

ES-200X

Intelligent Addressable FACP with Communicator



Addressable Fire Alarm Control Panels

General

The **ES-200X** is the latest intelligent addressable Fire Alarm Control Panel (FACP) from Fire-Lite Alarms and is a direct replacement for the MS-9200UDLS. The ES-200X comes with a pre-installed communicator and supports up to 198 addressable devices (99 detectors and 99 modules). With an extensive list of powerful features, the ES-200X programs just like Fire-Lite's other addressable products, yet fits into applications previously served only by conventional panels.

The pre-installed IPOTS-COM is a dual technology (POTS and IP) communicator. The POTS transmits system status (alarms, troubles, AC loss, etc.) to a Central Station via the public switched telephone network. The IP communicator's internet monitoring capability sends alarm signals over the Internet saving the monthly cost of two dedicated business telephone lines. Although not required, the secondary telephone line may be retained providing backup communication over the public switched telephone line. Optional cellular reporting is available using the CELL-MOD or CELL-CAB-FL.

Remote and local programming of the control panel is possible using the FS-Tools Upload/Download utility. Programming databases can be uploaded/downloaded via the panel's USB port (and USB cable) or via an ethernet connection using the IPOTS-COM communicator. The USB port also allows for the download or upload of the entire program, history file, walk-test data, current status and system voltages by means of a USB flash drive.

The power supply and all electronics are contained on a circuit board supported on a new quick install chassis and housed in a metal cabinet. Available accessories include local and remote upload/download software, remote annunciators, and reverse polarity/city box transmitter (4XTMF).

Features

- Listed to UL Standard 864, 10th edition
- Pre-installed IPOTS-COM Ethernet IP and POTS (Plain Old Telephone Service) Central Station Communicator over AlarmNet
- Optional CELL-MOD or CELL-CAB-FL GSM Central Station Communicator over AlarmNet®
- Automated activation of the ECC-50/100 Emergency Command Center
- ECC-FFT Firefighter Telephone option
- Compatible with SWIFT® wireless devices
- Auto-programming (learn mode) reduces installation time. Reports two devices set to the same address
- Four built-in, independently programmable Style Z (Class A) or Style Y (Class B) NAC circuits
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices
- Notification Appliance Circuit End of Line resistor matching
- Four programmable function keys for ease of maintenance
- Two programmable relays and one fixed trouble relay
- Built-in Programmer
- Integral 80-character LCD display with backlighting
- Real-time clock/calendar with automatic daylight savings control
- History file with 1,000 event capacity
- Addressable sounder base compatibility
- Multi-criteria detector (smoke, heat, CO) with programmable response
- Control module delay timer
- Automatic detector sensitivity testing (NFPA 72 compliant)
- Automatic device type-code verification
- Point trouble identification
- Waterflow selection per module point



- Alarm verification selection per detector point
- Maintenance alert warns when smoke detector dust accumulation is excessive
- One-person audible or silent walk test with walk-test log and printout
- System alarm verification selection per detector point
- PAS (Positive Alarm Sequence) and Pre-signal per point (NFPA 72 compliant)
- Up to 16 ANN-BUS annunciators- 8 per each ANN-Bus
- Remote Acknowledge, Alarm Silence, Reset and Drill via addressable modules or remote annunciator
- Upload/Download of program and data via USB with optional FS-Tools Programming Utility

SLC COMMUNICATION LOOP

- Supports LiteSpeed™ and CLIP protocols
- SLC operates up to 10,000 ft. (3,000 m) in LiteSpeed mode with twisted, unshielded wire
- Single addressable SLC loop which meets NFPA Class B and Class A requirements
- 198 addressable device capacity (99 addressable detectors and 99 modules)
- Compatible with Fire-Lite's addressable devices (refer to the *SLC Wiring Manual*)

NOTIFICATION APPLIANCE CIRCUITS (NACS)

- Four independently programmable output circuits. Circuits can be configured for the following outputs:

– **Style Y** (Class B)

– **Style Z** (Class A)

- Silence Inhibit and Autosilence timer options
- Continuous, March Time, Temporal, or California code for main circuit board NACs with two-stage capability
- Selectable strobe synchronization per NAC
- 2.5 A special application, 250mA regulated, total power for NACs

NOTE: Maximum or total 24VDC system power shared between all NAC circuits and the ANN-BUS is 2.7 A

PROGRAMMING AND SOFTWARE

- Autoprogramming (learn mode) reduces installation time
- Custom English labels (per point) may be manually entered or selected from an internal library file
- Two programmable Form-C relay outputs
- 99 software zones
- Continuous fire protection during online programming
- Program Check automatically catches common errors not linked to any zone or input point
- **OFFLINE PROGRAMMING:** Create the entire program in your office using FS-Tools, a Windows®-based software package, and upload/download system programming locally. Offline programming requires an ethernet connection. FS-Tools is available on www.firelite.com.

User interface

LED INDICATORS

- Fire Alarm (red)
- CO Alarm (red)
- AC Power (green)
- Supervisory (yellow)
- Trouble (yellow)
- Ground fault (yellow)
- Battery fault (yellow)
- Disabled (yellow)
- Maintenance (yellow)
- Communication (yellow)
- Alarm Silenced (yellow)
- F1-F4 Programmable Function Keys (yellow)

KEYPAD

- 16 key alpha-numeric pad
- Acknowledge
- Alarm Silence
- Drill (Manual Evacuate)
- Four (4) programmable function keys
- Reset (lamp test)

PRODUCT LINE INFORMATION

ES-200X: Addressable Fire Alarm Control Panel with one SLC loop. Includes main circuit board with display, pre-installed communicator, chassis with transformer, backbox with door, plastic bag containing screws, cables, key, etc. (For ES-200XC, refer to DF-60958.)

FS-Tools: Programming software for Windows®-based PC computer. Available for download at www.firelite.com.

CELL-CAB-FL/CELL-MOD: Optional GSM communicators.

IPOTS-COM: Dual technology (POTS and IP) communicator. (replacement board)

DP-ES-R: Optional dress panel for the ES-200X.

TR-CE: Optional trim ring for semi-flush mounting.

BB-2F: Optional cabinet for one or two modules.

BB-6F: Optional cabinet for up to six modules mounted on CHS-6 chassis.

BB-26: Battery backbox, holds up to two 25 AH batteries and CHG-75.

BB-55F: Battery box, houses two 55 AH batteries

CHS-6: Chassis, mounts up to six multi-modules in a BB-6F cabinet.

CHG-75: Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

CHG-120F: Remote battery charging system for lead-acid batteries with a rating of 55 to 120 AH. Requires additional BB-55F for mounting.

BAT Series: Batteries, see data sheet DF-52397.

PRN Series: UL listed compatible event printer. Uses tractor-fed paper.

OPTIONAL MODULES

4XTMF Reverse Polarity Transmitter Module: Provides a supervised output for local energy municipal box transmitter, alarm and trouble. Includes a disable switch and disable trouble LED.

PWRMOD24 Power Expander Module: Optional power module. Increases alarm power output to 6 amps.

COMPATIBLE ANNUNCIATORS

ANN-80: Remote LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded.

ANN-100: Remote LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded. For use in FM applications only.

ANN-I/O: LED Driver Module provides connections to a user supplied graphic annunciator. (See DF-52430.)

ANN-LED: Annunciator Module provides three LEDs for each zone: Alarm, Trouble, and Supervisory. Ships with red enclosure. (See DF-60241.)

ANN-RLED: Provides alarm (red) indicators for up to 30 input zones or addressable points. (See DF-60241.)

ANN-RLY: Relay Module provides 10 programmable Form-C relays. Can be mounted inside the cabinet. (See DF-52431.)

ANN-S/PG: Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer. (See DF-52429.)

ADDRESSABLE DEVICES

All feature a polling LED and rotary switches for addressing.

SD365: Addressable low-profile photoelectric smoke detector. LiteSpeed only.

SD365-IV: Addressable low-profile photoelectric smoke detector. Ivory. LiteSpeed and CLIP mode.

SD365T: Addressable low-profile photoelectric smoke detector with thermal sensor. LiteSpeed only.

SD365T-IV: Addressable low-profile photoelectric smoke detector with thermal sensor. Ivory. LiteSpeed and CLIP mode.

SD365R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. LiteSpeed only.

SD365R-IV: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. Ivory. LiteSpeed and CLIP mode.

