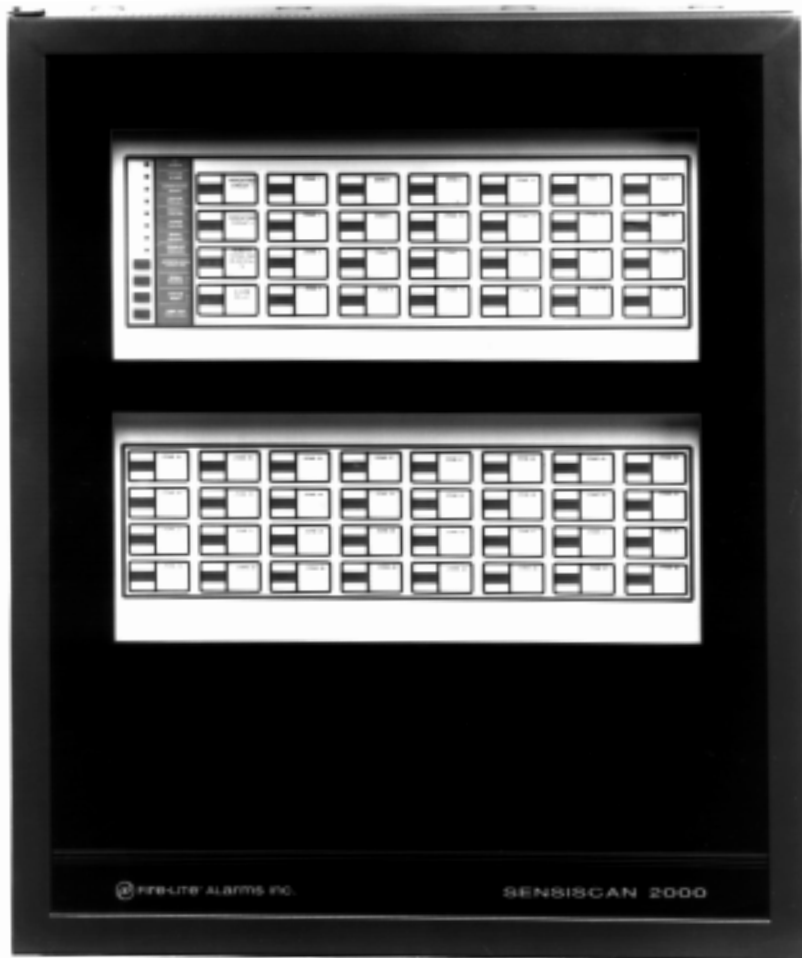




Fire-LITE® Alarms Inc.

12 Clintonville Road, Northford, CT, 06472



THE SENSISCAN 2000

INSTALLATION, OPERATION, AND PROGRAMMING MANUAL

Document # 15017
10/8/96 Rev: **H**

P/N 15017:H ECN 96-200

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

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

CAUTION - *System Reacceptance Test after Software Changes:* To ensure proper system operation, this product must be tested in accordance with NFPA 72-1993 Chapter 7 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0-49° C/32-120° F and at a relative humidity of 85% RH (non-condensing) at 30° C/86° F. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a nominal room temperature of 15-27° C/60-80° F.

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

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

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

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

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

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

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

Fire Alarm System Limitations

While installing a fire alarm system may make lower insurance rates possible, it is not a substitute for fire insurance!

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

Any fire alarm system may fail for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in walls, or roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second floor detector, for example, may not sense a first floor or basement fire. Furthermore, all types of smoke detectors - both ionization and photoelectric types, have sensing limitations. No type of smoke detector can sense every kind of fire caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches, or arson.

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

Audible warning devices such as bells may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building.

A fire alarm system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time.

Rate-of-Rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist.

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

Telephone lines needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled.

The most common cause of fire alarm malfunctions, however, is inadequate maintenance. All devices and system wiring should be tested and maintained by professional fire alarm installers following written procedures supplied with each device. System inspection and testing should be scheduled monthly or as required by National and/or local fire codes. Adequate written records of all inspections should be kept.

FCC Warning

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

Canadian Requirements

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

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

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SECTION ONE: GENERAL INFORMATION

1.1 INTRODUCTION

The System 2000 is an expandable multi-zone Fire Alarm Control Panel designed with maximum flexibility and modularity as a basic requirement. The heart of the system is the Central Processor Unit (CPU-2000) module which monitors and directs the actions of all other modules in the system. Up to seven additional modules may be installed in various configurations. Internal communications are accomplished over a high-speed serial bus.

The CPU-2000 is provided with the Basic Equipment package. This module provides two Style Z and/or Style Y notification appliance circuits, Form-C alarm and trouble contacts, Remote Station alarm and trouble outputs, and a Municipal Master Box output. A main power supply (MPS-24AF/MPS-24AFE or MPS-24BF/MPS-24BFE) and an initiating zone module (IZ-4F or IZ-8F) must be added to make the basic system functional.

The basic system can be expanded using one or more of the following optional modules or boards:

- IZ-8F Initiating Zone Module
- IZ-4F Initiating Zone Module
- IZE-AF Initiating Zone Expander
- IC-4F Notification Circuit Module
- ICE-4F Notification Circuit Expander
- CR-4F Control Relay Module
- AVPS-24F/AVPS-24FE Audio-Visual Power Supply
- CRE-4F Control Relay Expander
- TC-2F Time Control Module
- TC-4F Time Control Module
- AFM-16ATF Annunciator Fixed Module
- AFM-32AF Annunciator Fixed Module
- AFM-16AF Annunciator Fixed Module
- AFM-16ATX Annunciator Fixed Module
- AFM-32AX Annunciator Fixed Module
- UDACT-F Universal Digital Alarm Communicator Transmitter

System expansion must comply with:

- The physical limitations of the cabinet configuration.
- The electrical limitations of the system power supplies (see Appendix A).
- The capacity of the standby batteries (see Appendix A).

1.2 KEY FEATURES

- Distributed microprocessor electronics.
- Field programmable in nonvolatile memory.
- Alarm and trouble resound.
- Plug-in terminal blocks for ease of field wiring and service.
- On/Off status indicators on all notification appliance circuits and control relays.

1.3 RELATED DOCUMENTATION

Before proceeding, the installer should be familiar with the following documents.



NFPA STANDARDS:

- NFPA 12 Installation, Maintenance, and Use of Carbon Dioxide Extinguishing Systems
- NFPA 12A Installation, Maintenance, and Use of Halon 1301 Extinguishing Systems
- NFPA 12B Installation, Maintenance, and Use of Halon 1211 Extinguishing Systems
- NFPA 2001 Clean Agent Fire Extinguishing Systems
- NFPA 72-1993 Installation, Maintenance, and Use of Central Station Signaling Systems.
- NFPA 72-1993 Local Protective Signaling Systems
- NFPA 72-1993 Auxiliary Protective Signaling Systems
- NFPA 72-1993 Use of Remote Station Protective Signaling Systems
- NFPA 72-1993 Use of Proprietary Protective Signaling Systems
- NFPA 72-1993 Automatic Fire Detectors
- NFPA 72-1993 Installation, Maintenance, and Use of Notification Appliances for Protective Signaling Systems
- NFPA 72-1993 Testing Procedures for Signaling Systems



UNDERWRITERS LABORATORIES DOCUMENTS:

- UL 38 Manually Actuated Signaling Boxes
- UL 217 Smoke Detectors, Single and Multiple Station
- UL 228 Door Closers - Holders for Fire Protective Signaling Systems
- UL 268 Smoke Detectors for Fire Protective Signaling Systems
- UL 268A Smoke Detectors for Duct Applications
- UL 346 Waterflow Indicators for Fire Protective Signaling Systems
- UL 464 Audible Signaling Appliances
- UL 521 Heat Detectors for Fire Protective Signaling Systems
- UL 864 Standard for Control Units for Fire Protective Signaling Systems
- UL 1481 Power Supplies for Fire Protective Signaling Systems
- UL 1638 Visual Signaling Appliances
- UL 1971 Signaling Devices for the Hearing Impaired



UNDERWRITERS LABORATORIES OF CANADA (ULC) LISTED

Standard CAN/ULC-S527-M87



OTHER:

- EIA-485 Serial Interface Standards
- NEC Article 300 Wiring Methods
- NEC Article 760 Fire Protective Signaling Systems

** Applicable Local and State Building Codes

** Requirements of the Local Authority Having Jurisdiction

1.4 MINIMUM SYSTEM CONFIGURATIONS

At a minimum, the following Sensiscan components are required for compliance with NFPA standards 12, 12A, 12B and 72-1993.

- **BE-2000 Basic Equipment Package** which includes:
CPU-2000 Central Processor Module, Vented Dress Panel, CHS-4F Chassis, and connecting cables.
- **An IZ-4F or IZ-8F Initiating Zone Module** for up to eight Style B initiating device circuits.
- The **Main Power Supply** (MPS-24AF/MPS-24AFE or MPS-24BF/MPS-24BFE)
- **Standby Batteries** - refer to Standby Power Requirements, Appendix A.
- A **Sensiscan 2000 Cabinet** (CAB-A3F or CAB-B3F)

In addition, the following equipment is required for the specific NFPA standards listed below.

An NFPA 72-1993 Proprietary Protected Premises Control Unit requires:

- **Potter Electronic Signal Co. Transmitter** (Model EFT-C) with transformer (Model ULT, Stock. Number 1000391).

An NFPA 72-1993 Central Station Protected Premises Control Unit requires:

- **UDACT-F, 911A Digital Communicator or an Ademco No. 678 UL-F Digital Communicator**
- Sprinkler Supervisory and/or Waterflow Alarm Service requires a **Control Relay Module**.

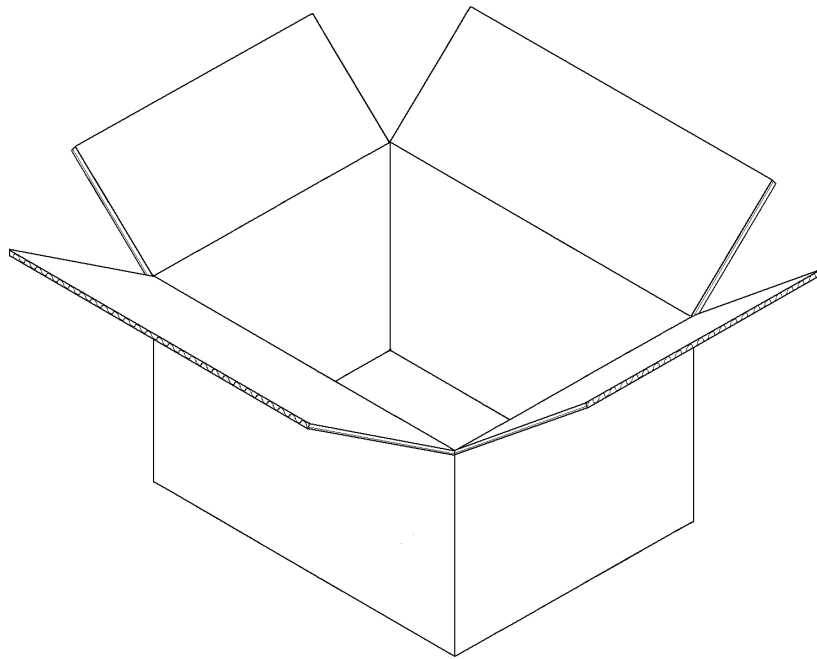
An NFPA-12 Minimum Carbon Dioxide Extinguishing Control Unit, NFPA-12A Halon 1301 Fire Extinguishing Control Unit, NFPA-12B Halon 1211 Fire Extinguishing Control Unit requires:

- **TC-2F or TC-4F Time Control Module**.

NOTE

For wiring diagrams and more information on these applications, refer to Section 6.

SECTION TWO: INVENTORY



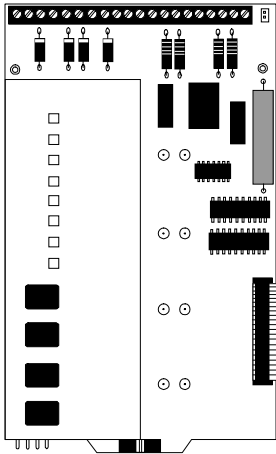
The Sensiscan 2000 is offered under a **Basic Equipment (BE-2000)** package which provides the CPU-2000 module, the VP-1F Vented Dress Panel, one CHS-4F Chassis, interconnecting cables and instruction manuals.

Other Components include modules and devices not provided in the Basic Equipment package. These components also include several items necessary to complete a basic system, such as the main power supply, initiating modules, notification modules, and control relay modules. See Section One for minimum system requirements.

This installation manual covers a basic system. For information on other devices, refer to the installation manuals of the following products:

- The AFM Annunciator Fixed Module, Document 15970
- The AFM-16ATF Annunciator Fixed Module, Document 15210
- The AFM-X Series Annunciator Modules, Document 15390
- The TC-2F Time Control Module, Document 15971
- The TC-4F Time Control Module, Document 15972
- The Fire•Lite Device Compatibility Document, Document 15384
- The UDACT-F Manual, Document 50049

2.1 THE BE-2000 BASIC EQUIPMENT PACKAGE



CPU-2000 CENTRAL PROCESSOR MODULE

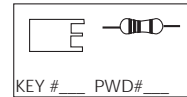
This module is the heart of the system. It controls and monitors the system modules and provides a full accounting of system status. In addition, the CPU contains two notification appliance circuits, a Remote Signaling Municipal Tie Circuit, and Form-C alarm and trouble contacts. Field programming of the system is accomplished from this module via the use of the Programming Key. Slide-in labels for programming, control, and system operation are provided with the CPU, as well as end-of-line and dummy load resistors.



End-of-Line Resistor (ELR)
4.7K, 1/2 watt (71252)



Dummy Load Resistor
4.7K, 1/2 watt (71245)



Programming Key (PKB)



Power Ribbon
(71085)



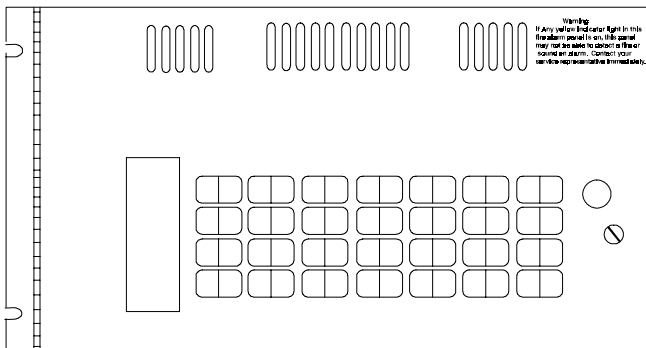
Power Harness
(71086)



First-Row Ribbon Cable
(71087)



Main Bell Power Harness
(71093)

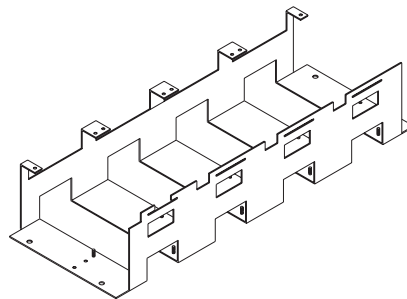


CHS-4 Chassis

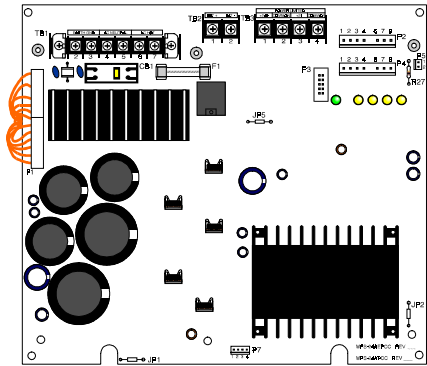
For the mounting of up to four modules or four AVPS-24F Audio-Visual Power Supplies. The CHS-4 occupies one row in the CAB-A3F or CAB-B3F cabinet.

VP-1F Vented Dress Panel

Covers the top row of modules in the cabinet.

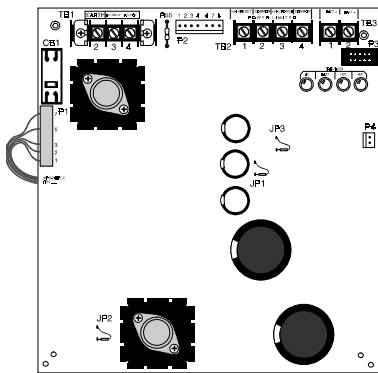


2.2 POWER SUPPLIES



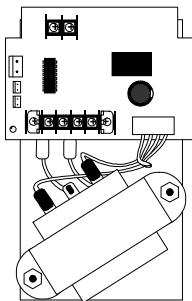
MPS-24AF/MPS-24AFE

The MPS-24AF supplies the regulated power needed to run system modules. It also supplies up to 3 amps of regulated notification appliance power, permitting the use of a variety of standard UL-listed 24 VDC Notification Appliances (refer to the Fire•Lite Device Compatibility Document, Document 15384 for a complete list of notification appliances). Up to one amp of resettable power is available for four-wire smoke detectors. The MPS-24AF contains an integral battery charger for 9.5 to 55 AH batteries.



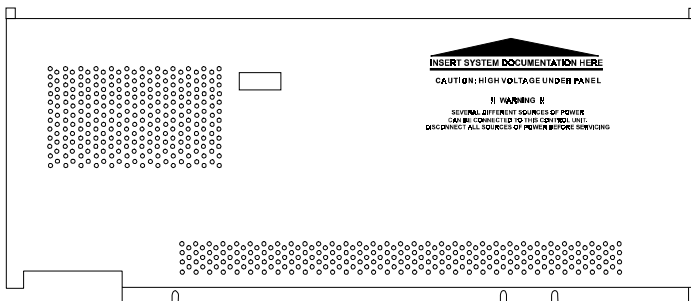
MPS-24BF/MPS-24BFE

The MPS-24BF supplies the regulated power needed to run the system's modules. It also supplies up to 2.0 amps of RMS-regulated notification appliance power, permitting the use of a variety of standard UL-listed 24 VDC notification appliances (see Document 15384 for a complete list). Up to 200mA of resettable power is available for four wire smoke detectors. The MPS-24BF contains an integral battery charger capable of charging batteries in the 6.5 to 17 AH range. Includes two sets of battery cables, one with 1/4" lug-type connectors for larger batteries and one set with 3/16" lug-type connectors.



AVPS-24F/AVPS-24FE AUDIO VISUAL POWER SUPPLY

Supplies power to notification appliance circuits only. Unfiltered, unregulated, 3.0 amps maximum. Assumes one position on the CHS-4 Chassis. Provided with a trouble cable for connection to the main power supply. See Document 15384 for a list of compatible, UL-listed notification appliances. The AVPS-24F may be installed under any module except the CPU or modules with expander board installed.



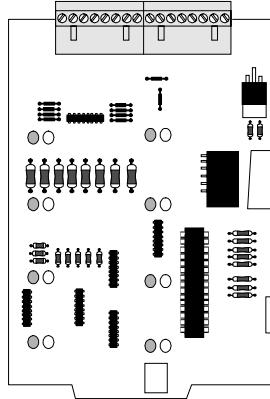
BP-3F BATTERY DRESS PANEL

Covers the main power supply and the batteries in the cabinet (provides dead-front where required).

2.3 MODULES

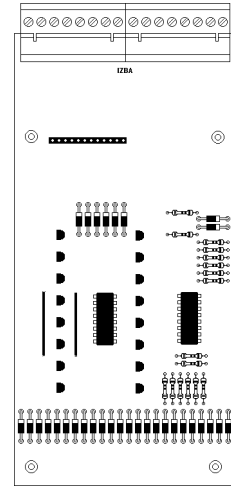
IZ-8F INITIATING ZONE MODULE

This module provides eight Style B initiating device circuits. Circuits are power limited and can be programmed for standard fire, Waterflow Alarm, Supervisory service, Non Alarm or Command Inputs. Also provided are eight end-of-line and eight dummy load resistors.



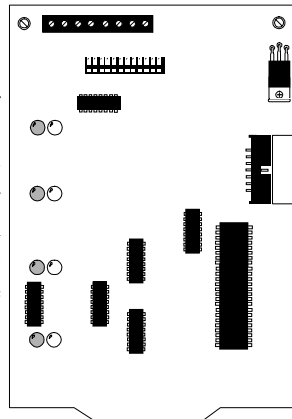
IZE-AF INITIATING ZONE EXPANDER

Converts the eight initiating device circuits on the Initiating Zone Module (IZ-8F) to Style D operation. The expander plugs into the bottom of the IZ-8F.

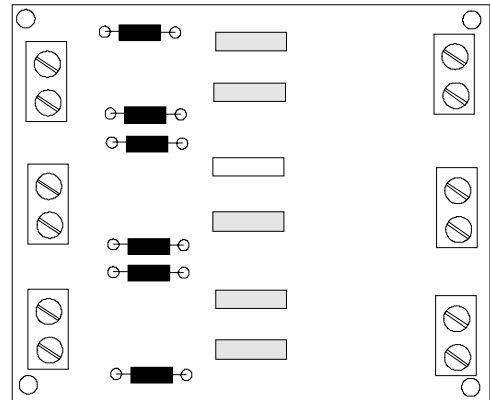


IZ-4F INITIATING ZONE MODULE

This module provides four Style B initiating device circuits. Circuits are power limited and user programmable for standard fire, Waterflow Alarm or Supervisory service. Also provided are four end-of-line and four dummy load resistors.



Note: This module will not support an IZE-AF Expander.



End-of-Line Resistor (ELR)

4.7K, 1/2 watt (71252)



Dummy Load Resistor

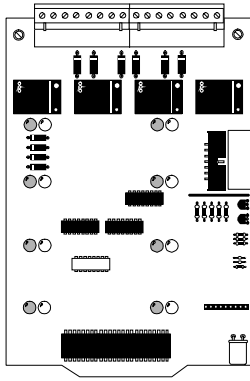
4.7K, 1/2 watt (71245)

RS-1459 MODULE

The RS-1459 module is used in conjunction with the Remote Station or Municipal Box Output. The RS-1459 is NOT required for the Municipal Box Circuit if wiring remains in conduit, wire length is less than 1000 meters, and wiring does not cross any power lines. All conditions must be met according to page 23 of this manual (refer to **Figure 4-3**). For more information on the RS-1459 module, refer to the RS-1459 Product Installation Drawing, Document 50519.

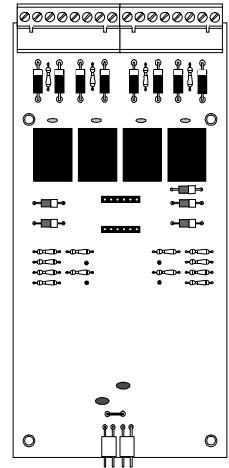
IC-4F INDICATING CIRCUIT MODULE

Provides four notification appliance circuits for Style Y or Style Z operation. Maximum signaling current is 3.0 amps (3 amps max per circuit). Circuits are field programmable to respond to a single initiating zone, a group of zones, or all initiating zones. End-of-line resistors, dummy load resistors, and an Auxiliary Bell Power Harness are provided with each module. For California Code see **Figure 4-7**.



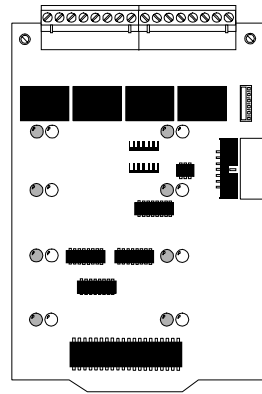
ICE-4F INDICATING CIRCUIT EXPANDER

Expands the IC-4F to a total of eight notification appliance circuits (either Style Y or Style Z). Circuit ratings are identical to those of the IC-4F. An Auxiliary Bell Power Harness is provided with each expander. The expander plugs into the back of the IC-4F.



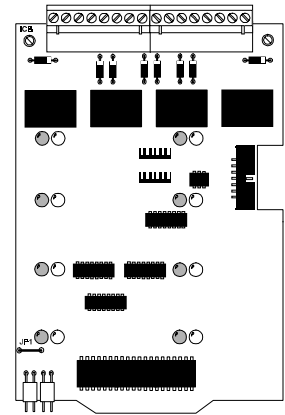
CR-4F CONTROL RELAY MODULE

Provides four standard dry Form-C alarm contacts rated for 5 amps @ 120 VAC or 30 VDC (resistive). Each relay is field programmable to respond to a single device circuit, a group of circuits, or all initiating device circuits.



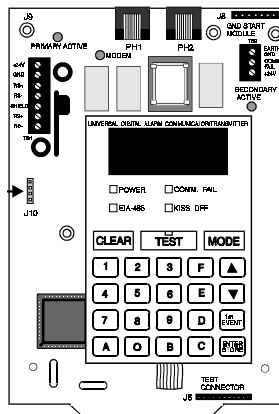
TC-2F/TC-4F TIME CONTROL MODULE

The TC-2F module can be configured for one of five functions. Pre-signal evacuation or dual code evacuation, and standard release service, triple-coded release, or IRI release. For more information, refer to the TC-2F Manual. The TC-4F can provide either four releasing circuits or four power-limited dual code evacuation circuits. For more information, refer to the TC-4F Manual.



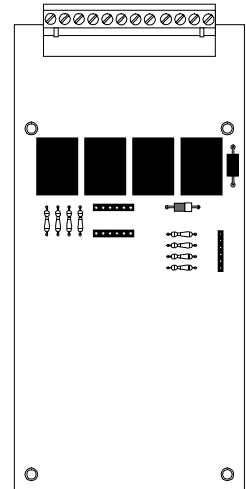
THE UNIVERSAL DIGITAL ALARM COMMUNICATOR/ TRANSMITTER

The UDACT-F may be used with the Fire•Lite MS-9200 and Sensiscan 2000 control panels. The UDACT-F transmits system status to UL-Listed Central Station Receivers via the public switched telephone network. The UDACT-F is compact in size and may be mounted inside the host control panel or may mount externally in a separate enclosure. EIA-485 annunciator communications bus and 24 volt (nominal) connections are required. The UDACT-F is capable of reporting 198 points or 56 zones when used with the MS-9200 and 56 zones when used with the Sensiscan 2000.

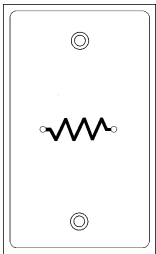


CRE-4F CONTROL RELAY EXPANDER

Expands the capacity of the Control Relay Module (CR-4F) to eight Form-C alarm relays. Relays are identical to those on the CR-4F. The expander plugs into the back of the CR-4F or IC-4F.



2.4 EQUIPMENT FOR THE SENSISCAN 2000



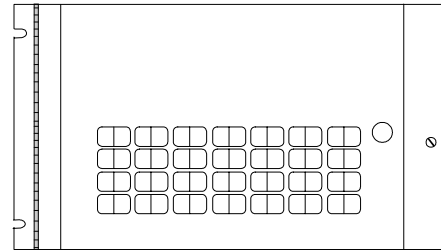
F-ELR

The **F-ELR Resistor Assortment** is required for use in Canada. It includes a variety of ELR values for supervising IZ or IC circuits. The desired resistor mounts to a single ELR plate (illustrated). **Included with the F-ELR:**

47K, 27K, 10K, 6.8K, 4.7K, 2.2K, 1.8K, 470 and 120 ohm resistors.

CHS-4F

The CHS-4F expansion chassis package is required for all CAB-B3F installations. The CHS-4F includes the CHS-4 Chassis, the MP-1F Module Dress Panel (illustrated), and an Expander Ribbon Cable.



MP-1F Module Dress Panel

AFM-16ATX

The AFM-16ATX Annunciator Control Module contains 16 red alarm and 16 yellow trouble LEDs, 16 momentary touch-pad switches for controlling each point, a system trouble LED, an ON LINE/POWER LED, and a local piezo sounder with a silence/acknowledge switch for audible indication of alarm and trouble conditions at each annunciator. The **AEM-16ATF Annunciator Expander Module** expands the AFM-16ATX by 16 system points. One to three of these expander modules can be supported by an AFM-16ATX to a maximum of 64 system points.

AFM-32AX

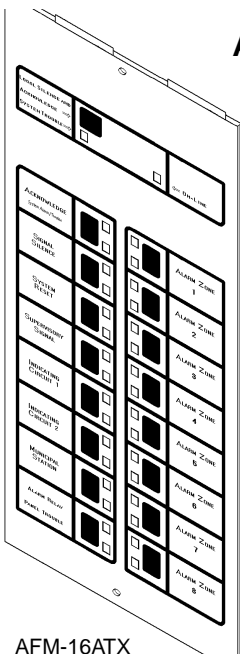
The AFM-32AX Annunciator Control Module contains 32 red alarm LEDs, a System Trouble LED, an ON LINE/POWER LED, and a local piezo sounder with a silence/acknowledge switch for audible indication of alarm and trouble conditions at each annunciator. The **AEM-32ATF Expander Module** expands the AFM-32AX by 32 system points. One expander module can be supported by an AFM-32AX, providing a maximum of 64 points.

AFM-16ATF

The AFM-16ATF **Annunciator Fixed Module** contains 16 red alarm and 16 yellow trouble LEDs, 16 momentary touch-pad switches, a system trouble LED, an ON LINE/POWER LED, and a local piezo sounder with a silence/acknowledge switch for audible indication of alarm and trouble conditions at each annunciator. Only One annunciator may be used in a system.

AFM-32AF

The AFM-32AF **Annunciator Fixed Module** contains 32 red alarm LEDs, a System Trouble LED, an ON LINE/POWER LED, and a local piezo sounder with a Local Silence/Acknowledge switch for audible indication of alarm and trouble conditions. Only one annunciator may be used in a system.



AFM-16ATX

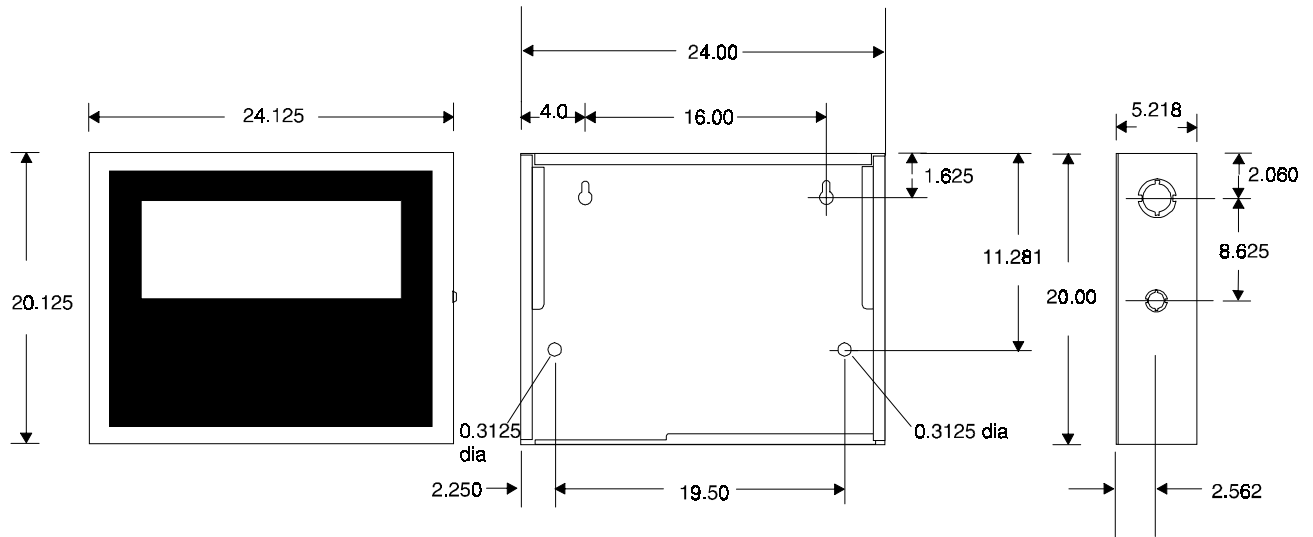
AFM-16AF

The **AFM-16AF Fixed Annunciator module** is intended for use in systems that require 16 alarm annunciator points or less. Only one annunciator may be used in a system.

