PFC-4064
Conventional Fire Alarm Panel

Installation, Operations & Programming Manual

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Section 1: Introduction

The PFC-4064 Conventional Fire Panel is a compact, expandable panel designed to monitor all facets of a fire alarm system and communicate the status to a monitoring station. The PFC-4064 panel is a listed and approved microprocessor based conventional fire panel and complies with UL-864, NFPA-70, and NFPA-72**.** The panel is provided with six (6) inputs and four (4) 24VDC, 3.0 Amp Notification Appliance Circuits (NAC) with strobe synchronization. The 5.0 Amp power supply provides ample power to meet any jurisdictions requirements and will house and charge up to two (2) 55 amp/hour batteries. In addition, the panel has the Potter P-Link for connection to remote annunciators. The panel also has a 1.0 Amp auxiliary power output for controlling ancillary fire alarm functions. The panel provides the option to monitor an existing Notification Appliance Circuit (NAC) by placing a reference resistor on the REF EOL terminals and continuing to monitor the circuit without changing the field EOL resistors.

Purpose of This Manual

This manual is intended to assist in the installation and programming the PFC-4064 Conventional Fire Panel. Refer to this manual to properly install and program the PFC-4064. It is recommended that the user follows the procedures as outlined in this manual to assist in proper installation and prevent damage to the control panel and associated equipment.

System Overview

The PFC-4064 system is designed for use as a fire control panel for life safety applications.

System Features

- The PFC-4064 has six (6) programmable input circuits, and is expandable to 192 using thirty-one (31) IDC-6 cards, each providing six (6) additional programmable input circuits.
- 5.0 Amp (24vdc) Power Supply
- Four (4) Notification Appliance Circuits (NAC) rated at 3.0A maximum
  - Power Limited
  - Built in Sync
  - Cadence and Temporal Patterns
  - Programmable to activate on a Supervisory condition
- One (1) programmable auxiliary output rated at 1.0A.
- Support for all major synchronization patterns.
  - Gentex®
  - AMSECO®
  - Wheelock®
  - System Sensor®
- Auto Silence and Silence Inhibit.
- Built-in Ethernet port for programming and network connectivity.
- Built-in Email support to communicate system status and event information.
- Customizable Reminder Emails.
- P-Link RS-485 bus supports system accessories.
- 4,000 event non-volatile history buffer
- 99 Software Zones
- 4 X 20 character LCD display
- Four (4) Form C Programmable Relays
- Dead-front Cabinet Design
- Built-in IP Reporting

P-Link Accessories

- IDC-6 – Maximum of thirty-one (31) per system that provides six (6) additional conventional Class B inputs or three (3) Class A inputs.
- CA-4064 Class A converter module – A maximum of 1 per system allows for Class A wiring of the P-Link communication bus and the four (4) built-in NAC circuits.
- RA-6075, RA-6075R, RA-6500, RA-6500R or RA-6500F Remote Annunciator – Maximum of 31 per system in any combination.

- UD-1000/UD-2000 Dual Line Fire Communicator – A maximum of 1 per system.
- LED-16 or LED-16F Annunciator module – A maximum of 31 total per system. Each allows for up to 16 zones alarm, supervisory and trouble conditions to display, and five (5) non-programmable system LEDs that display system's overall condition.
- DRV-50 LED Driver module – LED Driver Module - A maximum of 31 total per system. Each module provides 50 programmable LED outputs, four (4) dry contact inputs, and five (5) system status LEDs.
- RLY-5 Relay Board module – A maximum of 31 per system provides five (5) programmable Form-C relay outputs.
- FCB-1000 Fire Communications Bridge – An accessory providing a remotely-located Ethernet Port for IP communication.
- FIB-1000 Fiber Interface Bridge – An accessory that converts the standard 4-wire P-Link bus to and from optic cable. Capable of Class A operation. Maximum of 30 total per system.
- SPG-1000 Serial Parallel Gateway – An accessory that drives a serial or parallel printer; maximum of 31 per system.
- MC-1000 Multi-Connect module - An accessory that allows multiple panels to report to the central station through a shared phone line or Internet connection; maximum of 31 per system.
- NCE-1000 Network Card Ethernet - An accessory that is used to network fire alarm panels using CAT5 Ethernet cable.
- NCF-1000 Network Card Fiber - An accessory that is used to network fire alarm panels using fiber optic cable.

How to Use this Manual

Refer to this manual before contacting Technical Support. The information in this manual is the key to a successful installation and will assist you in understanding proper wire routing, system requirements, and other guidelines specific to the PFC-4064 system.

Common Terminology

The following table provides you with a list of terms and definitions used with the PFC-4064 system:

Table 1: Terminology

Term	Definition
PFC-4064 Cabinet	Enclosure
EOLR	End of Line Resistor Assembly
Remote Annunicator	LCD type Remote Annunicator
NAC	Notification Appliance Circuit
P-Link	Proprietary RS-485 communication bus
PFC-4064 PCB	Board Assembly for complete unit

Section 2: Before You Start Installation

This section addresses information that will help you in completing a successful installation, such as the PFC-4064 cabinet layout, specifications, and environmental considerations.

System Specifications

Cabinet Description
- Eighteen (18) gauge sheet steel with hinged, removable locked door
- Enclosure dimensions – 18-1/2" x 14-1/4" x 4-3/4"

Visual Indicators
- LCD (4 x 20 alphanumeric character display)
- LED indicators (Red, Green, Amber)

LCD Description
- Alarm, Supervisory and Trouble conditions display applicable condition, status and circuit for each correlating condition

Environmental Specifications

- Mount indoors only.
- Temperature 32° to 120°F, humidity 93% non-condensing.
- Verify panel is properly grounded.
- Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides, bottom, or rear of the cabinet. Verify that they will not interfere with the batteries or other components.
- The panel and system must be tested and maintained in accordance with all local and national codes and ordinances.
- Panel shall be installed so the display is easily readable and the door shall have adequate clearance to access the controls.

Model / Available Cabinet Colors

- 3992360 – RED PFC-4064 Conventional Fire Panel

System Configurations / Appliances

Table 2: System Configurations / Appliances

Model	Description	Local	Remote Station	Central Station	Proprietary	Auxiliary
PFC-4064	Main Board/Panel Assembly	Y	Y	Y	Y	Y
CA-4064	Class A Expander	O	O	O	O	O
RA-6500/ F RA-6075	LCD remote annunciator (NFPA)	O	O	O	O	O
UD-1000/ UD-2000	DACT	O	Y	Y	Y	N
PSN-1000/ PSN-1000(E)	Intelligent Power Supply Expander	O	O	O	O	O
IDC-6	Initiating Device Circuit	O	O	O	O	O
LED-16/16F	LED Annunciator	O	O	O	O	O
DRV-50	LED Driver	O	O	O	O	O
RLY-5	Relay Expander	O	O	O	O	O
FCB-1000	Fire Communications Bridge	O	O	O	O	O
FIB-1000	Fiber Interface Bridge	O	O	O	O	O
SPG-1000	Serial/Parallel Printer Gateway	O	O	O	O	O
MC-1000	Multi-Connect Module	O	O	O	O	O
NCE-1000	Network Card Ethernet	O	O	O	O	O
NCF-1000	Network Card Fiber	O	O	O	O	O
3005013	End of line resistor assembly	Y	Y	Y	Y	O

Y = Yes, required for applicable section
N = No, not required for applicable section
O = Optional, may or may not be used, has no affect on the applicable section.

Electrical Specifications

Please refer to the table below for electrical specifications:

Table 3: System Panel Electrical Specifications				
Panel	**# NAC**	**Rating per NAC**	**Notes**	**Class**
PFC-4064	4 NACs	3.0 Amps	Input Circuits may be configured as Class A or Class B.	Inputs – Class A or B NACs – Class A or B P-Link – Class A or B All are Low Voltage and Power Limited

System Size Specifications

Please refer to the table below for system size specifications:

Table 4: System Size Specifications	
Accessories/Subassemblies	**Maximum System Size**
PFC-4064	• Six (6) input circuits on the main board • Four (4) notification circuits on the main board • One (1) auxiliary power output* • One (1) P-Link connection* • One (1) optional UD-1000/UD-2000 DACT
***Note**: The NAC and auxiliary power combined are **not** to exceed 5.0A. The P-Link 24VDC is not to exceed 1.0A.	

Main Board Wiring Specifications

There are several wiring requirements to consider **before** connecting circuits to the main board: (1) the circuit separation, and (2) wiring types. All wiring should be sized and installed to comply with NFPA 70, NFPA 72, and local codes and ordinances.

Circuit Separation

Proper separation between the different types of circuits must be maintained between Power Limited, Non-Power Limited, and High Voltage wiring to reduce electrical interferences, transient voltage or voltage ratings.

- Separations between the different wiring types **must** be maintained by at least ¼ inch and the wire insulation **must** be for the higher voltage.
- The control panel cabinet has sufficient knockouts located around the periphery allowing the installer to maintain separation between power limited and non-power limited connections.

Wiring Types

Wiring specifications must be followed to prevent damage or other consequences.

Refer to table below for a breakout of the different wiring requirements shown by circuit type:

Table 5: Main Board Circuit Wiring Types		
	Wiring Type	
Type of Circuit	**Voltage**	**Power**
AC Connection	High Voltage	Non-Power Limited
Battery Connection	Low Voltage	Non-Power Limited
Input Circuits	Low Voltage	Power Limited
Notification Device Circuits (NAC)	Low Voltage	Power Limited
P-Link RS-485 Connections	Low Voltage	Power Limited
AUX Power	Low Voltage	Power Limited

Cabinet Dimensions

Figure 1. PFC-4064 Cabinet Dimensions

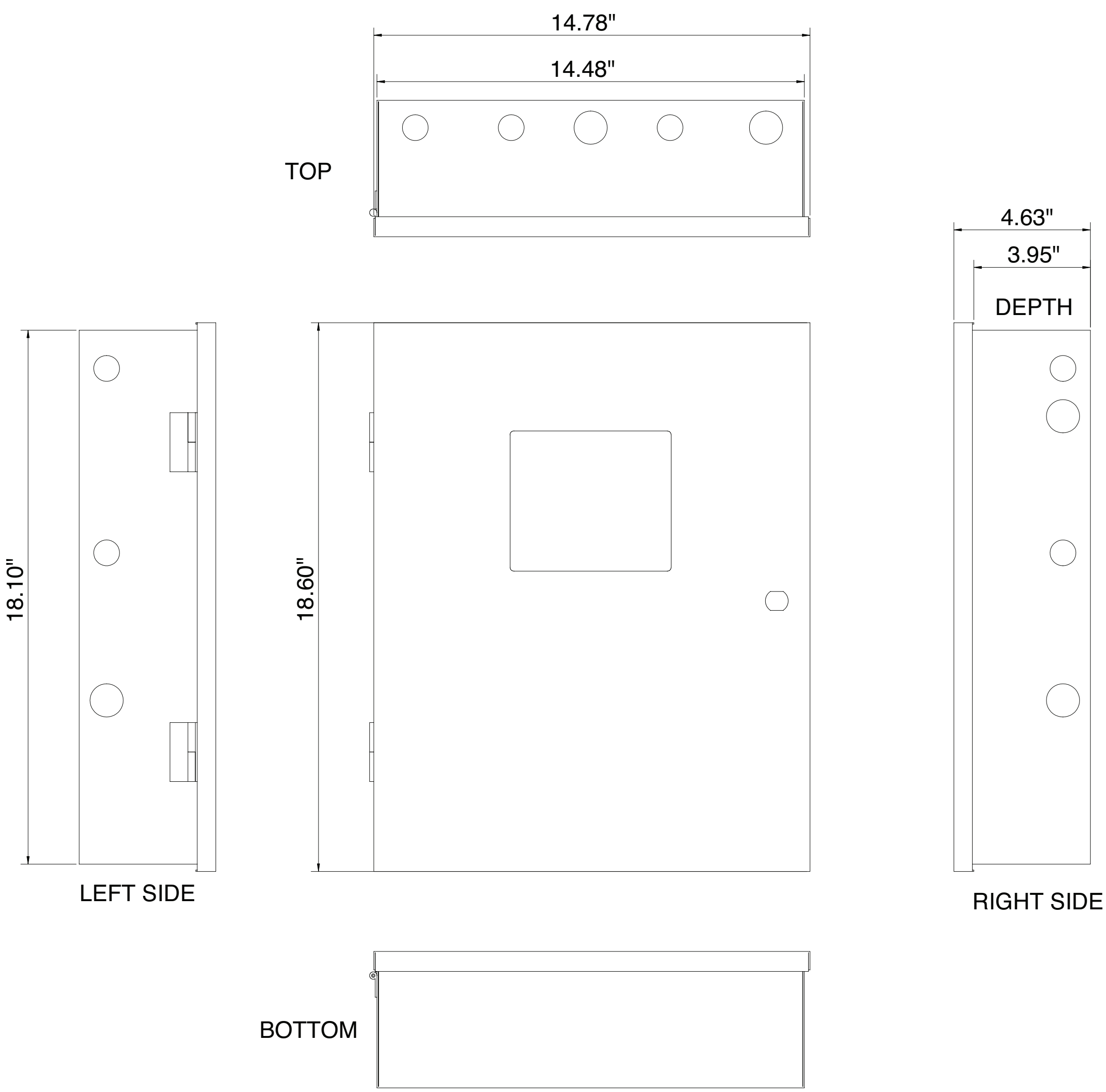
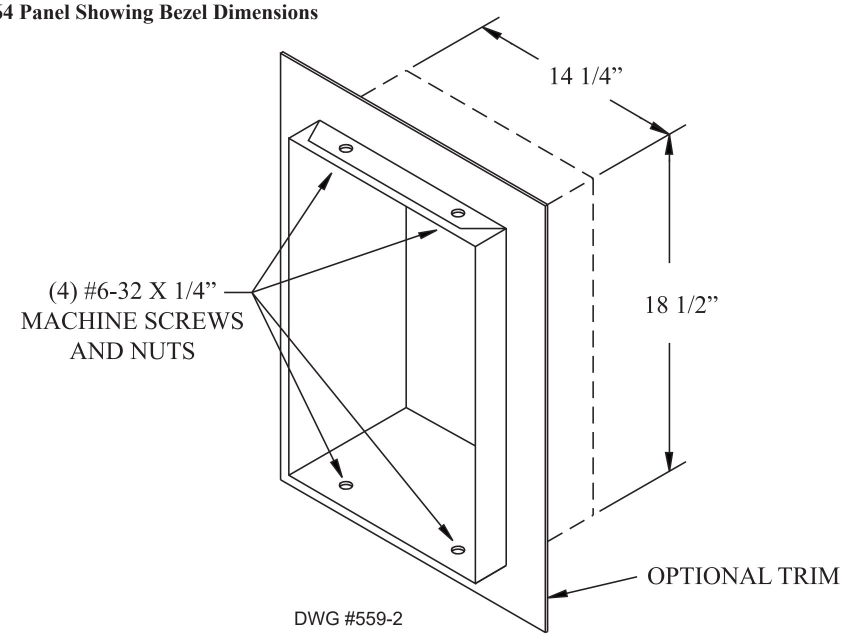


Figure 2. PFC-4064 Panel Showing Bezel Dimensions



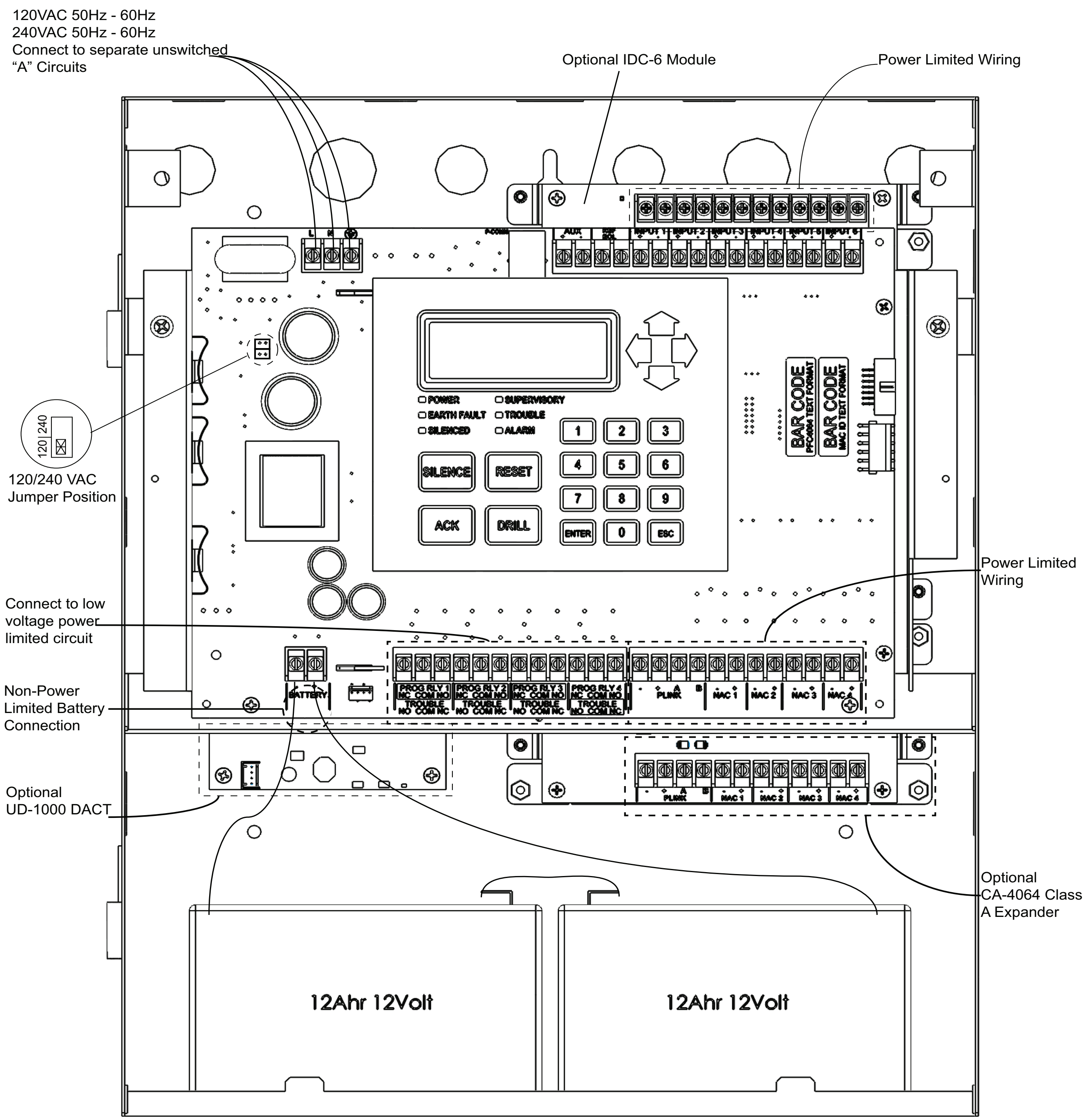
Cabinet Mounting Instructions

To mount the cabinet:

1. The unit should be mounted in a convenient location, approximately 5 feet from the floor where it will be accessible for testing and servicing.
2. The main circuit board module should be removed before attempting to mount the cabinet. Disconnect the AC power from TB5. To remove the module, remove the two screws holding the chassis to the cabinet. Lift the module upwards, approximately 1/2", in order to clear the cross-beam of the cabinet on which the module rests. Remove the module and set aside.
3. The PFC unit may be surface mounted or semi-flush mounted using the optional trim bezel (*refer to drawings shown earlier in this section*). For semi-flush installations mount the housing so that the front edge protrudes 1" from the finished wall surface. After all conduits and wiring are in place and the wall surface is completely finished, slide the trim bezel in place and fasten with 4 #6-32 x 1/4" machine screws and nuts.
4. Install all required conduits, external wiring and points and make all connections that are external to the panel. Replace the module. With the AC power still turned off at the circuit breaker panel, connect the AC hot, neutral and ground wires to the terminal block TB5 as shown in the "*Cabinet Wiring Connections"* drawing shown in this section.
5. Connect all the other wiring to the terminals as shown in the connection drawings. Turn the AC power on and connect the standby batteries with the cable provided, polarity must be observed.
6. Replace false front panel and secure with mounting screws.
7. Verify the operation of the complete system as outlined in the test procedure section.

Cabinet Wiring Connections

Figure 3. PFC-4064 Cabinet Wiring --



Battery Circuit Calculations

Before selecting the battery, it is important to determine the minimum size batteries for standby and alarm times desired for each application. If the wrong batteries are installed in a specific application or incorrect current draw used, the proper standby and minimum alarm time will not be present.

The battery circuit is rated for 7 to 55 AH batteries and will operate the panel alarm for at least 24 hours and 5 minutes. The cabinet will house up to two (2) 7 AH or two (2) 12 AH batteries. Larger batteries can be installed in SSU-00500 Battery Cabinet (1000015). Please use the worksheet shown below to calculate the battery size and current draw required for each application:

Battery Calculation Worksheet

Description	Quantity	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)
Main board (PFC-4064)	1	70		235	
Class B Input Zones (Per Zone)		5		40	
Class A Input Zones (Per Zone)		25		40	
IDC-6 (PLink)		20		20	
IDC PWR (See Note 5)					
Class B Input Zones (Per Zone)		5		45	
Class A Input Zones (Per Zone)		5		45	
LCD Remote RA-6075 or RA-6500		20		25	
CA-4064 Class A Expander		15		60	
UD-1000/UD-2000 DACT		16		23	
PSN-1000/E Power Expander		15		15	
LED-16 P-Link Current LED-Current (if applicable, see Note 5)		25 10		25 210	
DRV-50 DRV-Current (#LEDs x 5 mA; if applicable, see Note 5)		25 10		25 215	
RLY-5 Relay-Current (if applicable, see Note 5)		25 10		35 135	
FCB-1000		25		25	
FIB-1000		30		30	
SPG-1000		40		40	
MC-1000		10		10	
NCE-1000		50		50	
NCF-1000		95		95	
NAC 1					
NAC 2					
NAC 3					
NAC 4					
		Total (ma)		Total (ma)	
Convert to Amps			x 0.001	Convert to Amps	x 0.001
(*Refer to maximum allowable standby current) Total A:				Total A:	
Multiply by standby hours			x____	60 minutes per hour Alarm time (minutes) *Example:* 5 minute alarm: enter 12	÷ ____
Total Standby AH				Total Alarm AH	

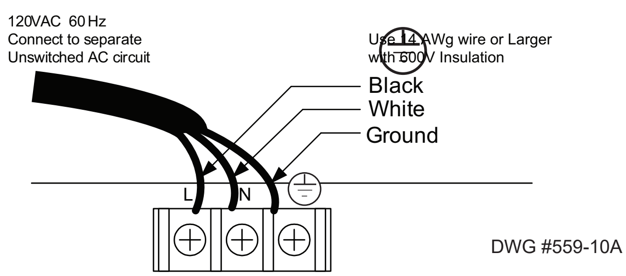
Description	Quantity	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)
				+Total Standby AH	
				Total AH	
				Efficiency Factor	÷ 0.80
				Required AH	

*Maximum Allowable Standby Current (UL 24-Hour standby time) 8 AH .216 A 12 AH .383 A 18 AH .577 A 33 AH 1.065 A 55 AH 1.798 A	**Important Notes:** 1) FACP enclosure can house up to two (2) 12 AH batteries. Larger batteries require accessory cabinet enclosure. Part number 1000015/SSU00500 2) NFPA 72 requires 24 hours of standby power followed by 5 minutes of alarm activation. 3) Door holder circuits configured to disconnect upon AC loss need not be included in the battery standby calculation since they will not draw power during that time. Door holders will contribute to standby current draw when AC is present. 4) Total current must not exceed power supply rating (5A on PFC-4064). 5) LED/Relay/IDC-6 current must be accounted for in the battery calculation for the supplying source.

Main Supply Circuit

The AC terminals are located in the upper left hand portion of the main board. The main board supervises the main AC power and provides indication that the AC power is absent. The terminals are rated at 120/240 VAC 50/60 Hz and are marked so accordingly on the board.

Figure 4. PFC-4064 AC Terminals



The earth ground connection is marked as “ " and is the furthest connection from the line voltage connection.

The AC input power rating is: Maximum of 2.5A at the nominal 120/240V VAC rating.

