GUAM POWER AUTHORITY
ATURIDÅT ILEKTRESEDÅT GUÅHAN
P.O.BOX 2977 • HAGÅTÑA, GUAM U.S.A. 96932-2977

March 24, 2025

AMENDMENT NO.: III

TO

INVITATION FOR BID NO.: GPA-027-25

FOR

GLORIA B. NELSON PUBLIC SERVICE BUILDING FIRE PROTECTION SERVICE AND MAINTENANCE CONTRACT

Prospective Bidders are hereby notified of the following changes and responses to inquiries received from Bidder No.: 1 dated March 18, 2025 and March 20, 2025:

INCLUSION:

REMOVE Page 3a of 35 and *REPLACE* with Page 3b of 35 (see attached):

Under INVITATION FOR BID, to include:

* 3rd. PRE-BID/SITE VISIT CONFERENCE (NON-MANDATORY) is scheduled for 9:00 A.M., Friday, March 28, 2025. Meeting place will be at our GPWA Procurement Office, Room 101, 1st. Floor, Gloria B. Nelson Public Service Building, 688 Route 15, Fadian, Mangilao.

CHANGES:

*1. Bid Opening is changed *FROM* 2:00 P.M., Thursday, April 10, 2025 (CHamoru Standard Time) *TO NOW READ* 2:00 P.M., Thursday, April 17, 2025 (CHamoru Standard Time).

2. *REMOVE* Page 3a of 35 and *REPLACE* with 3b of 35 (see attached):

   a. Under INVITATION FOR BID, INSTRUCTION TO BIDDERS, Paragraph one has changed:

      FROM:
      This bid shall be submitted in one (1) original, two (2) copies and sealed to the issuing office above no later than (Time) 2:00 P.M., (Guam CHamoru Standard Time; ChST) Date: April 10, 2025 and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

TO NOW READ:

* This bid shall be submitted in one (1) original, two (2) copies and sealed to the issuing office above no later than (Time) 2:00 P.M., (Guam CHamoru Standard Time; ChST) Date: April 17, 2025 and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

b. Under INVITATION FOR BID, CUT-OFF DATE FOR RECEIPT OF QUESTIONS: is changed:

FROM:
5:00 P.M., Thursday, March 27, 2025

TO NOW READ:
* 5:00 P.M., Friday, April 4, 2025

3. *REMOVE* Page 7 of 35 and *REPLACE* with 7a of 35 (see attached):

Under INVITATION FOR BID, DESCRIPTION, F.9 is changed:

FROM:
Insure all tanks are filled and refill tanks below acceptable levels.

TO NOW READ:
* Ensure all tanks are filled and refill tanks that are below acceptable levels.

QUESTION:
1. Requesting a copy of the as-built drawing of the Gloria B. Nelson Public Service Building fire system and the most recent fire alarm certification.

ANSWER:
Refer to Attachment A – Gloria B. Nelson building fire protection system drawings and Attachment B – Gloria B. Nelson fire protection certification.

QUESTION:
2. Requesting for a second site assessment for Gloria B. Nelson Public Service Building on Route 15 Mangilao on Friday, March 21, 2025, at 08:30 am to inspect and verify system/equipment site conditions.

ANSWER:
Refer to the *INCLUSION* above.

QUESTION:
3. Requesting a second RFI period one week after the second site assessment is conducted to submit follow-up questions.

ANSWER:
Refer to No. 2b. of *CHANGES* above.

QUESTION:

4. Requesting to extend the bid submission due date and time from Tuesday, April 1, 2025, 09:00 am, to two weeks after Request for Information No. 2 is due.

ANSWER:

Refer to No. 1 and 2a. *CHANGES* above.

QUESTION:

5. Where we put the price it states LOT, Monthly and Annually. Do we price by 1 Lot? Or by a 12 month period?

ANSWER:

Yes. The amount to be indicated would be annually (12 months' period) with a monthly breakdown charge.

QUESTION:

6. Will this be a drawn-down purchase order?

ANSWER:

No.

QUESTION:

7. Scenario: If we have an annual purchase order of $100,000 and we use $10,000 for the 1st quarter inspection and service. Then a major part needed to be replaced is valued at $150,000.
   a) How would this scenario be handled?

   b) Is the awarded vendor required to still conduct the 2nd inspection and service?

ANSWER:

a) Any corrective work (not part of the contract), associated with the Gloria B. Nelson Public Service Building Fire Alarm/Suppression Systems, shall be submitted in writing for further review.
b) Yes.

QUESTION:

8. Please confirm if F.9 is correct as written in the IFB or if it should read - "Ensure all tanks are filled and the refill tanks are not below acceptable levels.

ANSWER:

Refer to No. 3 of *CHANGES* above.

All other Terms and Conditions in the bid package shall remain unchanged and in full force.

JOHN M. BENAVENTE, P.E.
General Manager

ISSUING OFFICE:
Guam Power Authority-Procurement Office
1st. Floor, Room 101
Gloria B. Nelson Public Service Building
688 Route 15
Mangilao, Guam 96913

Attn: JOHN M. BENAVENTE, P.E.
General Manager
c/o JAMIE LYNN C. PANGELINAN
Supply Management Administrator

3/25/2025
JOHN M. BENAVENTE, P.E. DATE
General Manager

DATE ISSUED: 02/25/2025 03/04/2025 BID INVITATION NO.: GPA-027-25

BID FOR: GLORIA B. NELSON PUBLIC SERVICE BUILDING FIRE PROTECTION SERVICE AND MAINTENANCE CONTRACT

SPECIFICATION: SEE ATTACHED

DESTINATION: SEE ATTACHED

REQUIRED DELIVERY TIME: SEE ATTACHED

PRE-BID/SITE VISIT CONFERENCE (NON-MANDATORY): 9:30 a.m., Tuesday, March 11, 2025
(Meeting place will be at our GPWA Procurement Office, Room 101, 1st. Floor, Gloria B. Nelson Public Service Building, 688 Route 15, Fadian, Mangilao)

2nd PRE-BID/SITE VISIT CONFERENCE (NON-MANDATORY): 9:30 a.m., Thursday, March 20, 2025
(Meeting place will be at our GPWA Procurement Office, Room 101, 1st Floor, Gloria B. Nelson Public Service Building, 688 Route 15, Fadian, Mangilao)

* 3rd. PRE-BID/SITE VISIT CONFERENCE (NON-MANDATORY): 9:00 a.m., Friday, March 28, 2025
(Meeting place will be at our GPWA Procurement Office, Room 101, 1st Floor, Gloria B. Nelson Public Service Building, 688 Route 15, Fadian, Mangilao)

* CUT-OFF DATE FOR RECEIPT OF QUESTIONS: 5:00 P.M., Friday, April 4, 2025

INSTRUCTIONS TO BIDDERS:
INDICATE WHETHER: _____ INDIVIDUAL _____ PARTNERSHIP _____ CORPORATION

INCORPORATED IN: _____

* This bid shall be submitted in one (1) original, two (2) copies and sealed to the issuing office above no later than (Time) 2:00 P.M., (Guam CHamoru Standard Time; ChST), Date: April 17, 2025 and shall be publicly opened. Bid submitted after the time and date specified above shall be rejected. See attached General Terms and Conditions and Sealed Bid Solicitation for details.

The undersigned offers and agrees to furnish within the time specified, the articles and services at the price stated opposite the respective items listed on the schedule provided, unless otherwise specified by the bidder. In consideration to the expense of the Government in opening, tabulating, and evaluating this and other bids, and other considerations, the undersigned agrees that this bid remain firm and irrevocable within one hundred twenty (120) calendar days from the date opening to supply any or all of the items which prices are quoted.

NAME AND ADDRESS OF BIDDER:

SIGNATURE AND TITLE OF PERSON AUTHORIZED TO SIGN THIS BID:

AWARD: CONTRACT NO.: _____ AMOUNT: _____ DATE: _____

ITEM NO(S). AWARDED: _____

CONTRACTING OFFICER:

JOHN M. BENAVENTE, P.E. DATE
General Manager

NAME AND ADDRESS OF CONTRACTOR:

SIGNATURE AND TITLE OF PERSON

NO.	DESCRIPTION	U/I	MONTHLY:	ANNUALLY:
			COMPLY:	NOT COMPLY:
			Comply must be identified below. All deviation must be identified below.	
* F.9	Ensure all tanks are filled and refill tanks that are below acceptable levels.			
F.10	Inspect hydraulic nameplate if applicable and the supply of spare sprinklers, proper storage and wrench types.			
F.11	All test and inspection shall be completed in accordance with the most recent edition of NFPA 25 - Inspection, Testing and Maintenance of Water-based Fire Protection Systems.			
F.12	Submit an original (hard-copy) report, and an electronic copy of reports certifying all tests and inspections. Report must contain any deficiencies found and repairs performed.			

CONTRACT TERM:
Contract term shall be for three (3) years with the GPA's option to renew annually for two (2) additional one (1) year term, not to exceed a maximum of five (5) years with the mutual agreement of both parties, unless sooner terminated in accordance with the provisions hereof or cancelled due to unavailability of funds.

NOTE:
Not withstanding the fact that this contract was written by one (1) party, it will be construed that it was written by two (2) parties.

Specifications Generated/Reviewed by:

Jerald Guzman 3/19/2025
JERALD A. GUZMAN Date
Facilities Manager

Specifications Approved by:

3/19/2025
JENNIFER G. SABLAN, P.E. Date
Assistant General Manager of Operations

ATTACHMENT A -

Gloria B. Nelson Building Fire Protection System Drawings

ATTACHMENT A

Submitted by:

Phoenix Pacific (Guam), Inc.
System Integrators

FIRE ALARM SYSTEM

EQUIPMENT LITERATURE &CALCULATIONS

GPA – GWA Multi Purpose Facility
Fadian Mangilao, Guam

Prime Contractor:

CORE-TECH INTERNATIONAL

500 Mariner Avenue Tiyan, Barrigada, Guam 96913

Tel: (671) 473-5000 • Fax: (671) 473-5500

System Supplier:

PHOENIX PACIFIC (GUAM), INC.

185 Guerrero Drive, Warehouse #15, Tamuning, Guam 96913

Tel: (671) 646 6461 • Fax: (671) 649 0483

SUBMITTAL INDEX

GPA – GWA Multi Purpose Facility
Fadian Mangilao, Guam
Fire Alarm System

CONTROL EQUIPMENT & DEVICES

DESCRIPTION	MODEL NUMBER	MANUFACTURER
Fire Alarm Control Panel	iO500GD	EST
Remote LCD Annunciator	RLCD-CR	EST
Backup Batteries	12V17A, 12V6A5	EST
Remote Booster Power Supply	BPS6A	EST
Photoelectric Smoke Detector	SIGA2-PS	EST
Smoke/Heat Combination Detector	SIGA2-PHS	EST
Super Duct Detector	SIGA-SD	EST
Fire Alarm Station, Double Action	SIGA-278	EST
Cover with Horn for Manual Station	STI-1100	EST
Synchronization Output Module	SIGA-CC1S	EST
Single Input Module	SIGA-CT1	EST
Control Relay Module	SIGA-CR	EST
Riser Monitor Module	SIGA-RM1	EST
Outdoor Horn-Strobe	WG4RF-HVMC	EST
Wall Mount Strobe	G1RF-VM	EST
Wall Mount Horn/Strobe	G1RF-HDVM	EST
SPDT Relay	PAM1	EST
Surge Suppressor for AC Circuit	DTK-TSS4	DITEK

SUPPORTING DOCUMENTS

Battery and Voltage Drop Calculations
NICET Certification

EST
Life Safety & Communications

iO500 Intelligent Life Safety System

FM APPROVED

FDNY
COA 6020

7165-1657:
0244

S3000

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 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
- Listed for releasing applications using SIGA-REL
- Fully integrated CO detection using Signature Series 2 detectors with or w/o audible signaling

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
- Combines the Signature intelligent releasing module with Signature multisensor detectors for reliable suppression
- 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
- Supports up to eight serial annunciators, (LCD, LED-only, and graphic interface).
- 1,000 event panel history log
- 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
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confirming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures end fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal review stamp appears in the submittal, the most stringent action and notations thereon shall apply. Signature of a submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

REVIEWED
By VIC CABINTA at 2:45 pm, Oct 16, 2013

By ____________ Date ____________

WIXON & ASSOCIATES Tel. (671) 646-1033

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-operatate 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 Edwards 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

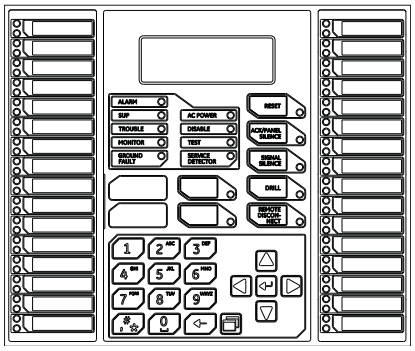
Remote annunciation is a strong suit of the iO500. Up to eight annunciators can be installed on a single system. Compatible annunciators include a range of LED and LCD models that provide zone or point annunciation, as well as common control capabilities.

The iO500 also supports graphic annunciation with optional graphic annunicator 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	*Alarm mode:* 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	*Dialer:* Disables or enables dialer. *Dialer set to modem only:* Disables or enables the common alarm relay.
Left arrow	*Display mode:* Moves the cursor to the left. *Menu mode:* Toggles between programming selections.
Right arrow	*Display mode:* Moves the cursor to the right. *Menu mode:* Retrieves a programming option's sub menu and toggles between a programming option's selections.
Up arrow	*Display mode:* Advances to the previous event. *Menu mode:* Moves the cursor up.
Down arrow	*Display mode:* Advances to the next event. *Menu mode:* Moves the cursor down.
Enter	*Display mode:* Displays selected event details. *Menu mode:* Retrieves a programming option's sub menu or jumps to the *Save* function in the menu. *Entry mode:* Enters the selected data into the system.
Cancel	*Display mode:* Exits the detailed information display. *Menu mode:* Exits the current menu level. *Entry mode:* Clears the current entry.
Menu	Display mode: Enters the menu mode Menu mode: Exits menu mode
Space	Enters a space, such as a space between words.
Alphanumeric keypad	*Entry mode:* 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 outputs, disable devices or unlatch system outputs. The buttons can be labeled with a slip-in insert.

System LEDs

LED	Description
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.

Panel Operation Options

Language	English or French
Marketplace	U.S. or Canada
AC fail delay	*Off:* Off-premise notification of an AC power failure is immediate. *1 to 15 hours:* Delays the off-premise notification of an AC power failure by the time period selected.
Zone resound	*On:* NACs resound each time a device in the zone goes into alarm even if they were silenced Off: 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	*Off:* Panel reset is operational immediately. *1 minute:* Panel reset is inhibited for one minute.
Auto signal silence	*Off:* Allows immediate silencing of signals from an off-normal condition using the Signal Silence button *5 to 30 minutes:* 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	*U.S.:* MM/DD/YYYY, *Canada:* DD/MM/YYYY
Sounder Base	Six configuration settings
Mapping	*Disabled:* Device mapping is not available *Enabled:* 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	*Zone:* When a device is a member of a zone, only the zone information is sent to the LCD display, LEDs, printer, and dialer. *Zone/device:* Zone information is sent to the LCD display and LEDs. Device information is sent to the printer and dialer. *Device:* Only device information is reported.

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.

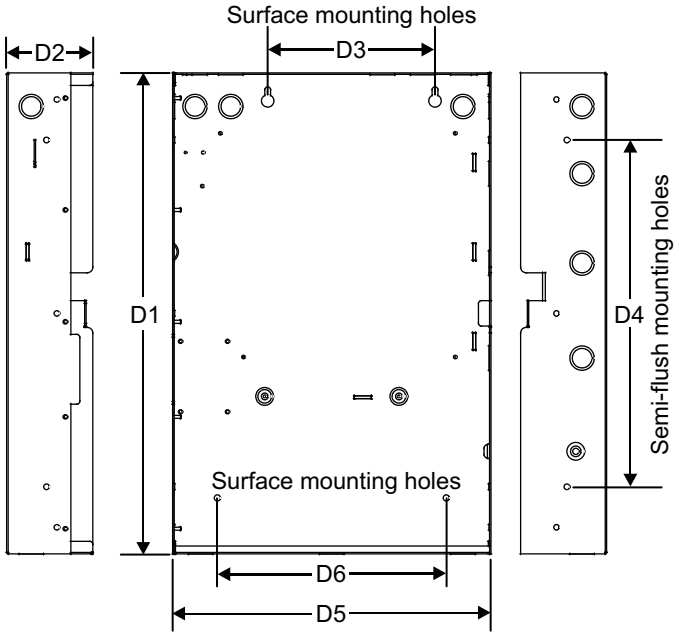
For more advanced system configuration and correlation groups programming, iO500 systems interface to a PC running compatible iO-CU software. This option offers full system configuration in the familiar Windows® operating environment. Connection is typically made to a laptop through the panel's optional 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
- CO runtime

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.*

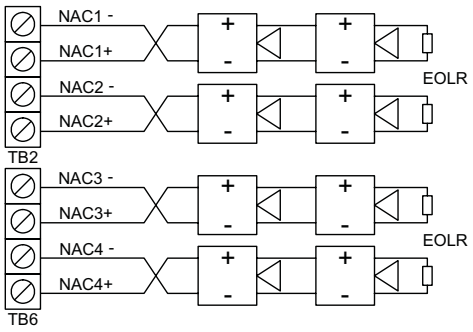
Wiring & Configuration

Notification appliance circuits (TB2)

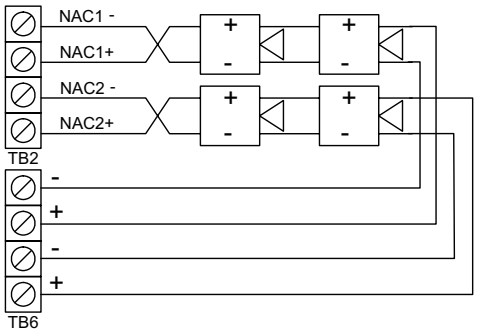
iO500 control panels come equipped with four notification appliance circuits. Each circuit can be individually configured for continuous, temporal, synchronized, latching, and coded output.

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



Class A 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.

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.

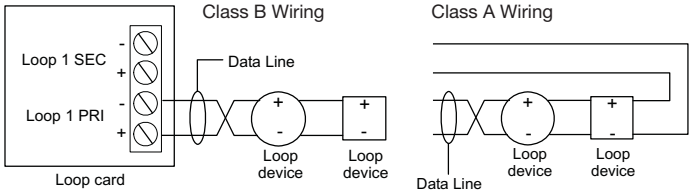
Note: Any current above 0.5 amp connected to both Aux 1 and 2 will reduce the total available NAC power by that amount.

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.

The Signature Loop Controller uses broadcast polling and advanced communications formats to regularly check the entire device circuit for anomalies. If a change of state is detected at the circuit level, the Loop Controller then uses a direct address search to find the reporting device. This two-staged technique ensures that only new information is transmitted, thus allowing for a reduced baud rate while still achieving nearly instant device reporting.

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



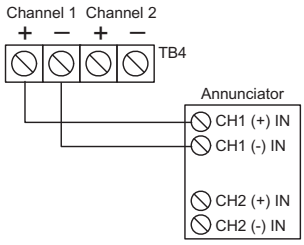
Annunciator loop (TB4)

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

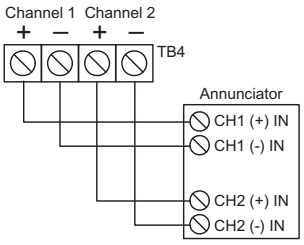
Circuit specifications

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

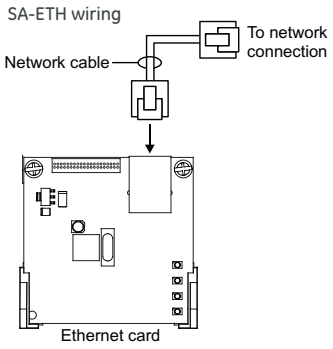
	Alarm	Trouble	Supervisory
Type	Form C		Form A
Voltage	24 VDC at 1 A resistive	24 VDC at 1 A resistive	

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.

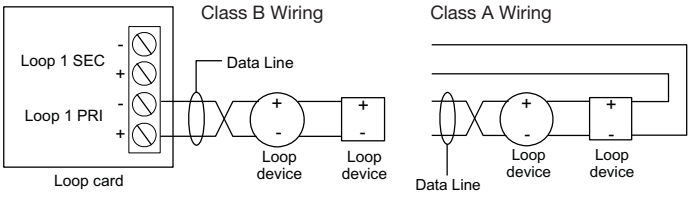
The Ethernet card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

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.

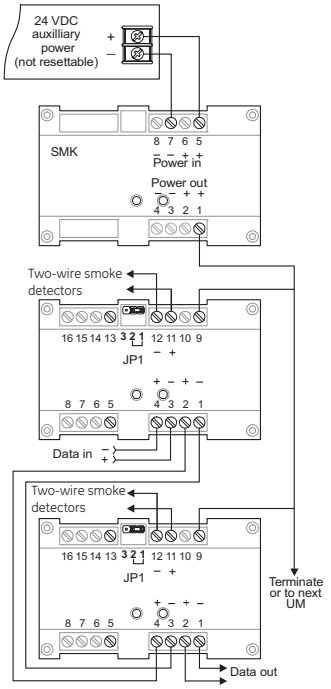
The loop expander card connects to connector J7 on the main circuit board.



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

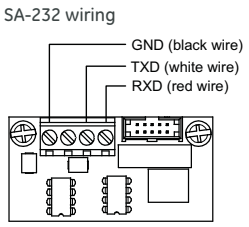
The SMK Smoke Power Converter Module provides a regulated power source for two-wire smoke circuits connected to a Signature data circuit. The SMK monitors the operating power from the power supply. When power begins to degrade, the SMK provides the necessary operating voltage to the two-wire smoke detection 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 Humidity	 32 to 120°F (0 to 49°C) 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-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.

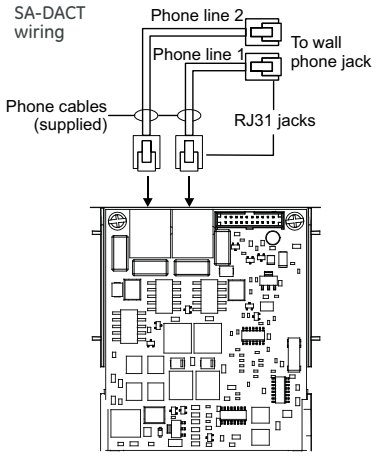


The RS-232 card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-232 specifications	
Operating voltage	Standard EIA-232
Terminal rating	12 to18 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)

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.

