

HONEYWELL NOTIFIER LDM SERIES INSTRUCTION MANUAL



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Instruction Manual



Fire Alarm & Emergency Communication System Limitations

While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

An emergency communication system—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at <http://www.systemsensor.com/appguides/>. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

Particles of combustion or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires.

Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

Audible warning devices such as bells, horns, strobes, speakers and displays may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

A life safety system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

Equipment used in the system may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup radio transmission systems are recommended.

The most common cause of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

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Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

WARNING - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or inter-connecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

CAUTION - System Re-acceptance Test after Software

Changes: To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0-49° C / 32-120° F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15-27° C/60-80° F.

Verify that wire sizes are adequate for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

Like all solid state electronic devices, this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

Units with a touchscreen display should be cleaned with a dry, clean, lint free/microfiber cloth. If additional cleaning is required, apply a small amount of Isopropyl alcohol to the cloth and wipe clean. Do not use detergents, solvents, or water for cleaning. Do not spray liquid directly onto the display.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

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FCC Warning

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

Documentation Feedback

Your feedback helps us keep our documentation up-to-date and accurate. If you have any comments or suggestions about our online Help or printed manuals, you can email us.

Please include the following information:

- Product name and version number (if applicable)
- Printed manual or online Help
- Topic Title (for online Help)
- Page number (for printed manual)
- Brief description of content you think should be improved or corrected
- Your suggestion for how to correct/improve documentation

Send email messages to:

FireSystems.TechPubs@honeywell.com

Please note this email address is for documentation feedback only. If you have any technical issues, please contact Technical Services.

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Section 1: Introduction to the LDM-32 Series

1.1 About This Manual

The core of this manual provides instructions for connecting an LDM-32 series annunciator to various fire alarm control panels (FACPs). Each appendix contains instructions that are unique to a particular control panel. Section 1.3 “Related Documentation” lists part numbers for manuals of compatible equipment such as control panels.

1.2 UL 864 Compliance

1.2.1 UL 864 9th and 10th Edition

- Per the UL Continuing Certification Program, UL 864 9th edition fire alarm control equipment will retain certification after the rollout of UL 10th edition (12/2/2018).
- Installations of UL 864 10th Edition certified equipment are permitted to use UL864 9th Edition certified equipment when approved by the local Authority Having Jurisdiction (AHJ).

For product compliance, refer to the UL/ULC listing cards located on the UL online certification directory.
<https://iq.ulprospector.com>

- ACM-32A and AEM-32A
- ACM-16AT and AEM-16AT
- AFP-100
- AFP-200
- AFP-300/AFP-400
- AM2020/AFP1010 Systems
- CPU-640
- System 500
- System 5000
- AIM-200
- NCA
- CPU-3030
- SFP-1024
- MPS-24A
- MPS-24B

1.3 Related Documentation

Table 1.1 provides a list of document sources (manuals) containing additional information regarding the fire alarm control panels and components that the LDM Series can be connected to.

Document Name	P/N
Device Compatibility Document	15378
NFS2-640 Listing Document	52741LD
NFS-640 Installation Manual (UL 8th)	51332
NFS-320 Listing Document	52745LD
NFS2-3030 Listing Document	LS10006-051NF-E
NFS-3030 Installation Manual (UL 8th)	51330
System 5000 Installation Manual (UL 8th)	15583
AIM-200 Manual (UL 8th)	15949
System 500 Installation Manual (UL 8th)	15019
AFP-100 Installation Manual (UL 8th)	51010
AFP-200 Installation Manual (UL 8th)	15511
AFP-300/AFP-400 Installation Manual (UL 8th)	50253
AM2020/AFP1010 Installation Manual (UL 8th)	15088
NCA Network Control Annunciator Manual (UL 8th)	51482
NCA-2 Network Control Annunciator Manual	52482
SFP-1024 Installation Manual (UL 8th)	50475

Table 1.1 Related Documentation

Section 2: LDM Features

2.1 Product Overview

The LDM Series Lamp Driver Modules, which consist of the LDM-32 master and LDM-E32 expander modules, are used to provide an interface to a custom graphic annunciator. The master module provides power and control for a maximum of three expander modules. The LDM-32 and LDM-E32 have output connectors which are used to drive lamps or LEDs and input connectors which are used for remote switch functions.

The LDM Series Lamp Driver Modules may be connected to fire alarm control panels (FACP) to provide remote annunciation of the following:

- General system status:
 - General Alarm
 - General Trouble
 - General supervisory
 - Notification Appliance Circuit (NAC) output status
 - Municipal tie status
 - System silence
 - Alarm relay status
- Alarm and trouble status of zones or individual points
- Alarm only status of zones or individual points

The LDM Series Modules also interface to remote control switches which may be used to provide:

- System reset
- System silence
- System acknowledge
- Temporary activation of NAC outputs
- Alarm relay activation
- Other control functions

The LDM Series Modules interface to the host fire alarm control panel via an EIA-485 communications bus circuit. A maximum of 32 LDM-32s may be connected to the power-limited EIA-485 bus, but if other types of devices are also connected to the EIA-485 bus, the maximum number of LDM-32s must be reduced by the total of such devices. The EIA-485 wiring distance must not exceed 6,000 feet (1,800 m) and cannot be T-tapped. Multiple LDM-32s may be used to annunciate duplicate information.

Power to the LDM-32s is typically provided by the host FACP and must be power-limited regulated 24 VDC. External UL listed battery backed power supplies may also be used. *Careful consideration must be given to system battery calculations when power for the LDM modules and lamps or LEDs is provided by the host FACP.* Refer to the specifications in the appropriate FACP technical manual when making these calculations.

2.2 The LDM-32

The Lamp Driver Module LDM-32 has 32 alarm lamp/LED driver outputs which sink current to system common (-) on activation. A single positive (+) voltage is required to supply total operating power for all lamps or LEDs when all drivers are activated. The LDM-32 provides a separate driver for system trouble and inputs for a local lamp test switch. A maximum of 16 external control switches may be wired to the LDM-32. DIP switch SW3 is used to enable or disable the onboard piezo, enable remote switch functions, select a flashing LED function for new alarms and troubles, and other functions. Switch SW4 is used to configure the module to annunciate 32 alarms or 16 troubles. A green ON LINE LED flickers to indicate ongoing communications with the host FACP. One LDM-32 supports up to 3 LDM-E32 modules. The LDM-32 is supplied with 4 standoffs and screws for mounting to a chassis or custom backbox.

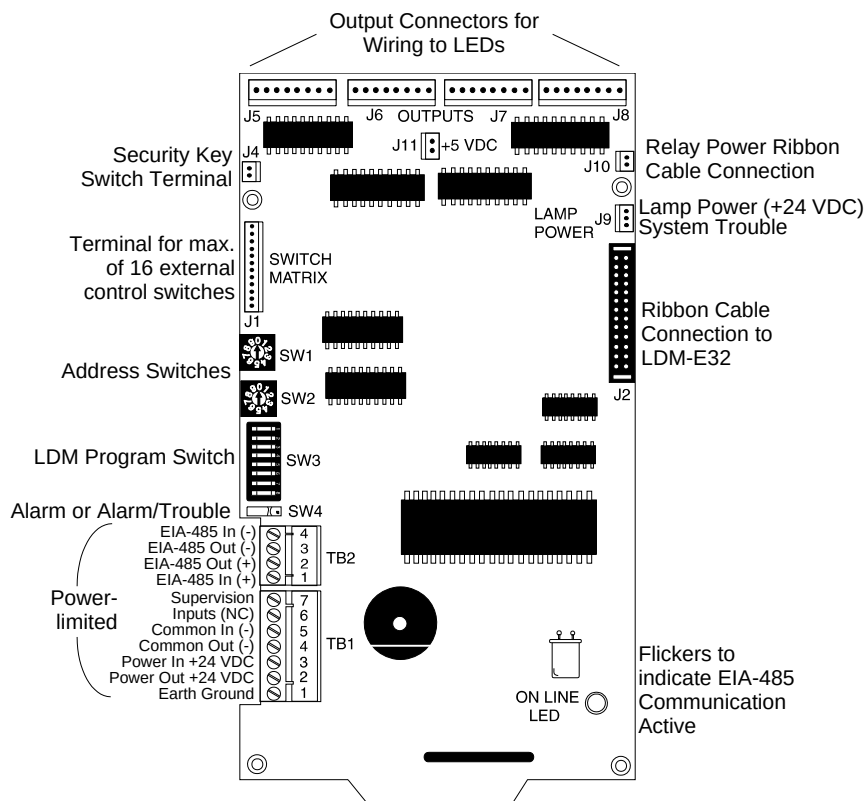


Figure 2.1 LDM-32

2.3 The LDM-E32

Each LDM-E32 expander module provides 32 additional lamp/LED driver outputs from J5, J6, J7 and J8. The expander module has a slide switch SW4 for selecting alarm or alarm and trouble annunciation and an input for a local lamp test switch. In alarm mode, use only one LDM-32 and one LDM-E32 for a maximum of 56 alarm indicators and 8 system status indicators. In alarm/trouble mode, use one LDM-32 and three LDM-E32s for a maximum of 56 alarm indicators, 56 trouble indicators, 16 status indicators and 64 optional control switch inputs. Multiple sets of LDM-32s with LDM-E32 expanders increase the system annunciation capabilities beyond 56 zones or points. This is possible by various settings of address switches SW1 and SW2 on the LDM-32 (refer to the appendix for the appropriate FACP). Each LDM-E32 is supplied with a 26 conductor expander ribbon cable, 4 standoffs and 4 screws.

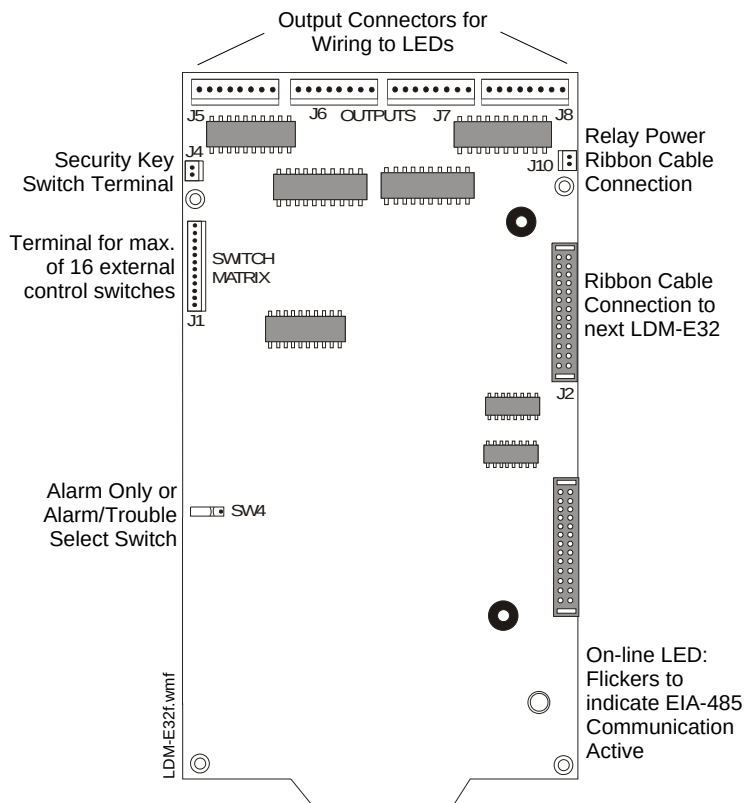


Figure 2.2 LDM-E32

2.4 Connectors on the LDM-32 and LDM-E32

J1 - Switch Matrix Up to 16 optional external control switches and a local lamp test switch may be attached to the LDM-32 and LDM-E32 via J1 as shown in Figure 4.10. To determine which switch function each point will perform in a specific FACP (Fire Alarm Control Panel), refer to the appropriate Appendix for your FACP. Switch functions on intelligent panels such as NFS2-3030, AM2020/AFP1010, etc. are completely programmable.

J2 - Ribbon Cable Connection Between Master and Expander Modules to J3 A single 26 conductor ribbon cable may be connected from J2 on the LDM-32 or LDM-E32 (see Figure 3.3) to J3 on adjacent LDM-E32s. The ribbon cable carries power, ground and signaling from the LDM-32 to up to three LDM-E32s. The preformed cables are supplied in fixed lengths of 24 and 48 inches.

J3 - Ribbon Cable Connection From J2 This connector supports a single 26 conductor ribbon cable from J2 of the previous LDM-32 or LDM-E32. Refer to Figure 3.3.

J4 - Keyswitch Input This two pin connector is provided as an input on LDM-32 and LDM-E32 modules for an external security key-switch. Keyswitch contacts must be Normally Closed. The keyswitch prevents unauthorized use of remote control switches wired to J1.

J5, J6, J7 and J8 - Lamp/LED Driver Outputs Each connector provides 8 driver outputs for a total of 32 drivers on each LDM-32 and LDM-E32. Each driver is rated for a maximum of 30 volts and a current of 100 mA and is programmable. Each bipolar Darlington open collector driver output must be current limited by an external resistor. 8-Point Shift and Flash functions are selectable by DIP switch SW3 (refer to Section 2.5, “Switches”). Lamp/LEDs may function in 'alarm only mode' or 'alarm/trouble mode' as selected by switch SW4. Use the charts and examples shown in the appendix for your FACP for additional information.

J9 - Lamp Power/System Trouble Connector J9 is located only on the LDM-32. J9 pin 1 provides 24 volts regulated power to all lamps/LEDs used in a custom graphic annunciator. The current limit of J9 pin 1 is dependent upon the current limits of the external power source being used. J9 pin 3 is a driver output for system trouble indication only. J9 pin 2 connects to system common.

J10 - Relay Expander Cables to the optional LDM-R32 Relay Expander Module which can be used to provide up to 32 dry Form-A (normally open) contacts.

UL contact ratings are 0.5A at 125VAC (resistive) and 1.0A at 30VDC (resistive). Refer to UL Power Limiting Requirements for wiring the Relays. The relays are programmable.

J11 - 5 VDC Power This connector is located only on the LDM-32. J11 pin 1 provides 5 volts regulated power to all lamps/LEDs used in a custom graphic annunciator. The maximum current available from this output is 300 mA. This current is sufficient to power the maximum number of LEDs available with one LDM-32 and three LDM-E32s (from J5, J6, J7, J8 and one system trouble LED) *provided the current rating per LED is 2 mA*.

2.5 Switches

SW1 and SW2 - Address Switches Two rotary BCD switches, located only on the LDM-32, are used to set the LDM Series system address. Switch SW1 represents the 'ones' position and switch SW2 represents the 'tens' position of the address setting. In system configurations of 56 zones or less, the switches must be set to address 01 for all LDMs in the system. For configurations larger than 56 zones, multiple sets of LDMs are required with sequential addresses, the first LDM starting at address 01. Each incremental setting adds 64 zones/points to the system.

SW3 - Function DIP Switch SW3, which is located only on the LDM-32, is used to set the annunciator functions. Function settings include:

- Number of expanders connected
- 8-Point Shift enabled
- Receive Only communications to host FACP (no system control switches or loss of supervision)
- Receive/Transmit communications to host FACP (system control switches plus supervision)
- Control Switch Disable
- Piezo disable
- Flash Inhibit

Refer to the appropriate appendix for your FACP for additional information.

SW4 - Alarm/Trouble Mode Switch The Alarm/Trouble mode switch is installed on the LDM-32 and LDM-E32. *The switch setting on each expander module must match the switch setting of the associated LDM-32.* 'Alarm Only' mode causes the driver outputs to turn on only for alarm conditions per associated zone or point at the host FACP. Alarm/Trouble mode causes the driver outputs to turn on for both alarm and trouble conditions per associated zone or point at the host FACP. Since this switch affects the assignments of connectors J5, J6, J7 and J8, make certain to review the Appendices in this manual for additional information on wiring to the lamp/LED drivers.

2.6 Terminal Blocks

TB1 - Power, Earth Ground and Supervision Removable terminal block TB1 appears only on the LDM-32. 24 volts power-limited, regulated, non-resettable power from the host FACP or a compatible UL listed battery backed power supply must be connected to TB1-3 (+) and TB1-5 (-). Terminals TB1-2 (+) and TB1-4 (-) may be used to daisy chain the 24 volts to other LDMs or devices. Earth ground must be connected to TB1-1. Terminals TB1-6 and TB1-7 provide a supervised input which may be used to supervise local power sources or other devices. A trouble signal is transmitted to the host FACP upon an open circuit across these terminals. The input must be power-limited. If these terminals are not used, a jumper must be installed.

Note:

TB1: 24VDC nom, 27.6 VDC max, max current is 56mA

TB2: Maximum cable characteristic impedance is 120 ohms +/- 20%.

Limit wire resistance to 100 ohms.

TB2- In/Out Removable terminal block TB2 appears only on the LDM-32. All LDM-32s must connect to the EIA-485 communications bus circuit for proper operation. The EIA-485 bus carries commands and data sent between the host FACP and the LDMs. The input must be power-limited.

2.7 Cables

Expander Ribbon Cable (75120) The Expander Ribbon Cable is supplied with the LDM-E32 to allow for connection to the LDM-32 master module. The cable connects between J2 of the LDM-32 or LDM-E32 and J3 of the next LDM-E32.

The LDM-CBL24 and LDM-CBL48 Cable sets for connecting LDM-32 and LDM-E32 connectors to lamps/LEDs, switches, etc., are provided through the optional LDM-CBL24 (24" long) and LDM-CBL48 (48" long) cabling kits. Each cable has a plug on one end for connection to the LDM modules.

Each LDM-CBL24 cable kit includes:

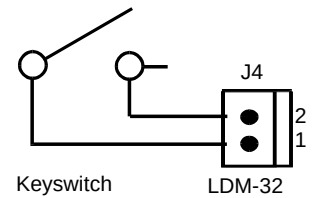
- (4) P/N 75116, 24" cable consisting of 8 stranded, multicolored conductors. Cables connect to J5, J6, J7 and J8.
- (1) P/N 75122, 24" cable consisting of 10 stranded, multicolored conductors. Connects to J1, optional control switches.
- (1) P/N 75117, 24" cable consisting of 2 stranded, single color conductors. Connects to J1, Lamp Test Switch.
- (1) P/N 75118, 24" cable consisting of 3 stranded, multicolored conductors. Connects to J9 or J11, Lamp Power.

Each LDM-CBL48 cable kit includes:

- (4) P/N 75147, 48" cable consisting of 8 stranded, multicolored conductors. Cables connect to J5, J6, J7 and J8.
- (1) P/N 75150, 48" cable consisting of 10 stranded, multicolored conductors. Connects to J1, optional control switches.
- (1) P/N 75148, 48" cable consisting of 2 stranded, single color conductors. Connects to J1, Lamp Test Switch.
- (1) P/N 75149, 48" cable consisting of 3 stranded, multicolored conductors. Connects to J9 or J11, Lamp Power.

Keylock Control Switch Security

A UL listed key-lock switch wired to J4 on the LDM-32 should be used to provide access security for all control switches wired to that set of LDM modules. Control switches will not function when the key-lock switch is in its closed position.



2.8 The LDM-R32

The LDM-R32 Relay Expander Module provides the LDM-32 or LDM-E32 with 32 dry Form-A (normally open) contacts. The relay module serves as a slave to the particular lamp driver annunciator it is connected to - instead of driving lamps or LEDs, the alarm and/or trouble signals from the LDM-32 and LDM-E32 modules are used to activate the relays on the LDM-R32. A maximum of two of these relay modules can be supported by an LDM-32/LDM-E32 operating in alarm-only mode, providing a maximum of 64 alarm relays. In alarm/trouble mode, one, two or four LDM-R32 modules may be connected to LDM-32/LDM-E32s, providing a maximum of 64 alarm and 64 trouble relays. Includes mounting hardware, one Relay Power Cable and four Relay Expander Ribbon cables for connection to the master LDM-32/LDM-E32 module.

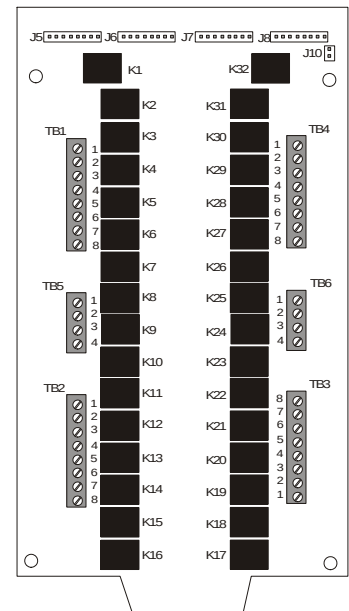


Figure 2.3 LDM-R32

Section 3: Cabinet and Chassis Mounting

3.1 Installation Checklist

Step	Action
1	Mount the cabinet or backbox. Select an appropriate knockout on the enclosure. Mount the cabinet or backbox enclosure. Ground the enclosure to a solid metallic earth ground.
2	Mount chassis in backbox. If a CHS-4L is to be used in mounting the LDM, connect the chassis to the cabinet as illustrated in Figure 3.1. Secure standoffs (supplied) to the chassis or enclosures as shown in Figure 3.1. <i>Note for the System 5000:</i> The LDM begins annunciation of circuits on the module installed directly after the CPU-5000. To ensure full employment of LDM points, mount the modules that need lamp driver annunciation in the CPU row first, then in the second row, etc. Modules with circuits that are not to be annunciated by the LDM-32 should be installed further down in the cabinet.
3	Mount modules in chassis or enclosure. Mount all LDM modules to the chassis or enclosure as shown in Figure 3.2. One or three expanders can be installed when the LDM is configured for Alarm/Trouble operation.
4	Connect Expander Modules (Optional) Connect an Expander Ribbon Cable from the LDM-32 (connector J2) to the LDM-E32 (connector J3) as illustrated in Figure 3.3.
5	Connect EIA-485 annunciator wiring. Pull all annunciator wiring into the enclosure. Terminate the shield as shown in Figure 4.3 or Figure 4.4. Connect annunciator wiring to the removable terminal blocks as shown in Figure 4.5 and Figure 4.6. Maintain 0.25" spacing between power-limited and nonpower-limited wiring which must also enter/exit the enclosure through separate knockouts. Also refer to the appropriate appendix for your FACP. NOTE: A 120 ohm End-of-Line impedance-matching resistor (P/N 71244 supplied with the lamp driver) must be installed at the last annunciator on the EIA-485 circuit. Remove the ELRs installed on all LDMs except the last.
6	Connect Power to LDM. LDM outputs can be powered from 24 VDC or 5 VDC, depending on the loading required. Figure 4.8 and Figure 4.9 illustrate connection of the desired voltage, as well as the System Trouble LED. Connection of LDM operating power is illustrated in Figure 4.5. For information on supplying power for the annunciator, refer to the specific FACP appendix in this manual, and to the panel for your FACP's power supply. Various point wiring schemes based on LDM configuration are illustrated in the appendices. WARNING: DISCONNECT ALL POWER SOURCES BEFORE MAKING ELECTRICAL CONNECTIONS DISCONNECT ALL POWER SOURCES BEFORE MAKING ELECTRICAL CONNECTIONS. FOLLOW INSTALLATION AND SAFETY PROCEDURES PROVIDED IN FACP AND POWER SUPPLY MANUALS.
7	Set Control Switches (optional). If normally-open switches are to be installed on the LDM to permit the execution of system control functions and point-control, refer to Figure 4.10.
8	Configure the LDM-32. Set the address and DIP switches on the LDM-32 annunciator. Refer to the appropriate appendix for your FACP.
9	Program and test the LDM-32. After complete installation, the Lamp Driver must be programmed into the control panel. Program the LDM as if it were an annunciator. After programming the fire alarm control panel to accept the annunciators, fully test the LDMs by ensuring that each switch and LED performs its intended function, and that the annunciators can perform the functions outlined in Section 5, "Operating the Lamp Driver Module".

