Permitting and Inspections Department
Michael A. Russell, MS, Director

Fire Alarm Permit Application

Construction Address: 131 Johnson Road

Total Square Footage of Proposed Structure: 22,600

Tax Assessor's Chart, Block & Lot

Chart#	Block#	Lot#

Cost of Work: $ 7,169

Applicant Name: Guardian Systems of Maine

Address: 320 Presumpscot Street, Portland, Maine

Phone: 207-536-4800

Email: rich@guardiansystemsmaine.com

Lessee/Owner Name (if different): Prosthodontics Associates

Address: 131 Johnson Road, Portland, Maine

Phone: 207-775-6348

Email: info@prothodonticsassociates.com

Contractor Name (if different): Same

Address:

Phone:

Email:

Current use (i.e. single family): Business

If vacant, what was the previous use?

Proposed specific use:

Is property part of a subdivision? If yes, name: NO

Project description: Replace existing fire panel and all addressable fire alarm system devices. This does not include the horn/strobes

Life Safety Code Occupancy Classification: Business

Is this new work or a renovation to an existing system? Renovation

Is the top occupiable floor of the building greater than 75 feet above the lowest level of Fire Department access (high-rise)? NO

Name of company providing programming and certification of system*: Guardian Systems of Maine

Electrical permit #: Elec 2019 - 02269

Will a master box be installed? ○ Yes ◉ No   **If yes, complete all items for approval):**

AES approved installing contractor:

Documentation of AES approval:

Property Owner:

Property Owner Billing Address:

Property common name:

E-911 address for protected premises:

Emergency contact phone: Additional emergency contact phone:

Number of stories protected:

Is the building protected by a supervised, automatic sprinkler system?   ◉ Yes   ○ No

Name of person to contact when the permit is ready: Beth Kilbride

Address: 320 Presumpscot St

City, State & Zip: Portland, me 04103

Email Address: beth@guardiansystemsmaine.com   **Phone:** 221-3331

*For a list of approved fire alarm companies, see www.portlandmaine.gov/1486/Approved-Fire-Alarm-Companies

389 Congress Street, Room 315/Portland Maine 04101/www.portlandmaine.gov/tel: 207-874-8703/fax: 207-874-8716

UL LISTED

E120V-GT

Hybrid Surge Protection Device

Safety and performance is what Eclips is all about. While there are many varying criteria to be considered for surge protective devices (SPD), if the design engineer neglects the importance there can be serious implications for the client and equipment.

Every piece of electrical equipment is designed to operate at a specified nominal voltage. Typically equipment is designed to handle minor variations. However external sources such as lightning, motors, and short circuits cause wild and damaging variations.

Critical systems wired to your electrical service like Fire Alarm Control Panels (FACP), Mass Notification systems, amplifiers, motors, pumps (HVAC), power boosters and many more must require appropriate levels surge protection. The E120 series is an ideal choice for your 120V AC applications. because it has the robustness not only to absorb a spike, but to clamp long enough to trip the branch circuit breaker and still be functional for additional surges.

The number one cause of destruction, degradation and down-time of critical electrical equipment is from power surges and lightning strikes.

The E120V-GT device is an ideal solution to protect equipment. UL listed it maintains system integrity and protects against transients introduced into / onto electrical lines via poor atmospheric and utility conditions as well as internally generated inductive loads and transient TVSS. It reduces system downtime associated with power surges and lightning strikes. Prevents destruction and degradation of electrical components in the system. Fix your nuisance and non-billable service calls as a result of transients and poor power quality and show your customer you care about system integrity.
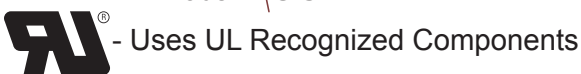
Standard Features:

- Available in 120 VAC
- UL Listed 1449 3rd Edition Type 2 & 3
  2X to open circuit breaker @5000A
- Includes lockout & labels per
  NFPA 72 2013 10.6.5.2
- Surface or conduit mounting
- Diagnostic indicator light
- Self restoring
- 3 Wire device (18" length)

Made In U.S.A.

NFPA

UL® - Uses UL Recognized Components

ISO 9001 REGISTERED COMPANY

NEMA

E-CLIPS

Space Age Electronics, Inc.
www.1SAE.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

No Excuses, Just Solutions!

Specifications:

All 120volt AC equipment will have Transient Voltage Surge Suppression (TVSS) protection manufactured by Space Age Electronics, Inc., part number E120V-GT ECLIPS Brand. The Unit shall be UL listed to standard 1449 rev 3. The unit will be labeled clearly with indelible ink. Mounting can be conduit mounted with a ¾" pipe threaded nipple to secure in panel, or surface panel mount with 2 external mounting holes. The unit shall have thermal fuses to protect against fire in short circuit conditions. The E120V will have 18" long, 14 gauge wires (3x) ground wire must be green. The enclosure will be a non dielectric material UL94 QMFZ2/8 grade material providing UV protection. The unit shall provide visual indication (LED) that unit is protecting and functioning.

Specifications - Performance:

Short Circuit Current Rating (SCCR) :	5KA
Maximum Surge Current (8x20µs) :	25,000 Amps
Enclosure Material :	UL94 QMFZ2/8 (green)
Energy Dissipation Joules :	500 Joules
VPR=700(L – N) 700 (L – G) 600 (N – G)	
Capacitance :	< 2,000 pf
Clamping Response Time :	< 5 nanoseconds
Current :	Non-Load Bearing
Max Operating Voltage (MCOV) :	140 volts AC, 50/60 Hz
Clamping Voltage :	230 Volts RMS
Design :	Thermally Fused Hybrid
Operation Indicators :	LED
Surviveability :	UL rated X2 @5000 Amps to open Series external circuit breaker

Specifications - Compliance:

UL Listed :	1449 Third Edition - VZCA
File Number :	E319370 Vol. 1 Sec. 1

Specifications - Operating:

Service Voltage :	120 Single Phase
Circuits Protected :	L-N L-G N-G
Connection Type :	Hardwired
Installation Configuration :	Parallel

Specifications - Physical:

Weight :	5.2oz
Dimensions :	2.75" x 1.55" x 4" long
Operation Temperature :	-40 to +85º C

Mechanical Drawing:
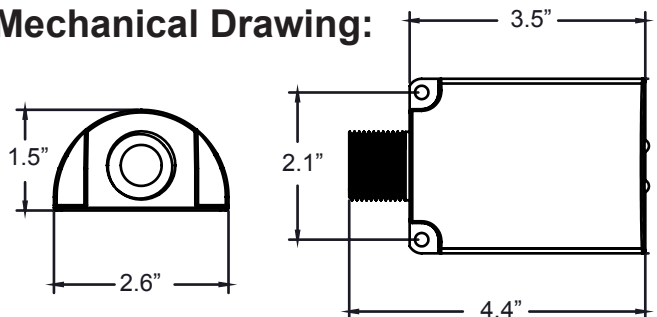
Wiring Diagram:
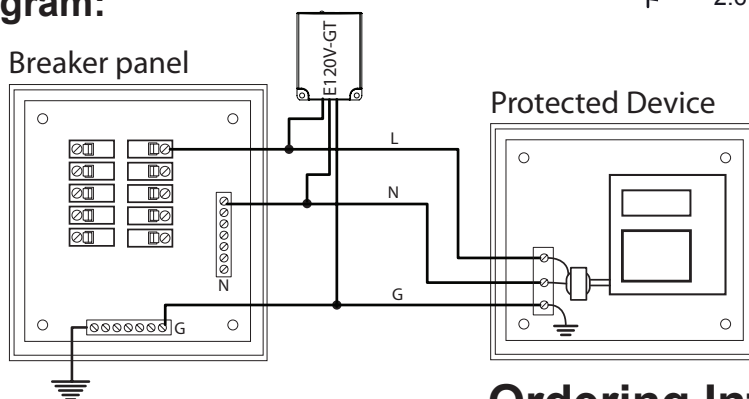
Ordering Information:

Part #	Description
E120V-GT	**120V Hybrid Surge Protective Device**
ELOCK-FA	**Circuit Lockout Kit**

E⎓CLIPS

Space Age Electronics, Inc.
www.1SAE.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

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Features

- Single module with dual contact monitoring inputs
- Two (2) Class B or one (1) Class A monitoring inputs
- 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

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

Description

The PAD100-DIM uses one (1) SLC loop address when monitoring two (2) Class B circuits or one (1) Class A circuit. The module mounts on either a 4" square or double gang box. The module is capable of monitoring two (2) separate class B circuits making it ideal for monitoring sprinkler waterflow and valve tamper switches when they are located in the same proximity. The PAD100-DIM 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 an input is activated, the LED will flash at a fast rate.

Application

The PAD100-DIM is compatible with Potter's IPA series addressable fire alarm control panels. The PAD100-DIM 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 two separate Class B or one Class A circuits.

Setting the Address

Each addressable SLC device must be assigned an address. The address is set using the DIP switch located on the PAD100-DIM. When the PAD100- DIM is used to monitor two individual Class B circuits a single device address is assigned, each input is then identified as a sub-point of the module address. For example, if the address number is assigned as "8", the first input will be "8.1" and the second input will be "8.2".

