MXLV
Multiplex Emergency Voice Alarm/Communication System

ENGINEER AND ARCHITECT SPECIFICATIONS

- Switched Multiplex Audio and Firefighter’s Telephones
- Modular Design
- 25 or 70.7 VRMS Audio Signals
- 1, 2 or 3 Channel Operation
- Central or Distributed Amplification
- Remote Command Consoles
- Flexible System Architecture
- Style Y or Z Speaker Circuits
- Redundant and Distributed Processing
- Style Y or Z Strobe Circuits
- 1.8 Amps per Strobe Circuit
- LED Annunciator Modules
- Style Y or Z Audio Risers
- Backup Amplification
- Selectable Tones with Backup
- Auxiliary Audio Input
- Auxiliary Audio Outputs for Recording Pages and Firefighters Telephone Calls
- Remote Intelligent Audio, Strobe and Telephone Zone Modules (ICP’s)
- Optional Power Limiting
- Degrade Mode Tone Generator
- Optional Firefighter’s Telephone System
- Separate Call-in and Telephone Zone Fault Indication
- Acknowledge and Busy Tones on Firefighter’s Telephone
- Integrated Transponders
- Listed, ULC Listed, CSFM, NYMEA Approved, City of Chicago
- LifeLINK - MXLV Global Network Voice Operation
- Peer-to-Peer Paging

- Campus Paging and Evacuation
- Fan Control (HOA) Modules
- Digitized Voice Messaging
- Custom Recordable Messages (Any Language is Possible)
- Spoken Coding
- Spoken Walk Test
- Voice Message text Programmable via AccuLINK (CSGM)
Description

MXLV is a switched multiplex Emergency Voice Alarm and Communication System designed to be used as a part of the Cerberus Pyrotronics MXL. Its operation is fully integrated with the MXL and programmed via a laptop computer.

The system will respond rapidly to either automatic or manual commands from MXL logic or switch modules located on the command console(s). Audio signals such as Evacuation, Alert, Auxiliary or Page can be routed to any number of speaker circuits. A wide selection of microprocessor controlled tones with backup are available. Remote tone generators can be installed in MXLRV transponders to provide tone generation in a degrade mode. The system also supports the use of a digital message player. One or more speaker and strobe circuits can be mapped to switches through MXL's AccuLINK programming software. Switches can be used to manually activate or deactivate any zone. Through the use of multi-color LEDs a clear indication is provided showing which zones are active and linked to which audio channel.

The Microphone Master Module includes a dynamic microphone with a push-to-talk switch and a ready-to-page indicator light along with a small local speaker and volume control for monitoring audio signals. An optional pre-announce tone is also available.

The MXLV’s flexible system architecture allows it to be configured as either a single, dual or three-channel audio system using central or distributed amplification. Automatic transfer to standby amplifiers can be provided in a one for one or one for multiple amplifier mode. A standby amplifier can act as a backup for active amplifiers in any channel.

Because of the field programming capability and plug-in card configuration, field wiring is kept to a minimum and on site changes are easily made.

As an option, the system can provide a Firefighter’s Telephone system that can provide both an acknowledge tone and a busy signal. Clear indication is provided at the command console as to which zones are active. The Telephone Master Module provides a red master telephone with retractable coil cord, switch hook and push-to-talk button.

The telephone system uses a selective talk configuration. Any phone that is plugged in or taken off hook will light a specific zone indicator LED and sound an audible signal at the command console. Up to six telephones may be active in the system simultaneously with no loss of audio quality.

Remote paging can be provided from any telephone zone (Warden’s Page) with selection at the command console. In addition, specific telephone zones can be pre-selected as automatic page zones on a selective or All Call basis.

Speaker zones are selectable for either 25 Volt or 70.7 Volt operation and either Style Y or Style Z wiring configuration. Strobe circuits are rated at 1.8A and may be wired as Style Y or Style Z.

Speaker, Strobe and Firefighter’s Telephone zones can be provided as either plug-in type cards, installed in the main enclosure or in MXLRV transponders, or as remote Intelligent Control Points (ICPs), which connect to the MXL analog signaling line circuits. ICPs used for audio can only support single channel operation.

