FIRE·LITE® ALARMS INC.

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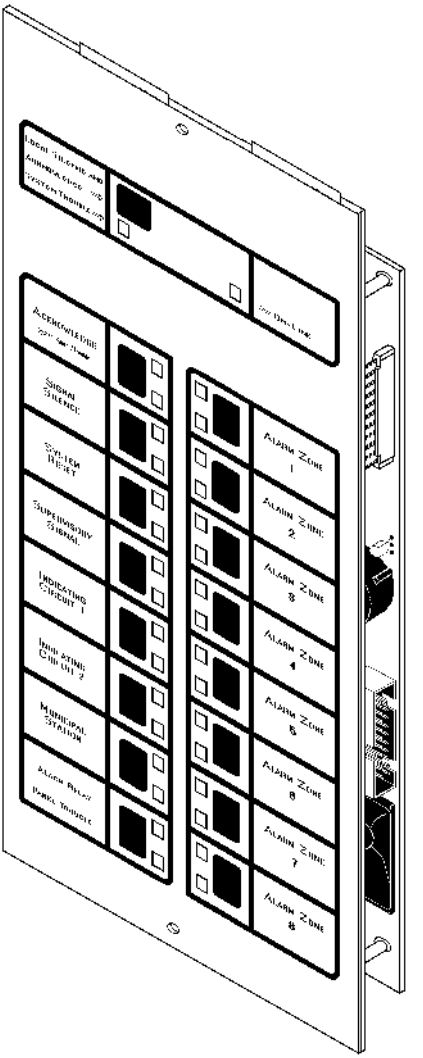
Annunciator Modules

for Fire•Lite
Fire Alarm Control Panels



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Installation Precautions

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

WARNING - *Several different sources of power can be connected to the fire alarm control panel.* Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or 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 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.

Table of Contents

Section One: Annunciators

Fire•Lite annunciator modules provide the Sensiscan 2000 with up to 32 remote serially connected annunciators, each with a capacity of 64 points.

The annunciator modules provide arrays of LEDs to indicate, at a remote location, the status of circuits within the system. Annunciator points in a Sensiscan 2000 directly follow the circuit arrangement of modules installed in the cabinet.

Control of common system functions such as signal silence, system reset, and local annunciation controls (local acknowledge and lamp test) may be accomplished through the annunciator's integral membrane push switches.

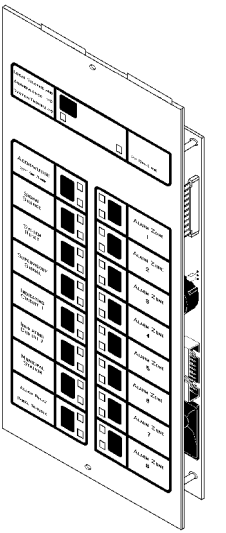
Communication between the FACP and the annunciators is accomplished over a power-limited two-wire serial interface employing an EIA-485 communication standard. Power is provided via a separate power-limited power loop from the control panel which is inherently supervised by the FACP (loss of power results in an annunciator communication failure at the control panel). The annunciator can also be powered from a remote UL listed power-limited power supply.

There are two basic annunciator types, alarm and alarm/trouble, each with its own expander module.

Section Two:
Annunciator Inventory

AFM-16ATX

The Annunciator Control Module-16ATX 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.



AEM-16ATF

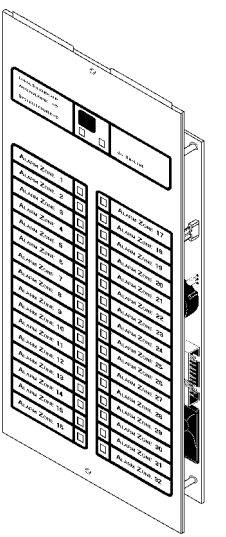
The Annunciator Expander Module-16ATF expands the AFM-16ATX by 16 system points. The AEM-16ATF is identical in size and in frontal appearance to the AFM-16ATX. One to three of these expander modules can be supported by an AFM-16ATX, to a maximum of 64 system points. Note: The AEM-16ATF cannot be used to expand the AFM-32AX.

ABM-16ATF

The Annunciator Blank Module-16ATF is a dress plate identical in appearance to the front panel of the AFM-16ATX and AEM-16ATF modules. The blank module is used to cover unused module positions in an annunciator backbox.

AFM-32AX

The Annunciator Control Module-32AX 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.



AEM-32AF

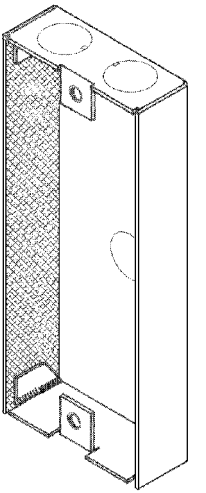
The Annunciator Expander Module-32AF expands the AFM-32AX by 32 system points. The AEM-32AF is identical in frontal appearance to the AFM-32AX. One expander module can be supported by an AFM-32AX, providing a maximum of 64 points. Note: The AEM-32AF cannot be used to expand the AFM-16ATX.

ABM-32AF

The Annunciator Blank Module-32AF is a dress plate identical in appearance to the front panel of the AFM-32AX and AEM–32AF modules. The blank module is used to cover unused module positions in an annunciator backbox.

ABS-1F

The Annunciator Surface Box-1F provides for the remote mounting of a single AFM-16ATX or AFM-32AX annunciator in a surface-mount enclosure. Knockouts are provided for use with 1/2" conduit. The annunciator mounts directly to the ABS-1F without a dress plate. (H = 8-1/2" W = 4-1/2" D = 1-3/8")

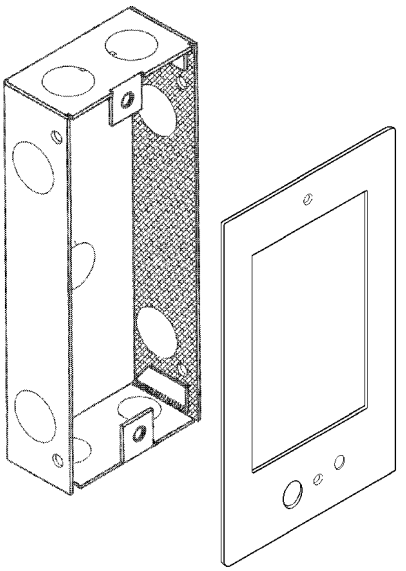


ABS-2F

(not illustrated)

The Annunciator Surface Box-2F provides for the surface mounting of one AFM-16ATX/AEM-16ATF combination or one AFM-32AX/AEM-32AF combination. Knockouts are provided for use with 1/2" conduit. The annunciator module mounts directly to the ABS-2F without a dress plate. (H=8-1/2" W=8-15/16" D=1-3/8")

Note: The ABS-1F and ABS-2F will not support the installation of the AKS-1F Annunciator Key Switch.



