

MPC-6000 / MPC-7000 / RND-2

Fire Alarm System Control Unit

Installation, Operation and Maintenance Manual

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INTRODUCTION

CONTROL UNIT LIMITATIONS

This control unit may not show an alarm condition without compatible initiating devices (smoke detectors, etc.) and notification devices (horn, lights, etc.) connected to it. Electrical ratings of the initiation and notification appliances must be compatible with the electrical ratings of the control unit and must be properly interconnected. The wiring used for interconnection must be large enough to carry the total current for all appliances without excessive voltage drop. The RND-2 will not indicate alarm conditions without being connected to and configured correctly on an MPC-NET2 network.

The control unit must be connected to a dedicated primary electrical source that has a high degree of reliability and adequate capacity for this control unit. The only means of disconnecting this power source shall be available only to authorized personnel and clearly marked "Fire Alarm Circuit Control".

The control unit must also have connected to it a battery set (24V) that has enough capacity to properly operate the system for 24 or 60 (depending on system type) hours standby and 5 minutes alarm per NFPA 72 (chapter 1). These batteries do lose capacity with age. Batteries must be replaced when they fail to provide the control unit with the required standby and alarm power or after 4 years, whichever happens first. These batteries must be checked for performance at least two (2) times a year or more often if local requirements dictate.

Fire alarm control units cannot last forever. Even though this control unit was made to last for the expected life of the fire alarm system, any part could fail at any time. Therefore a regular test program should be followed and documented to make sure that each part of the system is tested as in Chapter 7 of NFPA 72 or more often if dictated by local code requirements. Malfunctioning units must be replaced or repaired immediately by factory authorized service personnel.



This control unit is designed to show an alarm condition when the initiating devices connected to it detect specific conditions. These conditions may or may not represent a life-threatening condition. Also, evacuation of a building or area unnecessarily may subject individuals to an unnecessary hazard. Therefore, it is most important that the building owner, manager, or representative promulgate, distribute, and/or post instructions describing steps to be taken when the fire alarm control unit signals an alarm condition. These instructions should be developed in cooperation and conformance with representatives of the local authority having jurisdiction.

As a backup or precautionary measure, it is strongly suggested that one of these steps should be to notify the local fire department of an abnormal condition even where the DACT option (or similar device) is included in the system.

INSTALLATION AND WARRANTY INFORMATION

Warranty Information: Faraday (the Manufacturer) provides a limited warranty to the original purchaser of this product. The original purchaser is the party to whom the manufacturer issued its sales order, generally the manufacturer's distribution. In order to preserve this warranty, it is important that only persons who have been properly trained and authorized by the manufacturer service the product.

Other parties involved in the installation of this product may have also provided a warranty, which may be different from that of the manufacturer. The manufacturer will only be responsible to the original purchaser and only for the manufacturer's own warranty. For further information regarding the manufacturers warranty, contact the original purchaser.

OWNER'S MANUAL: The owner's manual does not purport to cover all the details or variations in the equipment described, nor does it provide for every possible contingency to be met in connection with installation, operation and maintenance. All specifications subject to change without notice. Should further information be desired or should particular problems arise which are not covered sufficiently, the matter should be referred to the installer or original purchaser listed below.

Installer Information:

Installer: _____
Company: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____
Date installed: _____

Installer's signature: _____

Original Purchaser Information:

Company: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____
Date purchased: _____
Purchaser's purchase order number: _____
Faraday sales order acknowledgment number: _____

Original purchaser's signature: _____

PREFACE

Along with the use of this instruction manual, the appropriate following standards and the manufacturer's instructions for initiating and notification devices should be used to install and maintain a functioning fire alarm signaling system.

NFPA 70 National Electrical Code

NFPA 72 National Fire Alarm Code

NFPA 101 Life Safety Code

For other standards that may apply contact the authority having jurisdiction.

For NFPA publications, contact:

National Fire Protection Association
Batterymarch Park
Quincy, Massachusetts 02269

DESCRIPTIONS

MPC-6000 SYSTEM DESCRIPTION

The MPC-6000 is a modular fire alarm control unit. It features advanced addressable detection, programming, and memory capability. Its base configuration includes a power supply, an X1 addressable device circuit, four/two notification circuits (NAC), serial interface circuit, four status relays and a programming port.

The MPC-6000 control unit mounts in a 22" x 18" backbox with overall cover size of 22-9/32" x 18-3/8". Operating controls and indicators are mounted on the inside hinged plate. An 80 (4x20) – alphanumeric character LCD provides specific indications for addressable devices while LEDs indicate general panel status.

Semi-flush mounting kits are available for the enclosure.

The main board mounts in the rear of the enclosure. The power supply is physically contiguous with the main board. The MPC-6000 main board (MPC6-MB) provides the connections for external field wiring. Optional boards mount on the main board or on the rear of the enclosure.

The display board mounts on the inner-hinged plate.

All normal operation is controlled via a membrane keypad. Displays are provided by an 80-character, alphanumeric, backlit LCD display and by discrete LED indicators for major control unit functions.

The 80-character LCD is used to display event data, including alarms and troubles, identification of zone or device, and presentation of history. The display is controlled by a set of four push-button switches commanding the control processor. A back light is included in the display to assure visibility in low light, but to conserve power, it is only activated during a reported event or on operation of a display control switch.

Individual LEDs on the panel are provided to indicate SYSTEM ALARM, PREALARM, SUPERVISORY, ALARM SILENCED, SYSTEM TROUBLE and AC POWER ON. Direct push-button controls are provided for ALARM SILENCE, ACKNOWLEDGE, MENU and SYSTEM RESET.

Power Supply

A regulated fullwave rectified 24V nominal power supply provides all operating power to the control unit for both standby and alarm conditions. Sufficient battery charging capability is available to charge 38.5 AH sealed lead-acid batteries within code requirements for 60 hour quiescent plus 5 minutes alarm. The cabinet will hold batteries only up to 12 AH. The back-up battery is 24V, maintained by floating on the power supply. The battery will be automatically disconnected at low battery voltage to prevent deep discharge.

X1 Addressable Device Circuit

The MPC-6000 control unit has one addressable device circuit utilizing the X1 Detection Technology. The circuit has the capacity for 252 addresses.

Notification Appliance Circuits

The MPC-6000 control unit has four independent Class B (Style Y) notification appliance circuits (NACs). Pairs of NACs can be combined for Class A (Style Z) operation. This reduces the number of NACs to two. Each circuit can be selected to give continuous output or one of eight sounding patterns available in the control unit including the Faraday SYNC Protocol. There is also a system coder capable of zone-coded operation. All of the NACs are power limited.

Serial Interface Circuit

The MPC-6000 control unit has a Serial Interface Circuit that will drive up to 16 remote LCD annunciators and 8 Serial Relay Units and Serial Annunciator Units.

Status Relays

Four relays with dry contacts are provided. These relays are programmable to power fail, alarm, trouble and supervisory functions. The relay contacts are Form C and are rated 1A @ 28VDC resistive.

Programming Port

An RJ-11 jack is provided for a non-isolated RS-232 connection for temporary connection to a computer for panel programming.

MPC-7000 SYSTEM DESCRIPTION

The MPC-7000 is an expandable modular fire alarm control unit. It features advanced addressable detection, programming, and memory capability. Its base configuration includes a power supply, two X1 addressable device circuits, four/two notification circuits (NAC), serial interface circuit, four status relays and a programming port.

The basic MPC-7000 control unit mounts in a 38" x 18" backbox with overall cover size of 38-9/32" x 18-3/8". Operating controls and indicators are mounted on the plate with a polycarbonate decal for identification. An 80-character LCD provides specific indications for addressable devices while LEDs indicate general panel status.

Semi-flush mounting kits are available for the enclosure.

The main board mounts in the rear of the enclosure. The power supply is physically contiguous with the main board. The MPC-7000 main board (MPC7-MB) provides the connections for external field wiring and connection points for optional modules. Optional boards mount on the main board or mount on the rear of the enclosure.

The display board and controls mount on the inner-hinged plate.

All normal operation is controlled from the front of the control unit via push-button switches. Displays are provided by an 80-character, alphanumeric, backlit LCD display and by discrete LED indicators for major control unit functions.

The 80-character LCD is used to display event data, including alarms and troubles, identification of zone or device, and presentation of history. The display is controlled by a set of four push-button switches commanding the control processor. A backlight is included in the display to assure visibility in low light, but to conserve power, it is only activated during a reported event or on operation of a display control switch.

Individual LEDs on the panel are provided to indicate SYSTEM ALARM, PREALARM, SUPERVISORY, ALARM SILENCED, SYSTEM TROUBLE and AC POWER ON. Direct push-button controls are provided for ALARM SILENCE, ACKNOWLEDGE, MENU and SYSTEM RESET.

Power Supply

A 24V nominal power supply provides all operating power to the control unit for both standby and alarm conditions. Sufficient battery charging capability is available to charge 38.5 AH sealed lead-acid batteries within code requirements for 60 hour quiescent plus 5 minutes alarm. The cabinet will hold batteries only up to 18 AH. The back-up battery is 24V, maintained by floating on the power supply. The battery will be automatically disconnected at low battery voltage to prevent deep discharge.

X1 Addressable Device Circuits

The MPC-7000 control unit has two addressable device circuits (expandable to three or four), utilizing the X1 Detection Technology. Each circuit has the capacity for 252 addresses.

Notification Appliance Circuits

The MPC-7000 control unit has four (expandable to twelve) independent Class B (Style Y) notification appliance circuits (NACs). Pairs of NACs can be combined for Class A (Style Z) operation. This reduces the number of NACs to two (six). Each circuit can be selected to give continuous output or one of eight sounding patterns available in the control unit including the Faraday SYNC Protocol. There is also a system coder capable of zone-coded operation. All of the NACs are power limited.

Serial Interface Circuit

The MPC-7000 control unit has a Serial Interface Circuit that will drive up to 16 remote LCD annunciators and 8 Serial Relay Units and Serial Annunciator Units.

Status Relays

Four relays with dry contacts are provided. These relays are programmable to power fail, alarm, trouble and supervisory functions. The relay contacts are Form C and are rated 1A @ 28VDC resistive

Programming Port

An RJ-11 jack is provided for a non-isolated RS-232 connection for temporary connection to a computer for panel programming.

RND-2 SYSTEM DESCRIPTION

The RND-2 is a Remote Network Display designed to connect to a Faraday MPC-NET2 Network. It features advanced programming, and memory capability. Its base configuration includes a power supply, serial interface circuit, four status relays and a programming port.



In a system with multiple panels connected via the MPC-NET2, the RND is used to Acknowledge, Silence and Reset the total system.

The RND-2 Network annunciator mounts in a 22" x 18" backbox with overall cover size of 22-9/32" x 18-3/8". Operating controls and indicators are mounted on the inside hinged plate. An 80 (4x20) – alphanumeric character LCD provides specific indications for addressable devices while LEDs indicate general panel status.

Semi-flush mounting kits are available for the enclosure.

The main board mounts in the rear of the enclosure. The power supply is physically contiguous with the main board. The RND-2 main board (MPC6-MB) provides the connections for external field wiring. Optional boards mount on the main board or on the rear of the enclosure.

The display board mounts on the inner-hinged plate.

All normal operation is controlled via a membrane keypad. Displays are provided by an 80-character, alphanumeric, backlit LCD and by discrete LED indicators for major control unit functions.

The 80-character LCD is used to display event data, including alarms and troubles, identification of zone or device, and presentation of history. The display is controlled by a set of four push-button switches commanding the control processor. A back light is included in the display to assure visibility in low light, but to conserve power, it is only activated during a reported event or on operation of a display control switch.

Individual LEDs on the panel are provided to indicate SYSTEM ALARM, PREALARM, SUPERVISORY, ALARM SILENCED, SYSTEM TROUBLE and AC POWER ON. Direct push-button controls are provided for ALARM SILENCE, ACKNOWLEDGE, MENU and SYSTEM RESET.

Power Supply

A regulated fullwave rectified 24V nominal power supply provides all operating power to the control unit for both standby and alarm conditions. Sufficient battery charging capability is available to charge 38.5 AH sealed lead-acid batteries within code requirements for 60 hour quiescent plus 5 minutes alarm. The cabinet will hold batteries only up to 12 AH. The back-up battery is 24V, maintained by floating on the power supply. The battery will be automatically disconnected at low battery voltage to prevent deep discharge.

Serial Interface Circuit

The RND-2 control unit has a Serial Interface Circuit that will drive up to 16 remote LCD annunciators and 8 Serial Relay Units and Serial Annunciator Units.

Status Relays

Four relays with dry contacts are provided. These relays are programmable to power fail, alarm, trouble and supervisory functions. The relay contacts are Form C and are rated 1A @ 28VDC resistive.

Programming Port

An RJ-11 jack is provided for a non-isolated RS-232 connection for temporary connection to a computer for panel programming.

OPTIONAL MODULES

CT-1K City Tie Board (MPC-6000 / MPC-7000 / RND-2)

The Faraday CT-1K city tie board provides local energy and polarity reversal connections. The polarity reversal connections provide a trouble circuit and an alarm circuit with optional trouble output. The CT-1K mounts onto the main termination board. (Cannot be used in conjunction with a DACT Board).

MPC-DACT DACT Board (MPC-6000 / MPC-7000 / RND-2)

The Faraday MPC-DACT Digital Alarm Communication Transmitter board will send control unit status data to a remote receiving station. The MPC-DACT mounts onto the main termination board (Cannot be used in conjunction with the City Tie Board).

NPE-1 Transformer Assembly (MPC-6000 / MPC-7000)

The Faraday NPE-1 optional transformer assembly provides an additional 3 amps of NAC power. The transformer mounts in the cabinet above the two transformers that come standard with the MPC-6000 / MPC-7000. A maximum of one optional NPE-1 is allowed per system.

NEM-1 NAC Expansion Board (MPC-7000)

The NEM-1 NAC Expansion Board has eight independent Class B (Style Y) notification appliance circuits (NACs). Pairs of NACs can be combined for Class A (Style Z) operation. This reduces the number of NACs to four. Each circuit can be selected to give continuous output or one of eight sounding patterns available in the control unit including the Faraday SYNC Protocol. There is also a system coder capable of zone-coded operation. All of the NACs are power limited. Maximum of one NAC Expander board per MPC-7000 system.

LEM-1 Loop Expander Board (MPC-7000)

The LEM-1 has circuitry for the addition of an additional two FDLC Loop Driver boards to a MPC-7000 panel. (FDLC Loop Driver Boards are not included). A maximum of one Loop Expander Board is allowed per MPC-7000 system.

FDLC Loop Driver Board (MPC-7000)

The FDLC has one addressable device circuit that is programmed for connection to Faraday addressable devices using the X1. The circuit has the capacity for 252 addresses. A maximum of four FDLC boards per MPC-7000 panel is allowed. (Loops 3 and 4 require a LEM-1 Loop Expander Board.)

HBC-1 Battery Charger (MPC-7000)

The HBC-1 is an optional battery charger to increase the charging capacity of the MPC-7000 to 100AH lead acid batteries.

Battery Sets

The MPC-6000 / MPC-7000 / RND-2 control units are designed to use only sealed lead-acid or equivalent batteries for back-up power. Attaching a close-coupled battery box, if required, may allow use of battery sets beyond the physical capacity of the enclosure (12AH for the MPC-6000 and 18AH for the MPC-7000). Maximum battery charging capacity for the MPC-6000 is 38.5AH. Maximum battery charging capacity for the MPC-7000 is 38.5AH. (100AH with the optional battery charger HBC-1.)

AUXILIARY MODULES

Serial LCD Annunciator

The RDC-2 Serial LCD Annunciator consists of a backlit 80 character LCD alphanumeric display, 4 menu buttons, 4 dedicated buttons for operator interaction, 6 LED indicators, and a security key-switch. The display and controls on the annunciator are the same as those on the front of the control unit, including a key-switch for security. The backlight operates only when the data are being accessed, to conserve power. Up to sixteen annunciators may be addressed by the communications circuit, but some may require additional RSE-300 auxiliary power supplies, depending on the total accessory power loading.

Serial Relay Unit and Serial Relay Extender

The SRU-2 Serial Relay Unit includes a processor board and a relay board. The processor board receives commands from the control unit for activating the relays and transmits supervision and control functions to the control unit. The processor board can control up to 3 relay boards. Each relay board provides 8 relays with Form C contacts. The control unit can address up to 8 Serial Relay Units and/or Serial Annunciator Units. RSE-300 auxiliary power supplies will be required to power units beyond the control unit capability.

Serial Annunciator Unit and Serial Annunciator Extender

The SLU-2 Serial Annunciator Unit includes a processor board and an annunciator driver board. The processor board receives commands from the control unit for activating the outputs and transmits supervision and control functions to the control unit. The processor board can control up to 4 annunciator driver boards. Each driver board provides 16 supervised outputs for LEDs or incandescent lamps. The control unit can address up to 8 Serial Relay Units and/or Serial Annunciator Units. RSE-300 auxiliary power supplies will be required to power units beyond the control unit capability.

RSE-300 Remote Signal Expander

The RSE-300 is a notification appliance circuit expander with a built-in auxiliary power output. This power source is designed to provide power for notification appliances, door holders and 4-wire smoke detectors. The RSE-300 provides 6 amps of 24 VDC power for multiple uses. All 6 amps can be directed to 4 Notification Appliance Circuits (NACs). Each is rated at 3 amps and is power limited. Either 1 or 2 inputs can control the four outputs. These outputs are compatible with Faraday notification appliances.

The RSE-300 can be configured so that the inputs can be programmed to provide steady outputs, ANSI temporal outputs, or Faraday SYNC protocol for synchronized horn/strobe outputs. It can also be programmed to silence Faraday sync horns while the sync strobes remain on, using two wires. This requires a silenceable and non-silenceable input.

The RSE-300 also offers a 3 amp auxiliary output for driving other portions of your fire alarm system.

X1 ADDRESSABLE DEVICES

Fire Smart™ Smoke Detector

The control unit processor sends the sensitivity and pre-alarm settings to the detectors and polls the detectors as to their status. The detector determines normal, trouble, pre-alarm or alarm conditions and communicates the status to the control unit.

- Variable Thesholds - The detectors can be set to operate in various pre-programmed optimizations, depending on installation locations.
- Operator Alerts - The control unit can trigger an alarm or trouble automatically on the occurrence of a number of conditions of the detector. These include:
 - Maintenance alert
 - Pre-alarm alert
 - No response
 - Incorrect response

Heat Detectors

Addressable heat sensing detectors may be intermixed on the circuit for locations where heat sensing may be the most effective detection mode. The heat detectors may be programmed, through the control unit, for rate of rise operation.

