

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND BUILDING PERMIT



This is to certify that

NORTHERN UTILITES INC /Gemni Electric

Located at

1075 FOREST AVE

PERMIT ID: 2012-65623

CBL: 146 F006001

has permission to **install supervised fire alarm system.**

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise cloed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be procured prior to occupancy.


Fire Prevention Officer

58

Code Enforcement Officer / Plan Reviewer

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
THERE IS A PENALTY FOR REMOVING THIS CARD**

BUILDING PERMIT INSPECTION PROCEDURES
Please call 874-8703 (ONLY)
or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**

- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**

- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

REQUIRED INSPECTIONS:

Final - Fire

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 201265623	Date Applied For: 12/14/2012	CBL: 146 F006001
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Location of Construction: 1075 FOREST AVE	Owner Name: NORTHERN UTILITES INC	Owner Address: 6 LIBERTY LANE WEST	Phone:
Business Name:	Contractor Name: Gemni Electric	Contractor Address: 8 Priscilla Lane Auburn	Phone (603) 644-7170
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm System	

Proposed Use: Offices & Warehouse for utility company	Proposed Project Description: install supervised fire alarm system.
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Dept: Zoning **Status:** Approved **Reviewer:** Marge Schmuckal **Approval Date:** 12/18/2012
Note: **Ok to Issue:**

Dept: Fire **Status:** Approved w/Conditions **Reviewer:** Ben Wallace Jr **Approval Date:** 01/01/2013
Note: Supervised fire alarm system. Does not appear to be required by the Life Safety Code. **Ok to Issue:**

- 1) A master box connection is not authorized for this building.
- 2) Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.
- 3) System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
- 4) A 4100 series Knox Box is required.
- 5) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".
- 6) Central/Supervising Station monitoring for addressable fire alarm systems shall be by point.
- 7) Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.
- 8) All smoke detectors shall be photoelectric.
- 9) In field installation shall be installed per code as conditions dictate.
- 10) The fire alarm system shall be certified by a master fire alarm company and have a new fire alarm inspection sticker.
- 11) The installation shall comply with the following:
City of Portland Chapter 10, Fire Prevention and Protection;
NFPA 1, Fire Code (2009 edition), as amended by City Code;
NFPA 101, Life Safety Code (2009 edition), as amended by City Code;
City of Portland Fire Department Rules and Regulations;
NFPA 72, National Fire Alarm and Signaling Code (2010 edition), as amended by Fire Department Rules and Regulations; and
NFPA 70, National Electrical Code (2011 edition) as amended by the State of Maine.



Fire Alarm Permit

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 1075 Forest Avenue CBL: _____

Exact location: (within structure) Entire Facility

Type of occupancy(s) (NFPA & ICC): Life Safety 101 Business Occupancy

Building owner: Unitil

System Designer (point of contact): Must be Leon Lupien of Engineered Bldg Systems/R B Allen Co.

Designer phone: 603-870-9009 or 800-258-7264 E-mail: markgemas@rballen.com

Installing contractor: Gemini Electric, Inc. Certificate of Fitness No: M1146

Contractor phone: 800-259-1065 E-mail: matt@geminelectricinc.com

This is a new application: YES NO New AES Master Box: YES NO
(Include Master Box approval form)

Amendment to an existing permit: YES NO Permit no: _____

The following documents shall be provided with this application:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Floor plans | <input checked="" type="checkbox"/> Scope of Work |
| <input checked="" type="checkbox"/> Wiring diagram | <input checked="" type="checkbox"/> 11 1/2 x 17s |
| <input type="checkbox"/> Annunciator details | <input checked="" type="checkbox"/> pdf copy (may be e-mailed) |
| <input checked="" type="checkbox"/> Input/ Output Matrix | <input checked="" type="checkbox"/> Designer qualifications |
| <input checked="" type="checkbox"/> Equipment data sheets | <input checked="" type="checkbox"/> Battery/ voltage drop calcs |
| <input checked="" type="checkbox"/> Electrical Permit Pulled (check alarm/com) | |

Master box approval only: YES NO
(If yes check *New AES Master Box* above)

<p>COST OF WORK: <u>22,000</u></p> <p>PERMIT FEE: <u>240</u> (\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)</p> <p style="text-align: center;">RECEIVED</p> <p style="text-align: center;">DEC 14 2012</p> <p style="text-align: center;">Dept. of Building Inspections City of Portland Maine</p>
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The designer shall be the responsible party for this application. Download a new copy of this application at www.portlandmaine.gov/fire for every submittal. Submit all plans in electronic PDF in addition to readable 11 1/2 x 17s to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the *City of Portland Technical Standard for Signaling Systems for the Protection of Life and Property*, available at www.portlandmaine.gov/fire.

Applicant signature: _____ Date: 12/13/12

Master Box Approval

Applicant: Gemini Electric, Inc.
App Phone #: 800-259-1065
Building Name: Unitol Gas Co.
Building Address: 1075 Forest Ave.
Portland, ME

Emergency Contact: Jacquie Agel
Emergency phone #: 603-773-6531
Date of Application: 12/13/12
Billing Address: 1075 Forest Ave.
Portland, ME

Occupancy: office 25 people
Assembly OL>300, 20 unit apartment building, etc.

Comments:

Applicant completes above and submits with Fire Alarm Permit

1

FIRE PREVENTION: [] Approved

[x] Denied

Date

Handwritten signature and '58' next to Fire Prevention Officer title

Zone 1: Zone 2: City disconnect Zone 3:
Zone 4: Zone 5: Zone 6:
Zone 7: Zone 8: AES Tamper switch

[] Modify City Box response to alarm sounding in CAD

2

FIRE ALARM: Box #: _____

ELECTRICAL DIVISION: [] Approved [] Denied

Box Type: AES Radio Box / _____
New Other

3

Test Date: _____ In Service Date: _____
Fire Alarm Technician

AES

Circuit if applicable:

4

FIRE ALARM: Same Running Assignment As Box: _____

Notifications: [] All Stations [] Run Books [] Digitizer [] Computer [] Cad Box Test

[] South Portland [] _____
Other Dispatcher

5

BILLING: [] Entered _____
Financial Officer

City of Portland, Maine - Building or Use Permit Application
 389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 2012-65623	Issue Date:	CBL: 146 F006001
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Location of Construction: 1075 FOREST AVE	Owner Name: NORTHERN UTILITES INC	Owner Address: 6 LIBERTY LANE WEST	Phone:
Business Name:	Contractor Name: Gemni Electric - Darron Pierson	Contractor Address: 8 Priscilla Lane Auburn	Phone: (603) 644-7170
Lessee/Buyer's Name	Phone:	Permit Type: Fire Alarm System	Zone: B2
Past Use: Offices & Warehouse for utility company	Proposed Use: Offices & Warehouse for utility company	Permit Fee: \$240.00	Cost of Work: \$22,000.00
		CEO District: 5	
Proposed Project Description: Install Fire Alarm permit for Unitil Building		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied <input type="checkbox"/> N/A VH/13	INSPECTION: Use Group: Type:
		Signature: <i>[Signature]</i> (SB) Signature:	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: Date:	

Permit Taken By: bjs	Date Applied For: 12/14/2012	Zoning Approval		
1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input checked="" type="checkbox"/>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied	Historic Preservation <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied	Date: <i>12/19/12</i>
	Date:	Date:	Date:	

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

SINCE 1966

R.B. Allen
Co., Inc.

NE 1-800-258-7264
FAX (603) 964-8885

P.O. Box 770
131 Lafayette Rd.
No. Hampton, NH 03862
(603) 964-8140

**EST FIRE ALARM SYSTEM
UNITIL
PORTLAND, ME**

**PREPARED FOR:
GEMINI ELECTRIC
8 PRISCILLA LANE
AUBURN, NH 03032**

Click here to view
Bill of Material



R.B.ALLEN COMPANY INC
131 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

PREPARED BY: ML
REVIEWED BY: MG

Click on an item to view page

**UNITIL
PORTLAND, ME**

BILL OF MATERIAL

BATTERY CALCULATIONS

VOLTAGE DROP

MATRIX

RISER

FLOOR PLANS

Click on a description to view data sheet.

UNITIL
PORTLAND, ME

<u>QTY.</u>	<u>CAT#</u>	<u>DESCRIPTION</u>	<u>DATA SHEET#</u>
1	IO500RD	FIRE ALARM CONTROL PANEL	85005-0130
1	BPS10A	10 AMP SIGNAL PANEL	85005-0125
17	SIGA2-PS	SECOND GENERATION PHOTOELECTRIC SMOKE DETECTOR	85001-0619
1	SIGA2-HRS	SECOND GENERATION FIXED TEMP HEAT DETECTOR	85001-0620
18	SIGA-SB	STANDARD DETECTOR BASES	85001-0619
1	SIGA-CT2	DUAL INPUT MONITOR MODULE	85001-0241
2	SIGA-CT1	SINGLE INPUT MONITOR MODULE	85001-0241
8	SIGA-278	DOUBLE ACTION MANUAL PULL STATION	85001-0279
12	G1RF-VM	STROBE-MULTI CANDELA, RED	85001-0573
20	G1RF-HDVM	HORN STROBE-MULTI CANDELA, RED	85001-0573
1	ASWP-2475	WEATHERPROOF HORN STROBES	WHEELLOCK
1	WPBB-R	WEATHERPROOF BACK BOX, RED	WHEELLOCK
2	BSL1075	7 AH BATTERIES	INTERSTATE
2	BSL1116	18 AH BATTERIES	INTERSTATE
1	BCA	BCA BATTERY CABINET	BCA
1	7788	RADIO BOX	DIGITIZE
1	FDB	PLANS CABINET	SPACE AGE
1	278B-1110	CONVENTIONAL PULL STATION	85001-0227
2	284B-PL	HEAT 200 DEGREE	85001-0261
2	DTK2MHLP24B/WB	ARRESTOR	DITEK

Click here to return to
the Bill of Material

GE
Security

EST Fire & Life Safety
Small Analog Systems

Overview

The EST iO500 intelligent life safety system offers the power of high-end intelligent processing in a configuration that delivers an uncomplicated solution for small to mid-sized applications. With intelligent detection, electronic addressing, automatic device mapping, optional Ethernet® connectivity, and a full line of easily-configured option cards and modules, this flexible system offers versatility that benefits building owners and contractors alike.

The iO500 provides one Class A or Class B analog device loop that supports up to 250 device addresses. A second 250-point loop may be added to the iO500 to expand total system capacity to up to 500 device addresses. The panel includes four NACs that may be wired for either Class A or Class B operation.

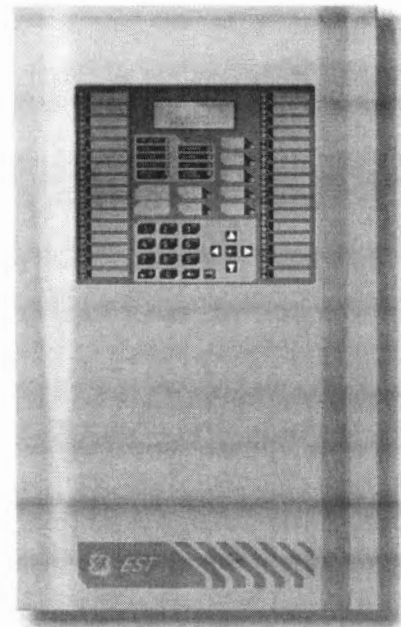
The iO500 supports a wide range of accessories and related equipment, including:

- Signature Series intelligent modules, detectors, and bases
- R-Series remote annunciators
- option cards that expand system capacity and extend system capabilities.

Features

- Comes standard with one loop (expandable to two) that supports up to 250 (expandable to 500) intelligent devices: each iO500 loop supports up to 125 detectors and up to 125 modules.
- Supports Signature Series intelligent modules and detectors
- Four Class B NACs or two Class A NACs.
- Form C contacts for alarm and trouble, Form A for supervisory
- Electronic addressing with automatic device mapping
- Optional Ethernet port for diagnostics, programming and a variety of system reports
- Two programmable switches with LEDs and custom labeling
- **Supports Genesis horn silence over two wires and UL 1971-compliant strobe synchronization**
- Standard Class A wiring
- Supports up to eight serial annunciators, (LCD, LED-only, and graphic interface).
- Can use existing wiring for most retrofit applications
- Upload/download remotely or locally
- Two-level maintenance alert reporting
- Pre-alarm and alarm verification by point
- Adjustable detector sensitivity
- 4 x 20 character backlit LCD display

iO500 Intelligent Life Safety System



Application

The iO500 life safety system is a powerful intelligent solution for small to mid-sized buildings. Advanced analog technology delivers the benefits of flexible system installation, while a clean and easy-to-operate user interface makes panel operation and system maintenance quick and intuitive.

The smart choice

Signature Series electronic addressing eliminates the tedium of setting dipswitches, and automatic device mapping ensures that each device resides on the system at its correct location. Meanwhile, innovative programming allows the designer to customize the system to precisely suit the needs of the building owner.

Flexibility built right in

Two fully-programmable front panel switch/LED combinations provide an added measure of flexibility. Their slide-in labels take the mystery out of custom applications, and present a clean finished appearance.

Perfect for retrofits

The iO500 is particularly well-suited to retrofit applications. All connections are made over standard wiring – no shielded cable required. This means that in most situations existing wiring can be used to upgrade a legacy control panel to iO500 technology without the expense or disruption of rewiring the entire building.

Signals with a difference

iO500 NACs are configurable to fully support the advanced signaling technology of GE Genesis and Enhanced Integrity notification appliances. These devices offer precision synchronization of strobes to UL 1971 standards. For Genesis devices, enabling this feature allows connected horns to be silenced while strobes on the same two-wire circuit continue to flash until the panel is reset.

Clear-cut remote annunciation

Remote annunciation is a strong suit of the iO500. Up to eight annunciators can be installed on a single system. Compatible annunciators include a range of LED and LCD models that provide zone or point annunciation, as well as common control capabilities.

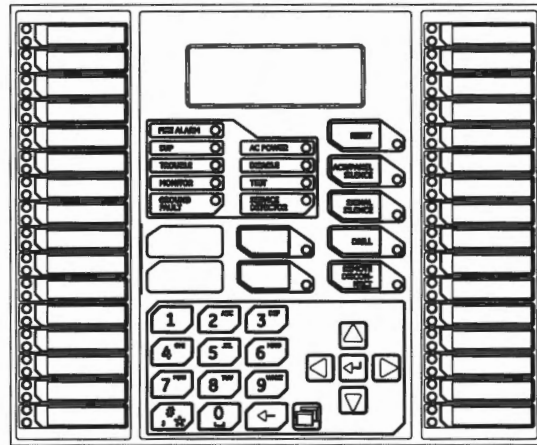
The iO500 also supports graphic annunciation with optional graphic annunciator interface modules. Each interface provides common control, indicators, and LED drivers. Consult the Ordering Information section for details.

A complete line of accessories

The iO500 life safety system is supported by a complete line of intelligent detectors, modules and related equipment. Consult the Ordering Information section for details.

Operation

The front panel provides an easy-to-use operator's interface, as well as all the necessary controls for front panel programming. A large back-lit 80-character LCD displays system status, event details, and programming prompts. Large tactile control buttons are easy to see in low light conditions, and bright multi-color LEDs offer at-a-glance status indication.



Control buttons

Button	Description
Reset	Initiates a system reset.
ACK/Panel Silence	Silences the panel and remote annunciators during an active trouble, supervisory, or alarm event and acknowledges new event activations.
Signal Silence	<i>Alarm mode:</i> Silences active notification appliances. Pressing Signal Silence a second time turns NACs back on.
Drill	Initiates a drill confirmation. Pressing drill a second time turns off the drill function.
Remote Disconnect	<i>Dialer:</i> Disables or enables dialer. <i>Dialer set to modem only:</i> Disables or enables the common alarm relay.
Left arrow	<i>Display mode:</i> Moves the cursor to the left. <i>Menu mode:</i> Toggles between programming selections.
Right arrow	<i>Display mode:</i> Moves the cursor to the right. <i>Menu mode:</i> Retrieves a programming option's sub menu and toggles between a programming option's selections.
Up arrow	<i>Display mode:</i> Advances to the previous event. <i>Menu mode:</i> Moves the cursor up.
Down arrow	<i>Display mode:</i> Advances to the next event. <i>Menu mode:</i> Moves the cursor down.
Enter	<i>Display mode:</i> Displays selected event details. <i>Menu mode:</i> Retrieves a programming option's sub menu or jumps to the <i>Save</i> function in the menu. <i>Entry mode:</i> Enters the selected data into the system.
Cancel	<i>Display mode:</i> Exits the detailed information display. <i>Menu mode:</i> Exits the current menu level. <i>Entry mode:</i> Clears the current entry.
Menu	<i>Display mode:</i> Enters the menu mode <i>Menu mode:</i> Exits menu mode
Space	Enters a space, such as a space between words.
Alphanumeric keypad	<i>Entry mode:</i> Pressing a button once enters the number on the button. Pressing the button twice enters the secondary value.
Programmable buttons	These buttons can be programmed to control or operate a device, zone, or Panel NAC. The buttons can be labeled with a slip-in insert.

System LEDs

LED	Description
FIRE ALARM	Red LED. On steady when there is an active alarm.
TROUBLE	Yellow LED. Flashes when there is a fault on a monitored circuit or system component, or when a circuit is disabled.
SUP	Yellow LED. On steady when there is an active supervisory event.
AC POWER	Green LED. On when the panel has AC power.
DISABLE	Yellow LED. Double-flashes when there is a disabled circuit, alarm relay, or remote annunciator.
GROUND FAULT	Yellow LED. On steady during an active ground fault.
TEST	Yellow LED. Flashes when performing an audible walk test. Steady indicates a silent test.
MONITOR	Yellow LED. On steady when there is an active monitor event.
SERVICE DETECTOR	Yellow LED. Indicates that detector needs servicing.
SIGNAL SILENCE	Yellow LED. On steady indicates that NAC circuits are turned off but the panel is still in alarm.
REMOTE DISCONNECT	Yellow LED. On steady indicates that the dialer is disabled or that the alarm relay is enabled or disabled when the dialer is set to modem only.
DRILL	Yellow LED. Indicates that the panel is in drill.
RESET	Yellow LED. Indicates that the panel is resetting.
PANEL SILENCE	Yellow LED. Indicates that the panel has been silenced during an active trouble, supervisory, or alarm event and indicates that new event activations have been acknowledged.
USER KEYS	Yellow LED. Programmable.

Programming

iO500 life safety systems are simple to set up, yet also offer advanced programming features that put these small building panels into a class of their own. The auto programming feature quickly gets the panel operational using factory default settings. Basic zone and point settings can be programmed easily through the front panel interface, so the system is up and running in no time.

For more advanced system configuration and correlation groups programming, iO500 systems interface to a PC running compatible iO-CU software. This option offers full system configuration in the familiar Windows® operating environment. Connection is typically made to a laptop through the panel's optional RS-232 communications port, which can also be used to connect a system printer.

Among the many innovative features of iO500 control panels is the optional network card. This module provides a standard 10/100 Base T Ethernet® network connection that permits access to the control panel from any remote location with the correct communications protocols. The connection can be used to download to the panel from the iO-CU, or upload and view system reports using the iO-CU.

