

ACM-16 and ACM-32 Annunciator Control Modules

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Introduction

Description

An ACM-16AT or ACM-32A annunciator consists of an ACM-16AT or ACM-32A annunciator module and any of its connected expander modules. Each annunciator can have up to 64 field, zone, and system functions mapped to it. The ACM-16AT annunciator module can have up to 16 alarm/trouble points and each AEM-16AT expander module can handle an additional 16 points. An ACM-16AT supports one to three AEM-16AT modules. The ACM-32A annunciator can have up to 32 (alarm only) points mapped to it and an AEM-32A can add an additional 32 points. Each field point mapped to an ACM-16AT or AEM-16AT has an associated control switch that can manually activate or deactivate an annunciator. The control switch cannot affect a monitor module or a zone.

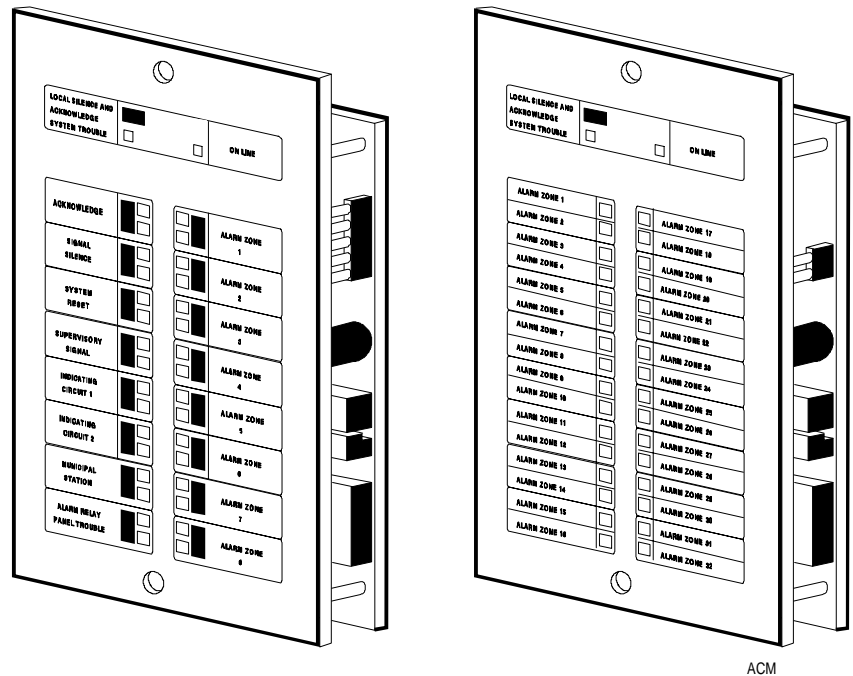


Figure 1: ACM-16T and ACM-32A Annunciators

Up to 32 annunciator devices may be used on an RS-485 annunciator communications trunk. Each device on the trunk can have a unique address, or duplicate another address on the same trunk. A separate power circuit from a regulated power supply provides the ACM annunciator with power. The ACM inherently supervises this power supply (loss of power results in an annunciator communication failure report at the control panel when operated in Receive/Transmit mode). Each annunciator address may be assigned to one or more annunciators, an LCD-80 annunciator in ACS mode, a NIB-96 Network Interface Board, or an AMG-1 Audio Message Generator. For a brief description of annunciator modules and accessories, see the *Components* document in either the *IFC-1010/2020 Technical Manual (FAN 448)*, the *IFC-200 Technical Manual (FAN 444)*, or the *FC-2000 Technical Manual (FAN 406)*.

Design Considerations

Limits

Up to 32 annunciator devices may be installed on an RS-485 annunciator circuit.

Wire Runs

Communication between the Fire Alarm Control Panel (FACP) and the ACM-16AT and ACM-32A occurs over a 2-wire RS-485 serial interface. This communication, including the wiring, is supervised by the FACP. Power for the annunciators is provided via a separate power circuit from the FACP, which is inherently supervised. Loss of power also results in a communication failure at the control panel.

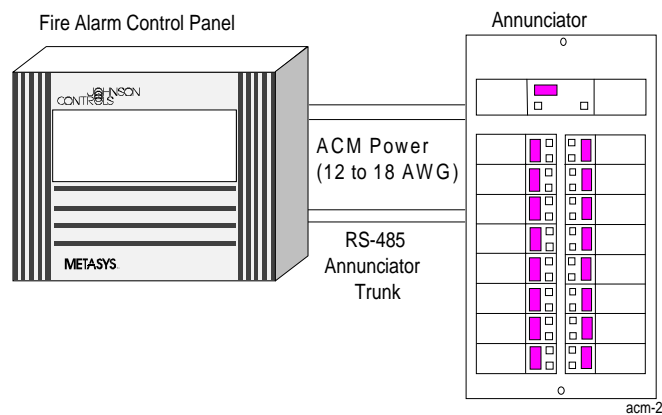


Figure 2: ACM Annunciator Wire Runs

Wiring Specifications

- The RS-485 annunciator trunk circuit and the power circuit cannot be T-Tapped; they must be wired in a continuous fashion from the control panel to each annunciator.
- The maximum wiring distance between the panel and the last annunciator is 6000 feet when 16 AWG is used and 4000 feet when 18 AWG is used.
- The RS-485 wiring must be an 18 AWG to 16 AWG twisted shielded pair.
- Limit the total wire resistance to 100 ohms on the RS-485 annunciator trunk 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 power mechanical bells or horns, audio circuits above 25 volts (RMS), motor control circuits, or SCR power circuits.

**Receive Only
Annunciators**

For redundant annunciation of system points, annunciators can be configured as Receive Only annunciators. Receive Only annunciators must be set to the same address as the Receive/Transmit annunciators they duplicate. Receive Only annunciators are not fully supervisable. Receive Only annunciators intercept information being transmitted to a Receive/Transmit annunciator so that this information can be duplicated at another display location. When configured for Receive Only operation, they can not send annunciator status information to the control panel or perform system functions such as Acknowledge, Silence, or Reset. In addition, they cannot manually override addressable devices such as M510CJ control modules or XPC-8 or XPR-8 control modules. Control switches on Receive Only annunciators can be used for local lamp test only. Wiring to Receive Only annunciators may be supervised by installing a Receive/Transmit annunciator at the end of the RS-485 annunciator trunk.

**Receive/
Transmit
Annunciators**

Annunciators configured to serve as full-function annunciators can receive device and/or zone status information as well as transmit commands and annunciator status to the control panel. They can also transmit override commands to control modules and control points using point control switches. This capability allows the annunciator to execute system functions from a remote location in addition to displaying the status of system points. An annunciator device set to Receive/Transmit mode must be placed at the end of the RS-485 circuit to provide supervision of the power supplied to the annunciator(s) and the RS-485 circuit.

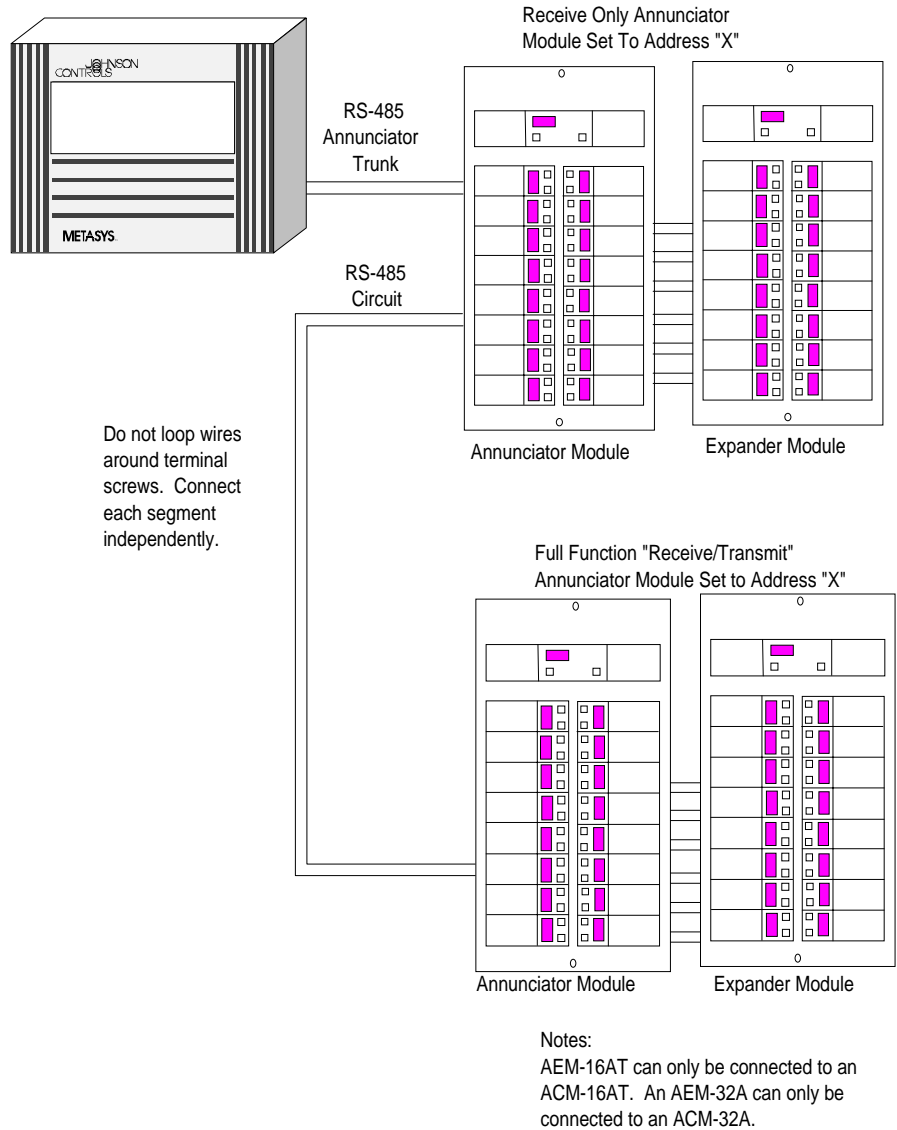


Figure 3: Connecting Receive Only Annunciators

Note: The use of receive only annunciators does not affect the maximum number of 32 annunciator addresses on the RS-485 trunk(s). Adding a second RS-485 trunk does not increase the SIB capacity to support an additional 32 addresses, and one trunk annunciator address may not be duplicated on the other circuit unless one of the annunciators is operated in the Receive Only mode.

ACM Electrical Ratings

Table 1: Electrical Ratings for the ACM

Electrical Ratings	
_____ Input Voltage	24 volts DC
Current Draw from 24 Volt DC Input	
_____ ACM-16AT/ACM-32A	Standby: 0.040 amps, Alarm: 0.056 amps
_____ AEM-16AT/AEM-32A	Standby: 0.002 amps, Alarm: 0.018 amps
Data Communications Port	RS-485 Operating at 20K baud

Annunciator Power Requirements

Annunciators draw their power from one of the system power supplies 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 system’s installation manual. However, if the current draw dedicated to the annunciators must be calculated as a separate figure, use the equations below.

Table 2: Annunciator Power Requirements

Part A	
Number of ACM 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

Part B	
Sum Part A for Total Annunciator Standby Current =	amps
Number of ACM and AEM modules assumed to be in alarm simultaneously [_____] X 0.016 =	amps

Entering the total number of ACM and AEM modules in the tables above allows for the simultaneous illumination of all LEDs. When the alarm system specifications permit, calculations can be based on a 10% alarm loading capacity. For 10% capacity, enter 10% of the total number of ACM and AEM modules multiplied by the number of remote annunciator locations, but do not enter less than one.

Sum Part B for Total Annunciator Alarm Current =	amps
---	------

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

Installation

When the annunciators are used with the Fire Fighters Command Center, they are mounted in the same cabinet near the AMG-1 and FFT-7. For remote annunciation applications, the modules can be mounted in a CAB-x3 series cabinet or in special ABF or ABS backboxes. Key Switches (AKS-1) and Annunciator Phone Jacks (APJ-1) are available for the ABF. Add the key switch (AKS-1) when mapping any control points to the ACM-16. If the annunciator has system control functions programmed into it, add the AKS-1 to satisfy UL listing compliance requirements.

Once the backbox is mounted and trunk and power cables pulled, the annunciators can be connected. (Refer to the installation documents in the *IFC-1010/2020 Technical Manual (FAN 448)*, the *IFC-200 Technical Manual (FAN 444)*, or the *FC-2000 Technical Manual (FAN 406)* for mounting instructions.) The remaining steps for completing the installation are:

1. Slide the custom display labels into the annunciators and expanders as shown in Figure 4.
2. Refer to Figures 5, 6, or 7 for the proper installation of an ACM-16AT/32A annunciator on an annunciator semi-flush trim plate of the ABF-1, ABF-2, or ABF-4 backboxes, surface mounted backbox (ABS-1 or ABS-2), or ADP-4 dress panel. Use the hardware supplied with the backbox. Skip to Step 5 if you are installing annunciator modules on an ADP-4.
3. Install the Key Switch (AKS-1) in the ABF-1, ABF-2, or ABF-4 trim plate (Figure 8). Plug the switch leads from the AKS-1 into connector J4 on the annunciator.

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

4. Install the Annunciator Phone Jack (APJ-1) in the ABF-1, ABF-2, or ABF-4 trim plate (Figure 9).

Note: If an APJ-1 Annunciator Phone Jack is to be installed, use the label supplied with that kit and discard all other labels.

5. Remove the backing from the appropriate annunciator label and apply it to the ABF-1, ABF-2, ABF-4, or ADP-4 trim plate (Figure 4).