SA-DACT specifications	
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

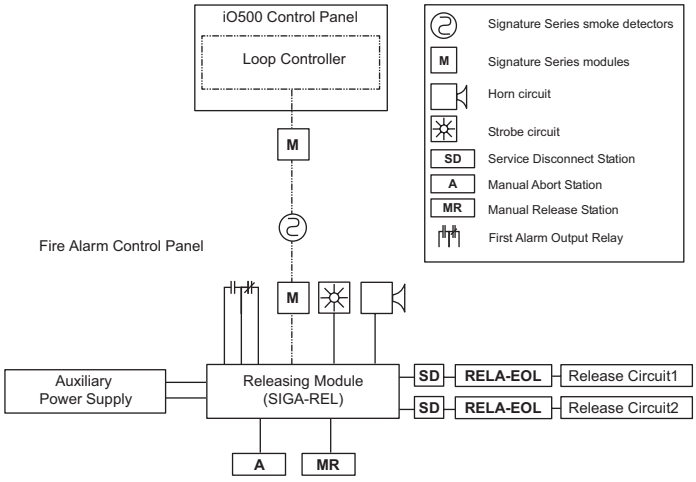
Receiver	Models	Formats
Ademco	685	Contact ID
FBII	CP220	Contact ID
Osborne-Hoffman	OH 2000	Contact ID
Radionics	D6600	Contact ID
Silent Knight	9800	Contact ID
Sur-Gard	SG-MLR1, MLR2	Contact ID

SIGA-REL Releasing Module

The SIGA-REL is an analog addressable module that communicates directly with the fire alarm panel Signature loop controller. The SIGA-REL controls sprinkler, pre-action and deluge systems, and may also be used to release extinguishing agents such as CO_2, Halon, or foam. The module is easily configured in the field and offers a wide range of options that ensure dependable service, while preventing the unnecessary release of extinguishing agent.

SIGA-REL specifications		
Power riser	Input voltage	24 Vdc (power limited)
	Supervisory current	25 mA, max.
	Riser input current	4 amps maximum
	Alarm	170 mA min.; 4 A max.
Release circuits	Output rating	2 A @ 24 Vdc (per circuit)
	Valves per circuit	4 valves, max.
	Max. supervisory current	0.4 mA (short circuit)
	Nominal supervisory current	0.18 mA
	Supervisory voltage	26 Vdc, max. (open circuit)
	End of line device	47k Ohm EOL
Pre-release alarm circuits	Output rating	2 A @ 24 Vdc (for each circuit)
	Max. supervisory current	0.4 mA (short circuit)
	Nominal supervisory current	0.18 mA
	Supervisory voltage	26 Vdc, max. (open circuit)
	End of line device	47k Ohm resistor
Manual release input circuit	Max. supervisory current	0.4 mA (short circuit)
	Nominal supervisory current	0.18 mA
	Supervisory voltage	26 Vdc, max. (open circuit)
	End of line device	47k Ohm resistor
	Circuit type	Class B N.O. latching
	Circuit capacitance	0.1 µF, max
Abort circuit	Max. supervisory current	0.4 mA (short circuit)
	Nominal supervisory current	0.18 mA
	Supervisory voltage	26 Vdc, max. (open circuit)
	End of line device	47k Ohm resistor
	Circuit type	Class B N.O. non- latching
	Circuit capacitance	0.1 µF, max
First alarm output relay	Contact rating	3 A @ 24 Vdc (0.6 power factor) Form C
Signature Data line	Operating voltage	5.2 to 19.95 Vdc
	Supervisory current	1000 µA
	Alarm current	1000 µA

Note: *Output circuits are power-limited when the riser circuit is power-limited.*



For detailed specification and ordering information on the SIGA-REL, refer to Data Sheet 85001-0531 -- Releasing Module.

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
Panel History Log	1,000 events

Battery placement	iO500 cabinets accommodate up to 18 A/H batteries. Use a 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 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 mm²)
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	UL864, UL2017, CSFM, ULC and NYFD #6020, FM approved

Ordering Information

Part	Description
iO500 Intelligent Multi-Loop Analog Systems	
iO500G	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 115 Vac, English.
iO500G-2	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 230 Vac, English.
iO500GC	***Canada only:*** 1 Loop system, 500 point capacity, 4 NACs, 16-zone LED display, grey door, surface mount, 115 Vac, English.
iO500G-F	***Canada only:*** 1 Loop system, 500 point capacity, 4 NACs, 16-zone LED display, grey door, surface mount, 115VAC, 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.
iO500RD	1 Loop system, 500 point capacity, two-line dialer, 4 NACs, Red Door, surface mount enclosure, 115VAC transformer, English.
iO500G-SP	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 115vac, Spanish.
iO500G-2-SP	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 230vac, Spanish.
iO500G-PG	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure, 115vac, Portuguese.
iO500G-2-PG	1 Loop system, 500 point capacity, 4 NACs, gray door, surface mount enclosure,, 230vac, Portuguese.
SA-TRIM2	Flush mount trim, black
Replacement Electronics	
500elec-iO	Replacement electronics kit, complete motherboard and user interface, English
500elec-iO-SP	Replacement electronics kit, complete motherboard and user interface, Spanish
500elec-iO-PG	Replacement electronics kit, complete motherboard and user interface, Portuguese
500elec-iO-FR	Replacement electronics kit, complete motherboard and user interface, Canadian French
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, 16 X 2-LED zones (4 programmable for sup). Mounts in cabinet to right of LCD display for zones 17-32.
D16L-iO-1	LED Annunciator module, 16 X 2-LED zones (4 programmable for sup). Mounts in cabinet to left of LCD display for zones 1-16.
D8RY-iO-2	***Canada only:*** LED Annunciator module, two LEDs per zone, 16 zones (4 alarm only, 8 supervisory only, 4 alarm or supervisory). Mounts in cabinet to right of LCD display for zones 17-32.
D8RY-iO-1	***Canada only:*** LED Annunciator module, two LEDs per zone, 16 zones (4 alarm only, 8 supervisory only, 4 alarm or supervisory). Mounts in cabinet to left of LCD display for zones 1-16.

Remote Annunciators (refer to Data Sheet 85005-0128)	
LCD Remote Annunciators (mount to standard 4" square electrical box)	
RLCD	Remote Annunciator, 4X20 LCD & Common Indicators for displaying system status. Gray housing.
RLCD-R	Remote Annunciator, 4X20 LCD & Common Indicators for displaying system status. Red housing.
RLCD-C	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Gray housing.
RLCD-CR	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Red housing.
RLCD-SP	Remote Annunciator, 4X20 LCD. Common system status indicators. White housing. Spanish.
RLCD-PG	Remote Annunciator, 4X20 LCD. Common system status indicators. White housing. Portuguese.
RLCD-C-SP	Remote Annunciator, 4X20 LCD. Common controls and status indicators. White housing. Spanish.
RLCD-C-PG	Remote Annunciator, 4X20 LCD. Common controls and status indicators. White housing. Portuguese.
RLED-C-SP	Remote Annunciator, common controls and status indicators. 16 groups w/2 LEDs each for zone display. White housing. Spanish.
RLED-C-PG	Remote Annunciator, common controls and status indicators. 16 groups w/2 LEDs each for zone display. White housing. Portuguese.
GCI	Graphic Annunciator Driver Master for R-Series annunciators. Outputs for 32 LEDs, connection to common control switches and LEDs.
GCIX	Graphic Annunciator Driver Expander for use with GCI Masters. Outputs for 48 LEDs, 24 switch inputs for R-Series annunciators.
For French common control, add suffix F to model number.	
LED Remote Annunciators & Expander (mount to standard 4" square electrical box)	
RLED-C	Remote Annunciator. Common controls and status indicators with 16 X 2-LED groups for zone display. Gray housing.
RLED-CF	Remote Annunciator. Common controls and status indicators with 16 X 2-LED groups for zone display. Gray housing, French.
RLED-CR	Remote Annunciator. Common controls and status indicators with 16 X 2-LED groups for zone display. Red housing.
RLED24	Remote Annunciator Zone expander. 24 X 2-LED groups with custom label areas for display of alarm and trouble. Gray housing.
RLED24R	Remote Annunciator Zone expander. 24 X 2-LED groups with custom label areas for display of alarm and trouble. Red housing.
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.
260097	RS232 cable, 4 conductor, DB9 PC interface

Intelligent Analog Addressable Devices & Accessories

Part #	Description	Ship wt.
Intelligent Detectors & Bases		
SIGA2-PHCOS	Intelligent Multisensor Photoelectric/Heat Detector with carbon monoxide sensor	
SIGA2-PHS	Intelligent Multisensor Photoelectric/Heat Detector	
SIGA2-PHSB	Intelligent 4D Multisensor Detector (Black) - UL/ULC Listed	
SIGA2-PCOS	Intelligent Photoelectric Detector with carbon monoxide sensor	
SIGA2-PS	Intelligent Photoelectric Detector	0.4 (0.16)
SIGA2-HRS	Intelligent combination fixed temperature/rate-of-rise heat detector	
SIGA2-HFS	Intelligent fixed temperature heat detector	
SIGA2-HCOS	Intelligent fixed temperature heat detector with CO sensor	
SIGA2-COS	Intelligent Carbon Monoxide Detector	
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-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	
SIGA-RB4	4-inch Detector Mounting Base /w Relay c/w SIGA-TS Trim Skirt	0.2 (0.09)
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 (.04)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TCDR	Temporal Pattern Generator	0.3 (0.15)

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 (.15)
SIGA-WTM	Waterflow/Tamper Module	0.4 (.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)
SIGA-REL	Analog addressable releasing module	0.5 (0.23)
276A-REL	Manual releasing station (single-action). English markings, black text on yellow polycarbonate body.	1.0 (0.45)
278A-REL	Manual releasing station (double-action). English markings, black text on yellow polycarbonate body.	1.0 (0.45)
RELA-ABT	Manual Abort Station. English markings, black text on yellow polycarbonate body.	1.0 (0.45)
RELA-SRV-1	Service Disconnect Switch. One n/c contact and one n/o contact. English markings, white text on blue polycarbonate body.	1.0 (0.45)
RELA-EOL	Polarized end-of-line relay. English markings on stainless steel cover.	0.2 (0.1)

Accessories		
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.	
CTM	City Tie Module. Provides connection to a local energy fire alarm box.	0.6 (0.3)
RPM	Reverse Polarity Module	3.0 (1.36)
BC-1	Battery Cabinet. 14.0" x 18.25" x 7.25". Holds 2 12V24A batteries.	50.0 (22.7)
BC-1R	Battery Cabinet - Red. 14.0" x 18.25" x 7.25". Holds 2 12V24A batteries.	50.0 (22.7)
BC-1EQ	Seismic hardening Kit for iO series panels. Includes battery hardening for BC-1 enclosure and components to harden panel internal components. See note below.	
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)

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

Standby batteries must be mounted externally from fire panel in separately mounted BC-1 enclosure. Order BC-1 and BC-1EQ separately.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

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Web: *www.chubbedwards.com*

EST™
Life Safety & Communications

R-Series Remote Annunciators

RLCD, RLCD-C, RLED, RLED-C, RLED24, GCI

Overview

Edwards R-Series Annunciators are high-performance remote annunciators that provide status indication and common controls for compatible fire alarm control panels, including iO-Series small analog fire alarm systems. This family of annunciators offers LCD or LED annunciation. Models are available with and without common controls.

There are three R-Series annunciator models, plus an LED-based expander. Up to two expanders can be connected to any annunciator. The expander includes 24 pairs of LEDs that extend the capabilities of any of the annunciators.

All annunciator models include status LEDs and an internal buzzer. Two models have an LCD text display, and one has 16 pairs of LEDs for zone annunciation. LCD models feature a large back-lit, four by twenty character per line, super-twist liquid crystal display.

R-Series annunciators and expanders are mounted on a standard 4-inch square electrical box, using the included mounting ring. They can also be surface mounted in locking steel enclosures. Three different enclosures are available.

A keyswitch and graphic annunciator interface is available for R-Series annunciator applications. The keyswitch enables or disables common controls. The graphic annunicator interface cards supports 32 LEDs and 16 switches on the graphic panel display.

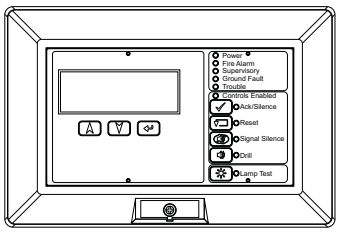
Features

- LCD models feature large 4 x 20 character backlit LCD display
- LED models provide 16 pairs of LEDs for zone annunciation
- Available expander extends capability with 24 pairs of LEDs
- Up to two expanders may be wired to each annunciator
- Status LEDs and internal buzzer standard on all models
- Common controls available for LED and LCD display models
- Available keyswitch for disabling common controls
- Standard 4-inch square electrical box mounting
- Class B or Class A RS485 wiring standard
- One-, two-, and three-position enclosures available
- Graphic Annunciator interface, includes common control, indicators and 32 LEDS
- No programing required, set the address and unit recieves all information from panel

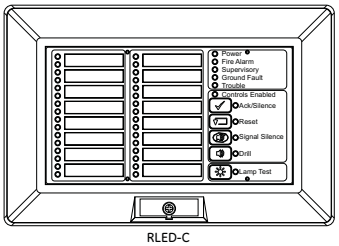
Application

R-Series annunciators communicate with the FACP on the RS-485 data riser. This can be configured for Class A or Class B communication. Annunciators do not provide ground fault isolation.

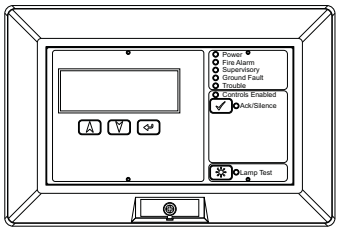
These annunciators are stand-alone units that can be powered by the FACP or by an approved power supply.



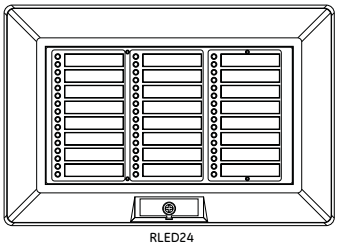
RLCD-C



RLED-C



RLCD



RLED24

Features by model	RLCD	RLCD-C	RLED-C	RLED24
Reset	✓	✓	✓	-
Ack/Silence	✓	✓	✓	-
Fire Alarm	✓	✓	✓	-
Supervisory	✓	✓	✓	-
Ground Fault	✓	✓	✓	-
Trouble	✓	✓	✓	-
Controls Enabled	✓	✓	✓	-
Ack/Silence	✓	✓	✓	-
Reset		✓	✓	-
Signal Silence		✓	✓	-
Drill		✓	✓	-
Lamp Test	✓	✓	✓	-
LCD Display	✓	✓	-	-
Zone Active LEDs	-	-	16 *	24 **
Zone Trouble LEDs	-	-	16	24

** zones 13-16 may be selected as Supervisory on IO64*
*** zones 13-16 and 29-32 may be selected as Supervisory on iO500*

Graphic Annunicator Interface

The GCI Graphic Annunciator Driver is an interface card that connects the fire alarm control panel to the display panel of an LED-based graphic annunciator.

The annunciator card supports 32 LEDs and 16 switches on the graphic panel display. It includes status LEDs and an internal buzzer.

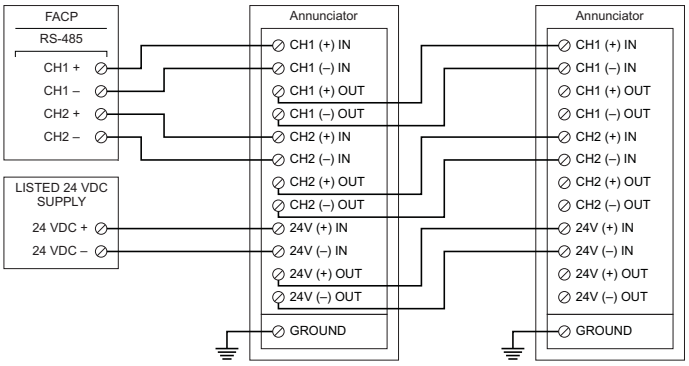
The graphic interface is supplied with snap track mounting. It is attached to a plastic mounting rail that requires two EIA panels.

The annunciator communicates with the FACP on the RS-485 data riser. This can be configured for Class A or Class B communication. The annunciator does not provide ground fault isolation. It is a stand-alone unit that can be powered by the FACP or by an approved power supply.

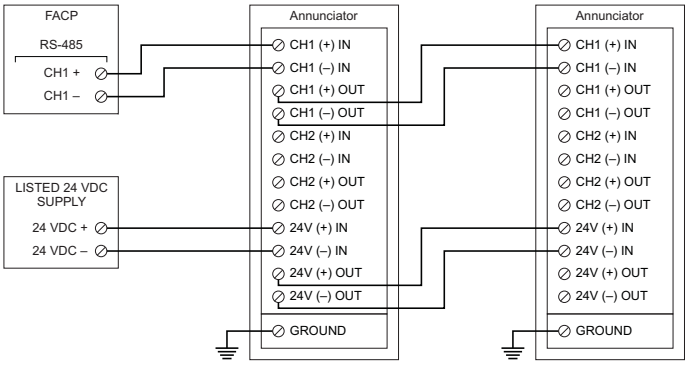
Graphic Annunciator Interface Specifications	
Alarm current	146 mA at 24 Vdc (with 36 LEDs ON)
Standby current	36 mA at 24 Vdc (with no LEDs ON)
Maximum current	10 mA per LED

Annunciator Wiring

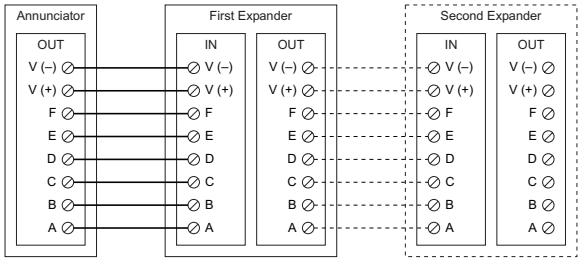
Annunciator, Class A



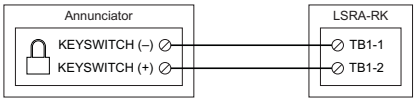
Annunciator, Class B



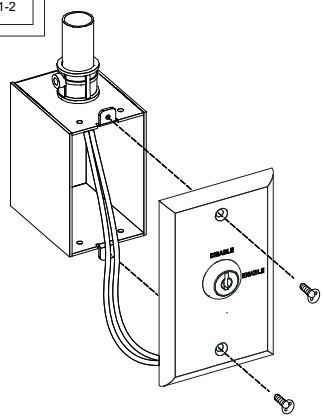
Expander



Remote Keyswitch

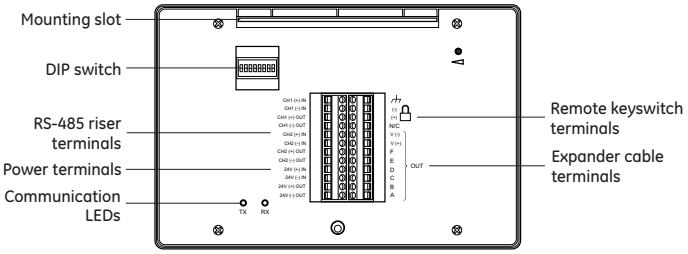


Keyswitch Specifications	
Maximum voltage	5 Vdc
Maximum current	200 mA
Mounting	2-1/2 in (64 mm) deep 1-gang box
Termination	Screw terminals
Maximum wire size	12 AWG (2.5 mm sq)
Contact configuration	Normally open

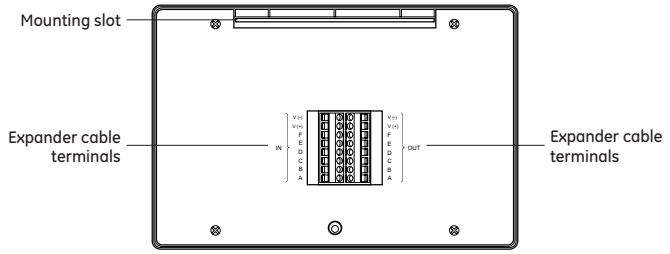


Annunciator Connections

Annunciator

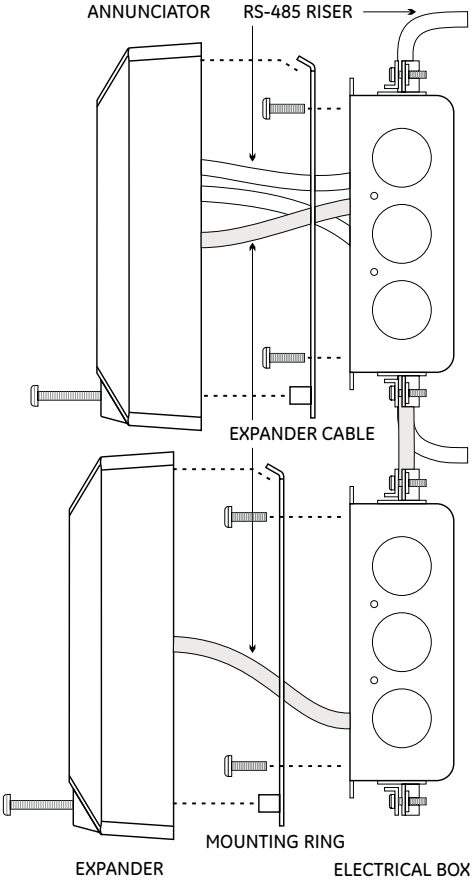


Expander



DIP switch settings	
Switch	**Description and values**
S1 to S5 Network address	The annunciator network address (in binary). The factory setting is for address 2. Examples: 10000 = 1 01000 = 2 11000 = 3 00100 = 4
S6 Network baud rate	OFF = 9600 baud (factory default setting) ON = 38,400 baud
S7 to S8	Not used

Annunciator Mounting

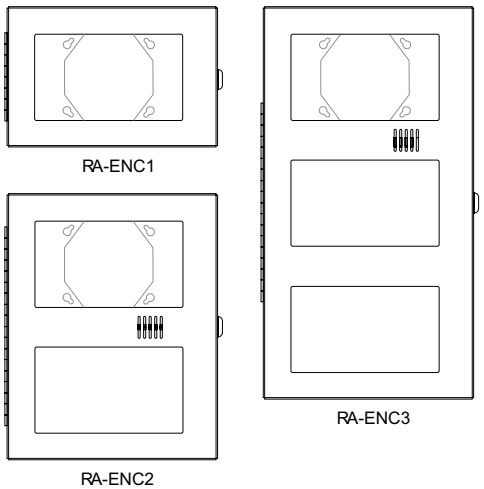


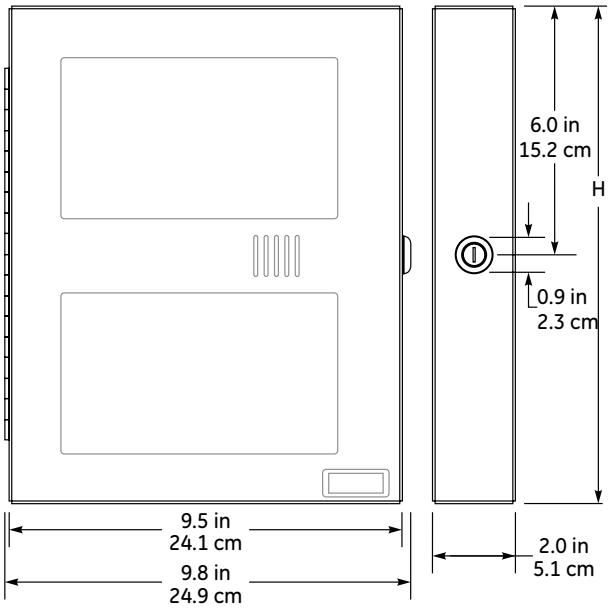
Annunciator Enclosures

The RA Remote Annunciator Enclosures provide secure, surface mounted protection for annunciators and extenders. Each consists of a back plate, hinged cover, and key lock.

