MXL Series

Pyrotronics

Cerberus Division, Siemens
MXL Control Panel

- Advanced fire protection control panel
  - Multiplexed Alarm Reporting
  - Custom Site Specific Custom Programming

- Basic Panel Contains:
  - Two Addressable Loop
  - Two NAC Circuits
  - Three System Relays (Alarm, Trouble, Supervisory)

- Additional MOM-4 Motherboard
  - Additional System Modules, Input or Control Outputs
MXL Series

- MXL
  Basic Addressable System

- MXLV
  Addressable System with Integrated Voice Features

- MXL-IQ
  Standard MXL system with Limited Point Capacity

- Network
  All of the above systems can be Integrated into a Network
**System Configuration**

**Original Back Box Tan**

- **MMB-1 Main Control Board**
  - 2 Addressable Loops (120 Devices)
  - 2 NAC Circuits (1.5 Amps Each)

- **MOM-4 Motherboard**
  - 4 Half Width Modules
  - 2 Full Width Modules
  - Capable of Holding 2 Addressable Modules
    - 2 Addressable Loops per Each Module (240 Devices Total)

- **TSP-40 Thermal Strip Printer**
System Configuration
Original Back Box Box Tan

- MMB-1 Main Control Board
  - 2 Addressable Loops (120 Devices)
  - 2 NAC Circuits (1.5 Amps Each)

- 2 MOM-4 Motherboards
  - 8 Half Width Modules
  - 4 Full Width Modules
  - Capable of Holding 2 Addressable Modules
    - 2 Addressable Loops per Each Module (480 Devices Total)
System Configuration
Current Back Box Black

- MMB-1/2 Main Control Board
  - 2 Addressable Loops
    - (120 Devices)
  - 2 NAC Circuits
    - (1.5 Amps Each)
- 2 MOM-4 Motherboards
  - 8 Half Width Modules
  - 4 Full Width Modules
  - Capable of Holding 2 Addressable Modules
    - 2 Addressable Loops per Each Module (480 Devices Total)
- TSP-40 Thermal Strip Printer
System Configuration
Current Back Box Black

- MMB-1/2 Main Control Board
  - 2 Addressable Loops (120 Devices)
  - 2 NAC Circuits (1.5 Amps Each)

- 3 MOM-4 Motherboards
  - 12 Half Width Modules
  - 6 Full Width Modules
  - Capable of Holding 2 Addressable Modules
    - 2 Addressable Loops per Each Module (720 Devices Total)
MXL Control Panel

- Continuous System Supervision
  - Microprocessor Based Polling

- System Degrade Operation
  - Enhances system reliability in case of main CPU failure

- System Outputs:
  - Programmable Output Operation
  - Cabinet Mounted Outputs
  - Addressable Filed Devices with Control Capability
Basic System Components

- MMB-1/2  Main System Board
- MPS-6/12  System Power Supply
- MKB-1  System Keyboard/Annunciator
- TPS-40  Thermal Strip Printer
- MBR-1  Back box
- MDR-1 / MDR-1P  Door Plain or with Printer View port
- Batteries
MMB Main System Board

- 16-bit CPU with EPROM / RAM Memory Storage
- Watchdog circuitry for CPU Operation
- Flash memory for the CSG-M (System Specific Program)
- Network Interface for Transponders or Peer-to-Peer Operation
- Back-Up Battery Capability up to 60 Amp Hours
- 24VDC Regulator for Internal System Power Requirements
  - Field Power is Unfiltered with Minimal Rectification
- AC Transfer Relay for Continuous Operation
MMB Main System Board

- Class A Power for CZM-1 Field Modules
- 24 VDC unregulated supply
- Two Analog Loops
  - Initiating and Control Devices on the Same Loop
- Two Indicating Appliance Circuits
  - Class A or Class B Operation
- Three Form C Relays
  - Alarm, Trouble and Supervisory
System Power Supplies

- MPS-6 Power Supply
  - Supervised power supply
  - 6.5 Amp, 24 VDC unregulated output

- MPS-12 Power Supply
  - Supervised power supply
  - 12.5 Amp, 24 VDC unregulated output
  - Transponder Power Supply
MKB Keyboard/Annunciator
MKB Keyboard/Annunciator

- Annunciator and manual control panel for the MLX
- 2 - line 80 character alphanumeric display

- System Indicators:
  - Power indicator (Green)
  - Alarm indicator (Red)
  - Audibles silenced (Red)
  - Supervisory indicator (Yellow)
  - Trouble indicator (Yellow)
  - Security indicator (Yellow)
  - Point disabled (Yellow)
MKB Keyboard/Annunciator

- The Keypad contains the following keys:
  - ACKnowledge
  - AUD SIL (Audible Silence)
  - RESET
  - NEXT display
  - HOLD display
  - Numeric keys
  - Cursor Controls
  - PRINT, HELP and CLEAR keys
  - User configurable function keys
MKB Keyboard/Annunciator

- **MKB-1 - MXL Display/Keyboard**
  This unit is used on the original version of the MXL system, GREY backbox. The display mounts with stand off legs to bolts on the back of the main backbox.