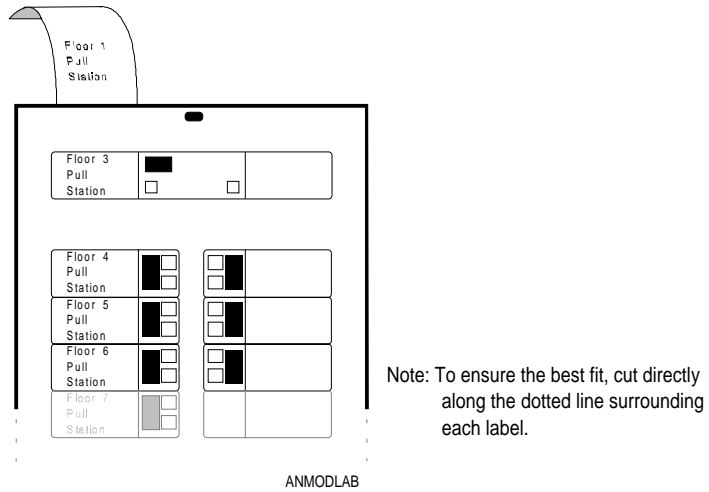


Figure 4: Inserting Display Labels in Annunciators and Expander Modules

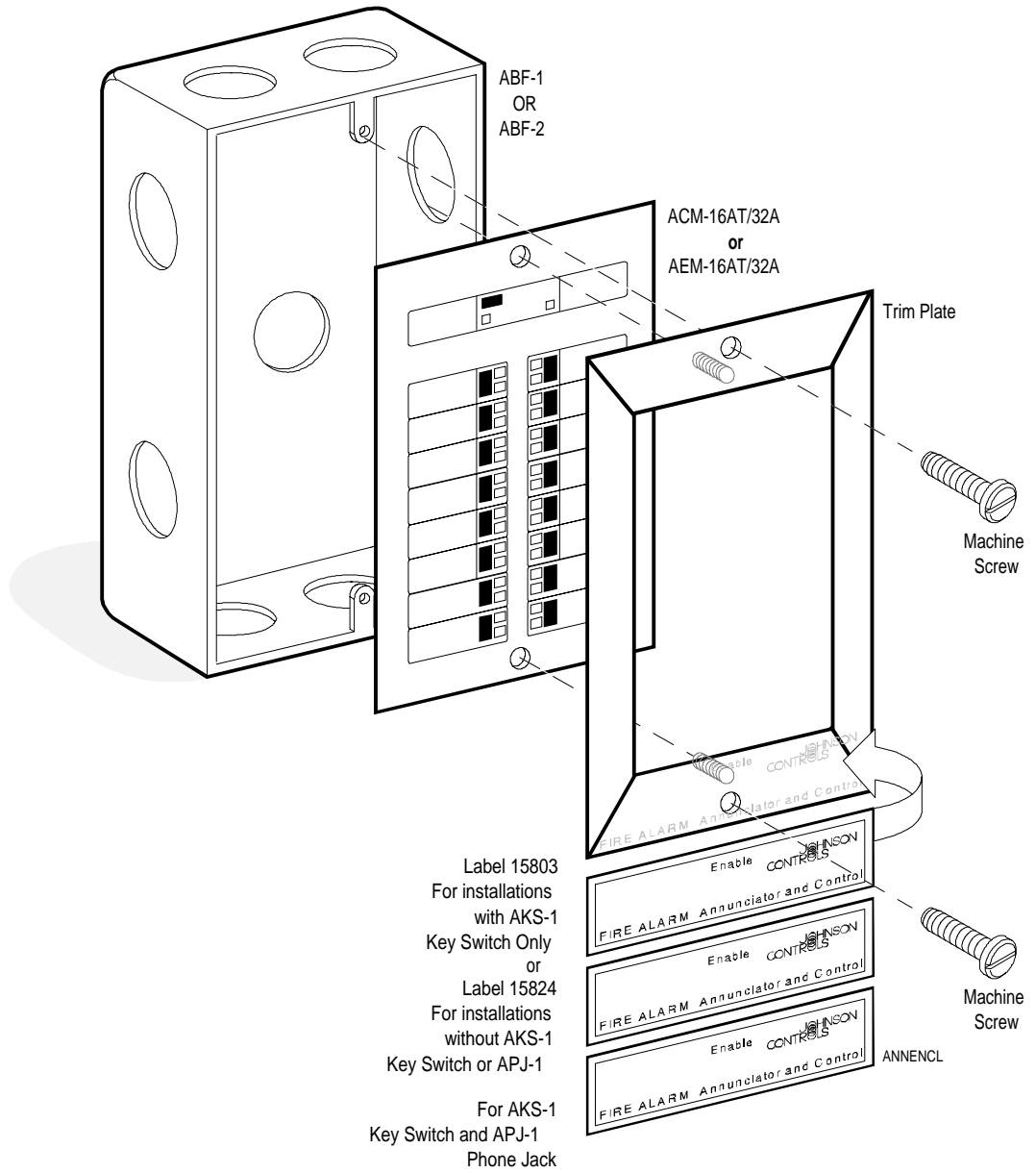


Figure 5: Installing Annunciators in an ABF-1, ABF-2, or ABF-4 Semi-flush Mounted Enclosure

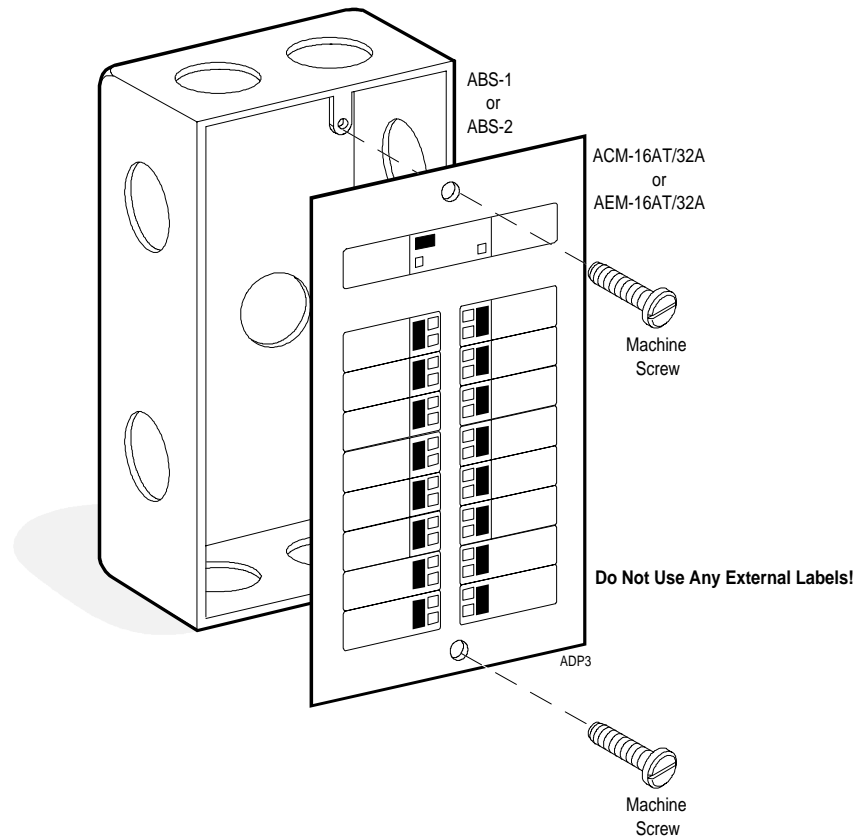


Figure 6: Installing Annunciators in an ABS-1 or ABS-2 Surface Mounted Enclosure

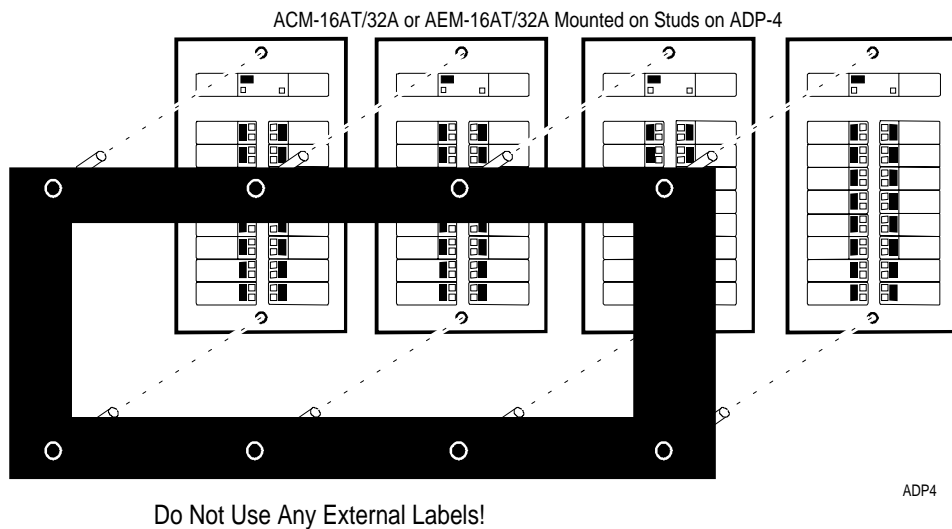


Figure 7: Installing Annunciators in an ADP-4 (For Mounting in CAB-x3 Series Cabinets)

If employing an Annunciator Phone Jack (APJ-1), mount the jack to the dress plate. Connect the telephone circuit to the leads of the APJ-1 as shown in Figure 9.

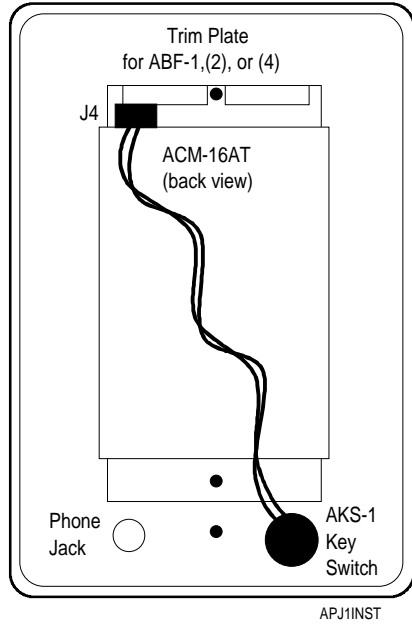


Figure 8: AKS-1 Installation (Back View)

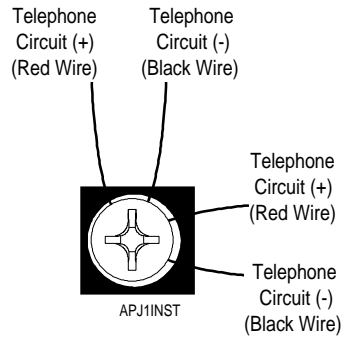


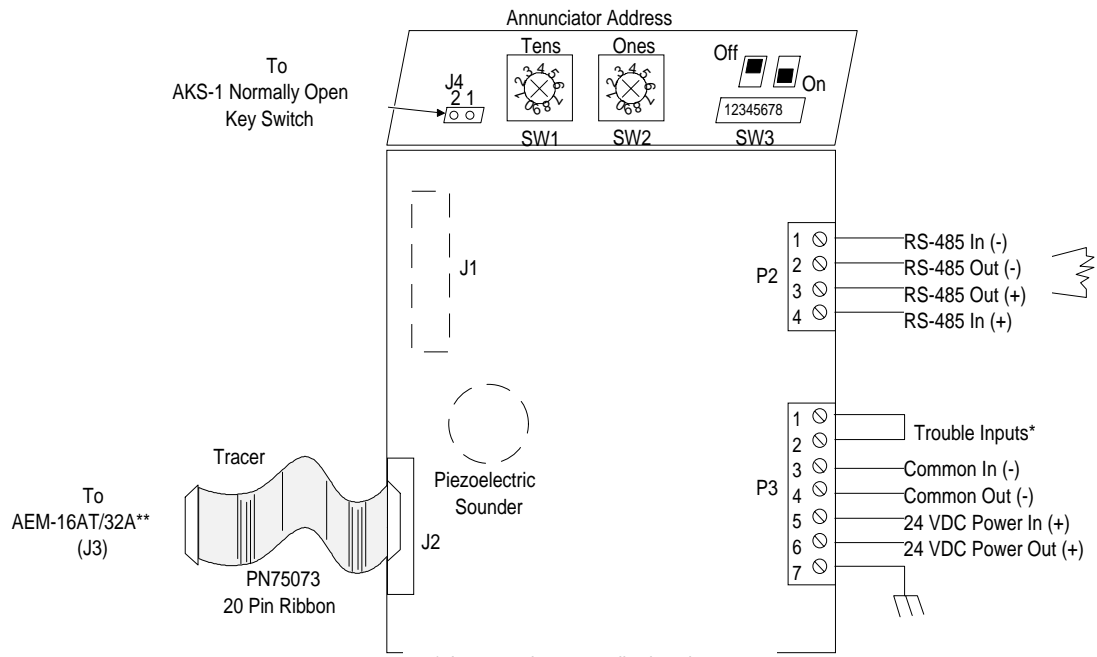
Figure 9: APJ-1 Fire Phone Jack Installation

Wiring the Annunciator

Connect the RS-485 trunk to the P2 connector header on each ACM-16/32 annunciator (Figure 11).

Recommendations for Trunk Wiring:

- The maximum wiring distance between the control panel and last annunciator is 6,000 feet at 16 AWG and 4,000 feet @ 18 AWG. The wiring type should be twisted, shielded pair cable. Limit the total combined wire resistance to 100 ohms on the RS-485 annunciator circuit, and 10 ohms on the annunciator power circuit.
- Do not put the RS-485 annunciator trunk in the same conduit as 120 VAC power, indicating appliance circuit wiring that powers mechanical indicating appliances such as bells or horns, audio circuits above 25 VRMS, motor control circuits, or SCR power circuits.
- To avoid lightning damage to the system, do not run the RS-485 annunciator trunk between buildings.
- To avoid annunciator damage, observe the polarity of the 24 VDC power.
- Do not T-Tap the RS-485 annunciator trunk. All annunciators must be connected in daisy chain fashion (Figure 11).
- Leave the 120 ohm resistor installed across the RS-485 Out terminals at the last annunciator on the circuit (Figure 11). Remove this resistor from all other annunciators.
- Connect 24 VDC power to the annunciator. This power need not be supervised by a power supervision relay since it is inherently supervised by the control panel (loss of communication is registered during loss of power to the annunciator).
- Do not loop wires around screw terminals. Connect each segment of the RS-485 annunciator trunk to the designated terminals (Figure 11).
- Where MPS-24A power is used, make the shield of the RS-485 trunk continuous. (Figure 11). At the power supply, terminate the shield as shown in Figure 11. At the last annunciator, terminate the trunk shield as shown in Figure 11. Make sure that the shields do not come in contact with any exposed metal parts.
- Since receive only annunciators are not supervised, connect a Receive/Transmit annunciator last on the RS-485 annunciator trunk (Figure 11). If the trunk goes offline, the Receive/Transmit annunciator will notify the control panel.