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	240μA
Max SLC Alarm Current	240μA
Max Wiring Resistance of IDC	100 Ω
Max Wiring Capacitance of IDC	1μF
EOL Resistor	5.1K Ω
Operating Temperature Range	32 to 120ºF (0 to 49ºC)
Operating Humidity Range	0 to 93% (non-condensing)
Max no. of Module Per Loop	127 units
Dimensions	4.17" (106mm)L × 4.17" (106mm)W × 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 Diagrams

PAD100-DIM With One Class A Circuit
Fig 2

MOVE THE "CL-A" DIP SWITCH TO "UP" POSITION FOR CLASS A WIRING

FROM FACP OR PREVIOUS MODULE

TO NEXT MODULE

SLC

IN1

IN2

POTTER
PAD100-DIM

NOTE:
END-OF-LINE RESISTOR IS NOT REQUIRED

PAD100-DIM With Two Class B Circuits
Fig 3

MOVE THE "CL-A" DIP SWITCH TO "DOWN" POSITION FOR CLASS B WIRING

FROM FACP OR PREVIOUS MODULE

TO NEXT MODULE

SLC

IN1

IN2

POTTER
PAD100-DIM

END-OF-LINE RESISTOR 5.1K OHM ½ W Part #3005013

END-OF-LINE RESISTOR 5.1K OHM ½ W Part #3005013

Ordering Information

Model	Description	Stock No.
PAD100-DIM	Dual Input Module	3992703

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Features

- One (1) Form C relay contact
- 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

UL LISTED
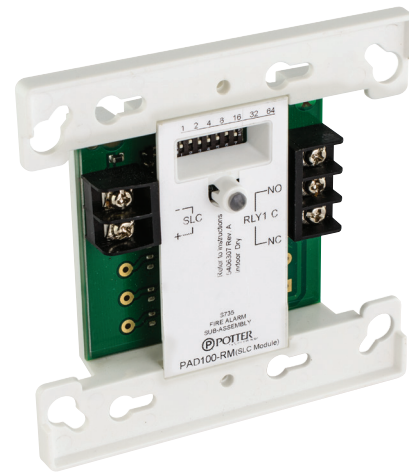
Description

The PAD100-RM uses one (1) SLC loop address to provide one (1) Form C relay contact. The module mounts on either a 4" square or double gang box. The PAD100-RM 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.

Application

The PAD100-RM is compatible with Potter's IPA series addressable fire alarm control panels. The PAD100-RM is an interface module providing one (1) Form C relay contact.

Setting the Address

Each addressable SLC device must be assigned an address. The address is set using the DIP switch located on the PAD100-RM. The PAD100-RM uses a single device address to identify relay contacts.

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	240µA
Max SLC Alarm Current	240µA
Relay Contacts	2A @30VDC, 0.5A @125VAC
Operating Temperature Range	32 to 120ºF (0 to 49ºC)
Operating Humidity Range	0 to 93% (non-condensing)
Max no. of Module Per Loop	127 units
Dimensions	4.17" (106mm)L × 4.17" (106mm)W × 1.14" (29mm)D
Mounting Options	Standard 4" Square or Double Gang Box
Shipping Weight	0.6 lbs

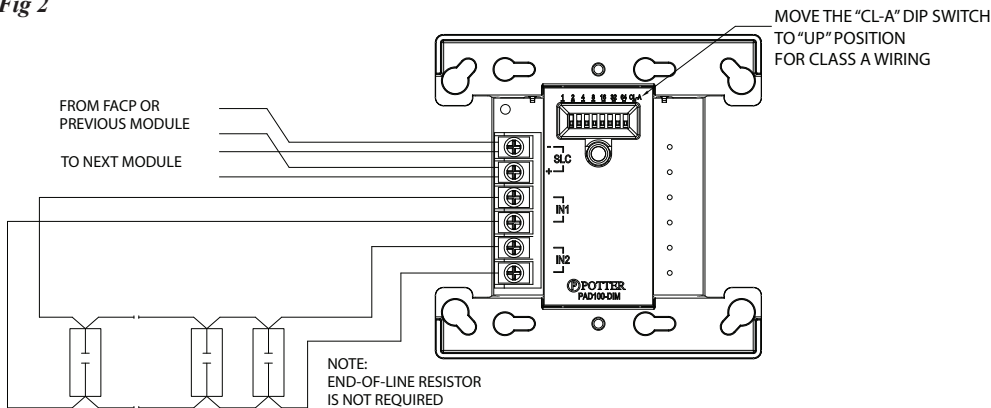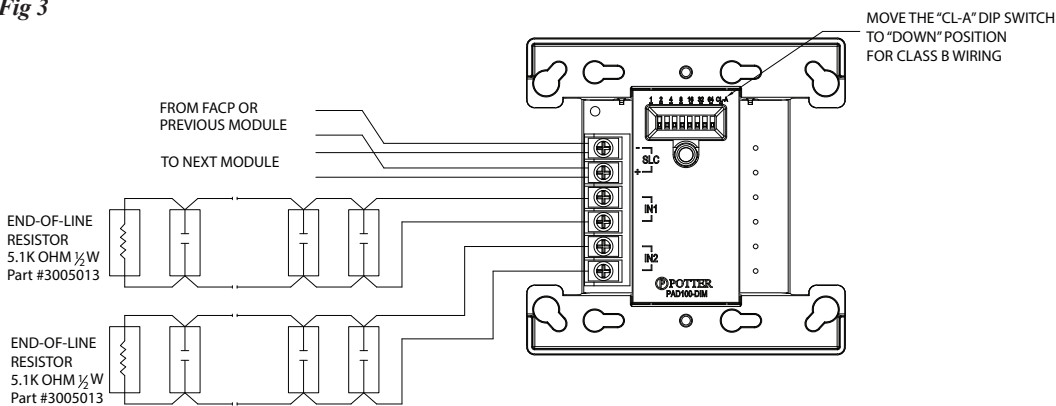## Installation Using Compatible Electrical Box
Fig 1

Wiring Diagram
PAD100-RM Relay Circuit
Fig 2

FROM FACP OR PREVIOUS MODULE

TO NEXT MODULE

ONE (1) FORM C RELAY CONTACTS
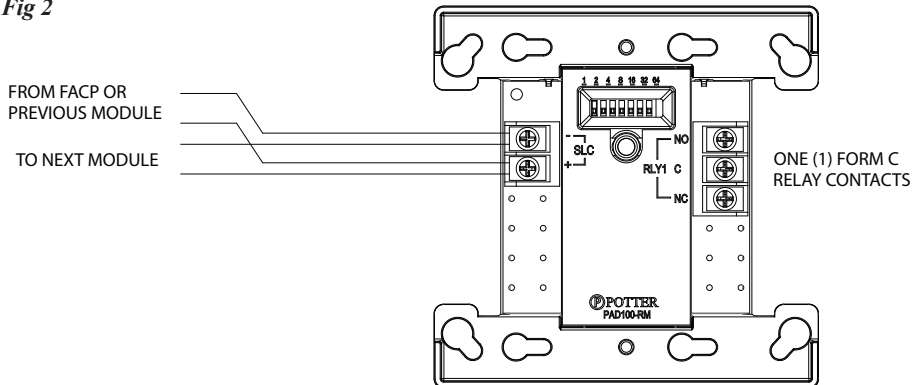
NOTICE

It is possible that the internal relay in the PAD100-RM may be shipped in the non-normal / activated state. To ensure that the internal relay is set to the normal state, connect the module to the SLC loop and reset the control panel before terminating the wiring to the modules output.

Ordering Information

Model	Description	Stock No.
PAD100-RM	Relay Module	3992705

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Features

- Supervised Duct Detector Test Switch
- Active and Pilot LED indicators
- Key matches the fire alarm control panels
- Compatible with PAD100-DUCTR Duct Detector
- Mounts in a single gang box
- All wiring terminals accept 22 to 12 AWG
- Product includes a 5 year warranty

UL LISTED

Description

The PAD100-DRTS module does not require an SLC loop address. The PAD100-DRTS provides a supervised remote test switch for the PAD100-DUCTR duct detector. Active and Pilot LEDs provide status of the PAD100-DUCTR detector. Keyed switch allows remote testing of the PAD100-DUCTR duct detector.

Application

The PAD100-DRTS is compatible with Potter's PAD100-DUCTR Duct detector. It installs on a single gang box.

Technical Specifications

Operating Voltage	24.0V
Max Standby Current	10mA
Max Alarm Current	15mA
Environmental Limitations	32°F - 120°F (0° - 49°C) Indoor Only
Operating Humidity Range	0 to 93% (non-condensing)
Max no. of Modules Per PAD100-DUCTR	1 unit
Dimensions	4.75" (187mm) H x 2.75" (108mm)W x 1" (40mm)D
Mounting Options	Single gang box or Potter P32-BB/DBB
Shipping Weight	0.65 lbs

Installation Using Compatible Electrical Box

Fig 1
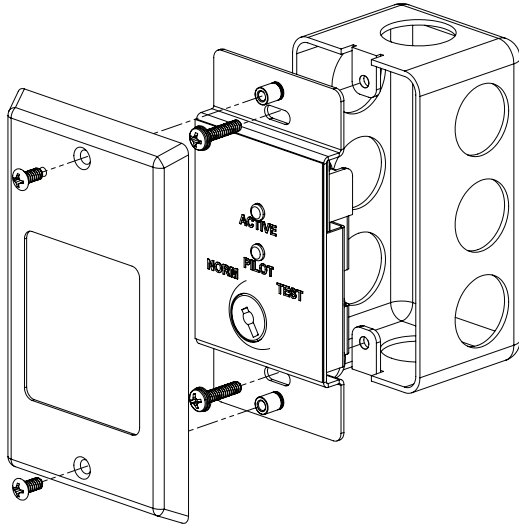
PAD100-DRTS Back View and Wiring

Fig 2

SSABLE
DUCTR
ECTOR
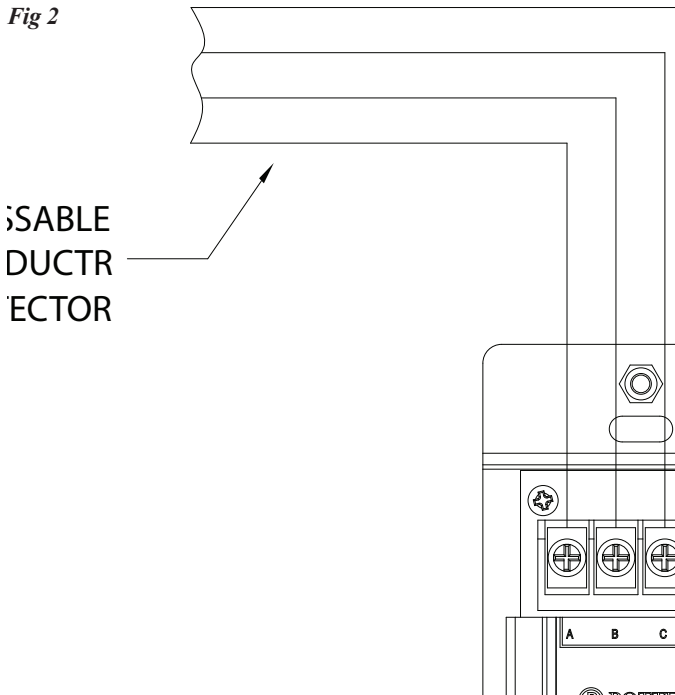
Ordering Information

Model	Description	Stock No.
PAD100-DRTS	Duct Remote Test Switch	3992711

PAD100-PSSA/PSDA

Addressable Pull Station
Single/Dual Action

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

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 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