3.2 External Cabinets

The CAB-A4 and the CAB-B4 are UL listed cabinets suitable for use in graphic annunciator applications. For size and dimensions, refer to the CAB-3/CAB-4 Series Cabinets Product Installation Document. Other cabinets such as those provided by custom graphic annunciator manufacturers may be used provided they meet UL requirements as UL listed secured enclosures. Select an appropriate knockout on the enclosure. Mount the cabinet and ground it to a solid metallic earth ground.

3.3 CHS-4L Chassis

The CHS-4L chassis will support one LDM-32 module and up to three LDM-E32 expander modules. The CHS-4L chassis may be mounted inside the CAB-A4 and the CAB-B4 backboxes. Note that a solid earth ground connection is required for proper operation as well as to aid in transient protection. Two female-to-female standoffs must be installed to the chassis to secure the LDMs in place. (See Figure 3.1).

Mount the CHS-4L Chassis to a cabinet and secure with the hardware provided. A Grounding Cable Assembly must be connected to the chassis mounting stud for connection to the annunciator's *Earth Ground* terminal. For each LDM module to be installed on the chassis, connect two female-to-female standoffs (provided) to the upper mounting studs on the chassis.

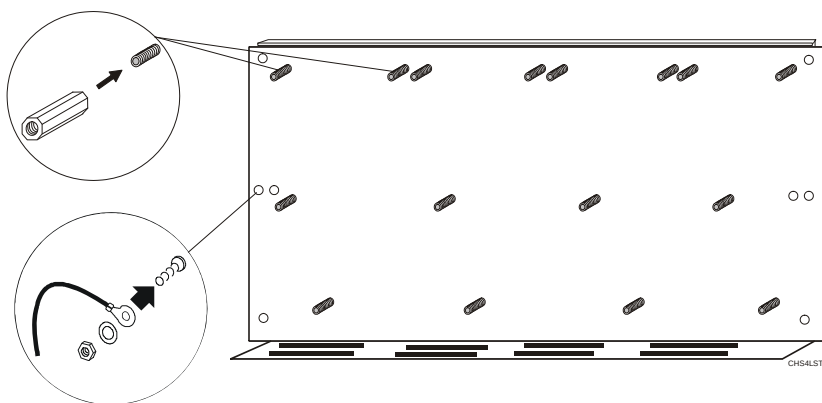


Figure 3.1 CHS-4L Mounting



NOTE: The LDM-32 can be mounted with one expander in the standard option-board locations in panel-specific chassis such as the CHS-M2 and CHS-M3. Select a location according to the instructions given for option boards in your FACP manual, and follow the mounting instructions provided there.

Slip the bottom edge of the LDM board into the slot on the CHS-4L chassis and move the module toward the standoffs. Secure the LDM to the standoffs with the screws provided. Repeat for installation of additional LDM modules.

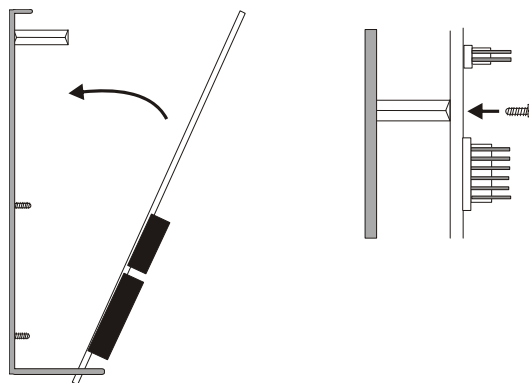


Figure 3.2 Installing LDM Modules in CHS-4L

Connect an expander ribbon cable (P/N 75120) from the LDM-32 connector J2 to J3 of the first LDM-E32 expander module. If multiple LDM-E32 modules are to be used, connect additional cables from J2 to J3 as shown in Figure 3.3.



NOTE: One LDM-32 may support a maximum of three LDM-E32 modules.

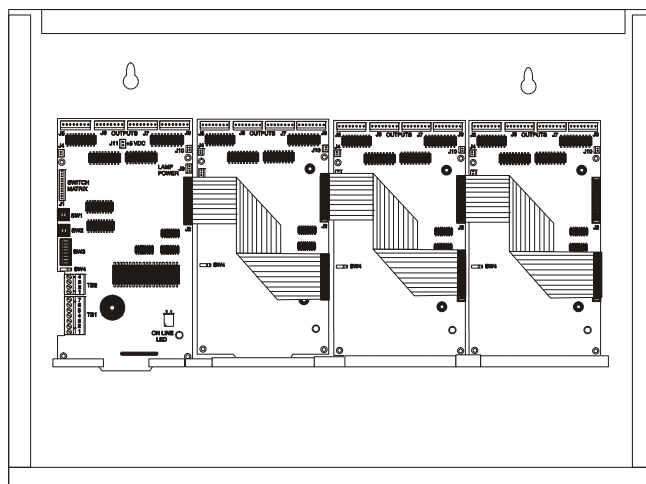
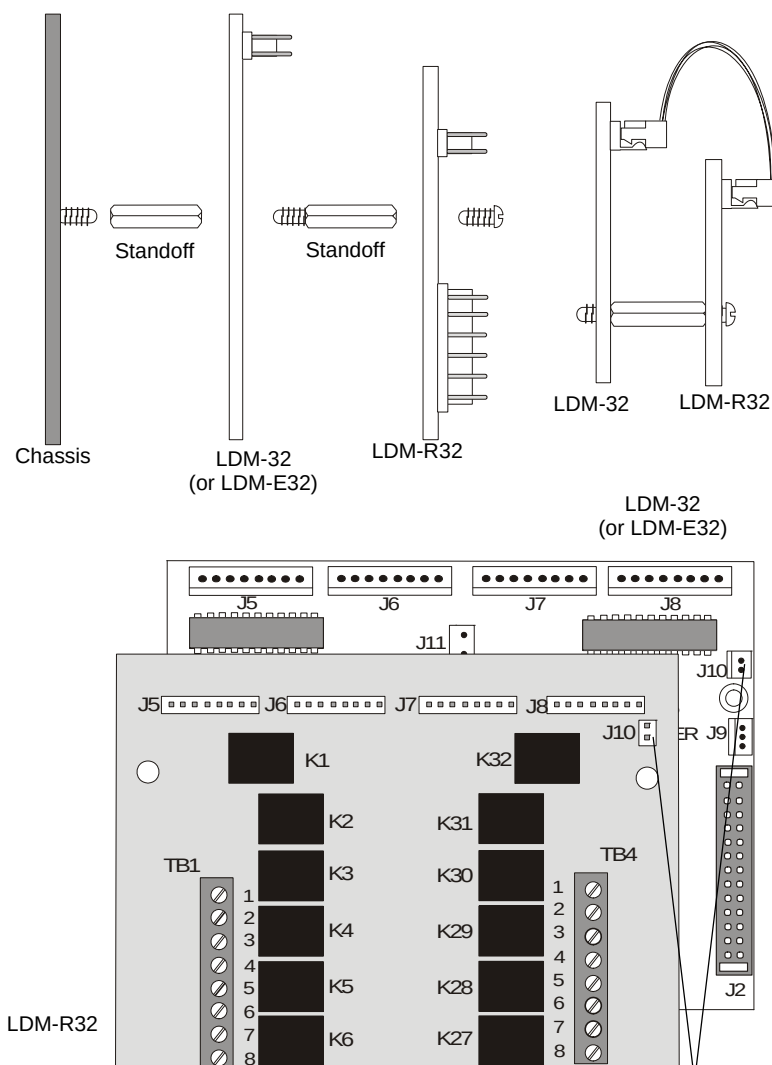


Figure 3.3 LDMs Mounted in UL Listed Cabinet

Secure the LDM-R32 to the LDM-32 with the standoffs provided (see below). Attach ribbon cables between the LDM-32 and the LDM-R32 for each group of relays needed (connector J5 to J5, J6 to J6, etc.) as illustrated at right.



NOTE: The relay module can also be connected to an LDM-E32.



Connect the Relay Power Ribbon Cable between J10 on the LDM-R32 and J10 on the LDM-32. This connection supplies the power needed to energize the LDM-R32's relay coils during activation.

Figure 3.4 Mounting Optional LDM-R32 Relay Modules

Section 4: Wiring Considerations

4.1 Limits

A maximum of 32 LDM-32s may be connected to the EIA-485 bus, but if other types of devices are also connected to the EIA-485 bus, the maximum number of LDM-32s must be reduced by the total of such devices. Total annunciation and switch capability depend upon the number of LDM-E32 expander modules used.

4.2 Wire Runs

Communications between the Fire Alarm Control Panel and the LDM is accomplished over a two-wire EIA-485 serial communications bus which must be power-limited. Communications between the host FACP and LDMs is supervised by the Fire Alarm Control Panel. Power supplied by the host control panel or external power supply must be power-limited. It is inherently supervised (loss of power also results in a communication failure at the control panel). Refer to appropriate control panel manual for UL Power-limited Wiring Requirements.

4.3 EIA-485 Wiring Specifications

The EIA-485 circuit cannot be T-tapped; it must be wired in a continuous fashion from the control panel to the LDMs. The maximum wiring distance between the panel and LDMs is 6,000 feet (1,800 m). The wiring must be an 18 AWG to 14 AWG (0.75 to 2.00 mm²) twisted shielded pair cable having a characteristic impedance of 120 ohms, +/- 20%. Limit the total wire resistance to 100 ohms on the EIA-485 circuit, and 10 ohms on the LDM power circuit. Do not run cable adjacent to, or in the same conduit as, 120 volts AC service, noisy electrical circuits that are powering mechanical bells or horns, audio circuits above 25 VRMS, motor control circuits, or SCR power circuits.



NOTE: All enclosures, including the FACP backbox, must be connected to earth ground! Never use the shield for grounding purposes. Terminate the EIA-485 shield at the Fire Alarm Control Panel only.

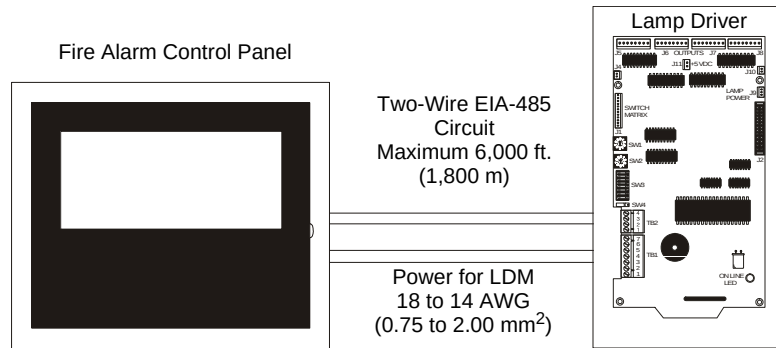


Figure 4.1 EIA-485 Communications

STANDARD ANNEALED COPPER WIRE						
Wire Size A.W.G.	Diameter in Mils	Cross Section		Ohms per 1000 feet		Pounds per 1000 ft
		Circ. Mils	Sq. Inch	@ 77 F.	@ 149 F.	
14	64	4110	0.00323	2.58	2.97	12.4
16	51	2580	0.00203	4.09	4.73	7.82
18	40	1620	0.00128	6.51	7.51	4.92

Mount cabinet or backbox and draw all wiring into enclosure.

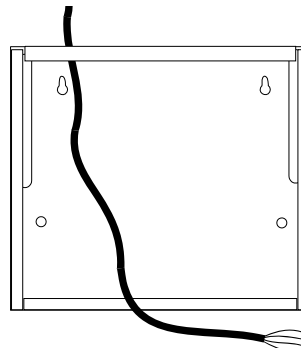


Figure 4.2 Wiring the Enclosure

4.4 EIA-485 Shield in Conduit

When the EIA-485 wiring is in conduit, connect the shield to system common. The shield can enter the cabinet, but must be insulated from the cabinet (no electrical contact). Between LDMs, wire-nut multiple shields together (which can be inside of the respective LDM enclosure but ensure that the shield does not contact earth ground).

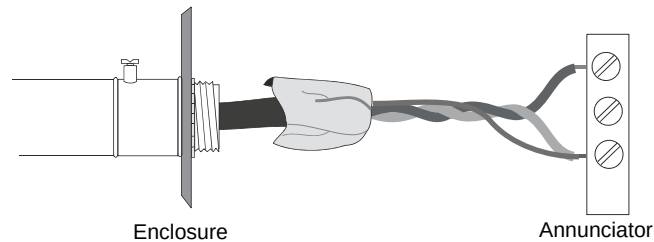


Figure 4.3 Terminating the Shield - Conduit

4.5 EIA-485 Shield Not in Conduit

When the EIA-485 wiring is not in conduit, terminate the shield at the outside of the FACP cabinet. Do not allow the shield to enter or even touch the cabinet housing the LDMs. Between LDMs, wire-nut multiple shields together *outside of* the respective enclosures. Ensure that the shield does not touch earth ground at any junction points.

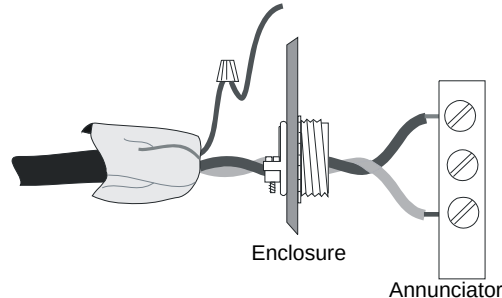


Figure 4.4 Terminating the Shield - No Conduit

4.6 EIA-485, Power and Relay Wiring

EIA-485 - TB2, Terminals 1 to 4

- Do not T-tap the EIA-485 circuit. It will not function properly. Wire as shown below. Must be power-limited. See Section 4.3 “EIA-485 Wiring Specifications” for full details.
- Leave a 120 ohm resistor installed across the EIA-485 Out terminals at the last LDM on the circuit (see below). All other LDMs should not have a resistor installed.

Power, Earth Grnd and Relay - TB1, Terminals 1 to 7

- Connect Earth Ground (TB1-1) to a mounting screw on the backbox or cabinet.
- Power must be turned off when connecting the 24 VDC Power to the annunciator. Power must be filtered and power-limited. A power supervision relay is not needed since the annunciator is inherently supervised by the control panel (loss of communication is registered during loss of power to the annunciator).

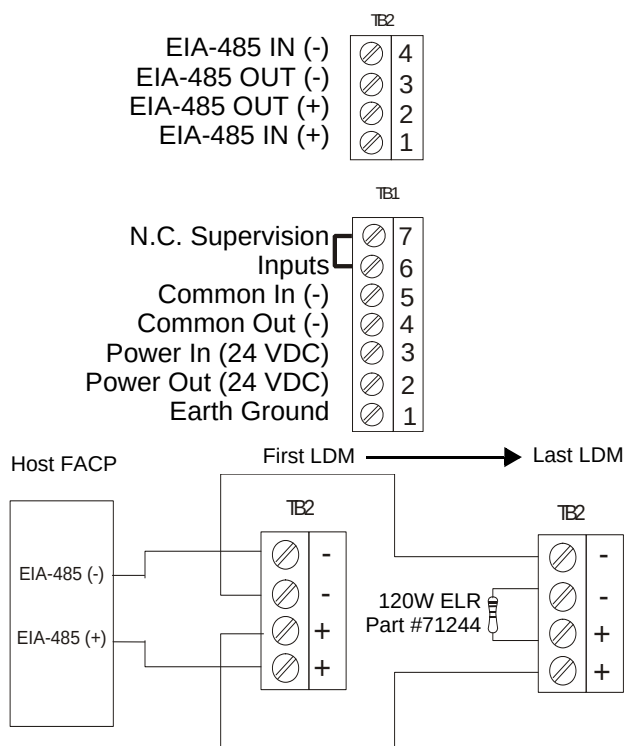


Figure 4.5 Wiring Multiple LDMs - 6,000 ft. (1,800 m) max run

4.7 Supervision Input - TB1, Terminals 6 & 7

The Supervision Input, which requires a normally-closed condition, can be used for supervising power sources or other devices. It must be power-limited. If employed, a change in status will be transmitted to the host control panel in the event of device failure or restoral. *If not used, a jumper must be installed across these terminals on TB1.* A trouble signal will be registered by the control panel if a short circuit does not exist across terminals 6 & 7.

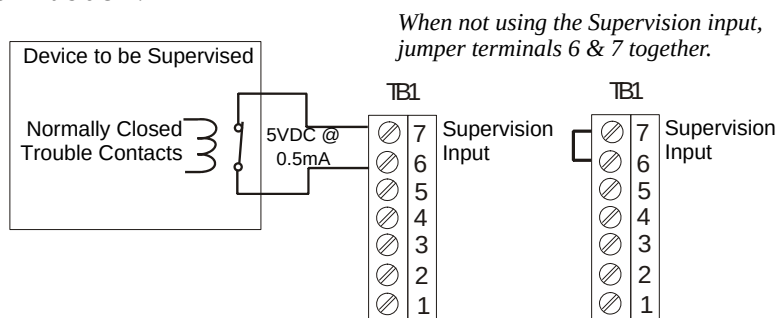


Figure 4.6 Wiring Supervision Terminals

4.8 UL Power-Limited Wiring Requirements

Power-limited and nonpower-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any nonpower-limited circuit wiring. Furthermore, all power-limited circuit wiring and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits. A typical wiring diagram for the LDM-R32 is shown

below. If this module is used to drive both power-limited and nonpower-limited circuits, connect relays 1 to 16 to power-limited circuits and connect relays 17 to 32 to nonpower-limited circuits or vice versa. Use an appropriate power-limited power supply which is UL listed for fire alarm systems to provide power for the power-limited circuits.

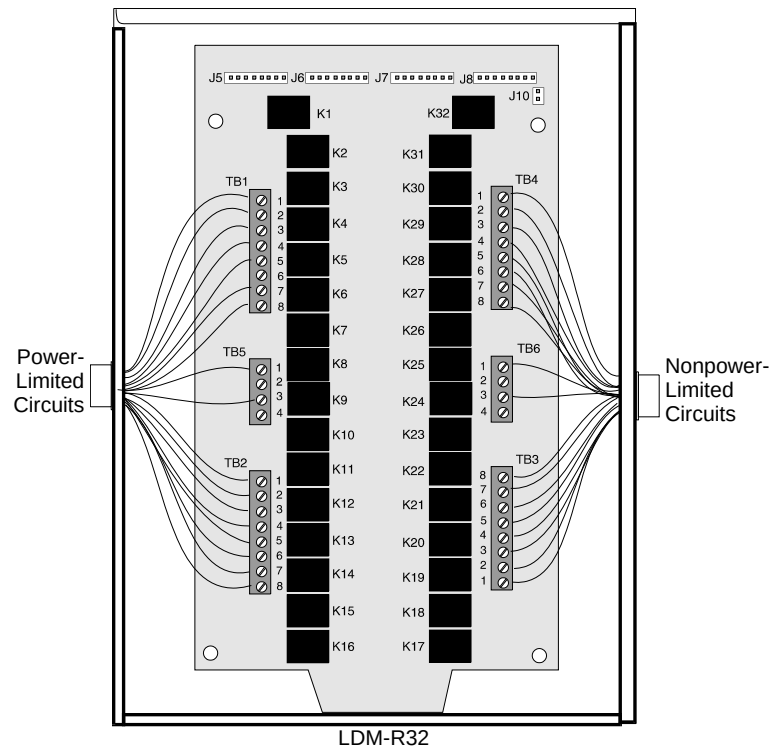


Figure 4.7 Wiring Requirements

4.9 Lamp/LED Wiring



NOTE: All LEDs/lamps being driven by the LDM series must be located in the same room as the modules. Use cable kits for wiring from connectors on LDM.

- Figure 4.8 illustrates LEDs being powered by the 5V output from LDM-32, J11 pin 1.
- Figure 4.9 illustrates LEDs being powered by the 24V output from LDM-32, J9 pin 3.

