POTTER
The Symbol of Protection

AFC-50

Fire Alarm Control Panel

Features

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

ASSEMBLED IN THE USA

FM APPROVED

NYC Fire Dept. Certificate of Approval 6256

7165-0328:0509

UL LISTED S735

Description

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

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

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

Technical Specifications

Dimensions	16”W x 17”H x 3 ⅞”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, 13, 15, 16, 17, 17A, 70, 72, and 750 • ANSI/UL 864 - Local (L), Remote Station (RS), Central Station (CS), Propriety (PPU), Auxiliary (AUX), Type of Service: Automatic (A), Manual (M), Water flow (WF), Sprinkler Supervisory (SS), Type of Signaling: Digital Alarm Communicator (DAC), March Time (March), Non Coded (NC), Reverse Polarity (Rev Pol), Other Technologies (OT) • IBC (International Building Code)

SLC Loop Accessories

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

SLC Loop Devices

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

Modules

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

SLC Features

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

Sensor Features

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

User Interface

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

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

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

P-Link

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

PAD100-SLCE-Analog/Addressable loop expansion module

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

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

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

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

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

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

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

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

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

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

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

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

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

IDC-6 – Initiating device circuit provides 6 programmable inputs

AE-2 – Two card expansion cabinet

AE-8 – Eight card expansion cabinet

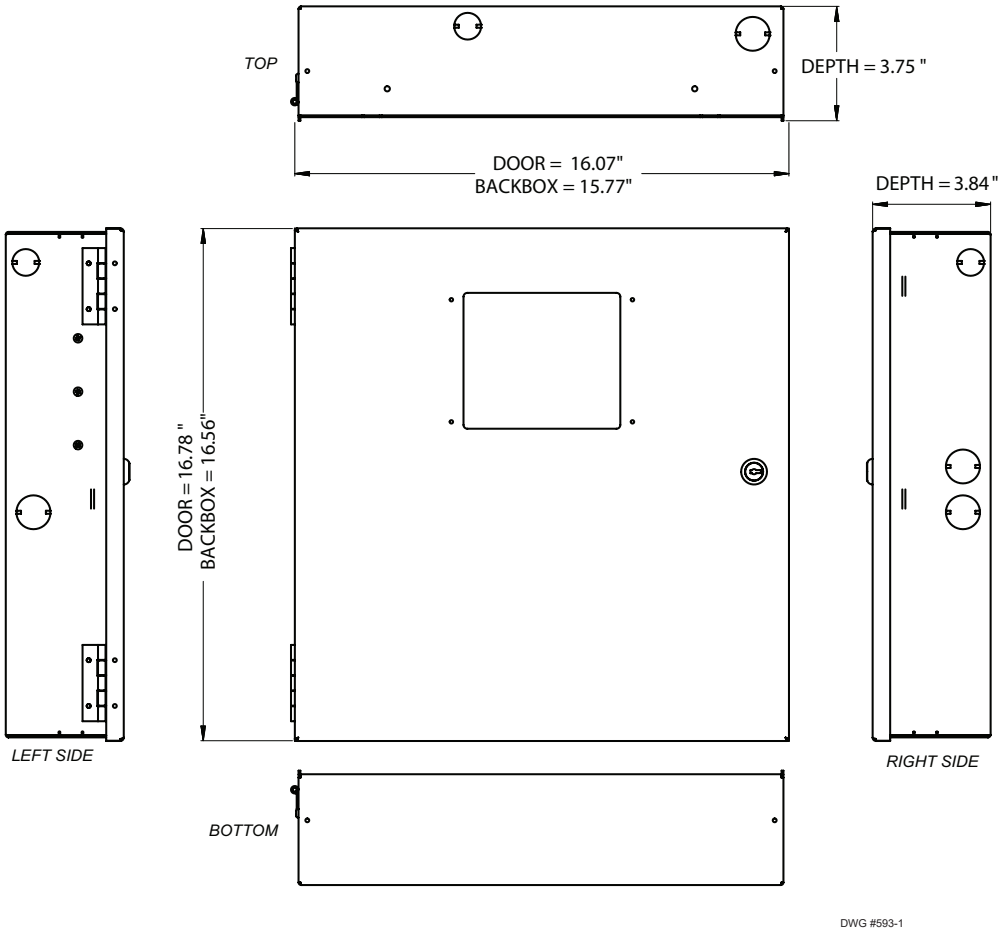
AE-14 – Fourteen card expansion cabinet

Ethernet/I.P. Connection

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

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

Dimensions



Ordering Information

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

M2M SERVICES SIMPLICITY. APPLIED.