PAD100-PSDA
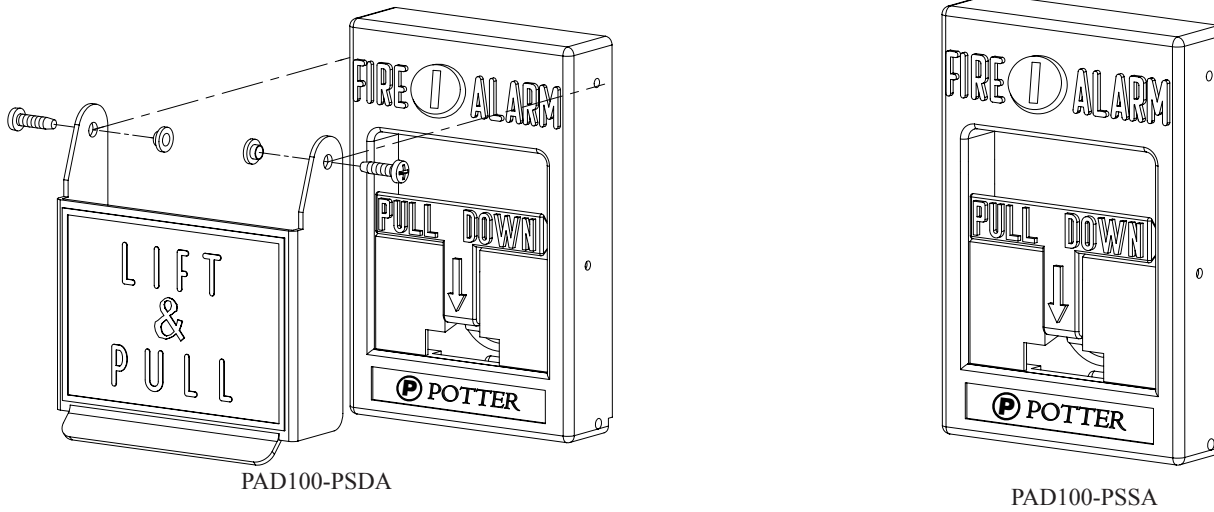
PAD100-PSSA

Pull Station Back View and Wiring
Fig 2

FACTORY WIRED CONTACTS

FROM FACP OR
PREVIOUS DEVICE
TO NEXT DEVICE
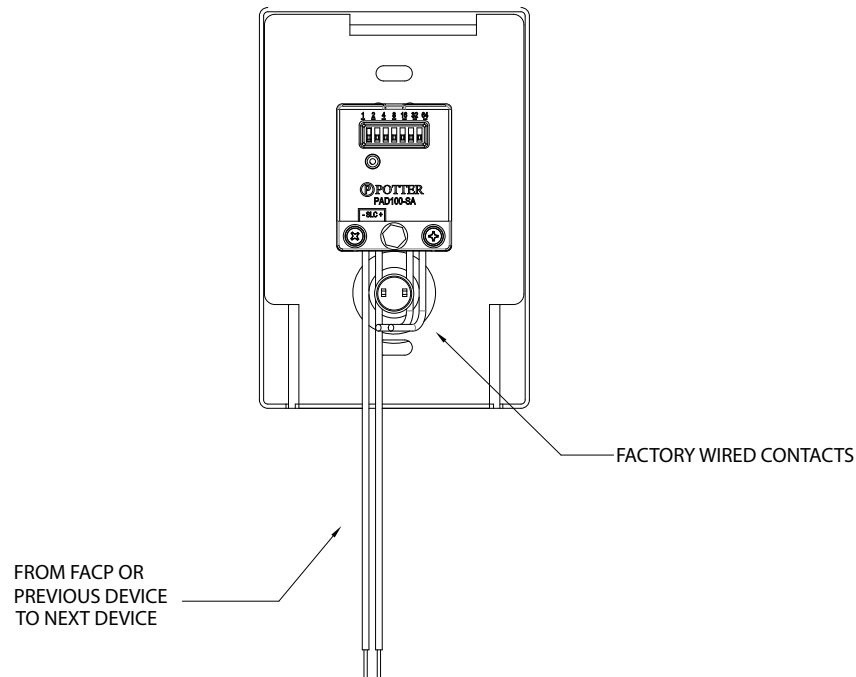
Ordering Information

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

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Features

- Detects smoke in building HVAC ducts
- Ships complete with housing and detector
- Compatible with addressable IPA series panels
- SLC Class A, Class X & Class B
- Installation without removing the detector
- Listed Air Velocity of 100 to 4,000 ft/minute
- No screens or filters in housing
- Durable plastic enclosure and clear cover
- Integrated cover tamper switch
- Utilizes simple snap in sampling tubes STN series
- One form C relay
- Compatible with supervised PAD100-DRTS remote test switch, MS-RA and MS-KA/P/R remote indicators
- Product includes a 5 year warranty

UL LISTED

Description

The PAD100-DUCTR is designed and built to meet all local requirements, as well as the NFPA regulations regarding duct smoke detectors. Air sampling is accomplished by two tubes which protrude into the duct. An exhaust tube of one standard length (7") is supplied in the installation kit with the smoke duct unit. Once the duct width has been determined the air intake sampling tubes must be ordered. Sampling tubes are supplied in three standard lengths: 2.5 ft., 5 ft., and 10 ft. and cut to size to fit the duct. Mounting the duct smoke unit is accomplished by the use of a template and 2 sheet metal screws, which are provided. Mounting can be achieved without the removal of the clear cover which is secured by 4 capture screws.

Application

The Potter Electric PAD100-DUCTR duct smoke detector provides early detection of smoke and products of combustion present in air moving through HVAC ducts in commercial, industrial and residential applications. The PAD100-DUCTR is compatible with the IPA series addressable fire alarm control panels.

Technical Specifications

Duct Detector Model Number	PAD100-DUCTR
Operating Voltage	24 VDC
Current Draw	500 µA
Detector Head Model	PAD100-DD
Detector Head Type	Photoelectric
Sensitivity Test Method	Self diagnostic test
Air Velocity	100 to 4000 ft./min
Ambient Temperature	32°F to 120°F (0°C to 49°C)
Humidity	10% to 85% Relative humidity (non-condensing)
Housing Material	Plastic backbox, clear plastic cover
Finish	Gray backbox with clear cover
Dimensions	13 1/2"L x 4 1/2" W x 2 1/4" H
Maximum Net Weight	2 lbs.
Sampling Tubes	2.5 ft., 5 ft., or 10 ft.
Relay contact rating	8A@30VDC, 10A@120VAC, 10A@250VAC

Engineering Specifications

Air duct smoke detectors shall be Potter Electric PAD100-DUCTR Series. The detectors shall be listed by Underwriters Laboratories per UL 268A. The detectors shall operate at air velocities from 100 feet per minute to 4000 feet per minute. The duct detector housings shall be of plastic construction and complete mechanical installation may be performed without removal of detector cover. Visual indication of alarm and power must be provided on detector front. Detector heads shall not require additional filters or screens which must be maintained. The housing shall contain a detector base and PAD100-DD duct smoke detector head. Terminal connections shall be of the screw type and be a minimum of # 12 screw. All wiring must comply with local codes and regulations. Detector shall use the STN series of sampling tubes.

Wiring Diagrams

PAD100-DRTS Wiring
Fig 1
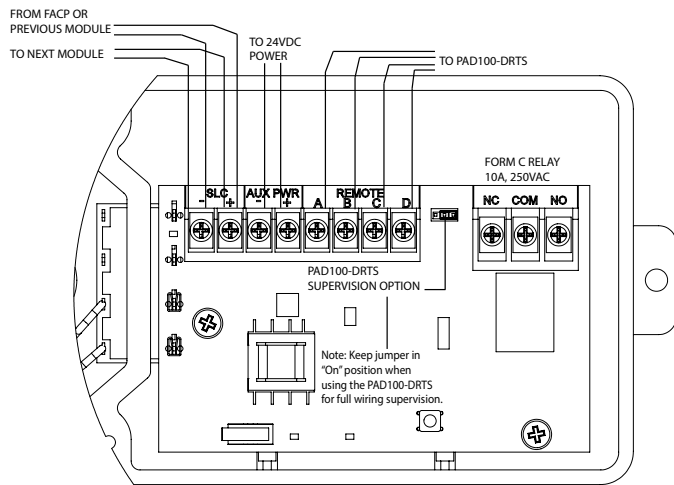
MS-KA/P/R Wiring
Fig 2
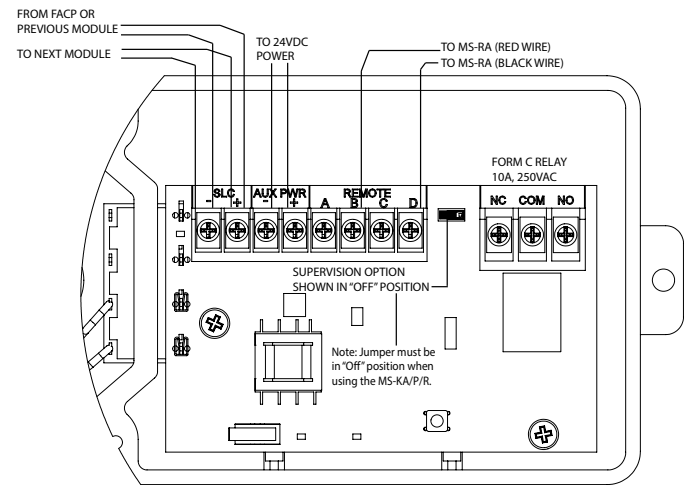
Ordering Information

Model	Description	Stock No.
PAD100-DUCTR	Analog Addressable Duct Detector	3992712
PAD100-DRTS	Duct Remote Test Switch	3992711
MS-RA	Remote Annunciator	1000256
MS-KA/P/R	Remote Annunciator with Test Switch	1000253

Model	Description	Stock No.
STN-2.5	2.5' Sampling Tube	1000274
STN-5	5' Sampling Tube	1000275
STN-10	10' Sampling Tube	1000276

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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, octagon or 4" square box
- Locking tab prevents unauthorized detector removal
- Product includes 5 year warranty

UL LISTED

Application

The Potter PAD100-6DB and PAD100-4DB detector bases are used to install Potter's addressable smoke and heat detectors. The PAD100-6DB will mount on a single gang, double gang, octagon or 4" square electrical box.