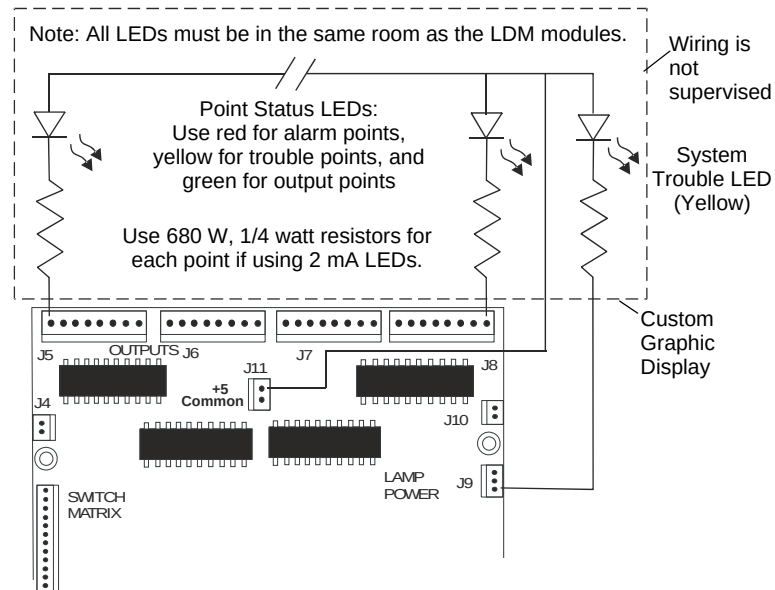


Figure 4.8 Typical LDM-to-Graphics Display Connection @ 5VDC

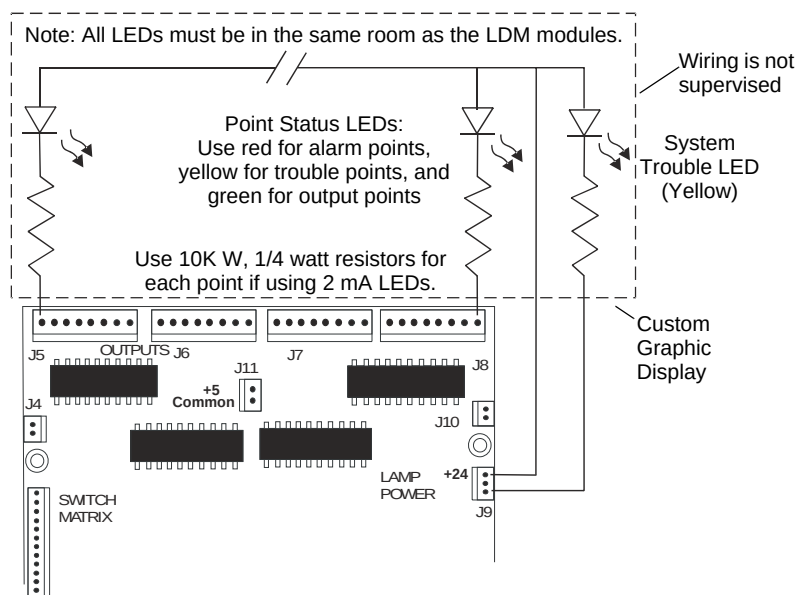


Figure 4.9 Typical LDM-to-Graphics Display Connection @ 24 VDC

4.10 Control Switch Wiring

Optional zone/point control switches must be momentary type. Wiring from the LDM to the control switches must be in conduit and in the same room as the LDM since the wires are not supervised. Use the cables supplied in the cable kits to wire the control switches.¹

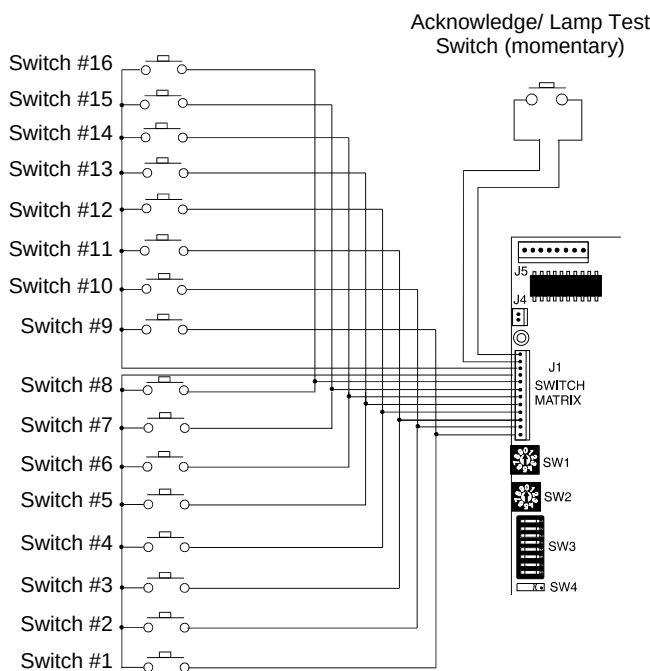


Figure 4.10 Optional Zone/Point-Control Switch Wiring

Each LDM must be set for Alarm/Trouble Mode by positioning slide switch SW4 to the right, for the optional control switches to function (the Acknowledge/Lamp Test switch will work in either mode). In this configuration, each LDM-32 and LDM-E32 provides 16 alarm drivers, 16 trouble drivers and 16 control switches. The alarm and trouble drivers are assigned to host FACP zones/points via user setup/installation. See tables in the appendix for the appropriate FACP for additional information. Not all switches must be used - switches can be wired only for desired functions. To determine the function of each switch and driver in a specific FACP application, refer to the Appendices in this manual and the appropriate FACP Installation Manual.

1. Switches must be UL listed to switch 5 volts DC @ 0.5mA. Switches must be key-lock type, secured in a locked enclosure or a security key switch must be installed to control access. All switches must be installed in the same room as, and no more than 20 feet from, the LDM enclosure. Switch wiring must be in conduit.

Section 5: Operating the Lamp Driver Module

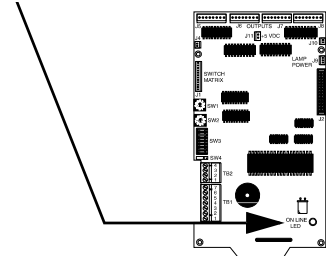
5.1 LAMP TEST/ACKNOWLEDGE

A separate, dedicated lamp test switch is required for each LDM-32 and LDM-E32. A switch installed for LAMP TEST/ACKNOWLEDGE performs two functions:

1. When pressed, it will light all LEDs wired to the specific LDM module (except the On Line LED) and will sound the integral piezo (if enabled) for as long as the switch is held down. *The Lamp Test switch will light only the LEDs on the module to which it is wired.*
2. The switch connected to the LDM-32, when pressed, acknowledges all status changes (for both the LDM-32 and any LDM-E32 expanders). Flashing LEDs will latch on solid and the piezo will be silenced.

5.2 On Line LED

This green LED, located in the lower right corner of the LDM-32 and LDM-E32 (see Figure 2.1 and Figure 2.2), flickers during communication with the host control panel.



5.3 Graphic Annunciator Lamps/LEDs

To adhere to standard fire alarm control panel convention and remain consistent with other products that may exist in the system, the following color convention is employed:

- **Red Alarm LEDs**
To indicate an alarm condition for an Initiating Device Circuit, software zone or addressable initiating device.
- **Yellow Trouble LEDs**
To indicate a trouble condition exists on an initiating or indicating device circuit or zone. Yellow trouble LEDs also are used to indicate general system trouble conditions such as low battery, earth fault, general system trouble, etc.
- **Green Controlled Output LEDs**
Indicates that power is applied or that the controlled output circuit or device has been activated. Applicable to notification appliance, relay, speaker, telephone, and time control circuits.

The graphic annunciator may contain a yellow *System Trouble* LED and a red *System Alarm* LED which will light for all trouble or alarm conditions (respectively) in the system (not just for those points of zones mapped to the LDM annunciator/expanders).

Section 6: LDM Communications

6.1 Receive Only LDM-32s

For duplicate annunciation of system points, LDMs can be configured for Receive Only annunciation. Receive Only LDMs must be set to the same address as the LDM they duplicate, but are not fully supervisable. Receive Only LDMs intercept information being transmitted to a Receive/Transmit LDM so that this information can be duplicated at an intermediate display location. When configured for Receive Only operation, LDMs cannot transmit information to the host control panel. Remote Acknowledge, Silence, or Reset cannot be performed. Control switches on Receive Only LDMs are for local lamp test only. If a Receive/Transmit LDM is located at the end of the EIA-485 bus, it will provide supervision of Receive Only LDMs located on the EIA-485 bus between the Receive/Transmit LDM and the FACP. See Figure 6.1.

6.2 Receive/Transmit LDM-32

LDMs that are configured to serve as full-function annunciators can both receive status information for annunciation as well as transmit commands to the control panel through custom-wired point control switches. This allows the LDM to initiate control panel switch functions from a remote location in addition to displaying the status of the system.

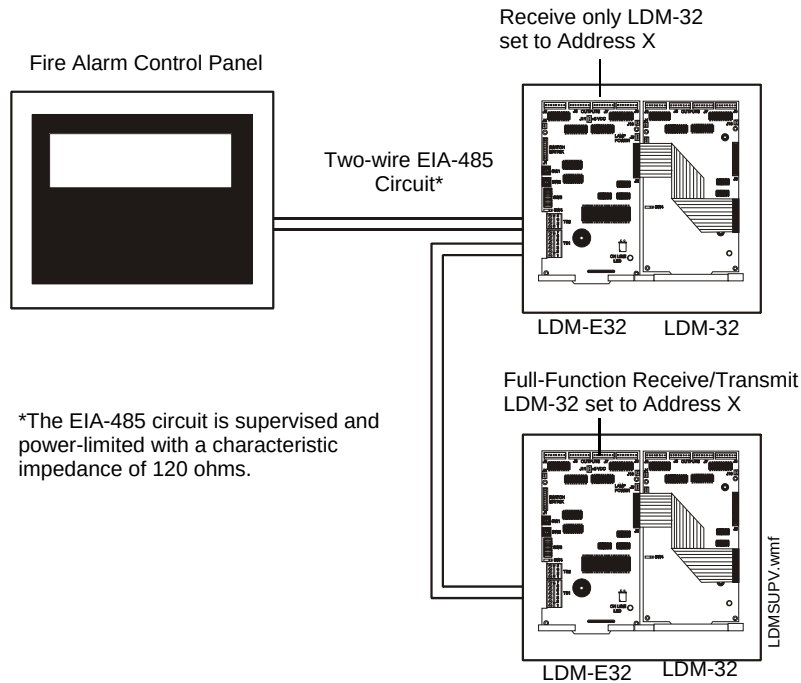


Figure 6.1 LDM-32 Supervision

Section 7: Electrical Ratings and Current Calculations

7.1 Lamp Driver Electrical Ratings

LDM modules may use either 24 VDC (regulated) or internal 5 VDC for powering connected LEDs. 5 volt usage conserves power but is limited in the current available to drive the LEDs. Refer to Section 4, Figure 4.7 and Figure 4.8 for connection illustrations.

5-Volt LED Power Limitations			
LED current desired (mA)	Max # of LEDs	Number of Modules	
		LDM-32	LDM-E32
2	130	1	3
5	66	1	1
10	34	1	0
20	17	1/2	0



NOTE: The LDM-32 drives 32 LEDs and each LDM-E32 drives 32 more LEDs. An LDM system configured for Alarm and Trouble Display Mode and employing three expanders could have as many as 128 LEDs, all of which are activated during Lamp Test.

Maximum Current per Driver: 100 mA (*external circuit must limit current*)

Maximum Voltage rating per output driver: 30 VDC

Supervised circuit (typical rating): 5 volts DC @ 0.5 mA

Bipolar Darlington Open Collector NPN Transistor

7.2 Supervision of LDM points

Any LEDs or lamps connected to the LDM-32 or LDM-E32 are not supervised for failure. Therefore, all LEDs or lamps, must be located in the same room as the LDM modules.

7.3 Calculating LDM Series Standby and Alarm Currents

Current Draw for LED Power @ 24 VDC

Standby Current

[] # of LDM-32 Modules	X	40 mA ¹	=
[] # of LDM-E32 Modules	X	2 mA	=
Standby Total ^{24VDC}			=

1 The 0.040 amps can be reduced to 0.030 for modules with Piezo disable or Flash Inhibit selected.

Alarm Current

[] # of LDM-32 Modules	X	56 mA	=
[] # of LDM-E32 Modules	X	18 mA	=
[] # of LDM-R32 Modules	X	288 mA	=
[] # of LEDs ¹	X	[] ma per LED	=
[] # of LEDs ²	X	[{ } mA/3]	=
Alarm Total ^{24VDC}			=

1 Use this line for calculations if LEDs are powered from 24 VDC source.

2 Use this line for calculations if LEDs are powered from the 5 VDC source from J1 on the LDM-32.

The LDM series annunciators draw their power from the Fire Alarm Control Panel and must be considered when calculating primary and secondary power requirements. Refer to the installation manual for the particular control panel employed for the calculation of power requirements for the entire system.

- Enter Standby Total obtained here into the standby calculation tables.
- Enter Alarm Current obtained here into the alarm calculation tables.

Appendix A: System 500 (UL 8th)

A.1 Capabilities

When installed with a System 500, the LDM Series modules can annunciate the status of initiating and notification circuits, relays, and several system control functions. Each lamp driver output is automatically assigned to one and only one system I/O point:

- Optional System 500 plug in Modules
 - IZ-4/IZ-4A/IZ-8 - Initiating Device Circuits (alarm and trouble)
 - IC-4/ICE-4/ICR-4L - Notification Appliance Circuits (activation and trouble)
 - CR-4/CRE-4/CR-4L - Control Relay Modules (activation and trouble)
 - TC-2/TC-4 - Time Control Modules (activation and trouble)
- System Control Switches
 - Acknowledge
 - Signal Silence
 - System Reset
 - Activate Notification Circuits 1 and 2, the Remote Signaling
 - Municipal Tie circuit and the Alarm Relay

A.2 System 500 Trouble Indication

Communication between the CPU and the LDMs is accomplished over a two-wire EIA-485 serial communication bus. The EIA-485 bus is supervised by the System 500. Loss of communication results in System Trouble and Module Failure indications at the CPU.



NOTE: 'System Trouble' and 'Module Failure' will also occur if the normally closed supervisory path between TB1 Terminals 6 and 7 on the annunciator is opened (or the jumper has not been installed).

A.3 Installation Requirements

The EIA-485 circuit that communicates with the LDM must be connected to the CPU as illustrated in Figure A.1. The LDM-32 also requires filtered, regulated power. Refer to Figure A.2 for power supply connections.

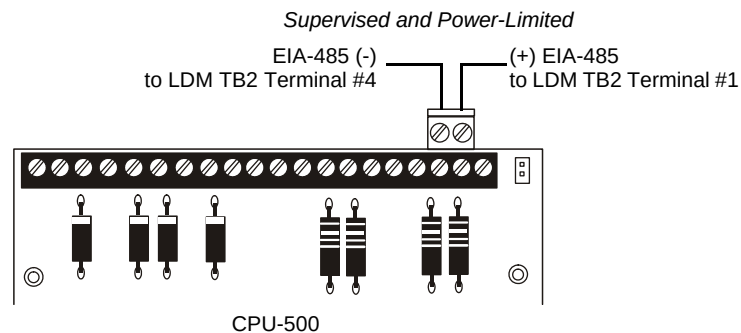


Figure A.1 Connecting the EIA-485 Loop to the CPU-500

A.4 MPS-24BPCC Main Power Supply (System 500 Only)

Connect the power run for the LDM-32 to MPS-24BPCC TB2 terminals 1 (+) and 2 (-) (power-limited). No more than 200 mA current can be drawn from these terminals in standby or alarm.

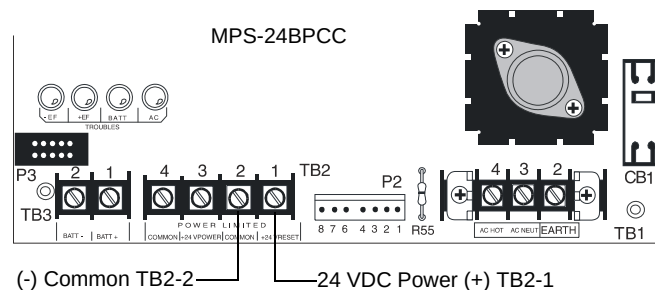
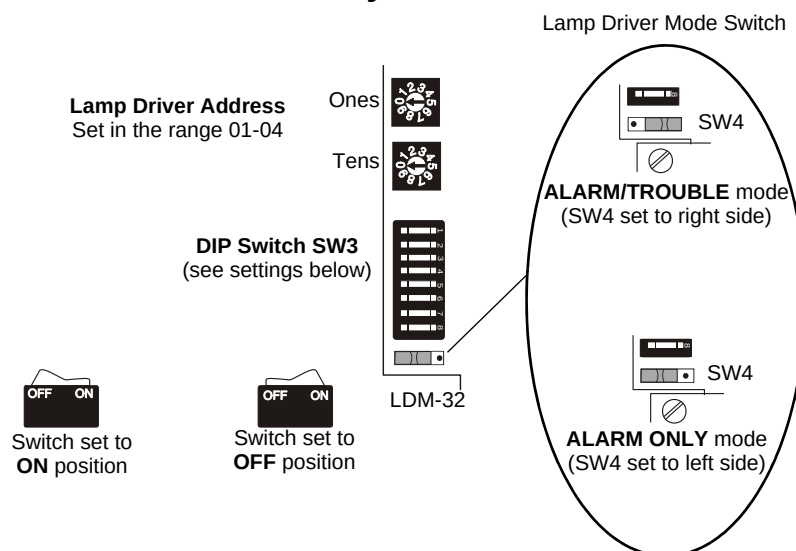


Figure A.2 Connecting Power from the MPS-24BPCC

For more information on annunciator operation and FACP programming under various specific applications, refer to the System 500 documents referenced in Section 1.3, "Related Documentation", on page 7.

A.5 Configuration for the LDM-32 and System 500



LDM-32 DIP Switch (SW3) settings (for System 500):

- Relay Control:** Future Use - this switch must be set OFF on the System 500.
- Number of LDM-E32 Expanders Installed:**

	None	One
OFF	OFF	ON
ON	OFF	ON
- Number of LDM-E32 Expanders Installed:** OFF ON
- 8-Point Shift:** Set switch ON to shift CPU-500 LED function annunciation out of the first eight annunciator positions on the LDM-32. This switch is intended for systems between 9 and 16 circuits and employing one LDM-32 module (with no expander) where annunciation of all circuits is desired.
- Receive Only:** Set this switch ON for each LDM series that will provide the same information as another LDM series in a different physical location (when two or more sets of LDM series have the same address, all but one must be configured as Receive Only.)
- Piezo Disable:** Set this switch ON to disable the piezo from sounding for any event.
- Switch Inhibit:** To disable the point I/O control switches on the LDMs from functioning, set this switch ON. When inhibited, the local Lamp Test switch continues to function. In addition, the Acknowledge/Lamp Test switch will function only in a local capacity, unrecognized by the host System 500.
- Flash Inhibit:** Set this switch ON to disable the flashing of LEDs associated with unacknowledged events. *Flash Inhibit also disables the piezo from sounding. Flash Inhibit must be ON when using the relay expander module (LDM-R32).*

A.6 Annunciator Operation

Annunciator points 'track' or follow those System 500 points they are programmed to annunciate; they do not latch. Table A.1 outlines the annunciation of various System 500 circuits and functions. Note: Control Switches marked 'not used' will still function as local LAMP TEST or local ACKNOWLEDGE switches for their respective points.

System 500 CPU Annunciator Point Assignments to LDMs

System 500 CPU Points	LDM Alarm Red LED	LDM Trouble/Supv Yellow LED	LDM Control Switches
Annunciator Point #1 ^a	Indicates System Alarm	Indicates System Trouble	Functions as an ACKNOWLEDGE
Annunciator Point #2	not used	Indicates that signals have been silenced	Functions as a SIGNAL SILENCE
Annunciator Point #3	not used	not used	Functions as a SYSTEM RESET
Annunciator Point #4	not used	Indicates Supervisory Condition	not used
Annunciator Point #5	Indicates that Notification Circuit 1 has been activated	Indicates trouble status of circuit	Controls Notification Circuit 1
Annunciator Point #6	Indicates that Notification Circuit 2 has been activated	Indicates trouble status of circuit	Controls Notification Circuit 2
Annunciator Point #7	Indicates that the Remote Signaling Municipal Tie has been activated	Indicates trouble status of circuit	Controls Remote Signaling Municipal Tie
Annunciator Point #8	Indicates that the Alarm Relay has been activated	Indicates Module Trouble, Power Failure, or Disabled Circuit(s)	Controls Alarm Relay

- 1 If the 8-Point Shift (DIP switch #4 of SW3) is set ON, the eight functions (ACK, SIL, RESET, LAMP TEST, NAC1, NAC2, MUNTIE, RELAY) will be shifted out of annunciator points 1 through 8. These eight points would then annunciate the status of the first eight zones.

System 500 Option Modules Annunciator Point Assignments to LDMs

System 500 CPU Points	LDM Alarm LED Red	LDM Trouble/Supv LED Yellow	LDM Control Switches ^a
IZ-4, IZ-4A, IZ-8	Alarm Status per Circuit ^b	Trouble Status per Circuit	not used
IC-4, ICE-4, CR-4L	Indicates Activation	Indicates Trouble per Circuit	Control Notification Circuit
CR-4, CRE-4, CR-4L	Indicates Activation	Indicates Trouble per Circuit	Controls Relays
TC-2, TC-4	Indicates Activation	Indicates Trouble per Circuit	Remote Switch Functions

- 1 Optional control switches are active only if all of these conditions are met:
a) Receive Only (DIP Switch #5) is set to OFF.
b) Switch Inhibit (DIP Switch #7) is set to OFF.
- 2 If an IZ-4, IZ-4A or IZ-8 circuit is programmed on the System 500 as a supervisory point, both the red and yellow LEDs will be illuminated for a supervisory condition. Illumination of the yellow LED alone indicates a trouble condition (open circuit) on the IZ supervisory circuit.

Alarm and Trouble Mode without 8-Point Shift			Alarm and Trouble Mode with 8-Point Shift	
LDM Switch Position	LDM-32	1st LDM-E32	LDM Switch Position	LDM-32
1	ACK	Circuit 9	1	Circuit 1
2	SIG. SIL.	Circuit 10	2	Circuit 2
3	RESET	Circuit 11	3	Circuit 3
4	not used	Circuit 12	4	Circuit 4
5	NAC 1	Circuit 13	5	Circuit 5
6	NAC 2	Circuit 14	6	Circuit 6
7	MUN TIE	Circuit 15	7	Circuit 7
8	Alarm Relay	Circuit 16	8	Circuit 8
9	Circuit 1	Circuit 17	9	Circuit 9
10	Circuit 2	Circuit 18	10	Circuit 10
11	Circuit 3	Circuit 19	11	Circuit 11
12	Circuit 4	Circuit 20	12	Circuit 12
13	Circuit 5	Circuit 21	13	Circuit 13
14	Circuit 6	Circuit 22	14	Circuit 14
15	Circuit 7	Circuit 23	15	Circuit 15
16	Circuit 8	Circuit 24	16	Circuit 16

Table A.1 LDM Series Switch Control Functions

Figure A.3 illustrates the configuration of LDMs to annunciate alarms for up to 24 zones (no zone troubles) with the first eight points (P1 through P8) dedicated to the System 500 function annunciations listed below. No expander is needed in this mode.