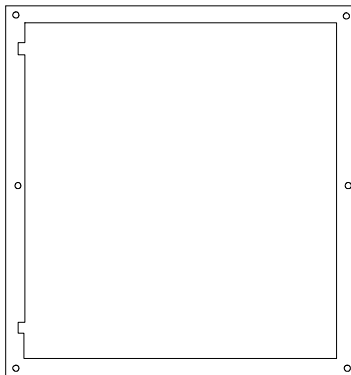
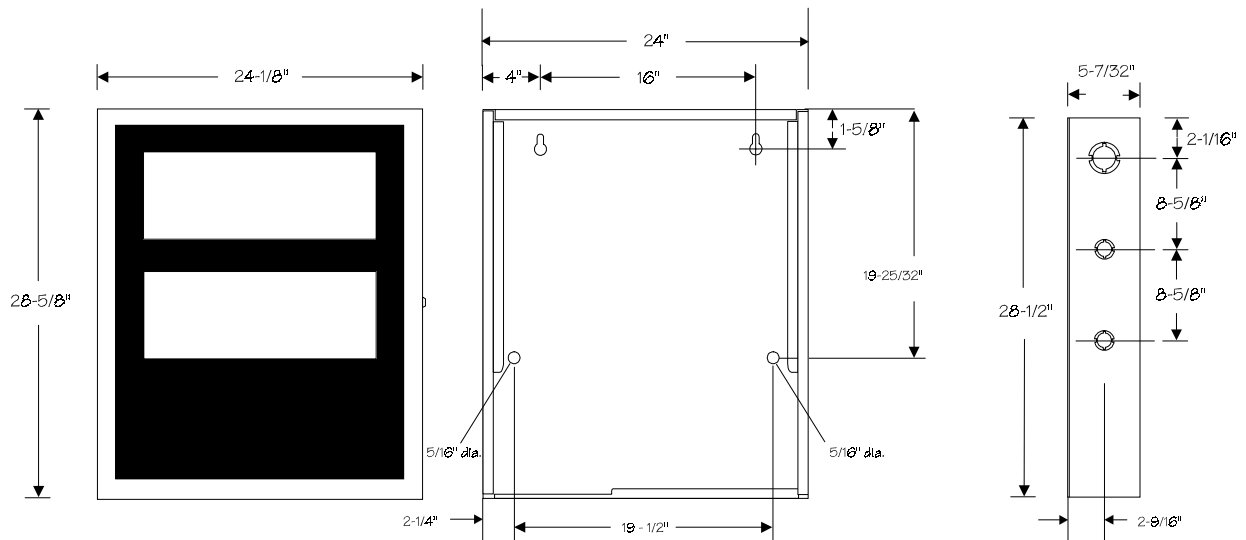
2.5 CABINETS

The CAB-A3F and CAB-B3F cabinet assemblies consist of a backbox and a locking door with two keys. The backbox and door can be ordered separately or as a complete package.

CAB-A3F



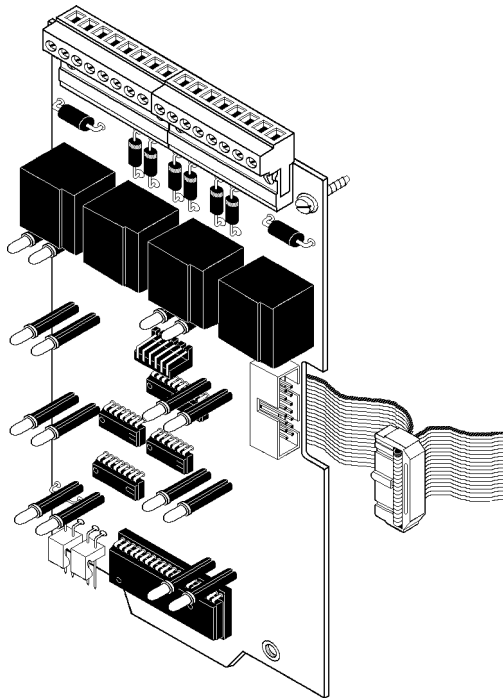
CAB-B3F



TR-A3R/TR-B3R TRIM RING

For semi-flush mounting of the cabinet

SECTION THREE: INSTALLATION



The control panel's modules communicate with the CPU through a common ribbon cable connection.

The following procedures, diagrams, and instructions must be followed precisely to avoid damage to the control panel and its associated equipment. Reliability depends to a great extent upon proper installation and maintenance.

- Cabinet** - Mount the cabinet and draw all field wiring through the knockouts provided. If the door is left-hanging, mount door hardware now, due to the main power supply resting on lower hinge.

NOTE

Do not draw wiring into the bottom nine inches of the cabinet or conflict with the power supply and batteries may result.

- Main Power Supply** - Mount the main power supply to the cabinet as illustrated in Figure 3-3. *Do not wire anything at this time!*
- Chassis**- Mount all chassis. Refer to Figure 3-2 for installation of the CHS-4 chassis.
- Audio Visual Supplies** - If any optional audio visual power supplies are to be employed, mount them to the chassis. Refer to Figure 3-4 for mounting of the AVPS-24F/AVPS-24FE to the CHS-4.
- Audio Visual Cables** - Connect the trouble cable(s) and Auxiliary Bell Power Harness to the audio visual power supply as illustrated in Figure 5-4.
- Preliminary System Wiring**- The main power supply and any audio visual power supplies should be wired at this time while the terminals are readily accessible. Refer to Section Five to wire the main power supply, audio visual power supplies or the R45-24.

- Module Ribbon Cables** - Connect the 1st Row Ribbon Cable to the CPU as illustrated in Figure 3-8. For each additional row of modules installed in the cabinet, connect an Expander Row Ribbon Cable to the CPU.
- CPU** - Install the CPU module in the top left cabinet position as illustrated in Figure 3-7. Connect the Power Ribbon and Power Harness between the CPU and the main power supply as illustrated in the respective figure in Section Four.
- Module Expander Boards** - If expander boards are to be used with a module, install as illustrated in Figure 3-5.
- Modules** - Mount each module in its respective chassis position as illustrated in Figure 3-6. Connect the CPU Row Ribbon Cable and the Expander Row Ribbon (in CAB-B3F installations) to the modules. Field-wire each module, using the following figures for reference:

| | |
|---|-------------------------------|
| CPU-2000 | Figure 4-3, 4-4 |
| IZ-8F or IZ-4F (Style B) | Figure 4-5 |
| IZ-8F requires IZE-AF (for Style D) | Figure 4-6 |
| IC-4F/ICE-4F | Figure 4-7 (ICE-4F Optional) |
| CR-4F/CRE-4F | Figure 4-8 (CRE-4F optional) |
| TC-2F | (Refer to the TC-2F Manual) |
| TC-4F | (Refer to the TC-4F Manual) |
| AFM-16ATF, AFM-32AF,AFM-16AF, AFM-16ATX,AFM-32AX | (Refer to respective manual.) |
| UDACT-F | Figure 6-1 |

- Power-on-check** - Apply AC power to the control panel. *Do not connect the batteries at this time!* To silence the audible trouble sounder, push the ACKNOWLEDGE switch on the CPU. The system should reflect the following status.

On the CPU

- Green AC POWER indicator should be on.
- The BATTERY FAIL indicator will be on due to the absence of batteries.
- SYSTEM TROUBLE and POWER FAILURE indicators should be on due to the absence of batteries.
- MODULE FAILURE indicator may light shortly after AC power is applied (applies only to a system that has not been previously configured).

On each module

- The yellow trouble indicators may come on approximately ten seconds after AC power is applied (applies only to a system that has not previously been configured).

On each AVPS

- The yellow trouble indicators will light due to the absence of batteries.

On the main power supply

Failure of the AC POWER indicator, or the presence of indications not mentioned above may suggest an installation problem. Carefully review the installation instructions to isolate the source.

- Programming** - To configure and program the system, refer to field programming in Section Seven.
- Batteries** - Once the system has been programmed and is functional, connect the batteries. Ensure that all indicators except AC POWER are extinguished.
- Testing** - Fully field test the system by conducting the test procedure in Section Nine.
- Dress Panels** - Complete installation of the system by installing the cabinet door first, followed by the dress panels (VP-1F and MP-1F).

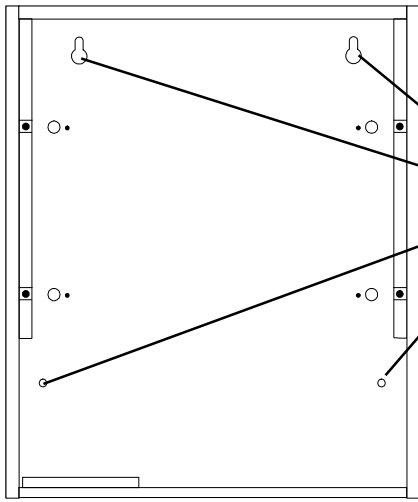


FIGURE 3-1 : MOUNT THE CABINET BACKBOX

Mount the backbox in a clean, dry, vibration free area, using the four holes provided in the back surface of the cabinet.

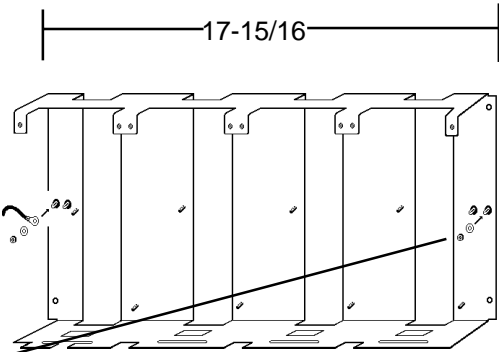
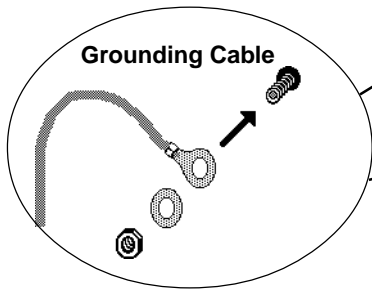


FIGURE 3-2: INSTALL A CHS-4

Install a CHS-4 in each row of the cabinet that will employ Sensiscan 2000 modules. For proper grounding of the modules to the cabinet, connect a grounding cable to one of the chassis mounting screws as illustrated.

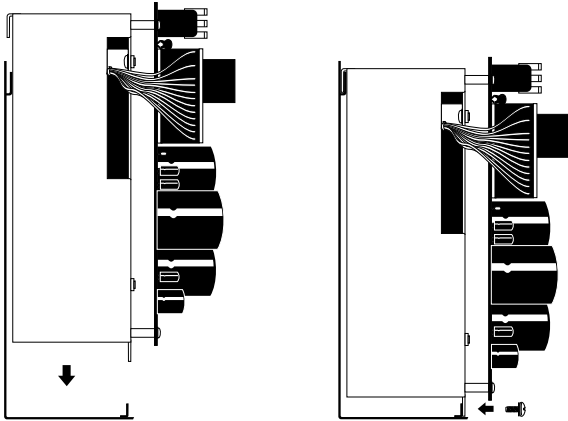


FIGURE 3-3: INSTALL THE MAIN POWER SUPPLY

Place the MPS-24AF/MPS-24AFE (shown) or MPS-24BF/MPS-24BFE into the bottom of the cabinet, ensuring that the upper bracket engages the support bracket on the cabinet. Secure the bottom of the power supply to the bottom cabinet support with the provided screws.

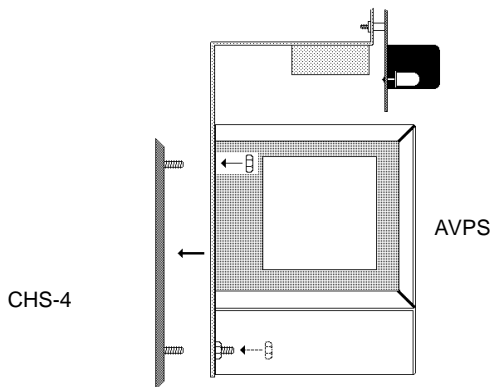
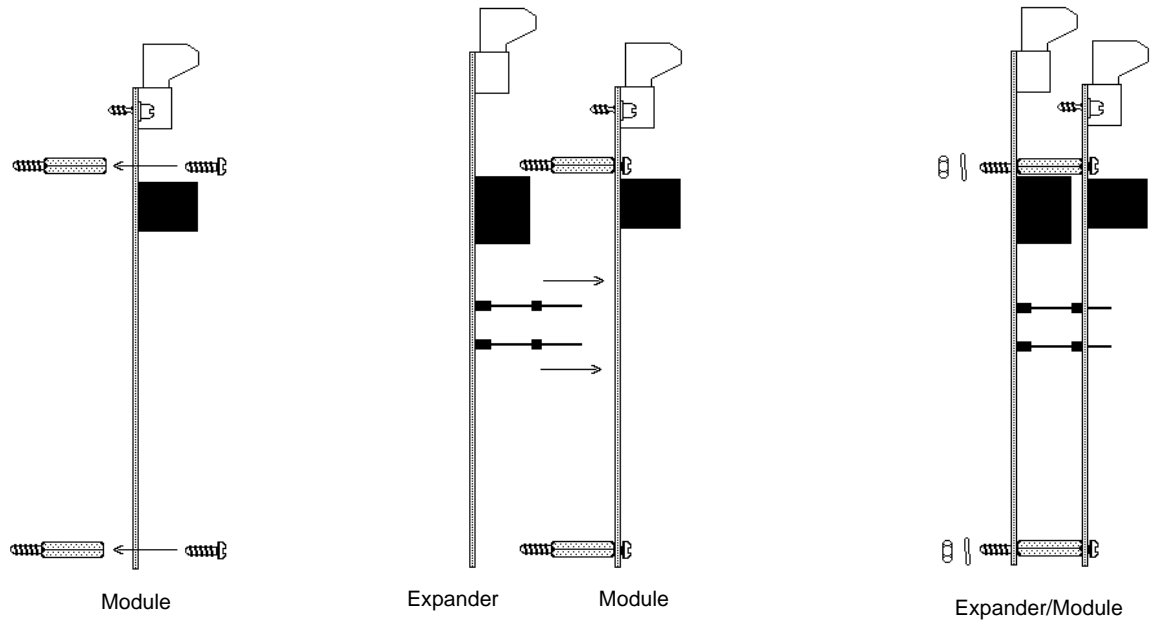


FIGURE 3-4: INSTALL THE AVPS

Install any optional AVPS-24F/AVPS-24FE over the screw mounts on the CHS-4 and secure with the two provided nuts.

FIGURE 3-5: MOUNTING MODULE EXPANDERS



Step 1:

Attach four standoffs to the module using the four screws provided.

Step 2:

Insert the pins on the expander board into the connector on the module and press the two boards together, ensuring that the pins are properly aligned.

Step 3:

Secure the module/expander assembly with the four nuts and lock washers provided.

FIGURE 3-6: MOUNTING MODULES IN THE CHASSIS

Step 1:

Angle the module into the cabinet so that the upper board edge slips into the cabinet slot as shown.

Step 2:

Push the upper end of the module into the cabinet and secure with two module screws. Straighten LEDs so that they extend from the board at a 90 degree angle.

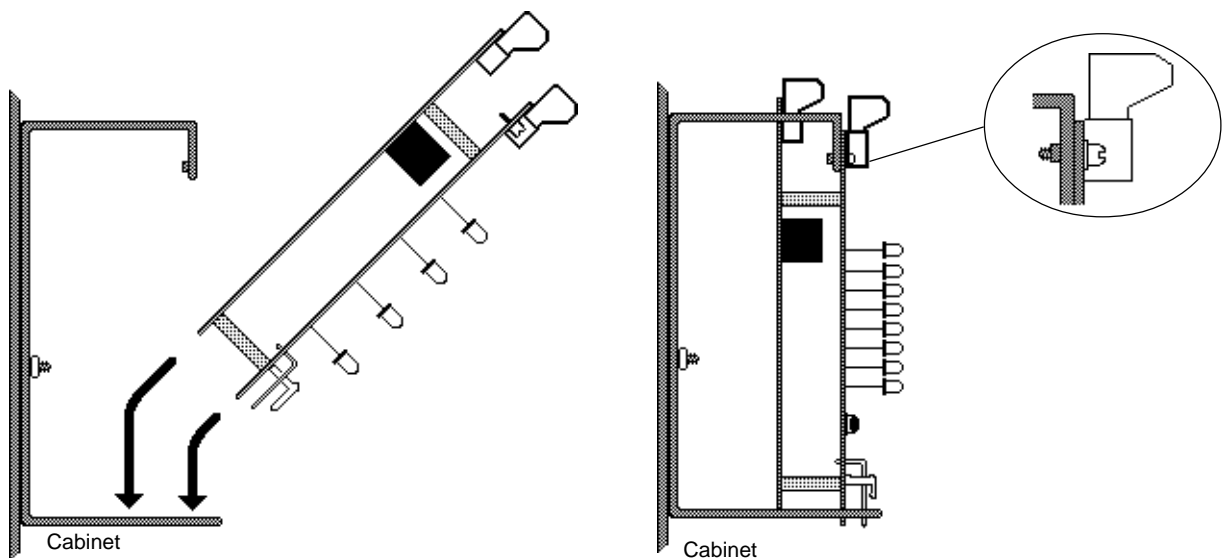
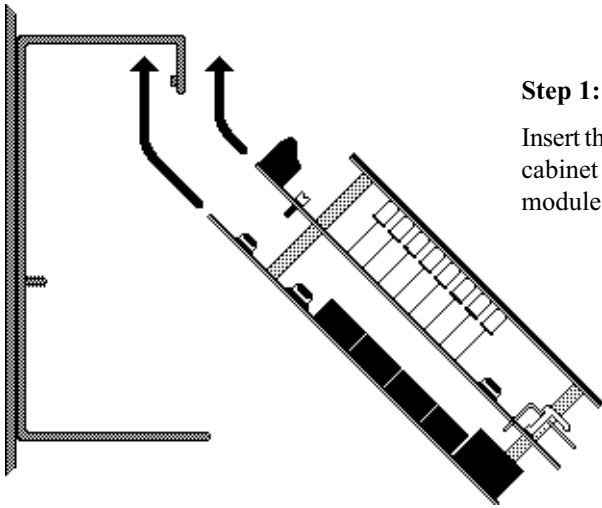
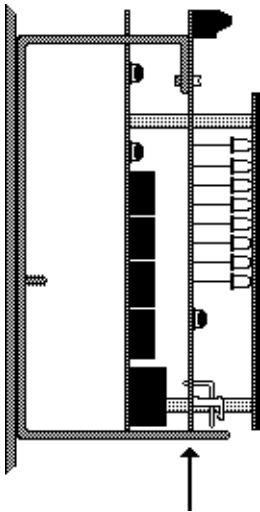


FIGURE 3-7: MOUNTING THE CPU-2000



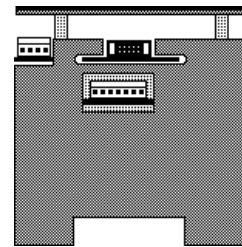
Step 1:

Insert the CPU Module into the left-most cabinet slot, angling the front end of the module into position as shown.

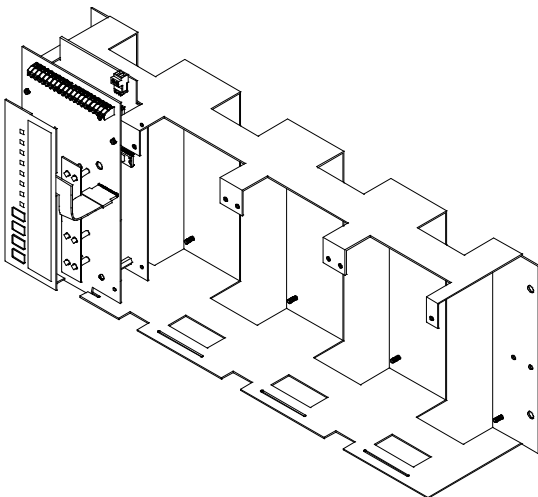


Step 2:

Push the back end of the module down into the cabinet and pull down until the upper board engages the slot on the chassis as shown.



Bottom View



Step 3:

Align the module screws with the thread-holes on the chassis and secure in place.

FIGURE 3-8: CONNECTING ROW RIBBON CABLES TO MODULES

The ribbon cable is notched at the module ends.

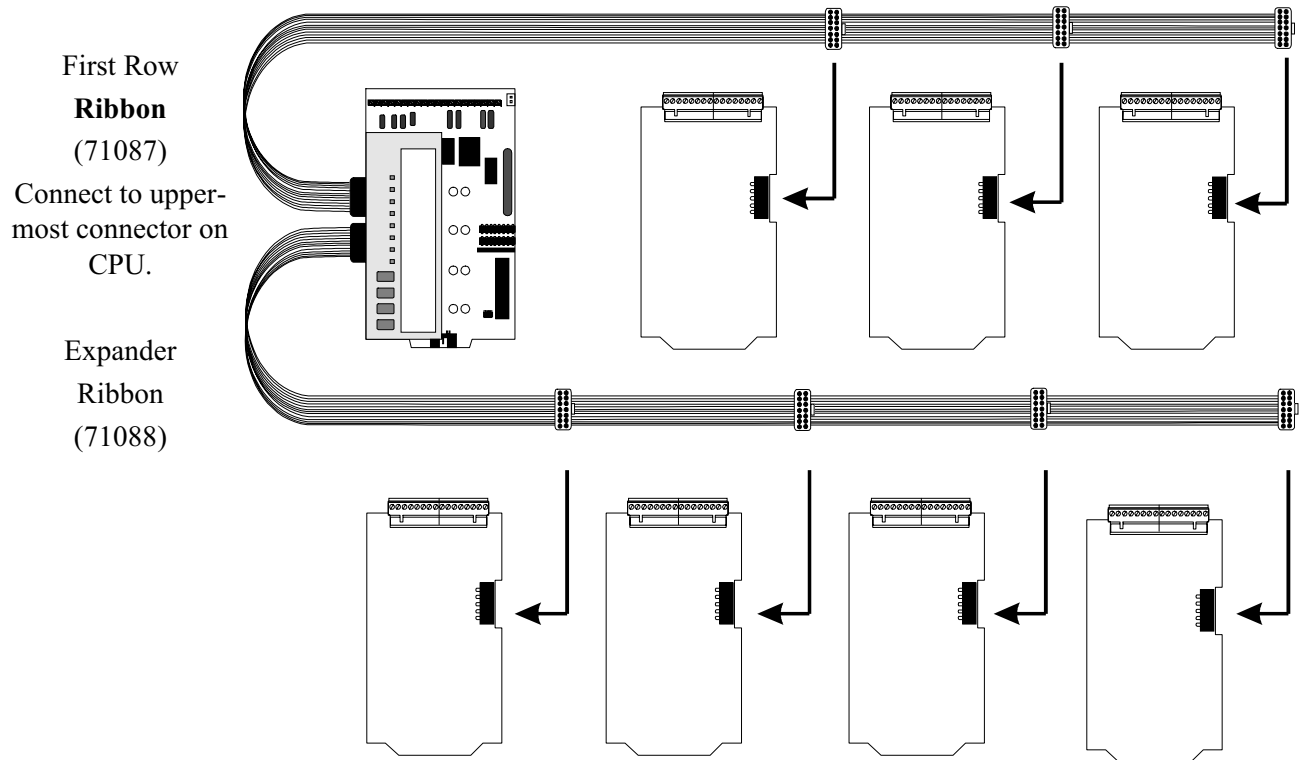
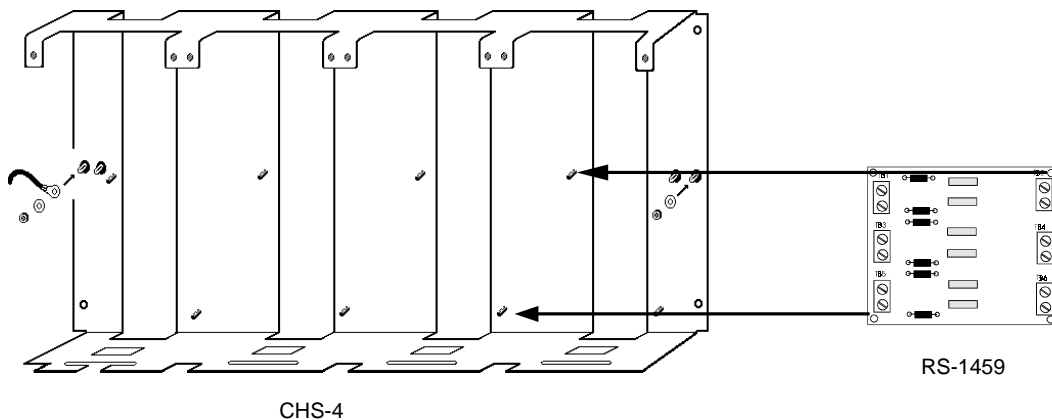
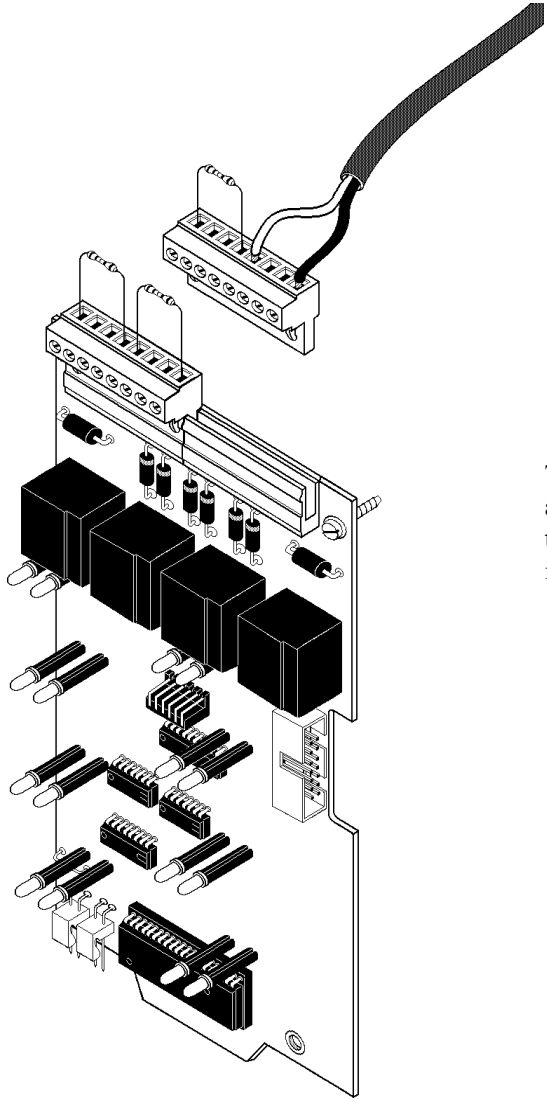


FIGURE 3-9: MOUNTING THE RS-1459 IN THE CHS-4

Mount the RS-1459 to two studs in any position on the back of the CHS-4. Use the provided standoffs and screws to mount the module. Refer to Figure 4-3 for information on wiring the module.



SECTION FOUR: FIELD WIRING THE MODULES



The IC-4F Notification Circuit Module, as well as the IZ, CR and TC modules feature removable terminal blocks that ease installation and servicing of the control panel.

4.1 UL POWER-LIMITED WIRING REQUIREMENTS

Power-limited and nonpower-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any nonpower-limited circuit wiring. Furthermore, all power-limited and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits. A typical wiring diagram for the Sensiscan 2000 is shown below.

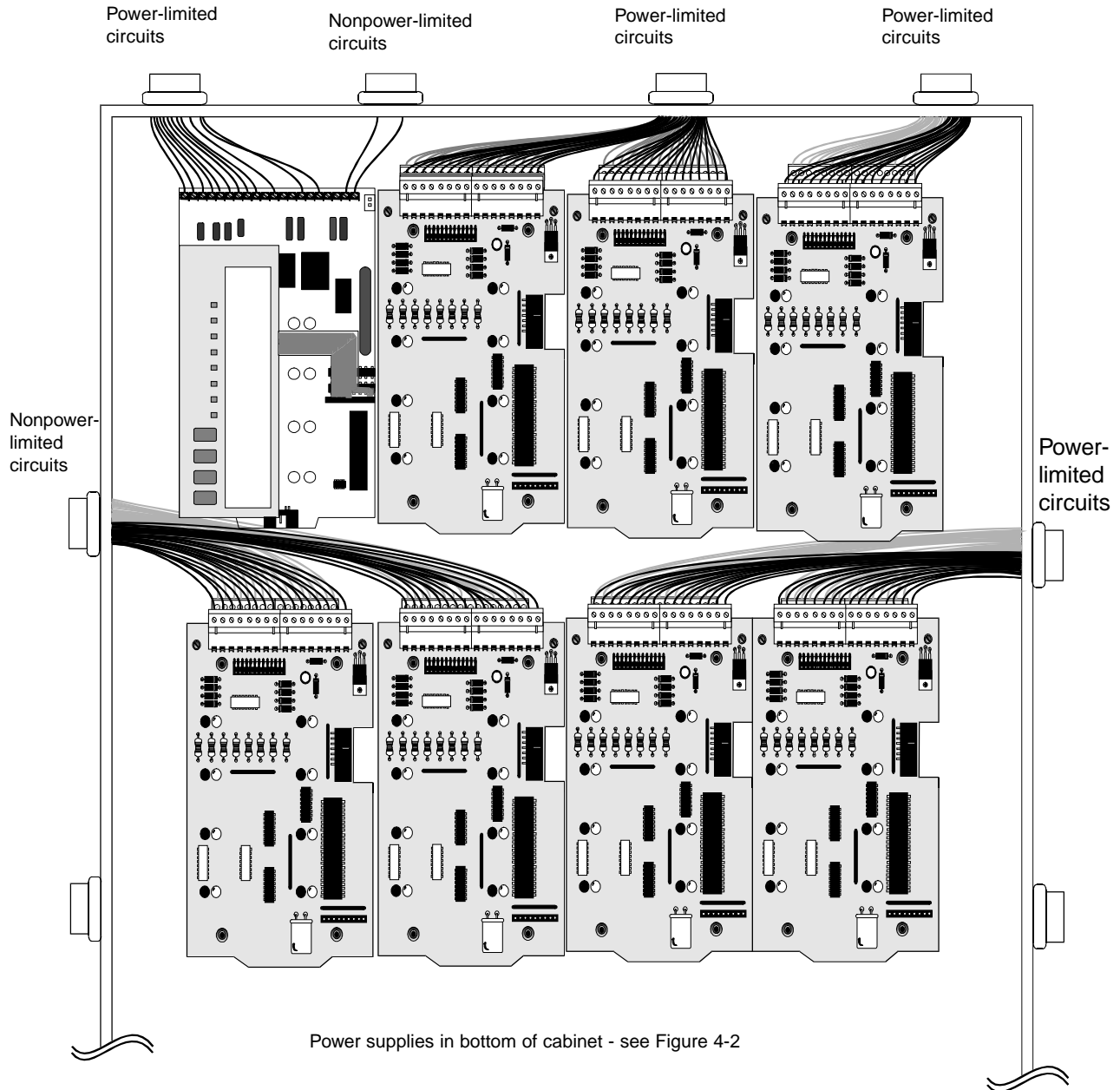


Figure 4-1: Typical Wiring Diagram for UL Power-limited Wiring Requirements

4.2 UL POWER-LIMITED WIRING REQUIREMENTS - POWER SUPPLIES

The diagram below shows a typical Sensiscan 2000 installation and is provided as a guide for proper wiring placement. The AC and battery wiring are not power-limited. A separation of at least 0.25" must be maintained between power-limited and nonpower-limited wiring. Install the tie wraps and adhesive squares as indicated below.