MQ03-LTE-M-FIRE
Installation and Operation Manual

RControl App credentials:

M2M SERVICES SIMPLICITY. APPLIED.

MQ03-LTE-M-FIRE

Cellular Communicator with Dial Capture interface

Installation and Operation Manual

Doc. No. 03002 V 1.1 08/2020

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About this document
This document was developed and wholly owned by M2M Services. It is intended to assist trained personnel with the installation of MQ03-LTE-M-FIRE. M2M Services reserves the right to modify and revise this manual without notice.

Agency Listings and Approvals
These listings and approvals apply only to the module specified in this document. In some cases, the listing may be in process.

FCC Statement
This equipment complies with FCC rules Part 15, FCC registration No. XMR201707BG96 and operation is subject to the following conditions:
- This device may not cause harmful interference, and
- This device must accept any interference received.

ETL No. 5013005, conforms to the following UL standards:
UL 864 – Control Units and Accessories for Fire Alarm Systems
UL 1610 – Central-Station Burglar Alarm Units
CAL FIRE OSFM BML No. 7300-2329:0500

Safety Instructions
This unit must be checked by a qualified technician once a year.
LTE CAT M1 communicator MQ03-LTE-M-FIRE (the Device) contains a radio transceiver operating in LTE CAT M1 bands.
Do not use the Device with medical devices, or where it can interfere with other devices and cause any potential danger.
Do not expose the Device to high humidity, chemical environment or mechanical impacts.
Do not use the Device in a hazardous environment. Don't store or install the Device in overheated, dusty, wet or overcooled places.
The Device is mounted in limited access areas. Any system repairs must be done only by qualified, safety aware personnel. Don't disassemble or refit the Device. Do not attempt to personally repair it.
Mains power must be disconnected before any installation or tuning work starts. The device installation or maintenance must not be done during stormy conditions.
The device must be powered by DC 12-29V, 200mA power supply.
Blown fuses or any other components of the Device must not be replaced by the user.
Keep the Device dry. Any liquid, i.e. rain, moisture, may destroy or damage the inside circuitry.

Limited Liability
The user agrees that despite the Device could reduce the risk of fire, theft, burglary or other dangers, it does not guarantee against such events. M2M Services will not take any responsibility regarding personal, property or revenue loss while using the Device. M2M Services responsibility according to local laws does not exceed the value of the purchased system. M2M Services is not affiliated with GSM operators providing cellular services, therefore is not responsible for network services, coverage or its operation.

Manufacturer Warranty
The Device carries a non-transferable hardware limited warranty by the manufacturer M2M Services. This warranty does not cover any postal or labor costs for the removal and reinstallation of the Device. This warranty does not cover any subscriber agreements or failure of services provided under the terms of such subscriber agreements, or failure of cellular, GPRS, LAN or other related networks functions and services. The warranty does not apply to any Device that has been modified or used in a manner contrary to its intended purpose and does not cover damage to the Device caused by installation or removal of the Device or any of its components. This warranty is voided if the Device has been damaged by improper maintenance, SIM card removal, accident or unreasonable use, negligence, acts of God, neglect, improper service or other causes not arising out of defect in materials or construction. This warranty does not cover the elimination of externally generated static or noise, or the correction of antenna problems or weak signal reception, damage to software, accessories or alarm system external components, cosmetic damage or damage due to negligence, misuse, abuse, failure to follow operating instructions, accidental spills or customer applied cleaners, damage due to environmental causes such as floods, airborne fallout, chemicals, salt, hail, windstorms, moisture, lightning or extreme temperatures, damage due to fire, theft, loss or vandalism, damage due to improper storage and connection to equipment of another manufacturer, modification of existing equipment, faulty installation or short circuit.
In no event will M2M Services be liable for any incidental, special or consequential damages (including loss of profits), and the Client shall have no claim against M2M Services for termination of contracts, indemnification, compensation for loss of customers, loss of profits, prospective profits, distribution rights, market share, goodwill, investments made or any similar losses that may result from any faults in the operation of the Device and the services provided by M2M Services.

