is a custom message entered using the CSG-M Custom Software Generator (See the *CSG-M Programming Manual,* P/N 315-090381); ***[device type]*** is the type of device which reported the security condition.

[illegible]

To see the security condition list when there is more than one security condition, press **NEXT** on the MKB-4 (the System displays the most recent security condition first).

[illegible]

1. Press **SEC ACK.** The System acknowledges the security condition displayed and then displays the next unacknowledged security condition.

   If your System has a printer, it prints an acknowledgment message similar to the following:

   [illegible]

   Note that the acknowledgment message includes the term ACK to indicate this security condition was acknowledged.

2. Continue acknowledging security conditions as explained above until the System displays the following message: ALL SECURITY CONDITIONS ACKNOWLEDGED.

   The SECURITY LED glows steadily to indicate that all security conditions are acknowledged, and the internal audible goes silent.

3. If your System includes a printer, it prints the following message:

   [illegible]

[illegible]

[illegible]

Other terms for *Hard Reset* are *Power-up, Initialization,* and *Cold Reset.*

Applying power to the System performs a Hard Reset which initializes (starts) the entire system.

[illegible]

- Alarms, supervisories, troubles, security conditions
- Any user entries such as time and date
- Arm/disarm
- Manual sensitivity adjustment
- Time-based control until time is reset

[illegible]

- CSG-M program

[illegible]

To perform a Soft Reset, press **RESET** on the MKB-4 (Refer to Figure 32, page 3-4). Soft reset does not work until you acknowledge all alarms, supervisories, troubles, and security conditions and silence the System.

[illegible]

- Alarms, supervisories, troubles, security conditions
- Arm/disarm (unless option disabled by CSG-M)

[illegible]

- Any user entries such as time and date.
- Arm/disarm (when enabled by CSG-M)
- CSG-M program
- Manual sensitivity adjustment
- Time-based control

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If you press **RESET** before acknowledging all conditions and silencing the audible alarms, the display shows a message similar to the following:

[illegible]

(or)

[illegible]

(or)

[illegible]

(or)

[illegible]

(or)

[illegible]

If your System has a printer, it prints a message similar to the following and adds *SYSTEM NOT RESET* on the bottom line:

[illegible]

When the System performs a Soft Reset, the display shows the following message:

[illegible]

The System then returns to Normal mode and the display shows the following:

[illegible]

If your System has a printer, it prints the following message:

[illegible]

If the System is already in Normal mode when you press **RESET**, it displays

SYSTEM ALREADY NORMAL

and does not reset.

U[illegible]

The Global MKB Keyboard/Annunciator Panel operates the same as described in *Using The MKB Keyboard/Annunciator Panel Local Mode,* except as noted below.

[illegible]

- As in all networked MXL Systems, the self-restoring trouble option is not allowed in any MXL.
- An MXL still may only contain a maximum of 4 supervised MKBs. This can be a mix of local and global MKBs.
- BLOCK ACK must be enabled in the CSG-M.
- The maximum number of supervised Global MKBs is 10.
- The maximum number of Global Printers is 2 (not TSP-40s).

[illegible]

In order to insert the XNET node information and provide an indication of the number of events in the System, some of the characters in the first and second lines have been lost.

NN = NODE # (1 - 64)
MMM = MODULE # (1 - 253)
DDD = DEVICE # (1 - 254)

[illegible]

The 3 event displays are formatted as follows for an alarm condition:

[illegible]

[illegible]

[illegible]

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□□□□□□□□□□

The 3 event displays are formatted as follows for a supervisory condition:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	□□□
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□□□□□□□□

The 3 event displays are formatted as follows for a trouble condition:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	□□□
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The 3 event displays are formatted as follows for a security condition:

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□□□□□□□□□□□	□□□□□□□□□□□□

Leading zeros are not included in addresses and counts.

Additional data causes a three character shift right, resulting in the loss of three characters from the displayed message.

Additional data also causes a two character shift to the right, resulting in the loss of two characters of the device or trouble type.

The System queue totals are over 10,000 events. This expands the event number fields to 5 digits from 3. The order of these events is as follows:

- Queue priority (Alarm, Supervisory, Trouble, Security).
- Time and date of event (newest first).
- If the two previous items are identical, the lower node number takes priority.

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□□□□□□□□

Global block acknowledgment operates as in a standalone MXL, but with global scope. Events for the queue acknowledge System wide (all nodes).

Pressing a global **BLOCK ACK** key results in a broadcast XNET message to all nodes to acknowledge all events in that queue. Panels process the event just as if the key press had occurred at one of its MKBs. A success code (or error code) is sent to the NODE that initiated the global acknowledge.

An acknowledgment message is displayed and printed (and the appropriate LED is updated) when the MXL determines all events at that level have been acknowledged (System wide). The time/date stamp of an event is used to determine the true state of the System.

LEDs are not updated unless all nodes confirm the acknowledgment has been successfully executed.

□□□□□□□□□□

This key is NOT a toggle as in a local mode. If silenceable audibles are active anywhere in the System, the LED flashes.

When the global **AUD SILENCE** key is pressed with any/all audibles in the System unsilenced, a global silence command is issued. The command is processed in the nodes as if a local audible silence had been requested.

Command preprocessing is in place to prevent silenceable audibles from getting out of sync (some systems on, some systems off) on a System basis. No audibles will be silenced unless all can be silenced. However, in cases where local control is enabled, this may be unavoidable. An error code (or success via a silence event message) allows the global MKB to keep up to date as to true System status. If any panel reports an error, the display status remains unchanged.

When the global **AUD SILENCE** key is pressed with all audibles in the System silenced, a global unsilence command is issued. The command is processed in the

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nodes as if a local audible unsilence had been requested. An error code (or success via a silence event message) allows the global MKB to keep up to date as to true System status. **If any panel reports an error, the display status changes since some audibles have been unsilenced.**

[illegible]

When the global reset key is pressed, each node is tested. If all nodes meet the conditions required for reset, the reset command is sent and executed. Otherwise, the corresponding error message is displayed.

[illegible]

This key operates the same as in the local mode. However, it moves the user through the System events globally in the priority order established earlier.

[illegible]

This key operates the same as in the local mode.

[illegible]

These keys operates the same as in the local MKB.

[illegible]

These keys operates the same as in the local MKB.

[illegible]

The menu gives you wide control of the MXL-IQ System. You may use the menu no matter what mode the System is in.

The discussion in this section is in the following order:

- Operation of the keys on the MKB-4 Keyboard/Annunciator
- Overview of the menu's structure
- Beginning a menu session
- Introduction to each of the four menus:
  - Acknowledge menu
  - List menu
  - Control menu
  - Test menu
  - Entering your password
  - Entering module and device numbers
- Using the Acknowledge menu
- Using the List menu
- Using the Control menu
- Using the Test menu

[illegible]

Use the numeric keypad and the directional and command keypad when working with the menu.

[illegible]

Use the numeric keypad (keys 0 through 9) when the System asks for a module number, device number, password, time, date, or other information. The display shows each number as you press the key. However, when you enter a password, the System shows asterisks in place of the digits entered.

[illegible]

The Command Keypad has both directional and command keys that are used to move through the menu and perform specific functions. Refer to Table 18 for a description of the Command Keypad.

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Press **ENTER** to enter the menu. The menu then uses the first 32 spaces of the second line of the display to communicate with you. When you use the *Acknowledge* or *List* menu, the menu uses both lines of the display.

If you are in the menu and do not depress a numeric or arrow key at any time during a 1 minute period, the System returns to the previous item.

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When you first press **ENTER** to begin a menu session, the second line of the display shows the four Main Menu items:

The *A* in *Acknowledge* is blinking. Select *Acknowledge* by pressing **ENTER** while the *A* is blinking.

Use the Left and Right arrow keys to move around in this four-item menu.

To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.

The Main Menu, displayed when you press **ENTER** to begin a menu session, lists the four main items in the menu:

For help in understanding what the Acknowledge function does, press **HELP** when the *A* in *ACKNOWLEDGE* is blinking. The System displays:

Use this menu function to acknowledge alarms, supervisories, troubles, and security conditions individually.

To return to the Main Menu display, press **HELP** again:

We discuss the Acknowledge menu in detail beginning on page 3-18.

To move to *LIST* on the Main Menu, press the Right arrow key once; the *L* in *LIST* begins blinking:

For help in understanding what the List function does, press **HELP** when the *L* in *LIST* is blinking. The System displays:

Use this function to list information on the System and its devices.

To return to the Main Menu display, press **HELP** again:

We discuss the List menu in detail beginning on page 3-22.

To move to *CONTROL* on the Main Menu, press the Right arrow key twice from *ACKNOWLEDGE*; the *C* in *CONTROL* begins blinking:

For help in understanding what the Control function does, press **HELP** while the *C* in *CONTROL* is blinking. The System displays:

Use the Control function to reset the System and to change the settings of various devices.

To return to the Main Menu display, press **HELP** again:

We discuss the Control menu in detail beginning on page 3-36.

To move to *TEST*, press the Right arrow key three times from *ACKNOWLEDGE*; the *T* in *TEST* begins blinking:

For help in understanding what the Test function does, press **HELP** while the *T* in *TEST* is blinking. The System displays:

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[illegible]

Use this function to test the System, its loops, and its devices, including ground fault, battery voltage and current, and the LEDs.

To return to the Main Menu display, press **HELP** again:

[illegible]

We discuss the Test menu in detail beginning on page 3-42.

[illegible]

If you select *CONTROL, TEST*, or WALKTEST, the System asks for your password:

[illegible]

If you press **HELP**, the System explains this function; press **HELP** again to return to the previous display.

Type your (1-5 digit) password, using the numeric keypad. The System shows an asterisk for each digit that you type. (Use the Left arrow key to erase an error.)

When you have typed the entire password, press **ENTER**. If your password does not match a password stored in the System, the System briefly displays the following message and then returns you to the first password display:

[illegible]

If your password level is not high enough to use the Test functions, the System briefly displays the following message and then returns you to the first password display:

[illegible]

PASSWORD LEVELS

Rev 5.0 and Above	
Highest	Test
[illegible]	Control
Lowest	Walktest
Below Rev 5.0	
Highest	Walktest
[illegible]	Test
Lowest	Control

The System gives you three chances to enter an acceptable password before it returns you to the Main Menu.

If the System accepts your password, it displays the Control, Test, or Walktest menu. We discuss those menus later in this section.

[illegible]

The System asks you to supply a module number or device number, or both, during certain functions described in the pages that follow. Below is a summary of the procedures involved.

NOTE: The terms *module number* and *module address* are used interchangeably in this manual.

[illegible]

The System displays

[illegible]

If you press **HELP** at this point, the System displays the following explanation:

[illegible]

Press **HELP** again to return to the previous display. Type all three digits, including leading zeros, and press **ENTER**.

When you type the module number, use the Left arrow key as a backspace key to erase errors.

[illegible]

The System displays

[illegible]

(If you press **HELP** at this point, the System displays the following explanation:

[illegible]

Press **HELP** again to return to the previous display. Type all of the digits, including leading zeros, and press **ENTER**.)

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The System then displays the next supervisory to acknowledge.

To skip a supervisory, press **NEXT**. The System displays the next supervisory in the series. When the System has displayed all of the unacknowledged supervisories, the System returns to the acknowledge menu on the second line of the display.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

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Use this function to individually acknowledge troubles.

Select *ACKNOWLEDGE* from the Main Menu by pressing **ENTER** while the *A* in *ACKNOWLEDGE* is blinking. The System displays the first Acknowledge menu:

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Press the Right arrow key **twice**. The System displays the *Acknowledge* menu with *T* in *TROUBLE* blinking:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

(If you press **HELP** at this time, the System explains the *Acknowledge Trouble* function:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the acknowledge menu.)

Press **ENTER** while the *T* is blinking to select *Trouble*.

□□□□□□□□□□□□□□□□□□□□

If there is no trouble to acknowledge, the System briefly displays the following message and returns you to the acknowledge menu:

□□□□□□□□□□□□□□□□□□

(If your System has a printer, it prints the above message as well.)

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

If all the troubles are acknowledged, the System displays the following message and returns you to the Acknowledge menu:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

(If your System has a printer, it prints the above message as well.)

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

The System does not let you acknowledge troubles if there are any unacknowledged fire alarms or supervisories. Follow the instructions above to acknowledge them.

After you acknowledge all fire alarms and supervisories, the System allows you to acknowledge troubles. If there is at least one unacknowledged trouble, the System shows the most recent unacknowledged trouble on both lines of the display, as in the following display:

□□□□□□□□*[custom message]*
□□□□□*[trouble type]*□□□□□□□□□□□

In the above display, **36** is the module number, **050** is the device number, the message on the first line is the custom message for that device, **018** indicates that this is the eighteenth trouble, ***[trouble type]*** indicates the type of trouble, and **IN TBL** identifies the event as the occurrence of a trouble.

(Press **HELP** if you want information on what to do. The System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
□□□□□□□□

Press **HELP** again to return to the previous display.)

Press **ENTER** to acknowledge the trouble shown. The System prints a message similar to the following message and removes that trouble from the unacknowledged trouble list:

▫▫
▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

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In the above message, the time and date are the time and date that the condition was acknowledged and **36-050** is the address.

The System then displays the next trouble to acknowledge.

When the System has displayed all of the unacknowledged troubles, it returns to the Acknowledge menu.

Press **ENTER** to acknowledge the security condition shown. The System prints a message similar to the following message and removes that security condition from the unacknowledged security list:

```
[illegible]
[illegible] [custom message], [device type]
```

In the above message, the time and date given are the time and date when the security condition was acknowledged, and **42-058** is the address.

The System then displays the next security report to acknowledge.

To skip a security condition, press **NEXT**. The System displays the next security condition in the series. When the System has displayed all of the unacknowledged security conditions, it returns to the Acknowledge menu.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

[illegible]

The List menu has eighteen items from which to choose; the shortened terms used in the menu are in parentheses.

You can generate a printed list or report for every item on the List menu except Node Address. See the discussion for each item that follows.

Status

Alarm

Supervisory (Supervsry)

Trouble

Security

Sensitivity (Senstvty)

Voltages

Temp

Module type (Mod type)

Device type (Dev type)

Message

Software version (SW version)

Output states

Device usages

Node address

Analaser

Percent/ft

ASD_apps

Use the List menu to learn the following information:

- Status of the System
- Alarm information
- Supervisory information
- Trouble information
- Security information
- Detector sensitivity
- Detector voltage
  - Analog
  - Threshold (Thresh)
  - Sensitivity (Sens)
- Temperature of FP-11 or FPT-11
- Type of module
- Type of device
- Custom message of the given address
- Version of the System software
- Output states
- Device usages
- Panel's X-Network node address
- Percent per foot obscuration
  - Sensitivity
  - Pre-alarm
  - Analog
- Device application (ASD setting)

[illegible]

From the Main Menu, use the Left or Right arrow key to cause the *L* in *List* to blink.

If you press **HELP** at this point, the System explains the List function:

```
[illegible]
```

Press **HELP** again to return to the Main Menu.

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Press **ENTER** to select *LIST*. The System displays the first List menu, with the *S* in *STATUS* blinking:

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

The *List Status* function shows you the number of acknowledged and unacknowledged alarms, supervisories, troubles, and security conditions, in that order.

From the List menu, use the Right or Left arrow keys to cause the *S* in *STATUS* to blink.

(If you press **HELP** at this point, the System explains the *List Status* function:

Press **HELP** again to return to the List menu.)

When you press **ENTER** to select *List Status,* the display first shows the total number of alarms and the number of acknowledged alarms:

To view, in order, the status of supervisories, troubles, and security conditions, press **NEXT**.

After the Security display, the System returns to the List menu.

To make a printed list of current status, press **PRINT** when the *S* in *STATUS* is blinking. The System will print a listing similar to the following:

In the above printed message, there are two alarms, both of them acknowledged, no supervisory conditions, 30 trouble conditions, all acknowledged, and no security conditions.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

The *List Alarm* function shows you all the fire alarms currently in the System in the order they occurred.

From the List menu, use the Left or Right arrow key to cause the *A* in *ALARM* to begin blinking.

If you press **HELP** at this point, the System explains the *List Alarm* function:

Press **HELP** again to return to the List menu.

Press **ENTER** to select *ALARM* and display alarm information on the MKB-4 display.

If there is no fire alarm, the System briefly displays the following message and then returns you to the List menu:

If there is at least one fire alarm, the System shows the most recent alarm, alternating between the following two displays:

[custom message]
[device type]

[custom message]
[time/date]

Press **NEXT** to show the two displays for the previous alarm in the sequence. (Pressing **HOLD** freezes a display for as long as you keep **HOLD** depressed.)

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When the System has shown all current fire alarms, it returns to the List menu.

To obtain a full printed list of alarms in the following format—one item for each current alarm—press **PRINT** when the *A* in *ALARM* is blinking.

In the above listing, **1-5** is the address of the device in alarm, the time is the time the device went into alarm, **#1** is the number of this alarm in the current list, ***[custom message]*** is the custom message for the device in alarm, and ***[device type]*** is the type of device in alarm.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

The *List Supervisory* function shows you all the supervisories currently in the System in the order they occurred.

From the List menu, use the Left or Right arrow key to cause the *S* in *SUPERVSRY* to blink.

(If you press **HELP** at this point, the System explains the List Supervisory function:

Press **HELP** again to return to the List menu.)

Press **ENTER** to select *SUPERVSRY* and display supervisory information on the MKB-4 display.

If there is no supervisory, the System briefly displays the following message and then returns you to the List menu:

If there is at least one supervisory, the System shows the most recent supervisory, alternating between the following two displays:

[custom message]
[device type]

[custom-message]
[time/date]

Press **NEXT** to show the two displays for the previous supervisory in the sequence. (Pressing **HOLD** freezes a display for as long as you keep **HOLD** depressed.)

When the System has shown all current supervisories, it returns to the List menu.

To obtain a full printed list of supervisories in the following format—one item for each current supervisory—press **PRINT** when the *S* in *SUPERVISORY* is blinking.

In the preceding listing, **32-45** is the address of the device in supervisory, **#7** is the number of the supervisory in the current list, ***[custom message]*** is the custom message for the device in supervisory, and ***[device type]*** is the type of device in supervisory.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

The *List Trouble* function shows you all the troubles currently in the System in the order they occurred.

From the List menu, use the left or right arrow key three times to cause the *T* in *TROUBLE* to blink.

(If you press **HELP** at this point, the System explains the List Trouble function:

Press **HELP** again to return to the List menu.)

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Press **ENTER** to select *TROUBLE* and display trouble information on the MKB-4 display.

If there is no trouble, the System briefly displays the following message and then returns to the List menu:

If there is at least one trouble, the System shows the most recent trouble, alternating between the following two displays:

[custom message]
[trouble type]

[device type]
[time/date]

Press **NEXT** to show the two displays for the previous trouble in the sequence. (Pressing **HOLD** freezes a display for as long as you keep **HOLD** depressed.)

When the System has shown all current troubles, it returns to the List menu.

To obtain a full printed list of troubles in the following format—one item for each current trouble—press **PRINT** when the *T* in *TROUBLE* is blinking.

In the above listing **29-41** is the address of the device in trouble, the time tells when the device went into trouble, **#7** is the number of this trouble in the current list, ***[custom message]*** is the custom message for the device in trouble, ***[trouble type]*** is the type of trouble, and ***[device type]*** is the type of device in trouble.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

The List Security function shows you all the security conditions currently in the System in the order they occurred.

From the List menu, use the left or right arrow key to cause the *S* in *SECURITY* to blink.

(If you press **HELP** at this point, the System explains the List Security function:

Press **HELP** again to return to the List menu.)

Press **ENTER** to select *SECURITY* and display security information on the MKB-4 display.

If there is no security condition, the System briefly displays the following message and then returns you to the List menu:

If there is at least one security condition, the System shows the most recent security condition, alternating between the following two displays:

[custom message]
[device type]

[custom message]
[time/date]

Press **NEXT** to show the two displays for the previous security condition in the sequence. (Pressing **HOLD** freezes a display for as long as you keep **HOLD** depressed.)

When the System has shown all current security conditions, it returns to the List menu.

To obtain a full printed list of security conditions in the following format— one item for each current security condition—press **PRINT** when the *S* in *SECURITY* is blinking.

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In the above listing **29-42** is the address of the device causing the security condition, the time when the device caused the security condition, **#7** is the number of this security condition, ***[custom message]*** is the custom message for the device causing the security condition, and ***[device type]*** is the type of device causing the security condition.

To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.

Use List Sensitivity to show sensitivity setting of individual smoke detectors on analog loops.

From the List menu use the left or right arrow key to cause the *S* in *SENSTVTY* to start blinking:

(If you press **HELP** at this point, the System displays:

Note that *List Sensitivity* shows the sensitivity of smoke detectors only. Press **HELP** again to return to the List menu.)

Press **ENTER** to select *List Sensitivity*. The System asks you for a module and device number.

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

The System displays the sensitivity setting of the device specified (*Hi_3, Hi_2, Hi_1, Norm, Low_1, Low_2* or *Low_3*).

Press **NEXT** to display the address and sensitivity setting of each succeeding smoke detector. When the System has shown the sensitivity settings of all smoke detectors on that analog loop, it returns to the List menu.

To leave the *List Sensitivity* menu without going through the entire analog loop, press the Up arrow key. The System displays the List menu.

Press **PRINT** when the *S* in *SENSTVTY* is blinking. The System then asks for a module number.

[module number]

Type the three-digit module number and press **ENTER**. (Enter all leading zeros.)

The System prints the sensitivity settings (*Hi_3, Hi_2, Hi_1, Norm, Low_1, Low_2* or *Low_3,* or ... if there is no smoke detector) of all the devices assigned to the analog loop.

NOTE: You cannot print the sensitivity setting of a single smoke detector.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *List Voltages* to show the voltages of initiating devices on analog loops.

From the List menu press the Left or Right arrow key to cause the *V* in *VOLTAGES* to start blinking:

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(If you press **HELP** at this point, the System displays:

[illegible]

Press **HELP** again to return to the List menu.)

[illegible]

Press **ENTER** to select *List Voltages*. The System asks you for a module number and device number. Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.) The System shows the following menu for that device (the *A* in *ANALOG* will be blinking):

[illegible]

Press **ENTER** to show the Analog voltage for that device. When you ask for any voltage, the System displays *Please wait for response* until it receives a reading from the device; if you have just reset the System, it alternates the above message with the message *Device being initialized.* The display for Analog voltage is similar to the following (readings are dynamic):

[illegible]

Press **ENTER** to return to the previous display. To view the Threshold or Sensitivity voltage of any device listed, use the Right and Left arrow keys to highlight the first letter of the category desired and press **ENTER**.

The display for Threshold voltage is similar to the following:

[illegible]

The display for Sensitivity voltage is similar to the following (readings are dynamic):

[illegible]

Press the Up arrow key to return to the *List: Voltage Mod_type Dev_type* menu.

If the module number entered is not an analog loop, the System displays:

`Not Analog Loop.`

If the device address has no device assigned by CSG-M, the System displays:

`No Device Assigned`

When displaying sensitivities, if the device is not a smoke detector, the System displays:

`Not a Smoke Detector`

[illegible]

Press **PRINT** when the *V* in *Voltages* is blinking. The System asks you for a module number. Type the three-digit module number and press **ENTER**. (Enter all leading zeros.)

[illegible]

Press **ENTER** to print the Analog voltage for all devices assigned to the module (ND = No Device).

[illegible]

To print the Threshold voltages of all the devices for the specified module, use the arrow keys to cause the *T* in *THRESH* to blink and press **PRINT**. The System prints those threshold voltages in a format similar to the following (ND = No Device):

[illegible]

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To print the Sensitivity voltages of all the smoke detectors for the specified module, use the arrow keys to cause the *S* in *SENS* to blink and press **PRINT**. The System prints those sensitivity voltages in a format similar to the following (ND = No Device, or device not a smoke detector):

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use List Temp to display the current temperature on the LCD display at the location where the detector is installed.

From the List menu use the left or right arrow key to cause the *T* in *Temp* to start blinking:

Press ENTER to select *List Temp*. The System asks you for a module and device number:

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**.

If the device is not installed or is not an FP-11 or FPT-11, the system displays following message:

If the device is an FP-11 or FPT-11, the temperature is displayed in the following format:

Press **NEXT** to display the temperature of the FP-11 or FPT-11 at the next higher address in the same loop.

To leave the Temp menu without going through all subaddresses, press the Up arrow key. The System displays the List menu.

Use the *List Mod_type* to show the type of a particular module.

From the List menu use the Left or Right arrow key to cause the *M* in *MOD TYPE* to start blinking:

(If you press **HELP** at this point, the System explains this function:

Press **HELP** again to return to the List menu.)

Press **ENTER** when the *M* in *MOD_ TYPE* is blinking. The System asks you for a module number:

Type the three-digit module number using the numeric keypad and press **ENTER**. (Enter the leading zeros.) The System displays the module type for the module number specified:

If you press **NEXT**, the System displays the module type for the next module number in the sequence:

NOTE: If you enter a module number not assigned in CSG-M, the System displays:

With each press of **NEXT**, the System continues to display module types through

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number 255, the highest module number allowed by the System. It then returns to the List menu.

Press **PRINT** when the *M* in *MOD_ TYPE* is blinking to print a full list of module types and their Network addresses. The System prints a list similar to the following:

In the above display, the number following the V (for example, **V7)** is the software version number of the software installed in the module.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *List Device Type* to show the type of a particular device.

From the List menu use the Left or Right arrow key to cause the *D* in *DEV_TYPE* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the List menu.)

Press **ENTER** when the *D* is blinking to select *LIST DEV_TYPE.*

The System asks you for a module and device number:

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.) The System displays the device type for the address specified:

[device type]

If you press **NEXT**, the System displays the device type for the next device in the sequence:

[device type]

With each press of **NEXT**, the System continues to display device types until there are no more devices for that module. The System then returns to the List menu. To proceed to another module, follow the preceding instructions.

Press **PRINT** when the *D* is blinking to select *LIST DEVICE*. The System asks you for a module number:

Type only the module number and press **PRINT**. (Enter all leading zeros.) The System prints a list of all device types assigned to the specified module in a format similar to the following:

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *List Message* to show the CSG-M assigned custom message of a particular device.

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Press **NEXT** again to display the version of CSG-M used to create this System.

[version number]

Press **NEXT** again to display the CSG-M file name installed.

[file name]

Press **NEXT** again to display the date and time of CSG-M installation:

[time and date]

Press **PRINT** when the *S* in *SW_ VER-SION* is blinking to select *List S/ W_Version.* The System prints the System Custom Message, MXL-IQ Software Version, Version of CSG-M Used to Create the System, CSG-M File Name Installed, and Date and Time of Installation:

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *List Output States* to show the current states of individual outputs in the MXL-IQ.

From the List menu use the left or right arrow key to cause the *O* in *Output States* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the List menu.)

Press **ENTER** to select *List Output States*. The System asks you for a module and device number.

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

The System displays the output state of the device specified.

Press **NEXT** to display the address and output state of each succeeding device. When the System has shown the output states of all devices at that address, it returns to the List menu.

To leave the List output state menu without going through all subaddresses, press the Up arrow key. The System displays the List menu.

Press **PRINT** when the *O* in *Output States* is blinking. The System then asks for a module number.

Type the three-digit module number and press **ENTER**. (Enter all leading zeros.)

The System prints the output state of all of the devices assigned to that module.

Use *List Device Usages* to show the uses of individual devices as programmed in CSG-M.

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and press **ENTER**. The system displays the smoke level for the address specified:

[illegible]

The bar graph in the example above shows the following information for the AnaLASER device at address 010-004:

50% = 50% of full scale smoke level
! = active trip point at 30%
* = inactive trip point at 60% and 100%
PRE1 indicates the device is in PreAlarm 1

PRE2 and **ALRM** indicate the PreAlarm 2 and Alarm states, respectively. The bar-graph continuously updates to reflect the current state of the AnaLASER zone that is being viewed.

[illegible]

Press **PRINT** when the *S* in *SMOKE_LEV* is blinking to print the ANALASER SMOKE_LEV.

The System asks you for a module number:

[illegible]

Type the three-digit NIM-1R (ANA) module number and press **ENTER**. The System sends smoke levels for all devices on the selected MODULE to the printer.

[illegible]

For printed bar graphs, the characters shown below indicate the following:

. = an inactive trip point
! = an active trip point

[illegible]

Press **ENTER** when the *F* in *FLOW_LEV* is blinking to select *LIST ANALASER FLOW_LEV.*

The System asks you for a module and device number:

[illegible]

Type the three-digit NIM-1R (ANA) module number and three-digit ACC device address number using the numeric keypad and press **ENTER**. The System displays the air flow level for the address specified:

[illegible]

The bar graph in the example above shows the following information for the AnaLASER device at address 010-004:

50% = 50% of full scale air flow level
! = low air flow trip point at 20%
* = high air flow trip point at 90%

NORM indicates that the current air flow level is at a normal level, **HIGH** indicates airflow is too high, and **LOW** indicates airflow is too low. The bar graph continuously updates to reflect the current state of the AnaLASER zone that is being viewed.

[illegible]

Press **PRINT** when the *F* in *FLOW_LEV* is blinking to print the ANALASER FLOW_LEV.

The System asks you for a module number:

[illegible]

Type the three-digit NIM-1R (ANA) module number and press **ENTER**. The System sends air flow levels for all devices on the selected MODULE to the printer.

[illegible]

[illegible]

Press **ENTER** when the *T* in *TRIP_PTS* is blinking to select *LIST ANALASER TRIP_PTS.*

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The System prompts you to select between ALARM_TRIP and FLOW_TRIP.

Press **ENTER** when the *A* in *ALARM_TRIP* is blinking to select *LIST TRIP_PTS ALARM_TRIP.*

The System asks you for a module and device number.

Type the three-digit NIM-1R (ANA) module number and three-digit ACC device address number using the numeric keypad and press **ENTER**. The System displays the current alarm trip point settings for the address specified:

Press **PRINT** when the *A* in *ALARM_TRIP* is blinking to print the ANALASER ALARM_TRIP points.