Description

The PAD100-6DB and PAD100-4DB 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 14 AWG. When installed on recessed electrical boxes the PAD100-6DB 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

Mounting Options	Single gang, double gang, octagon, and 4" square box
Terminals	Screw-Clamp Type
Wire Guage	22 to 12 AWG
Dimensions	Diameter: 6.3 in (166 mm)
	Height 0.72 in (18 mm)
Shipping Weight	87g (3.07 oz)
Material	Durable Plastic

Locking Feature

The PAD100-6DB and PAD100-4DB include a locking feature that prevents removal of the detector without using a tool.

1. To eliminate this feature, break off the locking tab (refer to Figure 1), and then install the detector.

Fig. 1

Break off tab (gray area) in image to disable locking feature.
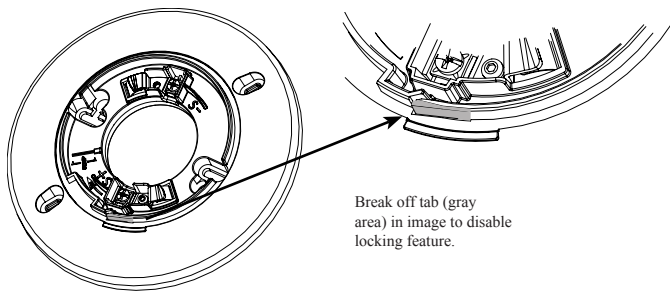
2. To remove the detector from the base when the locking feature has been enabled, insert a small screw driver into the slot on the base to push the plastic tab while simultaneously turning the detector head counter-clockwise.

Fig. 2

Insert small screwdriver into slot to remove detector from base.

Wiring Diagram

Fig. 3

To FACP Loop (SLC)

First Detector Base

S+

S-

Last Detector Base

S+

S-
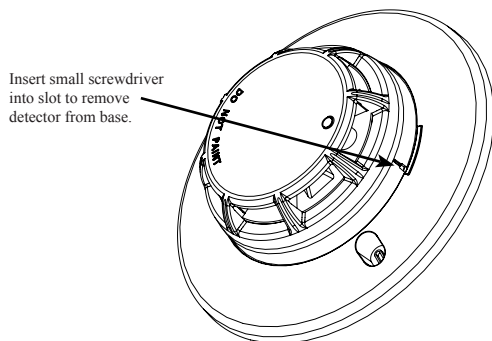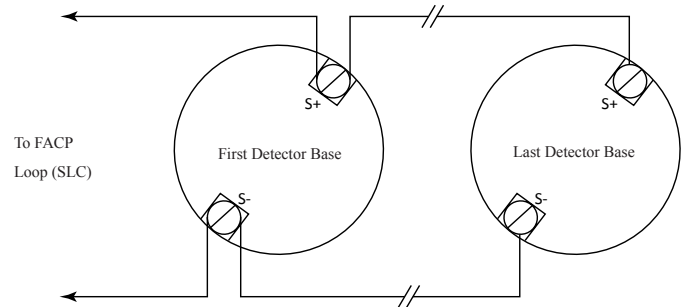
Ordering Information

Model	Description	Stock No.
PAD100-6DB	6" Sensor Base	3992732
PAD100-4DB	4" Sensor Base	3992731

P POTTER
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Features

- Low profile, less than 2 inches with the base
- Wide selectable sensitivity range of 1.0 to 3.7%/foot
- Sensor 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
- LED alarm indicator
- Product includes a 5 year warranty

UL LISTED

Description

The Photoelectric Smoke Sensor is a listed Analog Addressable smoke sensor compatible with fire alarm control panels that utilize the Potter Addressable Device (PAD) protocol. The PAD100-PD is a low profile smoke sensor with a wide sensitivity range. The sensor and base (not included) are made of a durable plastic in an off-white color to blend in with the ceiling.

The PAD100-PD has a sensitivity range of 1.0 to 3.7 % per foot and is UL. The PAD100-PD features drift compensation and has built in dirty detector warning as well as. The PAD100-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 sensor is compatible with any of the PAD series sensor bases and simply twists on. The PAD100-PD is addressed using DIP switches in the rear of the sensor 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
Alarm indicator	1 LED
Alarm set-point range	1.0 to 3.7 %/ft 3.6-12 %/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)	101g (3.56oz)
Dimensions (without base)	Height: 1.35 in (34mm) Diameter: 3.93 in (100 mm)

Air Velocity Ratings

The PAD100-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 PAD100-PD will operate even though the LED may not illuminate.

Operation

The PAD100-PD is an analog addressable sensor 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 PAD100-PD with the PAD100-4DB or PAD100-6DB has a low profile of less than two (2) inches to blend into the surrounding environment. The sensor includes an insect screen to prevent foreign objects from reaching the chamber and the can be cleaned to restore operation of a dirty detector.

Sensor Sensitivity

The PAD100-PD and the compatible control panel work in tandem to keep the sensitivity consistent. As the sensor is installed over time, the sensor compensates for the dirt in the unit until it is out of range. At that time, the panel will indicate a dirty sensor. The sensor will then have to be cleaned or replaced.

The PAD100-PD can be programmed to provide a maintenance alert prior to reaching the dirty sensor level which will allow for intervention prior to the sensor going into trouble. This allows for sensor replacement or cleaning prior to a nuisance trouble occurs.

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

Spacing

The PAD100-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, double gang, octagon, 4" square or mud ring electrical box.

Device	Description	Stock No.
PAD100-4DB	4" Standard Base	3992731
PAD100-6DB	6" Standard Base	3992732
PAD100-IB	6" base with an isolator module included.	3992730
PAD100-RB	6" base with one Form-C relay contact. 2A @ 30VDC, 0.5A @ 125VAC	3992728
PAD100-SB	6" base with sounder module included. Sound pattern is provided from external source.	3992729

Ordering Information

Model	Description	Stock No.
PAD100-PD	Photoelectric Smoke Sensor	3992733

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Features

- Selectable Rate of Rise and/or Fixed Heat Detector
- Low profile
- Reliable detection technology
- LED Alarm Indicator
- Ambient temperature listing of 32° F to 150° F
- Simple DIP switch address setting, no programming tool required
- Product includes a 5 year warranty

UL LISTED

Description

The PAD100-HD is a listed Analog Addressable rate of rise and/or fixed temperature heat sensor compatible with any fire alarm control panel that has the Potter Addressable Device (PAD) protocol. The heat sensing portion utilizes a proven thermistor for accurate and reliable heat detection. The sensor and base (not included) are made of a durable plastic in an off white to blend in with the ceiling.

The PAD100-HD is UL listed with a selectable fixed temperature point from 135° to 185° Fahrenheit and can be used for rate of rise applications. See detector spacing limitations below. This flexibility allows the installer to cover a wide variety of applications with a single unit.

The PAD100-HD 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 sensor is compatible with any of the PAD series sensor bases and simply twists on. The PAD100-HD is addressed using DIP switches in the rear of the sensor 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
Alarm indicator	1 LED
Alarm set-point range	135 to 185 °F/ 57 to 85 °C
Installation temperature range	32 to 150 °F / 0 to 66 °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)	82g (2.89 oz)
Dimensions (without base)	Height: 1.94 in (49mm) Diameter 3.93 in (100mm)

Operation

The PAD100-HD is an analog addressable sensor 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 LED flashes every time the unit is polled and 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 PAD100-HD with the PAD100-4DB or PAD100-6DB has a low profile to blend into the surrounding environment. The system has a maximum of 30 LEDs that can be turned on simultaneously. If the system already has 30 LEDs on, the PAD100-HD will operate even though the LED will not illuminate.

Spacing

The ANSI/UL listed spacing limitations of PAD100-HD smooth ceiling are dependent on alarm set point.

Alarm Set-Point	Rate of Rise Spacing	Fixed Temperature Spacing
135°F to 160°F (57°C to 71°C)	Max. 70 ft.	Max. 70 ft.
161°F to 174°F (72°C to 79°C)	Max. 60 ft.	Max. 60 ft.
175°F to 185°F (80°C to 85°C)	Max. 15 ft.	Max. 15 ft.

Compatible Bases

All bases will mount on a single gang, double gang, octagon, 4" square or mud ring electrical box.

Device	Description	Stock No.
PAD100-4DB	4" Standard Base	3992731
PAD100-6DB	6" Standard Base	3992732
PAD100-IB	6" base with an isolator module included.	3992730
PAD100-RB	6" base with one Form-C relay contact. 2A @ 30VDC, 0.5A @ 125VAC	3992728
PAD100-SB	6" base with sounder module included. Sound pattern is provided from external source.	3992729

Ordering Information

Model	Description	Stock No.
PAD100-HD	Fixed Temperature Heat Sensor	3992735

Features

- 100 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, ideal for manual release and abort
- 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
- Cabinet will house up to 18 AH batteries
- Optional two line DACT with UD-1000 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

Description

The AFC-100 is an analog/addressable releasing fire alarm system with a total system capacity of 100 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-100 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 GentexAMSECO, System Sensor and Cooper/Wheelock and with the exclusive Quadrasync each output may have a unique brand and all strobes will flash together. The I/Os are designed for inputs such as manual release stations and abort switches that will not require polling and react nearly instantaneously.