H365: Low-profile 135°F fixed thermal sensor. LiteSpeed only.

H365-IV: Low-profile 135°F fixed thermal sensor. Ivory. LiteSpeed and CLIP mode.

H365R: Low-profile, intelligent, rate-of-rise thermal sensor. LiteSpeed only.

H365R-IV: Low-profile, intelligent, rate-of-rise thermal sensor. Ivory. LiteSpeed and CLIP mode.

H365HT: Low-profile intelligent 190°F/88°C fixed thermal sensor. LiteSpeed only.

H365HT-IV: Low-profile intelligent 190°F/88°C fixed thermal sensor. Ivory. LiteSpeed and CLIP mode.

Legacy Devices

CP355: Addressable low-profile ionization smoke detector.

SD355: Addressable low-profile photoelectric smoke detector.

SD355T: Addressable low-profile photoelectric smoke detector with thermal sensor.

SD355R: Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing.

SD355CO: Addressable, low-profile device that provides fire, heat, and carbon monoxide (CO) detection.

H355: Fast-response, low-profile heat detector.

H355R: Fast-response, low-profile heat detector with rate-of-rise option.

H355HT: Fast-response, low-profile heat detector that activates at 190°F/88°C.

AD355: Low-profile, intelligent, “Adapt” multi-sensor detector (B350LP base included).

B200S: Programmable, addressable sounder base.

B200SR: Addressable sounder base.

BEAM355: Intelligent beam smoke detector.

BEAM355S: Intelligent beam smoke detector with integral sensitivity test.

D355PL: InnovairFlex low-flow non-relay duct-detector housing; includes SD355R.

DNR: InnovairFlex low-flow non-relay duct-detector housing. (Order SD355R/SD365R separately.)

DNRW: InnovairFlex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order SD355R/SD365R separately.)

Addressable Modules

MMF-300: Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.

MDF-300: Dual Monitor Module. Same as MMF-300 except it provides two Style B (Class B) only IDCs.

MMF-301: Miniature version of MMF-300. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

MMF-302: Similar to MMF-300. Addressable Monitor Module for one zone of conventional two-wire detectors. Requires resettable 24 VDC power. Refer to the *Device Compatibility Document* for listed compatible devices and quantity limitation.

CMF-300: Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. NAC option requires external 24 VDC to power notification appliances.

CRF-300: Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

BG-12LX: Addressable manual pull station with interface module mounted inside.

I300: This module isolates the SLC loop from short circuit conditions (required for Style 6 or 7 operation).

ISO-6: Six-fault isolator module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

SMB500: Used to mount all modules except the MMF-301 and M301.

MMF-300-10: Ten-input monitor module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

MMF-302-6: Six-zone interface module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

CMF-300-6: Six-circuit supervised control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

CRF-300-6: Six-relay control module (Form-C relays). Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

SWIFT Wireless Devices

W-GATE: LiteSpeed Wireless Gateway

W-SD355: LiteSpeed intelligent, wireless photo detector.

W-H355R: LiteSpeed intelligent wireless rate of rise (135°) heat detector.

W-SD355T: Intelligent wireless photo/heat detector.

W-H355: LiteSpeed intelligent wireless fixed-temperature (135°) heat detector.

W-MMF: LiteSpeed Intelligent wireless monitor module.

W-CRF: LiteSpeed Intelligent wireless relay module.

W-BG12LX: LiteSpeed Intelligent wireless pull station.

WAV-RL, WAV-WL, WAV-CRL, WAV-CWL: LiteSpeed Intelligent AV bases.

W-USB: Wireless USB radio/antenna dongle that plugs into the USB port of a PC running SWIFT Tools.

SWIFT Tools: Programming and diagnostic utility for the Wireless Gateway and devices. Available for download from firelite.com.

NOTE: For more information on Compatible Addressable Devices for use with the ES-200X, see the following data sheets (document numbers): SD365 Series (DF-61010), H365 Series (DF-61011), AD355 (DF-52386), BG-12LX (DF-52013), CMF-300-6 (DF-52365), CRF-300-6 (DF-52374), CMF/CRF Series (DF-52130), CP355 (DF-52383), H355 Series (DF-52385), I300 (DF-52389), ISO-6 (DF-60485), MMF-300 Series/MDF-300 (DF-52121), MMF-300-10 (DF-52347), MMF-302-6 (DF-52356), SD355/SD355T (DF-52384), and SLC Wiring Manual (51309).

NOTE: Legacy 300 Series detection devices such as the CP300/CP350, SD300(T)/SD350(T) and older modules such as the M300, M301, M302, C304, and BG-10LX are not compatible with LiteSpeed polling. If the SLC contains one of these devices, polling must be set for standard CLIP protocol. Please consult factory for further information on previous 300 Series devices.

ADDRESSABLE DEVICE ACCESSORIES

End-of-Line Resistor Assembly (R-47K and R-3.9K): The 47k ohm assembly supervises the MMF-300, MDF-300, MMF-301, and CMF-300 module circuits. The 3.9k ohm assembly supervises the MMF-302 module circuit. These resistors are included with each module.

Power Supervision Relay: Supervises the power to 4-wire smoke detectors and notification appliances.

Wiring Requirements

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Refer to the panel manual for wiring details.

SYSTEM SPECIFICATIONS

System Capacity

- Intelligent Signaling Line Circuits..... 1
- Addressable device capacity 198
- Programmable software zones 99
- Annunciators..... 16

Electrical Specifications

AC Power: Operates in either 120 or 240 VAC, 50/60 Hz, 3.25 A, auto-sensing- no switch required. Wire size: minimum 14 AWG (2.00 mm²) with 600 V insulation. Nonpower-limited, supervised.

Battery: Two 12 V 18 AH lead-acid batteries. Battery Charger Capacity: 7-18 AH (ES-200X cabinet holds maximum of two 18 AH batteries.)

Communication Loop: Supervised and power-limited.

Notification Appliance Circuits: Terminal Block provides connections for four NACs, Style Y (Class B) or Style Z (Class A). Special Application power. Power-limited, supervised circuitry. Maximum signaling current per circuit: 2.5 amps special application, 250mA regulated. End-of-Line Resistor: 4.7k ohm, ½ watt (P/N 71252 UL listed) for Style Y (Class B) NAC; system capable of 1.9 kΩ - 22 kΩ ELR range. Refer to the *Fire•Lite Device Compatibility Document* for listed compatible devices.

Two Programmable Relays and One Fixed Trouble Relay: Contact rating: 2.0 A @ 30 VDC (resistive), 0.5 A @ 30 VAC (resistive). Form-C relays, non-power-limited, non-supervised.

Cabinet Specifications

Door: 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.72" (1.82 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x 16.65" (42.29 cm.) wide x 5.25" (13.34 cm.) deep. **Trim Ring (TR-CE):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

Shipping Specifications

Weight: 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 8.5" (21.59 cm.) deep.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

NFPA Standards

The ES-200X complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTMF is required.)
- **PROPRIETARY** (Automatic, Manual and Waterflow).
- **CENTRAL STATION** (Automatic, Manual and Waterflow, and Sprinkler Supervised).
- **OT, PSDN** (Other Technologies, Packet-switched Data Network)
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic)

Agency Listings and Approvals

The listings and approvals below apply to the basic ES-200X control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S624
- **FM approved**
- **CSFM:** 7165-0075:500
- **FDNY:** COA #6261

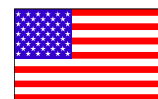
NOTE: See DF-60958 for ULC-listed model.

AlarmNet®, Fire-Lite® Alarms, SWIFT®, and System Sensor® are registered trademarks of Honeywell International Inc. Microsoft® and Windows® are registered trademarks of the Microsoft Corporation.
©2018 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com



Country of Origin: USA

HW-AV-LTE-M CLSS PATHWAY

Connected Life Safety Services (CLSS) Dual-Path LTE Communicator
with Dial Capture Interface

The Honeywell® CLSS Pathway is a differentiated communications platform with dual support for AT&T® and Verizon® and integrated features powered by the CLSS Cloud.

The CLSS Pathway combines dial capture functionality with the powerful capabilities of Honeywell's CLSS Cloud. It represents the latest alarm communications technology for the fire industry. The CLSS Pathway allows data transmission by utilizing LTE CAT-M1 networks, serving as a bridge between the fire system and the CLSS Cloud.

