Annunciator Control Module
ACM-30(W)
Instruction Manual

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Fire Alarm & Emergency Communication System Limitations

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

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

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

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

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

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

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

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

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

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

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

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

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

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

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

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

Alarm Signaling Communications:

- **IP connections** rely on available bandwidth, which could be limited if the network is shared by multiple users or if ISP policies impose restrictions on the amount of data transmitted. Service packages must be carefully chosen to ensure that alarm signals will always have available bandwidth. Outages by the ISP for maintenance and upgrades may also inhibit alarm signals. For added protection, a backup cellular connection is recommended.
- **Cellular connections** rely on a strong signal. Signal strength can be adversely affected by the network coverage of the cellular carrier, objects and structural barriers at the installation location. Utilize a cellular carrier that has reliable network coverage where the alarm system is installed. For added protection, utilize an external antenna to boost the signal.
- **Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup alarm signaling connections are recommended.

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

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Software Downloads

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

Documentation Feedback

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

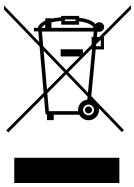
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- Topic Title (for online Help)
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This symbol (shown left) on the product(s) and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, contact your local authorities or dealer and ask for the correct method of disposal.

Electrical and electronic equipment contains materials, parts and substances, which can be dangerous to the environment and harmful to human health if the waste of electrical and electronic equipment (WEEE) is not disposed of correctly.

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Section 1: Product Overview

It is imperative that the installer understand the requirements of the Authority Having Jurisdiction (AHJ) and be familiar with the standards set forth by the following regulatory agencies:

- Underwriters Laboratories
- National Fire Protection Association

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

NFPA Standards

NFPA 72 National Fire Alarm Code
NFPA 70 National Electrical Code

Underwriters Laboratories Documents:
UL 864 Standard for Control Units for Fire Protective Signaling Systems
UL 2017 for General-Purpose Signaling Devices and Systems
UL 2610 Standard for Commercial Premises Security Alarm Units and Systems
ULC-S527-19 Standard for Control Units for Fire Alarm Systems
ULC-S524 - Standard for the Installation of Fire Alarm Systems

Other:
EIA-232E Serial Interface Standard
EIA-485 Serial Interface Standard
NEC Article 250 Grounding
NEC Article 300 Wiring Methods
NEC Article 760 Fire Protective Signaling Systems
Applicable Local and State Building Codes
Requirements of the local Authority Having Jurisdiction (AHJ)

This product has been certified to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, 10th Edition. Operation of this product with products not tested for UL 864, 10th Edition has not been evaluated. Such operation requires the approval of the local Authority Having Jurisdiction (AHJ).

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

1.1 General

The ACM-30(W) annunciator provides the Fire Alarm Control Panel (FACP) or Network Control Displaywith remote, serially-connected annunciators. Arrays of LEDs indicate, at a remote location, the status of addressable points within the system. The ACM-30(W) annunciators are designed to serve as full function annunciators which 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.

Common system functions such as signal silence, system reset, and local annunciation controls (local acknowledge and lamp test) are controlled through switches on the annunciator's keypad.

Communication between the FACP or Network Control Display and these annunciators is accomplished over a power-limited, two-wire serial interface called AIO and can be connected to both the main and local bus. Power for the ACM-30(W) is provided via a separate power-limited (class 2) power loop from the control panel which is inherently supervised by these annunciators (loss of power results in an annunciator communication failure at the control panel). These annunciators can also be powered from a power-limited and regulated remote power supply listed for fire-protective signaling use.

Refer to the FACP manual for maximum number of devices that can be used and configured as routers.

The capacitive touch keypad of the ACM-30(W) has 32 touchpoints. Touchpoints 1-30 have two LEDs. Top LED for touchpoint 1-30 on ACM-30W is fixed white color LED. Bottom LED for touchpoint 1-30 and LEDs for touchpoint 31 and 32 have programmable color option. All touchpoint LEDs on ACM-30 have programmable color option.Touchpoints 31 and 32 have one LED. All LEDs on ACM-30(W) can be programmed for red, green, yellow, amber, blue, cyan or purple. The keypad has 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. ACM-30(W) can be used to annunciate the status smoke control appliances and smoke control zones.

When enabled for Resound by Zone, a trouble indicator for a general zone shall flash for any trouble within the zone that is not acknowledged. Once all troubles within the zone are acknowledged, the trouble indicator for the general zone shall go steady.

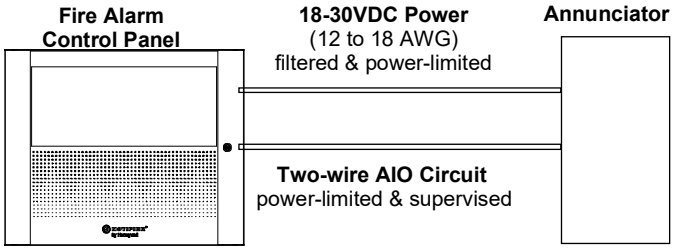
Power Requirements 18-30VDC, 93mA max current.

1.2 Limits

Refer to the FACP for annunciator limits on the AIO communication circuit, including those set as routers and peripherals. An end-of-line resistor must be installed or enabled on the last AIO device, router and peripheral, on each local AIO bus. The number of annunciators that can engage in two-way communication depends on the number of addresses available with the given FACP. The actual number of AIO devices that can be powered in a particular system depends on the current available from the control panel's power supply. Refer to the FACP's installation manual for more details.

1.3 Wire Runs

Communication between the control panel and ACM-30(W) annunciators occurs over a power-limited (class 2) 2-wire AIO serial interface. This communication is supervised by the FACP. Each annunciator also requires a power-limited (class 2) 24 VDC power connection. This power circuit is inherently supervised. Loss of power registers as a communication failure at the control panel. The ACM-30(W) can also be powered from a power-limited (class 2) and regulated remote power supply listed for fire-protective signaling use.



1.4 AIO Wiring Specifications

Wire the AIO circuit as shown in Section 2.8, “Power and AIO Circuit Connections”. All power must be turned off when connecting the annunciator. Wiring methods used shall be in accordance with Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681. These requirements must be followed:

- AIO wiring from the External Bus of the control panel to the Main Bus of the AIO device can be wired class A or class B (DCLB or DCLCA).
- AIO wiring from the Internal Bus of the control panel to the Main Bus of the AIO device can be wired class B (DCLB) only.
- Devices wired to the local AIO bus must be within 20 feet of the control panel and wired in conduit.
- The AIO circuit cannot be T-Tapped; it must be wired in a continuous fashion to function properly.
- 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 V_{RMS}, motor control circuits, or SCR power circuits.
- If annunciators are to be mounted in a separate cabinet or powered by a remote power supply, see Figure 2.6, “Using Multiple Power Supplies with the AIO Circuit”.

Please see N16 UL Listing Document - LS10239-051NF-E for additional information on AIO wiring limitations and lengths

1.5 Annunciator Power Requirements & Electrical Ratings

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 in Table 1.1.

