



Portland, Maine



Yes. Life's good here.

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

Fire Alarm Permit Application

Construction Address: 87 Sherwood Street		
Total Square Footage of Proposed Structure: 6200		
Tax Assessor's Chart, Block & Lot Chart# 429 Block# D004001 Lot#		Applicant Name: Guardian Systems of Maine
Cost of Work: \$ 2995.00		Address: 320 Presumpscot Street
Lessee/Owner Name (if different): 8789 Sherwood St LLC/ Kevin Kaserman		Phone: 207-536-4800
Address: 87 Sherwood Street, Portland		Email: rich@guardiansystemsmaine.com
Phone: 207-615-5608		Contractor Name (if different): JR Hall Electric
Email: dkaserman@me.com		Address: 94 Irving Street, Portland, Maine 04103
Current use (i.e. single family): Apartment		Phone: 207-479-1879
If vacant, what was the previous use?		Email: jrhallelectric@gmail.com
Proposed specific use: Apartments with six units and three stories only		
Is property part of a subdivision? If yes, name: No		
Project description: Install sprinkler monitoring system only		
Life Safety Code Occupancy Classification: Apartment		
Is this new work or a renovation to an existing system? New		
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 2019-02000		
Will a master box be installed? <input type="radio"/> Yes <input checked="" type="radio"/> 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? <input checked="" type="radio"/> Yes <input type="radio"/> No		
Name of person to contact when the permit is ready: Beth		
Address: 322 Presumpscot Street		
City, State & Zip: Portland, Maine 04103		
Email Address: beth@cascobayelectric.com		Phone: 207-221-3331

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

(1) GENERAL NOTES:

- A. FIRE ALARM SYSTEM WIRING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, APPLICABLE STATE AND LOCAL CODES, AND SHALL BE COORDINATED WITH THE LOCAL AUTHORITY HAVING JURISDICTION.
- B. CAUTION: DO NOT CONNECT ANY POWER TO THE CONTROL PANEL (BATTERIES OR 120V AC) UNTIL ALL OTHER FIELD WIRING IS TESTED AND CONNECTED.
- C. DO NOT INSTALL FIRE ALARM CONTROL PANEL, NAC POWER SUPPLY PANEL, SMOKE DETECTORS OR ANY ADDRESSABLE DEVICES IN UNHEATED SPACES.
- D. DO NOT INSTALL ANY AC CURRENT-CARRYING CONDUCTORS CLOSE TO OR IN THE SAME RACEWAY WITH FIRE ALARM SYSTEM CONDUCTORS.
- E. SOLID LINES REPRESENT CONNECTIONS TO BE MADE BY THE SYSTEM INSTALLER.
- F. ALL RELAYS ARE SHOWN IN NORMAL SUPERVISORY CONDITION. ALL RELAYS ARE FORM "C" TYPE.

(2) INSTALLATION NOTES

- A. SMOKE DETECTORS SHALL NOT BE MOUNTED ANY CLOSER THAN 3' FROM ANY AIR DUCT OPENINGS
- B. ELEVATOR LOBBY SMOKE DETECTORS SHALL BE MOUNTED WITHIN 10' OF THE ELEVATOR DOOR
- C. MANUAL PULL STATIONS SHALL BE MOUNTED PER ADA REQUIREMENTS: 48" AFF OR 42" AFF TO COMPLY WITH SIDE/FRONT REACH REQUIREMENTS
- D. WALL MOUNTED HORN/STROBES & STROBES SHALL BE MOUNTED 6" FROM CEILING, OR 96" TO 80" AFF TO THE CENTER OF STROBE
- E. HORN/STROBES & STROBES SHALL BE MOUNTED 15' FROM THE CORNER OF THE WALL. IF THIS IS NOT POSSIBLE, DEVICE SHALL BE CENTERED ON THAT WALL.
- F. CEILING MOUNTED HALLWAY DEVICES SHALL BE LOCATED IN A SYMMETRICAL MANNER DOWN CENTER OF HALLWAY WHEN POSSIBLE.
- G. MONITORING REQUIRES TWO FAIRPOINT PHONE LINES UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE.

(3) SEE INITIATION CIRCUITS AND NAC CIRCUITS FOR INTEGRATION OF BOTH SLC AND NAC CIRCUITS

(4) ALL CABLING IS 14/2 FOR THE NAC CIRCUITS UNLESS OTHERWISE SHOWN

(5) ALL CABLING IS 16/2 FOR THE SLC CIRCUITS UNLESS OTHERWISE SHOWN

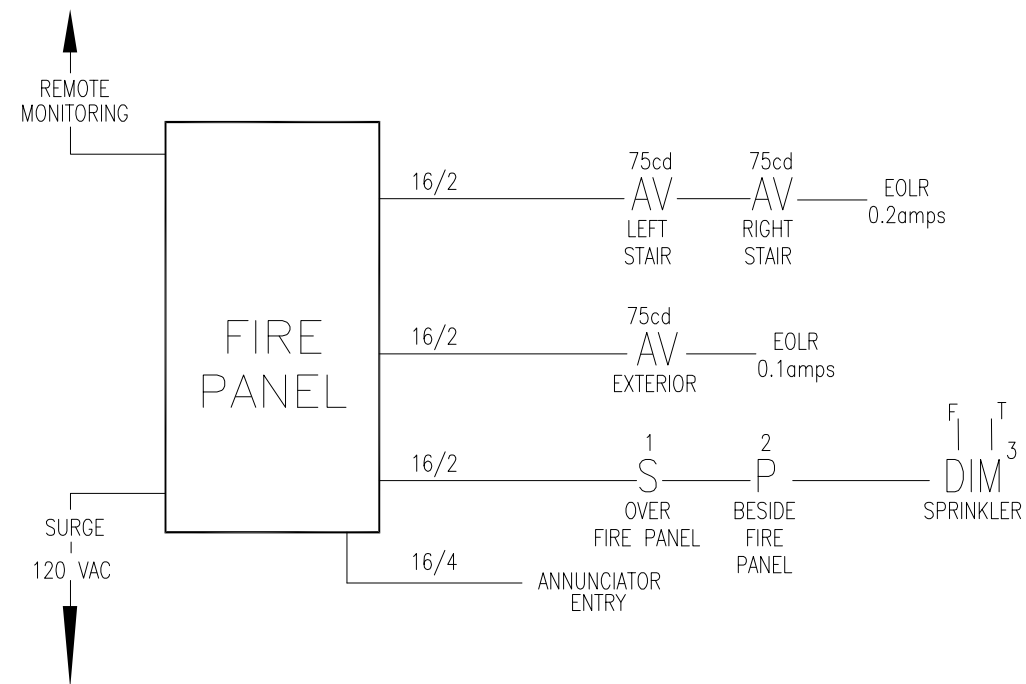
(6)

- | | |
|--------------------------------------|---|
| AC = ALARM CONTROL MODULE | K = KNOX BOX |
| R = ARM = ADDRESSABLE RELAY MODULE | LA = LOW AIR |
| AV = AUDIO VISUAL DEVICE | MM = MINI MODULE |
| (SET TO 15cd UNLESS NOTED OTHERWISE) | P = PULL STATION |
| B = EXTERIOR BEACON | PS = PRESSURE SWITCH |
| CO = CO DETECTOR | RI = REMOTE INDICATOR |
| D = DUAL MODULE | S = SMOKE |
| DUCT=DUCT DETECTOR | SA = SMOKE WITH AUDIBLE BASE |
| F = FLOW | T = TAMPER |
| FACP = MAIN FIRE PANEL | TS = TEST SWITCH |
| H = HEAT DETECTOR | V = VISUAL DEVICE ONLY |
| I = ISOLATION MODULES | (SET TO 15cd UNLESS NOTED OTHERWISE) |
| T.S. = TWISTED SHIELDED | MH = MINI HORN |
| S/CO = SMOKE/CO DETECTOR | RTS = REMOTE TEST MODULE |
| RL = REMOTE LIGHT | PS = PULL STATION |
| | CL = CORRIDOR LIGHT |
| | CO = CO DETECTOR (MAY REQUIRE 24 VDC POWER) |
| | SCM = INPUT MODULE |
- ⬡ = FIRE EXTINGUISHER MONITORING



Reviewed for Code Compliance
Permitting and Inspections
Department
Approved: 02/13/2020

NOTE:
HORNS ARE ADDED BY AH
THIS IS A SPRINKLER MONITORING SYSTEM ONLY.



