



# Fire Alarm Control Panel Model FC2005

Installation, Operation and Maintenance Manual

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# INTRODUCTION

## CONTROL PANEL LIMITATIONS

This control panel may not show an alarm condition without compatible initiating devices (smoke detectors, etc.) and notification devices (horn, strobes, etc.) connected to it. Electrical ratings of the initiation and notification appliances must be compatible with the electrical ratings of the control panel and must be properly interconnected. The wiring used for interconnection must be large enough to carry the total current for all appliances without excessive voltage drop.

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

The control panel must also have connected to it a battery set (24V) that has enough capacity to properly operate the system for the following conditions:

- 24 hours standby and 5 minutes fire alarm in US
- 24 hours standby and 4 minutes CO alarm and 12 hours extended CO alarm (at up to 60 s intervals) in US
- 24 hours standby and 30 minutes alarm in Canada

These batteries do lose capacity with age. Batteries must be replaced when they fail to provide the control panel with the required standby and alarm power or after 4 years, whichever happens first. These batteries must be checked for performance at least two (2) times a year or more often if local requirements dictate.

Even though this control panel was made to last for the expected life of the fire alarm system, any part could fail at any time. Therefore a regular test program should be followed and documented to make sure that each part of the system is tested as in Chapter 7 of NFPA 72 or more often if dictated by local code requirements. Malfunctioning units must be replaced or repaired immediately by factory authorized service personnel.

### **Note:**

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

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

**NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES**

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.

<b>Program Feature or Option</b>	<b>Possible Settings</b>	<b>Settings Permitted in UL 864</b>
Supervision/Trouble Resound	Not enabled 0-30 hours	Yes 1-24 hours
DACT Phone Line Settings	Disable 1 phone line connection	Enable both phone line connections
Manual Release delay	10-60 seconds	10-30 seconds
DACT supervision time	1 hour, 6 hours and 24 hours	6 hours or less

**NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES**

This product incorporates field-programmable software. In order for the product to comply with the requirements in CAN/ULCS527, Standard for Control Units for Fire Alarm Systems, certain programming features or options must be limited to specific values or not used at all as indicated below.

<b>Program Feature or Option</b>	<b>Possible Settings</b>	<b>Settings Permitted in CAN/ ULC-S527</b>
Supervision/Trouble Resound	Not enabled 0-30 hours	Yes 1-24 hours
DACT Phone Line Settings	Disable 1 phone line connection	Enable both phone line connections
Manual Release delay	10-60 seconds	10-30 seconds
Panel Buzzer On	Check/Uncheck (default)	Uncheck

## PREFACE

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

National Electrical Code, NFPA 70;

National Fire Alarm Code, NFPA 72;

Clean Agent Fire Extinguishing Systems, NFPA 2001.

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

For NFPA publications, contact:

National Fire Protection Association  
Batterymarch Park  
Quincy, Massachusetts 02269

## FCC PART 68 WARNING

1. This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On bottom of this equipment is a label that contains, among other information, a product identifier of [US: 02XAL00BFCM901]. If requested, this number must be provided to the telephone company.
2. If this equipment FC2005 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
3. The telephone company may make changes in this facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modification to maintain uninterrupted service.
4. If you experience trouble with this equipment, you disconnect it from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.
5. Please follow instructions for repairing if any (e.g. battery replacement section); otherwise do not alternate or repair any parts of device except specified.
6. Connection to party line service is subject to state tariffs. Contact the state public utility commission public service commission or corporation commission for information.
7. If the telephone company requests information on what equipment is connected to their lines, inform them of:
  - a) The telephone number that this unit is connected to,
  - b) The ringer equivalence number [0.0B]
  - c) The USOC jack required [RJ11C], and



d) The FCC Registration Number [US:02XAL00BFCM901]

Items (b) and (d) are indicated on the label. The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

## INDUSTRY CANADA STATEMENT

### **Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada CAN ICES-3 (A) / NMB-3 (A)**

#### **Industry Canada (IC CS) – Canada**

**NOTICE:** This product meets the applicable Industry Canada terminal technical specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not guarantee the equipment will operate to the user's satisfaction.

**AVIS:** Ce produit est conforme aux spécifications techniques terminales applicables d'Industrie Canada. Cette conformité est confirmée par le numéro d'enregistrement. Le sigle IC, placé devant le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique quelles spécifications techniques d'Industrie Canada ont été respectées. Il ne garantit pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

**NOTICE:** The Ringer Equivalence Number (REN) for this terminal equipment is 0.1. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

**AVIS:** L'indice d'équivalence de la sonnerie (IES) du présent matériel est de 0.1. L'IES assigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent être reliés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

## SERVICE REQUIREMENTS

In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. Service can be facilitated through our office at:

SIEMENS INDUSTRY, INC. – SMART INFRASTRUCTURE DIVISION – FIRE SAFETY  
8 FERNWOOD RD., FLORHAM PARK, NJ 07932  
+1-800-248-7976

# DESCRIPTIONS

## FC2005 SYSTEM DESCRIPTION

The FC2005 is a compact but powerful standalone fire alarm control panel. It features advanced addressable fire detection, keypad and offline programming, notification circuits, a 160 by 64 dots LCD display and event history retention capability. It's typical configuration includes a power supply, a signaling addressable device circuit, two notification appliance circuits (NAC), Digital Alarm Communication Transmitter (DACT), four system status relays and a USB programming port.

All the components of the FC2005 control panel are mounted in an 18.1" x 16.5" enclosure. The FC2005 has only one electronic main board which integrates most functional parts together (the CPU board is mounted to main board before delivery), including DACT, System Display, signaling line circuit, NAC, serial interface circuits, system status relays, programming port and battery charging circuit. The main board is mounted on the supporting frame, and it provides the connections for external field wiring. An optional city tie module can be mounted on the backside of the main board. The power supply is located under the main board and supporting frame.

The FC2005 supports English, French and Spanish operation menu for user selection. When the tool language changes from English to French or Spanish, it is recommended, but not necessary, to create a new French or Spanish configuration and upload it to the panel.

The FC2005 features one LCD screen which is used to indicate the specific indications for system events while LEDs indicate general panel status.

FC2005 supports surface mounting and semi-flush mounting. Semi-flush mounting kits are available for the enclosure.

System status information is provided by a 160 by 64 dots (7 by 26 characters), backlit LCD and by discrete LED indicators for major control panel functions.

The LCD is used to display event data, including alarms and troubles conditions, zone or device custom identification of messages, and a log of the system event history. A back light is included in the display to assure visibility in low light. To conserve power, the back light is only activated during a reported event or on operation of a display control button.

Individual LEDs on the panel are provided to indicate:

in US: ALARM, Power, Silenced, Trouble, Supervisory, Ground Fault and Audibles On;

in Canada: ALARM, Power On, Signal Silence, Trouble, Supervisory, Ground Fault and Alarm Signal.

Direct push-button controls are provided for:

in US: Reset, Acknowledge/Buzzer Silence, Silence/Unsilence, Programmable, MENU, OK, C (cancel) and a four-way button for menu navigation;

in Canada: Reset, Acknowledge/Buzzer Silence, Signal Silence/Unsilence, Alarm Signal Activation, MENU, OK, C (cancel) and a four-way button for menu navigation.

## Power Supply

A 26 V (nominal) power supply provides all operating power to the control panel for both standby and alarm conditions. Sufficient battery charging capability is available to charge 12 Ah for Canada, 12 - 18 Ah for US sealed lead-acid batteries within code requirements for up to 24 hours of normal standby operation plus 5 minutes of alarm operation (30 minutes alarm operation for Canadian installations). The battery will be automatically disconnected at low battery voltage to prevent deep discharge and battery damage.

## Signaling Line Circuit (SLC)

The FC2005 fire alarm control panel provides a signaling line circuit with the capacity of 50 addressable devices.

## Notification Appliance Circuits

The FC2005 control panel has two independent notification appliance circuit (NACs). It can be configured as two Class B NACs or one Class A NAC. Each circuit can be selected to give continuous output or one of five sounding patterns. There is also a system coder capable of zone operation. All of the NACs are power limited and support synchronization of listed devices using the Siemens sync protocol.

## Serial Interface Circuit (UFP)

The FC2005 control panel has a Serial Interface Circuit that can connect up to 8 devices, e.g.: remote LCD annunciators, LED driver/tabular annunciator or remote printer module.

## Status Relays

Four relays with dry contacts are provided. Three relays are dedicated to alarm, supervisory, and trouble conditions on the panel. The remaining relay is programmable. The relay contacts are Form C and are rated for 2 A @ 30 VDC resistive.

## Programming Port

A USB standard type B plug is provided for temporary connection to a computer for panel programming and firmware download when using the FXS901-U2 System Configuration Tool.

## DACT

The Digital Alarm Communication Transmitter (DACT) is integrated on the FC2005 main board and it will send control panel status information to a central or remote receiving station through the Public Switched Telephone Network (PSTN).

## Programmable Key

Press the programmable key to execute the user defined and configured functions. Supported functions are: DACT bypass, Addressable device bypass, NAC bypass, Fire drill, Manual evacuation, Co test and Lamp test.

## OPTIONAL MODULES

### City Tie Module (FCI2020-U1)

The city tie module provides local energy and polarity reversal connections. The polarity reversal connections provide a trouble circuit and an alarm circuit with optional trouble output. The city tie board mounts onto the main board.

## Battery Sets

The FC2005 control panel can only use rechargeable sealed lead-acid batteries for back-up power. The battery charging capacity is 12 Ah for Canada and 12 - 18 Ah for US.

## Remote Printer Module (FCA2018-U1)

The Model FCA2018-U1 is a Universal Fire Protocol module that interfaces to a parallel printer. It must be located where there is access to the fire system's serial interface circuit network. Up to 2 FCA2018-U1 may be addressed by the communication circuit.

The Model FCA2018-U1 is required whenever a logging printer is needed. It translates the serial interface circuit messages into a standard printer interface. When the PAL-1 is used with the RPM (FCA2018-U1), the RPM supervises the printer for on/off line, power on, paper out, paper jam, and wiring fault conditions, as required by Underwriters Laboratories for NFPA 72 proprietary systems.

**Note: For printer connection, wiring between the RPM and printer must be in conduit within 6 feet and in the same room as the panel.**

## AUXILIARY MODULES

### Serial LCD Annunciators

The FSD901 Serial LCD Annunciator consists of a backlit 160 by 64 dot (7 by 26 characters) LCD display, acknowledge, silence, unsilence, and reset buttons, a four-way button for event navigation, seven system status LED indicators and a security key switch. To prevent unauthorized system operation, the control buttons are only enabled when the key switch is activated. The display and controls of the FSD901 are the same as those on the front of the control panel. The backlight activates only upon active button press or when events are present in the system to conserve power.

### FT Series LED Driver/Annunciators

The FT Series LED driver/annunciator includes five options:

- FT2007-U1
- FT2008-U1 and FT2008-R1
- FT2009-U1 and FT2009-R1
- FT2018-U1 and FT2018-R1
- FT2019-U1 and FT2019-R1

The FT2007-U1 is a LED driver for use in graphic annunciators.

The information of the rest annunciators is displayed in the below table:

Product	Zones	System status LEDs	Buttons
FT2008-U1/R1	16	7	Audibles On/Silenced Acknowledge Signal Reset Lamp Test
FT2009-U1/R1	32	7	Audibles On/Silenced Acknowledge Signal Reset Lamp Test

FT2018-U1/R1	16	6	N/A
FT2019-U1/R1	32	6	N/A

Up to 8 annunciators may be addressed by the communication circuit. Each annunciator requires connection to the Serial Interface circuit on the mainboard.



For installation in Canada, the FT2018-U1/R1 or FT2019-U1/R1, only one can be and must be installed adjacent to the panel and interconnection must be in metallic conduit.



For installation in Canada, a separate ULC listed power supply (PAD-4 or PAD-5) must be installed adjacent to the FC2005 or FC901 panel to power the FT2018-U1/R1 or FT2019-U1/R1 annunciator. See Appendix N for PAD-4 Wiring Instruction.



When configuring the FT2018-U1/R1 or FT2019-U1/R1 for Canadian applications, it must be programmed as a local device so that lamp test can be initiated from panel.



When annunciator FT2018-U1/R1 or FT2019-U1/R1 is connected to a Canadian panel, the buzzer on the panel must be disabled (panel buzzer ON must be unchecked)

#### Battery Housing (FH2072-UA)

FH2072-UA is used to install batteries separately. Supported batteries are: 12 Ah for Canada and 12 - 18 Ah for US.

#### Universal Enclosure for Annunciators (FTH2073-UA)

FTH2073-UA is used to install annunciators.

Supported annunciators are: FT2008, and FT2009.

## SLC ADDRESSABLE DEVICES

### Smoke Detector

The control panel processor sends the sensitivity settings to the detectors and polls the detectors for their status. The detector determines normal, trouble and alarm conditions and communicates the conditions to the control panel.

Variable Thresholds - The detectors can be set to operate in various pre-programmed profiles, depending on the environment where the detectors are used.

Operator Alerts - The control panel can indicate a trouble event automatically on the occurrence of a number of conditions of the detector. The supported conditions include:

- Channel Active
- Un-configured Device
- Device Type Mismatch
- Device Communication Trouble
- Address Invalid
- Address Unspecified
- Multiple Device Response
- Parameter Error
- Device Type Unknown
- Fatal Fault
- General Trouble
- Dirty
- Replace

### Heat Detectors

Addressable heat sensing detectors may be intermixed on the circuit for locations where heat sensing may be the most effective detection method. The heat detectors may be programmed for rate of rise operation or fixed temperature.

### Addressable Modules (Monitor and Control)

In addition to detectors, the circuit can communicate with addressable monitor and control modules. Monitor modules allow remote contact closure initiating devices to generate event conditions on the system. Control modules provide the system remote relay outputs or notification appliance circuits

### Manual Stations

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

### Sounder Base

The ABHW-4B and ABHW-4S are the intelligent supervised audible based which provides 6 selectable tone patterns, 2 volume levels and 2 different power types for alarm.

The 6 tone patterns supported by the ABHW-4B and ABHW-4S are: Steady, Temporal 3, Temporal 4, Temporal 4 low power, March time 120 and Canadian March time 30.

When the audible base ABHW-4B and ABHW-4S is used with Global ASA/FD182UL detectors, it can be programmed to 2 output channels, and up to 6 tone patterns can be selected using

the system configuration tool. When users need to disable the audible base, they will need to select the “disable audible base” option.

When the audible base ABHW-4B and ABHW-4S is used with H/8700 series detectors, it can be programmed to 1 output channel, and only 2 tone patterns (steady, temporal 3) can be selected using the system configuration tool. When users need to disable the audible base, they will need to select the “disable outputs” option.



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When users need to disable the ABHW-4B and ABHW-4S audible bases connected to the entire loop consisting of H/8700 series and Global ASA/FD182 detectors, they will need to select both the “disable outputs” and “disable audible base” options.

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There are two methods for powering the audible base during alarm. They are “Loop powered” and “External powered” which can be configured using the system configuration tool. The ABHW-4B can be powered by loop power and external power, the ABHW-4S can only be powered by external power.

For additional information please refer to installation manual of ABHW-4B (A6V10405587) and ABHW-4S (A6V10405588).



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When using external power source, the power supply unit must be UL Listed for fire use only, Power Limited and rated 19-28 VDC.

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Audible signals are synchronized on zone basis.

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Use sounder base in addition to panel NAC or PAD5 NAC when multiple alarm tones are needed in one zone.

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## Programming SLC Devices

SLC devices can be assigned their electronic address and be tested by using the DPU Device Programmer/ Loop Tester.

### PAD-5

The Model PAD-5 Main board is an intelligent notification and auxiliary power expander that provides up to 9 A @ 24 VDC (with FP2012-U1) or 6 A @ 24 VDC (with FP2011-U1).

The purpose of the PAD-5 main board is to provide remote power for notification devices, and accessory modules, such as door holders.

A maximum of 7 PAD-5s, including expander board, can be connected to FC2005 at the same time.

Up to 8 Class B or 4 Class NACs are supported by one PAD-5 device.

### Optional modules

CDC for conventional detection circuit

CLSA for NAC circuits and releasing capability.



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If there is a short on the activated PAD-5 releasing circuit, after the short is removed, users need to restart the control panel to reactivate the releasing circuit. If the PAD-5 releasing circuit is not activated when the short happens, then there's no need to restart the control panel to reactivate the releasing circuit.

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## EVENT HISTORY

The control panel includes a non-volatile memory recording 1000 system events. Identified alarm, trouble, supervisory, status and other significant events will be recorded along with the date and time of occurrence. The history event log can be viewed at the main system display by operating menu controls from the panel. The history event log can also be transferred from the panel to a computer using the FXS901-U2 system configuration tool.

Events recorded in the history are:

- Alarm, trouble, supervisory and status conditions
- Signal silence/un-silence (Manual)
- System reset
- User level login/logout
- Start and stop of quick test
- Expiration of quick test Timer
- Trouble/supervisory reminder
- Acknowledgment
- Trouble/supervisory restored to normal



## GENERAL DESIGN FEATURES

### Environmental

The FC2005 panels and subassemblies are suitable for use in a dry, indoor or protected location.

### Power Limiting

The AC power connection, battery wiring and four system status relays are not power limited. All other circuits leaving the control panel meet the requirements for power limited circuits when installed in accordance with the National Electrical Code and local requirements.

### Ground Fault Detection

The control panel provides system ground fault detection. Main board ground fault event is annunciated as a trouble condition on the system. In addition, the addressable circuit and serial interface circuit have their own ground detection circuitry and indicator.

System- NAC (+) Ground Fault Threshold <20 kΩ

System- NAC (-) Ground Fault Threshold <20 kΩ

System- Auxiliary Power (+) Ground Fault Threshold <5 kΩ

System- Auxiliary Power (-) Ground Fault Threshold <5 kΩ

System- City Tie (+) Ground Fault Threshold <5 kΩ

System- City Tie (-) Ground Fault Threshold <5 kΩ

SLC grounding detection threshold

SLC (+) – Ground <5 kΩ

SLC (-) – Ground <5 kΩ

### NAC Operation

The notification appliance circuits are controlled by the system microprocessor in accordance with the site specific system configuration.

The notification appliance circuits can operate audible and visual notification appliances. Each NAC can provide any of five software-generated codes or continuous operation to audible notification appliances. Also, each NAC supports synchronization of visual notification appliances.

Silence Inhibit - The control panel may be programmed to inhibit silence for up to four minutes from the first alarm.

All of the NACs are power limited.



---

If PAD-5 is added to the system, the panel NAC and PAD-5 NAC will be synchronized when the panel NAC is set as source and PAD-5 NAC is set as follower.

---

### Security Features

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

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

Device address supervision: The system checks that all configured devices on the addressable device circuit respond to an address poll. The system reports a trouble condition if the following conditions are detected:

- Configured device is missing.
- Unconfigured device is installed.
- Two devices are programmed with the same address.
- Signaling line circuit experiences a wire-to-wire short.
- Signaling line circuit experiences an earth ground condition.

## REGULATORY STANDARDS

The FC2005 control panel meets the requirements of industry and government regulatory agencies as noted.

### Underwriters Laboratories

The FC2005 control panel is listed under UL 864 (Tenth Edition) and to be installed in Accordance with the applicable National Fire Protection Association Installation Standard for NFPA 72 and 2001.

### Underwriters Laboratories of Canada

The FC2005 control panel is listed under ULC-S527-11 (Third Edition) Amendment 1, and to be installed in accordance with CSA C22.1-06, Canadian Electrical Code, CAN/ULC-S524, Installation of Fire Alarm Systems, CAN/ULC-S536, Inspection and Testing of Fire Alarm Systems.

### Federal Communications Commission

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

## GENERAL SPECIFICATIONS

Operating specifications for the FC2005 are as follows:

### Environmental

Operating temperature - 32 – 120 °F (0 – 49 °C)

Relative humidity - Up to 93% @ 90 °F (32 °C)

To be installed in an indoor dry protected environment only

### Primary Power Supply (FP2011-U1)

Input: 120 VAC, 60 Hz or 240 VAC, 50 Hz

@ 2.0 A max.

### Supervised

Output: 26 VDC @ 6.5 A max.

Max current: 6.5 A (2 hours max.)

Filtered and Regulated

### Secondary Power Supply

24 V lead-acid battery set

Max. charged voltage: 27.8 VDC

Automatic low battery disconnect voltage: 19.2±0.1 VDC

Max. charge current: 0.45 A

Battery capacity: 12 Ah (for US and Canada) internally to 18 Ah (for US only) with separate enclosure FH2072-UA

### Supervised

### Auxiliary Power Outputs

Non-resettable power output

Power limited

Current: 0.75 A

Voltage: 19 to 28 VDC

Ripple: 0.1 VAC

Special Application

Resettable power output

Power limited

Current: 0.75 A

Voltage: 19 to 28 VDC

Ripple: 0.1 VAC

Special Application

### Status Relays

Non-power limited

One programmable relay

Three non-programmable relays: Trouble, Supervisory, Alarm

Contact rating: 2 A, 30 VDC maximum

Form C contact

### Notification Appliance Circuits

Power limited

Supervised

Current Draw	Maximum Line Resistance
--------------	-------------------------

2.5 A	3.2 $\Omega$
2.0 A	4.0 $\Omega$
1.5 A	5.3 $\Omega$
1.0 A	8.0 $\Omega$
0.5 A	16.0 $\Omega$

Alarm voltage: 16 to 32 VDC

Maximum ripple: 0.1 VAC

Used for special application only

Two Class B or one Class A

Total Max. Current: 2.5 A

Serial Interface Circuit (UFP)

Power limited

Supervised

Maximum wire loop resistance: 50  $\Omega$  total

Physical layer: RS485

SLC Addressable Device Circuits

Max. 32 VDC

Power limited

Supervised

Max. current: 0.07 A (RMS)

Maximum wire loop resistance: 50  $\Omega$

Two Class B (DCLB) or one Class A (DCLA) circuit or one Class X (DCLC) circuit

Max. 50 addressable devices

City Tie Circuits

**Supply Input:**

Voltage: 26 VDC

18 – 28 VDC for battery

Current: Max. 0.4 A

Supervised

**Output:**

City Tie-Output 1

Normal output voltage: 19-28 VDC (open circuit condition)

Supervisory current: 1 mA

Maximum trip current: 400 mA

Maximum coil plus wire resistance: 22.5  $\Omega$

Leased line-Output 1

Normal output voltage: 19-28 VDC (open circuit condition)

Trouble output voltage: 0 V

Alarm output voltage: -(19-28) VDC (open circuit condition)

Maximum wire resistance: 2-5 k $\Omega$

Maximum short circuit current: 25 mA

Leased line-Output 2

Normal output voltage: 19-28 VDC (open circuit condition)

Supervisory output voltage: -(19-28) VDC (open circuit condition)

Maximum wire resistance: 2-5 k $\Omega$

Maximum short circuit current: 25 mA

DACT Circuits

Power limited

Supervised for short or open circuit conditions

Compliance to FCC part 68

Support RJ31X connection

Compatible Digital Alarm Communication Receiver (DACR) list

Device Module	Manufacture
MX8000	Honeywell

**CAUTION:**

- To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.
- Only to a loop start telephone circuit and not to a ground start telephone circuit.
- To verify the integrity of the call forwarding feature every 24 hours.