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-100 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 loop expansion cards. The cards mount on a stacker bracket that allows access to all SLC circuit connections.

Technical Specifications

Dimensions	16"W x 17"H x 3 $^7/_8$"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 • 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	• NFPA 12, 12A, 13, 15, 16, 17, 17A, 70, 72, 750, and 2001 • 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 2000, 2003, 2006, 2009, 2012

SLC Loop Accessories

The control panel may be connected with up to 100 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
PAD100-PD	Analog Photo Electric Smoke Detector is a smoke detector with a listed obscuration of 1.02 to 3.83 percent per foot.
PAD100-PHD	Combination Analog Photo Electric Smoke/Heat Detector – a smoke detector with a listed obscuration of 1.02 to 3.83 percent obscuration and a fixed temperature 135° Fahrenheit heat detector.
PAD100-HD	Analog Fixed (135d-185dF) or Rate-of-Rise Heat Detector (software selectable)
PAD100-DUCTR	Addressable Duct Smoke Detector with Form C Relay. Addressable Duct Smoke Detector with Form C relay rated at 10a @ 250/120VAC or 8amps at 30VDC.
PAD100-DUCT	Addressable Duct Smoke Detector.
PAD100-6B	6" round base that is mounted to an electrical box and wired for connection of one of the above sensors.
PAD100-4B	4" round base that may be mounted to an electrical box and wired for connection to the above sensors.
PAD100-IB	Isolator base that interrupts a short in a SLC and prevents the short from affecting protected devices on the loop.
PAD100-RB	Addressable Relay Base that contains one relay controlled by the SLC. Relay is rated at rated at 2 amps at 30 VDC or 0.5A at 125VAC.
PAD100-SB	Addressable Sounder Base that contains an addressable sounder module that may be configured for local, group and all call.
PAD100-CD	Addressable CO gas detector.
PAD100-DD	Addressable photo electric smoke detector for use in DUCT/DUCTR enclosure.

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-100 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 I/Os and a P-Link repeater. This panel is listed in conjunction with the AFC-100 as releasing circuits.

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

UD-1000 – 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.

AE-2 – Two card expansion cabinet

AE-8 – Eight card expansion cabinet

AE-14 – Fourteen card expansion cabinet

Ethernet/I.P. Connection

The AFC-100 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.

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Dimensions

TOP

DEPTH = 3.75 "

DOOR = 16.07"
BACKBOX = 15.77"

DEPTH = 3.84 "

DOOR = 16.78 "
BACKBOX = 16.56"

LEFT SIDE

RIGHT SIDE

BOTTOM
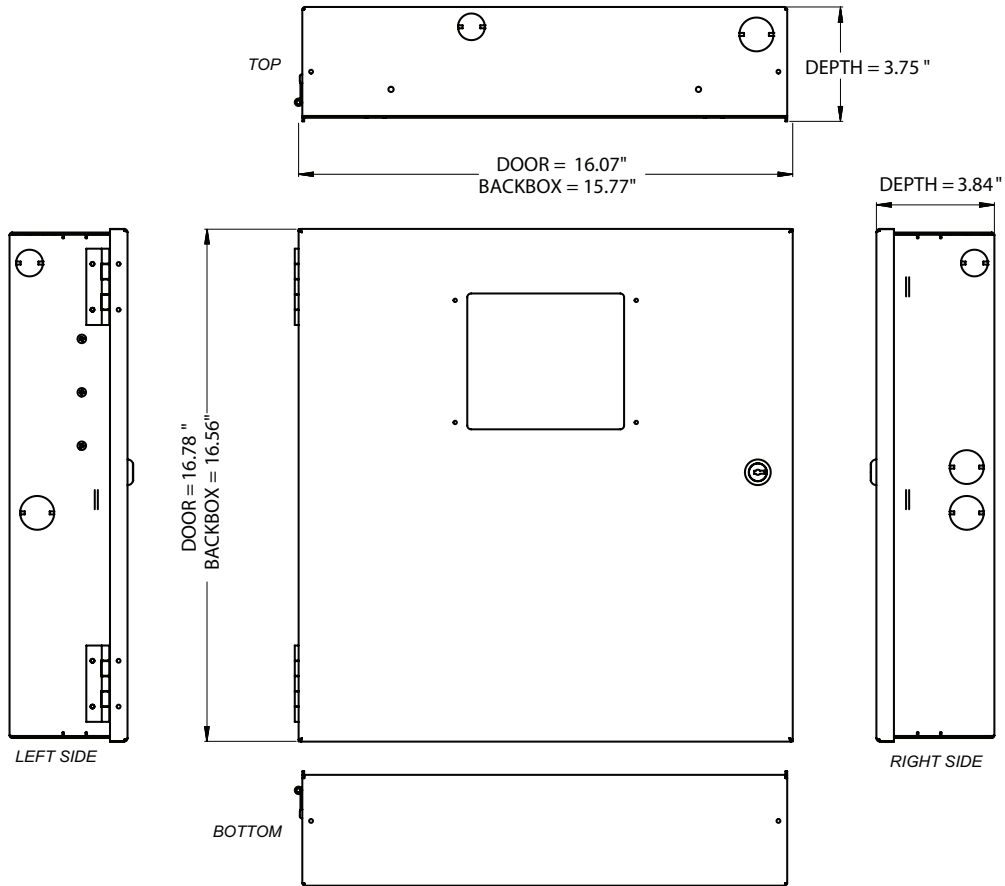
DWG #593-1

Ordering Information

Model	Description	Stock No.
AFC-100	Fire Alarm Releasing Control Panel	3992753

Features

- Allows for communication to Monitoring Station
- Communicates using SIA-DCS or Ademco Contact ID Protocols
- For use with IPA, AFC, and ARC series Addressable Panels and PFC-4064 Conventional Panel
- Status LEDs indicate operation of DACT card
- Installs with ease behind main panel LCD display via User Interface bracket
- Device address is set internally to address 1
- Includes two (2) RJ45 phone cords
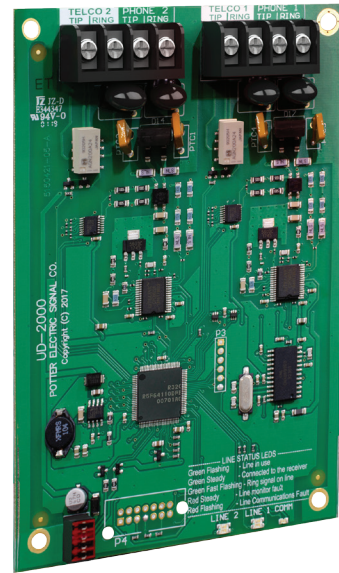
Description

The UD-2000 Digital Alarm Communicator Transmitter (DACT) provides for up to two (2) phone lines for communication to a monitoring station. The UD-2000 communicates using the SIA-DCS or Ademco Contact ID protocols. When enabled, the DACT automatically monitors each phone line or 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 DACT is provided with terminal blocks for each phone line and two RJ45 cords. In order for the DACT to work properly, it must be installed on a plain old telephone service (POTS) line or equivalent deemed by the authority having jurisdiction. The DACT must be installed before any other equipment to ensure it can seize the phone line.

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.

Technical Specifications

Operating Voltage	22.0-24.0V
Standby Current	16mA
Alarm Current	23mA
Max UD-2000s per panel	1
Dimensions	4"W * 6"H * 1-5/8"D
Operating Tempuratures	0°C - 49°C (32°F- 120°F)
Operating Humidity Range	10% - 93% @ 30°C (86°F) (non-condensing)
Mounting Options	In FACP Behind keypad
Shipping Weight	0.47 lbs

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RJ31X Phone Jack to UD-2000
Plain Old Telephone (POTS) lines

Out to Premises Phones — Tip (Brown) / Ring (Grey)

1 - Grey
2 - Tan
3 - Black
4 - Red
5 - Green
6 - Yellow
7 - Blue
8 - Brown

Ring (Grey) / Tip (Brown) — Out to Premises Phones

Line In From Telco — Ring (Red) / Tip (Green)

Tip (Green) / Ring (Red) — Line In From Telco

Telco 2 — Tip Ring   Phone 2 — Tip Ring   Telco 1 — Tip Ring   Phone 1 — Tip Ring