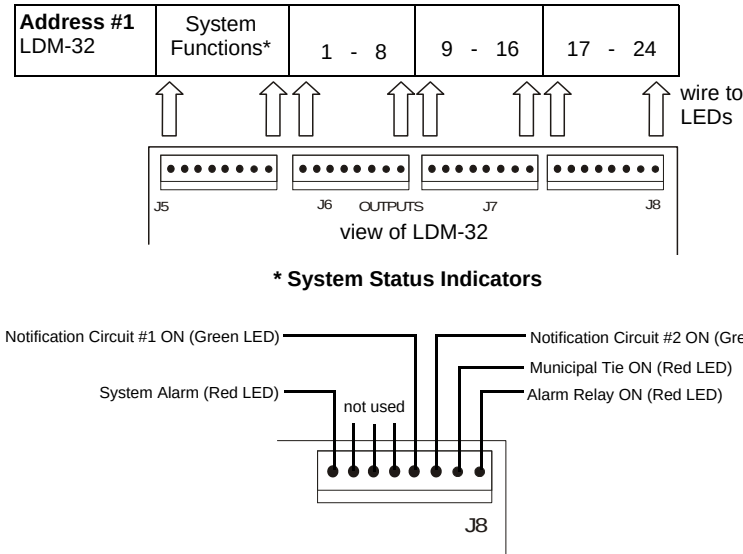


Figure A.3 Alarm Points Only Operation

Figure A.4 illustrates the configuration of LDMs to annunciate alarms for up to 24 zones (no zone troubles).

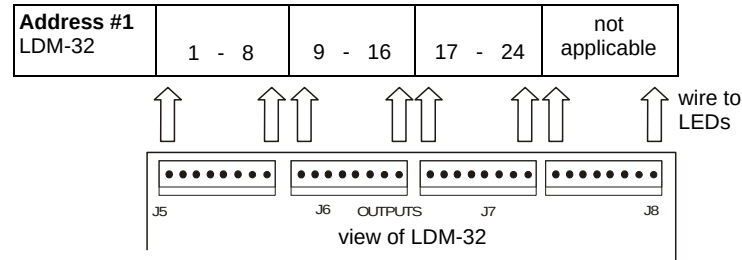


Figure A.4 Alarm Only Operation with CPU Shift

Figure A.5 illustrates the configuration of LDMs to annunciate alarms and troubles for up to 24 zones with the first eight points (J5: P1 through P8 and J6: P1 through P8) dedicated to System 500 functions.

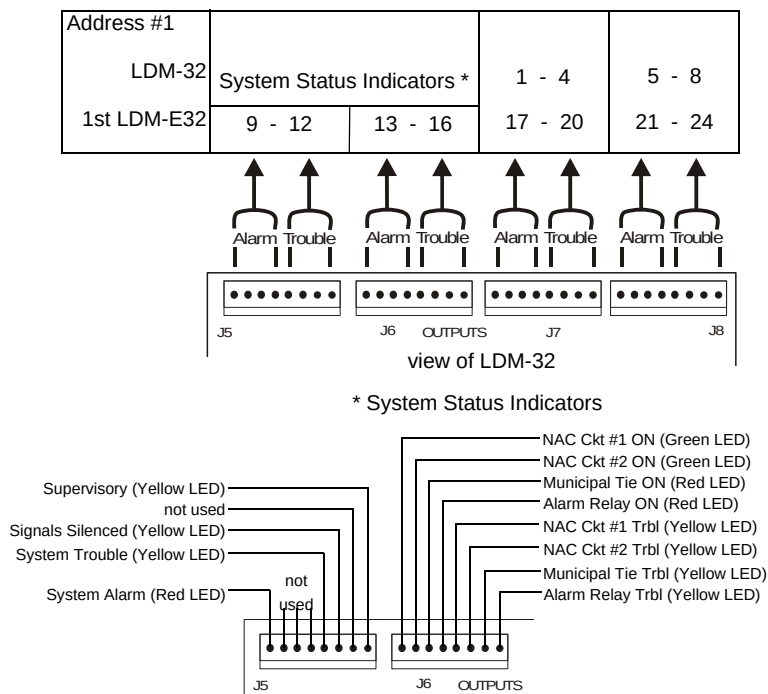


Figure A.5 Alarm and Trouble Points Operation

Figure A.6 illustrates the configuration of LDMs to annunciate alarms and troubles for up to 24 zones.

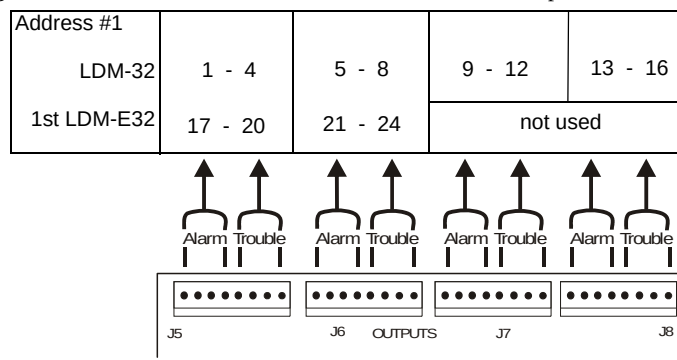


Figure A.6 Alarm/Trouble Operation with 8-Point Shift

Figure A.7 illustrates the configuration of the LDM-R32 Relay Expander to activate relays for up to 24 zones with the first eight relays dedicated to the System 500 functions listed below.

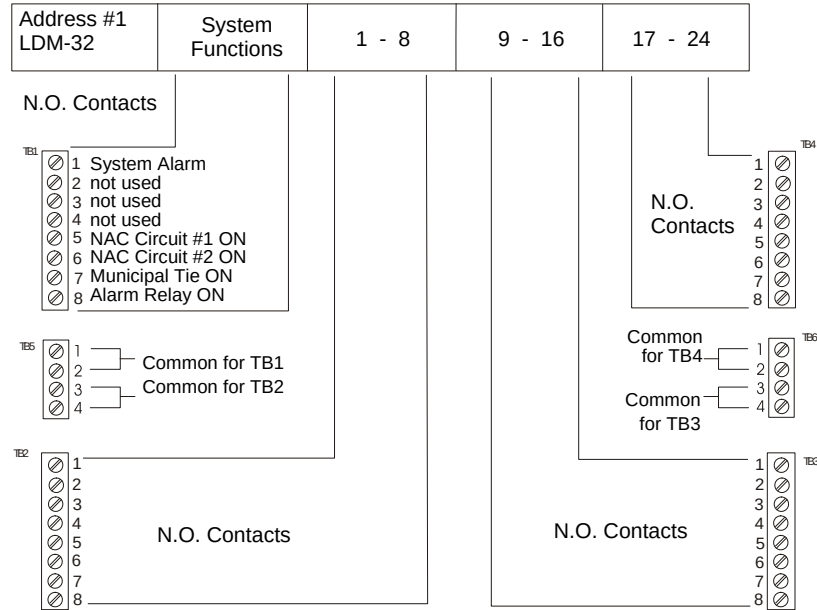


Figure A.7 Alarm Relays with LDM-R32

Figure A.8 illustrates the configuration of the LDM-R32 Relay Expander to activate relays for up to 24 zones.

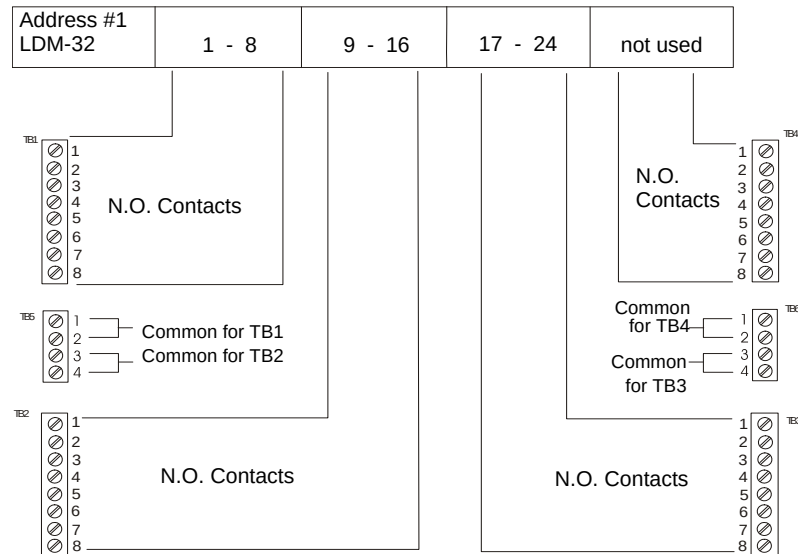


Figure A.8 Alarm Relays with 8-Point Shift

Figure A.9 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm and trouble relays for up to 24 zones with the first eight relays dedicated to the System 500 functions listed below.

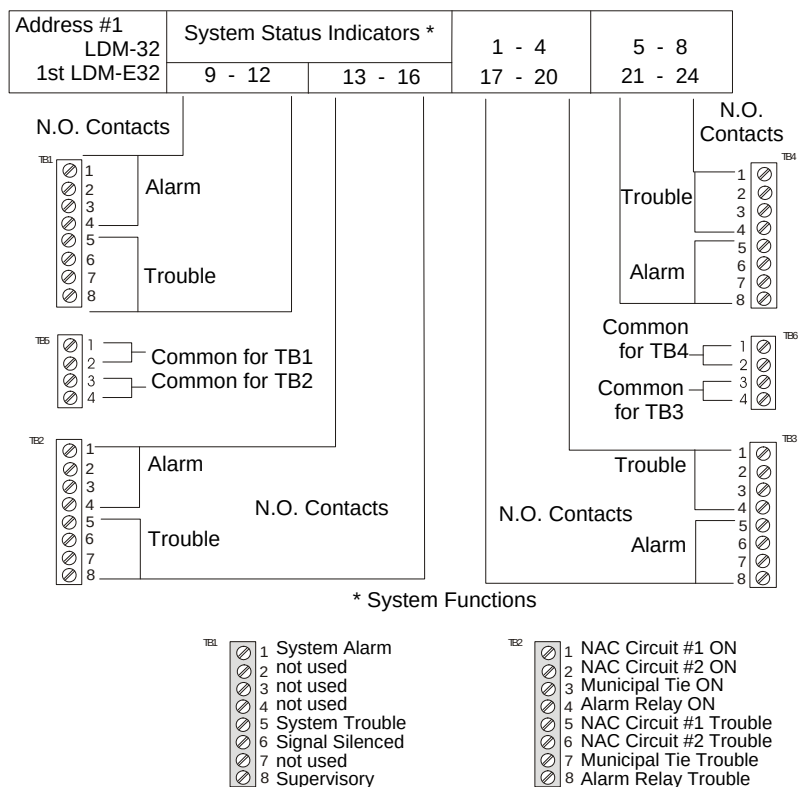


Figure A.9 Alarm and Trouble Relays with LDM-R32

Figure A.10 illustrates the configuration of the LDM-R32 to activate alarm and trouble relays for up to 24 zones.

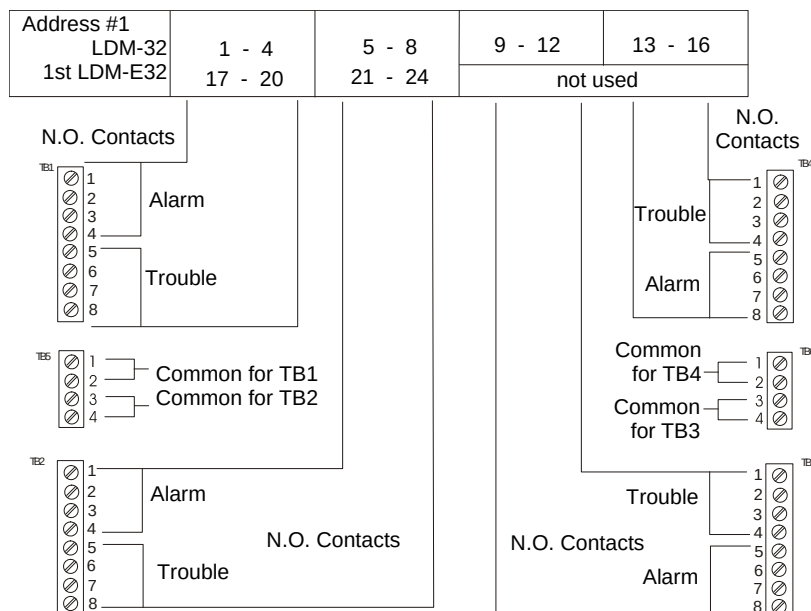


Figure A.10 Alarm and Trouble Relays with 8-Point Shift

Appendix B: System 5000 (UL 8th)



NOTE: The LDM begins annunciation of circuits on the module installed directly after the CPU-5000. To ensure full employment of LDM points, mount the modules that need lamp driver annunciation in the CPU row first, then in the second row, etc. Modules with circuits that are not to be annunciated by the LDM-32 should be installed further down in the cabinet.

B.1 Capabilities

When installed with a System 5000, the LDM Series modules can annunciate the status of initiating and notification circuits, relays, and several system control functions. Each lamp driver output is automatically assigned to one and only one system I/O point:

Optional System 5000 plug in Modules

- IZM-8 - Initiating Device Circuits (alarm and trouble)
- AIM-200 Zones (alarm and trouble)
- ICM-4/ICE-4 - Notification Appliance Circuits (trouble)
- CRM-4/CRE-4 - Control Relay Modules
- TCM-2/TCM-4 - Time Control Modules
- VCM-4/VCE-4
- DCM-4

System Control Switches

- Acknowledge
- Signal Silence
- System Reset
- Activate selected system outputs (notification circuits, relays)

Trouble Indication

Communication between the CPU and the LDMs is accomplished over a two-wire EIA-485 serial communication bus. The EIA-485 bus is supervised by the System 5000. Loss of communication results in System Trouble and Module Failure indications at the CPU.

Lamp/LED Driver Operation

Lamp Driver outputs do not latch - they track or follow the status of each zone/point that they are assigned to annunciate. Table B.1 defines the ON status of each Lamp Driver output.

Software Required

For the LDM to function properly, the CPU must be operating under **ROM1-5000 Part Number 73085** (or higher).

Programming for Remote Annunciation

After complete installation, the LDM must be programmed into the System 5000 before it will function. Program the LDM as if it were an annunciator. Refer to the System 5000 Programming Manual, Document 15584.

B.2 Installation Requirements

The EIA-485 circuit that communicates with the LDM must be connected to the CPU as illustrated below. The CPU must be Revision D or greater. The revision level of the CPU is marked on a label affixed to the upper board.

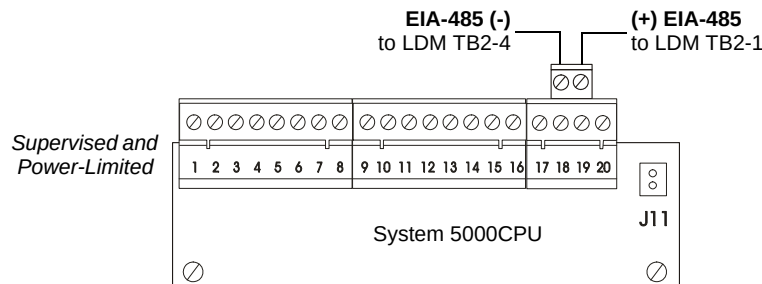


Figure B.1 Connecting the EIA-485 Loop to the CPU-500

B.3 MPS-24A Main Power Supply

Connect the power run for the LDMs to MPS-24A TB3, Terminals 1 (+) and 2 (-). Maximum current is 1 amp. The power run to the LDMs need not contain a Power Supervision Relay since loss of power is inherently supervised.

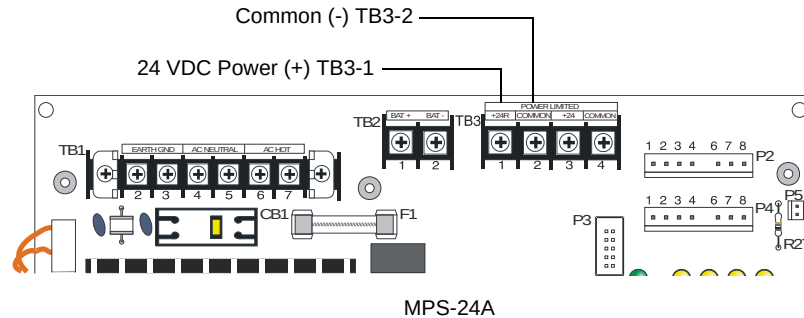


Figure B.2 Connecting Power from the MPS-24A

B.4 MPS-24B Main Power Supply

Connect the power run for the LDMs to MPS-24B, TB2, Terminals 1 (+) and 2 (-). No more than 200 mA current can be drawn from these terminals in standby or alarm.



CAUTION: POWER-LIMITED WIRING

THE +24 VDC PROVIDED ON TB2 TERMINAL 3 IS POWER-LIMITED ONLY WHEN USED WITH THE MINUS RETURN ON TB2 TERMINAL 4. DO NOT USE THE MINUS RETURN ON TB2 TERMINAL 2 WITH THE +24 VDC POWER ON TB2 TERMINAL 3.

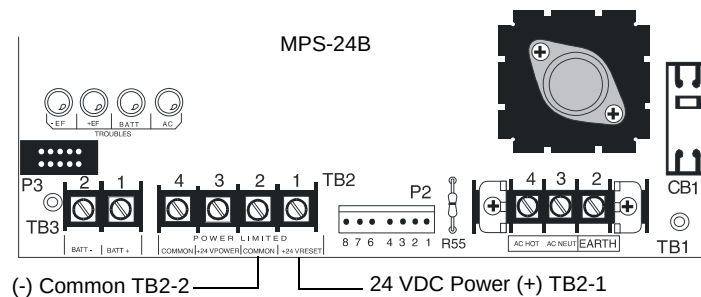
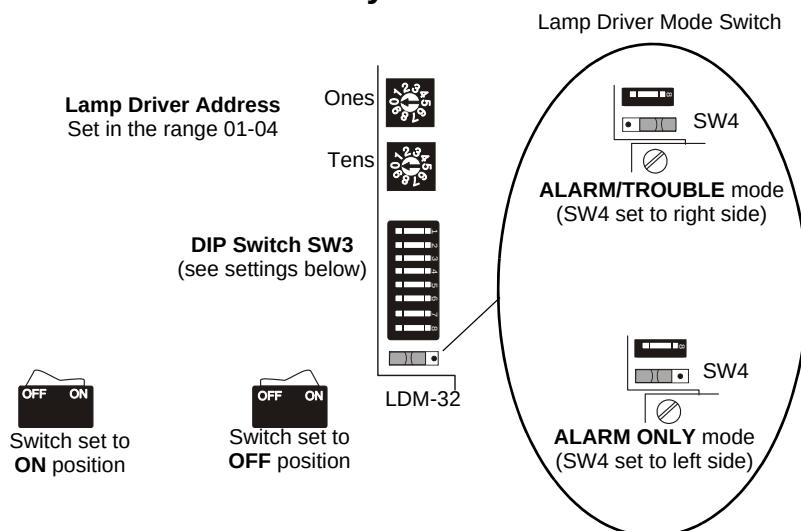


Figure B.3 Connecting Power from the MPS-24B

B.5 Configuration for the LDM-32 and System 5000



LDM-32 DIP Switch (SW3) settings (for System 5000):

- Relay Control:** Future Use - this switch must be set OFF on the System 5000.
- Number of LDM-E32 Expanders Installed:**
- Number of LDM-E32 Expanders Installed:**
- 8-Point Shift:** Set switch ON to shift CPU-5000 LED function annunciation from the first eight annunciator positions on the LDM-32 to the third LDM-E32 expander positions 57 - 64. This shift can only be set on an LDM-32 set for address 1.
- Receive Only:** Set this switch ON for each LDM series that will provide the same information as another LDM series in a different physical location (when two or more sets of LDM series have the same address, all but one must be configured as Receive Only.)
- Piezo Disable:** Set this switch ON to disable the piezo from sounding for any event.
- Switch Inhibit:** To disable the point I/O control switches on the LDMs from functioning, set this switch ON. When inhibited, the local Lamp Test switch continues to function. In addition, the Acknowledge/Lamp Test switch will function only in a local capacity, unrecognized by the host System 5000.
- Flash Inhibit:** Set this switch ON to disable the flashing of LEDs associated with unacknowledged events. *Flash Inhibit also disables the piezo from sounding. Flash Inhibit must be ON when using the relay expander module (LDM-R32).*

*The lamp driver can be set for addresses 1, 2, 3 or 4. The actual mapping arrangement for a respective module and its expanders depends on System 5000 annunciator programming. Refer to Document 15584 for details.

System 5000 CPU Annunciator Point Assignments to LDMs

System 5000 CPU Points	LDM Alarm LED Red	LDM Trouble/Supv Led Yellow	LDM Control Switches
Annunciator Point #1	Indicates System Alarm	Indicates System Trouble	Functions as an ACKNOWLEDGE
Annunciator Point #2	not used	Indicates that signals have been silenced	Functions as a SIGNAL SILENCE
Annunciator Point #3	not used	not used	Functions as a SYSTEM RESET
Annunciator Point #4	not used	Indicates Supervisory Condition	not used
Annunciator Point #5	Indicates that Notification Circuit 1 has been activated ⁴	Indicates trouble status of circuit	Controls Notification Circuit 1
Annunciator Point #6	Indicates that Notification Circuit 2 has been activated ⁴	Indicates trouble status of circuit	Control Notification Circuit 2
Annunciator Point #7	Indicates that the Remote Signaling Municipal Tie has been activated ⁴	Indicates trouble status of circuit	Controls Remote Signaling Municipal Tie
Annunciator Point #8	Indicates that the Alarm Relay has been activated ⁴	Indicates Module Trouble, Power Failure, or Disabled Circuit(s)	Controls Alarm Relay

Table B.1 System 5000 CPU Annunciator Point Assignments to LDMs

System 5000 Option Modules Annunciator Point Assignments to LDMs

System 5000 Option Modules	LDM Alarm LED Red	LDM Trouble/Supv Led Yellow	LDM Control Switches
I2M-8	Alarm Status per Circuit	Trouble Status per Circuit	not used
ICM-4, ICE-4	Indicates Activation ^{3, 4}	Indicates Trouble per Circuit	Controls Notification Circuit ⁵
CRM-4, CRE-4	Indicates Activation ^{3, 4}	Indicates Trouble per Circuit	Controls Relays ⁵
TCM-2, TCM-4	Indicates Activation ^{3, 4}	Indicates Trouble per Circuit	Remote Switch Functions ⁵
AIM-200	Indicates Alarm Status of eight software zones	Indicates Trouble Status of eight software zones	not used

Table B.2 System 5000 Option Modules Annunciator Point Assignments to LDMs

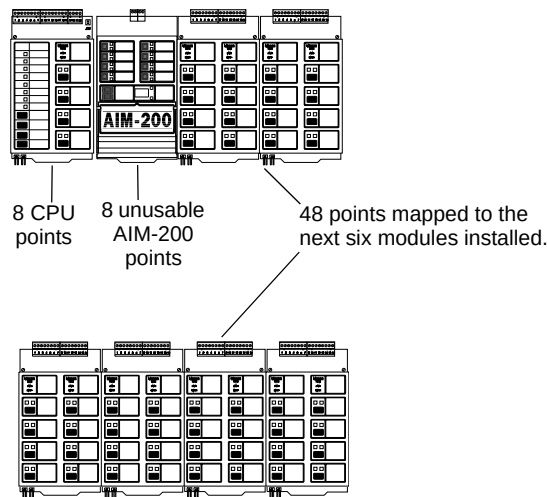
Notes:

- Control Switches marked 'not used' will still function as local LAMP TEST or local ACKNOWLEDGE switches for their respective points.
- If Alarm Only Mode is selected, column labeled Yellow LED is not applicable and control switches do not function.
- If the 8-Point Shift (DIP switch #4 of SW3) is set ON, the eight System 5000 CPU functions (ACK, SIL, RESET, LAMP TEST, NAC1, NAC2, MUNTIE, RELAY) will be shifted from annunciator points 1 through 8 (as shown above) to points 57 through 64 (provided those points exist in the system and the LDM-32 is set to address 01).
- Optional control switches are active only if all of these conditions are met:
 - '8-Point Shift' (DIP switch #4) is set to OFF.
 - Receive Only (DIP Switch #5) is set to OFF.
 - Switch Inhibit (DIP Switch #7) is set to OFF.
- These Status LEDs are active only when the System 5000 is programmed for Output Status.
- Use green LEDs to indicate activation on controlled output circuits.
- These control switches require that the System 5000 be programmed for Output Control.

