

Fire Alarm Data Sheets

Project: Meridian Point Apartments
Building J
407 Valley Ave NE
Puyallup, WA 98372

Job #: 19-1084

Features

- 50 addresses available on this analog addressable system
- Additional system capacity achieved via multi-point SLC modules
- 99 software zones
- NFPA 72 Compliant Smoke Sensitivity Test Built-In
- System Operates as Class A or Class B for SLC, P-Link and NACs
- 5 Amp Power Supply, Expandable to 310 amps
- 2 NACS, Regulated, Rated at 3 Amps each, expandable to 188
- 2 Input/Output (I/O) Circuits for system flexibility rated at 1 Amp each
- Strobe Synchronization and System Wide Sync for Gentex®, AMSECO®, Cooper Wheelock® and System Sensor® strobes
- Dedicated Alarm, Supervisory and Trouble Relays
- 4,000 Event History Buffer
- Optional two line DACT with UD-2000 that can report General, Zone or Point Information
- Built in IP Communicator
- Ethernet Port for Programming and Network Connectivity
- E-Mail System Status, Reports and Event Information
- Product includes 5 year warranty.



NYC Fire Dept.
Certificate of Approval
6256



7165-0328:0509 S735

Description

The AFC-50 is an analog/addressable fire alarm system with a total system capacity of 50 addresses. Additional capacity on the system is achieved using multi-point SLC modules. The control panel utilizes the exclusive Potter protocol that includes a complete line of sensors and modules. Each SLC may be comprised of any combination of smoke sensor, heat detectors or modules and allows for a total of 50 ohms of impedance and may use any wire compliant with the National Electrical Code (NEC).

The AFC-50 has a 5 Amp power supply with two Notification Appliance Circuits (NACs) and two Input/Output (I/O) circuits. The NACs are rated at 3 Amps each and the I/Os are rated at 1 Amp each. Each output is regulated and power limited. In addition, each output is uniquely programmable and may be configured for steady signal, strobe synchronization, constant power, door holder power, or releasing. The strobe synchronization includes Gentex, AMSECO, System Sensor and Cooper/Wheelock and with the exclusive Quadrasync each output may have a unique brand and all strobes will flash together.

The NACs may be expanded using the PSN-1000 series intelligent power supplies. Each PSN-1000 adds another 10 Amps of power, 2 additional input circuits and the AFC-50 will support up to 31 power supplies. The system will synchronize the strobes system wide. In addition, the PSN-1000E has space to allow the installation of up to six expansion cards. The cards mount on a stacker bracket that allows access to all circuit connections.

Technical Specifications

Dimensions	16"W x 17"H x 3 1/8"D
AC Mains	3.0 Amps @ 120 VAC 50/60 HZ 2.0 Amps @ 240 VAC 50/60 HZ
Enclosure	16 gauge cold rolled steel with removable locked door with Lexan viewing window
Battery	Standby Current-130 mA Alarm Current-200 mA <ul style="list-style-type: none"> • 5 Amps power for NACs, I/O, and P-Link • 3 Amps per NAC, regulated • 1 Amp per I/O circuit, regulated • Battery Charger range 8-55 Ah • Battery Charger voltage 27.3 VDC • P-Link maximum current of 1 Amp
Temperature and Humidity Range	32° to 120° (0°C to 49°C) with a maximum humidity of 93% non-condensing.
Standards	<ul style="list-style-type: none"> • NFPA, 13, 15, 16, 17, 17A, 70, 72, and 750 • ANSI/UL 864 - Local (L), Remote Station (RS), Central Station (CS), Propriety (PPU), Auxiliary (AUX), Type of Service: Automatic (A), Manual (M), Water flow (WF), Sprinkler Supervisory (SS), Type of Signaling: Digital Alarm Communicator (DAC), March Time (March), Non Coded (NC), Reverse Polarity (Rev Pol), Other Technologies (OT) • IBC (International Building Code)

SLC Loop Accessories

The control panel may be connected with up to 50 addressable devices or modules in any combination. The SLC is not restricted by any special wire requirements and may be wired with any wire that complies with the NEC.