Addressable Modules (Monitor and Control)

In addition to detectors, the circuit can communicate with addressable modules, allowing initiating devices or notification appliances with local power sources, and supervising the power sources.

Manual Stations

Addressable manual stations may be intermixed on the circuit with proper response programmed into the control unit.

Programming X1 Devices

X1 devices can be programmed in the following manner:

- 8720 Device Programmer/ Loop Tester - Refer to the 8720 User's Manual, P/N 315-033260FA, for further information.
- MPC-6000 / MPC-7000 / RND-2 Panel Keypad – Refer to the MPC-6000 / MPC-7000 / RND-2 Programmer's Manual, P/N 315-049403FA, for detailed information of system programming. Used only for field removal and reinstallation of individual devices.

EVENT HISTORY

The control unit includes a non-volatile memory recording up to 2000 system events. Identified alarm, trouble, supervisory trouble and other significant events will be recorded along with the date and time of occurrence and can be inspected by operating front panel push buttons.

Events recorded in the history are:

- Alarm, Trouble or Supervisory conditions.
- Drill, Recall and General Evacuation.
- Activation of NACs or modules used for sounders or strobes.
- Unit used for command functions. (Silence, acknowledge, reset, etc.)
- PAS_INHIBIT switch activation.
- Alarm silence (manual and automatic).
- System reset.
- Power up.
- Entry to Programmer Mode.
- Back-up configuration edited.
- Validity check on backup configuration. (Errors detected or no errors detected)
- Running of comparison function. (Same or different)
- Replacement of primary configuration.
- Execution of Auto-program.
- Exit from Programmer Mode.
- System time or date change.
- Input point disable/enable.
- Start and stop of walk test.
- Expiration of Walk Test Timer.
- Expiration of re-ring timer.
- Alarm/trouble/supervisory Acknowledgment.
- Trouble/supervisory restored to normal.
- Alarm verification counter rollover.
- Pre-alarm activation.
- Pre-alarm acknowledgment/restore.
- Alarm of zone with no outputs.
- Activation of points defined for logging.
- Detector maintenance alerts.

GENERAL DESIGN FEATURES

Environmental

All hardware is suitable for use in a dry, interior or protected location.

Power Limiting

The AC power and battery wiring are not power limited. All other circuits leaving the control unit are power limited, provided the proper installation rules are maintained.

Ground Fault Detection

The control unit provides system ground fault detection and is annunciated as a trouble condition on the system. In addition, each addressable loop circuit has its own ground detection circuitry and indicator.

System (+) Ground Fault Threshold = 40K Ω

System (-) Ground Fault Threshold = 300k Ω

Loop Circuit Ground Fault Threshold = 20k Ω

NAC Operation

The notification appliance circuits are commanded and controlled by a microprocessor to provide more versatility than in a total hardware system

- Output Sounding Patterns - The notification appliance circuits are operable in different sounding patterns. Any circuit is selectable to any of eight software-generated patterns or continuous sounding. For convenience, three of the patterns are preprogrammed for March Time, Temporal, and Faraday SYNC Protocol.
- Audible Silence Inhibit - In addition to designation of water flow zones, the entire control unit may be programmed to inhibit audible silence for 0, 1, 3, or 6 minutes from the last alarm. System reset may also be inhibited.

Transient Protection

Transient protection devices are provided to meet UL864 requirements.

Security Features

Processor control and addressing allow inclusion of several functions to assure security and proper programming of the system.

Multi-level password protection of programming functions prevents unauthorized configuration changes.

Device type supervision: If the type reported by an addressable detector or module does not agree with the configuration, the system reports a trouble.

Device address supervision: The system checks that all configured devices on the addressable device circuit and the Serial Interface Circuit responds to an address poll. If a configured device is missing, the system reports a trouble. The system also polls unused addresses periodically. If a device responds to such a poll of a non-configured device, the system reports a trouble. Two devices addressed the same also cause a trouble to be reported.

REGULATORY STANDARDS

The MPC-6000 / MPC-7000 control units and the RND-2 network annunciator meet the requirements of industry and government regulatory agencies as noted.

Federal Communications Commission

The MPC-DACT meets the Class A requirements of the Code of Federal Regulations (CFR 47), Part 15, for electromagnetic field emissions. The MPC-DACT also meets the requirements of the Code of Federal Regulations (CFR 47), Part 68, for connection of equipment to the public switched telephone network.

Underwriters Laboratories

The MPC-6000 / MPC-7000 Fire Alarm control units and the RND-2 network annunciator are listed under UL Standard 864 for compliance to NFPA Standard 72 for fire service.

GENERAL SPECIFICATIONS

Operating specifications for the MPC-6000 / MPC-7000 / RND-2 are as follows:

Environmental

- Operating temperature - 32 - 120°F (0 - 49°C)
- Relative humidity - Up to 85% @ 86°F (30°C)

Primary Supply

- Primary Input Voltage: 120 VAC (60 Hz) nominal
- MPC-6000 / RND-2 Maximum primary input current: 2.4A at 120 VAC
- MPC-7000 Maximum primary input current: 3.2A at 120 VAC

Secondary and Trouble Power Supply

- 24 volt lead-acid battery set
- Maximum Charge Voltage: 27.8 VDC
- Automatic Low Battery Disconnect - Disconnect Voltage: 18VDC
- MPC-6000 / RND-2 Maximum Charge Current: 1.7A
- MPC-7000 Maximum Charge Current: 3.8A
- MPC-6000 / RND-2 Battery capacity: 7-38.5 AH (over 12 AH requires separate enclosure for the batteries)
- MPC-7000 Battery capacity: 7-38.5 AH / 100 AH with optional Battery Charger, HBC-1 (over 18 AH requires separate enclosure for the batteries)

Auxiliary Power Outputs

- 0.4 amp maximum per power output circuit
MPC-6000 / RND-2 0.5 amp total / MPC-7000 1.0 amp maximum available for auxiliary power output circuits, Serial Interface Circuits and option boards
- Non-Resettable Power Outputs
Power limited
Voltage: 24 VDC nominal
Ripple: 1.5 VAC maximum
- Resettable Power Output
Power limited
Voltage: 24 VDC nominal
Ripple: 1.5 VAC maximum

Status Relays

Four relays programmable for alarm, supervisory, trouble, loss of AC.

- Contact Rating:
1 A, 28 VDC maximum, resistive
- Form C Contact

Notification Appliance Circuits

- Power limited
- Supervised
- Maximum Standby Current: 3.4mA
- Maximum Line resistance @ 24VRMS:

<u>Current Draw</u>	<u>Line Ω</u>
1.5 A	2.0 Ω
1.0 A	4.0 Ω
0.5 A	8.0 Ω

- Alarm Voltage: 24 V FW nominal
- Maximum Ripple: 16 VAC
- MPC-6000 Four Style Z/Class B or two Style Y/Class A circuits
- MPC-7000 Four Style Z/Class B or two Style Y/Class A circuits
Expandable to twelve Style Z/Class B or six Style Y/Class A circuits
- Maximum NAC Current: 1.5 A / NAC circuit
MPC-6000 maximum total NAC current 3.0A (6.0A with optional NPE-1 transformer installed)
MPC-7000 Maximum total NAC current 5.0A (8.0A with optional NPE-1 transformer installed)
- Synchronized notification appliances are allowed

Serial Interface Circuit

- Power limited
- Supervised
- (+, -) Voltage: 24 VDC nominal
- (X+, X-) Voltage RS485 levels
- Maximum wire loop resistance: 11 ohms/line
- Communications Protocol: RS485

X1 Addressable Device Circuits

- Power limited
- Supervised
- Voltage: 24 VDC nominal
- Maximum Current (shorted): 0.375A
- Maximum wire loop resistance: 50 ohms (see graph on page 48)
- Style 4 or 6 circuit
- 252 Addresses: detectors and modules max.
- MPC-6000: One circuit
- RND-2: No loop circuits
- MPC-7000: Two circuits expandable to four

City Tie (Optional City Tie Board P/N CT-1K)

CA Reverse Polarity: Selectable for Alarm with Trouble or Alarm only operation

- Power limited
- Supervised by receiver for short or open circuit
- Supervised by control unit for grounded circuit
- Voltage: 24 VDC nominal
- Current: 0.020A maximum (normal or trouble)
- Current: 0.025A maximum (shorted)
- Ripple: 1.5 VAC maximum

CT Reverse Polarity: Programmable for Trouble or Supervisory or both

- Power limited
- Supervised by receiver for short or open circuit
- Supervised by control unit for grounded circuit
- Voltage: 24 VDC nominal
- Current: 0.020A maximum (normal or alarm)
- Current: 0.025A maximum (shorted)
- Ripple: 1.5 VAC maximum

LE Local Energy

- Not power limited
- Supervised for open or grounded circuit by control unit
- Voltage: 24 VDC nominal
- Standby Current: 0.007A maximum
- Alarm Current: 0.400A maximum
- Ripple: 1.5 VAC maximum
- Maximum wire loop resistance: 30 ohms
- Trip coil impedance: 14.5 ohms

DACT Circuit (Optional DACT Board MPC-DACT)

- Power limited
- Supervised for short or open circuit
- Maximum Voltage: 60 VDC
- Maximum Current (shorted): 0.100A

Additional Transformer (Optional Transformer Assembly NPE-1)

- Provides an additional 3.0A of NAC power (max 1 per panel)

CONTROL UNIT OPERATION

OPERATION INSTRUCTIONS

Standby Condition

In normal standby operation, the green AC POWER ON LED should be illuminated and no other indicator operating. The display will show the system name, "System Normal" announcement and the current date, day, and time.

Alarm Conditions

- GENERAL ALARM

When a general alarm occurs, all NACs with output type set to "ALARM" activate. To activate a general alarm, proceed as follows:

- Press "MENU".
- On the MENU display, select "GENERAL ALARM".
- At the next screen, select "Yes".

Silence and reset the system as with any alarm.

- NORMAL ALARM

In case of alarm, the system alarm LED activates (ON - flashing) and the buzzer activates (ON - steady). Local audible and visual signals and remote alarm signals operate and the LCD panel display indicates the zone or point initiating the alarm.

On receipt of an alarm, proceed in accordance with the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department.

To silence the audible after evacuation, where permitted by the codes and control unit programming, press ALARM SILENCE. The alarm audible will be silenced, the alarm silence LED will be illuminated and a system trouble indicated.

Operating the ACKNOWLEDGE button will silence the local buzzer and change the LED alarm indicator from flashing to steady.

- WATERFLOW Alarms

Alarms detected on devices with usage designated as "waterflow" indicate sprinkler operation and the audible alarms cannot be silenced in this condition. Operation of alarm silence will produce no effect.

- POSITIVE Alarm Sequence (PAS)

Activation of a zone programmed for PAS, activates the Alarm LED, display and buzzer (pulsing), and starts the PAS timer, but delays all other outputs (system and user) for 15 seconds.

Operation of the ACKNOWLEDGE button within 15 seconds will add a number of seconds (60-180) to the PAS timer. If the ACKNOWLEDGE button is not operated within 15 seconds, the system and user outputs activate.

If the initiating device and the panel are reset before the PAS timer times out, the alarm sequence is aborted.

An alarm condition on a detector programmed for direct alarm response (such as the key switch on a manual station) will override the PAS timer and activate the outputs.

- **PRE-SIGNAL Alarms**

A point activated by a PRE-SIGNAL alarm device activates the alarm relay, alarm DACT, alarm LEDs and buzzers, and all user-programmed outputs normally, except NACs. Only pre-signal type NACs operate at this time. Pre-signal type NACs are for constantly attended central locations manned by trained building personnel.

Operation of the SYSTEM RESET button within the pre-programmed time (60-180 seconds) after initiation of the pre-signal prevents operation of the general alarm.

Failure to act within the pre-programmed time (60-180 seconds) will result in activation of the general alarm.

Receipt of a general alarm during the delay period immediately sounds the general alarm building NACs.



Do not reset the system until the alarm condition has been cleared. The LCD will indicate the area in which the alarm was detected. The detector or module associated with the device initiating the alarm will display a light indicating activation (if applicable).

When the alarm condition has been corrected, return the system to standby operation by pressing the SYSTEM RESET button.

Trouble Conditions

In case of a trouble condition, the system trouble LED and any programmed trouble LEDs activate (ON – pulsing), the LCD identifies the problem and the buzzer sounds (pulsing). Refer to the applicable section of the system manual to determine the probable cause of the trouble and the action to be taken.

When a trouble has been noted, the buzzer may be silenced by pressing the ACKNOWLEDGE button. The trouble LEDs will change to ON - steady. If the trouble has not been corrected when the trouble resound reminder timer expires, the trouble display reverts to its original condition and the buzzer resounds (pulsing).

If the control unit is programmed for “trouble acknowledge required”, when the indicated trouble condition has been cleared, the system reverts to standby condition only after the ACKNOWLEDGE button is pressed.



Some trouble conditions require a system reset to restore the control unit.

Supervisory Conditions

In case of a supervisory condition, the system supervisory LED activates (ON – flashing) and the sounder activates (ON – pulsing). When the supervisory has been listed, the buzzer is silenced by pressing the “ACKNOWLEDGE” button. The supervisory trouble LED changes to steady – ON. When the supervisory is cleared, the supervisory condition is still indicated until it is acknowledged.

Pre-Alarm Conditions

- A pre-alarm condition is annunciated by Pre-alarm LEDs and buzzers on the control unit and LCD Annunciators and Remote Processors. The LEDs flash and buzzers are on steady until acknowledgment.
- Acknowledging the Pre-alarm condition puts LEDs on steady and buzzers off.
- If pre-alarm has been acknowledged and the system restores to normal, the condition clears. If the system proceeds into an alarm condition, the pre-alarm condition clears whether or not it has been acknowledged and is replaced by alarm.

Maintenance

In order to insure continued safe and reliable operation of the fire alarm system, periodic inspection and testing should be performed in accordance with applicable NFPA 72 standards.



If the system has remote connections to the Fire Department or other monitor, be sure to disable the remote signals and/or notify the remote monitoring station before performing test operations.

For any required service, refer to the system manual or contact a factory authorized representative.

ADDITIONAL OPERATING PROCEDURES

In addition to the basic fire alarm instructions above, several features are included to facilitate maintenance and increase the versatility of the system. Following are procedures to call up these functions.

Lamp Test

Lamp Test activates the buzzer and turns on all the LEDs on the user interface for 2 seconds, then reverts to its previous state.

To operate the lamp test, press the MENU button. The LCD will change to a MENU screen. Press the button next to the "More" indication twice. Then press the button by the "Lamp Test" indication. All lamps on the unit being operated will then light. Operating the button next to "Esc" will then return the control unit to normal display. Note that the lamp test operates the indicators only on the unit being operated, and no record is reported to system history.

Drill

When selected, activates all NACs assigned to the Output Zone selected for "Drill". To activate a fire alarm drill, proceed as follows:

- Press "MENU".
- On the MENU display, select "More".
- At the next screen, select "DRILL".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate drill signal.

Recall

When selected, activates all NACs assigned to Output Zones selected for "Recall". To signal recall after a drill, proceed as follows:

- Press "MENU".
- At the next screen, select "More".
- Select "RECALL".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate recall signal.

Alert

When selected, activates all NACs assigned to the Output Zone selected for "Alert". To activate an alert alarm, proceed as follows:

- Press "MENU".
- On the MENU display, select "ALERT".
- At the next screen, select "Yes".
- Operate ALARM SILENCE to terminate alert signal.

History

The last 2000 system events are time-tagged and recorded for review in the user level event history. This history is available to anyone with the door key, but may be erased only at the maintenance security level.

- Operation of history:
 - New events overwrite old when filled.
 - Printer (if used) records all events.
 - For more information see the Event History section.
- Access to history:
 - To recall past events, proceed as follows:
 - Press "MENU" button.
 - Operate button identified as "More".
 - Operate button identified as "More".
 - Operate button identified as "View History".
 - Operate upper left button (M1) for previous event display.
 - Operate lower left button for (M2) next event display.
 - Operate upper right button (M3) to exit to MENU DISPLAY.

The display reverts to its previous state if there is no action performed within 30 seconds.

MPC-6000 / MPC-7000 / RND-2 OPERATING INSTRUCTIONS

Alarm Operation

In case of alarm, the *Alarm* LED flashes, LCD displays alarm condition and the panel buzzer sounds steady. Local audible and visual signals and remote alarm signals operate.

When an alarm occurs, proceed according to the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department to advise of the alarm and/or verify that an automatic signal has been received at the Fire Department.

Authorized Personnel Only

To acknowledge the alarm:

To acknowledge the alarm, press the *Acknowledge* button. The local buzzer will be silenced and the *Alarm* LED will change from on-flashing to on-steady.

Note: The alarm may only be acknowledged at the node which initiates the alarm or the RND-2.

To silence the alarm:

To silence the notification appliances after evacuation, where permitted, press the *Alarm Silenced* button. The silenceable notification appliances will be silenced. The *Alarm Silenced* LED will be on-steady.

Note: Do not reset the panel until the alarm has been cleared.

Warning: Alarm silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.

To reset panel after alarm:

When the alarm condition is corrected, return the panel to normal standby operation by pressing the *System Reset* switch.

Trouble Operation

Trouble is indicated by:

Trouble LED flashes
LCD will display trouble conditions
Panel buzzer sounds on-pulsing

To acknowledge the trouble:

Press the *Acknowledge* button. The *Trouble* LED turns on-steady and the buzzer turns off. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

Warning: Leaving the panel in a trouble condition may cause a fire alarm condition not to initiate a fire alarm sequence.

Normal Standby Condition

The green *AC Power On* LED will be lit and no other indicators on.

For service, contact: _____
Telephone Number: _____

Frame these instructions and mount them near the control unit for operator reference.

RDC-2 OPERATING INSTRUCTIONS

Alarm Operation

In case of alarm, the *Alarm* LED flashes, LCD displays alarm condition and the buzzer activates on-steady. Local audible and visual signals and remote alarm signals operate.

When an alarm occurs, proceed according to the established emergency plan. Assure that all personnel are accounted for, and notify the Fire Department to advise of the alarm and/or verify that an automatic signal has been received at the Fire Department.

Authorized Personnel Only

To acknowledge the alarm:

To acknowledge the alarm, press the *Acknowledge* button. The local buzzer will be silenced and the *Alarm* LED will change from on-flashing to on-steady.

Note: The alarm may only be acknowledged at the node which initiates the alarm or the RND-2.