# CONTROL PANEL OPERATION

## OPERATION INSTRUCTIONS

### Standby Condition

In normal standby operation, the green AC POWER ON LED should be illuminated and no other indicator operating. The display will show the system label and the current time.

### Alarm Conditions

#### ALARM

When the system detects an alarm condition, the alarm LED activates (ON – flashing) and the local panel buzzer activates in a specific pattern to indicate an alarm condition. Programmed system outputs, including audible and visual notification appliances, relays activate, and the LCD display indicates the zone or point initiating the alarm.

Upon receipt of an alarm, building occupants should proceed in accordance with the established emergency response plan. System responders should assure that all personnel are accounted for and notify the Fire Department.

Operating the Acknowledge/Buzzer Silence button will silence the local panel buzzer and change the LED alarm indicator from flashing to steady. The LCD display will indicate that the active events have been acknowledged.

The Silence/Unsilence button in US (Signal Silence / Unsilence button in Canada) toggles between silence and unsilence. Press the button to silence the audible and/or visual notification appliances (where permitted by the codes and control panel programming). The notification appliances will be de-activated, and the Silenced LED in US (Signal Silence LED in Canada) will be off. Press the button again to unsilence the previously silenced notification appliances.

#### POSITIVE Alarm Sequence (PAS) (not supported under ULC standard)

Activation of an initiating device in an input group programmed for PAS activates the Alarm LED, LCD display, and the local panel buzzer. System and user-programmed outputs do not activate immediately.

Operation of the Acknowledge/Buzzer Silence button within 15 seconds of the activation of the initiating devices will delay activation of system and user-programmed outputs between 60 and 180 seconds (selected during system configuration) for the purpose of investigating the alarm. If the Acknowledge/Buzzer Silence button is not operated within 15 seconds, the system and user-programmed outputs activate at the expiration of the 15 second delay.

If the initiating device and the panel are reset before the programmed delay expires, the alarm sequence is aborted.

During the investigation period, an alarm condition on a detector programmed for direct alarm response (such as the key switch on a manual station) will override the programmed delay and activate the additional user-programmed outputs immediately. User can configure Manned status of FACP to enable/disable PAS feature. FACP will not perform PAS feature in Unmanned status. After logged in as L2/L3 user, user can select Unmanned item in operate menu to enter Unmanned status and bypass all on-going PAS alarms.

## PRE-SIGNAL ALARMS (not supported under ULC standard)

Activation of an initiating device in an input group programmed for PRE-SIGNAL activates the Alarm LED, LCD display, and the local panel buzzer. System and user-programmed outputs activate immediately except NAC.

The delay of activation of user-programmed outputs can be programmed from 60 to 180 seconds. If the system is not reset during this period, the NAC outputs will activate.

During the delay period, an alarm condition on a detector programmed for direct alarm response (such as the key switch on a manual station) will override the programmed delay and activate the user-programmed NACs immediately.



---

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

---

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

## Trouble Conditions

When the system detects a trouble condition, the trouble LED will be flashing, the LCD displays trouble events and the local panel buzzer activates in specific pattern that distinguishes the event from an alarm event. Refer to the applicable section of the system manual to determine the probable cause of the trouble and the action to be taken.

Operating the Acknowledge/Buzzer Silence button will silence the local panel buzzer and change the LED trouble indicator from flashing to steady. The LCD display will indicate that the active events have been acknowledged.

If the panel is configured for Supervisory/Trouble Resound Reminder, and the trouble condition is not corrected the local panel buzzer will re-activate when the reminder timer has relapsed to remind users of the trouble condition.

If the FC2005 is configured as "Trouble self-restoring", the system shall return to the "system normal" status when the trouble condition is restored, unless there are additional events on the system. If the FC2005 is not configured as "Trouble self-restoring", the system reverts to standby condition only after the RESET button is pressed.

## Supervisory Conditions

When the system detects a supervisory condition, the supervisory LED will be flashing, the LCD display supervisory events, and the local panel buzzer activates in a specific pattern that distinguishes it from an alarm event.

Operating the Acknowledge/Buzzer Silence button will silence the local panel buzzer and change the LED supervisory indicator from flashing to steady. The LCD display will indicate that the active events have been acknowledged.

If the panel is configured for Supervisory/Trouble Resound Reminder, and the supervisory condition is not corrected, the local panel buzzer will re-activate when the reminder timer has relapsed to remind users of the supervisory condition.

If the FC2005 is configured as “Supervisory self-restoring”, the system shall return to the “System Normal” status when the supervisory condition is restored unless there are additional events on the system. If the FC2005 is not configured as “Supervisory self-restoring”, the system reverts to standby condition only after the RESET button is pressed.



## ADDITIONAL OPERATING PROCEDURES

In addition to the basic fire alarm instructions above, several features are included to facilitate maintenance and increase the versatility of the system. The following are procedures used to initiate these functions.

### Lamp Test

When selected, Lamp Test activates LCD, the buzzer and turns on all the LEDs on the user interface, then back to its previous state.

To initiate a Lamp Test, proceed as follows:

Press "MENU".

On the MENU display, select "Oper".

Select "Lamp Test" to run.

Note that lamp test operates the indicators only on the units being operated and no record is reported to system history.

The lamp test lasts 10 seconds. From 0 to 4 seconds LCD test; From 4 to 7 seconds LEDs test; From 7 to 10 seconds buzzers test. Operator doesn't need to turn it off manually. Lamp test will automatically quit when it completes.

For Canadian Installations, the lamp test is also applicable to the FT2018 or the FT2019 LED Annunciator dedicated to the FC360.

### History

The last 1000 system events are time-tagged and recorded for review in the user level event history. This history and all user-level functions are available to users with the door key.

Operation of history:

New events overwrite old when filled.

For more information see the Event History section.

Access to history:

To recall past events, proceed as follows:

- Press "MENU" button.
- On the "MENU" display, select "View".
- Select "History".

Operate up button adjacent to the LCD for previous event display.

Operate down button adjacent to the LCD for next event display.

## FC2005 OPERATING INSTRUCTIONS

### Alarm Operation

In case of alarm, the *Alarm* LED flashes, LCD displays alarm conditions and the panel buzzer sounds in a distinct alarm pattern. Local audible and visual signals and remote alarm signals operate.

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

### Authorized Personnel Only

#### To acknowledge the alarm:

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

#### To silence the alarm:

To silence the notification appliances after evacuation, where permitted, press the *Silence/Unsilence* (in US) or *Signal Silence/Unsilence* (in Canada) button. The silenceable notification appliances will be silenced. The *Silenced* (in US) or *Signal Silence* (in Canada) LED will change from off to on-steady. Press the *Silence/Unsilence* (in US) or *Signal Silence/Unsilence* (in Canada) button again will unsilence the notification appliances.

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

**Warning: Signal Silence inhibit (if set) prevents the alarm from being silenced for a predetermined time.**

#### To reset panel after alarm:

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

### Trouble Operation

#### Trouble is indicated by:

*Trouble* LED flashes and LCD displays trouble conditions. Panel buzzer sounds in trouble pattern.

#### To acknowledge the trouble:

Press the *Acknowledge/Buzzer Silence* button. The *Trouble* LED turns on-steady and the buzzer turns off. When the trouble condition has been cleared, you need to reset the panel to restore to a normal standby condition if panel is not configured as "Trouble self-restoring". When panel is configured as "Trouble self-restoring", it will restore automatically to normal standby condition after clearing of trouble condition.

**Warning: devices in trouble condition may not report a fire alarm.**

### Event Scrolling

#### Viewing Events on the System:

Events are displayed according to the following rules:

1: Events priority:

Unacknowledged Alarm > Unacknowledged Supervisory > Unacknowledged Trouble > Acknowledged Alarm > Acknowledged Supervisory > Acknowledged Trouble > Status > Test

2: Within events of the same priority, all events are displayed in the order of occurrence with the latest displayed the first.

3: Status events are displayed according to the event setting. If it is configured as "No display", it will not be listed in Event List.

### Fuse Replacement and Battery Maintenance

Battery fuse (F304): 10 A blade type (Littelfuse: 0287010. Bussmann: ATC-10)

City tie fuse (F1-F4): 1.25 A cartridge type (Littelfuse: 02151.25P or Schurter: SPT 0001.2505)

This product requires two 12 V batteries in series, for a combined voltage of 24 V. Replace batteries every 3 to 5 years.

Recommended battery manufacturers:

Power Sonic: PS-12120, PS-12140, PS-12180 Yuasa: NP-12-12

Battery capacity: min. 12 Ah for Canada / 12 - 18 Ah for US Charge current: max. 0.45 A

**For service, contact:** \_\_\_\_\_ **Telephone Number:** \_\_\_\_\_

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

## FSD901 OPERATING INSTRUCTIONS

### Alarm Operation

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

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

### Authorized Personnel Only

#### To acknowledge the alarm:

To acknowledge the alarm, enable the control buttons by operating the key switch, and press the *Acknowledge* button. The local buzzer will be silenced, and the *Alarm* LED will change from on-flashing to on-steady.

#### To silence the alarm:

To silence the notification appliances after evacuation, where permitted, press the *Signal Silence* button. The silenceable notification appliances will be silenced, and LED indications will change from flashing to continuous. The *Signal Silence* LED will be lit.

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

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

#### To reset panel after alarm:

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

### Trouble Operation

#### Trouble is indicated by:

*Trouble* LED flashes and LCD displays trouble conditions. Panel buzzer sounds (pulsing).

#### To acknowledge the trouble:

Enable the control buttons by operating the key switch and press the *Acknowledge* button. The *Trouble* LED turns on-steady. When the trouble condition has been cleared, you may need to reset the panel to restore to a normal standby condition.

**Warning: Devices in trouble condition may not report a fire alarm.**

### Event Scrolling

#### Viewing Events on the System:

Events are displayed in the system by event priority (Unacknowledged Alarm > Unacknowledged Supervisory > Unacknowledged Trouble > Acknowledged Alarm > Acknowledged Supervisory > Acknowledged Trouble > Status > Test) followed by event occurrence (latest to oldest event) in a circular list.

According to settings, some events can be suppressed (not display) on annunciator.

### Normal Standby Condition

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

**For service, contact:** \_\_\_\_\_

Telephone Number: \_\_\_\_\_

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

# CONTROL PANEL INSTALLATION

## PARTS SUPPLIED – FC2005

FC2005 Enclosure Assembly  
FC2005 Main Board Assembly  
Power Supply Assembly  
FC2005 City Tie Module Assembly (optional)  
FC2005 Configuration Kit (optional)  
FC2005 Spare HW Kit

FH901-U2 (Black) / FH902-U2 (Red)  
FCM901-U2 / FCM901-L2  
FP2011-U1  
FCI2020-U1  
FXS901-U2  
FX901-S1

### 1. FC2005 Enclosure Package

#### FC2005 black enclosure

Description	Qty
FC2005 enclosure black	1
Installation instruction	1
T45 key	2
#8-32 grounding cable nut	2

#### FC2005 red enclosure

Description	Qty
FC2005 enclosure red	1
Installation instruction	1
T45 key	2
#8-32 grounding cable nut	2

### 2. FC2005 Main Board Package

Description	Qty
FC2005 main board	1
FC2005 main board support frame	1
FC2005 English film	1
FC2005 English strip	1
FC2005 rubber key	1
FC2005 battery bracket left (optional)	1
FC2005 battery bracket right (optional)	1
FC2005 battery cable	1
FC2005 battery cable to main board	1
FC2005 earth cable	1
Terminal block 2 pin	8
Terminal block 3 pin	4
Terminal block 4 pin	2
FC2005 cable ties	6
FC2005 main board installation instruction	1
FC2005 wiring diagram	1
#8-32 x 3/8" screws	8
#4-40 x 1/4" screws	19
Grounding cable	1

### 3. FC2005 Configuration Kit Package

Description	Qty
FC2005 Configuration programming disk	1
FC2005 Commissioning cable (FCA3600-A1)	1

#### 4. FC2005 Product Documentation

Product	Title	Document ID
FC2005	System installation instructions	A6V11274135
FC2005	Operating instructions (one page)	A6V10336901
FC2005	Programming manual	A6V10333724
FT2018-U1 FT2018-R1 FT2019-U1 FT2019-R1	Installation instructions	A6V11269908
FTH2073-UA	Installation instructions	A6V11272327
FTH073-VP	Installation instructions	A6V11320548
FHC901-U1	Installation instructions	A6V11569585
FH2072-UA	Installation instructions	A6V11272329
FXS901	Tool user manual	A6V10336897
FT2007-S1	Installation instructions	A6V10456395
FX901-S1	Installation instructions	A6V11274139
FSD901	Product manual	A6V10333726

## CAUTIONS

1. Remove the printed circuit boards for any procedure that may cause dust, metal shavings, grease (or such matter that may affect the operation of the boards) to get in contact with the units.
2. Disconnect all sources of power prior to installing or removing modules, connecting or disconnecting wiring.

## CONTROL PANEL LOCATION

The control panel should be located near an exit at ground level, where the normal ambient temperature is maintained within the control panel specification (See General Specifications). The unit should be in an area that is free of dust, vibration, moisture and condensation. Any auxiliary battery box or other accessory not connected through a protective device or a circuit designed for remote connection must be within 15 ft (14AWG), and in the same room, connected through electrical conduit.

## INSTALLATION

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

Mounting height for visual and manual access to the Display Board

Weight and size of backbox

Local mounting codes

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

The fire alarm control panel must be mounted in a properly accessible location as required by applicable codes.

Installation is to be done only by qualified personnel who have thoroughly read and understood these instructions.

### Enclosure Mounting

Install the backbox:

Select a clean, dry, shock and vibration free surface in a protected environment.

Position the backbox clear of obstructions so that the front door opens freely and the controls and indicators are easily accessible.

Mark the locations of the two upper mounting bolts of the backbox on the wall.



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

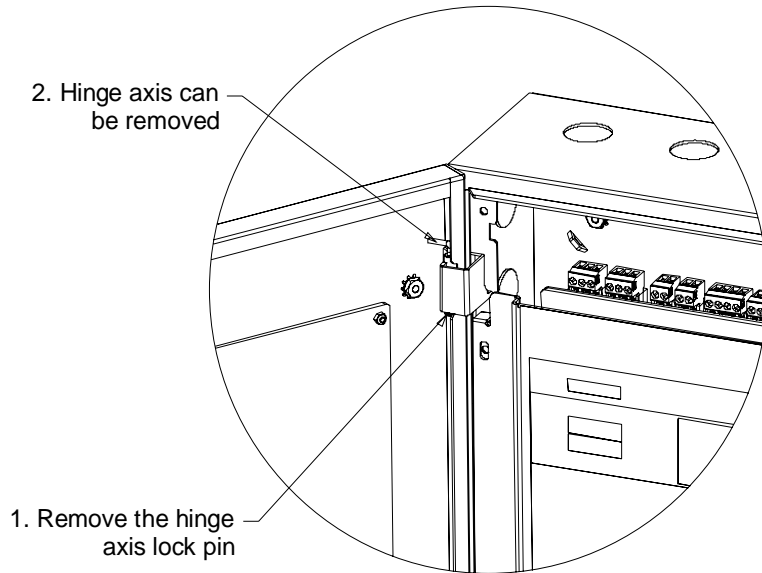
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The front door can be removed from the enclosure for more convenient installation.

---



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

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

Mark, drill, and install the two bottom bolts in the backbox.

Tighten all four bolts securely against the back wall of the backbox.

If a semi-flush mount installation is desired, use the Semi-flush Trim for the FC2005. The backbox can be mounted up to 3 1/2 inches into the wall. Place the semi-flush trim around the backbox and affix to the wall with four #10 x 3/4 inch wood screws (provided with trim).

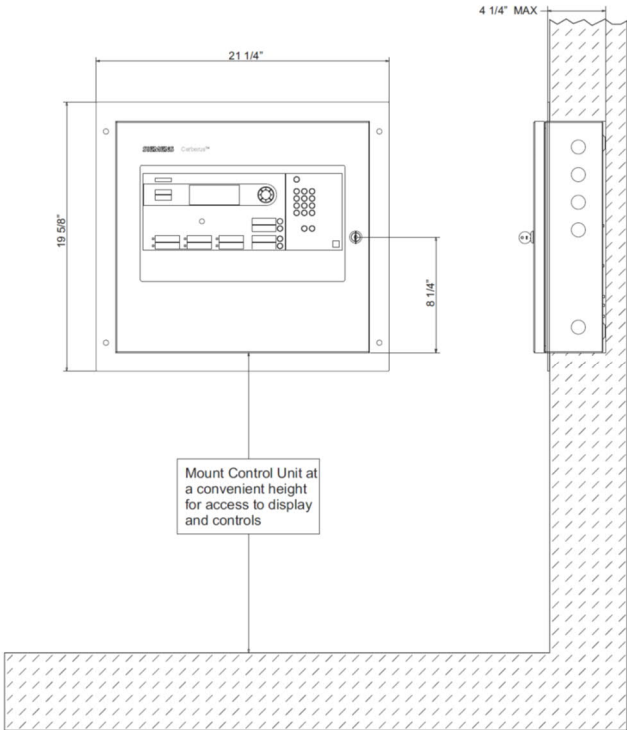
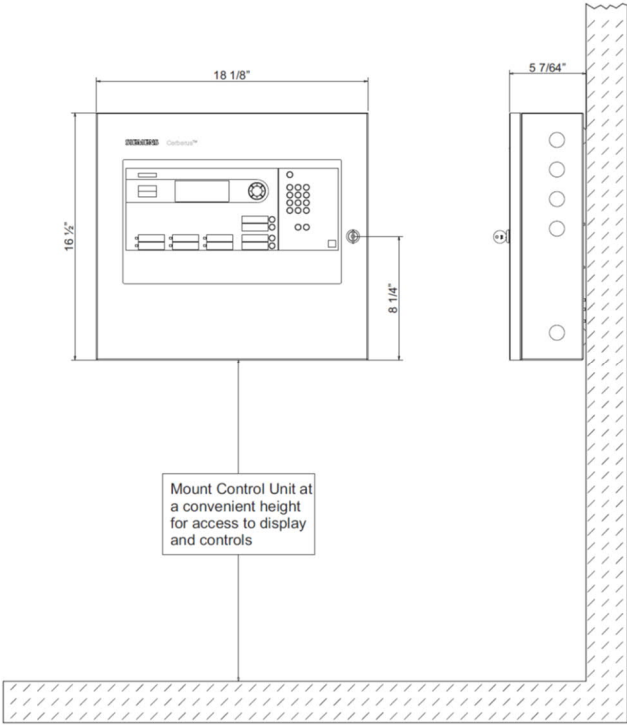


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The screw type and length must be able to support the control panel, options and battery set. You may need a different screw type, depending on the wall material.

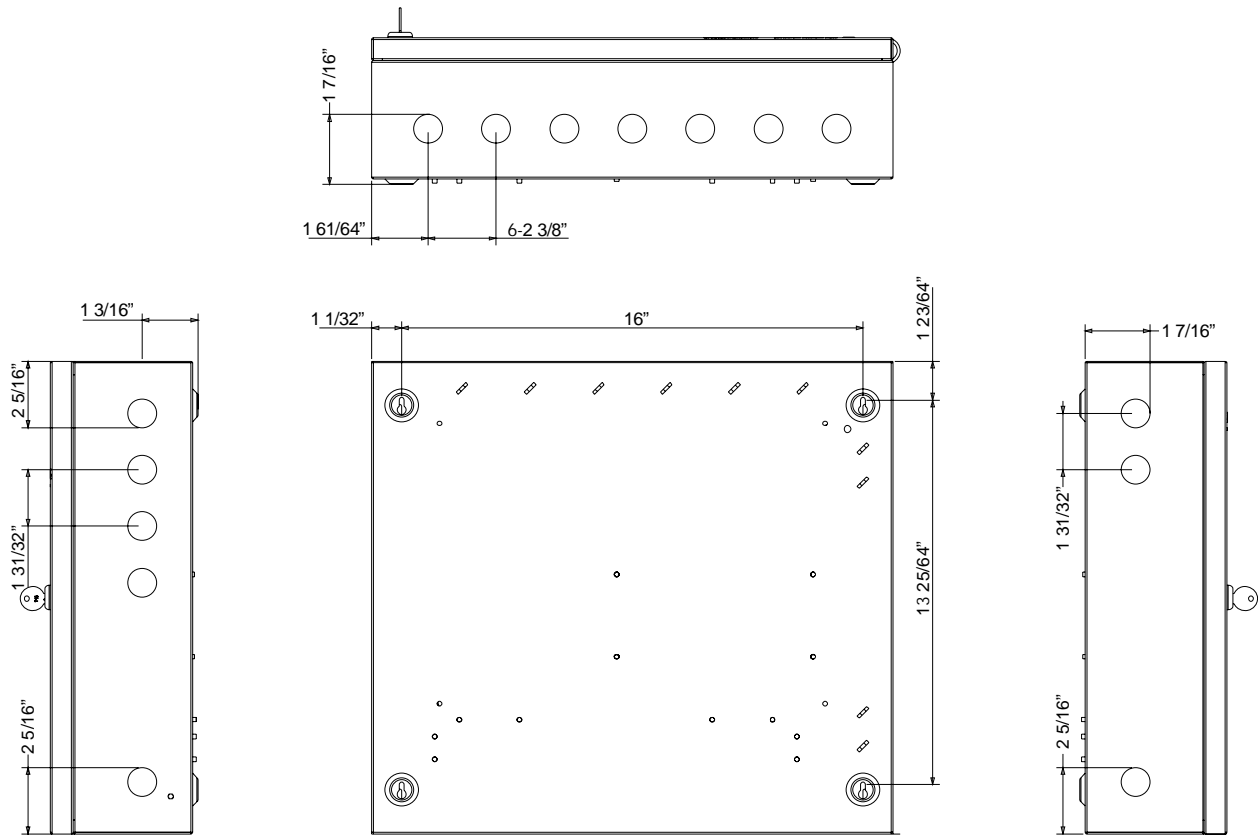
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FC2005 Enclosure Mounting Pictures





## FC2005 Installation Size



### Remove Knock-Outs

Prepare the enclosure for electrical wiring by breaking out the appropriate conduit entry points. Segregation is required between power limited and non-power limited conductors. In order to maintain the minimum separation, follow the wire routing illustrated on page 31. Separation of at least 1/4 inch is required between the non-power limited and power limited conductors. Power limited and non-power limited wiring must be run in separate conduit.