Electrical Ratings

- Input Voltage: 18-30 VDC 93mA max current (must be power-limited and non-resettable).
  Use a regulated, power-limited, compatible power supply that is UL/ULC-Listed for Fire Protective Signaling use.
- Refer to the table below for current draw calculations:

Non-Fire Alarm Status A: On-line LED is on steady; all other LEDs are off
Number of ACM-30(W) modules [_____] X 0.030 = [_____] amps
Non-Fire Alarm Status B: On-line LED is on and illuminated white; other LEDs are also on and illuminated white
Number of ACM-30(W) modules assumed to have points active simultaneously [_____] X 0.083= [_____] amps
Total Annunciator Standby Current = [_____] amps
Fire Alarm Status (All LEDs are assumed to be on and illuminated white with Piezo sounding)
Number of ACM-30(W) modules assumed to be in alarm simultaneously [_____] X 0.093= [_____] amps
Note: This entry assumes that all LEDs are lit simultaneously. 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 modules multiplied by the number of remote annunciator locations, but do not enter less than one.
Total Annunciator Fire-Alarm Current = [_____] amps
Total Annunciator Standby Current + Total Annunciator Fire-Alarm Current = [_____] amps

Table 1.1 Current Draw Calculations

Section 2: Installation and Configuration

2.1 Installation Checklist

1. Use the programming tool associated with your FACP to create custom labels for the ACM-30(W) or cut labels from back of manual. (page 23)
2. Install labels into annunciator. (Section 2.3)
3. Mount and ground the cabinet or backbox. Install annunciator onto dress panel. (Section 2.4).
4. Connect shield for AIO circuit (Section 2.5).
5. Connect Earth Ground to a mounting screw on the backbox or cabinet (Section 2.6).
6. Mount tamper switchonto annunciators (Section 2.7).
7. Connect optional external piezo (AIO-PIEZO) to header P2 for ULC applications as described in ABB Installation Manual LS1024-000GE-E. Move the jumper on P7 from the internal piezo pins to the external piezo pins.
8. Make all electrical connections:
   – Power circuit (Section 2.8)
   – AIO circuit & End-of-line resistor (Sections 2.8 and 2.9).
9. Set module addresses and switches (Section 2.10).
10. Program the ACM-30(W) annunciators. Set LED colors to correspond with panel-programming selections (Section 3).
11. Test annunciators (Section 3.9).

2.2 Connectors and Switches

There are two different printed circuits board layouts for the ACM-30. The version can be identified by the part number on the top left of the board.The two versions are as follows:
- ACM2-30PCA, see Figure 2.1
- ACM2-30WPCB, see Figure 2.2

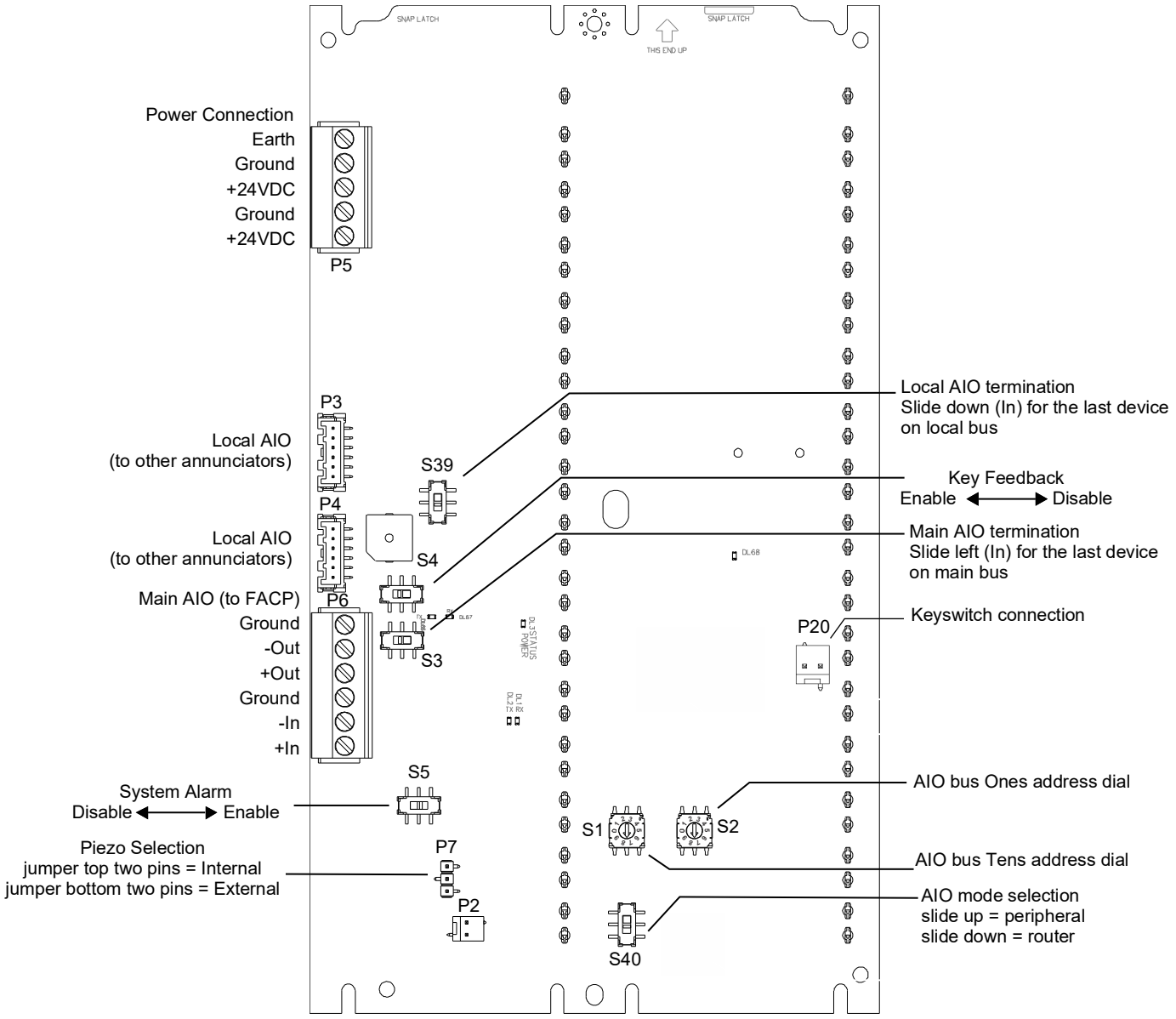


Figure 2.1 Rear View of ACM-30 (ACM2-30PCA)