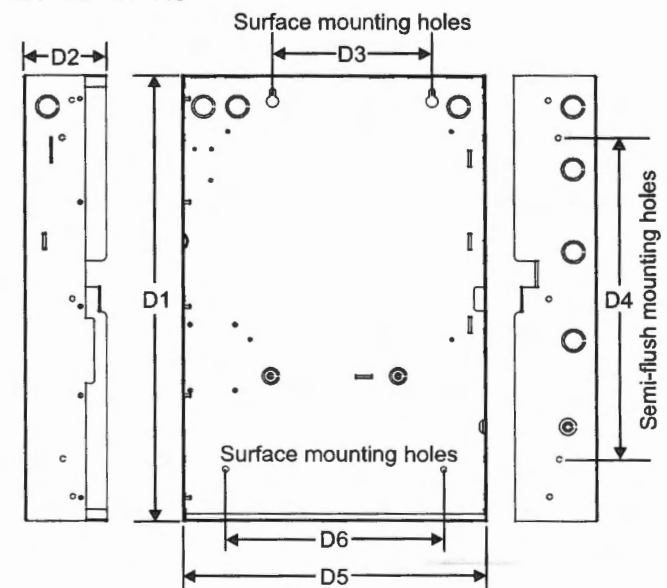
Available system reports include:

- Correlation groups
- Device maintenance
- Internal status
- System status
- Dialer
- Device details
- History
- System configuration
- Walk test

Panel Operation Options

Language	English or French
Marketplace	U.S. or Canada
AC fail delay	<i>Off:</i> Off-premise notification of an AC power failure is immediate. <i>1 to 15 hours:</i> Delays the off-premise notification of an AC power failure by the time period selected.
Zone resound	<i>On:</i> NACs resound each time a device in the zone goes into alarm even if they were silenced <i>Off:</i> Inhibits the NACs from turning on again (after they were silenced) when a second device in the zone goes into alarm.
Reset inhibit after NACs turn on	<i>Off:</i> Panel reset is operational immediately. <i>1 minute:</i> Panel reset is inhibited for one minute.
Auto signal silence	<i>Off:</i> Allows immediate silencing of signals from an off-normal condition using the Signal Silence button <i>5 to 30 minutes:</i> Delays the silencing of signals from an off-normal condition by disabling the Signal Silence button for the time period selected.
Day start	Start time for daytime sensitivity
Night start	Start time for nighttime sensitivity
Date	<i>U.S.:</i> MM/DD/YYYY <i>Canada:</i> DD/MM/YYYY
Mapping	<i>Disabled:</i> Device mapping is not available <i>Enabled:</i> Device mapping is available
LCD banner	Banner text for line one and line two. Each line is capable of up to 20 characters.
Event notification	<i>Zone:</i> When a device is a member of a zone, only the zone information is sent to the LCD display, LEDs, printer, and dialer. <i>Zone/device:</i> Zone information is sent to the LCD display and LEDs. Device information is sent to the printer and dialer. <i>Device:</i> Only device information is reported.

Dimensions



Panel dimensions, in (cm)

Model	D1*	D2	D3	D4	D5*	D6
iO500	28.0 (71.1)	3.85 (9.8)	9.0 (22.8)	22.0 (55.8)	15.75 (40.0)	10.25 (26.0)

* Add 1-1/2 in. (3.81 cm) to D1 and D5 dimensions for trim kit.

Wiring & Configuration

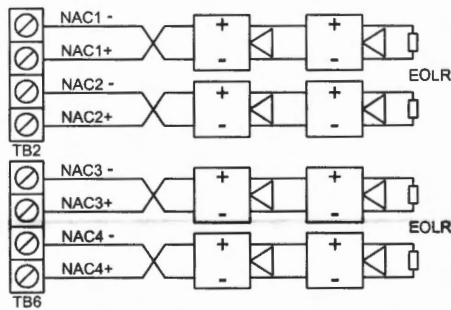
Notification appliance circuits (TB2)

iO500 control panels come equipped with four notification appliance circuits. Each circuit can be individually configured for continuous, temporal, synchronized, and coded output.

Circuit specifications

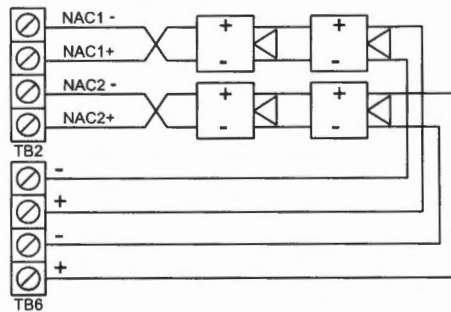
Circuit Type	4 Class B or 2 Class A, 2.5 amps each
Voltage	24 VFWR
Current	6.0 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz 5.0 A total at 230VAC 50 Hz, 2.5 A max. per circuit
Impedance	26 Ω total, 0.35 μF max
EOLR	15 K Ω, ½ W

Class B wiring



Marking indicates output signal polarity when the circuit is active. Polarity reverses when the circuit is not active. Wire notification appliances accordingly. Notification appliance polarity shown in active state.

Class A wiring



Auxiliary & Smoke power outputs (TB3)

The control panel provides two auxiliary power outputs which can be used for powering ancillary equipment such as remote annunciators and two wire smoke detectors. Aux 2 can be software selected to operate continuous. The circuit is supervised for shorts and grounds.

Note: For a complete list of devices that can be connected to this circuit, refer to the iO Series compatibility list (p/n 3101064).

Circuit specifications

Circuit voltage range	21.9 to 28.3 V
Resettable circuit (Aux power 2)	24 VDC nominal at 500 mA
Continuous circuit (Aux power 1)	24 VDC nominal at 500 mA. Use this circuit for powering two-wire smoke detectors.

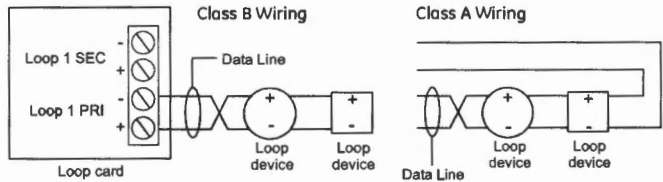
Note: Any current above 0.5 amp connected to both Aux 1 and 2 will reduce the total available NAC power by that amount.

Signature Device loop

The system provides one device loop circuit that can be used with any mix of Signature Series detectors and modules. The loop circuit is supervised for opens, shorts, and grounds.

Circuit specifications

Device loops	1 loop, expandable to 2, Class A or B, each loop supporting up to 250 device addresses
Communication line voltage	Maximum 20 V peak-to-peak
Circuit current	0.5 A max
Circuit impedance	66Ω total, 0.5 μF, max
Isolators	64 maximum



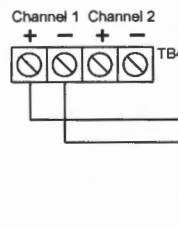
Annunciator loop (TB4)

The control panel provides a connection for up to eight serially driven and supervised remote annunciators.

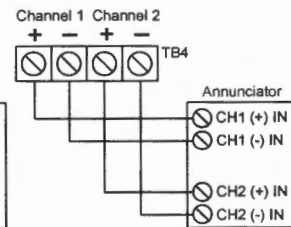
Circuit specifications

Device loops	Class B (Style Y) or Class A (Style Z)
Circuit voltage	2.55 V
Circuit current	30 mA max
Circuit impedance	Up to 8 annunciators or 4000 feet

Class B



Class A



Alarm, trouble, and supervisory relay (TB3)

The trouble relay is normally-open, held closed, and opens on any trouble event or when the panel is de-energized. The supervisory relay is normally-open, and closes on any supervisory event. The alarm relay changes over on any alarm event.

Relay specifications

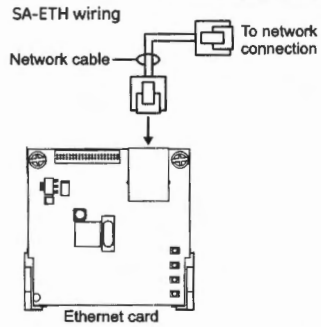
	Alarm	Trouble	Supervisory
Type	Form C		Form A
Voltage	24 VDC at 1 A resistive	24 VDC at 1 A resistive	

Relay circuits can only be connected to power-limited sources.

Option Cards

iO500 panels are supported by a complete line of modules and related equipment that enhance performance and extend system capabilities. Option cards plug directly into the control panel main circuit board or are connected to it with a ribbon cable. After installation, terminals remain accessible. The cabinet provides ample room for wire routing, keeping wiring neat at all times.

SA-ETH Ethernet Interface Card



The SA-ETH card provides a standard 10/100 Base T Ethernet network connection for connecting to an intranet, a local network, or the Internet. The card can be used to download configuration programming from the iO-CU to the panel over the network.

The Ethernet card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

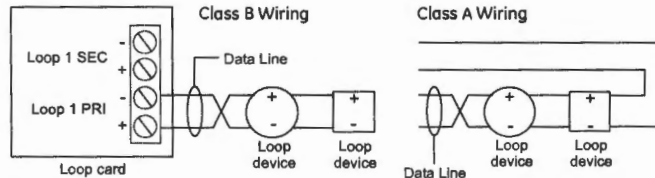
SA-ETH specifications

Ethernet	10/100 Base T
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

XAL250 Loop Expander Card

The XAL250 Loop Expander Card provides an additional Signature Series device loop on the control panel. The card expands the control panel's device capacity to 500 total device addresses, 250 per loop. The card is compatible with Class B or Class A wiring. It is compatible with iO500 control panels only.

The loop expander card connects to connector J7 on the main circuit board.

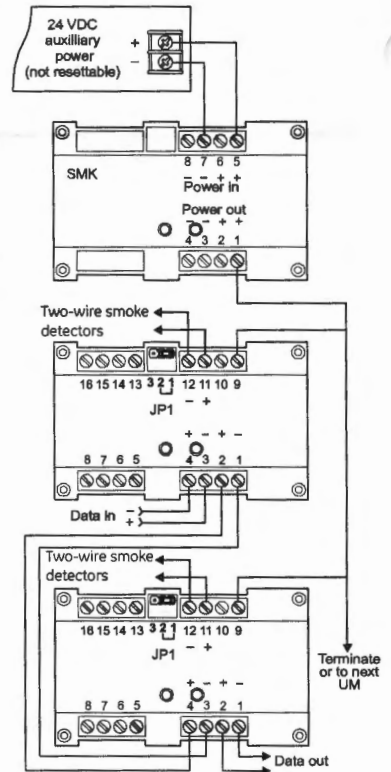


XAL250 specifications

Device addresses on loop	125 detectors and 125 modules
Wiring	Class B (Style Y) or Class A (Style Z)
Operating voltage	20 V peak-to-peak
Operating current	0.5 A total
Circuit impedance	66 Ω, 0.5 μF, max
Terminal rating	12 to 18 AWG (0.75 to 2.5 sq mm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

SMK Smoke Power Converter

The SMK Smoke Power Converter Module provides a backup power source for two-wire smoke circuits connected to a Signature data circuit. The SMK monitors the operating power from the power supply. When power begins to degrade, the SMK provides the necessary operating voltage to the two-wire smoke detection circuits.

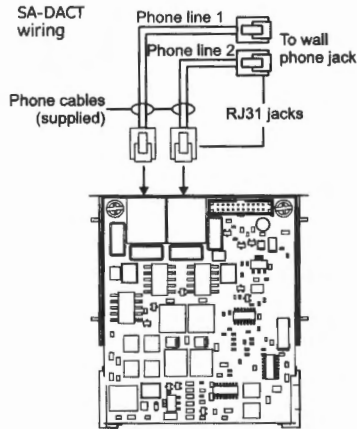


SMK specifications

Input voltage	21.9 to 28.3 VDC (not resettable)
Output voltage	24 VDC nom. at 200 mA, max., special applications
Ground fault impedance	10 k ohm
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)
Storage temperature	-4 to 140°F (-20 to 60°C)
Compatible electrical boxes	North American 4 inch square x 2-1/2 in. (64 mm) deep 2 gang box or Standard 4 in. square box 1-1/2 in. (38 mm) deep
Wire size	14, 16, or 18 AWG wire (1.5, 1.0, or 0.75 sq. mm) (Sizes 16 and 18 AWG are preferred)

SA-DACT Dialer

The SA-DACT provides communications between the control panel and the central station over a telephone line system. It transmits system status changes (events) to a compatible digital alarm communicator receiver over the public switched telephone network. The dialer is capable of single, dual, or split reporting of events to two different account and telephone numbers. The modem feature of the SA-DACT can also be used for uploading and downloading panel configuration, history, and current status to a PC running the iO-CU.



The dialer phone lines connect to connectors on the dialer's main circuit board. Phone line 1 connects to connector J4 and phone line 2 connects to connector J1.

The SA-DACT queues messages and transmits them based on priority (alarm, supervisory, trouble, and monitor). Activations are transmitted before restorations.

The SA-DACT is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

Phone line type	One or two loop-start lines on a public, switched network
Phone line connector	RJ-31/38X (C31/38X)
Communication formats	Contact ID (SIA DC-05)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

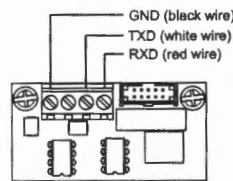
Compatible DACRs

Receiver	Models	Formats
Ademco	685	Contact ID
FBI	CP220	Contact ID
Osborne-Hoffman	OH 2000	Contact ID
Radionics	D6600	Contact ID
Silent Knight	9800	Contact ID
Sur-Gard	SG-MLR1, MLR2	Contact ID

SA-232 RS-232 interface

The SA-232 card provides an RS-232 interface with iO500 panels. It can be used for connecting a printer to the control panel to print system events. The card also can be used for connecting a computer to download a configuration program from the iO-CU to the control panel.

SA-232 wiring



The RS-232 card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-232 specifications

Operating voltage	Standard EIA-232
Terminal rating	12 to 18 AWG (0.75 to 2.5 sq mm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

Specifications

Device loops	1 loop, expandable to 2, Class A or B, each loop supporting up to 250 device addresses
NAC circuits	4 Class B or 2 Class A, 2.5 amps each
Power supply	6.0 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz 5.0 A total at 230VAC 50 Hz, 2.5 A max. per circuit 0.5 amps aux power
NAC Operating voltage	24 VDC. NAC minimum voltage: 19.5 VDC @ 20.4 V battery voltage
Loop circuit operating voltage	20 V peak-to-peak
SLC Primary power	120 VAC, 60 Hz, 230 VAC 50-60 Hz
Aux Power 1 (Continuous circuit)	24 VDC nominal at 500 mA. A SMK module is required when using the SIGA-UM module to support two-wire smoke detectors.
Aux Power 2 (Resettable circuit)	24 VDC nominal at 500 mA
Auxiliary output	19 to 25.7 VDC
Base panel current draw	Standby: 172 mA Alarm: 267 mA
Battery placement	iO500 cabinets accommodate up to 18 A/H batteries. Use an external cabinet for larger battery sizes.

Batteries	Batteries must be sealed lead acid type only. Maximum charging capacity = 26 Ah.
Loop circuit	Maximum loop resistance: 66 Ω. Maximum loop capacitance: 0.5 μF. Style 4, 6, and 7 wiring. 64 isolators maximum.
SIGA-UM/SIGA-MAB	1.5 mA (see the UL and ULC compatibility list for the maximum quantity of detectors per circuit)
Compatibility ID	100
Alarm contact	Form C 24 VDC @ 1 A (resistive load)
Trouble contact	Form C 24 VDC @ 1 A (resistive load)
Supervisory contact	Form A 24 VDC @ 1 A (resistive load)
Environmental	Temperature: 0 to 49°C (32 to 120°F). Humidity: 0 to 93% RH, noncondensing
Terminal rating	All terminals rated for 12 to 18 AWG (0.75 to 2.5 mm ²)
Serial communications	Voltage: 2.55 V. Current: 30 mA max
Remote annunciator	8 drops max, RS-485 Class A or B
Input zones	32 max.
Agency Listing	UL, CSFM and ULC

Ordering Information

Part	Description
iO500 Intelligent Multi-Loop Analog Systems	
iO500G	1 Loop System, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 115VAC transformer, English.
iO500G-2	1 Loop System, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 230VAC transformer, English
iO500GC	1 Loop System, 500 point capacity, 4 NACs, 16-zone LED display, grey door, surface mount enclosure, 115VAC transformer, English
iO500G-F	1 Loop System, 500 point capacity, 4 NACs, 16-zone LED display, grey door, surface mount enclosure, 115VAC transformer, Canadian French
iO500GD	1 Loop System, 500 point capacity, two-line dialer, 4 NACs, Gray door, surface mount enclosure, 115VAC transformer, English.
iO500R	1 Loop System, 500 point capacity, 4 NACs, red Door, surface mount enclosure, 115VAC transformer, English.
iO500R-2	1 Loop System, 500 point capacity, 4 NACs, red door, surface mount enclosure, 230VAC transformer, English
iO500R	1 Loop System, 500 point capacity, two-line dialer, 4 NACs, Red Door, surface mount enclosure, 115VAC transformer, English.
SA-TRIM2	Flush mount trim, black

Option Cards

SA-DACT	Dual Line Dialer/Modem, supports Contact ID, mounts in cabinet on base plate.
SA-232	Serial Port (RS-232), for connection to printers & computers, mounts in cabinet to base plate
SA-ETH	Ethernet Port, Slave, mounts in cabinet on base plate.
XAL250	Signature Loop Expansion Module. Adds second loop to iO500 systems, 250 point capacity. Mounts in cabinet on main board.
D16L-iO-2	LED Annunciator module, two LEDs per zone, 16 zones (4 programmable for sup). Mounts in cabinet to right of LCD display for zones 17-32.
D16L-iO-1	LED Annunciator module, two LEDs per zone, 16 zones (4 programmable for sup). Mounts in cabinet to left of LCD display for zones 1-16.

Remote Annunciators (refer to Data Sheet 85005-0128)

LCD Remote Annunciators

RLCD	Remote Annunciator, 4X20 LCD & Common Indicators for displaying system status, mounts 4" Square electrical box, gray housing.
RLCD-R	Remote Annunciator, 4X20 LCD & Common Indicators for displaying system status, mounts 4" Square electrical box, red housing.
RLCD-C	Remote Annunciator, 4X20 LCD, Common Indicators & Common Controls for displaying system status, mounts 4" Square electrical box, gray housing.
RLCD-CR	Remote Annunciator, 4X20 LCD, Common Indicators & Common Controls for displaying system status, mounts 4" Square electrical box, red housing.

For French common control, add suffix F to model number.

LED Remote Annunciators & Expander

RLED-C	Remote Annunciator, Common Indicators for displaying system status, common controls & 16 groups w/2 LEDs each for zone display, mounts to standard 4" Square electrical box, gray housing.
RLED-CF	Remote Annunciator, Common Indicators for displaying system status, common controls & 16 groups w/2 LEDs each for zone display, mounts to standard 4" Square electrical box, gray housing, French.
RLED-CR	Remote Annunciator, Common Indicators for displaying system status, common controls & 16 groups w/2 LEDs each for zone display, mounts to standard 4" Square electrical box, red housing.
RLED24	Remote Annunciator Zone expander, 24 groups of 2 LEDs each for display of alarm and trouble. Each with custom label area. Mounts to standard 4" electrical box, gray housing.
RLED24R	Remote Annunciator Zone expander, 24 groups of 2 LEDs each for display of alarm and trouble. Each with custom label area. Mounts to standard 4" electrical box, red housing.

Graphic Annunciator Drivers

GCI	Graphic Annunciator Driver, provides outputs for common indicators and 32 alarm/supv zones as well as inputs for common switches. Provided with a snap track for mounting in custom graphic enclosures.
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Remote Annunciator Cabinets & Accessories

RA-ENC1	Remote Annunciator Enclosure, key locked with plexiglass window for one RLCD(C) or RLED(C).
RA-ENC2	Remote Annunciator Enclosure, key locked with plexiglass window with space for 2 of either RLCDx, RLEDx or RLED24.
RA-ENC3	Remote Annunciator Enclosure, key locked with plexiglass window with space for 3 of either RLCDx, RLEDx or RLED25.
RKEY	Keyswitch, single gang, provides key operated enable or disable of common controls on RLCD or RLED units.
LSRA-SB	Surface Mount Box - for R Series single units.

Programming Tools

iO-CU	EST Series configuration and diagnostics utility.
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Continued..