Handle carefully. Don't vibrate or shake it violently.
Please read the user manual carefully before installation and operation of the Device. Otherwise, it may not work properly or be destroyed.

Technical Support
For support in the USA and Canada, contact M2M Services Technical Support at:
Telephone: 1-800-403-7029
Email: support@m2mservices.com Website: support.m2mservices.com

Product Description
The MQ03-LTE-M-FIRE is a digital cellular communicator with a dial capture interface. It represents the latest communication technology for the security industry. The new LTE CAT M1 connectivity brings better indoor signal penetration and greater stability. The communicator is equipped with dual-SIM sand supports multiple cellular networks.
This communication solution is a complete communication platform for data transfer from alarm systems at remote sites to Central Monitoring Stations (CMS). The platform allows bi-directional data transmission by using LTE CAT M1 networks and/or LAN.

Main Features

- Universal Panel Compatibility – Dial capture interface supporting Contact ID and SIA;
- Exceptional Redundancy – Dual-SIM, supporting AT&T and Verizon LTE CAT M1 networks;
- Connection monitoring – default 5 min polling of the cellular connection.
- High reliability due to multiple transmission channels (LTE CAT M1/LAN) and redundant servers;
- Web-based software and smartphone app;
- End-user smartphone app – supports push notifications.

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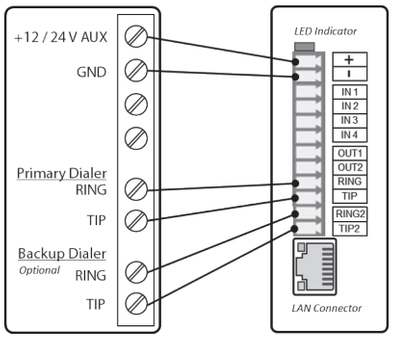
Specifications

Supply Voltage	+12 to +29 VDC
Consumption	Standby 50 mA; Peak 200mA
Frequency	LTE Cat M1 700/850/1700/1900/2100 MHz
GSM Providers	AT&T, Verizon, or other available networks
Dimensions	2.48"x3.54"x1.26"
Weight	2.56 oz without antenna
Environmental	Operating temperature: 0°C to 49°C (32°F to 120°F) Humidity: 0 to 85% relative humidity, non-condensing

Wiring and Mounting

Control Panel — **MQ03-LTE-M-FIRE Communicator (Front-side view)**



Installation Wiring Diagram
***Note:** IN1, IN2, IN3, IN4, OUT1, OUT2, LAN – Not connected.*

WARNINGS:
- Recommended location and wiring methods must be in accordance with the National Electrical code, ANSI/NFPA 70.
- Installation must be in accordance with the National Fire Alarm and Signaling Code, NFPA 72.
- The communicator must be connected to a UL Listed compatible panel with power limited circuits.
- The communicator must be powered by a regulated UL Listed UOJZ, UTOU, NBSX control panel or power supply.
- The wiring should be done only when the panel is powered down.
- For Dry/Indoor use only.

Wiring the Communicator

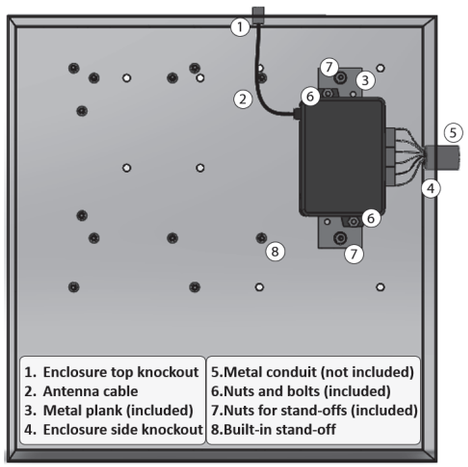
The terminal strips can accommodate solid or stranded wire sizes from 14 to 22 AWG.