B.6 AIM-200 Point Annunciation

The CPU-5000 can be programmed for an alternate method of annunciating the AIM-200. Up to 192 intelligent devices can be annunciated on a single AIM-200 with LDM series annunciators. The System 5000 annunciates the AIM-200 installed directly to the right of the CPU-5000. Note that an annunciator cannot be used to execute manual ON/OFF control of intelligent AIM-200 points only standard System 5000 zones. The option provides annunciation of up to 256 points for the System 5000, broken down as follows:

- Annunciator Address 1:
 - 8 CPU points (CPU point shift not an option).
 - 8 unusable points (redundant AIM-200 points).
 - 48 points mapped to the next six modules installed in the System 5000 (which can also be AIM-200s for annunciation of their 8 software zones.)



- Annunciator Address 2:
 - Intelligent Detectors, addressed 1-64, on the AIM-200 installed next to the CPU-5000.
- Annunciator Address 3:
 - Addressable Modules, addressed 1-64, on the AIM-200 installed next to the CPU-5000.
- Annunciator Address 4:
 - Intelligent Detectors, addressed 65-96, followed by Addressable Modules, addressed 65-96, on the AIM-200 installed next to the CPU-5000.

The System 5000 Programming Manual, Document 15584, provides programming instructions for this option. Refer to program choice 'AIM(256).



NOTE: AIM-200 detector and module addresses 97, 98 and 99 may be used, but cannot be point-annunciated.

Alarm and Trouble Mode without 8-Point Shift

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	ACK	Circuit 9	Circuit 25	Circuit 41
2	SIG.SIL.	Circuit 10	Circuit 26	Circuit 42
3	RESET	Circuit 11	Circuit 27	Circuit 43
4	not used	Circuit 12	Circuit 28	Circuit 44
5	NAC 1	Circuit 13	Circuit 29	Circuit 45
6	NAC 2	Circuit 14	Circuit 30	Circuit 46
7	MUN TIE	Circuit 15	Circuit 31	Circuit 47
8	Alarm Relay	Circuit 16	Circuit 32	Circuit 48
9	Circuit 1	Circuit 17	Circuit 33	Circuit 49
10	Circuit 2	Circuit 18	Circuit 34	Circuit 50
11	Circuit 3	Circuit 19	Circuit 35	Circuit 51
12	Circuit 4	Circuit 20	Circuit 36	Circuit 52
13	Circuit 5	Circuit 21	Circuit 37	Circuit 53
14	Circuit 6	Circuit 22	Circuit 38	Circuit 54
15	Circuit 7	Circuit 23	Circuit 39	Circuit 55
16	Circuit 8	Circuit 24	Circuit 40	Circuit 56

Table B.3 LDM Switch Control Functions

Notes:

- 1) Circuit corresponds to a specific I/O module installed in user configured System 5000.
- 2) Without 8-Point Shift, the first 8 optional control switches correspond to CPU switch functions: ACK, RES, NAC 1, NAC 2, MUN TIE, RELAY.

Alarm and Trouble With 8-Point Shift

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	Circuit 1	Circuit 17	Circuit 33	Circuit 49
2	Circuit 2	Circuit 18	Circuit 34	Circuit 50
3	Circuit 3	Circuit 19	Circuit 35	Circuit 51
4	Circuit 4	Circuit 20	Circuit 36	Circuit 52
5	Circuit 5	Circuit 21	Circuit 37	Circuit 53
6	Circuit 6	Circuit 22	Circuit 38	Circuit 54
7	Circuit 7	Circuit 23	Circuit 39	Circuit 55
8	Circuit 8	Circuit 24	Circuit 40	Circuit 56
9	Circuit 9	Circuit 25	Circuit 41	ACK
10	Circuit 10	Circuit 26	Circuit 42	SIG.SIL.
11	Circuit 11	Circuit 27	Circuit 43	RESET
12	Circuit 12	Circuit 28	Circuit 44	not used
13	Circuit 13	Circuit 29	Circuit 45	NAC 1
14	Circuit 14	Circuit 30	Circuit 46	NAC 2
15	Circuit 15	Circuit 31	Circuit 47	MUN TIE
16	Circuit 16	Circuit 32	Circuit 48	Alarm Relay

Table B.4 LDM Switch Control Functions

Notes:

1. It is assumed that systems with 8-Point Shift selected will be 56 zones/points or less.
2. Circuit corresponds to a specific I/O module installed in user configured System 5000.
3. With 8-Point Shift, the first 8 optional control switches move to the 3rd LDM-E32. The 8 CPU switch functions are assigned to Circuits 57 through 64 as shown in the table above.

Figure B.4 illustrates the configuration of LDMs to annunciate alarms for up to 120 zones (no zone troubles) with the first eight points (P1 through P8) dedicated to the System 5000unctions listed below. (Control switches do not function in Alarm Only configuration).

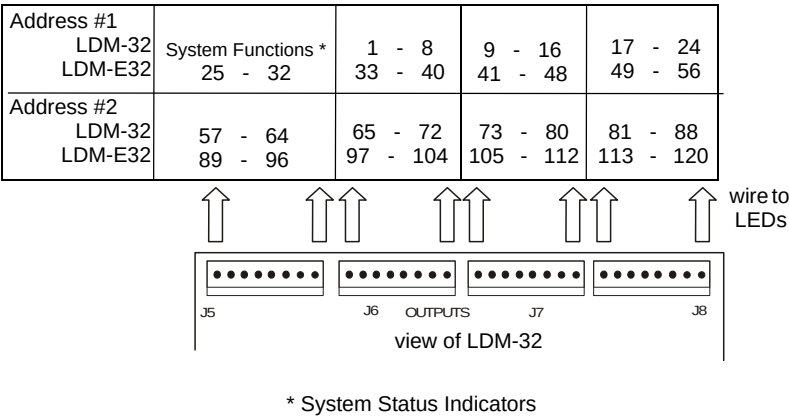
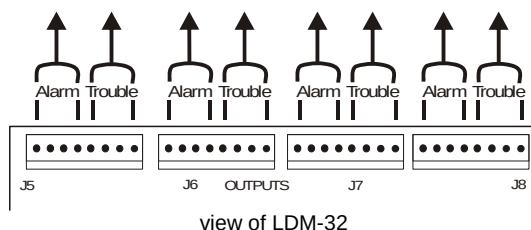
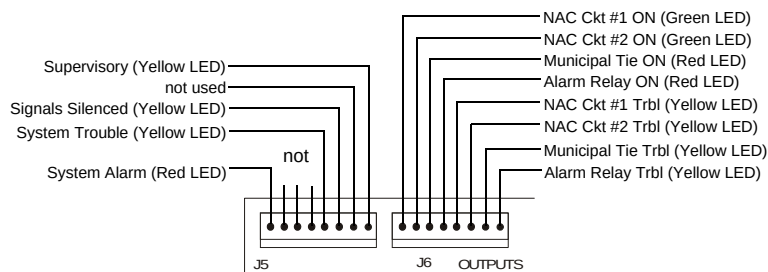


Figure B.6 illustrates the configuration of LDMs to annunciate alarms and troubles for up to 120 zones with the first eight points - 16 LEDs (J5: P1 through P8 and J6: P1 through P8) dedicated to System 5000 system status annunciation.

Address #1	System Status Indicators*		1 - 4	5 - 8
LDM-32				
1st LDM-E32	9 - 12	13 - 16	17 - 20	21 - 24
2nd LDM-E32	25 - 28	29 - 32	33 - 36	37 - 40
3rd LDM-E32	41 - 44	45 - 48	49 - 52	53 - 56
Address #2				
LDM-32	57 - 60	61 - 64	65 - 68	69 - 72
1st LDM-E32	73 - 76	77 - 80	81 - 84	85 - 88
2nd LDM-E32	89 - 92	93 - 96	97 - 100	101 - 104
3rd LDM-E32	105 - 108	109 - 112	113 - 116	117 - 120



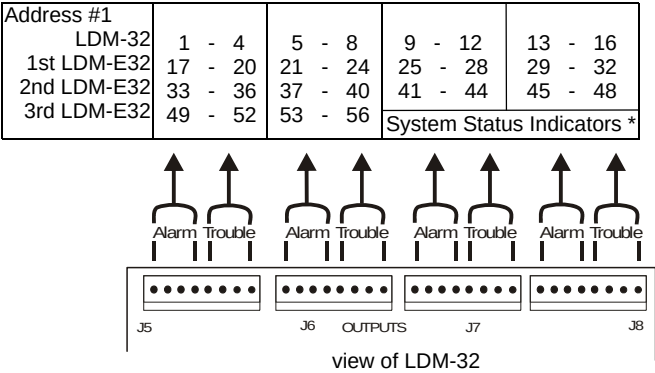
* System Status Indicators



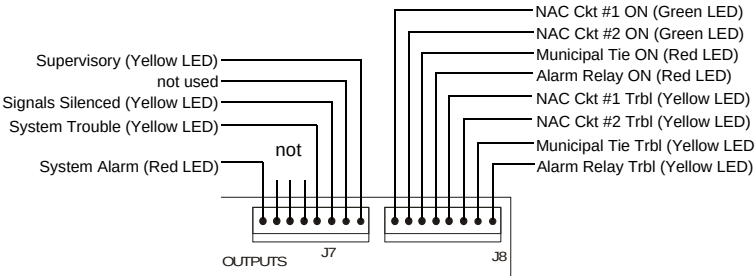
*It is assumed this module/expander annunciates points (circuits) 64-128.

Figure B.6 Alarm/Trouble Operation Without 8-Point Shift

Figure B.7 illustrates the configuration of LDMs to annunciate alarms and troubles for up to 56 zones with the last eight points (16 LEDs) dedicated to the CPU functions listed below.



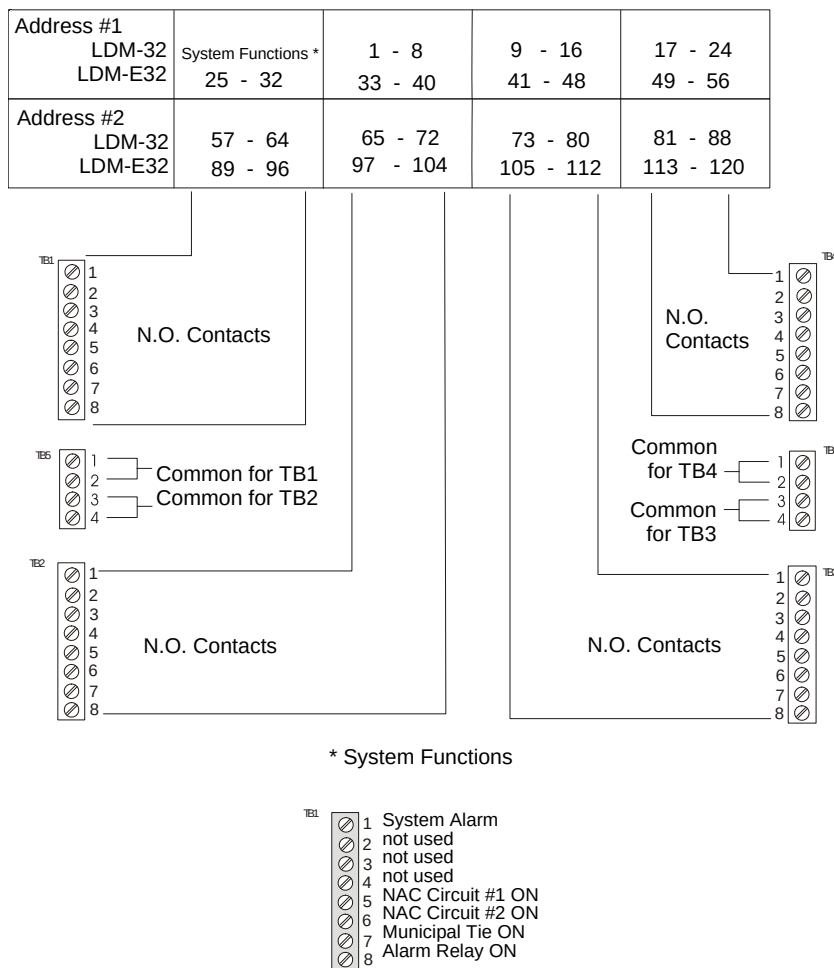
* System Status Indicators



*It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 zones/points.

Figure B.7 Alarm/Trouble Operation with 8-Point Shift

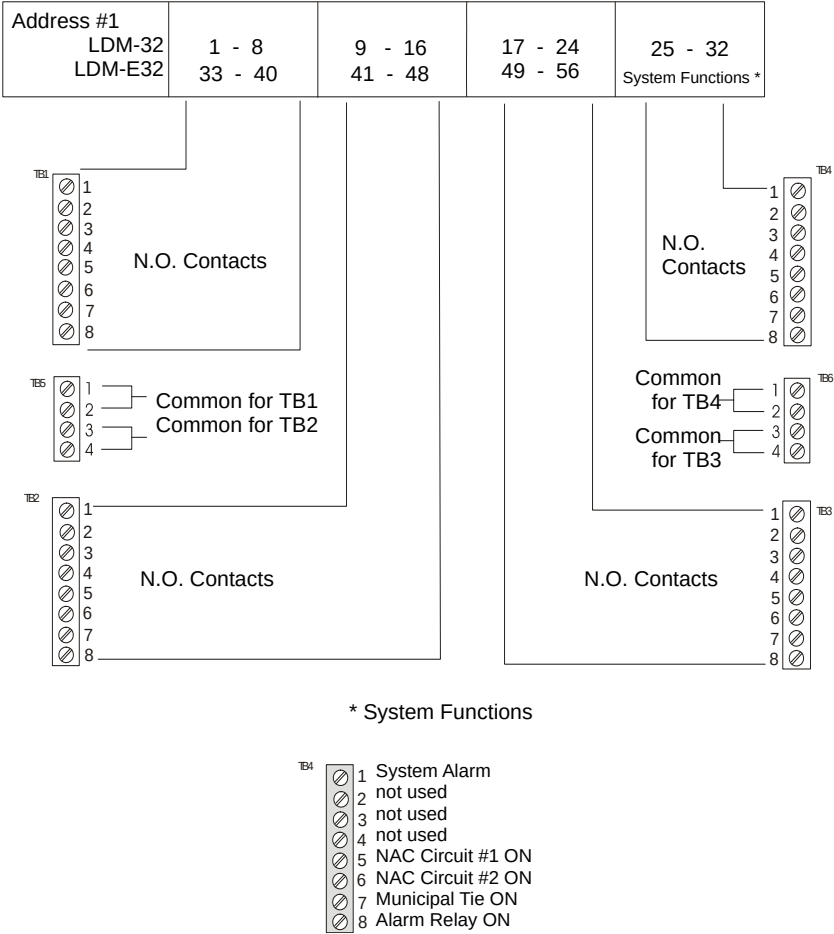
Figure B.8 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm relays for up to 56 zones with the first eight relays dedicated to the System 5000 functions listed below.



* It is assumed this module/expander annunciates points 65-128.

Figure B.8 Alarm Relays with LDM-R32

Figure B.9 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm relays for up to 56 zones with the last eight relays dedicated to the System 5000 functions listed below.



* It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 circuits.

Figure B.9 Alarm Relays with 8-Point Shift

Figure B.10 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm and trouble relays for up to 120 zones with the first eight relays dedicated to the System 5000 functions listed below.

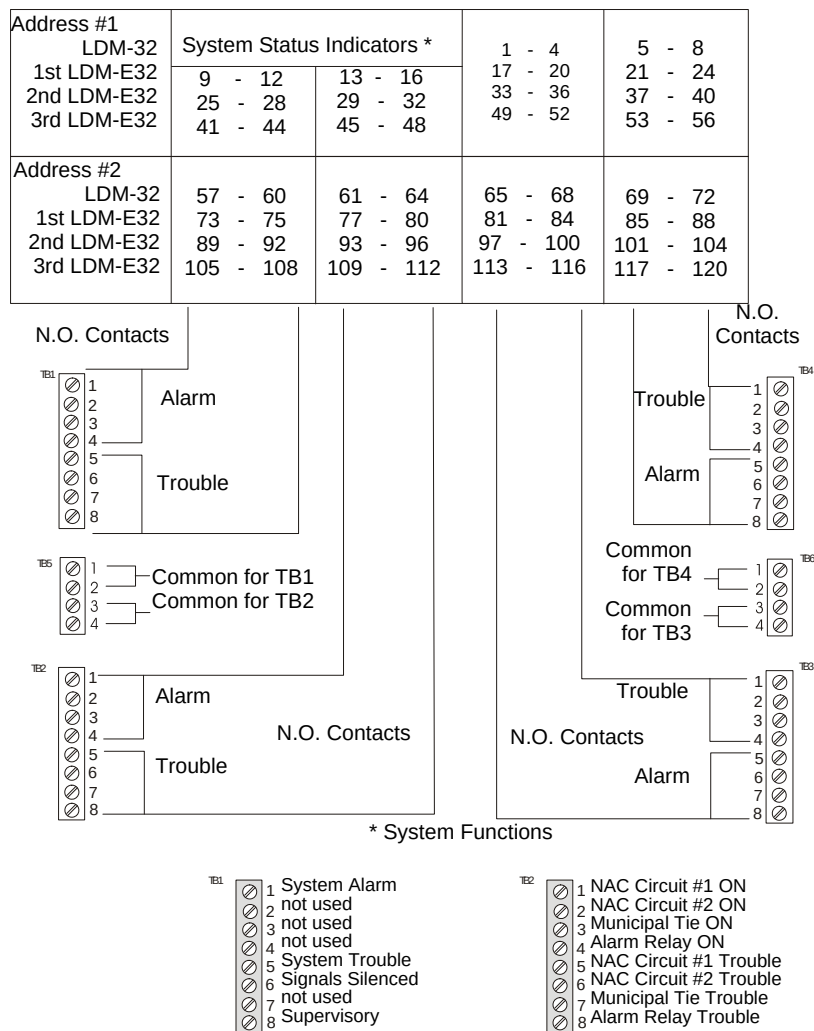
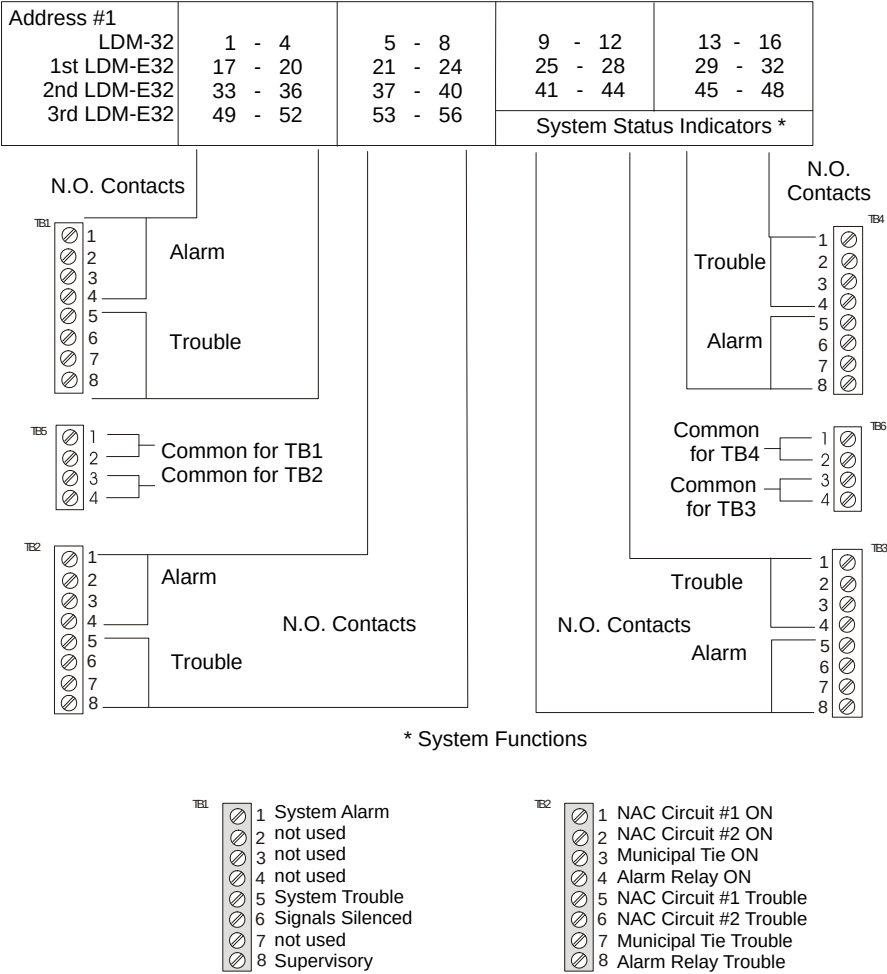


Figure B.10 Alarm and Trouble Relays with LDM-R32

Figure B.11 illustrates the configuration of the LDM-R32 Relay Expander to activate alarms and troubles for up to 56 zones with the last eight relays dedicated to the CPU functions listed below.