The enclosures are 16-gauge welded steel with a white, painted finish. Each enclosure includes a security lock and two keys. The two- and three-position enclosures have wiring channels for correct routing of interconnections.

The enclosures attach to a standard electrical box, and provide a mounting lip that takes the place of the integral mounting ring supplied with the annunciators and expanders.





Dimensions (H x W x D)	
RA-ENC1	6.3 x 9.8 x 2.0 in (16.0 x 24.9 x 5.1 cm)
RA-ENC2	12.0 x 9.8 x 2.0 in (30.5 x 24.9 x 5.1 cm)
RA-ENC3	17.7 x 9.8 x 2.0 in (45.0 x 24.9 x 5.1 cm)

Note: Allow approximately 2 inches (50 cm) clearance on both sides of the enclosure, to permit inserting and removing the key, and opening the door through 90 degrees.

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Specifications

	RLCD-C	RLCD	RLED-C	RLED24
Operating voltage	24 VDC, continuous.			
Standby current	99 mA	98 mA	28 mA	6 mA
Alarm current	115 mA	113 mA	62 mA	34 mA
RS-485 communications	Class A or Class B, 9600 baud			
Data wiring	18 to 14 AWG (1.0 to 2.5 sq mm) twisted pair (6 twists per foot minimum). Maximum wire run is 4,000 ft. (1,219 m)			
Remote key switch circuit	5 VDC at 1 mA, power-limited, unsupervised			
Ground fault impedance	0			
Power wiring	18 to 14 AWG (1.0 to 2.5 sq. mm)			
Display area	4 lines of 20 characters each			
Dimensions (H x W x D)	5-5/8 x 8-1/2 x 1-1/2 in. (14.3 x 21.4 x 3.8 cm)			
Mounting	North American 4-inch square electrical box or listed enclosure			
Agency Listing	UL, ULC			
Operating environment	Temperature: 32 to 120°F (0 to 49°C) Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)			

Ordering Information

Part	Description
Remote Annunciators	
RLCD	LCD text annunciator without common controls. English.
RLCD-R	LCD text annunciator without common controls. English. Red.
RLCDF	LCD text annunciator without common controls. French.
RLCD-C	LCD text annunciator with common controls. English.
RLCD-CR	LCD text annunciator with common controls. English. Red.
RLCD-CF	LCD text annunciator with common controls. French.
RLED-C	16-pair LED zone annunciator with common controls. English.
RLED-CR	16-pair LED zone annunciator with common controls. English. Red.
RLED-CF	16-pair LED zone annunciator with common controls. French.
Remote Expanders	
RLED24	24-pair LED zone expander with expander cable and zone card insert.
RLED24R	24-pair LED zone expander with expander cable and zone card insert. Red.
Enclosures	
RA-ENC1	One-position enclosure for Remote Annunciator.
RA-ENC2	Two-position enclosure for Remote Annunciator and one Remote Expander, including one interconnection cable.
RA-ENC3	Three-position enclosure for Remote Annunciator and two Remote Expanders, including two interconnection cables.
LSRA-SB	Surface Mount Box - for single R Series annunciator.
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.
Accessories	
RKEY	Remote key switch on plate for enabling or disabling common controls (Lock/Unlock).
27193-16	Electrical box, surface mount, white, single-gang, for RKEY.

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Sealed Lead-Acid Batteries

Overview

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

Standard Features

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

Application

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

Safety Information

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

SUBMITTAL REVIEW

A ☐ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confiming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures end fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal re[illegible]mittal, the most stringent action and notations th[illegible] submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional d[illegible]

REVIEWED
By VIC CABINTA at 2:47 pm, Oct 16, 2013

By _____ Date _____

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Specifications

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

Ordering Information

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

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Life Safety & Communications

Remote Booster Power Supplies

BPS6A, BPS10A

MEA
476-91-E
Vol.13

Overview

The Booster Power Supply (BPS) is a UL 864, 9th Edition listed power supply. It is a 24 Vdc filtered-regulated, and supervised unit that can easily be configured to provide additional notification appliance circuits (NACs) or auxiliary power for Mass Notification/ Emergency Communication (MNEC), as well as life safety, security, and access control applications.

The BPS contains the circuitry to monitor and charge internal or external batteries. Its steel enclosure has room for up to two 10 ampere-hour batteries. For access control-only applications, the BPS can support batteries totaling up to 65 ampere-hours in an external enclosure. The BPS has four Class B (convertible to two Class A) NACs. These can be activated in one or two groups from the BPS's unique dual input circuits.

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

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

Standard (CCN)	Description
UL864 9th ed.ition (UOXX)	Fire Alarm Systems
UL636 (ANET, UEHX7)	Holdup Alarm Units and Systems
UL609 (AOTX, AOTX7)	Local Burglar Alarm Units and Systems
UL294 (ALVY, UEHX7)	Access Control Systems
UL365 (APAW, APAW7)	Police Station Connected Burglar Alarm Units and Systems
UL1076 (APOU, APOU7)	Proprietary Burglar Alarm System Units
UL1610 (AMCX)	Central Station Alarm Unit
ULC-S527 (UOXXC)	Control Units, Fire Alarm (Canada)
ULC-S303 (AOTX7)	Local Burglar Alarm Units and Systems (Canada)
C22.2 No. 205	Signaling Equipment (Canada)

Standard Features

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

Application

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

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

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

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

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

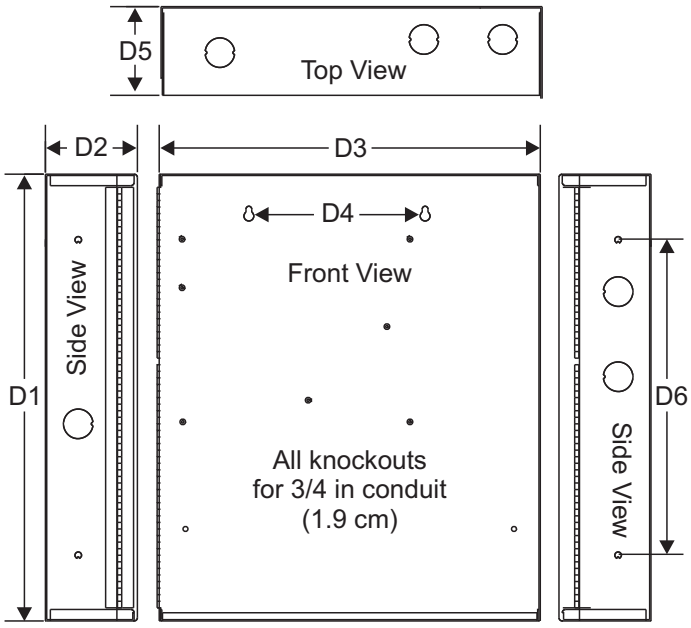
The BPS enclosure has mounting brackets for up to three Signature modules to the right of the circuit board.

Engineering Specification

Supply, where needed, Edwards BPS Series Booster Power Supplies (BPS) that are interconnected to and supervised by the main system. The BPS shall function as a stand-alone auxiliary power supply with its own fully-supervised battery compliment. The BPS battery compliment shall be sized to match the requirements of the main system. The BPS shall be capable of supervising and charging batteries having the capacity of 24 ampere-hours for Mass Notification/Emergency Communication (MNEC), life safety and security applications, and the capacity of 65 ampere-hours for access control applications.

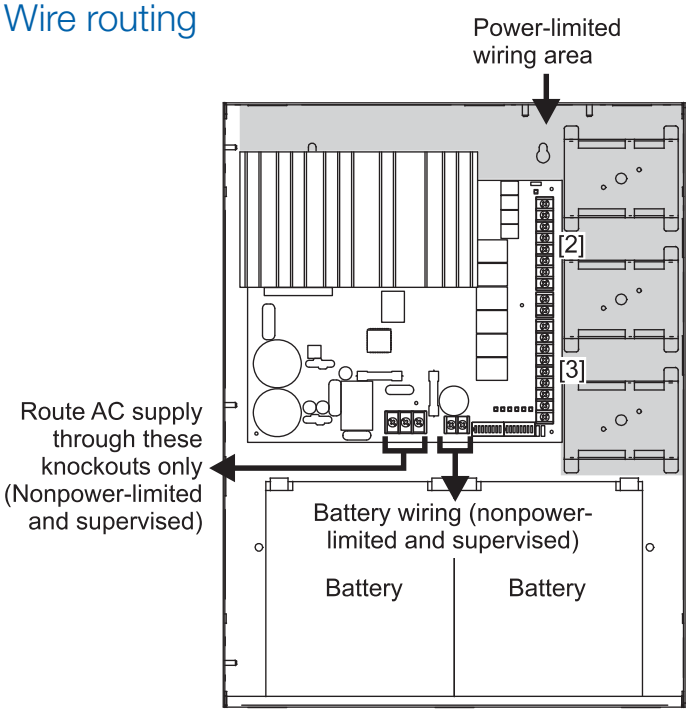
<<The BPS shall be capable of installation for a seismic component Importance Factor of 1.5.>> The BPS shall provide a minimum of four independent, fully supervised Class B circuits that can be field configurable for notification appliance circuits or auxiliary 24 Vdc power circuits. BPS NACs shall be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

Dimensions



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

Wire routing



Notes

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

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

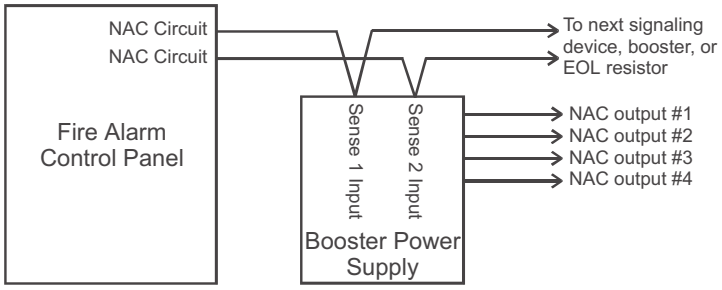
[3] Source must be power-limited. Source determines supervision.

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

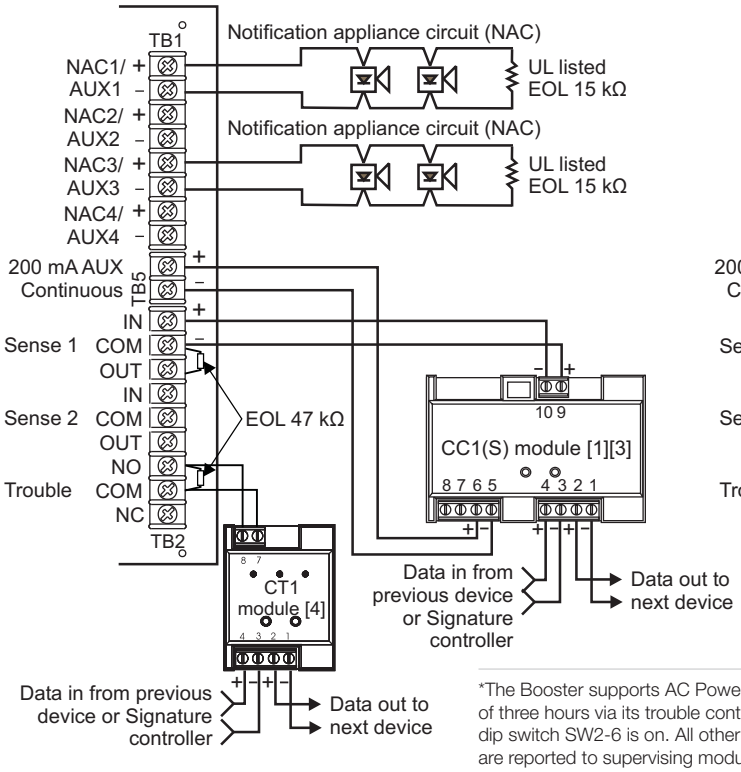
Typical Wiring

Single or cascaded booster anywhere on a notification appliance circuit

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

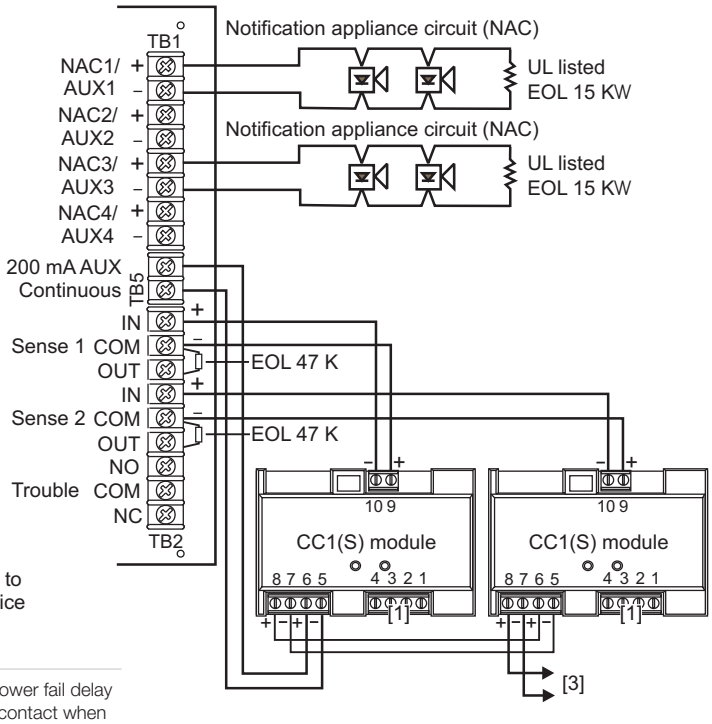


Configuring the Booster for AC Power Fail delay operation*

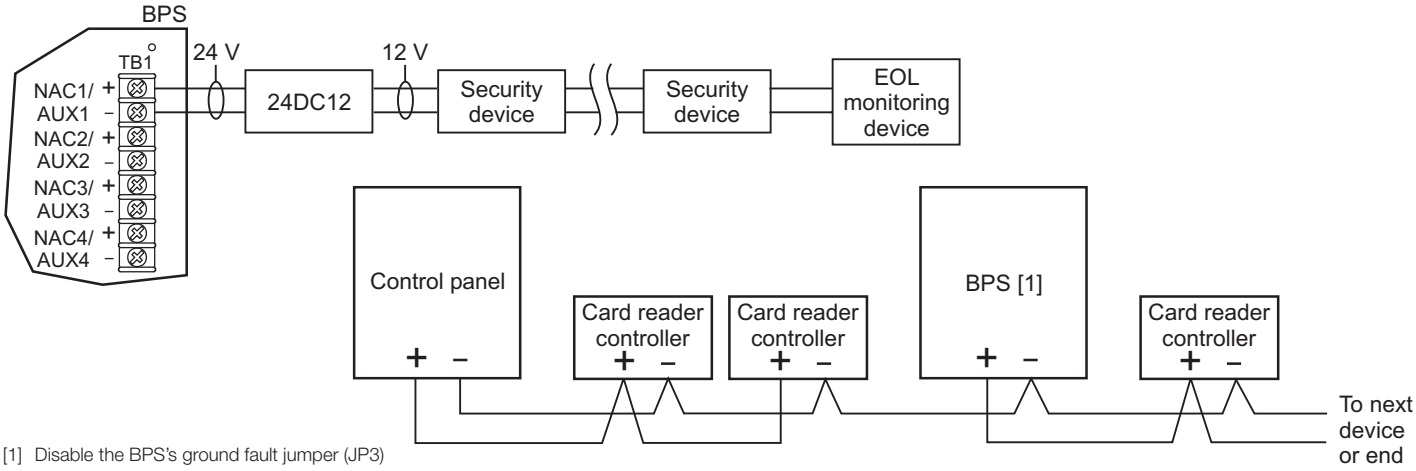


*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

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



Security and access



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

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Specifications

Model	6.5 amp Booster	10 amp Booster
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 390 watts	120VAC or 220-240VAC 50/60Hz 580 watts
Notification Appliance Circuit Ratings	3.0A max. per circuit @ 24Vdc nominal 6.5A max total all NACs	3.0A max. per circuit @ 24Vdc nominal 10A max total all NACs
Trouble Relay	2 Amps @ 30Vdc	
Auxiliary Outputs	Four configurable outputs replace NACs 1, 2, 3 or 4. as auxiliary outputs and 200 mA dedicated auxiliary. (See note 2.)	
Input Current (from an existing NAC)	3mA @ 12Vdc, 6mA @ 24Vdc	
Booster Internal Supervisory Current	70mA + 35 mA for each circuit set to AUX	
Booster Internal Alarm Current	270mA	
Signature Mounting Space	Accomodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire and security applications; up to 65 Amp hours for access control applications in external battery box.	
Terminal Wire Gauge	18-12 AWG	
Relative Humidity	0 to 93% non condensing @ 32°C	
Temperature Rating	32° to 120°F (0° to 49°C)	
NAC Wiring Styles	Class A or Class B	
Output Signal Rates	Continuous, California rate, 3-3-3 temporal, or follow installed panel's NAC. (See note 1.)	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

1. Model BPS*CAA provides selection for California rate, in place of temporal.
2. Maximum of 8 Amps can be used for auxiliary output.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
BPS6A	6.5 Amp Booster Power Supply	13 (5.9)
BPS6AC	6.5 Amp Booster Power Supply (ULC)	13 (5.9)
BPS6A/230	6.5 Amp Booster Power Supply (220V)	13 (5.9)
BPS6CAA	6.5 Amp Booster Power Supply with California rate	13 (5.9)
BPS10A	10 Amp Booster Power Supply	13 (5.9)
BPS10AC	10 Amp Booster Power Supply (ULC)	13 (5.9)
BPS10A/230	10 Amp Booster Power Supply (220V)	13 (5.9)
BPS10CAA	10 Amp Booster Power Supply with California rate	13 (5.9)
Related Equipment		
12V6A5	7.2 Amp Hour Battery, two required	3.4 (1.6)
12V10A	10 Amp Hour Battery, two required	9.5 (4.3)
3-TAMP	Tamper switch	
BC-1EQ	Seismic Kit for BC-1. Order BC-1 separately. See note 3.	
BPSEQ	Seismic kit for BPS6A or BPS10 Booster Power Supplies. See note 3	
BC-1	Battery Cabinet (up to 2 - 40 Amp Hour Batteries)	58 (26.4)
BC-2	Battery Cabinet (up to 2 - 17 Amp Hour Batteries)	19 (8.6)
12V17A	18 Amp Hour Battery, two required (see note 1)	13 (5.9)
12V24A	24 Amp Hour Battery, two required (see note 1)	20 (9.07)
12V40A	40 Amp Hour Battery, two required (see notes 1, 2)	32 (14.5)
12V50A	50 Amp Hour Battery, two required (see notes 1, 2)	40 (18.14)
12V65A	65 Amp Hour Battery, two required (see notes 1, 2)	49 (22.2)

1. Requires installation of separate battery cabinet.
2. BPS supports batteries greater than 24 Amp hours for access control applications only.
3. For earthquake anchorage, including detailed mounting weights and center of gravity detail, refer to Seismic Application Guide 3101676. Approval of panel anchorage to site structure may require local AHJ, structural or civil engineer review.

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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-replacable 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-replacable smoke chamber
- Field-replacable 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.


SIGA-AB4G/T
Audible Base


SIGA-SB
Standard Base


SIGA-IB
Isolator Base


SIGA-RB
Relay Base


SIGA-LED
Remote LED

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

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

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

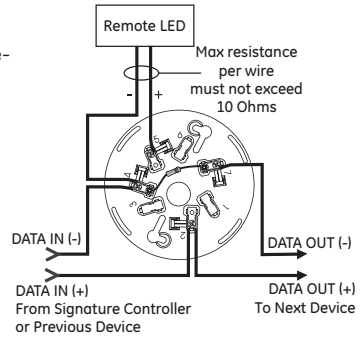
The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes.

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

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 (-)



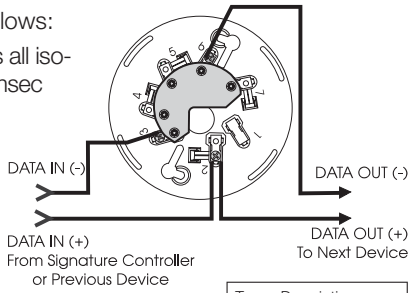
Isolator Detector Base, SIGA-IB, SIGA-IB4

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.

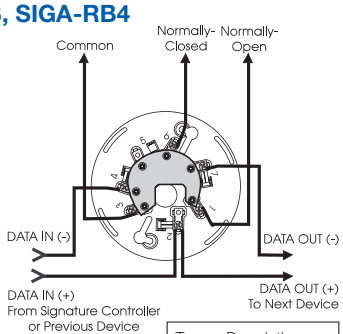
The process repeats beginning on the other side of the loop controller.



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.

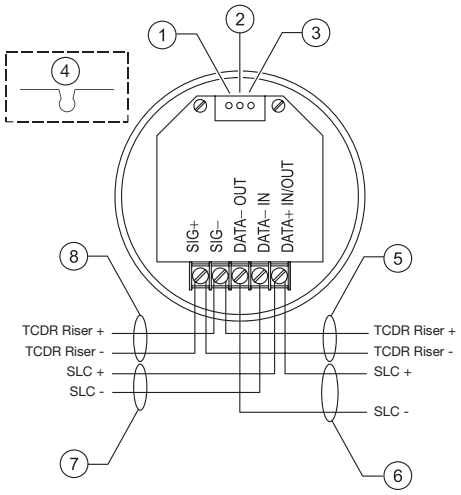


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

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

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

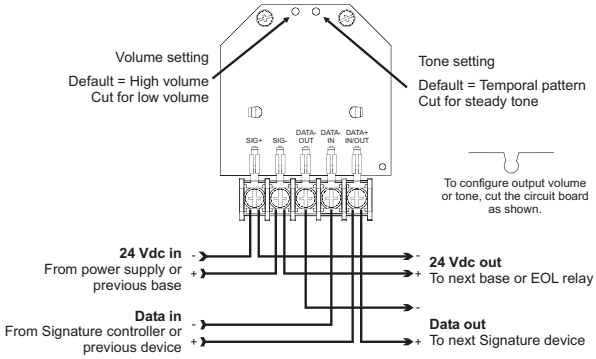
The Signature Series AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator, adds an audible output function to any Signature Series detector. For more information on this device, refer to *Data Sheet 85001-0623 -- Sounder Base for CO and Fire Detectors*.



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		
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.

EST™
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Intelligent Smoke & Heat Detector with Optional CO Sensor

SIGA2-PHS, SIGA2-PHCOS

Overview

Signature Series SIGA2-PH(CO)S photoelectric detectors bring advanced multisensing 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-replacable 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 heat and smoke — as well as its invisible yet deadly companion, carbon monoxide.

Like all Signature Series detectors, the SIGA2-PHS is an intelligent device that gathers analog information from its smoke and heat sensors, converting this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes all 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-PHCOS 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.*

- Integrates optical smoke and fixed heat sensing technologies with an optional carbon monoxide sensor
- Three thermistor sensors for symmetrical thermal response
- Field-replacable smoke chamber
- Field-replacable 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-PHS 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.

