Add Item Numbers

Starting Page: 189

Ending Page: 199

Remove Item Numbers

Item #

QUALITYSOUND
SYSTEMS INTEGRATION
DIVISION OF BI-JAMAR, INC.

January 30, 2018

Product Submittal for:

LODI MIDDLE SCHOOL

945 HAM LANE, LODI, CA 95242
LOD UNIFIED SCHOOL DISTRICT

Section:

28 31 00 – FIRE ALARM SYSTEM

Job #17153E
REV 1, 06/12/18

FILE NO. 39-50

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

APPL. 02 - 116554

AC_____ FLS_____ SS_____

DATE _____

Licensed California Contractor
License # 496881 C-7, C-10
Bi-JaMar Inc. dba Quality Sound
2010 E. Fremont St.
Stockton, CA 95205
Expiration Date: 8/31/2018

Signature: _____
James E. Bryan, President

Material Submittal

Section – 28 31 00-FIRE ALARM SYSTEM

Item#	Manufacturer	Model	Description/CSFM#
1.	Edwards (EST)	EST-3	Fire Alarm Control Panel 7165-1657:0186
	Consisting of:		
		3-CPU3	Central Processor
		3-LCD	Display Module
		3-PPS/M	Power Supply
		3-BPS/M	Booster Power Supply
		3-SSDC1	Signature Loop Module
		3-SDDC1	Dual Signature Loop Module
		(shown as p/n 240629	on CSFM sheet)
		3-ASU/4	Audio Source Unit
		3-ZA40B	Zoned Amplifier
		3-MODCOM	DACT Module
		3-CAB21B	Cabinet
		3-CAB21D	Door
		3-CHAS7	Chassis
2.	Edwards (EST)	BPS10A	NAC Booster Power Supply 7300-1657:0229
3.	Edwards (EST)	SIGA-278	Manual Alarm Box 7150-1657:0129
4.	Edwards (EST)	SIGA-SD	Duct Smoke Detector 3242-1657:0223
	Including:		
		SD-T* series	Sampling Tube
5.	Edwards (EST)	SIGA-DH	Duct Detector Housing, Existing 3240-1657:0108
	Including:		
		6261 series	Sampling Tube
		SIGA-PS	Photoelectric Smoke Detector, 7272-1657:0126
		SIGA-SB	Detector Base, 7300-1657:0120

NOTE: The SIGA-DH housing with SIGA-PS smoke detector and a SIGA-SB detector base are existing and for reference only.

6.	Edwards (EST)	SIGA-HRD	Heat Detector 7270-1657:0333
	Including:		
		SIGA-SB	Detector Base 7300-1657:0120

7.	Edwards (EST)	SIGA-PD	Photoelectric Smoke Detector 7272-1657:0331
	Including:		
		SIGA-SB	Detector Base 7300-1657:0120
8.	System Sensor	5602	194°F ROR/Fixed Temp. Heat Detector 7270-1653:0167
9.	Edwards (EST)	SIGA-CT series	IDC Modules 7300-1657:0121
10.	Edwards (EST)	SIGA-CR	Relay Module 7300-1657:0121
11.	Edwards (EST)	SIGA-CRH	Relay Module, High Power 7300-1657:0121
12.	Edwards (EST)	SIGA-IM	Isolator Module 7300-1657:0121
13.	Edwards (EST)	SIGA-CC1S	Synchronizing NAC Module, Visible NAC 7300-1657:0121
14.	Edwards (EST)	SIGA-UIO6R	I/O Motherboard 7300-1657:0121
15.	Edwards (EST)	SIGA-MCC1	NAC Module, Audible NAC 7300-1657:0121
16.	Edwards (EST)	SIGA-MP1	SIGA Module Mounting Plate CSFM Listing Not Required
17.	Edwards (EST)	G1RF-VM	Strobe, Wall 7125-1657:0218
	Including:		
		G1RT-FIRE	Trim Plate
		27193-11	Surface Box, Where Needed
18.	Edwards (EST)	GCF-VM	Strobe, Ceiling 7125-1657:0219
19.	Edwards (EST)	G4HFRF-S7VMC	70V Speaker/Strobe, Wall 7320-1657:0211
	Including:		
	Chase Security	CSSB 652 (Red)	Surface Box, Where Needed
20.	Edwards (EST)	GCHFWF-S7VMC	70V Speaker/Strobe, Ceiling 7320-1657:0211

21.	Edwards (EST)	WG4RF-S	25/70V Speaker. Outdoor Rated 7320-1657:0289
	Including:		
		74347U	Surface Backbox
		WG4RTS	Surface Skirt
22.	West Penn	990S - Red	Signaling Line Circuit (SLC) Cable
23.	West Penn	226 - Brown	Visual (NAC) Cable
24.	West Penn	225 - White	Audible (NAC) Cable
		225 - Black	Initiating Device Circuit (IDC) Cable
25.	West Penn	AQ225	(SLC) & (IDC) Cable, Site Audible (NAC) Cable, Site
26.	West Penn	AQ226	Visual (NAC) Cable, Site
27.	Edwards (EST)	SIGA-PCD	Photoelectric Smoke-CO Detector 7275-1657:0334
	Including:		
		SIGA-SB	Detector Base 7300-1657:0120

Life Safety & Communications

EST3 Base Platform

With Signature Series Fire Alarm

Overview

EST3 is a modular control platform uniquely designed to meet the needs of applications ranging from standalone single panel fire alarm systems to multi-panel networks with unified fire alarm, security, and Mass Notification functions. Each function uses many of the same components, simplifying system layouts.

Virtually all EST3 operating features are software-controlled. A powerful System Definition Utility program helps define system operations in a fraction of the time required by previous methods. This gives EST3 great site flexibility and ensures operational changes and upgrades will be possible years after the initial installation.

EST3 is uniquely designed to meet the life safety needs of any size facility. The function of each panel can be customized by using an extensive selection of plug and play local rail modules.

With support for 64 nodes of up to 2,500 devices each, this network's multi-priority peer-to-peer token ring protocol delivers a fast alarm response time across any size network. Add to that the ability to network panels with fiber or copper connections with an overall length of 160000 ft - that's 30 miles - and you've got virtually unlimited networking options.

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, UL2572 Mass Notification.
In Canada it is listed to ULC-S527, ULC-S303, and ULC/ORD-C1076.
In Europe it is listed to EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and to EN 54-16: 2008.

Standard Features

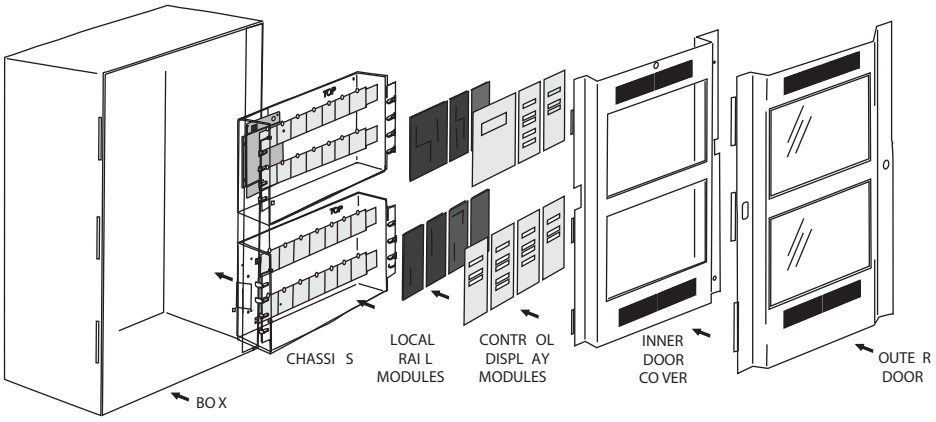
- Listed for Mass Notification/Emergency Communication, Fire, Security, and Emergency Voice Alarm
- Part of an end-to-end audio solution suitable for low frequency signaling in sleeping areas
- 168-character LCD
- Exceptional alarm response times
- Network supports copper, multi-mode fiber, single-mode fiber, or a combination of all three
- Total network wiring over 160,000 feet
- Eight channels of multiplexed digital audio on a single pair of wires or fiber filiment
- Zoned, distributed and banked audio amplifier options
- Local, Proprietary, and Central Station system operations
- In retrofit applications, existing wiring may be used if code compliant
- Supports Edwards Signature Series detectors and modules
- Designed in accordance with ISO-9000 quality standards
- UL864 Ninth Edition Listed
- UL2572 Listed for Mass Notification
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Item #1

Outstanding Features

EST3 system components are arranged in layers, starting with the backbox and finishing with inner and outer doors. Cabinets are available with room for up to 20 modules and system batteries up to 65 AH. A single 24-volt battery can act as the secondary power supply for all four internal power supplies. Once the backbox is installed, up to four power supplies can be installed in the chassis assembly. The power supplies use a unique paralleling arrangement that ensures the optimum use of each supply. Each supply has the capacity to deliver up to 7 amps at 24 Vdc (28 amps total).

The function of each life safety network panel is determined by the Local Rail Modules (LRMs) plugged into the panel's chassis. An extensive variety of modules are available, including central processing units, input/output circuit modules, communication modules, security modules, and audio amplifier modules.



The top layer of the LRMs is referred to as the user interface layer. This layer is made up of the Main Display Interface module and a system of generic control/display modules. Any control/display module can mount on any LRM. This maximizes flexibility of design for custom systems. The inner and outer doors finish and secure the enclosure.

A single panel can support up to 2,500 addressable points, provide 28 amps @ 24 Vdc and still have room for future expansion. If a single panel is not large enough or you need to distribute functionality throughout the project, then you can network up to 64 panels together!

Networking/Communications

The EST3 Life Safety Network uses a multi-priority peer-to-peer token ring protocol. The protocol gives EST3 the exceptionally fast alarm response time of less than three seconds across the network, virtually independent of the total number of nodes. The EST3 token ring network configuration also affords long distances between panels. The distance between any three panels on #18 AWG (1.0 mm^2) is 5,000 ft (1,523m) for both network control and digital audio signals. Supporting a maximum of 64 panels on a network, the total network length can be in excess of 160000 ft (48768m). Network and audio communication are via RS-485 serial ports. Each two-wire circuit supports Class A (Style 7) or Class B (Style 4) wiring configurations. Fiber optic media is also available.

As an indication of the high level of system integration, off-premise communications is handled by the Modcom modem communicator module. This module provides the Digital Alarm Communicator Transmitter (DACT) function, sending system status signals for up to 255 accounts to up to 80 different central monitoring stations and/or commercial paging carriers.

Digital Audio

EST3 digitized audio can deliver up to eight audio messages *simultaneously* over a single pair of wires! This is plenty of capacity for both live and pre-recorded messages. EST3 easily supports the needs of mass notification messaging, and fire alarm messaging by providing the ability to bring not only pre-recorded messages but also live voice messaging supporting not only evacuation announcments but the messaging needed to support the risks that may require shelter-in-place and relocation messaging.

All audio messages and live pages originate at the Audio Source Unit (ASU) that can store up to 100 minutes pre-recorded audio messages as .wav files. These messages can be automatically directed to various areas in a facility under program control. On the receiving end, zoned amplifiers installed in remote fire alarm cabinets receive and decode the digital messages. The messages are then amplified and sent out to the speakers.

The availability of eight different channels opens a number of new *simultaneous* notification possibilities:

1) Live voice page for MNEC or fire-related instructions;
2) Emergency floor evacuation/notification message;
3) Alert message on floors above and below the emergency;
4) Stairwell evacuation reinforcement message;
5) Elevator cab information messages;
6) Lobby message instructing occupants to exit the building;
7) Concourse instructions to occupants not to enter the lobby;
8) Other instructions to areas not directly affected by the emergency.

Any combination of the eight audio channels can be automatically directed to any or all areas of the building, with total manual override as required. Eight channel capability assures that one message is never interrupted in order to process another, a common fault with two-channel systems. This eliminates any chance of confusing the occupants with conflicting messages.

Survivability is also an integral part of EST3's digitized audio system. Default audio messages are continuously transmitted to all network amplifiers by the ASU. These messages provide audio supervision for the digital audio chain, and act as a default signal if the network data circuit fails or should message control information fail to reach the ASU. If the audio data circuit fails, each amplifier generates a 1KHz temporal (3-3-3) tone that is transmitted during an alarm. In the event of an amplifier failure, a backup audio amplifier is automatically substituted for the failed amplifier in the cabinet, restoring audio capability. In the unlikely event of multiple amplifier failures, the backup amp replaces the amplifier actively processing the highest priority message in the cabinet. When messages are no longer directed to a failed amplifier such

as when a high priority page message ends, the backup amp is dynamically reassigned to the next highest priority failed amplifier actively processing messages

The Firefighters Telephone Control unit (FTCU) provides two-way communications between remotely located phones and the fire command center. The alphanumeric display makes operation intuitive, and a single switch permits the phone signals to be used to issue pages in the facility.

Digitized audio increases notification messaging flexibility, reduces wiring and installation costs, provides enhanced supervision and survivability, and is easy to use.

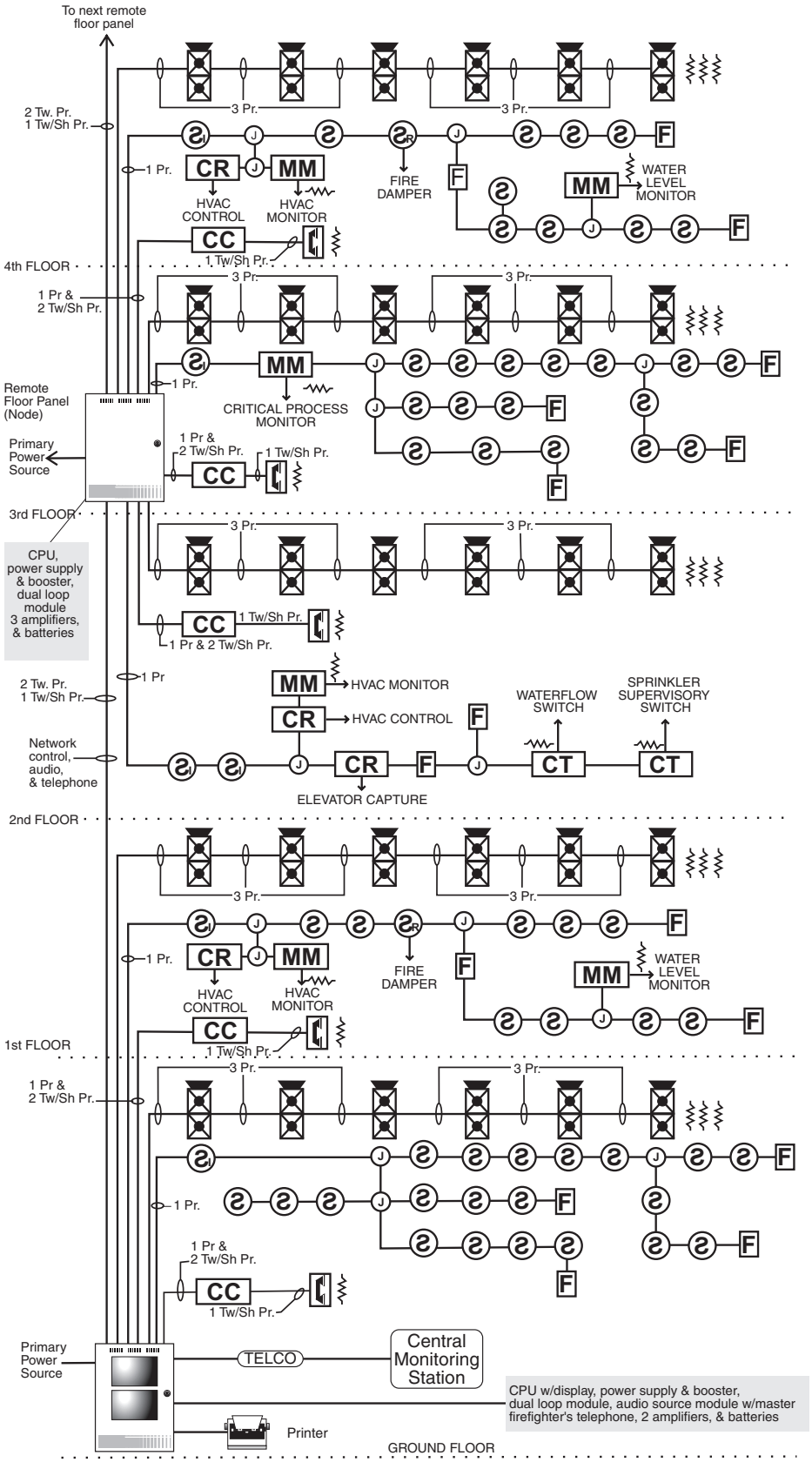
Enhanced Reliability & Survivability

The EST3 uses distributed technology, designed to survive expected and unexpected events including earthquakes. Simple-to-install kits provide internal hardening that meets ;requirements defined by *Uniform Building Code* (UBC 1997); *International Building Code* (IBC 2006); and, *Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems* (AC-156). Seismic component importance factor of 1.5 can be met by adding appropriate anchorage for local conditions. There is no need for special installation methods for EST3 field devices including signals and detection devises. By following standard mounting methods, along with any local requirements, seismic Importance Factor 1.5 may be gained in order to further enhance system survivability.

On the initiating side, intelligent Signature Series detectors can make alarm decisions on their own, and do not involve other system components in this important decision-making process. Sensor-based technology must communicate data to a remotely located common panel where alarm decisions are made. Failure of this centralized processor can cripple sensor-based systems. With EST3, a panel CPU failure does not disable a panel's ability to provide protection. In the event of a CPU failure, the intelligent device controllers can still receive alarms and distribute the alarm information to all other modules in the panel. Modules in the panel are capable of responding with a programmed standalone alarm response.

When a network is wired in a Class B configuration, a single break or short on the wiring isolates the system into two groups of panels. Each group continues to function as a peer-to-peer network, working with their combined databases. When

Typical Wiring



Item #1

Contact us...

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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*

wired using a Class A configuration, a single break or short on the network wiring causes the system to isolate the fault, and network communication continues uninterrupted – without any loss of function. Should multiple wiring faults occur, the network re-configures into many sub-networks and continues to respond to alarm events from every panel that can transmit and receive network messages. Survivability is maximized as responses originating and executed by a single panel are always carried out because a copy of the system database is stored in the panel's memory.

Scheduled maintenance improves system availability, and EST3 is designed to make system maintenance easy. System components are designed to assist in routine and time-consuming service functions.

- EST3 service groups are defined by location, not by system wiring. There is no need to disable an entire floor to test a single device.
- According to their UL listings, Signature Series detectors do not require routine sensitivity testing – a real timesaver.
- Comprehensive internal and external monitoring quickly identifies most problems to a component level, including ground faults that can be identified down to the module.
- Parts are easy to replace. Modules plug in and use automatic addressing and plug-in field wiring. No DIP switches are used.
- Firmware in system modules and Signature devices is easily upgraded as new advances in detection and control technology are made available.
- Advanced system diagnostics are provided in the EST3 System Definition Utility.

User Friendly

A comprehensive survey of users resulted in system features and controls that are easy to use.

The main display interface shows the operator the first and most recent system events – without ever touching a single control! All system events are sent to one of four message queues. Alarm messages are never intermixed with trouble or supervisory signals, eliminating confusion. For more information the *Details* switch provides additional information about the highlighted device. The operator can easily review supervisory, trouble, and monitor messages by simply selecting the appropriate message queue.

After a few minutes of inactivity, the system automatically returns to displaying the first and most recent events.

Optional manual control switches and display modules can be arranged on the system operator layer to suit the application. These modules can be used to provide additional HVAC controls, manual selection of audio circuits, or other required manual control functions.

The digital audio system uses only five basic controls to direct all paging messages.

- ALL CALL directs page messages to all zones in the facility.
- Page to EVACUATION automatically directs page messages to the fire area.
- Page to ALERT automatically directs page messages to the areas receiving the alert message.
- All Call Minus automatically directs page messages to the areas NOT receiving the evacuation or alert messages.
- Page by Phone selects the firefighters' telephone system as the source for paging.

The Firefighters' Telephone Control Unit (FTCU) uses an alphanumeric display to indicate the source of incoming calls. Operators simply scroll through the list and hit the "Connect" button when the desired call is highlighted. There is no need to look through rows of lamps and switches to determine the source of calls. Up to five remote locations can be in simultaneous two-way communications with the FTCU.

System Configuration

The powerful EST3 System Definition Utility (SDU) helps define flexible system operations in a fraction of the time required by other systems. Based on an object-oriented system of rules, virtually all EST3 operating features are software-controlled. This gives the designer great flexibility in integrating mass notification, fire, and security functions into a single seamless design.

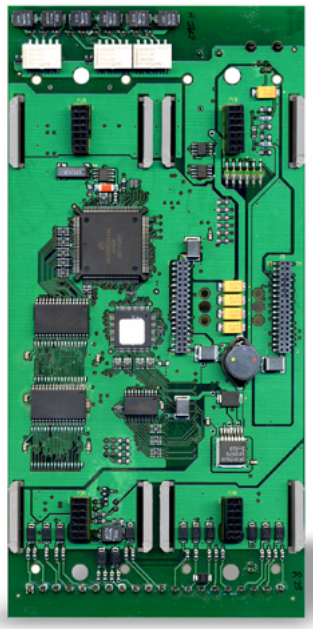
A report generator provides a complete library of system reports that are invaluable for troubleshooting, including a printout of Signature device connections as the devices are actually wired.

Use of software-based components permits the SDU to add new features to the system. Even the Signature Series devices are capable of upgrading firmware as new detection algorithms become available.

Life Safety & Communications

EST3 Central Processor Unit

3-CPU3, 3-RS485A, 3-RS485B, 3-RS232



FM APPROVED
CE
UL
ULC
S3000
7165-1657: 0186
FDNY
COA 6086

EN 54-2: 1997 + A1: 2006
EN 54-4: 1997 + A1: 2002 + A2: 2006
EN 54-16: 2008

Overview

The 3-CPU3 is the Central Processing Unit Module monitoring the status of all modules and providing the link for network communications. Although each local rail card contains their own microprocessor, the 3-CPU3 provides all inter-module communication and has the ability to download rail module operating parameters. Upon power up the 3-CPU3 automatically learns all local rail module attributes and locations. Site specific software is loaded into the 3-CPU3 which then downloads data to each local rail module. Firmware upgrades are also done from the 3-CPU3 eliminating the need to unplug chips on rail modules.

Mounting must be in the first two local rail spaces of the upper 3-CHAS7 (module chassis). Options for the 3-CPU3 include the addition of an LCD display and User Interface, RS-232 Communication Card, and RS-485 Series Network Communication Cards.

The 3-CPU3 is fully compatible on the same network with the 3-CPU and 3-CPU1 modules.

Standard Features

- Up to 1,000 history events
- RS-485 local rail communications
- Multiplexed audio channels
- Network communication media can consist of twisted copper RS485, short-haul modems and/or single or multimode fiber optic cables
- RS-232 communication card
- Form 'C' contacts for: Alarm, Supervisory and Trouble
- Low voltage memory write protection
- Non-volatile memory

Item #1

Application

The 3-CPU3 helps make EST3 an extremely powerful and flexible system. As a single node, stand alone system a single 3-CPU3 controls 1 to 19 additional local rail modules. For larger systems, up to 64 nodes interconnect on a peer-to-peer multi-priority token ring protocol network.

The 3-CPU3 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 over the network, less than three seconds.

Each 3-CPU3 provides slots at the back for mounting Network, and RS-232, cards. Removable terminal blocks on the 3-CPU3 support connection of network and audio data wiring. On board common relays also terminate at the 3-CPU3 terminals. To aid in trouble shooting and service, status LEDs monitor local rail, network, RS232 and audio data communications.

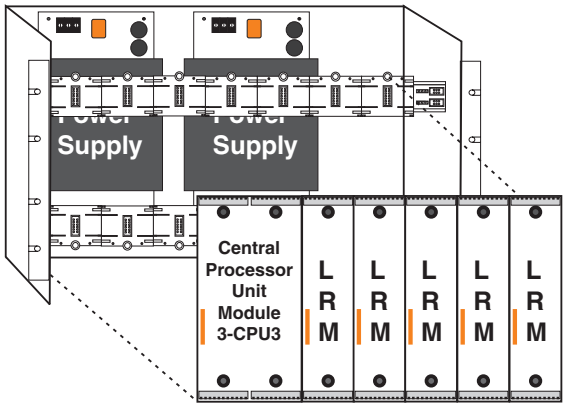
The **Network Communications** card mounts to the back of the Central Processor Unit. The 3-RS485A card provides a Class A (Style 7) or Class B (Style 4) circuit for network communications signals and support for a Class B (Style 4) or Class A (Style 7 - dual Style 4) circuit for the digitized audio signals. The 3-RS485B card provides a Class B (Style 4) or Class A (Style 7) circuit for network communications signals and a second Class B (Style 4) circuit for the digitized audio signals. Network messages received by the Network Communications card are re-transmitted to the next network node. Re-transmission maximizes the wire run lengths between nodes. With 64 nodes miles of network length is possible. Fail safe mechanisms built into the card direct connect the data input and output ports should the network card or its related Central Processor fail. Network communications may be configured via copper or fiber media using the 3-FIBMB.

The **3-RS232 Communication Card** mounts to the back of the 3-CPU3. The 3-RS232 has two optically isolated RS-232 ports. The ports support connection of a printer and/or an external command center. Entire network downloading from one location (to all 64 nodes) is available through the RS-232 card.

Engineering Specification

It must be possible to support a single stand alone node or up to 64 nodes communicating on a peer-to-peer token ring protocol network. Network and digitized audio wiring shall be run in a [choose one: Class A (Style 7) or Class B (Style 4)] configuration. Network alarm response from alarm input to signal activation must be under 3 seconds. All field wiring must be to removable terminal blocks. Status LEDs must be provided for communications of network and internal rail communications. Inter-node communication speed must be programmable. Internal rail communications speed must be programmable.

Installation and Mounting



Data

Maximum resistance between any 3 panels	90 Ohms
Maximum capacitance between any 3 panels	0.3 µF
Maximum distance between any 3 panels via RS485	5,000 ft. (1,524 m)

Capacitance, entire network

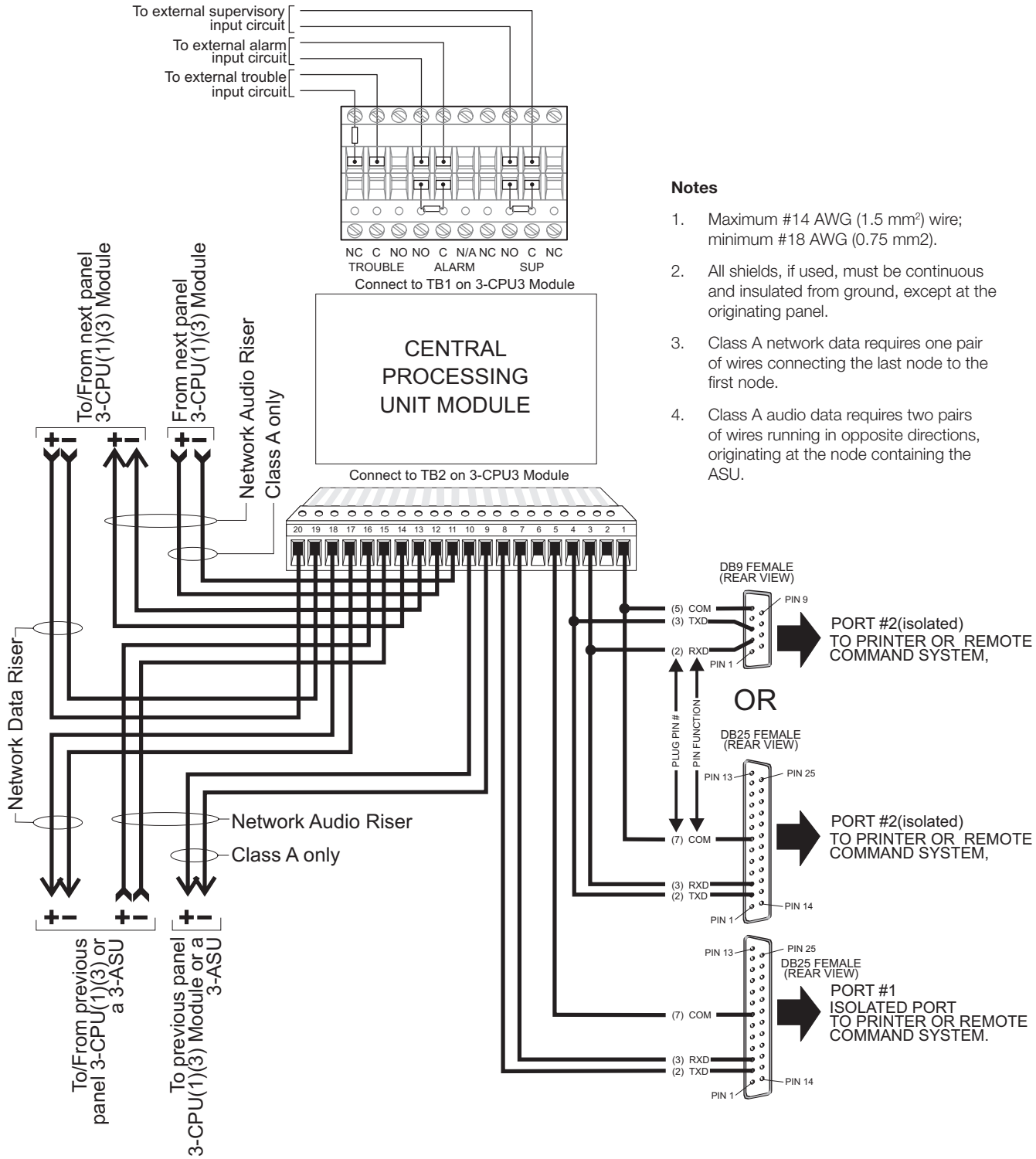
Maximum Accumulative Capacitance

Wire Size	38.4K Baud	19.2K Baud
18 AWG	1.4 µF	2.8 µF
16 AWG	1.8 µF	3.6 µF
14 AWG	2.1 µF	4.2 µF

Audio

Maximum resistance between any 3 panels	90 Ohms
Maximum capacitance between any 3 panels	0.09 µF
Maximum distance between any 3 panels via copper RS485	5,000 ft. (1,524 m)

Typical Wiring



Notes

1. Maximum #14 AWG (1.5 mm^2) wire; minimum #18 AWG (0.75 mm2).
2. All shields, if used, must be continuous and insulated from ground, except at the originating panel.
3. Class A network data requires one pair of wires connecting the last node to the first node.
4. Class A audio data requires two pairs of wires running in opposite directions, originating at the node containing the ASU.

Item #1

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*

Specifications

3-CPU3

Agency Listings	UL, ULC, CSFM, CE, LPCB EN54*.
Mounting	2 - Left most local rail spaces
Terminal Size	18-12 AWG (1.0mm² to 2.5mm²)
Standby Current	155 mA
Alarm Current	165 mA
Contact Ratings	Nonbypassable Alarm, Supervisory and Trouble Form 'C' 1A at 30 Vdc
Data Down Loading	RJ14 Jack
Operating Environment	0°C - 49°C (32° F - 120° F); 93% at 40° C Non-Condensing

**EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008*
Note: CPU current includes the main power supply, since the CPU and PPS cannot be measured separately.

Option Cards

Catalog number	3-RS232	3-RS485A	3-RS485B
Standby Current	58 mA	98 mA	98 mA
Alarm Current	58 mA	98 mA	98 mA
Communication Ports	Two optically isolated RS-232	Three RS-485 Class A (Style 7)	One Class B (Style 4) or Class A (Style 7) network data circuit and one Class B (Style 4) audio data circuit
Agency Listings	UL, ULC. CSFM, CE, LPCB. EN54*.		
Mounting	Back of 3-CPU3		
Operating Environment	0° C - 49° C (32° F - 120° F); 93% at 40° C Non-Condensing		

**EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008*

Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
3-CPU3	Central Processor Unit Module	0.7lb (0.32kg)
3-RS485A	Network Communications Card, Class A (Style 7)	0.33lb (0.15kg)
3-RS485B	One Class A/B network data circuit and one Class B audio data circuit	0.33lb (0.15kg)
3-RS232	RS-232 Communication Card	0.33lb (0.15kg)
3-CPUDR	CPU doors with filler plates. Order separately, one required per CPU where no LCD display is installed.	0.25lb (0.11kg)

Life Safety & Communications

Liquid Crystal Display Module

3-LCD

7165-1657: 0186
S3000
MEA
FDNY COA 6086

EN 54-2: 1997 + A1: 2006
EN 54-4: 1997 + A1: 2002 + A2: 2006
EN 54-16: 2008

Overview

The Main Display interface is the primary user interface in the EST3 Life Safety System. The main display interface focuses on the emergency user by putting information important to the user up front. Hands free, the first highest priority event is shown. The display always gives the last highest priority event. Arriving at the panel and without opening the door the first and last alarm is given. Simple to understand lights and switches help the emergency user execute system commands with confidence.

A menu system supports maintenance functions such as disables or reports for use by staff or service personnel.

Standard Features

- Uses simple lights and switches
- Displays information important to user
- Hands free first alarm display
- Last event of highest priority always displays
- Eight lines by 21 character graphic LCD display — 168 characters total
- Multlingual
  Supports English, French, Spanish, and Russian
- Uses queues to sort events
  A queue is a list of messages Alarm, Supervisory, Trouble and Monitor
- Slide in LED and switch labels
  Makes customization for regional language easy

Item #1

Application

The 3-LCD module mounts to the local rail over the nodes Central Processing Unit Module (3-CPU). The 3-LCD module is optional in any network node.

Ensuring information clarity the 3-LCD uses a backlit high contrast supertwist graphical display. Eight lines of 21 characters provide the room needed to convey emergency information in a useful format.

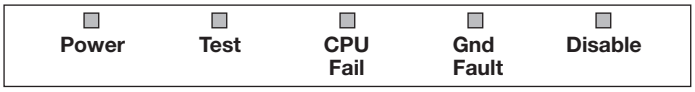
The 3-LCD always displays the last highest priority event even when the user is viewing other message queues. Further message flexibility is provided with EST3's message routing ability. Messages from a node can display at every node on the network or messages can route to specific nodes only. Routing 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 3-LCD can display messages in English, Spanish, French, and Russian. The bilingual display lets the operator select between either of two languages. Consult your representative for available language combinations.

The EST3 system configures for Proprietary, Local or EN54 market operations. The mode of operation is selected through the System Definition Utility (SDU) which may adjust the following operations slightly to fit the system operation selected.

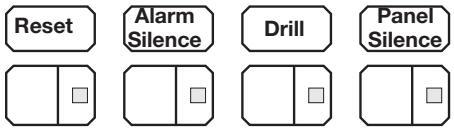
LEDs and Switches

Further enhancing the 3-LCD user interface are easy to read and understand lights and switches. All functions are laid out in a logical order. At the top of the 3-LCD are five system status LEDs. Here determining the general condition of the system is easy.



Power LED: Green, on when AC power is on.

Test LED: Yellow, on when any portion of the system (Group) is under test.



CPU Fail LED: Yellow, on when CPU stops running.

Gnd Fault LED: Yellow, on when a ground exists on the system (group)

Disable LED: Yellow, on when any point or zone is disabled by a user.

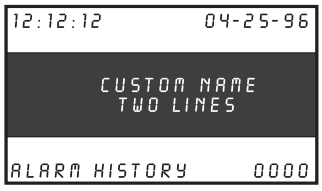
Below the general status LEDs are located four, LED / Switch common controls. The versatility of EST3 allows system designers to define the features as affecting a domain (defined group of nodes) or as global (affects all nodes) across the network. This feature is very useful when configuring systems with multiple buildings on one network. As an example, operating the reset in one building may have adverse effect in other buildings. With EST3 having operational differences between buildings on the same network is not a problem.

Pressing **Reset** starts the system's reset operation. The yellow LED has three flash rates during reset. The LED flashes fast during the smoke power down phase of reset, flashes slow during the restart phase, and turns on steady for the restoral phase. The Reset LED turns off when the system is normal.

Pressing **Alarm Silence** turns off all Notification Appliance Circuits defined as audible. The yellow LED turns on when silence is active via the Alarm Silence switch or via alarm silence software timers.

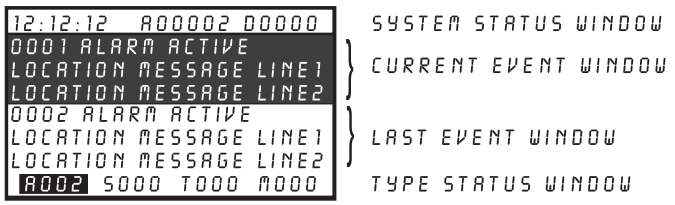
Pressing **Panel Silence** turns off the system's internal audible signal. The yellow LED turns on when panel silence is active. The EST3 panel buzzer has user programmable signal rates for alarm, supervisory, trouble and monitor conditions.

Pressing **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.



In the center of the 3-LCD is the Liquid Crystal Display. In the normal condition the date and time plus a definable system title display on the LCD. The last line of the display gives an alarm history. This total equals the number of times the system has entered the alarm state from the normal state.

When active events are on display, the LCD formats into four logical windows.

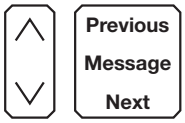


In the system status window, the display shows the time and the status of active and disabled points.

The current event window, lines 2, 3, 4 automatically display the first active event of the highest priority if the user has not taken control of the system. Once the emergency user takes control, this window displays user message selections.

The second line of the display shows system event information. In the example above the display shows the chronological number of the event (0001 is the first alarm) followed by the event type (Alarm Active). EST3 supports over 45 event type messages from which system designers choose. The last two lines of the current event window are custom programmable location message lines with space for 42 characters.

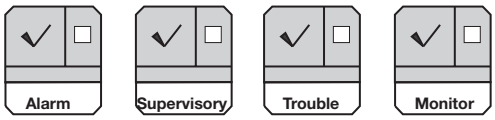
The last event window shows the last highest priority event. This window is always displayed and updated automatically by the system. Here the emergency user can monitor the progress of a fire.



When EST3 is configured for a local mode system viewing the second alarm message is easy, just press the NEXT key. The next message scrolls into the current event window. The last highest priority event always remains on view. No matter what queue the user selects for viewing, the LCD always displays the most recent alarm. A new alarm event resounds the panel audible signal and appears immediately on display without overwriting information the user selected for view.

The final window of the LCD the type status window shows the total number of active events by queue type. A is alarm, S is supervisory, T is trouble, and M is monitor. The number following each letter is the number of active events existing in each queue.

EST3 breaks down event types into queues and automatically displays the first event of the highest priority type.



Priority order is alarm, supervisory, trouble, monitor. By using queues an emergency user does not waste time scrolling through a mixed event list looking for alarms or confusing an alarm message with other message types.

EST3 configures for **Remote proprietary** system operation where every event must be acknowledged by viewing them before the internal buzzer will silence. Or the EST3 will configure for **Local** operation. Here the internal buzzer silences by pressing panel silence. If any events exist in queues that have not been viewed the queue LED continues to flash informing the user of un-seen events.

When all events in a queue are acknowledged or 'seen', the LED associated with the queue turns on steady. If a new event is added to the queue, the EST3 internal buzzer resounds and the queue LED flashes.

EST3 allows device grouping into logical group zones. Here two or more alarm devices (such as detectors or pull stations) make up the zone. When a device in the zone activates, the LCD displays the zone description. Each zone only displays once, regardless of the number of devices active within the zone.

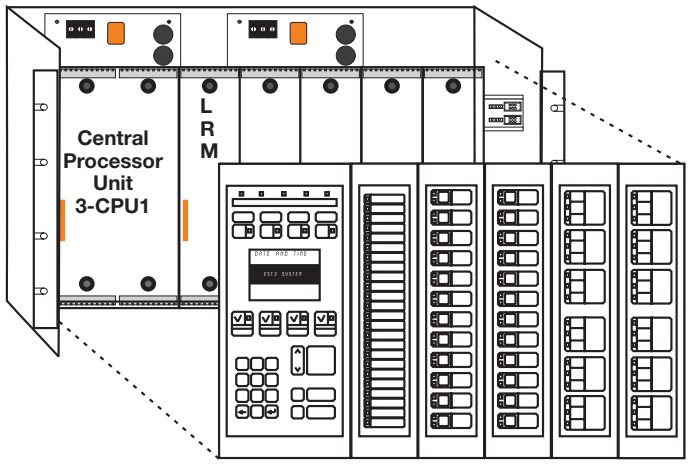
To display device information the user presses the Details key. The device with the lowest address displays in the first window.

If multiple devices are active each is available for viewing by using the arrow associated with the Previous Message Next key and scrolling through the device list.

The common controls easily expand beyond the Main Display interface by adding a Control Display Module and assigning features to its switch controls.

For Maintenance users, the EST3 provides a smooth operating menu system providing powerful tools for system management, reports, and trouble shooting.

Installation and Mounting

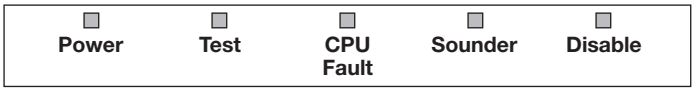


EN54 Compliance

EST3 has passed the British-based Loss Prevention Certification Board (LPCB) certified EST3 control panels and power supplies as having surpassed the requirements of the pivotal EN54 standard, parts two and four as well as part 16. LPCB Certificate #262ab In order to meet these standards, display and control functions have undergone slight modifications for the EN54 marketplace. These differences are highlighted below. All other control and annunciation features remain unchanged.

Note: EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008.

System Status LEDs



Power LED (Green): on when DC power is on.

Test LED (Yellow): on when any portion of the system (Group) is under test.

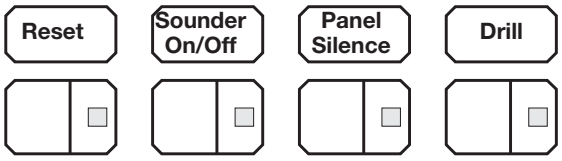
CPU Fault LED (Yellow): on when CPU stops running (processor failures must be manually reset).

Gnd Fault LED: Not available.

Sounder LED (Yellow): flashing indicates fault on sounder circuit. Steady indicates a disabled sounder circuit.

Disable LED (Yellow): on when any point or zone is disabled by a user (disabled conditions have priority over fault conditions).

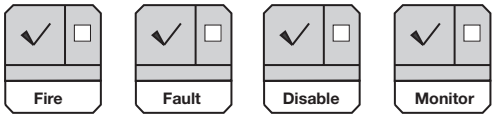
Switch Functions



Pressing **Sounder On/Off** turns off all sounder circuits defined as audible. The yellow LED turns on when silence is activated via the Sounder On/Off or via the alarm silence software timers.

See Page 2 for descriptions of Reset, Panel Silence, and Drill functions.

Event Queues



For EN54 compliance, EST3 configures for remote proprietary system operation. This requires that every event must be acknowledged by viewing them before the internal buzzer will silence. The priority order is Fire, Fault, Disable, Monitor. EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 approval is pending.

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Web: *www.chubbedwards.com*

Engineering Specification

The system shall provide a user interface that displays system events in a text format, and supports basic common control LEDs and switches. 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 units. The user interface must provide an LCD that will allow custom event messages of up to 42 characters. The interface must provide a minimum of eight lines by 21 characters and provide the emergency user, hands free viewing of the first and last highest priority event. The last highest priority event must always display and update automatically. Events 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. 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 1,000 characters each. The display shall be capable of displaying English, Spanish, French, or Russian messages.

Technical Specifications

Catalog Number	3-LCD
Agency Listings	UL, ULC, FM, CE, LPCB, EN54*.
LCD Display	Eight lines by 21 characters backlit LCD
Mounting	Two local rail spaces on top of 3-CPU
Common Control Switches and LEDs	Reset switch and LED Alarm Silence switch and LED Panel Silence switch and LED Drill Switch and LED
Alarm Current	42mA
Standby Current	40mA

** EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008.*

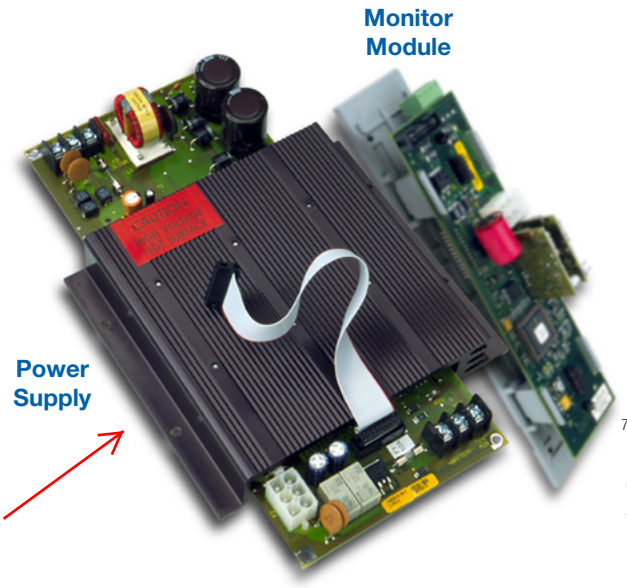
Ordering Information

Catalog Number	Description	Shipping Weight, lb. (kg)
3-LCD	Liquid Crystal Display Module	.8 (.36)
3-LKE	UK English Label Kit	.25 (.11)
3-LKF	French Label Kit	.25 (.11)
3-LKR	Russian Label Kit	.25 (.11)
3-LKS	Spanish Label Kit	.25 (.11)

Life Safety & Communications

EST3 Power Supplies

3-PPS/M series, 3-BPS/M series, 3-BBC/M series



S3000

7165-1657: 0186

FDNY COA 6086

EN54-2: (1997) +A1: (2006)
EN54-4: (1997) +A1: (2002) +A2: (2006)
EN54-16:(2008)

Overview

EST3 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. By paralleling the power supplies on a rail maximum utilization of available power is possible, resulting in fewer power supplies. Up to four power supplies combine in a single enclosure providing up to 28 amps of available power. Battery backup is provided using from one to four sets of batteries, depending on standby power requirements.

Power supplies mount to the back of the chassis units or wall-boxes. The associated power supply monitor module mounts on the local rail providing system power distribution and mounting space for any control display module. 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
- 120 or 230 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 UL, ULC and EN standards (see Specifications section)

Item #1

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 EST3 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.

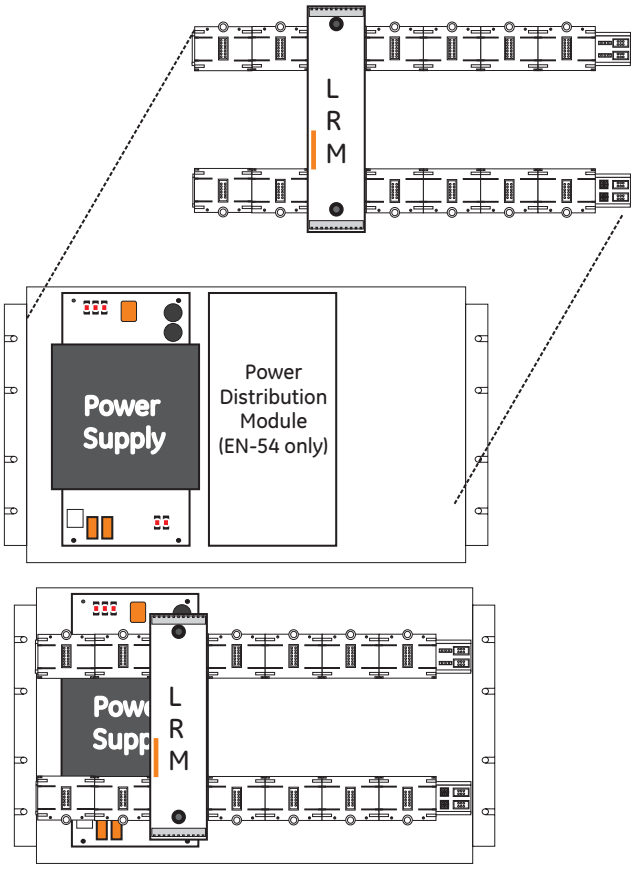
During operation on standby batteries, battery voltage is constantly monitored. A trouble is reported if the battery voltage falls below a specified value.

EST3 power supplies provide specific information back to the 3-CPU(1) 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 3-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

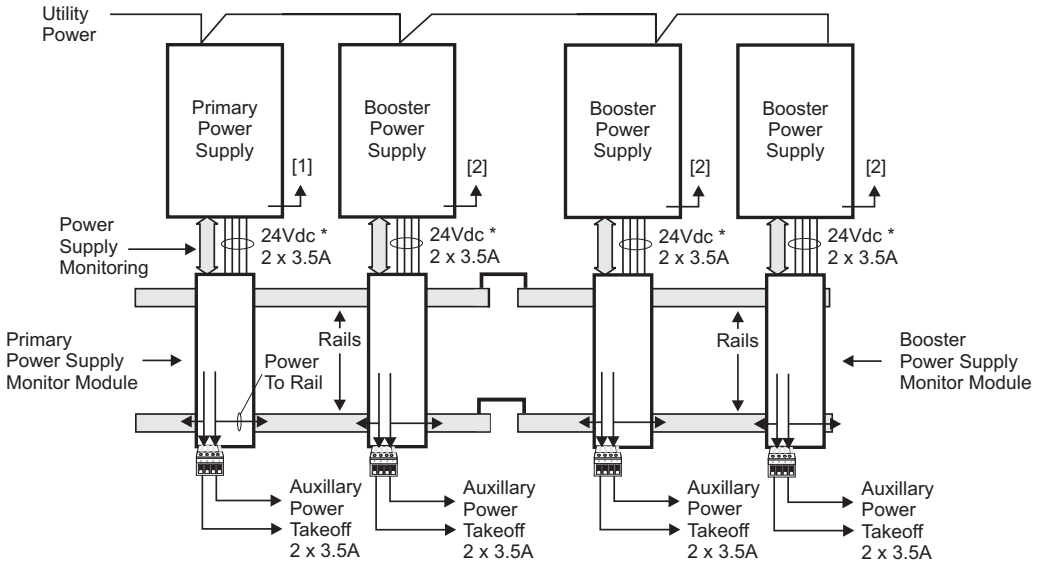
1. Each battery set needs one charger, either a 3-PPS/M or a 3-BBC/M.
2. Each power supply must be connected to a battery set using an identical length and gauge of wire to keep voltage drops identical.
3. Distribute power supplies and loads evenly across rails.
4. **All battery sets for a panel must 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	One Set, 65 AH max	Two Identical Sets, 65 AH max	One Set, 65 AH max	Three Identical Sets, 65 AH max	One Set, 65 AH max	Four Identical Sets, 65 AH max
Required Modules	1 3-PPS/M	1 3-PPS/M 1 3-BPS/M	1 3-PPS/M 1 3-BBC/M	1 3-PPS/M 2 3-BPS/M	1 3-PPS/M 2 3-BBC/M	1 3-PPS/M 3 3-BPS/M	1 3-PPS/M 3 3-BBC/M

Typical Wiring



[1] From battery temperature probe terminals.

[2] From battery and from temperature probe terminals if 3-BTSEN-E used.

* Nominal Voltage

Specifications

Catalog Number	3-PPS/M & 3-BBC/M	3-BPS/M	3-PPS/M-230 & 3-BBC/M-230	3-BPS/M-230	3-PPS/M-230-E & 3-BBC/M-230-E	3-BPS/M-230-E
Agency Approvals	UL, ULC	U L, ULC	UL, ULC	UL, ULC	LPCB EN54*, CE	EN54*
Input Voltage	120 Vac (+10%, -15%), 50-60 Hz		230 Vac (+10%, -15%), 50-60 Hz			
Brownout Level	< or = 102 Vac	96 Vac	< or = 195 Vac	184 Vac	< or = 195 Vac	188 Vac
Current Requirements	3-PPS/M included with 3-CPU3 current 3-BBC/M Alarm: 70 mA Standby: 70 mA	Alarm 50mA Standby 50mA	3-PPS/M-230 included with 3-CPU3 current 3-BBC/M-230 Alarm: 70 mA Standby: 70 mA	Alarm: 50 mA Standby: 50 mA	3-PPS/M-230-E included with 3-CPU3 current 3-BBC/M-230-E Alarm: 70 mA Standby: 70 mA	Alarm: 50 mA Standby: 50 mA
Input Current	3.0 A		1.5 A			
Total Output Current	Special Applications: 7.0 Amps					
Battery Charging Capacity	65 AH Sealed Lead-Acid	None	65 AH Sealed Lead-Acid	None	30 AH Sealed Lead-Acid	None
Low Battery Trouble	24 Vdc				22.5 Vdc	
Deep Discharge Cutoff	19.5 Vdc				20.0 Vdc	
Mounting Requirements	1 LRM space, 1 chassis footprint				1 LRM Space + 3-PPS: 2 footprints 3-BBC: 1 footprint	1 LRM space, 1 chassis footprint
Output Voltage	24 Vdc Nominal					
Auxiliary Output Current	Two sources of 3.5 Amps each taken from total output current					
Auxiliary Output Terminal Capacity	18 AWG to 12 AWG (1 mm² to 2.5 mm²)					
Output Protection	Electronic power limiting & heat sink temperature					
Ground Fault Detection	< 10K Ohms					

* **EN54-2: (1997) +A1: (2006)** *Control and Indicating Equipment;* **EN54-4: (1997) +A1: (2002) +A2: (2006)** *Power Supply Equipment;* **EN54-16:(2008)** *Voice Alarm Control and Indicating Equipment*

EST3 is listed to the following UL and ULC standards:

UL 864, *Control Units and Accessories for Fire Alarm Systems;* **UL294,** *Access Control System Units;* **UL365,** *Police Station Connected Burglar Alarm Units and Systems;* **UL609,** *Local Burglar Alarm Units and Systems;* **UL636,** *Police Station Connected Burglar Alarm Units and Systems;* **UL1076,** *Proprietary Burglar Alarm Units and Systems;* **UL1610,** *Central Station Burglar Alarm Units;* **UL1635,** *Digital Alarm Communicator System Units;* **UL2017,** *General-Purpose Signaling Devices and Systems;* **ULC-S303-M91,** *Local Burglar Alarm Units and Systems;* **ULC-S527-99,** *Control Units for Fire Alarm Systems;* **ULC/ORD-C1076,** *Proprietary Burglar Alarm Units and Systems;* **CAN/ULC-S559-04,** *Equipment for Fire Signal Receiving Centres and System;* **ULC/ORD-C100,** *Smoke Control System Equipment*

Item #1

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Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
3-PPS/M	Primary Power Supply w/ local rail module 120V 50/60 Hz	5 (2.3)
3-BPS/M	Booster Power Supply w/ local rail module 120V 50/60 Hz	5 (2.3)
3-PPS/M-230	Primary Power Supply w/ local rail module 230V 50/60 Hz	5 (2.3)
3-BPS/M-230	Booster Power Supply w/ local rail module 230V 50/60 Hz	5 (2.3)
3-PPS/ M-230-E	Primary Power Supply w/local rail module 230V 50 Hz, EN54* Certified, CE. Comes with one EFM-2 and 15 ferrite clamps.	5 (2.3)
3-BPS/ M-230-E	Booster Power Supply w/local rail module 230V 50 Hz, EN54* Certified, CE	5 (2.3)
3-BBC/M	Booster/Charger Supply w/local rail module 120V 50/60Hz	5 (2.3)
3-BBC/M-230	Booster/Charger Supply w/local rail module 230V 50/60Hz	5 (2.3)
3-BBC/ M-230-E	Booster/Charger Supply w/local rail module, 230V 50Hz, EN54* Certified, CE	5 (2.3)
3-BBCMON(-E)	Booster/Charger Monitor Module with charger capability (upgrade 3-BPS/M(-230)(-E) to 3-BBC/M-(230)(-E))	5 (2.3)
3-BTSEN	Distribution Module required when battery installed in remote cabinet	.5 (.22)
3-BTSEN-E	Distribution and Temperature Sensor Module. Required in EN54* Markets when battery installed in a remote cabinet.	.5 (.22)
EFM-2	Data filter board, ships with 3-PPS/M-230-E. Provides filtering for network data. For distributed audio applications refer to model EFM-10. Additional ferrite clamp kits may be ordered separately. See European Marketplace Manual P/N 270925 for details on ferrite clamp locations, quantities and wiring.	
EFM-10	Data Filter board order separately for distributed audio. Order one EFM-10 for each node receiving audio in the network. Additional ferrite clamp kits may be ordered separately. See European Marketplace Manual P/N 270925 for details on ferrite clamp locations and quantities.	
7300172	Ferrite Kit includes 2 ferrites for EN54 applications.	
7300173	Ferrite Kit includes 15 ferrites for EN54 applications.	
7300174	Ferrite Kit includes 4 ferrites for EN54 applications.	
7300175	Ferrite Kit includes 8 ferrites for EN54 applications.	
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

* **EN54-2: (1997) +A1: (2006)** *Control and Indicating Equipment;* **EN54-4: (1997) +A1: (2002) +A2: (2006)** *Power Supply Equipment;* **EN54-16:(2008)** *Voice Alarm Control and Indicating Equipment*

Life Safety & Communications

Signature Driver Controller Modules

3-SSDC1, 3-SDDC1, 3-SDC1

7165-1657:
0186/0306

S3000

FDNY
COA 6086

EN 54-2: 1997 + A1: 2006
EN 54-4: 1997 + A1: 2002 + A2: 2006
EN 54-16: 2008

Overview

The 3-SSDC1 and 3-SDDC1 Signature Driver Controller modules provide an intelligent interface between the 3-CPU3 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-SSDC1 Single Signature Driver Controller module supports one Signature Data circuit, while the 3-SDDC1 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-SSDC1/3-SDDC1 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
- Loop alarm in under 750 milliseconds
- 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-SDDC1s per node
  – Total of 10 Signature circuits
- Removable field wiring terminal blocks
- Multiple survival modes — stand alone
- Fully backward compatible with 3-SSDC and 3-SDDC
- Supports the full line of Signature II devices, including carbon monixide detection

Item #1

Application

Up to 125 detectors and 125 modules are supported over a single pair of wires by the 3-SDC1 Signature Cards that plug into the Signature controller modules. Both Class A wiring (style 6 or style 7) and Class B (style 4) wiring are supported. Loop distances over 11,000 feet (3300m) are possible.

The 3-SSDC1 and 3-SDDC1 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-SSDC1/3-SDDC1 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-SSDC1/3-SDDC1 supports a standalone mode for Signature devices. Two catastrophic failure modes are supported. If the 3-CPU(1/3) 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-SSDC1/3-SDDC1) fails, and a device (smoke or module) detects an alarm, specialized circuitry will make the node aware of the alarm condition. The 3-CPU(1/3) 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-SSDC1/3-SDDC1 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-SSDC1/3-SDDC1 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-SSDC1/3-SDDC1 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 3-CPU3's RS-232 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.

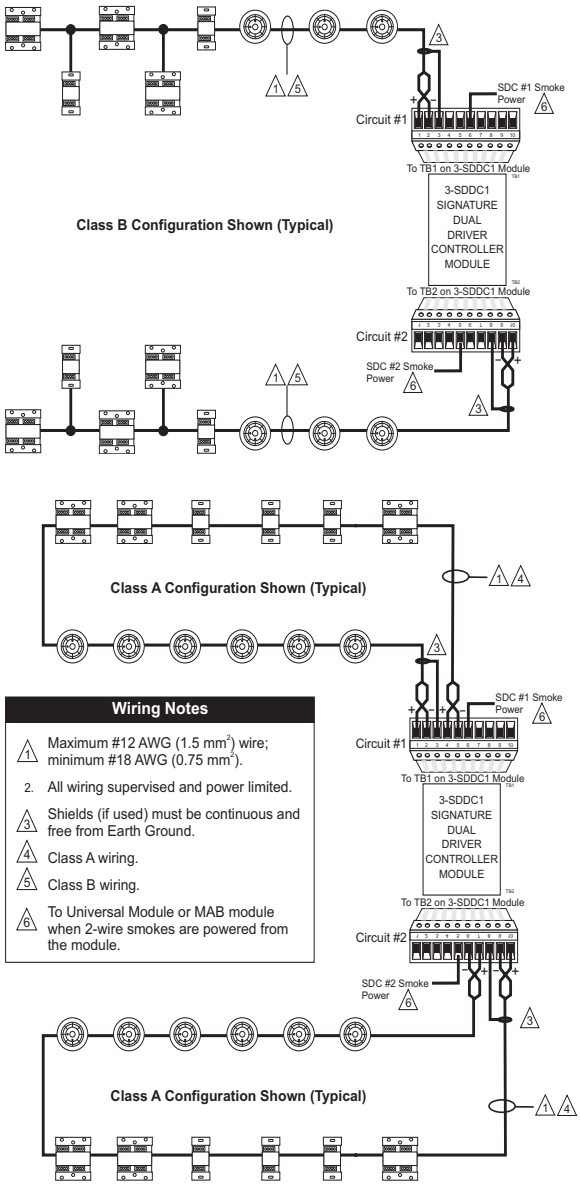
During installation a common problem with analog/ addressable systems is locating ground faults. The 3-SSDC1 and 3-SDDC1 controllers have the ability to locate ground faults by specific module, speeding up the troubleshooting process. Another significant advantage of the 3-SSDC1/3-SDDC1 controllers during 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-SSDC1/3-SDDC1 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-SSDC1/3-SDDC1 will send a map fault indication to the 3-CPU3 and post a trouble indicating the specific devices in fault.

The 3-SSDC1/3-SDDC1 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-SSDC1/3-SDDC1 will indicate a maintenance alert or dirty condition to the 3-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

Typical Wiring



Wiring Notes

1. Maximum #12 AWG (1.5 mm^2) wire; minimum #18 AWG (0.75 mm^2).
2. All wiring supervised and power limited.
3. Shields (if used) must be continuous and free from Earth Ground.
4. Class A wiring.
5. Class B wiring.
6. To Universal Module or MAB module when 2-wire smokes are powered from the module.

utilized. At this point the 3-SSDC1/3-SDDC1 sends a dirty trouble indication to the 3-CPU and posts a trouble condition. If maintenance is still not performed the Signature detector will automatically remove itself from service once the programmed threshold window has been breached (preventing a false alarm).

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 when there is 8% (several months) of CO element life remaining. Should the CO sensor element not be replaced after the maintenance signal is reported, an "End of Life" trouble automatically posts on the panel when the CO sensor detection capability is exhausted.

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

Specifications (Signature Circuits)

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

Non-twisted, non shielded wire

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

Twisted pair non shielded wire

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

Twisted pair shielded wire

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

Item #1

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Mebane, NC 27302

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Web: *www.chubbedwards.com*

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 A or Class B 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 (controllers)

Catalog Number	3-SSDC1	3-SDDC1
Installation	1 LRM Space	1 LRM Space
Module Configuration	1 Addressable circuit (3-SDC1 Card) expandable to 2 circuits.	2 Addressable circuits (3-SDC1 Cards)
Operating Current [Note 2]	Standby 144 mA Alarm 204 mA	Standby 264 mA Alarm 336 mA
Operating Voltage	24 Vdc, Nominal	
Address Requirements	Automatic	
Detectors Supported	125 per 3-SDC1 Card	
Modules Supported	125 Module Addresses per 3-SDC1 Card	
2-Wire Smoke Power Output	100 mA per 3-SDC1 Card (not included in *Operating Current* above	
Conventional detectors supported	150 of 100 µA type per circuit.	
Signature Circuit Voltage	20 VDC +/- 5%	
Maximum Signature Circuit Resistance	100 Ohms	
Maximum Signature Circuit Capacitance	0.33 µF	
Communications Format	100% Digital	
Circuit Wiring Styles	Class A or Class B	
Termination	Removable plug-in terminal strip(s) on module	
Permissable Wire Size	18 to 12 AWG (0.75 to 2.5 mm²)	
Agency Listings	UL, ULC (see Note 1); CE, LPCB, EN54 (see Note 3).	
Operating Environment	32 °F (0 °C) to 120 °F (49 °C) 93% RH, non-condensing	

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

Note 2: Current shown Includes full loop of devices.

Note 3: *For EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008 compliant product add suffix -E to model eg. 3-SSDC1-E (verify device and loop controller compatibility).

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
3-SSDC1	Single Signature Driver Controller. Comes with one 3-SDC1 Device Card. Mounts to Local Rail. *Add suffix "-E" for EN54 compliant versions.*	0.5 (0.23)
3-SDDC1	Dual Signature Driver Controller. Comes with two 3-SDC1s. Mounts to Local Rail. *Add suffix "-E" for EN54 compliant versions.*	0.5 (0.23)
3-SDC1	Signature Device Card - upgrades a 3-SSDC1 to a 3-SDDC1. *Add suffix "-E" for EN54 compliant versions.*	0.25 (0.11)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

Life Safety & Communications

Audio and Telephone Masters

3-ASU series

FM APPROVED

CE

FDNY APPROVED

7165-1657: 0186

UL UL C S3000

EN 54-2: 1997 + A1: 2006
EN 54-4: 1997 + A1: 2002 + A2: 2006
EN 54-16: 2008

Overview

The efficient EST3 audio system provides for intuitive local and remote audio control for Mass Notification/Emergency Communications (MNEC), Life Safety and other approved uses. EST3 audio builds from standard modules that fit together easily. Audio components use standard EST3 cabinets and power supplies.

Taking full advantage of digital technology, up to eight channels of audio sources transmit over a single twisted pair of wires or fiber optic cables between nodes. Coupling the inherent reliability and performance of zoned amplifiers with EST3 simplified user interfaces makes audio system design and operation easy and dependable.

The 3-ASU is seamlessly integrated into an EST3 system to provide for a rugged and reliable communications package that can be configured for Mass Notification/Emergency Communication (MNEC), as well as fire alarm and other emergency functions. The 3-ASU audio source unit supports eight channels of clear digital audio that is easily distributed to panels containing 3-ZA rail amplifiers. The 3-ASU supports digital storage and playback of pre-recorded messages as well as live paging. The optional 3-FTCU provides a unique, space-saving and easy-to-operate control point for dedicated emergency/firefighter two-way telephones.

Standard Features

- Eight channels for audio source selection
- Audio data to remote EST3 panels with amplifiers can be transmitted over twisted copper wires or fiber optic cables *(see Data Sheet 85010-0131 for details on EST3 fiber optic communications)*
- Listed for Mass Notification/Emergency Communications
- UL2572 as CCS or ACU or LOC.
- Auxiliary audio input interface for campus paging, telephone interface, etc.
- Single fiber optic filament or one twisted pair of wires between nodes
- VU display shows paging output level
- Ready-to-page LED
- Digital transmission of audio signals
  - greater noise immunity
  - high quality signal transmission
- On board storage of programmed messages and tones
- Optional LCD display of fire phone calls
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Item #1

Application

EST3 audio is accomplished by selecting modular components for installation in standard fire alarm cabinet assemblies. At the main control panel location mounting audio control equipment provides an emergency user interface for “Paging” and optionally a “Firefighters Master Telephone”. Zoned amplifiers mount in the main control panel and/or in remote nodes. By mounting amplifiers in remote nodes, wire runs and space requirements are reduced at the main control panel.

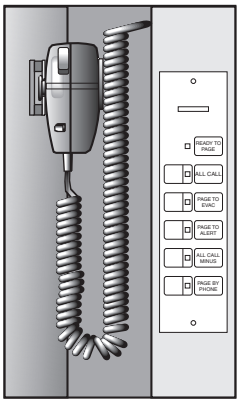
The heart of the EST3 audio package is the Audio Source Unit (ASU). The Audio Source unit converts analog signals to digital signals. On board audio memory stores signal tones and/or alarm-alert verbal messages.

These digitally-stored messages can be recorded onsite using standard PC audio components or downloaded from a library of pre-recorded messages and tones. Messages can be in any language or combination of languages. The ASU comes standard with two minutes of memory for tone and message storage. Available message memory expands easily to 100 minutes with the optional 3-ASUMX/100 memory expansion card.

Audio Source units support connection of a local microphone, remote microphone, telephone voice line , and Mass Notification/ Emergency Communication (MNEC) audio feed. With eight audio channels to choose from combinations of paging, alert, evacuation signaling and automatic messages are available for simultaneous delivery to different parts of a building or to different buildings.

There are two main audio user interface modules: the paging microphone, and the firefighter’s telephone, which supports three-state and four-state firefighter telephones. Available individually or in a set, EST3 audio modules open system design possibilities.

When the Life Safety system requires paging only the 3-ASU or 3-ASU/4 Audio Source Units provides a Master Paging microphone with common controls. Switch labeling makes the operation intuitive. Six LEDs and five switches cover paging operations. Three of the five paging switches, All Call, Page to Evacuation, and Page to Alert, cover most paging operations. A VU display shows the user the output level of the page in process. The 3-ASU series mount in one chassis space of a EST3 Lobby enclosure. In addition to the paging microphone the 3-ASU/4 has mounting space for up to four local rail modules, including 20, 40, and 95 watt zone amplifiers and up to four Control Display modules allowing layout flexibility. The 3-ASU provides the same functionality as the 3-ASU/4 but is supplied with an inner door filler plate and no local rail module spaces.



Paging Microphone

Ready-to-Page LED turns on after the pre-announce tone has finished indicating the system is ready to page.

All Call selects all amplifiers for page delivery.

Page to EVAC selects all amplifiers currently delivering evacuation signaling for page delivery.

Page to ALERT selects all amplifiers currently delivering alert signaling for page delivery.

All Call Minus selects all amplifiers not programmed for alarm signaling for page delivery (typically stairwells).

Page by Phone selects the telephone voice line as the paging source.

Operating the Microphone Talk Key stops alarm signaling to selected zones and starts pre-announce tone delivery.

When the pre-announce tone finishes, the Ready to Page LED turns on.

When system design calls for paging with Firefighters telephone the 3-ASU/FT provides all the paging features of the 3-ASU series with the added benefit of a master handset assembly. The 3-ASU/FT brings to the emergency user easy to understand switches and text messages displaying on a backlit 8 x 20 character LCD display.

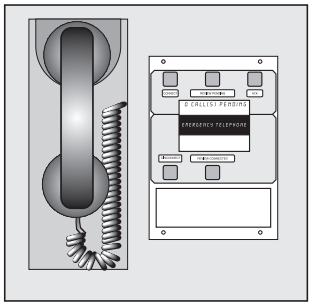
Low Frequency Audio Signaling in Sleeping Rooms

This Audio Source Unit is part of an end-to-end low frequency solution listed to UL 464 and UL 864. It is approved for code-compliant 520 Hz signaling in sleeping areas when used in conjunction with:

- an EST3 control panel
- a factory-supplied 520 Hz audio file
- one or more of the following amplifiers: 3-ZA20A, 3-ZA20B, 3-ZA40A, 3-ZA40B, 3-ZA95, SIGA-AA30, SIGA-AA50, 1B3-125, or 1B3-250
- one or more Genesis High Fidelity speakers (G4HF or GCHF series)

Consult the EST3 System Compatibility List for details.

Firefighters telephone



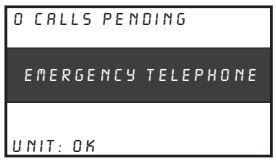
CONNECT switch selects phone circuits shown in the Calls Pending Window.

REVIEW PENDING stops automatic display of pending calls and allows the operator to step through each message at his own pace.

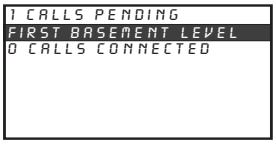
ACK (acknowledge) silences the telephone systems audible signal. The signal resounds for any new call.

DISCONNECT disconnects the highlighted call in the calls connected list.

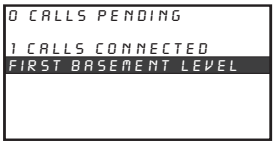
REVIEW CONNECTED scrolls a reverse highlight through the calls connected list.



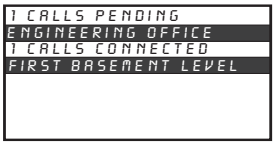
The Firefighters telephone LCD is very similar to the 3-LCD. When there is no active telephone calls the LCD shows a title screen. Active calls display a text message referenc-ing the remote phone location.



When a remote handset is lifted the LCD display updates to show the calls pending and the call-in signal sounds to alert the user of a pending call.



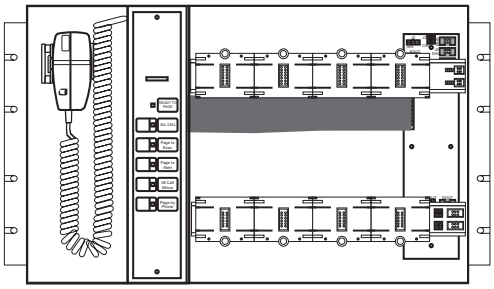
The user answers the call by pressing the Connect switch. The location message moves from the pending line to the connected line. The call in signal silences. The user simply uses the master telephone to talk with the connected telephone.



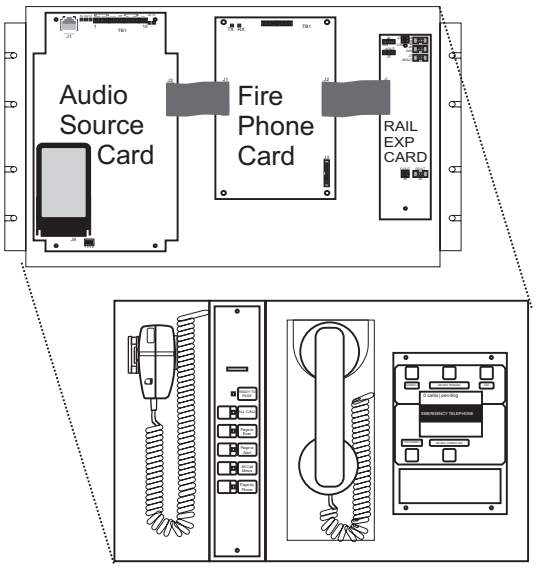
If another call comes in the location message appears in the calls pending line and audible signal resounds. The user can silence the signal by answering the call or by pressing the ACK (acknowledge) switch.

Up to five remote telephone handset assemblies connect to the system simultaneously without any degradation of audio quality.

Installation and Mounting

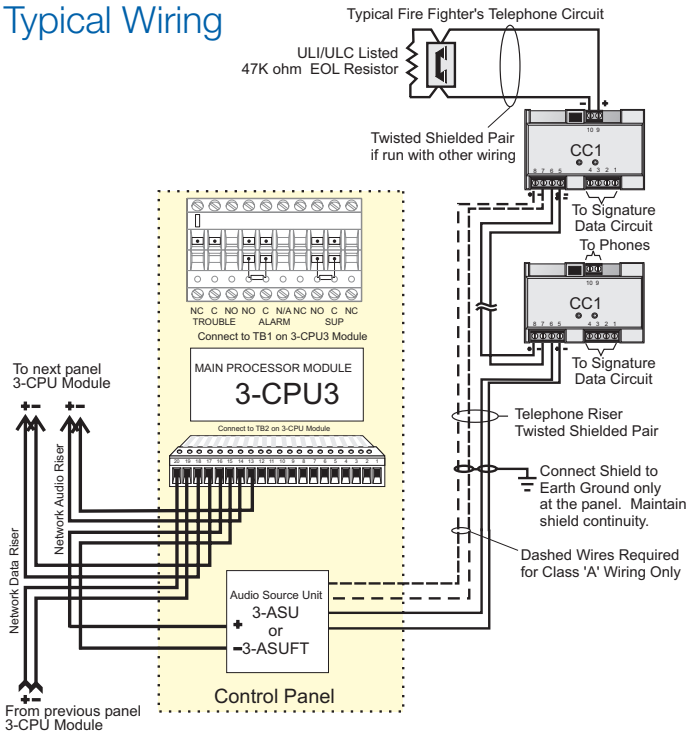


3-ASU/4 has Chassis, Audio Source Unit, Paging Common Control and rail space for four Local Rail Modules. Mounts in lobby enclosure.

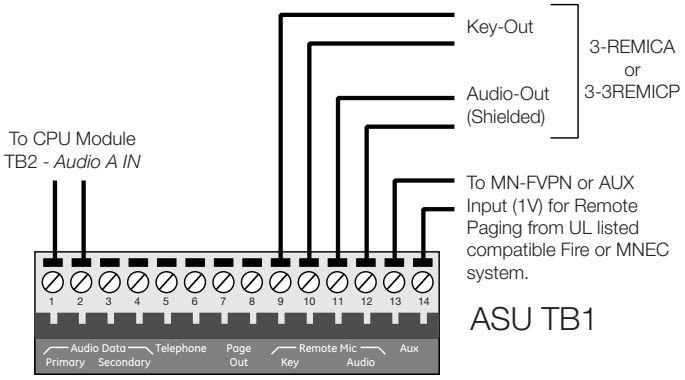


3-ASU/FT has Chassis Assembly /w Audio Source Unit, Paging Common Control and Fire Phone Controls

Typical Wiring



Mass Notification



Engineering Specification

The audio system shall provide eight simultaneous and distinct audio channels. These shall consist of a minimum of: Local Page, Emergency Communication, Multiple Evacuation, Alert, Auxiliary, and General Signaling. Channels shall support hierarchical operation and be controllable from system programming. The audio system also provides Elevator, Stairwell and Auxiliary signaling. Systems that cause signaling devices to go silent while performing any signaling functions will not be accepted.

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, VU display of paging output level, 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. The analog sources must be sampled and converted to digital with a sampling rate no less than 9600 samples per second. It must be possible to transmit signal sources (Alert, Alarm, Page, etc.) together over a single pair of wires between nodes.

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 2-way communication between the fire alarm control panel and any fire fighters' telephone station. <<The Audio Source Unit and Firefighters Telephone shall be installed so that a seismic component Importance Factor of 1.5 is achieved.>> The system shall include an alphanumeric 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 alphanumeric display. The display shall be capable of bilingual operation, displaying English, Dutch, Finnish, French, German, Italian, Portuguese or Spanish messages.

The incoming call shall be selected by activating a single button. All subsequent telephone call locations shall be displayed in full text. The system shall display all incoming calls, all connected phone(s) on the alphanumeric 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.

Specifications

Catalog Number	3-ASU	3-ASU/4	3-ASU/FT(RC)	3-FTCU
Agency Listings	UL, ULC, CE, EN54 (see note 3)			
Ambient Temp.	0°C-49°C (32°F-120°F)			
Ambient Humidity	93% Non-condensing @ 32°C			
Mounting	One Chassis Space			
Wire Size	Network Data Riser - One pair twisted 18-12AWG ($1.0mm^2$-$2.5mm^2$) Network Audio Riser - One pair twisted 18-12AWG ($1.0mm^2$-$2.5mm^2$)		Network Data Riser- 18-12AWG (1.0-$2.5mm^2$)(3-ASU/FT only) Network Audio Riser- 18-12AWG (1.0-$2.5mm^2$)(3-ASU/FT only) Telephone Riser - One pair twisted shielded 18 -14 AWG ($1.0mm^2$ to $1.5mm^2$)	
Current Rating	80 mA in Alarm and Supervisory		112 mA Supervisory and Alarm	32 mA Supervisory and Alarm
Audio Inputs	Local Microphone (isolated and supervised); Remote Microphone (isolated and supervised); One MNEC audio input.		Local microphone (isolated and supervised); Remote microphone (isolated and supervised); Firefighters' telephone (isolated and supervised; One MNEC audio input.	
Pre-recorded Message Storage	Two minutes standard expandable to 100 minutes with optional 3-ASUMX/100. Max. message length 40 seconds.			N/A
Supported Message Count	255			N/A
Auxiliary Input impedance	1K Ohm			N/A
Bilingual Support	English, Dutch, Finnish, French, German, Italian, Portuguese, Spanish			

Telephone Riser		
Active Telephones	N/A	Five Maximum
Wire size	N/A	One pair twisted shielded 18 -14 AWG ($1.0mm^2$ to$1.5mm^2$)
Line Resistance	N/A	50 Ohm
EOL Resistance	N/A	15K Ohm

Item #1

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Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

Catalog Number	Description	Ship Wt. lb. (kg)
3-ASU/FT [1,3]	Audio Source Unit with Local Microphone and Firefighters Telephone.	20 (9.1)
3-ASU/FTRC	Audio Source Unit with Local Microphone, Firefighters Telephone and call in buzzer control.	20 (9.1)
3-ASU/4 [1,3]	Audio Source Unit w/Local Microphone. Provides four local rail spaces.	15 (6.8)
3-ASU [1,3]	Audio Source Unit w/Local Microphone. Inner door filler plate	15 (6.8)
3-FTCU [1,3]	Firefighters Telephone Control Unit inner door filler plate.	15 (6.8)
3-ASUMX/100	Audio Source Unit Memory Expansion. Provides 100 minutes of message time.	0.5 (.23)
3-FTEQ	Seismic hardening kit for 3-ASU/FT or 3-FTCU telephone handset [2]	
RC-BRKT	Redundant command center relay bracket	
3-LKE	UK English Label Kit	.25 (.11)
3-LKF	French Label Kit	.25 (.11)
3-LKR	Russian Label Kit	.25 (.11)
3-LKS	Spanish Label Kit	.25 (.11)
EFM-2	Data filter board, ships with 3-PPS/M-230-E. Provides filtering for network data. For distributed audio applications refer to model EFM-10. Additional ferrite clamp kits may be ordered separately. See European Marketplace Manual P/N 270925 for details on ferrite clamp locations, quantities and wiring.	
EFM-10	Data Filter board order separately for distributed audio. Order one EFM-10 for each node receiving audio in the network. Additional ferrite clamp kits may be ordered separately. See European Marketplace Manual P/N 270925 for details on ferrite clamp locations and quantities.	
7300172	Ferrite Kit includes 2 ferrites for EN54 applications.	
7300173	Ferrite Kit includes 15 ferrites for EN54 applications.	
7300174	Ferrite Kit includes 4 ferrites for EN54 applications.	
7300175	Ferrite Kit includes 8 ferrites for EN54 applications.	

1. Add "-CC" for City of Chicago
2. For earthquake anchorage, including detailed mounting weights and center of gravity detail, please refer to *Seismic Application Guide 3101676*. Approval of panel anchorage to site structure may require local AHJ, structural, or civil engineer review.
3. For EN54 compliance, add the suffix -E (e.g.: 3-ASU-E). For 3-ASU/FT, order 3-ASU/FT-EN, for GOST R compliant order 3-ASU/FT-E. Noise immunity in accordance with CE requirements dictate that an EFM-2 or EFM-10 be installed along with ferrite clamps. EFM-2 data filter board and 15 ferrite clamps, ship with the 3-PPS/M-230-E. Order one EFM-10 for each node receiving audio in the network. Additional ferrite clamp kits can be ordered separately. See European Marketplace Manual P/N 270925 for details on ferrite clamp locations and quantities. .

EST
Life Safety & Communications

Zoned Audio Amplifiers

3-ZA20A, 3-ZA20B, 3-ZA40A, 3-ZA95

S3000

7165-1657:
0186/0306

FDNY APPROVED

FM APPROVED

EN 54-2: 1997 + A1: 2006
EN 54-4: 1997 + A1: 2002 + A2: 2006
EN 54-16: 2008

Overview

The EST3 audio amplifiers take full advantage of proven digital technology to deliver highly intelligible voice audio for evacuation and Mass Notification/Emergency Communication (MNEC) purposes. Digital messages generated by the Audio Source Unit (ASU) and live paging messages are multiplexed into eight separate channels transmitted over fiber optic cable or a single twisted pair of wires. Each zoned amplifier contains integrated demultiplexing circuitry that allows any one of the eight digital audio channels to place messages or signals on the amplifier's built-in speaker circuit.

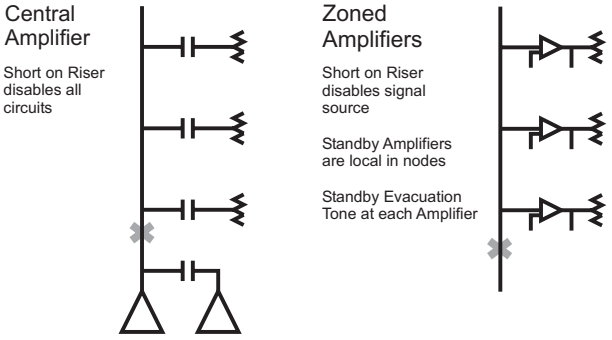
Audio channel selection is network software controlled, and audio amplifiers mount in the same enclosures as other EST3 equipment. Power for the amplifiers comes from standard system power supplies through the local rail. Field wiring connects to removable terminal blocks on the amplifier module. Amplifiers support either 25 V_{RMS} or 70 V_{RMS} power limited speaker circuits. For visual signaling, 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 (Style Z) or Class B (Style Y) output models available
  - Power limited
- **3.5 amp 24 Vdc notification appliance circuit on 20 and 40 watt amplifiers**
  - Class A (Style Z) or Class B (Style Y) output models available
  - Power limited
- **Network software control of channel selection**
- **Integral backup tone generator**
  - 1 KHz temporal (3-3-3) tone evac

Application

EST3 zoned amplifier configurations offer improved reliability and performance. Configuration provides improved survivability in the event of wiring faults that result in a loss of signaling. 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 EST3, the same fault removes the Audio Source Unit riser.

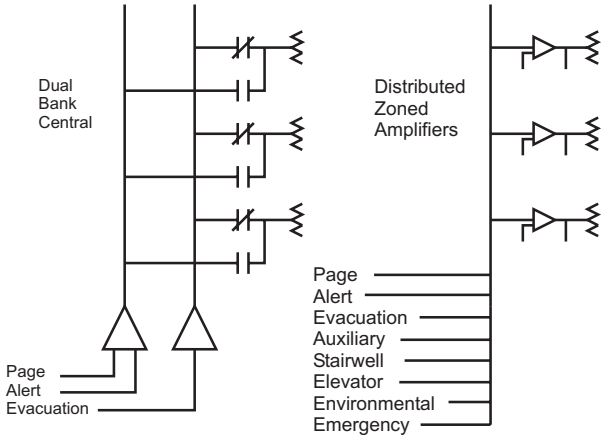


Because all EST3 zoned amplifiers have an integrated backup 1000 Hz temporal tone generator, the locally-generated alarm tones notify occupants of a hazard – even with the primary riser out of commission. The backup tone also operates if the ASU or the audio distribution system fails. To further enhance system survivability, a single standby amplifier can backup any zoned amplifier in the same cabinet.

Zoned amplifiers can be housed in remote cabinets close to the speakers. This minimizes the voltage drop between the amplifier and the load, and permits the use of a smaller wire size than is possible with centrally-located amplification systems.

EST3 easily outperforms banked audio systems with its ability to simultaneously deliver up to eight different signals. 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, which could cause confusion because occupants did not receive the page message and do not know why the Page stopped and restarted.

With EST3, simultaneous page, alert, and evacuation signal capability is engineered into the system. With eight channels to choose from, dedicated messages can be delivered to stairwells, elevator cabs, etc. while alert, evacuation, and page instructions are simultaneously being sent to the rest of the building. The eight audio channels allow messages to be automatically routed, and provide specific instructions based on the alarm's location.



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, EST3 provides UL-listed Mass Notification/Emergency Communication (MNEC), 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 the risk of an unexpected fire alarm or general evacuation signal interfering with established emergency response protocols.

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 signaling in sleeping areas when used in conjunction with:

- an EST3 control panel
- a factory-supplied 520 Hz audio file
- one or more Genesis High Fidelity speakers (G4HF or GCHF series)

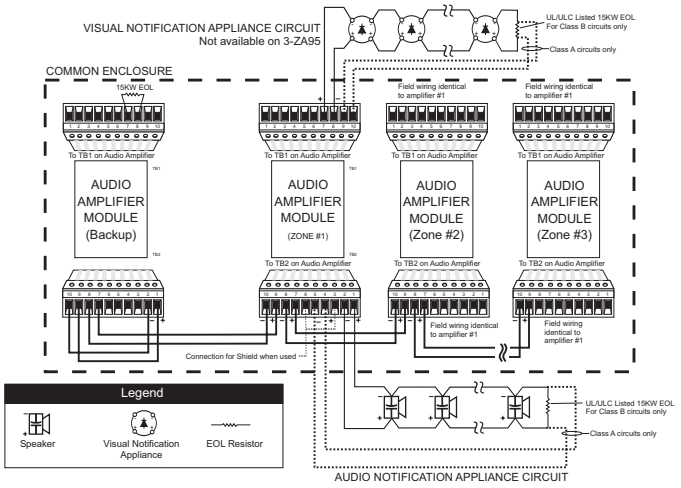
Consult the EST3 System Compatibility List for details.

Engineering Specification

The audio system shall provide eight simultaneous and distinct audio channels. These shall consist of a minimum of: Local Page, Emergency Communication, Multiple Evacuation, Alert, Auxiliary, and General Signaling. Channels shall support hierarchical operation and be controllable from system programming. The audio system also provides Elevator, Stairwell and Auxiliary signaling. Systems that cause signaling devices to go silent while performing any signaling functions will not be accepted.

The audio system zoned amplifiers must be able to operate 25 V_{RMS} or 70 V_{RMS} speakers. The amplifier output must be power limited, and wired in a <Class A (Style Z)> <Class B (Style Y)> configuration. The amplifiers shall provide an integral backup 1000 KHz temporal tone generator which shall operate in the event signal 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.

Typical Wiring



Specifications

	3-ZA20A	3-ZA20B	3-ZA40A	3-ZA40B	3-ZA95
Agency Listing	UL, ULC, CE, EN54 EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008				UL, ULC
Environmental	0°C - 49°C (32°F - 120°F) 93% RH, Non-condensing				
Frequency Response	400Hz to 4KHz @ +/- 3dB				
Output Voltage	25 VRMS or 70 VRMS				
THD (distortion)	< 7%				
Wire Size	18 to 12 AWG (1.0 to 2.5 mm²)				
Internal Tone Generator	1KHz Temporal (3-3-3) Tone (evacuation); 20 PPM (alert)				
SIGA-CC1/2 Support	10 Units, Maximum				
Standby Current	62mA for 20 and 40 watt amps; 64mA for the 3-ZA95 watt amp				
Alarm Current	1120mA	1120mA	2480mA	2480mA	5540mA
Pwr. Ltd. Audio Output Wiring Configuration EOL Resistor	Class A or B (Style Z or Y) 15K Ohms in Class B	Class B (Style Y) 15K Ohms	Class A or B (Style Z or Y) 15K Ohms in Class B	Class B (Style Y) 15K Ohms	Class A or B (Style Z or Y) 15K Ohms in Class B
Pwr. Ltd. 24 Vdc NAC Wiring Configuration Line Resistance, Max.* EOL Resistor Line Capacitance, Max	Class A or B (Style Z or Y) 50 Ohms, Max. N/A 0.33µF	Class B (Style Y) 50 Ohms, Max. 15 K Ohms 0.33µF	Class A or B (Style Z or Y) 50 Ohms, Max. N/A 0.33µF	Class B (Style Y) 50 Ohms, Max. 15K Ohms 0.33µF	N/A
Space Requirements	1 LRM Space				2 LRM Spaces

Note: *For EN 54-2: 1997 + A1: 2006, EN 54-4: 1997 + A1: 2002 + A2: 2006, and EN 54-16: 2008 compliant product add suffix -E to model eg. 3-ZA20A-E.

Maximum Speaker Circuit Distance at 0.5 dB loss*

70 VRMS Output	3-ZA20A	3-ZA20B	3-ZA40A	3-ZA40B	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-ZA20B	3-ZA40A	3-ZA40B	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.

Item #1

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*

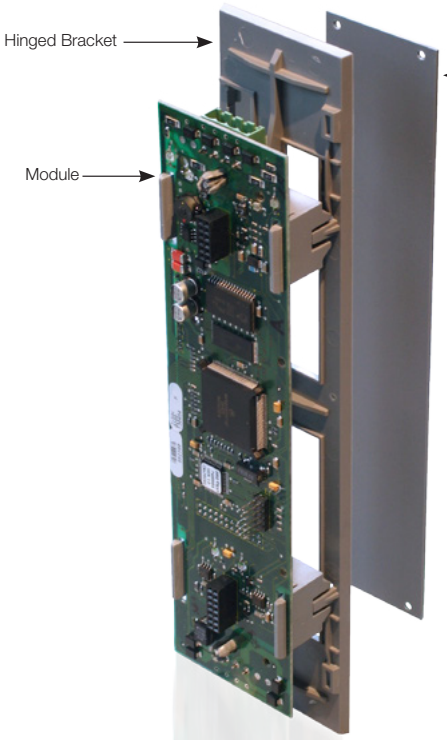
Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
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.	1.55 (0.7)
3-ZA20B	20 Watt Zoned Amplifier w/Class B (Style Y) Audio & Class B (Style Y) 24 VDC outputs. Add suffix "-E" for EN54 compliant versions.	1.55 (0.7)
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.	1.55 (0.7)
3-ZA40B	40 Watt Zoned Amplifier w/Class B (Style Y) Audio & Class B (Style Y) 24 VDC outputs. Add suffix "-E" for EN54 compliant versions.	1.55 (0.7)
3-ZA95	95 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio output	3.0 (1.5)
3-FP	Filler Plate, order separately one required per amplifier when no LED or LED/Switch module installed on operator layer.	0.1 (0.05)

Life Safety & Communications

Modem Communicator

3-MODCOM, 3-MODCOMP



S3000

7165-1657:
0186/0306

FDNY APPROVED

FM APPROVED

Overview

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

Item #1

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.

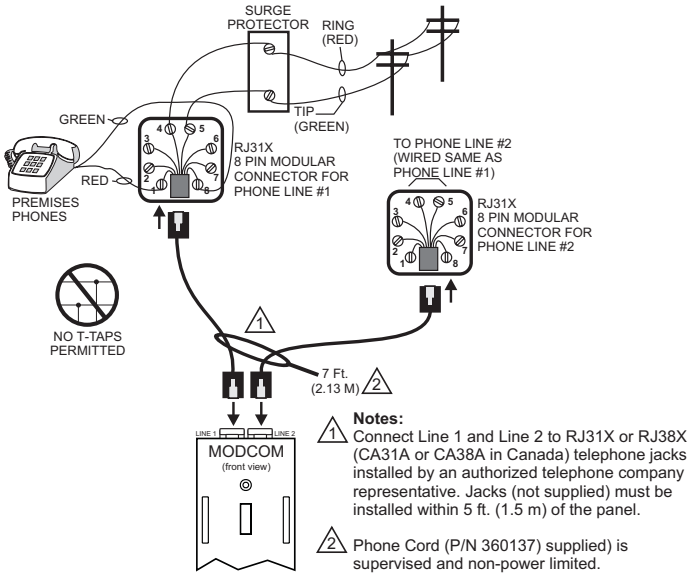
Remote Data Upload/Download

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



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

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.

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

Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
3-MODCOM	Modem/Dialer (DACT) version	0.5 (0.23)
3-MODCOMP	Modem/Dialer (DACT) w/TAP Pager Protocol	0.5 (0.23)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

Item #1

Contact us...

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In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Life Safety & Communications

EST3 Cabinets and Chassis

3-CAB series, 3-RCC series, 3-CHAS7 series, BC-1

3-CAB Series

3-RCC Series

7165-1657: 0186

FDNY COA 6086

EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Overview

EST3 has a wide selection of cabinet arrangements allowing the greatest use of EST3's flexible modular design. Lobby enclosure wallboxes are manufactured from #14 AWG cold rolled steel with a gray baked enamel finish. Lobby enclosure doors are manufactured from #14 AWG cold rolled steel and have a modern contoured door design with integral viewing window. The exception is the small lobby enclosure 3-CAB5. The 3-CAB5 wallbox and non-contoured door are #16 AWG cold rolled steel. Lobby enclosure doors come with gray baked enamel or optional red baked enamel finishes. The EST3 lobby enclosures back boxes, doors and chassis units are ordered and shipped separately. The 3-CAB5 lobby enclosure comes complete with door and back box providing space to mount five local rail modules.

The EST3 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 finish only. Optional display modules used for system diagnostics display, mount behind the closet cabinet door and are not visible with the door closed.

Standard Features

- Right or left hand hinging of doors
- Lag and Keyway holes for quick mounting
- Attack rated door for security applications
- Knockouts for 3/4 inch conduit
- Attractive contour door design on lobby enclosures
- Combination flush or surface mounting lobby enclosure design
- Remote closet cabinets for electrical closet mounting support up to 65 AMP hour batteries
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Item #1

Application

Lobby Enclosures

EST3 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 lobby's where appearance is important, maximum mounting flexibility is provided with doors that will mount for right or left hand opening. Lobby enclosures come in several sizes to match individual project requirements.

The **3-CAB5 series** semi-flush or surface mounts. 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 gives room for a power supply and a 1/2 footprint module and 10 AH batteries. The local rail module spaces provide room for amplifiers, common control and annunciation modules.

The **3-CAB7** semi-flush or surface mounts and has a contoured front door with viewing window. Space is provided for two 17 AH batteries and one chassis assembly providing seven local rail module spaces.

The **3-CAB14** semi-flush or surface mounting and has a contoured front door with viewing window. Space is provided for two 17AH batteries and two chassis assemblies each providing seven local rail module spaces.

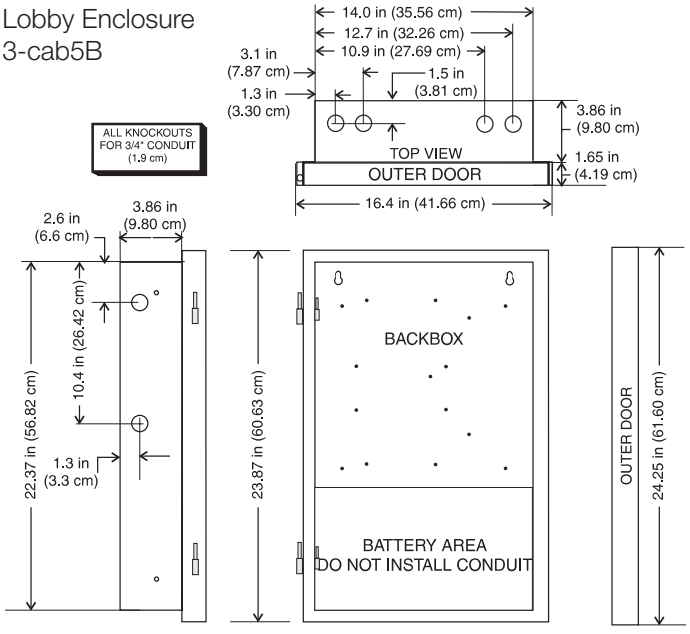
The **3-CAB21** semi-flush or surface mounts and has a contoured front door with viewing window. Space is provided for two 17AH batteries and three chassis assemblies each providing seven local rail module spaces.

Remote Closet Cabinets

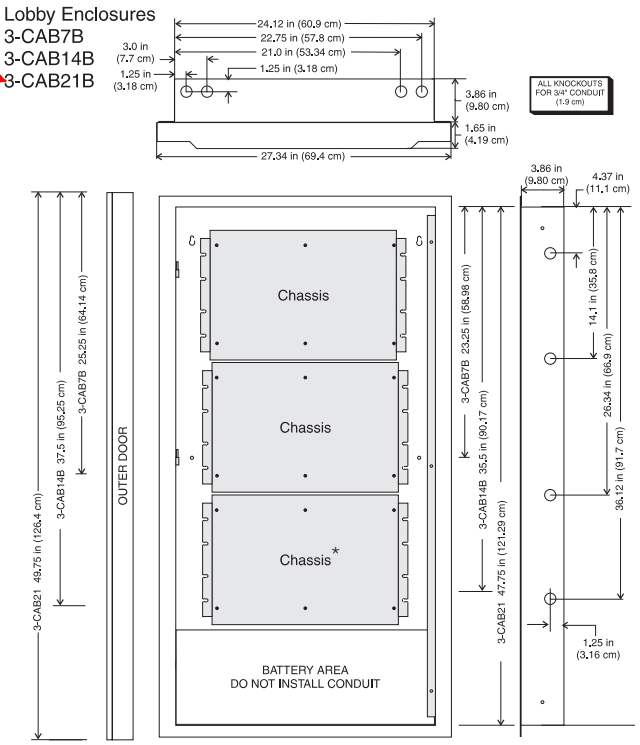
Remote closet cabinets provide an economical way of installing equipment in locations where esthetics are not paramount, like electrical closets. You can have optional display modules used for system diagnostics display mounted behind the front door. These display modules will not be visible with the door closed. Remote closet cabinets are surface mounting and come in sizes providing space for one to three chassis with room for standby batteries. A UL Listed attack rated door having a 2-minute rating is available for the 3-RCC7R cabinet. This door is required for security applications.

Installation and Mounting

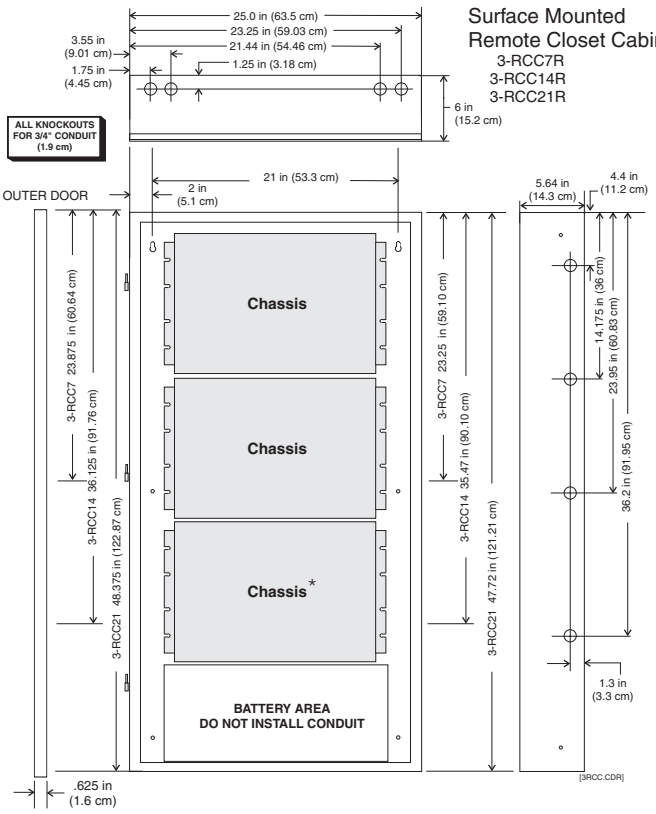
Lobby Enclosure
3-cab5B



Lobby Enclosures
3-CAB7B
3-CAB14B
3-CAB21B

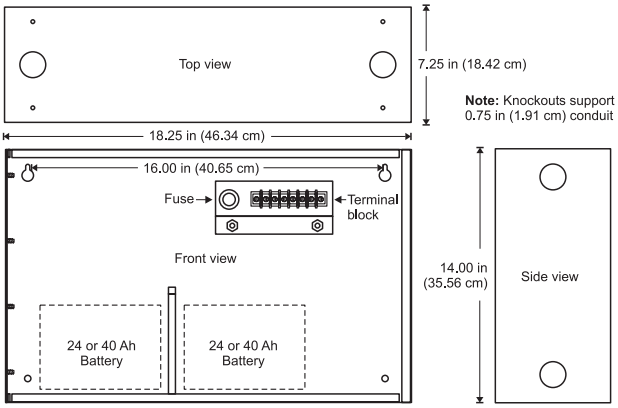


Surface Mounted
Remote Closet Cabinets
3-RCC7R
3-RCC14R
3-RCC21R



* 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 Dimensions



Ordering Information

Catalog Number	Description	Equipment Mounting Space	Battery Space	Ship Wt. lb. (Kg)
Lobby Enclosures — Outer doors with viewing window				
3-CAB5	Cabinet w/Wallbox, door and chassis	Five local rail modules One footprint and ½ footprint module	Two - 12V10A	30 (13.6)
3-CAB7B	Wallbox only	One Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	30 (13.6)
3-CAB7B-E	Wallbox only, EN54* certified CE	1 Chassis		30 (13.6)
3-CAB7D(R)	Inner and outer doors for 3-CAB7B	N/A		10 (4.5)
3-CAB7D(R)-E	Inner & outer doors for 3-CAB7B, EN54*, CE			10 (4.5)
3-CAB14B	Wallbox only	Two Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	42 (19.1)
3-CAB14B-E	Wallbox only, EN54* certified CE	2 Chassis		42 (19.1)
3-CAB14D(R)	Inner and outer doors for 3-CAB14B	N/A		15 (6.8)
3-CAB14D(R)-E	Inner & outer doors for 3-CAB14B, EN54*, CE			15 (6.8)
3-CAB21B	Wallbox only	Three Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	55 (25)
3-CAB21B-E	Wallbox only, EN54* certified CE	3 Chassis		55 (25)
3-CAB21D(R)	Inner and outer doors for 3-CAB21B	N/A		20 (9.1)
3-CAB21D(R)-E	Inner & outer doors for 3-CAB21B, EN54*, CE			20 (9.1)
Remote Closet Enclosure — No viewing window				
3-RCC7R	Red wallbox and door	One Chassis	Four - 6V8A, Two - 12V10A Two - 12V17A, Two - 12V50A	37.5 (17)
3-RCC7R-E	Red wallbox and door, EN54* certified CE			37.5 (17)
ATCK	Attack rated door for 3-RCC7R	N/A		26 (11.8)
3-RCC14R	Red wallbox and door	Two Chassis	Four - 6V8A Two - 12V10A, Two - 12V17A Two - 12V50A, Two - 12V65[2]	53 (24)
3-RCC14R-E	Red wallbox and door, EN54* certified CE			53(24)
3-RCC21R	Red wallbox and door	Three Chassis		70 (31.8)
3-RCC21R-E	Red wallbox and door, EN54* certified CE			70 (31.8)
Chassis Assemblies				
3-CHAS7	Takes one chassis space in wallbox, provides space for 7 local rail modules, up to two power supplies, and a ½ footprint module.			8.4 (3.8)
3-ASU**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and an inner door filler plate.			15 (6.8)
3-ASU/4**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and four local rail module spaces.			15 (6.8)
3-ASU/FT**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and Firefighters Telephone			20 (9.1)
3-FTCU**	Takes one chassis space in wallbox, provides Firefighters Telephone Control unit and inner door filler plate.			15 (6.8)
MN-BRKT1	Takes one chassis space in wallbox, provides mounting for MNEC interface equipment			4.0 (1.8)
FSB-BRKT	Mounting bracket for FSB-PC communications bridge. Allows FSB-PC to mount on the side of a Chass7			1.0 (0.45)

more...

Notes:

1. All lobby enclosures, wallboxes and doors have a textured gray enamel finish; outer doors are available in red by adding the suffix "R" to the catalog number, i.e. 3-CAB7DR.
2. 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.
3. The EST3 is modularly listed under the following standards: UL 864 categories: UOJZ, UOXX, UUKL and SYZV, UL 2572, 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.

** EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*

*** Add "-CC" for City of Chicago.*

Item #1

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*

Accessories

3-BATS	Battery Shelf for RCC Enclosures. Takes one chassis space. Room for up to one 65 AH or two 50 AH batteries.	3 (1.36)
BC-1	Battery Cabinet - supports up to two 40 amp hour batteries.	
3-BTSEN	Battery sensor/distribution module	0.5 (.2)
BC-1EQ	BC-1 - Seismic Battery hold down for BC-1. Supports up to two 40 Ahr batteries. Order BC-1 Separately.	
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.	
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.	
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.	
3-TAMP	Tamper switch for 3-CAB7, 3-CAB14 and 3-CAB21 cabinets. Mounts to side of cabinet.	0.5 (.2)
3-TAMP5	Tamper switch for 3-CAB5. Mounts to side of cabinet.	0.5 (.2)
3-TAMPRCC	3-TAMPRCC Tamper Switch for RCC series cabinets. Mounts to side of cabinet.	0.5 (.2)

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7165-1657:0186

CATEGORY: 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models EST3, EST3R, EST3-230, EST3R-230, EST200, EST200R, EST200-2 and EST200R-2 fire alarm control units. Power limited. Automatic, manual, coded, noncoded, local, auxiliary, remote station, (DACT),(reverse polarity), proprietary (multiplex), central station, waterflow, sprinkler supervisory service and releasing device. Model EST3 is also suitable for mass notification system and smoke control. Refer to listee's data sheet for additional detailed product description and operational considerations. System components:

3-BPS/M, 3-BPS/M/230; Booster Power Supply
3-PPS/M, 3-PPS/M-230; Primary Power Supply
3-BBC, /230, /M, /M-230; Battery Booster Charger Power Supply
3-RS232; CPU RS232 Comm
3-XMEM; CPU Memory Option
3-IDC8/4; Zone Card
3-CPU, 3-CPU1, 3-CPU2, 3-CPU3; Central Processing Unit
3-LCD, 3-LCDXL, 3-LCDXL1; CPU LCD Display
3-OPS; Off Premises Signaling Module
3-LDSM; LED Display Module
3-LRMF; Blank LRM Filler
3-CHAS4, -CHAS-5, -CHAS-7, -CHASS; Module Chassis
3-CAB-5(R),-7(R),-14(R),-21(R) ; Module Cabinet (red)
3-TAMP, 3-TAMP5; Tamper Switch
3-TAMPRCC; Tamper Switch
3-RCC7(R),-RCC14(R),-RCC21(R); Closet Cabinet (red)
3-PSMON; Power Supply Drive Monitor
3-BPMON; Power Supply Booster Monitor
3-BBCMON; Battery Booster Charger Monitor
3-24G,-24R,-24Y,-12RY,-12SY,-12SR,-12SG; LED Display
3-12/RY,-12/2Y,-12/2S2Y,-12/S1GY, *-12/S2R; LED Display
3-12/S1RY,-18S1G2Y,-6/3S1G2Y; LED Display
3-6/3S1GYR,-18S1GYR, -6/3S3L, *-6/3S2RY; LED Display
3-4/3SGYWR; LED Display
4X-12/S1GY, 4X-12/S1RY, 4X-12SR, 4X-24R;LED Display
4X-6/3S1G2Y, 4X-6/3S1GYR, 4X-4/3SGYWR; LED Display

*Rev. 11-19-15 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #1

4X24Y, 4X-12RY; LED Display
*4X-LRMF: Blank Plate
3X-NET, 3X-NET8, 3X-FIB8; LED Display
3X-FIB; Fiber Network Option Module
3-CAB5BR; Enclosure
3-SSDC, 3-SSDC1, 3-SDDC1; Single Loop Controller Module
3-SDC, 3-SDC1, *3-SDC1-HC, *VM-SLC-HC; Signature Data Card
3-ASU, 3-ASU/4, 3-ASUMX/100, /MM; Audio Source Module
3-FTCU; Firefighter Phone Module
3-ASU/FT; Audio/Firefighter Module
3-ZA15, 20, 30, 40, 95; Amplifier
3-RS485(130316/130410-01); Network Communication Card
3-RS485A, 3-RS485B, 3-RS485R; Network Communication Card
3-DSDC, 3-DSDC1; Dual Loop Controller Module
3-FIB, 3-FIBA; Fiber/Copper Data Com Module
3-FIBMB; Fiber Optic Interface Card
3-CCI; City Interface
CDR-3; Coded Output Module
URSM; Universal Riser Supervisor Module
RM1; Supervisory Module
3-AADC, 3-AADC1; Analog Addressable Communication Module
3-ATPINT, MN-ABPM; ATPC Interface Module
3-REMICA, 3-REMICP; Remote Microphone
PT1-S; System Printer
PT1-P; System Printer Parallel
3-ZA90, 3-ZA20A, 3-ZA20B; Zone Amplifiers
3-ZA40A, 3-ZA40B, 3-ZA95; Zone Amplifiers
ATCK; Attack Kit Cover for 3-RCC7R cabinet
3-MODCOM, 3-MODCOMP; Modem communicator/pager interface
3-NSHM1, 3-NSHM2; Modem Communication Cards
3-SAC; Security Access Control Module
3-ASUXM/100; Audio and Telephone Masters
MN-COM1S; Interface Module
MN-NETSW1,MN-NETSW2; Network Switching Hub
MN-FNS8C2F3, MN-FNS4C2F3, MN-FNS8C18F2, MN-FNS8C18F3; Network Switching Hub
MN-FNS8C18FAC; AC Power Supply
MN-FNS8C18FDC; DC Power Supply
MN-FNSGBDSM70K, MN-FNSFEDSM10K, MN-FNSFEMM2K; Fiber Optic Modules
*MN-FNSGBDSMDR-XX, *MN-FNSGBDSM10K, *MN-FNSGBSSM10KD,
*MN-FNSGBSSM10KU: Fiber Optic Modules
MN-FNS4HDK1, MN-FNS8HDK1; Mounting Bracket
MN-PASM,MN-PASM2; Audio Preamp Module
MN-FVPN; VoIP Encoding/Decoding Unit
MN-BRK1, MN-BRKT8C18F, *MN-BRKT4F; Mounting Bracket
*MN-NRBK1, MN-BRKT1, 1F, 2, 3, 3F; Mounting Bracket

*Rev. 11-19-15 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

RC-BRKT; Mounting Bracket
3-RCCEQ50, 3-RCCEQ65, 3-FTEQ, 3-CABEQ; Seismic Kits
SMXL02, SMXHI2; Fiber Tranceivers
3-FIBMB2, MN-ABPM; Interface Module
MN-NETRLY4; Network Relay Module
NETCOM-BRKT, MN-NRBRT; Mounting Bracket
SMXLO, SMXH, MMXVR; Fiber Tansceiver
3-CPUDR; CPU Door
3-BTSEN; Battery backup distribution bus

RATING: EST3, EST3R, EST200, EST200-2, EST200R, EST200R-2:120 VAC
EST3-230, EST3R-230: 220 VAC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as fire alarm control units for use with separately listed electrically and functionally compatible initiating and indicating devices. Also suitable for high-rise application. Refer to listee's Installation Instructions Manual for details.
These control units can generate a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2002 Edition.
This control unit meets the requirements of UL-864, 9th Edition Standard.

NOTE: 1. For ***Fire Alarm Verification Feature*** (delay of fire alarm signal), the maximum Retard/Reset/Restart period shall not exceed 30 seconds.

2. Formerly 7165-1591:186 and 7165-1388:211

3. Combined with 7170-1657:187

*Rev. 11-19-15 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

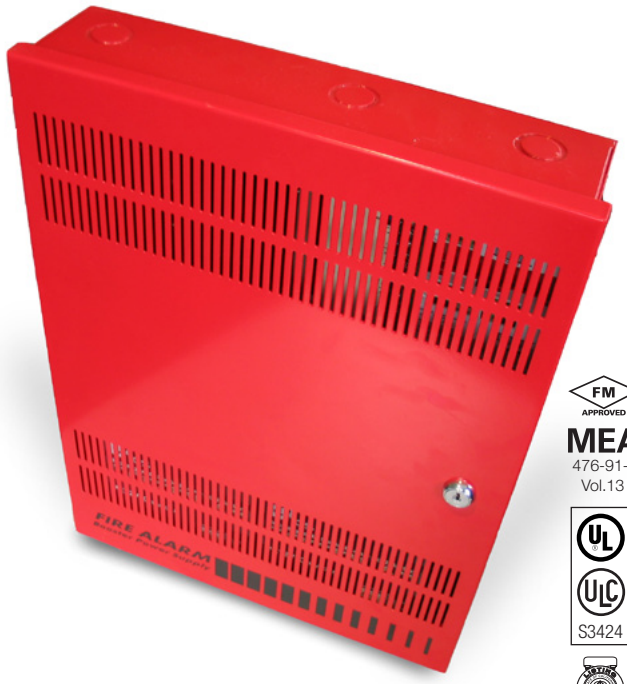
Fire Engineering Division

Item #1

EST
Life Safety & Communications

Remote Booster Power Supplies

BPS6A, BPS10A



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

Overview

The Booster Power Supply (BPS) is a UL 864, 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

Item #2

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.

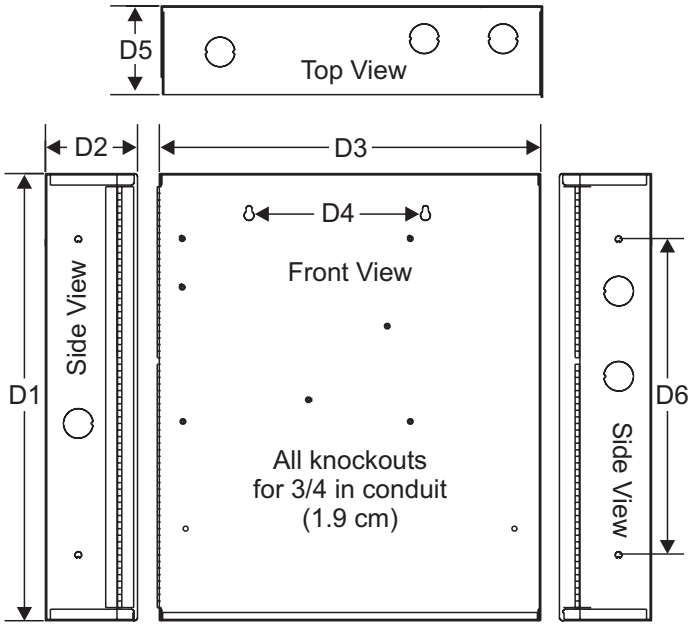
The BPS enclosure has mounting brackets for up to three Signature modules to the right of the circuit board.

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.

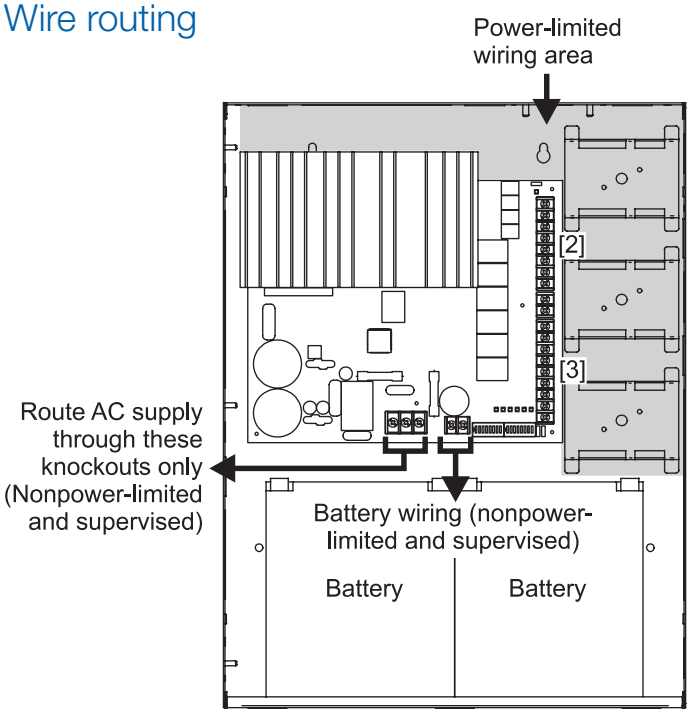
<<The BPS shall be capable of installation for a seismic component Importance Factor of 1.5.>> The BPS shall provide a minimum of four independent, fully supervised Class B circuits that can be field configurable for notification appliance circuits or auxiliary 24 Vdc power circuits. BPS NACs shall be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

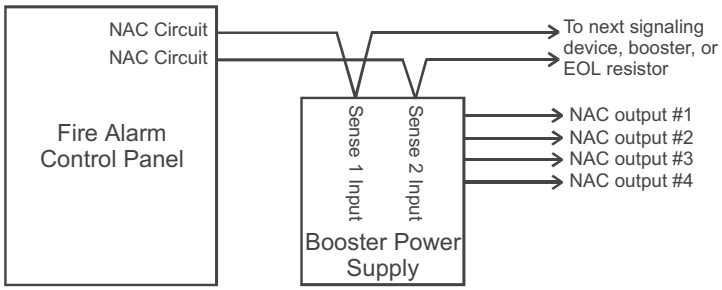
[3] Source must be power-limited. Source determines supervision.

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

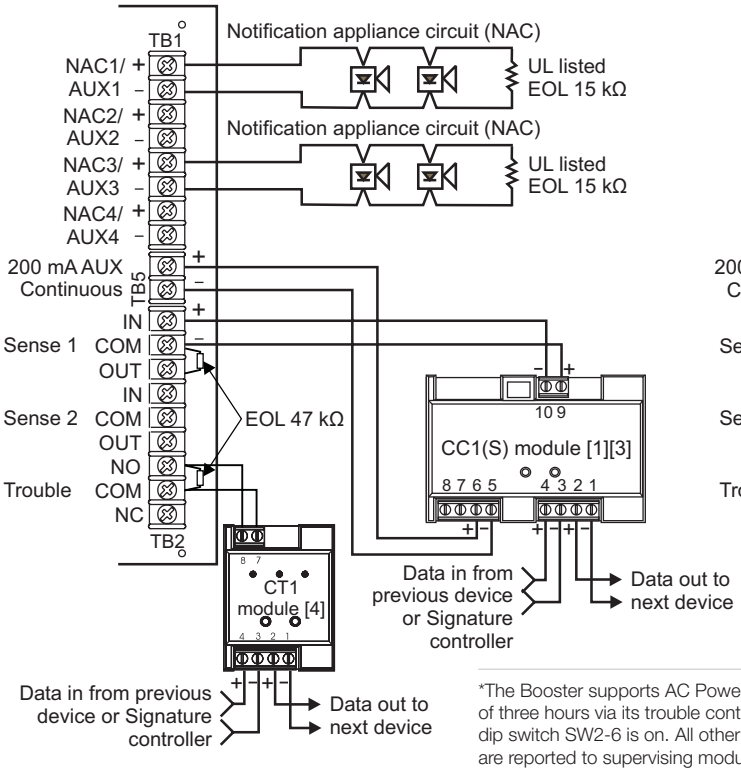
Typical Wiring

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.

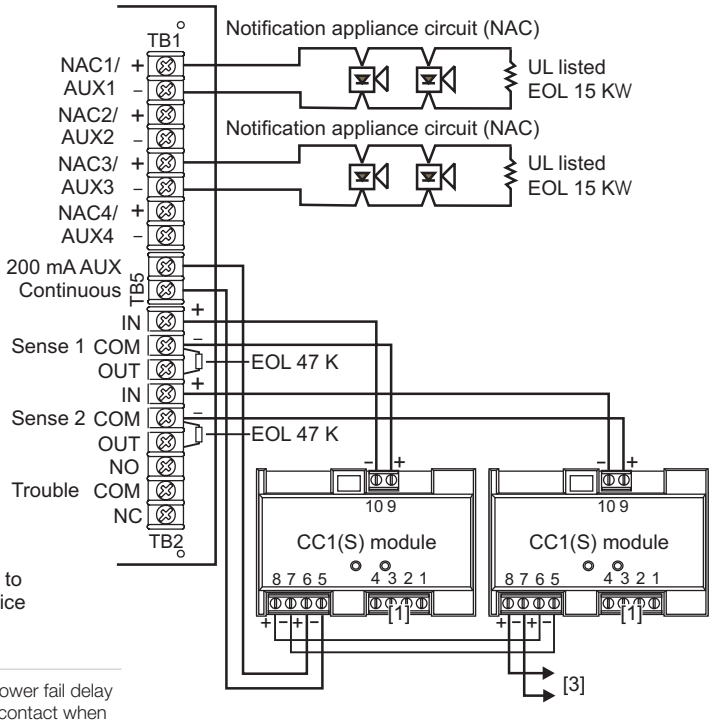


Configuring the Booster for AC Power Fail delay operation*

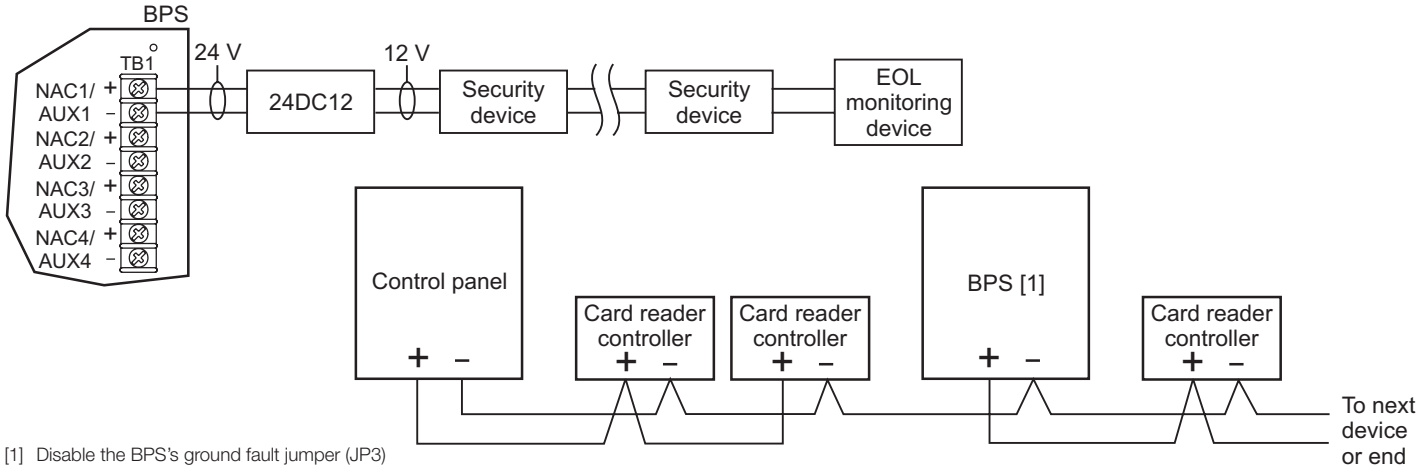


*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

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



Security and access



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

Item #2

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*

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	Accomodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire 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)
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)

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.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0229

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models BPS6A, BPS10A, BPS6A/230, BPS10A/230, BPS6CAA, and BPS10CAA remote booster power supplies.

*Models APS6A, APS6A/230, APS6CAA, APS10A, and APS10A/230 Auxiliary Power Supply.

Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 120 V/240 V, 60 Hz, 50 Hz

INSTALLATION: In accordance with listee's printed installation instruction, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, rating, and UL label.

APPROVAL: Listed as remote booster power supplies for use with listee's separately listed compatible fire alarm control units to extend the notification appliance circuit. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:229

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #2

EST
Life Safety & Communications

Manual Pull Stations

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

SIGA-270 SERIES

SIGA-278

Patented

MEA FM APPROVED 7150-1657: 0129 UL ULC S2318

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).

Item #3

Application

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

Compatibility

Signature Series manual stations are compatible only with 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 (0.75mm^2) to #12 AWG (2.5mm^2) wire sizes. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Wiring Notes

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

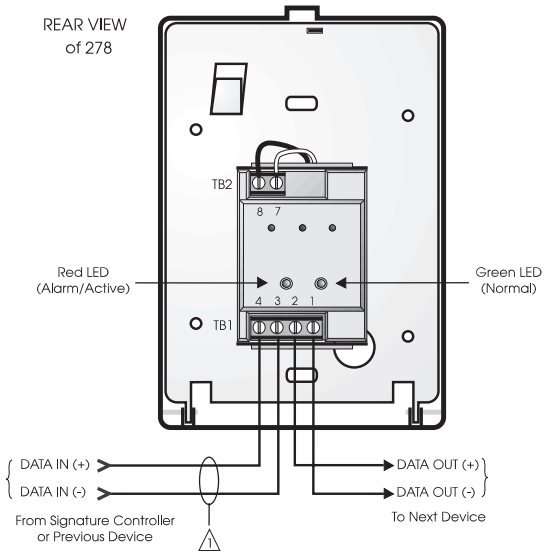


Figure 4. Single Stage Systems

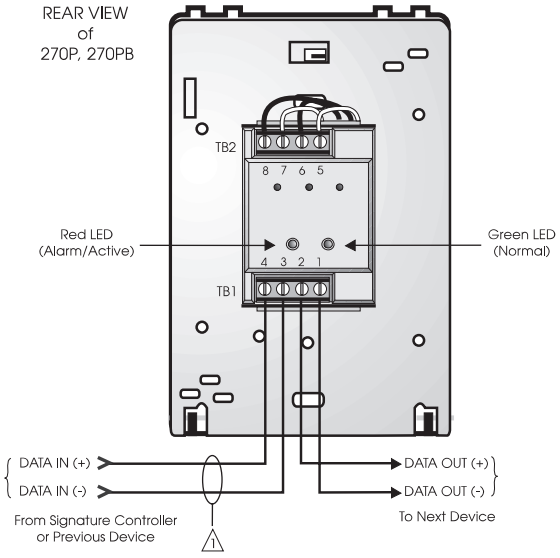


Figure 5. Two Stage Systems

Installation

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

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

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

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

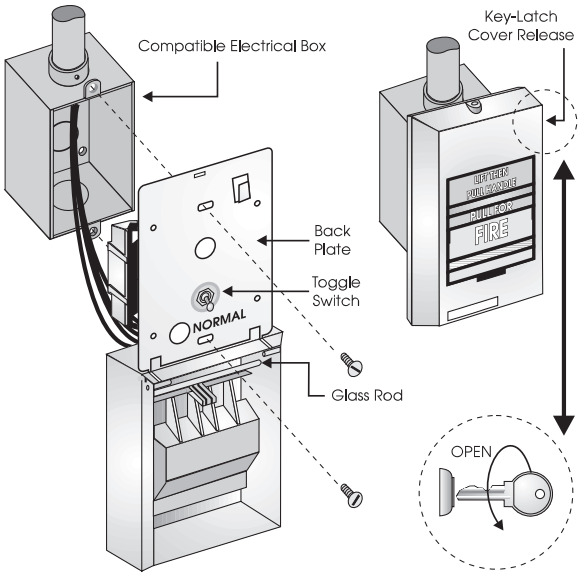


Figure 1. SIGA-278 installation

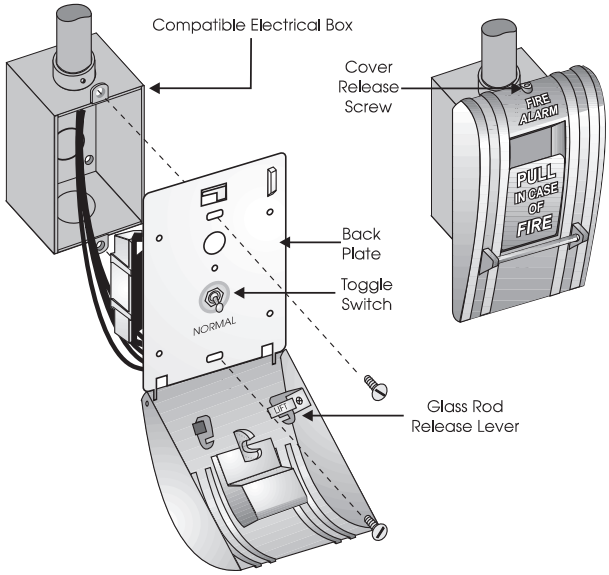


Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

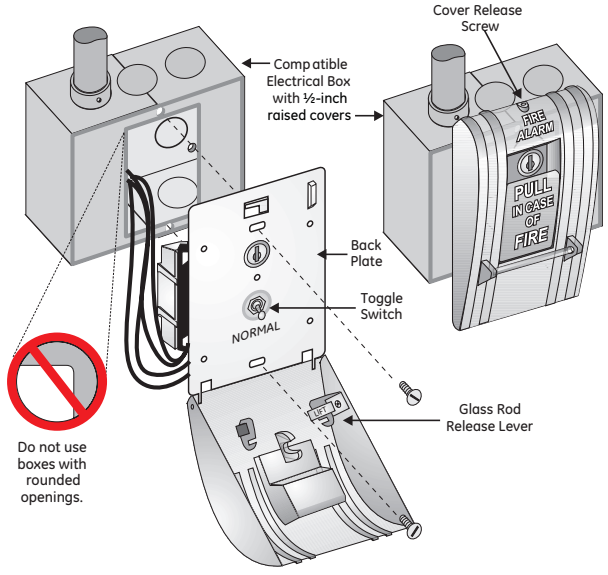


Figure 3. SIGA-270P, SIGC-270PB installation

Item #3

EDWARDS
United Technologies

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*

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: 32ºF to 120ºF (0ºC to 49ºC) Storage Temperature: -4ºF to 140ºF (-20ºC to 60ºC) Humidity: 0 to 93% RH		
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes w hen 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, FM		

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

Ordering Information

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

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7150-1657:0129

CATEGORY: 7150 -- FIRE ALARM PULL BOXES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-270, SIGA-270P, and SIGA-278 noncoded, intelligent manual pull stations*. Unit consists of a listed pull station and a remote transponder. Refer to listee's data sheet for additional detailed product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as manual pull stations for use with separately listed compatible fire alarm control units.

* These manual pull boxes meet the requirements of UL Standard 38, 1999 Edition with California amendments.

NOTE: Formerly 7150-1591:129 and 7150-1388:194

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

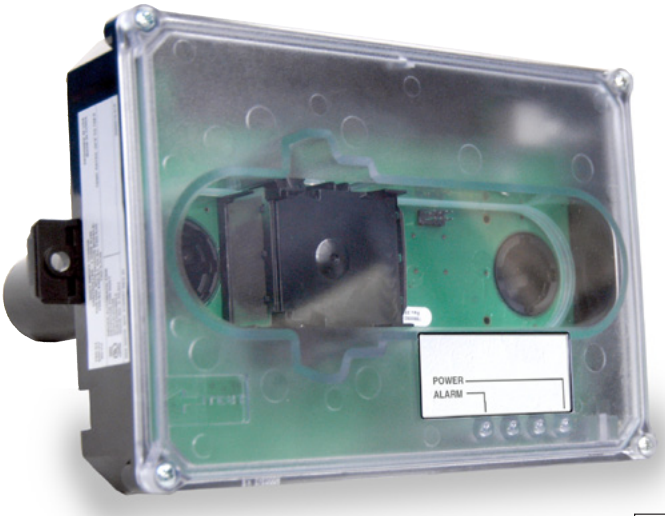
Fire Engineering Division

Item #3

EST
Life Safety & Communications

Intelligent Duct Smoke Detector

SIGA-SD



FM APPROVED MEA 3242-1657: 0223 UL ULC S853

Overview

The Edwards *SuperDuct* Signature Series smoke detector is the most advanced and most reliable device in its class. Designed for easy installation and superb reliability, *SuperDuct* represents the perfect balance of practical design and advanced technology.

***SuperDuct* detectors** feature a unique design that speeds installation and simplifies maintenance. Removable dust filters, conformally coated circuit boards, and optional water-resistant gaskets keep contaminants away from components, ensuring years of trouble-free service. When cleaning is required, the assemblies come apart easily and snap back together in seconds.

A Signature Series photoelectric sensor is incorporated into the design of each SIGA-SD duct smoke detector. This sensor inherits the power and benefits of this exceptional line of intelligent devices.

Signature Series sensors gather analog information from their smoke sensing elements and convert it into digital signals. The sensor measures and analyses these signals and compares the information to historical readings and time patterns to make an alarm decision. Digital filters remove signal patterns that are not typical of fires, which virtually eliminates unwanted alarms.

WARNING: Duct detectors have specific limitations. Duct detectors are not a substitute for an open area smoke detector. Duct detectors are not a substitute for early warning detection or a replacement for a building's regular fire detection system. Smoke detectors are not designed to detect toxic gases which can build up to hazardous levels in some fires. These devices will not operate without electrical power. As fires frequently cause power interruptions, Edwards suggests you discuss further safeguards with your local fire protection specialist.

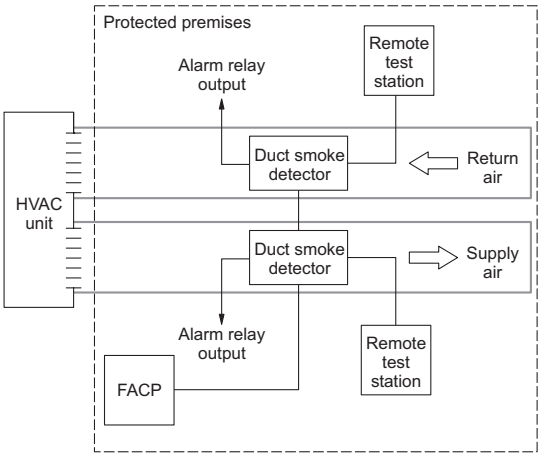
Standard Features

- Less than 2" deep for easy installation and applications where space is tight
- -4°F to 158°F (-20°C to 70°C) operating range with 100 ft/min. to 4,000 ft/min air velocity rating assures reliability under harsh environmental conditions
- Status LEDs remain visible through clear assembly cover
- Cover monitor switch for added security
- Standard sampling tube spacing for easy drop-in migration from other detectors
- Sampling tube can be installed with or without the cover in place and can be rotated in 45-degree increments to ensure proper alignment with duct airflow
- 15.2 to 19.95 Vdc operation
- Magnet-activated test switch
- One Form C auxiliary alarm relay for controlling ancillary equipment (e.g., HVAC controls)
- No special tools required for easy access to field connections
- Signature Series intelligence
- Environmental compensation with differential sensing for reliable, stable, and drift-free sensitivity
- Wide 0.79% to 2.46% obscuration/ft. smoke sensitivity
- Identification of dirty or defective detectors

Item #4

Application

SuperDuct detectors are ideally suited to duct smoke detection applications where early indication of combustion is required within the confined space of ventilation ductwork. Its primary purpose is to provide early warning of an impending fire and to prevent smoke from circulating throughout the building. It is typically used to detect smoke in the supply side of the HVAC system but can provide supervision of the return side as well.



SuperDuct detectors continually sample air flow in the HVAC duct and initiate an alarm condition whenever smoke is detected. An alarm is activated when the quantity (percent obscuration) of combustion products in that air sample exceeds the detector's sensitivity setting.

Signature Series Intelligence

Like all Signature detectors, the SIGA-SD features electronic addressing and issues a dirty sensor warning when it reaches its preset limit. The dirty sensor warning indicates the sensor is operating within its specified limits but is in need of servicing. When the detector's ability to compensate for environmental changes has reached its limit, the duct smoke detector signals a trouble condition.

The SIGA-SD also uses differential sensing to prevent gradual environmental changes from triggering unwanted alarms. A rapid change in environmental conditions, such as smoke from a fire, causes the detector to signal an alarm state, but dust and debris accumulated over time does not change alarm sensitivity.

Each Signature Series SuperDuct detector contains a microprocessor that performs comprehensive self-diagnostics and stores the results in nonvolatile memory. Stored results include details such as hours of operation, last maintenance date, and number of alarms and troubles. This information can be retrieved and reviewed when desired.

Detector Configuration

The detector assembly cover provides easy access to the smoke sensor, its wiring connections, sample and exhaust tubes, and the smoke chamber itself.

Air enters the detector's sensing chamber through a sampling tube (ordered separately) that extends into the duct and is directed back into the ventilation system through an exhaust tube (included). The difference in air pressure between the two tubes pulls the sampled air through the sensing chamber. When a sufficient amount of smoke is detected in the sensing chamber, the detector initiates an alarm.

The sampling tube may be installed from either the duct side of the assembly or from inside the sensor compartment, as preferred by the installer. (The exhaust tube must be installed from the duct side.) Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted at virtually any angle relative to the air flow.

In installations where the duct smoke detector's controls and indicators are hidden from view, a remote test station or an LED indicator can be connected to the detector to provide these functions.

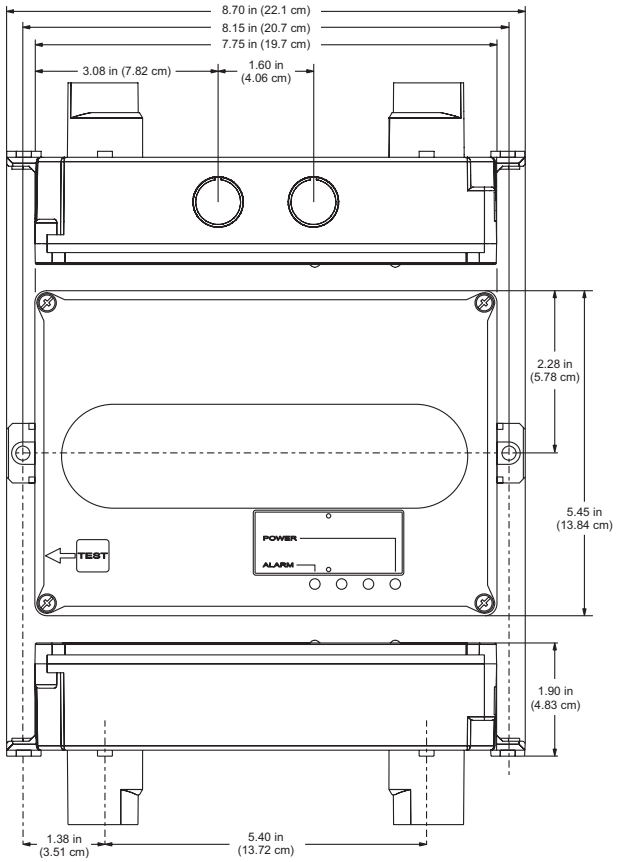
Remote Test Stations

Labor-saving Remote Test/Reset stations provide alarm testing from the convenience of a remote location. Tests can be performed quickly and safely – without having to climb to the roof. Magnetically-operated and key-operated one-gang models are available. Signature SuperDuct detectors are also compatible with SIGA-LED remote alarm LED.

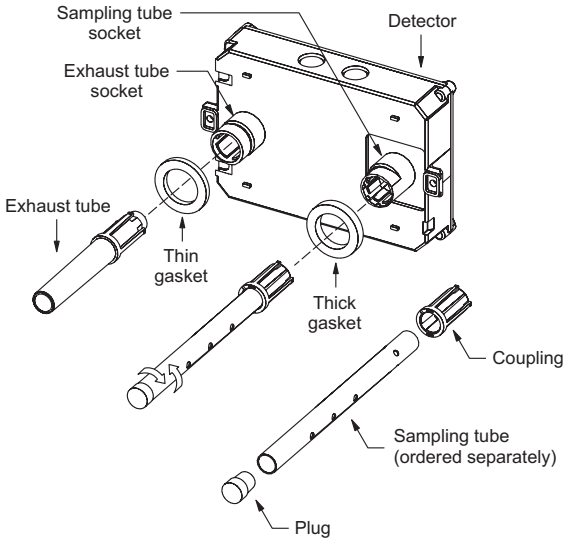
Air velocity in the duct as low as 100 ft/min. maintains adequate air flow into the sensor smoke chamber through air holes in the air sampling tube and discharges through the exhaust tube. *SuperDuct* air sampling tubes must be installed with the inlet holes facing the airstream. Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted in virtually any angle relative to the airflow.

SuperDuct sensors are engineered to operate optimally under the harsh environmental conditions frequently found in HVAC ductwork. Nonetheless, before installing the detector, test the duct air velocity, temperature, and humidity to verify that it is within the operating range of the *SuperDuct* detector. Consult the *SuperDuct* installation sheet for details.

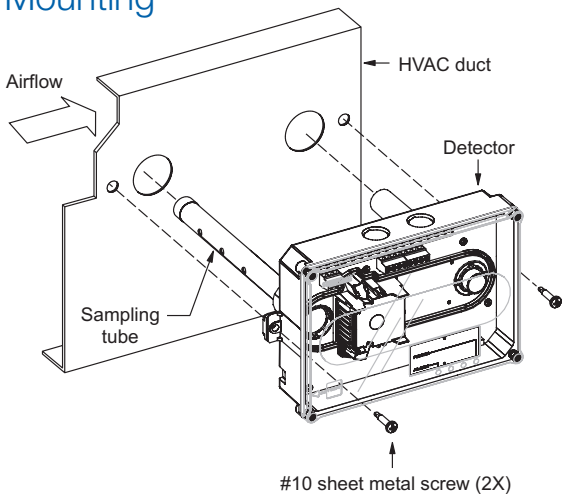
Dimensions



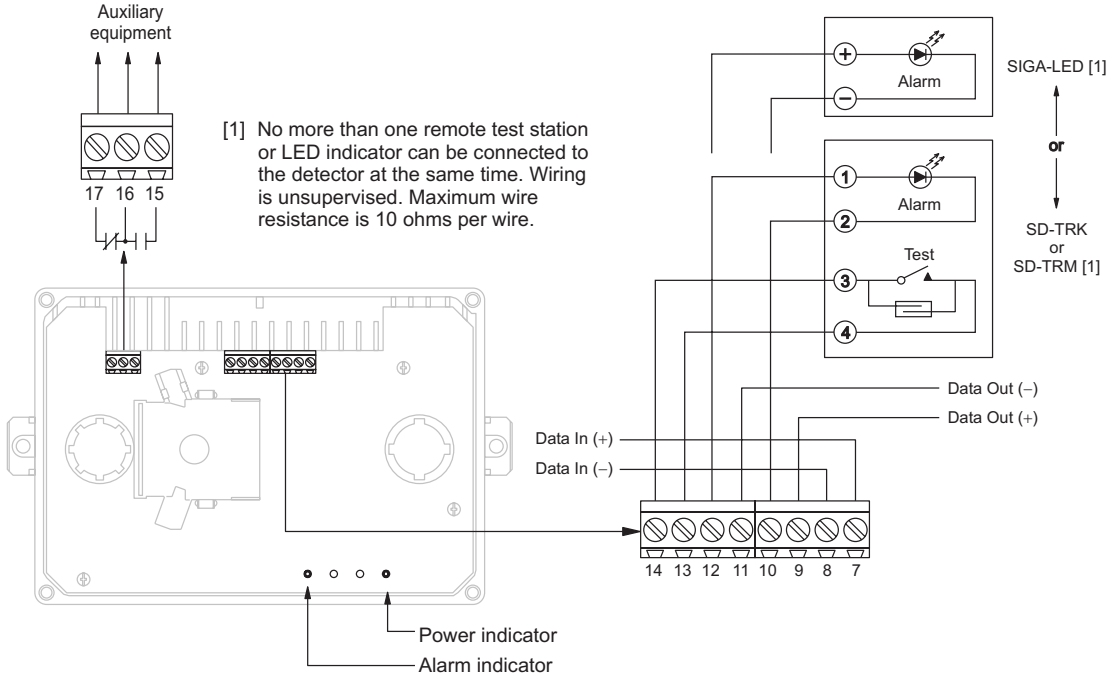
Assembly



Mounting



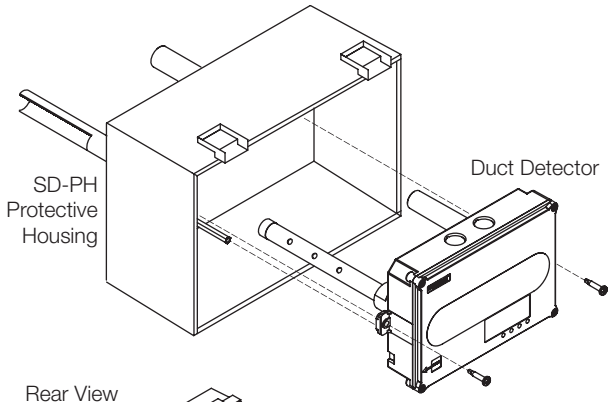
Wiring

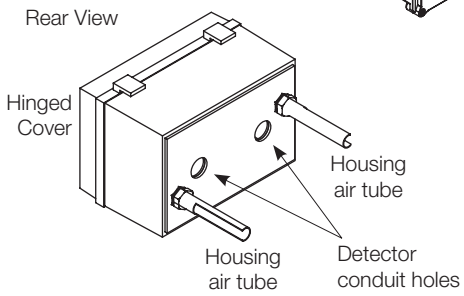


[1] No more than one remote test station or LED indicator can be connected to the detector at the same time. Wiring is unsupervised. Maximum wire resistance is 10 ohms per wire.

High-humidity environments

Use the SD-PH Protective Housing when installing SuperDuct detectors in high-humidity environments. The SD-PH is a weatherized housing that prevents condensation on the device by insulating the detectors and providing circulated air from the monitored HVAC duct. The SD-PH also adds a layer of protection against physical damage to the unit.





The SD-PH is easy to install and service. The hinged and transparent cover provides ready access to the detector, while keeping its status indicators visible at all times.

Note: The SD-PH Protective Housing is weatherized against outdoor air, but it is not intended for direct outdoor exposure.

Item #4

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*

Specifications, detector

Dimensions	8.70 x 5.45 x 1.90 inches (221 x 138 x 48 mm)
Wire size	14 to 22 AWG
Detection method	Photoelectric (light scattering principle)
Air velocity rating	100 to 4,000 ft/min and meets the required minimum air pressure differential
Air pressure differential	0.005 to 1.00 inches of water
Sensitivity	0.79 to 2.46 %/ft obscuration
Alarm test response time	5 seconds
LED indicators	Alarm (red), Power (green)
Common alarm relay	Unsupervised and power-limited Quantity: 1 Type: Form C Ratings: 2.0 A at 30 Vdc (resistive)
Operating voltage	15.2 to 19.95 Vdc
Operating current	Standby: 45 µA Alarm: 45 µA Inrush: 1 mA Standalone alarm: 18 mA
Operating environment	Temperature (UL): -4 to 158 °F (-29 to 70 °C). Temperature (ULC): -4 to 120 °F (-29 to 49 °C) Relative humidity: 10 to 93%, noncondensing
Agency listings	UL, ULC, CSFM, FM, MEA

Specifications, test stations

Remote Test/Reset Stations provide alarm test, trouble indication, and reset capability from a remote location. They include a one-gang plate, momentary SPST switch, red alarm LED, and terminal block. Magnetically-operated models (TRM) or key-operated models (TRK) are available.

Compatible electrical boxes	North American 1-gang box Standard 4-in square box, 1-1/2 inches deep, with 1-gang cover
LED indicators	Alarm (red)
LED type	Clear lens
Wire size	14 to 22 AWG
Resistance per wire	10 Ohms, max.
Current requirements	See controller specifications
LED circuit ratings	Voltage: 3 Vdc, max. Current: 30 mA, max.
Switch ratings (SD-TRK)	Voltage: 125 Vdc, max. Current: 4 A, max.
Switch ratings (SD-TRM)	Voltage: 200 Vdc, max. Current: 0.5 A, max.
Compatible detectors	SuperDuct conventional two-wire and Signature duct smoke detectors
Operating environment	-4°F to 158°F (-20°C to 70°C) Humidity: 93% RH, noncondensing
Storage temperature	-4 to 140 °F (-20 to 60 °C)
Agency listings	UL, ULC, MEA, CSFM

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
SIGA-SD	Intelligent SuperDuct Detector	2.4 (1.1)
Accessories		
SD-T8	8-inch sampling tube	0.5 (0.2)
SD-T18	18-inch sampling tube	1.5 (0.7)
SD-T24	24-inch sampling tube	2.7 (1.2)
SD-T36	36-inch sampling tube	3.0 (1.4)
SD-T42	42-inch sampling tube	3.5 (1.6)
SD-T60	60-inch sampling tube	5.8 (2.6)
SD-T78	78-inch sampling tube	7.5 (3.4)
SD-T120	120-inch sampling tube	11.5 (5.2)
SD-PH	Protective housing for high humidity environments	5.5 (2.5)
SIGA-LED	Remote alarm LED	1.0 (0.5)
SD-TRM	Remote test station, magnetic	1.0 (0.5)
SD-TRK	Remote test station, keyed	1.0 (0.5)
SD-VTK	Air velocity test kit (stoppers only, etc)	1.0 (0.5)
SD-GSK	Cover gasket kit	0.5 (0.2)
SD-MAG	Test magnet kit	0.5 (0.2)
SIGA-SDPCB	Replacement PCB/Signature sensor kit	1.0 (0.5)

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 3242-1657:0223

CATEGORY: 3242 -- DUCT SMOKE DETECTOR, PHOTO. (W/ OR W/O BASE)

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models ESD-SJ, ESD-ST, TSD-SJ, TSD-ST, TSD-SJG, TSD-SJCO2, TSD-STCO2, SIGA-SD, SD-2W, ESD-2W, E-PDD, and FX-PDD photoelectric type duct smoke detectors. The duct detector consists of a thermoplastic enclosure, recognized component printed wiring board, a listed duct detector subassembly, and an inlet coupling tube and an exhaust tube along with gaskets. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 15.2-19.95 VDC
16-30 VDC: SD-2W, ESD-2W

INSTALLATION: In accordance with listee's printed installation instructions and applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as photoelectric type, duct smoke detectors for use with separately listed compatible fire alarm control units in conjunction with Models ESD-CJ, -CT or TSD-CJ, -CT series duct smoke detector controller (CSFM Listing No. 3240-1657:225). Models SIGA-SD, E-PDD, FX-PDD, SD-2W or ESD-2W does not require a listed duct smoke detector controller. Suitable for use in ducts where air velocity is between 100 and 4000 ft/min.

*Models ESD-SJ, ESD-ST, TSD-SJ, TSD-SJG, TSD-SJCO2, SIGA-SD, SD-2W and ESD-2W are suitable for use in ambient temperatures of -4°F to 158°F.

Refer to listee's Installation Instruction Manual for details.

NOTE: 1. CO2 sensing features were not examined.
2. Formerly 3242-1591:223

*Corrected 3-22-13 BH

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #4

EST
Life Safety & Communications

Intelligent Duct Smoke Detector Housing

SIGA-DH

S853 3240-1657: 0108 FM APPROVED MEA

Overview

The SIGA-DH Duct Smoke Detector Housing is specially engineered to exploit all the capabilities of Signature Series intelligent photoelectric and multisensor smoke detectors. Edwards Signature Series detectors gather analog information from each of their one or more sensing elements and converts it into digital signals. The detector's onboard microprocessor measures and analyzes these signals. It compares them to historical readings, time patterns and known characteristics to make an alarm decision. Digital filters and complex Algorithms are applied for optimum detector accuracy. Unwanted alarms are virtually eliminated.

Each duct housing is packaged with detailed installation instructions, gaskets and a self-adhesive drilling template for locating and mounting the detector. The large access door is completely removable to allow fast detector installation and field wiring connections. The 16 gauge steel housing is finished in red baked enamel for easy identification. Five one-gang knockouts on the housing provide a convenient location for mounting intelligent Signature Series modules.

The SIGA-DH Duct Housing comes with a 6 inch (150 mm) exhaust tube. Air sampling tubes are available in lengths from 8 inches (200 mm) to 10 feet (3048 mm) and must be ordered separately. Compatible smoke detectors, mounting bases, and accessories are listed in the Ordering Information. Refer to individual device catalog literature pages for more detail.

Standard Features

- Suitable for high air velocity duct applications
  Up to 4000 ft/min. (20.3 m/sec.) with Photoelectric Detector.
- Standard Signature Series detectors
  Designed for use with standard 4D, 3D, and Photoelectric Signature Series smoke detectors. Does not require "special" duct smoke heads.
- Standard, relay, or isolator detector base
  Detector plugs-in to base then easily installs into housing.
- Install in ducts up to 10 ft. (3.05 m) wide
- Remote LED and test station accessories
- Designed and manufactured to ISO 9001 standards

Typical Wiring

The detector mounting bases and test station will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2) and #12 AWG (2.5 mm^2) wire sizes. Note: #14 AWG (1.5 mm^2) is not recommended due to difficulty of installation. See Loop Controller and Detector catalog sheets for detailed wiring requirement specifications.

Item #5

Application

The SIGA-DH Duct Smoke Detector Housing requires a clear, flat, accessible area on the duct of at least 7-3/8 inches (188mm) W x 7 inches (175mm) H. The duct housing must be installed on ducts at least 8 inches (200mm) wide. Duct detectors are usually installed on the supply duct after the air filters; or in the return air stream prior to being diluted by outside air.

Sample tube length must span the entire width of the air duct and the tube can be easily cut to any length. Inlet tubes longer than 3 ft.(900mm) must be supported at both ends.

Duct detectors continually sample air flow in a HVAC duct and initiate an alarm condition whenever smoke is detected. An alarm is activated when the quantity (percent obscuration) of combustion products in that air sample exceeds the detector's sensitivity setting.

Air velocity in the duct maintains the air flow that enters the detector housing through perforations in the air sampling inlet tube and discharges through the outlet exhaust tube. The detector housing must be installed with its INLET air sampling tube upstream of the EXHAUST tube. Before installing the duct detector housing, test the duct air velocity to verify it is within the limits of the Signature smoke detector that is being installed. Also verify that duct air relative humidity is within 0% and 93%.

WARNING: Duct detectors have specific limitations. Duct detectors ARE NOT a substitute for an open area smoke detector. Duct detectors ARE NOT a substitute for early warning detection. Duct detectors ARE NOT a replacement for a building's regular fire detection system. Smoke detectors ARE NOT designed to detect toxic gases which can build up to hazardous levels in some fires. These devices WILL NOT operate without electrical power. As fires frequently cause power interruptions, Edwards suggests you discuss further safeguards with your local fire protection specialist.

Installation and Mounting

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

Typical Wiring

The detector mounting bases and test station will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2) and #12 AWG (2.5 mm^2) wire sizes. Note: #14 AWG (1.5 mm^2) is not recommended due to difficulty of installation. See Loop Controller and Detector catalog sheets for detailed wiring requirement specifications.

Accessories

Duct Detector Air Sampling Tubes

One air sampling inlet tube must be ordered for each duct smoke detector housing. Refer to Ordering Information for available lengths.

Detector Mounting Bases

One detector mounting base must be ordered for each duct smoke housing. Removing a detector from its base (except isolator base) does not affect other devices operating on the same data loop. Available bases are:

Standard Base SIGA-SB - This is the basic mounting base. The SIGA-LED Remote LED is supported by the Standard Base.

Relay Base SIGA-RB - This base includes a relay. Normally open or closed operation is selected during installation. The dry contact is rated for 1 amp @ 30 Vdc (pilot duty). 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 (EST3 V. 2 only). The Relay Base does not support the SIGA-LED Remote LED. Relay bases are not affected or activated by the SIGA-DTS Duct Test Station.

Isolator Base SIGA-IB - This base includes a built-in line fault isolator. A detector must be installed for it to operate. The integral isolator relay is controlled by the detector or the loop controller. A maximum of 96 isolator bases can be installed on one loop. The Isolator Base does not support the SIGA-LED Remote LED.

Alarm LED Indicator

The SIGA-LED Alarm Indicator is suitable for use with the SIGA-SB detector base only. A maximum of one can be operated for each detector. It features a red LED on a one-gang plastic plate and can be installed remote or directly on the SIGA-DH Duct Housing.

Duct Test Station

The SIGA-DTS Duct Test Station uses a key switch along with an integral intelligent input module mounted on a two-gang plastic plate. It is supplied with two keys and features a red alarm LED.

When the key is turned to the "TEST" position, the LED lights and the integral module remotely inputs a duct detector test alarm. The actions and sequences programmed at the control panel to activate dampers and other smoke control measures, are easily tested. Detector relay bases are not affected or activated. Resetting the control panel clears the test and returns the system to normal. The key cannot be removed when in the "TEST" position.

The Duct Test Station mounts to standard 2-inch deep North American two-gang and 4-inch square electric boxes and European 100 mm square boxes.

Air Velocity Test Kit

The 6263-SG Air Velocity Test Kit is specially designed to interface to the SIGA-DH Duct Housing. It is used to test or confirm the air velocity in HVAC ducts where the duct housing is installed.

Specifications

Compatible Smoke Detectors	SIGA-PS	SIGA-PHS	SIGA-IPHS
Smoke Sensing Element(s)	Photoelectric - Light Scattering Principle	Photoelectric - Light Scattering Principle Heat - 135º F (57º C) Fixed Temperature	Ionization - Unipolar Photoelectric - Light Scattering Principle Heat - Alarms at 65º F (35º C) change in ambient temperature
Air Velocity Range	300 to 4000 ft/min. (1.5 to 20.3 m/sec)		300 to 1000 ft/min. (1.5 to 5.0 m/sec)
Operating Environment	Temperature: 32 - 120º F (0 to 49º C) Humidity: 0 to 93% RH, non-condensing	Temperature: 32 - 100º F (0 - 38º C) Humidity: 0 to 93% RH, non-condensing	
Storage Environment	Temperature: -4 to 140º F (-20 to 60º C); Humidity: 0 to 93% RH, non-condensing		
ULI/ULC Sensitivity Range	0.67% to 3.77% obscuration/foot (305mm)		0.67% to 3.70% obscuration/foot (305mm)
Dimensions	7-3/8 inches (188mm) W x 7 inches (178mm) H x 5 inches (127mm) D		
Material and Finish	16 Gauge Cold Rolled Steel, Red - Baked Enamel		
Conduit Knockouts	Combination 1/2 inch & 3/4 inch		
Agency Approvals	UL, ULC, MEA, CSFM		
User Selected Sensitivity Settings	Least Sensitive: 3.5%; Less Sensitive: 3.0%; Normal: 2.5%; More Sensitive: 2.0%; Most Sensitive: 1.0%		
Pre-alarm Sensitivity	5 % increments, allowing up to 20 pre-alarm settings		
Electrical, Physical Characteristics	Refer to individual detector catalog sheets		
Compatible Mounting Bases	SIGA-SB Standard Base, SIGA-RB Relay Base, SIGA-IB Isolator Base		
Compatible Remote LED	SIGA-LED (LED flashes when in alarm)		
Controller Compatibility	SIGNATURE Loop Controller		
Addressing Restrictions	Uses one Input Device Address		

Note: The SIGA-DH Duct Housing is not weatherproof or dust tight.)

SIGA-DTS Duct Test Housing	
Operating Current	Standby = 250µA; Activated = 400µA
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)
Replacement Key	p/n - P-037449
Storage and Operating Temperature	32 to 120ºF (0 to 49ºC)
Onboard LED Operation	Red LED - flashes when in alarm or test state
Mounting	North American electric box: 2 inch deep 2-gang or 4 inch square ; European electric box: 100 mm square
Construction & Finish	High Impact Engineered Plastic 2-gang front plate - White
Addressing Restrictions	Uses one Module Address

Item #5

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*

Ordering Information

Catalog Number	Description	Ship Wt lb. (kg)
SIGA-DH	Duct Detector Housing	6.5 (3.0)
Sampling Tubes		
6261-001	8 inch (200mm) Air Sampling Inlet Tube	0.25 (0.1)
6261-002	24 inch (600mm) Air Sampling Inlet Tube	0.5 (0.2)
6261-003	42 inch (1060mm) Air Sampling Inlet Tube	1.6 (0.8)
6261-006	78 inch (1980mm) Air Sampling Inlet Tube	2.2 (1.0)
6261-010	120 inch (3048mm) Air Sampling Inlet Tube	4.4 (2.0)
Compatible Detectors and Bases		
SIGA-IPHS	4D Multisensor Detector	0.5 (0.23)
SIGA-PHS	3D Multisensor Detector	0.5 (0.23)
SIGA-PS	Photoelectric Detector	0.5 (0.23)
SIGA-SB	Standard Base	0.2 (0.09)
SIGA-RB	Relay Base	0.2 (0.09)
SIGA-IB	Isolator Base	0.2 (0.09)
Annunciation and Testing		
SIGA-LED	Alarm LED Indicator	0.2 (.09)
SIGA-DTS	Duct Test Station	0.4 (.18)
6263-SG	Duct Air Velocity Test Kit	

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 3240-1657:0108

CATEGORY: 3240 -- DUCT SMOKE DETECTOR HOUSING/BASE

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models 6260(1)-100, 6265(1)-001/-002, 2435P, 1235B, AI9863, SIGA-DH, and 6260A-CU Duct Smoke Detector Units. Unit consists of a metal enclosure, relay, electrical components, a separately listed open area detector, a detector base and a sampling and exhaust tubes. Refer to listee's data sheet for additional detailed product description and operational considerations.

(1): First four digits followed by an alpha suffix.

RATING: 300-4000 fpm except for Model 6260B-100 is range from 400-4000 fpm.
Model SIGA-DH with Model SIGA-IPHS detector head, the sensitivity must be set at Levels 1 through 4 for velocities over 1000 fpm.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, rating and UL label.

APPROVAL: Listed as duct smoke detector housing units for use with separately listed compatible control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 3240-1591:108, 3240-1388:104, 3240-0073:141, 3242-0073:141, 3240-0073:118 and 3241-0073:118

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #5

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7272-1657:0126

CATEGORY: 7272 -- SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-PS and SIGA-PHS photoelectric smoke detectors. Model SIGA-PHS employs an integral 135°F fixed temperature heat sensor. This heat sensor is a supplementary device to the smoke detector and is not approved as a required heat detector. Refer to listee's printed data sheet for additional detailed product description, installation and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as photoelectric smoke detectors for use with listee's listed fire alarm control units and Model SIGA Series bases (CSFM Listing No. 7300-1657:120). Model SIGA-PS may be suitable for installation directly in the duct with the velocity range from 0-5000 feet/min.

NOTE: 1. Model SIGA-PHS is **not** intended for use in lieu of a required heat detector.

2. Formerly 7272-1591:126 and 7272-1388:186

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #5

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0120

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Detector Bases. Refer to listee's data sheet for detailed product description and operational considerations. Base models are as follow:

BASES

5963B, 5964 B/BR

6241B-002, 6249B-001

6251, 6251B-001A, -001, -002, -003, -004, 6251B-100, -200, -R100, -R200 and 6251-2
Models 6251B-001, -002, -003 and -004 suitable for releasing device service.

P-847674-0022, -0024, -0042, -0043, -0044, -0045, -0046, -0047

SIGA-SB, -SB4, -RB, -RB4, -IB, -IB4 and -AB4
The -RB series are suitable for releasing device service.

Model AB4G-SB surface mount back box for use with listee's SIGA series sounder bases.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as mounting bases for use with separately listed compatible detectors and fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:120 and 7300-1388:170

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #5

Life Safety & Communications

Intelligent Heat Detector

SIGA-HRD

S853

Overview

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

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
- 15 °F (9 °C) per minute rate-of-rise alarm point
- 135 °F (57 °C) fixed temperature alarm point
- Uses existing wiring
- Automatic device mapping
- Ground fault detection by module
- Up to 250 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

Item #6

Application

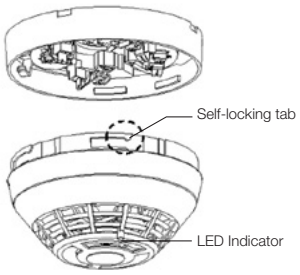
The SIGA-HRD combination fixed temperature/rate-of-rise heat detector provides a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of fast-developing fires, as well as a 135°F (57°C) fixed temperature sensor for slow building-fires. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

Compatibility

The SIGA-HRD 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.



Sensing and reporting technology

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

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

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

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

Accessories

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

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

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

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

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

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

Warnings & Cautions

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

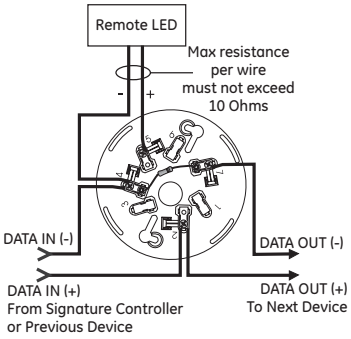
Typical Wiring

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

Standard Detector Base, SIGA-SB, SIGA-SB4

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

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



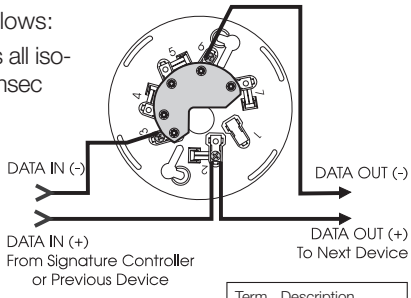
Isolator Detector Base, SIGA-IB, SIGA-IB4

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

The isolator operates as follows:

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

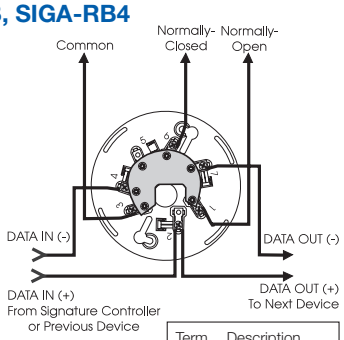
The process repeats beginning on the other side of the loop controller.



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

Relay Detector Base, SIGA-RB, SIGA-RB4

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

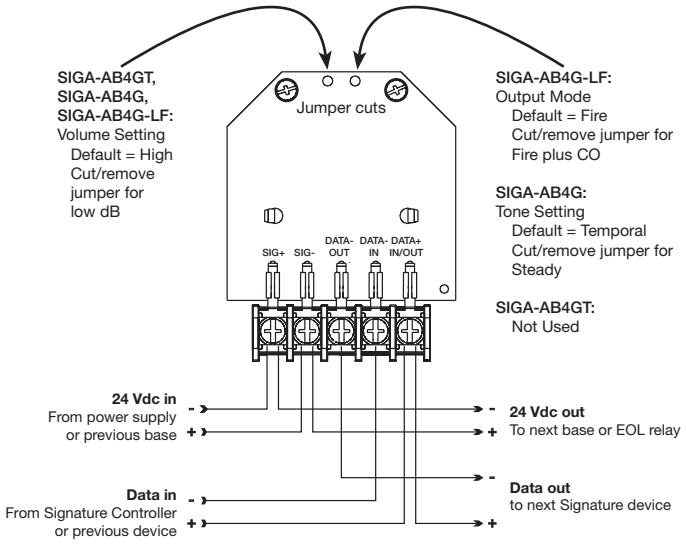


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

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

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



Item #6

Contact us...

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Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
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Web: *www.chubbedwards.com*

Specifications

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

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-HRD	Intelligent fixed temperature/Rate-of-rise heat detector	0.4 (0.16)
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-AB4G	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
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-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7270-1657:0333

CATEGORY: 7270 -- HEAT DETECTOR

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-HFD and SIGA-HRD Analog Addressable Heat Detectors. Model SIGA-HFD is a 135°F fixed temperature heat detector. Model SIGA-HRD is a combination 15°F rate of rise/135°F fixed temperature heat detector. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 15.2-19.95 Vdc

INSTALLATION: In accordance with listee's printed installation instructions, NFPA 72 and applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as an analog addressable heat detectors for use with listee's Model EST3 (CSFM# 7165-1657-0186), Model EST3X (CSFM# 7165-1657:0306), Model Quickstart (CSFM# 7165-1657:0207), Models iO64, iO500, iO1000 (CSFM# 7165-1657:0244) control units and the following listee's bases; SIGA-SB, -SB4, -RB, -RB4, -IB, -IB4 (CSFM# 7300-1657-0120), SIGA-AB4G (CSFM# 7300-1657-0222), SIGA-AB4GT (CSFM# 7300-1657-0307) and SIGA-AB4G-LF (CSFM# 7300-1657-0322). Authority having jurisdiction should be consulted prior to installation. Refer to listee's Installation Instruction Manual for details.

08-04-2016 dc

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #6

EST
Life Safety & Communications

Intelligent Smoke Detector

SIGA-PD

S853

Overview

The Signature Series SIGA-PD optical smoke detector brings advanced 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 Series detectors, the SIGA-PD is an intelligent device that gathers analog information from its optical sensor, converting this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes sensor readings and compares this information to historical data. Digital filters remove signal patterns that are not typical of fires, thus virtually eliminating unwanted alarms.

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 Optical Smoke Sensing Technology
- Wide 0.53 to 3.94 %/ft. (1.7 to 12.35 %/m) smoke obscuration
- Uses Existing Wiring
- Automatic Device Mapping
- Ground Fault Detection By Module
- Up To 250 Devices 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
- Identification of Dirty or Defective Detectors
- Automatic Day/Night Sensitivity Adjustment
- Bicolor (Green/Red) Status Led
- Standard, Relay, Fault Isolator, and Audible Mounting Bases

Item #7

Application

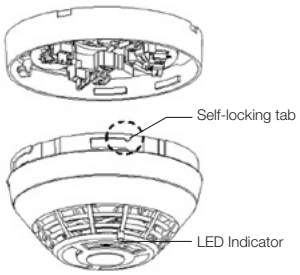
The SIGA-PD detects extremely small particles of combustion and triggers an alarm at the first sign of smoke. Thanks to its high-performance forward-scattering reflective response technology, the photoelectric smoke sensor responds quickly and reliably to a wide range of fire types, especially slow burning fires fuelled by combustibles typically found in modern multi-use buildings.

Compatibility

The SIGA-PD 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.



Sensing and reporting technology

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

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

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

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

Testing & Maintenance

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

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

Accessories

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

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

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

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

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

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

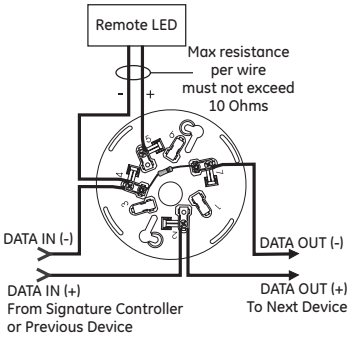
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm²), #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 (-)



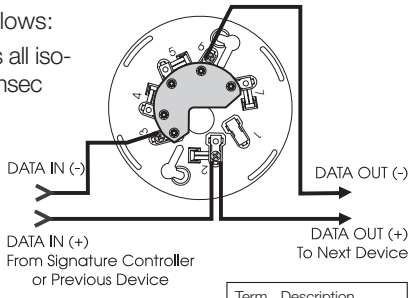
Isolator Detector Base, SIGA-IB, SIGA-IB4

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.

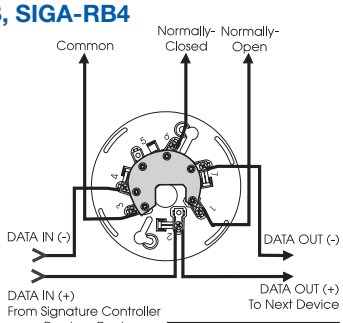
The process repeats beginning on the other side of the loop controller.



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

Relay Detector Base, SIGA-RB, SIGA-RB4

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

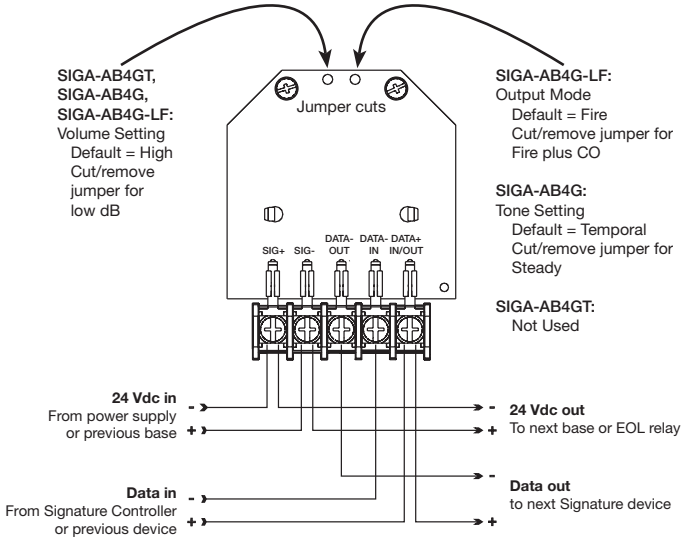


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

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

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where smoke cannot reach the detector. Smoke from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.
- Photoelectric detectors have a wide range of fire-sensing capabilities and are best suited for detecting slow, smoldering fires.
- 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.

Item #7

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*

Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	32 µA
Smoke Sensitivity Range	UL/ULC: 0.53 to 3.94 %/ft. (1.7 to 12.35 %/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
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
Agency Listings	CAN/ULC-S529, UL 268, UL 268A

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-PD	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 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-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7272-1657:0331

CATEGORY: 7272 -- SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Model SIGA-PD Analog addressable photoelectric smoke detector. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 15.2-19.95 Vdc

INSTALLATION: In accordance with listee's printed installation instructions, NFPA 72 and applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as an analog addressable photoelectric smoke detector for use with listee's Model EST3 (CSFM# 7165-1657-0186), Model EST3X (CSFM# 7165-1657:0306), Model Quickstart (CSFM# 7165-1657:0207), Models iO64, iO500, iO1000 (CSFM# 7165-1657:0244) control units and the following listee's bases; SIGA-SB, -SB4, -RB, -RB4, -IB, -IB4 (CSFM# 7300-1657-0120), SIGA-AB4G (CSFM# 7300-1657-0222), SIGA-AB4GT (CSFM# 7300-1657-0307) and SIGA-AB4G-LF (CSFM# 7300-1657-0322). Suitable for installation inside air ducts for air velocities up to 4,000 feet per minute. Authority having jurisdiction should be consulted prior to installation. Refer to listee's Installation Instruction Manual for details.

Model EST3X (CSFM# 7165-1657:0306), Model Quickstart (CSFM# 7165-1657:0207), Models iO64, iO500, iO1000 (CSFM# 7165-1657:0244)control units

NOTE: The photoelectric type detectors are generally more effective at detecting slow, smoldering fires, which smolder for hours before bursting into flames. Sources of these fires may include cigarettes burning in couches or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires, which consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a waste container or a grease fire in the kitchen.

08-04-2016 dc

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #7

5600 Series Mechanical Heat Detectors

System Sensor's 5600 series mechanical heat detectors offer a low-cost means for property protection against fire, and for non-life-safety installations where smoke detectors are inappropriate.

5601P

5621

Features

- Multiple configurations for installations:
  – Single- and dual-circuit models
  – Fixed temp and combination fixed- temp/rate-of-rise 135°F or 194°F ratings.
- Plain housing for residential installations (Model 5601P)
- Easy-to-use terminal screws
- A broad range of back box mounting options:
  – Single gang
  – 3.5″ and 4″ Octagonal
  – 4″ square with square to round plaster ring
- Reversible mounting bracket

Multiple configurations. The 5600 series offers a full-line of configurations to accommodate a broad range of applications. Both single- and dual-circuit models are available for low- and high-temperature ratings with either fixed temperature or combination fixed temperature/rate-of-rise (ROR) activation. The ROR element of the fixed/ROR models is restorable to accommodate field-testing.

Installation flexibility. To satisfy a variety of installation needs, the 5600 series easily mounts to single-gang and octagonal back boxes. And these models accommodate four-square back boxes, when used with a square to round plaster ring. The reversible mounting bracket permits both flush- and surface-mount back box installations.

Visual identification. The 5600 series provides clear markings on the exterior of the unit to ensure that the proper detector is being used. Alphanumeric characters identify the activation method, as well as the temperature rating, in Fahrenheit and Celsius degrees. Fixed temperature models are identified FX, while combination fixed/rate-of-rise units are marked FX/ROR. The 5600 series also provides a post-activation indicator in the form of a collector. When the detector is activated, the collector drops from the unit, making it easy to identify the unit in alarm.

Agency Listings

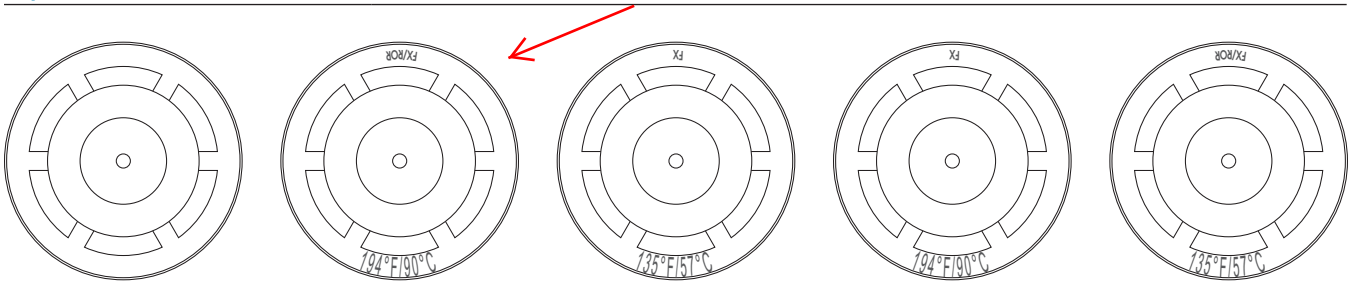
UL LISTED S2101 · FM APPROVED 3016008 · ULC CS630 · 7270-1653:0167

Item #8

Specifications

Architectural/Engineering Specifications
Mechanical heat detector shall be a System Sensor 5600 series model number _____, listed to Underwriters Laboratories UL 521 for Heat Detectors for Fire Protective Signaling Systems. The detector shall be either a single-circuit or a dual-circuit type, normally open. The detector shall be rated for activation at either 135°F (57°C) or 194°F (90°C), and shall activate by means of a fixed temperature thermal sensor, or a combination fixed temperature/rate-of-rise thermal sensor. The rate-of-rise element shall be activated by a rapid rise in temperature, approximately 15°F (8.3°C) per minute. The detector shall include a reversible mounting bracket for mounting to 3½-inch and 4-inch octagonal, single gang, and 4-inch square back boxes with a square to round plaster ring. Wiring connections shall be made by means of SEMS screws that shall accommodate 14–22AWG wire. The detector shall contain alphanumeric markings on the exterior of the housing to identify its temperature rating and activation method. The rate-of-rise element of combination fixed temperature/rate-of-rise models shall be restorable, to allow for field-testing. The detectors shall include an external collector that shall drop upon activation to identify the unit in alarm.

Physical/Operating Specifications	
Maximum Installation Temperature	5601P, 5603, 5621, and 5623: 100°F (38°C) 5602, 5604, 5622, and 5624: 150°F (65.6°C)
Operating Humidity Range	5 to 95% RH non-condensing
Dimensions with mounting bracket	Diameter: 4.57 inches (11.6cm) Height: 1.69 inches (4.3cm)
Alarm Temperature	5601P, 5603, 5621, and 5623: 135°F (57°C) 5602, 5604, 5622, and 5624: 194°F (90°C)
Weight	6 oz. (170 grams)
Rate-of-Rise Threshold	15°F (8.3°C) rise per minute (models 5601P, 5602, 5621, and 5622 only)
Mounting	3½-inch octagonal back box 4-inch octagonal back box Single gang back box 4-inch square back box with a square to round plaster ring
Electrical Specifications	
Operating Voltage / Contact Ratings	6–125VAC / 3A 6–28VDC / 1A 125VDC / 0.3A 250VDC / 0.1A
Input Terminals	14–22 AWG



5601P **5602, 5622** **5603, 5623** **5604, 5624** **5621**

Ordering Information

Model	Circuit	Identification Method on Exterior	Temperature Rating	Activation	UL Protected Spacing – 10 Foot Ceiling*
5601P	Single	None	135°F (57°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5602	Single	Lettering	194°F (90°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5603	Single	Lettering	135°F (57°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5604	Single	Lettering	194°F (90°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5621	Dual	Lettering	135°F (57°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5622	Dual	Lettering	194°F (90°C)	Fixed Temperature / Rate-of-Rise	50 feet × 50 feet (15.24m × 15.2m)
5623	Dual	Lettering	135°F (57°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)
5624	Dual	Lettering	194°F (90°C)	Fixed Temperature	25 feet × 25 feet (7.62m × 7.62m)

*NOTE: Refer to NFPA72 guidelines for spacing reductions when ceiling heights exceed 10 feet.

SYSTEM SENSOR®
3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

SPDS30001 • 7/13

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7270-1653:0167

CATEGORY: 7270 -- HEAT DETECTOR

LISTEE: System Sensor, Unincorporated Div of Honeywell Int'l Inc.3825 Ohio Ave, St. Charles, IL 60174
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: Vladimir.Kireyev@honeywell.com

DESIGN: Models 5601, 5601P, 5602, 5621, and 5622 combination fixed-temperature and rate-of-rise type and Models 5603, 5604, 5623, and 5624 fixed-temperature mechanical heat detectors. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: Models 5601, 5601P, 5603, 5621, & 5623 have a fixed temperature of 135°F.

Models 5602, 5604, 5622, & 5624 have a fixed temperature of 194°F.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, temperature/electrical rating, and UL label.

APPROVAL: Listed as heat detectors for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details and UL directory for dimensions.

NOTE: Formerly 7270-1209:227

06-20-05

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #8

EST™
Life Safety & Communications

Input Modules

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

SIGA-MCT2

SIGA-CT1/2

MEA

Application Notes Available

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 ºF to 158 ºF (0 ºC to 70 ºC) for those applications requiring more extreme environmental temperature variation.

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

Standard Features

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

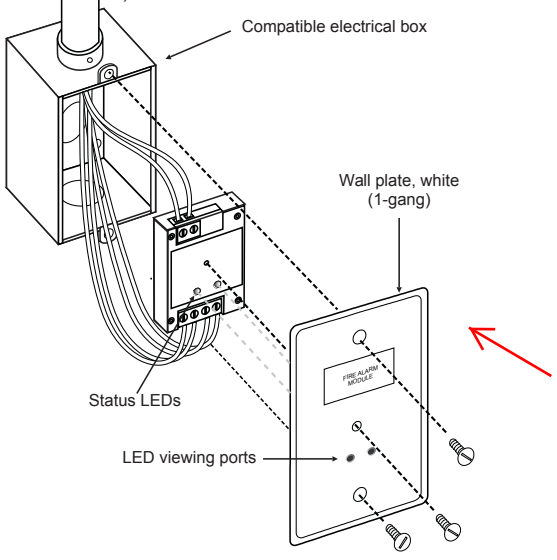
The Signature Series intelligent analog-addressable system from Edwards Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from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

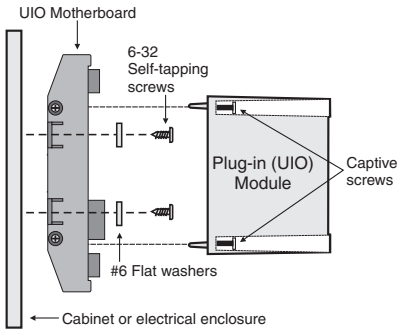
Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. 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 mm^2 to 0.75 mm^2) wire size.



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



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

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

Application

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

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

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

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

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

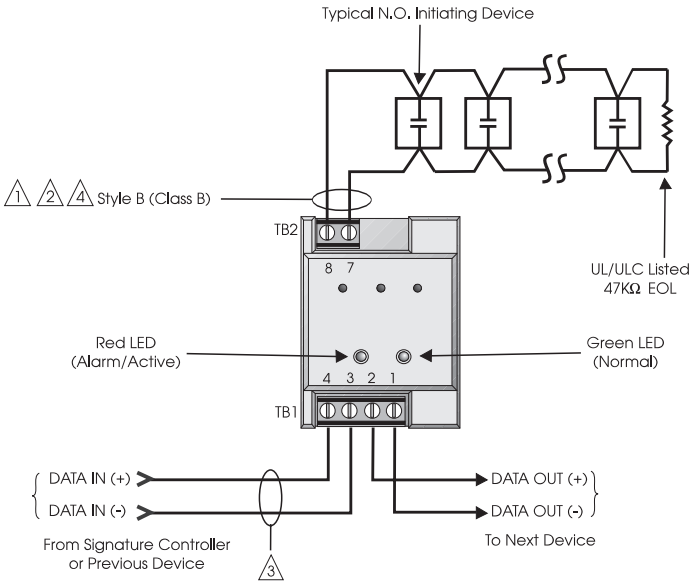
NORMALLY-OPEN ACTIVE - LATCHING (Personality Code 4) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact monitoring input such as from Supervisory and Tamper Switches. An ACTIVE signal is sent to the loop controller when the input contact is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

Typical Wiring

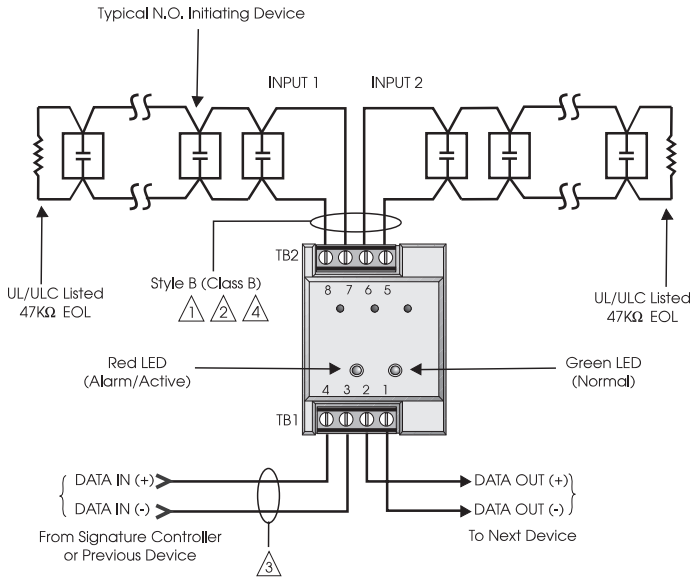
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), and #14AWG (1.50mm²), and #12 AWG (2.50mm²) wire sizes.

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 mm²)	4,000 ft (1,219 m)
	#16 AWG (1.00 mm²)	
	#14 AWG (1.50 mm²)	
	#12 AWG (1.50 mm²)	



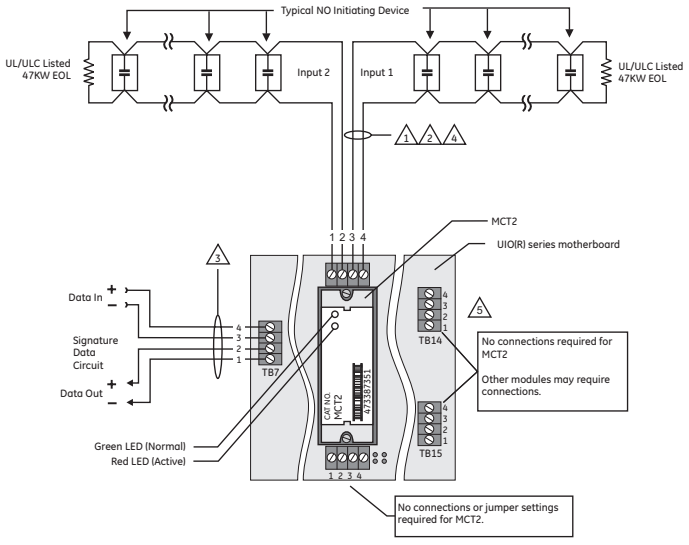
SIGA-CT1, SIGA-CT1HT



SIGA-CT2

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.



SIGA-MCT2

Warnings & Cautions

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

Compatibility

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

Item #9

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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 Teperature 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)

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0121

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #9

EST
Life Safety & Communications

Control Relay Modules

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


SIGA-MCR


SIGA-CR

FM APPROVED MEA 7300-1657: 0121 S3424

Overview

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

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

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

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

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

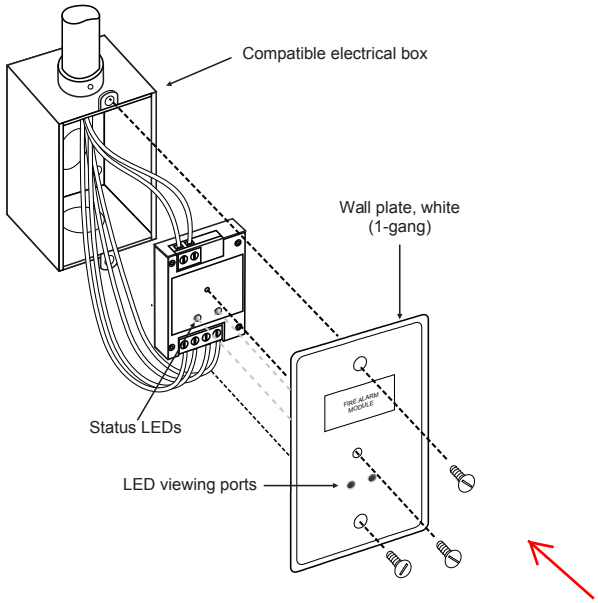
Standard Features

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

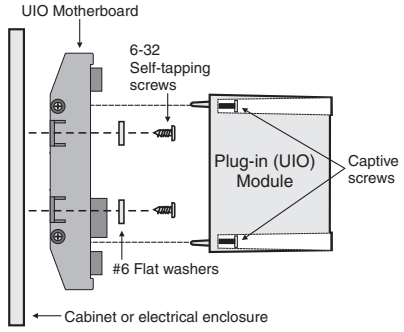
Item #10

Installation

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



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



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its onboard 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.

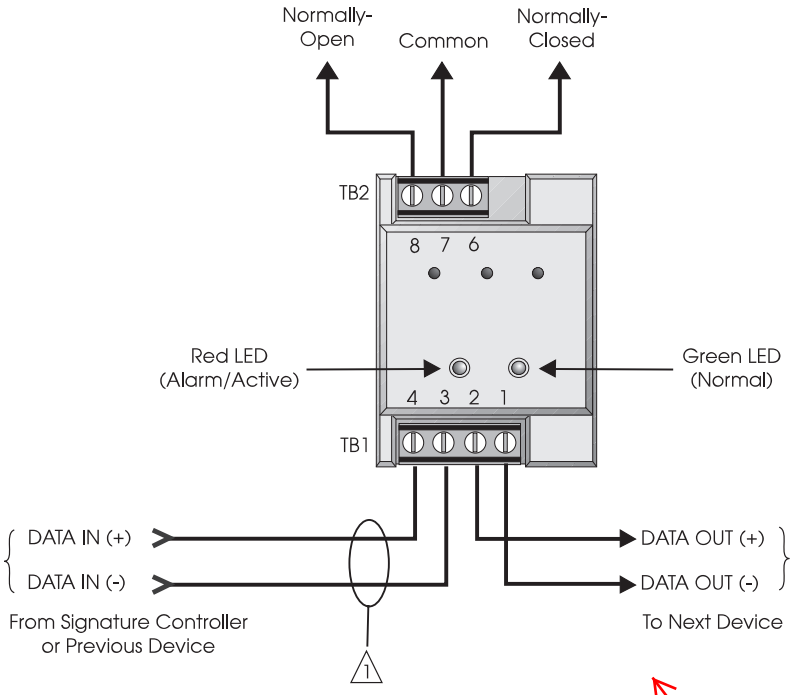
Testing & Maintenance

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.

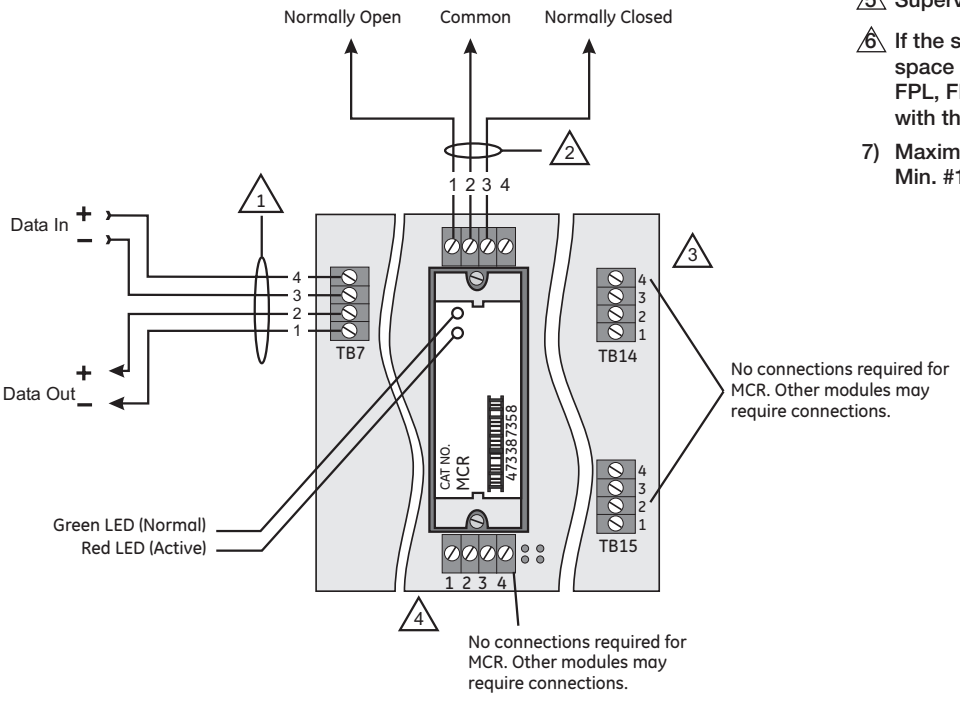
Typical Wiring

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.



SIGA-CR Control Relay



SIGA-MCR Control Relay

Notes

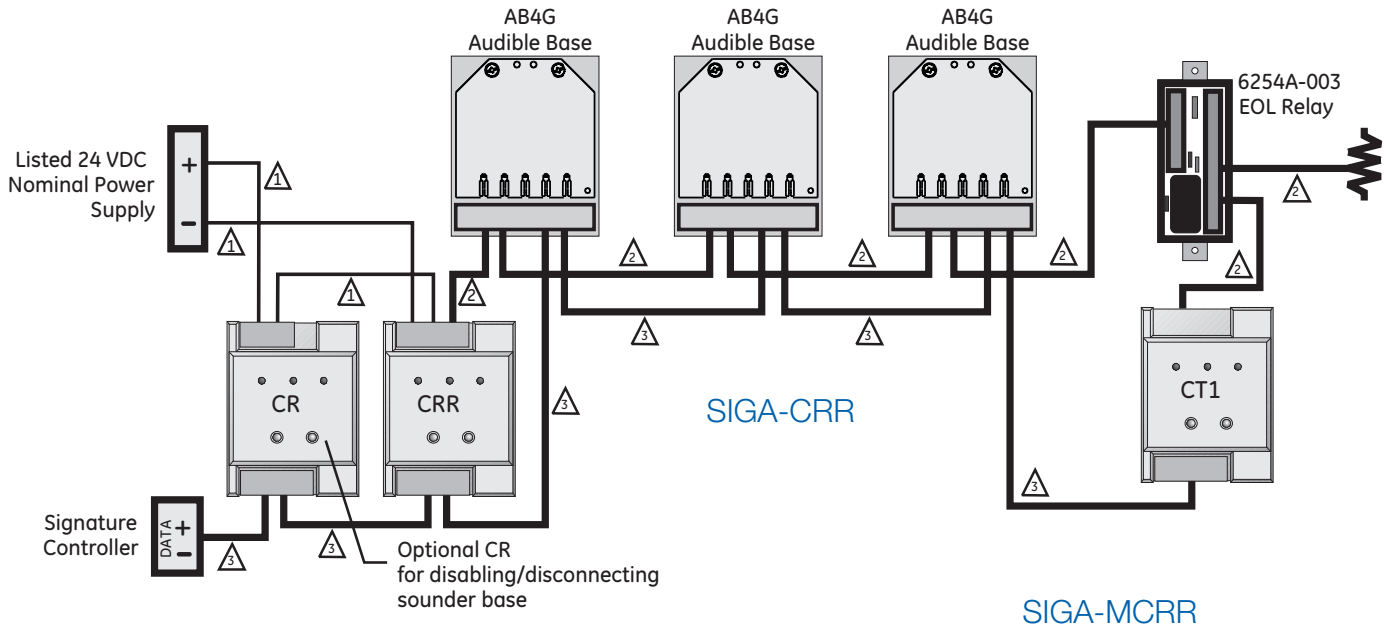
1. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
2. NFPA 72 requires that the SIGA-CR/SIGA-MCR be installed in the same room as the device it is controlling. This requirement may not apply in all markets. Check with your local AHJ for details.
3. The SIGA-UIO6R and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

Item #10

Typical Wiring

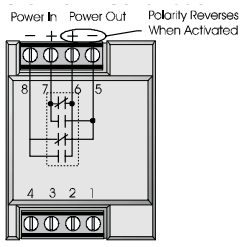
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.50mm²) wire sizes.

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.

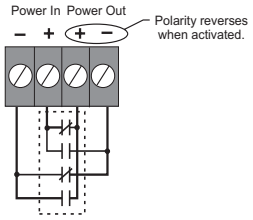


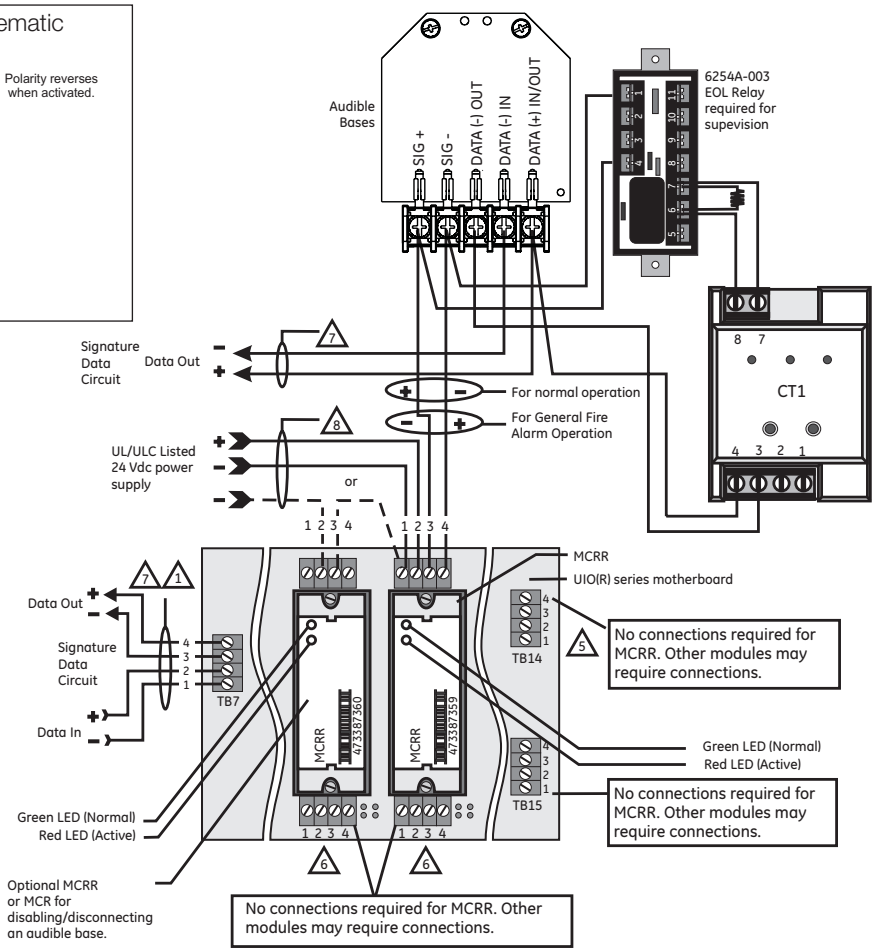
SIGA-MCRR

SIGA-CRR Schematic



SIGA-MCRR Schematic





Notes

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

Specifications

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

Ordering Information

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

Item #10

Contact us...

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Web: *www.est-fire.com*

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Mebane, NC 27302

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Web: *www.chubbedwards.com*

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.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0121

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

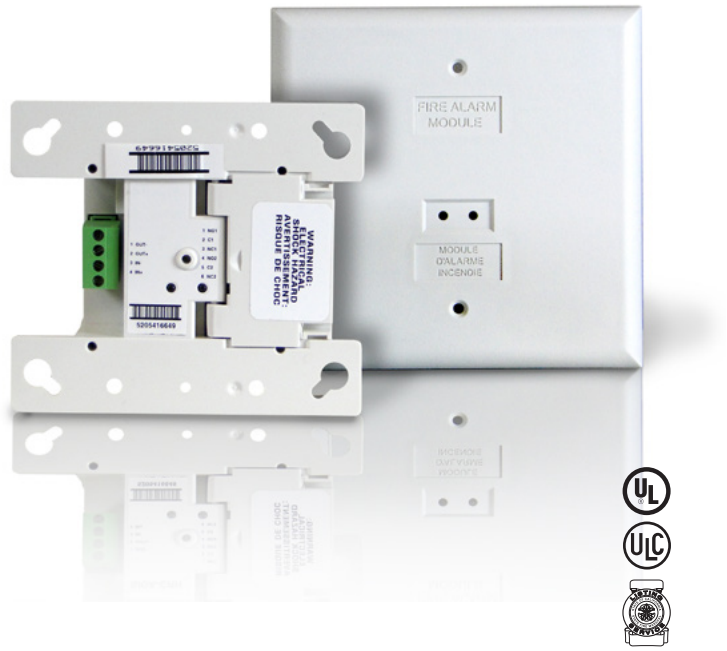
Fire Engineering Division

Item #10

Life Safety & Communications

High Power Control Relay Module

SIGA-CRH



Description

The SIGA-CRH High Power Control Relay Module is an addressable device designed for interface applications that require a high voltage, high current relay. Two identical sets of relay terminals are provided. Both sets of relay contacts transfer when the module is activated or restored. The state of the output terminals is not supervised.

The module requires one address on the signaling line circuit (SLC). The address is assigned electronically. There are no address switches to set.

Standard Features

- **High Power Rating**
  120/240 VAC or 24 VDC rated contact can be used to control external appliances such as door closers, fans, dampers etc.
- **Provides one relay with two Form C contacts**
  Relay accepts 12 to 18 AWG (1.0 to 4.0 mm²) wiring from two sources
- **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.
- **Removable terminal blocks**
  Easy wiring and module replacement.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller or PC; there are no switches or dials to set.
- **Intelligent device**
  Distributed intelligence allows 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.

Item #11

Application

Personality code

Use *Personality Code 8* to configure the SIGA-CRH module:

Personality code 8: Signal - dry contact output. Configures the module as a dry relay contact to control external appliances (door closers, fan controllers, dampers) or equipment shutdown.

Indication

The status LED shows the state of the module through the cover plate:

- Normal: Green LED flashes
- Alarm/active: Red LED flashes

Compatibility

The SIGA-CRH is part of the Signature Series intelligent processing and control platform. It is compatible with EST3, EST3X, and iO Series control panels.

Warnings & Cautions

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

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

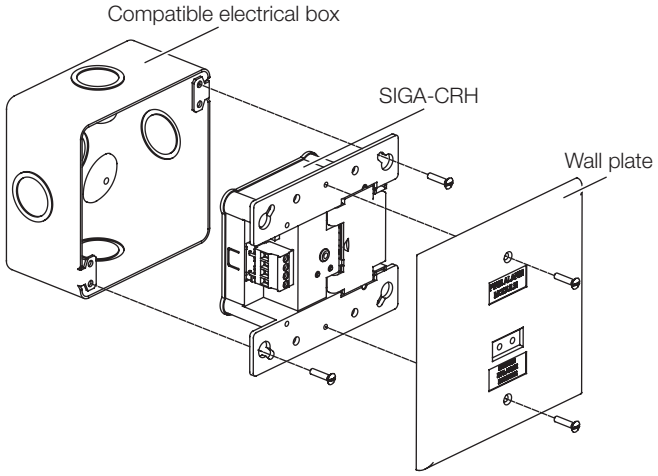
Testing & Maintenance

SIGA-CRH 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.

Electronic Addressing

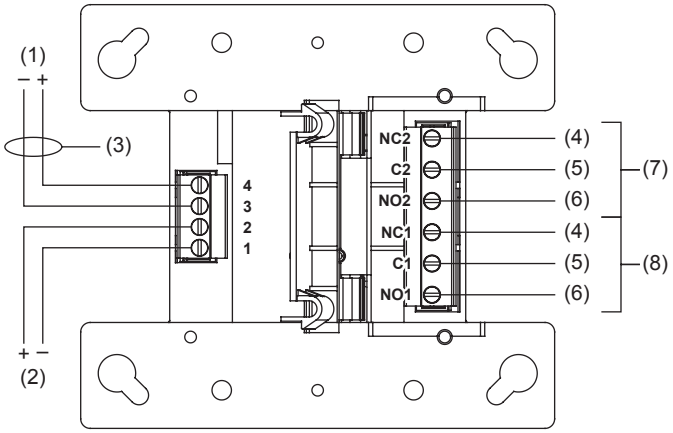
The loop controller electronically addresses the SIGA-CRH, saving valuable time during system commissioning. Setting complicated switches or dials is not required. The module has its own unique serial number stored in its on-board memory.

Installation



Consult the SIGA-CRH High Power Control Relay Module Installation Sheet for details.

Wiring



(1) Signaling line circuit (SLC) from previous device

(2) Signaling line circuit (SLC) to next device

(3) Power-limited and supervised

(4) Normally closed contact (NC)

(5) Common contact (C)

(6) Normally open contact (NO)

(7) Relay terminal set 2.
Not supervised. Power-limited unless connected to a nonpowerlimited source. If the source is nonpower-limited, eliminate the power-limited mark and maintain a minimum of 0.25 in. (6.4 mm) space from power-limited wiring. For other mounting methods, see enclosure and bracket installation sheets to maintain separation of power-limited and nonpower-limited wiring. The wire size must be capable of handling fault current from a nonpower-limited source.

— or —

Use type FPL, FPLR, FPLP, or permitted substitute cables, provided these power-limited cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6.4 mm) space or by a nonconductive sleeve or nonconductive barrier from all other conductors. Refer to the NFPA 70 National Electrical Code for more details.

(8) Relay terminal set 1. Identical to (7).

Specifications

SLC operating voltage	15.20 to 19.95 VDC
SLC current	
Standby	75 µA max.
Activated	75 µA max.
Contact ratings [1][2]	
240 V 50/60 Hz	7 A (PF 0.75), 1.5 A (PF 0.35)
120 V 50/60 Hz	7 A (PF 0.75), 3.0 A (PF 0.35)
24 VDC	6 A resistive
Audio switching	0 to 20 kHz [3]
Relay type	2 Form C, programmable
Relay ready delay	
From power up	30 s max. (includes initial state set)
From previous activation	5 s max. (one activation) 8 s max. (two activations, 1 s apart)
Circuit designation	
Signaling line circuits	Class A, Style 6 or Class B, Style 4. Refer to the control panel technical publications for SLC wiring details.
Relay circuits	Class E
Number of SIGA-CRH per SLC	60 max.
Wire size	12 to 18 AWG (1.0 to 4.0 mm^2)
Compatible electrical boxes	North American double-gang × 2-1/8 in. (54 mm) deep box North American standard 4 in. square × 2-1/8 in. (54 mm) deep box
Agency Listings	CAN/ULC-S527, UL 864
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Relative humidity	0 to 93%, noncondensing
Storage temperature	–4 to 140°F (–20 to 60°C)

[1] Provide external fusing and back-EMF mitigation as required by your application. Do not use the SIGA-CRH in a mixed application, where one set of relay terminals has high-power requirements and the other set carries a low-power signal, as this may result in physical contamination of the low-power signal contacts.

[2] The minimum load required in order to avoid long-term contact oxidation is 100 mA and 12 V.

[3] Power must not exceed the contact ratings shown for a given PF (power factor).

Ordering Information

Catalog Number	Description	Ship Weight lbs (kg)
SIGA-CRH	High Power Control Relay Module	0.4 (0.15)

Item #11

Contact us...

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DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #11

EST
Life Safety & Communications

Isolator Module

SIGA-IM

Patented

S3424

7300-1657: 0121

FM APPROVED

MEA

Application Notes Available

Overview

The SIGA-IM Isolator Module is part of EST's Signature Series system. This intelligent device enables part of the Signature data loop to continue operating should a short circuit occur. The module can be wired into a Class A data loop at any point.

If a fault occurs, the isolator cuts power to all devices beyond the isolator on the loop 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.

Once activated, the line fault isolator continuously checks the faulted side of the loop to determine if the short still exists. When the fault is corrected and system reset, the module automatically restores the entire data loop to the normal condition.

The microprocessor in every Signature module provides at least three important benefits — Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

Self-diagnostics and History Log - Each Signature Series module constantly runs self-checks to provide important maintenance information. This information is automatically updated and permanently stored in the module's non-volatile memory and is accessible for review any time using the SIGA-PRO Signature Program / Service Tool.

Automatic Device Mapping - The Signature loop controller learns keeps a map where each device's serial number address is installed relative to other devices on the data circuit.

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

Standard Features

- **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**
  Addresses are downloaded and permanently stored from a PC, or the SIGA-PRO Signature Program / Service Tool. There are no switches or dials to set.
- **Ground fault detection by address**
  Detects ground faults right down to the device level.
- **2-gang mounting**
- **Designed to ISO 9001 standards**

Item #12

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.

Warnings & Cautions

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

Typical Wiring and Installation

The SIGA-IM module mounts to North American 2-1/2 inch (64 mm) deep 2-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with 2 gang covers and SIGA-MP mounting plates. The module will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2), and #12 AWG (2.50mm^2) wire sizes. *Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.*

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

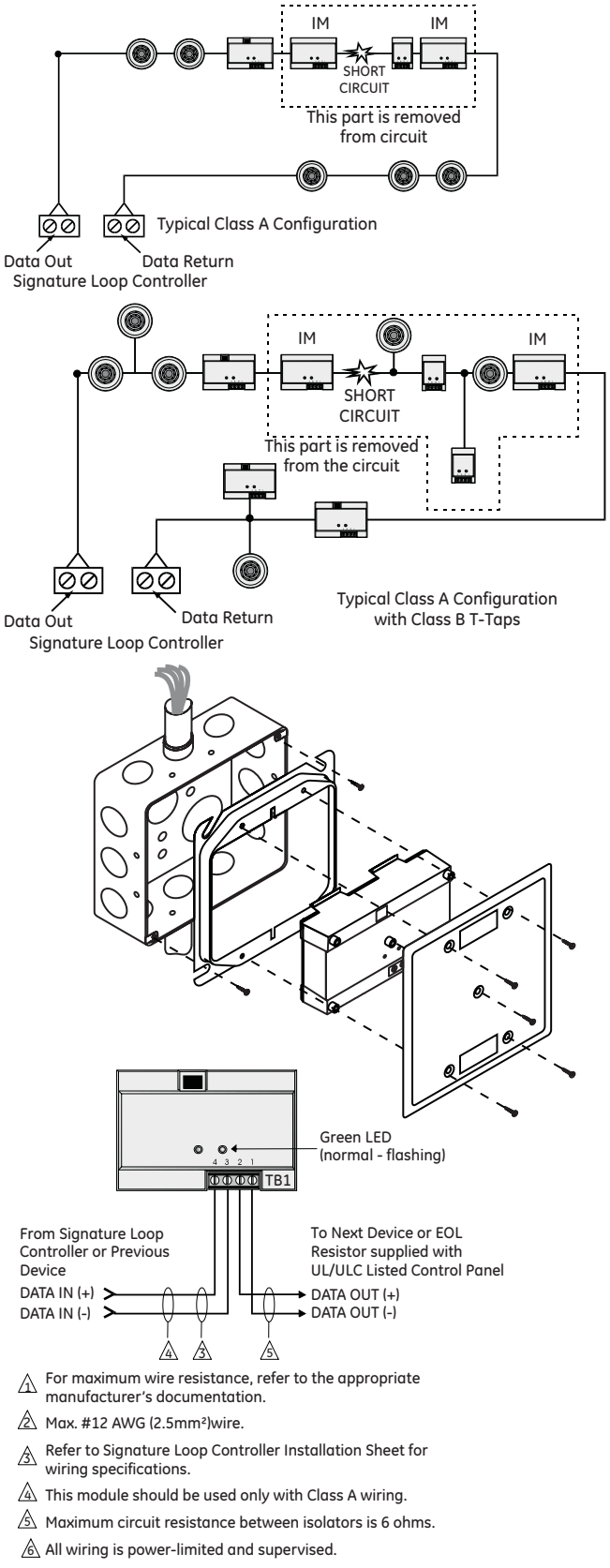
Application

This module should only be used on Class A circuits. The operation of the SIGA-IM is determined by its hardware type code and is assigned at the factory. No user configuration is required.

Compatibility

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

Typical Wiring



1. For maximum wire resistance, refer to the appropriate manufacturer's documentation.
2. Max. #12 AWG (2.5mm²)wire.
3. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
4. This module should be used only with Class A wiring.
5. Maximum circuit resistance between isolators is 6 ohms.
6. All wiring is power-limited and supervised.

Specifications

Description	Isolator Module - factory set hardware type code
Address Requirements	Uses One Detector Address
Circuit Resistance	Six ohms maximum between isolators
Operating Current	Standby = 45µA; Activated = 45µA
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)
Construction & Finish	High Impact Engineering Polymer 2-gang front plate - White Finish
Storage Environment	Temperature: -4°F to 140°F (-20°C to 60°C)
Operating Environment	Temperature: 32°F to 120°F (0°C to 49°C); Humidity: 0 to 93% RH
LED Operation	On-board Green LED - Flashes when polled (normal)
Compatibility	Use with: Signature Loop Controller
Agency Listings	UL, ULC, CSFM, MEA, FM

Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
SIGA-IM	Fault Isolator Module - UL/ULC Listed	.5 (.23)
Accessories		
27193-21	Surface Mount Box - 2-gang RED	1 (.4)
27193-26	Surface Mount Box - 2-gang WHITE	
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

Item #12

Contact us...

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Web: *www.est-fire.com*

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Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

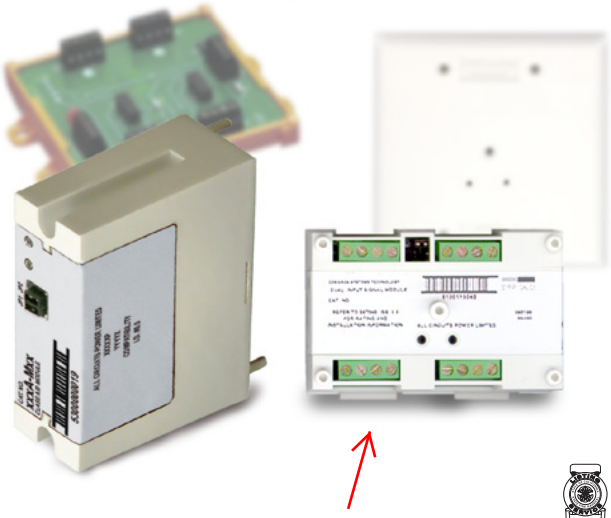
Fire Engineering Division

Item #12

EST
Life Safety & Communications

Synchronization Output Module

SIGA-CC1S, MCC1S



Patented

FM APPROVED MEA 7300-1657: 0121 UL ULC S3424

Overview

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

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

Standard Features

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

Item #13

Application

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

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

Personality Codes

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

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

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

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

Warnings & Cautions

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

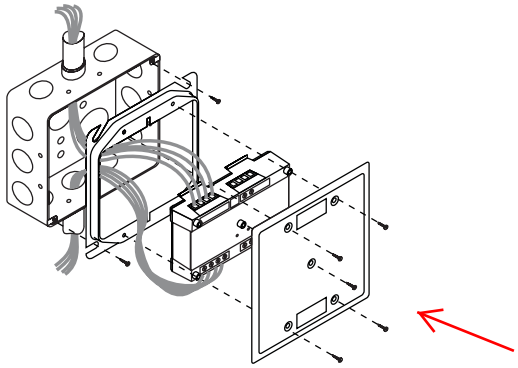
Edwards recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Compatibility

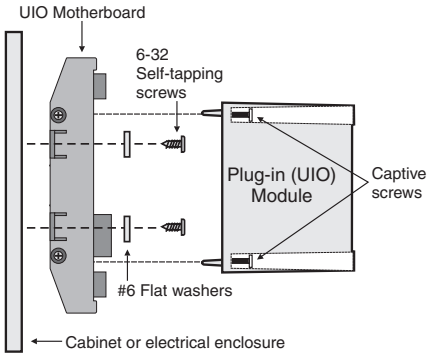
The Synchronization Output Module is compatible with EST's Signature Loop Controller operating under EST3 version 2.0 or higher, and QuickStart Signature Loop Intelligent Controller.

Installation

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



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



Electronic Addressing

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

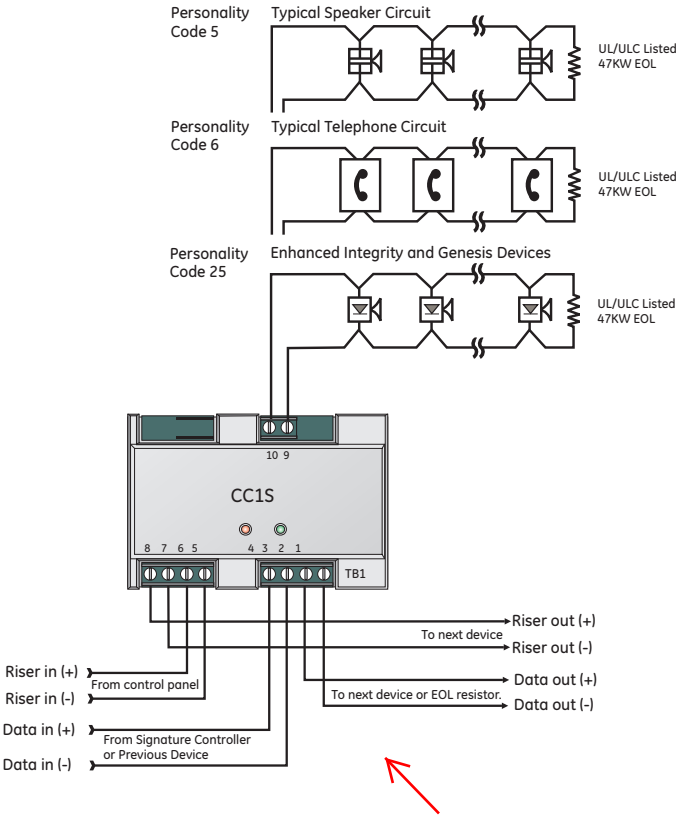
Testing & Maintenance

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

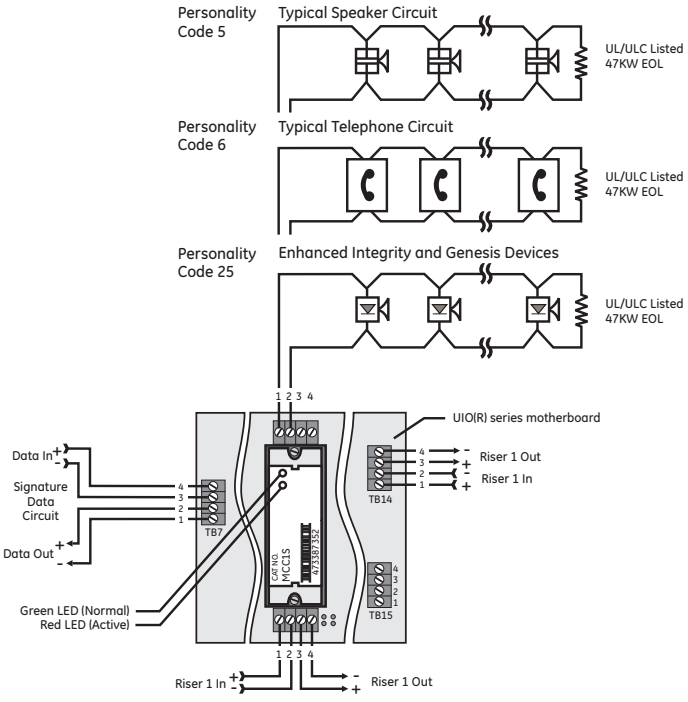
Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

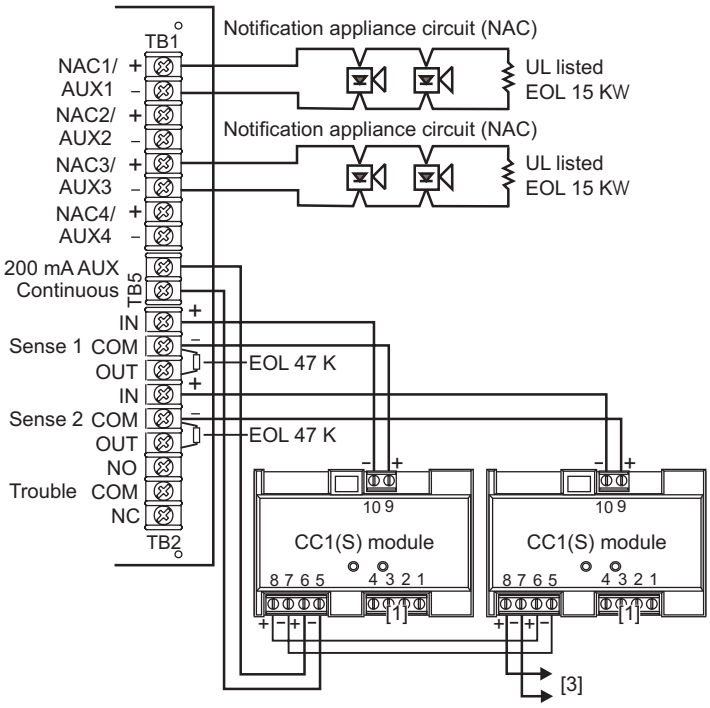
SIGA-CC1S (Standard Mount)



SIGA-MCC1S (UIO Mount)



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



Item #13

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*

Specifications

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

Ordering Information

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

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0121

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

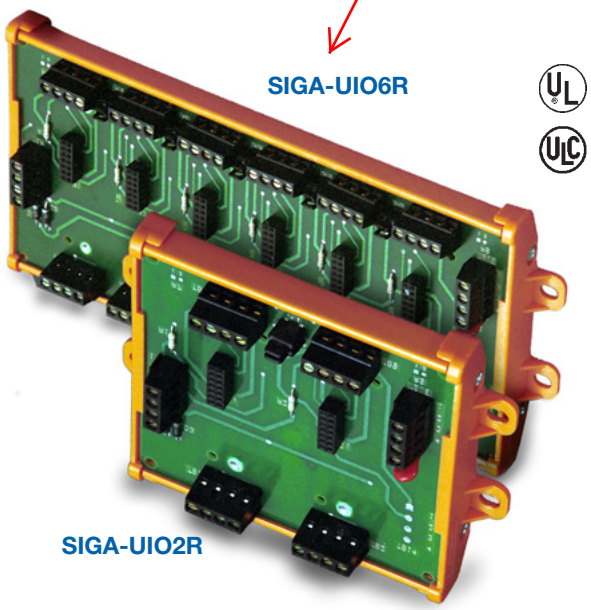
Fire Engineering Division

Item #13

EST™
Life Safety & Communications

Universal Input/ Output Module Motherboards

SIGA-UIO2R, SIGA-UIO6R,



Overview

Signature Series Universal Input-Output Module Motherboards provide mounting and wiring terminations for up to six Signature Series plug-in UIO (SIGA-"M" series) modules. UIO motherboards slide into a rigid extruded track (included) with mounting pads for convenient mounting into a variety of equipment enclosures. UIO modules plug into the board and are held securely in place with captive machine screws. All field wiring connects to terminal blocks on the motherboard, which permits rapid removal and replacement of modules for troubleshooting.

The **SIGA-UIO2R** provides mounting and wiring terminations for up to two UIO modules, and the **SIGA-UIO6R** provides mounting and wiring terminations for up to six UIO modules. Both mother-boards feature a riser #1 input and a riser #2 input bus. Jumpers on riser #1 input, between modules, facilitate sharing a single riser among more than one module. This significantly reduces wiring requirements. Removing the jumpers provide separate riser inputs to each adjacent module. Riser #2 input is fixed to each module position and cannot be split.

The **SIGA-UIO6** provides mounting and wiring terminations for up to six UIO modules. This motherboard provides two riser inputs that are common to all modules.

Standard Features

- **Modular flexibility**
  Wide assortment of multi-function plug-in modules provides total flexibility.
- **Minimum wiring requirements**
  Integral jumpers between modules allow sharing of risers to reduce installation wiring.
- **Easy installation**
  #12 AWG (2.5 mm2) terminal blocks and sturdy mounting pads ensure quick installation into Edwards enclosures.
- **Supports automatic device mapping**
  All compatible UIO modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Supports intelligent devices**
  On-board modules make decisions and input an alarm from initiating devices connected to them even if the loop controller's polling interrogation stops.
- **Twisted or shielded wire not required**
  Because all decisions are made at the on-board modules, lower communication speeds are possible. This results in substantially improved control panel response time and less sensitivity to line noise and loop wiring properties.
- **Supports electronic addressing**
  Programmable addresses are downloaded to compatible UIO modules from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool. There are no switches or dials to set.

DATA SHEET 85001-0365
Not to be used for installation purposes. Issue 3.1

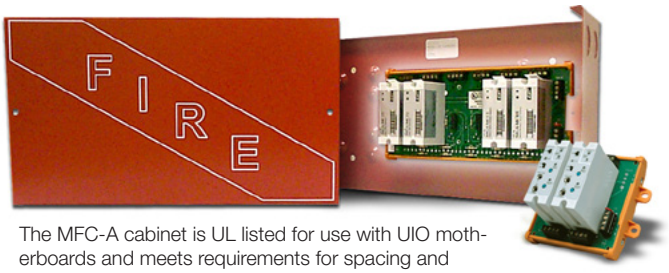
Item #14

Mounting and Installation

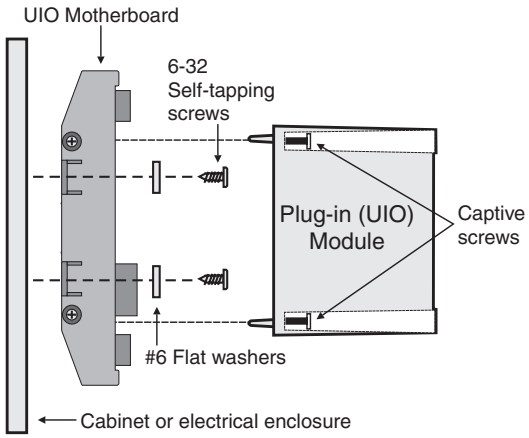
Mount the UIO motherboard inside a Edwards MFC-A cabinet or other suitable electrical enclosure with screws and washers provided. Each MFC-A will hold one UIO2R motherboard or one UIO6 or UIO6R motherboard complete with their full complement of modules.

Plug a Signature Series UIO module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.

Edwards recommends that all boards and modules be installed according to latest recognized edition of national and local fire alarm codes.



The MFC-A cabinet is UL listed for use with UIO motherboards and meets requirements for spacing and clearance around the components.



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.

Compatibility

Signature Series Universal Input/Output Module Boards are compatible only with SIGA-"M" Series I/O Modules, which require a Signature Data Controller.

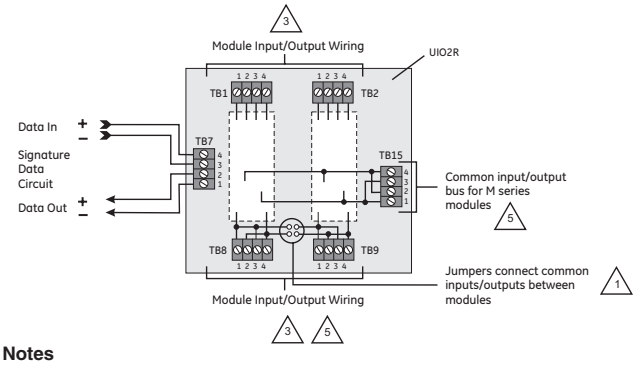
Warnings & Cautions

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

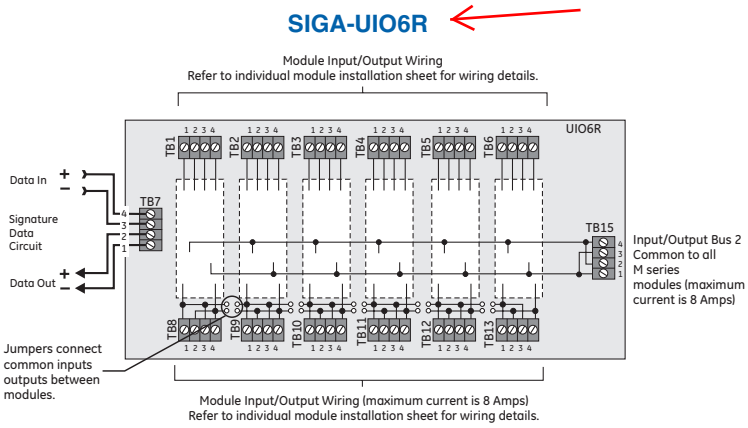
Typical Wiring

Signature Series Universal Input/Output Motherboards have terminal blocks to accept #18 AWG (0.75mm^2), #16 AWG (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. See Signature Data Controller catalog sheets for detailed wiring requirements and specifications.

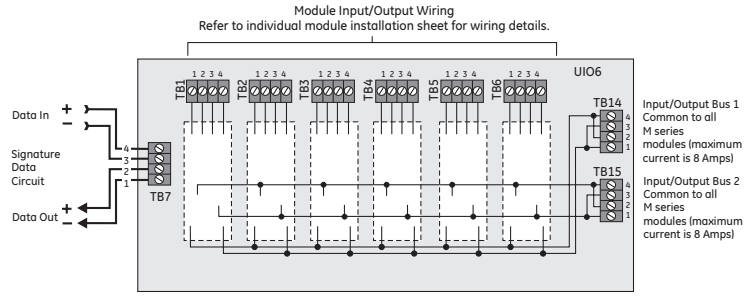
SIGA-UIO2R



SIGA-UIO6R



SIGA-UIO6



Notes

1. Jumpers may be used to make the inputs/outputs between modules common.
2. Not all modules use the SIGA-UIO2R terminals for the same functions.
3. Refer to individual SIGA-M series installation sheets for jumper settings and wiring information. Installations with multiple SIGA-UIO motherboards or enclosures (which include other wiring) require FPL, FPLR, FPLP, or equivalent NEC-approved wire for all power limited wiring. Observe the details of supervision and power limited versus non-power limited circuits. Refer to the SIGA-M series installation sheets.
4. Do not mix incompatible signals.
5. Maximum current is 8 Amps.
7. Refer to Signature Data Controller Installation Sheets for wiring specifications.

Item #14

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A UTC Fire & Security Company

Detection & alarm since 1872

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F : +65 6391 9306

India
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F : +91 80 4344 2050

Australia
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F +61 3 9239 1299

Europe
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F +32 2 721 86 13

Latin America
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F 305 593 4300

utcfireandsecurity.com

Specifications

Catalog Number	SIGA-UIO2R	SIGA-UIO6R	SIGA-UIO6
Module Capacity	Two	Six	Six
Dimensions (with module installed)	5.4 inch L (across mounting feet) x 4.3 inch W x 3.2 inch H	9.56 inch L (across mounting feet) x 4.3 inch W x 3.2 inch H	
Address Requirements	no address required		
Type Code	none		
Compatible Modules	All SIGA-Mxxx Signature Series		
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)		
Mounting (cabinets)	Directly into suitable enclosures (e.g.: MFC-A) - Notes 1, 2, 3.		
Wiring Terminals	#12 AWG (2.5mm²) to #18 AWG (0.75mm²)		
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) Operating and Storage Humidity: 0 to 93% RH		
Agency Listing	UL, ULC, MEA, CSFM		

Notes:

1. Allow a minimum clearance of one inch around all sides of the UIO motherboard.
2. On-site drilling of mounting holes may be required. Self-tapping mounting screws are provided.
3. Suitable cabinets: MFC-A, 2-WB, 2-WB3, 2-WB7, CAB2, 3-CAB5, 3-CAB7, 3-CAB14, 3-CAB21, 3-RCC series, RACC series.

Ordering Information

Catalog Number	Description	Ship Wt. - lb (kg)
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	UL listed cabinet for mounting UIO motherboards, red with white “FIRE” 8 inch H X 14 inch W X 3.5 inch D (203 mmH X 356 mm W X 89 mm D)	7.0 (3.1)

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0121

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #14

EST
Life Safety & Communications

Signal Modules

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

FM APPROVED MEA CE Application Notes Available 7300-1657: 0121 UL ULC S3424

Overview

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

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

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

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

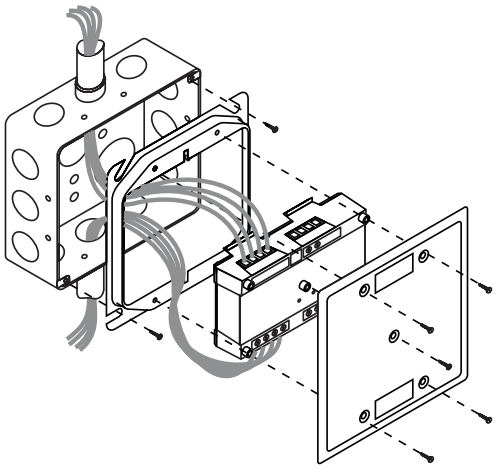
Standard Features

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

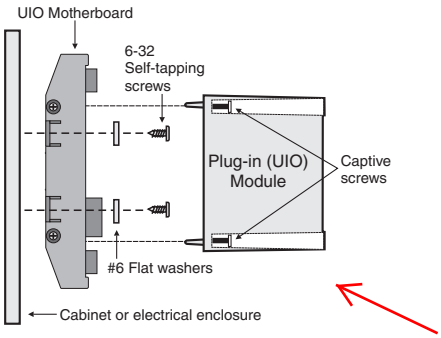
Item #15

Installation

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



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



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

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

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

Application

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

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

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

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

Warnings & Cautions

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

Compatibility

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

Testing & Maintenance

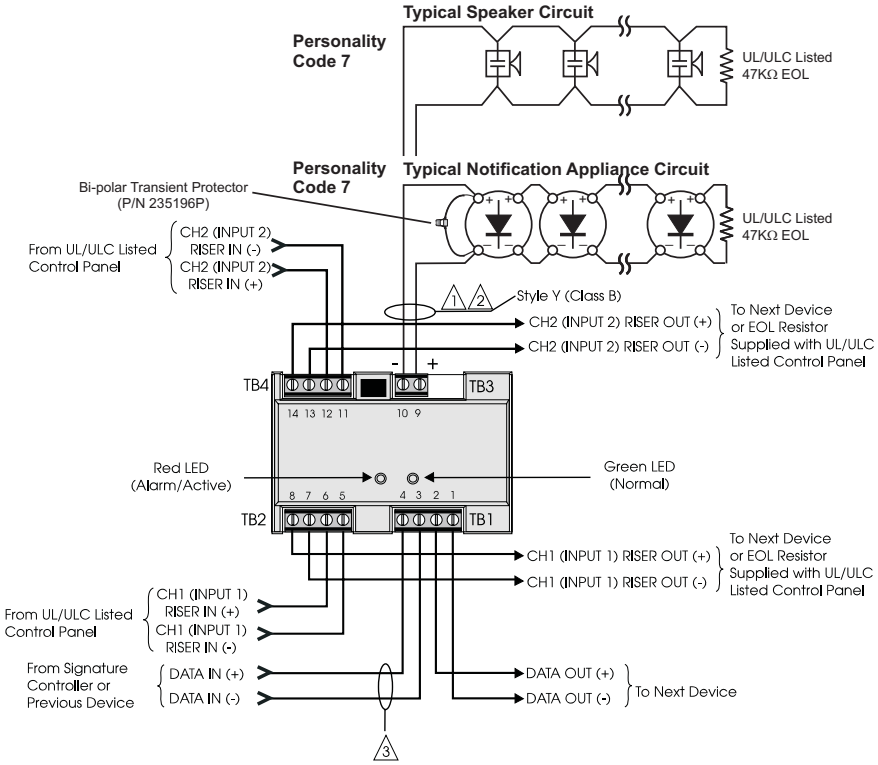
The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

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

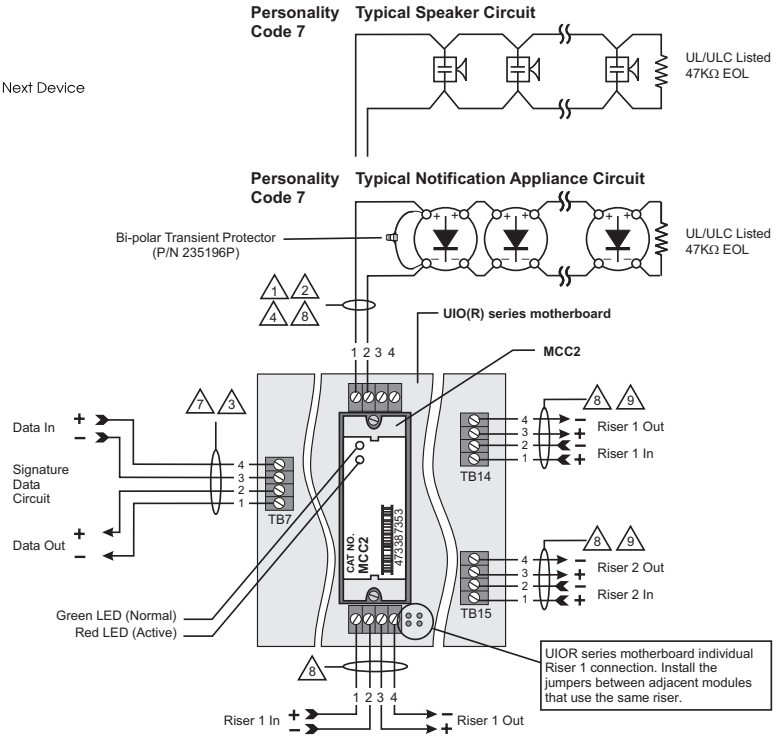
Typical Wiring (SIGA-CC2/MCC2)

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

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



SIGA-CC2



SIGA-MCC2

Notes

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

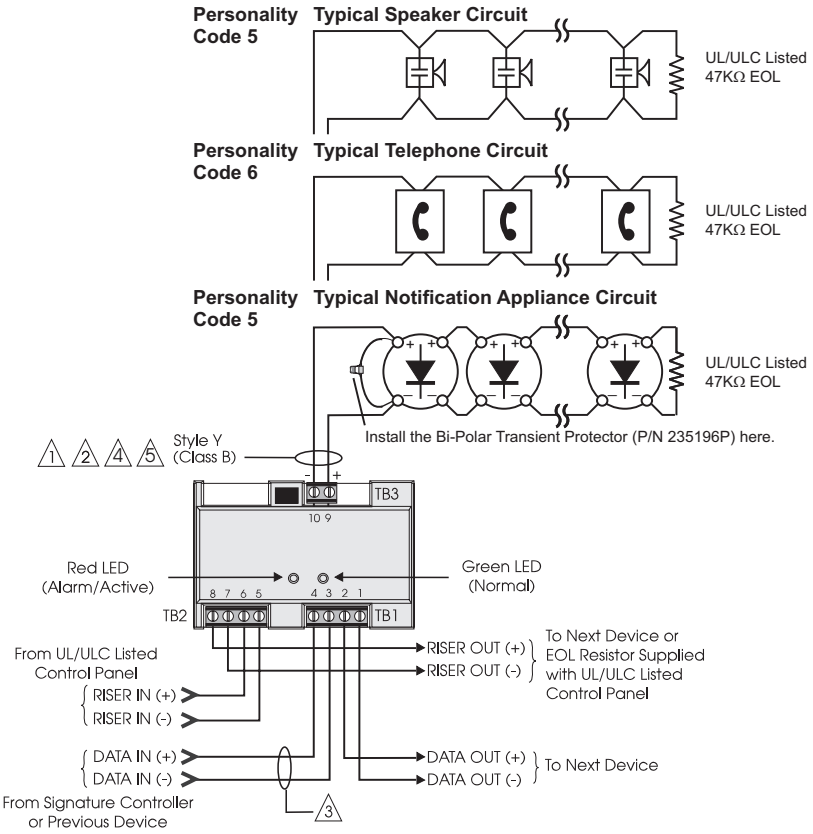
Maximum Output Load		
24Vdc	**25V**	**70V**
Signals	Audio	Audio
2A	50W	35W

Item #15

Typical Wiring (SIGA-CC1/MCC1)

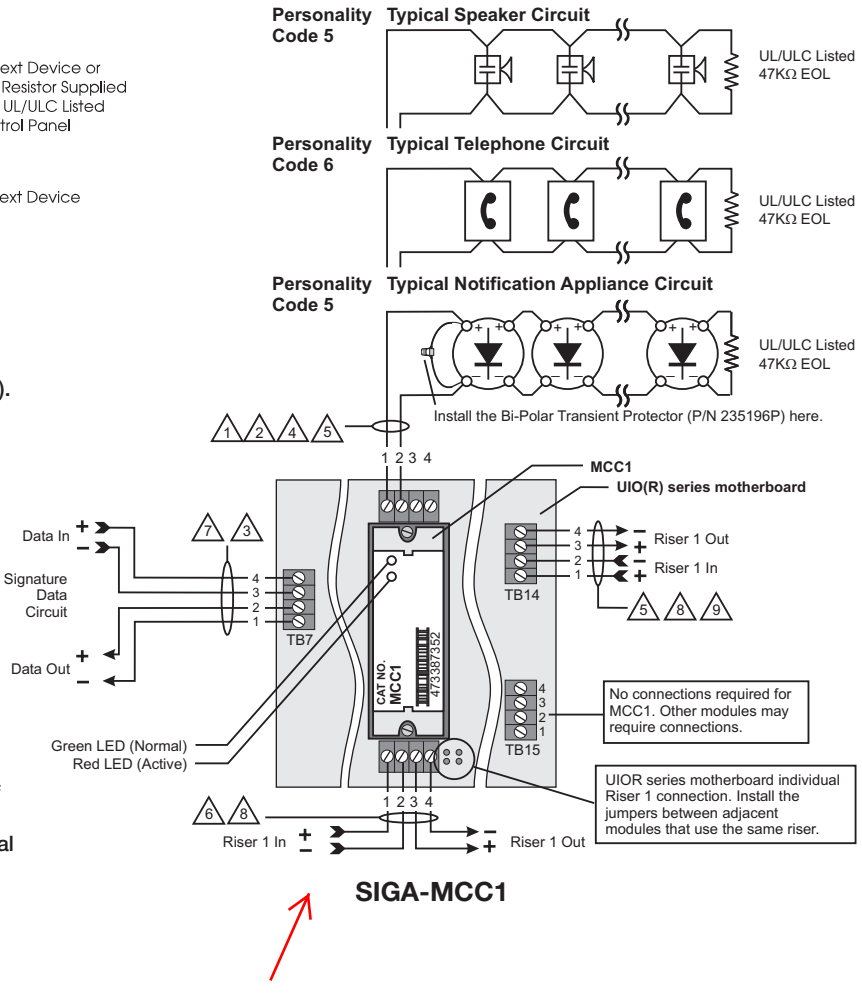
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 (2.5mm²) wire sizes.

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



SIGA-CC1

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



SIGA-MCC1

Notes

2 Maximum #12 AWG (2.5mm²) wire. Min. #18 (0.75mm²).

3 Refer to Signature Loop Controller Installation Sheet for wiring specifications.

4 These modules will NOT support two-wire smoke detectors.

5 All wiring power limited and supervised. If the input source is non-power limited, then maintain spacing of 1/4 inch or use FPL, FPLP, FPLR or equivalent in accordance with NEC.

6 The SIGA-UIO6 does not come with TB8 through TB13.

7 Supervised and power-limited.

8 If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.

9 The input for this riser is common to all modules.

Signature Series Overview

The Signature Series intelligent analog-addressable system from Edwards is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, 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 (EST3 V 2 only.)
- Most recent trouble code logged by the detector — 32 possible trouble codes may be used to diagnose faults.

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

Device mapping allows the Signature Data Controller to discover:

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

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

Item #15

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*

Specifications

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

Ordering Information

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

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

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0121

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models SIGA-CC1, SIGA-CC2, SIGA-CT1, SIGA-CT1HT, SIGA-CT2, SIGA-CR, SIGA-CRR, SIGA-UM, SIGA-MM1, SIGA-WTM, SIGA-IM, SIGA-MDM, SIGA-MAB, SIGA-MCT2, SIGA-MCC1, SIGA-MCC2, SIGA-MCR and SIGA-MCRR remote transponders. Models SIGA-AA30 and SIGA-AA50 audio amplifiers. Models SIGA-APS and SIGA-APS-220 power supplies. Models SIGA-MB4, SIGA-MP1, SIGA-MP2 and SIGA-MP2L mounting plates. Models SIGA-UIO2R, SIGA-UIO6 and SIGA-UIO6R motherboards. Model CS-SIGA-CC1P releasing module. Models SIGA-CC1S and SIGA-MCC1S Auto-Sync Output Modules. Models MFC-A and MFC-AD Enclosures. Model SIGA-CR2 Control Relay Module. Model SIGA-CT1HT; Signature Series High Temperature Single Input Module. *SIGA-CRH High Power Control Relay Module.

Refer to listee's data sheet for additional detailed product description and operational consideration.

RATING: 15.2 - 19.95 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as control unit accessories for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:121 and 7300-1388:178

*Rev 01-11-16 gt

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #15

PRODUCT INFORMATION

The MP1 mounting plate allows for the installation of Signature Series modules. Any combination of four (4) CC1, CC2, or UM large modules or eight (8) CT1, CT2 CR, MM1, or WTM small modules can be mounted on the MP1.

The MP1 is a flat aluminum plate that mounts in any standard full footprint OPTION module position in standard enclosures. The mounting plate removes the need for gang boxes and provides the ease of mounting needed equipment in a common enclosure.

WARNINGS

DISCONNECT POWER BEFORE INSTALLING OR REMOVING THE MP1

INSTALLATION INSTRUCTIONS

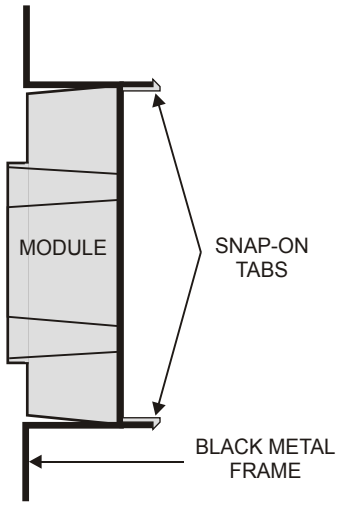
Mounting modules to the MP1

1. The black metal mounting frame that comes standard with all modules MUST be removed. Squeeze the snap-on tabs that extend from the back of the modules and remove the black metal frame. (Refer to Figure 1.)
2. Pop the snap-on tabs on the modules into the openings on the MP1. When the snap-on tabs are completely pushed in, they will lock into place. (Refer to Figure 2.)

Mounting the MP1

1. Mount the MP1 in a standard enclosure. The MP1 requires one standard full footprint and mounts in any OPTION module position using #6 screws. (Refer to Figure 3.)
2. Wire modules per the appropriate installation sheets.

Figure 1



SPECIFICATIONS

Size: 9.25 in x 6.25 in (L x W)

Material: 1/8 in aluminum

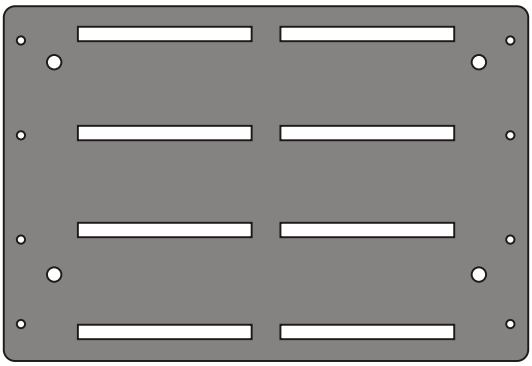
Weight: .6 lb. (.27kg)

Mounting: 1 standard module footprint

Module Spaces Available:

- Large 4
- Small 8

PRODUCT DIAGRAM



INSTALLATION SHEET

SIGA-MP1
Mounting Plate

INSTALLATION SHEET P/N: 387160	FILE NAME: 387160.CDR
REVISION LEVEL: 2.0	APPROVED BY: B. Right
DATE: 11FEB00	CREATED BY: S. Hawes

EDWARDS SYSTEMS TECHNOLOGY, INC.
SARASOTA, FL: 941-739-4300 FAX 941-753-1806
CHESHIRE, CT: 203-699-3000 FAX 203-699-3075
OWEN SOUND, CANADA: 519-376-2430 FAX 519-376-7258
INTERNATIONAL, CANADA: 905-270-1711 FAX 905-270-9553

Item #16

Figure 2, Mounting Module to MP1

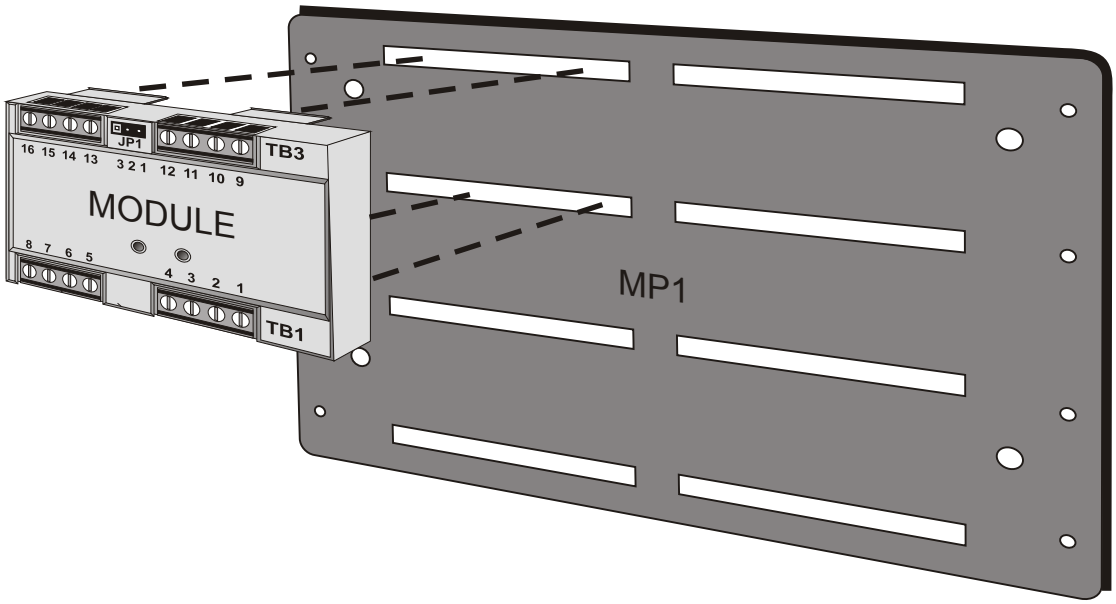
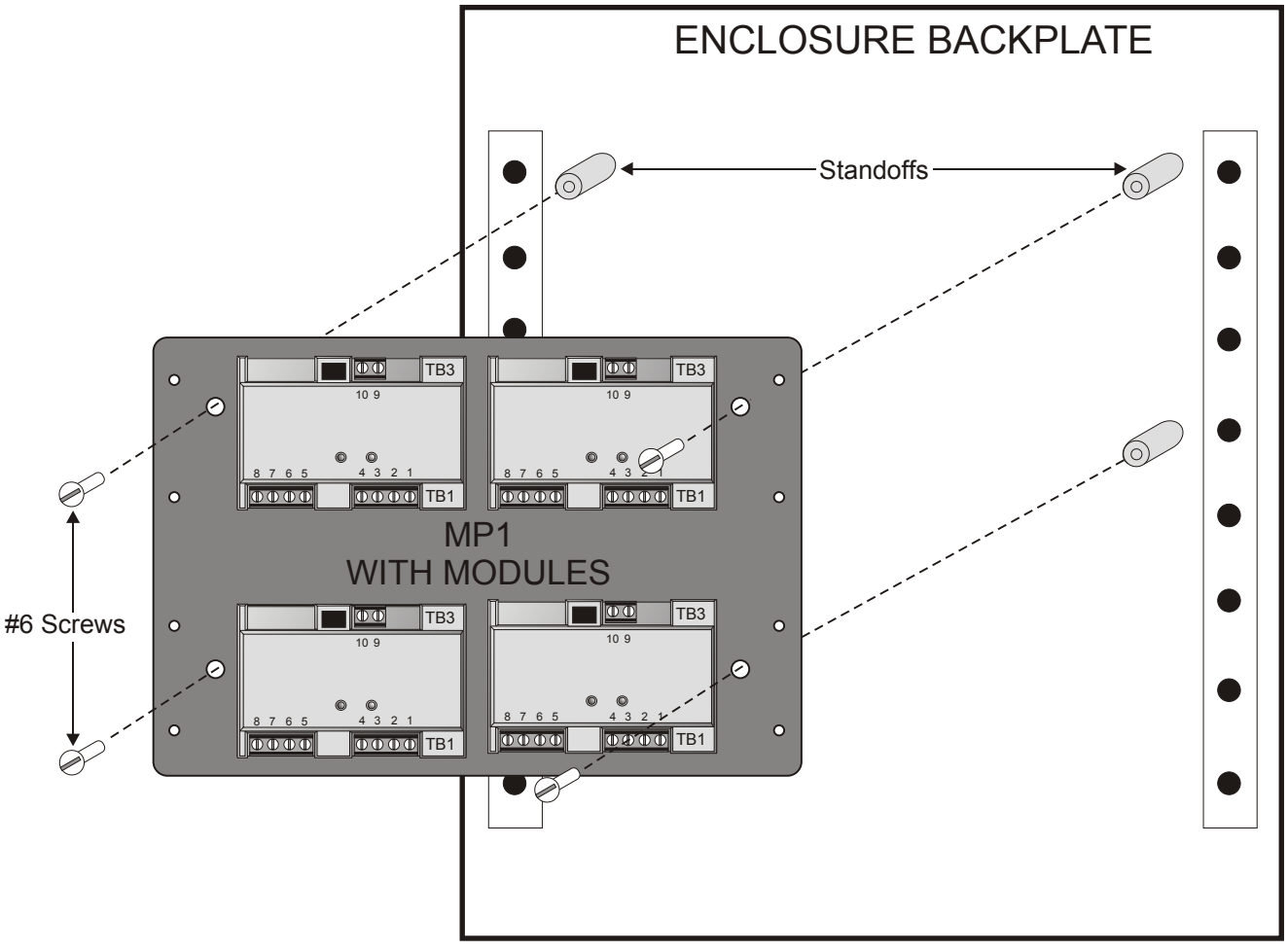


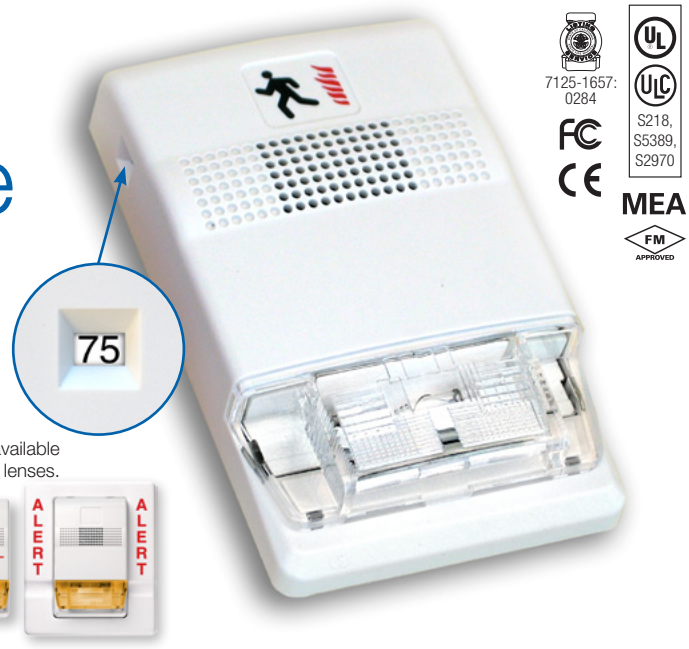
Figure 3, Mounting MP1 to Enclosure Backplate



EST
Life Safety & Communications

Field Configurable Horns and Strobes

Genesis Series



ECS/MNS appliances available with clear or amber lenses.

7125-1657: 0284
S218, S5389, S2970
MEA
FM APPROVED

Overview

The Genesis line of fire alarm and mass notification/emergency communications (ECS/MNS) signals are among the smallest, most compact audible-visible life safety signaling devices in the world. About the size of a deck of playing cards, these devices are designed to blend with any decor.

Thanks to patented breakthrough technology, Edwards Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the UL-1971 and ULC-S526 light distribution requirements.

Genesis strobes and horn-strobes offer selectable candela output by means of a conveniently-located switch on the side of the device. Models are also available that offer fixed 15/75 cd output. The candela output setting remains clearly visible even after final installation, yet it stays locked in place to prevent unauthorized tampering.

Genesis ECS/MNS appliances offer emergency signaling with clear or amber lenses and with optional ALERT housing labels. They are ideal for applications that require differentiation between fire alarm and mass notification alerts.

Standard Features

- **Unique low-profile design**
  - The most compact UL-1971/ULC-S526 listed strobe available
  - Ultra-slim – protrudes less than one inch
  - Attractive appearance
  - No visible mounting screws
- **Four field-configurable options in one device**
  - Select 15, 30, 75, or 110 cd strobe output
  - Select high (default) or low dB horn output
  - Select temporal (default) or steady horn output
  - Select public mode flash rate (default) or private mode temporal flash
- **Fixed 15/75 cd model available**
- **ECS/MNS models available**
- **Easy to install**
  - Fits standard 1-gang electrical boxes – no trim plate needed
  - Optional trim plate accommodates oversized openings
  - Pre-assembled with captive hardware
  - #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Industry's most even light distribution
  - Meets tough synchronizing standards for strobes
  - Single microprocessor controls both horn and strobe
  - Independent horn control over a single pair of wires
  - Highly regulated in-rush current
  - Multiple frequency tone improves sound penetration
  - Field-programmable temporal strobe output option

Item #17

Application

Genesis 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 (87dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act (see application notes – USA)*.

Combination horn-strobe signals must be installed in accordance with guidelines established for strobe devices. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

Horns

Genesis horn output reaches as high as 99 dB and features a unique multiple frequency tone that results in excellent sound penetration and an unmistakable warning of danger. Horns may be configured for either coded or non-coded signal circuits. They can also be set for low dB output with a jumper cut that reduces horn output by about 5 dB. Horn-only models may be ceiling-mounted or wall-mounted.

The suggested sound pressure level for each signaling zone used with alarm signals 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 sound pressure measured over a 24-hour period.

Doubling the distance from the signal 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.

ECS/MNS Applications

Genesis ECS/MNS strobe appliances bring the same high-performance fire alarm features and unobtrusive design to mass notification applications. Available with amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between fire alarm and mass notification alerts.

Installation

Genesis horns and strobes mount to any standard one-gang surface or flush electrical box. Matching optional trim plates are used to cover oversized openings and can accommodate one-gang, two-gang, four-inch square, or octagonal boxes, and European 100 mm square.

Genesis Horn/Strobe with optional trim plate

All Genesis signals come pre-assembled with captive mounting screws for easy installation. Two tabs at the top of the signal unlock the cover to reveal the mounting hardware. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

Field Configuration

Temporal horn and horn-strobe models are factory set to sound in a **three-pulse temporal pattern**. Units may be configured for use with coded systems by cutting a jumper 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 signal circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems. Non-temporal, horn-only models sound a steady tone.

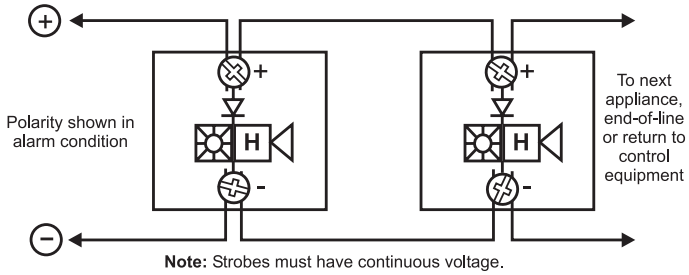
Genesis clear strobes and horn-strobes are shipped from the factory ready for use as **UL 1971 compliant** signals for public mode operation. These signals may be configured for **temporal flash** by cutting a jumper on the circuit board. This battery-saving feature is intended for private mode signaling only.

Genesis clear strobes and horn-strobes may be set for **15, 30, 75, or 110 candela output**. 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 through a small window on the side of the device after the cover is closed.

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.

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Horns, strobes, and combination horn-strobes are interconnected with a single pair of wires as shown below.



Note: Strobes must have continuous voltage.

Current Draw

Strobes, Horn-Strobes

Multi-cd Wall Strobes (G1-VM)

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	103	141	152	255	311
16 Vfwr	125	179	224	346	392

*G1-VM multi-cd; **G1F-V1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	85	127	150	245	285
20 Vdc	71	98	123	188	240
24 Vdc	59	82	104	152	191
33 Vdc	46	64	84	112	137
16 Vfwr	119	169	223	332	376
20 Vfwr	103	143	189	253	331
24 Vfwr	94	129	169	218	262
33 Vfwr	87	112	148	179	205

Wall Temporal Horn-strobes – High dB Setting

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	129	167	172	281	337
16 Vfwr	176	230	269	397	443

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	102	135	160	246	309
20 Vdc	88	109	137	193	248
24 Vdc	81	94	122	161	203
33 Vdc	74	72	106	124	154
16 Vfwr	144	182	247	352	393
20 Vfwr	141	162	220	274	362
24 Vfwr	136	152	203	235	282
33 Vfwr	125	144	196	201	232

Wall Temporal Horn-strobes – Low dB Setting

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	122	160	146	274	330
16 Vfwr	162	216	231	383	429

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	96	130	158	243	302
20 Vdc	79	104	133	189	241
24 Vdc	68	88	119	156	197
33 Vdc	56	71	100	118	146
16 Vfwr	128	180	241	344	389
20 Vfwr	118	157	213	266	343
24 Vfwr	113	144	195	230	279
33 Vfwr	112	137	182	197	226

Horns

Wall or Ceiling Mounted Temporal Horns (G1-HD)

UL Rating	High dB (RMS)	Low dB (RMS)
16 Vdc	26	19
24 Vdc	36	27
33 Vdc	41	33
16 Vfwr	51	37
24 Vfwr	69	52
33 Vfwr	76	70

Typical Current	High dB RMS	Low dB RMS
16 Vdc	22	17
20 Vdc	24	19
24 Vdc	27	22
33 Vdc	32	26
16 Vfwr	34	30
20 Vfwr	40	34
24 Vfwr	45	38
33 Vfwr	52	47

Wall or Ceiling Mounted Horns (G1-P)

UL Designation	Voltage Range	Max. Current, RMS
Regulated 24 Vdc	16 - 33 Vdc	13 mA
24 fwr	16 - 33 Vfwr	11 mA

Typical Current	RMS
24 Vdc	10
24 Vdc	11
31 Vdc	12
20 Vfwr	9
24 Vfwr	10

Current values are shown in mA.

Item #17

dBA output

Temporal Horns, Horn-strobes (G1-HD, G1-HDVM series)

High dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	81.4	85.5	91.4	94.2
24 Vdc	84.4	88.6	94.5	97.6
33 Vdc	86.3	90.4	96.9	99.5

Low dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	76.0	80.1	86.3	89.2
24 Vdc	79.4	83.5	89.8	92.5
33 Vdc	82.1	86.5	92.5	95.3

Steady Tone Horns (G1-P series)

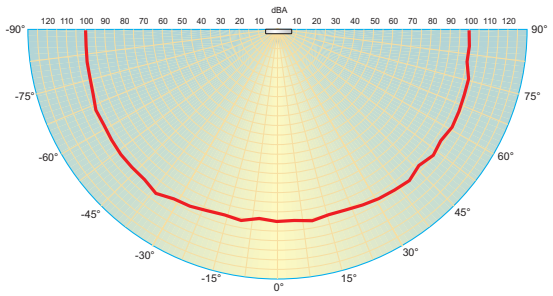
	UL464	Average	Peak
16 Vdc	77 dBA, min	85 dBA	91 dBA
16 Vfwr	77 dBA, min	85 dBA	91 dBA

Notes

1. All values shown are dBA measured at 10 feet (3.01m).
2. UL464 values measured in reverberant room.
3. Average and Peak values are measured in anechoic chamber.

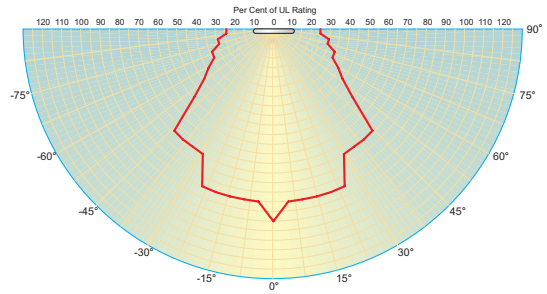
Average Sound Output (dBA)

(High dB setting, anechoic, 24V, measured at 10ft)



Light output - (effective cd)

Percent of UL rating versus angle



Specifications

Housing	Red or white textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating.
Lens	Optical grade polycarbonate (clear)
Mounting (indoor only)	Strobes and horn-strobes are for wall-mount installation only. Horn-only models may be ceiling- or wall-mounted. Flush mount: 2½ inch (64 mm) deep one-gang box Surface mount: Model 27193 surface mount box, wiremold box, or equivalent surface-mount box With optional trim plate: One-gang, two-gang, four-inch square, octagonal, or European single-gang box
Wire connections	Screw terminals: single input for both horn and strobe. #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size
Operating environment	Indoor only: 32-120°F (0-49°C) ambient temperature. 93% relative humidity
Agency listings/approvals	UL 1971 (S218), UL 1638 (S218), UL 464 (S218), ULC S525, ULC S526, CSFM, CE, FCC, MEA. (All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.)
Dimensions (HxWxD)	Signal: 4-1/2" x 2-3/4" x 13/16" (113 mm x 68 mm x 21 mm) Trimplate: 5" (127 mm); Height – 5-7/8" (149 mm); Depth – ½" (13 mm)
Operating voltage	G1-HD series temporal-tone horns: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded when horn set to steady tone) G1-HDVM series temporal-tone horn-strobes: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded (audible NAC only) when used with optional G1M Genesis Signal Master) G1-VM series strobes: non-coded, filtered 16 - 33 Vdc or unfiltered 16-33 Vdc FWR G1-P series steady-tone horns: coded or non-coded, filtered 20-31 Vdc or unfiltered 20-27 Vfwr
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15 cd, 30 cd, 75 cd, or 110 cd output UL 1971: 15 cd (fixed 15/75 cd models) UL 1638, ULCS526: 75 cd (fixed 15/75 cd models)
Strobe flash rate	G1-VM strobes and G1-HDVM series temporal-tone horn-strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. Temporal setting (private mode only): synchronized to temporal output of horns on same circuit
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone. Add G1M for G1-CVM &G1-HDVM devices only.
Horn pulse rate	G1-HD temporal-tone horns and G1-HDVM series temporal-tone horn-strobes: temporal rate synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. G1-P steady-tone horns: continuous, steady tone only
Temporal audible pattern	½ sec ON, ½ sec OFF, ½ sec ON, ½ sec OFF, ½ sec ON, 1½ sec OFF, then repeat cycle

Candela Output

Lens Color	Rating	Switch Position A	Switch Position B	Switch Position C	Switch Position D
Amber	UL 1638	110 cd	75 cd	30 cd	15 cd
Amber	UL 1971*	88 cd	60 cd	24 cd	12 cd
Clear	UL 1971	110 cd	75 cd	30 cd	15 cd

** Equivalent Rating*

Fire appliances available with white or red housings.

ECS/MNS appliances available with clear or amber lenses.

Ordering Information

Model	Housing	Marking	Lens	Strobe	Horn	Ship Wt. lbs (kg)
Fire Alarm Appliances (c/w running man icon screen printed on housing)						
G1-VM	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1F-HD	White	FIRE	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1F-HDV1575	White	FIRE	Clear	15/75 cd[1]	Temporal hi/lo dB-24V	0.25 (0.11)
G1F-HDVM	White	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1F-P	White	FIRE	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1F-V1575	White	FIRE	Clear	15/75 cd[1]	Strobe only	0.25 (0.11)
G1F-VM	White	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1-HD	White	None	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1-HDVM	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1-P	White	None	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1RF-HD	Red	FIRE	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1RF-HDV1575	Red	FIRE	Clear	15/75 cd[1]	Temporal hi/lo dB-24V	0.25 (0.11)
G1RF-HDVM	Red	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1RF-P	Red	FIRE	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1RF-V1575	Red	FIRE	Clear	15/75 cd[1]	Strobe only	0.25 (0.11)
G1RF-VM	Red	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1R-HD	Red	None	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1R-HDVM	Red	None	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1R-P	Red	None	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1R-VM	Red	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
ECS/MNS Appliances (no running man icon on housing)						
G1WA-VMA	White	ALERT	Amber	Selectable A, B, C or D	Strobe only	0.25 (0.11)
G1WA-VMC	White	ALERT	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1WN-VMA	White	None	Amber	Selectable A, B, C or D	Strobe only	0.25 (0.11)
G1WN-VMC	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
Trim Plates						
G1T	White	None	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1RT	Red	None	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1T-FIRE	White	FIRE	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1RT-FIRE	Red	FIRE	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1WT-ALERT	White	ALERT	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
Surface Boxes						
27193-16	White	N/A	One-gang surface mount box			1 (0.4)
27193-11	Red	N/A	One-gang surface mount box			1 (0.4)

[1] These 15/75 cd models provide fixed output and are not multi-candela devices. The 15 cd output component complies with UL1971, while the 75 cd output component complies with UL 1638.

Item #17

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*

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7125-1657:0218

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models G1-VM, G1R-VM, G1F-VM, G1RF-VM, G1-V1575, G1R-V1575, G1F-V1575, G1RF-V1575, G1WA-VMC and G1WN-VMC synchronizable type strobe lights. The suffix R refers to red and W refers to white color enclosure; the suffix F refers to the word “FIRE” refers to a silk-screened word “FIRE” on the strobe housing; the A in the model number indicates (Alert) marking; N in the model indicates no marking. Intended for indoor and mounted on a wall only. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: Electrical: 16-33 V dc/VFWR
Candela G1-VM and G1W-VMC series 15cd, 30cd, 60cd, 75cd, 110cd Selectable
G1-V1575 series 15/75cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as strobe lights for use with separately listed compatible fire alarm control units. Units are synchronizable when used with Models G1M or G1M-RM sync module (CSFM Listing No. 7300-1657:201) which may employ Models SIGA-CC1S or SIGA-MCC1S Auto-Sync output modules as an accessory (CSFM Listing No. 7300-1657:121). For indoor use and wall mount only. Refer to listee’s Installation Instruction Manual for details.

NOTE: Formerly 7125-1591:218

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #17

EST
Life Safety & Communications

Field Configurable Ceiling Strobes

Genesis Series

One or more patents pending.

FM APPROVED FC MEA CE 7125-1657: 0219 UL ULC S5389

Overview

Genesis life safety and mass notification/emergency communications (ECS/MNS) ceiling strobes are small, compact, and attractive visible emergency signaling devices. Protruding no more than 1.6" (41 mm) from the ceiling, Genesis strobes blend with any decor.

Thanks to patented breakthrough technology, Edwards Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the minimum UL-required "cross" pattern, significantly exceeding UL-1971 and ULC-S526 light distribution requirements.

Depending on the model, clear lens Genesis ceiling strobes feature 15 to 95, or 95 to 177 candela output (see ordering information), which is selectable with a conveniently-located switch. The candela output setting remains clearly visible even after final installation, yet it is locked in place to prevent unauthorized movement after installation.

Genesis ECS/MNS appliances offer emergency signaling with clear or amber lenses and with optional ALERT housing labels. They are ideal for applications that require differentiation between life safety and mass notification alerts.

Standard Features

- **Field configurable – no need to remove the device!**
  - 15/30/75/95 cd and 95/115/150/177 cd clear strobe lens models available
  - Switch settings remain visible even after the unit is installed
- **ECS/MNS models available**
  - 13/26/65/82 and 82/100/130/155 (1971 equivalent) amber lens models available
- **Unique low-profile design**
  - 30 per cent slimmer profile than comparable signals
  - Attractive appearance
  - No visible mounting screws
  - Available with white or red housings
- **Easy to install**
  - Fits all standard 4" square electrical boxes with plenty of room behind the signal for extra wire – no extension ring or trim plate needed
  - #18 to #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Exclusive FullLight strobe technology produces the industry's most even light distribution
  - Precision timing electronics meet tough synchronizing standards for strobes
  - Low current draw minimizes system overhead
- **Approved for public and private mode applications**
  - UL 1971-listed as signaling devices for the hearing impaired
  - UL 1638-listed as protective visual signaling appliances
  - UL/ULC listed for ceiling or wall use

Item #18

Application

Genesis strobes are UL 1971 or 1638 listed for indoor use. 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. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization for multiple strobe lights in a single field of view is required.

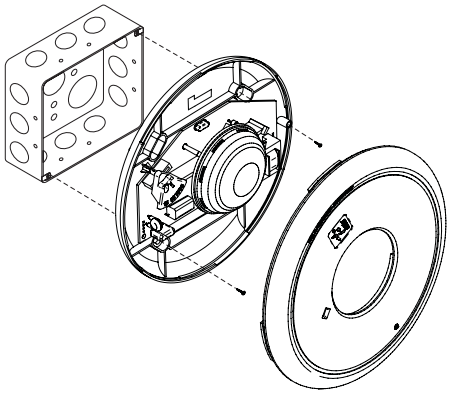
ECS/MNS Applications

Genesis ECS/MNS appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Available as standard units with clear or amber lenses with optional ALERT markings, thy are ideal for applications that require differentiation between life safety and ECS/MNS signals. Units are also available (special order) with red, blue or green lenses.

Installation

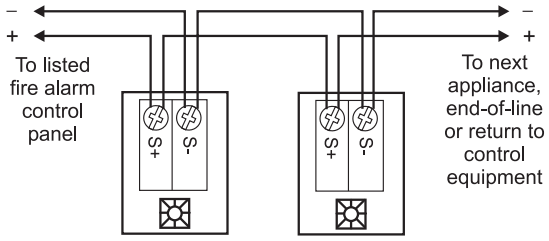
All models are intended for indoor applications only. Strobes mount to any flush North-American 4" square electrical box, $2^1/_8$" (54 mm) deep.

Genesis ceiling strobes simply unlatch and twist to open. This gains access to mounting screws and the selectable candela switch. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

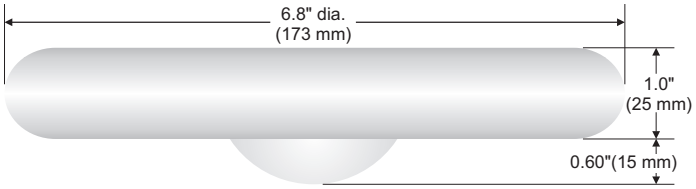


Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Strobes are interconnected with a single pair of wires as shown below.

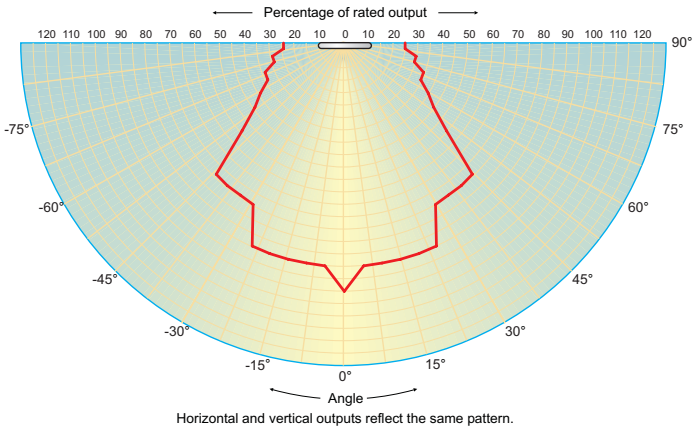


Dimensions



Light output (effective cd)

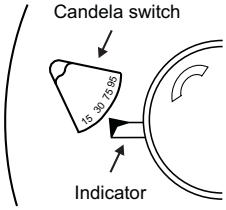
Percent of UL rating versus angle



Horizontal and vertical outputs reflect the same pattern.

Field Configuration

Depending on the model, Genesis ceiling speaker-strobes have multi-candela output (see ordering information). The output setting is changed by simply opening the device and sliding the switch to the desired setting. The strobe does not have to be removed to change the output setting. The setting remains visible through a small window on the front of the device after the cover is closed.



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.

Current Draw

Light output switch settings for UL 1971 listed models are selectable by numeric candela value.
ECS/MNS appliances are selectable by A, B, C, or D designations.

UL Rating	Light output setting, standard models				Light output setting, high output models			
	"15" or "D"	"30" or "C"	"75" or "B"	"95" or "A"	"95" or "D"	"115" or "C"	"150" or "B"	"177" or "A"
	RMS	RMS	RMS	RMS	RMS	RMS	RMS	RMS
16 Vdc	109	151	281	318	330	392	502	565
16 Vfwr	131	194	379	437	432	518	643	693

Typical Current	Light output setting, standard models				Light output setting, high output models			
	"15" or "D"	"30" or "C"	"75" or "B"	"95" or "A"	"95" or "D"	"115" or "C"	"150" or "B"	"177" or "A"
	RMS	RMS	RMS	RMS	RMS	RMS	RMS	RMS
16 Vdc	94	140	273	325	333	392	499	551
20 Vdc	74	108	205	244	259	303	378	429
24 Vdc	63	90	168	194	212	245	306	342
33 Vdc	48	70	124	139	155	180	211	236
16 Vfwr	126	187	368	403	484	570	673	724
20 Vfwr	108	156	281	333	380	438	537	604
24 Vfwr	97	139	240	270	318	361	434	484
33 Vfwr	89	119	197	214	245	269	308	338

Current values are shown in mA.

Specifications

Housing	Textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating. Red and white models available.
Lens	Optical grade polycarbonate (clear).
Mounting	Flush mount to North American 4-inch square electrical box, 2-1/8 (54 mm) inches deep. No extension ring required. Suitable for indoor wall or ceiling applications.
Wire Connections	Screw terminals: #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size.
Operating Voltage	Regulated 16 to 33 Vdc, 16 to 33 Vfwr.
Operating environment	Indoor: 32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings/approvals	Meets or exceeds year 2004 UL requirements for standards UL1638 and UL1971 and Canadian requirements for standards CAN/ULC S526-02 and CAN/ULC S524-01. All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule. CSFM, MEA, FM.
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (GC-VM) and 95/115/150/177 cd (GC-VMH)
Strobe operating voltage	GC-VM series strobes: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR.
Strobe flash rate	GC-VM series strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. Temporal setting (private mode only): synchronized to temporal output of Genesis audible signals on same circuit.
Synchronization	Meets or exceeds UL 1971 requirements. Maximum allowed resistance between any two devices is 20 Ohms. Refer to specifications for the synchronization control module, this strobe, and the control panel to determine allowed wire resistance.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone. Add G1M for G1-CVM &G1-HDVM devices only.

Item #18

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*

Ordering Information

Light output switch settings for UL 1971 listed models are selectable by numeric candela value.
ECS/MNS appliances are selectable by A, B, C, or D designations.

Model	Housing	Marking	Lens	Strobe	Ship Wt.
Life safety Appliances (c/w running man icon screen printed on housing)					
GC-VM	White	None	Clear	Selectable 15, 30, 75, or 95 cd	1.8 lb. (0.82 kg.)
GCF-VM	White	"FIRE"			
GCFR-VM	Red	"FIRE"			
GC-VMH	White	None		Selectable high output 95, 115, 150, or 177 cd	
GCF-VMH	White	"FIRE"			
ECS/MNS Appliances (no running man icon on housing)					
GCWA-VMA	White	"Alert"	Amber	Selectable A, B, C, D	1.8 lb. (0.82 kg.)
GCWA-VMC			Clear		
GCWN-VMA		None	Amber		
GCWN-VMC			Clear		
GCWA-VMHA		"Alert"	Amber	Selectable high output A, B, C or D	
GCWA-VMHC			Clear		
GCWN-VMHA		None	Amber		
GCWN-VMHC			Clear		

Units with red, blue or green lenses are available as a special order. Contact customer service for details.

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7125-1657:0219

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models GC-VM, GCF-VM, GCFR-VM, GC-VMH, GCF-VMH, GCWA-VMC*, GCWN-VMC*, GCWA-VMHC* and GCWN-VMHC* multiple candela synchronizable strobe lights. The lights are only considered synchronized when used in conjunction with listed Model G1M-RM (CSFM Listing No. 7300-1657:201) sync module, which may employ Model SIGA-CC1S (CSFM Listing No. 7300-1657:121) Auto Sync Output Module. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: Electrical: 16-33 Vdc/Vfwr
GC candela: 15cd, 30cd, 75cd, or 95cd
H candela: 95cd, 115cd, 150cd, 177cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction. For indoor use only, mounted on a wall or a ceiling.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as strobe lights for use with separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7125-1591:219

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #18

EST
Life Safety & Communications

Wall Speakers, Speaker-Strobes

Genesis G4 Series

MEA FM APPROVED 7320-1657: 0211/0285 S2813

See Specifications Section for listings details.

Overview

The Genesis line of life safety and emergency communications speakers and speaker-strobes combine high performance output with a low profile design to deliver a life safety audio solution that's as versatile as it is effective. Protruding no more than one inch from the wall, these appliances blend inconspicuously with any decor.

Optional amber lens tints, ALERT or FIRE markings, and red or white housing colors ensure there is a device for every application, including mass notification and emergency communications.

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, which allows devices to be easily fine-tuned to achieve maximum benefit in exchange for the lowest possible system overhead.

High fidelity models meet the NPFA 520 Hz requirements for newly construced commercial sleeping areas. They also produce crisp, clear voice audio output that is highly intelligible over large areas.

All Genesis speakers include a DC blocking capacitor to allow electrical supervision of the audio distribution circuit. Models for 25 V_{RMS} and 70 V_{RMS} audio circuits are available. With their sealed back construction, these speakers are extra durable and provide outstanding audibility.

Standard Features

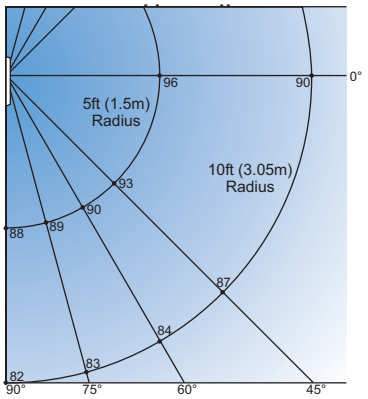
- **High Fidelity 520 Hz speaker models available**
  Low frequency output meets NFPA standards for newly constructed commercial sleeping areas; increases sound fidelity and audio intelligibility.
- **Unique low-profile design**
  - The most compact UL/ULC listed speaker-strobe available
  - Ultra-slim, protrudes a mere one inch from the wall
  - Attractive appearance, no visible mounting screws
- **Field configurable – no need to remove the device**
  - ¼, ½, 1, or 2 watt operation and selectable candela output with convenient switches that remain visible even after the unit is installed
- **Mass Notification models available with amber lenses**
- **Unparalleled performance**
  - loud 90 dBA output ensures clear, crisp audio
  - Exclusive FullLight strobe technology produces even light distribution
  - Precision timing electronics meet tough synchronizing standards for strobes when used with compatible modules
  - Optional field-configurable temporal strobe output
  - 25 Vrms and 70 Vrms models available, all supplied with a DC blocking capacitor for audio circuit supervision
- **Easy to install**
  - Fits all standard 4-inch square electrical boxes with plenty of room behind the signal for extra wire – no extension ring or trim plate needed
  - #18 - #12 AWG terminals – ideal for long runs or using existing wiring

Speaker Application

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

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

Typical Sound Output Distribution dBA Measured in anechoic chamber



Genesis Series Cone Speaker/strobe

G4 speakers are available in combination with a UL 1971-listed strobe light for indoor wall-mounted public-mode notification applications. These audible-visible appliances should be installed in accordance with guidelines established for visible (strobe) devices.

High Fidelity Models

Genesis G4HF Series High Fidelity appliances provide highly intelligible voice audio output. They are also effective in areas subject to high levels of ambient noise. These appliances are approved for use in sleeping areas under conditions described below.

Sleeping Room Applications

Genesis G4HF Series High Fidelity appliances are ideal for hotels, dormitories, and other residential occupancies where audible output must meet the 520 Hz signaling characteristics required by NFPA 72.

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-fast 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.

NOTE: Speakers driven by third-party audio systems are not UL approved for use in sleeping rooms.

Strobe Application

Genesis clear-lensed 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 specified levels, where occupants use hearing protection, and in areas of public accommodation. UL 1638-listed colored-lensed strobe lights are available for mass notification applications. Consult with your Authority Having Jurisdiction for details.

When used with a compatible EDWARDS synchronization source, all Genesis xenon-based strobes — audible units, and combination appliances — remain fully synchronized indefinitely. This exceeds the UL synchronization requirements of 10 milliseconds over a two-hour period. Strobe light synchronization is important in order to avoid issues with people that have Photosensitive Epilepsy.

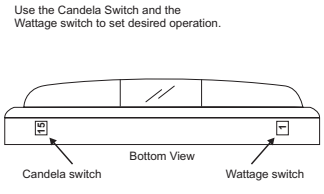
Mass Notification Applications

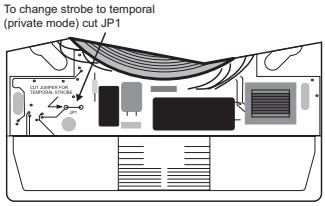
Genesis mass notification appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Standard models are available with clear or amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between life safety and mass notification alerts. Appliances with red, green or blue lenses are available. Contact EDWARDS Customer Service for details.

Field Configuration

Genesis speakers may be set for ¼, ½, 1, or 2 watt operation. The wattage setting is visible through a small window on the bottom of the device and is changed by simply sliding the switch until the desired setting appears in the window. The speaker does not have to be removed to change the wattage.

Genesis speaker-strobes feature selectable candela output. The output setting is visible through a small window on the bottom of the device and is changed by simply sliding the switch until the desired setting appears in the window. The speaker-strobe does not have to be removed to change the output.





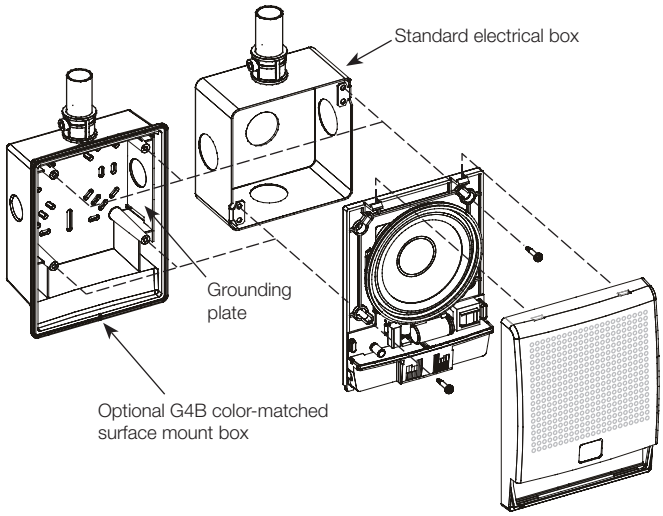
Genesis speaker-strobes may also be configured for temporal flash. This battery-saving feature is intended for private mode signaling only. To set the device for temporal flash, snip the circuit board as shown in the Jumper Locations diagram above.

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.

Installation and Mounting

All models are intended for indoor wall mounted applications only. Speakers and speaker-strobes are flush mounted to a North-American 4" square electrical box, $2^{1}/_{8}$" (54 mm) deep or a European 100 mm square box. Signals may be surface mounted to a Genesis surface-mount box (see ordering information for details).

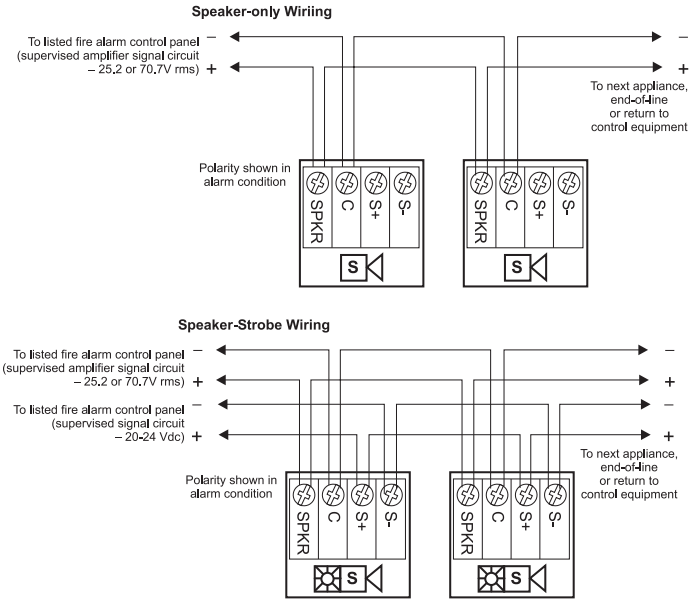
Two tabs at the top of the signal unlock the cover to facilitate mounting. The shallow depth of Genesis devices leaves room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.



EDWARDS recommends that these speaker-strobes always be installed in accordance with the latest recognized edition of national and local codes. Refer to installation sheet for mounting height information.

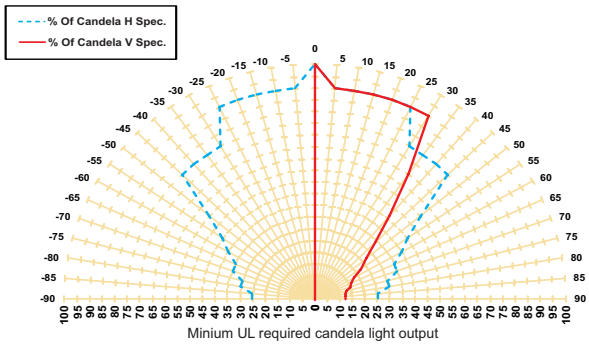
Wiring

Field wiring is connected to Genesis signals with terminals that accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Light output

Per cent of UL rating versus angle



Minium UL required candela light output

UL name plate maximum operating current (RMS-mA)

Cd rating	"15" or "D"	"30" or "C"	"75" or "B"	"110" or "A"
16 Vdc	96	130	239	294
16 Vfwr	120	169	329	375

Typical current, milliamps - average (RMS)

Cd rating	"15" or "D"	"30" or "C"	"75" or "B"	"110" or "A"
20 Vdc	65 (78)	93 (101)	182 (188)	238 (245)
24 Vdc	55 (65)	78 (86)	153 (159)	196 (203)
31 Vdc	45 (53)	63 (69)	120 (124)	151 (157)
20 Vfwr	56 (106)	79 (147)	147 (264)	197 (342)
24 Vfwr	50 (95)	68 (130)	121 (225)	155 (283)
27 Vfwr	44 (84)	60 (115)	107 (200)	137 (251)

Light output switch settings for UL 1971 listed models are selectable by numeric candela value. Light output for Mass Notification (ECS/MNS) appliances is selectable by A, B, C, or D designations.

Lens Color	Switch Position A	Switch Position B	Switch Position C	Switch Position D
Clear	110 cd	75 cd	30 cd	15 cd
Amber	95 cd	65 cd	26 cd	13 cd

Sound level output

G4HF High Frequency Models, dBA at 3.05 m (10 ft.)

Voltage	Setting (nominal)	Wattage (actual)	UL 1480 Rating	ULC-S541 Rating	Anechoic (nominal)
25 VRMS	1/4 W	0.25 W	80.9	81.5	81
	1/2 W	0.50 W	84.1	84.3	84
	1 W	1.00 W	86.6	87.2	87
	2 W	2.00 W	89.7	90.1	90
70 VRMS	1/4 W	0.25 W	81.8	81.9	81
	1/2 W	0.50 W	84.6	84.9	84
	1 W	1.00 W	87.3	88.2	87
	2 W	2.00 W	90.5	90.9	90

UL 1480: Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise. ULC-S541: Sound level output at 10 ft (3.05 m) measured in anechoic chamber using 0 to 4,000 Hz band limited pink noise.

G4 Standard Frequency Models

Speaker Wattage Tap	Sound Output Level
1/4 Watt	80 dBA
1/2 Watt	83 dBA
1 Watt	86 dBA
2 Watt	89 dBA

UL 1480: Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise.

Specifications

Genesis Speakers and Speaker-Strobes	
Housing	Red or white textured UV stabilized, color impregnated engineered plastic.
Dimensions	Height: 6.5” (165 mm). Width: 5” (127 mm). Depth to wall: 1” (25 mm).
Mounting (indoor wall mount only)	Flush: North-American 4” square box, 2 1/8” (54 mm) deep. Surface: model G4B (white) or G4RB (red) surface mount box.
Wire Connections	Screw terminals: separate polarized inputs for speaker and strobe, #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size
Operating environment	32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings and approvals, G4 Models	Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. UL/ULC File Number: S2813. FM, MEA, CSFM approved. CSFM File Number: 7320-1657: 0211/0285. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Agency listings and approvals, Low Frequency G4HF Models	UL 464 Listed for low frequency signaling applications. Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. FM, MEA, CSFM pending. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.

Speakers	
Input/Operating Volts	25 VRMS or 70 VRMS. See ordering information.
Speaker Cone	Speaker frequency response: 400 to 4,000 Hz. Optimized for voice intelligibility. 4-inch (102mm) mylar cone, sealed back construction.

Strobes	
Clear Strobe Output Rating	UL 1971, ULC S526: selectable 15 cd, 30 cd, 75 cd, or 110 cd output UL 1971: 15 cd (fixed 15/75 cd models) UL 1638, ULCS526: 75 cd (fixed 15/75 cd models)
Amber Strobe Output Rating	UL 1638: 13 (D), 26 (C), 65 (B), 95 (A)
Strobe Operating Voltage	16 - 33 Vdc Regulated, 16-33 V Full wave rectified (UL Voltage Designations “Regulated 24” and “24 fwr”)
Strobe Flash Rate	One flash per second.
Strobe Flash Synchronization	All strobes: one flash per second (fps) within 200 milliseconds over 30 minutes on common circuit. All strobes: Synchronization source required to comply with UL 1971 synchronization standard. Temporal setting (private mode only): synchronized to temporal output on the same circuit.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO Series, Fireshield Plus 3, 5 and 10 zone.
Strobe Lens Material	Polycarbonate

Ordering Information

Model	High Fidelity (520 Hz)	Housing Color	Text Marking	Lens Color	Strobe Output	Speaker Voltage	Shipping Weight
Life safety Appliances							
G4-S2		White	None	None	Speaker only models	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.5 lbs. (0.68 kg)
G4HFWN-S2	✓						
G4R-S2		Red					
G4HFRN-S2	✓						
G4F-S2		White	FIRE				
G4HFWF-S2	✓						
G4RF-S2		Red					
G4HFRF-S2	✓						
G4-S2VM		White	None	Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWN-S2VMC	✓						
G4R-S2VM		Red					
G4HFRN-S2VMC	✓						
G4F-S2VM		White	FIRE				
G4HFWF-S2VMC	✓						
G4RF-S2VM		Red					
G4HFRF-S2VMC	✓						
G4-S7		White	None	None	Speaker only models	70 V (Selectable ¼, ½, 1, or 2 watt)	
G4HFWN-S7	✓						
G4R-S7		Red					
G4HFRN-S7	✓						
G4F-S7		White	FIRE				
G4HFWF-S7	✓						
G4RF-S7		Red					
G4HFRF-S7	✓						
G4-S7VM		White	None	Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWN-S7VMC	✓						
G4R-S7VM		Red					
G4HFRN-S7VMC	✓						
G4F-S7VM		White	FIRE				
G4HFWF-S7VMC	✓						
G4RF-S7VM		Red					
G4HFRF-S7VMC	✓						
G4F-S7V1575		White	FIRE	Clear	15/75 cd[1]		
G4RF-S7V1575		Red					
Mass Notification Appliances							
G4WA-S2VMA*		White	ALERT	Amber	Selectable 13, 26, 65, or 95 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.5 lbs. (0.68 kg)
G4HFWA-S2VMA*	✓						
G4WA-S2VMC				Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWA-S2VMC	✓						
G4WN-S2VMA*			None	Amber	Selectable 13, 26, 65, or 95 cd		
G4HFWN-S2VMA*	✓						
G4WN-S2VMC				Clear	15, 30, 75, or 110 cd		
G4WA-S2			ALERT	None	Speaker only models		
G4HFWA-S2	✓						
G4WN-S2			None				
G4WA-S7VMA*		White	ALERT	Amber	Selectable 13, 26, 65, or 95 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
G4HFWA-S7VMA*	✓						
G4WA-S7VMC				Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWA-S7VMC	✓						
G4WN-S7VMA*			None	Amber	Selectable 13, 26, 65, or 95 cd		
G4HFWN-S7VMA*	✓						
G4WN-S7VMC				Clear	15, 30, 75, or 110 cd		
G4WA-S7			ALERT	None	Speaker only models		
G4HFWA-S7	✓						
G4WN-S7			None				

* Not approved for fire alarm applications

Item #19

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*

Accessories

G1M-RM	Synchronization Output Module (1-gang)	0.2 (0.1)
SIGA-CC1S	Intelligent Synchronization Output Module (2-gang)	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (Plug-in UIO)	0.18 (0.08)
G4B	Surface mount box, white	0.7 (0.32)
G4RB	Surface mount box, red	0.7 (0.32)

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7320-1657:0211

CATEGORY: 7320 -- SPEAKERS

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models G4-S2, G4R-S2, G4-S7, G4R-S7, G4F-S7, G4RF-S7, G4F-S2, G4RF-S2, GC-S2, GCF-S2, GC-S7, GCF-S7, and *GCFR-S7 speakers.
Models G4-S2VM, G4R-S2VM, G4-S7VM, G4R-S7VM, G4F-S2VM, G4RF-S2VM, G4F-S7VM, G4RF-S7VM, GC-S2VM, GCF-S2VM, GC-S7VM, GCF-S7VM, GC-S2VMH, GCF-S2VMH, GC-S7VMH, GCF-S7VMH, *GCFR-S7VM, *G4F-S2V1575, *G4RF-S2V1575, *G4F-S7V1575, and *G4RF-S7V1575 speaker strobes.
Models G4B and G4RB speaker enclosure backbox. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 25 Vrms or 70 Vrms
¼ W, ½ W, 1 W, 2 W
G4 Candela: 15cd, 30cd, 75cd, 110cd.
GC Candela: 15cd, 30cd, 75cd, 95cd.
H Candela: 95cd, 115cd, 150cd, 177cd.
*G4F-S2V1575, *G4RF-S2V1575, *G4F-S7V1575, and *G4RF-S7V1575 15/75 cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as speakers and speaker/strobes for use with separately listed compatible fire alarm control unit. Speakers with a strobe are suitable for the hearing impaired. For indoor use only. Models G4-S2VM, G4R-S2VM, G4-S7VM, G4R-S7VM, G4F-S2VM, G4RF-S2VM, G4F-S7VM, G4RF-S7VM, GC-S2VM, GCF-S2VM, GC-S7VM and GCF-S7VM are intended to be used with models G1M-RM (CSFM Listing No. 7320-1657:201), and SIGA-CC1S and SIGA-MCC1S (CSFM Listing No. 7300-1657:121) sync modules.
If the distinctive three-pulse Temporal Pattern Fire Alarm Evacuation signal (for total evacuation) in accordance with NFPA 72, 2002 Edition is required, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7320-1591:211 and 7320-1388:243

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #19

CSBB 652

STROBE / SPEAKER BACK BOX

For GE Security Genesis G4 Series

DESCRIPTION

The CHASE SECURITY BACK BOX has been designed as an attractive replacement to the traditional electrical box. This solid steel back box provides a sturdy mounting surface for attached signaling devices while complimenting the vibrant colors of the device itself. This design allows for easy access to enclosed cabling making installation and servicing of horns and strobes a breeze. It is designed for Prisons, HUD Projects, Universities, Hotels, Parks, Schools, Hospitals, and other public locations where both functionality and aesthetics count.

For over 30 years Chase custom metal products have been manufactured in a variety of sizes, styles and finishes, and sold to OEM accounts and distribution.

Can be used in a variety of applications.

Back box pictured with Genesis G4 Series Speaker Strobe

FEATURES

- Constructed of quality 16-gauge steel.
- Welded at all sides with reinforcement for a solid unit construction.
- Finish: white, red, blue or yellow epoxy coating.
- Dimensions I.D. 6 1/2” x 5” x 2 1/8” deep.
- Easy to install.
- Back box designed to replace standard 4” gang boxes.
- Unit can be provided with electrical provisions for conduit pipes of all sizes.
- Chase custom designs and builds to your specifications.

*Chase Security Systems, Inc., an **MBE Enterprise**, draws from over 30 years of experience selling to the Fire, Security, Computer, Sound, Food Processing, Forestry, Communications and Telecommunications industries. Many of our signature products are now being produced by other manufacturers but our custom metal boxes are still the product of choice for their strength.*

P.O. Box 30179, Chicago, IL 60630,
Phone 773.775.7148, Fax 773.594.0078
www.chasesec.com

Made with Pride in the U.S.A.

Due to changes in industry, exact product dimensions and features may differ slightly from above.

Item #19

EST
Life Safety & Communications

Ceiling Speakers, Speaker-Strobes

Genesis GC Series

MEA FM APPROVED 7320-1657: 0211/0285 S2813

See Specifications Section for listings details.

Overview

The Genesis line of ceiling life safety and emergency communications speakers and speaker-strobes combine high performance output with a low profile design to deliver a life safety signal solution that's as versatile as it is effective. While they are designed to mount inconspicuously overhead, these devices are also rated for wall-mounted applications.

Clear-lens speaker-strobes are available in high and low candela models, which feature 15 to 95, or 95 to 177 cd output (see ordering information). Ceiling speakers feature ¼ W to 2 W operation, which allows devices to be easily fine-tuned to achieve maximum benefit in exchange for the lowest possible system overhead.

Light output and wattage tap settings are selectable with conveniently-located switches. Settings remain clearly visible even after final installation, yet they are locked in place to prevent unauthorized movement after installation.

High fidelity models meet the NPFA 520 Hz requirements for newly construced commercial sleeping areas. They also produce crisp, clear voice audio output that is highly intelligible over large areas.

These low-profile appliances feature textured housings in architecturally neutral white or eye-catching life safety red. Optional *ALERT* or *FIRE* markings make them ideal for applications that require differentiation between life safety and mass notification alerts.

Standard Features

- **High Fidelity 520 Hz speaker models available**
  Low frequency output meets NFPA standards for newly constructed commercial sleeping areas; increases sound fidelity and audio intelligibility.
- **Field configurable – no need to remove the device**
  – Select ¼, ½, 1, or 2 watt operation
  – 15/30/75/95 cd and 95/115/150/177 cd models available
  – Switch settings remain visible *even after the unit is installed*
- **Ideal for Mass Notification applications**
  – amber lens models available with optional *ALERT* markings
- **Unique low-profile design**
  – 30 per cent slimmer profile than comparable signals
  – Available with white or red housings
- **Unparalleled performance**
  – loud 90 dBA output ensures clear, crisp audio
  – Precision strobe timing meets UL synchronization standards
  – 25 V_{RMS} and 70 V_{RMS} models available
- **Easy to install**
  – Fits all standard 4-inch square electrical boxes with plenty of room for extra wire – *no extension ring or trim plate needed*
  – #18 - #12 AWG terminals – ideal for long runs, existing wiring
- **Approved for public and private mode applications**
  – UL 1971-listed as signaling devices for the hearing impaired
  – UL 1638-listed as protective visual signaling appliances
  – UL 1480-listed as life safety speaker
  – UL/ULC listed for ceiling or wall use

Strobe Application

Genesis strobes are UL 1971 or 1638 listed for indoor use. 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. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization for multiple strobe lights in a single field of view is required. See the Specifications table for compatible synchronization sources.

Speaker Application

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

Doubling the distance from the signal to the ear will theoretically cause a 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 1 W to 2 W) will increase the sound pressure level by 3 dBA. A 3 dBA difference represents a barely noticeable change in volume.

Combination audible/visual signals must be installed in accordance with guidelines established for strobes.

High Fidelity Models

Genesis G4HF Series High Fidelity appliances provide highly intelligible voice audio output. They are also effective in areas subject to high levels of ambient noise. These appliances are approved for use in sleeping areas under conditions described below.

Sleeping Room Applications

Genesis GCHF Series High Fidelity appliances are ideal for hotels, dormitories, and other residential occupancies where audible output must meet the 520 Hz signaling characteristics required by NFPA 72.

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-fast 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.

NOTE: Speakers driven by third-party audio systems are not UL approved for use in sleeping rooms.

Mass Notification Applications

Genesis Mass Notification appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Models are available with optional ALERT housing labels, which make them ideal for applications that require differentiation between life safety and mass notification alerts.

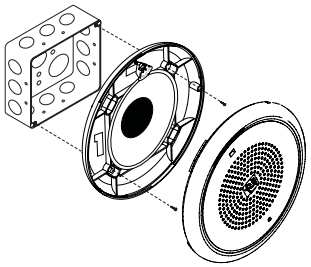
Application Notes - Canada

(Based in part on 1995 Canada National Building Code)

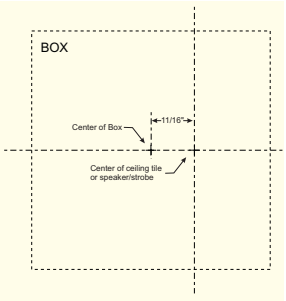
The signal sound pressure level shall not exceed 110 dBA in any normally occupied area. The sound pressure level from an audible signal in a floor area used for occupancies other than residential occupancies shall not be less than 10 dBA above ambient levels, and never less than 65 dBA. In sleeping rooms the sound pressure level from an audible signal shall not be less than 75 dBA when any intervening doors between the device and the sleeping room are closed.

Installation and Mounting

All models are intended for indoor ceiling or wall applications only. Speaker-strobes are mounted to a flush North-American 4" square electrical box, $2^{1}/_{8}$" (54 mm) deep.



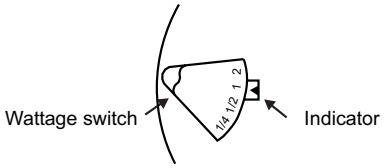
Genesis ceiling speaker-strobes simply unlatch and hinge down to open. This gains access to mounting screws and the selectable candela wattage tap switches. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.



Installation Note:

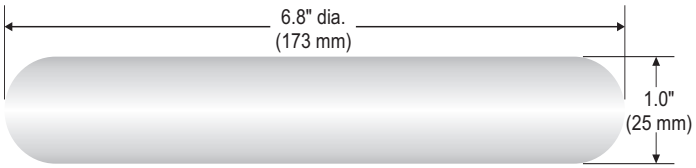
When installed, these devices are not centered on the electrical box. Make sure boxes are mounted to compensate for this difference. Use the mounting template provided with installation sheet 3100614.

Field Configuration

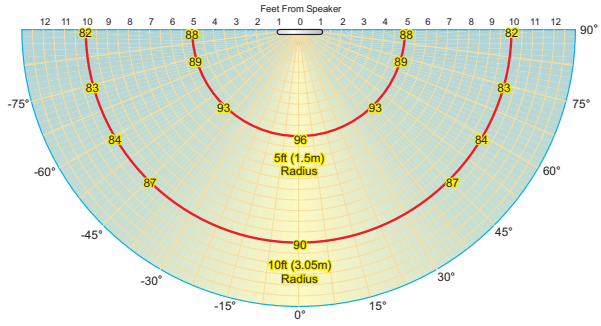


Genesis ceiling speaker-strobes may be set for ¼, ½, 1, or 2 watt operation. Depending on the model, Genesis ceiling speaker-strobes have multi-candela output (see ordering information). Output settings are changed by simply opening the device and sliding the switches to the desired settings. The speaker-strobe does not have to be removed to change the output settings. The settings remain visible through small windows on the front of the device after the cover is closed.

Dimensions

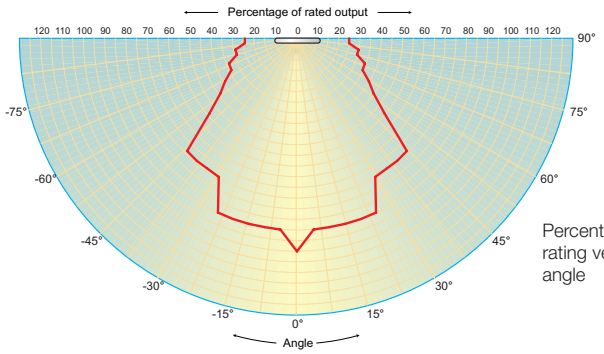


Typical Sound Output (dBA)



Measured at 2 watts setting in anechoic chamber

Light output - (effective cd)



Percent of UL rating versus angle

Horizontal and vertical outputs reflect the same pattern.

Sound Output	Setting (nominal)	Wattage (actual)	UL 1480 Rating	ULC-S541 Rating	Anechoic (nominal)
520 Hz High Fidelity models (dBA) output at 3.05 m (10 ft.)					
25 VRMS	¼ W	0.25 W	81.4	81.5	81
	½ W	0.50 W	84.5	84.3	84
	1 W	1.00 W	88.2	87.2	87
	2 W	2.00 W	90.0	90.1	91
70 VRMS	¼ W	0.25 W	81.5	81.9	81
	½ W	0.50 W	84.1	84.9	84
	1 W	1.10 W	87.9	87.9	87
	2 W	2.30 W	90.8	90.8	91
Standard Hz models (dBA) at 3.05 m (10 ft.)					
25 VRMS	¼ W	0.25 W	81		
	½ W	0.50 W	84		
	1 W	1.00 W	87		
	2 W	2.00 W	90		
70 VRMS	¼ W	0.25 W	81		
	½ W	0.50 W	84		
	1 W	1.00 W	87		
	2 W	2.00 W	91		

Strobe Output and Current Draw		Candela switch setting			
		D	C	B	A
Standard cd output models					
Operating current, RMS (A)	VDC	0.109	0.151	0.281	0.318
	VFWR	0.131	0.194	0.379	0.437
Light output (cd)	Clear Lens	15	30	75	95
	Amber Lens	13	26	65	82
High cd output models					
Operating current, RMS (A)	VDC	0.330	0.392	0.502	0.565
	VFWR	0.432	0.518	0.643	0.693
Light output (cd)	Clear Lens	95	115	150	177
	Amber Lens	82	100	130	155

VDC = Volts direct current, regulated and filtered
VFWR = Volts full wave rectified
Operating currents shown above were measured at 16 VDC and 16 VFWR.

***Sound level output notes:** dBA = Decibels, A-weighted. **UL1480:** Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise. **ULC-S541:** Meets or exceeds 85dBA in an anechoic chamber at 10 ft (3.05 m) on at least one setting per code.
Directional characteristics: Within 6 dB of on-axis sound level when measured 90° off-axis (horizontal).

Current Draw

UL Nameplate Rating				
See note 1	"15" or "D"	"30" or "C"	"75" or "B"	"95" or "A"
	RMS	RMS	RMS	RMS
16 Vdc	109	151	281	318
16 Vfwr	131	194	379	437

UL Nameplate Rating (high cd output models)			
"95" or "D"	"115" or "C"	"150" or "B"	"177" or "A"
RMS	RMS	RMS	RMS
330	392	502	565
432	518	643	693

Typical Current				
See note 1	"15" or "D"	"30" or "C"	"75" or "B"	"95" or "A"
	RMS	RMS	RMS	RMS
16 Vdc	94	140	273	325
20 Vdc	74	108	205	244
24 Vdc	63	90	168	194
33 Vdc	48	70	124	139
16 Vfwr	126	187	368	403
20 Vfwr	108	156	281	333
24 Vfwr	97	139	240	270
33 Vfwr	89	119	197	214

Typical Current (high cd output models)			
95 cd	115 cd	150 cd	177 cd
RMS	RMS	RMS	RMS
333	392	499	551
259	303	378	429
212	245	306	342
155	180	211	236
484	570	673	724
380	438	537	604
318	361	434	484
245	269	308	338

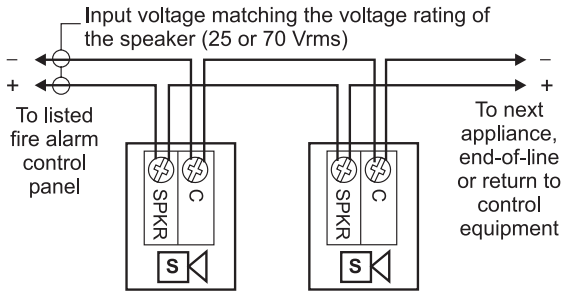
Current Draw Notes

1. Light output switch settings for UL 1971 listed models are selectable by numeric candela value. ECS/MNS appliances are selectable by A, B, C, or D designations.
2. Current values are shown in mA.

Item #20

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Specifications

Housing	Textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating. Red and white models available.
Mounting	Flush mount to North American 4-inch square electrical box, 2-1/8 (54 mm) inches deep, or 960A-4RF round flush box. No extension ring required. Suitable for indoor wall or ceiling applications.
Wire connections	Screw terminals: polarized inputs for speaker, #18 to #12 AWG (0.75 mm² to 2.5 mm²) wire size.
Operating environment	Indoor only: 32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings and approvals, GC Models	Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. UL/ULC File Number: S2813. FM, MEA, CSFM approved. CSFM File Number: 7320-1657: 0211/0285. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Agency listings and approvals, Low Frequency GCHF Models	UL 464 Listed for low frequency signaling applications. Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. FM, MEA, CSFM pending. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Supervisory voltage	30 V max.
Speaker	
Operating Voltage	25 Vrms or 70 Vrms
Speaker response	400 to 4,000 Hz
Output	See table on previous page.
Strobe	
Light output	Field selectable. See table on previous page.
Operating current	See table on previous page.
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (VM models) and 95/115/150/177 cd (VMH models)
Strobe operating voltage	16 to 33 VDC (24 VDC nominal) or 16 to 33 VFWR (24 VFWR nominal)
Strobe flash rate	One flash per second, default. Temporal setting (private mode only): synchronized to temporal output of Genesis audible signals on same circuit.
Synchronization	Meets or exceeds UL 1971 requirements. Maximum allowed resistance between any two devices is 20 Ohms. Refer to specifications for the synchronization control module, this strobe, and the control panel to determine allowed wire resistance.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM, BPS6A, BPS10A, APS6A, APS10A, iO Series, Fireshield Plus 3, 5 and 10 zone.
Lens	Optical grade polycarbonate.

Ordering Information

Model	High Fidelity (520 Hz capable)	Housing Color	Text Marking	Strobe Output	Speaker Voltage	Shipping Weight
Life safety Appliances						
GCHFRF-S2VMC	✓	Red	FIRE	Selectable 15, 30, 75, or 95 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.62 lb. (0.73 kg.)
GCHFWF-S2VMC	✓	White				
GCF-S2VM						
GC-S2VM			None			
GCHFRN-S2VMC	✓	Red				
GCHFWN-S2VMC	✓	White				
GCHFRF-S2VMCH	✓	Red	FIRE	Selectable 95, 115, 150, 177		
GCHFWF-S2VMCH	✓	White				
GCF-S2VMH						
GCHFRN-S2VMCH	✓	Red	None			
GCHFWN-S2VMCH	✓	White				
GC-S2VMH						
GCHFRF-S2	✓	Red	FIRE	Speaker only models		
GCFR-S2						
GCHFWF-S2	✓	White				
GCF-S2						
GCHFRN-S2	✓	Red	None			
GCHFWN-S2	✓	White				
GC-S2						
GCWN-S2						
GCHFRF-S7VMC	✓	Red	FIRE	15, 30, 75, or 95 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
GCFR-S7VM						
GCHFWF-S7VMC	✓	White				
GCF-S7VM						
GCHFRN-S7VMC	✓	Red	None			
GCHFWN-S7VMC	✓	White				
GC-S7VM						
GCHFRF-S7VMCH	✓	Red	FIRE	95, 115, 150, 177		
GCHFWF-S7VMCH	✓	White				
GCF-S7VMH						
GCHFRN-S7VMCH	✓	Red	None			
GCHFWN-S7VMCH	✓	White				
GC-S7VMH						
GCHFRF-S7	✓	Red	FIRE	Speaker only models		
GCFR-S7		Red				
GCHFWF-S7	✓	White				
GCF-S7						
GCHFRN-S7	✓	Red	None			
GCHFWN-S7	✓	White				
GC-S7						
GCWN-S7						

Item #20

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*

Ordering Information

Model	High Fidelity	Text Marking	Lens Color	Strobe Output	Speaker Voltage	Shipping Weight
Mass Notification Appliances, white housings						
GCHFWA-S2VMA	✓	ALERT	Amber	13, 26, 65, or 82 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.62 lb. (0.73 kg.)
GCWA-S2VMA						
GCHFWN-S2VMA	✓	None				
GCWN-S2VMA						
GCWN-S2VMC			Clear	15, 30, 75, or 95 cd		
GCHFWA-S2VMC	✓	ALERT				
GCWA-S2VMC						
GCHFWA-S2VMHA	✓		Amber	82, 100, 130, or 155 cd		
GCWA-S2VMHA						
GCHFWN-S2VMHA	✓	None				
GCWN-S2VMHA						
GCWN-S2VMHC			Clear	95, 115, 150, or 177 cd		
GCHFWA-S2VMCH	✓	ALERT				
GCWA-S2VMHC						
GCHFWA-S2	✓		Speaker only models			
GCWA-S2						
GCHFWA-S7VMA	✓	ALERT	Amber	13, 26, 65, or 82 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
GCWA-S7VMA						
GCHFWN-S7VMA	✓	None				
GCWN-S7VMA						
GCWN-S7VMC			Clear	15, 30, 75, or 95 cd		
GCHFWA-S7VMC	✓	ALERT				
GCWA-S7VMC						
GCHFWA-S7VMAH	✓		Amber	82, 100, 130, or 155 cd		
GCWA-S7VMHA						
GCHFWN-S7VMAH	✓	None				
GCWN-S7VMHA						
GCWN-S7VMHC			Clear	95, 115, 150, or 177 cd		
GCHFWA-S7VMCH	✓	ALERT				
GCWA-S7VMHC						
GCHFWA-S7	✓		Speaker only models			
GCWA-S7						

Accessories

G1M-RM	Synchronization Output Module (1-gang)	0.2 (0.1)
SIGA-CC1S	Intelligent Synchronization Output Module (2-gang)	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (Plug-in UIO)	0.18 (0.08)

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7320-1657:0211

CATEGORY: 7320 -- SPEAKERS

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models G4-S2, G4R-S2, G4-S7, G4R-S7, G4F-S7, G4RF-S7, G4F-S2, G4RF-S2, GC-S2, GCF-S2, GC-S7, GCF-S7, and *GCFR-S7 speakers.
Models G4-S2VM, G4R-S2VM, G4-S7VM, G4R-S7VM, G4F-S2VM, G4RF-S2VM, G4F-S7VM, G4RF-S7VM, GC-S2VM, GCF-S2VM, GC-S7VM, GCF-S7VM, GC-S2VMH, GCF-S2VMH, GC-S7VMH, GCF-S7VMH, *GCFR-S7VM, *G4F-S2V1575, *G4RF-S2V1575, *G4F-S7V1575, and *G4RF-S7V1575 speaker strobes.
Models G4B and G4RB speaker enclosure backbox. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 25 Vrms or 70 Vrms
¼ W, ½ W, 1 W, 2 W
G4 Candela: 15cd, 30cd, 75cd, 110cd.
GC Candela: 15cd, 30cd, 75cd, 95cd.
H Candela: 95cd, 115cd, 150cd, 177cd.
*G4F-S2V1575, *G4RF-S2V1575, *G4F-S7V1575, and *G4RF-S7V1575 15/75 cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as speakers and speaker/strobes for use with separately listed compatible fire alarm control unit. Speakers with a strobe are suitable for the hearing impaired. For indoor use only. Models G4-S2VM, G4R-S2VM, G4-S7VM, G4R-S7VM, G4F-S2VM, G4RF-S2VM, G4F-S7VM, G4RF-S7VM, GC-S2VM, GCF-S2VM, GC-S7VM and GCF-S7VM are intended to be used with models G1M-RM (CSFM Listing No. 7320-1657:201), and SIGA-CC1S and SIGA-MCC1S (CSFM Listing No. 7300-1657:121) sync modules.
If the distinctive three-pulse Temporal Pattern Fire Alarm Evacuation signal (for total evacuation) in accordance with NFPA 72, 2002 Edition is required, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7320-1591:211 and 7320-1388:243

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #20

EST
Life Safety & Communications

Outdoor Rated Speakers and Strobes

Genesis WG4 Series

Patents pending

Overview

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

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

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

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

Standard Features

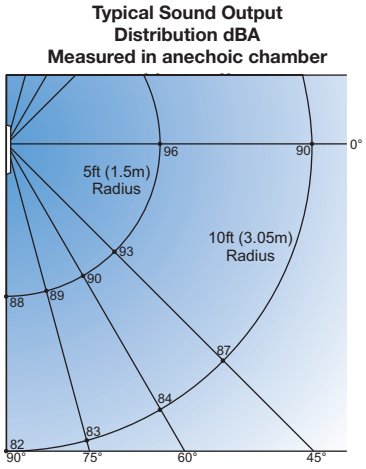
- Outdoor and indoor rated
- Low-profile design
- Wall or ceiling mount
- Room-side wiring accepts 18 to 12 AWG (0.75 to 2.5 mm^2)
- Wide operating temperature range
- Field-selectable speaker wattage, voltage, and strobe candela settings
- Field-configurable temporal strobe output option
- Clear and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

Application

Speaker Application

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

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



Genesis Series Cone Speaker/strobe

Strobe Application

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

Visible appliance synchronization is required to avoid causing issues with people who have Photosensitive Epilepsy (PSE). Notification appliance synchronization is also generally required when more than one strobe appliance are in the same field of view from any one location. All Genesis strobes meet UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source.

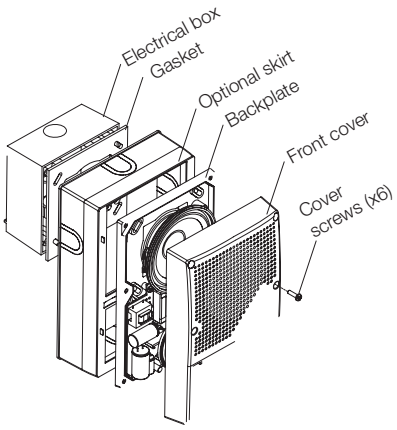
ECS/MNS Application

Genesis ECS/MNS appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Standard models are available with clear or amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between life safety and mass notification alerts. Appliances with red, green or blue lenses are also available. Contact Edwards Customer Service for details.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

Edwards recommends that these devices always be installed in accordance with the latest recognized edition of national and local codes. Refer to the appropriate codes and standards for mounting height information.

Installation and Mounting



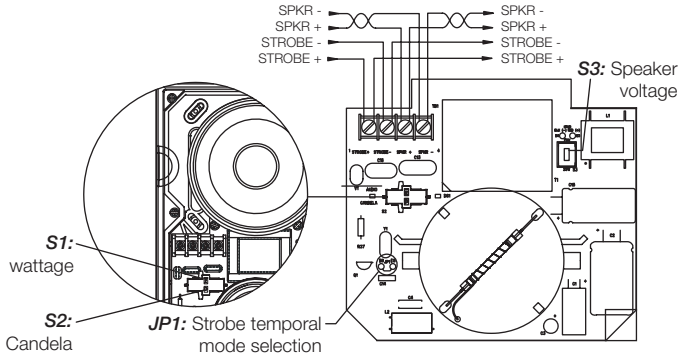
WG4 signals are rated for outdoor use and are suitable for indoor or outdoor applications on walls or ceilings. For surface-mounting in outdoor or wet applications, appliances must be mounted to an Edwards 449 electrical box. In dry conditions, they are compatible with standard 4-inch by 1½-inch deep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

The Genesis WG4 Speaker-Strobe may be wall- or ceiling-mounted, and may be placed in one of four positions: strobe above, strobe below, and strobe to either side. The shallow depth of Genesis devices leaves room behind the appliance for extra wiring.

Field Configuration

Genesis WG4 speakers may be set to 70- or 25-Volt operation, and for ¼, ½, 1, or 2 watt operation. The wattage setting (represented by the letters Z,Y, X, and T) is changed by removing the cover and simply sliding the ***S1*** switch until the desired setting appears. The setting remains visible through a small window on the front of the device after the cover is installed. The voltage setting (70V or 25V) is toggled at ***S3***. This setting is not visible after the cover is replaced.

Genesis WG4 speaker-strobes also feature selectable candela output. The actual light output for a given selection depends on the color of the strobe lens and whether it is a high output model or a standard output model. Refer to the specification tables for corresponding settings. The candela setting (represented by the letters D, C, B, and A) is changed by removing the cover and simply sliding the ***S2*** switch until the desired setting appears. The setting remains visible through a small window on the front of the device after the cover is installed.



Genesis speaker-strobes may also be configured for temporal flash. This power-saving feature is intended for private mode signaling only. To set the device for temporal flash, snip the jumper at ***JP1***.

Specifications

Operating voltage	
Speaker	25 VRMS or 70 VRMS, switch selectable
Default	70 VRMS
Strobe	24 VDC, 24 VFWR nominal
Supervisory voltage	30 V max.
Speaker response	400 to 4,000 Hz
Wire size	12 to 18 AWG (0.75 to 2.50 mm²)
Compatible strobe synchronization sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM, BPS6A, BPS10A, APS6A, APS10A, 3X-SFS1, iO64, iO500, Fireshield Plus 3, 5 and 10 zone.
Compatible electrical boxes	***Wet:*** Model 449 (WG4 trim skirt recommended) ***Dry:*** 4" square by 1-1/2" deep box when used without a trim skirt. When trim skirt is used, box must be 4" square by 2-1/8" deep.
Operating environment	Wet
Temperature	-31 to 151 °F (-35 to 66 °C)
Relative humidity	0 to 95% noncondensing

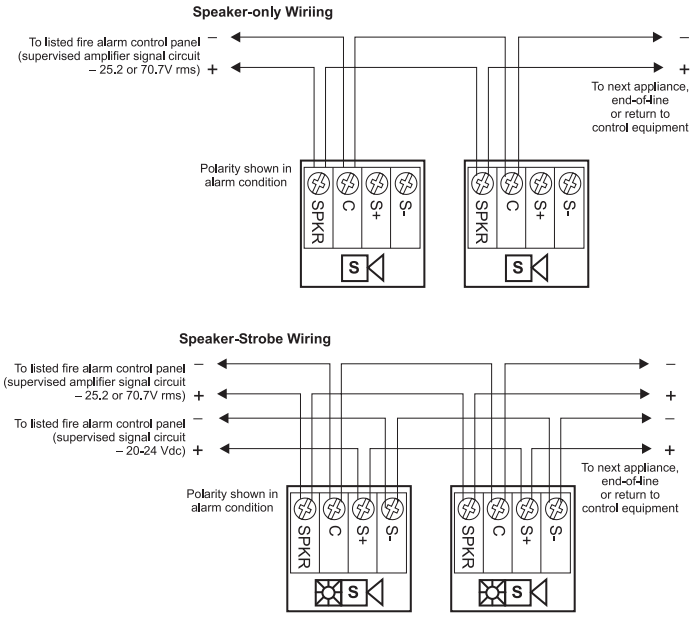
Sound level output (dBA)

Wattage	Switch Position	25 V	70 V
2 W	T	90.0	89.7
1 W	X	87.1	86.9
½ W	Y	84.0	83.9
¼ W	Z	80.8	80.8

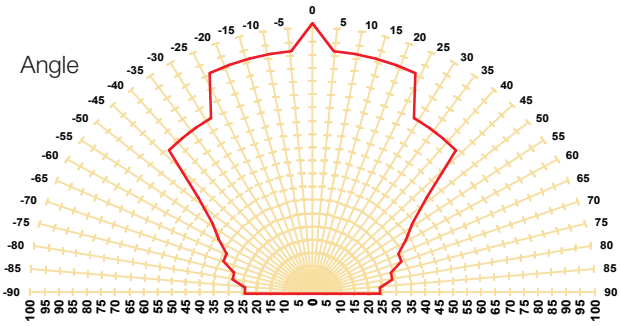
dBA = Decibels, A-weighted.
UL 1480: Sound level output at 10 ft. (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band-limited pink noise.

Wiring

Field wiring is connected to Genesis signals with terminals that accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Light output



UL off-axis candela requirements as a percent of the UL rated output

Indoor rating per UL 1971 (candela)			Strobe Switch Position A	B	C	D
Standard Output Models (-SVMx)	Lens Color	Clear	87	70	29	15
		Amber*	62	59	25	13
	Current	VDC	319	167	144	106
		FWR	386	347	178	120
High Output Models (-SVMHx)	Lens Color	Clear	161	147	123	102
		Amber*	130	125	101	84
	Current	VDC	495	494	390	324
		FWR	646	607	487	412

* UL 1971 Equivalent candela value

Outdoor rating per UL 1638 (candela)			Strobe Switch Position A	B	C	D
Standard Output Models (-SVMx)	Lens Color	Clear	35	28	12	6
		Amber*	25	24	10	5
	Current	VDC	319	167	144	106
		FWR	386	347	178	120
High Output Models (-SVMHx)	Lens Color	Clear	65	60	50	41
		Amber*	52	51	41	34
	Current	VDC	495	494	390	324
		FWR	646	607	487	412

* UL 1971 Equivalent candela value

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*

Ordering Information

All speakers include field-selectable ¼, ½, 1, or 2 watt taps and selectable 25V or 70V operation.

Model	Housing	Marking	Lens	Strobe Output*	Ship Wt.
Life safety Appliances					
WG4RF-SVMC	Red	FIRE	Clear	Selectable standard output 15/29/70/87 cd	1.5 lbs. (0.68 kg)
WG4WF-SVMC	White				
WG4RN-SVMC	Red	None			
WG4WN-SVMC	White				
WG4RF-SVMHC	Red	FIRE		Selectable high output 102/123/147/161 cd	
WG4WF-SVMHC	White				
WG4RN-SVMHC	Red	None			
WG4WN-SVMHC	White				
WG4RF-S	Red	FIRE	Speaker Only		
WG4WF-S	White				
WG4RN-S	Red	None			
WG4WN-S	White				
ECS/MNS Appliances					
WG4WA-SVMA	White	ALERT	Amber	Selectable standard output 13/25/59/62 cd	1.5 lbs. (0.68 kg)
WG4WN-SVMA		None			
WG4WA-SVMC		ALERT	Clear	15/29/70/87 cd	
WG4WA-SVMHA			Amber	Selectable high output 84/101/125/130 cd	
WG4WN-SVMHA		None			
WG4WN-SVMHC			Clear	Selectable high output 102/123/147/161 cd	
WG4WA-SVMHC		ALERT			
WG4WA-S			Speaker Only		

* See light output tables for more specific strobe values.

Accessories

WG4WTS	Surface Skirt for Genesis WG4 appliance family, white.
WG4RTS	Surface Skirt for Genesis WG4 appliance family, red.
WG4GSKT	Replacement Mounting Gasket
74347U	Surface mount box, outdoor rated

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7320-1657:0289

CATEGORY: 7320 -- SPEAKERS

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Models WG4RF-S, WG4RN-S, WG4WA-S, WG4WF-S, WG4WN-S Speakers. Models WG4WA-SVMA, WG4WN-SVMA, WG4WA-SVMHA, WG4WN-SVMHA, WG4RF-SVMC, WG4RN-SVMC, WG4WA-SVMC, WG4WF-SVMC, WG4WN-SVMC, WG4RF-SVMHC, WG4RN-SVMHC, WG4WA-SVMHC, WG4WF-SVMHC, WG4WN-SVMHC Speaker/Strobes. Models WG4RTS and WG4WTS Speaker/Strobe Accessories. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 25 Vrms or 70 Vrms
1/4 W, 1/2 W, 1W, or 2W

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name model number, electrical/candela rating and UL label.

APPROVAL: Listed as speakers and speaker/strobes for use with separately listed compatible fire alarm control unit. Speakers with strobes are suitable for the hearing impaired. For indoor/outdoor wet installations when installed with a listed Model 449 backbox.
If the distinctive three-pulse Temporal Pattern Fire Alarm Evacuation signal (for total evacuation) in accordance with NFPA 72, 2002 Edition is required, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to listee's Installation Instruction Manual for details.

04-07-11 fm

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #21

WEST PENN WIRE
AV, SECURITY & NETWORKING SOLUTIONS
Since 1971

9905

16/2 Stranded Unshielded FPLR
Fire Alarm Signaling

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	-
CONDUCTOR PARAMETER	-
• Number of Conductors	2
• AWG Size	16
• Conductor Stranding	Stranded
• Conductor Type	Bare Copper
• Nominal DCR	4.1 Ohm/1000ft
• Cabling Lay Length	2.75 in
• Twists/Foot	4.4 twist/ft
INSULATION PARAMETER	-
• Insulation Type	Polypropylene - PP
• Insulation Thickness	0.008 in
• Insulation Color Code	1. Black 2.Red
SHIELDING PARAMETER	-
• Shield Type	None
ELECTRICAL CHARACTERISTICS	-
• Nom. Cap. Between Conductors	23 pF/ft

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	-
Jacket Type	PVC
Jacket Thickness	0.022 in
Nominal Cable O.D.	0.168 in
Plenum	No
NEC UL Rating	FPLR
RoHS Compliant	Yes
Pull Tension	62 lbs
Bend Radius	1.512 in
Cable Weight	25 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	-
UL Flammability	UL1666 Vertical Shaft
Operating Range	-20 to 60 Deg C
UL Voltage Rating	300

9905

16/2 Stranded Unshielded FPLR

Fire Alarm Signaling

Related Products

RELATED PRODUCTS	-
Plenum Number	60991BS
Aquaseal Number	AQC225
Aquaseal Direct Burial Number	AQ225

WEST PENN WIRE
AV, SECURITY & NETWORKING SOLUTIONS
Since 1971

226

14/2 UTP Cable
Audio, Control, and Low Voltage Power

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	
CONDUCTOR PARAMETER	
• Number of Conductors	2
• AWG Size	14
• Conductor Stranding	19x27
• Conductor Type	Bare copper
• Nominal DCR	2.7 Ohm/1000ft
• Cabling Lay Length	4 in
• Twists/Foot	3 twist/ft
INSULATION PARAMETER	
• Insulation Type	PVC
• Insulation Thickness	0.012 in
• Insulation Color Code	1. Black 2.White
SHIELDING PARAMETER	
• Shield Type	None
ELECTRICAL CHARACTERISTICS	

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	
Jacket Type	PVC
Jacket Thickness	0.017 in
Nominal Cable O.D.	0.23 in
Plenum	No
NEC UL Rating	CL3R, FPLR
RoHS Compliant	Yes
Pull Tension	79 lbs
Bend Radius	2.07 in
Cable Weight	42 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	
UL Flammability	UL1666 Vertical Shaft
Operating Range	-20 to 60 Deg C
UL Voltage Rating	300

Item #23

WEST PENN WIRE
AV, SECURITY & NETWORKING SOLUTIONS
Since 1971

226

14/2 UTP Cable

Related Products

RELATED PRODUCTS	
Plenum Number	25226B
Aquaseal Direct Burial Number	AQ226
SpeakOn Panel Mount	CN-NL4MP

WEST PENN WIRE
AV, SECURITY & NETWORKING SOLUTIONS
Since 1971

225

16/2 Speaker Cable CMR
Audio, Control, and Low Voltage Power

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	
CONDUCTOR PARAMETER	-
• Number of Conductors	2
• AWG Size	16
• Conductor Stranding	19x29
• Conductor Type	Bare copper
• Nominal DCR	4.2 Ohm/1000ft
• Cabling Lay Length	4 in
• Twists/Foot	3 twist/ft
INSULATION PARAMETER	
• Insulation Type	Polypropylene - PP
• Insulation Thickness	0.008 in
• Insulation Color Code	1. Black 2.Red
SHIELDING PARAMETER	
• Shield Type	None
ELECTRICAL CHARACTERISTICS	

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	
Jacket Type	PVC
Jacket Thickness	0.017 in
Nominal Cable O.D.	0.182 in
Plenum	No
NEC UL Rating	CMR, CMG
RoHS Compliant	Yes
Pull Tension	59 lbs
Bend Radius	1.638 in
Cable Weight	28 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	
UL Flammability	UL1666 Vertical Shaft
CSA Flammability	FT4
Operating Range	-20 to 60 Deg C
UL Voltage Rating	300

Item #24

WEST PENN WIRE
AV, SECURITY & NETWORKING SOLUTIONS
Since 1971

225

16/2 Speaker Cable CMR

Related Products

RELATED PRODUCTS	
Plenum Number	25225B
Aquaseal Number	AQC225
Aquaseal Direct Burial Number	AQ225
SpeakOn Panel Mount	CN-NL4MP

Detailed Specification & Technical Data

AQ225

16/2 Unshielded AQUASEAL Direct Burial CL3/FPL Rated
Audio, Control, Alarm Direct Burial

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	-
CONDUCTOR PARAMETER	-
• Number of Conductors	2
• AWG Size	16
• Conductor Stranding	19x29
• Conductor Type	Bare copper
• Nominal DCR	4.2 Ohm/1000ft
INSULATION PARAMETER	-
• Insulation Type	PVC-Nylon
• Insulation Thickness	0.02 in
• Insulation Color Code	1. Black 2.Red
SHIELDING PARAMETER	-
• Shield Type	Aquaseal Water Blocking Tape
ELECTRICAL CHARACTERISTICS	-
• Nom. Cap. Between Conductors	28 pF/ft

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	-
Jacket Type	UV Resistant PVC
Jacket Thickness	0.04 in
Nominal Cable O.D.	0.295 in
Plenum	No
NEC UL Rating	CL3, FPL, PLTC
RoHS Compliant	Yes
TIA Test	TIA455-82 Water Penetration Test
Pull Tension	55 lbs
Bend Radius	2.655 in
Cable Weight	48 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	-
UL Flammability	UL1685
Operating Range	-20 to 90 Deg C
UL Voltage Rating	300

AQ225

16/2 Unshielded AQUASEAL Direct Burial CL3/FPL Rated
Audio, Control, Alarm Direct Burial

Related Products

RELATED PRODUCTS	-
Plenum Number	25225B
Non Plenum Number	225
Aquaseal Number	AQC225
4 Pole SpeakOn	CN-NL4FC
SpeakOn Panel Mount	CN-NL4MP

Detailed Specification & Technical Data

AQ226

14/2 Unshielded AQUASEAL Direct Burial CL3/FPL Rated
Audio, Control, Alarm Direct Burial

Construction & Dimensions

CONSTRUCTION & DIMENSIONS	-
CONDUCTOR PARAMETER	-
• Number of Conductors	2
• AWG Size	14
• Conductor Stranding	19x27
• Conductor Type	Bare copper
• Nominal DCR	2.7 Ohm/1000ft
INSULATION PARAMETER	-
• Insulation Type	PVC-Nylon
• Insulation Thickness	0.02 in
• Insulation Color Code	1. Black 2.Red
SHIELDING PARAMETER	-
• Shield Type	Aquaseal Water Blocking Tape
ELECTRICAL CHARACTERISTICS	-
• Nom. Cap. Between Conductors	32 pF/ft

Overall Construction

OVERALL CONSTRUCTION PARAMETERS	-
Jacket Type	UV Resistant PVC
Jacket Thickness	0.04 in
Nominal Cable O.D.	0.31 in
Plenum	No
NEC UL Rating	CL3, FPL, PLTC
RoHS Compliant	Yes
TIA Test	TIA455-82 Water Penetration Test
Pull Tension	84 lbs
Bend Radius	2.79 in
Cable Weight	59 lbs

Overall Electrical & Optical Characteristics

OVERALL ELECTRICAL/OPTICAL CHARACTERISTICS	-
UL Flammability	UL1685
Operating Range	-20 to 90 Deg C
UL Voltage Rating	300

AQ226

14/2 Unshielded AQUASEAL Direct Burial CL3/FPL Rated
Audio, Control, Alarm Direct Burial

Related Products

RELATED PRODUCTS	-
Plenum Number	25226B
Non Plenum Number	226
Aquaseal Number	AQC226
4 Pole SpeakOn	CN-NL4FC
SpeakOn Panel Mount	CN-NL4MP

EDWARDS
United Technologies
LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Multisensor Smoke and CO Detector

SIGA-PCD

S853

Overview

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

The SIGA-PCD provides a combination of optical detection for the early detection of smoke, with the added element of carbon monoxide sensing. The result is a detector that pulls double duty: continually monitoring the environment for signs of fire — as well as its invisible yet deadly companion: carbon monoxide.

Like all Signature Series detectors, the SIGA-PCD gathers analog information from its sensing elements and converts this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes smoke sensor readings and compares this information to historical data. Digital filters remove signal patterns that are not typical of fires, thus virtually eliminating unwanted alarms. The detector also analyzes the smoke sensor independently from the CO sensor to determine whether to initiate a fire alarm, a life safety CO alarm, or both.

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 Detection Technology
- Integrates optical smoke with carbon monoxide detection
- Wide 0.53 to 3.94 %/ft. (1.7 to 12.35 %/m) smoke obscuration
- Sensor Markings Provide Easy Testing Identification
- Uses existing wiring
- Automatic device mapping
- Ground fault detection by module
- 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
- Environmental compensation
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

Application

Smoke detection

The SIGA-PCD detects extremely small particles of combustion and triggers an alarm at the first sign of smoke. Thanks to its high-performance forward-scattering reflective response technology, the photoelectric smoke sensor responds quickly and reliably to a wide range of fire types, especially slow burning fires fuelled by combustibles typically found in modern multi-use buildings.

CO Detection

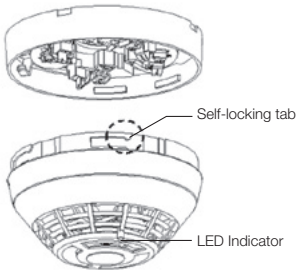
Monitored CO detection, such as that provided by the SIGA-PCD, is becoming mandated with increasing frequency in all types of commercial applications, but particularly in occupancies such as hotels, rooming houses, dormitories, day care facilities, schools, hospitals, assisted living facilities, and nursing homes. 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.

Compatibility

The SIGA-PCD 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

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.

Smoke Sensor Sensitivity

The SIGA-PCD determines when its optical sensor is dirty or defective and can transmit sensitivity data to the loop controller. A sensitivity report can also be printed to satisfy NFPA sensitivity measurements which must be conducted at the end of the first year and every two years thereafter. The availability of maintenance features depends on the fire alarm system used.

CO 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. When the sensor reaches its end of life, the detector signals a "COMMON TRBL ACT" condition on the control panel. 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.

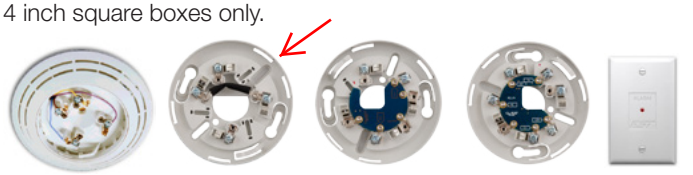
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory.

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. Sounder bases mount to a 4 inch square boxes only.



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

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

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

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

- **SIGA-AB4GT** bases provide sounder capability to the SIGA-PCD when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to the SIGA-PCD when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

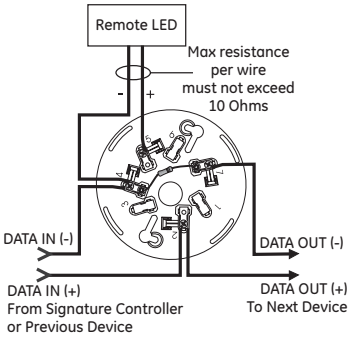
Typical Wiring

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

Standard Detector Base, SIGA-SB, SIGA-SB4

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

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



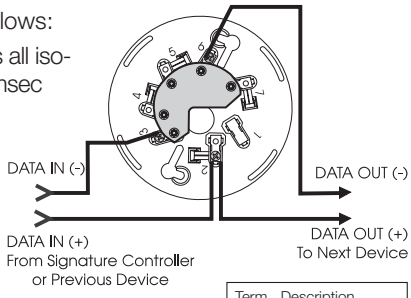
Isolator Detector Base, SIGA-IB, SIGA-IB4

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

The isolator operates as follows:

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

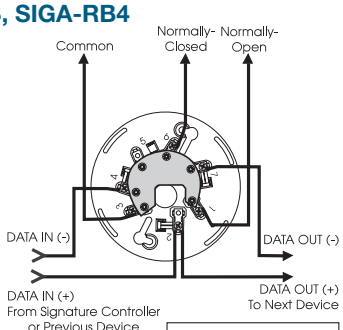
The process repeats beginning on the other side of the loop controller.



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

Relay Detector Base, SIGA-RB, SIGA-RB4

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

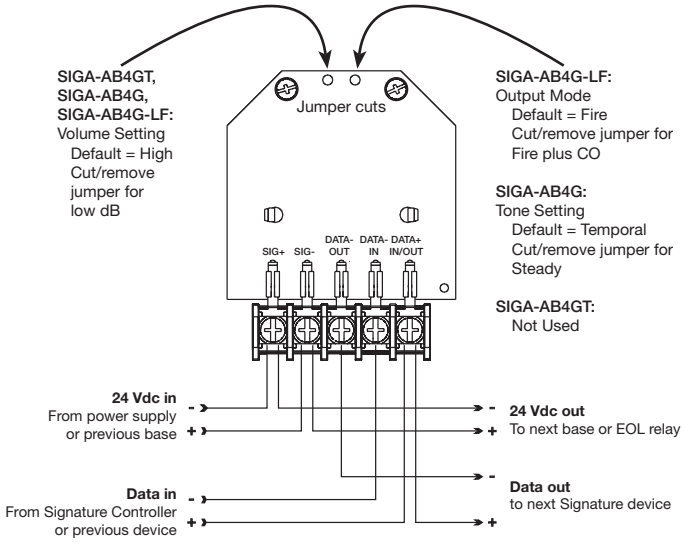


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

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

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases

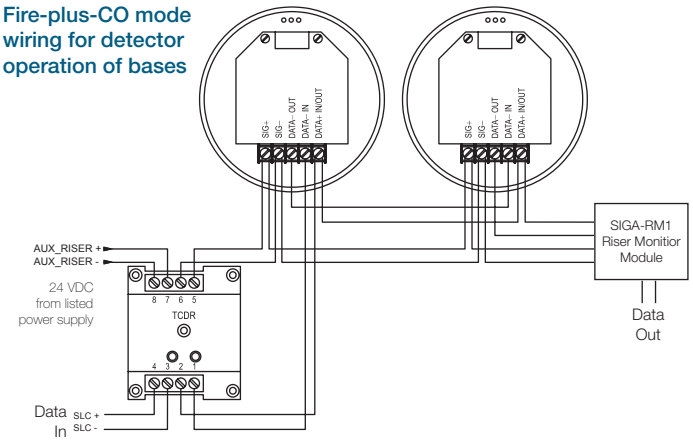


Audible Sounder Bases, Fire-plus-CO Mode

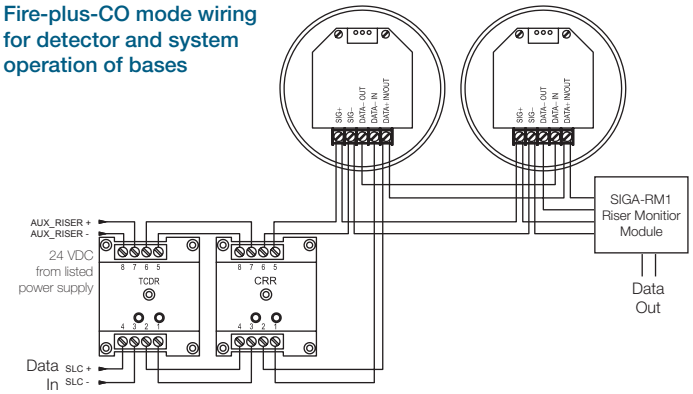
AB4GT and AB4G-LF sounder bases only.

These configurations require a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns.

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



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



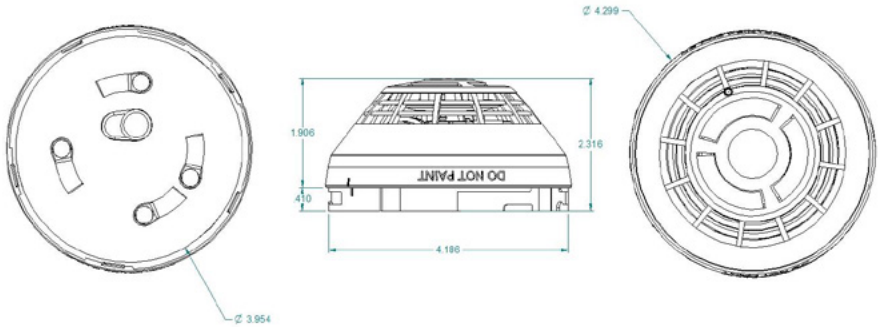
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...

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

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

Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	51 µA
Alarm current	68 µA
Smoke Sensitivity Range	UL/ULC: 0.53 to 3.94 %/ft. (1.7 to 12.35 %/m) obscuration
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
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 90% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
UL CO alarm level per UL 2034, CAN/CSA 6.19	70 ppm 60 to 240 minutes 150 ppm 10 to 50 minutes; 400 ppm 4 to 15 minutes
UL CO false alarm level per UL 2034, CAN/CSA 6.19	30 ppm 30 days 70 ppm 60 minutes
Agency Listings, SIGA-PCD	UL 268, UL 2075. Evaluated to the CO alarm sensitivity limits of UL 2034.
Agency Listings, SIGA-PCD-CA	ULC Listed to CAN/ULC-S529 and CAN/CSA 6.19.

Warnings & Cautions

- 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.
- Photoelectric detectors have a wide range of sensing capabilities, and are best suited for detecting slow, smoldering fires.
- Install per NFPA 72 *National Fire Alarm and Signaling Code*, NFPA 720 *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*, and UL 2075 *Standard for Gas and Vapor Detectors and Sensors*.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-PCD	Multisensor Smoke and CO Detector	0.4 (0.16)
SIGA-PCD-CA	Multisensor Smoke and CO 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-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-TCDR	Tone Generator for Detector Sounder Bases with CO mode	0.2 (0.1)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7275-1657:0334

CATEGORY: 7275 -- COMBINATION SMOKE/CO DETECTOR-PHOTOELECTRIC TYPE

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Model SIGA-PCD Analog Addressable Photoelectric Smoke Detector with CO Sensor. The carbon monoxide detector is designed to communicate an end-of-life signal to the control panel following ten years from the date of manufacture. Refer to listee's data sheet for detailed product description and operational considerations.

RATING: 15.2-19.95 Vdc

INSTALLATION: In accordance with listee's printed installation instructions, NFPA 72, NFPA 720, applicable codes and ordinances, and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as an analog addressable photoelectric smoke-CO detector for use with listee's Model EST3 (CSFM# 7165-1657-0186), Model EST3X (CSFM# 7165-1657:0306), Model Quickstart (CSFM# 7165-1657:0207), Models iO64, iO500, iO1000 (CSFM# 7165-1657:0244) control units and the following listee's bases; SIGA-SB, -SB4, -RB, -RB4, -IB, -IB4 (CSFM# 7300-1657-0120), SIGA-AB4GT (CSFM# 7300-1657-0307) and SIGA-AB4G-LF (CSFM# 7300-1657-0322). Authority having jurisdiction should be consulted prior to installation. Refer to listee's Installation Instruction Manual for details.

NOTE: The photoelectric type detectors are generally more effective at detecting slow, smoldering fires, which smolder for hours before bursting into flames. Sources of these fires may include cigarettes burning in couches or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires, which consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a waste container or a grease fire in the kitchen.

08-04-2016 dc

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

Authorized By: ***DAVID CASTILLO**, Program Coordinator*

Fire Engineering Division

Item #27

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1657:0120

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: EDWARDS, A Division of UTC Fire & Security Americas Corporation, Inc.8985 Town Center Parkway, Bradenton, FL 34202
Contact: Jewell Conover (941) 739-4358 Fax (941) 308-8123
Email: rhonda.conover@fs.utc.com

DESIGN: Detector Bases. Refer to listee's data sheet for detailed product description and operational considerations. Base models are as follow:

BASES

5963B, 5964 B/BR

6241B-002, 6249B-001

6251, 6251B-001A, -001, -002, -003, -004, 6251B-100, -200, -R100, -R200 and 6251-2
Models 6251B-001, -002, -003 and -004 suitable for releasing device service.

P-847674-0022, -0024, -0042, -0043, -0044, -0045, -0046, -0047

SIGA-SB, -SB4, -RB, -RB4, -IB, -IB4 and -AB4
The -RB series are suitable for releasing device service.

Model AB4G-SB surface mount back box for use with listee's SIGA series sounder bases.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as mounting bases for use with separately listed compatible detectors and fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE: Formerly 7300-1591:120 and 7300-1388:170

7-29-10 ma

Date Issued: **July 01, 2017** *Listing Expires* **June 30, 2018**

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