This device provides a single site-to-cloud path ensuring all CLSS Cloud services use the same audited and monitored method to access the on-premises life safety system.

HONEYWELL CONNECTED LIFE SAFETY SERVICES (CLSS)

Honeywell CLSS is an innovative, all-in-one cloud platform that enables systems integrators and facilities managers to deliver an enhanced fire safety service, while maximizing the performance efficiencies offered by Honeywell's trusted detection and alarm systems. The CLSS platform enables users to:

- Get a "bird's eye" view of all accounts
- Obtain real-time information on event generation, enabling diagnosis before dispatch
- Conduct tests and inspections using a mobile app (available in select markets)
- Provide end users with multi-site asset information and event alerts

DUAL AT&T AND VERIZON SUPPORT

Equipped with dual SIM cards, the CLSS Pathway supports both AT&T and Verizon networks. When first powered on, the communicator selects the strongest signal. If either path is not available, the device provides redundant paths for the cellular signal.

SIMPLIFIED INSTALLATION

The CLSS Pathway is commissioned via the CLSS mobile app and CLSS Site Manager interface, which also allow for additional remote visibility.

Connection and mounting is simplified using the enclosure kit. The CLSS Pathway is compatible with any fire alarm dialer using Contact ID format and automatically recognizes the format when powered up. Any number can be programmed into the panel phone numbers. Installers can select the central station service they wish to use from a list of approved central station providers. Only account numbers assigned by the central station must be programmed and the dialer selected for tone dialing output.

FEATURES AND BENEFITS

- Integration with CLSS enables monitoring of event transmission data & management of device inventory from the CLSS mobile app and web portal (available only when using point-based reporting)
- Meets UL 864 requirements for sole primary or backup path communications
- High reliability due to multiple transmission channels (LTE CAT-M1/LAN) and redundant servers
- Universal Panel Compatibility - Dial capture interface supporting Contact ID
- Four supervised inputs for non-dialer panels
- Unique "M1" Network is 5G ready, providing deep signal penetration that allows operation within buildings
- Remote firmware updates
- CLSS mobile app supports push and email notifications
- Monitors event transmission data & manages device inventory from the CLSS mobile app and web portal
- Exceptional Redundancy - Dual-SIM device picks the strongest signal from AT&T or Verizon. If one network becomes unavailable, the communicator connects to the other network
- Powered directly by a 24-volt DC fire alarm power supply. No need for additional batteries, transformer, or power supply
- Connection monitoring - adjustable fault reporting time as low as 20 seconds
- Web-based software and smartphone app for device configuration and administration.



Metal enclosure (HW-AV-ENC) for housing
CLSS Pathway (HW-AV-LTE-M)

Honeywell

HW-AV-LTE-M TECHNICAL SPECIFICATIONS

| Characteristics | Imperial Unit | Metric Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------|
| Electrical | | |
| Supply Voltage | +12 to +29 VDC | |
| Power Consumption | <ul style="list-style-type: none">Standby: 60 mAPeak: 200 mA | |
| Frequency | LTE CAT-M1 700/850/1700/1900/2100 MHz | |
| Environment | | |
| Operating Temperature | 32°F to 120°F | 0°C to 49°C |
| Relative humidity: | 1% to 85% Non-condensing | |
| Physical | | |
| Dimensions | 3.54" L x 2.48" W x 1.26" D | 90 mm L x 63 mm W x 32 mm D |
| Weight (without antenna) | 2.56 oz | 72.57 gm |
| RoHS | Yes | |
| Network Providers | | |
| <ul style="list-style-type: none">AT&T, North AmericaVerizon, North AmericaOther provider in the area networks | | |

AGENCY LISTINGS AND APPROVALS

The listings and approvals below apply to the HW-AV-LTE-M Communicator. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Contact Honeywell for the latest listings.

STANDARDS AND CODES

The HW-AV-LTE-M is designed to comply with UL 864 - Control Units and Accessories for Fire Alarm Systems Units

APPROVALS

- ETL Listed
- FCC
- CSFM: 7300-1637: 0511

ORDERING INFORMATION

- HW-AV-LTE-M:** Dual-Path Communicator with Dial Capture Interface only. Includes antenna.
- HW-AV-ENC:** Enclosure for the CLSS Pathway (HW-AV-LTE-M)

CUSTOMER SUPPLIED EQUIPMENT

Mobile Device for LTE Communicator configuration (either iOS or Android).

Android™ is a trademark of Google, Inc.

AT&T® is a registered trademark of the AT&T Properties, L.P.

Honeywell® is a registered trademark of Honeywell International, Inc.

iOS® is a registered trademark of Cisco Systems Inc. licensed by Apple Inc.

Verizon® is a registered trademark of Verizon Trademark Services LLC.

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

Honeywell International, Inc.

www.fire.honeywell.com

ANN-80

80-Character Serial LCD Annunciator



Annunciators

General

The ANN-80 annunciator is a compact, backlit, 80-character LCD fire annunciator that mimics the Fire Alarm Control Panel (FACP) display. It provides system status indicators for AC Power, Alarm, Trouble, Supervisory, and Alarm Silenced conditions. The ANN-80 and the FACP communicate over a two-wire serial interface employing the ANN-Bus communication format. Connected devices are powered, via two additional wires, by either the host FACP or a remote UL-listed, filtered power supply. The ANN-80 is red; for white, order ANN-80-W.

The ANN-80 displays English-language text of system point information including device type, zone, independent point alarm, trouble or supervisory status, as well as any custom alpha labels programmed into the control panel. It includes control switches for remote control of critical system functions. (A keyswitch prevents unauthorized operation of the control switches.)

Up to eight ANN-80s may be connected to the ANN-Bus of each FACP. No programming is required, which saves time during system commissioning.

Features

- Listed to UL Standard 864, 9th Edition
- Backlit 80-character LCD display (20 characters x 4 lines)
- Mimics all display information from the host panel
- Control switches for System Acknowledge, Signal Silence, Drill, and Reset
- Control switches can be independently enabled or disabled at the FACP
- Keyswitch enables/disables control switches and mechanically locks annunciator enclosure
- Keyswitch can be enabled or disabled at the FACP
- Enclosure supervised for tamper
- System status LEDs for AC Power, Alarm, Trouble, Supervisory, and Alarm Silence
- Local sounder can be enabled or disabled at the FACP
- ANN-80 connects to the ANN-Bus terminal on the FACP and requires minimal panel programming
- Displays device type identifiers, individual point alarm, trouble, supervisory, zone, and custom alpha labels
- Time-and date display field
- Surface mount directly to wall or to single, double, or 4" square electrical box
- Semi-flush mount to single, double, or 4" square electrical box. Use ANN-SB80KIT for angled view mounting
- Can be remotely located up to 6,000 feet (1,800 m) from the panel
- Backlight turns off during AC loss to conserve battery power but will turn back on if an alarm condition occurs
- May be powered by 24 VDC from the host FACP or by remote power supply (requires 24 VDC)
- Up to eight ANN-80s can be connected on the ANN-Bus

Controls and Indicators

- AC Power
- Alarm
- Trouble



- Supervisory
- Alarm Silenced

Specifications

- **Operating voltage range:** 18 VDC to 28 VDC
- **Current consumption @ 24 VDC nominal** (filtered and non-resettable): 40 mA maximum
- **Ambient temperature:** 32°F to 120°F (0°C to 49°C)
- **Relative humidity:** 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F)
- 5.375" (13.65 cm.) high x 6.875" (17.46 cm.) wide x 1.375" (3.49 cm.) deep
- For use indoors in a dry location
- All connections are power-limited and supervised

The ANN-Bus

POWERING THE DEVICES ON THE ANN-BUS FROM AUXILIARY POWER SUPPLY

The ANN-Bus can be powered by an auxiliary power supply when the maximum number of ANN-Bus devices exceeds the ANN-Bus power requirements. See the FACP manual for more information.

ANN-BUS DEVICE ADDRESSING

Each ANN-Bus device requires a unique address (ID Number) in order to communicate with the FACP. A maximum of 8 devices can be connected to the FACP ANN-Bus communication circuit. See the FACP manual for more information.

WIRE REQUIREMENTS: COMMUNICATIONS CIRCUIT

The ANN-80 connects to the FACP ANN-Bus communications circuit. To determine the type of wire and the maximum wiring distance that can be used with FACP ANN-Bus accessory modules, it is necessary to calculate the total worst case current draw for all modules on a single 4-conductor bus. The total worst case current draw is calculated by adding the individual worst case currents for each module.