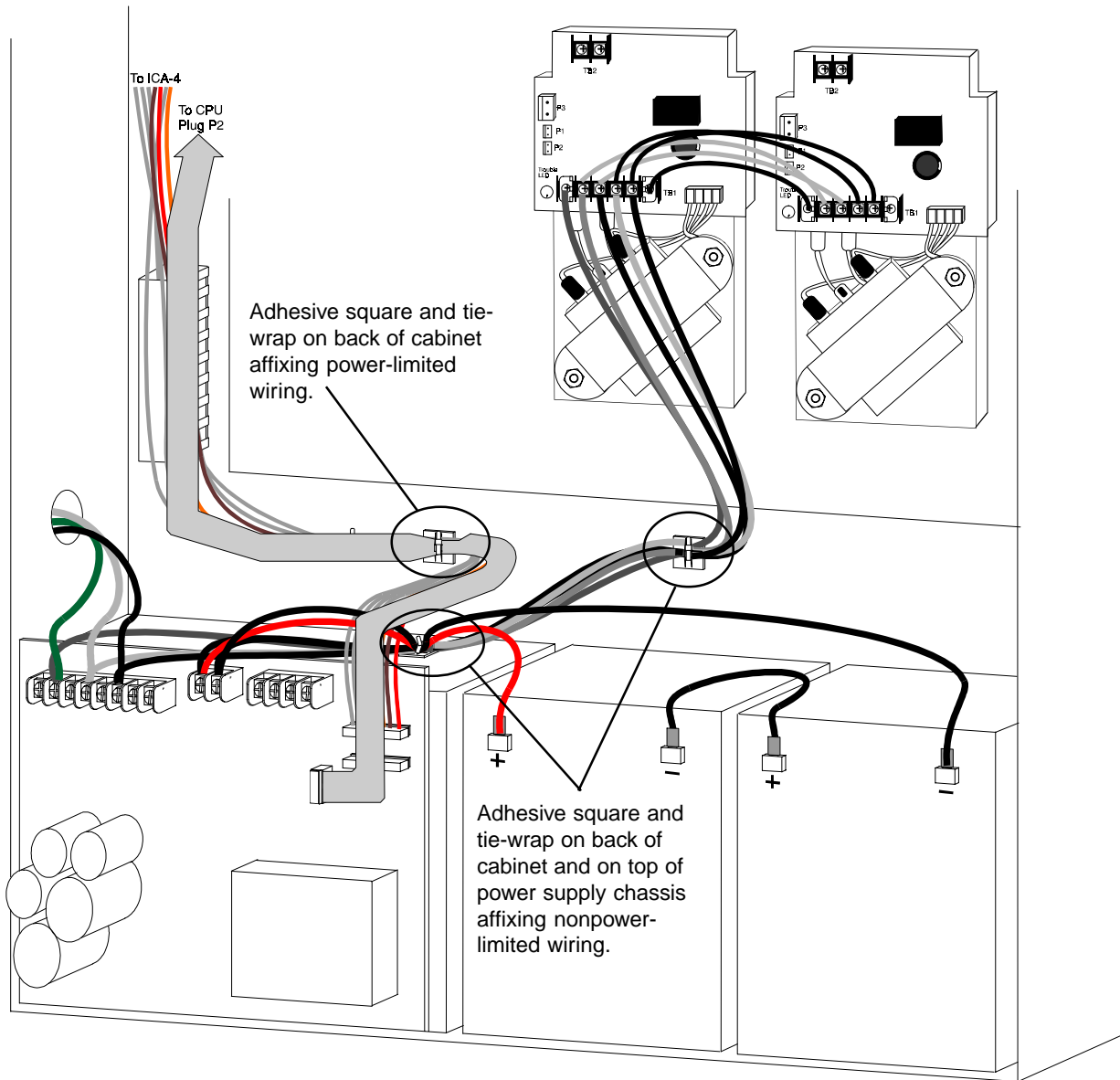
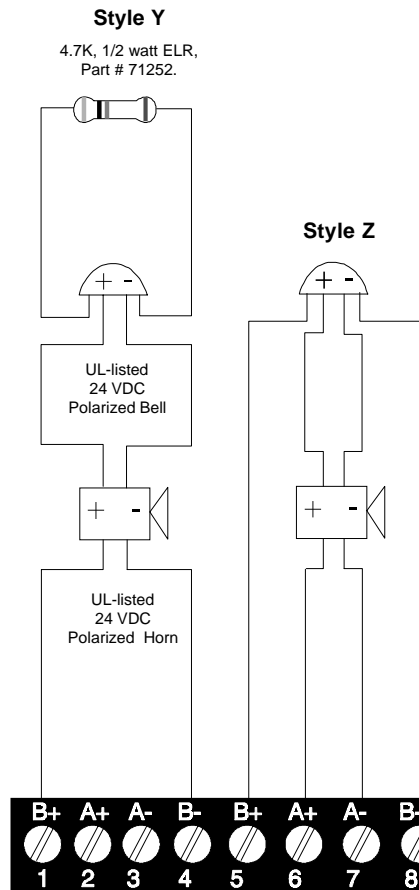


Figure 4-2: Power-limited and Nonpower-limited Wiring for Power Supplies

Typical Supervised Power-limited Notification Appliance Circuits

Use only compatible, UL-listed notification appliances (see the Device Compatibility Document, 15378). Max current per circuit is 3.0 amps, subject to the limitations of the power supply.



Non-Supervised Remote Station Outputs

Non-Supervised, Power-limited (Standby polarity shown)

24 VDC (nominal). 10 mA max rated current. Internal resistance = 1360 ohms (nominal).

Intended for connection to the polarity reversal circuit of a remote station receiving unit (Fire-Lite Model RS-82) having compatible ratings.

Municipal Box Output

Nonpower-limited, supervised for open circuits. Max. Current (short circuit) = 0.6 amps. Max. Voltage (open circuit) = 27.6 VDC. Max. Wire Resistance = 5 ohms.

Municipal Box Ratings

Trip current = 0.25 Amps (min)
Coil voltage = 3.65 VDC (min)
Coil resistance = 14.6 ohms (max)

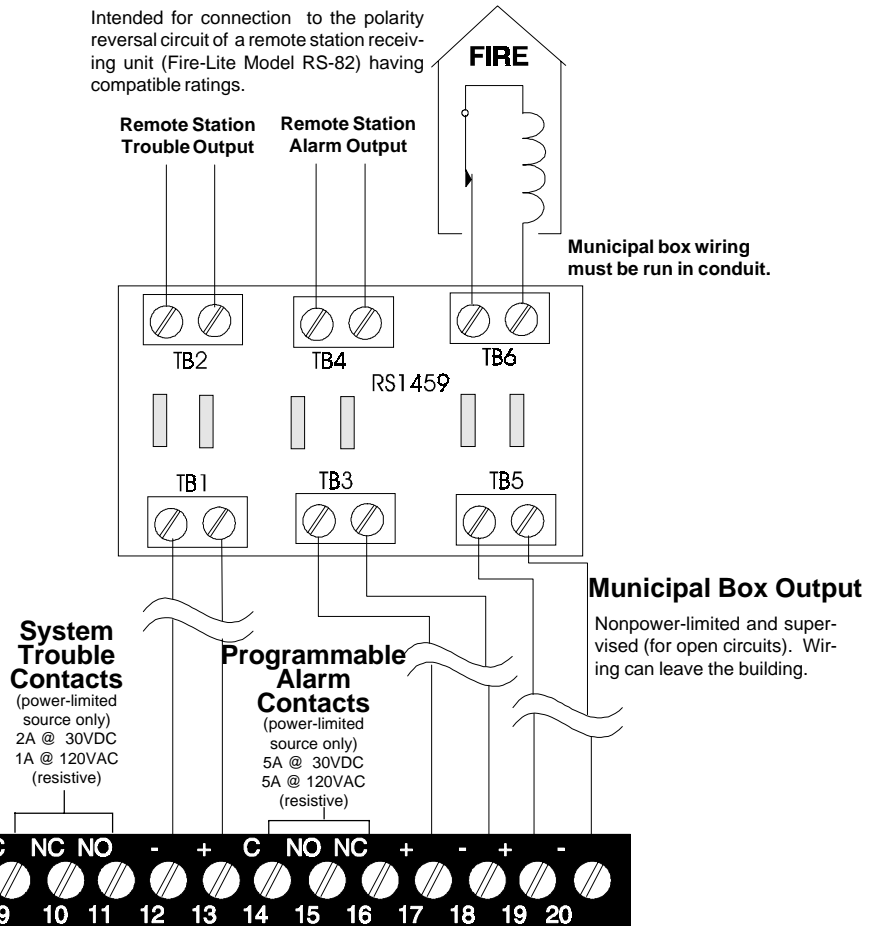


Figure 4-3: Field Wiring the CPU

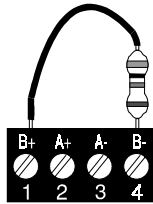
- 1) The Remote Station Alarm Output and the Municipal Box Output must not be used simultaneously.
- 2) Notification appliance circuits, Remote Station Trouble output, and the Remote Station Alarm output are power-limited and may be connected to limited-energy cable.
- 3) Wire notification appliances according to the manufacturer's instructions packaged with each device.
- 4) Terminal blocks will accept #12 to #22 AWG wire.
- 5) Size notification circuit wire for a maximum drop of 2 volts DC at the last device on the circuit.
- 6) The RS-1459 module is required when the Remote Station or Municipal Box Output is connected to a circuit that exits the protected premises. *Exception* - The RS-1459 module is not required for the Municipal Box Circuit if ALL of the following conditions exist: (1) wiring is in conduit, (2) wire length is less than 1000 meters, and (3) wiring does not cross any power lines.

DUMMY-LOADING UNUSED CIRCUITS ON THE CPU

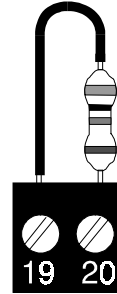
An unused notification circuit must be terminated with one dummy load resistor.

If the Municipal Box Output is not to be used, it must be terminated with a dummy load resistor.

4.7K, 1/2-watt Resistor
Part # 71245



4.7K, 1/2-watt Resistor
Part # 71245



THE EIA-485 INTERFACE

The Sensiscan 2000 communicates with the AFM serial annunciators through the EIA-485 interface on the CPU. Maximum distance is 6000 feet and maximum resistance is 100 ohms.

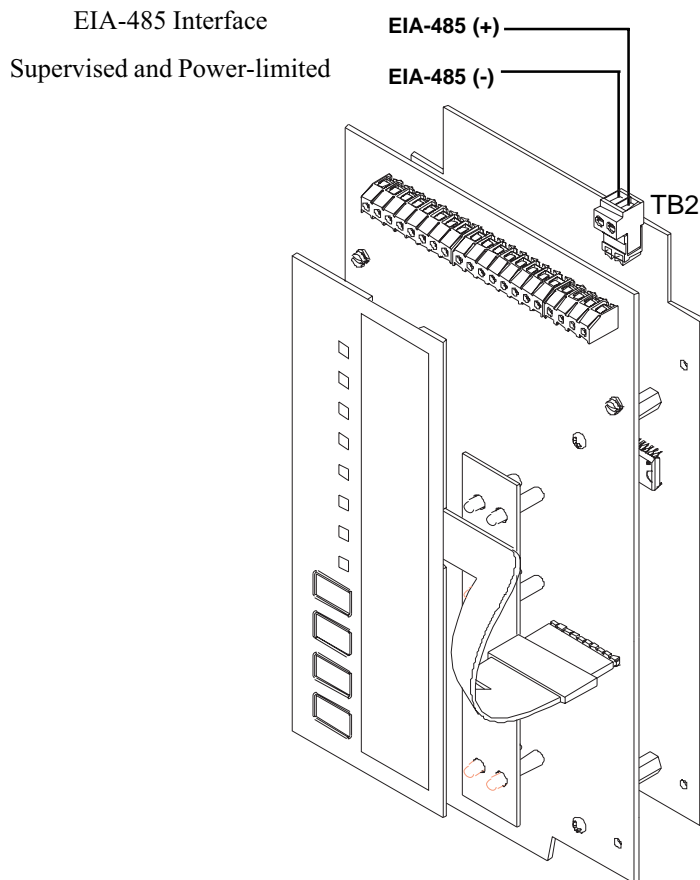
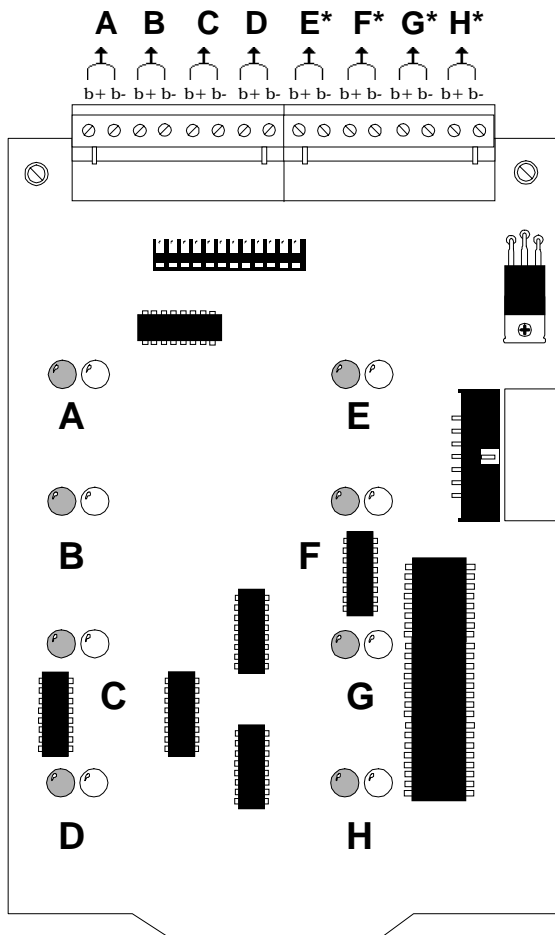


Figure 4-4: Connecting the EIA-485 Interface

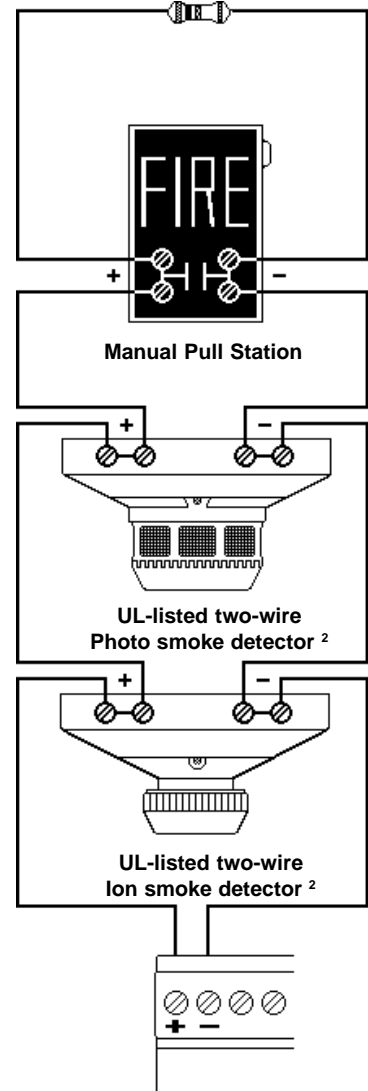
FIGURE 4-5 NFPA STYLE B FIELD WIRING OF INITIATING ZONE MODULES



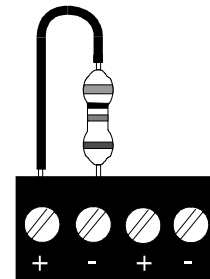
*NOTE: IZ-4F contains only circuits A, B, C and D.

- 1) Initiating device circuits are supervised, power limited and may be connected to limited-energy cable, except for initiating devices that require 24 VDC power.
- 2) Use only the compatible, UL-listed two-wire smoke detectors that are listed in Fire•Lite Document 15384.
- 3) For connection of four-wire smoke detectors, refer to Section Six.
- 4) Wire initiating devices according to the manufacturer's instructions packaged with each device.
- 5) For Canada, model F-ELR End-of-Line Resistor Assembly required.
- 6) Maximum line resistance is 100 ohms.

4.7K, 1/2 watt ELR, Part # 71252. ⁵

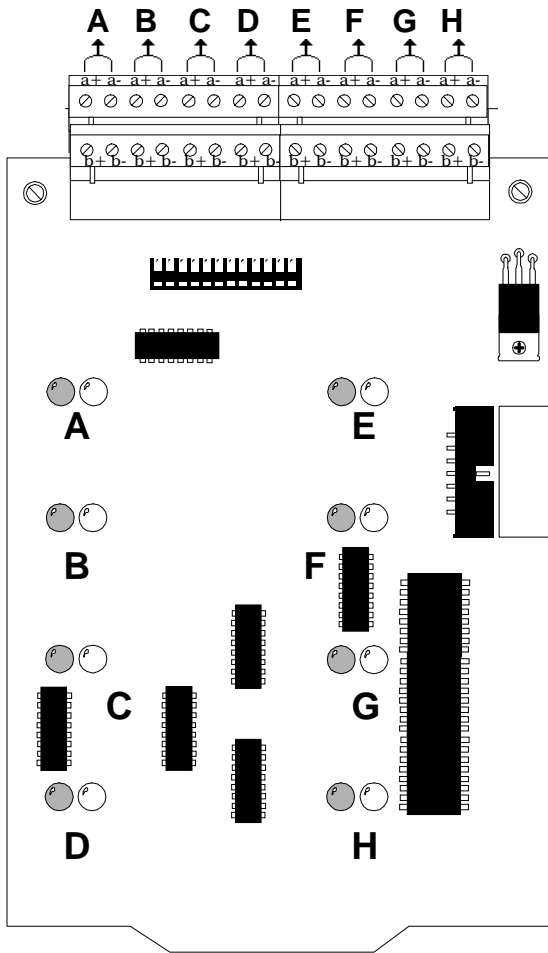


Typical NFPA Style B Initiating Device Circuit
Supervised and Power-limited

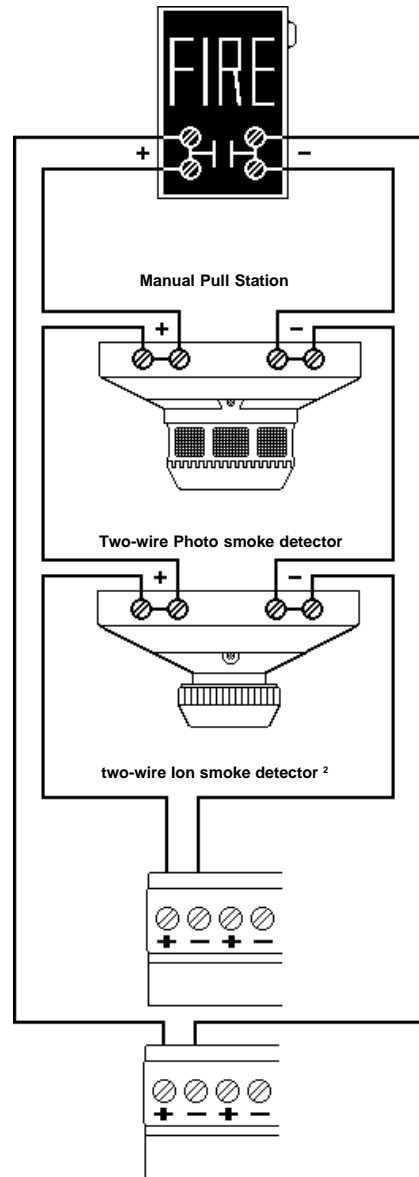


Dummy load all unused circuits with 4.7K ELR (71245).

FIGURE 4-6: STYLE D FIELD WIRING OF IZ-8F INITIATING ZONE MODULE WITH IZE-AF EXPANDER

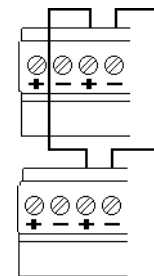


IZ-8F/IZE-AF



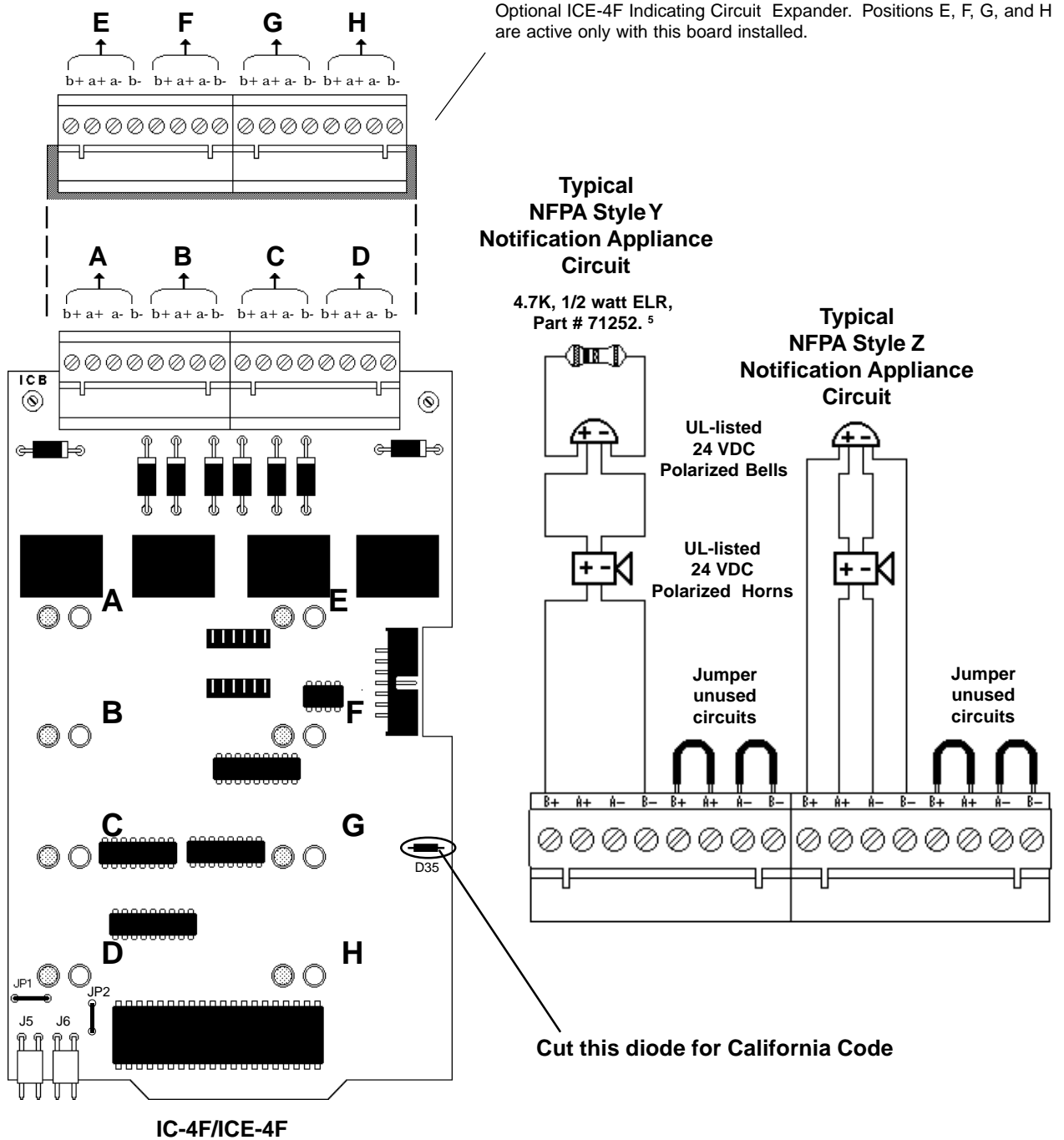
**Typical NFPA Style D
Initiating Device Circuit
Supervised and Power-limited**

- 1) Initiating device circuits are supervised, power limited and may be connected to limited-energy cable, except for initiating devices that require 24 VDC power.
- 2) Use only the compatible, UL-listed two-wire smoke detectors that are listed in Fire•Lite Document 15384.
- 3) For connection of four-wire smoke detectors, refer to Section Six.
- 4) Wire initiating devices according to the manufacturer's instructions packaged with each device.
- 5) The IZ-4F does not support the IZE-AF expander module and therefore cannot be wired for Style D circuits.
- 6) Maximum line resistance is 100 ohms.



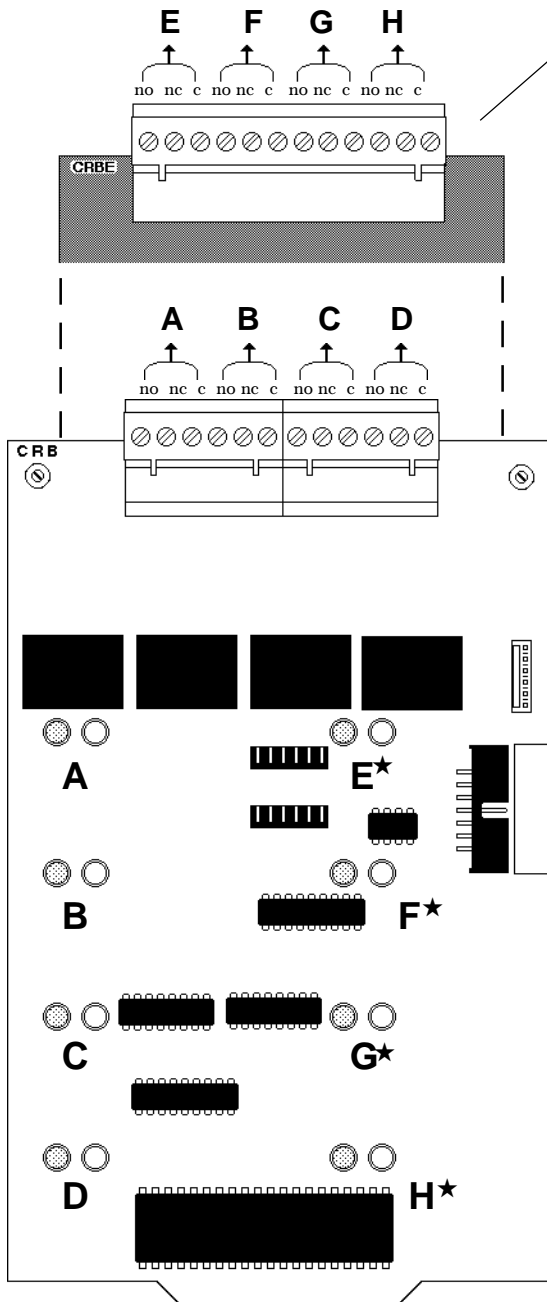
**Dummy load all unused circuits
with a 4.7 ELR (71245).**

FIGURE 4-7: NFPA STYLE Y/Z FIELD WIRING OF THE IC-4F INDICATING CIRCUIT MODULE AND ICE-4F EXPANDER



- 1) Notification appliance circuits are supervised, power limited and may be connected to limited-energy cable.
- 2) Use only compatible, UL-listed notification appliances that are listed in Document 15384.
- 3) Wire notification appliances according to the manufacturer's instructions packaged with each device.
- 4) Max current per circuit is 3.0 amps, subject to the limitations of the source of power (MPS-24AF/MPS-24AFE, MPS-24BF/MPS-24BFE, or AVPS-24F/AVPS-24FE).
- 5) For Canada, model F-ELR End-of-Line Resistor Assembly is required.
- 6) Size wiring for a maximum voltage drop of two volts at the last device on the circuit.
- 7) The IC-4F is California Code programmable (microprocessor Rev. B or higher of IC-4F). To program for California Code, cut diode D35.
- 8) Cut jumper JP1 and JP2 to separately power notification appliance circuits 1 & 2 or 3 & 4. Separate 3 amps max. power supplies must be tied to J5 & J6.

FIGURE 4-8: FIELD WIRING OF THE CR-4F CONTROL RELAY MODULE AND THE CRE-4F CONTROL RELAY EXPANDER



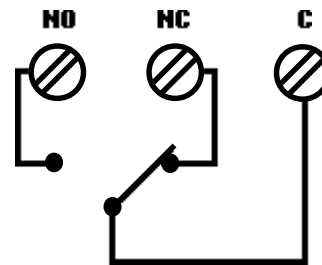
* Optional CRE-4F Control Relay Expander. Positions E, F, G and H are active only with this board installed.

These Form-C gold-plated, silver alloy relay contacts are for medium duty switching and are not intended for Motor Control or Pilot Duty.

UL contact ratings are 5 amps @ 125 volts AC (resistive) or 30 volts DC (resistive) and 2 amps @ 125 volts AC (inductive).

Activation of a CR-4F or CRE-4F relay occurs automatically when an alarm is detected on a selected (programmed) Initiating Device Circuit.

Note: Refer to the power-limited label located on the FACP door. Make a notation on the label for each circuit being employed as a nonpower-limited circuit. (Refer to the example on the label).



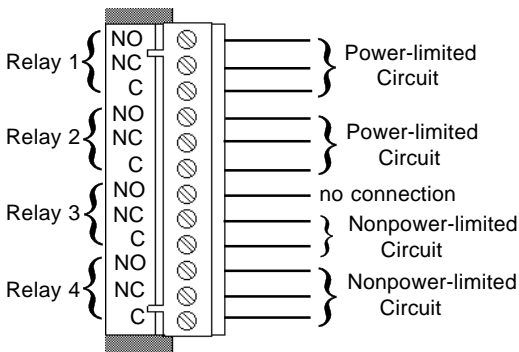
Typical Form-C Control Relay in Standby Position

Nonpower-limited and power-limited wiring must have a minimum distance of 0.25" wire to wire and must enter and exit from different knockouts. If this module is used to drive nonpower-limited and power-limited circuits, please follow the instructions below.