ABF-1F

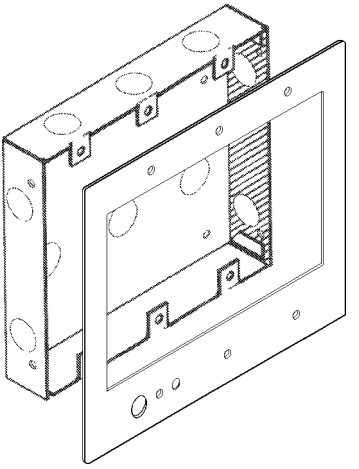
The Annunciator Flush Box-1F provides for the remote mounting of a single AFM-16ATX or AFM-32AX annunciator in a flush-mount enclosure. Knockouts are provided for use with 1/2" conduit. The ABF-1F includes a trim plate (height=11" width=6-1/4"), mounting hardware, and an adhesive-backed Annunciator Label for the dress plate. (H = 9-15/16" W = 4-5/8" D = 2-1/2")

ABF-2F

(not illustrated)

The Annunciator Flush Box-2F provides for the flush mounting of one AFM-16ATX/AEM-16ATF combination or one AFM-32AX/AEM-32AF combination. Includes a trim plate (H=11" W=10-5/8") and adhesive-backed Annunciator Label. (H=9-15/16" W=9-3/16" D=2-1/2")

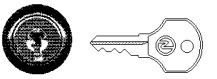
Annunciator Label



Annunciator Label

ABF-4F

The Annunciator Flush Box-4F provides for the remote mounting of one to four AFM-16ATX/AEM-16ATF modules. Knockouts are provided for use with 1/2" conduit. The flush-mounted ABF-4F includes a trim plate (H=11" W=19-3/8") and an Annunciator Label. (H=9 - 15/16" W=17 - 3/8" D=2 - 1/2")



AKS-1F

The Annunciator Key Switch-1F provides access security for the control switches on the AFM-16ATX. The key switch kit includes a key and hardware for mounting to the trim plate of one of the flush-mount type annunciator enclosures. Also included is an adhesive-backed Annunciator Label for use with the key switch/ dress plate assembly.

Note: The AKS-1F can only be employed with a flush-mount type backbox.

Annunciator Label

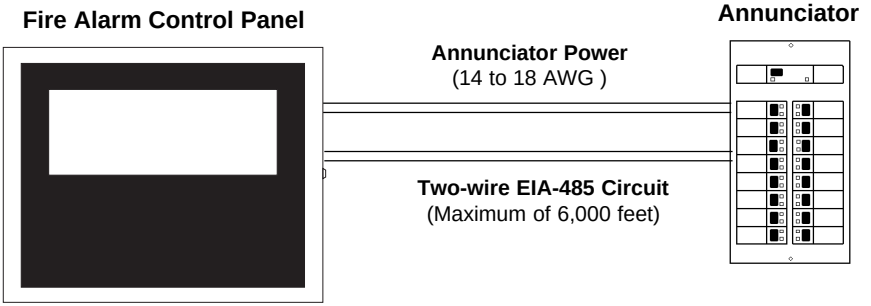
Section Three:
Design Considerations

Limits

Up to 32 annunciators may be installed on an EIA-485 circuit. The actual number of annunciator modules may be larger depending on the number of expander modules employed.

Wire Runs

Communication between the Control Panel and the annunciator is accomplished over a power-limited two-wire EIA-485 serial interface. This communication, including the wiring, is supervised by the fire alarm control panel. Power for the annunciators is provided via a separate power-limited power loop from the control panel which is inherently supervised (loss of power also results in a communication failure at the control panel).



Wiring Specifications

The EIA-485 circuit cannot be T-Tapped; it must be wired in a continuous fashion from the control panel to the annunciator. The maximum wiring distance between the panel and the last annunciator is 6,000 feet @ 16 AWG. The wiring size must be a 14 AWG to 18 AWG twisted shielded pair cable having a Characteristic Impedance of 120 ohms, +/- 20%. Limit the total wire resistance to 100 ohms on the EIA-485 circuit, and 10 ohms on the annunciator power circuit. Do not run cable adjacent to, or in the same conduit as, 120 volts AC service, noisy electrical circuits that are powering mechanical bells or horns, audio circuits above 25 volts (RMS), motor control circuits, or SCR power circuits. Twisted-shielded wiring should be used for EIA-485 circuits that are not contained entirely in conduit.

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

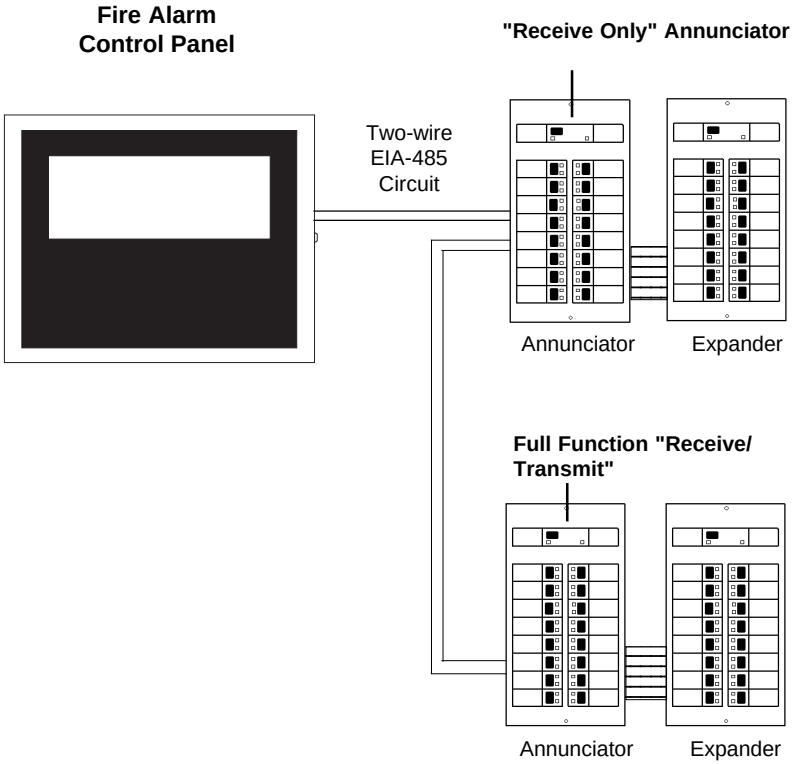
Table 3-1: Typical Wire Resistance Chart

Receive Only Annunciators

For redundant annunciation of system points, annunciators can be configured as "Receive Only" annunciators. Receive Only annunciators are not fully supervisable. Receive Only annunciators intercept information being transmitted to a "Receive/ Transmit" annunciator so that information can be duplicated at an intermediate display location. When configured for Receive Only operation, they cannot send information to the system, therefore they cannot perform remote functions such as Acknowledge, Silence, or Reset. Control switches on Receive Only annunciators can be used only for local functions, such as lamp test. Wiring to Receive Only annunciators may be supervised by installing the modules "upstream" of fully-supervised Receive/Transmit annunciators along the EIA-485 line.

Receive/Transmit Annunciators

Annunciators that are configured to serve as full function annunciators can both receive status information as well as transmit commands to the control panel. This allows the annunciator to remotely execute functions of the control panel in addition to displaying the status of the system.



Electrical Ratings

Input Voltage: **24 volts DC** (power-limited)**.**

Current Draw from 24 volt DC Input:	**Standby**	**Alarm**
AFM-16ATX/AFM-32AX	**0.040 amps**	**0.056 amps**
AEM-16ATF/AEM-32AF	**0.002 amps**	**0.018 amps**

Data Communications Port: **EIA-485 operating at 20 Kbaud** (power-limited)**.**

Annunciator Power Requirements

Annunciators draw their power from the control panel and must be considered when calculating the primary and secondary power supply requirements for the system. Each annunciator module is accounted for in the power calculations outlined in the respective installation manual. However, if the current draw dedicated to the annunciators must be calculated as a separate figure, use the equations below.

Column A

Number of AFM modules [ ] X 0.040 = ☐ **amps**

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

Number of AEM modules [ ] X 0.002 = ☐ **amps**

Column B

Sum Column A for **Total Annunciator Standby Current =** ☐ **amps**

Number of AFM and AEM modules assumed to be in alarm simultaneously [ ] X 0.018 = ☐ **amps**

Entering the total *Number of AFM and AEM modules* in above will allow for the simultaneous illumination of all LEDs. When the alarm system specification permits, calculations can be based on a 10% alarm loading capacity. For 10% capacity, enter 10% of the total number of AFM and AEM modules multiplied by the number of remote annunciator locations, but do not enter less than one.

Sum Column B for **Total Annunciator Alarm Current =** ☐ **amps**

The Total Annunciator Alarm Current cannot exceed 200 mA from the MPS-24BF, or 1 amp from the MPS-24AF.