SLC Loop Devices

Device	Description
PAD Series-PD	Analog Photoelectric Smoke Detector is a smoke detector with a listed obscuration of 1.1 to 3.5%/foot. UL 268 7th Edition.
PAD Series-PHD	Combination Analog Photoelectric Smoke/Heat Detector – a smoke detector with a listed obscuration of 1.1 to 3.5 %/foot obscuration and a fixed temperature range of 135° to 185° F heat detector. Smoke detection compliant with UL 268 7th Edition.
PAD Series-PCD	Combination Photoelectric Smoke/Carbon Monoxide Detector. Smoke detection compliant with UL 268 7th Edition. Carbon Monoxide detection compliant with UL 2075.
PAD200-PCHD	Combination Photoelectric Smoke/Heat/Carbon Monoxide Detector. Smoke detection compliant with UL 268 7th Edition. Heat detection with a fixed temperature range of 135° to 185° F and UL 521 7th Edition compliant. Carbon Monoxide detection compliant with UL 2075.
PAD Series-HD	Analog Fixed Temperature (135° - 185°F) or Rate-of-Rise Heat Detector (software selectable).
PAD Series-DUCTR	Addressable Duct Smoke Detector with Form C Relay rate at 10Amps @ 250/120VAC or 8 Amps at 30VDC.
PAD Series-DUCT	Addressable Duct Smoke Detector.
PAD100-6DB	6” round base that is mountable to an electrical box and wired for connection to the PAD100/200 devices.
PAD100-4DB	4” round base that may be mounted to an electrical box and wired for connection to the PAD100/200 devices.
PAD100-IB	Isolator base that interrupts a short in a SLC and prevents the short from affecting protected devices on the loop and used for connection to the PAD100/200 devices.
PAD100-RB	Addressable Relay Base that contains one relay controlled by the SLC. Relay at rated at 2 amps at 30 VDC or 0.5A at 125VAC. For PAD100/200 devices only.
PAD100-SB	Addressable Sounder Base that contains an addressable sounder module which allows for configuration of local, group, and/or all call. For PAD100/200 devices only.
PAD Series-CD	Addressable CO gas detector.
PAD200-DD	Addressable photoelectric smoke detector for use in DUCT/DUCTR enclosure.
PAD300-DD	Addressable photoelectric smoke detector for use in DUCT/DUCTR enclosure or pendant mount applications.
PAD100-LFSB	Addressable Low Frequency Sounder Base that contains an addressable sounder module which allows for configuration of local, group, and/or all call. The LFSB complies with the Low Frequency Signal Requirements (520 Hz) and used for connection to the PAD100/200 devices.
PAD100-SPKB	Speaker base is a wall or ceiling mount speaker capable of 25 or 70.7 VRMS and is field selectable from 1/8W to 4W and used for connection with the PAD100/200 devices.
PAD300-6DB	6” round base which is mountable to an electrical box and wired for connection to the PAD300 devices.
PAD300-4DB	4” round base which is mountable to an electrical box and wired for connection to the to the PAD300 devices.
PAD300-IB	Isolator base that interrupts a short in a SLC and prevents the short from affecting protected devices on the loop. Used for connection to the PAD300 devices.
PAD300-RB	Addressable Relay Base that contains one relay controlled by the SLC. The Relay is rated 2 amps at 30 VDC or 0.5A at 125VAC and used for connection to the PAD300 devices
PAD300-SB	Addressable Sounder Base that contains an addressable sounder module which allows for configuration of local, group, and/or all call; and used for connection to the PAD300 devices.
PAD300-LFSB	Addressable Low Frequency Sounder Base that contains an addressable sounder module which allows for configuration of local, group, and/or all call. The LFSB complies with the Low Frequency Signal Requirements (520 Hz) and used for a connection to the PAD300 devices.

Modules

Device	Description
PAD100-MIM	Micro Input Module provides a small foot print contact module for mounting inside an enclosure.
PAD100-PSSA	Single Action Addressable Pull Station.
PAD100-PSDA	Dual Action Addressable Pull Station.
PAD100-SIM	Single Input Module is a standard contact module with an LED that mounts into a 4" square electrical box.
PAD100-DIM	Dual Input Module is a device that can monitor two distinct inputs with a single device or in a Class A mode.
PAD100-TRTI	Two Relay Two Input module provides two form C relays that are individually controlled by the control panel. Each relay is rated for 2 amps at 30VDC or 0.5 amps at 125VAC. Also provides two contact inputs.
PAD100-NAC	Notification Appliance Circuit module is an addressable remote appliance circuit controlled by the panel.
PAD100-ZM	Zone Module is used to connect conventional 2-wire smoke detectors to the system.
PAD100-IM	Isolater Module interrupts a short on the SLC and prevents the short from affecting protected devices on the loop.
PAD100-RM	Relay Module that provides one form C relay controlled by the control panel. Relay is rated for 2 amps at 30VDC or 0.5 amps at 125VAC.
PAD100-LED	Module provides a single addressable LED that is controlled by the control panel.
PAD100-SM	Speaker Module provides switching for two audio channels.
PAD100-LEDK	Addressable LED and key switch that mounts in a single gang box.
PAD100-DRTS	DUCTR Remote Test Switch that mounts in a single gang box and optionally supervised. For use with the PAD100-DUCTR only.
PAD100-OROI	One Relay One Input Module provides one form C relay and one input. The relay is rated at 2 amps at 30VDC or 0.5 amps at 125VAC.