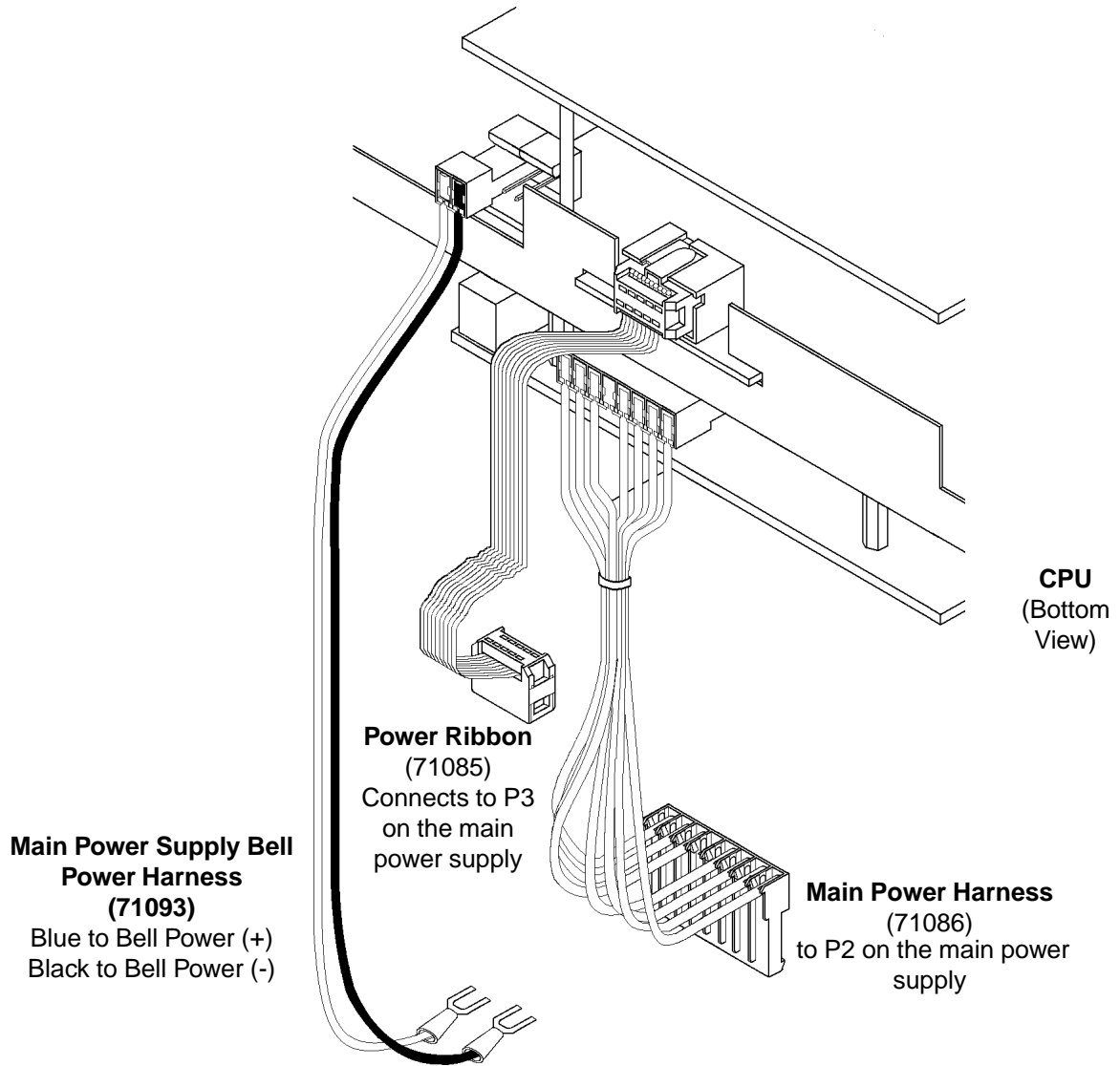
1) Skip a set of dry contacts to maintain the 0.25" required space between power-limited and nonpower-limited circuits. The wiring of this module must follow UL Power-limited Wiring Requirements.

OR

2) If this module is needed to drive power-limited and nonpower-limited relays that are next to each other, refer to the figure to the left showing a typical connection.



SECTION FIVE: THE POWER SUPPLIES



Three cables complete the electrical connection between the CPU and the main power supply.

5.1 THE MPS-24AF/MPS-24AFE MAIN POWER SUPPLY

The MPS-24AF/MPS-24AFE Main Power Supply is capable of powering the control panel continuously during standby and alarm conditions. A total of 3.0 amps (internal) @ 24 VDC regulated is available from the main power supply for operating the system during Standby conditions. No more than 6 amps @ 24 VDC can be drawn from the MPS-24AF.

Figures 5-1 and 5-2 illustrate connections for primary and secondary power to the MPS-24AF Main Power Supply, as well as terminal and harness connections for the control panel.

CONNECTING THE PRIMARY POWER SOURCE

Primary power required for the MPS-24AF is 120 VAC, 50/60 Hz, 1.8 amps and primary power for the MPS-24AFE is 220/240 VAC, 50/60 Hz, 0.9 amps. With the breaker at the main power distribution panel turned off, remove the plastic insulating cover from Terminal Block TB1 on the main power supply and connect the system primary power source. Connect the service ground to TB1 Terminal 2 and ground the power supply assembly to the cabinet with a Chassis Ground cable (71073) to TB1 Terminal 1. Connect the primary Neutral line to TB1 Terminal 4 and the primary Hot line to TB1 Terminal 6. After completion of these connections reinstall the plastic insulating cover over the terminal strip. Leave the main power breaker off until installation of the entire system is complete.

CONNECTING THE SECONDARY POWER SOURCE (24 VDC)

Secondary power (batteries) is required to support the system during loss of primary power. These batteries reside in the control panel cabinet, or in a separate R45-24 Remote Battery Charger cabinet which can be mounted up to 20 feet away from the control panel (for connection of an R45-24, refer to Figure 5-6).

Connect the Battery Positive Cable (71071) to TB2 Terminal 1 (+) and the Battery Negative Cable (71072) to TB2 Terminal 2 (-). **Do not connect the Battery Interconnect Cable (Part Number 71070) at this time. This connection will be made just after initial primary system power-up.**

FOUR-WIRE SMOKE DETECTOR POWER (24 VDC)

Up to one amp of current for four-wire smoke detectors can be drawn from TB3 Terminals 1 (+) and 2 (-). Power is removed from these terminals during system reset. This 24 VDC regulated four-wire smoke detector power is power limited but must be supervised via an UL-listed end-of-line power supervision relay. The power supervision relay is energized by the four-wire power circuit and its contact must be connected in series with an initiating device circuit.

NOTIFICATION APPLIANCE POWER (24 VDC)

Up to 3 amps of regulated power-limited current for powering notification appliances can be drawn from TB3 Terminals 3(+) and 4(-). Power is not removed from these terminals during system reset. If a resettable power circuit is desired, cut JP5 on the MPS-24AF (Note that a maximum of 2 amps is available with JP5 cut.) *Note: On the Main Power Supply Bell Power Harness, the fork lugs must be cut off and wires stripped for connection to the MPS-24AF.*

ANNUNCIATOR POWER (24 VDC)

AFM Annunciators can be powered either from the four-wire smoke detector output or the notification appliance power output. Both outputs provide filtered, regulated, power-limited source required by the annunciators. The power run to the annunciators is supervised by the annunciator (*Loss of Communications* error).

SYSTEM HARNESS CONNECTIONS

Internal power for the system is provided via the power harness. Connect this harness from P2 on the main power supply to the CPU. This same power can be fed to other boards or modules requiring internal power. Signaling between the CPU and the main power supply is accomplished through connection of the Power Ribbon (71085) to P3 on the MPS-24AF.

FIGURE 5-1: FIELD WIRING THE MPS-24AF/MPS-24AFE POWER SUPPLY

Four-Wire Smoke Detector/Annunciator Power

24 VDC (20.4-26.4, 200 mV ripple), 1 amp max. Filtered, regulated and resettable.
Power-limited but must be supervised via a UL approved Power Supervision Relay.

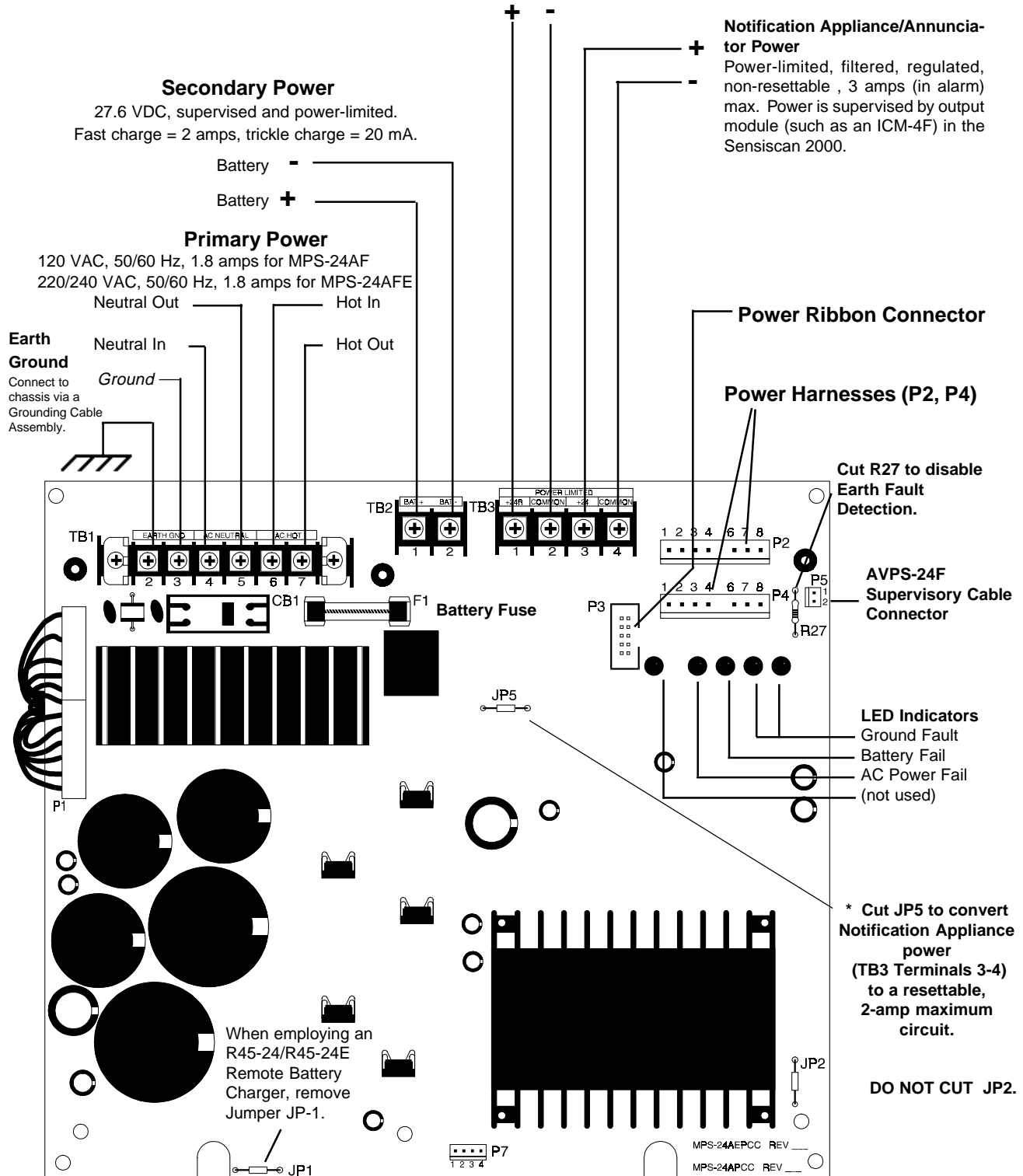
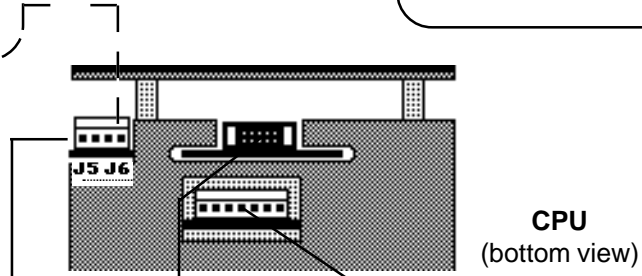
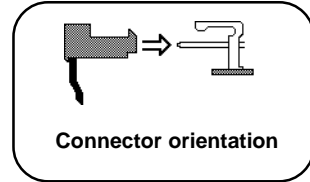
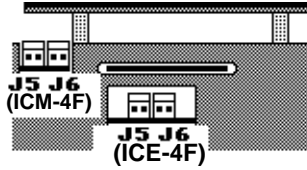


FIGURE 5-2 HARNESS CONNECTIONS FOR THE MPS-24A

If powering a notification circuit module from the main power supply, connect the Auxiliary Bell Power Harness (71091) from J6 on the CPU to J5 on the ICM-4F or ICE-4F. See Section 6.9 for more information.

Bottom view of ICM-4F or ICE-4F



Main Pwr Supply Bell Power Harness (71093)

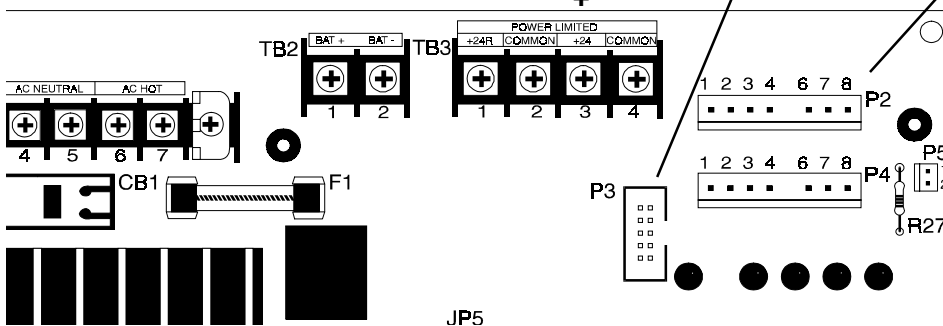
Blue wire

Power Ribbon (71085)

Power Harness (71086)
Connect to P2 or P4.

7-position end

Note position of Red Wire at 8-position end



5.2 THE MPS-24BF/MPS-24BFE MAIN POWER SUPPLY

Note: The MPS-24BF has been designed to support single-cabinet row systems only.

This amounts to enough power for the CPU and up to three other modules as a maximum.

The MPS-24BF Main Power Supply is a supply capable of powering the system continuously during standby and alarm conditions. A total of 750 mA @ 24 VDC regulated is available for operating the system during Standby conditions.

Figures 5-3 and 5-4 illustrate connections for primary and secondary power to the MPS-24BF Main Power Supply, as well as terminal and harness connections.

CONNECTING THE PRIMARY POWER SOURCE

The MPS-24BF requires 120 VAC, 50/60 Hz, 1.8 amps primary power and the MPS-24BFE requires 220/240 VAC, 50/60 Hz, 0.9 amps. With the breaker at the main power distribution panel turned off, remove the plastic insulating cover from Terminal Block TB1 and connect the system primary power source. Ground Cable per NEC requirements. Ground the power supply assembly to the cabinet with a Chassis Ground cable (71073) to TB1 Terminal 2. Connect the primary Neutral line to TB1 Terminal 3 and the primary Hot line to TB1 Terminal 4. Do not route 120 VAC wiring in the same conduit as other control panel circuits. After completion of these connections reinstall the plastic insulating cover over the terminal strip. Leave the main power breaker off until installation of the entire control panel is complete.

CONNECTING THE SECONDARY POWER SOURCE (24VDC)

Secondary power (batteries) is required to support the system during loss of primary power. These batteries reside in the control panel cabinet. Connect the Battery Positive Cable to TB3 Terminal 1 (+) and the Battery Negative Cable to TB3 Terminal 2 (-). **Do not connect the Battery Interconnect Cable at this time. This connection will be made just after initial primary system power-up.**

EARTH FAULT DETECTION

The MPS-24BF automatically employs detection of earth faults in the system (unless Resistor R55 is removed).

FOUR-WIRE SMOKE DETECTOR POWER (24VDC)

Up to 200mA of current for 24 VDC four-wire smoke detectors can be drawn from TB2 Terminals 1 (+) and 2 (-). Power is removed from these terminals during system reset (unless Jumper JP1 is removed). This regulated four-wire smoke detector power is power-limited but must be supervised via a UL-listed Power Supervision Relay. The power supervision relay is energized by the four-wire power circuit and its contact must be connected in series with an initiating device circuit.

ANNUNCIATOR POWER (24VDC)

Up to 200mA of current suitable for powering an AFM-16ATF or AFM-32AF Annunciator can be drawn from TB2 Terminals 1 (+) and 2(-). The power is regulated, power-limited and is supervised by the annunciator.

NOTIFICATION APPLIANCE POWER (24 VDC)

Up to 2.0 amps of regulated power-limited current for powering Notification appliances can be drawn from TB2 Terminals 3 (+) and 4 (-). Power is not removed from these terminals during system reset. **Do not connect any type of serial annunciator (such as an AFM) or any device requiring filtered 24 VDC power to this circuit or damage may result!**

SYSTEM HARNESS CONNECTIONS

Internal power for the system is provided via the Power Harness (71086). Connect this harness from P2 on the MPS-24BF to the CPU. Signaling between the CPU and the main power supply is accomplished through connection of the Power Ribbon (71085) to P3 on the MPS-24BF.

FIGURE 5-3 THE MPS-24BF MAIN POWER SUPPLY

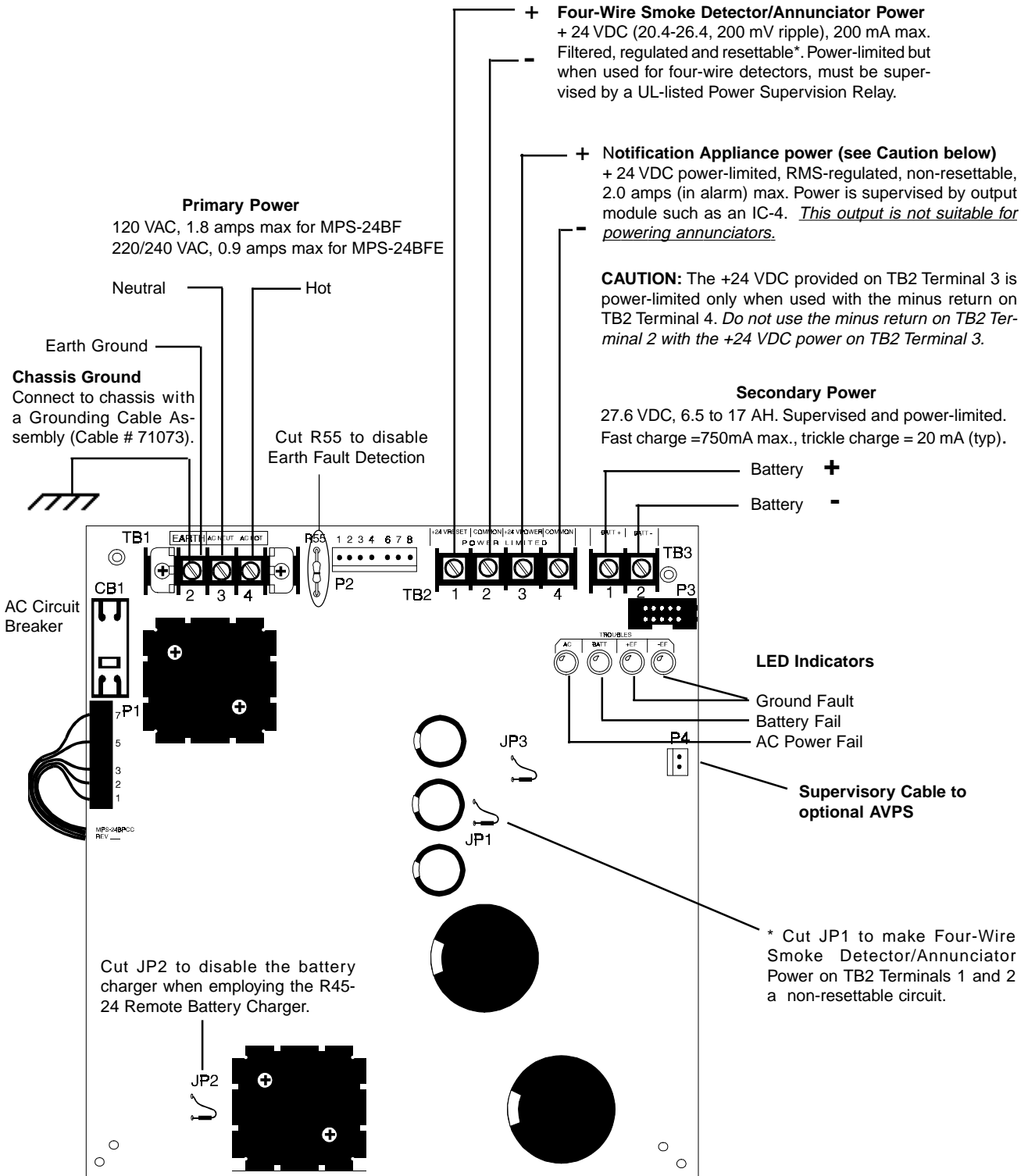
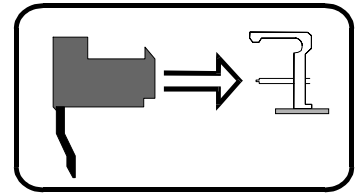


FIGURE 5-4 MPS-24BF/MPS-24BFE HARNESS CONNECTIONS



Power Harness Connector Orientation

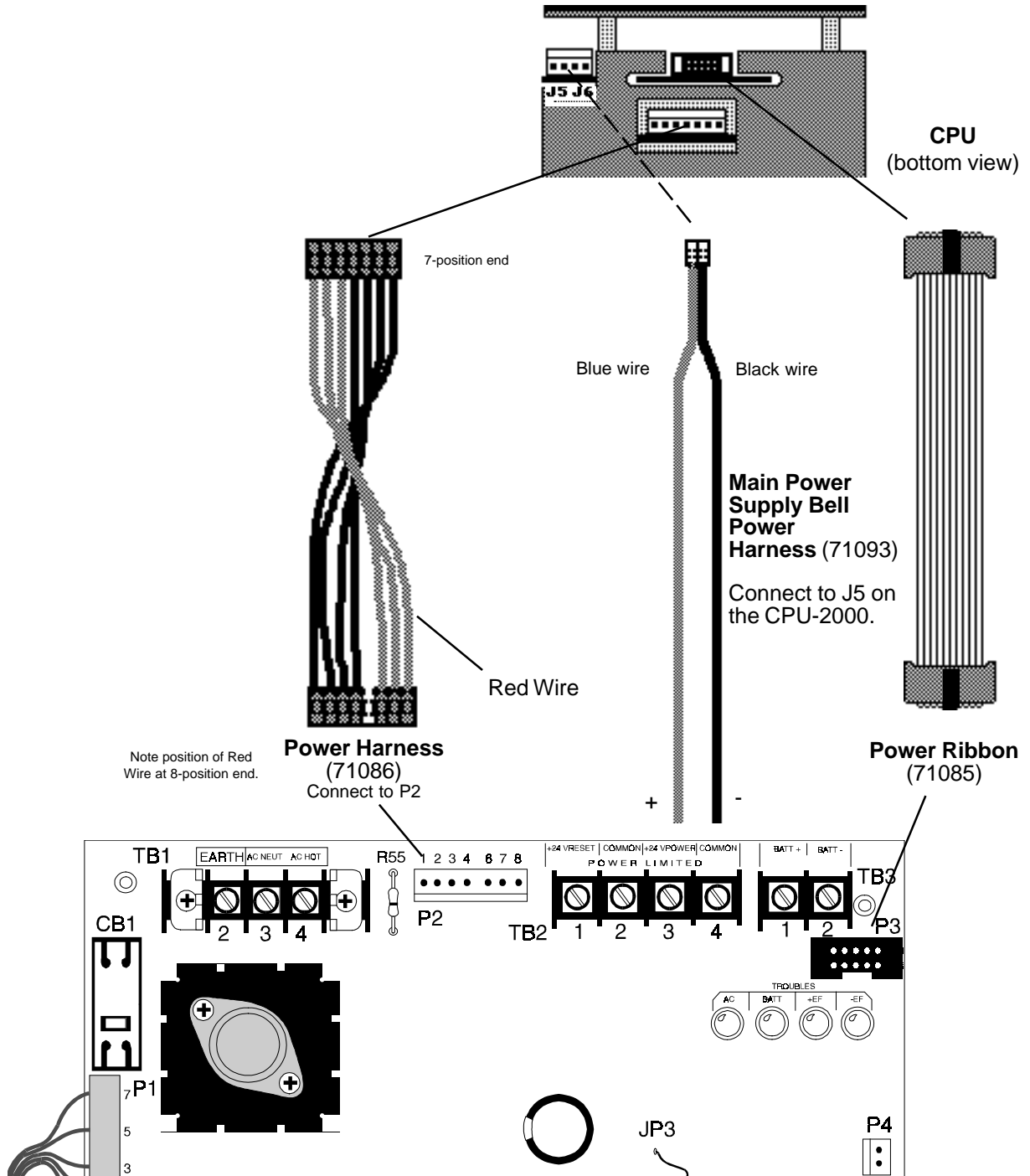
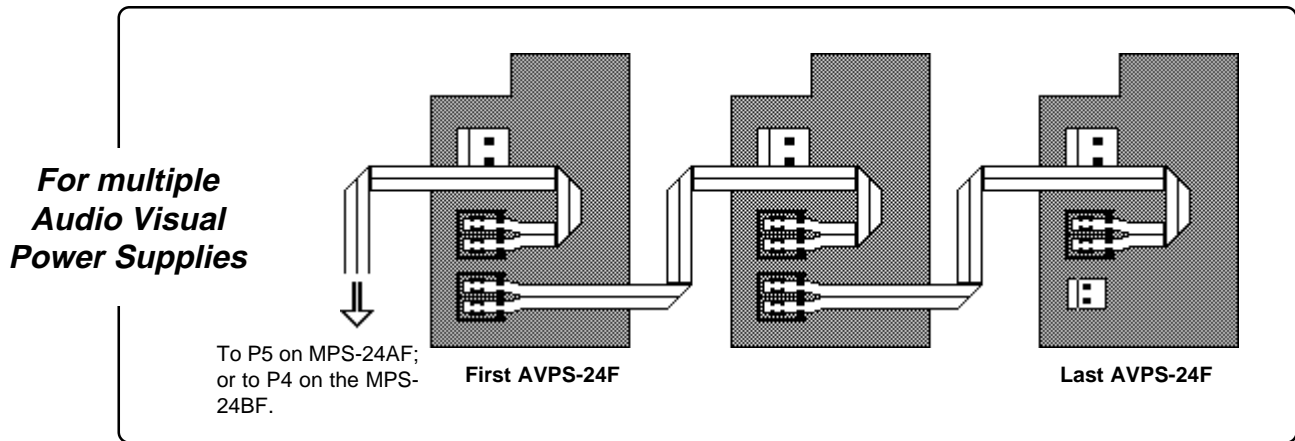
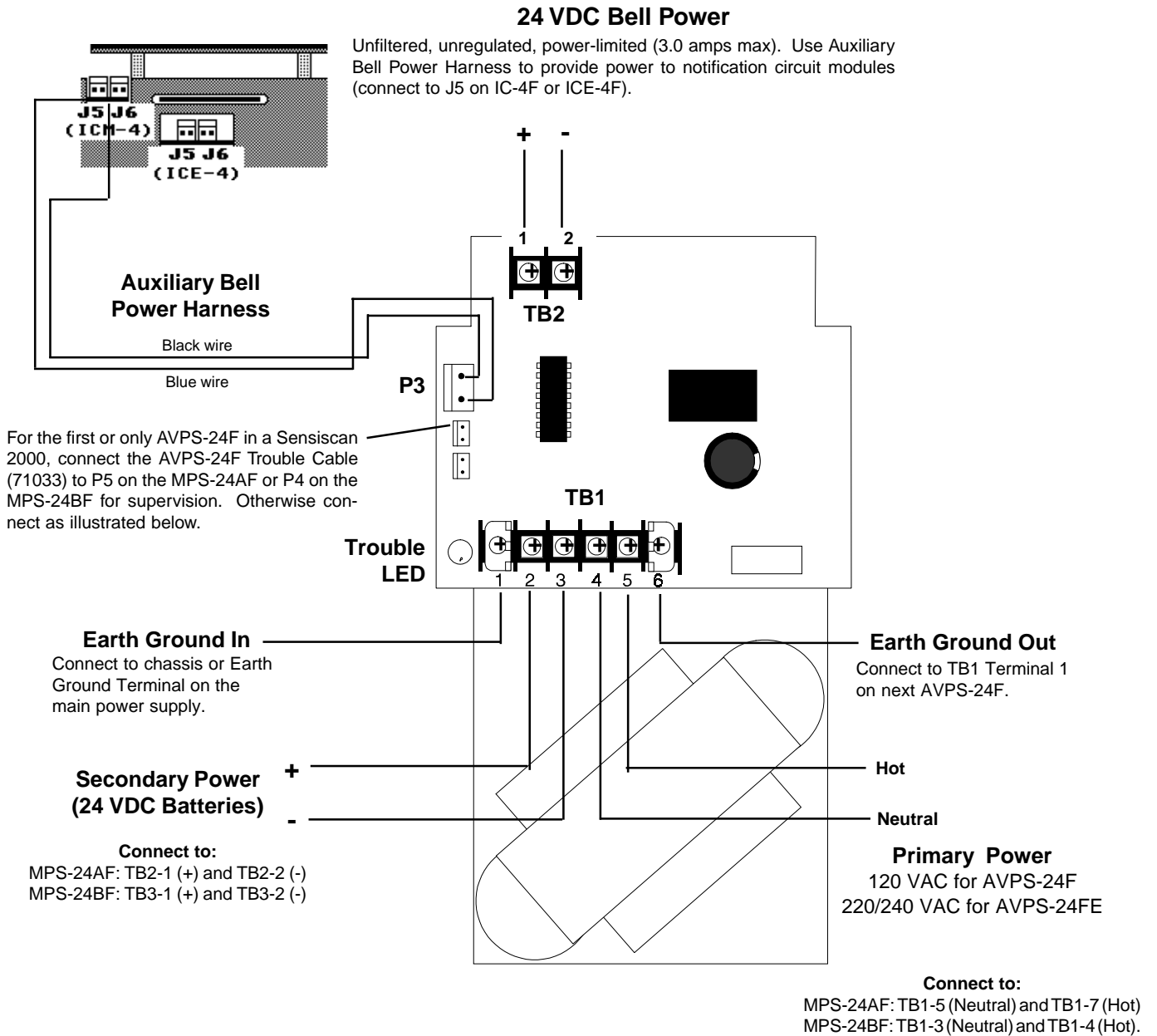


Figure 5-5 Field Wiring of the Optional Audio Visual Power Supplies (AVPS-24F/ AVPS-24FE)



THE R45-24/R45-24E REMOTE BATTERY CHARGER

When the secondary requirements demand batteries that cannot be adequately charged by the main power supply employed, an R45-24 Remote Battery Charger must be used. The R45-24 mounts in its own cabinet, up to 20 feet away (must be in the same room as the control panel). The R45-24 is capable of charging 55 AH PS-12550 batteries, which are also contained in the charger cabinet. For more information refer to the R45-24 Product Installation Drawing packaged with each unit.

CONNECTING THE PRIMARY POWER SOURCE

The R45-24 requires 120 VAC, 50/60 Hz primary power and the R45-24E requires 220/240 VAC, 50/60 Hz primary power. With the breaker at the main power distribution panel turned off, connect the primary Hot line to Terminal 1 on the R45-24 and the primary Neutral line to Terminal 2. All connections between the Sensiscan 2000 and the R45-24 must be made in conduit, using #12 AWG wire. Do not route VAC wiring in the same conduit as other Sensiscan 2000 circuits. Leave the main power breaker off until installation of the entire system is complete.