The System asks you for a module number:

Type the three-digit NIM-1R (ANA) module number and press **ENTER**. The System sends alarm trip point levels for all devices on the selected MODULE to the printer.

Press **ENTER** when the *F* in *FLOW_TRIP* is blinking to select *LIST TRIP_PTS FLOW_TRIP.*

The System asks you for a module and device number.

Type the three-digit NIM-1R (ANA) module number and three-digit ACC device address number using the numeric keypad and press **ENTER**. The System displays the current air flow trip point settings for the address specified:

Press **PRINT** when the *F* in *FLOW_TRIP* is blinking to print the ANALASER FLOW_TRIP points.

The System asks you for a module number:

Type the three-digit NIM-1R (ANA) module number and press **ENTER**.

The System sends air flow trip point levels for all devices on the selected MODULE to the printer.

Use *List Percent/ft* to show settings in percent/ft obscuration of the ILI and ILP Series detectors.

From the List menu, use the left or right arrow key to cause the *P* in *PERCENT/FT* to start blinking:

Press **ENTER** to select *List Percent/ft.* The System asks you for a module and device number.

Type in the three-digit module number and the three-digit device number using the numeric keypad and press **ENTER**. The System displays the following menu for that device (the *S* in *Senstvty* will be blinking):

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The display for Sensitivity supplies the current sensitivity as read back from the detector and is similar to the following (readings are dynamic):

The display for Pre-alarm supplies the current Pre-alarm setting read back from the detector and is similar to the following (readings are dynamic):

The display for Analog supplies the current analog2 reading read from the detector and is similar to the following (readings are dynamic):

To leave the *Percent/ft* menu without going through all subaddresses, press the Up arrow key. The System displays the List menu.

Press **PRINT** when the *P* in *Percent/ft* is blinking. The System asks you for a module number.

Type the three-digit module number using the numeric keypad and press **ENTER**. The System shows the following menu for that device (the *S* in *Senstvty* will be blinking):

The System prints either the Sensitivity, Pre-alarm, or Analog of all the devices for the specified module in a format similar to the following (NA = ID-60 detector):

Use *List ASD_apps* to display operational characteristics of the ASD devices.

From the List menu use the left or right arrow key to cause the *A* in *ASD_Apps* to start blinking:

Press **ENTER** to select *ASD_apps.* The System asks you for a module and device number:

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

The System displays the currently assigned application for the device specified. (Refer to the ASD Submenu Abbreviations on page I-1.)

Press **NEXT** to display the address and assigned application of each succeeding device. The System will exit the *ASD_Apps* menu if there are no more ASD devices in that module.

To leave the *List ASD_Apps* menu at any time, press the Up arrow key. The System displays the List menu.

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[illegible]

Press **PRINT** when the *A* in *ASD_Apps* is blinking. The System asks you for a module number:

[illegible]

Type the three-digit module number using the numeric keypad and press **ENTER**. (Enter all leading zeros.) The System prints a list of all the applications currently assigned to all the ASD devices in that ALD loop in a format similar to the following (ND = No Device):

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

The Control menu has nine items from which to choose; six of the items have submenus, as follows (the shortened terms used in the menu are in parentheses):

- Reset
- Sensitivity (Senstvty)
  - Hi_3
  - Hi_2
  - Hi_1
  - Norm
  - Low_1
  - Low_2
  - Low_3
- Arm/Disarm (Arm/dis)
  - Arm
  - Disarm
- Output_on/off
  - Arm
  - Disarm
    - Energize
    - De_energize
- Loop arm/disarm
  - arm
  - disarm
- Net_link_request
- Analazer
  - Alarm-trip
  - Flow-trip
- Percent/ft
  - Sensitivity(Senstvty)
  - Pre-alarm
- Change-apps

Use the Control menu to perform the following functions:

- Reset the System
- Change the sensitivity of a smoke detector
- Arm or disarm an initiating device
- Arm an output device
- Disarm and energize an output device
- Disarm and de-energize an output device
- Arm and disarm a loop
- Send a request to the Network Command Center (NCC) to disconnect the MXL from the network
- Change AnaLASER Alarm Trip points and Flow Trip points
- Change sensitivity and pre-alarm settings in percent/ft obscuration of the ILI and ILP detectors
- Change the application of an ASD device

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From the Main Menu, use the arrow keys to cause the *C* in *CONTROL* to blink.

(If you press **HELP** at this point, the System explains the Control function:

Press **HELP** again to return to the Main Menu.)

Press **ENTER** to select *CONTROL*.

The System asks you for a password before it allows you to use the Control functions. Enter your one- to five-digit password, using the numeric keypad, and press **ENTER** (See the discussion under **Entering Your Password** on page 3-17).

If the System accepts your password, it displays the first Control menu, with the *R* in *RESET* blinking:

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use Control Reset to initiate a system reset at any time.

From the Control menu, use the Left or Right arrow key to cause the *R* in *RESET* to start blinking:

(If you press **HELP** while the *R* in *RESET* is blinking, the System explains this function:

Press **HELP** again to return to the above menu.)

Press **ENTER** to reset the System and display the following message:

If the System is normal, when SYSTEM RESET is selected, the System displays the following:

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *Control Sensitivity* to change the sensitivity settings of smoke detectors on analog loops.

From the Control menu, press the Right or Left arrow key to cause the *S* in *SENSTVTY* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the above menu.)

Note that *Control Sensitivity* allows you to change the sensitivity settings of smoke detectors only; if you attempt to change the sensitivity setting of another type of device, the System displays:

If you enter any address for which there is no device assigned, the System displays:

Press **ENTER** while the *S* in *SENSTVTY* is blinking to select *CONTROL SENSTVTY.*

The System asks you for a module number and device number:

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Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. The System shows the following display:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

The current sensitivity setting is highlighted. The System offers you a choice of seven levels of sensitivity: *Hi_3, Hi_2, Hi_1, Norm, Low_1, Low_2* or *Low_3*. Use the Right and Left arrow keys to highlight the level you wish to set for the smoke detector specified and press **ENTER**. The System makes the change in sensitivity setting.

Press **NEXT** to move through the devices until you display the ones you want to change, and follow the instructions above for making the changes.

When the System has displayed the highest numbered device for the module specified, it returns to the *Control* menu. You can select another address by selecting SENSTVTY and following the instructions above.

To leave the *Control Sensitivity* displays without going through the entire list, press the Up arrow key. The System displays the *Control* menu.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

□□□□□□□□□□□□□□□□

Use *Control Arm/dis* to enable or disable the operation of an initiating device.

From the Control menu, press the Left or Right arrow key to cause the *A* in *ARM/DIS* to start blinking.

(If you press **HELP** at this point, the System displays:

□□□□□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the Control menu.)

Press **ENTER** while the *A* in *ARM/DIS* is blinking to select

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Press **HELP** again to return to the above menu.)

Press **ENTER** while the *O* in *OUTPUT* is blinking to select *CONTROL_OUTPUT ON/OFF*.

The System asks for a module number and device number of the device you wish to turn on or off (energize or de-energize). Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

The System shows the following display:

□□□□□□□□□□□□□□□□□□

The System offers you a choice of arming or disarming the device.

Use the Right and Left arrow keys to highlight your choice and press **ENTER**.

If you have armed the device, you can press **NEXT** to display the number of the next device in the sequence. You can also press the Up arrow key to return to the Control menu.

NOTE: You must first disarm a device if you wish to energize or de-energize it.

When you disarm an output device, the System automatically annunciates the disarming as a Trouble and a Partial System Disable.

If you choose to disarm an output device, the System then asks if you wish to energize it or de-energize it:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Use the Right or Left arrow key to energize or de-energize the device and press **ENTER**. Press **NEXT** to move through the outputs until you display the ones you want to change; follow the instructions above for making the change.

When the System has displayed the highest numbered device for the module specified, it returns to the *Control* menu. To arm or disarm and energize or de-energize a device on a different module, follow the preceding instructions.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

□□□□□□□□□□□□□□□□

Use *Control Loop Arm* to enable the operation of a loop of ALD initiating devices.

From the Control menu, press the Left or Right arrow key to cause the *L* in *LOOP_ARM* to start blinking.

(If you press **HELP** at this point, the System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the Control menu.)

Press **ENTER** while the *L* in *LOOP_ARM* is blinking to select Control Loop_arm.

The System asks you for the module number of the ALD loop you wish to arm. Type the three-digit module number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

When you arm input devices, the System automatically annunciates the arming as a Trouble OUT, and lights the PARTIAL SYSTEM DISABLE LED.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

□□□□□□□□□□□□□□□□□

Use *Control Loop Disarm* to disable the operation of a loop of ALD initiating devices.

From the Control menu, press the Left or Right arrow key to cause the *L* in *LOOP_DISARM* to start blinking.

(If you press **HELP** at this point, the System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the Control menu.)

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Press **ENTER** while the *L* in *LOOP_DISARM* is blinking to select Control Loop_disarm.

The System asks you for the module number of the ALD loop you wish to disarm. Type the three-digit module number using the numeric keypad and press **ENTER**. (Enter all leading zeros.)

When you disarm input devices, the System automatically annunciates the disarming as a Trouble IN, and lights the PARTIAL SYSTEM DISABLE LED.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

□□□□□□□□□□□□□□□□□□□□□□□□

Use *Control Net_Link_Request* to connect or disconnect that particular panel from the X-Network. When the panel is disconnected from the X-Network, the panel maintains its functions, but it does not exchange messages with other nodes in the X-Network.

From the Control menu, press the Left or Right arrow key to cause the *N* in *NET_LINK_REQUEST* to start blinking.

(If you press **HELP** at this point, the System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the Control menu.)

Press **ENTER** while the *N* in *NET_LINK_REQUEST* is blinking to disconnect the panel from the X-Network.

To reconnect the panel to the X-Network, from the Control menu, press the Left or Right arrow key to cause the *N* in *NET_LINK_REQUEST* to start blinking and press **ENTER**.

□□□□□□□□□□□□□□□□□

Use *Control ANALASER* to display and change the operational characteristics of the AnaLASER devices.

Press **ENTER** when the *A* in *ANALASER* is blinking to select *Control ANALASER.*

The System prompts you to select between ALARM_TRIP and FLOW_TRIP.

Press **ENTER** when the *A* in *ALARM_TRIP* is blinking to select *CONTROL ALARM_TRIP.*

The System asks you for a module and device number.

□□□□□□□□□□□□□□□□□□□□□□□□

Type the three-digit NIM-1R (ANA) module number and three-digit ACC device address number using the numeric keypad and press **ENTER**. The system displays the current alarm trip point settings for the address specified:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Use the numeric keypad and the left and right arrow keys to modify the value for P1, P2, and ALM (Alarm). Note that the following provisions apply:

- P1 must be less than or equal to P2 which must be less than or equal to ALM. If these values are different, the System will reject the settings.
- P1, P2, and ALM must be even multiples of 10% or the System will reject the settings.

Press **ENTER** when you are finished modifying the settings. The display should then show:

□□□□□□□□□□□□□□□□□□□□

or

□□□□□□□□□□□□□□□□□□□□

Press **ENTER** when the *F* in *FLOW_TRIP* is blinking to select *Control FLOW_TRIP.*

The System asks you for a module and device number.

□□□□□□□□□□□□□□□□□□□□□□□□

Type the three-digit NIM-1R (ANA) module number and three-digit ACC device address number using the numeric keypad

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and press **ENTER**. The system displays the current air flow trip point settings for the address specified:

Use the numeric keypad and the left and right arrow keys to modify the value for LOW and HIGH. Note that the following provisions apply:

- LOW must be less than HIGH, or the System will reject the settings.
- The System will reject the settings if they are not even multiples of 10%.

Press **ENTER** when you are finished modifying the settings. The display should then show TRIP POINTS ACCEPTED.

Use *Control Percent/ft* to change sensitivity and pre-alarm settings in percent/ft obscuration of the ILI and ILP series of detectors.

From the Control menu, press the Left or Right arrow key to cause the *P* in *Percent/ft* to start blinking. The System asks you for a module number and device number.

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. The System displays the following:

The display for Sensitivity supplies the current sensitivity as read back from the detector and is similar to the following (readings are dynamic):

In the previous message, **002-003** is the address. **Sens** is the type of response (Sensitivity or Pre-alarm). **1.4%/ft** is the smoke detector reading in %/ft obscuration and **Norm** is the text sensitivity range corresponding to the %/ft readings.

Use the left and right arrow keys on the keypad to lower or raise the %/ft reading. (Refer to the Sensitivity and Pre-Alarm Settings chart that follows.)

Pre-alarm adjust increment	.25% / ft.	.12% / ft.
Pre-alarm range	.25 - 2.0% / ft.	.25 - .75% / ft.
Pre-alarm default	1.5% / ft.	.75% / ft.
Sensitivity adjust increment	~.25% / ft.	~.12% / ft.
Sensitivity range	1.25 - 3.4% / ft.	.6 - 1.6% / ft.
Sensitivity default (Norm)	3.0% / ft.	1.4% / ft.

After you change the sensitivity setting, the System prints the information for the selected device in a format similar to the following:

The display for Pre-alarm supplies the current pre-alarm setting read back from the detector and is similar to the following (readings are dynamic):

In the previous message, **002-003** is the address. **Pre-alarm** is the type of response (Sensitivity or Pre-alarm). **.75%/ft** is the smoke detector reading in %/ft obscuration and **Norm** is the text sensitivity range corresponding to the %/ft readings.

Use the left and right arrow keys on the keypad to lower or raise the %/ft reading. (Refer to the Sensitivity and Pre-Alarm Settings chart.)

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All_events

Hist_Ctrl
Hist_Erase

PYRO_Diags

PRE_ALARM

ASD_DEVICES

SUMMARIZE

MANUAL_ACTIVATE

*You can print a report of the information produced by these functions. See the discussions for *Test Power* and *Test Network.*

Use the Test menu for the following functions:

- Change the time and date in the System
- Test ground fault state
- Display the System's power condition
- Test the LEDs or the display on the MKB-4
- Test the LEDs on an analog device
- Perform lamp test on MOD-16 of MOI-7
- Display network performance characteristics
- Alarm verification/confirmation override
- IEC detector cleaned function
- Event (History) log menu
- Test Pre-alarm logic
- Test ASD detectors
- Record one summarized trouble for an entire module
- Perform testing on input points and simutale alarms

From the Main Menu, use the Left or Right arrow keys to cause the *T* in *TEST* to begin blinking.

(If you press **HELP** at this point, the System explains the Test function:

Press **HELP** again to return to the Main Menu.)

Press **ENTER** to select *TEST*. The System asks you for a password before it allows you to use the Test functions. Enter your one- to five-digit password, using the numeric keypad, and press **ENTER** (See the discussion under **Entering Your Password** on page 3-17).

If the System accepts your password, it displays the first Test menu.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *Test Set_Time* to set the time and date for the System.

From the Test menu, use the Left or Right arrow key to cause the *S* in *SET_TIME* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *S* in *SET_ TIME* is blinking to select *TEST SET_ TIME.*

The System shows you the current System time, using a 24-hour clock, and the date:

(If you press **HELP** at this point, the System displays:

The Help display tells you to type the time and date, using the numeric keypad, in the following format: hour: minute: seconds_month/day/year, and then to press **ENTER** to set the time and date. Use the Right and Left arrow keys to skip over a correct digit.

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Press **HELP** again to return to the above menu.)

Type the time and date as explained above and press **ENTER**. The System prints the current time and date on the printer and returns you to the Test menu.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *Test Gnd_flt* to test the present condition of the ground fault detection circuitry.

From the Test menu, use the Left or Right arrow key to cause the *G* in *GND_FLT* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the Test menu.)

Press **ENTER** when the *G* is blinking and the menu displays:

From the Ground Fault menu, press **ENTER** when the *M* in *MAIN* is blinking.

The System tests dynamically for ground fault and reports the results of the test on the display (*OK, PLUS,* or *MINUS*):

If the message is other than *OK,* locate the loop and the device responsible. The display automatically changes to *OK* when the ground fault problem is corrected. (During this test, the System and its devices remain operational.)

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *Test Power* to test the System's battery voltage, AC voltage, and battery charge current.

From the Test menu, use the Left or Right arrow key to cause the *P* in *POWER* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *P* is blinking and the menu displays:

From the Power menu, press **ENTER** when the *M* in *MAIN* is blinking to select Main Power.

The System shows the following menu:

Press **ENTER** when the *V* in *VOLTAGE* is blinking to display the battery voltage:

Press **ENTER** again to display the AC voltage:

Press the Up arrow key to return to the Main Power menu. Use the Right arrow key to cause the *C* in *CURRENT* to start blinking and press **ENTER**. The System shows the battery charge current in amps:

Press the Up arrow key twice to return to the Power menu.

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From the Power menu, press **PRINT** when the *M* in *MAIN* is blinking to select *MAIN POWER.* The System will print information in a format similar to the following:

Use *Test Lamp_test* to test the LEDs on the alphanumeric display on the MKB-4.

From the Test menu, use the Left or Right arrow key to cause the *L* in *LAMP* to start blinking:

(If you press **HELP** at this point, the System explains this function:

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *L* is blinking to select *TEST LAMP_TEST*. The System displays the following menu:

Press **ENTER** to test the LEDs and the audible on the MKB-4. The LEDs light for 5 seconds and then return to their previous state.

To test the alphanumeric display, press the Right arrow key once to cause the *D* in *DISPLAY* to start blinking and then press **ENTER**. The System tests the display and then returns to the Lamp Test menu.

(To end a menu session and return to the Main Menu or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

Use *Test Device_LED* to test the LEDs on the System's analog devices.

From the Test menu, use the Left or Right arrow key to cause the *D* in *DEVICE* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *D* is blinking to select *TEST DEVICE_LED*.

The System asks you to type the module and device numbers. Type the three-digit module number and the three-digit device number and press **ENTER**. (Enter all leading zeros.)

The System displays the following menu for the device (the *O* in *ON* will be blinking):

To turn on the LED for that device, press **ENTER**. The System turns on the LED for that device. Turning on a device LED automatically causes a Trouble to be annunciated.

Use the **NEXT** key to move through the devices until you display the ones whose LEDs you wish to test. Follow the instructions above.

When the System has displayed the highest numbered device for the module specified, it returns to the Test menu.

To turn on a device LED for a different module, select *DEVICE_ LED* from the Test menu and follow the preceding instructions.

(To end a menu session and return to the Main Menu, or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

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[illegible]

Use *MOI_lamp_test* to test the MOD-16 outputs of an MOI-7.

From the Test menu, use the Left or Right arrow key to cause the *M* in *MOI* to start blinking:

[illegible]

(If you press **HELP** at this point, the System displays:

[illegible]

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *M* is blinking to select *MOI_LAMP_TEST*.

The System asks you to type the module number. Type the three-digit module number and press **ENTER**. (Enter all leading zeros.)

If the MOI-7 module is present in CSG-M the MOD-16 outputs will be placed in a 30-second lamp test mode. After 30 seconds, these outputs return to their previous state.

(To end a menu session and return to the Main Menu, or to leave the menu at any time, press the Up arrow key to go backward one menu each time.)

[illegible]

This function is used only by Siemens Building Technologies, Inc. engineers to observe network traffic so that they can evaluate the operation of the module communication network.

[illegible]

Use *Test Override* to override the CSG-M selected options for Alarm Verification and Alarm Confirmation.

From the Test menu, use the Left or Right arrow key to cause the *O* in *OVERRIDE* to start blinking.

(If you press **HELP** at this point, the System displays:

[illegible]

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *O* in *OVERRIDE* is blinking and the menu displays:

[illegible]

Use the Left or Right arrow key to switch between *ALR_VERIFY* and *ALR_CONFIRM*.

[illegible]

From the Override menu, press **ENTER** when the *A* in *ALR_VERIFY* is blinking to select Alarm Verification.

The System shows the following menu:

[illegible]

A blinking *Y* in *YES* indicates that Alarm Verification Override is currently enabled. A blinking *N* in *NO* indicates that the Alarm Verification Override is currently disabled.

To enable Alarm Verification Override, use the Left or Right arrow key to cause the *Y* in *YES* to start blinking. Pressing **ENTER** when the *Y* in *YES* is blinking will cause Alarm Verification Override to be enabled. The System will display the following message:

[illegible]

To disable Alarm Verification Override, use the Left or Right arrow key to cause the *N* in *NO* to start blinking. Pressing **ENTER** when the *N* in *NO* is blinking will cause Alarm Verification Override to be disabled. The System will display the following message:

[illegible]

In either case, if the Alarm Verification option was not selected in CSG-M, the System will display the following message:

[illegible]

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From the Override menu, press **ENTER** when the *A* in *ALR_CONFIRM* is blinking to select Alarm Confirmation.

The System shows the following menu:

A blinking *Y* in *YES* indicates that Alarm Confirmation Override is enabled. A blinking *N* in *NO* indicates that the Alarm Confirmation Override is disabled.

To enable Alarm Confirmation Override, use the Left or Right arrow key to cause the *Y* in *YES* to start blinking. Pressing **ENTER** when the *Y* in *YES* is blinking enables Alarm Confirmation Override. The System will display the following message:

To disable Alarm Confirmation Override, use the Left or Right arrow key to cause the *N* in *NO* to start blinking. Pressing **ENTER** when the *N* in *NO* is blinking disables Alarm Confirmation Override. The System will display the following message:

In either case, if the Alarm Confirmation option was not selected in CSG-M, the System will display the following message:

Use *Test Det_cleaned* to indicate that a selected detector has been cleaned. This option is only operational if IEC is enabled in the CSG-M (See Appendix F).

From the Test menu, use the Left or Right arrow key to cause the *D* in *DET_CLEANED* to start blinking:

(If you press **HELP** at this point, the System displays:

Press **HELP** again to return to the above menu.)

Press **ENTER** when the *D* is blinking to select DET_CLEANED.

The System asks you to type the module and device numbers. Type the three-digit module number and the three-digit device number and press **ENTER**. (Enter all leading zeros.)

After entering the module-device, the MXL-IQ determines if the device is subject to IEC. If the device is not subject to IEC or if IEC is not enabled for the system, error messages display *(Device not subject to IEC; IEC not enabled in CSGM).*

If the device is an IEC detector, the MXL-IQ will display and print the time, date, module-device and custom message of the cleaned device.

See Section 6, *MXL-IQ History Log*.

Use Test Pyro-diags to display a series of statistics typically used by Siemens Building Technologies, Inc. to evaluate the operation of the System. A special password is required for access to this function.

Use *Test Pre_alarm* to test pre-alarm logic.

From the Test menu, use the left or right arrow key to cause the P in Pre_alarm to start blinking:

The System asks you for a module number and device number.

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Type the three-digit module number and the three-digit device number using the numeric keypad and press **ENTER.**

The System then sends information to force this detector into pre-alarm. Once it pre-alarms, or after a delay, the MXL-IQ then restores the detector to its proper pre-alarm setting.

□□□□□□□□□□□□□□□

Use *Test ASD_Devices* to disable ASD parameters and allow timely response to test gas.

From the Test menu, use the Left or Right arrow key to cause the *A* in ***A****SD_Devices* to start blinking.

(If you press **HELP** at this point, the system displays:

□□□□□□□□□□□□□□□□□□□□

Press **HELP** again to return to the Test menu.)

Press **ENTER** to test the ASD devices present in the system. The System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press the ENTER key again and the System displays:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Press the ENTER key to toggle between Testing Enabled (Trouble In) and Testing Disabled (Trouble Out). When toggling between Testing Enabled and Testing Disabled, there is a three minute time period that separates the two states.

Activating the *ASD_Devices* command will post a Trouble into the system which will be printed out as:

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
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Pressing ENTER a second time will cause the following message to be printed out:

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If *Test ASD_Devices* is activated and left alone, the system will automatically disable the test (time out) after four hours.

Test ASD_Devices is inhibited while the system is initializing or resetting.

□□□□□□□□□□□□□□

Use Test Summarize to ignore known troubles, and instead view one summarized trouble for an entire module. This is typically used during installation and commissioning.

Select **Summarize** and press **ENTER**. The System displays the following menu:

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□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Use Test Summarize Select_Mods to scroll through all installed (CSG-M) module addresses and enable/disable the summarize feature for each module address. Choose **Select_Mods** and press **ENTER**. The System displays the following:

□□□□□□□□□□□□

Press NEXT and the System displays:

□□□□□□□□□□□□

The System flashes the currently active summarize selection for the module address. The operator may then press the right or left arrow keys to highlight either YES or NO and then press the **ENTER** key to accept and program the selection. When **ENTER** is pressed, the System scrolls to the next installed module address. The Up arrow key terminates the Select_Mods mode.

All Select_Mods selections remain intact until the System is turned off, even if summarize mode is toggled.

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- One trouble is posted per module address, regardless of how many troubles are detected at that module address.
- A trouble is not posted unless at least one trouble is detected at that module address.
- The trouble report is consistent with existing MXL-IQ trouble messages and the text reads *Troubles summarized*.
- The MXL-IQ only reports TRBL-INs when summary mode is enabled at an address.
- Alarm, supervisory, security, and status event reporting are not effected.

Modules which are NOT selected for summary report their troubles as usual, even if summary mode is turned on for other module addresses.

When a module address is summarized, individually occurring troubles are not broadcast to XNET; the single Troubles summarized trouble is broadcast to XNET. The Troubles summarized trouble is implemented as any other system trouble, being logged to history, taking up one of the 300 trouble slots, and appearing in List Troubles requests. All summarize selections are unaffected through RESET and default to CSG-M setting at power up.

[illegible]

When **Summarize OFF** is selected, the System annunciates the following trouble:

[illegible]

and turns off the Partial System Disable LED. Preexisting *Troubles summarized* events remain and the System reverts to normal trouble reporting and processing for all new troubles.

[illegible]

When **Summarize ON** is selected, the System annunciates the following trouble:

[illegible]

and turns on the Partial System Disable LED. The System displays one summarized trouble for the total system.

[illegible]

Use Test Manual_Activate to:

- Perform testing on input points and the associated output logic expected when the point is activated.
- Generate alarms and associated output activations.

Select **Manual_Activate** and press **ENTER**. The System asks you for a module number and device number.

[illegible]

Type the three-digit module number and three-digit device number using the numeric keypad and press **ENTER**. Upon entering the device address, the System performs as follows based on the point type:

MANUAL INPUT POINT ACTIVATION

No Input Point	Error message.
Analog Smoke Detectors	System issues command to place device into the alarm state via sensitivity adjustment. Device then reports alarm as if an actual alarm occurred. Associated outputs follow.
All Other Inputs	System will not issue any command to device, but will synthesize the reporting of alarm in by the device. Associated outputs follow.

[illegible]

This provides a remote switch that upon activation/deactivation of the TRI, the MXL-IQ reads the module-device address provided and performs the operations outlined above. This use is primarily for, but not limited to, testing intelligent duct detectors.

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SYSTEM TEST

Important:
If the System is connected to the Fire Department, or activates an external System (for example, a leased line connection), disarm the related outputs before servicing to prevent activation. Notify persons in the facility that you are conducting a System test so that they can ignore any alarms that sound during testing. Be sure to reset the System at the end of the inspection.

To ensure maximum safety, follow the procedure described below. To ensure proper and reliable operation, we recommend the following inspection and testing schedule:

Every Six Months

1. Check the sensitivity of each detector, using the *List Sensitivity* menu (See page 3-26). Refer to Appendix B for a list of acceptable detector sensitivity ranges.
2. If the **PARTIAL SYSTEM DISABLE** LED is lit, check that all appropriate detectors are armed, using the Control **Arm/dis** menu (See page 3-38).
3. Activate a detector or alarm-initiating device. To test for *GoNo Go* operation, use **CERBERUS PYROTRONICS™** Test Gas P/N 315-282747, following the instructions on the label. Check that the detector LED lights and that the proper indication is given at the Control Panel.
4. Verify that an alarm can be acknowledged and that the System can be silenced and reset (See **Acknowledge Alarms** on page 3-18).
5. Verify the time and date setting of the System clock (See **Test Set_Time** on page 3-43).

Every Year

1. Check that the System operates as programmed by CSG-M and in accordance with specifications.
2. Perform any other applicable tests required by national or local fire codes.

Fuse Replacement

Fuse ratings are as follows:

F1	Main Power	8A, 3 AG, Normal Blow
F2	Battery	15A, 3 AG, Normal Blow
F3	CZM-1B6 Power	2A, 3 AG, Normal Blow
F4	24V Output	15A, 3AG, Normal Blow

The fuses are located on the upper portion of the SMB-2 (See Figure 2, page 1-4).

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TROUBLESHOOTING

Troubleshooting both the external wiring and the MXL-IQ System wiring follows the steps in **System Function Checkout** on page 2-16. If a fault occurs, refer to the **Troubleshooting Guide.** Locate the type of fault or any trouble message displayed and follow the directions in the *Corrective Action* column.

Sometimes you can locate a fault quickly using the **Troubleshooting Guide.** When this is not possible, continue with the checkout procedure on page 2-16 and then the **Troubleshooting Guide** until all faults and troubles are corrected. Then repeat the checkout procedure to ensure that no additional problems were introduced and that the original problem was corrected.

TABLE 19
TROUBLESHOOTING GUIDE

This guide assumes that all modules, devices, and wiring are installed.