	(+)	Connect this terminal to AUX + of the panel.
	(-)	Connect this terminal to the AUX – (GND) of the panel.
Primary Dialer	RING	Connect this terminal to the RING of the panel.
	TIP	Connect this terminal to the TIP of the panel.
Backup Dialer	RING2	Connect this terminal to the RING2 of the panel.
	TIP2	Connect this terminal to the TIP2 of the panel.

It is strongly recommended that both Telco lines are wired to the communicator.

Mounting the Communicator

This communicator comes fully assembled with all the components mounted except the external antenna. The device comes with a standard 3 ft external antenna.
The communicator must be installed within the Altronix BC300R metal enclosure or as an option any other UL Listed (UOXX, NITW or CYIV) metal enclosure. All the wiring must be routed through a conduit.
This enclosure shall have ample knockouts accommodating either ¾" or 1" conduits for convenient access. The MQ03-LTE-M-FIRE must be attached securely to the metal plank provided with the device, which in turn installed inside of the enclosure. The antenna must be installed on top of the enclosure, removing one of the knockouts, as per the installation instructions listed below in this chapter.



There are nine steps in installing MQ03-LTE-M-FIRE properly. In the following steps you will use the communicator and the RControl Admin application to determine the signal strength to find a suitable mounting location.

1. For UL installations, the communicator must be mechanically secured to a UL Listed enclosure such as a UL Listed junction box. Use the communicator box as a template and mark the holes on the mounting surface. Pre-start the mounting screws (not supplied) for these two holes. Slide the box onto these screws and tighten the screws.
2. Connect the antenna to the communicator.
The antenna is supplied with an SMA connector, that allows easy connection to the communicator. The body of the antenna has a magnet in the bottom and can be attached to the wall of the metal alarm panel box or use double-sided adhesive tape to securely attach the antenna to the box. The antenna should be positioned perpendicular to the ground, either right side up or upside down. Try to keep the antenna away from sources of RF interference or where metal objects can shield it or otherwise block the cellular radio RF signal.
WARNING: The internal antenna used with this product must be installed to provide a separation distance of at least 7.8 in (20cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedure.
NOTE: Antenna problems are rare unless the premises are in an area with poor network coverage, in a building below ground, or in a metal structure. If you require an antenna with a longer cable, please contact your M2M Services representative. Do not use the unit with a damaged antenna. Have your antenna replaced immediately. Use only a manufacturer approved antenna. Non-approved antennas or modifications could impair service quality, damage the device and violate FCC regulations.
3. Connect the communicator to the alarm panel. Refer to the wiring diagram provided in the previous section.
4. Power up the panel.
5. The communicator LED indicator will turn on and start blinking. The steady light will indicate a good connection. The LED has the following states:

LED Status – Indication – Action
- The LED is Off – The unit is not connected to the panel. – Verify the wiring, refer to the wiring diagram.
- The LED is Off – The power from the panel is out. – Measure the AUX output of the panel.
- The LED is Off – The unit is damaged. – Replace the unit.
- Slow flashing – Trying to establish connection./There is no signal available. – Reposition the antenna.
- Constantly On, blinking every 5sec – Connection established at low signal level. – Reposition the antenna.
- Constantly On – Connection established at good signal.
- Fast flashing – Transferring data

6. Download the RControl Admin mobile application on your Android or iOS device.
7. Login with the end user credentials provided in this manual.

For more details follow the M2M Smartphone Application instructions at http://support.m2mservices.com/mobile-app/
8. If the signal is low, reposition the antenna and try again to find a better signal.
9. Once the installation and wiring is complete, proceed with the programming of the panel (next section).

Programming

Out of the box, the communicator is ready to use and does not require additional programming. You need to program the control panel to work with MQ03-LTE-M-FIRE.