SLC Features

The Potter protocol is a digital protocol with a proven design for reliability and noise immunity. The system does not require special cable or conductors for connection of the Signaling Line Circuit as long as the cable is compliant with NFPA 70 and NFPA 72. The system allows for Class A or Class B installations as well as “T-Taps”, with a max wiring distance of 10,000 Ft.

Sensor Features

The sensors through the fire alarm control panel provide a real time status as to the condition of the system. The smoke detector sensitivity, heat detector temperature level and drift compensation are all programmable options. The system also allows for a day/night mode where the panel automatically adjusts the sensitivity depending on the time of day. To assist in the reduction of false alarms, the smoke detectors also have a maintenance warning that sends a trouble signal when a detector is dirty to the point that it can no longer maintain the programmed sensitivity.

User Interface

The fire alarm control panel has a 2 x 16 LCD display to provide information to the system status. The keypad has navigation keys to allow manipulation of the Menu on board the panel. The panel is shipped standard with the following LEDs:

- AC Power - Green
- Alarm - Red
- Earth Fault - Amber
- Supervisory - Amber
- Silenced - Amber
- Trouble - Amber
- Pre-Release - Amber
- Release - Red

The common buttons include a Silence, Reset, Acknowledge, and Drill. All of the buttons are accessible once the locked door is opened.

P-Link

The AFC-50 has a proprietary communication protocol that communicates through a RS-485 connection to field devices. Up to 32 devices may be connected to a single P-Link connection. The P-Link includes the communication terminals and regulated 24 VDC connection for the field devices. The field devices may be any of the following:

PAD100-SLCE-Analog/Addressable loop expansion module

RA-6075R – 2 x 16 LCD annunciator with a key pad in a locked metal enclosure.

RA-6500R(F) – 4 x 40 LCD annunciator with a key pad in a locked metal enclosure. Flush mount version available.

LED-16(F) – 16 LED annunciator with common indicators in a locked metal enclosure. Flush mount version available.

PSN-1000(E) – 10 amp, remote intelligent power supply with 6 NACs, 2 Inputs and a P-Link repeater. This panel is listed in conjunction with the AFC-50 as releasing circuits.

CA-6075 – Class A convertor that converts the SLC, NACs and P-Link connection

UD-2000 – UL listed, Dual line telephone alarm communicator

DRV-50 – LED driver expander, used to connect up to 50 LEDs in a graphic display

FCB-1000 – Fire communication bridge, provides remote mounting of the Ethernet connection

FIB-1000 – Fiber interface module, used to extend P-Link to multi-mode fiber (2 required)

RLY-5 – Relay module, provides 5 form C relay contacts rated at 3.0 amps 24VDC/125AC

SPG-1000 – Serial parallel gateway, allows for the connection to a serial or parallel printer

The **FIB-1000**, **FCB-1000** and the **SPG-1000** may be installed in the stacker bracket or ordered with the optional rack mount enclosure.

MC-1000 Multi-Connect allows up to sixty-three AFC series panels to share a single reporting technology.