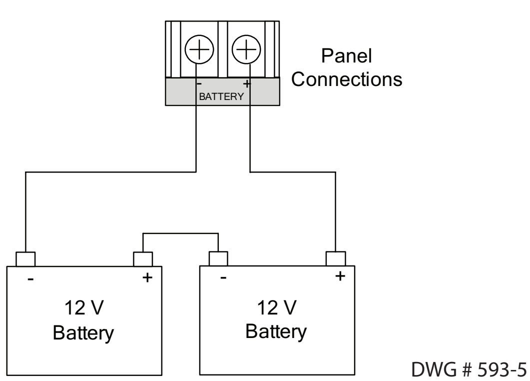
Battery Connections

The battery charging circuit is located on the main panel in the lower left portion of the board. The maximum battery charging current is 1.0 amp DC; the charging voltage is approximately 27.3 VDC and is supervised.

Note: The battery should be clearly labeled as *“Sealed Lead Acid Battery”* or equivalent UL listed or UL Recognized.

Connect the battery wire leads to the terminal connections, as shown. Batteries should be replaced every five (5) years or sooner depending on annual testing.

Figure 5. PFC-4064 Battery Connections



Section 3: Installation

This section covers how to install Input Circuits (IDCs), Notification Appliance Circuits (NACs) and PLink modules. Wiring requirements and configuration examples are included throughout this section. Please read this section carefully before installing detectors and accessories to insure proper installation.

Note: Instructions for installing the *PSN-1000/E power expander module* is located in *Section 5* of this manual.

Initiating Device Circuit Installation

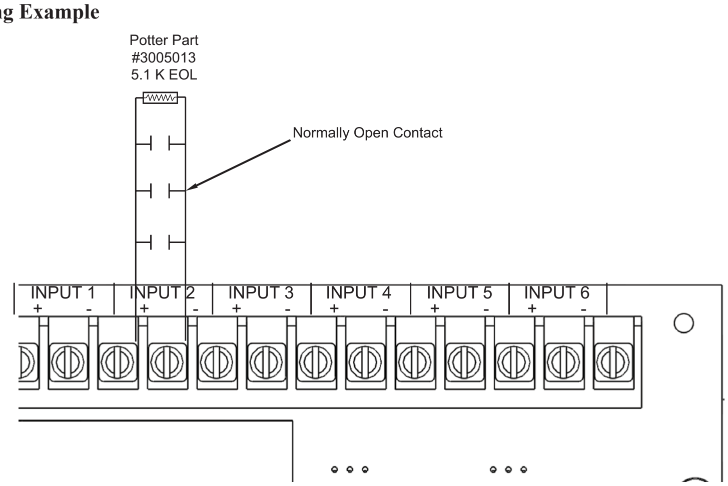
The panel is equipped with six (6) programmable contact inputs or Initiating Device Circuits (IDC). They are power-limited and supervised. All inputs are suitable to monitor 2-wire smoke detectors. Smoke detectors shall be installed in compliance with NFPA 72. Inputs can also be used for automatic, manual, waterflow or supervisory service.

Input Wiring Specification

- Maximum short circuit current = 47 mA
- Maximum wiring resistance = 100 Ohms
- Maximum wiring capacitance = 1 mF
- Maximum wire length in feet = 10,000 feet
- Normal standby current = 2.5 mA

IDC Wiring Configuration

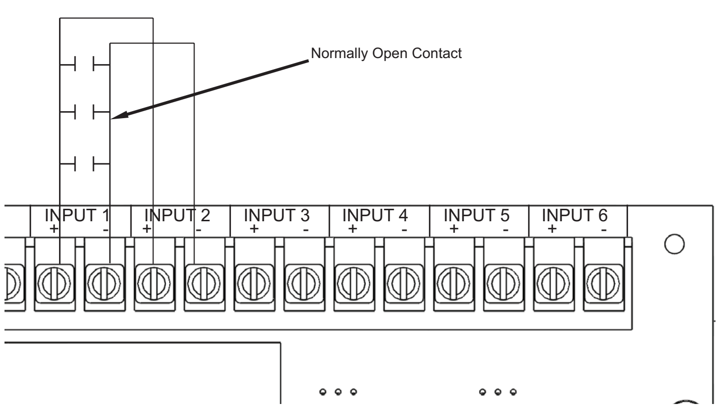
Figure 6. IDC Class B Wiring Example



Notes:

1. The Potter part number for the listed end of line assembly is #3005013 EOL Resistor Assembly.
2. The panel has ground fault detection on the input circuits. The impedance to ground for ground fault detection is 0 ohms.
3. The end of line resistor is a 5.1K ohm resistor.

Figure 7. IDC Class A Wiring Example



Notification Appliance Circuits Installation

There are four (4) NAC circuits provided on the PFC-4064, each rated 3.0 amps continuous at 24VDC. The NAC circuits may be configured for Class A or Class B. Class A wiring requires a Class A expansion board (CA-4064). NACs may be programmed to provide steady (constant) voltage, a cadence pattern, releasing service or synchronized strobes. Full synchronization is maintained system-wide. The NACs may be programmed as silenceable or non-silenceable. Anytime a NAC has been silenced, the condition will be indicated by the silenced LED. If a NAC that is programmed as silenceable is silenced and another alarm event mapped to that NAC occurs, the NAC will resound and the silenced LED will extinguish

NAC Wiring Characteristics

- Output is supervised and regulated.
- Circuit is power limited.
- Maximum NAC current is 3.0 Amps

Note: Type of NAC output is selectable, and may be configured for strobe synchronization with Gentex®, AMSECO®, Wheelock®, or System Sensor®. Refer to the listing of compatible devices located in the *"NAC Compatibility Document"*, Potter #*5403592*, for this information.

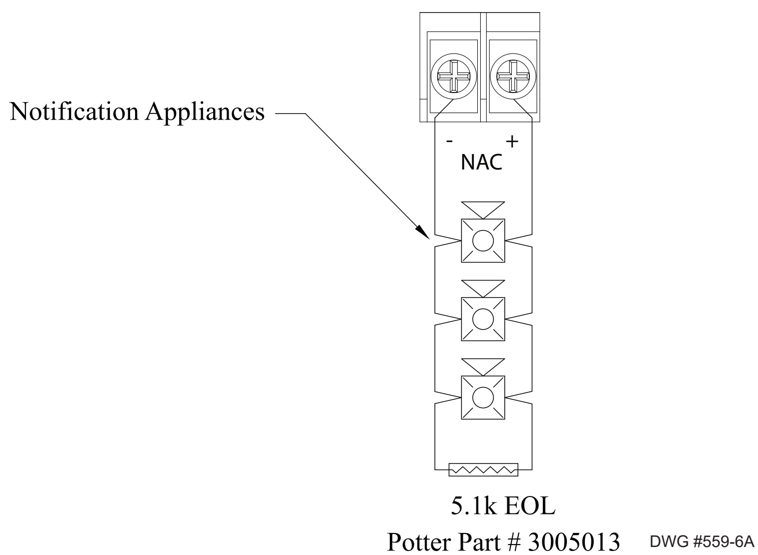
NAC Maximum Wiring Impedance Formula

The maximum impedance is a *function* of the *load* placed on the circuit. To calculate the maximum line current impedance, use the following formula:

(Alarm Current of Notification Appliance) x (Wire Resistance) < 3.0 Volts

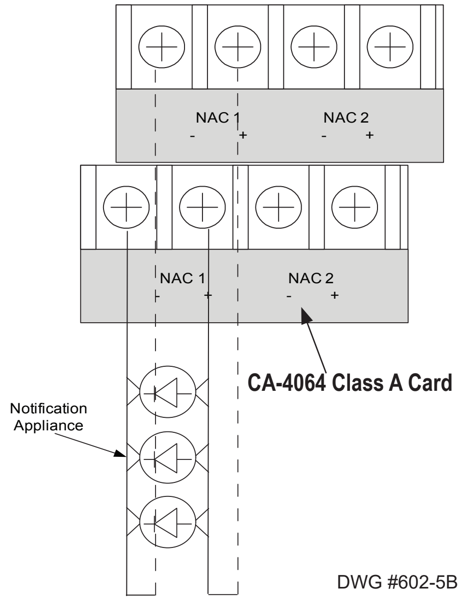
NAC Wiring Configuration

Figure 8. NAC Class B Wiring Example



Notes:
1. The Potter part number for the listed end of line assembly is #3005013 EOL Resistor Assembly.
2. Where a value other than 5.1k is required, a reference EOL input is provided. Connect an EOL resistor to the reference EOL input. All NAC wiring on PFC-4064 will be supervised based on this value. Any EOL value from 2.0k to 27k can be used.
3. The panel has ground fault detection on the NAC circuits. The impedance to ground for ground fault detection is 0 ohms.

Figure 9. Class A NAC Wiring Example (Requires the CA-4064 Expansion Board)



Municipal Box Connection

When a NAC is programmed as a municipal box connection, the circuit is power limited and supervised for open and short circuit conditions. It also provides a local energy connection. Please refer to the figure shown below for a wiring example.

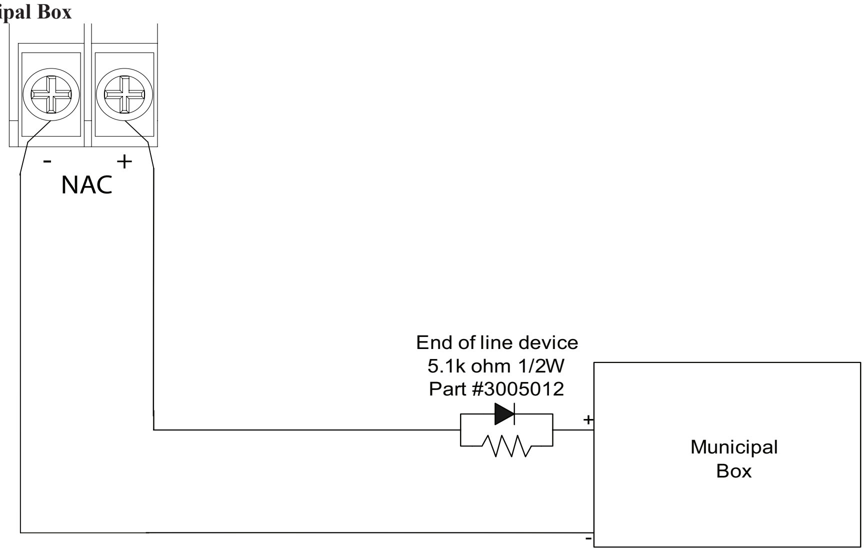
Configuration Characteristics

- NAC1-NAC4's trip current is 3 amps.
- Maximum voltage rating is 24 VDC.

Notes:

1. The panel has ground fault detection on municipal box connection circuits.
2. The impedance to ground for ground fault detection is 0 ohms.

Figure 10. Municipal Box



Notes:
The EOL device shall be installed in the same electrical enclosure as the Municipal Box

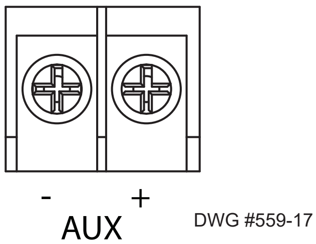
Auxiliary Power

The Auxiliary Power is a Class B 24 VDC regulated output rated at a maximum of 1.0 Amp. The auxiliary power may be programmed as continuous or resettable 24VDC power, door holder power, and ANSI power.

Aux Power Characteristics

- The impedance to ground for ground fault detection is 0 ohms.
- Supervised and power-limited.
- Circuit is provided with battery back-up.

Figure 11. Auxiliary Connections Example



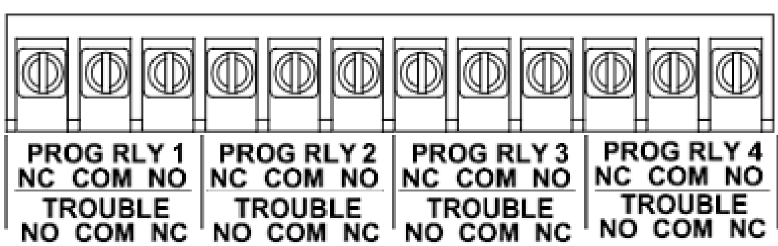
Relay Output Wiring

The panel has four (4) form C programmable relays. They can be programmed as alarm, trouble, supervisory and waterflow. When programmed as trouble the relay is a fail safe relay that changes position anytime a trouble condition occurs.

Relay Characteristics

- Relays have a contact rating of 3.0 A at 24VDC, 0.6 pF.
- All wiring between relays and the remote device shall be limited to same room installation.
- The programmable relays can only be connected to low-voltage and power limited wiring.

Figure 12. Relay Output Wiring



Class A Expander Installation (CA-4064)

Class A wiring configurations require the use of the CA-4064 expander board. Once the card is installed, the CA-4064 provides the return terminals for NACs and P-Link devices. Refer to the figures below for examples of installing and wiring a Class A expander card.

Figure 13. Example of CA-4064 Module Location

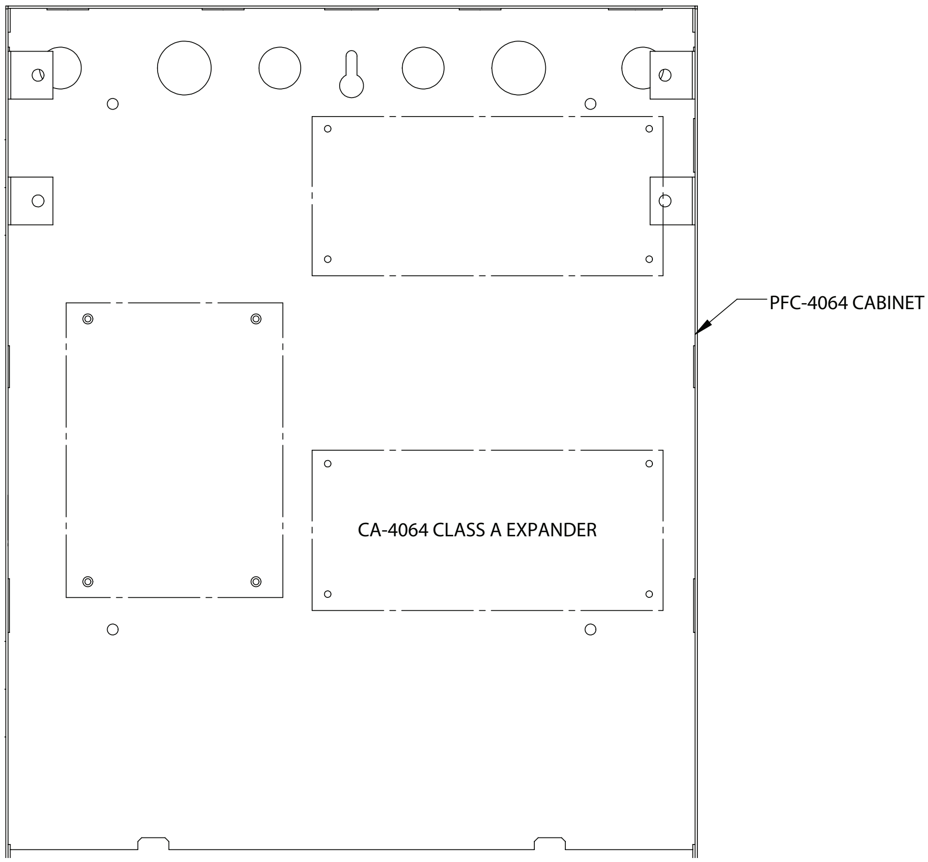


Figure 14. Example of a Class A Expander Cards Shown Installed

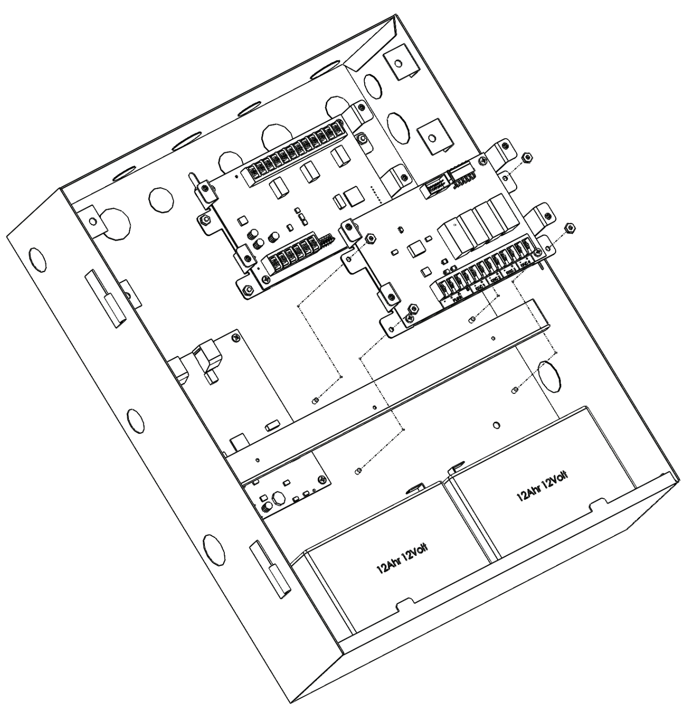


Figure 15. Example of Installing and Wiring a Class A Expander Card

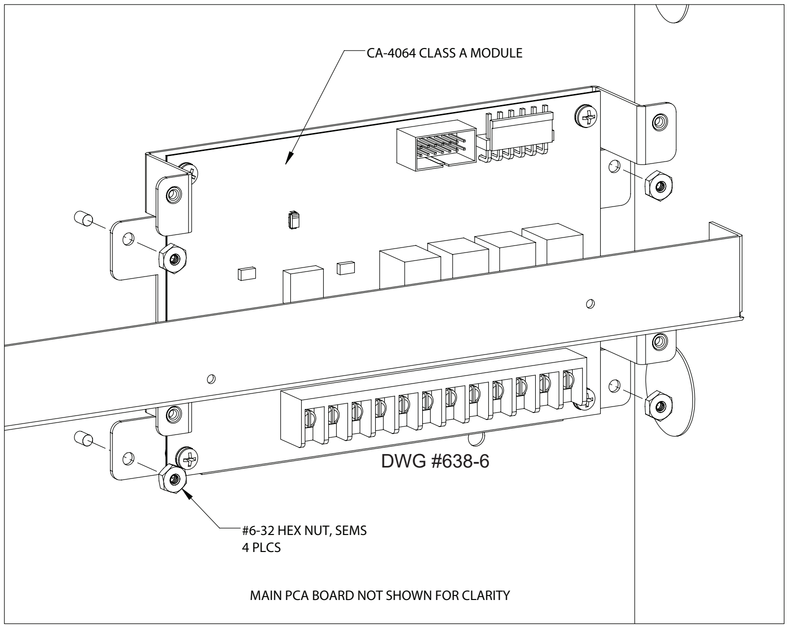


Figure 16. Installed Class A Card

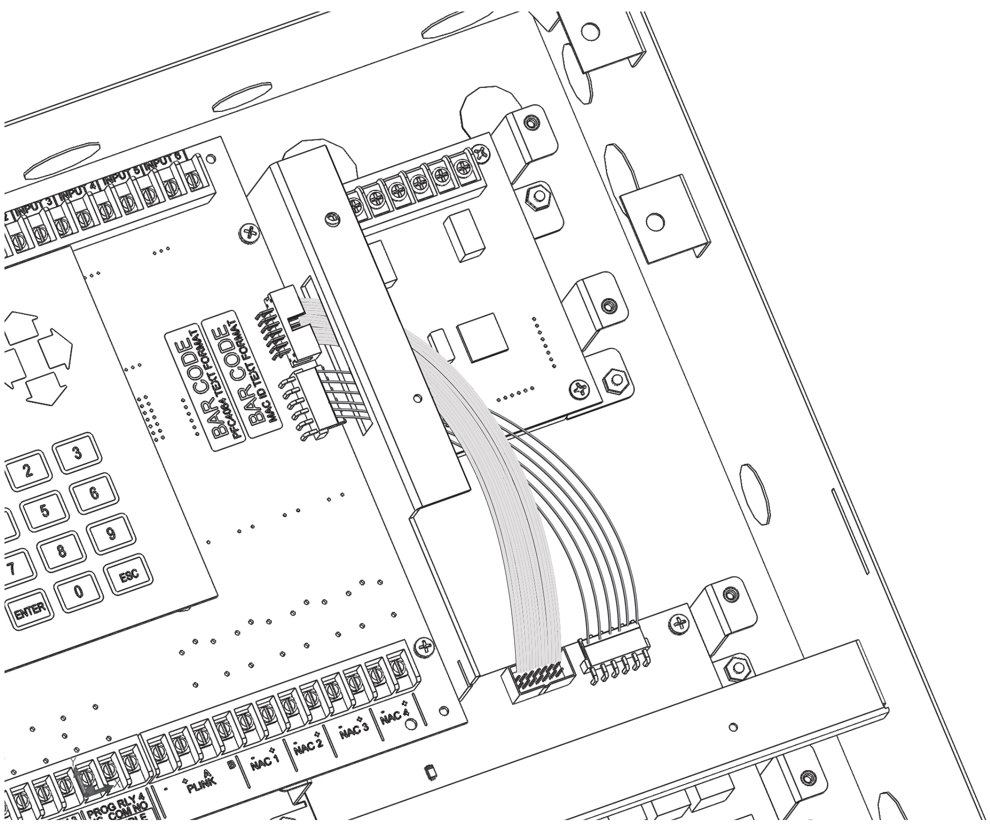


Figure 17. Example of CA-4064 Module Installed Behind Main PCA

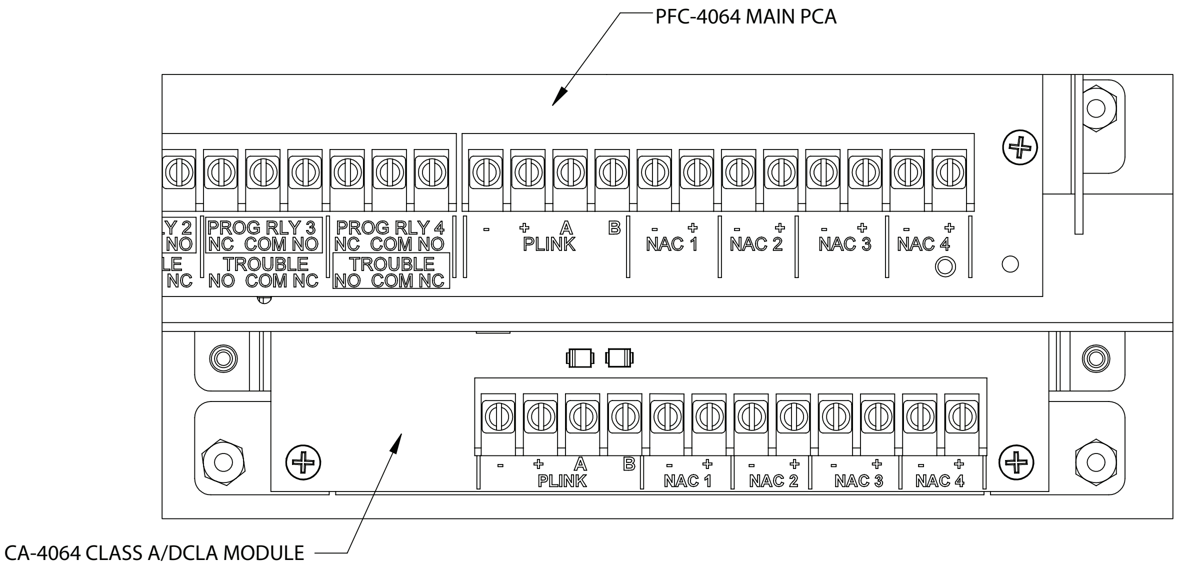
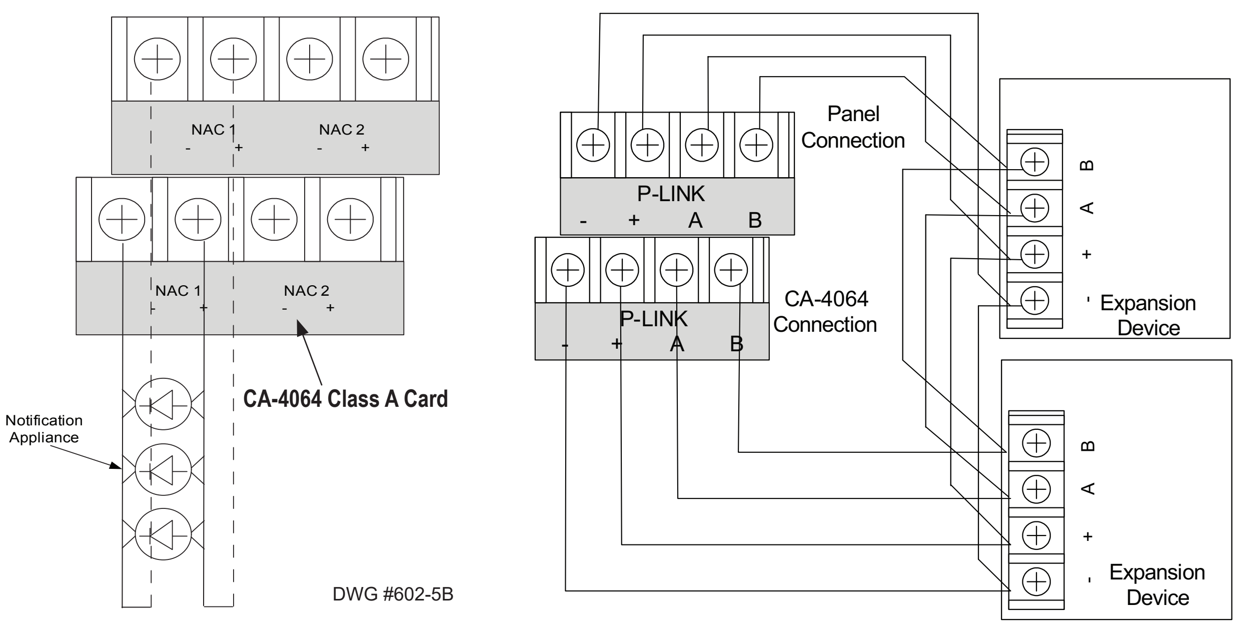


Figure 18. Example of NAC Wiring for CA-4064 and Class A P-Link Wiring



Installation Notes:

1. One (1) CA-4064 Class A expander may be installed per panel.
2. The CA-4064 provides the terminals for NACs and P-Link.