An auxiliary audio input is supplied for routing to the lowest priority audio channel. This input can provide for activation of an external audio signal on either an All Call or selective basis. In addition, a auxiliary audio output is provided to record all activity on the paging channel and firefighter’s telephone talk bus.

Audio risers are fully supervised and can be wired as Style Y or Style Z circuits. All audio risers are power limited.

The system may be designated to meet the requirements for multiple command centers with selectable paging.

System Modules

OMM-1 Voice Module Cardcage
This module is a cardcage for all MXLV related plug-in option modules. It occupies one MOM-4 type footprint in the MXLV enclosure. It provides four slots for optional modules, such as OCC-1, ASC-1, ZAC-30, ZCT-8B, ZC18B, etc., as well as terminals for applicable field wiring. The terminals accept up to 14 AWG wiring using saddle type clamps. At least one OMM-1 or OMM-2 is required in each MXLV system. Multiple OMM-1s or OMM-2s may be used and located either centrally at the command console or distributed in MXLRV enclosures.

OMM-2 Voice Module Cardcage
This module is a cardcage for all MXLV related plug-in option modules. It occupies one MOM-4 type footprint in the MXLV enclosure. It provides two slots for optional modules, such as OCC-1, ZAC-30, etc., as well as terminals for applicable field wiring. The terminals accept up to 14 AWG wiring using saddle type clamps. At least one OMM-1 or OMM-2 is required in each MXLV system. Multiple OMM-1s or OMM-2s may be used and located either centrally at the command console or distributed in MXLRV enclosures.
ACM-1 Audio Control Module
This module acts as the main controller for MXLV. It mounts on studs at the back of the MKB-2 that also contains the MXL display and keyboard. It provides an interface between the MXL RS-485 network and other MXLV modules. It also provides the microprocessor controlled tone generator as well as primary and backup microphone pre-amps.

DMC-1 Digital Message Card
The DMC-1 is an MXLV optional module that provides the MXLV with voice message capability for evacuation, alert, emergency or other building occupant information messaging. The DMC-1 message text is programmed via the MXLV AccuLINK configuration software. Custom messages may be recorded directly to the DMC-1 via an external microphone or by connecting an external pre-recorded audio source. DMC-1 mounts in the OMM-1 cardcage and requires 1 of the 4 available OMM-1 slots. MXLV supports up to two DMC-1 modules.

MMM-1 Microphone Master Module
The MMM-1 contains a supervised microphone with supervised push-to-talk switch and retractable coil cord. It also provides a ready to page LED and monitor speaker with volume control. It mounts to the left of the LCD display and keypad in the MXLV enclosure.

OCC-1 Output Control Card
The OCC-1 acts as a controller for up to 11 option modules plugged into a maximum of three OMM-1 cardcages. The OCC-1 plugs into one slot in the OMM-1 or OMM-2. The OCC-1 accepts up to three channels of audio risers and a telephone riser. The BTC-1 optional degrade mode tone generator mounts on the OCC-1.

ASC-1 Amplifier Supervision and Backup Card
The ASC-1 plugs into one slot in an OMM-1 or OMM-2 cardcage and supervises up to 3 primary and one backup amplifier(s) (EL-410D). It also provides transfer from primary to backup amplification during failure. One ASC-1 is required for each 3 primary amplifiers even when no backup is used. Multiple ASC-1s may be used to increase the primary to backup ratio.

ASC-2 Amplifier and Riser Supervisory Card
This card is used for amplifier supervision, transfer to backup and high level audio riser in systems using central amplification with ICP remote zone modules or MXLV transponders. The output of the ASC-2 is supervised. It plugs into a slot in the OMM-1 or OMM-2 cardcage. It supervises one primary and one backup EL-410D audio amplifier. Multiple ASC-2s can be used to increase the primary to backup ratio.
**VSM-1 Voice Switch Module**
The VSM-1 mounts in the front of the MXLV command console in either the MHD-3, MHD-4 or MHD-5 hinged panels. It provides eight switches and 16 LEDs. The switches are mappable to output circuits through MXLV AccuLINK programming logic. They allow selection of paging or other audio signals to various circuits as well as other general system switch control functions, such as All Call, All Evac, Warden’s Page, etc. Each switch is provided with 2 LEDs, one bicolor and one amber. The bicolor LEDs indicate circuit status activity as to which audio channels and telephone zones call in. The amber LED indicates a fault. Space is provided for labeling each switch.