Note: Do **NOT** change modules or wiring unless power is OFF. If available, use your printer during troubleshooting operations.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1. POWER LED is not lit; display on MKB-4 is blank.	No AC Battery	Check AC and battery. Check fuses F1 and F2 on the SMB-2 and the circuitbreaker on the MPS-6. Check AC and battery wiring. If power connections are OK, check the cable between the SMB-2 and MKB-4 for proper installation.
2. POWER LED is on, MKB-4 display is blank.	Problem on the MKB-4.	Adjust contrast control R14 on the ANN-1 board. Remove the MKB-4 and check cable from ANN-1 to the display. If MKB-4 is defective, replace it.
3. MKB-4 display shows the following default message: CERBERUS PYROTRONICS MXL	Improper address on MKB-4 No communication between SMB-2 and MKB-4. Defective MKB-4. If MOM-2/4 installed, defective network modules(s). Defective SMB-2	Correct address setting on the MKB-4 using S1. See the installation instructions for the MKB-4, page 2-4. Check the cable between the SMB-2 and the MKB-4. Replace the cable if defective. Replace the MKB-4. Disconnect the MOM-2/4 from the SMB-2. If probelm resolved, reconnect MOM-2/4 and remove all modules from MOM-2/4. Reinstall all modules one at a time. Replace any that cause the problems to reoccur. Replace SMB-2
4. Device troubles on analog loops.	Errors in loop wiring and installation of devices.	Check loop wiring for shorts, opens, etc. using the Field Wiring Checkout Guide (page 2-11). Check that all analog devices are I or IL Series devices, or are CZM-1B6s. See the list of compatible devices in the appendixes. Check that all devices are installed. Check that all devices installed comply with the configuration printout from CSG-M. Check printed trouble list for ID troubles and correct device IDs as required. Check devices using the FPI-32 Programmer Tester. Replace devices that fail to respond.

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TABLE 19
TROUBLESHOOTING GUIDE (Continued)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
5. Trouble with notification appliance circuits (NACs).	End-of-line resistor improperly or not installed.	Check that the end-of-line resistor is 2.2K, ½W and is installed according to the instructions.
	Notification appliances improperly installed.	thect device
	Incompatible notification appliance connected.	
	Error in control logic functions.	

TABLE 19
TROUBLESHOOTING GUIDE (Continued)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
10. CRM-4 does not respond to output logic		

Walktest Operating Instructions

INTRODUCTION

A Walktest of the MXL-IQ System enables a qualified technician to test the operation of input points on the MXL-IQ with or without disabling the entire fire alarm system. Testing can be either silent or with audible feedback in the following ways:

1. Entire system
2. ALD loop (60 subaddresses)
3. CZM-4 module (4 zones)
4. Conventional zone (individual CZM-1B6 or CZM-4 zone)
5. MOI-7 (MID-16) inputs (128 subaddresses)

If a printer is installed, a printed record of the test is made.

The Walktest is available with MXL-IQ Operating Software. You must enter your 1-5 digit password before you can use the Walktest functions. Enter the Walktest through the MXL-IQ Main Menu (See Chapter 3, *Operating Instructions*).

The MXL-IQ Main Menu structure with Walktest included is:

MXL-IQ Main Menu

ACKNOWLEDGE

LIST

CONTROL

TEST

WALKTEST

The table below shows the selections in the Walktest Menu and their related help messages.

TABLE 20
Walktest Menu

WALKTEST	HELP MESSAGE
System wAUD	Test Full System with AUDs
Loop wAUD	Test ALD Loop/MOI-7 (MID-16 group)/CZM-4 Module wAUDs
Zone wAUD	Test CZM-4/CZM-1B6 Zone with AUDs
Sytem SIL	Silent Test Full System
Loop SIL	Silent Test ALD Loop/MOI-7 (MID-16 group)/CZM-4 Module wAUDs
Zone SIL	Silent Test CZM-4/CZM-1B6 Zone
Cancel	Cancel Walktest in progress
Extend	Reset test timer to 4 hours left

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System w/AUD

Select this option to walktest all CZM-4 zones, CZM-1B6 zones, MID-16 inputs, and ALD inputs with audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions.**

System SIL

Select this option to walktest all CZM-4 zones, CZM-1B6 zones, MID-16 inputs, and ALD inputs without audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions.**

Loop w/AUD

Select this option to walktest input devices on a specific ALD loop, MOI-7 (MID-16) group, or on all four zones of a CZM-4 with audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions for the ALD loop or CZM-4 conventional zones in Walktest.**

Loop SIL

Select this option to walktest input devices on a specific ALD loop, MOI-7 (MID-16) group, or all four zones of a CZM-4 without audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions for the ALD loop or CZM-4 conventional zones in Walktest.**

Zone wAUD

Select this option to walktest an individual conventional zone (CZM-1B6 or CZM-4 zone) with audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions for the conventional zone in Walktest.**

Zone SIL

Select this option to walktest an individual conventional zone (CZM-1B6 or CZM-4) without audible feedback to the technician. **This mode inhibits the MXL-IQ from annunciating real alarm conditions for the conventional zone in Walktest.**

Cancel

Select this option from the menu while in the Walktest mode to set the Walktest timer at the 1 minute left in Walktest mark. This allows the MXL-IQ to complete Walktest sequencing on devices placed in test (alarm) just before cancellation. The MXL-IQ completes the final 60 seconds of the Walktest as indicated in **Walktest Ending Sequence** (See page 5-4).

Extend

Select this option from the menu while in the Walktest mode to reset the Walktest timer to the *4 hours remaining mark.*

WARNING

A device placed in Walktest is disconnected from its usual functions. Alarm causing devices in Walktest DO NOT CAUSE ALARMS until the MXL-IQ is out of the trouble of Walktest.

Suggested Walktest Procedure

In order to reduce the chance of problems, the following procedure must be followed before performing the Walktest.

1. Inform the person in charge of the MXL-IQ fire alarm system that a Walktest is to be performed and that part or all of the fire detection system will be disabled. It is also advisable (or may be required) to notify the fire department of the test.
2. Use the MXL-IQ's LIST menu to obtain a printout of the device types and custom messages for **ALL** modules to be walktested.
3. Review the list with the person in charge of the fire protection equipment to ensure that the custom messages provide adequate information for locating and testing the devices in question.
4. Disable the ASD applications in the system using *ASD_Device* in the TEST menu prior to performing the walktest.

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Once the test ASD device option has been enabled using the test menu, the tester should wait 3 minutes before attempting to test the ASD devices. This will ensure that the ASD R-Algorithm has been disabled for the test. When the test is complete, press *ASD_Device* again to re-enable ASD R-Algorithm, or it will automatically re-enable after 4 hours. The System will not reset if the ASD devices are still in the disabled state.

5. Initiate Walktest. Test devices in a predetermined, orderly sequence.
6. When the Walktest is complete (timed out/canceled), acknowledge the OUT OF TROUBLE condition and reset the MXL-IQ. When the system indicates SYSTEM NORMAL, the test is complete.

WARNING: A device placed in Walktest is disconnected from its usual functions. Alarm causing devices in Walktest do NOT cause alarms until the MXL-IQ is out of the trouble of Walktest.

In both the silent (SIL) and audible (wAUD) Walktest modes, information is displayed on the Control Panel LCD and printed on the printer (if a printer is installed). The audible (wAUD) mode also provides audible feedback to the technician with the testing of each input device. Audible feedback is NOT included on circuits with zone coded audibles. A system with **only** zone coded audibles ALWAYS results in a silent Walktest.

NOTE: The **Walktest Ending Sequence** (See page 5-4) occurs *with audible warnings* in the audible Walktest modes.

NOTE: The MXL-IQ will not allow a walktest to be initiated if there are Alarms or Supervisory events in the event queues.

Walktest the System

To place all CZM-4 zones, MID-16 inputs, and ALD input devices in Walktest, follow the procedure below:

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2. When a printer is installed, the printer prints a message similar to the following:

```
WLK [event type] IN/OUT device
address time/date device type,
custom message, trouble type
(if applicable)
```

3. The LCD displays the device address, custom message, *WLK IN/OUT* [event type], and *device type* for 8 seconds.
4. If the ALD device has an LED, it turns on for 30 seconds to provide additional

1. When the System is in the audible Walktest mode, all silenceable and non-silenceable audibles that are not already active or disarmed sound the code, depending on how the device is used in the CSG-M. The codes are as follows:

EVENT	CODE
ALARM	2 seconds on, then off
SUPERVISORY	2 one-second pulses (on-off)
TROUBLE	4 seconds on, then off
SECURITY	4 one-second pulses (on-off)
STATUS/OTHER	6 seconds on, then off

2. When a printer is installed, the printer prints a message similar to the following:

```
WLK [event type] IN/OUT device
address  time/date device type,
custom message, trouble type
(if applicable)
```

3. The LCD displays the device address, custom message, *WLK IN/OUT* [event type], and *device type* for 8 seconds.
4. If the ALD device has an LED, it turns on for 30 seconds to provide additional feedback to the technician.

If the MXL-IQ detects multiple events, they are automatically spaced 8-10 seconds apart to allow for separation of the coding. Up to five simultaneous events may be queued for processing.

Walktest Ending Sequence

NOTE: This sequence does not occur in Silent Walktest.

When 5 minutes remain in Walktest, all silenceable and non-silenceable audibles that are not already active or disarmed cycle on-off five times (1 second on) to indicate that the Walktest will time out in 5 minutes. This occurs in the audible mode only.

When 1 minute remains, event coding and the processing of devices to the LCD are suspended. If a device is alarmed, it is cycled silently through the resetting sequence.

When 45 seconds remain, all silenceable and non-silenceable audibles that are not already active or disarmed cycle on-off until Walktest times out. **Do NOT continue to walktest devices.** This 45 second period of no new Walktest events ensures that all devices are reset when the Walktest timer expires and the System returns to normal operation. **Alarming a device during this period might result in the reporting of erroneous events when the system returns to normal operation.**

NOTE: If an alarm or supervisory is reported from a device that is NOT in Walktest, the Walktest is suspended immediately. No further Walktest events are annunciated or coded. The Walktest remains running in the background of the MXL-IQ until it times out or is canceled.

WARNING:
When performing a partial system Walktest, **DO NOT TEST** any devices that are not in the Walktest as this will cause an alarm in the system.

Walktest Individual CZM-1B6 or CZM-4 Zone

To place an individual CZM-1B6 or CZM-4 zone in Walktest, follow the procedure below:

- Move the cursor to the *Z* in *Zone wAUD* for a Walktest with audible feedback or *Z SIL* for a silent Walktest.
- Press ENTER.
- The MXL-IQ prompts the user for the module and device number to be tested.
- Enter the desired network address, including all leading zeros, followed by ENTER.
- If the network address entered is not a CZM-4 or CZM-1B6 zone, the message *Invalid type for Walktest* is displayed for 2 seconds on the LCD. The display then returns to the Walktest menu.
- If the module type is a CZM-1B6 or CZM-4 zone in the CSG-M, the following events take place:

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- the PARTIAL SYSTEM DISABLE LED lights
- the TROUBLE LED flashes
- the internal audible sounds
- the Walktest activated trouble for the zone records on the trouble list
- if a printer is installed, the trouble is also printed

• The LCD display on the MKB-4 reads:

```
In Walktest Normal operation
disabled. ENTER to continue.
```

• Press ENTER or wait 60 seconds and the display reads:

```
Walktest expires in 4 hrs unless
canceled. ENTER to continue.
```

• Press ENTER or wait 60 seconds and the MXL-IQ returns to the Walktest menu. (The MXL-IQ is in system Walktest.) The LCD indicates the time remaining in Walktest in the last five positions on the display. The time is indicated in HH:MM (hours:minutes) until less than 1 hour remains, then it is indicated in MM:SS (minutes:seconds).

• Locate the device to be tested and place that device in alarm (or trouble). When the event is reported to the MXL-IQ, the following sequence occurs:

1. When the System is in the audible Walktest mode, all silenceable and non-silenceable audibles that are not already active or disarmed sound the code, depending on the device usage in the CSG-M. The codes are as follows:

EVENT	CODE
ALARM	2 seconds on, then off
SUPERVISORY	2 one-second pulses (on-off)
TROUBLE	4 seconds on, then off
SECURITY	4 one-second pulses (on-off)
STATUS/OTHER	6 seconds on, then off

2. When a printer is installed, the printer prints a message similar to the following:

```
WLK [event type] IN/OUT device
address time/date device type,
custom message, trouble type
(if applicable)
```

3. The LCD displays the device address, custom message, *WLK IN/OUT* [event type], and *device type* for 8 seconds.
4. If the ALD device has an LED, it turns on for 30 seconds to provide additional feedback to the technician.

If the MXL-IQ detects multiple events, they are automatically spaced 8-10 seconds apart to allow for separation of the coding. Up to five simultaneous events may be queued for processing.

When 5 minutes remain, the system begins the **Walktest Ending Sequence** (See page 5-5).

NOTE: If an alarm or supervisory is reported from a device that is NOT in Walktest, the Walktest is suspended immediately. No further Walktest events are annunciated or coded. The Walktest remains running in the background of the MXL-IQ until it times out or is canceled.

WARNING:
When performing a partial system Walktest, **DO NOT TEST** any devices that are not in the Walktest as this will cause an alarm in the system.

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History Log

INTRODUCTION

The MXL-IQ history system has five major parts. They are:

1. CSG-M options that control the type and number of events the MXL-IQ records.
2. Logging lists that record MXL-IQ hardware events.
3. Event viewing and listing in the MXL-IQ through the MKB-4 and attached printer.
4. History removal and collation outside the MXL-IQ.
5. Report generation and analysis on an external PC.

CSG-M History Options

The CSG-M gives the designer a set of options to use for operating the history system. The designer must first decide whether or not to use the history option. If he chooses to use it, he must select the mode of logging and which event types to include in the log. The History Recording Options are selected from the **Options, System Message, Authorizations** menu. (See Screen 1.)

To access the history option, move the cursor to highlight *History Recording Options* and press **ENTER**. The history recording option selection screen is then displayed as shown in Screen 2, page 6-2.

```
                    Fire Protection Company Name

 CSG-M Memory=2900 used, 316848 free                      CONFIG => TEST1
                Options, System Message, Authorizations

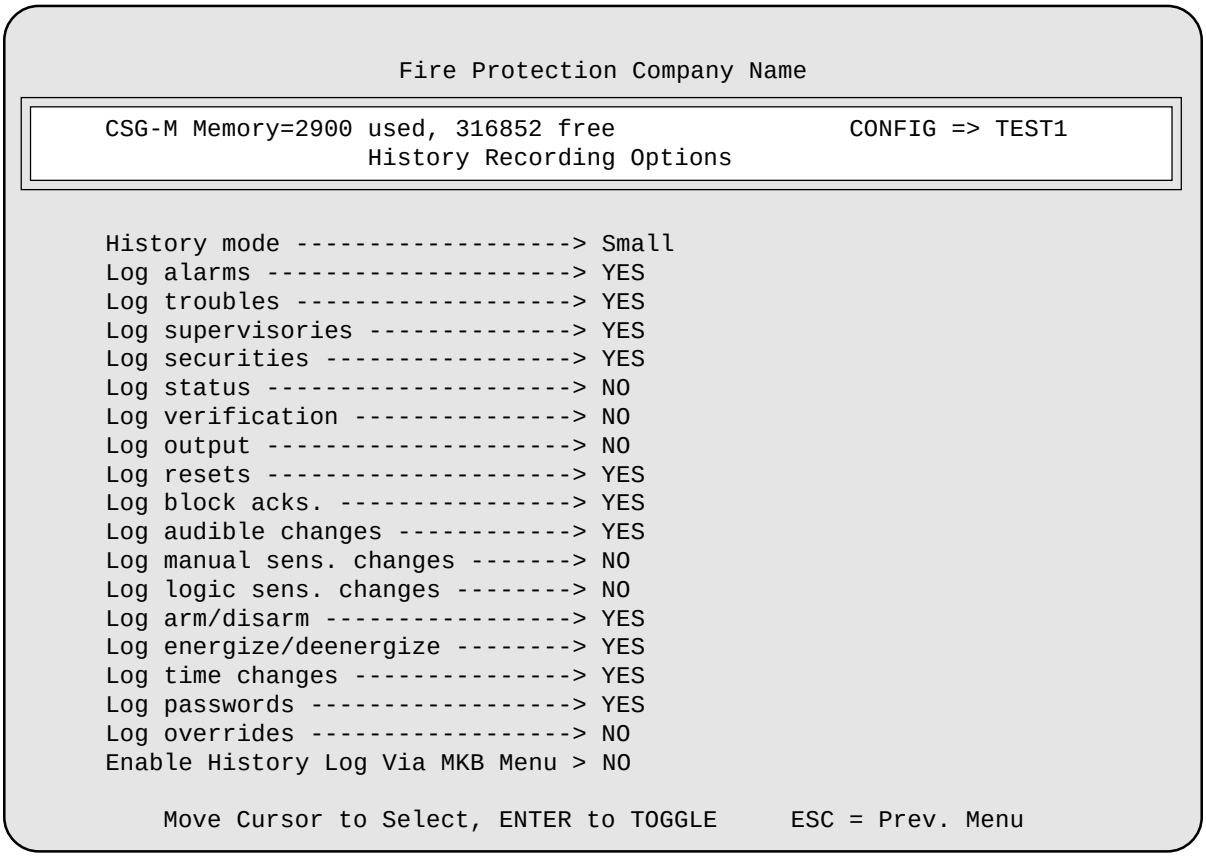
                Options, System Message, Authorizations
                Other System Flags
                History Recording Options
                System Holidays



 Press First Letter or Move Cursor to Highlight Selection, then ENTER
```

Screen 1
Options, System Message, Authorizations

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Screen 2
History Recording Options

Screen 2 shows the default conditions for the history option when it is selected for the first time.

Keep in mind that the external data base may not contain all events that were ever detected. The completeness of the data base depends on whether the system operator extracts all event log information before it is lost.

Logging Methods

The MXL-IQ has two mutually exclusive ways to log events:

1. Small list
2. Circular list

Small List Logging

In the small list logging mode, the MXL-IQ stores up to 818 events (See Screen 3) in non-volatile memory. Non-volatile memory is memory that is not lost when the power is removed.

When the event storage area becomes 80% full, a system trouble begins.

- the trouble audible sounds
- the trouble indicator lights
- the message ***Event Log 80% full*** shows on the LCD display
- this trouble operates like any other trouble in the system

When the event storage area becomes 90% full, a new system trouble begins.

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- the trouble audible sounds
- the trouble indicator lights
- the message ***Event Log 90% full*** shows on the LCD display
- this trouble operates like any other trouble in the system

When the event log is full, an new trouble condition occurs which causes the trouble audible to activate.

- the message ***Log FULL, Events will be lost*** appears on the display panel
- upon reset this trouble reappears, replacing the 90% trouble message
- when the log is full, **all new events are lost**

This system encourages removing history information into an external data base before the log overflows.

Circular Logging

In the circular logging mode, the MXL-IQ guarantees that the most current 500 events are stored in non-volatile memory. Once all available storage is used, the oldest history entries are replaced by newer ones. It is assumed that the end user selects this mode because he does not wish to maintain an external history data base. Therefore, only two warning troubles are issued:

1. When the number of recorded events reaches 80% of the total.
2. When the number of recorded events reaches 90% of the total. Once this trouble is acknowledged, it disappears until 80% of events is reached in the next cycle.

Using the circular logging mode does not prevent the storage of history information into an external data base. However, there is a high probability of loosing old events because of the limited warnings given when events are about to be overwritten.

Beginning with MXL-IQ Rev. 6.0, the user can suppress the Circular History Log Full Trouble. This option must be set in CSG-M and is only available if the history is in circular mode.

```
                    Fire Protection Company Name

   CSG-M Memory=2900 used, 316852 free              CONFIG => TEST1
                    DISPLAY MXL-IQ Panel Info


MXL-IQ PANEL INFO:
    MXL-IQ ROM Version ------------------> Rev. 1.00
    MXL-IQ Main Board Version ------------> 2
    MXL-IQ Minimum Allowable Board Ver.---> Rev. 1.00
    RAM size ----------------------------> 163840 bytes
    EEROM size --------------------------> 114688 bytes
    MXL-IQ Dictionary Version ------------> 0
    MXL-IQ Alt. Dictionary Version--------> 0
    History Memory Available -------------> 818 (11) elements (used)
    IEC Storage Memory Available ---------> 8189 bytes

PROGRAMMING INFO:
    Configuration Source Filename --------> TEST1
    Configuration Size -------------------> 2802 bytes
    Last Programming Date ----------------> Wed Mar 22 15:28:16 20XX
    Configuration Revision Level ---------> 215
    Programming 2900Tw T*gCKSUM-----------> 0
```

Screen 3
Display MXL-IQ Panel Info

Logging Item Selection

The system designer can log one or many event types. The selection is determined by the system requirements, the amount of event storage, and the external data base design. The following list summarizes event types that can be selected.

* ALARMS
* TROUBLES
* SUPERVISORIES
* SECURITIES

  STATUS CHANGES

  DEVICE VERIFICATION

  OUTPUT ACTIVATIONS
* RESET
* BLOCK ACKNOWLEDGE
* AUDIBLE CONTROL

  SET SENSITIVITY

  AUTO SET SENSITIVITY
* ARM/DISARM
* ENERGIZE/DE-ENERGIZE
* SET TIME
* PASSWORD

  OVERRIDE

*The items marked with an asterisk are set as default when the logging option is first selected. At least one event type must be selected.

MKB Menu Option to Enable, Disable and Erase History

Effective with MXL-IQ Revision 6.0, this option allows the user with the highest level password to turn on, turn off, or erase the History, provided that this system option has been enabled in the CSG-M and the History mode is other than NONE (that is, either small or circular).

Enabling the History Option in CSG-M

From the **Main Menu**, select **System Configuration Edit,** then select **Options, System Message Authorization,** then select **History Recording Options**. From **History Recording Options,** move the cursor down to the line that reads **Enable History Log Via MKB Menu,** and select YES to compile the CSG-M program and download it to the MXL-IQ. (Refer to Screen 2.)

From the MKB Menu

Go to the TEST menu, move the cursor to the right until it highlights the Event-Log Menu item, and press **Enter** to bring up the submenu for MXL History. Move the cursor within the submenu to either the left or right to highlight the *Hist_Ctrl* item to turn on/off the History, or *Hist_Erase* to erase History. Notice that if the CSG-M system option **Enable History Log Via MKB Menu** is set to NO, these submenus are not accessible.

History turned on or off using the MKB menus is unaffected through PANEL RESET, and defaults to the setting in CSG-M upon power-up.

Pressing ENTER while the cursor is on *Hist_Erase* displays the following message on the MKB asking for confirmation:

```
Enter to proceed, other key to
abort
```

Pressing ENTER erases the History section in the flash no matter what state the History is currently in (manually turned on or off); pressing any other key aborts the action.

Manual manipulation of History using the MKB is logged in History as in the following examples:

```
□□□□□□□□□□□□□□□□□□□□□□□
□□□□□□□□□□□□□□□□□□□□□□□□□□
□□□□□□□□□□□□□□□□□□□□□□□□□□
```

NOTES:

1. The operator should download the history log for future reference before erasing the MXL-IQ's History, since once the history is erased it cannot be undeleted.
2. The history menu options do not alter the history mode selected in the CSG-M.

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Local History Log Query

There is a limited set of query selection and filter options available within the MXL-IQ. More complex options are only possible using an IBM PC that is running the MXL-IQ history support program.

The user can get history log information from the MKB-4 control panel by choosing the TEST menu, selecting EVENT_LOG, and pressing ENTER. A submenu of filter selections is then displayed. The choices are as follows:

Alrm_Only	Only display or print alarm events
Trbl_Only	Only display or print trouble events
Superv_Only	Only display or print supervisory events
Security_Only	Only display or print supervisory events
All_events	Display or print all recorded history events
Hist_Ctrl	Use to turn History on/off
Hist_Erase	Use to Erase History

- If the user makes a selection from the filter menu using the ENTER key of the MKB-4, the output goes to the LCD display.
- If the filter menu is selected using the PRINT key of the MKB-4, then the output goes to the system printer.
- If the group of events selected is empty, then the MXL-IQ displays or prints, as appropriate, ***NO HISTORY ITEMS FOUND.***

Query Selection

The MXL-IQ supports one query selection option when generating listings or printouts from the MXL-IQ control panel.

From the TEST menu, move the cursor to the *EVENT_LOG* item and press the ENTER key to select history information. The MXL-IQ responds with a submenu that allows an event type filter to be selected.

Cursor left or right until the desired filter type (See Query Filters, below) is reached and then press **ENTER** to display to the LCD, or **PRINT** to print on the MXL-IQ system printer.

The MXL-IQ asks for a starting date and time. If a time is entered, it suppresses the display or printing of older events. This initial display of time and date indicates the oldest history event recorded in memory. If the operator presses the ENTER key without making any numeric input, then all events in the log are selected.

Query Filters

A limited set of event type filters is available from the MXL-IQ control panel. The mutually exclusive filters are:

ALARMS

The *Alrm_Only* filter selection displays or prints incoming alarms, alarm acknowledgments, audible control, and resets. This set of events gives the operator a clear picture of the important events that constitute an alarm condition.

TROUBLES

The *Trbl_Only* filter displays or prints troubles and resets.

SUPERVISORIES

The *Superv_Only* filter displays or prints supervisories and resets.

SECURITIES

The *Security_Only* filter displays or prints securities, device arms, device disarms, and resets.

ALL

The *All_events* filter displays or prints all events.

HISTORY ON/OFF

The *Hist_Ctrl* filter turns the History events on/off.

HISTORY ERASE

The *Hist_Erase* filter erases the History events.

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Navigating The History Display

When the operator selects the LCD display mode, the NEXT and HOLD keys are used to navigate through the log list. When the history log list first displays, the oldest history event shows in the display. Use the NEXT key to select the next newest event in the list and the HOLD key to select the next oldest event in the list. When either end of the history log list is reached, the message *End of History List* displays. Continuing to press either key wraps the list to the oldest or newest event, as appropriate.

The MXL-IQ remains in the history log list display mode until the up arrow key is pressed. As with all menu operations, if no keys are depressed for one minute, the current activity is canceled.

History Display Formats

History events display one at a time, in reverse chronological order, with the oldest event displayed first. History event displays use both lines of the LCD.

A division symbol (÷) in the first line of the display gives the operator a quick visual cue that the MXL-IQ is in the history display mode. If the history event begins with a module/device (mmm/ddd) code, the display is formatted as:

□□□÷□□□

If the line begins with an event type name, such as Block Acknowledge, then the first line of the display reads:

□□□÷□□□□□□□□□□□□□□□□□□□□□□

where mmm is the module number of the MKB-4 or SMB that caused the event.

Device Event

A device event is any alarm, trouble, supervisory, or security input change of state. This change of state can be into or out of an active condition. The LCD displays:

□□□÷□□□]E□□□□□□□□□□

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▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

253÷
The module address where the reset occurred. In this example, the watchdog reset originated on the SMB-2 at fixed address 253. The division sign indicates that this is a history log display.

WATCHDOG RESET
The message describing the type of reset that occurred. The possible messages for this field are:

COLD RESET
WARM RESET
MANUAL RESET
WATCHDOG RESET

10100
The history log sequence number.

1:22:04 Mar 10,20XX
The time that the event was logged.

Set Time Event

A set time event records any change to the MXL-IQ real time clock. There are two occasions when a set time event occurs. They are:

1. When an operator goes into the TEST menu and manually changes the real time clock using the SET_TIME function.
2. At the end of a CSG-M configuration upload.

The LCD displays:

▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

251÷
The module address where the time change occurred. In this example, the set time originated from the MKB-4 at address 251. The division sign indicates that this is a history log display.

SET TIME
The message describing this display as a set time event.

10100
The history log sequence number.

2:00:30 Mar 10, 20XX
The date and time in the MXL-IQ before the SET TIME function was performed.

2:10:45 Mar 10, 20XX
The time when the event was logged. Note that this is also the new date and time in the MXL-IQ as a result of this operation.

Block Acknowledge Event

A block acknowledge event occurs when the alarm, trouble, supervisory, or security acknowledge key is actuated on an MKB-4 in a system that allows block acknowledgments. The LCD displays:

▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

251÷
The module address where the block acknowledge occurred. In this example, the block acknowledge originated from the MKB-4 at address 251. The division sign indicates that this is a history log display.

All Alarms Acknowledged
The message that describes this display as an alarm block acknowledge event. The text changes to reflect one of the following four types of block acknowledgments, as appropriate:

All Alarms Acknowledged
All Troubles Acknowledged
All Supervisories Acknowledged
All Security Acknowledged

4211
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

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Audible Silenced Event

This event occurs when the audible silence key is actuated on an MKB-4. The LCD displays:

```
▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
```

Where:

251÷
The module address where the audible silence occurred. In this example, the audible silence originated on an MKB-4 at address 251. The division sign indicates that this is a history log display.

AUDIBLE SILENCED
The message that describes this event.

4212
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

Override Event

This event occurs when an operator overrides a verification or confirmation. The LCD displays:

```
▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
```

Where:

251÷
The module address where the override operation occurred. In this example, the confirmation override originated on an MKB-4 at address 251. The division sign indicates that this is a history log display.

CONFIRMATION
The feature that is either being overridden or returned to normal. This selections in this field are:

CONFIRMATION
VERIFICATION

OVERRIDE
The action that is being applied to the feature. The selections in this field are:

OVERRIDE
NORMAL

4212
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

Audible Unsilenced Event

This event occurs when the audible unsilence key is pressed on an MKB-4. The LCD displays:

```
▫▫▫÷ ▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
```

Where:

251÷
The module address where the audible unsilence occurred. In this example, the audible unsilence originated on an MKB-4 at address 251. The division sign indicates that this is a history log display.

AUDIBLE UNSILENCED
The message that describes this event.

4213
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

Password Event

This event occurs when an operator enters a new password at an MKB-4. The LCD displays:

```
▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
```

Where:

251÷
The module address where the password event occurred. In this example, the

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password change originated on an MKB-4 at address 251. The division sign indicates that this is a history log display.

PASSWORD LEVEL : 1
The message that describes this as a password event and indicates the new password authorization level that was entered.

4214
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

Configuration Changed Event

This event occurs when an operator uploads a new CSG-M configuration to the MXL-IQ control panel. The LCD displays:

▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

254÷
The module addres where the configuration change occurred. In this example, the configuration change originated from the field programmer at address 254. The division sign indicates that this is a history log display.

Configuration changed
The message that describes this as a configuration change event.