Heat detection

The SIGA2-PHS provides 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

In addition to integrated smoke and heat sensors, the SIGA2-PHCOS includes an electrochemical carbon monoxide sensor. 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.

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.


SIGA-AB4G/T
Audible Base


SIGA-SB
Standard Base


SIGA-IB
Isolator Base


SIGA-RB
Relay Base


SIGA-LED
Remote LED

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

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

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

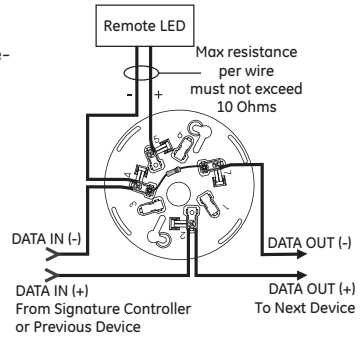
The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes.

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

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 (-)



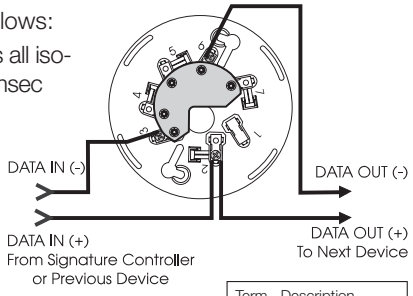
Isolator Detector Base, SIGA-IB, SIGA-IB4

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.

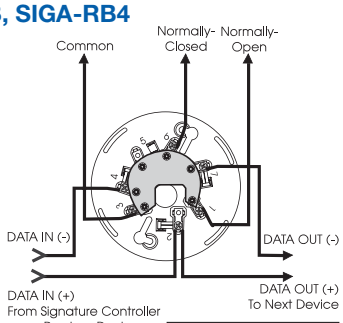
The process repeats beginning on the other side of the loop controller.



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.

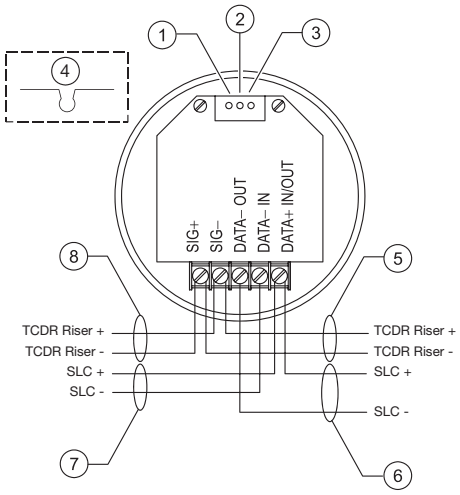


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

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

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

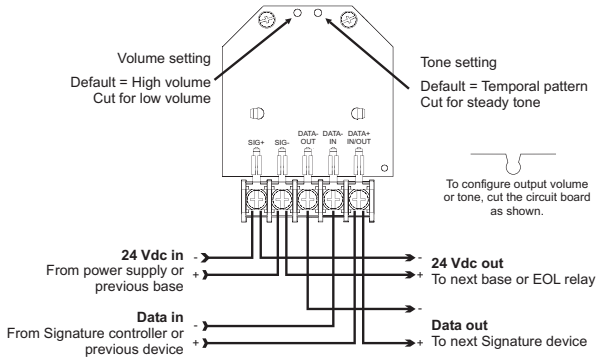
The Signature Series AB4GT sounder base, when used with the SIGA-TCDR Temporal Pattern Generator, adds an audible output function to any Signature Series detector. For more information on this device, refer to *Data Sheet 85001-0623 -- Sounder Base for CO and Fire Detectors*.



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-PH(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-PHS	SIGA2-PHCOS
Operating voltage	15.20 to 19.95 VDC	
Normal operating current	70 µA	
Standalone alarm current	18 mA	
Alarm Current	70 µA	
Air velocity	0 to 4,000 ft./min (0 to 20 m/s).	
Heat sensor alarm point	130 to 140 °F (54 to 60 °C)	
Construction and finish	High impact engineering polymer	
Wall mounting	Maximum 12 in (305 mm) from ceiling	
Mounting	Plug-in	
Maximum spacing	50 ft. (15.2 m) centers	
Shipping weight	0.44 lb. (164 g)	
Compatible bases	See Ordering Information	
Operating environment		
Operating environment	32 to 100°F (0 to 38°C) 0 to 93% RH, noncondensing	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-PHS	Intelligent Multisensor Photoelectric/Heat Detector	0.4 (0.16)
SIGA2-PHCOS	Intelligent Multisensor Photoelectric/Heat Detector with carbon monoxide sensor	0.4 (0.16)
SIGA2-PHCOS-CA	Intelligent Multisensor Photoelectric/Heat Detector with carbon monoxide sensor (for use in Canadian markets only)	0.4 (0.16)

Accessories		
SIGA-SB	Detector Mounting Base - Standard	0.2 (.09)
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-AB4G	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TCDR	Temporal Pattern Generator (for use with SIGA-AB4GT)	0.2 (0.1)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
2-SPRC1*	Replacement Smoke Chamber (for SIGA2-PHS detectors)	0.1 (.04)
2-SPRC2*	Replacement Smoke Chamber (for SIGA2-PHCOS detectors)	0.1 (.04)
2-CORPL*	Replacement CO Sensor	0.1 (.04)

*Release pending.

EST™
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Intelligent Duct Smoke Detector

SIGA-SD

Overview

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

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

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

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

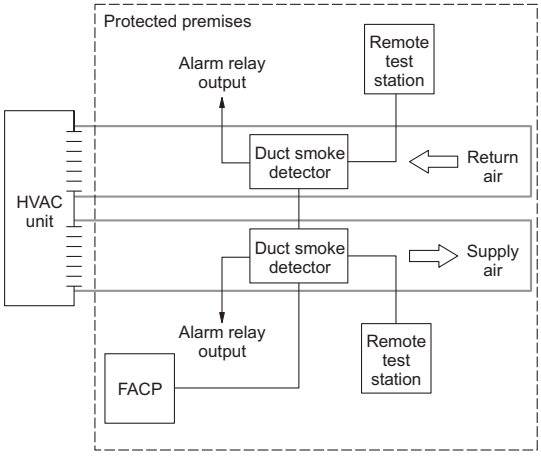
WARNING: Duct detectors have specific limitations. Duct detectors are not a substitute for an open area smoke detector. Duct detectors are not a substitute for early warning detection or a replacement for a building's regular fire detection system. Smoke detectors are not designed to detect toxic gases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

Standard Features

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

Application

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



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

Signature Series Intelligence

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

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

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

Detector Configuration

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

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

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

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

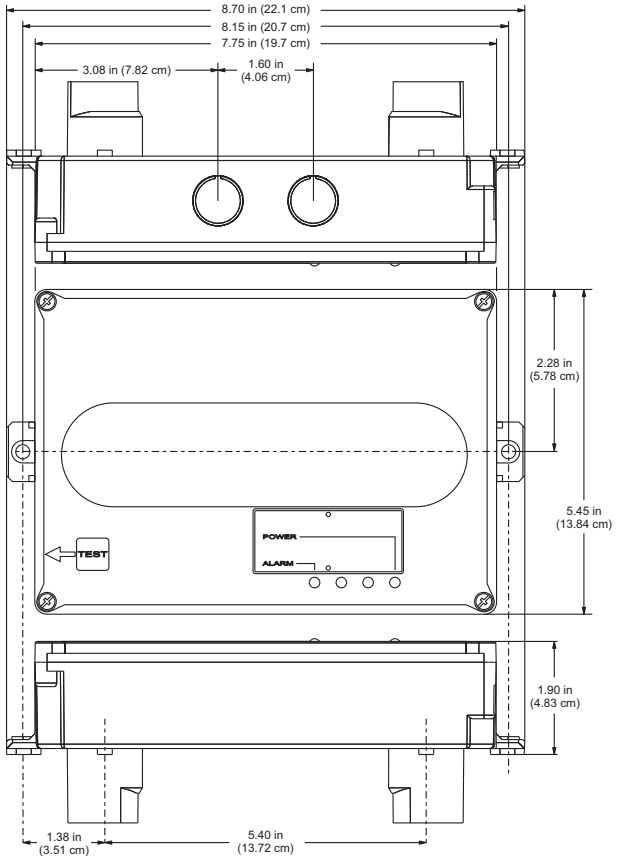
Remote Test Stations

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

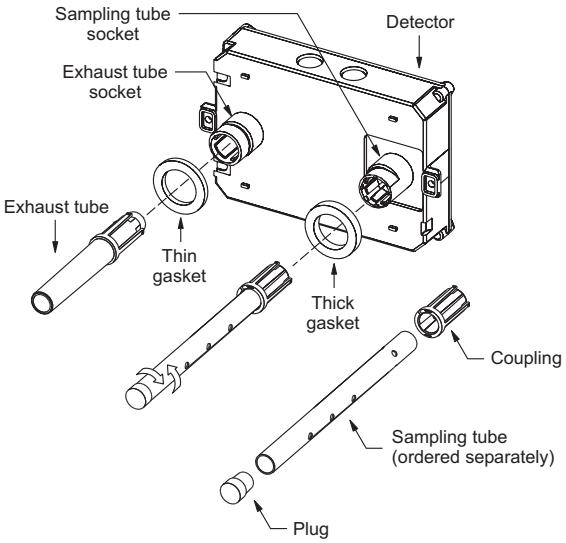
Air velocity in the duct as low as 100 ft/min. maintains adequate air flow into the sensor smoke chamber through air holes in the air sampling tube and discharges through the exhaust tube. *SuperDuct* air sampling tubes must be installed with the inlet holes facing the airstream. Sampling tubes may be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

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

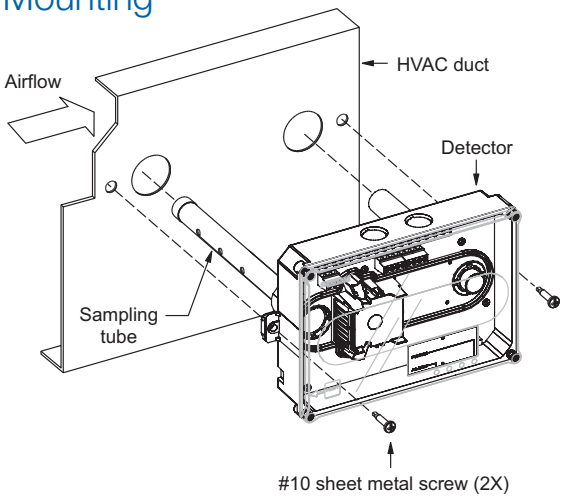
Dimensions



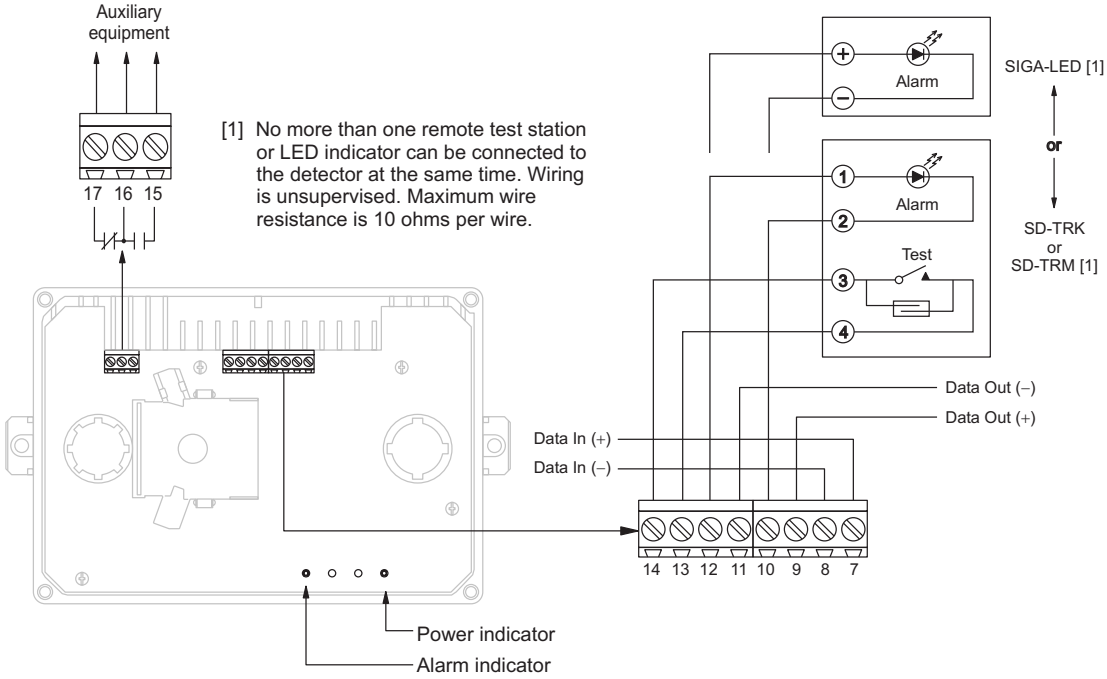
Assembly



Mounting



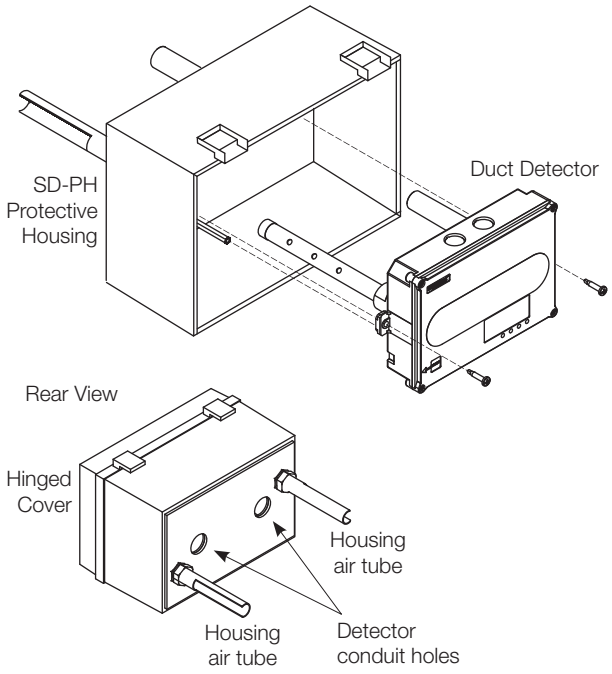
Wiring



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

High-humidity environments

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



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

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

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Specifications, detector

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

Specifications, test stations

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

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

Ordering Information

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

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SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correctness of confirming dimensions and quantities, for safety precautions and programs, for construction methods, techniques, schedules, sequences, procedures and coordination processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer in writing of any deviation like any claim based on this submittal or notations th submittal appears on the submittal, the notations apply. Signature of a submittal reviewer or consultant does not imply that it has reviewed professional

REVIEWED
By VIC CABINTA at 2:51 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

Manual Pull Stations

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

SIGA-270 SERIES

MEA

Patented

Overview

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

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

Standard Features

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

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

Application

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

Compatibility

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

Warnings & Cautions

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

Testing & Maintenance

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

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

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

Typical Wiring

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

Wiring Notes

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

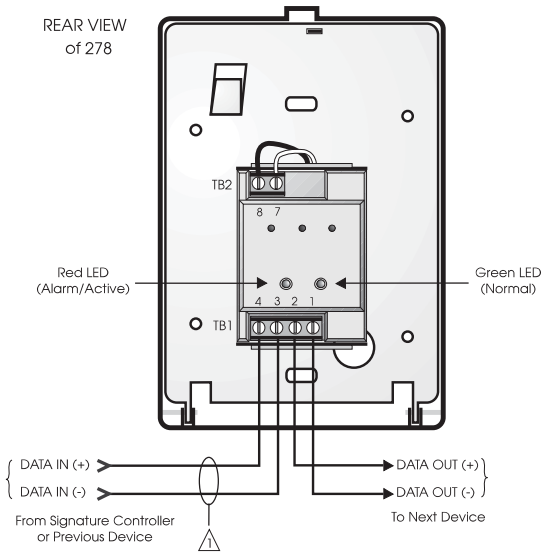

Figure 4. Single Stage Systems

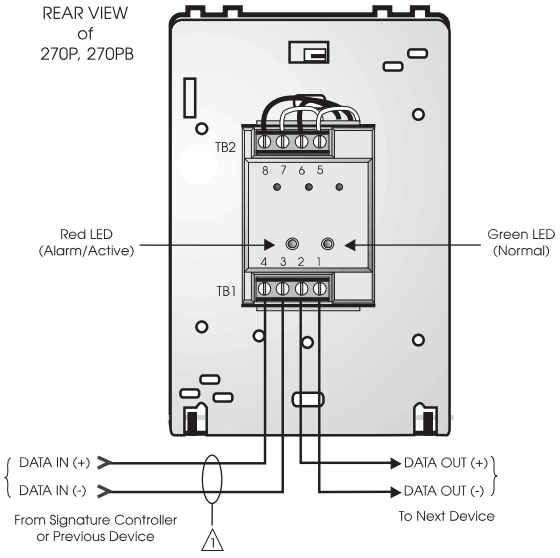

Figure 5. Two Stage Systems

Installation

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

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

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

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

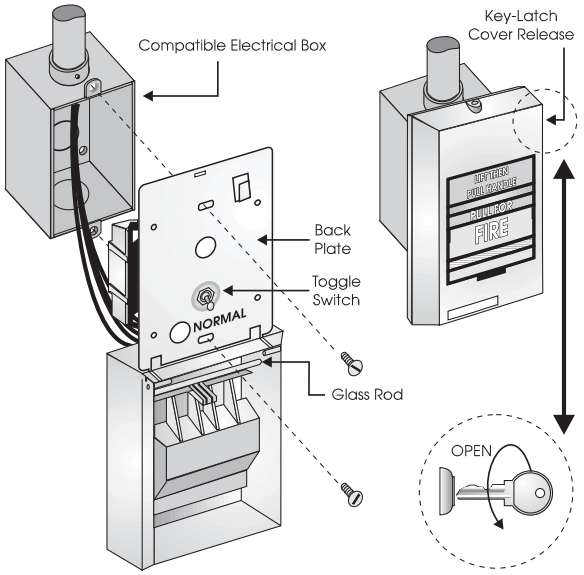

Figure 1. SIGA-278 installation

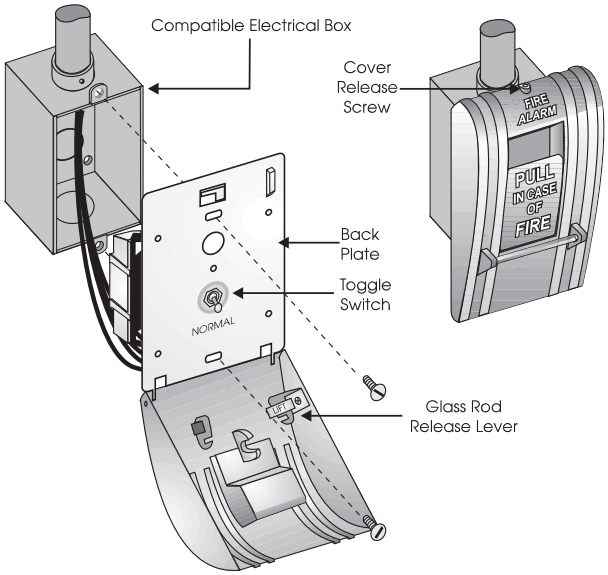

Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

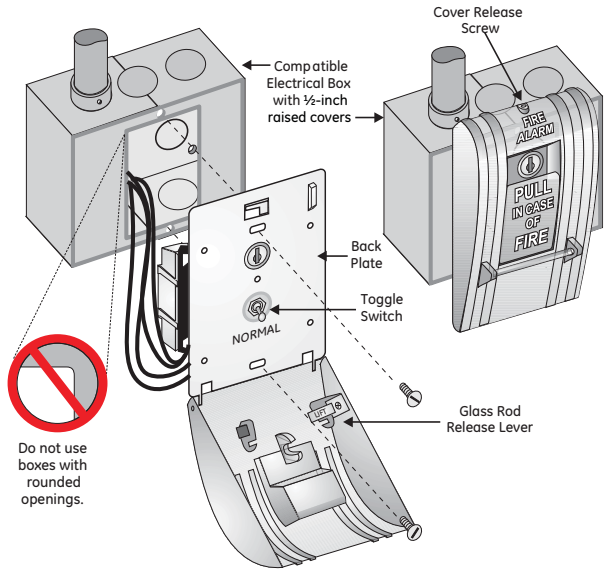

Figure 3. SIGA-270P, SIGC-270PB installation

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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: 32ºF to 120ºF (0ºC to 49ºC) Storage Temperature: -4ºF to 140ºF (-20ºC to 60ºC) Humidity: 0 to 93% RH		
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes w hen in alarm Both LEDs - Glow steady when in alarm (stand-alone)		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC (note 1), MEA, CSFM		

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

Ordering Information

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

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

STI Series Stopper®

UL UL FM MEA

Overview

This unique and patented device helps to prevent false fire alarms without restricting legitimate alarms. It consists of a tamper-proof, clear Lexan polycarbonate shield and frame that fits easily over manual pull stations. When lifted to gain access to the actual alarm, it sounds a piercing warning horn. Immediate attention is drawn to the pull station and a prankster will run or be caught. Legitimate alarms can still be pulled.

Use proven in thousands of applications around the world-including colleges, schools, hospitals, nursing homes, correctional institutions, hotels/motels and stores.

Testing Approvals

Stopper II has been tested and approved or listed by:

- Underwriter Laboratories No. 49G2
- Underwriter Laboratories of Canada Issue No. 13959C
- Factory Mutual No. OG6A2.AY
- New York City Board of Standards No. 947-81-SA
- State of California (approval not required)
- General Service Administration

Standard Features

- Fits virtually all pull stations
- Tested and approved by wide range of fire prevention and testing authorities
- Unconditional lifetime guarantee against breakage and damage to molded polycarbonate cover
- Guards against physical damage to manual pull station
- Weatherproofing option
- Optional 9-volt alkaline battery (included) powered horn

Dimensions

Size of Pull Station Accommodated

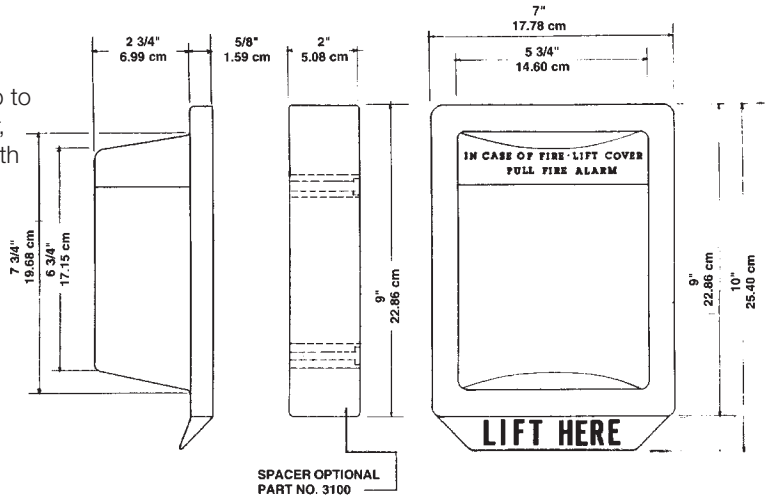
The Stopper II can be installed over a flush-mounted station up to 5½ inches (140mm) wide x 6¾ inches (171mm) high. However, the pull station's maximum dimensions will decrease as its depth (distance from wall) increases. e.g.:

3¼ inch (19mm) deep pull station may be
5 inches (140mm) wide x 6 inches(152mm) high

1-5/8 inch (41mm) deep pull station may be
5 inches (127mm) wide x 6 inches (152mm) high

2-3/8 inch (60mm) deep pull station may be
4 inches (102mm) wide x 5 inches(146mm) high

2 inch (70mm) deep pull station may be
3 inches (76mm) wide x 5 inches (140mm) high



NOTE: If additional depth is needed, use the Conduit Spacer (Part No. STI 3100) which adds 2 inches (51mm) to the depth.