1

2

3

4

5

6

7

8

Alarm

Trouble

1

2

3

4

Common for TB4

Common for TB3

N.O. Contacts

1

2

3

4

5

6

7

8

System Alarm

not used

not used

not used

System Trouble

Signals Silenced

not used

Supervisory

1

2

3

4

5

6

7

8

NAC Circuit #1 ON

NAC Circuit #2 ON

Municipal Tie ON

Alarm Relay ON

NAC Circuit #1 Trouble

NAC Circuit #2 Trouble

Municipal Tie Trouble

Alarm Relay Trouble

* It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 circuits.

Figure B.11 Alarm and Trouble Relays with 8-Point Shift

Appendix C: NFS2-3030 and NCA-2 (UL 9th), AM2020/AFP1010, NFS-3030, or NCA (UL 8th)

C.1 Capabilities

When installed with NFS2-3030, NFS-3030, NCA-2, NCA, or AM2020/AFP1010, the LDM Series modules can annunciate the status of addressable devices, software zones, XP Series Transponder points and several system control functions:

C.2 Devices

- Intelligent Detectors
 - MMX Monitor Modules and CMX Control Modules
 - BGX Addressable Manual Pull Stations, security devices & all other addressable devices.
- Software Zones, logic zones, and digital audio zones
All software zones can be annunciated provided that each zone is mapped to an annunciator point.
- System Controls
 - Acknowledge/Step (referred to as the ACK/STEP key)
 - Signal Silence
 - System Reset
 - Lamp Test (test LEDs, printer & CRT terminal output on FACP/network annunciator only)
- XP Series Transponder System
 - Power and Audio Supply Supervision Point
 - XPP-1 Form-C Alarm and Trouble Relay Points
 - XPC Control, XPM Monitor and XPR Relay Module Circuit Points

C.3 Software Versions

All releases of NFS2-3030, NFS-3030, NCA, and ADT-NCA-2 are compatible with LDM series modules.

The AM2020/AFP1010 must be operating with software of the following part numbers (or greater):

AM2020/AFP1010 Board	ROM Part Number
Central Processing Unit (CPU-2020)	73123
Display Interface Assembly (DIA-1)	73132
Loop Interface Board (LIB-200)	73117 (for each LIB-200)



CAUTION:

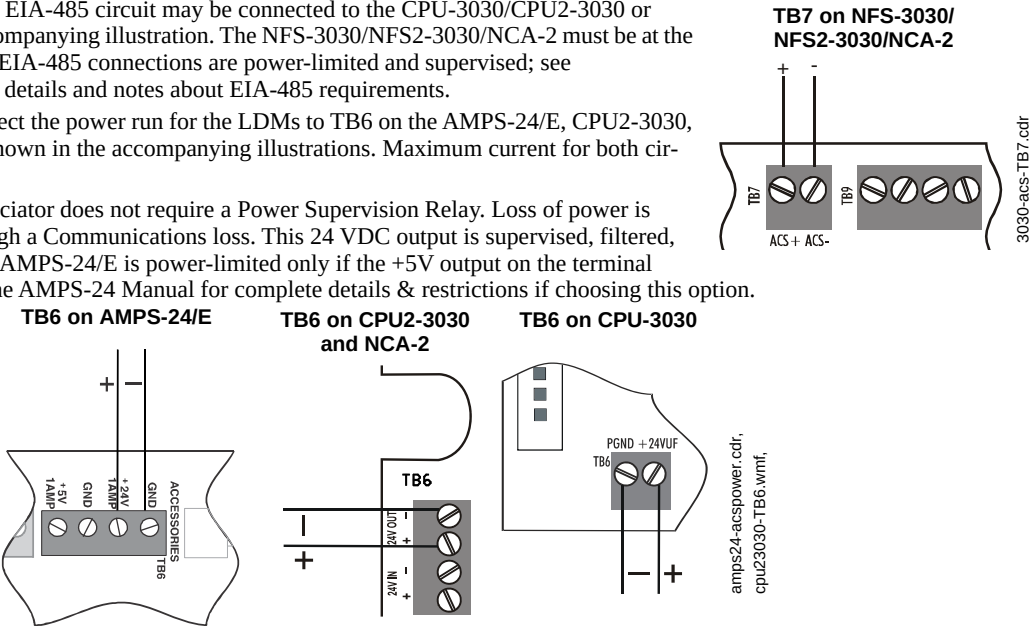
EACH SOFTWARE ROM INSTALLED IN THE AM2020/AFP1010 MUST BE PART OF THE SAME SOFTWARE COMBINATION. FOR A LIST OF VALID SOFTWARE COMBINATION NUMBERS, CONTACT THE NOTIFIER TECHNICAL SERVICES DEPARTMENT.

C.4 NFS2-3030, NCA-2, and NFS-3030

EIA-485 Connections One EIA-485 circuit may be connected to the CPU-3030/CPU2-3030 or NCA-2 as shown in the accompanying illustration. The NFS-3030/NFS2-3030/NCA-2 must be at the end of the EIA-485 circuit. EIA-485 connections are power-limited and supervised; see Sections 4.3–4.6 for further details and notes about EIA-485 requirements.

Power Connections Connect the power run for the LDMs to TB6 on the AMPS-24/E, CPU2-3030, NCA-2, or CPU-3030, as shown in the accompanying illustrations. Maximum current for both circuits on TB6 is 1 amp.

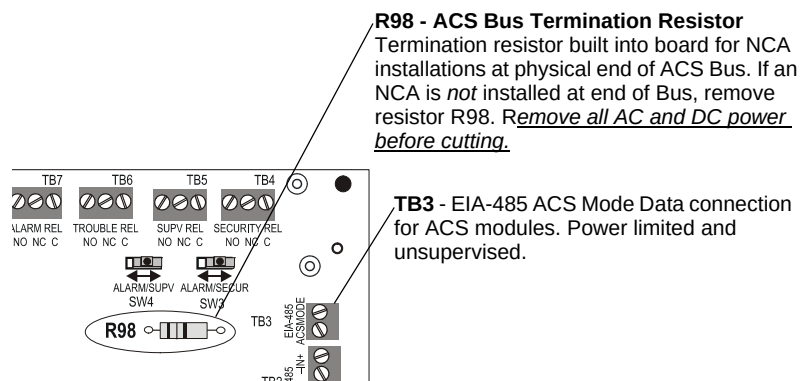
The power run to the annunciator does not require a Power Supervision Relay. Loss of power is inherently supervised through a Communications loss. This 24 VDC output is supervised, filtered, and non-resettable. TB6 on AMPS-24/E is power-limited only if the +5V output on the terminal block is not used; refer to the AMPS-24 Manual for complete details & restrictions if choosing this option.



C.5 NCA Connections

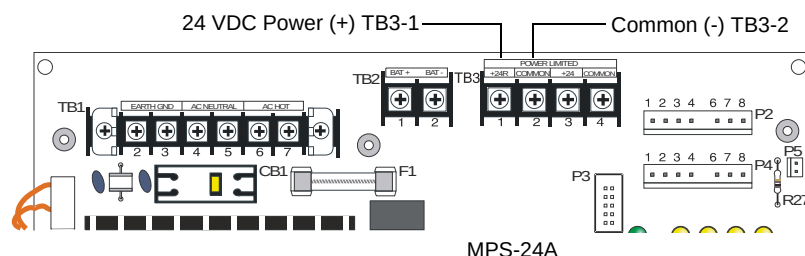
Power The NCA does not provide an annunciator power output terminal. Power for the LDM should be drawn from the FACP's main power supply. Refer to the appropriate FACP appendix in this manual.

EIA-485



C.6 AM2020/AFP1010 Connections

Power Connect the power run for the LDMs to MPS-24A TB3, Terminals 1 (+) and 2 (-). Maximum current is 1 amp. The power run to the LDMs need not contain a Power Supervision Relay since loss of power is inherently supervised.



EIA-485: AM2020/AFP1010 Hardware Required The AM2020/AFP1010 must include an intelligent Serial Interface Board (SIB-2048A) or SIB-NET. The EIA-485 circuit must be connected to the SIB-2048A as illustrated below.

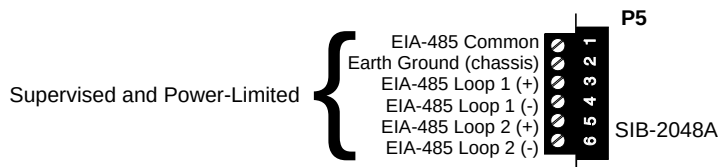
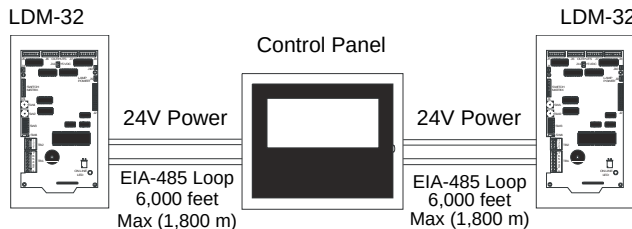


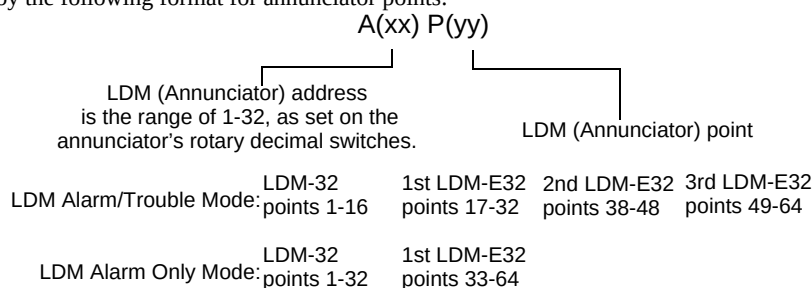
Figure C.1 The EIA-485 Loop

The SIB-2048A can support one EIA-485 circuit, capable of spanning 12,000 feet (3,600 m) @ 12 AWG (3.25 mm²), as illustrated below, provided that the SIB-2048A is located in the center of the span illustrated below. A 120 ohm terminating resistor is required at each end of the twisted pair.



C.7 Annunciator Programming

LDM points must be programmed from the FACP before the LDM will function. The NFS2-3030, NFS-3030, NCA-2, NCA and AM2020/AFP1010 employ the following format for annunciator points:



For programming the Lamp Driver Series into the FACP or network annunciator's memory, and for mapping system points and software zones to annunciator points, refer to the appropriate FACP/network annunciator documents referenced in Section 1.3, "Related Documentation", on page 7. In the NFS2-3030, NFS-3030, NCA-2, and NCA documentation, refer to the sections about ACS Programming and ACS Point Programming. In AM2020/AFP1010 documentation, refer to the sections about Programming for Remote Annunciation.

C.8 Operation

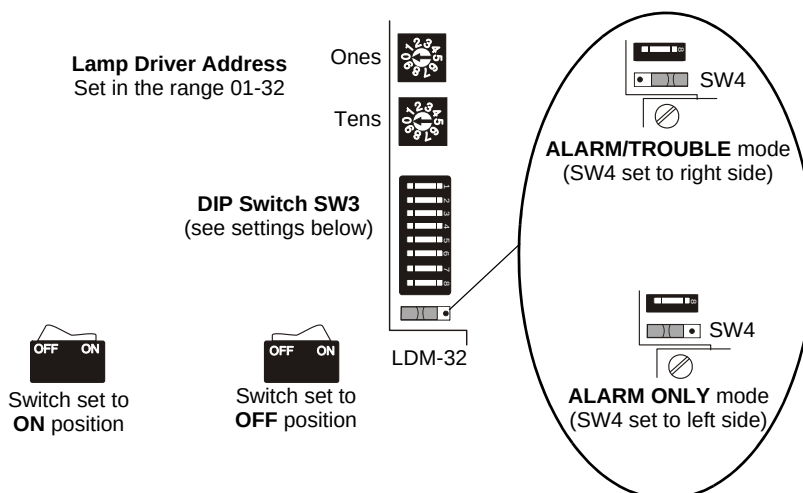
LDM points 'track' or follow those system points they are programmed to annunciate; the points do not latch unless latched by the panel. Table C.1 is a list of how the LDM-32 annunciates various AM2020/AFP1010 devices and functions; all functions are the same for NFS-3030/NFS2-3030/NCA/NCA-2. Note: Control Switches marked 'not used' will still function as local LAMP TEST switches for their respective LEDs.

Point Type	Alarm and Trouble Mode		
	Alarm Mode Only		
	Red LED	Yellow LED	Control Switch
Control Module XPC Circuit XPR Circuit	Indicates on/off status of module or circuit	Indicates trouble/supervisory status of module or circuit	Turn module on/off
Monitor Module XPM Circuit	Indicates active status of module or circuit	Indicates trouble/supervisory status of module or circuit	not used
Intelligent Detector	Indicates fire alarm status of detector	Indicates trouble status of detector	not used
Software Zone	Indicates active status of software zone	Indicates trouble/supervisory status of software zone	not used
ACK/STEP key	Indicates Fire Alarm	Indicates System Trouble	Functions as an ACK/STEP key
SIGNAL SILENCE key	not used	Indicates Signals Silenced	Functions as a SIGNAL SILENCE key
SYSTEM RESET key	Indicates Fire Alarm	Indicates System Trouble	Functions as a SYSTEM RESET key
LAMP TEST key	not used	not used	Functions as a LAMP TEST key

Table C.1 Lamp Driver Point Functions

For more information on LDM operation and FACP programming under various specific applications, refer to the appropriate FACP/network annunciator documents referenced in Section 1.3, "Related Documentation", on page 7.

C.9 Configuration for the LDM-32 and NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010



LDM-32 DIP Switch (SW3) settings (for NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010):

- Relay Control:** Set to ON when the lamp driver is used to control relays or to provide fan shutdown (see the Annunciator Control System manual, Document 15842 for more details).
- Number of LDM-E32 Expanders Installed:**
- Number of LDM-E32 Expanders Installed:**
- 8-Point Shift:** This switch must always be set OFF on the NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010.
- Receive Only:** Set this switch ON for each LDM series that will provide the same information as another LDM series in a different physical location (when two or more sets of LDM series have the same address, all but one must be configured as Receive Only.)
- Piezo Disable:** Set this switch ON to disable the piezo from sounding for any event.
- Switch Inhibit:** Set this switch OFF to enable any control switches wired to the Lamp Driver. If set ON, switches wired to the Lamp Driver will not execute their intended functions, but will serve only as a local Lamp Test for their respective points.
- Flash Inhibit:** Set this switch ON to disable the flashing of LEDs associated with unacknowledged events. *Flash Inhibit must be ON when using the relay expander module (LDM-R32).*

C.10 Wiring the LDM for the NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010

The LDM-32 and one expander can be configured for up to 64 alarm points by setting Switch SW4 to the 'ALARM ONLY' position.

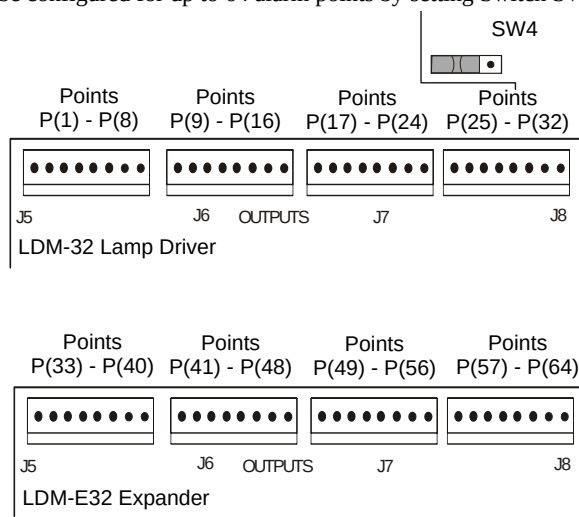


Figure C.2 Lamp Driver Alarm Points

The LDM-32 and up to three expanders can be configured for up to 64 alarm points and trouble points by setting Switch SW4 to the 'ALARM/TROUBLE' position.

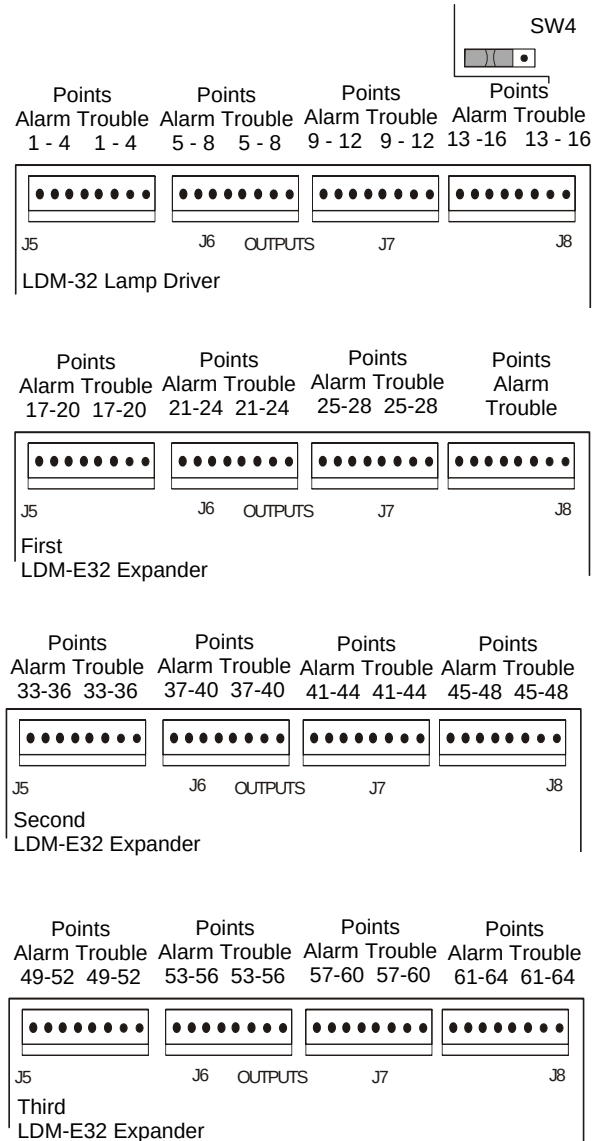


Figure C.3 Alarm and Trouble Points

Figure C.4 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm relays for up to 64 points on NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010.

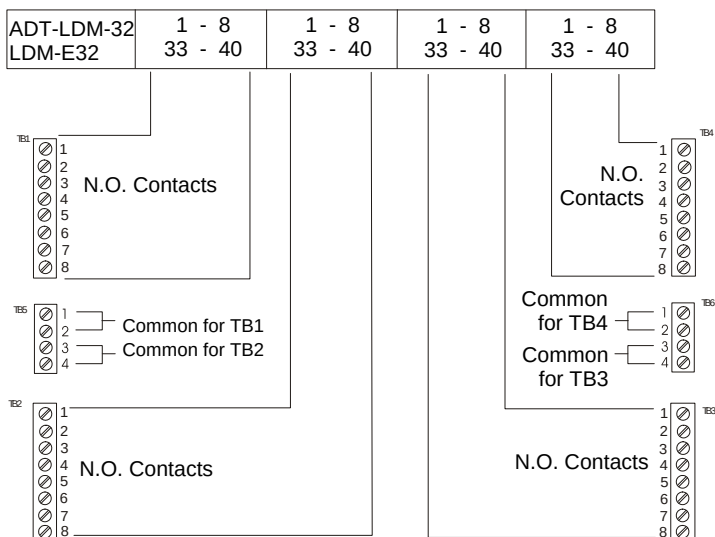


Figure C.4 Alarm-Only Relay Operation

Figure C.5 illustrates the configuration of the LDM-R32 Relay Expander to activate alarm and trouble relays for up to 64 points on NFS-3030/NFS2-3030, NCA/NCA-2, or AM2020/AFP1010.

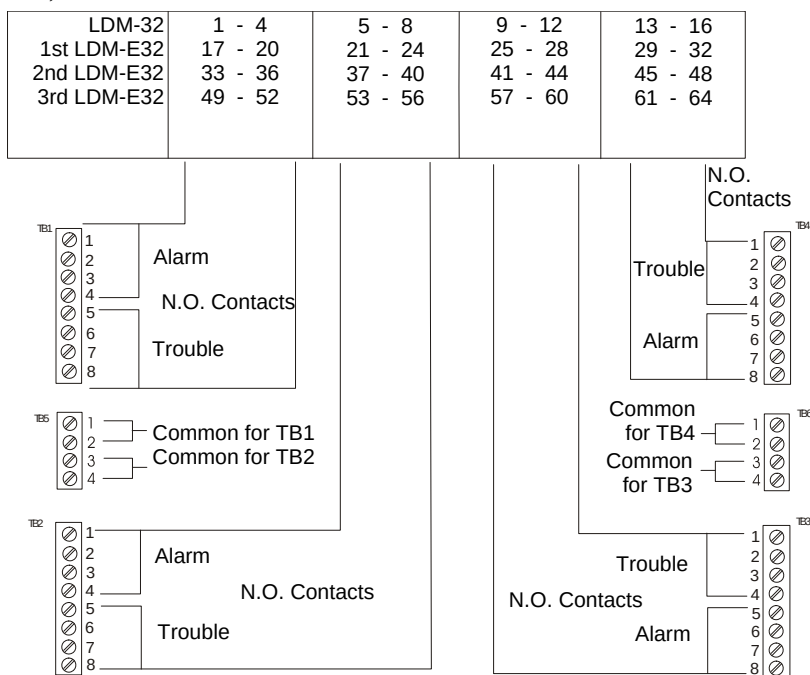


Figure C.5 Alarm and Trouble Relay Operation

Appendix D: AFP-100 (UL 8th)

D.1 Capabilities

When installed with an AFP-100, LDM Series modules can annunciate the status of 56 software zones or 198 points plus system status. Each lamp driver output is assigned to one and only one system I/O point:

- Addressable Devices:
 - Addressable Detectors - SDX751, CPX751, FDX-551
 - Monitor Modules - MMX-1, MMX-2, MX-101
 - Control Modules - CMX
 - Addressable Manual Pull Stations - BG-10LX
- System Control Switches:
 - Acknowledge
 - Signal Silence
 - System Reset
 - Drill
- Trouble Indication:

Communication between the AFP-100 and the LDMs is accomplished over a two-wire EIA-485 serial communication bus. The EIA-485 is supervised by the AFP-100. Loss of communication results in System Trouble and Annunciator 1 (2) No Answer message on the panel's 40 character LCD display.