- **MKB-2 - MXL Display/Keyboard Hinged**
  This unit is used on the current version of the MXL system, BLACK backbox. The display is hinged for wiring access.

- **MKB-3 - MXL Display/Keyboard for 19" Rack Mounting**
  This unit is used when the MXL system is installed in a Rack mount enclosure. For this configuration the MKB-RK Rack Mount Bracket must be used.

- **MKB-4 - MXL Display/Keyboard Hinged for IQ**
  This unit is used on the MXL-IQ system. The display is also used with the XL3 system upgrade kit to a MXL system configuration.
TPS-40 Thermal Strip Printer

- Located within the Cabinet Back Box

- System Connections NOT Supervised
  - Supervised Through Power Connection

- Provides paper record of the activity of the system
  - Historical Logging All Events
Basic System Modules

- MMB-1/2 Main System Board
- MOM-2/4 Motherboard, Card Cage
- CSM-4 Signal Module
- CRM-4 Relay Module
- CZM-4 Conventional Zone Module
- ALD-2/2I Analog Loop Driver
- XLD-1 Analog Loop Driver (XL3 Devices)
- PSR-1 Remote Power Supply
External Communicating Modules

- RCC-1/1F Remote Command Center
- NET-4/7 Communication Interface
- NET-7M Communication Interface
- NIM-1R Network Interface Module
- REP-1 Network Repeater Module
- PS-5N7 Network Interface/5V Power Supply
- MOI-7 Voice and Annunciator Driver
- MOD-16 Output Driver
- MID-16 Input Driver
Voice System Modules

- CMI-300 Interface Module
- ACM-1 Audio Control Module
- TMM-1 Telephone Master Module
- MMM-1 Microphone Master Module
- VSM-1 Voice Switch and LED Module
- VLM-1 Voice LED Module
- VFM-1 Fan Control Module
- TBM-2 Termination Block Module
- OMM-1/2 Output Master Module
Voice System Modules Cont.

- ASC-1 Amplifier Supervision and Backup Card
- ASC-2 Amplifier/Riser Supervision and Backup Card
- OCC-1 Output Control Card
- BTC-1 Backup Tone Card
- RCM-1 Riser Control Module
- ZAC-30 Zone Amplifier Card
- DMC-1 Digital Message Card
- ZC Zone Control Card Modules (Series of Output Cards)
- ZCT-8B Zone Card Telephone
MOM-4 CARD CAGE

- Contains four option slots
  - Four half width cards
  - Two full width cards
- Two power connectors
- Two data connectors

MXL system can accommodate up to two MOM - 4 card cages in a single enclosure. As long as there is no TPS-40 Printer installed.
CSM-4 Signal Module

CONTROLLABLE SIGNAL MODULE CSM-4
(INdicating Appliance CIRCUITS)

- 2 STYLE Y OR STYLE Z CIRCUITS
- 1.5 AMPS EACH
- MARCHTIME, TEMPORAL, CODED OUTPUT
- CONFIGURABLE FOR CITY CONNECTION
- SILENCEABLE OR NON-SILENCEABLE
- PROGRAMMABLE DEGRADE OPERATION

- 2 OPEN COLLECTOR OUTPUTS
- DIAGNOSTIC, USER-PROGRAMMABLE LEDS
CRM-4 Relay Module

- Output Control module with four relay outputs

- Form -C contacts
  - rated at 2A, 30 VDC or 120 VDC
CZM-4 Conventional Zone Module

CONVENTIONAL ZONE MODULE CZM-4
(INITIATING DEVICE CIRCUITS)

- 4 STYLE B OR STYLE D CIRCUITS
- SUPPORTS RELAY AND AUDIBLE BASES
- DIAGNOSTIC, USER-PROGRAMMABLE LEDS
- DEGRADE MODE OF OPERATION
ALD-2I Analog Loop Driver

- 60 ADDRESSABLE DEVICES PER CIRCUIT
- STYLE 4 OR STYLE 6 WIRING
- 2 SIGNALING LINE CIRCUITS PER ALD-2

ANALOG LOOP DRIVER MODULE ALD-2
(MAPNET II ADDRESSABLE MODULE)
PSR-1 Remote Power Supply