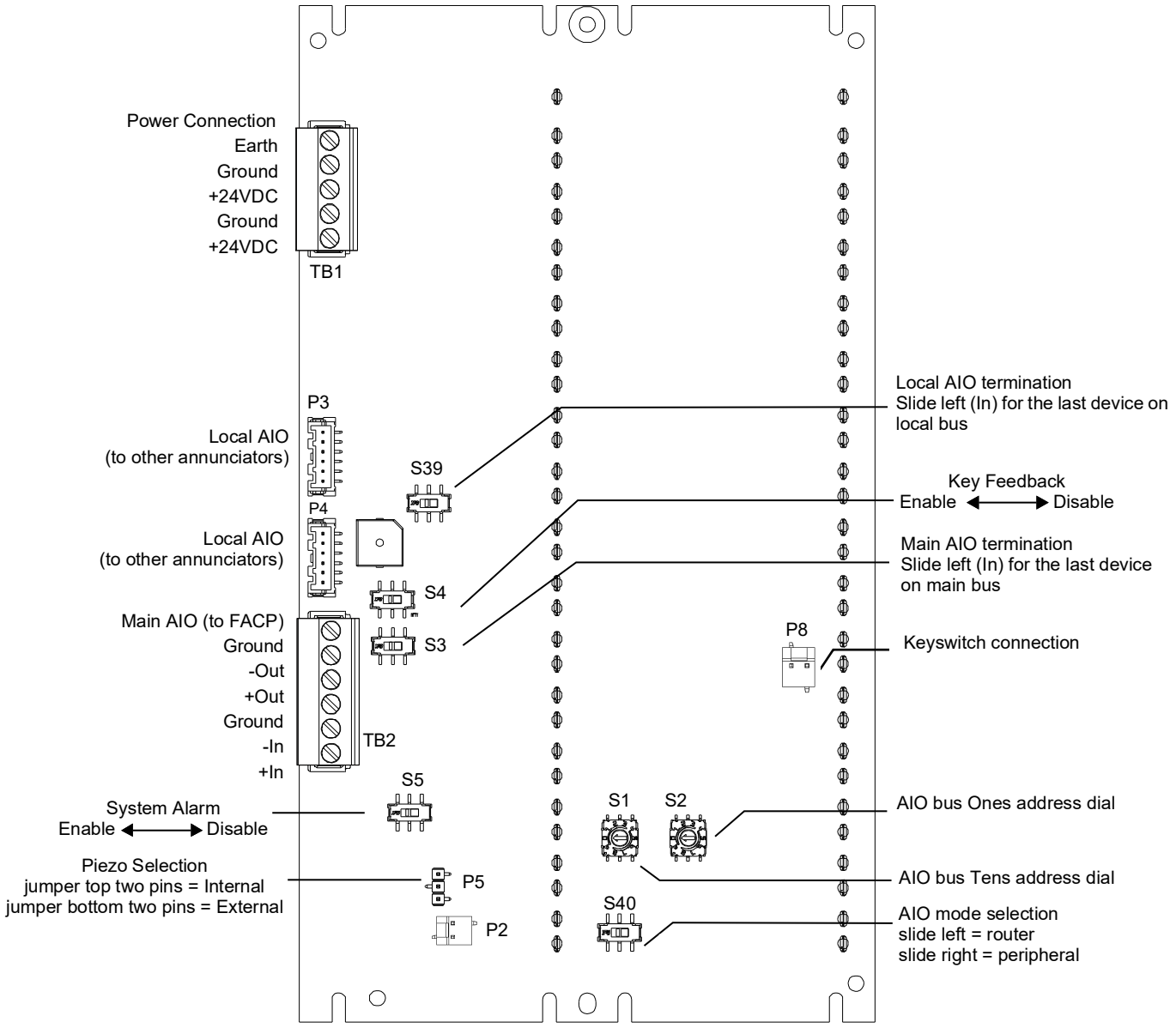


Figure 2.2 Rear View of ACM-30(W) (ACM2-30PCB or ACM2-30WPCB)

2.3 Labeling Annunciators

Remove the last pages of this manual. Carefully cut out the labels. Custom labels can be created using The programming tool associated with your FACP. To ensure the best fit, cut directly along the line surrounding each label. Labels should measure 1.625” x 7.875” (4.13cm x 20cm).

CAUTION: STATIC SENSITIVE COMPONENTS

THE CIRCUIT BOARD CONTAINS STATIC-SENSITIVE COMPONENTS. ALWAYS GROUND YOURSELF WITH A PROPER WRIST STRAP BEFORE HANDLING ANY BOARDS SO THAT STATIC CHARGES ARE REMOVED FROM THE BODY. USE STATIC SUPPRESSIVE PACKAGING TO PROTECT ELECTRONIC ASSEMBLIES

1. Remove nut from plastic post on the back of the ACM-30(W).
2. Gently pull up on plastic cover and pull out the ACM-30(W) PCB.
3. Insert the labels on top of the plastic label guard inside the unit.
4. Reassemble the ACM-30(W). Ensure the PCB is installed in the correct direction.

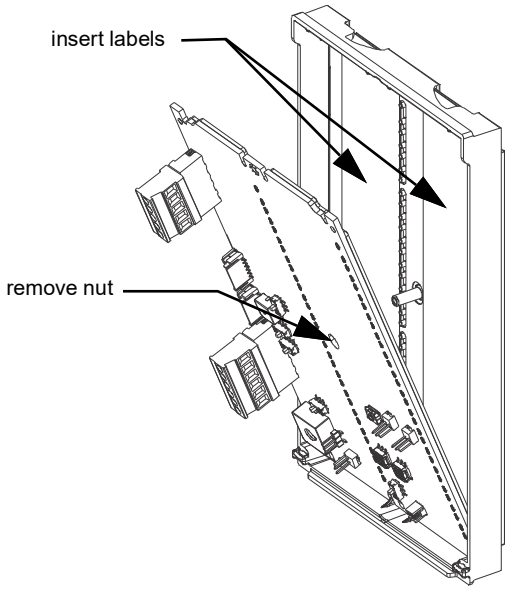


Figure 2.3 Installing Labels

2.4 Mount the Cabinet or Backbox and Install Annunciator

Please see compatible Control Unit manual for more information on compatible backboxes and cabinets.

2.5 Shielding the AIO Circuit

The AIO circuit must be wired using a twisted 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 Vrms, motor control circuits, or SCR power circuits.

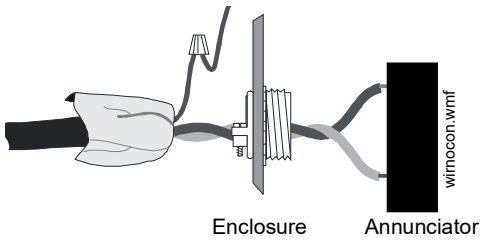


Figure 2.4 Terminating the Shield

NOTE: Shielded wire is not necessary but when it is used, the shield should be connected to system ground (not earth) at the FACP and ground on the Main AIO connector (P6 on ACM2-30PCA and TB2 on AMC2-30PCB) at the ACM-30(W). If the ACM-30(W) is using a remote power supply, the shield will serve as the AIO reference wire.

2.6 Earth Ground

Connect earth ground to a mounting screw on the backbox or cabinet. During mounting (see Section 2.4), the backbox or cabinet should have been connected to a solid earth ground such as a cold water pipe. Ground for the ACM-30(W) is on terminal P5/TB1.

2.7 Connecting the Annunciator Security Tamper Switch

The Security Tamper Switch input on the router may be used to connect to a switch on the cabinet door to prevent the touchpoints on the router or any peripherals from being active until the door is open. Leave the jumper (P20/P8) open to have the switch inputs always active. Connect a switch that will short the jumpers when the door is closed to disable the switch inputs.