10
The old configuration modification sequence number.

11
The new configuration modification sequence number.

Note: These values may not be consecutive. They depend on the number of modifications made to the configuration by the CSG-M.

4214
The history log sequence number.

11:25:14 Mar 11, 20XX
The time that the event was logged.

Manual Sensitivity Set Event

A sensitivity set event displays any change of sensitivity to a detector device that was made manually at a system control panel. The LCD displays:

▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

001÷001
The module/device address. The division sign indicates that this is a history log display.

1ST FLOOR EAST WING
The custom message assigned to this input.

321
The history log sequence number.

12:24:48 Mar 10, 20XX
The time that the event was logged.

NORMAL
The sensitivity value sent to the device. The selectable values include:

Hi_3
Hi_2
Hi_1
NORMAL
Low_1
Low_2
Low_3

Auto Sensitivity Set Event

A sensitivity set event displays any change of sensitivity to a detector device made by the auto sensitivity adjustment system. The LCD displays:

▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫

Where:

001÷001
The module/device address. The division sign indicates that this is a history log display.

1ST FLOOR EAST WING
The custom message assigned to this input.

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321
The history log sequence number.

2.12
Indicates that this is an IEC (Enviro-Link) set sensitivity event. The detector sensitivity has been set to 2.12 volts. (The voltage can range from 0-5 volts.) This field may contain the word CLEAN to indicate that this detector was cleaned and restored to its base sensitivity.

+
This symbol represents the type of automatic correction that was made. A plus sign (+) indicates that the sensitivity was increased, a minus sign (-) indicates that the sensitivity was decreased.

12:24:48 Mar 10, 20XX
The time that the event was logged.

Logic Sensitivity Set Event

A sensitivity set event displays any change of sensitivity to a device made by output logic. The LCD displays:

```
▫▫▫▫▫▫÷▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫▫
```

Where:

FN0012÷
The label of the logical function that generated this sensitivity set. The division sign indicates that this is a history log display.

SENSITIVITY SET BY LOGIC
The message describing this as a logic sensitivity set event.

321
The history log sequence number.

12:24:48 Mar 10, 20XX
The time that the event was logged.

NORMAL
The sensitivity value sent to the device.

Hi_3
Hi_2
Hi_1
NORMAL
Low_1
Low_2
Low_3

History Print Formats At The MXL-IQ Panel

The history printout format available at the MXL-IQ control panel appears in the same format as all other listing type reports. The listing output is in the higher character density mode of the output device. The vertical pitch varies to clearly distinguish one event from another. If the target printer has variable point spacing, each event is separated by a 0.5 line gap. On printers without variable point spacing, there is one full blank line between events.

To interrupt the listing operation at any time, press the CLEAR key. Significant system activities, such as alarms, troubles, etc., automatically terminate the listing. The printout always indicates when the listing has been prematurely terminated.

(Refer to the History Log Sample Printout on the following page)
The basic format of the history printout is:

<Listing Date>

<Listing Conditions>

<Event Type [Modifier]>
<Event Locator>
<Event Time>
<Event Sequence #>
<Event Description>

-
- (repeated for each event having matching conditions)
-

<Listing Terminator>

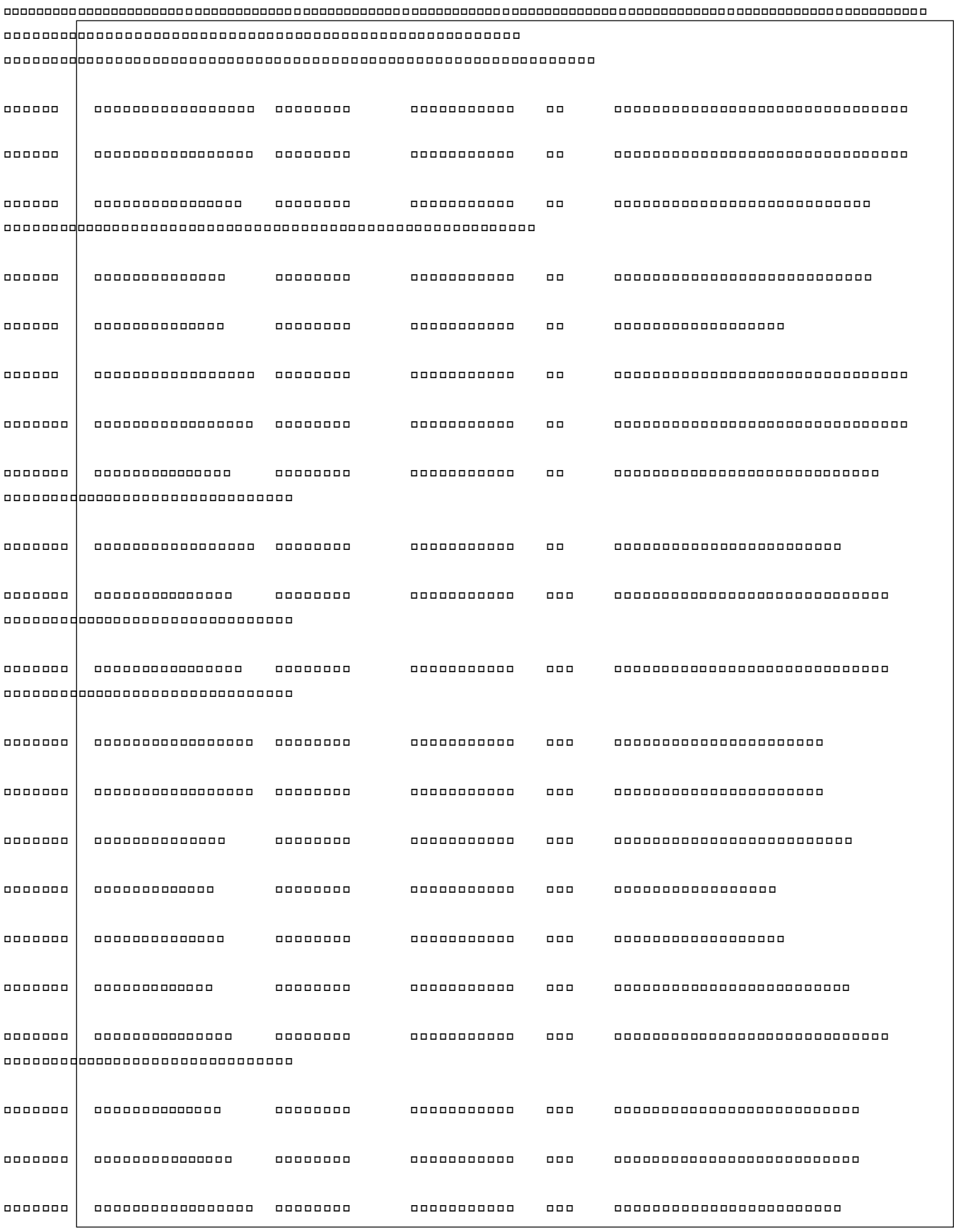
Where:

Listing Date
Identifies the report type (in this case the history log) and the date that the report was generated.

Listing Conditions
Shows the filter and starting date for this report.

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History Log Sample Printout



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Event Type
Identifies the type of history event that is being reported. The following event types are arranged in groups. The modifier fields for each group are different.

Group 1 types:

ACK. ALARM	Alarm block acknowledge
ACK. TRBL.	Trouble block acknowledge
ACK. SEC.	Security block acknowledge
ACK. SUP.	Supervisory block acknowledge
MAN. RST.	Manual reset via MKB-4
COLD RST.	Hard reset from power off
WARM RST.	Hard reset via reset jumper
WDOG RST.	Hard reset via 6805 watchdog
VERIFY	Alarm verify
ENERGIZE	Energize an output
DE-ENERGIZE	De-energize an output
ARM	Arm a device
DIS-ARM	Disarm a device
SILENCE	Silence audibles
UNSILENCE	Unsilence audibles
CONFIG.	(CSG-M) Configuration changed

Group 2 types:

ALARM	Alarm causing device event
TROUBLE	Trouble causing device event
SECURTY	Security causing device event
SUPERVS	Supervisory causing device event

Group 3 types:

SENS	Sensitivity set

Group 4 types:

LOGIN	Operator login

Group 5 types:

OUTPUT	Output logic event

Modifier
The modifier is an optional field that extends the meaning of the event type. For example, ALARM IN, where IN explains the ALARM type.

Group 1 type:
No modifiers for this group

Group 2 types:

IN	Condition now active
OUT	Condition now inactive
ACK	Condition now acknowledged

Group 3 types:

Hi_3
Hi_2
Hi_1
NORMAL
Low_1
Low_2
Low_3

Group 4 types:

0	Lowest access
1	
2	
3	Highest access

Group 5 types:

ON	Condition now active
OFF	Condition now inactive

Event Locator
This field locates the source or destination

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of the event as either a module number, module-device pair, or function name.

Event Time
The time and date of this event.

Event Sequence #
The sequence number of this event in the history log list. The maximum value of this number depends on the type of logging selected and the length of time since the last download.

Event Description
The event description is either the custom message associated with a device, or for non-devices, it is a descriptive message.

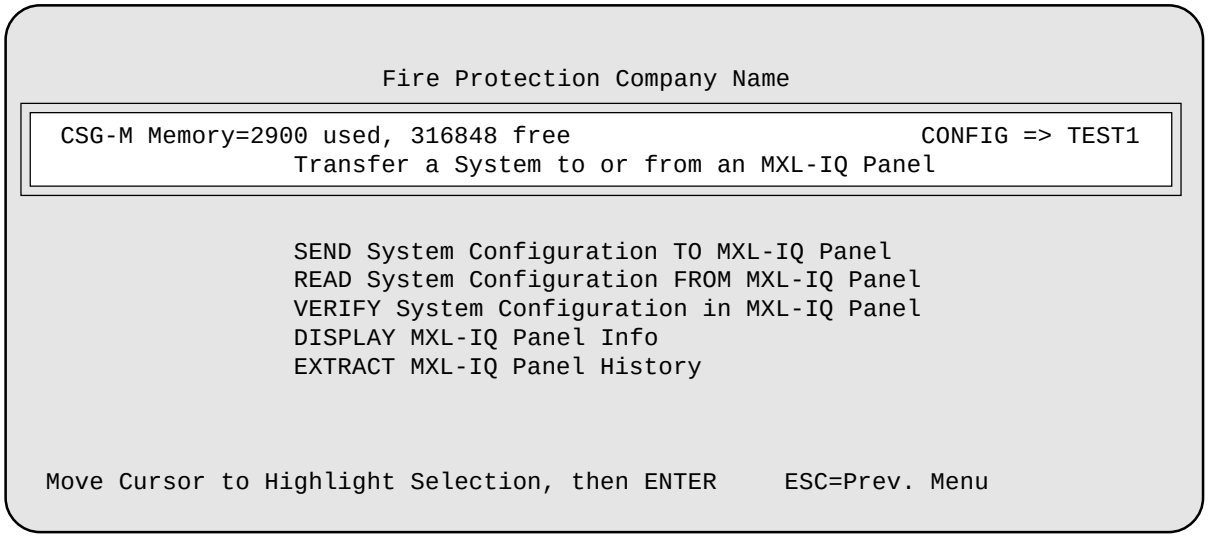
MXL-IQ To CSG-M Download Formats

Download from the MXL-IQ history log to the CSG-M history support feature occurs while the MXL-IQ maintains all normal operations. There are two ways to access history log events:

1. **Non-destructive mode**—information can be examined only.
2. **Destructive mode**—information can be extracted from the MXL-IQ and incorporated into a data base (See Screen 4). If the information is extracted from the MXL-IQ, the history is erased from the system, and the system is reset. Access to the destructive mode is password and vendor ID protected.

The history contents and organization of the CSG-M configuration change over the lifetime of the system. As a result, the history extraction process must download both the encoded history log and its configuration in the CSG-M. At the conclusion of the extraction process, an .IMH file is created which contains fixed data that is common to all history extractions from a given CSG. This technique has the advantage of eliminating the need for a complex code in the MXL-IQ to reorganize the data, shifting that burden to programs in the PC environment which are more easily modified. However, this technique requires time to perform the download.

Each access of the history, whether in the examine or extract mode, requires the transmission of the entire CSG-M configuration from the MXL-IQ to the PC host. For very large configurations, this could take many minutes for the first download after a



Screen 4
Transfer a System to or from an MXL-IQ Panel

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configuration is changed. If the .IMH file is present after the first download of a configuration, the operation will run more quickly on subsequent downloads.

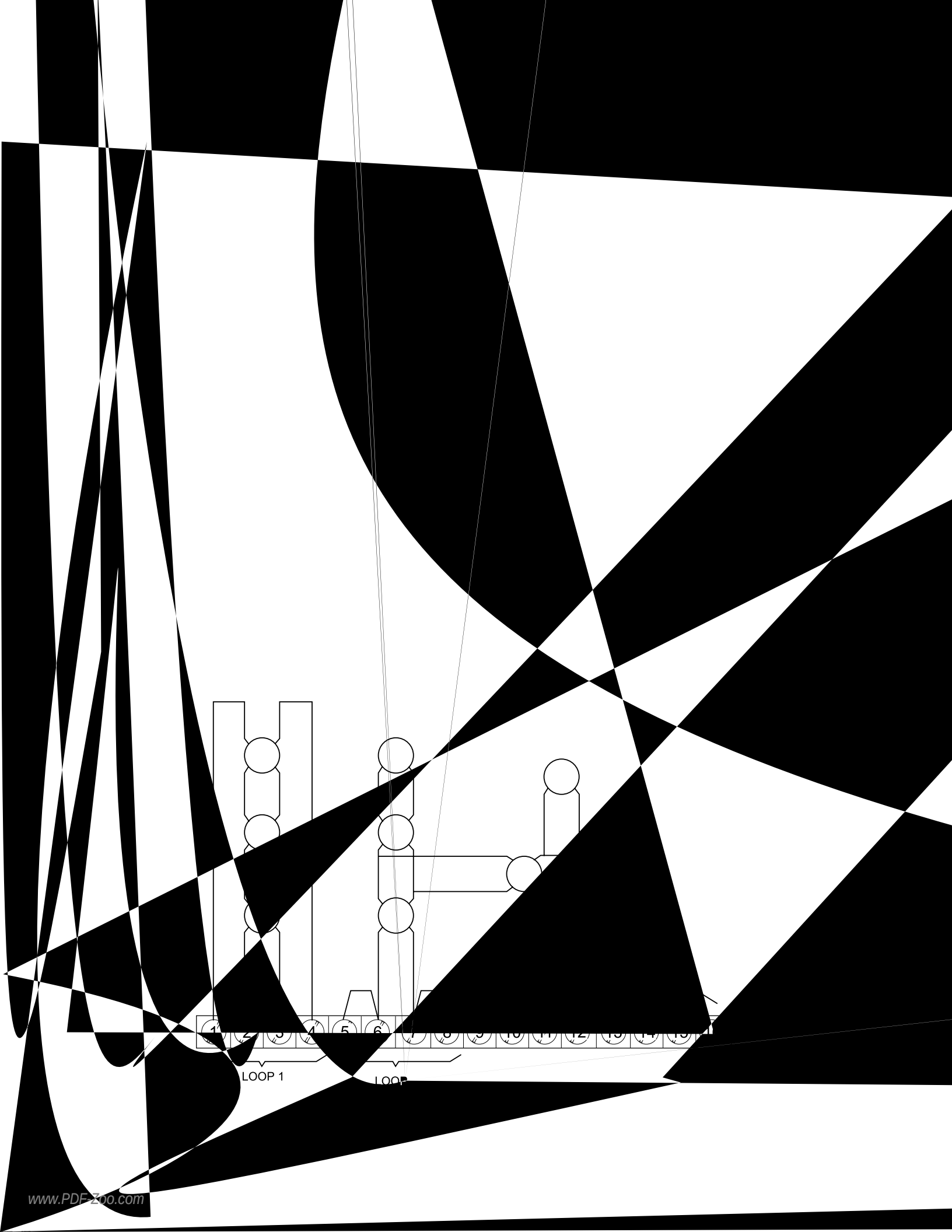
History Download Sequence

The download process uses the existing capabilities of the CSG-M programming system. The sequence for extracting history log events is as follows:

1. PC contacts the MXL-IQ and requests the configuration header and data area pointers.
2. If the PC determines that there is history data present, then the extraction process begins.
3. The PC computes the required amount of storage and determines if the media in the PC has enough room for it. If there is sufficient room, the process continues; if not, the user is prompted to change disks.
4. The PC creates a raw data file that contains an identifying header.
5. The PC downloads the compressed history log data and appends it to the file.
6. The PC downloads the configuration data and appends it to the file.
7. The resulting file is closed and then tested for integrity. Any irregularity in this validation ends the extraction process and signals the user.
8. ***If this is a non-destructive download,*** then the process is complete.

   If this is a destructive download, then the clearing of the history log in the MXL-IQ begins. A warm reset occurs in the MXL-IQ at the end of the extraction process.

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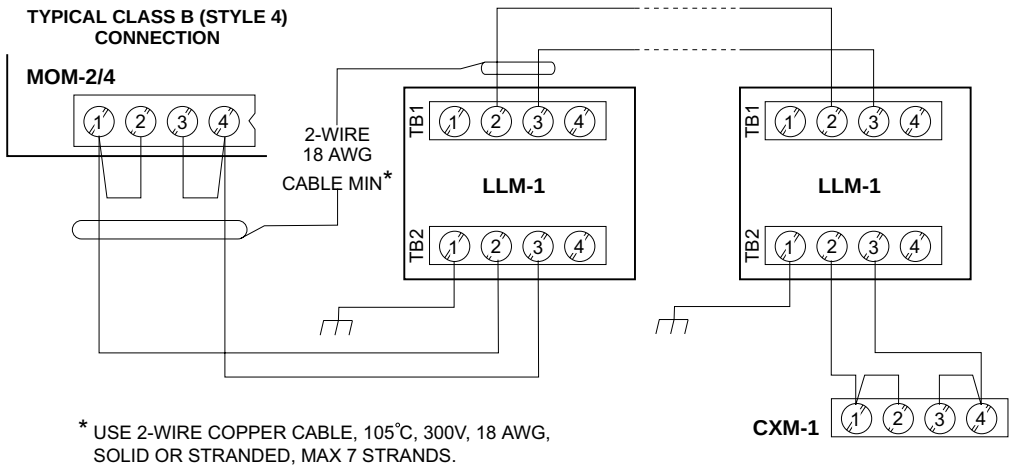


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CMI-300 Connections and Ratings

Supervisory or Alarm
5 VDC, 96mA max

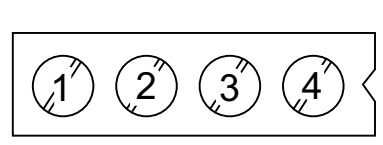


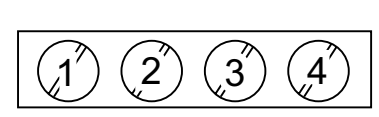
NOTES

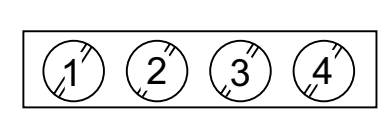
1. All wiring must conform to local codes and to the authority having jurisdiction over the installation.
2. All circuits are rated 2 volts peak to peak, 1.3mA. All circuits are supervised.
3. Operates in full conformance with Style 4.

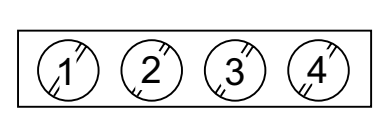
CMI-300 Wiring - Typical Class B (Style 4) Connection

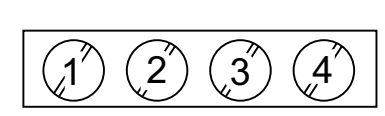
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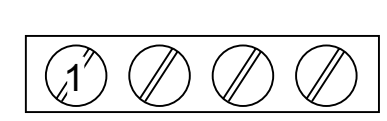












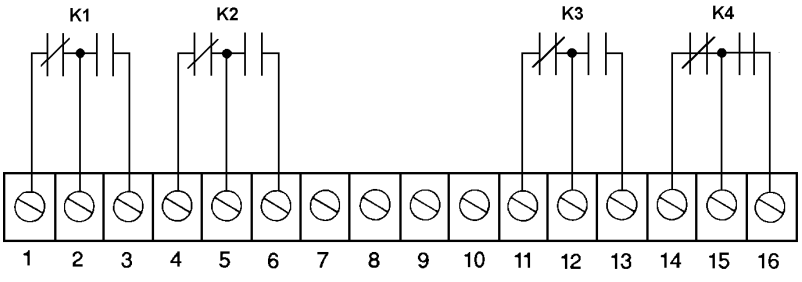
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CRM-4 Connections and Ratings

Electrical ratings:

24 VDC
15mA (no energized relays)

Add: 18.7mA per energized relay
(75mA - all relays energized)



MOM-4
(TB-1, TB-2, TB-3, or TB-4)
or
MOM-2
(TB2 or TB4)

CRM-4 Relay Wiring

NOTES

1. Contact rating: 2A, 30VDC/120 VAC resistive.
2. Use only with power limited / Class 2 circuits.
3. Coils are supervised when de-energized.
4. Contacts are not supervised.
5. All relay contacts are shown in normal (de-energized) state.

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CSM-4 Connections and Ratings

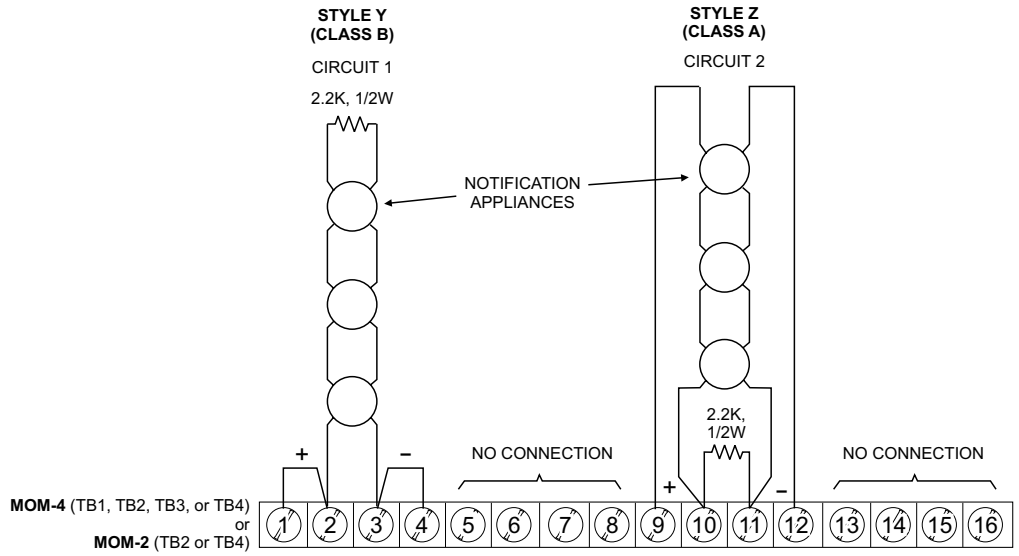
Only the devices listed in **Compatible Notification Appliances**, P/N 315-096363 may be used. The UL identifiers for compatibility are the same as the model names specified.

NOTIFICATION APPLIANCES (NFPA 72 Local)

All wiring must be in accordance with Article 760 of NEC and the local building codes.

Electrical ratings:

Supervisory	24V unfiltered, full wave rectified 12mA max
Alarm	24V unfiltered, full wave rectified 1.5A max



NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum resistance: 3 ohms total.
4. End of line device: 2.2K, ½W, P/N 140-820380.
5. Either circuit may be wired Class A or B.
6. Both circuits are supervised.
7. Polarity shown in supervisory state.

CSM-4 Loop Wiring for Supervised Notification Appliance Circuit

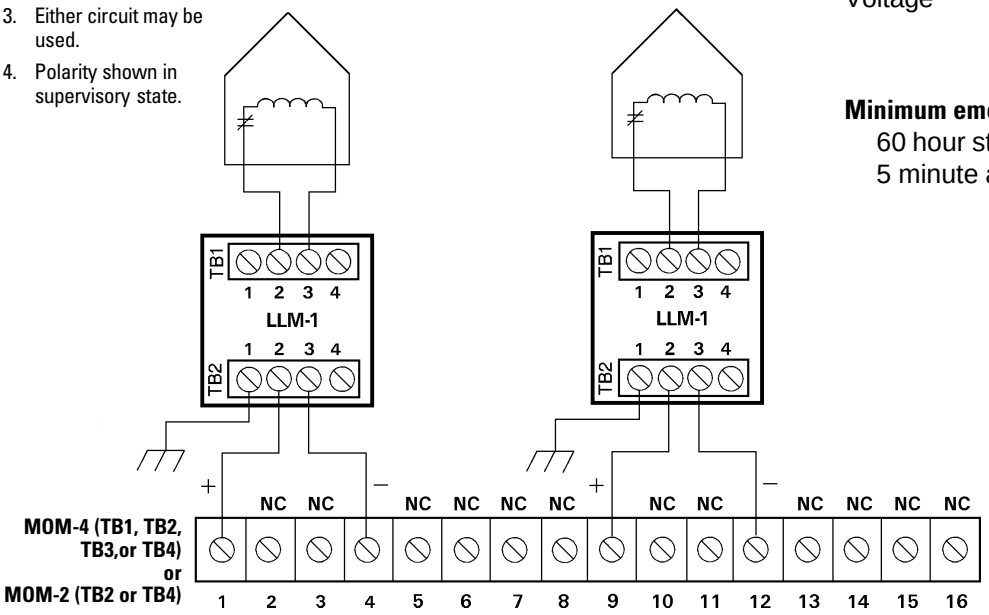
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NOTES

1. Both circuits are not power limited.
2. The total loop resistance from the LLM-1 to the Municipal Tie, including the 14.5 ohms in the Municipal Tie, should not exceed 22.5 ohms.
3. Either circuit may be used.
4. Polarity shown in supervisory state.

MUNICIPAL TIE (NFPA 72 Municipal Tie)

All wiring must be in accordance with Article 760 of NEC and the local building codes.



CSM-4 Loop Wiring for Supervised Municipal Tie

Electrical ratings:

Trip Coil	14.5 ohms
Trip Current	220 to 320mA DC (momentary)
Supervisory Current	12mA DC
Voltage	24V unfiltered, full wave rectified

Minimum emergency power
60 hour standby
5 minute alarm

LEASED LINE (NFPA 72 Remote Station)

All wiring must be in accordance with Article 760 of NEC and the local building codes.

When a CSM-4 circuit is used as a Leased Line trouble output, SW1 and SW2 on switch S2 must be set. These positions permit the degrade trouble bus to activate the trouble line.

Electrical Ratings:

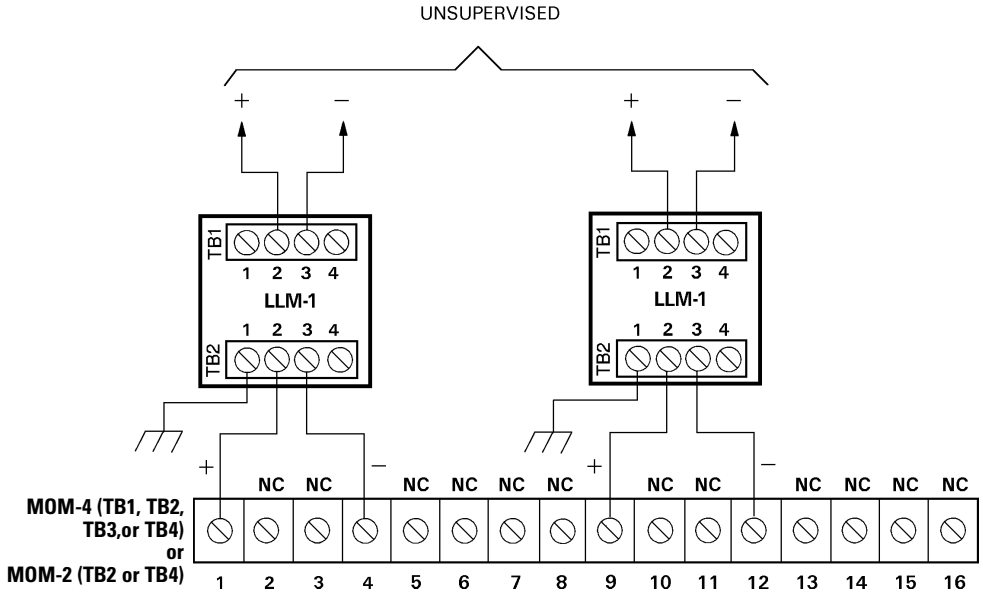
24V unfiltered, full wave rectified
Load must be a compatible polarity reversal labeled *remote station receiver unit*

Rated current
3mA to 9mA, alarm/supervisory

External circuit resistance
2K to 5K ohms

Minimum emergency power
60 hour standby
5 minute alarm

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CSM-4 Leased Line Circuit Wiring

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. External resistance: 2K-5K ohms.
3. Both circuits are not supervised.
4. Polarity shown in supervisory state.

RELEASING SERVICE (Per NFPA 12A, NFPA 13, and NFPA 2001)

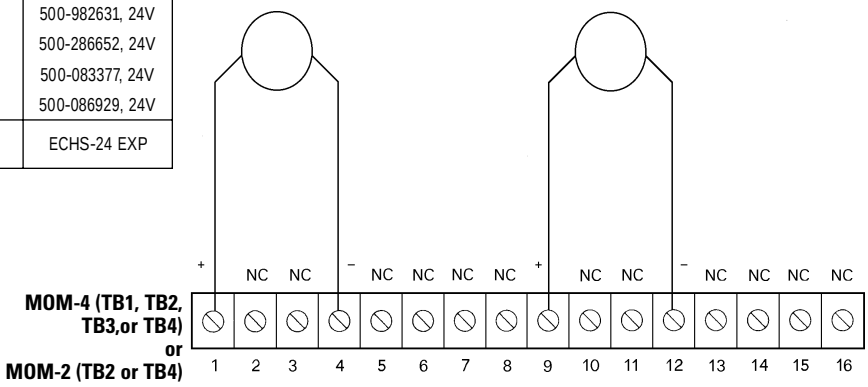
All wiring must be in accordance with Article 760 of NEC and the local building codes.