* Jumper unless normally closed contact is used for trouble annunciation of external equipment trouble

** AEM 16AT can only be connected to ACM-16AT. AEM-32A can only be connected to ACM-32A

ACMLAY

Figure 10: ACM-16AT or ACM-32A Component Layout

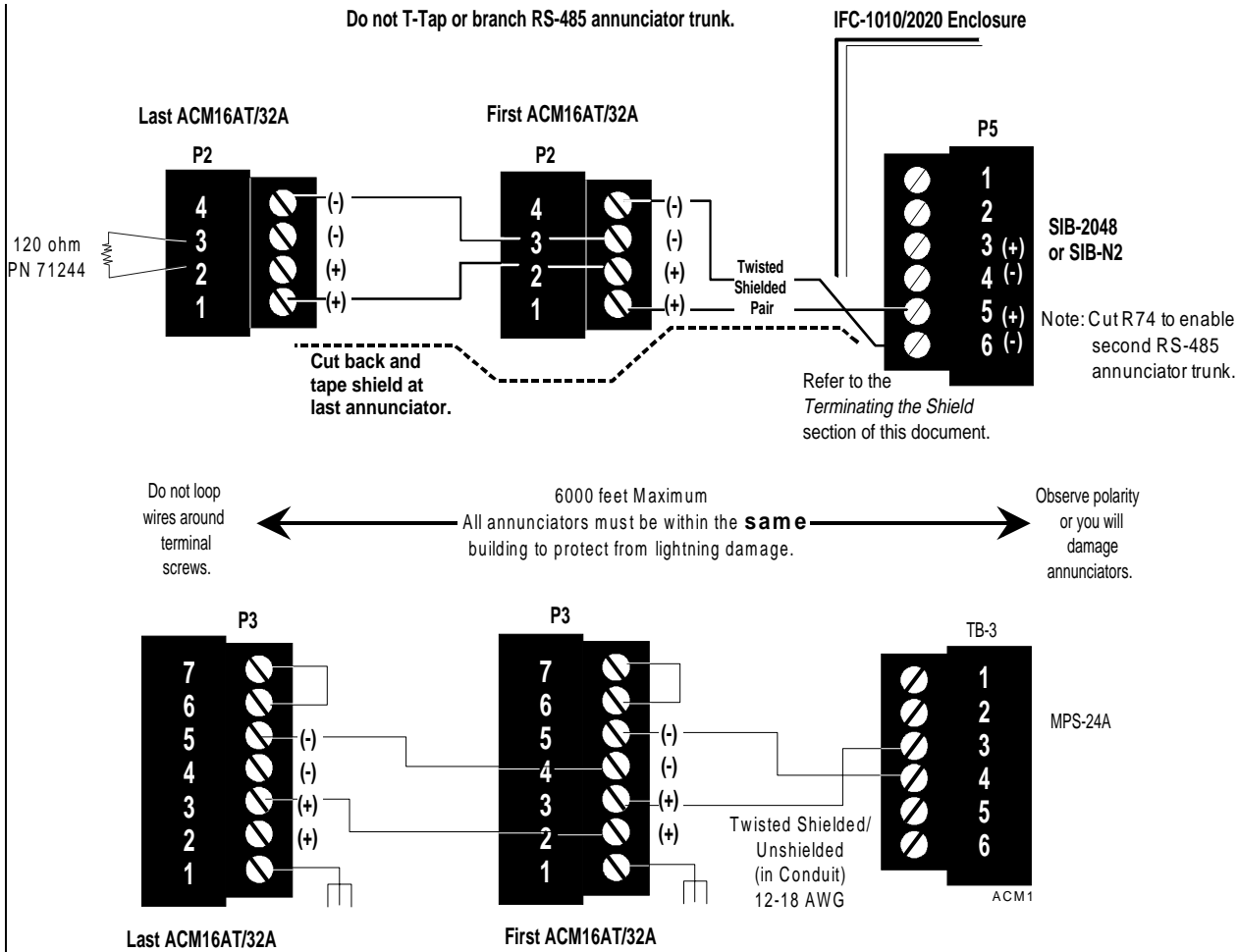


Figure 11: Wiring Annunciators Using an MPS-24A Power Supply

Connecting the Main Power Supply

The annunciator is powered by an MPS-24A or any other 24 VDC power supply UL Listed for fire alarm application. This power run to the annunciator need not contain a power supervision relay since loss of power is inherently supervised through communication loss.

MPS-24A Main Power Supply

For the FC-2000, connect the power run for the annunciator to MPS-24A TB3 terminals 1 (+) and 2 (-). For the IFC-1010/2020, the annunciator requires non-resettable power. Connect the power run for the annunciator to MPS-24A TB3 Terminals 3 (+) and 4 (-) (2 amps max.). Do not cut jumper JP5 on the MPS-24A. The total amount of current drawn from these terminals cannot exceed 2 amps in standby or in alarm.

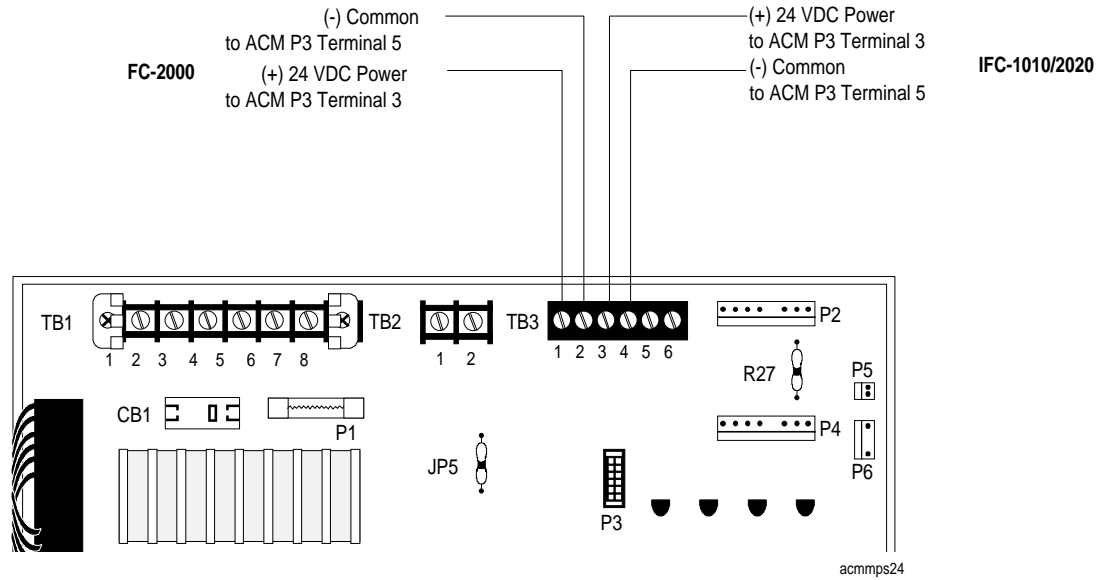


Figure 12a: MPS-24A Power Supply Connections

Any power supply UL Listed for fire alarm service, such as the PS5-BFS-24-UL, can power the annunciator(s) as shown in Figure 13.

MPS-24B Main Power Supply (FC-2000 and XP Transponders Only)

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

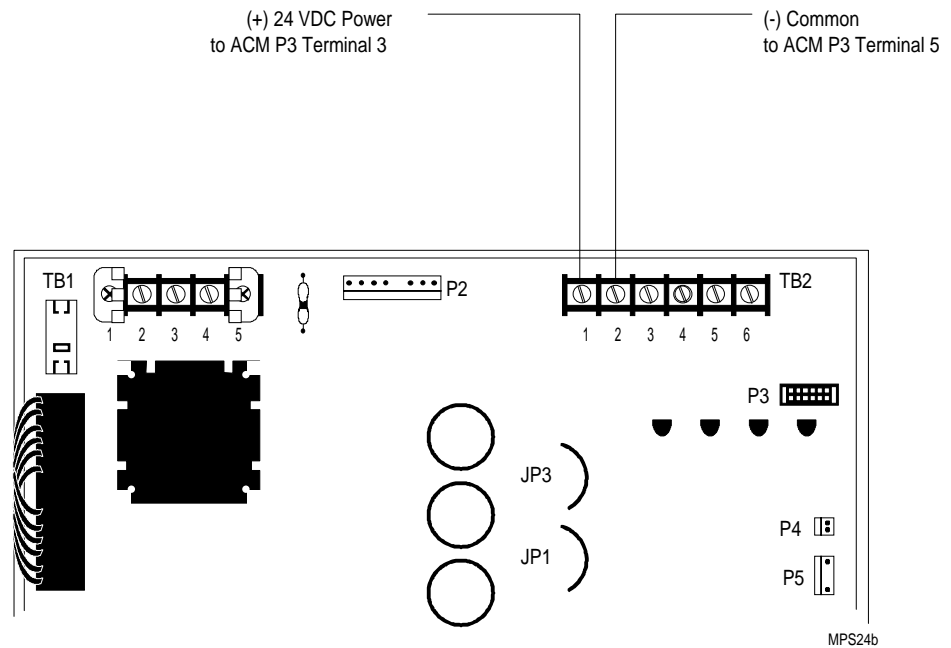
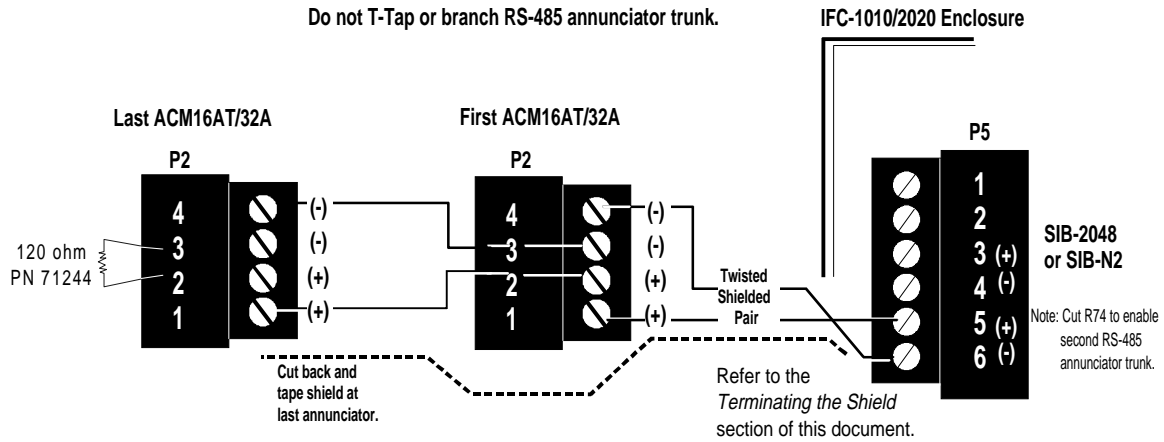


Figure 12b: MPS-24B Power Supply Connections



6000 feet Maximum
All annunciators must be within the **same** building to protect from lightning damage.

Do not loop wires around terminal screws. Observe polarity or you will damage annunciators.

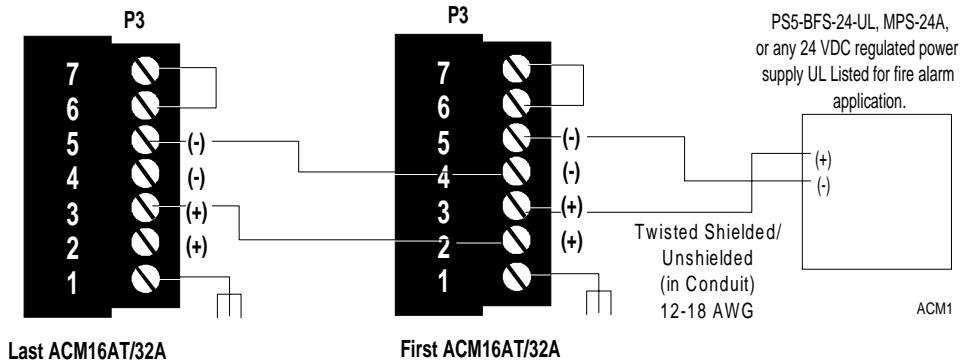


Figure 13: Wiring Annunciators Using a Remote Power Supply (PS5-BFS-24-UL)

Connecting the Supervisory Input

The normally closed Trouble Input on P3, Terminals 6 and 7, can be used for supervising local power sources or other devices. If employed, all changes in status (to and from the trouble state) will be sent to the control panel in the event of device failure or restoration. If not used, a jumper must be installed across these terminals on P3. A trouble signal will be registered by the control panel if a short circuit does not exist across these terminals. See Figure 14.

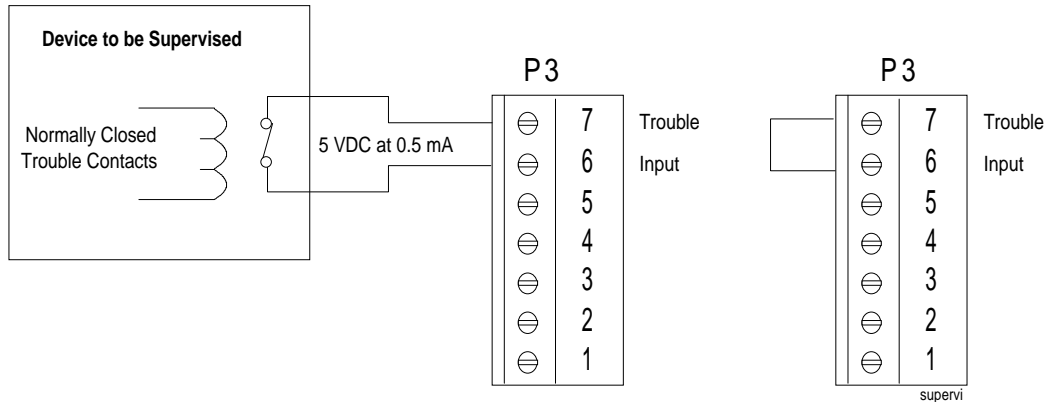


Figure 14: Wiring the Trouble Supervisory Contact

Terminating the Shield

The RS-485 circuit must be wired using a twisted-shielded pair cable. Do not run cable adjacent to, or in the same conduit as, 120 volt AC service, noisy electrical circuits powering mechanical bells or horns, audio circuits above 25 VRMS, 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 RS-485 shield at the FACP only.

When the RS-485 Shield is in Conduit

Connect the shield to system reference (system common). The shield can enter the cabinet, but must be insulated from the cabinet (no electrical contact). Between annunciators, wire-nut multiple shields together (which can be inside the respective enclosure but cannot contact the enclosure).

When the RS-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.

Wiring Two RS-485 Annunciator Trunks to the SIB

You may connect a second RS-485 annunciator circuit to the SIB using the following method:

1. Cut R74 on the SIB-2048 or SIB-N2 (Figure 15).
2. Place a 120 ohm end-of-line resistor across terminals 2 and 3 of P2 of the last annunciator on each trunk.

The maximum circuit resistance for each RS-485 cable is 100 ohms. Therefore, the maximum distance for each RS-485 circuit is 4,000 feet when using a 18 AWG twisted, shielded cable, and 6,000 feet using a 16 AWG twisted, shielded cable.