CONNECTING THE SECONDARY POWER SOURCE (24VDC)

Do not connect AC power or batteries until the system is completely wired and ready for testing. Refer to Wiring Diagram and instructions for the Fire-Lite R45-24 remote Battery Charger.

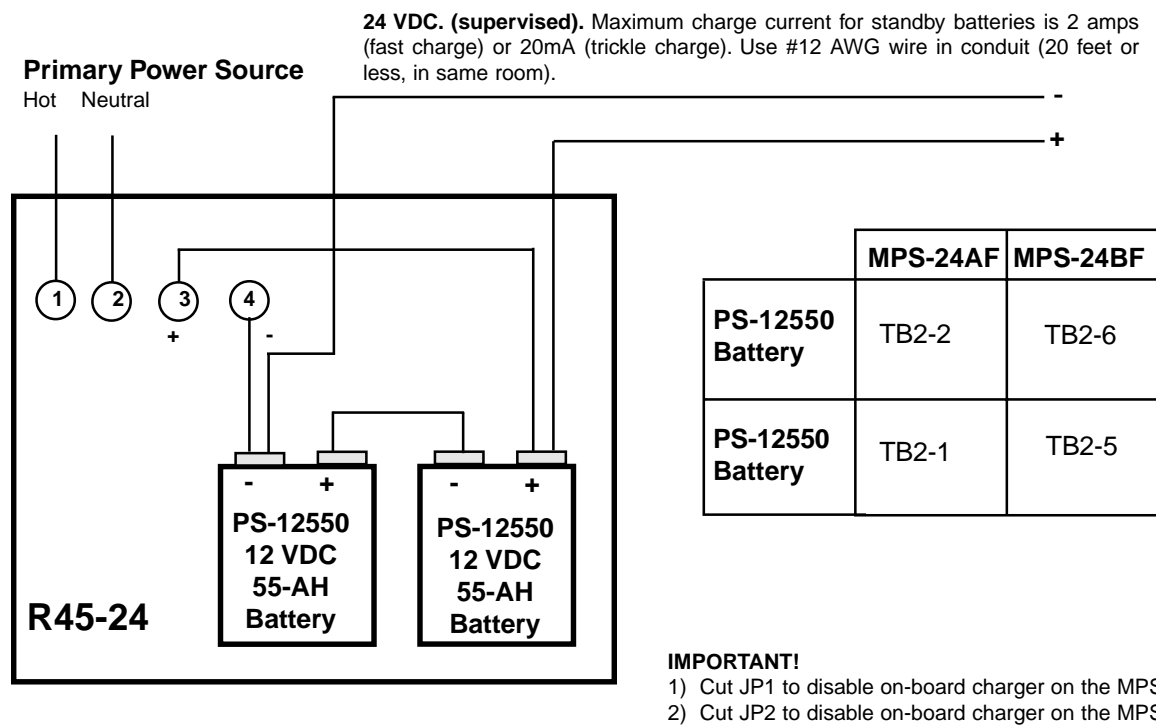


Figure 5-6 Connecting the R45-24 Remote Battery Charger

SECTION SIX: APPLICATIONS

6.1 WATERFLOW ALARM

A waterflow alarm device may be connected to an IZ Series Initiating Zone Module circuit provided that the circuit is programmed to activate at least one notification appliance circuit and one of the following conditions are met:

- The initiating Device Circuit is programmed for waterflow operation
- OR**
- the notification appliance circuit is programmed as non-silenceable.

6.2 SUPERVISORY SERVICE

Normally open supervisory devices may be connected to any Initiating Zone Module circuit provided that the circuit is programmed for supervisory operation. This circuit must be dedicated to supervisory devices.

6.3 CENTRAL STATION

The Sensiscan 2000 can be employed as a protected premises Control Unit when used in conjunction with a compatible, UL-listed electrically-activated transmitter or when used in conjunction with a compatible, UL-listed digital alarm communicator such as the 911A. (See Figure 6-1)

6.4 DIGITAL ALARM COMMUNICATOR TRANSMITTERS (DACT)

The Fire Alarm Control Panel (FACP) will support a Digital Alarm Communicator Transmitter (DACT) provided that the panel is configured and programmed for DACT operation. Software P/N 73452 (or higher) will support DACT's that are activated via relay contacts (911A), while Software P/N 73611 (or higher) will support the UDACT-F via the EIA-485 Annunciator Port.

The FACP must be programmed for DACT operation (see the Extended Programming Section). Programming the FACP for DACT operation will delay the reporting of an AC loss condition for approximately eight hours (Software P/N 73452 or higher) and modify the EIA-485 Annunciator Port protocol (Software P/N 73611 or higher) for UDACT-F operation.

The modified protocol is compatible with the AFM and LDM Annunciators. Annunciators and a UDACT-F can be connected to the EIA-485 Annunciator Port simultaneously. However, the modified EIA-485 protocol alters the assignment of the first eight yellow annunciator LED's as shown in the table on the following page.

Annunciators and a UDACT-F can be connected to the EIA-485 Annunciator Port simultaneously. However, the modified EIA-485 protocol alters the assignment of the first eight yellow annunciator LED's as follows:

| Trouble Point (Yellow LED) | Software P/N 73452 and lower | Software P/N 73611 and higher | |
|----------------------------|------------------------------|-------------------------------|-------------------------------|
| | | Without UDACT-F | With UDACT-F |
| 1 | System Trouble | System Trouble (less AC loss) | System Trouble (less AC loss) |
| 2 | Signal Silenced | Signal Silenced | Signal Silenced |
| 3 | Not Used | Not Used | Not Used |
| 4 | Supervisory | Supervisory | Supervisory |
| 5 | Indicating Circuit 1 Trouble | Indicating Circuit 1 Trouble | Indicating Circuit 1 Trouble |
| 6 | Indicating Circuit 2 Trouble | Indicating Circuit 2 Trouble | Indicating Circuit 2 Trouble |
| 7 | Municipal Tie Trouble | Municipal Tie Trouble | Low Battery/Gnd Fault |
| 8 | Panel Trouble | AC Fail | AC Fail |

The FACP must be programmed for an annunciator whenever it's connected to a UDACT-F since the UDACT-F receives the FACP status on the EIA-485 Annunciator Port. If the FACP is connected to both annunciators and a UDACT-F, all devices except one must be configured as receive only. Refer to the table below for configuration and supervision arrangements.

| Devices Installed | UDACT-F | | Annunciator (Note 1) | |
|-------------------------|------------------|---------------------------------------|----------------------------|----------------------|
| | Configuration | Supervision | Configuration | Supervision |
| UDACT-F Only | Receive/Transmit | Via EIA-485 | | |
| UDACT-F and Annunciator | Receive/Transmit | Via EIA-485 | Address 1 Receive Only | Un-Supervised |
| | Receive Only | Via UDACT-F Comm Fail Output (Note 2) | Address 1 Receive/Transmit | Via EIA-485 |
| | Receive/Transmit | Via EIA-485 | Address 1 Receive Only | Via EIA-485 (Note 3) |

- 1) Additional annunciators may be employed in the Receive Only Mode. The wiring to these annunciators will be supervised only if the power and the EIA-485 circuits are wired sequentially and the Receive/Transmit device is connected last.
- 2) The UDACT-F's Comm Fail Output (TB3, pin #2) must be connected to the AUX Trouble Input on the main power supply (P5, pin #1 on MPS-24AF or P4, pin #1 on MPS-24B). See connection diagrams.
- 3) The power and the EIA-485 circuits are wired sequentially (the FACP connects to the annunciator and the annunciator connects to the UDACT-F).

INSTALLING THE UDACT-F

Remove all power from the control panel by disconnecting AC and batteries. Install the three supplied nylon support posts for the top and bottom left of the UDACT-F, one aluminum/nylon and one aluminum standoff in the CHS-4 chassis slot in which the UDACT-F is to be installed (refer to Figure 6-1). Position the UDACT-F on the standoffs and secure on aluminum standoff with a #6-32 screw. Alternatively, the UDACT-F may be mounted remotely using an ABS-8RF enclosure. Ferrite cores are required for this application. Refer to the UDACT-F Manual, Document 50049 for more information.

Connect the communication line between the EIA-485 terminal block on the CPU-2000 and TB1 terminals 3 and 4 on the UDACT-F being certain to observe polarity (refer to the Document 50049). Recommended wire is 12 AWG to 18 AWG twisted pair. If no other devices are connected to the EIA-485, install a 120 ohm end-of-line resistor across UDACT-F TB1 terminals 3 and 4.

Connect the supplied Ground Strap from the UDACT-F Earth Ground terminal on TB3 to the CHS-4 chassis. Connect 24VDC filtered, regulated, non-resettable power to TB1 terminals 1 and 2 on the UDACT-F (refer to Document 50049).

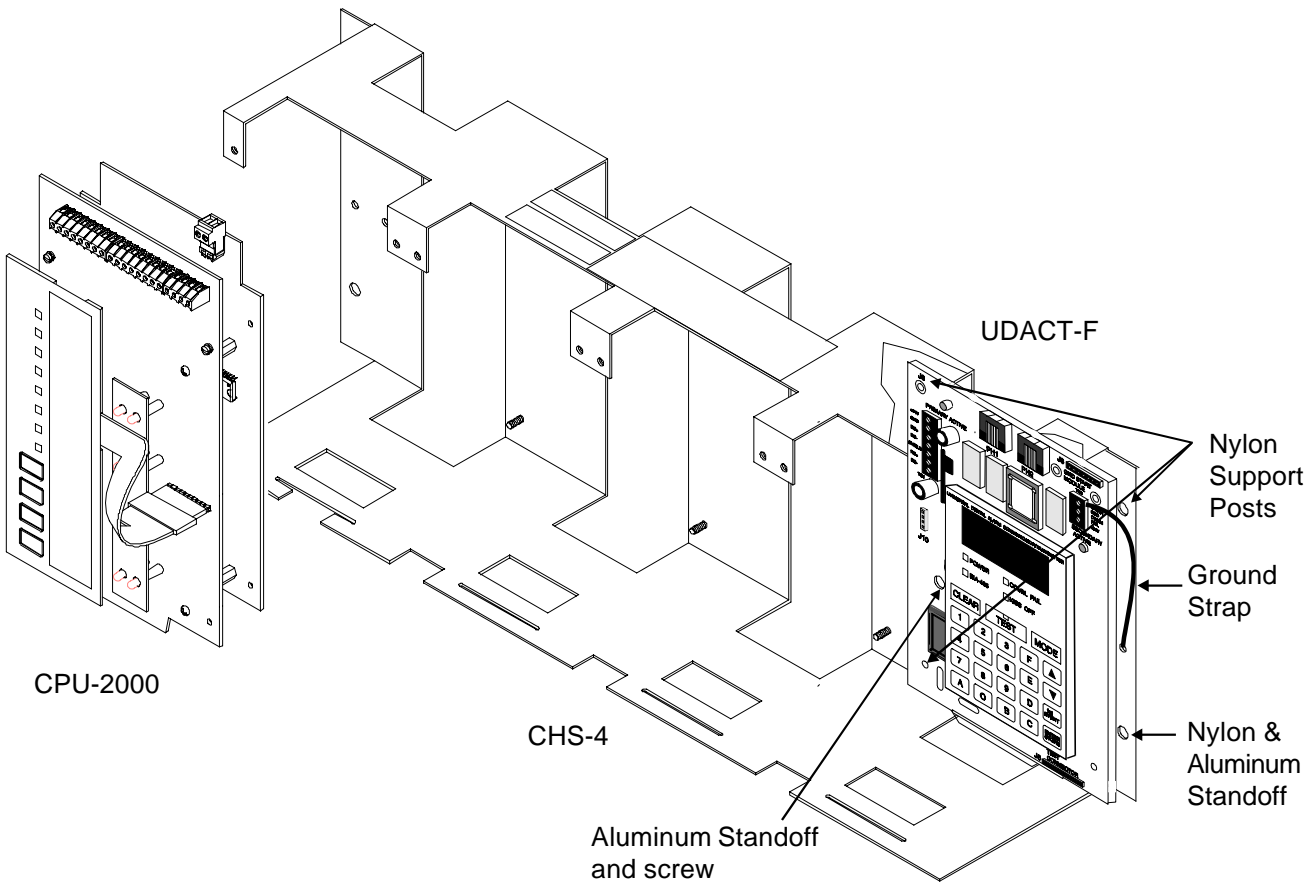


Figure 6-1: UDACT-F Mounting in CHS-4

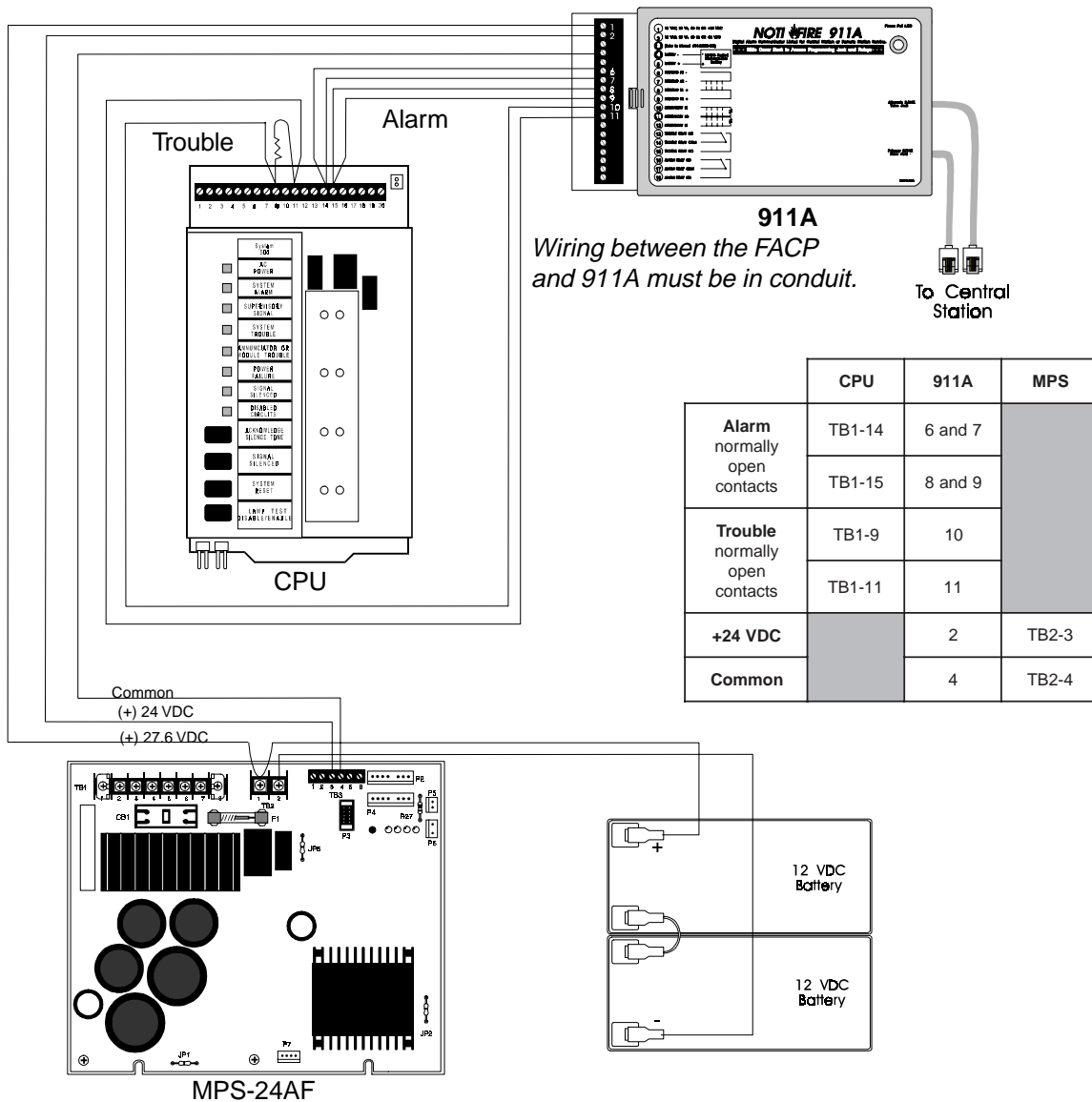
6.5 CONNECTION OF A 911A DIGITAL COMMUNICATOR

The Noti-Fire 911A Digital Alarm Communicator Transmitter (DACT) is a three-zone module designed for use with the Sensiscan 2000 to provide for off-premises monitoring of this fire alarm control panel. For stand-alone installations, use the 911AC kit that includes a transformer and an enclosure(s) for both the 911A and the transformer. The 911A is self-powered in this mode and is triggered by the alarm and/or trouble contacts received from the control panel. It communicates with a digital receiver by means of one of two transmission formats, BFSK or Pulsed Fast Single Round format.

Power Requirements: 26.6VDC minimum, 30 mA in Normal; 138 mA while communicating; 166.8 mA with alarm & trouble relays while communicating.

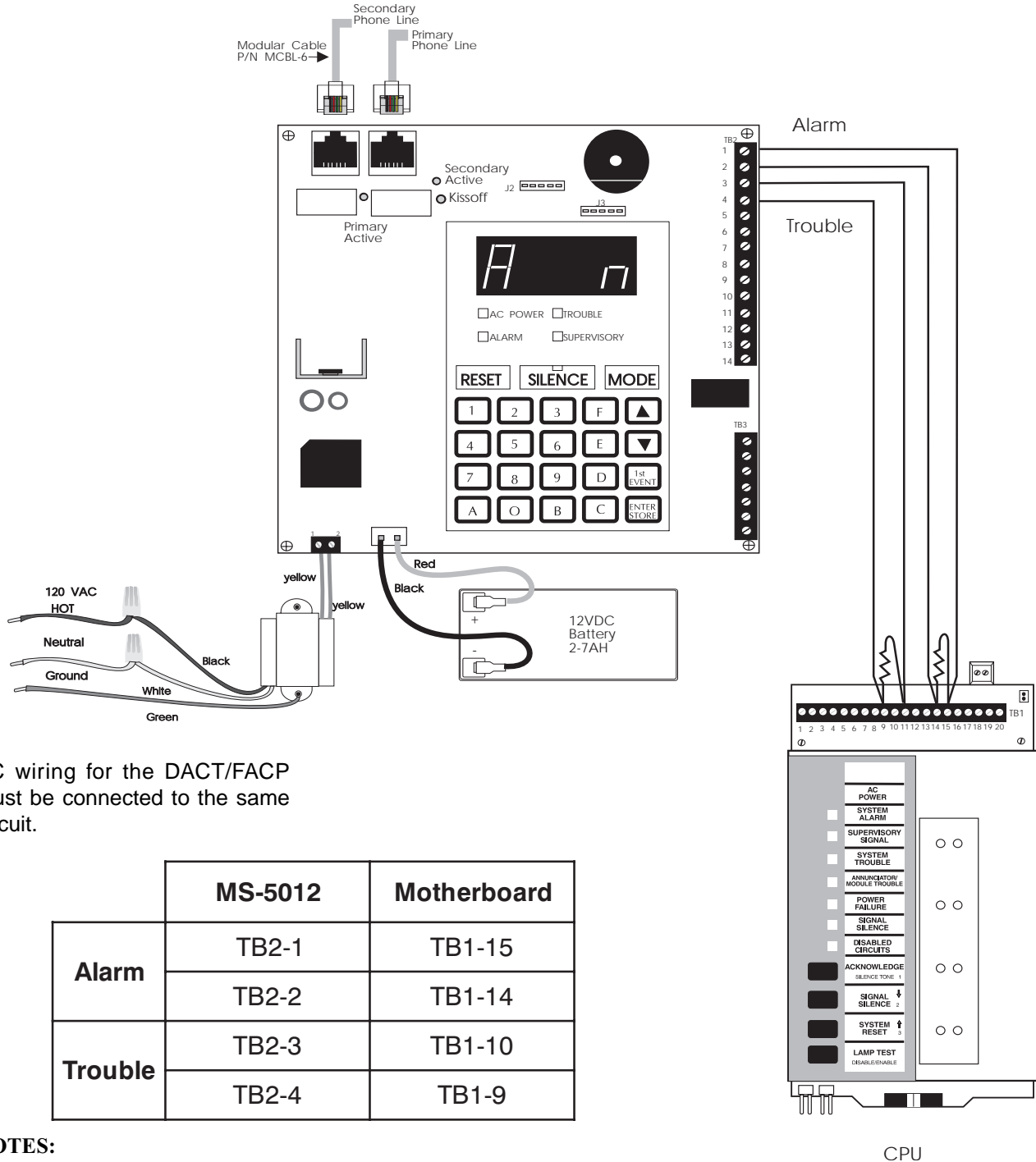
Retard time and Reset time must be programmed for zero second when connecting the alarm initiating circuit to an existing control panel.

For more detailed instructions and connection and power information, refer to the Noti-Fire 911A manual, Document #74-06200-005-A.



6.6 MS-5012 AS A DACT

The MS-5012 may be used as a slave communicator to a master FACP. In slave configuration, five channels may be triggered by the relay outputs of the master panel. Zone 1 is used for General Alarm, Zone 2 is used for general trouble, Zone 4 is used for supervisory. Zone 3 and 5 may be programmed to match the FACP relay function.



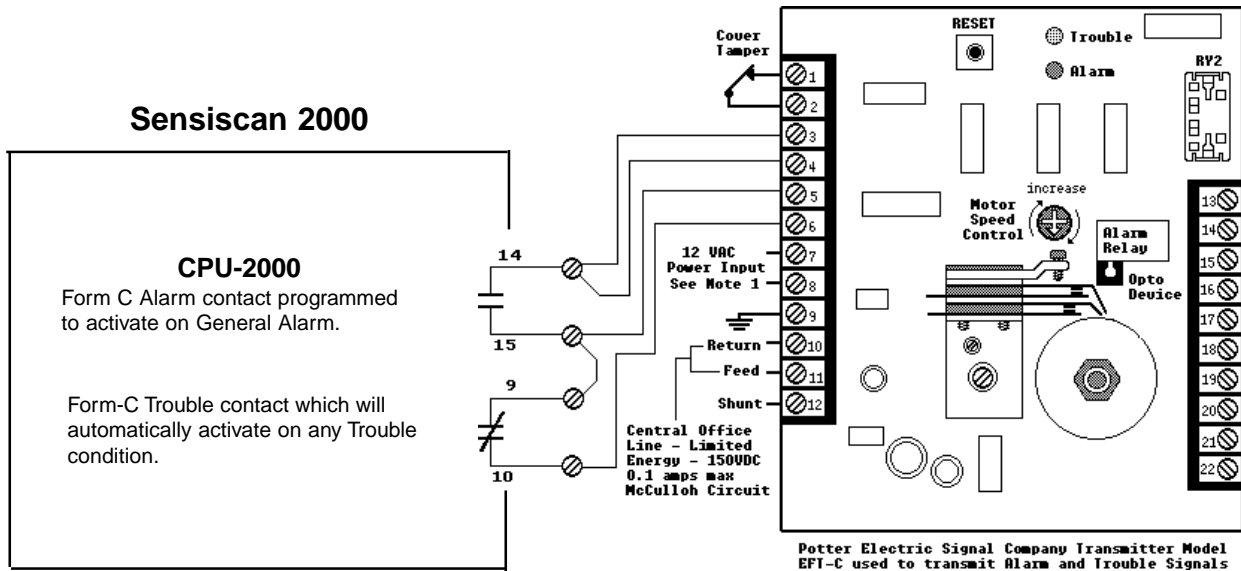
AC wiring for the DACT/FACP must be connected to the same circuit.

NOTES:

- 1) Reference the MS-5012 manual for additional information.
- 2) Program the MS-5012 for slave application.

Figure 6-2A: Connecting the MS-5012 as a DACT

Figure 6-3: Transmitter Connections



6.7 PROPRIETARY PROTECTIVE SIGNALING

The Sensiscan 2000 can be employed as a Proprietary Protective Premises Control Unit when used in conjunction with a compatible, UL-listed receiving unit.

- 1) Connection between Sensiscan 2000 and the transmitter is supervised by the transmitter.
- 2) Use transformer mode ULT STK NO. 100391 (listed, Class 2, 12 V, 10VA.). See Potter Electric Signal Company Bulletin #748.
- 3) This Sensiscan 2000/Transmitter arrangement can be employed for an NFPA 72-1993 Central Station Fire Alarm System, NFPA 72-1993 Remote Station Fire Alarm System, or NFPA 72-1993 Proprietary Fire Alarm System.

6.8 TEE-TAPPING

One Tee-Tap will be allowed on Style Y notification appliance circuits if a 10 K End-of-Line Resistor (Part # 71274) is used on each branch as shown in Figure 6-4. *Note: This application is not recommended by Factory Mutual (FM).*

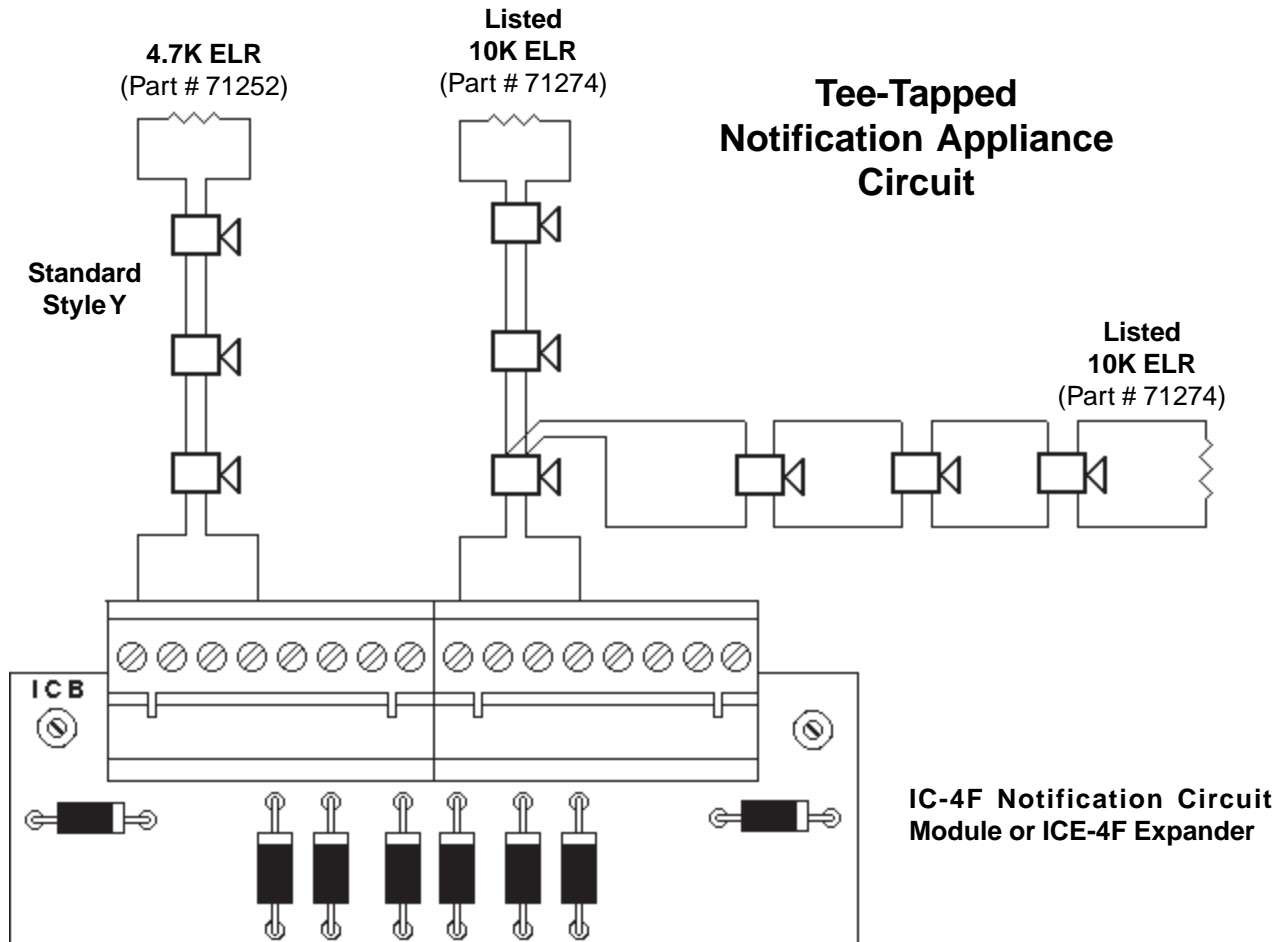
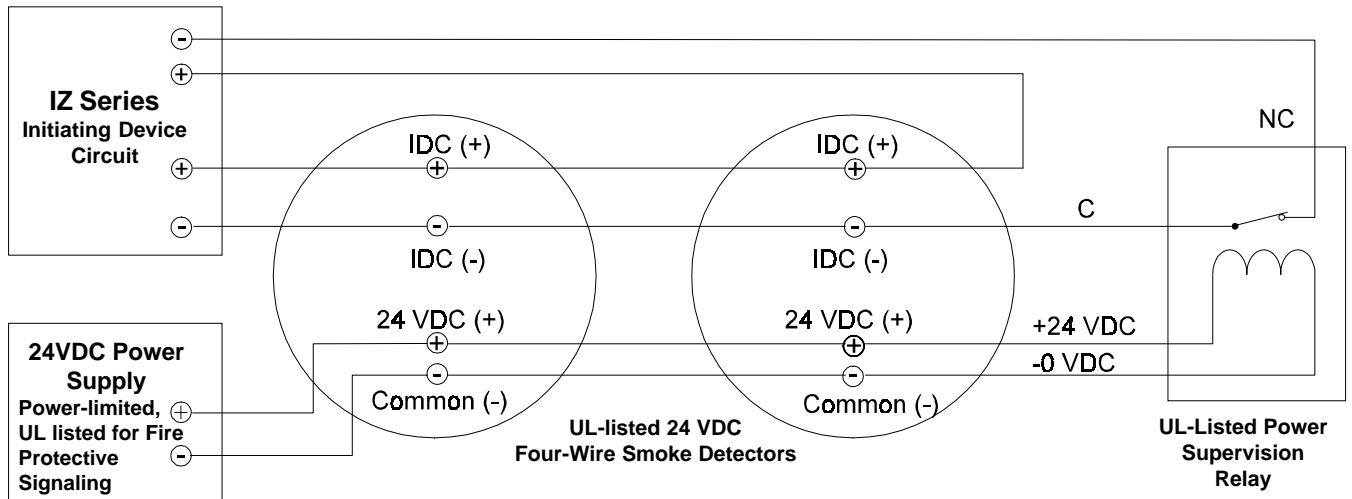


Figure 6-4: Tee-Tapping Notification Appliance Circuits

6.9 FOUR-WIRE SMOKE DETECTORS

Initiating devices requiring 24 VDC operating power can be wired as illustrated in Figures 6-4 and 6-5.