NOTE: For total worst case current draw on a single ANN-Bus refer to appropriate FACP manual.

WIRE REQUIREMENTS: POWER CIRCUIT

- 14 to 18 AWG (0.75 - 2.08 mm²) wire for 24 VDC power circuit is acceptable. Power wire distance limitation is set by 1.2 volt maximum line drop from source to end of circuit.
- All connections are power-limited and supervised.
- A maximum of eight ANN-80 modules may be connected to this circuit.

Ordering Options

ANN-80: Red 80 character LCD Annunciator.

ANN-80-W: White, 80 character LCD Annunciator.

ANN-SB80KIT-R: Red surface mount backbox with angled wedge.

ANN-SB80KIT-W: White surface mount backbox with angled wedge.

Agency Listings and Approvals

The listings and approvals below apply to the ANN-80. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

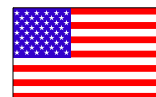
- **UL:** S2424
- **FM approved**
- **CSFM:** 7120-0075:0211
- **MEA:** 442-06-E

Fire-Lite® Alarms is a registered trademark of Honeywell International Inc.
©2018 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

For more information, contact Fire-Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com



Country of Origin: USA

-GENESIS-

Plenum Rated Power Limited Fire Alarm Cable

Part Number: 4513

14 AWG 2 Solid Conductors

| | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Ratings | FPLP, CL3P, FT6 |
| Approvals | UL Listed |
| <u>Construction</u> | |
| Conductor | 14 AWG Solid Bare Copper |
| Conductor Count | 2 |
| Insulation | Plenum PVC (0.008" nom.) |
| Insulation Colors | Black, Red |
| Lay Length | 5.25" nom. |
| Shielding | N/A |
| Rip Cord | Yes |
| Jacket | Plenum PVC (0.015 " nom.) |
| Overall Diameter | 0.206" nom. |
| Print Legend | GENESIS P/N 4513 2C 14AWG E175105 (UL) FPLP OR CL3P FT6 75C (RoHS) W/O# XXXXXXXX-XXXXXXXX XXXXFT A B C D E F 1 2 3 4 5 6 7 8 9 |
| <u>Properties</u> | |
| Operating Voltage | 300 Volts max. |
| DC Resistance | 2.57 Ohms/1000' at 20°C |
| Capacitance | 24.1 pF/ft. nom. |
| Impedance | 63 Ohms nom. |
| Temperature | -20°C to 75°C |
| Flame Rating | NFPA 262 (Plenum); CSA C22.2 No. 2556 (FT6) |
| RoHS Compliant | Yes |
| Country of Origin | USA |

BG-12LX

Addressable Manual Pull Station



Addressable Devices

General

The Fire-Lite BG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface (mounted inside) for Fire-Lite's addressable fire alarm control panels (FACPs). Because the BG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word "ACTIVATED" appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.

Construction

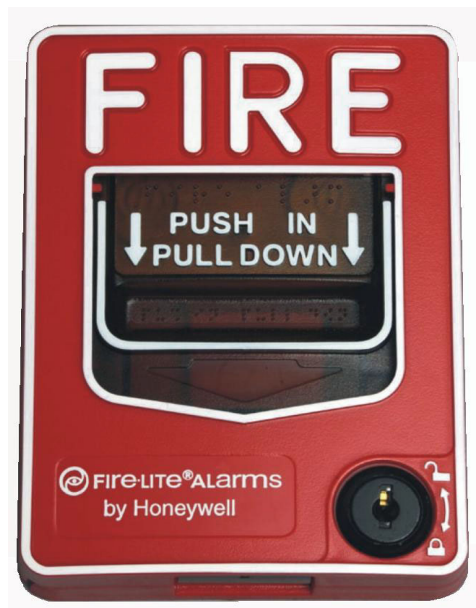
Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC standby current:** 375 μ A.
- **Maximum SLC alarm current:** 5 mA.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**

Installation

The BG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the BG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is



FL PullStation.jpg

usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word "ACTIVATED" (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 with Breakaway Tab removed for MS-9600 Series, 1 – 99 and MS-9200UDLS, 1 – 50 for MS-9050UD).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box, and shall be installed

within the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch. Manual stations shall provide address setting by use of rotary decimal switches.

Product Line Information

BG-12LX: Dual-action addressable pull station. Includes key locking feature. (Listed for Canadian and non-Canadian applications.)

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17003: Keys, set of two.

Agency Listings and Approvals

In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S711 (listed for Canadian and non-Canadian applications).
- **MEA:** 67-02-E.
- **CSFM:** 7150-0075:0184.
- **FM Approved.**

Patented: U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

FireLite® Alarms® is a registered trademark of Honeywell International Inc.
©2012 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.



Made in the U.S. A.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com

SD365 Series

Addressable Photoelectric Smoke Detectors



Addressable Devices

The Fire•Lite® Alarms SD365(A), SD365R(A), and SD365HT(A) intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the SD355 Series. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards.

Exclusively for use with Fire•Lite's addressable fire alarm control panels, the SD365(A) Series point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector location for emergency personnel to quickly locate a fire during its early stages, potentially saving precious rescue time while also reducing property damage. Two LEDs on each sensor light to provide a local, visible sensor indication.

The SD365(A) Series also offers 135°F (57°C) fixed temperature thermal sensing on the SD365T(A) and a remote test capable detector on the SD365R(A) for use with DNR(A)/DNRW duct smoke detector housings.

Features

SLC LOOP:

- Two-wire SLC loop connection
- Unit uses base for wiring
- Compatible with LiteSpeed™ and CLIP protocol systems
- Stable communication technique with noise immunity

ADDRESSING:

- Addressable by device
- Rotary, decimal addressing
(Refer to the *Fire•Lite panel manuals* for device capacity.)

ARCHITECTURE:

- Sleek, low-profile, stylish design
- Unique single-source design to respond quickly and dependably to a broad range of fires
- Integral communications and built-in device-type identification
- Built-in tamper resistant feature
- Remote test feature from the panel
- Walk test with address display (an address on 121 will blink the detector LED: 12-[pause]-1 (*LiteSpeed systems only*))
- Built-in functional test switch activated by external magnet
- Removable cover and insect-resistant screen for simple field cleaning
- Expanded color options

OPERATION:

- Designed to meet UL 268 7th Edition
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level
- LED "blinks" when the unit is polled (communicating with the fire panel) and latches in alarm.
- Low standby current

MECHANICALS:

- Sealed against back pressure
- SEMS screws for wiring of the separate base
- Designed for direct-surface or electrical-box mounting



- Plugs into separate base for ease of installation and maintenance
- Separate base allows interchange of photoelectric, ionization and thermal sensors

OPTIONS:

- Optional relay, isolator, and sounder bases

Installation

SD365 Series plug-in intelligent smoke detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount detector base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DF-60059*.

NOTE: Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Class "B" wiring only.

When using relay or sounder bases, consult the *I300(A)* installation sheet I56-3626 for device limitations between isolator modules and isolator bases.

Construction

These detectors are constructed of fire-resistant plastic. The SD365 Series plug-in intelligent smoke detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each SD365 Series detector uses one of the panel's addresses (total limit is panel dependent) on the Fire•Lite Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The SD365 Series offers features and performance that represent the latest in smoke detector technology.

Detector Sensitivity Test

Each detector can have its sensitivity tested (required per NFPA 72, Chapter 14 on *Inspection, Testing and Maintenance*) when installed/connected to an Fire•Lite addressable fire alarm control panel. The results of the sensitivity test can be printed for record keeping.

Product Line Information

NOTE: “-IV” suffix indicates CLIP and LiteSpeed device.

NOTE: “A” suffix indicates Canadian version.

SD365: White, low-profile intelligent photoelectric sensor, LiteSpeed only

SD365A: Same as SD365 but with ULC listing

SD365-IV: Ivory, low-profile intelligent photoelectric sensor

SD365A-IV: Same as SD365-IV but with ULC listing

SD365T: White, same as **SD365** but includes a built-in 135°F (57°C) fixed-temperature thermal device, LiteSpeed only

SD365TA: Same as SD365T but with ULC listing

SD365T-IV: Ivory, same as SD365T but includes a built-in 135°F (57°C) fixed-temperature thermal device

SD365TA-IV: Same as SD365T-IV but with ULC listing

SD365R: White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW, LiteSpeed only

SD365RA: Same as SD365R but with ULC listing, for use with DNRA

SD365R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

SD365RA-IV: Same as SD365R-IV but with ULC listing, for use with DNRA

INTELLIGENT BASES

NOTE: For details on intelligent bases, see DF-60059.