Section Four:
Annunciator Installation

Mounting the cabinet or backbox

Select an appropriate knockout on the enclosure. Mount the cabinet or backbox. Ground the enclosure to a solid metallic ground, such as a grounded cold water pipe. Pull all annunciator wiring into the enclosure as illustrated in Figures 1 and 2. Connect annunciator wiring to the removable terminal blocks as illustrated in Figure 4.

Note: A 120-ohm End-of-Line Resistor (Part Number 71244 supplied with the annunciator) must be installed at the last annunciator on the EIA-485 circuit. Remove the ELRs installed on all annunciators except the last.

Installing the annunciators

Insert the custom display labels into the annunciator and expanders (see Figure 3). Set the dip switches on the AFM-32AX or AFM-16ATX annunciator as outlined in Section Six. Turn the dress plate over and place down on a surface with the threaded studs facing up. Position the AFM-32AX or AFM-16ATX annunciator over the threaded studs on the dress plate and secure with the two nuts and lock washers provided as illustrated in Figure 5.

ABF-1F Installation Only

Remove the backing from the gummed Annunciator Label and affix the label to the dress plate as illustrated in Figure 6. If employing an AKS-1F, mount to the dress plate. Plug the AKS-1F switch leads to Connector J4 on the Annunciator (see Figure 7). Plug the two annunciator terminal blocks into the annunciator. Place the annunciator/dress plate assembly into the backbox and secure with two screws. ***Annunciator installation in an ABF-1F is complete.***

ABF-2F/ABF-4F Installation Only

Remove the backing from the gummed Annunciator Label and affix the label to the dress plate as illustrated in Figure 7. If employing an AKS-1F, mount to the dress plate. Plug the AKS-1F switch leads to Connector J4 on the Annunciator.

Installing the expanders

Plug one end of an Annunciator Expander Ribbon Cable into Connector J2 on the AFM-32AX or AFM-16ATX. Install the first AEM-16ATF or AEM-32AF expander module in the second dress plate position. Connect the expander ribbon from the annunciator to Connector J3 on this expander.

ABF-2F Installation Only

Plug the two annunciator terminal blocks into the AFM-16ATX or the first AFM-32AX. Place the annunciator/dress plate assembly into the ABF-2F backbox. Secure the assembly with the screws provided.

Annunciator installation in an ABF-2F is complete.

Completing expander connections

AFM-16ATX/AEM-16ATF
Installation Only

If installing one AFM-16ATX with three AEM-16ATF expanders in the same dress plate, perform the following installation steps:

Connect one end of an expander ribbon to Connector J2 on the first expander. Install the second AEM-16ATF expander in the third dress plate position. Connect the other end of the expander ribbon from the first expander to Connector J3 on the second expander.

Connect one end of a ribbon cable to Connector J2 on the second expander. Install the third AEM-16ATF expander in the fourth dress plate position. Connect the other end of the ribbon cable from the second expander to Connector J3 on the third expander.

Completing installation in a cabinet or an ABF-4F

Plug the two annunciator terminal blocks into the AFM-16ATX or the first AFM-32AX. Place the annunciator/dress plate assembly into the cabinet or ABF-4F backbox. Secure the assembly with the screws provided. Apply primary (AC) power, followed by secondary (battery backup) power.

Programming and testing the annunciators

This completes annunciator installation. After programming the fire alarm control panel to accept the annunciators, fully test the Annunciator Control System by ensuring that each switch performs its intended function, that each LED lights, and that the annunciators can perform the functions outlined in the section, "Operating the Annunciator."

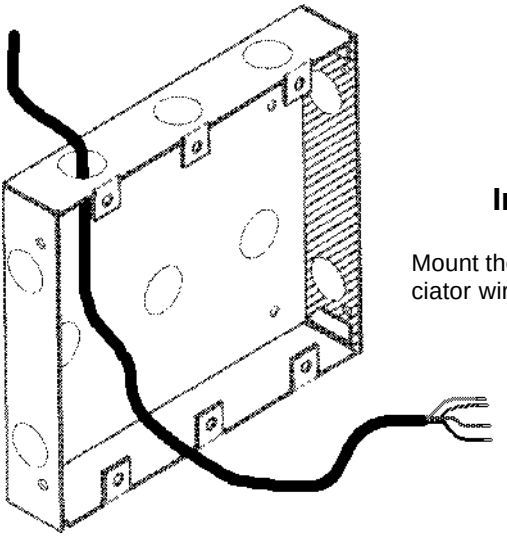


Figure 1:
Installing the Enclosure

Mount the backbox or cabinet and pull all annunciator wiring into the enclosure.

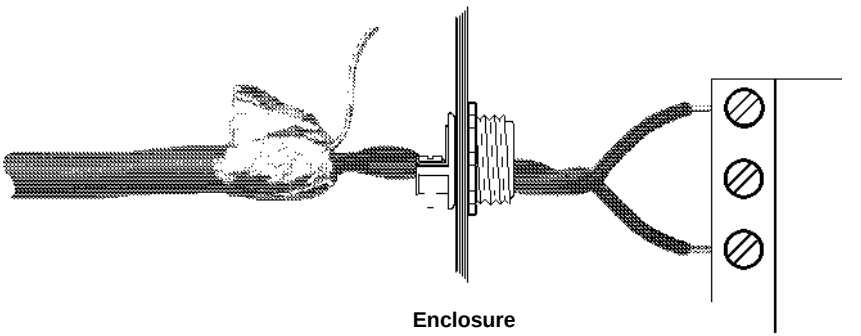


Figure 2: Terminating the Shield

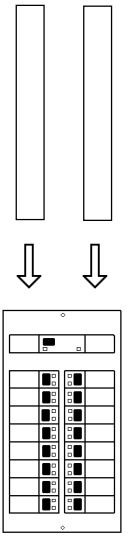
The EIA-485 circuit must be wired using a twisted-shielded pair cable having a Characteristic Impedance of 120 ohms, +/- 20%. Do not run cable adjacent to, or in the same conduit as, 120-volt AC service, noisy electrical circuits that are powering mechanical bells or horns, audio circuits above 25 V_{RMS}, motor control circuits, or SCR power circuits. *All enclosures, including the FACP backbox, must be connected to earth ground! Never use the shield for grounding purposes.* Terminate the EIA-485 shield at the Fire Alarm Control Panel only.

When the EIA-485 shield is in conduit: connect it to system reference (*system common*). The shield can enter the cabinet, but must be insulated from the cabinet (not electrical contact). Between annunciators, wire-nut multiple shields together (which can be inside of the respective enclosure, but can not contact the enclosure.)

When the EIA-485 shield is not in conduit: Terminate the shield at the outside of the FACP backbox (ground). Do not allow the shield to enter or even touch the cabinet. Between annunciators, wire-nut multiple shields together *outside of* the respective enclosures.

AFM-16ATX/AEM-16ATF Labels

Two labels are required for the AFM-16ATX/AEM-16ATF - one for the left-hand side and one for the right-hand side of each module. Each label has a distinctive format.



Set A

Factory-printed zone labels:

These slide-in annunciator labels provide for alarm zones 1 through 56. A blank label for custom labeling is also included.

Set B

Factory-printed system/zone labels:

This set provides labels for system control functions such as Acknowledge, Signal Silence, Supervisory, and alarm zones 1 through 56.

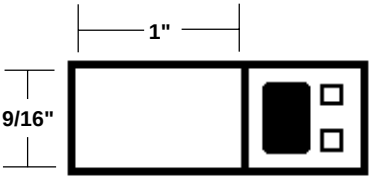
Set C

Custom labels:

These blank labels provide for customized information by the user. If information is to be typed onto these labels, they should be reproduced on a copy machine so that the entire page can be inserted into a typewriter.