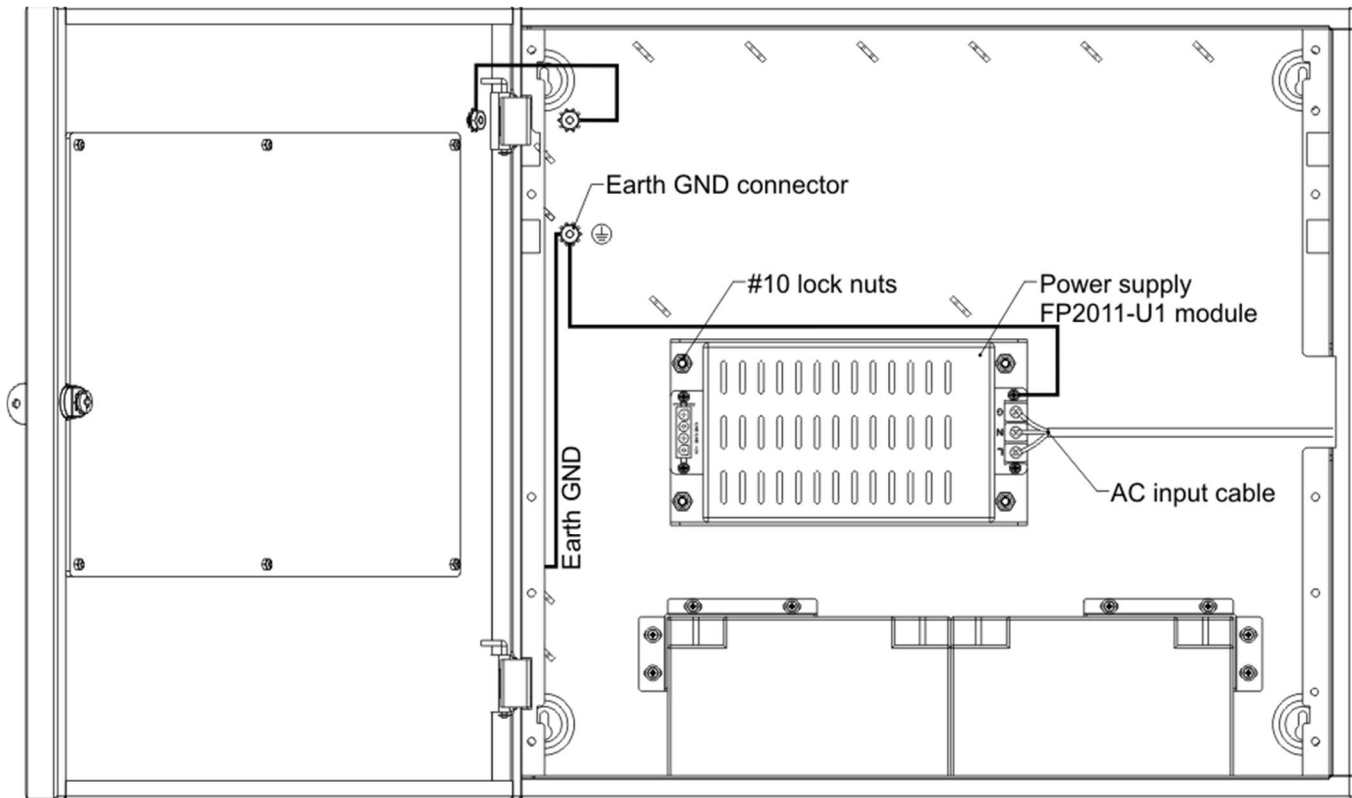
Attach conduit (if required) and run wires as required. Label each field cable for future reference.

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

Wire reference data are included in Appendix A.

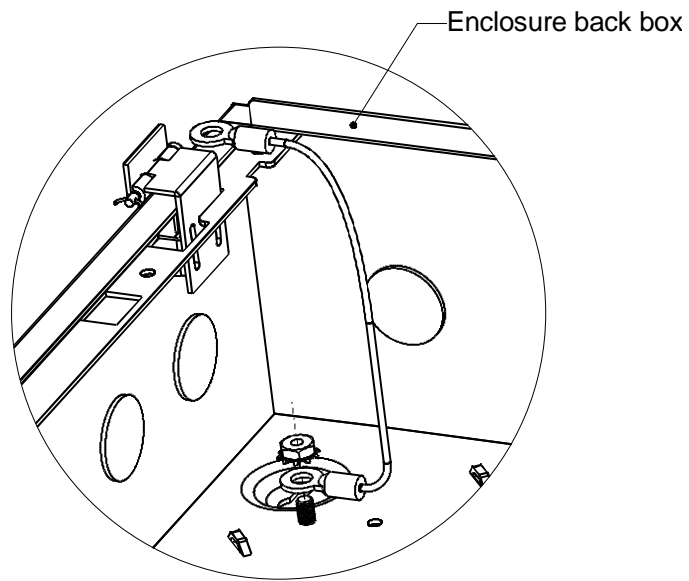
## Power Supply FP2011-U1 Mounting

Secure the power supply to the back of enclosure using the four provided #8-32 x 3/8 screws. AC Input terminals must be located at the right side of the enclosure.

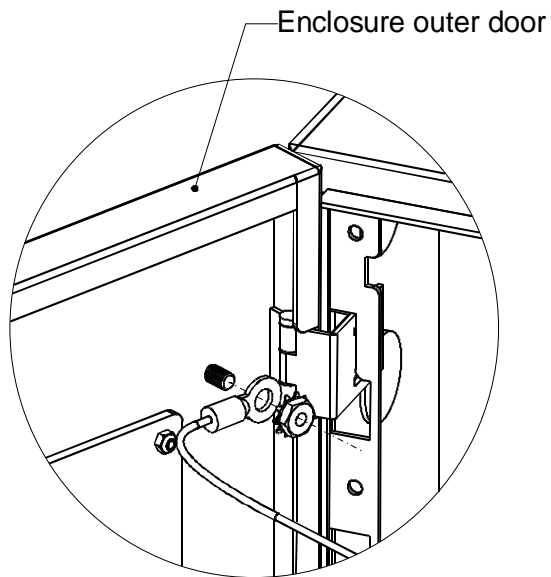


## Ground Wire Installation

Install one end of the grounding cable on the enclosure back box.



Install the other end of the grounding cable on the enclosure outer door.

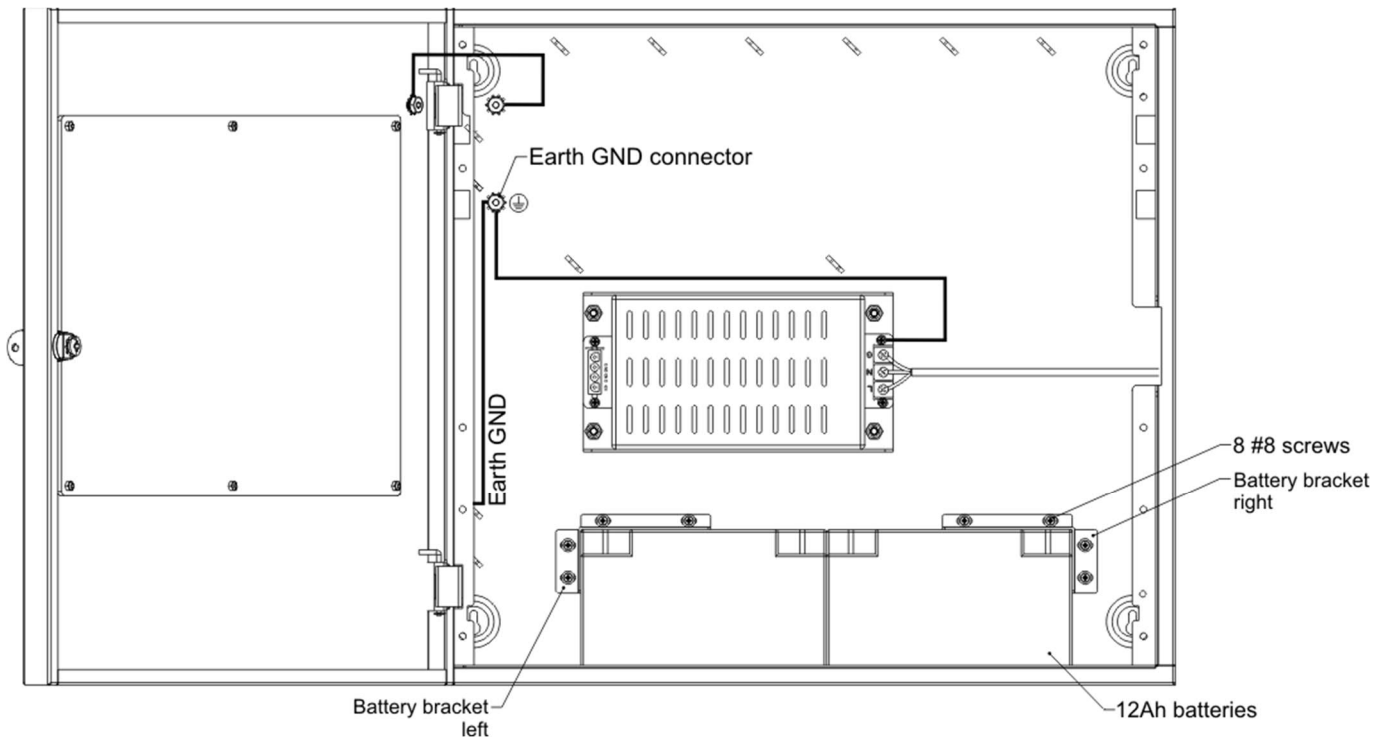


## Battery Installation

Use the battery calculation chart to determine the battery size. Place the batteries in the space provided in the bottom of the backbox. Secure the battery bracket (if required) to the back of enclosure using the eight provided #8-32 x 3/8 screws.

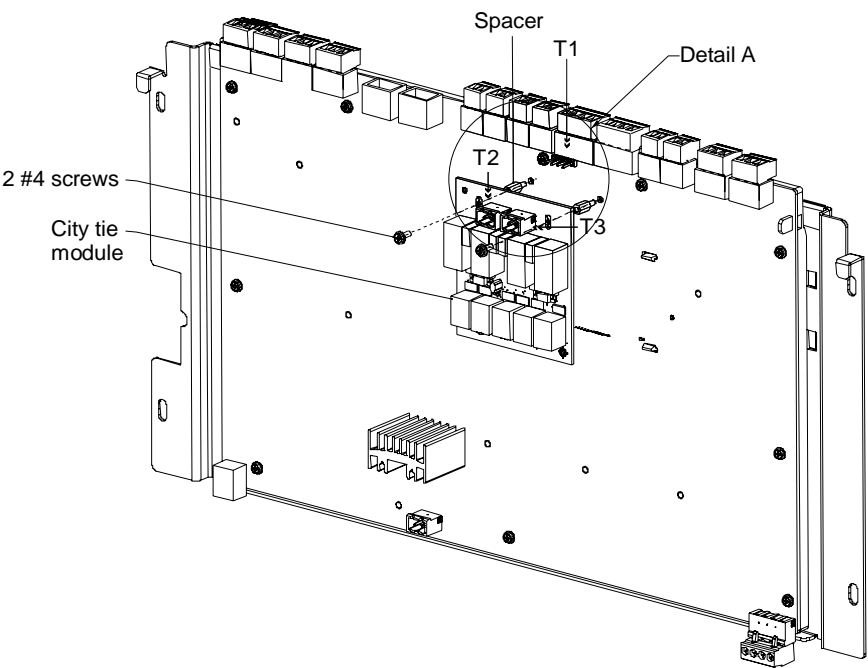
Recommended battery size: Length: 5.94 inch, Width: 3.86 inch, Height: 3.7 inch.

A separate enclosure must be used if a battery set larger than 12 AH in the FC2005 is required. The FH2072-UA, CAB-BATT or any enclosure UL Listed for Fire Protective Signaling Use may be used.

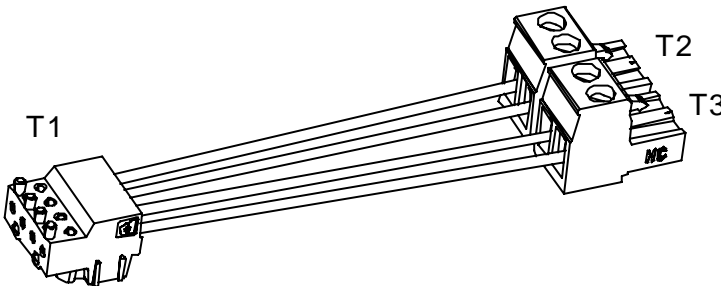


Optional City Tie Mounting

Secure the city tie to the main board using the two provided #4-32 x 3/8 screws.

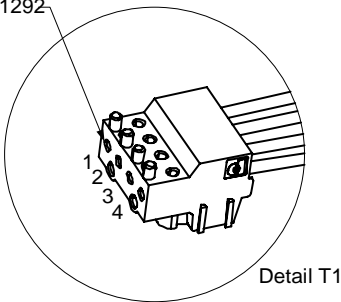
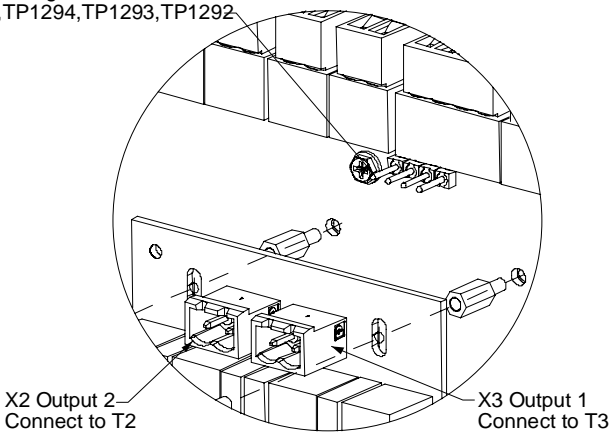


Connect the city tie cable between city module and main board.



From left to right:  
TP1295, TP1294, TP1293, TP1292

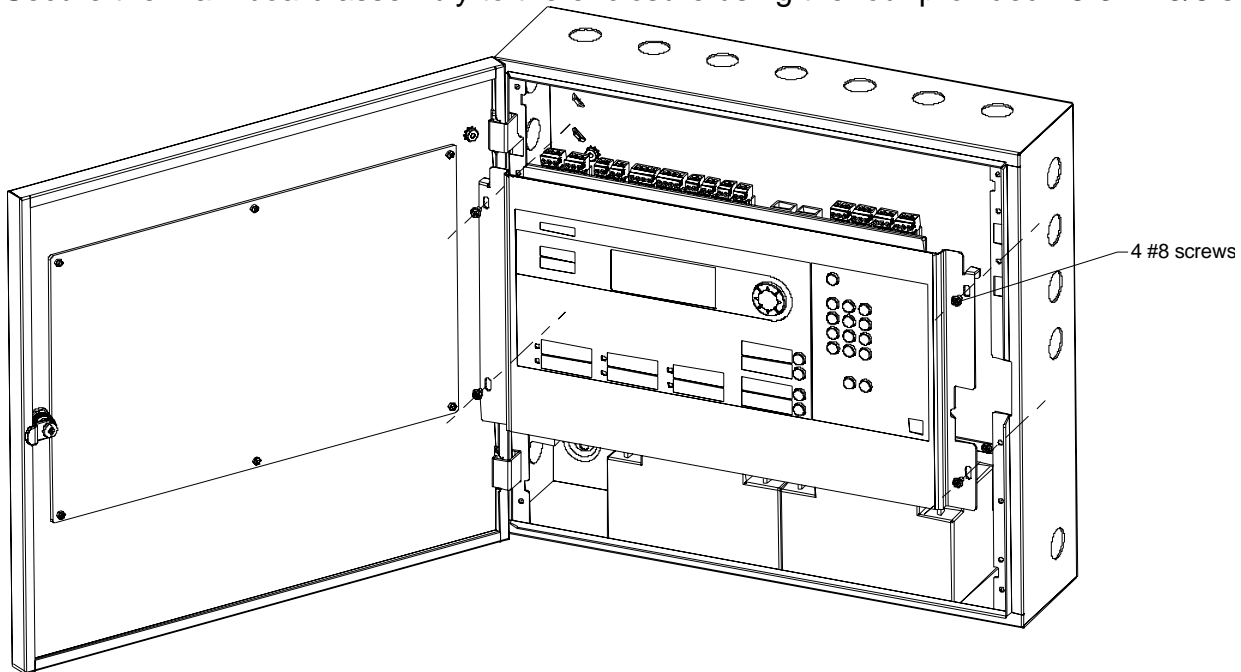
From 1 to 4  
TP1295, TP1294, TP1293, TP1292



Detail A City tie cabling

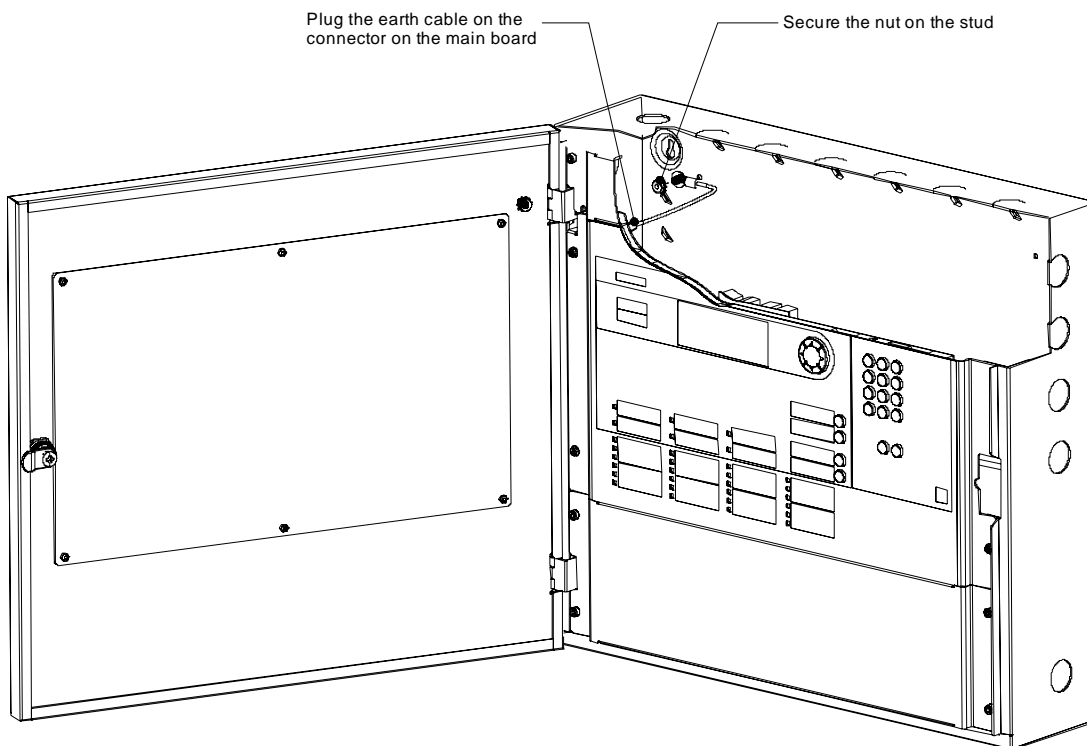
## Main Board Assembly Installation

Secure the main board assembly to the enclosure using the four provided #8-32 x 3/8 screws



## Earth Cable Installation

Connect the earth cable to the backbox and connector at the upper left corner of the main board.



# SYSTEM WIRING

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

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

Terminate the field wiring to the main board in accordance with the diagrams in System Wiring Section.

**NOTE**  All wiring must be in accordance with local codes and the National Electrical Code.

## AC Connection

Wire the AC supply to power supply on the back of enclosure. The supply should originate from a dedicated 15 A (minimum) branch circuit. It should be provided with a breaker or other means of isolation that must be colored red.

Observe the wiring order — the top terminal is ground and must be wired back to the electrical panel ground (earth) bonding point or another good ground acceptable to the authority having jurisdiction and the electrical inspector. The neutral wire must be taken back to the electrical panel neutral distribution bar.

## Battery Connection

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

The control panel uses a 24V battery set. Connect the two 12V batteries in series with provided wire. Route the battery leads to the battery connector at bottom of the main board. The battery leads are not power-limited. **DO NOT CONNECT BATTERIES YET.**

## WIRING

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

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

Wire reference data are included in Appendix A.

## Control Panel Wiring Overview

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

Electric light

Power

Class 1 or non-power limited fire protective signaling conductors

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

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

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

If energy limited cable or equivalent is not used within the FC2005 enclosure, then the following guidelines do not apply. In that case, be sure to follow standard wiring practices.

## Wiring Entering Enclosure

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

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

## Install Wiring

The primary mains input must have a separate or dedicated circuit breaker. Wire in accordance with local codes, NEC 760 and CEC Section 32.

Remove the knockouts in the backbox for the entry of field wiring. (Refer to Enclosure Mounting Pictures on page 26 and Wiring Separation Diagram on next page for the location of knockouts.)

Pull all field wiring into the backbox. Do not dress the wiring until the location of all the equipment is known.

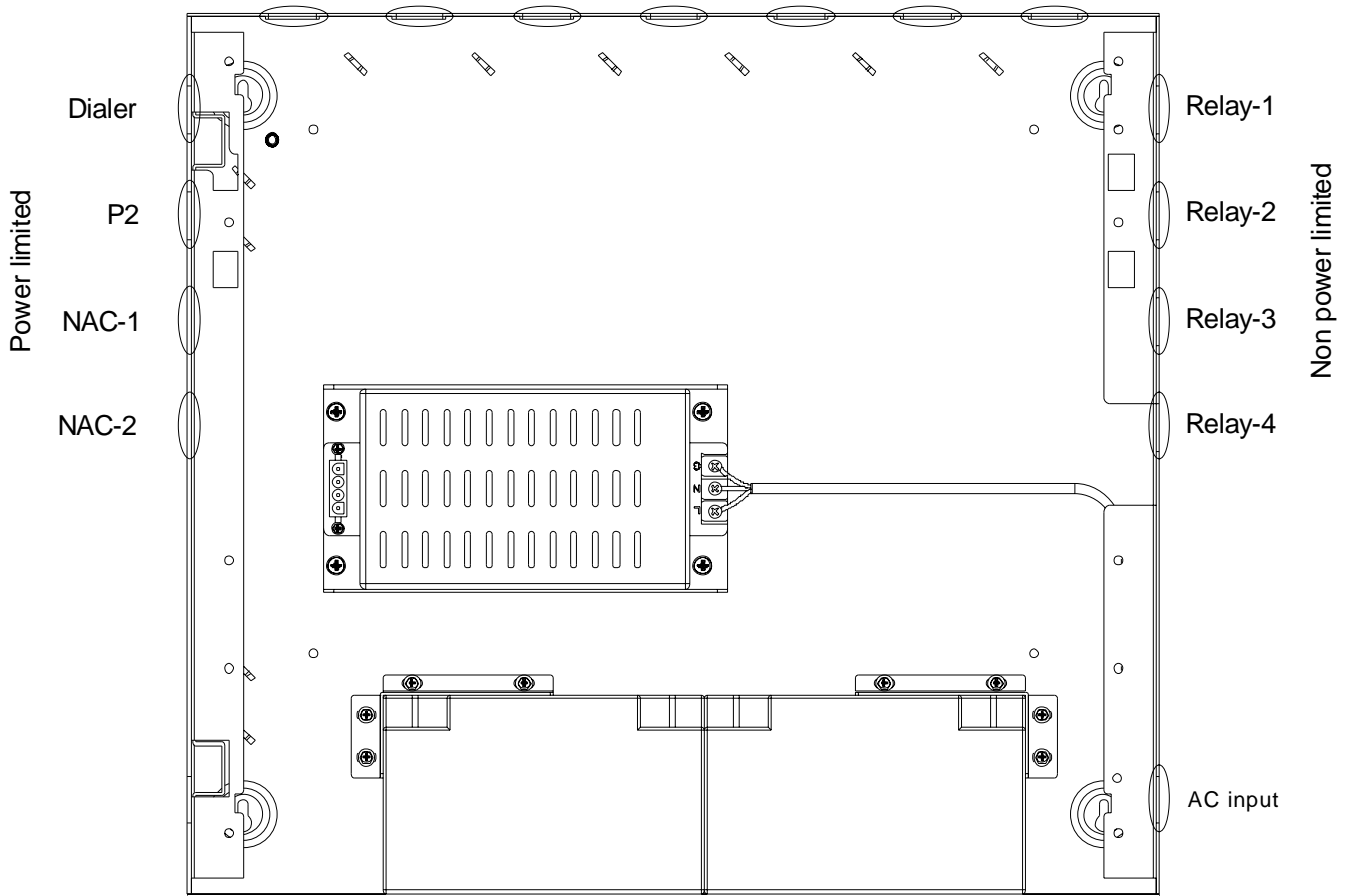
Install the wiring from the external power source to the approximate location of the power supply.



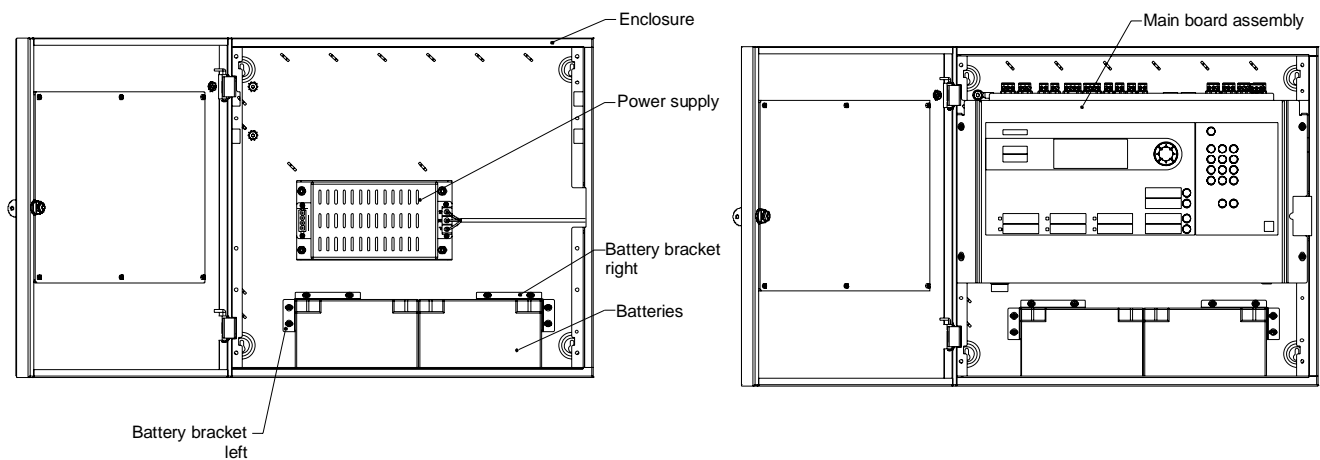
## Wiring Separation

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

7 Optional field wire knock-outs



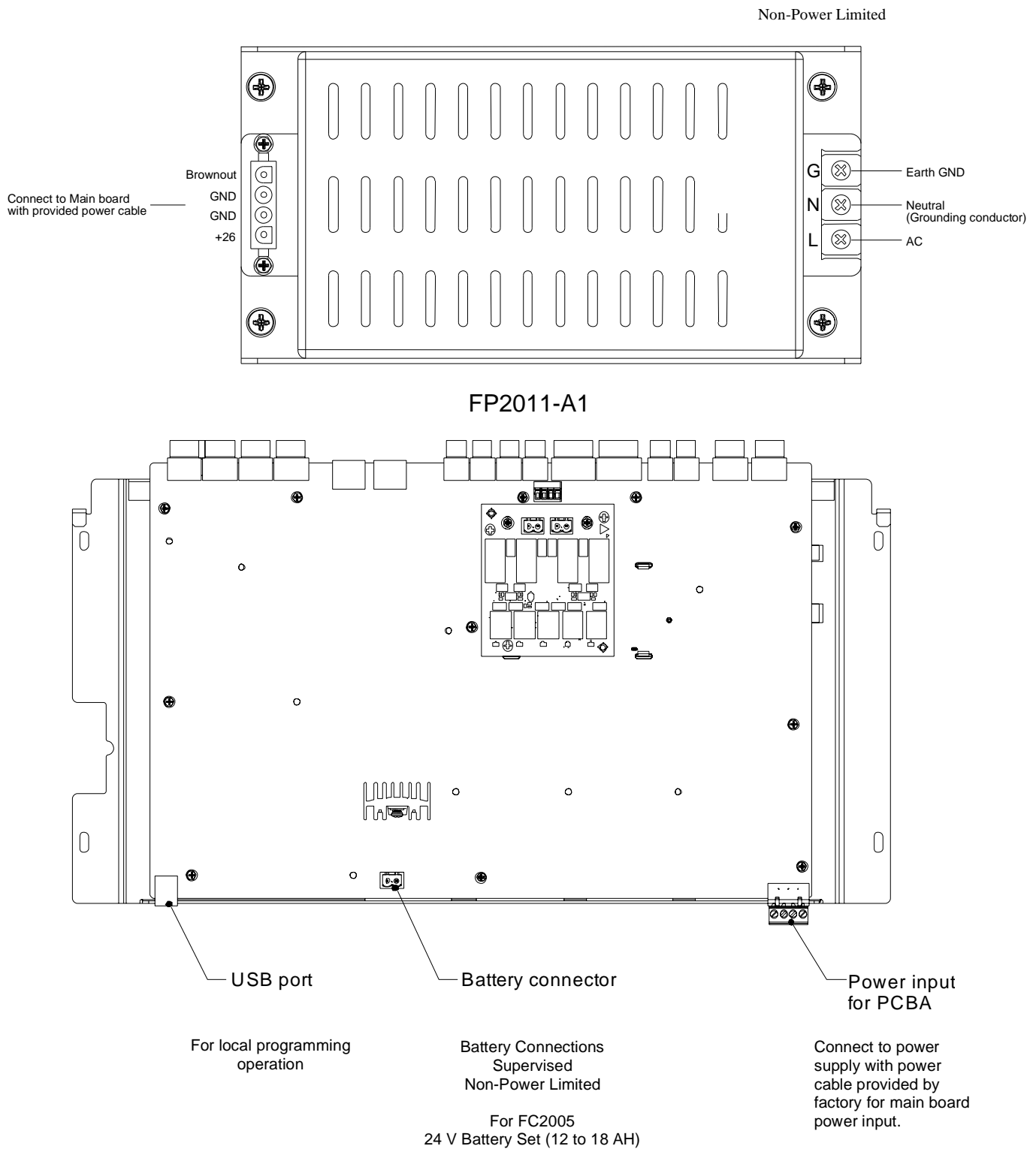
## Internal Structure



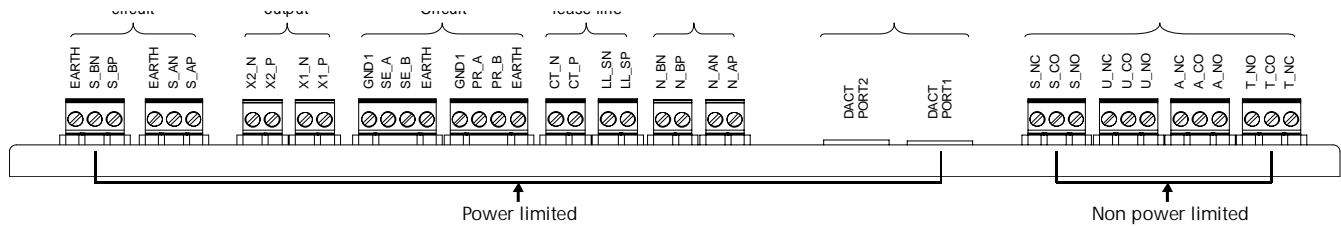
## Power Supply and Battery Wiring

Route all high voltage and non-power limited wiring together and away from power limited wiring. Use the battery calculation chart to determine battery size.

AC connection is done on power supply.



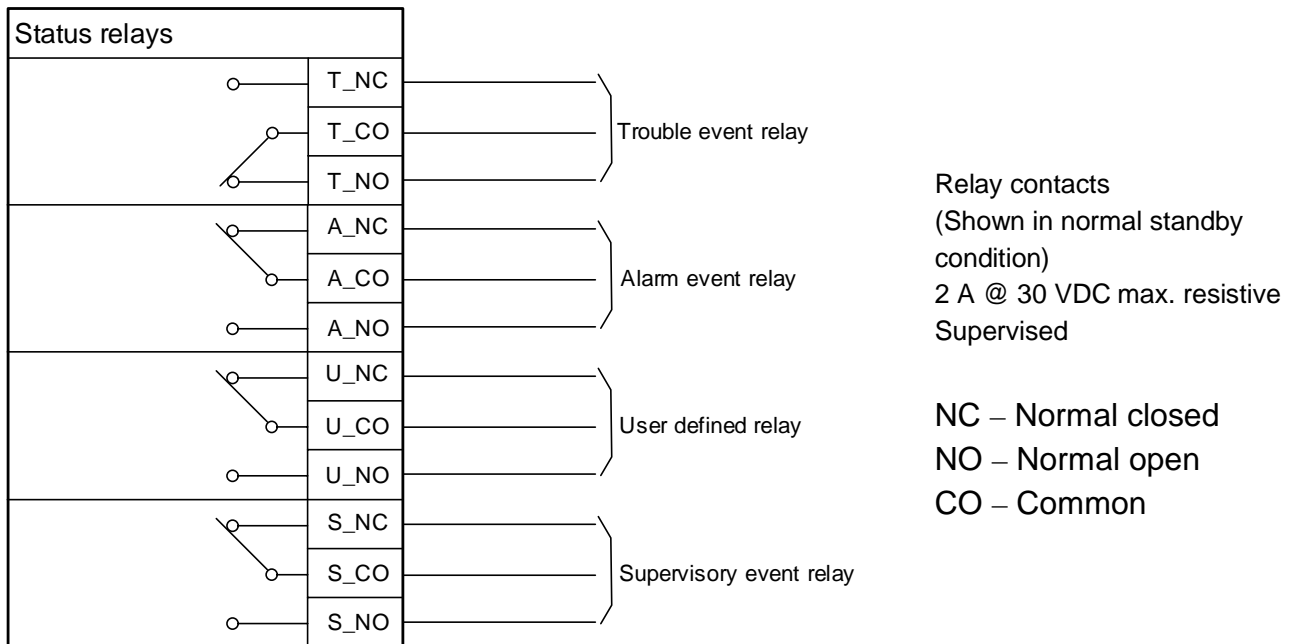
## Keep All Non-Power Limited Wiring Separate from Power Limited Wiring



Wiring terminals located on top of main board

## Status Relays

Four relays with dry contacts are provided at the upper right corner of the main board. One relay is programmable and the trouble relay, supervisory relay and alarm relay are non-programmable. The relay contacts are Form C and are rated for 2 A @ 30 VDC resistive.



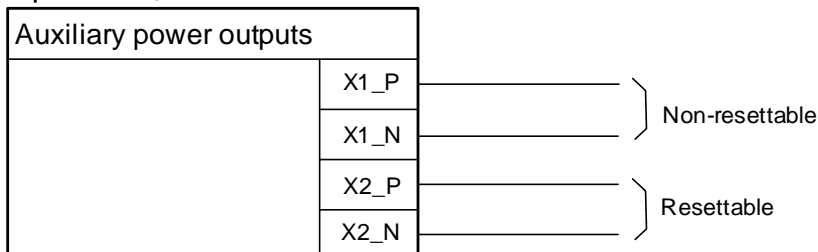
## Auxiliary Power Outputs Wiring

The main board provides resettable and non-resettable auxiliary power connections. The resettable terminal interrupts the power for 5 seconds after a reset condition.

## Auxiliary Power Outputs

Max. 0.75 A @ 24 VDC nominal

Supervised, Power Limited





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The auxiliary power of control panel supervises only the short circuit and ground circuit. The open circuit is not included. To supervise the open circuit, a PAD-5 device power must be used.

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When using an annunciator with the 50pt. panel, use the non-resettable power supplied from the Fire Alarm Control Panel (FACP). When the annunciator is located too far from the FACP use a Battery backed up UL approved Power Supply to ensure continuous and proper operation.

---

NAC Wiring

Two individual NACs are provided and the polarity shown is when the NAC is activated.

Power Limited

Supervised

Current Draw	Maximum Line Resistance
2.5 A	3.2 Ω
2.0 A	4.0 Ω
1.5 A	5.3 Ω
1.0 A	8.0 Ω
0.5 A	16.0 Ω

Alarm voltage: 16 to 32 VDC

Maximum ripple: 0.1 VAC

Used for special application only

Two Class B or one Class A

Total maximum current: 2.5 A

Refer to Desigo\_NACs\_A6V10333530\_c\_en to determine synchronized notification appliances allowed per NAC

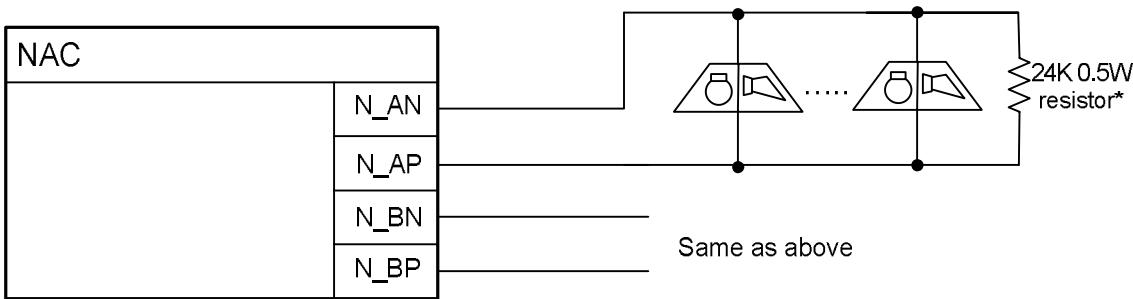
Class B

Supervised

Power Limited

See Appendix B for compatible devices

EOL available in the package as part of accessory



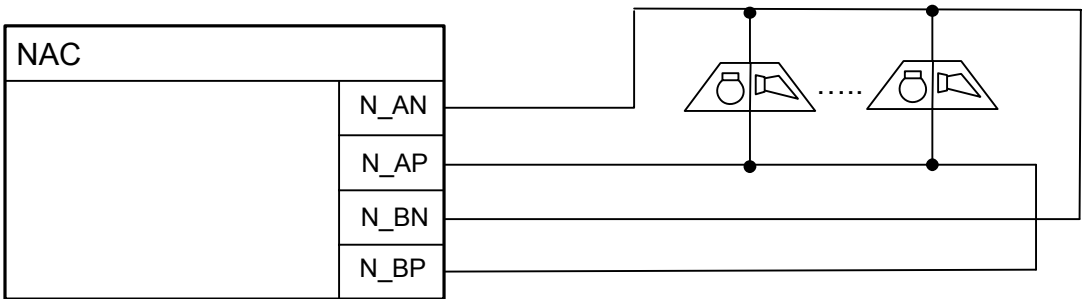
Class A

Supervised

Power Limited

See Appendix B for compatible devices

No EOL devices



Serial Interface Circuit (UFP)

The serial interface circuit can address up to 8 devices, which includes annunciators and printers. Up to 2 printers can be addressed. Devices on the circuit may be connected up to 4000 feet from the control panel.

Serial Interface Circuit (UFP)

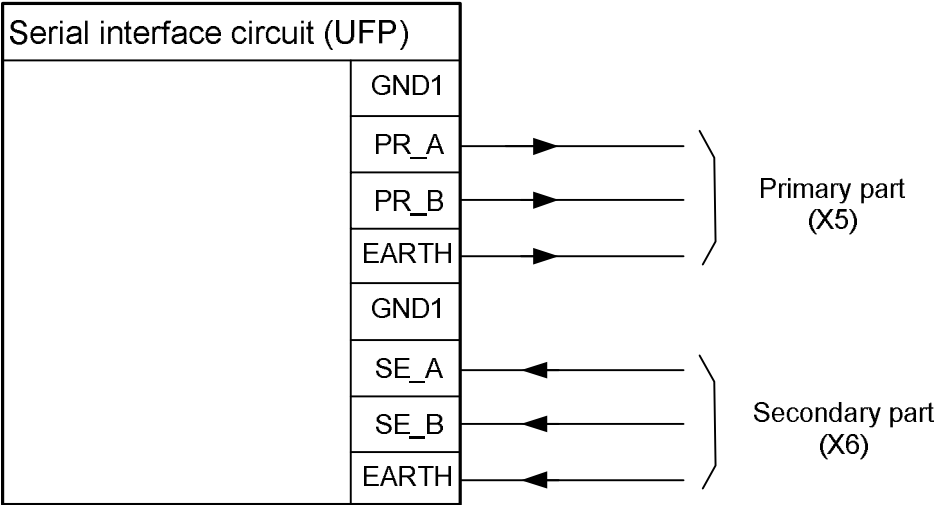
(PR\_A, PR\_B) RS-485 level

Wire type - Twisted pair for data

EARTH – Shielding earth connection

Wire resistance - 50 Ohm/line (Max. 4000')

Supervised, Power limited.



Remote Device Power – The on-board auxiliary power can provide power for ONLY one annunciator. If more power is required for the connected devices, external power must be provided. Each address on the circuit must be fully powered from either auxiliary power of control panel or external power.



If the annunciator is connected to a separate Power Supply, the separate power supply needs to be UL Listed for Fire Safety Use and Power Limited.

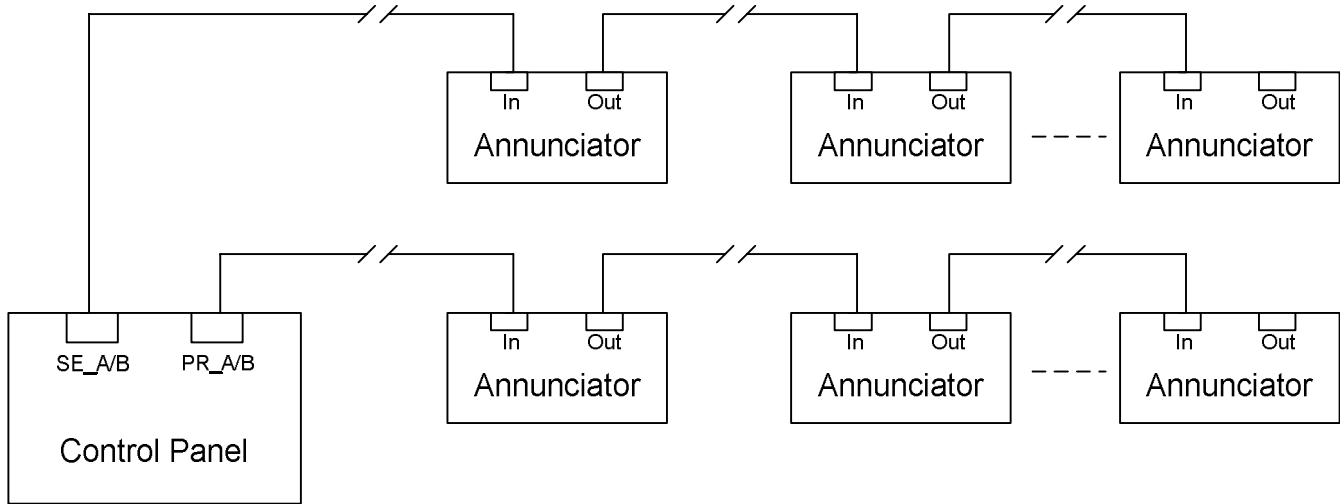


In order to achieve Class A or DCLA pathway, each remote annunciator need to be powered by a dedicated PAD-5 Power Supply. Wiring between PAD-5 and the annunciator shall be limited to 20 ft in conduit in US applications, and limited to 18 meters in metallic conduit located in the same room in Canadian applications.

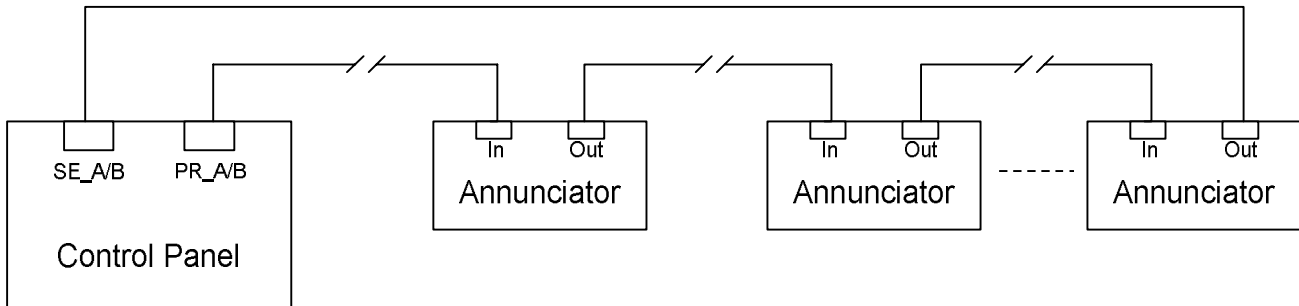
Serial Remote Device Wiring Overview

When connecting devices on the Serial Interface Circuit (UFP), the data wires must be daisy chained and with no T-taps to preserve the integrity of the data. The following diagrams show the proper wiring.

Class B / DCLB



Class A / DCLA



SLC Addressable Device Circuit

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

Addressable Device Circuit

Class B (DCLB) or Class A (DCLA) or Class X (DCLC) Operation

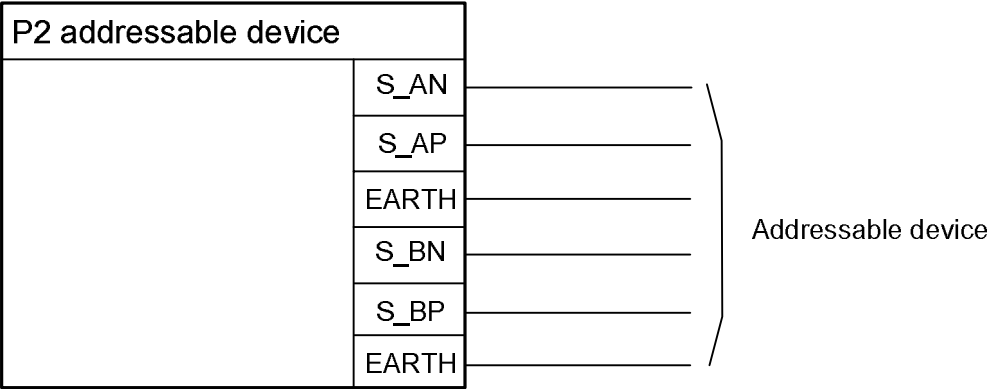
Max. 50 devices can be connected to the circuit.

Wire Resistance – Max. 50 Ohm

(See Appendix A, Line Resistance Graph)

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See Appendix B for Compatible Devices





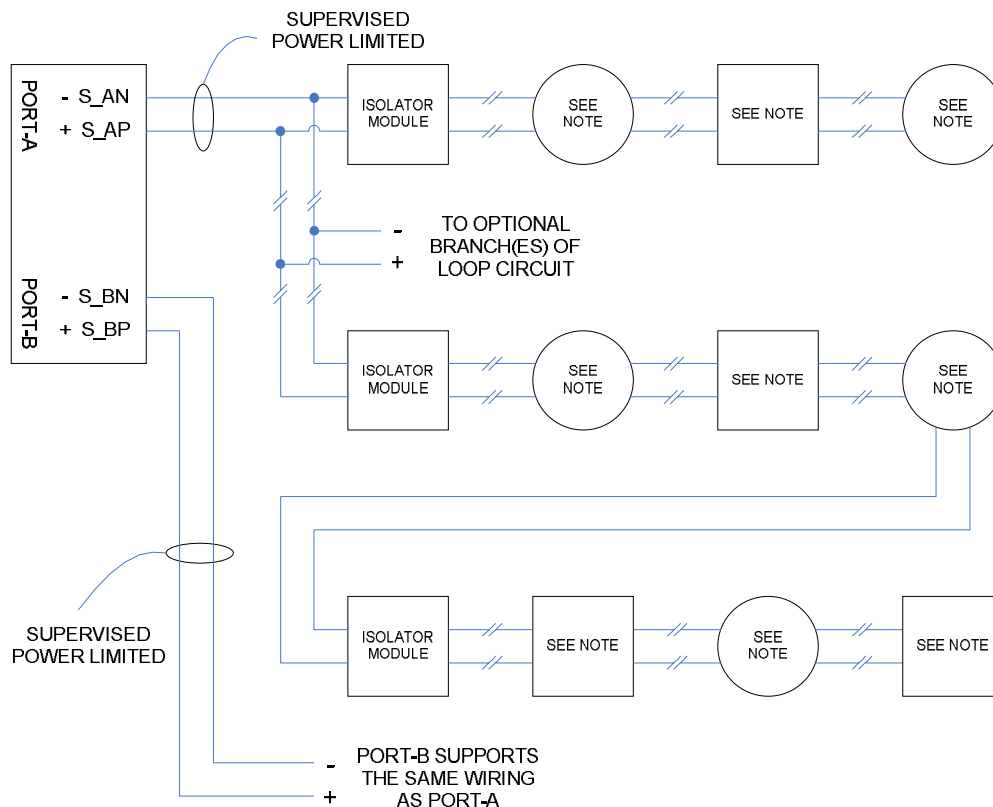
## SLC Addressable Device Wiring Diagrams

Refer to the instruction sheets packed with each device.

Detectors and modules may be wired together according to several NFPA defined wiring classes. The wiring class that is appropriate for your installation should be determined from the relevant building codes and the local Authority Having Jurisdiction.

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

### SLC ADDRESSABLE DEVICE CIRCUIT WIRING / OPERATION COMPARABLE TO NFPA CLASS B (or ULC DCLB)

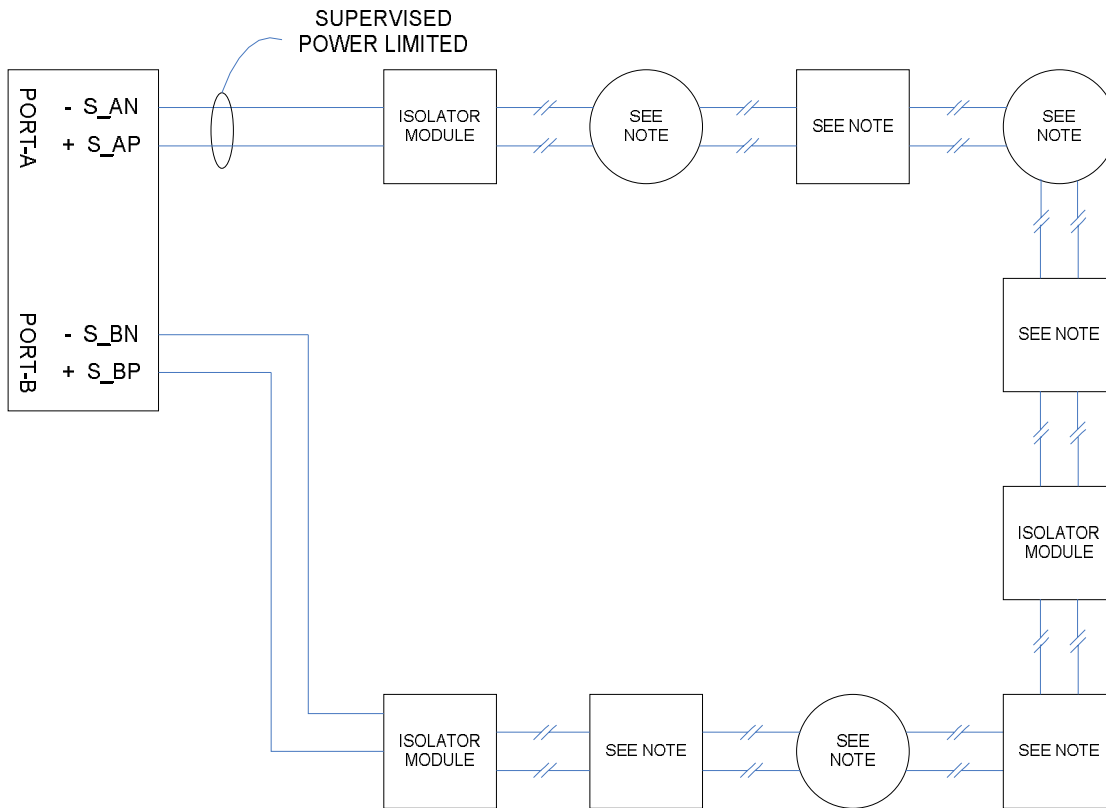


#### Notes:

- **Siemens SLC Devices: Detectors, Monitor Modules, or Control Modules up to a maximum of 50 devices (include both PORT-A and PORT-B). A maximum of 20 devices recommended per Isolator Module. A maximum of 15 Isolator Modules per addressable device circuit.**
- **If more than one HCP intelligent control point module is installed on an addressable device circuit, class B (DCLB) wiring cannot be used.**
- **The HCP device can't be installed on a P2 line if X-series is in isolation mode.**

**SLC ADDRESSABLE DEVICE CIRCUIT WIRING / OPERATION COMPARABLE TO NFPA CLASS A  
(or ULC DCLA)**

Class A (DCLA) provides redundant communication paths.

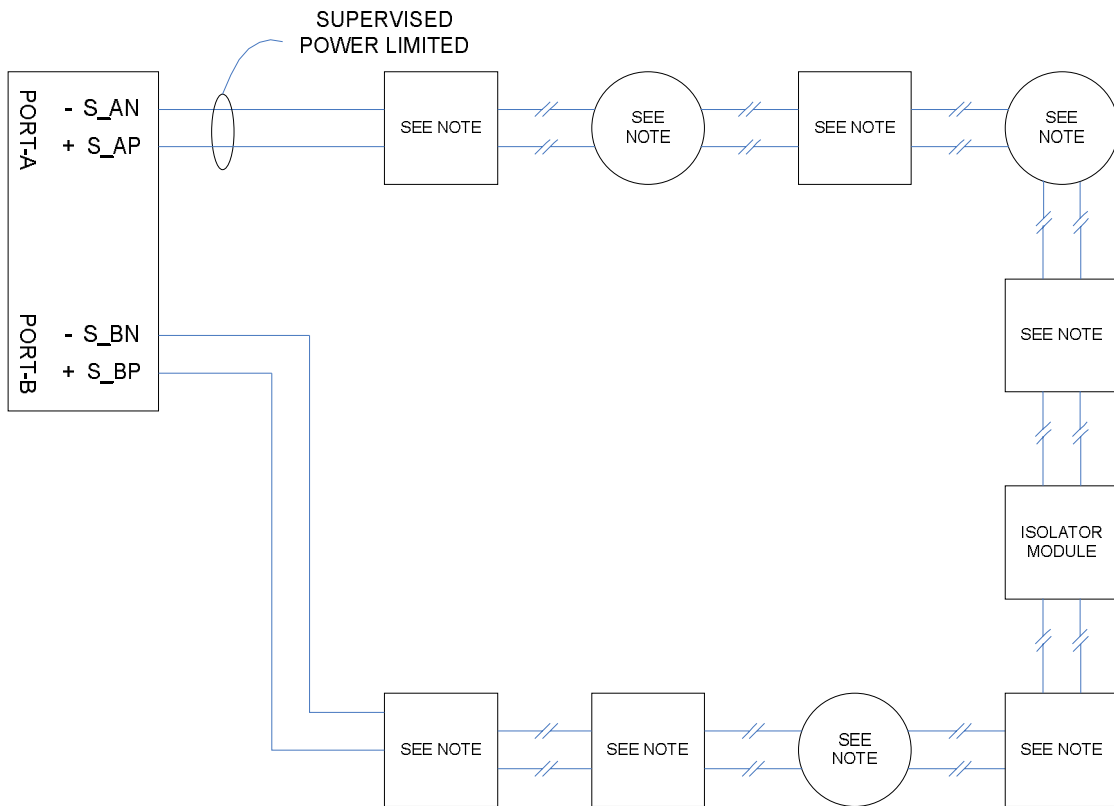


**Notes:**

- **Siemens SLC Devices: Detectors, Monitor Modules, or Control Modules up to a maximum of 50 devices. A maximum of 20 devices recommended between Isolator Modules. A Maximum of 15 Isolator Modules per addressable device circuit.**
- **If more than one HCP is used on a SLC device loop, the loop must be wired Class A (DCLA) or the riser conductors must be installed in accordance with the Survivability From Attack By Fire requirements in the National Fire Alarm Code, NFPA 72. If wired Class A (DCLA), at least one HLIM loop isolator must be installed between each HCP and between the panel and the first and last HCP. See the HLIM installation instructions for the maximum number of isolators allowed per loop and other wiring instructions.**

**SLC ADDRESSABLE DEVICE CIRCUIT WIRING / OPERATION COMPARABLE TO NFPA CLASS X  
(or PABE DCLC)**

CLASS X (DCLC) provides redundant communication paths.



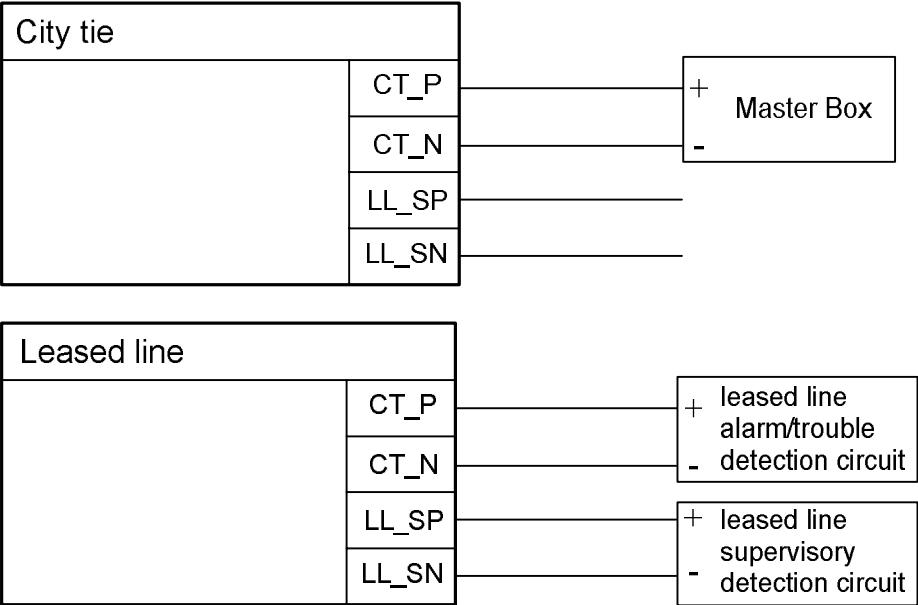
**Notes:**

- **Siemens SLC Devices: Monitor Modules, or Control Modules up to a maximum of 50 devices.**
- **Only listed Class X (DCLC) devices, models XTRI-R, XTRI-D, XTRI-S, XTRI-M, ILED-XW, ILED-XC, TSM-1X, and PAD-5 can support CLASS X (DCLC) mode. And all these devices must be wiring as isolator module. If Class X (DCLC) devices are mixed with existing devices or wiring as non-isolator module, only Class A (DCLA) supervision can be achieved.**

Optional City Tie/Leased Line

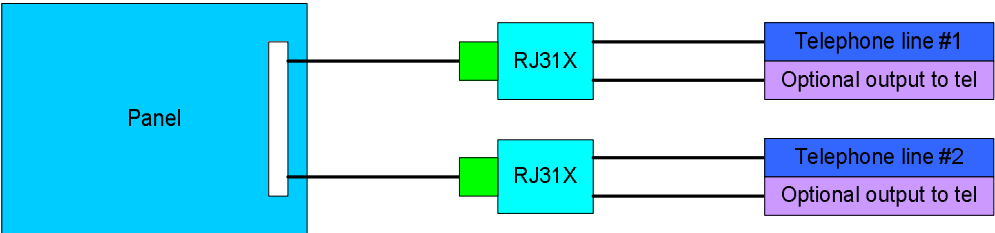
FC2005 provides one city tie or one leased line to connect with local energy and polarity reversal.

City tie and Leased line  
Supervised, Power Limited



DACT Wiring

FC2005 will provide two connections to Public Switched Telephone Network (PSTN).



# PROGRAMMING THE CONTROL PANEL

## KEYPAD PROGRAMMING

Customized programming of the control panel may be accomplished through the keypad included in the control panel.

## PC PROGRAMMING

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

The Siemens FXS901-U2 software is available to allow programming the control panel by connection to a Personal Computer (PC) with an USB port. This allows ease of operation by preparing the program in advance and downloading to the control panel in a simple, rapid operation.

## PROGRAMMING SECURITY

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

Level 1 (User) – Locked Door

Level 2 (Maintenance) – Locked Door and 4-digit Maintenance Password

Level 3 (Technician) – Locked Door and 4-digit Technical Password

The user level is also accessible from FSD.

# MAINTENANCE

## GENERAL

The FC2005 provides maintenance functions to allow for the setting and controlling of various features in the system.

The maintenance functions are protected by a four digit password. To access the maintenance features press the “MENU” button and select Login item in the View menu, enter the four digit code when prompted and then press “OK”.

FC2005 Maintenance is separated into two levels. The user can enter a different password to enter different levels.

Level 2: Protected by level 2 password, Level 2 provides control functions.

Level 3: Protected by level 3 password, Level 3 provides control functions and parameter change functions.

The following functions are accessible to L2 and L3 user by selecting items in the Operate menu.

Disable/Enable Devices

Disable/Enable NACs

Disable/Enable City Tie

Disable/Enable DACT

Disable/Enable Status Relays

Disable/Enable Detector Applications

Disable/Enable PAS

Starting and Configuring Quick Test

Set the Time

Set the Date

The functions listed below are provided specifically to L3 users.

Edit Device Labels

Edit System Labels

Program a Device

Change the Maintenance Password

### **Note:**

- **Disabling any input and output devices, applications will annunciate a trouble condition.**

## QUICK TEST

The Quick Test mode makes it fast and easy to test a system by eliminating the need to disconnect panel from remote connections to the Fire Department or other monitoring stations. In this way, operator can test all devices locally without annunciating any condition to remote connections.

To configure the Quick Test parameters, enter L2 user level and navigate to the Quick Test item in the Operate menu. Configure the following parameters prior to starting Quick Test:

- Quick Test Time – FC2005 will automatically quit Quick Test mode after the configured time
- Disable Output – Doesn't activate any output on events in Quick Test Mode
- Annunciator Off – Doesn't send any events to annunciators in Quick Test Mode
- History Off – Doesn't record any events in History Record in Quick Test Mode
- NAC Off – Doesn't activate NAC in Quick Test Mode

To initiate the Quick Test mode, navigate through the menu using the following steps:

- 1) Login at L2 or L3
- 2) Press the Menu button
- 3) Press right arrow to OPER
- 4) Press down arrow to Quicktest
- 5) Press OK
- 6) Modify Quicktest parameters as needed-(time, NAC on/off, etc...)
- 7) After setting all Quicktest parameters, and while still in the Quicktest screen, Press the Menu button
- 8) Press the OK button to initialize Quicktest

### **Note:**

- **The countdown timer will be indicated in the upper right corner of the main board display.**

Test conditions will be annunciated on the panel to indicate that panel is in Quick Test Mode. Initiation of any addressable device will not activate associated NACs if "NAC OFF" is enabled in Quick Test mode.

By selecting the Extend (Quick Test) item in the Operate menu, L2 user can extend the quick test time. L2 user can quit the quick test mode by selecting the Cancel (Quick Test) item in the Operate menu.

### HZM in Quick Test

Testing conventional detectors in Quick Test requires a few more steps than testing addressable devices. Since the HZM only guarantees that one detector will stay in active at a time, its detector loop must be reset after each detector is activated. This can be accomplished in the following ways:

- By shorting the device loop for at least six seconds.
- By interrupting power to the device loop or the active device for at least six seconds.

Either of these methods will cause the active detector to reset.

### **Note:**

- **The previous detector must be clear of smoke after resetting the loop or it will generate another alarm.**

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# APPENDIX-A: REFERENCE DATA

This appendix provides reference for the following topics:

Wire selection guides

Battery size calculations

## WIRE SELECTION GUIDES

Resistance of Solid Copper Wire

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

\*NEC Chapter 9, Table 8.

Addressable Device Circuit Wire Selection Guide

Each addressable device circuit must meet the following requirements:

Total loop resistance – 50 Ohm maximum with 50 devices

Total loop capacitance - 0.5 uF max line to line per km and 1.0 uF max line to shield per km

### Note:

- The terminal blocks of Siemens SLC devices are rated for a maximum of 14AWG wire.

## BATTERY SIZE CALCULATIONS

### System Current Draw Break down

System Current Draw Components	Standby (A)	Alarm (A)
Main board	0.1590	0.1864
NAC	0	C1
SLC	C2	C3
Auxiliary power	C4	C5
City tie module	0.0017	0.0158

## SLC Current Draw Break down

SLC Current Draw Components	Standby (A)	Alarm (A)
HFP-11	0.00140	0.00140
HFPO-11	0.00140	0.00140
HFPT-11	0.00140	0.00140
OOHC941	0.00075	0.00075
OOH941	0.00068	0.00068
OH921	0.00030	0.00030
OP921	0.00030	0.00030
HI921	0.00028	0.00028
FDCIO42	0.00120	0.00120
HMS	0.00140	0.00140
HTRI-S	0.00140	0.00140
HTRI-D	0.00140	0.00140
HTRI-R	0.00140	0.00140
HZM	0.00140	0.00140
HCP	0.00140	0.00140
ILED	0.00140	0.00140
FDOOTC441	0.00075	0.00075
FDOOT441	0.00068	0.00068
FDOT421	0.00030	0.00030
FDO421	0.00030	0.00030
FDT421	0.00028	0.00028
ABHW-4B	0.00030	0.00030
ABHW-4S	0.00030	0.00030
XTRI-R	0.00050	0.00075
XTRI-D	0.00050	0.00095
XTRI-M	0.00050	0.00050
XTRI-S	0.00050	0.00065
ILED-XC	0.00050	0.00050
ILED-XW	0.00050	0.00050
TSM-1X	0.00050	0.00050
PAD-5-MB	0.00075	0.00075
PAD-5-CLSA	0.00125	0.00125
PAD-5-CDC	0.00075	0.00075
Pull station	0.00050	0.00050

Total Standby Current =  $0.1590 + C2 + C4 + 0.0017$  (if used)

Total Alarm Current =  $0.1864 + C1 + C3 + C5 + 0.0158$  (if used)

Where

C1 = NAC1 current + NAC2 current, should be less or equal to 2.5 A.

C2 =  $\sum$  quantity of each type of detector x standby current/each

C3 =  $\sum$  quantity of each type of detector x alarm current/each

C4 = External device current draw through Aux1 and Aux2 in standby stage, either one of Aux1 and Aux2 should be less than or equal to 0.75 A.

C5 = External device current draw through Aux1 and Aux2 in alarm stage, either one of Aux1 and Aux2 should be less than or equal to 0.75 A.

## Battery Size

Total Standby Current (from above)	Hours of Standby Required per NFPA 72 Standard (4, 24 or 90)	AH for Standby
A	X Hours	=

Total Alarm Current (from above)	5 Minutes of Alarm Operation per UL 4 Minutes of Alarm plus 12 hours reduced time annunciation per UL (CO monitoring UL 69.2.5 Exception #2) 30 Minutes of Alarm Operation per ULC	AH for Alarm
A	X Hours	=

A.H. for Standby	A.H. for Alarm	Calculated A.H.	De-rating Factor (20% derating per UL864)	A.H. Required Battery Capacity
	+	=	X 1.2	=

### Notes:

1. An additional multiplier is included to compensate for the higher discharge rate in alarm. Battery capacity decreases with age.
2. Total standby current is limited to 0.247 A for Canada and 0.381 A for US.
3. Total alarm current is limited to 4.6 A.

# APPENDIX-B: COMPATIBLE DEVICES

## DEVICES FOR ADDRESSABLE DEVICE CIRCUITS

x means supported.

		FC2005 Desigo UL	FC2005 Desigo ULC	FC901 Cerberus UL	FC901 Cerberus ULC
<b><sup>5)</sup>H-series</b>					
Point detectors					
HFPO-11	Photo detector	x	x	x	x
HFP-11	Photo thermal detector	x	x	x	x
HFPT-11	Thermal detector	x	x	x	x
Manual pull station					
HMS-S	Single action manual pull station	x	x	x	x
HMS-D	Dual action manual pull station	x	x	x	x
HMS-M	Single action metal manual pull station	x	x	x	x
HMS-SA	Single action manual pull station	x	x	x	x
HMS-2S	Single action manual pull station with 2nd-stage key switch	x	x	x	x
XMS-S	Single action isolating manual pull station	x	x	x	x
XMS-D		x	x	x	x
XMS-M		x	x	x	x
XMS-SA		x	x	x	x
Line modules					
HTRI-S	Single input interface module	x	x	x	x
HTRI-D	Dual input interface module	x	x	x	x
HTRI-R	Single input interface module with relay	x	x	x	x
HTRI-M	Mini single input interface module	x	x	x	x
HCP	Intelligent control point	x	x	x	x
HZM	Conventional zone module	x	x	x	x
HLIM	Line isolator	x	x	x	x
Alarm devices					
DB2-HR		x	x	x	x
ADBH-11	Detector Audible base	x	x	x	x
SBGA-34		x	x	x	x
ABHW-4B		x	x	x	x
ABHW-4S		x	x	x	x
FHBZ482-HR		x	x	x	x
AD2-P		x	x	x	x
FDBZ492-HR		x	x	x	x
DB-11		x	x	x	x
DB-11E		x	x	x	x
FDBZ492-HR		x	x	x	x
Others					
ILED-HC	Intelligent remote indicator ceiling mount	x	x	x	x
ILED-HW	Intelligent remote indicator wall mount	x	x	x	x
RL-HC	Ceiling mount remote lamp	x	x	x	x
RL-HW	Wall mount remote lamp	x	x	x	x
AD2-XHR	Air duct housing with relay	x	x	x	x
DB-HR	Detector relay base	x	x	x	x
<b><sup>5)</sup>8700-series</b>					
Point detectors					

		FC2005 Desigo UL	FC2005 Desigo ULC	FC901 Cerberus UL	FC901 Cerberus ULC
8710				x	
8713				x	
8712				x	
Manual pull station					
8700-S	Single action manual pull station			x	
8700-D	Dual action manual pull station			x	
8700-M	Single action metal manual pull station			x	
Line modules					
8702	Single input interface module			x	
8703	Dual input interface module			x	
8704	Single input interface module with relay			x	
8701	Mini single input interface module			x	
8706	Intelligent control point			x	
8705	Conventional zone module			x	
8726C	Intelligent remote indicator ceiling mount			x	
8726W	Intelligent remote indicator wall mount			x	
<b>FD182UL Sinteso version</b>					
<b>Point detectors</b>					
FDO421	Smoke detector	x	x		
FDOT421	Smoke heat detector	x	x		
FDT421	Heat detector	x	x		
<b>FD182UL Cerberus version</b>					
<b>Point detectors</b>					
OP921	Smoke detector			x	x
OH921	Smoke heat detector			x	x
HI921	Heat detector			x	x
<b>ASA Global Sinteso version</b>					
FDOOT441	Dual optical/thermal multi-sensor detector	x	x		
<sup>4</sup> FDOOTC441	Dual optical/thermal/CO multi-sensor detector	x	x		
FDCIO422	Input/output module	x	x	x	x
<b>ASA Global Cerberus version</b>					
OOH941	Dual optical/thermal multi-sensor detector			x	x
OOHC941	Dual optical/thermal/CO multi-sensor detector			x	x
<b>Line modules</b>					
XTRI-R	New I/O modules	x	x	x	x
XTRI-S	New I/O modules	x	x	x	x
XTRI-D	New I/O modules	x	x	x	x
XTRI-M	New I/O modules	x	x	x	x
ILED-XW	New I/O modules	x	x	x	x
ILED-XC	New I/O modules	x	x	x	x
TSM-1X	New I/O modules	x	x	x	x
<b><sup>5</sup>S-series</b>					
SMS-S			x		x
SMS-D			x		x
SMS-M			x		x
SMS-SA			x		x
SMS-2S			x		x
STRI-R			x		x
STRI-S			x		x
STRI-D			x		x

		FC2005 Designo UL	FC2005 Designo ULC	FC901 Cerberus UL	FC901 Cerberus ULC
STRI-M			X		X
SZM			X		X
SLIM			X		X
SFPO-11			X		X
SFPT-11			X		X
SFP-11			X		X
ILED-SC			X		X
ILED-SW			X		X
<b>Other</b>					
PAD5		X	X	X	X

#### Notes:

- 1) Siemens SLC devices, detectors and modules, up to a maximum of 50 addresses may be used.
- 2) For specific wiring and installation information, read the instructions provided with each device.
- 3) If more than one HCP is used on a SLC device loop, the loop must be wired Class A or the riser conductors must be installed in accordance with the Survivability From Attack By Fire requirements in the National Fire Alarm Code, NFPA 72. If wired Class A, at least one HLIM loop isolator must be installed between each HCP and between the panel and the first and last HCP. See the HLIM installation instructions for the maximum number of isolators allowed per loop and other wiring instructions.
- 4) FC2005 support FDOOTC441 CO function. CO channel can be configured as automatic alarm event and supervisory event in the detection tree of FC2005. But it does not comply with UL 2017 standard when CO channel was configured for an automatic alarm event. It does comply with UL 864.
- 5) H-series, 8700 series and S-series modules are the same devices with different sales channel. Their corresponding relationship is shown in the below table:

H-series	8700-series	S-series
HFP-11	8713	SFP-11
HFPT-11	8712	SFPT-11
HFPO-11	8710	SFPO-11
HMS-S	8700-S	SMS-S
HMS-D	8700-D	SMS-D
HMS-M	8700-M	SMS-M
HMS-SA	-	SMS-SA
HMS-2S	-	SMS-2S
HTRI-S	8702	STRI-S
HTRI-R	8704	STRI-R
HTRI-D	8703	STRI-D
HTRI-M	8701	STRI-M
HCP	8706	-
HZM	8705	SZM
ILED-HC/HW	8726C/W	ILED-SC/SW

## UFP devices

<b>Siemens Cat. No.</b>	<b>Description</b>
FT2007-U1	LED drive board
FT2008-U1	LED annunciator-16 Zone, black
FT2008-R1	LED annunciator-16 Zone, red
FT2009-U1	LED annunciator-32 Zone, black
FT2009-R1	LED annunciator-32 Zone, red
FSD901-U2	Floor repeater display, Desigo, black
FSD901-R2	Floor repeater display, Desigo, red
FSD901-U3	Floor repeater display, Cerberus, black
FSD901-R3	Floor repeater display, Cerberus, red
FCA2018-U1	Remote Peripheral Module
FT2018-U1	LED annunciator-16 Zone, black
FT2018-R1	LED annunciator-16 Zone, red
FT2019-U1	LED annunciator-32 Zone, black
FT2019-R1	LED annunciator-32 Zone, red




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CO signaling can only be annunciated by panel NAC or by (ABHW) audible base.

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# APPENDIX-C: TROUBLESHOOTING

## DEFINITIONS FOR EVENT HISTORY ENTRIES

### A. General

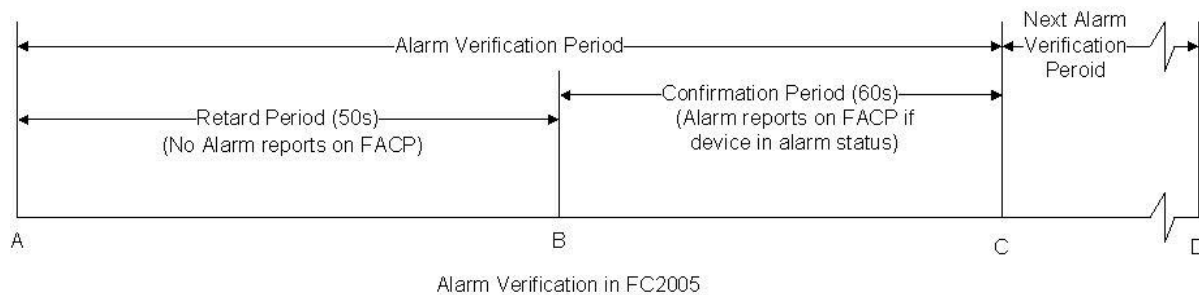
ENTRY	INDICATES
Disabled	The device has been disabled
Ground	The device is in ground fault
Open	The device is in open trouble
Short	The device is in short trouble
Overload	The SLC line is overloaded
GeneralTrouble	The device reports general trouble
Unconfig	The system finds a SLC device that is not in the config file
TypeMismatch	The SLC device type is not consistent with the config file
CommunicationTrouble	The communication between the device and the panel is abnormal
Multiple Device Response	More than one SLC device has the same address
TypeUnknown	The device type is unknown to the panel
Dirty	The SLC device is dirty
Replace	The SLC device needs to be replaced
ParameterError	The SLC device has invalid parameter setting
AddressInvalid	The address of SLC device is invalid
AddressUnspecified	The SLC device has no address
ACFail	The AC power of the system is in trouble
MessageLost	The DACT lost some messages because of limited memory space
FatalFault	The SLC device reported fatal fault trouble
VoltageLow	The battery voltage is too low
VoltageHigh	The battery voltage is too high
OverCurrent	The NAC is in over current state
CircuitTrouble	The battery charge circuit is in trouble
BatteryAbsent	The battery is missing

### B. System Events

ENTRY	INDICATES/NOTES
Reset	Panel reset
Silence	Silence all silenceable outputs
Unsilence	Unsilence all silenced outputs
Test	Start quick test
QuitTest	Exit quick test
Acknowledge	Panel events acknowledged
Unacknowledge	Resound of the trouble/supervisory
Login	User level login
Logout	User level logout
DACT Bypass	The configured DACT module stops working
Addressable Device Bypass	The input and output channel for configure P2 point stops working
NAC Bypass	The configured NAC stops working
Fire Drill	The system is performing a fire drill
Manual Evac	Manual fire alarm
CO Test	Corresponding detector's CO channel is set to be the most sensitive
Lamp Test	Start a lamp test

ENTRY	INDICATES/NOTES
ClearHistory	Delete all history records
PreDischarge	Panel in predischARGE phase
PreDischarge Timeout	PredischARGE phase finished

## APPENDIX-D: ALARM VERIFICATION



A	Smoke detector goes into alarm. (LED on device turns to red)
AB	Retard Period, FACP senses detector in alarm and delays alarm signal for 50s. In this period, no alarm event reports on FACP.
BC	Confirmation Period, Detector is operational for alarm at point B. If detector is still in alarm at point B, FACP will report alarm. If detector is not in alarm, system returns to standby. If the detector re-alarms at any time during the confirmation period the FACP will alarm. The period length is 60s.
CD	Restart next alarm verification period if new alarm occurs.



Alarm Verification CANNOT be active when the system is employing cross-zone initiating functions or any other time delay like Positive Alarm Sequence.

# APPENDIX-E: APPLICATION SPECIFIC DETECTION

Application Specific Detection (ASD) allows the system designer to program a detector's sensitivity, pre-alarm threshold, and other alarm-related parameters using English descriptions of the detector's environment (application). This eliminates the need for detailed knowledge of smoke detector terminology and operation. The designer can set all of the critical detector parameters by simply selecting an application description that closely fits the one where the detector is to be installed.

For example, to use ASD to select the optimal parameters for a detector in a hotel lobby, select the LOBBY application in the FXS901-U2 tool for that device. The system will automatically transmit the factory determined sensitivity, pre-alarm threshold, and detection algorithm (R-algorithm) to the corresponding device. This eliminates the guesswork of selecting these parameters for different environments.

**ASD APPLICATIONS of H-series**

<b>ASD Application</b>	<b>ASD Description</b>
Disable	No Applications (Standard Photo/thermal Detector)
Office (Retail)	Reasonably clean, climate controlled atmosphere
Warehouse (Light Manufacturing)	Airborne dust, equipment, fork truck and light to medium dock area exhaust fumes
Lobby	Relatively clean area, temperature changes, cellular phones, smoking
Computer Room	Very controlled environment, clean, temperature closely regulated, high cost clean machinery operating, no smoking, high air velocity
Dormitory	Airborne dust and temperature changes, living quarters, cooking fumes, smoking
Healthcare	Higher level risk, relatively clean, electronic equipment
Parking Garage	Airborne dust, car and diesel fumes, temperature swings
Equipment Storage (Transformer) Room	Normal to somewhat dirty environment, heat from running equipment
Precious Storage (Sensitive Environment)	Sensitive materials or equipment storage, clean dust-free environment, earliest warning desired
Hostile Environment	Dirty, dusty, humid, operating equipment, RF present, wide temperature swings
Duct (Open air or duct housing)	Dirty, dusty, humid, wide temperature swings, high air velocity

## APPENDIX-F: TESTING/MAINTENANCE

If the system is connected to the fire department, etc., or actuates an internal system, disarm the appropriate outputs before servicing to prevent actuation. Notify the fire department and personnel at your facility that a System test is being performed so that any alarm sounding can be ignored during the test. Notify the fire department before resetting the system.

Inspection, Testing, and Maintenance of the fire alarm system should be performed in accordance with NFPA 72, The National Fire Alarm Code and all applicable local codes.

### BATTERY MAINTENANCE

Perform the following tests at the recommended interval. Replace the battery set every four years or if any of the test criteria are not met.

#### *Initiation / Reacceptance*

1. Charger Test—with the batteries fully charged and connected to the charger, measure the voltage across the battery set. It must read  $27.3\text{ V} \pm 0.3\text{ V}$ .
2. Discharge Test—with full system alarm load, the voltage on a fully charged battery must not fall below 20.4 V after 30 minutes.
3. Load Voltage Test—with full system alarm load, the voltage on a fully charged battery must not fall below 24.6 V after one minute.

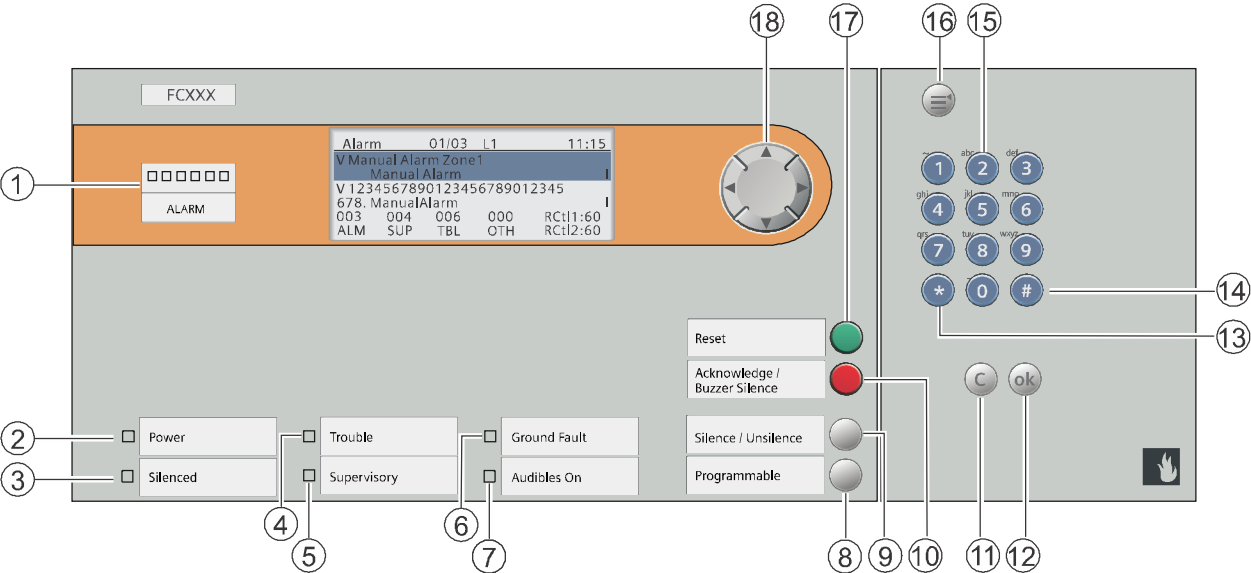
#### *Testing Interval*

1. Semiannually—Perform the Load Voltage Test.
2. Annually—Perform the Charger Test and Discharge Test.

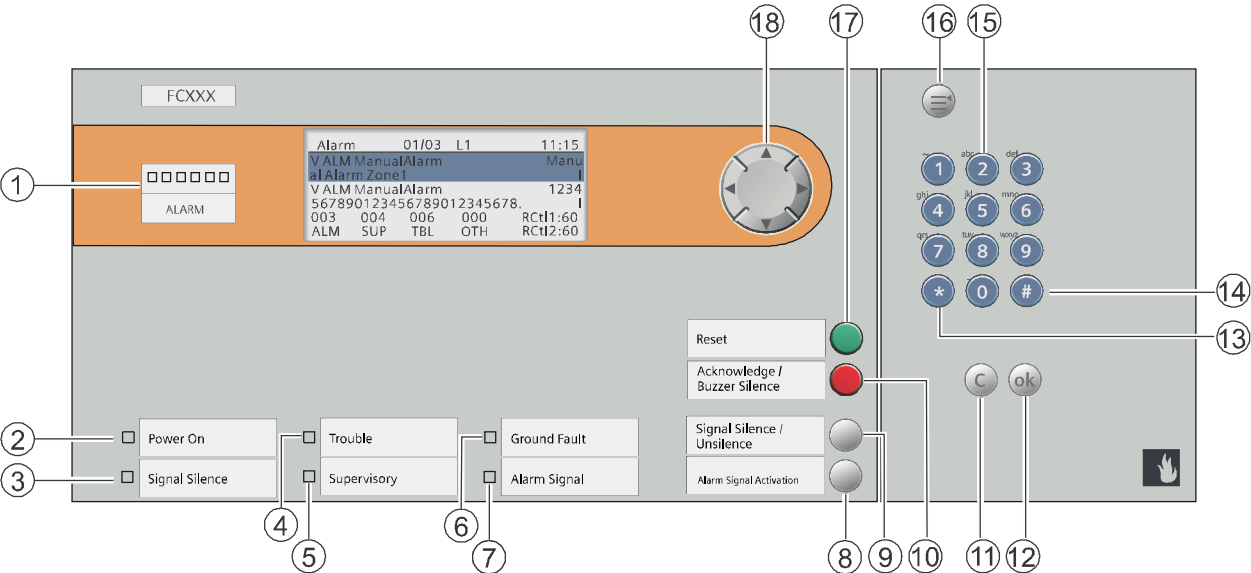
# APPENDIX-G: LCD, CONTROLS AND INDICATORS

The FC2005 has a buzzer, 7 LEDs, 4 navigational push buttons, 4 push buttons, alphanumeric keypad, 3 menu control buttons (menu, cancel and ok) and a communication port connector.

Panel in US



Panel in Canada



## Communication Port Connector

The communication port is connected to the USB port of the computer that has the FXS901-U2 programming tool. This is used to upload and/or download panel configuration if this method of programming is used.

The computer must be disconnected from the panel if not in use.

## LEDS, Buzzer and Dedicated Push Buttons

The LEDs operate as follows:

Item	LED		Color	Status	Description
1	Alarm		Red	Steady ON	There are alarm events, and all alarm events have been acknowledged.
				OFF	There is no alarm event in system.
				Flashing	There are alarm events in system, but some of them have not been acknowledged.
2	Power (US)	Power On (Canada)	Green	Steady ON	The system's power works normally. Both the main power and battery are in normal status.
				OFF	The system is not powered on. This LED can be OFF only when the system is shut down.
				Flashing	The main power is in trouble and system is powered via battery.
3	Silenced (US)	Signal Silence (Canada)	Yellow	Steady ON	All outputs which can be silenced are silenced.
				OFF	There are no silenced outputs in system.
				Flashing	Both silenced and unsilenced outputs exist.
4	Trouble		Yellow	Steady ON	There are trouble events, and all of them have been acknowledged.
				OFF	There is no trouble event in system.
				Flashing	There are trouble events in system, but some of them have not been acknowledged.
5	Supervisory		Yellow	Steady ON	There are supervisory events, and all of them have been acknowledged.
				OFF	There is no supervisory event in system.
				Flashing	There are supervisory events in system, but some of them have not been acknowledged.
6	Ground Fault		Yellow	Steady ON	There are Ground Fault events in system.