UD-2000 Communicator
Telco Tip = Red
Telco Ring = Green
Phone Tip = Brown
Phone Ring = Grey
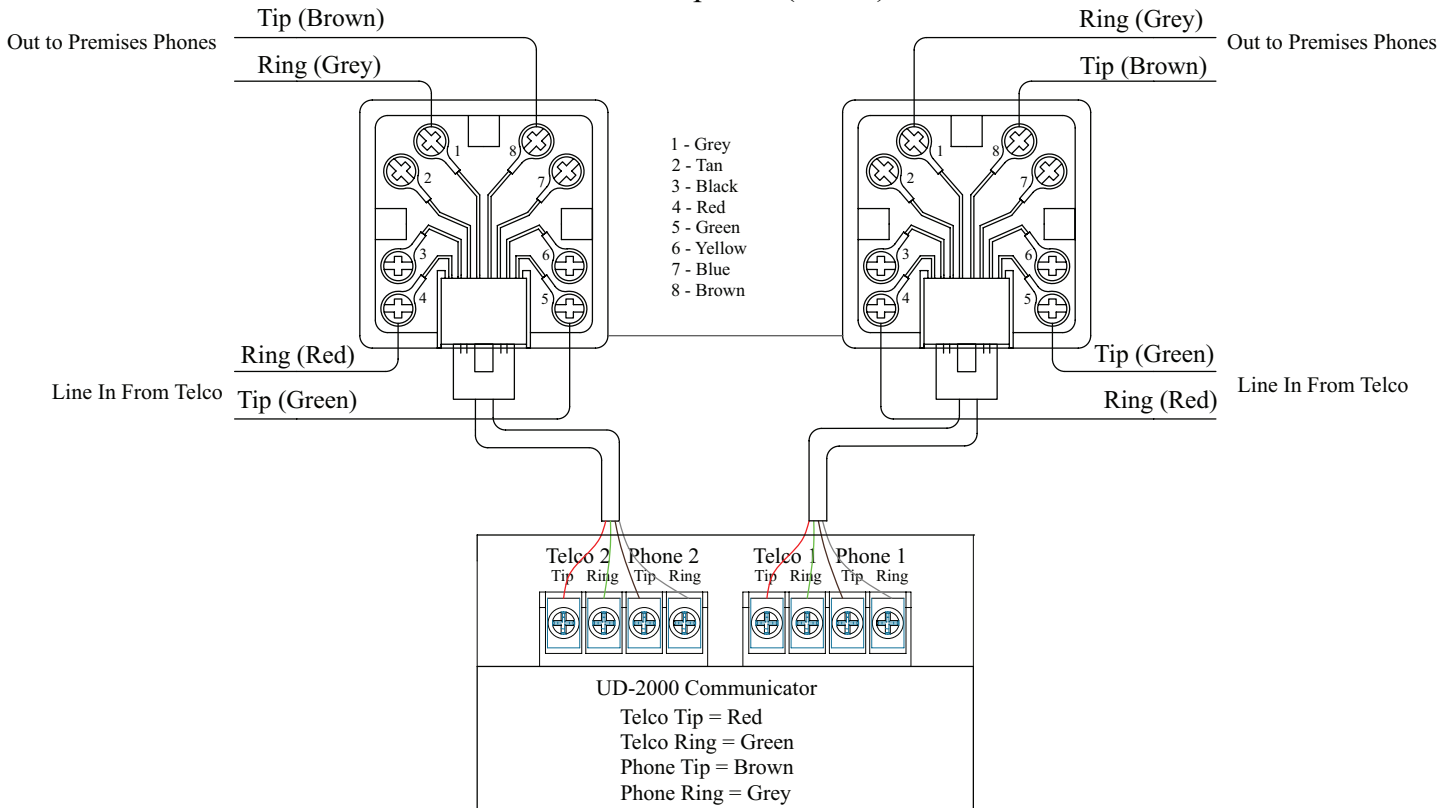
NOTICE
Install in accordance with compatible fire alarm control panel installation manual

Installation

The UD-2000 DACT is connected to the control panel using the provided four-wire cable connection (P/N 5210514) between P4 and UD-2000 P1. The connection is power limited and supervised.

1. Power system down.
2. Slide the UD-2000 into the card guides located under the User Interface bracket.
3. Secure the UD-2000 to the User Interface bracket using the provided #6-32x3/8" screw
4. Install the provided four-wire conductor jumper between UD-2000 P1 and P4.

UD-2000 DACT Installation on Small Platform Panel
Fig 1

Screw

Slides in guides under main board.

DWG #593-32A

P Connector on small platform control panel

Screw
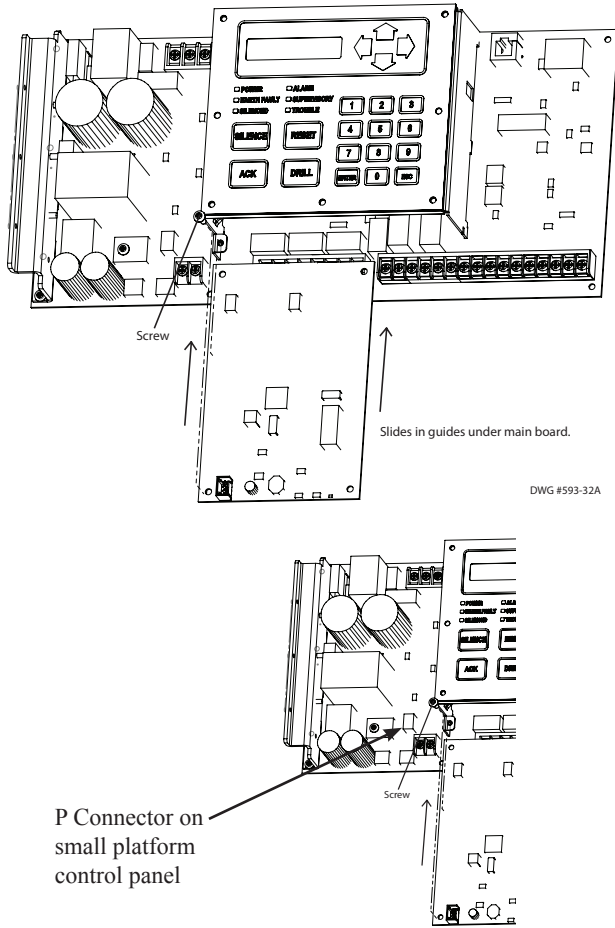
UD-2000 DACT Installation on Large Platform Panel
Fig 2

P Connector on main board
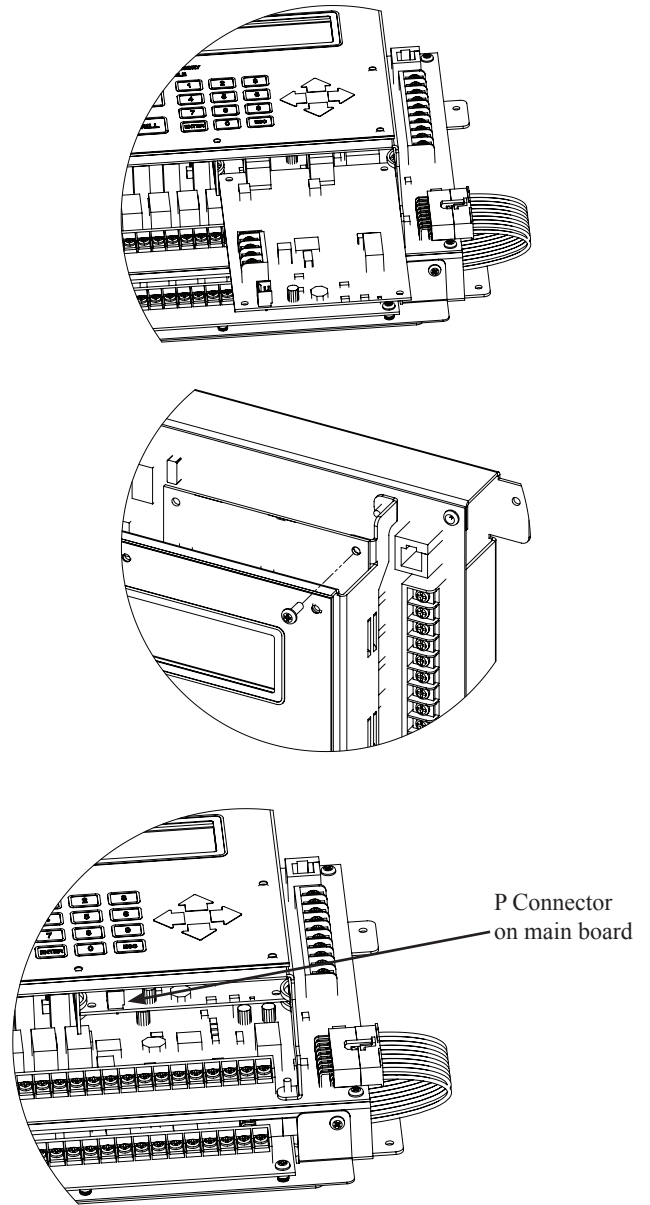
Ordering Information

Model	Description	Stock No.
UD-2000	Digital Alarm Communicator	3992769

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AFC-100
Battery & Voltage Drop
Calculations

Project Name:		**Standby Hours:** 24
		Alarm Mins: 5
Installed By:		**Batt Efficiency:** 80%
Designed By:		**SLC Type:** Class B
Date:		**NAC Source Voltage:** 20.4

Model #: AFC-100

Panel ID:

Location:

Max Panel Current (amps): 5

User assumes all responsibility to ensure the quantities and current draw values in this worksheet are accurate prior to submittal.

Qty	FACP Part #	Description	Standby (amps) Each	Total	Alarm (amps) Each	Total
1	AFC-100	Analog Addressable FACP	0.130	0.130	0.220	0.220
			Panel Standby:	**0.130**	**Panel Alarm:**	**0.220**

Qty	P-LINK (RS-485) Part #	Description	Standby		Alarm	
1	UD-1000	DACT Card	0.016	0.016	0.023	0.023
	RA-6075R	LCD Annunciator	0.020		0.025	
	RA-6500R(F)	Flush Mount LCD Annunciator	0.020		0.050	
	LED-16(F)	Flush Mount LED Annunciator	0.025		0.025	
	LED-16	LED Annunciator LED Power*	0.015		0.210	
	CA-6075	Class A Module	0.012		0.044	
	PSN-1000(E)	Power Expander	0.015		0.015	
	PAD100-SLCE-127	SLC Expander	0.060		0.060	
	NOHMI-SLCE-127*	SLC Expander	0.060		0.060	
	RLY-5	Relay Expander	0.025		0.035	
	RLY-5	Relay Expander Power*	0.010		0.135	
	DRV-50	LED Driver Module	0.025		0.025	
	DRV-50	LED Driver Module LED Power*	0.010		0.215	
	FCB-1000	Fire Communications Bridge	0.025		0.025	
	FIB-1000	Fiber Interface Board	0.030		0.030	
	MC-1000	Multi-Connect Expander	0.010		0.010	
	SPG-1000	Serial Parallel Gateway	0.040		0.040	

*REQUIRED IF USING NOHMI PROTOCOL SLC DEVICES

(Maximum current draw on P-Link limited to 1 Amp) **P-LINK Standby: 0.016** **P-LINK Alarm: 0.023**