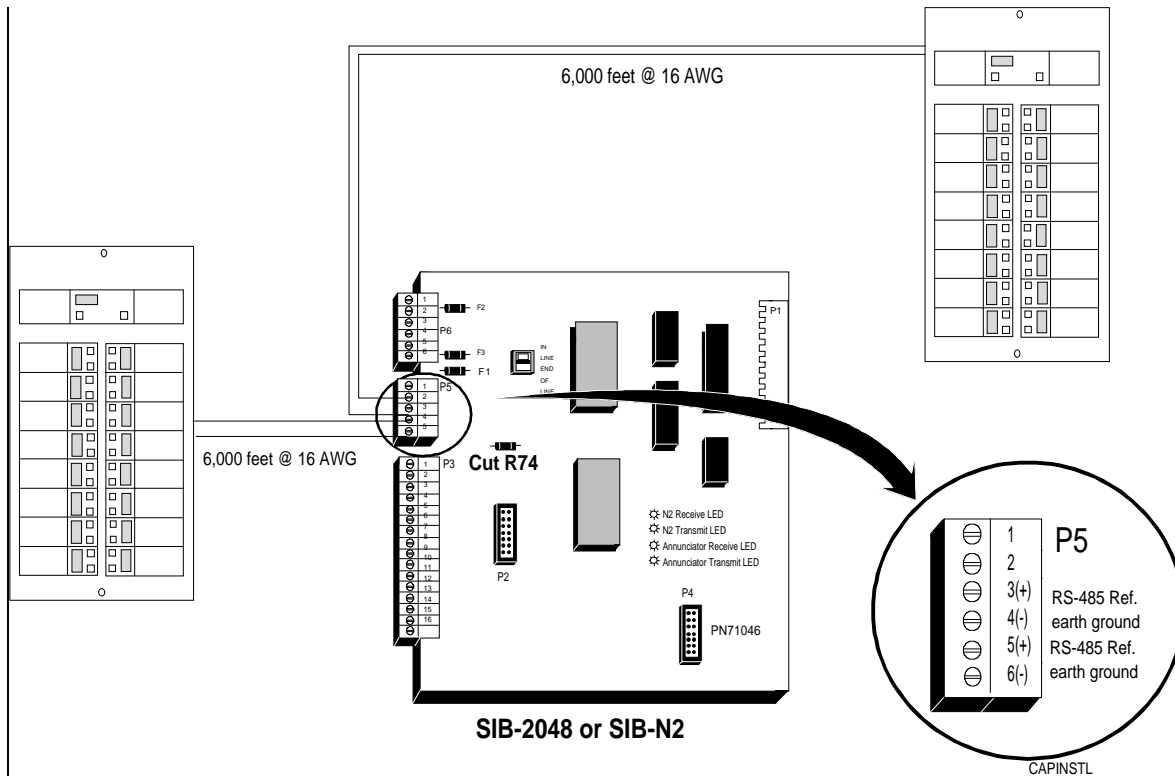
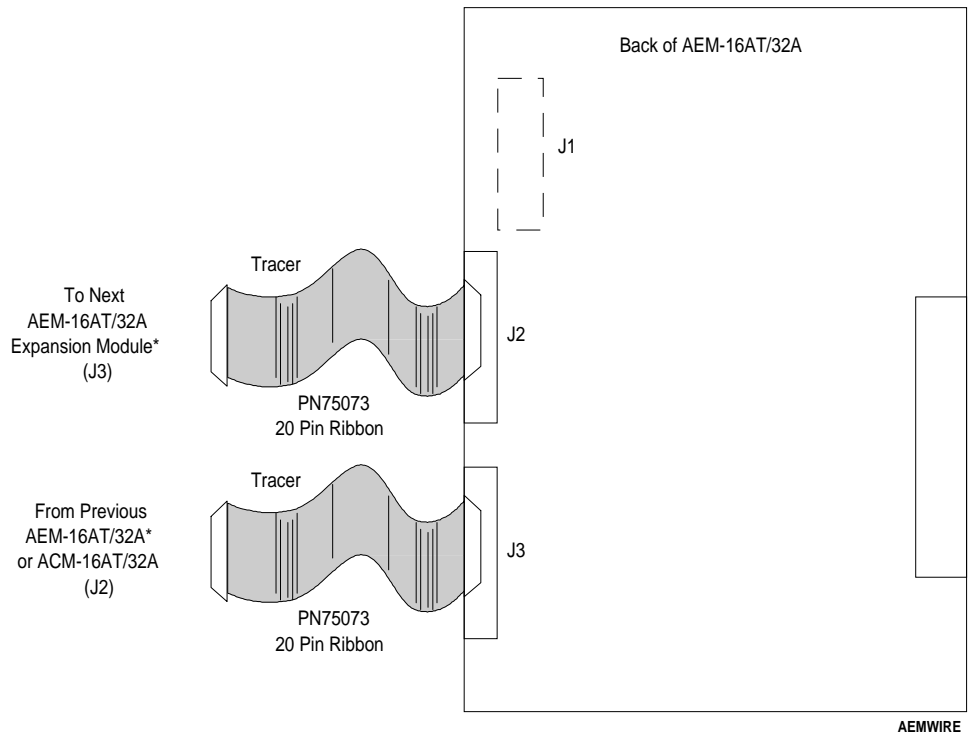


Figure 15: RS-485 Annunciator Trunk Wiring Requirements for Maximum Dual-Branch Distance

Wiring More Than One Expander Module

If the installation requires one or more AEM-16AT or AEM-32A expander modules follow these steps:

1. Connect one end of a Part Number 75073 ribbon cable to J2 on the annunciator (Figure 10) and the other end to J3 on the AEM-16AT or AEM-32A expander module (Figure 16).
2. Mount the expander module in the backbox or trim plate (Figures 5, 6, and 7).
3. If additional expander modules are required, plug one end of a 48 (Part Number 75073) ribbon cable to J2 on the expander module (Figure 16) and the other end to J3 on the next expander module (Figure 16).
4. Set the ACM-16AT or ACM-32A DIP switches for the number of expander modules (Refer to the DIP switch setting tables in the IFC-1010/2020, IFC-200, and FC-2000 sections of this document).
5. Mount the expander module in the backbox or trim plate (Figure 5, 6, and 7).
6. Continue connecting cables and mounting expander modules until they are all mounted.



* AEM 16AT can only be connected to ACM-16AT. AEM-32A can only be connected to ACM-32A.

Figure 16: Wiring an AEM-16AT or AEM-32A Expander Module

***Receive Only
Annunciators***

A Receive Only annunciator has the same points displayed on it as a “master” transmit/receive annunciator. The Receive Only annunciator cannot send messages or control devices. The primary purpose for a receive only annunciator is to map field points to more than one annunciator, without adding software zones to the control panel, or using additional annunciator addresses.

The ACM module in each receive only annunciator has the same address as the master annunciator ACM module. Switch 5 on SW3 must be in the OFF position in each ACM-16AT or ACM-32A receive only ACM module and in the ON position in the master annunciator ACM module. The master annunciator is placed last on the RS-485 annunciator trunk to provide supervision to the annunciators should any of them go offline (Figure 2).

**ACM-16AT and
ACM-32A
Operation**

This section briefly outlines the ACM-16/AEM-16AT and ACM-32/AEM-32A Annunciator LEDs and switch functions.

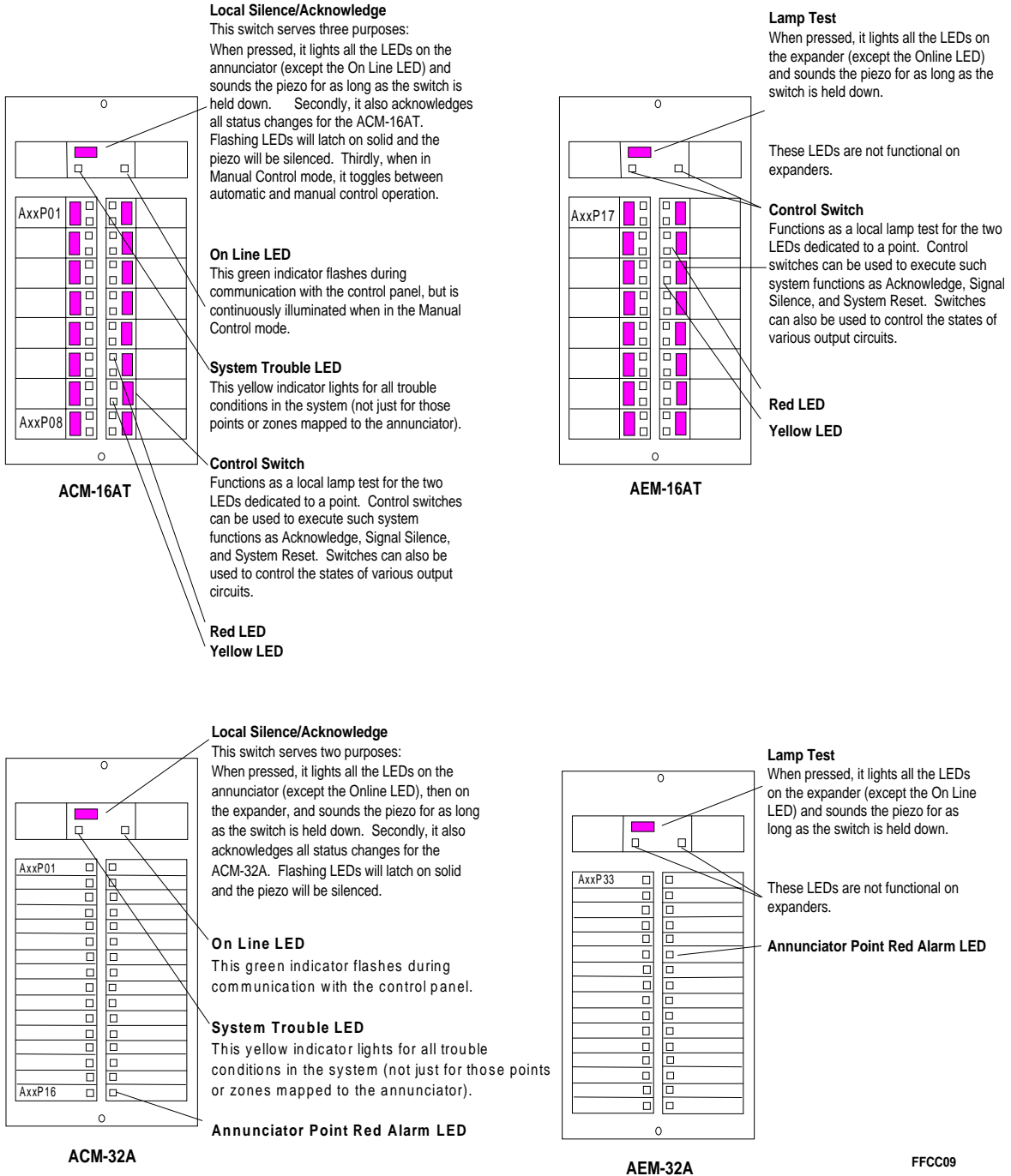


Figure 17: ACM-16/AEM-16AT and ACM-32/AEM-32A Functions

Combination Fire Alarm/Burglary Applications

The ACM-16AT and ACM-32A annunciators can be used in UL 1076 Listed combination fire/burglary and burglary systems conforming to the requirements listed below:

1. Shielded cable must be used on all input/output wiring. Terminate both ends of the shield at the earth ground.
2. The annunciators must be mounted within the protected area.
3. A pair of LEDs must be set up to indicate the status of the zones covered in a given premise, and for the arm/disarm status.
4. For further requirements governing installation and programming, refer to the *Security Applications* section of the *IFC-1010/2020 Technical Manual*, *IFC-200 Technical Manual*, or *FC-2000 Technical Manual*.

ACM-16AT and ACM-32A and the IFC-1010/2020

Capabilities

When installed with the IFC-1010/2020 Intelligent Fire Controller, the ACM-16AT and ACM-32A can annunciate the status of addressable devices, software zones, and perform several system control functions:

- **Addressable Devices**--1551J, 2551J, 2551TJ, and 5551J Intelligent Detectors; M500MJ, M501MJ, and M502MJ Monitor Modules, and M510CJ Control Modules; BGX-101L Addressable Manual Pull Stations
- **Software Zones**--1 to 240
- **System Control Functions**--Acknowledge/Step, Signal Silence, System Reset, Lamp Test
- **AMG-1 Audio Message Generator**--Tone/voice message control
- **ATG-2 Audio Tone Generator**--Tones for single or dual-channel support
- **XP Series Transponders**--Power and Audio Supply Supervision, XPP-1 Form-C Alarm and Trouble Relays, XPC-8 Control, XPM-8 Monitor, and XPR-8 Relay Module Circuits

Software Required

The IFC-1010 is fully compatible with the ACM-16AT and ACM-32. The IFC-2020 must be operating with software with the following part numbers (or greater):

<u>IFC-2020 Board</u>	<u>EPROM Part Number</u>
<u>Central Processing Unit (CPU-2020)</u>	<u>73123</u>
<u>Display Interface Assembly (DIA-1)</u>	<u>73132</u>
<u>Display Interface Assembly (DIA-2020)</u>	Fully Compatible
<u>Loop Interface Board (LIB-200)</u>	<u>73117 (for each LIB-200)</u>

Note: Each EPROM in software installed in the IFC-2020 must be part of the same firmware group.

**Hardware
Required**

The IFC-1010/2020 must include an intelligent Serial Interface Board (SIB-2048 or SIB-N2). The RS-485 annunciator communications trunk connects the SIB to the annunciators (Figure 18).

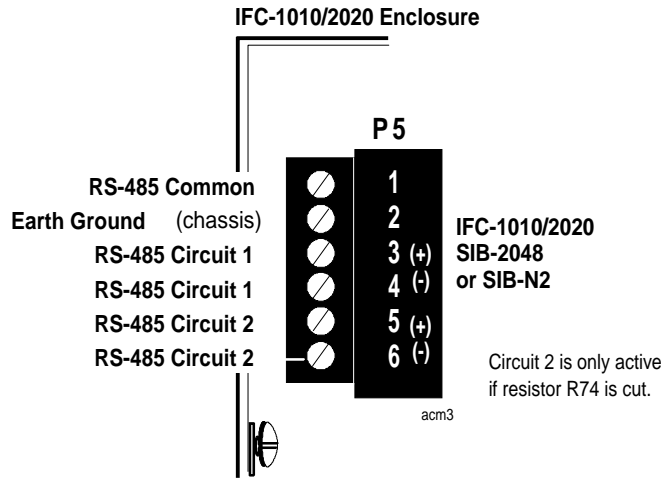
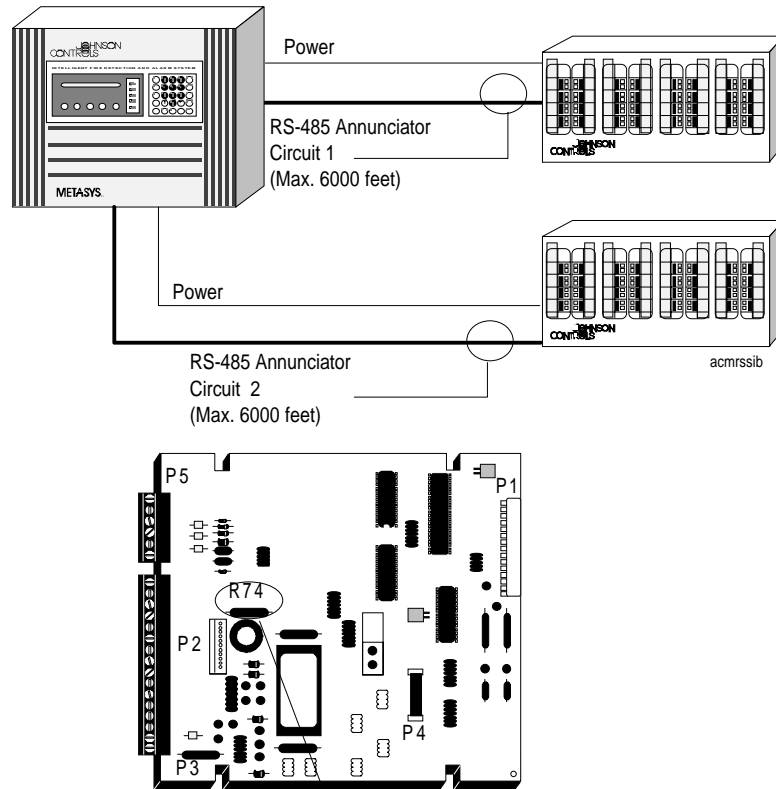


Figure 18: RS-485 Circuit (supervised and power-limited)

**Multiple RS-485
Circuits**

Use twisted shielded pair for the RS-485 circuit. Use 18 AWG for distances up to 4,000 feet and 16 AWG for distances up to 6,000 feet.

The SIB-2048 or SIB-N2 can support two RS-485 circuits, each capable of spanning up to 6,000 feet as illustrated in Figure 19.



To connect a second RS-485 circuit, resistor R74 must be cut from the SIB-2048 or SIB-N2.