CONSULTANT: Rich Probst, JR.



320 PRESUMPSCOT ST. UNIT#2
PORTLAND, MAINE 04103
Phone: (207) 536-4800
Cell: (207) 699-8800

PROJECT:
87 SHERWOOD STREET
Portland, MAINE

DRAWING:
RISER

REVISIONS

DATE: 02/03/2020

SCALE: NTS

DRAWN BY: SSA

APPROVED BY: -

SHEET: 1



Reviewed for Code Compliance
 Permitting and Inspections
 Department
 April 13, 2020

Guardian Systems of Maine
 320 Presumpscot St., Unit #2
 Portland, ME 04103
 207-536-4800 office

87 Sherwood Street Device List

Quantity	Item	Description
1	IPA-60	Fire panel, 60 points, 2 NACs, 5 amps, 2 I/O circuits
2	Bat 12-7	Battery 12 volts, 7 amp/hours
1	UD-2000	Dact for Potter panels
1	E120V-GT	Space Age 120 VAC surge protector and breaker label
1	RA-6500R	Annunciator
1	PAD-100-PHD	Addressable smoke/heat detector
1	PAD-100-6B	Detector base
1	PAD-100-DIM	Dual input
1	SSU00673	Space Age Fire Document cabinet
1	PAD-100-PSDA	Addressable dual action pull station
2	HS-24WR	Horn/strobe wall mount, red
1	HS-24WR-WP	Horn/strobe, red, weatherproof
0		Key box 3261 (supplied by customer)

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:

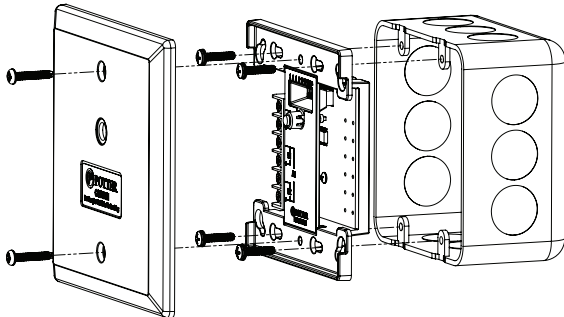
1. Power to the device is removed.
2. Field wiring is correctly installed.
3. Field wiring has no open or short circuits.

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 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 × 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

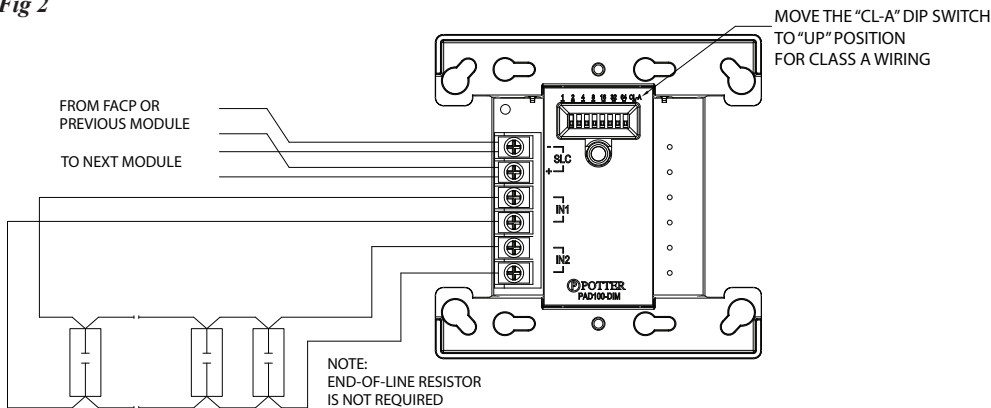
Fig 1



Wiring Diagrams

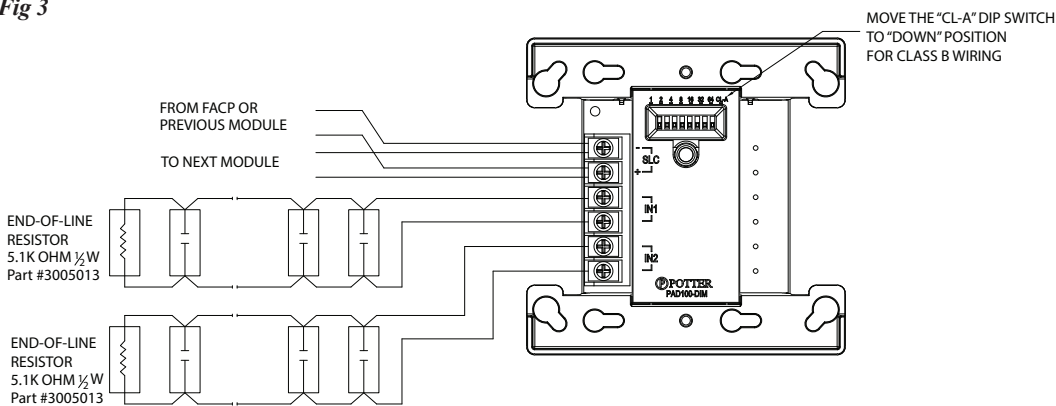
PAD100-DIM With One Class A Circuit

Fig 2



PAD100-DIM With Two Class B Circuits

Fig 3



Ordering Information

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



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.

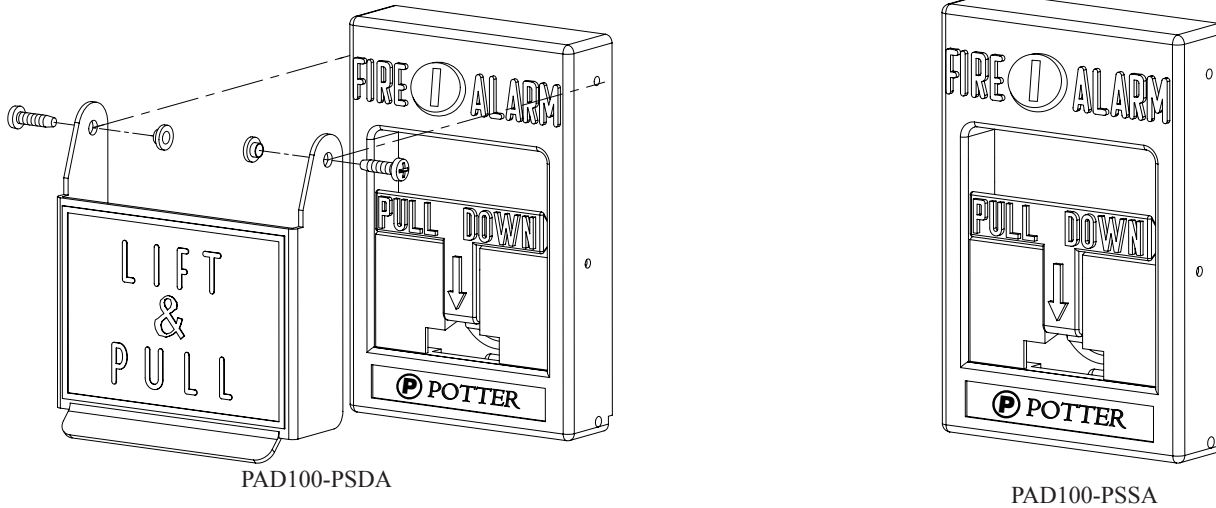
Technical Specifications

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.