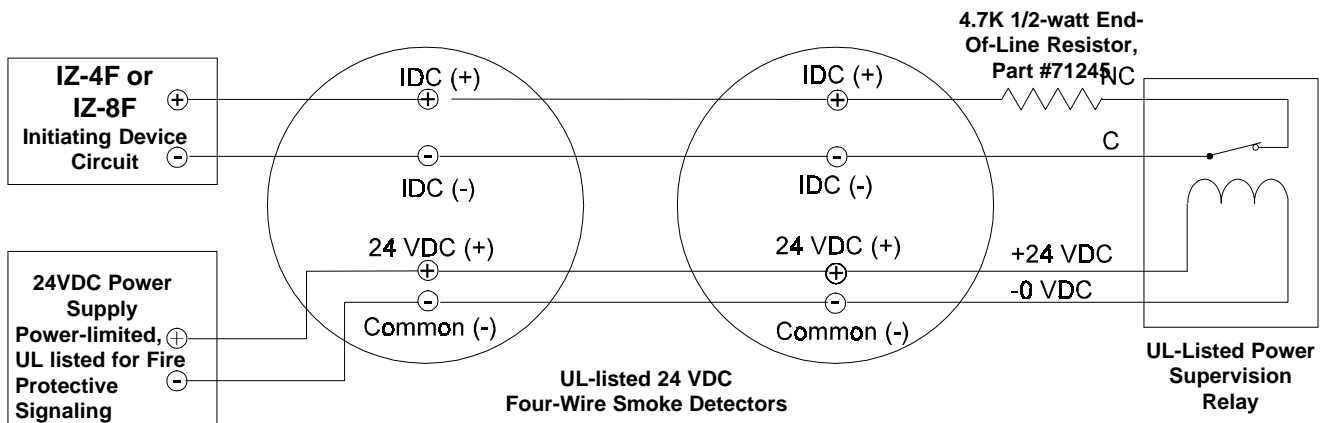


MPS-24AF TB3 Term. 1 (+) & 2 (-)
MPS-24BF TB2 Term. 1 (+) & 2 (-)

Figure 6-4:

Employing Four-Wire Smoke Detectors (Style D)

All connections are supervised and power-limited



MPS-24AF TB3 Term. 1 (+) & 2 (-)
MPS-24BF TB2 Term. 1 (+) & 2 (-)

Figure 6-5: Employing Four-Wire Smoke Detectors (Style B)

All connections are supervised and power-limited

Notes on Style B and Style D field wiring:

- 1) The Power Supervision Relay coil leads must be connected to the last detector base 24V screw terminal.
- 2) Calculation of the maximum allowable resistance in the 24VDC detector power wiring:

$$R_{MAX} = \frac{(20.6 - V_{OM})}{(N)(I_S) + (NA)(I_A) + (I_R)} \quad \text{where:}$$

- R_{MAX} — is the maximum total resistance of the 24V power circuits.
- V_{OM} — is the minimum operating voltage of the detector or end of line relay, whichever is greater, in volts.
- N — is the total number of detectors on the 24V supply loop.
- I_S — is the detector current in standby.
- NA — is the number of detectors on the 24V power loop which must function at the same time in alarm.
- I_A — is the detector current in alarm.
- I_R — is the end-of-line relay current.

6.10 NOTIFICATION APPLIANCE CIRCUIT POWER CONFIGURATIONS

The total current drawn from a notification appliance circuit cannot exceed 3.0 amps (subject to the limitations of the power supply). Figure 6-6 illustrates some of the typical power supply/notification appliance circuit configurations possible with the Sensiscan 2000.

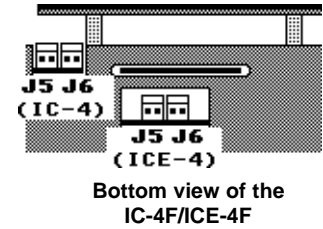
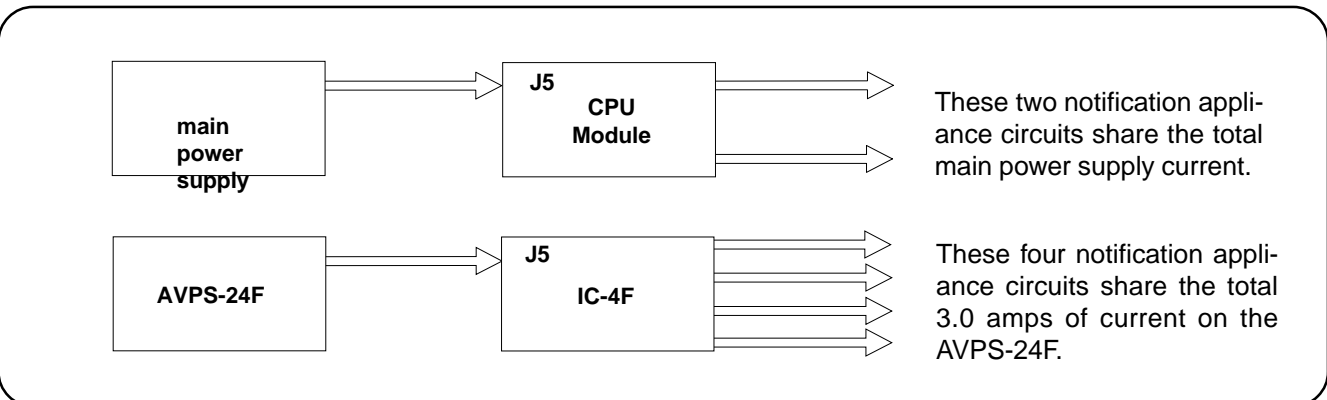
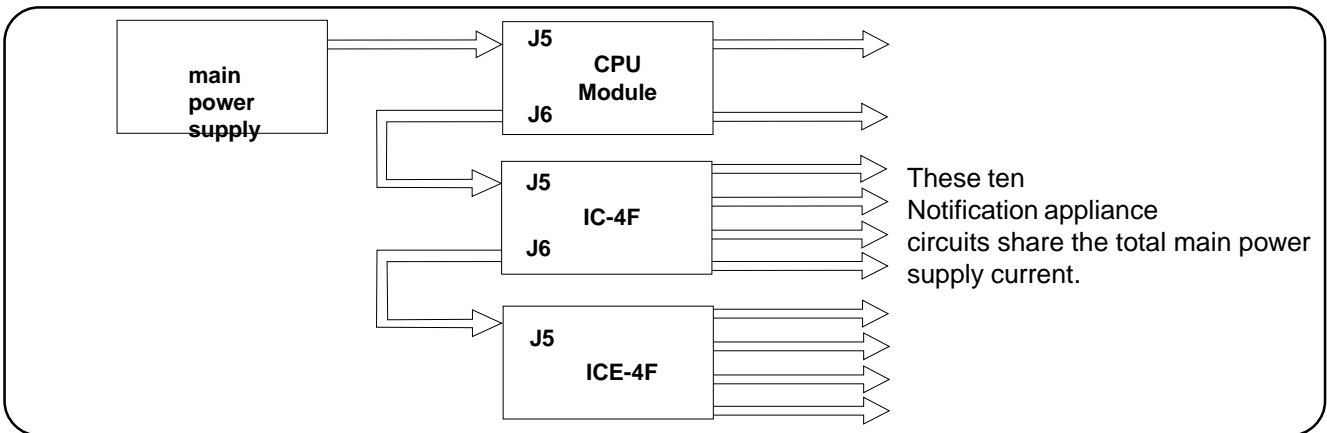
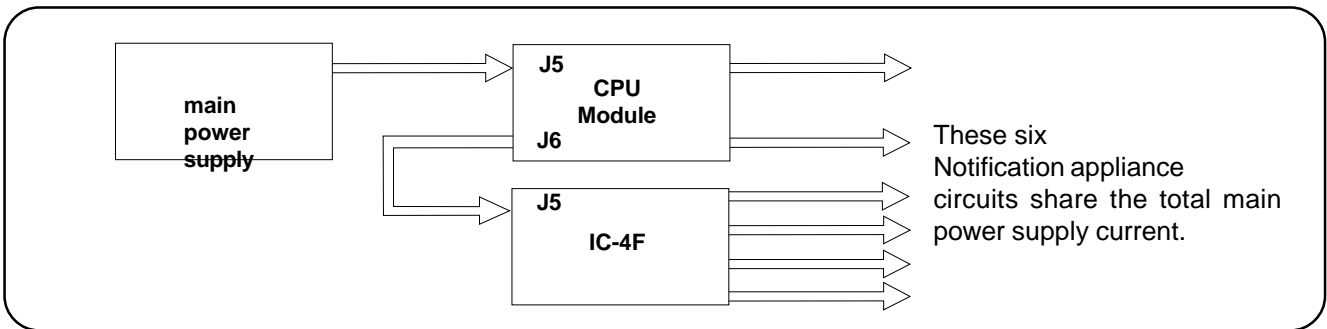
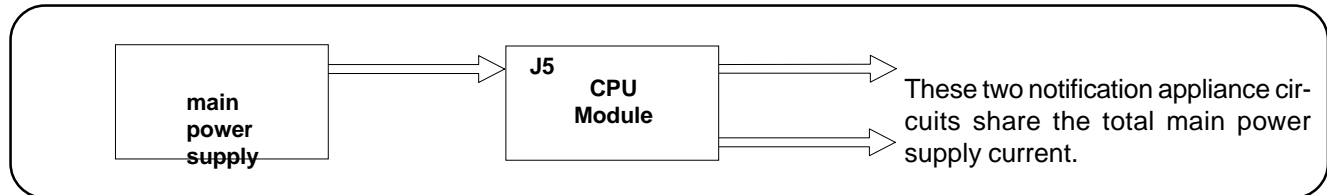
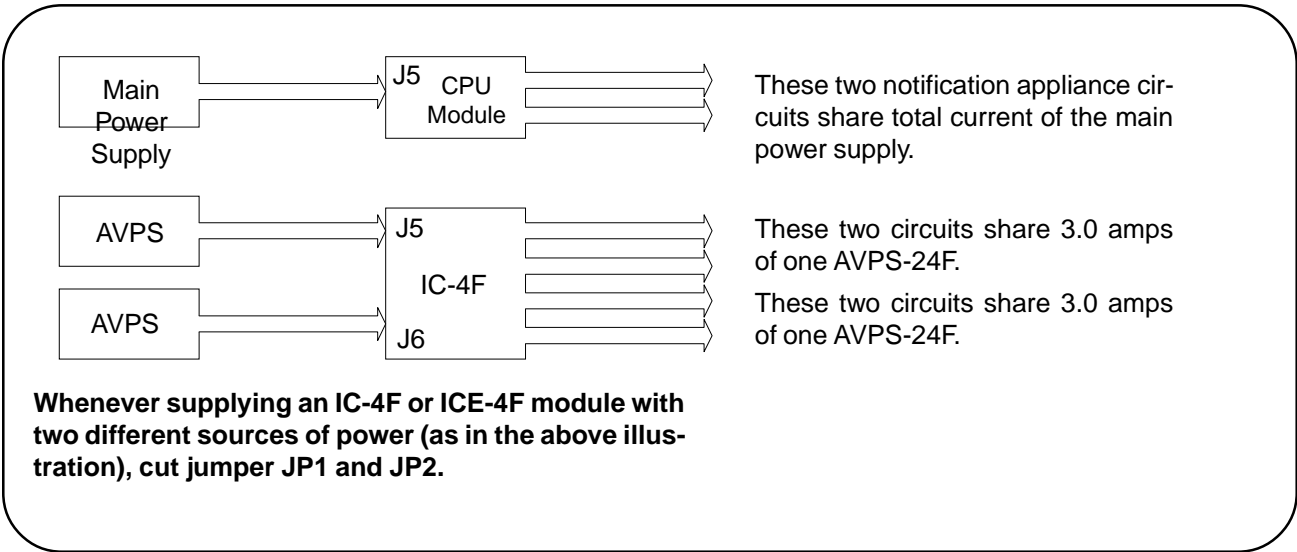
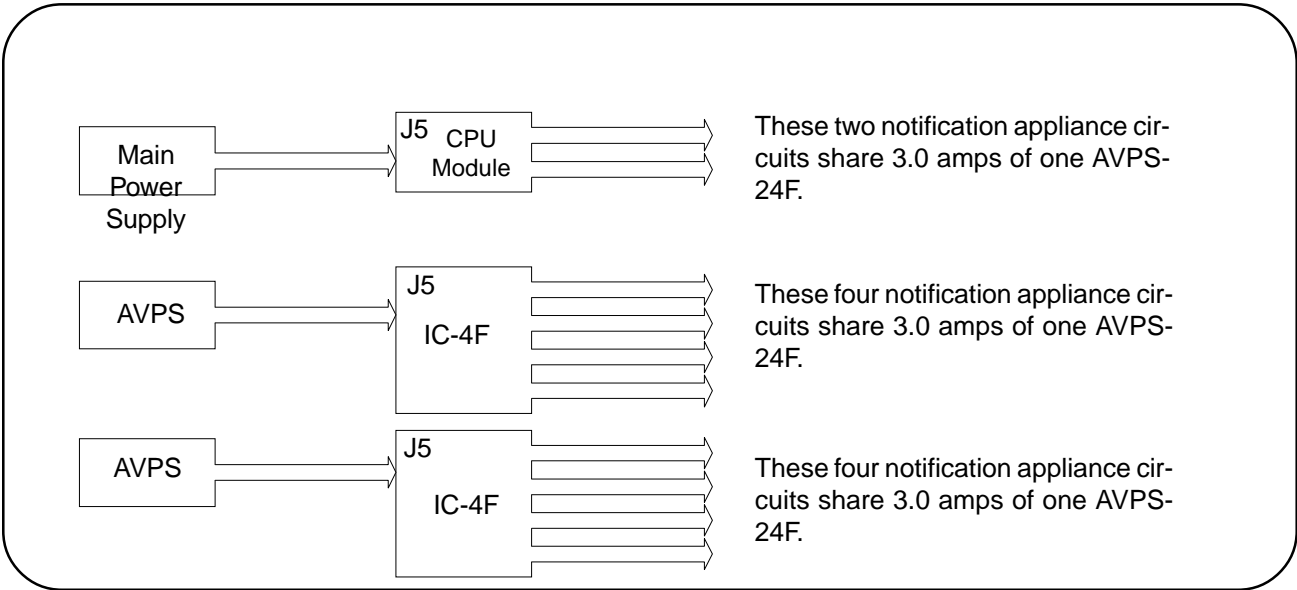
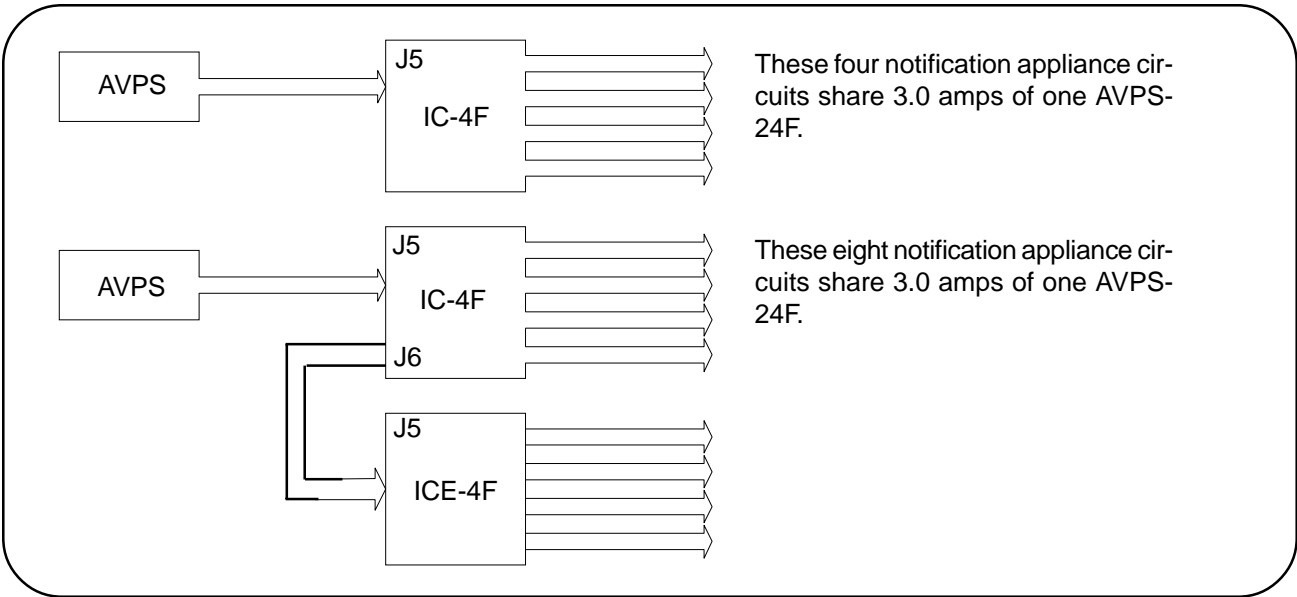


Figure 6-6: Typical Supply/Notification Circuit Configurations





6.11 REMOTE COMMAND INPUTS FOR THE SENSISCAN 2000

The function of Acknowledge, Signal Silence, and Reset can be executed from remote switches. The switches are wired to IZ-8F circuits which must be programmed for this special operation. Additional functions are outlined below, can also be accomplished through IZ-8F circuits.

Presignal Inhibit: IZ-8F zone 1. Program zone as non-alarm and supervisory. This command is used to inhibit presignal operation. Upon entering presignal, the CPU checks zone 1 on all IZ-8F modules. If the zone is active (shorted), all presignal or PAS operations will be ignored.

Emergency Alert: IZ-8F zone 5. Program zone as non-alarm and supervisory. Use as an evacuation signal for tornados, bomb-scares and other non-fire emergency situations. If the control panel is not in alarm, activation (short) on zone 5 will activate all notification appliance circuits and output relays, that are mapped to zone 5, with a steady signal. Programmed March Time or Temporal code is ignored. A fire alarm will take priority over an emergency alert. Notification appliance circuit used for fire must be programmed for MTC or Code 3 operation. Emergency Alert is for local signalling only, do not map to "Remote Signalling/Municipal Tie" outputs.

Acknowledge: IZ-8F zone 6. Program circuit as non-alarm and supervisory. Use to remotely execute an Acknowledge command without the need of an AFM-16ATX annunciator.

Signal Silence: IZ-8F zone 7. Program circuit as non-alarm and supervisory. Use to remotely execute the Signal Silence command without the need of an AFM-16ATX annunciator.

System Reset: IZ-8F zone 8. Program circuit as non-alarm and supervisory. Use to execute the Reset function without the need of an AFM-16ATX annunciator.

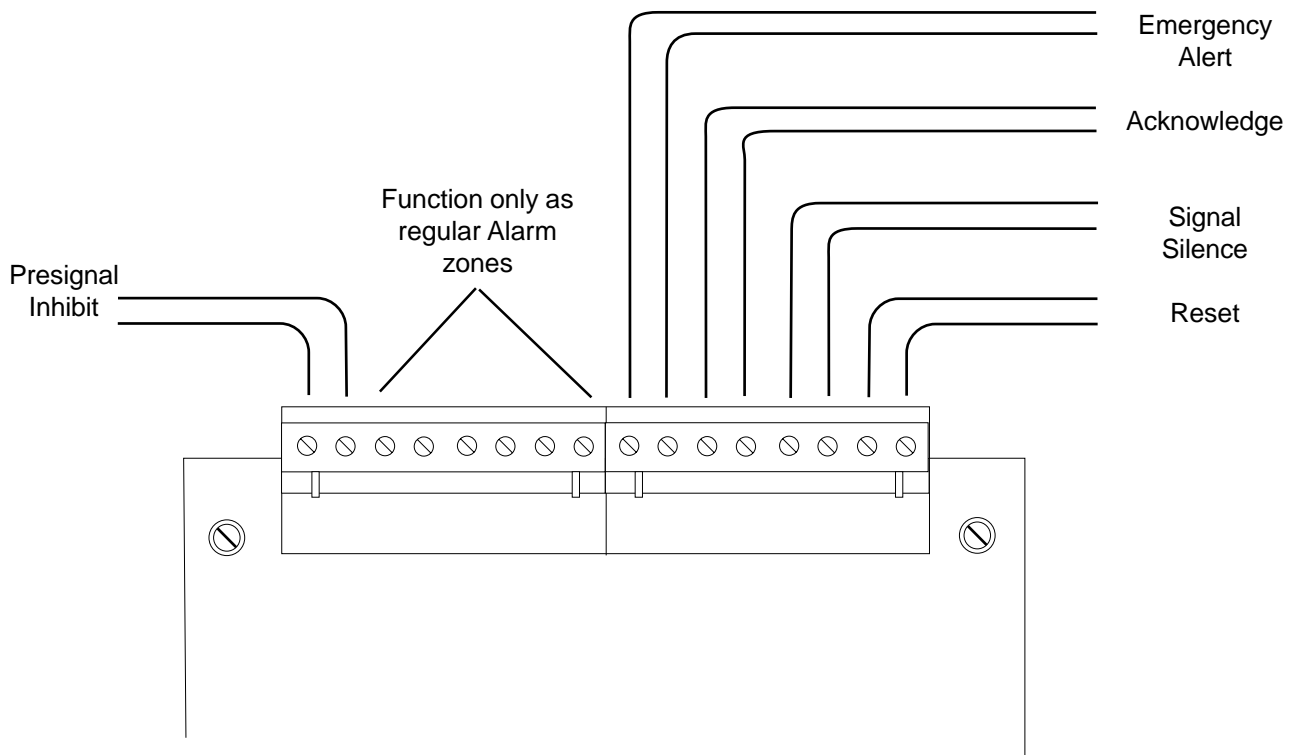
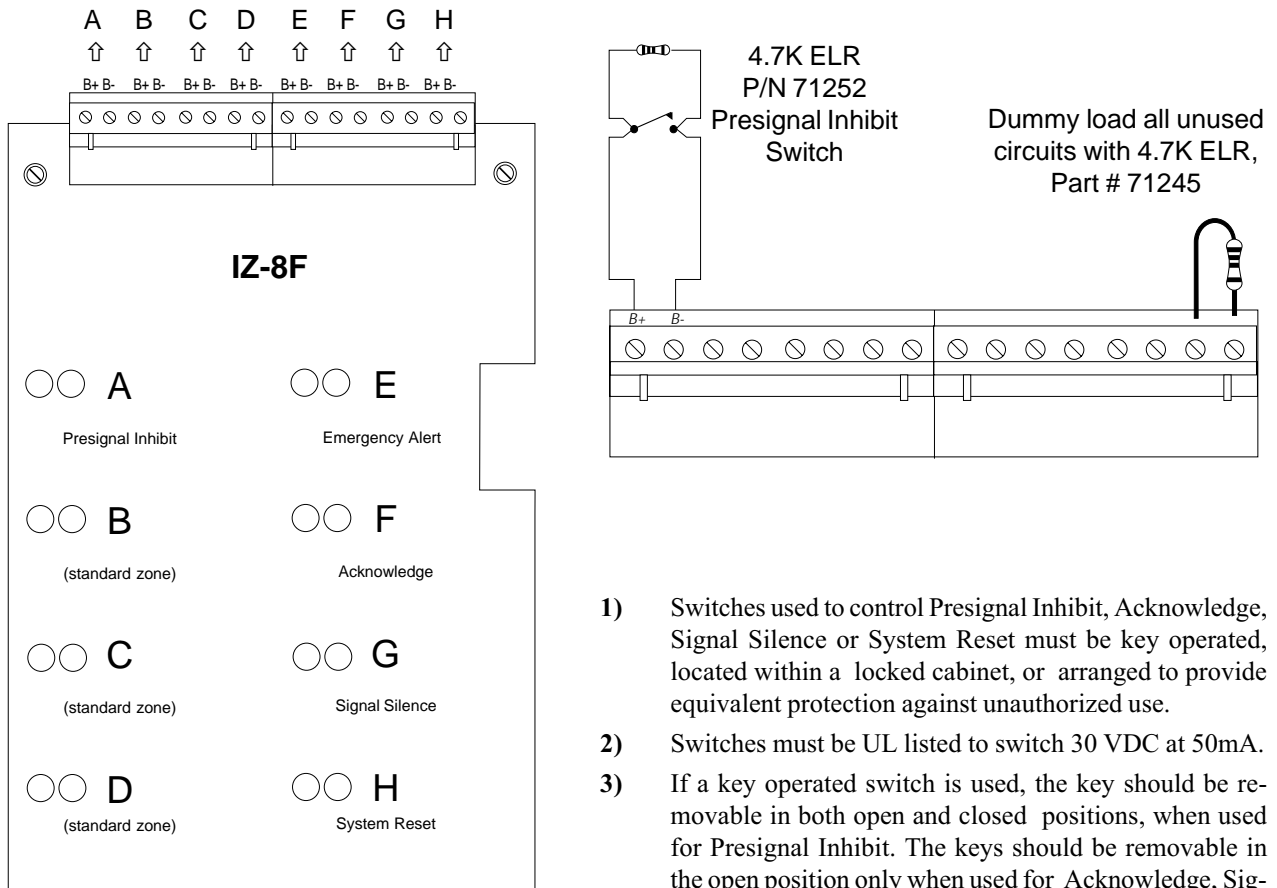


Figure 6-7: Remote Command Input Connections

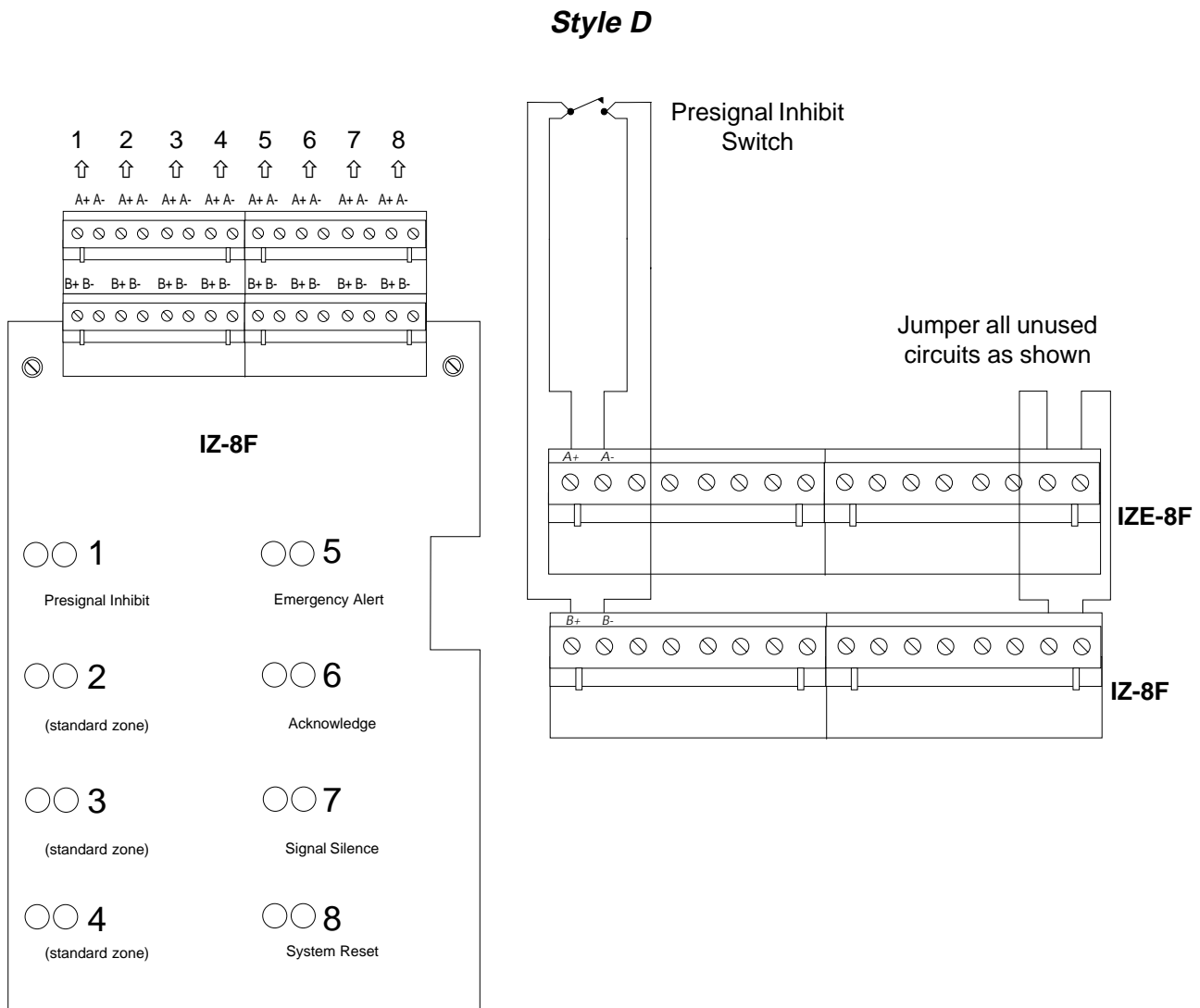
- 1) Initiating circuits used as command circuits are supervised, power-limited, and may be connected to limited-energy cable.
- 2) Maximum line resistance allowed due to wiring is 100 ohms.

Figure 6-8: Remote Presignal Inhibit, Emergency Alert, Acknowledge, Signal Silence and System Reset Switches (Style B).



- 1) Switches used to control Presignal Inhibit, Acknowledge, Signal Silence or System Reset must be key operated, located within a locked cabinet, or arranged to provide equivalent protection against unauthorized use.
- 2) Switches must be UL listed to switch 30 VDC at 50mA.
- 3) If a key operated switch is used, the key should be removable in both open and closed positions, when used for Presignal Inhibit. The keys should be removable in the open position only when used for Acknowledge, Signal Silence or System Reset.
- 4) The Presignal Inhibit, Emergency Alert, Acknowledge, Signal Silence or System Reset functions can be controlled by a relay contact from a CR-4F/CRE-4F Relay Module, which can be operated from switches on AFM-16ATX Annunciators.
- 5) Locate Acknowledge, Signal Silence and System Reset switches adjacent to a system annunciator so that system status is available to the operator.
- 6) Remote Command Circuits are supervised and power limited. Maximum wire resistance per circuit is 100 ohms. Circuits wired for Style B operation require a 4.7K End-Of-Line Resistor (P/N 71252) at the end of the line.

Figure 6-9: Remote Presignal Inhibit, Emergency Alert, Acknowledge, Signal Silence and System Reset Switches (Style D).



Switches used to control Presignal Inhibit, Acknowledge, Signal Silence or System Reset must be key operated, located within a locked cabinet or arranged to provide equivalent protection against unauthorized use.

- 1) Switches must be UL-listed to switch 30 VDC at 50mA.
- 2) If a key operated switch is used, the key should be removable in both open and closed positions when used for Presignal Inhibit. The keys should be removable in the open position only when used for Acknowledge, Signal Silence or System Reset.
- 3) The Presignal Inhibit, Emergency Alert, Acknowledge, Signal Silence or System Reset functions can be controlled by a relay contact from a CR-4F/CRE-4F Relay Module, which can be operated from switches on AFM-16ATX Annunciators.
- 4) Locate Acknowledge, Signal Silence and System Reset switches adjacent to a system annunciator so that system status is available to the operator.
- 5) Remote Command Circuits are supervised and power limited. Maximum wire resistance per circuit is 100 ohms.

SECTION SEVEN: PROGRAMMING

7.1 GENERAL

The control panel is programmed entirely by using the four switches on the CPU. The eight LEDs are used to show the programmer the status of programming. Each of these LEDs has two states - flashing and steady. On the programming label, two functions are associated with each LED. The function marked with an "F" is indicated by a flashing LED. The function marked with a "S" is indicated by steady LED illumination.