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Intelligent Analog Addressable Devices & Accessories

Part #	Description	Ship wt.
Intelligent Detectors & Bases		
SIGA-HFS	Intelligent Fixed Temperature Heat Detector	
SIGA-HRS	Intelligent Fixed Temperature/Rate-of-Rise Heat Detector	
SIGA-IPHS	Intelligent 4D Multisensor Detector	
SIGA-IPHSB	Intelligent 4D Multisensor Detector (Black)	0.5 (0.23)
SIGA-PHS	Intelligent 3D Multisensor Detector	
SIGA-PS	Intelligent Photoelectric Detector	
SIGA-IS	Intelligent Ionization Detector	
SIGA-SD	Intelligent Duct Detector	
SIGA-SB	Detector Mounting Base	
SIGA-SB4	4-inch Detector Mounting Base c/w SIGA-TS Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	0.2 (0.09)
SIGA-RB4	4-inch Detector Mounting Base /w Relay c/w SIGA-TS Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator c/w SIGA-TS Trim Skirt	
SIGA-LED	Remote Alarm LED	
SIGA-AB4G	Audible (Sounder) Base	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (0.04)
Modules		
SIGA-CC1	Single Input Signal Module (Standard Mount)	0.5 (0.23)
SIGA-MCC1	Single Input Signal Module (UIO Mount)	0.18 (0.08)
SIGA-CC1S	Synchronization Output Module (Standard Mount)	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (UIO Mount)	0.18 (0.08)
SIGA-CC2	Dual Input Signal Module (Standard Mount)	0.5 (0.23)
SIGA-MCC2	Dual Input Signal Module (UIO Mount)	0.18 (0.08)
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)
SIGA-RM1	Riser Monitor Module (Standard Mount)	0.5 (0.23)
SIGA-MRM1	Riser Monitor Module (Plug-in)	0.18 (0.08)
SIGA-IO	Input/Output Module (Standard Mount)	0.34 (0.15)
SIGA-MIO	Input/Output Module (Plug-in)	0.22 (0.10)
SIGA-MAB	Universal Class A/B Module (Plug-in)	0.18 (0.08)
SIGA-CT1	Single Input Module	0.4 (0.15)
SIGA-CT2	Dual Input Module	0.4 (0.15)
SIGA-MCT2	Dual Input Plug-in (UIO) Module	0.1 (0.05)
SIGA-IM	Fault Isolator Module	0.5 (0.23)
SIGA-MM1	Monitor Module	0.4 (0.15)
SIGA-WTM	Waterflow/Tamper Module	0.4 (0.15)
SMK	Smoke Power Converter Module	0.4 (0.15)
SIGA-UIO2R	Universal Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Module Board - Six Module Positions	0.56 (0.25)
Accessories		
CTM	City Tie Module. Provides connection to a local energy fire alarm box.	0.6 (0.3)
BC-1	Battery Cabinet. 14.0" x 18.25" x 7.25". Holds up to 2 12V24A batteries.	50.0 (22.7)
BC-1R	Battery Cabinet - Red. 14.0" x 18.25" x 7.25". Holds up to 2 12V24A batteries.	50.0 (22.7)
RPM	Reverse Polarity Module	3.0 (1.36)
MFC-A	Multifunction Fire Cabinet, 8" x 14" x 3.5" - RED.	20.6 (9.4)
PT-1S	System Printer - Desktop style.	36.6 (16.6)



imagination at work

Overview

The Remote Booster Power Supply is a self-contained 24 Vdc power supply designed to augment fire alarm audible and visual power requirements as well as provide power for auxiliary, access control and security applications. The booster contains all of the necessary circuits to monitor and charge batteries, control and supervise four Class B or two Class A NAC circuits and monitor two controlling inputs from external sources.

Simple switch selection provides a wide variety of operational configurations. Each remote booster power supply is supplied with its own enclosure providing ample space for additional interface modules and battery compartment.

The Remote Booster Power Supply is available in either a 6.5 or 10 amp version @ 24 Vdc.

Standard Features

- Available in 10 amp and 6.5 amp versions.
- Includes four independent 3 amp NACs
– each configurable as auxiliary outputs.
- Configurable signal rates.
- Field selectable input-to-output correlation.
- Extends power available to Notification Appliance Circuits (NACs).
- Provides strobe synchronization.
- Use as auxiliary Power Supply.

• Extensive UL Listings

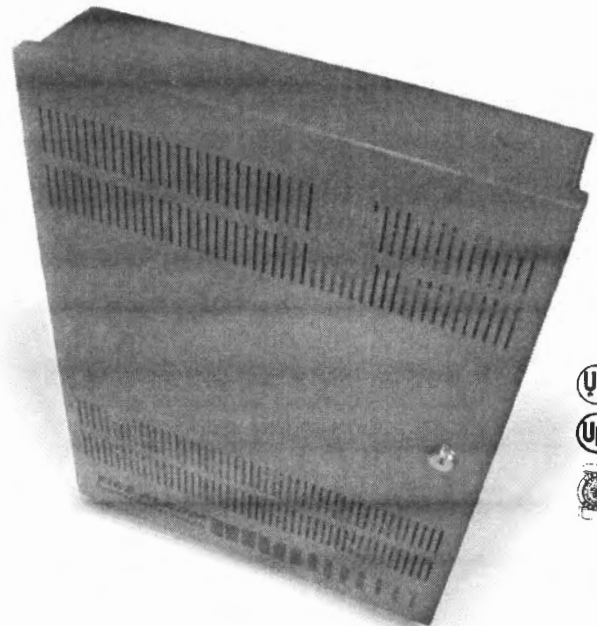
(Listed accessory under the following standards)

Standard	CCN	Description
UL864	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
ULC-S527	UOXXC	Control Units, Fire Alarm (Canada)
ULC-S303	AOTX7	Local Burglar Alarm Units and Systems (Canada)
ULC-S304	AMCX7	Central and Monitoring Station Burglar Alarm Units (Canada)
C22.2 No. 205	Signaling Equipment (Canada)	
UL1076	APOU, APOU7	Proprietary Burglar Alarm System Units
UL1610	AMCX	Central Station Alarm Unit

- Two inputs allow activation by Signature Series modules or existing NACs.
- NACs configure for either four Class B or two Class A circuits.
- 110 Vac and 230 Vac versions
- On-board status LEDs for easy recognition of wiring faults.
- Supports up to 24 Amp hour batteries for fire and security applications, up to 65 Amp hour for access control applications.

Remote Booster Power Supplies

BPS6A, BPS10A



Application

The Remote Booster Power Supply provides additional power for audible and visual devices helping remove system capacity or site application constraints. The booster may also be used to power auxiliary, access control and security devices, in addition to fire devices.

Fault conditions detected by the BPS will open the main panel's NAC. This initiates a trouble condition and eliminates the need to wire a separate trouble contact back to the control panel. During alarm condition, detected faults are overridden and the main panel's default configuration is continuous 24 Vdc on all NACs typically used to drive visual devices. On board trouble contact is supplied for applications requiring trouble contact monitoring.

The booster power supply provides the capability to maximize available power by being able to supply power for multiple services including Access Control, Security and Fire. For security applications, space is provided to mount a tamper switch in the cabinet. When used for Fire Alarm notification with Genesis Notification appliances, the booster provides the ability to synchronize strobes as well as horn signals. The booster flexibility allows synchronization with upstream devices, or, the booster may be used to synchronize downstream devices, as well as other boosters and their connected devices. Up to 10 boosters deep may be configured while maintaining strobe synchronization.

BPS notification appliance circuits easily configure for either of two signaling rates: 3-3-3 temporal or continuous. California rate is also available on certain models. This makes the BPS ideal for applications requiring signaling rates not available from the main panel. It also allows independent setup of a notification appliance circuit without interfering with the main panel and its initiating circuits.

In addition to the generated signal rates, the BPS can also be configured to follow the signal rate of the main panel's notification appliance circuit. This allows seamless expansion of existing NACs.

The BPS includes seven on-board LED indicators: one for each

resident NAC; one for battery supervision; one for ground fault; and, one for ac power. The trouble contact has a sixteen second delay when an ac power failure or brownout condition is detected. This reduces the reporting of troubles during short duration ac brownouts.

NAC configuration options include: ac power fail delay (16 seconds or 6 hours); sensing input to NAC output correlations; and, auxiliary outputs. All NACs are configurable as auxiliary outputs. Auxiliary outputs can be always on, or off after 30 seconds without ac power. As auxiliary output, the booster may power access control and security devices. Should an overcurrent occur, the booster automatically opens the circuit. The booster automatically restores the circuit when the overcurrent is removed. Jumpers configure the BPS for Class A or Class B wiring.

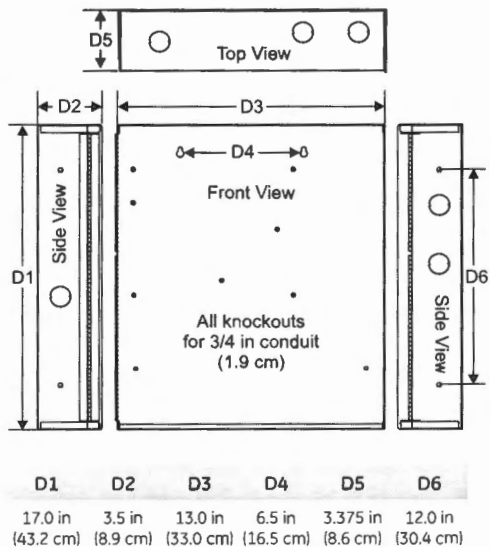
Engineering Specification

Supply where needed GE Security BPS series Booster Power Supplies as an extension of Notification Appliance Circuits. The extension shall be in the form of a stand alone booster power supply. The supply must incorporate its own standby batteries. Batteries must be sized for <24>, <60> hours of standby followed by <5>, <30> minutes of alarm. It must be possible to support up to 24 Amp hour batteries.

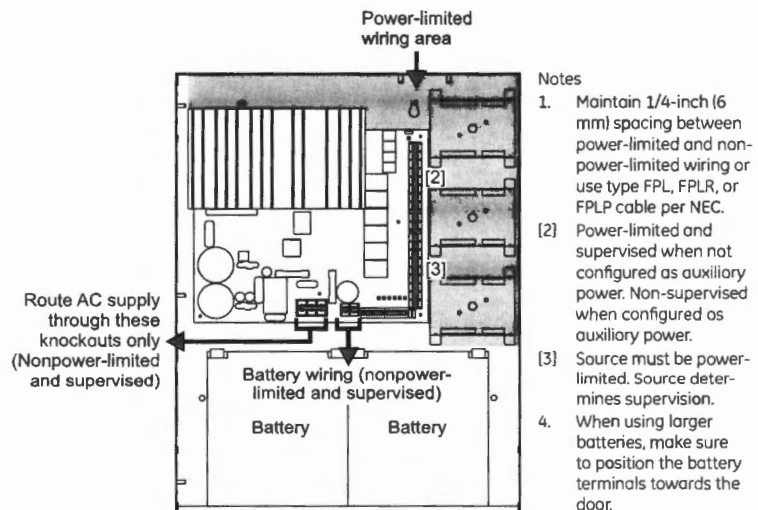
The booster supply must incorporate four independent supervised Notification Appliance Circuits. It shall be possible to configure the NACs to follow the main panel's NAC or activate from intelligent Signature Series modules. The booster NACs must be configurable to operate independently at any one of the following rates: continuous, California Rate, or 3-3-3 temporal. Fault conditions on the booster shall not impede alarm activation of host NAC circuits.

The booster must be able to provide concurrent power for Notification devices, Security devices, Access Control equipment and Auxiliary devices such as door holders. The BPS must provide the ability to synchronize Genesis series strobes and horns.

Dimensions



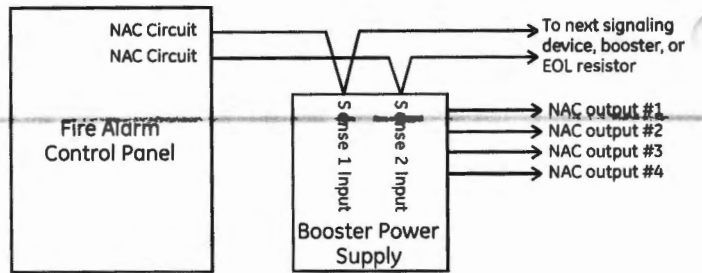
Wire routing



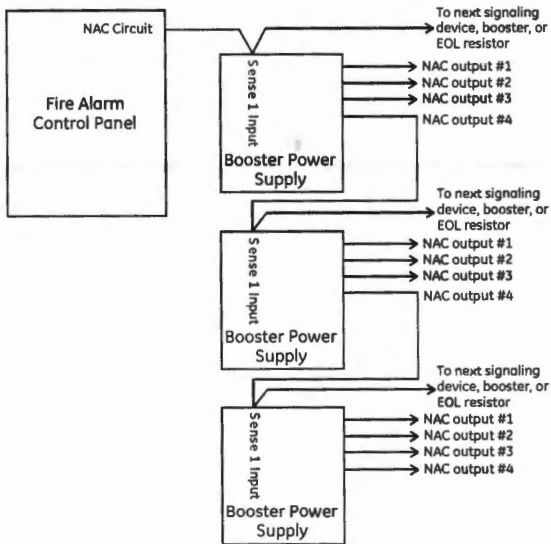
Typical Wiring

Single booster anywhere on a notification appliance circuit

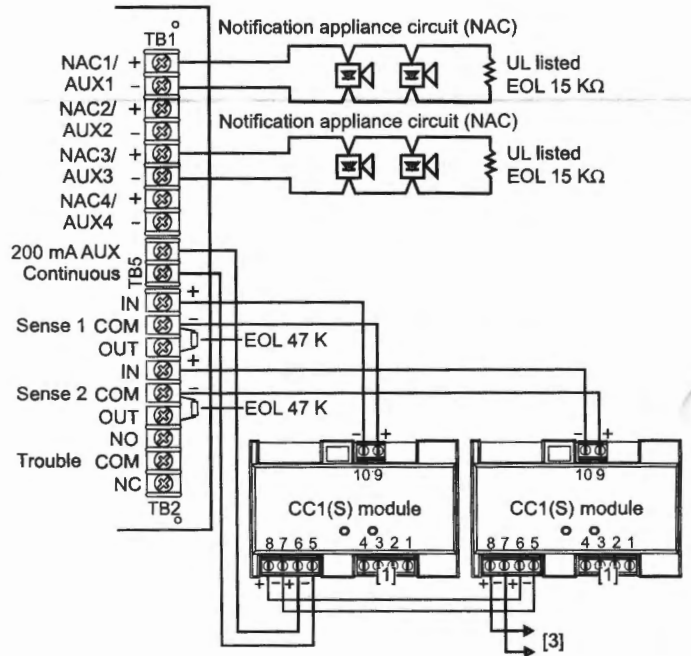
Existing NAC end-of-line resistors are not required to be installed at the booster's terminals. This allows multiple boosters to be driven from a single NAC circuit without the need for special configurations.



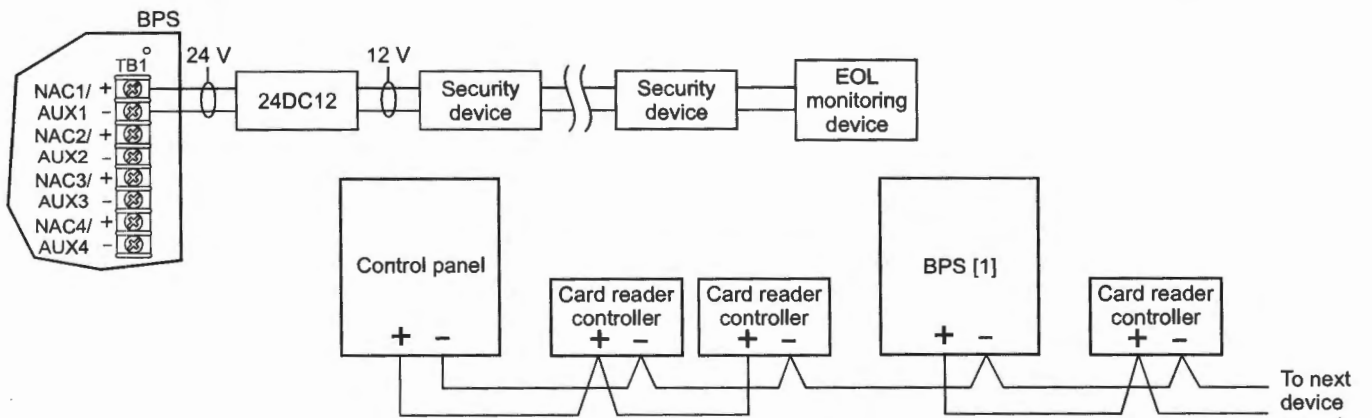
Multiple boosters cascaded from a single notification appliance circuit



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



Security and access



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

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Specifications

Model	6.5 amp Booster	10 amp Booster
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 250 watts	120VAC or 220-240VAC 50/60Hz 375 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	
Signature Mounting Space	Accommodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire and security applications; up to 65 Amp hours for access control applications in external battery box.	
Terminal Wire Gauge	18-12 AWG	
Relative Humidity	0 to 93% non condensing @ 32°C	
Temperature Rating	32° to 120°F (0° to 49°C)	
NAC Wiring Styles	Class A or Class B	
Output Signal Rates	Continuous, California rate, 3-3-3 temporal, or follow installed panel's NAC. (See note 1.)	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

Notes

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)
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)
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-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)

Notes

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



imagination at work

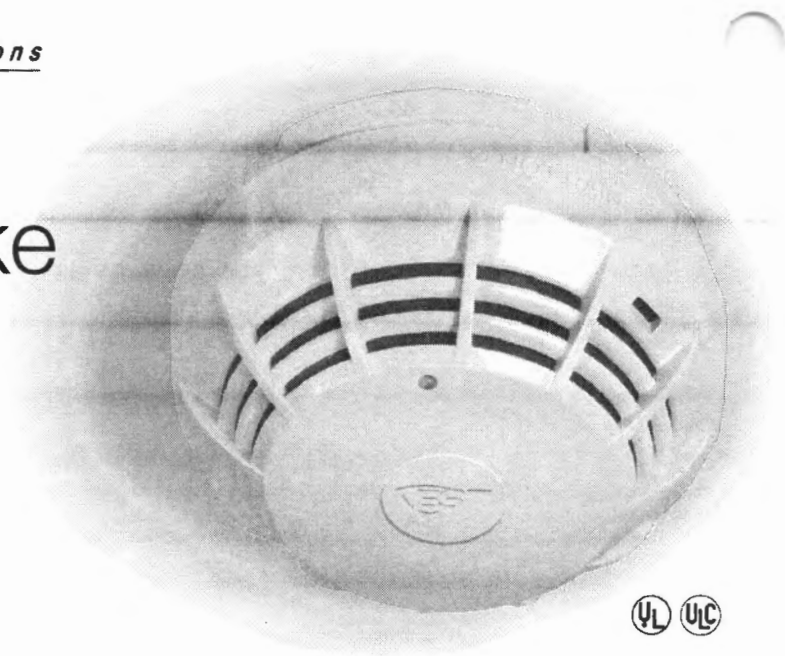


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EST Catalog ► Intelligent Initiating Devices

Intelligent Smoke Detector with Optional CO Sensor

SIGA2-PS SIGA2-PCOS



Overview

Signature Series SIGA2-P(CO)S photoelectric detectors bring 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 innovative field-replaceable smoke chambers make detector maintenance literally a snap. With its modular CO sensor, this detector pulls double-duty — continually monitoring the environment for signs of smoke, as well as its invisible yet deadly companion, carbon monoxide.

Like all Signature Series detectors, the SIGA2-P(CO)S is an intelligent device that gathers analog information from its smoke and CO sensor (if present), 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.

The SIGA2-PCOS includes an advanced carbon monoxide sensor and daughterboard. When the electrochemical cell reaches its end of life after approximately six years, the detector signals a trouble condition to the control panel. The sensor/daughterboard module is field-replaceable.

Standard Features

- Optical smoke sensing technology with optional carbon monoxide sensor
- Field-replaceable smoke chamber
- Field-replaceable carbon monoxide sensor/daughterboard module
- 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
- Environmental compensation
- Identification of dirty or defective detectors
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

Application

Smoke detection

The SIGA2-PS 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.

Carbon monoxide detection

CO detection has rapidly become a standard part of life safety strategies everywhere. Monitored CO detection 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. In fact, more than half of the U.S. population already lives in states requiring the installation of CO detectors in some commercial occupancies. This is because carbon monoxide is the leading cause of accidental poisoning deaths in America. Known as the "Silent Killer," CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually.

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

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 can 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. When the CO sensor's electrochemical cell reaches its end of life, the detector signals a trouble condition to the control panel. The sensor/daughterboard module is field-replaceable. 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.

This detector will NOT sense fires that start 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 to alarm it.