Programming the Control Panel

For programming information, please refer to the control panel's installation guide.
Ensure the following programming is done:
- Enable the PSTN dialer of the panel
- Select DTMF mode (tone dialing)
- Select Contact ID or SIA communication format
- Enter a telephone number for dialing (you can use any number, e.g. 999999)
- Enter a 4-digit account number

Programming guides for popular alarm panels are available at http://support.m2mservices.com/panel-programming/

Troubleshooting

If you have issues receiving the events:
1. Verify the RING/TIP connection
   - Make sure the RING/TIP terminals of the device are connected to Telco terminals of the panel, not R-1/T-1 terminals.
2. Try the following additional settings of the panel:
   - Disable "Wait for Dial Tone" option
   - Use "A" instead of "0" in the account number
   - If there is more than one phone number entered, configure an account number for each.

PAD300-PD

Photoelectric Smoke Detector

Features

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

0328-0541

Description

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

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

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

Setting the Address

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

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

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

Technical Specifications

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

Air Velocity Ratings

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

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

Operation

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

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

Detector Sensitivity

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

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

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

Spacing

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

Compatible Bases

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

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

Ordering Information

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

PAD100-SIM

Single Input Module

Features

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

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

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Description

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

Application

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

Setting the Address

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

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

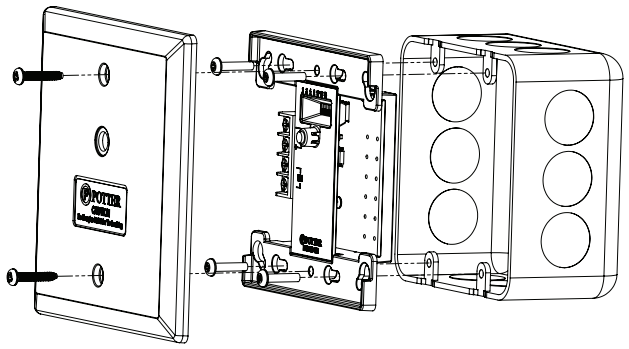
1. Power to the device is removed.
2. Field wiring is correctly installed.
3. Field wiring has no open or short circuits.

Technical Specifications

Operating Voltage	24.0V
Max SLC Standby Current	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

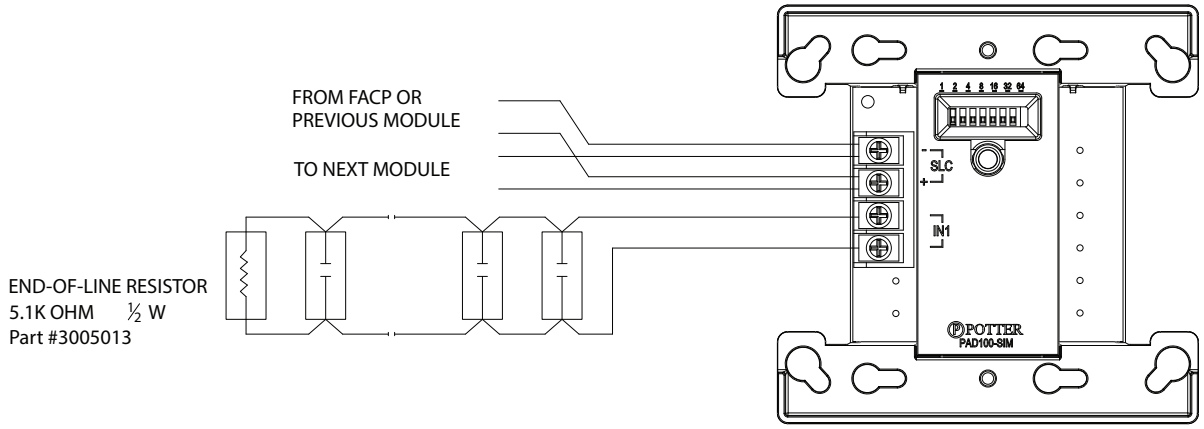
Fig 1



Wiring Diagram

PAD100-SIM With Class B Circuit

Fig 2



Ordering Information

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

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
- UUKL Listed for Smoke Control