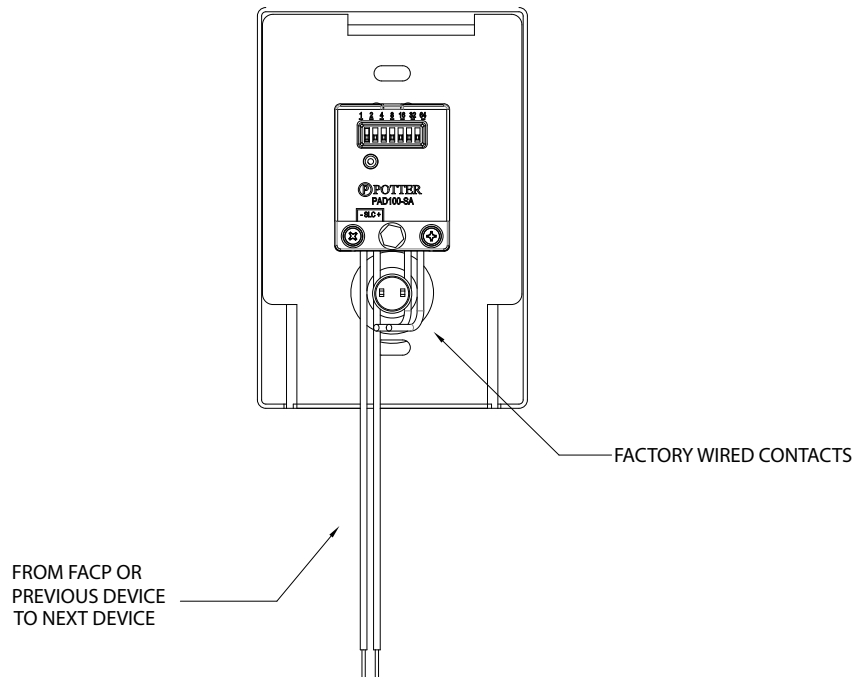
Setting the Address

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



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

- 60 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 Potter/AMSECO®, Gentex®, 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 IPA-60 is an analog/addressable releasing fire alarm system with a total system capacity of 60 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 IPA-60 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 Potter/AMSECO, Gentex, 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 IPA-60 is listed for releasing of fire suppression systems. The software allows cross zones, counting zones, and timers for suppression. The system is capable of multiple release outputs across multiple hazards. In addition, the PSN-1000 may be used to extend releasing capability. 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 IPA-60 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 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 <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 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 60 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 Temperature Heat Detector that is selectable from 135° F to 185°F.
PAD100-DUCTR	Addressable Duct Smoke Detector with Form C Relay.
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.
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 IPA-60 has a proprietary communication protocol that communicates through a RS-485 connection to field devices. Up to 64 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 IPA-60 as releasing circuits.

CA-6500 – 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 IPA 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

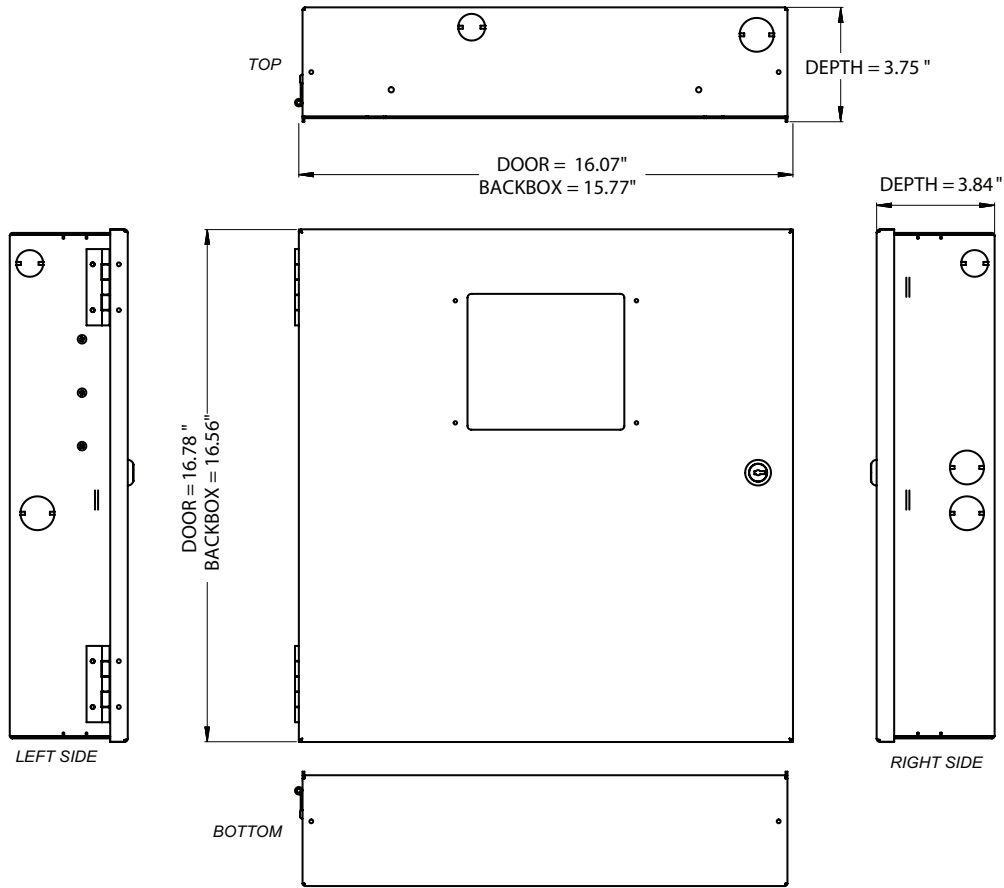
Ethernet/I.P. Connection

The IPA-60 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.
IPA-60	Fire Alarm Releasing Control Panel	3992714

Compatible Releasing Devices

Note: For releasing applications please order the Potter EOLD (3005012) for circuits connected to a releasing solenoid or actuator.