P-Link Modules

P-Links modules such as the IDC-6, remote annunciators (RA-6500 and RA-6075) and relay expansion boards (RLY-5) are connected to the main control panel utilizing the four-wire P-Link bus for power and communication. This panel supports a maximum of sixty-four (64) P-Link modules, which can be connected using a Class B or Class A wiring *(examples are provided throughout this topic).*

> **Note:** All Class A wiring requires the installation of a Class A Expander board (CA-4064). Instructions on installing the CA-4064 are included in this section.

Configuration Characteristics

- P-Link maximum current is 1A.
- P-Link voltage rating is 20.0VDC - 27.3VDC
- Continuous DC frequency.
- P-Link circuit is supervised and power-limited.
- The maximum wire length is 6,500 feet.

Maximum Wire Resistance Formula

The maximum resistance is based on the *load* placed on the circuit. To calculate the maximum wire resistance, use the following formula:

(Total P-Link Alarm Current) x (Wire Resistance) < 6 Volts

The worst cast P-Link current draw cannot exceed the 1 amp. P-Link wiring gauges and lengths are calculated using the worst-case current draw values from the table below. The worst case current draw numbers are used only for wiring calculations, refer to the battery calculation worksheet for normal standby and alarm currents.

Table 6: P-Link Accessories Worst Case Current Draw (mA)

P-Link Accessory	Worst Case Current Draw (mA)
PSN-1000	10
RA-6075	25
RA-6500	25
UD-1000/UD-2000	25
LED-16	25
DRV-50	25
RLY-5	35
FIB-1000	30
FCB-1000	25
SPG-1000	40
MC-1000	10
NCE-1000	50
NCF-1000	95

Figure 19. P-Link Device Class B, Wiring Example

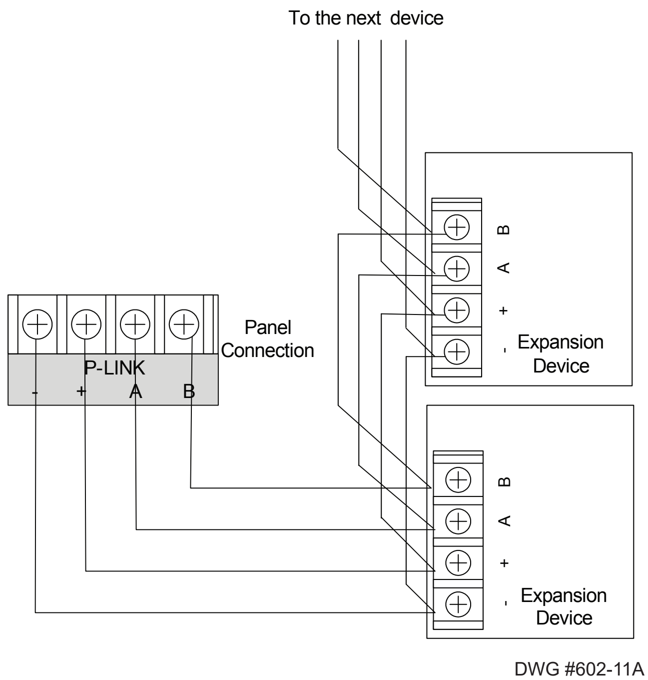
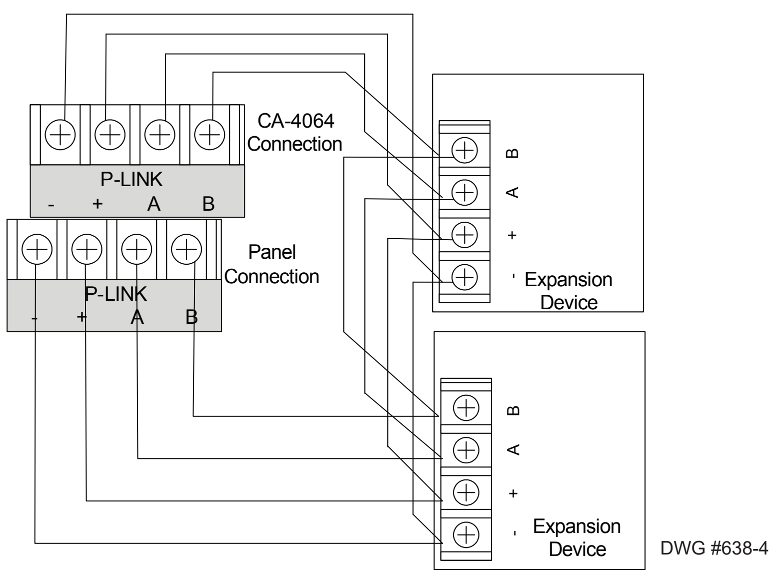


Figure 20. P-Link Device Class A Wiring Example (Requires CA-4064)



Addressing P-Link Modules

P-Link modules' addresses are set by changing the dip switches located on each device.

P-Link Addresses

Every P-Link device has a five position dip switch which is used to program the device address ranging from one (1) to thirty-one (31). Use the table below to reference Dip Switch Settings:

Address	Dip Switch Settings				
	SW-1	**SW-2**	**SW-3**	**SW-4**	**SW-5**
1	On	Off	Off	Off	Off
2	Off	On	Off	Off	Off
3	On	On	Off	Off	Off
4	Off	Off	On	Off	Off
5	On	Off	On	Off	Off
6	Off	On	On	Off	Off
7	On	On	On	Off	Off
8	Off	Off	Off	On	Off
9	On	Off	Off	On	Off
10	Off	On	Off	On	Off
11	On	On	Off	On	Off
12	Off	Off	On	On	Off
13	On	Off	On	On	Off
14	Off	On	On	On	Off
15	On	On	On	On	Off
16	Off	Off	Off	Off	On

Address	Dip Switch Settings				
	SW-1	**SW-2**	**SW-3**	**SW-4**	**SW-5**
17	On	Off	Off	Off	On
18	Off	On	Off	Off	On
19	On	On	Off	Off	On
20	Off	Off	On	Off	On
21	On	Off	On	Off	On
22	Off	On	On	Off	On
23	On	On	On	Off	On
24	Off	Off	Off	On	On
25	On	Off	Off	On	On
26	Off	On	Off	On	On
27	On	On	Off	On	On
28	Off	Off	On	On	On
29	On	Off	On	On	On
30	Off	On	On	On	On
31	On	On	On	On	On

Note: When assigning dip switch addresses, each device must have a unique number within each device type group. For example, a group of LCD annunciators may be assigned 1-10, and PSN-1000(E) power expansion boards may also be assigned 1-10.

Module Installation

Initiating Device Circuit Module - IDC-6

The panel supports up to thirty one (31) IDC-6 modules. The IDC-6 is controlled over the 4 wire P-Link connection. The IDC-6 mounts in the panel cabinet (up to two (2)) as shown below. It also can be mounted in PSN-1000 or either of the AE-2, AE-8 or AE-14 accessory cabinets..

> **Note:** When using an accessory cabinet, the cabinet MUST be mounted within 20 feet of the panel or power supply

Figure 21. IDC-6 Module locations

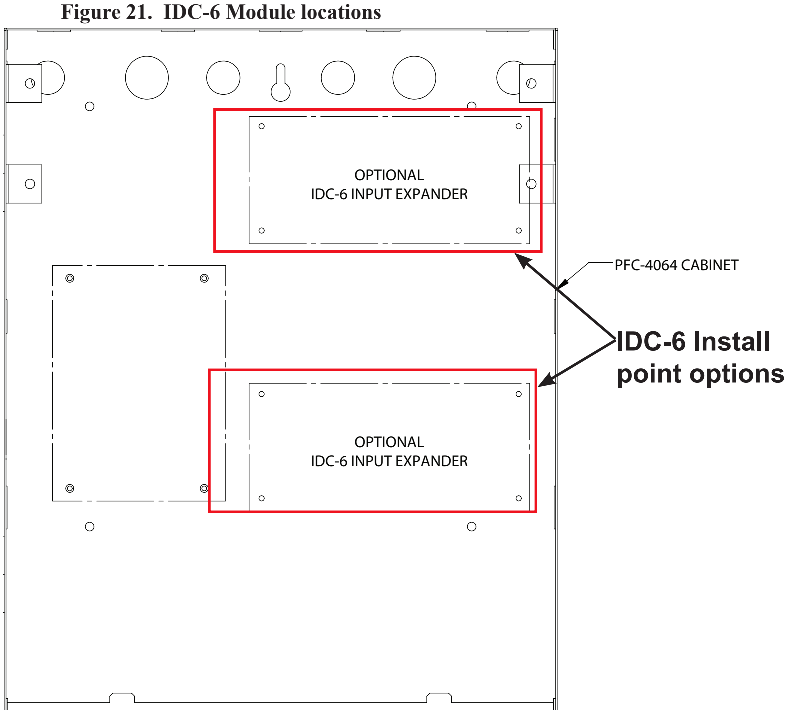
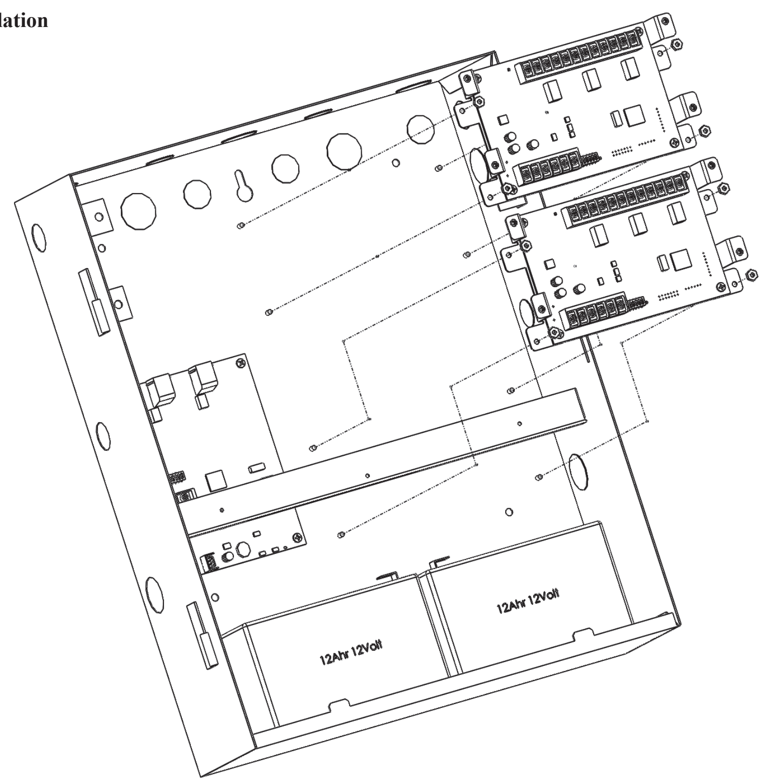


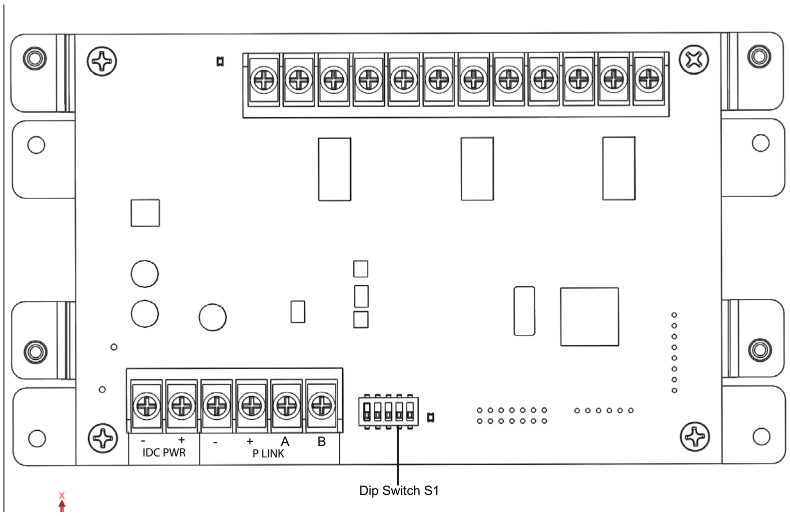
Figure 22. IDC-6 Installation



Setting Address

The IDC-6's address is set by **dip switch S1** (*as shown below*). The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. (*Refer to the "P-Link Addresses" table shown earlier in this section for DIP switch programming.*)

Figure 23. IDC-6 Dip Switch locations



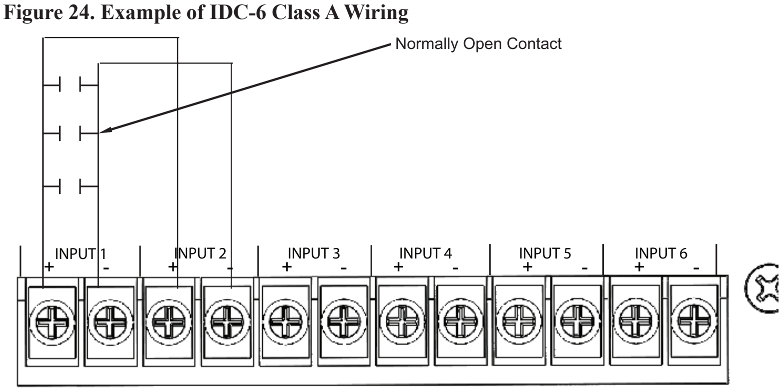
Input Wiring Specification

- Maximum short circuit current = 47mA
- Maximum wiring resistance = 100 Ohms
- Maximum wiring capacitance = 1 mF
- Maximum wire length in feet = 10,000 feet
- Normal standby current = 2.5 mA
- IDC operating voltage range = 15VDC – 28VDC

IDC-6 Wiring Configuration

The IDC-6's may be configured and installed as Class B or Class A. Please refer to the following examples:

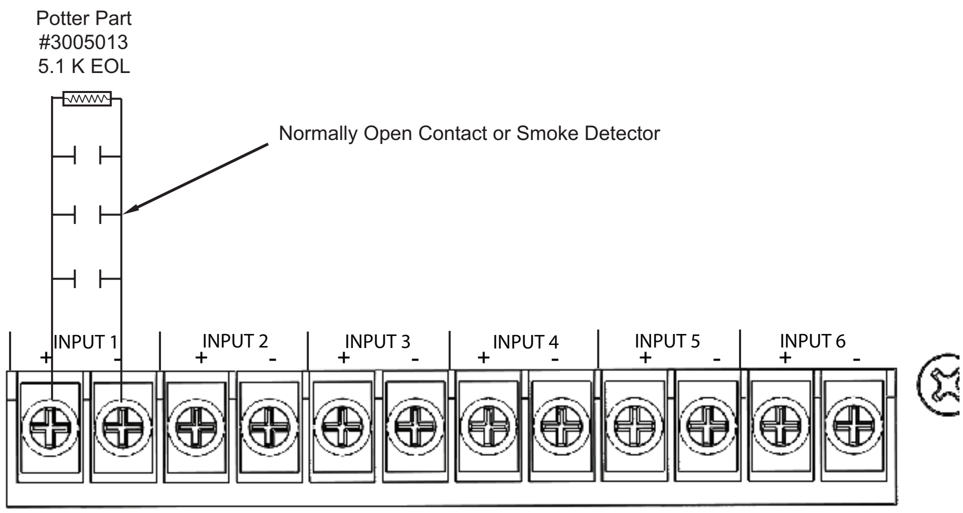
Figure 24. Example of IDC-6 Class A Wiring



Input Circuit Class A Notes:

1. Maximum wiring resistance must not exceed 100 ohms.
2. The input has ground fault detection with 0 ohm impedance to ground.

Figure 25. Example of IDC-6 Class B Wiring



Input Circuit Class B Notes:

1. Maximum wiring resistance must not exceed 100 ohms.
2. The input has ground fault detection with 0 ohm impedance to ground.
3. The Potter part number for the listed end of line assembly is #3005013 EOL Resistor Asssembly.

IDC PWR can be provided by any fire listed source

Figure 26. Class B P-Link and IDC Power Wiring

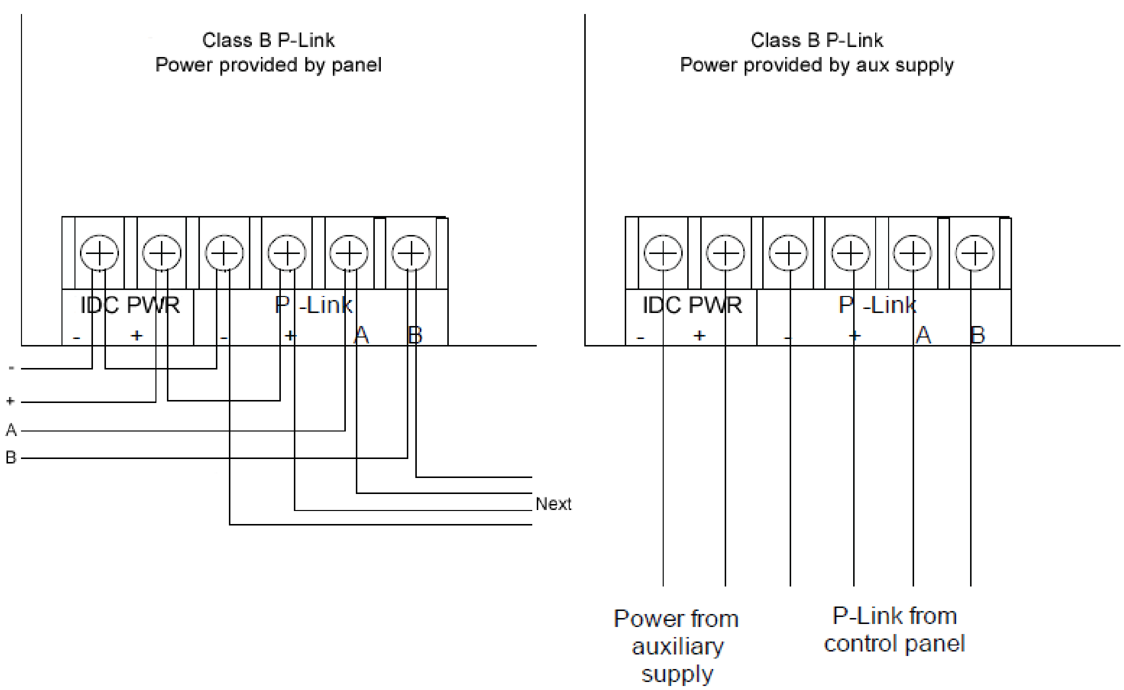
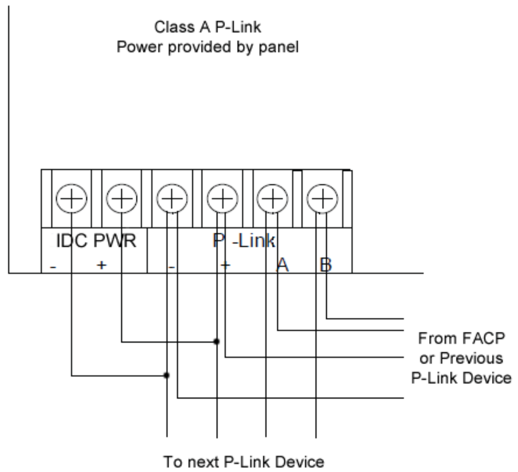
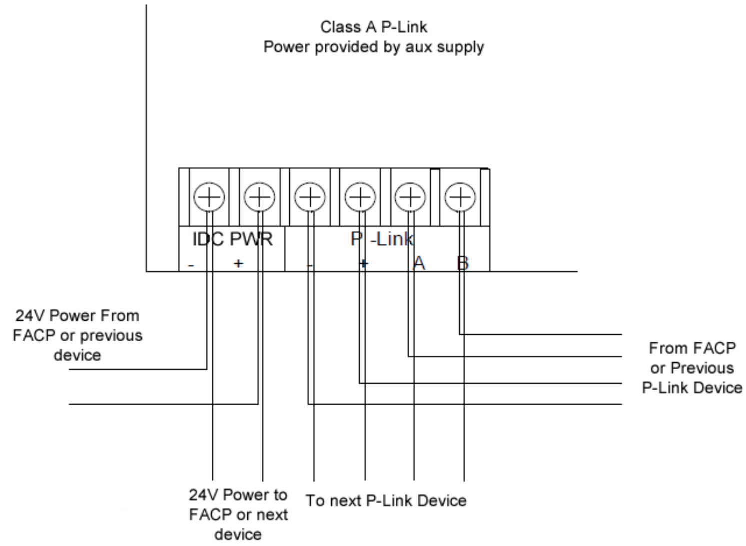


Figure 27. Class A P-Link and IDC Power Wiring





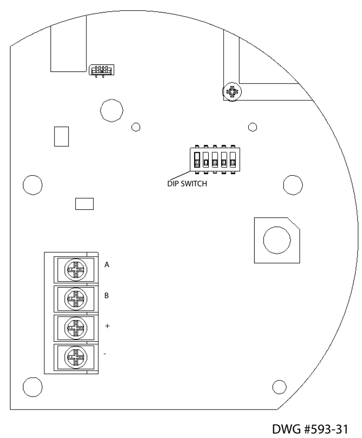
Remote Annunciators Installation

Up to thirty-one (31) annunciators may be connected to the PFC-4064. The RA-6075 provides a 2 x 16 character LCD display, along with standard function and numeric keys; the RA-6500 provides a larger, 4 x 40 character LCD display. Both annunciators are listed and designed to be mounted on a flat non-condensing surface or electrical box.

Setting Addresses

An annunciator's address is set by **dip switch S1**, which is located on the back of the annunciator. The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to chart shown earlier in this section for P-Link DIP switch settings.)*

Figure 28. Annunciator Back Panel View



UD-1000/UD-2000 (DACT) Installation

NOTICE
Phone lines are high voltage and should be run in a separate conduit from other circuits. The wire conductors connecting the DACT to the phone system should be 26 AWG or larger.

The UD-1000/UD-2000 Digital Alarm Communicator Transmitter provides connections for two (2) phone lines for communication to a monitoring station. The DACT communicates using the SIA-DCS or Ademco Contact ID protocols. Only one is allowed per main control panel, for convenience the UD-1000 is typically programmed as device ID #01. The UD-2000 is factory addressed to device ID #1.

The UD-1000/UD-2000 must be installed prior to any other telephone equipment in the building to ensure proper operation. The UD-2000 is provided with terminal blocks for each phone line connection. The UD-1000 is provided with RJ-11 jacks for each phone line. An RJ31X jack can be installed to provide the connection to the telephone lines, a patch cable between the RJ31X jack and the built in RJ-11 jacks on the UD-1000 is provided with the UD-1000. The DACT automatically monitors each phone line for voltage and has the ability to seize the line and connect with a remote receiver. Once the communication is complete, the DACT will hang up the phone line.

In order for the DACT to work properly, it must be installed on a plain old telephone service (POTS) or equivalent as deemed by the authority having jurisdiction. The DACT must be installed before any other equipment to ensure it can seize the line and disconnect any other lines.