**VLM-1 Annunciator Module**
The VLM-1 is an LED annunciator module that mounts in the front of the MXLV command console in either the MHD-3, MHD-4 or MHD-5 hinged panels. Each VLM-1 provides eight sets of LEDs, one capable of being lit red or green, and one amber. A space is provided for labeling the LEDs. The LEDs are assignable through the MXLV AccuLINK programming software for annunciation of alarm and trouble or status (such as fan or dampers status).

**VFM-1 Voice Fan Module**
The VFM-1 mounts in the front of the MXLV command console in either the MHD-3, MHD-4 or MHD-5 hinged panels. It provides (4) 3 position rotary switches for fan control application requiring hand-off-auto control. The switch positions are on, off and automatic. 3 LEDs are provided with each switch to indicate on, off and trouble. Switch control is programmable through the MXLV AccuLINK program. A space is provided for labeling the switches.

**VSB-1 Switch Blank**
The VSB-1 is a blank plate which covers one VSM/VLM/ VFM opening in either the MHD-3, MHD-4 or MHD-5 deadfront panels. It attaches to the MHD with screw fasteners.

**ZC1-8B Zone Card**

1 Channel Audio (25V or 70V) / Strobe
The ZC1-8B is a plug in speaker or strobe zone card. It plugs into a slot in either the OMM-1 or OMM-2 cardcages. ZC1-8B contains 8 class B speaker or strobe circuits. The 8 zones can be divided into groups of 3, 3, and 2; where each group can either use strobe or speaker circuits. Strobe circuits are limited to 1.8 amps @ 24VDC each. When used for 25V speaker circuits, each zone is rated at 45 Watts max. When used for 70V speaker circuits, each zone is rated at 70 Watts max. The maximum ZC1-8B card (all zones) wattage is 300 Watts. For applications that require high speaker loads on a single zone, ZC1-8B cards are capable of up to (3) 100 Watt, 70V speaker zones when audio is supplied by (3) separate EL-410 amplifiers. For Strobe or non-coded horn applications, the ZC1-8B card (all zones) is rated for a maximum card load of 14.4 amps @ 24VDC. If power limiting of zones is required the PLC-4 and the appropriate PL864 (PL864-25A, PL864-70A, PL864-25S) current limiting module(s) must be used.
ZC2-8B Zone Card
2 Channel Audio (25V or 70V)
The ZC2-8B is a plug in 25V or 70V speaker zone card. It plugs into a slot in either the OMM-1 or the OMM-2 cardcage. ZC2-8B contains 8 Class B dual channel speaker circuits. When used for 25V speaker circuits, each zone is rated at 45 Watts max. When used for 70V speaker circuits, each zone is rated at 70 Watts max. The ZC2-8B total speaker load (wattage total for all zones) maximum is 100 Watts. For applications that require high speaker loads on a single zone, the ZC2-8B is capable of a single 100 Watt, 70V audio zone. If power limiting of zones is required the PLC-4 and the appropriate PL864 (PL864-25A, PL864-70A, PL864-25S) current limiting module must be used.

ZC2-4AB Zone Card
2 Channel Audio (25V or 70V) / Strobe
The ZC2-4AB is a plug in speaker or strobe zone card. It plugs into a slot in either the OMM-1 or the OMM-2 cardcage. ZC2-4AB contains 4 Class A or B dual channel speaker circuits or Class A or B strobe circuits. Strobe/non-coded horn circuits are limited to 1.8 amps @ 24VDC each. When used for 25V speaker circuits, each zone is rated at 45 Watts max. When used for 70V speaker circuits, each zone is rated at 70 Watts max. The ZC2-4AB total speaker load (wattage total for all zones) maximum is 100 Watts. For applications that require high speaker loads on a single zone, the ZC2-4AB is capable of a single 100 Watt, 70V audio zone. If power limiting of zones is required the PLC-4 and the appropriate PL864 (PL864-25A, PL864-70A, PL864-25S) current limiting module is required.