7.2 PREPARING FOR PROGRAMMING

Slide programming label into the Dress Panel. Insert the Programming Key through the dress panel into Plug J11 on the CPU. Wait until ENTER PASSWORD LED and PRESS ENTER LED flash, then enter password.

7.3 ENTERING PASSWORDS

There are four different programming modes, each with its own password. They are as follows:

Reconfigure: 123-1231, System Programming: 123-1232, Extended Features: 123-3211, Clear Program 312-1233

After entering the appropriate password digits, press the ENTER switch.

7.4 CLEAR PROGRAM (PASSWORD 312-1233)

Before reconfiguring the system, we recommend clearing the CPU's memory. To do this use the PROGRAM CLEAR function. After PREPARING FOR PROGRAMMING enter the password 312-1233 then press and hold the ENTER key. The LEDs on the modules will go through a scrolling sequence until finally only the ENTER PASSWORD and PRESS ENTER LEDs are lit (approx. 10 sec.). PROGRAM CLEAR is now complete and the system is ready for reconfiguration.

NOTE: Program clear should only be executed on new systems or ones that have been significantly changed because all previous programming will be removed!

7.5 RECONFIGURE MODE (PASSWORD 123-1231)

Upon entering the *Reconfigure Mode*, the CPU identifies what modules are in the system. The system must be reconfigured the first time it is programmed and any time a module is removed or added. The *Reconfigure Mode* sets new modules to the default conditions listed below (the program for modules that have been previously reconfigured remains unchanged)

- No circuits are selected for waterflow, supervisory, or circuit verification.
- No circuits are selected for coded output.
- Control relays are non-silenceable.
- All notification appliance circuits are silenceable.
- All circuits are mapped for general alarm.

After entering the Reconfigure password and pressing CHANGE STATE key, the PASSWORD ACCEPTED LED and the RECONFIGURE LED will illuminate. All correctly-installed modules will light their LEDs as follows:

IZ-8F: All red and yellow LEDs

IZ-4F: All red and yellow LEDs

IC-4F, ICE-4F: Four green LEDs on left. All eight will light if an expander has been installed.

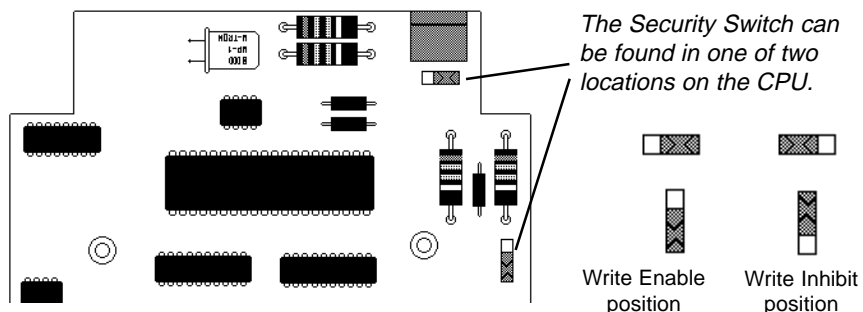
CR-4F, CRE-4F: Four yellow LEDs on left. All eight will light if an expander has been installed

TC-2F, TC-4F: All eight green LEDs will light.

Press the ESCAPE switch to store the system configuration. Programming will advance to programming of the system.

Access Security

Additional access security for the system can be obtained by setting a switch on the lower CPU board to the *Write Inhibit* position. When set to the *Write Inhibit* position, the system will still give the impression that it can be programmed, but pressing the ENTER key will not result in the storing of any program data — all work will be lost.



Note: The panel's Disable feature will not function with Write Inhibit selected.

7.6 SYSTEM PROGRAMMING (PASSWORD 123-1232)

System programming may be entered directly by password or is automatically entered after reconfiguring the panel (by pressing the Escape key).

After entering the system programming password, the green PASSWORD ACCEPT LED and the yellow PROGRAM/SERVICE LED will illuminate. Programming of the system is performed sequentially. The first function to be programmed is WATERFLOW.

WATERFLOW OPERATION

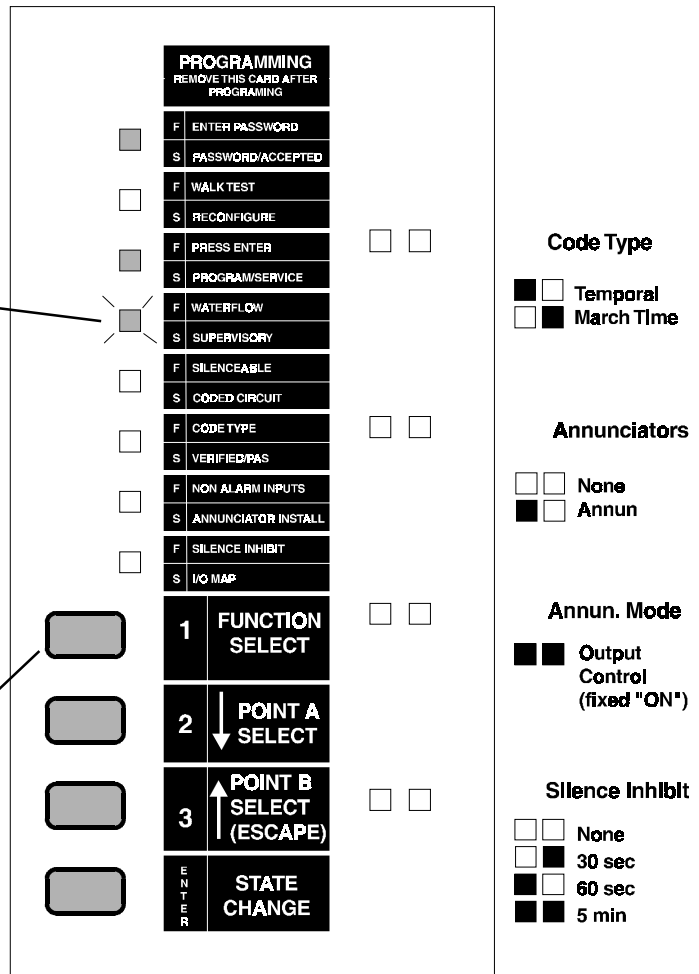
Notification appliance and other output circuits that are activated in response to an alarm on a waterflow initiating circuit cannot be silenced by the Signal Silence switch.

Programming Waterflow Circuits

The WATERFLOW LED will flash to indicate the Sensiscan 2000 is ready to be programmed for waterflow circuits.

A flashing yellow initiating circuit LED serves as the printer. It shows the programmer what circuit is being programmed at that time. Press the STATE CHANGE switch to select or deselect this circuit. Pressing the POINT SELECT A switch advances the pointer to the next initiating circuit. Pressing the POINT SELECT B switch moves the pointer to the previous initiating circuit.

When all waterflow circuits have been selected, press the FUNCTION SELECT switch to store the WATERFLOW programming information and advance programming to the next function - SUPERVISORY.



SUPERVISORY OPERATION

Activation of a device on a circuit programmed for supervisory will light the supervisory LED. The system trouble LED and the system trouble outputs will not be activated. Supervisory circuits can be mapped to controlled outputs. Circuits can detect the difference between the normally open supervisory switch and a break in the field wiring.

Programming Supervisory Circuits

The Supervisory LED will illuminate steadily on the CPU. The pointer LED will be at the first initiating circuit. Use the STATE CHANGE switch to select or deselect that circuit for supervisory. The POINT SELECT switches move the pointer to the other initiating circuits.

When all Supervisory circuits have been programmed, press the FUNCTION SELECT switch to store the programming information and advance programming to the next function — SILENCEABLE.

SILENCEABLE OPERATION

Silenceable circuits are controlled output circuits that, when activated, can be silenced by pressing the signal silence key on the CPU. Do Not program the Remote Signalling / Municipal Tie output for silenceable operation.

Programming Silenceable Circuits

The SILENCEABLE LED will flash on the CPU. The pointer is represented by a flashing yellow LED on the first output circuit. Use the STATE CHANGE switch to select or deselect the circuit for silenceable operation. The green LED will illuminate when the circuit has been selected as silenceable. Use the POINT SELECT switches to move the pointer to the other output circuits.

When all silenceable circuits have been programmed, press the FUNCTION SELECT switch to store the programming information and advance programming to the next function — CODED CIRCUITS.

CODED CIRCUIT OPERATION

Selecting controlled outputs for coded operation enables those outputs to pulse a selected code chosen later in the programming process (see code type). Outputs that are not selected for coded operation will turn on steady.

Programming Coded Circuits

The CODED CIRCUIT LED will illuminate steadily on the CPU. The pointer will be at the first output circuit. Use the STATE CHANGE switch to select or deselect the circuit for coded operation. Use the POINT SELECT switches to move the pointer to the other output circuits.

When all coded circuits have been selected, press the FUNCTION SELECT switch to store the programming information and advance programming to the next function — CODE TYPE.

CODE TYPE SELECTION

Allows for the selection of March Time Code (110 beats per minute) or Temporal (3-3-3) coding for circuits programmed as coded in the previous step. Code type selection is on a system basis, therefore all coded circuits will sound the same code. Circuits that were not selected as coded are unaffected by Code Type selection.

Special Requirements apply to codes and code type selection when the system employs a TC-2F or TC-4F module. See the TC-2F Manual and the TC-4F Manual for more information

Programming Code Type

The CODE TYPE LED flashes. Use the STATE CHANGE switch to chose between the two codes:

Green LED for notification appliance circuit 1 on-Temporal
Yellow LED for notification appliance circuit 1 on-March Time

Code Type
 Temporal
 March Time

When code type is programmed, press the FUNCTION SELECT switch to store the programming information and advance the programming to the next function — VERIFIED ZONES.

VERIFIED/PAS

Alarm Verification increases the time required to initiate an alarm from two wire smoke detectors. When the system detects an alarm on an initiating circuit programmed for verification, it will automatically reset the power to that circuit. Power is then reapplied, beginning a verification period. Any alarm detected during this period will initiate an immediate system alarm.

Verification should only be used on circuits where false alarm rate cannot be reduced to an acceptable level by other means. Only alarm signals from two-wire smoke detectors can be verified since four-wire smoke detectors are not reset during verification. Both two-wire smoke detectors and normally-open shorting-type initiating devices may be connected to the same circuit, although verification will not affect the contact type devices.

Positive Alarm Sequence (PAS)

PAS adds a 15 second, post-alarm delay to signal activation. Pressing the ACKNOWLEDGE or SILENCE key before 15 seconds has expired will change the timer to its full value (1, 2, OR 3 MINUTES) programmed.

For proper operation of PAS, the following conditions must be met:

- 1) The control panel must be located so that an alarm signal can be acknowledged by trained personnel within 15 seconds.
- 2) The system must be equipped with a presignal bypass switch.
- 3) The system must be configured so that activation of a second automatic fire detector bypasses presignal and immediately activates alarm signals. To accomplish this, the installer must install one smoke detector per conventional initiating device.
- 4) Zones selected for PAS operation shall contain smoke detectors only. These zones may not contain other initiating devices such as manual stations, heat detectors, waterflow indicators, etc.

A fire alarm system that fails to meet the above requirements for PAS service will be classified as a presignal system only.

Programming Verified or PAS Zones

The VERIFIED / PAS LED will illuminate steady. The pointer will be at the first initiating circuit. Use the STATE CHANGE switch to select or deselect the circuit for verification. Use the POINT SELECT switches to move the pointer to the other initiating circuits.

When all VERIFIED / PAS ZONES are programmed press the FUNCTION SELECT switch to store programming information and advance programming to the next function — NON ALARM INPUTS.

NON ALARM INPUTS

A non-alarm input is an initiating circuit that, upon activation, will not light the System Alarm LED or cause the piezo to sound, will not latch, will self-restore and can be mapped to activate output circuits. Note: If the system is in alarm, or enters an alarm condition, non-alarm inputs WILL latch. When a short circuit occurs on a non-alarm circuit, the IZ red LED is turned on, but the System Alarm LED and the piezo sounder are not activated. Non-alarm points have a lower priority compared to regular IZ alarm zones. Non-alarm circuits are "tracking" (non-latching) in that they turn on when the circuit is shorted and turn off when the circuit returns to normal (unless the system is in alarm). Non-alarm circuits use the I/O map capability of the control panel and the mapped controls simply turn on/off as the non-alarm point turns on/off. Non-alarm circuits are supervised for opens.

Applications

Non-Alarm circuits are used to monitor devices that are not fire initiating sensors. Examples of these applications are:

- Building HVAC and energy management sensors such as thermostats or timers could be connected to Non-Alarm points and used to open/close ventilation dampers connected to CR-4F relays. In the event of a fire situation, the control panel could force the dampers in one position or the other, and subsequent non alarm state changes would be ignored.
- A manual drill switch could be connected to an IZ point and used to manually test the alarm system without causing a System Alarm or activating a Remote Station.
- Door locks connected to CR-4F/CRE-4F modules could be unlocked when a fire is detected by the Sensiscan 2000. A Non-Alarm point could be used to manually unlock/lock the doors in non-fire situations.

Programming Non-Alarm Inputs

The NON ALARM INPUTS LED will flash. The pointer will be at the first initiating circuit. Use the STATE CHANGE switch to select or deselect the circuit as a Non Alarm Input. The left-hand LED (red) on each point will illuminate when the circuit is selected, and will extinguish when the circuit has been deselected. Use the POINT SELECT switches to move the pointer to the other initiating circuits. Press the FUNCTION SELECT switch to store this programming and proceed to programming the next function — ANNUNCIATOR INSTALLATION.

ANNUNCIATOR INSTALLATION

Annunciator installation programming allows the programmer to tell the panel if a serial annunciator has been installed.

Programming Annunciator Installation

The ANNUNCIATOR INSTALL LED will illuminate steadily. An illuminated green LED for notification appliance circuit #2 represents an installed annunciator. Use the STATE CHANGE switch to select or deselect annunciator installation. After programming annunciator installation, press the FUNCTION SELECT key to store the programming information and advance programming to the next function.

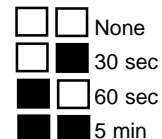
Annunciators



SILENCE INHIBIT

The SILENCE INHIBIT function prevents the operation of the Signal Silence switch for 30 seconds, 60 seconds or 5 minutes after the output circuits have been activated.

Silence Inhibit



Programming Silence Inhibit

The SILENCE INHIBIT LED will flash. Use the STATE CHANGE switch to select Silence Inhibit time as represented by the Alarm Relay LEDs.

After programming Silence Inhibit press the FUNCTION SELECT switch to store this information and select the next function — I/O Map.

INPUT/OUTPUT MAP

The I/O map is the assignment of output circuits to be activated by particular initiating circuits. Unmapped initiating circuits will not generate a system alarm. Unmapped controlled outputs will not operate.

Programming the I/O MAP

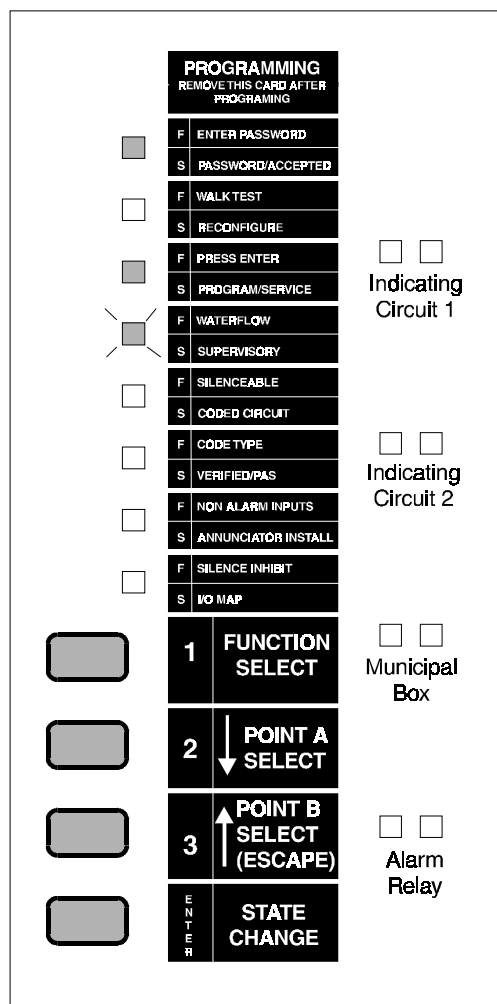
The I/O Map LED will illuminate steadily. The red LED pointer will illuminate steadily on the selected initiating circuit. A yellow flashing LED points to an output circuit. Pressing the STATE CHANGE switch will select or deselect the output circuit to be activated by the initiating circuit. Use the POINT B SELECT to scroll through each of the output circuits and the STATE CHANGE switch to select/deselect the outputs (after scrolling through all of the output circuits it will cycle back to the first).

After each of the output circuits has been selected/deselected, press the POINT A SELECT switch to move the red pointer to the next initiating circuit. Continue mapping outputs for each initiating circuit.

After programming the I/O map, press the FUNCTION SELECT key to store I/O map programmed. **If you do not press the FUNCTION SELECT switch after programming the I/O Map, the I/O map will not be saved.** Yellow LEDs on initiating circuits show unmapped circuits. Press ESCAPE switch to return to I/O mapping, or ENTER switch to return to Waterflow. Remove the Programming Key to exit programming mode.

Note

After the system has been programmed, the Programming Key must be removed to transfer the programming information from temporary memory storage to nonvolatile memory.



EXTENDED PROGRAMMING FEATURES (PASSWORD 123-3211)

The following features are available in CPU EPROM U4 software numbered 73265 (or greater).

The **AUTO SILENCE** feature will automatically turn off all silenceable circuits after a pre-programmed delay. The delay timer starts after a system alarm. Any subsequent alarms which occur before the auto silence activates will restart the delay countdown at zero.

The **PRESIGNAL DELAY** delays the activation of all silenceable circuits mapped to a zone in alarm for a pre-programmed length of time. A subsequent alarm aborts the delay and re-maps all alarm points. Pressing the SIGNAL SILENCE switch before the delay time has expired aborts the delayed activation of the silenceable circuits. **Note: When Pre-Signal Delay has been selected, at least one notification appliance circuit must be programmed as non-silenceable. This will ensure that at least one notification circuit will sound immediately after initiation of an alarm condition.**

The **POSITIVE ALARM SEQUENCE (PAS)** function adds a timer. After a first alarm, the timer is set for 15 seconds. If nothing happens in that 15 seconds, all signals are activated. If an ACKNOWLEDGE or SILENCE key (including annunciator keys) is pressed before 15 seconds, the timer changes to its full value (1, 2, or 3 minutes).

Note: When Pre-Signal has been selected, at least one notification appliance circuit must be programmed as non-silenceable. This will ensure that at least one notification Circuit will sound immediately after initiation of an alarm condition.

NFPA 72-1993 requires the installation of a Day/Night/Weekend switch that can override PAS operation. This can be accomplished by using a normally open switch to close an IZ-8F that has been programmed for NON-ALARM and SUPERVISORY operation. Note that the zone cannot have a notification appliance circuit mapped to it.

The switch totally inhibits all presignal function. On entering presignal mode, the CPU checks zone 1 in module 1. If this is an IZ-8F zone set for NON-ALARM and SUPERVISORY, and it is *active* (switch is on), all presignal and PAS operation will be ignored.

AC LOSS REPORT DELAY When a Digital Alarm Communicator Transmitter (DACT) is used, the reporting of an AC Loss condition must be delayed. With software P/N 73452 (or higher), this function can be selected under extended programming features. When selected, the CPU's trouble contacts will not be activated for loss of AC power until approximately 8 hours after loss of power occurs.

The **CALIFORNIA CODE** mode adds a ten second timer to the two notification circuits on the CPU. When an alarm occurs, the timer is started. At the end of the ten second period, all silenceable circuits are shut off for five seconds. NOTE: The circuits on the CPU and the circuits on the IC-4F are controlled by different microprocessors and may not be in synchronization with each other. At the end of the five seconds, the circuits are turned on again for 10 seconds. This cycle repeats indefinitely.

In the event of an acknowledged alarm, the **REMINDER** mode pulses the piezo every 15 seconds. If an acknowledged trouble exists, but not an alarm, the piezo will beep every two minutes.

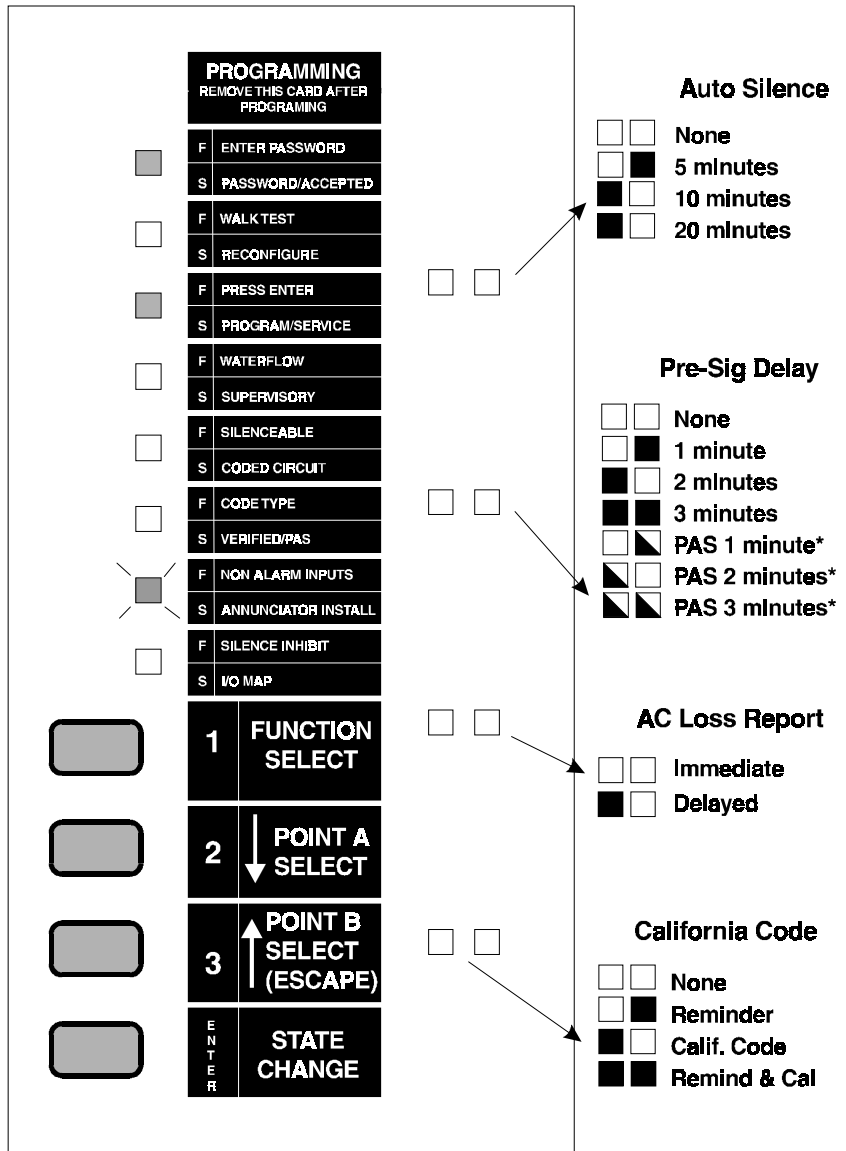
To program the features of AUTO SILENCE, PRESIGNAL DELAY, and CALIFORNIA CODE, key in the password 123-3211 and push ENTER.

In addition to PASSWORD ACCEPTED and PROGRAM/SERVICE LEDs, the NON-ALARM LED will flash on the CPU.

Press the ENTER switch to scroll through the options for AUTO SILENCE until the LEDs reflect the desired choice.

Press the FUNCTION SELECT switch to store the option setting in memory and advance to the next point to be programmed. Again, press the ENTER switch until the LEDs reflect the desired choice, followed by the FUNCTION SELECT switch to store the data.

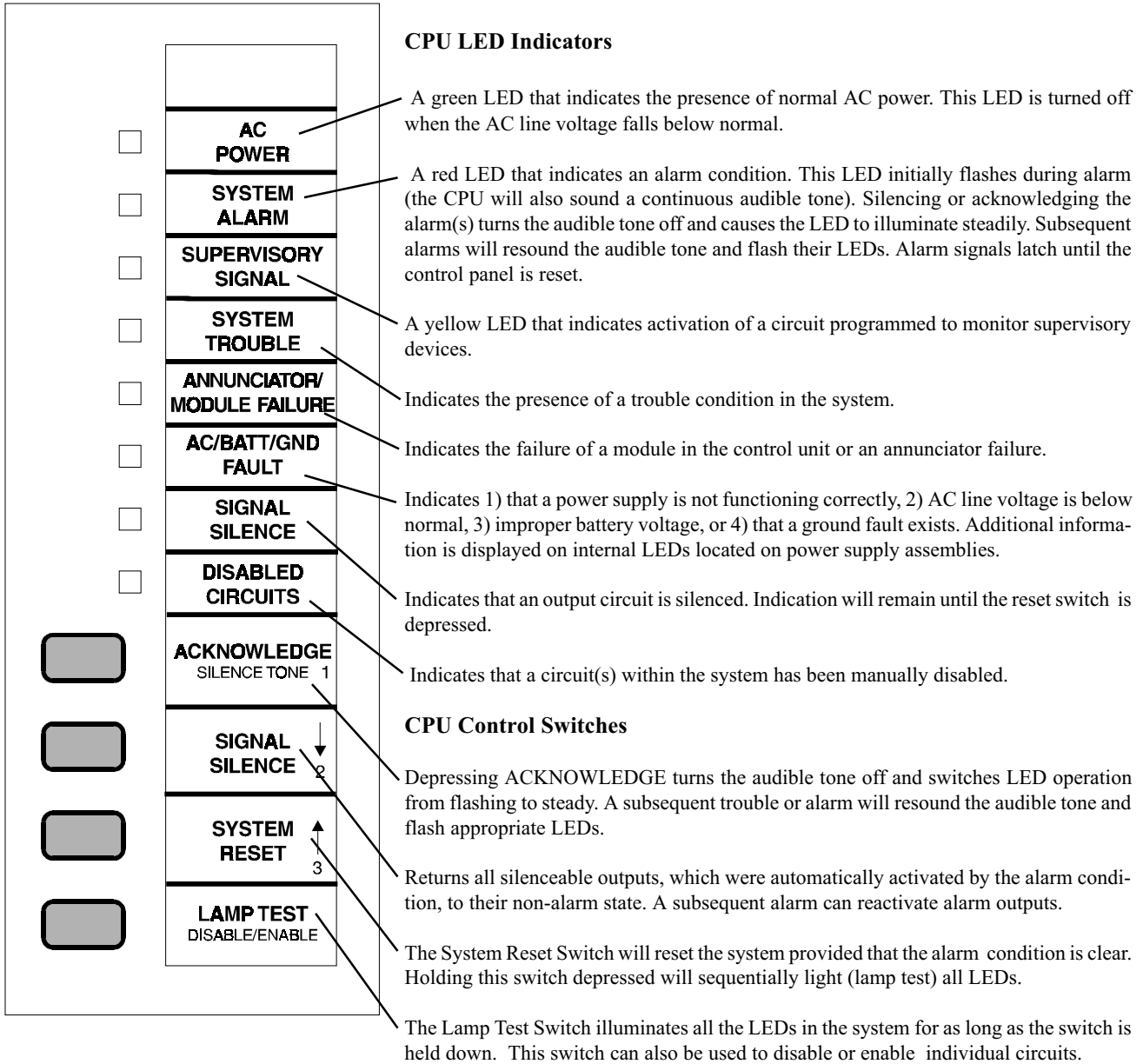
To exit extended programming at any time, remove the programming key. The 123-3211 password does not allow access to any other program features and does not cause the system to reconfigure.



CPU-2000

*Applies only to zones selected as "Verified/PAS."

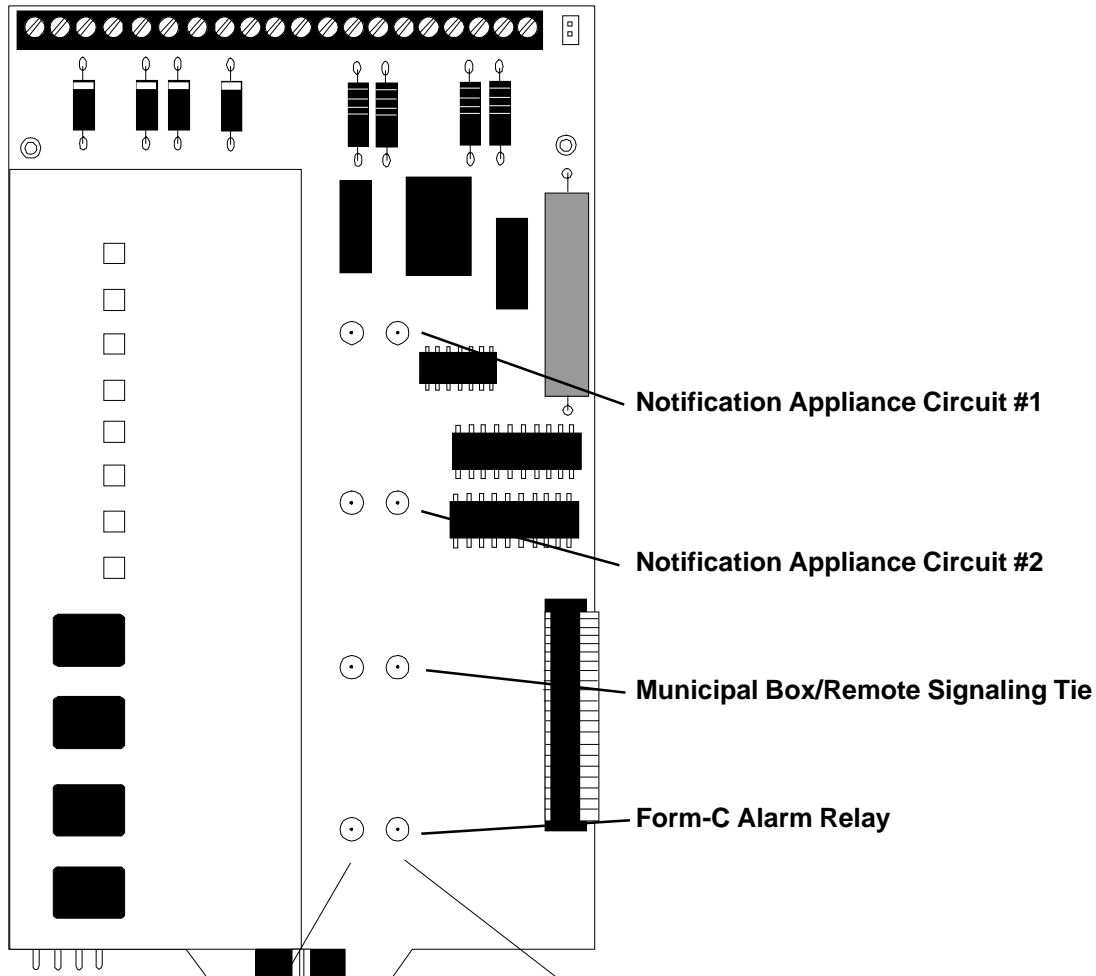
SECTION EIGHT: OPERATION



Note: The CPU produces a pulsed tone for troubles, disabled outputs, and supervisory conditions. A continuous tone is generated for alarms.