- Microprocessor controlled remote power supply and battery charger
- Allows expansion from 360 to 3000 points
  - Operates with the MPS -6 to provide 6 Amps of power for various MXL modules
- Provides an interface between remote modules and the MXL when used with a NET - 4 plug-in communications module
PSR-1 Remote Power Supply

- Can be used to power a MOI/MOD annunciator driver set
- Provides auxiliary power in a stand alone mode without an MXL
- 9 Status Indicators
- Two relays
  - Common alarm and trouble
  - Can be programmed for local alarm and trouble
NET-4/7
Communication Interface

- Communication between the remote PSR-1 panels and the main MXL

- Each NET-4 connected represents one network drop on the MXL system.
  - Can have up to 32 network drops, including the MMB-1
NET-4/7 Communication Interface

EXPANSION?
MOI-1 Voice and Annunciator Driver

- Connects an MXL to:
  - CVP90 Voice Alarm System (using VPM - 5s)
  - EVACs Voice Alarm System (using VPM - 5s)
  - Graphic Annunciator (using MOD - 16s)

- Makes a voice system with 120 speaker zones and/or a total of 128 open collector outputs controlled by logic functions in the CSG M

- Flashing XMT LED for normal

- TBL led on steady when in trouble
MOD-16 Output Driver

- Annunciator driver module controlled by the MOI-1
  - Up to 8 MOD-16s can be used with an MOI-1
  - Each MOD-16 can activate up to 16 outputs for a total of 128 outputs
MID-16 Input Driver

- Input control driver module controlled by the MOI-1
  - Up to 8 MID-16s can be used with an MOI-1
  - Each MID-16 can activate up to 16 outputs for a total of 128 outputs
Intelligent/Analog Devices

- Analog functionality
  - Four levels of sensitivity for original devices
    - Low, Normal, Med, High
  - Sensitivity stored in chip located in head
  - Sensitivity changed based on time of day
  - Changed manually from control panel
  - Automatic maintenance alert
Device Addressing

- Programming for intelligent devices is performed on a device basis in the field.
  - Uses FPI - 32 PROGRAMMER/TESTER
    - Resembles a laptop
    - Used to program/test all intelligent devices
Device Addressing Cont.

- All modules and devices are annunciated on the MXL front display and are identified by a unique address (XXX-YYY)

- Each address has two parts
  - The module address (XXX) may be up to 253
  - The device address (YYY) may be up to 249
Operating Instructions

MKB-1 KEYBOARD/ANNUNCIATOR PANEL
Operating Instructions Cont.

- The Main System Display
  - Two lines of 40 characters each
  - Shows the current state of the system

- Back light turns on automatically when keypad is touched, turns off after 5 minutes of inactivity
Operating Instructions Cont.

- **ALARM ACK** - to acknowledge a fire alarm condition
- **AUD SIL** - to silence or unsilence an indicating appliance circuit
- **SUPV ACK** - to acknowledge a supervisory condition
- **TRBL ACK** - to acknowledge a trouble condition
- **SEC ACK** - to acknowledge a security condition
- **Reset** - to reset the system
Operating Instructions Cont.
LED Indicators

- ALARM - Flashes when there is at least one unacknowledged fire alarm, steady when all alarms are acknowledged

- AUDIBLE SILENCED - Flashes when at least one indicating appliance circuit is active, steady when all silencable IACs are silenced

- SUPERVISORY - Flashes when there is at least one unacknowledged supervisory, steady when all are acknowledged
Operating Instructions Cont.

LED Indicators

- **TROUBLE** - Flashes when there is at least one unacknowledged trouble, steady when all are acknowledged

- **SECURITY** - Flashes when there is at least one unacknowledged security, steady when all are acknowledged

- **POWER** - Indicates that power is on, steady when on AC, flashing when on battery

- **PARTIAL SYSTEM DISABLE** - at least one device is disabled
Operating Instructions Cont.

Menu Structure

- The system Menu allows in depth operation and control of the MXL system.

- The Menu option is entered by pressing the ENTER key.

- The Right and Left Hand Arrow Keys are used to select the desired Menu.

- The Menus are configured for Password Protection
  - Acknowledge: No Password Required
  - List: No Password Required
  - Control: Level 2 Password Required (Default 22222)
  - Test: Level 3 Password Required (Default 33333)
  - Walktest: Level 3 Password Required (Default 33333)

- Original system firmware versions had Walktest under TEST
Operating Instructions Cont.  
Acknowledge Menu

- Alarm (Allows Acknowledgment of Alarms Only)
- Supervsry (Supervisory Conditions, Allows Acknowledgment of Alarms Only)
- Trouble (Allows Acknowledgment of Troubles Only)
- Security (Allows Acknowledgment of Security conditions Only)
Operating Instructions Cont.