B300-6: White, 6” base, standard flanged low-profile mounting base (CSFM: 7300-1653:0109)

B300-6-IV: Ivory, 6” base, standard flanged low-profile mounting base (CSFM: 7300-1653:0109)

B300A-6: Same as B300-6, ULC listed

B300A-6-IV: Ivory, 6” standard flanged low-profile mounting base, ULC listed

B300-6-BP: Bulk pack of B300-6, package contains 10

B501-WHITE: White, 4” standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-BL: Black, 4” standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-IV: Ivory color, 4” standard European flangeless mounting base. UL/ULC listed (CSFM: 7300-1653:0109)

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10

B224RB-WH: White, relay base (CSFM: 7300-1653:0216)

B224RB-IV: Ivory, relay base (CSFM: 7300-1653:0216)

B224RBA-WH: White, relay base, ULC listing

B224RBA-IV: Ivory, relay base, ULC listing

B224BI-WH: White, isolator detector base (CSFM: 7300-1653:0216)

B224BI-IV: Ivory isolator detector base (CSFM: 7300-1653:0216)

B224BIA-WH: White, isolator detector base, ULC listing

B224BIA-IV: Ivory isolator detector base, ULC listing

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses LiteSpeed protocol. (CSFM: 7300-1653:0213)

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses LiteSpeed protocol. (CSFM: 7300-1653:0213)

B200SA-WH: Same as B200S-WH, ULC listing

B200SA-IV: Same as B200S-IV, ULC listing

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications)

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications, ULC listing)

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (CSFM: 7300-1653:0238)

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (CSFM: 7300-1653:0238)

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. (CSFM: 7300-1653:0213)

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. (CSFM: 7300-1653:0213)

B200SRA-WH: Same as B200SR-WH with, ULC listing

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listing

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (CSFM: 7300-1653:0238)

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (CSFM: 7300-1653:0238)

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A) base

TR300-IV: Ivory, replacement flange for B210LP(A) base

RA100Z(A): Remote LED annunciator. 3-32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300-6(A).

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: Color Kit (includes cover and trim ring), white, 10-pack

CK300-IV: Color Kit (includes cover and trim ring), ivory, 10-pack

CK300-BL: Color Kit (includes cover and trim ring), black, 10-pack

SYSTEM SPECIFICATIONS

Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

Size: 2.0" (51mm) high; base determines diameter

- **B300-6:** 6.1" (15.6 cm) diameter
- **B501:** 4" (10.2 cm) diameter

For a complete list of detector bases see DF-60983

Shipping weight: 3.4 oz. (95 g)

Operating temperature range:

- SD365: 32°F to 122°F (0°C to 50°C)
- SD365T Series: 32°F to 100°F (0°C to 38°C)
- SD365R Series installed in a DNR/DNRW, -4°F to 158°F (-20°C to 70°C)

UL/ULC Listed Velocity Range: 0-4000 ft/min. (1219.2 m/min.), suitable for installation in ducts

Relative humidity: 10% – 93% non-condensing

Thermal ratings: fixed-temperature set point 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C)

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.): 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC ("ON")

DETECTOR SPACING AND APPLICATIONS

Fire•Lite recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A *System Smoke Detector Application Guide*, document SPAG91, is available at www.systemsensor.com.

Listings and Approvals

Listings and approvals below apply to the SD365 Series detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listing: S1059
- FM Approved
- CSFM: 7272-0075:0502

LiteSpeed™ is a trademark, and Fire•Lite® Alarms and System Sensor® are registered trademarks of Honeywell International Inc.
©2020 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com

Country of Origin: Mexico

MMF-300(A) Series, MDF-300

Addressable Monitor Modules



Addressable Devices

General

Four different monitor modules are available for Fire•Lite's intelligent control panels to suit a variety of applications. Monitor modules are used to supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (MMF-302(A)).

MMF-300(A) is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Style D (Class A) or Style B (Class B) circuit of dry-contact input devices.

MMF-301(A) is a miniature monitor module a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.65" (1.651 cm) D that supervises a Style B (Class B) circuit of dry-contact input devices. Its compact design allows the MMF-301(A) to be mounted in a single-gang box behind the device it monitors.

MMF-302(A) is a standard-sized module used to monitor and supervise compatible two-wire, 24 volt, smoke detectors on a Style D (Class A) or Style B (Class B) circuit.

MDF-300(A) is a standard-sized dual monitor module used to monitor and supervise two independent two-wire Style B (Class B) dry-contact initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

LiteSpeed™ is a communication protocol developed by Fire•Lite Engineering that greatly increases the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other communication protocols.

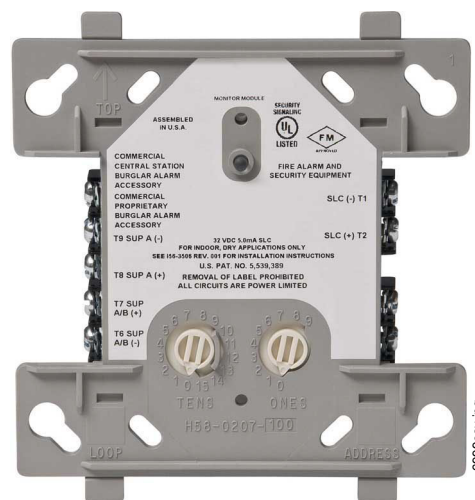
MMF-300(A) Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems.
- LED flashes during normal operation and latches on steady to indicate alarm.

The MMF-300(A) Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The MMF-300(A) can be used to replace M300(A) modules in existing systems.

MMF-300(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special



MMF-300(A) (Type H)

supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K Ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

MMF-300(A) OPERATION

Each MMF-300(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

MMF-300(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Average operating current: 375 μ A (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

EOL resistance: 47K Ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

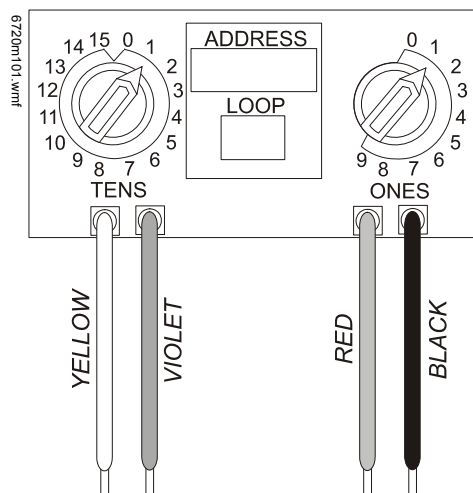
Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

MMF-301(A) Mini Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.

- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems



The MMF-301(A) Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The MMF-301(A) is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm devices. The MMF-301(A) can be used to replace M301(A) modules in existing systems.

MMF-301(A) APPLICATIONS

Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K Ohm End-of-Line Resistor (provided) terminates the circuit.

MMF-301(A) OPERATION

Each MMF-301(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC).

MMF-301(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Average operating current: 350 μ A, 1 communication every 5 seconds, 47k EOL; 600 μ A Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 450 μ A.

EOL resistance: 47K Ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.65" (1.651 cm) deep.

Wire length: 6" (15.24 cm) minimum.

MMF-302(A) Interface Module

- Supports compatible two-wire smoke detectors.

- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems.
- LED flashes during normal operation.
- LED latches steady to indicate alarm on command from control panel.

The MMF-302(A) Interface Module is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The MMF-302(A) can be used to replace M302(A) modules in existing systems.

MMF-302 (A) APPLICATIONS

Use the MMF-302(A) to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K Ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 Ohms). Install ELR across terminals 8 and 9 for Style D application.

MMF-302(A) OPERATION

Each MMF-302(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

MMF-302(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 Ohms.

Average operating current: 270 μ A, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K Ohms.

External supply voltage (between Terminals T10 and T11):

- DC voltage: 24 volts power limited.
- Ripple voltage: 0.1 Vrms maximum.
- Current: 90 mA per module maximum.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

MDF-300(A) Dual Monitor Module

The MDF-300(A) Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices. The module has a single panel-controlled LED.