Only enter quantity if PLINK power is being used to power devices

Qty	SLC Devices	Description	Standby		Alarm	
10	PAD100-PD	Analog Photo Smoke	0.000300	0.003000	0.000300	0.003000
	PAD100-PHD	Analog Photo Smoke/Heat	0.000300		0.000300	
2	PAD100-HD	Analog Fixed Temp Heat	0.000300	0.000600	0.000300	0.000600
	PAD100-CD	Analog Carbon Monoxide Detector	0.000300		0.000300	
2	PAD100-DRTS	Duct Remote Test Switch	0.010000	0.020000	0.015000	0.030000
	PAD100-DUCT	Addressable Duct Detector	0.000300		0.000300	
2	PAD100-DUCTR*	Addressable Duct Detector w/Relay	0.000500	0.001000	0.000500	0.001000
9	PAD100-PSSA/PSDA	Addressable Pull Station Single/Dual Action	0.000200	0.001800	0.000200	0.001800
	PAD100-MIM	Micro Input Module	0.000200		0.000200	
	PAD100-SIM	Single Input Module	0.000240		0.000240	
2	PAD100-DIM	Dual Input Module	0.000240	0.000480	0.000240	0.000480
4	PAD100-RM	Relay Module	0.000240	0.000960	0.000240	0.000960
	PAD100-OROI	One Relay One Input Module	0.000240		0.000240	
	PAD100-TRTI	Two Relay Two Input Module	0.000240		0.000240	
	PAD100-ZM*	Conventional Zone Module	0.000240		0.000240	
	PAD100-NAC*	Notification Appliance Circuit	0.000200		0.000200	
	PAD100-SM	Speaker Module	0.000240		0.000240	
	PAD100-IM	Isolator Module	0.000150		0.000150	
	PAD100-LED	LED Module	0.000240		0.000240	
	PAD100-LEDK	Addressable LED w/ Key Switch	0.000200		0.000200	
	PAD100-SB*	Addressable Sounder Base	0.000200		0.000200	
	PAD100-RB	Addressable Relay Base	0.000200		0.000200	
	PAD100-IB**	Addressable Isolator Base	0.000150		0.000150	
	PSA	Analog Photo Smoke	0.000325		0.000325	
	PSHA	Analog Photo Smoke/Heat	0.000325		0.000325	
	RHA	Analog Rate of Rise Heat	0.000325		0.000325	
	FHA	Analog Fixed Temp Heat	0.000325		0.000325	
	DDA	Addressable Duct Detector	0.000325		0.000325	
	APS-SA/APS-DA	Addressable Pull Station Single/Dual Action	0.000325		0.000325	
	MCM	Mini Contact Input Module	0.000325		0.000325	
	SCM-4	Single Contact Input Module	0.000325		0.001000	
	DCM-4	Dual Contact Input Module	0.000325		0.001000	
	TRM-4	Twin Relay Output Module	0.000325		0.001000	
	CIZM-4 *	Conventional Zone Input Mod	0.000325		0.001000	
	MOM-4 *	Monitored Output Module	0.000325		0.001000	
	ARB	Detector Base w/Relay	0.000325		0.000325	

ASB *	Detector Base w/Sounder	0.000325		0.000325	
SCI **	Short Circuit Isolator (Class A)	0.000325		0.002340	
AIB **	Detector Base w/Isolator (Class A)	0.000325		0.002340	
IM/IB/SCI/AIB Class B **	Current Draw from Install Manual				
	SLC Loop Alarm LED Current	0.000000	0.000000	0.036000	0.036000

*	Requires Aux Power (Configure Below)	**SLC Standby:**	**0.027840**	**SLC Alarm:**	**0.073840**
**	See the installation manual for special considerations when installing AIB, SCI devices on Class B loops.			

NAC Circuits (See NAC Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1			0.00000	3.00000
2			0.00000	1.00000
		NAC Standby:	0.00000	NAC Alarm: 4.00000

I/O Circuits (See I/O Configuration below)			Standby (amps)	Alarm (amps)
Ckt	Use	Description	Total	Total
1			0.00000	0.00000
2			0.00000	0.00000
		I/O Standby:	0.00000	I/O Alarm: 0.00000

Battery Calculation Summary

	Standby (amps)	Alarm (amps)
Panel Current:	0.13000	0.22000
P-Link Current:	0.01600	0.02300
SLC Device Current:	0.02784	0.07384
NAC Circuit Current:	0.00000	4.00000
I/O Circuit Current:	0.00000	0.00000

SLC Loop Type: Class B

Device Addresses Used 29

Device Addresses Available: 100

Total Standby:	0.173840	Total Alarm:	4.31684
Standby Hours:	24	Alarm Mins:	5
AH Required:	4.18	AH Required:	0.36

Total Combined Standby & Alarm AmpHours Required:	4.54
Efficiency Factor:	80%
Required Battery AmpHours:	5.68
Battery AmpHours Provided:	7

Note: The cabinet will house two 8 AH or 18 AH batteries. The charging circuit is rated for up to two 55 AH batteries.

NAC Circuit Configuration & Voltage Drop

NAC 1   MAX Circuit Current (amps): 3   Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp:	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	3.000	20.40	16

Qty	Circuit Devices Lookup Type	Description	Standby (amps) Each	Total	Alarm (amps) Each	Total
		User can add devices on the fly				
		to these bottom 5 rows				
1	NAC	(No lookup function)			3.000000	3.000000
			Total Standby:	0.00000	Total Alarm:	3.00000

NAC 2   MAX Circuit Current (amps): 3   Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp:	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	1.000	20.40	16

Qty	Circuit Devices Lookup Type	Description	Standby (amps) Each	Total	Alarm (amps) Each	Total
		User can add devices on the fly				
		to these bottom 5 rows				
1	Nac maximum	(No lookup function)			1.000000	1.000000
			Total Standby:	0.00000	Total Alarm:	1.00000

POTTER
The Symbol of Protection

I/O Circuit Configuration & Voltage Drop

I/O 1   MAX Circuit Current (amps): 1   Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp:	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Circuit Devices Lookup Type	Description	Standby (amps) Each	Total	Alarm (amps) Each	Total
		User can add devices on the fly				
		to these bottom 5 rows				
		(No lookup function)				
			Total Standby:	0.00000	Total Alarm:	0.00000

I/O 2   MAX Circuit Current (amps): 1   Source Voltage Used (VDC): 20.4

Usage: Description:

Wire Type	Ohms/1000ft	Length 1-Way	Actual Ohms	Max Load (amp:	Volts @ EOL	Min Volts Req'd
#14 Solid	2.5		0.000	0.000	20.40	16

Qty	Circuit Devices Lookup Type	Description	Standby (amps) Each	Total	Alarm (amps) Each	Total
		User can add devices on the fly				
		to these bottom 5 rows				
		(No lookup function)				

			Total Standby:	0.00000	Total Alarm:	0.00000

Prosthodontics Associates
Device List

Quantity	Item	Description
1	AFC-100	Fire Panel, 127 points, 2 NACs, 5 amps, 2 I/O circuits
2	Bat 12-7	Battery 12 volts, 7 amp/hours
1	UD-2000	Duct for Potter panels
1	E120V-GT	Space Age 120 VAC surge protector and breaker label
10	PAD-100-PD	Addressable smoke detector
2	PAD-100-HD	Addressable Heat
12	PAD-100-6B	Detector base
2	PAD-100-DIM	Dual input
4	PAD-100-RM	Addressable Relay module
1	SSU00673	Space Age Fire Document cabinet
9	PAD-100-PSDA	Addressable dual action pull station
2	PAD-100-DUCTR	Duct detector
2	PAD-100-DRTS	Duct detector remote station
2	STN-5	Duct detector tube

DURACELL® SLA Batteries
ULTRA

Duracell® Ultra SLA technology offers high-density power that out-performs traditional lead acid batteries. The Absorbed Glass Mat (AGM) construction is designed for efficient gas recombination and allows for maintenance-free operation. Duracell® Ultra SLA batteries maintain their high capacity with a design that is resistant to damage caused by deep discharge. Every Duracell® Ultra SLA battery is inspected to ensure the highest standards in materials and fabrication.

50-150
Cycles at 100% Discharge

SPILL PROOF GUARANTEE

Features:

- Duracell® Ultra SLA GEL batteries contain a proprietary grid alloy formula combined with advanced plate curing techniques to provide maximum performance.
- Duracell® Ultra batteries contain a unique electrolyte formula with a special sub-colloid additive for higher reliability and longer life.
- Will achieve more life cycles than standard AGM and Deep Cycle batteries.
- The unique construction and sealing techniques of these batteries are guaranteed to give you leak-proof operation.
- Heavy-duty lead calcium tin alloy grids provide an extra margin of performance and service life in cyclic applications, even after repeated over-discharges.
- Quality Assurance Engineers monitor and control the entire production process.
- Recycling of used SLA batteries available.
- Delivery available.