Brand	Description
Skinner	73218BN4UNLVN0C112CZ 73212BN4TNLVN0C322C2
Victaulic	753-E Series
Mini Max	MX123 & MX200 w/ 8876677 & 889323
Viking	11591, 11601, 11602, 13843, & 13844
TLX	PA0036

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



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

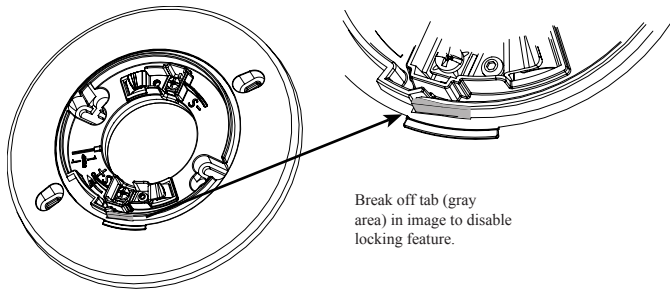
Mounting Options	Single gang, double gang, octagon, and 4” square box
Terminals	Screw-Clamp Type
Wire Gauge	22 to 12 AWG
Dimensions	Diameter: 6.3 in (166 mm) Height 0.72 in (18 mm)
Shipping Weight	87g (3.07 oz)
Material	Durable Plastic

Locking Feature

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

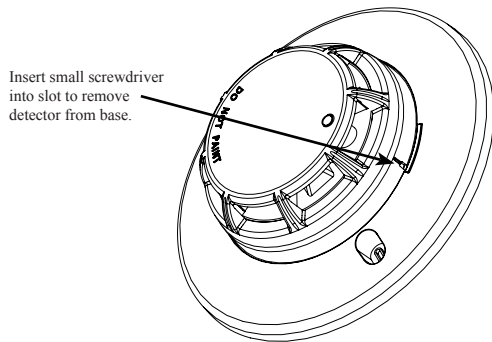
1. To eliminate this feature, break off the locking tab (refer to Figure 1), and then install the detector.

Fig. 1



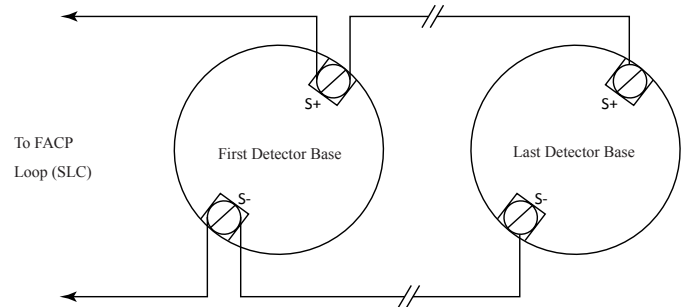
2. To remove the detector from the base when the locking feature has been enabled, insert a small screw driver into the slot on the base to push the plastic tab while simultaneously turning the detector head counter-clockwise.

Fig. 2



Wiring Diagram

Fig. 3



Ordering Information

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

Features

- Selectable Rate of Rise and/or Fixed Heat Detector
- Reliable detection technology
- Wide selectable smoke sensitivity range of 1.0 to 3.5%/foot
- Sensor communicates sensitivity to control panel
- UL listed smoke calibration and sensitivity
- Ambient temperature listing of 32 ° F to 150 ° F
- 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



Description

The PAD100-PHD is a listed Analog Addressable smoke sensor and a rate of rise and/or fixed temperature heat sensor compatible with fire alarm control panels that utilize the Potter Addressable Device (PAD) protocol. The PAD100-PHD is a low profile smoke/heat sensor with a wide sensitivity range. 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 color to blend in with the ceiling.

The PAD100-PHD is UL listed and has a sensitivity range of 1.0 to 3.5% per foot with a fix temperature alarm threshold of 135°F and can be used for rate of rise applications. See detector spacing limitations below. The PAD100-PHD features drift compensation and has built in dirty detector warning. The PAD100-PHD 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-PHD 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
Detector Current Draw	300 μA
Alarm indicator	1 LED
Alarm set-point range for Smoke	1.1% - 3.5%
Alarm set-point for Heat	135°F
Installation temperature range	32°F to 120°F (0°C 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)	3.6 oz
Dimensions (without base)	Height: 1.94 in (49mm) Diameter 3.93 in (100mm)

Air Velocity Ratings

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

Operation

The PAD100-PHD 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 rapidly if the unit is in an active status. The polling LED can be turned off if desired for less conspicuous operation.

The PAD100-PHD with the PAD100-4DB or PAD100-6DB has a low profile 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.

The system has a maximum of 30 LEDs that can be turned on simultaneously. If the system already has 30 LEDs on, the PAD100-PHD will operate even though the LED will not illuminate.

Sensor Sensitivity

The PAD100-PHD 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-PHD 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-PHD 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
PAD100-SPKB	6" base with speaker included	3992762

Ordering Information

Model	Description	Stock No.
PAD100-PHD	Photoelectric Smoke/Heat Sensor	3992734

Features

- Industry leading 4 line by 40 Character LCD
- Common buttons for navigation
- Common LEDs for status indication
- 31 annunciator per panel
- Maximum wire length of 6,500 feet
- Available in 4 colors
- Product includes a 5 year warranty



Description

The RA-6500 is a LCD remote annunciator for the PFC-6000 series fire control panels. The RA-6500 communicates using a RS-485 connection to the main panel providing common indication of Alarms, Supervisory, Trouble and other system status and control functions.

The RA-6500 features a 4x40 LCD display with LED's for Power, Alarm, Supervisory, Trouble, and Silenced conditions. It can be mounted on a single gang electrical box or a four square electrical box. The annunciator is enclosed in a sheet metal enclosure and has a Potter lock securing the keypad.

Technical Specifications

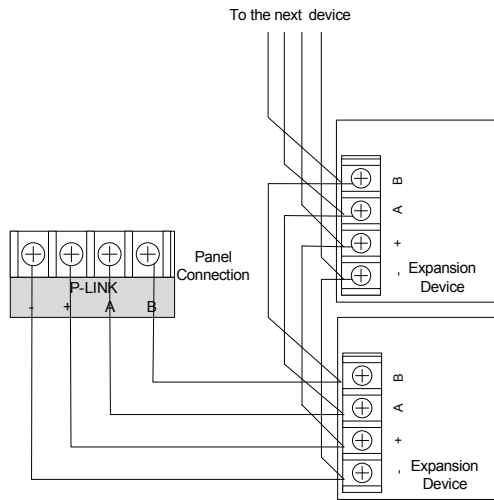
Standby Current	20 mA
Alarm Current	25 mA
Operating Temperature	0°C-49°C (32°F-120°F)
Operating Humidity Range	10%-93% @ 30°C (86°F) non condensing humidity
Maximum Wire Length	6500 ft.
Maximum Annunciators	31
Size (WxHxD)	10" x 7-7/8" x 1-5/8"
Wire Gauge	14 AWG-22 AWG

Installation

The RA-6500 is connected to the PFC-6000 series fire control panels using a four wire RS-485 connection. The connection is power limited and supervised. Up to thirty-one (31) RA-6500 LCD annunciators can be connected using Class B or Class A wiring. Class A wiring requires an optional Class A Expander.

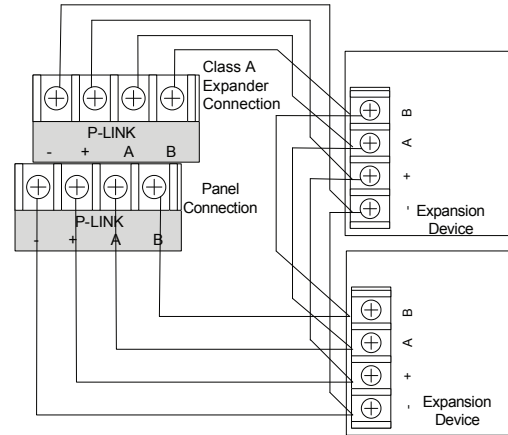
RA-6500 Class B Wiring Example

Fig 1



RA-6500 Class A Wiring Example

Fig 2

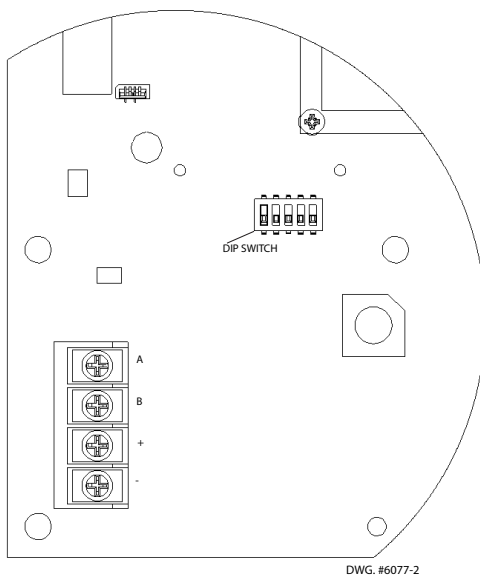


Address Settings

The RA-6500 address is set by dip switch S1 located on the back of the RA-6500. The address must be set in the range of 1 to 31 to be recognized by the control panel.