IDC-6 – Initiating device circuit provides 6 programmable inputs

AE-2 – Two card expansion cabinet

AE-8 – Eight card expansion cabinet

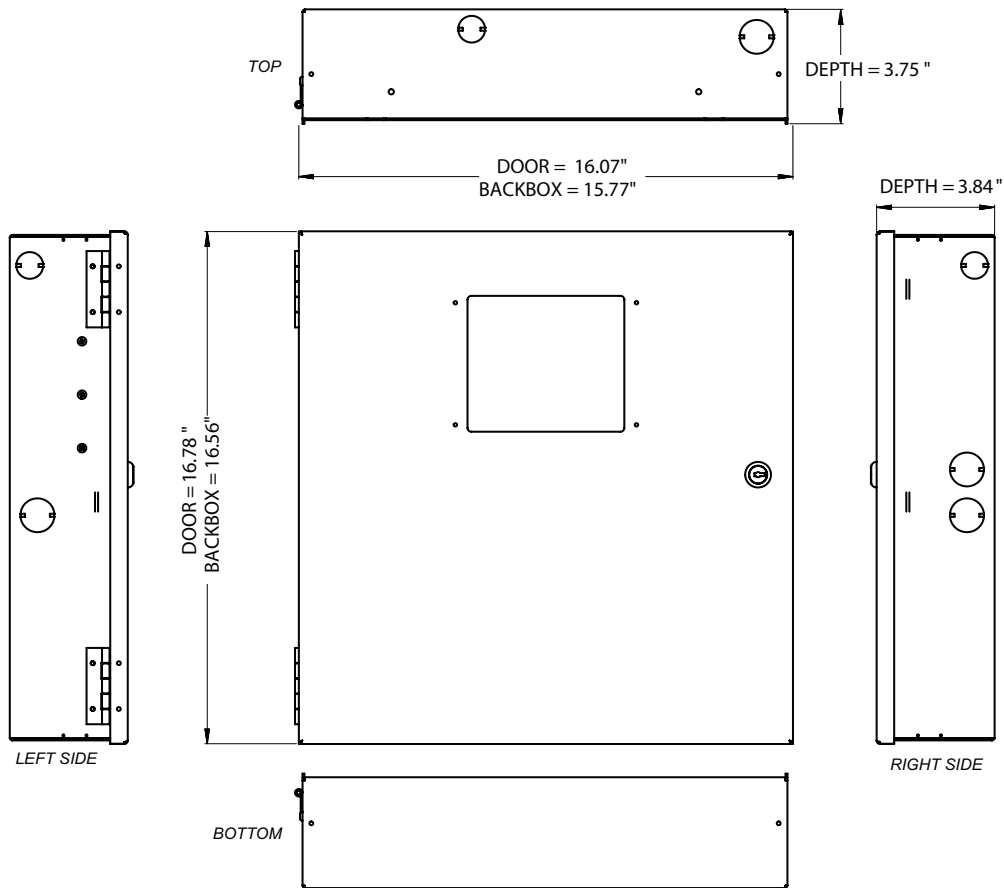
AE-14 – Fourteen card expansion cabinet

Ethernet/I.P. Connection

The AFC-50 is shipped standard with an Ethernet connection. This connection is the programming port and may be connected to a building Wide Area Network (WAN) or Local Area Network (LAN). Once connected to the Internet, the panel may be selectively programmed to e-mail alarm conditions, trouble conditions, supervisory conditions, test, Event History and detector status. An e-mail may be sent to the panel and the panel will e-mail the event history, detector status, configuration file or server status to an authorized E-mail account. In addition, reminders may be set to send an e-mail for service, testing or other conditions.

In addition, the Ethernet connection is UL listed as an IP communicator. The IP communicator is listed to report to the UL listed Sur-Gard III IP receiver. The IP communicator replaces the traditional less reliable alarm communicator transmitter that utilized telephone lines. The IP communicator is an active method of connection and communication to the monitoring station.

Dimensions



DWG #593-1

Ordering Information

Model	Description	Stock No.
AFC-50	Fire Alarm Control Panel	3992752
	Replacement Board AFC-50	3992756

Features

- One (1) Class B monitoring input
- SLC Class A, Class X & Class B
- Mounts in a standard 4" or double gang box
- Wiring terminals accessible when mounted in box
- All wiring terminals accept 22 to 12 AWG
- Product includes a 5 year warranty
- UUKL Listed for Smoke Control

NOTE: This addressable module does not support 2-wire smoke detectors.



Description

The PAD100-SIM uses one (1) SLC loop addresses when monitoring one (1) Class B circuit. The module mounts on either a 4" square or double gang box. The module is capable of monitoring one (1) Class B circuit. The PAD100-SIM includes one red LED to indicate the module's status. In normal condition, the LED flashes when the device is being polled by the control panel. When the input is activated, the LED will flash at a fast rate.

Application

The PAD100-SIM is compatible with Potter's IPA and AFC/ARC series addressable fire alarm control panels. The PAD100-SIM is an interface module used to monitor dry contact devices such as sprinkler waterflow, valve tamper switches, or conventional pull stations. The module is capable of monitoring one Class B circuit.

Setting the Address

Each addressable SLC device must be assigned an address. The address is set using the DIP switch located on the PAD100-SIM.

Before connecting a device to the SLC loop, take the following precautions to prevent potential damage to the panel or device:

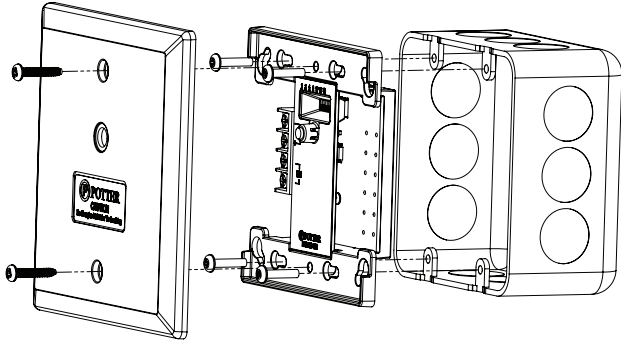
1. Power to the device is removed.
2. Field wiring is correctly installed.
3. Field wiring has no open or short circuits.