Figure 19: Multiple RS-485 Circuits

IMPORTANT: Annunciator points must be configured from the IFC-1010/2020 DIA or CRT before the annunciator will function. See the *Annunciator Configuration* document in the *IFC-1010/2020 Technical Manual (FAN 448)* for programming instructions. FIRE PRO can also enable annunciator points. Refer to the *Point Programming Using FIRE PRO* document in the *FIRE PRO* section in this manual.

Programming the IFC-1010/2020 for Remote Annunciation

Annunciator points must be programmed from the IFC-1010/2020 before the annunciators can function. The IFC-1010/2020 employs the following format for annunciator points:

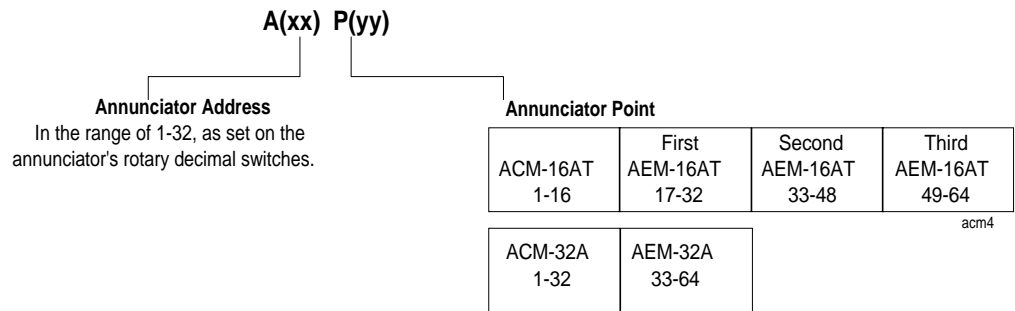


Figure 20: Annunciator Point Format for the IFC-1010/2020

To program the ACM-16AT and ACM-32A into IFC-1010/2020 memory, and to map system points and software zones to annunciator points, refer to the *Entering the Data Base* document in the *IFC-1010/2020 Technical Manual (FAN 448)*.

Configuring the Annunciator for the IFC-1010/2020

You must set the address and DIP switches before the annunciator can operate properly. See Figure 21 for switch locations.

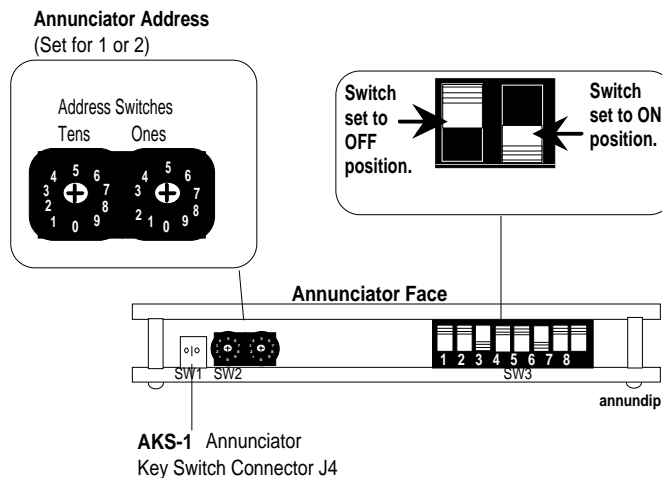


Figure 21: Annunciator Address and DIP Switches

Setting the Address

Set each ACM module to a different address from 1 to 32, unless the Receive Only function is used.

IMPORTANT: If using an annunciator for tone/voice message control (from an AMG-1), the annunciator must be set to Address 1 and the DIP switches must be configured for speaker mode.

Setting the DIP Switches

Different modes of annunciator operation are available. The ACM-16AT and ACM-32A annunciators are a vital part of voice alarm applications with the IFC-1010/2020. An ACM-16AT allows for manual selection of speakers or telephone circuits. Annunciators can also provide system control functions and annunciation of field devices and software zones. In addition, they can be used to control outputs such as activating/deactivating control modules. Set the addresses and DIP switches on each ACM-16AT/32A annunciator per the requirements of the particular job.

Note: Set the address of all “receive only” modules the same as a “master” module. For a description of receive only and receive/transmit (master) modules, see *Design Considerations* in this document.

Table 3: Annunciator SW3 DIP Switch Settings

DIP Switch	Function
1	Manual Control --Set to ON position when annunciator is used to control relays or to provide fan shutdown.
2	Expanders Installed --Set OFF for zero or two expanders installed. Set ON for one or three expanders installed.
3	Expanders Installed --Set this switch according to Table 8.
4	Eight-Point Shift --Always set to OFF in IFC-1010/2020 systems.
5	Receive Only --Set to ON for each annunciator that will provide the same information as another annunciator in a different location.
6	Piezo Disable --Set this switch to ON to disable the piezo for any event.
7	Switch Inhibit --Set this switch OFF to enable any point membrane switches on the face of the annunciator wired to the annunciator. If set ON , switches wired to the annunciator do not execute their programmed manual overrides, but will serve only as a local lamp test for their respective points.
8	Flash Inhibit --Set to ON position to disable the flashing of LEDs associated with unacknowledged events. Flash Inhibit also disables the piezo from sounding. Flash Inhibit must be ON when using the relay expander module.

Common System Annunciation

An ACM-16AT used to annunciate IFC-1010/2020 system control functions cannot be used for telephone, voice alarm, or manual control service. If *located remotely* and used to execute IFC-1010/2020 system control functions (Acknowledge, Signal Silence, Reset), the DIP switches on the annunciator must be set as shown in Table 4. These settings also apply to an ACM-32A providing alarm only status for field points and/or software zones.

Table 4: DIP Switch Settings for Common System Annunciation Mode

DIP Switch	Function
1	Manual Control --Set to OFF position.
2	Expanders Installed --Set this switch according to Table 8.
3	Expanders Installed --Set this switch according to Table 8.
4	Eight-Point Shift --Always set to OFF in IFC-1010/2020 systems.
5	Receive Only --Set to the OFF position.
6	Piezo Disable --Set this switch to the OFF position.
7	Switch Inhibit --Set this switch according to your application.
8	Flash Inhibit --Set to OFF position.

If the ACM-16AT is configured to perform system control functions, it also must be programmed to annunciate the status of all points in the system, either by device/module, or by grouping points into software zones and annunciating the status of those zones. Every point in the system must be represented by at least one annunciator point at each remote location if system control functions are programmed into the annunciator.

Note: More than one monitor-type device may be programmed to a single annunciator point. This multiple mapping of initiating devices will operate the red/yellow LEDs of an annunciator point as an “OR” function.

Speaker Mode

To execute AMG-1 functions, an ACM-16AT set to Address 1 is required. This annunciator (and any expanders) must be installed adjacent to the AMG-1.

You can map all points on annunciator Address 1 not assigned to AMG-1 tone/message selection, and all points on other annunciators set up for speaker service, to M510CJ or XPC-8 points with software type IDs of SPKR. Dedicate a separate ACM-16AT point for each speaker indicating appliance circuit. Set the DIP switches as shown in Table 5.

Table 5: DIP Switch Settings for Speaker Mode

DIP Switch	Function
1	Manual Control --Set to OFF position.
2	Expanders Installed --Set this switch according to Table 8.
3	Expanders Installed --Set this switch according to Table 8.
4	Eight-Point Shift --Always set to OFF in IFC-1010/2020 systems.
5	Receive Only --Set to OFF position.
6	Piezo Disable --Set to ON position. (If the ACM-16AT and AMG-1 are not located adjacent to the IFC-1010/2020, the piezo must sound and the switch must be set OFF).
7	Switch Inhibit --Set this switch to the OFF position.
8	Flash Inhibit --Set this switch to the ON position.

Telephone Mode

You need an ACM-16AT for manual selection of telephone circuits. Install this annunciator adjacent to the FFT-7. Dedicate a separate ACM-16AT point for each telephone circuit. Set the DIP switches as shown in Table 6:

Table 6: DIP Switch Settings for Telephone Mode

DIP Switch	Function
1	Manual Control --Set to OFF position.
2	Expanders Installed --Set this switch according to Table 8.
3	Expanders Installed --Set this switch according to Table 8.
4	Eight-Point Shift --Always set to OFF in IFC-1010/2020 systems.
5	Receive Only --Set to OFF position.
6	Piezo Disable --Set to ON position. (If the ACM-16AT and FFT-7 or FFT-7S are not located adjacent to the IFC-1010/2020, the piezo must sound and the switch must be set OFF).
7	Switch Inhibit --Set this switch to the OFF position.
8	Flash Inhibit --Set this switch to the ON position.

Manual Control Mode

In Manual Control mode you can activate (or deactivate) controlled outputs, such as indicating appliance circuits (other than speakers) and control relays, directly from the annunciator. Manual Control mode provides a “hands-off auto” function for the IFC-1010/2020 on an annunciator basis by allowing the operator to switch between automatic annunciator operation and manual annunciator operation as described.

In Automatic Operation, the IFC-1010/2020 controls the state of the circuits mapped to the annunciator.

IMPORTANT: When used to manually control outputs, no initiating devices or software zones can be mapped to the ACM-16AT or any AEM-16AT expanders connected to it. The ACM-16/AEM-16 used for manual control must be completely dedicated to the annunciation/control of output circuits only.

Note: The point control switches on an ACM-16AT, used for manual IAC (Indicating Appliance Circuit) or relay control, operates in either Automatic or Manual Operation modes.

In Automatic Operation, the control-by-event equations triggering a control device (M510CJ, XPC-8, or XPR-8) mapped to each annunciator point continue to act on the device and override any manual command initiated from the annunciator. In Manual Operation, the control-by-events are blocked from control of any of the devices mapped to the annunciators. Each control device holds its last commanded state. If the annunciator is switched back to Automatic Operation, the control-by-events take control of the devices, which may reverse a previously executed manual command.

Enter Manual Operation by pressing the Acknowledge switch on the ACM-16. (DIP Switch 1 must be set to the ON position.) The following occurs:

- The ON LINE LED on the ACM-16AT stops flashing and illuminates steadily.
- The IFC-1010/2020 registers an Annunciator Trouble condition.
- The state of each annunciator point remains the same as before.
- The output circuits can be controlled via their point switches.

Note: The “On Line” LED on the ACM-16AT is not brightly illuminated. Therefore, it may not be possible for you to determine if the LED is flashing or constantly illuminated in Manual Operation. Placing the annunciator in Manual Operation generates a trouble condition in the system, which is indicated on the annunciator. If a trouble did not exist previous to this operation, the trouble indication provides confirmation that the annunciator is in Manual Operation.

IMPORTANT: The IFC-1010/2020 control-by-event does not override a control module mapped to an ACM-16AT in Manual Operation. To return the annunciator to Automatic Operation, press the Acknowledge switch again (toggle). The On Line LED flashes again.

Set the DIP switches on a manual control mode annunciator as follows:

Table 7: DIP Switch Settings for Manual Control Mode

DIP Switch	Function
1	Manual Control --Set to ON position.
2	Expanders Installed --Set this switch according to Table 8.
3	Expanders Installed --Set this switch according to Table 8.
4	Eight-Point Shift --Always set to OFF in IFC-1010/2020 systems.
5	Receive Only --Set to OFF position.
6	Piezo Disable --Set this switch according to your application.
7	Switch Inhibit --Set to OFF position.
8	Flash Inhibit --Set to OFF position.

Expander Modules Switch Settings

DIP Switches 2 and 3 may be configured as follows depending upon the number of expanders used. Refer to Table 8.

Table 8: DIP Switch Settings for Expanders

DIP Switch Setting	None	One Expander	Two Expanders	Three Expanders
2	OFF	ON	OFF	ON
3	OFF	OFF	ON	ON

Operating the ACM-16AT and ACM-32A with the IFC-1010/2020

Annunciator points track or follow those IFC-1010/2020 system points they are programmed to annunciate; the annunciator points do not latch. Table 9 lists how the annunciator modules function. Note that control switches “not used” will still function as local Lamp Test switches for their respective LEDs.

Note: The ACM series annunciator now includes a single Lamp Test switch. The Lamp Test switch located on the ACM master (ACM-16AT, or ACM-32A) illuminates all LEDs on its module, and after a short delay, each expander module in turn illuminates its LEDs.

Table 9: IFC-1010/2020 ACM-16AT/AEM-16AT and ACM-32A/AEM-32A Functions

	ACM-16AT and AEM-16AT Functions		
	ACM-32A and AEM-32A Functions		
Point Type	Red LED	Yellow LED	Control Switch
Control Module XPC Circuit XPR Circuit	Indicates ON/OFF status of module or circuit	Indicates trouble status of module or circuit	Turns module ON/OFF
Monitor Module XPM Circuit	Indicates alarm status of module or circuit (Note 1)	Indicates trouble status of module or circuit (Note 1)	Not used
Intelligent Detector	Indicates alarm status of a detector	Indicates trouble status of a detector	Not used
Software Zone	Indicates alarm status of a software zone	Indicates trouble status of a software zone	Not used
Ack/Step key (Note 2)	Indicates System Alarm	Indicates System Trouble	Functions as an Ack/Step key
Signal Silence key (Note 2)	Not used	Indicates Signals Silence	Functions as Signal Silence key
System Reset key (Note 2)	Indicates System Alarm	Indicates System Trouble	Functions as a System Reset key
Lamp Test key (Note 2)	Not used	Not used	Functions as a Lamp Test key

Notes:

1. If the monitor module or XPM-8 circuit is programmed as a sprinkler supervisory point (SPSU), the yellow LED illuminates for both trouble and supervisory conditions. Read the exact status of the point (trouble versus supervisory condition) at the IFC-1010/2020 control panel.

Sprinkler supervisory points do not activate the red LEDs of an annunciator. Therefore, the ACM-32A should not be used to annunciate sprinkler supervisory points.

In order to comply with ULC standards, in Canada the red LED on the ACM-16AT must be masked off when that annunciator point is programmed as a sprinkler supervisory point (SPSU).

2. With the IFC-1010/2020, the system control functions of Ack/Step, Signal Silence, System Reset, and Lamp Test may be assigned (mapped) to multiple annunciator points. If these functions are used with a remote annunciator, the AKS-1 key switch should be added to the annunciator to prevent unauthorized operation of these system functions.

ACM-16AT and ACM-32A and the IFC-200

Annunciator Capacity

ACM annunciation displays the 99 software zones of the IFC-200, plus eight system points, for a total point count of 107. Information is transmitted using annunciator address 1 and 2. The RS-485 annunciator trunk circuit allows up to 32 annunciators (all but two in Receive-Only mode), over distances of up to 6000 feet (check power limitations).

IMPORTANT: ACM series annunciators on the IFC-200 cannot be used for manual control of M510CJ modules, indicating appliance circuits, or relays (except for global Silence and Drill switches).