NOTE: The MDF-300(A) provides two Style B (Class B) IDC circuits ONLY. Style D (Class A) IDC circuits are NOT supported in any application.

MDF-300(A) SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 μ A (LED flashing).

Maximum IDC wiring resistance: 1,500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 μ A

EOL resistance: 47K Ohms.

Temperature range: 32° to 120°F (0° to 49°C).

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

MDF-300(A) AUTOMATIC ADDRESSING

The MDF-300(A) automatically assigns itself to two addressable points, starting with the original address. For example, if the MDF-300(A) is set to address "26", then it will automatically assign itself to addresses "26" and "27".

NOTE: "Ones" addresses on the MDF-300(A) are 0, 2, 4, 6, or 8 only. Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.

CAUTION:

Avoid duplicating addresses on the system.

MDF-300(A): Monitor module, dual, two independent Class B circuits.

SMB500: Optional surface-mount backbox.

NOTE: See installation instructions and refer to the SLC Wiring Manual, PN 51309.

Architects'/Engineers' Specifications

Specifications of these devices and all FireLite products are available from FireLite.

Installation

MMF-300(A), MMF-302(A), and MDF-300(A) modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The MMF-301(A) module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S2424.
- **ULC:** S2424.
- **FM Approved.**
- **CSFM:** 7300-0075:0185.
- **MEA:** 72-01-E.

Product Line Information

NOTE: "A" suffix indicates ULC-listed model.

MMF-300(A): Monitor module.

MMF-301(A): Monitor module, miniature.

MMF-302(A): Monitor module, two-wire detectors.

Fire-Lite® is a registered trademark and LiteSpeed™ and FireWatch™ are trademarks of Honeywell International Inc.
©2015 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.



This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com



Indoor Selectable-Output Strobes and Horn Strobes for Ceiling 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

- 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 ceiling units: 15, 30, 75, 95, 115, 150, and 177
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Universal mounting plate for ceiling units
- Mounting plate shorting spring feature checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Listed for ceiling mounting only



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, wall and ceiling mounting options, System Sensor L-Series can meet virtually any application requirement.

The entire L-Series product line of ceiling-mount strobes and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature a plug-in design 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, the L-Series utilizes a universal mounting plate so installers can mount them to a wide array of back boxes. With an onboard shorting spring, installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to 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.

Agency Listings



L-Series Specifications

Architect/Engineer Specifications

General

L-Series ceiling-mount strobes and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 17/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. 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. Ceiling strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, and 177.

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 L-Series 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 VDC or regulated 24 DC/FWR ¹ |
| Operating Voltage Range² | 8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal) |
| Operating Voltage Range (MDL3) | 8.5 to 17.5V (12 V nominal) or 16.5 to 33 V (24V nominal) |
| Input Terminal Wire Gauge | 12 to 18 AWG |
| Ceiling-Mount Dimensions (including lens) | 6.8" diameter × 2.5" high (173 mm diameter × 64 mm high) |
| Ceiling-Mount Surface Mount Back Box Skirt Dimensions (SBBCRL, SBBCWL) | 6.9" diameter × 3.4" high (175 mm diameter × 86 mm high) |

Notes:

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. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 30 cd.

UL Current Draw Data

| UL Max. Strobe Current Draw (mA RMS) | | | | |
|--------------------------------------|---------|--------------|-------------|-----|
| | Candela | 8–17.5 Volts | 16–33 Volts | FWR |
| | | DC | DC | |
| Candela Range | 15 | 87 | 41 | 60 |
| | 30 | 153 | 63 | 86 |
| | 75 | N/A | 111 | 142 |
| | 95 | N/A | 134 | 164 |
| | 115 | N/A | 158 | 191 |
| | 150 | N/A | 189 | 228 |
| | 177 | N/A | 226 | 264 |

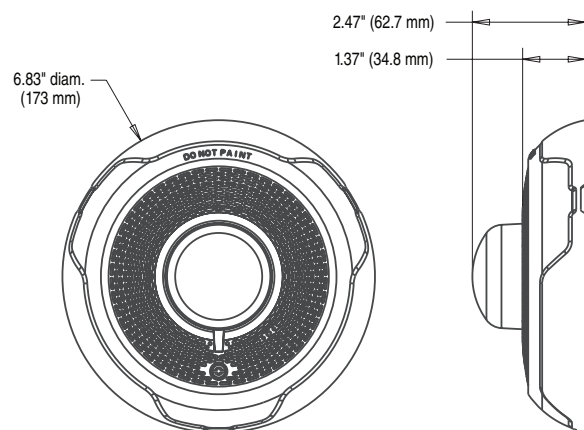
| UL Max. Horn Current Draw (mA RMS) | | | | |
|------------------------------------|------|--------------|-------------|-----|
| Sound Pattern | dB | 8–17.5 Volts | 16–33 Volts | FWR |
| | | DC | DC | |
| Temporal | High | 39 | 44 | 54 |
| Temporal | Low | 28 | 32 | 54 |
| Non-Temporal | High | 43 | 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), Ceiling Horn Strobe, Candela Range (15–177 cd) | | | | | | | | | |
|-------------------------------------------------------------------------------|--------------|------|-------------|------|------|------|-------|-------|-------|
| DC Input | 8–17.5 Volts | | 16–33 Volts | | 75cd | 95cd | 115cd | 150cd | 177cd |
| | 15cd | 30cd | 15cd | 30cd | | | | | |
| Temporal High | 103 | 167 | 71 | 90 | 143 | 165 | 187 | 217 | 254 |
| Temporal Low | 96 | 165 | 54 | 71 | 137 | 161 | 185 | 211 | 249 |
| Non-Temporal High | 106 | 173 | 71 | 90 | 141 | 165 | 187 | 230 | 273 |
| Non-Temporal Low | 95 | 166 | 54 | 71 | 124 | 161 | 170 | 216 | 258 |
| 3.1K Temporal High | 111 | 164 | 69 | 94 | 147 | 163 | 184 | 229 | 257 |
| 3.1K Temporal Low | 103 | 163 | 54 | 88 | 143 | 155 | 185 | 212 | 252 |
| 3.1K Non-Temporal High | 111 | 172 | 69 | 94 | 144 | 164 | 202 | 229 | 271 |
| 3.1K Non-Temporal Low | 103 | 169 | 54 | 88 | 131 | 155 | 187 | 217 | 259 |
| FWR Input | 16–33 Volts | | | | 75cd | 95cd | 115cd | 150cd | 177cd |
| | 15cd | 30cd | 75cd | 95cd | | | | | |
| Temporal High | 107 | 135 | 179 | 198 | 223 | 254 | 286 | | |
| Temporal Low | 78 | 101 | 151 | 172 | 199 | 229 | 262 | | |
| Non-Temporal High | 107 | 135 | 179 | 198 | 223 | 254 | 286 | | |
| Non-Temporal Low | 78 | 101 | 151 | 172 | 199 | 229 | 262 | | |
| 3.1K Temporal High | 108 | 135 | 179 | 200 | 225 | 255 | 289 | | |
| 3.1K Temporal Low | 79 | 101 | 150 | 171 | 196 | 229 | 260 | | |
| 3.1K Non-Temporal High | 108 | 135 | 179 | 200 | 225 | 255 | 289 | | |
| 3.1K Non-Temporal Low | 79 | 101 | 150 | 171 | 196 | 229 | 260 | | |

Horn Strobe Tones and Sound Output Data

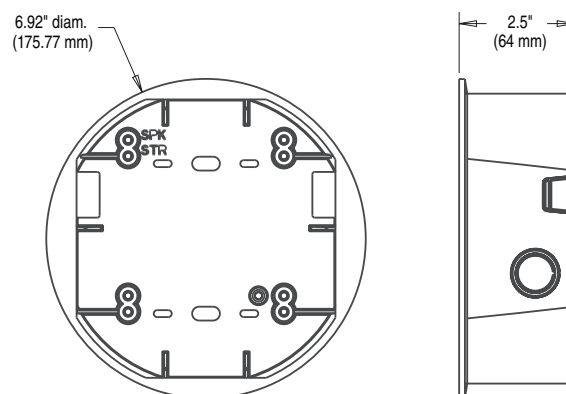
| Horn Strobe Output (dBA) | | | | | |
|--------------------------|----------------------|------|--------------|-------------|-----|
| Switch Position | Sound Pattern | dB | 8–17.5 Volts | 16–33 Volts | FWR |
| | | | DC | DC | |
| 1 | Temporal | High | 84 | 89 | 89 |
| 2 | Temporal | Low | 75 | 83 | 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 |