Patent Approval

Stopper II has received patent approval from the United States (No. 4267549) and Canada (No. 1147828Z). Patents for other countries are pending.

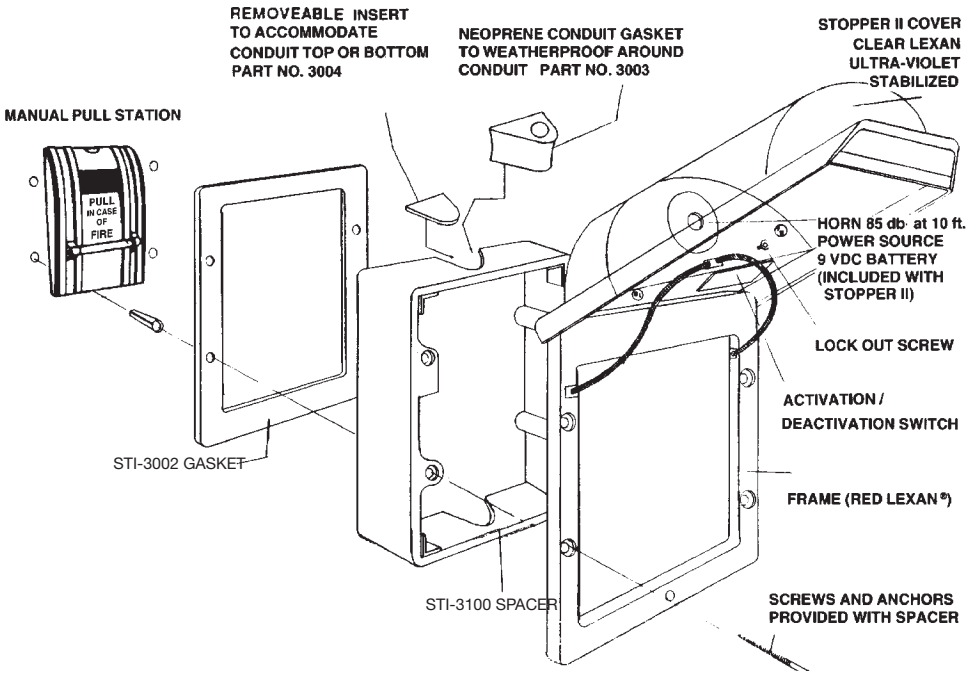
Mounting

Two types of mounting are available. Flush-mounted means the pull station is mounted directly on the wall. Surface-mounted means the pull station is mounted on an electrical box away from the wall.

Surface Mounted: When the pull station is mounted on an electrical box away from the wall, order Part No. STI 1130 (with horn) or Part No. STI 1230 (without horn). Each includes longer screws with anchors and a 2 inch (51mm) conduit spacer (Part No. STI 3100) with knockouts top and bottom to accommodate the conduit pipe.

For Added Weatherproofing

Install gasket (STI 3002) between Stopper II frame and wall. A second gasket must be installed behind the spacer for surface mounting.
A conduit gasket (STI 3003) may be used to seal the conduit pipe.



IMPORTANT NOTICE

Adequate training and instruction must be provided to avoid the possibility that persons, in the event of a real fire, lift the Stopper II cover, hear the horn and think they have set off the fire alarm.

1. Explain the purpose of the Stopper II to authorized personnel.
2. Show them how it works.
3. Instruct them to, upon hearing the Stopper II horn, check for the presence of a fire, and act accordingly by either pulling the fire alarm or shutting off Stopper II by closing the cover.
4. Check with your local fire authorities.
5. When covering a pull station, UL requires stations to be listed for outdoor use.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
*STI-1100	Stopper II with Horn (UL/ULC) — Flush	1.3 (0.6)
*STI-1130	Stopper II with Horn (UL/ULC) — Surface	
*STI-1200	Stopper II without Horn — Flush	
*STI-1230	Stopper II without Horn — Surface	
*STI-1250	WeatherStopper, flush c/w gasket (STI-3002)	1.3 (0.6)
*STI-3150	WeatherStopper, surface, c/w gaskets (STi-3002 x2), 2" Spacer (STI-3100) and conduit gasket kit	1.3 (0.6)
Accessories		
STI-3100	2 inch (50mm) Spacer	0.5 (0.2)
STI-3002	Weatherproofing Gasket	0.2 (0.1)
STI-3003	Weatherproofing Conduit Gasket	
STI-3004	Conduit Insert	
STI-1280	Black plate for rough wall mounting	

*Suffix "F" for French labelled model

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Synchronization Output Module

SIGA-CC1S, MCC1S

MEA
Patented

Overview

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

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

Standard Features

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

Application

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

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

Personality Codes

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

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

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

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

Warnings & Cautions

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

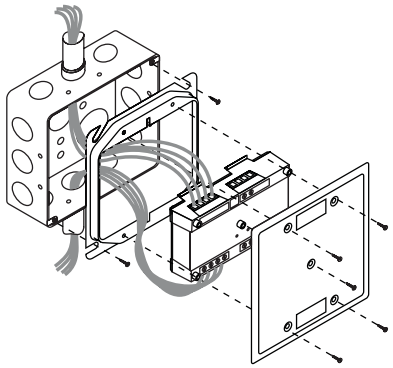
Edwards recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Compatibility

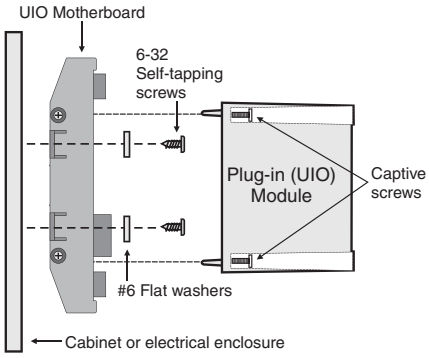
The Synchronization Output Module is compatible with EST's Signature Loop Controller operating under EST3 version 2.0 or higher, and QuickStart Signature Loop Intelligent Controller.

Installation

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



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



Electronic Addressing

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

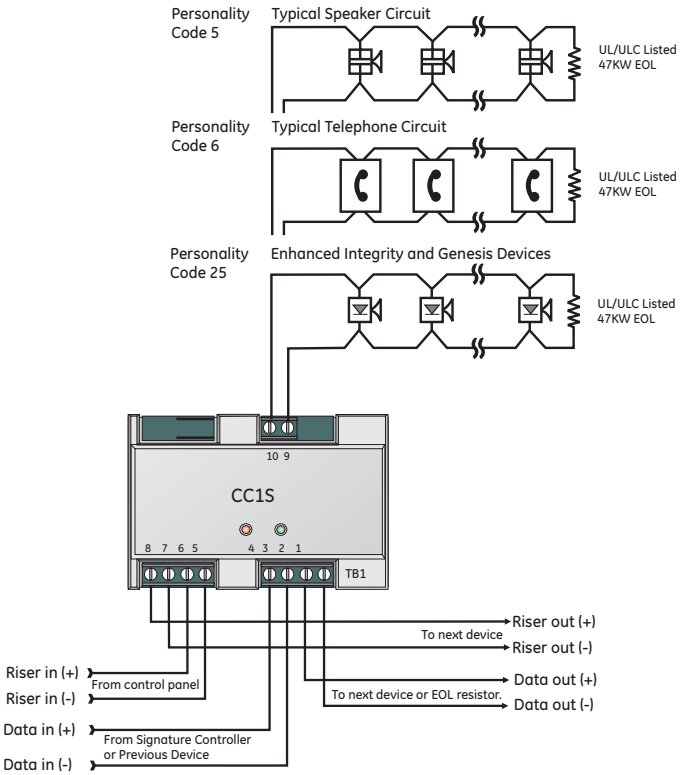
Testing & Maintenance

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

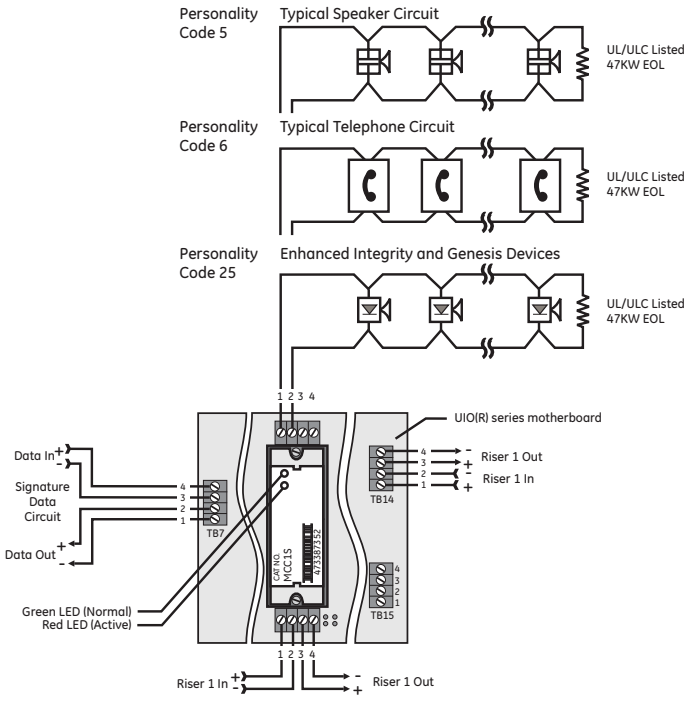
Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

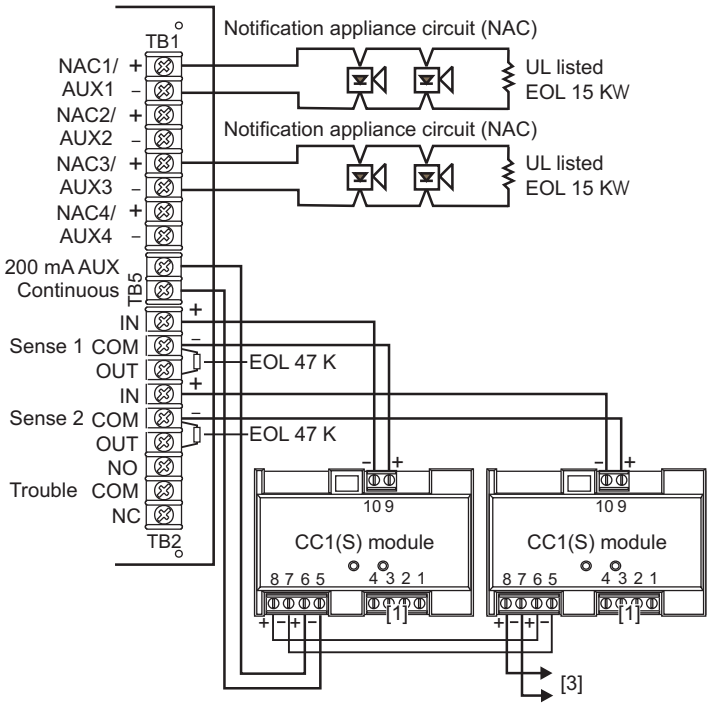
SIGA-CC1S (Standard Mount)



SIGA-MCC1S (UIO Mount)



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



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Specifications

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

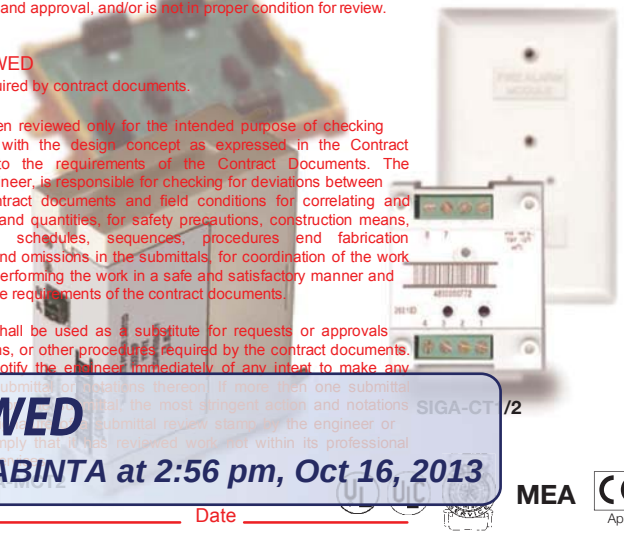
Ordering Information

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

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

Input Modules

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



MEA

Application Notes Available

Overview

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

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

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

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

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

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

Standard Features

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

Signature Series Overview

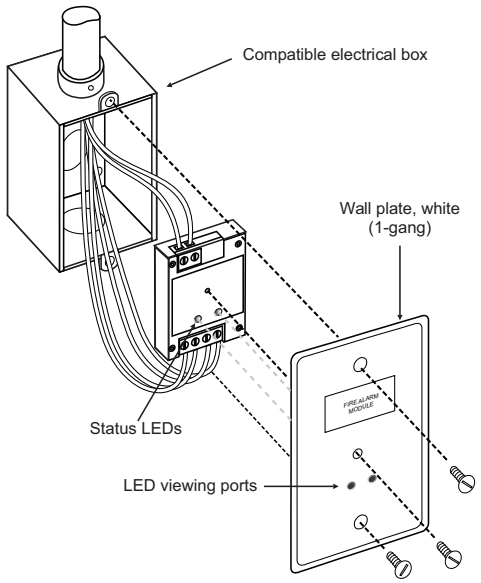
The Signature Series intelligent analog-addressable system from Edwards Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from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

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

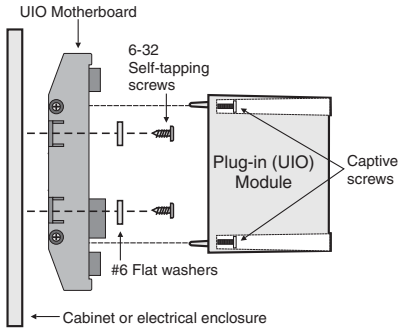
Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature.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

Installation

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



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



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

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

Application

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

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

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

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

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

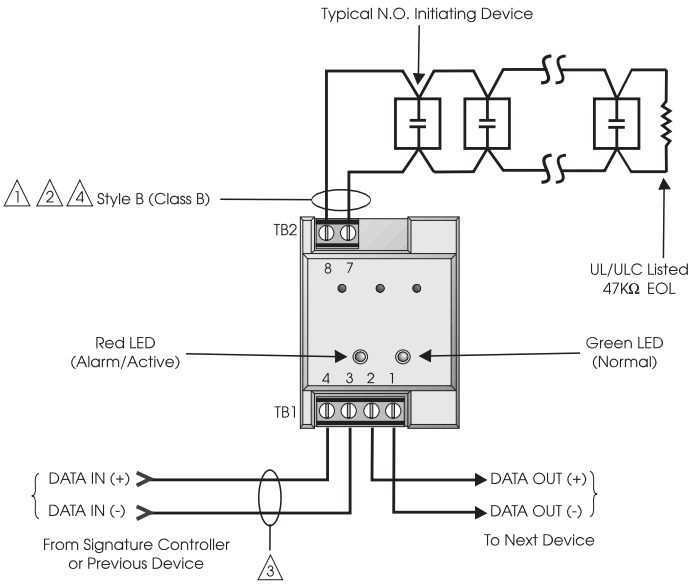
NORMALLY-OPEN ACTIVE - LATCHING (Personality Code 4) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact monitoring input such as from Supervisory and Tamper Switches. An ACTIVE signal is sent to the loop controller when the input contact is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

Typical Wiring

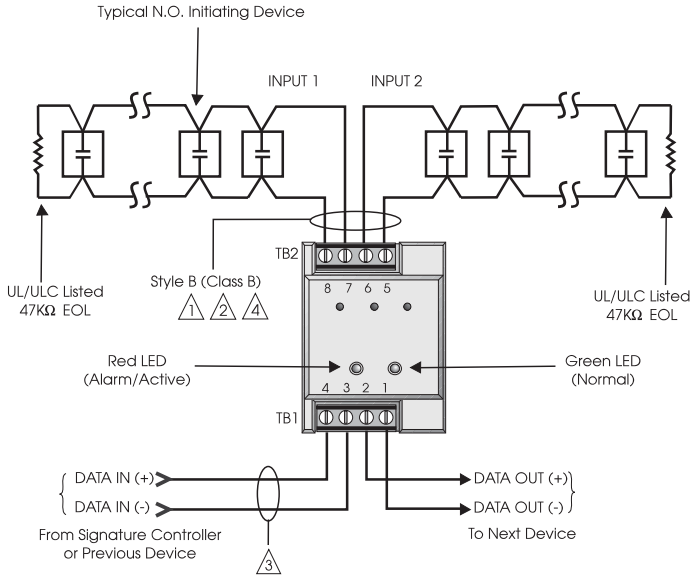
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), and #14AWG (1.50mm²), and #12 AWG (2.50mm²) wire sizes.

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

Initiating (Slave) Device Circuit Wire Specifications		
Maximum Allowable Wire Resistance	50 ohms (25 ohms per wire) per Circuit	
Maximum Allowable Wire Capacitance	0.1µF per Circuit	
For Design Reference:	**Wire Size**	**Maximum Distance to EOLR**
	#18 AWG (0.75 mm²)	4,000 ft (1,219 m)
	#16 AWG (1.00 mm²)	
	#14 AWG (1.50 mm²)	
	#12 AWG (1.50 mm²)	



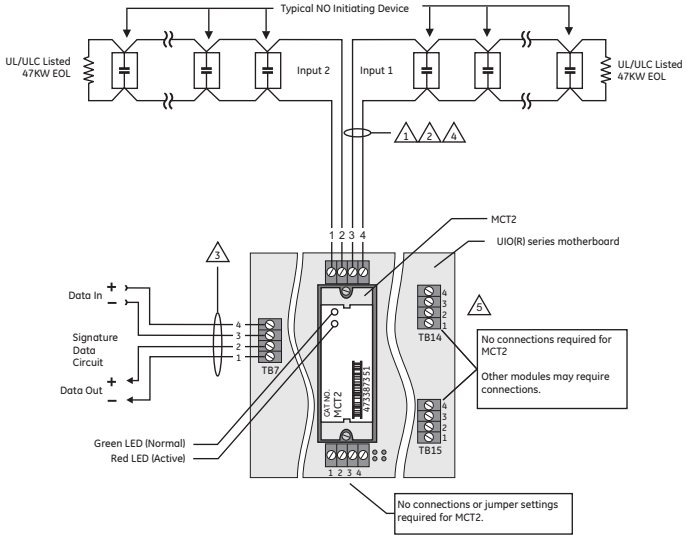
SIGA-CT1, SIGA-CT1HT



SIGA-CT2

NOTES

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



SIGA-MCT2

Warnings & Cautions

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

Compatibility

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

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Specifications

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

Ordering Information

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

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

EST™ Life Safety & Communications

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confiming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures end fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal review stamp appears on the submittal, the most stringent action and notations thereon shall apply. Signature of a submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

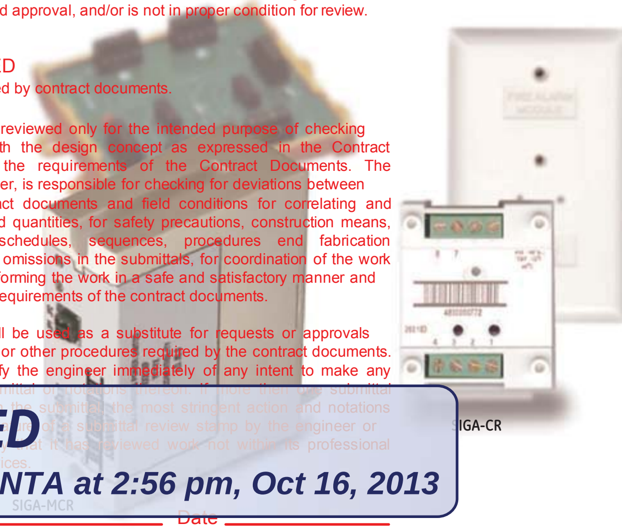
REVIEWED
By VIC CABINTA at 2:56 pm, Oct 16, 2013

By ______________ Date ______________

WIXON & ASSOCIATES Tel: (671) 646-1033

Control Relay Modules

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



MEA

Overview

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

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

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

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

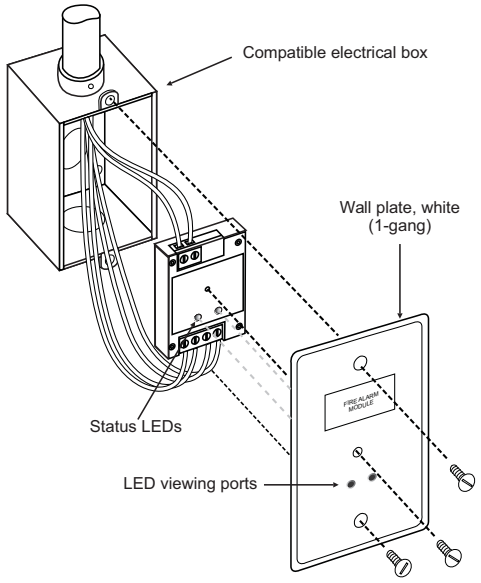
Plug-in UIO versions (SIGA-MCR and SIGA-MCRR) are part of the UIO family of plug-in Signature Series modules. They function identically to the standard mount versions, but take advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards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

Standard Features

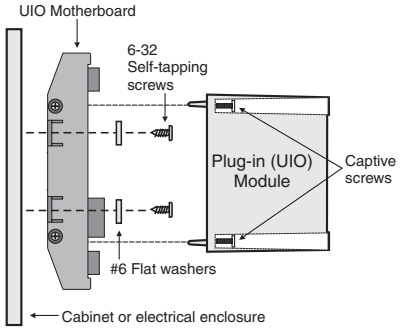
- **Provides one no/nc contact (SIGA-CR/MCR)**
  Form "C" dry relay contact can be used to control external appliances such as door closers, fans, dampers etc.
- **Allows group operation of sounder bases**
  The SIGA-CRR/MCRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases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