Configuring the ACM-16AT and ACM-32A for the IFC-200

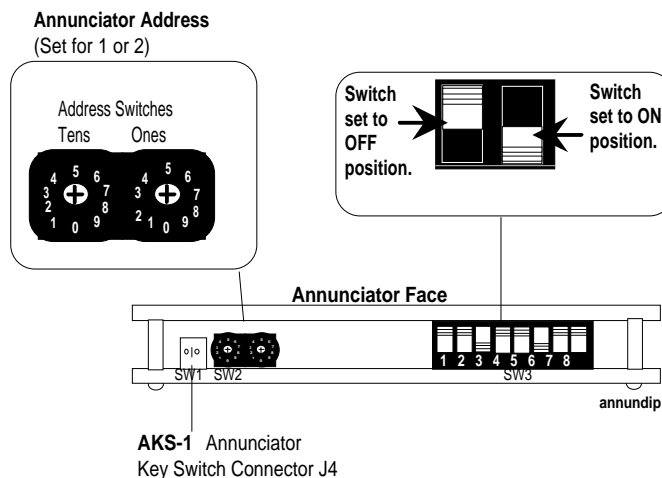


Figure 22: Configuring the Annunciator for the IFC-200

Table 10: DIP Switch Settings for Common System Annunciation Mode

DIP Switch	Function
1	Not used --This switch must be set to OFF on the IFC-200.
2	Expanders Installed --Set ON for one or three expanders, set OFF for zero or two expanders.
3	Expanders Installed --Set ON for two or three expanders, set OFF for zero or one expander.
4	Eight-Point Shift --Set switch ON to shift the CPU functions from the first eight annunciator positions to expander positions 57-64. This shift can only be set on an annunciator set for address 1.
5	Receive Only --Set to OFF position.
6	Piezo Disable --Set this switch to the ON position to disable the piezo from sounding for any event.
7	Switch Inhibit --To disable the system control switches on the annunciator from executing system control functions, set this switch ON . Only the first four switches control the IFC-200. Their functions are: 1=Acknowledge, 2=Signal Silence, 3=System Reset, 4=Drill. When inhibited, the switches serve as local Lamp Test switches only. In addition, the Acknowledge/Lamp Test switch only functions in a local capacity, unrecognized by the IFC-200.
8	Flash Inhibit --Set to ON position to disable the flashing of LEDs associated with unacknowledged events. Flash Inhibit also disables the piezo from sounding.

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

Table 11: Data Formats--Annunciator Address 1

Annunciator Point No.	I/O	Red LED	Yellow LED	Switch	Comments
<u>1</u>	Input	System Alarm	System Trouble	Acknowledge	System Trouble excludes AC power fail
<u>2</u>	Output	Not Used	Signals Silenced	Signal Silence	
<u>3</u>	Output	Not Used	Not Used	System Reset	
<u>4</u>	Output	Not Used	Not Used	Drill	
<u>5</u>	Input	Not Used	Supervisory	Not Used	Panel Supv. LED ON
<u>6</u>	Input	Not Used	Prealarm	Not Used	Trouble
<u>7</u>	Input	Not Used	AC Fail	Not Used	Trouble
<u>8</u>	Input	Not Used	Panel Trouble	Not Used	Battery/Earth Trouble
<u>9</u>	Input	Z1 Active	Z1 Trouble	Not Used	
<u>10</u>	Input	Z2 Active	Z2 Trouble	Not Used	
<u>11</u>	Input	Z3 Active	Z3 Trouble	Not Used	
<u>12</u>	Input	Z4 Active	Z4 Trouble	Not Used	
<u>13</u>	Input	Z5 Active	Z5 Trouble	Not Used	
<u>14</u>	Input	Z6 Active	Z6 Trouble	Not Used	
<u>15</u>	Input	Z7 Active	Z7 Trouble	Not Used	
<u>16</u>	Input	Z8 Active	Z8 Trouble	Not Used	
<u>17</u>	Input	Z9 Active	Z9 Trouble	Not Used	
<u>18</u>	Input	Z10 Active	Z10 Trouble	Not Used	
<u>19</u>	Input	Z11 Active	Z11 Trouble	Not Used	
<u>20</u>	Input	Z12 Active	Z12 Trouble	Not Used	
<u>21</u>	Input	Z13 Active	Z13 Trouble	Not Used	
<u>22</u>	Input	Z14 Active	Z14 Trouble	Not Used	
<u>23</u>	Input	Z15 Active	Z15 Trouble	Not Used	
<u>24</u>	Input	Z16 Active	Z16 Trouble	Not Used	
<u>25</u>	Input	Z17 Active	Z17 Trouble	Not Used	
<u>26</u>	Input	Z18 Active	Z18 Trouble	Not Used	
<u>27</u>	Input	Z19 Active	Z19 Trouble	Not Used	
<u>28</u>	Input	Z20 Active	Z20 Trouble	Not Used	
<u>29</u>	Input	Z21 Active	Z21 Trouble	Not Used	
<u>30</u>	Input	Z22 Active	Z22 Trouble	Not Used	
<u>31</u>	Input	Z23 Active	Z23 Trouble	Not Used	
<u>32</u>	Input	Z24 Active	Z24 Trouble	Not Used	
<u>33</u>	Input	Z25 Active	Z25 Trouble	Not Used	
<u>34</u>	Input	Z26 Active	Z26 Trouble	Not Used	
<u>35</u>	Input	Z27 Active	Z27 Trouble	Not Used	
Continued on next page . . .					

Annunciator Point No. (Cont.)	I/O	Red LED	Yellow LED	Switch	Comments
36	Input	Z28 Active	Z28 Trouble	Not Used	
37	Input	Z29 Active	Z29 Trouble	Not Used	
38	Input	Z30 Active	Z30 Trouble	Not Used	
39	Input	Z31 Active	Z31 Trouble	Not Used	
40	Input	Z32 Active	Z32 Trouble	Not Used	
41	Input	Z33 Active	Z33 Trouble	Not Used	
42	Input	Z34 Active	Z34 Trouble	Not Used	
43	Input	Z35 Active	Z35 Trouble	Not Used	
44	Input	Z36 Active	Z36 Trouble	Not Used	
45	Input	Z37 Active	Z37 Trouble	Not Used	
46	Input	Z38 Active	Z38 Trouble	Not Used	
47	Input	Z39 Active	Z39 Trouble	Not Used	
48	Input	Z40 Active	Z40 Trouble	Not Used	
49	Input	Z41 Active	Z41 Trouble	Not Used	
50	Input	Z42 Active	Z42 Trouble	Not Used	
51	Input	Z43 Active	Z43 Trouble	Not Used	
52	Input	Z44 Active	Z44 Trouble	Not Used	
53	Input	Z45 Active	Z45 Trouble	Not Used	
54	Input	Z46 Active	Z46 Trouble	Not Used	
55	Input	Z47 Active	Z47 Trouble	Not Used	
56	Input	Z48 Active	Z48 Trouble	Not Used	
57	Input	Z49 Active	Z49 Trouble	Not Used	
58	Input	Z50 Active	Z50 Trouble	Not Used	
59	Input	Z51 Active	Z51 Trouble	Not Used	
60	Input	Z52 Active	Z52 Trouble	Not Used	
61	Input	Z53 Active	Z53 Trouble	Not Used	
62	Input	Z54 Active	Z54 Trouble	Not Used	
63	Input	Z55 Active	Z55 Trouble	Not Used	
64	Input	Z56 Active	Z56 Trouble	Not Used	

Table 12: Data Formats--Annunciator Address 2

Annunciator Point No.	I/O	Red LED	Yellow LED	Switch	Comments
1	Input	Z57 Active	Z57 Trouble	Not Used	Supervisory point activates zone red LED on supervisory short, yellow on trouble open.
2	Input	Z58 Active	Z58 Trouble	Not Used	
3	Input	Z59 Active	Z59 Trouble	Not Used	
4	Input	Z60 Active	Z60 Trouble	Not Used	
5	Input	Z61 Active	Z61 Trouble	Not Used	
6	Input	Z62 Active	Z62 Trouble	Not Used	
7	Input	Z63 Active	Z63 Trouble	Not Used	
8	Input	Z64 Active	Z64 Trouble	Not Used	
9	Input	Z65 Active	Z65 Trouble	Not Used	
10	Input	Z66 Active	Z66 Trouble	Not Used	
11	Input	Z67 Active	Z67 Trouble	Not Used	
12	Input	Z68 Active	Z68 Trouble	Not Used	
13	Input	Z69 Active	Z69 Trouble	Not Used	
14	Input	Z70 Active	Z70 Trouble	Not Used	
15	Input	Z71 Active	Z71 Trouble	Not Used	
16	Input	Z72 Active	Z72 Trouble	Not Used	
17	Input	Z73 Active	Z73 Trouble	Not Used	
18	Input	Z74 Active	Z74 Trouble	Not Used	
19	Input	Z75 Active	Z75 Trouble	Not Used	
20	Input	Z76 Active	Z76 Trouble	Not Used	
21	Input	Z77 Active	Z77 Trouble	Not Used	
22	Input	Z78 Active	Z78 Trouble	Not Used	
23	Input	Z79 Active	Z79 Trouble	Not Used	
24	Input	Z80 Active	Z80 Trouble	Not Used	
25	Input	Z81 Active	Z81 Trouble	Not Used	
26	Input	Z82 Active	Z82 Trouble	Not Used	
27	Input	Z83 Active	Z83 Trouble	Not Used	
28	Input	Z84 Active	Z84 Trouble	Not Used	
29	Input	Z85 Active	Z85 Trouble	Not Used	
30	Input	Z86 Active	Z86 Trouble	Not Used	
31	Input	Z87 Active	Z87 Trouble	Not Used	
32	Input	Z88 Active	Z88 Trouble	Not Used	
33	Input	Z89 Active	Z89 Trouble	Not Used	
34	Input	Z90 Active	Z90 Trouble	Not Used	Presignal Time Run Time
35	Input	Z91 Active	Z91 Trouble	Not Used	Started/Release Time
Continued on next page . . .					

Annunciator Point No. (Cont.)	I/O	Red LED	Yellow LED	Switch	Comments
36	Input	Z92 Active	Z92 Trouble	Not Used	Started/Release Time
37	Input	Z93 Active	Z93 Trouble	Not Used	Started/Release Time
38	Input	Z94 Active	Z94 Trouble	Not Used	Started/Release Time
39	Input	Z95 Active	Z95 Trouble	Not Used	Time Ctrl Active
40	Input	Z96 Active	Z96 Trouble	Not Used	Time Ctrl Active
41	Input	Z97 Active	Z97 Trouble	Not Used	Holiday Active
42	Input	Z98 Active	Z98 Trouble	Not Used	Tornado Active
43	Input	Z99 Active	Z99 Trouble	Not Used	Prealarm Active
44	Input	Not Used	Not Used	Not Used	
45	Input	Not Used	Not Used	Not Used	
46	Input	Not Used	Not Used	Not Used	
47	Input	Not Used	Not Used	Not Used	
48	Input	Not Used	Not Used	Not Used	
49	Input	Not Used	Not Used	Not Used	
50	Input	Not Used	Not Used	Not Used	
51	Input	Not Used	Not Used	Not Used	
52	Input	Not Used	Not Used	Not Used	
53	Input	Not Used	Not Used	Not Used	
54	Input	Not Used	Not Used	Not Used	
55	Input	Not Used	Not Used	Not Used	
56	Input	Not Used	Not Used	Not Used	
57	Input	Not Used	Not Used	Not Used	
58	Input	Not Used	Not Used	Not Used	
59	Input	Not Used	Not Used	Not Used	
60	Input	Not Used	Not Used	Not Used	
61	Input	Not Used	Not Used	Not Used	
62	Input	Not Used	Not Used	Not Used	

**Annunciator
RS-485
Connection**

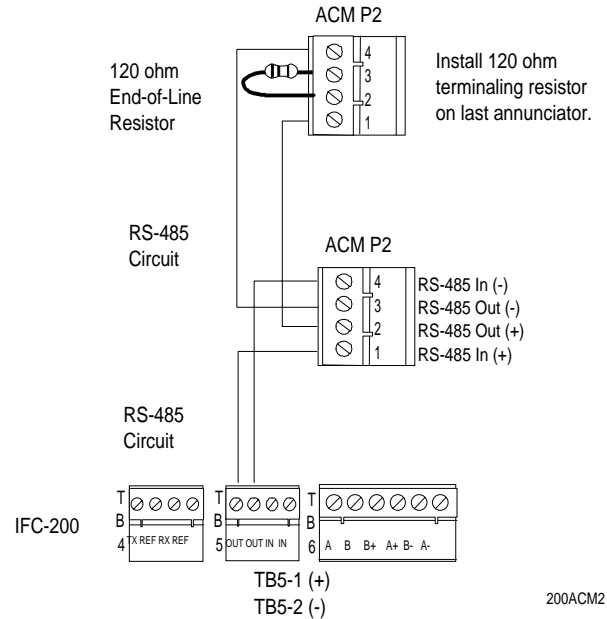


Figure 23: Annunciator RS-485 Connection

RS-485 Connection Notes:

- Power-limited and supervised
- Maximum of 32 devices may be connected to this circuit (ACM, LDM, etc.)
- 6000 feet maximum distance at 16 AWG between the IFC-200 and the furthest annunciator.
- RS-485 circuit rated 5.5 VDC max., 60 mA max.
- Set SW2 on the IFC-200 to “ACS” position.
- Maximum RS-485 circuit resistance is 100 ohms for both wires combined.
- Do not T-tap the circuit. All annunciators must be connected in daisy chain fashion (Figure 11).
- To avoid damage, observe the polarity of the 24 VDC power.
- To avoid lightning damage to the system, do not run the RS-485 annunciator trunk between buildings.
- Do not put the RS-485 annunciator trunk in the same conduit as 120 VAC power, indicating appliance circuit wiring that powers mechanical indicating appliances, audio circuits above 25 VRMS, motor control circuits, or SCR power circuits.
- Leave the 120 ohm resistor installed across the RS-485 Out terminals at the last annunciator on the circuit. Remove this resistor from all other annunciators.

Power Connections for Annunciators

- Connect Earth Ground to the mounting screw on the backbox or cabinet.
- Do not loop wires around screw terminals. Connect each segment of the RS-485 annunciator trunk to the designated terminals.
- Where MPS-24A power is used, make the shield of the RS-485 trunk continuous. At the power supply, terminate the shield as shown in Figure 11. At the last annunciator, terminate the trunk shield as shown in Figure 11. Make sure the shield does not come in contact with any exposed metal parts.

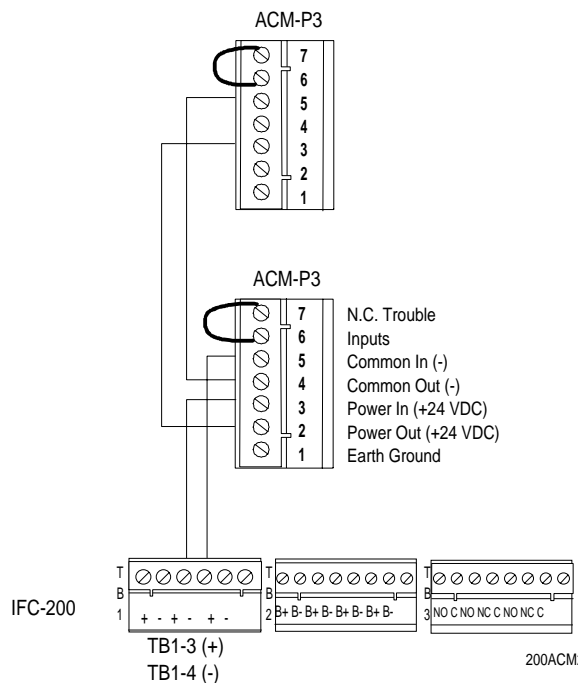


Figure 24: Power Connections for Annunciators

IMPORTANT: When not using the trouble input, jumper terminals 6 and 7 together.