The UD-1000/UD-2000 is installed behind the main board. Remove the main board from the cabinet and install the UD-1000/ UD-2000 on the stand-offs as shown below. Secure with screws as shown in diagram. Make sure dipswitch is set.

Figure 29. UD-1000/UD-2000 Dialer Location in Cabinet and Install Example

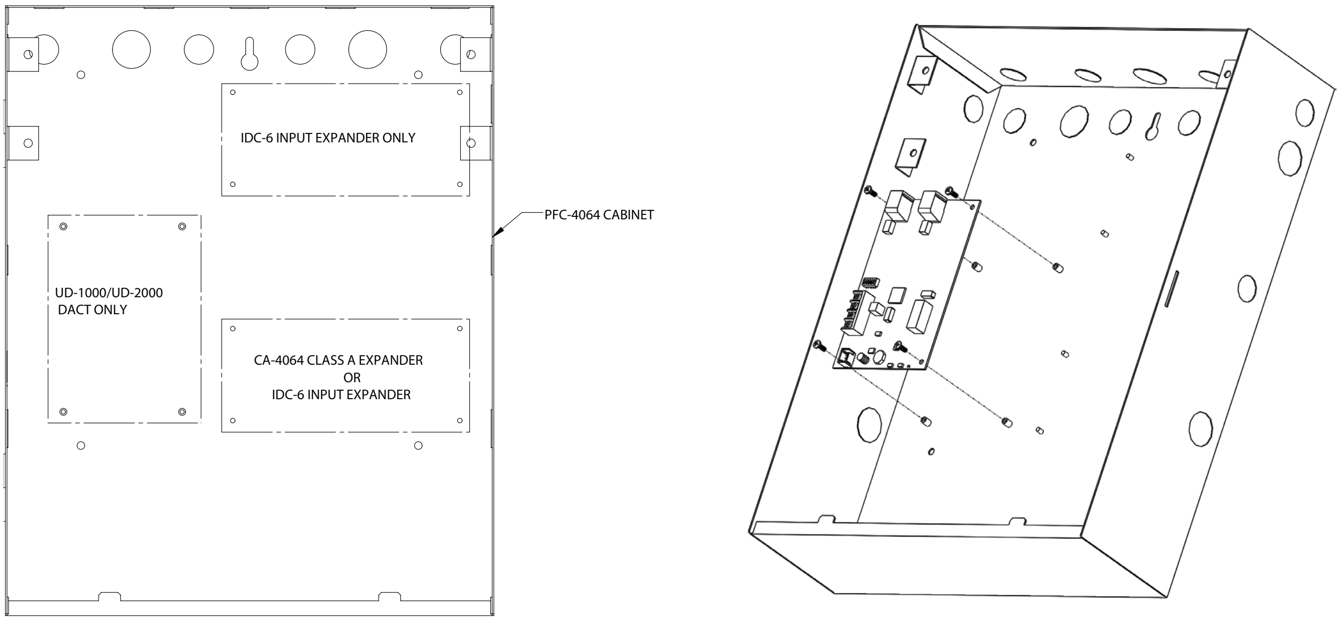
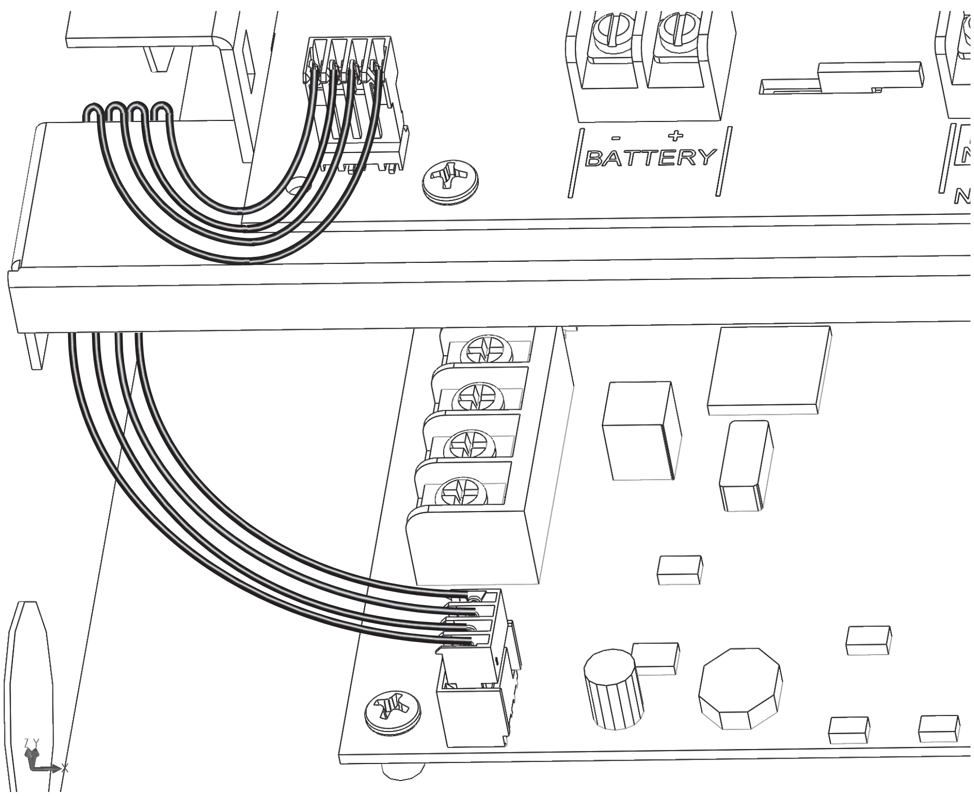


Figure 30. UD-1000/UD-2000 Wire Connection to Control Panel



Route cable (p/n 5210527) as shown above for proper UD-1000/UD-2000 installation. Cable is provided with PFC-4064.

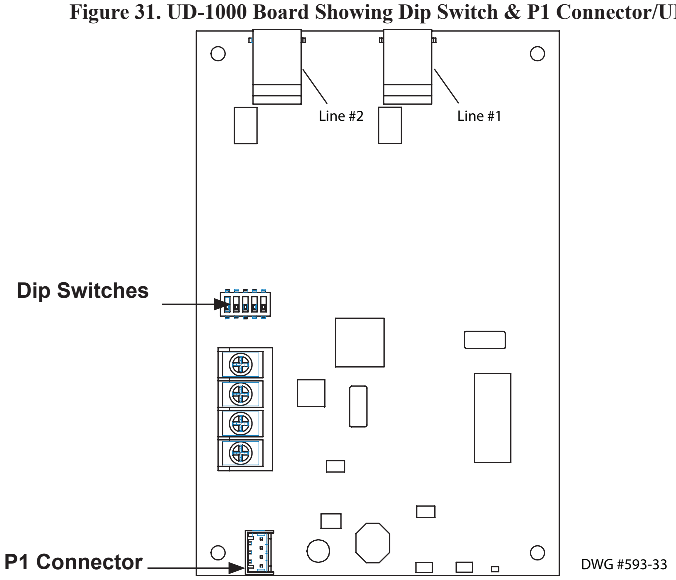
P-Link & Dip Switch Locations

The UD-1000/UD-2000 is connected to the P-Link bus. A four-wire cable (P/N 5210514) is supplied with the UD-1000, which should be used to connect the **P1** on the UD-1000 and the UDACT connection on the main panel board (*as shown in the illustrations below*).

Setting Addresses

The UD-2000 comes addressed as address one (1). The UD-1000 must be programmed with an address between one and thirty-one (1–31) to be recognized by the panel. *(Refer to the "P-Link Addresses" table)*

Figure 31. UD-1000 Board Showing Dip Switch & P1 Connector/UDACT connection

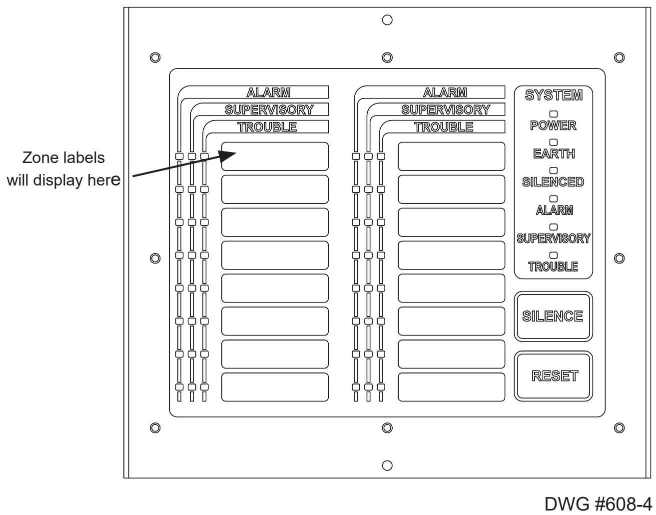


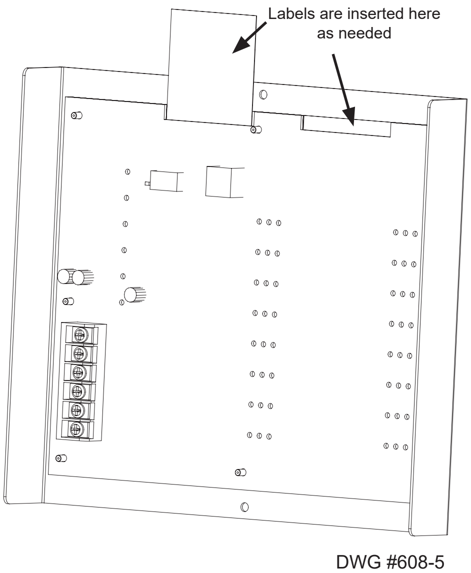
DWG #593-33A

LED Annunciators Installation (LED-16)

The panel supports up to thirty-one (31) LED-16/LED-16F annunciators.The LED-16 displays alarm, supervisory, and trouble conditions for up to16 zones per annunciator. They also provide *Silence* and *Reset* functionality. Blank zone labels are provided for use with the LED annunciators to label each zone name or identifier. The labels may be printed or written on the supplied card-stock, and then inserted into the back of the front panel as shown in the right-most figure below.

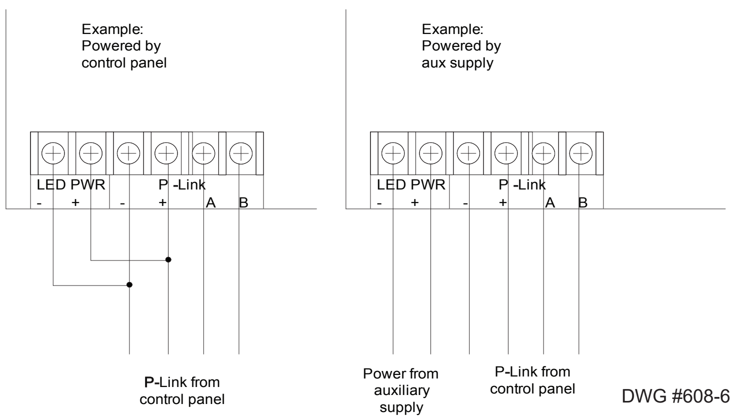
Figure 32. LED-16 Module Showing Front Panel & Board





The LED-16 is controlled over the 4-wire P-Link connection. The higher current required for the LED outputs can be provided by the panel, or from an auxiliary power source as shown below. The auxiliary power can be any 24VDC source, and is fully supervised.

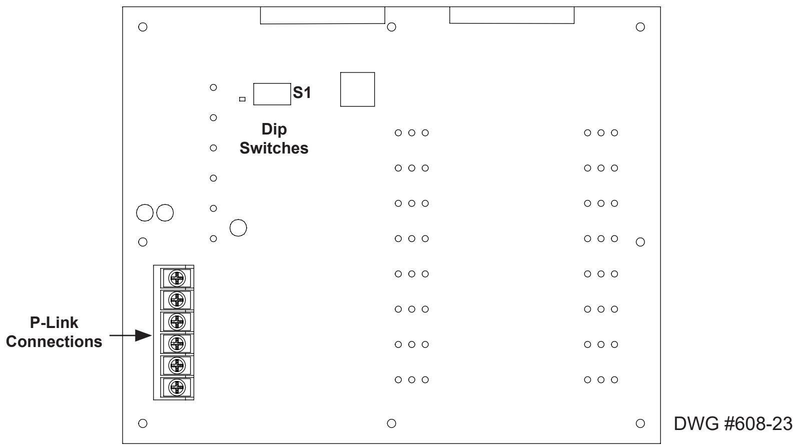
Figure 33. Examples of Wiring LED-16 Module to Control Panel or Auxiliary Power Supply



Setting Addresses

The LED-16/LED-16F's address is set by **dip switch S1.** The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the **"P-Link Addresses" table)***

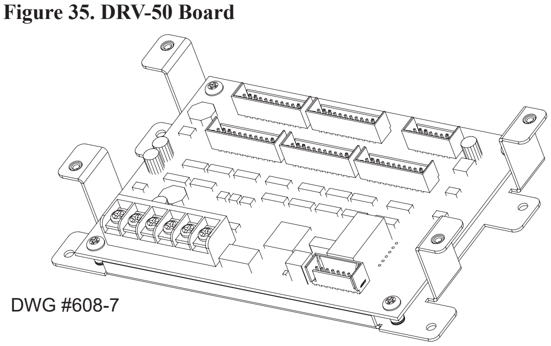
Figure 34. LED-16 / LED-16F Panel Showing Dip Switch Location



LED Drivers Installation (DRV-50)

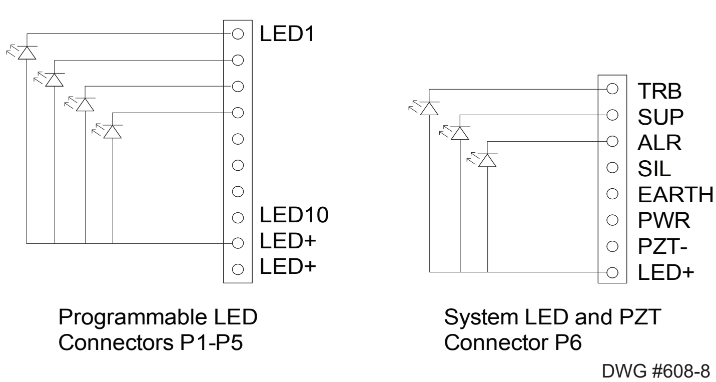
The panel supports up to thirty-one (31) DRV-50s. Each DRV-50 provides 50 programmable LED outputs and 4 programmable dry-contact inputs, which can be individually mapped to any zone. The DRV-50 is controlled over the 4-wire P-Link connection, and is installed onto a mounting bracket as shown below. This can then be mounted into any of the compatible fire enclosures, or in either of the AE-2, AE-8 or AE-14 accessory cabinets.

Figure 35. DRV-50 Board



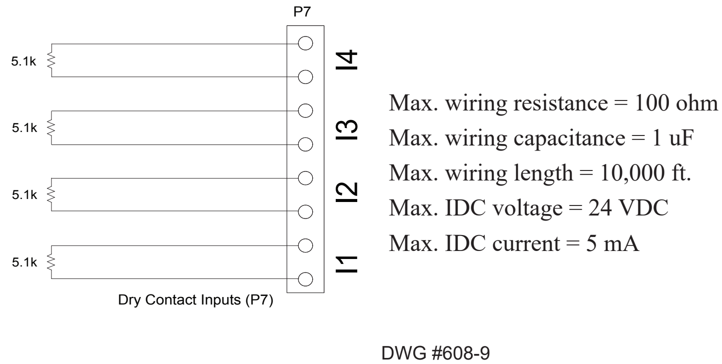
The **50 programmable LED outputs** are located on connectors **P1-P5**, each containing ten (10) LED outputs and two (2) 5VDC outputs. The **system LEDs** and **PZT control outputs** are located on connector **P6**. LEDs are wired as shown below; no external resistor is required. All outputs are power limited. All connections to P1-P6 are limited to same room installations.

Figure 36. DRV-50 "P1-P5" and "P6" Connectors



The **4 programmable dry-contact inputs** are located on connector **P7**. All input circuits are power limited and use a 5.1k EOL resistor. The inputs can be programmed for any of the contact input functions available for other input circuits available on the panel.

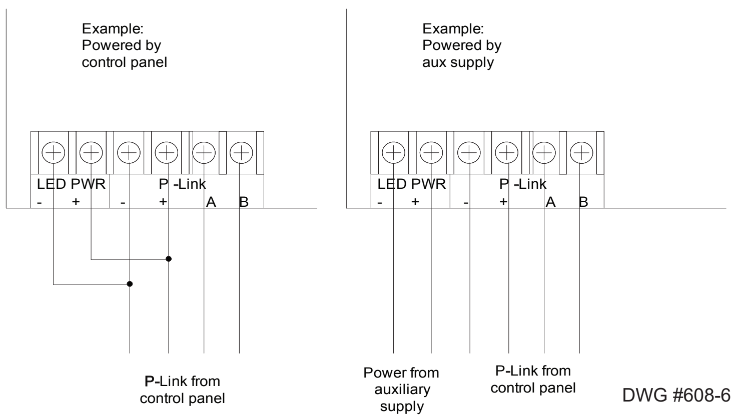
Figure 37. DRV-50 "P7" Dry-Contact Inputs



Note: All contact inputs are fully supervised. Ground fault protection impedance is 0 ohms.

The higher current required for the LED outputs can be provided by the panel, or from an auxiliary power source as shown below. The auxiliary power can be any 24VDC source, and is fully supervised.

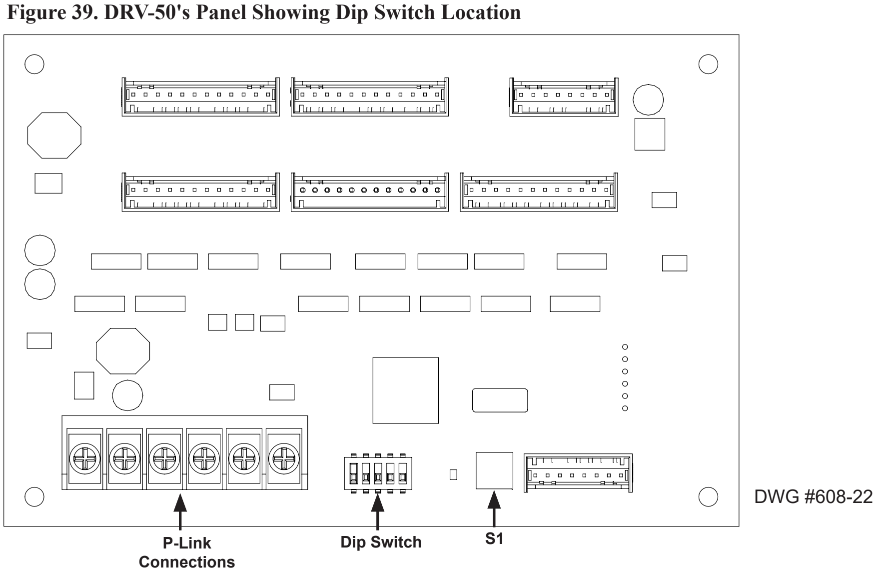
Figure 38. Examples of Wiring DRV-50 from Control Panel or Auxiliary Power Supply



Setting Addresses

The DRV-50's address is set by **dip switch S1**. The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the **"P-Link Addresses" table**)*

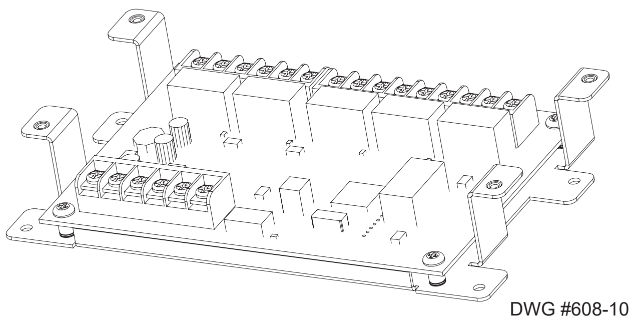
Figure 39. DRV-50's Panel Showing Dip Switch Location



Relay Board Installation (RLY-5)

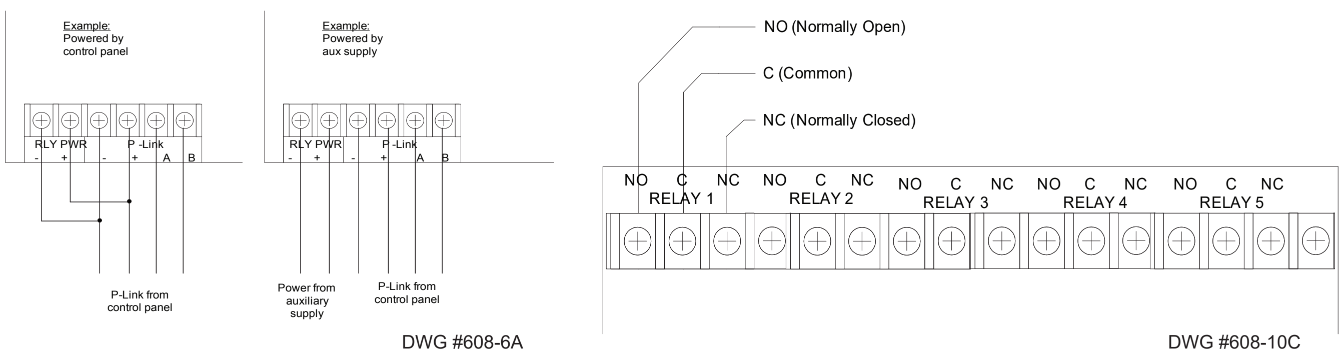
The panel supports up to thirty-one (31) RLY-5 (Relay Board) modules. Each RLY-5 provides 5 programmable output relays, which can be individually mapped to any zone. The RLY-5 is controlled over the 4-wire P-Link connection. The RLY-5 mounts in a mounting bracket as shown below, and then installed into the panel cabinet, or in either of theAE-2, AE-8 or AE-14 accessory cabinets.

Figure 40. RLY-5 Board Showing Mounting Bracket



The RLY-5 higher current required for the relay outputs can be provided by the panel, or from an auxiliary power source as shown below. The auxiliary power can be any 24VDC source, and is fully supervised.

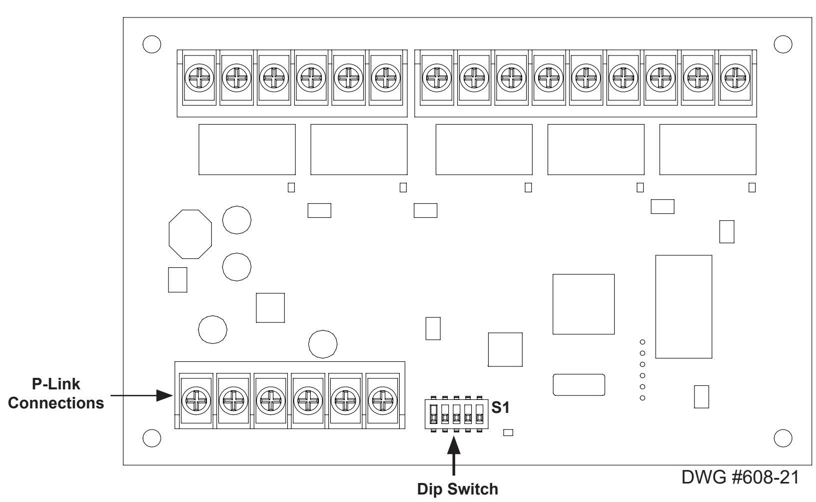
Figure 41. RLY-5 Wiring to Control Panel /Auxiliary Power Supply Examples & RLY-5 Showing Normally Open/Normally Closed Contacts



Setting Addresses

The RLY-5's address is set by **dip switch S1**. The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the* ***"P-Link Addresses" table****)*

Figure 42. Relay Board Panel View Showing Dip Switch Location



Fire Communications Bridge Installation (FCB-1000)

The panel supports one (1) Fire Communications Bridge accessory. This module provides an optional remote IP connection for IP reporting functionality. The FCB-1000 is controlled over the 4-wire P-Link connection. This then can be mounted inside the AE-2, AE-8 or AE-14 accessory cabinets, or the optional rack-mount kit (FCB-1000RM). The FCM-1000RM includes a standard 19 inch rack-mount enclosure, which can then be installed directly into the IT equipment rack.

Note: The Ethernet IP connection is limited to same room installation. This connection shall be limited to 20 feet and enclosed in conduit or equivalently protected against mechanical injury.