Installation

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



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



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

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

Application

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

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

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

Compatibility

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

Warnings & Cautions

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

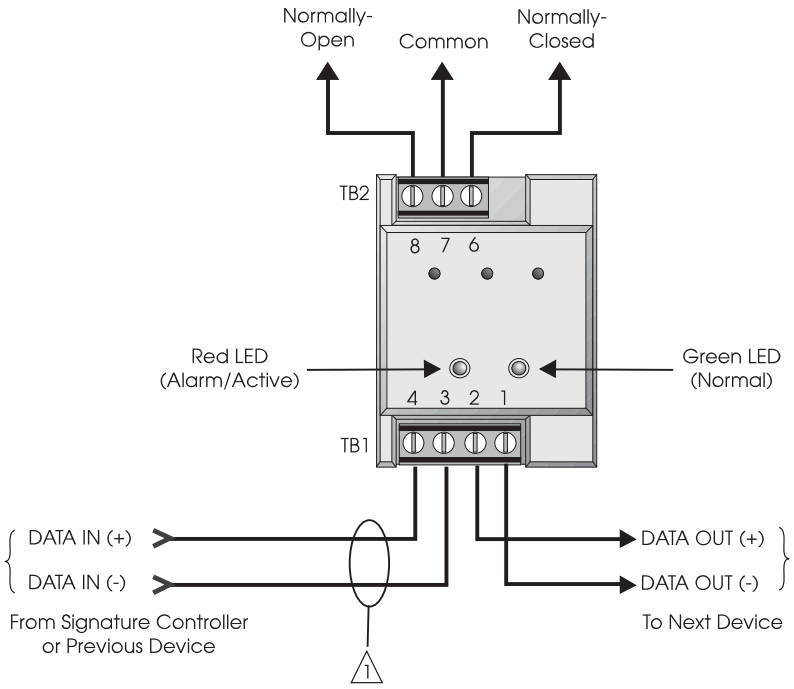
Testing & Maintenance

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

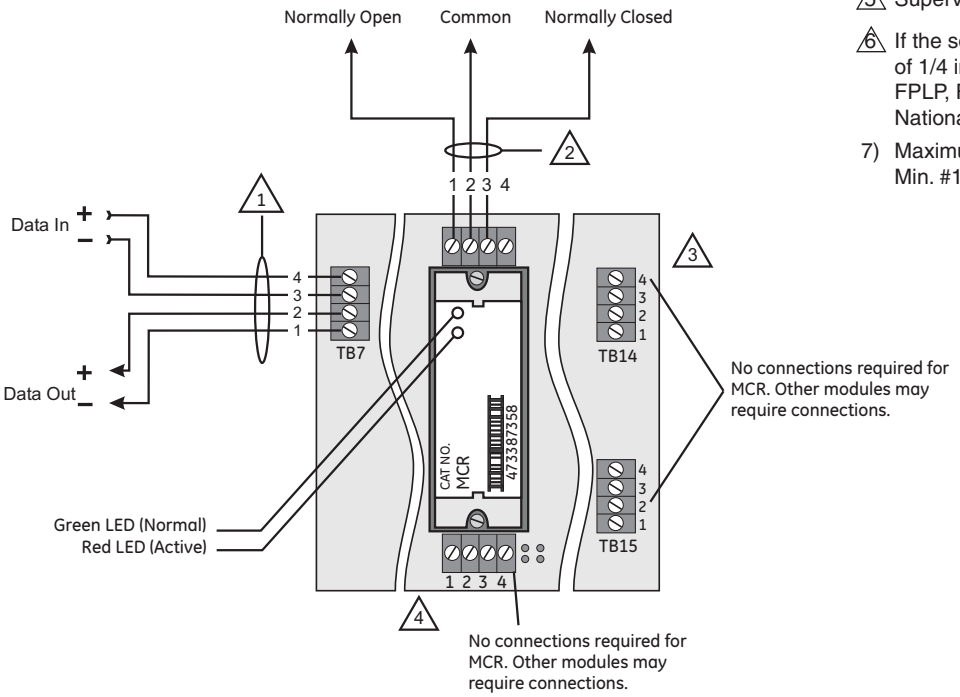
Typical Wiring

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

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



SIGA-CR Control Relay



SIGA-MCR Control Relay

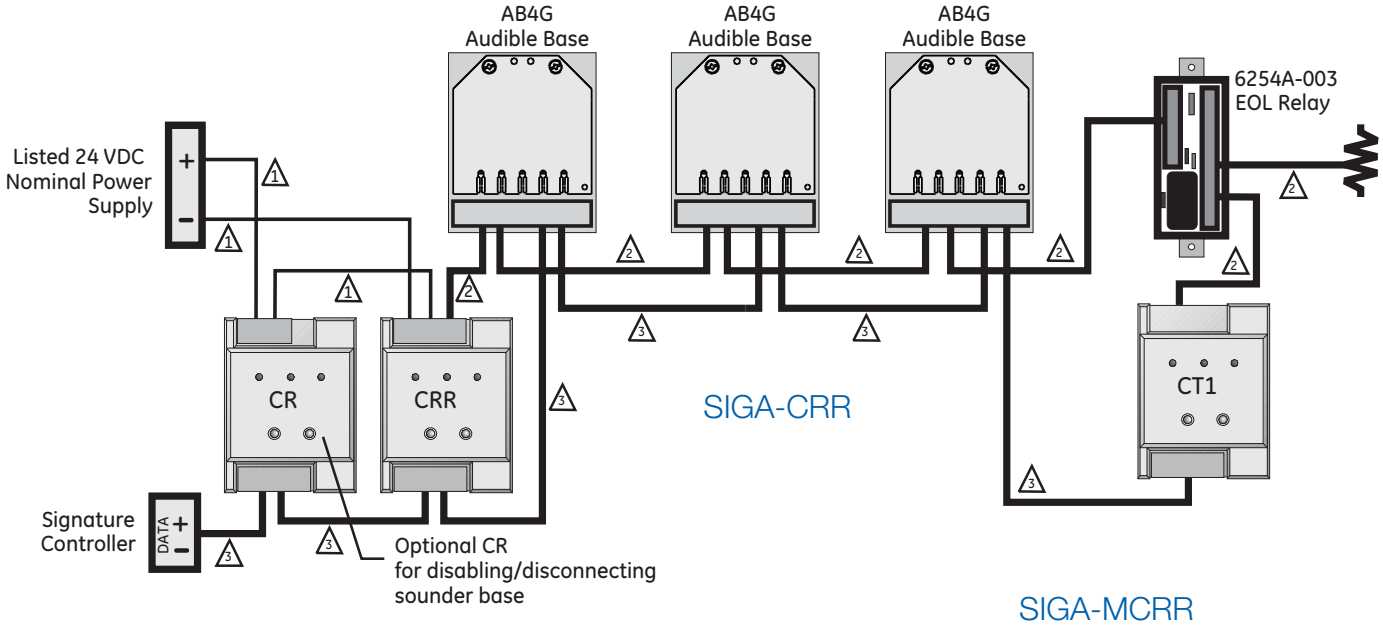
Notes

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

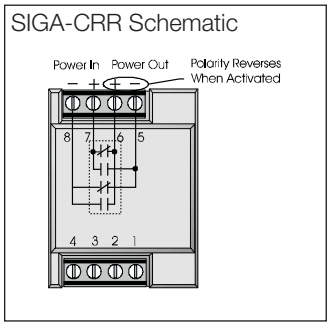
Typical Wiring

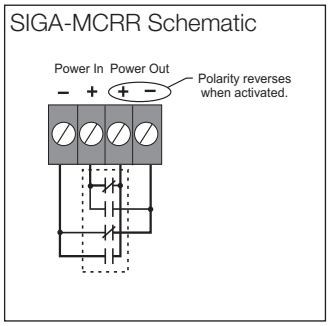
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.50mm²) wire sizes.

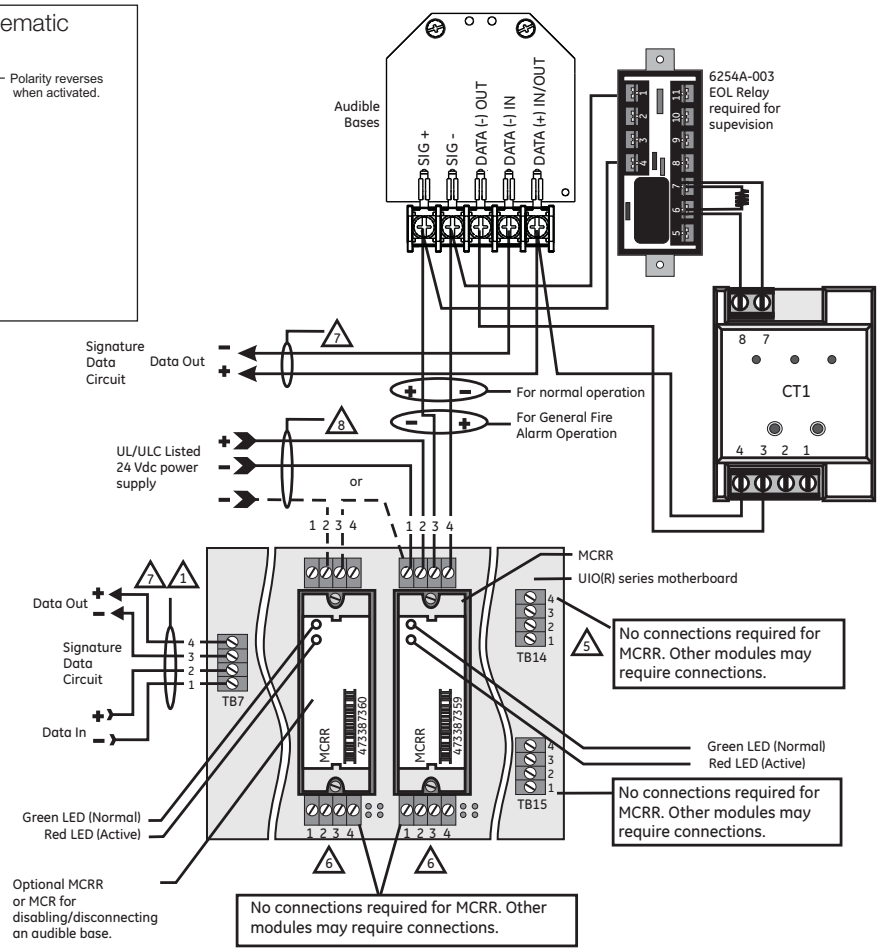
Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



SIGA-MCRR







Notes

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

Specifications

Catalog Number	SIGA-CR	SIGA-MCR	SIGA-CRR	SIGA-MCRR
Description	Control Relay		Polarity Reversal Relay	
Type Code	Personality Code 8 (Factory Set)		Personality Code 8 (Factory Set)	
Address Requirements	Uses 1 Module Address			
Operating Current	Standby = 100µA Activated = 100µA			
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Relay Type and Rating	Form "C" 24 VDC = 2 amps (pilot duty) 120 Vac = 0.5 amps 220 Vac (non-UL) = 0.5 amps			
Mounting	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Construction & Finish	High Impact Engineering Polymer			
Storage and Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes when in alarm/active			
Compatibility	Use With: Signature Loop Controller			
Agency Listings	UL, ULC, CSFM, MEA			

Ordering Information

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

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Signature Series Overview

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

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

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

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

Device mapping allows the Signature Data Controller to discover:

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

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

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

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SUBMITTAL REVIEW

A ☐ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
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Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
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REVIEWED
By VIC CABINTA at 2:57 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel: (671) 646-1983

Riser Monitor Modules

MRM1, RM1

UL UL(C) CSFM MEA Patented

Overview

SIGA-RM1 and MRM1 Riser Monitor Modules are intelligent analog addressable devices that form part of EST's Signature line of products. The actual operation of the SIGA-RM1 and MRM1 is determined by the "personality code" selected by the installer, which is downloaded to the module from the Signature loop controller during system configuration.

Depending on their assigned personality, Riser Monitor Modules may be used to monitor telephone risers or 70 Vac audio, 25 Vac audio, or 12 Vdc to 24 Vdc risers.

Upon the loss of a signal, the fire alarm control panel indicates an alert status. The Riser Monitor Module requires one module address.

Standard Features

- **Adjustable time delay**
  0 - 75 seconds (default 15 seconds)
- **Monitors audio power or telephone risers**
  Reports a trouble condition when voltage on the riser drops below the trouble threshold.
- **Plug in (UIO) or standard 2-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 2-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool. There are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.
- **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.

Application

The SIGA-RM1 mounts to a standard North American two-gang electrical box, making it ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-MRM1 is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-RM1, but takes advantage of the modular flexibility and easy installation that characterize all UIO modules. Two- and six-module UIO motherboards are available. These can accommodate individual risers for each on-board module, or risers that are shared by any combination of its UIO modules. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in Edwards enclosures.

Electronic Addressing

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

Personality Codes

Signature modules require the Signature loop controller to download the personality code that determines how it will operate. The Riser Monitor Module provides personality codes 23 and 24, which are described below.

Personality Code 23: Riser Monitor (factory default)

Personality code 23 configures the Riser Monitor Module to monitor 70 Vac audio, 25 Vac audio, or 12 Vdc and 24 Vdc risers. A trouble condition is reported back to the panel wherever the voltage on the riser drops below the trouble threshold. The hardware jumper on the Riser Monitor Module must be configured for either 70 Vac or 25Vac/24Vdc/12Vdc.

Personality Code 24: Telephone Riser Monitor

Personality code 24 configures the Riser Monitor Module to monitor telephone risers. A trouble condition is reported back to the panel whenever voltage on the riser drops below the trouble threshold.

The delay time from when the device falls below the trouble threshold to when it sends a trouble signal to the panel is user definable in the appropriate data entry program. A delay of 5 to 75 seconds can be assigned to the device; the default delay period is 15 seconds.

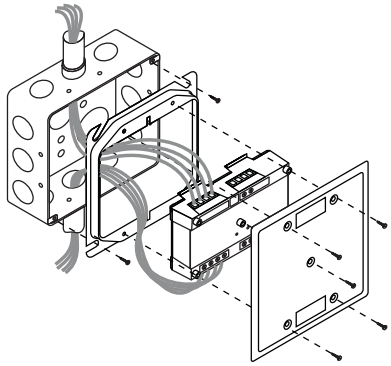
Warnings & Cautions

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

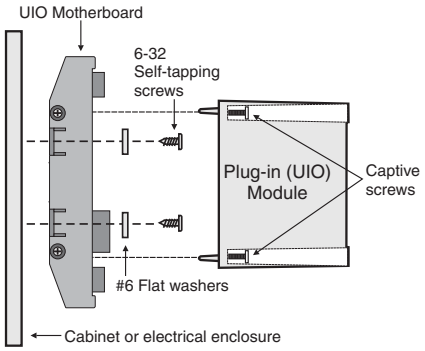
Edwards recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Installation

The SIGA-RM1: mounts to North American 2-1/2 inch (64 mm) deep 2-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MRM1: mount the UIOxR motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIOxR motherboard terminals are suited for #12 to #18 AWG (2.5 mm2 to 0.75 mm2) wire size.



Testing & Maintenance

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

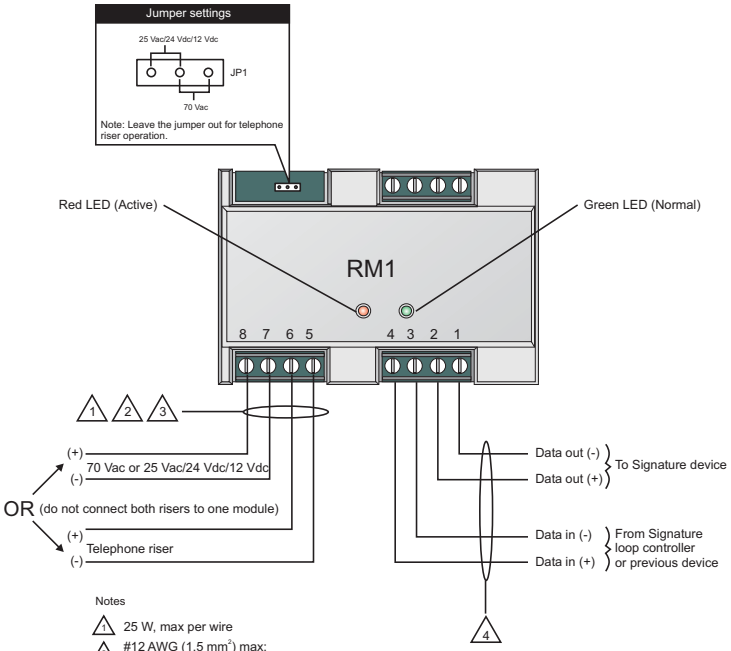
Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Compatibility

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

Typical Wiring (SIGA-RM1)

Modules will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2) and #12 AWG (2.50mm^2) wire sizes. Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

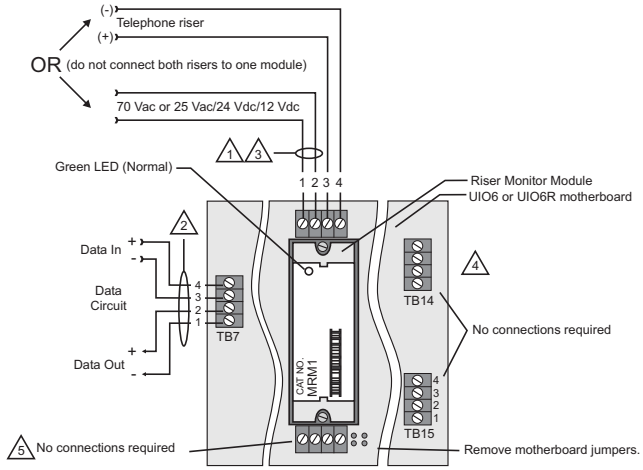


Notes

1. 25 W, max per wire
2. #12 AWG (1.5 mm^2) max; #18 AWG (0.75 mm^2) min
3. 160 mA, max
4. See the Signature loop controller installation sheet for wiring specifications.
5. All wiring is supervised and power-limited.

Typical Wiring (SIGA-MRM1)

Modules will accept #12 AWG (2.5mm^2), #18 AWG (0.75mm^2), #16 (1.0mm^2), and #14 AWG (1.50mm^2) wire sizes. Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



Notes

1. Maximum #12 AWG (2.5 mm^2) wire; Minimum #18 AWG (0.75 mm^2)
2. See the loop controller installation sheet for wiring specifications.
3. Power-limited if the source is power-limited. If the source is nonpower-limited, maintain a space of 1/4 inch (6.4 mm) from power-limited wiring. Otherwise, use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electric Code.
4. The UIO6R does not come with TB14.
5. The UIO6 does not come with TB8 through TB13.
7. All wiring is supervised.
8. Wire the Riser Monitor Module in accordance with NFPA 70-1999, National Electric Code 760-54(a)(1), exception no. 2 and no. 3.

Signature Series Overview

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

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

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

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

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

Fast Stable Communication – Built-in intelligence means less information needs to be sent between the device and the Signature Data Controller (SDC). Other than regular supervisory polling response, Signature devices only need to communicate with the SDC when they have something new to report. This provides very fast control panel response and allows a lower baud rate (speed) to be used for communication on the circuit. The lower baud rate offers several advantages including:

- Less sensitivity to circuit wire characteristics.
- Less sensitivity to noise glitches on the cable.
- Less emitted noise from the data wiring.
- Twisted or shielded wiring is not required.

Diagnostic LEDs – Twin LEDs on most Signature devices provide visual indication of normal and alarm-active conditions. A flashing green LED shows normal system polling. A flashing red LED means the module is in alarm-active state. Both LEDs on steady indicates alarm-active state – standalone mode.

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Specifications

Mounting (SIGA-RM1)	North American 2½ inch (64 mm) deep 2-gang box; 1½ inch (38 mm) deep 4 inch square box with 2-gang cover and SIGA-MP mounting plates
Mounting (SIGA-MRM1)	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Current	
Standby	200 µA
Activated	200 µA
Maximum Input Voltages	
Riser monitor	12 Vdc + 15% 24 Vdc + 15% 25 Vac + 15% 70 Vac + 15%
Telephone	28 Vdc
Input Currents	
12 Vdc	10 mA dc
24 Vdc	10 mA dc
25 Vac	10 mA rms
70 Vac	10 mA rms
Telephone 24 Vdc	20 mA dc
Riser loading	
70 Vac	Z > 11k Ohm
25 Vac	Z > 1k Ohm
24 Vdc	R > 2.4k Ohm (2 amps)
12 Vdc	R > 1.2k Ohm
Telephone	R > 1.2k Ohm, Z > 1.2k Ohm
Trouble Threshold	Approximately 25% of riser input
Wiring Terminations	Suitable for #12 to #18 AWG (2.5 mm² to 0.75mm²)
Personality Codes	Two Selectable Codes Available
Address Requirements	Uses One Module Address
Operating Voltage	15.2 to 19.95 Vdc
Construction	High Impact Engineering Polymer
Storage and Operating Environment	Operating Temperature: 32° F to 120° F (0° C to 49° C) Storage Temperature: -4° F to 140° F (-20° C to 60° C) Humidity: 0 to 93% RH
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm/active
Compatibility	Use With: Signature Loop Controller
Agency Listings	UL, ULC, MEA, CSFM

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-RM1	Riser Monitor Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MRM1	Riser Monitor Module (Plug-in) - UL/ULC Listed	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2.0 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2.0 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
MFC-A	UL listed cabinet for mounting releasing modules, red with white “FIRE”.	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)

Life Safety & Communications

Outdoor Rated Horns and Horn-Strobes

Genesis WG4 Series

Overview

Genesis WG4 Series horns and horn-strobe appliances are among the most versatile emergency appliances of their kind. Rated for indoor or outdoor use, they are suitable for a wide range of wet and harsh environments with a listed operating temperature range of as low as -40 °F to as high as 151 °F (-40 °C to 66 °C).

Field-configurable light and sound output settings add to their on-site flexibility, while optional FIRE markings make them ideal for fire alarm applications.

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

WG4 Series appliances feature an efficient and powerful piezo sounder. The multi-candela strobes are available with clear lenses in two output categories – standard and high-output. They are precision-timed to meet UL 1971 synchronization standards, and field-configurable for one of four candela intensities. Candela settings are viewable even after installation through an innovative sealed viewport display.

Standard Features

- Outdoor and indoor rated
- Low-profile design
- Wall or ceiling mount
- Room-side wiring accepts 18 to 12 AWG (0.75 to 2.5 mm^2)
- Wide operating temperature range
- Field-selectable settings
- Fully-compatible with Genesis synchronization protocols
- Standard and high-output strobe intensities
- Horn only and horn-strobe options

Application

Horns

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

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

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

Strobe Application

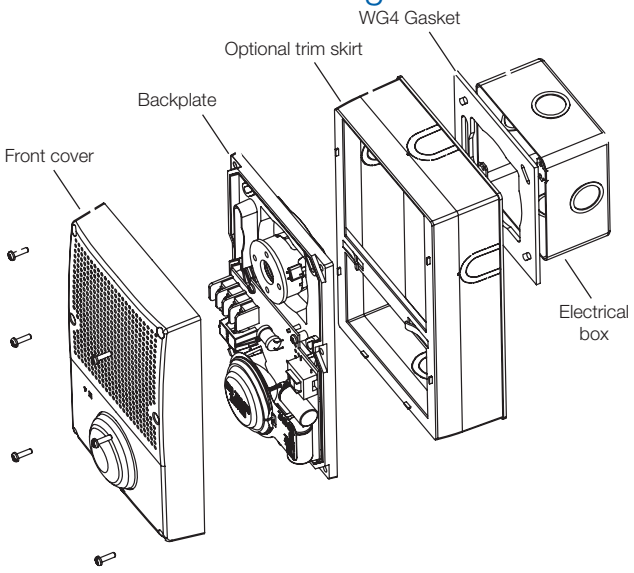
Genesis clear-lensed strobes are UL 1971-listed for use indoors as wall- or ceiling-mounted public-mode notification appliances for the hearing impaired, and UL 1638-listed for outdoor applications. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where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

Visible appliance synchronization is required to avoid causing issues with people who have Photosensitive Epilepsy (PSE). Notification appliance synchronization is also generally required when more than two strobe appliances are in the same field of view from any one location. All Genesis strobes meet UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

Edwards recommends that these devices always be installed in accordance with the latest recognized edition of national and local codes. Refer to the appropriate codes and standards for mounting height information.

Installation and Mounting

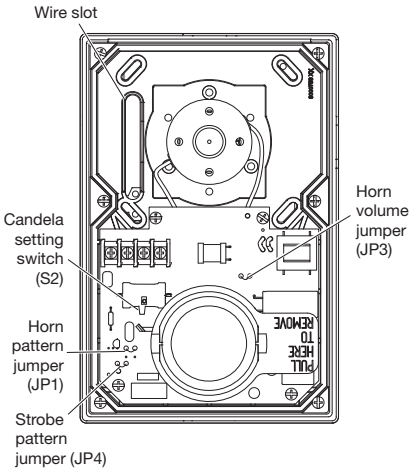


WG4 notification appliances are rated for outdoor use and are suitable for indoor or outdoor applications on walls or ceilings. For surface-mounting in outdoor or wet applications, appliances must be mounted to a 449 or 74347U electrical box. In dry conditions, they are compatible with standard 4-inch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

The Genesis WG4 horn and horn-strobe may be wall- or ceiling-mounted, and may be placed in one of four positions: strobe above, strobe below, and strobe to either side. The shallow depth of Genesis devices leaves room behind the appliance for extra wiring.

Field Configuration

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



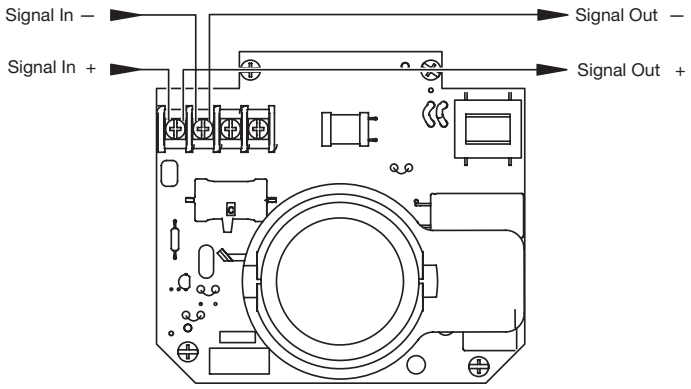
Horn output: Horns and horn-strobes are factory set for high dB output. Low dB output may be selected by cutting a jumper on the circuit board. This reduces the output by about 5 dB.

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

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

Wiring

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



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

Specifications

Horns and Horn-strobes

Operating voltage	24 VDC, 24 VFWR nominal
Dimensions (W × H × D)	5.6 × 8.5 × 1.4 in. (142 × 216 × 36 mm)
Horn tone	3.2 kHz
Wire size	12 to 18 AWG (0.75 to 2.50 mm²)
Compatible electrical box	
Outdoor	Model 449 or 74347U
Indoor	4 in. square by 1.5 in. deep box
Operating environment	
Temperature	-40 to 151°F (-40 to 66°C)
Relative humidity	0 to 95% noncondensing

Compatible Synchronization Sources

Horn-strobes

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

Sound Output

Horns and Horn-strobes (dBA)

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

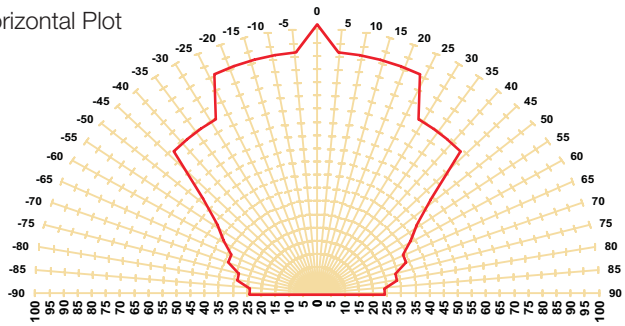
dBA = Decibels, A-weighted.

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

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

Light Output

Horizontal Plot



Standard Candela Horn-strobes

Standard/rating		Strobe Switch Position			
		D	C	B	A
UL 1971	Indoor	15 cd	29 cd	70 cd	87 cd
UL 1638	Outdoor @ -35°C	6 cd	12 cd	28 cd	35 cd
CAN/ULC-S525	Outdoor @ -40°C	1 cd	3 cd	8 cd	10 cd

High Candela Horn-strobes

Standard/rating		Strobe Switch Position			
		D	C	B	A
UL 1971	Indoor	102cd	123cd	147cd	161cd
UL 1638	Outdoor @ -35°C	41cd	50 cd	60 cd	65 cd
CAN/ULC-S525	Outdoor @ -40°C	11 cd	14 cd	17 cd	18 cd

Operating Current

(UL specifies current ratings at 16 volts)

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

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

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

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

Horn only models (mA)

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

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Ordering Information

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

Accessories

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

EST
Life Safety & Communications

Field Configurable Horns and Strobes

Genesis Series

UL
ULC
MEA
CE
FC
FM Pending

Overview

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

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

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

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

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

Standard Features

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

Application

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

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

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

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

Horns

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

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

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

ECS/MNS Applications

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

Installation

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

Genesis Horn/Strobe with optional trim plate

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

Field Configuration

Temporal horn and horn-strobe models are factory set to sound in a **three-pulse temporal pattern**. Units may be configured for use with coded systems by cutting a jumper on the circuit board. This results in a **steady output** that can be turned on and off (coded) as the system applies and removes power to the signal circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems. Non-temporal, horn-only models sound a steady tone.

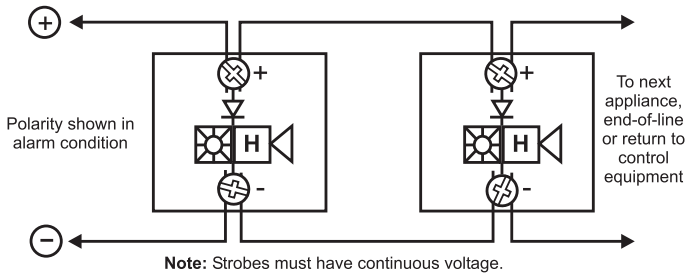
Genesis clear strobes and horn-strobes are shipped from the factory ready for use as **UL 1971 compliant** signals for public mode operation. These signals may be configured for **temporal flash** by cutting a jumper on the circuit board. This battery-saving feature is intended for private mode signaling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

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

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

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wiring. Horns, strobes, and combination horn-strobes are interconnected with a single pair of wires as shown below.



Note: Strobes must have continuous voltage.

Current Draw

Strobes, Horn-Strobes

Multi-cd Wall Strobes (G1-VM)

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

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

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

Wall Temporal Horn-strobes – High dB Setting

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

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

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

Wall Temporal Horn-strobes – Low dB Setting

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

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

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

Horns

Wall or Ceiling Mounted Temporal Horns (G1-HD)

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

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

Wall or Ceiling Mounted Horns (G1-P)

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

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

Current values are shown in mA.

dBA output

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

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

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

Steady Tone Horns (G1-P series)

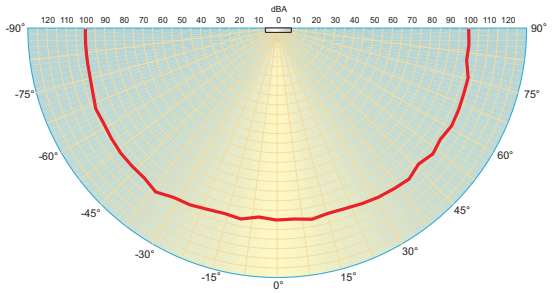
	UL464	Average	Peak
16 Vdc	77 dBA, min	85 dBA	91 dBA
16 Vfwr	77 dBA, min	85 dBA	91 dBA

Notes

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

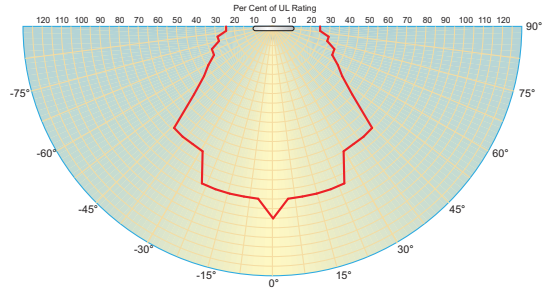
Average Sound Output (dBA)

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



Light output - (effective cd)

Percent of UL rating versus angle



Specifications

Housing	Red or white textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating.
Lens	Optical grade polycarbonate (clear)
Mounting (indoor only)	Strobes and horn-strobes are for wall-mount installation only. Horn-only models may be ceiling- or wall-mounted. Flush mount: 2½ inch (64 mm) deep one-gang box Surface mount: Model 27193 surface mount box, wiremold box, or equivalent surface-mount box With optional trim plate: One-gang, two-gang, four-inch square, octagonal, or European single-gang box
Wire connections	Screw terminals: single input for both horn and strobe. #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size
Operating environment	Indoor only: 32-120°F (0-49°C) ambient temperature. 93% relative humidity
Agency listings/approvals	UL 1971, 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, ULCS526: 75 cd (fixed 15/75 cd models)
Strobe flash rate	G1-VM strobes and G1-HDVM series temporal-tone horn-strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. Temporal setting (private mode only): synchronized to temporal output of horns on same circuit
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone. Add G1M for G1-CVM &G1-HDVM devices only.
Horn pulse rate	G1-HD temporal-tone horns and G1-HDVM series temporal-tone horn-strobes: temporal rate synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. G1-P steady-tone horns: continuous, steady tone only
Temporal audible pattern	½ sec ON, ½ sec OFF, ½ sec ON, ½ sec OFF, ½ sec ON, 1½ sec OFF, then repeat cycle

Candela Output

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

** Equivalent Rating*

Fire appliances available with white or red housings.

ECS/MNS appliances available with clear or amber lenses.

Ordering Information

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

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

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SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confiming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures end fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal review stamp appears on the submittal, the most stringent action and notations thereon shall apply. Signature of a submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

REVIEWED
By VIC CABINTA at 3:01 pm, Oct 16, 2013

By ______________________ Date ____________

WIXON & ASSOCIATES Tel. (671) 646-1033

Multi-Voltage Control Relay

Model PAM-1

Overview

The PAM-1 Relay is encapsulated multi-voltage device providing 10 Amp Form C contacts. The relay may be energized by one of three input voltages: 24 Vac, 24 Vdc, or 115 Vac.

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

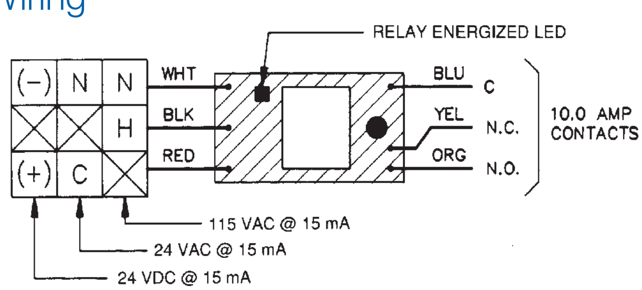
The PAM-1 may be mounted by using the double-sided adhesive tape, the self-drilling screw, or loosely placed in a back box.

The PAM-1 is ideal for applications where remote relays are required for control or status feedback. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management, and Lighting Control Systems.

Standard Features

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

Wiring



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Specifications

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

Ordering Information

Model	Description
PAM-1	Single SPDT relay with LED double-sided adhesive tape, mounting screw and 6 in (150 mm) leads.

DTK-TSS4

54kA Series Connected Surge Protector
General Product Specifications

DITEK's Total Surge Solution (TSS) is a range of products that provide total surge protection for addressable and conventional alarm systems.

The TSS4 protects 120V system power. The NEMA 4X enclosure makes the TSS4 ideal for harsh environments such as outdoor locations, chemical plants, and water treatment facilities.

DTK-TSS4

Product Features

- NEMA 4X weatherproof enclosure
- Multi-stage hybrid circuit design
- EMI/RFI filtering included
- Series connected device
- LED indicates protection status
- UL1449 3rd Edition Listed
- Ten Year Limited Warranty

Specifications

Agency Approvals: UL1449 3rd Edition, cUL, UL1283
Protector Type: Type 2 SPD
Nominal Discharge Current Rating (In): 3kA
SCCR: 10kA
Operating Voltage: 110VAC - 120VAC
MCOV: 150VAC
Peak Surge Current: 54,000 Amps
Maximum Continuous Current: 20A
EMI/RFI Attenuation: Up to 35dB, 100kHz-100MHz
Protection Modes: All modes (L-N, L-G, N-G)
Voltage Protection Rating: 600V
Temperature Range: -0°F – 140°F (-18°C - 60°C)
Dimensions: 8.74" x 5.75" x 2.95"
(222 mm x 146 mm x 74.9 mm)
Weight: 1.85 lb
Housing: Polycaronate

One DITEK Center
1720 Starkey Road
Largo, FL 33771

1-800-753-2345 Direct 1-727-812-5000
Technical Support: 1-888-472-6100
www.ditekcorp.com

Document: SPS-100007-001 Rev 5 07/10

FACP (iO500) Battery Calculation

Model / Description	Qty.	Standby (mA)	Total Standby (mA)	Alarm (mA)	Total Alarm (mA)
iO500, Base Panel	1	172	172	267	267
iO500, Primary Loop Circuit	1	55	55	125	125
XAL250 Loop Expander Card	1	60	60	125	125
SA-DACT, Dialer	1	41	41	41	41
RLCD-CR, LCD Annunciator	1	99	99	115	115
SIGA2-PS, Photoelectric Smoke Detector	53	0.045	2.385	0.045	2.385
SIGA2-PHS, Smoke/Heat Combination Detector	5	0.07	0.35	0.07	0.35
SIGA-SD, SuperDuct Detector	5	0.045	0.225	0.045	0.225
SIGA -278, Fire Alarm Station (Double Action)	17	0.25	4.25	0.4	6.8
SIGA-CT1, Single Input Module	16	0.25	4	0.4	6.4
SIGA-CR, Control Relay Module	8	0.1	0.8	0.1	0.8
SIGA-CC1S, Synchronization Output Module	3	0.223	0.669	0.1	0.3
SIGA-RM1, Rise Monitor Module	3	0.2	0.6	0.2	0.6
WG4RF-HVMC, Outdoor Horn/Strobe (12 cd)	2	0	0	0.130	0.260
WG4RF-HVMC, Outdoor Horn/Strobe (35 cd)	1	0	0	0.238	0.238
G1RF-HDVM, Horn/Strobe (30 cd)	3	0	0	0.094	0.282
G1RF-HDVM, Horn/Strobe (75 cd)	2	0	0	0.161	0.322
G1RF-HDVM, Horn/Strobe (110 cd)	5	0	0	0.203	1.015
G1RF-VM, Strobe (15 cd)	9	0	0	0.059	0.531
G1RF-VM, Strobe (30 cd)	4	0	0	0.082	0.328
G1RF-VM, Strobe (75 cd)	1	0	0	0.152	0.152
		TOTAL:	**440.28**	**TOTAL:**	**693.99**
			(mA)		(mA)
SUPERVISORY HOURS:	**24**				
ALARM MINUTES:	**10**				
Minimum Battery Size (Ah)	**10.68**				
Total Alarm & Supervisory Current Required (in amp-hr) plus 25 % spare:					**13.3529508**

Battery size to be supplied: 2 ea. 12 Volts - **18 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FEP1 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
4	G1RF-VM	Strobe (15 cd)	0	0.059	0	0.236
2	G1RF-VM	Strobe (75 cd)	0	0.152	0	0.304
1	G1RF-HDVM	Horn/Strobe (110 cd)	0	0.203	0	0.203
3	PAM-1	Single SPDT Relay	0	0.015	0.000	0.045

A	Devices total supervisory current (from the above chart):	**0.07**	
B	Required battery standby capacity (As per Project Specification)	24	
C	**Supervisory Current Required:**	***1.68***	
D	Devices total alarm current (from the above chart):		**1.0580**
E	Required alarm sounding period (As per Project Specification)	10	
F	**Alarm Current Required:**		***0.1763***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**	**1.86**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**		**2.32**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FEP2 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
1	G1RF-HDVM	Horn/Strobe (30 cd)	0	0.094	0	0.094
1	G1RF-HDVM	Horn/Strobe (75 cd)	0	0.161	0	0.161
3	G1RF-HDVM	Horn/Strobe (110 cd)	0	0.203	0	0.609
11	G1RF-VM	Strobe (15 cd)	0	0.059	0	0.649
9	G1RF-VM	Strobe (30 cd)	0	0.082	0	0.738
1	G1RF-VM	Strobe (75 cd)	0	0.152	0	0.152
2	G1RF-VM	Strobe (110 cd)	0	0.191	0	0.382

SUBMITTAL REVIEW

A ☐ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

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REVIEWED
By VIC CABINTA at 3:06 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

A	Devices total supervisory current (from the above chart):	0.07	
B	Required battery standby capacity (As per Project Specification)	24	
C	**Supervisory Current Required:**	***1.68***	
D	Devices total alarm current (from the above chart):		**3.0550**
E	Required alarm sounding period (As per Project Specification)	10	
F	**Alarm Current Required:**		***0.5092***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**	**2.19**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**		**2.74**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FEP3 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
1	G1RF-HDVM	Horn/Strobe (15 cd)	0	0.081	0	0.081
3	G1RF-HDVM	Horn/Strobe (30 cd)	0	0.094	0	0.282
1	G1RF-HDVM	Horn/Strobe (75 cd)	0	0.161	0	0.161
1	G1RF-HDVM	Horn/Strobe (110 cd)	0	0.203	0	0.203
8	G1RF-VM	Strobe (15 cd)	0	0.059	0	0.472
5	G1RF-VM	Strobe (30 cd)	0	0.082	0	0.410
2	G1RF-VM	Strobe (75 cd)	0	0.152	0	0.304
A	Devices total supervisory current (from the above chart):				**0.07**	
B	Required battery standby capacity (As per Project Specification)				24	
C	**Supervisory Current Required:**				***1.68***	
D	Devices total alarm current (from the above chart):					**2.1830**
E	Required alarm sounding period (As per Project Specification)				10	
F	**Alarm Current Required:**					***0.3638***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**				**2.04**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**					**2.55**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FEP4 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
1	G1RF-HDVM	Horn/Strobe (30 cd)	0	0.094	0	0.094
4	G1RF-HDVM	Horn/Strobe (110 cd)	0	0.203	0	0.812
15	G1RF-VM	Strobe (15 cd)	0	0.059	0	0.885
7	G1RF-VM	Strobe (30 cd)	0	0.082	0	0.574
1	G1RF-VM	Strobe (75 cd)	0	0.152	0	0.152
2	G1RF-VM	Strobe (110 cd)	0	0.191	0	0.382

SUBMITTAL REVIEW

A ☐ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

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NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal ... submittal, the most stringent action and notations ... a submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional

REVIEWED
By VIC CABINTA at 3:08 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

A	Devices total supervisory current (from the above chart):	0.07	
B	Required battery standby capacity (As per Project Specification)	24	
C	**Supervisory Current Required:**	***1.68***	
D	Devices total alarm current (from the above chart):		**3.1690**
E	Required alarm sounding period (As per Project Specification)	10	
F	**Alarm Current Required:**		***0.5282***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**	**2.21**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**		**2.76**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FEP5 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
1	G1RF-HDVM	Horn/Strobe (15 cd)	0	0.081	0	0.081
1	G1RF-HDVM	Horn/Strobe (30 cd)	0	0.094	0	0.094
1	G1RF-HDVM	Horn/Strobe (110 cd)	0	0.203	0	0.203
11	G1RF-VM	Strobe (15 cd)	0	0.059	0	0.649
4	G1RF-VM	Strobe (30 cd)	0	0.082	0	0.328
3	G1RF-VM	Strobe (75 cd)	0	0.152	0	0.456
1	G1RF-VM	Strobe (110 cd)	0	0.191	0	0.191

A	Devices total supervisory current (from the above chart):	**0.07**	
B	Required battery standby capacity (As per Project Specification)	24	
C	**Supervisory Current Required:**	***1.68***	
D	Devices total alarm current (from the above chart):		**2.2720**
E	Required alarm sounding period (As per Project Specification)	10	
F	**Alarm Current Required:**		***0.3787***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**	**2.06**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**		**2.57**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

PS1 (BPS6A) Battery Calculation

Qty	Model	Description	Supv Current (A)	Alarm Current (A)	Total Supv Current (A)	Total Alarm Current (A)
1	BPS6A	Control Board	0.07	0.270	0.07	0.270
2	PAM-1	Single SPDT Relay	0	0.015	0.000	0.030

A	Devices total supervisory current (from the above chart):	**0.07**	
B	Required battery standby capacity (As per Project Specification)	24	
C	**Supervisory Current Required:**	***1.68***	
D	Devices total alarm current (from the above chart):		**0.3000**
E	Required alarm sounding period (As per Project Specification)	10	
F	**Alarm Current Required:**		***0.0500***
G	**Total Alarm and Supervisory Current (in amp-hour) Required:**	**1.73**	
H	**Total Alarm and Supervisory Current (in amp-hour) Required Plus 25 % Spare:**		**2.16**

Battery size to be supplied: 2 ea. 12 Volts - **7.2 Ah**

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**	
Calculated by:	**Francisco B. Guinto, Jr. - NICET Level III #126649**	**Date: 9/19/13**

FACP NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 1, FACP, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		35	14	**5.20**
Total Circuit Current (Amps)	**1.78**			
Circuit Capacity (Amps)	**2.5**			
******Circuit is within limits******				
Spare % =	**28.9**			

Location (1st Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
Exterior	N1-1	0.238		20.08	0.32	2%
GPWA- Breakroom	N1-2	0.059	15	19.96	0.44	2%
GWA Inv Mgmt Office	N1-3	0.059	10	19.88	0.52	3%
GWA Supp Mgmt Admr	N1-4	0.059	20	19.73	0.67	3%
GPWA-Procure Area	N1-5	0.203	65	19.27	1.13	6%
GPWA - Elevator Lobby	N1-6	0.161	95	18.70	1.70	8%
GPWA - Mens CR	N1-7	0.082	30	18.54	1.86	9%
GPWA - Womens CR	N1-8	0.082	20	18.45	1.95	10%
GPWA - Conference Room	N1-9	0.161	20	18.36	2.04	10%
GPWA - Corridor 102	N1-10	0.152	35	18.24	2.16	11%
GPWA - Reception	N1-11	0.059	25	18.17	2.23	11%
Exterior	N1-12	0.130	40	18.07	2.33	11%
Exterior	N1-13	0.130	15	18.05	2.35	12%
GPWA - General Lobby	N1-14	0.203	10	18.04	2.36	12%
	Total	**1.78**	**435**			