To install the Security Tamper Switch, follow these steps (all parts identified are included in the STS-1 Kit):

1. Mount the tamper switch bracket (#50160134-001) onto the mounting stud in the upper left corner of the cabinet door using a #4-40 nut (#36045).
2. Install tamper magnet onto tamper switch bracket.
3. Install tamper switch with wire leads (#30113) onto the upper right corner of the dress plate on the cabinet.
4. Use wire nuts (16-22AWG Blue UL 105C #36039) to connect wire leads from the dress plate to the wire assembly (#75148).
5. Plug the Annunciator Security Tamper Switch on the cabinet into the Security Tamper Switch connector (P20/P8) on the ACM-30(W).

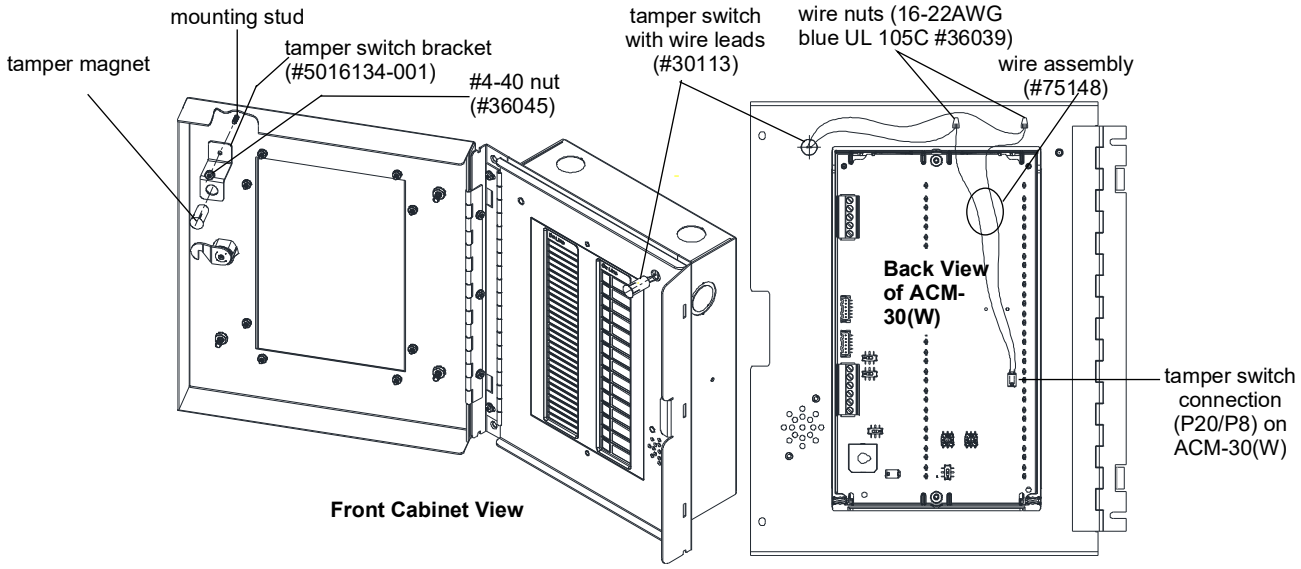


Figure 2.5 Connecting the Annunciator Security Tamper Switch

2.8 Power and AIO Circuit Connections

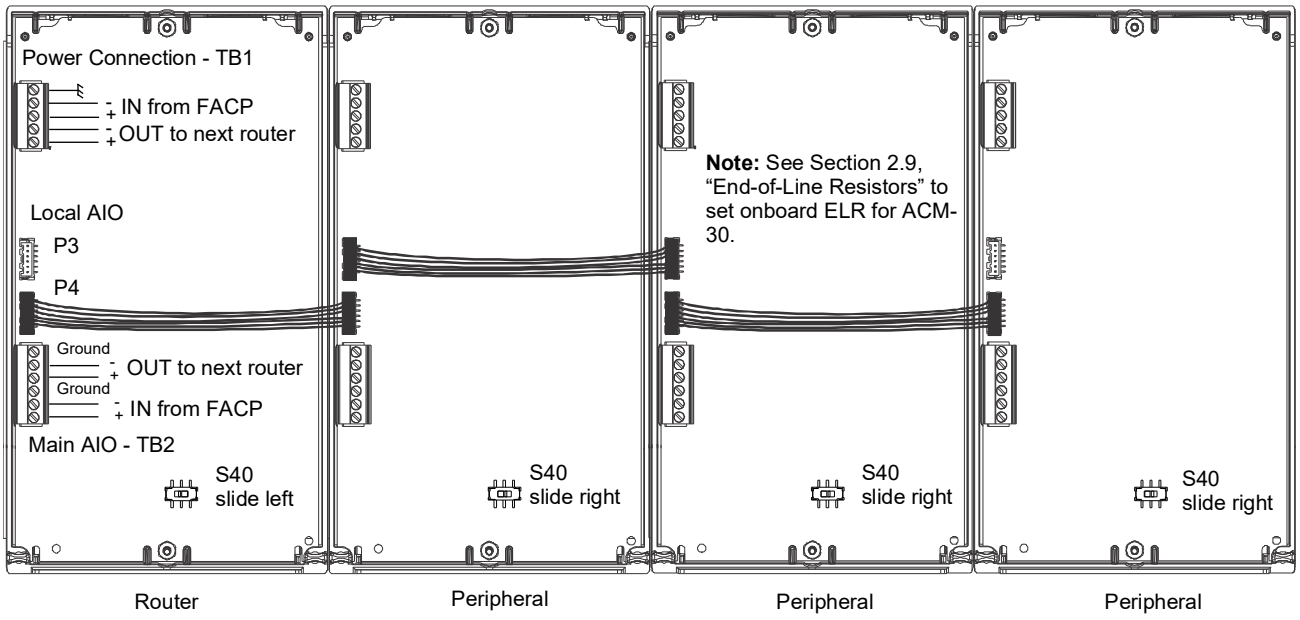
Select an appropriate knockout on the enclosure for the wiring to run through and snap it out. Pull all annunciator wiring into the enclosure. Connect annunciator wiring to the removable terminal blocks at this time. See Section 1.4 on page 7 for circuit requirements.

NOTE: All power must be turned off when connecting the 24 VDC power to the annunciator. Reapply power according to the instructions in the control panel manual.

The ACM-30(W) power source must be filtered, non-resettable, 24 VDC listed for fire-protective signaling use. Sources include FACP power supplies and auxiliary power supplies. The power run to the annunciator need not contain a power supervision relay because loss of power is inherently supervised through communication loss (AIO communication loss is registered at the control panel during loss of power to the annunciator).

Connector P6/TB2 is the Main AIO bus connection to wire the router to the FACP. Connectors P3 and P4 are used for the Local AIO bus to wire from the router to the peripherals and from peripheral to peripheral. These connectors are interchangeable, providing both power and data from the router. Use the 6” local AIO cable to wire ACM-30(W) annunciators in the same row of the cabinet. Use the 48” local AIO cable to wire annunciators on different rows of cabinets.