Set all positions of switch S2 to OFF (OPEN).

Application	Make	Model
NFPA 13	Skinner	LV2LBX25, 24V
(Pre-Action Deluge)	ASCO	T8210A107, 24V
	ASCO	R8210A107, 24V
	ASCO	8210A107, 24V
NFPA 12A	Pyro	500-982631, 24V
(Halon)	Pyro	500-286652, 24V
	Pyro	500-083377, 24V
	Pyro	500-086929, 24V
NFPA 2001 (FM-200)	Pyro	ECHS-24 EXP

Electrical Ratings:

Solenoids	24 VDC 16.8 watts max 700mA max
Supervisory	12mA max
Alarm	800mA max



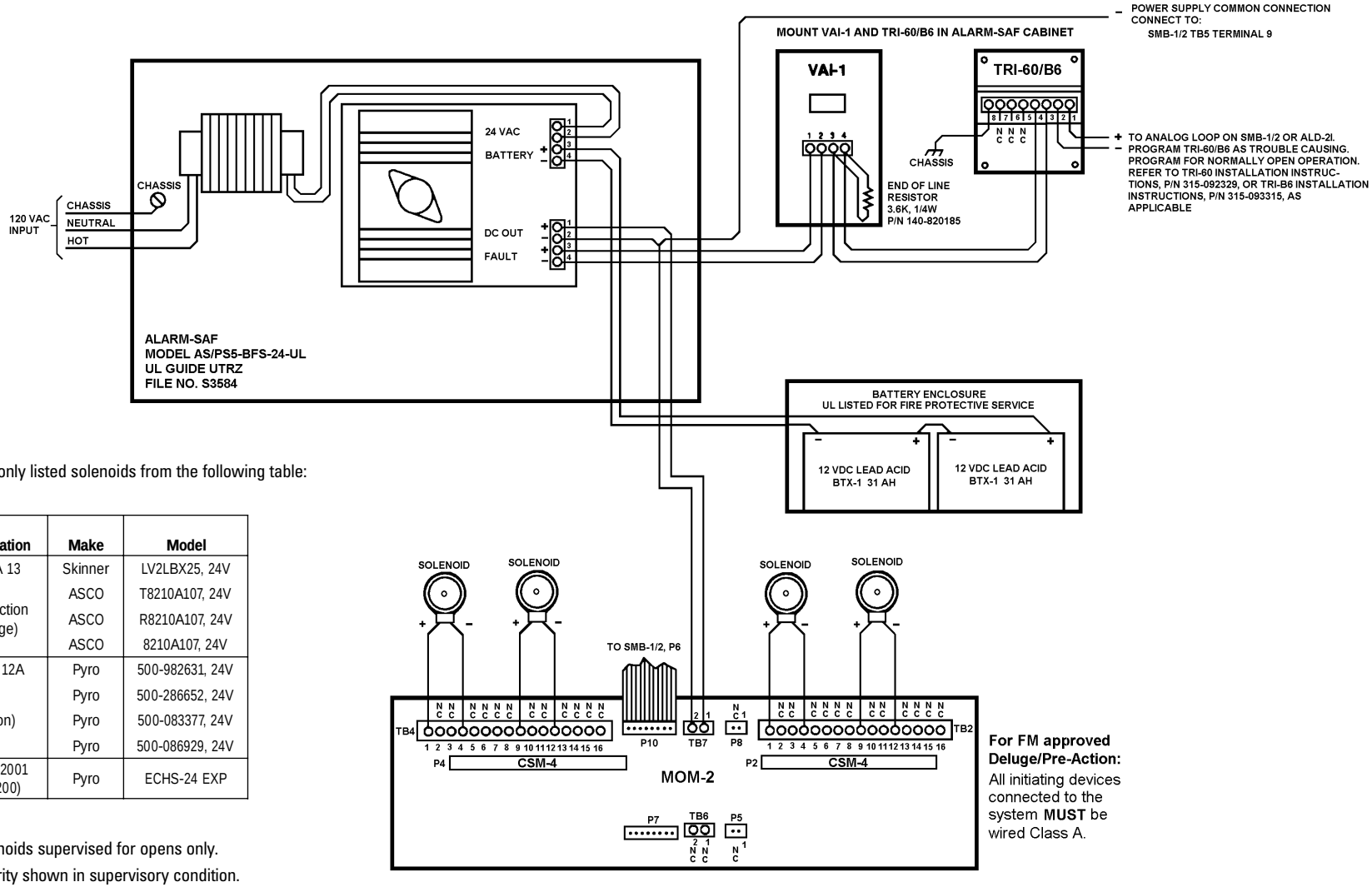
CSM-4 Loop Wiring for use as Releasing Service (per NFPA 12A, NFPA 13, and NFPA 2001)

NOTES

1. Releasing zones are not power limited.
2. Maximum resistance: 3 ohms total.
3. No end of line device required.
4. Both circuits are supervised for opens only.
5. Polarity show in supervisory state.

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MXL-IQ Releasing Service Wiring Diagram Using MOM-2 (NFPA 12A, 13, and 2001)

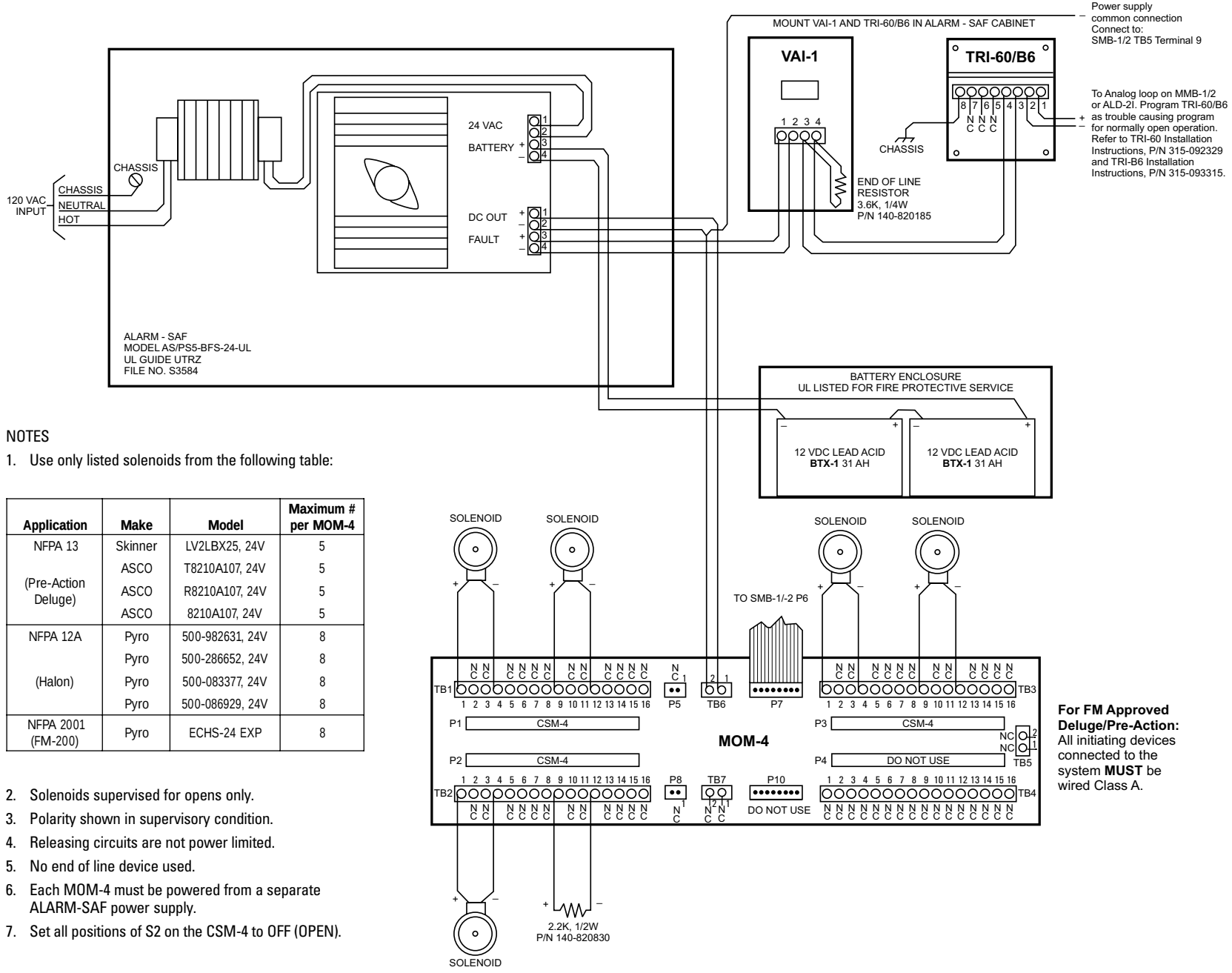
NOTES:

1. Use only listed solenoids from the following table:

Application	Make	Model
NFPA 13	Skinner	LV2LBX25, 24V
(Pre-Action Deluge)	ASCO	T8210A107, 24V
	ASCO	R8210A107, 24V
	ASCO	8210A107, 24V
NFPA 12A	Pyro	500-982631, 24V
(Halon)	Pyro	500-286652, 24V
	Pyro	500-083377, 24V
	Pyro	500-086929, 24V
NFPA 2001 (FM-200)	Pyro	ECHS-24 EXP

2. Solenoids supervised for opens only.
3. Polarity shown in supervisory condition.
4. Releasing circuits are not power limited.
5. No end-of-line device used on Pre-Action/Deluge or releasing circuits.
6. Configure CSM-4 Pre-Action/Deluge circuits as Municipal Tie.
7. Maximum of 4 zones per MOM-2.
8. Each MOM-2 must be powered from a separate ALARM-SAF power supply.
9. Set all positions of S2 on the CSM-4 to OFF (OPEN).

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NOTES

1. Use only listed solenoids from the following table:

Application	Make	Model	Maximum # per MOM-4
NFPA 13	Skinner	LV2LBX25, 24V	5
(Pre-Action Deluge)	ASCO	T8210A107, 24V	5
	ASCO	R8210A107, 24V	5
	ASCO	8210A107, 24V	5
NFPA 12A	Pyro	500-982631, 24V	8
(Halon)	Pyro	500-286652, 24V	8
	Pyro	500-083377, 24V	8
	Pyro	500-086929, 24V	8
NFPA 2001 (FM-200)	Pyro	ECHS-24 EXP	8

2. Solenoids supervised for opens only.
3. Polarity shown in supervisory condition.
4. Releasing circuits are not power limited.
5. No end of line device used.
6. Each MOM-4 must be powered from a separate ALARM-SAF power supply.
7. Set all positions of S2 on the CSM-4 to OFF (OPEN).

For FM Approved Deluge/Pre-Action: All initiating devices connected to the system **MUST** be wired Class A.

MXL -IQ Releasing Service Wiring Using MOM-4 (per NFPA 12A, NFPA 13, and NFPA 2001)

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CZM-1B6 Connections and Ratings

Supervisory	18-24 VDC 4mA max
Alarm	18-24 VDC 45mA max
Zone Resistance	35 ohms total
Max Ripple	500mV

There are three basic connections to the CZM-1B6 as follows:

The CZM-1B6 supports one zone of initiating devices in either Class A (Style D) or Class B (Style B). The initiating devices are connected to terminals 5-8 on the CZM-1B6 terminal block.

Only the devices listed in **Appendix A, Table 1 - Conventional Detectors: Compatible With CZM-1B6** on page A-1 may be used. Use up to 15 detectors, any combination of those listed. Only one PB-1191, and no additional devices, can be connected to a CZM-1B6. Detector operated accessories cannot be used with the CZM-1B6. The model numbers listed are the UL compatibility identifiers.



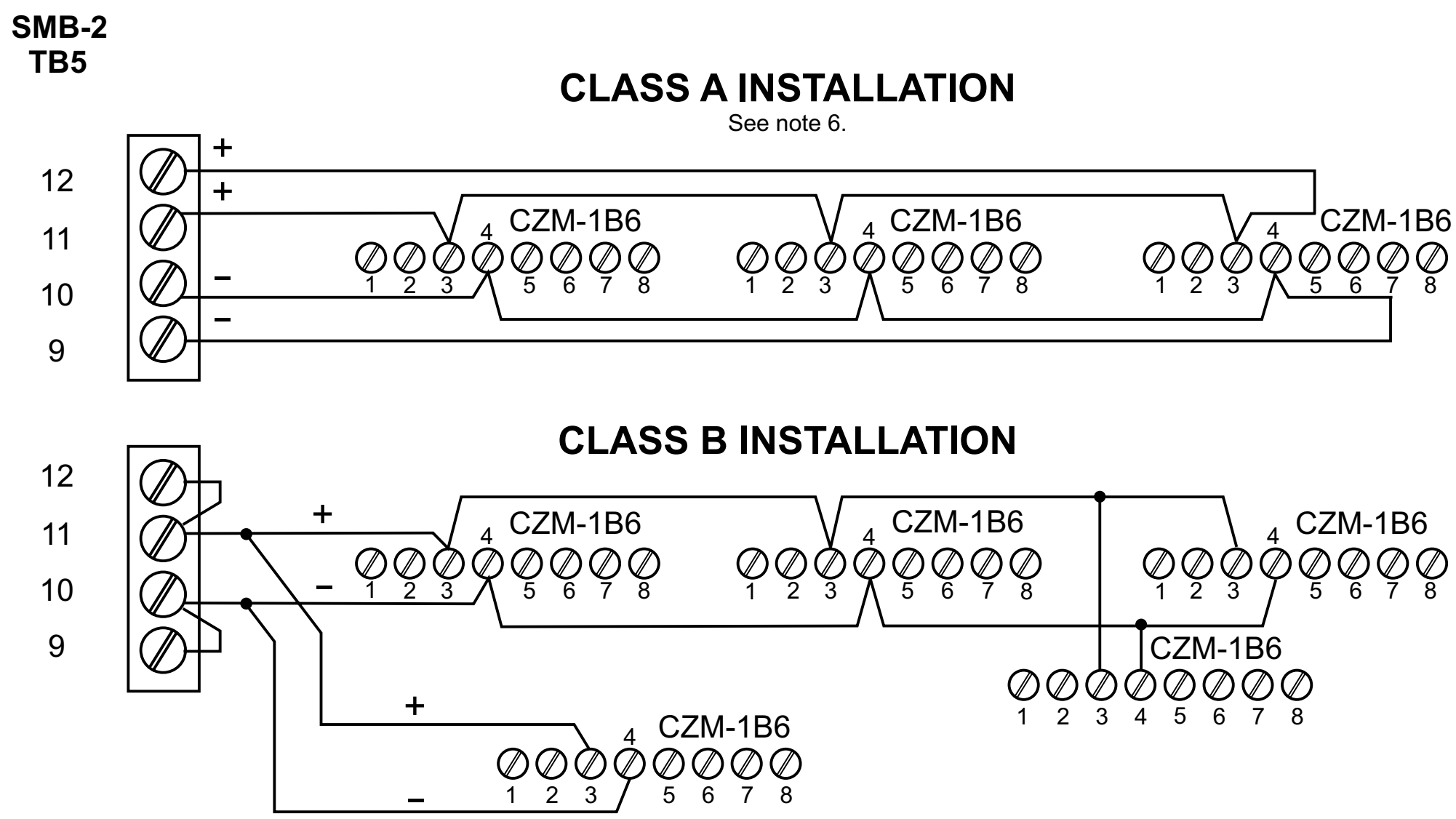
CZM-1B6 Class A (Style D) Wiring

CZM-1B6 Class B (Style B) Wiring

e. The analog loops
A (Style 6) or Class B (

og Loop Wiring

The CZM-1B6 receives its power from the CZM-1B6 power output on the SMB-2. This power is available on TB5 of the SMB-2 on terminals 9-12. The power may be wired as Class A or Class B. Since the CZM-1B6 monitors the power at its screw terminals, it is possible to T-tap the power connection; this can be done only in the Class B configuration.



CZM-1B6 Power Wiring

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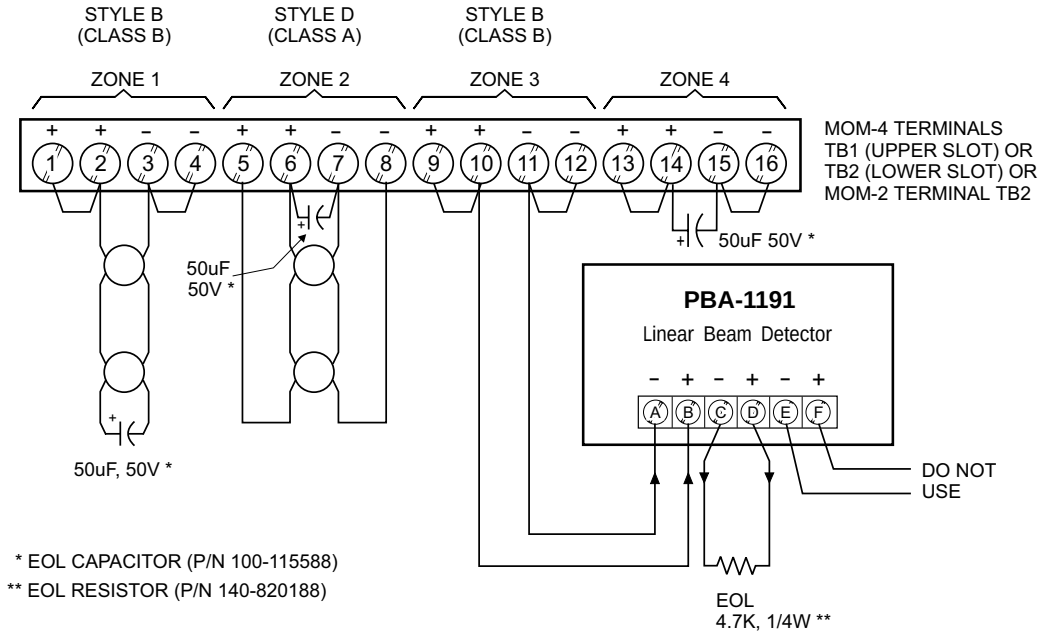
CZM-4 Connections and Ratings

Electrical ratings:

Supervisory	21.7-22.8 VDC 4mA max
Alarm	21.7-22.8 VDC 180mA per zone max
Max ripple	400mV

Initiating devices per zone:

Up to 30 detectors, any combination of those listed in **Appendix A, Table 1 - Conventional Detectors** (except the PBA-1191), on page A-1, may be used. Up to five waterflow switches or 20 tamper switches may be used. Wiring may be Style D (Class A) or Style B (Class B).



CZM-4 Wiring

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum resistance: 70 ohms total (40 ohms if relay bases are used).
4. Each detector or group of detectors, requires a two-wire circuit of thermoplastic fixture wire enclosed in conduit or limited energy shielded cable without conduit, if permitted by local building codes.
5. Loops may be wired Class A (Style D) or Class B (Style B).
6. 30 devices maximum per loop.
7. All circuits are supervised.
8. Do not connect more than one PBA-1191 to each zone. (Refer to PBA-1191 instruction, P/N 315-095424 for further information.)
9. Do not mix smoke detectors with the PBA-1191.
10. The PBA-1191 requires Rev. 3 or higher of CZM-4 firmware.

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MOI-7, MOD-16, MID-16 Connections and Ratings

MOI-7

Electrical ratings:

Supervisory	5V ± .5V 140mA
Alarm	5V ± .5V 180mA

Electrical connections

The MOI-7 is shipped with one cable as described below.

5V Power

The MOI-7 receives its 5 volt power on connector P1. This power can be sent to other modules requiring 5 volts from P2. Pin 1 is the positive input; pin 2 the return. Use the supplied cable, P/N 600-291261.

MXL-IQ Network Connection

For Style 4 wiring use only terminals 1 and 2 of TB1; terminals 3 and 4 of TB1 are not used. In a Style 4 network, make only Network A connections and ignore all Network B connections. **Do not use connector P5 in this configuration.**

24V Return

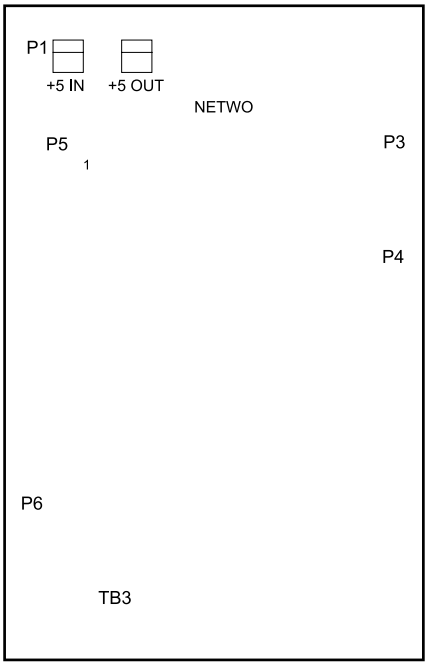
TB2 connects to the return side of the power supply used with the MOD-16s and MID-16s. There are two positions on the TB2—position 1 connects to the MOD-16/ MID-16 and position 2 to SMB-2, TB5-9, or to PS-35, terminal 6.

MOD-16 and MID-16 Connection

P4 is the connector for the MOD-16/MID-16 modules. Connect the first MOD-16/MID-16 in the system using a 10-wire cable P/N 555-190940. Be sure that the locking tab on the cable engages the rib on P4.

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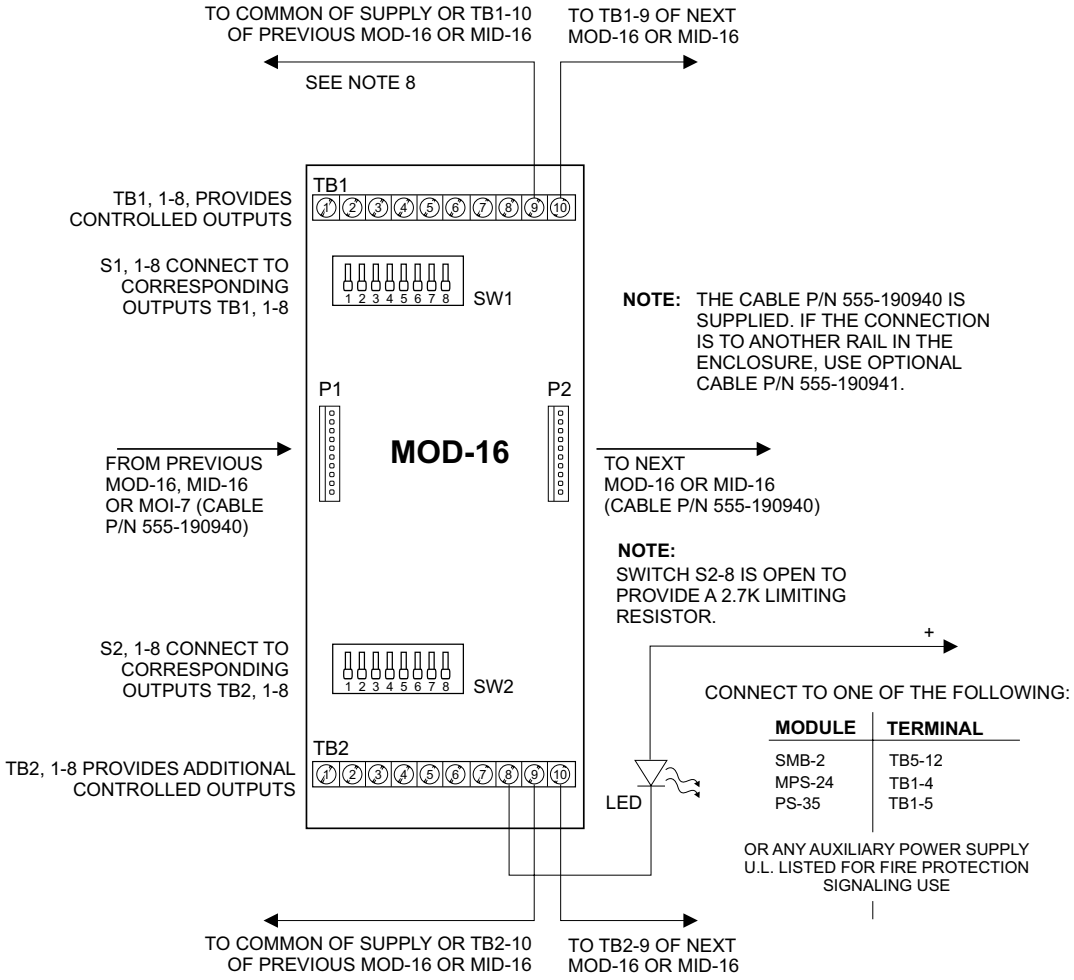


MOI-7 Wiring

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NOTES

1. 18 AWG minimum for LED and 24V lamp connections.
2. 14 AWG minimum for supply connections (TB1-9 and 10, TB2-9 and 10).
3. All wiring must be in accordance with NEC 760.
4. All wiring must conform to local codes and to the authority having jurisdiction over the installation.
5. All wiring to MID-16, MOD-16, or MOI-7 (non-network) modules is unsupervised. Any wiring leaving the enclosure must be within 20 feet, in rigid conduit, and must not leave the room.
6. For additional information see MOI-7 Installation Instructions, P/N 315-092799.
7. A maximum of 8 MOD-16s can be used with the MOI-7.
8. Both TB1-9 (or 10) and TB2-9 (or 10) must be connected to the common of the power supply.
9. When using SR-35, refer to table on this page.



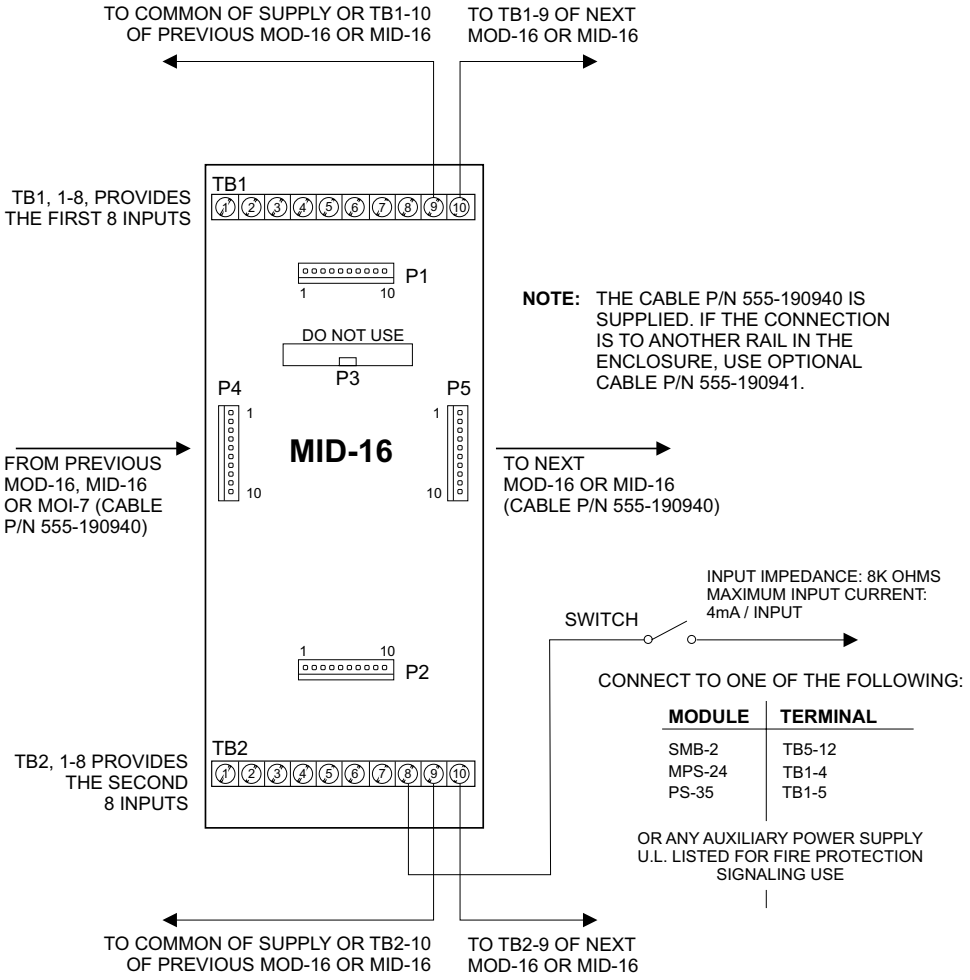
MOD-16 Wiring

Connection To SR-35 Module*	
MOD-16	**SR-35 Screw Terminal**
TB1-1	4
TB1-2	8
TB1-8	32

SMB-2, TB5-12 or PS-35, TB1-5	33
SMB-2, TB5-9 or PS-35, TB1-6	35

*For additional information see:
SR-35 Instructions (P/N 315-087691)
PS-35 Instructions (P/N 315-085062)
SMB-2 Instructions (P/N 315-095931)

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MID-16 Wiring

NOTES

1. 18 AWG minimum for all input connections.
2. 14 AWG minimum for supply connections (TB1-9 and 10, TB2-9 and 10).
3. All wiring must be in accordance with NEC 760.
4. All wiring must conform to local codes and to the authority having jurisdiction over the installation.
5. All wiring to MID-16, MOD-16, or MOI-7 (non-network) modules is unsupervised. Any wiring leaving the enclosure must be within 20 feet, in rigid conduit, and must not leave the room.
6. For additional information see MOI-7 Installation Instructions, P/N 315-092799
7. A maximum of 8 MID-16s can be used with the MOI-7.
8. P1 is connected in parallel with TB1.
9. P2 is connected in parallel with TB2.

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Electrical Installation

There are two inputs that connect the MOM-2 with the SMB-2. These inputs provide all the necessary power and data lines to support the optional modules.