Figure 43. FCB-1000 Bridge & FCB-1000RM Showing Rack Mount

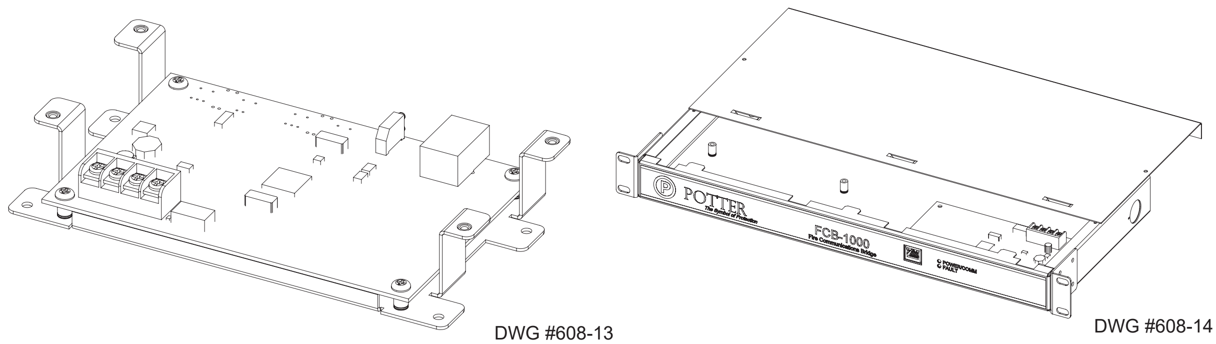
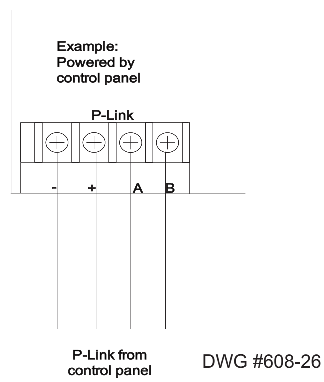


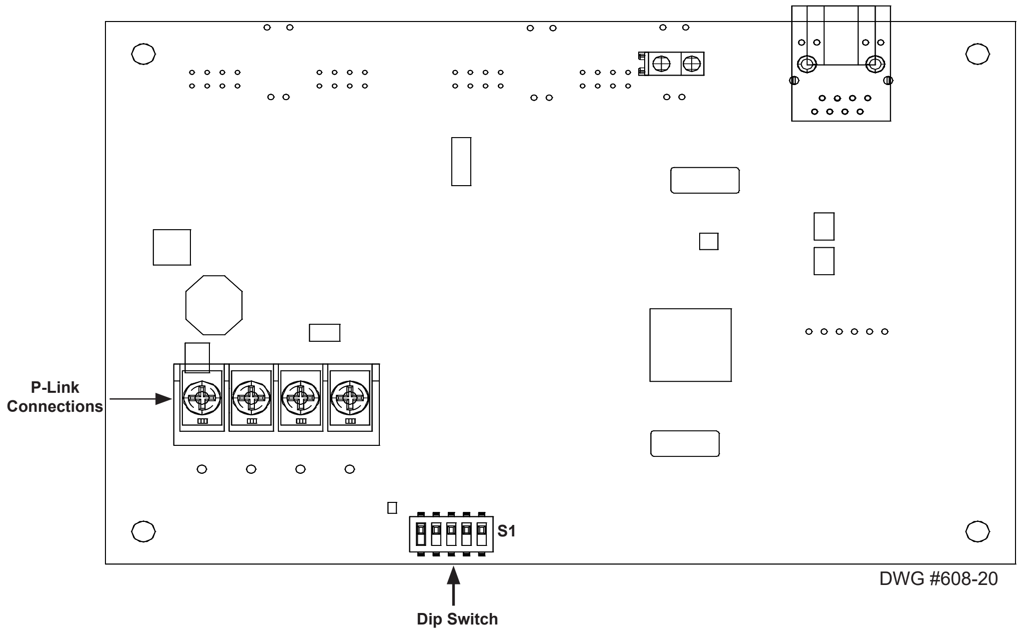
Figure 44. FCB-1000 Wiring to Control Panel Example



Setting Addresses

The FCB-1000's address is set by **dip switch S1**. The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the **"P-Link Addresses" table**)*

Figure 45. FCB-1000 Panel View Showing Dip Switch Location



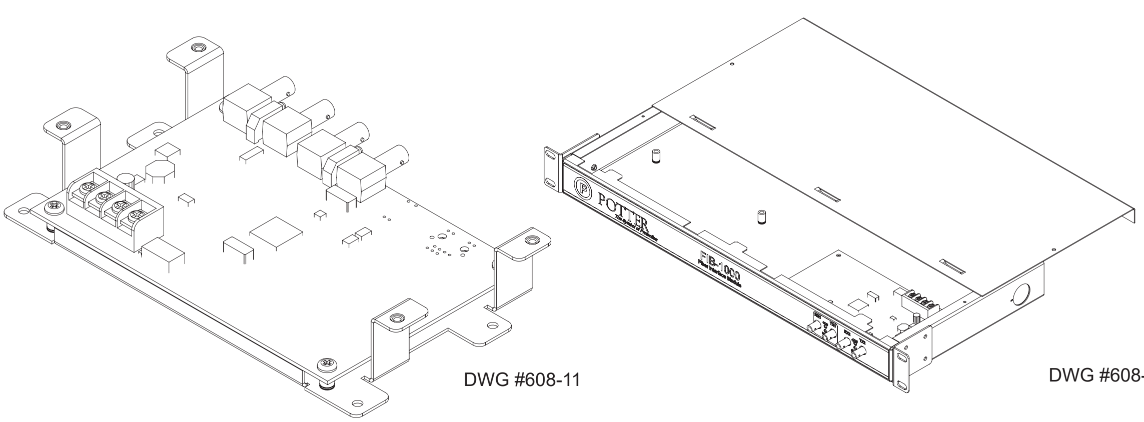
Fiber Interface Bridge Installation (FIB-1000)

The panel supports up to thirty (30) FIB-1000s (*Fiber Interface Bridge*), which enables the 4-wire P-Link bus to be converted to and/or from fiber optic cable.

- Utilizes multimode 62.5/125 micron fiber optic cable
- Cable Length up to 2000 meters or 6500 feet
- Installed in pairs (*refer to "FIB-1000 Wiring" heading for details*)

The first installed FIB-1000 can be mounted into any of the compatible fire enclosures, in either of the AE-2, AE-8 or AE-14, or the optional rack-mount kit (FIB-1000RM). The FIB-1000RM includes a standard 19 inch rack-mount enclosure, which can then be installed directly in an equipment rack. The second installed FIB-1000 must be installed in a PSN-1000E cabinet as illustrated in the following drawings.

Figure 46. FIB-1000 Bridge & FIB-1000RM Showing Rack Mount

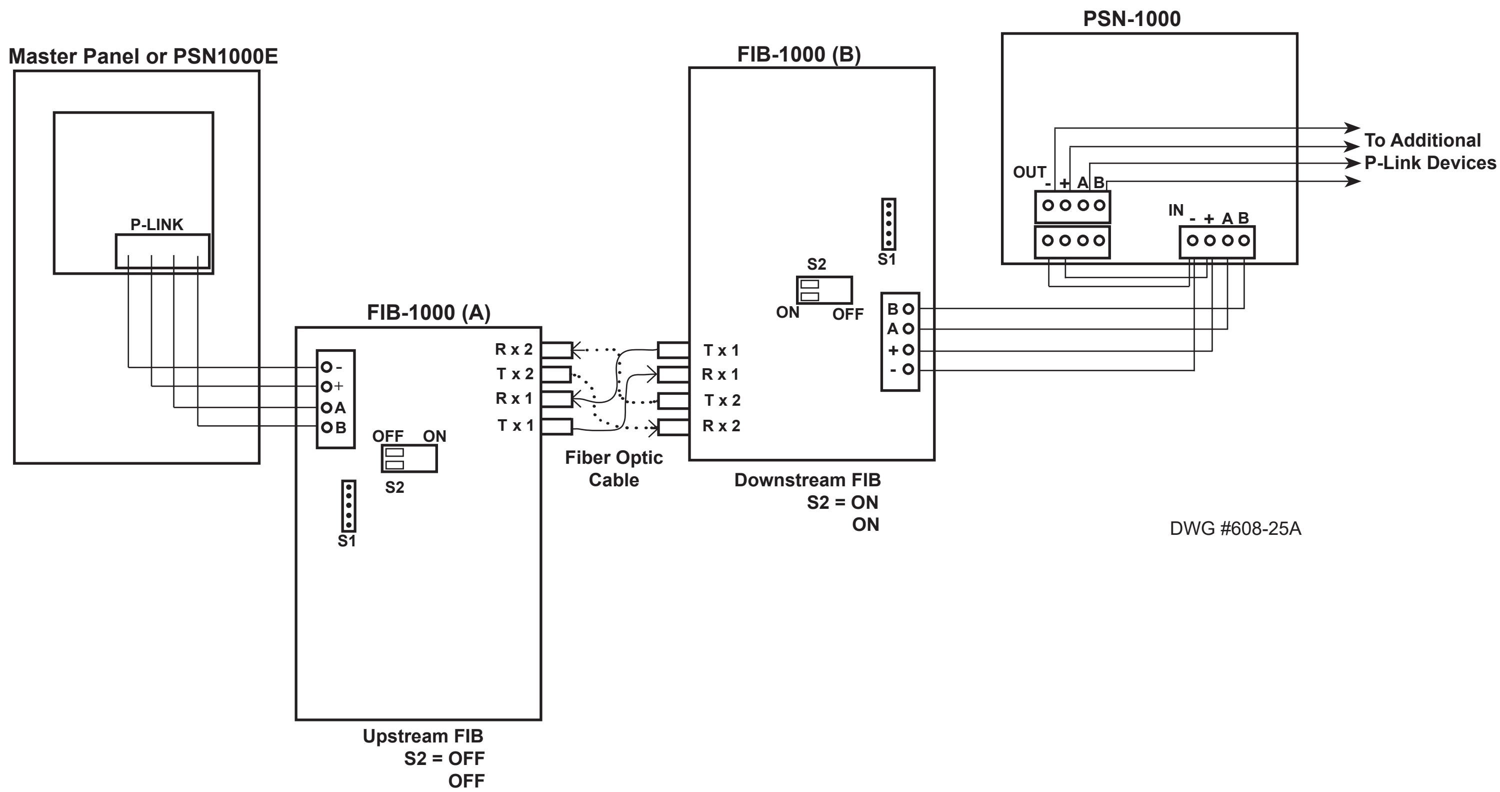


FIB-1000 Wiring Diagrams

FIB-1000s are installed in pairs. (*Please refer to Diagrams #1 & #2 shown below to properly wire the two FIB-1000s.)* The first FIB-1000, referred to as **"FIB-1000 (A)"** below, can be installed in any of the compatible fire alarm enclosures, or the FIB-1000RM. It is connected via the *4-wire P-Link connection*. **Set S2 on FIB-1000 (A) to the "OFF" position,** which provides an *outgoing fiber option connection*. That fiber optic connection can be connected as *Class A or Class B* to the second FIB-1000, referred to as **"FIB-1000 (B)"** below.

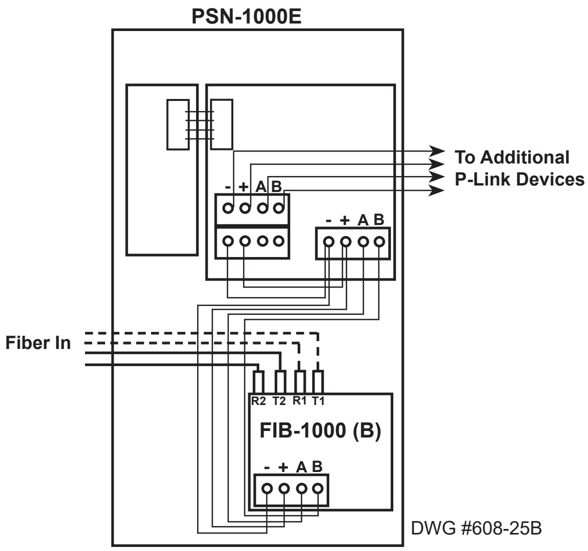
The second FIB-1000, referred to as **"FIB-1000 (B)**," is installed in a *PSN-1000E (as shown in Diagram #2)*. **Set S2 on FIB-1000 (B) to the "ON" position.** It then provides an *outgoing P-Link connection*. Connect the **4-wire P-Link on the FIB-1000 (B)** to the **P-Link connection on the PSN-1000E**.

Figure 47. Diagram #1: FIB-1000 Wiring Diagram Showing Detail



To power the FIB-1000 (B), connect the 24VDC "+" and "-" terminals on PSN-1000E (s*hown in Diagram #2*) to the isolated P -Link 24 VDC "+" and "-" terminals. The PSN-1000E's isolated P-Link can be used to connect any other P-Link appliance, including the RA-6500, RA-6075, LED-16 and the PSN-1000E.

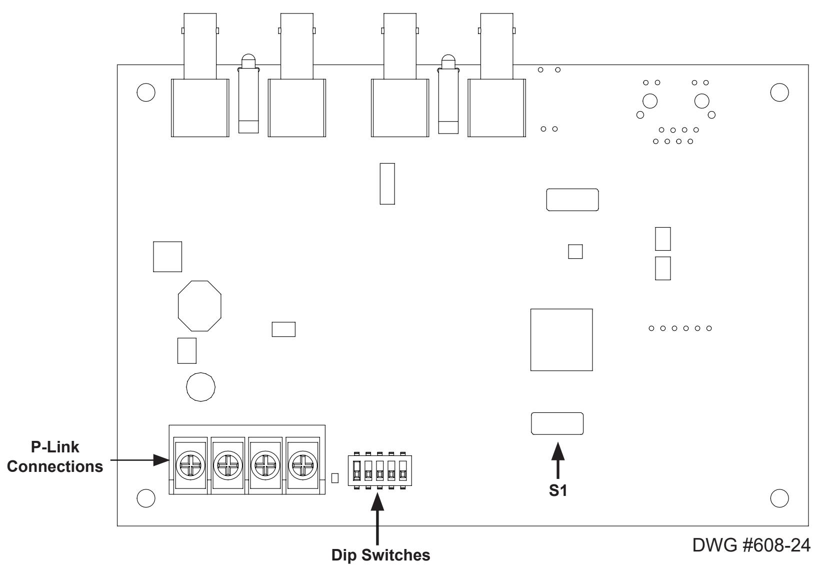
Figure 48. Diagram #2: FIB-1000 Wiring Diagram Shown Installed in PSN-1000E Cabinet



Setting Addresses

The FIB-1000's address is set by **dip switch S1.** The address must be set in the range of one to thirty (1–30) to be recognized by the panel. *(Refer to the "P-Link Addresses" table)*

Figure 49. FIB-1000 Panel Showing Dip Switch Location



Serial Parallel Gateway Installation (SPG-1000)

An optional SPG-1000 serial/parallel gateway (*printer driver*) board can be mounted inside the AE-2, AE-8 or AE-14 accessory enclosure, or the SPG-1000RM rack-mount enclosure kit. The SPG-1000RM includes a standard 19 inch rack-mount enclosure, which can then be installed directly in an equipment rack. Up to thirty-one (31) printers may be installed on this panel.

Figure 50. SPG-1000 Serial Parallel Gateway Board & Rack Mount

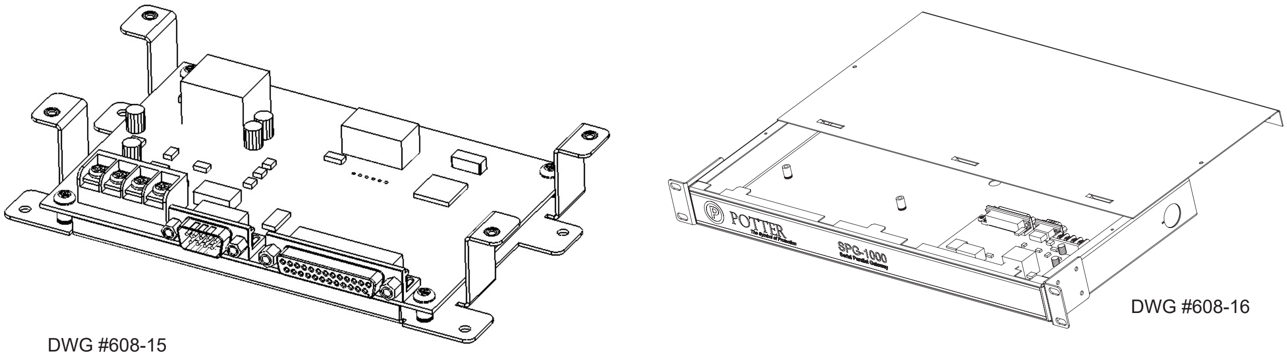
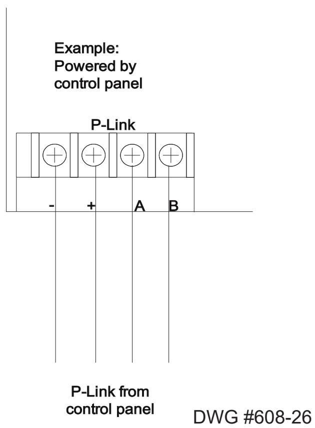


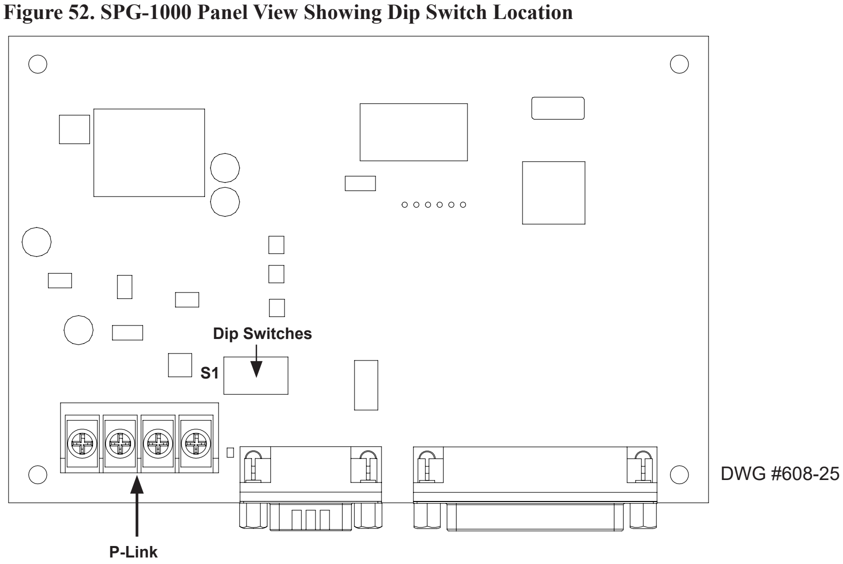
Figure 51. SPG-1000 Wiring to Control Panel Example



Setting Addresses

A SPG-1000 address is set by **dip switch S1**. The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the "P-Link Addresses" table)*

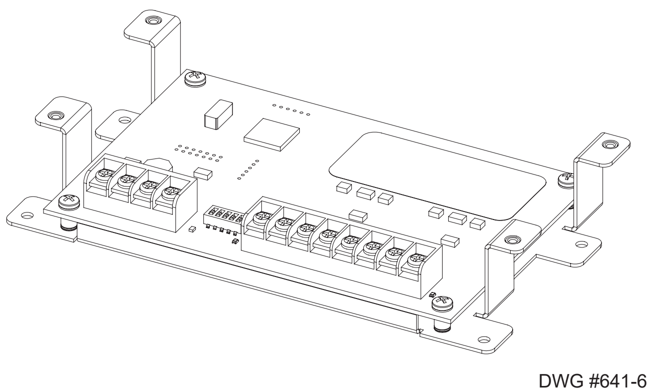
Figure 52. SPG-1000 Panel View Showing Dip Switch Location



Multi-Connect Module Installation (MC-1000)

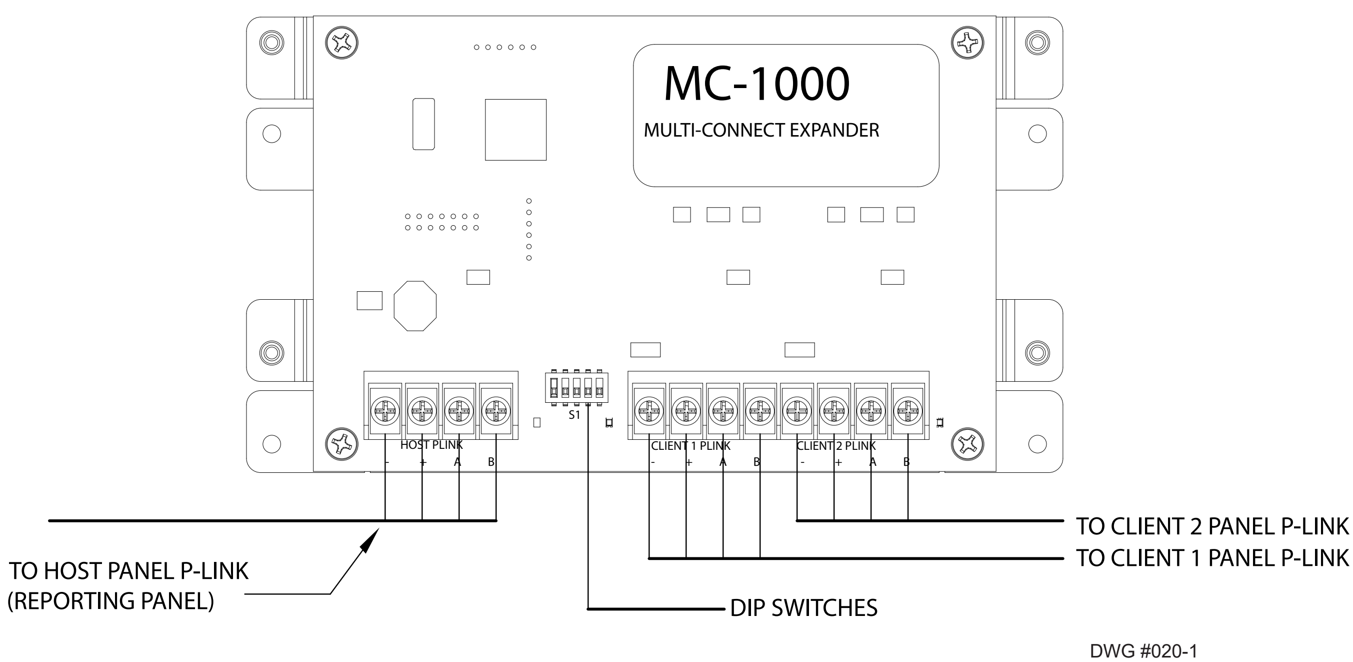
The panel support up to 31 Multi-Connect modules allowing up to 63 panels to be interconnected. The MC-1000 allows multiple panels to report to the central station through a shared phone line or Internet connection. This module is installed onto a mounting bracket, which then can be mounted into any of the compatible fire panel enclosures, the PSN-1000/E cabinet, or in either of the AE-2, AE-8 or AE-14 accessory cabinets.

Figure 53. MC-1000 Board & Shown Installed in an IPA-100 Panel



The MC-1000 is connected to the 4-wire P-Link connection. Each MC-1000 supports communication between the ***"Host"*** reporting panel and two ***"client"*** panels. The MC-1000 communicates with the Host and the clients' control panel via the P-Link communication bus.

Figure 54. Examples of Wiring MC-1000 Module (Host Panel and Client Panel)



Setting Address

The MC-1000's address is set by **dip switch S1.** The address must be set in the range of one to thirty-one (1–31) to be recognized by the panel. *(Refer to the "Addressing P-Links" table for dip switch settings.)*

Network Card Ethernet (NCE-1000)

The NCE-1000 is used to network the fire alarm control panels via CAT5 Ethernet cable. It is fully supervised and is capable for Class B and Class A operation. The NCE-1000 can be used as a Class A extender, extending the length of the Ethernet connection from 300 feet to 600 feet.. The NCE-1000 may be mounted in either the control panel cabinet, the PSN-1000E, the AE-2, AE-8 or AE-14. When wiring Class A or B the connection between the FACP and the module shall be limited to 20 feet and enclosed in conduit or equivalently protected against mechanical injury. A maximum of 31 NCE-1000s can be installed per panel, with a maximum of 200 panels per network. Please refer to installation manual 5406326 for more details.