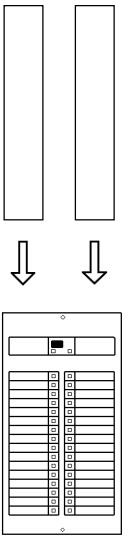
Effective Window Size

The size of the visible portion of an AFM-16ATX label window is 9/16" high by 1" across. Using a pitch of 10 characters per inch at six lines per inch, up to three lines of 10 characters each may be typed within this window space.



AFM-32AX/AEM-32AF Labels

Two labels are required for the AFM-32AX/AEM-32AF - one for the left-hand side and one for the right-hand side of the face plate. Each label has a distinctive format.



Set E
Factory-printed zone labels:

These slide-in annunciator labels provide for alarm zones 1 through 32.

Set F
Factory-printed system/custom labels:

These slide-in annunciator labels provide for system control functions such as Acknowledge, Signal Silence, Supervisory, and for custom information to be entered into the remaining 56 circuits.

Set G
Factory-printed system/zone labels:

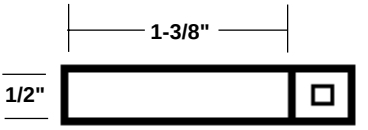
These slide-in annunciator labels provide for system control functions such as Acknowledge, Signal Silence, Supervisory, and for alarm zones 1 through 56.

Set H
Custom User Labels:

These blank labels can be customized by the user. If information is to be typed onto these labels, they should be reproduced on a copy machine so that the entire page can be inserted into a typewriter.

Effective Window Size

The size of the visible portion of an AFM-32AX/AEM-32AF label window is 1/2" high by 1-3/8" across. Using a pitch of 10 characters per inch at six lines per inch, up to two lines of 13 characters may be typed within this window space.



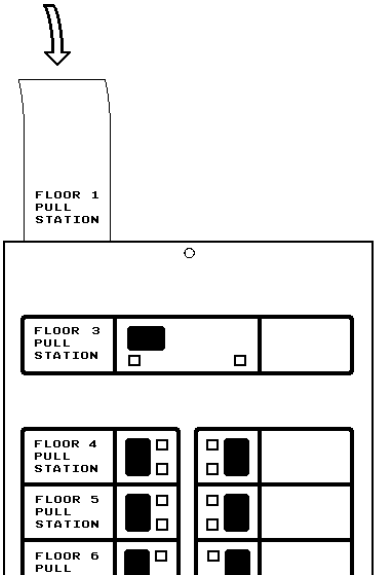


Figure 3: Slide-In Labels

Remove the center pages of this manual. If using the custom user display labels, type the appropriate information on the labels. Carefully cut out the labels and insert them into the annunciator by slipping them into the label slots on the back side of the annunciator face plate.

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

Figure 4: Terminal Wiring

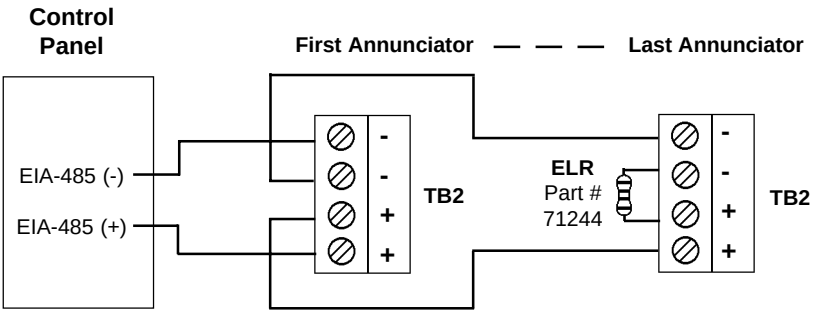
- Do not "T-Tap" the EIA-485 circuit which must be power-limited. It will not function properly. Wire as shown below.
- Leave the 120-ohm resistor installed across the **EIA-485 Out** terminals at the last annunciator on the circuit (see below). Remove this resistor from all other annunciators.
- Connect **Earth Ground** to a mounting screw on the backbox or cabinet.
- Connect **24 VDC Power** to the annunciator. This power must be power-limited but need not be supervised by a power supervision relay since it is inherently supervised by the control panel (loss of communications is registered during loss of power to the annunciator).

TB2

EIA-485 In (-)	4
EIA-485 Out (-)	3
EIA-485 Out (+)	2
EIA-485 In (+)	1

TB1

Common In (-)	5
Common Out (-)	4
Power In (+24 VDC)	3
Power Out (+24 VDC)	2
Earth Ground	1



Wiring Multiple Annunciators (6000-ft max run)

15390 Rev D 8/2/96 P/N 15390:D

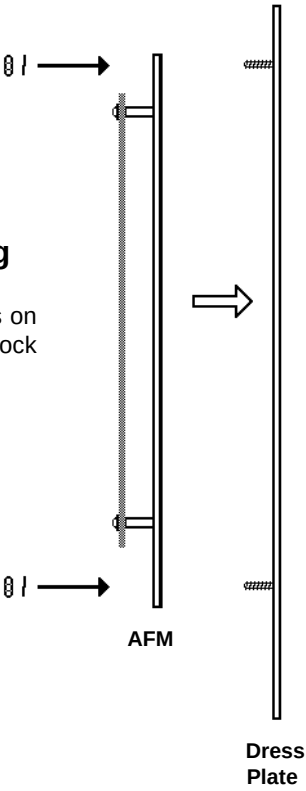


Figure 5: Mounting the Trim Ring

Position the annunciator over the threaded studs on the dress plate and secure with two nuts and lock washers provided.

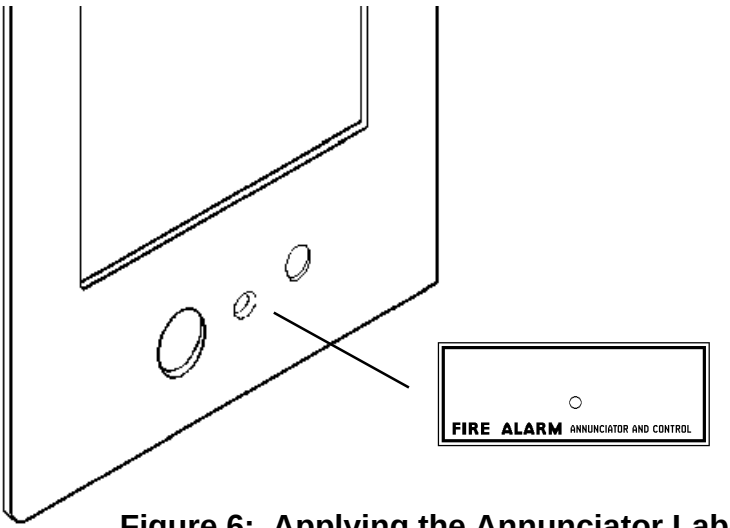
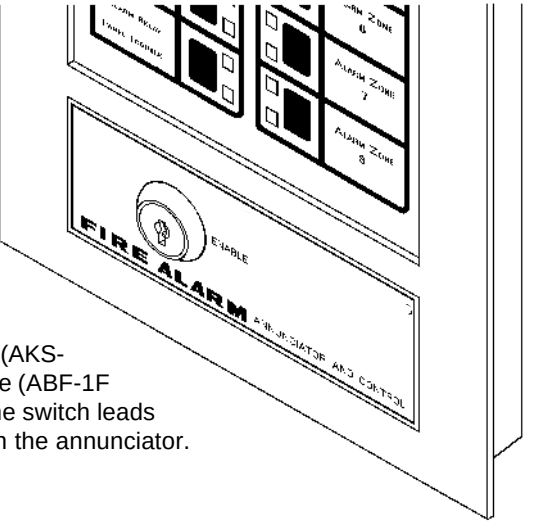