To silence the alarm:

To silence the notification appliances after evacuation, where permitted, operate the **Button Enable** key switch and press the **Alarm Silence** switch. The silenceable notification appliances will be silenced. The *Alarm Silence* LED will be on-steady.

Note: Do not reset the panel until the alarm has been cleared.

Warning: Alarm silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.

To reset panel after alarm:

When the alarm condition is corrected, return the panel to normal standby operation by placing the **Button Enable** key switch to the *OK* position and then pressing the **System Reset** switch.

Trouble Operation

Trouble is indicated by:

Trouble LED flashes
 LCD will display trouble conditions
 Buzzer activates on-pulsing

To acknowledge the trouble:

Operate the **Button Enable** key switch to the *ON* position and press the *Acknowledge* button. The *Trouble* LED changes to on-steady. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

Warning: Leaving the panel in a trouble condition may cause a fire alarm condition not to initiate a fire alarm sequence

Normal Standby Condition

The green *Power On* LED will be lit and no other indicators on.

For service, contact: _____
 Telephone Number: _____

Frame these instructions and mount them near the annunciator for operator reference.

CONTROL UNIT INSTALLATION

PARTS SUPPLIED – MPC-6000 / MPC-7000 / RND-2

Enclosure Packages (Black or Red)

- Backbox Assembly
- Front Door Assembly with Window
- Inner Door Assembly

Electronics Package MPC-6000 / MPC-7000

MPC(6/7)-MB Main Board	575-447328 Nameplate (MPC-7000)
MPC(6/7)-DB Display Board	906-220604 #6-32 x 1/4" Screws (17)
FDLC Loop Driver Board (2 with MPC-7000)	375-F943165 Spacers (8)
215-649113 Keyboard	140-820405 24K Ohm 1/2W Resistor (4)
330-944373 Thermal pad	140-820350 120 Ohm 1/2W Resistor (2)
465-633943 Battery cable assembly	555-446055 Cable Assembly, 26 Pin
315-447309 Installation and Operation Manual	130-PM3223 Bridge Rectifier
315-447311 Operating Instructions	555-449116 Rectifier Cable Assembly
575-447310 Riser Diagram (MPC-6000)	899-G67197 #6-32 Keps Nuts (1)
575-447388 Riser Diagram (MPC-7000)	950-220604 #6-32 Nut (1)
575-447312 Nameplate (MPC-6000)	600-149373 Ground Wire Assembly

Electronics Package RND-2

MPC6-MB Main Board	950-220604 #6-32 Nut (1)
RND2-DB Display board for RND-2	906-220604 #6-32 x 1/4" Screws (17)
575-447328 Nameplate (RND-2)	375-F943165 Spacers (8)
215-649113 Keyboard	140-820405 24K Ohm 1/2W Resistor (4)
330-944373 Thermal pad	140-820350 120 Ohm 1/2W Resistor (2)
465-633943 Battery cable assembly	555-446055 Cable Assembly, 26 Pin
315-447309 Installation and Operation Manual	130-PM3223 Bridge Rectifier
315-447311 Operating Instructions	555-449116 Rectifier Cable Assembly
575-447310 Riser Diagram (RND-2)	899-G67197 #6-32 Keps Nuts (1)
600-149373 Ground Wire Assembly	

With NPE-1 Transformer Package

Transformer Assembly (120VAC) (2 required)	(899-G67197) #6-32 Keps Nuts (2)
--------------------------------------------	----------------------------------

CAUTION

1. Remove the printed circuit boards for any procedure that may cause dust, metal shavings, grease (or such matter that may affect the operation of the boards) to get in contact with the units.

2. Disconnect all sources of power prior to installing or removing modules, connecting or disconnecting wiring and programming jumpers.

CONTROL UNIT LOCATION

The control unit should be located near an exit at ground level, where the normal ambient temperature is maintained within the control unit specification (See General Specifications). The unit should be in an area that is free of dust, vibration, moisture and condensation. Any auxiliary battery box or other accessory not connected through a protective device or a circuit designed for remote connection must be within 20 ft. and in the same room, connected through electrical conduit.

INSTALLATION

The enclosures must be fastened securely to a clean, dry, shock-free, and vibration-free surface. Consider the following when mounting the box.

- Mounting height for visual and manual access to the display and keypad
- Weight and size of backbox
- Local mounting codes

When mounting the backbox, position the backbox clear of obstructions so that the door can open freely and so that indicators and controls are easily accessible.

The fire alarm control unit must be mounted in a properly accessible location as required by applicable codes. Any auxiliary battery box or other accessory not connected through a protective device or a circuit designed for remote connection must be within 20 ft. and in the same room, connected through electrical conduit.

Installation is to be done only by qualified personnel who have thoroughly read and understood these instructions. The fire alarm control unit must be mounted in a properly accessible location as required by applicable codes.

ENCLOSURE MOUNTING

Install the backbox:

- Select a clean, dry, shock and vibration free surface.
- Position the backbox clear of obstructions so that the front door opens freely and the controls and indicators are easily accessible.
- Mark the locations of the two upper mounting bolts of the backbox on the wall.



There are two key-shaped cutouts on the top of the backbox. Make sure the end with the two key-shaped cutouts is on top when installing the backbox.

- Drill the two holes located in the previous step and screw in the top bolts, leaving a small gap between the wall and each top bolt.



The screw type and length must be able to support the control panel, options and battery set. You may need a different screw type, depending on the wall material.

Place the backbox over the two top bolts and allow it to slide down over the bolts.

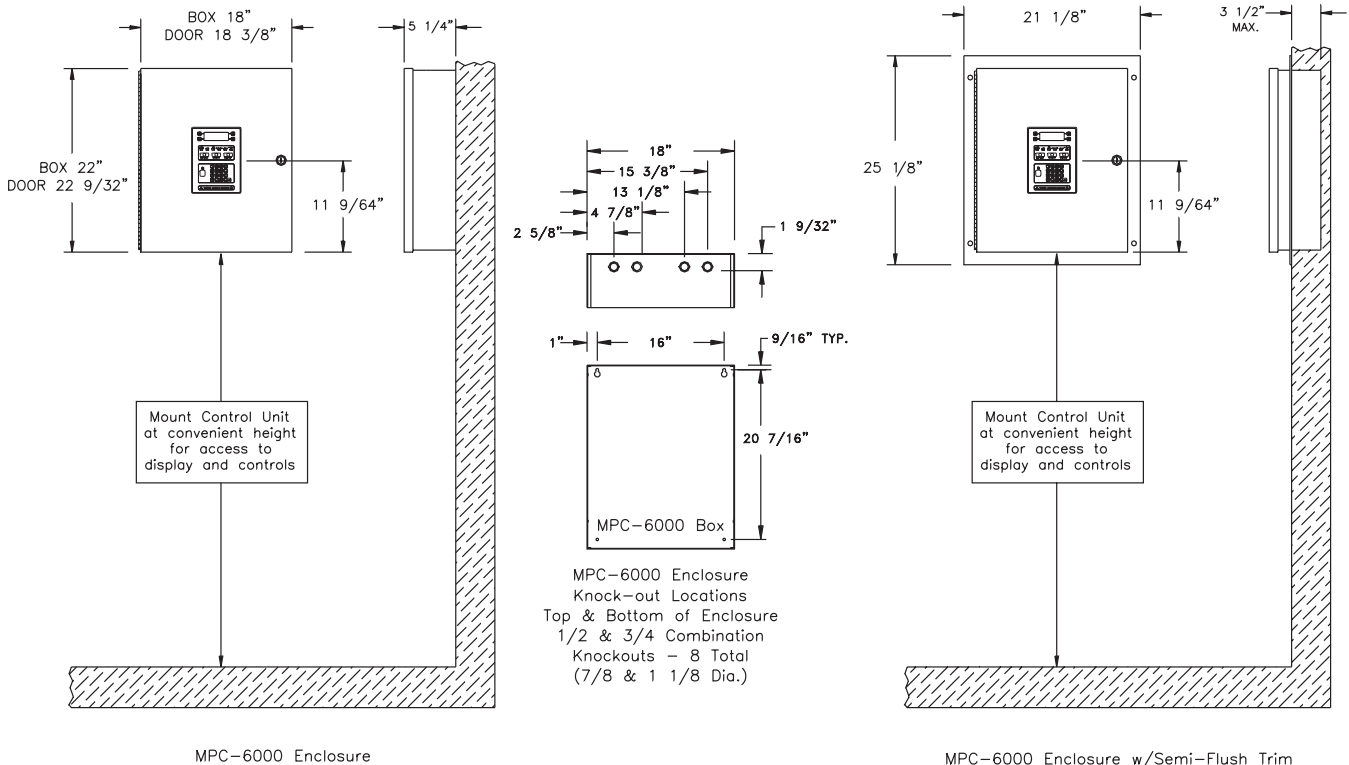
- Mark, drill, and install the two bottom bolts in the backbox.
- Tighten all four bolts securely against the back wall of the backbox.
- The RSE-300 Auxiliary Power Supply or battery enclosure may be mounted immediately below the main enclosure, close nipple, allowing a minimum of 1 inch in between the enclosures for clearance between the doors. Keeping the wire run to the control unit short will keep the voltage drop to a minimum.
- If a semi-flush mount installation is desired, use the SFTK-6(R/B) Semi-flush Trim for the MPC-6000 / RND-2 and the SFTK-7(R/B) Semi-flush Trim for the MPC-7000. The backbox can be mounted up to 3 1/2 inches into the wall. Place the semi-flush trim around the backbox and affix to the wall with four #10 x 3/4 inch wood screws (provided with trim).



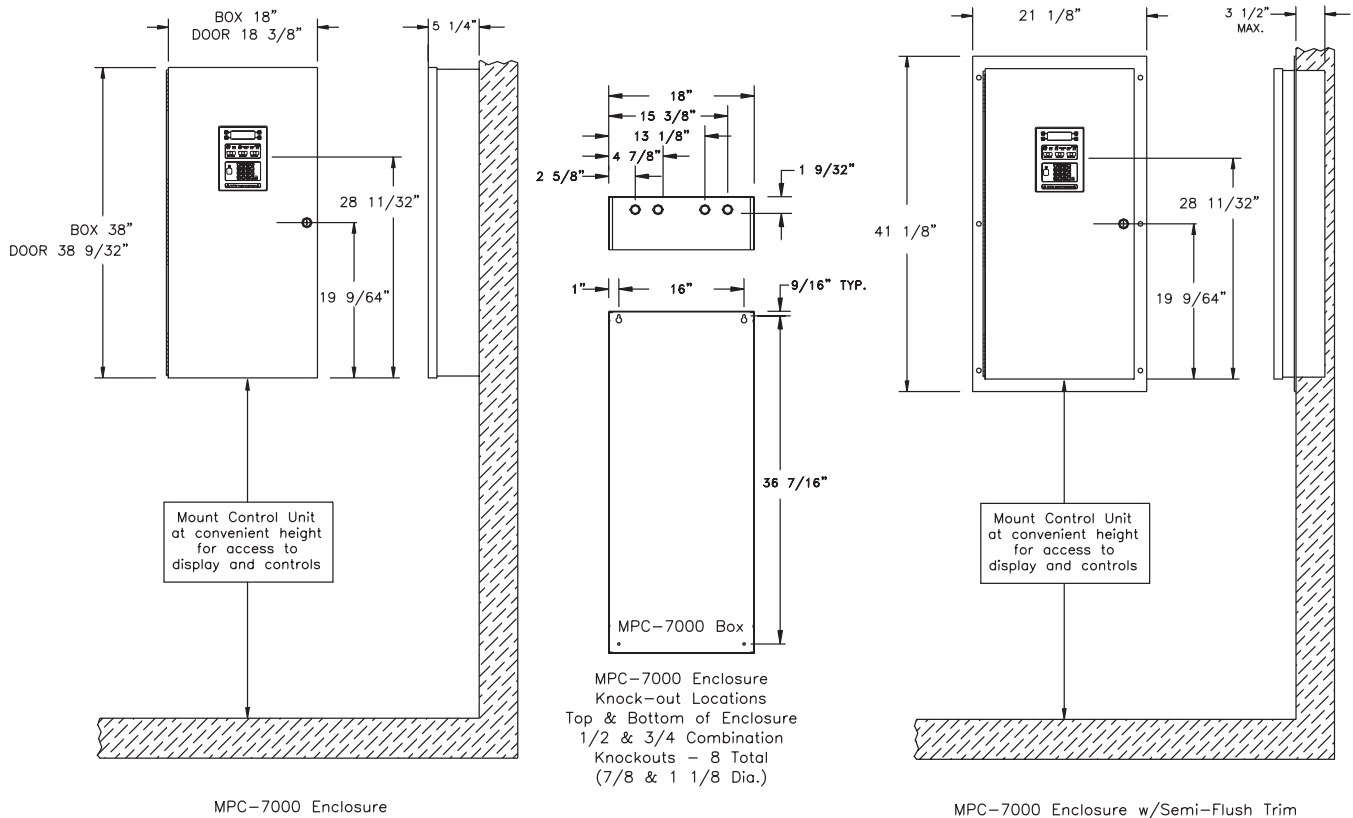
You may need a different screw type, depending on the wall material.

For semi-flush installations, if the RSE-300 Auxiliary Power Supply or a battery enclosure is required, it may be mounted immediately above or below the main enclosure, close nipple, allowing a minimum of 3 inches in between the enclosures for clearance between the semi-flush trims. Keeping the wire run to the control unit short will keep the voltage drop to a minimum.

MPC-6000 and RND-2 Enclosure Mounting Pictures



MPC-7000 Enclosure Mounting Pictures



Remove Knock-Outs

Prepare the enclosure for electrical wiring by breaking out the appropriate conduit entry points. Segregation is required between power limited and non-power limited conductors. In order to maintain the minimum separation, follow the wire routing illustrated on page 38. Separation of at least a 1/4 inch is required between the non-power limited and power limited conductors. Power limited and non-power limited wiring must be run in separate conduit.

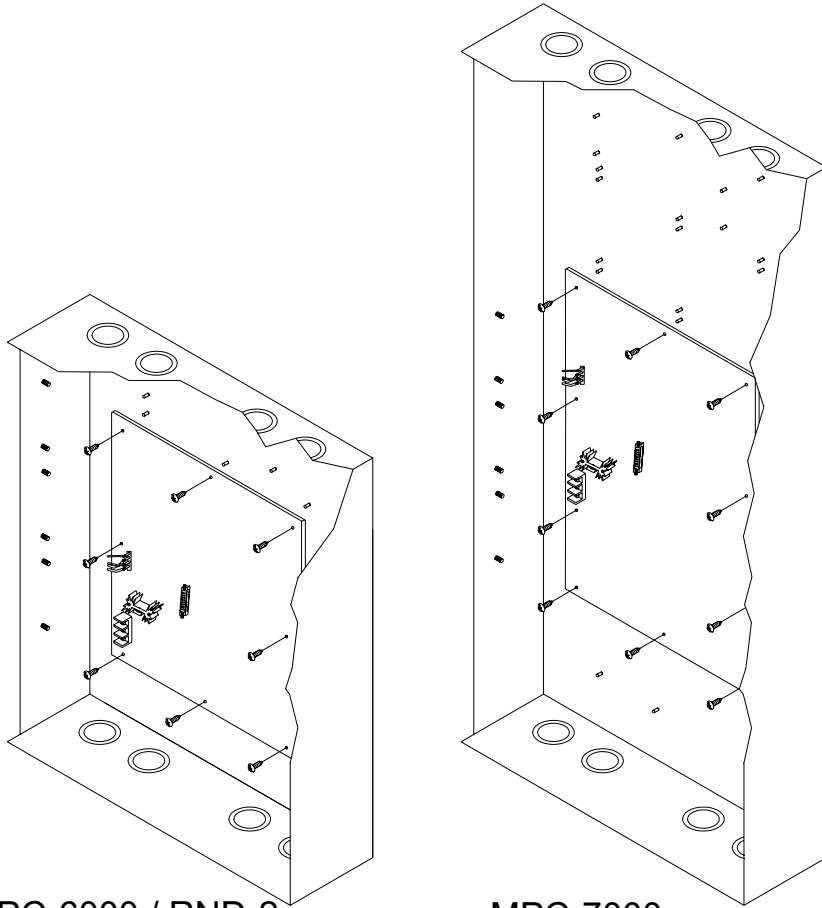
Attach conduit (if required) and run wires as required. Label each field cable for future reference.

Basic system wiring and detector siting must be in accordance with NFPA 72 or other instructions from the appropriate local authority having jurisdiction. Unit connections and limitations are as indicated on the wiring diagrams included in System Wiring part of this manual.

Wire reference data are included in Appendix A.

Main Board Installation – P/N MPC6-MB / MPC7-MB

Secure the board to the back of enclosure using the provided #6-32 x 1/4 screws (P/N 906-220604). (Eight for the MPC6-MB and ten for the MPC7-MB.)

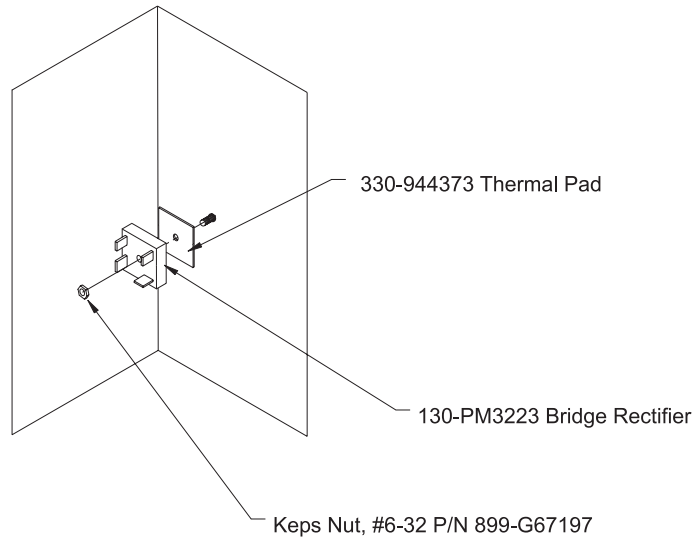


MPC-6000 / RND-2

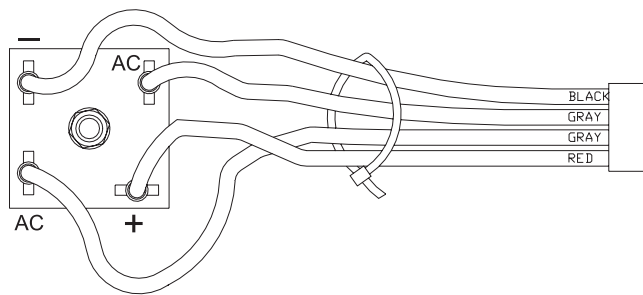
MPC-7000

Bridge Rectifier Installation – P/N 130-PM3223

- Secure the bridge rectifier (P/N 130-PM3223) to the backbox, placing the thermal pad (P/N 330-944373) between the Bridge Rectifier and the backbox using a provided #6 keps nut (P/N 899-G67197). See drawing below for details.
- Wire Bridge Rectifier to Rectifier Cable Assembly (555-449116). Red wire goes to the plus (+) connection of Bridge Rectifier and Black wire goes to the minus (-) connection of the Bridge Rectifier. Gray wires connect to the AC connections of the Bridge Rectifier. Plug Rectifier Cable Assembly into J4 on the Main Board (P/N MPC(6/7)-MB).