An Optional Kit (Part number AIO-CBL) can be obtained if additional rows of ACM-30(W) are required. The kit contains a longer cable to connect one row of ACMs to an adjacent row of ACMs and 4 interconnect cables (for connecting ACM in the same row).



Power and AIO Circuit Connections

NOTE: The image above shows the ACM2-30PCB. The S40 switch on the ACM2-30PCB is horizontal. The S40 switch on the ACM2-30PCA is vertical.

A common reference connection must be made between multiple power supplies for the AIO circuit to function properly.

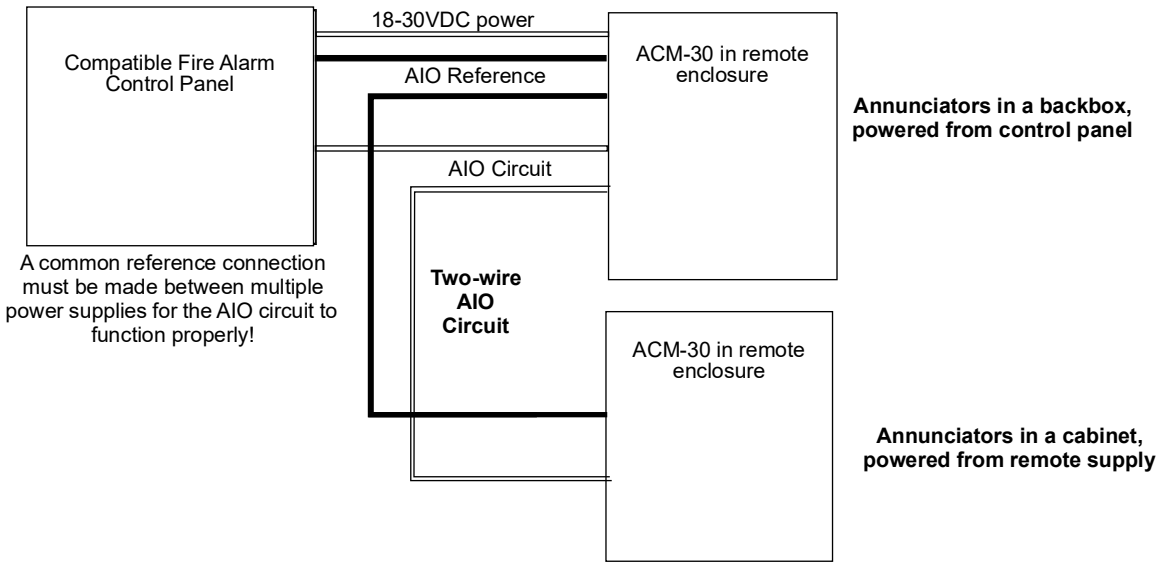


Figure 2.6 Using Multiple Power Supplies with the AIO Circuit

2.9 End-of-Line Resistors

The end-of-line termination resistor must be enabled at S3 on the last device on the Main AIO circuit. The end-of-line termination resistor must be enabled at S39 on the first and last devices on the Local AIO circuit. All other annunciators should have these switches set to disable. Refer to Figure 2.1 on page 10 for switch locations.

2.10 Setting Addresses and Switches

2.10.1 Addressing the ACM-30(W)

Set the address with rotary switches S1 and S2 on the back of the annunciator. Turn the arrow with a small flat-head until it points to the correct digit. S1 selects the Tens digit of the address. S2 selects the Ones digit of the address. Refer to Figure 2.1 on page 10 for switch locations. These addresses must match what is entered into the programming tool associated with your FACP's programming.

The system supports up to 10 router devices connected to the control panel using up to 10 unique addresses. Each router can have up to 15 peripheral devices connected to it. A total of 80 devices are allowed on the AIO circuit, including routers and peripherals.

Each device will have a router address and a peripheral address. For devices configured as routers, the peripheral address will be 0 and the router address will be what is selected by S1 and S2. For devices configured as peripherals, the peripheral address will be what is selected by S1 and S2 are the same between models and the router address will be the address of the router it is connected to.

Refer to your control panel documentation for valid addresses.

Ensure the AIO mode switch, S40, is properly configured for Router or Peripheral device.



NOTE: When the address is changed on the annunciator or a new annunciator is added, the FACP must be power cycled or the auto enroll button pressed on the FACP to register the change.

2.10.2 Keypad Feedback Piezo

If S4 is set to enable, The keypad feedback piezo allows for a sound when a touchpoint is pressed. Slide S4 left to enable and right to disable.

2.10.3 System Alarm Piezo

An onboard piezo will sound if the ACM-30(W) is in trouble or alarm. Ensure that the jumper on P7/P5 is on the top two pins, labeled "INT", to select onboard piezo. Refer to Figure 2.1 on page 10 for jumper location. For applications that require an external piezo, use P/N/# AIO-PIEZO.

Refer to Section 2.2, "Connectors and Switches" to enable/disable the system alarm piezo.

In the programming tool associated with your FACP, under AIO Board Settings, each ACM-30(W) has a general setting for "Enable Piezo Operation To Follow LED Blink Pattern." When that setting is checked, the System Alarm Piezo must be enabled. If the System Alarm Piezo is disabled when the operation is enabled in the programming tool associated with your FACP, the panel will generate an AIO ADDR n BUZZER SUPERVISORY trouble.

Section 3: Programming and Operations

3.1 Capabilities

Annunciators can be programmed to annunciate the status of addressable devices, general zones, logic zones, and several system control functions:

- Devices
  - Intelligent Detectors
  - Monitor and Control Modules
  - Addressable Manual Pull Stations
  - Wireless Devices
- Zones
- Logic Zones
- System Controls
  - None
  - Ack
  - Silence
  - Reset
  - Drill
  - Disable
  - Monitor
  - Control
  - All Call
  - Page Inactive
  - Page Evac
  - Page Alert
  - Telephone
  - Enable Paging
  - FFT-NFN
  - Display and Control (DCC)
- XP Series Transponder System
  - Power and Audio Supply Supervision
  - XP Series Form-C Alarm and Trouble Relays
  - Control, Monitor, and Relay Module Circuits
- Monitor Speakers for mapped PAM points
- Releasing Sub-addressing
  - Discharge
  - Cross
  - Pre-Discharge
  - Abort
  - Cross Abort
  - Soak Expire
- Water Releasing Sub-addressing
  - Discharge
  - Cross
  - Soak Expire
- Alarm Signal ON with control module
  - The Control Module can be mapped to the ACM-30(W) for another point in the system for activating the alarm signal.

3.2 Programming the Fire Alarm Control Panel for Remote Annunciation

Annunciator points must be programmed into the programming tool associated with your FACP before the annunciators will function. Refer to Section 2.10 for setting router and peripheral addresses. Each touchpoint on the ACM-30(W) can be programmed to either cooperate with its coordinating LEDs or to operate independently. All touchpoints and LEDs on ACM-30 are customizable where as on ACM-30W top LEDs for touchpoint 1-30 are fixed white and bottom LEDs are customizable. There is no fixed system function on the ACM-30(W). (For more information on how to program the annunciators into FACP memory, and to map system points and logic zones to annunciator points, refer to the *programming tool associated with your FACP's Help File*.)