Technical Specifications

Operating Voltage	24.0V
Max SLC Standby Current	240 μ A
Max SLC Alarm Current	240 μ A
Max Wiring Resistance of IDC	100 Ω
Max Wiring Capacitance of IDC	1 μ F
EOL Resistor	5.1K Ω
Operating Temperature Range	32 to 120°F (0 to 49°C)
Operating Humidity Range	0 to 93% (non-condensing)
Max no. of Module Per Loop	127 units
Dimensions	4.17" (106mm)L \times 4.17" (106mm)W \times 1.14" (29mm)D
Mounting Options	Standard 4" Square or Double Gang Box
Shipping Weight	0.6 lbs

Installation Using Compatible Electrical Box

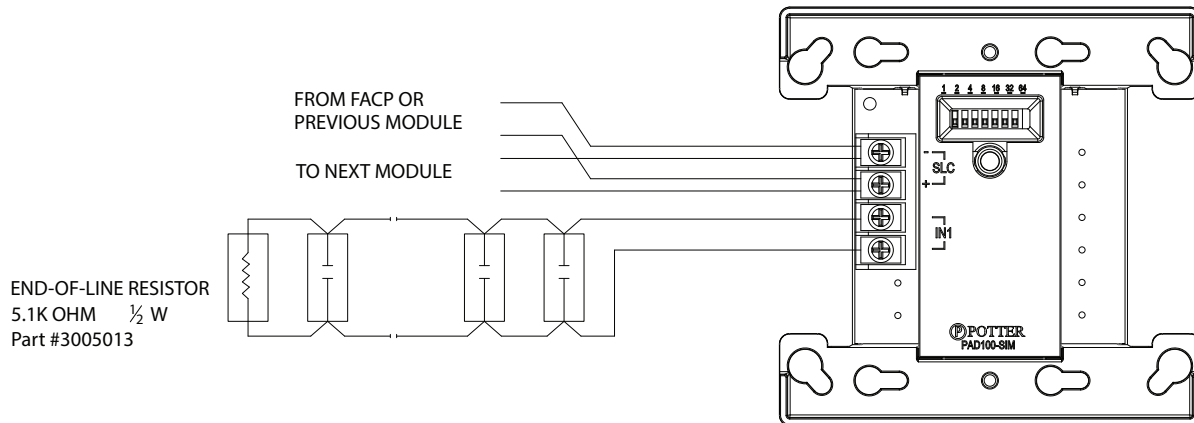
Fig 1



Wiring Diagram

PAD100-SIM With Class B Circuit

Fig 2



Ordering Information

Model	Description	Stock No.
PAD100-SIM	Single Input Module	3992704

Features

- Single or Dual Action versions
- Durable die-cast construction
- Reset key matches the fire alarm control panels
- Compatible with IPA Series panels
- SLC Class A, Class X & Class B
- Product includes a 5 year warranty
- UUKL Listed for Smoke Control



Description

The PAD100-PSSA (Single Action) is activated by simply pulling the white “T” bar handle down. The PAD100-PSDA (Dual Action) is activated by lifting the front cover and then pulling the white “T” bar handle down. Once activated, the “T” bar cannot be reset without opening the front cover. Opening the front cover will also activate the pull station. To reset the PAD100-PS Series, use the Potter WS-93 key to unlock and open the front cover. Once the cover is open, push the “T” bar back into the normal position and re-secure the front cover.

Application

The PAD100-PSSA/PSDA is compatible with Potter’s IPA and AFC/ARC series addressable fire alarm control panels. It is a non-coded addressable pull station available in either a single or dual action model and installs on a single gang box or surface mounts using the P32-BB or P32-DBB (deep) back box.