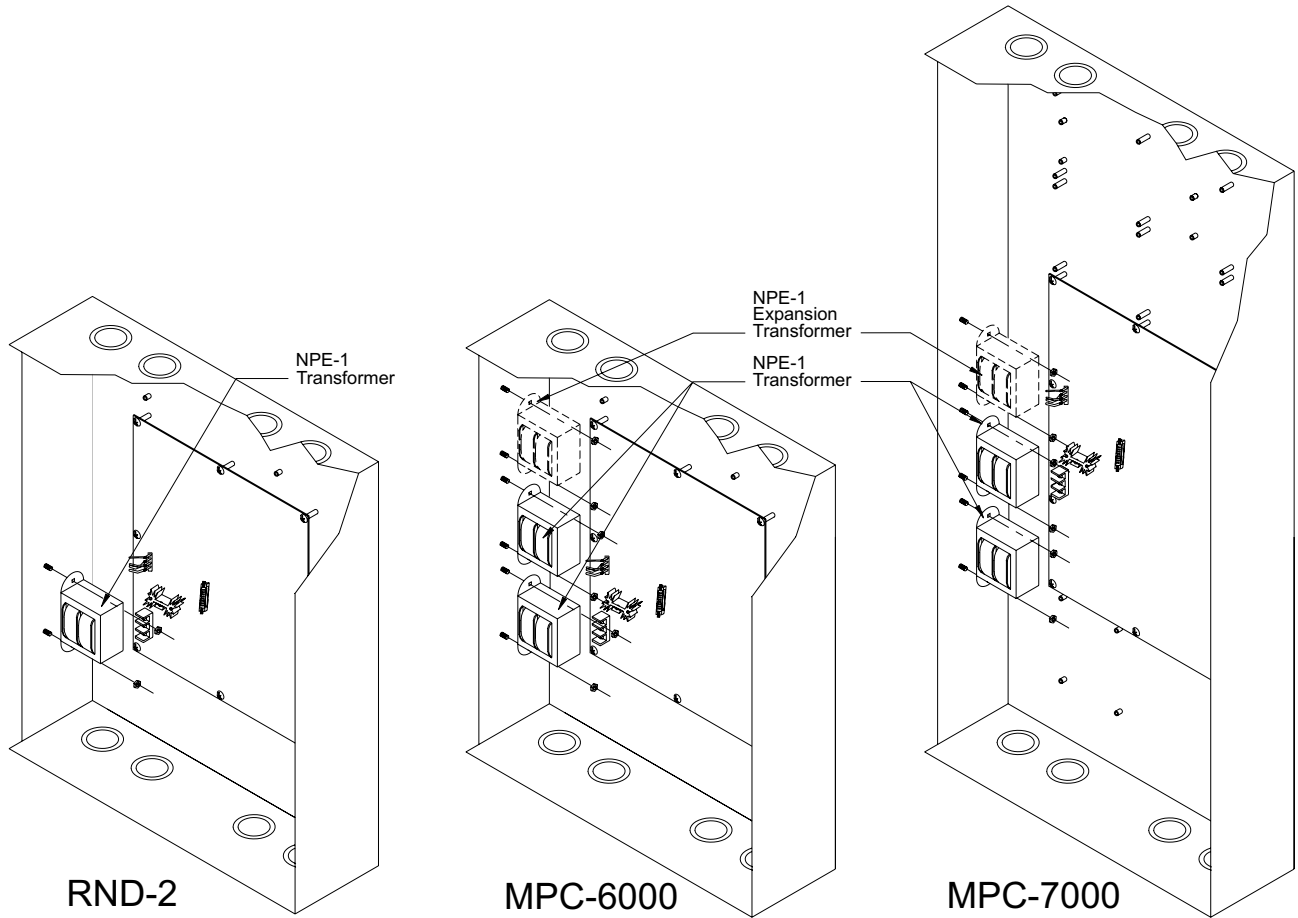


Bridge Rectifier Mounting



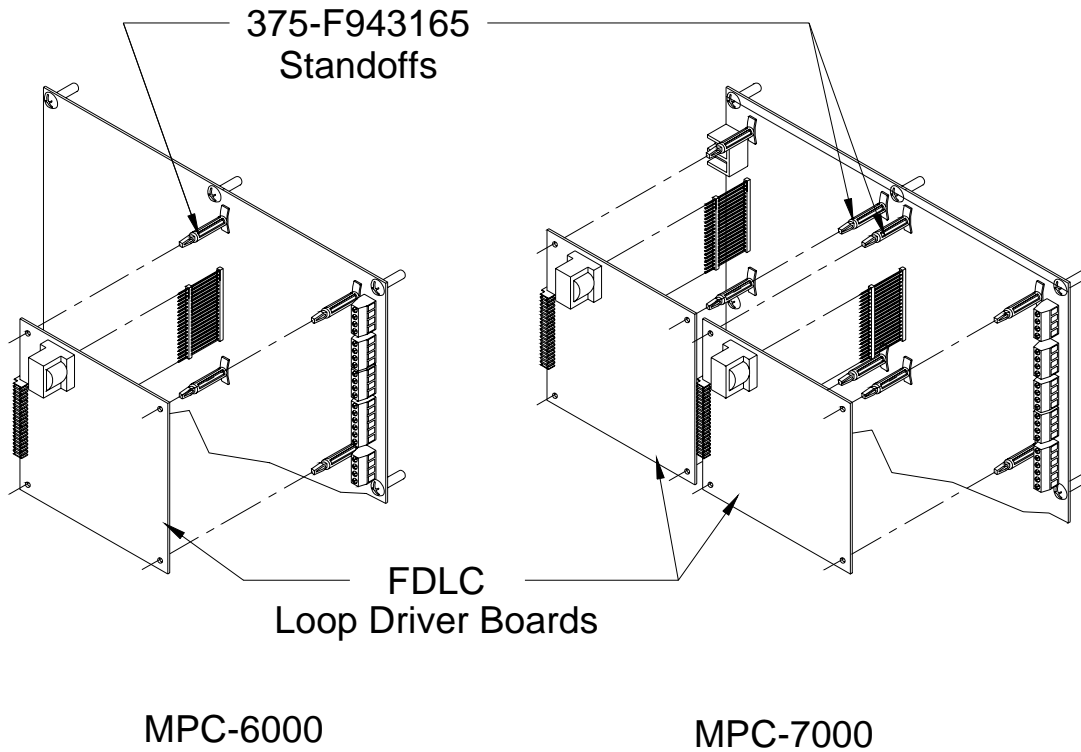
Transformer Mounting – P/N NPE-1

- Place the NPE-1 transformer assemblies (one for RND-2, two for MPC-6000 or MPC-7000) over the bottom one or two sets of studs on the left side of the enclosure, if desired. Mounting the transformer can be accomplished before mounting the enclosure.
- Tighten provided transformer-mounting nuts (P/N 899-G67197) (2 per NPE-1).
- Plug the transformer assemblies into connectors J1 and J2 on the Main Board (P/N MPC(6/7)-MB). Bottom transformer plugs into J1.
- If optional additional transformer (P/N NPE-1) is required, install it also at this time.
- Optional transformer plugs into connector J3 on the Main Board (P/N MPC(6/7)-MB).



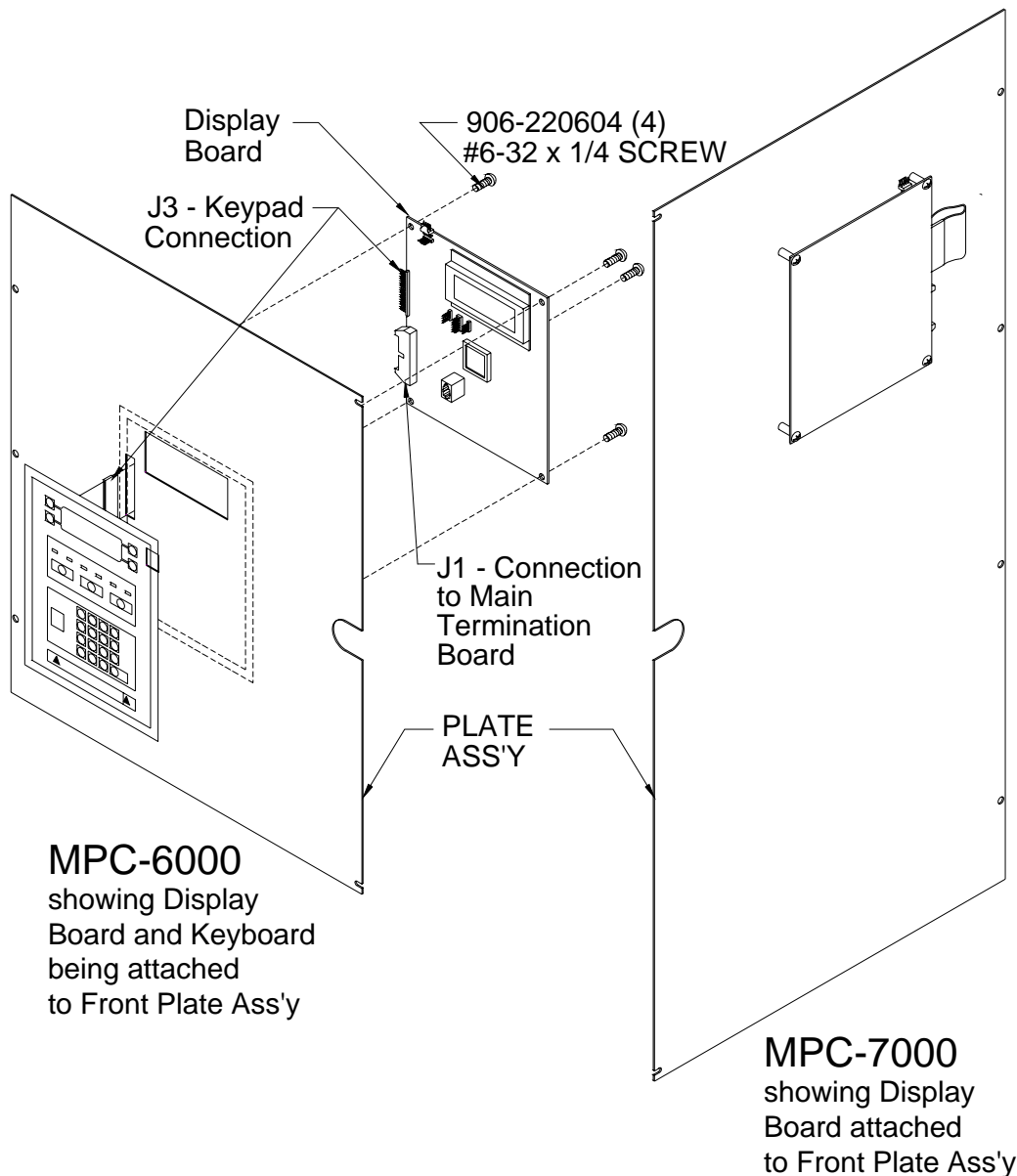
Loop Driver Board(s) Mounting – P/N FDLC

- Place the provided standoffs (P/N 375-F943165) in locations shown on the Main Board (four for the MPC-6000 and eight for the MPC-7000).
- Carefully align connector J1 on the Loop Driver Board with connector J9 on the MPC-6000 Main Board (P/N MPC6-MB) or with connectors J9 and J14 on the MPC-7000 Main Board (P/N MPC7-MB).



Display Board Installation – P/N MPC-DB or RND2-DB

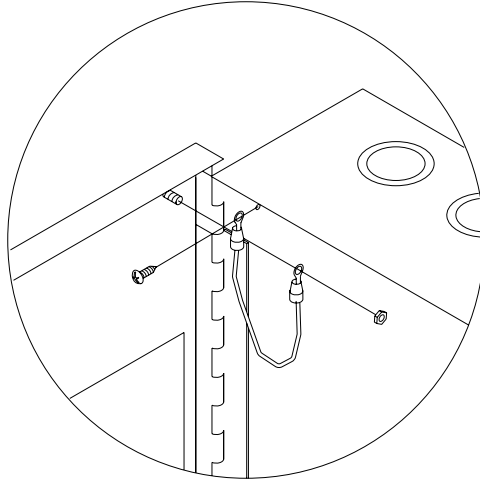
- With the Inner Front Plate closed, carefully pass connector and cable from keypad through vertical slot in front plate.
- Remove backing from keypad and carefully attach keypad to front plate. Center window in keypad on large opening in front plate.
- Attach the cable connection from the keypad on the Inner Front Plate to connector J3 on the Display Board (P/N MPC(6/7)-DB or RND2-DB).
- Secure Display Board (P/N MPC(6/7)-DB or RND2-DB) to Inner Front Plate Assembly using four of the provided #6-32x1/4" screws (P/N 906-220604).
- Plug the Cable Assembly (P/N 555-446055) into connector J1 of the Display Board (P/N MPC(6/7)-DB or RND2-DB) and to connector J11 of the Main Board (P/N MPC6-MB or MPC7-MB).



Ground Wire Installation – P/N 600-149373

Attach Ground Wire (P/N 600-149373) to inside of outer door using provided #6 nut (P/N 950-220604).

Attach Ground Wire (P/N 600-149373) to outside of inner door using provided #6 screw (P/N 906-220604).



SYSTEM WIRING

Before connecting the field wiring, check the wiring for opens, shorts, grounds and stray voltages.

WARNING

Damage may result if a high voltage insulation tester is used on wiring while connected to the control unit.

Terminate the field wiring to the main board in accordance with the diagrams in System Wiring Section and the system design documents.



All wiring must be in accordance with local codes and the National Electrical Code. Use only wire as described in Article 760 of the National Electric Code.

AC Supply Connection

Wire the AC supply to terminal block TB1 on the main board. The supply should originate from a separate, fused circuit. It should be provided with a breaker or other means of isolation. (Refer to Primary and Secondary Wiring Section for connection diagram.)

Observe the wiring order — the bottom terminal is ground and must be wired back to the electrical panel ground (earth) bonding point or another good ground acceptable to the authority having jurisdiction and the electrical inspector. The neutral wire must be taken back to the electrical panel neutral distribution bar and must not be grounded.



Dangerous voltages will be present on this terminal block and on other components surrounding it and the transformer when the AC supply is turned on. Do not touch.

Battery Installation

WARNING

Improper battery connections or shorting battery terminals may damage the system and/or batteries and may cause personal injuries.

Use the battery calculation chart to determine the battery size. Place the batteries in the space provided in the bottom of the backbox. If a battery set larger than 12 AH (MPC-6000, RND-2) or 18 AH (MPC-7000) is required, a separate enclosure must be used. The Faraday 14050 may be used for battery sets 18 AH and smaller. The Faraday BE-1 may be used for battery sets 38.5 AH up to 100 AH.

The control unit uses a 24V battery set. Connect the two 12V batteries (or four 6V batteries) in series with wire that is rated for the maximum worst-case battery current draw. Route the battery leads to the left of the enclosure and up to the battery connector, J4. The battery leads are not power-limited. **DO NOT CONNECT THE BATTERIES YET.**

Powering the Control Unit

After all modules and wiring are installed and properly checked, apply AC power to the control unit. AC POWER ON LED, SYSTEM TROUBLE LED, and the trouble buzzer should be on.

Observe polarity. Connect the B- (black) lead from the main board into the black or - terminal of the battery set and the B+ (red) lead from the main board into the red or + terminal of the battery set. (Refer to Primary and Secondary Wiring for diagram.)

Optional Modules

See Appendix D for the installation instructions for each optional module. Installation Instructions are also provided with each module. Follow these instructions for proper installation.

When using the MPC-DACT, select the proper System Type in the “System Parameter” tabs of CIS-4. This automatically sets the “DACT Pwr Fail Tmr.”

Remote Station	15 Hours
Central Station	6 Hours

Check System Operation

Check for proper operation of all the system functions. See Operation Instructions section on page 19.

WIRING

Basic system wiring and detector locations must be in accordance with NFPA 72 or other instructions from the appropriate local authority having jurisdiction.

Devices that may be satisfactorily used with the control unit are shown in the compatible device listing in Appendix B.

Wire reference data are included in Appendix A.

Control Unit Wiring Overview

In compliance with NEC Article 760 and UL 864, all power limited fire protective signaling conductors must be separated a minimum of 1/4 inch from all of the following wiring located within a control panel:

- Electric light
- Power
- Class 1 or non-power limited fire protective signaling conductors

To meet these requirements, the following guidelines **must be observed** when installing modules and wiring to this control panel.

When installing power limited field wiring, the installer must comply with NEC article 760, which states:

The fire alarm power-limited circuits are installed using Types FPL, FPLR, FPLP or permitted substitute cable, provided these power-limited cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6.35 mm) or by a nonconductive sleeve or nonconductive barrier from all other conductors.

If energy limited cable or equivalent is not used within the MPC-6000 / MPC-7000 / RND-2 enclosure, then the following guidelines do not apply. In that case, be sure to follow standard wiring practices.

Wiring Entering Enclosure

- Non-Power Limited Wiring - Wiring entering the enclosure from the bottom left side of the backbox is considered non-power limited wiring. Wiring must be in the shortest route and must not overlap any other wiring.
- Power Limited Wiring - Wiring entering the enclosure from the top and the left side of the backbox is considered power limited. Wiring must be in the shortest route and must not overlap any other wiring.

Install Wiring

The primary mains input must have a separate or dedicated circuit breaker. Wire in accordance with local codes and NEC 760.

- Remove the knockouts in the backbox for the entry of field wiring. (Refer to Enclosure Mounting Pictures on pages 28 and 29 and Wiring Separation Diagram on next page for the location of knockouts.)
- Pull all field wiring into the backbox. Do not dress the wiring until the location of all the equipment is known.

Install the wiring from the external power source to the approximate location of the power supply.