Figure 6: Applying the Annunciator Label

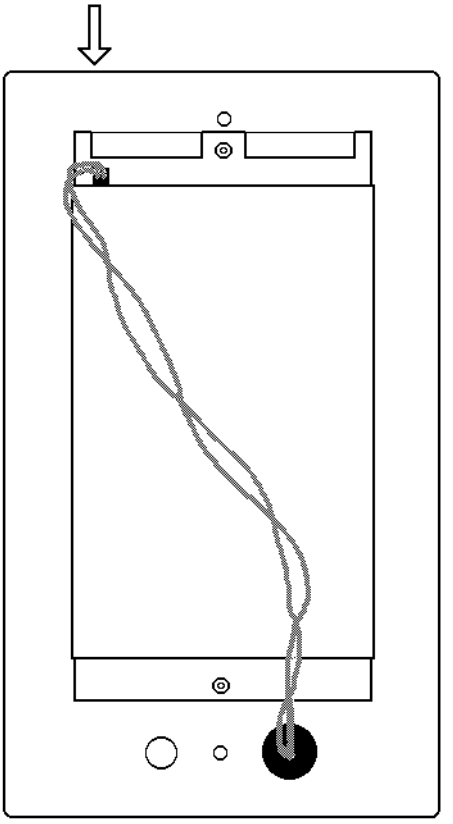
Remove backing from adhesive-backed Annunciator Label and affix the label to the bottom of the dress plate as illustrated.

Note: If an AKS-1F Annunciator Key Switch is to be installed, use the label supplied with the kit.

Figure 7:
Annunciator Options



If employing an Annunciator Key Switch (AKS-1F), mount the switch to the dress plate (ABF-1F Dress Plate illustrated below). Plug the switch leads from the AKS-1F into Connector J4 on the annunciator.



ABF-1F (back view)

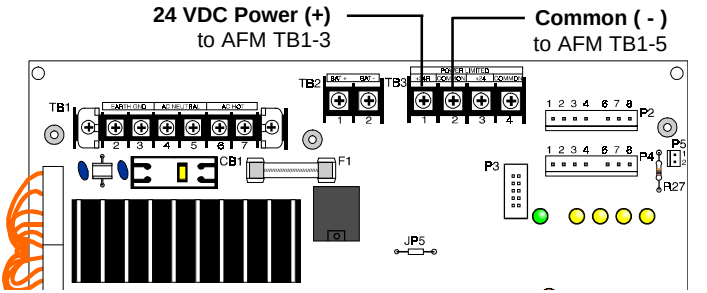
Figure 8: Main Power Supply Connections

The annunciator can be powered by an MPS-24AF or an MPS-24BF. The power run to the annunciator need not contain a Power Supervision Relay since loss of power is inherently supervised through communication loss.

MPS-24AF Main Power Supply

Connect the power run for the AFM to MPS-24AF TB3 Terminals 1 (+) and 2 (-) (1 amp max). The total amount of current drawn from these terminals cannot exceed that rating in standby or in alarm.

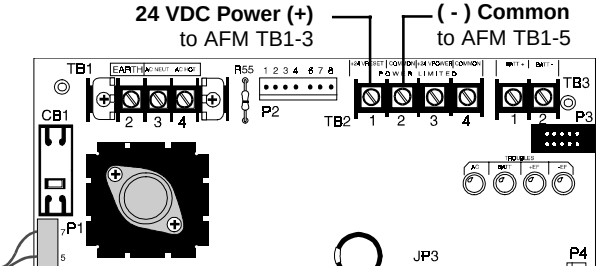
MPS-24AF



MPS-24BF Main Power Supply

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

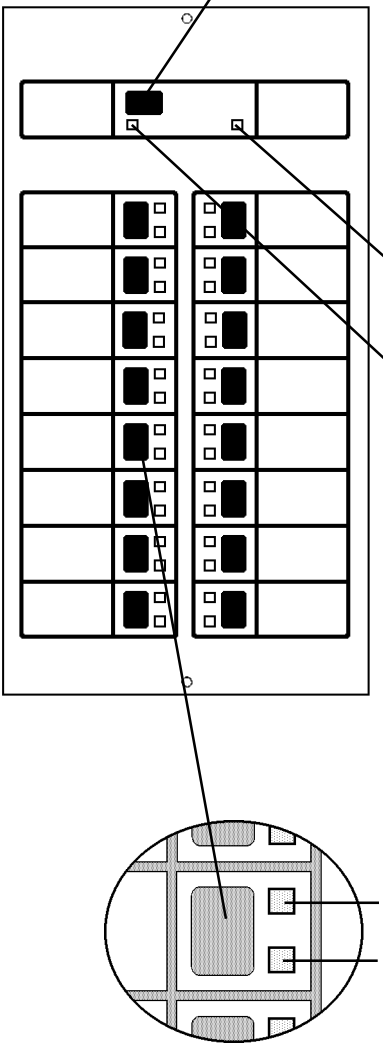
MPS-24BF



Section Five:
Operating the Annunciators

For a complete description of annunciator operation for various specific applications, refer to Sensiscan 2000 Manual, Document 15017.

Figure 9: Operating the AFM-16ATX



This switch serves two purposes:

1) When pressed, it first lights all the LEDs on the AFM-16ATX (except the On Line LED) and then each expander and also sounds the piezo (provided it hasn't been disabled) for as long as the switch is held down.

2) It acknowledges all status changes for both the annunciator and the expanders. Flashing LEDs will latch on solid and the piezo will be silenced.

On Line LED
This green indicator flashes during communication with the control panel.

System Trouble LED
This yellow indicator lights for all trouble conditions in the system (not just for those points or zones mapped to the annunciator/expanders).

Control Switch
Functions as a local Lamp Test for the two LEDs dedicated to a point.

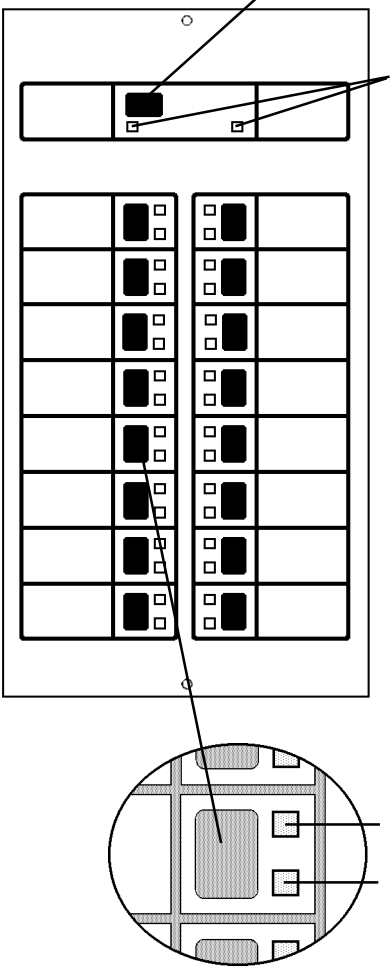
Control switches can be used to execute such system functions as ACKNOWLEDGE, SIGNAL SILENCE, and SYSTEM RESET. Switches can also be used to control the states of various output circuits.

Red LED

Yellow LED

Note 1:
If the annunciator loses communication with the control panel, all the yellow trouble LEDs will flash.

Figure 10: Operating the AEM-16ATF



Lamp Test Switch
When pressed, it lights all the LEDs on the AEM-16ATF expander (except the On Line LED).

These LEDs are not functional on expanders.

Control Switch
Functions as a local Lamp Test for the two LEDs dedicated to this point.

Control switches can be used to execute such system functions as ACKNOWLEDGE, SIGNAL SILENCE, and SYSTEM RESET. Switches can also be used to control the states of various output circuits.