The first input is an 8-conductor ribbon cable. Attach the cable to P6 on the SMB-2, making sure that the locking rib on the cable connector engages the locking tab on P6. Attach the other end of the cable to P7/P10 on the MOM-2, again making sure that the locking rib on the cable engages the locking tab on P7/P10. This cable supplies 5 VDC and communication between the SMB-2 and the modules installed in the MOM-2.

The second input feeds 24 VDC full wave unfiltered DC to the MOM-2. This input is connected to either P5/P8 (SMB-1 only) or TB6/TB7. A 2-wire cable is provided for backward compatibility with the SMB-1. Connect one end of the cable to P3 on the SMB-1, making sure the cable rib and board tab lock. Attach the other end of the cable unfiltered DC to the MOM-2. This input is connected to either P5/P8 (SMB-1 only) orpn b D (427cesedmaximum*current re-i- (a0i-)Tj -0.4put feeds 24 86ndi41 Tsd-

ide uoded DCyour CSG-M y pfigura1cabd-
cDepMOM -0.9(/)-10he cable to P6 o uode,bbon
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maximum* (a038urrent T)11(B)11(6) do oi-(S)-1atab 686mps prMPS-6/6W

cyircui Awh164per427m SMB-02bn1lcue041 Ts. with T0 SMB-2. Thefeeds8e.9933910 0 0 1583.890 en145.7616aw T*--c

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EXAMPLE:

With: one CZM-4 and
one CRM-4 and
one CSM-4

Total load current =
0.720 + 0.075 + 0.034 = 0.83A

With MPS-6/6W:

Remaining Available Current =
2.0 - 0.83 = 1.17A (SMB-1)
6.0 - 0.83 = 5.17A (SMB-2) with no CZM-1B6 load

With MPS-12/12W:

Remaining Available Current =
2.0 - 0.83 = 1.17 (SMB-1)
12.0 - 0.83 = 11.17 (SMB-2) with no CZM-1B6 load

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MOM-4 Connections and Ratings

Electrical Installation

There are two inputs that connect the MOM-4 with the SMB-1/-2. These inputs provide all the necessary power and data lines to support the optional modules.

The first input is an 8-conductor ribbon cable. Attach the cable to P6 on the SMB-1/-2 making sure that the locking rib on the cable connector engages the locking tab on P6. Attach the other end of the cable to P7/P10 on the MOM-4, again making sure that the locking rib on the cable engages the locking tab on P7/P10. This cable supplies 5 VDC and communication between the SMB-2 and the modules installed in the MOM-4.

The second input feeds 24 VDC full wave unfiltered DC to the MOM-4. This input is connected to either P5/P8 (SMB-1 only) or TB6/TB7. A 2-wire cable is provided for backward compatibility with the SMB-1. Connect one end of the cable to P3 on the SMB-1, making sure the cable rib and board tab lock. Attach the other end of the cable to P5/P8 on the MOM-4 in the same way. The SMB-1 limits this power input to 2 amps. Under maximum load conditions the optional modules must never draw more than 2 amps from this connection.

When the 24 VDC is provided by the SMB-2 use TB6/TB7 on the MOM-4 to connect the power. The wire for this connection is not supplied (See *SMB-2 Installation Instructions*, P/N 315-095931 for terminal connections). Use the following chart to determine the available 24 VDC current.

Depending on the optional modules installed, additional power may be available at TB5 and for notification appliances. See the table in **Appendix D - MXL Power Supply Load Calculations** on page D-2 for the maximum current required by each module under full load conditions.

Determine which optional plug-in modules are used in your CSG-M configuration. Depending on the optional modules used, determine the outstanding power by using the table in **Appendix D - MXL Power Supply Load Calculations** on page D-2. (See the EXAMPLE). This power can be used for notification appliances or for the optional power connector on TB5.

NOTE: When a CSM-4 is used, you may add notification appliances to it if the maximum load current to the MOM-4 does not exceed 2 amps (SMB-1); or with an SMB-2, 6 amps (MPS-6/6W) or 12 amps (MPS-12/12W). Include the total alarm current on each CSM-4 notification appliance circuit when performing the calculations.

MAXIMUM MODULE LOAD CURRENTS

Source	Max. Current
SMB-2 with MPS-6/6W	6 *
SMB-2 with MPS-12/12W	12 *

* Derate by the total of CZM-1B6 power, NAC-1 and NAC-2

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EXAMPLE:

With: one CZM-4 and
one CRM-4 and
one CSM-4

Total load current =
0.720 + 0.075 + 0.034 = 0.83A

With MPS-6/6W:

Remaining Available Current =
2.0 - 0.83 = 1.17A (SMB-1)
6.0 - 0.83 = 5.17A (SMB-2) with no CZM-1B6 load

With MPS-12/12W:

Remaining Available Current =
2.0 - 0.83 = 1.17 (SMB-1)
12.0 - 0.83 = 11.17 (SMB-2) with no CZM-1B6 load

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NIM-1R Connections and Ratings

[illegible]

5 VDC, 160mA

For battery calculations, the NIM-1R draws 70mA from 24 VDC.

[illegible]

Up to 32 MXL-IQ Systems can be connected in the network with an NIM-1R installed in each MXL-IQ System. For the highest level of fault protection, install the NIM-1R in the enclosure with the SMB-2, although this is not necessary. When connecting more than 32 MXL-IQ Systems, a REP-1/D2300CP repeater is required. Refer to the *REP-1 Installation Instructions*, P/N 315-092686 or the *D2300CP Installation Instructions*, P/N 315-092882, for the wiring diagram.

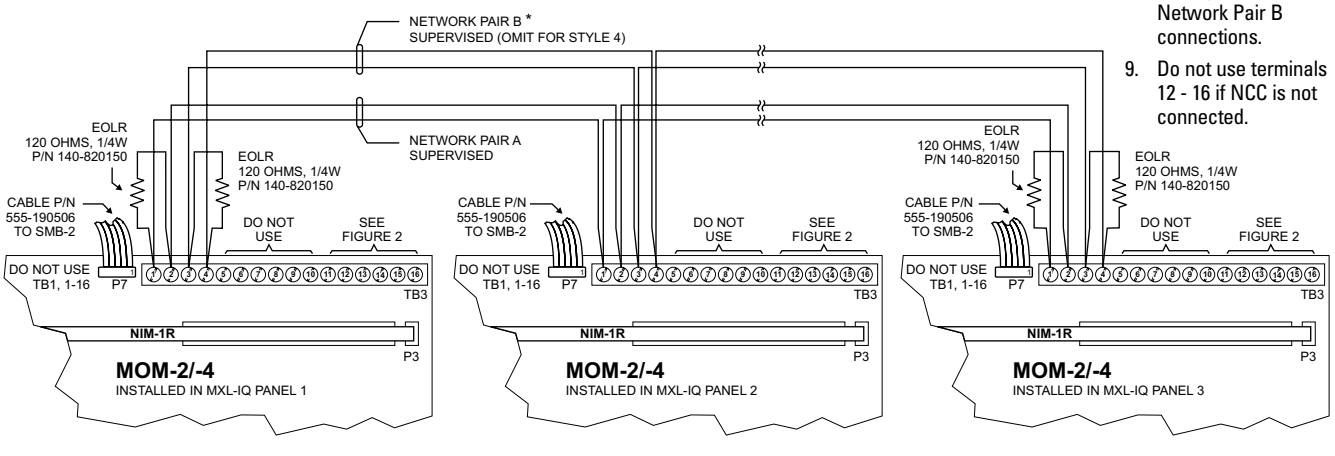
The network can be installed as either Style 4 or Style 7. Style 7 is required in Canada.

Each NIM-1R is shipped with two 120 ohm EOLRs—only two are required for each network pair. Install an EOLR at the ends of each network pair. Do not install an EOLR at each NIM-1R. (For a simple rule of thumb, an EOLR must be installed where only a single wire lands on a screw terminal.)

Do not T-tap the network wiring. If T-tapping is required, use the REP-1/D2300CP repeater. Refer to the *REP-1 Installation Instructions*, P/N 315-092686 or the *D2300CP Installation Instructions*, P/N 315-092882, for the wiring diagram. For Style 4 wiring, terminate the secondary network pair (terminals 3 and 4) on each NIM-1R with an EOLR.

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum resistance: 80 ohms per pair.
4. Use twisted pair or shielded twisted pair.
5. Terminate the shield ONLY at MXL-IQ panel 1.
6. Maximum voltage: 8V P-P.
7. Maximum current: 150mA.
8. For Style 4 omit all Network Pair B connections.
9. Do not use terminals 12 - 16 if NCC is not connected.



* REQUIRED IN CANADIAN INSTALLATIONS

NIM-1R Network Wiring (Figure 1)

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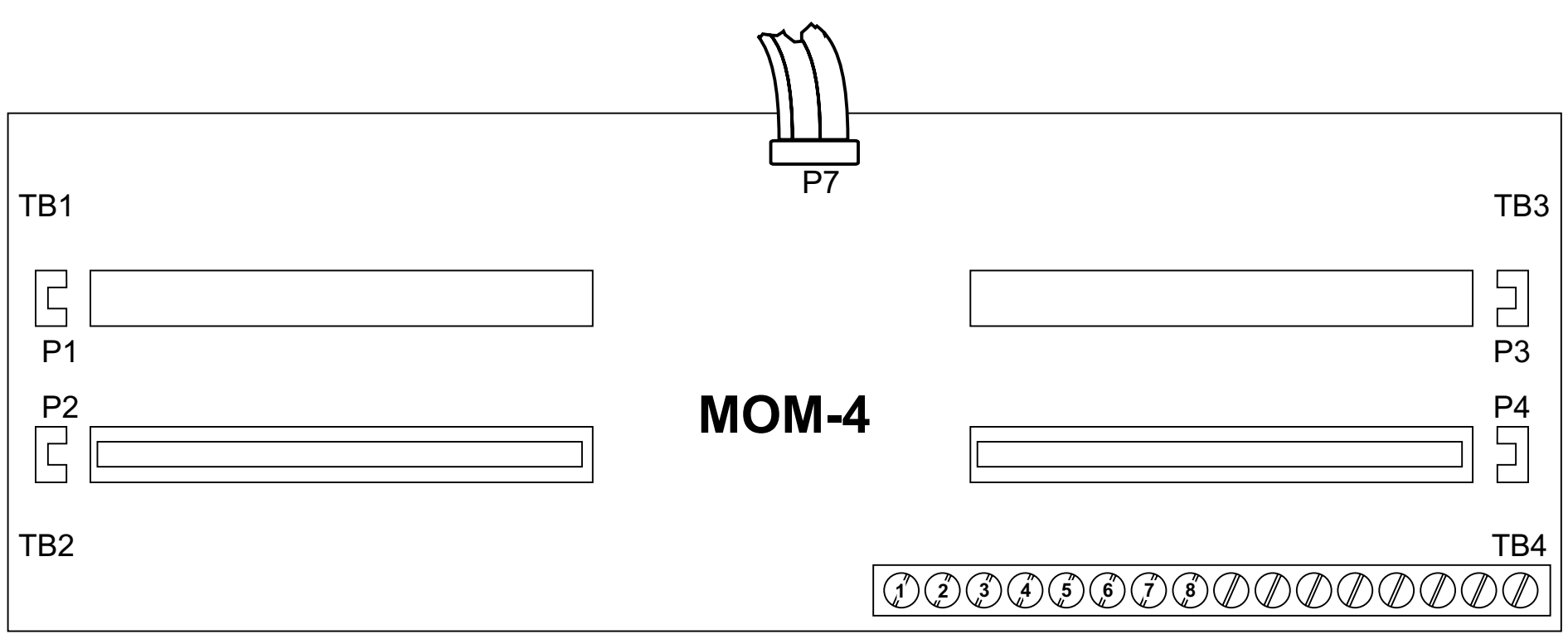
The RS-232 interface connects to the NCC with a 9-pin female D-SUB connector.

Observe the following restrictions:

- Give the NCC a panel number. (This panel number is in addition to the panel number for the MXL-IQ system that the NCC connects to.)
- The total number of panels in the network must not exceed 64, including the NCC.
- For NIM-1Rs that are not connected to an NCC, leave terminals 12–16 disconnected.

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum cable length 25 feet.
4. Cable must be in rigid conduit and can not leave the room.
5. Shielded cable is not recommended.
6. Maximum voltage: 24V peak to peak.
7. Maximum current: 20mA per circuit.



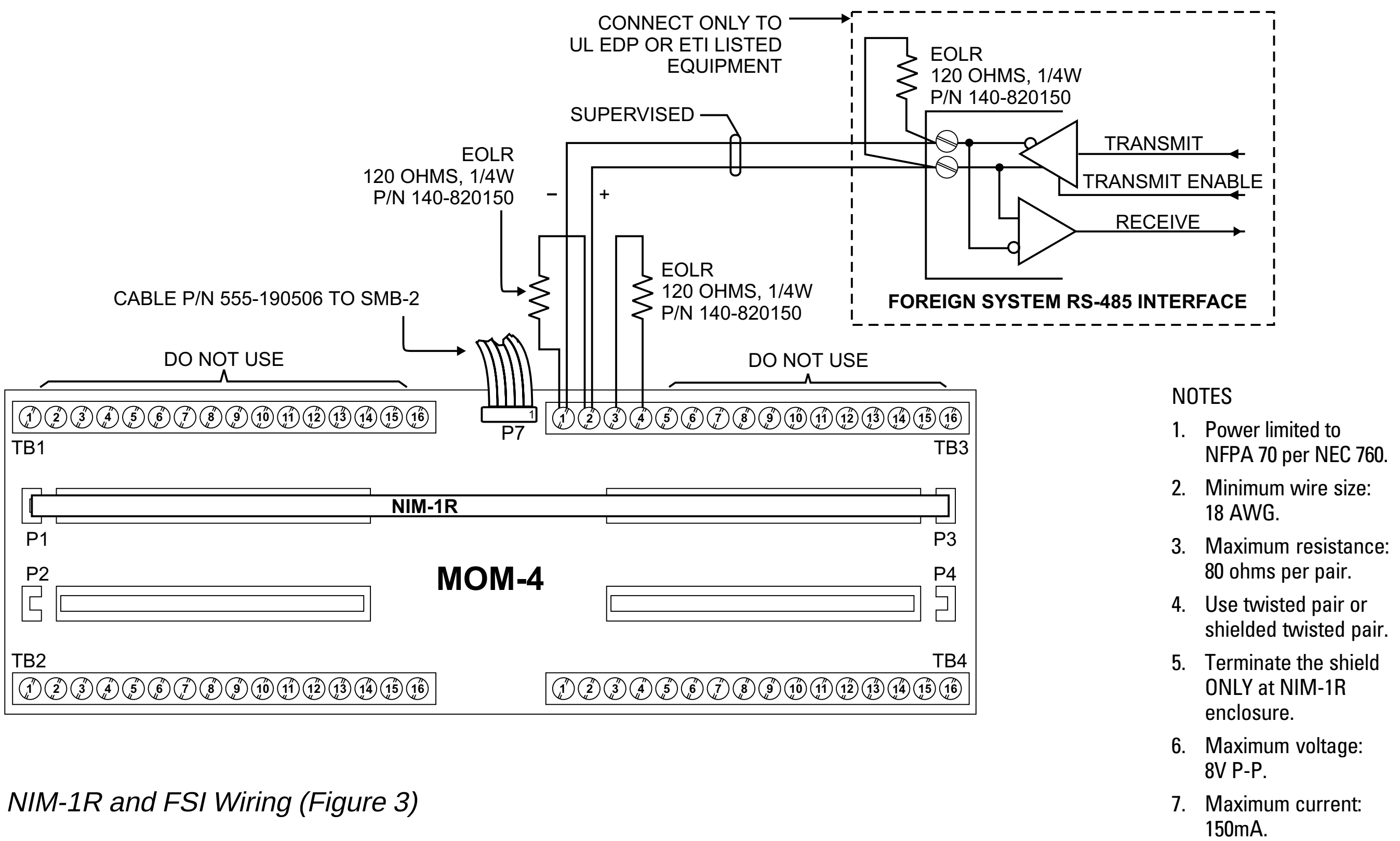
NIM-1R and NCC Wiring (Figure 2)

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The FSI installs on TB3 or TB4, terminals 1 and 2, of the MOM-4/-2 depending on where the NIM-1R is installed. Use one of the EOLRs provided with the NIM-1R on terminals 1 and 2. This properly terminates the FSI. Use the second EOLR on terminals 3 and 4. **Never use terminals 3 and 4 to connect to the FSI.** Refer to Figure 3 for the polarity of the FSI driver.

If multiple FSI connections are required, up to four NIM-1Rs may be installed in an individual MXL-IQ System. In networked systems each MXL-IQ can support up to four FSI ports.

For networked systems, each FSI port must be configured as either local or global in the CSG-M. Local FSI ports display information only on the MXL-IQ System to which they are connected. Global FSI ports display all events in all MXL-IQ Systems. Refer to the *CSG-M Manual,* P/N 315-090381, for further information.



NIM-1R and FSI Wiring (Figure 3)

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[illegible]

The AnaLASER interface connects to the MOM-4/-2, TB3 or TB4, terminals 1 and 2, depending on where the NIM-1R is installed. Up to 31 AnaLASER detectors can be connected to a single NIM-1R.

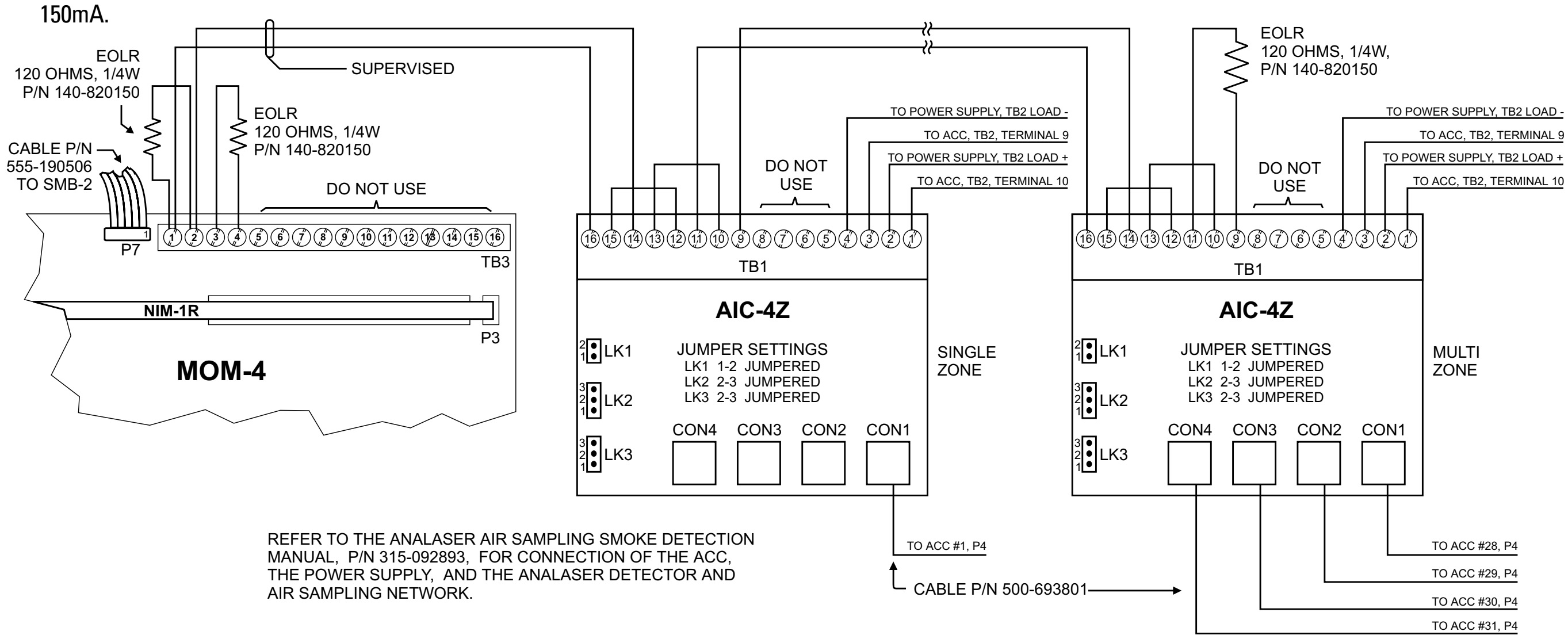
The ACC-1 requires an RS-485 to RS-232 converter which mounts in the back of the ACC-1 enclosure. The converter model number is AIC-4Z. The AIC-4Z supports from one to four AnaLASER detectors. Refer to the *AIC-4Z Installation Instructions*, P/N 315-093792, for the mounting and configuration of the converter and the ACC-1s.

Complete wiring of the converter before installing the ACC-1 in the enclosure.

- Place the end-of-line resistors in the locations specified in Figure 4 below.
- Install the cable, P/N 500-693801 between the converter and the ACC-1.
- Refer to the *AnaLASER Air Sampling Smoke Detection Manual*, P/N 315-092893, for connection to the AnaLASER detector and power supply, as well as mechanical mounting of the ACC-1.

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum resistance: 80 ohms per pair.
4. Use twisted pair or shielded twisted pair.
5. Terminate the shield ONLY at NIM-1R enclosure.
6. Maximum voltage: 8V P-P.
7. Maximum current: 150mA.



NIM-1R and AnaLASER Wiring (Figure 4)

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Silent Knight Model 5128/5129 Connections and Ratings

Electrical ratings:

Supervisory	18-40 VDC 60mA
Alarm	18-40 VDC 130mA

Electrical connections:

The MXL-IQ Control Panel connects to the Silent Knight Model 5128/5129 Digital Fire Communicator using the Alarm, Trouble, and Supervisory dry contacts on the MXL-IQ Main Board.

Refer to the *Silent Knight 5128/5129 Fire Slave Communicator Installation Manual*, P/N 150805, provided with Silent Knight Model 5128/5129 for dialer instructions.

The Silent Knight Model 5128/5129 monitors all System troubles through the MXL-IQ trouble relay. The MXL-IQ delays the AC fail trouble signal in accordance with NFPA and UL requirements.

In NFPA 72 Remote Station, install batteries to provide 60 hour standby capacity. For signalling service DACT wire according to the diagram on the following page.

In NFPA 72 Central Station connections, AC fail reporting is delayed. The delay is 6 hours (25% of 24 hours) for NFPA Local and Proprietary, and 15 hours (25% of 60 hours) for NFPA Municipal Tie and Remote Station. Only the reporting of the trouble is delayed.

AC power must be present for a full minute before the system switches back to AC power from the battery.

Using the optional AC monitor input, the Silent Knight Model 5128/5129 monitors AC fail trouble. When the MXL-IQ System reports an AC fail trouble, the Silent Knight Model 5128/5129 sends a specific code to the Central Station that identifies the trouble as AC fail.

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Model 5128/5129 Connections and

CO 1 RING (GREEN)

HOUSE 1 RING (BROWN)

(VIO)
(BLU)
(GRN)

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NOTES

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SMB-2 Connections and Ratings

INTERNAL WIRING

To complete the SMB-2 internal wiring connections, follow the steps below, skipping those that do not apply to your particular MXL-IQ System.

Main power connections

Primary power for the SMB-2 is provided by the MPS-6/6W or MPS-12/12W. Both of these mount in the lower right-hand corner of the MXL-IQ enclosure. Follow the instructions below for the appropriate power supply.

MPS-6/6W- Install the MPS-6/6W (See MPS-6/6W Instructions, P/N 315-090334/W). With the AC mains disconnected, connect the MPS-6/6W power cable to P1 of the SMB-2. **Be sure that the jumper assembly is installed in P14 of the SMB-2. If this jumper is not installed, the SMB-2 will detect a permanent AC fail or indicate auxiliary power voltage is low.**

MPS-12/12W - Install the MPS-12/12W (See MPS-12/12W Instructions, P/N 315-092030/W). Remove and discard the jumper assembly installed in P14 of the SMB-2. Disconnect the AC mains. Connect the MPS-12/12W power cable to P14 of SMB-2.

Battery power connection

The SMB-2 kit includes a battery cable (wiring harness). Use the harness to connect the 24V backup batteries to P2 of SMB-2.

MOM-4 optional module card cage

There are two connections between the SMB-2 and the MOM-4 board.

1. **24V power connection.**
P3 provides backward compatibility with the SMB-1 and should only be used when replacing an SMB-1. P3 is limited to 2 amps. The SMB-2 allows the use of either an MPS-6/6W or an MPS-12/12W. TB1 terminals 4 and 5 supply 24V to the MOM-4 with a maximum of 6 amps (MPS-6/6W) or 12 amps (MPS-12/12W) available. This output must be derated by the total current drawn from NAC1 (1.5A max), NAC2 (1.5A max) and the CZM-1B6 power (1A max) on the SMB-2. Connect TB1, 4 and 5 on the SMB-2 to TB6/TB7, 1 and 2 on the MOM 4.

2. **5V power and the communication interface.** Connect the 8-wire ribbon cable from P7/P10 on the MOM-4 to P6 on the SMB-2.

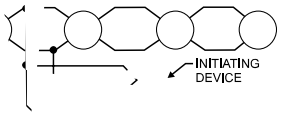
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ınd 2

Or devices listed in **Appe lix A, Tab Analog Addressab' etectors** on pa A-1 may be used. T' identifiers for ompatibility are the as the model names specified.

C SS B WIRING*
VISE OWER LIMITED PER NEC 760



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Notification appliance circuits (TB5, 1-4 and TB5, 5-8)

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.

All wiring must be in accordance with Article 760 of NEC and local building codes.

NOTES

1. Power limited to NFPA 70 per NEC 760.
2. Minimum wire size: 18 AWG.
3. Maximum resistance: 3 ohms total.
4. End of line device: 2.2K, ½W, P/N 140-820380.
5. Either circuit may be wired Class A or B.
6. Both circuits are supervised.
7. Polarity shown in supervisory state.

EOL
2.2K
1/2W

Common Alarm Relay

The common alarm relay changes state whenever a fire alarm is detected.

Common Trouble Relay

The trouble relay changes state whenever a System trouble is detected.

NOTES

1. Contact rating: 2A, 30 VDC/120 VAC resistive.
2. Use only with power limited / Class 2 circuits.
3. Coils are supervised when de-energized.
4. Contacts are not supervised.
5. All relay contacts are shown in normal state.

SMB-2 Relay Wiring

Electrical ratings:

Supervisory	24V, unfiltered full wave rectified 12mA max
Alarm	24V, unfiltered full wave rectified 1.5A max

Only the devices listed in **Compatible Notification Appliances**, P/N 315-096363 may be used. The UL identifiers for compatibility are the same as the model names specified.

Style 4 Network (MNET) Wiring

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Compatible Devices

1. May use up to 15 detectors of any type.
2. May use up to 10 DI-3IS ionization detectors in addition to mechanical (non-energy storing) shorting devices.
3. May use up to five S121 or S122 flame detectors in addition to mechanical (non-energy storing) shorting devices.
4. May use up to 30 detectors of any type, except PB-1191.
5. Do not use with alarm verification.
6. Do not use detector operated accessories with CZM-1B6.
7. Only one PB-1191, and no additional device, can be connected to a CZM-4 initiating zone.
8. The FP-11 is only compatible with MXL-IQ Rev. 6.0 or greater firmware.
9. Must use MXL-IQ Rev 3.0 or greater firmware.
10. 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.

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Device Analog Voltages

Device	Input State	Voltage Response
CZM-1B6	Normal Alarm Trouble	0.50-4.19 4.20-5.00 0.00-0.47
ID-60T-135 ILT-1	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
MSI-10/20	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
MSI-10B/20B	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
MSI-MB6	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
MSI-B6F	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
MS-MI	Normal Alarm Trouble	1.80-3.00 310-5.00 0.00-1.79
TRI-60/60D/60R	Not Available	Not Available
TRI-B6/B6D/B6R	Not Available	Not Available
TRI-B6M	Not Available	Not Available

ID-60I/60IH ID-60IA/60IAH ID-60IB/601BH	LOW3	5.25-10.00	4.25-5.12	0.63-4.12	0.00-0.50
	LOW2	5.12-10.00	4.12-5.00	0.63-4.00	0.00-0.50
	LOW1	5.00-10.00	4.00-4.88	0.63-3.88	0.00-0.50
	NORM	4.88-10.00	3.88-4.75	0.63-3.75	0.00-0.50
	HI-1	4.75-10.00	3.75-4.63	0.63-3.63	0.00-0.50
	HI-2	4.63-10.00	3.63-4.50	0.63-3.50	0.00-0.50
	HI-3	4.50-10.00	3.50-4.38	0.63-3.38	0.00-0.50
ILI-1/1H ILI-1A/1AH ILI-1B/1BH	LOW3	5.25-10.00	4.25-5.12	0.63-4.12	0.00-0.50
	LOW2	5.12-10.00	4.12-5.00	0.63-4.00	0.00-0.50
	LOW1	5.00-10.00	4.00-4.88	0.63-3.88	0.00-0.50
	NORM	4.88-10.00	3.88-4.75	0.63-3.75	0.00-0.50
	HI-1	4.75-10.00	3.75-4.63	0.63-3.63	0.00-0.50
	HI-2	4.63-10.00	3.63-4.50	0.63-3.50	0.00-0.50
	HI-3	4.50-10.00	3.50-4.38	0.63-3.38	0.00-0.50
ID-60P	LOW3	5.12-10.00	4.12-5.00	0.88-4.00	0.00-0.75
	LOW2	5.00-10.00	4.00-4.88	0.88-3.88	0.00-0.75
	LOW1	4.88-10.00	3.88-4.75	0.88-3.75	0.00-0.75
	NORM	4.75-10.00	3.75-4.63	0.88-3.63	0.00-0.75
	HI-1	4.63-10.00	3.63-4.50	0.88-3.50	0.00-0.75
	HI-2	4.50-10.00	3.50-4.38	0.88-3.38	0.00-0.75
	HI-3	4.38-10.00	3.88-4.25	0.88-3.25	0.00-0.75
ILP-1/ILPT-1 ILPT-1(d)	LOW3	5.12-10.00	4.12-5.00	0.88-4.00	0.00-0.75
	LOW2	5.00-10.00	4.00-4.88	0.88-3.88	0.00-0.75
	LOW1	4.88-10.00	3.88-4.75	0.88-3.75	0.00-0.75
	NORM	4.75-10.00	3.75-4.63	0.88-3.63	0.00-0.75
	HI-1	4.63-10.00	3.63-4.50	0.88-3.50	0.00-0.75
	HI-2	4.50-10.00	3.50-4.38	0.88-3.38	0.00-0.75
	HI-3	4.38-10.00	3.88-4.25	0.88-3.25	0.00-0.75
ILP-2 (In Default/No Application Mode Only)	LOW3	5.12-10.00	4.12-5.00	0.88-4.00	0.00-0.75
	LOW2	5.00-10.00	4.00-4.88	0.88-3.88	0.00-0.75
	LOW1	4.88-10.00	3.88-4.75	0.88-3.75	0.00-0.75
	NORM	4.75-10.00	3.75-4.63	0.88-3.63	0.00-0.75
	HI-1	4.63-10.00	3.63-4.50	0.88-3.50	0.00-0.75
	HI-2	4.50-10.00	3.50-4.38	0.88-3.38	0.00-0.75
	HI-3	4.38-10.00	3.88-4.25	0.88-3.25	0.00-0.75

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MXL-IQ Battery Calculations

Battery backup is a requirement for the MXL-IQ. To determine the size battery you must use, follow the procedures listed below. The MXL-IQ can charge a battery of up to 55 amp hours. A battery size calculation form is also provided.