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Description

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

Application

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

Technical Specifications

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

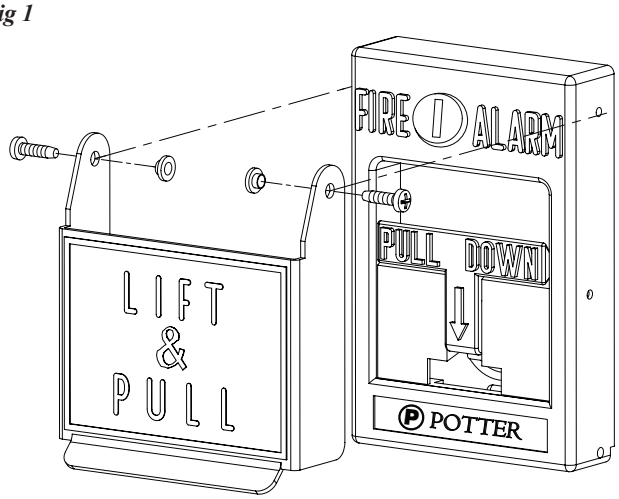
PAD100-PSSA/PSDA

Addressable Pull Station
Single/Dual Action

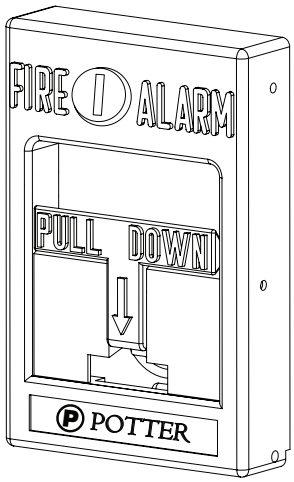
Setting the Address

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

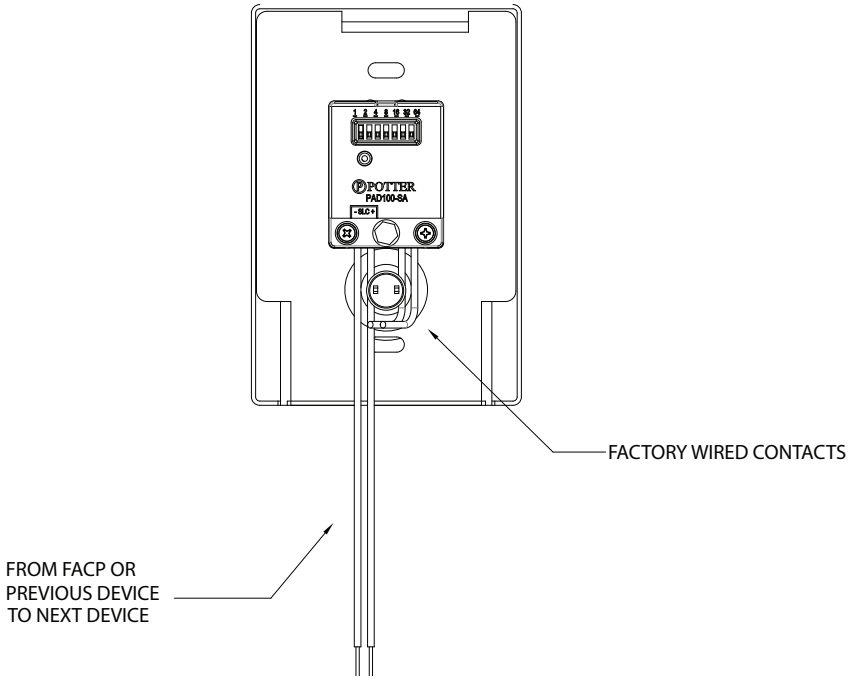


PAD100-PSDA



PAD100-PSSA

Pull Station Back View and Wiring
Fig 2



Ordering Information

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

Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.

Features

- Updated Modern Aesthetics
- Small profile devices for Horns and Horn Strobes
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Mounting plate for all standard and all compact wall units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Strobes and Horn Strobes listed for wall mounting only
- Horns listed for wall or ceiling use

Agency Listings

SIGNALING UL LISTED
S5512
S4011

FM APPROVED
FM approved except for ALERT models 3057383, 3057072

7125-1653:0504
7135-1653:0503

The System Sensor L-Series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, standard and compact devices, and plain, FIRE, and FUEGO-printed devices, System Sensor L-Series can meet virtually any application requirement.