RA-6500 Remote (Panel View)

Fig 3



Dip Switch Settings

Refer to the table below for dip switch settings per Annunciator Address.

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

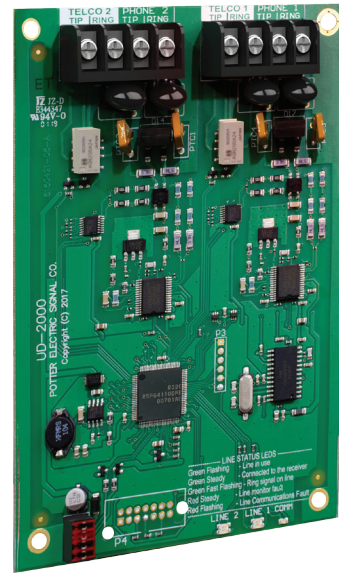
Annunciator Address	Dip Switch Settings				
	SW-1	SW-2	SW-3	SW-4	SW-5
17	On	Off	Off	Off	On
18	Off	On	Off	Off	On
19	On	On	Off	Off	On
20	Off	Off	On	Off	On
21	On	Off	On	Off	On
22	Off	On	On	Off	On
23	On	On	On	Off	On
24	Off	Off	Off	On	On
25	On	Off	Off	On	On
26	Off	On	Off	On	On
27	On	On	Off	On	On
28	Off	Off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

Ordering Information

Model	Description	Stock No.
RA-6500	LCD Annunciator - RED	3992660
RA-6500	LCD Annunciator - BLACK	3992744
RA-6500	LCD Annunciator - GRAY	3992745
RA-6500	LCD Annunciator - LIGHT GRAY	3992746

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.

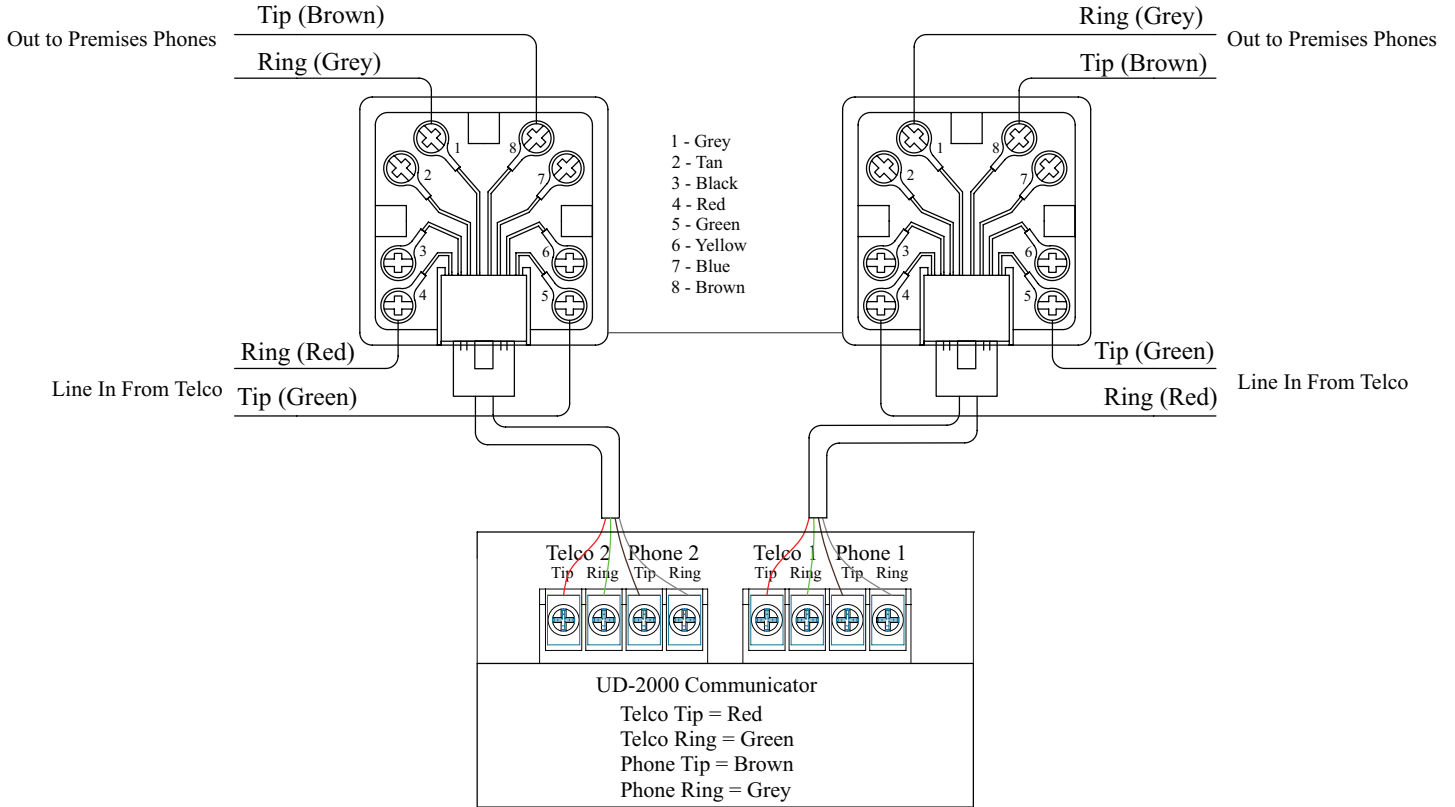
The DACT is provided with terminal blocks for each phone line and two RJ45 cords. In order for the DACT to work properly, it must be installed on a plain old telephone service (POTS) line or equivalent deemed by the authority having jurisdiction. The DACT must be installed before any other equipment 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 Temperatures	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

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



NOTICE

Install in accordance with compatible fire alarm control panel installation manual

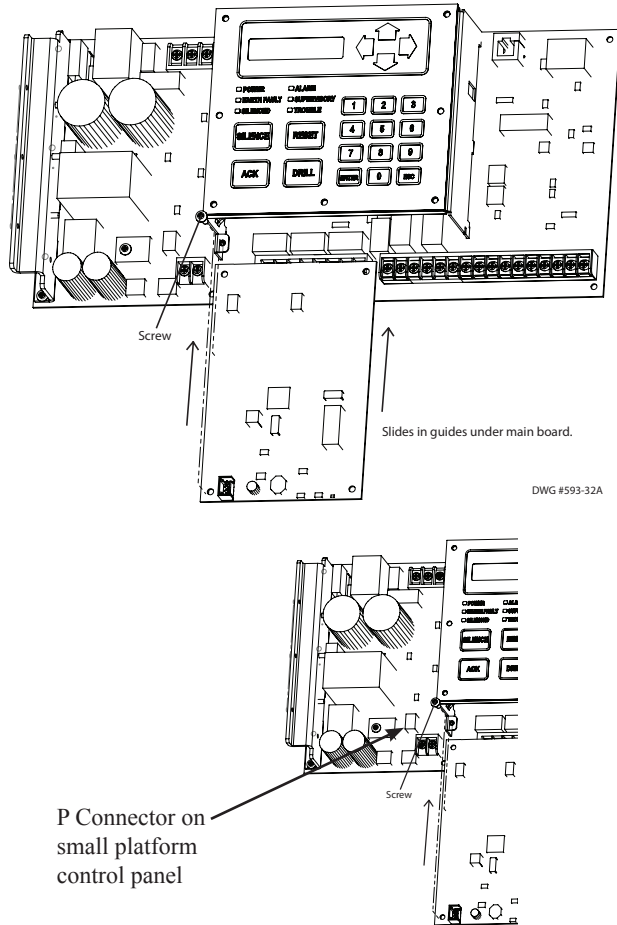
Installation

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.