				OFF	There is no Ground Fault event in system.
				Flashing	There are ground fault events in system, but some of them have not been acknowledged.
7	Audible On (US)	Alarm Signal Activation (Canada)	Red	Steady ON	The LED 7 can only be steady on when any of the following conditions are met: 1. There are activated NACs and some of them are not silenced. 2. There are silenceable devices activated and some of them are not silenced.
				OFF	The LED 7 will be OFF when above conditions are not met.

The buzzer operates as follows:

Normally OFF – indicates that the system is in normal condition or all events in the system have been acknowledged.

ON (200 pulse per minute) – indicates that at least ONE unacknowledged alarm is present in the system.

ON (85 pulse per minute) – indicates that at least ONE unacknowledged non-alarm (trouble, supervisory) event is present in the system.

The buttons operates as follows:

Item	Button	Action	Description
8	Programmable (US)	Press	Press button 8 to execute user defined and configured functions.
	Alarm Signal Activation (Canada)		Press button 8 to report the alarm zone events to the panel.
9	Silence/Unsilence (US)	Press	The button toggles between silence and unsilence. Press button 9 to silence the audible and/or visual notification appliances (where permitted by the codes and control panel programming). The notification appliances will be de-activated, and the LED 3 will be off. Press button 9 again to unsilence the previously silenced notification appliances.
	Signal Silence/Unsilence (Canada)		
10	Acknowledge/Buzzer Silence	Press	Acknowledges unacknowledged events in system.
17	Reset	Press	Clears all obsolete events and resets all devices, except those disabled ones and hold-through-reset devices in system.
11	C	Press	Cancel button for PMI operation.
12	OK	Press	OK button for PMI operation.
13	*	Press	* button for PMI operation.
14	#	Press	# button for PMI operation.
15	0-9	Press	Numeric buttons for PMI operation. They are used to enter the password to access the maintenance and technician modes of the panel. It allows the user to program the panel using these keypads without using the



			FXS901-U2 programming tool.
16	Menu	Press	Menu button for PMI operation.
18	Four-way button	Press	A four-way button for menu navigation.

## LCD Display

A 160 by 64 dot LCD display is used to display information such as event types, event amount, event location, user level, releasing timer, etc. A back light is included in the display to assure visibility in dim light. To save power, the back light is only activated during a reported event or on operation of a display control button.

The LCD display has altogether 7 lines, and each line displays 26 characters. It displays two events at a time. Users can cycle through a circular list once the first event or last event message is reached.

## LCD display in Canada

The text displays in the below graphic and table is just an example. The actual display corresponds to the actual situation.

Alarm	01/03	L1	11:15	①
V ALM ManualAlarm			Manu	②
al Alarm Zone1			I	③
V ALM ManualAlarm			1234	④
567890123456789012345678.			I	⑤
003	004	006	000	⑥
ALM	SUP	TBL	OTH	⑦
			RCtl1:60	
			RCtl2:60	

Line	Current text	Description
1	Alarm	Current event type
	01/03	Current event/total events
	L1	Access level
	11:15	System time
2	V	Possible display: V: The event is acknowledged !: The event is unacknowledged
	ALM	Current event type
	ManualAlarm	Specific current event type
	Manu	Connects to the content in line 3
3	al Alarm Zone1	Event location (see complete information together with the last 4 characters in line 2)
	I	Possible display: I/O (in or out flag)
4	V	Possible display: V: The event is acknowledged !: The event is unacknowledged
	ALM	Current event type
	ManualAlarm	Specific current event type
	1234	Connects to the content in line 2
5	567890123456789012345678.	User defined (Max. 30 characters; see complete information together with the last 4 characters in line 2)
	I	Possible display: I/O (in or out flag)
6, 7	003 ALM	Alarm event amount
	004 SUP	Supervisory event amount
	006 TBL	Trouble event amount
	000 OTH	Other event amount
	RCtl1:60 RCtl2:60	Releasing timer name and releasing count down time (60 s by default; Max. 60 s; DIS (discharge) is displayed after count down.)

## LCD display in US

The text displays in the below graphic and table is just an example. The actual display corresponds to the actual situation.

Alarm	01/03	L1	11:15	①	
V Manual Alarm Zone1				②	
Manual Alarm				③	
V 1234567890123456789012345				④	
678. ManualAlarm				⑤	
003	004	006	000	Rct1:60	⑥
ALM	SUP	TBL	OTH	Rct2:60	⑦

Line	Current text	Description
1	Alarm	Current event type
	01/03	Current event/total events
	L1	Access level
2	V	Possible display: V: The event is acknowledged !: The event is unacknowledged
	Manual Alarm Zone1	Event location
3	Manual Alarm	Event type
	I	Possible display: I/O (in or out flag)
4	V	Possible display: V: The event is acknowledged !: The event is unacknowledged
	1234567890123456789012345	User defined (Max. 30 characters; see complete information together with the first 4 characters in line 5)
5	678.	Connects to the content in Line 4
	ManualAlarm	Event type
	I	Possible display: I/O (in or out flag)
6, 7	003 ALM	Alarm event amount
	004 SUP	Supervisory event amount
	006 TBL	Trouble event amount
	000 OTH	Other event amount
	Rct1:60 Rct2:60	Releasing timer and releasing count down time (60 s by default; Max. 60 s; DIS (discharge) is displayed after count down.)

## Event displaying rules

Events are displayed according to the following rules:

- Events priority:  
Unacknowledged Alarm > Unacknowledged Supervisory > Unacknowledged Trouble > Acknowledged Alarm > Acknowledged Supervisory > Acknowledged Trouble > Status > Test
- Within events of the same priority, all events are displayed in the order of occurrence the latest displayed the first.
- Status events are displayed according to the event setting. If it is configured as “No display”, it will not be listed in Event List.

When Supervisory is configured as Non-Self Restoring, a Supervisory OUT Event will be displayed in the event list when supervisory condition disappears. This also applies to Trouble and Status.

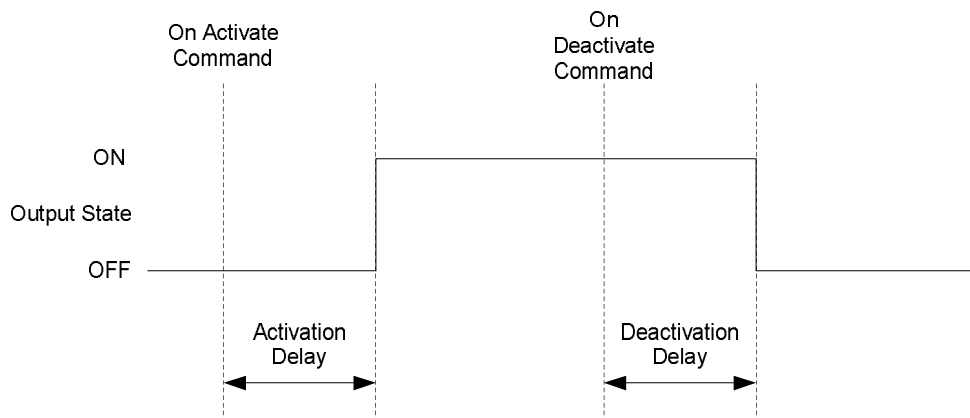
# APPENDIX-H: OUTPUT FEATURES

## Output Activation- and Deactivation- Delays

Each output device has a selection for Activation delay and Deactivation delay when it is installed in the configuration. The Activation delay refers to the delay in which the output will activate after the reception of its activation command. If the Activation delay is set to 0 (default setting), the output immediately activates. The Deactivation delay refers to the delay in which the output will deactivate after the reception of its deactivation command. If the Deactivation delay is set to 0 (default setting), the output immediately deactivates.

Output device during activation delay will not respond to deactivate command. This means an output device with activation delay will definitely be activated after receiving activate command. Output device during deactivation delay will respond to activate command immediately and the deactivation delay will be cancelled.

Assuming an output channel on SLC is configured to be interlocked by supervisory condition of FACP with Activation Delay of 10s and Deactivation Delay of 10s. When FACP enters supervisory condition at 00"00', the output channel will be activated at 00"10'. Then if the supervisory condition goes at 00"30', the output channel will be deactivated at 00"40'.



### Note:

- This function only applies to IO modules on SLC.

# APPENDIX-I: PAS / PRE-SIGNAL

PAS (Positive Alarm Sequence) and Pre-Signal features allow the user to delay the activation of the audibles, strobes and other output devices when an initial alarm is detected. Output can be interlocked by zones. When an initial alarm is detected, all outputs except remote devices (off-premises devices like general relays and city tie) associated with PAS Zone (Zone configured with PAS feature) will be activated immediately. When PAS delay timer elapses, other remote devices will also be activated. The delay timers are configurable.

## PAS

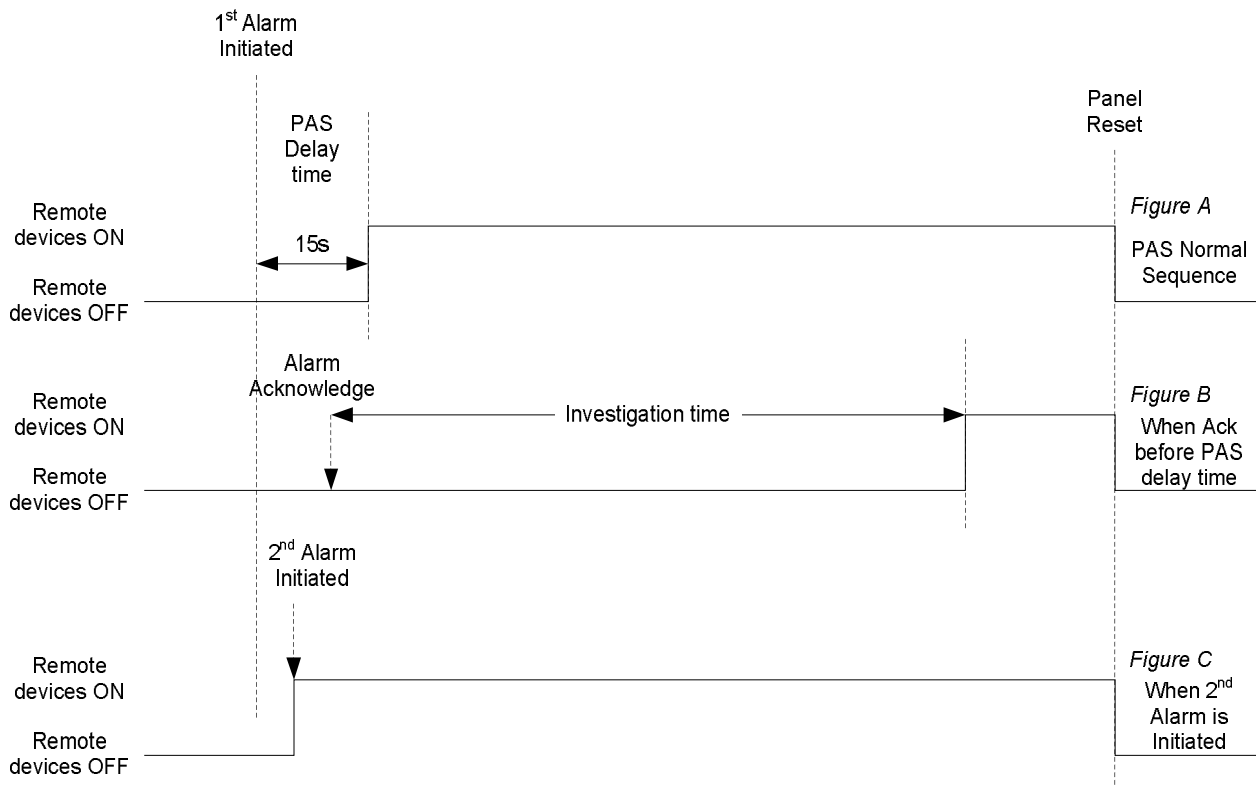
When an alarm causing device associated with a zone with PAS feature is initiated, the alarm condition is reported on the panel. The activation of its related remote outputs (e.g. output relays) are delayed for 15 seconds (PAS delay time) waiting for a manual acknowledgement response.

If no response is received within 15 seconds, the panel proceeds to activate the associated remote outputs. See Figure A.

If the alarm event is acknowledged during the PAS delay time, the programmable PAS investigation time (60-180 seconds) is added to the PAS delay time before remote outputs are activated. See Figure B.

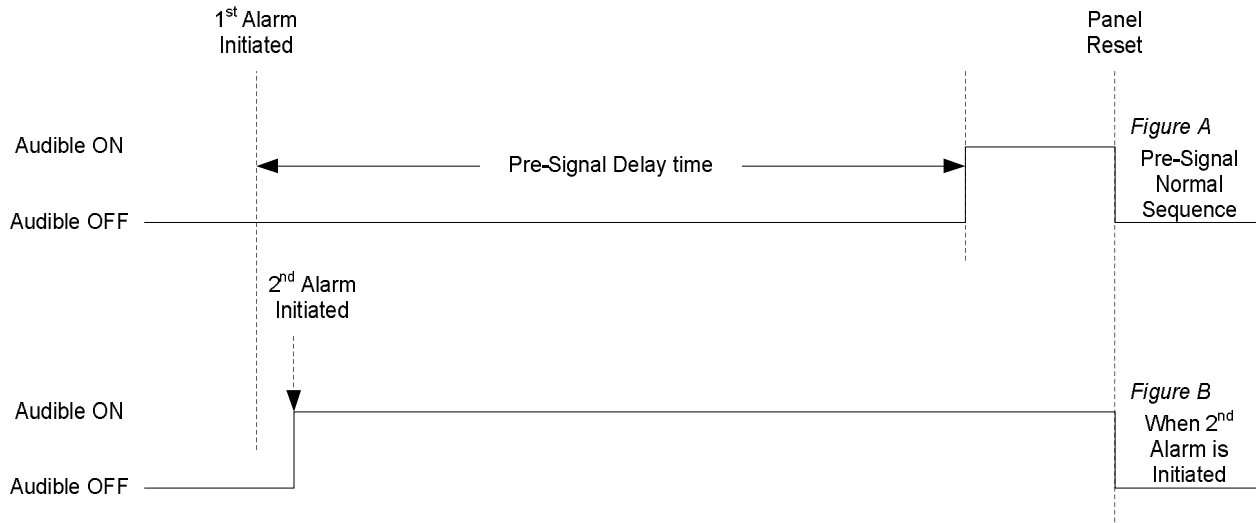
However, if a 2nd alarm is initiated anytime during the PAS delay time or PAS investigation time, the remote output devices are immediately activated. See Figure C.

Pressing the Reset button at anytime during the PAS sequence will initiate a reset condition and restore the panel to stand-by state.



## Pre-Signal

When an alarm causing device in a Pre-Signal input group is initiated, the alarm condition is reported at the panel. Its associated NACs are not activated until the programmed investigation delay has elapsed or 2<sup>nd</sup> Alarm is initiated anytime during the Pre-Signal delay time (see figure below).



Pressing the reset button at anytime during the Pre-Signal sequence will initiate a reset condition and restore the panel to stand-by state.

# APPENDIX-J: DACT INFORMATION OVERVIEW

The DACT (Digital Alarm Communicator Transmitter) is an optional module for the FC2005 control panel that allows transmission of event information to a remote receiver at a monitoring station using a dial-up modem connection. These events are transmitted in one of the following formats:

- SIADCS 8
- SIADCS 20
- ADEMCO Contact ID

A few aspects of the operation of the DACT are clarified below.

## **Lines / Accounts**

The DACT supports two independent lines and can report to two separate accounts. “Lines” should not be confused with “accounts”. “Lines” are the actual telephone cords that plug into the DACT module, which are in turn connected to the PSTN (Public Service Telephone Network). If line 1 is not functioning (no dial tone, etc.), the DACT will try line 2 instead.

“Accounts” are the phone numbers that the DACT dials. Once the DACT has found a “live” line to dial out on, it transmits the event(s) on that line, starting with the first account that is configured to send that event. If the first account does not respond after the programmed number of attempts (busy, account not responding, etc.), the DACT will automatically attempt to send the event to the second account, providing the event is set to report for that account.

The DACT may be configured for connection to lines that are set up for Rotary and/or Tone dialing. See the FC2005 Programming Manual, P/N 315-0494033, for details.

## **Must / Can / Must Not**

Each event type (Alarm, Alarm Restoral, etc.) can be configured as “Must”, “Can” or “Must Not” report independently for each account. If configured as “Must Not” report, the DACT will not report the event to that account. If configured as “Can” report, the DACT will only attempt to report the event to the account if it has not reported it on the other account. If configured as “Must” report, the DACT will attempt to report the event to the account even if it has already reported it to the other account. In summary:

- |                 |   |
|-----------------|---|
| Must Report     | The event will be reported to this account even if it has reported it to the other account.               |
| Can Report      | The event will only report to this account if it has not been successfully reported to the other account. |
| Must Not Report | The event will never report to this account.  |

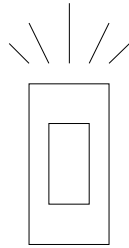
To configure an event to be reported to Account 1 *and* Account 2, set it to Must report on both. If the event needs to be reported to either Account 1 *or* Account 2, set it to Can report on both. If it *has* to be reported to Account 1, but only needs to be reported on Account 2 if Account 1 is temporarily out-of-order, set the event to Must Report on Account 1 and Can Report on Account 2.

Following are examples for illustration purposes.

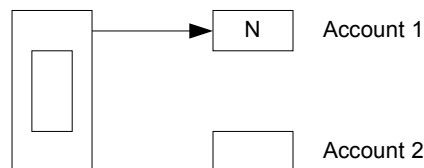
### Scenario 1 – Must/Must

**Alarm Event is set to Must Report on Account 1 and 2.**

Step 1:  
Panel goes into alarm.

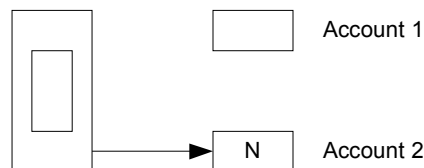


Step 2:  
Panel tries to send event  
to Account 1, but is  
unsuccessful.



Step 3:  
Panel keeps trying to send event to Account 1 until the programmed Number  
Of Attempts has been reached.

Step 4:  
Panel switches to Account  
2 and attempts to transmit,  
but is unsuccessful too.



Step 5:  
Panel keeps trying to send event to Account 2 until the programmed Number  
Of Attempts has been reached.

Done.



---

If both accounts failed to send an event within configured Number of Attempts, the event will be discarded and a message lost condition will be declared on panel. This means the panel will not try infinitely to send an event and each account can try at most (programmed Number of Attempts) times. This applies to all Scenarios of DACT transmission.

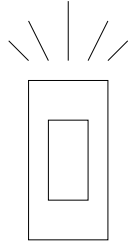
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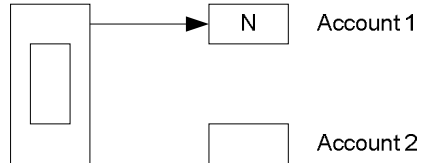
## Scenario 2 – Must/Can

Alarm Event is set to Must Report on Account 1 and Can Report on Account 2. Panel fails on Account 1 the first time.

Step 1:  
Panel goes into alarm.

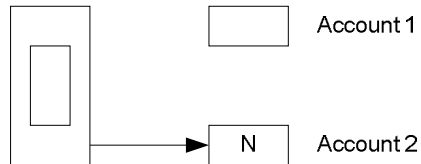


Step 2:  
Panel tries to send event to Account 1, but is unsuccessful.



Step 3:  
Panel keeps trying to send event to Account 1 until the programmed Number Of Attempts has been reached.

Step 4:  
Panel switches to Account 2 and attempts to transmit, but is unsuccessful too.

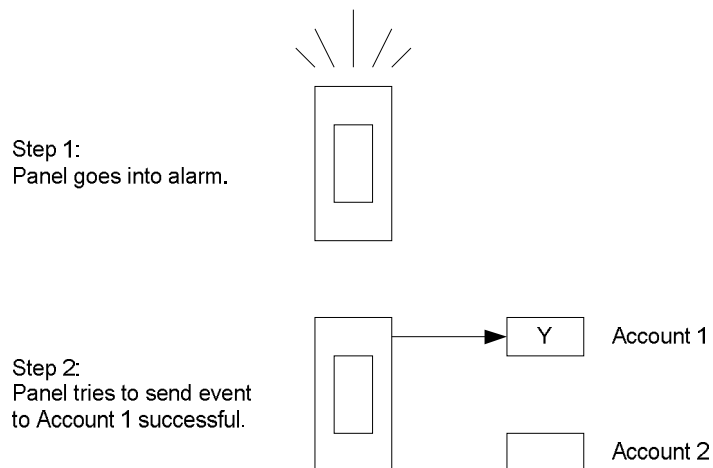


Step 5:  
Panel keeps trying to send event to Account 2 until the programmed Number Of Attempts has been reached.

Done.

### Scenario 3 – Must/Can

**Alarm Event is set to Must Report on Account 1 and Can Report on Account 2. Panel succeeds on Account 1 the first time.**



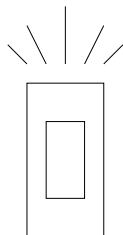
Step 3:  
Panel does NOT attempt to send event to Account 2, since Account 2 is set for Can Report and the event was transmitted to Account 1 successfully.

Done.

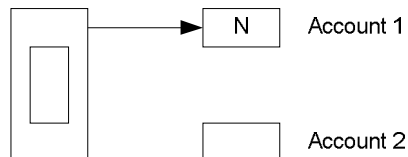
#### Scenario 4 – Can/Can

**Alarm Event is set to Can Report on Account 1 and Account 2. Panel succeeds on Account 2 before Account 1.**

Step 1:  
Panel goes into alarm.

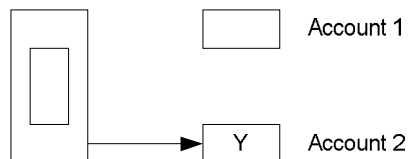


Step 2:  
Panel tries to send event to Account 1, but is unsuccessful.



Step 3:  
Panel keeps trying to send event to Account 1 until the programmed Number Of Attempts has been reached.

Step 4:  
Panel switches to Account 2 and successfully transmits the event.



Done.

Note: The same sequence of events would happen if Account 2 was set to Must Report.

## DACT COMPATIBLE ALARM COMMUNICATORS

The FC2005-U2 /-R2 DACT is also compatible with Alarm communicators that utilized different communication technologies (IP and GSM technologies) to connect to compatible Receivers using compatible protocol listed within this documentation.