The L-Series line of wall-mount horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, the L-Series utilizes a universal mounting plate for all models with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

L-Series Specifications

Architect/Engineer Specifications

General

L-Series standard horns, strobes, and horn strobes shall mount to a standard 2 x 4 x 1 7/8-inch back box, 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. L-Series compact products shall mount to a single-gang 2 × 4 × 1 7/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting wall compact models. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, and 185.

Strobe

The strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor L-Series Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have two audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. The horn on horn strobe models shall operate on a coded or non-coded power supply.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize Strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Wall-Mount Dimensions (including lens)	5.6˝L × 4.7˝W × 1.91˝D (143 mm L × 119 mm W × 49 mm D)
Compact Wall-Mount Dimensions (including lens)	5.26" L x 3.46" W x 1.91" D (133 mm L x 88 mm W x 49 mm D)
Horn Dimensions	5.6˝L × 4.7˝W × 1.25˝D (143 mm L × 119 mm W × 32 mm D)
Compact Horn Dimensions	5.25" L x 3.45" W x 1.25" D (133 mm L x 88 mm W x 32 mm D)

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Strobe products will operate at 12 V nominal only for 15 cd and 30 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
	Candela	DC	DC	FWR
Candela Range	15	88	43	60
	30	143	63	83
	75	N/A	107	136
	95	N/A	121	155
	110	N/A	148	179
	135	N/A	172	209
	185	N/A	222	257

UL Max. Horn Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
Sound Pattern	dB	DC	DC	FWR
Temporal	High	39	44	54
Temporal	Low	28	32	54
Non-Temporal	High	43	47	54
Non-Temporal	Low	29	32	54
3.1 KHz Temporal	High	39	41	54
3.1 KHz Temporal	Low	29	32	54
3.1 KHz Non-Temporal	High	42	43	54
3.1 KHz Non-Temporal	Low	28	29	54
Coded	High	43	47	54
3.1 KHz Coded	High	42	43	54

UL Max. Current Draw (mA RMS), Wall Horn Strobe, Candela Range (15–185 cd)

	8–17.5 Volts		16–33 Volts						
DC Input	15cd	30cd	15cd	30cd	75cd	95cd	110cd	135cd	185cd
Temporal High	98	158	54	74	121	142	162	196	245
Temporal Low	93	154	44	65	111	133	157	184	235
Non-Temporal High	106	166	73	94	139	160	182	211	262
Non-Temportal Low	93	156	51	71	119	139	162	190	239
3.1K Temporal High	93	156	53	73	119	140	164	190	242
3.1K Temporal Low	91	154	45	66	112	133	160	185	235
3.1K Non-Temporal High	99	162	69	90	135	157	175	208	261
3.1K Non-Temporal Low	93	156	52	72	119	138	162	192	242

	16–33 Volts						
FWR Input	15cd	30cd	75cd	95cd	110cd	135cd	185cd
Temporal High	83	107	156	177	198	234	287
Temporal Low	68	91	145	165	185	223	271
Non-Temporal High	111	135	185	207	230	264	316
Non-Temportal Low	79	104	157	175	197	235	283
3.1K Temporal High	81	105	155	177	196	234	284
3.1K Temporal Low	68	90	145	166	186	222	276
3.1K Non-Temporal High	104	131	177	204	230	264	326
3.1K Non-Temporal Low	77	102	156	177	199	234	291

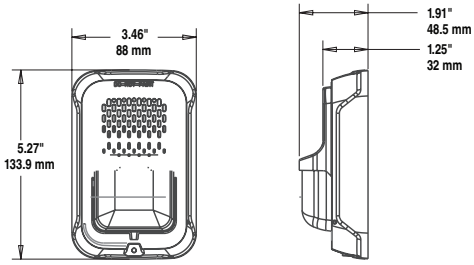
Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)

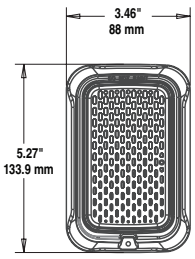
			8–17.5 Volts	16–33 Volts	
Switch Position	Sound Pattern	dB	DC	DC	FWR
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83
9*	Coded	High	85	90	90
10*	3.1 KHz Coded	High	84	89	89

* Settings 9 and 10 are not available on 2-wire horn strobes. Temporal coding must be provided by the NAC. If the NAC voltage is held constant, the horn output remains constantly on.