ZC3-4AB Zone Card
3 Channel Audio (25V or 70V) / Strobe
The ZC3-4AB is a plug in speaker or strobe zone card. It plugs into either the OMM-1 or the OMM-2 cardcage. ZC3-4AB contains 4 Class A or B three channel speaker circuits or Class A or B strobe circuits. Strobe/non-coded horn circuits are limited to 1.8 amps @ 24VDC each. When used for 25V speaker circuits, each zone is rated at 45 Watts max. When used for 70V speaker circuits, each zone is rated at 70 Watts max. The ZC3-4AB total speaker load (wattage total for all zones) maximum is 100 Watts. For applications that require high speaker loads on a single zone, the ZC3-4AB is capable of a single 100 Watt, 70V audio zone. If power limiting of zones is required the PLC-4 and the appropriate PL864 (PL864-25A, PL864-70A, PL864-25S) current limiting module is required.

ZCT-8B Telephone Zone Card
The ZCT-8B is a plug-in optional module that provides eight Class B telephone zones with acknowledge and busy signals. It plugs into a slot in the OMM-1 or OMM-2 cardcage.

TMM-1 Telephone Master Module
The TMM-1 provides a master firefighter’s telephone handset (push-to-talk), switch hook and telephone riser interface circuitry. It mounts to the right of the MKB-2 that also contains the MXL display and keyboard.
**TBM-2 Terminal Block Module**
The TBM-2 provides screw terminals for field wiring such as audio and telephone risers, auxiliary inputs and outputs. The TBM-2 mounts in the MBR-2 or MSE-2 enclosure box. It includes an RCA type Auxiliary audio input jack and auxiliary audio output jacks for recording both page and telephone.

**BTC-1 Backup Tone Card**
The BTC-1 provides two simultaneous tones, selectable through DIP switches. It can be used in conjunction with the ACM-1 module to provide a backup tone generator or plugged onto the OCC-1 board to provide a degrade mode tone generator in the MXLRV transponders.

**EL-410D Amplifier**
The EL-410D is a 100 Watt RMS audio amplifier that can be configured to provide either 70.7 Volt or 25 Volt output. It can be used in either a central or distributed mode. It mounts on System 3™ type rails and occupies one complete row. It operates from 120 VAC and supports the use of battery backup. Battery inputs are supervised for high or low voltage.

**ZAC-30 Amplifier/Speaker Zone**
The ZAC-30 is a combination 30 Watt Amplifier Speaker Zone for use with MXLV. Style Y or Z and Class A/B speaker zones are supported. ZAC-30 is power limited and provides 30 Watts of audio at either 25 Volt or 70.7 Volts. ZAC-30 plugs into one slot of OMM-1 or OMM-2 cardcage and provides 1, 2, or 3 channel operation via input signal switching. A single ZAC-30 can be used to provide amplifier backup to a single or many ZAC-30s.

**MKB-2 Display/Keyboard**
The MKB-2 mounts on the MBR-2 backbox and provides a two-line, 80 character LCD display, indicator LEDs, display control keys, numeric keypad, user programmable function keys and all other keys necessary for operator control. These keys include but are not limited to: Acknowledge, Silence and Reset. It also includes spaces for mounting the MMM-1 microphone module and the TMM-1 telephone. The MKB-2 is supplied with two blank plates for use when either the microphone or telephone are omitted. The MKB-2 attaches to the MBR-2 with a hinge and latches for easy access to the rear of the modules as well as other modules mounted in the backbox.