Power Connection Notes:

- Power-limited
- The power run to the annunciator need not contain a Power Supervision Relay since loss of power is inherently supervised through communication loss.
- Maximum power circuit resistance is 10 ohms for both wires combined
- Do no T-tap the power circuit

ACM-16AT and ACM-32A and the FC-2000

Capabilities

When installed with an FC-2000, the ACM-16AT and ACM-32A can announce the status of initiating and indicating circuits, relays, and several system control functions. Each annunciator LED is automatically assigned to one and only one system point:

- **Circuits:** IZM-8 Initiating Device Circuits (alarm and trouble), ICM-4/ICE-4 Indicating Appliance Circuits (trouble)*, CRM-4/CRE-4 Control Relays (trouble)*, TCM-2/TCM-4 circuits (trouble)*, VCM-4/DCM-4 circuits (trouble)*, AIM-200 zones (alarm and trouble)

*Note: Indication of output circuitry activation can be obtained by programming the CPU-2000 for “Output Status.”

- **System Controls:** Acknowledge, Signal Silence, System Reset, Activate Indicating Circuits 1 and 2, the Remote Signaling Municipal Tie circuit, and the Alarm Relay.

Software Required

To operate the ACM-16AT and ACM-32A, the FC-2000 must be operating under CPU software with the following part number (or greater):

FC-2000 Board	EPROM Part Number
<u>Central Processing Unit (CPU-2000)</u>	<u>73085</u>

ACM Installation Requirements for the FC-2000

The RS-485 annunciator circuit that drives the ACM-16AT and ACM-32A must be connected to the CPU-2000 as illustrated below. The CPU-2000 must be Revision D or greater. The revision level of the CPU is marked on a label affixed to the upper board.

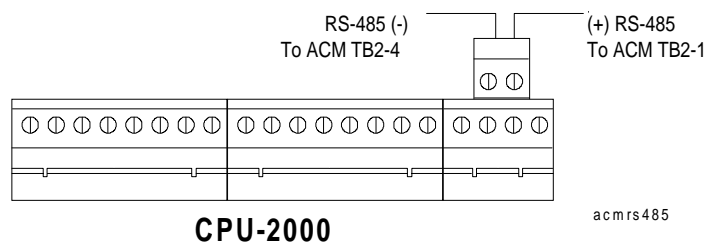


Figure 25: Connecting the RS-485 Circuit

**Installing
Modules in the
FC-2000**

The ACM-16AT and ACM-32A begin annunciation with the CPU-2000 and continue with the annunciation of circuits on the module installed directly after the CPU-2000. To ensure full employment of annunciator points, mount FC-2000 modules that require annunciation in the CPU tier first, then in the second tier and so on. Modules with circuits that need not be annunciated should be installed further down in the cabinet.

Note: If you install a module that requires annunciation in tier three or four, you need a second annunciator at address two.

**FC-2000
Trouble
Indication**

Communication between the CPU and the ACM-16AT and ACM-32A is accomplished over a 2-wire RS-485 serial interface. This communication circuit is supervised by the FC-2000. Loss of communication results in “System Trouble” and “Module Failure” indications at the FC-2000 CPU.

Note: “System Trouble” and “Module Failure” also occur if the normally closed supervisory path between P3 Terminals 6 and 7 on the annunciator is opened (or if the jumper has not been installed).

**Configuring the
ACM-16AT and
ACM-32A for
the FC-2000**

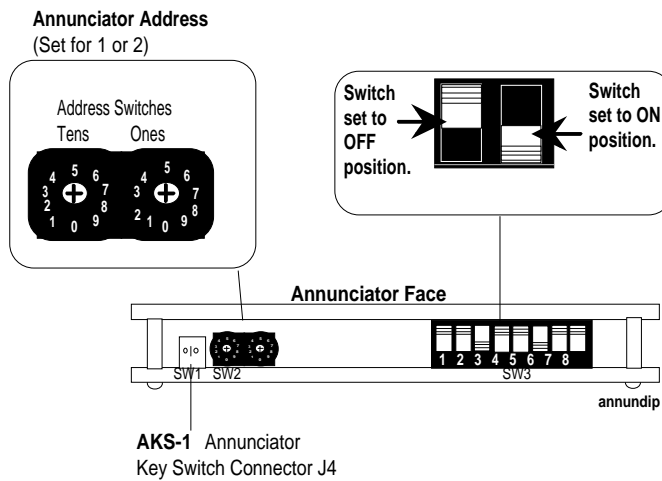


Figure 26: Annunciator Address and Dip Switch Settings

Table 13: DIP Switch Settings for the FC-2000

DIP Switch	Function
1	Relay Control --Set to OFF position.
2	Expanders Installed --Set this switch according to Table 14.
3	Expanders Installed --Set this switch according to Table 14.
4	Eight-Point Shift --Set the switch ON to shift the CPU-2000 functions from the first eight annunciator positions to expander positions 57-64. This shift can only be set on an annunciator set for Address 1.
5	Receive Only --Set this switch ON for each annunciator that provides the same information as another annunciator in a different location (when two or more annunciator hold the same address, all but one must be configured as "Receive Only" annunciators).
6	Piezo Disable --Set to ON position 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 serve as local Lamp Test switches only. In addition, the Acknowledge/Lamp Test switch functions only in a local capacity, unrecognized by the FC-2000.
8	Flash Inhibit --Set this switch to the ON position to disable the flashing of LEDs associated with unacknowledged events. <i>Flash Inhibit also disables the piezo from sounding.</i>

Table 14: DIP Switch Settings for Expanders

DIP Switch Setting	None	One Expander	Two Expanders	Three Expanders
2	OFF	ON	OFF	ON
3	OFF	OFF	ON	ON

The annunciator can be set for addresses 1, 2, 3, or 4. The actual mapping arrangement for a respective annunciator module and its expanders depends on FC-2000 annunciator programming.

Operating the ACM-16AT and ACM-32A with the FC-2000

Annunciator points "track" or follow those FC-2000 points they are programmed to annunciate. They do not latch. Table 15 outlines the annunciation of various FC-2000 circuits and functions.

Note: Control switches marked "not used" still function as local Lamp Test or local Acknowledge switches for their respective points.

Table 15: FC-2000 Annunciator Point Functions

	ACM-16AT and AEM-16AT Functions		
	ACM-32A and AEM-32A Functions		
Circuit Type	Red LED	Yellow LED	Control Switch (Note 2)
Modules			
<u>IZM-8 Circuit</u>	<u>Indicates alarm status of circuit (Note 6)</u>	<u>Indicates trouble status of circuit</u>	<u>Not used</u>
<u>ICM-4/ICE-4 Circuit</u>	<u>Indicates activation (Note 3)</u>	<u>Indicates trouble status of circuit</u>	<u>Control indicating circuit (Note 4)</u>
<u>CRM-4/CRE-4 Circuit</u>	<u>Indicates activation (Note 3)</u>	<u>Indicates trouble status of relay</u>	<u>Controls relays (Note 4)</u>
<u>TCM-2, TCM-4, VCM-4, DCM-4 Circuit</u>	<u>Indicates activation (Note 3)</u>	<u>Indicates trouble status of relay</u>	<u>Remote switch functions (Note 4)</u>
<u>AIM-200 zone (Note 5)</u>	<u>Indicates alarm status of circuit</u>	<u>Indicates trouble status of circuit</u>	<u>Not used</u>
CPU-2000			
<u>Annunciator Point No. 1 (Note 1)</u>	<u>Indicates system alarm</u>	<u>Indicates system trouble</u>	<u>Functions as an Acknowledge</u>
<u>Annunciator Point No. 2</u>	<u>Not used</u>	<u>Indicates that signals have been silenced</u>	<u>Functions as a Signal Silence</u>
<u>Annunciator Point No. 3</u>	<u>Not used</u>	<u>Not used</u>	<u>Functions as a System Reset</u>
<u>Annunciator Point No. 4</u>	<u>Not used</u>	<u>Indicates supervisory condition</u>	<u>Not used</u>
<u>Annunciator Point No. 5</u>	<u>Indicates that Indicating Circuit 1 has been activated</u>	<u>Indicates trouble status of circuit</u>	<u>Controls Indicating Circuit 1</u>
<u>Annunciator Point No. 6</u>	<u>Indicates that Indicating Circuit 2 has been activated</u>	<u>Indicates trouble status of circuit</u>	<u>Controls Indicating Circuit 2</u>
<u>Annunciator Point No. 7</u>	<u>Indicates that the remote signaling municipal tie has been activated</u>	<u>Indicates trouble status of circuit</u>	<u>Controls remote signaling municipal tie</u>
<u>Annunciator Point No. 8</u>	<u>Indicates that the alarm relay has been activated</u>	<u>Indicates module trouble, power failure, or disabled circuit(s)</u>	<u>Controls alarm relay</u>

Notes:

1. If the eight-Point Shift (DIP Switch 4) is set **ON**, the eight CPU (system control) functions are shifted from annunciator points 1-8 to points 57-64 (provided that those points exist in the system).
2. These controls 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. These Status LEDs are active only when the FC-2000 is programmed for “Output Status.”
4. These control switches require that the FC-2000 be programmed for “Output Control.”
5. The ACS annunciates the eight AIM-200 software zones only, not each addressable point on the AIM.
6. If an IZM-8 circuit is programmed on the FC-2000 as a supervisory point, both the red and the yellow LEDs illuminate for a supervisory condition. Illumination of the yellow LED alone indicates a trouble condition (open circuit) on the IZM-8 supervisory circuit.

**AIM-200 Point
Annunciation**

The CPU-2000 can be programmed for a alternate method of annunciating the AIM-200. Up to 192 intelligent devices can be annunciated on a single AIM-200 with ACM series annunciators on the RS-485 interface. The FC-2000 annunciates the AIM-200 installed directly to the right of the CPU-2000. Note that an annunciator cannot be used to execute manual ON/OFF control of intelligent AIM-200 points, only standard FC-2000 zones. The option provides annunciation of up to 256 points for the FC-2000, broken down as shown in Table 16.

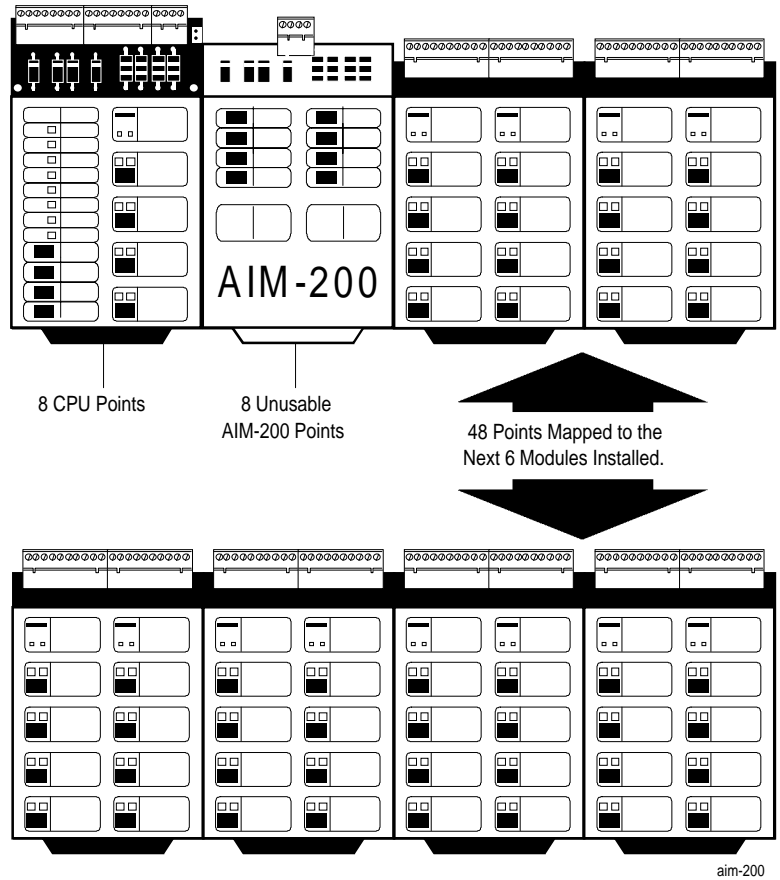


Figure 27: AIM-200 Point Location

Table 16: Point Annunciation for the AIM-200

<u>Annunciator Address 1</u>	8 CPU points (CPU point shift not an option). 8 unusable points. 48 points mapped to the next 6 modules installed in the FC-2000 (which can also be AIM-200s for annunciation of their 8 software zones).
<u>Annunciator Address 2</u>	Intelligent detectors, addressed 1-64 on the AIM-200 installed next to the CPU-2000.
<u>Annunciator Address 3</u>	Addressable Modules, addressed 1-64, on the AIM-200 installed next to the CPU-2000.
<u>Annunciator Address 4</u>	Intelligent detectors, addressed 65-96, followed by addressable modules, addressed 65-96, on the AIM-200 installed next to the CPU-2000.

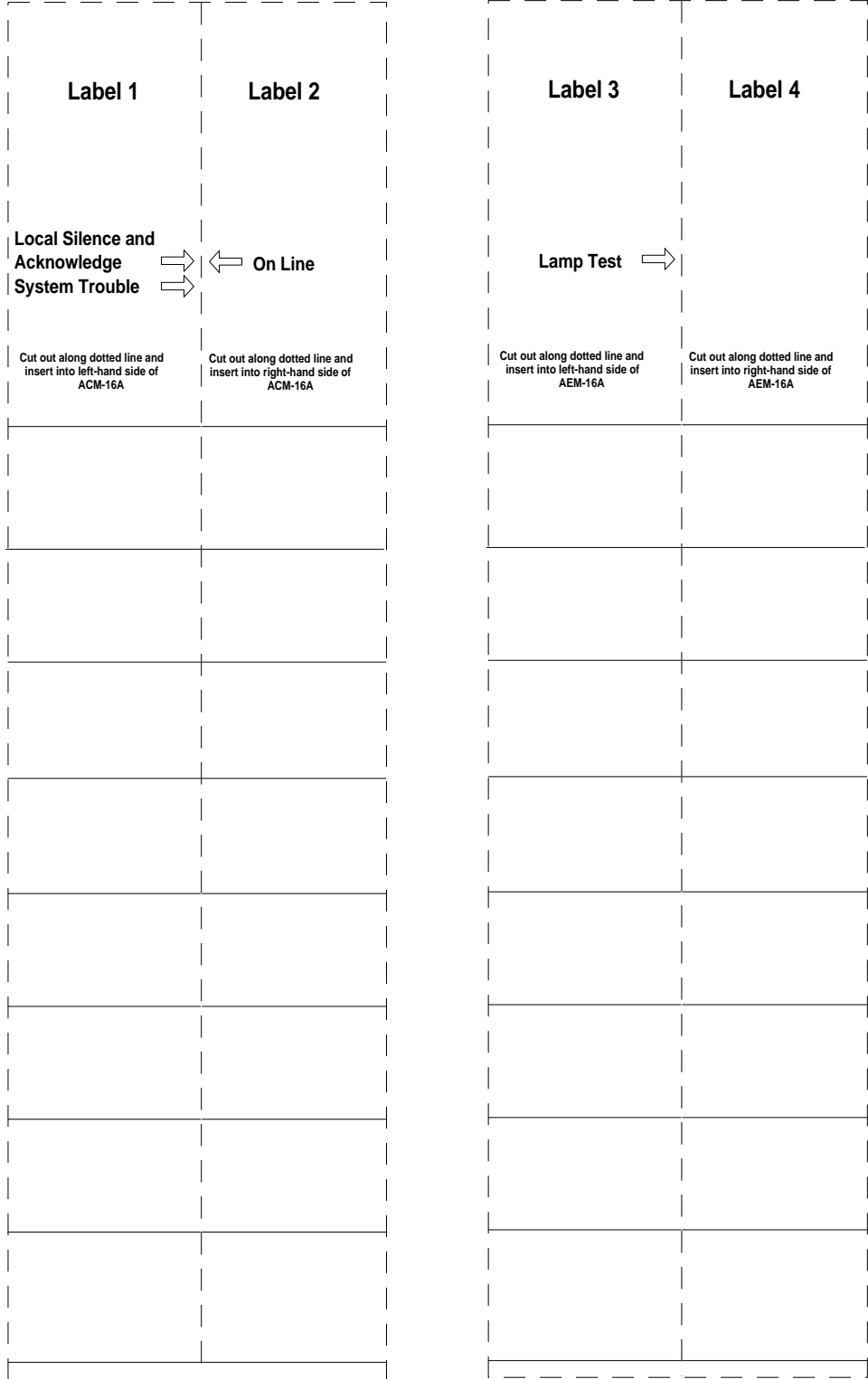
Refer to the *FC-2000 Technical Manual (FAN 406)* for programming instructions for this option. Refer to program choice “AIM(256).”