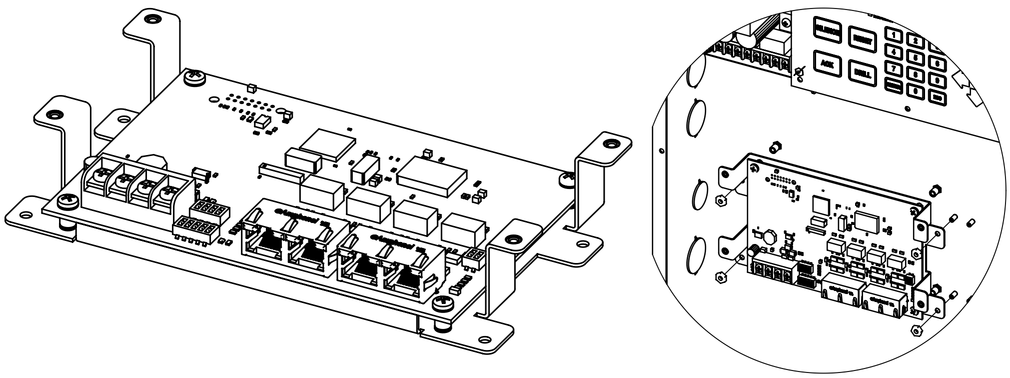


Figure 55. NCE-1000 Network Card

Network Card Fiber (NCF-1000)

The NCF-1000 is used to network the fire alarm control panels using fiber optic cable. The NCF-1000 allows the user to install SFP (small form-factor pluggable) modules to utilize either single mode or multi-mode fiber. It is fully supervised and is capable for Class B and Class A operation. The NCE-1000 may be mounted in either the control panel cabinet, the PSN-1000E, the AE-2, AE-8 or AE-14. When wiring Class A or B the connection between the FACP and the module shall be limited to 20 feet and enclosed in conduit or equivalently protected against mechanical injury. A maximum of 31 NCE-1000s can be installed per panel, with a maximum of 200 panels per network. Please refer to installation manual 5406324 for more details.

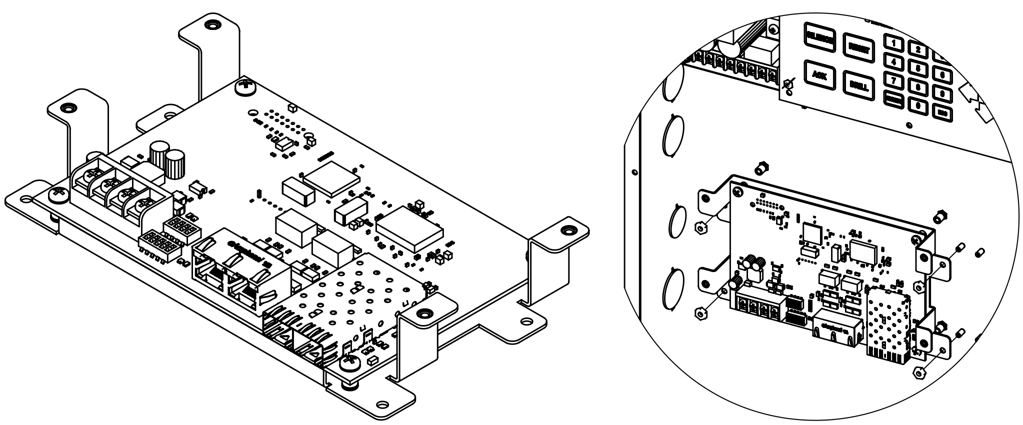


Figure 56. NCF-1000 Network Card Fiber

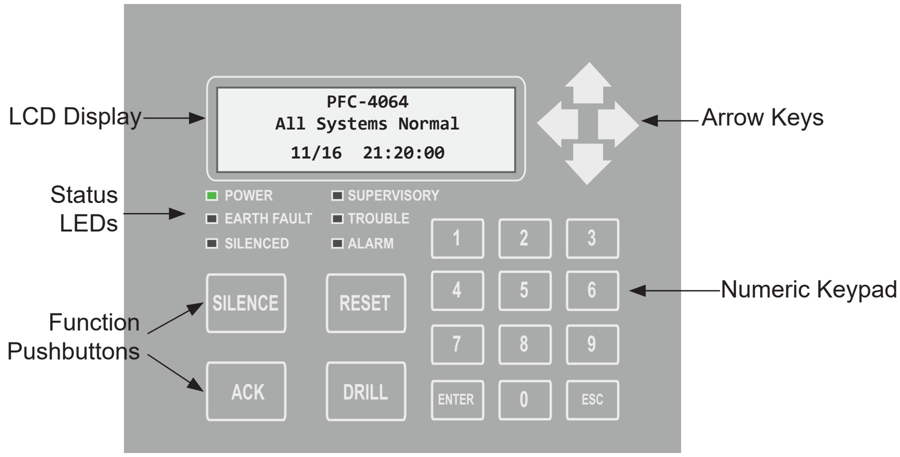
Section 4: Operation

This section provides an overview of the control panel's basic operations, which includes the status LEDs, function pushbuttons, and a Control Panel Menu Tree quick reference sheet.

Control Panel Basic Operation

The control panel is comprised of a four (4) line x 20-character LCD display panel, arrow keys, push button function keys, status LEDS, and the numeric keypad. A description of each component is included in this section; please refer to the figure shown below.

Figure 57. PFC-4064 Control Panel Display

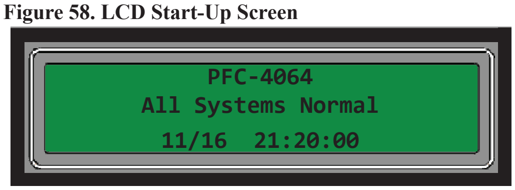


Note: Authorized system operators must use a key to open the outer door of the cabinet.

LCD Display

The LCD panel displays the standard *Start-up menu* as shown below. The LCD displays up to eighty (80) characters of information displays, providing important feedback to system users, *i.e., system messages, status information, trouble conditions, or input changes*. The LCD also provides access to the Main Menu for daily system operations and specific programming functions.

Figure 58. LCD Start-Up Screen



Note: You may customize the Start-up screen to display a specific job site name or other relevant descriptive text.

Menu Navigation Keys

The **arrow keys** allow you to scroll or move through the control panel menus. The **Enter** and **Esc** keys may also be used to navigate through menus; they are located on the numeric keypad. The table shown below provides a summary of the navigation keys.

Table 7: Menu Navigation Keys	
Push button	**Description**
	Moves/scrolls up or down through menus.
	Scrolls to the left or right to display details, if any, of current menu item. **Note:** When the LCD panel displays a LEFT and/or RIGHT arrow, this indicates more information may be viewed.
 ENTER	Displays the Main Menu or selects the current menu option. **Note:** The blinking "→" indicates the current menu option.
 ESC	Returns to previous menu or backs up to previous screen.

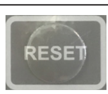
Numeric Keypad

The numeric keypad allows you to enter user codes when required to access restricted functions. Alternatively, the numbers may be used to quickly select menu options vs. using the arrow and Enter keys to select a function.

Figure 59. Control Panel Numeric Keypad

Function Pushbuttons

The four (4) function pushbuttons are used when system alarm / trouble conditions occur or to perform a fire drill. Refer to the table below for a brief summary of the pushbuttons:

Table 8: Control Panel Pushbuttons	
Pushbutton	**Description**
 ACK	Press to *acknowledge* the currently displayed condition.
 SILENCE	Press to *silence* all outputs programmed as *silenceable* and buzzer.
 RESET	Press to *reset* panel to *normal condition*.
 DRILL	Press to begin a fire drill.

Status LEDs

The control panel's LEDs communicate system conditions by illuminating and/or flashing the applicable **green**, **red** or **amber** indicators. These are described in the table below.

Figure 60. Control Panel Status LEDs

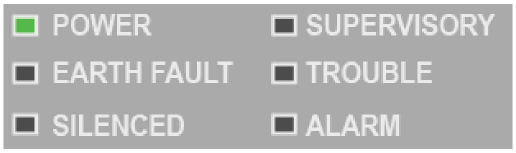


Table 9: Status LEDs		
LED Type	**LED Color/Action**	**Description**
POWER ON	Steady Green	Power is present. **Note:** If power is absent for more than 5 seconds, LED will extinguish.
ALARM	Flashing Red	An alarm device is active.
ALARM	Steady Red	An alarm device is acknowledged.
EARTH FAULT	Flashing Amber	A ground fault is present.
SUPERVISORY	Flashing Amber	A supervisory condition is present.
SILENCED	Steady Amber	A fault condition has been silenced.
TROUBLE	Flashing Amber	A fault condition is present.

Section 5: Programming Options

The control panel is configured using a PC based programming tool. The panel stores the site specific configuration data in non-volatile memory.

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.

Topic	Feature or Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864?	Comment
Misc	Idle LCD Message	Y	Yes/No	All Settings Allowed	
Misc	Display Events	Y	Initial Event Newest Event	Initial Event	Auto display of first event
Misc	SLC Blink	Y	Normal/Slow/Off	All Settings Allowed	
Misc	Alarm Verification Time	Y	0-60 Sec	All Settings Allowed	
Misc	Waterflow Delay	Y	0-255 Sec	All Settings Allowed	
Misc	AC Report Delay	Y	30 Minutes to 30 Hours	1-3 Hours	For UL864 use 1-3 Hr
Misc	DH Low AC Dropout Delay	Y	No delay, 15 Sec, 1 minute, 5 minute	All Settings Allowed	
Misc	Autotest Time	Y	Time of Day	All Settings Allowed	
Misc	Autotest Interval	Y	1-24 Hours	All Settings Allowed	
Misc	Strobes Active When Silenced	Y	Yes/No	All Settings Allowed	
Misc	50 Hz AC	Y	Yes/No	All Settings Allowed	
Misc	CO Tone on Annunciators	Y	Yes/No	All Settings Allowed	
Misc	Low Temp Events Are Supervised	Y	Yes/No	All Settings Allowed	
Misc	Disable 24 hours PZT Resound	Y	Yes/No	No	
Misc	Display AM/PM	Y	AM/PM, 24 Hour	All Settings Allowed	
Misc	Synchronize to Network Time	Y	Yes/No	All Settings Allowed	
Misc	SNTP Server	Y	North-America.Pool.NTP.org	All Settings Allowed	
Misc	Time Zone	Y	24 Time Zone Selections	All Settings Allowed	
Misc	DST Enabled	Y	Yes/No	All Settings Allowed	
Misc	DST Start	Y	Month/Day	All Settings Allowed	
Misc	DST End	Y	Month/Day	All Settings Allowed	

Topic	Feature or Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864?	Comment
Zone	Zone Style	Y	Alarm Supervisory PAS Auxiliary Fire Drill Waterflow System Alarm System Supervisory System Trouble CO Alarm CO Supervisory	All Settings Allowed	
Zone	Alarm Count	Y	1-10	All Settings Allowed	
Zone	Silenceable	Y	Yes/No	All Settings Allowed	
Zone	Silence Inhibit	Y	Yes/No	All Settings Allowed	
Zone	Auto Silence	Y	Yes/No	All Settings Allowed	
Zone	Auto Unsilence	Y	Yes/No	All Settings Allowed	
Zone	Restore Delay	Y	0-300 Sec	Full range allowed	
Zone	Latching	Y	Yes/No	All Settings Allowed	
Zone	Local	Y	Yes/No	All Settings Allowed	
Zone	Output Pattern	Y	Constant ANSI Temp 3 March Code Double Time ANSI Temp 4	All Settings Allowed	
IDC-6	Dry Contact Input Functions	Y	Pull Station Water Flow Supervisory Tamper Fire Drill Trouble Monitor Aux Abort Release Follower Reset Silence Fire Alarm Disable Inputs Disable Outputs Disable Inputs and Outputs Lamp Test CO Alarm CO Supervisory HVAC Reset	All Settings Allowed Exception: Disabled functions allowed when used with a keyed switch.	Applies to all dry-contact input devices & circuits

Topic	Feature or Option	Permitted in UL (Y/N)	Possible Settings	Setting(s) Permitted in UL864?	Comment
NACs	Function	Y	General Purpose AMSECO Sync Gentex Sync Gentex Sync with T4 System Sensor Sync Wheelock Sync Constant Output Resettable Output Door Holder Output ANSII Output City Tie Output	All Settings Allowed Except: A Supervisory event cannot trigger a T4 NAC.	Specifies use of NAC circuit(s)
AUX PWR	Function	Y	Constant Output Resettable Output Door Holder Output ANSII Output	All Settings Allowed	
DACT	Daily Test Call	Y	Any time of day	All Settings Allowed	Alternates between line 1 and 2 if line 2 is enabled.
E-Mail	Email Status Reports	N	Alarms, Troubles, Supervisory, Test, History & Status Reports		
IP-Reporting	IP Based Central Station Reporting	Y	Alarm, Supervisory, Trouble & Test Reports	All Settings Allowed	
On-Board Programmable Relays	Function	Y	Alarm, Supervisory, Trouble, Low AC & Waterflow	All Settings Allowed	Specifies use of programmable relays 1-4

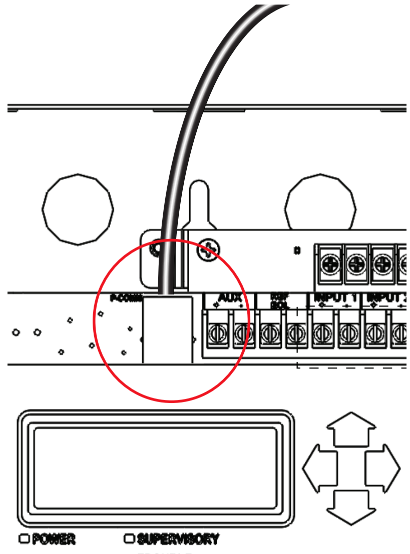
Section 6: Communication Options

This section covers the two communication options available on the PFC-4064. The PFC-4064 has a built in IP communicator that can be used to transmit alarm, trouble, supervisory data to a central station. An optional UD-1000/UD-2000 can also be installed (see 3-24 for UD-1000/UD-2000 installation details) to allow the data to be transmitted via phone lines.

IP Communication

The IP communicator can be used as a single path of communication to a central monitoring station. It can be set up to provide point, zone or panel information of alarm, supervisory and trouble conditions. Failure on the primary path is annunciated at the fire alarm control panel as per NFPA 72.

Figure 61. IP Communication connection point

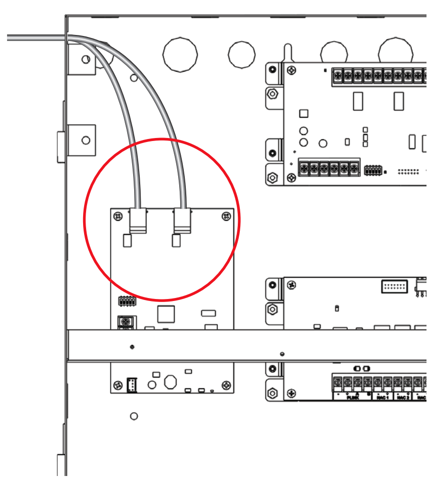


Note: The Ethernet IP connection is limited to same room installation. This connection shall be limited to 20 feet and enclosed in conduit or equivalently protected against mechanical injury.

UD-1000/UD-2000

The UD-1000/UD-2000 can be used as a single line or dual line communicator to a central monitoring station. It can be set up to provide point, zone or panel information of alarm, supervisory and trouble conditions. When set up as a dual line, the 2nd line provides an alternate path of communication in the event of a failure on the primary path. Failure on the primary or alternate path is annunciated at the fire alarm control panel as per NFPA 72.
When two telephone lines are utilized, the auto test interval must be configured to issue a test event at alternating 6 hour intervals. If using two phone lines, they need to dial two separate central station receivers.

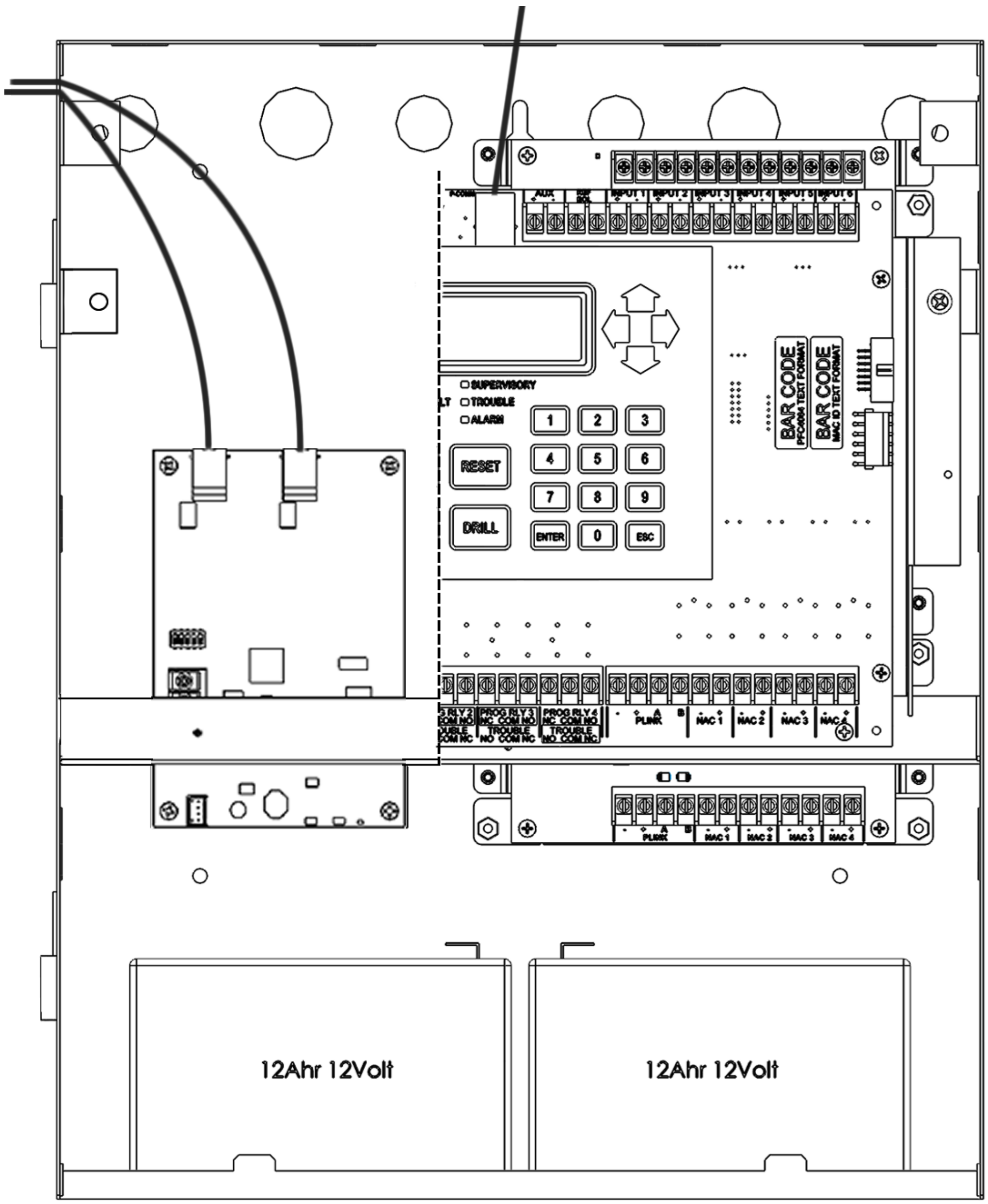
Figure 62. UD-1000/UD-2000 Connection Point



IP Communication and UD-1000/UD-2000

Either the IP communication or the UD-1000/UD-2000 can be set up as the primary path of communication to the central monitoring station via the panel programming. If IP communication is set as primary the UD-1000/UD-2000 can be set up as the alternate path or vice versa. Failure on the primary or alternate path is annunciated at the fire alarm control panel as per NFPA 72.

Figure 63. UD-1000 Cutaway with IP Communicator connected



Section 7: PSN-1000(E) – Installing & Operating

The PSN-1000(E) power supply board provides power and communication expansion capability to the PFC-4064 panel. Up to 31 per system can be added that provide two (2) input points and six (6) notification circuits and a P-Link interface repeater. The P-Link repeater provides an electrically isolated P-Link connection that grants additional power and communications distance. The PSN-1000(E)'s cabinet allows space for mounting up to six (6) additional P-Link expansion cards (*i.e., IDC-6, FIB-1000, etc.*).

Board Specifications

Cabinet Descriptions

- Sixteen (16) gauge sheet steel with hinged, locked doors
- Enclosure dimensions
  PSN-1000(E) – 26" x 17.6" x 3.75" (removable door)

Visual Indicators

- LED indicators (Green & Amber)

Environmental Specifications

- Mount indoors only.
- Temperature 32° to 120°F, humidity 93% non-condensing.
- Verify panel is properly grounded.
- Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides, bottom, or rear of the cabinet. Verify that they will not interfere with the batteries or other components.
- The panel must be tested and maintained in accordance with all local and national codes and ordinances. Refer to *Appendix D: PSN-1000(E) Maintenance and Testing* for information on maintenance and testing recommendations.

Electrical Specifications

Please refer to the table below for the board's electrical specifications:

Table 10: PSN-1000(E) Board Electrical Specifications

# NACs	Rating per NAC	Input Circuits	Class
6	3 Amp	Dry Contact Inputs	Class A or B NACs are Power Limited **Note:** Refer to the *"NACs Wiring"* topic located in this section for Class A wiring requirements.

Wiring Specifications

There are several wiring requirements to consider **before** connecting circuits to the PSN-1000(E) board:
1) the circuit separation, and 2) the wiring types.

Circuit Separation

- Separations between the different wiring types **must** be maintained by at least ¼ inch and the wire insulation **must** be for the higher voltage.
- The two cabinets have various conduit knockouts located for ease of wire installation and allowing the installer to maintain power limited and non-power limited connections.

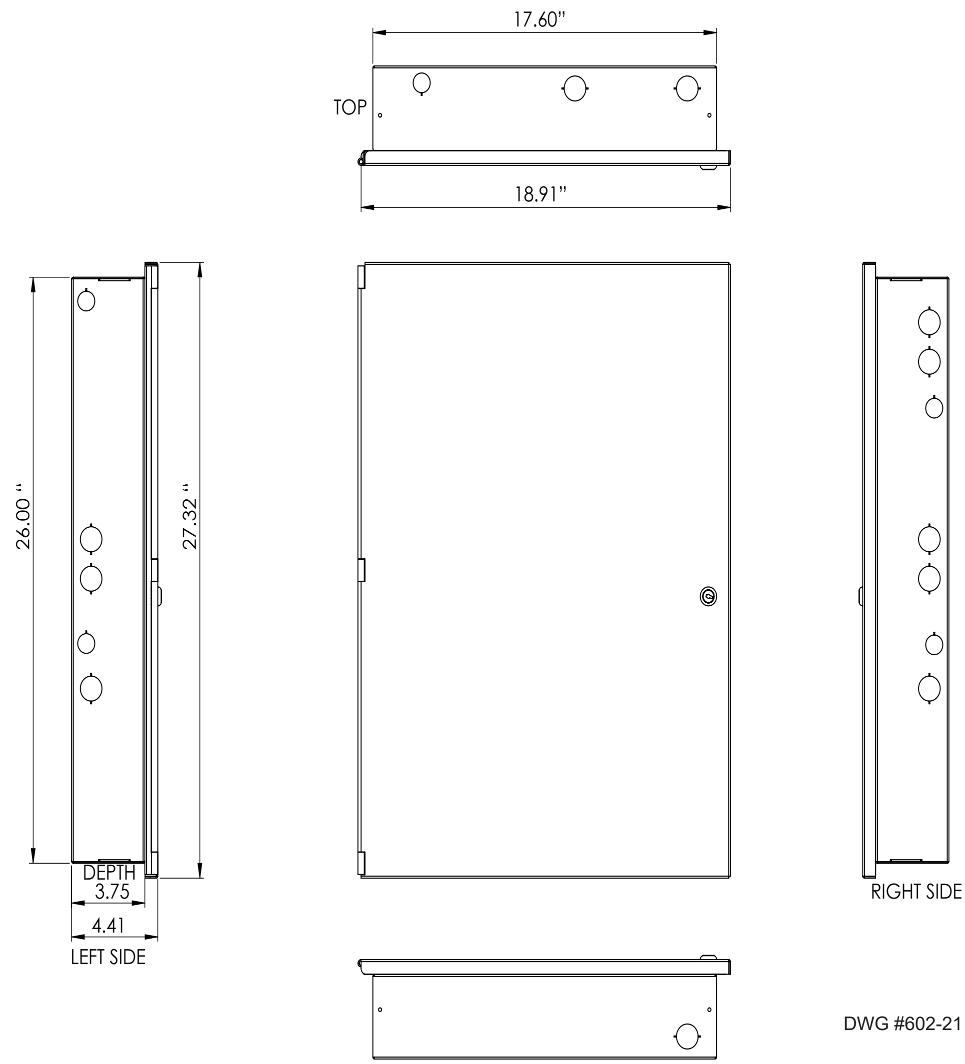
Wiring Types

Wiring specifications must be followed to prevent damage and/or other consequences.