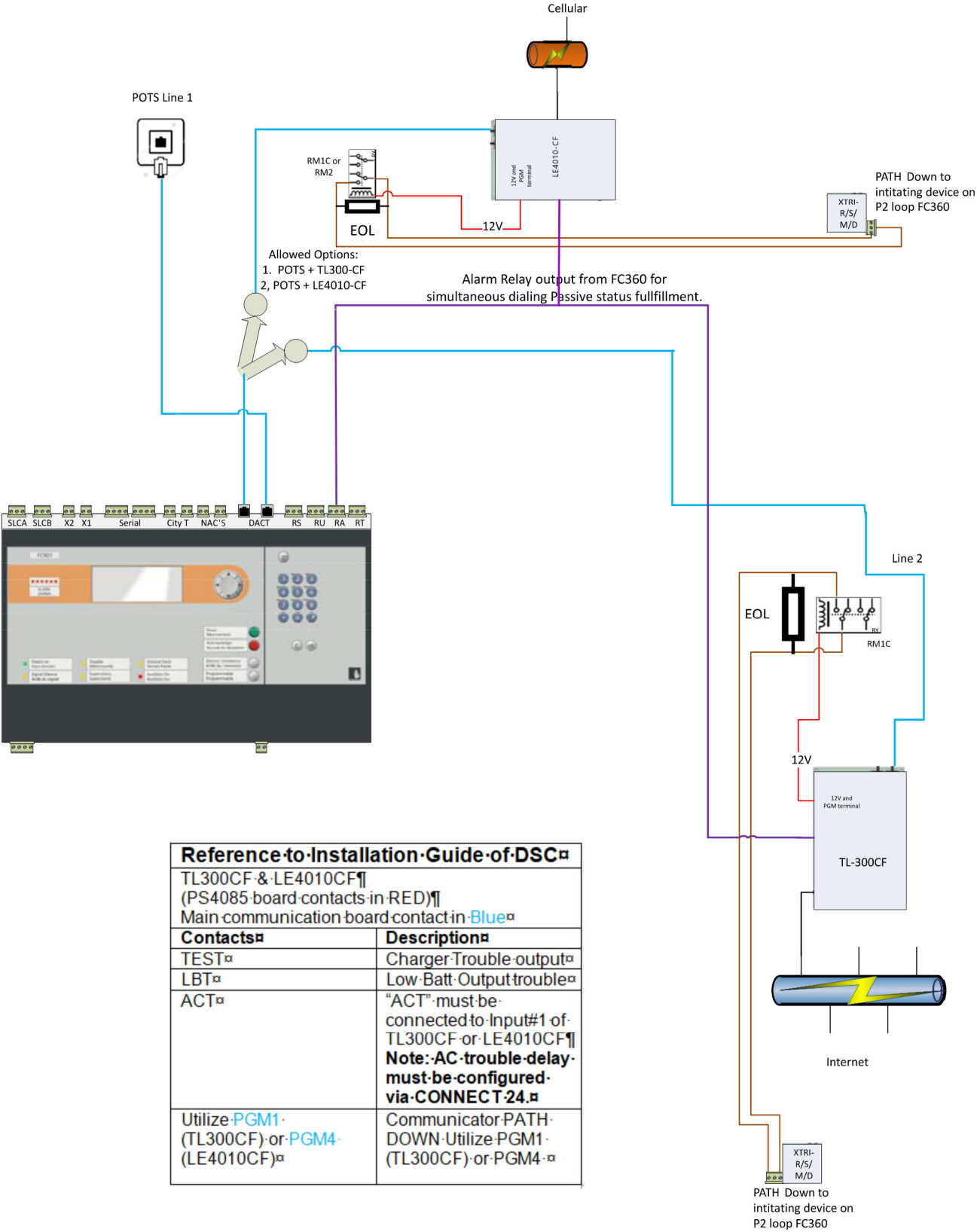
### COMPATIBLE ALARM COMMUNICATORS

Manufacturer	Model Number	Communication Technology	Installation Part Number	For installation in
Tellular	TG7GFS04	GSM	56044102	US
Bosch	C900V2	IP	F01U087780-01	US
DSC	TL300CF	IP	29007636/29007842	Canada
DSC	3G3070-CF	GSM	29008179	US
DSC	LE4010CF	GSM	-	Canada

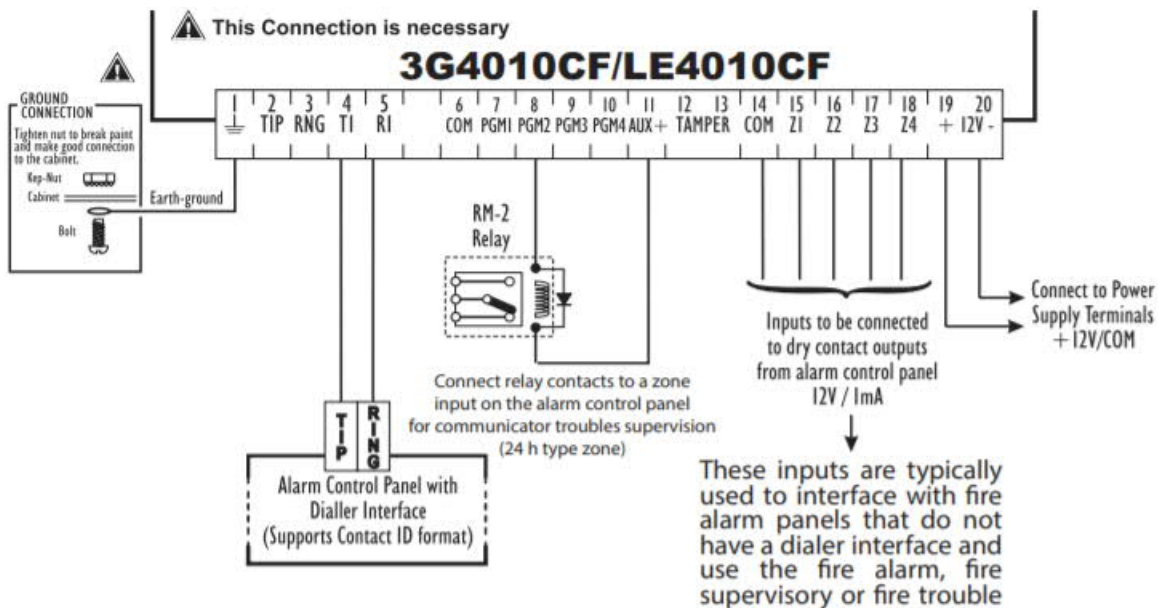
#### Notes:

- DACT is configured with the alarm communicator for other transmission technologies, off-premise signaling for UL. DACT is used for off-premise signal transmission for ULC.
- When using these alarm communicators, the DACT shall be configured for Contact ID.
- When configuring the dialers, the Dialer Group Number needs to be programmed to match the actuated Zone Number.
- Refer to the Alarm Communicator Installation Instruction for compatible receivers.
- For US installations, wiring between the DACT and the alarm communicator shall be within 20 feet, and in conduit.
- For Canadian configurations interconnection between the control unit and the Alarm Communicator shall be in metallic conduit not exceeding 18 meters and located in the same room.
- The C900V2 shall be installed in accordance with its installation instructions.
- For ULC passive off-premise communication, only one of the two combinations can be configured: **POTS & DSC TL300CF** or **POTS & DSC LE4010CF**.
- If a combination of POTS and DSC communicator is configured, the POTS line ("A") must be the Primary; the DSC communicator shall have an input connected to panel alarm relay.
- Refer to Telluar TG7GFS04 Installation Instructions for trouble report connection with FACP and AC trouble delay.

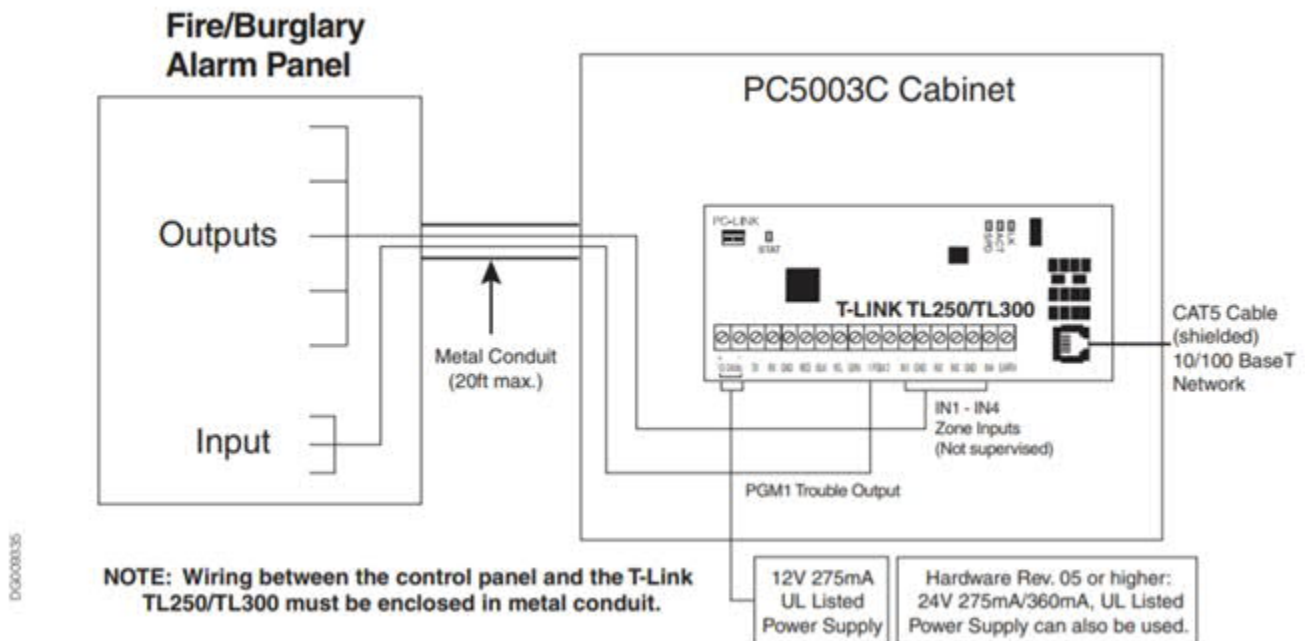
# WIRING DIAGRAM FOR DSC'S TL300CF AND LE4010CF CONNECTION, INCLUDING TROUBLE REPORTING ROUTE



# LE4010-CF Configuration (Reference from DSC Installation Manual)

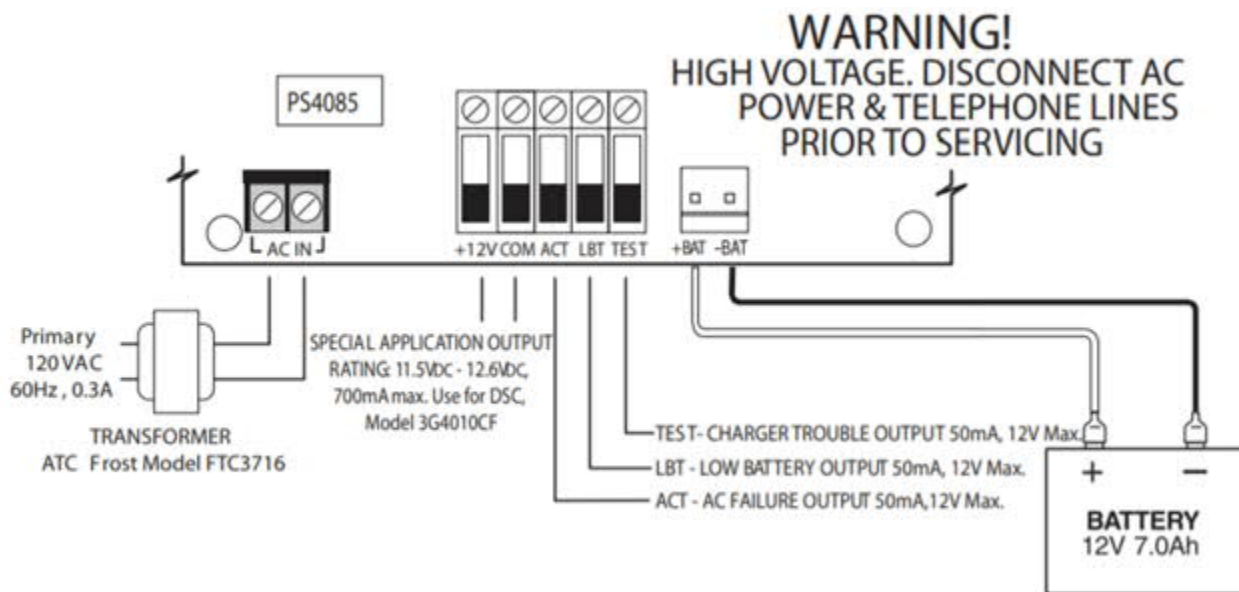


## TL300-CF Configuration (Reference from DSC Installation Manual)



- Wire the panel's Tip and Ring terminals to the T1 and R1 terminals of TL300

## LE4010-CF & TL300-CF Power Supply Wiring Configuration (Reference from DSC Installation Manual)



The ACT shall be connected to Input 1 of the transmitter and transmission delay is to be configured via CONNECT 24.

The LBT and TEST shall be connected to FACP's trouble inputs. The outputs are active low (switched to ground) and shall be connected via listed supervision relay (suggested model: DSC, RM-2 or RM1C).



## APPENDIX-K: DRIFT COMPENSATION

The H-Series optical detector cannot implement drift compensation on its own. Drift compensation is the panel's responsibility.

While the system is running, the detector sends its chamber real-time values to the panel periodically and does not do compensation by itself.

For the first hour after a panel startup, the panel will check the detector chamber values every 10 minutes. After that, the panel will check the chamber reading every 24 hours. If the panel detects the detector is a little dirty than before, it would send a compensation value to detector.

If a panel has detected that a detector has reached the upper limit of compensation, the panel reports a "dirty" trouble. Otherwise the panel will continuously compensate the detector until it reaches the upper limit.

# APPENDIX-L: RELEASING OPERATION

## Configure:

- Set up a countdown time for the releasing operation to start when the releasing control condition is satisfied.
- Set up the activation time for the NAC/Output channel:  
ReleaseSync: operate simultaneously with the releasing channel.  
Immediately: operate once the releasing control condition is satisfied.
- When the releasing control condition is satisfied, the countdown time starts. When the countdown time is over, the releasing operation starts to distinguish the fire.

## Manual releasing:

- When the releasing control is in pre-discharge phase, the releasing circuit is activated immediately when the corresponding manual release is triggered.
- When the releasing control is not in the pre-discharge phase, a countdown timer of the releasing circuit starts when the corresponding manual release is triggered. The countdown time can be customized and the range is 10...60 s. UL allows up to 30 seconds.
- Checkbox: "Manual release overrides abort".  
Check (default)—Manual release takes effect even when abort is activated  
Uncheck—Manual release doesn't take effect when abort is activated, but it takes effect immediately when the abort is deactivated.
- Manual release switch is not self-restoring. Users need to press the "Reset" button on the panel to restore the manual release switch.

## Abort

- Pause the countdown time or re-time 60 s.

## Physical Disconnect Switch

Releasing service fire alarm systems used for fire suppression-releasing service (non-water based) shall have the capability to disconnect releasing circuit(s).

A Listed physical disconnect switch (such as Fike model 10-2705) shall be used.



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To provide a separate releasing notification, Audible Base (ABHW) needs to be installed and programmed to sound March tone during pre-discharge, and a different tone (e.g. continuous tone) when it discharges.

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For Canadian Releasing applications the AW-3B self-restoring abort switch must be used. It is painted blue and contains French Canadian verbiage.

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For Canadian Releasing applications, the MSM-RB non-self-restoring manual release switch must be used. It is painted yellow and contains French Canadian verbiage.

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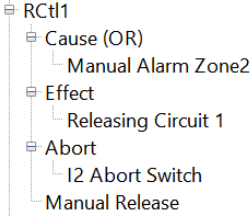
Releasing indication configuration in Canada

For Canadian applications, LEDs on FT2018 or FT2019 annunciator shall be configured to indicate pre-discharge, discharge, abort in alarm condition and “invalid abort” trouble in normal standby condition.

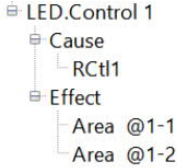
Following is an example of configuration:

Preconditions:

- Releasing control configuration

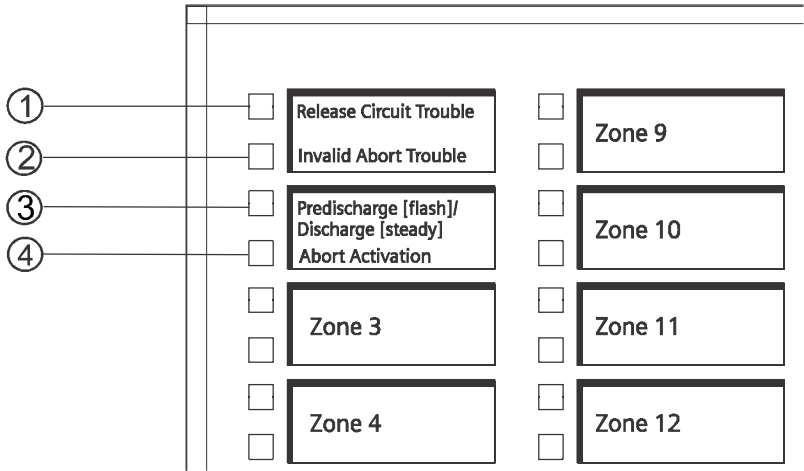


- LED control configuration



Area configuration

Under the property for Area, there is a setting named “Function”. Two options are available for it: Normal and Release Trouble Indication. Users can select either one as needed. Each Area corresponds to one LED zone on the annunciator. Area 1 corresponds to zone 1; Area 2 corresponds to zone 2, etc. By selecting “Normal” or “Release Trouble Indication”, users get different LED status and different meaning the LEDs represent. In this case, Area 1 is set to “Release Trouble Indication” and Area 2 is set to “Normal”:



Area Function	Corresponding LED		LED color and status	Description
Normal	3	Predischarge [flash]/Discharge [steady]	Red flashing	Pre-discharge status
			Red steady	Discharge status
			Off	Normal
	4	Abort activation	Yellow steady	Abort switch is activated
			Off	Abort switch is not activated

Release Trouble Indication	1	Release circuit trouble	Yellow steady	Releasing circuit trouble
			Off	Releasing circuit is normal
	2	Invalid abort trouble	Yellow steady	Abort switch activation normal standby condition
			Off	No invalid abort switch activation

# APPENDIX-M: GLOSSARY

**AC Power Fail.** Refers to a condition in which AC power loss is detected by the system.

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

**Signal Silence Inhibit.** An option that prevents an operator from silencing the notification appliances for a preset period of time.

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

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

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

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

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

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

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

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

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

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

**Enable / Disable.** Refers to the state of individual circuits (inputs and outputs) or logic functions regardless of the presence of its corresponding modules.

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

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

**Hold-Thru Reset Condition.** Refers to a condition where the hold-thru reset output will remain in its current state before and after the reset until the OFF time delay has elapsed. Initiation of

fan restart usage has higher priority than the OFF time delay and will therefore immediately deactivate the hold-thru reset outputs.

**DeactPersistDevs (Deactivate Persistent Devices).** Used to deactivate the outputs when the outputs are deactivated by control logic and the “Hold-Thru Reset” is configured as “True”.

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

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

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

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

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

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

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

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

**Programming Tool.** Refers to an external proprietary software package that allows the user to program the panel (FXS901-U2 for the FC2005 panel).

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

**Reset Condition.** Condition in which the panel is forced to return to its normal state, usually performed by pressing the “SYSTEM RESET” button after all known events / conditions are cleared.

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

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

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

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

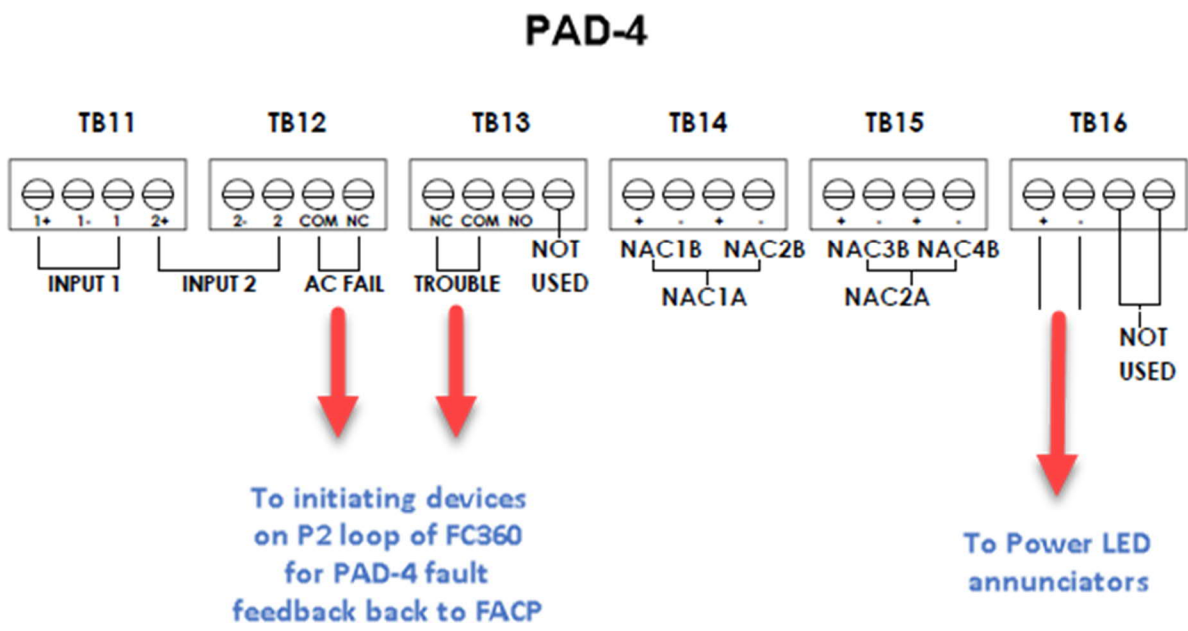
**Zone.** A designated area of a building. Commonly, zone, is interchanged with initiating device circuit.

**Serial interface circuit.** Circuit connect to annunciator, RPM(FCA2018-U1).

**Signaling line circuit.** Circuit connect to field devices.

# APPENDIX-N: PAD-4 WIRING INSTRUCTION

Placeholder for PAD-4 to FC360 wiring instruction so the PAD-4 is able to report troubles back to the FC360.





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