Red LED

Yellow LED

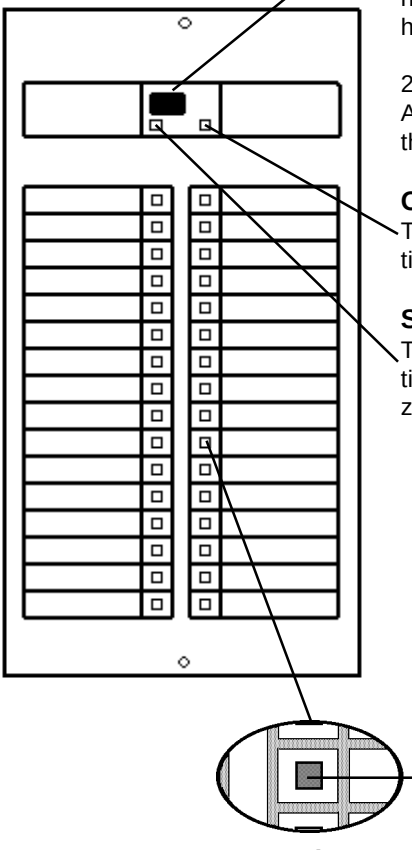
16 Expander Points

Note 1:
If the annunciator loses communication with the control panel, all the yellow trouble LEDs will flash.

Note 2:
Simultaneous manual activation of the two switches in any row of the annunciator or an expander will cause the state of all the points on that module to change state.

One row

Figure 11: Operating the AFM-32AX



This switch serves two purposes:

1) When pressed, it first lights all the LEDs on the annunciator (except the On Line LED) then on the expander and also sounds the piezo (provided it hasn't been disabled) for as long as the switch is held down.

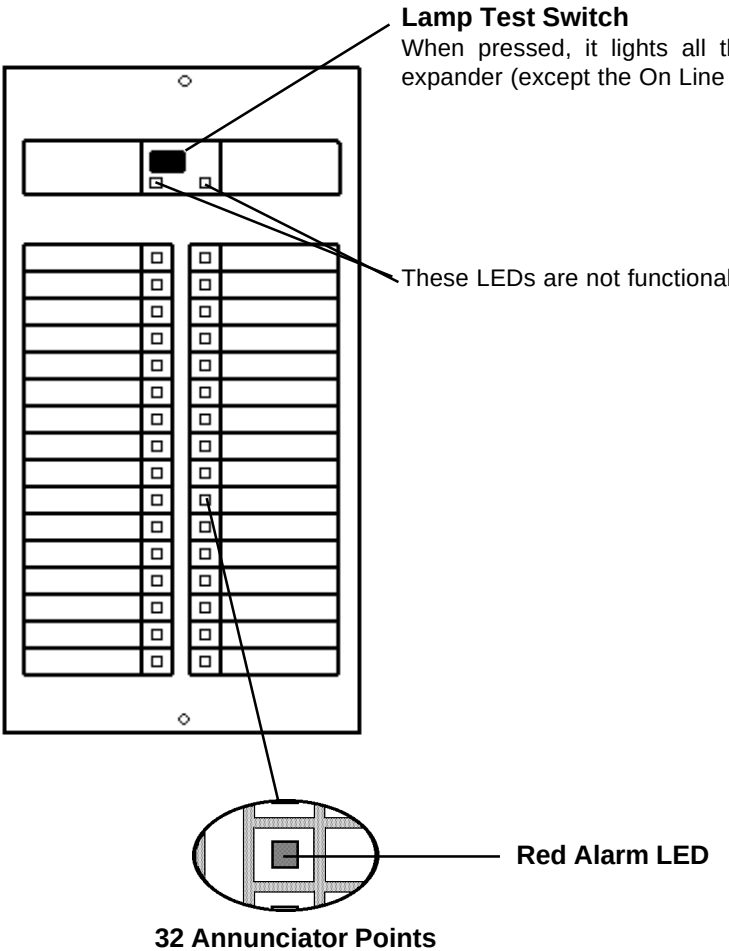
2) It acknowledges all status changes for the AFM-32AX. Flashing LEDs will latch on solid and the piezo will be silenced.

On Line LED
This green indicator flashes during communication with the control panel.

System Trouble LED
This yellow indicator lights for all trouble conditions in the system (not just for those points or zones mapped to the annunciator).

If the annunciator loses communication with the control panel, the yellow System Trouble LED will flash.

Figure 12: Operating the AEM-32AF



Section Six:
Annunciators and the Sensiscan 2000

Capabilities

When installed with a Sensiscan 2000, an annunciator can annunciate the status of initiating and notification circuits, relays, and several system control functions. Each annunciator LED is automatically assigned to one and only one system point:

Circuits: IZ-8F, IZ-4F Initiating Device Circuits (alarm and trouble)
IC-4F/ICE-4F Notification Appliance Circuits (trouble)*
CR-4F/CRE-4F Control Relays (trouble)*
TC-2F circuits (trouble)*
TC-4F circuits (trouble)*

***** Indication of output circuit activation can be obtained by programming the CPU for "OUTPUT STATUS."

System Controls: Acknowledge
Signal Silence
System Reset
Activate Notification Circuits 1 and 2, the Remote Signalling Municipal Tie circuit, and the Alarm Relay.

System Trouble Indication

Communication between the CPU and the Annunciator Control System is accomplished over a two-wire EIA-485 serial interface. This communication circuit is supervised by the FACP. Loss of communication results in "System Trouble" and "Module Failure" indications at the FACP CPU.

Installation Requirements

The EIA-485 circuit that drives the annunciator must be connected to the CPU as illustrated below.

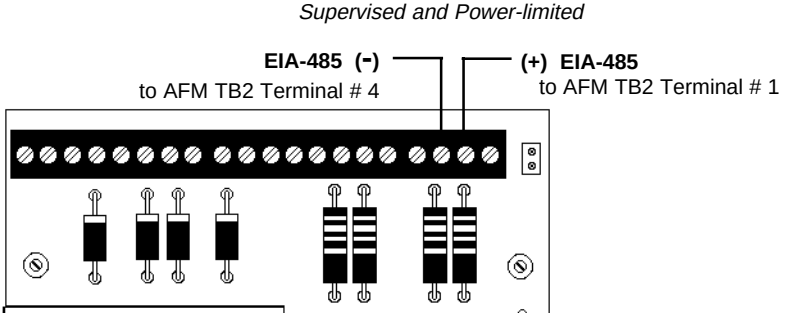


Figure 13: Connecting the EIA-485 Loop

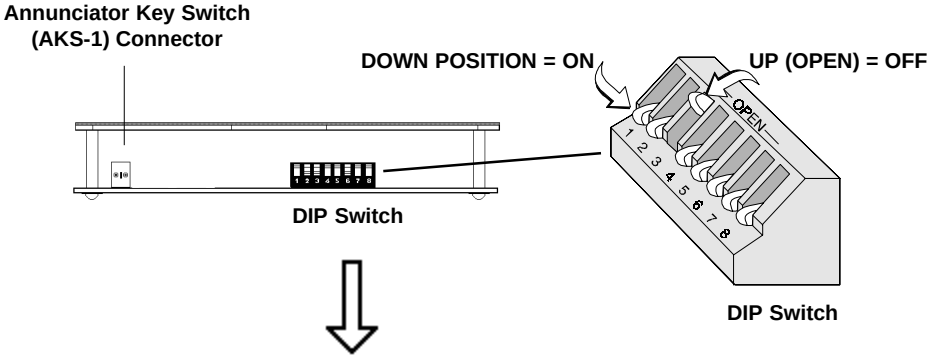
Installing Modules in the Sensiscan 2000:

The annunciator begins annunciation with the CPU and continues with the annunciation of circuits on the module installed directly after the CPU. To ensure full employment of annunciator points, mount Sensiscan 2000 modules that require annunciation in the CPU row first, then in the second row, etc. Modules with circuits that need not be annunciated by the AFM should be installed further down in the cabinet.

Note that without invoking the Eight-Point-Shift, the first eight points would be dedicated to CPU functions, not circuits off of the first module.