Independent Mode of Operation Independent mode allows the touchpoint controls to work separately from each LED; each touchpoint and LED can be programmed for different points. Using Independent control, a single ACM-30(W) could have 62 point indicators.

Cooperate Mode of Operation Both LEDs perform indication for the point mapped to the touchpoint. The top LED annunciates the point active and the bottom LED annunciates the point in trouble or disabled on ACM30.

ACM-30(W) can be used to annunciate the status of smoke control appliances and smoke control zones.

Button Function \ Button or LED* Mapped Point	Local Zone Mapping	Node	Logic Zone	PMB NAC's	Detector	Module	Virtual Points	General Zone	SCA (Smoke Control Appliance)	SCZ (Smoke Control Zone)	Acknowledged Events	Unacknowledged Events	Detector Sub- Addresses	Releasing Zone State	Water Releasing Zone State	SCA State (Smoke Control Appliance)	SCZ State (Smoke Control Zone)
Ack	X																
Silence	X	X															
Reset	X	X															
Drill	X	X															
Disable			X	X	X	X		X	X	X							
Monitor*			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Control						X	X	X	X	X							
All Call	X	X															
Page Inactive		X															
Page Evac		X															
Page Alert		X															
Telephone						X											
Cancel			X														
Enable Paging		X															
FFT-NFN						X											
SCA On								X	X	X							
SCA Off								X	X	X							
SC Auto								X	X	X							
SCZ Purge								X		X							
SCZ On/Exhaust								X		X							
SCZ Pressurize								X		X							
SCZ Off/Isolate								X		X							
* LED points can only be programmed as a "Monitor" function																	

Table 3.1 ACM-30(W) Point Mapping Per Function

An "X" in the matrix for Table 3.1 indicates the types of points that can be mapped to a particular Button Function. See Section 3.2.1 for programming syntax of the different point types.

3.2.1 ACM-30(W) Point Programming Syntax

- General Zone: (Nx)Zy
  x=0-240, y=1-1999
- PMB NAC's: (Nx)PyNACz
  x=0-240, y=1-3, z=1-4
- Smoke Control Appliance: (Nx)SCAy
  x=0-240, y=1-650
- Smoke Control Zone: (Nx)SCZy
  x=0-240, y=1-650
- Detector Sub-Address: (Nx)LyDz.p
  x=0-240, y=1-10,z=1-159, p=
  - CO
  - HEAT
  - PHOTO
  - ALERT
  - ACT1
  - ACT2
  - FIRE1
  - FIRE2
  - UNSAFE
  - MONITOR
  - SAFE
- Releasing Zone State: (Nx)ZRy.z
  x=0-240 y=0-49, z=
  - DISCHARGE
  - FIRST ALARM
  - PRE-DISCHARGE
  - ABORT
  - CROSS ABORT (IRI Only)
  - SOAK EXPIRED
- Water Releasing Zone State: (Nx)ZWy.z
  x=0-240 y=0-99, z=
  - DISCHARGE
  - FIRST ALARM
  - SOAK EXPIRED
- Virtual Points: (Nx)Vy
  x=0- 240, y=0-510
- Smoke Control Appliance State: (Nx)SCAy.z
  x=0-240, y=1-650, z=
  - ON
  - OFF
  - TRANSITION OFF/AUTO TO ON
  - TRANSITION ON/AUTO TO OFF
  - TRANSITION ON/OFF TO AUTO
  - TROUBLE
  - NORMAL
  - AC FAIL
  - LOCKOUT
  - PENDING ON
  - PENDING OFF
  - SERVICE DISCONNECT
- Smoke Control Zone State: (Nx)SCZy.z
  x=0-240 y=1-650, z=
  - ON/EXHAUST
  - PRESSURIZE
  - OFF/ISOLATING

  - PURGE
  - TEST
  - ON/EXHAUST TIMER
  - PRESSURIZE TIMER
  - OFF/ISOLATING TIMER
  - PURGE TIMER, TEST
  - TIMER, IDLE, TROUBLE
  - NORMAL
  - AC FAIL
  - LOCKOUT
  - IDLE TIMER
- Acknowledged Events:
  - Event.FireAlarm
  - Event.COAlarm
  - Event.COPreAlarm
  - Event.Security
  - Event.CriticalProcess
  - Event.Supervisory
  - Event.Trouble
  - Event.PreAlarm
  - Event.Disable
- Unacknowledged Events:
  - Event.FireAlarmUnAck
  - Event.COAlarmUnAck
  - Event.COPreAlarmUnAck
  - Event.SecurityUnAck
  - Event.CriticalProcessUnAck
  - Event.SupervisoryUnAck
  - Event.TroubleUnAck
  - Event.PreAlarmUnAck
  - Event.DisableUnAck

3.3 Configurations for Specific Applications

The ACM-30(W) is a vital part of voice alarm applications. An ACM-30(W) allows for manual selection of speaker or telephone circuits and can provide common system annunciation of circuits and logic zones. Dedicated annunciators are required for each of the following specific types of applications:

- Common System Annunciation
- Speaker and Telephone Mode

3.3.1 Common System Annunciation

This remote annunciator must be programmed to annunciate the status of all points in the system, either by device/module, or by grouping points into general zones or logic 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.



NOTE: More than one monitor-type device may be programmed to a single annunciator point. This multiple-mapping of initiating devices will operate the point active and trouble LEDs of an annunciator point with Boolean “OR” functionality

3.3.2 Speaker Mode with the FACP

The ACM-30(W) may be used as an interface for the audio system when the FACP is configured as a network node in network display mode. The ACM-30(W) may be used to map speaker circuits to monitor their status, map to PAM points for monitoring or control, telephone points, and All Call functions.

3.4 Event Priority

The panel will use the highest priority event in the system that is mapped to that annunciator to appropriately control the pattern played by that annunciator. The telephone will be at a priority above trouble, but below all other events.

The ACM point monitor ZF43 shall light when there exists ground fault.

The ZF43 will activate when one or more of the conditions below are met. It shall deactivate when none of these conditions are met. The conditions are as follows:

- Fire Panel local power supply ground faults

- NFS2-3030 w/ AMPS-24 - point trouble
- NFS2-3030 LCM/LEM ground faults - system trouble

3.5 LED and Keypad Functions

The ACM-30(W) can be programmed for paging and message routing functions, with status LEDs for certain functions, and 32 user-programmable annunciator-type touchpoints.

NOTE: The ACM-30(W) can only be installed in Fire Evacuation applications and is not suitable for UL2572 MNS applications.