Sensing and reporting technology

The microprocessor in each detector 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 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

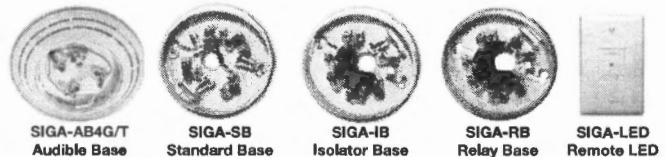
Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different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

Stand-alone Operation - A decentralized alarm decision by the detector is guaranteed. On-board intelligence permits the detector to operate in stand-alone mode. If loop controller CPU communications fail for more than four seconds, all devices on that circuit go into stand-alone mode. The circuit acts like a conventional alarm receiving circuit.

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" square box only.



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

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

SIGA-AB4G and SIGA-AB4GT - These sounder bases are designed for use where localized or group alarm signaling is required. The SIGA-AB4G is compatible with Signature Series smoke and heat detectors. The SIGA-AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator module, adds an audible output function to any Signature Series detector, including fire and CO detectors.

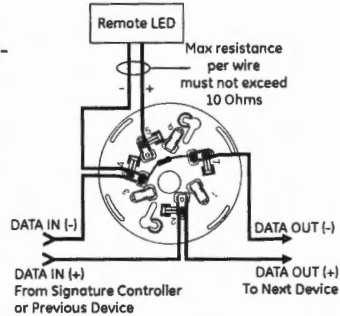
Typical Wiring

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

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 the Standard Base.

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



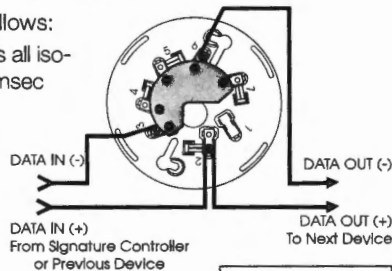
Isolator Detector Base, SIGA-IB, SIGA-IB4

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, reopens within 10 msec.

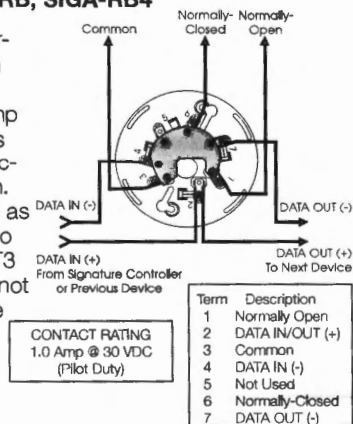
The process repeats beginning on the other side of the loop controller.



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

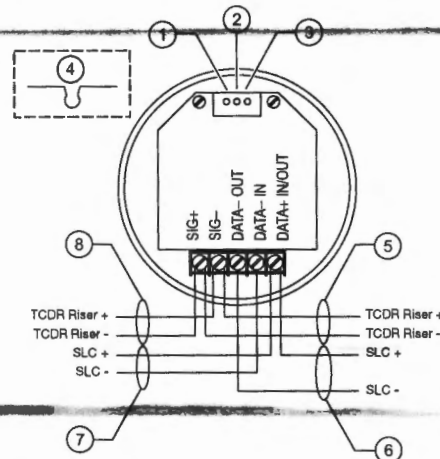
This base includes a relay. Normally open or closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel (EST3 V.2 only). The relay base does not support the SIGA-LED Remote LED.



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

Audible Detector Base for CO and Fire Detectors, SIGA-AB4GT

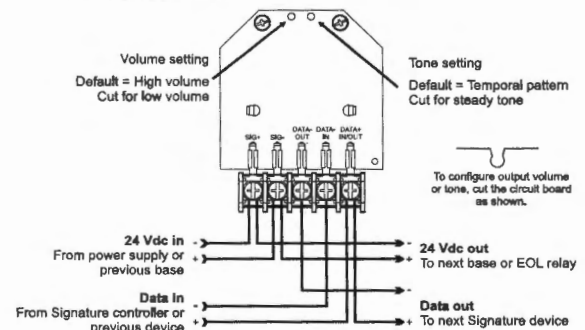
The Signature Series AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator, adds an audible output function to any Signature Series detector. For more information on this device, refer to *Data Sheet 85001-0623 -- Sounder Base for CO and Fire Detectors*.



1. Volume setting. Default is high volume. For low volume, cut trace per item 4.
2. Reserved for future use. Do not cut.
3. Reserved for future use. Do not cut.
4. To configure output volume, cut trace as shown.
5. To next SIGA-AB4GT sounder base or EOL relay.
6. SLC_OUT to next intelligent addressable device.
7. SLC_IN from intelligent addressable controller or previous device.
8. From SIGA-TCDR Temporal Pattern Generator or previous SIGA-AB4GT sounder base.

Audible Detector Base, SIGA-AB4G

This base is designed for use where localized or group alarm signaling is required. When the detector senses an alarm condition, the audible base emits a local alarm signal. The optional SIGA-CRR Polarity Reversal Relay can be used for sounding to other audible bases on the same 24 Vdc circuit.



Relay and Audible Bases operate as follows:

- at system power-up or reset, the relay is de-energized
- when a detector is installed in the base with the power on, the relay energizes for four seconds, then de-energizes
- when a detector is removed from a base with the power on, the relay is de-energized
- when the detector enters the alarm state, the relay is energized.



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Compatibility

SIGA2-P(CO)S detectors are compatible only with the Signature Loop Controller.

Warnings & Cautions

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

This detector will NOT sense fires that start 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 to alarm it.

Specifications

	SIGA2-PS	SIGA2-PCOS
Normal operating current	45 µA	70 µA
Alarm current	18 mA	18 mA
Standalone alarm current	45 µA	70 µA
Operating voltage	15.20 to 19.95 VDC	
Air velocity	0 to 4,000 ft./min (0 to 20 m/s).	
Construction	High impact engineering polymer	
Wall mounting	Maximum 12 in (305 mm) from ceiling	
Mounting	Plug-in	
Shipping weight	0.44 lb. (164 g)	
Compatible bases	See Ordering Information	
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	

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA2-PS	Intelligent Photoelectric Detector	0.4 (0.16)
SIGA2-PCOS	Intelligent Photoelectric Detector with carbon monoxide sensor	0.4 (0.16)
SIGA2-PCOS-CA	Intelligent Photoelectric Detector with carbon monoxide sensor (for use in Canadian markets only).	0.4 (0.16)

Accessories		
Catalog Number	Description	Ship Wt. lbs (kg)
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-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TCDR	Temporal Pattern Generator	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
2-SPRC1*	Replacement Smoke Chamber (for SIGA2-PS detectors)	0.1 (.04)
2-SPRC2*	Replacement Smoke Chamber (for SIGA2-PCOS detectors)	0.1 (.04)
2-CORPL*	Replacement CO Sensor	0.1 (.04)

*Release pending.

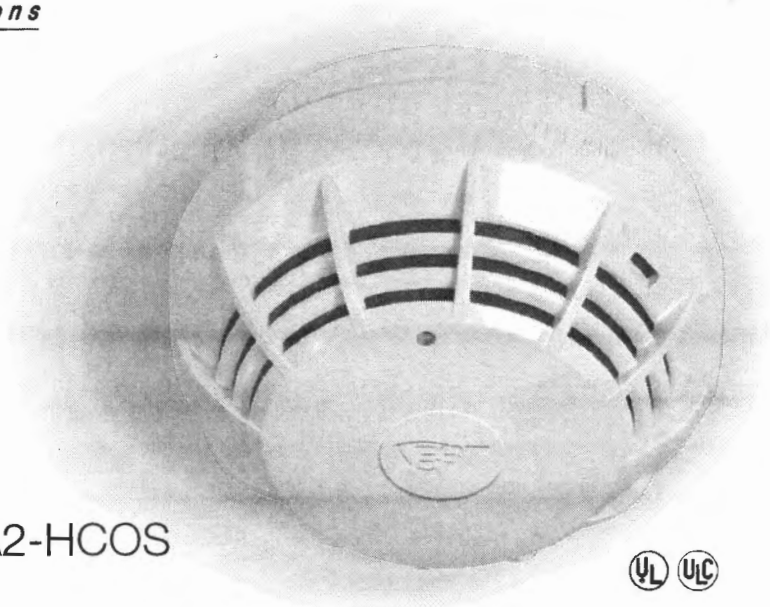


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EST Catalog ▶ Intelligent Initiating Devices

Intelligent Heat Detectors with Optional CO Sensors

SIGA2-HFS, **SIGA2-HRS** SIGA2-HCOS



Overview

Signature Series fixed temperature and rate-of-rise heat detectors bring advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends property protection capabilities. Continuous self-diagnostics ensure reliability over the long-haul, while the latest thermister technology makes these detectors ideal wherever dependable heat detection is required. With their modular CO sensor, these devices pull double-duty — continually monitoring the environment for heat from combustion, as well as its invisible yet deadly companion, carbon monoxide.

Like all Signature Series detectors, these are intelligent devices that gather analog information from their heat and CO sensor (if present), 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.

The SIGA2-HCOS is a fixed temperature heat detector that includes an advanced carbon monoxide sensor and daughterboard. When the electrochemical cell reaches its end of life after approximately six years, the detector signals a trouble condition to the control panel. The sensor/daughterboard module is field-replaceable.

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.

- Fixed temperature or rate-of-rise heat detection with optional carbon monoxide sensor
- Field-replaceable carbon monoxide sensor/daughterboard module
- 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
- 15 °F (8 °C) per minute rate-of-rise alarm point (HRS)
- 135 °F (57 °C) fixed temperature alarm point (HFS/HCOS)

Application

Heat detection

SIGA2-HRS rate-of-rise heat detectors provide a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of heat due to fire. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

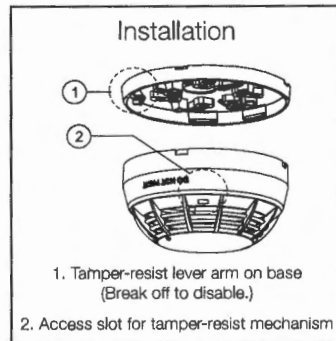
SIGA2-HFS and SIGA2-HCOS fixed temperature heat detectors provide a 135°F (57°C) fixed-temperature heat sensor for the detection of heat due to fire. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

Carbon monoxide detection

The SIGA2-HCOS includes a replaceable chemical cell for the detection of carbon monoxide (CO). CO detection has rapidly become a standard part of life safety strategies everywhere. Monitored CO detection 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. In fact, more than half of the U.S. population already lives in states requiring the installation of CO detectors in some commercial occupancies. This is because carbon monoxide is the leading cause of accidental poisoning deaths in America. Known as the "Silent Killer," CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually.

Installation

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



Testing & Maintenance

The user-friendly maintenance program shows the current state of each detector and other pertinent messages. Single detectors may be turned off temporarily from the control panel. Availability of maintenance features is dependent on the fire alarm system used. When the CO sensor's electrochemical cell reaches its end of life, the detector signals a trouble condition to the control panel. The sensor/daughterboard module is field-replaceable. 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.

Compatibility

SIGA2-PS detectors are compatible only with the Signature Loop Controller.

Sensing and reporting technology

The microprocessor in each detector 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 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

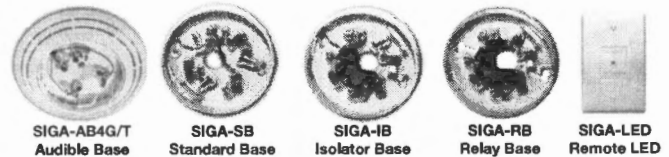
Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different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

Stand-alone Operation - A decentralized alarm decision by the detector is guaranteed. On-board intelligence permits the detector to operate in stand-alone mode. If loop controller CPU communications fail for more than four seconds, all devices on that circuit go into stand-alone mode. The circuit acts like a conventional alarm receiving circuit.

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" square box only.



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

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

SIGA-AB4G and SIGA-AB4GT - These sounder bases are designed for use where localized or group alarm signaling is required. The SIGA-AB4G is compatible with Signature Series smoke and heat detectors. The SIGA-AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator module, adds an audible output function to any Signature Series detector, including fire and CO detectors.

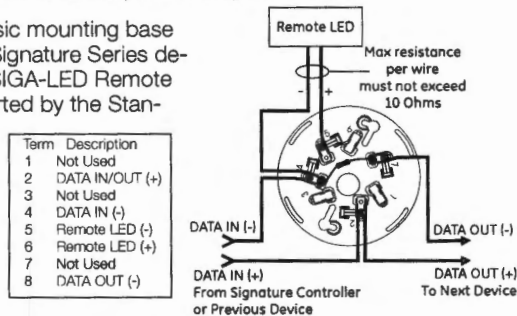
Typical Wiring

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

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.

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 the Standard Base.

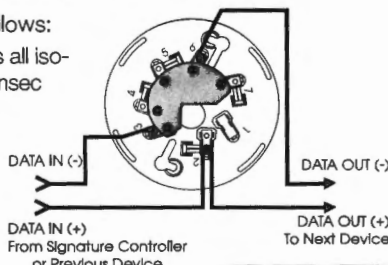


Isolator Detector Base, SIGA-IB, SIGA-IB4

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

The isolator operates as follows:

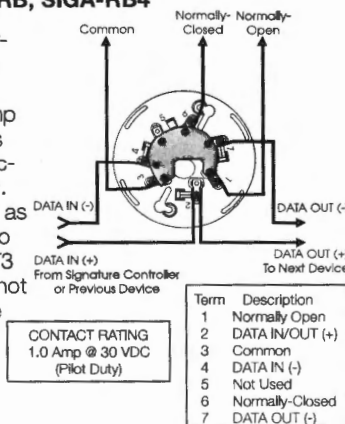
- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, reopens within 10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



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

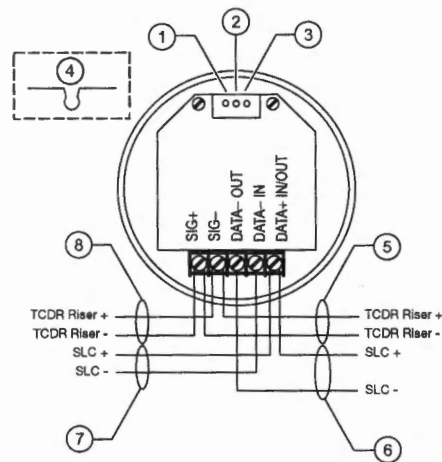
Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally open or 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 (EST3 V.2 only). The relay base does not support the SIGA-LED Remote LED.



Audible Detector Base for CO and Fire Detectors, SIGA-AB4GT

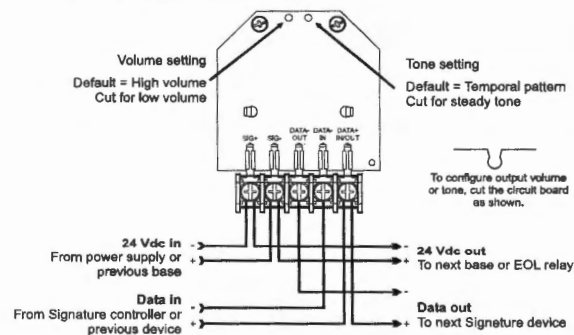
The Signature Series AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator, adds an audible output function to any Signature Series detector. For more information on this device, refer to *Data Sheet 85001-0623 -- Sounder Base for CO and Fire Detectors*.



1. Volume setting. Default is high volume. For low volume, cut trace per item 4.
2. Reserved for future use. Do not cut.
3. Reserved for future use. Do not cut.
4. To configure output volume, cut trace as shown.
5. To next SIGA-AB4GT sounder base or EOL relay.
6. SLC_OUT to next intelligent addressable device.
7. SLC_IN from intelligent addressable controller or previous device.
8. From SIGA-TCDR Temporal Pattern Generator or previous SIGA-AB4GT sounder base.

Audible Detector Base, SIGA-AB4G

This base is designed for use where localized or group alarm signaling is required. When the detector senses an alarm condition, the audible base emits a local alarm signal. The optional SIGA-CRR Polarity Reversal Relay can be used for sounding to other audible bases on the same 24 Vdc circuit.



Relay and Audible Bases operate as follows:

- at system power-up or reset, the relay is de-energized
- when a detector is installed in the base with the power on, the relay energizes for four seconds, then de-energizes
- when a detector is removed from a base with the power on, the relay is de-energized
- when the detector enters the alarm state, the relay is energized.



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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.

Specifications

Normal operating current	45 µA	45 µA	45 µA
Standalone alarm current	18 mA	18 mA	18 mA
Alarm Current	45 µA	45 µA	45 µA
Actual alarm point	15°F (8°C)/min.	130 to 140°F (54 to 60°C)	
Operating voltage	15.20 to 19.95 VDC		
Maximum spacing	50 ft. (15.2 m) centers*		
Construction	High impact engineering polymer		
Mounting	Plug-in		
Shipping weight	0.44 lb. (164 g)		
Compatible bases	See Ordering Information		
Operating environment	32 °F to 100 °F (0 °C to 38 °C), 0 to 93% RH, noncondensing		
Storage temperature	- 4 °F to 140 °F (- 20 °C to 60 °C)		

*When replacing SIGA-HRS/HFS ensure spacing is 50ft or less.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA2-HRS	Intelligent rate-of-rise heat detector	0.4 (0.16)
SIGA2-HFS	Intelligent fixed temperature heat detector	0.4 (0.16)
SIGA2-HCOS	Intelligent fixed temperature heat detector with CO sensor	0.4 (0.16)
SIGA2-HCOS-CA	Intelligent fixed temperature heat detector with CO sensor (for use in Canadian markets only)	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-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TCDFR	Temporal Pattern Generator	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
2-CORPL*	Replacement CO Sensor	0.1 (.04)

*Release pending.

Overview

The SIGA-CT1 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 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.

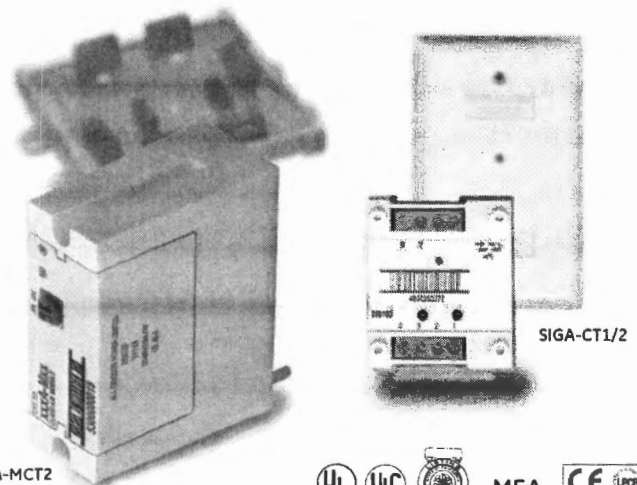
The SIGA-MCT2 is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-CT2, but takes advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are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

Standard Features

- **Multiple applications**
Including Alarm, Alarm with delayed latching (retard) for water-flow applications, Supervisory, and Monitor. The installer selects one of four "personality codes" to be downloaded to the module through the loop controller.
- **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.
- **Non-volatile memory**
Permanently stores serial number, type of device, and job number.
- **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.

Input Modules

SIGA-CT1 SIGA-CT2 & SIGA-MCT2



Signature Series Overview

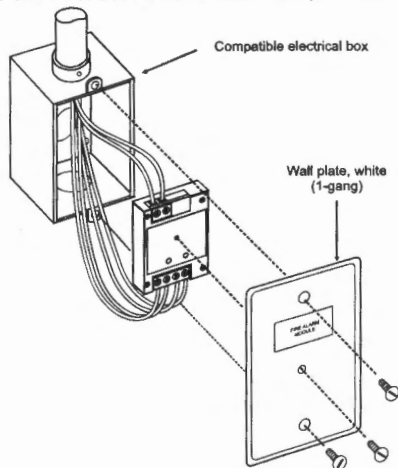
The Signature Series intelligent analog-addressable system from GE Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment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

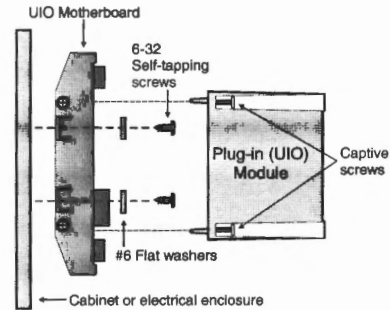
Automatic Device Mapping – The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. 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 and SIGA-CT2: modules mount to North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size.



SIGA-MCT2: mount the UIO motherboard inside a suitable GE Security enclosure with screws and washers provided. Plug the SIGA-MCT2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size.



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

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

Application

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

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

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

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

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

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

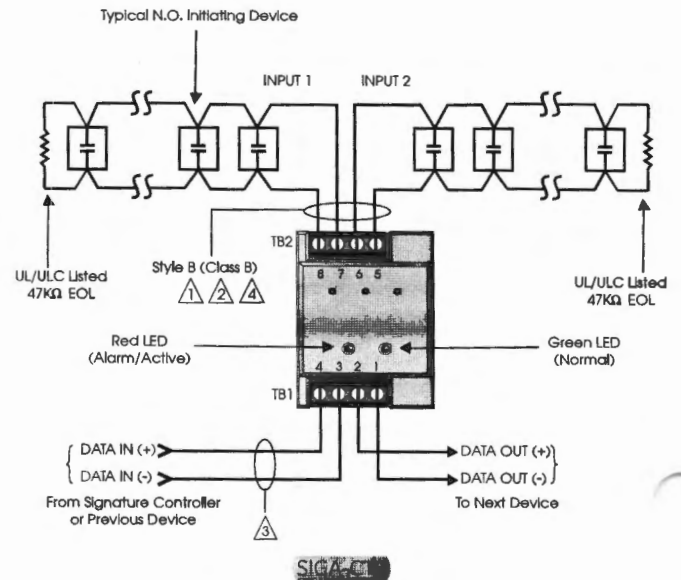
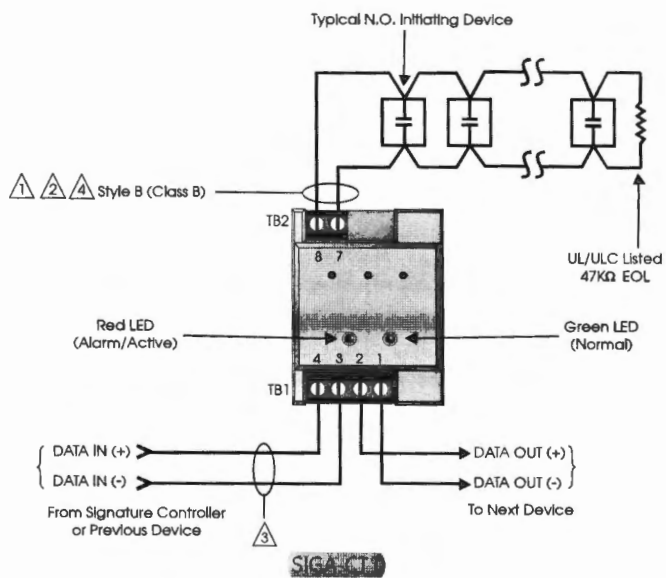
Typical Wiring

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

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

Initiating (Slave) Device Circuit Wire Specifications

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



NOTES

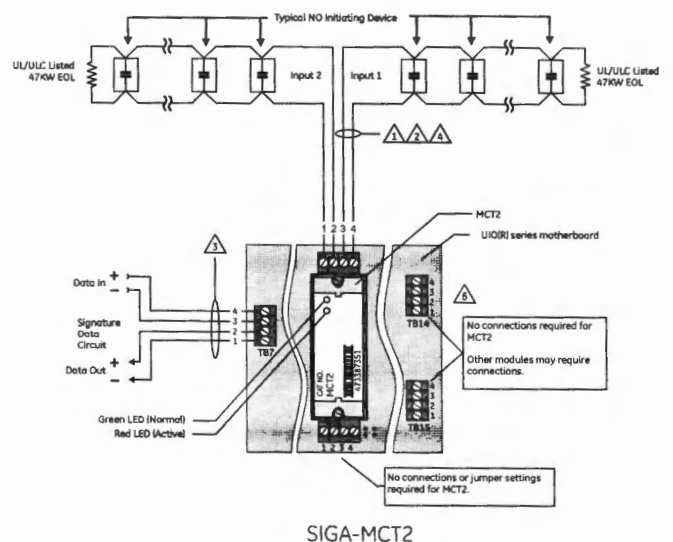
- 1 Maximum 25 Ohm resistance per wire.
- 2 Maximum #12 AWG (2.5 mm²) wire; Minimum #18 AWG (0.75 mm²).
- 3 Refer to Signature controller installation sheet for wiring specifications.
- 4 Maximum 10 Vdc @ 350 µA
- 5 The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
- 6 All wiring is supervised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

Warnings & Cautions

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

Compatibility

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



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Specifications

Catalog Number	SIGA-MCT1	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 Mother-board
Storage and Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C); Humidity: 0 to 93% RH	
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm/active Both LEDs - Glow steady when in alarm (stand-alone)	
Compatibility	Use with Signature Loop Controller	
Agency Listings	UL, ULC, MEA, CSFM	

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-MCT1	Single Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-MCT2	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-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)



imagination at work

Overview

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

GE Security'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

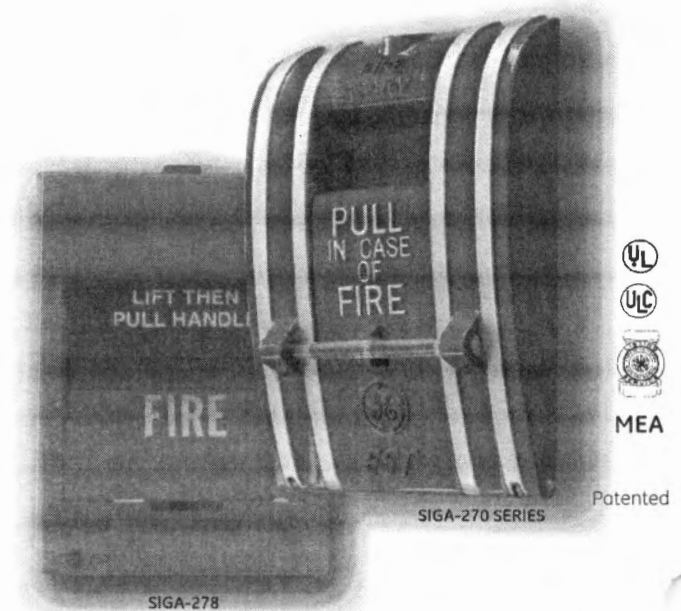
Note: Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.

- **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 c/w 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.
- **Non-volatile memory**
Permanently stores serial number, type of device, and job number. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm.
- **Automatic device mapping**
Each station transmits wiring information to the loop controller regarding its location with respect to other devices on the circuit.
- **Electronic addressing**
Permanently stores programmable address; there are no switches or dials to set. Addresses are downloaded from a PC, or the SIGA-PRO Signature Program/Service Tool.
- **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).

Manual Pull Stations

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



Application

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

Compatibility

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

Warnings & Cautions

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

Testing & Maintenance

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

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

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

Typical Wiring

The fire alarm station's terminal block accepts #18 AWG (0.75mm²) to #12 AWG (2.5mm²) wire sizes. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Wiring Notes

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

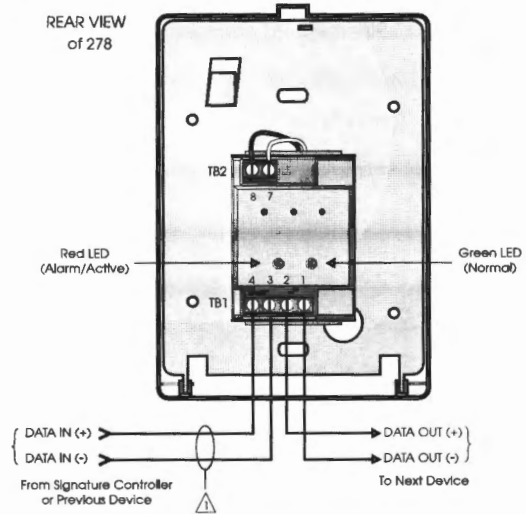


Figure 4. Single Stage Systems

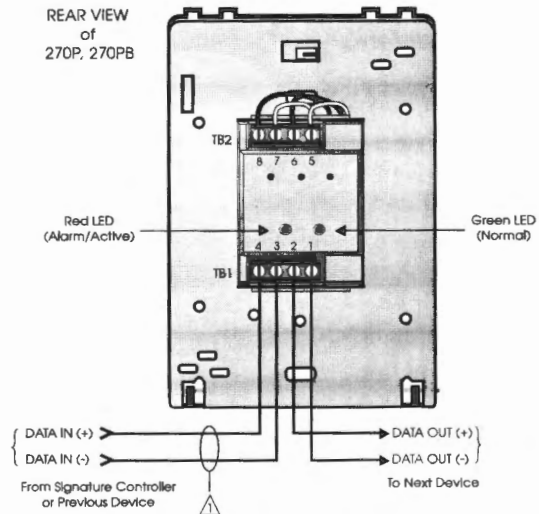


Figure 5. Two Stage Systems

Installation

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

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

All models include terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size. GE Security 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.

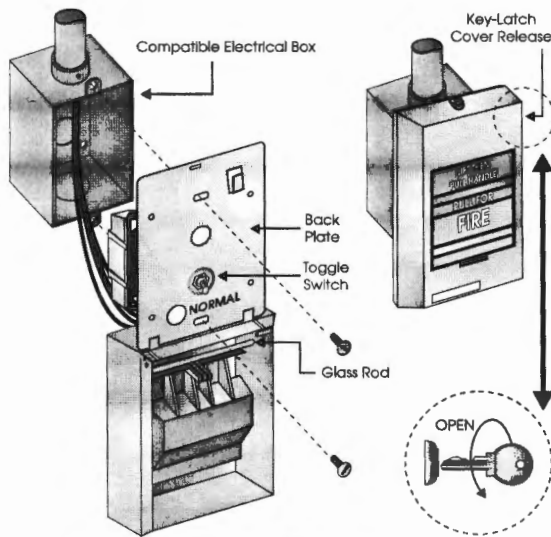


Figure 1. [redacted] installation

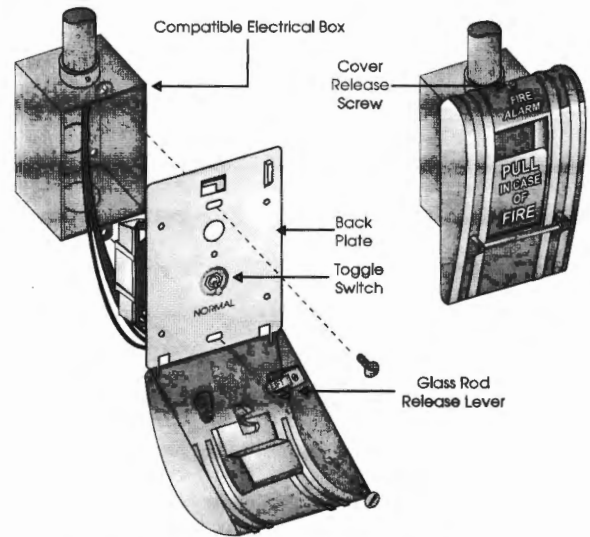


Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

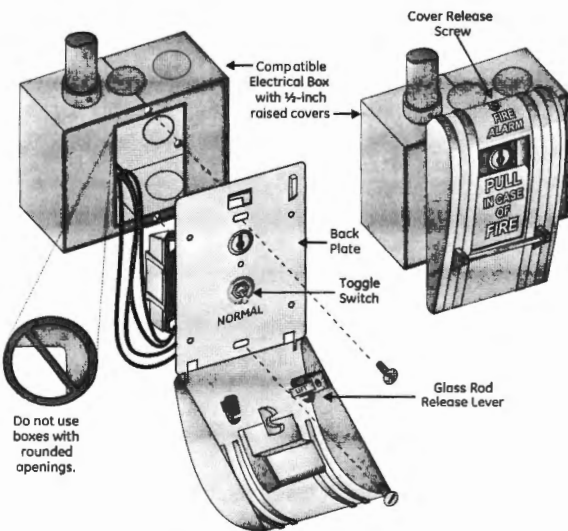


Figure 3. SIGA-270P, SIGC-270PB installation

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Specifications

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

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

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-270	One Stage Fire Alarm Station, English Markings - UL/ULC Listed	
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	1 (0.5)
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)	
276-K2	GA Key - for pre-signal station (USA ONLY)	
276-K1	Station Reset Key, Supplied with all Key Reset Stations	0.1 (0.05)
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)



imagination at work

Overview

The Genesis line of fire alarm and mass notification/emergency communications (MNEC) 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, GE Security 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 15 to 110 candela output, which is selectable with 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 MNEC 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

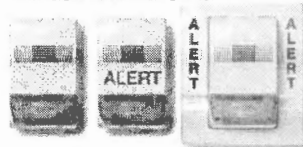
Field Configurable Horns and Strobes

Genesis Series

- **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**
- **MNEC 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
 - Low current draw minimizes system overhead
 - Independent horn control over a single pair of wires
 - Highly regulated in-rush current
 - Multiple frequency tone improves sound penetration
 - Industry's first temporal strobe output



MNEC appliances available with clear or amber lenses.



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 (87 dBA 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.

NOTE: The flash intensity of some visible signals may not be adequate to alert or awaken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. GE Security recommends that strobes in sleeping rooms be rated at at least 110 cd.

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 alert or 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.

MNEC Applications

Genesis MNEC 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.

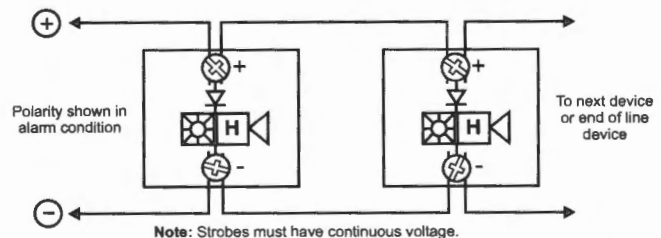
Genesis clear strobes and horn-strobes may be set for **15, 30, 75, or 110 candela output**. The output setting is changed by simply opening the device and sliding the switch to the desired setting. The device does not have to be removed to change the output setting. The setting remains visible through 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.



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

Notes and Comments

- Current values are shown in mA.
- UL Nameplate Rating can vary from Typical Current due to measurement methods and instruments used.
- GE Security recommends using the Typical Current for system design including NAC and Power Supply loading.
- Use the Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the Vfwr RMS current ratings for unfiltered power supply calculations.
- Fuses, circuit breakers and other overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating affect of the current flowing through the device. The RMS current (not the mean current) determines the heating affect and therefore, the trip and hold threshold for those devices.

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)

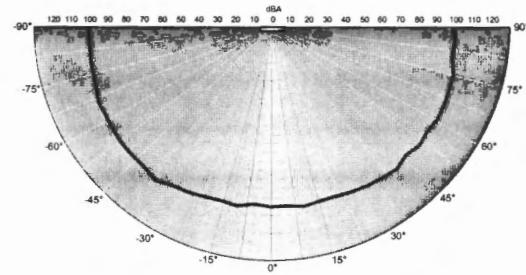
	UL464	Average	Peak
16 Vdc	77 dBA, min	85 dBA	91 dBA
16 Vfwr	77 dBA, min	85 dBA	91 dBA

Notes

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

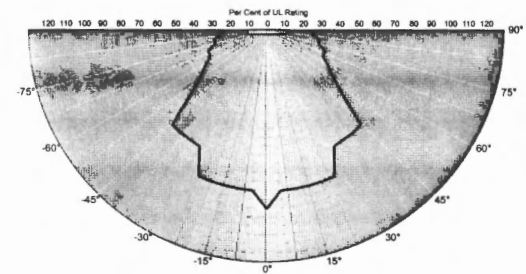
Average Sound Output (dBA)

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



Light output - (effective cd)

Percent of UL rating versus angle

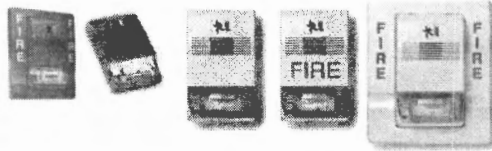


Specifications

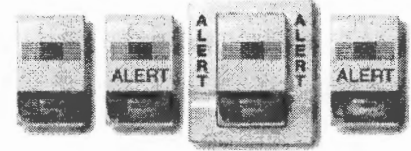
Housing	Red or white textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating.
Lens	Optical grade polycarbonate (clear)
Mounting (indoor only)	Strobes and horn-strobes are for wall-mount installation only. Horn-only models may be ceiling- or wall-mounted. Flush mount: 2½ inch (64 mm) deep one-gang box Surface mount: Model 27193 surface mount box, wire mold 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, UL 1638, UL 464, 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, ULC S526: 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 (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master) 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 (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master) 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

Ordering Information

Fire appliances available with white or red housings.



MNEC appliances available with clear or amber lenses.



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	None	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	None	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)
MNEC Appliances (no running man icon on housing)						
G1WA-HDVMA	White	ALERT	Amber	Selectable A, B, C or D	Selectable high/low dB	0.25 (0.11)
G1WA-HDVMC	White	ALERT	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
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-HDVMC	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	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)
Lens Kits						
G1LK-A	N/A	N/A	Amber	G1 Field replaceable lens kit, amber		
G1LK-B	N/A	N/A	Blue	G1 Field replaceable lens kit, blue		
G1LK-G	N/A	N/A	Green	G1 Field replaceable lens kit, green		
G1LK-R	N/A	N/A	Red	G1 Field replaceable lens kit, red		
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.

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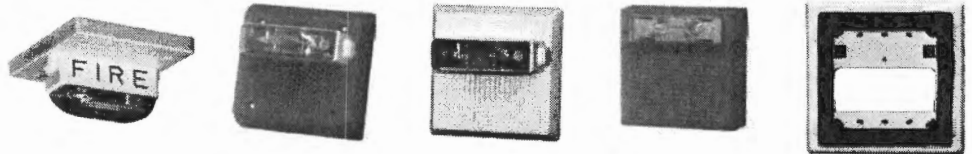


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the Bill of Material

Weatherproof Appliances - Series AH Audibles, AS Audible Strobes, MT Multitone Strobes, RSS Strobes and ET70 Speaker Strobes and Weatherproof Mounting Accessories



Description:

Designed for life safety, performance and reliability, Cooper Wheelock's cost effective weatherproof notification appliances include:

Weatherproof Appliances	Series
Strobes	RSSWP
Horn Strobes	ASWP
Horns	AH-24WP, AH-12WP
Multitone Horn Strobes	MTWP
Multitone Horns	MT
Speaker Strobes	ET70WP
Speakers	ET-1010

All strobe models are UL dual listed - meeting both UL1638 and UL1971 requirements. As dual listed appliances, these weatherproof strobes, horn strobes and speaker strobes are listed for outdoor applications under UL 1638 as well as under UL 1971, the Standard for Safety Signaling Devices for Hearing Impaired. With an extended temperature range of -31°F to 150°F (-40°C to 66°C), Wheelock weatherproof appliances meet or exceed UL outdoor test requirements for rain, humidity and corrosion resistance while providing multiple strobe intensity options, including the highest strobe ratings available for area coverage per NFPA 72 strobe spacing tables (up to 185 candela for wall mounting and 177 candela for ceiling mounting).

To enable weatherproof mounting, Cooper-Wheelock provides the industry's widest choice of mounting options for surface or unique semi-flush installation. Models are available for surface mounting to Wheelock weatherproof backboxes on walls or ceilings. The optional WP-KIT allows the weatherproof backboxes (IOB, WPBB or WPSBB) to be mounted to a recessed electrical box for concealed conduit installation. For semi-flush installation, the WPA and WFPA kits allow a customer to mount the weatherproof appliances to a recessed electrical box without the need for an external weatherproof backbox. See the Backboxes, Plates and Gaskets Table on page three of this document for a summarization of these mounting options and the required accessories.

When used in conjunction with Wheelock PS-24-8MC Power Supplies or SM/DSM Sync Modules, the Wheelock weatherproof appliances can be synchronized to meet NFPA 72 synchronization requirements. The horn output of horn strobes can be independently controlled on 2-wire circuits using the Wheelock patented sync protocol. MTWP horn strobe models are 4-wire appliances; the strobes can be synchronized while the audible can be connected to a coded fire alarm system or can be set to produce any of eight selectable tones.