Figure 14: Configuring Annunciators for Sensiscan 2000

DIP switches must be set before the annunciator will operate properly.



DIP Switch settings:

1. Not Used: This switch must be set "OFF".

	None	One	Two	Three
2. Expanders Installed:	**OFF**	**ON**	**OFF**	**ON**
3. Expanders Installed:	**OFF**	**OFF**	**ON**	**ON**

4. Eight-Point Shift: Set switch "ON" to shift the CPU functions from the first eight annunciator positions to expander positions 57-64.

5. Receive Only: Set this switch "ON" for each annunciator that will provide the same information as another annunciator in a different location (when two or more annunciators hold the same address, all but one must be configured as "Receive Only" annunciators).

6. Piezo Disable: Set this switch "ON" to disable the piezo from sounding for any event.

7. Switch Inhibit: To disable the point control switches on the annunciator from executing system control functions, set this switch "ON." When inhibited, the switches will serve as local Lamp Test switches only. In addition, the **Acknowledge/Lamp Test** switch will function only in a local capacity, unrecognized by the System. *Note: For Canadian applications, when annunciator point control switches are enabled (Switch 7 'OFF'), the AKS-1F or a similar listed enclosure must be employed.*

8. Flash Inhibit: Set this switch "ON" to disable the flashing of LEDs associated with unacknowledged events. *Flash Inhibit also disables the piezo from sounding.*

Annunciator Operation

Annunciator points "track" or follow those system points they are programmed to annunciate; they do not latch. Table 6-1 outlines the annunciation of various System circuits and functions. Note: Control Switches marked "not used" will still function as local LAMP TEST or local ACKNOWLEDGE switches for their respective points.

Table 6-1: Annunciator Point Functions

	Circuit Type	⇦ AFM-16ATX & AEM-16ATF ⇨		
		⇦ AFM-32AX & AEM-32AF ⇨		
		Red LED	**Yellow LED**	**Control Switch** [2]
MODULES	IZ-8F circuit	Indicates alarm status of circuit [3]	Indicates trouble status of circuit	not used
MODULES	IC-4F/ICE-4F circuit	Indicates Activation	Indicates trouble status of circuit	Control Notification Circuit
MODULES	CR-4F/CRE-4F circuit	Indicates Activation	Indicates trouble status of relay	Controls Relays
MODULES	TC-2F, TC-4F VC-4F, DC-4F circuit	Indicates Activation	Indicates trouble status of relay	Remote Switch Functions
CPU 2000	ANNUNCIATOR POINT # 1 [1]	Indicates System Alarm	Indicates System Trouble	Functions as an ACKNOWLEDGE
CPU 2000	ANNUNCIATOR POINT # 2	not used	Indicates that signals have been silenced	Functions as a SIGNAL SILENCE
CPU 2000	ANNUNCIATOR POINT # 3	not used	not used	Functions as a SYSTEM RESET
CPU 2000	ANNUNCIATOR POINT # 4	not used	Indicates Supervisory condition	not used
CPU 2000	ANNUNCIATOR POINT # 5	Indicates that Notification Circuit 1 has been activated	Indicates trouble status of circuit	Controls Notification Circuit 1
CPU 2000	ANNUNCIATOR POINT # 6	Indicates that Notification Circuit 2 has been activated	Indicates trouble status of circuit	Controls Notification Circuit 2
CPU 2000	ANNUNCIATOR POINT # 7	Indicates that the Remote Signalling Municipal Tie has been activated	Indicates trouble status of circuit	Controls Remote Signalling Municipal Tie
CPU 2000	ANNUNCIATOR POINT # 8	Indicates that the Alarm Relay has been activated	Indicates Module Trouble, Power Failure or Disabled Circuit(s)	Controls Alarm Relay

1 If the Eight-Point Shift (DIP switch # 4) is set "ON", the eight CPU functions will be shifted from annunciator points 1 thru 8 to points 57 thru 64 (provided those points exist in the system).

2 These control switches are active only if all of these conditions are set:
a) Receive Only (DIP Switch # 5) is set to "OFF." **b)** Switch Inhibit (DIP Switch # 7) is set to "OFF."

3 If an IZ-8F or IZ-4F circuit is programmed on the system as a supervisory point, *both* the red and yellow LEDs will be illuminated for a supervisory condition. Illumination of the yellow LED alone indicates a trouble condition (open circuit) on the IZ-8F supervisory circuit.

4 If a UDACT-F is employed on a system with an annunciator, point assignments for the first eight yellow LEDs on the annunciator will change. Refer to the UDACT-F Manual and the appropriate FACP Manual.

Set A
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-16ATX

Set A
Label 2

⇦ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-16ATX

Set A
Label 3

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AEM-16ATF

Set A
Label 4

Cut out along dotted line and insert into the right-hand side of AEM-16ATF

ALARM ZONE 1	ALARM ZONE 9	ALARM ZONE 17	ALARM ZONE 25
ALARM ZONE 2	ALARM ZONE 10	ALARM ZONE 18	ALARM ZONE 26
ALARM ZONE 3	ALARM ZONE 11	ALARM ZONE 19	ALARM ZONE 27
ALARM ZONE 4	ALARM ZONE 12	ALARM ZONE 20	ALARM ZONE 28
ALARM ZONE 5	ALARM ZONE 13	ALARM ZONE 21	ALARM ZONE 29
ALARM ZONE 6	ALARM ZONE 14	ALARM ZONE 22	ALARM ZONE 30
ALARM ZONE 7	ALARM ZONE 15	ALARM ZONE 23	ALARM ZONE 31
ALARM ZONE 8	ALARM ZONE 16	ALARM ZONE 24	ALARM ZONE 32

Set E
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

ALARM ZONE 1
ALARM ZONE 2
ALARM ZONE 3
ALARM ZONE 4
ALARM ZONE 5
ALARM ZONE 6
ALARM ZONE 7
ALARM ZONE 8
ALARM ZONE 9
ALARM ZONE 10
ALARM ZONE 11
ALARM ZONE 12
ALARM ZONE 13
ALARM ZONE 14
ALARM ZONE 15
ALARM ZONE 16

Set E
Label 2

⇦ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-32AX

ALARM ZONE 17
ALARM ZONE 18
ALARM ZONE 19
ALARM ZONE 20
ALARM ZONE 21
ALARM ZONE 22
ALARM ZONE 23
ALARM ZONE 24
ALARM ZONE 25
ALARM ZONE 26
ALARM ZONE 27
ALARM ZONE 28
ALARM ZONE 29
ALARM ZONE 30
ALARM ZONE 31
ALARM ZONE 32

Set F
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

SYSTEM ALARM
IND. CIRCUIT 1
IND. CIRCUIT 2
MUNICIPAL TIE
ALARM RELAY
ALARM ZONE 1
ALARM ZONE 2
ALARM ZONE 3
ALARM ZONE 4
ALARM ZONE 5
ALARM ZONE 6
ALARM ZONE 7
ALARM ZONE 8

Set A Label 5 LAMP TEST ⇨ Cut out along dotted line and insert into the left-hand side of AEM-16ATF	Set A Label 6 Cut out along dotted line and insert into the right-hand side of AEM-16ATF	Set A Label 7 LAMP TEST ⇨ Cut out along dotted line and insert into the left-hand side of AEM-16ATF	Set A Label 8 Cut out along dotted line and insert into the right-hand side of AEM-16ATF
ALARM ZONE 33	ALARM ZONE 41	ALARM ZONE 49	
ALARM ZONE 34	ALARM ZONE 42	ALARM ZONE 50	
ALARM ZONE 35	ALARM ZONE 43	ALARM ZONE 51	
ALARM ZONE 36	ALARM ZONE 44	ALARM ZONE 52	
ALARM ZONE 37	ALARM ZONE 45	ALARM ZONE 53	
ALARM ZONE 38	ALARM ZONE 46	ALARM ZONE 54	
ALARM ZONE 39	ALARM ZONE 47	ALARM ZONE 55	
ALARM ZONE 40	ALARM ZONE 48	ALARM ZONE 56	