L-Series Dimensions



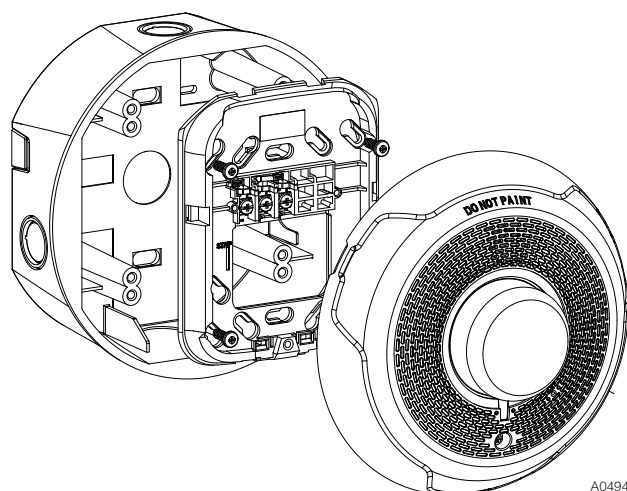
Ceiling-Mount Horn Strobes

A0545-00



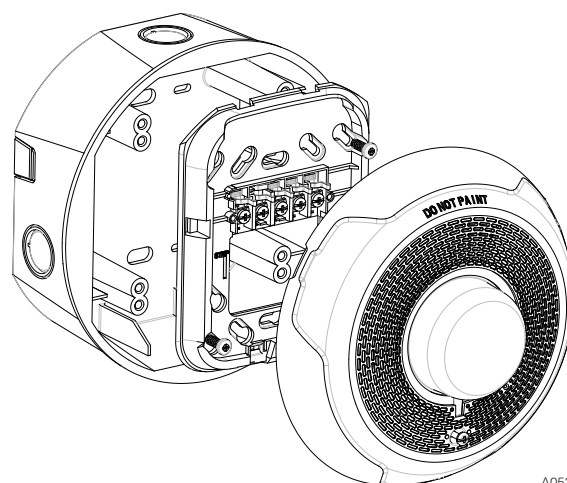
Ceiling Surface Mount Back Box

A0546-00



**2-Wire Ceiling Mount Horn Strobes
with Ceiling Surface Mount Back Box**

A0494-01



**4-Wire Ceiling Mount Horn Strobes
with Ceiling Surface Mount Back Box**

A0531-01

L-Series Ordering Information

| Model | Description |
|-----------------------------|----------------------------|
| Ceiling Horn Strobes | |
| PC2RL | 2-Wire, Horn Strobe, Red |
| PC2WL | 2-Wire, Horn Strobe, White |
| PC4RL | 4-Wire, Horn Strobe, Red |
| PC4WL | 4-Wire, Horn Strobe, White |

| Model | Description |
|------------------------|---------------------------------------|
| Ceiling Strobes | |
| SCRL | Strobe, Red |
| SCWL | Strobe, White |
| SCWL-CLR-ALERT | Strobe, White, ALERT |
| Accessories | |
| TRC-2 | Universal Ceiling Trim Ring Red |
| TRC-2W | Universal Ceiling Trim Ring White |
| SBBCRL | Ceiling Surface Mount Back Box, Red |
| SBBCWL | Ceiling Surface Mount Back Box, White |

For a ceiling-listed horn-only device, see AVDS865 "Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications".



3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

©2017 System Sensor.
Product specifications subject to change without notice. Visit systemsensor.com
for current product information, including the latest version of this data sheet.
AVDS868-02 • 12/01/2017

ES-200X Battery Calculation

Secondary Power Source Requirements

| Device Type | Standby Current (amps) | | | | | Secondary Alarm Current (amps) | | | | |
|----------------------------|------------------------|---|--------------|---|----------|--------------------------------|---|--------------|---|----------|
| | Qty | | Current Draw | = | Total | Qty | | Current Draw | = | Total |
| Main Circuit Board | 1 | x | 0.141000 | = | 0.141000 | 1 | x | 0.257000 | = | 0.257000 |
| IPOTS-COM | 1 | x | 0.040000 | = | 0.040000 | 1 | x | 0.041000 | = | 0.041000 |
| 4XTMF | 0 | x | 0.005000 | = | | 0 | x | 0.011000 | = | |
| PWRMOD24 | 0 | x | 0.007000 | = | | 0 | x | 0.008000 | = | |
| IPDACT-2 | 0 | x | 0.093000 | = | | 0 | x | 0.136000 | = | |
| IPDACT-2UD | 0 | x | 0.098000 | = | | 0 | x | 0.155000 | = | |
| CELL-MOD | 0 | x | 0.055000 | = | | 0 | x | 0.100000 | = | |
| CELL-CAB-FL | 0 | x | 0.055000 | = | | 0 | x | 0.100000 | = | |
| ECC-FFT | 0 | x | 0.120000 | = | | 0 | x | 0.230000 | = | |
| ANN-BUS Devices | | | | | | | | | | |
| ANN-80 | 0 | x | 0.015000 | = | | 0 | x | 0.040000 | = | |
| ANN-80-W | 0 | x | 0.015000 | = | | 0 | x | 0.040000 | = | |
| ANN-100 | 0 | x | 0.020000 | = | | 0 | x | 0.025000 | = | |
| ANN-LED | 0 | x | 0.028000 | = | | 0 | x | 0.068000 | = | |
| ANN-RLED | 0 | x | 0.028000 | = | | 0 | x | 0.068000 | = | |
| ANN-RLY | 0 | x | 0.015000 | = | | 0 | x | 0.075000 | = | |
| ANN-I/O | 0 | x | 0.035000 | = | | 0 | x | 0.200000 | = | |
| ANN-I/O LED | 0 | x | 0.000000 | = | | 0 | x | 0.010000 | = | |
| ANN-S/PG | 0 | x | 0.045000 | = | | 0 | x | 0.045000 | = | |
| ACS Annunciators | | | | | | | | | | |
| ACM-8RF | 0 | x | 0.030000 | = | | 0 | x | 0.158000 | = | |
| ACM-16ATF | 0 | x | 0.040000 | = | | 0 | x | 0.056000 | = | |
| ACM-32AF | 0 | x | 0.040000 | = | | 0 | x | 0.056000 | = | |
| AEM-16ATF | 0 | x | 0.002000 | = | | 0 | x | 0.018000 | = | |
| AEM-32AF | 0 | x | 0.002000 | = | | 0 | x | 0.018000 | = | |
| AFM-16ATF | 0 | x | 0.040000 | = | | 0 | x | 0.056000 | = | |
| AFM-32AF | 0 | x | 0.040000 | = | | 0 | x | 0.056000 | = | |
| ECC-FFT | 0 | x | 0.120000 | = | | 0 | x | 0.230000 | = | |
| AFM-16AF | 0 | x | 0.025000 | = | | 0 | x | 0.065000 | = | |
| LDM-32F | 0 | x | 0.040000 | = | | 0 | x | 0.056000 | = | |
| LDM-E32F | 0 | x | 0.002000 | = | | 0 | x | 0.018000 | = | |
| LCD-80F | 0 | x | 0.025000 | = | | 0 | x | 0.064000 | = | |
| Conventional Detectors | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | |
| EOLR-1 | 0 | x | 0.020000 | = | | 0 | x | 0.020000 | = | |
| Addressable Devices | | | | | | | | | | |
| BEAM355 | 0 | x | 0.002000 | = | | | | | | |
| BEAM355S | 0 | x | 0.002000 | = | | | | | | |
| CP355 | 0 | x | 0.000300 | = | | | | | | |
| SD355 | 0 | x | 0.000300 | = | | | | | | |
| SD355T | 0 | x | 0.000300 | = | | | | | | |
| SD355R | 0 | x | 0.000300 | = | | | | | | |
| SD355CO | 0 | x | 0.000300 | = | | | | | | |
| AD355 | 0 | x | 0.000300 | = | | | | | | |
| H355 | 0 | x | 0.000300 | = | | | | | | |
| H355R | 0 | x | 0.000300 | = | | | | | | |
| H355HT | 0 | x | 0.000300 | = | | | | | | |
| D350P | 0 | x | 0.000300 | = | | | | | | |
| D350RP | 0 | x | 0.000300 | = | | | | | | |
| D350PL | 0 | x | 0.000300 | = | | | | | | |
| D350RPL | 0 | x | 0.000300 | = | | | | | | |
| D355PL | 0 | x | 0.000300 | = | | | | | | |
| MMF-300 | 6 | x | 0.000400 | = | 0.002400 | | | | | |
| MMF-300-10 | 0 | x | 0.003500 | = | | | | | | |