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

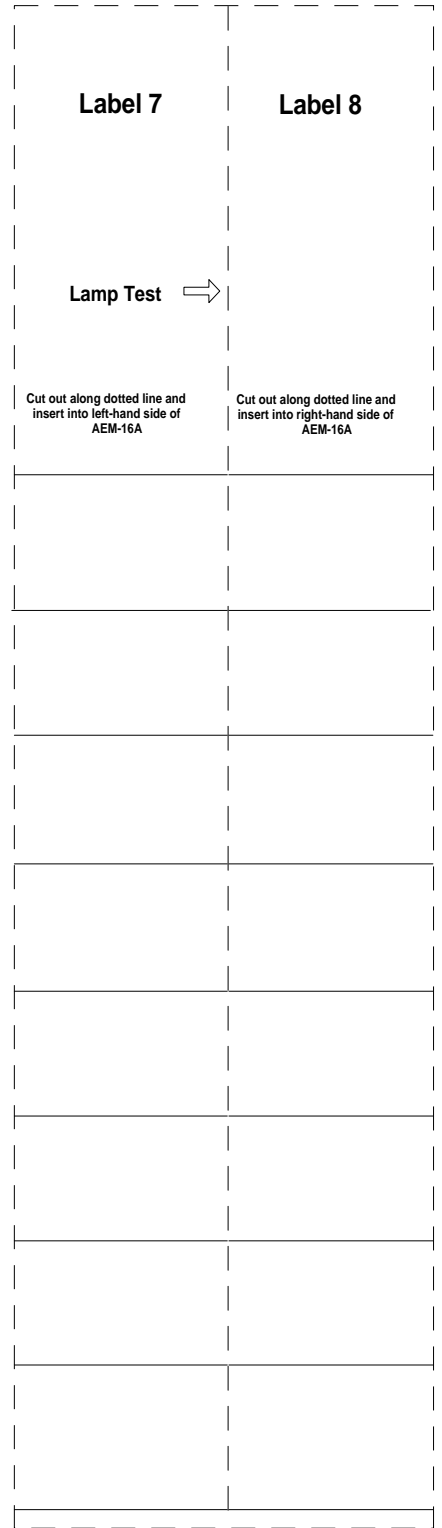
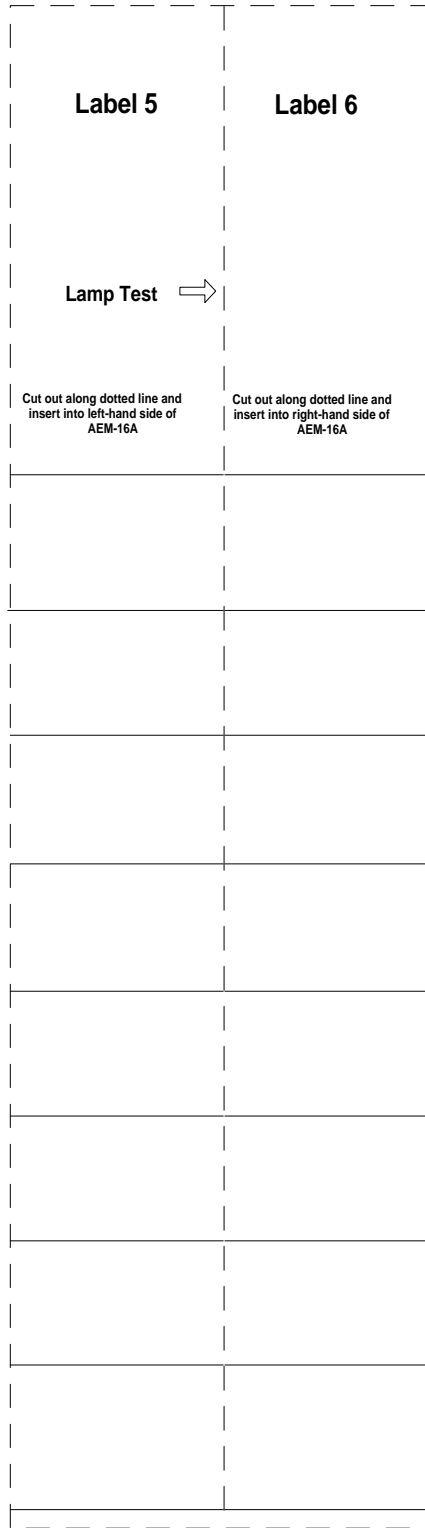
ACM-16AT and ACM-32A Labels

The following figures are copies of ACM-16AT/AEM-16AT and ACM-32/AEM-32A labels. Photocopy these pages for extra copies.

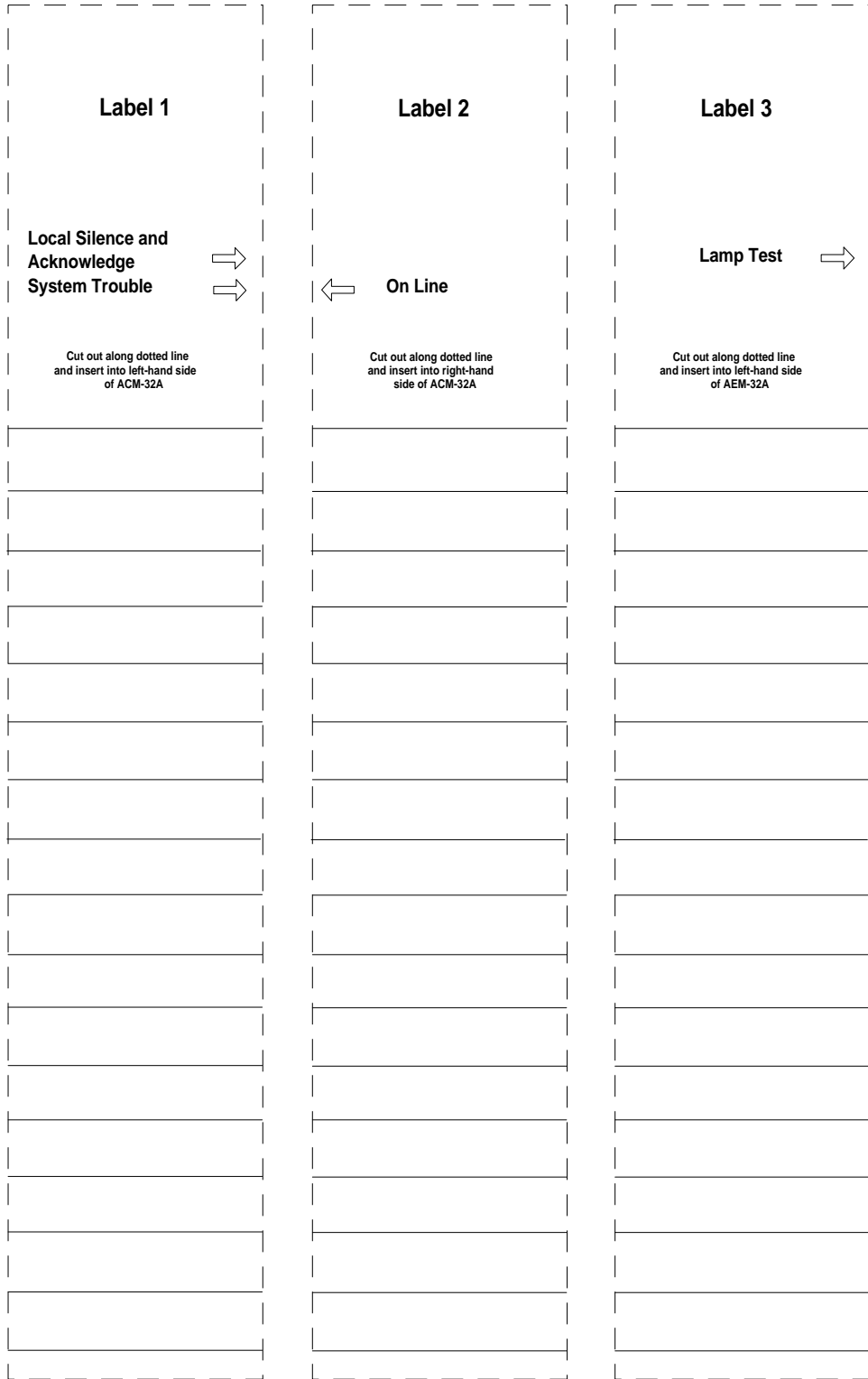
Note: The *label area* for each ACM-16AT/AEM-16AT *point* measures 1-1/16 in. wide by 11/16 in. high. The *label area* for each ACM-32A/AEM-32A *point* measures 5/16 in. high by 1-7/16 in. wide. If using a typewriter to label each point, there are 10 pica characters per inch and 12 elite characters per inch.



annlbs.drw



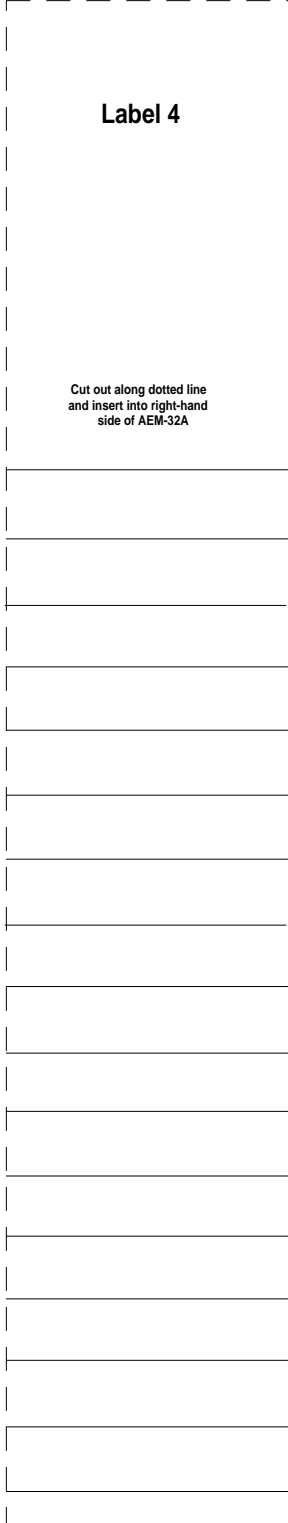
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Label 4

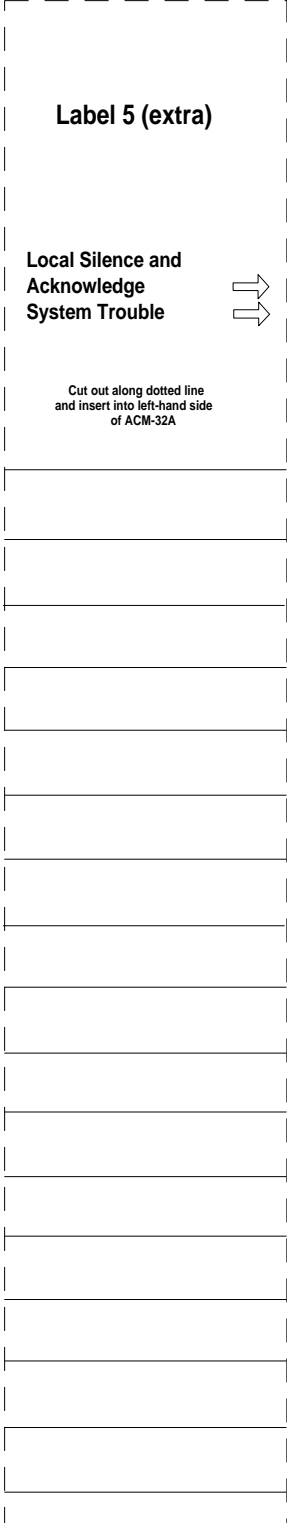
Cut out along dotted line
and insert into right-hand
side of AEM-32A




Label 5 (extra)

**Local Silence and
Acknowledge
System Trouble** 

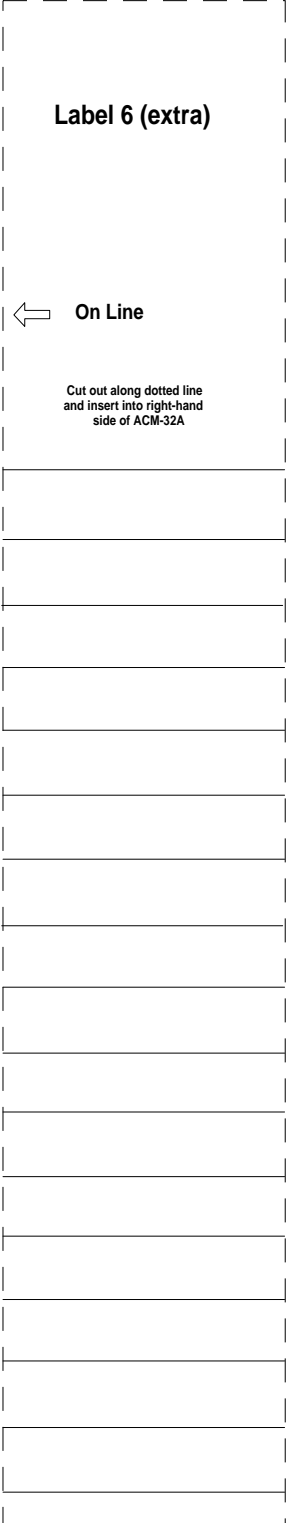
Cut out along dotted line
and insert into left-hand side
of ACM-32A



Label 6 (extra)

 **On Line**

Cut out along dotted line
and insert into right-hand
side of ACM-32A



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Notes

Notes

Notes



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