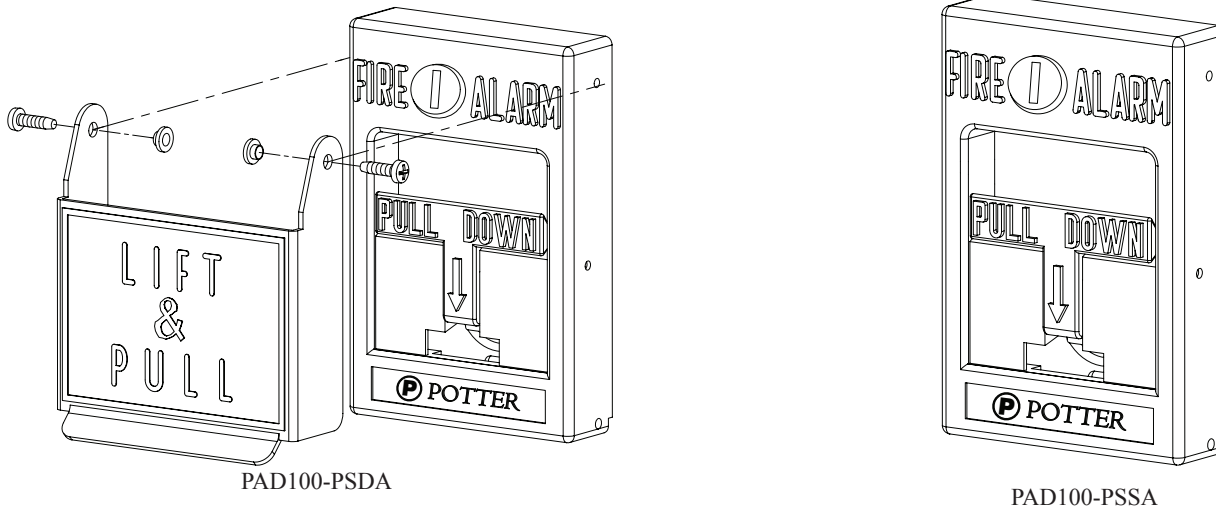
Technical Specifications

Operating Voltage	24.0 VDC
Max SLC Standby Current	200uA
Max SLC Alarm Current	200uA
Environmental Limitations	32°F - 120°F (0° - 49°C) Indoor Only
Dimensions	4.75” H x 3.25” W x 1.75” D
Relative Humidity Range	0 - 93% (non-condensing)
Mounting Options	Single gang box or Potter P32-BB/DBB
Shipping Weight	APS-SA - 1.22 lbs. APS-DA - 1.46 lbs.

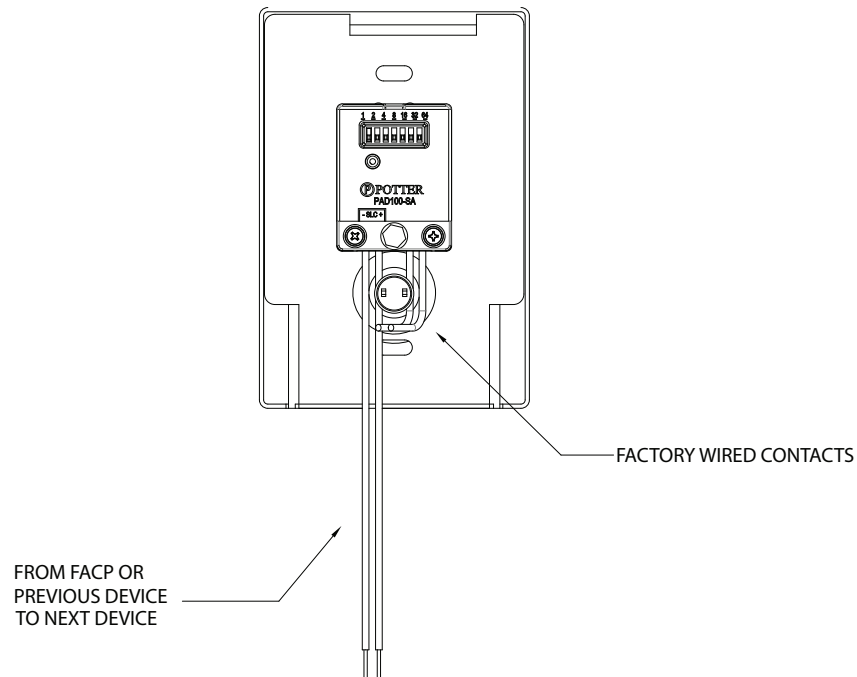
Setting the Address

The PAD100-PS Series uses one SLC address assigned to the device. The address is set using the DIP switch located on the back of the PAD100-PS device.

Pull Station Front View
Fig 1



Pull Station Back View and Wiring
Fig 2



Ordering Information

Model	Description	Stock No.
PAD100-PSSA	Addressable Pull Station, Single Action	3992721
PAD100-PSDA	Addressable Pull Station, Dual Action	3992720

Features

- Low profile, less than 2 inches with the base
- Wide selectable sensitivity range of 1.1 to 3.5%/foot
- Detector communicates sensitivity to control panel
- UL listed smoke calibration and sensitivity
- Optional locking tab to prevent unwanted removal
- Simple DIP switch address setting, no programming tool required
- Magnetic test switch
- LED alarm indicator
- Product includes 5-year warranty
- UUKL Listed for Smoke Control
- UL268 7th edition compliant



Description

The Photoelectric Smoke Detector is a listed Analog Addressable smoke detector compatible with fire alarm control panels that utilize the Potter Addressable Device (PAD) protocol. The PAD300-PD is a low profile smoke detector with a wide sensitivity range. The detector and base are made of a durable plastic in an off-white color to blend in with the ceiling.