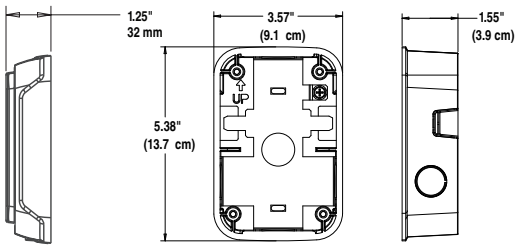
L-Series Dimensions



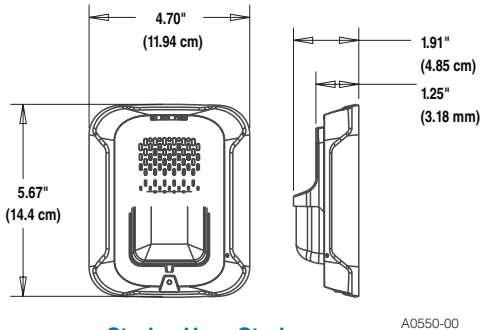
Compact Strobe, Horn Strobe



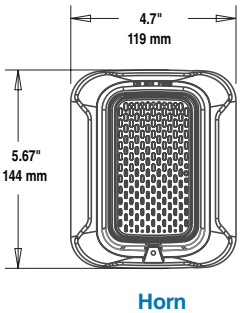
Compact Horn



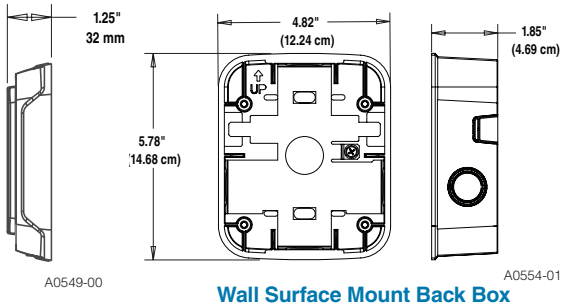
Compact Wall Surface Mount Back Box SBBGRL, SBBGWL



Strobe, Horn Strobe



Horn



Wall Surface Mount Back Box SBBRL/SBBWL

L-Series Ordering Information

Model	Description
Wall Horn Strobes	
P2RL	2-Wire, Horn Strobe, Red
P2WL	2-Wire, Horn Strobe, White
P2GRL	2-Wire, Compact Horn Strobe, Red
P2GWL	2-Wire, Comp 2 fils act Horn Strobe, White
P2RL-P	2-Wire, Horn Strobe, Red, Plain
P2WL-P	2-Wire, Horn Strobe, White, Plain
P2RL-SP	2-Wire, Horn Strobe, Red, FUEGO
P2WL-SP	2-Wire, Horn Strobe, White, FUEGO
P4RL	4-Wire, Horn Strobe, Red
P4WL	4-Wire, Horn Strobe, White
Wall Strobes	
SRL	Strobe, Red
SWL	Strobe, White
SGRL	Compact Strobe, Red
SGWL	Compact Strobe, White
SRL-P	Strobe, Red, Plain
SWL-P	Strobe, White, Plain
SRL-SP	Strobe, Red, FUEGO
SWL-CLR-ALERT	Strobe, White, ALERT

Model	Description
Horns*	
HRL*	Horn, Red
HWL*	Horn, White
HGRL*	Compact Horn, Red
HGWL*	Compact Horn, White
Accessories	
TR-2	Universal Wall Trim Ring Red
TR-2W	Universal Wall Trim Ring White
SBBRL	Wall Surface Mount Back Box, Red
SBBWL	Wall Surface Mount Back Box, White
SBBGRL	Compact Wall Surface Mount Back Box, Red
SBBGWL	Compact Wall Surface Mount Back Box, White

Notes:
All -P models have a plain housing (no “FIRE” marking on cover).
All -SP models have “FUEGO” marking on cover.
All -ALERT models have “ALERT” marking on cover.
*Horn-only models are listed for wall or ceiling use.

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