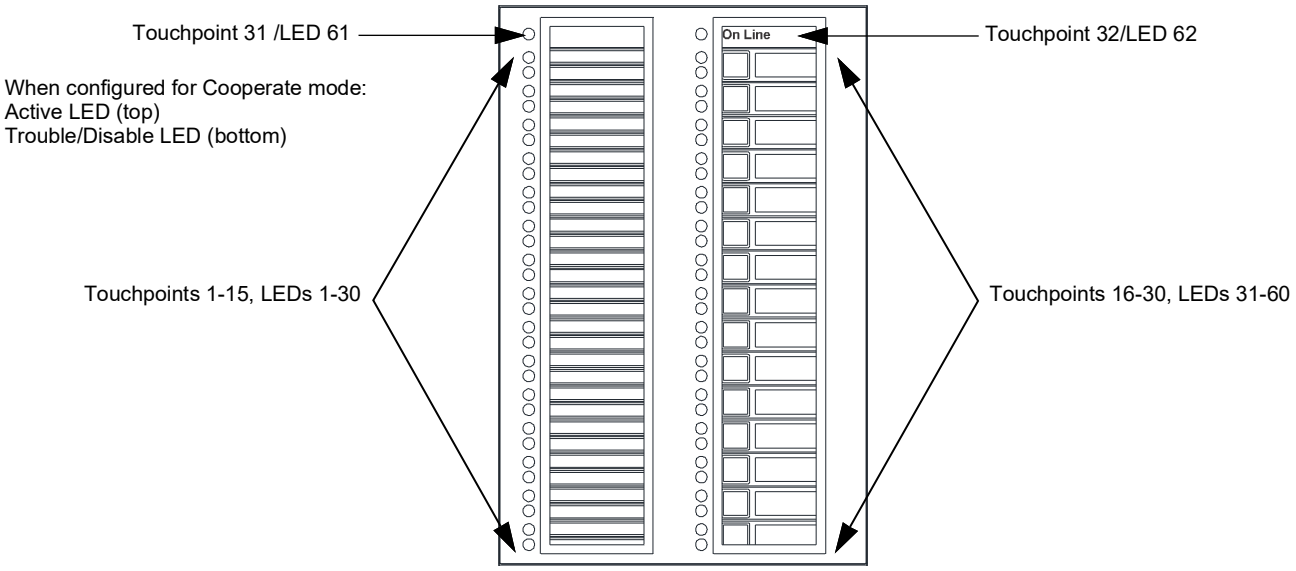


Figure 3.1 LED and Keypad-Switch Locations

Annunciator points "track" or follow those system points they are programmed to annunciate; the annunciator points do not latch. Table 3.2, below, lists how the ACM-30(W) annunciates various devices and functions.

Point Type	Active LED	Trouble LED	Disable LED	Control Switch
Control Module, XPC Circuit, XPR Circuit, DVC PAM Point, Telephone Point, NAC Circuits, XP5-C Circuit	Indicates on/off status of module or circuit	Indicates trouble status of module or circuit	Indicates disable status of module or circuit	Turns point on/off
Monitor Module, XPM Circuit, DVC Speaker Circuits	Indicates alarm status of module or circuit	Indicates trouble status of module or circuit	Indicates disable status of module or circuit	Not used
Intelligent Detector	Indicates alarm status of detector	Indicates trouble status of detector	Indicates disable status of detector	Not used
Logic, General or Special Function Zones	Indicates active status of zone	Not used	Indicates disable status of zones	Not used
All Call, Page Inactive, Page Evac, Page Alert, or Enable paging	Indicates on/off status of speaker circuit	Indicates trouble status of speaker circuit	Not used	Turns speaker circuit on/off
FFT-NFN	indicates on/off status of FFT	indicates trouble status of FFT	Not used	Turns phone circuit on/off
Acknowledge	Indicates System Alarm	Indicates System Trouble	Not used	Acts as ACKNOWLEDGE key
Signal Silence	Not used	Indicates Signals Silence	Not used	Acts as SIGNAL SILENCE key
System Reset	Not used	Not used	Not used	Acts as SYSTEM RESET key
Lamp Test	Not used	Not used	Not used	Acts as LAMP TEST key
Releasing and Water Releasing Sub-Addresses	Indicates active status of sub-address	Not used	Not used	Not used

Table 3.2 Annunciator Program Mapping with the FACP

NOTE: Control Switches marked "not used" will still function as local LAMP TEST switches for their respective LEDs.

NOTE: General Zones that are used as primary zones for detection points shall indicate the acknowledge/unacknowledged status via the LED when mapped to an annunciator point.

NOTE: When the operation mode is set to cooperate, the top LED will function as the active LED and the bottom LED will be shared between trouble and disable. When the operation mode is set to independent only one LED per point will be utilized and it is shared between Active/Trouble/Disable.

3.5.1 On-line LED

LED 62 will operate as an On-line indicator when not assigned a specific programming function. As the On-line LED, this LED will light green when the ACM-30 is connected to the panel. When the ACM-30 is offline, all LEDs including LED 62 will flash yellow. When ACM-30W is offline, top LEDs for each touchpoint will flash white and bottom LEDs will flash yellow.

NOTE: When a firmware update from the FACP to the ACM-30 is in process all LEDs, including LED 62 will flash blue. On the ACM-30W top LEDs for each touchpoint will flash white and bottom will flash blue.

3.5.2 Point Active LED

The Point Active LED turns on steady to indicate an active point. After being acknowledged, it glows steady until reset.

NOTE: In Speaker and Telephone Mode, this LED will flash to indicate an active point.

3.5.3 Point Trouble LED

The Point Trouble LED flashes to indicate a trouble situation. After being acknowledged, it glows until reset. If communication with the control panel is broken, *all* trouble LEDs flash.

3.5.4 Lamp Test

If touchpoint 31 on the ACM-30(W) is pressed and held for 2 seconds, it performs a lamp test for the annunciator. On ACM-30 LEDs flash red, green and blue and ACM-30W top LED for each touchpoint will flash white where as bottom LED will cycle through red, green and blue. Also piezo will sound if enabled as long as touchpoint is held down for lamp test.

3.5.5 Selecting LED Colors

Use the programming tool associated with your FACP to set color of the point-active, trouble, and disable functions of the LEDs. Color choices include red, yellow, green, amber, blue, cyan, and purple. On ACM-30W top LEDs for touchpoint 1-30 are fixed white color LEDs. Setting the LED to a blink pattern is also available. Refer to Section 2.10.3 for instructions on configuring the piezo to follow the blink pattern.

3.6 Piezo Enable

Enable the piezo for acknowledgeable events such as Alarms, Supervisory and Troubles. Off-hook telephone points will activate the piezo irrespective of this setting. The piezo will be supervised if this is selected or telephone points are assigned.

Function	Piezo
Fire Alarm	Steady pattern for unacknowledged events
Security	8Hz pattern for unacknowledged events
Supervisory	1Hz pattern for unacknowledged events
CO Alarm, Pre-Alarm, CO Pre-Alarm	2Hz pattern for unacknowledged events
Critical Process, Hazard/Weather Alert	1Hz pattern for unacknowledged events
Disable, Trouble	1Hz pattern for unacknowledged events
Telephone	8Hz pattern for unanswered points
Non-Fire Events (Speaker Activations, Zone Activations, Output Device Activations)	Not used

Table 3.3 Piezo Operation for FACP Functions

NOTE: The audible pattern will only be active for unacknowledged/unanswered events.

