SUBMITTAL COVER SHEET

From: Gustavo Carvajal **Attn:** Tim Brown

Company: Piazza, Inc.

Phone/Fax #: (914)741-4435

Project: Dutchess Stadium

Project #: RFB-DCB-18-22

C&S Companies
499 Col. Eileen Collins Blvd.
Syracuse, NY 13212
(315) 455-2000; Fax: 455-9577

Reference: CSI Code: 283111 Dwg No: _____

Paragraph: _____ Other: _____

Description: Fire alarm System

Supplier: Upstate Electric

Manufacturer: _____

Item Type:

X Product Data ____ Manf. Cert/Warranty

X Shop Drawings ____ Samples

____ Other: _____

Contractor's Approval:

____ Reviewed for general compliance of specifications.

____ This submittal is a ***substitute*** to the specified product.

____ For Architects / Engineers Approval

This is our ____ submittal for this item.

We are submitting ____ copies.

Contractor Submittal Review Stamp

THE ATTACHED MATERIAL HAS BEEN REVIEWED BY THE UNDERSIGNED AND IS BELIEVED TO COMPLY WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE UNDERSIGNED UNDERSTANDS VERIFICATION OF FIELD DIMENSIONS, AND COORDINATION WITH OTHER TRADES, REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.

Submitted by: Piazza, Inc. Digitally signed by Piazza, Inc. DN: C=US, E=julianna@piazzabrothers.com, OU=Piazza, Inc.", O="Piazza, Inc.", CN="Piazza, Inc." Date: 2023.03.15 15:04:38-04'00'

Date: 06/08/23

C&S Companies Approval:

☐ (A) Approved

☐ (A/N) Approved As Noted

☐ (R) Reviewed for General Conformance

☐ (RR) Revise and Resubmit

☐ (REJ) Rejected

☐ (SUB) Submit Specified Item

Checking is only for general compliance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the jobsite; fabrication processes and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

Reviewed by: _____

Date: _____

***Note: Provide one cover sheet for each copy of the submittal.**

SUBMITTAL COVER SHEET

Contractor: *Piazza Inc*

Address: *3 W. Stevens Ave - Hawthorne NY 10532* **Telephone:** *(914)741 4435*

TYPE OF SUBMITTAL:

Owner: Dutchess County of Public Works

Name of Project: Rebid Dutchess Stadium New Left Field Clubhouse, Seating Bowl, & Restroom Building

[X] ShopDrawings	[ ] Schedule	[ ] Physical Sample
[X] TechnicalData	[ ] Certificate	[ ] Color Sample
[ ] Test Report	[ ] Warranty	[ ] _____

Submission #: 1st, 2nd, 3rd, 4th (circle one)

Description:

Product Identification: Fire Alarm System

Manufacturer: EST

Subcontractor/Supplier: Fire, Security, and Sound South, Inc.

DOCUMENT REFERENCES: (Must be fully filled out)

Spec Section No.: 283111 Drawing No(s): _____

Paragraph: _____ Rm. Or Det. No(s): _____

Contractor Remarks:

These documents have been checked for accuracy and coordination with job conditions and contract requirements by Piazza, Inc. and have been found to comply with the provisions of the contract documents. - PIAZZA INC.

Contractor Submittal Review Stamp

THE ATTACHED MATERIAL HAS BEEN REVIEWED BY THE UNDERSIGNED AND IS BELIEVED TO COMPLY WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE UNDERSIGNED UNDERSTANDS VERIFICATION OF FIELD DIMENSIONS, AND COORDINATION WITH OTHER TRADES, REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.

DATE: _____ BY (SIGN): *Piazza Inc*

DLRGROUP
Submittal Review

Project Name:	Dutchess Stadium Left Field Building
Project Number:	57-21113-01
Submittal ID:	283111-1
Received On:	6/8/2023
Reviewed On:	6/20/2023
Reviewed By:	Collin Wheeler
Action:	Reviewed

This review is for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of submittals is not for the purpose of determining the accuracy and completeness of other information such as dimensions, quantities, and installation or performance of equipment or systems, which are the Contractor's responsibility. The Architect's review shall not constitute approval of safety precautions or construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component. The Architect's comments, notes or corrections are not an authorization to proceed with Work involving a change in the Contract Sum, the Contract Time or both. If any portion of this review requires a change to the Work, an appropriate change instrument must be executed in accordance with the Contract Documents.

Architect Submittal Review Stamp

[ ] NO EXCEPTIONS	[ ] MAKE CORRECTIONS NOTED
[ ] REJECTED	[ ] REVISE AND RESUBMIT
[ ] EXAMINED	[ ] SUBMIT SPECIFIED ITEM

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS & SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED & CORRELATED AT THE JOB SITE; FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL

*** Interconnect left-field building fire alarm system with existing stadium fire alarm system. Provide additional parts and pieces to achieve interconnection. Coordinate with owner.**

CLIENT PRODUCT REGISTRATION FORM

Fire, Security And Sound Companies
"The Name Says It All !"
www.firesecuritysound.com

End User Information:	
Business Information:	
Corporate Name/dba:	
Corporate Address:	
Business Office Phone Number:	
Contact Person Information:	
Full Name:	
Email:	
Direct Phone Number:	
Cell Phone Number:	
Signature:	
Title:	Date:

Internal Office Information (Completed By FS&S):			
PROJECT NUMBER:	S-301351	PROJECT NAME:	Dutchess Stadium - New Left Field

Project Location(s):	Phase #	Location Name	Location Address
Location #1:		Dutchess Stadium	1500 Rt 9D, Fishkill, NY 12590

SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER
Manufacturer	Edwards					
Product Line	EST4					
SSA (Required)	N/A					
Monitoring (Required)	Yes					

Project Location(s):	Phase #	Location Name	Location Address
Location #2:			

SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER
Manufacturer						
Product Line						
SSA (Required)						
Monitoring (Required)						

Project Location(s):	Phase #	Location Name	Location Address
Location #3:			

SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER
Manufacturer						
Product Line						
SSA (Required)						
Monitoring (Required)						

Fire, Security And Sound Systems, Inc.
4 Avis Drive-Suite 110
Latham, NY 12110
P: 518-250-4364 F: 518-250-4365

Fire, Security And Sound South, Inc.
33 Airport Drive- Suite 106
New Windsor, NY 12553
P: 845-245-6100 F:845-391-8398

CLIENT PRODUCT REGISTRATION FORM

Fire, Security And Sound Companies
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www.firesecuritysound.com

PROJECT NUMBER:		PROJECT NAME:					
Project Location(s):	Phase #	Location Name		Location Address			
Location #4:							
SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER	
Manufacturer							
Product Line							
SSA (Required)							
Monitoring (Required)							
Project Location(s):	Phase #	Location Name		Location Address			
Location #5:							
SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER	
Manufacturer							
Product Line							
SSA (Required)							
Monitoring (Required)							
Project Location(s):	Phase #	Location Name		Location Address			
Location #6:							
SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER	
Manufacturer							
Product Line							
SSA (Required)							
Monitoring (Required)							
Project Location(s):	Phase #	Location Name		Location Address			
Location #7:							
SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER	
Manufacturer							
Product Line							
SSA (Required)							
Monitoring (Required)							
Project Location(s):	Phase #	Location Name		Location Address			
Location #8:							
SYSTEMS	FIRE	CA	CCTV	AoR	CLOCKS	OTHER	
Manufacturer							
Product Line							
SSA (Required)							
Monitoring (Required)							

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Fire, Security And Sound South, Inc.
33 Airport Drive- Suite 106
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Fire, Security & Sound South, Inc.
Sales and Service of Fire Alarm, Security,
CCTV, Communications Systems

Submittal #S-301351

June 01, 2023

Project:

Dutchess Stadium – New Left Field
1500 Route 9D
Fishkill, NY 12590

Section 283111
Fire Alarm Systems

Customer:

Upstate Electrical, LLC
501 Temple Hill Road
New Windsor, NY 12553

Submitted by: *Jeremy Riel*
Salesmen: *Sean Reilly*

33 Airport Center Drive - Suite 106, New Windsor, NY 12553
Website – www.firesecuritysound.com
Phone: (845) 245-6100, Fax: (845) 391-8398

FS&SS

FIRE, SECURITY & SOUND SOUTH, INC.

SALES AND SERVICE OF FIRE ALARM, SECURITY,
CCTV, COMMUNICATIONS SYSTEMS

Job Name: **S-301351 - Dutchess Stadium - New Left Field**

Spec. Section: **283111 - Fire Alarm Systems**

Quantity	Model #	Description	Page
-	EST4	EST4 Platform Overview	1.1-8
1	4-CPU	Central Processor Unit	1.9-12
1	4-NET-TP	SFP Network Controller, Twisted Pair	1.13-16
1	3-SSDC2	Signal Signature Driver Controller	1.17-22
1	3-MODCOM	Modem Communicator and Dialer	1.23-26
2	3-ZA40B	Zoned Amplifier, 40 Watt, Class B	1.27-30
1	3-ZA40A	Zoned Amplifier, 40 Watt, Class A	1.27-30
1	4-LCDLE	Display, Main LCD Module	1.31-34
1	4-24L24S	24 LED Indicator, 24 Switch, Control Display Module	1.35-38
19	4-FIL	EST4 Filler Plate for inner door	1.35-38
1	4-AUDTELS	Audio and Telephone Interface/Riser Module	1.39-44
1	4-MIC	Paging Microphone	1.39-44
1	3-CAB14B	Back Box /w 2 Chassis Space w/o Door	1.45-50
1	4-CAB24D	Door Assembly for 3-CAB14	1.45-50
2	3-CHAS7	Chassis Ass'y for 7 LRMs	1.45-50
1	BC-1	Battery Cabinet	1.51-52
1	4-PPS/M	Primary Power Supply 120V	1.53-56
4	PS12400	12V 40AH Battery	1.57-58
1	4-2ANN	LCD Annunciator-w/ 4-LCDANN color touchscreen display	1.59-66
1	4-2ANNMT	Mounting assembly for 4-2ANN, two wide annunciator	1.59-66
1	4-NET-TP	SFP Network Controller, 2Mbps Shared TX/RX, Twisted Pr	1.59-66
2	BPS6A	Remote Booster Power Supply, 6.5A, 120Vac, Red	1.67-70
4	PS-1270	12V 7AH Battery	1.71-72
35+2	SIGA-OSD	Multi-criteria Optical Smoke Detector	1.73-76
3	SIGA-HFD	Intelligent fixed temperature heat detector	1.77-80
38+2	SIGA-SB	Standard Detector Base	1.77-80
10	SIGA-278	Double Action Fire Alarm Station	1.81-84
11	SIGA-CT1	Single Input Module	1.85-88
2	SIGA-CT2	Dual Input Module	1.85-88
1	SIGA-CC1S	Sychronized Signal Module	1.89-92
7	SIGA-CR	Control Relay Module	1.93-98
2	SIGA-CC1	Signal Module	1.99-104
7	260-CO	GE SafeAir Carbon Monoxide Detector	1.105-108
1	PAM1	Multi-Voltage Control Relay	1.109-110

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Phone - (518) 250-4364, Fax - (518) 250-4365

Quantity	Model #	Description	Page
9	GCVWF	Ceiling Strobe, 15-115cd, White, Fire Marking	1.111-116
15	GCSWF	Ceiling Speaker, White, Fire Marking	1.117-122
31+1	GCSVWF	Ceiling Speaker/Strobe, White, Fire Marking	1.117-122
6	GRSW-10	Universal Mounting Plate, 10 Pack	1.117-122
7+1	WG4WF-SVMHC	Outdoor Rated Wall/Ceiling Speaker/Strobe, White	1.123-126
7	74347U	Outdoor-rated surface-mount backbox, RED.	1.123-126
2	439D-6AW-R	6" Bell, Red, Wall	1.127-128
2	449	Bell WP back box	1.127-128

Project Compliance:	Page
Battery Calculations	A1-3
Installer's License	B1
Certifications	C1-2

Corresponding CAD Drawings	Page
Fire Alarm System - FACP Hardware Layer Diagram	D-N301351-FA1
Fire Alarm System - FACP Operator Layer Diagram	D-N301351-FA2
Fire Alarm System - Riser Diagram	D-N301351-FA3
Fire Alarm System - Device Wiring Details	D-N301351-FA4
Fire Alarm System - Addressable Floor Plan	D-N301351-FA5
Fire Alarm System - Addressable Floor Plan	D-N301351-FA6

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EDWARDS

EST

Networked Life Safety Platform

1.1

FIRE SAFETY FOR THE FUTURE

EST4 represents a great leap forward in life safety capability, drawing on the strength and success of its predecessor – EST3 – to deliver the industry's most robust and thoughtfully crafted networked life safety platform.

MODULAR CAPABILITIES

A modular panel provides extraordinary flexibility and customizable configuration, allowing you to include only the capabilities you need and to easily exclude those you don't, while also providing future expansion capability.

ADVANCED NETWORK ARCHITECTURE

EST4 adapts to a multitude of facility and campus layouts, reducing the cost of networked systems. And UL-listed proxy firewalls help protect your system against cyber threats when connecting to outside networks.

EMERGENCY VOICE COMMUNICATIONS

EST4's distributed audio and impressive capacity of 100 channels per system make EST4 the clear choice to deliver critical messages when and where they are needed.

BACKWARDS COMPATIBILITY

Wiring, devices, and most local EST3 rail modules are fully backwards compatible with EST4, providing easy migration paths and an economical transition to new technology.

FUTURE READY

While EST4 meets the rigorous UL864 fire alarm controls standard and UL2572 standard for mass notification today, its design is ready to adapt to future code and standard changes.

SAFEGUARDING PEOPLE AND PROPERTY

From the big picture to the small details, EST4 is engineered to make protection as flexible, efficient and user-friendly as possible.

FLEXIBILITY & EFFICIENCY

UP TO **75%**

LESS CABLING REQUIRED
for network, audio and telephone data due to shared, single-twisted pair or fiber strand

100 channels
of digital audio on a single pair of wires

USER EXPERIENCE

LED Indicators:
5 Color Options **EACH**

20K
EVENT HISTORY

FULL-COLOR
LCD Touch Screen
with Tactile Buttons

CONNECTIVITY

Local and Remote Reporting

Email & Email-to-SMS Messaging

480 Mbps **BUILT-IN**
USB Ports on Panels

MAINTENANCE ADVANTAGES

ZERO
DOWNTIME
during system updates with Advanced Upload/ Download Protocol

LOGICAL
PROGRAMMING
depicts the system in a graphical tree view to match building layout

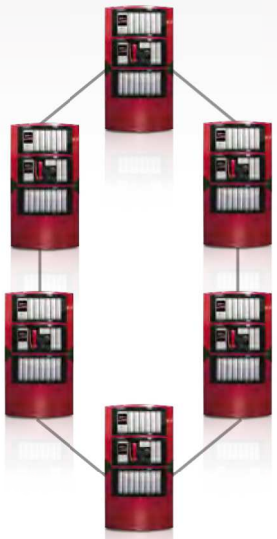
REDUCED
NUISANCE ALARMS
using the Signature protocol and Optica detectors

PRIORITY: FLEXIBILITY

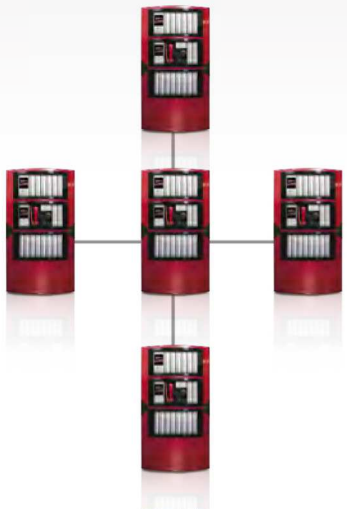
Thanks to its modular capabilities, hot swappable network connections, and easy migration paths, EST4 is flexible enough to safeguard a wide variety of facilities. From multi-building campuses to soaring high-rises, EST4 can be configured in a variety of network topologies, including classes B, A, X, N or full mesh using copper, fiber or ethernet cable.

THE RESULT: Redundancy and Survivability

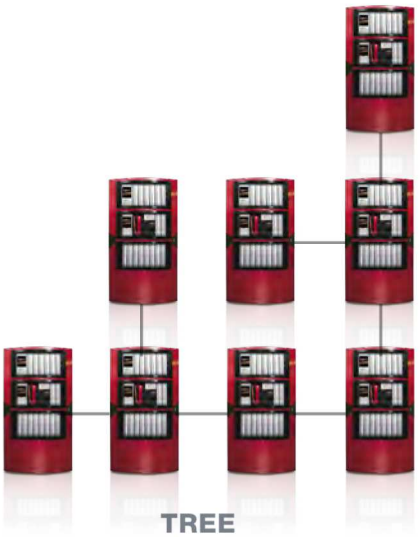
SELECT CONFIGURATION EXAMPLES



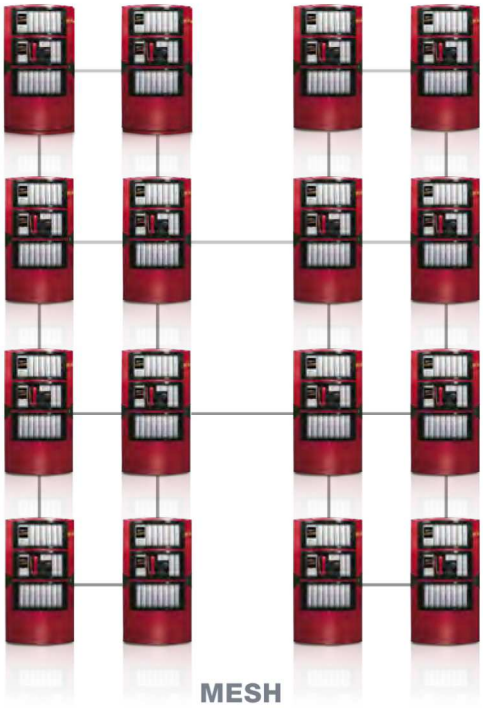
CLASS A



STAR



TREE



MESH

PERSONALIZED PROTECTION FOR YOUR PROJECT

Thanks to the completely customizable nature of the EST4 panel, you'll never have to try to fit a unique facility environment into a cookie-cutter network again.

CONTOURED DOOR DESIGN

Modern, aesthetic appearance, available in red or metallic bronze.

CONTROL-DISPLAY MODULES

Customizable, modular design adapts to more projects with fewer parts.

FULL-COLOR TOUCH SCREEN

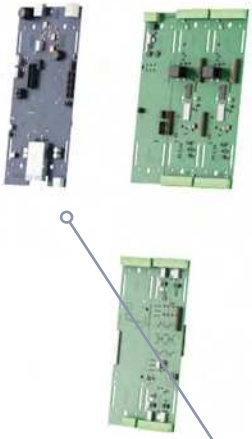
Fast, intuitive access to service and first-responder functions. User-configurable home screen image.

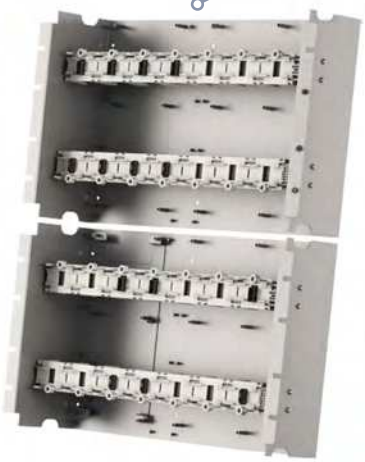
EXTENDED PAGING MICROPHONE

Networked microphones with prerecorded messages at every panel enhance the system's survivability if the network is interrupted.

RAIL MODULE REUSE

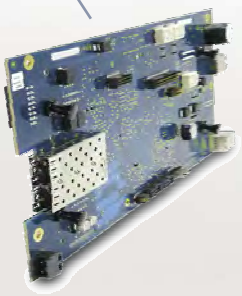
Leverages prior investments in retrofit applications.





INNER DOOR/ OPERATOR LAYER

Makes installation of the user interface fast and easy. Provides a clean barrier between the emergency user and field wiring.

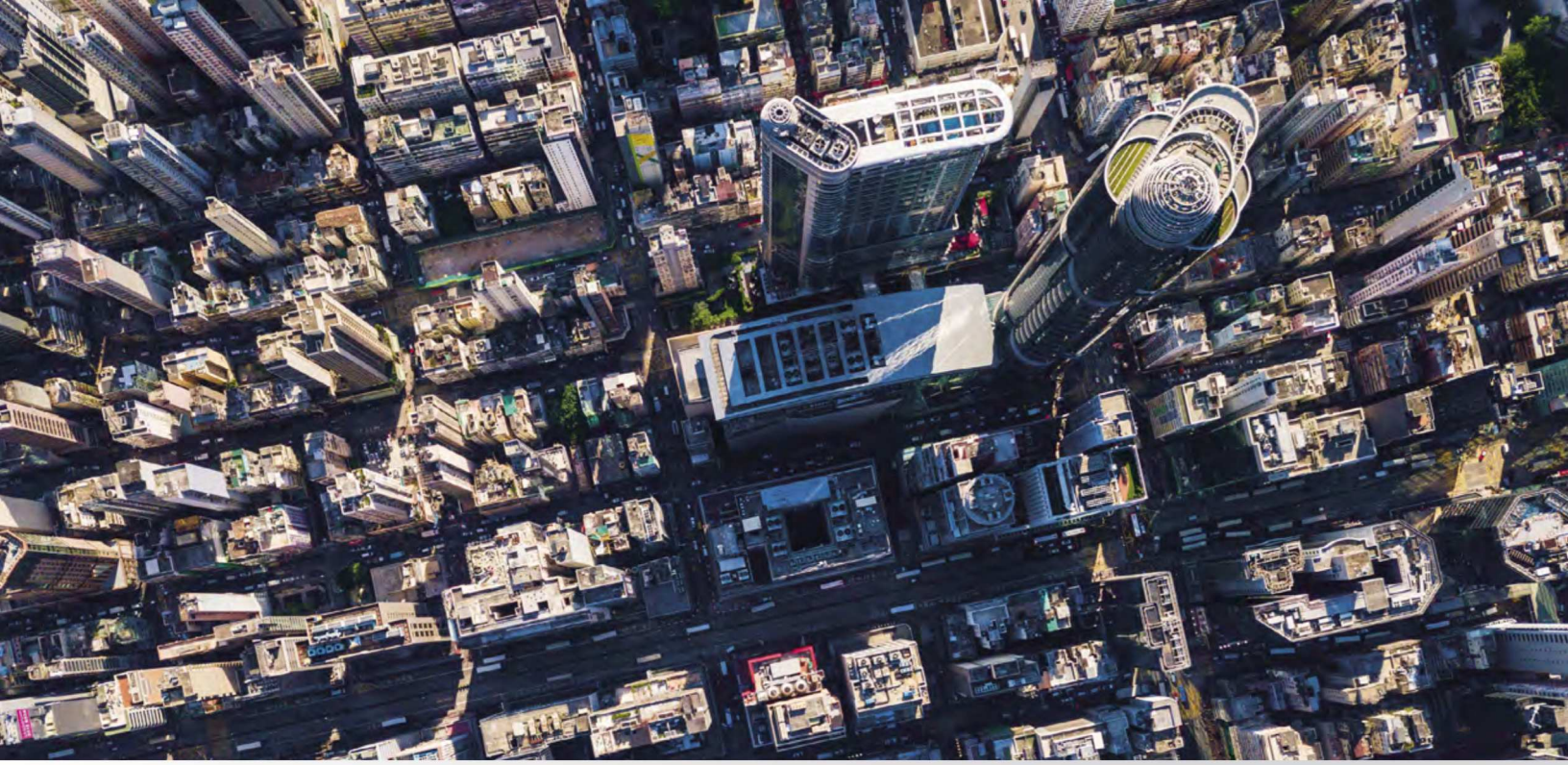


CENTRAL PROCESSING UNIT

Modern Linux-based OS with fast processing and enhanced capabilities.

MAXIMIZED SYSTEM POWER

Up to 4 power supplies in a single panel can reduce the amount of hardware, saving wall space.



CUSTOMIZABLE SOLUTIONS THROUGH A DEDICATED PARTNER NETWORK.

Some of the world's most impressive structures—from the Bibliotheca Alexandrina Museum in Egypt to the modern-day Sphinx at the Luxor Hotel in Las Vegas—are designed, owned and occupied by professionals who have chosen Edwards to secure their facilities. That's because our partners—the people we entrust with our technology—provide unrivaled support and know-how to create custom life-safety solutions that lead the industry in innovation. And they're ready to do the same for you.

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EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

NYC FIRE DEPT. COA # 6314

FM APPROVED

edwards.fire@carrier.com
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8985 Town Center Parkway
Bradenton, FL 34202

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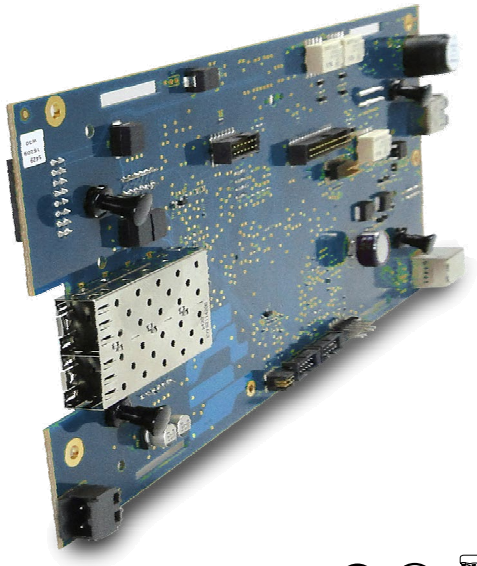
E85014-0033 rev 1.1

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Central Processing Unit

4-CPU



FM APPROVED | NYC FIRE DEPT. COA # 6314 | UL | ULC | CSFM

7165-1657: 0508

Overview

EST4's Central Processing Unit, the 4-CPU, is a control panel card that manages data generated by local modules and acts as a nexus for system-wide network communication. It accomplishes this by pulling data from local rail modules in real time and facilitating both intra-module data exchange, and inter-node communications with remarkable speed and efficiency.

The 4-CPU is, in essence, the gatekeeper for events reported to modules from field devices; it is the controller of audio data; the caretaker of event logs; the guardian of security; and, the link to central monitoring facilities. The EST4 Emergency Communications Platform is built upon system nodes, and the 4-CPU is controller of the nodes.

The hardware that supports 4-CPU operation is robust enough to handle the complex and critical tasks it is assigned. The 4-CPU's eight gigabytes of on-board memory storage holds nearly two hours of pre-recorded audio messaging, as well as an expansive project database. It also holds a large on-board history – large enough to handle more than 10,000 alarm events – and room to store up to 10,000 locked or frozen events held for investigative purposes.

Thanks to its self-configuring network, EST4 nodes easily deploy and configure without intervention by network administration personnel. They adapt to a wide range of network configurations, including rings, stars, redundant segment, and full mesh topology. The 4-CPU even allows changes in the physical layer from copper to fiber, and employs hot-swappable network connections. All this improves network reliability and saves money at installation time and throughout the equipment's life cycle.

Standard Features

- **20,000 event history**
  Large history ensures system events are captured plus additional 10,000 event EST4 *History Freeze* function.
- **SFP style Network Communications Media Options**
  Supported media types include, twisted pair, CAT5, Single and Multimode Fiber in any combination.
- **Up to 750 Minutes of Stored Voice Messages**
  Memory is standard on-board. No need for additional modules.
- **USB V2.0 Type A Host Port**
  High speed connection for printers and hubs.
- **USB V2.0 Type B Device Port**
  High speed connection supports laptops.
- **Integrated Audio Synchronization**
  The 4-CPU synchronizes audio signals across the network, ensuring clear messaging over long distances.
- **Optional Form C Alarm, Supervisory, Trouble Contacts**
  Space for the 4-COMREL Common Relay Module. Relays are rated 30Vdc at 1A. Supports wire sizes from 18 to 12AWG.
- **Optional USB Hub**
  Expands the USB capability of the CPU to meet application needs, comes with RS-232 port.
- **Optional Audio Support**
  Space provided for the 4-AUDTELS Audio I/O and Telephone Riser source module.
- **Simple Plug-in Design**
  Easy installation, no special tools required, CPU simply plugs onto the panel rail.

Application

The 4-CPU makes EST4 an extremely powerful and flexible system. Systems may comprise a single standalone node, while larger installations comprise an integrated network. These may include many nodes communicating via IPv6 over several different types of fire-listed wiring, including fiber optics, twisted pair, and CAT5 cabling. Regardless of the system size, a single 4-CPU node controls up to 19 additional local rail modules.

The 4-CPU controls all local panel responses to automatic, user initiated, or network-reported events. As a network node, it is an equal among peers: there is no master on the network. This gives exceptional response times of less than three seconds.

Intra-module Communications

Upon power-up the processor automatically learns all local rail module attributes and locations; it negotiates with other life safety CPUs at nodes on the IPv6 network; and, it automatically enables the full support for cyber security protocols tested to meet FIPS Publication 197. This security applies optionally to a single panel, or throughout the entire EST4 network. The 4-CPU automatically configures the EST4 network thanks to integrated plug-and-play setup and auto address. No IT network administrator is required.

The EST4, 4-CPU on-board USB ports make inner panel wiring simple. The majority of interconnections are made with standard USB 3.0 cables supplied as standard with most option modules. The USB interconnect runs at speeds of up to 480 Mbps, ensuring fast system data transmission.

This fast data transmission is used, not only for inner panel communication, but also for external communications through a 4-FWAL to the FireWorks graphical user interface, printers, and other systems needing integration to the life safety system.

Inter-Panel Neworking

Each 4-CPU provides two SFP slots supporting hot-swappable modules that determine the media type in use at the panel. The 4-CPU also supports the 4-AUDTELS Audio Telephone Riser Module. This enables audio, local microphone connection, and firefighter telephone connection. The 4-CPU supports connection of optional common relays, 1 Vrms audio in- and out-terminals, and firephone riser connection — all of which provide removable field wiring terminal blocks.

For enhanced survivability, SFP network controller modules are hot swappable and mount to the slots on the 4-CPU. The network connection supports panel-to-panel data, voice audio, and firefighters telephone all on the same cabling – no separate interconnections needed. Should the application call for it, cabling can be installed that allows all inter-panel network data – including panel data, voice audio, and firefighters telephone – to be transmitted on a single twisted pair or single fiber optic fiber. This helps speed setup time and cuts installation costs.

Network physical interconnection options offer a range of solutions from twisted pair running at 2 Mbps and supporting distances of up to 5,000 ft. (1.5 km) between any two panels. When running at 0.2 Mbps, even longer distances are possible – up to 50,000 ft. (15 km).

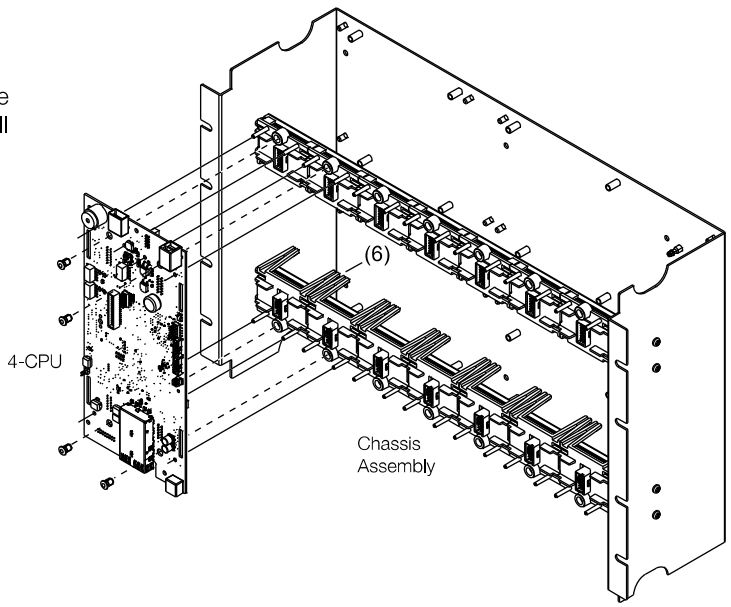
Single-mode, multimode, and even CAT5 cabling options are possible with EST4. The 4-CPU also meets redundancy and survivability requirements of many cabling needs, including Class A, Class B, Class X, and Class N. CAT5 installations are not limited to Class N wiring style: the network can be engineered to meet Class A, Class B, and Class X configuration when the project requires distances of up to 3,280 ft.

Network messages received by the network communications controllers are re-transmitted to the next network panel. This re-transmission maximizes the wire run lengths between panels.

Should the related central processor stop operating to specifications, fail-safe protocols built into EST4 network controller cards connect the data input directly to the output ports. This operation provides a back-to-back passthrough mode for most media type to media type and maintains network connectivity, not only during a catastrophic failure of a single panel, but also in the event that the panel is powered down for servicing. This keeps the fire network up and running at all times. For greater serviceability, any powered-down panel maintains its real time clock for up to 30 minutes — even if the panel has all power sources removed, including main and standby sources.

Installation

The 4-CPU mounts in the first two local rail spaces of the upper 3-CHAS7 module chassis. Options for the 4-CPU include a color LCD display and user interface, a wide selection of small form-factor pluggable (SFP) network controller modules, USB internal panel connections, common relays, audio, and fire fighters telephone communication cards.



Engineering Specification

It must be possible to support a single standalone node or multiple nodes communicating on a TCP/IP, IPv6 network that supports mesh configuration. The network shall support physical media connections via fiber, twisted pair or CAT 5 in any combination. The Network shall support data transmission of panel-to-panel data, voice audio and firefighter telephone data on a single twisted pair or single fiber optic cable. The Network shall be configured as Class A or Class B or Class X configuration. Networks restricted to Class N wiring shall not be acceptable. Network shall support a back-to-back pass-through mode that shall maintain network connectivity on power down or catastrophic failure of a single panel. The network shall support twisted pair links to 5,000 ft., CAT 5 links to 3,280 ft., and fiber links to 130,994 ft.

The network shall support hard copy report printing to a system printer connected to any panel in the network, systems that require reports be run from the panel that has a printer connection shall not be considered equal. The systems LCD display shall provide color graphics display of maintenance and sensitivity reports.

The system shall support multiple languages/dialects and Unicode character set.

The Control panel and network shall not use easily removable devices, such as SD cards or external storage devices for storage of system critical information including programming and project files. Communications outside the life safety network shall meet the requirements of FIPS Publication 197.

Security-relevant information, such as: failed login attempts, failed unauthorized accesses, and user modification shall be logged to panel history. Unsuccessful authentication attempts shall not leak information regarding the presence of the system or users. Credentials shall only be transmitted that are encrypted. The system shall provide for multiple users, roles shall be provided for users to ensure proper access by user for the role they perform on the system. All passwords shall use a cypher algorithm for security purposes to protect any sensitive information. No passwords shall be visible as plain text within the database or entire system.

Sensitive information shall not be logged to history or displayed on service tools (e.g. passwords, PINs etc.).

The system shall support configuration of multiple IP connections to external services including, central stations, email servers, web interfaces, reports, and third party integration.

Email messages shall support multiple languages in native characters that match the languages supported in the panel. Email messages shall support symbolic and color alarm event highlighting.

The system shall support logging of up to 20,000 chronological events using FIFO. Is shall be possible to freeze or store the most recent 10,000 events separately from the FIFO log.

It shall be supported to download all applications and firmware from the configuration computer at a single location on the fire network. The system shall support upload of a project file from any location on the fire network.

Technical Specifications

Current Standby Alarm	 211 mA at 24 Vdc
Common relays	See the 4-COMREL Common Relay Module Installation Sheet (P/N 3102284- EN)
Universal Serial Bus (USB) ports	1 USB 3.0, Type A – female port 1 USB 3.0, Type B – female port
USB cables[1]	4-CABLUSBSM – 3.0 USB, 29.5 in.(0.75 m), included. 4-CABLUSBLG – 3.0 USB, 59.0 in.(1.5 m), sold separately.
SFP modules	Refer to the SFP catalog sheet E85014-0008 for a list of compatible SFP modules.
Agency Approvals	UL, ULC, FM, CSFM
Wire size TB1 network backup power connection	 12 to 18 AWG (2.5 to 1.0 mm²)
Ground fault impedance	5 kΩ or less
Operating environment Temperature Relative humidity	 32 to 120°F (0 to 49°C) 0 to 93% noncondensing

[1] Only use listed USB cables. Retail USB cabling is not sufficient for this application.

Ordering Information

Model # (SKU)	Description	Shipping Weight
4-CPU	Central Processor Module	0.95lb (0.43kg)
Accessories and related equipment		
4-AUDTELS	Audio and Telephone Interface/Riser Source Module	0.65lb (0.29kg)
4-COMREL	Common Relay Module	0.25lb (0.11kg)
4-NET-MM	SFP Network Controller, Multimode, Dual-Fiber, 100Base-FX 1310nm	0.248lb (0.112kg)
4-NET-SM	SFP Network Controller, Single-Mode, Dual-Fiber, 100Base-LX10 1310nm	0.248lb (0.112kg)
4-NET-SMH	SFP Network Controller, Single-Mode, high power output, Dual-Fiber, 100Base-LX40 1310nm	0.248lb (0.112kg)
4-NET-TP	SFP Network Controller, 2Mbps Shared TX/RX, Twisted Pair	0.2lb (0.091kg)
4-NET-TP-HC	SFP Network Controller, 0.3Mbps Shared TX/RX, High Capacitance Twisted Pair	0.2lb (0.091kg)
4-NET-CAT	SFP Network Controller, CAT5 UTP Copper, 100Base-TX	0.2lb (0.091kg)
4-NET-SMD	SFP Network Controller, Single-Mode, Single-Fiber, Downlink, 100Base-BX10-D 1550nm/1310nm Tx/Rx	0.248lb (0.112kg)
4-NET-SMU	SFP Network Controller, Single-Mode, Single-Fiber, Uplink, 100Base-BX10-U 1310nm/1550nm Tx/Rx,	0.248lb (0.112kg)
4-USBHUB	USB Multiport Hub Module	0.85lb (0.39kg)
4-CABLUSBLG	Cable, USB 3.0 A-B, Male, Long	0.31lb (0.14kg)
4-CABL0542	Cable interconnects the 4-CPU to the inner door rail when no 4-LCD display is installed in the cabinet.	0.58lb (0.26kg)

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EST4 Network Controllers

4-NET Series

FM APPROVED · NYC FIRE DEPT. COA # 6314 · UL · ULC · C-TICK

7165-1657:
0508

Overview

4-NET Series controllers are a series of small form factor pluggable (SFP) transceivers that provide physical media options for EST4 network cabling. The selection of the controller determines the media type. Eight models are available, each one offers a different kind of physical connection.

EST4 network controllers are easy to install and provide flexible solutions for system changes and upgrades. They mount into any EST4 panel on the life safety network by simply plugging into either of the two slots found on the 4-CPU, 4-ANNCPU, 4-CPUGRPH and 4-NET-AD modules. The controllers are hot-swappable and may be used in any combination of fiber, copper or CAT 5e or better cable.

Controllers allow vast distances between panels and thousands of addressable points. For example, a single IPv6 network can support up to an astonishing 200,000 addressable devices. Copper wire runs of nearly a mile between nodes puts detection, alarm, notification, and audio into the furthest reaches of the tallest buildings and broadest campuses.

EST4 gives the flexibility to configure the network to the needs of the installation, including no network redundancy (Class B), a single redundant connection (Class A/X), or any combination of styles including multiple redundant paths.

EST4 network controllers are used for panel-to-panel communications only. Connections to external networks are handled by 4-FWAL Series adapters. See the relevant literature for more information concerning firewalls and external network connections.

Standard Features

- **Multiple Connection Options**
  Hot pluggable SFP-style network controllers allow selection of twisted pair, fiber optic and CAT cables.
- **Supports multiple network configurations**
  Networks can be configured in Class B, Class A, Class X and Class N.
- **IPv6 Support**
  Autoconfiguring network for simple setup and easy network configuration.

Application

EST4 life safety communication is built on a self-configuring IPv6 network. 4-NET series SFP network controller modules provide the connection to physical inter-panel cabling. All SFPs are hot-swappable and mount in either of the two SFP slots found on 4-CPU, 4-ANNCPU, 4-CPUGRPH and 4-NET-AD modules.

Capacity for Large Projects

Robust physical interconnections facilitate a range of liberating network capacities. Twisted pair copper at 2 Mbps supports distances of up to 5,000 ft. (1.5 km) between any two panels; up to 50,000 ft. (15 km) at 0.2 Mbps when used with the 4-NET-XT. Single-mode, multimode, and even CAT 5 (or better) cable solutions are also available.

A single network cable carries all panel-to-panel services: data, voice audio, and firefighters' telephone. No separate interconnections are needed. This powerful feature reduces cable costs and installation time.

Powerful Network Security and Survivability

Cabling options satisfy even the most demanding redundancy and survivability requirements. The EST4 network can be configured for Class A, Class B, Class X, and Class N wiring. CAT5 installations are not limited to Class N wiring style: the network can be designed to meet Class A, Class B, and Class X configuration with CAT5 cable.

Network messages received by 4-NET controllers are routed by the CPU to the appropriate network link. As each link is an independent point-to-point connection wire run lengths between nodes are maximized.

Failsafe mechanisms are built right into EST4 network controllers. Should a connected CPU module go offline, the input and output ports automatically connect directly to one another. This operation provides a pass-through mode that maintains basic connectivity in the event of something as mundane as a routine power-down for servicing, or as catastrophic as the failure of a control panel.

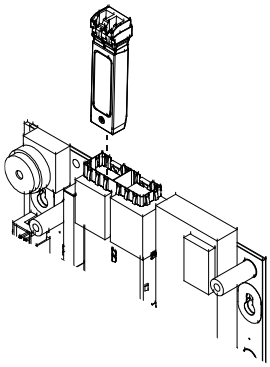
The EST4 life safety network is a self-configuring IPv6 network that enables the full support for cybersecurity tested to meet FIPS publication 197. Salted Hashing of passwords, authentication and encryption of sensitive data (user PINs, node authentication) are all standard features. This security applies to a single panel or the full complement of nodes that the EST4 network can support.

SFP Passthrough Support, eth0 to eth1

	4-NET-CAT	4-NET-(fiber type)	4-NET-TP	4-NET-TP-HC
4-NET-CAT	✓	✓	✓	✓
4-NET-(fiber type)	✓	✓	✓	✓
4-NET-TP	✓	✓	✓	
4-NET-TP-HC	✓	✓		✓

Installation

4-NET controllers mount into any EST4 panel on the life safety network by simply plugging into either of the two slots found on the 4-CPU, 4-ANNCPU, 4-CPUGRPH or 4-NET-AD modules. The controllers are hot-swappable and may be combined to provide fiber, twisted-pair, or CAT5/6 connections as needed.



Engineering Specification

The system shall support communicating on a TCP/IP, IPv6 network that supports multiple network topologies including any mix of ring, bus, star and mesh. The network shall support physical media connections via fiber, twisted pair or CAT5 in any combination. The Network shall support data transmission of panel-to-panel data, voice audio and firefighters' telephone data on a single twisted pair or single optical fiber. The Network shall be configured as <Class A> <Class B> <Class X>. Networks restricted to Class N wiring shall not be acceptable. Network shall support a back-to-back pass through mode that maintains network connectivity on power down for servicing or catastrophic failure of a single panel.

For retrofit of existing installations the system shall support reuse of existing network wiring that meets the minimum wiring specification of the specified SFP controller, is electrically sound and is acceptable to the Authority Having Jurisdiction.

Technical Specifications

SFP Twisted Pair Specifications

	4-NET-TP	4-NET-TP-HC
Current	32mA at 24Vdc	
Circuit Capacitance	0.09 µF max. between two nodes	0.3 µF max. between two nodes
Data speed	2 Mbps TX/RX	0.3 Mbps TX/RX
Maximum Resistance	90 ohms	
Operating Temperature	32 to 120 °F (0 to 49 °C)	
Operating relative humidity	0 to 93% noncondensing	
Wire Size	One twisted pair, six twists per foot minimum, 16 to 24 AWG (1.3 to 0.20 mm²)	
Cable Connector type	Push-in, self clamping terminal block	
Agency Listings	UL, ULC, FM, CSFM	
Circuit Length	5,000 ft. (1,524 m) between any two nodes	
Data supported	Network, Voice Audio, Firefighters' Telephone, Pre-recorded messages.	Network, One channel Voice Audio, Pre-recorded messages.

SFP CAT Cabling Specifications

4-NET-CAT	
Voltage	
Current	45 mA at 24 VDC
Data Speed	100 Mbps TX/RX
Operating Temperature	32 to 120°F (0 to 49°C)
Operating Relative Humidity	0 to 93% noncondensing
Cable Supported	Cat 5e or better
Cable Connector Type	RJ-45
Agency Listings	UL, ULC, FM, CSFM
Circuit Length	328 ft. (100 m) max.
Data supported	Network, Voice Audio, Firefighters' Telephone
Cable Rating	Fire or plenum

4-NET-TP using CAT 5e or better cable	
Voltage	
Current	45 mA at 24 VDC
Circuit Capacitance	N/A
Circuit Resistance	N/A
Data Speed	2 Mbps TX and RX
Operating Temperature	32 to 120 °F (0 to 49 °C)
Operating Relative Humidity	0 to 93% noncondensing
Wire size	22 to 24 AWG
Cable Connector Type	terminal block
Agency Listing	UL, ULC, FM, CSFM
Circuit Length	3280 ft (1,000m)
Data Support	Network, Voice Audio, Firefighters' Telephone
Cable Rating	Fire or plenum

SFP Cabling Specifications

SFP network controller	Wavelength (nm)	Fiber type	Core size (microns) [1]	Modal bandwidth (Mhz/km) [2]	Cable distance Miles (km)
4-NET-MM [2]	1310	OM1/OM2	62.5um/50um	500	1.24 miles (2 km)
4-NET-SM	1310	G.652	9	N/A	8.7 miles (14 km)
4-NET-SMH	1310	G.652	9	N/A	24.8 miles (40 km)
4-NET-SMU	1310	G.652	9	N/A	6.2 miles (10 km)
4-NET-SMD	1550	G.652	9	N/A	6.2 miles (10 km)

[1] G.652, listed under core size for single mode fiber (SMF), refers to an ITU-T standard of commonly deployed non-dispersion-shifted single mode fiber with a core size of approximately 8 to 10 microns (µm).

[2] The maximum cable distance will be reduced when using fibers with less than 500 MHz/km bandwidth. For example, a 62.5u/125u step-index fiber may have a modal bandwidth as low as 160 MHz/km. This translates to a maximum 100Base link length of about 640 m. If 100u core fiber is installed, the length could be reduced to about 150 m.

SFP Optical Specifications

SFP network controller	Transceiver type	Transmit power (dBm)		Receive power (dBm)		Max channel insertion loss in dB (by fiber type) [1]	Transmit and receive wavelength (nm)
		Min	Max	Min	Max		
4-NET-MM	100Base-FX	-20	-14	-31	-14	10 (62.5/125um OM1)	1300/1300
4-NET-MM	100Base-FX	-20	-14	-31	-14	5 (50/125um OM2)	1300/1300
4-NET-SM	100Base-LX10	-15	-8	-25	-8	5	1310/1310
4-NET-SMH [2]	100Base-LX40	-5	0	-33	-10	25 (10 dB min)	1310/1310
4-NET-SMU	100Base-BX10-U	-14	-8	-27	-8	5	1310/1550
4-NET-SMD	100Base-BX10-D	-14	-8	-27	-8	5	1550/1310

[1] Maximum channel insertion loss is defined for maximum distance guaranteed as specified in the Cabling Specifications table above and by fiber type/core diameter. When links are deployed over shorter distances, additional channel insertion loss may be allowed. Actual performance may allow greater insertion loss.

[2] 4-NET-SMH requires a minimum 10db insertions loss. If the insertion loss is less than 10db, a single mode attenuator is required to obtain the minimum 10db loss.

4-NET- fiber optic SFPs	
Current	
Standby/Alarm	5 mA at 24 VDC
Data speed	100 Mbps TX/RX
Operating Temperature	32 to 120°F (0 to 49°C)
Operating Relative humidity	0 to 93% noncondensing
Cable Specification	See *SFP Cabling Specifications* above.
Cable Connector type	LC simplex for 4-NET-SMU and 4-NET-SMD, LC duplex, for all other fiber controllers
Agency Listings	UL, ULC, FM, CSFM

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Ordering Information

Model # (SKU)	Description	Shipping Weight
4-NET-TP	SFP Network Controller, 2Mbps Shared TX/RX, Twisted Pair or Cat 5.	0.2lb (0.091kg)
4-NET-TP-HC[1]	SFP Network Controller, 0.3Mbps Shared TX/RX, High Capacitance Twisted Pair	0.2lb (0.091kg)
4-NET-MM	SFP Network Controller, Multimode, Dual-Fiber, 100Base-FX 1310nm	0.248lb (0.112kg)
4-NET-SM	SFP Network Controller, Single-Mode, Dual-Fiber, 100Base-LX10 1310nm	0.248lb (0.112kg)
4-NET-SMD	SFP Network Controller, Single-Mode, Single-Fiber, Downlink, 100Base-BX10-D 1550nm/1310nm Tx/Rx, works with 4-NET-SMU	0.248lb (0.112kg)
4-NET-SMU	SFP Network Controller, Single-Mode, Single-Fiber, Uplink, 100Base-BX10-U 1310nm/1550nm Tx/Rx works with 4-NET-SMD	0.248lb (0.112kg)
4-NET-SMH	SFP Network Controller, Single-Mode, Dual-Fiber, 100Base-High Output 1310nm,	0.248lb (0.112kg)
4-NET-CAT	SFP Network Controller, CAT5 UTP Copper, 100Base-TX, 100Mbps	0.2lb (0.091kg)

[1] Not for use with new installations.

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Signature Driver Controller Modules

3-SSDC2, 3-SDDC2, 3-SDC1

Approvals

EST4 | EST3

S3000 | S3000

7165-1657: 0186/0306

Overview

The 3-SSDC2 and 3-SDDC2 Signature Driver Controller modules provide an intelligent interface between the CPU module and Signature Series devices. Each module contains its own microprocessor used to coordinate, process and interpret information received from and sent to Signature devices. Power and communications is received directly from the control panel rail assembly. The 3-SSDC2 Single Signature Driver Controller module supports one Signature Data circuit, while the 3-SDDC2 Signature Dual Driver Controller module supports two Signature circuits. Both modules occupy one rail space in the fire alarm control cabinet and provide removable field wiring terminals to aid installation.

Innovative design gives the 3-SSDC2/3-SDDC2 and Signature devices truly “distributed intelligence”. Signature detectors and modules have their own on-board microprocessor communicating with the loop controller in a fully digital communication format. This increases the accuracy of the information coming to and from the loop controller by reducing the effects of capacitance and noise.

With decentralized intelligence much of the decision making moves from the loop controller to the devices. Advanced fire detection algorithms processed within the Signature devices effectively end unwanted alarms. Environmental compensation and multiple sensing element decision making operations are resident in the devices. Intelligent devices allow the Signature Controllers to execute communication and system functions with greater speed and low baud rates, increasing the accuracy of information transmitted between the loop controller and devices.

Standard Features

- One or two circuit versions
- Dedicated microprocessor control
- Full digital communication
- Specialized communication protocol
  – Less sensitive to cable characteristics
  – Utilize existing wiring in most applications
- Device location supervision
  – Unexpected additional device addresses
  – Missing device addresses
  – Switched device locations
  – Programmed device parameters
- Automatic nonvolatile as-built mapping
  – Stores “actual” and “expected” device data
  – Stores physical connection sequence including “T” taps
- Automatic day/night sensitivity
- Supports up to 250 intelligent Signature detectors and 250 Intelligent Signature Modules
- Up to five 3-SDDC2s or ten 3-SSDC2s per node
  – Maximum of 10 signature circuits per cabinet
- Removable field wiring terminal blocks
- Multiple survival modes — stand alone
- Fully backward compatible with 3-SSDC, 3-SDDC, 3-SSDC1, and 3-SDDC1
- Supports the full line of Signature devices, including carbon monoxide detection

Application

Up to 125 detectors and 125 modules are supported over a single pair of wires by the 3-SDC1 Signature Cards that plug into the Signature controller modules. Loop distances over 11,000 feet (3300m) are possible. Class B wiring, Class A and Class X wiring are supported.

The 3-SSDC2 and 3-SDDC2 use advanced communication formats that provide exceptional response. Using a “BROADCAST POLL” the loop controller checks the entire device circuit for any changes of state. Should one or more devices report a change the 3-SSDC2/3-SDDC2 uses “DIRECT ADDRESS SEARCH” to find reporting device(s). Devices that have entered the alarm state or become active are located nearly instantaneously.

The unique use of “BROADCAST POLLING” combined with “DIRECT ADDRESS SEARCH” ensures that only new information is transmitted allowing a reduced baud rate with fast response time. The low baud rate is ideal for retrofit applications since in most applications existing wiring can be used.

To enhance survivability of the system the 3-SSDC2/3-SDDC2 supports a standalone mode for Signature devices. Two catastrophic failure modes are supported. If the CPU fails, the loop controller will continue to poll its devices. If an alarm is detected it will be sent on the local rail communication bus and received by other local rail modules. A common alarm condition throughout the panel will result. If the local rail module (3-SSDC2/3-SDDC2) fails, and a device (smoke or module) detects an alarm, specialized circuitry will make the node aware of the alarm condition. The CPU will communicate the alarm condition to the rest of the network. Having multiple redundant modes is paramount in a life safety system.

Every time the 3-SSDC2/3-SDDC2 communicates with a detector a green LED on the detector flashes. Normal green LED activity is not disturbing to building occupants, but can be quickly spotted by a maintenance technician. A red LED on the detector turns on only in the alarm condition.

The 3-SSDC2/3-SDDC2 also supervises the device wiring, physical location of each device and the programmed device characteristics. This EDWARDS/Signature Series unique characteristic is accomplished by “MAPPING” the Signature circuit and committing the map to memory. Upon power up the loop controller will scan device serial numbers and map their physical location sequence on the loop, including “T” taps. After mapping is complete the controller automatically addresses each detector and module through downloading over the loop. There are no switches or dials to set. Each device is assigned a unique soft address generated by the site specific program.

The 3-SSDC2/3-SDDC2 then compares the “Actual” physical device data to the “Expected” site specific program data. If any correlations are different, the loop controller issues a trouble to the CPU identifying the devices which do not match and posting a map fault. Through the CPU port a graphical map of the loop can be uploaded depicting each device’s location on the loop, including branches (T-Taps) and all of the physical attributes associated with the device. This diagnostic information is unparalleled in the fire detection industry and vital for keeping accurate records on how the system was installed.

During installation a common problem with analog/ addressable systems is locating ground faults. The 3-SSDC2 and 3-SDDC2 controllers have the ability to locate ground faults by specific module, speeding up the troubleshooting process. Another significant advantage of the 3-SSDC2/3-SDDC2 controllers during commissioning is electronic addressing and mapping. This eliminates duplicate addresses, which are also very difficult for most systems to locate.

During maintenance, should groups of detector heads be removed for service and returned into the wrong smoke detector base (location), the 3-SSDC2/3-SDDC2 will automatically detect the problem. If the attributes of the switched devices are the same, the system will automatically download the correct soft addresses and algorithms to the devices (maintaining location supervision).

If the attributes are not the same the 3-SSDC2/3-SDDC2 will send a map fault indication to the CPU and post a trouble indicating the specific devices in fault.

The 3-SSDC2/3-SDDC2 also monitors the Signature Series devices for maintenance and trouble conditions. Each smoke detector contains intelligence to adjust with environmental changes. This expands the amount of time required between cleaning while maintaining a constant alarm threshold. As the detector begins to exhaust the environmental compensation, and reaches the 80% level, the 3-SSDC2/3-SDDC2 will indicate a maintenance alert or dirty condition to the CPU and indicate the specific device requiring cleaning. If cleaning is not performed the detector will continue to operate until all of its environmental compensation is utilized. At this point the 3-SSDC2/3-SDDC2 sends a dirty trouble indication to the CPU and posts a trouble condition.

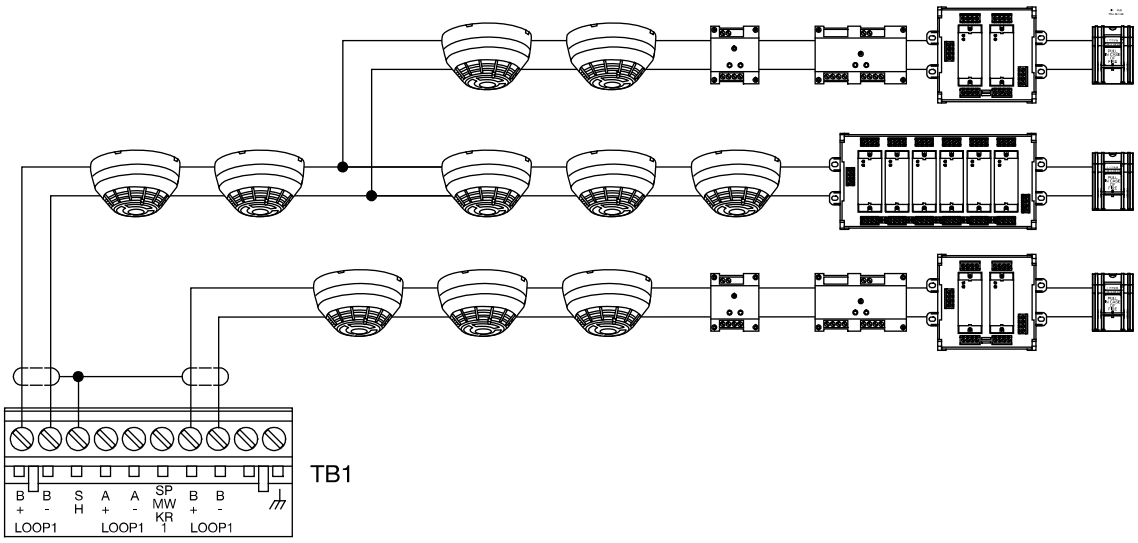
When a detector includes carbon monoxide (CO) detection, the detector monitors its CO life remaining for the CO sensor element and provides this information automatically to the panel. For maintenance of the system the CO life remaining is also available by simply running a maintenance report at the panel or through the FireWorks graphical interface. A unique CO maintenance signal is automatically generated by the panel approximately 6 months before the CO sensor reaches its end of life to allow for time to plan maintenance and replacement of the CO detector before it reports a CO sensor ‘End of Life’ trouble.

Remote test capability permits devices to be put in alarm, pre-alarm, supervisory, monitor, or security alarm, or trouble from the panel menu or controls. This facilitates testing of smoke and heat detectors as well as monitor and security devices. Fast test is also provided for CO detectors allowing these devices to be tested quickly in the field.

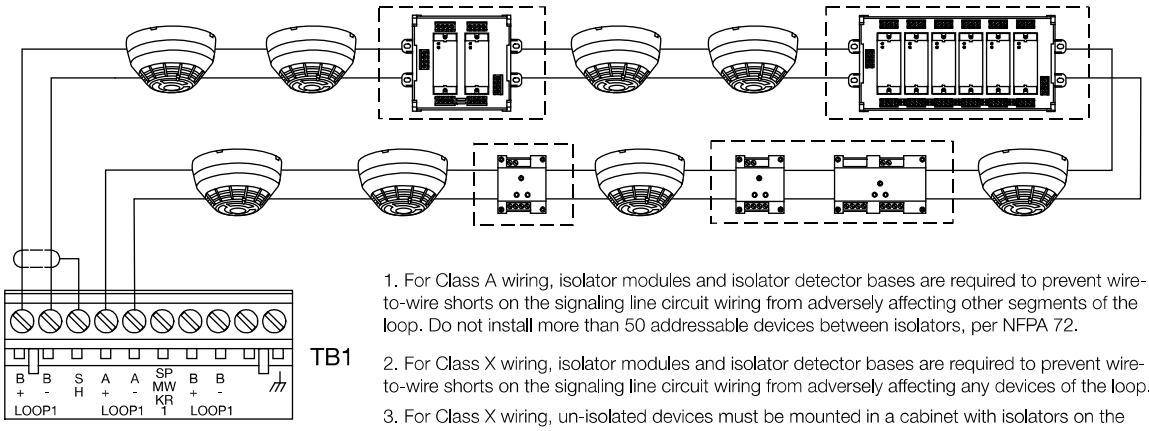
The 3-SSDC2 and 3-SDDC2 local rail modules are fully backwards compatible with the 3-SSDC, 3-SDDC, 3-SSDC1, and 3-SDDC1 respectively local rail modules. 3-SSDC2 and 3-SDDC2 modules provide additional onboard memory to facilitate future Synergy functions. To upgrade a 3-SSDC/3-SDDC, 3-SSDC1/3-SDDC1 to a 3-SSDC2/3-SDDC2 respectively, replace the 3-SSDC1/3-SDDC1 Local Rail Module with a 3-SSDC2-MB Local Rail Module and reuse the 3-SDC1 Signature Device Cards and filters.

Typical Wiring

3-SSDC2 and 3-SDDC2 Class B wiring



3-SSDC2 and 3-SDDC2 Class A and Class X wiring



1. For Class A wiring, isolator modules and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting other segments of the loop. Do not install more than 50 addressable devices between isolators, per NFPA 72.

2. For Class X wiring, isolator modules and isolator detector bases are required to prevent wire-to-wire shorts on the signaling line circuit wiring from adversely affecting any devices of the loop.

3. For Class X wiring, un-isolated devices must be mounted in a cabinet with isolators on the incoming and outgoing wiring.

Engineering Specification

The communication format between the control panel and analog devices shall be 100% digital.

Loop alarm recognition must be within 750 milliseconds of a device going into the alarm state, with system response time no greater than 3 seconds. All devices shall support remote testing.

It must be possible to wire the circuit as Class B, Class A or Class X with non-shielded, non-twisted wire. It must be possible to wire branches (T-taps) with Class B wiring.

The driver controller must be manufactured in accordance with ISO 9001 standards.

The system must have tolerance to multiple failures. There must be a standalone mode of operation that will ensure the system is aware of alarms even if the local rail or main CPU fails.

Specifications (Signature Circuits)

Charts assume wire and devices are evenly distributed over length of circuit

Non-twisted, non shielded wire

Device type	# of Detectors	# of Module Addresses	#14 AWG (20pf/foot) (2.53 Ohm/1000ft)	#16 AWG (20pf/foot) (4.02 Ohm/1000ft)	#18 AWG (20pf/foot) (6.38 Ohm/1000ft)
Detectors only	125	0	14,752 feet (4,497 meters)	9,275 feet (2,827 meters)	5,839 feet (1,780 meters)
Modules only	0	125	12,599 feet (3,840 meters)	7,921 feet (2,414 meters)	4,986 feet (1,520 meters)
Detectors and Modules	125	125	5,738 feet (1,749 meters)	3,608 feet (1,100 meters)	2,271 feet (692 meters)
Detectors and Modules with 2-wire smokes	63	55 + 9 SIGA-UM	7,623 feet (2,324 meters)	4,793 feet (1,461 meters)	3,017 feet (920 meters)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	3,798 feet (1,158 meters)	2,388 feet (728 meters)	1,503 feet (458 meters)

Twisted pair non shielded wire

Device Type	# of Detectors	# of Module Addresses	#14 AWG (38pf/foot) (2.53 Ohm/1000ft)	1.5mm² (36pf/foot) (3.75 Ohm/1000ft)	#16 AWG (36pf/foot) (4.02 Ohm/1000ft)	1.0mm² (25pf/foot) (5.51 Ohm/1000ft)	#18 AWG (25pf/foot) (6.38 Ohm/1000ft)
Detectors only	125	0	13,157 feet (4,010 m)	9,933 feet (3,028 m)	9,275 feet (2,827 m)	6,760 feet (2,061 m)	5,839 feet (1,780 m)
Modules Only	0	125	12,599 feet (3,840 m)	8,483 feet (2,586 m)	7,921 feet (2,414 m)	5,774 feet (1,760 m)	4,986 feet (1,520 m)
Detectors & Modules	125	125	5,738 feet (1,749 m)	3,864 feet (1,178 m)	3,608 feet (1,100 m)	2,630 feet (802 m)	2,271 feet (692 m)
Detectors and modules with 2-wire smokes	63	55 + 9 SIGA-UM	7,623 feet (2,324 m)	5,133 feet (1,565 m)	4,793 feet (1,461 m)	3,494 feet (1,065 m)	3,017 feet (920 m)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	3,798 feet (1,158 m)	2,558 feet (780 m)	2,388 feet (728 m)	1,741 feet (531 m)	1,503 feet (458 m)

Twisted pair shielded wire

Device Type	# of Detectors	# of Module Addresses	#14 AWG (84pf/foot) (2.53 Ohm/1,000ft)	#16 AWG (82pf/foot) (4.02 Ohm/1,000ft)	#18 AWG (58pf/foot) (6.38 Ohm/1,000ft)
Detectors only	125	0	5,952 feet (1,814 meters)	6,098 feet (1,859 meters)	5,839 feet (1,780 meters)
Modules Only	0	125	5,952 feet (1,814 meters)	6,098 feet (1,859 meters)	4,986 feet (1,520 meters)
Detectors & Modules	125	125	5,738 feet (1,749 meters)	3,608 feet (1,100 meters)	2,271 feet (692 meters)
Detectors and modules with 2-wire smokes	63	55 + 9 SIGA-UM	5,952 feet (1,814 meters)	4,793 feet (1,461 meters)	3,017 feet (920 meters)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	2,558 feet (780 meters)	2,388 feet (728 meters)	1,503 feet (458 meters)

Specifications (controllers)

Catalog Number	3-SSDC2	3-SDDC2
Installation	1 LRM Space	1 LRM Space
Module Configuration	1 Addressable circuit (3-SDC1 Card) expandable to 2 circuits.	2 Addressable circuits (3-SDC1 Cards)
Operating Current [Note 2]	Standby 144 mA Alarm 204 mA	Standby 264 mA Alarm 336 mA
Operating Voltage	24 Vdc, Nominal	
Address Requirements	Automatic	
Detectors Supported	125 per 3-SDC1 Card	
Modules Supported	125 Module Addresses per 3-SDC1 Card	
2-Wire Smoke Power Output	100 mA per 3-SDC1 Card (not included in *Operating Current* above	
Conventional detectors supported	Refer to FACU compatibility lists for compatible devices	
Signature Circuit Voltage	20 VDC +/- 5%	
Maximum Signature Circuit Resistance	100 Ohms	
Maximum Signature Circuit Capacitance	0.5 µF	
Communications Format	100% Digital	
Circuit Wiring Styles	Class B, Class A or Class X	
Termination	Removable plug-in terminal strip(s) on module	
Permissible Wire Size	18 to 12 AWG (0.75 to 2.5 mm²)	
Agency Listings	UL, ULC	
Operating Environment	32 °F (0 °C) to 120 °F (49 °C) 93% RH, non-condensing	

Note 1: Other EST3 components are modularly listed under the following standards:
UL 864 categories: UOJZ, UOXX, UUKL and SYZV, UL 294 category ALVY, UL 609 category AOTX, UL 636 category ANET, UL 1076 category APOU, UL 365 category APAW, UL 1610 category AMCX, UL 1635 category AMCX
ULC-S527, ULC-S301, ULC-S302, ULC-S303, ULC-S306, ULC/ORD-C1076, ULC/ORD-C693
Please refer to EST3 Installation and Service Manual for complete system requirements.

Note 2: Current shown Includes full loop of devices.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
3-SSDC2	Single Signature Driver Controller. Comes with one 3-SDC1 Device Card. Mounts to Local Rail.	0.5 (0.23)
3-SDDC2	Dual Signature Driver Controller. Comes with two 3-SDC1s. Mounts to Local Rail.	0.5 (0.23)
3-SDC1	Signature Device Card - upgrades a 3-SSDC2 to a 3-SDDC2.	0.25 (0.11)
4-FIL	*Blank EST4 filler plate (order separately when no LED or LED/Switch module is installed on the inner door).*	0.1 (0.05)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

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Modem Communicator

3-MODCOM, 3-MODCOMP

Approvals

EST4 | EST3

S3000 | S3000

7165-1657: 0186/0306 | 7165-1657: 0186/0306

NYC FIRE DEPT. COA # 6314 | FDNY APPROVED

FM APPROVED | FM APPROVED

Overview

The Modem Communicator is a two-way local rail module that performs a variety of off-premise communications functions for the system.

Using the latest in digital signal processing (DSP) techniques, the Modcom provides off premise communication features unavailable on any other system.

The module has provisions for supervising two loop-start telephone lines. The module features a modular jack for telephone line connections. The Modcom's configuration and firmware can also be updated from any network node.

Modcom series modules occupy a single local rail space and can be mounted in any panel on the network. Most system Control/Display modules can be mounted in front of the Modcom series module. Power for the Modcom is supplied by the system power supply.

The Modcom provides an enhanced level of survivability in the event of a network CPU failure by notifying the Central Monitoring Station of the failure and entering a degraded mode of operation. In degraded mode, the Modcom can transmit a default fire alarm message during a fire alarm condition.

Standard Fea

- Listed for fire and
- V.32bis 14.4K ful nc
- Digital alarm com ter supporting: SIA DCS protocol, Contact ID protocol, 3/1 and 4/2 pulse format protocol
- Supports "tap" alphanumeric pager protocol
- Fully programmable messages
- Alarm override of upload/download
- Two phone line capability
- Field upgradable firmware
- Split and multiple reporting to as many as 80 different receivers
- 255 subscriber accounts
- Supports control/display modules
- Supervised by the network controller
- Supports Cellular communications

Application

Two versions of the Modcom are available:

3-MODCOM - Has an internal V.32bis 14.4K baud full duplex modem. The modem permits upload and download of system data remotely via a telephone line. In addition, the 3-MODCOM has a Digital Alarm Communications Transmitter (DACT) or dialer function that transmits network status information to Central Monitoring Stations (CMS) via telephone. Four DACT protocols are available:

1. Digital Communicator Standard (DCS) "SIA format" Dialer – 300 baud format, which transmits alphanumeric system status data to the CMS;
2. Contact ID;
3. SIA 3/1 dialer; and,
4. SIA 4/2 dialer.

Note: SIA 3/1 and SIA 4/2 are not supported when 3-MODCOM series is used with EST4.

Alarm code content is determined by system rules.

3-MODCOMP – In addition to all modem and dialer (DACT) functions of the 3-MODCOM, the 3-MODCOMP can dial directly into paging systems using Telelocator Alphanumeric Protocol (TAP). Alphanumeric system data can be sent to a single pager or group(s) of pagers. Some pager services can forward messages via e-mail and Fax.

Multiple Priority

Each Modcom can buffer up to 500 events in its event queue. It reviews all active events in the queue and identifies the highest priority event and dials the associated receiver. When the receiver is contacted, the MODCOM will transmit the highest priority message for that receiver. If the message is successfully received, the MODCOM identifies the next highest priority message and the process repeats.

Phone Line Friendly

The Modcom series has been designed for installation on the same phone lines with other devices such as phones and faxes. The module makes its first dial out attempt on either of the two phone lines that is not in use. This prevents unnecessary interruption of calls in progress by the line seizure relays. In the event that both lines are busy, the module seizes line one.

A fixed DACT testing time can be set at an off-hour, e.g. 2:00am, again minimizing interruptions and phone line costs. The call time is programmable, and allows testing of the DACT with the central station.

The Modcom series also has the ability to detect Type 1, Type 2 and Type 3 distinctive ringing patterns, permitting it to share its phone lines with other devices and still have a unique phone number for incoming modem calls.

Multiple Modcoms per Network

Multiple Modcoms can be installed in a single cabinet or located in nodes throughout the network to provide added availability and enhanced redundancy of off premise communications.

Multiple Receiver Capability

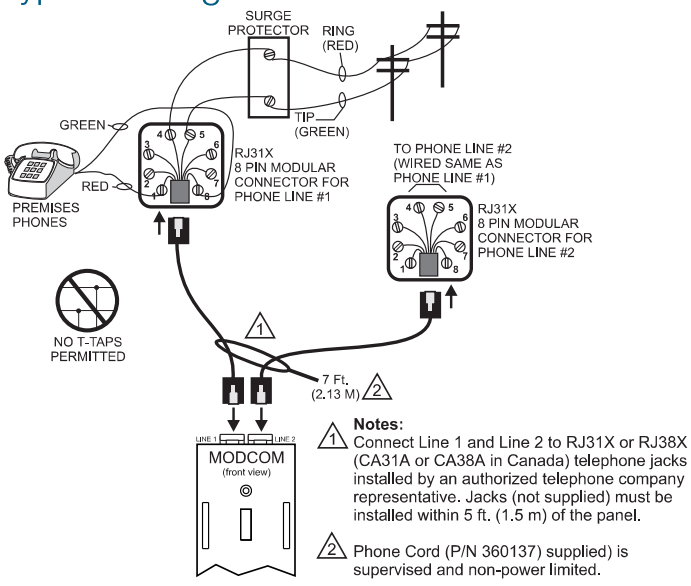
In large system applications, partitioning is supported so that a number of different customers — each using different Central Monitoring Stations and/or paging companies — can use the same Modcom hardware. The Modcom can accommodate up to 255 different accounts using up to 80 different receivers.

The Modcom supports split reporting, a process where the system directs the Modcom to send some events or event types to one receiver, and different events to alternate receivers. The module's multi-dial reporting capability permits an individual event to be transmitted to multiple receivers, including pagers.

Engineering Specification

The system shall provided an off premise communications module capable of transmitting system events to multiple Central Monitoring Station (CMS) receivers. The module shall provide the CMS with point identification of system events via 4/2, Contact ID or SIA DCS protocols. <The module shall also be capable of transmitting alphanumeric system activity by event to a commercial paging system using TAP Pager protocol.> The dialer shall have the capability to support up to 255 individual accounts and to send account information to eighty (80) different receivers, each having a primary and secondary telephone access number. System events shall be capable of being directed to one or more receivers depending on event type or location as specified by the system designer. The module shall have a degrade mode capable of transmitting fire alarm signals to the CMS in the event of system CPU failure. The module shall provide a high speed (V.32bis or greater) modem function in order to upload and download system data to/from a remote location.

Typical Wiring



For cellular dialer capture module wiring refer to the installation manual received with the cellular capture module.

Specifications

Installation	Takes up one LRM space in 3-CHAS7
Input Power	24 Vdc @ 60mA standby, 95 mA active
Modem Protocol	ITU - V.32bis 14.4K baud full duplex using standard PC modem compatible data
Dialer Protocol [1]	SIA 3/1 (format P2) and 4/2 (format P3): 20 pulses per second, double round Contact ID (DTMF format) Digital Communications Standard (DCS) "SIA format": Level 2 (300 baud, Bell 103)
Pager Protocol (3-MODCOMP only)	Telocator Alphanumeric Protocol (TAP), Version 1.8, 300 baud, Bell 103
Telephone	
Dialing	Pulse or Tone (DTMF)
Connector	Two 8-position modular phone jacks
CMS Telephone Numbers	
Quantity	Two per receiver - 160 max.
Available Digits	Up to 24 digits per number
Receivers	Supports up to 80 individual receivers.
Event Buffer	500 events
Operating Environment	32°F (0°C) to 120°F (49°C), 93% RH Non-condensing
Agency Listings, EST4	UL, FCC Part 68 / CFR 47, ULC. See Note 1
Agency Listings, EST3	UL, FCC Part 68 / CFR 47, ULC. See Note 1.

Note 1: SIA 3/1 and SIA 4/2 are not supported when 3-MODCOM series is used with EST4.

Receivers Tested

Format	Manufacturer	Model	Receiver Card
4/2 and 3/1	Ademco	685	685-1 or 685-8
	FBI (Fire Burglary Instruments)	CP220	
	Osborne-Hoffman	OH2000	
	Radionics	D6600	
	Silent Knight	9000	9032
	Sur-Gard	MLR2, SG-SLR	
	MCDI	TLR, TLR+	
Contact ID	Ademco	685	685-8
	Osborne-Hoffman	OH2000	
	Sur-Gard	MLR2, SG-SLR	
	Radionics	D6600	
	Silent Knight	9000	9032
	MCDI	TLR, TLR+	
SIA DCS	Sur-Gard	MLR2, SG-SLR	

Note 1:
EST3 is modularly listed under the following standards:
UL 864 categories: UOJZ, UOXX, UUKL and SYZV, UL 294 category ALVY, UL 609 category AOTX, UL 636 category ANET, UL 1076 category APOU, UL 365 category APAW, UL 1610 category AMCX, UL 1635 category AMCX
ULC-S527, ULC-S301, ULC-S302, ULC-S303, ULC-S306, ULC/ORD-C1076 and ULC/ORD-C693
Please refer to EST3 Installation and Service Manual for complete system requirements.
For EST4, please refer to the EST4 Installation and Service Manual for complete systems requirements and listings.

Compatible Dialer Capture Modules
Telguard TG-7FS - UL approved Cellular Alarm Communicator for Commercial Fire applications over 3G/4G networks.
DSC 3G3070 - ULC approved Cellular Alarm Communicator for commercial fire applications.

Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
3-MODCOM	Modem/Dialer (DACT) version	0.5 (0.23)
3-MODCOMP	Modem/Dialer (DACT) w/TAP Pager Protocol	0.5 (0.23)
4-FIL	Blank EST4 filler plate (order separately when no LED or LED/Switch module is installed on the inner door).	0.1 (0.05)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

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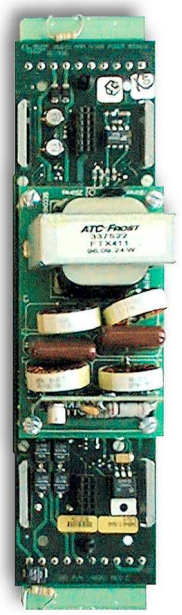
Zoned Audio Amplifiers

3-ZA20A, 3-ZA40A, 3-ZA95



FM APPROVED | NYC FIRE DEPT. COA # 6314 | UL | ULC | 7165-1657: 0186

Overview

EST4 audio amplifiers take full advantage of proven digital technology to deliver highly intelligible voice audio for evacuation and Mass Notification purposes. Pre-Recorded digital messages and live paging messages are multiplexed into separate channels. Each zoned amplifier contains integrated de-multiplexing circuitry that allows eight digital audio channels, designated from the 100 system-supported channels, to be placed on the amplifier's built-in speaker circuit.

Audio channel selection is made at the control panel with all pre-recorded messages stored locally. This means there is no need to rely on network data transmissions of prerecorded messaging. The panel always plays the message for events based on the event, which ensures fast selection and reliable playback.

Audio amplifiers mount in the same enclosures as other EST4 equipment. Power for the amplifiers comes from standard system power supplies through the local rail.

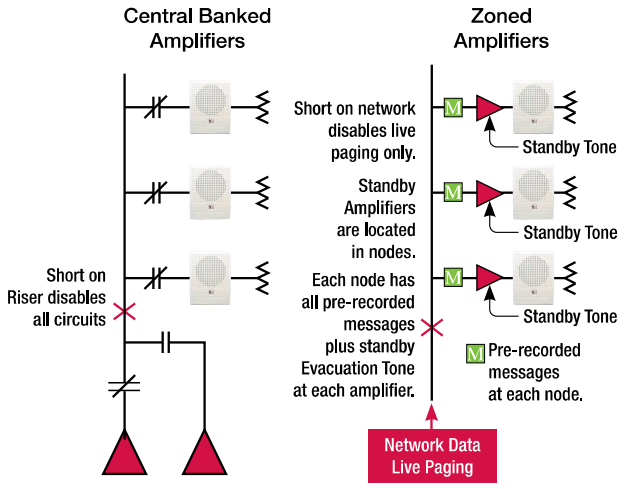
Field wiring connects to removable terminal blocks on the amplifier module. Amplifiers support either 25 VRMS or 70 VRMS power limited speaker circuits. For visual signalling, each 20 or 40 watt amplifier comes standard with one 24 Vdc power limited Notification Appliance Circuit.

Standard Features

- **Three Sizes Available**
  -20 Watts
  -40 Watts
  -95 Watts
- **Simultaneous eight channel digital audio**
  - Superior sound quality
  - Each amplifier does it's own decoding
- **Speaker circuit built into amplifier**
  - Selectable for 70 or 25 VRMS output
  - Class A or Class B output
  - Power limited
- **3.5 amp 24 Vdc notification appliance circuit on 20 and 40 watt amplifiers**
  - Class A or Class B output
  - Power limited
- **Integral backup tone generator**
  - 1 KHz temporal (3-3-3) tone evac
- **Part of an end-to-end 520 Hz signaling solution**
  - UL 464/864 approved for use in sleeping rooms

Application

EST4 zoned amplifier configurations offer improved reliability and performance. Configuration provides improved survivability in the event of wiring faults that result in a loss of signalling. In the example shown in the diagram, a fault on the system using a central backed-up amplifier disables multiple signal/page circuits, and the standby amplifier is not able to bypass the fault. With EST4, the same fault cannot occur, as there is no audio riser. All prerecorded messaging resides in the node where the amplifiers are mounted.

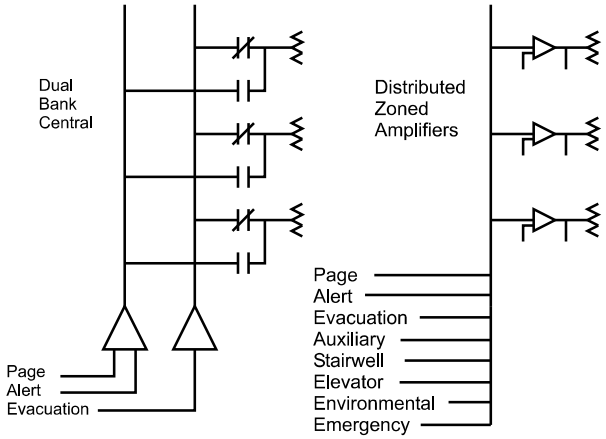


Because all EST4 nodes store their pre-recorded messages locally, programmed messages will become active when a locally generated alarm is initiated — even when a catastrophic network failure has taken place. Additionally, zoned amplifiers have integrated 1000 Hz temporal tone generators that will produce a backup signal should the main CPU suffer a catastrophic panel failure. Meanwhile, a single standby amplifier can backup any zoned amplifier in the same cabinet. These layers of redundancy provide a level of system survivability that keeps life safety measures in place, even under the harshest conditions.

EST4 easily outperforms banked audio systems and many zoned amplifier systems with its ability to simultaneously deliver up to eight of a possible 100 audio channels to each node. When using centrally-banked amplifiers, paging and alert channels typically share a common amplifier. Consequently, when paging, the alert signal goes silent in all alerted areas when a Page is issued. At the end of the Page, the alert signal resumes in the alert area. This could cause confusion because occupants will not have received the page message and do not know why the alert signal was interrupted. In zoned amplifier systems that support fewer channels, it is possible to run short of available channels — particularly in large campus networks or high rise networks where there is a need to support larger numbers of specific messaging.

With EST4, simultaneous Page, Alert, and Evacuation signal capability is engineered into the system. With 100 channels to choose from, up to eight channels can be delivered to a single node, allowing dedicated messages to be delivered to stairwells, elevator cabs, etc., while Alert, Evacuation, and Page instructions are simultaneously being sent to other areas.

Eight specific audio channels can be selected for each node. This allows messages to be automatically routed and programmed to provide specific instructions based on the alarm's location. At the same time, other areas can access and play a different eight audio messages.



For example, with an alarm on Floor Eight, the following automatic message instructions could be given concurrently. **Note:** A Page could also be sent to any other location in the building – without interrupting any of the messages below.

FLOOR 9 HEARS: "A fire alarm has been reported on the floor below. Please evacuate using the stairwell."

FLOOR 8 HEARS: "A fire alarm has been reported on this floor. Please evacuate using the stairwell."

OTHER FLOORS HEAR: "An emergency has been reported on floor 8. Please remain in the building and await further instructions."

ELEVATOR: "A fire alarm has been reported in the building. The elevator is being returned to the ground floor for emergency use. Please evacuate the building."

STAIRWELLS: "Please remain calm and walk down the stairs to evacuate the building in a safe manner."

In addition to robust paging, EST4 provides UL-listed Mass Notification, which overrides fire alarm functions. This capability allows emergency response commanders to advise building occupants of the safest action to take while an emergency is unfolding. Occupants can be instructed to leave, relocate, or seek immediate shelter, depending on the situation. This provides the flexibility for communications to mesh with the facility's risk analysis needs — without an unexpected fire alarm or general evacuation signal interfering with established emergency response protocols.

For buildings designed to allow elevators to be used for Occupant Evacuation Operation (OEO), EST4 can integrate with elevator controllers to provide specific messaging associated with the use of elevators for evacuation.

Sleeping Areas

3-ZA Series Amplifiers are part of an end-to-end low frequency solution listed to UL 464 and UL 864. It is approved for code-compliant 520 Hz signalling in sleeping areas when used in conjunction with:

- an EST4 control panel
- a factory-supplied 520 Hz audio file
- one or more Genesis High Fidelity speakers

Consult the EST4 System Compatibility List for full details of compatible devices.

Engineering Specification

Provide emergency audio as part of the main fire alarm control panel. The emergency audio shall contain a paging microphone and zoned amplifiers capable of delivering multi-channel audio messages. The system shall support a minimum of 100 audio channels. Transmission of live paging audio shall be over the same data network wiring as the fire panel data. The network data transmission shall be over a dedicated <single copper pair> <dual multi-mode fibers>, <dual Single mode fibers><one single mode fiber> to remote parts of the facility. Prerecorded messages shall be stored locally at each node. Transmission of prerecorded audio across the network during alarm events is not acceptable.

For systems requiring multiple locations for paging, the ability to Request/Grant/Deny page privileges shall be supported. Priorities shall be configured in software covering the operational priorities between Autonomous Control Units (ACU), Central Control Station (CCS) and Local Operators Consoles (LOCs). As a minimum the system shall consist of: Local Page, Emergency Communication, Multiple Evacuation, Alert, Auxiliary, and General Signalling. Channels shall support hierarchical operation and be controllable from system programming. The audio system shall also provided Elevator, Stairwell and Auxiliary signalling. Systems that cause signalling devices to go silent while performing any signalling functions will not be accepted. The system shall support repeat counts of audio messages, as well as stacking of audio messages in a FIFO configuration.

The audio system zoned amplifiers must be able to operate 25 VRMS or 70 VRMS speakers. The amplifier output must be power limited, and wired in a <Class A> <Class B> configuration. The amplifiers shall source prerecorded messages locally, and shall not have to rely on network communications to receive prerecorded messaging. Should local audio be unavailable the amplifiers shall provide an integral backup 1000 KHz temporal tone generator which shall operate in the event primary audio signals are lost and the amplifier is instructed to broadcast alarm information. It shall be possible to backup multiple zoned amplifiers with a common backup amplifier.

Technical Specifications

	3-ZA20A	3-ZA40A	3-ZA95
Agency Listing	UL, ULC, FM, CSFM		
Environmental	0°C - 49°C (32°F - 120°F) 93% RH, Non-condensing		
Frequency Response	400Hz to 4KHz @ +/- 3dB		
Output Voltage	25 VRMS or 70 VRMS		
THD (distortion)	< 7%		
Wire Size	18 to 12 AWG (1.0 to 2.5 mm²)		
Internal Tone Generator	1KHz Temporal (3-3-3) Tone (evacuation); 20 PPM (alert)		
SIGA-CC1/2 Support	10 Units, Maximum		
Standby Current	62mA for 20 and 40 watt amps; 64mA for the 3-ZA95 watt amp		
Alarm Current	1120mA	2480mA	5540mA
Pwr. Ltd. Audio Output Wiring Configuration EOL Resistor	Class A or B 15K Ohms in Class B	Class A or B 15K Ohms in Class B	Class A or B 15K Ohms in Class B
Pwr. Ltd. 24 Vdc NAC Wiring Configuration Line Resistance, Max.* EOL Resistor Line Capacitance, Max	Class A or B (Style Z or Y) 50 Ohms, Max. N/A 0.33µF	Class A or B (Style Z or Y) 50 Ohms, Max. N/A 0.33µF	N/A
Space Requirements	1 LRM Space		2 LRM Spaces

Maximum Speaker Circuit Distance at 0.5 dB loss*

70 VRMS Output	3-ZA20A	3-ZA40A	3-ZA95
#12 AWG (3.2 Ohm/1000 ft pair)	4,536 ft (1,382 m)	2,268 ft (691 m)	955 ft (290 m)
#14 AWG (5.2 Ohm/1000 ft pair)	2,792 ft (850 m)	1,396 ft (425 m)	588 ft (179 m)
#16 AWG (8.0 Ohm/1000 ft pair)	1,815 ft (553 m)	907 ft (276 m)	382 ft (116 m)
#18 AWG (13 Ohm/1000 ft pair)	1,117 ft (340 m)	558 ft (170 m)	235 ft (71 m)

25 VRMS Output	3-ZA20A	3-ZA40A	3-ZA95
#12 AWG (3.2 Ohm/1000 ft pair)	579 ft (176 m)	289 ft (88 m)	122 ft (37 m)
#14 AWG (5.2 Ohm/1000 ft pair)	356 ft (108 m)	178 ft (54 m)	75 ft (22 m)
#16 AWG (8.0 Ohm/1000 ft pair)	231 ft (70 m)	116 ft (35 m)	49 ft (14 m)
#18 AWG (13 Ohm/1000 ft pair)	142 ft (43 m)	71 ft (21 m)	Not supported by 18 AWG

* Refer to product manual for wire run calculations.

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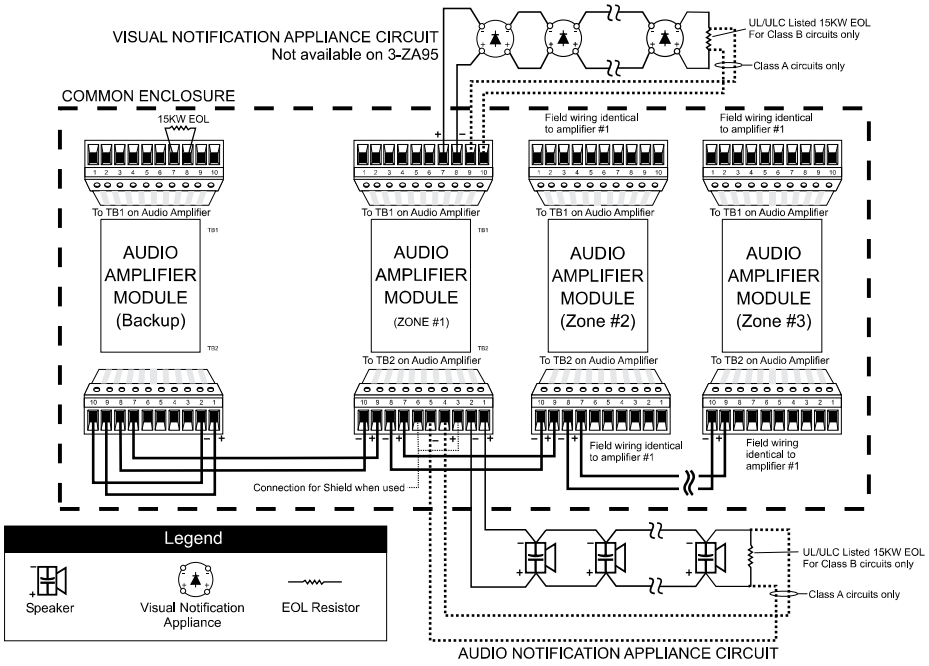
Typical Wiring



Ordering Information

Model # (SKU)	Description	Shipping Weight
3-ZA20A	20 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio & Class A/B (Style Z/Y) 24 VDC outputs. Add suffix "-E" for EN54 compliant versions.	1.55lb (0.7kg)
3-ZA40A	40 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio & Class A/B (Style Z/Y) 24 VDC outputs. Add suffix "-E" for EN54 compliant versions.	1.55lb (0.7kg)
3-ZA95	95 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio output	3.0lb (1.5kg)
4-FIL	Blank EST4 filler plate (order separately when no LED or LED/Switch module is installed on the inner door).	0.1lb (0.05kg)

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 LCD Display Module

4-LCD Series

FM APPROVED | NYC FIRE DEPT. COA # 6314 | UL | ULC | 7165-1657: 0508

Overview

EST4's LCD large color touch-screen display is the window into system operation and maintenance functions. It is large enough to support a graphical tree view of the system. The tree closely matches the system's physical layout, so there's no need for look-up tables to find specific devices. This is invaluable to technicians and building service personnel who can pinpoint the location of an off-normal device with a glance at the on-screen tree.

The EST4 LCD screen will display eight events without scrolling. In addition to touch-screen capability, the display assembly includes four dedicated easy-access rubber buttons for main control functions.

On the display, device events automatically sort into classification queues with event counts for easy identification and response. When new events are present that have yet to be reviewed, each queue is highlighted with an visual marking.

Standard Features

- **Large Easy-to-Read Display Area**
  Displays eight events, 768 10-point characters.
- **Full Color for Detail-rich User Experience**
  262,144 colors with support for custom wallpaper.
- **Displays System Tree View on One Screen Page**
  Quick drill-downs to find devices, no look-up tables required.
- **Context-sensitive User Interface**
  One sign-in determines user privileges and available devices.
- **Color-coded Event Queue, History Log, Status Report**
  At-a-glance identification of priorities.
- **User Configurable Image Display**
  Displays a customized image that appears on the LCD's home screen when no active events are present.

Application

Ensuring information clarity, the 4-LCD uses a 262,144 color touch screen LCD display. The display's design layout provides not only emergency information in a useful format, but also the ability to view other system operations including reports. A single button press will route the report to a configured network printer for hardcopy record of the report.

The 4-LCD always displays the last highest priority event. Further message flexibility is provided with EST4's message routing ability. Messages from a panel can display at every LCD on the network, or messages can route to specific LCDs only. Routing can be initiated at a specific time/shift change. There is no need to have messages display in areas that are not affected by an event.

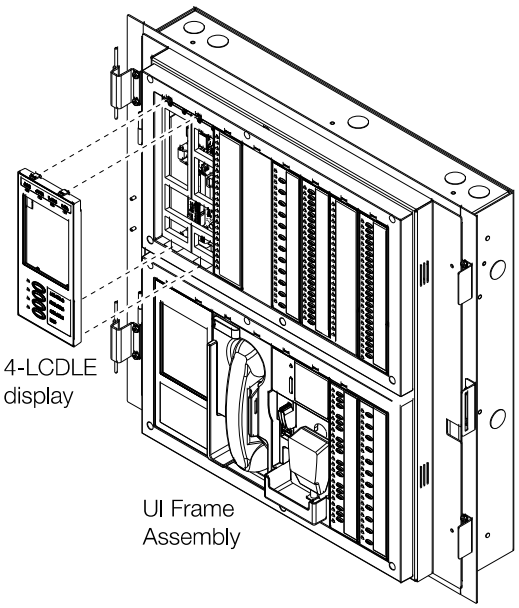
The 4-LCD can display system messages in any two of the EST4-supported languages and dialects. Choice of language is selected by the marketplace setting in EST4, any two of the available languages for a marketplace can be displayed as the primary language, and a second language can be displayed simply by selecting the language button on the LCD display. The display supports a set of Unicode symbols for example: ☢ ☣ ⚰ ☠ . These symbols can provide a heightened visual element to a messages importance.

Assembly and Installation

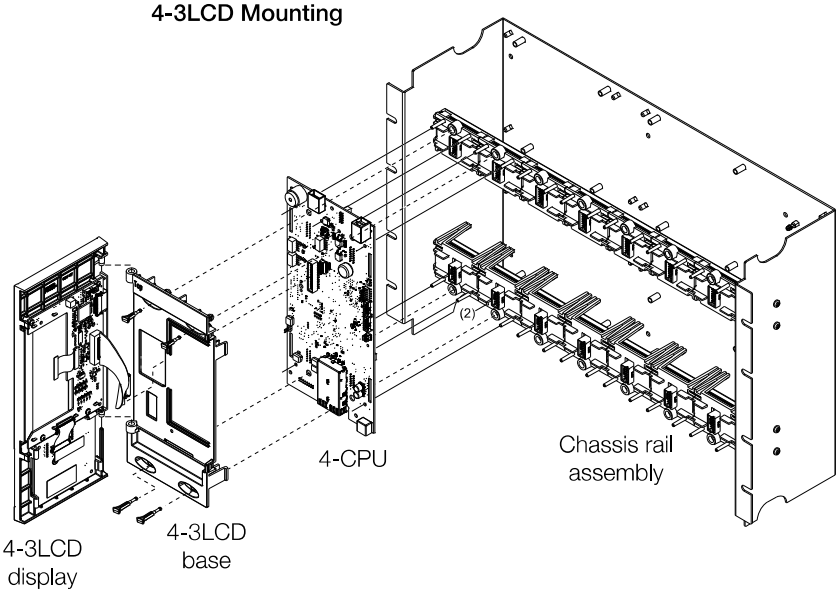
The 4-LCD display mounts onto the inner door frame of EST4 control panels. The inner door also acts as a deadfront, separating users from field wiring located behind it.

The 4-3LCD display mounts into EST3 enclosures that do not contain audio control components. This allows reuse of EST3 user interface layers in these applications. The 4-3LCD mounts onto the top of the 4-CPU in EST3 retrofit applications, providing all the benefits of the 4-LCD, while matching closely the EST3 look.

4-LCD Mounting



4-3LCD Mounting



Engineering Specification

The system shall provide a user interface that displays system events on a color touch screen display in a text format. The display must be capable of supporting a minimum of two languages including but not limited to English, Spanish, Portuguese or French. The display design shall be simplified for emergency users so that main common controls are provided as switches/buttons that provide positive feedback of operation, common control buttons shall not be part of the touch screen display area. The Common Control Switches and LEDs provided through tactile buttons with indicators shall be; Reset switch and LED, Alarm Silence switch and LED, Panel Silence switch and LED, Acknowledge switch and LED. In addition the following LEDs shall be provided as discrete indicators, Alarm Indicator, CPU Fail Indicator, Trouble Indicator and Power Indicator. It must be possible to add additional common controls as required through the use of modular display units. The user interface must provide a color touchscreen LCD display with minimum resolution of VGA 640 x 480. The display shall provide a minimum of seven events displayed concurrently and support >200,000 colors. The system shall be capable of displaying custom images on the panel's LCD screen when no active events are present. Hands free operations shall be provided for viewing the first eight highest priority events. Events of different priorities shall be automatically placed in easy to access queues. It shall be possible to view specific event types separately. Having to scroll through a mixed list of event types is not acceptable. The total number of active events by type must be displayed. Visual indication must be provided of any event type which has not been acknowledged or viewed. It must be possible to customize the designation of all user interface LEDs and Switches for local language requirements. The color LCD display must support scripts & ideograph style font types. It shall be possible to have a custom message for each device in addition to zone messages. Custom device messages must support a minimum of 42 characters each. Instructional text messages support a maximum of 2,000 characters each.

Control and Display Functions

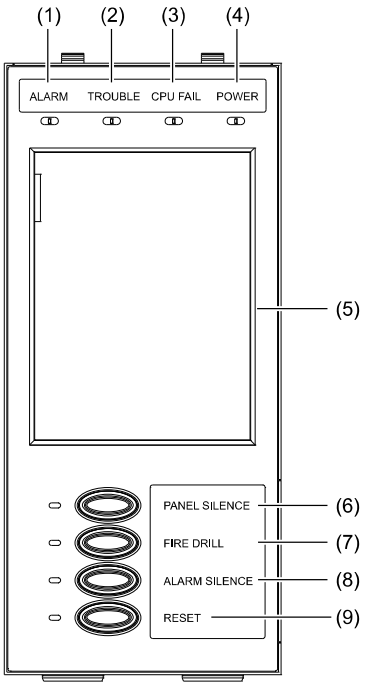
The EST4 LCD display simplifies the user interface. Up front and at the top of the display are four easy-to-read and understand status lights.

1 Alarm LED

The Alarm LED serves as a common alarm event indicator. The LED illuminates when there is am Alarm type event on the system. The specific Alarm event displays in its queue on the LCD where a count of alarm events is displayed along with a visual indicator if there are new events that have not been viewed.

2 Trouble LED

This LED serves as a common trouble event indicator. The LED illuminates when there are events in the trouble event queue located on the LCD display. The trouble event queue provides a count of trouble events and highlights if there are new events that have not been viewed (local systems operation) or acknowledged (proprietary systems operation).



3 CPU Fail LED

The LED indicates that the CPU has detected a processor failure. Processor failures must be reset manually using the Reset button.

4 Power LED

The LED indicates the power status. The LED operation is selectable in the panel configuration utility and supports local power display requirements including: On if there is primary or standby power present; On when primary power present, off during primary power loss; On when the panel has primary power and standby power, off if either standby or primary power are absent.

5 LCD screen

The heart of the 4-LCD is the color Liquid Crystal Display located in the center of the module. In the System Normal condition the date and time plus system wallpaper image are displayed on the LCD.

Control Buttons

Four easy to find rubber buttons are located at the bottom of the display. These provide simple-to-understand common control functions. The switch design gives tactile feedback when operated, but EST4 offers additional user feedback by also providing a visual indication of switch activation through the associated LED. When a switch is activated the LED beside the switch will illuminate in a contrasting color. This gives a visual indication that the system has seen the switch push. The LED will change to its programmed color when the switch command has been executed.

The versatility of EST4 allows system designers to define the features affecting particular areas of a building. These are known as Notification Control Areas (NCAs), which are defined areas of an installation. A network may have several NCAs. This feature is very useful when configuring systems with multiple buildings on one network. For example, operating the Reset function in one building may have an adverse effect in other buildings. As a solution to this, audio paging may be programmed to affect the defined NCA and no other NCAs. This means that with EST4, having operational differences between buildings on the same network is not a problem. This feature can save wiring and reduce inter panel overhead.

6 Panel Silence button and LED

The factory default for this programmable button and LED indicator is Panel Silence. Pressing Panel Silence turns off the system's internal audible signal. The switch indicator has two statuses: white when the switch is pressed, yellow on when panel silence is active.

7 Fire Drill button and LED

The factory default for this programmable button and LED indicator is Fire Drill. Pressing Fire Drill turns on the drill LED and all signals sound evacuation. Drill does not activate city tie connections. Auxiliary relays will not activate unless programmed to do so with drill.

8 Alarm Silence button and LED

The factory default for this programmable button and LED indicator is Alarm Silence. Pressing Alarm Silence turns off all Notification Appliance Circuits defined as audible. The switch indicator has two statuses: white when the switch is pressed, yellow when silence is active via the Alarm Silence switch or via alarm silence software timers.

9 Reset button and LED

The factory default for this programmable button and LED indicator is Reset. Pressing Reset starts the system's reset operation. The switch indicator has four statuses: white when the switch is pressed; fast flashing green during the smoke power down phase of reset; slow flashing green during the restart phase; and, on steady green during the restoral phase. The Reset LED is off when the system is not in the reset process.

a. Date and Time: Date format is selectable in the 4-CU.

b. Event Indicators: The event indicators provide a quick view of the event types active in the system. It indicates a count of the number of events in each group, and highlights new events that have not been viewed.

c. List Bar: The List Bar shows the event queues with active points. By simply selecting a queue the events for that queue are displayed in a list on the screen. In this example, the alarm queue is displayed.

d. Action Bar: The Action Bar allows the selection of specific actions that can be initiated via the LCD. Among those actions are gaining access to higher function levels (with proper accreditation), changing to the graphical Tree View, or accessing information such as panel firmware versions, CU and hardware configurations, licensing and contact information.

LCD screen

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Technical Specifications

	4-LCD	4-3 LCD
Rail Spaces	Two inner door spaces	Two user interfaces spaces.
Mounting	Mounts on inner door	Mounts on UI layer above 4-CPU
Current		
Standby	40 mA at 24 Vdc	
Alarm/active	93 mA at 24 Vdc	
Display	18 bit color. 640 x 480 pixels, resistive touch screen	
System status indicators		
ALARM	Red indicator	
TROUBLE	Yellow indicator	
CPU FAIL	Yellow indicator	
POWER ON	Green indicator	
Common controls and indicators [1]		
PANEL SILENCE button	Yellow indicator integrated with the Panel Silence button	
FIRE DRILL button	Yellow indicator integrated with the Fire Drill button	
ALARM SILENCE button	Yellow indicator integrated with the Alarm Silence button	
RESET button	Green indicator integrated with the Reset button	
Operating environment Temperature	32 to 120°F (0 to 49°C)	
Relative humidity	0 to 93% noncondensing	
Custom Background Image	Size: 480 x 640 pixels or greater with as aspect ratio of 3:4 (e.g., 600 x 800, 768 x 1024, or 960 x 1280) Resolution: 141 dpi or greater Color depth: 18-bit color or greater (24-bit is RGB; 32-bit is CMYK) Format: JPG, JPEG, or PNG	

[1] Factory default for the common controls and indicators are listed here. These common controls can be reprogrammed using the Configuration Utility (4-CU). The associated indicators can also be reprogrammed as red, green, yellow, blue or white colors.

Ordering Information

Model # (SKU)	Description	Shipping Weight
4-LCD	Main color touchscreen LCD display	1.25lb (0.57kg)
4-LCDANN	4-LCD w/ cable for Annunciator enclosure 4-4ANN, 4-6ANN mounting	1.9lb (0.85kg)
4-LCDLE	4-LCD w/ cable for 3-CAB5B, 7B, 14B, 21B, 4-8ANN, 16ANN and 24ANN mounting	1.9lb (0.85kg)
4-3LCD	LCD display for use in EST3 panels, allows reuse of EST3 UI layer in retrofit applications. The 4-3LCD can be mounted in remote closet cabinets where an LCD display is needed. The display mounts on the 4-CPU module.	1.5lb (0.66kg)
Accessories and related equipment		
4-CABL0502	Service replacement cable, 4-LCD to 4-CPU flex interconnect cable for CAB5, 7, 14, 21.	0.38lb (0.17kg)
4-CABL0504	Service replacement cable 4-LCD to 4-ANNCPU cable for use in 4-2ANN, 4ANN, 6ANN annunciator configuration.	0.37lb (0.17kg)
4-CABL0541	Service replacement cable 4-3LCD to 4-CPU cable for use in 3-CAB5B, 7B, 14B, 21B, RCC series.	0.1lb (0.04kg)
4-CABL0505	Cable, Door Rail to Rail, 13 Inch for 4-CAB16D(R), 4-CAB24D(R), or 4-CAB24D(R)L.	0.5lb (0.23kg)
4-CABL0507	Cable, Door Rail to Rail, 11.3 Inch for 4-CAB8D(R).	0.5lb (0.23kg)
4-CABL0542	Cable, for use with 4-CPU or 4-ANNCPU where no LCD is installed on Inner Door.	0.6lb (0.26kg)

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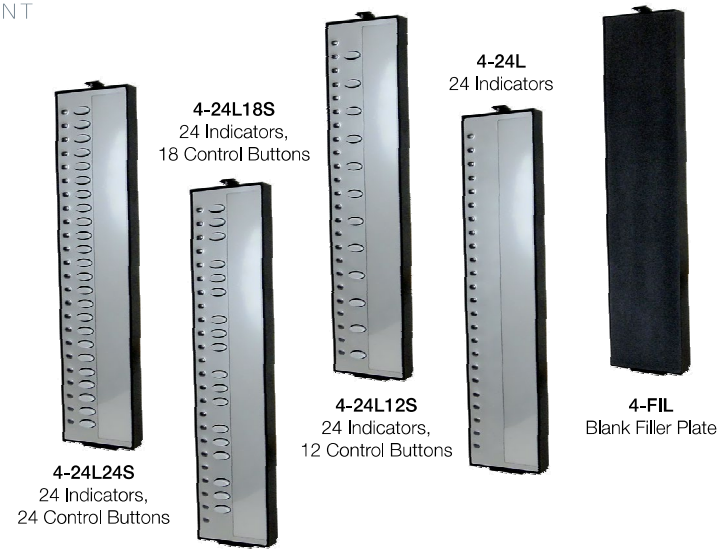
EST4 Control Display Modules

4-24L Series



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7165-1657:
0508

Overview

EST4 Control-Display Modules provide first responders and emergency users with easy-to-operate controls and at-a-glance indication when time is of the essence and event information is critical.

Control-Display Modules come with 24 LED indicators and are available with 0, 12, 18, or 24 control buttons. LED indicators are actually comprised of five individual LEDs, each of a different color. Programmers configure indicators to display their pre-selected color according to the type of information conveyed by the indicator. This offers a level of design efficiency that can reduce the number of display strips necessary for an application. In addition to color selection, the flash rate of the LED may be programmed to provide even more information. Examples include: damper and fan status, or audio zone notification status, alert, evaluation or paging.

Control display modules simply snap into place on the inner door of control panels or annunciators, and can mount in any unused display location. They can be positioned according to use, and spaced to create a physical separation between different control functions.

Control modules feature large and easy-to-see buttons. They provide tactile feedback when pressed, and visual feedback by means of the associated indicator, which flashes briefly when the button is activated.

Printable slide-in label inserts give control-display modules context with color-coded shading and other effects. They can be localized for regional language requirements, and printed on-the-fly to accommodate system changes as they are implemented.

Up to 576 tactile switches and 576 indicators may be mounted in a single EST4 cabinet. Module lamp test can be programmed to any spare control switch, or by selecting the Lamp Test feature from the LCD display.

Standard Features

- **Modules Mount on Inner Door of Cabinet**
  Simple snap-in modules speed installation, provides a clean look.
- **Rubber Buttons for Switch Control**
  Provides durability with great tactile feedback of switch operation.
- **Selectable LED Colors**
  Minimizes the inventory needed to support operations.
- **Slide-in Customizable Labeling**
  Print color-coded and regional languages from the Configuration Utility.
- **Stable Frame Assembly**
  Ensures positive switch operation.
- **Switch Radio Groups**
  Allows up to 24 switches in a group.
- **Synchronized Indicator Flash Rates Across Network**
  Consistent indication between nodes.
- **Visual Feedback of Switch Activation**
  Visual feedback of a switch press by status LED color change.

Application

Life Safety Systems require only occasional operation. Yet, in an emergency the user must be able to identify system operation and status quickly and without hesitation. LCD screen displays are excellent for identifying specific information, but even a large LCD display cannot convey overall system status as effectively as individual LEDs and switches.

Simple design, sophisticated operation

EST4 control-display modules are designed to provide simple identification and operation of system functions for the emergency user. They offer positive feedback of control activity with flexibility for selection of display configurations and mounting location options. This configuration flexibility means that there are fewer models needed to cover a wide array of applications. In fact, just four models handle all the control and display options needed for EST4 operation.

At each indicator location, display modules have five individual LEDs: red, yellow, blue, green and white. At configuration time the system designer matches the color of the LED to the needs of the system design. This allows maximum use of indicator and switch locations on each module, making it unnecessary to skip or leave indicator spaces blank because the color is wrong for the application.

Multi-use modules increase efficiency

Flexible multi-use design allows the same control-display model to be used for several different applications. For example, the 24-indicator 4-24L may be used for displaying zone annunciation, or zone annunciation with disable indicator, or zone annunciation with trouble, or a combination of all three.

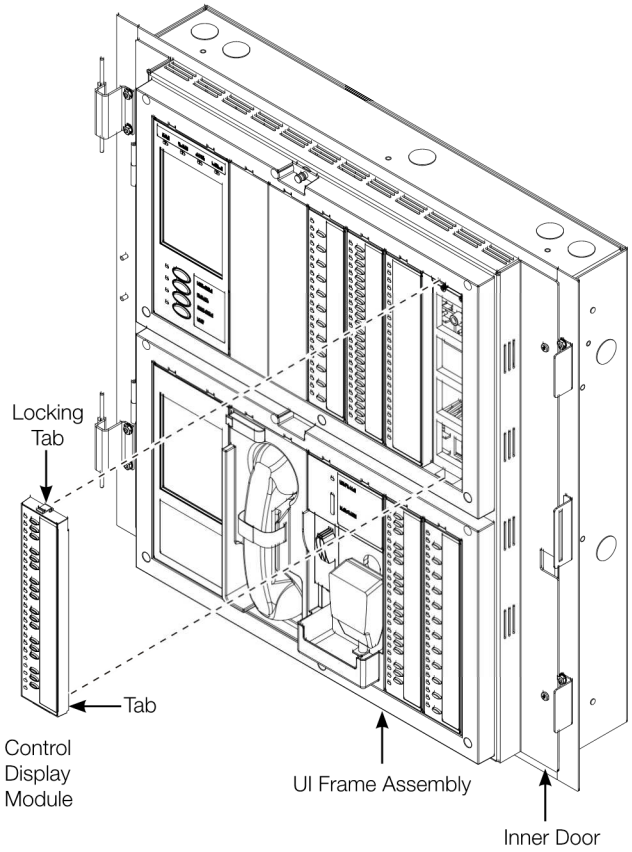
Switches can also work independently, or they can be grouped into a latching-interlock to support operations that must be kept separated, such as fan and damper control. The interlock is controlled by software, so only one switch is active at a given time. EST4 offers further flexibility by supporting the interlock of not just two or three switches in a group, but the interlock of any combination – right up to the full module complement of 24 switches.

Radio switch groups are also an option with EST4 control modules, as are On-Off-Auto configurations, and a variety of HVAC and building control system operations. In fact, the EST4 command and control interface is much more than the sum of its constituent parts, and its design flexibility is sure to inspire new and creative ways to make buildings safer.

Engineering Specification

The Life Safety system shall incorporate annunciation of Alarm, Supervisory, Trouble and Monitor operations. Annunciation must be through the use of LED display strips, complete with a means to custom label each LED/Switch position as to its function. The labels must support the ability to allow visual custom grouping of LEDs and switches. Where applicable, control of remote smoke control devices must be made available at the control center. Switches with LEDs must provide positive feedback to the operator of remote equipment status. All individual indicator LEDs shall be configurable for color including Red, Yellow, Blue, Green or White to facilitate identification from a distance and maximize display location usage. Where voice audio is required, a means of paging individual zones must be available. The status of each paging zone must be annunciated. It must be possible to selectively page into specific zones. It shall be possible to manipulate the evacuation of the building from the main control center. It must be possible for the emergency operator to put specific zones into evacuation manually. When being serviced or when it is necessary to disable switches, the system shall not 'remember' if a disabled switch is pressed. Switches' must be rubber to provide tactile feedback as well as a visual indication when a switch is activated.

Installation



Technical Specifications

	4-24L	4-24L12S	4-24L18S	4-24L24S
Indicators	24	24	24	24
Switches	0	12	18	24
Current				
Standby	3.0 mA (base) + 0.23 mA/Indicator ON @ 24 VDC			
Alarm	3.0 mA (base) + 0.23 mA/Indicator ON @ 24 VDC			
Mounting	Display modules mount on the inner door of the following door assemblies: 4-CAB8D, 4-CAB16D, 4-CAB24D, 4-CAB24DL, 4-4ANND, and 4-6ANND			
Operating environment	Temperature: 32 to 120°F (0 to 49°C). Relative humidity: 0 to 93% noncondensing.			
Agency Listings	UL, ULC, FM, CSFM			

Agency approvals: UL864 10th edition - UOJZ, UUKL, SYZV, UOQY, UL2017 2nd edition - FSZI, UL2572 2nd edition - PGWM; ULC-S527-11 3rd edition - UOJZ, UULK7, SYXV7, ULC-S576-14 1st edition - PGWM7, ULCS-S559-13 2nd edition - DYR7

Ordering Information

Model # (SKU)	Description	Shipping Weight
4-24L	24 Indicator Display Module	0.6lb (0.27kg)
4-24L12S	24 Indicator 12 Control Display Module	0.65lb (0.29kg)
4-24L18S	24 Indicator 18 Control Display Module	0.65lb (0.29kg)
4-24L24S	24 Indicator 24 Control Display Module	0.65lb (0.29kg)
4-FIL	Blank Filler Plate	0.1lb (0.04kg)

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EST4 Audio Units and Interfaces

4-MIC, 4-FT, 4-LCDAUDTEL

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7165-1657:
0508

Overview

Nothing connects with building occupants better than spoken words, and EST4's highly intelligible voice audio ensures that those words are heard loud and clear. This high-fidelity messaging, across EST4's impressive capacity of 200 channels, provides the flexibility needed to get messages out clearly and concisely.

EST4's voice audio function is built modularly from a collection of components finely tuned to the needs of small and large facilities alike. System designers can specify an ideal voice audio system by pinpointing the right components for the project, and selecting only equipment needed to get the job done. All audio components are standard modules that fit together easily. Each is an integrated part of EST4, allowing the use of the same cabinets, power supplies, and even network cabling as other EST4 components.

EST4 microphones and telephone handsets, along with their controllers, are used to create Notification Control Areas (NCAs) that can contain one or more Command Centers. EST4 allows both mass notification and emergency communications to be addressed, delivering live paging and pre-recorded messaging where its needed. EST4 supports configurations with Central Control Stations (CCSs), Autonomous Control Units (ACUs), and Local Operations Consoles (LOCs). Together, these options provide the opportunity to find an efficient yet economical Emergency Communications audio solution for any size installation.

Standard Features

- **Annunciator or Cabinet Mounting**
  One SKU for mounting in any cabinet configuration.
- **Paging Priority Automatically Set**
  Ensures highest priority paging location has control.
- **Color Touch-screen Audio Interface**
  LCD touch-screen interface for paging circuit selection.
- **Customizable Switch Modules, Multi-color LEDs**
  Tactile and visual feedback with printable slide-in labels.
- **200 Audio Channels per Network**
  100 Channels per Notification Control Area (NCA). Eight channels for audio source selection.
- **Use Twisted Copper Wires or Fiber Optic Cables for Audio**
  Network data, audio and firefighter telephone are transmitted on the same cables, helping reduce installation cost and complexity.
- **Listed for Mass Notification**
  Listed to UL2572 as CCS or ACU or LOC.
- **Supports Low Frequency Signaling in Sleeping Areas**
- **Auxiliary inputs, telephone interface**
  Auxiliary inputs allow other audio systems to be interconnected
- **Digital Transmission of Audio Signals**
  Greater noise immunity, high quality signal transmission.
- **On-Board Storage of Programmed Messages and Tones**
  Distributed storage helps overcome a single point of failure.
- **Optional LCD Display of Fire Phone Calls**
- **Optional Earthquake Hardening**
  OSHPD seismic pre-approval for Component Importance Factor 1.5.

Application

EST4 integrated audio is a modular group of components that install in standard fire alarm cabinet assemblies. The Audio Command Center, which holds audio control equipment, provides an emergency user interface for live and recorded paging, and optionally, a firefighters' master telephone or microphone. Zoned amplifiers mount in the main control panel or in remote cabinets, allowing distribution of the system, reducing the need to home run speaker wiring. Remote cabinets are easy to install because only a single twisted pair is required between cabinets, carrying not only audio, but network data and firefighters' telephone audio as well.

EST4 goes beyond standard emergency systems, ensuring that audio can provide the resources needed to cover the applications of even the largest and complex life safety applications. EST4 supports connection of local and network microphones, multiple telephone voice lines, and Mass Notification audio. It also expands the potential of these capabilities with 200 audio voice channels – an industry first. In fact, up to 100 audio channels per NCA support any combination of eight channels at the panel. These 100 channels for Paging, Alert, Evacuation signalling and automatic messages are delivered simultaneously to the parts of a building or buildings that need the information.

Efficient deployment

EST4 supports high fidelity digital audio, providing intelligibility that is not compromised at any point in the system. A dramatically simplified interconnect architecture handles up to 100 audio channels per NCA, and audio data can be transmitted over the same inter-panel cabling as other EST4 data. This means that paging, firefighters' telephone, and panel data can all share the same cable – significantly reducing project material expenses and installation labor costs for new installations and allowing audio to be added to many retrofit applications without the need of additional cables.

EST4 audio applications benefit from the inherent reliability and performance of zoned amplifiers, along with simplified user interface options, network interconnection flexibility, and several layers of survivability. All this combines to provide a flexible, cost-effective, and reliable audio solution.

Effective Control

The 4-LCDAUDTEL LCD module provides a dedicated color touchscreen user interface option for selecting page circuits, and placing and receiving calls over the Firefighter Telephone Handset. The LCD module mounts to the inner door of cabinets or annunciators.

LED-Switch Modules may be used exclusively for audio control, or used in conjunction with the LCD user interface. These modules offer convenient slide-in strips for custom and color-coded labeling. Switch modules provide both tactile and visual feedback when a switch selection is made, offering instant verification that the command has been received by the system.

The 4-MIC Microphone assembly works with LED-Switch modules and the LCD touch-screen user interface. It also comes standard with a VU volume level that shows the signal level provided by the microphone during the page process.

Survivable Distributed Audio

EST4's true distributed audio ensures the survivability of emergency messaging functions even in the face of catastrophic events. All pre-recorded messages are stored at the control panel, and programmed audio channel selection is made locally as well. This means that programmed messages will become active when a locally generated alarm is initiated — even if a network failure has occurred. Zoned amplifiers also have integrated 1000 Hz temporal tone generators that will produce a backup signal should the control panel CPU go offline. For additional system redundancy, a single standby amplifier can back up any zoned amplifier installed in the same cabinet.

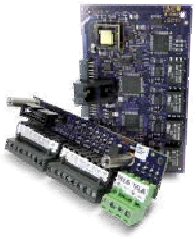
Network wiring can also be configured in several ways to bolster the survivability of live paging and event notification throughout the network. These layers of redundancy provide audio system survivability that keeps life safety measures in place. There is no need to rely on network data transmissions of pre-recorded messaging. The panel always plays the message for events based on the event. This ensures fast selection and reliable playback even under the harshest conditions.

Uncomplicated Plug-and-Play Configuration

Adding a microphone or firefighters' telephone at any EST4 control panel is as easy as plugging in a module. The 4-AUDTELS and 4-ANNAUDTEL interface modules mount to the back of the 4-CPU main processor unit or to a 4-ANNCPU annunciator CPU. The interface modules accept connections from locally-mounted microphones or telephones. Pre-recorded messages are stored at each panel that have zone amplifiers so there is no need to have a microphone or telephone at every panel. Nonetheless, EST4 does support multiple paging microphone masters and fire fighter telephone masters with programmable request-grant-deny function. This ensures that messaging is provided by those in control of the system.

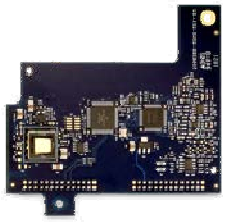
Audio Components

4-AUDTELS Audio-Telephone Interface Module



The 4-AUDTELS enables and processes information from connected microphone or telephone units mounted directly to the right of the CPU. The 4-AUDTELS also provides audio input-output, and is the source for a telephone riser that supports remote handsets and up to four line-level balanced audio input/output connections are available. The four balanced audio connections can be individually programmed as inputs or outputs, each rated for 1 Vrms nominal signal level. Multiple 4-AUDTELS may be installed in an EST4 network, providing support for multiple telephone riser applications and multiple low-level audio inputs/ outputs.

4-ANNAUDTEL Annunciator, Audio, and Telephone Interface Module



The 4-ANNAUDTEL mounts to the top of the 4-ANNCPU. The 4-ANNAUDTEL enables and processes information from connected microphone or telephone units. The module mounts in remote annunciators as well as in lobby cabinets.

4-LCDAUDTEL LCD Display Module for Audio and Telephone Control

The optional 4-LCDAUDTEL LCD module provides a dedicated color touch-screen user interface for selecting page circuits and for placing and receiving calls over the Firefighters' Telephone Handset. The LCD module mounts to the inner door of cabinets or annunciators. The interface does not have common control push buttons. The 4-LCDAUDTEL touch screen LCD may be used as the only method of making audio and telephone selections, or it may be used in combination with LED-Switch modules. For a complete list of LCD options please see the Ordering Information table.

4-MIC - Paging Microphone

The 4-MIC paging microphone mounts to the inner door of cabinets and annunciators, taking only two spaces. The 4-MIC is easy to use. It provides a hand-held microphone with push-to-talk switch and a multi-color amber-green-red volume meter on the assembly. The 4-MIC can be used for general alarm paging. Where no zoning is needed, simply pick up the mic, press the push-to-talk switch, and make the page to the entire system. Use an LED-Switch Module or 4-LCDAUDTEL color touch-screen interface where zoning or specific messaging operations are needed.

4-FT - Firefighter Master Handset

The 4-FT firefighter master handset mounts to the inner door of cabinets and annunciators, taking only two spaces. The 4-FT is used in conjunction with the 4-AUDTELS or 4-ANNAUDTEL interface modules. The 4-AUDTELS provides a firefighter telephone riser connection for remote warden stations. Telephone call-in selection may be annunciated at the control center via standard EST4 LED-Switch modules or the 4-LCDAUDTEL color touch-screen. Where multiple command centers are deployed, EST4 easily configures for request-grant-deny operation, ensuring that one command center is in control at one time, but allowing for changes in control if required.

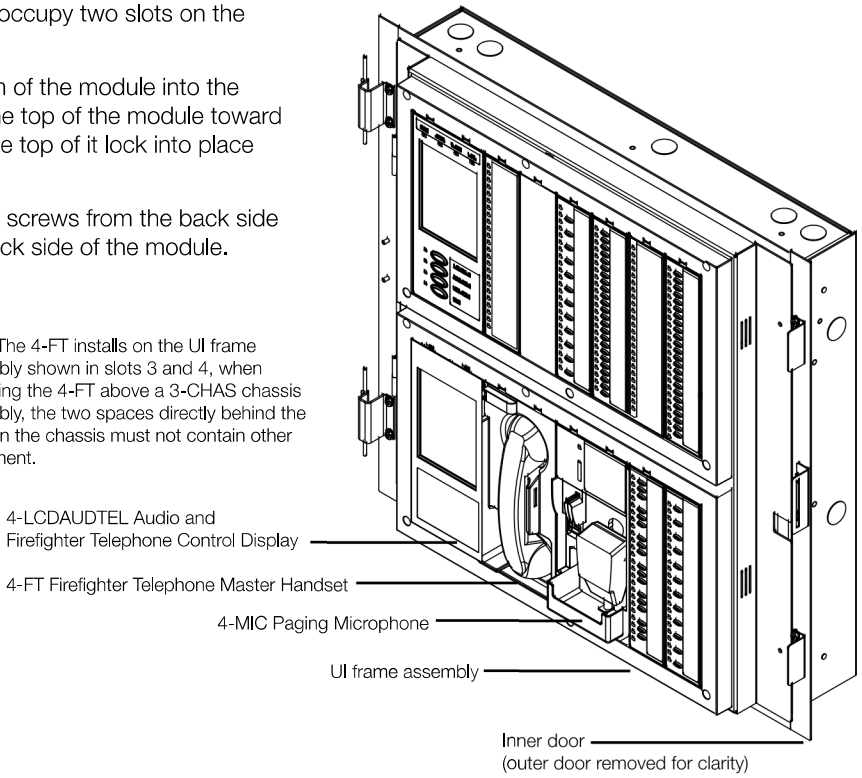
Assembly

The 4-LCDAUDTEL, 4-FT, and 4-MIC modules each occupy two slots on the UI frame assembly.

To install the audio units, insert the tabs at the bottom of the module into the slots at the bottom of the UI frame assembly. Push the top of the module toward the UI frame assembly until the two locking tabs at the top of it lock into place on the UI frame assembly.

For a more secure installation, install two 4-40 x 7/16 screws from the back side of the UI frame assembly into the standoffs on the back side of the module.

Note: The 4-FT installs on the UI frame assembly shown in slots 3 and 4, when mounting the 4-FT above a 3-CHAS chassis assembly, the two spaces directly behind the 4-FT on the chassis must not contain other equipment.



Engineering Specification

Provide emergency audio as part of the main fire alarm control panel. The emergency audio shall contain a paging microphone, pre-recorded messages <fire fighter telephone> and zoned amplifiers capable of delivering multi-channel audio messages. The system shall support a minimum of 100 audio channels. Transmission of audio shall be over the same data network wiring as the fire panel data. The network shall be over a dedicated <single copper pair> <dual multimode fibers>, <dual Single mode fibers><one single mode fiber> to remote parts of the facility.

For systems requiring multiple locations for paging, the ability to Request/Grant/Deny page privileges shall be supported. Priorities shall be configured in software covering projects operational priorities between Autonomous Control Units (ACU), Central Control Station (CCS) and Local Operators Consoles (LOCs).

Each panel shall store digitally up to 750 minutes of pre-recorded audio messages as WAV files without the need to add additional memory storage devices. These messages shall be automatically played in various areas of a facility under program control. The system shall have the capacity to store up to 200 individual audio messages. Each audio channel shall support up to 200 individual messages. Each panel shall simultaneously play back any of seven (7) different message channels in addition to a live page message of the 100 available.

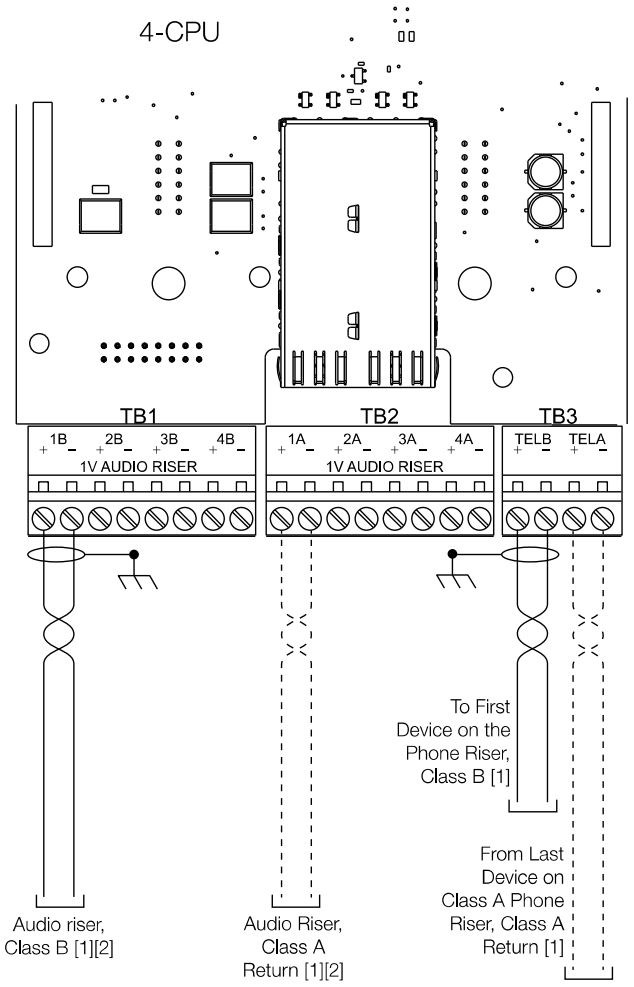
The system must provide operation to 25Vrms or 70.7Vrms speakers. The system must provide as a minimum the following paging common controls and indicators: Ready to page LED, three color VU display shows signal level provided by the microphone, single switch function for paging to all — Alert zones, Evacuation zones, and areas not programmed for signaling. The system must provide high quality analog to digital conversion of paging sources. Digital transmission of paging must be provided between system nodes over the same cabling as other system data. The analog sources must be sampled and converted to digital across the network.

System amplifiers must be distributed zoned type. Centrally banked systems are not acceptable. The circuit must carry a minimum rating of 3.5 Amps for operating 24 Vdc signals.

The system shall provide fully integrated fire fighters' telephone system that shall provide two-way communication between the fire alarm control panel and any firefighters' telephone station. << Audio and Firefighters' Telephone shall be installed so that a seismic component Importance Factor of 1.5 is achieved.>> <<The system shall include a dedicated color LCD touch screen user display and controls. When a telephone is activated, a call-in buzzer shall sound, and the location of the phone shall be shown on the LCD display. The display shall be capable of bilingual operation, displaying English, French, Spanish, or Portuguese messages.

All incoming calls and all connected phones shall be selected by touching the LCD screen. All subsequent telephone call locations shall be displayed in full text. The system shall display all incoming calls, all connected phone(s) on the color LCD display. The system shall be configured so that page messages may be issued from any firefighter's telephone connected to the system, as directed by the emergency operator.

Wiring, 4-AUDTELS



[1] For Class B risers, install a 15 kΩ EOLR at the last device on the riser. Do not install an end-of-line resistor if the riser is wired Class A.

[2] Audio riser connections can be programmed as inputs or outputs using the 4-CU configuration utility.

Technical Specifications

4-LCDAUDTEL Audio and Firefighter Telephone Control Display

Current	Connected to 4-ANNCPU
Active	93mA
Standby	40mA @ 20% brightness
Display	18 bit color. 640 x 480 pixels, resistive touch screen
Agency Approvals	UL, ULC, FM, CSFM
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Relative Humidity:0 to 93% noncondensing

4-MIC Paging Microphone

Current	
Active	38mA
Standby	8mA
Common controls/ indicators	
VU meter	Represents the signal level from the microphone input
Ready To Page	Flashes during preannouncement tone, steady when ready to page
Agency Approvals	UL, ULC, FM, CSFM
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Relative Humidity:0 to 93% noncondensing

4-FT Firefighter Telephone Master Handset

Current	Connected to 4-ANNCPU
Active	168mA
Standby	9mA
Optional telephone riser	See 4-AUDTELS specifications.
Agency Approvals	UL, ULC, FM, CSFM
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Relative Humidity:0 to 93% noncondensing

4-AUDTELS Audio and Telephone Interface/Riser Module

Current	
Standby	85 mA at 24 VDC
Alarm/active	101 mA at 24 VDC
Ground fault impedance	5k Ω
Wire size	22 to 12 AWG (0.5 to 2.5 mm²)

Telephone Riser specification	
EOL resistor	15k Ω (P/N EOL-15)
Active telephones	Five plus the master headset or six without the master handset
Wire type	Twisted pair, shielded
Configuration	Class A or Class B
Line impedance	52 Ω, 0.2 µF, max.

Audio Riser Specification	
EOL Resistor Class B	15KΩ (P/N EOL-15)
Wire type	Twisted pair, shielded
Voltage	1VRMS
Audio inputs/outputs	Up to four, configurable using the 4-CU
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Relative Humidity:0 to 93% noncondensing
Agency Approvals	UL, ULC, FM, CSFM

4-ANNAUDTEL Annunciator, Audio, and Telephone Interface Module

Current	
Standby/active	98mA @ 24VDC
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% noncondensing
Agency Approvals	UL, ULC, FM, CSFM

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Ordering Information

Model # (SKU)	Description	Shipping Weight
4-MIC	Paging Microphone	1.2lb (0.54kg)
4-FT	Firefighter Master Handset (See Note 1)	1.4lb (0.63kg)
4-LCDAUDTELANN	Display, LCD Module with Cable for Audio/Telephone Control annunciators in 4-8ANNMT, 4-16ANNMT and 4-24ANNMT enclosures	1.8lb (0.82kg)
4-LCDAUDTELCAB-CB	Display, LCD Module with Cable for Audio/Telephone Control with 4-BRKT-CB bracket. Supports mounting in 3-CAB7B, 3-CAB14B and 3-CAB21B series cabinets	2.9lb (1.32kg)
4-LCDAUDTELCAB-MPLT	Display, LCD Module with Cable for Audio/ Telephone Control with 4-MPLT mounting plate for 3-CAB7B, 3-CAB14B, 3-CAB21B, 4-16ANNMT and 4-24ANNMT	6.3lb (2.9kg)

Accessories and related equipment

4-AUDTELS	Audio and Telephone Interface/Riser Module	0.7lb (0.29kg)
4-ANNAUDTEL	Annunciator, Audio and Telephone Interface Module	0.3lb (0.13kg)
4-LCDAUDTEL	Display, LCD Module for Audio/Telephone Control	1.2lb (0.52kg)

Note 1: When mounting a 4-FT in a CAB series enclosure space directly behind the telephone must be left open for proper mounting.

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EST4 Cabinets and Chassis

4-CAB Series, 3-CAB Series 3-RCC series, BC-1

4-CAB Series shown with optional equipment.

Overview

EST4 has a wide selection of cabinet arrangements allowing the greatest use of EST4's flexible modular design.

Cabinets support more interfaces and display modules than earlier systems, which means smaller or fewer cabinets need to be installed to provide the same display capacity. Cabinets also support optional mounting of Signature Series modules, which is another way to reduce the use of external cabinets.

Lobby enclosure wallboxes and doors are made from sturdy 14-gauge rolled steel. Wallboxes have a black baked enamel finish. Lobby enclosure doors feature a modern contoured door design and integral viewing windows. They come with metallic bronze (Pantone Coated PMS# P 171-16 C, Pantone RGB# 81 75 67, and RAL Classic/RAL Design# 7022) or red baked enamel finishes. The door designs and colors ensure that there is a match to system annunciators and battery cabinets for a consistent look throughout the facility.

Doors may be mounted as remote annunciators without the need to have large CAB enclosures behind. This allows larger equipment to be mounted remotely, minimizing wall penetrations in lobbies and public spaces, and removing the need to home-run all field wiring.

The EST4 lobby enclosures backboxes, doors and chassis units are ordered and shipped separately for easy staging on project sites. With a variety of sizes available, customized installations offer the flexibility to support up to two color LCD touch screens, and LED and switch modules offering configurations of 576 five color LED indicators, as well as 576 control switches along with microphone and firefighters' telephone options.

Standard Features

- **Left or Right-hand Hinging Doors**
  Allows the mounting of two cabinets side-by-side with full access while both doors are open.
- **Lag and Keyway Holes**
  Makes mounting of enclosures quicker and easier.
- **Attractive Contour Door Design**
  Lobby enclosures, annunciators, with their contour door designs, feature color-matched black wallboxes that complement distinctive metallic bronze doors.
- **Combination Flush or Surface Mounting Lobby Enclosure**
  Quicker installation with semi-flush trim built-in.
- **RCC Series House up to 65 Amp Hour Batteries**
  Remote Closet Cabinets support larger battery sizes reducing the number of boxes required.
- **Maximum Space for optional Control Display Modules**
  Inner doors not only support the user interface layer, but also acts as a deadfront so field wiring remains protected during system operation.
- **Optional Earthquake Hardening**
  OSHPD Seismic Pre-Approval For Component Importance Factor 1.5
- **Knockouts for 3/4-inch Conduit**
- **BC Series Support up to 40 AH Batteries**

Application

Lobby Enclosures

EST4 lobby enclosures provide space for control, monitoring and display modules where they remain visible even with the door closed and secure. Ideal for mounting in lobbies where appearance is important, doors will mount for right or left hand opening. Lobby enclosures come in several sizes to match individual project requirements.

The **3-CAB5B** mounts semi-flush or surface. A built-in rail assembly provides space for up to five local rail modules, no chassis assembly needed. Back space for 1-1/2 footprints provides room for a power supply, a 1/2 footprint module, and 10 AH batteries. The local rail module spaces provide room for amplifiers, SLC, and other modules. The 4-CAB8D or 4-CAB8DR door mounts to the 3-CAB5B providing eight spaces for user interface modules.

The **3-CAB7B** mounts semi-flush or surface, and with the contoured front door, 4-CAB16D(R) provides 16 spaces for common control and annunciation modules. Space is provided for two 17 AH batteries and one chassis assembly providing seven local rail module spaces. The door may be mounted with hinges on the left or on the right.

The **3-CAB14B** mounts semi-flush or surface, and with the contoured front door, 4-CAB24D(R) provides 24 spaces for common control and annunciation modules. Space is provided in the cabinet for two 17 AH batteries and two chassis assemblies providing 14 local rail module spaces. The door may be mounted with hinges on the left or on the right.

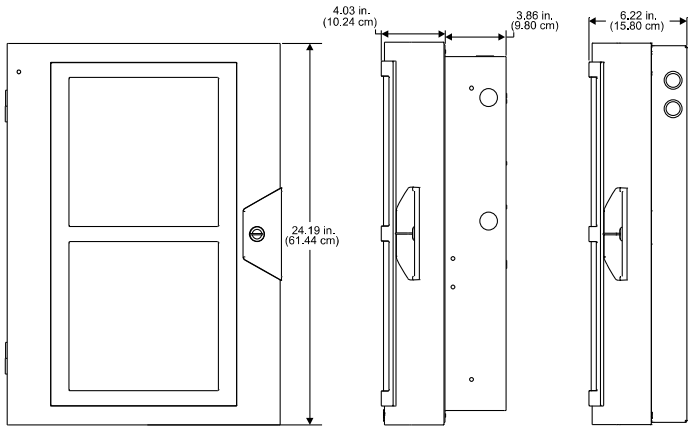
The **3-CAB21B** mounts semi-flush or surface, and with the contoured front door, 4-CAB24D(R)L provides 24 spaces for common control and annunciation modules. Space is provided for two 17 AH batteries and three chassis assemblies for 21 local rail module spaces. The door may be mounted with hinges on the left or on the right.

Remote Closet Cabinets

Remote Closet Cabinets provide an efficient way of installing equipment in locations such as electrical closets. An optional color LCD display module for system diagnostics can be mounted behind the front door. The LCD display module will not be visible with the door closed. Remote closet cabinets are surface-mounting and come in sizes providing space for one to three chassis with room for standby batteries. The Remote Closet Cabinets designs allow them to be used as remote battery cabinets and their red door and black wallbox match exactly the red and black of lobby cabinets for a clean finished installation.

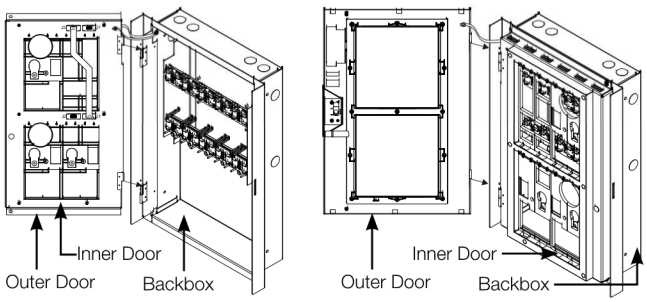
Installation and Mounting, 4-CAB Door Assemblies

4-CAB8D Series Door Assembly

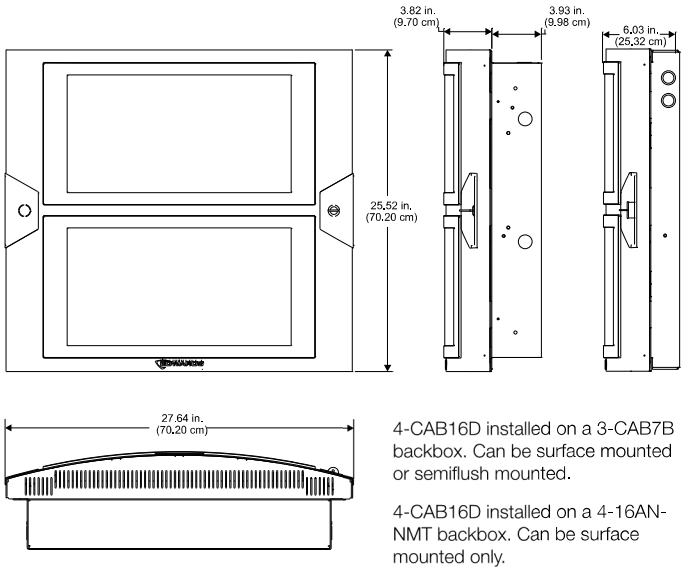


4-CAB8D installed on a 3-CAB5B back-box. Can be surface mounted or semiflush mounted.

(2) 4-CAB8D installed on a 4-8ANNMT back-box. Can be surface mounted only

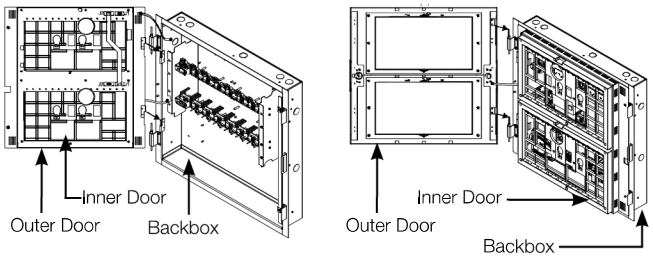


4-CAB16D Series Door Assembly

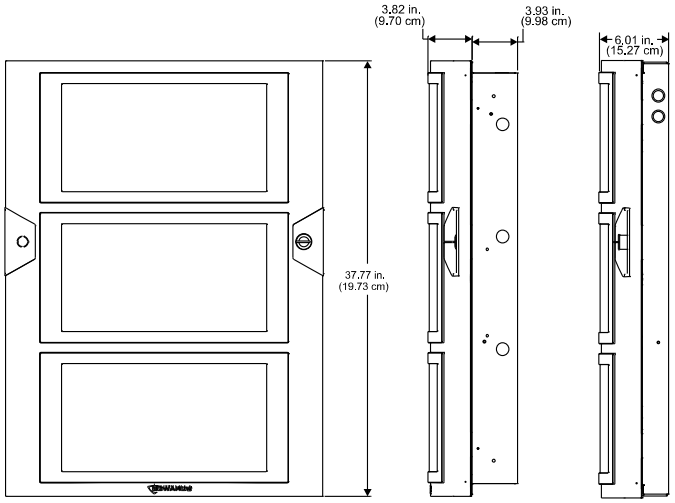


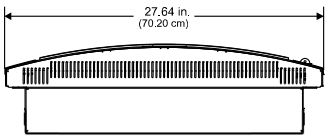
4-CAB16D installed on a 3-CAB7B backbox. Can be surface mounted or semiflush mounted.

4-CAB16D installed on a 4-16AN-NMT backbox. Can be surface mounted only.



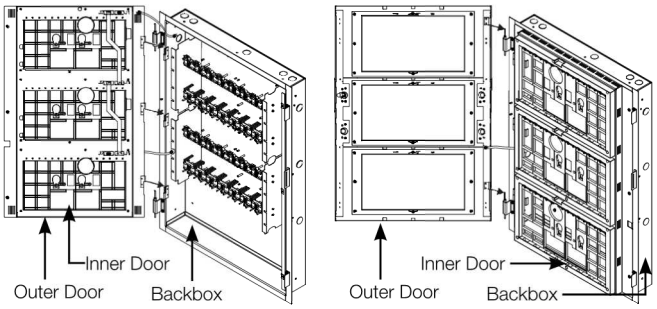
4-CAB24D Series Door Assembly



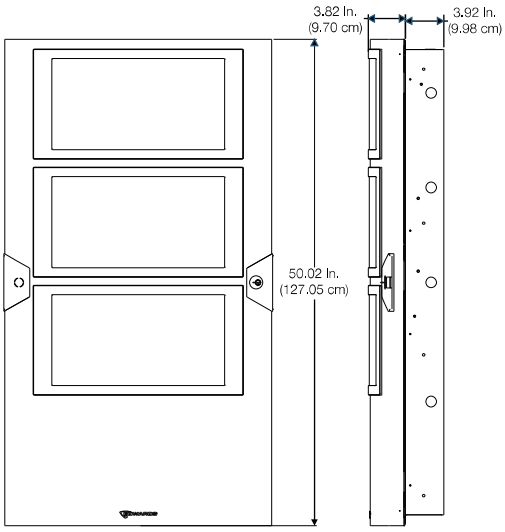


4-CAB24D installed on a 3-CAB14B backbox. Can be surface mounted or semiflush mounted.

4-CAB24D installed on a 4-24ANNMT backbox. Can be surface mounted only.

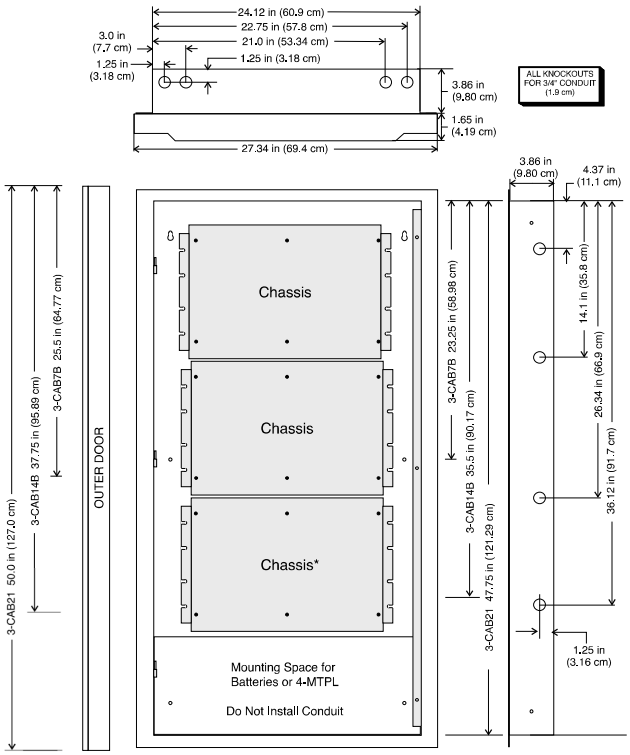


4-CAB24DL Dimensions



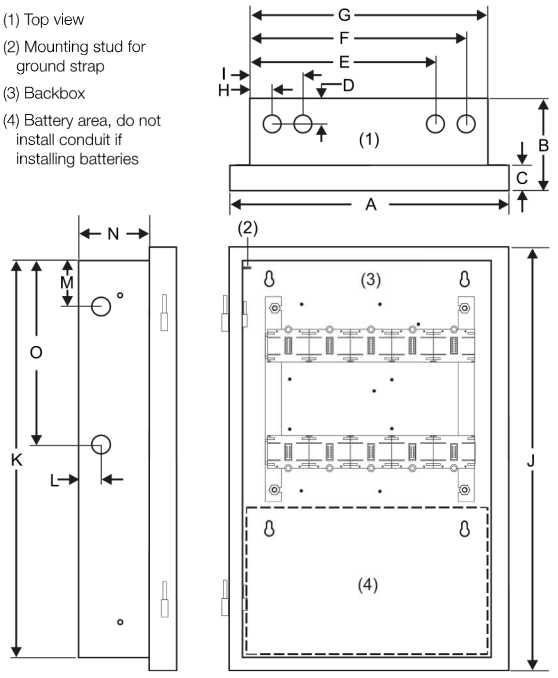
3-CAB Lobby Enclosures

3-CAB7B, 3-CAB14B, 3-CAB21B Lobby Enclosures



3-CAB5B Lobby Enclosure

(1) Top view
(2) Mounting stud for ground strap
(3) Backbox
(4) Battery area, do not install conduit if installing batteries



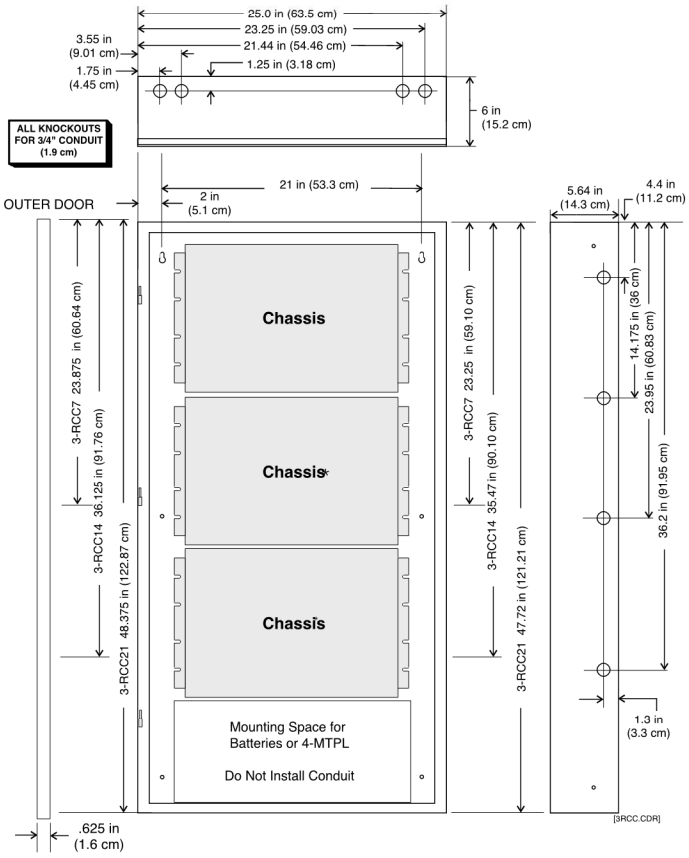
A	16.4 in (41.66 cm)	**F**	12.70 in. (32.26 cm)	**K**	22.37 in. (56.82 cm)
B	3.86 in (9.80 cm)	**G**	14.00 in. (35.56 cm)	**L**	1.11 in. (2.82 cm)
C	1.65 in. (4.19 cm)	**H**	1.30 in. (3.30 cm)	**M**	2.6 in. (6.6 cm)
D	1.34 in. (3.40 cm)	**I**	3.1 in. (7.87 cm)	**N**	3.86 in. (9.80 cm)
E	10.90 in. (27.69 cm)	**J**	23.87 in. (60.63 cm)	**O**	10.4 in. (26.42 cm)

3-RCC Remote Closet Cabinets

Surface Mounted Remote Closet Cabinets
3-RCC7R, 3-RCC14R, 3-RCC21R

3-RCC Remote Closet Cabinet

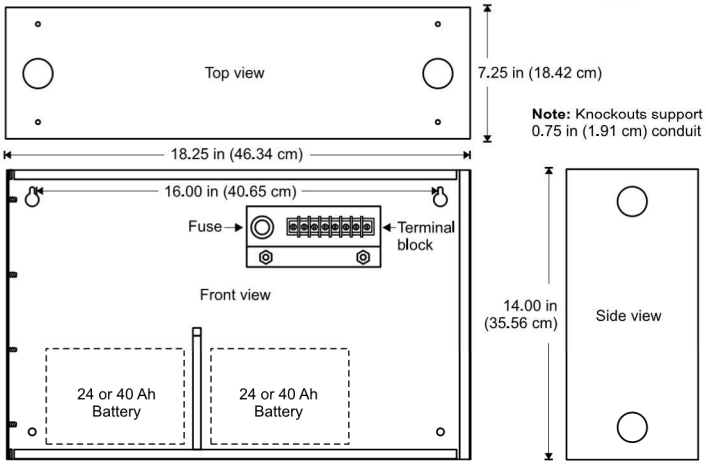
The EST4 remote closet cabinet design allows the installation of control panel electronics in electrical closets. The remote closet cabinets have left-hand hinged doors and are available with red door finish and black wallbox only. Optional color display for system diagnostics can mount behind the closet cabinet door and is not visible with the door closed.



* The lower mounting space can be used for an MN-BRKT1 bracket, which holds MNEC interface equipment including an MN-NETSW1 Ethernet network switch, an MN-ABPM Audio bridge, an MN-FVPN VoIP module, and an MN-COM1S Communications module.

BC-1 Battery Cabinet

BC-1 Battery Cabinet



Ordering Information

Model # (SKU)	Description	Shipping Weight
Backboxes		
3-CAB5B	Backbox, black. Supports five Local Rail Modules.	20.0lb (9.07kg)
3-CAB7B	Backbox, black. Supports seven Local Rail Modules. Comes with space for one 3-CHAS7 and room for up to two 17 AH batteries. When batteries are mounted remotely, battery space may be used for 4-MPLT for mounting of optional equipment.	29.5lb (13.4kg)
3-CAB14B	Backbox, black. Supports 14 Local Rail Modules. Comes with space for one or two 3-CHAS7s and room for up to two 17 AH batteries. When batteries are mounted remotely, battery space may be used for 4-MPLT allowing mounting of optional equipment.	40.8lb (18.5kg)
3-CAB21B	Backbox, black. Supports 21 Local Rail Modules. Comes with space for one, two or three 3-CHAS7s and room for up to two 17AH batteries. When batteries are mounted remotely, battery space may be used for 4-MPLT allowing mounting of optional equipment.	51.3lb (23.3kg)
Door Assemblies, Eight User Interface Spaces (mount to 3-CAB5B backbox)		
4-CAB8D	Door Assembly – Metallic bronze outer door and black inner door with 8 user interface spaces, mounts to 3-CAB5B wallbox.	23.0lb (10.43kg)
4-CAB8DR	Door Assembly – Red outer door and black inner door with 8 user interface spaces, mounts to 3-CAB5B wallbox.	23.0lb (10.43kg)
Door Assemblies, 16 User Interface Spaces (mount to 3-CAB7B backbox)		
4-CAB16D	Door Assembly – Metallic bronze, comes with 16 User Interface spaces, mounts to 3-CAB7B wallbox.	36.0lb (16.33kg)
4-CAB16DR	Door Assembly – Red, comes with 16 User Interface spaces, mounts to 3-CAB7B wallbox.	36.0lb (16.33kg)
Door Assemblies, 24 User Interface Spaces (mount to 3-CAB14B backbox)		
4-CAB24D	Door Assembly – Metallic bronze outer door and black inner door with 24 user interface spaces, mounts to 3-CAB14B wallbox.	51.0lb (23.13kg)
4-CAB24DR	Door Assembly – Red outer door and black inner door with 24 user interface spaces, mounts to 3-CAB14B wallbox.	51.0lb (23.13kg)
Door Assemblies, 24 User Interface Spaces (mounts to 3-CAB21B backbox)		
4-CAB24DL	Door Assembly – Metallic bronze outer door and black inner door with 24 user interface spaces, mounts to 3-CAB21B wallbox.	65.0lb (29.48kg)
4-CAB24DRL	Door Assembly – Red outer door and black inner door with 24 user interface spaces, mounts to 3-CAB21B wallbox.	65.0lb (29.48kg)
Equipment Wallboxes		
3-RCC7R	Cabinet with Red door and Black wallbox. Supports up to one 3-CHAS7 and Two - 12V10A or Two - 12V17A, or Two - 12V50A. When batteries are mounted remotely, battery space may be used for 4-MPLT allowing mounting other optional equipment.	45.9lb (22.6kg)
3-RCC14R	Cabinet with Red door and Black wallbox. Supports up to two 3-CHAS7 and Two - 12V10A or Two - 12V17A, or Two - 12V50A or Two - 12V65 (See note 1). When batteries are mounted remotely, battery space may be used for 4-MPLT allowing mounting other optional equipment.	62.1lb (28.2kg)
3-RCC21R	Cabinet with Red door and Black wallbox. Supports up to three 3-CHAS7 and Four - 6V8A, or Two - 12V10A, or Two - 12V17A, or Two - 12V50A, or Two - 12V65 (See note 1). When batteries are mounted remotely, battery space may be used for 4-MPLT allowing mounting other optional equipment.	79.0lb (35.8kg)
Battery Cabinets		
BC-1	Battery Cabinet – Black back box, Metallic bronze door. Supports up to 40AH batteries	19.8lb (9kg)
BC-1R	Battery Cabinet – Black backbox, red door. Supports up to 40AH batteries.	19.8lb (9kg)

Note 1: Remote closet cabinets will support 65 AH batteries with the use of the 3-BATS Battery Shelf, which reduces the enclosure's chassis capacity by one chassis.

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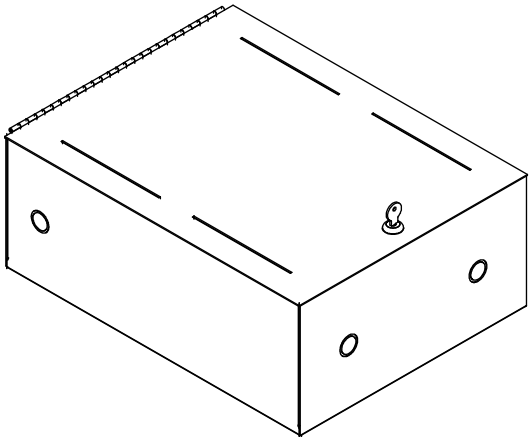
Accessories and Related Equipment

Model # (SKU)	Description	Shipping Weight
4-LOCK2KEY	Replacement door lock and two keys	1.0lb (0.45kg)
4-HNG714	Replacement Hinge Assembly CAB7 or 14	1.5lb (0.68kg)
4-HNG21	Replacement Hinge Assembly CAB21	2.0lb (0.91kg)
3-CHAS7	Takes one chassis space in wallbox, provides space for seven local rail modules, up to two power supplies, and a 1/2 footprint module.	9.4lb (4.2kg)
4-MPLT	Mounting Plate mounts in chassis space or in the battery space of cabinets in place of batteries.	4.3lb (1.95kg)
4-BRKT-CB	Mounting Bracket provides space for mounting any one of 4-ANNCPU, 4-FWAL-1, 4-FWAL-2, 4-FWAL-3, 4-FWAL-4, or a 4-NET-AD module. Mounts on the back plane of a 3-CHAS7.	1.1lb (0.5kg)
4-BRKT-CS	Mounting Bracket provides space for mounting any one of 4-FWAL-1, 4-FWAL-2, 4-FWAL-3, 4-FWAL-4, or a 4-NET-AD module. The bracket mounts to the side of a 3-CHAS7.	1.2lb (0.54kg)
3-BTSEN	Battery sensor/distribution module.	2.0lb (0.9kg)
3-BATS	Battery Shelf for RCC Enclosures. Takes one chassis space. Room for up to one 65 AH or two 50 AH batteries.	3.9lb (1.8kg)
BC-1EQ	BC-1 - Seismic Battery hold down for BC-1. Supports up to two 40 Ahr batteries. Order BC-1 Separately.	2.1lb (1kg)
3-CABEQ	3-CAB - Seismic Battery hold-down for 3-CAB 7, 14 or 21. Supports two 1 2V batteries from 10 Ah up to 18 AH. Comes with EST3 Chassis hardening hardware and instructions. Order 3-CAB7, 3-CAB14 or 3-CAB21 separately. See Note 1.	2.5lb (1.1kg)
3-RCCEQ50	3-RCC series - Seismic Battery hold-down. Supports one set of two 50 Ah batteries. Comes with EST3 Chassis hardening hardware and instructions. Order 3-RCCxxR separately. See Note 1.	1.6lb (0.7kg)
3-RCCEQ65	3-RCC series cabinet - Seismic Battery hold-down. Supports one set of two 65 Ah batteries (one battery in bottom of cabinet, one battery mounted on 3-BATS). Order 3-RCCxxR cabinet and 3-BATS separately. See Note 1.	4.3lb (2kg)
4-TAMP	Tamper switch for 3-CAB7B, 3-CAB14B and 3-CAB21B cabinets with 4-CABXXD series doors. Mounts to side of cabinet.	0.45lb (0.2kg)
3-TAMPRCC	3-TAMPRCC Tamper Switch for RCC series cabinets. Mounts to side of cabinet.	0.5lb (0.2kg)
3-TAMP5	Tamper switch for 3-CAB5B. Mounts to side of cabinet.	0.3lb (0.1kg)
4-CABLUSBLG	Long USB 3.0 Cable w/ A and B connector Types	0.3lb (0.14kg)

The above enclosures and doors are fully listed to UL-864 and ULC-S527 standards.

Note 1. For earthquake anchorage, including detailed mounting weights and center of gravity detail, please refer to the Seismic Application Guide. Approval of panel anchorage to site structure may require local AHJ, structural, or civil engineer review.

BC-1(R) Battery Cabinet Installation Sheet



Description

The BC-1(R) Battery Cabinet is used for a system requiring a battery rated above 17 Ah. The BC-1(R) consists of a surface mount wall box and door. The cabinet can house up to two 24 Ah or two 40 Ah batteries.

The BC-1(R) provides an internal terminal assembly for wiring the batteries to the fire alarm control panel power supply terminals.

Installation

Install the battery cabinet in accordance with CAN/ULC-S524 *Installation of Fire Alarm Systems*.

Install the battery cabinet in the same room as the fire alarm control panel. We recommend the space between the cabinet and the panel be 3 in. (7.6 cm) minimum and 10 ft. (3.4 m) maximum. Run battery wiring in conduit or equivalent protection against mechanical injury.

Refer to Figure 4 for BC-1(R) cabinet dimensions.

To install the battery cabinet:

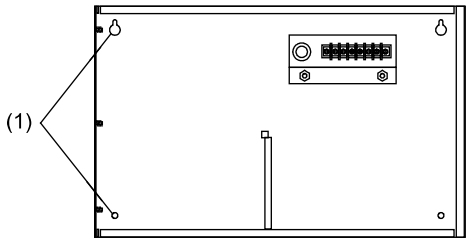
1. Attach the wall box to the wall using the mounting holes on the back of the wall box. See Figure 1.

   Use fasteners that can support the full weight of the cabinet, including the batteries.

2. Mount the door onto the wall box by aligning the mounting holes in the door hinge to the wall box threaded studs. See Figure 2.

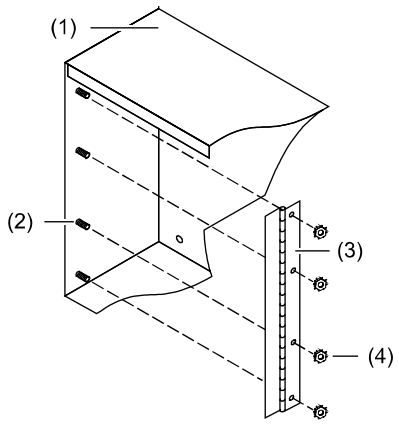
3. Secure the door to the studs using the #6-32 locknuts provided.

Figure 1: Mounting the wall box



(1) Mounting holes

Figure 2: Attaching the door



(1) Wall box
(2) Threaded stud
(3) Door hinge
(4) #6-32 locknut

Wiring

Connect wiring to the BC-1(R) internal terminal assembly in accordance with applicable national and local codes, ordinances, and regulations.

WARNING: Electrocution hazard. To avoid personal injury or death from electrocution, remove all sources of power and allow stored energy to discharge before installing or removing components.

Notes

- The 3-BC-1(R) internal terminal assembly (P/N 235019) can connect to *only one* fire alarm control panel power supply. If more than one power supply is required, replace the internal terminal assembly with a 3-BTSEN or 3-BTSEN-E battery distribution bus.

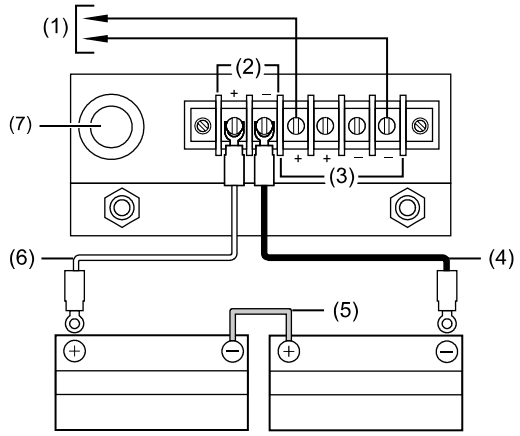
  For 3-BTSEN(-E) installation and wiring details, refer to the *3-BTSEN Battery Distribution Bus Installation Sheet* (P/N 387337-EN) or *3-BTSEN-E Battery Distribution Bus Installation Sheet* (P/N 3100030-EN).

- All battery wiring must be the same length and gauge.
- If two batteries are installed in the cabinet, make sure that:
  - the battery model, manufacturer, and rating is the same
  - the battery date codes differ by no more than one month

To connect internal terminal assembly wiring:

1. Place the batteries inside the cabinet.
2. Wire the terminal assembly as shown in Figure 3.

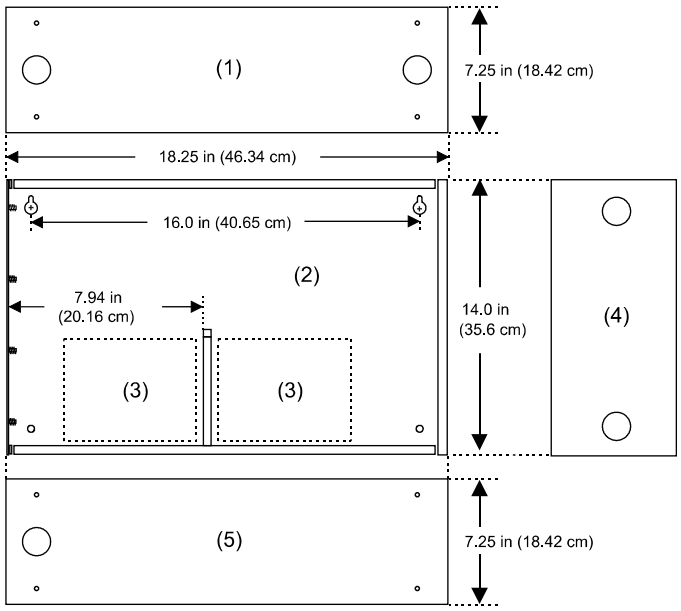
Figure 3: Internal terminal assembly wiring



Legend
(1) To fire alarm control panel battery supply terminals
(2) Battery IN terminals
(3) Battery OUT terminals (fused)
(4) Negative lead (black wire)
(5) Jumper (blue wire)
(6) Positive lead (red wire)
(7) 8 A fuse

Notes
- Only one set of battery OUT terminals (item 3) can be used.
- Positive and negative lead arrangements on the standby batteries vary between manufacturers.

Figure 4: Cabinet dimensions



(1) Top view
(2) Front view
(3) Battery area
(4) Side view
(5) Bottom view

Specifications

Fuse rating	8 A, 32 V (one power supply)
Battery type	12 V, 24 to 40 Ah, lead acid
Wire size	16 to 12 AWG (1.5 to 4.0 mm²)
Dimensions (W × H × D)	18.25 × 14.0 × 7.25 in. (46.34 × 35.6 × 18.42 cm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93% noncondensing

Regulatory information

Environmental class	Indoor dry IEC: 3K5
North American Standards	UL 864, CAN/ULC-S527
Certification	CE
CPR certificates	See the *European Marketplace Manual* for your system
EN 54	EN 54-2:1997 + A1:2006 EN 54-4:1997 + A1:2002 + A2:2006 EN 54-16:2008
European Union directives	1999/5/EC (R&TTE directive): Hereby, United Technologies Corporation declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.
	2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

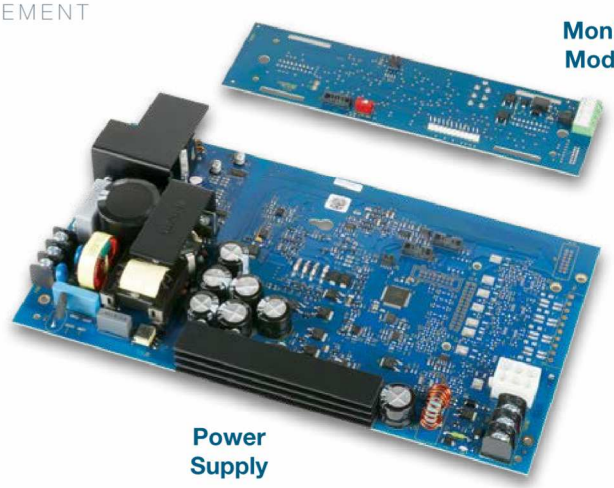
Contact information

For contact information, see www.edwardsfiresafety.com.

LIFE SAFETY & INCIDENT MANAGEMENT

System Power Supplies

4-PPS/M series



Approvals

EST4	EST3
UL, ULC, S3000	UL, ULC, S3000
7300-1657: 0519	7300-1657: 0519

Overview

System power supplies consist of two assemblies, a high efficiency switch mode power supply card and a power supply monitor module. The monitor module mounts to the local rail and distributes the power from its supply to the local rail. The local rail distributes power from all power supplies to other local rail modules and user interface cards resulting in “Shared Power” throughout the system. The 4-PPS/M can be configured as a primary power supply (PPS), booster power supply (BPS), or booster charger (BBC).

A 4-PPS/M configured as the PPS provides filtered, regulated power to the rail chassis modules as well as 24 VDC for operating ancillary equipment. The PPS consists of a power supply unit (PSU) mainboard and a monitor (MON) module.

Each booster power supply consists of the PSU mainboard and MON module. The booster power supply MON module provides the interface between the booster and the panel, making the required data and power connections to and from the rail chassis.

Maximum use of available power is achieved by configuring the power supplies in parallel. This results in a potential reduction in the number of power supplies necessary to meet requirements.

As many as four power supplies combined in a single enclosure provide up to 28 amps of available power. Battery backup is provided using one to four sets of batteries, depending on standby power requirements.

System power supplies mount to the back of the chassis units or wallboxes. Access to auxiliary power is via easily accessible terminal blocks located on the power supply monitor module. Each power supply produces 7 Amps of filtered and regulated power.

With four power supplies located in an enclosure (one primary and three booster power supplies) 28 amps of current is available for local rail modules, control display modules and the eight auxiliary 3.5 amp power outputs (two per supply).

Standard Features

- High efficiency switch mode
- Increased power distribution efficiency - power supplies parallel allowing up to 28 amps in a single node
- Universal 120 to 240 VAC Operation
- 7 AMP filtered and regulated
- Two 3.5 AMP outputs
- Temperature compensated, dual rated battery charger
- Electronic power limiting
- Automatic load testing of batteries
- Fully approved to UL/ULC standards

Application

The primary power supply provides the system with battery charging and voltage regulation. Software configures the charger to either 10-24 AH batteries or 30-65 AH batteries and controls the high/low charge rates. Batteries mounted in the same enclosure as the power supply, have their charge rate monitored and adjusted based on the local enclosure temperature, keeping charging rates within battery specification. For remote batteries a temperature probe is monitored in the remote battery cabinet and charge rates are adjusted automatically. Battery damage is unlikely to occur when environmental short term conditions are outside of normal operating ranges.

The 4-PPS power supplies automatically load test batteries by shutting down the battery charger and placing a load across the battery. If the battery voltage is outside the specification range the power supply reports a trouble. The trouble clears if the battery is able to recover and pass future load tests.

Battery leads are electronically short circuit protected. If a short occurs in the battery leads the charger automatically disables itself and causes a trouble. The system will constantly look to see if the short has cleared. If the short clears, the system automatically restores.

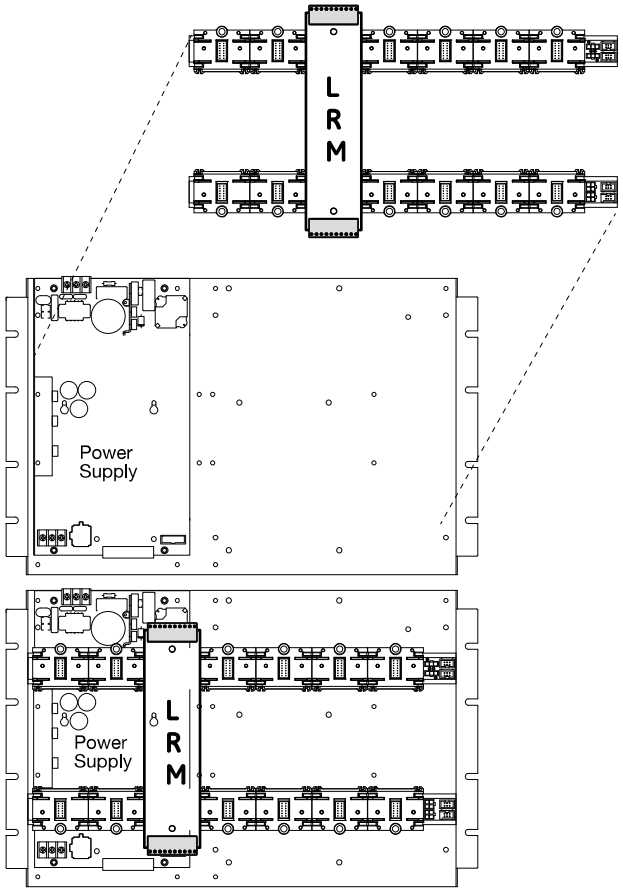
During operation on standby batteries, battery voltage is constantly monitored. A trouble is reported if the battery voltage falls below a specified value.

4-PPS power supplies provide specific information back to the CPU designed to help speed trouble shooting of system functions. Should a power supply detect a fault, specific diagnostic codes are available to speed trouble shooting. The LCD will display the power supplies address, a specific trouble code, and a text message describing the specific trouble. Text messages are easy to understand and include items like: Battery Trouble, Aux Power Overload Circuit 1, Aux Power Overload Circuit 2.

Engineering Specification

The fire alarm power supplies must be capable of being paralleled and to load share. Multiple power supplies must be capable of being backed up with a single 24 volt battery set. Each power supply shall be capable of charging up to 65 AH batteries. The power supply must be able to perform an automatic load test of batteries and return a trouble if the batteries fall outside a predetermined range. Power supplies must incorporate the ability to adjust the charge rate of batteries based on ambient temperatures. It shall be possible to adjust for ambient temperature changes in local cabinets as well as remote cabinets.

Installation and Mounting



Power Supply Rules

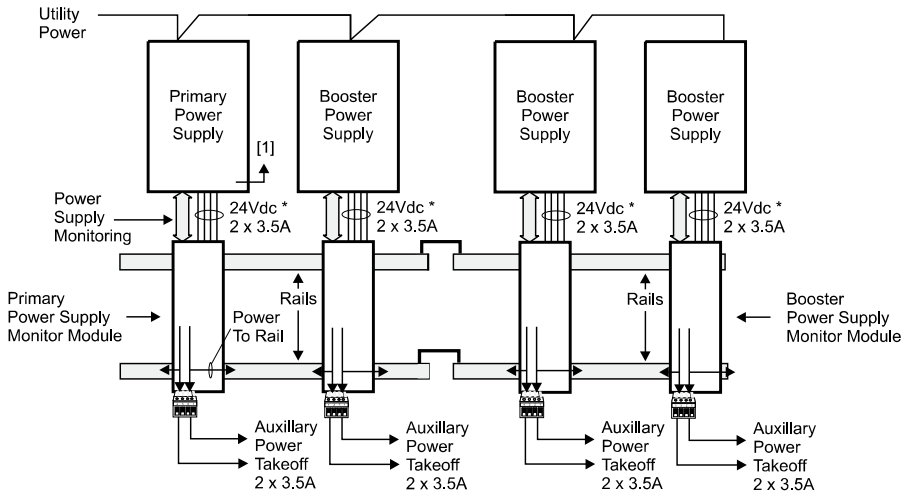
1. **<u>Equipment damage</u>: Do not install the 4-PPS/M in the same cabinet as a 3-PPS/M, 3-BPS/M, or 3-BBC/M. Combining the 4-PPS/M with legacy power supplies will cause damage to the power supply.**
2. Each battery set needs one charger.
3. Each power supply must be connected to a battery set using an identical length and gauge of wire to keep voltage drops identical.
4. Distribute power supplies and loads evenly across rails.
5. **All battery sets for a panel must be the same capacity (AH), same manufacturer, and same manufacturing date code.**

The Table below illustrates the combinations of power supplies and batteries that meet all the power supply rules.

24 VDC Power Supply Output Current

	7A	14A	21A	28A
Battery Requirements	One Set, 65 AH max	Two Identical Sets, 65 AH max	Three Identical Sets, 65 AH max	Four Identical Sets, 65 AH max
Required 4-PPS/M Modules	1	2	3	4

Typical Wiring



[1] From battery temperature probe terminals.

* Nominal Voltage

Specifications

Catalog Number	4-PPS/M
Agency Approvals	UL, ULC
Input Voltage	120-240 Vac (+10%, -15%), 50-60 Hz
Brownout Level	< or = 96 Vac
Current Requirements	PPS Included with CPU current requirements BPS/BBC Alarm: 45mA; Standby: 45mA
Input Current	3.0 A
Total Output	Special applications Total Internal DC Auxiliary DC*
Battery Charging Capacity	65 AH Sealed Lead-Acid
Low Battery Trouble	22.5 Vdc
Deep Discharge Cutoff	19.5 Vdc
Mounting Requirements	1 LRM space, 1 chassis footprint
Wire size (TB1 and TB3)	12 AWG to 20 AWG (4.0 mm^2 to 0.75 mm^2)
Output Protection	Electronic power limiting & heat sink temperature
Ground Fault Detection	< 10K Ohms

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
4-PPS/M	Primary Power Supply w/ local rail module 120-240V 50/60 Hz	5 (2.3)
3-BTSEN	Distribution Module required when battery installed in remote cabinet	.5 (.22)
4-FIL	Blank EST4 filler plate (order separately when no LED or LED/ Switch module is installed on the inner door).	0.1 (0.05)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

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PS-12400 12 Volt 40.0 AH

Rechargeable Sealed Lead Acid Battery

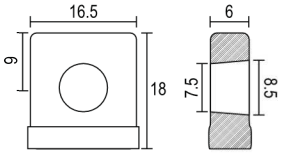
We've Got The Power.™

Features

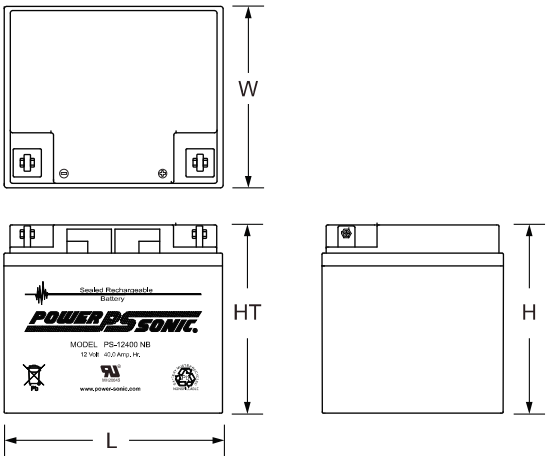
- Absorbent Glass Mat (AGM) technology for superior performance
- Valve regulated, spill proof construction allows safe operation in any position
- Power/volume ratio yielding unrivaled energy density
- Rugged impact resistant ABS case and cover (UL94-HB)
- Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified
- U.L. recognized under file number MH 20845

Terminals (mm)

- NB4: Heavy duty terminal posts with nut and bolt fasteners



Physical Dimensions: in (mm)



L: 7.76 (197) **W:** 6.50 (165) **H:** 6.69 (170) **HT:** 6.69 (170)

Tolerances are +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions. All data subject to change without notice.

Performance Specifications

Nominal Voltage ..... 12 volts (6 cells)

Nominal Capacity

20-hr.	(2A to 10.50 volts)	40.0 AH
10-hr.	(3.8A to 10.50 volts)	38.0 AH
5-hr.	(6.7A to 10.20 volts)	33.5 AH
1-hr.	(24A to 9.00 volts)	24.0 AH
15-min.	(74.1A to 9.00 volts)	18.5 AH

Approximate Weight ..... 29.10 lbs. (13.20 kg)

Energy Density (20-hr. rate) ..... 1.42 W-h/in3 (86.80 W-h/l)

Specific Energy (20-hr. rate) ..... 16.49 W-h/lb (36.36 W-h/kg)

Internal Resistance (approx.) ..... 10 milliohms

Max Discharge Current (7 Min.) ..... 120.0 amperes

Max Short-Duration Discharge Current (10 Sec.)..... 380.0 amperes

Shelf Life (% of nominal capacity at 68°F (20°C))

1 Month	97%
3 Months	91%
6 Months	83%

Operating Temperature Range

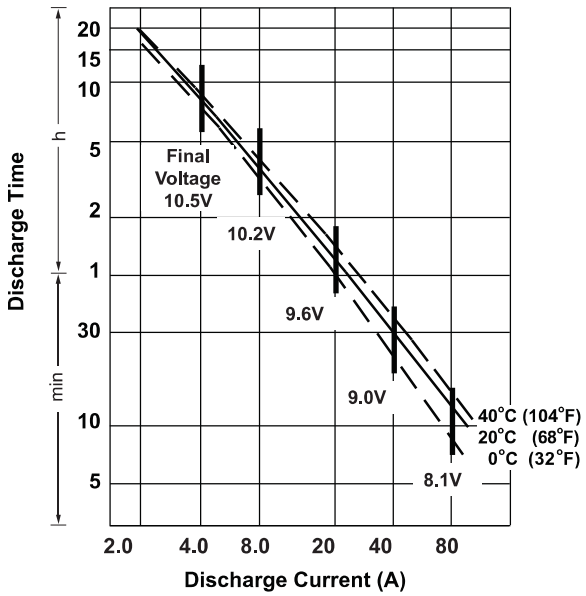
Charge	-4°F (-20°C) to 122°F (50°C)
Discharge	-40°F (-40°C) to 140°F (60°C)

Case ..... ABS Plastic

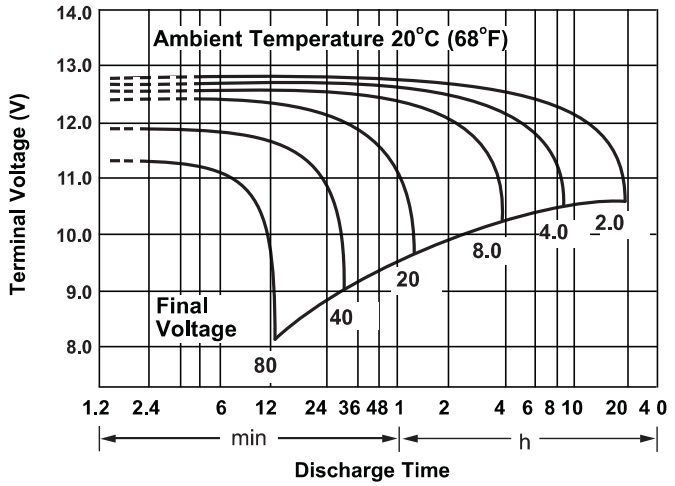
Power-Sonic Chargers PSC-124000A, 124000A-C

Constant Power Discharge Ratings								
MODEL	FINAL VOLTAGE	WATTS PER CELL @ 25° C						
		5 MIN	10 MIN	15 MIN	20 MIN	30 MIN	45 MIN	60 MIN
PS-12400	1.75	270	183	140	115	86	64	49
	1.70	278	187	143	116	87	65	50
	1.67	280	189	145	118	88	66	52

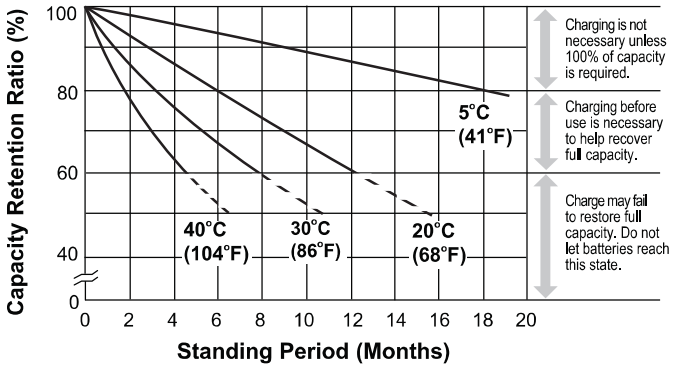
Discharge Time vs. Discharge Current



Discharge Characteristics



Shelf Life & Storage



Charging

Cycle Applications: Limit initial current to 12A. Charge until battery voltage (under charge) reaches 14.4 to 14.7 volts at 68°F (20°C). Hold at 14.4 to 14.7 volts until current drops to under 400mA. Battery is fully charged under these conditions, and charger should be disconnected or switched to "float" voltage.

"Float" or "Stand-By" Service: Hold battery across constant voltage source of 13.5 to 13.8 volts continuously. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charged condition.

Note: Due to the self-discharge characteristics of this type of battery, it is imperative that they be charged within 6 months of storage, otherwise permanent loss of capacity might occur as a result of sulfation.

Chargers

Power-Sonic offers a wide range of chargers suitable for batteries up to 100AH. Please refer to the Charger Selection Guide in our specification sheets for "C-Series Switch Mode Chargers" and "Transformer Type A and F Series". Please contact our Technical department for advice if you have difficulty in locating suitable models.

Further Information

Please refer to our website www.power-sonic.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc..

Contact Information

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0211 1M

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Remote Annunciators

4-xxANN Series

4-2ANN and 4-4ANN shown with optional equipment.

7120-1657: 0509

Overview

EST4 Remote Annunciators provide front panel system status and control functions located conveniently anywhere on the EST4 network. Annunciators can be as simple as a couple of LED indicator strips, or complex enough to support up to two LCD displays, an audio telephone interface, and hundreds of control points and indicators — all in a single enclosure.

Up to 576 tactile switches and 576 LED indicators may be mounted in a single EST4 annunciator cabinet. Control Display Modules (CDMs), comprise a column of programmable buttons accompanied by one or two LED indicator positions per button. Indicator-only modules hold up to 24 indicators. Switch and indicator module LEDs can be set to any of five colors, providing an additional level of feedback.

All remote annunciators feature color-matched cabinets and distinctive metallic bronze (Pantone Coated PMS# P 171-16 C, Pantone RGB# 81 75 67, and RAL Classic/RAL Design# 7022) doors for a readily-identifiable and consistent look throughout the facility.

Thanks to EST4's ingenious communications protocol, network data — as well as telephone and audio data — is carried on a single fiber optic cable or twisted wire pair. This multi-use capacity has an enormous cost-savings potential compared with conventional audio transmission, reducing not only installation costs, but also simplifying ongoing system maintenance.

Slide-in LED and switch labeling makes it easy to incorporate right into the annunciator design such information aids as descriptive text, color-coding, icons, and local languages. For custom floorplans or facility maps, EST4 offers LED driver boards perfectly suited to operate in most graphic annunciators.

Standard Features

- **Connection Over High-speed Life Safety Network**
  Annunciator network and audio data carried on a single fiber or twisted pair.
- **Optional Color LCD Display**
  Touch screen capability supplements control buttons for quick, intuitive access to key system status and control functions.
- **Wide Range of Annunciator Configurations**
  From a two-slot model holding a single LCD display to 24-slot cabinets for complex annunciation.
- **Supports Two LCD Displays**
  Providing users with a simplified sequence of operations.
- **Convenient Programming**
  Built-in support for radio groups of up to 24 switches in size.
- **Slide-in Switch and Indicator Labels**
  A simple, effective means to customize annunciator appearance and messaging.
- **Programmable LED Flash Rates and Colors**
  Easy to see, quick to understand.
- **Clean and robust door designs**
- **Support for all Common Networking Media**
  Annunciators connect over any combination of twisted pair wire, Multi-mode fiber, Single Mode fiber, and even CAT5 cable.

Application

Use EST4 remote annunciators where a compact system status display is needed. Annunciator configuration can range from a couple of LED indicator strips, to complex arrangements supporting in a single enclosure up to two LCD displays, paging microphone, firefighter telephone and hundreds of control points and indicators.

EST4 annunciators support a range of options that make them ideal for Mass Notification, Life Safety and other emergency communications purposes. They can be used as Central Control Stations (CCS), Autonomous Control Units (ACU), Local Operating Console (LOC), and combination units from which initiated Mass Notification functions can be controlled.

Cabinets may be surface or semi-flush mounted for installation expediency and aesthetic appeal.

Annunciators connect over the high-speed EST4 network, which supports copper or fiber-optic communications in any combination. Network data and audio data share the same cabling. This results in more efficient deployment with fewer cables needed and fewer connections to be made.

The 2 wide, 4 wide, and 6 wide, 4-xANNMT series, annunciator wallboxes come standard with surface mounting trims and semi-flush mounting trims.

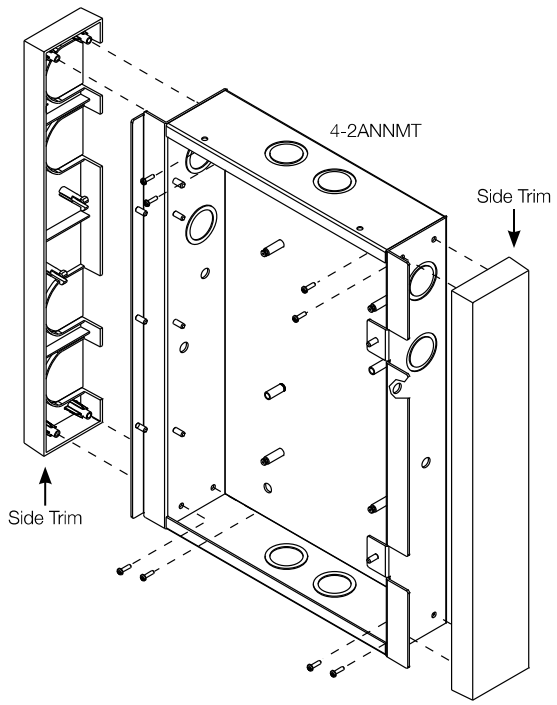
The 8 space, 16 space and 24 space 4-xxANNMT series wallboxes are designed for surface mount applications. Their depth is kept to a minimum to allow the least amount of room penetration. When semi-flush mounting is required, order the standard 3-CAB5B, 7B, or 14B wallbox.

Engineering Specification

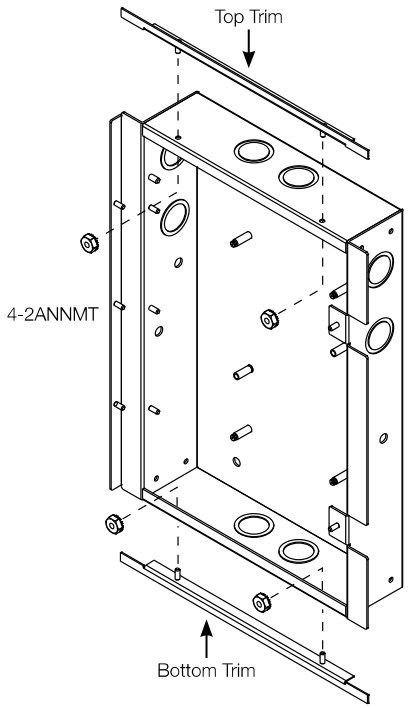
The Life Safety system shall incorporate annunciation of Alarm, Supervisory, Trouble and Monitor operations. Annunciation must be through the use of both LED display strips complete with a means to custom label each LED as to its function. LED color shall be selectable at configuration time. Where applicable control switches must be provided. Switches with LEDs must provide positive feed back to the operator of remote equipment status. A color touchscreen LCD display with basic common control LEDs and switches shall be provided. Optionally a second color touchscreen display may be added to support audio and telephone operations. The Common Control Switches and LEDs provided as minimum will be: Reset switch and LED, Alarm Silence switch and LED, Panel Silence switch and LED, Drill switch and LED. It must be possible to add additional common controls as required through the use of modular display / control units. The LCD must provide the emergency user, hands free viewing of the first highest priority event. System events must automatically be placed in queues. It shall be possible to view specific event types separately. The total number of active events by type must be displayed. It must be possible to customize the designations of all user interface LEDs and switches for local language requirements. It must be possible to route system event messages to specific annunciator locations. It must be possible for the annunciator to contain a paging microphone and fire fighter telephone.

Installation and Mounting

4-2ANNMT, 4-4ANNMT, and 4-6ANNMT included side trim installation for surface mount applications



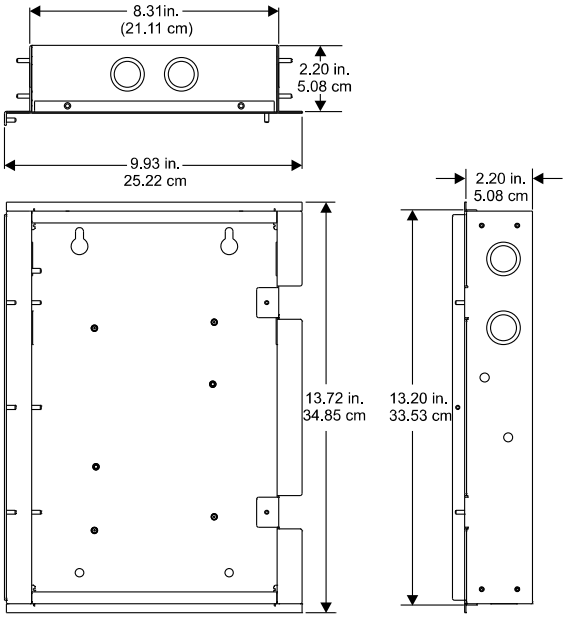
4-2ANNMT, 4-4ANNMT, and 4-6ANNMT included trim installation for semi-flush mount applications



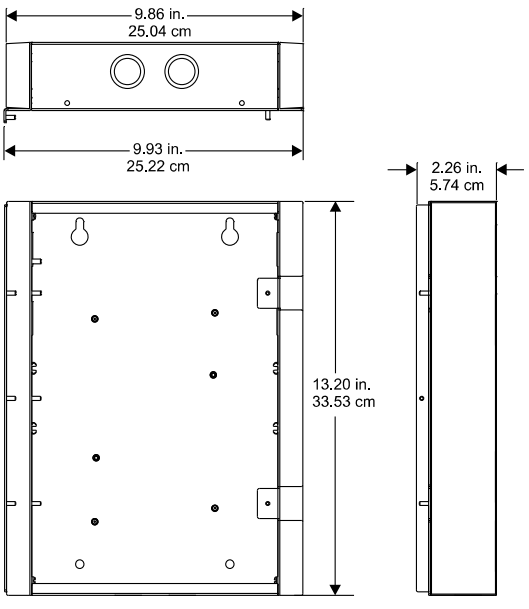
See Specifications Table for 4-8ANNMT, 4-16ANNMT, 4-24ANNMT mounting options.

Dimensions, wallboxes

4-2ANNMT Wallbox Assembly, Surface and Semi-flush Mounting (both trims are included)

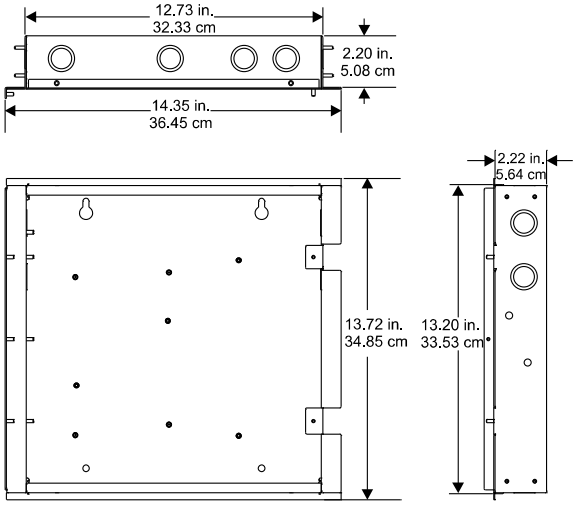


Semi-flush mount (trim installed top and bottom)

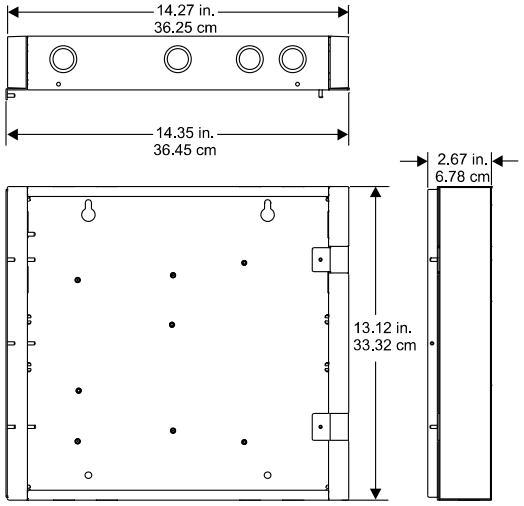


Surface mount (trim installed right and left sides)

4-4ANNMT Wallbox Assembly, Surface and Semi-flush Mounting (both trims are included)

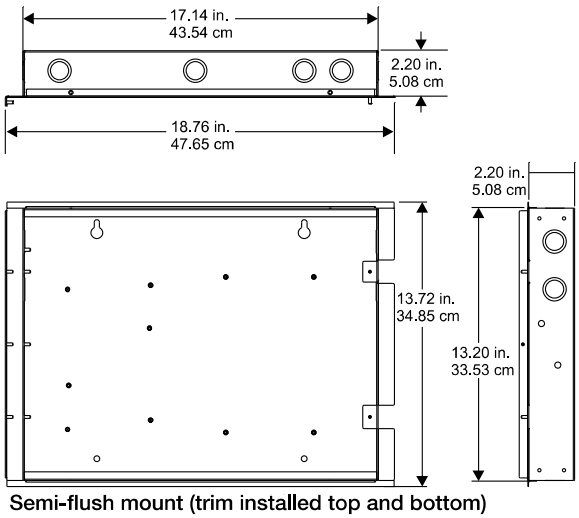


Semi-flush mount (trim installed top and bottom)

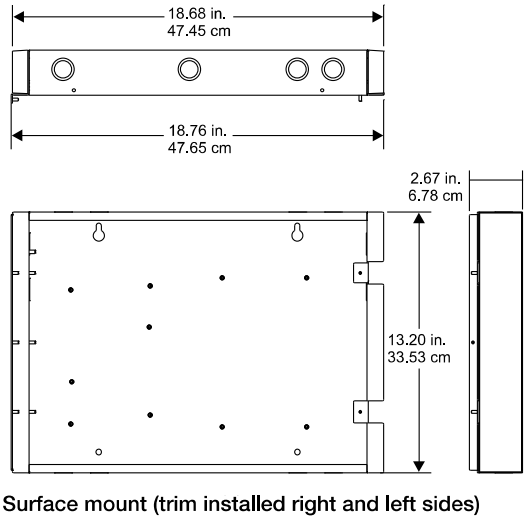


Surface mount (trim installed right and left sides)

4-6ANNMT Wallbox Assembly, Surface and Semi-flush Mounting (both trims are included)



Semi-flush mount (trim installed top and bottom)

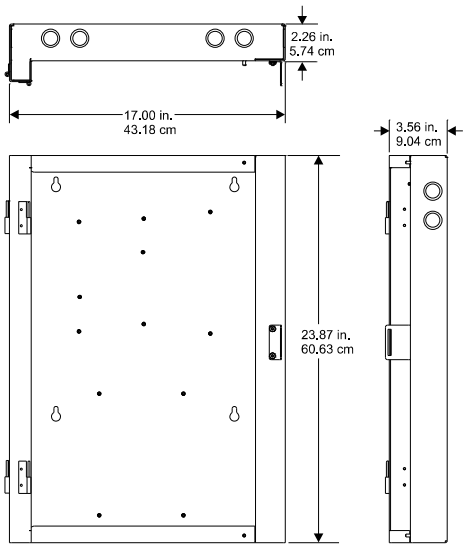


Surface mount (trim installed right and left sides)

Dimensions, wallboxes

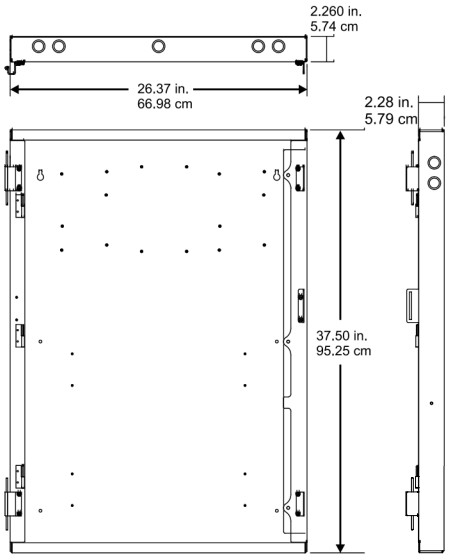
4-8ANNMT Wallbox Assembly, Surface Mount

For semi-flush mounting, use a 3-CAB5B wallbox.



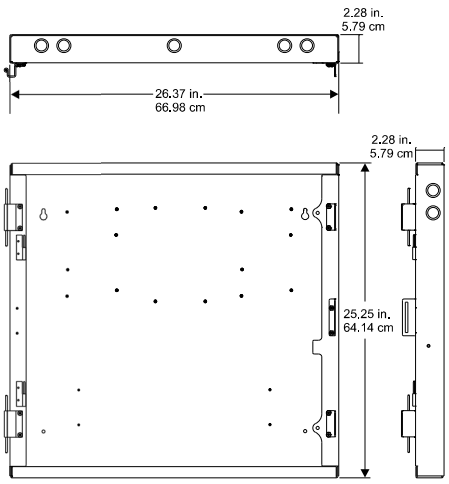
4-24ANNMT Wallbox Assembly, Surface Mount

For semi-flush mounting, use a 3-CAB14B wallbox.



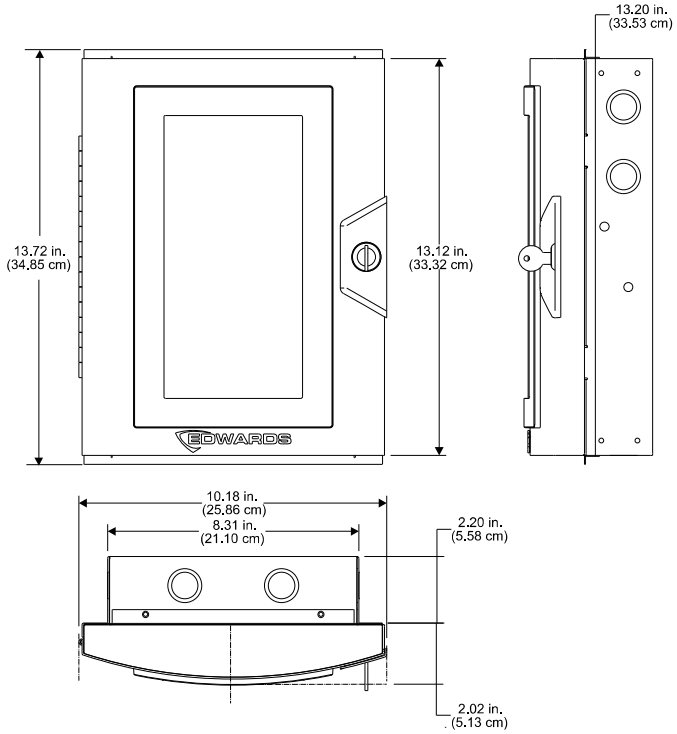
4-16ANNMT Wallbox Assembly, Surface Mount

For semi-flush mounting, use a 3-CAB7B wallbox.

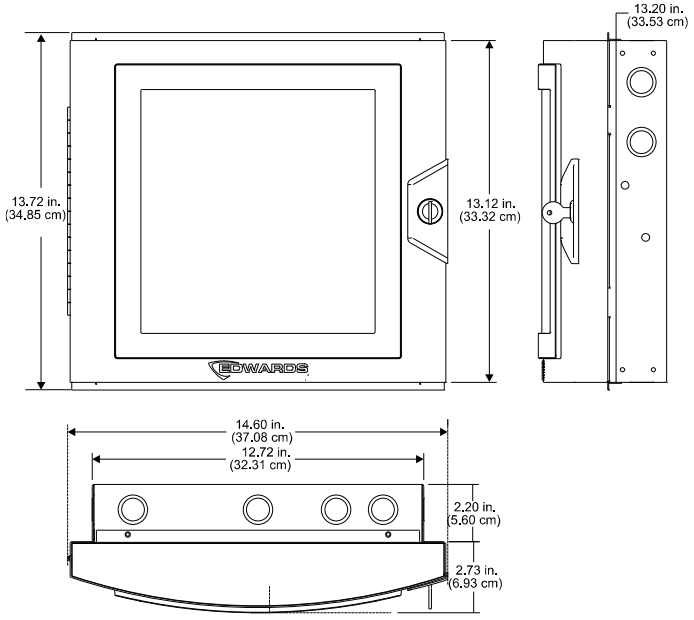


Dimensions, door assemblies

4-2ANN Series Door Assembly

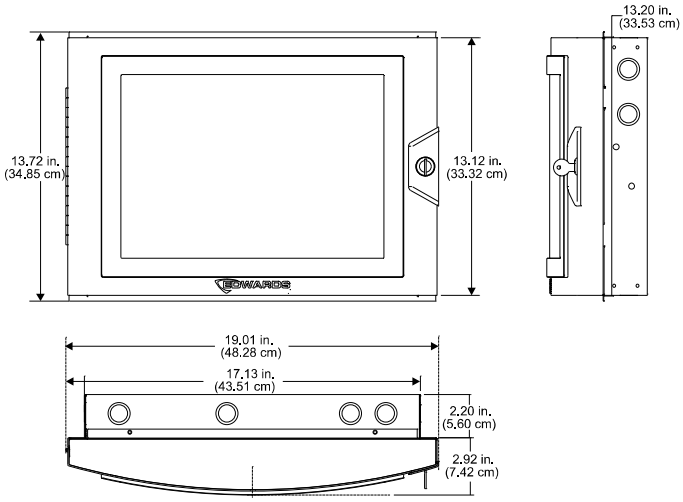


4-4ANN Series Door Assembly

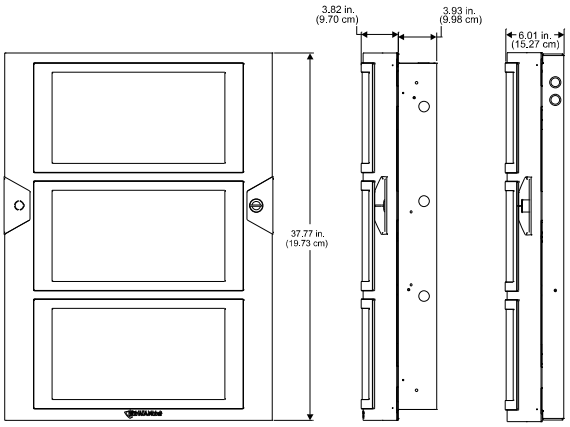


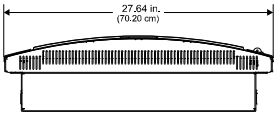
Dimensions, door assemblies continued

4-6ANN Series Door Assembly



4-CAB24D Series Door Assembly

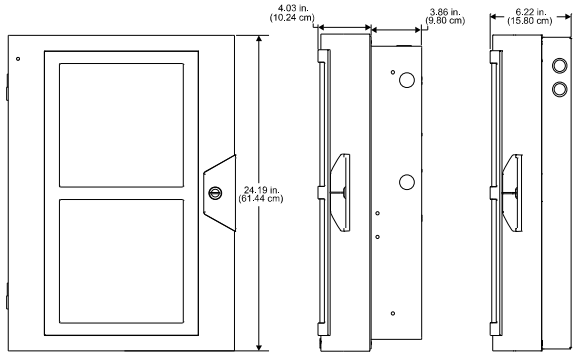


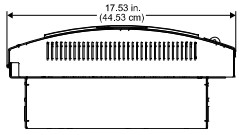


4-CAB24D installed on a 3-CAB14B wallbox.
Can be surface mounted or simi-flush mounted.

4-CAB24D installed on a 4-24ANNMT wallbox.
Can be surface mounted only.

4-CAB8D Series Door Assembly

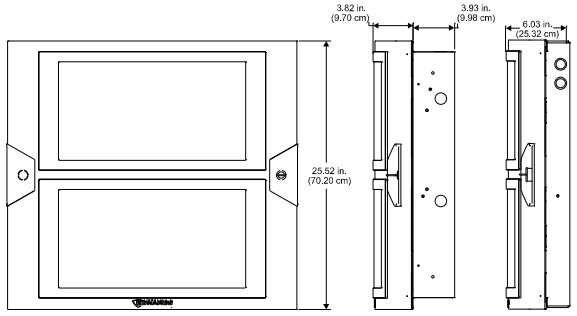


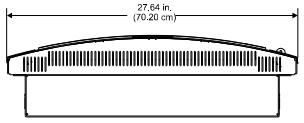


4-CAB8D installed on a 3-CAB5B wallbox.
Can be surface mounted or semiflush mounted.

4-CAB8D installed on a 4-8ANNMT wallbox.
Can be surface mounted only

4-CAB16D Series Door Assembly

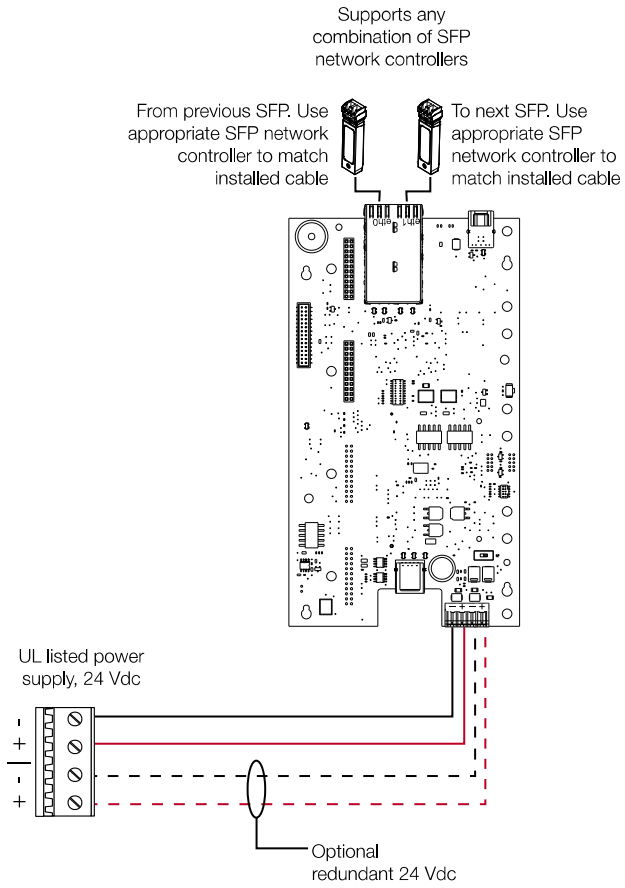




4-CAB16D installed on a 3-CAB7B wallbox.
Can be surface mounted or simi-flush mounted.

4-CAB16D installed on a 4-16ANNMT wallbox.
Can be surface mounted only.

Wiring



SFP Network Controllers

Model #	Description	Network Interconnection Media Supported
4-NET-CAT	100 Mbps SFP Network Controller	Cable type - Cat 5e or better Connector type - RJ-45 Distance 328 ft. (100 m) max
4-NET-MM	Multi-mode fiber-optic SFP Network Controller	SFP network media interface, multi-mode fiber-optic, supports 50/125 µ (OM3/OM4) fiber pair up to 1.24 mi. (2 km), 62.5/125 µ (OM1) fiber pair up to 0.62 mi. (1 km), or a 100/140 µ fiber pair up to 150 m. Order one 4-NET-MM for "in" wiring and one for "out" wiring for connections from previous node and to next node as required. Each 4-NET-MM supports one multi-mode fiber pair between network cards.
4-NET-SM	Single-mode fiber-optic SFP Network Controller	Single mode 9/125 µ (G.652) fiber pair up to 6.2 miles (10 km). Order one 4-NET-SM for "in" wiring from the previous node and a second 4-NET-SM for "out" network wiring to the next node. Each 4-NET-SM supports one single-mode fiber pair between network cards
4-NET-SMH	Single-mode fiber-optic SFP Network Controller High output	Single-mode fiber-optic, high-power output, with a 9/125 µ (G.652) fiber pair up to 24.8 mi (40km). Order one 4-NET-SMH for "in" wiring from the previous node and a second 4-NET-SMH for "out" network wiring to the next node. Each 4-NET-SMH supports one single-mode fiber pair between network cards.
4-NET-SMU	Single-mode fiber-optic SFP Network Controller Bi-Directional	Bi-directional, single-mode fiber-optic with a 9/125 µ (G.652) fiber up to 6.2 miles (10 km). The 4-NET-SMU must be paired with a 4-NET-SMD over one single-mode fiber between network cards.
4-NET-SMD	Single-mode fiber-optic SFP Network Controller Bi-Directional	Bi-directional, single-mode fiber-optic with a 9/125 µ (G.652) fiber up to 6.2 miles (10 km). The 4-NET-SMD must be paired with a 4-NET-SMU over one single-mode fiber between network cards.
4-NET-TP	2 Mbps Twisted Pair SFP Network Controller	Twisted pair. Following specifications are between any two panels. • 16 to 22 AWG (1.3 to 0.33 mm²) • Six twists per foot minimum • Circuit Capacitance 0.09 µF max. • 5,000 ft. (1,524 m) between any two panels • Circuit resistance 90 Ω max.
4-NET-TP-HC	0.3 Mbps Twisted Pair SFP Network Controller	Twisted pair or Shielded twisted pair. Following specifications are between any two panels. • 16 to 24 AWG (1.3 to 0.20 mm²) • Six twists per foot minimum • 5,000 ft. (1,524 m) between any two nodes with unshielded twisted pair • Circuit capacitance 0.3 µF max. • 3280 ft. (1,000 m) between any two nodes shielded twisted pair • Circuit resistance 90 Ω max.

Refer to Data Sheet E85014-0008 for additional details on SFP network controllers.

Technical Specifications

Annunciator Assemblies

Each annunciator space holds a control-display module. LCD displays, 4-MIC and 4-FT take two spaces.

	4-2ANN	4-4ANN	4-6ANN	4-8ANN	4-16ANN	4-24ANN
Number of Spaces	Two	Four	Six	Eight	Sixteen	Twenty-four
Wallbox, Surface Mounting	4-2ANNMT	4-4ANNMT	4-ANNMT	4-8ANNMT	4-16ANNMT	4-24ANNMT
Wallbox, Semi-flush Mounting				3-CAB5B	3-CAB7B	3-CAB14B
Agency Approvals:	UL, ULC, FM, CSFM					
Door Color	Metallic Bronze (Pantone Coated PMS# P 171-16 C, Pantone RGB# 81 75 67, and RAL Classic/RAL Design# 7022)					
Wallbox Color	Black					

4-ANNCPU Central Processor

Comes standard with annunciator assemblies.

Voltage	16 to 32Vdc
Current draw Standby Alarm/Active	 183 mA at 16 VDC; 125 mA at 24 VDC; 119 mA at 32 VDC 188 mA at 16 VDC; 125 mA at 24 VDC; 124 mA at 32 VDC
USB support	One USB 3.0, Type A – female port One USB 3.0, Type B – female port
SFP support	Supports all 4-NET series SFPs. Refer to EST4 Network Controllers Catalog sheet 85014-0008 for details.
Wire Size	TB1 backup power connection 12 to 18 AWG (2.5 to 1.0 mm²)
Operating Temperature	32 to 120°F (0 to 49°C)
Operating relative Humidity	0 to 93% noncondensing
Option modules	4-ANNAUDTEL: Annunciator Audio/Telephone interface module. Adds audio and telephone processing capabilities to the 4-ANNCPU, required for the use of the 4-MIC and/or 4-FT with the 4-ANNCPU.

Ordering Information, annunciators and accessories

Model # (SKU)	Description	Shipping Weight
4-2ANN	LCD Annunciator - Comes with 4-LCDANN color touchscreen display, 4-ANNCPU, metallic bronze outer door and black inner door. Order wallbox assembly model 4-2ANNMT and required network Controllers 4-NET-XX separately (see Note 1).	10.3lb (4.67kg)
4-4ANN	Metallic bronze Annunciator supports 4 slots (1 row of 4). Comes with 4-ANNCPU, metallic bronze outer door and black inner door. Order wall Mounting assembly 4-4ANNMT, required network controllers 4-NET-XX series (See note 1), any user interfaces and filler plates separately.	11.5lb (5.22kg)
4-6ANN	Metallic bronze Annunciator, 6 slots (1 row of 6). Comes with 4-ANNCPU, metallic bronze outer door and black inner door. Order wall Mounting assembly 4-6ANNMT, required network Controllers 4-NET-XX series (see Note 1), any user interfaces and required filler plates separately.	12.5lb (5.67kg)
4-8ANN	Metallic bronze Annunciator, 8 slots (2 rows of 4). Comes with 4-ANNCPU, metallic bronze outer and black inner doors. Order wall Mounting assembly 4-8ANNMT (surface mounting), or 3-CAB5B (Semi-flush mounting) required network Controllers 4-NET-XX series (see Note 1), End User interfaces and required filler plates separately.	24.5lb (11.11kg)
4-16ANN	Metallic bronze Annunciator, 16 slots (2 rows of 8). Comes with 4-ANNCPU, metallic bronze outer and black inner doors. Order wall Mounting assembly 4-16ANNMT (Surface mount) or 3-CAB7B (semi-flush mount), required network Controllers 4-NET-XX series (see Note 1), end user interfaces and required filler plates separately.	37.9lb (17.19kg)
4-24ANN	Metallic bronze Annunciator, 24 slots (3 rows of 8). Comes with 4-ANNCPU, metallic bronze outer and black inner doors. Order wall mounting assembly 4-24ANNMT, required network Controllers 4-NET-XX series (see Note 1), and End User interfaces and required filler plates separately.	52.9lb (24.02kg)
Accessories and Related Equipment		
4-LCDANN	Color LCD display, includes silicon rubber common control buttons, mounts in remote annunciators, communicates to 4-ANNCPU. Comes with interconnect cable. LCD ordered separately for mounting in 4-4ANN or 4-6ANN. 4-2ANN comes with one 4-LCDANN.	1.90lb (0.85kg)
4-LCDLE	Color LCD display, includes silicon rubber common control buttons, mounts in remote annunciators sizes 4-8ANN, 4-16ANN or 4-24ANN, communicates to 4-ANNCPU. Comes with interconnect cable	1.9lb (0.85kg)
4-LCDAUD TELANN	LCD display for control of paging and fire fighter telephone. Comes with one 4-LCDAUDTEL and mounting and cabling hardware for mounting in 4-16ANNMT or 4-24ANNMT enclosures where separate LCD display of Audio and Telephone is required. Is not supported in other annunciator sizes. Order annunciator application specific equipment separately.	1.8lb (0.81kg)
4-ANNCPU	Annunciator Central Processor Unit (CPU), provides mounting for up to two network controllers (see note 1), one USB device port, one USB host port and one 4-ANNAUDTEL module.	1.0lb (0.45kg)
4-24L	Control Display Module with 24 indicators. See note 2.	0.6lb (0.27kg)
4-24L12S	Control Display Module with 24 indicators and 12 switches. See Note 2.	0.7lb (0.29kg)
4-24L18S	Control Display Module with - 24 indicators and 18 switches See Note 2.	0.7lb (0.29kg)
4-24L24S	Control Display Module with - 24 indicators and 24 switches. See Note 2.	0.7lb (0.29kg)
4-FIL	Fills one indicator/switch space on inner doors when no Switch or LED strips are installed.	0.1lb (0.04kg)
4-MIC	Audio paging microphone. Requires 4-ANNAUDTEL support card be installed on the 4-ANNCPU card. Can be mounted in 4-4ANN through 4-24ANN annunciators	1.2lb (0.54kg)
4-FT	Master Fire Fighters telephone. Requires a 4-ANNAUDTEL support card be installed on the 4-ANNCPU card. Can be mounted in 4-4ANN through 4-24ANN annunciators.	1.4lb (0.64kg)
4-ANN AUDTEL	Annunciator Audio/Telephone interface module. Adds audio and telephone processing capabilities to the 4-ANNCPU, required for the use of the 4-MIC and/or 4-FT with the 4-ANNCPU.	0.3lb (0.14kg)
4-CPUGRPH	Graphic Annunciator Central Processor Module. See Note 3.	1.5lb (0.68kg)
3-EVDVR	LED/SWITCH Driver Module Assembly for ENVOY graphics. See Note 3.	0.4lb (0.18kg)
3-EVDVRA	LED/SWITCH Driver Module Assembly for Third-party Graphics. See Note 3.	0.7lb (0.32kg)
3-EVPWR	Power Supply Assembly space for one 4-CPUGRPH for ENVOY Graphics. See Note 3.	0.2lb (0.09kg)
3-EVPWRA	Power Supply Assembly c/w 19 inch rail mounting chassis assembly space for one 4-CPUGRPH for Third-party Graphics. See Note 3.	2.9lb (1.34kg)
3-EVDVRX	Plastic mounting extrusion 19” mounting - for up to 3 3-EVDVRAs. See Note 3.	0.9lb (0.41kg)

Note 1: Refer to Catalog Sheet part number E85014-0008 for a complete list and description of available Network Controllers.
Note 2: Refer to Catalog Sheet part number E85014-0006 for a complete description of Control Display Modules.
Note 3: SKU not FM approved.

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Ordering Information, wallboxes and replacement parts

Model # (SKU)	Description	Shipping Weight
Wallboxes		
4-2ANNMT	Mounting assembly for 4-2ANN, two wide annunciator. Supports surface or semi-flush mounting. Comes with black wallbox, surface mounting plastic fillers and semi-flush trim.	6.4lb (2.9kg)
4-4ANNMT	Mounting assembly for 4-4ANN, four wide annunciator. Supports surface or semi-flush mounting. Comes with black wallbox, surface mounting plastic fillers and semi-flush trim.	9.0lb (4.08kg)
4-6ANNMT	Mounting assembly for 4-6ANN, six wide annunciator. Supports surface or semi-flush mounting. Comes with wallbox, surface mounting plastic fillers and semi-flush trip.	10.3lb (4.67kg)
4-8ANNMT	Mounting assembly for 4-8ANN, four wide x two row high annunciator. Supports surface mounting.	19.0lb (8.62kg)
3-CAB5B	Wallbox – Black Semi-flush wallbox, ideal for use when semi-flush mounting 4-8ANN annunciators.	20.0lb (9.07kg)
4-16ANNMT	Surface Mount Wall box assembly for eight wide by two high annunciators (16 spaces)	27.0lb(12.25kg)
3-CAB7B	Wallbox – Black Semi-flush wallbox, ideal for use when semi-flush mounting 4-16ANN annunciators.	29.5lb (13.38kg)
4-24ANNMT	Surface mount wallbox assembly for eight wide by three high annunciator (24 spaces).	37.0lb (16.78kg)
3-CAB14B	Wallbox – Black Semi-flush wallbox, ideal for use when semi-flush mounting 4-24ANN annunciators.	40.8lb (18.5kg)
Service Replacement Parts		
4-2ANND	Service replacement metallic bronze Annunciator Door for 4-2ANN annunciators includes the inner and outer doors.	7.7lb (3.5kg)
4-4ANND	Service replacement metallic bronze Annunciator Door for 4-4ANN annunciators includes the inner and outer doors.	10lb (4.5kg)
4-6ANND	Service replacement metallic bronze Annunciator Door for 4-6ANN annunciators, includes the inner and outer door	11lb (5kg)
4-CAB8D	Service replacement metallic bronze door for 3-CAB5B or 4-8ANNMT - four spaces wide by two high (8 spaces) Includes inner (black) door and outer metallic bronze door.	23lb (10.4kg)
4-CAB8DR	Red door for 3-CAB5B - four spaces wide by two high (8 spaces). Includes inner (black) door and outer red door. May be used to provide a red door for 4-8ANN annunciators.	23lb (10.4kg)
4-CAB16DR	Red door for 3-CAB7B - eight spaces wide by two high (16 spaces). Includes inner (black) door and outer red door. May be used to provide a red door for 4-16ANN annunciators.	36lb (16.3kg)
4-CAB24DR	Red door for 3-CAB14B - eight spaces wide by three high (24 spaces). Includes inner (black) door and outer red door. May be used to provide a red door for 4-24ANN annunciators	51lb (23.1kg)
4-2ANNFA	Service replacement part - plastic frame assembly with mounting screws for 4-2ANN annunciators	1.5lb (0.68kg)
4-4ANNFA	Service replacement part - plastic frame assembly with mounting screws for 4-4ANN annunciators.	2lb (0.91kg)
4-6ANNFA	Service replacement part - plastic frame assembly with mounting screws for 4-6ANN annunciators.	2lb (0.91kg)
4-4X2ANNFA	Service replacement part – plastic frame assembly with mounting screws for 4-8ANN annunciators and 4-CAB5D door assemblies.	3lb (1.36kg)
4-8ANNFA	Service replacement part - plastic frame assembly with mounting screws for 4-CAB16D and 4-CAB21D(L) door assemblies.	3lb (1.36kg)

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Remote Booster Power Supplies

BPS6A, BPS10A

FM APPROVED
MEA 476-91-E Vol.13
UL UL S3424
7300-1657: 0229

Overview

The Booster Power Supply (BPS) is a UL 864, 10th Edition listed power supply. It is a 24 Vdc filtered-regulated, and supervised unit that can easily be configured to provide additional notification appliance circuits (NACs) or auxiliary power for Mass Notification/ Emergency Communication (MNEC), as well as life safety applications.

The BPS contains the circuitry to monitor and charge internal or external batteries. Its steel enclosure has room for up to two 10 ampere-hour batteries. The BPS has four Class B (convertible to two Class A) NACs. These can be activated in one or two groups from the BPS's unique dual input circuits.

The BPS is available in 6.5 or 10 ampere models. Each output circuit has a capacity of three amperes; total current draw cannot exceed the unit's rating.

The BPS meets current UL requirements and is listed under the following standards:

Standard (CCN)	Description
UL864 10th edition (UOXX)	Fire Alarm Systems
UL636 (ANET, UEHX7)	Holdup Alarm Units and Systems
UL609 (AOTX, AOTX7)	Local Burglar Alarm Units and Systems
UL365 (APAW, APAW7)	Police Station Connected Burglar Alarm Units and Systems
UL1076 (APOU, APOU7)	Proprietary Burglar Alarm System Units
UL1610 (AMCX)	Central Station Alarm Unit
ULC-S527 (UOXXC)	Control Units, Fire Alarm (Canada)
ULC-S303 (AOTX7)	Local Burglar Alarm Units and Systems (Canada)
C22.2 No. 205	Signaling Equipment (Canada)

Standard Features

- Allows for reliable filtered and regulated power to be installed where needed
- Cost effective system expansion
- Provides for Genesis and Enhanced Integrity notification appliance synchronization
- Supports coded output operation
- Self-restoring overcurrent protection
- Multiple signal rates
- Can be cascaded or controlled independently
- Easy field configuration
- On-board diagnostic LEDs identify wiring or internal faults
- Standard EDWARDS keyed lockable steel cabinet with removable door
- 110 and 230 Vac models available
- Accommodates 18 to 12 AWG wire sizes
- Optional tamper switch
- Dual battery charging rates
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Application

The BPS provides additional power and circuits for notification appliances and other 24 Vdc loads. It is listed for indoor dry locations and can easily be installed where needed.

Fault conditions are indicated on the on-board diagnostic LEDs, opening the BPS input sense circuit and the trouble relay (if programmed). While this provides indication to the host system, the BPS can still be activated upon command. A separate AC Fail contact is available on the BPS circuit board, which can be programmed for trouble or AC Fail. There are seven on-board diagnostic LEDs: one for each NAC fault, one for battery fault, one for ground fault, and one for AC power.

The unique dual-input activation circuits of the BPS can be activated by any voltage from 6 to 45 VDC (filtered-regulated) or 11 to 33 Vdc (full-wave rectified, unfiltered). The first input circuit can be configured to activate 1-4 of the four possible outputs. The second input circuit can be configured to control circuits 3 and 4. When outputs are configured for auxiliary operation, these circuits can be configured to stay on or automatically deactivate 30 seconds after AC power is lost. This feature makes these circuits ideal for door holder applications. The BPS also has a separate 200 mA 24 Vdc output that can be used to power internal activation modules.

BPS NACs can be configured for a 3-3-3 temporal or continuous output. This makes the BPS ideal for applications requiring signaling rates that are not available from the main system.

In addition to the internally generated signal rates, the BPS can also be configured to follow the coded signal rate of the main system NACs. This allows for the seamless expansion of existing NACs.

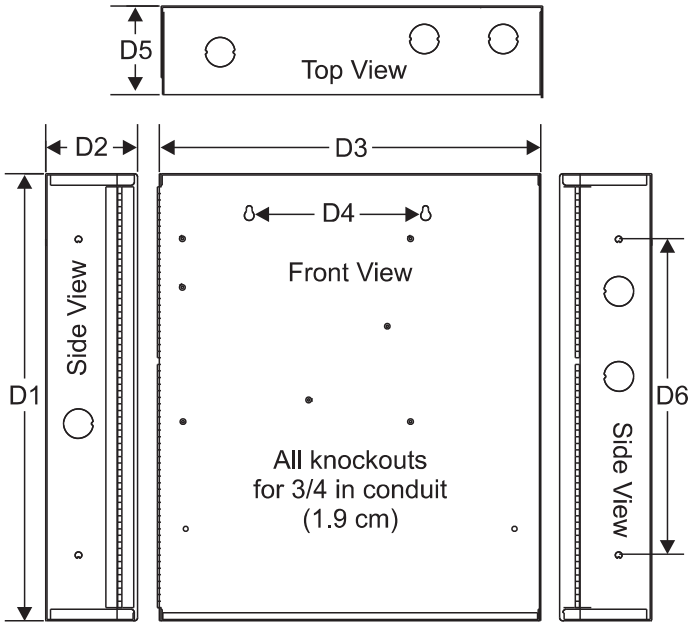
The BPS enclosure has mounting brackets for up to three Signature modules to the right of the circuit board.

Engineering Specification

Supply, where needed, EDWARDS BPS Series Booster Power Supplies (BPS) that are interconnected to and supervised by the main system. The BPS shall function as a stand-alone auxiliary power supply with its own fully-supervised battery compliment. The BPS battery compliment shall be sized to match the requirements of the main system. The BPS shall be capable of supervising and charging batteries having the capacity of 24 ampere-hours for Mass Notification/Emergency Communication (MNEC), life safety applications.

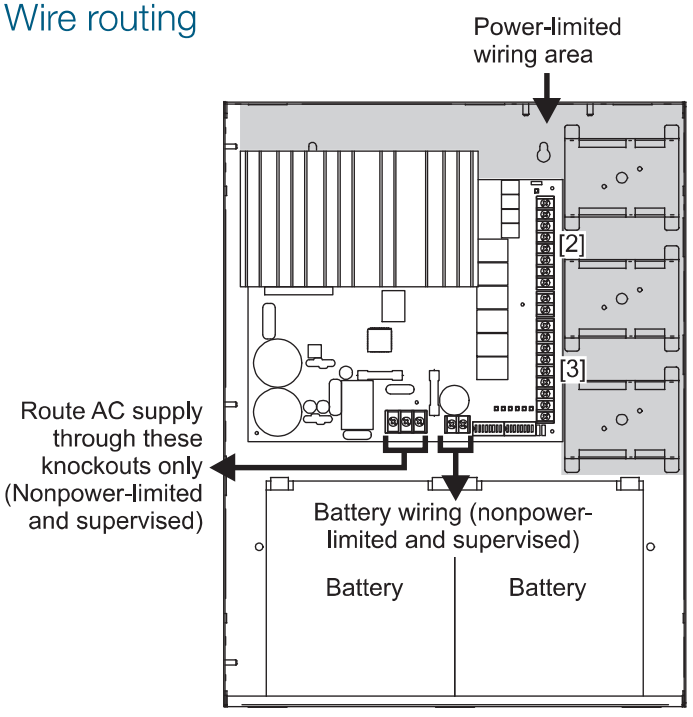
<<The BPS shall be capable of installation for a seismic component Importance Factor of 1.5.>> The BPS shall provide a minimum of four independent, fully supervised Class B circuits that can be field configurable for notification appliance circuits or auxiliary 24 Vdc power circuits. BPS NACs shall be convertible to a minimum of two Class A NACs. Each BPS output circuit shall be rated at 3 amperes at 24 Vdc. Each output circuit shall be provided with automatically restoring overcurrent protection. The BPS shall be operable from the main system NAC and/or EDWARDS Signature Series control modules. BPS NACs shall be configurable for continuous or 3-3-3 temporal rate. Fault conditions on the BPS shall not impede operation of main system NAC. The BPS shall be provided with ground fault detection circuitry and a separate AC fail relay.

Dimensions



D1	D2	D3	D4	D5	D6
17.0 in (43.2 cm)	3.5 in (8.9 cm)	13.0 in (33.0 cm)	6.5 in (16.5 cm)	3.375 in (8.6 cm)	12.0 in (30.4 cm)

Wire routing



Notes

1. Maintain 1/4-inch (6 mm) spacing between power-limited and nonpower-limited wiring or use type FPL, FPLR, or FPLP cable per NEC.

[2] Power-limited and supervised when not configured as auxiliary power. Non-supervised when configured as auxiliary power.

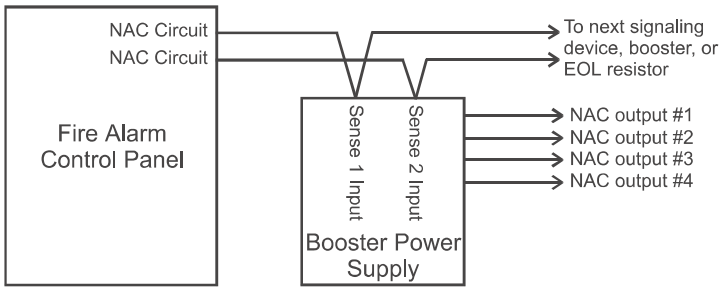
[3] Source must be power-limited. Source determines supervision.

4. When using larger batteries, make sure to position the battery terminals towards the door.

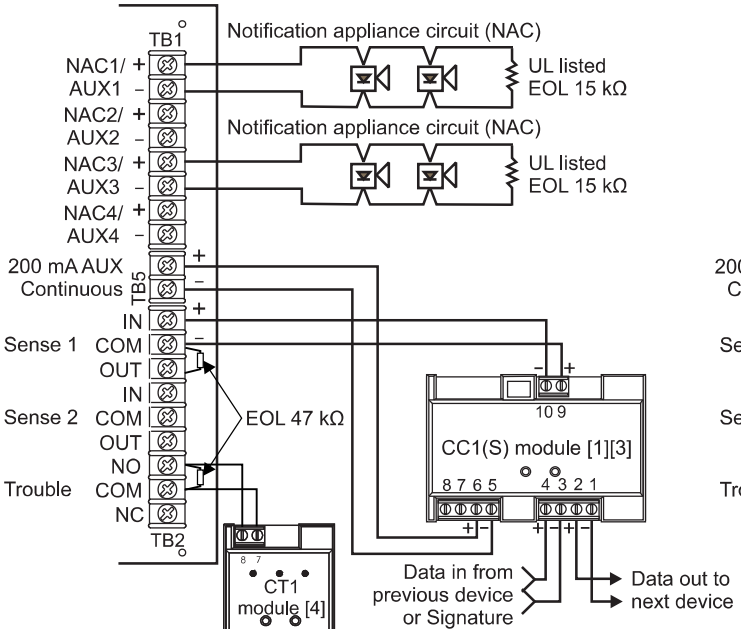
Typical Wiring

Single or cascaded booster anywhere on a notification appliance circuit

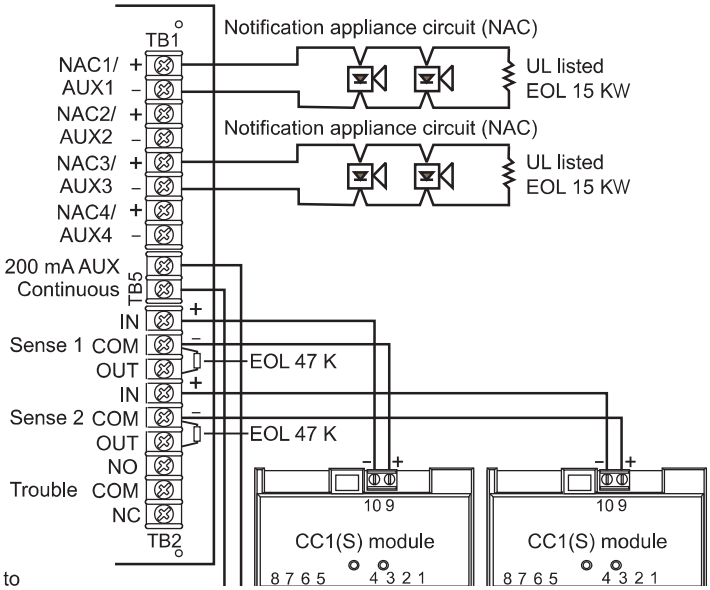
Existing NAC end-of-line resistors are not required to be installed at the booster's terminals. This allows multiple boosters to be driven from a single NAC circuit without the need for special configurations.



Configuring the Booster for AC Power Fail delay operation*



Multiple CC1(S) modules using the BPS's sense inputs



*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Specifications

Model	6.5 amp Booster	10 amp Booster
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 390 watts	120VAC or 220-240VAC 50/60Hz 580 watts
Notification Appliance Circuit Ratings	3.0A max. per circuit @ 24Vdc nominal 6.5A max total all NACs	3.0A max. per circuit @ 24Vdc nominal 10A max total all NACs
Trouble Relay	2 Amps @ 30Vdc	
Auxiliary Outputs	Four configurable outputs replace NACs 1, 2, 3 or 4. as auxiliary outputs and 200 mA dedicated auxiliary. (See note 1.)	
Input Current (from an existing NAC)	3mA @ 12Vdc, 6mA @ 24Vdc	
Booster Internal Supervisory Current	70mA + 35 mA for each circuit set to AUX	
Booster Internal Alarm Current	270mA	
Signature Mounting Space	Accomodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire applications.	
Terminal Wire Gauge	18-12 AWG	
Relative Humidity	0 to 93% non condensing @ 32°C	
Temperature Rating	32° to 120°F (0° to 49°C)	
NAC Wiring Styles	Class A or Class B	
Output Signal Rates	Continuous, 3-3-3 temporal, or follow installed panel's NAC.	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

1. Maximum of 8 Amps can be used for auxiliary output.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
BPS6A	6.5 Amp Booster Power Supply	13 (5.9)
BPS6AC	6.5 Amp Booster Power Supply (ULC)	13 (5.9)
BPS6A/230	6.5 Amp Booster Power Supply (220V)	13 (5.9)
BPS10A	10 Amp Booster Power Supply	13 (5.9)
BPS10AC	10 Amp Booster Power Supply (ULC)	13 (5.9)
BPS10A/230	10 Amp Booster Power Supply (220V)	13 (5.9)

Related Equipment		
12V6A5	7.2 Amp Hour Battery, two required	3.4 (1.6)
12V10A	10 Amp Hour Battery, two required	9.5 (4.3)
3-TAMP	Tamper switch	
BPS-CVR	Electronics Protective Cover	
BC-1EQ	Seismic Kit for BC-1. Order BC-1 separately. See note 2	
BPSEQ	Seismic kit for BPS6A or BPS10 Booster Power Supplies. See note 2	
BC-1	Battery Cabinet (up to 2 - 40 Amp Hour Batteries)	58 (26.4)
BC-2	Battery Cabinet (up to 2 - 17 Amp Hour Batteries)	19 (8.6)
12V17A	18 Amp Hour Battery, two required (see note 1)	13 (5.9)
12V24A	24 Amp Hour Battery, two required (see note 1)	20 (9.07)

1. Requires installation of separate battery cabinet.
2. For earthquake anchorage, including detailed mounting weights and center of gravity detail, refer to Seismic Application Guide 3101676. Approval of panel anchorage to site structure may require local AHJ, structural or civil engineer review.

PS-1270 12 Volt 7.0 AH

Rechargeable Sealed Lead Acid Battery

We've Got The Power.™

Features

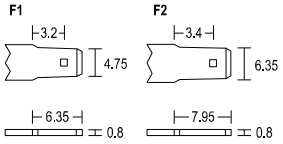
- Absorbent Glass Mat (AGM) technology for superior performance
- Valve regulated, spill proof construction allows safe operation in any position
- Power/volume ratio yielding unrivaled energy density
- Rugged impact resistant ABS case and cover (UL94-HB)
- Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified
- U.L. recognized under file number MH 20845

Terminals (mm)

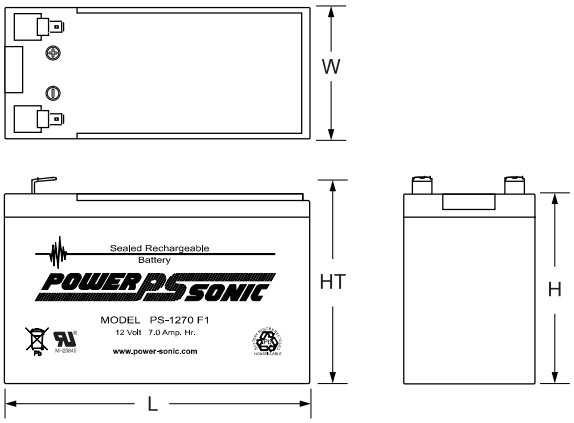
- F1 - Quick disconnect tabs, 0.187" x 0.032"- Mate with AMP. INC. FASTON "187" series

— OR —

- F2 - Quick disconnect tabs, 0.250" x 0.032" - Mate with AMP. INC FASTON "250" series



Physical Dimensions: in (mm)



L: 5.95 (151) **W:** 2.56 (65) **H:** 3.70 (94) **HT:** 3.86 (98)

Tolerances are +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions. All data subject to change without notice.

Performance Specifications

Nominal Voltage ..... 12 volts (6 cells)

Nominal Capacity

20-hr. (350mA to 10.50 volts) ..... 7.00 AH
10-hr. (650mA to 10.50 volts) ..... 6.50 AH
5-hr. (1.2A to 10.20 volts) ..... 6.00 AH
1-hr. (4.5A to 9.00 volts) ..... 4.50 AH
15-min. (14A to 9.00 volts) ..... 3.50 AH

Approximate Weight ..... 4.80 lbs. (2.18 kg)

Energy Density (20-hr. rate) ..... 1.49 W-h/in3 (90.95 W-h/l)

Specific Energy (20-hr. rate) ..... 17.50 W-h/lb (38.58 W-h/kg)

Internal Resistance (approx.) ..... 23 milliohms

Max Discharge Current (7 Min.) ..... 21.0 amperes

Max Short-Duration Discharge Current (10 Sec.) ..... 70.0 amperes

Shelf Life (% of nominal capacity at 68°F (20°C))

1 Month 97%
3 Months 91%
6 Months 83%

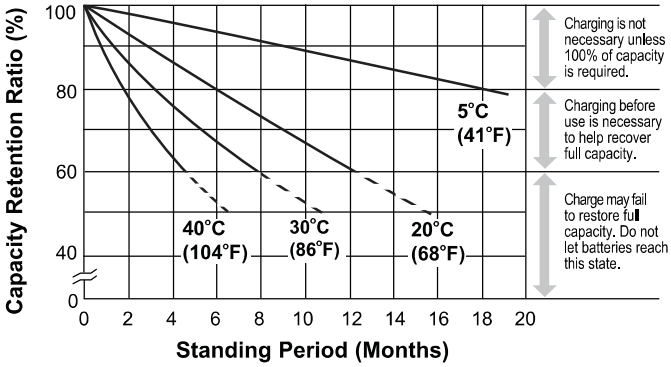
Operating Temperature Range

Charge .. .. -4°F (-20°C) to 122°F (50°C)
Discharge ..... -40°F (-40°C) to 140°F (60°C)

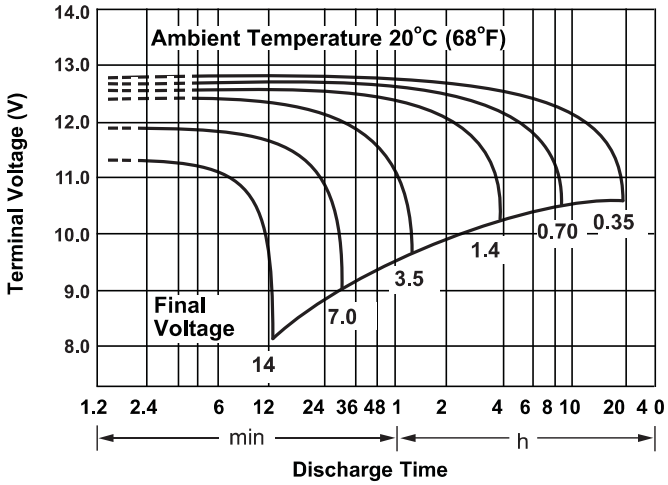
Case ..... ABS Plastic

Power-Sonic Chargers PSC-12800A, 12800A-C

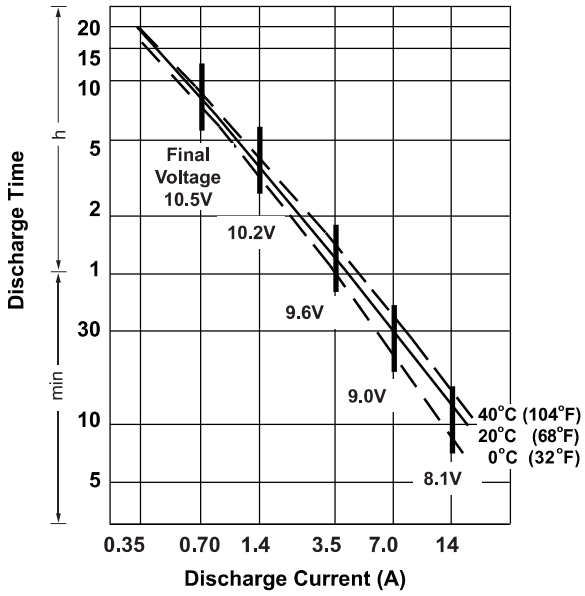
Shelf Life & Storage



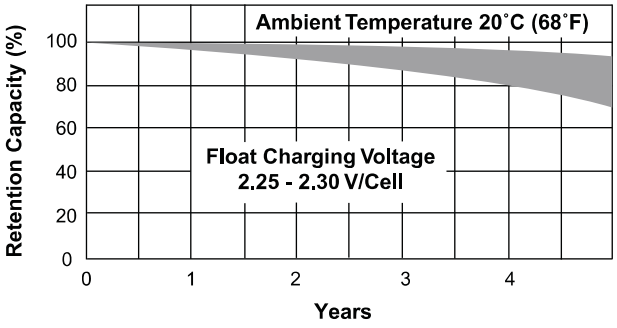
Discharge Characteristics



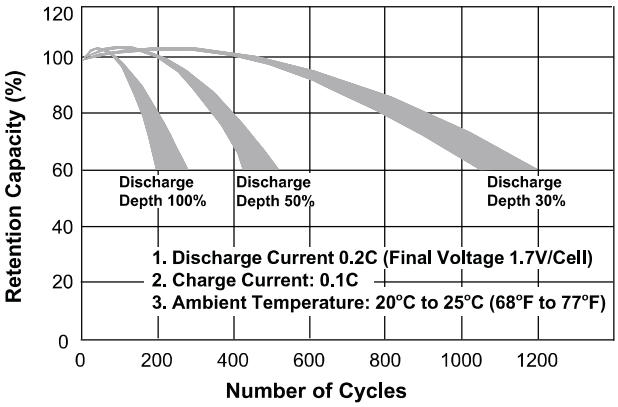
Discharge Time vs. Discharge Current



Life Characteristics in Stand-By Use



Life Characteristics in Cyclic Use



Charging

Cycle Applications: Limit initial current to 2.1A. Charge until battery voltage (under charge) reaches 14.4 to 14.7 volts at 68°F (20°C). Hold at 14.4 to 14.7 volts until current drops to under 70mA. Battery is fully charged under these conditions, and charger should be disconnected or switched to "float" voltage.

"Float" or "Stand-By" Service: Hold battery across constant voltage source of 13.5 to 13.8 volts continuously. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charged condition.

Note: Due to the self-discharge characteristics of this type of battery, it is imperative that they be charged within 6 months of storage, otherwise permanent loss of capacity might occur as a result of sulfation.

Chargers

Power-Sonic offers a wide range of chargers suitable for batteries up to 100AH. Please refer to the Charger Selection Guide in our specification sheets for "C-Series Switch Mode Chargers" and "Transformer Type A and F Series". Please contact our Technical department for advice if you have difficulty in locating suitable models.

Further Information

Please refer to our website www.power-sonic.com for a complete range of useful downloads, such as product catalogs, material safety data sheets (MSDS), ISO certification, etc..

Contact Information

www.power-sonic.com

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0211 1M

LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Smoke Detector

SIGA-OSD

FM APPROVED

7272-1657: 0511

Overview

The Signature Optica Series SIGA-OSD smoke detector brings advanced optical (photoelectric) technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety and property protection capabilities. Continuous self-diagnostics ensure reliability over the long-haul, while environmental compensation helps reduce maintenance costs.

Like all Signature Optica Series detectors, the SIGA-OSD is an intelligent device that gathers analog information from multiple optical sensors, converting this data into digital signals. Utilizing dual optical wavelengths combined with multiple detection angles, the SIGA-OSD differentiates particles that are not representative of actual smoke. Particle data is input into digital filters which feed a series of ratios removing signal patterns that are typical of nuisance sources, thus reducing unwanted alarms. To make an alarm decision, the detector's on-board microprocessor measures and analyzes all optical sensor readings and compares this information to preprogrammed settings.

Standard Features

- Multi-criteria optical smoke sensing technology
- Wide 0.5 to 4.36 %/ft. (1.6 to 13.6 %/m) smoke obscuration
- Uses Existing Wiring
- Integrated nuisance rejection reducing unwanted alarms from general cooking particulates
- Listed to UL 268 7th edition
- Automatic Device Mapping
- Up To 250 Total Signature Addresses Per Loop
- Two Levels of Environmental Compensation
- Two Levels of Dirty Detector Warning
- Twenty Pre-Alarm Settings
- Five Sensitivity Settings
- Non-Volatile Memory
- Electronic Addressing
- Automatic Day/Night Sensitivity Adjustment
- Bicolor (Green/Red) Status LED
- Standard, Relay, Fault Isolator, and Audible Mounting Bases
- Sensor Markings Provide Easy Testing Identification

Note: Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.

Application

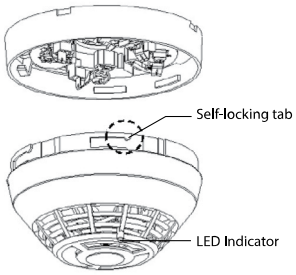
The SIGA-OSD detects particles from a wide range of combustion sources and will trigger an alarm when smoke density in the chamber reaches preprogrammed level. Thanks to its high-performance reflective response technology, the smoke sensor responds quickly and reliably to a wide range of fire types, including both fast and slow burning fires fueled by combustibles typically found in modern multi-use buildings.

Compatibility

The SIGA-OSD detector is compatible only with control panels using a Signature Loop controller.

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information.



Sensing and reporting technology

The microprocessor in each detector provides additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning, etc.) in a different location from where it was originally.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

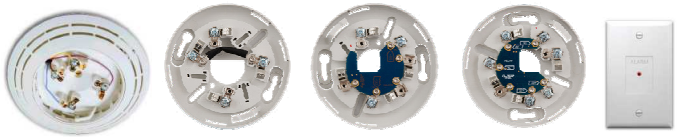
Testing & Maintenance

Each detector automatically identifies when it is dirty or defective and causes a "dirty detector" message. The detector's sensitivity measurement can also be transmitted to the loop controller. A sensitivity report may be printed to satisfy NFPA sensitivity measurements, which must be conducted at the end of the first year and every two years thereafter.

The user-friendly maintenance program shows the current state of each detector and other pertinent messages. Single detectors may be turned off temporarily from the control panel. Availability of maintenance features is dependent on the fire alarm system used.

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4 inch square box only.



SIGA-AB4G/T/LF Audible Base | SIGA-SB Standard Base | SIGA-IB Isolator Base | SIGA-RB Relay Base | SIGA-LED Remote LED

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required.

- SIGA-AB4G bases provide sounder capability to Signature Series to heat and smoke detectors. They are not intended for use with combination carbon monoxide detectors in Fire-plus-CO mode.
- SIGA-AB4GT bases provide sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator.
- SIGA-AB4G-LF bases provide 520 Hz low frequency sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

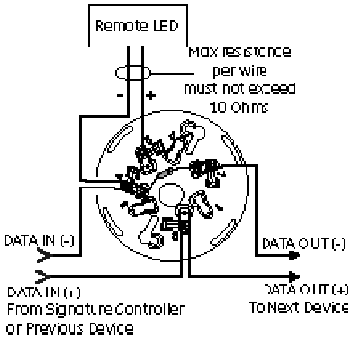
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

This is the basic mounting base for EDWARDS Signature Series detectors. The SIGA-LED Remote LED is supported by this Base.

Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
4	Remote LED (-)
5	Remote LED (+)
6	Not Used
7	DATA OUT (-)



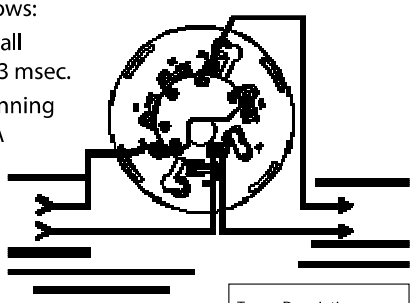
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec.
- at 10 msec intervals,beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power.
- when the isolator next to the short closes, it reopens within 10 msec.

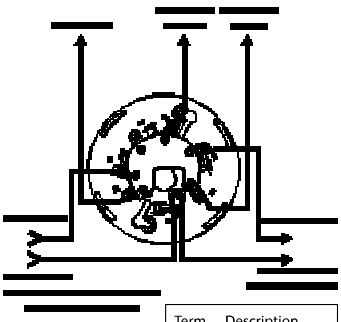
The process repeats beginning on the other side of the loop controller.



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally Open or Normally Closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The relay base does not support the SIGA-LED Remote LED.

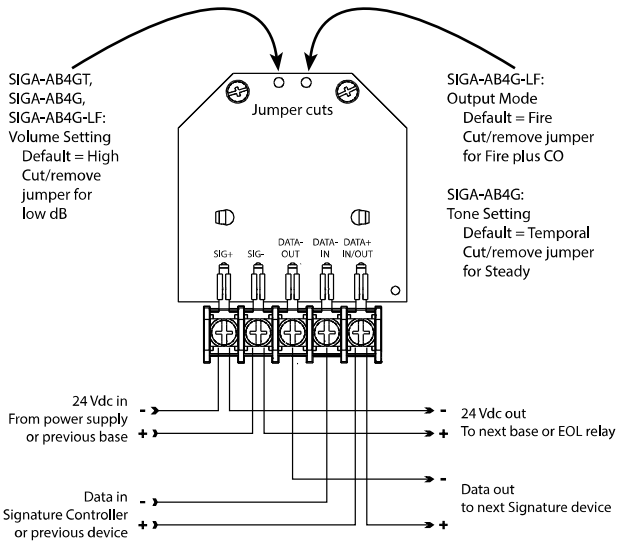


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where smoke cannot reach the detector. Smoke from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.
- In Canada, install according to CAN/ULC-S524 Standard for the Installation of Fire Alarm Systems, CSA C22.1 Canadian Electrical Code, and the local authority having jurisdiction.

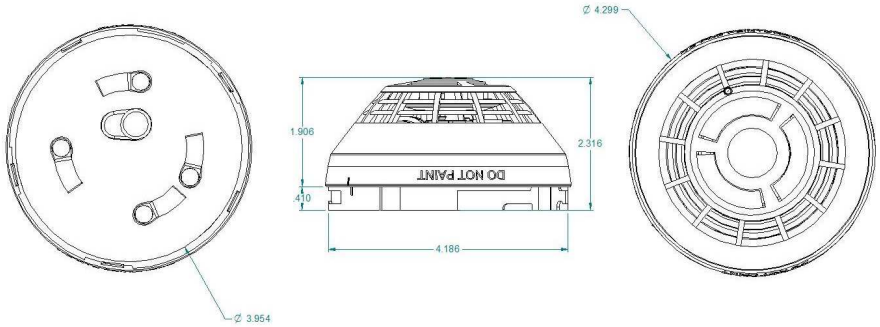
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	45 µA
Smoke Sensitivity Range	UL/ULC: 0.5 to 4.36 %/ft. (1.6 to 13.6 %/m) obscuration
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Air velocity	0 to 4,000 ft./min (0 to 20 m/s)
Wall mounting	12 in. (305 mm) max. from ceiling
Compatible bases	See Ordering Information
Compatible detector testers	Testifire 1000, Testifire 2000
Operating environment	32 to 120°F (0 to 49°C), 0 to 93% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
Agency Listings	CAN/ULC-S529, UL 268-7, UL 268A, CSFM

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-OSD	Intelligent Optical Smoke Detector	0.4 (0.16)
Accessories		
SIGA-SB	Detector Mounting Base - Standard	0.2 (.09)
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-AB4G	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and/or Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and/or Fire Detectors	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (0.04)
SIGA-TS	Trim Skirt - (optional for non 4-inch bases)	0.1 (0.04)
SIGA-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Heat Detectors

SIGA-HRD, SIGA-HFD

S853

Overview

The Signature Series smoke detectors bring advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends property protection capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while the latest thermister technology makes these detectors ideal wherever dependable heat detection is required.

The SIGA-HRD is an intelligent fixed temperature/rate-of-rise fire detector. It monitors the temperature of the surrounding air and analyzes the data from the sensor to determine whether to initiate an alarm. The rate-of-rise heat function quickly detects a fast, flaming fire. The fixed-temperature heat function detects fire when the air temperature near the detector exceeds the alarm point.

The SIGA-HFD is an intelligent fixed-temperature heat detector that contains a fixed-temperature heat sensor rated at 135 °F (57.2 °C). It does not have a rate-of-rise function. The heat sensor monitors the temperature of the air in its surroundings and the detector analyzes the data to determine when the air temperature near the detector exceeds the device's alarm point.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- Next Generation Heat Sensing Technology
- 135 °F (57 °C) fixed temperature alarm point (HRD and HFD)
- 15 °F (9 °C) per minute rate-of-rise alarm point (HRD)
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Signature Devices Per Loop
- Non-volatile memory
- Electronic addressing
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases
- 50 foot (15.2 meter) spacing

Application

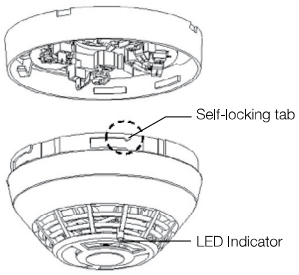
The SIGA-HRD combination fixed temperature/rate-of-rise heat detector provides a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of fast-developing fires, as well as a 135°F (57°C) fixed temperature sensor for slow building-fires. The SIGA-HFD fixed temperature detector provides a 135°F (57°C) fixed temperature sensor for slow building-fires.

Compatibility

Signature Series heat detectors are compatible only with the Signature Loop Controller.

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information.



Sensing and reporting technology

The microprocessor in each detector provides additional benefits - Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

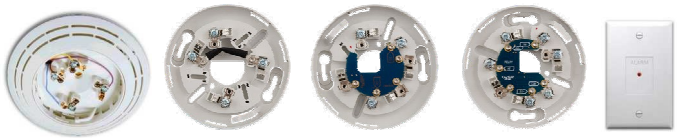
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory.

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different location from where it was originally.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4 inch square box only.



SIGA-AB4G/T/LF Audible Base | **SIGA-SB** Standard Base | **SIGA-IB** Isolator Base | **SIGA-RB** Relay Base | **SIGA-LED** Remote LED

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required.

- **SIGA-AB4G** bases provide sounder capability to Signature Series to heat and smoke detectors. They are not intended for use with combination carbon monoxide detectors in Fireplus-CO mode.
- **SIGA-AB4GT** bases provide sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where heat cannot reach the detector. Heat from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.
- This heat detector by itself does not provide life safety protection Use this detector with ionization and/or photoelectric smoke detectors.
- This detector does not detect oxygen levels, smoke, toxic gases, or flames. Use this device as part of a broad-based life safety program which includes a variety of information sources pertaining to heat and smoke levels, extinguishment systems, visual and audible devices, and other safety measures.
- Independent studies indicate that heat detectors should only be used when property protection alone is involved. Never rely on heat detectors as the sole means of fire protection.

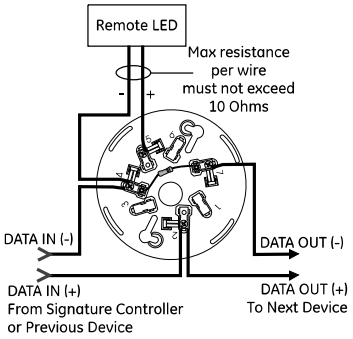
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

This is the basic mounting base for EDWARDS Signature Series detectors. The SIGA-LED Remote LED is supported by this Base.

Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
4	Remote LED (-)
5	Remote LED (+)
6	Not Used
7	DATA OUT (-)



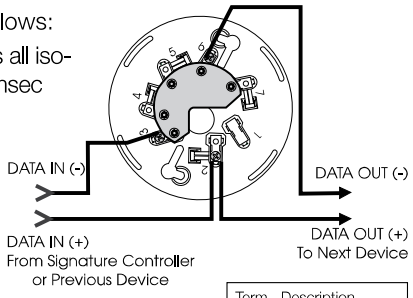
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within 10 msec.

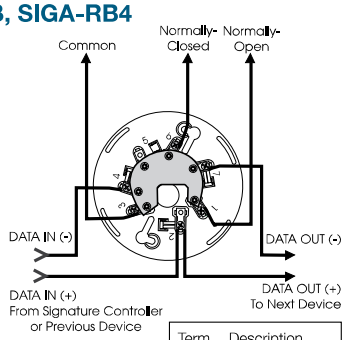
The process repeats beginning on the other side of the loop controller.



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally Open or Normally Closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The relay base does not support the SIGA-LED Remote LED.

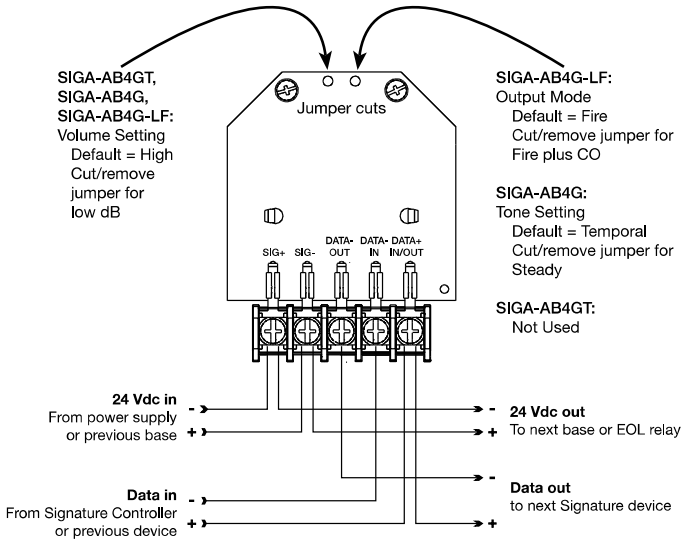


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



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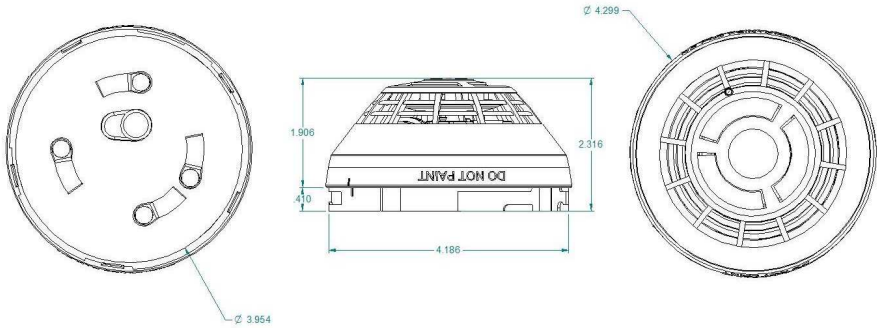
Bradenton, FL 34202

Dimensions



Specifications

	SIGA- HRD	SIGA-HFD
Operating voltage	15.20 to 19.95 VDC	
Normal operating current	32 µA	
Alarm current	32 µA	
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.	
Rate-of-rise rating	15°F/min (8°C/min)	NA
Fixed temperature rating	135°F (57.2°C). Actual alarm point 129 to 141°F (53.9 to 60.6°C).	
Maximum spacing	50 ft. (15.2 m) centers	
Compatible bases	See Ordering Information	
Compatible detector testers	Testifire 1000, Testifire 2000	Testifire 2000
Operating environment	32 to 100°F (0 to 38°C), 0 to 93% RH, noncondensing	
Construction	High Impact Engineering Polymer, White	
Storage temperature	-4 to 140°F (-20 to 60°C)	
Agency Listings	CAN/ULC-S530, UL 521	CAN/ULC-S530-M91, UL 521

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-HRD	Intelligent fixed temperature/Rate-of-rise heat detector	0.4 (0.16)
SIGA-HFD	Intelligent fixed temperature heat detector	
Compatible Bases		
SIGA-SB	Detector Mounting Base - Standard	0.2 (.09)
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-AB4G	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (0.04)
SIGA-TS	Trim Skirt (optional for non 4-inch bases)	
SIGA-RTA	Detector Removal Tool	

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Manual Pull Stations

SIGA-270, SIGA-270P, SIGA-278

SIGA-270 SERIES

Patented

MEA FM APPROVED 7150-1657: 0129 S2318

Overview

The SIGA-270 and SIGA-278 series Manual Pull Stations are part of EDWARDS's Signature Series system. The SIGA-270 Fire Alarm Manual Pull Stations feature our very familiar teardrop shape. They are made from die-cast zinc and finished with red epoxy powder-coat paint complemented by aluminum colored stripes and markings. With positive pull-lever operation, one pull on the station handle breaks the glass rod and turns in a positive alarm, ensuring protection plus fool-proof operation. Presignal models (SIGA-270P) are equipped with a general alarm (GA) keyswitch for applications where two stage operation is required. The up-front highly visible glass rod discourages tampering, but is not required for proper operation.

EDWARDS's double action single stage SIGA-278 station is a contemporary style manual station made from durable red colored lexan. To initiate an alarm, first lift the upper door marked "LIFT THEN PULL HANDLE", then pull the alarm handle.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- **Traditional familiar appearance**
  SIGA-270 models feature our familiar teardrop design with simple positive pull action and sturdy die-cast metal body.
- **One stage (GA), two stage (pre-signal), and double action models**
  SIGA-270 models are available for one or two stage alarm systems. The single stage double action SIGA-278 features a rugged Lexan housing with keyed reset mechanism.
- **Break glass operation**
  An up-front visible glass rod on the SIGA-270 discourages tampering.
- **Intelligent device with integral microprocessor**
  All decisions are made at the station allowing lower communication speed while substantially improving control panel response time. Less sensitive to line noise and loop wiring properties; twisted or shielded wire is not required.
- **ADA Compliant**
  Meets ADA requirements for manual pull stations.
- **Electronic Addressing with Non-volatile memory**
  Permanently stores programmable address, serial number, type of device, and job number. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm.
- **Automatic device mapping**
  Each station transmits wiring information to the loop controller regarding its location with respect to other devices on the circuit.
- **Diagnostic LEDs**
  Status LEDs; flashing GREEN shows normal polling; flashing RED shows alarm state.
- **Designed for high ambient temperature operation**
  Install in ambient temperatures up to 120 °F (49 °C).

Application

The operating characteristics of the fire alarm stations are determined by their sub-type code or "Personality Code". NORMALLY-OPEN ALARM - LATCHING (Pesonality Code 1**)** is assigned by the factory; no user configuration is required. The device is configured for Class B IDC operation. An ALARM signal is sent to the loop controller when the station's pull lever is operated. The alarm condition is latched at the station.

Compatibility

Signature Series manual stations are compatible only with EDWARDS's Signature Loop Controller.

Warnings & Cautions

This device will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

Testing & Maintenance

To test (or reset) the station simply open the station and operate the exposed switch. The SIGA-270 series are opened with a tool; the SIGA-278 requires the key which is supplied with that station.

The station's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each Signature series device and other pertinent messages. Single devices may be deactivated temporarily, from the control panel. Availability of maintenance features is dependent on the fire alarm system used.

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

The fire alarm station's terminal block accepts #18 AWG (0.75mm^2) to #12 AWG (2.5mm^2) wire sizes. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Wiring Notes

1. Refer to Signature Loop Controller manual for maximum wire distance.
2. All wiring is power limited and supervised.

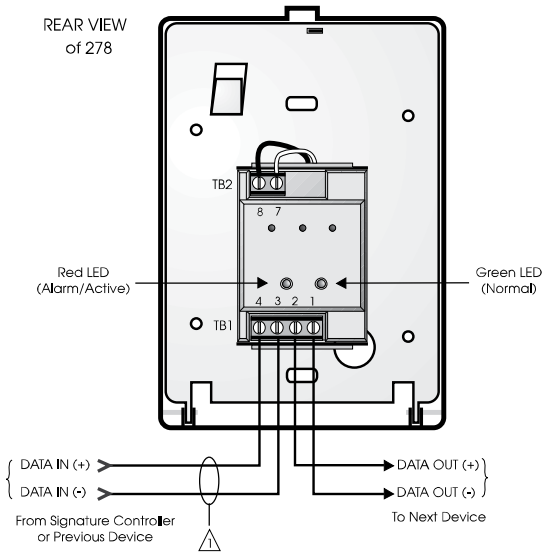


Figure 4. Single Stage Systems

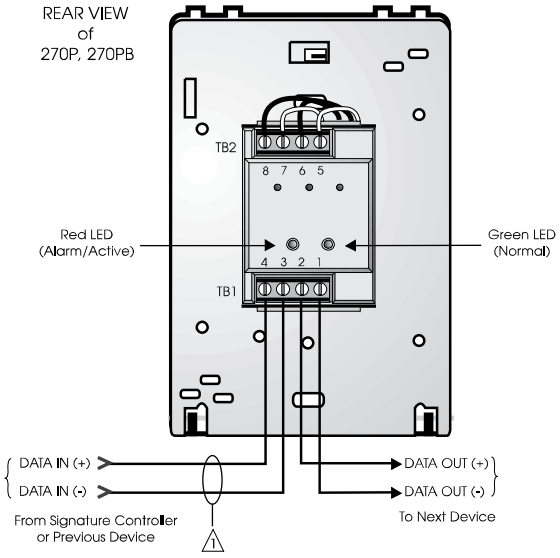


Figure 5. Two Stage Systems

Installation

Single-stage Signature Series fire alarm manual pull stations mount to North American 2½ inch (64 mm) deep 1-gang boxes.

Two stage presignal (270P) models require 1½ inch (38 mm) deep 4-inch square boxes with 1-gang, ½-inch raised covers. Openings must be angular. *Rounded openings are not acceptable.* Recommended box: Steel City Model 52-C-13; in Canada, use Iberville Model CI-52-C-49-1/2.

All models include terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size. EDWARDS recommends that these fire alarm stations be installed according to latest recognized edition of national and local fire alarm codes.

Electronic Addressing: The loop controller electronically addresses each manual station, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each station has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the stations can be addressed using the SIGA-PRO Signature Program/Service Tool.

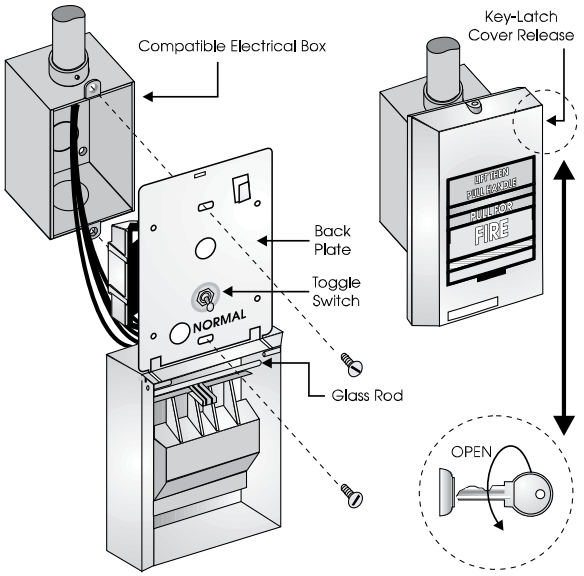


Figure 1. SIGA-278 installation

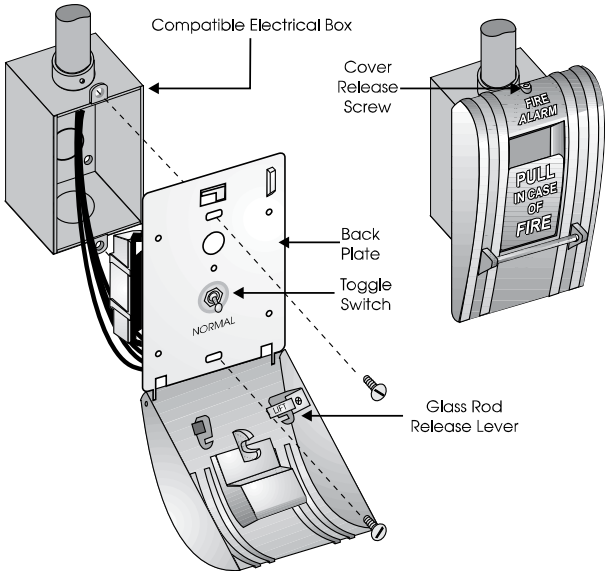


Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

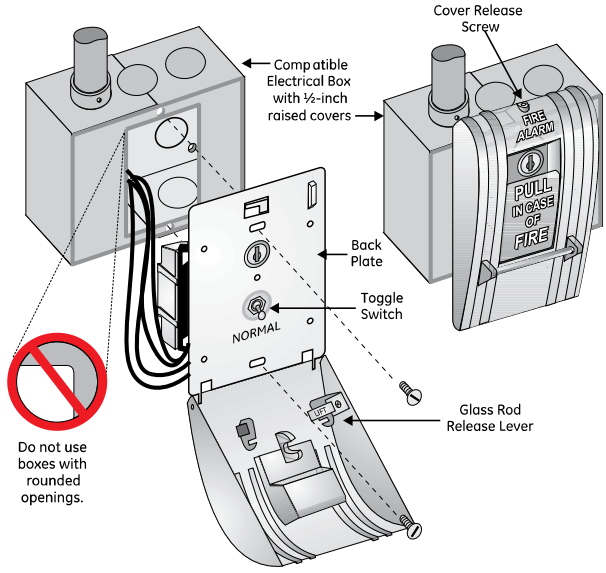


Figure 3. SIGA-270P, SIGC-270PB installation

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Bradenton, FL 34202

Specifications

Catalog Number	SIGA-270, SIGC-270F, SIGC-270B	SIGA-270P, SIGC-270PB	SIGA-278
Description	Single Action - One Stage	Single Action -Two Stage (Presignal)	Double Action - One Stage
Addressing Requirements	Uses 1 Module Address	Uses 2 Module Addresses	Uses 1 Module Address
Operating Current	Standby = 250µA Activated = 400µA	Standby = 396µA Activated = 680µA	Standby = 250µA Activated = 400µA
Construction & Finish	Diecast Zinc - Red Epoxy with aluminum markings		Lexan - Red with white markings
Type Code	Factory Set		
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)		
Storage and Operating Environment	Operating Temperature: 32”F to 120”F (0”C to 49”C) Storage Temperature: -4”F to 140”F (-20”C to 60”C) Humidity: 0 to 93% RH		
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes w hen in alarm		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC (note 1), MEA, CSFM, FM		

Note: *SIGC-270F, SIGC-270B and SIGC-270PB are ULC listed only. Suffix “F” indicates French markings. Suffix “B” indicates English/French biling ual markings.*

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-270	One Stage Fire Alarm Station, English Markings - UL/ULC Listed	1 (0.5)
SIGC-270F	One Stage Fire Alarm Station, French Markings - ULC Listed	
SIGC-270B	One Stage Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-270P	Two Stage (Presignal) Fire Alarm Station, English Markings - UL/ULC Listed	
SIGC-270PB	Two Stage (Presignal) Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-278	Double Action (One Stage) Fire Alarm Station, English Markings - UL/ULC Listed	

Accessories		
32997	GA Key w/Tag - for pre-signal station (CANADA ONLY)	0.1 (.05)
276-K2	GA Key - for pre-signal station (USA ONLY)	
276-K1	Station Reset Key, Supplied with all Key Reset Stations	
27165	12 Glass Rods - for SIGA-270 series (CANADA ONLY)	
270-GLR	20 Glass Rods - for SIGA-270 series (USA ONLY)	
276-GLR	20 Glass Rods - for SIGA-278 series	
276B-RSB	Surface Mount Box, Red - for SIGA pull stations	1 (0.6)

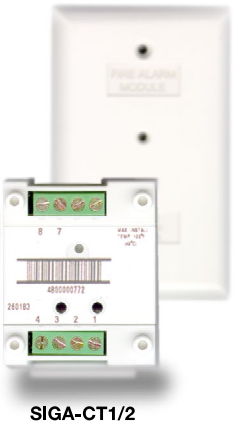
EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Input Modules

SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-MCT2

SIGA-MCT2



SIGA-CT1/2

FM APPROVED MEA

7300-1657: 0121

S3424

Overview

The SIGA-CT1 Single Input Module, SIGA-CT1HT High Temperature Single Input Module and SIGA-CT2/SIGA-MCT2 Dual Input Modules are intelligent analog addressable devices used to connect one or two Class B normally-open Alarm, Supervisory, or Monitor type dry contact Initiating Device Circuits (IDC).

The actual function of these modules is determined by the "personality code" selected by the installer. This code is downloaded to the module from the Signature loop controller during system configuration.

The input modules gather analog information from the initiating devices connected to them and convert it into digital signals. The module's on-board microprocessor analyzes the signal and decides whether or not to input an alarm.

The SIGA-CT1, SIGA-CT1HT and SIGA-CT2 mount to standard North American 1-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-CT1HT module operates at an expanded temperature range of 32 ”F to 158 ”F (0 ”C to 70 ”C) for those applications requiring more extreme environmental temperature variation.

The SIGA-MCT2 is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-CT2, but takes advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in EDWARDS enclosures.

Standard Features

- **Multiple applications**
  Including Alarm, Alarm with delayed latching (retard) for waterflow applications, Supervisory, and Monitor. The installer selects one of four "personality codes" to be downloaded to the module through the loop controller.
- **SIGA-CT1HT rated for high temperature environments**
  Suitable for attic installation and monitoring high temperature heat detectors.
- **Plug-in (UIO) or standard 1-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 1-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool. There are no switches or dials to set.
- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Signature Series Overview

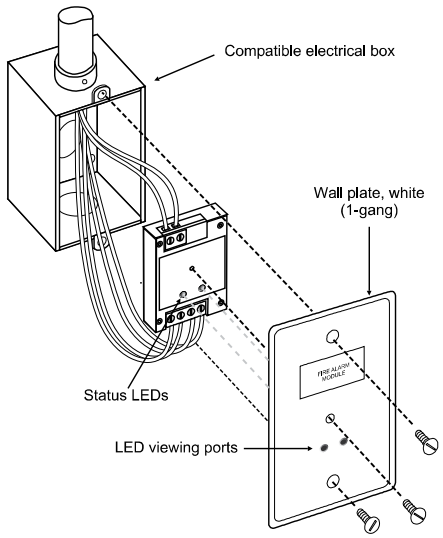
The Signature Series intelligent analog-addressable system from EDWARDS Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/ Service Tool.

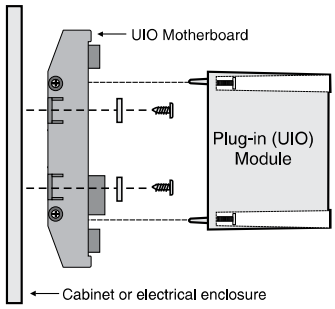
Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy.

Installation

SIGA-CT1, SIGA-CT1HT and SIGA-CT2: modules mount to North American 2½ inch(64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCT2: mount the UIO motherboard inside a suitable EDWARDS enclosure with screws and washers provided. Plug the SIGA-MCT2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

EDWARDS recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Application

The duty performed by the SIGA-CT1 and SIGA-CT2/MCT2 is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is downloaded from the loop controller.

One personality code can be assigned to the SIGA-CT1. Two personality codes can be assigned to the SIGA-CT2/MCT2. Codes 1, 2, 3 and 4 can be mixed on SIGA-CT2/MCT2 modules only. For example, personality code 1 can be assigned to the first address (circuit A) and code 4 can be assigned to the second address (circuit B).

NORMALLY-OPEN ALARM - LATCHING (Personality Code 1) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact initiating devices such as Pull Stations, Heat Detectors, etc. An ALARM signal is sent to the loop controller when the input contact is closed. The alarm condition is latched at the module.

NORMALLY-OPEN ALARM - DELAYED LATCHING (Personality Code 2) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally-open dry contact initiating devices such as Waterflow Alarm Switches. An ALARM signal is sent to the loop controller when the input contact is closed for approximately 16 seconds. The alarm condition is latched at the module.

NORMALLY-OPEN ACTIVE - NON-LATCHING (Personality Code 3) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally-open dry contact monitoring input such as from Fans, Dampers, Doors, etc. An ACTIVE signal is sent to the loop controller when the input contact is closed. The active condition is not latched at the module.

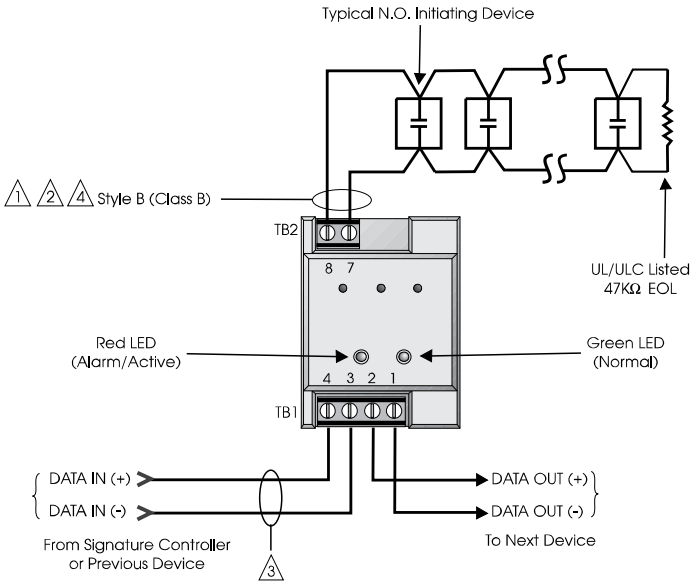
NORMALLY-OPEN ACTIVE - LATCHING (Personality Code 4) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact monitoring input such as from Supervisory and Tamper Switches. An ACTIVE signal is sent to the loop controller when the input contact is closed. The active condition is latched at the module.

Typical Wiring

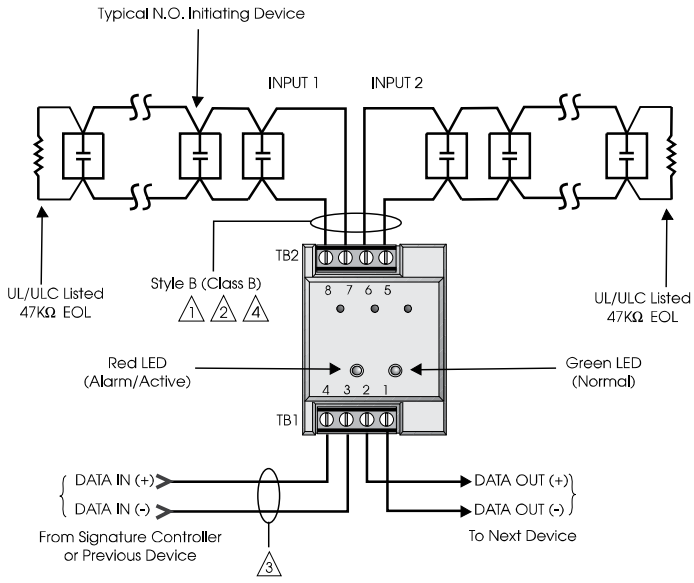
Modules will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), and #14AWG (1.50mm^2), and #12 AWG (2.50mm^2) wire sizes.

Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Initiating (Slave) Device Circuit Wire Specifications		
Maximum Allowable Wire Resistance	50 ohms (25 ohms per wire) per Circuit	
Maximum Allowable Wire Capacitance	0.1µF per Circuit	
For Design Reference:	**Wire Size**	**Maximum Distance to EOLR**
	#18 AWG (0.75 mm^2)	4,000 ft (1,219 m)
	#16 AWG (1.00 mm^2)	
	#14 AWG (1.50 mm^2)	
	#12 AWG (1.50 mm^2)	



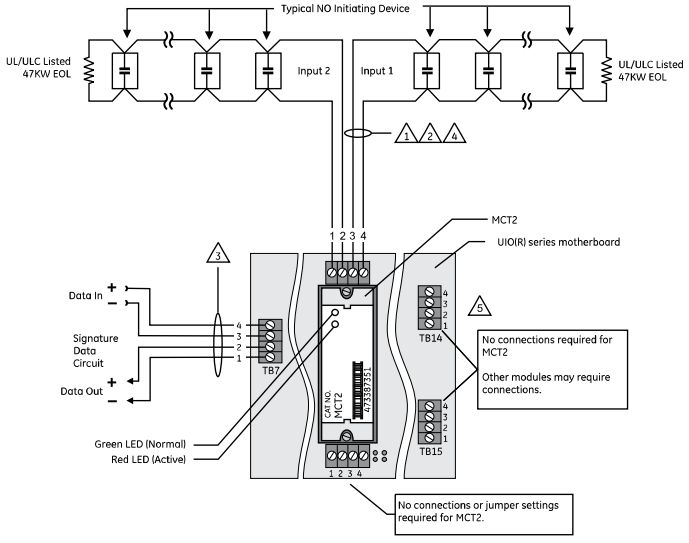
SIGA-CT1, SIGA-CT1HT



SIGA-CT2

NOTES

1. **Maximum 25 Ohm resistance per wire.**
2. **Maximum #12 AWG (2.5 mm^2) wire; Minimum #18 AWG (0.75 mm2).**
3. **Refer to Signature controller installation sheet for wiring specifications.**
4. **Maximum 10 Vdc @ 350 µA**
5. **The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.**
6. **All wiring is supervised and power-limited.**
7. **These modules will not support 2-wire smoke detectors.**



SIGA-MCT2

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

Compatibility

These modules are part of EDWARDS's Signature Series intelligent processing and control platform. They are compatible with EST3, EST3X and iO Series control panels.

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Bradenton, FL 34202

Specifications

Catalog Number	SIGA-CT1HT	SIGA-CT1	SIGA-CT2	SIGA-MCT2
Description	Single Input Module		Dual Input Module	
Type Code	48 (factory set) Four sub-types (personality codes) are available		49 (factory set) Four sub-types (personality codes) are available	
Address Requirements	Uses One Module Address		Uses Two Module Addresses	
Operating Current	Standby = 250µA; Activated = 400µA		Standby = 396µA; Activated = 680µA	
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Construction	High Impact Engineering Polymer			
Mounting	North American 2½ inch (64 mm) deep one-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with one-gang covers and SIGA-MP mounting plates			UIO2R/6R/6 Motherboard
Operating Environment	32°F to 158°F (0°C to 70°C)	32°F to 120°F (0°C to 49°C)		
Storage Environment	-4°F to 140°F (-20°C to 60°C); Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm/active.			
Compatibility	Use with Signature Loop Controller			
Agency Listings	UL, ULC, MEA, CSFM			

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-CT1	Single Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-CT1HT	Single Input Module High Temperature Operation UL/ULC Listed	0.4 (0.15)
SIGA-CT2	Dual Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-MCT2	Dual Input Plug-in (UIO) Module — UL, ULC Listed	0.1 (0.05)

Related Equipment		
27193-11	Surface Mount Box - Red, 1-gang	1.0 (0.6)
27193-16	Surface Mount Box - White, 1-gang	1.0 (0.6)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs — Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs — Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board — Six Module Positions	0.56 (0.25)
MFC-A	Multifunction Fire Cabinet — Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

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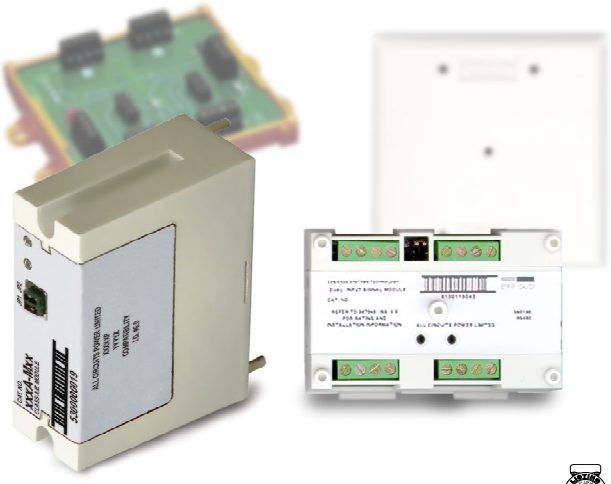
LIFE SAFETY & INCIDENT MANAGEMENT

Synchronization Output Module

SIGA-CC1S, MCC1S



Patented

FM APPROVED MEA 7300-1657: 0121 S3424

Overview

SIGA-CC1S and MCC1S Synchronization Output Modules are intelligent analog addressable devices that form part of EDWARDS's Signature line of products. The actual operation of the SIGA-CC1S and MCC1S is determined by the "personality code" selected by the installer, which is downloaded to the module from the Signature loop controller during system configuration.

Depending on their assigned personality, Synchronization Output Modules may be used as a signal power riser selector to provide synchronization of fire alarm signals across multiple zones, or for connecting, upon command from the loop controller, supervised Class B signal or telephone circuits to their respective power inputs. The power inputs may be polarized 24 Vdc to operate audible and visible signal appliances or 25 and 70 VRMS to operate audio evacuation speakers and firefighter's telephones.

Standard Features

- **Provides UL 1971-compliant auto-sync output for visual signals**
  Use for connecting a supervised output circuit to a supervised 24 Vdc riser input and synchronizing multiple notification appliance circuits.
- **Functions as an audible signal riser selector**
  Use as a synch module or for connecting supervised 24 Vdc Audible/Visible signal circuits, or 25 and 70 VRMS Audio Evacuation and Telephone circuits to their power inputs.
- **Built-in ring-tone generator**
  When configured for telephone circuits, the SIGA-CC1S generates its own ring-tone signal, eliminating the need for a separate ring-tone circuit.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.

Application

The SIGA-CC1S mounts to a standard North American two-gang electrical box, making it ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-MCC1S is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-CC1S, but takes advantage of the modular flexibility and easy installation that characterize all UIO modules. Two- and six-module UIO motherboards are available. These can accommodate individual risers for each on-board module, or risers that are shared by any combination of its UIO modules. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in EDWARDS enclosures.

Personality Codes

The operation of the SIGA-CC1S is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is downloaded from the loop controller.

Personality Code 5: Signal Power or Audio Evacuation (single riser). Configures the module for use as a Class B Audible/Visible Signal power (24 Vdc polarized) or Audio Evacuation (25 or 70 VRMS) power selector. The ring-tone generator is disabled. The output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible/visible signal circuit to prevent connection to the power circuit.

Personality Code 6: Telephone with ring-tone (single riser). Configures the module for use as a Telephone power selector. When a telephone handset is plugged into its jack or lifted from its hook, the module generates its own Ring-Tone signal. A separate ring-tone circuit is not needed. The module sends this signal to the control panel to indicate that an off-hook condition is present. When the system operator responds to the call, the ring-tone signal is disabled.

Personality Code 25: Visual Signal Synchronization. This personality code configures the module to provide synchronization of fire alarm signals across multiple zones. It functions as a signal power (24 Vdc) riser selector. The output wiring is monitored for open circuits and short circuits. A short circuit will cause the fire alarm control panel to inhibit the activation of the audible/visual signal circuit so the riser is not connected to the wiring fault.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your fire protection specialist.

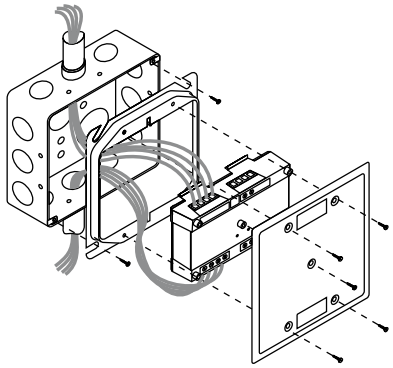
EDWARDS recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Compatibility

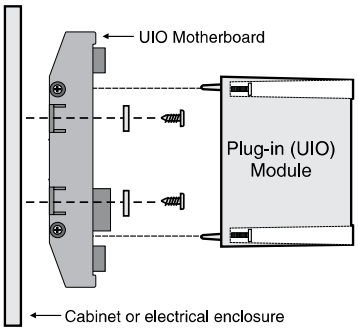
These modules are part of EDWARDS's Signature Series intelligent processing and control platform. They are compatible with EST3, EST3X and iO Series control panels.

Installation

The SIGA-CC1S: mounts to North American 2-1/2 inch (64 mm) deep 2-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCC1S: mount the UIOxR motherboard inside a suitable EDWARDS enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIOxR motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing

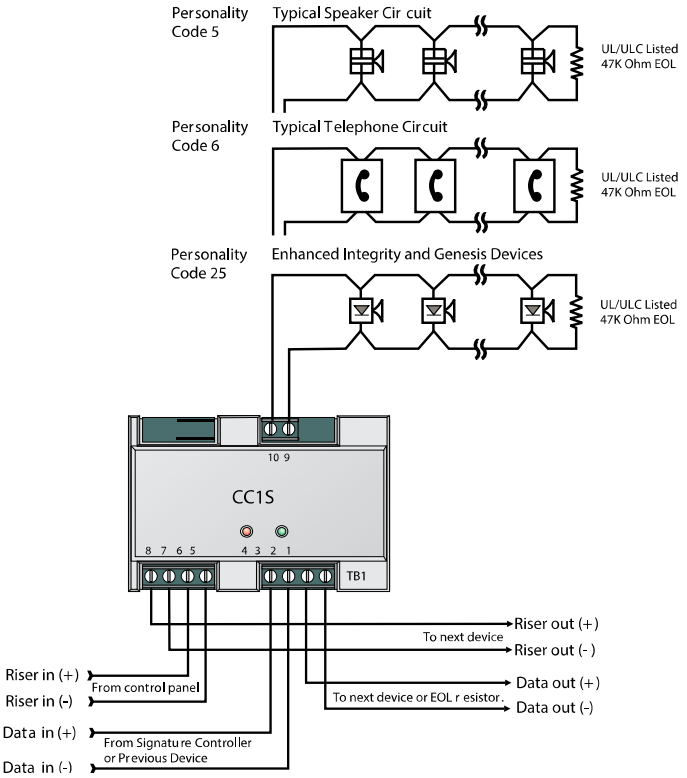
The loop controller electronically addresses each module saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its "on-board memory". The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

Testing & Maintenance

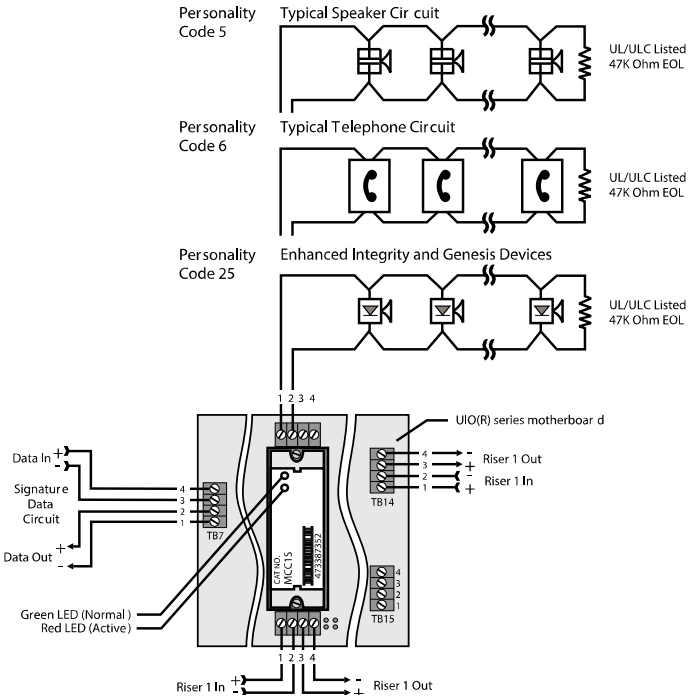
The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

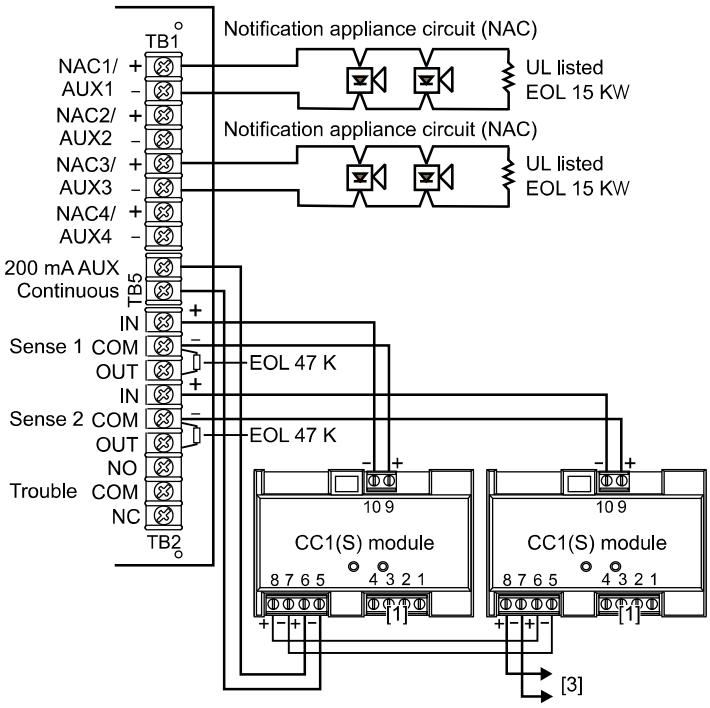
SIGA-CC1S (Standard Mount)



SIGA-MCC1S (UIO Mount)



Multiple CC1(S) modules using the BPS's sense inputs



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Bradenton, FL 34202

Specifications

Catalog Number	SIGA-CC1S	SIGA-MCC1S
Mounting	North American 2½ inch (64 mm) deep two-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Description	Synchronization Output Module	
Type Code	50 (factory set)	
Address Requirements	Uses one module address	
Wiring Terminations	Suitable for #12 to #18 AWG (2.5 mm^2 to 0.75mm^2)	
Operating Current	Standby = 223µA Activated = 100µA	
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)	
Output Rating	24 Vdc = 2 amps 25 V Audio = 50 watts 70 V Audio = 35 watts	
Construction	High Impact Engineering Polymer	
Storage and Operating Environment	Operating: 32°F to 120°F (0°C to 49°C) Storage: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH	
LED Operation	Green LED - Flashes when polled Red LED - Flashes when in alarm/ active	
Compatibility	Use with: Signature Loop Controller under EST3 version 2.0 or higher	
Agency Listings	UL, ULC, CSFM, MEA	

Ordering Information

Catalog Number	Description	Shipping Wt. lbs (kg)
SIGA-CC1S	Synchronization Output Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (UIO Mount) - UL/ULC Listed	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
235196P	Bi-polar Transient Protector	0.01 (0.05)
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

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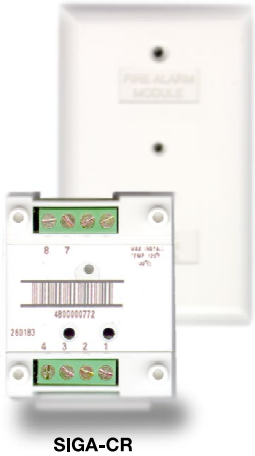
LIFE SAFETY & INCIDENT MANAGEMENT

Control Relay Modules

SIGA-CR, SIGA-MCR, SIGA-CRR, SIGA-MCRR

SIGA-MCR



SIGA-CR

FM APPROVED MEA 7300-1657: 0121 S3424

Overview

The Control Relay Module and the Polarity Reversal Relay Module are part of the Signature Series system. They are intelligent analog addressable devices available in either plug-in (UIO) versions, or standard 1-gang mount versions.

The SIGA-CR/MCR Control Relay Module provides a Form "C" dry relay contact to control external appliances such as door closers, fans, dampers etc. This device does not provide supervision of the state of the relay contact. Instead, the on-board microprocessor ensures that the relay is in the proper ON/OFF state. Upon command from the loop controller, the SIGA-CR/MCR relay activates the normally open or normally-closed contact.

The SIGA-CRR/MCRR Polarity Reversal Relay Module provides a Form "C" dry relay contact to power and activate a series of SIGA-AB4G Audible Sounder Bases. Upon command from the Signature loop controller, the SIGA-CRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.

Standard-mount versions (SIGA-CR and SIGA-CRR) are installed to standard North American 1-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

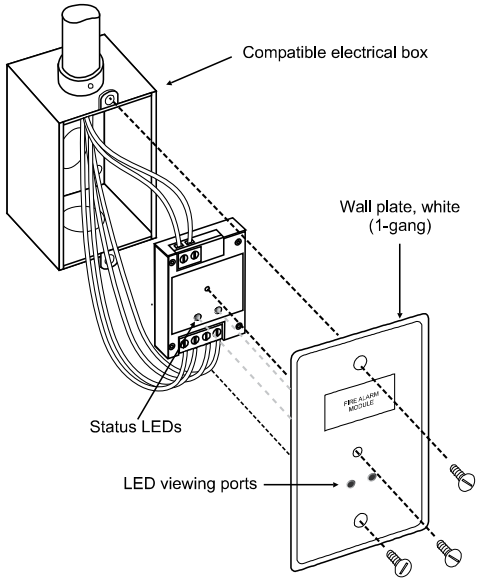
Plug-in UIO versions (SIGA-MCR and SIGA-MCRR) are part of the UIO family of plug-in Signature Series modules. They function identically to the standard mount versions, but take advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in EDWARDS enclosures.

Standard Features

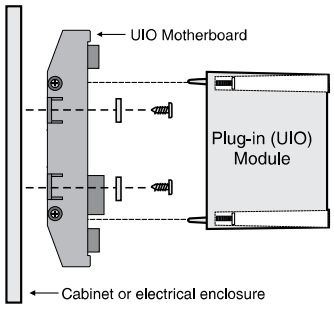
- **Provides one no/nc contact (SIGA-CR/MCR)**
  Form "C" dry relay contact can be used to control external appliances such as door closers, fans, dampers etc.
- **Allows group operation of sounder bases**
  The SIGA-CRR/MCRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.
- **Plug-in (UIO) or standard 1-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 1-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.

Installation

SIGA-CR and SIGA-CRR: modules mount to North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCR and SIGA-MCRR: mount the UIO motherboard inside a suitable EDWARDS enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

EDWARDS recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Application

The operation of Signature Series control relays is determined by their sub-type code or "Personality Code."

Personality Code 8: CONTROL RELAY (SIGA-CR/MCR) - Dry Contact Output. This setting configures the module to provide one Form "C" DRY RELAY CONTACT to control Door Closers, Fans, Dampers, etc. Contact rating is 2.0 amp @ 24 Vdc; 0.5 amp @ 120 Vac (or 0.25A @ 220 Vac for non-UL applications). Personality Code 8 is assigned at the factory. No user configuration is required.

Personality Code 8: POLARITY REVERSAL RELAY MODULE (SIGA-CRR/MCRR). This setting configures the module to reverse the polarity of its 24 Vdc output. Contact rating is 2.0 amp @ 24 Vdc (pilot duty). Personality Code 8 is assigned at the factory. No user configuration is required.

Compatibility

These modules are part of EDWARDS's Signature Series intelligent processing and control platform. They are compatible with EST3, EST3X and iO Series control panels.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

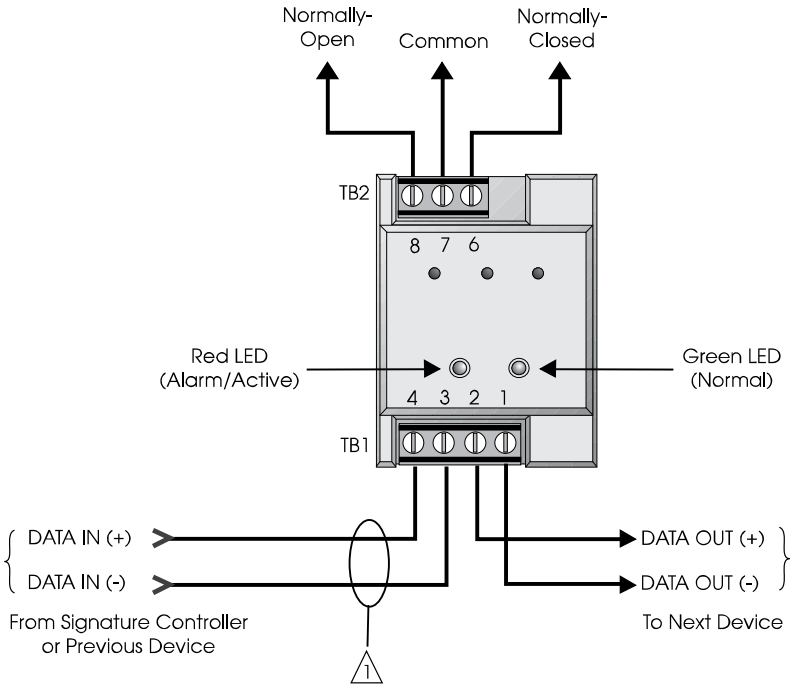
Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (deactivated) temporarily, from the control panel. Availability of maintenance features is dependent on the fire alarm system used. Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

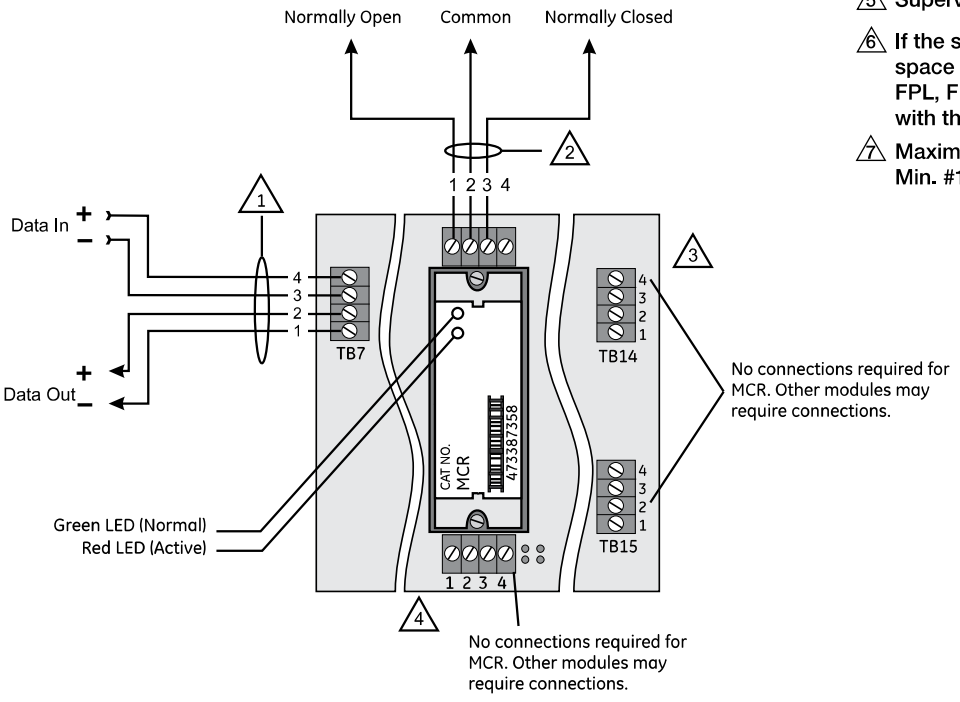
Typical Wiring

Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.5mm²) wire sizes.

Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



SIGA-CR Control Relay



SIGA-MCR Control Relay

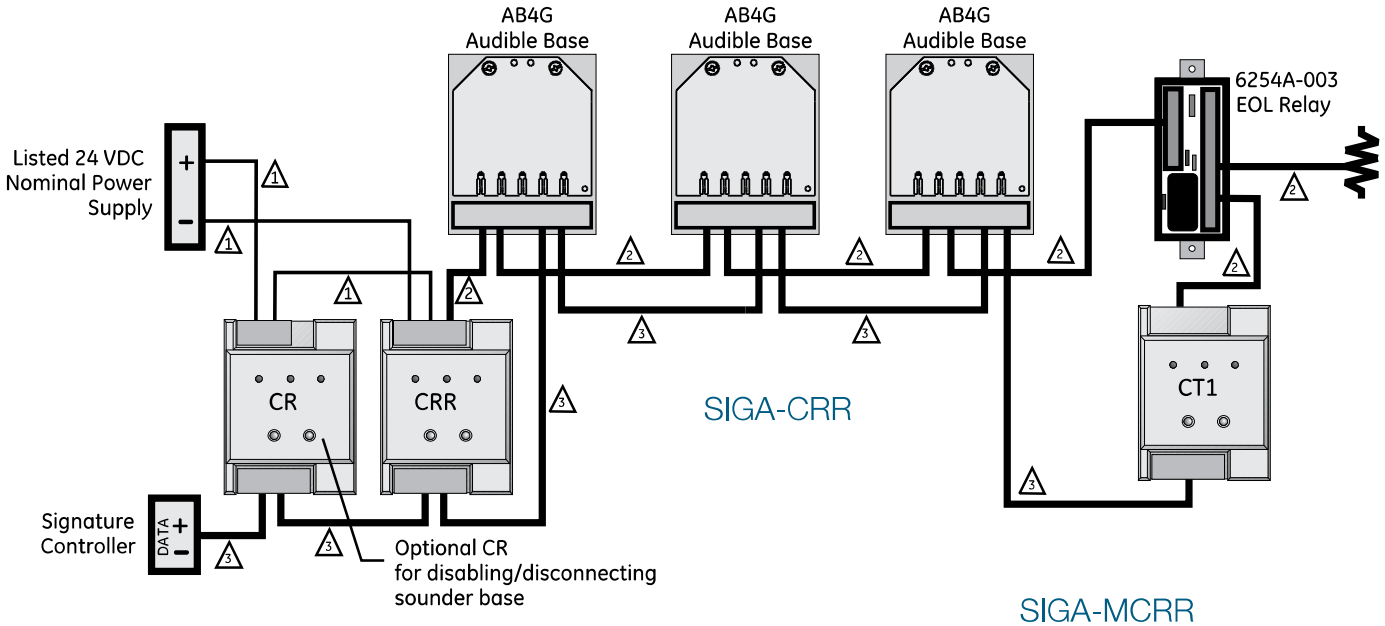
Notes

1. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
2. NFPA 72 requires that the SIGA-CR/SIGA-MCR be installed in the same room as the device it is controlling. This requirement may not apply in all markets. Check with your local AHJ for details.
3. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
4. The SIGA-UIO6 does not come with TB8 through TB13.
5. Supervised and power-limited.
6. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
7. Maximum #12 AWG (2.5mm²) wire. Min. #18 (0.75mm²).

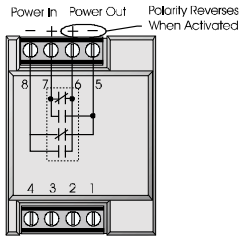
Typical Wiring

Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.50mm²) wire sizes.

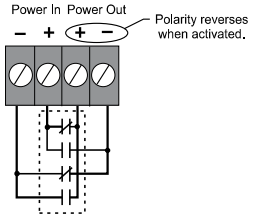
Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



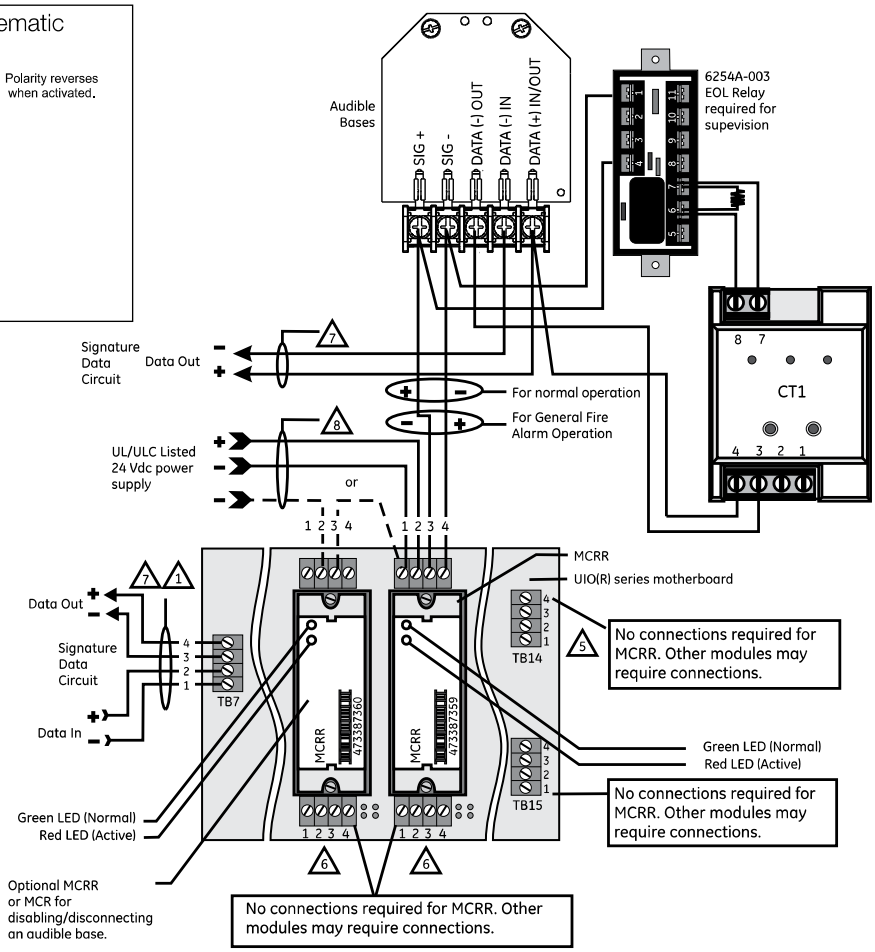
SIGA-CRR Schematic



SIGA-MCRR Schematic



SIGA-MCRR



Notes

1. Refer to the Signature controller installation sheet for wiring.
2. One Pair of Wires (24 Vdc power).
3. One Pair of Wires (Signature Data).
4. Single Wire (24 Vdc power).
5. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
6. The SIGA-UIO6 does not come with TB8 through TB13.
7. Supervised and power-limited.
8. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
9. Maximum #12 AWG (2.5 mm²) wire; Minimum #18 AWG (0.75 mm²).
10. End-of-Line Relay must monitor and report power supply trouble to control panel.
11. Class B Data wiring may be "T-tapped."

Specifications

Catalog Number	SIGA-CR	SIGA-MCR	SIGA-CRR	SIGA-MCRR
Description	Control Relay		Polarity Reversal Relay	
Type Code	Personality Code 8 (Factory Set)		Personality Code 8 (Factory Set)	
Address Requirements	Uses 1 Module Address			
Operating Current	Standby = 75 µA Activated = 75 µA			
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Relay Type and Rating	Form C, 2 Amps @ 24 Vdc (pilot duty), 0.5 Amps @ 120 Vac and 0.25 Amps @ 220 Vac (220 Vac is non-UL) Not rated for capacitive loads.			
Mounting	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Construction & Finish	High Impact Engineering Polymer			
Storage and Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes when in alarm/active			
Compatibility	Use With: Signature Loop Controller			
Agency Listings	UL, ULC, CSFM, MEA			

Ordering Information

Catalog Number	Description	Ship Weight - lbs (kg)
SIGA-CR	Control Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCR	Control Relay Module (UIO Mount)	0.18 (0.08)
SIGA-CRR	Polarity Reversal Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCRR	Polarity Reversal Relay Module (UIO Mount)	0.18 (0.08)
Related Equipment		
27193-11	Surface Mount Box - Red, 1-gang	1 (0.6)
27193-16	Surface Mount Box - White, 1-gang	1 (0.6)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
SIGA-AB4G	Audible (Sounder) Detector Base	0.3 (0.15)
Accessories		
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

LIFE SAFETY & INCIDENT MANAGEMENT

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Signature Series Overview

The Signature Series intelligent analog-addressable system from EDWARDS is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/Service Tool. The information stored in device memory includes:

- Device serial number, address, and type
- Time and date of last alarm
- Most recent trouble code logged by the detector — 32 possible trouble codes may be used to diagnose faults.

Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy. This takes the mystery out of the installation. The preparation of as-built drawings is fast and efficient.

Device mapping allows the Signature Data Controller to discover:

- Unexpected additional device addresses
- Missing device addresses
- Changes to the wiring in the circuit.

Most Signature modules use a personality code selected by the installer to determine their actual function. Personality codes are downloaded from the SDC during system configuration and are indicated during device mapping.

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Signal Modules

SIGA-CC1, SIGA-MCC1, SIGA-CC2 & SIGA-MCC2

SIGA-MCC

SIGA-CC

FM APPROVED MEA 7300-1657: 0121 S3424

Overview

SIGA-CC1/MCC1 Single Input Signal Modules and SIGA-CC2/MCC2 Dual Input Signal Modules are part of EDWARDS's Signature Series system. They are intelligent analog addressable devices used for connecting, upon command from the loop controller, supervised Class B signal or telephone circuits to their respective power inputs. The power inputs may be polarized 24 Vdc to operate audible and visible signal appliances or 25 and 70 VRMS to operate audio evacuation speakers and firefighter's telephones.

The actual operation of the SIGA-CC1/MCC1 and SIGA-CC2/MCC2 is determined by the "personality code" selected by the installer. It is downloaded to the module from the Signature loop controller during system configuration.

The SIGA-CC1 and SIGA-CC2 mount to standard North American two-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

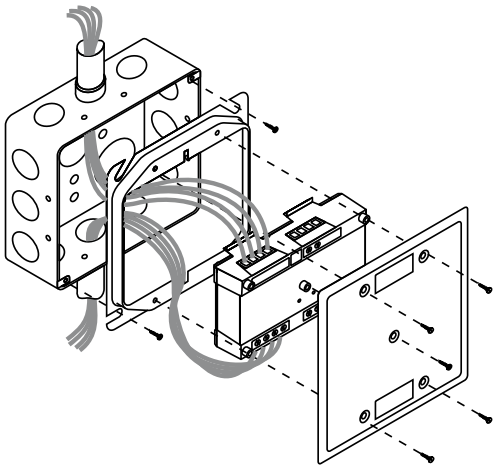
The SIGA-MCC1 and SIGA-MCC2 are part of the UIO family of plug-in Signature Series modules. They function identically to the SIGA-CC1 and SIGA-CC2, but take advantage of the modular flexibility and easy installation that characterize all UIO modules. Two- and six-module UIO motherboards are available. These can accommodate individual risers for each on-board module, or risers that are shared by any combination of its UIO modules. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in EDWARDS enclosures.

Standard Features

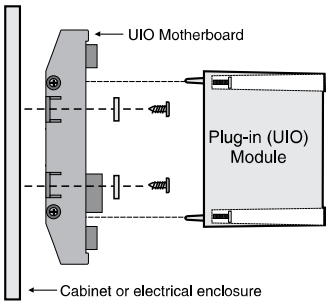
- **Single and Dual input (riser) select**
  Use for connecting supervised 24 Vdc Audible/Visible signal circuits, or 25 and 70 VRMS Audio Evacuation and Telephone circuits to their power inputs.
- **Ring-tone generator**
  When configured for telephone circuits, the SIGA-CC1 generates its own ring-tone signal eliminating the need for a separate ring-tone circuit.
- **Plug-in (UIO) or standard 2-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 2-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.
- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Installation

The SIGA-CC1 and SIGA-CC2: mount to North American 2-1/2 inch (64 mm) deep two-gang boxes and 1-1/2 inch (38 mm) deep 4-inch square boxes with two-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCC1 and SIGA-MCC2: mount the UIO motherboard inside a suitable EDWARDS enclosure with screws and washers provided. Plug the SIGA-MCC1 or SIGA-MCC2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



EDWARDS recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Electronic Addressing - The loop controller electronically addresses each module saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

Personality Codes 5 and 6 apply to the SIGA-CC1/MCC1 only and are assigned by the installer. Code 7 applies to the SIGA-CC2/MCC2 only. It is factory assigned; no user configuration is required.

Application

The operation of the SIGA-CC1/MCC1 and SIGA-CC2/MCC2 is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is down-loaded from the loop controller. Codes 5 and 6 apply to the SIGA-CC1/MCC1 only. Code 7 is assigned to the SIGA-CC2/MCC2 only and automatically applies to both circuits (A and B).

Personality Code 5: SIGNAL POWER or AUDIO EVACUATION (SINGLE RISER). Valid for the SIGA-CC1/MCC1 only. Configures the module for use as a Class B Audible/Visible Signal power (24 Vdc polarized) or Audio Evacuation (25 or 70 VRMS) power selector. The ring-tone generator is disabled. The output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible/visible signal circuit to prevent connection to the power circuit.

Personality Code 6: TELEPHONE w/RING-TONE (SINGLE RISER). Valid for the SIGA-CC1/MCC1 only. Configures the module for use as a Telephone power selector. When a telephone handset is plugged into its jack or lifted from its hook, the module generates its own Ring-Tone signal. A separate ring-tone circuit is not needed. The module sends this signal to the control panel to indicate that an off-hook condition is present. When the system operator responds to the call, the ring-tone signal is disabled.

Personality Code 7: SIGNAL POWER or AUDIO EVACUATION (DUAL RISER). Valid for the SIGA-CC2/MCC2 only. Configures the module for use as a two circuit Class B Audible/Visible Signal power (24 Vdc polarized) or Audio Evacuation (25 or 70 VRMS) power selector. The single output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible/visible signal circuit to prevent connection to the power circuit.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your fire protection specialist.

Compatibility

The Signature Series modules are compatible only with EDWARDS's Signature Loop Controller.

Testing & Maintenance

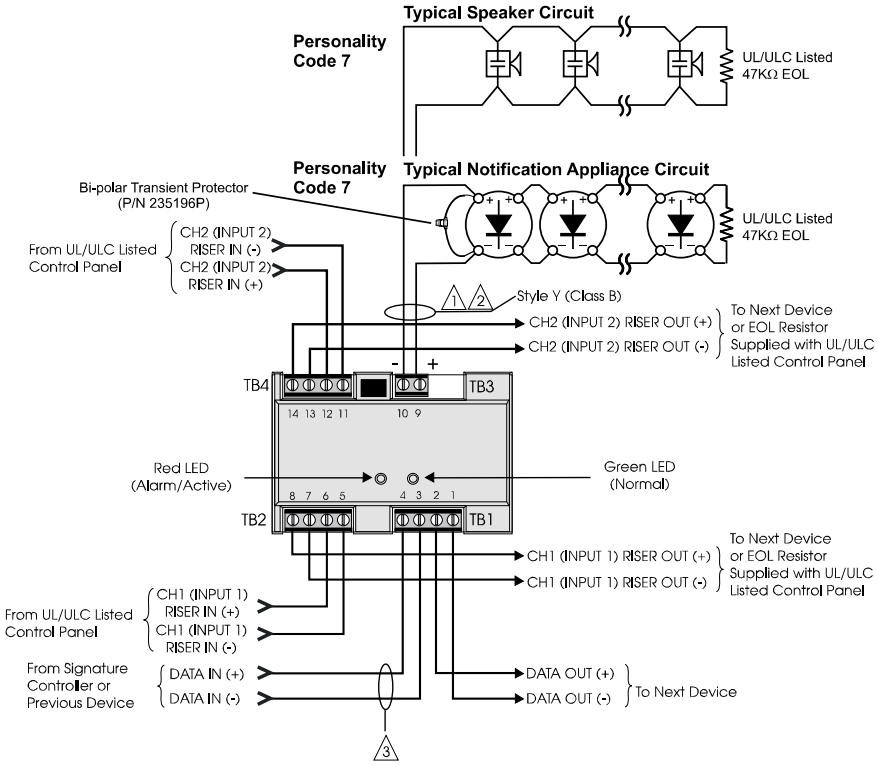
The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

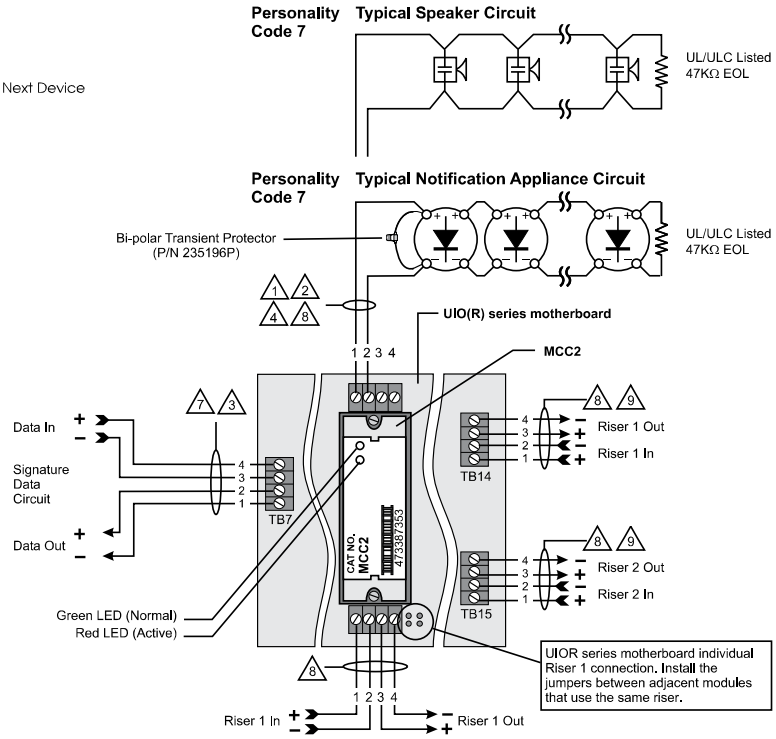
Typical Wiring (SIGA-CC2/MCC2)

Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.5mm²) wire sizes.

Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



SIGA-CC2



SIGA-MCC2

Notes

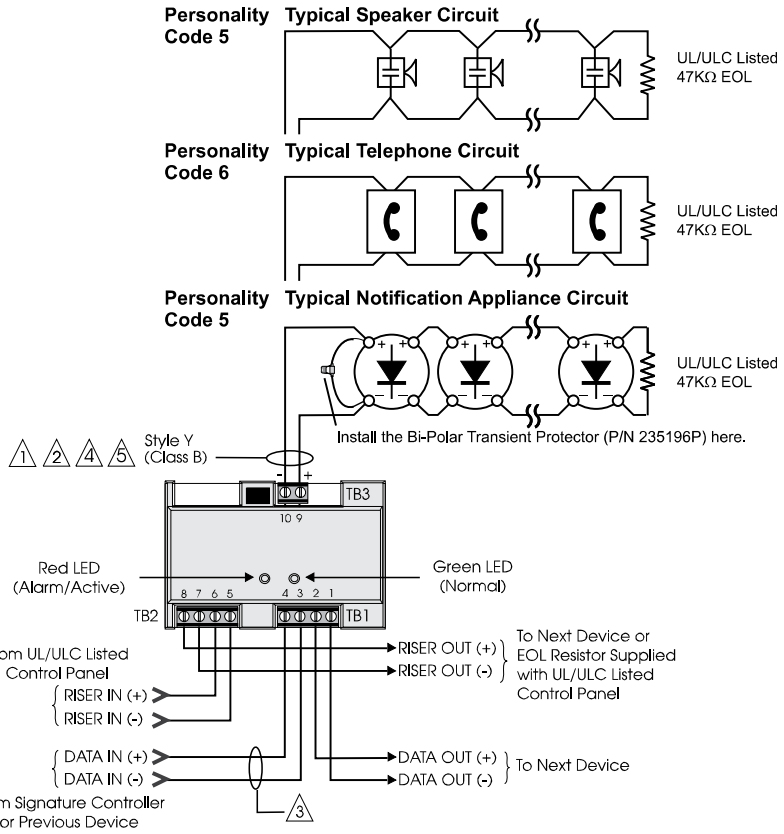
1. For maximum wire resistance and maximum wire distances, refer to IOMC Manual (P/N 270144).
2. Maximum #12 AWG (2.5mm²) wire. Min. #18 (0.75mm²).
3. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
4. These modules will NOT support two-wire smoke detectors.
5. All wiring power limited and supervised. If the input source is non-power limited, then maintain spacing of 1/4 inch or use FPL, FPLP, FPLR or equivalent in accordance with NEC.
6. The SIGA-UIO6 does not come with TB8 through TB13.
7. Supervised and power-limited.
8. Supervised and power-limited when connected to a power-limited source. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
9. The input for this riser is common to all modules.

Maximum Output Load		
24Vdc	**25V**	**70V**
Signals	Audio	Audio
2A	50W	35W

Typical Wiring (SIGA-CC1/MCC1)

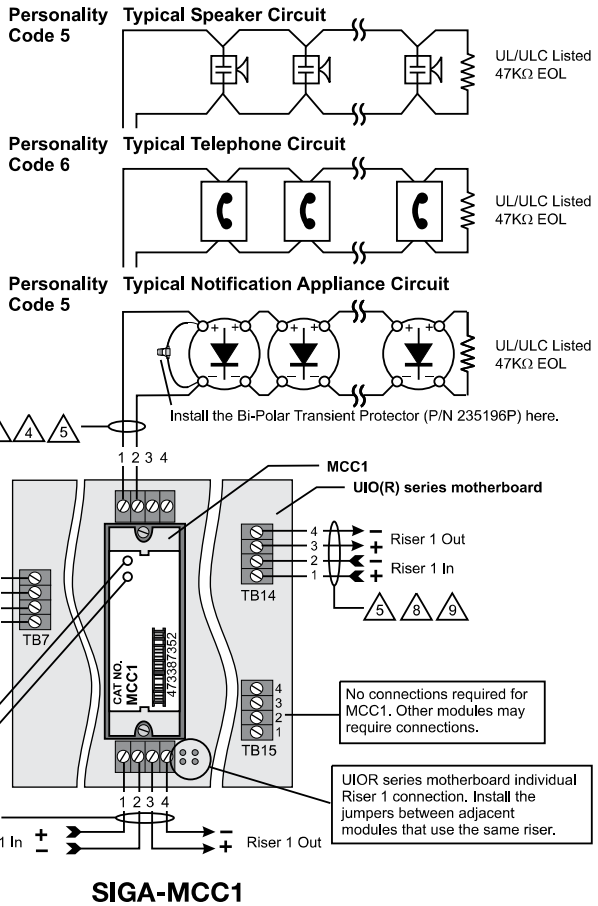
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 (2.5mm²) wire sizes.

Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



SIGA-CC1

Maximum Output Load		
24Vdc	**25V**	**70V**
Signals	Audio	Audio
2A	50W	35W



SIGA-MCC1

Notes

2. Maximum #12 AWG (2.5mm²) wire. Min. #18 (0.75mm²).
3. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
4. These modules will NOT support two-wire smoke detectors.
5. All wiring power limited and supervised. If the input source is non-power limited, then maintain spacing of 1/4 inch or use FPL, FPLP, FPLR or equivalent in accordance with NEC.
6. The SIGA-UIO6 does not come with TB8 through TB13.
7. Supervised and power-limited.
8. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
9. The input for this riser is common to all modules.

Signature Series Overview

The Signature Series intelligent analog-addressable system from EDWARDS is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/ Service Tool. The information stored in device memory includes:

- Device serial number, address, and type
- Time and date of last alarm (EST3 V 2 only.)
- Most recent trouble code logged by the detector — 32 possible trouble codes may be used to diagnose faults.

Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy. This takes the mystery out of the installation. The preparation of as-built drawings is fast and efficient.

Device mapping allows the Signature Data Controller to discover:

- Unexpected additional device addresses
- Missing device addresses
- Changes to the wiring in the circuit.

Most Signature modules use a personality code selected by the installer to determine their actual function. Personality codes are downloaded from the SDC during system configuration and are indicated during device mapping.

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Contact us

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Website: edwardsfiresafety.com

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Bradenton, FL 34202

Specifications

Catalog Number	SIGA-CC1	SIGA-MCC1	SIGA-CC2	SIGA-MCC2
Description	Single Input (Riser) Signal Module		Dual Input (Riser) Signal Module	
Type Code	50 (factory set) Two sub-types (personality codes) are available		51 (factory set) One sub-type (personality code) is available (factory set)	
Address Requirements	Uses one module address		Uses two module addresses	
Wiring Terminations	Suitable for #12 to #18 AWG (2.5 mm² to 0.75mm²)			
Mounting	North American 2½ inch (64 mm) deep two-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards	North American 2½ inch (64 mm) deep two-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Operating Current	Standby = 223µA Activated = 100µA			
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Output Rating	24 Vdc = 2 amps 25 V Audio = 50 watts 70 V Audio = 35 watts			
Construction	High Impact Engineering Polymer			
Storage & Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes when in alarm/active			
Compatibility	Use with: Signature Loop Controller			
Agency Listings	UL, ULC, CSFM, MEA, FM			

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-CC1	Single Input Signal Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MCC1	Single Input Signal Module (UIO Mount) - UL/ULC Listed	0.18 (0.08)
SIGA-CC2	Dual Input Signal Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MCC2	Dual Input Signal Module (UIO Mount) - UL/ULC Listed	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
235196P	Bi-polar Transient Protector	0.01 (0.05)

Accessories		
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

12/24VDC Carbon Monoxide Detector with SafeTest™

260-CO

Overview

The 260-CO carbon monoxide (CO) detector is an accurate and reliable means of alerting building occupants of potentially dangerous levels of CO in the protected area. The internal electro-chemical sensor communicates with a sophisticated on-board microprocessor that accurately tracks CO levels over time.

This commercial-grade detection technology results in quick response, reliable sensing, fast reset time, and superior false alarm immunity. Its small size allows the 260-CO to blend inconspicuously with any decor, and its smooth contoured design is compatible with both residential and commercial environments.

Unaffected by normal indoor temperature variations, the 260-CO automatically adjusts for environmental changes and operates reliably under a wide variety of conditions. It also monitors its own performance and compensates for sensitivity drift throughout the course of its service life.

The 260-CO features the SafeTest™ functional test feature, which facilitates testing with real CO gas. SafeTest meets the functional test requirement in NFPA 720, 2009/2012 editions.

Like all CO detectors, the 260-CO has a limited service life. But unlike most, which last only six years, the 260-CO's advanced sensor features a service life rated at 10 years. When it approaches this point, the 260-CO's end-of-life timer automatically triggers a warning that indicates the device must be serviced. This warning annunciates at the detector, as well as at the control panel, and optionally at a remote monitoring station.

An integrated temporal-4 sounder provides local signaling capability for the 260-CO, and it easily interfaces with any intrusion or fire alarm system by means of its output relay. Its low current draw results in little additional demand on the system power supply.

Standard Features

- 10-year end-of-life signal
- SafeTest™ feature — functional test with spray of real CO gas
- Advanced electro-chemical sensing technology
- Wiring option activates sounders of all connected detectors when any one of them goes into alarm
- Deep housing with plenty of room for wiring
- UL 2075 compliant
- Transmits sensor end-of-life to the supervising panel and central station if the system is monitored
- CO sensitivity conforms to UL 2034 requirements
- Built-in trouble/power supervision relay
- Self-diagnostics keep the device operating optimally throughout its service life
- 12 or 24VDC operation and 150mA Form C relay
- Large SEMS terminals ease wiring installation 14 to 22 AWG
- One-touch TEST/HUSH button simplifies local operation
- Integrated 85 dBa temporal-4 sounder for local notification
- On-board LED provides local alarm and trouble indication
- Inconspicuous footprint and attractively contoured design
- Adapter plate simplifies replacing 240-COe detectors

Application

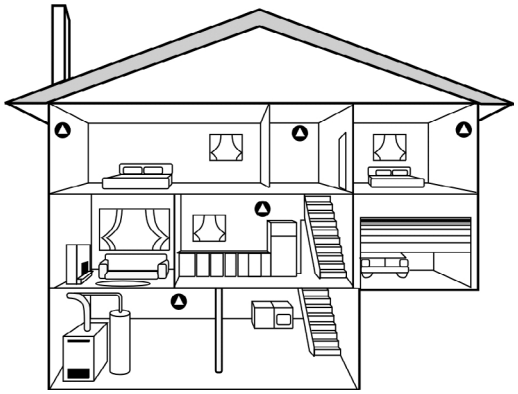
The 260-CO Carbon Monoxide Detector is intended for ordinary indoor-dwelling unit applications in both residential and commercial occupancies, including single/multiple family residential occupancies, hotel rooms, dorm rooms, and other areas approved by the authority having jurisdiction (AHJ). The 260-CO detector can connect to either UL 985 (Household Fire Warning) or UL 864 (Commercial Fire) control panels. It is not intended for use in industrial applications such as gasoline refineries or parking garages, which require different listings.

The 260-CO is a four-wire device that uses a Class 2 output from a control panel. Nonetheless, the primary alarm notification device remains the 260-CO's internal sounder with the control panel secondary to these purposes. The 260-CO is not a substitute for life safety devices, and should be only considered as an integral part of a comprehensive safety program.

Selecting a suitable location is critical to the correct operation of CO detectors. Install the 260-CO in accordance with *NFPA 720 Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment.* Place wall-mounted detectors at least 5 ft. (1.5 m) up from the floor. For ceiling mounted applications, place the detector at least 1 ft. (0.3 m) from any wall.

Recommended CO detector locations:

- ✓ Within 10 ft. (3 m) of all sleeping areas, including areas such as hotel rooms and dorm rooms.
- ✓ In a suitable environment: areas with a temperature range of 40 to 100 °F (4.4 to 37.8 °C) and with a relative humidity range of 10 to 90% noncondensing.
- ✓ In residential dwellings, locate detectors in every bedroom and on each level. At a minimum, place one detector outside the sleeping areas.



▲ Recommended locations for CO detectors

Always check with your local building codes, legislation, and Authority Having Jurisdiction for specific CO location requirements in your area

Recommended CO detector locations in commercial occupancies:

- ✓ Outside each separate sleeping area in the immediate vicinity of the bedrooms (including areas such as hotel rooms and dorm rooms)
- ✓ On every occupied level of a dwelling unit, including basements, but excluding attics and crawl spaces
- ✓ Centrally located on every habitable level of the building and in every HVAC zone based on an engineering evaluation considering potential sources and migration of carbon monoxide
- ✓ On the ceiling in the same room as permanently installed fuel-burning appliances
- ✓ In any area required by local building codes, legislation, or the authority having jurisdiction
- ✓ On a firm, permanent surface

Do not install the CO detector:

- ✘ Within 5 ft. (1.5 m) of any cooking appliance
- ✘ Within 10 ft. (3 m) of a fuel-burning appliance
- ✘ Near air conditioners, heating registers, and any other ventilation source that may interfere with CO gas entering the detector
- ✘ Where furniture or draperies may obstruct the airflow
- ✘ In a recessed area

Operation

SafeTest functional test: This test facilitates the use of CO test spray to verify the correct operation of the detector, which is mandatory per NFPA 720. The SafeTest mode is activated by pressing and holding the test/hush button for 5-10 seconds. While in SafeTest mode, directing UL-classified CO testing spray at the sensor port will result in the activation of the alarm relay, and the sounder and red LED in a temporal-four pattern. Pressing and holding the test/hush will exit SafeTest mode.

Distinct temporal-four sounder alarm: The 85 dB temporal-four sounder provides a distinctive alarm notification that is easy to differentiate from smoke alarm notification devices. The alarm beeps four times, rests five seconds and then repeats the pattern.

Test/hush button: Use the test/hush button to test the alarm and silence an activated alarm. Pushing the test/hush button silences the integral sounder for five minutes. The red alarm light stays on and if CO is still present after five minutes, the detector once again sounds in the temporal-four pattern.

End of sensor life indicator: The detector uses both a flashing green LED and intermittent sounder chirps to indicate that the detector needs replacing. To silence the detector, push the test/hush button. The detector also begins signaling a trouble when the CO sensor is approaching end-of-life.

Common trouble relay: The trouble relay opens to indicate a trouble condition upon lost power, CO sensor cell trouble, or cell end-of-life. When connected to a listed control panel, the trouble relay can report a trouble condition locally at the panel and optionally at the central station, if the system is monitored.

WARNINGS: Connect the CO detector only to a zone dedicated exclusively for CO detection and that is monitored 24 hours a day. Do not connect to an initiating circuit with fire or security devices. Failure to properly install, test, and maintain a CO detector may cause it to fail, potentially resulting in loss of life.

Installation

The 260-CO Carbon Monoxide Detector is a four-wire device designed to use a Class 2 output from a control panel or auxiliary power supply Listed to UL 985 or 864 standards.

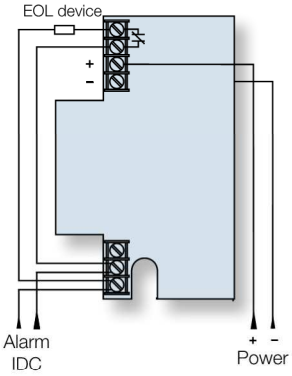
All wiring must conform to the NFPA 70 National Electric Code, UL 2075, NFPA 720, and applicable codes. Use 14 to 22 AWG wire.

The 260-CO adapter plate

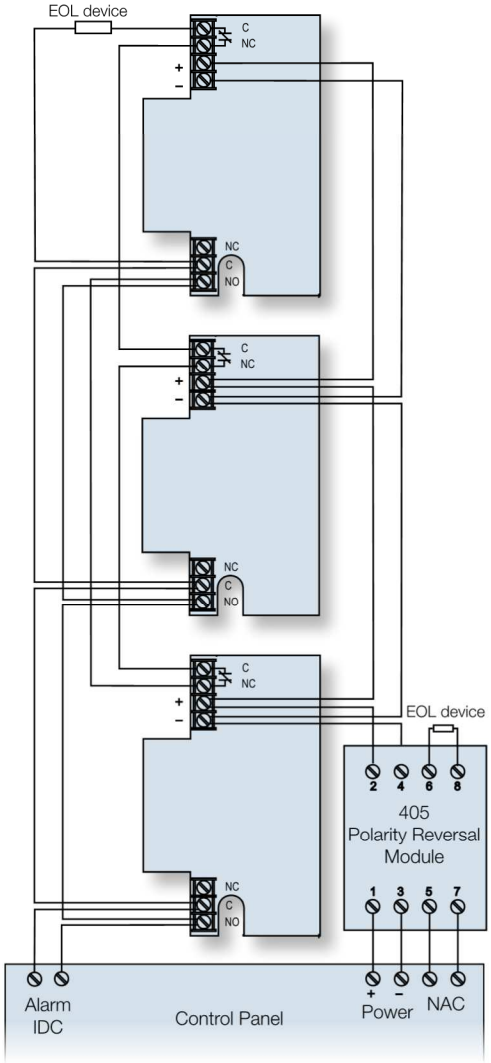
Use a 250-COPLT adaptor plate when replacing a 240-COe with a 260-CO to cover any paint discoloration left behind.

Wiring

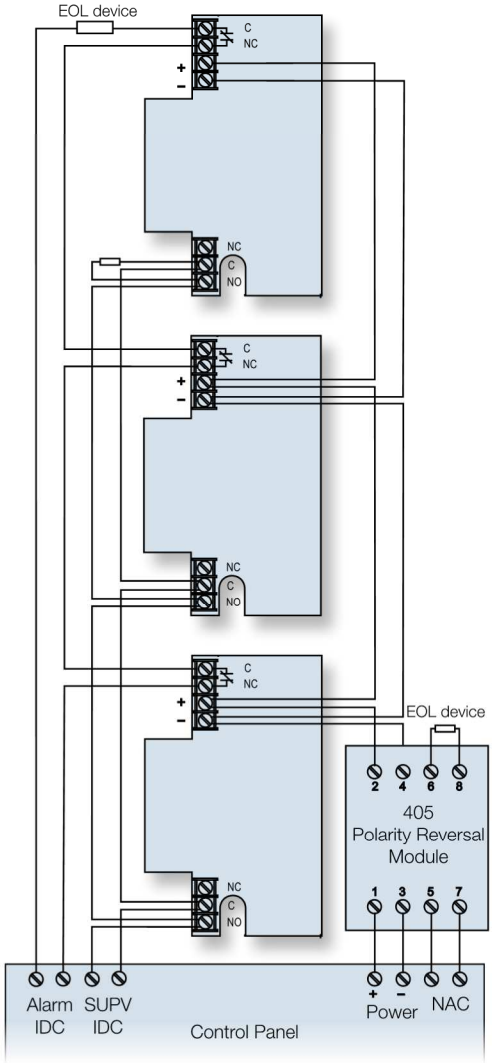
Single device, single zone



Multiple devices, single zone



Multiple devices, separate alarm, trouble zone



Tandem Interconnect:

Use a Single Circuit Reversal Module when wiring multiple 260-CO detectors for tandem interconnect. On alarm, the module disconnects the detector from its normal power supply and applies reverse polarity from the notification appliance circuit. This causes the sounders to activate on other 260-CO detectors that are on the same loop. Only the initiating detector will sound *and* blink red. All others in tandem mode will sound but not blink red.

LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Specifications

Input voltage	12 or 24 VDC supplied by UL 985 or UL 864 listed control panel or resettable auxiliary power supply
Current consumption	
Normal	20 mA
Alarm	40 mA (75 mA in test)
Alarm relay	150 mA at 33 VDC
Type	Form C
UL rating	Zone
Common trouble relay	150 mA at 33 VDC
Type	Normally opened held closed with power applied
UL rating	Common
Sensor life	10 years from date of manufacture
Sounder	85 dB
Compatible control panel	Listed to UL 985 or 864 standards
Compatible electrical box	2-1/2 in. (64 mm) single-gang
Wire size	14 to 22 AWG (0.25 to 2.0 mm²)
Dimensions (W × L × D)	
Detector	3.1 × 4.6 × 1.4 in. (7.8 × 11.7 × 3.6 cm)
Adapter plate	4.5 × 6.5 × 0.2 in. (11.4 × 16.5 × 0.5 cm)
Color	White
Operating environment	
Temperature	40 to 100 °F (4.4 to 37.8 °C)
Relative humidity	10 to 90% noncondensing
CO sensitivity	70 ppm, 60 to 240 minutes 150 ppm, 10 to 50 minutes 400 ppm, 4 to 15 minutes

Ordering Information

Model	Description
260-CO	Carbon monoxide detector, alarm & trouble relays, sounder, end-of life signal, 12/24VDC
ESL 405-01	Polarity Reversal Module, 24 VDC
CO Gas Test Spray	Functional CO gas test spray Solo C-6 from SDI (www.sdifire.com) available through security distribution.

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMEN

Multi-Voltage Control Relay

Model PAM1

S3403

Overview

The PAM1 Relay is encapsulated multi-voltage device providing 10 Amp Form C contacts. The relay may be energized by one of three input voltages: 24 Vac, 24 Vdc, or 115 Vac.

A red LED is provided which, when illuminated, indicates the relay coil is energized.

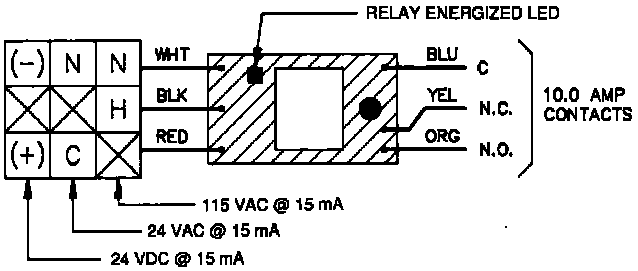
The PAM1 may be mounted by using the double-sided adhesive tape, the self-drilling screw, or loosely placed in a back box.

The PAM1 is ideal for applications where remote relays are required for control or status feedback. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management, and Lighting Control Systems.

Standard Features

- Completely encapsulated 10 Amp relay
- Relay may be energized by one of three input voltages
- Contains a red LED which illuminates when relay coil is energized
- May be mounted by double-sided adhesive tape, self-drilling screw or placed in back box
- Convenient 6 in (150mm) wire leads for electrical connections

Wiring



LIFE SAFETY & INCIDENT MANAGEMENT

Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

8985 Town Center Pkwy
Bradenton, FL 34202

Specifications

Power Requirments	15 mA per position @ 24 Vdc, 24 Vac, 115 Vac
Relay	UL Recognized SPDT
Contact Rating	10 Amps @ 115 Vac
Ambient Temperature	-58°F to 185°F (-50°C to 85°C)
Approvals	UL Recognized components
Dimensions	1.5 H x 1 W .875 D inches (38.1 x 24.5 x 22.2 mm) with 6 inch (150mm) wire leads 18 AWG (1.00mm²)

Ordering Information

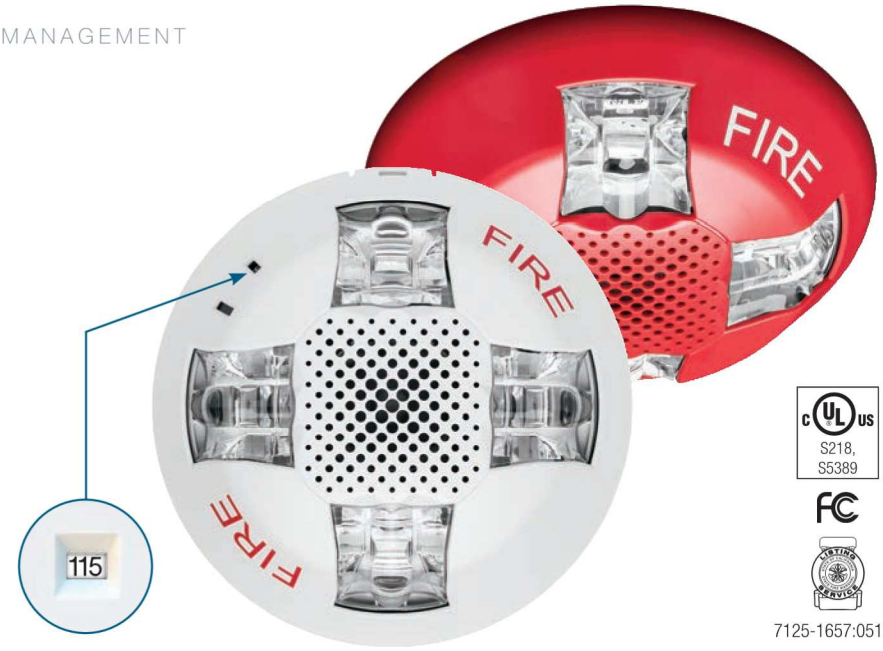
Model	Description
PAM1	Single SPDT relay with LED double-sided adhesive tape, mounting screw and 6 in (150 mm) leads.

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Genesis LED GC Series

Ceiling Mount Notification Devices



c UL us S218, S5389

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FM APPROVED

Overview

Genesis LED GC Series horns and LED strobes feature a sleek low profile design and energy-efficient technology that makes them less expensive to install and operate by reducing overhead. High performance LEDs require fewer power supplies, backup power, and batteries. These new appliances are designed with, energy-efficiency, and life safety in mind.

Genesis LED GC Series uses high efficiency optics, combined with patented electronics, to deliver a highly controlled and efficiently focused light distribution pattern in exchange for lower current requirements. Strobes feature field-selectable 15, 30,75, or 115 cd light output.

Compared with Xenon-type strobes, Genesis LED GC Series appliances need fewer power supplies and often smaller wire gauge, which lightens conduit requirements. They are also backwards compatible with legacy strobes, so there's no need to replace all your existing devices to upgrade to new LED technology. In fact, GC strobes can be mixed on the same circuit and used in the same field of view as Xenon-based strobes. This makes Genesis LED GC Series ideal for new installations and retrofits alike.

Field-configurable sound output levels provide the flexibility modern life safety projects demand, while the Genesis LED control protocol keeps multiple strobes on compatible NAC circuits synchronized to well within NFPA 72 requirements.

Serviceability is another area where GC Series appliances shine. The universal room side wiring plate allows for pre-installation and electrical wiring as well as checking continuity with the included diagnostics check bar. GC Series devices can then be easily snapped into place with the confidence of knowing the wiring is correct. The innovative under-cover diagnostic test points provide easy access to device circuit testing while mounted.

Standard Features

- **High Performance LED Strobe Technology**
  - – Ultra low device current consumption allows:
    - – More devices per circuit
    - – Ability to use lower gauge wire
    - – Longer wire runs
    - – Fewer booster power supplies
  - – High efficiency optics
  - – Selectable 15, 30, 75, or 115 cd light output
  - – LED devices may be mixed with legacy Xenon strobes
- **Efficient Audible Output**
  - – Selectable high or low dB horn output
  - – Selectable temporal or steady horn output
  - – Improved audio frequency range for better wall penetration
- **Low-profile Design**
  - – Ultra-slim... protrudes about 1.5" from the mounting surface
  - – Attractive appearance... no visible mounting screws
- **Multiple "FIRE" Marking Options**
  - – Order English, French, Spanish or no FIRE markings
  - – Change markings at any time with replaceable quick-swap covers
- **Easy to Install**
  - – Pre-install and pre-wire with convenient universal room side wiring plate
  - – Check electrical continuity on room side wiring plate with included diagnostics check bar
  - – Diagnostics port streamlines device circuit testing
  - – Fits 1-gang, 2-gang, 4-inch octagon, and 4-inch square electrical boxes
  - – Optional red and white trim plates available
  - – Slide switches for field configuration
  - – 12 to 18 AWG in-out screw terminals for quick wiring

Application

Strobes

Genesis GC Series strobes are UL 1971-listed for use indoors as ceiling-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed 105 dBA (87 dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act*.

Synchronization is important in order to avoid triggering seizures in people with photosensitive epilepsy. All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. See the specifications table for a list of compatible sources.

Horns

Genesis horn output reaches as high as 92 dBA and features an improved audio frequency range compared with other Genesis horns. This results in excellent sound penetration through walls and a clear warning of danger. Horn only models may be configured for either coded or non-coded notification appliance circuits. They can also be set for high or low dBA output. This setting reduces horn output by about 6 dBA.

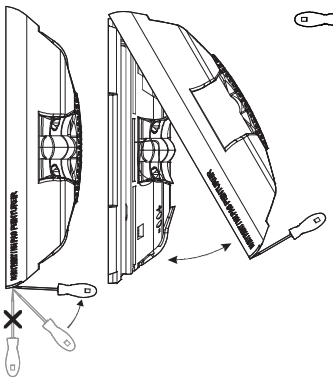
The suggested sound pressure level for each signaling zone used with alarm signals is at least 15 dBA above the average ambient sound level, or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater. These values are measured at five feet (1.5 m) above the floor. The average ambient sound level is A-weighted, fast response sound pressure measured over a 24-hour period.

Doubling the distance from the signal to the ear will theoretically result in a 6 dBA reduction of the received sound pressure level. The actual effect depends on the acoustic environment in the space. A 3 dBA difference represents a barely noticeable change in volume.

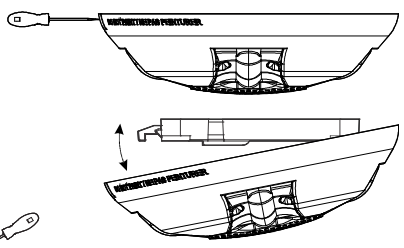
Installation

Genesis GC horns and strobes mount to the required GP10 room side wiring plate. The GP10 mounting plate is ordered separately from the GC device in packs of 10 for convenient pre-installing and pre-wiring. The device can be removed easily from the room side wiring plate by pushing up with a screwdriver. The cover can also be removed from the device easily with a screwdriver to access the light and sound output settings and a diagnostics test port for voltage testing.

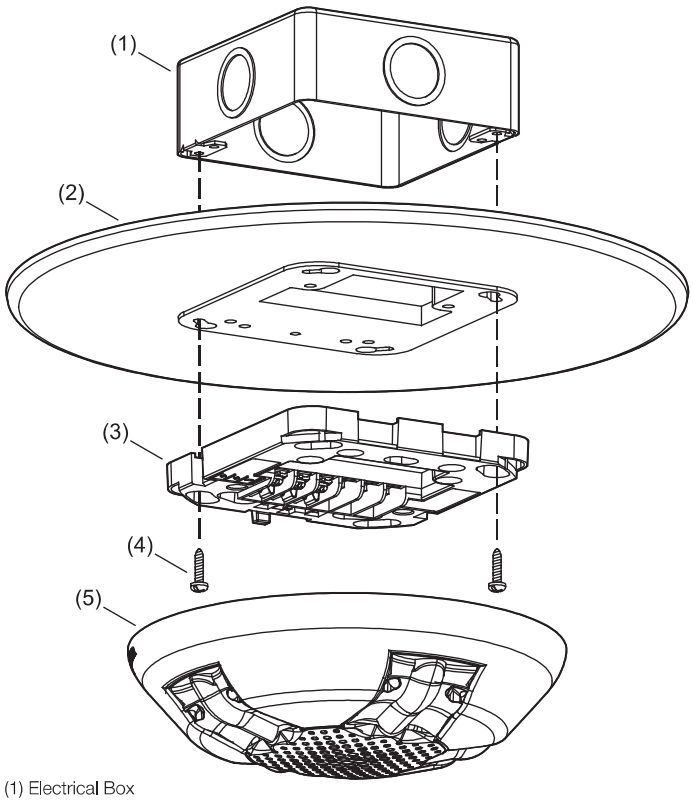
Removing Cover



Removing Device

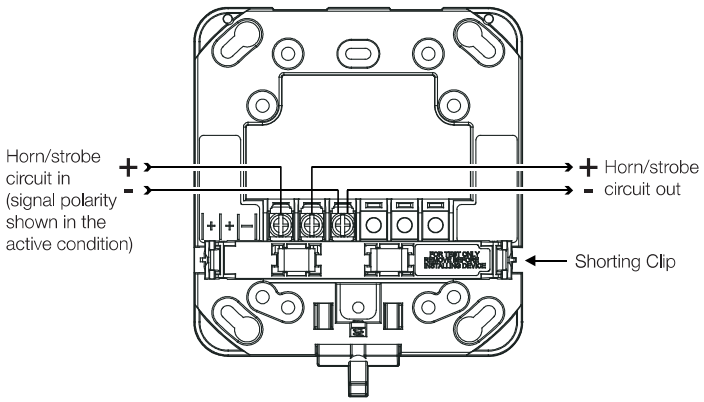


Genesis LED GC Series horns, strobes, and horn-strobes mount to any standard one-gang, two-gang, 4-inch octagon, and 4-inch square electrical box. Matching optional GCT trim rings are available to cover oversized openings. Optional color matched double-gang surface boxes are also available. Genesis LED GC series are listed to be both wall mounted or ceiling mounted.



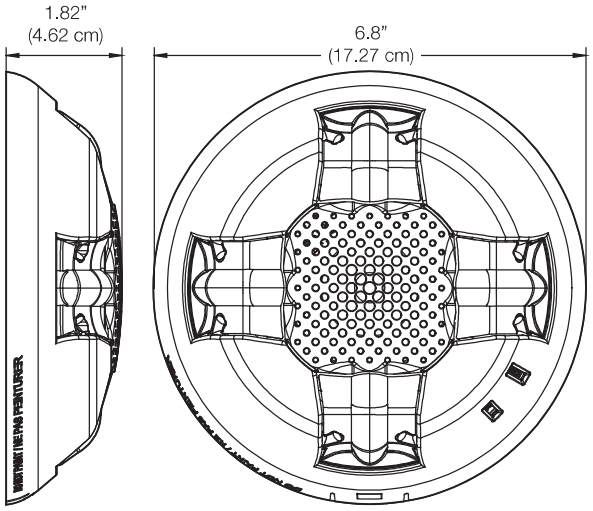
(1) Electrical Box
(2) Trim Plate (optional)
(3) Wiring plate (required, ordered separately)
(4) Machine screw (2X, supplied with wiring plate)
(5) GC signaling appliance

Wiring

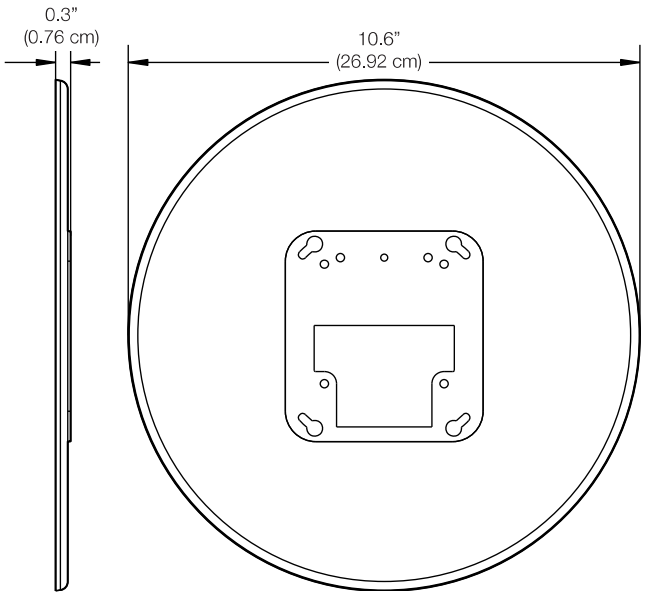


Dimensions

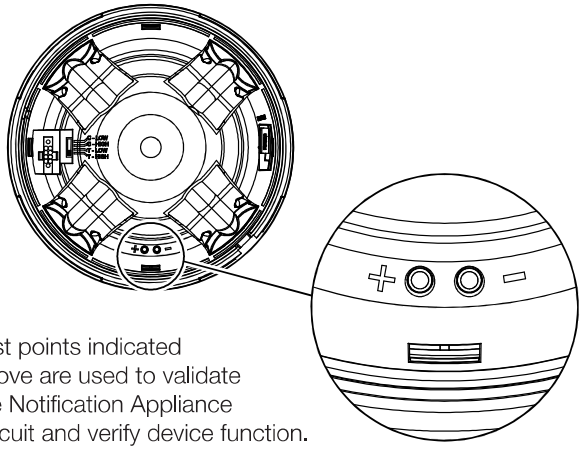
GC Notification Appliances



GCT Trim Plate (optional)



Diagnostics



Test points indicated above are used to validate the Notification Appliance Circuit and verify device function.

Field Configuration

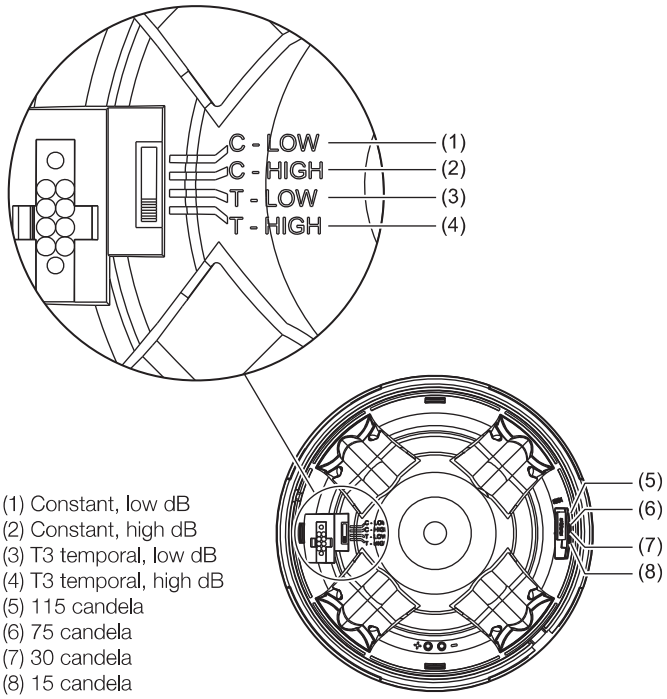
Temporal horn and horn-strobe models are factory set to sound in a three-pulse temporal pattern. By sliding the tone selector switch, horn only models may be configured for constant horn output that can be coded at precise intervals by EDWARDS control panels and control modules.

Note: Temporal 3 coding is the required output for fire notification devices per NFPA 72. Any device coding other than temporal 3 is at the discretion and approval of the local authority having jurisdiction (AHJ).

Horns and horn-strobes are factory set for high dB output. Low dB output may be selected by sliding the tone selector switch. This reduces the output by about 6 dBA.

Genesis LED clear strobes and horn-strobes may be set for 15, 30, 75, or 115 candela output. The output setting is changed by simply removing the cover and sliding the candela switch to the desired setting. The device does not have to be removed from the wall to change the output setting. The setting remains visible through a small window on the device after the cover is closed.

Light and Sound Output Settings



(1) Constant, low dB
(2) Constant, high dB
(3) T3 temporal, low dB
(4) T3 temporal, high dB
(5) 115 candela
(6) 75 candela
(7) 30 candela
(8) 15 candela

Operating current

Horns

Sound setting	16 to 33 VDC	16 to 33 VFWR
C-Low, T-Low	20 mA	25 mA
C-High, T-High	30 mA	40 mA

Strobes

Strobe setting	16 to 33 VDC	16 to 33 VFWR
15, 30, 75, 115	35 mA	45 mA

Horn-Strobes

Strobe setting	Sound setting	16 to 33 VDC	16 to 33 VFWR
15, 30, 75, 115	C-Low, T-Low	50 mA	60 mA
	C-High, T-High	60 mA	75 mA

Sound Output

Horn & Horn-Strobe

Sound setting	Reverberant (UL464)	Anechoic (CAN/ULC - S525)
C-Low, T-Low	80 dBA	86 dBA
C-High, T-High	86 dBA	92 dBA

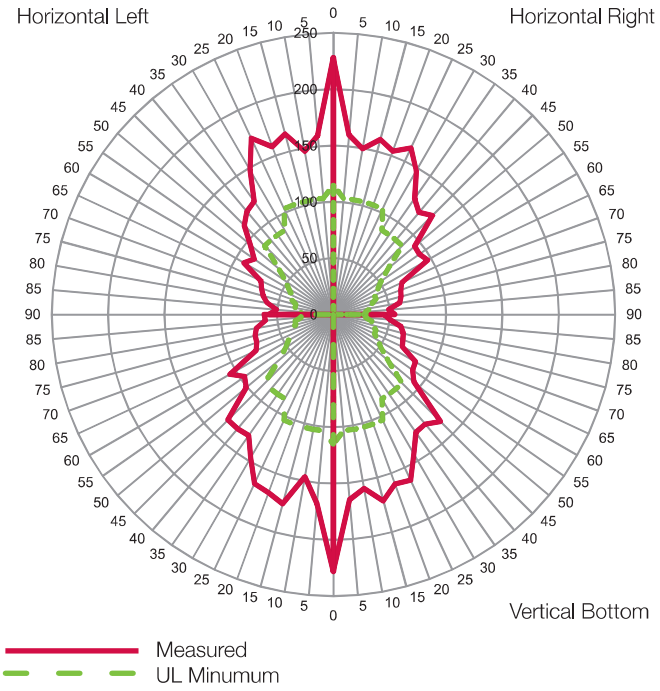
Sound pattern – Horn Models (ULC)

Axis	Angle (°)	Output (dBA)
Horizontal	115 and 55	93.3
Vertical	125 and 50	91.7

Sound pattern – Horn-Strobe Models (ULC)

Axis	Angle (°)	Output (dBA)
Horizontal	145 and 35	93.0
	155 and 35	90.8
Vertical	135 and 35	92.0
	155 and 25	85.4

Light Distribution



Specifications

Operating voltage	16 to 33 VDC, 16 to 33 VFWR
Horn signal type	Constant or TC3 temporal
Light output	15, 30, 75, or 115 candela
Strobe flash rate	1 fps (flash per second) approx.
Synchronization	20 Ω max. between any two devices. To determine allowed wire resistance, refer to these specifications, and the specifications for the synchronized signal source.
Synchronization Sources	Edwards CC Series Signal Modules, Booster and Auxiliary Power Supplies, Intelligent and Conventional Control Panels
Wire size	12 to 18 AWG (0.75 to 2.50 mm^2)
Mounting	Wall or Ceiling mount
Dimensions (Ø × D)	6.8 × 1.82 in. (17.27 × 4.62 cm)
Strobe-to-box center offset	-1.70 inches (-4.32 cm)
Compatible electrical boxes [1]	1-gang, 2-gang, 4-inch octagon, 4-inch square
Trim plates	GCTR, GCTW 10.6 × 0.3 in. (26.92 × 0.76 cm)
Operating environment Temperature Relative humidity	 32 to 122°F (0 to 50°C) 0 to 93% noncondensing
Storage Temperature	-40 to 158 F (-40 to 70 C)

[1] Electrical boxes must be at least 1-1/2 in. (3.81 cm) deep.

Ordering Information

Notification Appliances		Color	Marking
 Horns	GCARF	Red	FIRE
	GCARF-FR	Red	FEU
	GCARF-SP	Red	FUEGO
	GCARN	Red	None
	GCAWF	White	FIRE
	GCAWF-FR	White	FEU
	GCAWF-SP	White	FUEGO
	GCAWN	White	None
 Strobes	GCVRF	Red	FIRE
	GCVRF-FR	Red	FEU
	GCVRF-SP	Red	FUEGO
	GCVRN	Red	None
	GCVWF	White	FIRE
	GCVWF-FR	White	FEU
	GCVWF-SP	White	FUEGO
	GCVWN	White	None
 Horn-strobes	GCAVRF	Red	FIRE
	GCAVRF-FR	Red	FEU
	GCAVRF-SP	Red	FUEGO
	GCAVRN	Red	None
	GCAVWF	White	FIRE
	GCAVWF-FR	White	FEU
	GCAVWF-SP	White	FUEGO
	GCAVWN	White	None

Replacement Appliance Covers		Color	Marking
 Horn Covers	GCARA-CVR	Red	ALERT
	GCARF-CVR	Red	FIRE
	GCARF-FR-CVR	Red	FEU
	GCARF-SP-CVR	Red	FUEGO
	GCARN-CVR	Red	None
	GCAWA-CVR	White	ALERT
	GCAWF-CVR	White	FIRE
	GCAWF-FR-CVR	White	FEU
	GCAWF-SP-CVR	White	FUEGO
	GCAWN-CVR	White	None
 Strobe Covers	GCVRA-CVR	Red	ALERT
	GCVRF-CVR	Red	FIRE
	GCVRF-FR-CVR	Red	FEU
	GCVRF-SP-CVR	Red	FUEGO
	GCVRN-CVR	Red	None
	GCVWA-CVR	White	ALERT
	GCVWF-CVR	White	FIRE
	GCVWF-FR-CVR	White	FEU
	GCVWF-SP-CVR	White	FUEGO
	GCVWN-CVR	White	None
 Horn-strobe Covers	GCAVRA-CVR	Red	ALERT
	GCAVRF-CVR	Red	FIRE
	GCAVRF-FR-CVR	Red	FEU
	GCAVRF-SP-CVR	Red	FUEGO
	GCAVRN-CVR	Red	None
	GCAVWA-CVR	White	ALERT
	GCAVWF-CVR	White	FIRE
	GCAVWF-FR-CVR	White	FEU
	GCAVWF-SP-CVR	White	FUEGO
	GCAVWN-CVR	White	None

Accessories

GP10

Or

GRSW-10

Room Side Wiring Plate (required, ordered separately)

GCTR — Trim plate, GC Series, red

GCTW — Trim plate, GC Series, white

27193-21 — Two-gang surface mount box, red

27193-26 — Two-gang surface mount box, white

Model Number Syntax, Appliances

Genesis Series
GC = Ceiling mount appliances

Housing Color
R = Red
W = White

GCAVRF

Housing Marking
N = None
F-FR = FEU
F-SP = FUEGO
F = FIRE
A = ALERT*

Functions
A = Horn only
V = Strobe only
AV = Horn-Strobe

* ALERT Marking available on white strobe model only. See replacement covers for more options.

Model Number Syntax, Replacement Covers

Genesis Series
GC = Ceiling mount appliances

Housing Color
R = Red
W = White

GCAVRF-CVR

Cover Designation

Cover Marking
N = None
F-FR = FEU
F-SP = FUEGO
F = FIRE
A = ALERT

Functions
A = Horn only
V = Strobe only
AV = Horn-Strobe

LIFE SAFETY & INCIDENT MANAGEMENT

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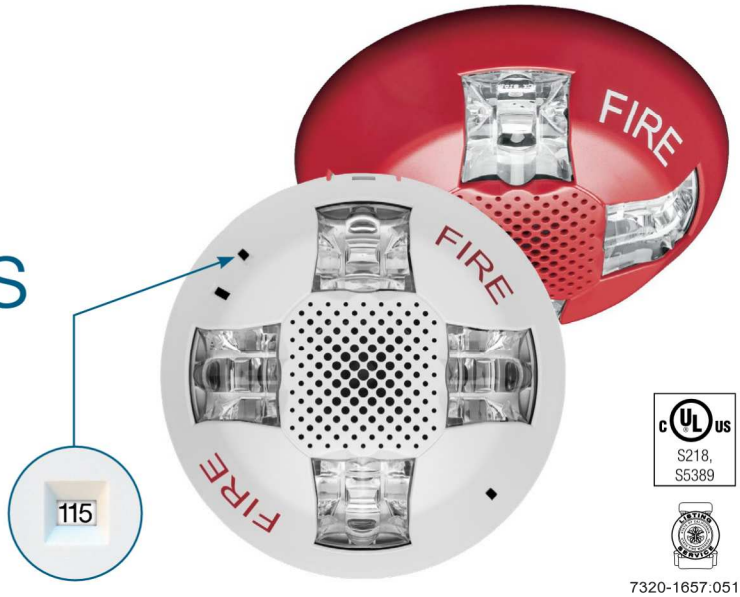
EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

Ceiling Mount Speakers and Speaker-Strobes

Genesis LED GCS Series



cULus S218, S5389

7320-1657:0516

Overview

Genesis LED GCS Series speakers and speaker-strobes combine high performance output with a sleek low profile design and energy-efficient technology that makes them less expensive to install and operate. High performance LEDs require fewer power supplies, backup power, and batteries. These new appliances are designed with energy-efficiency, and life safety in mind.

Speakers feature selectable wattage taps, while speaker-strobes allow for both wattage and light output levels to be configured in the field. Both settings remain clearly visible — even after final installation. Speakers are also capable of both 25V and 70V and voltage in a single model with a field selectable switch. All this flexibility allows devices to be easily fine-tuned to exactly how they're needed to perform. All Genesis speakers include a DC blocking capacitor to allow electrical supervision of the audio distribution circuit.

Genesis LED GCS Series uses high efficiency optics, combined with patented electronics, to deliver a highly controlled and efficiently focused light distribution pattern in exchange for lower current requirements. Strobes feature field-selectable 15, 30,75, or 115 cd light output.

Compared with Xenon-type strobes, Genesis LED GCS Series appliances offer greatly reduced current draw which provides benefits in longer circuit lengths, more devices per circuit, smaller wire gauge and reduced power supply quantities for an installation. They are also backwards compatible with legacy strobes, so there's no need to replace all your existing devices to upgrade to new LED technology. In fact, GCS strobes can be mixed on the same circuit and used in the same field of view as Xenon-based strobes. This makes Genesis LED GCS Series ideal for new installations and retrofits alike.

Field-configurable sound output levels provide the flexibility modern life safety projects demand, while the Genesis LED control protocol keeps multiple strobes on compatible NAC circuits synchronized to well within NFPA 72 requirements. They also meet NFPA and UL 520Hz requirements for sleeping areas making them ideal for new construction or retrofits.

GCS Series speakers produce crisp, clear voice audio output that is highly intelligible over large areas. In an emergency, intelligibility is critical to life safety. Understanding the content of the message is as important as knowing there is an emergency. Intelligibility is measured in Speech Transmission Index and anything above .76 is considered excellent. GCS Series speakers deliver audio with an STI of .81 ensuring the message is clear.

Serviceability is another area where GCS Series appliances shine. The universal room side wiring plate allows for pre-installation and electrical wiring as well as checking continuity with the included diagnostics check bar. GCS Series devices can then be easily snapped into place with the confidence of knowing the wiring is correct. The innovative under-cover diagnostic test points provide easy access to device circuit testing while mounted.

Standard Features

- **High Fidelity performance with excellent STI**
  - Increased sound fidelity and audio intelligibility with an STI rating of .81 (More than .76 is excellent)
- **Low Frequency (520Hz) capable**
  - Low frequency output meets NFPA standards for newly constructed commercial sleeping areas
- **High Performance LED Strobe Technology**
  - Ultra low device current consumption allows:
    - More devices per circuit
    - Ability to use lower gauge wire
    - Longer wire runs
    - Fewer booster power supplies
  - High efficiency optics
  - Selectable 15, 30, 75, or 115 cd light output
  - LED devices may be mixed with legacy Xenon strobes on the same circuit and in the same field of view
- **Field flexibility**
  - Speakers are also capable of both 25V and 70V and voltage in a single model with a field selectable switch
  - Speakers feature selectable wattage taps for ¼W, ½W, 1W, and 2W to configure sound output levels in the field
- **Low-profile Design**
  - Ultra-slim... protrudes about 1.5" from the mounting surface
  - Attractive appearance... no visible mounting screws
- **Multiple "FIRE" Marking Options**
  - Order English, French, Spanish or no FIRE markings
  - Change markings at any time with replaceable quick-swap covers
- **Easy to Install**
  - Pre-install and pre-wire with convenient universal room side wiring plate
  - Check electrical continuity on room side wiring plate with included diagnostics check bar
  - Diagnostics port streamlines device circuit testing
  - Fits 2-gang and 4-inch square electrical boxes
  - Optional red and white trim plates available
  - Slide switches for field configuration
  - 12 to 18 AWG in-out screw terminals for quick wiring
- **Current draw is the same for all candela output settings**
  - Easier for new system design
  - Flexible for future changes in light output needs

Application

Strobes

Genesis GCS Series strobes are UL 1971-listed for use indoors as wall or ceiling public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed 105 dBA (87 dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act*.

Synchronization is important in order to avoid triggering seizures in people with photosensitive epilepsy. All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. See the specifications table for a list of compatible sources.

Speakers

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor.

Doubling the distance from the signal to the ear will theoretically cause a 6 dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1W to 2W) will increase the sound pressure level by 3dBA.

High Fidelity Sound

Genesis LED GCS Series High Fidelity appliances feature 87dB of sound output along with a highly intelligible Speech Transmission Index (STI) rating of .81. An STI rating above .76 is considered excellent for speech intelligibility They are also effective in areas subject to high levels of ambient noise.

These appliances are ideal for hotels, dormitories and other residential occupancies that have sleeping areas that require 520Hz tones. In sleeping areas, always ensure that the wattage tap of the speaker is set sufficiently high so that the sound pressure reaches at least 75 dBA at the pillow.

These appliances are part of an end-to-end audio system approved for use in sleeping areas when used in conjunction with approved audio hardware and a factory-supplied 520 Hz tone. Check the System Compatibility List for other 520 Hz signaling requirements.

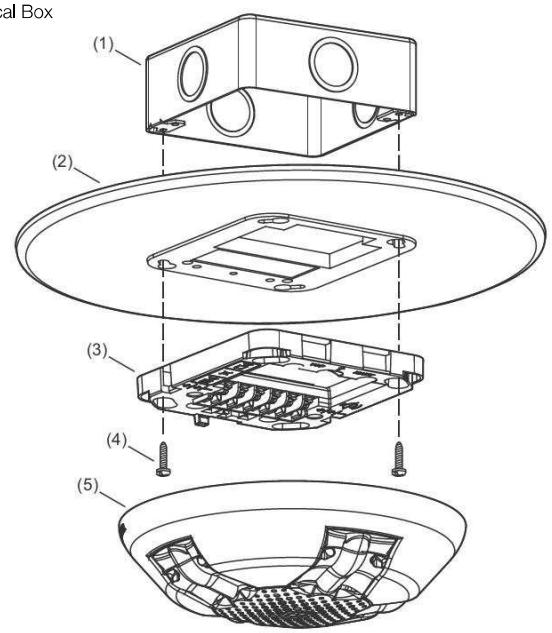
Installation

Genesis GCS speakers and speaker-strobes mount to the required GRSW room side wiring plate. The GRSW mounting plate is ordered separately from the GCS device in packs of 10 (GRSW-10) for convenient pre-installing and pre-wiring. The device can be removed easily from the room side wiring plate by pushing up with a screwdriver. The cover can also be removed from the device easily with a screwdriver to access the light and sound output settings and a diagnostics test port for voltage testing.

Genesis LED GCS Series speakers and speaker-strobes mount to any standard two-gang and 4-inch square electrical box. Matching optional GCT trim rings are available to cover oversized openings. Optional color matched double-gang surface boxes are also available.

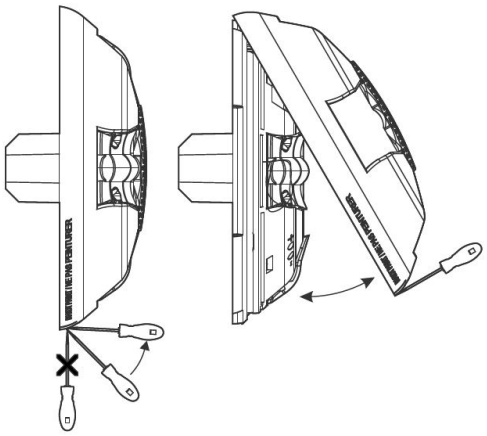
Installation

Electrical Box

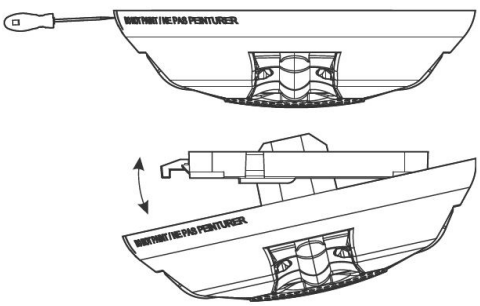


(1) Electrical box
(2) Trim plate (optional)
(3) Wiring plate (required, ordered separately)
(4) Machine screw (2X, supplied with wiring plate)
(5) Notification appliance

Removing Cover

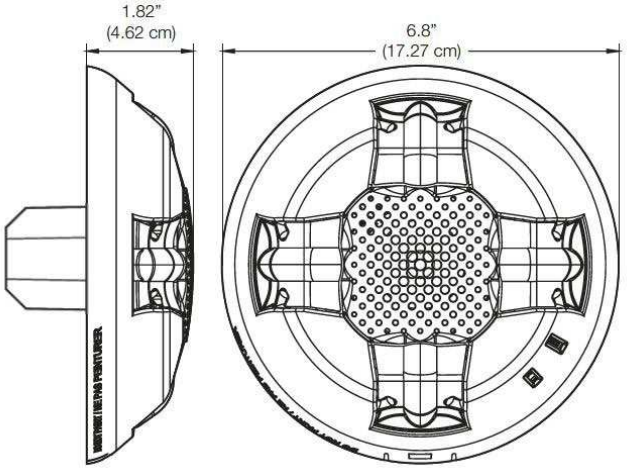


Removing Device

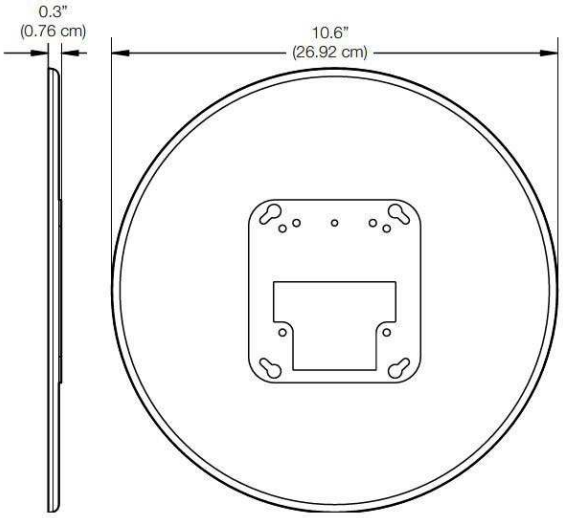


Dimensions

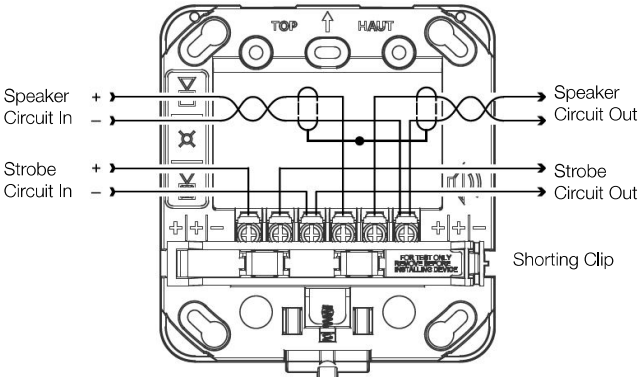
GCS Notification Appliances



GCT Trim Plate (optional)



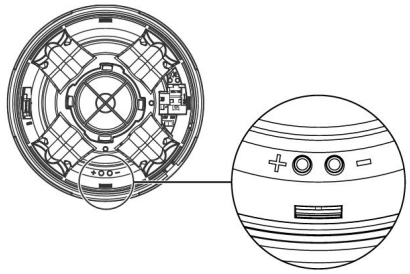
Wiring



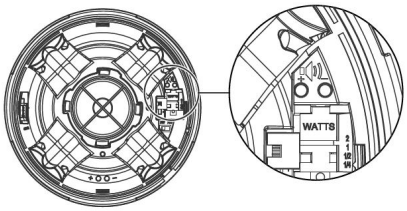
Test points indicated above are used to validate the Notification Appliance Circuit and verify device function.

Diagnostics

Strobe Circuit Test Points



Speaker Circuit Test Points



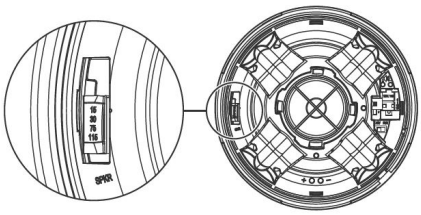
Field Configuration

Genesis LED speakers are capable of both 25V and 70V operation depending on the system, The voltage is set via a switch under the cover. Speakers also may be set for ¼, ½, 1, or 2 watt operation. The wattage setting is visible through a small window on the side of the device and is changed by simply sliding the switch under the cover until the desired setting appears in the window. The speaker does not have to be removed to change the wattage, only the cover skin.

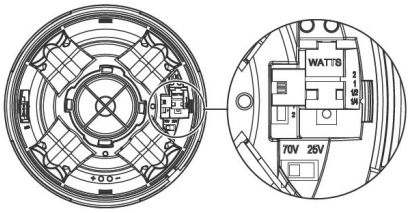
Genesis LED clear strobes and speaker-strobes may be set for 15, 30, 75, or 115 candela output. The output setting is changed by simply removing the cover and sliding the candela switch to the desired setting. The device does not have to be removed from the wall to change the output setting. The setting remains visible through a small window on the left-hand side of the device after the cover is closed.

Light and Sound Output Settings

Light Output Setting (Candela)



Sound Settings (Watts and Volts)



Operating current

Strobes

Strobe setting	16 to 33 VDC	16 to 33 VFWR
15, 30, 75, 115	35 mA	45 mA

Note: Current draw is the same for all candela settings

Sound Level Output

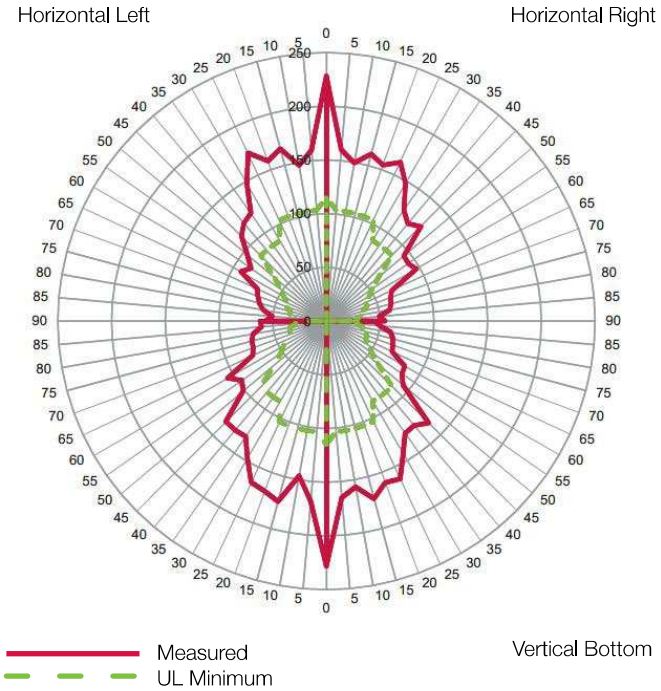
Voltage setting	Wattage setting	Reverberant (UL 1480)	Anechoic (CAN/ ULC-S541)
25V / 70V	¼W	78	77
	½W	81	80
	1W	84	83
	2W	87	86

Sound Output

Sound pattern (ULC)

Axis	Angle	Change in output
Horizontal	120° and 60°	–3 dBA
	140° and 40°	–6 dBA
Vertical	120° and 60°	–3 dBA
	145° and 40°	–6 dBA

Light Distribution



Ordering Information

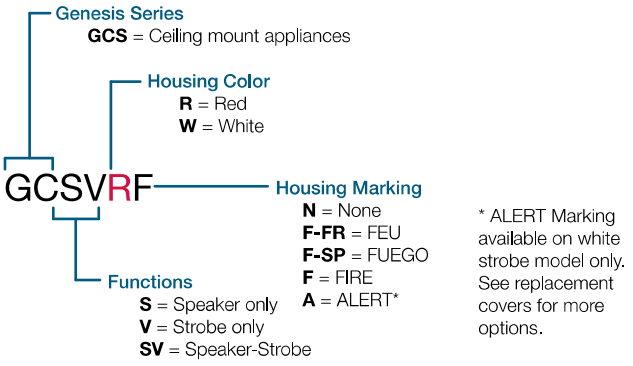
Notification Appliances		Color	Marking
 Speakers	GCSRF	Red	FIRE
	GCSRF-FR	Red	FEU
	GCSRF-SP	Red	FUEGO
	GCSRN	Red	None
	GCSWF	White	FIRE
	GCSWF-FR	White	FEU
	GCSWF-SP	White	FUEGO
	GCSWN	White	None
	GCSWA	White	ALERT
 Speaker-strobes	GCSVRF	Red	FIRE
	GCSVRF-FR	Red	FEU
	GCSVRF-SP	Red	FUEGO
	GCSVRN	Red	None
	GCSVWF	White	FIRE
	GCSVWF-FR	White	FEU
	GCSVWF-SP	White	FUEGO
	GCSVWN	White	None
	GCSVWA	White	ALERT

Replacement Appliance Covers		Color	Marking
 Speaker Covers	GCSRA-CVR	Red	ALERT
	GCSRF-CVR	Red	FIRE
	GCSRF-FR-CVR	Red	FEU
	GCSRF-SP-CVR	Red	FUEGO
	GCSRN-CVR	Red	None
	GCSWA-CVR	White	ALERT
	GCSWF-CVR	White	FIRE
	GCSWF-FR-CVR	White	FEU
	GCSWF-SP-CVR	White	FUEGO
	GCSWN-CVR	White	None
 Speaker-strobe Covers	GCSVRA-CVR	Red	ALERT
	GCSVRF-CVR	Red	FIRE
	GCSVRF-FR-CVR	Red	FEU
	GCSVRF-SP-CVR	Red	FUEGO
	GCSVRN-CVR	Red	None
	GCSVWA-CVR	White	ALERT
	GCSVWF-CVR	White	FIRE
	GCSVWF-FR-CVR	White	FEU
	GCSVWF-SP-CVR	White	FUEGO
	GCSVWN-CVR	White	None

Accessories

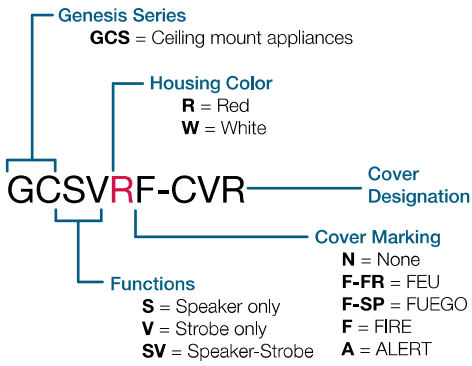
	GRSW-10	Room Side Wiring Plate 10 pack (required, ordered separately)		GCTR	Trim plate, GC Series, red		GCTW	Trim plate, GC Series, white
				27193-21	Two-gang surface mount box, red		27193-26	Two-gang surface mount box, white

Model Number Syntax, Appliances



* ALERT Marking available on white strobe model only. See replacement covers for more options.

Model Number Syntax, Replacement Covers



LIFE SAFETY & INCIDENT MANAGEMENT

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8985 Town Center Pkwy
Bradenton, FL 34202

Specifications

Strobe operating voltage	16 to 33 VDC, 16 to 33 VFWR
Speaker operating voltage	25VRMS of 70VRMS (selectable)
Speaker frequency response	400Hz-4,000Hz
Light output	15, 30, 75, or 115 candela
Strobe flash rate	1 fps (flash per second) approx.
Synchronization	20 Ω max. between any two devices. To determine allowed wire resistance, refer to these specifications, and the specifications for the synchronized signal source.
Synchronization Sources	Edwards CC Series Signal Modules, Booster and Auxiliary Power Supplies, Intelligent and Conventional Control Panels
Wire size	12 to 18 AWG (0.75 to 2.50 mm^2)
Dimensions (Ø × D)	6.8 x 1.82 in (17.27 x 4.62 cm)
Strobe-to-box center offset	-1.70 inches (-4.32 cm)
Compatible electrical boxes [1]	2-gang, 4-inch square
Trim plates	GCTR, GCTW 10.6 × 0.3 in. (26.92 × 0.76 cm)
Operating environment Temperature Relative humidity	 32 to 122°F (0 to 50°C) 0 to 93% noncondensing
Storage Temperature	-40 to 158 F (-40 to 70 C)
RAL Color	Red=RAL 3013 White=RAL 9002

[1] Electrical boxes must be at least 1-1/2 in. (3.81 cm) deep.
(2) Recommend electrical boxes be mounted at 81 inches AFF

EDWARDS
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Outdoor Rated Speakers and Strobes

Genesis WG4 Series

pending

Overview

Genesis WG4 Series speakers and speaker-strobe appliances are among the most versatile emergency appliances of their kind. Rated for indoor or outdoor use, they are suitable for a wide range of wet and harsh environments with a listed operating temperature range of as low as -31°F to as high as 151°F (-35°C to 66°C).

Field-configurable light and sound output settings add to their on-site flexibility, while optional FIRE or ALERT markings and colored lenses make them ideal for either emergency communications/mass notification (ECS/MNS) or fire alarm applications.

These appliances are suitable for indoor and outdoor applications, and are ideal for challenging conditions such as parking garages and process areas. They are listed for mounting on the ceiling or the wall, and thanks to an ingenious full backplane sealing gasket, can be installed to recessed (in-the-pour/block) electrical boxes. WG4 signals also mount to suitable surface boxes served by race-ways. Optional color-matched trim skirts provide a clean, finished appearance. All appliance wiring is accomplished room-side for easy installation.

WG4 Series appliances feature highly intelligible and efficient mylar-cone loudspeakers. These are dual-voltage (25.2V or 70.7V), and have field-selectable output taps ranging from 80.8 dBA to 90.0 dBA. The multi-candela strobes are available with clear or amber lenses and in two output categories – standard and high-output. They are precision-timed to meet UL 1971 synchro-nization standards, and field-configurable for one of four candela intensities. Wattage and candela settings are viewable even after installation through an innovative sealed viewport display.

Standard Features

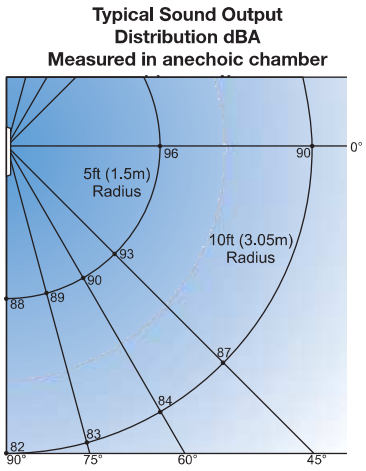
- Outdoor and indoor rated
- Low-profile design
- Wall or ceiling mount
- Room-side wiring accepts 18 to 12 AWG (0.75 to 2.5 mm^2)
- Wide operating temperature range
- Field-selectable speaker wattage, voltage, and strobe candela settings
- Field-configurable temporal strobe output option
- Clear and amber lenses available
- Fully-compatible with Genesis synchronization protocols
- Standard and high-output strobe intensities
- Speaker only and Speaker/Strobe appliance options

Application

Speaker Application

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor.

Doubling the distance from the signal to the ear will theoretically cause a 6dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1W to 2W) will increase the sound pressure level by 3dBA.



Genesis Series Cone Speaker/strobe

Strobe Application

Genesis clear-lensed strobes are UL 1971-listed for use indoors as wall- or ceiling-mounted public-mode notification appliances for the hearing impaired, and UL 1638-listed for outdoor applications. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. UL 1638-listed colored lens strobe lights are available for ECS/MNS and outdoor applications.

Visible appliance synchronization is required to avoid causing issues with people who have Photosensitive Epilepsy (PSE). Notification appliance synchronization is also generally required when more than one strobe appliance are in the same field of view from any one location. All Genesis strobes meet UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source.

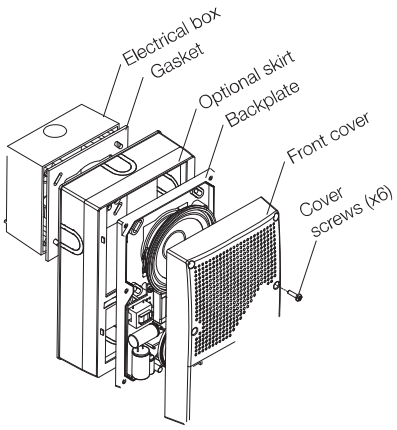
ECS/MNS Application

Genesis ECS/MNS appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Standard models are available with clear or amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between life safety and mass notification alerts. Appliances with red, green or blue lenses are also available. Contact EDWARDS Customer Service for details.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

EDWARDS recommends that these devices always be installed in accordance with the latest recognized edition of national and local codes. Refer to the appropriate codes and standards for mounting height information.

Installation and Mounting



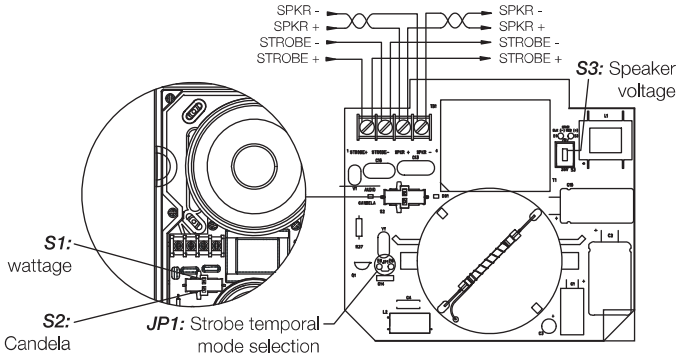
WG4 signals are rated for outdoor use and are suitable for indoor or outdoor applications on walls or ceilings. For surface-mounting in outdoor or wet applications, appliances must be mounted to an EDWARDS 449 electrical box. In dry conditions, they are compatible with standard 4-inch by 1½-inch deep electrical boxes. When using the optional WG4WTS or WG4RTS trim skirt, a 449 or 2-1/8" deep box must be used.

The Genesis WG4 Speaker-Strobe may be wall- or ceiling-mounted, and may be placed in one of four positions: strobe above, strobe below, and strobe to either side. The shallow depth of Genesis devices leaves room behind the appliance for extra wiring.

Field Configuration

Genesis WG4 speakers may be set to 70- or 25-Volt operation, and for ¼, ½, 1, or 2 watt operation. The wattage setting (represented by the letters Z,Y, X, and T) is changed by removing the cover and simply sliding the ***S1*** switch until the desired setting appears. The setting remains visible through a small window on the front of the device after the cover is installed. The voltage setting (70V or 25V) is toggled at ***S3***. This setting is not visible after the cover is replaced.

Genesis WG4 speaker-strobes also feature selectable candela output. The actual light output for a given selection depends on the color of the strobe lens and whether it is a high output model or a standard output model. Refer to the specification tables for corresponding settings. The candela setting (represented by the letters D, C, B, and A) is changed by removing the cover and simply sliding the ***S2*** switch until the desired setting appears. The setting remains visible through a small window on the front of the device after the cover is installed.



Genesis speaker-strobes may also be configured for temporal flash. This power-saving feature is intended for private mode signaling only. To set the device for temporal flash, snip the jumper at ***JP1***.

Specifications

Operating voltage	
Speaker	25 VRMS or 70 VRMS, switch selectable
Default	70 VRMS
Strobe	24 VDC, 24 VFWR nominal
Supervisory voltage	30 V max.
Speaker response	400 to 4,000 Hz
Wire size	12 to 18 AWG (0.75 to 2.50 mm²)
Compatible strobe synchronization sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM, BPS6A, BPS10A, APS6A, APS10A, 3X-SFS1, iO64, iO500, Fireshield Plus 3, 5 and 10 zone.
Compatible electrical boxes	*Wet:* Model 449 (WG4 trim skirt recommended) *Dry:* 4" square by 1-1/2" deep box when used without a trim skirt. When trim skirt is used, box must be 4" square by 2-1/8" deep.
Operating environment	Wet
Temperature	-31 to 151 °F (-35 to 66 °C)
Relative humidity	0 to 95% noncondensing

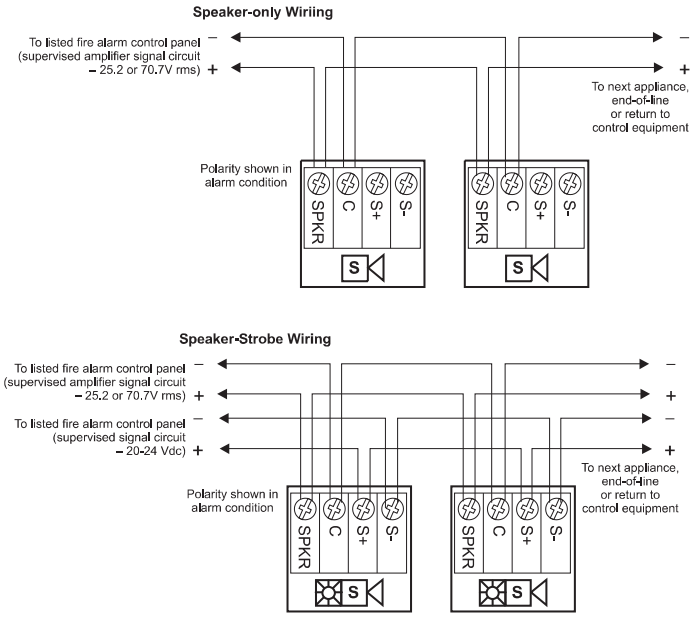
Sound level output (dBA)

Wattage	Switch Position	25 V	70 V
2 W	T	90.0	89.7
1 W	X	87.1	86.9
½ W	Y	84.0	83.9
¼ W	Z	80.8	80.8

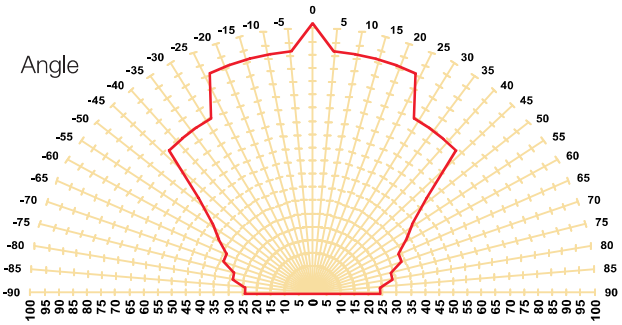
dBA = Decibels, A-weighted.
UL 1480: Sound level output at 10 ft. (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band-limited pink noise.

Wiring

Field wiring is connected to Genesis signals with terminals that accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Light output



UL off-axis candela requirements as a percent of the UL rated output

Indoor rating per UL 1971 (candela)			Strobe Switch Position A	B	C	D
Standard Output Models (-SVMx)	Lens Color	Clear	87	70	29	15
		Amber*	62	59	25	13
	Current	VDC	319	167	144	106
		FWR	386	347	178	120
High Output Models (-SVMHx)	Lens Color	Clear	161	147	123	102
		Amber*	130	125	101	84
	Current	VDC	495	494	390	324
		FWR	646	607	487	412

* UL 1971 Equivalent candela value

Outdoor rating per UL 1638 (candela)			Strobe Switch Position A	B	C	D
Standard Output Models (-SVMx)	Lens Color	Clear	35	28	12	6
		Amber*	25	24	10	5
	Current	VDC	319	167	144	106
		FWR	386	347	178	120
High Output Models (-SVMHx)	Lens Color	Clear	65	60	50	41
		Amber*	52	51	41	34
	Current	VDC	495	494	390	324
		FWR	646	607	487	412

* UL 1971 Equivalent candela value

EDWARDS
United Technologies
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...
Email: edwards.fire@fs.utc.com
Web: *Edwards-fire.com*

EDWARDS is a UTC brand.
1016 Corporate Park Drive
Mebane, NC 27302

Ordering Information

All speakers include field-selectable ¼, ½, 1, or 2 watt taps and selectable 25V or 70V operation.

Model	Housing	Marking	Lens	Strobe Output*	Ship Wt.
Life safety Appliances					
WG4RF-SVMC	Red	FIRE	Clear	Selectable standard output 15/29/70/87 cd	1.5 lbs. (0.68 kg)
WG4WF-SVMC	White				
WG4RN-SVMC	Red	None			
WG4WN-SVMC	White				
WG4RF-SVMHC	Red	FIRE		Selectable high output 102/123/147/161 cd	
WG4WF-SVMHC	White				
WG4RN-SVMHC	Red	None			
WG4WN-SVMHC	White				
WG4RF-S	Red	FIRE	Speaker Only		
WG4WF-S	White				
WG4RN-S	Red	None			
WG4WN-S	White				
ECS/MNS Appliances					
WG4WA-SVMA	White	ALERT	Amber	Selectable standard output 13/25/59/62 cd	1.5 lbs. (0.68 kg)
WG4WN-SVMA		None			
WG4WA-SVMC		ALERT	Clear	15/29/70/87 cd	
WG4WA-SVMHA			Amber	Selectable high output 84/101/125/130 cd	
WG4WN-SVMHA		None			
WG4WN-SVMHC			Clear	Selectable high output 102/123/147/161 cd	
WG4WA-SVMHC		ALERT			
WG4WA-S			Speaker Only		

* See light output tables for more specific strobe values.

Accessories

WG4WTS	Surface Skirt for Genesis WG4 appliance family, white.
WG4RTS	Surface Skirt for Genesis WG4 appliance family, red.
WG4GSKT	Replacement Mounting Gasket
74347U	Surface mount box, outdoor rated

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT™

Fire Alarm Bells

FM APPROVED

MEA

UL UL C S218, S2202

7136-1657: 0150

Overview

EDWARDS Fire Alarm Bells are specially designed for fire alarm applications. The gongs are made of selected alloy steel to give the loud, resonant tones necessary in fire alarm systems.

Two gong sizes are available to overcome different ambient noise level.

The Fire Alarm Bells are of the underdome type with heavy duty mechanisms. Each bell is supplied with a mounting plate that fits any standard single-gang opening (see Installation Data). For weather-proof application EDWARDS offers an optional surface weatherproof back box. Refer to the Specification chart for ap-plicability and cata-log number of the weatherproof back box for the respective bell.

Finish — Standard gong and housing furnished gray with red label. Optional red finish available. **Add Suffix "R" to Catalog Number.**

FM — 438 and 439 Series Bells shown below are FM approved.

Standard Features

- Vibrating and single stroke
- 6 inch (150mm), 8 inch (200mm), 10 inch (250mm) sizes
- Red or gray finish
- Rugged compact mechanism
- Heavy duty cast housing
- Low power drain
- Wide voltage selection
- Indoor or weatherproof

EDWARDS

LIFE SAFETY & INCIDENT MANAGEMENT

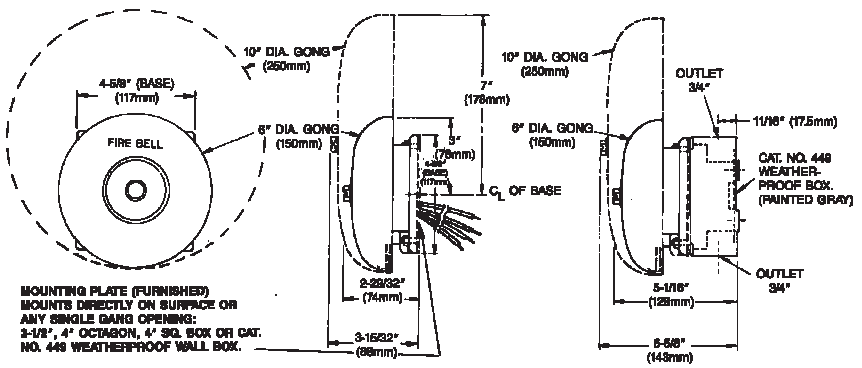
Contact us

Phone: 800-655-4497 (Option 4)
Email: edwards.fire@carrier.com
Website: edwardsfiresafety.com

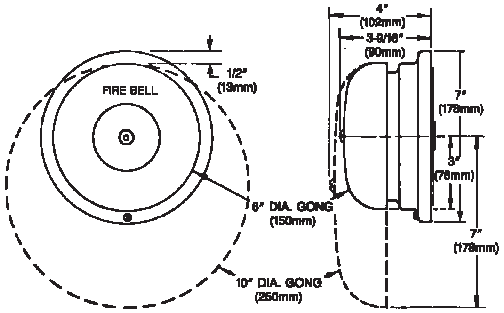
8985 Town Center Pkwy
Bradenton, FL 34202

Installation

Cat. Nos. 438D and 439D 6" and 10" Bells



Cat. Nos. 323D and 10" (254mm) Bells



WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

EDWARDS recommends that these Fire Alarm Bells always be installed in accordance with the latest recognized editions of national and local codes.

Specifications & Ordering Information

Cat. No.	DB @ 10 ft	Description	Volts	Amps	Weatherproof Box
323D-10AW-R	79	10" (250mm) Single Stroke, Diode	20-24 Vdc	0.33	N/A
438D-6N5-R	76	6" (150mm) Vibrating, Diode	120 Vac	0.034	449
438D-10N5-R	88	10" (250mm) Vibrating, Diode	120 Vac	0.034	449
439D-6AW-R	83	6" (150mm) Vibrating, Diode	20-24 Vdc	0.085	449
439D-10AW-R	86	10" (250mm) Vibrating, Diode	20-24 Vdc	0.085	449
438D-8N5-R	86	8" (200mm) Vibrating, Diode	120 Vac	0.034	449
439D-8AW-R	84	8" (200mm) Vibrating, Diode	20-24 Vdc	0.085	449
439D-6AWC	83	6" (150mm) Vibrating, Diode, Red, ULC listed	20-24 Vdc	0.085	449
439D-10AWC	86	10" (250mm) Vibrating, Diode, Red, ULC listed	20-24 Vdc	0.085	449

Mounting Accessories

449	Weatherpoof surface mount box, grey. C/w gasket.

FS&S

FIRE SECURITY AND SOUND, INC.

**SALES AND SERVICE OF FIRE ALARM,SECURITY,
CCTV, COMMUNICATIONS SYSTEMS**

FACP BATTERY CALCULATION

JOB: Dutchess Stadium New Left Field

PANEL: FACP #1, EST4 (3-CAB14B)

	STDBY	ALM
4-CPU	0.211	0.211
4-NET-TP	0.032	0.032
3-MODCOM	0.060	0.095
3-SSDC2	0.144	0.204
4-LCDLE	0.040	0.093
4-AUDTELS	0.085	0.101
4-MIC	0.008	0.038
4-24L12S	0.008	0.008
(3) 3-ZA40B	0.186	4.96
AUX.	0.14	0.28
ANN., 4-NET-TP	0.032	0.032
ANN.	0.173	0.226
	1.119	**6.280**

STANDBY LOAD		STANDBY TIME		
1.12	X	24	=	26.86

ALARM LOAD		ALARM TIME		
6.28	X	0.083	=	0.52

SUM = **27.38**

X DERATING FACTOR OF 1.2 = **32.85**

BATTERIES SUPPLIED = **(2) 40A/HR**

BY: James DiJon

FS&S

FIRE SECURITY AND SOUND, INC.

**SALES AND SERVICE OF FIRE ALARM,SECURITY,
CCTV, COMMUNICATIONS SYSTEMS**

BPS BATTERY CALCULATION

JOB: Dutchess Stadium New Left Field

PANEL: BPS6A #1

	STDBY	ALM
SUPV CURRENT	0.07	0.27
AUD/VIS	0	0.87
AUX	0	0.085
	0.07	**1.225**

STANDBY LOAD		STANDBY TIME		
0.07	X	24	=	1.68

ALARM LOAD		ALARM TIME		
1.225	X	0.083	=	0.10

SUM = **1.78**

X DERATING FACTOR OF 1.2 = **2.14**

BATTERIES SUPPLIED = **7A/HR**

BY: Jeremy Riel

FS&S

FIRE SECURITY AND SOUND, INC.

**SALES AND SERVICE OF FIRE ALARM,SECURITY,
CCTV, COMMUNICATIONS SYSTEMS**

BPS BATTERY CALCULATION

JOB: Dutchess Stadium New Left Field

PANEL: BPS6A #2

	STDBY	ALM
SUPV CURRENT	0.07	0.27
AUD/VIS	0	2.8
AUX	0	0.085
	0.07	**3.155**

STANDBY LOAD		STANDBY TIME		
0.07	X	24	=	1.68

ALARM LOAD		ALARM TIME		
3.155	X	0.083	=	0.26

SUM = **1.94**

X DERATING FACTOR OF 1.2 = **2.33**

BATTERIES SUPPLIED = **7A/HR**

BY: Jeremy Riel

UNIQUE ID NUMBER
12000316972

State of New York
Department of State
DIVISION OF LICENSING SERVICES

FOR OFFICE USE ONLY
Control No. 1534044

EFFECTIVE DATE
MO. 04 | DAY 21 | YR. 23

EXPIRATION DATE
MO. 04 | DAY 20 | YR. 25

PURSUANT TO THE PROVISIONS OF ARTICLE 6D OF THE GENERAL BUSINESS LAW AS IT RELATES TO THE BUSINESS OF INSTALLING, SERVICING, OR MAINTAINING SECURITY OR FIRE ALARM SYSTEMS.

FIRE SECURITY & SOUND SOUTH IN
33 AIRPORT CENTER DR
SUITE 106
NEW WINDSOR, NY 12553

HAS BEEN DULY LICENSED TO ENGAGE IN THE BUSINESS OF INSTALLING, SERVICING, OR MAINTAINING SECURITY OR FIRE ALARM SYSTEMS

QUALIFIER: REILLY JOHN G

In Witness Whereof, The Department of State has caused its official seal to be hereunto affixed.
ROBERT J. RODRIGUEZ
SECRETARY OF STATE

DOS-1098 (Rev. 3/01)

EDWARDS
LEARNING CENTER

This is to certify that

Jeremy Riel

Fire, Security & Sound Systems

has successfully completed

EST4 Certification Course

focusing on the requirements set forth in NFPA 72 2016 Section 10.5.3.5 for Programming Personnel

Course Hour(s): 30

Date Marked Completed: 2/3/2020

Director, Training Operations

NICET®

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES®

Providing Certification Programs Since 1961

BE IT KNOWN THAT

Jeremy M. Riel

IS HEREBY AWARDED THE FOLLOWING CERTIFICATION

Fire Alarm Systems Level IV

Certification Number **123746**

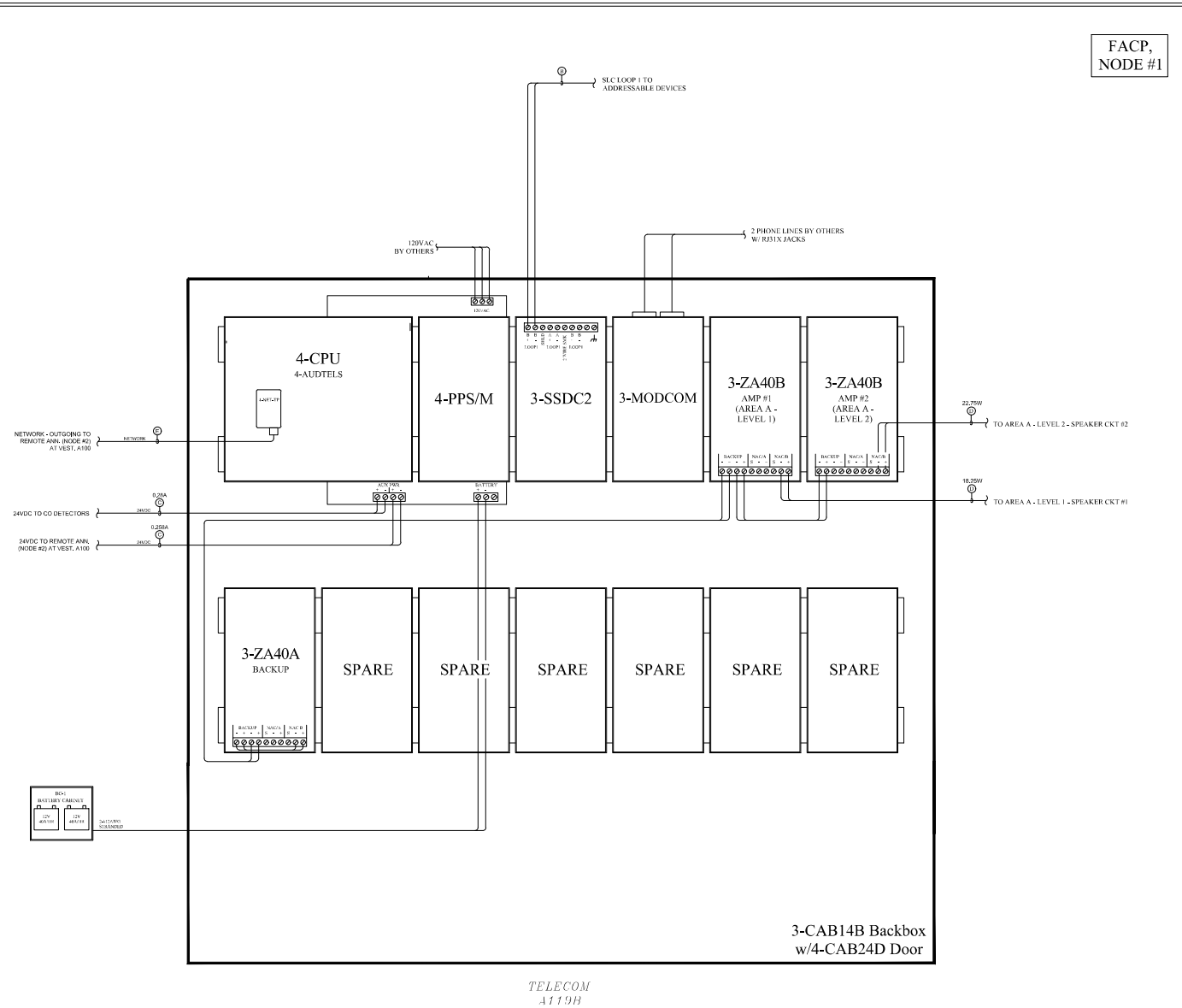
Valid Through **2023-10-01**

VERIFY ONLINE
nicet.org/verify

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

CHAIR OF THE NICET BOARD OF GOVERNORS

A DIVISION OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS



TELECOM
A119B

GENERAL NOTES:

- SEE FS&S SUBMITTAL BOOK FOR FS&S /CONTRACTOR RESPONSIBILITIES.
- REVIEW ALL SUBMITTALS, CATALOG SHEETS, AND DRAWINGS BEFORE STARTING SYSTEM INSTALLATION.
- DO NOT APPLY POWER TO THE SYSTEM UNTIL AN FS&S TECHNICIAN HAS REVIEWED THE SYSTEM INSTALLATION.
- ALL WIRING & CABLES MUST BE RUN IN ACCORDANCE WITH CONTRACT DOCUMENTS, SYSTEM MFG., NEC, NFPA, AND LOCAL CODES.
- DO NOT RUN AC POWER IN THE SAME RACEWAY OR CONDUIT WITH FIRE ALARM, SECURITY, OR COMMUNICATION WIRING.
- OBSERVE POLARITY ON ALL DEVICES AND DRAWINGS.
- TURN OFF ALL POWER WHEN INSTALLING OR REMOVING ANY DEVICE.
- LABEL ALL CABLES IN TERMINAL CABINETS AND JUNCTION BOXES, WITHIN 12" OF ENTRANCE TO PANEL, TO FACILITATE FUTURE TESTS AND INSPECTIONS.
- WHEN WIRING IS COMPLETE, AND BEFORE CONNECTIONS ARE MADE TO THE SYSTEM CONTROL PANEL, CONTRACTOR MUST VERIFY THAT ALL WIRING IS FREE OF SHORTS AND GROUNDS.
  (SHORTS: INCORRECT CONNECTION BETWEEN CONDUCTORS OR WIRES IN THE SAME CONDUIT.)
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- IT IS THE INTENT OF THIS DRAWING TO INDICATE ANY REQUIRED WIRING FOR THE SYSTEM TO OPERATE PER THE CONTRACT DOCUMENTS. THE SIZE AND ROUTING OF ANY CONDUIT, TRAYS, OR JUNCTION BOXES AND THE USE OF ANY INSTALLATION EQUIPMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

FIRE ALARM SYSTEM NOTES:

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WIRE LEGEND

- (A) = 1 PR 9/16AWG
- (B) = 1 TW. PR #16AWG
- (C) = 1 PR 9/14AWG
- (D) = 1 TW.SH. PR #14AWG
- (E) = 1 TW. PR #16AWG (6 TWISTS PER FOOT MIN.)
- (F) = CAT6

NOTE:
ALL FIRE ALARM SYSTEMS MUST BE WIRED WITH FIRE ALARM RATED CABLE.

REV	DATE	DESCRIPTION	BY

FIRE, SECURITY & SOUND SYSTEMS, INC.
4 Avis Drive - Suite 110, Latham, N.Y. 12110
Phone: (518) 250-4364 Fax: (518) 250-2365

SCALE	APPROVED BY	REVISION	DRAWN BY
NONE			JMR
SHEET 1 OF 1		DATE	DATE 6/01/23

Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

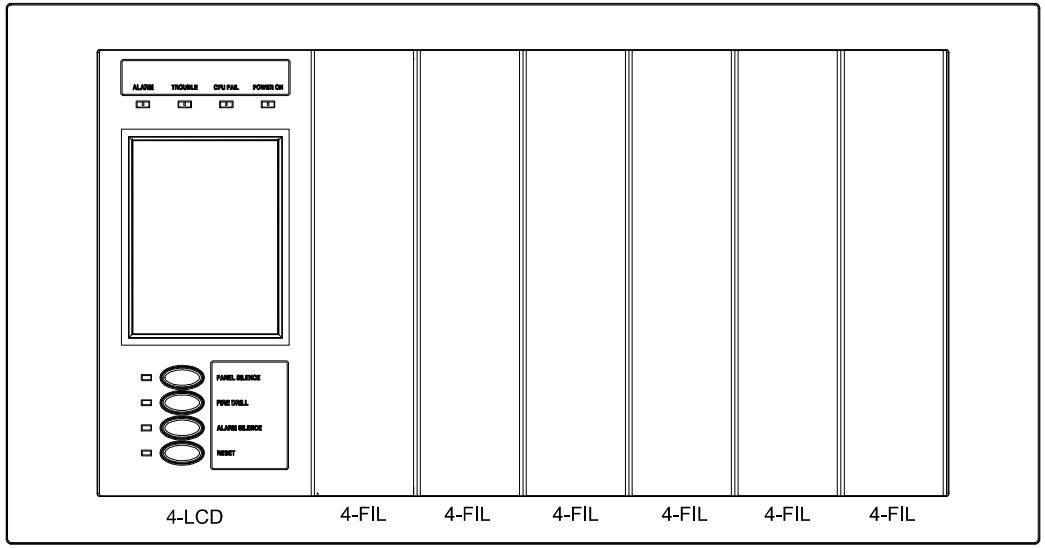
FIRE ALARM SYSTEM
FACP HARDWARE LAYER DIAGRAM

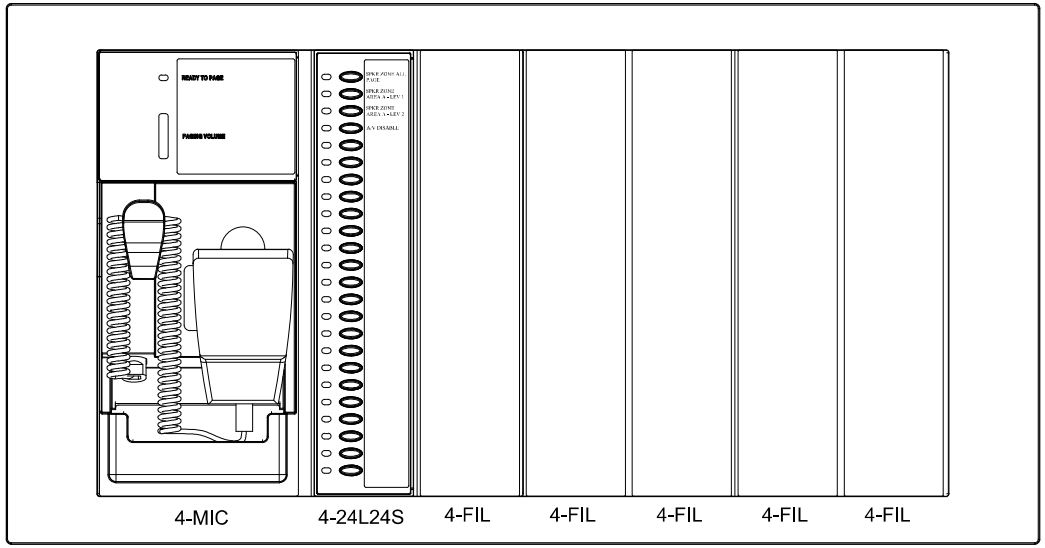
DRAWING NUMBER
D-S-301351-FA1

FACP OPERATOR LAYER

EDWARDS

FACP, NODE #1





3-CAB14B Backbox, 35.5"H x 24.12"W
w/4-CAB24D Door, 37.77"H x 27.64"W

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REV	DATE	DESCRIPTION	BY

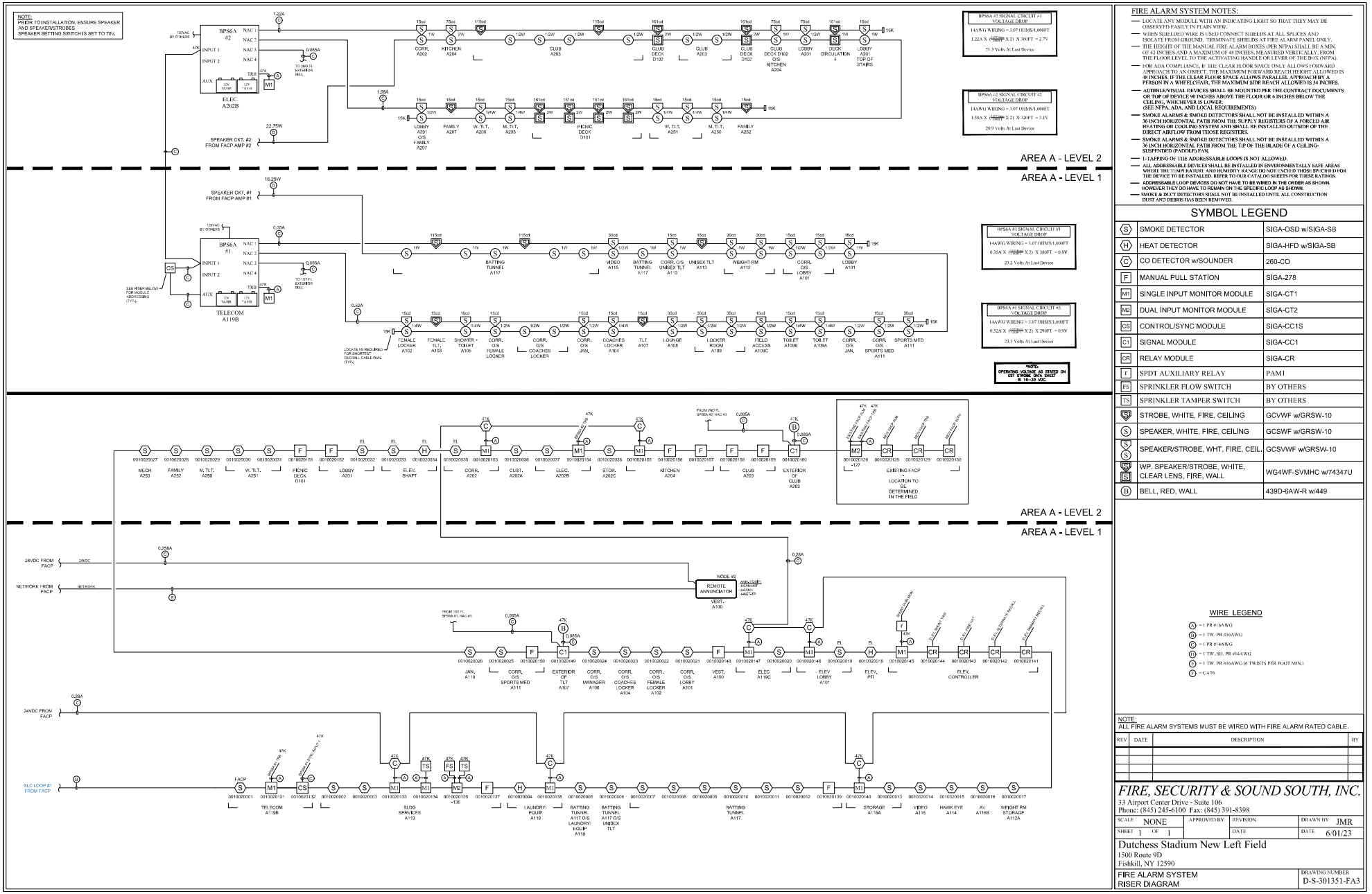
FIRE, SECURITY & SOUND SYSTEMS, INC.
4 Avis Drive - Suite 110, Latham, N.Y. 12110
Phone: (518) 250-4364 Fax: (518) 250-2365

SCALE	APPROVED BY	REVISION	DRAWN BY
NONE			JMR
SHEET 1 OF 1		DATE	DATE 6/01/23

Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

FIRE ALARM SYSTEM
FACP OPERATOR LAYER DIAGRAM

DRAWING NUMBER
D-S-301351-FA2



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SYMBOL LEGEND

S	SMOKE DETECTOR	SIGA-OSD w/SIGA-SB
H	HEAT DETECTOR	SIGA-HFD w/SIGA-SB
C	CO DETECTOR w/SOUNDER	260-CO
F	MANUAL PULL STATION	SIGA-278
M1	SINGLE INPUT MONITOR MODULE	SIGA-CT1
M2	DUAL INPUT MONITOR MODULE	SIGA-CT2
CS	CONTROL/SYNC MODULE	SIGA-CC1S
C1	SIGNAL MODULE	SIGA-CC1
CR	RELAY MODULE	SIGA-CR
F	SPDT AUXILIARY RELAY	PAM1
FS	SPRINKLER FLOW SWITCH	BY OTHERS
TS	SPRINKLER TAMPER SWITCH	BY OTHERS
S	STROBE, WHITE, FIRE, CEILING	GCVWF w/GRSW-10
S	SPEAKER, WHITE, FIRE, CEILING	GCSWF w/GRSW-10
S	SPEAKER/STROBE, WHT, FIRE, CEIL.	GCSVWF w/GRSW-10
S	WP. SPEAKER/STROBE, WHITE, CLEAR LENS, FIRE, WALL	WG4WF-SVMHC w/74347U
B	BELL, RED, WALL	439D-6AW-R w/449

WIRE LEGEND

- (A) = 1 PR #16AWG
- (B) = 1 TW. PR #16AWG
- (C) = 1 PR #14AWG
- (D) = 1 TW.;SH. PR #14AWG
- (E) = 1 TW. PR #16AWG (6 TWISTS PER FOOT MIN.)
- (F) = CAT6

NOTE:
ALL FIRE ALARM SYSTEMS MUST BE WIRED WITH FIRE ALARM RATED CABLE.

REV	DATE	DESCRIPTION	BY

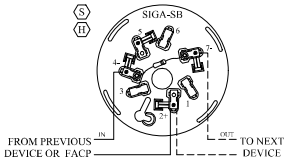
FIRE, SECURITY & SOUND SOUTH, INC.
33 Airport Center Drive - Suite 106
Phone: (845) 245-6100 Fax: (845) 391-8398

SCALE	APPROVED BY	REVISION	DRAWN BY
NONE			JMR
SHEET 1 OF 1		DATE	DATE 6/01/23

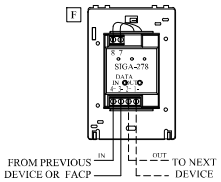
Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

FIRE ALARM SYSTEM RISER DIAGRAM

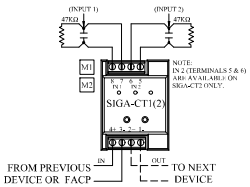
DRAWING NUMBER D-S-301351-FA3



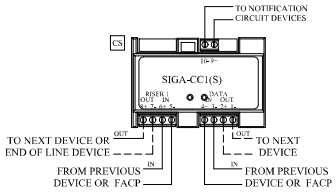
DETECTOR BASE WIRING



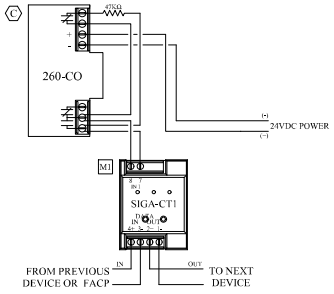
MANUAL STATION WIRING



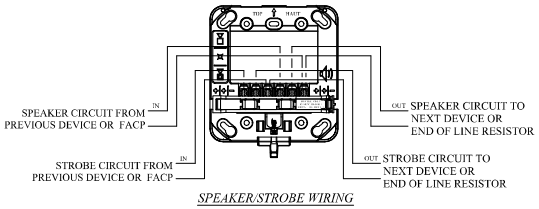
SINGLE/DUAL INPUT MONITOR MODULE WIRING



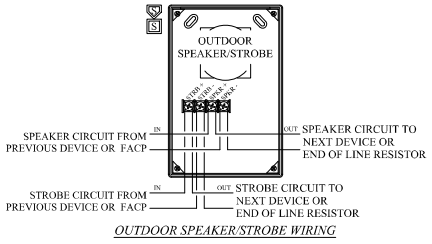
SIGNAL MODULE WIRING



CO DETECTOR WIRING



SPEAKER/STROBE WIRING



OUTDOOR SPEAKER/STROBE WIRING

FIRE ALARM SYSTEM NOTES:

- LOCATE ANY MODULE WITH AN INDICATING LIGHT SO THAT THEY MAY BE OBSERVED EASILY IN PLAIN VIEW.
- WHEN SHIELDED WIRE IS USED CONNECT SHIELDS AT ALL SPLICES AND ISOLATE FROM GROUND. TERMINATE SHIELDS AT FIRE ALARM PANEL ONLY.
- THE HEIGHT OF THE MANUAL FIRE ALARM BOXES (PER NFPA) SHALL BE A MIN. OF 42 INCHES AND A MAXIMUM OF 48 INCHES, MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX (NFPA).
- FOR ADA COMPLIANCE, IF THE CLEAR FLOOR SPACE ONLY ALLOWS FORWARD APPROACH TO AN OBJECT, THE MAXIMUM FORWARD REACH HEIGHT ALLOWED IS 48 INCHES. IF THE CLEAR FLOOR SPACE ALLOWS PARALLEL APPROACH BY A PERSON IN A WHEELCHAIR, THE MAXIMUM SIDE REACH ALLOWED IS 54 INCHES.
- AUDIBLE/VISUAL DEVICES SHALL BE MOUNTED PER THE CONTRACT DOCUMENTS OR TOP OF DEVICE 90 INCHES ABOVE THE FLOOR OR 6 INCHES BELOW THE CEILING, WHICHEVER IS LOWER. (SEE NFPA, ADA, AND LOCAL REQUIREMENTS)
- SMOKE ALARMS & SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN A 36 INCH HORIZONTAL PATH FROM THE SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS.
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- ALL ADDRESSABLE DEVICES SHALL BE INSTALLED IN ENVIRONMENTALLY SAFE AREAS WHERE THE TEMPERATURE AND HUMIDITY RANGE DO NOT EXCEED THOSE SPECIFIED FOR THE DEVICE TO BE INSTALLED. REFER TO OUR CATALOG SHEETS FOR THESE RATINGS.
- ADDRESSABLE LOOP DEVICES DO NOT HAVE TO BE WIRED IN THE ORDER AS SHOWN. HOWEVER THEY DO HAVE TO REMAIN ON THE SPECIFIC LOOP AS SHOWN.
- SMOKE & DUCT DETECTORS SHALL NOT BE INSTALLED UNTIL ALL CONSTRUCTION DUST AND DEBRIS HAS BEEN REMOVED.

SYMBOL LEGEND

S	SMOKE DETECTOR	SIGA-OSD w/SIGA-SB
H	HEAT DETECTOR	SIGA-HFD w/SIGA-SB
C	CO DETECTOR w/SOUNDER	260-CO
F	MANUAL PULL STATION	SIGA-278
M1	SINGLE INPUT MONITOR MODULE	SIGA-CT1
M2	DUAL INPUT MONITOR MODULE	SIGA-CT2
CS	CONTROL/SYNC MODULE	SIGA-CC1S
C1	SIGNAL MODULE	SIGA-CC1
CR	RELAY MODULE	SIGA-CR
F	SPDT AUXILIARY RELAY	PAM1
FS	SPRINKLER FLOW SWITCH	BY OTHERS
TS	SPRINKLER TAMPER SWITCH	BY OTHERS
S	STROBE, WHITE, FIRE, CEILING	GCVWF w/GRSW-10
S	SPEAKER, WHITE, FIRE, CEILING	GCSWF w/GRSW-10
S	SPEAKER/STROBE, WHT, FIRE, CEIL.	GCSVWF w/GRSW-10
S	WP. SPEAKER/STROBE, WHITE, CLEAR LENS, FIRE, WALL	WG4WF-SVMHC w/74347U
B	BELL, RED, WALL	439D-6AW-R w/449

WIRE LEGEND

- A = 1 PR #16AWG
- B = 1 TW. PR #16AWG
- C = 1 PR #14AWG
- D = 1 TW./SH. PR #14AWG
- E = 1 TW. PR #16AWG (6 TWISTS PER FOOT MIN.)
- F = CAT6

NOTE:
ALL FIRE ALARM SYSTEMS MUST BE WIRED WITH FIRE ALARM RATED CABLE.

REV	DATE	DESCRIPTION	BY

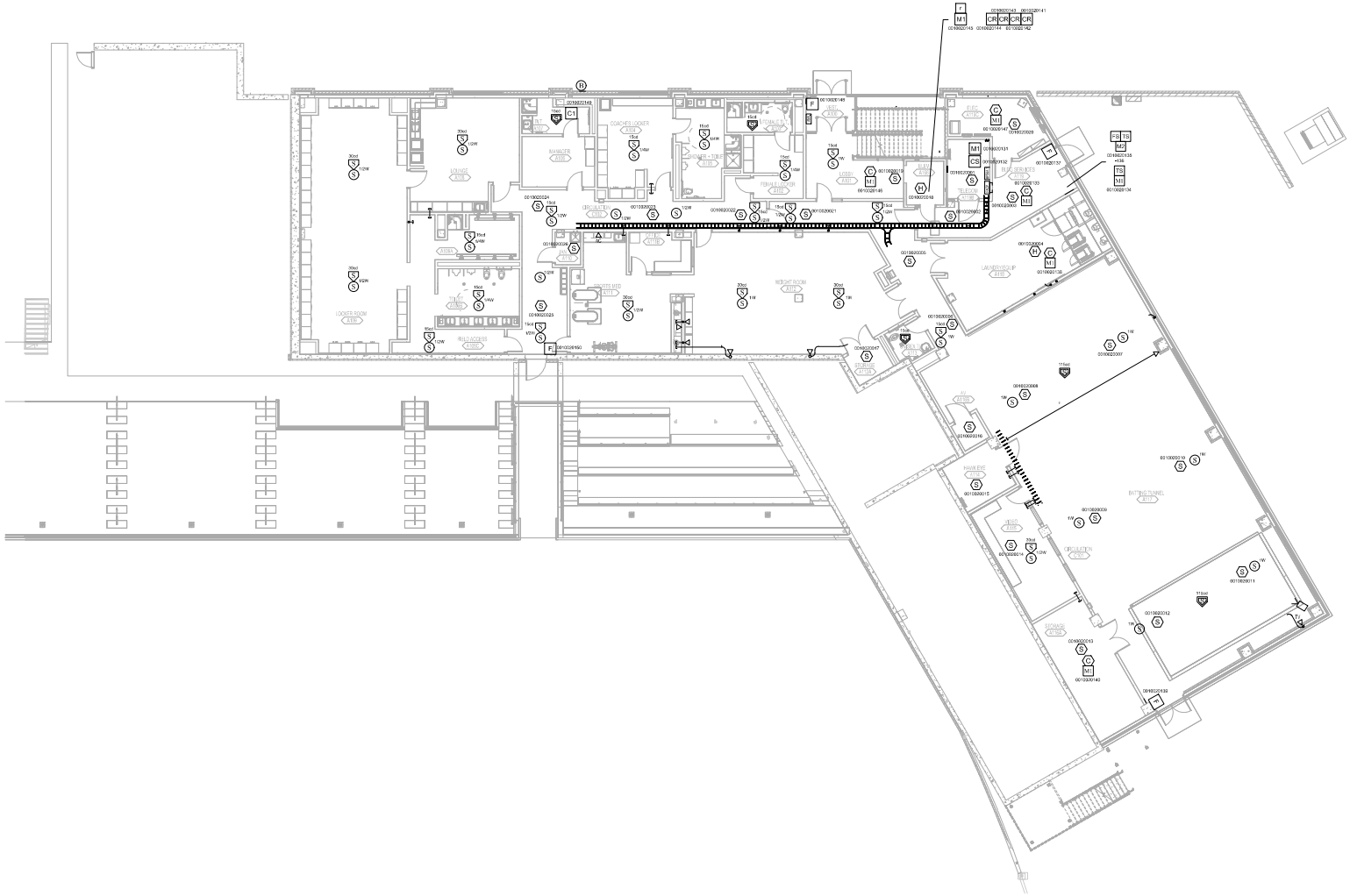
FIRE, SECURITY & SOUND SOUTH, INC.
33 Airport Center Drive - Suite 106
Phone: (845) 245-6100 Fax: (845) 391-8398

SCALE	APPROVED BY	REVISION	DRAWN BY
NONE		DATE	JMR
SHEET 1 OF 1			DATE 6/01/23

Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

FIRE ALARM SYSTEM
DEVICE WIRING DETAILS

DRAWING NUMBER
D-S-301351-FA4



AREA A - LEVEL 1

OBSERVED EASILY IN PLAIN VIEW.

- WHEN SHIELDED WIRE IS USED CONNECT SHIELDS AT ALL SPLICES AND ISOLATE FROM GROUND. TERMINATE SHIELDS AT FIRE ALARM PANEL ONLY.
- THE HEIGHT OF THE MANUAL FIRE ALARM BOXES (PER NFPA) SHALL BE A MIN. OF 42 INCHES AND A MAXIMUM OF 48 INCHES, MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX (NFPA).
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SYMBOL LEGEND

S	SMOKE DETECTOR	SIGA-OSD w/SIGA-SB
H	HEAT DETECTOR	SIGA-HFD w/SIGA-SB
C	CO DETECTOR w/SOUNDER	260-CO
F	MANUAL PULL STATION	SIGA-278
M1	SINGLE INPUT MONITOR MODULE	SIGA-CT1
M2	DUAL INPUT MONITOR MODULE	SIGA-CT2
CS	CONTROL/SYNC MODULE	SIGA-CC1S
C1	SIGNAL MODULE	SIGA-CC1
CR	RELAY MODULE	SIGA-CR
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S	STROBE, WHITE, FIRE, CEILING	GCVWF w/GRSW-10
S	SPEAKER, WHITE, FIRE, CEILING	GCSWF w/GRSW-10
S	SPEAKER/STROBE, WHT, FIRE, CEIL.	GCSVWF w/GRSW-10
S	WP. SPEAKER/STROBE, WHITE, CLEAR LENS, FIRE, WALL	WG4WF-SVMHC w/74347U
B	BELL, RED, WALL	439D-6AW-R w/449

WIRE LEGEND

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- E = 1 TW. PR #16AWG (6 TWISTS PER FOOT MIN.)
- F = CAT6

NOTE:
ALL FIRE ALARM SYSTEMS MUST BE WIRED WITH FIRE ALARM RATED CABLE.

REV	DATE	DESCRIPTION	BY

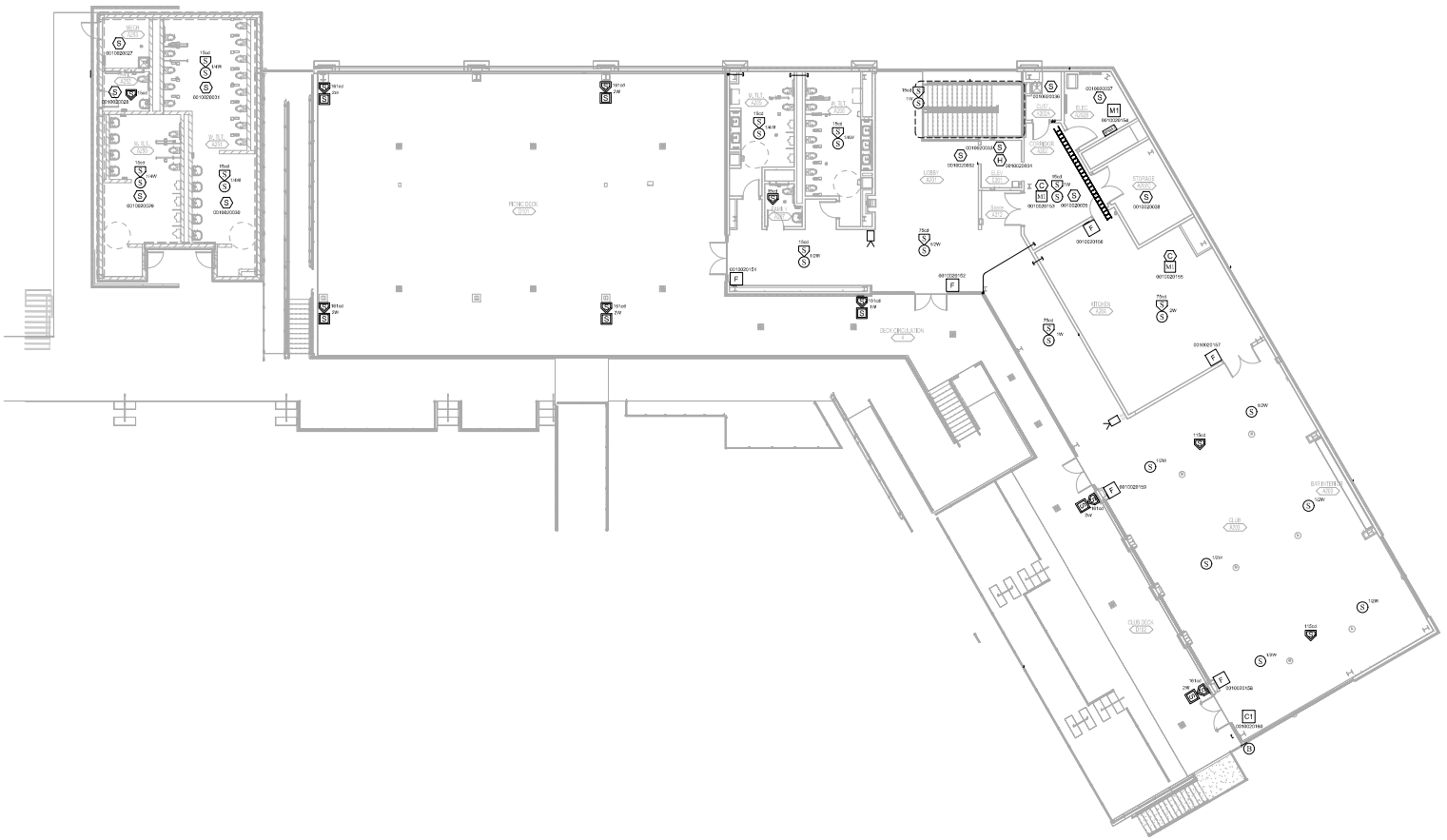
FIRE, SECURITY & SOUND SOUTH, INC.
33 Airport Center Drive - Suite 106
Phone: (845) 245-6100 Fax: (845) 391-8398

SCALE	NONE	APPROVED BY	REVISION	DRAWN BY	JMR
SHEET	1 OF 1		DATE	DATE	6/01/23

Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

FIRE ALARM SYSTEM
AREA A - LEVEL 1, FLOOR PLAN

DRAWING NUMBER
D-S-301351-FA5



AREA A - LEVEL 2

OBSERVED EASILY IN PLAIN VIEW.

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SYMBOL LEGEND

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S	SPEAKER, WHITE, FIRE, CEILING	GCSWF w/GRSW-10
S	SPEAKER/STROBE, WHT, FIRE, CEIL.	GCSVWF w/GRSW-10
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NONE			JMR
SHEET 1 OF 1		DATE	DATE 6/01/23

Dutchess Stadium New Left Field
1500 Route 9D
Fishkill, NY 12590

FIRE ALARM SYSTEM
AREA A - LEVEL 2, FLOOR PLAN

DRAWING NUMBER
D-S-301351-FA6