1. Record all the modules required in the form on the following page.

2. Calculate each row across and place the total in the right column: **Total Standby 24 VDC Module Current**

3. Total the right-hand column and record it at the bottom of the form opposite **Total System Current.**

4. For **NFPA 72 Local, 72 Proprietary, and UL 1076 systems** multiply the total system current by 24 and record it at that **Total AH location.**

   or

   For **NFPA 72 Municipal Tie and 72 Remote Station systems** multiply the total system current by 60 and record it at that **Total AH location.**

   or

   For **FM Approved Deluge/PreAction systems** multiply the total system current by 90 and record it at that **Total AH location**.

5. Multiply the AH Total by 1.3 to obtain the final battery amp hour capacity and record it opposite **Battery Size.**

Three battery models are UL listed for use with the MXL-IQ:

BP-61—24V, 15 AH

BTX-1—a set of 12V, 31 AH

BTX-2—a set of 12V, 55 AH

Select the battery that meets or exceeds the final calculated battery amp hour rating. Use an external battery box with the BTX-2 model.

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Module	Quantity	Standby 24 VDC Module Current (See Note 1)	Load Current Per Circuit		
			End of Line Device	Device Current	Total Standby 24 VDC Module Current
SMB-2		175mA			
			12mA per NAC		
				11mA per device	
MKB-4		5mA	0	0	
RCC-1/1F		75mA	0	0	
TSP-40		70mA	0	0	
CSM-4		10mA		0	
			12mA		
CRM-4		15mA			
				15mA per active relay	
CZM-4		55mA	0		
				3mA	
ALD-2I		105mA	0		
				11mA per device	
CMI-300		30mA	0	0	
NIM-1R		70mA	0	NA	
MOI-7		120mA	0	0	
MOD-16		2mA	0	0	
MID-16		2mA	0	0	
CZM-1B6		6mA			
			5mA		
				NA	
ICP-B6		18mA	2.5mA	NA	
PIM-1		10mA	0	NA	
PIM-2		(See Note 2)	0	NA	
PAL-1		(See Note 2)	0	NA	
D2300CP		50mA	0	0	
Silent Knight		60 mA	0	0	

Total System Current	
NFPA Local (72A), Proprietary (72D), UL 1076 (MMB-2 only) - Total AH x 24 =	
NFPA Municipal Tie (72B), Remote Station (72C) - Total AH x 60 =	
FM Approved Deluge/PreAction - Total AH x 90 =	
Battery Size (with Alarm Reserve Correction) x 1.3 =	

NOTES

The following modules draw no 24 VDC current and do not need to be included in the battery calculations:

- MOM-2
- MOM-4
- TSW-2

1. Use this column for battery size calculations.
2. Power is supplied by a separate UPS.
3. EOL currents included.

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MXL-IQ Power Supply Load Calculations

Each MXL-IQ System enclosure requires an SMB-2. To ensure that the power supply is not overloaded, complete the worksheet on the following page.

- Enter the quantity of each module in the enclosure.
- Calculate both the 24V and 5V loads for each row.
- Total the Active 24V and Active 5V columns.
- Ensure that both totals are within the power supply output ratings in the table to the right.

SMB-2/MPS-6	6 amps	500mA
SMB-2/MPS-12	12 amps	500mA

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Module	Quantity	Active 24 VDC Module Current	Total Active 24 VDC Module Current (See Note 1)	Active 5 VDC Module Current	Total Active 5 VDC Module Current (See Note 2)
SMB-2		(See Note 3)		(See Note 3)	
MKB-4		0	0	15mA	
RCC-1/1F		80mA		0	0
TSP-40		70mA		0	0
CSM-4		34mA + 1.5A max per circuit		30mA	
CRM-4		75mA		30mA	
CZM-4		720mA 4 zones in alarm		24mA	
ALD-2I		105mA + 11mA per device		0	0

Alarm Verification

The Alarm Verification feature provides the MXL-IQ with a way to verify an alarm from area type addressable smoke detectors connected to the analog loops or from standard smoke detectors connected to the CZM-4 module. This feature reduces the incidence of false alarms.

When a detector is supervised with Alarm Verification, it is turned off immediately after the System first detects alarm causing data from it.

The length of time that the detector is verified is fixed at 50 seconds. In MXL-IQ, an addressable detector is “turned off” by the System ignoring its data; a standard detector is turned off by the power actually being removed from the detector. After the

With Device Confirmation, the B⇨C verification time known as System Justified Alarm time is also adjustable. It is the same time used by both ionization and photo detectors. If a device is individually selected for alarm verification, the alarm verification feature takes priority over the device confirmation option. For adjustment ranges, refer to the **CSG-M Programming Manual**, P/N 315-090381.

There is an Override menu selection in the Test menu of MXL-IQ. Select *Alr_Verify* to disable all alarm verification or select *Alr_Confirm* to disable all alarm confirmation for a period of up to 4 hours or until manually re-enabled.

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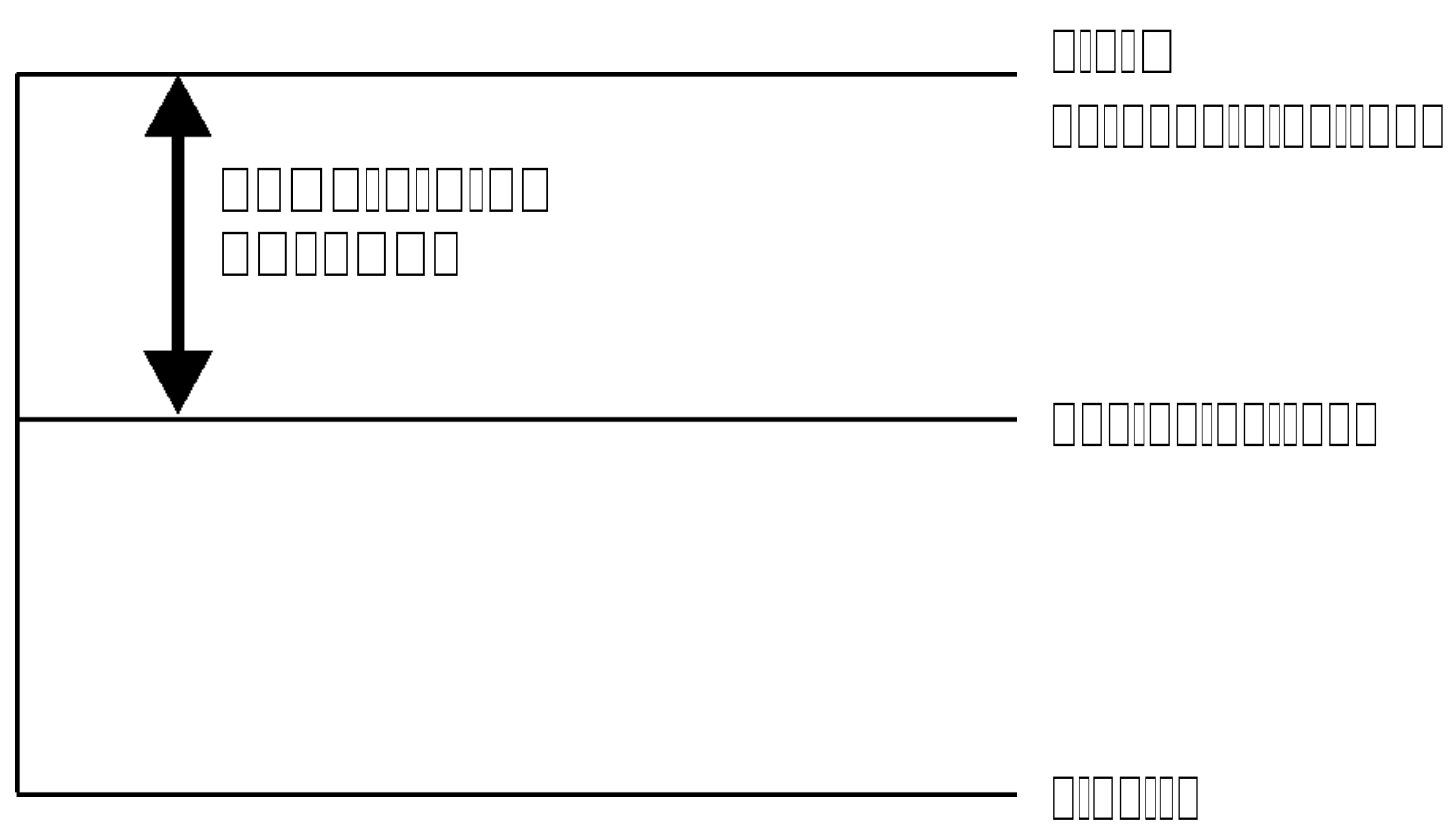
Envirolink is an optional feature that permits MXL-IQ to compensate automatically for environmental changes (such as dirt and dust buildup) in the analog voltage of an I Series photo or ion smoke detector. The selection of Envirolink devices is made in the CSG-M.

Once a detector is chosen to be covered by Envirolink, MXL-IQ stores and analyzes the analog readings of the smoke detector and adjusts the detector's threshold upward or downward, as necessary, to maintain a constant sensitivity.

As the analog voltage increases due to environmental factors, an equivalent increase in the detector's alarm threshold prevents factors other than smoke from causing an alarm. This method maintains the selected detector's sensitivity.

Typically, the analog voltage changes slowly over long periods of time for environmental factors, but changes quickly over short periods of time for actual smoke.

When a new or modified CSG-M is loaded into a system, the MXL-IQ control panel goes through an initial system power-up. The MXL-IQ does **not** keep the Envirolink option where it was formerly applied when this new system powers up. The Envirolink memory re-initializes, and then MXL-IQ begins adjusting the alarm thresholds wherever Envirolink is selected in the new CSG-M.



After MXL-IQ checks that the actual ID of a device with Envirolink agrees with the CSG-M, it adjusts the detector's alarm threshold according to the data stored. The first adjustment occurs after 100 hours of data accumulation. In the case of power cycling or resetting, adjustments begin within 90 seconds.

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If a detector with Envirolink (IEC) reports an alarm condition before the detector's alarm threshold is adjusted, the alarm delays until the alarm threshold is adjusted. If the device continues to report an alarm condition once its alarm threshold is adjusted, the alarm reports.

If the CSG-M and the device ID do not agree, the IEC for that device does not activate until the trouble condition is removed from the system and the panel is reset.

When a system is brought on-line, or when there is a complete loss of power in an MXL-IQ enclosure containing detectors with IEC applied, the operator must perform a reset sequence for the IEC devices in that MXL-IQ and also reset the MXL-IQ.

When an MXL-IQ is powered the first time, and there is no data for IEC devices, MXL-IQ leaves these devices at the default alarm threshold. However, if former IEC data is available, MXL-IQ adjusts the device alarm threshold accordingly.

Environmental conditions usually cause a small change in the analog voltage over a long period of time. At regular intervals MXL-IQ collects analog data for each detector with IEC and adjusts the alarm threshold accordingly. MXL-IQ adjusts for both up and down changes in the analog voltage. In addition, if system power is lost, MXL-IQ adjusts the alarm thresholds as needed by using stored data.

A trouble condition involving the IEC may be annunciated by the MXL-IQ as:

```
PRE-DIRTY ANALOG VOLT. REACHED
```

OR

```
IEC LIMIT REACHED. SERVICE REQ
```

The trouble conditions shown above are annunciated on a detector-by-detector basis as each detector is checked.

MXL-IQ annunciates a trouble condition for a detector when its alarm threshold reaches a predetermined limit. The operator should acknowledge the trouble, clean the detector if possible, and reset the control panel. If the detector is not cleaned, the control panel annunciates this trouble condition after every panel reset until the detector is cleaned. When it is cleaned, that is detected by the Auto Clean Detection feature.

MXL-IQ automatically detects when an IEC detector was cleaned and checks whether the detector is considered clean by MXL-IQ's standards. If the detector is clean, IEC data for that device is reset to clean levels, and the following message prints:

```
Detector Cleaned
```

NOTE: Automatic detection and documentation of the cleaning of a detector by MXL-IQ may take as long as 1 hour. To avoid this, use the ***Det cleaned*** option in the Test menu to avoid automatic clean detection. When you enter the address of the detector that was cleaned, MXL-IQ adjusts that detector's Norm sensitivity setting reference.

IEC must be enabled in the CSG-M in order to have access to the **Det_cleaned** option through the MXL-IQ Annunciator Panel.

At the Test menu, use the Left or Right arrow key to cause the **D** in **Det_cleaned** to start blinking:

```
TEST: OVERRIDE DET_CLEANED
```

Press **ENTER** when the **D** is blinking to select **Det_cleaned.**

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The System asks you to type the module and device numbers.

- Type the three-digit module number and the three-digit device number (mmm/ddd), including all leading zeroes.
- Press **ENTER**.

After entering the module-device, MXL-IQ checks whether the device is subject to IEC. If the device is not subject to IEC, or if IEC is not enabled for the system, an error messages displays:

```
DEVICE NOT SUBJECT TO IEC
IEC NOT ENABLED IN CSG-M
```

If the device is an IEC detector, MXL-IQ displays and prints the time, date, device, and custom message of the cleaned device.

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Latching/Non-Latching Troubles

This feature is not available for Networked MXL-IQ Systems.

When the Latching/Non-Latching (self restoring) trouble option is set to **YES** in the CSG-M, MXL-IQ automatically removes trouble conditions from the trouble queue when the **OUT OF TROUBLE** condition is detected.

For NFPA 72 Local, 72 Municipal Tie, and 72 Remote Station systems, the following criteria must be met in order for the trouble to be removed from the trouble queue:

- Module and device numbers must be identical
- Trouble type must be identical
- Both IN/OUT conditions must be recorded in the queue
- All printers being used must print both IN/OUT conditions

When all these conditions are met, the MXL-IQ removes both the in and out occurrence of this trouble from the queue. If there are no other events in the system (alarm, supervisory, trouble, or security), MXL-IQ returns to the **SYSTEM NORMAL** display (without a system reset). If there are other events in the system, MXL-IQ updates the display.

For NFPA 72 Proprietary systems, the following criteria must be met if the trouble is to be removed from the trouble queue:

- Module and device numbers must be identical
- Trouble type must be identical
- Both IN/OUT conditions must be recorded in the queue
- All printers being used must print both IN/OUT conditions
- Both IN and OUT conditions must be acknowledged and printed

When all these conditions are met, MXL-IQ removes both the in and out occurrence of this trouble from the queue. If there are no other events in the system (alarm, supervisory, trouble, or security), MXL-IQ returns to the **SYSTEM NORMAL** display. If there are other events in the system, MXL-IQ updates the display.

Not all troubles can be removed from the trouble queue. If there is no **OUT** condition reported (i.e., **Class A loop trouble**), MXL-IQ requires an acknowledgement and reset.

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Installing A Security Point

WARNING: These circuits are intended for 24 hour alarm monitoring only.

UL 1076 requires a TSW-2 tamper switch as well as a supervised printer (PAL-1/ PAL-2). Other supervised printers that are selectable in CSG-M are the TI-820 and the LA-50.

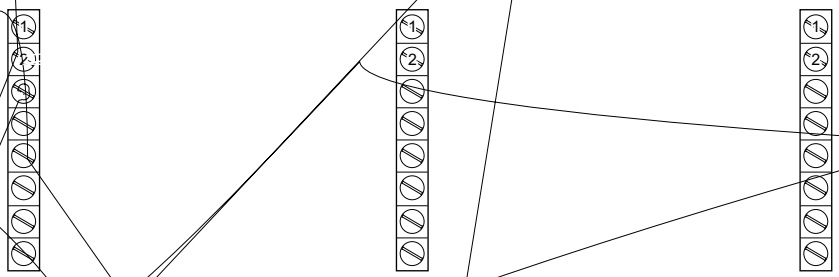
Only Models TRI-60/-60D/-60R or TRI-B6/-B6D/-B6R may be used as security points. A **COMMUNICATION FAILURE** with a TRI device configured for **SECURITY** results in a **SECURITY ALARM** as well as a communication trouble. When installing a TRI device in the CSG-M, be sure to set the device usage field to security; otherwise, the device usage defaults to fire alarm.

CAUTION:

- When setting the device address using the FPI-32, select the normally closed alarm causing input.
- Connect only one switch per TRI input.

For proprietary burglary application (UL 1076):

- Use a TSW-2 tamper switch to monitor the main enclosure.
- Monitor each TRI-60/-60D/-60R or TRI-B6/-B6D/-B6R related to this application for 24 hours by using a listed motion detector (to prevent tampering).



* END OF LINE DEVICE: P/N 140-820185
REFER TO **TRI INSTALLATION INSTRUCTIONS**,
P/N 315-092329 OR 315-093315, AS APPLICABLE

Installing the Security Point for UL 1076

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Application Specific Detection (ASD)

Application Specific Detection (ASD) allows the system designer (and anyone with Control menu access) to program an ILP-2 detector's sensitivity, pre-alarm threshold, and other alarm-related parameters using English descriptions of the detector's environment (application). This eliminates the need for detailed knowledge of smoke detector terminology and operation. The designer can set all of the critical detector parameters by simply selecting an application description that closely fits the one where the detector is to be installed.

For example, to use ASD to select the optimal parameters for a detector in a hotel lobby, select the LOBBY application in the CSG-M for that device. The MXL will automatically transmit the factory determined sensitivity, pre-alarm threshold, and detection algorithm (R-algorithm) to the corresponding device. This eliminates the guesswork of selecting these parameters for different environments. Changes made at the control panel using the Control menu (Change_Apps) override the ASD settings made in CSG-M for that ILP-2 device until the next power-on reset.

E:

1. -2 3.0
2. F -11/F -11 6.0
3. C G- D C

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	Disable	No Applications (Standard Photoelectric Detector)
[illegible]	Office (Retail)	Reasonably clean, climate controlled atmosphere
[illegible]	Warehouse (Light Manufacturing)	Airborne dust, equipment, fork truck and light to medium dock area exhaust fumes
[illegible]	Lobby	Relatively clean area, temperature changes, cellular phones, smoking
[illegible]	Computer Room	Very controlled environment, clean, temperature closely regulated, high cost clean machinery operating, no smoking, high air velocity
[illegible]	Dormitory	Airborne dust and temperature changes, living quarters, cooking fumes, smoking
[illegible]	Healthcare	Higher level risk, relatively clean, electronic equipment
[illegible]	Parking Garage	Airborne dust, car and diesel fumes, temperature swings
[illegible]	Utility (Transformer) Room	Normal to somewhat dirty environment, heat from running equipment
[illegible]	Precious Storage (Sensitive Environment)	Sensitive materials or equipment storage, clean dust-free environment, earliest warning desired
[illegible]	Hostile Environment	Dirty, dusty, humid, operating equipment, RF present, wide temperature swings
[illegible]	Duct (Open air or duct housing)	Dirty, dusty, humid, wide temperature swings, high air velocity

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Testing ASD Devices

Since one of the parameters transmitted to the detector adjusts the detection algorithm (R-algorithm) to reduce false alarms, it is necessary to defeat ASD (or at least the R-algorithm) when smoke testing ASD devices. The **Test ASD_Devices** menu

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MXL-IQ Trouble Messages

Trouble Message	The Probable Cause Is:
AC Fail or Brownout	Primary AC power is missing or below the brownout level; the System is running on battery backup.
Airflow Too Low	AnaLASER airflow is below programmed threshold.
Airflow Too High	AnaLASER airflow is above programmed threshold.
AnaLASER Power Trouble	Problem with AnaLASER power supply.
ASD Testing Enabled	Application specific detector testing is enabled. The applications feature is disabled during testing.
Aux Pwr Class A Fail Neg	The negative side of the CZM-1B6 power circuit is open.
Aux Pwr Class A Fail Pos	The positive side of the CZM-1B6 power circuit is open.
Battery Backup Invalid	A battery is connected, but not selected in CSG-M.
Battery Fuse/Wiring Open	Either the battery is not connected, or the battery fuse is blown, or the battery voltage is too low.
Carrier Lost	CMI-300 to CXL communications problem where the CMI-300 does not see the CXL's modem carrier (tone). No data is being transmitted.
Class A Loop Trouble	If Class A: The initiating circuit at this module address has an open. If Class B: Wired zones are missing the Class A jumpers.

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Trouble Message	The Probable Cause Is:
CMI-300 General Trouble	Communications trouble between the CMI-300 and the CXL. Data is attempting to transmit.
CSGM Out Of Date	This MXL-IQ (node) will need to be updated with the latest CSG-M networked program. A network CSG-M has been loaded on another MXL-IQ (node) and has a reference to this MXL-IQ (node).
Daily Detector Test Abnormal	Device is defective.
Detector Trouble	AnaLASER detector in need of repair.
Device Communication Error	An analog device whose response has failed error checking.
Device Detected Waveform Error	An analog device reports this trouble if it receives an unknown polling waveform.
Device LED Turned On	A device LED was turned on from the Test menu of the MXL-IQ.
Device Multiple Response	Two or more analog devices at the same address have reported during normal supervision.
Device Out of Calibration	This message is used with XLD and is the same as the XL-3 message, *Response out of window at cal.*
Device Receive Error	An analog device reports this trouble if it receives an incorrect analog transmission.
Event log 80% full	Use extract history in CSG-M to reset the MXL-IQ history log.
Event log 90% full	Use extract history in CSG-M to reset the MXL-IQ history log.
Function Recursion Trouble	The number of evaluations of output logic required until outputs are stable has exceeded the system maximum. Rewrite CSG-M to simplify functions.
Ground Fault Minus	Low impedance to the negative side of one of the field wiring circuits to earth ground.

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Trouble Message	The Probable Cause Is:
Ground Fault Plus	Low impedance to the positive side of one of the field wiring circuits to earth ground.
High Battery Voltage	Battery voltage is too high because battery has been overcharged. Battery and/or charger are possibly defective.
History Manually Turned Off History Manually Turned On History Manually Erased	History Log has been manually changed (Turned Off / Turned On / Erased) using the MKB.
IEC Limit Reached. Service Req	Detector environmental compensation has reached UL limit. Detector is very dirty and requires cleaning.
IEC/Pre-alarm Memory Error	An unsuccessful attempt was made to access the IEC area of flash memory. Is IEC-1 module present? Is segmented flash present?
Incorrect Device ID	An analog device whose type or usage does not agree with the CSG-M assignment at that address.
Incorrect Node Address	Address on NIM-1R is incorrect.
Input Device Not Responding	A device assigned in CSG-M is not reporting at its address.
Input Dev Response Too Low	Input wiring to TRI or CZM-1B6 modules has an open circuit or no EOL. Loss of power to CZM-1B6 module. Smoke detector chamber defective.
Input Device Requires Service	An ion or photo detector has exceeded the 80% dust threshold.
Input Disarmed	An initiating device was disarmed through the Control menu.
Keyswitch Activated (CANADA)	This is a trouble type for activation of Canadian manual station keyswitch if no alarm is present.
Lamp Supervision Trouble	MID-1 input trouble when used for lamp supervision.

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Trouble Message	The Probable Cause Is:
Log FULL, Events Will Be Lost	History Log is full. Use extract history in CSG-M to reset the MXL-IQ history log
Loss of 24V Input Power	A CZM-4 has lost its 24 VDC input.
Low Battery Voltage	Battery voltage readings low; the battery requires recharge/replacement.
Low IEC Voltage, Service Req	Defective device.
Memory Error In RAM Test	An error was detected in RAM memory IC 112 or IC 113.
Memory Error in ROM test	An error was detected in the EPROM IC 111 or IC 110
Memory Upgrade Required	Starting with revision 6.00, the MXL-IQ requires a memory upgrade (RAM) in socket IC113.
Missing Device ID Response	An ALD module has not returned an ID Poll response for **any** of its detectors or devices. **NOTE:** This trouble will accompany *module not responding* for missing ALD modules.
Module Comm Failure	When network communications are interrupted, and then restored, all module addresses affected report this trouble.
Module Not Responding	The module assigned in CSG-M at this address is not responding.
Module RAM Failure	The CRM-4, CSM-4, or CZM-4 at this address has determined that its internal RAM is not operating properly.
Module ROM Failure	The module at this address has a ROM checksum failure.
MOI-1 Local Trouble	This trouble is reported when the TRBL IN input of the MOI-7 is driven high.
MOI-1 Voice System Trouble	This condition is caused by driving the TRBL IN of the MOI-7 high with voice modules configured in CSG-M for this module.

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Trouble Message

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Trouble Message	The Probable Cause Is:
Node Not Responding	XNET wiring and/or NIM-1R module is defective.
Out of RAM Call Pyrotronics	The configuration upload is too large.
Out of Tasks Call Pyrotronics	Contact the Siemens Building Technologies, Inc. Technical Services Department.
Output Disarmed	Indicates that an output point has been manually disarmed.
PRE 1 Level PRE 2 Level	AnaLASER device has reached its pre-alarm setting.
Pre-alarm	Device has reached its pre-alarm setting.
Pre-dirty Analog Volt. Reached	IEC compensation has reached a level where the detector should be cleaned.
Printer Off Line/Fault	A supervised printer is not responding.
Printer Out Of Paper	The printer has run out of paper.
Relay Coil Open	The relay coil at this address is open.
Relay Disarmed	The relay at this address has been disarmed from the Control menu.
Relay Driver Inoperative	The relay on the CRM-4 or CSM-4 at this address does not operate when commanded to energize.
Relay Supervision Failure	The relay at this address has a coil failure.
ROM SW Version Error	Module at the address noted needs an update to latest available software level.
Signal Circuit Disarmed	The NAC at this address was disarmed from the Control panel.
Signal Circuit Loop Open	The NAC at this address has a broken wire or missing EOL device.
Signal Ckt Loop Shorted	The NAC at this address is shorted, or the EOL device is the wrong value, or the notification appliances are not polarized or are connected backwards.

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Trouble Message	The Probable Cause Is:
Signal Mod A/D Convert Fail	The CSM-4 at this address has a failed analog-to-digital converter.
Signal Module Zone Code	Zone code failure on the CSM-4 module.
Software Key Violation	Incorrect Software Key Installed (NCC only).
Stack Fault Call Pyrotronics	When the message *Call Pyrotronics* appears, a four letter Alpha ID will be displayed. This number is necessary when reporting the problem to Siemens Building Technologies, Inc.
Style 4 Network Mode	The Style 4 jumper on a NET-7 is found on a Style 7 system. Move the jumper to the Style 7 position.
Style 7 Network Mode	The Style 7 jumper on a NET-7 is found in the Style 4 mode. Move the Style 7 jumper to the Style 4 position.
System Commissioning Mode	The system has been put in the commissioning mode.
System Signal Power Failure	A CSM-4 has lost power to its output circuits.
Tamper Switch	This is a security-type message for the tamper switch on the SMB-2 board when the system is selected for UL 1076 operation.
Too Many ALD-2s	To many ALD-2Is are installed on the system. This is beyond the maximum allowed.
Trouble Causing Input	A device programmed on the system as *trouble causing* has been activated and has changed state.
Trouble Type Not Defined	Unspecified trouble has been received from this address.
Troubles Summarized	While the system is in the commissioning mode, the modules will display this message in lieu of all the devices on this module.
Unspecified Dev Responding	An analog device has reported at an address not assigned in CSG-M.

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Trouble Message	The Probable Cause Is:
Unspecified Mod Responding	A module has reported at an address not assigned in CSG-M.
Unspecified Node Responding	• NIM-1R address on another node is incorrect. • The network CSG-M is incorrect.
WALKTEST Activated	The MXL-IQ has been placed in the walk test mode.
Warm Reset	The hardware reset input to the MXL-IQ was used.
Watch Dog Circuit Triggered	The watch dog circuit on the SMB-2 triggered.
Zone Loop Open	Broken wire on CZM-4 circuit.
Zone Loop Shorted	Shorted wire on CZM-4 circuit.
Zone Power Loss	The CZM-4 zone at this address has lost its 24 volt input.

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Power Limited Wiring

For power limited wiring refer to the following Installation Instructions:

Enclosure	Installation Instructions
LLM-1	315-093530-2
MSE-3	315-093831-1
MSE-3L	315-095445-1

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New Two Stage Alarm

For use in Canada only with MXL-IQ software version 1.0 and higher

Canadian Two Stage Alarm is available with revision 1.0 of MXL-IQ firmware and revision 6.07 of CSG-M. All new installations of Two Stage Alarm should use the new implementation.