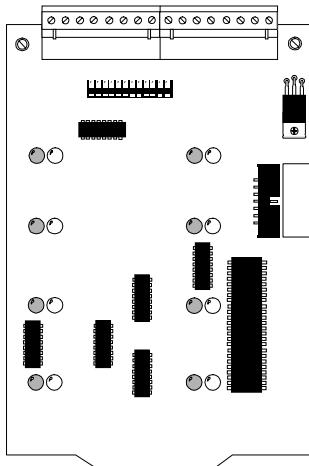
8.1 CPU-2000 CIRCUITS

The CPU Module contains: 1) Two supervised notification appliance circuits that can be used to control evacuation signaling devices such as bells, chimes, horns, and strobes. 2) An alarm relay that can control external devices such as elevators, and doors. 3) A Remote Signaling/Municipal Tie output for connection to a municipal fire department, central station, or a remote monitoring station.



Green LEDs:
Each output has a green LED that indicates activation of that circuit.

Yellow LEDs:
Each output circuit has a yellow LED that indicates trouble conditions or disabled outputs. New troubles are indicated by a flashing LED.



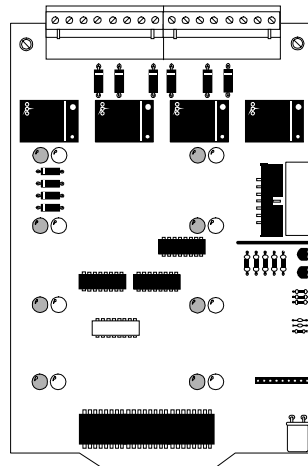
IZ Series

Initiating Zone Module

Each Initiating Zone Module will monitor up to eight initiating zones (groups) of initiating devices (smoke detectors, pull stations, heat detectors) for alarm signals. It also checks the integrity of the building wiring between the module and the initiating devices. The IZ-4F and IZ-8F modules convey the status of the initiating zones and their wiring to the CPU module and at the direction of the CPU will light the appropriate LEDs to display alarm and trouble conditions (broken wire, inactive circuit, etc.).

The red LEDs indicate alarm conditions. New alarms are indicated by a flashing LED and a steady audible tone. Silencing an alarm turns the audible tone off and causes the LED to illuminate steadily.

The yellow LEDs indicate an initiating zone trouble or a disabled zone. New troubles are indicated by a flashing LED and a pulsed audible tone. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble from a different initiating zone will resound the audible tone and flash its LED. Trouble signals will self-restore as soon as the trouble conditions are corrected.



IC-4F

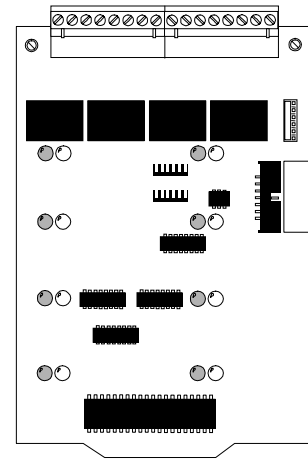
Notification Circuit Module

Each Indicating Circuit Module will control and monitor up to eight notification appliance circuits (with an ICE-4F expander installed) of evacuation signaling devices, such as bells, chimes, horns, and lights. The IC-4F module conveys the status of the notification appliance circuits and their wiring to the CPU module and at the direction of the CPU will light the appropriate LEDs to display activation and trouble conditions (broken wire, inactive circuit). The notification appliance circuits activate automatically during an alarm condition according to a program instructions stored in CPU nonvolatile memory.

The green LEDs indicate an activated notification appliance output.

The yellow LEDs indicate a notification circuit trouble or a disabled circuit. New troubles are indicated by a flashing LED and a pulsed audible tone. Silencing a trouble turns the audible tone off and causes the LED to illuminate steadily. A subsequent trouble from a different circuit will resound the audible tone and flash the associated trouble LED. Trouble signals will self-restore as soon as the trouble condition has been corrected.

This module is programmable for California Code. Cutting D35 programs this card for California Code.



CR-4F

Control Relay Modules

Each Control Relay Module controls up to eight relays (with a CRE-4F expander installed) which can be connected to control external devices including elevators, doors, and air handling equipment. These relays will be activated automatically during an alarm condition according to program instructions stored in CPU module's memory.

The green LEDs indicate that the associated control relay has been activated.

The yellow LEDs indicate that the associated control relay output has been disabled.

8.2 DISABLING/ENABLING CIRCUITS

Note: The disable feature will not work if the CPU Write Inhibit Switch has been set (refer to page 51 for details).

For servicing of the Sensiscan 2000, input or output circuits can be disabled. To disable a circuit, a 1-2-3 key sequence must be entered and the operator must advance to the circuit to be disabled. **This does not work in program mode.

- 1) Press the LAMP TEST switch and hold it in throughout the remainder of this procedure.
- 2) Press 1, 2, 3. If any circuits have been previously disabled, they will be indicated by illumination of their left-hand LED (red for initiating circuits, green for all others).

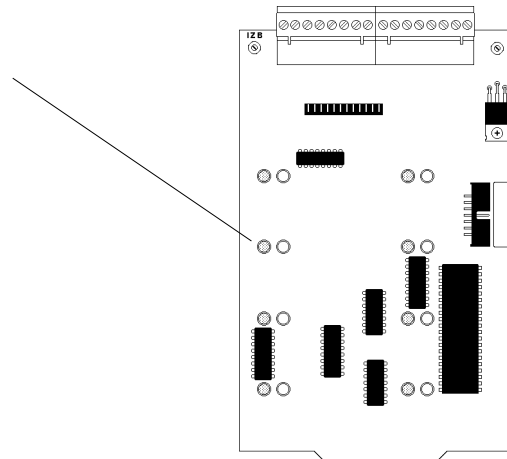
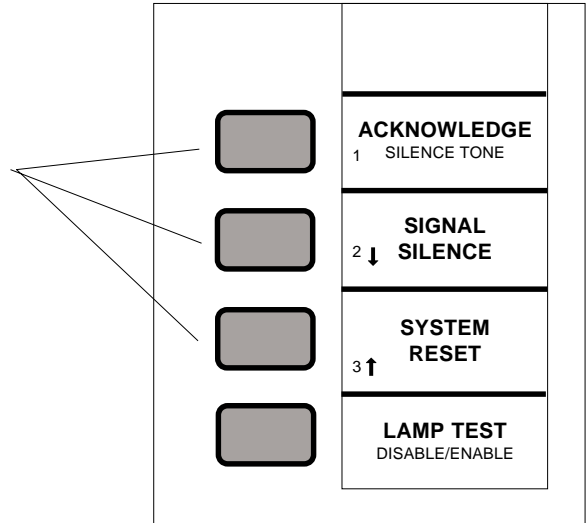
The position of the circuit pointer is indicated by the flashing yellow LED.

To move forward in the circuit map, press Switch 3 (SYSTEM RESET). To move backward in the circuit map, press Switch 2 (SIGNAL SILENCE).

- 3) Move forward or reverse until the pointer stops at the circuit to be disabled.
- 4) Press Switch 1 (ACKNOWLEDGE) to turn on the left-hand LED on the circuit to be disabled. When this LED is on, the circuit has been disabled.

A circuit can be re-enabled by pressing Switch 1 until the left-hand LED goes out.

- 5) Repeat steps 3 and 4 until all disabling/enabling has been accomplished.
- 6) Release the LAMP TEST switch to exit Disable/Enable mode. The control panel will return to operation with the selected circuits disabled.



Caution: Disabling a circuit will reduce or eliminate fire protection.

SECTION NINE: SENSISCAN 2000 TESTING

9.1 ACCEPTANCE TEST

Upon completion of the original installation and following subsequent modifications, a complete operational test should be conducted on the entire installation for the purpose of verification of compliance with the applicable NFPA standards. Testing should be conducted by a factory-trained distributor in the presence of a representative of the Authority Having Jurisdiction and the Owner's Representative. Follow procedures contained in NFPA Standard 72-1993, Chapter 7, "Inspection, Testing and Maintenance."

9.2 PERIODIC TESTING AND SERVICE

Periodic testing and servicing of the Sensiscan 2000, all initiating devices and notification appliances, and any other associated equipment is essential to insure proper and reliable operation. Testing and servicing should be in accordance with the schedules and procedures outlined in: 1) NFPA 72-1993, Chapter 7, "Inspection, Testing and Maintenance" and 2) the service manuals and instructions for the peripheral devices contained in your system. Correct any trouble condition or malfunction immediately.

9.3 OPERATIONAL CHECKS

Between formal periodic testing and servicing intervals, the following operation checks should be performed monthly or more frequently when required by the Authority Having Jurisdiction.

- 1) Check that the green "AC POWER" LED is illuminated.
- 2) Check that all yellow LEDs are off.
- 3) Holding "SYSTEM RESET" depressed should sequentially light all system LEDs.
- 4) Before proceeding, a) notify fire department and/or central alarm receiving station if alarm conditions are transmitted; b) notify facility personnel of test so that alarm sounding devices are ignored during test period. When necessary, activation of alarm notification appliances can be prevented by disabling those circuits.
- 5) Activate an initiating device circuit via an alarm initiating device and check that all active notification appliances function. Reset the alarm initiating device, the control panel, and any other associated equipment.
- 6) Repeat Step 5 for each initiating device circuit.
- 7) Remove AC power, activate an initiating device circuit via an alarm initiating device and check that active notification appliances sound, and alarm indicators illuminate. Measure the battery voltage while notification appliances are activated. Replace any battery with a terminal voltage less than 21.6 volts. Replacement batteries may be obtained from Fire•Lite. Minimal replacement battery capacity is indicated on the control panel marking label. Reapply AC Power. Note: This test requires fully charged batteries, if batteries are new or discharged due to a recent power outage, allow the control panel to charge batteries for 48 hours before testing.
- 8) Check that all yellow LEDs are off and that the green "AC POWER" LED is illuminated.
- 9) Notify fire, central station and/or building personnel that test is complete.

9.4 BATTERY CHECKS AND MAINTENANCE

Maintenance-free sealed lead-acid batteries used in Sensiscan 2000 do not require the addition of water or electrolyte. They are charged and are maintained in a fully charged state by the main power supply's float charger during normal system operation. A discharged battery will charge at 1.5 amps (typically) and obtain its float voltage of 27.6 volts within 48 hours.

Replace any battery that is leaking or damaged. Replacement batteries may be obtained from Fire-Lite. Minimal replacement battery capacity is indicated on the control panel marking label. To check battery and system, Refer to Section "Operational Checks" above.

CAUTION!

Batteries contain Sulfuric Acid which can cause severe burns to the skin and eyes and damage to fabrics. In the event a battery leaks and contact is made with the Sulfuric Acid, immediately flush skin and/or eyes with water for at least 15 minutes. For eyes, seek immediate medical attention. A good neutralizing solution for Sulfuric Acid is water and household baking soda. Care should be taken to insure proper handling of the battery to prevent short-circuiting. Accidental shorting of the leads from uninsulated work benches, tools, bracelets, rings, and coins should be avoided. Shorting the battery leads can damage the battery, equipment, and could cause injury to personnel.

9.5 WALK TESTING THE SENSISCAN 2000

In order to execute Walk Test from the Sensiscan 2000, the CPU Programming Key must be inserted.

Enter the Walk Test password (123-1233) then press ENTER. Depress the Enter Switch again. The PASSWORD ACCEPTED LED will light and the WALK TEST LED will flash. Activate an initiating device and all output circuits that are programmed as silenceable will activate for approximately four seconds. If an initiating device circuit is activated more than once, the outputs will activate for approximately one second. Once an initiating circuit has been activated, its red LED will flash. All of the red LEDs on the initiating circuit modules will illuminate. The green LEDs on all notification appliance circuits that are silenceable will illuminate.

Testing Initiating Circuits for Trouble

Inducing a trouble into an initiating circuit will activate all output circuits that are programmed as silenceable. The outputs will remain activated until the trouble is cleared. After a circuit is tested for trouble, the yellow LED for that circuit will flash.

Testing Notification Appliance Circuits for Trouble

Inducing a trouble into a notification circuit will activate the particular circuit and pulse the circuit at one second on/off rate until the trouble is cleared.

Exiting Walk Test

To exit Walk Test, remove the programming key.

NOTE: Four-wire smoke detectors cannot be tested under Walk Test.

APPENDIX A: SUPPLY CALCULATIONS

A.1 THE FIRE ALARM CIRCUIT

The control panel requires connection to a separate dedicated AC fire alarm circuit, which must be labeled "FIRE ALARM." This circuit must connect to the line side of the main power feed of the protected premises. No other equipment may be powered from the fire alarm circuit. The AC circuit wire run must run continuously, without any disconnect devices, from the power source to the fire alarm control panel. Overcurrent protection for this circuit must comply with Article 760 of the National Electrical Code as well as local codes. Use #12 AWG wire with 600V insulation for this circuit.

| Device | # of Devices | Multiply By | Current in Amps | Total Current |
|--|--------------|-------------|-----------------|---------------|
| MPS-24AF/MPS-24AFE or MPS-24BF/MPS-24BFE | 1 | X | 1.8/0.9 | 1.8/0.9 |
| AVPS-24F/AVPS-24FE | [] | X | 1.0/0.5 | |
| R45-24/R45-24E Remote Charger | 1 | X | 1.0/0.5 | |
| Sum Column for Secondary Fire Alarm Load* = | | | | amps |

Table A-1: AC Fire Alarm Circuit

Note

Devices rated for 220/240 VAC operation ("E" products) will draw one half of the current of devices rated for 120 VAC operation.

Use Table A-1 to determine the total amount of current, in AC amps, that the AC service must be capable of supplying to the system.

A.2 THE MAIN POWER SUPPLY

The main power supply must be capable of powering all internal system devices (and several external types of devices) continuously during non-fire alarm conditions. Use Table A-2A to determine the Non-Fire Alarm Load on the main power supply regulator when a primary power is applied. A finite amount of additional current must be provided by the power supply during a fire alarm condition. Use Table A-2B to determine the additional current needed during fire alarms. The requirements for non-fire alarm and fire alarm current loads cannot exceed the capabilities of the power supply in either case.

The MPS-24AF provides up to 3.0 amps of regulated current for operating the system in standby (non-fire alarm) and up to 6.0 amps during fire alarms. The MPS-24AF contains battery charging circuitry and a 1-amp regulated output for powering four-wire smoke detectors. The MPS-24BF provides 750 mA of regulated power for system modules and 2.0 amps for Notification Appliances.

SENSISCAN 2000 SYSTEM CURRENT DRAW CALCULATION TABLE (TABLE A-2A)

Note: The Primary Power Source Non-Alarm Current and Alarm Current columns of this table are not battery calculations. They are simply current calculations to confirm that the main power supply can supply enough current to support the system during Primary Non-Alarm and Fire Alarm conditions.

Note: Throughout these current calculation tables, the word "primary" refers to the FACP's primary source of power, i.e. AC power. The word "secondary" refers to the FACP's backup batteries (or any other 24 VDC uninterruptable, regulated power supply listed for Fire Protective Signaling and connected in place of the batteries).

Part One - Non-Alarm Current (Primary Power Source): This column of Table A-2A allows the user to calculate the current that will be drawn from the main power supply during a non-alarm condition, with AC power applied. This current draw cannot exceed 750 mA on the MPS-24BF or 3.0 amps on the MPS-24AF. This column does not account for current drawn from TB2-3 and TB2-4 in non-alarm conditions on the MPS-24BF which is limited to 0.800 amps, exclusive of the 0.750 amps limit on the non-alarm current load. Current drawn from TB2-1 and TB2-2 cannot exceed 0.200 amps at any time on the MPS-24BF.

Part Two - Fire Alarm Current (Primary AC Power): The second column of Table A-2A allows the system designer to determine the additional current load that must be supported by the main power supply during a fire alarm condition with primary power applied. This current drawn during a fire alarm cannot exceed 0.750 amps on the MPS-24BF. This column does not account for current draw from TB2-3 and TB2-4 in fire alarm which is limited to 2.0 amps exclusive of the 0.750 amps fire alarm load. The fire alarm load cannot exceed 6 amps for the MPS-24AF and 2.3 amps for the MPS-24BF.

Note: Typically, a system should be designed around the capacity to activate all output circuits and relays, and support fire alarms on no less than 10% of initiating device circuits (subject to the requirements of the Local Authority Having Jurisdiction (LAHJ)).

Concerning four-wire detectors: In Table A-2A, the current to be entered for four-wire smoke detectors is the manufacturer's rated fire alarm current minus the manufacturer's rated non-fire alarm current.

Concerning notification appliances: The main power supply provides a regulated supply for notification appliance circuits, permitting the use of any 24 VDC notification appliances UL listed for Fire Alarm Systems. Enter into Table A-2A the respective current draws of notification appliances and other external devices to be powered by the main power supply during a fire alarm.

Part Three - Non-Fire Alarm Current (Secondary battery power): The last column of Table A-2A allows the system designer to calculate the secondary non-fire alarm current. This is the current that will be drawn from the main power supply in a non-fire alarm condition during AC power loss. This figure is required to complete the standby battery calculations. After adding up all the individual current draws, the total figure is then transferred to Table A-2C.

| Category | Primary Power Source | | | | | | Secondary Power Source | | |
|---|--|--|-------|--|--|-------|--|--|-------|
| | Non-Alarm Current (amps) | | | Alarm Current (amps) | | | Non-Alarm Current (amps) | | |
| | Qty | X [current draw]= | total | Qty | X [current draw]= | total | Qty | X [current draw]= | total |
| CPU | 1 | x [0.031] = | 0.031 | 1 | x [0.223]= | 0.223 | 1 | x [0.031] = | 0.031 |
| MPS-24AF/MPS-24AFE MPS-24BF/MPS-24BFE | 1 | x [0.064]= x[0.062]= | | 1 | x [0.064]= x[0.062]= | | 1 | x [0.104]= x[0.022]= | |
| AVPS-24F/AVPS-24FE | [] | x [0.009]= | | [] | x [0.009]= | | [] | x [0.009]= | |
| IZ-8F IZE-AF IC-4F, CR-4F ICE-4F CRE-4F TC-2, TC-4 | [] [] [] [] [] [] | x [0.047]= x [0.004]= x [0.007]= x [0.001]= not applicable x [0.007]= | | [] [] [] [] [] [] | x [0.047]= x [0.003]= x [0.072]= x [0.065]= x [0.065]= x [0.072]= | | [] [] [] [] [] [] | x [0.047]= x [0.004]= x [0.007]= x [0.001]= not applicable x [0.007]= | |
| AFM-16ATF, AFM-32AF ACM-16ATF, ACM-32AF AFM-16AF AFM-16ATX, AFM-32AX (refer to Doc. 15390) | [] [] [] [] | x [0.040]= x [0.040]= x [0.025]= x [] = | | [] [] [] [] | x [0.056]= x [0.056]= x [0.065]= x [] = | | [] [] [] [] | x [0.040]= x [0.040]= x [0.025]= x [] = | |
| 2-Wire Smoke Detectors (refer to the Device Compatibility Document for current draws) | [] [] [] [] | x [] = x [] = x [] = x [] = | | [] [] [] [] | x [] = x [] = x [] = x [] = | | [] [] [] [] | x [] = x [] = x [] = x [] = | |
| 1 to 30 zones 31 to 40 zones 41 to 49 zones 50 to 56 zones | NOT APPLICABLE | | | [] [] [] [] | x [0.120]= x [0.160]= x [0.200]= x[0.240]= | | NOT APPLICABLE | | |
| 911A Communicator UDACT Communicator | [] [] | x [0.030]= x [0.040]= | | [] [] | x [0.167]= x [0.100]= | | [] [] | x [0.030]= x [0.040]= | |
| Other devices drawing power from the power supply excluding Notification Appliance Power (see notes 1 and 3) | [] [] [] [] | x [] = x [] = x [] = x [] = | | [] [] [] [] | x [] = x [] = x [] = x [] = | | [] [] [] [] | x [] = x [] = x [] = x [] = | |
| Power Supervision Relays (see note 1) | [] [] | x [] = x [] = | | [] [] | x [] = x [] = | | [] [] | x [] = x [] = | |
| Releasing Device Draw from TC-2F/TC-4F circuits (see notes 1 and 2) | NOT APPLICABLE | | | [] | x [] = | | NOT APPLICABLE | | |
| Remote Station Circuits (see note 1) | [] | x [0.018]= | | [] | x [0.018]= | | [] | x [0.018]= | |
| 4-Wire Smoke Detectors (see note 1) | [] [] | x [] = x [] = | | [] [] | x [] = x [] = | | [] [] | x [] = x [] = | |
| Sum each column for totals | Primary, non-fire alarm total: | | | Primary, alarm total: | | | Secondary, non-fire alarm total: | | |

Table A-2A: Sensiscan 2000 System Current Draw Calculations

Notes:

- 1) The total regulated load current supplied to external circuits cannot exceed 3.0 amps (MPS-24AF) or 0.200 amps (MPS-24BF).
- 2) MPS-24BF: Enter only notification appliance draw from TC-2F/TC-4F circuits. MPS-24AF: Enter total notification appliance draw for entire system. Do not include power from AVPS-24F supplies!
- 3) The Alarm Load cannot exceed 6 amps for the MPS-24AF. For the MPS-24BF, the alarm load limit is 750 mA for both internal needs and power drawn from TB2-1 and TB2-2. The alarm load limit is 2.0 amps from TB2-3 and TB2-4.

Maximum Secondary Power Fire Alarm Current Draw

Use Table A-2B to determine the maximum current requirements of secondary power source during fire alarm conditions. The total obtained in Table A-2B is the amount of current that the batteries must be capable of supplying. This figure will be used in Table A-2C to determine the size of the batteries needed to support five minutes of fire alarm operation.

Table A-2B assumes that while in a fire alarm condition, the batteries must feed the main power supply and any additional supplies (AVPS-24F/AVPS-24FE) with the maximum rated power each supply can provide. **Note:** Due to the maximum rating of 9 amps imposed when using PS-12250 batteries, it may be necessary to calculate the exact requirements of the secondary supply. In that case, add the Secondary Non-Fire Alarm Load obtained in Table A-2A to the total fire alarm current draw of all Notification Appliances in the system and substitute that figure in Table A-2B for the main power supply and any additional supplies.

| Device Type | Model Number | # of Devices | | Current (amps) | | Total Current |
|--|--|--------------|---|-------------------|---|---------------|
| Power Supplies: | MPS-24AF/MPS-24AFE or MPS-24BF/MPS-24BFE | 1 | X | 6.0 or 2.93 | = | |
| | AVPS-24F/AVPS-24FE | [] | X | 3.0 | = | |
| Sum Column for Secondary Alarm Load = | | | | | | amps |

Table A-2B: Maximum Secondary Power Fire Alarm Current Draw

| | | | | |
|---|---|---|---|--|
| Secondary Non-Fire Alarm Load (from third column, Table A-2A) | X | Required Secondary Non-Fire Alarm Standby Time (24 or 60 hours) | = | Non-Fire Alarm Secondary Standby Amp Hours |
| Secondary Fire Alarm Load (from Table A-2B) | X | Required Fire Alarm Time (For 5 minutes, enter 0.084, for 15 minutes, enter 0.25) | = | Secondary Fire Alarm Amp Hour Requirement |
| Sum Column for Total Secondary Ampere Hours calculated = | | | | |
| Multiply by the derating factor X 1.2 = | | | | |
| Total Secondary Ampere Hours Required | | | | amps |

Table A-2C: Secondary Power Standby and Fire Alarm Load

Notes:

- NFPA 72-1993 Local, Central Station, and Proprietary Fire Alarm Systems require 24 hours of standby power followed by five minutes in alarm. NFPA 72-1993 Auxiliary and Remote Station Fire Alarm Systems require 60 hours of standby power followed by five minutes in alarm. Batteries installed in a system powered by a generator need to provide at least four hours of standby power.
- If the total exceeds 55AH (17AH on the MPS-24BF), a UL-listed Uninterruptable Power Supply (UPS) with sufficient capacity is needed. If the system does not have battery backup, a UPS must be installed in the same room as the FACP.

Calculating battery size needed

Table 8.2E sums the standby and alarm loads to arrive at the battery size, in ampere hours, needed to support the system. Each main power supply has a specific range of batteries that can be charged properly. Select batteries that meet or exceed the Total Ampere-Hours calculated and the are within the acceptable charger range:

| Battery Size | Voltage Rating | Number Required | Part Number | Cabinet Size |
|--------------|----------------|-----------------|-------------|------------------|
| 7.0 AH | 12 volts | two | PS-1270 | CAB-A3F, CAB-B3F |
| 9.5 AH | 6 volts | four | PS-695 | CAB-A3F, CAB-B3F |
| 12 AH | 12 volts | two | PS-12120 | CAB-A3F, CAB-B3F |
| 17 AH | 12 volts | two | PS-12170 | CAB-A3F, CAB-B3F |
| 25 AH | 12 volts | two | PS-12250 | CAB-A3F, CAB-B3F |
| 55 AH | 12 volts | two | PS-12600 | CAB-A3F, CAB-B3F |

Battery Charger Amp-Hour Range:

MPS-24AF (9-55AH)

MPS-24BF (6.5-17AH)

Notes

Limited Warranty

Fire-Lite® warrants its products to be free from defects in materials and workmanship for eighteen (18) months from the date of manufacture, under normal use and service. Products are date stamped at time of manufacture. The sole and exclusive obligation of **Fire-Lite®** is to repair or replace, at its option, free of charge for parts and labor, any part which is defective in materials or workmanship under normal use and service. For products not under **Fire-Lite®** manufacturing date-stamp control, the warranty is eighteen (18) months from date of original purchase by **Fire-Lite®**'s distributor unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. This warranty is void if the product is altered, repaired or serviced by anyone other than **Fire-Lite®** or its authorized distributors or if there is a failure to maintain the products and systems in which they operate in a proper and workable manner. In case of defect, secure a Return Material Authorization form from our customer service department. Return product, transportation prepaid, to **Fire-Lite®**, One Fire-Lite Place, Northford, Connecticut 06472-1653.

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Fire-Lite ALARMS
incor orat

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FAX: (203) 484-7118

Sensiscan 2000 Operating Instructions

NORMAL STANDBY OPERATION: 1) The green AC POWER indicator must be lit, 2) all alarm (red LEDs) and trouble indicators (yellow LEDs) should be off.

ALARM CONDITION: Activation of a compatible detector or any normally open fire alarm initiating device will result in the following action by the System 500 control panel: 1) activate alarm notification, control, and signaling outputs as programmed, 2) light the Red SYSTEM ALARM LED and the associated initiating circuit alarm LED(s), and 3) A steady audible tone will sound until the alarm is acknowledged or silenced. The controlled outputs will remain activated and the associated alarm LEDs will flash until the alarm has been silenced or acknowledged, or the system has been reset.

If **PRESIGNAL DELAY** has been programmed, the activation of all *silenceable* output circuits will be delayed by the time marked at right. For Positive Alarm Sequence (PAS): If the ACKNOWLEDGE or SILENCE keys are not pressed within 15 seconds of initiation of a first (and only) alarm, output signals will be activated. Otherwise, the programmed PAS 1, 2, or three-minute time delay will take effect.

- None selected
- 1 Minute
- 2 Minutes
- 3 Minutes
- PAS 1 Minute
- PAS 2 Minutes
- PAS 3 Minutes

If **ALARM SILENCE** has been programmed, all silenceable output circuits will be shut off after the time marked at right.

- None selected
- 5 Minutes
- 10 Minutes
- 20 Minutes

ACKNOWLEDGE (SILENCE TONE): Depressing the ACKNOWLEDGE switch will turn the audible tone off and switch operation of associated LED(s) from flashing to steady. New alarms and/or troubles will resound the audible tone and flash their associated LED(s).

ALARM SILENCING PROCEDURE: Alarm notification appliance circuits, control relays and signalling circuits that have been programmed as silenceable may be silenced by depressing the SIGNAL SILENCE switch on the CPU control panel (top left module). Subsequent alarms will reactivate alarm outputs.

If **SIGNAL SILENCE INHIBIT** has been programmed, Signal Silence will not function for the inhibit time marked at right.

- None selected
- 30 Seconds
- 1 Minute
- 5 Minutes

SIGNAL SILENCE should not be pressed until it is determined that an evacuation of the building is not required!

ALARM RESET: After locating and correcting the alarm condition, reset the control panel by depressing the SYSTEM RESET switch on the CPU control panel (top left module).

DISABLE/ENABLE: Refer to the System 2000 Installation Manual. **WARNING:** Disabling a circuit will reduce or eliminate fire protection.

TROUBLE CONDITION: Activation of a trouble signal under normal operation indicates a condition that requires immediate correction. Carefully note which indicators (LEDs) are illuminated and contact your local service representative. The audible tone may be silenced by depressing the ACKNOWLEDGE switch, subsequent trouble(s) will reactivate the audible tone. Trouble LEDs will continue to display the trouble condition(s) until the trouble(s) is corrected.

Local Service Representative

Name: _____


Company: _____

Address: _____

Telephone: _____

Sensiscan 2000 Programmer: Mark the check-boxes above as appropriate. This sheet must be framed and mounted adjacent to control panel. For more information, refer to the Sensiscan 2000 Installation Manual

CPU LABELS

| Programming | | Operating (left) | Operating (right) |
|---|-----------------------------|---|---|
| PROGRAMMING REMOVE THIS CARD AFTER PROGRAMMING | | Sensiscan 2000  | |
| F | ENTER PASSWORD | AC POWER | |
| S | PASSWORD ACCEPTED | SYSTEM ALARM | INDICATING CIRCUIT 1 |
| F | WALK TEST | SUPERVISORY SIGNAL | |
| S | RECONFIGURE | SYSTEM TROUBLE | |
| F | PRESS ENTER | ANNUNCIATOR OR MODULE TROUBLE | |
| S | PROGRAM / SERVICE | AC/BATT/GND FAULT | |
| F | WATERFLOW | SIGNAL SILENCE | INDICATING CIRCUIT 2 |
| S | SUPERVISORY | DISABLED CIRCUITS | |
| F | SILENCEABLE | ACKNOWLEDGE SILENCE TONE 1 | REMOTE SIGNALING MUNICIPAL TIE |
| S | CODED CIRCUIT | SIGNAL SILENCE 2 ↓ | |
| F | CODE TYPE | SYSTEM RESET ↑ 3 | ALARM RELAY |
| S | VERIFIED / PAS | LAMP TEST DISABLE / ENABLE | |
| F | NON ALARM INPUTS | | |
| S | ANNUNCIATOR INSTALL | | |
| F | SILENCE INHIBIT | | |
| S | I/O MAP | | |
| 1 | FUNCTION SELECT | | |
| 2 | ↓ POINT A SELECT | | |
| 3 | ↑ POINT B SELECT | | |
| ENTER | STATE CHANGE | | |

Slide-In Labels for the Fire•Lite Sensiscan 2000 Fire Alarm Control Panel

These pages contain slide-in labels for the Sensiscan 2000. Remove these pages and carefully cut out the labels for insertion in the CPU-2000 modules and the VP-1F dress panel. The labels slip into the back side of the CPU's faceplated and the back-side of the VP-1F.

Dress Plate Labels: Slide-in labels provide information directly over the modules of the Sensiscan 2000. These module labels contain pre-printed "zone" designators for up to 56 circuits. Up to four lines of custom information can be typed into each zone window when the labels are cut on the upper line. If up to five lines of custom information need to be typed, cut the labels on the bottom line.

Note: *To ensure the best fit, cut directly along the dotted line surrounding each label.*