3.7 ACM-30(W) Set as Router

The router node shall function as the piezo representative for all peripheral nodes connected to that router,

NOTE: If the peripheral is configured but is offline; the router will still indicate the event.

3.8 ACM-30(W) Set as Peripheral

The piezo setting for the peripheral annunciator will control the router sounds for the events mapped to the peripheral.

NOTE: If the router or peripherals contain telephone points, or the peripherals have the piezo enabled for events, the router piezo must be supervised.

3.9 Canada Programming

A DCC is a node on a network which has command over one or more nodes. A node can only be commanded by one DCC. The DCC ensures that only one location at a time can be used to issue Acknowledge, System Reset, Signal Silence, Drill or Alarm Signal On commands. DCC also allows a user to request, grant or deny control of other nodes based on user approval from controlling node(s).

3.9.1 DCC Enabled

There can be more than one DCC in a network. A network may employ multiple command centers, each commanding different nodes at a given time. The DCC feature may be turned on or off through programming at each supported panel or through VeriFire.

When enabled on a connected NCD or N16, DCC will be automatically enabled the associated display panel which shall then participate with the host panel. DCC should be enabled in Canadian applications, and only disabled subject to AHJ approval.

The DCC feature may be turned on or off through programming through VeriFire tool in General settings of ACM-30

CAUTION: ON FIRE SYSTEMS UTILIZING THE DCC FUNCTION, ALL LOCATIONS THAT CAN PARTICIPATE IN DCC SHOULD BE SET TO DCC ENABLED.

NOTE: Refer to the compatible Control Unit manualor more information on DCC operation.

3.9.2 DCC Participation

A DCC participation setting is available on ACM-30(W) routers. When the DCC participation setting is enabled, the following will occur:

- All button functions will participate in DCC.
- The node will attempt to obtain control of all online, mapped nodes for any button press.
- The command will only execute if control is gained.

When DCC participation is not enabled for the ACM-30(W), the following will occur:

- Only Acknowledge/Silence/Reset/Drill functions require control to execute.
- A popup window on the panel will appear when control is requested as a result of an ACM-30(W) button press, accompanied by a piezo chirp.
- The ACM-30(W) has the ability to perform a local acknowledge of the piezo and flashing LEDs, programmable through VFT.

Displaying which DCC node is In Control:

At each node, there must be an ACM-30(W) that has a point mapped for each participating DCC Node, using the programming function NxZF36 where x = Node Number. ZF36 will evaluate true for only the node that is in control.

3.10 Testing the Annunciators

After programming, fully test the annunciator to ensure that each switch performs its intended function, that each LED lights in the correct color, and that the annunciators can perform the functions outlined in this manual. Perform a lamp test to ensure all LEDs light correctly.

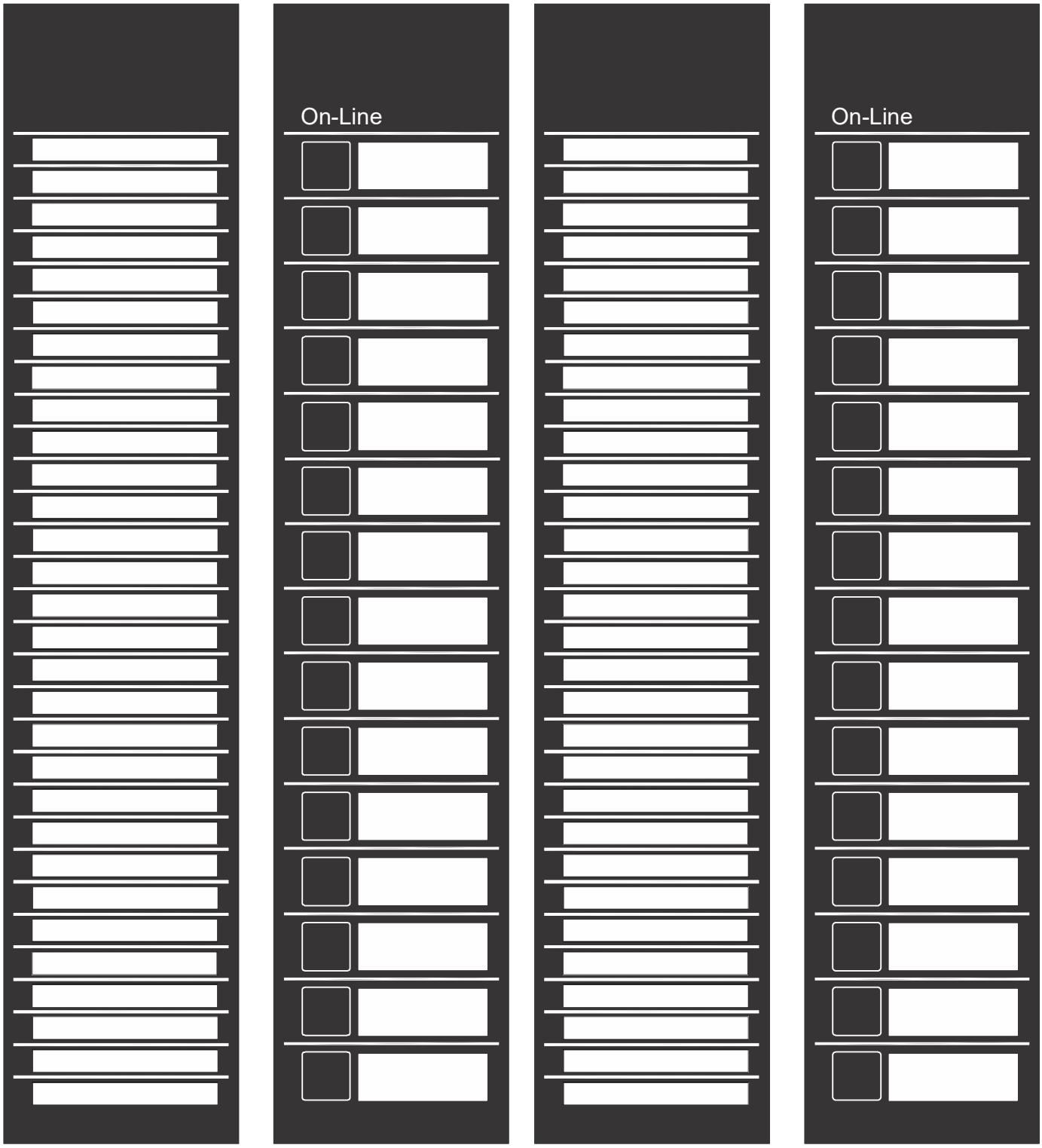
3.11 FSAE (Fire Service Access Elevator)

The ACM-30(W) can be used as an FSAE annunciator. Please see compatible Control Unit manual for more information on programming this feature.

Annunciator Label

The template below is a guide for the touchpoint/LED assignment on the ACM-30(W). NOTE: Make sure to choose “Actual Size” setting when printing a copy of the ACM-30(W) label page. Cut labels carefully. Each label should measure 1.625" x 7.875".

Since the ACM-30(W) is fully customizable, custom labels can be created using the programming tool associated with your FACP.



Cut along dotted line.

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