The hardware requirements for the Two Stage Alarm are as follows:

- MXL-IQ firmware revision 1.0 or higher
- CSG-M revision 6.07 or higher
- CSM-4s must contain revision 4 or higher

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- Select **NO** for the old system flag driven version of Two Stage
- Select **YES** for the new control function version of Two Stage

NOTE: When recompiling an older implementation of Two Stage Alarm under CSG-M 6.07 or higher, make certain that the New Two Stage Configuration flag is set to **NO** before compiling and uploading to the MXL-IQ.

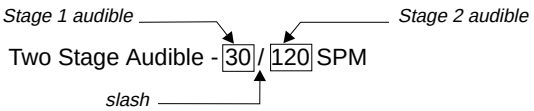
Two Stage Signal Circuit Output Definition

The output for all the coded audibles must be defined on a system basis. This is done in CSG-M from the *Options, System Message, Authorizations* menu. The *Zone Coded Audible Format* menu item determines the system's Two Stage audible definition. The following nine selections are provided for Two Stage audibles:

Two Stage Audible - 30/120 SPM
Two Stage Audible - 30 SPM/Steady
Two Stage Audible - 30 SPM/Temporal
Two Stage Audible - Steady/Steady
Two Stage Audible - Steady/120 SPM
Two Stage Audible - Steady/Temporal
Two Stage Audible - Zone Coded/Steady
Two Stage Audible - Zone Coded/120 SPM
Two Stage Audible - Zone Coded/Temporal

Note that each selection contains a slash (/) which separates the Stage 1 audible signal from the Stage 2 audible signal as shown in the following example.

Example:



When zone coding is selected for Stage 1, the system displays the *Zone Coding Characteristics* menu. (See Figure on the next page.) This menu allows the system designer to program the number of rounds, minimum number of rounds, etc. **The final state will always be STEADY no matter what is selected in this menu.**

- Zone codes must be entered on a point by point basis.
- Zone codes will be output first by priority, second by queue order.
- In order to have the codes sound in the queue order only, all priorities must be the same.

Two Stage Control Function (CSG-M)

This function has two inputs and an output list.

The inputs are labeled **Stage 1** and **Stage 2.** The inputs may contain the following items:

- a device address
- function output (logic, timer, etc.)
- system flag reference

The output may only be a list of CSM-4 or main board signal circuits. The signal circuits referenced **must be** zone coded audibles.

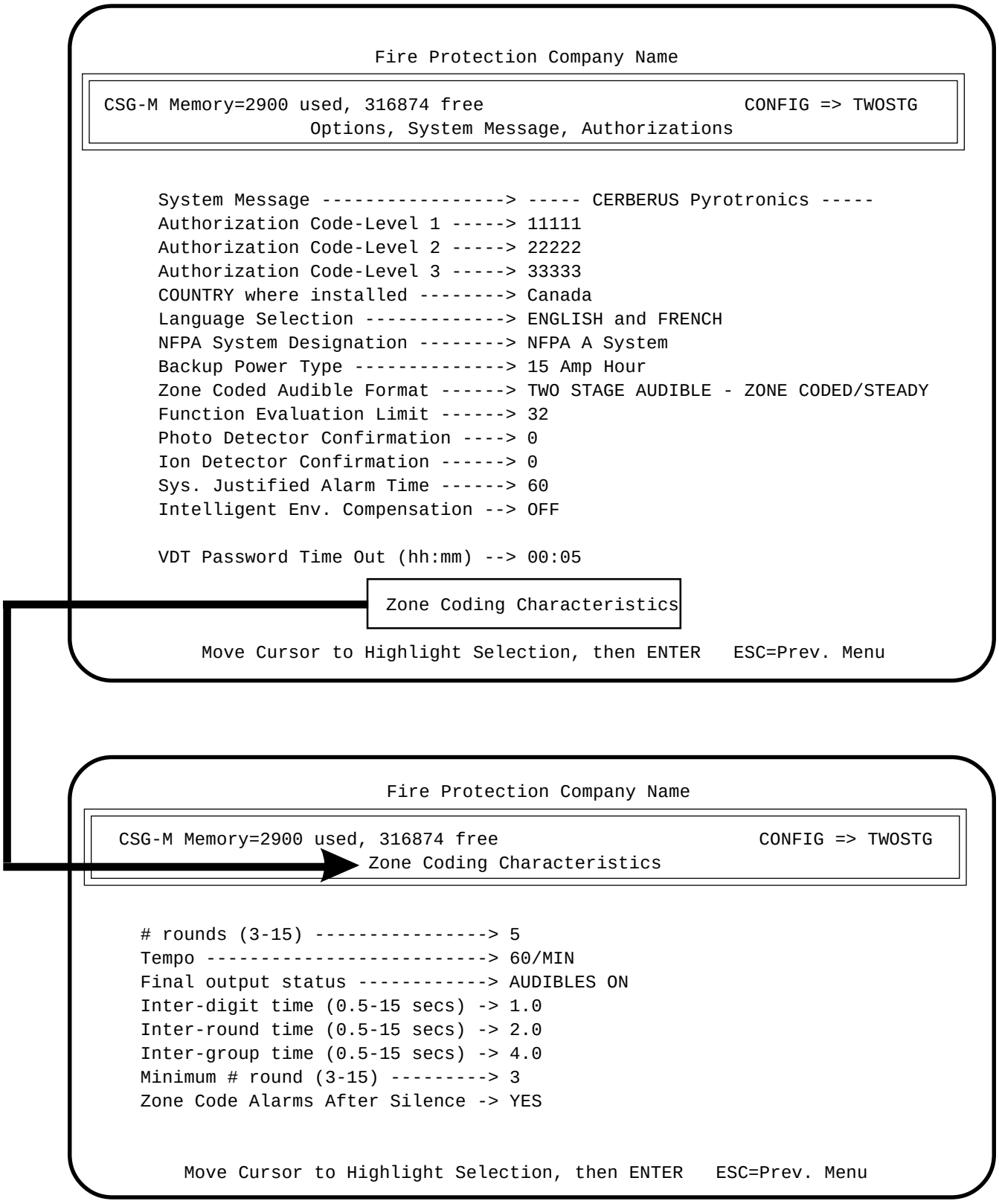
The following table describes how the Two Stage Control Function works.

TWO STAGE CONTROL FUNCTIONS

Stage 1 Input	Stage 2 Input	Coded Audibles in Ouput List
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Multiple Two Stage control functions may be used in a configuration. A single coded audible may appear on the output list of more than one Two Stage control function. Due to the potential conflict between the functions controlling the same coded output, the following rule applies to the Two Stage control function:

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Selecting the Zone Coding Characteristics Menu

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- When a coded audible appears on the output list of more than one Two Stage control function and there is a conflict (that is, some functions indicate Stage 1 and some functions indicate Stage 2), then Stage 2 has priority over Stage 1. As a result, the coded audibles in question will output Stage 2 (either 120 SPM, steady, or temporal, as selected).

NOTE: When zone coding is selected as the Stage 1 audible output, Stage 2 always has priority over the Stage 1 coding. Once the coded circuit is driven into Stage 2 by logic, all zone codes will stop for that circuit no matter what the minimum rounds are.

Two Stage System Flags

There are two system flags associated with Two Stage alarm: **Reset Inhibit** and **Two Stage Audible State.** Both of these flags are writable with user-designed logic. Refer to the following table for Setting the Two Stage System Flags.

It is important to note that other Two Stage writable flags used in the previous Two Stage implementation are not used in the new Two Stage implementation.

SETTING THE TWO STAGE SYSTEM FLAGS

When the Reset Inhibit flag is held:*	Then the Normal Reset (Red MMB key) is:
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	
If the Two Stage Audible State flag is held:**	**Then the Normal Audible Silence (Red MKB key) is:**
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	

Keyswitch Devices

There are two keyswitch types available in the MXL-IQ. All logic associated with a keyswitch device is CSG-M programmable. The only MXL-IQ defined aspects of a keyswitch are as follows:

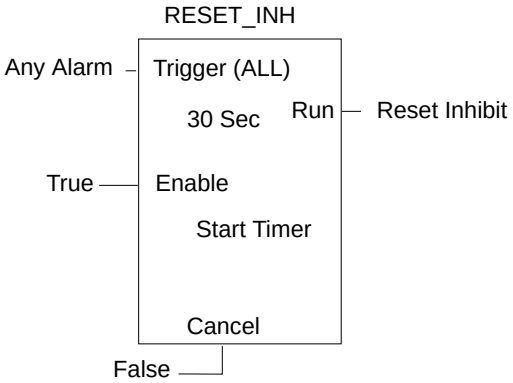
Keyswitch Type 1

1. If a Type 1 keyswitch is activated, an alarm event will result.
2. The event will be recorded on the alarm queue and all standard MXL-IQ functions keyswitch devic
   The onl1ns76* (keyswitc red on the ala T* s ot.a56 318.9c

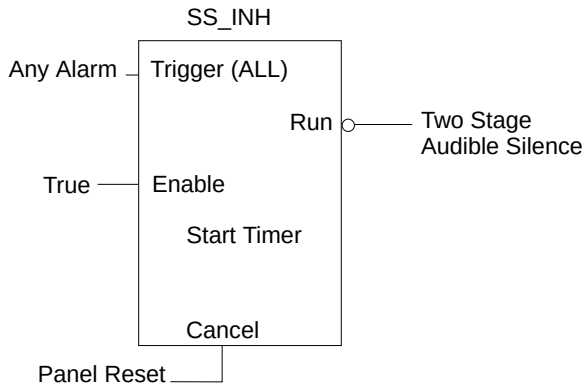
Basic Two Stage System

The figure on page L-6 demonstrates a basic Two Stage system design. Its operation is summarized below:

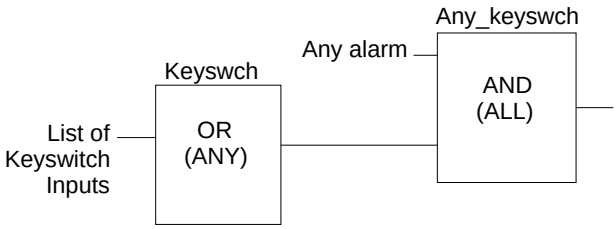
- This system will output Stage 1 audibles when the first alarm occurs.
- If the alarm is not acknowledged prior to the expiration of *stg1_timer*, coded audibles will be forced output Stage 2 audibles.
- If the alarm is acknowledged during Stage 1, only a keyswitch will place the system in the second stage.
- If the system is reset after the alarm has been acknowledged and coded audibles silenced, the system may be reset (provided the RESET INHIBIT logic permits).
- If a keyswitch is activated after the ANY_ALARM flag is TRUE, the system will output the second stage audibles.
- In either stage, the audible silence flag/key controls the silencing and unsilencing of the coded audibles.
- The Panel Reset flag is used to assure timers and latches are reset for the next event after reset.



Typical RESET INHIBIT Timer Function



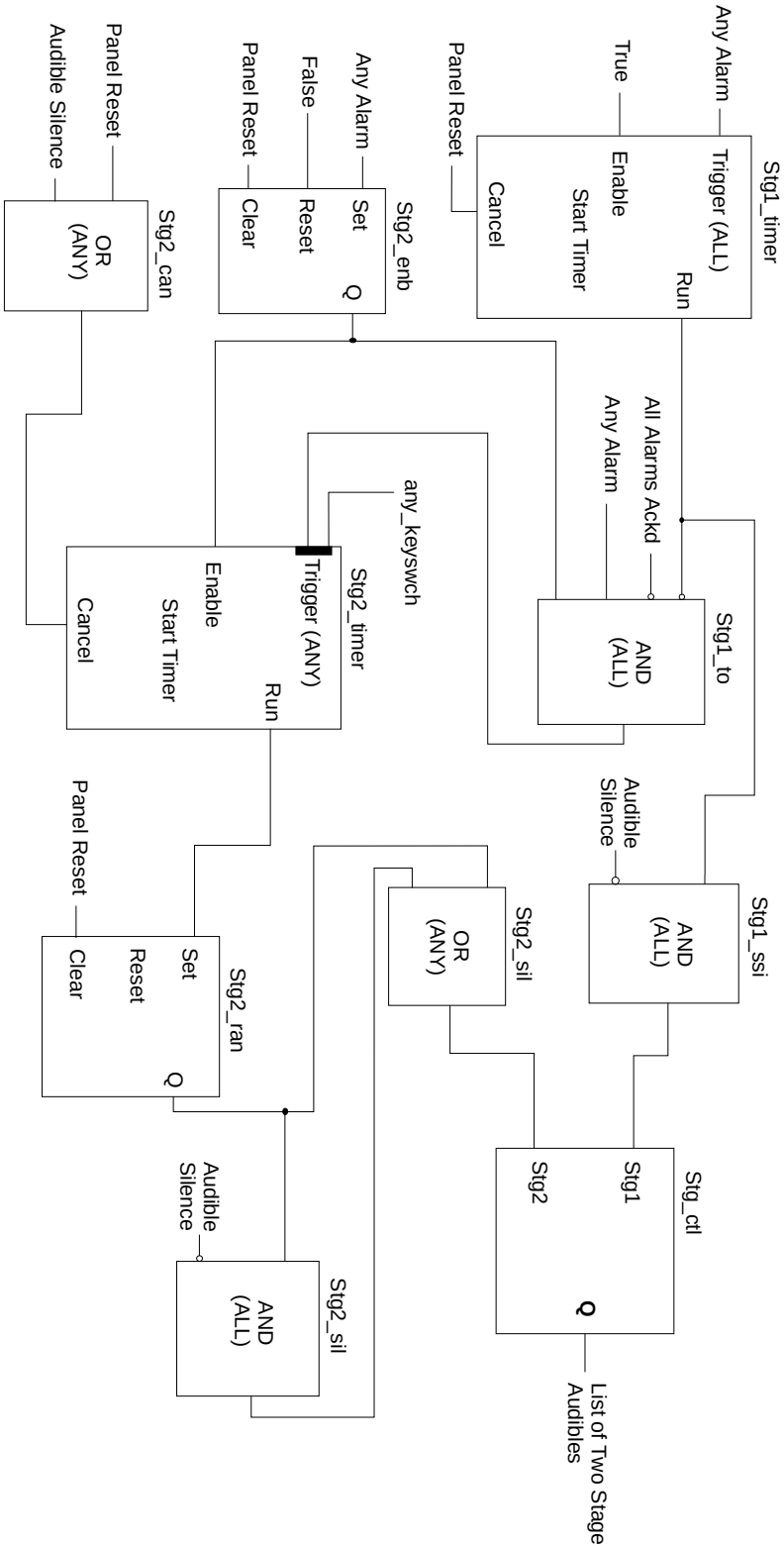
Typical Signal Silence Inhibit Function



Typical ANY KEYSWITCH Function

Using Reset Inhibit with Timer

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Basic Two Stage System

Complex Two Stage System

The figure on the next page demonstrates a more complex Two Stage system. The basic principles of operation are the same as the basic Two Stage system with a slight variation.

In this example, several Two Stage control functions are used in the system design. Together with the proper glue logic, a modified Two Stage system is the result. In this system, the floors above and below the alarm signal Stage 1 coded audibles while the floor of alarm codes Stage 2 audibles.

The general differences between the basic and complex systems are as follows:

- The first alarm will result in Stage 1 coding on that floor.
- An activation of a keyswitch will place the system in second stage. Therefore, the floors above and below the alarm will code Stage 1; Stage 2 will code on the floor of alarm.
- If an adjacent floor generates an alarm, that floor will code Stage 2.

This same principle may be applied to networked MXL-IQs using external references.

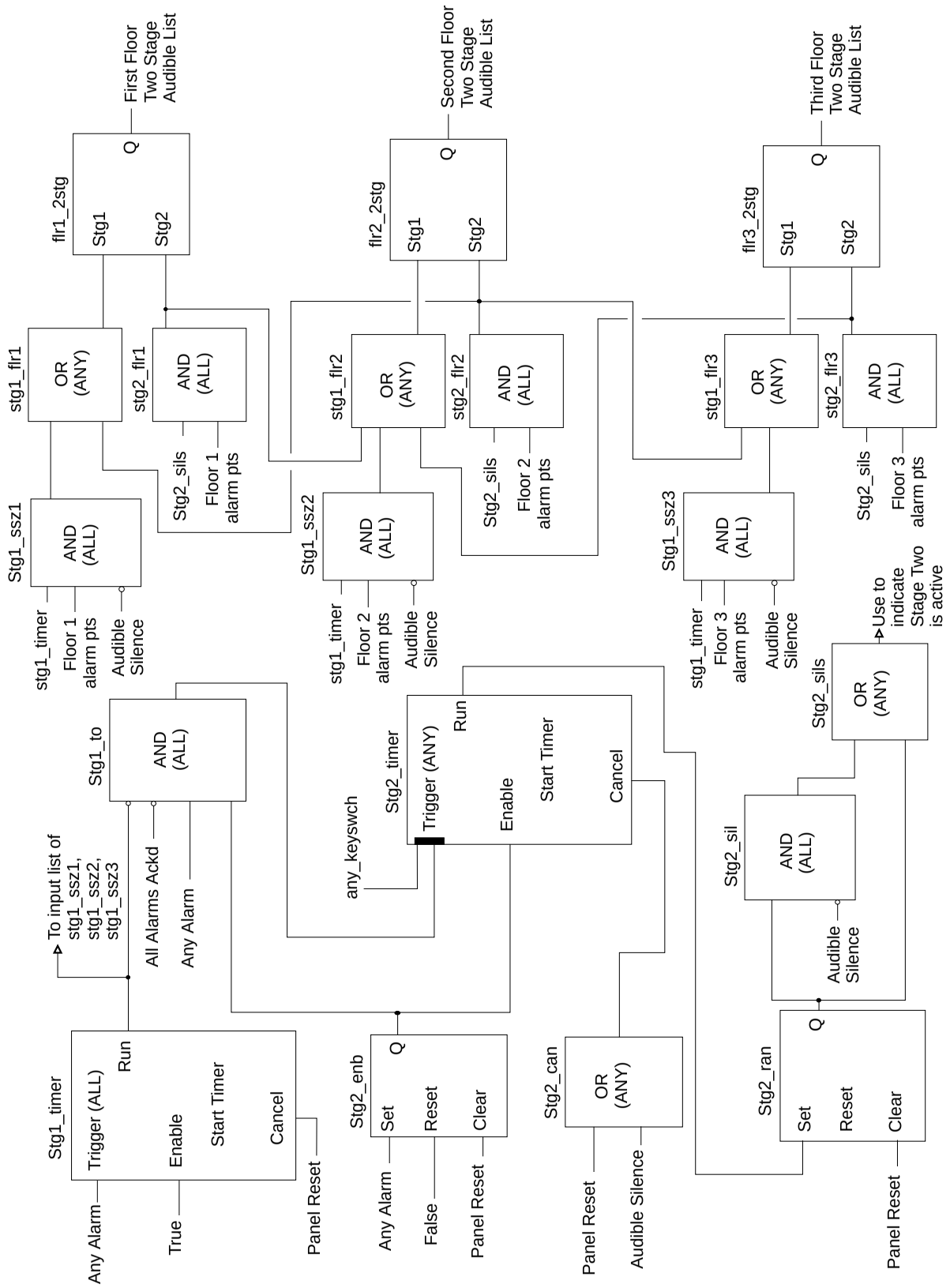
For example: The building in alarm codes Stage 2 while the adjacent buildings code Stage 1.

Visual indications are made using MOD-16 outputs. Simply connect the signal in the logic diagram to the desired LED or other function to indicate the system stage.

For example: Connect Stage 1 and Stage 2 inputs to an LED function to indicate the system state.

NOTE: Since other audibles may be present in the system besides coded (Two Stage) audibles, the AUDIBLE SILENCE LED on the MKB will indicate the state of the AUDIBLE SILENCE flag as usual. Its state will only change with manual intervention (manual silence/unsilence).

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Complex Two Stage System

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Pre-alarm, Dual Criteria Logic Functions, and Percent Per Foot Obscuration Features

The pre-alarm feature provides an early warning of smoke conditions at a more sensitive reading than alarm level. This indication can be in the following form:

- a displayed and printed pre-alarm report
- output logic control
- both

Dual criteria logic allows for the distinction between the chamber or thermal detector of the ILPT-1 photo thermal.

The pre-alarm and dual criteria logic function (ILPT-1 only) features of the ILI or ILP series of detectors are enabled by the FPI-32 Field Programmer.

Note: FPI-32 Rev. 1.3 or higher is required.

The FPI-32 also gives these detectors new unique IDs so that they can be identified at the MXL-IQ as different from the ID-60I and ID-60P series. The ID-60I and ID60P detectors still exist in the CSG-M, but the features described in this appendix do not apply to them.

CSG-M Software

ILI ion detectors and ILP photoelectric detectors are available as I/O device types for ALD-2s (or ALD-2Is). These device types tell the CSG-M and the MXL-IQ that they have the features of pre-alarm, dual criteria (photo thermal only), and ability to display readings in percent per foot (%/ft) obscuration.

These detectors appear in the CSG-M with the existing ID-60I and ID-60P detectors. The MXL-IQ's Custom Software Generator (CSG-M) allows the installation of the ILI or ILP detectors at any valid ALD address.

Pre-alarm

Pre-alarm must be selected to either annunciate a detector's pre-alarm or use the detector in a Criteria Selection function. Pre-alarm can be enabled at each device when it is installed as a *Yes/No* (Y/N) option.

The CSG-M provides the following *system* options for pre-alarm:

- annunciate (Y/N)
- automatic adjust (Y/N)
- annunciation type – trouble
- learning period (1 - 30 days)
- activate detector LED (Y/N)

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Dual Criteria Logic Functions

The CSG-M provides a logic function type labeled *Criteria Selection*. The following inputs to this function are a detector's:

- pre-alarm (from IL devices or Analaser),
- verification, or
- chamber or thermal for the photo thermal detector (ILPT-1)

Pre-alarm and chamber or thermal selections cannot be mixed in the same function. The output can be any that is capable of being driven by output logic, including sending the output to another function.

Note: For networked MXL-IQ systems, no external panel inputs are allowed in the Criteria Selection function.

MXL-IQ Pre-alarm Software

Pre-alarm Learning and Setting

The MXL-IQ automatic pre-alarm learning feature adjusts smoke detector pre-alarm levels (during the time period selected in the CSG-M) until they stabilize. Depending upon pre-alarm activity, the system starts with the most sensitive pre-alarm level and gradually adjusts (de-sensitizes) the MXL-IQ until pre-alarms no longer occur. The level reached by each smoke detector at the end of the learning period is the learned pre-alarm level. No pre-alarms annunciate or feed output logic during this learning period.

The learned pre-alarm level is stored in flash memory so that on a panel power-on, watchdog, or nickel reset, the pre-alarm readings still exist. **When a new or modified CSG-M is loaded into flash memory, the MXL-IQ will NOT assume pre-alarm existed before and will re-start the learning mode.**

The flash memory used for storing pre-alarm detector readings shares the intelligent environmental control (IEC) flash memory area. This requires that a boot block flash device be used if pre-alarm is enabled. The flash segment size shared by IEC and pre-alarm is 8K. Each IEC device uses 2 bytes and each pre-alarm device uses 1 byte, allowing a maximum of slightly over 2500 devices with both IEC and pre-alarm.

Manual pre-alarm settings can be set at the MXL-IQ by using the *CONTROL PERCENT/FT PRE_ALARM* command (See Pre-alarm and Sensitivity Settings below). Any valid pre-alarm reading within the range specified in the table on page M-3 can be used. Pre-alarm adjustments are T* (lelon func2g/fry

	PHOTO	ION
Pre-alarm adjust increment	.25% / ft.	.12% / ft.
Pre-alarm range	.25 - 2.0% / ft.	.25 - .75% / ft.
Pre-alarm default	1.5% / ft.	.75% / ft.
Sensitivity adjust increment	~.25% / ft.	~.12% / ft.
Sensitivity range	1.25 - 3.4% / ft.	.6 - 1.6% / ft.
Sensitivity default (Norm)	3.0% / ft.	1.4% / ft.

Because the pre-alarm and sensitivity settings overlap, set the pre-alarm to at least an increment below the sensitivity setting.

Field Programmer Use

The FPI-32 (Rev. 1.3 or higher) must be used to enable the programming of the ILI and ILP IDs. The IDs tell the smoke detector it has the advanced features such as pre-alarm. For more information about using the FPI-32 with IL series detectors, refer to the *FPI-32 Programmer/Tester Operations Manual,* P/N 315-090077.

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MXL-IQ Spare Parts List

Cables	Part Number
SMB-1/-2 to MKB-4	555-192238
SMB-1/-2 to MOM-2/-4 (24V Power)	600-290505
SMB-1/-2 to MOM-2/-4 (5V and Data)	555-190506
SMB-1/-2 to Battery	555-190968
SMB-1/-2 to CSG-M Programming Cable	600-190704

Fuses	
20 Amp MDA Normal Blow	105-292017
15 Amp 3AG Normal Blow	105-224090
8 Amp 3AG Normal Blow	105-217858
2 Amp 3AG Normal Blow	105-210758

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New Features for MXL-IQ Revision 6.0 and Higher

[illegible]

This powerful feature allows the user to reset the MXL-IQ by changing the state of the MID-16 or CZM-4 input. In CSG-M Revision 10.01, select the new Local Reset Causing usage for MID-16 or CZM-4 in the *Available Device Usage Types* screen:

```
LOC RES CAUSNG
```

The system designer can connect the MID-16 or CZM-4 inputs to another system via a relay or have a remote reset input. When this input changes state to the off-normal position, the MXL-IQ resets in the same way as a RED KEY reset. Existing events do not need to be acknowledged and audibles do not need to be silenced.

NOTE:
This option is limited to NFPA 72A systems. In networked systems, the scope of the reset is local.

[illegible]

When this option is set in the CSG-M for the ALD loops, the ALD polls only up to the last device installed on the loop, thus speeding up the system response. For example, if there are only 5 devices installed on the ALD loop, the MXL-IQ polls only up to address 5 on that loop instead of polling all 60 addresses.

The ALD Fast Polling option requires ALD-2I board Revision 14 and SMB ROM Rev. 6.0. See the CSG-M Appendix for Revision 10.01, P/N 315-096220, for setting this option.

NOTE:
The ALD Fast Polling option can only be used with Non-Fireprint Detectors.

[illegible]

If this feature is set in CSG-M, the MXL-IQ automatically sounds the trouble buzzer every 24 hours from the time that the trouble was acknowledged until the trouble is cleared. The troubles themselves are not re-annunciated.

[illegible]

This delay time was fixed at 30 seconds in the previous MXL-IQ Revisions. In Revision 6.0, the MXL-IQ delays the TRI damper travel delay time trouble according to the time that is selected in CSG-M. The delay time is programmable from 0 to 90 seconds in 1 second increments.

[illegible]

The delay time is programmable in CSG-M from 0 to 90 seconds in 1 second increments. The default value for this option is 0 seconds, which results in an immediate reporting of the trouble.

If an AC failure occurs, the MXL-IQ checks the database for the delay time and starts

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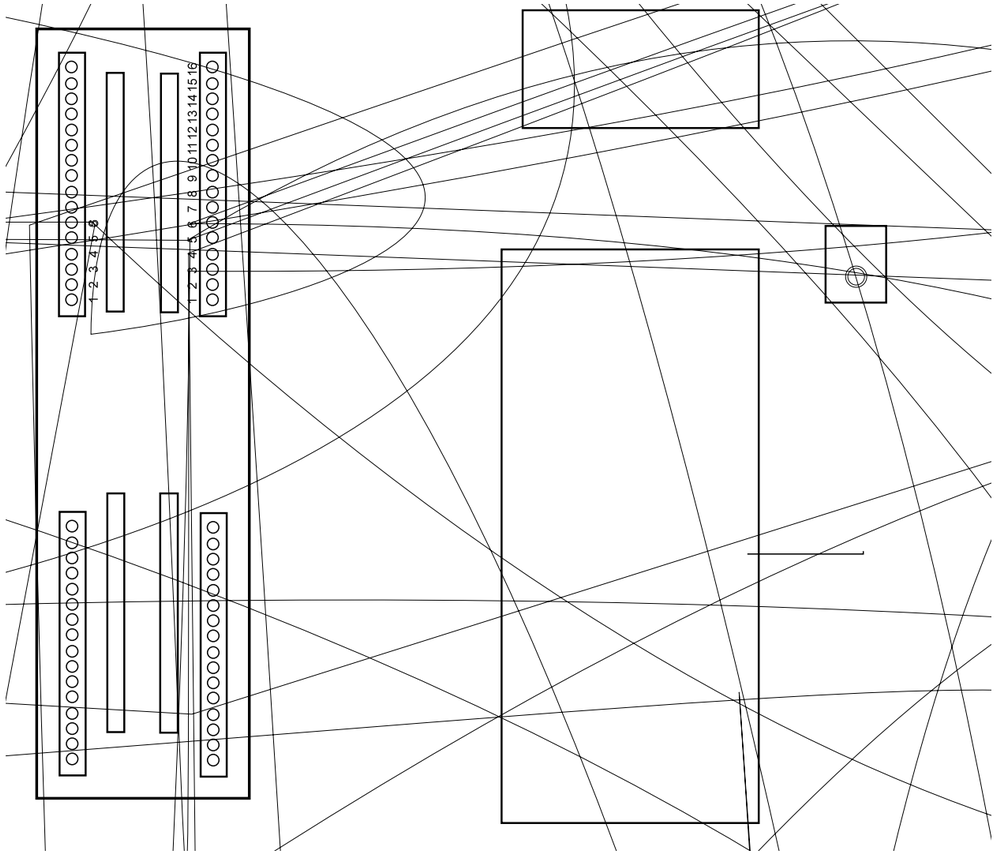
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Siemens Building Technologies, Inc.
8 Fernwood Road
Florham Park, New Jersey 07932

Siemens Building Technologies, Ltd.
50 East Pearce Street
Richmond Hill, Ontario L4B 1B7 CN

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