| | | | | | | | | | |
|------------------------|-------------------------------------------------------|---|----------|---|----------|------------------|---|----------|------------|
| MDF-300 | 0 | x | 0.000750 | = | | | | | |
| MMF-301 | 0 | x | 0.000375 | = | | | | | |
| MMF-302 | 0 | x | 0.000270 | = | | | | | |
| MMF-302-6 | 0 | x | 0.002000 | = | | | | | |
| BG-12LX | 2 | x | 0.000300 | = | 0.000600 | | | | |
| CMF-300 | 0 | x | 0.000390 | = | | | | | |
| CMF-300-6 | 0 | x | 0.002250 | = | | | | | |
| CRF-300 | 0 | x | 0.000270 | = | | | | | |
| CRF-300-6 | 0 | x | 0.001450 | = | | | | | |
| CDRM-300 | 0 | x | 0.001300 | = | | | | | |
| I300 | 0 | x | 0.000400 | = | | | | | |
| ISO-6 | 0 | x | 0.002700 | = | | | | | |
| B501BH-2 | 0 | x | 0.001000 | = | | | | | |
| B501BHT-2 | 0 | x | 0.001000 | = | | | | | |
| B224RB | 0 | x | 0.000500 | = | | | | | |
| B224BI | 0 | x | 0.000450 | = | | | | | |
| SD365 | 1 | x | 0.000300 | = | 0.000300 | | | | |
| SD365-IV | 0 | x | 0.000300 | = | | | | | |
| SD365T | 0 | x | 0.000300 | = | | | | | |
| SD365T-IV | 0 | x | 0.000300 | = | | | | | |
| SD365R | 0 | x | 0.000300 | = | | | | | |
| SD365R-IV | 0 | x | 0.000300 | = | | | | | |
| H365 | 0 | x | 0.000300 | = | | | | | |
| H365-IV | 0 | x | 0.000300 | = | | | | | |
| H365R | 0 | x | 0.000300 | = | | | | | |
| H365R-IV | 0 | x | 0.000300 | = | | | | | |
| H365HT | 0 | x | 0.000300 | = | | | | | |
| H365HT-IV | 0 | x | 0.000300 | = | | | | | |
| B501 | 0 | x | 0.000000 | = | | | | | |
| B501-IV | 0 | x | 0.000000 | = | | | | | |
| B300-6 | 0 | x | 0.000000 | = | | | | | |
| B300-6-IV | 0 | x | 0.000000 | = | | | | | |
| TR-300 | 0 | x | 0.000000 | = | | | | | |
| TR-300-IV | 0 | x | 0.000000 | = | | | | | |
| W-GATE | 0 | x | 0.024000 | = | | | | | |
| | Maximum alarm draw for all Addressable devices -----> | | | | | | | | 0.400000 |
| CMF-300 (Aux. Power) | 0 | x | 0.001700 | = | | 0 | x | 0.007000 | = |
| CMF-300-6 (Aux. Power) | 0 | x | 0.008000 | = | | 0 | x | 0.020000 | = |
| MMF-302 (Aux. Power) | 0 | x | 0.012000 | = | | 0 | x | 0.090000 | = |
| MMF-302-6 (Aux. Power) | 0 | x | 0.050000 | = | | 0 | x | 0.270000 | = |
| B200SR (Aux. Power) | 0 | x | 0.000500 | = | | 0 | x | 0.035000 | = |
| B200SR-LF (Aux. Power) | 0 | x | 0.001000 | = | | 0 | x | 0.125000 | = |
| Miscellaneous Device 1 | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = |
| Miscellaneous Device 2 | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = |
| Miscellaneous Device 3 | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = |
| Miscellaneous Device 4 | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = |
| Miscellaneous Device 5 | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = |
| NAC 1 | | | 0.00000 | = | | | | 0.89600 | = 0.896000 |
| NAC 2 | | | 0.00000 | = | | | | 0.00000 | = |
| NAC 3 | | | 0.00000 | = | | | | 0.00000 | = |
| NAC 4 | | | 0.00000 | = | | | | 0.00000 | = |
| Resettable 1 | | | 0.00000 | = | | | | 0.00000 | = |
| Non-Resettable 1 | | | 0.00000 | = | | | | 0.00000 | = |
| Total Standby Load | | | | | 0.184300 | Total Alarm Load | | | 1.594000 |

ES-200X Battery Calculation

Note 1: You are **fully responsible for verifying these calculations.**

Note 2: Use the dropdowns in the **yellow** cells to enter values.

Calculation in Total Sheet

| | | | | | |
|---------------------------------|--------------|---------------------------------------|-------|---|----------|
| | | Required Standby Time in Hours | | | |
| | | 24 Hours | | | |
| Standby Load Current | 0.18430 Amps | x | 24 | = | 4.423 AH |
| | | Required Alarm Time in Minutes | | | |
| | | 5 Minutes | | | |
| Alarm Load Current (Amps) | 1.59400 Amps | x | 0.084 | = | 0.134 AH |
| | | Total Current Load | | | |
| | | 4.557 AH | | | |
| Multiply by the Derating Factor | | | 1.2 | = | x 1.20 |
| | | Total Ampere Hours Required | | | |
| | | 5.47 AH | | | |

Recommended Batteries: **BAT-1270 - 7AH Batteries**

Battery Check

The batteries can be charged by the ES-200X Charger.

The batteries can be housed in the ES-200X Cabinet.

Current Draw Check

NAC#1 current is within the limitations of the circuit.

NAC#2 current is within the limitations of the circuit.

NAC#3 current is within the limitations of the circuit.

NAC#4 current is within the limitations of the circuit.

ES-200X Control Panel:

The output current is within the panel's limitations.

ES-200X Circuit Detail

NAC 1

| Device | Qty | | Non-Alarm Draw | = | Total | Qty | | Alarm Draw | = | Total | |
|--------------------|-----|---|----------------|---|----------|------------------|---|------------|---|----------|----------|
| SCWL @ 15 Candela | 3 | x | 0.000000 | = | 0.000000 | 3 | x | 0.041000 | = | 0.123000 | |
| SCWL @ 30 Candela | 2 | x | 0.000000 | = | 0.000000 | 2 | x | 0.063000 | = | 0.126000 | |
| PC2WL @ 15 Candela | 1 | x | 0.000000 | = | 0.000000 | 1 | x | 0.071000 | = | 0.071000 | |
| PC2WL @ 30 Candela | 3 | x | 0.000000 | = | 0.000000 | 3 | x | 0.094000 | = | 0.282000 | |
| PC2WL @ 75 Candela | 2 | x | 0.000000 | = | 0.000000 | 2 | x | 0.147000 | = | 0.294000 | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| Total Standby Load | | | | | 0.000000 | Total Alarm Load | | | | | 0.896000 |

NAC 2

| NAC 2 | | | | | | | | | | | |
|--------------------|-----|----------------|----------|---|----------|------------------|------------|----------|---|-------|----------|
| Device | Qty | Non-Alarm Draw | | | Total | Qty | Alarm Draw | | | Total | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| Total Standby Load | | | | | 0.000000 | Total Alarm Load | | | | | 0.000000 |

NAC 3

| Device | Qty | Non-Alarm Draw | | | Total | Qty | Alarm Draw | | | Total | |
|--------------------|-----|----------------|----------|---|----------|------------------|------------|----------|---|-------|----------|
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| Total Standby Load | | | | | 0.000000 | Total Alarm Load | | | | | 0.000000 |

| NAC 4 | | | | | | | | | | | |
|--------------------|-----|---|----------------|---|----------|------------------|---|------------|---|-------|----------|
| Device | Qty | | Non-Alarm Draw | = | Total | Qty | | Alarm Draw | = | Total | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| | 0 | x | 0.000000 | = | | 0 | x | 0.000000 | = | | |
| Total Standby Load | | | | | 0.000000 | Total Alarm Load | | | | | 0.000000 |