Table 11: PSN-1000(E) Board Circuit Wiring Types		
Type of Circuit	Wiring Type	
	Voltage	Power
AC Connection	High Voltage	Non-Power Limited
Battery Connection	Low Voltage	Non-Power Limited
Trouble Relay	Low Voltage	Non-Power Limited
Low AC Relay	Low Voltage	Non-Power Limited
Notification Device Circuits (NACs)	Low Voltage	Power Limited
Input Circuits	Low Voltage	Power Limited
P-Link RS-485 Connections	Low Voltage	Power Limited

Cabinet Dimensions

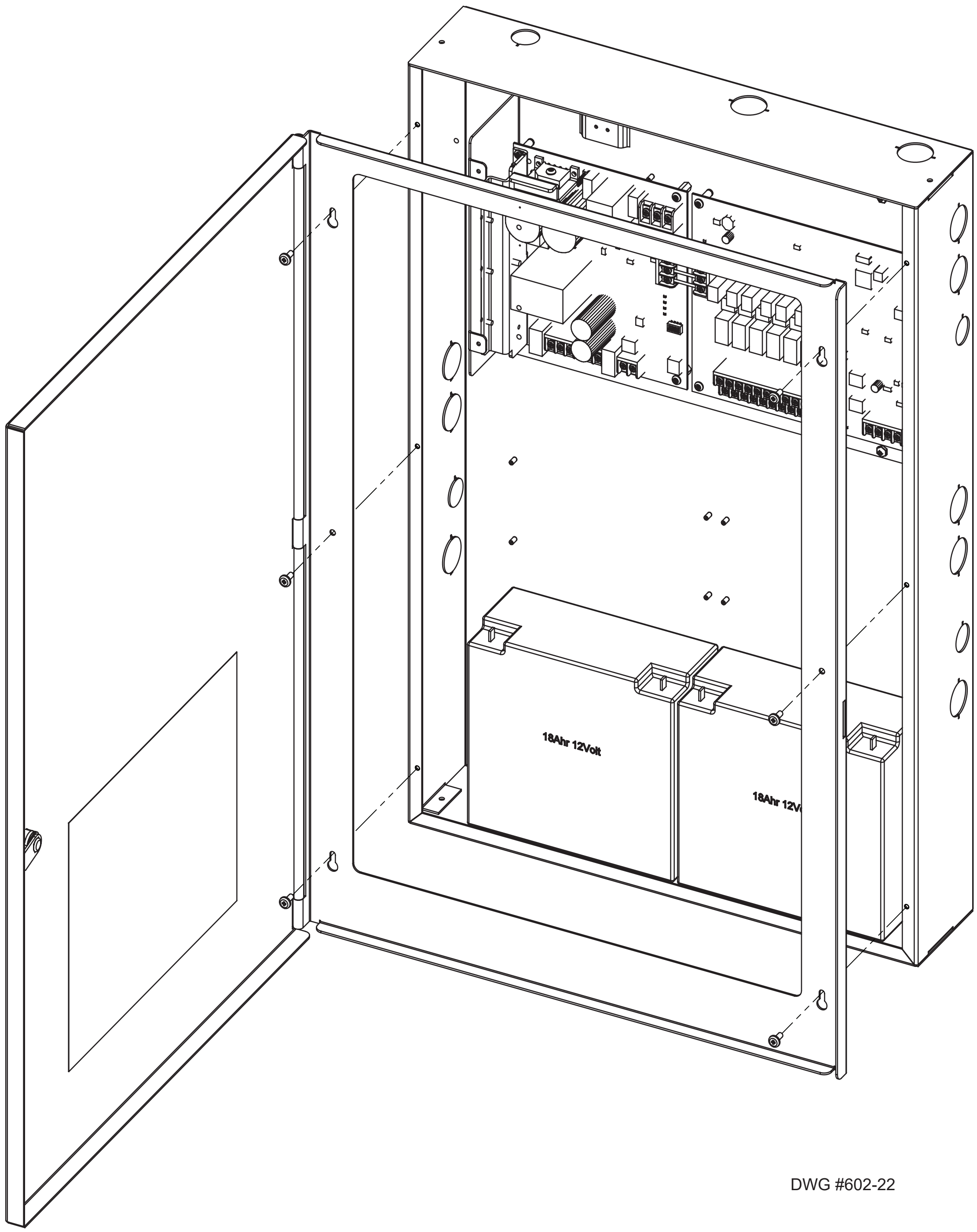
Figure 64. PSN-1000(E) Cabinet Dimensions



Cabinet Installation

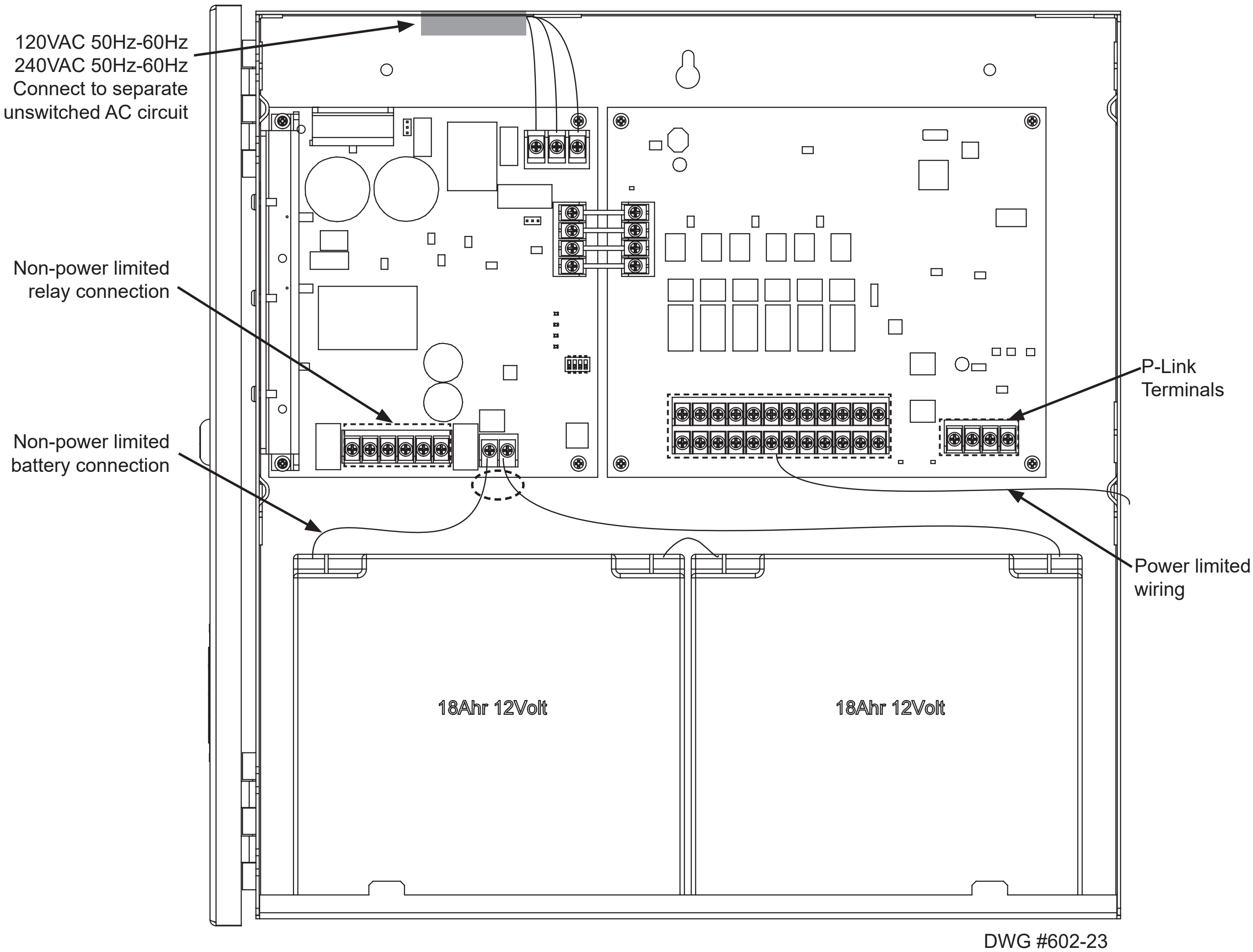
The PSN-1000(E) slides into the guides located at the bottom of the panel, and then secured with screws as shown in the following illustration.

Figure 65. PSN-1000 Panel Installation Showing Cabinet



Cabinet Wiring Connections

Figure 66. PSN-1000E Wiring



Rechargeable Battery Circuit

The battery charging circuit is on the power supply board providing terminal connections to connect the wire leads. The battery must be a recognized or listed sealed lead acid battery or equivalent. It is rated for 8 to 55 AH batteries and will operate the panel alarm for at least 24 hours and 5 minutes.

The battery charging voltage is approximately 27.3 VDC and the circuit is supervised. The maximum battery charging circuit is 1.0 amp DC. The cabinet will house up to two (2) 18 AH batteries.

Battery Circuit Calculation

Before selecting the battery, the installer must determine the minimum size batteries for standby and alarm times desired for each application. If the wrong batteries are installed or incorrect current draw used, the proper standby and minimum alarm time will not be present. (Please use the ***Battery Calculation Worksheet*** located on the next page to calculate the battery size and current draw required for each application.)

PSN-1000(E) Battery Calculation Worksheet
Complete one for <u>all</u> P-Link devices powered by the PSN-1000(E)

Device Type	Qty	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)
PSN-1000(E) Main Board	**1**	60		200	**200**
LCD Remote RA-6075		20		25	
LCD Remote RA-6500		20		50	
PSN-1000/E Power Expander		15		15	
LED-16 P-Link LED-Current (if applicable, see Note 6)		25 10		25 210	
DRV-50 LED-Current (if applicable, see Note 6)		25 10		25 215	
RLY-5 Relay Current (if applicable, see Note 6)		25 10		35 135	
IDC-6 (P-Link)		20		20	
IDC PWR (See Note 5)					
Class B Input Zones (Per Zone)		5		45	
Class A Input Zones (Per Zone)		5		45	
FCB-1000		25		25	
FIB-1000		30		30	
SPG-1000		40		40	
MC-1000		10		10	
NAC 1					
NAC 2					
NAC 3					
NAC 4					
NAC 5					
NAC 6					
		Total (ma)		Total (ma)	
Convert to Amps			**x 0.001**	Convert to Amps	**x 0.001**
(*Refer to maximum allowable standby current) Total A:				Total A:	
Multiply by standby hours			**x____**	<u>60 minutes per hour</u> Alarm time (minutes) *Example:* 5 minute alarm: enter 12 10 minute alarm: enter 6	÷____
Total Standby AH				Total Alarm AH	
				+Total Standby AH	
				Total AH	
				Efficiency Factor	**÷ 0.80**
				Required AH	

*Maximum Allowable Standby Current (UL 24-Hour Standby Time)		**Important Notes:**
7 AH	.230 A	1) The PSN-1000/E enclosure can house up to two (2) 18 AH batteries. Larger batteries require accessory enclosure, part #SSU00500.
18 AH	.619 A	2) NFPA 72 requires 24 hours of standby power followed by 5 minutes alarm activation.
33 AH	1.151 A	3) NFPA 12, 12A requires 24 hours and five minutes of alarm activation.
55 AH	1.930 A	4) Door holder circuits configured to disconnect upon AC loss need not be included in the battery standby calculation since they will not draw power during that time. Door holders will contribute to standby current draw when AC is present.
		5) Total current must not exceed power supply rating (10A).
		6) LED/Relay/IDC current must be accounted for in the battery calculation for the supplying source.

Notification Appliance Circuits (NACs)

There are six (6) NAC circuits provided on the PSN-1000(E) rated as continuous 3 amps at 24 VDC. The NAC circuits may be configured for Class A or Class B. *(Please refer to the Class A and B wiring examples shown in this section.)* The circuits reverse polarity upon activation and are marked accordingly on the board and illustrations.

NAC Wiring

- Outputs are supervised and regulated.
- NAC circuits are power limited.
- Type of NAC output is selectable, and may be configured for strobe synchronization with Gentex®, AMSECO, Wheelock®, or System Sensor® strobe devices. Please refer to Potter document *"5403592 NAC Compatibility Document"* for this information.
- Class-A operation is accomplished by using a pair of NAC circuits (NAC 1&2, NAC 3&4 and NAC 5&6); this pairing provides three (3) Class A circuits, each rated for a continuous 3 amps at 24 VDC.

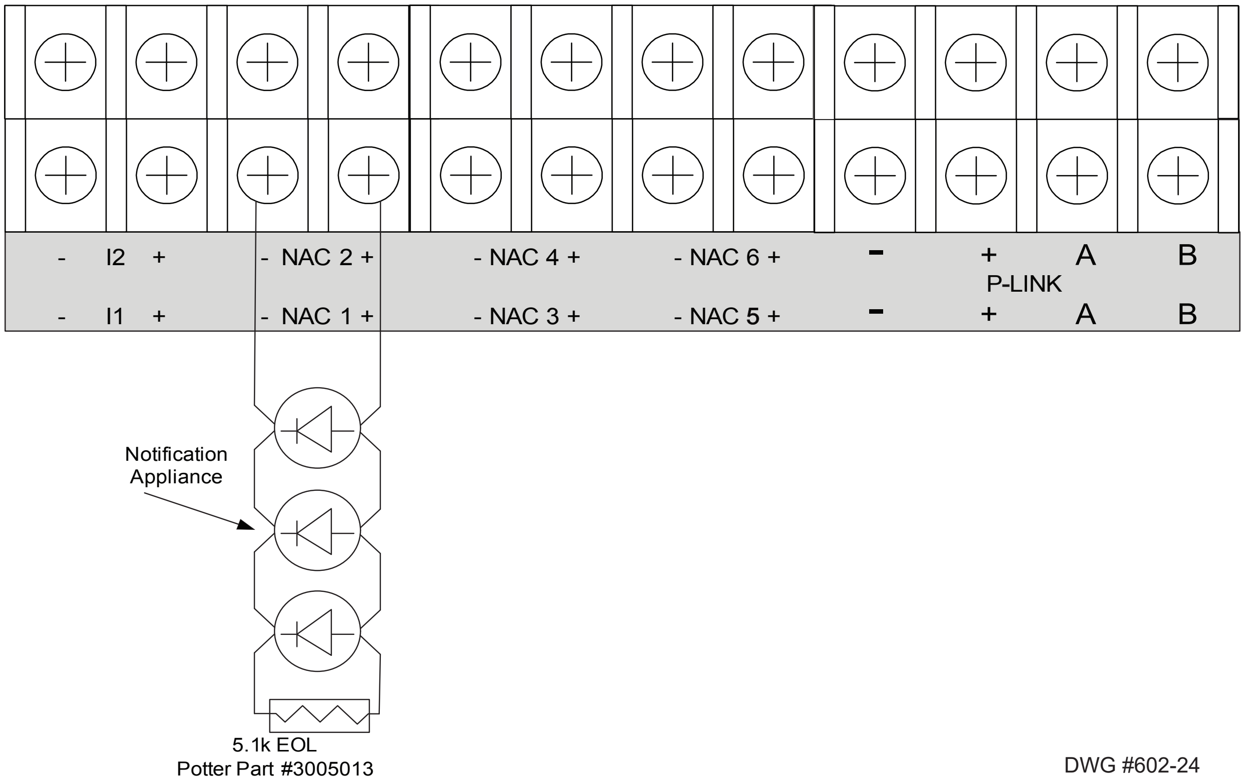
NAC Maximum Impedance Formula

The maximum impedance is a *function* of the load being applied to the circuit. In order to calculate the maximum impedance as follows:

(Alarm Current of Notification Appliances) x (Wire Resistance) < 3 Volts

NAC Wiring Configurations

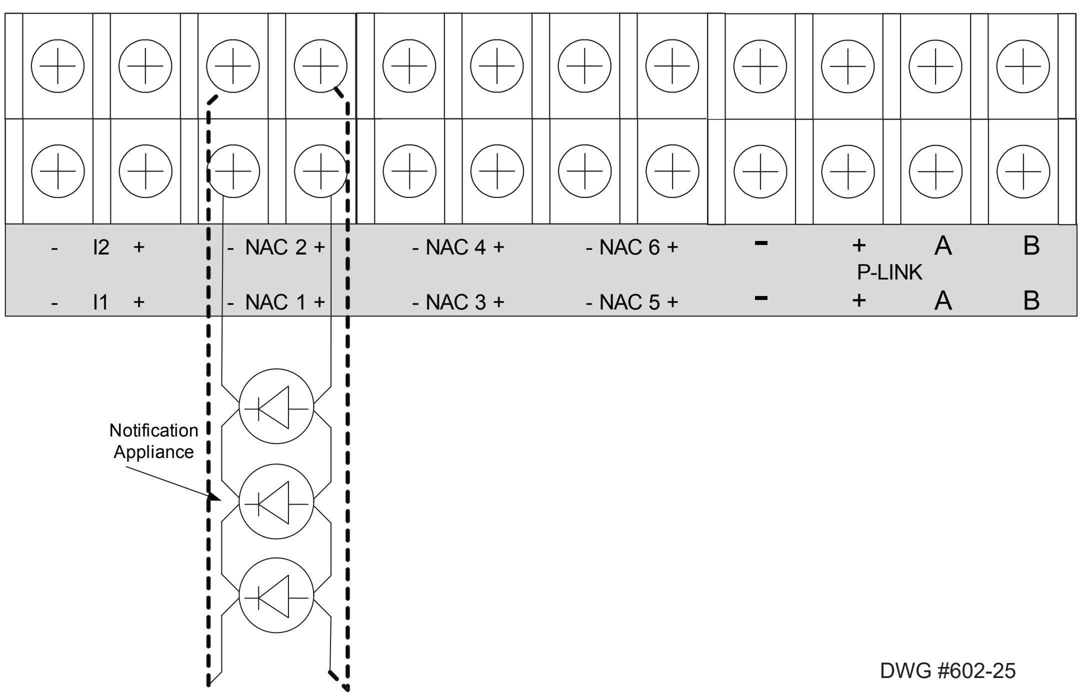
Figure 67. PSN-1000(E) Class B NAC Wiring Example



Notes:

1. The Potter part number for the listed end of line assembly is #3005013 EOL Resistor Assembly.
2. The EOL value is programmable via the programming software for any value between 2K and 27K.
3. The panel has ground fault detection on the NAC circuits. The impedance to ground for ground fault detection is 0 ohms.

Figure 68. PSN-1000 (E) Class A NAC Wiring Example



Input Circuits

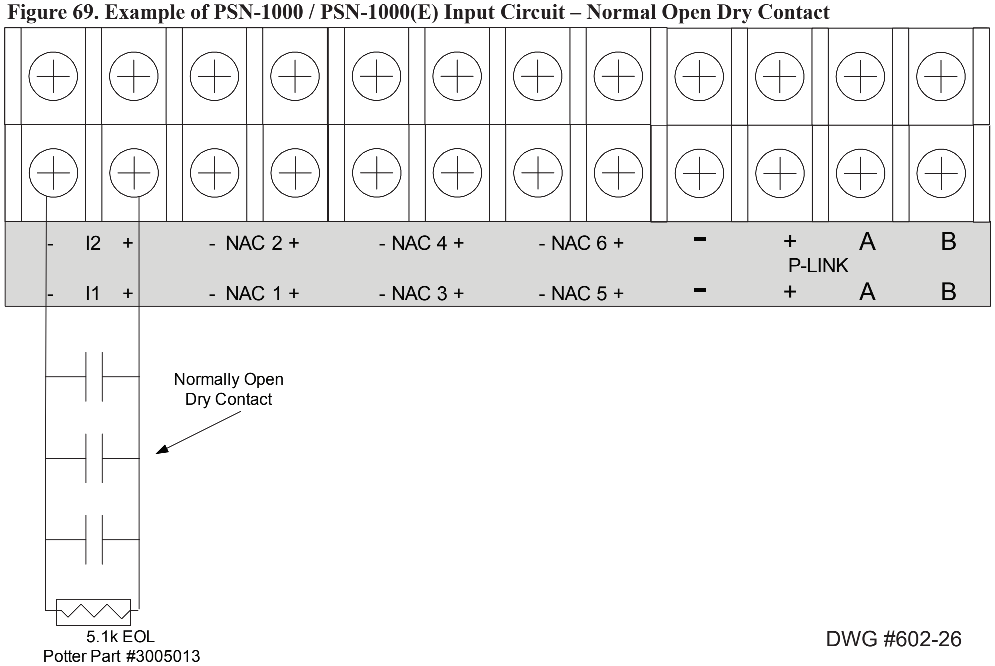
The panel is equipped with two (2) input circuits, **I1 and I2**, that are low voltage, power limited, and supervised. When configured, the circuits function as dry-contact monitoring circuits.

Note: These circuits operate as Class B only. Please refer to the figure shown below.

Configuration Characteristics

- Maximum allowable wire length is 10,000 feet.
- Maximum allowable wiring resistance is 100 ohms.
- Maximum wiring capacitance is 1 uF.
- Maximum IDC voltage is 24 VDC, and current is 15 ma.

Figure 69. Example of PSN-1000 / PSN-1000(E) Input Circuit – Normal Open Dry Contact



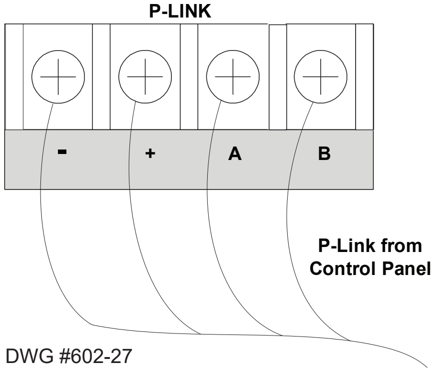
Notes:

1. The Potter part number for the listed end of line assembly is #3005013 EOL Resistor Assembly.
2. The EOL value is programmable via the programming software for any value between 2K and 27K.
3. The panel has ground fault detection on the input circuits. The impedance to ground for ground fault detection is 0 ohms.
4. The end of line resistor is a 5.1K ohm resistor.

Wiring to Control Panel

The control panel communicates with and supervises the PSN-1000(E) via the main P-Link circuit. This connection is electrically isolated from the rest of the PSN-1000(E).

Figure 70. P-Link Wiring from Control Panel



Repeater Output

The PSN-1000(E) repeater output provides power which supports additional P-Link devices, including LCD Annunciators and/or SLC Loop expanders. This is possible because the P-Link repeater output reconditions and repeats all P-Link communications. Refer to the following figures for examples of Class A and B wiring.

Configuration Characteristics

- PSN-1000(E) current rating is one (1) amp.
- PSN-1000(E) voltage rating is 24 VDC.
- The maximum wire length is 6,500 feet.
- Wiring is fully supervised and power limited.

Maximum Wire Resistance Formula

The maximum resistance is based on the *load* placed on the circuit. To calculate the maximum wire resistance, use the following formula:

(Total Annunciator Alarm Current) x (Wire Resistance) < 6 Volts

Note: Any connection to ground of 0 ohms will be annunciated as a ground fault.