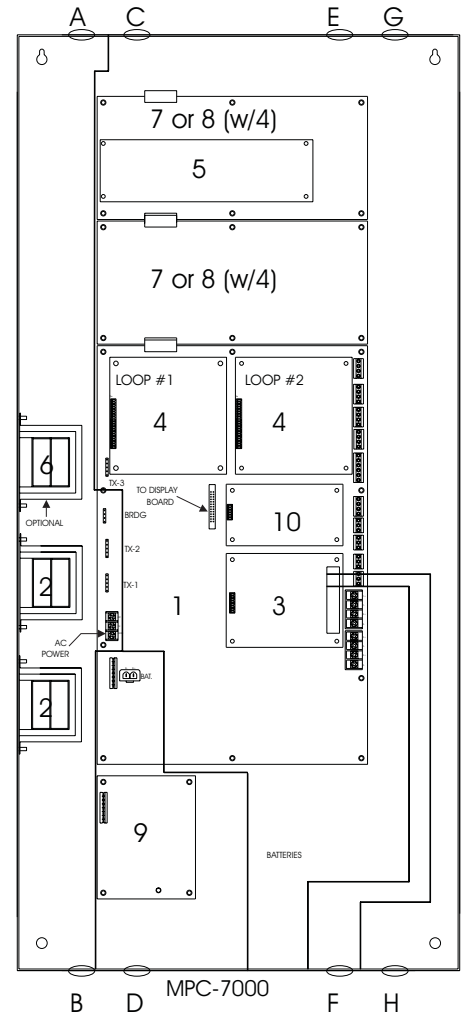
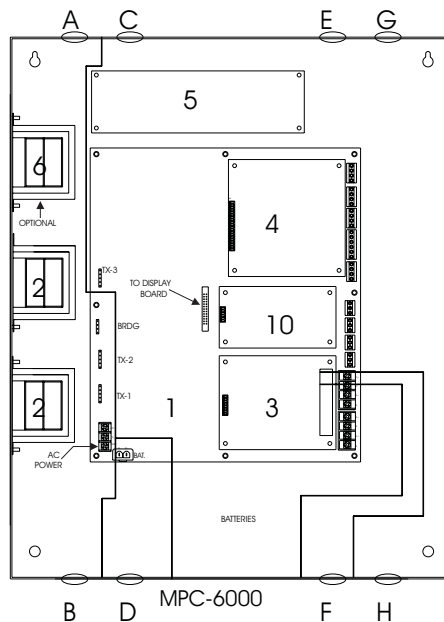
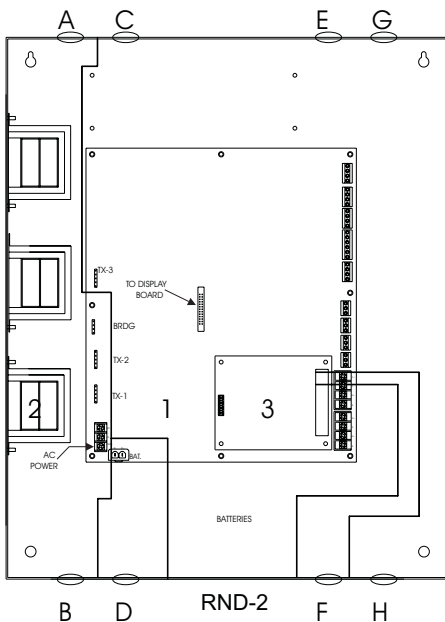
The overall arrangement of boards in the control unit is shown in the following diagram.

Wiring Separation

All high voltage and non-power limited wiring must be kept separate from power limited wiring. A separation of at least a 1/4 inch must be maintained, with high voltage and non-power limited wiring running in separate conduit openings from power limited wiring.

KNOCKOUTS FOR MPC-6000/MPC7000/RND-2

- A Non-power limited - High Voltage (AC power) or B
- B Non-power limited - High Voltage (AC power) or A
- C Power limited
- D Non-power limited (Battery If external enclosure required)
- E Power limited
- F Non-power limited if Local Energy Box used
- F Power limited or G or H
- G Power limited or F or H
- H Power limited or F or G

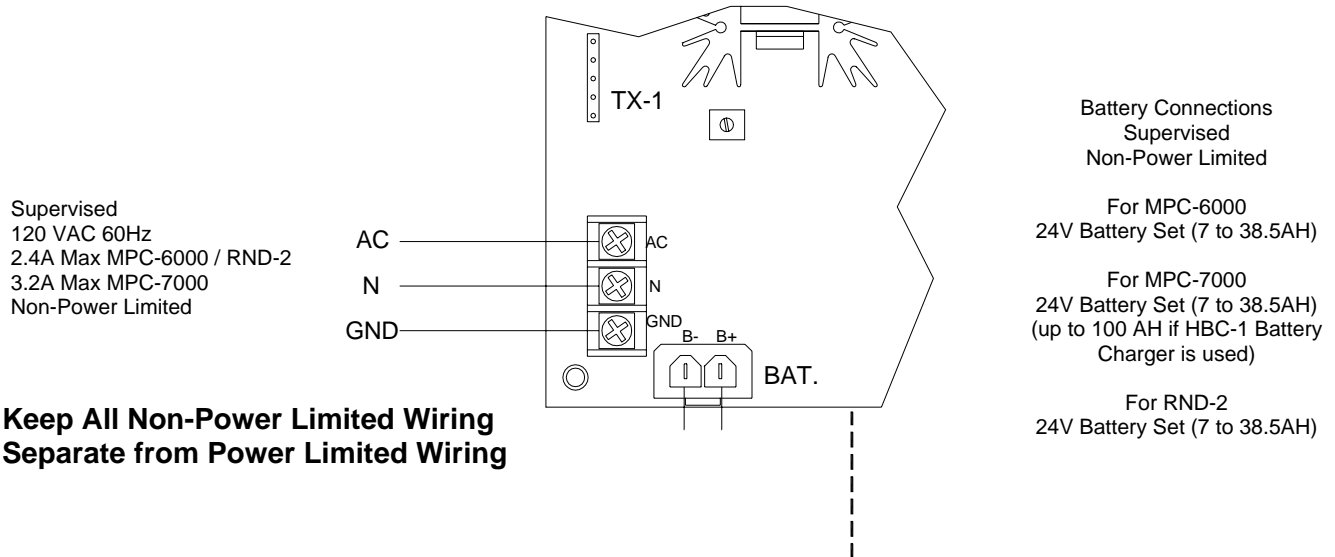


SYSTEM MODULES FOR MPC-6000/MPC-7000/RND-2

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> 1. Main Board 2. NPE-1 Transformer 3. MPC-DACT DACT Board or CT-1K City Tie 4. FDLC Loop Driver Board – requires Main Board or LEM-1 Loop Expansion Board 5. 12523 or 12523A Network Interface Board (Cannot be used with an expansion module in the uppermost position) | <ul style="list-style-type: none"> 6. NPE-1 Expansion Transformer 7. NEM-1 NAC Expansion Module 8. LEM-1 Loop Expansion Module 9. HBC-1 Optional Battery Charger 10. Future Expansion |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Primary And Secondary Power Wiring

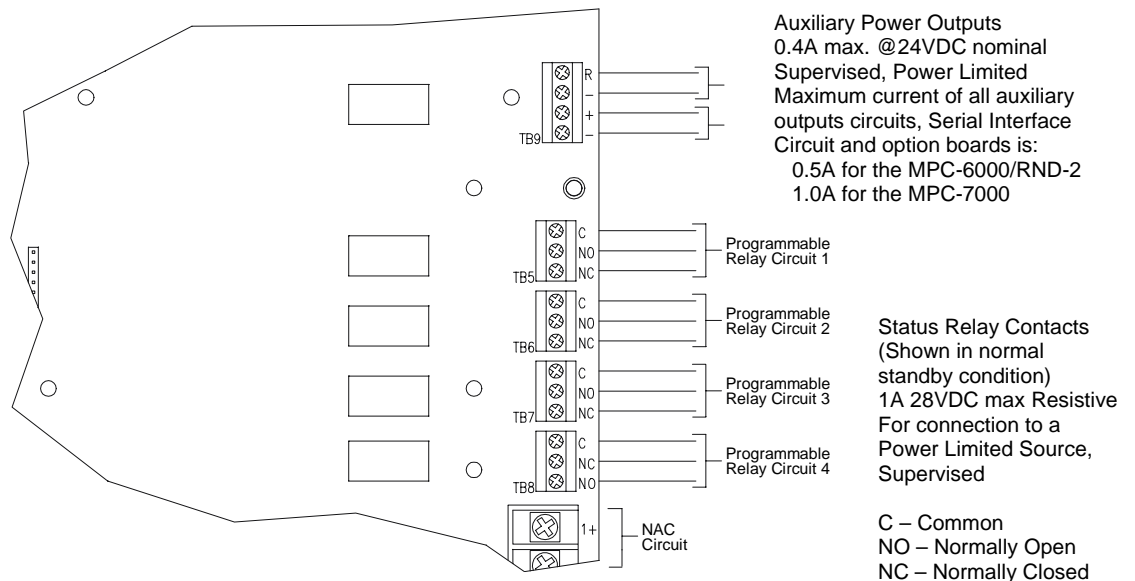
The AC main connections (TB1) and the battery connections (J4) must be made along the left-hand side of the main termination board (P/N MPC6-MB or MCP7-MB). Route all high voltage and non-power limited wiring together and away from power limited wiring. Use the battery calculation chart to determine battery size.



Status Relays And Auxiliary Power Outputs Wiring

The right side of the main board provides for connection of status relay contacts and auxiliary power connections (TB5-8). Four relays with dry contacts are provided. These contacts are programmable to alarm, pre-alarm, trouble and supervisory indications. The relay contacts are Form C and are rated 1A @ 28VDC resistive.

The right-hand edge of the main termination board (TB9) provides for resettable and non-resettable auxiliary power connections.



MPC-6000 System Power Requirements (Does not include NAC power)

Device	Item Max.(Amps)	MPC-6000 Amps
MPC-6000 Control Unit (Includes 1 FDLC)	0.190	0.190
Addressable Device Circuit Power	# of Devices X 0.0018 Amps	
Auxiliary Power Outputs *	Depends on devices installed	
CT-1K City Tie Board	0.055	
MPC-DACT DACT Board	0.054	
RDC-2 Remote LCD Annunciator *	0.085	
SRU-2/SRE-8 Serial Relay Unit *	0.032+0.020 A for each relay	
SLU-2/SLE-16 Serial Annunciator Unit *	0.070+ load of each LED or lamp	
Total current requirements		
Must be less than or equal to		0.75

RND-2 System Power Requirements

Device	Item Max.(Amps)	RND-2 Amps
RND-2 Control Unit (No FDLC)	0.090	0.090
Auxiliary Power Outputs *	Depends on devices installed	
CT-1K City Tie Board	0.055	
MPC-DACT DACT Board	0.054	
RDC-2 Remote LCD Annunciator *	0.085	
Total current requirements		
Must be less than or equal to		0.75

MPC-7000 System Power Requirement (Does not include NAC power)

Device	Item Max.(Amps)	MPC-7000 Amps
MPC-7000 Control Unit (Includes 2 FDLCs)	0.500	0.500
FDLC Loop Driver Board	0.100 x # of FDLCs on LEM-1	
NEM-1 Signal Expansion Board	0.250	0.250
LEM-1 Loop Expansion Board	0	0
HBC-1 Battery Charger ¹	0	0
Addressable Device Circuit Power	# of Devices X 0.0018 Amps	
Auxiliary Power Outputs *	Depends on devices installed	
CT-1K City Tie Board	0.055	
MPC-DACT DACT Board	0.054	
RDC-2 Remote LCD Annunciator *	0.085	
SRU-2/ SRE-8 Serial Relay Unit *	0.032+0.020 A for each relay	
SLU-2/ SLE-16 Serial Annunciator Unit *	0.070+ load of each LED or lamp	
Total current requirements		
Must be less than or equal to		3.22

¹Does not include charging current of 1.9A for a fully discharged battery.

Auxiliary Power Supply

*Connect an RSE-300 auxiliary supply when power requirement calculation indicates that an additional source is required. For further information, refer to Appendix D.

Battery Size Calculations

For calculation of battery size requirements see Appendix A.

NAC Wiring

At the lower right corner of the main board the terminal blocks TB12 and TB13 are used for the connection of notification appliances. Four individual NACs marked 1 through 4 are provided and the polarity shown is when the NAC is activated.

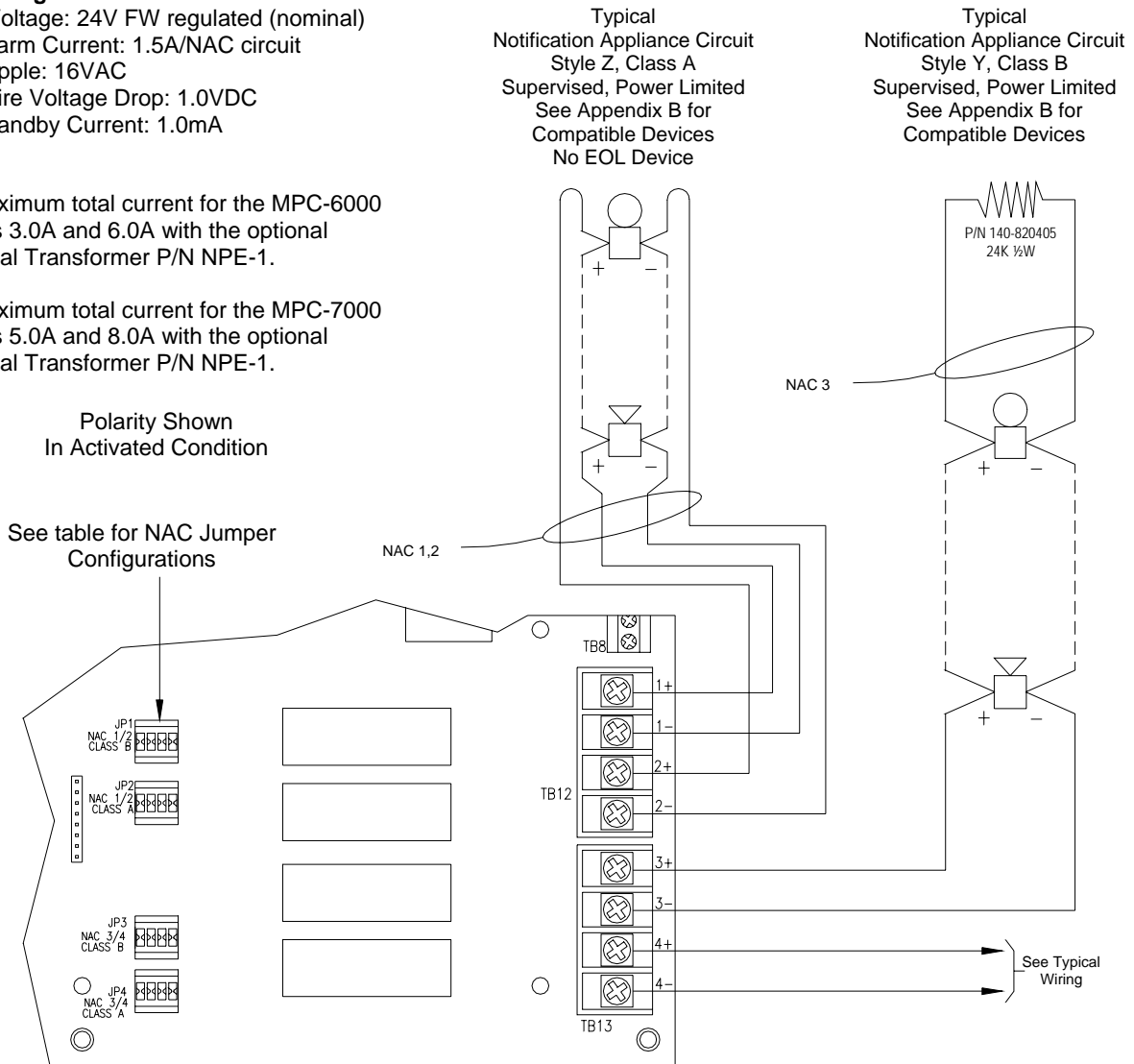
NAC Rating:

- Alarm Voltage: 24V FW regulated (nominal)
- Max. Alarm Current: 1.5A/NAC circuit
- Max. Ripple: 16VAC
- Max. Wire Voltage Drop: 1.0VDC
- Max. Standby Current: 1.0mA

NOTE:

The maximum total current for the MPC-6000 NACs is 3.0A and 6.0A with the optional additional Transformer P/N NPE-1.

The maximum total current for the MPC-7000 NACs is 5.0A and 8.0A with the optional additional Transformer P/N NPE-1.

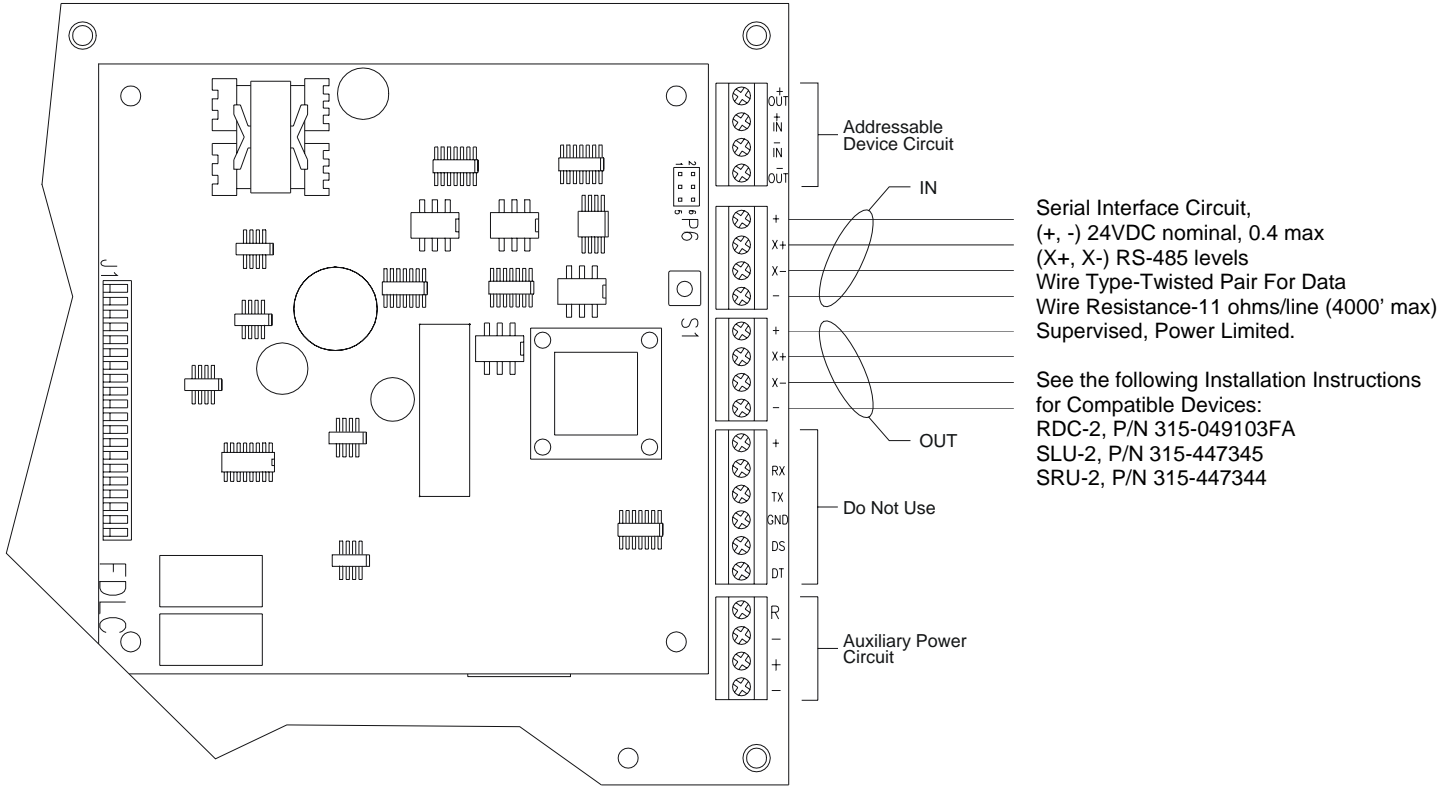


Use the following table to configure the NACs for either Class A or Class B operation.

NAC #s	Class "B" Operation	Paired Class "A" Operation
1,2	JP1	JP2
3,4	JP3	JP4

Serial Interface Circuit

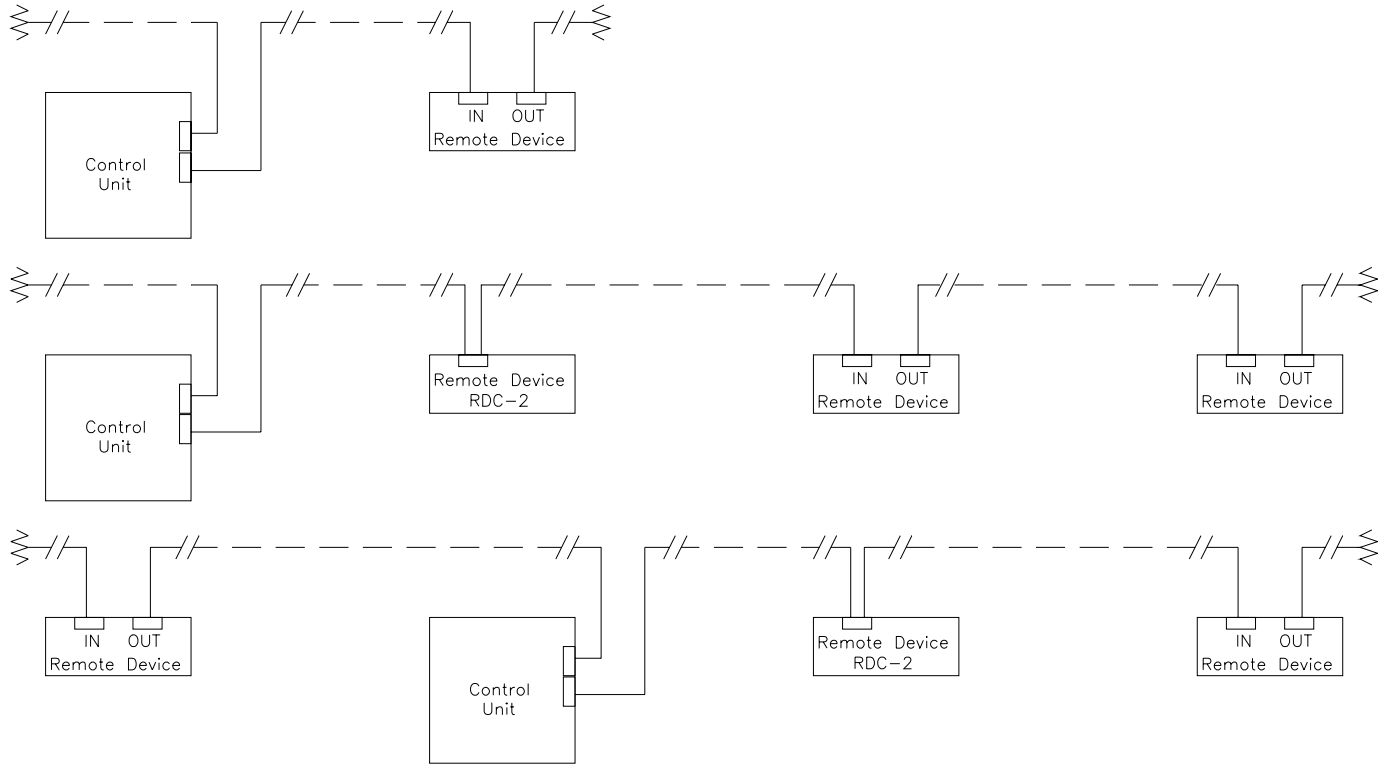
The serial interface circuit can address up to 16 standard annunciators and/or 8 remote processors to drive graphic annunciation or relay modules. Devices on the circuit may be connected up to 4000 feet from the control unit. At the top of the main board the terminal blocks are used for the connection of remote serial devices.



- Remote Device Power** - When connecting devices on the serial interface circuit, a limited amount of current is available from the control unit. If more current supply is required for the connected devices, auxiliary power must be provided. Each address on the circuit must be fully powered from either control unit or auxiliary power (*no combined source can be configured*).

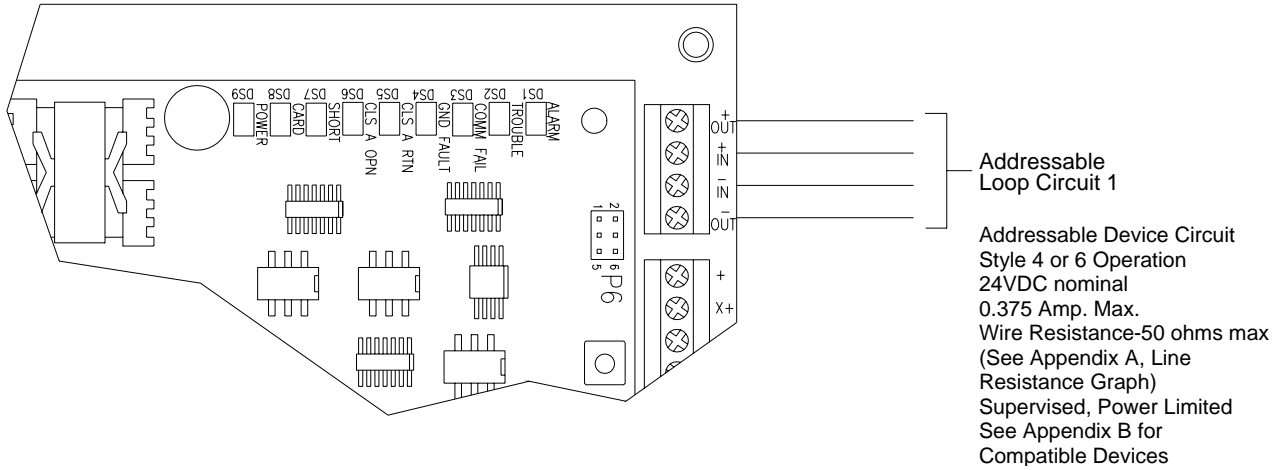
Serial Remote Device Wiring Overview

When connecting devices on the Serial Interface Circuit, the data wires must be daisy chained and with no T-taps to preserve the integrity of the data. Each end (two places) must be terminated with a 120 ohm termination resistor. The following diagrams show the proper wiring.

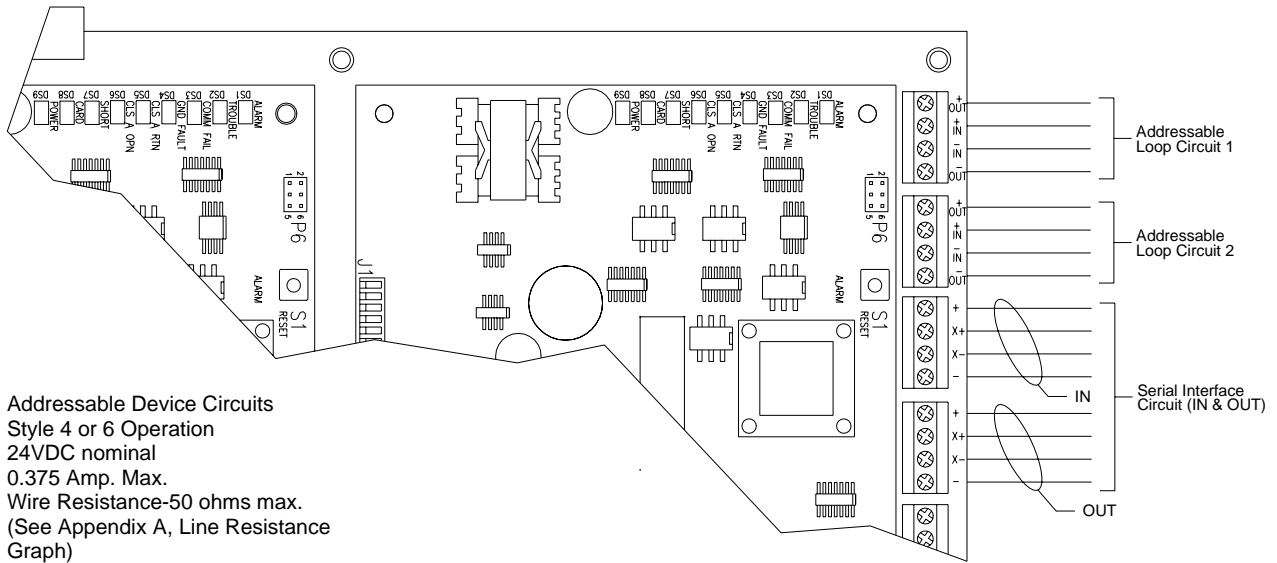


X1 Addressable Device Circuit(s)

These devices are polled by the control unit every few seconds and input or output functions communicated to determine device status or function. The control unit monitors all device addresses for alarm and trouble conditions.



MPC-6000 - X1 ADDRESSABLE DEVICE CIRCUIT



MPC-7000 - X1 ADDRESSABLE DEVICE CIRCUIT

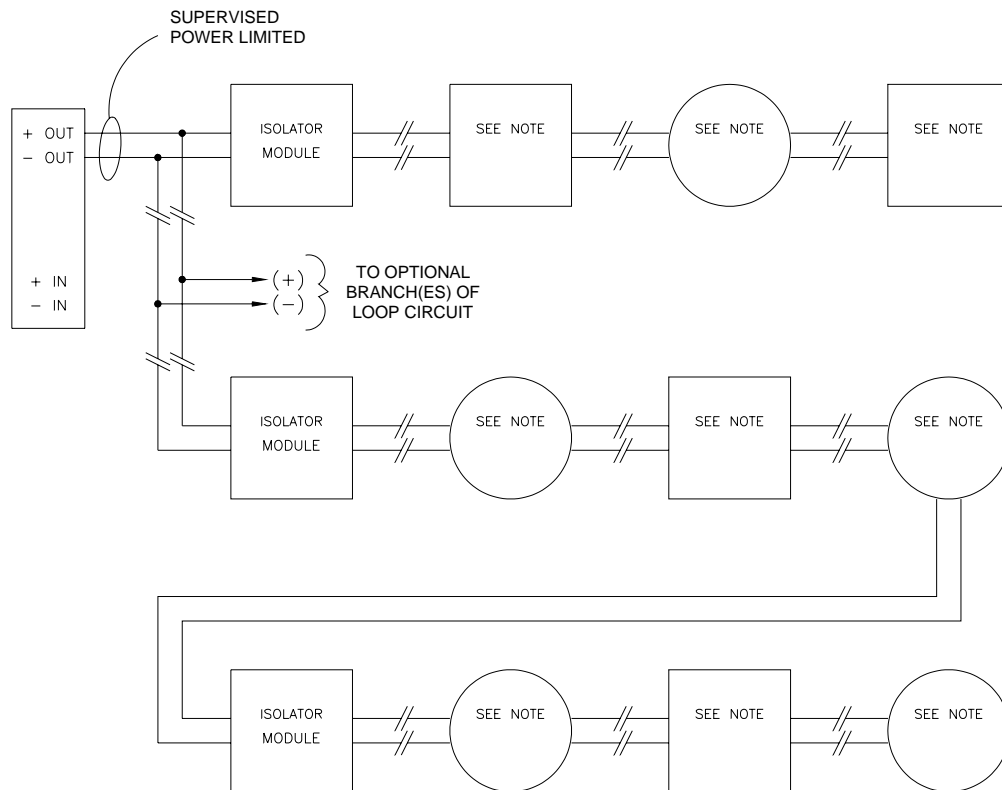
X1 Addressable Device Wiring Diagrams

Refer to the instruction sheets packed with each device.

Detectors and modules may be wired together according to several NFPA defined wiring styles. The wiring style that is appropriate for your installation should be determined from the relevant building codes and the local authority having jurisdiction.

Style 4 wiring permits branching of circuit connections. The control equipment supervises modules because they are active and must respond periodically to the control unit's poll.

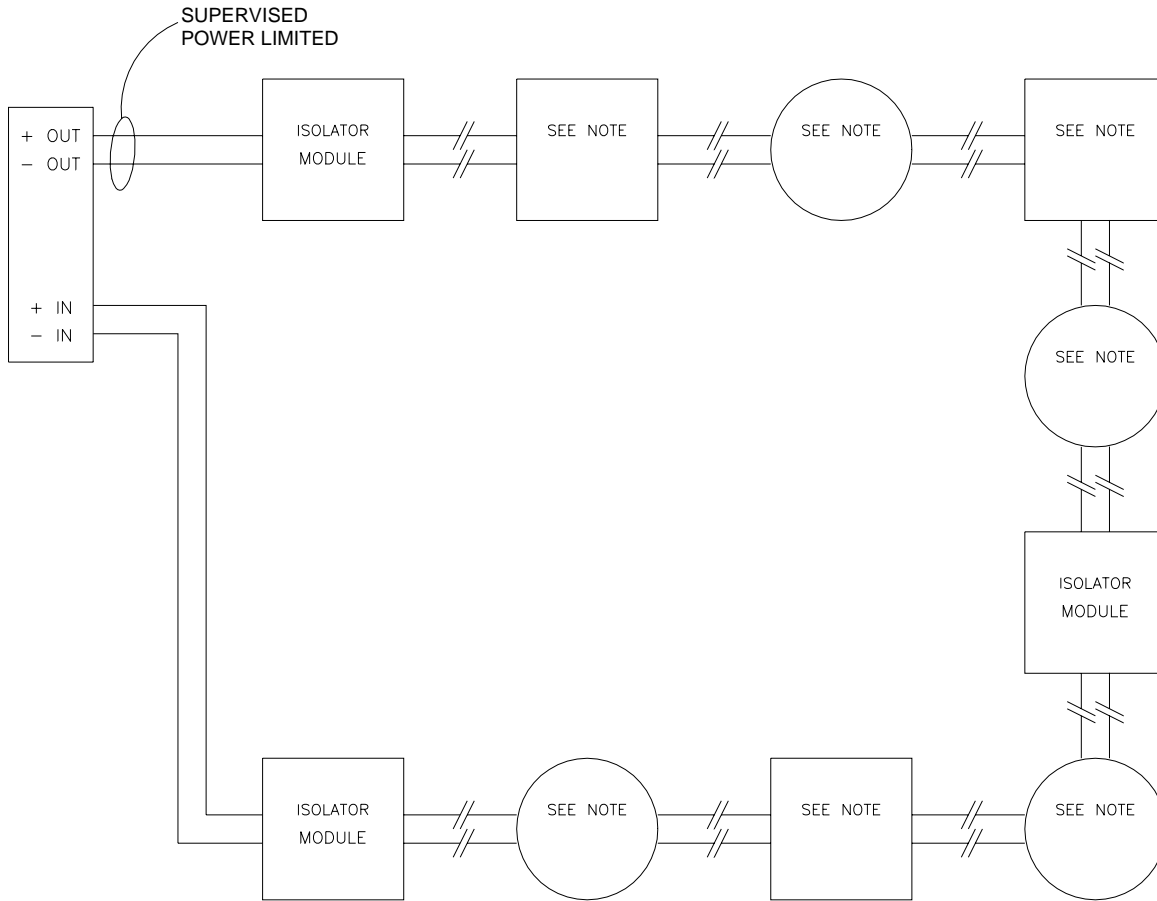
X1 ADDRESSABLE DEVICE CIRCUIT WIRING / OPERATION COMPARABLE TO NFPA STYLE 4



NOTE: Faraday X1 Devices: Detectors, Monitor Modules, or Control Modules up to a maximum of 252 devices per addressable device circuit. A Maximum of 20 devices recommended per Isolator Module. A Maximum of 12 Isolator Modules per addressable device circuit.

X1 ADDRESSABLE DEVICE CIRCUIT WIRING / OPERATION COMPARABLE TO NFPA STYLE 6

Style 6 provides redundant communication paths.



NOTE: Faraday X1 Devices: Detectors, Monitor Modules, or Control Modules up to a maximum of 252 devices per addressable device circuit. A Maximum of 20 devices recommended between Isolator Modules. A Maximum of 12 Isolator Modules per addressable device circuit.

PROGRAMMING THE CONTROL UNIT

KEYPAD PROGRAMMING

Customized programming of the control unit may be accomplished through the keypad in the control unit. See the Faraday MPC-6000 / MPC-7000 / RND-2 Programmer's Manual, P/N 315-049403FA, for detailed information of system programming.

PC PROGRAMMING

Programming the panel may also be done by a temporary connection to the programming port with a computer. This is the recommended method to program the panel.

The Faraday CIS-4 software is available to allow programming the control unit by connection to a Personal Computer (PC) with an EIA-232 serial port. This allows ease of operation by preparing the program in advance and downloading to the control unit in a simple, rapid operation.

Uploading or downloading of a configuration requires technician level. The control unit automatically verifies a downloaded configuration for regulatory and system restriction compliance. After verifying the new configuration, a comparison of the new and old configurations may be printed. Switchover to the new configuration requires confirmation at the control unit. See the Faraday online help for detailed information of system programming.

PROGRAMMING SECURITY

The following levels of security protect the system from unauthorized use:

- User – Locked Door
- Maintenance – Locked Door and 4-digit Maint. Password
- Technician – Locked Door and 6-digit Tech Password

The User and Maintenance Levels are also accessible from the Remote LCD Annunciators.

MAINTENANCE

GENERAL

The MPC-6000 / MPC-7000 / RND-2 provides a maintenance mode to allow for the setting and controlling of various features in the system. Since the RND-2 does not have devices connected to it, some of these functions are not available on the RND-2.

The maintenance functions are protected by a four digit password. To access the maintenance features press the "MENU" button four times and select "Maint. Level" from the display, enter the four digit code when prompted and then press "Enter". The functions listed below are now accessible to the user by using the function buttons on either side of the display.

Disable/Enable Devices

Disable/ Enable Groups

Disable Zones

Disable NACs

Disable City Tie

Disable DACT

Disable Status relays

Disable/Enable Detector Applications

Quick Test

Print History

Print Sensor levels

Edit Device labels

Edit System Labels

Program a Device

Set the time

Set the date

Change the password

Clear the history

Refer to the programming manual for more information about accessing and using the maintenance level functions.

QUICK TEST



If the control unit has remote connections to the Fire Department or other monitor, be sure to disable the remote signals and notify the remote monitoring station before performing test operations, since an off-normal condition will be indicated.

The Quick Test mode makes it fast and easy to test a system by eliminating the need to reset the panel after each device is activated. Quick test may be done on a loop basis (if there are multiple loops), so that the remainder of the system may continue to operate normally. Once the loop is placed into quick test, the NACs will sound for a short configurable period as each device on the loop is activated. In this way a single person is able to quickly check that each device is working and activating the system.

The printer may also be enabled or disabled during “Quick Test” as desired.

Refer to the programming manual for the details of accessing the Quick test functions.



For any required service, contact a factory-authorized representative.

APPENDIX-A: REFERENCE DATA

This appendix provides reference for the following topics:

- Wire selection guides
- Battery size calculations

WIRE SELECTION GUIDES

Resistance of Solid Copper Wire

AWG	Ohms per Thousand Feet*
18	8.08
16	5.08
14	3.19
12	2.01

*NEC Chapter 9, Table 8.

Notification Appliance Circuit Wire Selection Guide

The following chart is based on the following premises:

- $V=IR$
- The entire load is at the end of the wire run (worst case).
- Resistance is of solid copper wire.

Contact your local distributor or the factory if further information is needed in your circumstances.

Maximum Wire Loop Distance (Feet)

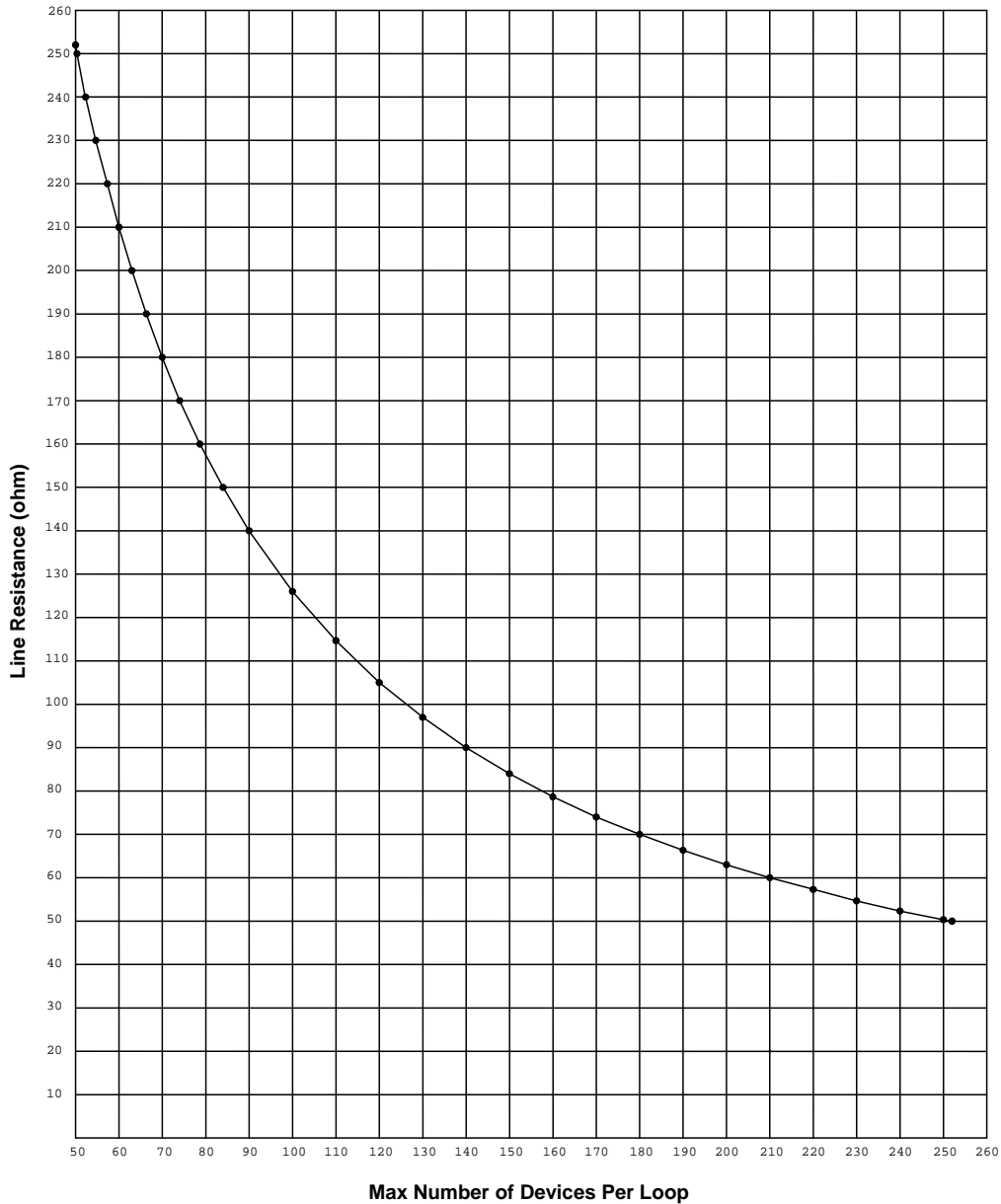
Signal Load (A)	18 AWG	16 AWG	14 AWG	12 AWG
0.10	1237	1968	3134	4975
0.25	495	787	1253	1990
0.50	247	393	626	995
0.75	165	262	417	663
1.00	123	196	313	497
1.25	99	157	250	398
1.50	82	131	208	331

Addressable Device Circuit Wire Selection Guide

Each addressable device circuit must meet the following requirements:

- Total loop resistance - 50 ohm maximum with 252 devices. (Refer to following graph.)
- Total loop capacitance - 0.5uF max line to line and 1.0uF max line to shield

Line Resistance Graph



FDLC LINE RESISTANCE vs MAX NUMBER OF DEVICES

Note: The total number of devices can not exceed 252.

* The terminal blocks of Faraday X1 devices are rated for a maximum of 14AWG wire.

BATTERY SIZE CALCULATIONS

MPC-6000 Current Calculations

Panel and Module Current		Standby Current (A)	Alarm Current (A)
MPC-6000 Control Unit (includes one loop driver board)		0.190	0.190
CT-1K City Tie	Standby 0.005	+	+
	Alarm (Table 1)	NA	+
MPC-DACT DACT Board	Standby 0.038	+	NA
	Alarm 0.054	NA	+
Total Panel currents			

Place these totals in the Total System Current Table
Go to Auxiliary Module Current calculations

RND-2 Current Calculations

Panel and Module Current		Standby Current (A)	Alarm Current (A)
RND-2 Control Unit (no loop driver board)		0.090	0.090
CT-1K City Tie	Standby 0.005	+	+
	Alarm (Table 1)	NA	+
MPC-DACT DACT Board	Standby 0.038	+	NA
	Alarm 0.054	NA	+
Total Panel currents			

Place these totals in the Total System Current Table
Go to Auxiliary Module Current calculations

MPC-7000 Current Calculation

Panel and Module Current		Standby Current (A)	Alarm Current (A)
MPC-7000 Control Unit (includes two loop driver boards)		0.450	0.500
CT-1K City Tie	Standby 0.005	+	+
	Alarm (Table 1)	NA	+
FDLC Loop Driver (on LEM-1)	Standby 0.100 X		N/A
	Alarm 0.100 X	N/A	
HBC-1 Loop Expander Bd.	Standby ¹ 0	0	N/A
	Alarm 0	N/A	0
NEM-1 NAC Expander Bd.	Standby 0.015	0.015	N/A
	Alarm 0.250	N/A	0.250
MPC-DACT DACT Board	Standby 0.038	+	NA
	Alarm 0.054	NA	+
Total Panel currents			

¹ Does not include charging current of 1.9A for a fully discharged battery.

Place totals in the Total System Current table
Go to Auxiliary Module Current calculations

TABLE 1

When using the CT-1K City Tie Board add the following currents for standby and alarm for features being used:

Type of City Tie Connection	Standby	Alarm
1. Local Energy	+ 0.007	+ 0.020
Reverse Polarity Alarm Output (CA)		
2. Alarm	+ 0	+ 0.020
3. Alarm w/Trouble	0	+ 0.020
4. Reverse Polarity Trouble Output (CT)	+ 0	+ 0.020

Auxiliary Module Battery Calculations

Panel and Module Current				Standby Current (A)	Alarm Current (A)
RDC-2 Remote Annunciator	Standby	0.020	X =	+	NA
	Alarm	0.085	X =	NA	+
SRU-2 Serial Relay Unit	Standby	0.032	X =	+	NA
	Alarm	0.192	X =	NA	+
SRE-8 Serial Relay Extender	Standby	0.000	X =	+	NA
	Alarm	0.160	X =	NA	+
SLU-2 Serial Annunciator Unit	Standby	0.018	X =	+	
	Alarm (Note 5)	0.040	X =	NA	+
SLE-16 Serial Annunciator Extender	Standby	0.005	X =	+	
	Alarm (Note 5)	0.000	X =	NA	+
Total Auxiliary Module Current					

Place these totals in the Total System Current table
Go to Device Current Calculations

Device Current Calculations

Device Current				
Catalog #	Quantity	X Current (A)	Standby Current (A)	Alarm Current (A)
	Standby	X =	+	NA
	Alarm	X =	NA	+
	Standby	X =	+	NA
	Alarm	X =	NA	+
	Standby	X =	+	NA
	Alarm	X =	NA	+
	Standby	X =	+	NA
	Alarm	X =	NA	+
4-wire Smoke Detectors				
Catalog #	Quantity	X Current (A)		
	Standby	X =	+	NA
	Alarm	X =	NA	+
	Standby	X =	+	NA
	Alarm	X =	NA	+
End of Line Relay				
Catalog #	Quantity	X Current (A)		
		X =	+	+
Notification Appliances				
Catalog #	Quantity	X Current (A)		
		X =	NA	+
		X =	NA	+
		X =	NA	+
		X =	NA	+
Other	=		+	+
TOTAL DEVICE Current				

Place these totals in the Total System Current table
Go to Total System Current Calculations

Total System Currents

		STANDBY (A)	ALARM (A)
Total Panel & Modules current			
Total Auxiliary current		+	+
Total Device current		+	+
TOTAL PANEL+ Modules + DEVICES (Note 2)			

Use the **Total Panel+ Modules + Devices** for the Battery Size Calculations

Battery Size

Total Standby Current (from above)	Hours of Standby Required per NFPA 72 Standard (4, 24 or 60)	AH for Standby (Note 3, 4)
A.	x _____ Hours	=

Total Alarm Current (from above)	5 Minutes of Alarm Operation per NFPA 72 Standard*	AH for Alarm (Note 3, 4)
A.	x 0.33 Hours	=

A.H. for Standby	A.H. for Alarm	Calculated A.H.	De-rating Factor	A.H. Required Battery Capacity
	+	=	X 1.25	=

Notes:

- An additional multiplier is included to compensate for the higher discharge rate in alarm. Battery capacity decreases with age.
- The Standby current + Alarm current for an MPC-6000 must never exceed 3.0 Amps when using the two supplied transformers and 6.0 Amps when using the supplied transformers and the NPE-1 optional transformer assembly.

The Standby current + Alarm current for an MPC-7000 must never exceed 5.0 Amps when using two supplied transformers and 8.0 Amps when using the supplied transformers and the NPE-1 optional transformer assembly.

The Standby current + Alarm current for an RND-2 must never exceed 0.9 Amps when using the supplied transformer assembly.
- The following states the maximum standby current allowed for a MPC-6000 / RND-2 panel using a 38.5 AH battery set:
60 hours of standby time is 0.457 Amps
24 hours of standby time is 1.144 Amps
- The following states the maximum standby current allowed for a MPC-7000 panel using a 100 AH battery set:
60 hours of standby time is 1.29 Amps
24 hours of standby time is 3.22 Amps
- Does not include lamp or LED current, add separately. Refer to installation instructions P/N 315-447345 for maximum activated current rating of individual drive circuits.

APPENDIX-B: COMPATIBLE DEVICES

DEVICES FOR ADDRESSABLE DEVICE CIRCUITS

Faraday X1 Manual Pull Stations

Faraday Cat. No.	Description
8700-S	Manual Station, Single Action
8700-D	Manual Station, Double Action
8700-M	Manual Station, Single Action, Metal

Faraday X1 Modules

Faraday Cat. No.	Description
8701	Mini- Module for Contact Devices
8702	Module for Contact Devices
8703	Dual Module for Contact Devices
8704	Module for Contact Devices with Relay
8705	Conventional Detector Zone Module
8709	Isolator Module

Faraday X1 Photo Electric Detectors

Faraday Cat. No.	Description	Compatible Base
8710	Photo Detector	8853, 8715, 8716, 8840, 8717
8712	Thermal Detector, Fixed or Fixed/Rate of Rise	8853, 8715, 8716
8713	Fire Smart™ Photo/Thermal Detector	8853, 8715, 8716

Faraday X1 Bases

Faraday Cat. No.	Description	Compatible Detector
8853	Base	8710, 8712, 8713
8715	Audible Base	8710, 8712, 8713
8716	Relay Base	8710, 8712, 8713
8840	Duct Housing	8710, 8813
8717	Duct Housing with Relay	8710, 8713

Faraday X1 Accessories

Faraday Cat. No.	Description
8726C	Intelligent Remote Lamp, Ceiling mount
8726W	Intelligent Remote Lamp, Wall mount
8727C	Remote Lamp, Ceiling mount
8727W	Remote Lamp, Wall mount

Notes:

1. Faraday X1 devices, detectors and modules, up to a maximum of 252 addresses may be used per addressable X1 FDLC Loop Driver Circuit.
2. For specific wiring and installation information, read the instructions provided with each device.

DEVICES FOR NOTIFICATION APPLIANCE CIRCUITS

The following lists compatible devices for the auxiliary power outputs.

- Notification Appliances
- Accessory Devices

Notification Appliances

Catalog Number	Description	Setting	Max # per NAC with max current
446 (*1)	Bell-Vibrating	N/A	8
477 (*1)	Bell-Single Stroke	N/A	7
2700 (*5)	Adapter Strobe	15cd	32
2700 (*5)	Adapter Strobe	30cd	25
2700 (*5)	Adapter Strobe	75cd	13
2700 (*5)	Adapter Strobe	110cd	9
2701 (*1) (*5)	Adapter Strobe – 446x Bell only	N/A	8
2701 (*1) (*5)	Adapter Strobe – 477x Bell only	N/A	7
2701 (*5)	Adapter Strobe – Strobe only	15cd	32
2701 (*5)	Adapter Strobe – Strobe only	30cd	25
2701 (*5)	Adapter Strobe – Strobe only	75cd	13
2701 (*5)	Adapter Strobe – Strobe only	110cd	9
2701 (*1) (*5)	Adapter Strobe – 446x Bell/Strobe	15cd	6
2701 (*1) (*5)	Adapter Strobe – 446x Bell/Strobe	30cd	6
2701 (*1) (*5)	Adapter Strobe – 446x Bell/Strobe	75cd	5
2701 (*1) (*5)	Adapter Strobe – 446x Bell/Strobe	110cd	4
2701 (*1) (*5)	Adapter Strobe – 477x Bell/Strobe	15cd	5
2701 (*1) (*5)	Adapter Strobe – 477x Bell/Strobe	30cd	5
2701 (*1) (*5)	Adapter Strobe – 477x Bell/Strobe	75cd	4
2701 (*1) (*5)	Adapter Strobe – 477x Bell/Strobe	110cd	4
2705-L	WP Strobe Light		X
2705-Z (*2)	WP Sync Strobe Light		X
2830 (*3)	Sync/Non Sync Electronic Horn	Steady or Temporal	49
2831 (*3)	Sync/Non Sync Electronic Horn	Steady or Temporal	49
2834 (*3) (*5)	Sync/Non Sync Electronic Horn w/Adapter		
2834 (*3) (*5)	Horn only	Steady or Temporal	49
2834 (*3) (*5)	Strobe only	15cd	32
2834 (*3) (*5)	Strobe only	30cd	25
2834 (*3) (*5)	Strobe only	75cd	13
2834 (*3) (*5)	Strobe only	110cd	9
2834 (*3) (*5)	Horn/Strobe	Horn, 15cd	19
2834 (*3) (*5)	Horn/Strobe	Horn, 30cd	16
2834 (*3) (*5)	Horn/Strobe	Horn, 75cd	10
2834 (*3) (*5)	Horn/Strobe	Horn, 110cd	7
2880	Electronic Signal-8T		
2880	Electronic Signal	Horn	47
2880	Electronic Signal	Chime or Bell	51
2880	Electronic Signal	Slow Whoop	40
2880	Electronic Signal	Temporal or HI-Lo	65
2880	Electronic Signal	Siren	38
2880	Electronic Signal	SS Bell	53
2881	Electronic Signal-8T		
2881	Electronic Signal	Horn	47
2881	Electronic Signal	Chime or Bell	51
2881	Electronic Signal	Slow Whoop	40
2881	Electronic Signal	Temporal or HI-Lo	65
2881	Electronic Signal	Siren	38
2881	Electronic Signal	SS Bell	53
2884 (*5)	Electronic Signal-8T w/Adapter		
2884 (*5)	Audible only	Horn	47
2884 (*5)	Audible only	Chime or Bell	51
2884 (*5)	Audible only	Slow Whoop	40
2884 (*5)	Audible only	Temporal or HI-Lo	65
2884 (*5)	Audible only	Siren	38
2884 (*5)	Audible only	SS Bell	53
2884 (*5)	Strobe only	15cd	32
2884 (*5)	Strobe only	30cd	25
2884 (*5)	Strobe only	75cd	13
2884 (*5)	Strobe only	110cd	9