Features:

- Approvals include: UL Standards 1971, 1638, 464 and 1480 California State Fire Marshal (CSFM) and New York City (MEA), Factory Mutual (FM) and Chicago (BFP) . See agency approvals by model number on page two of this document
- Compliance with the following requirements: NFPA, UFC, ANSI 117.1, OSHA Part 29, 1910.165, ADA
- Weatherproof with extended temperature range of -40°F to 150°F (-40°C to 66°C)*
- Dual Listed strobe models (UL 1638 and UL 1971)
- Industry's highest strobe candela options
- Synchronization capability using Series SM, DSM Synch Modules (MTWP and MT-12/24 audible is non-sync)
- Models with field selectable tone, dBA and candela settings
- Wall or ceiling mounting options
- Surface of semi-flush mounting
- IN/OUT wiring termination accepting two #12-18 AWG wires at each terminal

*The series RSSWP, ASWP, MTWP and ET70WP have UL approval down to -40°F. The AH-24WP, MT-12/24 and the ET-1010 have been ULC tested and approved to -40°F, but not submitted to UL. The AH-12WP has UL/ULC approval to -31°F.



E5946
S5391
S2652



151-92-E



7125-0785:131 (ASWP)
7125-0785:146 (ET70WP)
7125-0785:156 (MTWP)
7300-0785:154 (RSSWP)



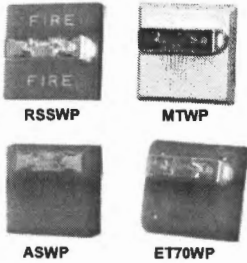
NOTE: All CAUTIONS and WARNINGS are identified by the symbol . All warnings are printed in bold capital letters.

WARNING: PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT WWW.COOPERWHEELock.COM OR CONTACT COOPER WHEELock FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

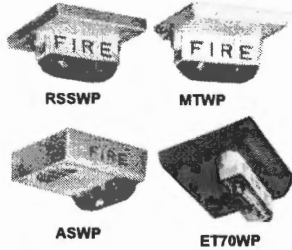
General Notes:

- Strobes are designed to flash at 1 flash per second minimum over their UL Listed Regulated Voltage Range.
- All candela ratings represent minimum effective Strobe intensity based on UL Standards 1971 and 1638 as indicated in candela ratings table.

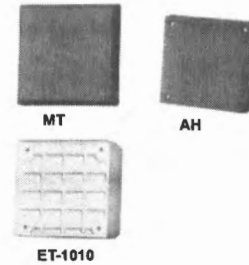
Wall Mount



Ceiling Mount



Wall or Ceiling Mount



Strobe		Order Code
RSSWP-2475W-FR	Red	9013
RSSWP-2475W-FW	White	3034
RSSWP-24MCWH-FR	Red	5161
RSSWP-24MCWH-FW	White	5165
Audible Strobe		
ASWP-2475W-FR	Red	9012
ASWP-24MCHW-FR	Red	5137
ASWP-24MCWH-FW	White	5140
Multi-tone Strobe		
MTWP-2475W-FR	Red	8420
MTWP-2475W-FW	White	3112
MTWP-24MCWH-FR	Red	5132
MTWP-24MCWH-FW	White	5134
Speaker Strobe		
ET70WP-2475W-FR	Red	9077
ET70WP-2475W-FW	White	3179
ET70WP-24185W-FR	Red	4885
ET70WP-24185W-FW	White	4891

Strobe		Order Code
RSSWP-2475C-FR	Red	4338
RSSWP-2475C-FW	White	4446
RSSWP-24MCCH-FR	Red	5167
RSSWP-24MCCH-FW	White	5187
Audible Strobe		
ASWP-2475C-FR	Red	4251
ASWP-2475C-FW	White	4502
ASWP-24MCCH-FR	Red	5149
ASWP-24MCCH-FW	White	5157
Multi-tone Strobe		
MTWP-2475C-FR	Red	4457
MTWP-2475C-FW	White	4478
MTWP-24MCCH-FR	Red	5102
MTWP-24MCCH-FW	White	5122
Speaker Strobe		
ET70WP-2475C-FR	Red	4452
ET70WP-2475C-FW	White	4454
ET70WP-24177C-FR	Red	4845
ET70WP-24177C-FW	White	4859

Audible		Order Code
AH-24WP-R	Red	7416
AH-12WP-R	Red	7415
Horn		
MT-12/24-R	Red	5023
Speaker		
ET-1010-R	Red	3135
ET-1010-W	White	3137

UL Max. Current	AH	
	24 VDC	12 VDC
High (99) dBA	0.080	0.192
Med (95) dBA	0.043	0.108
Low (90) dBA	0.021	0.058

UL Reverberant dBA @ 10 Feet							
Watts	1/8	1/4	1/2	1	2	4	8
ET-1010	77	80	83	86	87	92	94
ET70WP	78	81	84	87	90	93	95

Series	Candela Ratings						
	UL 1971 @ 32°-120°F	UL 1638 @ 77°F	UL 1638 @ -40°F	RSS, ET70WP and MTWP UL Max Current (Strobe Only)	ASWP		
					High	Med	Low
2475	30	180	115	0.138	0.168	0.155	0.150
MCWH	135	135	65	0.300	0.355	0.340	0.335
	185	185	90	0.420	0.480	0.465	0.460
MCCH	115	115	50	0.300	0.355	0.340	0.335
	177	177	75	0.420	0.480	0.465	0.460
24185	185	185	90	0.420			
24177	177	177	75	0.420			

UL Max. Current (Audible)	MTWP/MT 24 VDC		MT 12 VDC	
dBA	HI	STD	HI	STD
Horn	0.108	0.044	0.177	0.034
Bell	0.053	0.024	0.095	0.020
March Time	0.104	0.038	0.142	0.034
Code 3 Horn	0.091	0.035	0.142	0.034
Code 3 Tone	0.075	0.035	0.105	0.021
Slow Whoop	0.098	0.037	0.142	0.035
Siren	0.104	0.036	0.152	0.030
Hi/Lo	0.057	0.025	0.114	0.026

Model Number	Agency Approvals				
Strobe	UL	MEA	CSFM	FM	BFP
RSSWP-2475	X	X	X	X	*
RSSWP-24MCWH	X	*	*	*	*
RSSWP-24MCCH	X	*	*	*	*
Audible Strobe					
ASWP-2475	X	X	X	X	X
ASWP-MCWH	X	*	*	*	*
ASWP-MCCH	X	*	*	*	*
Multitone Strobe					
MTWP-2475	X	X	X	X	*
MTWP-MCWH	X	*	*	*	*
MTWP-MCCH	X	*	*	*	*
Horns/Audibles					
AH-24WP	X	X	X	-	X
AH-12WP	X	X	X	-	X
MT-12/24	X	X	X	X	X
Speaker Strobe					
ET70WP-2475	X	X	X	*	*
ET70WP-185	X	*	*	*	*
ET70WP-177	X	*	*	*	*

*Pending

ARCHITECTS AND ENGINEERS SPECIFICATIONS

General

Weatherproof notification appliances shall be UL listed for outdoor use. Weatherproof Strobe appliances shall be listed under UL Standard 1638 (Standard for Visual Signaling Appliances) for Indoor/Outdoor use and UL Standard 1971 (Standard for Safety Signaling Devices for Hearing Impaired). The appliances shall be available for optional wall mounting or ceiling mounting to weatherproof backboxes using either exposed conduit or concealed conduit, or semi-flush mounting to a recessed electrical box in walls or ceilings using Wheelock mounting accessories.

Weatherproof Strobes

Weatherproof Strobe appliances shall produce a minimum flash rate of 60 flashes per minute over the UL Regulated Voltage Range of 16 to 33 VDC and shall incorporate a Xenon flashtube. The weatherproof strobes shall be available with UL 1971 candela ratings up to 185 cd for wall mounting and 177 cd for ceiling mounting. UL 1638 candela ratings up to 180 cd at 77°F shall be available. The strobes shall operate over an extended temperature range of -40°F to 150°F (-40°C to 66°C) and be listed for maximum humidity of 95% RH. Strobe inputs shall be polarized for compatibility with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP).

Weatherproof Audibles and Audible/Strobe Combinations Weatherproof horns and multitone audibles shall be listed for Indoor/Outdoor use under UL Standard 464. The horns shall be able to produce a continuous output or a temporal code-3 output that can be synchronized. T□

Multitone audibles shall be able to produce 8 distinct tones selectable by dip switch and shall have at least 2 sound level settings. Multitone Audible/Strobe combinations shall have independent inputs for the audible and strobe. The strobes shall be able to be synchronized. The audibles shall be able to be coded when operated on a separate NAC.

Weatherproof Speakers and Speaker/Strobes

Weatherproof speakers and speaker/strobes shall be listed for Indoor/Outdoor use under UL Standard 1480. All speakers shall provide field selectable taps for 1/8W to 8W operation for either 25 VRMS or 70 VRMS audio systems and shall incorporate a sealed back construction for extra protection and improved audibility. Speakers without strobes shall be Wheelock Series ET-1010. They shall be listed to produce up to 94 dBA and shall incorporate a vandal resistant grille design. Speaker with strobes shall be Wheelock Series ET70WP. They shall be available for surface or semi-flush mounting to walls or ceilings and shall be listed to produce up to 93 dBA.

Synchronization Modules

When synchronization of strobes or temporal code-3 audibles is required, the appliances shall be compatible with the Wheelock Series SM and DSM Sync Modules or the Wheelock PS-24-8MC Power Supply with built-in, patented sync protocol. The strobes and audibles shall not drift out of synchronization at any time during operation.

Series ASWP audibles and strobes shall be able to be synchronized on a 2-wire circuit with the ability to silence the audible if required. The strobes on Series MT multitone audible/strobe appliances shall be able to be synchronized and shall be able to be operated on a separate circuit from the audibles while the audible circuit is connected to a coded or continuous NAC.

Weatherproof Mounting Accessories

Weatherproof mounting options shall include surface mounting or semi-flush mounting to walls or ceilings. Surface mounted appliances shall mount to Wheelock IOB, WBB, WPBB or WPSBB weatherproof backboxes using either exposed conduit or concealed conduit. For concealed conduit the weatherproof backbox shall be mounted to a recessed electrical box with Wheelock's WP-KIT to provide a weatherproof seal for the electrical box. Semi-flush mounted appliances shall mount to a recessed electrical box using Wheelock WFP or WFPA flush plates to provide a weatherproof seal between the electrical box and the appliance.



273 Branchport Avenue
Long Branch, NJ 07740
Phone: (800) 631-2148
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3 YEAR WARRANTY
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S9004 WP 03/07



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Specification Sheet

Sealed Lead-Acid Batteries

BSL1075
(PC1270)

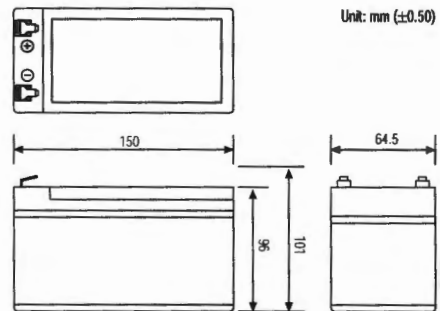
Capacity Specifications

Cut-off Voltage	20 Hr Rate (0.36 A)	7.2 Ah
1.75 v/c @ 25°C	10 Hr Rate (0.65 A)	6.5 Ah
1.70 v/c	5 Hr Rate (1.14 A)	5.7 Ah
1.55 v/c	1 Hr Rate (4.1 A)	4.1 Ah
	Bloc	Per Cell
Charge Voltage (constant)	Float	13.5~13.8
	Cycle	14.4~14.7
Discharge Current Amps (5 seconds maximum)	80	
	50	
Max. Charge Current	2.16 A	
Approx Final Charge Current (2.25 v/c Float)	0.014 (14 mA)	
Approx Final Charge Current (2.45 v/c Cycle)	0.07 (70 mA)	
Terminal Type	Type A / (G optional)	
Self Discharge	9 months @ 21°C	
Case Material	ABS – Gray* or Black	

Due to changes in the manufacturing processes, specifications may change without notice.
*Gray option is Flame Retardant ABS.

Technical Specifications

Nominal Voltage	12V
Nominal Capacity	7.2 Ah (20 Hr Rate)
Dimensions	Length: 150 mm
	Width: 64.5 mm
	Height: 95 mm
Total Height/Terminal:	101 mm
Weight	Approx 2.75 Kg



Actual Wattage / Ampere Capacity at Various Discharge Times (Volt per Cell @ 25°C)							
Cut Off Voltage	Time	5 Min.	10 min.	15 min.	30 min.	45 min.	60 min.
1.75 v/c	W	45.4	30.77	23.28	12.9	10.31	8.07
25°C	A	25.94	17.58	13.3	7.37	5.89	4.61
1.67 v/c	W	47.76	31.4	23.9	13.09	10.04	8.07
25°C	A	28.6	18.8	14.31	7.84	6.01	4.83
1.60 v/c	W	49.28	31.52	24.0	13.3	9.3	7.79
25°C	A	30.8	19.7	15.0	8.31	5.81	4.87

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Battery Specification Sheet



Technical Specifications

Nominal Voltage	12 V
Nominal Capacity	18.0 Ah (20 Hr Rate)
Chemistry	Lead Acid - AGM

Physical Specifications

Length:	180 mm	7.09 in.
Width:	76 mm	2.99 in.
Height:	167 mm	6.57 in.
Weight	6.20 kg	13.6 lbs.
Terminal Type	Flag(w/ .250" Faston Adapters)	
Case Material	Container & cover made from Flame Retardant PP Resin (UL94-VO/L.O.I. >28%)	

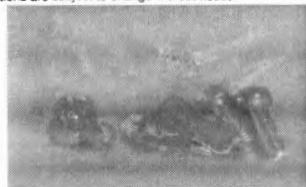
Charging Specifications

	Bloc	Per Cell
Charge Voltage (constant)	Float 13.5~13.8 Cycle 14.4~14.7	2.25~2.30 2.40~2.45
Max. Charge Current		5.1 A
Approx Final Charge Current (2.25 volts/cell Float)		0.03 A
Approx Final Charge Current (2.45 volts/cell Cycle)		0.15 A

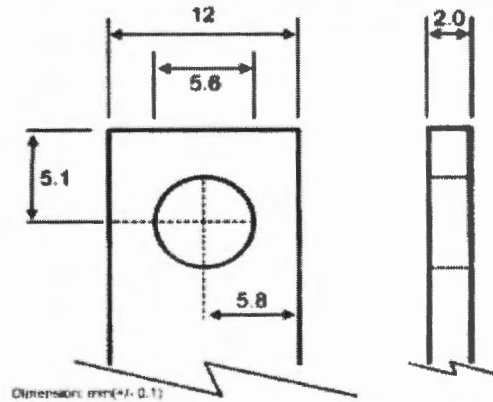
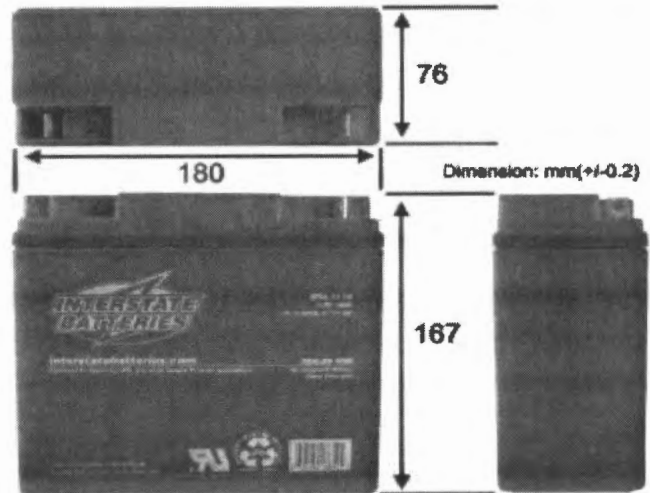
Capacity Specifications

Cut-off Voltage	20 Hr Rate (0.85A)	18.0 Ah
1.75 volts/cell @ 25°C	10 Hr Rate (1.7A)	17.0 Ah
1.70 volts/cell @ 25°C	5 Hr Rate (3.06A)	15.3 Ah
1.55 volts/cell @ 25°C	1 Hr Rate (12.0A)	12.0 Ah
Discharge Current (5 seconds maximum)		250 A
Discharge Current (maximum continuous)		80 A
Charge Retention: @ 68 F (20°C)	90% after 3 months 80% after 6 months 60% after 12 months	
Internal Resistance		15 mΩ

Due to changes in the manufacturing processes, specifications are subject to change without notice



interstatebatteries.com



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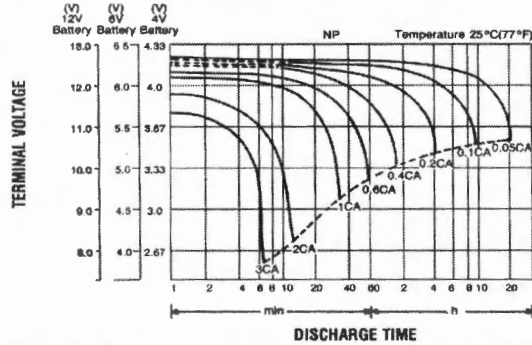
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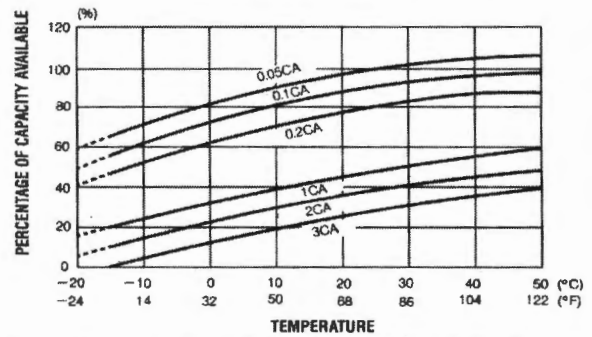
Battery Specification Sheet

BSL1116

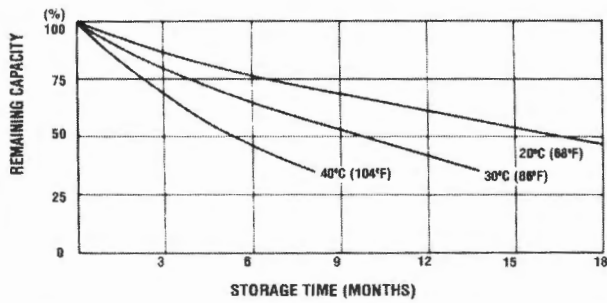
DISCHARGE CHARACTERISTIC CURVES AT 25°C (77°F)



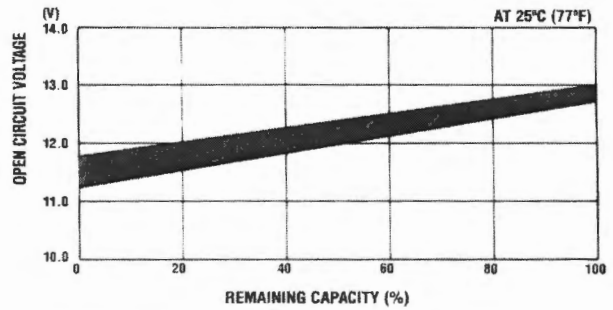
TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



SELF DISCHARGE CHARACTERISTICS

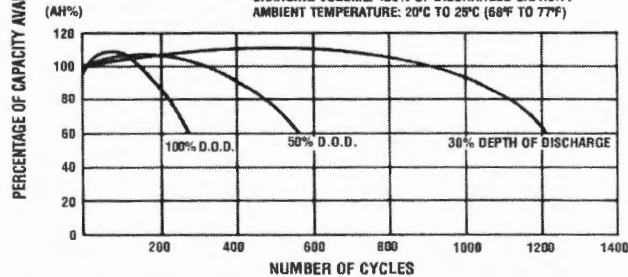


OPEN CIRCUIT VOLTAGE VS REMAINING CAPACITY



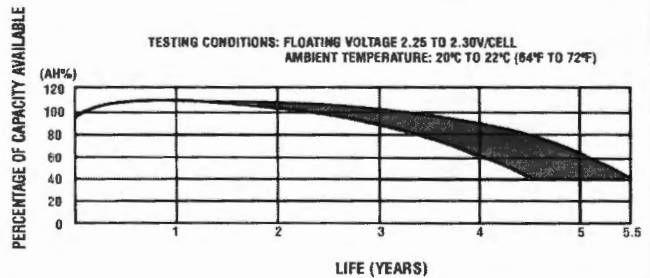
CYCLE SERVICE LIFE IN RELATION TO DEPTH OF DISCHARGE

TESTING CONDITIONS: DISCHARGE CURRENT: 0.17C AMP. (F.V. 1.7V/CELL)
 CHARGING CURRENT: 0.09C AMP.
 CHARGING VOLUME: 125% OF DISCHARGED CAPACITY
 AMBIENT TEMPERATURE: 20°C TO 25°C (68°F TO 77°F)



FLOAT SERVICE LIFE

TESTING CONDITIONS: FLOATING VOLTAGE 2.25 TO 2.30V/CELL
 AMBIENT TEMPERATURE: 20°C TO 22°C (64°F TO 72°F)



CAUTION: Do not charge in a sealed container. Avoid Short Circuit. Before using this battery in high current applications(>3C), consult with Interstate Batteries.