**MME-3 MXL/V Standard Size Enclosure**
The MME-3 enclosure set consists of a sheetmetal backbox and door with keylock. The MME-3 can be used for either the MXL System, MXLV Voice Command Console, MXLR Transponder, MXLRV Voice Transponder or Amplifier Equipment (using the MSR-1 Rail Kit). To mount MXL/MXLV modules in the MME-3, the MBR-MP removeable module mounting plate is required. Using the MBR-MP mounting plate (1) MMB or (1) PSR-1 and up to 3 expansion cardcages (MOM or OMM) can be mounted in the MME-3 enclosure. When used to mount MXL amplifiers (EL-410), the MBR-MP is not required, instead up to (3) EL-410 amplifiers may be installed in the MME-3 by using (3) MSR-1 rail kits. When amplifiers are mounted in any enclosure always install MDG-1 grills in the door for proper ventilation.
MME-3 is designed for surface of semi-flush mounting and includes various knockouts for wire and conduit entry. The door in the MME-3 set has two cutouts for either clear lenses, blank plates or grills depending on the application, and contains a key lock.

**MBR-MP  MME-3 and MLE-6 MXL Module Mounting Plate**

The MBR-MP MXL/V Module Mounting Plate is required for use in both MME-3 and MLE-6 enclosures to mount all MXL and MXLV equipment. MBR-MP is not necessary if the MME-3 and MLE-6 enclosures are to be used only for mounting of amplifiers (EL-410).

The MBR-MP is a removable MXL/V module mounting plate that allows the enclosure MME-3 or MLE-6 to be shipped to the job site for installation of wiring and conduit, while the system hardware (electronics) is mounted to the studs on the MBR-MP, pre-wired, programmed and tested prior to delivery and installation at the job site. This allows for quicker, more efficient system start ups with less chance of the sensitive electronics being damaged while field wiring and conduit are connected to the system enclosure.

MBR-MP mounting plate bolts to either the MME-3 or MLE-6 enclosures for easy installation on the job site. The MBR-MP also has handles to allow easy transport and mounting. The MBR-MP contains mounting studs for (1) MMB or PSR-1, (1) PIM-1, (1) TBM-1, and up to (3) MOM or OMM cardcages or 2 cardcages and (1) TSP-40 Printer (same mounting studs as the MBR-2 enclosures).

The MBR-MP is ordered and shipped separately from the MME-3 and MLE-6 enclosures.

**MBR-3MP  MLE-6 Optional Cardcage Mounting Plate**

The MBR-3MP is an optional MXL/MXLV cardcage mounting plate for use exclusively in the MLE-6 enclosure. When installed in the MLE-6 backbox, the MBR-3MP adds the option of mounting up to an additional (3) MOM or OMM expansion cardcages.

**MLE-6  MXL/V Large Size Enclosure**

The MLE-6 enclosure set consists of a sheetmetal backbox and door with two key locks. The MLE-6 can be used for either the MXL system, MXLV Voice Command Console, MXLR Transponder, MXLRV Voice Transponder or Amplifier Equipment (using the MSR-1 rail kit). To mount MXL/V modules in the MLE-6, the MBR-MP removeable module mounting plate is required with the MBR-3MP optionally available for use. Using the MBR-MP mounting plate (1) MMB or PSR-1 and up to (3) expansion cardcages (MOM or OMM) can be mounted in the MLE-6. If additional cardcages are required, the MBR-3MP optional cardcage mounting plate can also be installed in the MLE-6 below the MBR-MP. The MBR-3MP allows mounting of an additional (3) MOM or OMM module expansion cardcages.

Various combinations of hardware can be installed in the MLE-6. If only amplifiers are to be installed in the MLE-6, no MBR-MP or MBR-3MP plates are required. Instead up to (5) EL-410 amplifiers can be installed by using (5) MSR-1 rail kits. The MLE-6 can also be used to mount up to (3) MXL cardcages and (2) amplifiers. This configuration would be typical of a remote voice transponder cabinet. In this configuration (1) MBR-MP would be used in the upper half of the MLE-6 to mount the MXL modules, while the lower half would use (2) MSR-1 rail kits to mount up to (2) EL-410 amplifiers.