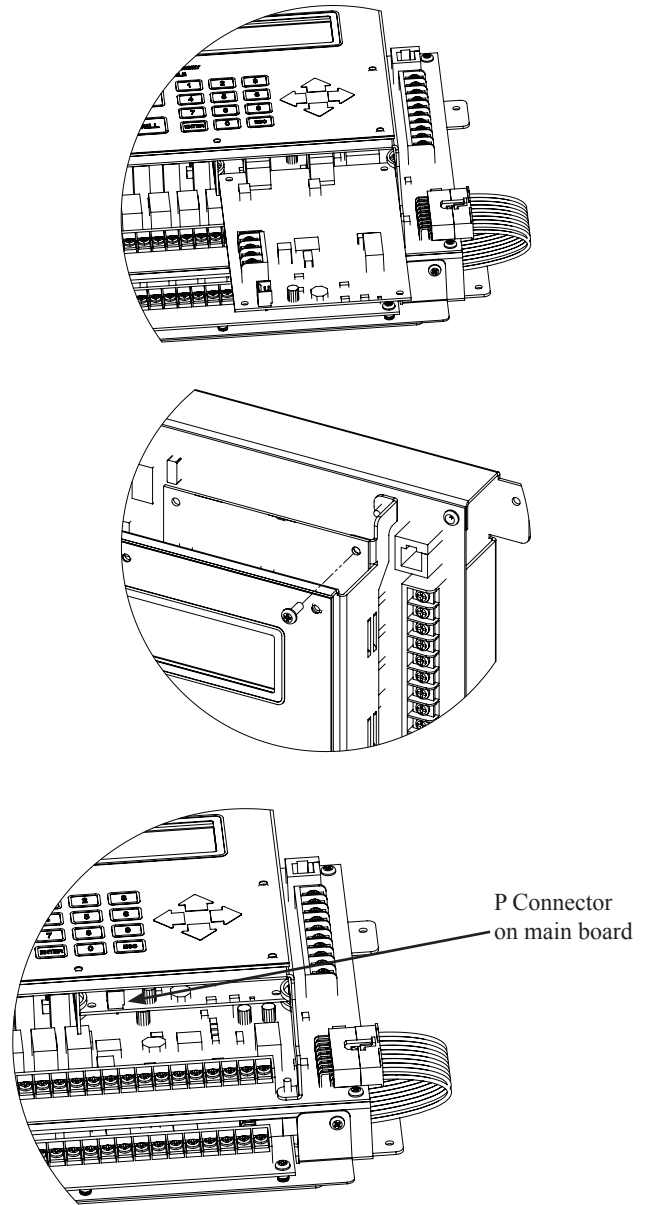
UD-2000 DACT Installation on Small Platform Panel

Fig 1



UD-2000 DACT Installation on Large Platform Panel

Fig 2



Ordering Information

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



IPA-60
Battery & Voltage Drop
Calculations

Project Name: Standby Hours:
 Alarm Mins:
 Installed By: Batt Efficiency:
 Designed By: SLC Type:
 Date: NAC Source Voltage:



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 02/13/2020

Model #: IPA-60

Max Panel Current (amps): 5

Panel ID:

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

Location:

Qty	FACP Part #	Description	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
1	IPA-60	Analog Addressable FACP	0.130	0.130	0.220	0.220
			Panel Standby:	0.130	Panel Alarm:	0.220

P-LINK (RS-485)			Standby		Alarm	
	MC-1000	Multi-Connect Expander	0.010		0.010	
1	UD-1000	DACT Card	0.016	0.016	0.023	0.023
1	RA-6075R	LCD Annunciator	0.020	0.020	0.025	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	
	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: **0.036** P-LINK Alarm: **0.048**

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

SLC Devices			Standby		Alarm	
1	PAD100-PD	Analog Photo Smoke	0.000300	0.000300	0.000300	0.000300
	PAD100-PHD	Analog Photo Smoke/Heat	0.000300		0.000300	
	PAD100-HD	Analog Fixed Temp Heat	0.000300		0.000300	
	PAD100-CD	Analog Carbon Monoxide Detector	0.000300		0.000300	
	PAD100-DUCT	Addressable Duct Detector	0.000300		0.000300	
	PAD100-DRTS	Duct Remote Test Switch	0.010000		0.015000	
	PAD100-DUCTR*	Addressable Duct Detector w/Relay	0.000500		0.000500	
1	PAD100-PSSA/PSDA	Addressable Pull Station Single/Dual Action	0.000200	0.000200	0.000200	0.000200
	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
	PAD100-RM	Relay Module	0.000240		0.000240	
	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	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
SLC Loop Alarm LED Current			0.000000	0.000000	0.036000	0.036000
			SLC Standby:	0.000980	SLC Alarm:	0.036980

* Requires Aux Power (Configure Below)

** 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:			0.03600	0.04800
SLC Device Current:			0.00098	0.03698
NAC Circuit Current:			0.00000	4.00000
I/O Circuit Current:			0.00000	0.00000
Total Standby:			0.166980	Total Alarm: 4.30498
Standby Hours:			24	Alarm Mins: 5
AH Required:			4.01	AH Required: 0.36
Total Combined Standby & Alarm AmpHours Required:			4.37	
Efficiency Factor:			80%	
Required Battery AmpHours:			5.46	
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.

SLC Loop Type: Class B
 Device Addresses Used: 4
 Device Addresses Available: 60

5

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	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly				
1		Maximumn (No lookup function)			3.000000	3.000000
		Maximumn				
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	Lookup Type	Circuit Devices Desc	Standby (amps)		Alarm (amps)	
			Each	Total	Each	Total
		User can add devices on the fly				
1		to these bottom 5 rows (No lookup function)			1.000000	1.000000
Total Standby:			0.00000		Total Alarm:	1.00000

DURACELL® SLA Batteries ULTRA

General Purpose

Backup and deep cycle applications

Duracell® Ultra SLA technology offers high-density power that outperforms 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.



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April 13, 2020

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
Warranty



Stringent Quality
Control

DURACELL® SLA Batteries ULTRA



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Permitting and Inspections
Department
Approved 02/13/2020

PROJECT NAME: _____

CATALOG # _____

FIXTURE TYPE _____

NOTES _____

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

Visit batteriesplus.com for warranty information



NO EXCUSES!