Notes: Leak-proof/spill-proof. Most SLA(Sealed Lead Acid) batteries now use AGM(Absorbent Glass Mat) technology which has largely replaced the old "gel" technology. In an AGM battery, fiberglass mats absorb the acid and hold it against the lead plates inside the battery. Because the acid is absorbed by the sponge-like mats, it will not leak or spill (provided proper charging and usage instructions are followed). Additional safety features include the use of special sealing epoxies, tongue-and-groove case and cover construction as well as long sealing paths for post and connectors. Our AGM batteries are approved for all modes of transport(water, road, rail, air, etc.).

interstatebatteries.com

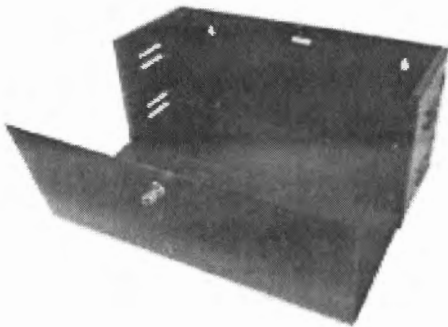
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BCA



RED SAE P/N: SSU00500
BLACK SAE P/N: SSU00501

Battery Cabinet Accessory

The BCA Battery Cabinet Accessory is designed for the professional installation of systems requiring battery storage and meets the requirement of NFPA 72 (1-5.2.9) standby battery storage for battery backup. The BCA allows for easy access and maintenance of the batteries while also assisting against unnecessary power drain, interference or degeneration of the battery. The unit can be mounted securely to a wall, preventing mechanical injury or damage to other equipment.

Constructed from heavy duty 16 gauge steel with a full length piano hinged door to allow optimum access to your equipment within the cabinet. Other features include a high security CAT 30 keyed door lock and vented sides. Complete interior and exterior finish is accomplished by a phosphate treatment followed by a durable baked-on textured polyester coating.

Standard Features:

- 16 Gauge (.062 thk.) cold rolled steel
- Stainless steel piano hinge
- Red or black textured finish
- CAT 30 keyed door lock
- Dimensions:
 - 22" wide x 10" high x 8 1/2" deep
- Four 1/2" and 3/4" EMT conduit knockouts located on both sides and back
- Wall mounting holes

Integration Accessories

Space Age Electronics, Inc.
406 Lincoln Street
Marlboro, MA 01752-2195
www.1sae.com
800.486.1723—voice
508.485.0966—
508.485.4740—fax



ADA



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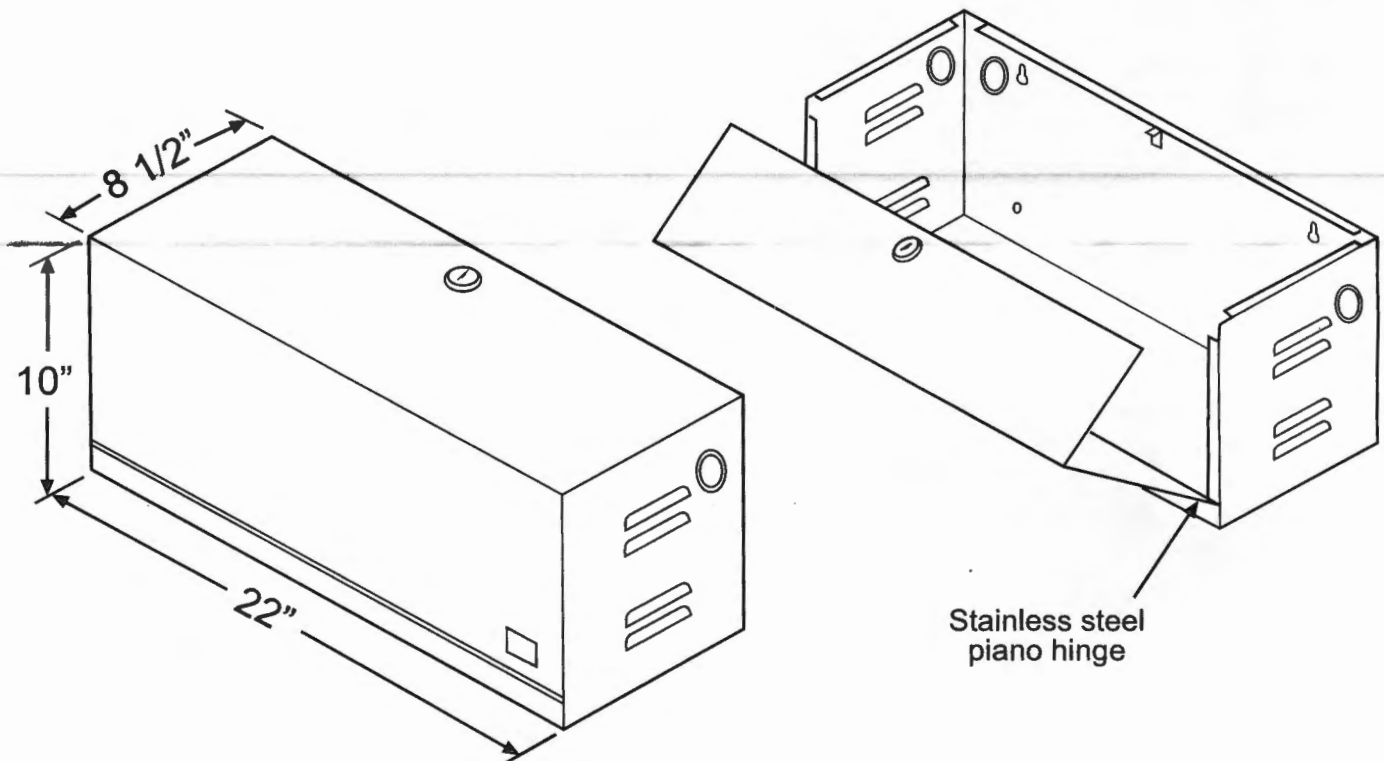
Made In U.S.A.

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ED0089 LT10011 Rev. C Pg. 1/2

No Excuses Just Solutions!

Description:

The **BCA Battery Cabinet Accessory** is constructed of 16 gauge (.062 thk.) cold rolled steel and finished with a complete interior and exterior durable red or black textured, heat-resistant baked-on enamel finish. The front cover features a full length stainless steel piano hinge and includes a high security CAT 30 keyed door lock. Overall dimensions measure 22" wide by 10" high by 8 1/2" deep. Four 1/2" and 3/4" EMT conduit knockouts are located on the sides and back. The battery cabinet meets NFPA 72 (1-5.2.9) and the National Electric Code requirements. Batteries not included.



Ordering Information:

Part #	Description
SSU00500	BCA Battery Cabinet Accessory - Red
SSU00501	BCA Battery Cabinet Accessory - Black

Integration Accessories

Space Age Electronics, Inc.
406 Lincoln Street
Marlboro, MA 01752-2195
www.1sae.com
800.486.1723—voice
508.485.0966
508.485.4740—fax

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UL Listed

7744/7788

AES IntelliNet
CORPORATION | For Alarm Monitoring

NEW!

RF Subscriber Unit

UL Fire, AA Burglary and NFPA-72 Compliant

UL Listed

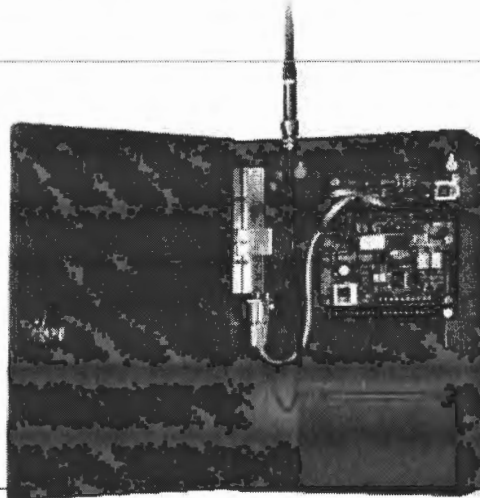
UL Listed Central
Station

Remote Station

864 Ed. 9, 827, 1610,
365, 681

CSFM

NFPA
RF Section 8.6.3.5



- Options for Full Data for Fire and Burglary
- Available in 7744 & 7788 Zone Configurations
- Built-in Power Supply and Battery Charger
- Local Annunciation Options on Board

Advanced Wireless Alarm Monitoring

The 7744/7788 smart subscriber unit links an alarm panel to an alarm monitoring central station. This 2-way transceiver and repeater in one is housed in a full size locking steel cabinet for superior performance. The 7744/7788 supports a wide range of inputs such as NO/NC/EOL and direct voltage. It automatically senses wire and antenna cuts, and monitors battery and AC power status. Advanced status reporting, self-diagnostics and a built-in power supply make the 7744/7788 the first choice for all wireless alarm communication needs.

Full Data for Fire and Burglary

Use with the optional Firetap for full fire data or the IntelliTap for full fire and burglary data.

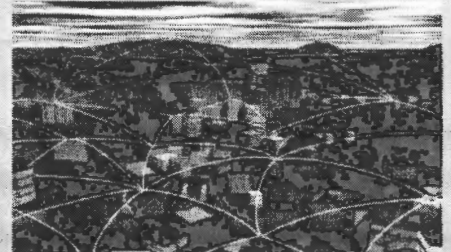
Available Configurations

7744 – 4 reversing polarity inputs plus 4 programmable EOL inputs

7788 – Programmable EOL inputs with 8 zones

Available Options

FireTap 7770
IntelliTap 7067
NEMA 4 Enclosure
High Gain Antenna
Additional Back Up Battery
Available in Burglary Beige or Fire Red



Wireless mesh networking is an innovative technology adopted by many industries with applications that need to communicate data over a large geographic area with a high level of reliability at a low total cost of ownership.

The advanced design and 2-way communications capability provides easy installation, expansion, and management when compared to alternative communication methods, both wired and wireless.

RF Subscriber Unit

Technical Specifications

Radio

Standard CSAA frequency ranges:
450-470 MHz and 130-174 MHz, VHF
and UHF. Others available

Standard Output Power

2 watts (requires FCC license)

Power Input

16.5 VAC, 40VA UL listed
Class II transformer required

Voltage

12 VDC nominal

Current

175mA standby; 800mA transmit

Alarm Signal Inputs

- 4 individually programmable Zones:
NO/NC/EOL, trouble restore
- RS-232
- Reversing voltage (7744 only) 12 or
24 VDC

Operating Temperature Range

0° to 50°C, 32° to 122°F

Storage Temperature Range

-10° to 60°C, 14° to 140°F

Relative Humidity Range

0-85% RHC non-condensing

Back up Battery

12V, 7 AH

Low Battery Reporting

22.5-minute test cycle

AC Status

Reports to central station after
approximately 60 minutes without AC
power, reports power restored after
approximately 60 minutes of restored
power. programmable from 60 to 180
minutes

Antenna Cut (local reporting)

Form 'C' Contact 1 AMP

Size

13.25"H x 8.5"W x 4.3"D
34cm x 21.5cm x 11cm

Weight

6.4 lbs, 2.9 Kilograms
(excluding battery)

Colors

Available in standard
Burglary Beige or Fire Red
Please specify when ordering

Available Options

- 7788 RF subscriber unit
with 8 EOL inputs
- 7744 RF subscriber unit with 4 EOL
inputs and 4 reverse polarity inputs
- 7770 - FireTap
- 7067 - IntelliTap
- NEMA 4 Enclosure

Please specify when ordering

Available configurations

- 7788, 8 EOL inputs
- 7744, 4 EOL inputs w/4
reverse polarity inputs

AES-IntelliNet™ is the industry leader in delivering high quality wireless mesh networks to the fire and security industry in commercial, corporate, government, and educational applications with its broad line of products and advanced network management tools. Users of AES-IntelliNet networks have gained significant revenue, communications, and cost advantages while meeting the high standards of reliability required for the fire and security industry. AES-IntelliNet alarm monitoring systems are deployed at hundreds of thousands of locations in over 130 countries.



For more information

Call 800-AES-NETS (800-237-6387)

AES Corporation | 285 Newbury Street | Peabody, MA 01960 USA
Tel. +1 978-535-7310 | Fax +1 978-535-7313 | Email info@aes-intellinet.com
Web www.aes-intellinet.com

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7744/7788/02/08

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FDB

Fire Alarm Control Unit (FACU) Records & Document Box

The Space Age FDB has been developed to be a code compliant solution to a mandated item specified by the National Fire Code (NFPA 72).

An internal galvanized sleeve holds the documents safely and securely. Access to the documents is via a high security CAT 30 Lock Set.

NFPA 72 section 6.2.2.1 states, "A record of installed software and firmware version numbers shall be maintained at the location of the fire alarm control unit." The FDB is large enough to hold Operating Manuals, Permits, Shut-Down Instructions and more.

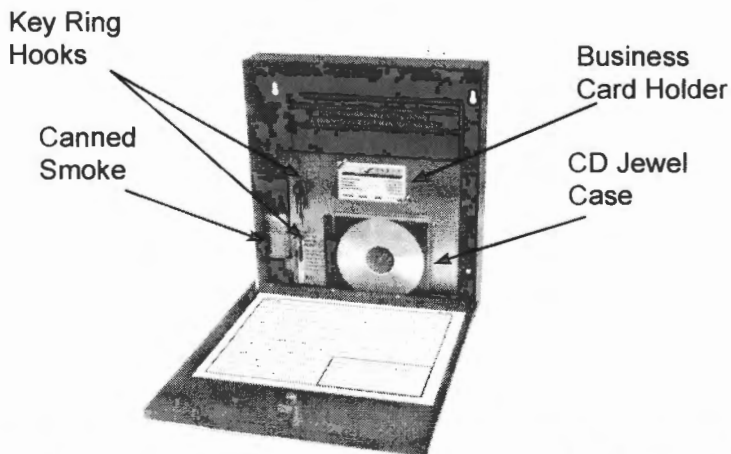
The galvanized sleeve also contains 2 hooks for key rings or thumb drives, a place for several business cards, a cutout for a 1.4 Oz. can of test gas and a slot where a standard CD "jewel" case can be stored.

Held in by two "wing nuts" the sleeve is easily removable to allow storage of a 1.5" 3 ring binder.

Standard Features:

- Overall Dimensions are:
12" Wide x 13.1" High x 2.25" Deep
- CAT 30 Secured Locking Door
- Piano Hinged Door w/Notes Sticker
- Removable document holder can hold 1" of 8.5" x 11" paperwork
- Powder Coat Red Finish
- 16 Gauge CRS construction
- Embossed:
Key Ring Hooks
Business Card Holder
CD Case Slot
- 1.4 Oz. can of detector test gas
- Private labeling available

The door reads "FACU MAINTENANCE RECORDS" in 1" tall white lettering. Custom Logo and Lock Sets are available upon request.



ISO 9001
REGISTERED
COMPANY



BOX

Space Age Electronics, Inc.
www.1sae.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

Overview

The GE Security Cat. No. 278B/279B series noncoded fire alarm stations are contemporary styled Lexan stations and are flexibly designed to meet a wide variety of application requirements and operational sequences.

The Cat. No. 278B series are double action stations with terminals for field wiring connections.

The Cat. No. 279B series are double action stations with six inch (150mm) wire leads for field wiring connections.

All types can be either presignal or general alarm and are available with single or double pole alarm contacts which can be normally open, normally closed or a combination of both. Either a key or tool (depending on station selected) is required to reset mechanism.

See specification chart for specific catalog numbers and features.

Where a manual station is installed on a circuit that also includes smoke detectors, a resistor may be added in series with the alarm initiating contacts on the station so the operation of the station does not extinguish alarm LEDs on operated detectors. The Cat. No's. 276-R and 276-RT series resistor kits permit field installation of the series resistor on applicable stations.

For semi flush mounting use a standard North-American four inch square box with a single gang plaster cover having an overall minimum depth of 2-1/4 inch (57mm). For surface mounting use a Cat. No. 276B-RSB surface back box.

Standard Features

- Double action models
- Single or double pole contacts
- Terminals or wire leads for field connections
- Presignal or general alarm operation
- Key lock or tool reset
- Break glass operation
- Surface or semi flush mounting
- Red finish
- Contemporary styling
- Rugged LEXAN construction
- Latch action until reset

Double-Action Fire Alarm Stations

278/279B Series — Non-Coded



Operation

To initiate an alarm it is necessary to first lift the upper door marked "LIFT THEN PULL HANDLE", and then pull the alarm handle.

The alarm handle latches in the pulled position until the station is manually reset. To reset, the station is opened using a Cat. No. 276-K1 key supplied with the station, or a tool; the toggle switch is restored to its normal position, the break glass rod is replaced and the station is reclosed. For presignal type stations, the general alarm can be initiated by authorized personnel from any operated station by inserting a Cat. No. 276-K2 key into the keyswitch behind the alarm handle and turning it clockwise.

Engineering Specifications

Furnish and install where indicated on plans, Cat. No. (Select one of the following:)

(278B series double action manual stations with screw terminals)

(279B series double action manual stations with six inch (150mm) wire leads) for connection of installation wiring. All stations shall be of the non-coded break glass type.

The stations shall be constructed of red lexan with white raised letters. The alarm handle shall be marked "PULL FOR FIRE", to provide simple, concise instructions for activation of station by the general public. It shall be necessary to first lift an upper door marked "LIFT THEN PULL HANDLE" to gain access to the alarm handle.

Pulling the alarm handle shall break a glass rod and activate a toggle switch which shall cause the handle to latch in the alarm position. Momentary push button type switches shall not be acceptable. To reset the station it shall be necessary to open the station using (select one) (a key) (a special tool), restore the toggle switch to its normal position and replace the glass rod. Stations shall be UL listed.

Technical Specifications

Contact Ratings: General Alarm Switch/Keyswitch	
Single Pole	3.0 Amps, 30 Vac, Resistive Load 1.0 Amps, 28 Vdc, Resistive Load
Double Pole	1.5 Amps, 30 Vac, Resistive Load 1.0 Amps, 28 Vdc, Resistive Load
Cat. No. 276-R and 276-RT Series resistor kits (optional)	560 Ohms, $\pm 5\%$
(For stations connected to smoke detector circuits)	2 W
Station Housing	Red Lexan 940 with White Letters
Weight	1 lb (0.4 kg)

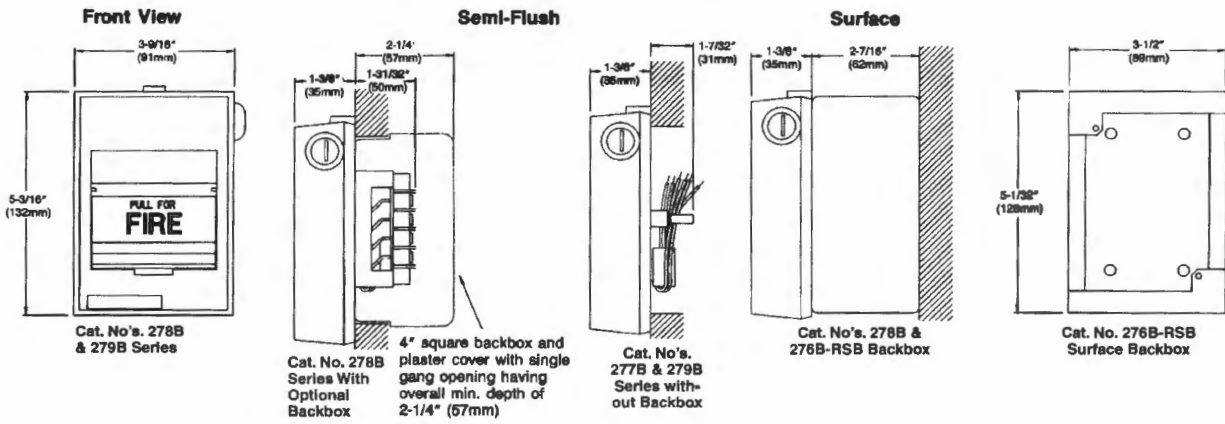
Accessories

276-GLR	Replacement Package of Glass Rods
276-K1	Station Reset Key, Supplied with all Key Reset Stations
276-K2	General Alarm Key. Must be ordered separately.
276-RT*	Series Resistor Kit with Terminal Block.
276B-RSB	Surface Back Box, Red.