The PAD300-PD has a sensitivity range of 1.1 to 3.5 % per foot and is UL listed. The PAD300-PD features drift compensation and has built in dirty detector warning as well. The PAD300-PD and the control panel communicate over a proven and robust digital communication path and the system analyzes the information at the particular device. The total polling speed is less than five (5) seconds, well under the UL requirements.

The detector is compatible with any of the PAD300 series detector bases and simply twists on. The PAD300-PD is addressed using DIP switches in the rear of the detector and can be easily programmed in the field without special tools.

Setting the Address

Each addressable device on the SLC loop must have a unique address from 1 to 127 to function properly. The address is set using DIP switches.

Before connecting a device to the SLC loop, take the following precautions to prevent potential damage to SLC or device. Verify the following:

1. Power to the device is removed.
2. Field wiring is correctly installed.
3. Field wiring has no open or short circuits.

Technical Specifications

Operating Voltage	24 VDC
Detector Current Draw	300 μ A
Alarm Indicator	1 LED
Alarm Set-point Range	1.1 to 3.5%/ft (3.6 to 11%/m)
Installation Temperature Range	32 to 120 ° F (0 to 49 ° C)
Operating Relative Humidity range	0% to 93% (Non-condensing)
Start-up Time	Max. 1 sec.
Maximum Number of Addresses Per Loop	127
Maximum Number of Lighted Indicators in Alarm Per Loop	30
Color	Eggshell White
Weight (without base)	91g (3.2oz)
Dimensions (without base)	Height: 1.42 in (36mm) Diameter: 3.93 in (100 mm)

Air Velocity Ratings

The PAD300-PD has an Open Area of Protection air velocity rating of 0 to 300 feet per minute.

The system has a maximum of 30 LEDs that can be turned on simultaneously. If the system already has 30 LEDs on, the PAD300-PD will operate even though the LED may not illuminate.

Operation

The PAD300-PD is an analog addressable detector that uses one address on the Signaling Line Circuit (SLC) of a compatible fire alarm control panel. The unit communicates with the control panel as it is polled. The LEDs flash every time the unit is polled and they will flash at a fast rate if the unit is in an active status. The polling LED can be turned off if desired for less conspicuous operation.

The PAD300-PD with the PAD300-4DB or PAD300-6DB has a low profile of less than two (2) inches to blend into the surrounding environment. The detector includes an insect screen to prevent foreign objects from reaching the chamber and can be cleaned to restore operation of a dirty detector.

Detector Sensitivity

The PAD300-PD and the compatible control panel work in tandem to keep the sensitivity consistent. As the detector is installed over time, the detector compensates for the dirt in the unit until it is out of range. At that time, the panel will indicate a dirty detector. The detector will then have to be cleaned or replaced.

The PAD300-PD can be programmed to provide a maintenance alert prior to reaching the dirty detector level which will allow for intervention prior to the detector going into trouble. This allows for detector replacement or cleaning prior to a nuisance trouble occurs.

NOTE: As required by NFPA, do not install the detectors until all construction is complete and the work area has been thoroughly cleaned. If the detectors have been installed in a construction environment, they should be cleaned or replaced before the system is placed into service.

Spacing

The PAD300-PD is UL listed with a recommended maximum spacing of 30 feet. Refer to NFPA 72 for specific information regarding detector spacing, placement and special applications.

Compatible Bases

All bases will mount on a single gang, 3-1/2" octagon, 3-1/2" square, double gang, 4" octagon, 4" square, 50mm c/c, 60mm c/c and 70mm c/c boxes.

Device	Description	Stock No.
PAD300-4DB	4" Detector Base	3992781
PAD300-6DB	6" Detector Base	3992782
PAD300-IB	6" base with an isolator module included	3992783
PAD300-RB	6" base with one Form-C relay contact. 2A @ 30VDC, 0.5A @ 125VAC	3992784
PAD300-SB	6" base with sounder module included. Sound pattern is provided from external source	3992785
PAD300-LFSB	6" base with 520Hz sounder module included. Sound pattern is provided from external source	3992786

Ordering Information

Model	Description	Stock No.
PAD300-PD	Photoelectric Smoke Detector	3992775

Features

- Terminals marked with polarity to assist with installation
- Duplicate Terminals for In-and-out SLC Wiring
- Terminals accept 22 to 12 AWG wire sizes
- Installs on Single Gang, Double Gang, 3-1/2" Octagon Box or 4" Square Box
- Locking tab prevents unauthorized detector removal
- Product includes 5-year warranty
- 6" mounting base comes with trim plate cover



Application

The Potter PAD300-6DB and PAD300-4DB detector bases are used to install PAD300 series detectors. The PAD300-6DB will mount on a single gang, double gang, octagon, 4" square, 50mm, 60mm, and 70mm electrical box.