Set F
Label 2

⇦ **ON-LINE**

Cut out along dotted line and insert into the right-hand side of AFM-32AX

Set F
Label 3

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

Set F
Label 4

Cut out along dotted line and insert into the right-hand side of AFM-32AX

Set B Label 1	Set B Label 2	Set B Label 3	Set B Label 4
LOCAL SILENCE AND ACKNOWLEDGE ⇒ SYSTEM TROUBLE ⇒	⇐ ON-LINE	LAMP TEST ⇒	
Cut out along dotted line and insert into the left-hand side of AFM-16ATX	Cut out along dotted line and insert into the right-hand side of AFM-16ATX	Cut out along dotted line and insert into the left-hand side of AEM-16ATF	Cut out along dotted line and insert into the right-hand side of AEM-16ATF
ACKNOWLEDGE System Alarm/Trouble	ALARM ZONE 1	ALARM ZONE 9	ALARM ZONE 17
SIGNAL SILENCE	ALARM ZONE 2	ALARM ZONE 10	ALARM ZONE 18
SYSTEM RESET	ALARM ZONE 3	ALARM ZONE 11	ALARM ZONE 19
SUPERVISORY SIGNAL	ALARM ZONE 4	ALARM ZONE 12	ALARM ZONE 20
INDICATING CIRCUIT 1	ALARM ZONE 5	ALARM ZONE 13	ALARM ZONE 21
INDICATING CIRCUIT 2	ALARM ZONE 6	ALARM ZONE 14	ALARM ZONE 22
MUNICIPAL STATION	ALARM ZONE 7	ALARM ZONE 15	ALARM ZONE 23
ALARM RELAY PANEL TROUBLE	ALARM ZONE 8	ALARM ZONE 16	ALARM ZONE 24

Set G
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

SYSTEM ALARM
IND. CIRCUIT 1
IND. CIRCUIT 2
MUNICIPAL TIE
ALARM RELAY
ALARM ZONE 1
ALARM ZONE 2
ALARM ZONE 3
ALARM ZONE 4
ALARM ZONE 5
ALARM ZONE 6
ALARM ZONE 7
ALARM ZONE 8

Set G
Label 2

⇦ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-32AX

ALARM ZONE 9
ALARM ZONE 10
ALARM ZONE 11
ALARM ZONE 12
ALARM ZONE 13
ALARM ZONE 14
ALARM ZONE 15
ALARM ZONE 16
ALARM ZONE 17
ALARM ZONE 18
ALARM ZONE 19
ALARM ZONE 20
ALARM ZONE 21
ALARM ZONE 22
ALARM ZONE 23
ALARM ZONE 24

Set G
Label 3

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AEM-32AF

ALARM ZONE 25
ALARM ZONE 26
ALARM ZONE 27
ALARM ZONE 28
ALARM ZONE 29
ALARM ZONE 30
ALARM ZONE 31
ALARM ZONE 32
ALARM ZONE 33
ALARM ZONE 34
ALARM ZONE 35
ALARM ZONE 36
ALARM ZONE 37
ALARM ZONE 38
ALARM ZONE 39
ALARM ZONE 40

Set B Label 5 LAMP TEST ⇒ Cut out along dotted line and insert into the left-hand side of AEM-16ATF	Set B Label 6 Cut out along dotted line and insert into the right-hand side of AEM-16ATF	Set B Label 7 LAMP TEST ⇒ Cut out along dotted line and insert into the left-hand side of AEM-16ATF	Set B Label 8 Cut out along dotted line and insert into the right-hand side of AEM-16ATF
ALARM ZONE 25	ALARM ZONE 33	ALARM ZONE 41	ALARM ZONE 49
ALARM ZONE 26	ALARM ZONE 34	ALARM ZONE 42	ALARM ZONE 50
ALARM ZONE 27	ALARM ZONE 35	ALARM ZONE 43	ALARM ZONE 51
ALARM ZONE 28	ALARM ZONE 36	ALARM ZONE 44	ALARM ZONE 52
ALARM ZONE 29	ALARM ZONE 37	ALARM ZONE 45	ALARM ZONE 53
ALARM ZONE 30	ALARM ZONE 38	ALARM ZONE 46	ALARM ZONE 54
ALARM ZONE 31	ALARM ZONE 39	ALARM ZONE 47	ALARM ZONE 55
ALARM ZONE 32	ALARM ZONE 40	ALARM ZONE 48	ALARM ZONE 56

Set G
Label 4

Cut out along dotted line and insert into the right-hand side of AEM-32AF

ALARM ZONE 41

ALARM ZONE 42

ALARM ZONE 43

ALARM ZONE 44

ALARM ZONE 45

ALARM ZONE 46

ALARM ZONE 47

ALARM ZONE 48

ALARM ZONE 49

ALARM ZONE 50

ALARM ZONE 51

ALARM ZONE 52

ALARM ZONE 53

ALARM ZONE 54

ALARM ZONE 55

ALARM ZONE 56

Set C
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇒

SYSTEM TROUBLE ⇒

Cut out along dotted line and insert into the left-hand side of AFM-16ATX

Set C
Label 2

⇐ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-16ATX

Set C
Label 3

LAMP TEST ⇒

Cut out along dotted line and insert into the left-hand side of AEM-16ATF

Set C
Label 4

Cut out along dotted line and insert into the right-hand side of AEM-16ATF

Set H
Label 4

Cut out along dotted line and insert into the right-hand side of AEM-32AF

Set H
Label 5 (extra)

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

Set H
Label 6 (extra)

⇦ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-32AX

Set C
Label 5

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AEM-16ATF

Set C
Label 6

Cut out along dotted line and insert into the right-hand side of AEM-16ATF

Set C
Label 7

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AEM-16ATF

Set C
Label 8

Cut out along dotted line and insert into the right-hand side of AEM-16ATF

Set H
Label 1

LOCAL SILENCE AND ACKNOWLEDGE ⇨

SYSTEM TROUBLE ⇨

Cut out along dotted line and insert into the left-hand side of AFM-32AX

Set H
Label 2

⇦ ON-LINE

Cut out along dotted line and insert into the right-hand side of AFM-32AX

Set H
Label 3

LAMP TEST ⇨

Cut out along dotted line and insert into the left-hand side of AEM-32AX

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®**, 12 Clintonville Road, Northford, Connecticut 06472-1653.

This writing constitutes the only warranty made by **Fire-Lite®** with respect to its products. **Fire-Lite®** does not represent that its products will prevent any loss by fire or otherwise, or that its products will in all cases provide the protection for which they are installed or intended. Buyer acknowledges that **Fire-Lite®** is not an insurer and assumes no risk for loss or damages or the cost of any inconvenience, transportation, damage, misuse, abuse, accident or similar incident.

Fire-Lite® GIVES NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR OTHERWISE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. UNDER NO CIRCUMSTANCES SHALL **Fire-Lite®** BE LIABLE FOR ANY LOSS OF OR DAMAGE TO PROPERTY, DIRECT, INCIDENTAL OR CONSEQUENTIAL, ARISING OUT OF THE USE OF, OR INABILITY TO USE **Fire-Lite®** PRODUCTS. FURTHERMORE, **Fire-Lite®** SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY OR DEATH WHICH MAY ARISE IN THE COURSE OF, OR AS A RESULT OF, PERSONAL, COMMERCIAL OR INDUSTRIAL USE OF ITS PRODUCTS.

This warranty replaces all previous warranties and is the only warranty made by **Fire-Lite®**. No increase or alteration, written or verbal, of the obligation of this warranty is authorized.

"Fire-Lite" is a registered trademark.

FIRE·LITE® ALARMS
INCORPORATED

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