D.2 Lamp/LED Driver Operation

Lamp Driver outputs do not latch - they track or follow the status of each zone/point they are assigned to annunciate. Table D.1 defines the ON status of each lamp driver output.

D.3 Programming for Remote Annunciation

After complete installation, the LDM must be programmed into the AFP-100 before it will function. Program the LDM as if it were an annunciator. Refer to the AFP-100 Technical Manual, Document 51010.

D.4 Installation Requirements

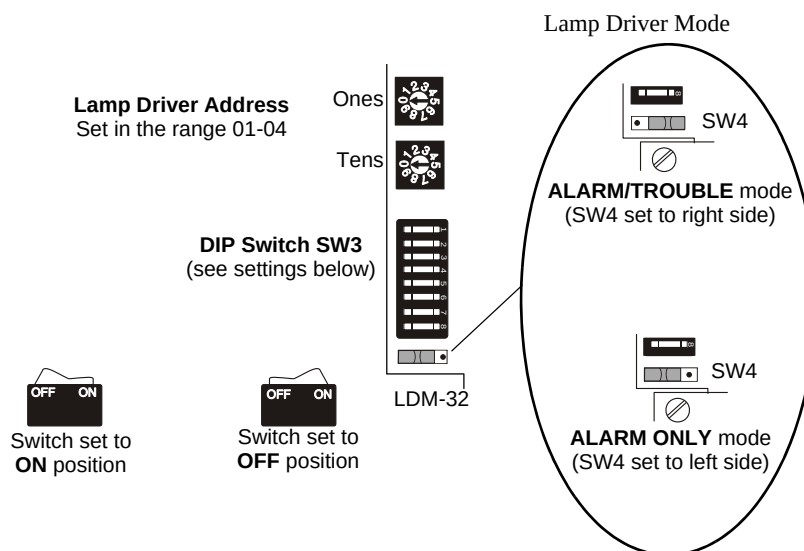
Regulated power (24 VDC) and the EIA-485 circuit that communicates with the LDMs must be connected to the AFP-100 as illustrated below. Note that an external power source may be used to power the LDM Series.



Figure D.1 AFP-100 Main Circuit Board (Top edge)

For more information on annunciator operation and FACP programming under various specific applications, refer to the AFP-100 documents referenced in Section 1.3, "Related Documentation", on page 7.

D.5 Configuration for the LDM-32 and AFP-100



LDM-32 DIP Switch (SW3) settings (for AFP-100):

1. **Relay Control:** Future Use - this switch must be set OFF on the AFP-100.
2. **Number of LDM-E32 Expanders Installed:**
3. **Number of LDM-E32 Expanders Installed:**
4. **8-Point Shift:** Set switch ON to shift MS-9200 LED function annunciation from the first eight annunciator positions on the LDM-32F to the third LDM-E32F expander positions 57 - 64. This shift can only be set on an LDM-32F set for address 1 (system using less than 56 software zones).
5. **Receive Only:** Set this switch ON for each LDM series that will provide the same information as another LDM series in a different physical location (when two or more sets of LDM series have the same address, all but one must be configured as Receive Only.)
6. **Piezo Disable:** Set this switch ON to disable the piezo from sounding for any event.
7. **Switch Inhibit:** To disable the point I/O control switches on the LDMs from functioning, set this switch ON. When inhibited, the local Lamp Test switch continues to function. In addition, the **Acknowledge/Lamp Test** switch will function only in a local capacity, unrecognized by the host AFP-100.
8. **Flash Inhibit:** Set this switch ON to disable the flashing of LEDs associated with unacknowledged events. *Flash Inhibit also disables the piezo from sounding.*

*The lamp driver must be set for addresses 1, 2, 3 or 4 when used with the AFP-100. Use address 1 for 56 zones. Use addresses 1, 2, 3 and 4 for 198 points. (Do not omit any address when annunciating 198 points or the AFP-100 will indicate a constant trouble). Refer to Document 51010 for details.

Alarm and Trouble Mode Without 8-Point Shift

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	ACK	not used	not used	not used
2	SIG.SIL.	not used	not used	not used
3	RESET	not used	not used	not used
4	DRILL	not used	not used	not used
5	not used	not used	not used	not used
6	not used	not used	not used	not used
7	not used	not used	not used	not used
8	not used	not used	not used	not used
9	not used	not used	not used	not used
10	not used	not used	not used	not used
11	not used	not used	not used	not used
12	not used	not used	not used	not used
13	not used	not used	not used	not used
14	not used	not used	not used	not used
15	not used	not used	not used	not used
16	not used	not used	not used	not used

LDM-32s set to address 1 with expanders support control switches. LDM-32s set to addresses other than 1 do not support control switches.

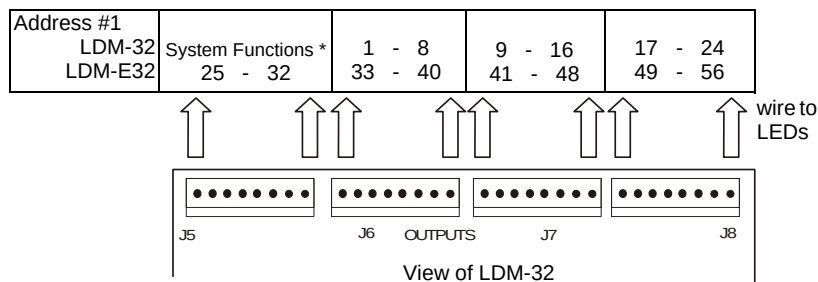
Alarm and Trouble Mode With 8-Point Shift

It is assumed that systems with 8-Point Shift selected will be 56 zones or less.

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	not used	not used	not used	not used
2	not used	not used	not used	not used
3	not used	not used	not used	not used
4	not used	not used	not used	not used
5	not used	not used	not used	not used
6	not used	not used	not used	not used
7	not used	not used	not used	not used
8	not used	not used	not used	not used
9	not used	not used	not used	ACK
10	not used	not used	not used	SIG.SIL.
11	not used	not used	not used	RESET
12	not used	not used	not used	DRILL
13	not used	not used	not used	not used
14	not used	not used	not used	not used
15	not used	not used	not used	not used
16	not used	not used	not used	not used

Table D.1 LDM Series Switch Control Functions

Figure D.1 illustrates configuration of the LDM to annunciate the Alarm state of all 56 software zones (no zone troubles) with the first eight points (P1 through P8) dedicated to the AFP-100 system function LEDs listed below.



* System Status Indicators

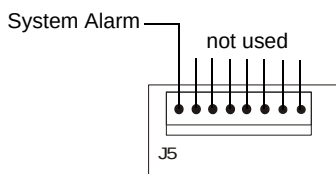
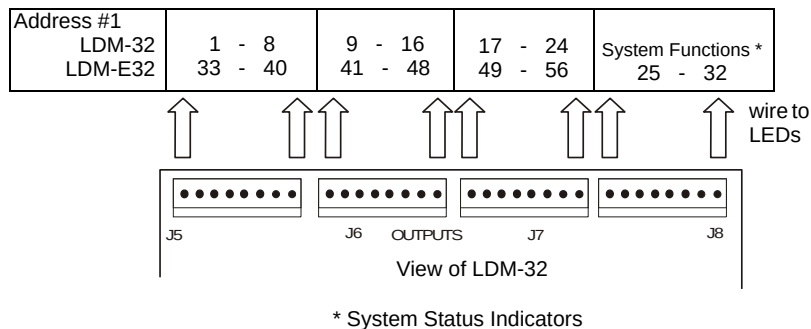


Figure D.1 Display Alarm Status of 56 Software Zones Only Without 8-Point Shift

Figure D.2 illustrates configuration of the LDM to annunciate the Alarm state for up to 56 zones (no zone troubles) with the last eight points (P57yea through P64) dedicated to the AFP-100 system function LEDs listed below.

It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 software zones or a total of 64 annunciator points or less.



* System Status Indicators

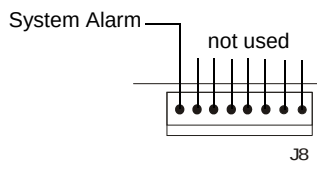


Figure D.2 Alarm Status of 56 Software Zones with 8-Point Shift

Figure D.3 illustrates wiring the LDM to annunciate the active and trouble states for all 56 zones with the first eight points (J5: P1 through P8 and J6: P1 through P8) dedicated to AFP-100 functions.

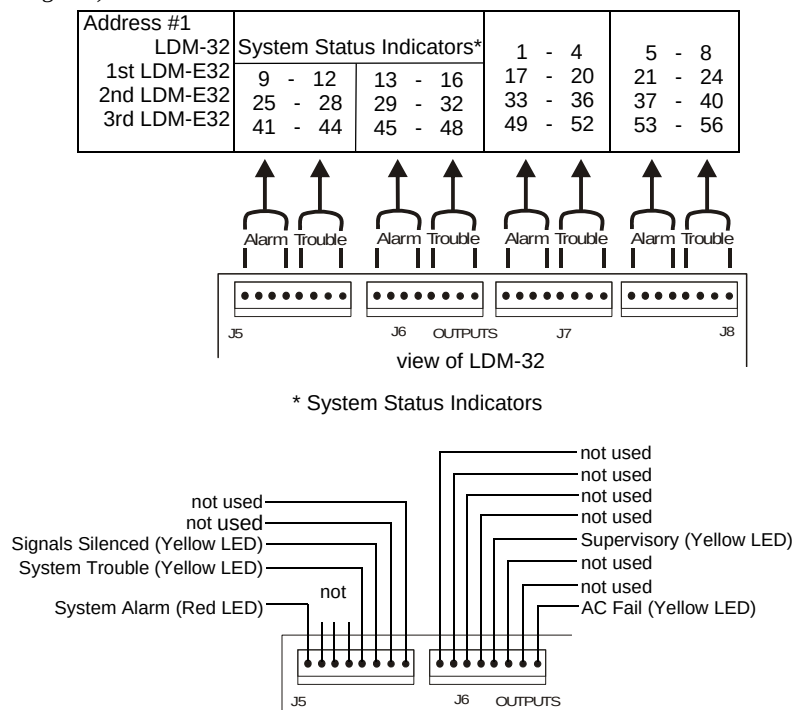


Figure D.3 Alarm/Trouble Annunciation of 56 Software Zones Without 8-Point Shift

Figure D.4 illustrates configuration for the LDM to announce active and trouble states for the first 56 software zones with the last eight points (16 LEDs) dedicated to the AFP-100 functions listed below.

It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 zones/points.

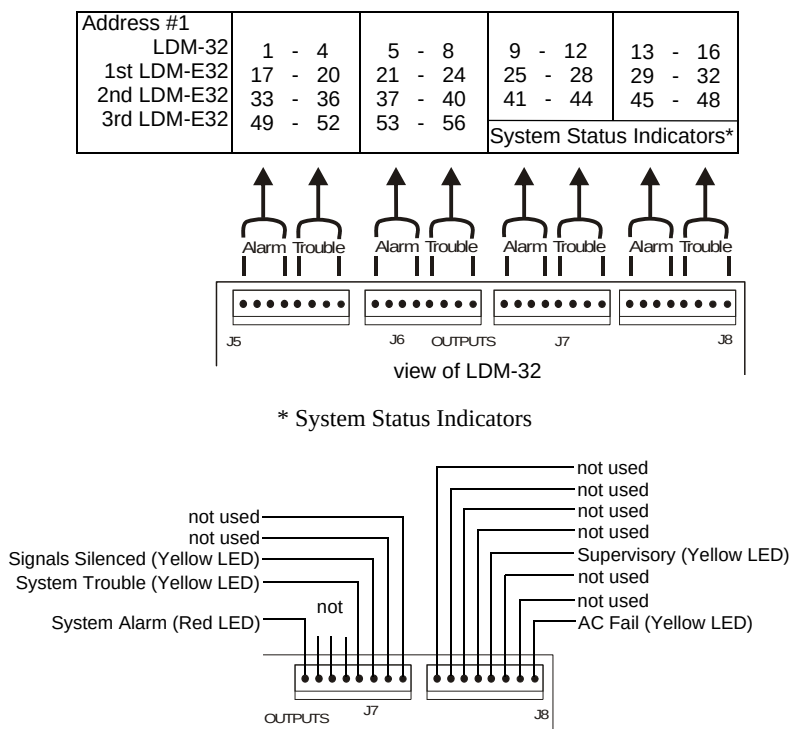


Figure D.4 Alarm/Trouble Annunciation of 56 Software Zones With 8-Point Shift

Alarm/Trouble Annunciation of Points

The table below illustrates the configuration of the LDM Series modules to annunciate the alarm and trouble states for all 198 points (detectors and modules) with the first eight points of address '01' dedicated to the AFP-100 system functions.

Detectors

Set addresses '01' and '02' for detectors.

LDM Module Address '01'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	System Functions		1 to 4	5 to 8
1st LDM-E32	9 to 12	13 to 16	17 to 20	21 to 24
2nd LDM-E32	25 to 28	29 to 32	33 to 36	37 to 40
3rd LDM-E32	41 to 44	45 to 48	49 to 52	53 to 56

LDM Module Address '02'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	57 to 60	61 to 64	65 to 68	69 to 72
1st LDM-E32	73 to 76	77 to 80	81 to 84	85 to 88
2nd LDM-E32	89 to 92	93 to 96	97 to 99	Not used

Table D.2 Alarm/Trouble Setup - Detectors - without 8-Point Shift

Modules

Set addresses '03' and '04' for modules.

LDM Module Address '03'	LDM Output Connectors			
	J5	J6	J7	J8
ADT-LDM-32	1 to 4	5 to 8	9 to 12	13 to 16
1st LDM-E32	17 to 20	21 to 24	25 to 28	29 to 32
2nd LDM-E32	33 to 36	37 to 40	41 to 44	45 to 48
3rd LDM-E32	49 to 52	53 to 56	57 to 60	61 to 64

LDM Module Address '04'	LDM Output Connectors			
	J5	J6	J7	J8
ADT-LDM-32	65 to 68	69 to 72	73 to 76	77 to 80
1st LDM-E32	81 to 84	85 to 88	89 to 92	93 to 96
2nd LDM-E32	97 to 99	Not used	Not used	Not used

Table D.3 Alarm/Trouble Setup - Modules - without 8-Point Shift

Alarm/Trouble Annunciation of Points - With 8-Point Shift

The table below illustrates the configuration of the LDM Series modules to annunciate the alarm and trouble states for all 198 points (detectors and modules) with the last eight points of address '01' dedicated to the AFP-100 system functions.

Detectors

Set addresses '01' and '02' for detectors.

LDM Module Address '01'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	1 to 4	5 to 8	9 to 12	13 to 16
1st LDM-E32	17 to 20	21 to 24	25 to 28	29 to 32
2nd LDM-E32	33 to 36	37 to 40	41 to 44	45 to 48
3rd LDM-E32	49 to 52	53 to 56	System Functions	

LDM Module Address '02'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	57 to 60	61 to 64	65 to 68	69 to 72
1st LDM-E32	73 to 76	77 to 80	81 to 84	85 to 88

Table D.4 Alarm/Trouble Setup - Detectors - with 8-Point Shift

LDM Module Address '02'	LDM Output Connectors			
	J5	J6	J7	J8
2nd LDM-E32	89 to 92	93 to 96	97 to 99	Not used

Table D.4 Alarm/Trouble Setup - Detectors - with 8-Point Shift

Modules

Set address '03 and '04' for modules.

LDM Module Address '03'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	1 to 4	5 to 8	9 to 12	13 to 16
1st LDM-E32	17 to 20	21 to 24	25 to 28	29 to 32
2nd LDM-E32	33 to 36	37 to 40	41 to 44	45 to 48
3rd LDM-E32	49 to 52	53 to 56	57 to 60	61 to 64

LDM Module Address '04'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	65 to 68	69 to 72	73 to 76	77 to 80
1st LDM-E32	81 to 84	85 to 88	89 to 92	93 to 96
2nd LDM-E32	97 to 99	Not used	Not used	Not used

Table D.5 Alarm/Trouble Setup - Modules - with 8-Point Shift

Alarm Only Annunciation of Points

The table below illustrates the configuration of the LDM Series modules to annunciate the alarm state of all 198 points (detectors and modules) with the first eight points of address '01' dedicated to the AFP-100 system functions.

Detectors

Set address '01' and '02' for detectors.

LDM Module Address '01'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	System Functions	1 to 8	9 to 16	17 to 24
LDM-E32	25 to 32	33 to 40	41 to 48	49 to 56

LDM Module Address '02'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	57 to 64	65 to 72	73 to 80	81 to 88
LDM-E32	89 to 96	97 to 99	Not used	Not used

Table D.6 Alarm Only Setup - Detectors

Modules

Set address '03' and '04' for modules.

LDM Module Address '03'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	1 to 8	9 to 16	17 to 24	25 to 32
LDM-E32	33 to 40	41 to 48	49 to 56	57 to 64

LDM Module Address '04'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	65 to 72	73 to 80	81 to 88	89 to 96
LDM-E32	97 to 99	Not used	Not used	Not used

Table D.7 Alarm Only Setup - Modules

Alarm Only Annunciation of Points - With 8-Point Shift

The table below illustrates the configuration of the LDM Series modules to annunciate the alarm state of all 198 points (detectors and modules) with the last eight points of address '01' dedicated to the AFP-100 system functions.

Detectors

Set address '01' and '02' for detectors.

LDM Module Address '01'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	1 to 8	9 to 16	17 to 24	25 to 32
LDM-E32	33 to 40	41 to 48	49 to 56	System Functions

LDM Module Address '02'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	57 to 64	65 to 72	73 to 80	81 to 88
LDM-E32	89 to 96	97 to 99	Not used	Not used

Table D.8 Alarm Only Setup - Detectors - with 8-Point Shift

Modules

Set address '03' and '04' for modules.

LDM Module Address '03'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	1 to 8	9 to 16	17 to 24	25 to 32
LDM-E32	33 to 40	41 to 48	49 to 56	57 to 64

LDM Module Address '04'	LDM Output Connectors			
	J5	J6	J7	J8
LDM-32	65 to 72	73 to 80	81 to 88	89 to 96
LDM-E32	97 to 99	Not used	Not used	Not used

Table D.9 Alarm Only Setup - Modules - with 8-Point Shift

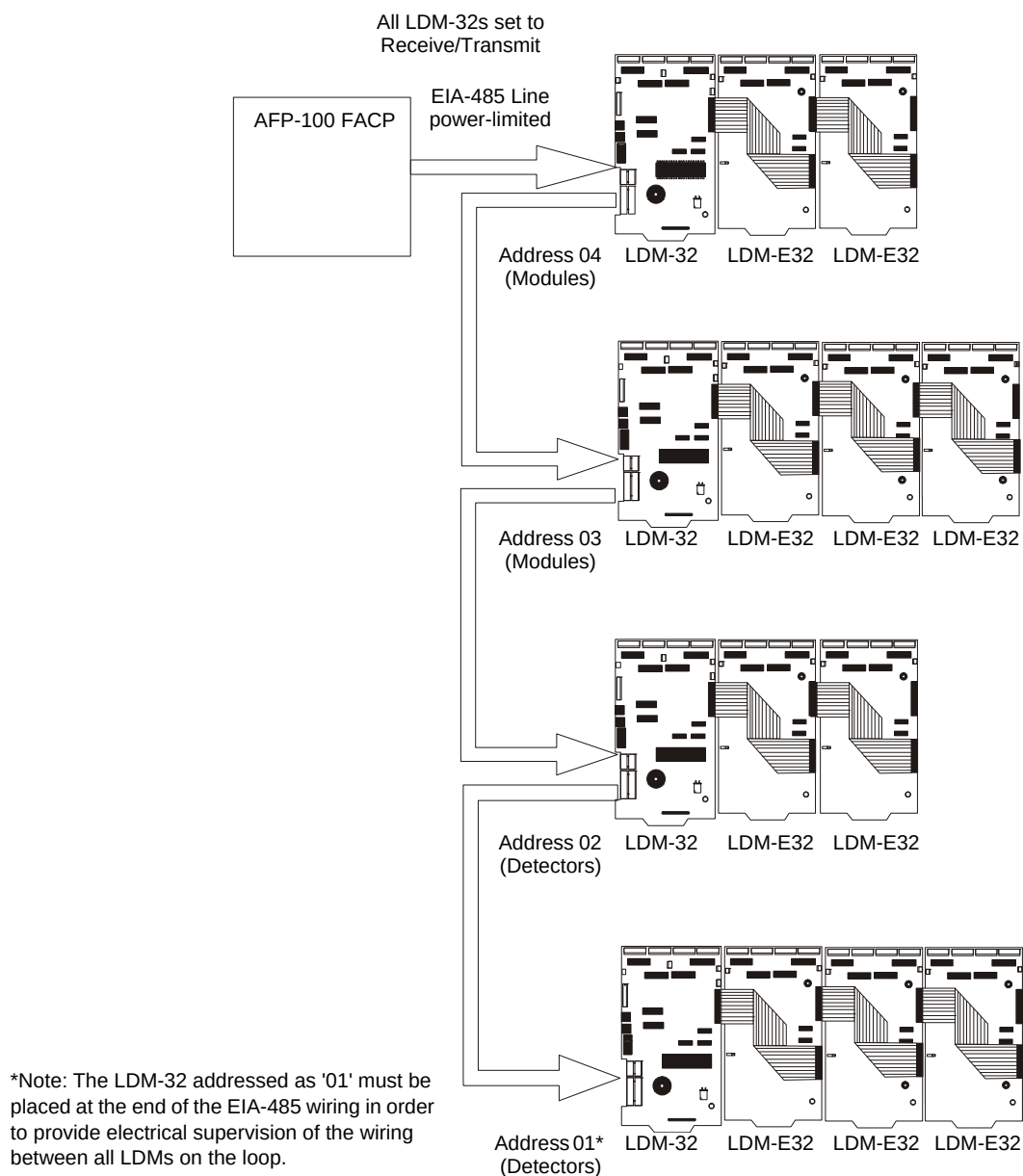


Figure D.5 Configuration for 198 Point Alarm & Trouble Annunciation

Appendix E: AFP-200 (UL 8th)

E.1 Capabilities

When installed with an AFP-200, LDM Series modules can annunciate the status of 99 software zones and several system control functions. Each lamp driver output is automatically assigned to one and only one system I/O point:

- Software Zones
 - Intelligent Detectors
 - MMX Monitor Modules
 - CMX Control Modules
 - BGX Addressable Manual Pull Stations
- System Control Switches
 - Acknowledge
 - Signal Silence
 - System Reset
 - Drill

E.2 Trouble Indication

Communication between the AFP-200 and the LDMs is accomplished over a two-wire EIA-485 serial communication bus. The EIA-485 is supervised by the AFP-200. Loss of communication results in System Trouble and Annunciator 1 (2) No Answer message on the panel's 80 character LCD display.