The MLE-6 is designed for surface or semi-flush mounting and includes various knockouts for wire and conduit entry. The door supplied with the MLE-6 set has (3) cutouts for either clear lenses, blank plates or grills depending on the application. The door also contains (2) key locks — keyed the same. Various combinations of dead front mounting plates are possible with the MLE-6 enclosure. A typical MXLV installation would have (1) MKB-2 at the top, and (2) MHD-3 dead front plates in the middle (for (14) VSM/VLM/VFM modules per plate) and (1) or (2) MHD-2 lower dead front plates.
MDL-1 Clear Lens
The MDL-1 is a clear Plexiglas® lens which fits in either one of the two openings in the MME-3 enclosure door or in one of the three openings in the MLE-6 enclosure door. One lens is included in the MDL-1 package.

MDB-1 Sheet Metal Blank Plate
The MDB-1 is a sheet metal blank plate which fits in either one of the two openings in the MME-3 enclosure door or in one of the three openings in the MLE-6 enclosure door. One blank plate is in the MDB-1 package.

MHD-1 Upper or Middle Dead Front Panel
The MHD-1 is a hinged sheet metal panel which attaches to either the MME-3 or the MLE-6 enclosure backbox. It fits in either the upper or the middle section of the MME-3 backbox or the upper or either of the two middle sections of the MLE-6 backbox. It has an opening with a cover plate for the TSP-40 printer when used and attaches to the backboxes with screw fasteners. When in place it covers and protects modules and wiring, providing dead front construction in that area.

MHD-2 Lower Dead Front Panel
The MHD-2 is a hinged sheet metal panel which attaches to either the MME-3 or the MLE-6 backboxes. It mounts in the lower section on the MME-3 and on the lower two sections of the MLE-6 backbox. It has no openings and attaches to the enclosures with screw fasteners. When in place, it covers and protects modules and wiring, providing dead front construction in that area.

MHD-3 Middle Dead Front Plate for Mounting Switch/LED/Fan Control Modules
The MHD-3 is a hinged sheet metal panel that attaches to the MME-3 or MLE-6 backboxes. It fits in either the middle of the upper sections of these enclosures. It has openings for two rows of VSM-1 Switch Modules, VLM-1 LED Annunciator Modules, VFM-1 Fan Control Modules or VSB-1 Blank Plates. Each row can mount up to (7) modules for a total of (14) modules per MHD-3. The MHD-3 attaches to the backboxes with screw fasteners. It is hinged for easy access to the rear of the modules and inside of the enclosure.

MHD-4 Middle Dead Front Plate for the Switch/LED/Fan control Modules with Printer Cutout
The MHD-4 is a hinged sheet metal panel that attaches to the MME-3 or the MLE-6 backboxes. It fits in the middle section of both enclosures. It has two rows for mounting of
VSM-1 Switch Modules, VLM-1 LED Annunciator Modules, VFM-1 Fan Control Modules or VSB-1 Blank Modules. Each row has space to mount (4) modules, for a total of (8) modules per MHD-4. The MHD-4 also has a cutout to display the TSP-40 Internal Thermal Strip Printer. The MHD-4 mounts to the backboxes with screw fasteners. It is hinged for easy access to the rear of the modules and inside of the enclosure. When in place, it covers and protects modules and wiring, providing dead front construction in that area.

**MHD-4**

**MSR-1 Rail Kit**
The MSR-1 is a System 3 type rail kit which fits into either the MME-3 or the MLE-6 enclosures. The MSR-1 comes with a U-bracket and a Z-bracket. It allows modules such as the EL-410 amplifier, PS-35 Power Supply, BC-35 Battery Charger, MOI-7 I/O Interface, MID-16, MOD-16, PS-5A, SYS3-MPFO for mounting the D2300CP fiber optic interface modules or the CCU interface, or any other System 3 type module required to be mounted in the MME-3 or the MLE-6 enclosures.