E120V-GT

Hybrid Surge Protection Device

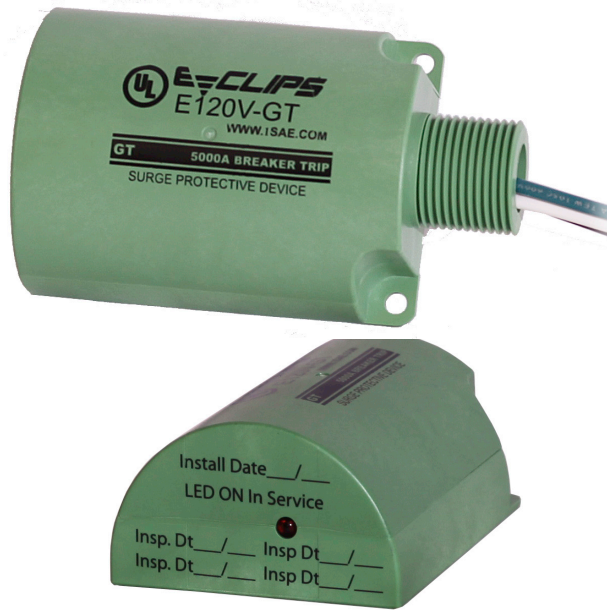
Safety and performance is what Eclips is all about. While there are many varying criteria to be considered for surge protective devices (SPD), if the design engineer neglects the importance there can be serious implications for the client and equipment.

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 downtime 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)



**ISO 9001
REGISTERED
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RU® - Uses UL Recognized Components



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

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 3/4" 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
 Survivability : UL rated X2 @5000
 Amps to open Series external circuit breaker

Specifications - Operating:

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

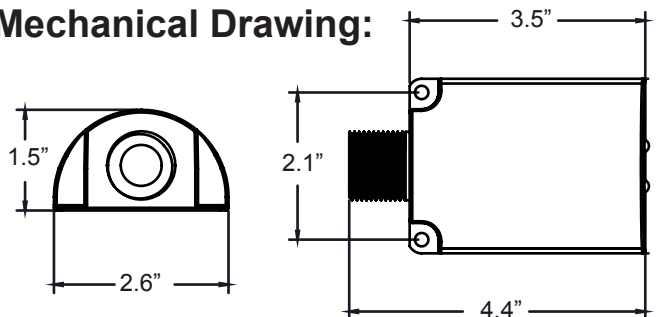
Specifications - Physical:

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

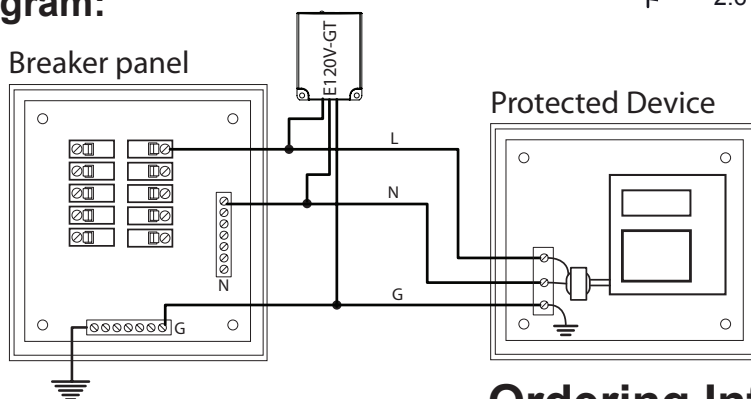
Specifications - Compliance:

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

Mechanical Drawing:



Wiring Diagram:



Ordering Information:

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



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

No Excuses, Just Solutions!

This document is subject to change without notice, see doc # ED0479 for legal disclaimer



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				



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	



**NO
EXCUSES!**

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.

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

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.

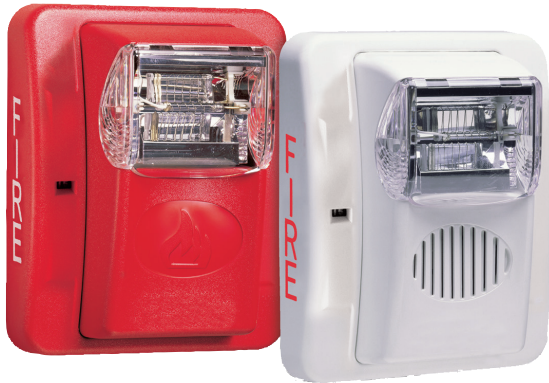


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ACEBOX

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Features

- 24VDC units have field selectable candela options of 15, 30, 60, 75, & 110
- Super-Slide® Bracket - Ease of Supervision Testing
- Checkmate® - Instant Voltage Verification
- Synchronize strobe and/or horn with AVSM Control Module
- Rewire entire system, install mounting bracket, then install signals
- Documented lower installation and operating costs
- Input terminals accept 12 to 18 AWG
- Switch selection for high or low dBA
- Switch for chime, whoop, mechanical and 2400Hz tone
- Tamperproof re-entrant style grill
- Switch for continuous or temporal 3 tone (not available on whoop tone)
- Surface mount with the AVBB (Surface Mount Back Box)
- Silence audible while visual appliance will remain flashing (for use in accepted jurisdictions)
- Faceplate available in red or off-white

Operating Temperature

- 32°F to 120°F (0°C to 49°C). The HS and S Series are **not** listed for outdoor use.

Unit Dimensions

- 5" (12.7 cm) high x 4.5" (11.43 cm) wide x 2.5" (6.35 cm) deep



Description

The S-24/HS-24 Series is a low profile strobe and horn/strobe combination that offers dependable audible and visual alarms and the absolute lowest current available.

The S-24 & HS-24 Series 24VDC offers tamperproof field selectable candela options of 15, 30, 60, 75, and 110 candela.

The Strobe and Horn/Strobe offers a continuous or sync temporal three in 2400Hz and mechanical tone, a chime and whoop tone. All tones are easy for the professional to change in the field by the use of switches.

The S-24 & HS-24 Series has a minimal operating current and has a minimum flash rate of 1Hz regardless of input voltage.

This Series is shipped with a standard 4" metal mounting plate which incorporates the popular Super-Slide® feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.

The S-24/HS-24 also features the patented Checkmate® - Instant Voltage Verification feature which allows the installer to check the voltage drop draw and match it to the blueprint.

The S-24 & HS-24 Series appliances are ANSI/UL 464 and ANSI/UL 1971, listed for use with fire protective systems and are warranted for three years from date of purchase.



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES

Tone Switch Locations

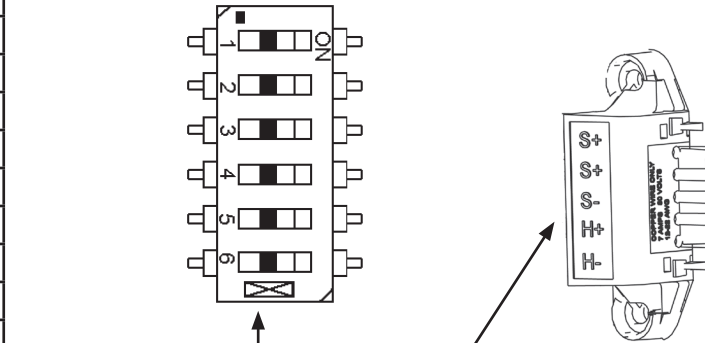
TONE	SWITCH POSITION		
	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

NOTE:

- Switch Positions 1 and 2 in the OFF position to select isolated horn and strobe power inputs
- Switch Position 6 ON = HIGH dBA
- Switch Position 6 OFF = LOW dBA

Super Slide® Mounting Bracket

Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out signals without changing mounting brackets and has locking edge connector for snap-in-place installation.



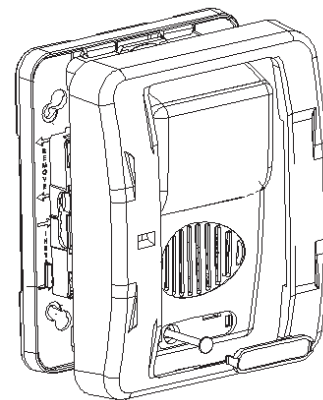
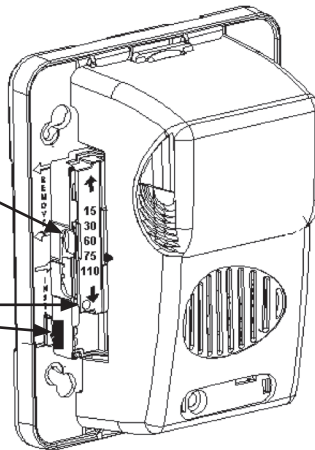
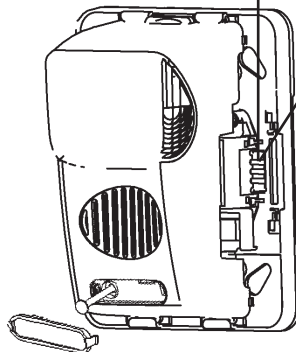
Checkmate® Instant Voltage Verification

It is often necessary to confirm the voltage drop along a line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically, this would be done at the end of line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTE: Care should be taken to not short the test probes.

Candela selection slider switch. Depress center and slide switch to desire brightness level.

Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from bracket and pin pushed forward from backside out of hole to change candela.



To remove bezel, grip both sides of bezel and pull in a downward and outward motion.



S-24 & HS-24 SELECTABLE CANDELA STROBE & HORN/STROBES

S-24 24 VDC Selectable Candela, Low Profile Evacuation Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)
S-24WR	4890010	24 VDC	15, 30, 60, 75, 110
S-24WW	4890011	24 VDC	15, 30, 60, 75, 110

HS-24 24 VDC Selectable Candela, Low Profile Evacuation Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela (ANSI/UL 1971)	Reverberant dBA at 10 ft., per ANSI/UL 464	In Anechoic Room dBA at 10 ft.
HS-24WR	4890030	24 VDC	15, 30, 60, 75, 110	62-82	100
HS-24WW	4890031	24 VDC	15, 30, 60, 75, 110	62-82	100

S-24 & HS-24 Product Strobe Current Ratings (mA)

	24 VDC (16-33 Volts)	
Candela	24 VDC	UL Max ¹
15 cd	30 mA	42 mA
30 cd	35 mA	58 mA
60 cd	66 mA	97 mA
75 cd	80 mA	116 mA
110 cd	103 mA	161 mA

Model Designations:

W = Wall Mount

R = Red Faceplate

W = White Faceplate

All units are available in plain (no lettering).

Plain units are non-returnable.

ALERT bezel available for order.

ALERT bezel available for order.

S-24 & HS-24 Product Horn Current Ratings

Horn Mode	Horn Decibel Levels		Horn Current Ratings
	Minimum SPL at 10 ft., per ANSI/UL 464 (HIGH)	Minimum SPL at 10 ft., per ANSI/UL 464 (LOW)	Regulated 24 VDC Max. Operating @ High Setting (mA)
Temp 3 2400 Hz	78 dBA	71* dBA	28 mA
Temp 3 Mechanical	76 dBA	70* dBA	25 mA
Temp 3 Chime	70* dBA	66* dBA	15 mA
Continuous 2400 Hz	81 dBA	74* dBA	28 mA
Continuous Mechanical	80 dBA	72* dBA	25 mA
Continuous Chime	70* dBA	66* dBA	15 mA
Whoop	82 dBA	69* dBA	56 mA

NOTES:

- For nominal and peak current across ANSI/UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.
- Potter does not recommend using a coded or pulsing signaling circuit with any of our strobe products.
- The sound output for the temporal 3 tone is rated lower since the time the horn is off is averaged into the sound output rating. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.
- * Operating the horn in this mode at this voltage will result in not meeting the minimum ANSI/UL 464 reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application (not applicable when using the chime tone. The chime tone is always private mode).



Architect & Engineering Specifications

The audible and/or visible signal shall be Potter S-24 strobe and Potter HS-24 horn/strobe Series or approved equal and shall be listed by Underwriters Laboratories, Inc. per ANSI/UL 1971 and/or ANSI/UL 464. The notification appliance shall also be listed with Factory Mutual Listing Service (FM) and the California State Fire Marshal (CSFM).

The notification appliance (combination audible/visible) shall produce a peak sound output of 100dBA or greater at 24VDC as measured in an anechoic chamber. The signaling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized.

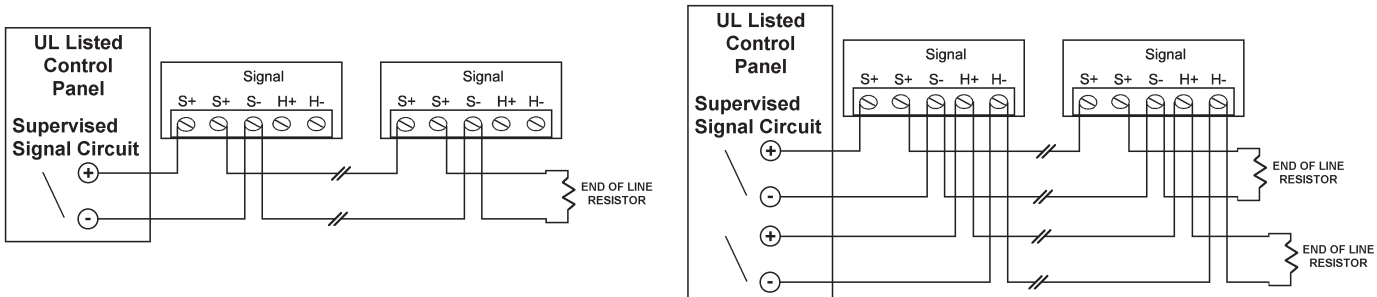
Unit shall be capable of being installed so that any unauthorized attempt to change the candela setting will result in a trouble signal at the fire alarm control panel.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1Hz or up to 2Hz regardless of power input voltage. The strobe appliance shall have an operating current of 42mA or less at 24VDC for the 15Cd strobe circuit.

The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adapter plate. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24VDC models.

The appliance shall be capable of testing supervision without disconnecting wires, verify voltage without removing unit and be capable of mounting to a surface back box.

Conventional Wiring Diagrams for Emergency Notification Evacuation Series



NOTES:

- All strobes are designed to flash as specified with continuous applied voltage. Strobes should not be used on coded or pulsing signaling circuits. However, use of the Potter AVSM control module or Gentex synchronization protocol is permitted to synchronize the strobe, horn, and/or mute the horn.
- **FOR SYNCHRONIZATION WIRING INFORMATION, REFERENCE AVSM CONTROL MODULE DATA SHEET (8830050) AND/OR AVSM CONTROL MODULE MANUAL FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. AVSM CONTROL MODULE DATA SHEET AND MANUAL CAN BE OBTAINED AT <http://pottersignal.com> OR CALL POTTER ELECTRIC AT 1-800-325-3936.**



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Department
April 13, 2020

BE IT KNOWN THAT

Richard W. Brobst, Jr

IS HEREBY AWARDED CERTIFICATION AT

LEVEL IV

**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.**

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