X = Not Compatible

MPC-6000 / MPC-7000 / RND-2 INSTALLATION, OPERATION AND MAINTENANCE MANUAL

2884 (*5)	Audible/Strobe	Horn, 15cd	19
2884 (*5)	Audible/Strobe	Horn, 30cd	16
2884 (*5)	Audible/Strobe	Horn, 75cd	10
2884 (*5)	Audible/Strobe	Horn, 110cd	7
2884 (*5)	Audible/Strobe	Chime/Bell, 15cd	20
2884 (*5)	Audible/Strobe	Chime/Bell, 30cd	16
2884 (*5)	Audible/Strobe	Chime/Bell, 75cd	10
2884 (*5)	Audible/Strobe	Chime/Bell, 110cd	8
2884 (*5)	Audible/Strobe	Slow Whoop, 15cd	18
2884 (*5)	Audible/Strobe	Slow Whoop, 30cd	15
2884 (*5)	Audible/Strobe	Slow Whoop, 75cd	10
2884 (*5)	Audible/Strobe	Slow Whoop, 110cd	7
2884 (*5)	Audible/Strobe	Temporal or Hi-Lo, 15cd	21
2884 (*5)	Audible/Strobe	Temporal or Hi-Lo, 30cd	18
2884 (*5)	Audible/Strobe	Temporal or Hi-Lo, 75cd	11
2884 (*5)	Audible/Strobe	Temporal or Hi-Lo, 110cd	8
2884 (*5)	Audible/Strobe	Siren, 15cd	17
2884 (*5)	Audible/Strobe	Siren, 30cd	15
2884 (*5)	Audible/Strobe	Siren, 75cd	10
2884 (*5)	Audible/Strobe	Siren, 110cd	7
2884 (*5)	Audible/Strobe	SS Bell, 15cd	20
2884 (*5)	Audible/Strobe	SS Bell, 30cd	17
2884 (*5)	Audible/Strobe	SS Bell, 75cd	10
2884 (*5)	Audible/Strobe	SS Bell, 110cd	8
5390	Electronic Chime	N/A	157
5394 (*5)	Electronic Chime w/Adapter		
5394 (*5)	Chime only	N/A	157
5394 (*5)	Strobe only	15cd	32
5394 (*5)	Strobe only	30cd	25
5394 (*5)	Strobe only	75cd	13
5394 (*5)	Strobe only	110cd	9
5394 (*5)	Chime/Strobe	Chime, 15cd	27
5394 (*5)	Chime/Strobe	Chime, 30cd	21
5394 (*5)	Chime/Strobe	Chime, 75cd	12
5394 (*5)	Chime/Strobe	Chime, 110cd	8
5395	Electronic Chime		157
5398 (*5)	Electronic Chime w/Adapter		
5398 (*5)	Chime only	N/A	157
5398 (*5)	Strobe only	15cd	32
5398 (*5)	Strobe only	30cd	25
5398 (*5)	Strobe only	75cd	13
5398 (*5)	Strobe only	110cd	9
5398 (*5)	Chime/Strobe	Chime, 15cd	27
5398 (*5)	Chime/Strobe	Chime, 30cd	21
5398 (*5)	Chime/Strobe	Chime, 75cd	12
5398 (*5)	Chime/Strobe	Chime, 110cd	8
5406	Sync Control Unit	N/A	See P/N 315-545222
6230	Horn	N/A	55
6234 (*5)	Horn w/Adapter		
6234 (*5)	Horn only	N/A	55
6234 (*5)	Strobe only	15cd	32
6234 (*5)	Strobe only	30cd	25
6234 (*5)	Strobe only	75cd	13
6234 (*5)	Strobe only	110cd	9
6234 (*5)	Horn/Strobe	Horn, 15cd	20
6234 (*5)	Horn/Strobe	Horn, 30cd	17
6234 (*5)	Horn/Strobe	Horn, 75cd	11
6234 (*5)	Horn/Strobe	Horn, 110cd	8
6235-L	Horn w/Strobe		
6235-L	Horn only	N/A	55
6235-L	Strobe only	N/A	X
6235-L	Horn/Strobe	N/A	X
6235-Z (*2)	Horn w/Sync Strobe		
6235-Z (*2)	Horn only	N/A	26
6235-Z (*2)	Strobe only	N/A	X
6235-Z (*2)	WP Horn/Strobe	N/A	X
6238 (*5)	Horn w/Adapter		
6238 (*5)	Horn only	N/A	55
6238 (*5)	Strobe only	15cd	32
6238 (*5)	Strobe only	30cd	25

X = Not Compatible

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6238 (*5)	Strobe only	75cd	13
6238 (*5)	Strobe only	110cd	9
6238 (*5)	Horn/Strobe	Horn, 15cd	20
6238 (*5)	Horn/Strobe	Horn, 30cd	17
6238 (*5)	Horn/Strobe	Horn, 75cd	11
6238 (*5)	Horn/Strobe	Horn, 110cd	8
6254 (*5)	Horn w/Adapter		
6254 (*5)	Horn only	N/A	26
6254 (*5)	Strobe only	15cd	32
6254 (*5)	Strobe only	30cd	25
6254 (*5)	Strobe only	75cd	13
6254 (*5)	Strobe only	110cd	9
6254 (*5)	Horn/Strobe	Horn, 15cd	14
6254 (*5)	Horn/Strobe	Horn, 30cd	12
6254 (*5)	Horn/Strobe	Horn, 75cd	9
6254 (*5)	Horn/Strobe	Horn, 110cd	7
6255-L	WP Horn w/Strobe		
6255-L	WP Horn only	N/A	26
6255-L	Strobe only	N/A	X
6255-L	Horn/Strobe	N/A	X
6255-Z (*2)	WP Horn w/Sync Strobe	N/A	
6255-Z (*2)	WP Horn only	N/A	26
6255-Z (*2)	Strobe only	N/A	X
6255-Z (*2)	WP Horn/Strobe	N/A	X
6258 (*5)	Horn w/Adapter		
6258 (*5)	Horn only	N/A	26
6258 (*5)	Strobe only	15cd	32
6258 (*5)	Strobe only	30cd	25
6258 (*5)	Strobe only	75cd	13
6258 (*5)	Strobe only	110cd	9
6258 (*5)	Horn/Strobe	Horn, 15cd	14
6258 (*5)	Horn/Strobe	Horn, 30cd	12
6258 (*5)	Horn/Strobe	Horn, 75cd	9
6258 (*5)	Horn/Strobe	Horn, 110cd	7
6300	Mini-Horn	Steady or Temporal	115
6301	Mini-Horn	Steady or Temporal	115
6304 (*5)	Mini-Horn w/Adapter		
6304 (*5)	Mini-Horn only	N/A	115
6304 (*5)	Strobe only	15cd	32
6304 (*5)	Strobe only	30cd	25
6304 (*5)	Strobe only	75cd	13
6304 (*5)	Strobe only	110cd	9
6304 (*5)	Mini-Horn/Strobe	Mini-Horn, 15cd	25
6304 (*5)	Mini-Horn/Strobe	Mini-Horn, 30cd	20
6304 (*5)	Mini-Horn/Strobe	Mini-Horn, 75cd	12
6304 (*5)	Mini-Horn/Strobe	Mini-Horn, 110cd	8
6310	Mini-Horn-S/T	N/A	115
6311	Mini-Horn-S/T	N/A	115
6314 (*5)	Mini-Horn-S/T w/Adapter		
6314 (*5)	Mini-Horn only	N/A	115
6314 (*5)	Strobe only	15cd	32
6314 (*5)	Strobe only	30cd	25
6314 (*5)	Strobe only	75cd	13
6314 (*5)	Strobe only	110cd	9
6314 (*5)	Mini-Horn/Strobe	Mini-Horn, 15cd	25
6314 (*5)	Mini-Horn/Strobe	Mini-Horn, 30cd	20
6314 (*5)	Mini-Horn/Strobe	Mini-Horn, 75cd	12
6314 (*5)	Mini-Horn/Strobe	Mini-Horn, 110cd	8

X = Not Compatible

Key:

(*1) 1=10" gong, 4=4" gong, 5=chime, 6=6" gong, 8=8" gong

(*2) Sync Strobe Light requires 5406 Sync Control Module or panel NACs programmed for synchronized operation.

(*3) Sync Electronic Horn and Sync Strobe Light require 5406 Sync Control Module or panel NACs programmed for synchronized operation.

(*4) See Installation Instructions for the current of the desired tone.

(*5) See Installation Instructions for the current of the adapter strobe.

Cat. No. xxxx-L = Strobe Light (UL1971 110cd) Cat. No. xxxx-Z = Sync Strobe Light (UL1971 110cd)

Accessory Devices

Faraday Cat. No.	Mfg. Part Number	Description
	Faraday	
R711-1	711-1	Polarized Auxiliary Relay
RSE-100	15070	Remote Signal Expander
RSE 300	RSE-300	Remote Signal Expander
15222A	15222A	Signal Expander Panel

1. The accessory devices listed above may be wired to activate from the notification appliance circuits.
2. For specific wiring and installation information, read the instructions provided with each device.

DEVICES FOR AUXILIARY POWER OUTPUTS

The following lists compatible devices for the auxiliary power outputs.

- Door Holders
- Relays

Four Wire (Separately Powered) Heat & Smoke Detectors. See Devices for Initiating Device Circuits.

Door Holders

Not applicable at this time.

Relays

Faraday Cat. No.	Mfg. Part Number	Description
	Faraday	
R711-1	711-1	Remote Relay Unit
	Air Products & Controls	
R712-1	MR-101/C	Remote Relay Unit
R712-2	MR-201/C	Remote Relay Unit
R712-4	MR-104/C	Remote Relay Unit
R712-8	MR-204/C	Remote Relay Unit
9273	PAM-4	E.O.L. Relay
	System Sensor	
PM6849	A77-716B	E.O.L. Relay

Notes:

1. The accessory devices listed above may be wired to the auxiliary power outputs.
2. For specific wiring and installation information, read the instructions provided with each device.

APPENDIX-C: TROUBLESHOOTING

DEFINITIONS FOR EVENT HISTORY ENTRIES

A. General

ENTRY	INDICATES
ALARM	General alarm
ALRM	Alarm
AVCntr	Alarm Verify counter
Blank	Plain alarm
CrossZone	cross zone point
CZ1A	Cross zone
CZ1B	Cross zone
CZ2A	Cross zone
CZ2B	Cross zone
DETECTOR	General alarm
HEAT	Thermal detector
ION	Ion detector
LCDxx	LCD Annunciator xx
MAIN	Main panel
MANL PULL	Manual pull station
Mntc	Detector maintenance alert
PAS	Positive alarm sequence
PAS INHBT	PAS inhibit switch
PHOTO	PE detector
PRE SIGNAL	pre-signal
PreA	Pre-alarm
SUPERVSRV	Supervisory
SUPR	Supervisory
TRBL	Trouble
TROUBLE	Trouble
USERx	User-defined input x
WATERFLOW	Waterflow

B. System Troubles

ENTRY	INDICATES
AC Trouble	AC input low or off
AddrLp 1 DBLSHT	Double short trouble on addressable loop 1
AddrLp 1 OPEN	Open circuit trouble on addressable loop 1
AddrLp 1 SHORT	Short circuit trouble on addressable loop 1
BATT Trouble	Battery input low or off
CITY Trouble	Local Energy circuit open
DACT Acct Trb	DACT account reporting trouble
DACT Com Trouble	DACT communication trouble with main processor
DACT PL x Trouble	Open or short on DACT phone line x
FLASH FATAL Trb	Configuration Flash memory trouble
GRND FAULT Trbl	Ground Fault trouble
LCDxx NoRespons	LCD Annunciator xx programmed but is not responding
LCDxx Not Pgmd	LCD Annunciator xx is not programmed but is responding
LCDxx Trouble	LCD Annunciator xx reports trouble
MNLP Bad Msg	Main processor to loop processor communication trouble
MNLP Fifo Xmit	Main processor to loop processor communication trouble
MNLP NoRespons	Main processor to loop processor communication trouble
NACxx Trouble	NAC xx wiring is open or shorted
PC Pgrmr Trb	Control unit is not receiving communication from PC
QuickTest Abort	Quick Test Timer expired causing abnormal exit of Quick Test
Trb Reminder	Trouble Reminder timer expired

C. System Events

ENTRY	INDICATES/NOTES
Alarm Silenced	MAIN, LCDxx shown on bottom line
All AV Ctrs Clr	All AV counters cleared
AutoProgram Run	Auto programming function run
Backup Cnfg Check	Backup configuration validated, result on bottom line
Backup Cnfg Edit	Backup configuration edited
ConfigsCompared	Backup and primary configurations compared, result on bottom line
ConfigsSwapped	Backup and Primary configurations swapped
EventHist Clear	Event History cleared
Mnt Lvl Enter	Entered Maintenance level
Mnt Lvl Exit	Exited Maintenance level
Mnt Lvl PW Changed	Changed Maintenance level password
NACxx Active Confirm	NAC activation confirmed
Panel Reset	MAIN, LCDxx shown on bottom line
Power Up	
PriConfigCopied	Primary configuration copied to backup
QuickTest Exit	Exited Quick Test, MAIN or LCDxx shown on bottom line
QuickTest Start	Started Quick Test, MAIN or LCDxx shown on bottom line
System Date Changed	Changed system date, old and new dates shown on lines 3 and 4
System Time Changed	Changed system time, old and new times shown on lines 3 and 4
Tech Lvl Enter	Entered Tech level
Tech Lvl Exit	Exited Tech level
Tech Lvl PW Changed	Changed Tech level password
User Lvl Enter	Entered User level
User Lvl Exit	Exited User level

APPENDIX-D: MODULE INSTALLATION INSTRUCTIONS LIST

This Appendix provides a list of installation instructions for the following option modules and accessories:

- BE-1 Battery Box 315-033917FA
- CT-1K City Tie Board 315-447052
- FDLC Loop Driver Board 315-447360FA
- HBC-1 Battery Charger 315-447362FA
- LEM-1 Loop Expansion Module 315-447361
- MPC-DACT Serial Digital Communicator 315-699464FA
- NEM-1 NAC Expansion Module 315-447363FA
- NPE-1 Optional Transformer Assembly 315-049120FA
- RDC-2 Remote LCD Annunciator 315-049103FA
- RDC-2 Remote LCD Annunciator Operating Instructions 315-049104FA
- RSE-300 Remote Signal Expander 315-099082FA
- SLU-2 Serial Annunciator Unit 315-447345
- SLE-16 Serial Annunciator Extender 315-447345
- SRU-2 Serial Relay Unit 315-447344
- SRE-8 Serial Relay Extender 315-447344

APPENDIX-E: GLOSSARY

Alarm Signal. A signal indicating an emergency requiring immediate action, such as an alarm for fire from a manual station, a waterflow alarm, or an automatic smoke detector.

Alarm Silence Inhibit. An option that prevents a human operator from silencing the notification appliances for a preset period of time.

Alarm System. A combination of compatible initiating devices, control units, and notification appliances designed and installed to produce an alarm signal in the event of a fire.

Alarm Verification. A preset option that causes the control unit to verify alarms originated by smoke detectors before indicating an alarm.

Annunciator. A remotely located, electrically powered display, separate from the control unit, containing LEDs or lamps to indicate the states of the fire alarm system.

Audible Signal. An audible signal is a sound made by one or more audible notification appliances, such as bells or horns, in response to the operation of an initiating device.

Authority Having Jurisdiction (AHJ). The organization, office, or individual responsible for approving equipment, installation or procedure.

Auto-Silence. The capability of a control to automatically silence the notification appliances after a preset period of time.

Auxiliary Relays. Control relays that energize only during alarm conditions that are used to either apply power to or remove power from other equipment during an alarm condition.

Class A Circuit. An initiating device or notification appliance circuit within which all components remain fully functional, even though a single open or ground exists in the circuit.

Class B Circuit. An initiating device or notification appliance circuit within which some or all components may be disabled with a single open or ground exists in the circuit.

Detector - FireSmart™. An intelligent fire detector that blends photoelectric, thermal and neural network technologies for superior protection without false alarms.

Detector - Smoke, Photoelectric Type. A detector employing the photoelectric principle of reflection or obstruction of light by smoke.

Detector - Thermal Type. An addressable thermal sensor that is programmable as either a fixed temperature (135° F) or as a rate of rise detector.

End Of Line (EOL). A device used to terminate a supervised circuit.

General Alarm. A term usually applied to the simultaneous operation of all the notification appliances on a system.

Ground Fault. A trouble condition in which a low resistance has been detected between the system wiring and conduit ground.

Initiating Device. A manually or automatically operated device such as a manual pull station, smoke detector, heat detector, waterflow switch or tamper switch.

Initiating Device Circuit (IDC). A circuit to which initiating devices are connected.

Labeled. Equipment or materials to which have been attached a label, symbol, or other identifying mark of an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of the production of such labeled equipment or materials. And by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Listed. Equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or materials. And whose listing states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

NEC. National Electrical Code also published as NFPA standard 70.

Notification Appliance. An electrically operated appliance used to indicate the system status such as a bell, horn, strobe light or speaker.

Notification Appliance Circuit (NAC). A circuit to which notification appliances are connected.

Power Supply. That portion of the fire alarm control unit, which provides the power needed to operate all control unit modules, as well as that, needed to operate all electrically powered initiating devices and all notification appliances.

Quick Test. A term pertaining to the test mode of the system, that automatically resets after a service technician tests initiating devices.

Supervisory Alarm. A signal indicating the operation of a supervisory device.

Supervisory Device. A device that monitors the condition of a sprinkler system such as a gate-valve switch, water-level switch, low pressure switch, low temperature switch or fire pump monitor.

Trouble Signal. An audible signal indicating trouble of any nature, such as a circuit break or ground, occurring in the device or wiring associated with a fire alarm signal.

Waterflow Switch. An assembly approved for service and so constructed and installed that any flow of water from a sprinkler system equal to or greater than that from a single automatic sprinkler head will result in activation of this switch and subsequent indication of an alarm condition.

Zone. A designated area of a building. Commonly, zone, is interchanged with initiating device circuit.



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