*See Ordering Table to determine Kit for specific stations.

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.

Mounting

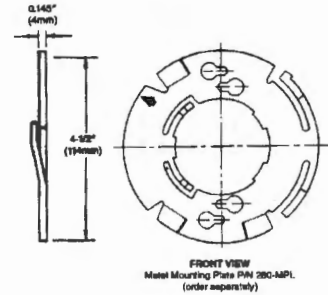
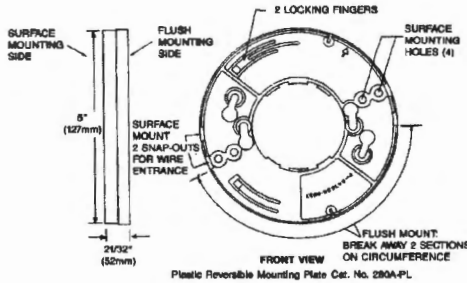
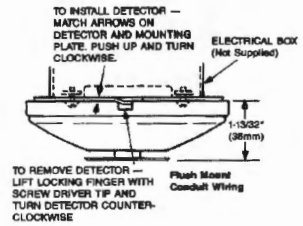


Ordering Information

Catalog Number	Field Connections		Switch Contacts				Station Reset		Type Alarm		Agency Approvals		Series Resistor Kit	
	Screw Terminals	6" (150mm) Wire Leads	Single Pole Alarm Contact	Double Pole Contact	Open Circuit	Closed Circuit	Tool Operated Reset	Key Operated Reset	Presignal Alarm Contacts	General Alarm Contacts	UL Listed	FM Approved	276-R	276-RT
278B-1110	X		X		X		X			X	X	X	X	
278B-1120	X		X		X			X		X	X	X	X	
278B-1320	X			X	X			X		X	X	X		X
278B-1420	X			X	X	X		X		X	X	X		X
277B-1110	X		X		X		X		X	X	X	X	X	X
277B-1120	X			X	X			X	X	X	X	X		X
279B-1110		X	X		X		X			X	X	X		
279B-1120		X	X		X			X		X	X	X		
279B-1320		X		X	X			X		X	X	X		

Mounting

The plastic mounting plate is molded to accommodate exposed wiring.



Detection & alarm since 1872

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F 305 593 4300

utcfireandsecurity.com

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WARNING – Use For Property Protection Only: Heat sensors do not protect life against fire and smoke. In most fires, hazardous levels of smoke, heat and toxic gases can build up before a heat detector would initiate an alarm. Independent studies indicate that heat detectors should only be used when property protection alone is involved. In cases where life safety is a factor, the use of smoke detectors is recommended.

Under no circumstances should heat detectors be relied upon as the sole measure to ensure fire safety. However, if they are spaced in accordance with the directions in the Specifications table, these sensors can contribute, within an overall fire safety program, to reducing the risk of avoidable property losses.

Specifications

Catalog Number	281B-PL	282B-PL	283B-PL	284B-PL
UL Temperature Rating	135°F (57°C)	194°F (90°C)	135°F (57°C)	194°F (90°C)
UL Max Ambient Temp. at Ceiling	100°F (38°C)	150°F (66°C)	100°F (38°C)	150°F (66°C)
Detector Type	Fixed Temperature and Rate-of-Rise Rate-of-rise: 15° F (9° C), self restoring		Fixed Temperature Only	
UL Recommended Coverage*	2,500 ft. ² (232 m ²)			
UL Recommended Spacing	50 ft. (15.2 m)			
FM Recommended Spacing	30 ft. (9.14 m)			
UL Maximum Distance from Wall	25 ft. (7.6m) from any wall or projection extending down from the ceiling more than 12 inches (305 mm)			
Contacts – Rating	Single Pole Normally Open 3.0 amps at 6 to 125 Vac; 1.0 amp at 6 to 28 Vdc; 0.3 amps at 125 Vdc; 0.1 amps at 250 Vdc			
Operating Environment	Indoor – Dry			
Agency Listings	UL, FM, CSFM			

* Maximum detector coverage has been determined by UL to provide detection time equal to sprinkler devices spaced at 10 ft (3.05m) intervals on a smooth ceiling 15 feet 9 inches (4.8m) high. Higher ceilings may adversely affect detection time. Earlier detection may be obtained by reducing the spacing between sensors. (See NFPA 72, Chapter 5)

Ordering Information

Cat. No.	Description	Ship Wt. lb (kg)
281B-PL	Heat Detector, 135°F (57°C), Rate-of-Rise and Fixed Temperature	1.0 (0.5)
282B-PL	Heat Detector, 194°F (90°C), Rate-of-Rise and Fixed Temperature	
283B-PL	Heat Detector, 135°F (57°C), Fixed Temperature	
284B-PL	Heat Detector, 194°F (90°C), Fixed Temperature	

Detector Accessories	Description
280A-PL	Plastic Mounting Plate – White, Reversible (included)



DITEK Corporation
ONE DITEK CENTER
1720 Stanley Road
Largo, FL 33771

INSTALLATION

INSTALL INSTRUCTIONS

DTK-2MHLR DTK-2MHTP and Base

This Surge Protection Device (SPD) is a high performance device, designed to provide protection for sensitive electronic loads connected to communication loop circuits that have been isolated from the public switched telephone network or where the SPD is directly connected to the electronic device. Maximum protection will only be achieved if the SPD is properly installed. Please read and follow the installation instructions carefully.

NOTICE: This SPD should be installed by a qualified electrician in accordance with the National and Local Electrical Codes and the following instructions.

APPLICATION

Surge suppression for hardwired series installations on voltages ranging from 5 - 90 Volt (DTK-2MHLR models only), 130 Volt (DTK-2MHTP model only) loop circuits or communication circuits.

INSTRUCTIONS:

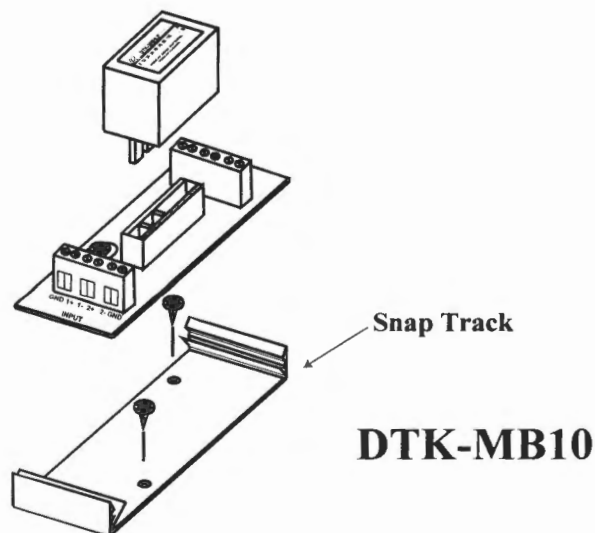
Caution: Measure all voltages to insure applied voltage does not exceed the voltage rating of the unit. Improper installation voids the warranty.

DTK-MB10 BASE INSTALLATION

1. Turn off the power at the circuit to be protected before beginning installation.
2. Securely mount the snap track between the field wiring and your equipment to be protected. Use the two #8 screws provided to fasten the snap track.
3. Connect ground to the ground terminal using a minimum of 14 AWG wire.
4. Connect the supply wiring to the unprotected side of the DTK-MB10 base. Connect the 1st pair to position 1+ and 1- than the 2nd pair to position 2+ and 2-.
5. Connect the equipment wiring to the protected side of the DTK-MB10 base. Connect the 1st pair to position 1+ and 1- than the 2nd pair to position 2+ and 2-.
6. Make sure the wire distance from the base to protected equipment is greater than the wire distance from the base to ground.
7. After all connections have been made and no hazards exist, restore power.

MODULE INSTALLATION

Insert the module into the base making sure the polarizing keys in the block are aligned with the edge card on the printed circuit board.



DITEK Technical Support Available 24/7
1-888-472-6100
www.ditekcorp.com

Doc # INT-100020-001
Part No. 191502 Rev. 7

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UNITIL-PORTLAND, ME
Standby Battery Calculations

Quiescent Condition

	<i>Item</i>	<i>Qty.</i>	<i>@ (Amp)</i>	<i>Current (Amp)</i>
	IO500	1	0.172000	0.172000
	DEVICES	125	0.000250	0.031250
	MONITOR MODULES, CT1	125	0.000250	0.031250
			Total Quiescent Load:	0.2345

$$\begin{aligned} \text{Quiescent Amp Hours Required} &= \text{Total Load} \times \text{Time Required} \\ &= 0.2345 \text{ Amp} \times 60 \text{ hours} \\ &= 14.0700 \text{ Amp Hours} \end{aligned}$$

Alarm Condition

	<i>Item</i>	<i>Qty.</i>	<i>@ (Amp)</i>	<i>Current (Amp)</i>
	IO500	1	0.2670	0.2670
	FULL LOAD	2	1.5000	3.0000
	MODULES	125	0.0004	0.0500
	DETECTORS	125	0.0007	0.0875
			Total Alarm Load:	3.4045

$$\begin{aligned} \text{Alarm Amp Hours Required} &= \text{Total Load} \times \text{Time Required} \\ &= 3.4045 \text{ Amp} \times 0.166 \text{ hours (10 minutes)} \\ &= 0.5651 \text{ Amp Hours} \end{aligned}$$

$$\begin{aligned} \text{Total Amp Hours Required} &= \text{Total (Quiescent + Alarm) Amp Hours} \\ &= 14.0700 \quad + \quad 0.5651 \\ &= 14.6351 \text{ Amp Hours} \end{aligned}$$

FACP Main Power Supply AH 18.0000
Total Amp Hours Supplied = 18AH

Booster Standby Battery Calculations

Quiescent Condition

	<i>Item</i>	<i>Qty.</i>	<i>@ (Amp)</i>	<i>Current (Amp)</i>	
	BPS-10	1	0.070	0.070	
			Total Quiescent Load:	0.070	Amp

$$\begin{aligned} \text{Quiescent Amp Hours Required} &= \text{Total Load} \times \text{Time Required} \\ &= 0.070 \text{ Amp} \times 60 \text{ hours} \\ &= 4.200 \text{ Amp Hours} \end{aligned}$$

Alarm Condition

	<i>Item</i>	<i>Qty.</i>	<i>@ (Amp)</i>	<i>Current (Amp)</i>	
	BPS-10	1	0.270	0.270	
	FULL LOAD	1	10.000	10.000	
			Total Alarm Load:	10.270	Amp

$$\begin{aligned} \text{Alarm Amp Hours Required} &= \text{Total Load} \times \text{Time Required} \\ &= 10.270 \text{ Amp} \times 0.166 \text{ hours (10 minutes)} \\ &= 1.705 \text{ Amp Hours} \end{aligned}$$

$$\begin{aligned} \text{Total Amp Hours Required} &= \text{Total (Quiescent + Alarm) Amp Hours} \\ &= 4.200 \quad + \quad 1.705 \\ &= 5.905 \end{aligned}$$

$$\text{Total Amp Hours Supplied} = 7\text{AH}$$

**UNITIL
PORTLAND ME**

Formulas Used:

$$R_t = (D) \times (R_w) / 1000'$$

$$V_d = (R_t) \times (I_t)$$

Substitute for (R_t) and solve for D

$$D = ((4.0) \times (1000)) / ((R_w) \times (I_t))$$

R_t = Total Circuit Resistance
 D = Total Circuit Length (Feet)
 R_w = Wire Resistance (Ω) per 1000' Pair (Ohms)
 V_d = Circuit Voltage Drop (Max allowed is 4.0Vdc)
 I_t = Total Circuit Current

Notes:

- 1 BPS Power supply terminal voltage 24Vdc.
- 2 A maximum allowable voltage drop of 4Vdc will provide a minimum of 20 Vdc per circuit
- 3 Current values listed per device are based on 20Vdc.
- 4 BPS Power supply output is straight DC (not regulated).

STROBE CIRCUIT MAX WIRE LENGTH CALCULATION													
BPS/Ckt-Cd	G1RF-VM Horn/Strobe				G1RF-VM		757-8A		Total Circuit Current	Ω per 1000' Pair		Volt Drop	
	0.088	0.109	0.193	0.248	0.071	0.098	0.188	0.18		2AWG (3.5)	4AWG (5.2)		
	15cd	30cd	75cd	110cd	15cd	30 cd	75cd	110cd	Amp	Max Length (F)	Max Length (F)		
	1	2	1		3				0.5820	1963.67	1321.70	4.0	
	2	2	1		5				0.7240	1578.53	1062.47	4.0	
	3	6	1	1	3				1.2910	885.25	595.84	4.0	
	4			4	1			1	1.2000	952.38	641.03	4.0	
BPS2	1								0.0000	#DIV/0!	#DIV/0!	4.0	
	2								0.0000	#DIV/0!	#DIV/0!	4.0	
	3								0.0000	#DIV/0!	#DIV/0!	4.0	
	4								0.0000	#DIV/0!	#DIV/0!	4.0	
BPS3	1								0.0000	#DIV/0!	#DIV/0!	4.0	
	2								0.0000	#DIV/0!	#DIV/0!	4.0	
	3								0.0000	#DIV/0!	#DIV/0!	4.0	
	4								0.0000	#DIV/0!	#DIV/0!	4.0	
BPS4	1								0.0000	#DIV/0!	#DIV/0!	4.0	
	2								0.0000	#DIV/0!	#DIV/0!	4.0	
	3								0.0000	#DIV/0!	#DIV/0!	4.0	
	4								0.0000	#DIV/0!	#DIV/0!	4.0	

**UNITIL
PORTLAND ME**

SEQUENCE OF OPERATION MATRIX

System	A	B	C	D	E	F	G	I	J	K	L	M	S
Manual Pull Stations	x	x					x	x	x	x			x
Smoke Detectors	x	x					x	x	x	x			x
Duct Smoke Detector	x	x					x	x	x	x			x
Heat Detectors	x	x					x	x	x	x			x
Tamper Switch			x	x					x		x		
Water flow Switch	x	x					x	x	x	x			x
Pressure Switch	x	x					x	x	x	x			x
AC Failure			x	x							x		
Low Battery					x							x	
Open Circuit					x	x						x	
Short Circuit					x	x						x	
Notification Appliance Short					x	x						x	
Fire Alarm System Low Battery					x	x						x	

Actuate Common Alarm Signal
 Actuate Audible Alarm Signal
 Actuate Common Supervisory Signal
 Actuate Audible Supervisory Signal
 Actuate Common Trouble Signal
 Actuate Audible Trouble Signal
 Actuate Alarm Indicator
 Actuate Evacuation Signals
 Display Change of Status
 Transmit Fire Alarm Signal To Supervising Station
 Transmit Supervisory Signal To Supervising Station
 Transmit Trouble Signal To Supervising Station
 Activate Exterior Beacon Or Horn Strobe

LEGEND:

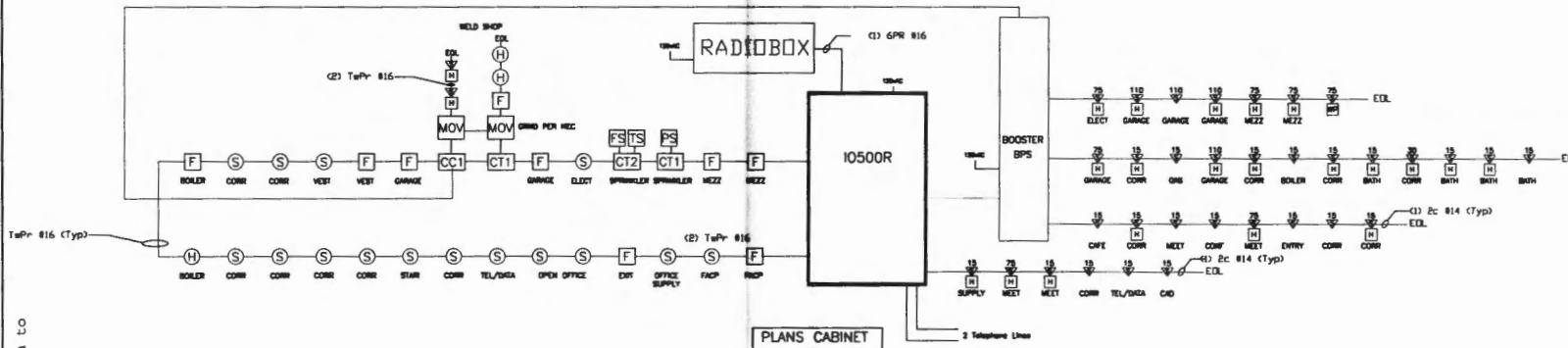
RISER DIAG SYM	NFPA SYMBOL*	DESCRIPTION	CATALOG #
FACP	FACP	Fire Alarm Control Panel	10500
RADIOBOX		RADIO BOX	DIGITIZ
BPS	FACU	Notification Power Extender (Fire Alarm Control Unit)	BPS10A
F	P	Manual Pull Station	SGA-27B
S	?	Smoke Detector w/Base	SGA-PS SGA-SB
H	A	Heat Detector w/Base	SGA-HFS SGA-SB
S ₂		Duct Smoke Detector	SGA-SD
CT2	IM	Addressable Input Module	SGA-CT1, -CT2
CM	RM	Addressable Relay Module	SGA-CR
▽	X _f	Strobe Unit (f Indicates Console Setting)	GT1F-V4E
▽	X _h	Horn/Strobe Unit (h Indicates Console Setting)	GT1F-HV4M
BS	X _s	Exterior Beacon (SL Indicates Signal Lamp)	4930-12B0
RTS		REMOTE TEST STATION	SD-TRK
EM		Fire Extinguisher Monitor	EVIM
SPG		LIGHTNING PROTECTION	DTDC

WIRING NOTES:

1. ALL ADDRESSABLE DEVICES MUST BE INSTALLED IN A HEATED LOCATION.
2. Addressable Loop consists of: (1) 2c #16 Twisted Non-shielded from FACP to 1st device; (1) 2c #16 Twisted Non-shielded through remaining devices on circuit and return to FACP/FATC. Maintain proper separation between feeds and returns.
3. Strobe circuits consist of a minimum: 2c #14 from Booster Panel to 1st device; 2c #14 through remaining devices on circuit and return to EOL.
4. Booster Feeds consist of: 2c #14 from FACP to 1st Booster Panel; 2c #14 through remaining Booster Panels on circuit and return to FACP.
5. Signal circuits should not have more than 1.75 amps load and no longer than 500ft of total footage.
6. System must be grounded in accordance with National Electric Code guidelines for Fire Alarm Systems.

GENERAL NOTES:

1. ALL WIRING IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE (IBC), CITY OF PORTLAND REQUIREMENTS, AND MANUFACTURER'S REQUIREMENTS & RECOMMENDATIONS.
3. PLEASE CALL MARK GEMAS 603-964-8140 QUESTIONS REGARDING THIS JOB.



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PORTLAND ME
FIRE ALARM RISER DIAGRAM

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Co. Inc.
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UNITIL NORTHERN UTILITIES
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FIRE ALARM RISER DIAGRAM

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0	Original Issue	11/12	LLG	TD

SCALE: NTS
PO No.
UNITIL
PORTLAND ME
FIRE ALARM RISER
DWG NO. RISER