Figure 71. P-Link Class B (Repeater) Wiring Example

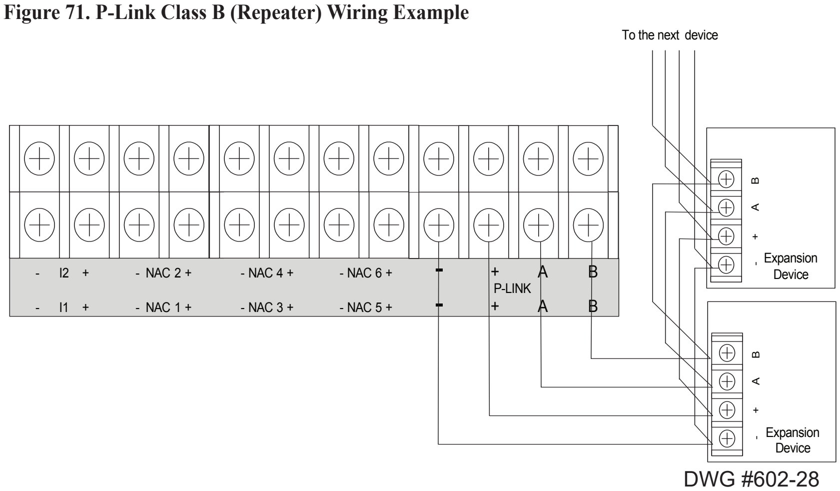
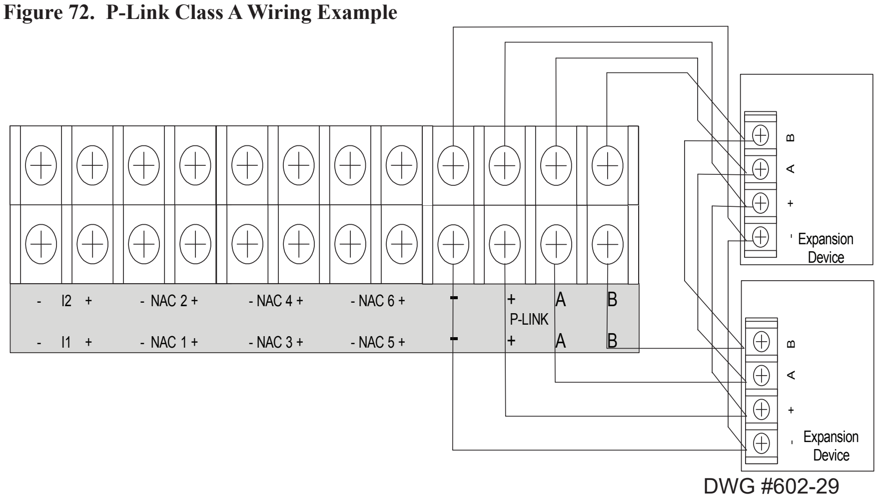


Figure 72. P-Link Class A Wiring Example



Municipal Box Connection

When the PSN-1000(E) is programmed as a municipal box connection, the circuit is power limited and supervised for open and short circuit conditions. It also provides a local energy connection. Please refer to the figure shown below for a wiring example.

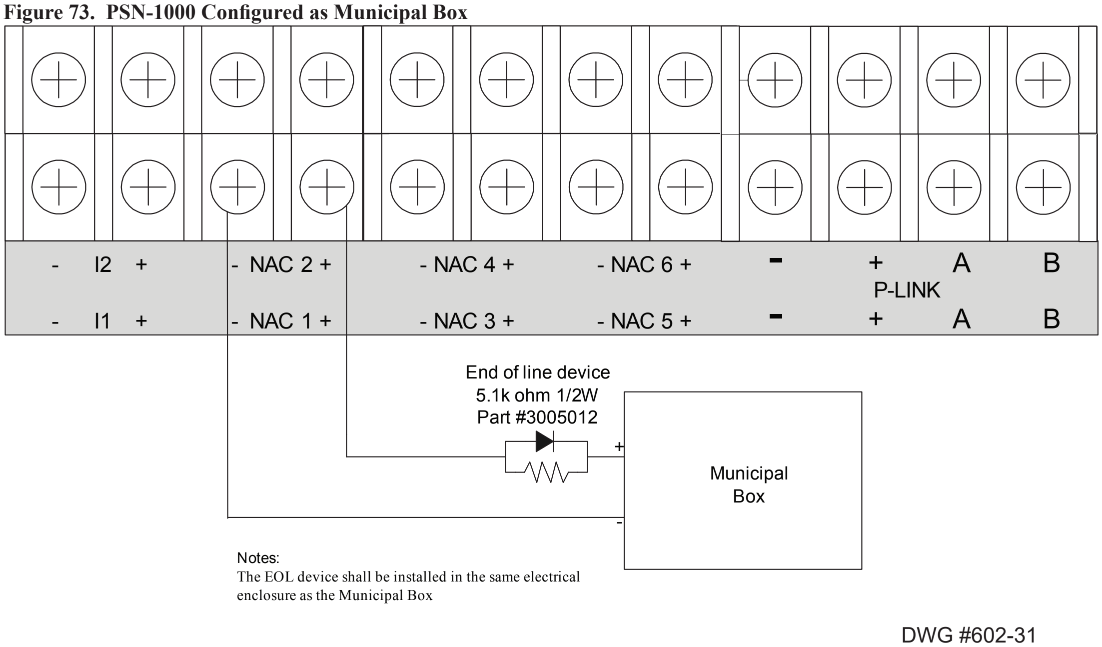
Configuration Characteristics

- NAC1-NAC6's trip current is 3 amps.
- Maximum voltage rating is 24 VDC.

Notes:

1. The panel has ground fault detection on municipal box connection circuits.
2. The impedance to ground for ground fault detection is 0 ohms.

Figure 73. PSN-1000 Configured as Municipal Box



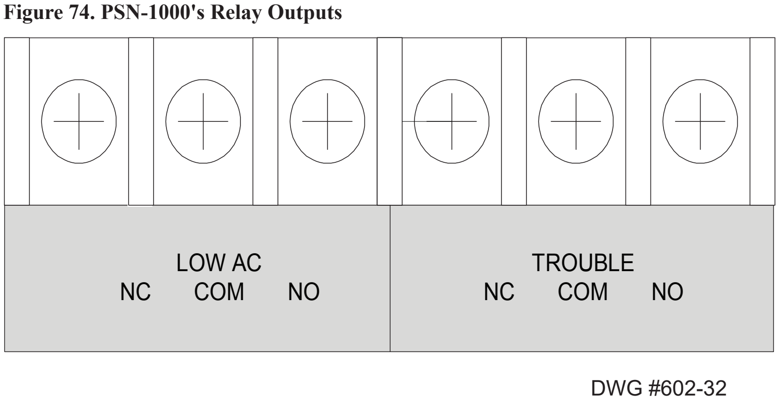
Relay Outputs

The board has two (2) relay outputs: a dedicated ***Trouble relay*** and a ***Low AC relay***. The dedicated *Trouble relay* is a failsafe trouble relay that changes position anytime a trouble condition occurs.

The relays have a contact rating is 24VDC / 3.0A, 125VAC / 3A, and a Power Factor of 1.0. These outputs are *non-power limited* and *are <u>not</u> supervised.*

Note: If the power supply is power-limited, then the outputs are power limited.

Figure 74. PSN-1000's Relay Outputs



PSN-1000(E) Operations

The PSN-1000(E) operates as a fully integrated power expander. The input circuits and/or NAC circuits are configured in the same manner as any input circuit or NAC circuit in the system. Circuit functions and zone assignments are defined using the system software.

Status LEDs

The PSN-1000(E)'s status LEDs communicate system conditions by illuminating and/or flashing the applicable **green** or **amber** indicators. These are described in the table shown below.

Table 12: PSN-1000(E) Status LEDs

LED Type	LED Color/Action	Description
AC Power	Steady Green	**ON** = AC present; **OFF** = AC not present
Low Battery	Steady/ Flashes Amber	**OFF** = No Fault; **Flashing** = Low Battery conditions **ON** = Battery Charger Failure **Note**: The PSN-1000 transfers from AC to battery instantly upon AC failure or brownout. The trouble relay on the panel will indicate the low AC condition after the Low AC Report Delay has elapsed.
Earth Fault	Flashing Amber	Indicates that an earth fault is detected.
Comm.	1 Flash Green	Flash indicates successful communication with the NAC control board.
Bulk Comm.	Flashing Green	Flash indicates successful communication with the bulk supply board.
RPTR Comm.	Flashing Green	Indicates when P-Link repeater communications are occurring.
Main Comm.	Flashing Green	Flash indicates when P-Link commands are received from the control panel.

Section 8: Appendices

Appendix A: Basic Operating Instructions

These instructions must be framed and displayed next to the PFC-4064 panel in accordance with NFPA 72 fire code for Local Protected Fire Alarm Systems. Test the system in accordance to NFPA 72.

Table 13: Button Functions

Button	Function
ACKNOWLEDGE	
ARROW KEYS	
FIRE DRILL	
ESC	
RESET	
SIGNAL SILENCE	

Table 14: Operating Instructions

Operation	Task
Silence Alarms, Troubles	Press the **SILENCE** pushbutton.
Acknowledge Alarms, Troubles	Press the **ACK** pushbutton after scrolling down to new event.
Reset Alarms	Press the **RESET** pushbutton.
View Alarms, Troubles	Press **ARROW(S)** to view alarms / troubles.
Conduct a Fire Drill	Press the **DRILL** pushbutton**;** press the **RESET** button to exit Drill mode.
Set Date / Time	• Press **ENTER** to display the **Main Menu**. • Press **3** – **Set Date / Time**. • Use keypad to enter correct date; use **right arrow** to move through date field and to display time field. • Press **ENTER** to save changes.
Enable / Disable Point	• Press **ENTER** – **Main Menu**. • Press **2** – **Enable/Disable**; enter **panel's code**. • Press **1** – **By Point** • Enter **Addr / Ckt No.** and press **ENTER.** • Press **Up / Down** to scroll. • Point's current status displays "*Normal*" if enabled, or "*Disabled*". • Press **ENTER** to *change status;* press **ENTER** to save or **ESC** to exit without saving.

Table 14: Operating Instructions	
Operation	**Task**
View Event History	• Press **ENTER** – **Main Menu**. • Press **1** – **View History**. • Press **Left / Right** to view next / previous events. • Press **Up / Down** for list of events**.** • Press **ESC** to exit.
Service Call:	

Appendix B

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Appendix C: System Maintenance and Testing

Acceptance Test

The control panel is required to be installed in accordance with local and state building codes and NFPA 72 (*National Fire Alarm Code*). At the conclusion of each original installation or modification of this system, the control panel and related system is required to be inspected and tested in accordance with NFPA 72 to verify compliance with the applicable standards.

Testing should be conducted by Potter factory trained fire alarm technician(s) in the presence of a representative of the Authority Having Jurisdiction (AHJ) and the building owners representative. Refer to NFPA 72 *(National Fire Alarm Code*), Inspection Testing and Maintenance code.

Periodic Testing and Service

Periodic testing and maintenance of the control panel, all initiating points, all notification appliances and any other associated equipment is essential to ensure the system will operate as designed in emergency situations. Service and test the control panel according to the schedules and procedures outlined in the following documents:

- NFPA 72, Inspection, Testing and Maintenance.
- Service manuals and instructions for any and all peripheral points installed in the system. It is very important that any and all trouble conditions (or faults) be corrected immediately.

Operational Checks

During interim periods between formal testing and at regular intervals the control system should be subjected to the following operational performance checks. The Authority Having Jurisdiction (AHJ) should be consulted for requirements on frequency of system testing.

- Check that the green AC power LED is lit.
- Check that all amber LED's are off.
- Using the system menus, perform a Lamp Test function. Verify that all LED's operate.
- Before proceeding: (1) Notify the fire department and the central alarm receiving station if transmitting alarm status conditions; (2) Notify facility personnel of the test so that alarm-indicating points are disregarded during the test period; and (3) When necessary, bypass activation of alarm notification appliances and speakers (if installed) to prevent sounding of evacuation signals.
- Activate an input device (*i.e., manual station, heat or smoke detector*), and check that all notification appliances function.
- Notify Fire Department, central alarm receiving station and /or building personnel when finished with testing the system.
- The test of ground fault must be measured in below 10k ohms impedance.

Replacement and Testing Recommendations

The batteries are to be replaced at least once every four years or more frequently if specified by local AHJ and manufacturer recommendations. Batteries should be dated at the installation. Minimal replacement battery capacity displays on the control panel marking label. The batteries are required to be UL Recognized batteries with a date of manufacture permanently marked on the battery. The battery is to be tested at least annually and if the battery is showing signs of failure, it should be replaced. Immediately replace a damaged or leaking battery, and always replace batteries in pairs.

Proper Handling / First Aid Procedures

- In the event a battery leaks and contact is made with the Sulfuric Acid, immediately wash skin with water for at least 15 minutes. Water and household baking soda provides a good neutralizing solution for Sulfuric Acid.
- If Sulfuric Acid makes contact with eyes, flush with water for 15 minutes and seek immediate medical attention.
- Ensure proper handling of the battery to prevent short-circuits.
- Take care to avoid accidental shorting of the leads from uninsulated work surfaces, tools, jewelry and coins.
- If a battery is shorted, the battery and any connected equipment may be damaged. Additionally, a short may injure personnel.

Appendix D: PSN-1000(E) Maintenance and Testing

CAUTION

De-Energize Unit Prior to Servicing.

The power supply board has one fuse on the board for the AC power over current protection.

The AC fuse is rated at 8A 250VAC Time-Lag and screened onto the main board as F1.

The batteries are to be replaced at least once every four years. The batteries are required to be UL recognized batteries with a date of manufacture permanently marked on the battery. The battery is to be tested at least annually and if the battery is showing signs of failure, it is to be replaced.

The battery is to remain in the cabinet with nothing on or around the batteries. Only properly sized sealed lead acid batteries are to be used with the control panel. Use of another battery or not providing the proper clearance may result in a fire or an explosions.

The PSN-1000(E) is required to be installed in accordance with local and state building codes and NFPA 72 (National Fire Alarm Code).

The PSN-1000(E) and related system is required to be inspected and tested in accordance with NFPA 72.

Appendix E: Compatibility Table

This section provides a listing of all NAC appliances, two-wire (2-wire) smoke detectors, the optional DACT and remote annunciator device compatibilities.

Table 15: Device Compatibilities	
Module/Device	**Compatibilities**
NAC Appliances	Refer to Potter document *"5403592 NAC Compatibility Document"*.
Two-Wire (2-Wire) Smoke Detectors	Refer to **Appendix F** for a complete listing of 2-wire smoke detectors.
Optional UD-1000/UD-2000	DACT – The optional DACT transmits in Ademco Contact ID and Security Industries Association's Digital Communication Standards (SIA-DCS). Each account may be configured for Contact ID or SIA-DCS independent of the other account's setting. Therefore, some account(s) could be Contact ID and others could be SIA-DCS or vice versa. Similarly, accounts could be the same reporting type.
Receivers	Silent Knight Model 9500/9800 (Ademco MX8000) Sur-Gard System III – SG-DRL3 (POTS Line Card)
IP Reporting	Sur-Gard System III – SG-DRL3-IPCA (Network Line Card) **Notes**: 1. Where the fire alarm transmitter is sharing on-premises communications equipment, the shared equipment shall be Listed. 2. Secondary power shall be provided for all equipment necessary for the transmission and reception of alarm, supervisory and trouble signals at the protected premises. 3. Secondary power shall be provided for all equipment necessary for the transmission and reception of alarm, supervisory and trouble signals at the supervising stations. 4. The connection between the FACP and on-premises communications equipment shall be limited to 20 feet and enclosed in conduit or equivalently protected against mechanical injury.
P-Link	RA-6500R/RA-6500F - LCD Remote Annunciator RA-6075R - LCD Remote Annunciator PSN-1000(E) – Intelligent Power Supply Expander LED-16/LED-16F – LED Annunciator DRV-50 – LED Driver RLY-5 – Relay Board FCB-1000 – Fire Communications Bridge FIB-1000 – Fiber Interface Bridge SPG-1000 – Serial/Parallel Gateway MC-1000 - Multi-Connect Module IDC-6 - Initiating Device Circuit Module NCE-1000 - Network Card Ethernet NCF-1000 - Network Card Fiber
Class A Expander	CA-4064 Class A Expander

Appendix F: Compatible Conventional Smoke Detectors & Bases Table

Table 16: Smoke Detector & Bases Compatibilities

Detector Model	Identifier	Base Model	Identifier	Max No. of Detectors Per Zone
SYSTEM SENSOR (Brk)				
1400	A	N/A	N/A	20
2400	A	N/A	N/A	20
2400TH	A	N/A	N/A	20
2W-B	A	N/A	N/A	20
2WT-B	A	N/A	N/A	20
DETECTION SYSTEM)				
DS250	A	MB2W/MB2WL	A	25
DS250TH	A	MB2W/MB2WL	A	25
ESL				
611U	S10	601U	S00	25
611UD	S10	601U	S00	25
611UT	S10	601U	S00	25
612U	S10	601U	S00	25
612UD	S10	601U	S00	25
613U5	S10	601U	S00	25
611UD	S10	609U10	S00	25
612UD	S10	609U10	S00	25
425C	S10	N/A	N/A	25
425CT	S10	N/A	N/A	25
HOCHIKI				
SLR-24	HD-3	HSC-221R	HB-71	25
		HSB-221	HB-54	25
		HSB-221N	HB-54	25
		NS6-221		25
		NS4-221		25
		NS6-220	HB-3	25
SLR-24H	HD-3	HSC-221R	HB-71	25
		HSB-221	HB-54	25
		HSB-221N	HB-54	25
		NS6-221		25
		NS4-221		25
SIJ-24	HD-3	HSC-221R	HB-71	25
		HSB-221	HB-54	25
		HSB-221N	HB-54	25
		NS6-221		25
		NS4-221		25

Detector Model	Identifier	Base Model	Identifier	Max No. of Detectors Per Zone
SOC-24V	HD-3	HSB-221	HB-54	25
		NS6-221	HB-4	25
		NS4-221	HB-4	25
		NS6-220	HB-3	25
SOC-24VN	HD-3	HSB-221	HB-54	25
		NS6-221	HB-4	25
		NS4-221	HB-4	25
		NS6-220	HB-3	25
SOE-24V	HD-3	NS4-100 and NS6-100	HB-55	25
		NS4-220 and NS6-220	HB-3	25
		NS4-221 and NS6-221	HB-4	25
		NS4-224 and NS6-224	HB-5	25
SOE-24H	HD-3	NS4-100 and NS6-100	HB-55	25
		NS4-220 and NS6-220	HB-3	25
		NS4-221 and NS6-221	HB-4	25
		NS4-224 and NS6-224	HB-5	25
FENWAL				
CPD-7051	I51FE1	2-WIRE	FE51A	25
PSD-7155	P55FE1	2WRLT	FE52A	25
PSD-7156	P56FE1	2WRB	FE55A	25
All of the above Fenwal detectors and bases can be used in any combination. Retrofit Base Adaptor 70-501000-003, Identifier MAFE1 (for series 70-201000 Bases, Models -001, -002, -003, and -005). Duct Housing with Detector Base DH-51, Identifier DH22FE5 (for CPD-7051 and PSD-7155 detectors only).				
POTTER				
PS-24	HD-3 (HOCHIKI)	SB-46	HB-71(HOCHIKI)	25
			HB-54 (HOCHIKI)	25
		SB-93	HB-3 (HOCHIKI)	25
PS-24H	HD-3 (HOCHIKI)	SB-46	HB-71 (HOCHIKI)	25
			HB-54 (HOCHIKI)	25
IS-24	HD-3 (HOCHIKI)	SB-46	HB-71 (HOCHIKI)	25
			HB-54 (HOCHIKI)	25
CPS-24	HD-3 (HOCHIKI)	SB-46	HB-4 (HOCHIKI)	25
		SB-93	HB-3 (HOCHIKI)	25
CPS-24N	HD-3 (HOCHIKI)	SB-46	HB-4 (HOCHIKI)	25
		SB-93	HB-3 (HOCHIKI)	25
CPSD-24V		SB-46	HB-4 (HOCHIKI)	25
		SB-93	HB-3 (HOCHIKI)	25
CPSHD-24H		SB-46	HB-4 (HOCHIKI)	25
		SB-93	HB-3 (HOCHIKI)	25
PC-2P	PES	PC-6DB	PES	25
	PES	PC-4DB	PES	25
PC-2H	PES	PC-6DB	PES	25

Detector Model	Identifier	Base Model	Identifier	Max No. of Detectors Per Zone
PC-2H	PES	PC-4DB	PES	25
PC-2PH	PES	PC-6DB	PES	25
	PES	PC-4DB	PES	25
PC-2PN	PES	PC-6DB	PES	25
	PES	PC-4DB	PES	25
NOTE: If using a mix of System Sensor and other smoke detectors, a maximum of 20 detectors shall be permitted.				

Appendix G: Compatible Auxiliary Circuit Devices

Table 17: Door Holders & Other Accessories	
Model	**Description**
Door Holders (UL listed devices by RSG Inc.)	
1430200 DH24120FPC	Semi-flush, powder coated, chrome
1430201 DH24120FB	Semi-flush, plated, brass
1430202 DH24120FD	Semi-flush, powder coated, dark bronze
1430203 DH24120SPC	Surface mount, powder coated, chrome
1430204 DH24120SB	Surface mount, plated, brass
1430205 DH24120SPD	Surface mount, powder coated, dark bronze
1430206 DH24120RPC	Recessed, powder coated, chrome
1430207 DH24120RB	Recessed, plated, brass
1430208 DH24120RD	Recessed, powder coated, dark bronze
1430209 DH24120GPC1	Ground mount, single door, powder coated, chrome
1430210 DH24120GB1	Ground mount, single door, plated, brass
1430211 DH24120GPD1	Ground mount, single door, powder coated, dark bronze
1430212 DH24120GPC2	Ground mount, double door, powder coated, chrome
1430213 DH24120GB2	Ground mount, double door, plated, brass
1430214 DH24120GPD2	Ground mount, double door, powder coated, dark bronze
Flow Switches (UL listed devices by Potter Electric Signal Company, LLC)	
1116102	VSR-AT 2 Inch Auto Test
1116103	VSR-AT 3 Inch Auto Test
1116104	VSR-AT 4 Inch Auto Test
1116105	VSR-AT 5 Inch Auto Test
1116106	VSR-AT 6 Inch Auto Test

Model	Description
1116108	VSR-AT 8 Inch Auto Test
1116125	VSR-AT 2 1/2 Inch Auto Test
1116135	VSR-AT 3 1/2 Inch Auto Test

POTTER
The Symbol of Protection

PFC-4064 Conventional Fire Panel
Fire Panel Operating Instructions

Normal Standby The green POWER LED will be illuminated and the user defined message on the LCD will be displayed. If the AC power is removed for more than 5 seconds, the green AC power LED will extinguish.

Acknowledging Off normal events are acknowledged by pressing the ACK key after scrolling down to new event. After all events have been acknowledged, the buzzer will deactivate and the associated LED will stop flashing and remain on continuously.

Alarm Condition The red ALARM LED will be flashing until it is Acknowledged, then it will display steady red anytime an alarm is occurring in the system. The LCD will display the number of inputs in alarm, and the buzzer will be activated. The buzzer will remain active until all alarms have been acknowledged, or until the Silence key is pressed.

Silencing Alarm When the system is in Alarm, the notification circuits (strobes and horns) can be shut off by pushing the SILENCE button. The Silence LED will change status from flashing to steady. A programmable Automatic Silence will also shut off notification circuits. The Silence LED will remain flashing until the event is acknowledged.

Resetting Alarm After the condition that caused the alarm has been identified and corrected, the system may be reset to the Normal Standby by pressing the RESET button.

Supervisory Condition When a supervisory condition is detected, the amber SUPERVISORY LED will illuminate and the buzzer will sound. The LCD display will indicate the number of supervisory events that are active. The local buzzer will sound until all supervisory events have been acknowledged.

Restoring Supervisory Condition If the Supervisory condition is non-latching, once the device is restored to the normal condition, the supervisory event will clear. If the supervisory condition is latching, the device that was activated must be restored and the RESET pressed.

Trouble Condition When a fault condition occurs, the amber TROUBLE LED will illuminate and the local buzzer will sound until the fault is removed or the ACK button is pressed acknowledging the trouble condition. If the buzzer is acknowledged and the fault is not removed within 24 hours, the buzzer will resound.

Silencing Trouble(s) When a trouble is occurring, the local buzzer will sound until either all troubles have been acknowledged or the SILENCE button is pressed.

Ground Fault When a conductor contacts and earth ground, the amber EARTH FAULT LED will illuminate and the LCD display will provide further information of where the fault is located.

Testing and Maintenance Test this system monthly or more frequently as required by the AHJ. Before conducting any testing contact the building personnel and the monitoring facility as applicable. When testing a system configured for releasing, activate the releasing disconnect switch to prevent accidental discharge of a suppression system. Test the circuits as outlined in the Installation Manual. Test in accordance with NFPA 72 Inspection, Testing and Maintenance Chapter(s) and any local requirements. The batteries should be marked with the date of installation and replaced every four years or sooner if battery trouble occurs. Batteries should be checked with a tester acceptable to the AHJ such as a Stone Technologies model STC612A or equivalent. In case of a fuse replacement, refer to the Installation Manual for the proper rating. Contact the agency below for service or operational questions.

For service, contact:

Name: ______________________

Company: ______________________

Address: ______________________

Telephone: ______________________

Frame and display instructions adjacent to the fire alarm panel.

5406294-Rev A