List Menu

The List Menu allows the user to either view a specific system list on the MKB display or print the list on the system printer.
Operating Instructions Cont.

List Menu

- Status
- Alarm
- Supervsry (Supervisory Conditions)
- Trouble
- Security
- Senstvty (Device Sensitivities)
- Voltages (Device Operational Voltages)
  - Analog
  - Thresh (Threshold for Alarm)
  - Senstvty (Device Sensitivity)
  - Calib (Device Calibration for XL Series Devices)
  - ID (Device Identification for XL Series Devices)
  - ID2 (Device Identification 2 for XL Series Devices)
Operating Instructions Cont.
List Menu

- List Menu Cont.
  - Mod_type (Module Type)
  - Dev_type (Device Type)
  - Message (Device Specific Message)
  - SW_version (SoftWare and Programming Information)
  - Output_states (Current States of Addressable devices)
  - Dev_usages (Device Usage from System Programming)
  - Node_address (Current Node Location)
  - Percent/ft
    - Senstvty (Sensitivity)
    - Pre_alarm
    - Analog
  - ASD_apps (Programmed Device Application)
  - Disarmed_state (Current Alarm State of a Disarmed Device)
Operating Instructions Cont.
Control Menu

- Control Menu
  - Reset (System Reset)
  - Senstvty (Change detector Sensitivity)
  - Arm/dis (Arm or Disarm an addressable device)
    - Arm
    - Disarm
  - Output_on/off (Arm/Disarm and Turn On/Off an Output)
    - Arm
    - Disarm
    - Energize
    - De-energize
Operating Instructions Cont.  
Control Menu

- Loop_arm (Arm an Addressable Loop)
- Loop_disarm (Disarm an Addressable Loop)
- Net_Link_Request (Used to Request a Node Disconnect)
- Percent/Ft (Used to Change Detector Sensitivities)
  - Sensitivity
  - Pre_alarm
- Change_Apps (Used to Change Application Specific Ops)
Operating Instructions Cont.  
Test Menu

- **Set_time** *(Set Time in 24 Hour Format)*
- **Gnd-flt** *(Ground Fault Report per Cabinet Location)*
  - Main
  - Remote
- **Power** *(Cabinet Power State, AC and Batteries)*
  - Main
    - Voltage
    - Current
  - Remote
    - Voltage
    - Current
    - Options
- **MKB1_Lamptest** *(Front Display Lamp Test)*
  - LEDs
  - Display
Operating Instructions Cont.
Test Menu

- Device_LED (Manual Activation of a Device LED)
- MOI_Lamp_Test (MOD-16 Output Functional Test)
- PAX_Lamptest (XL Series Annunciator Lamptest)
- ACM_Lamptest (Voice System Controls Lamptest)
- X_Network (Network Communication Data)
- M_Network (Network Communication Data)
- NET7_Diags (Network Module Trouble Reporting Information)
- Override ( Overrides Alarm Verification and Confirmation)
- Det_cleaned (Indicates a Detector has been Cleaned)
Operating Instructions Cont.  
Test Menu

- Test Menu Cont.
  - Event_log (System Information from the History Log)
    - Alrm_only (Alarm Conditions Only)
    - Trbl_only (Trouble Conditions Only)
    - Superv_only (Supervisory Conditions Only)
    - Security_only (Security Conditions Only)
    - All_events
  - Pyro_Diags (System Diagnostic, Factory Password Required)
  - Pre_alarm (Used to Test System Pre-Alarm Logic)
  - ASD_Devices (Disables Application Specific Operation for Testing of devices)
  - Summarize (Used to Limit Module Troubles during Start-Up)
  - Manual_Activate (Used to Test System Programming Logic)
Operating Instructions Cont.  
Walktest Menu

- **Walktest Menu**
  - System_wAUD (Total System Test with Audibles)
  - Loop_wAUD (Specific Addressable Loop with Audibles)
  - Zone_wAUD (Specific Hardwired Zone with Audibles)
  - System_SIL (Total System Test with NO Audibles)
  - Loop_SIL (Specific Addressable Loop with NO Audibles)
  - Zone_SIL (Specific Hardwired Zone with NO Audibles)
  - Cancel (Used to Cancel condition Before Timeout)
  - Extend Used to Extend the Test Time