CASE Quantities AVAILABLE

Sealed **Lead** Acid

Maintenance Free

Spill Proof Design

1 YEAR — 1 Year Warranty

Stringent Quality Control

DURACELL® ULTRA

SLA Batteries

General Purpose

Battery	Volts	Capacity Ah (20Hrs)	Dimensions (LxWxH Inches)			Terminal Type	Group Size	Weight (Lbs.)
DURA12-0.8WL	12V	0.8	3.78	0.98	2.4	WL	-	0.77
DURA12-1.3F	12V	1.3	3.82	1.69	2.28	F1, T1	-	1.37
DURA12-2.3F	12V	2.3	6.97	1.38	2.64	F1, T1	-	2.04
DURA12-2.9F	12V	2.9	3.11	2.2	3.9	F1, T1	-	2.36
DURA12-3.3F	12V	3.3	5.28	2.64	2.63	F1, T1	-	3.18
DURA12-3.3F2	12V	3.3	-	-	-	-	-	-
RAYA12-4F	12V	4	3.54	2.76	4.21	F1, T1	-	-
DURA12-5F	12V	5	3.54	2.76	4.21	F1, T1	-	-
DURA12-5F2	12V	5	3.56	2.77	3.94	F2, T2	-	-
DURA12-5.1A	12V	5.1	5.51	1.89	4.21	F1, T1	-	4.6
DURA12-5.5F	12V	5.5	3.54	2.76	3.98	-	-	-
RAYA12-7F	12V	7	5.95	2.56	3.94	F1, T1	-	-
DURA12-7F	12V	7	5.94	2.56	3.94	F1, T1	-	-
DURA12-7F2	12V	7	5.94	2.56	3.7	F2, T2	-	-
DURA12-8F	12V	8	5.94	2.56	3.94	F1, T1	-	-
DURA12-8F2	12V	8	5.94	2.56	3.94	F2, T2	-	-
DURA12-9NB	12V	9	5.95	2.56	3.9	NB, J	-	-
DURA12-9F2	12V	9	5.95	2.56	3.94	F2, T2	-	-
DURA12-10F2	12V	10	5.95	2.54	4.38	F2, T2	-	7.5
DURA12-11NB	12V	11	5.28	3.15	6.5	-	-	10.1
DURA12-12F2	12V	12	5.94	3.9	3.98	F2, T2	-	-
DURA12-12F	12V	12	5.94	3.86	3.86	F1, T1	-	-
DURA12-14F2	12V	14	5.94	3.86	3.98	F2, T2	-	8.91
DURA12-18F2	12V	18	7.13	3.03	6.57	F2, T2	-	-
DURA12-18NB	12V	18	7.13	3.03	6.57	NB, J	-	12.43
DURA12-26NB	12V	26	6.5	6.93	4.92	NB, J	-	20.7
DURA12-35C	12V	35	7.72	5.16	6.5	C	-	27.3
DURA12-44C/FR	12V	46	7.8	6.54	6.85	C	-	38
DURA12-55C/FR	12V	55	9.02	5.43	8.35	-	-	42.1
DURA12-80C/FR	12V	80	10.24	6.65	8.46	C	-	-
DURA12-100C/FR	12V	100	12.09	6.65	8.46	C	-	74.6
DURA12-140C/FR	12V	140	13.43	6.81	11.3	C	-	108
DURA4-4.5F2	4V	4.5	1.85	1.85	3.98	F2, T2	-	1.4
DURA6-1.3F	6V	1.3	3.82	0.94	2.28	F1, T1	-	0.715
DURA6-2ST	6V	2	1.69	1.45	2.99	ST	-	0.75
DURA6-2.9F	6V	2.9	2.6	1.46	3.82	F1, T1	-	1.26
DURA6-3.3F	6V	3.3	5.28	1.34	2.64	F1, T1	-	1.65
RAYA6-4F	6V	4	2.76	1.85	4.13	F1, T1	-	-
DURA6-5SP	6V	5	2.6	2.6	4.53	SP	-	2.09
DURA6-5F	6V	5	2.76	1.85	4.21	F1, T1	-	-
DURA6-7.2F	6V	7.2	5.94	1.34	3.68	F1, T1	-	2.43
DURA6-8.2F	6V	8.2	3.9	2.24	4.53	F1, T1,	-	3.8
DURA6-10F	6V	10	5.94	1.97	3.98	F1, T1	-	4.851
DURA6-12F	6V	12	5.94	1.97	3.98	F1, T1	-	-
DURA6-12F2	6V	12	5.94	1.97	3.98	F2, T2	-	4.602
RAYA6-14T2	6V	14	4.25	2.8	5.51	H	-	6.24
DURA6-14A	6V	14	4.25	2.8	5.51	F1 (-) F2 (+), T1 (-) T2 (+), FP	-	6.16
DURA6-42F2	6V	42	6.25	3.37	6.37	F2, T2	-	16.64
DURA6-42NB	6V	42	6.34	3.43	6.42	NB, J	-	16.62
DURA6-200C	6V	200	12.05	6.65	8.63	C	-	-
DURA8-3.2F	8V	3.2	5.28	1.44	2.48	F1, T1	-	1.65

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Batteries+Bulbs

Sequence of Operations

	Audio/visual activation globally on general alarm	Audio/visual activation locally within the unit on local alarm only	Activate audible/visual signal at FACP & Annunciator	Device Description at FACP & Annunciator	Shutdown of HVAC equipment	Log event in system history	Activate Elevator Fire Hat	Activate Elevator primary or secondary control	Activate Elevator shunt trip	Silence of audible devices Including FACP & annunciator	Release door holders	Release locked doors	Event acknowledgement	Reset of all system functions and all visual devices	Remote transmission to Central Station A=alarm; T=trouble; S=Supervisory; L = log only	Remote indicator
Manual Pull Stations	X		X	X		X					X	X			A	
Smoke detectors common area	X		X	X		X					X	X			A	
Smoke detectors elevator lobbies	X		X	X		X		X			X	X			A	
Smoke Detectors elevator shaft/machine room	X		X	X		X	X	X			X	X			A	
Duct mounted Smoke Detectors			X	X	X	X									S	X
Smoke detectors with sounder base		X	X	X		X									S	
Sounder on smoke detector with sounder base	X															
Heat Detectors common area	X		X	X		X					X	X			A	
Heat Detectors Elevator shaft/machine room	X		X	X		X	X		X		X	X			A	
Sprinkler flow or pressure switches	X		X	X		X					X	X			A	
Sprinkler Tamper, low temp, or low air			X	X		X									S	
Secondary fire panel such as kitchen hood	X		X	X		X					X	X			A	
FACP/annunciator silence button			X	X		X				X					L	
FACP/annunciator acknowledge button			X	X		X							X			

Fire Alarm sequence of operations

Sequence of Operations

	Audio/visual activation globally on general alarm	Audio/visual activation locally within the unit on local alarm only	Activate audible/visual signal at FACP & Annunciator	Device Description at FACP & Annunciator	Shutdown of HVAC equipment	Log event in system history	Activate Elevator Fire Hat	Activate Elevator primary or secondary control	Activate Elevator shunt trip	Silence of audible devices Including FACP & annunciator	Release door holders	Release locked doors	Event acknowledgement	Reset of all system functions and all visual devices	Remote transmission to Central Station A=alarm; T=trouble; S=Supervisory; L = log only	Remote indicator
FACP/annunciator reset button			X	X		X								X	L	
Removal of any device			X	X		X									T	
Ground fault			X	X		X									T	
System wiring "open"			X	X		X									T	
AC Power loss			X	X		X									T	
Secondary power loss			X	X		X									T	
Telephone line loss			X	X		X									T	

Fire Alarm sequence of operations

FAD

Fire Alarm Documents
Records / Programs / Software

The FAD is the perfect fit to meet the demanding code requirements today. SAE's number one goal is to manufacture code compliant solutions and this product allows you to do just that. NFPA 72 section 6.2.2.1 states, "A record of installed software and firmware version numbers shall be maintained at the location of the fire alarm control unit."

This durable 16 gauge steel enclosure with a solid piano hinge and key lock will keep all of your code required documents in one safe place. With a 2GB USB flash drive it stores your fire alarm software safe and secure eliminating the occurrences of the software not being on site when technicians arrive to service the system. Along with your fire alarm software you can store your test & inspection documents, service records, manuals & AS built drawings for the system. Using a standard USB B connector it allows you to plug in with any standard SB printer cable to upload or download information.

The FAD is designed to hold critical manuals and documents with a durable steel sleeve. It has designated hooks to organize key rings and hold important business cards for easy access and reference. Inside the cover it has a organized note table that allows for documentation for passwords and other critical system information. The steel sleeve can be easily removed to hold a 1.5" three ring binder.

The innovation of a single gang cutout inside the box to implement the infinity line products with conduit knockout access enables you to provide other system functions for test and inspection. A drill switch or a shut off switch for testing are just a few examples. See the complete line of Infinity products for single gang electrical product solutions.

FIRE ALARM DOCUMENTS
Records / Programs / Software

NFPA 72 section 10.18.2.1.2.8 If the documents are located in a separate enclosure or cabinet, the separate enclosure or cabinet shall be prominently labeled
FIRE ALARM DOCUMENTS.

Standard Features:

- Installed with a 2 gig digital flash drive with USB B connector
- 2 Key ring hooks to hold system keys
- Business card holder for key contacts
- Overall Dimensions are 12" x 13" tall and 2 ¼ deep
- 16 gauge steel box and cover for security
- durable powercoat baked on finish other colors available
- standard ¾"cat 30 key lock other lock assemblies available
- Solid stainless steel piano hinge
- permanently screened white ink 1" high "Fire Alarm Documents"
- Legend sheet for passwords and system information

ISO 9001 REGISTERED COMPANY

ADA

NF PA

Made In U.S.A.

AceBOX
Space Age Electronics, Inc.
www.1sae.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

No Excuses, Just Solutions!

Specifications:

The Fire Alarm Document Box (FAD) shall be constructed of 18 gauge cold rolled steel, it shall have a red powder coat epoxy finish. The cover shall be permanently screened with 1" high lettering "FIRE ALARM DOCUMENTS" with indelible ink. The access door shall be locked with a ¾" barrel lock and the hinge shall be a solid width 12" stainless steel piano hinge. The enclosure will supply 4 mounting holes.

Inside the enclosure a removable steel sleeve that will accommodate standard 8 ½ x 11 manuals and loose document records that will be protected within the enclosure. A legend sheet permanently attached to the door for system passwords and critical information and inspection notes. The FAD will have permanently and securely mounted inside a minimum of 2GB's digital flash memory drive with a standard USB B connector for uploading and downloading information. The drive shall not be accessible without tools to any person whom gains access to the records. The enclosure shall also provide 2 key ring holders with a location to mount standard business type cards for key contact personell.

USB Storage Interface

Business Card Holder

Key Ring Hooks

CD Jewel Case Area

Drill Switch or Other Infinity Control Module (Not Included)

NOTES:

System Access:
System   Level   Code

EA2613   LT10507   Rev. A   FDB Door Sticker

Space Age Electronics, Inc.   188 Central Street, Suite 1   Hudson, MA 01749   800-486-1723   www.1sae.com

Notes Sticker inside FAD Door

Ordering Information:
Part #   Description

SSU00685 Fire Alarm Storage Cabinet RED

SSU00673 Custom screening with your Logo

Check out our Infinity line eFAD single gang 2 Gig digital storage solutions (IAMEFAD)

AceBOX

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IN FIRE PROTECTION ENGINEERING TECHNOLOGY
FIRE ALARM SYSTEMS

BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE, EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.

Certification Valid through October 1, 2020

CERTIFICATION NUMBER 106322

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