When used in the MME-3 enclosure (3) MSR-1 Rail Kits can be installed to mount up to three rows for up to (3) EL-410 amplifiers. When used in the MLE-6, up to (5) MSR-1 Rail Kit rows can be installed to allow mounting up to (5) EL-410 amplifiers. When the MLE-6 enclosure is used with the MBR-MP mounting plate to install MXL or MXLV equipment, up to (2) MSR-1 Rail Kit rows can also be installed in the MLE-6 for mounting of either (2) EL-410 amplifiers or some complement of System 3 type mount modules.

**RCM-1 Audio Riser Control Module**
The RCM-1 adds the capability of inter-panel paging or peer to peer paging to MXL LifeLINK networks. MXLV systems are designed to provide full stand alone life safety protection, voice evacuation and paging capability, the RCM-1 adds the ability to be able to send a live voice paging announcement to any or all other MXLV stand alone systems that are connected as part of the LifeLINK network. The RCM-1 provides a global page riser that connects MXLV systems together and operates in various configurations to meet an almost unlimited number of combinations of inter-panel audio communication requirements. The RCM-1 is designed for applications that call for live voice paging between buildings, such as are required for campus, industrial facilities, and other multiple building sites. These applications typically call for independent, stand alone life safety systems with live voice paging both within each individual building and between buildings in any combination. The RCM-1 also provides the option within a single or multi-building application of multiple unique command consoles, or subset command consoles for paging system control. The RCM-1 plugs into a full OMM-1 or OMM-2 cardcage slot and communicates directly with the MXLV system via TTL logic. The RCM-1 provides control and supervision of global page risers in MXL Voice networks. The audio communications path between RCM modules will support the use of twisted pair copper wire or fiber optic cable or a combination of copper and fiber optic cable. The communi-

**MBB-2 MXL Main Board**
The MMB-2 is the main control board of the MXL. When used in an MXLV system, it acts as the central system controller. It also supplies two ALD circuits and two notification appliance circuits along with three system relays. The MMB-2 mounts in the MXL enclosure backbox.

**PSR-1 Network Power Supply**
The PSR-1 is an intelligent power supply/battery charger for use with MXLR or MXLRV transponders as well as a stand alone power supply. It is used in conjunction with the MPS-6 or MPS-12 transformer/supply. It can accept the NET-4 or NET-7 network interfaces and includes diagnostic LEDs and two system relays. It mounts in the upper section of the MXL enclosure backbox.
cation path between RCM modules can be configured to meet the requirements of either Style 4 or Style 7 for full bi-directional live voice paging or Style 4 one direction live voice paging. All communication paths are fully supervised. Short circuit isolation is provided between RCM modules for an added level of system performance, this is particularly important for campus paging systems.

**MPS-6 Transformer/Supply**
The MPS-6 is a transformer/supply used with either the MXL MMB-2 or PSR-1. It mounts in the bottom of the MXL enclosure backbox and provides 6 Amps. of unfiltered, unregulated DC and includes screws for termination of the primary AC, a circuit breaker and transient protection.

**MPS-12 Transformer/Supply**
The MPS-12 is a transformer/supply for use with the MMB-2 or PSR-1. It mounts in the bottom of the MXL enclosure backbox and provides 12 Amps. of unfiltered, unregulated DC and includes screws for termination of the primary AC, a circuit breaker and transient protection.

**MDG-1 Louvered Ventilation Plate**
The MDG-1 is a louvered plate that mounts in either one of the two openings in the MME-3 enclosure door or in one of the three openings in the MLE-6 enclosure door. The MDG-1 is required on MXLV systems to provide ventilation for the enclosures when using either the EL-410 or the ZAC-30 audio amplifiers in that enclosure. One MDG-1 plate is included in the MDG-1 package.

**MRRC-1 Extension Cable**
The MRRC-1 is a 4 conductor cable used to connect VSM, VFM or VLM modules from one row to the next.

**MHD-5 Deadfront Panel**
The MHD-5 is a sheet metal panel which attaches to the MSE-2 backbox. It fits in the lower section of the enclosure. It has openings for one row of VSM-1 switch modules, VFM-1 fan modules or VLM-1 LED indicator modules (one row of five) and attaches to the MSE-2 with screw fasteners. When in place it covers and protects modules and wiring, providing deadfront construction in that area.