Description

The PAD300-6DB and PAD300-4DB are low-profile, surface-mount bases used with Potter's addressable detectors. The base uses screw clamp terminals that accept wire ranging from 22 to 12 AWG. When installed on recessed electrical boxes, the PAD300-6DB is wide enough to completely cover the back box and the immediate surrounding area. The base is equipped with a locking tab to deter unauthorized removal of the attached detector.

Technical Specifications

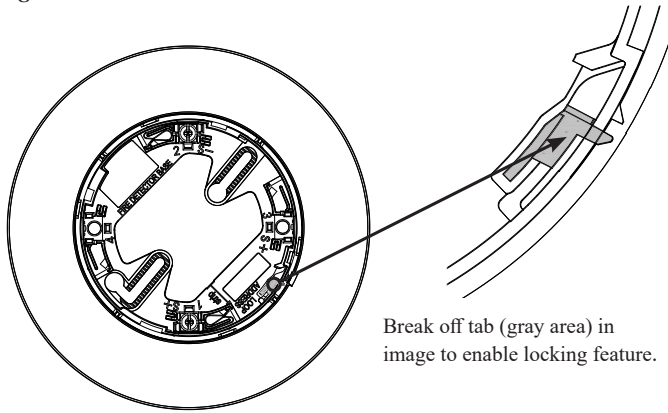
Installation Temp Range	32°F to 150°F (0°C to 66°C)
Operating Humidity Range	0% to 93% (Non-condensing)
Dimension	PAD300-4DB: 3.93 in / 100 mm PAD300-6DB: 6.3 in / 160 mm
Weight	PAD300-4DB: 1.34 oz / 38 g PAD300-6DB: 3.03 oz / 86 g
Height	0.76 in / 20 mm
Acceptable Wire Gauge	22 to 12AWG
Mounting Options	<ul style="list-style-type: none"> • Single Gang • Double Gang • 3-1/2" Octagon Box • 4" Octagon Box • 4" Square with Plaster Ring • 50 mm c/c Box • 60 mm c/c Box • 70 mm c/c Box

Locking Feature

The PAD300-6DB and PAD300-4DB include a locking feature that prevents removal of the detector without using a tool.

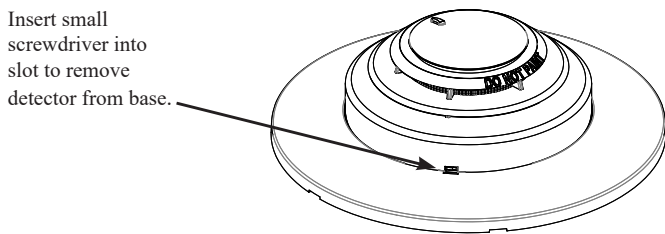
1. To enable this feature, break off the locking tab (See Figure 1), and then install the detector.

Fig. 1



2. To remove the detector from the base when the locking feature has been enabled, insert a small screwdriver into the slot on the base to push the plastic tab while simultaneously turning the detector head counter-clockwise.

Fig. 2



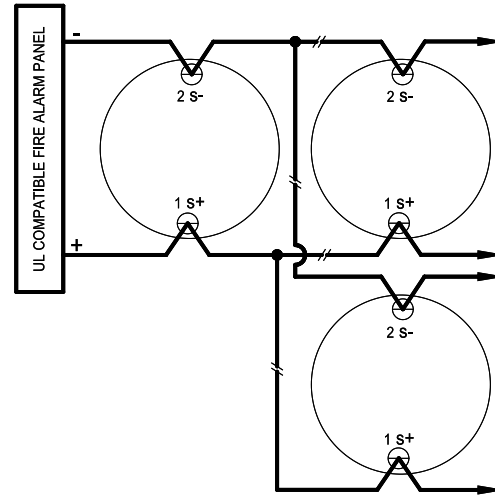
Ordering Information

Model	Description	Stock No.
PAD300-4DB	4" Detector Base	3992781
PAD300-6DB	6" Detector Base	3992782

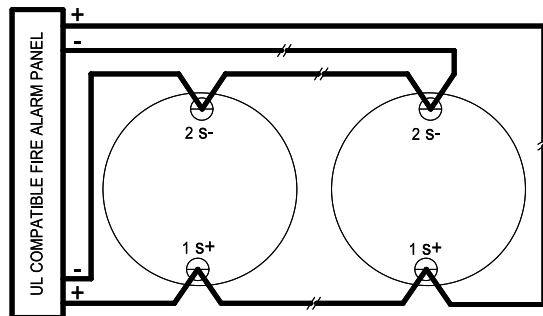
Wiring Diagrams

Fig. 3

1) Class B Wiring:



2) Class A Wiring:



3) Class X Wiring:

