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**Division 283111
DIGITAL ADDRESSABLE
FIRE ALARM SYSTEM**

***Submitted to:
Arrowhead Electric***

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LIFE SAFETY & INCIDENT MANAGEMENT

EST4

Emergency Communications Platform

NYC FIRE DEPT.
COA # 6314

Overview

EST4 is the premier emergency communications system from EDWARDS. Though it represents a small change in name from its predecessor, EST4's leap forward in capability is anything but diminutive. This exciting flagship system features a whole new network architecture that makes fire alarm, mass notification, and building integration easy to implement, quick to service, and secure in the face of today's cyberthreats.

From its thoughtfully-crafted interface to its advanced connectivity and extensive system capacity, EST4 demonstrates that form and function are inseparable elements of good system design. It provides systems engineers with the tools they need to create projects that exceed expectations and have plenty of room to grow, all while respecting facility budgets and construction schedules. The net result is an emergency communications system equally suited to new and retrofit projects; a platform that keeps property safe and steers people clear of danger.

Features

- **Investment-forward Platform Designed for the Future**
Protects the past with backwards compatibility for EST3 retrofits, flexible feature set.
- **On-board Webserver**
Remote device-independent access to system status reports.
- **Built-in E-mail and E-mail-to-SMS Messaging**
Instant notification of specific event types sent to appropriate personnel.
- **Large Full-color LCD Touch Screen with Tactile Buttons**
Fast, intuitive access to service and first responder functions.
- **Five-color LED Indicators**
System status at a glance, select the color needed during programming, reduces replacement part inventory, maximizes use of available infrastructure.
- **Network data, audio data, and telephone data share a single twisted pair or single fiber strand**
Up to 75 percent less cabling, substantial cost savings in material and labor.
- **Backwards Compatibility with EST3**
Wiring, devices, and most local rail modules are backward compatible, providing easy migration paths, economical transition to new technology.
- **Existing Systems Supporting only Network Data can also Support Voice Audio**
Upgrades add value and extend capabilities in retrofit situations.

continued on next page...

Application

From the moment the control panel is powered up it is apparent that EST4 is designed for ease of use. Its powerful user interface bears this out by allowing operators to use the system with a level of fluidity that naturally guides them through high and low level system operations with efficiency and confidence.

EST4 does this by combining the simplicity of color LCD touchscreen technology with at-a-glance programmable color display strips and tactile direct-access control buttons.

These input points, together with meticulously-engineered first responder and service functionality, allow EST4's interface to provide clear navigation paths, instant-access shortcuts, and context-sensitive display screens. This means that first responders have quick access to vital system event information and control functions, while service personnel can dive deeply into system programming unencumbered by complicated operational routines.

EST4's LCD large 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 is capable of displaying 262,144 colors, EST4's LCD display screen will display eight events without scrolling. In addition to touch-screen capability, the display assembly includes four dedicated easy-access rubber buttons for control functions most needed for emergency response.

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

Print-anywhere slide-in label inserts give control/display strips 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.

Remote access and notification

System access to EST4 doesn't end when the cabinet door swings shut. A webserver in each EST4 panel allows authenticated users to gain access to day-to-day reporting. EST4 webservices are device-independent and support all major browsers on PC and MAC operating systems, including mobile platforms – without the need for special apps or other software. Users can log into the secure EST4 webserver and run system reports. Like any web page, system reports can be copied, printed, saved, and e-mailed. The system report data can also

be saved in XML form and used in external spreadsheet applications for further processing.

EST4 keeps up with the fast pace of mobile computing with its built-in e-mail services and e-mail-to-text-message capabilities. These ensure that key personnel receive instant notification of relevant changes of system state. Technicians can be dispatched to the site within minutes of a service event, while safety and security personnel can arrive concurrently with first responders should the system go into alarm.

Networking

Supporting these important interface developments is a robust system underpinned by solid networking and exceptional security. Thanks to its self-configuring network, EST4 easily deploys and configures without intervention by network administration personnel. It adapts to a wide range of network configurations, including rings, stars, redundant segment, and full mesh topology. The network even allows changes in the physical layer from copper to fiber, and employs hot-swappable network connections at control panels and annunciators. All this improves network reliability and saves money at installation time and throughout the equipment's life cycle.

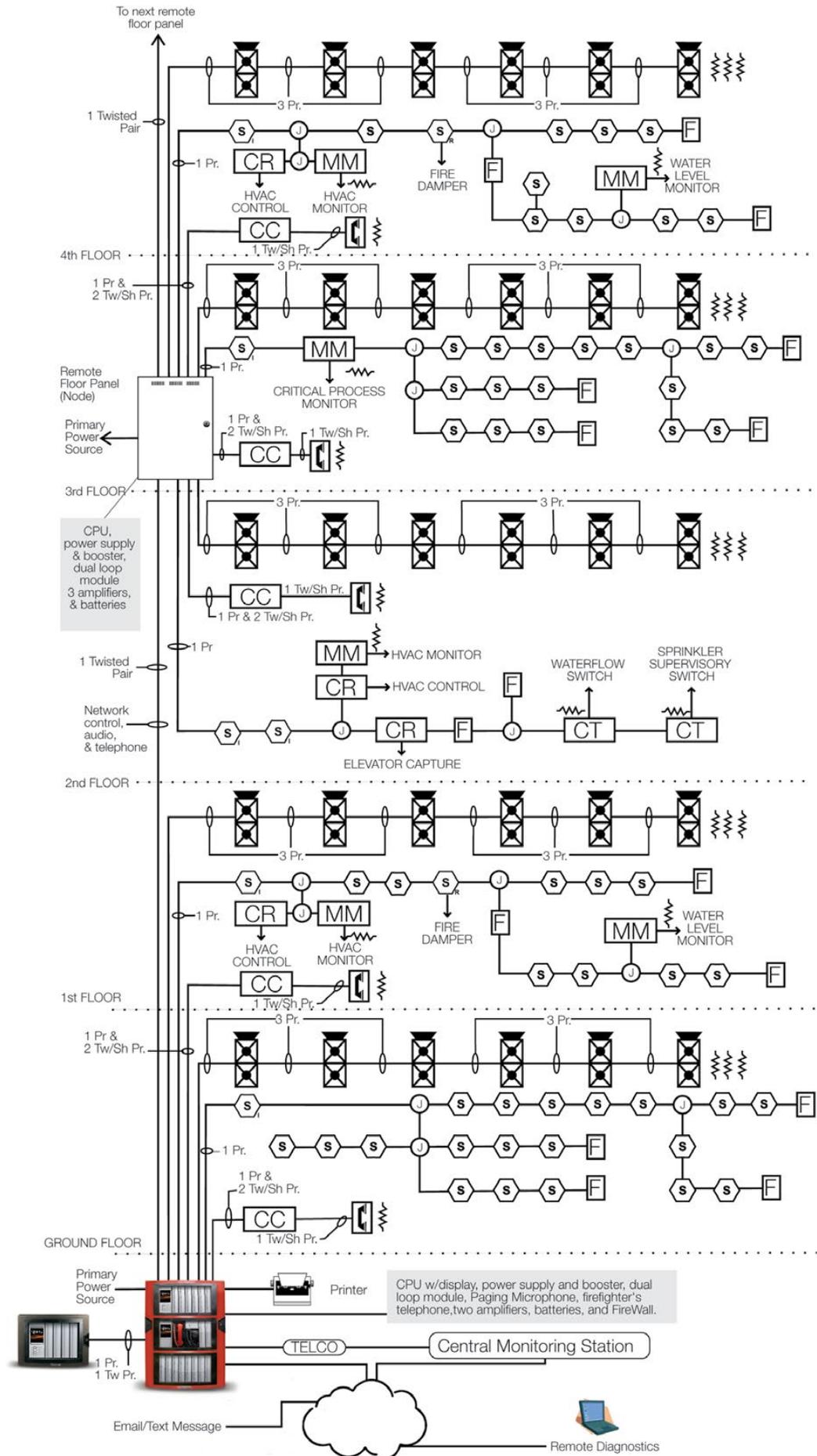
The advanced technology behind EST4's network is powerful enough

to drive the biggest installations viable today. It pushes wire runs into miles, and addressable points into the many of thousands. A single IPv6 or mesh network, for example, can support 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. Fiber optic cable handles multiple miles between nodes, while carrying all system data on a single fiber strand.

Features (continued from page 1)

- **Self-configuring Network**
No intervention by system admin personnel required.
- **Hot Swappable Network Connections**
Change from copper to fiber with no system down-time.
- **480 Mbps USB Ports on Panels**
Fast configuration updates, local printing.
- **Advanced Upload/download Protocol**
No system down-time during updates.
- **Firewalls meet the latest Advanced Encryption Standards**
Front-line defense against threats carried by outside networks. NIST - AES Validation #4806.
- **Extended Paging Groups**
Audio reaches occupants based on location and movement.
- **Local and Remote Reporting**
Generate reports on-site, at system printers, or remotely via webserver.
- **20,000-event History**
Invaluable timeline data for service and investigative purposes.
- **Cabinet Doors may be used for Nodes and Annunciators**
Cabinet Doors may be used for Panels and Annunciators giving a consistent appearance, fewer cabinet parts.

Riser Diagram



System design benefits greatly from this huge capacity. Minimal cabling requirements take scalability a step further. With EST4 a single copper pair or single fiber supports panel network data, audio data, as well as telephone data. This cuts cable counts by up to 75 percent. Meanwhile, multiple firefighter's telephones risers are accommodated on the network, which allows them to be deployed at much further distances compared with analog audio transmission methods.

Reduced network cabling not only boosts system efficiency by requiring fewer physical connections, it also saves money by reducing material and labor costs. This means that new EST4 installations benefit from lower cable counts, while retrofits may be able to be upgraded to support audio and telephones without the need to pull additional cable.

For new installations EST4 delivers flexibility. It can use twisted pair wire, Multi-mode fiber, Single Mode fiber, and even CAT5 cable. In fact CAT5 is not restricted to Class N applications. It also meets the stringent requirements of Class A, Class B, and Class X. When using CAT5, distances are not limited to 328 ft. (100 m). EST4's CAT5 support includes a solution that allow up to 3,280 ft. (1 km) of cable length.

Cybersecurity

The security and integrity of the EST4 network is paramount to its ability to maintain systems operations in the face of outside threats. The most vulnerable point of contact for any integrated building system is where it meets the facility owner's existing TCP/IP network. Ironically it is this gateway, which enhances and expands system capability beyond the communications network, that also exposes the system to some of its most critical vulnerabilities.

To combat outside threats, every EST4 panel can deploy proxy firewalls that effectively insulate the internal fire network from external Intranet or internet connections and the malware, ransom ware, and denial-of-services attacks that may be raging beyond. The EST4 proxy firewall uses Advanced Encryption Standard (AES) encryption and secure protocols making it FIPS Pub 197 certified. The FIPS, Federal Information Processing Standards, are the most current and most advanced encryption protocols administered by the National Institute of Standards and Technology (NIST).

EDWARDS recommends the installation of robust commercial firewall between the facilities intra-net and the Internet. To further enhance network security, an optional tamper switch may be installed on EST4 cabinet doors. This alerts the system when equipment enclosures are accessed.

Programming

EST4 is an open book for authorized programmers. Configuration data travels in both directions: it can be downloaded to the panel and uploaded to a laptop. This two-way movement of configuration files allows technicians to upload and backup programming before making changes to the system. By doing so, the tech ensures that trustworthy restore points are available at all times. Also, should the building owner change service companies, up-to-date system programming data can be retrieved with proper authorization, from the panel by the new maintenance personnel in minutes.

Adding to the integrity of panel configuration is an advanced data transfer routine that does not compromise or interrupt normal system operation. This keeps the system fully functional during configuration data exchange – logging events and executing programming during the entire process.

EST4's high-performance Configuration Utility (CU) depicts the system in a graphical tree view, which matches the system's physical layout. This provides a familiar format in which to find programming for specific devices, and also does away with the need for look-up lists when, for example, devices need to be taken out of service because of site specific activities. The programming tool also features a context-sensitive Intellisense rule editor, which checks for syntax and semantic programming errors in real time.

The EST4 Configuration Utility (CU) also makes short work of configuration downloads to the control panel. It does this through a single firmware download for all modules, and a single database download for all node databases.

EST4's on-board USB ports also make it easy to connect with external devices. The USB ports do away with special cables and RS232-to-USB conversion dongles. It allows direct high-speed connection with laptops for the exchange of configuration data at transfer rates of up to 480 Mbps. Printers can be connected to panels or remote annunciators for on-site event and report printouts.

Audio

Nothing informs building occupants better than the spoken word, 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 that responders need to get messages out clearly and concisely.

EST4 live paging capabilities ensure that those messages reach the right people at the right time. In addition to standard paging functions (Page to Evacuation, Page to Alert, All Call, and All Call Minus), EST4 introduces Page to Other and Page to Emergency.

Page to Other is a quick way to reach people in stairwells and elevators, while Page to Emergency is for Mass Notification purposes. This added live paging capability allows responders to reach occupants based not only on their proximity to danger, but also based on their potential to move inadvertently towards specific danger points.

EST4 live paging also lets responders select individual paging groups as well as combinations of groups. This allows them to reach people in Alert and Evacuation zones simultaneously without having to page one group, and then page the other.

Reporting System Snapshots

EST4 can generate an abundance of stock reports, and users may also design their own within the configuration utility. Printed reports can be generated locally at any control panel, node, or annunciator. Familiar USB connections allow for quick uploading to laptops or transfer to locally-connected printers. Reports can also be sent from any of these locations to system printers elsewhere on the network.

EST4 allows the selection of report data right down to the device level by means of pre-built templates, custom reports, or even on-the-fly using the CU configuration tool. Report content is information rich, detailed, and meaningful. This meticulous report formatting and organization results in highly understandable system overviews and useful deep dives into underlying system configuration data.

Event History Timelines

While system status reports are invaluable for generating snapshots of important data, EST4's event history can paint a vivid picture of the system over time. A giant 20,000-event repository comprises EST4's history, which could span back as far as the system's commissioning. Half of the history can be set aside exclusively for Alarms, ensuring that records of the most important events are preserved. To support forensic investigations, up to 10,000 events can be locked and preserved so as not to be overwritten.

A large variety of pre-built history reports are available for quick access to vital records filtered by day, week, month or year. Custom reports help pinpoint records by date, time, location, device type and more. Together EST4's large history capacity and flexible history reporting serve to create vital timelines that aid in system maintenance and forensic investigations.

Value-added Forward Migration

Easy migration paths ensure an economical transition from EST3 platforms to EST4's next-generation technology. To start, configuration data is easily transferable from an existing EST3 project to an EST4 upgrade. Hardware is also easy to migrate: all Signature Series devices, modules, and service tools are fully supported by EST4, as are Genesis series notification appliances – no rewiring is required.

Existing network cabling is also reusable for upgrades. EST4 even supports network messaging plus live paging with legacy wiring. In fact, simple twisted pair wiring, previously useable only for panel-to-panel data communications can, with EST4, support panel data, paging, as well as telephone. This means that voice audio capability may be added to a system originally wired only for network panel to panel communications – without pulling any additional wire.

EST4 also employs EST3 power supplies, audio amplifiers, MNEC equipment, CAB Series wallboxes, and most local rail modules. This makes the move to EST4 a cost-effective choice for existing installations, and new projects alike. It is a move that will benefit system efficiency and scalability now and for many years into the future.

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



LIFE SAFETY & INCIDENT MANAGEMENT

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EST4 Central Processing Unit

4-CPU


 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 Networking

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).

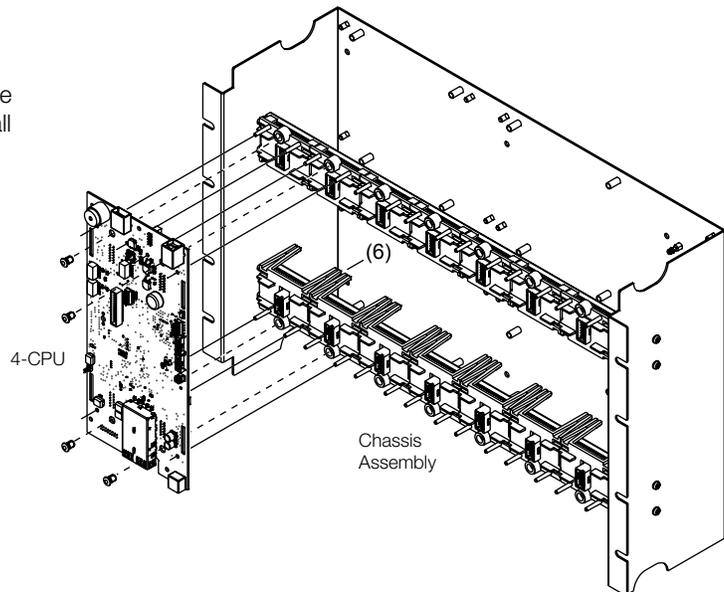
Single-mode, multimode, and even CAT5 cabling options are possible with EST4. The 4-CPU also meets redundancy and survivability requirements of many cabling needs, including Class A, Class B, Class X, and Class N. CAT5 installations are not limited to Class N wiring style: the network can be engineered 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. It 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 mm ²)
Ground fault impedance	5 kΩ or less
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	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)



LIFE SAFETY & INCIDENT MANAGEMENT

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LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Network Controllers

4-NET Series



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.

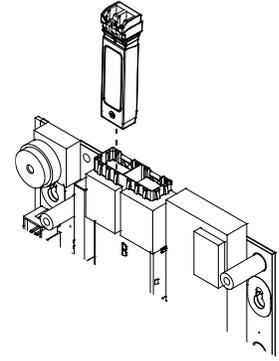
The EST4 life safety network is a self-configuring IPv6 network that enables the full support for cybersecurity tested to meet FIPS publication 197. Salted Hashing of passwords, authentication and encryption of sensitive data (user PINs, node authentication) are all standard features. This security applies 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 μ F max. between two nodes	0.3 μ F 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 mm ²)	
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 <i>SFP Cabling Specifications</i> 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.

LIFE SAFETY & INCIDENT MANAGEMENT

Signature Driver Controller Modules

3-SSDC2, 3-SDDC2, 3-SDC1



Approvals

EST4 | EST3



EN54

EN54

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-SSDC1 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.

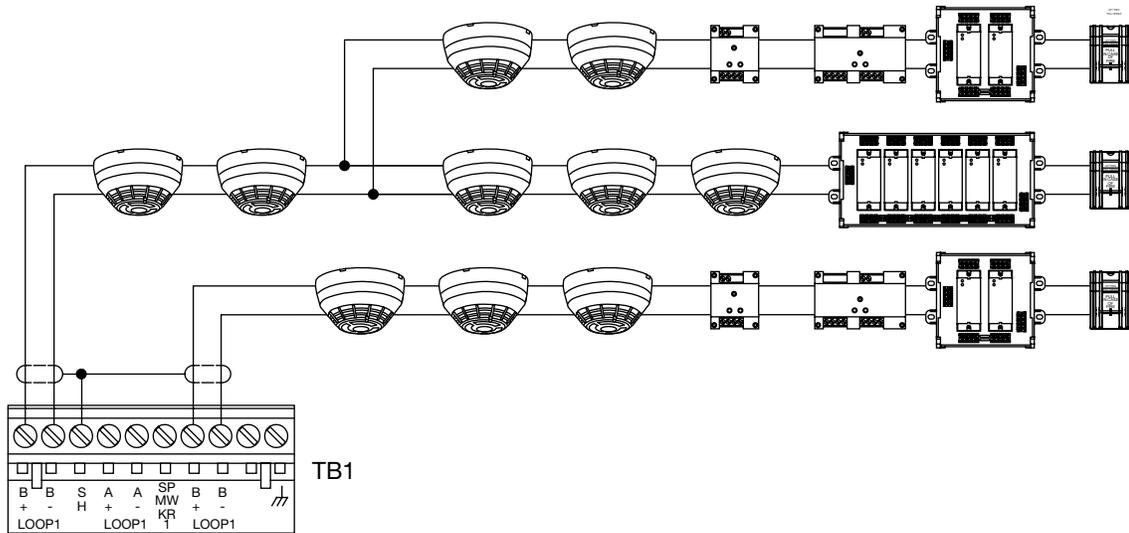
When a detector includes carbon monoxide (CO) detection, the detector monitors its CO life remaining for the CO sensor element and provides this information automatically to the panel. For maintenance of the system the CO life remaining is also available by simply running a maintenance report at the 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.

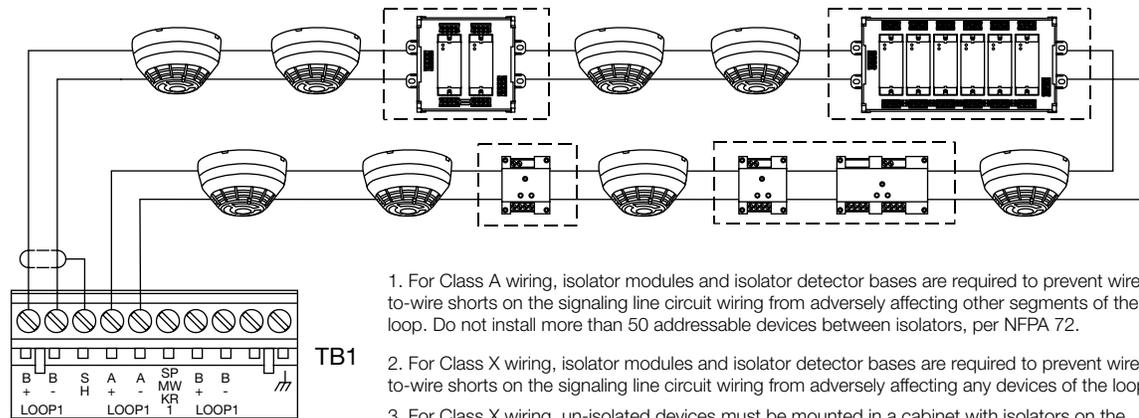
The 3-SSDC2 and 3-SDDC2 local rail modules are fully backwards compatible with the 3-SSDC, 3-SDDC, 3-SSDC1, and 3-SDDC1 respectively local rail modules. 3-SSDC2 and 3-SDDC2 modules provide additional onboard memory to facilitate future Synergy functions. To upgrade a 3-SSDC/3-SDDC, 3-SSDC1/3-SDDC1 to 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-SSDC1 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 / 2.08mm ² (20pf/foot) (2.53 Ohm/1000ft)	#16 AWG / 1.31 mm ² (20pf/foot) (4.02 Ohm/1000ft)	#18 AWG / 0.823 mm ² (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)	1.5mm ² (36pf/foot) (3.75 Ohm/1000ft)	#16 AWG (36pf/foot) (4.02 Ohm/1000ft)	1.0mm ² (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 / 2.08mm ² (20pf/foot) (2.53 Ohm/1000ft)	#16 AWG / 1.31 mm ² (20pf/foot) (4.02 Ohm/1000ft)	#18 AWG / 0.823 mm ² (20pf/foot) (6.38 Ohm/1000ft)
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)

Note 1: Maximum number of 170 SIGI devices (built-in isolators) per loop

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 <i>Operating Current</i> 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 mm ²)	
Agency Listings	UL, ULC (see Note 1), EN54, CE, FM	
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 SIGA 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-SSDC2-E	Single Signature Driver Controller. Comes with one 3-SDC1 Device Card. Mounts to Local Rail. EN54 compliant model	0.5 (0.23)
3-SDDC2	Dual Signature Driver Controller. Comes with two 3-SDC1s. Mounts to Local Rail.	0.5 (0.23)
3-SDDC2-E	Dual Signature Driver Controller. Comes with two 3-SDC1 Device Cards. Mounts to Local Rail. EN54 compliant model	0.5 (0.23)
3-SDC1	Signature Device Card - upgrades a 3-SSDC2 to a 3-SDDC2.	0.25 (0.11)
3-SDC1-E	Signature Device Card - upgrades a 3-SSDC2-E to 3-SDDC2-E. EN54 compliant model	0.25 (0.11)
4-FIL	<i>Blank EST4 filler plate (order separately when no LED or LED/Switch module is installed on the inner door).</i> For use in EN54/UL/ULC markets	0.1 (0.05)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed. For use in EN54/UL/ULC markets	0.1 (0.05)



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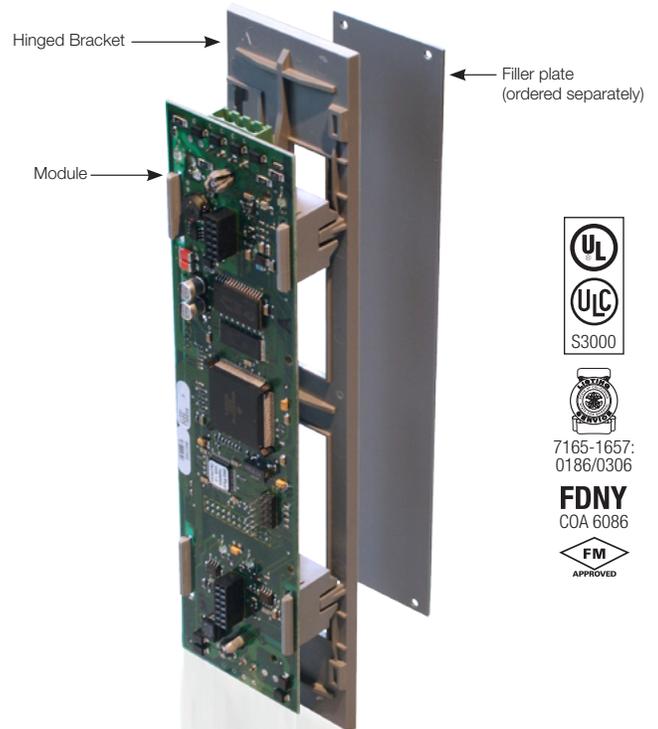
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Modem Communicator

3-MODCOM, 3-MODCOMP



Overview

The Modem Communicator is a two-way local rail module that performs a variety of off-premise communications functions for the EST3 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 node on the network. Any EST3 Control/Display module can be mounted on the face of a Modcom series module. Power for the Modcom is supplied by the EST3 system 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 Features

- Listed for fire, security and access control
- V.32bis 14.4K full duplex modem
- Digital alarm communicator transmitter 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

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 forma" 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.

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 the EST3 system may be partitioned such that it supports a number of different customers, each using different Central Monitoring Stations and/or paging companies. 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.

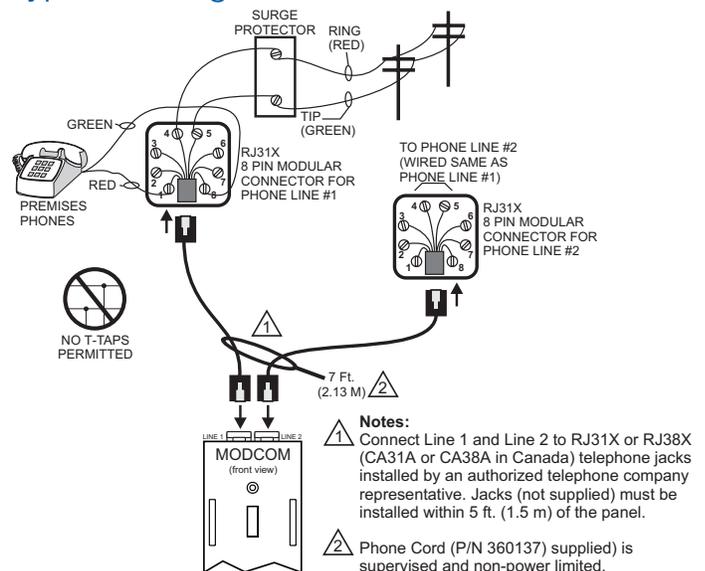
Remote Data Upload/Download

The modem permits data to be downloaded into the memories of the various components making up an EST3 system. Data can be remotely uploaded and downloaded for use with the Edwards Access Control Database Program. In the event that an alarm is received during upload/download activity, the Modcom automatically terminates the call and transmits the alarm events to the appropriate receivers. When completed sending the events, the download will continue where it left off.

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



Specifications

Agency Listings	UL, FCC Part 68 / CFR 47, ULC. See Note 1.	
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	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	

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:

The 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.

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)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)



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EST is an **EDWARDS** brand.

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LIFE SAFETY & INCIDENT MANAGEMENT

Zoned Audio Amplifiers

3-ZA20A, 3-ZA40A,
3-ZA95


 NYC FIRE DEPT.
COA # 6314

 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.

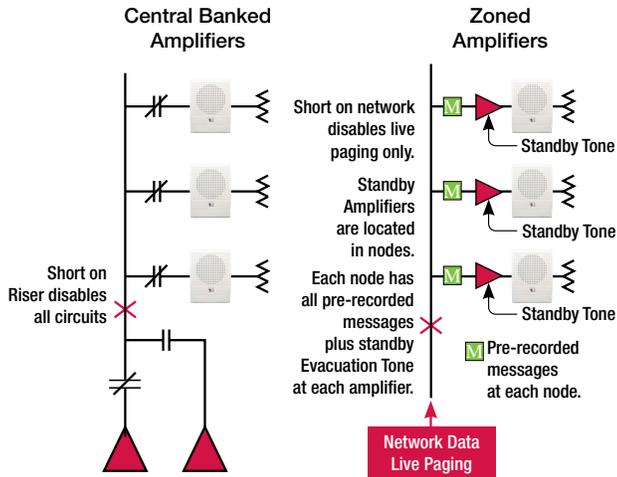
Field wiring connects to removable terminal blocks on the amplifier module. Amplifiers support either 25 VRMS or 70 VRMS power limited speaker circuits. For visual signalling, each 20 or 40 watt amplifier comes standard with one 24 Vdc power limited Notification Appliance Circuit.

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.

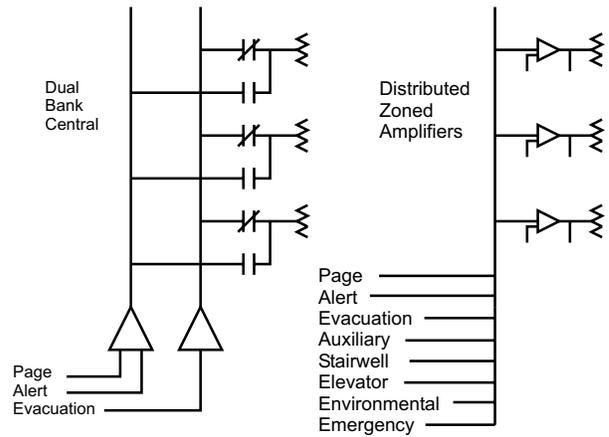


Because all EST4 nodes store their pre-recorded messages locally, programmed messages will become active when a locally generated alarm is initiated — even when a catastrophic network failure has taken place. Additionally, zoned amplifiers have integrated 1000 Hz temporal tone generators that will produce 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 provide 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 mm ²)		
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	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
EOL Resistor			
Pwr. Ltd. 24 Vdc NAC Wiring Configuration	Class A or B (Style Z or Y)	Class A or B (Style Z or Y)	
Line Resistance, Max.*	50 Ohms, Max.	50 Ohms, Max.	N/A
EOL Resistor Line Capacitance, Max	N/A 0.33µF	N/A 0.33µF	
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.



LIFE SAFETY & INCIDENT MANAGEMENT

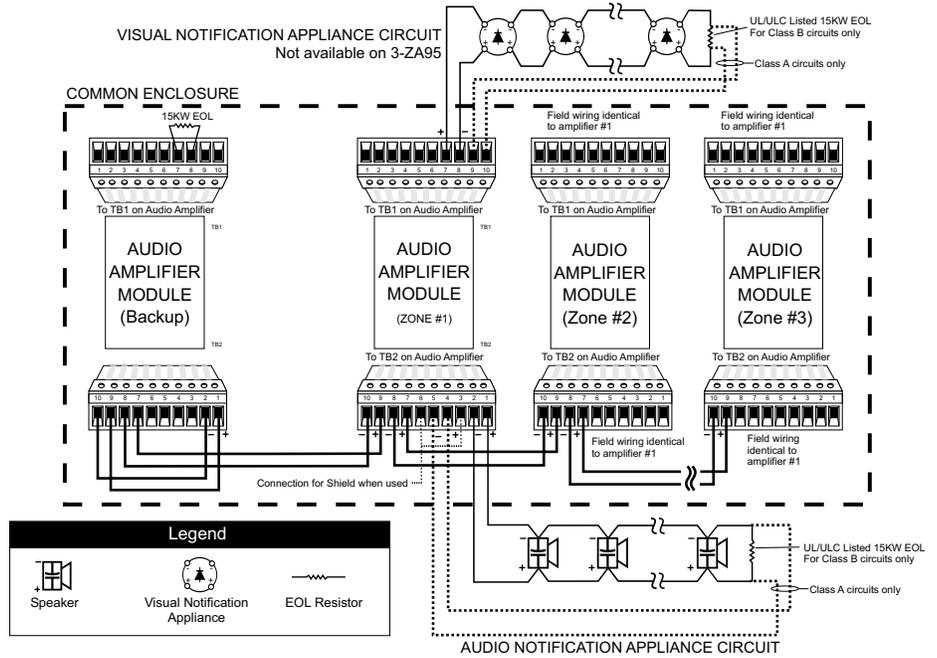
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 Website: edwardsfiresafety.com

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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

NYC FIRE DEPT.
COA # 63147165-1657:
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 a 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.

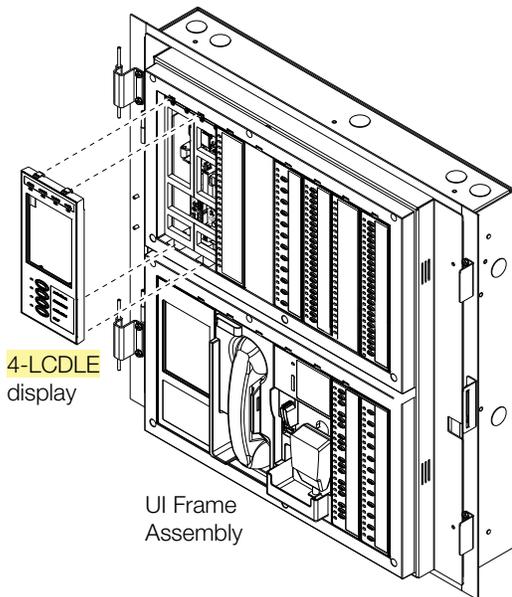
The 4-LCD can display system messages in any two of the EST4-supported languages and dialects. Choice of language is selected by the marketplace setting in EST4, any two of the available languages for a marketplace can be displayed as the primary language, and a second language can be displayed simply 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

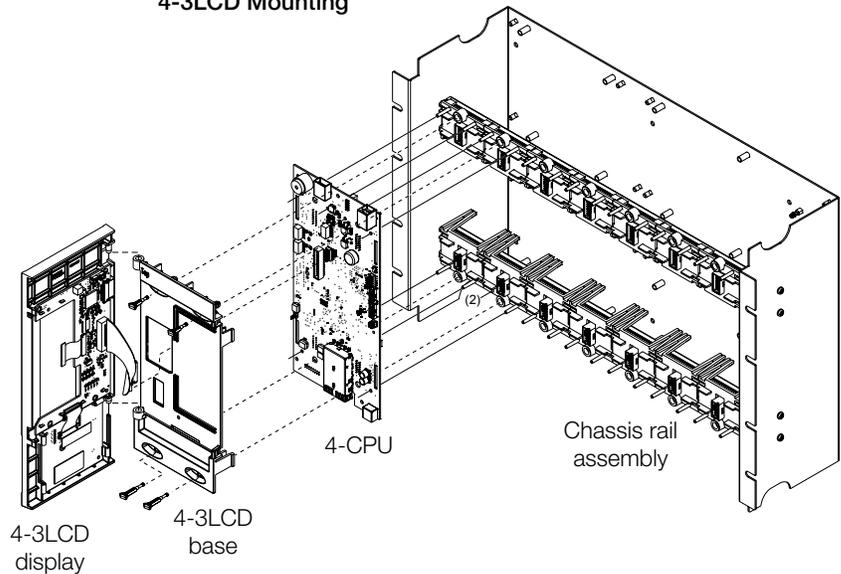
The 4-LCD display mounts onto the inner door frame of EST4 control panels. The inner door also acts as a deadfront, separating users from field wiring located behind it.

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 an 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

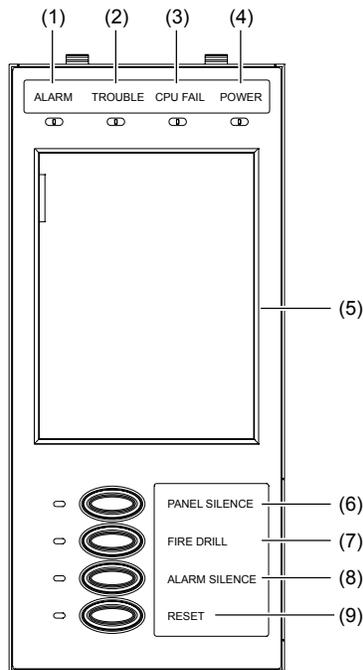
The LED indicates that the CPU has detected a processor failure. Processor failures must be reset manually using the Reset button.

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.



LCD screen

- 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.



LIFE SAFETY & INCIDENT MANAGEMENT

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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.

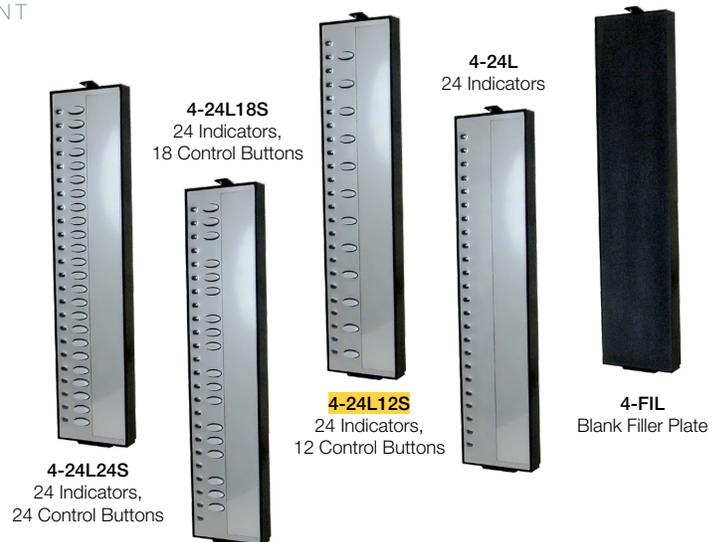
Ordering Information

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-LCDDLE	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.	0.11lb (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)

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Control Display Modules

4-24L Series


 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 display 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.

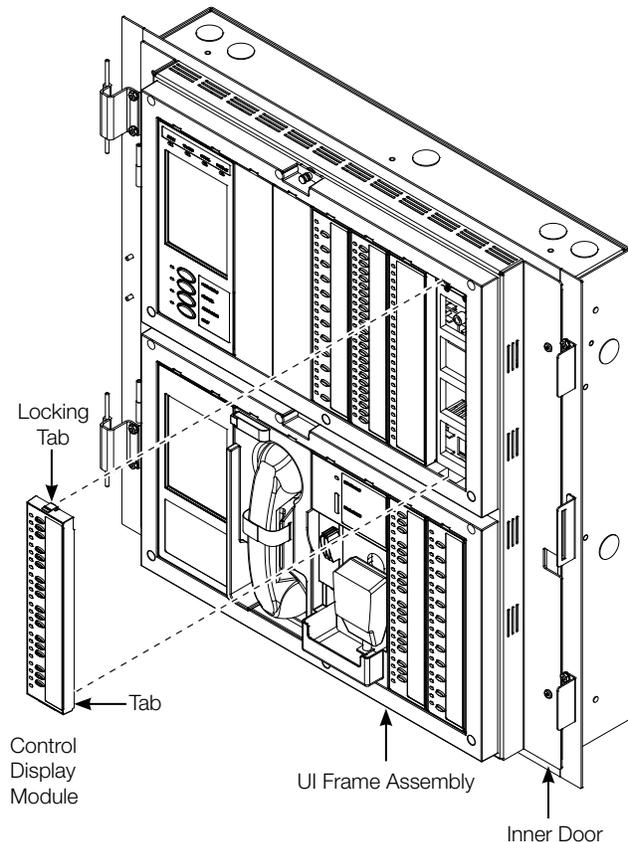
Switches can also work independently, or they can be grouped into a latching-interlock to support operations that must be kept separated, such as fan and damper control. The interlock is controlled by software, so only one switch is active at a given time. EST4 offers further flexibility by supporting 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)



LIFE SAFETY & INCIDENT MANAGEMENT

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LIFE SAFETY & INCIDENT MANAGEMENT

EST4 Audio Units and Interfaces

4-MIC, 4-FT, 4-LCDAUDEL


 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**
OSHDP 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-LCDAUDEL 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-AUDELS and 4-ANNAUDEL 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-deney 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.

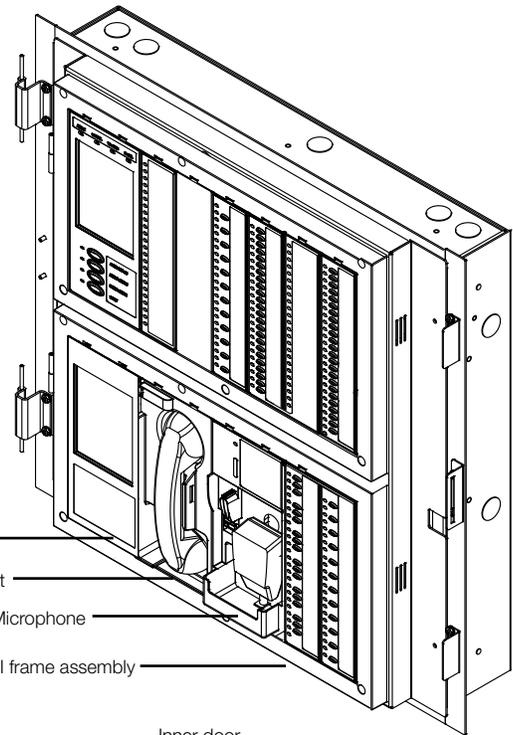
4-LCDAUDTEL Audio and Firefighter Telephone Control Display

4-FT Firefighter Telephone Master Handset

4-MIC Paging Microphone

UI frame assembly

Inner door
(outer door removed for clarity)



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.

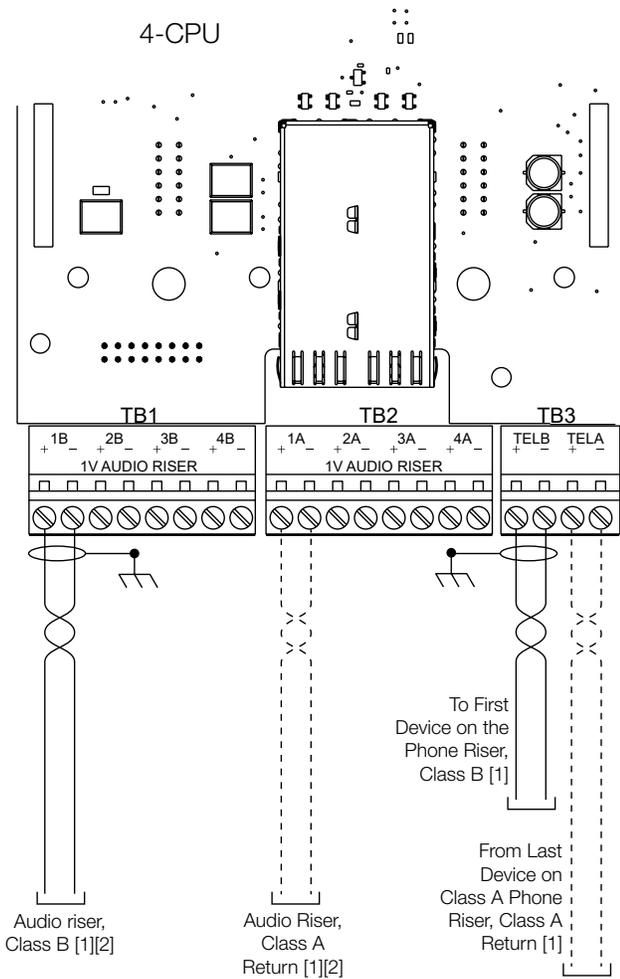
The system shall provide fully integrated fire fighters' telephone system that shall provide two-way communication between the fire alarm control panel and any firefighters' telephone station.

<< 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-LCDAUDEL 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 mm ²)

Telephone Riser specification

EOL resistor	15k Ω (P/N EOL-15)
Active telephones	Five plus the master headset or six without the master headset
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-ANNAUDEL 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



LIFE SAFETY & INCIDENT MANAGEMENT

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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-ANNAUDEL	Annunciator, Audio and Telephone Interface Module	0.3lb (0.13kg)
4-LCDAUDEL	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.

LIFE SAFETY & INCIDENT MANAGEMENT

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.

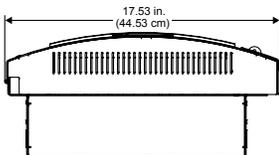
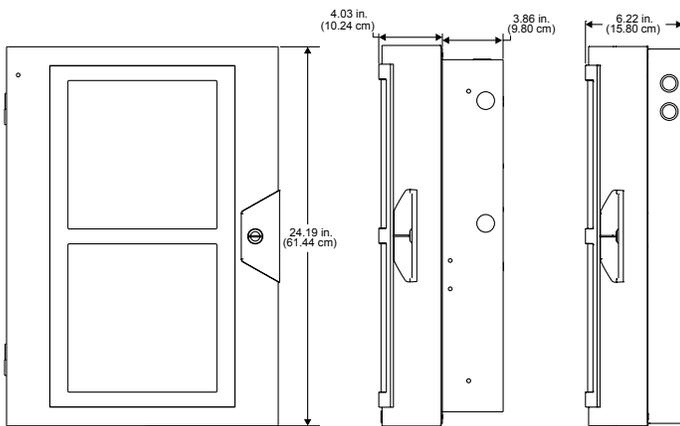
The **3-CAB21B** mounts semi-flush or surface, and with the contoured front door, 4-CAB24D(R)L provides 24 spaces for common control and annunciation modules. Space is provided for two 17 AH batteries and three chassis assemblies for 21 local rail module spaces. The door may be mounted with hinges on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

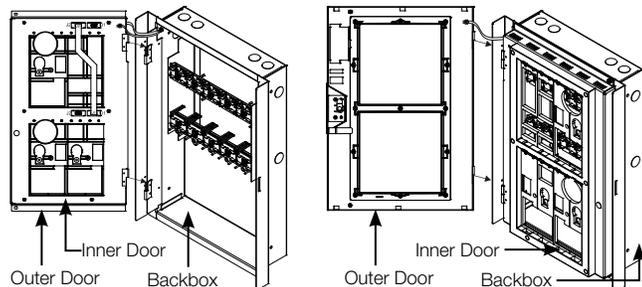
Installation and Mounting, 4-CAB Door Assemblies

4-CAB8D Series Door Assembly

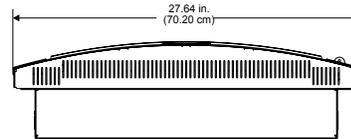
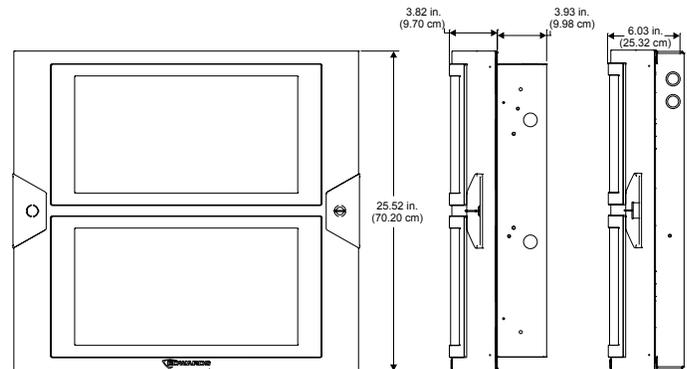


4-CAB8D installed on a 3-CAB5B backbox. Can be surface mounted or semiflush mounted.

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

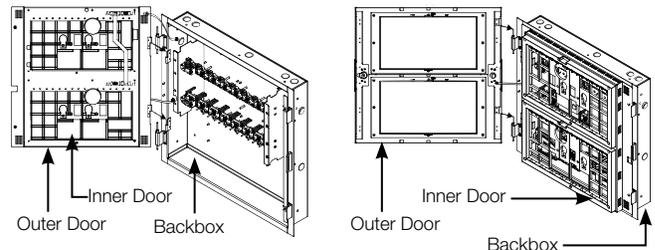


4-CAB16D Series Door Assembly

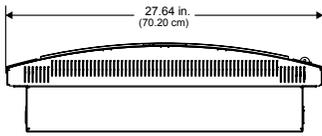
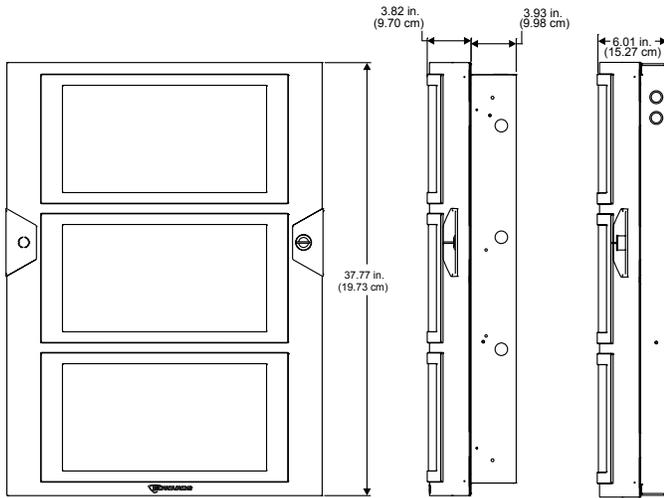


4-CAB16D installed on a 3-CAB7B backbox. Can be surface mounted or semiflush mounted.

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

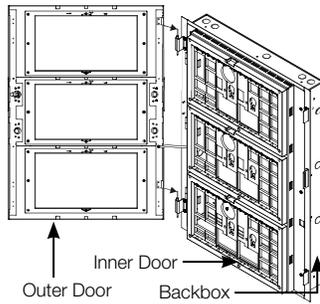
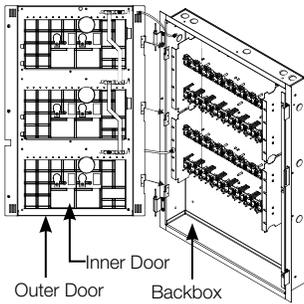


4-CAB24D Series Door Assembly

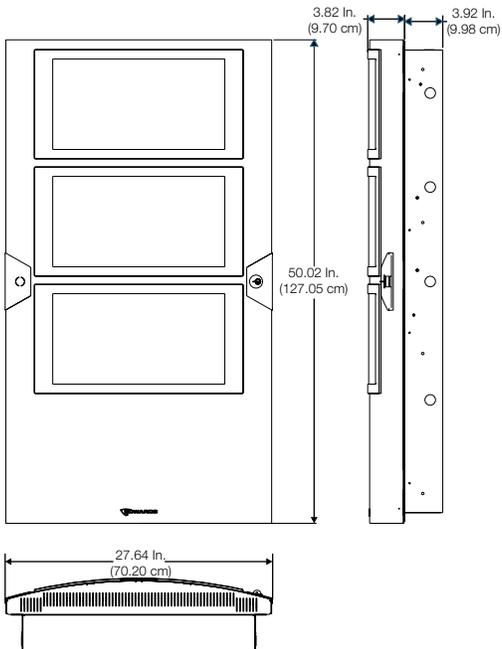


4-CAB24D installed on a 3-CAB14B backbox. Can be surface mounted or semiflush mounted.

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

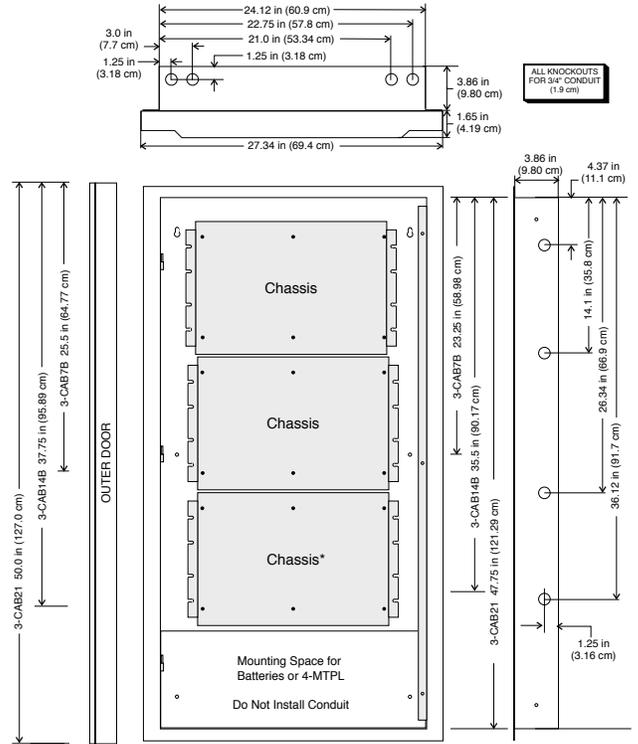


4-CAB24DL Dimensions



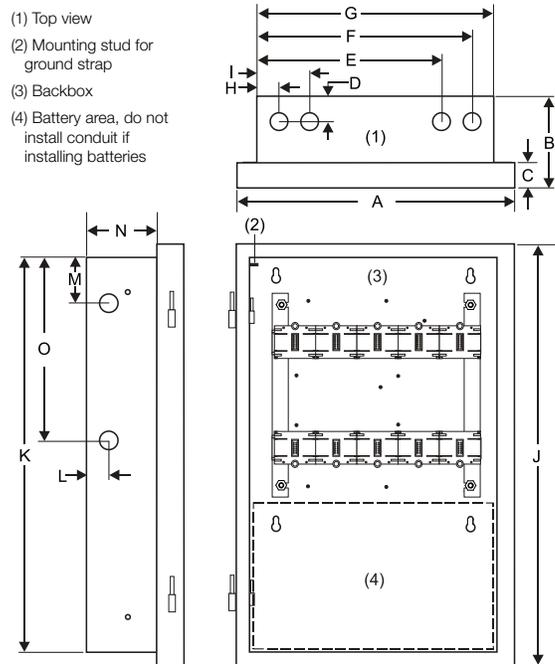
3-CAB Lobby Enclosures

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)

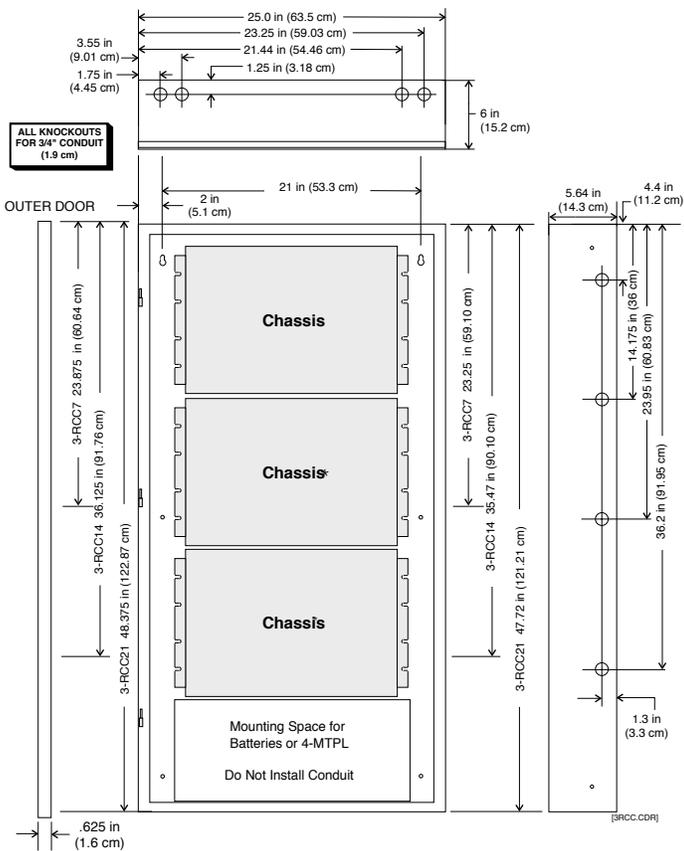
3-RCC Remote Closet Cabinets

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



3-RCC Remote Closet Cabinet

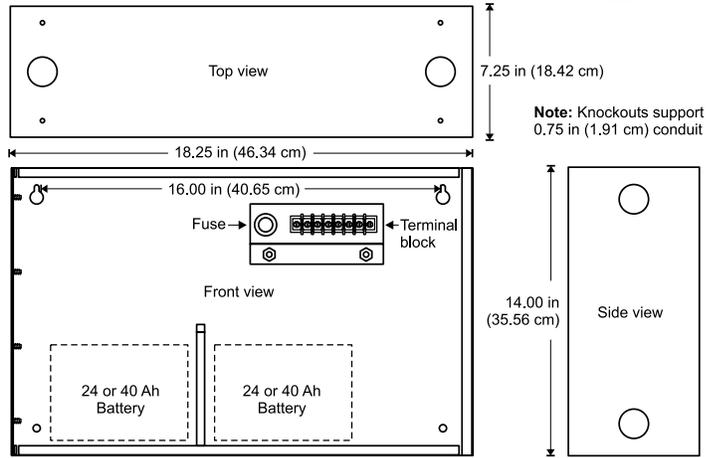
The EST4 remote closet cabinet design allows the installation of control panel electronics in electrical closets. The remote closet cabinets have left-hand hinged doors and are available with red door finish and black wallbox only. Optional color display for system diagnostics can mount behind the closet 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.

LIFE SAFETY & INCIDENT MANAGEMENT

System Event Printer

PT-1S+7300-1657:
0520

Overview

PT-1S+ serial/USB printers are high speed, 24-pin dot matrix printers which use standard, continuous tractor feed computer paper. The PT-1S+ printer is used to permanently record Life Safety System status changes. All printed entries contain the date, time, event type and a user defined message for each printed event. The printer is required in proprietary type systems. In local, auxiliary or remote station systems, the printer is ancillary and is optional. The printer must be backed up by a UPS in a proprietary system. Continuous and cut forms are fed at the front for quick and easy loading.

Standard Features

- High speed, bi-directional printing
- Front panel setup
- LED Status indicators
- RS-232/USB interfaces
- Printer self-test mode

Application

The PT-1S+ printer adds print capability to fire control units that support serial or USB printer interfaces.

Installation

The printer is configurable to support proper operation with the system. Connecting a serial/USB printer may cause a ground fault on some control units. If this happens, an IOP3-A isolator module may be installed between the printer and the control unit.



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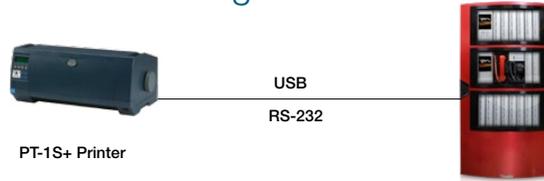
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Engineering Specifications

The event and status printer shall be a 24-pin, impact, dot matrix printer with a minimum print speed of 232 characters per second. Print parameters shall be set up with a menu driven program in the printer. The communications speed for RS-232 communications protocol shall be adjustable from 300 to 9600 Baud. The printer shall list the time, date, type and user defined message for each event printed.

Connection Diagram



Serial printer installation notes

- Serial printer connections are power-limited and may or may not be supervised, depending on the control panel.
- Locate supervised serial printers in the same room as the equipment to which they connect.
- Locate unsupervised serial printers in the same room and within 20 ft. (6.1 m) of the equipment to which they connect. Enclose wiring in conduit or equivalent protection against mechanical injury.
- Serial connections requires UL Listed and CSA Approved shielded RS-232C cable. Cable length may not exceed 50 ft. (15.24 m).
- Connecting a serial printer may cause a ground fault on some control panels. If this happens, install an IOP3-A isolator module between the printer and the control panel.
- Refer to installation sheet P/N 310282-EN for wiring and installation instructions.



USB printer wiring notes

- Locate USB printers in the same room as the equipment to which they connect. USB printer connections are supervised and power-limited.
- USB connection requires a USB 2.0 (or better) A/B cable, included in box. Cable length may not exceed 19.7 ft (6.0 m).

Specifications

Print Speed	Up to 680 cps
Voltage	100 - 240 VAC; 50/60 Hz
Power rating	60W
24 pins	Mono-chrome serial impact dot matrix, Uni-/bi-directional logic seeking for text and graphics.
MTBF	422 p/h in Draft mode according IEC10561:1999 (ECMA 132) MTBF: 20.000 hours

Size	Width: 18.0 in. (45.8 cm), Height: 8 in. (20.2 cm), Depth: 10.5 in. (26.7 cm)
Weight	17.86 lbs (8.1 kg)
Agency Listings	UL, ULC
Operating Environment	Temperature: 50 to 95 Fahrenheit (Temperature Operating: +10 to +35°C.) Relative Humidity: 16 to 73% RH (No condensation)
Print head	24 pins

Ordering Information

Model	Description
PT-1S+	System Event Printer 120/240 VAC

Related Parts Ordering Information	
Replacement ribbon cartridge	Tally Dascom, P/N 99003 (purchase locally)
IOP3A	Isolated I/O port card

LIFE SAFETY & INCIDENT MANAGEMENT

EST4 USB Hub

4-USBHUB



NYC FIRE DEPT.
COA # 6314



7165-1657:
0508

Overview

EST4 takes full advantage of high speed USB technology with internal modules supporting Type A and Type B connectors. When additional connections are needed, the 4-USBHUB provides an easily-implemented solution with two Type A isolated host ports, four Type A Non-isolated host ports, and one Type B device port.

The 4-USBHUB is used to connect printers, and coders to the EST4 network. It may be installed in any network control panel or annunciator enclosure.

Standard Features

- **Extends the number of USB Ports Available**
Efficient way to add USB ports for printers and laptops
- **Isolated and Non-isolated USB Ports**
Extends ground fault detection to system printers
- **One-half-footprint Mounted**
Multiple options for mounting within a cabinet
- **CDR-3 Support**
RS-232 support for CDR-3 coders

Application

The 4-USBHUB Multi-port USB Hub Module makes it easy to connect EST4 to external devices. It does away with special cables and RS232-to-USB conversion dongles, and allows direct high-speed connection with laptops for the exchange of configuration data. It does so quickly and efficiently with data transfer rates of up to 480 Mbps.

Use the 4-USBHUB to connect printers to panels or remote annunciators for on-site event and report printouts. The printer is connected to one of the hub's isolated Type A connectors. The 4-USBHUB can also be interfaced to a CDR-3 coder via RS-232 terminal connection. Terminal connections leave all USB ports available for use.

Engineering Specification

The system shall provide USB connections for external peripheral devices including printers. Where a system printer is required to meet code the printer shall communicate to the system via USB, be supervised and support ground isolation.

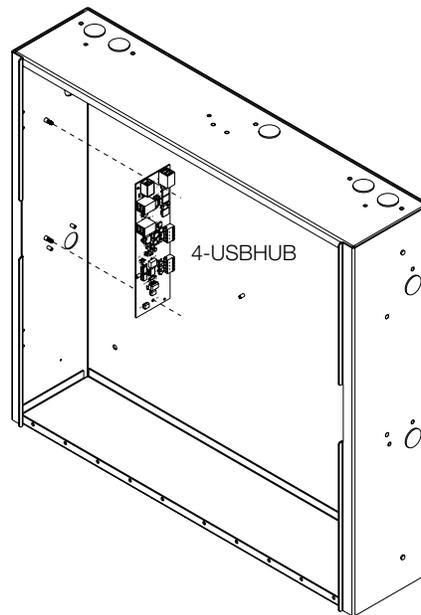
<The event and status printer shall be a nine-pin, impact, dot matrix printer with a minimum print speed of 232 characters per second. Print parameters shall be set up with a menu drive program in the printer. The printer shall be capable of serial or USB communications protocol. The communications speed for RS-232 communications protocol shall be adjustable from 300 to 9600 Baud. The connection to the printer from the panel shall be supervised. The printer shall list the time, date, type and user defined message for each event printed.> Alarm messages shall have a special character printed at the beginning of the message to allow easier location of alarm events on the print out.

< Audible notification appliances shall be coded using a microprocessor based Positive, Successive, Non Interfering (PSNI) coder module. The coder shall have a capacity for 1,000,000 unique codes and be capable of storing pending codes without a loss of an active code or interference from a new code. The coder shall output four rounds of two, three, or four digit code sequences. The coder shall provide both 1 KHz audio tone output as well as a dry relay contact output. The coder shall output a continuous <temporal> <60/90 BPM march time> output at the end of the PSNI code sequence. In the event of a failure of the microprocessor, the coder shall automatically output a temporal code.

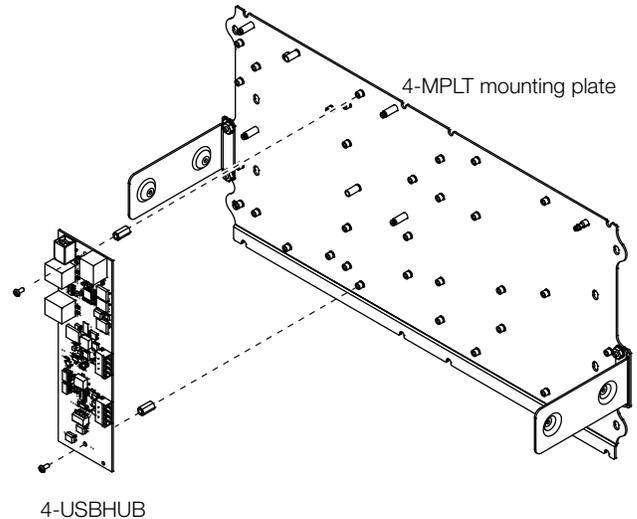
Mounting

4-USBHUB installation in a 3-RCC7R

3-CAB14 backbox

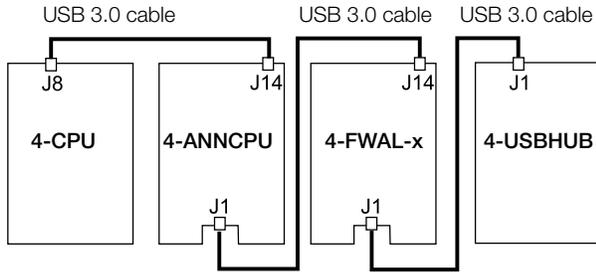


4-USBHUB installation on a 4-MPLT



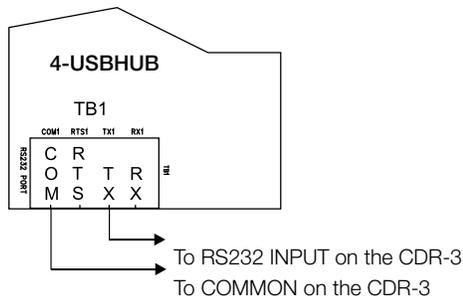
Typical Wiring

CPU connections to the 4-USBHUB



The 4-USBHUB's J1 connector may be connected directly to a 4-CPU, 4-ANNCPU, 4-NET-AD, 4-CPU-GRPH, or 4-FWAL and must always be the last device on the data bus.

RS-232 wiring to CDR-3



Technical Specifications

Current	Standby/Active	44 mA (zero nonisolated ports used) 129 mA per nonisolated ports used. 560 mA for a fully loaded 4-USBHUB. All four non-isolated ports used.
RS-232 Ports		24 to 12 AWG (0.2 to 2.5 mm ²)
USB Ports		Two USB Type A – isolated host ports [1], Four USB Type A – non-isolated host ports, One USB Type B – device port
Mounting		Mounts in half footprint space in CAB series and 4-ANNMT series enclosures.
Agency approvals		UL, ULC, FM, CSFM
Operating Environment	Temperature	32 to 120 °F (0 to 49 °C)
	Relative Humidity	0 to 93% noncondensing

- [1] For USB printer connections a USB Type 2 cable (sourced locally) is needed with Type A to Type B connectors. The maximum length supported is 16ft (5m).
[2] Maximum USB cable length is 5 meters per the USB standard. For ancillary printer applications a USB extender may be used to extend the distance from the panel to the printer. For proprietary applications the printer must be located within 5 meters of the panel.

Ordering Information

Model # (SKU)	Description	Shipping Weight
4-USBHUB	The 4-USBHUB Multi-port USB Hub module mounts in a ½ footprint module space and provides isolated RS-232 USB and terminal block connections for RS-232 to CDR connections.	0.9lb (0.39kg)
Accessories and related equipment		
4-CABLUSBLG	Optional Cable, USB 3.0 A-B, Male, length approx. 51in (1300 mm).	0.3lb (0.14kg)
4-CABLUSBSM	Cable, USB 3.0 A-B, Male, supplied with 4-USBHUB, cable length approx. 29 in (750 mm).	0.3lb (0.14kg)



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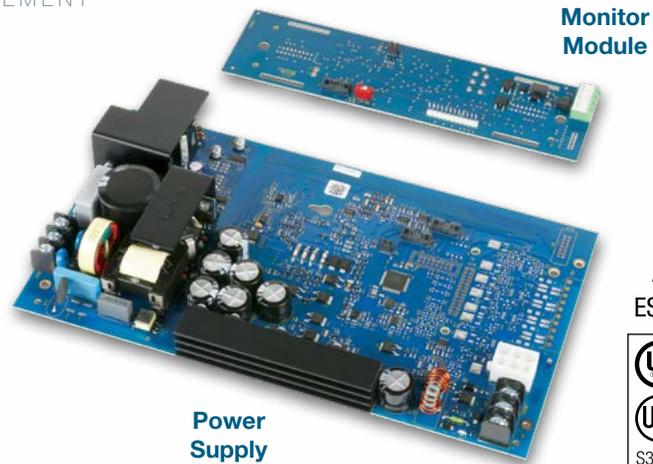
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System Power Supplies

4-PPS/M series



Approvals



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.

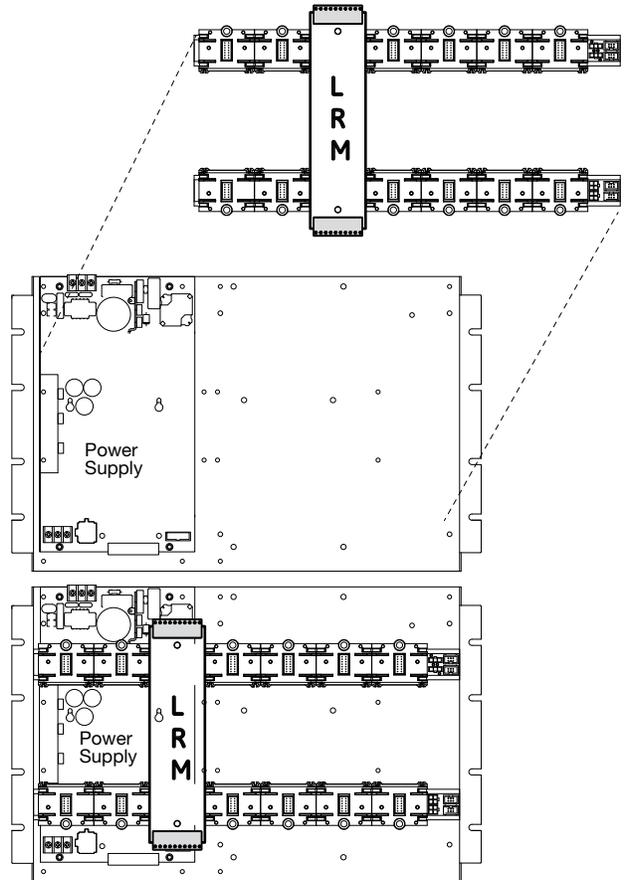
During operation on standby batteries, battery voltage is constantly monitored. A trouble is reported if the battery voltage falls below a specified value.

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. Equipment damage: 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.

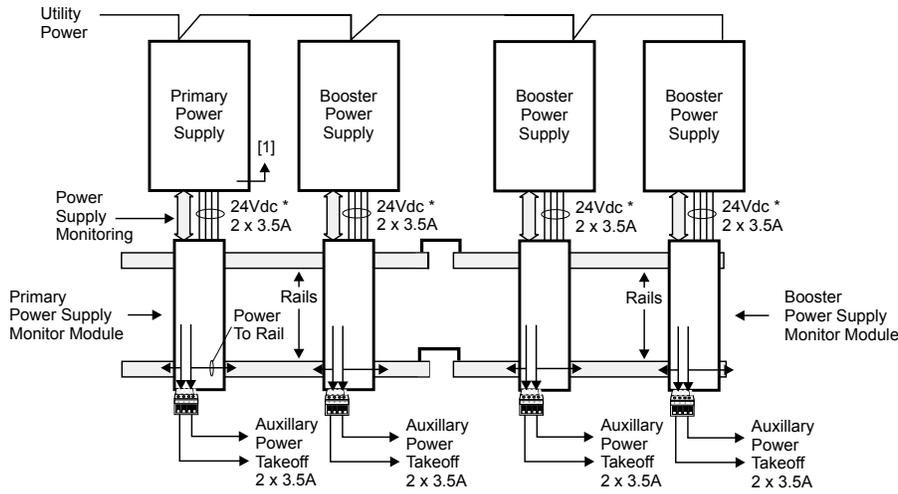
5. All battery sets for a panel must be the same capacity (AH), same manufacturer, and same manufacturing date code.

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)



LIFE SAFETY & INCIDENT MANAGEMENT

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Sealed Lead-Acid Batteries



Overview

Rechargeable sealed lead-acid batteries are ideal for use as a secondary (standby) power source as defined by NFPA 72. Their low maintenance and high energy density make them ideal for fire alarm signaling applications.

Standard Features

- Rechargeable
- Non-spillable
- Non-hazardous
- Low maintenance
- High energy density

Application

When multiple power supplies are provided, each power supply's battery requirements should be calculated individually. Consult the specific system manual to determine battery capacity requirements.

Safety Information

Due to a battery's low internal resistance and high power density, high levels of short circuit current can develop across battery terminals. Put on protective eye covering and remove all jewelry before working on batteries. Do not rest tools or cables on the battery, and only use insulated tools. Follow all manufacturers installation instructions and diagrams when installing or maintaining batteries.



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Specifications

Case Material	ABS Thermoplastic
Regulatory Information	DOT Class 60, Batteries, non-hazardous, non-spillable
Operating Environment	32° F to 120° F (0° C to 49° C) 0 to 93% RH, Non-condensing

Ordering Information

Catalog Number	Description	Shipping Weight, lb (kg)
12V1A2	1.2 Ah Sealed Lead Acid Battery - 12 Vdc	1.25 (0.57)
12V4A	4.5 Ah Sealed Lead Acid Battery - 12 Vdc	5 (2.27)
12V6A5	7.2 Ah Sealed Lead Acid Battery - 12 Vdc	6 (2.72)
6V8A	8 Ah Sealed Lead Acid Battery - 6 Vdc	4 (1.81)
6V10A	12 Ah Sealed Lead Acid Battery - 6 Vdc	5 (2.27)
12V10A	11 Ah Sealed Lead Acid Battery - 12 Vdc	10 (4.45)
12V17A	18 Ah Sealed Lead Acid Battery - 12 Vdc	13 (5.90)
12V24A	26 Ah Sealed Lead Acid Battery - 12 Vdc	20 (9.07)
12V40A	40 Ah Sealed Lead Acid Battery - 12 Vdc	32 (14.51)
12V50A	50 Ah Sealed Lead Acid Battery - 12 Vdc	40 (18.14)
12V65A	65 Ah Sealed Lead Acid Battery - 12 Vdc	49 (22.23)

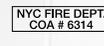


LIFE SAFETY & INCIDENT MANAGEMENT

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.

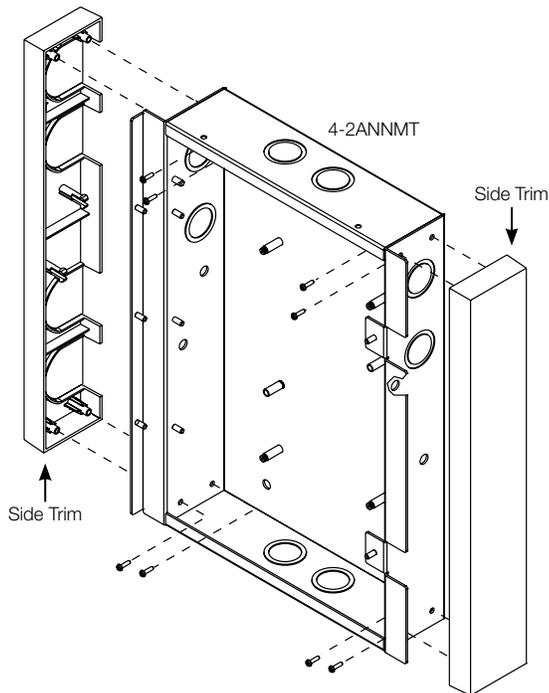
The 8 space, 16 space and 24 space 4-xxANNMT series wallboxes are designed for surface mount applications. Their depth is kept to a minimum to allow the least amount of room penetration. When semi-flush mounting is required, order the standard 3-CAB5B, 7B, or 14B wallbox.

Engineering Specification

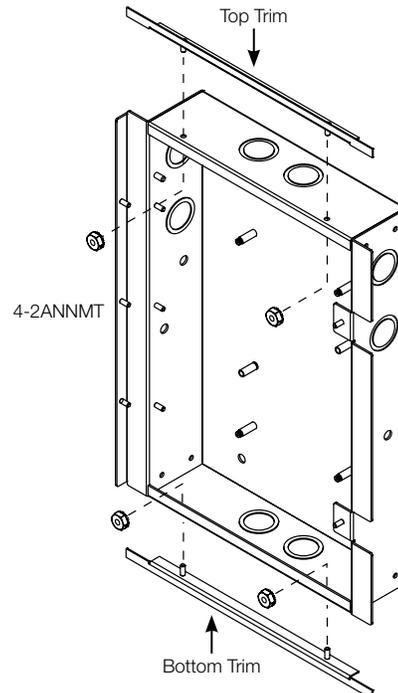
The Life Safety system shall incorporate annunciation of Alarm, Supervisory, Trouble and Monitor operations. Annunciation must be through the use of both LED display strips complete with a means to custom label each LED as to its function. LED color shall be selectable at configuration time. Where applicable 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



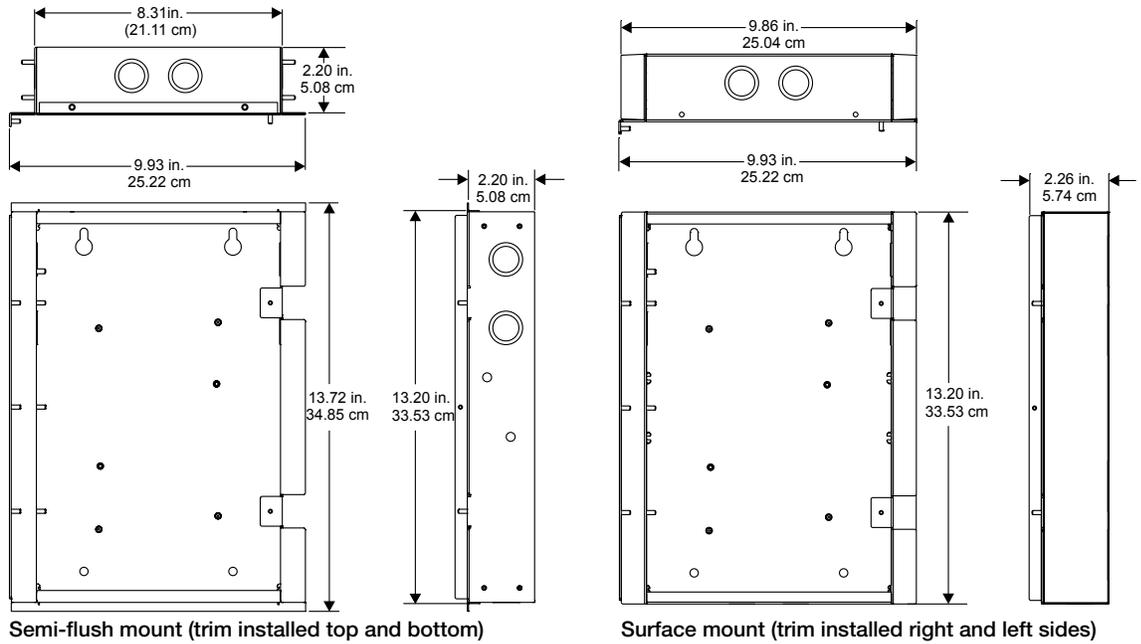
4-2ANNMT, 4-4ANNMT, and 4-6ANNMT included trim installation for semi-flush mount applications



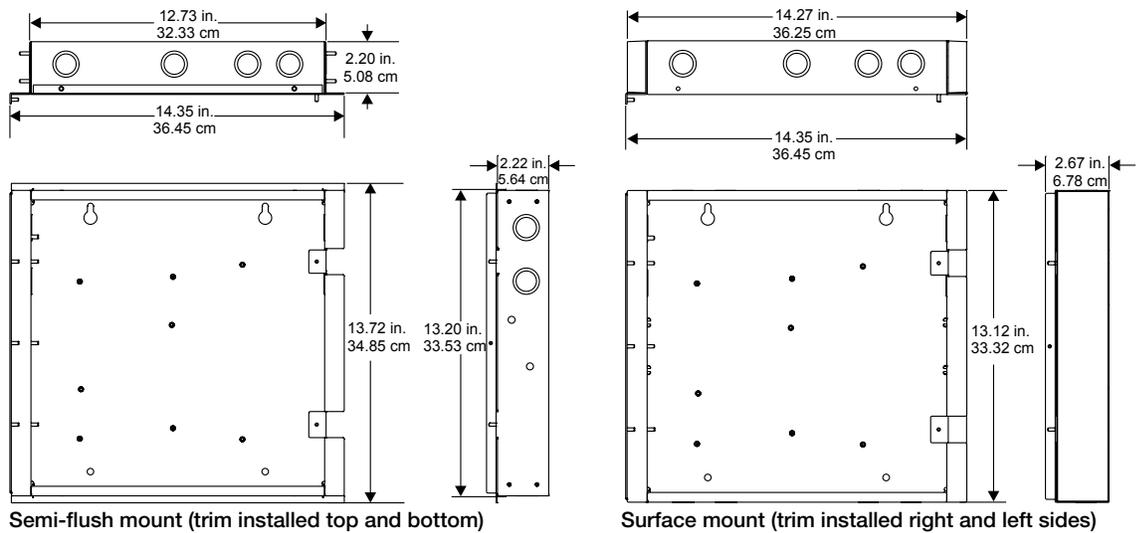
See Specifications Table for 4-8ANNMT, 4-16ANNMT, 4-24ANNMT mounting options.

Dimensions, wallboxes

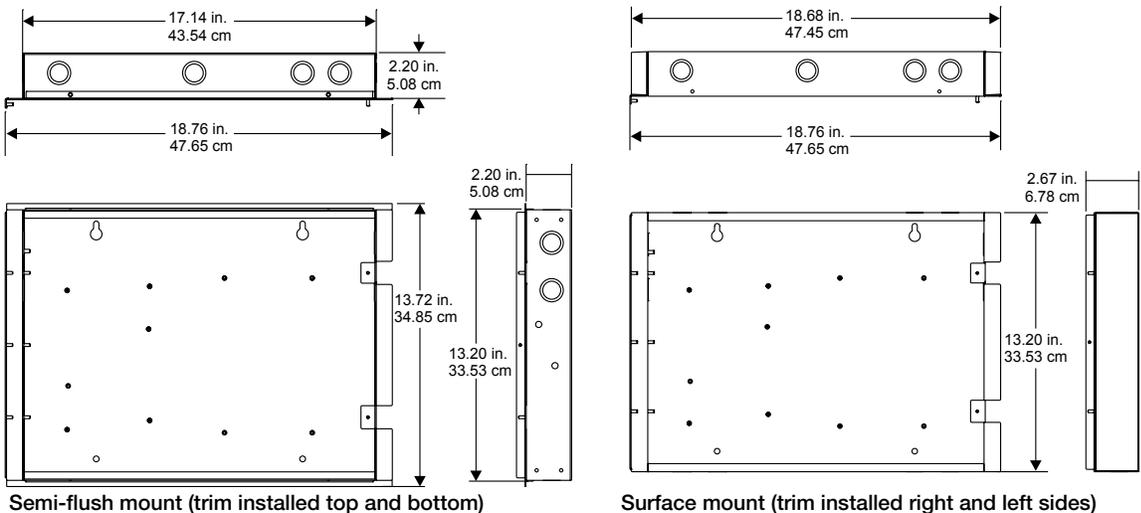
4-2ANNMT Wallbox Assembly, Surface and Semi-flush Mounting (both trims are included)



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

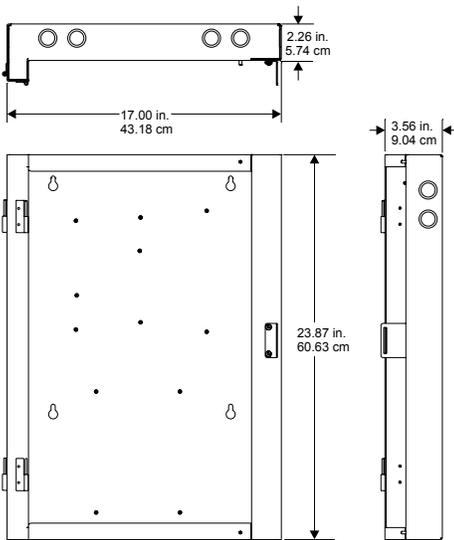


4-6ANNMT Wallbox Assembly, Surface and Semi-flush Mounting (both trims are included)

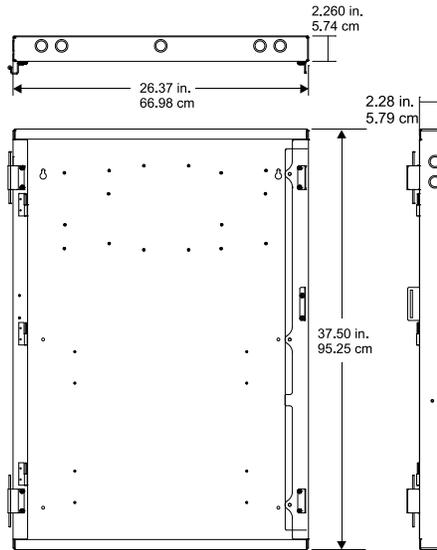


Dimensions, wallboxes

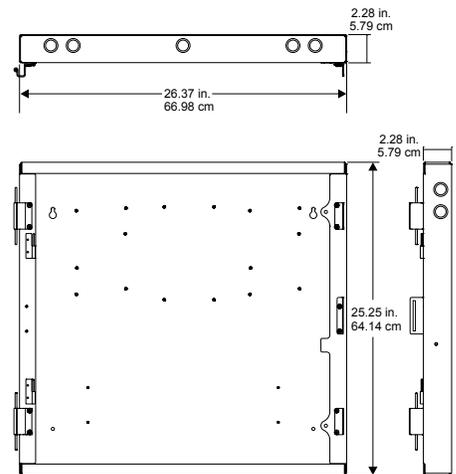
4-8ANNMT Wallbox Assembly, Surface Mount
For semi-flush mounting, use a 3-CAB5B wallbox.



4-24ANNMT Wallbox Assembly, Surface Mount
For semi-flush mounting, use a 3-CAB14B wallbox.

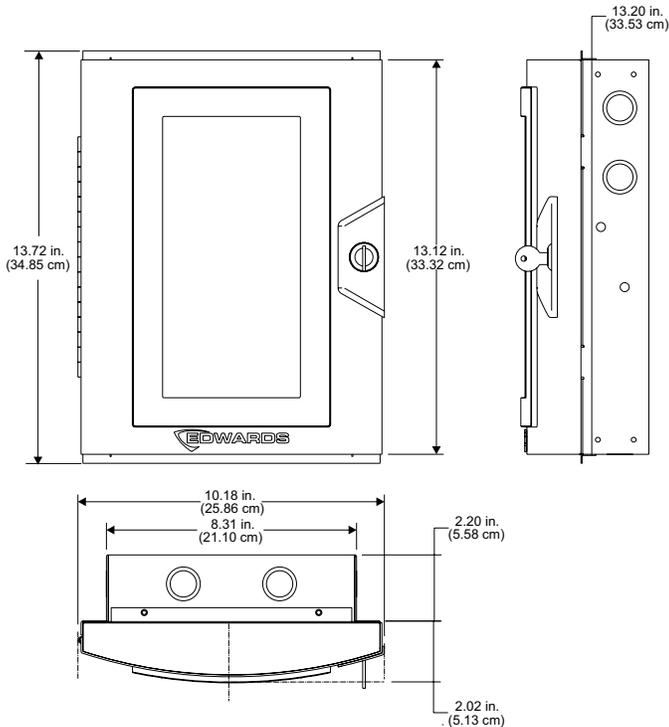


4-16ANNMT Wallbox Assembly, Surface Mount
For semi-flush mounting, use a 3-CAB7B wallbox.

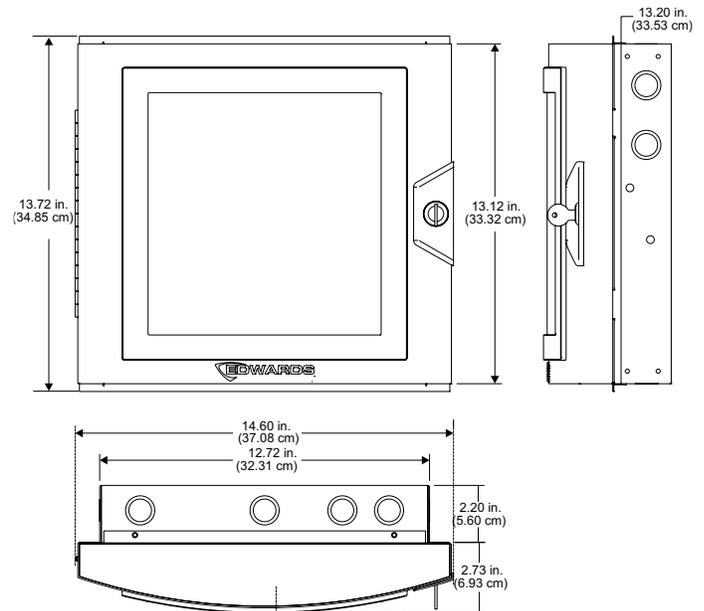


Dimensions, door assemblies

4-2ANN Series Door Assembly

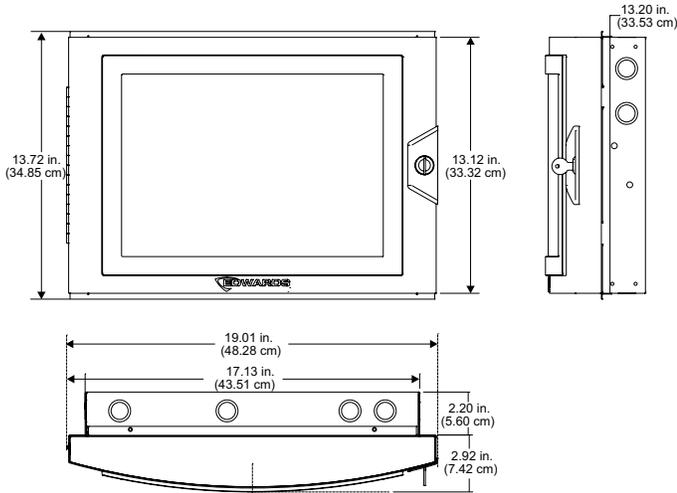


4-4ANN Series Door Assembly

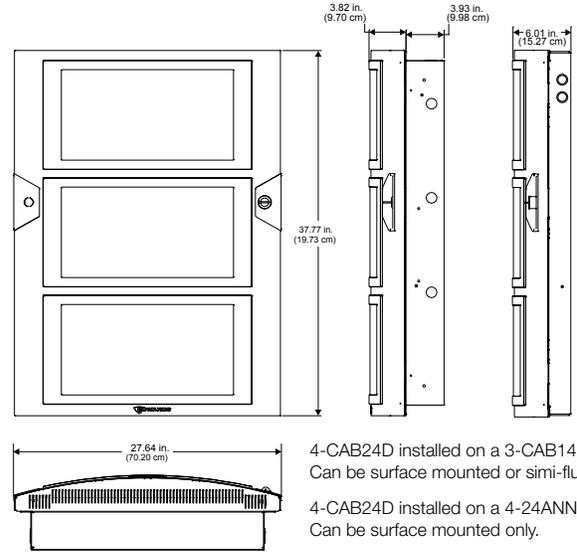


Dimensions, door assemblies continued

4-6ANN Series Door Assembly



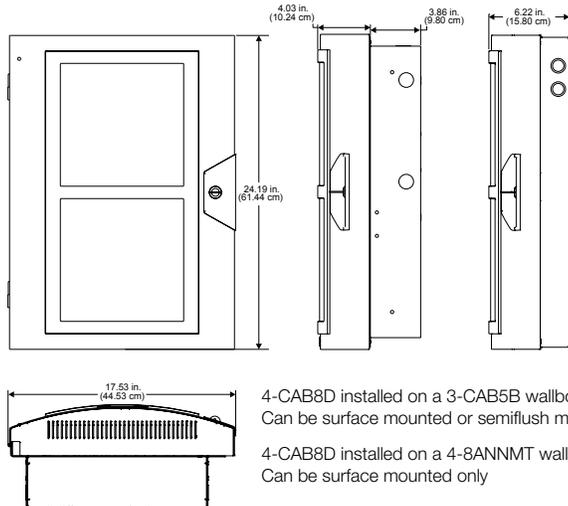
4-CAB24D Series Door Assembly



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

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

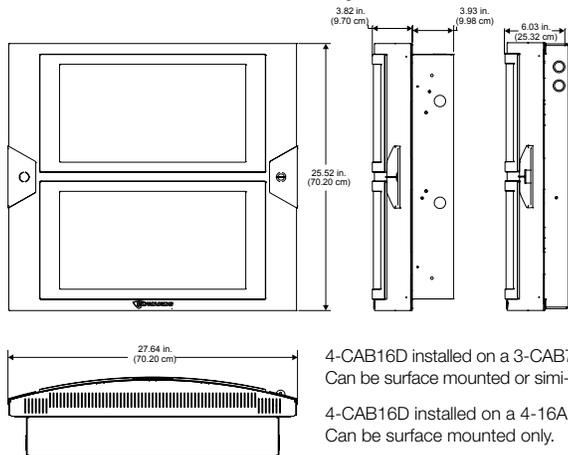
4-CAB8D Series Door Assembly



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.

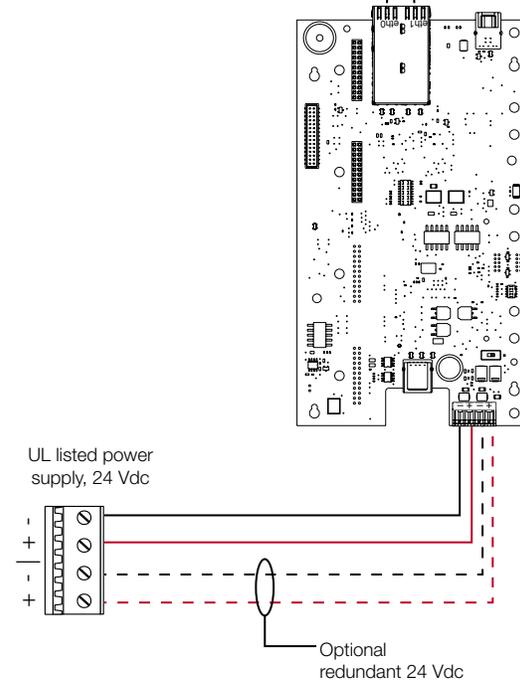
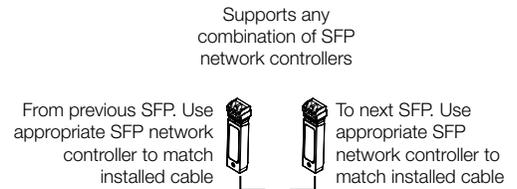
4-CAB16D Series Door Assembly



4-CAB16D installed on a 3-CAB7B wallbox.
Can be surface mounted or semi-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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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	183 mA at 16 VDC; 125 mA at 24 VDC; 119 mA at 32 VDC
Alarm/Active	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 mm ²)
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.



LIFE SAFETY & INCIDENT MANAGEMENT

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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)



Remote Booster Power Supplies

BPS6A, BPS10A



ME A
476-91-E
Vol.13



ULC
S3424



7300-1657:
0229

Overview

The Booster Power Supply (BPS) is a UL 864, 9th 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, security, and access control 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. For access control-only applications, the BPS can support batteries totaling up to 65 ampere-hours in an external enclosure. 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 9th ed.ition (UOXX)	Fire Alarm Systems
UL636 (ANET, UEHX7)	Holdup Alarm Units and Systems
UL609 (AOTX, AOTX7)	Local Burglar Alarm Units and Systems
UL294 (ALVY, UEHX7)	Access Control 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. California temporal rate outputs are also available on certain models. 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.

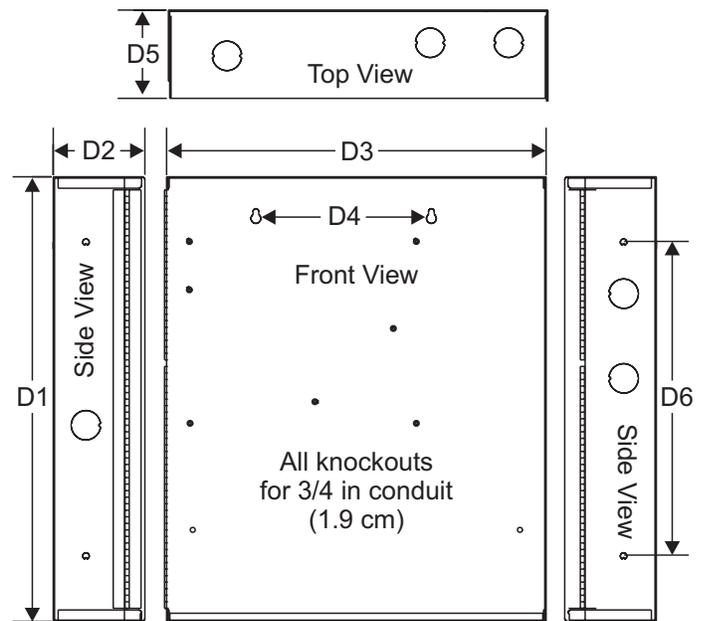
The BPS enclosure has mounting brackets for up to three Signature modules to the right of the circuit board.

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 and security applications, and the capacity of 65 ampere-hours for access control applications.

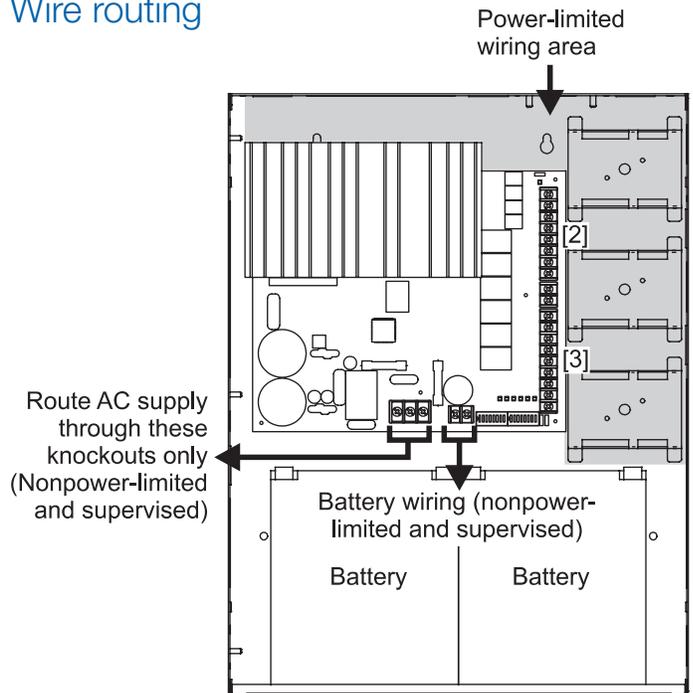
<<The BPS shall be capable of installation for a seismic component Importance Factor of 1.5.>> The BPS shall provide a minimum of four independent, fully supervised Class B circuits that can be field configurable for notification appliance circuits or auxiliary 24 Vdc power circuits. BPS NACs shall be 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, 3-3-3 temporal or optionally, California 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



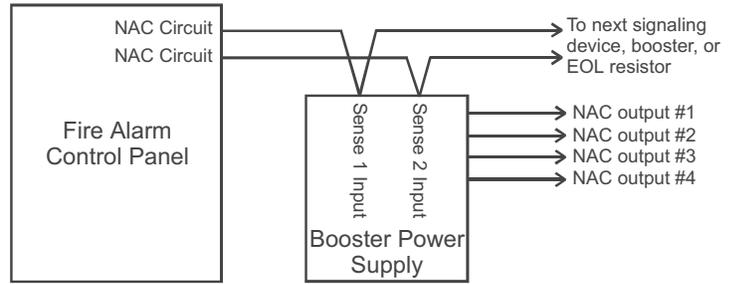
Notes

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.

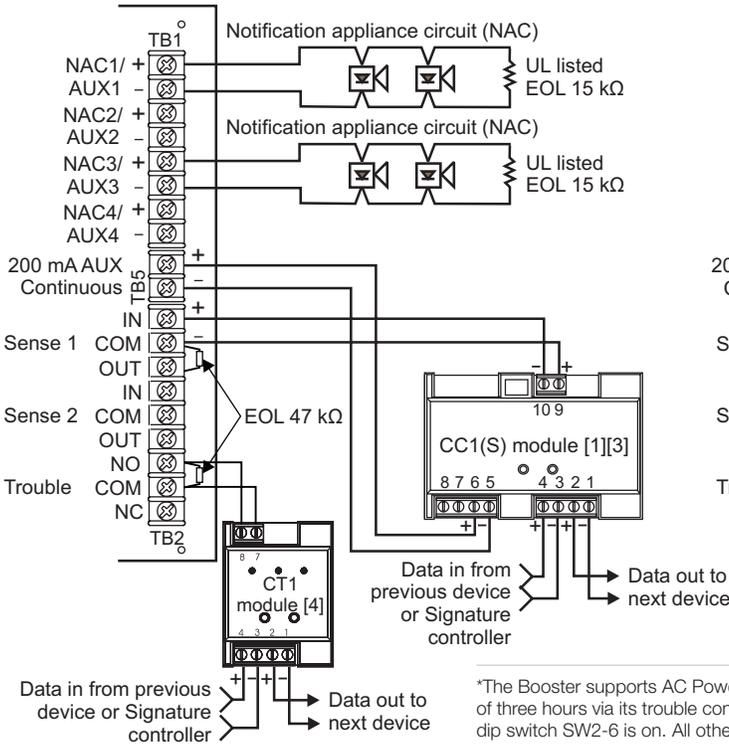
Typical Wiring

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.

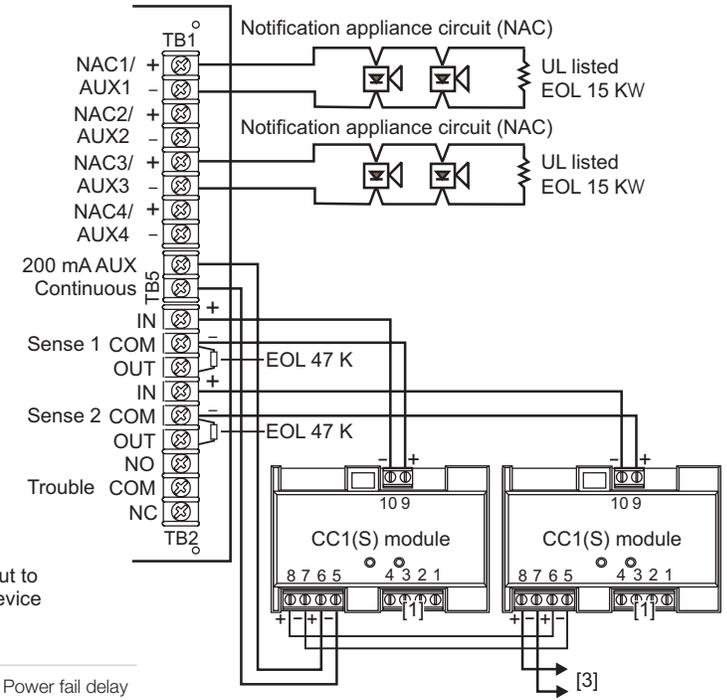


Configuring the Booster for AC Power Fail delay operation*

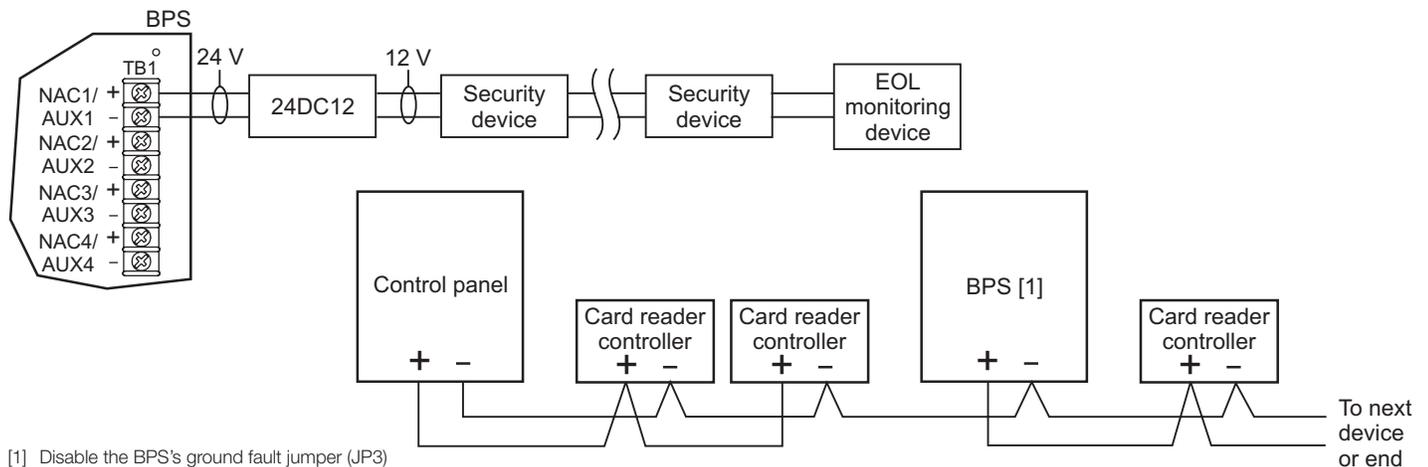


*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

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



Security and access



[1] Disable the BPS's ground fault jumper (JP3)



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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 2.)	
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	Accommodates 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 and security applications; up to 65 Amp hours for access control applications in external battery box.	
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, California rate, 3-3-3 temporal, or follow installed panel's NAC. (See note 1.)	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

1. Model BPS*CAA provides selection for California rate, in place of temporal.
2. 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)
BPS6CAA	6.5 Amp Booster Power Supply with California rate	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)
BPS10CAA	10 Amp Booster Power Supply with California rate	13 (5.9)

1. Requires installation of separate battery cabinet.
2. BPS supports batteries greater than 24 Amp hours for access control applications only.
3. 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.

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	
BC-1EQ	Seismic Kit for BC-1. Order BC-1 separately. See note 3.	
BPSEQ	Seismic kit for BPS6A or BPS10 Booster Power Supplies. See note 3	
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)
12V40A	40 Amp Hour Battery, two required (see notes 1, 2)	32 (14.5)
12V50A	50 Amp Hour Battery, two required (see notes 1, 2)	40 (18.14)
12V65A	65 Amp Hour Battery, two required (see notes 1, 2)	49 (22.2)

Intelligent Smoke Detector

SIGA-OSD



Overview

The Signature Optica Series SIGA-OSD smoke detector brings advanced optical sensing 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

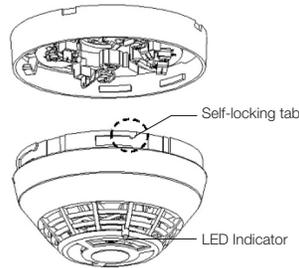
The SIGA-OSD detects particles from a wide range of combustion sources and will trigger an alarm when smoke density in the chamber reaches preprogrammed level. Thanks to its high-performance reflective response technology, the smoke sensor responds quickly and reliably to a wide range of fire types, 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.



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.

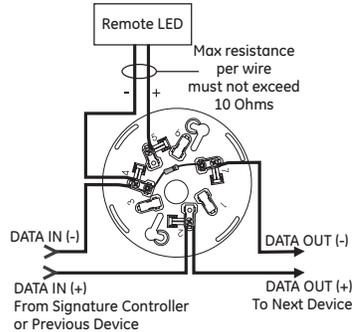
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.5mm²), and #12 AWG (2.5mm²) wire sizes. Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) 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 (-)
5	Remote LED (+)
6	Remote LED (-)
7	DATA OUT (-)



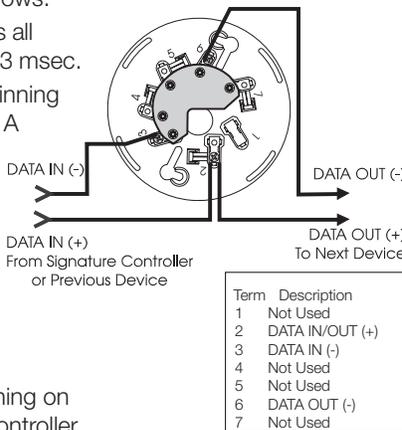
Isolator Detector Base, SIGA-IB, SIGA-IB4

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:

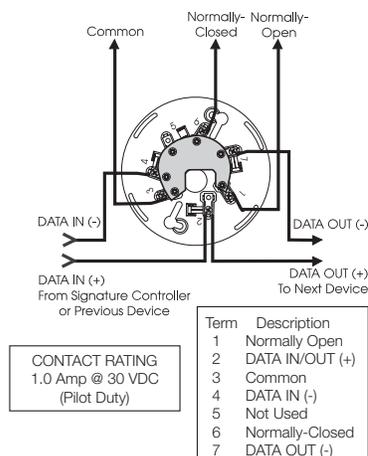
- a short on the line causes all isolators to open within 23 msec.
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power.
- when the isolator next to the short closes, it reopens within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

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



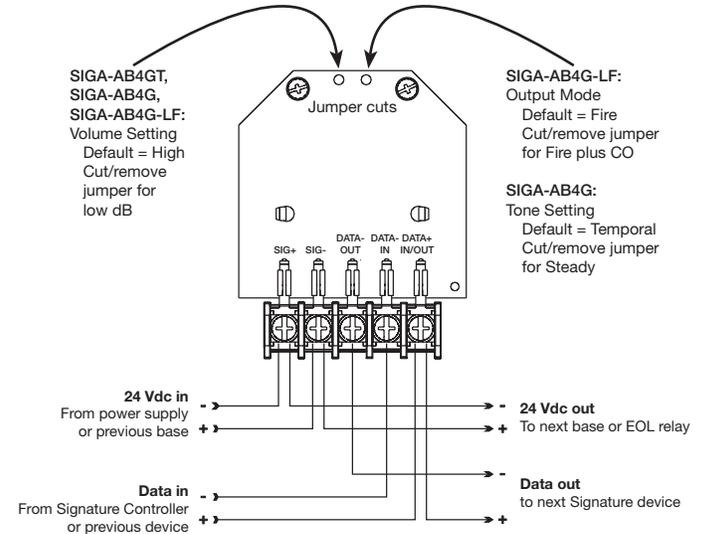
Relay Detector Base, SIGA-RB, SIGA-RB4

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.



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

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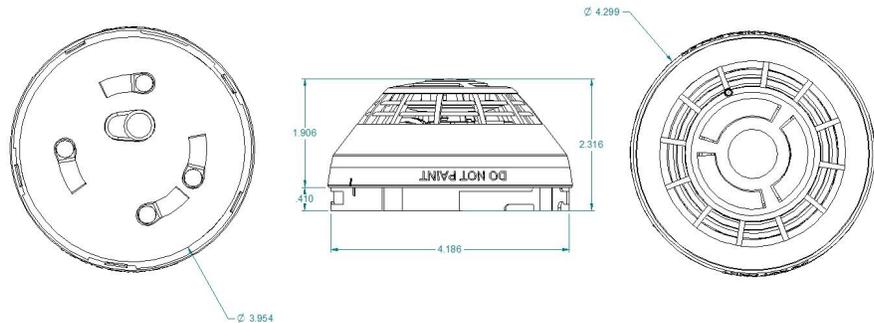
Phone: 800-655-4497, Option 1
 Fax: 866-226-2126
 Email: Edwards.techsupport@fs.utc.com
 Website: <https://www.edwardsfiresafety.com/>

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Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 μ A
Alarm current	45 μ A
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

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	
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	0.2 (.09)
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**

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 ensure 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 (8°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

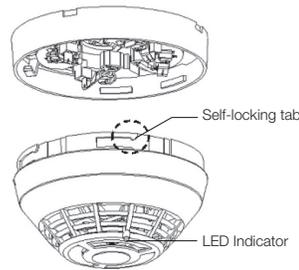
The SIGA-HRD combination fixed-temperature/rate-of-rise heat detector provides a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of fast-developing fires, as well as a 135°F (57°C) fixed-temperature sensor for slow-building fires. The SIGA-HFD fixed-temperature detector provides a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



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 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.

Warnings & Cautions

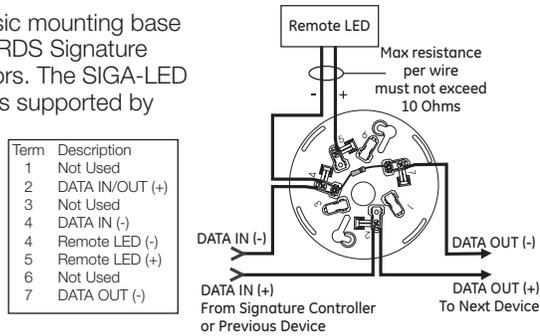
- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where heat cannot reach the detector. Heat from fires in walls, roofs, or on the 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 (0.75mm²), #16 AWG (1.0mm²), #14 AWG (1.5mm²), and #12 AWG (2.5mm²) wire sizes. Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

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



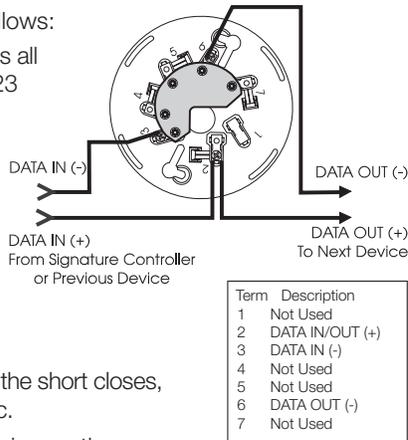
Isolator Detector Base, SIGA-IB, SIGA-IB4

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:

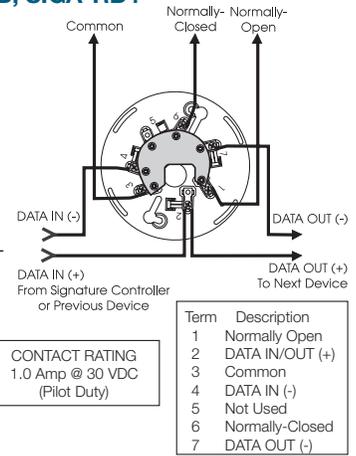
- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within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

The process repeats beginning on the



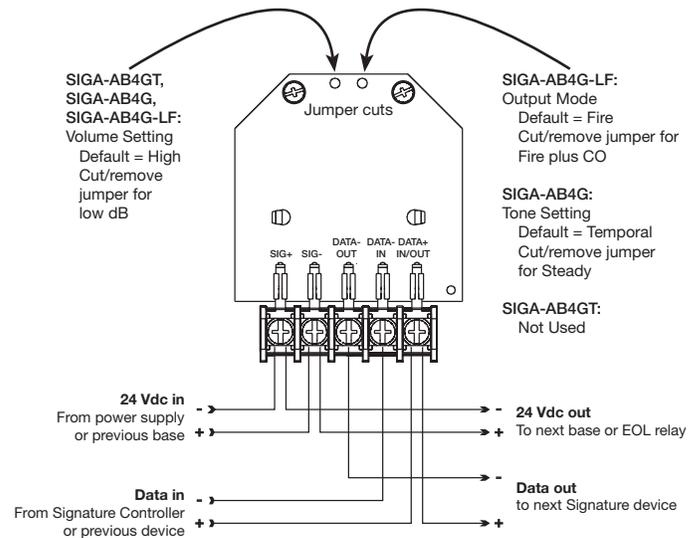
Relay Detector Base, SIGA-RB, SIGA-RB4

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.



Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases





LIFE SAFETY & INCIDENT MANAGEMENT

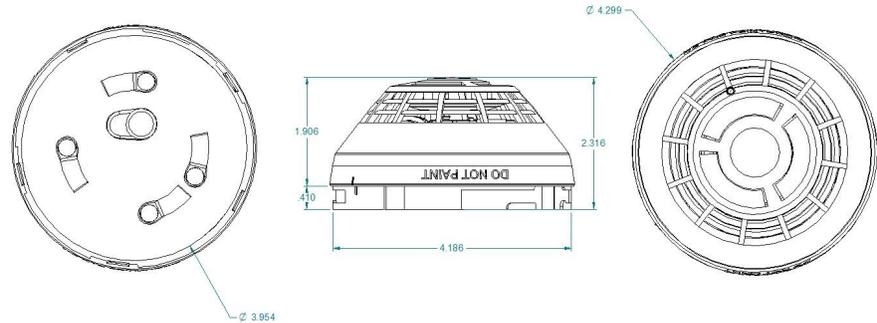
Contact us

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 Website: edwardsfiresafety.com

8985 Town Center Pkwy
 Bradenton, FL 34202

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Dimensions



Specifications

	FSIGA- HRD	SIGA-HFD
Operating voltage	15.20 to 19.95 VDC	
Normal operating current	51 μ A	
Alarm current	68 μ A	
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	Testfire 1000, Testfire 2000	Testfire 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 FM	CAN/ULC-S530-M91, UL 521 CSFM

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-HRD	Intelligent fixed-temperature/Rate-of-rise heat detector	
SIGA-HFD	Intelligent fixed-temperature heat detector	
SIGA-HRD-NL	Intelligent fixed-temperature/Rate-of-rise-heat detector, no visible logo	0.4 (0.16)
SIGA-HFD-NL	Intelligent fixed-temperature heat detector, no visible logo	

Compatible Bases		
SIGA-SB	Detector Mounting Base - Standard	
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	0.2 (.09)
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	
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
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)	
SIGA-TS	Trim Skirt (optional for non 4-inch bases)	0.1 (0.04)
SIGA-RTA	Detector Removal Tool	

Intelligent CO Detector

SIGA-COD



Overview

The Signature Series SIGA-COD carbon monoxide detector brings advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while advanced electrochemical CO sensing technology provides performance benefits that keep occupants safe from carbon monoxide, the “silent killer”.

Like all Signature Series detectors, the SIGA-COD is an intelligent device that gathers analog information from its CO sensor, converting this data into digital signals. To make an alarm decision, the detector’s on-board microprocessor measures and analyzes sensor readings over time. Digital filters remove signal patterns that are not typical of life safety events, thus virtually eliminating unwanted alarms.

The SIGA-COD includes an advanced carbon monoxide sensor. When the electrochemical cell reaches its end of life after approximately ten years, the detector signals a trouble condition to the control panel. Refer to the control panel documentation for specific end of life timing.

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 CO Sensing Technology
- Advanced electrochemical carbon monoxide sensing technology
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Signature Adresses Per Loop
- Non-volatile memory
- Electronic addressing
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

Application

CO detection has rapidly become a standard part of life safety strategies everywhere. Monitored CO detection is mandated with increasing frequency in all types of commercial applications, but particularly in occupancies such as hotels, rooming houses, dormitories, day care facilities, schools, hospitals, assisted living facilities, and nursing homes. In fact, more than half of the U.S. population already lives in states requiring the installation of CO detectors in some commercial occupancies. This is because carbon monoxide is the leading cause of accidental poisoning deaths in America. Known as the “Silent Killer,” CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually.

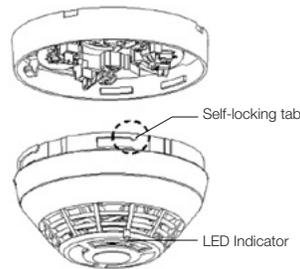
Concentration	Symptoms	Duration of Exposure
35PPM	None	<=8 hours
150PPM	Mild Headache	2 – 3 hours
400PPM	Headache/Nausea	1 – 2 hours
800 PPM	Headache/nausea/dizziness/ Progressing to unconscious	45 min. to 2 hours
6,400 PPM	Headache/nausea & dizziness	1 – 2 min.
12,800 PPM	Immediately dangerous to life or health	

Compatibility

The SIGA-COD detector is 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.



Testing & Maintenance

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. When the CO sensor’s electrochemical cell reaches its end of life, the detector signals a Trouble condition to the control panel. Scheduled maintenance (regular or selected) for proper detector operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72, NFPA 720, and ULC CAN/ULC 536 standards.

Sensor Life

The CO sensor has a 10-year life from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first. The detector signals a “COMMON TRBL ACT” condition on the control panel when the CO sensor reaches its end of life. Pressing the Details button on the control panel displays “END OF LIFE ACT” providing verification that it is an end-of-life trouble of the CO sensor. This trouble remains active until the detector is replaced, even if the panel is reset.

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.



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-AB4GT** bases provide sounder capability to the SIGA-COD when used with a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to the SIGA-COD when used with a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

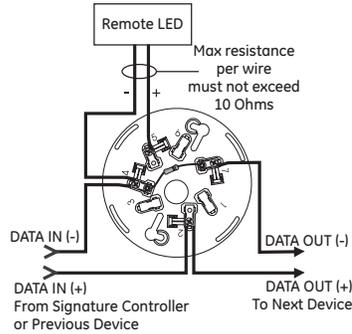
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.5mm²), and #12 AWG (2.5mm²) wire sizes. Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) 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 (-)

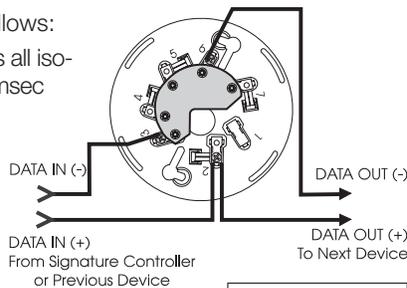


Isolator Detector Base, SIGA-IB, SIGA-IB4

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.

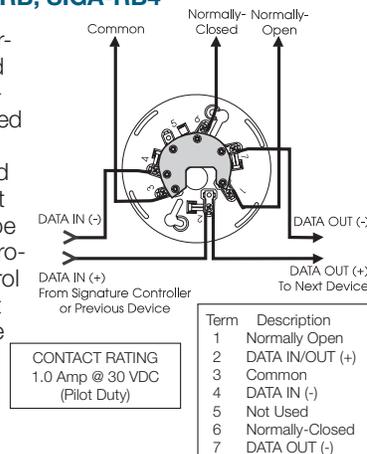


Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

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

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.



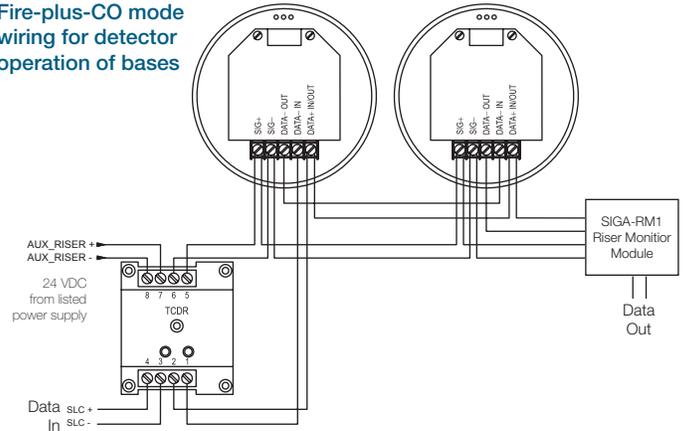
Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire-plus-CO Mode

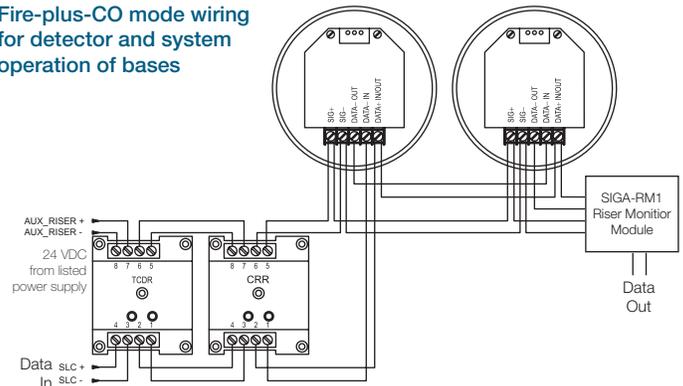
AB4GT and AB4G-LF sounder bases.

These configurations require a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.

Fire-plus-CO mode wiring for detector operation of bases



Fire-plus-CO mode wiring for detector and system operation of bases



Warnings & Cautions

- This detector is designed to protect individuals from the acute effects of CO exposure. It will not fully safeguard individuals with specific medical conditions. People with special medical problems should consider using specialized detection devices with less than 30 ppm (parts per million) alarming capabilities. If in doubt, consult a medical practitioner.
- If the detector is in trouble or at the end of its life, it may not sense CO and cannot be relied upon to monitor CO levels. Replace the detector every ten years from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first.
- A detector installed outside a bedroom may not awaken a sleeper.
- Normal noise due to stereos, television, etc. may also prevent the detector from being heard if distance or closed or partly closed doors muffle the sounder. This unit is not designed for the hearing impaired.
- CO detectors are not a substitute for life safety. Though these detectors will warn against increasing CO levels, we do not warrant or imply in any way that they will protect lives from CO poisoning. They should only be considered as an integral part of a comprehensive safety program.



LIFE SAFETY & INCIDENT MANAGEMENT

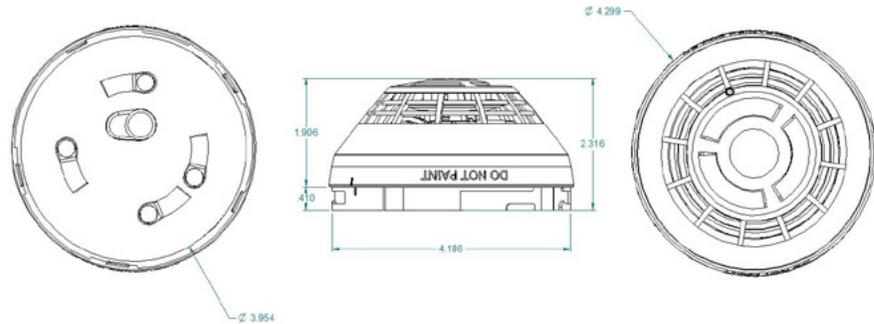
Contact us...

Email: edwards.fire@fs.utc.com
 Web: Edwards-fire.com

EDWARDS is a UTC brand.
 1016 Corporate Park Drive
 Mebane, NC 27302

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Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 μ A
Alarm current	32 μ A
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Compatible bases	See Ordering Information
Compatible detector testers	Testfire 1000, Testfire 2000
Operating environment	32 to 120°F (0 to 49°C), 0 to 90% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
UL CO alarm level	70 ppm 60 to 240 minutes
per UL 2034, CAN/CSA 6.19	150 ppm 10 to 50 minutes 400 ppm 4 to 15 minutes
UL CO false alarm level	30 ppm 30 days
per UL 2034, CAN/CSA 6.19	70 ppm 60 minutes
Agency Listings, SIGA-COD	UL 2075. Evaluated to the CO alarm sensitivity limits of UL 2034.
Agency Listings, SIGA-COD-CA	ULC Listed to CAN/CSA 6.19.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-COD	Intelligent Carbon Monoxide Detector	0.4 (0.16)
SIGA-COD-CA	Intelligent Carbon Monoxide Detector, Canadian Market	0.4 (0.16)

Compatible Bases

SIGA-SB	Detector Mounting Base - Standard	
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	0.2 (.09)
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-TCDR	Tone Generator for Detector Sounder Bases with CO mode	0.2 (0.1)
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
SIGA-RTA	Detector Removal Tool	



Manual Pull Stations

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



SIGA-270 SERIES

SIGA-278

Patented

MEGA FM APPROVED 7150-1657:0129



Overview

The SIGA-270 and SIGA-278 series Manual Pull Stations are part of EST'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.

EST'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.
- **Stand-alone operation**
The station inputs an alarm even if the loop controller's polling interrogation stops.
- **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 (Personality 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 EST'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 (0.75mm²) to #12 AWG (2.5mm²) 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.

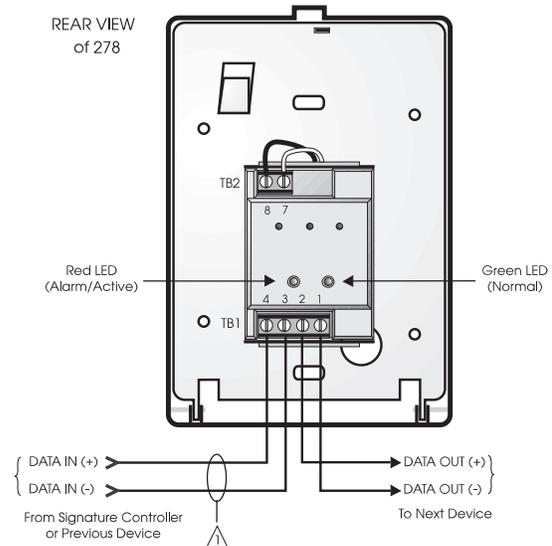


Figure 4. Single Stage Systems

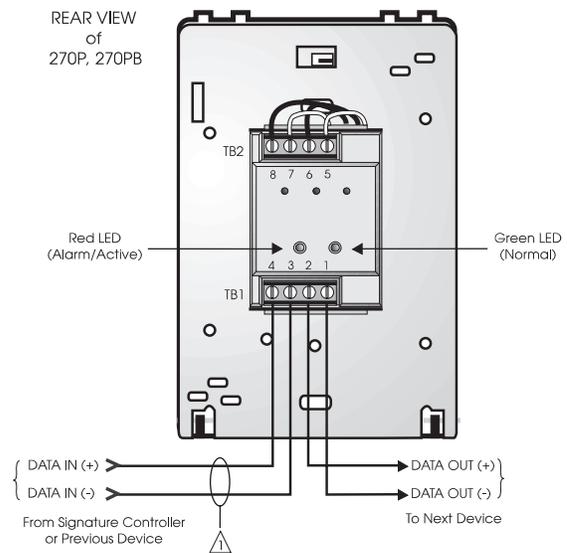


Figure 5. Two Stage Systems

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 mm² to 0.75 mm²) 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.

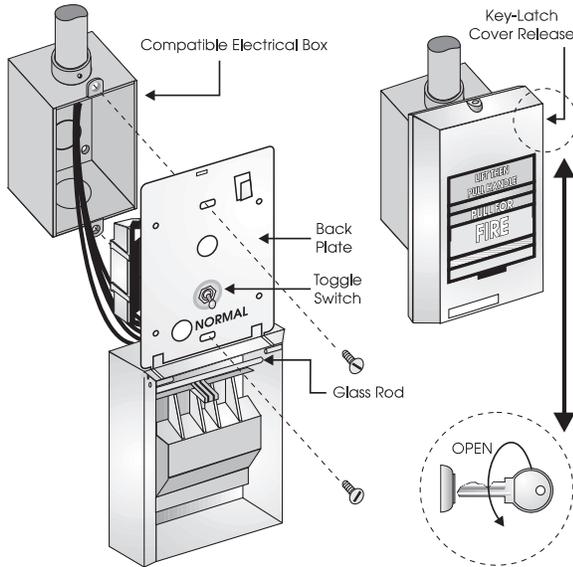


Figure 1. **SIGA-278** installation

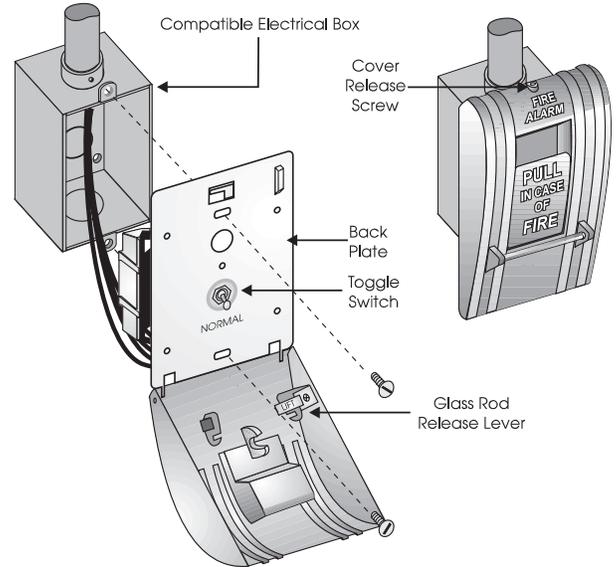


Figure 2. **SIGA-270, SIGC-270F, SIGC-270B** installation

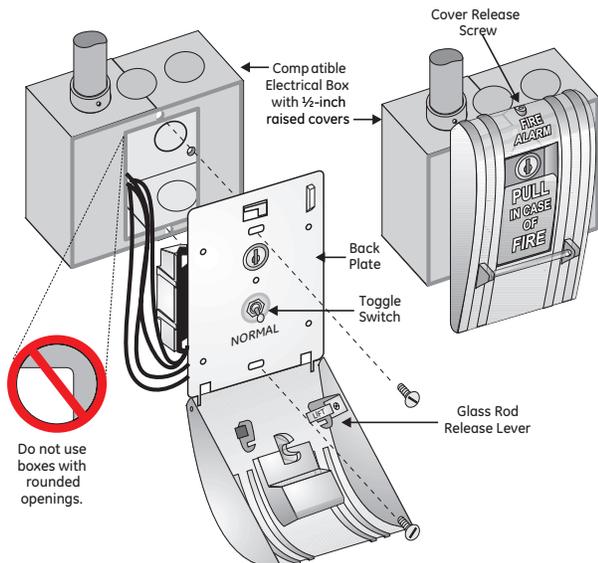


Figure 3. **SIGA-270P, SIGC-270PB** installation



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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 when in alarm Both LEDs - Glow steady when in alarm (stand-alone)		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC (note 1), MEA, CSFM		

Note: SIGC-270F, SIGC-270B and SIGC-270PB are ULC listed only. Suffix "F" indicates French markings. Suffix "B" indicates English/French bilingual 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)



Input Modules

SIGA-MM1 & SIGA-WTM



Overview

The SIGA-MM1 Monitor Module and SIGA-WTM Waterflow/Tamper Module are part of EST's Signature Series system. They 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 function of the SIGA-MM1 and SIGA-WTM is determined by the factory loaded "personality code".

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 microprocessor in each module provides four additional benefits - Self-diagnostics and History Log, Automatic Device Mapping, Stand-alone Operation and Fast, Stable Communication.

Standard Features

- Monitor and waterflow/tamper applications**
 Includes Alarm with delayed latching (retard) for waterflow applications, Supervisory, and Monitor.
- Non-volatile memory**
 Permanently stores 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 module transmits wiring information to the loop controller regarding its location with respect to other devices on the circuit.
- Electronic addressing**
 Permanently stores programmable address; there are no switches or dials to set. Addresses are downloaded from a PC, or the SIGA-PRO Signature Program/Service Tool.
- Intelligent module c/w integral microprocessor**
 All decisions are made at the module allowing lower communication speed while substantially improving control panel response time. Less sensitive to line noise and circuit wiring properties; twisted or shielded wire is not required.
- Ground fault detection by address**
 Detects ground faults right down to the device level.
- Designed for high ambient temperature operation**
 Install in ambient temperatures up to 120°F (49°C).

Application

The duty performed by the SIGA-MM1 and SIGA-WTM is determined by their factory assigned sub-type code or “Personality Code”.

SIGA-WTM NORMALLY-OPEN ALARM - DELAYED LATCHING (Factory set Personality Code 2) - Assigned to one circuit. Configures circuit 1 for **Class B** normally-open **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.

SIGA-WTM NORMALLY-OPEN ACTIVE - LATCHING (Factory set Personality Code 4) - Assigned to one circuit. Configures circuit 2 for **Class B** normally open dry contact **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.

SIGA-MM1 NORMALLY-OPEN ACTIVE - NON-LATCHING (Factory set Personality Code 3) - Assigned to one circuit. Configures circuit 1 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. Compatibility

The Signature Series modules are compatible only with EST’s Signature Loop Controller.

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 (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. Availability of maintenance features is dependent on the fire alarm system used.

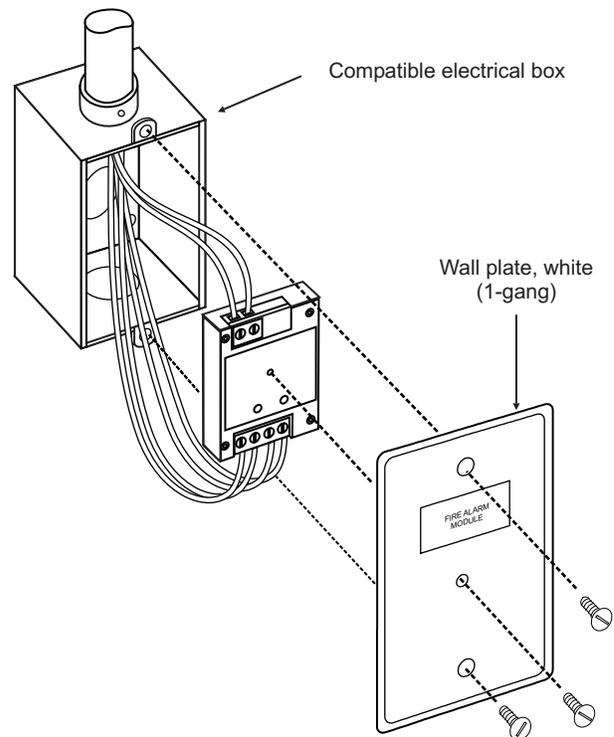
Installation

The SIGA-MM1 and SIGA-WTM modules mount to North American 2-1/2 inch (64 mm) deep one-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with one-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) 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 are assigned by the factory. No user configuration is required for these modules.



Typical Wiring

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

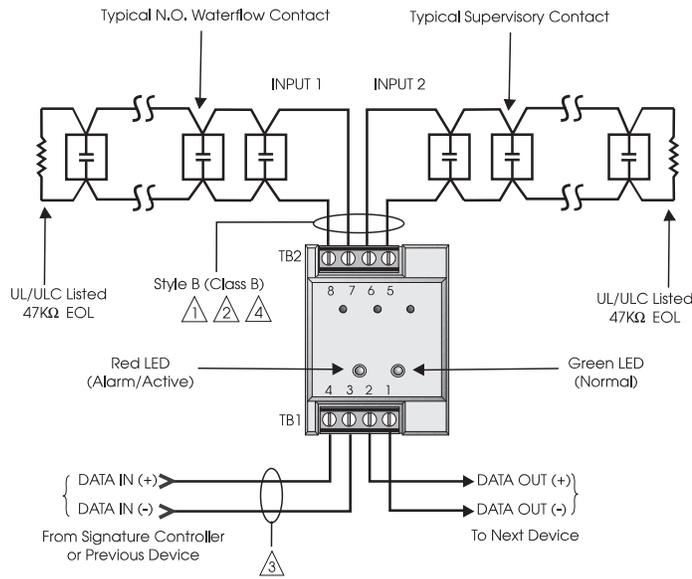
Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Initiating (Slave) Device Circuit Wire Specifications

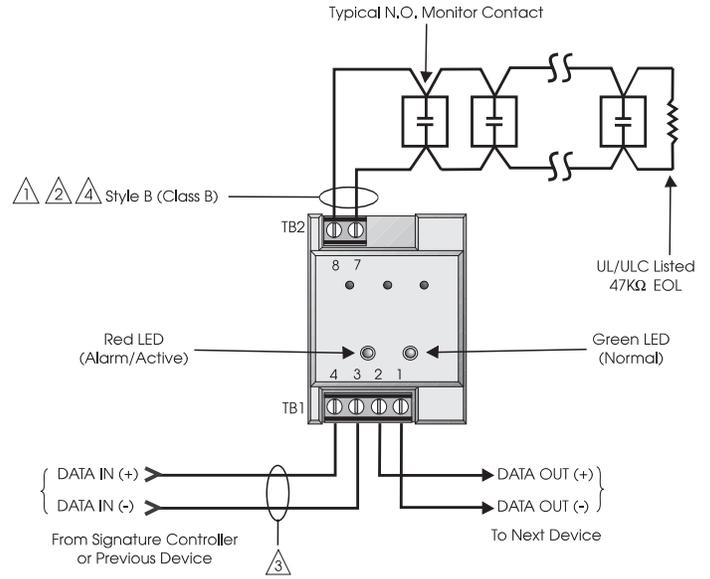
Maximum Allowable Wire Resistance	50 ohms (25 ohms per wire) per Circuit
Maximum Allowable Wire Capacitance	0.1µF per Circuit

For Design Reference:

Wire Size	Maximum Distance to EOLR
#18 AWG (0.75 mm ²)	4,000 ft (1219 m)
#16 AWG (1.00 mm ²)	
#14 AWG (1.50 mm ²)	
#12 AWG (1.50 mm ²)	



Model SIGA-WTM



Model SIGA-MM1

Notes

- 1 Maximum 25 ohms resistance per wire.
- 2 Maximum #12 AWG (2.5mm²) wire. Min. #18 (0.75mm²)
- 3 Refer to Signature Loop Controller Installation Sheet for wiring specifications.
- 4 Maximum 10 Vdc @ 350µA.
- 5 All wiring power limited and supervised.
- 6 This module will NOT support 2-wire smoke detectors.



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Specifications

Catalog Number	SIGA-MM1	SIGA-WTM
Description	Monitor Module	Waterflow/Tamper Module
Type Code	48 (factory set personality code 3)	49 (factory set personality code 2,4)
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 & Finish	High Impact Engineering Polymer one-gang front plate - White	
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 Both LEDs - Glow steady when in alarm (stand-alone)	
Compatibility Agency Listings	Use With Signature Loop Controller UL, ULC, CSFM, MEA	
Mounting	North American 2-1/2 inch (64 mm) deep one-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with one-gang covers and SIGA-MP mounting plates.	

Ordering Information

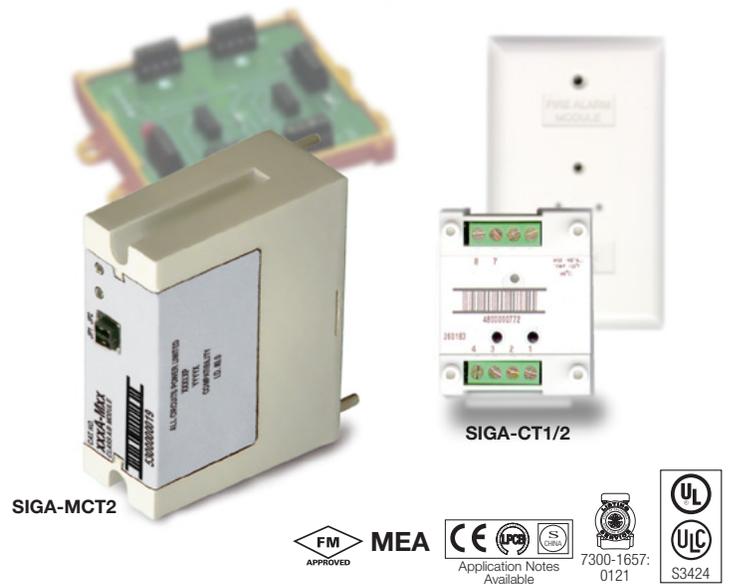
Catalog Number	Description	Ship Wt lbs (kg)
SIGA-MM1	Monitor Module - UL/ULC Listed	0.4 (.15)
SIGA-WTM	Waterflow/Tamper Module - UL/ULC Listed	

Accessories		
Catalog Number	Description	Ship Wt lbs (kg)
27193-11	Surface Mount Box - Red, 1-gang	1.0 (0.6)
27193-16	Surface Mount Box - White, 1-gang	
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)



Input Modules

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



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 water-flow 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.
- Stand-alone operation**
The module makes decisions and inputs an alarm from initiating devices connected to it even if the loop controller’s polling interrogation stops. (Function availability dependent upon control panel.)
- Ground fault detection by address**
Detects ground faults right down to the device level.

Signature Series Overview

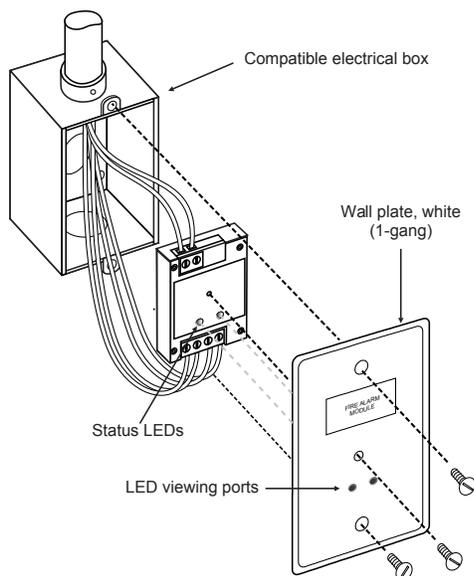
The Signature Series intelligent analog-addressable system from Edwards Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from 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, Stand-alone Operation 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.

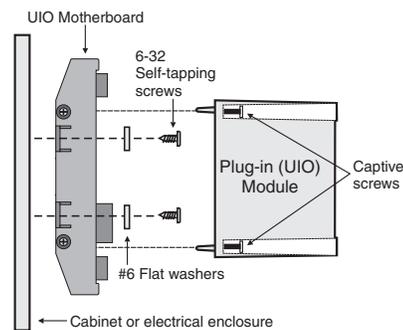
Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. 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 mm² to 0.75 mm²) 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 mm² to 0.75 mm²) 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.

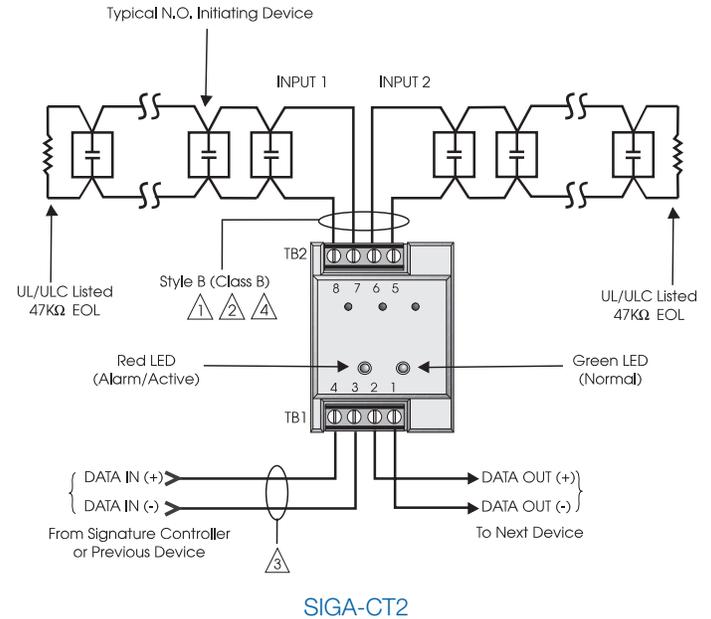
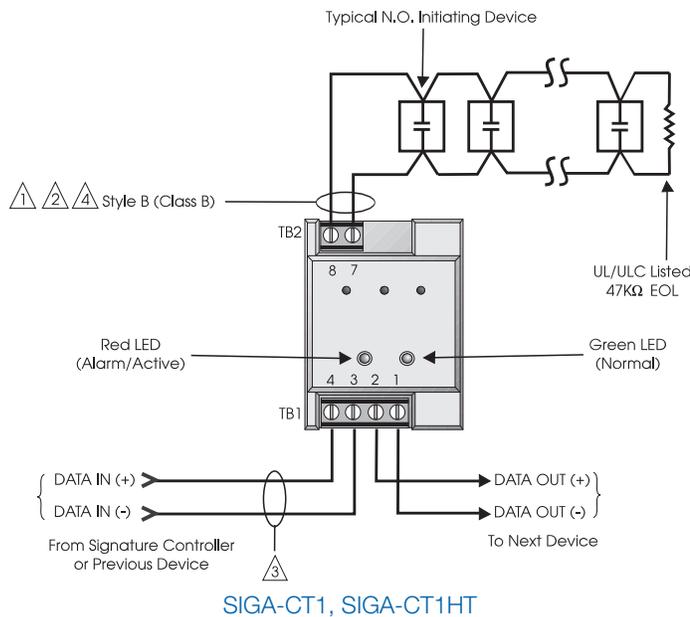
Typical Wiring

Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), and #14AWG (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.

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)	



NOTES

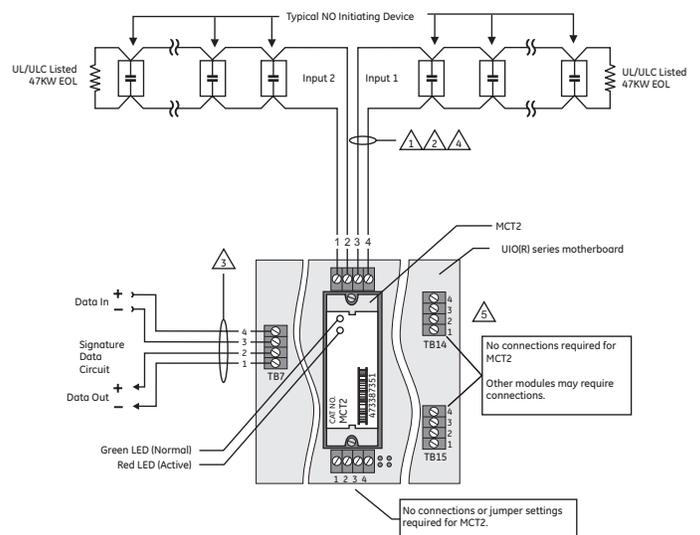
- 1 Maximum 25 Ohm resistance per wire.
- 2 Maximum #12 AWG (2.5 mm²) wire; Minimum #18 AWG (0.75 mm²).
- 3 Refer to Signature controller installation sheet for wiring specifications.
- 4 Maximum 10 Vdc @ 350 µA
- 5 The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
- 6 All wiring is supervised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

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

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





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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. Both LEDs - Glow steady when in alarm (stand-alone)			
Compatibility	Use with Signature Loop Controller			
Agency Listings	UL, ULC, MEA, CSFM			

Ordering Information

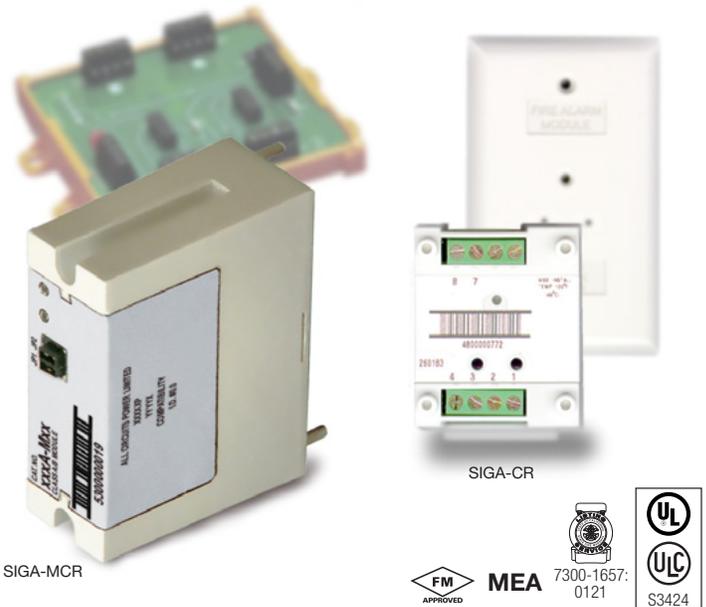
Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-CT1	Single Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-CT1HT	Single Input Module High Temperature Operation UL/ULC Listed	0.4 (0.15)
SIGA-CT2	Dual Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-MCT2	Dual Input Plug-in (UIO) Module — UL, ULC Listed	0.1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



Control Relay Modules

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



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.

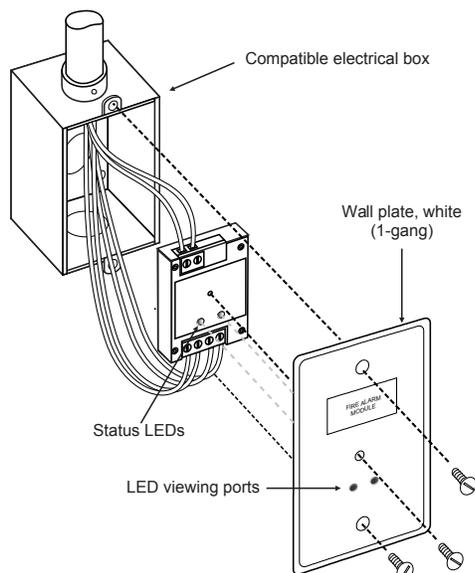
Plug-in UIO versions (SIGA-MCR and SIGA-MCRR) are part of the UIO family of plug-in Signature Series modules. They function identically to the standard mount versions, but take advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards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

Standard Features

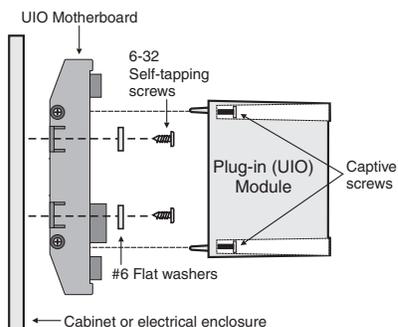
- Provides one no/nc contact (SIGA-CR/MCR)**
 Form “C” dry relay contact can be used to control external appliances such as door closers, fans, dampers etc.
- Allows group operation of sounder bases**
 The SIGA-CRR/MCRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on 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.
- Ground fault detection by address**
 Detects ground faults right down to the device level.

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 mm² to 0.75 mm²) 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 mm² to 0.75 mm²) 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

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

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.

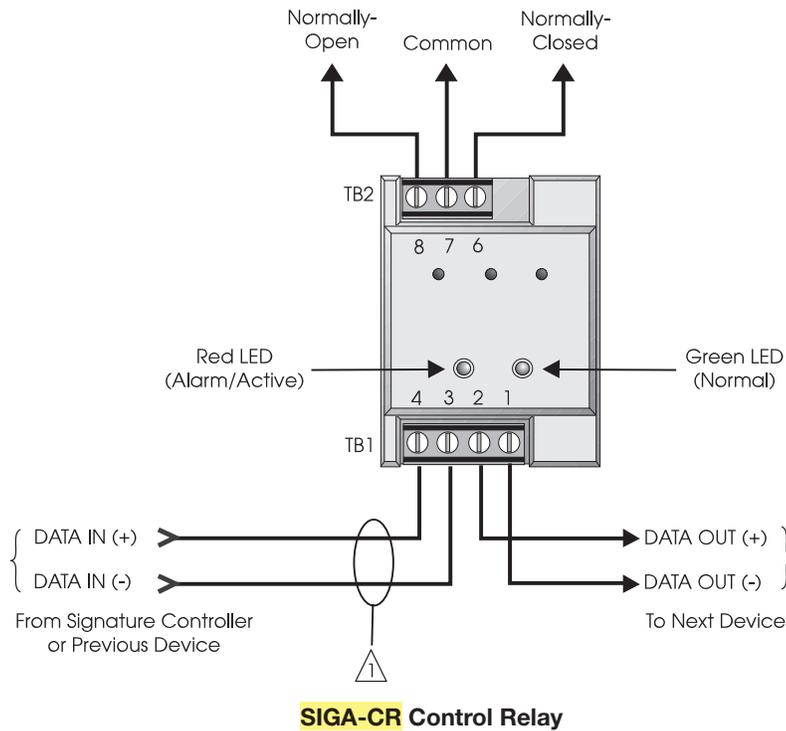
Testing & Maintenance

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

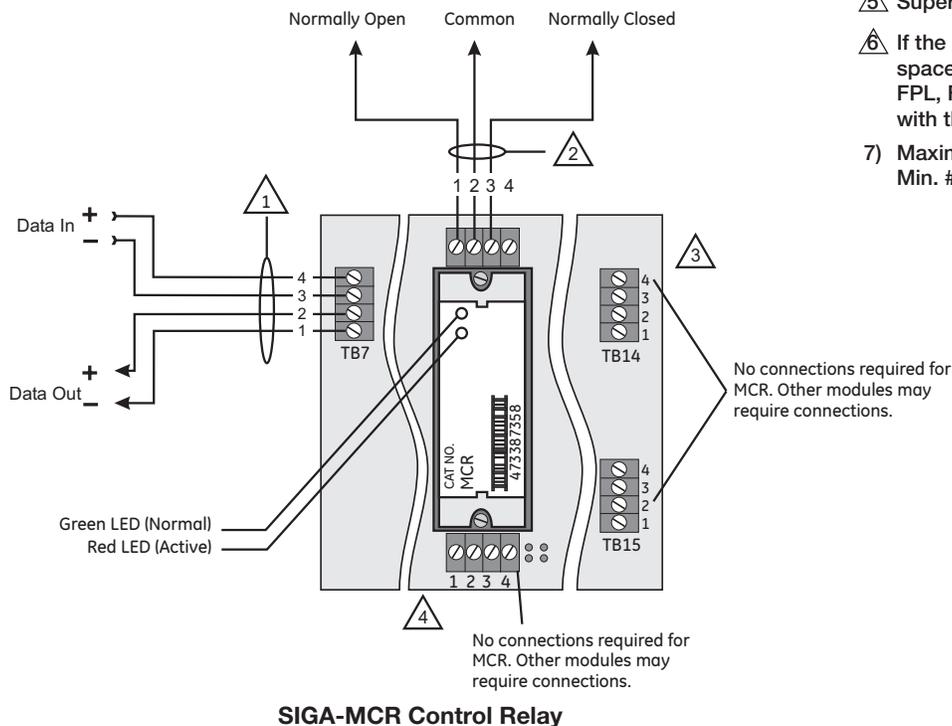
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.5mm²) wire sizes.

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.



Notes

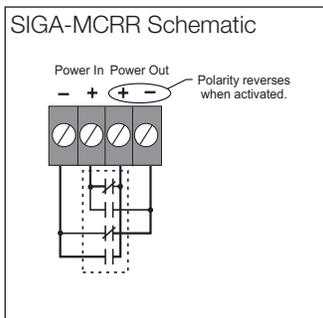
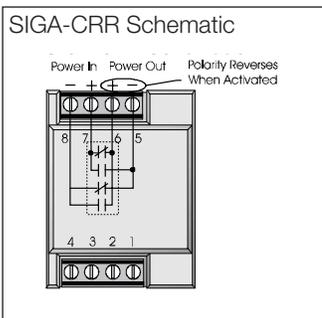
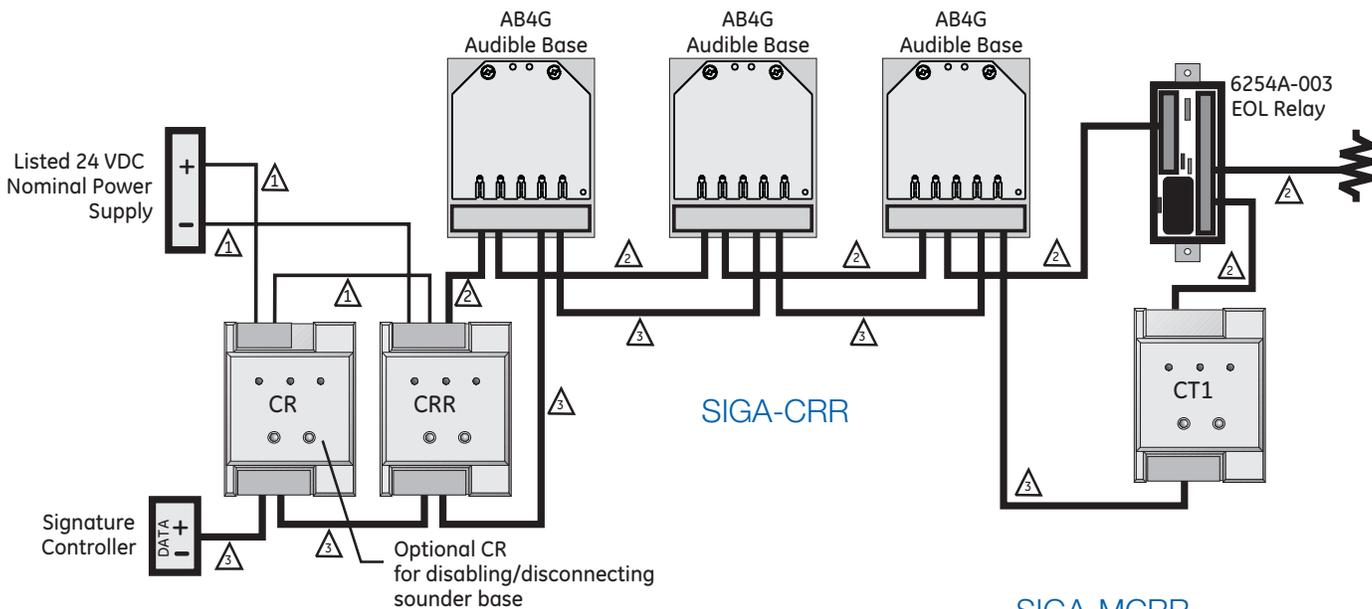
- 1 Refer to Signature Loop Controller Installation Sheet for wiring specifications.
- 2 NFPA 72 requires that the SIGA-CR/SIGA-MCR be installed in the same room as the device it is controlling. This requirement may not apply in all markets. Check with your local AHJ for details.
- 3 The SIGA-UIO6R and 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).



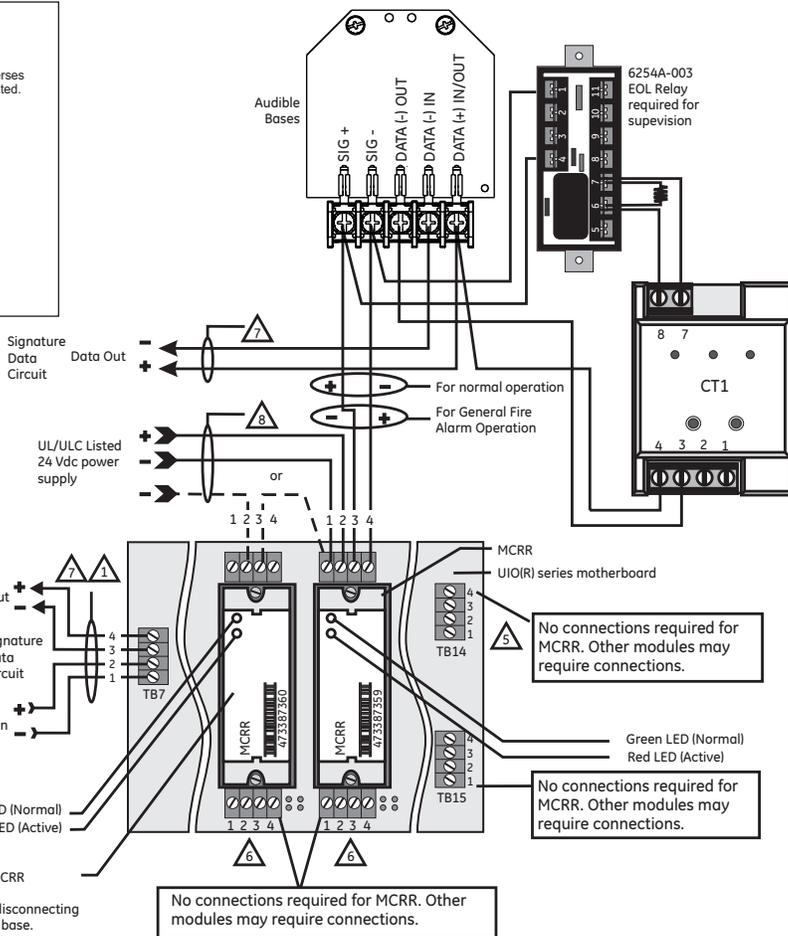
Typical Wiring

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-MCRR



Notes

- ⚠ Refer to the Signature controller installation sheet for wiring.
- ⚡ One Pair of Wires (24 Vdc power).
- ⚡ One Pair of Wires (Signature Data).
- ⚡ Single Wire (24 Vdc power).
- ⚠ The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
- ⚠ The SIGA-UIO6 does not come with TB8 through TB13.
- ⚠ 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 μ A Activated = 75 μ A			
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)



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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, Stand-alone Operation 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.

Standalone Operation – A decentralized alarm decision by the device is guaranteed. Onboard intelligence permits the device to operate in standalone (degrade) mode. If Signature loop controller CPU communications fail for more than four seconds, all devices on that circuit go into standalone mode. The circuit acts like a conventional alarm receiving circuit. Each Signature device on the circuit continues to collect and analyze information from its slave devices. When connected to a panel utilizing standalone operation, modules with their “personality” set as alarm devices (IDC) will alarm should their slave alarm-initiating device activate.



Outdoor Rated Horns and Horn-Strobes

Genesis WG4 Series



Overview

Genesis WG4 Series horns and horn-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 -40 °F to as high as 151 °F (-40 °C to 66 °C).

Field-configurable light and sound output settings add to their on-site flexibility, while optional FIRE markings make them ideal for 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 available for mounting on the ceiling or the wall, and thanks to an ingenious optional full backplane sealing gasket, can be installed to recessed (in-the-pour/block) electrical boxes. WG4 notification appliances also mount to suitable surface boxes. Optional color-matched trim skirts provide a clean, finished appearance. All appliance wiring is accomplished room-side for easy installation.

WG4 Series appliances feature an efficient and powerful piezo sounder. The multi-candela strobes are available with clear lenses in two output categories – standard and high-output. They are precision-timed to meet UL 1971 synchronization standards, and field-configurable for one of four candela intensities. 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 mm²)
- Wide operating temperature range
- Field-selectable settings
- Fully-compatible with Genesis synchronization protocols
- Standard and high-output strobe intensities
- Horn only and horn-strobe options

Application

Horns

Genesis horn output reaches as high as 97 dBA in accordance with UL 464 (104 dBA in accordance with ULC-S525) and features a unique frequency tone that results in excellent sound penetration and an unmistakable warning of danger. Horns may be configured for either coded or non-coded notification circuits. They can also be set for low dB output with a jumper cut that reduces horn output by about 5 dB.

The suggested sound pressure level for each notification zone used with alarm notification appliances is at least 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, measured 5 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 notification appliance to the ear will theoretically result in a 6 dB reduction of the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. A 3 dBA difference represents a barely noticeable change in volume.

Strobe Application

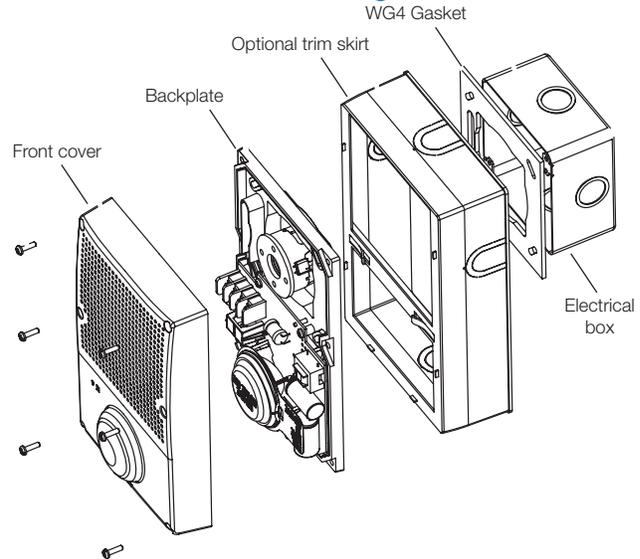
Genesis clear-lensed strobes are UL 1971-listed for use indoors as wall- or ceiling-mounted public-mode notification appliances for the hearing impaired, and UL 1638-listed for outdoor applications. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation.

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 two strobe appliances 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.

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

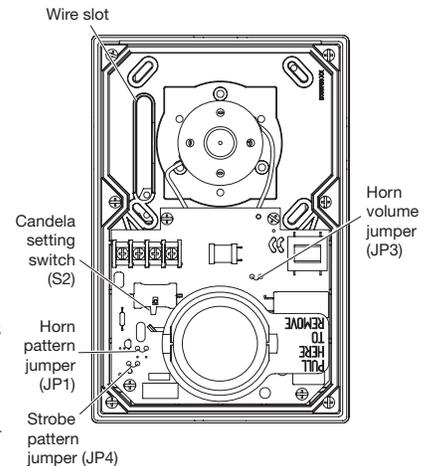


WG4 notification appliances are rated for outdoor use and are suitable for indoor or outdoor applications on walls or ceilings. For surface-mounting in outdoor or wet applications, appliances must be mounted to a 449 or 74347U electrical box. In dry conditions, they are compatible with standard 4-inch square by 1½-inch deep electrical boxes. When using the optional WG4WTS or WG4RTS trim skirt, a 449 or 4-inch square by 2-1/8" deep box must be used.

The Genesis WG4 horn and horn-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

Horn pattern: Audible output for WG4 horns and horn-strobes is factory set to sound in a three-pulse temporal pattern. Units may be configured for use with coded systems by cutting a JP1 on the circuit board. This results in a steady output that can be turned on and off (coded) as the system applies and removes power to the notification circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems.



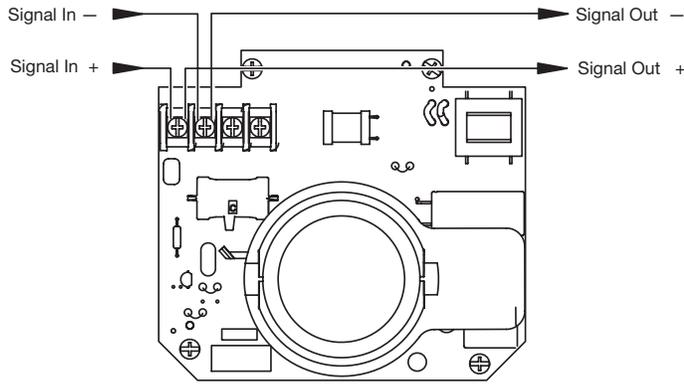
Horn output: Horns and horn-strobes are factory set for high dB output. Low dB output may be selected by cutting a jumper on the circuit board. This reduces the output by about 5 dB.

Strobe pattern: Genesis WG4 horn-strobes are factory set for use as UL 1971 compliant notification appliances for public mode operation. These notification appliances may be configured for temporal flash by cutting JP4 on the circuit board. This battery-saving feature is intended for private mode signaling only.

Strobe output: Genesis WG4 horn-strobes may be set for one of four output intensities. The output setting is changed by simply opening the device and sliding the switch to the desired setting. The device does not have to be removed to change the output setting. The setting remains visible after the cover is closed through a small window on the front of the device.

Wiring

Field wiring is connected to WG4 notification appliances with terminals that accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



—/+ designations indicate the signal polarity required to activate the device.

Specifications

Horns and Horn-strobes

Operating voltage	24 VDC, 24 VFWR nominal
Dimensions (W × H × D)	5.6 × 8.5 × 1.4 in. (142 × 216 × 36 mm)
Horn tone	3.2 kHz
Wire size	12 to 18 AWG (0.75 to 2.50 mm ²)
Compatible electrical box	
Outdoor	Model 449 or 74347U
Indoor	4 in. square by 1.5 in. deep box
Operating environment	
Temperature	-40 to 151°F (-40 to 66°C)
Relative humidity	0 to 95% noncondensing

Compatible Synchronization Sources

Horn-strobes

Auto-sync Output Modules	SIGA-CC1S, SIGA-CC2A, SIGA-MCC1S, SIGA-MCC2A
Genesis Signal Master	G1M-RM
Booster & Auxiliary Power Supplies	APS6A, APS10A, BPS6A, BPS10A
Control Panels with Genesis Synchronization built-in	FireShield Plus, iO Series, EST3X

Sound Output

Horns and Horn-strobes (dBA)

Volume Setting	16V		24V		33V	
	UL 464	ULC-S525	UL 464	ULC-S525	UL 464	ULC-S525
Continuous High	89.7	94.0	94.7	99.6	97.4	102.9
Continuous Low	85.4	92.8	89.5	97.2	92.5	98.6
Temporal High	84.2	96.5	90.5	100.5	93.5	104.2
Temporal Low	81.7	90.3	85.4	94.2	88.1	97.0

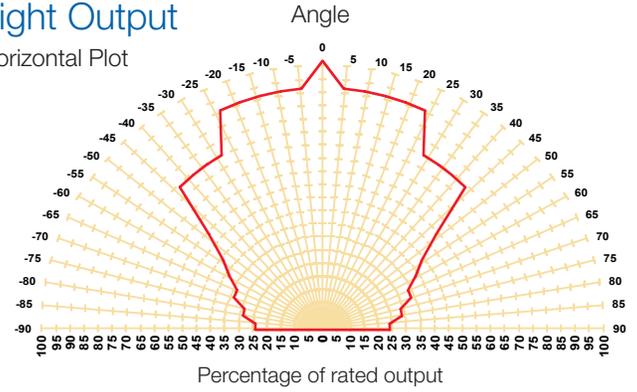
dBA = Decibels, A-weighted.

UL 464: Sound level output measured in a reverberant room at 10 ft. (3.05m).

CAN/ULC-S525: Sound level output measured in an anechoic room at 10ft (3.05m).

Light Output

Horizontal Plot



Standard Candela Horn-strobes

Standard/rating		Strobe Switch Position			
		D	C	B	A
UL 1971	Indoor	15 cd	29 cd	70 cd	87 cd
UL 1638	Outdoor @ -35°C	6 cd	12 cd	28 cd	35 cd
CAN/ULC-S526	Outdoor @ -40°C	1 cd	3 cd	8 cd	10 cd

High Candela Horn-strobes

Standard/rating		Strobe Switch Position			
		D	C	B	A
UL 1971	Indoor	102cd	123cd	147cd	161cd
UL 1638	Outdoor @ -35°C	41cd	50 cd	60 cd	65 cd
CAN/ULC-S526	Outdoor @ -40°C	11 cd	14 cd	17 cd	18 cd

Operating Current

(UL specifies current ratings at 16 volts)

Standard Candela Horn-strobes in RMS (mA), continuous

Input Voltage	Strobe Switch Position			
	D	C	B	A
16 VDC	127	168	297	351
16 VFWR	218	239	393	422
24 VDC	107	130	210	238
24 VFWR	190	222	325	356

High Candela Horn-strobes in RMS (mA), continuous

Input Voltage	Strobe Switch Position			
	D	C	B	A
16 VDC	342	408	517	526
16 VFWR	447	502	614	679
24 VDC	240	271	327	365
24 VFWR	390	400	486	540

Horn only models (mA)

Setting	16V RMS, continuous		24V, typical	
	High dB	Low dB	High dB	Low dB
VDC	69.1	41.2	49.0	32.3
VFWR	135	91.3	99.1	67.1



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 Web: www.chubbedwards.com

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Ordering Information



Model	Housing	Marking	Strobe Output	Ship Wt.
WG4RF-HVMC	Red	FIRE	Selectable standard candela output	1.5 lbs. (0.68 kg)
WG4WF-HVMC	White			
WG4RN-HVMC	Red	None		
WG4WN-HVMC	White			
WG4RF-HVMHC	Red	FIRE	Selectable high candela output	
WG4WF-HVMHC	White			
WG4RN-HVMHC	Red	None		
WG4WN-HVMHC	White			
WG4RF-H	Red	FIRE	Horn Only	
WG4WF-H	White			
WG4RN-H	Red	None		
WG4WN-H	White			

Accessories

WG4WTS	Surface Skirt for Genesis WG4 appliance family, white.
WG4RTS	Surface Skirt for Genesis WG4 appliance family, red.
WG4GSKT	Full Body Mounting Gasket for smooth surfaces, WG4 appliance family
74347U	Surface mount box, outdoor rated, red
449	Surface mount box, outdoor rated, gray

Weatherproof Mounting Boxes

Models 348/349/449



Overview

Edwards die-cast weatherproof backboxes are perfect for mounting a variety of Edwards signaling appliances such as bells, horns and sirens. They are made from die-cast aluminum and finished at the factory with a baked “Sage Gray” enamel finish. All boxes are shipped complete with a molded neoprene gasket. They all feature 3/4 inch tapped conduit entries.

Three models are available:

Catalog Number 348

- fits four inch (100mm) 325 and 340T bells

Catalog Number 349

- fits six inch (150mm) and 10 inch (250mm), 325 bells plus 5520D Horn/Siren

Catalog Number 449

- fits six inch (150mm), eight inch (203mm) and 10 inch (250mm) 438 and 439 series bells and CS405 strobes.

Standard Features

- Die-cast aluminum
- Surface mount
- Gray baked enamel finish
- Weatherproof gasket included



Contact us...

Email: edwards.fire@fs.utc.com

Web: www.est-fire.com

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...

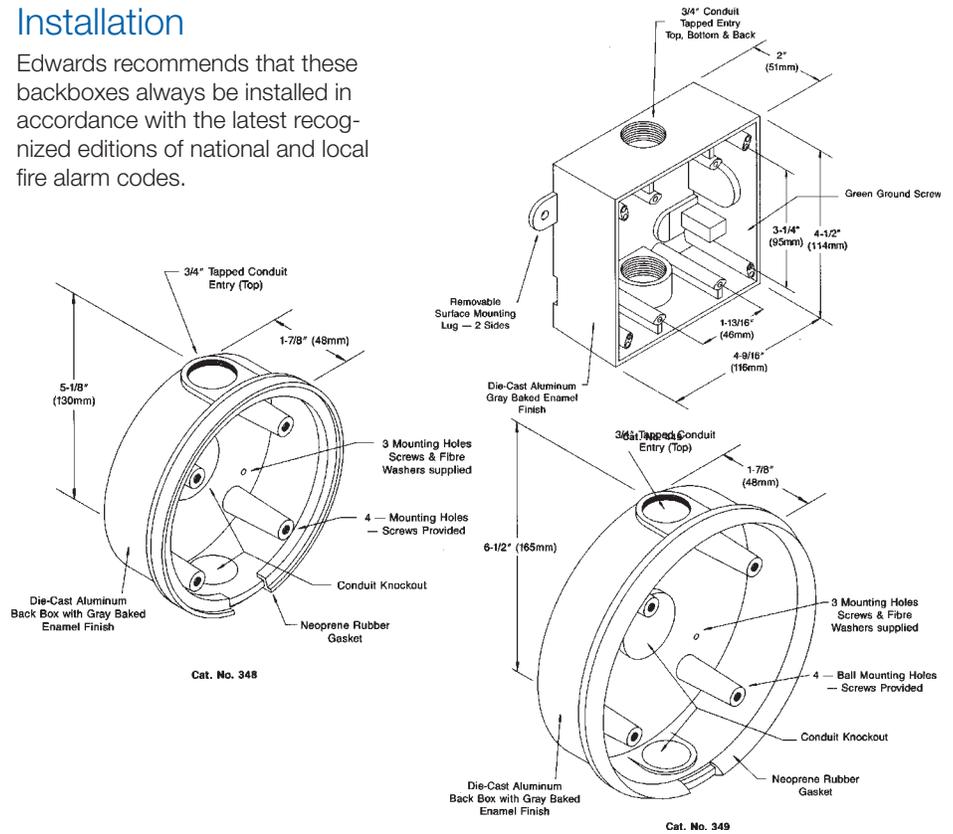
Email: inquiries@chubbedwards.com

Web: www.chubbedwards.com

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Installation

Edwards recommends that these backboxes always be installed in accordance with the latest recognized editions of national and local fire alarm codes.



Specifications

Catalog Number	348	349	449
Dimensions	5-1/8" (130mm) Diameter x 1-7/8" (48mm) Deep	6-1/2" (165mm) Diameter x 1-7/8" (48mm) Deep	4-9/16" (116mm) Square x 2" (51mm) Deep
Conduit Entry	3/4" Top		3/4" Top, Back, Bottom
Material	Die Cast Aluminum		
Gasket	Molded Neoprene Rubber	Closed Cell Neoprene	
Finish	Sage Gray Baking Enamel		

Ordering Information

Catalog Number	Description	Shipping Weight
348	Weatherproof Backbox — Surface Mount with Gasket, 5-1/8" (130mm) Diameter	0.33 lb (0.15kg)
349	Weatherproof Backbox — Surface Mount with Gasket, 6-1/2" (165mm) Diameter	0.5 lb (0.2kg)
449	Weatherproof Backbox — Surface Mount with Gasket, 4-9/16" (116mm) Square.	0.33 lb (0.15kg)



LIFE SAFETY & INCIDENT MANAGEMENT

Genesis LED G1 Series

Compact Notification Devices



Overview

Genesis LED G1 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 circuits and power supplies. These new appliances are designed with energy-efficiency and life safety in mind.

Genesis LED G1 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, or 75 cd light output.

Compared with Xenon-type strobes, Genesis LED G1 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, G1 strobes can be mixed on the same circuit and used in the same field of view as Xenon-based strobes. This makes Genesis LED G1 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 G1 Series appliances shine. 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
 - High efficiency optics
 - Selectable 15, 30, or 75 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**
 - Compact design... single gang mounting
 - Ultra-slim... protrudes about 1" 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 quick-swap covers
- **Easy to Install**
 - Diagnostic test points streamline device circuit testing
 - Fits standard 1-gang electrical boxes, no trim ring needed
 - Optional trim ring available for 4-inch square boxes
 - Slide switches for field configuration
 - 12 to 18 AWG in-out screw terminals for quick wiring

Application

Strobes

Genesis LED G1 Series strobes are UL 1971-listed for use indoors as wall-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 epileptic sensitivity. All Genesis LED 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

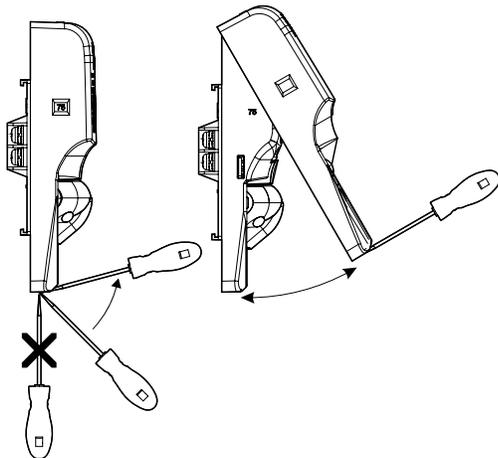
Genesis LED horn output reaches as high as 92 dBA and features an improved audio frequency range compared with other Genesis LED horns. This results in excellent sound penetration through walls and a clear warning of danger. They can also be set for high or low dBA output. This setting reduces horn output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

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.

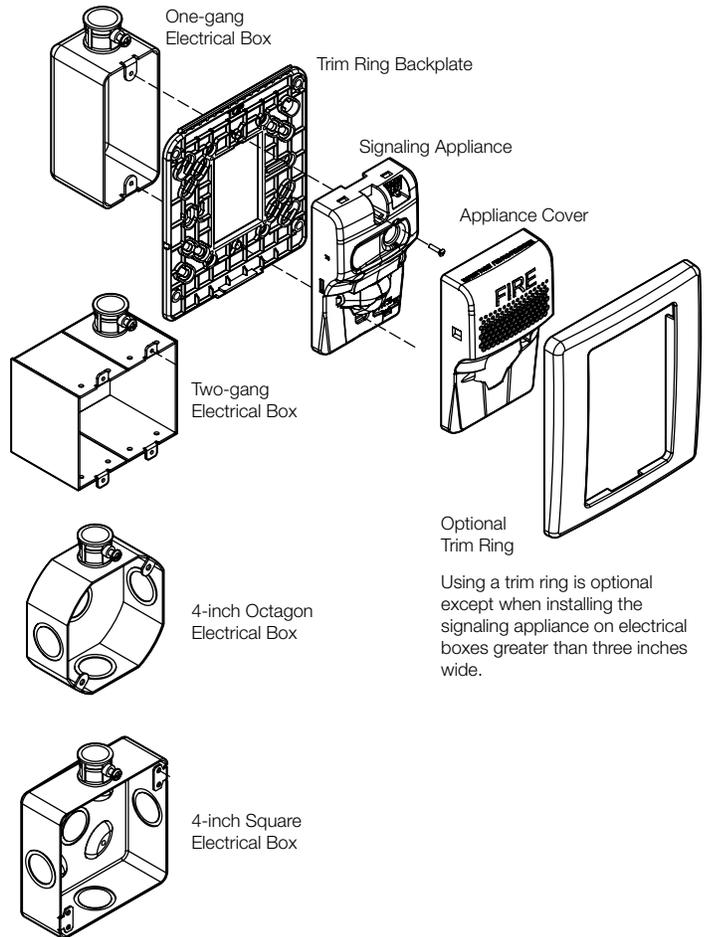
Doubling the distance from the signal to the ear will theoretically result in a 6 dBA reduction of the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. A 3 dBA difference represents a barely noticeable change in volume.

Installation

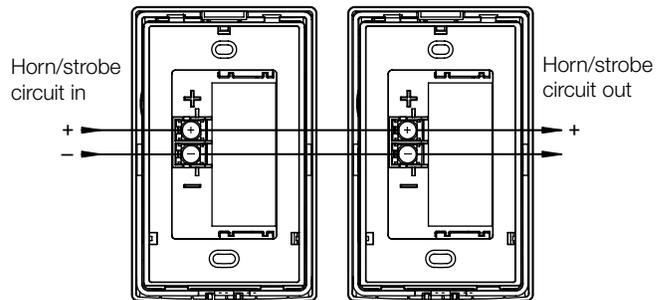
All Genesis LED devices come with mounting screws for easy installation. The tab at the bottom of the device unlocks the cover to reveal the mounting holes. The shallow depth of Genesis LED devices leaves ample room behind them for extra wiring. Once installed with the cover in place, no mounting screws are visible.



Genesis LED G1 Series horns and strobes mount to any standard one-gang surface or flush electrical box. Matching optional G1T trim rings are available to cover oversized openings and can accommodate one-gang or four-inch square boxes. Optional color matched single-gang surface boxes are also available.



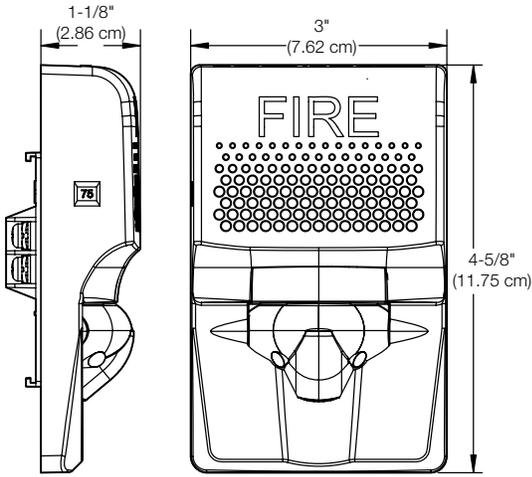
Wiring



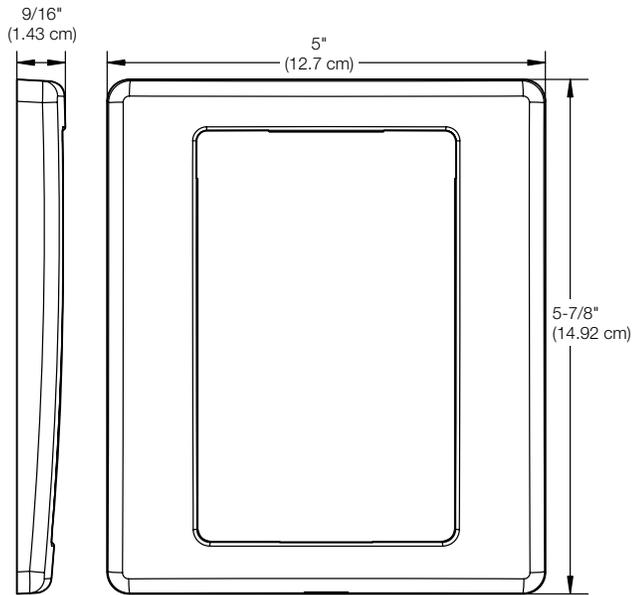
Signal polarity shown in the active condition.

Dimensions

G1 Notification Appliances



G1T Trim Ring

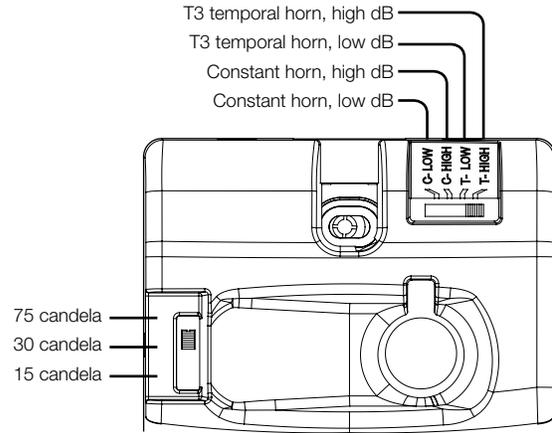


Field Configuration

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 units may be configured for constant horn output that can be coded at precise intervals by EDWARDS control panels and control modules.

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, or 75 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.



Operating current

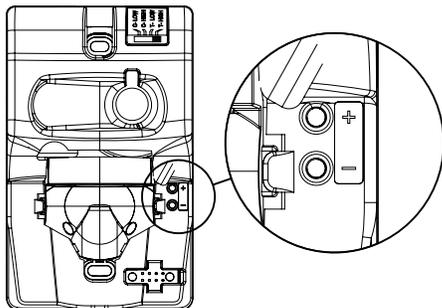
Horns

Sound setting	16 to 33 VDC	16 to 33 VFWR
C-LOW	13 mA	15 mA
C-HIGH	23 mA	29 mA
T-LOW	13 mA	15 mA
T-HIGH	23 mA	29 mA

Strobes

Strobe setting	16 to 33 VDC	16 to 33 VFWR
15, 30, 75	24 mA	32 mA

Diagnostics



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

Horn-Strobes

Strobe setting	Sound setting	16 to 33 VDC	16 to 33 VFWR
15, 30, 75	C-Low, T-Low	35 mA	43 mA
	C-High, T-High	45 mA	55 mA

Sound Output

Reverberant dBA (UL 464)

Sound setting	Horn	Horn-strobe
C-LOW	80	80
C-HIGH	86	86
T-LOW	80	80
T-HIGH	86	86

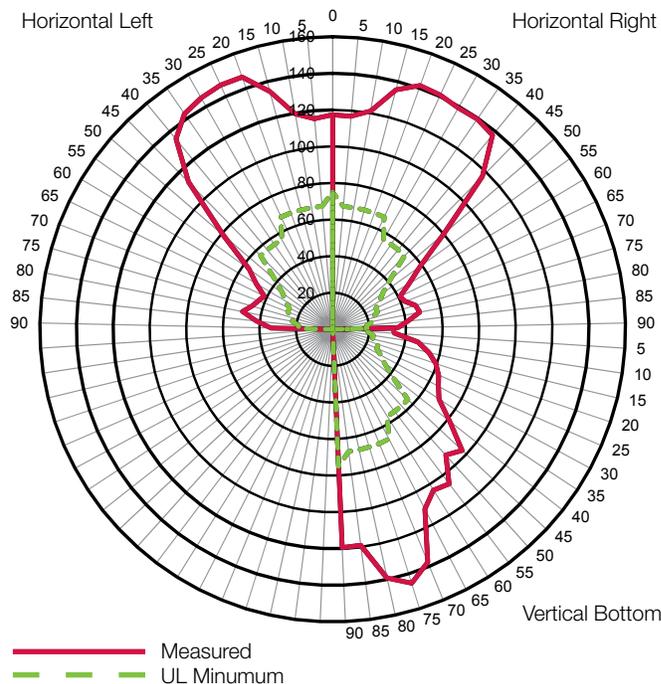
Anechoic dBA (CAN/ULC-S525)

Sound setting	Horn	Horn-strobe
C-LOW	86	86
C-HIGH	92	92
T-LOW	86	86
T-HIGH	92	92

Sound pattern (ULC)

Axis	Angle	Change in output
Horizontal	45° and 115°	-3 dBA
	5° and 130°	-6 dBA
Vertical	65° and 135°	-3 dBA
	45° and 140°	-6 dBA

Light Distribution



Specifications

Operating voltage	16 to 33 VDC, 16 to 33 VFWR
Horn signal type	Constant or T3 temporal
Light output	15, 30, or 75 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, and Intelligent and Conventional Control Panels
Wire size	12 to 18 AWG (0.75 to 2.50 mm ²)
Dimensions (WxHxD)	3 x 4-5/8 x 1-1/8 in. (7.62 x 11.75 x 2.86 cm)
Strobe-to-box center offset	-0.71 inches (-1.8 cm)
Compatible electrical boxes [1]	1-gang, 2-gang, 4-inch octagon, 4-inch square
Trim rings	G1TR, G1TW - Dimensions 5 x 5-7 x 9/16 in. (12.7 x 14 92 x 1.43 cm)
Agency Listings	FCC, ICC, UL1971, UL1638, UL464, CSFM (All models comply with ADA code of federal regulation Chapter 28 Part 36 final rule)
Operating environment	
Temperature	32 to 122°F (0 to 50°C)
Relative humidity	0 to 93% noncondensing

[1] Electrical boxes must be at least 1-1/2 in. (3.81 cm) deep. Electrical boxes greater than three inches wide require a trim ring.

Ordering Information

Notification Appliances		Color	Marking
 Horns Selectable High/low dB	G1ARF	Red	FIRE
	G1ARF-FR	Red	FEU
	G1ARF-SP	Red	FUEGO
	G1ARN	Red	None
	G1AWF	White	FIRE
	G1AWF-FR	White	FEU
	G1AWF-SP	White	FUEGO
	G1AWN	White	None

 Strobes Selectable 15, 30, 75 cd	G1VRF	Red	FIRE
	G1VRF-FR	Red	FEU
	G1VRF-SP	Red	FUEGO
	G1VRN	Red	None
	G1VWA*	White	ALERT
	G1WWF	White	FIRE
	G1WWF-FR	White	FEU
	G1WWF-SP	White	FUEGO
	G1WWN	White	None

 Horn-strobes Selectable 15, 30, 75 cd, High/low dB	G1AVRF	Red	FIRE
	G1AVRF-FR	Red	FEU
	G1AVRF-SP	Red	FUEGO
	G1AVRN	Red	None
	G1AVWF	White	FIRE
	G1AVWF-FR	White	FEU
	G1AVWF-SP	White	FUEGO
	G1AVWN	White	None

Replacement Appliance Covers		Color	Marking
 Horn Covers	G1ARA-CVR	Red	ALERT
	G1ARF-CVR	Red	FIRE
	G1ARF-FR-CVR	Red	FEU
	G1ARF-SP-CVR	Red	FUEGO
	G1ARN-CVR	Red	None
	G1AWA-CVR	White	ALERT
	G1AWF-CVR	White	FIRE
	G1AWF-FR-CVR	White	FEU
	G1AWF-SP-CVR	White	FUEGO
	G1AWN-CVR	White	None

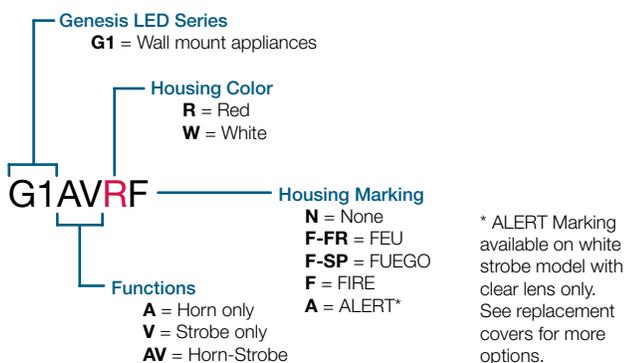
 Strobe Covers	G1VRA-CVR	Red	ALERT
	G1VRF-CVR	Red	FIRE
	G1VRF-FR-CVR	Red	FEU
	G1VRF-SP-CVR	Red	FUEGO
	G1VRN-CVR	Red	None
	G1VWA-CVR	White	ALERT
	G1WWF-CVR	White	FIRE
	G1WWF-FR-CVR	White	FEU
	G1WWF-SP-CVR	White	FUEGO
	G1WWN-CVR	White	None

 Horn-strobe Covers	G1AVRA-CVR	Red	ALERT
	G1AVRF-CVR	Red	FIRE
	G1AVRF-FR-CVR	Red	FEU
	G1AVRF-SP-CVR	Red	FUEGO
	G1AVRN-CVR	Red	None
	G1AWA-CVR	White	ALERT
	G1AVWF-CVR	White	FIRE
	G1AVWF-FR-CVR	White	FEU
	G1AVWF-SP-CVR	White	FUEGO
	G1AVWN-CVR	White	None

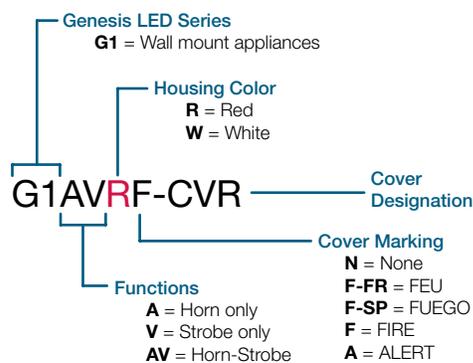
Accessories

	G1TR	Trim ring, G1 Series, red		G1TW	Trim ring, G1 Series, white
27193-11	One-gang surface mount box, red	27193-16	One-gang surface mount box, white		

Model Number Syntax, Appliances



Model Number Syntax, Replacement Covers





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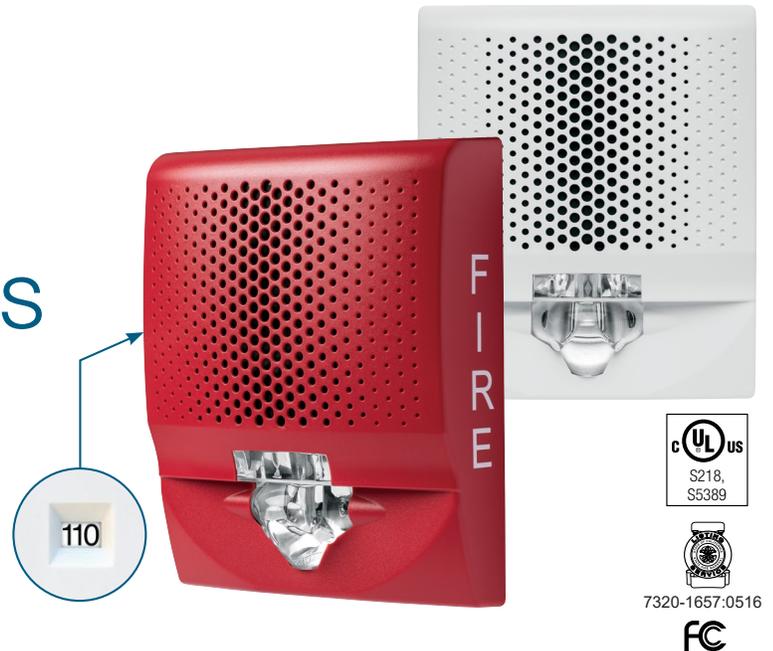
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LIFE SAFETY & INCIDENT MANAGEMENT

Wall Mount Speakers and Speaker-Strobes

Genesis LED G4S Series



Overview

Genesis LED G4S 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 G4S 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 110 cd light output.

Compared with Xenon-type strobes, Genesis LED G4S 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, G4S strobes can be mixed on the same circuit and used in the same field of view as Xenon-based strobes. This makes Genesis LED G4S 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.

G4S 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. G4S Series speakers deliver audio with an STI of .81 ensuring the message is clear.

Serviceability is another area where G4S 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. G4S 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 110 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 G4S Series strobes are UL 1971-listed for use indoors as wall-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.

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 3dB.

High Fidelity Sound

Genesis LED G4S 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.

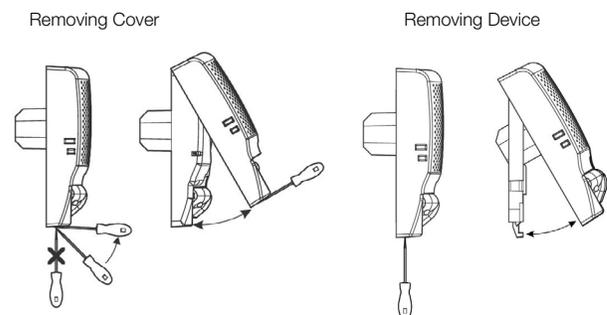
These appliances are ideal for hotels, dormitories and other residential occupancies that have sleeping areas that require 520Hz tones. In sleeping areas, always ensure that the wattage tap of the speaker is set sufficiently high so that the sound pressure reaches at least 75 dBA at the pillow.

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.

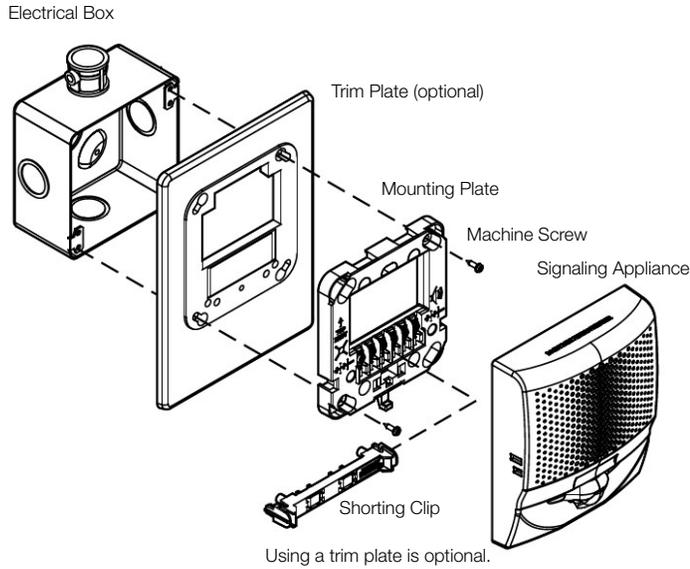
Installation

Genesis G4S speakers and speaker-strobes mount to the required GRSW room side wiring plate. The GRSW mounting plate is ordered separately from the G4S 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 G4S Series speakers and speaker-strobes mount to any standard two-gang and 4-inch square electrical box. Matching optional G4T trim rings are available to cover oversized openings. Optional color matched double-gang surface boxes are also available.

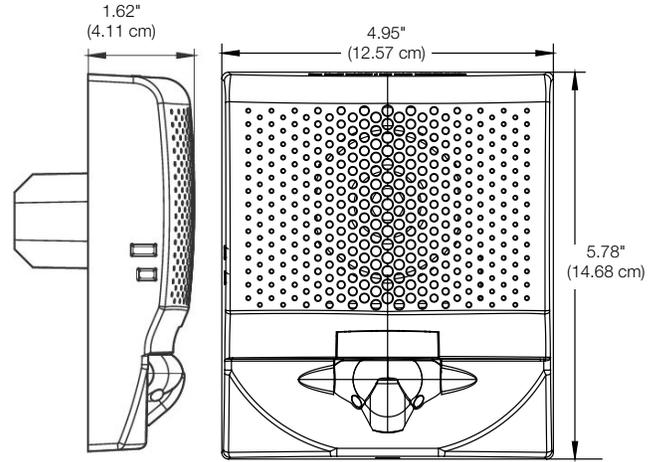


Installation

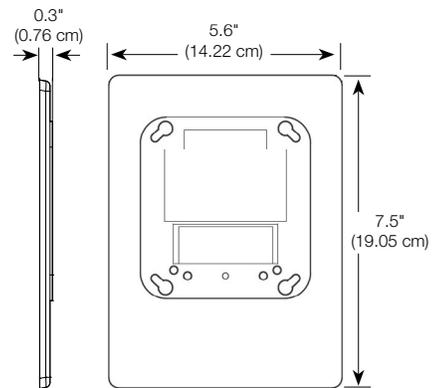


Dimensions

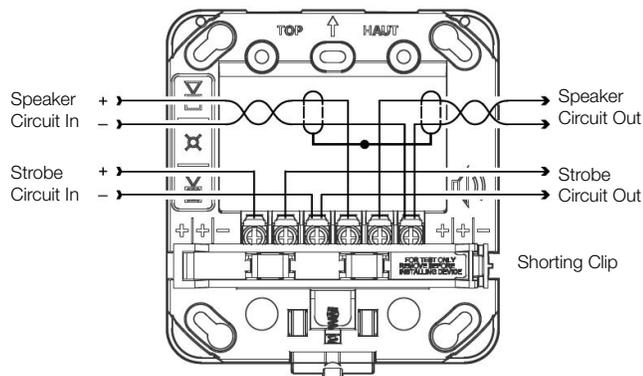
G4S Notification Appliances



G4T Trim Plate (optional)

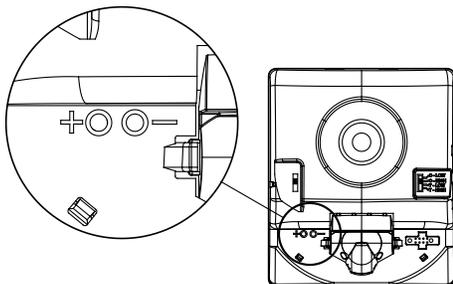


Wiring

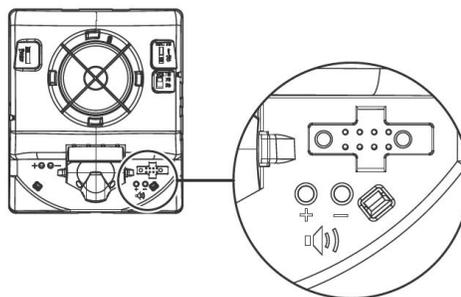


Diagnostics

Strobe Circuit Test Points



Speaker Circuit Test Points



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

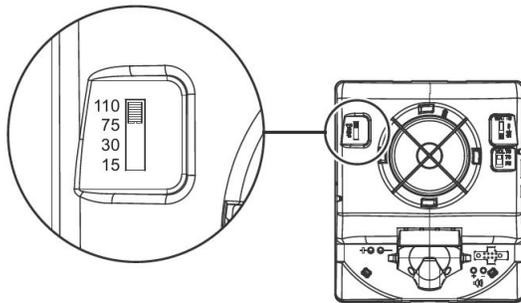
Field Configuration

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.

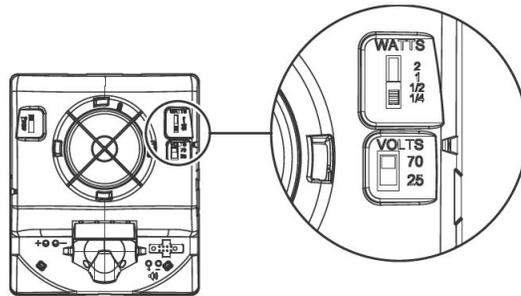
Genesis LED clear strobes and speaker-strobes may be set for 15, 30, 75, or 110 candela output. The output setting is changed by simply removing the cover and sliding the candela switch to the desired setting. The device does not have to be removed from the wall to change the output setting. The setting 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, 110	28 mA	36 mA

Note: Current draw is the same for all candela settings

Sound Level Output

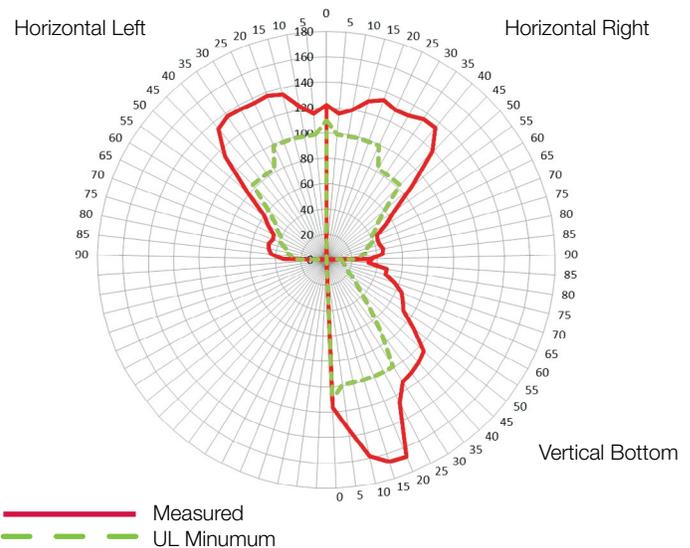
Voltage setting	Wattage setting	Reverberant (UL 1480)	Anechoic (CAN/ULC-S541)
25V / 70V	¼W	78	78
	½W	81	81
	1W	84	84
	2W	87	87

Sound Output

Sound pattern (ULC)

Axis	Angle	Change in output
Horizontal	117° and 61°	-3 dBA
	134° and 49°	-6 dBA
Vertical	128° and 68°	-3 dBA
	138° and 52°	-6 dBA

Light Distribution



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 110 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 (W×H×D)	4.95 x 5.78 x 1.62 in (12.57 x 14.68 x 4.11 cm)
Strobe-to-box center offset	-1.70 inches (-4.32 cm)
Compatible electrical boxes [1]	2-gang, 4-inch square
Trim plates	G4TR, G4TW (5.6 x 7.5 x 0.3 in (14.22 x 19.05 x 0.76 cm))
Operating environment	
Temperature	32 to 122°F (0 to 50°C)
Relative humidity	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

Ordering Information

FOR REFERENCE ONLY

Notification Appliances	Color	Marking	
 Speakers	G4SRF	Red	FIRE
	G4SRF-FR	Red	FEU
	G4SRF-SP	Red	FUEGO
	G4SRN	Red	None
	G4SWF	White	FIRE
	G4SWF-FR	White	FEU
	G4SWF-SP	White	FUEGO
	G4SWN	White	None
	G4SWA	White	Alert

 Speaker-strobes	G4SVRF	Red	FIRE
	G4SVRF-FR	Red	FEU
	G4SVRF-SP	Red	FUEGO
	G4SVRN	Red	None
	G4SVWF	White	FIRE
	G4SVWF-FR	White	FEU
	G4SVWF-SP	White	FUEGO
	G4SVWN	White	None
	G4SVWA	White	Alert

Replacement Appliance Covers	Color	Marking	
 Speakers	G4SRA-CVR	Red	ALERT
	G4SRF-CVR	Red	FIRE
	G4SRF-FR-CVR	Red	FEU
	G4SRF-SP-CVR	Red	FUEGO
	G4SRN-CVR	Red	None
	G4SWA-CVR	White	ALERT
	G4SWF-CVR	White	FIRE
	G4SWF-FR-CVR	White	FEU
	G4SWF-SP-CVR	White	FUEGO
	G4SWN-CVR	White	None

 Speaker-strobe Covers	G4SVRA-CVR	Red	ALERT
	G4SVRF-CVR	Red	FIRE
	G4SVRF-FR-CVR	Red	FEU
	G4SVRF-SP-CVR	Red	FUEGO
	G4SVRN-CVR	Red	None
	G4SWA-CVR	White	ALERT
	G4SWF-CVR	White	FIRE
	G4SWF-FR-CVR	White	FEU
	G4SWF-SP-CVR	White	FUEGO
	G4SVWN-CVR	White	None

Accessories



GRSW-10

Room Side Wiring Plate (required, ordered separately)



G4TR

Trim plate, G4 Series, red



G4TW

Trim plate, G4 Series, white

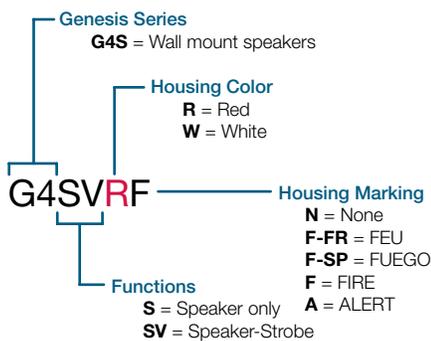
27193-21

Two-gang surface mount box, red

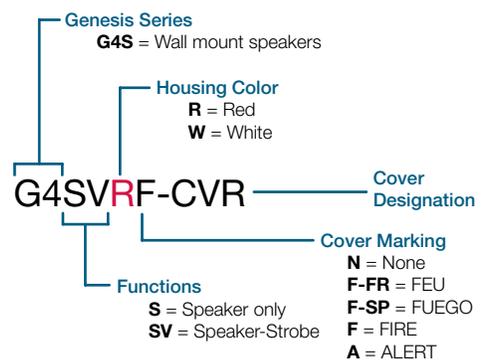
27193-26

Two-gang surface mount box, white

Model Number Syntax, Appliances



Model Number Syntax, Replacement Covers





LIFE SAFETY & INCIDENT MANAGEMENT

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