E.3 Lamp/LED Driver Operation

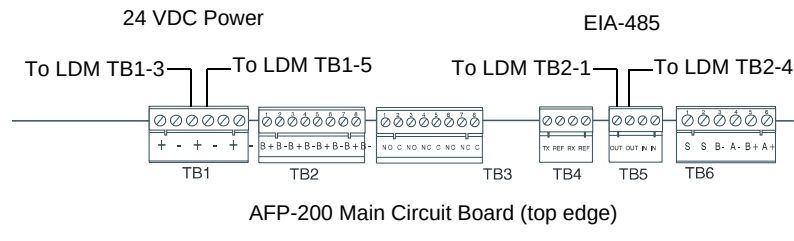
Lamp Driver outputs do not latch - they track or follow the status of those point they are programmed to annunciate. Table E.1 outlines the annunciation of the various zones and functions.

E.4 Programming for Remote Annunciation

After complete installation, the LDM must be programmed into the AFP-200 before it will function. Program the LDM as if it were an ACS annunciator. Refer to the AFP-200 Programming Manual, Document 15511.

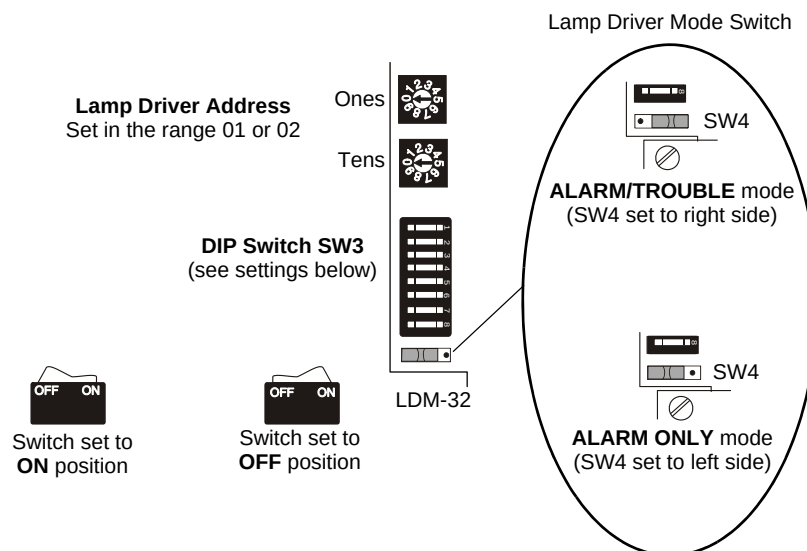
E.5 Installation Requirements

Regulated power (24 VDC) and the EIA-485 circuit that communicates with the LDMs must be connected to the AFP-200 as illustrated below.



For more information on annunciator operation and FACP programming under various specific applications, refer to the AFP-200 documents referenced in Section 1.3, "Related Documentation", on page 7.

E.6 Configuration for the LDM-32 and AFP-200



LDM-32 DIP Switch (SW3) settings (for AFP-200):

1. **Relay Control:** Future Use - this switch must be set OFF on the AFP-200.

NoneOneTwoThree

2. Number of LDM-E32 Expanders Installed: OFF ON OFF ON
3. **Number of LDM-E32 Expanders Installed:** OFF OFF ON ON
4. **8-Point Shift:** Set switch ON to shift AFP-200 LED function annunciation from the first eight annunciator positions on the LDM-32 to the third LDM-E32 expander positions 57 - 64. This shift can only be set on an LDM-32 set for address 1 (system using less than 56 software zones).
5. **Receive Only:** Set this switch ON for each LDM series that will provide the same information as another LDM series in a different physical location (when two or more sets of LDM series have the same address, all but one must be configured as Receive Only.)
6. **Piezo Disable:** Set this switch ON to disable the piezo from sounding for any event.
7. **Switch Inhibit:** To disable the point I/O control switches on the LDMs from functioning, set this switch ON. When inhibited, the switches will serve as local Lamp Test switches only. In addition, the **Acknowledge/Lamp Test** switch will function only in a local capacity, unrecognized by the host AFP-200.
8. **Flash Inhibit:** Set this switch ON to disable the flashing of LEDs associated with unacknowledged events. Flash Inhibit also disables the piezo from sounding. Flash inhibit must be ON when using the relay expander module (LDM-R32).

Alarm and Trouble Mode Without 8-Point Shift

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	ACK	not used	not used	not used
2	SIG.SIL.	not used	not used	not used
3	RESET	not used	not used	not used
4	DRILL	not used	not used	not used
5	not used	not used	not used	not used
6	not used	not used	not used	not used
7	not used	not used	not used	not used
8	not used	not used	not used	not used
9	not used	not used	not used	not used
10	not used	not used	not used	not used
11	not used	not used	not used	not used
12	not used	not used	not used	not used
13	not used	not used	not used	not used
14	not used	not used	not used	not used
15	not used	not used	not used	not used
16	not used	not used	not used	not used

A second LDM-32 set to address 02 with expanders would not support control switches.

Alarm and Trouble Mode With 8-Point Shift

It is assumed that systems with 8-Point Shift selected will be 56 zones or less.

LDM Switch Position	LDM-32	1st LDM-E32	2nd LDM-E32	3rd LDM-E32
1	not used	not used	not used	not used
2	not used	not used	not used	not used
3	not used	not used	not used	not used
4	not used	not used	not used	not used
5	not used	not used	not used	not used
6	not used	not used	not used	not used
7	not used	not used	not used	not used
8	not used	not used	not used	not used
9	not used	not used	not used	ACK
10	not used	not used	not used	SIG.SIL.
11	not used	not used	not used	RESET
12	not used	not used	not used	DRILL
13	not used	not used	not used	not used
14	not used	not used	not used	not used
15	not used	not used	not used	not used
16	not used	not used	not used	not used

Table E.1 LDM Series Switch Control Functions

Figure E.1 illustrates configuration of the LDM to annunciate the Active state of all 99 software zones (no zone troubles) with the first eight points (P1 through P8) dedicated to the AFP-200 system function LEDs listed below.

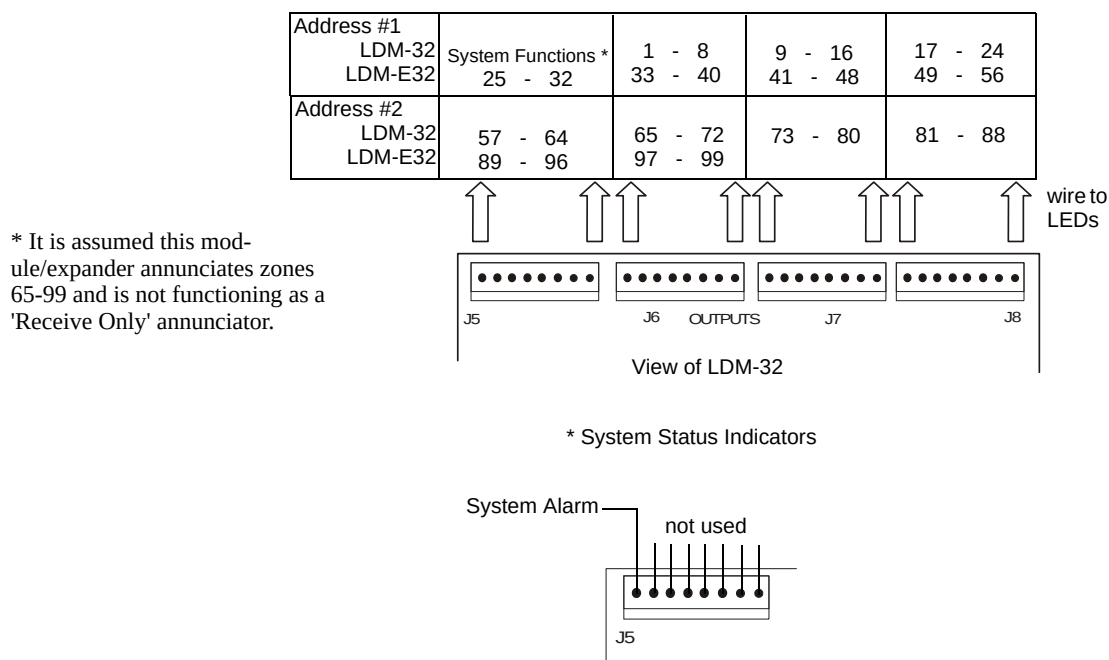
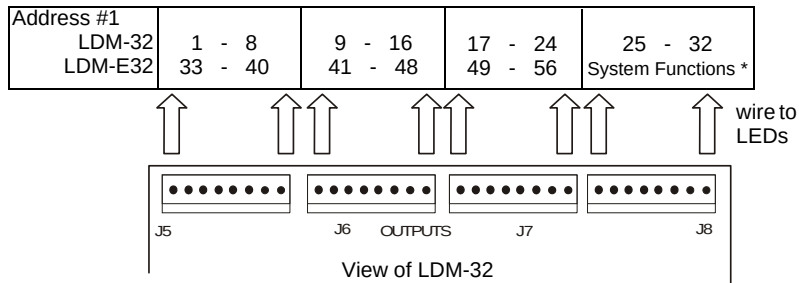


Figure E.1 Display Active Status of Software Zones Only

Figure E.2 illustrates configuration of the LDM to annunciate the Active state for up to 56 zones (no zone troubles) with the last eight points (P57 through P64) dedicated to the AFP-200 system function LEDs listed below.



*It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 software zones or a total of 64 annunciator points or less.

* System Status Indicators

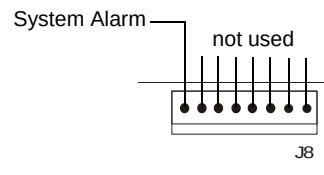
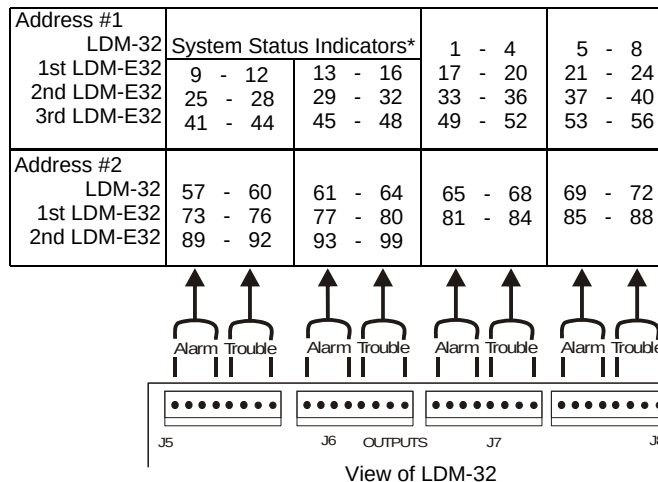


Figure E.2 Active Status of Software Zones with 8-Point Shift

Figure E.3 illustrates wiring the LDM to annunciate the active and trouble states for all 99 zones with the first eight points (J5: P1 through P8 and J6: P1 through P8) dedicated to AFP-200 functions listed below.



It is assumed that this module/expander annunciates points 64-99.

Zones 90-99 are special function zones:

- Z90 Presignal Time Run
- Z91 Time Started/Release
- Z92 Time Started/Release
- Z93 Time Started/Release
- Z94 Time Started/Release
- Z95 Time Ctl Active
- Z96 Time Ctl Active
- Z97 Holiday Active
- Z98 Tornado
- Z99 Pre-alarm

* System Status Indicators

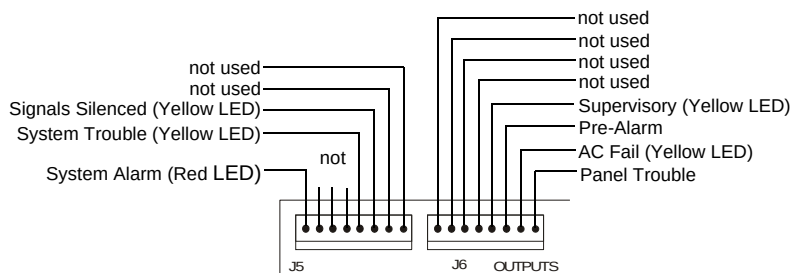
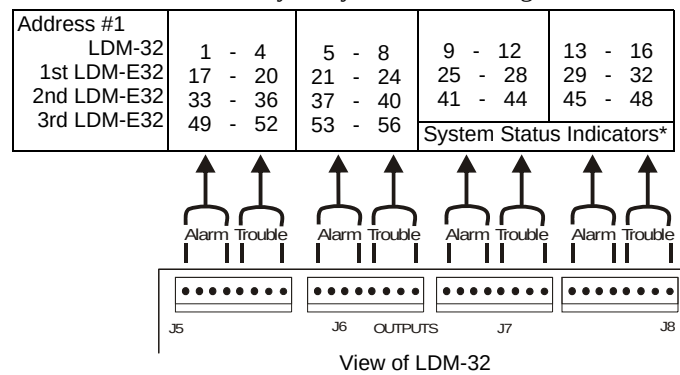


Figure E.3 Activation and Trouble Status Annunciation

Figure E.4 illustrates configuration for the LDM to annunciate active and trouble states for the first 56 software zones with the last eight points (16 LEDs) dedicated to the AFP-200 functions listed below.

It is assumed that the '8-Point Shift' will be selected only on systems containing less than 56 circuits.



* System Status Indicators

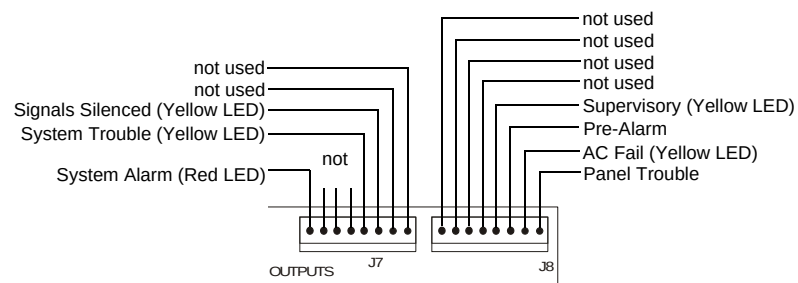


Figure E.4 Activation/Trouble Operation With 8-Point Shift

Appendix F: NFS2-640 (UL 9th), NFS-320 (UL 9th), AFP-300/400, (UL 8th) or NFS-640 (UL 8th)

F.1 Capabilities

The AFP-300/400, NFS-640, NFS2-640, and NFS-320 fire alarm control panels (FACPs) are capable of supporting LDM annunciator addresses 01 to 19. All releases of AFP-300/400, NFS-640, NFS2-640, and NFS-320 software can support LDM modules; no special software is required. The LDM can be assigned to any of the 576 panel annunciation points. Each LDM module covers continuous groups of eight panel points.

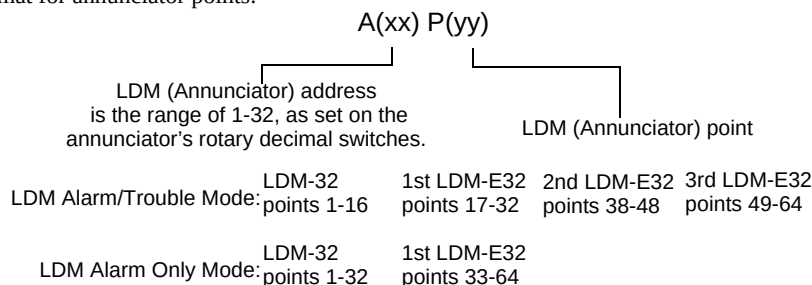
The FACP uses ACS annunciator addresses 01 to 19 when a UDACT is not installed and addresses 01 to 10 with a UDACT installed. Each address can communicate with one Receive/Transmit device. A maximum of 32 devices can be connected to the ACS output, all addresses combined.

When installed with the AFP-300/400, NFS-640, NFS2-640, or NFS-320, LDM Series modules can annunciate the status of 99 software zones and several system control functions. Each lamp driver output is automatically assigned to one and only one system I/O point:

- Software Zones
 - Intelligent Detectors
 - Addressable Monitor and Control Modules
 - NBG-12LX Addressable Manual Pull Stations
- System Control Switches
 - Acknowledge
 - Signal Silence
 - System Reset
 - Drill

F.2 Annunciator Programming

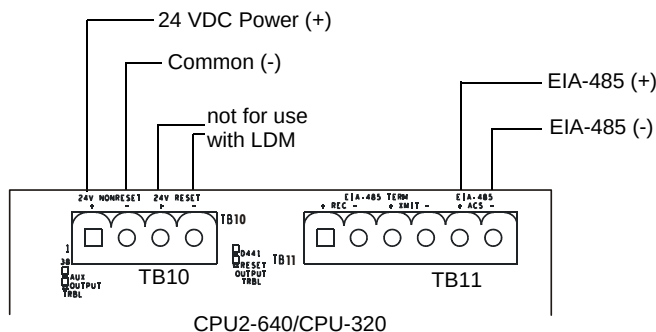
LDM points must be programmed from the FACP before the LDM will function. The AFP-300/400, NFS-640, NFS2-640, and NFS-320 employ the following format for annunciator points:



For programming the Lamp Driver Series into the FACP's memory, for mapping system points and software zones to annunciator points, and for details about ACS Selection Groups, refer to the appropriate FACP documents referenced in Section 1.3, "Related Documentation", on page 7.

F.3 NFS2-640 and NFS-320 Connections

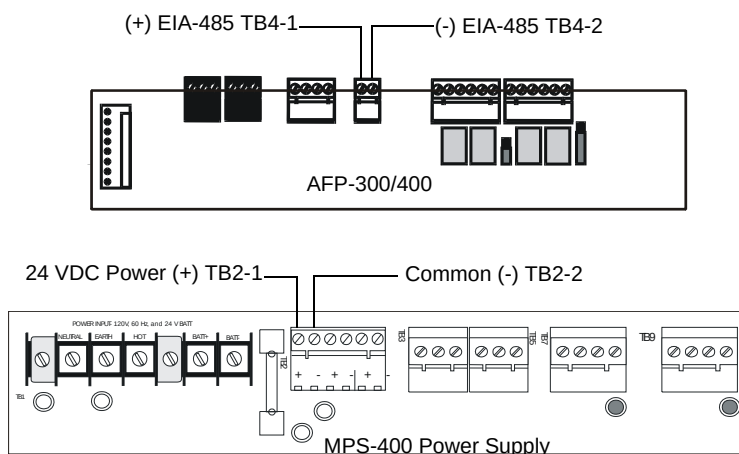
The EIA-485 connections are made to TB11 on the CPU2-640 or CPU-320 as shown. 24 VDC power-limited non-resettable power for the LDM is available from TB10 on the CPU2-640 or CPU-320. Do not use the two pins on TB10 marked "resettable".



For more information on annunciator operation and FACP programming under various specific applications, refer to the NFS2-640 and NFS-320 documents referenced in Section 1.3, "Related Documentation", on page 7.

F.4 AFP-300/400 Connections

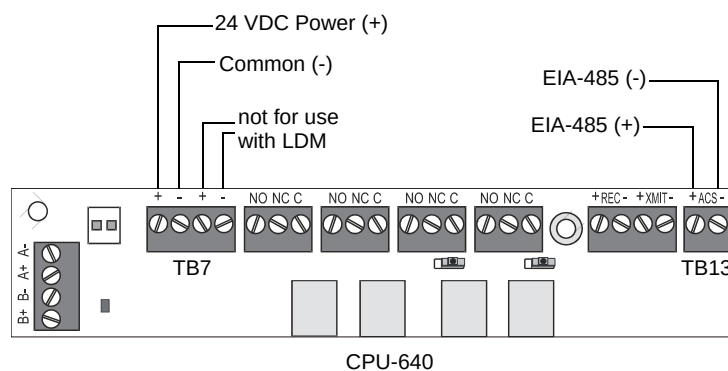
The EIA-485 connections are made to TB4-1 (+) and TB4-2 (-) on the AFP-300/400. Filtered, nonresettable power for the LDM may be obtained from TB2-1 (+) and TB2-2 (-) on the AFP-300/400.



For more information on annunciator operation and FACP programming under various specific applications, refer to the AFP-300/400 documents referenced in Section 1.3, “Related Documentation”, on page 7.

F.5 NFS-640 Connections

The EIA-485 connections are made to TB13 on the CPU-640 as shown. 24 VDC power-limited non-resettable power for the LDM is available from TB7 on the CPU-640. Do not use the two pins on TB7 marked “resettable”.



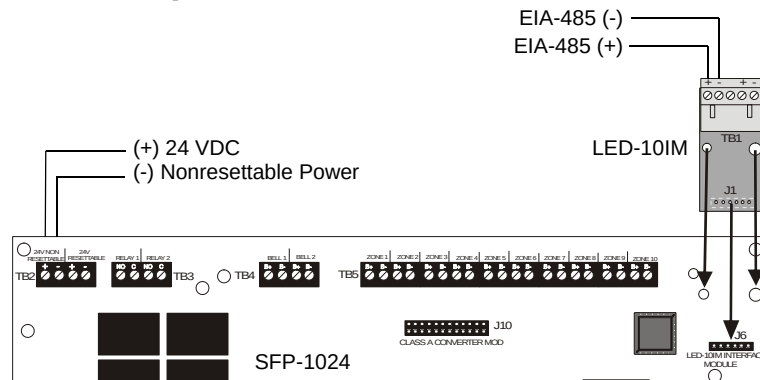
For more information on annunciator operation and FACP programming under various specific applications, refer to the NFS-640 documents referenced in Section 1.3, “Related Documentation”, on page 7.

Appendix G: SFP-1024 (UL 8th)

G.1 Capabilities

When installed with an SFP-1024 Fire Alarm Control Panel (FACP), the LDM annunciator is used to provide an interface to a custom graphic annunciator. All releases of SFP-1024 software can support LDM modules, no special software is required. The LDM can be assigned to any of the panel annunciation points.

An LED-10IM Interface Module is required on the SFP-1024 to allow connection of annunciators to the panel. A maximum of 32 devices can be connected to the EIA-485 output of the LED-10IM Module.



For more information on annunciator operation and FACP programming under various specific applications, refer to the SFP-1024 documents referenced in Section 1.3, “Related Documentation”, on page 7.

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