FACP NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 2, FACP, NAC #2**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		115	14	**5.20**
Total Circuit Current (Amps)	**1.34**			
Circuit Capacity (Amps)	**2.5**			
******Circuit is within limits******				
Spare % =	**46.5**			

Location (1st Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Corridor 101	N2-1	0.191		19.60	0.80	4%
GPWA - Cash Mgnt	N2-2	0.059	10	19.54	0.86	4%
GPWA - Breakroom	N2-3	0.059	30	19.37	1.03	5%
GPA- Supply/Storage	N2-4	0.082	55	19.08	1.32	6%
GPA - Records Room	N2-5	0.094	20	18.98	1.42	7%
GPA - Records Room	N2-6	0.082	45	18.78	1.62	8%
GPWA - Corridor 101	N2-7	0.203	25	18.68	1.72	8%
GPWA -Womens CR	N2-8	0.059	10	18.65	1.75	9%
GPWA - Mens CR	N2-9	0.059	20	18.60	1.80	9%
GPWA - Customer Service	N2-10	0.094	60	18.46	1.94	10%
GPA - Utility Service Admr	N2-11	0.059	30	18.40	2.00	10%
GPWA - Customer Service	N2-12	0.094	35	18.35	2.05	10%
GPWA - Customer Service	N2-13	0.203	80	18.26	2.14	10%
		SUBMITTAL REVIEW				
		A ☐ NO EXCEPTIONS TAKEN				
		No further review of Submittal is required.				
		B ☐ MAKE CORRECTIONS AS NOTED				
		Incorporate corrections in work, resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.				
		C ☐ REVISE AND RESUBMIT				
		Revise as noted, and resubmit for further review.				
		D ☐ RESUBMIT PROPERLY				
		Submittal not reviewed because it does not contain contractors signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.				
		E ☐ NOT REVIEWED				
		Submittal is not required by contract documents.				
		This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confiming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures and fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.				
		NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more than one submittal				
		REVIEWED				
		By VIC CABINTA at 3:13 pm, Oct 16, 2013				
		By_____ Date _____				
		WIXON & ASSOCIATES Tel. (671) 646-1033				
	Total	**1.34**	**535**			

FEP1 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 3, FEP1, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		120	14	**5.20**
Total Circuit Current (Amps)	**0.74**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**75.2**			

Location (1st Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPA - Breakroom	N3-1	0.059		19.94	0.46	2%
GPA - Womens CR	N3-2	0.059	15	19.88	0.52	3%
GPA - Mens CR	N3-3	0.059	10	19.85	0.55	3%
GPA - Hallway	N3-4	0.203	15	19.81	0.59	3%
GPA - Facility Mgr	N3-5	0.059	15	19.78	0.62	3%
GPA - Covered Storage	N3-6	0.152	35	19.72	0.68	3%
GPA - Maintenance Shop	N3-7	0.152	40	19.69	0.71	3%
	Total	**0.74**	**250**			

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
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REVIEWED
By VIC CABINTA at 3:13 pm, Oct 16, 2013

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP2 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 4, FEP2, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		35	14	**5.20**
Total Circuit Current (Amps)	**1.32**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**56.2**			

Location (2nd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Elevator Lobby	N4-1	0.203		20.16	0.24	1%
GPWA - Disc/Recon/Mtr	N4-2	0.082	45	19.90	0.50	2%
GPWA - Disc/Recon/Mtr	N4-3	0.082	35	19.71	0.69	3%
GWA - Planning Area	N4-4	0.094	65	19.39	1.01	5%
GPWA - Womens CR	N4-5	0.082	60	19.13	1.27	6%
GPWA - Mens CR	N4-6	0.082	20	19.05	1.35	7%
GPWA - Conference Room	N4-7	0.059	60	18.83	1.57	8%
GWA - Planning Area	N4-8	0.082	35	18.72	1.68	8%
GWA - Admin Area	N4-9	0.059	40	18.60	1.80	9%
GWA - Library	N4-10	0.059	10	18.58	1.82	9%
GWA - Chief Engr	N4-11	0.059	20	18.53	1.87	9%
GWA - Engr Area	N4-12	0.152	45	18.44	1.96	10%
GWA - Engr Area	N4-13	0.161	45	18.39	2.01	10%
GWA - Sr Engr Supv	N4-14	0.059	30	18.38	2.02	10%
	Total	**1.32**	**545**			

SUBMITTAL REVIEW

A ☐ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
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REVIEWED
By VIC CABINTA at 3:15 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP2 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 5, FEP2, NAC #3**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		110	14	**5.20**
Total Circuit Current (Amps)	**1.47**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**51.0**			

Location (2nd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Reception Area	N5-1	0.191		19.56	0.84	4%
GPA - Conference Room	N5-2	0.082	70	19.09	1.31	6%
GPA - Engr Manager	N5-3	0.059	5	19.06	1.34	7%
GPA - Library	N5-4	0.082	30	18.88	1.52	7%
GPWA - Corridor 201B	N5-5	0.203	40	18.67	1.73	9%
GPWA - Womens CR	N5-6	0.059	10	18.62	1.78	9%
GPWA - Mens CR	N5-7	0.059	20	18.54	1.86	9%
GPA - GIS Mapping Room	N5-8	0.059	20	18.46	1.94	10%
GPA - Engr Area	N5-9	0.191	40	18.32	2.08	10%
GPA Engr Supv	N5-10	0.059	60	18.17	2.23	11%
GPA Engr Supv	N5-11	0.059	50	18.06	2.34	11%
GPA Substation Area	N5-12	0.203	15	18.03	2.37	12%
GPWA Breakroom	N5-13	0.082	15	18.02	2.38	12%
GPA - Copy Rep/File Sto	N5-14	0.082	15	18.01	2.39	12%
	Total	1.47	500			

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

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REVIEWED
By VIC CABINTA at 3:15 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP3 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 6, FEP3, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		40	14	**5.20**
Total Circuit Current (Amps)	**1.03**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**65.6**			

Location (2nd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Spord Admin	N6-1	0.082		20.19	0.21	1%
GWA - Comp Repair Lab	N6-2	0.059	50	19.94	0.46	2%
GPWA - Breakroom	N6-3	0.059	35	19.78	0.62	3%
GPA - Pers Serv Admr	N6-4	0.059	65	19.49	0.91	4%
GPA - Records Room	N6-5	0.152	25	19.39	1.01	5%
GPA - HR Area	N6-6	0.082	10	19.36	1.04	5%
GPA - HR Area	N6-7	0.094	40	19.25	1.15	6%
GPWA-Food Lease Space	N6-8	0.081	25	19.19	1.21	6%
GPWA-Food Lease Space	N6-9	0.152	30	19.14	1.26	6%
GWA - Pers Spec IV	N6-10	0.059	60	19.07	1.33	7%
GWA - Pers Serv Admr	N6-11	0.059	5	19.07	1.33	7%
GWA - HR Area	N6-12	0.094	45	19.04	1.36	7%
	Total	**1.03**	**430**			

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
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REVIEWED
By VIC CABINTA at 3:16 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP3 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 7, FEP3, NAC #3**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4			Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18				
Distance From Source to First Device (in ft.)			110	14	**5.20**
Total Circuit Current (Amps)	**0.88**				
Circuit Capacity (Amps)	**3**				
******Circuit is within limits******					
Spare % =	**70.6**				

Location (2nd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Training Room	N7-1	0.082		19.90	0.50	2%
GPWA - Training Room	N7-2	0.059	35	19.75	0.65	3%
GPWA - Training Room	N7-3	0.082	15	19.69	0.71	3%
GPWA - Training Room	N7-4	0.082	25	19.61	0.79	4%
GPWA - Data/Tape	N7-5	0.059	45	19.47	0.93	5%
GPA - Comp Repair Lab	N7-6	0.059	40	19.37	1.03	5%
GPWA - Corridor 207	N7-7	0.203	20	19.32	1.08	5%
GPA - IT Area	N7-8	0.161	50	19.25	1.15	6%
GWA - IT Area	N7-9	0.094	20	19.24	1.16	6%
	Total	**0.88**	**360**			

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

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REVIEWED
By VIC CABINTA at 3:18 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP4 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 8, FEP4, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		45	14	**5.20**
Total Circuit Current (Amps)	**1.34**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**55.4**			

Location (3rd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Safety Area	N8-1	0.094		20.09	0.31	2%
GPA - Safety Admin	N8-2	0.059	65	19.67	0.73	4%
GWA - Asst Gen Mngr	N8-3	0.059	15	19.57	0.83	4%
GPWA - Safety Area	N8-4	0.082	20	19.46	0.94	5%
GWA - Envr Engr PE	N8-5	0.059	10	19.40	1.00	5%
GPWA - Breakroom	N8-6	0.059	30	19.25	1.15	6%
GPWA - Hallway	N8-7	0.203	40	19.06	1.34	7%
GWA - Acct & Fin	N8-8	0.191	80	18.76	1.64	8%
GWA - Records/Sto	N8-9	0.082	95	18.49	1.91	9%
GWA - Records/Sto	N8-10	0.082	55	18.37	2.03	10%
GPA - Records Room	N8-11	0.082	50	18.27	2.13	10%
GPA - Records Room	N8-12	0.082	55	18.19	2.21	11%
GPA - Budget Area	N8-13	0.203	50	18.14	2.26	11%
	Total	**1.34**	**610**			

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

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REVIEWED
By VIC CABINTA at 3:25 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP4 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 9, FEP4, NAC #3**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		55	14	**5.20**
Total Circuit Current (Amps)	**1.56**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**47.9**			

Location (3rd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - Elevator Lobby	N9-1	0.203		19.95	0.45	2%
GPWA - Mens CR	N9-2	0.082	30	19.74	0.66	3%
GPWA - Womens CR	N9-3	0.082	20	19.61	0.79	4%
GPWA - Pio Office Area	N9-4	0.059	60	19.24	1.16	6%
GPA - Media Room	N9-5	0.059	35	19.03	1.37	7%
GPA - Files/Sto	N9-6	0.059	10	18.97	1.43	7%
GPWA Int Audit Area	N9-7	0.059	25	18.84	1.56	8%
GPA - Evidence Room	N9-8	0.059	25	18.72	1.68	8%
GWA -Int Auditor	N9-9	0.059	5	18.69	1.71	8%
GPA - Int Auditor	N9-10	0.059	20	18.60	1.80	9%
GPWA - Corridor 301	N9-11	0.203	60	18.36	2.04	10%
GPWA -Womens CR	N9-12	0.059	10	18.33	2.07	10%
GPWA - Mens CR	N9-13	0.059	20	18.28	2.12	10%
GPA - CBO	N9-14	0.059	30	18.20	2.20	11%
GPA - Payroll Clerk	N9-15	0.059	15	18.17	2.23	11%
GPA - Acct & Fin	N9-16	0.191	30	18.12	2.28	11%
GPA - Acct & Fin	N9-17	0.152	55	18.08	2.32	11%
	Total	**1.56**	**505**			

SUBMITTAL REVIEW

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REVIEWED
By VIC CABINTA at 3:28 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP5 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 10, FEP5, NAC #1**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		95	14	**5.20**
Total Circuit Current (Amps)	**1.09**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**63.5**			

Location (3rd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPWA - CCU Conf Room	N10-1	0.191		19.86	0.54	3%
GPWA - CCU Office Area	N10-2	0.152	25	19.74	0.66	3%
GPA - Exec Area	N10-3	0.152	65	19.49	0.91	4%
GWA - Legal Sec III	N10-4	0.059	30	19.39	1.01	5%
GPWA - Multi-Purpose Rm	N10-5	0.081	20	19.34	1.06	5%
GWA - Attorney	N10-6	0.059	20	19.29	1.11	5%
GPA - Comm Tech Supv	N10-7	0.059	5	19.28	1.12	5%
GPA - Comp Tech Supv	N10-8	0.059	30	19.23	1.17	6%
GPA - Comp Tech Area	N10-9	0.082	15	19.21	1.19	6%
GPA - Comm Tech Area	N10-10	0.082	25	19.18	1.22	6%
GPA - Prog Anal Supv	N10-11	0.059	35	19.16	1.24	6%
GPA - Admin Area	N10-12	0.059	30	19.15	1.25	6%
	Total	**1.09**	**395**			

SUBMITTAL REVIEW

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REVIEWED
By VIC CABINTA at 3:28 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

FEP5 NAC Voltage Drop Calculations

Project Name:	**GPA-GWA Multi-Purpose Facility, Fadian Mangilao, Guam**
Date:	**9/19/13**
Circuit Number:	**Notification Circuit 11, FEP5, NAC #3**
Prepared By:	**Francisco B. Guinto, Jr. - NICET Level III #126649**

Nominal System Voltage	20.4		Wire Gauge	Resistance Per 1000
Minimum Device Voltage	18			
Distance From Source to First Device (in ft.)		70	14	**5.20**
Total Circuit Current (Amps)	**0.91**			
Circuit Capacity (Amps)	**3**			
******Circuit is within limits******				
Spare % =	**69.7**			

Location (3rd Floor)	Device Address	Device Current (A)	Distance (in ft.) from Previous Device	Voltage at Device	Drop from Source	Percent Drop
GPA - Plans & Reg Area	N11-1	0.082		20.07	0.33	2%
GWA - Mnt Ops Area	N11-2	0.082	20	19.98	0.42	2%
GPWA - Womens CR	N11-3	0.059	75	19.69	0.71	3%
GPWA - Mens CR	N11-4	0.059	20	19.62	0.78	4%
GPA - HRDWR Lab	N11-5	0.059	35	19.51	0.89	4%
GPA - Comms Lab	N11-6	0.059	20	19.45	0.95	5%
GPA - Control Room	N11-7	0.152	65	19.28	1.12	6%
GPWA - Corridor 306	N11-8	0.203	40	19.20	1.20	6%
GPA - Observation Area	N11-9	0.094	70	19.15	1.25	6%
GPA - Files/Storage	N11-10	0.059	20	19.14	1.26	6%
	Total	**0.91**	**435**			

SUBMITTAL REVIEW

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B ☐ MAKE CORRECTIONS AS NOTED
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REVIEWED
By VIC CABINTA at 3:29 pm, Oct 16, 2013

By _____ Date _____

WIXON & ASSOCIATES Tel. (671) 646-1033

NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES®

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BE IT KNOWN THAT

Francisco B Guinto, Jr.

IS HEREBY AWARDED CERTIFICATION AT

LEVEL III

IN FIRE PROTECTION ENGINEERING TECHNOLOGY
FIRE ALARM SYSTEMS

BASED UPON SUCCESSFUL DEMONSTRATION OF REQUISITE KNOWLEDGE, EXPERIENCE AND WORK PERFORMANCE AS SET FORTH BY THIS INSTITUTE.

Certification Valid through August 1, 2015

CERTIFICATION NUMBER 126649

50th Anniversary
1961—2011

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A DIVISION OF THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

GPA-GWA MULTI-PURPOSE FACILITY
FIRE ALARM SYSTEM
FADIAN, MANGILAO, GUAM

DEVICE LEGEND

QTY.	SYMBOLS ON PLAN	DESCRIPTION	MANUFACTURER MODEL NUMBER	OPERATING VOLTAGE	MOUNTING HEIGHT	REQUIRED BACKBOX	EXTENSION RING	REMARKS
	FACP	FIRE ALARM CONTROL PANEL	EDWARDS iO500GD	120V AC	TOP OF THE CABINET @ 6'-0 AFF OR CENTER OF THE CABINET @ 5'-0 AFF - WHICH EVER IS LESS	INCLUDED		WALL MTD.
	FEP	FIRE ALARM EXTENDER PANEL	EDWARDS BPS6A	120V AC	TOP OF THE CABINET @ 6'-0 AFF OR CENTER OF THE CABINET @ 5'-0 AFF - WHICH EVER IS LESS	INCLUDED		WALL MTD.
	PS	FIRE ALARM REMOTE BOOSTER POWER SUPPLY	EDWARDS BPS6A	120V AC	TOP OF THE CABINET @ 6'-0 AFF OR CENTER OF THE CABINET @ 5'-0 AFF - WHICH EVER IS LESS	INCLUDED		WALL MTD.
	FAA	FIRE ALARM REMOTE LCD TEXT ANNUNCIATOR	EDWARDS RLCD-CR	24 VDC	5'-0 TOP OF THE BACKBOX FROM AFF	RA-ENC1 (PROVIDED)		WALL MTD.
		SMOKE DETECTOR	EDWARDS SIGA2-PS	15.2-19.95V DC	NOT LESS THAN 4" TO CORNERS OR BETWEEN 4" TO 12" FOR WALL MOUNTING	STANDARD 4" SQUARE BOX (BY OTHERS)		CEILING MTD.
	P/R	SMOKE/HEAT COMBINATION DETECTOR AT ELEVATOR LOBBY	EDWARDS SIGA2-PHS	15.2-19.95V DC	NOT LESS THAN 4" TO CORNERS OR BETWEEN 4" TO 12" FOR WALL MOUNTING	STANDARD 4" SQUARE BOX (BY OTHERS)		CEILING MTD.
	P/S	SMOKE/HEAT COMBINATION DETECTOR AT ELEVATOR SHAFT	EDWARDS SIGA2-PHS	15.2-19.95V DC	NOT LESS THAN 4" TO CORNERS OR BETWEEN 4" TO 12" FOR WALL MOUNTING	STANDARD 4" SQUARE BOX (BY OTHERS)		CEILING MTD.
	DD	DUCT SMOKE DETECTOR	EDWARDS SIGA-SD	15.2-19.95V DC				
	RTS	REMOTE TEST STATION	EDWARDS SD-TRK		48" AFF TO TOP OF DEVICE	STANDARD 4" SQUARE BOX 1 1/2" DEEP (BY OTHERS)		WALL MTD.
	PS	MANUAL PULL STATION WITH COVER	EDWARDS SIGA-278 WITH STI-1100	15.2-19.95V DC	48" AFF TO TOP OF DEVICE	SINGLE GANG 2 1/2" DEEP BOX (BY OTHERS)		WALL MTD.
	M	SINGLE INPUT MODULE	EDWARDS SIGA-CT1	15.2-19.95V DC	ADJACENT TO DEVICE	STANDARD 2"x4" ELECTRICAL BOX (BY OTHERS)		WALL MTD.
	C	CONTROL RELAY MODULE	EDWARDS SIGA-CR	15.2-19.95V DC	INSTALLED WITHIN 3 FEET OF THE CONTROLLED EQUIPMENT	STANDARD 2"x4" ELECTRICAL BOX (BY OTHERS)		WALL MTD.
	CC	SINGLE INPUT SIGNAL MODULE	EDWARDS SIGA-CC1S	15.2-19.95V DC		N/A		MOUNTED INSIDE FEP
	RM	RISER MONITOR MODULE	EDWARDS SIGA-RM1	15.2-19.95V DC		STANDARD 4" SQUARE BOX (BY OTHERS)		WALL MTD.
	R	SINGLE SPDT RELAY	EDWARDS PAM-1	24 VDC 120 VAC				
	XX	WALL MOUNTED HORN/STROBE, XX - STROBE CANDELA RATING (SEE FAS PLAN)	EDWARDS G1RF-HDVM	16-33 VDC	80" AFF TO BOTTOM OF DEVICE OR 6" FROM CEILING WHICHEVER IS LESS	SINGLE GANG 2 1/2" DEEP BOX (BY OTHERS)		WALL MTD.
	WP XX	OUTDOOR WALL MOUNTED HORN/STROBE, XX - STROBE CANDELA RATING (SEE FAS PLAN)	EDWARDS WG4RF-HVMC	24 VDC	80" AFF TO BOTTOM OF DEVICE OR 6" FROM CEILING WHICHEVER IS LESS *NOTE: MOUNT STANDARD BACKBOX AT 85" AFF	STANDARD 4" SQUARE BOX 2 1/8" DEEP (BY OTHERS)		WALL MTD.
	XX	WALL MOUNTED STROBE, XX - STROBE CANDELA RATING (SEE FAS PLAN)	EDWARDS G1RF-VM	16-33 VDC	80" AFF TO BOTTOM OF DEVICE OR 6" FROM CEILING WHICHEVER IS LESS	SINGLE GANG 2 1/2" DEEP BOX (BY OTHERS)		WALL MTD.
	SP	SURGE SUPPRESSOR (FOR AC CIRCUIT)	DITEK DTK-TSS4	120V AC		INCLUDED		
	PF	FIRE PUMP POWER FAILURE						PROVIDED BY OTHERS
	PH	FIRE PUMP DEAD PHASE OR PHASE REVERSAL						PROVIDED BY OTHERS
	LP	LOW AIR PRESSURE SWITCH						PROVIDED BY OTHERS
	FAPB	FIRE ALARM PULLBOX						PROVIDED BY OTHERS
	FS	WATERFLOW SWITCH						PROVIDED BY OTHERS
	TS	TAMPER SWITCH						PROVIDED BY OTHERS

INDEX OF DRAWINGS

DRAWING NO.	DRAWING TITLE
137166-1	PROJECT TITLE, FIRE ALARM SYSTEM NOTES, LEGEND, AND INDEX OF DRAWINGS
137166-2	SEQUENCE OF OPERATIONS MATRIX, WIRING LEGEND, DETECTORS AND DEVICES MOUNTING DETAILS
137166-3	FIRE ALARM PLAN-1ST FLOOR SECTOR 1A
137166-4	FIRE ALARM PLAN-1ST FLOOR SECTOR 1B
137166-5	FIRE ALARM PLAN-1ST FLOOR SECTOR 1C
137166-6	FIRE ALARM PLAN-2ND FLOOR SECTOR 2A
137166-7	FIRE ALARM PLAN-2ND FLOOR SECTOR 2B
137166-8	FIRE ALARM PLAN-2ND FLOOR SECTOR 2C
137166-9	FIRE ALARM PLAN-2ND FLOOR SECTOR 2D
137166-10	FIRE ALARM PLAN-3RD FLOOR SECTOR 3A
137166-11	FIRE ALARM PLAN-3RD FLOOR SECTOR 3B
137166-12	FIRE ALARM PLAN-3RD FLOOR SECTOR 3C
137166-13	FIRE ALARM PLAN-3RD FLOOR SECTOR 3D
137166-14	FIRE ALARM SYSTEM RISER DIAGRAM
137166-15	FIRE ALARM SYSTEM TYPICAL POINT-TO-POINT WIRING DIAGRAM

FIRE ALARM SYSTEMS NOTES

1. THE FIRE ALARM SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 72 AND SPECIFICATION SECTION 283111.
2. WIRING FOR 24 VDC FIRE ALARM CIRCUITS SHALL BE NO SMALLER THAN NO. 14 AWG SINGLE SOLID COPPER CONDUCTORS, UNLESS OTHERWISE NOTED. WIRING FOR 120 VAC POWER SHALL BE NO. 12 AWG MINIMUM. SEPARATE CONDUITS SHALL BE USED FOR 120 VAC AND 24 VDC CIRCUITS.
3. DO NOT ENTER CONDUIT FROM THE BOTTOM OF THE FACP ENCLOSURE AS IT IS RESERVED FOR THE BATTERIES.
4. ASSIGN A DEDICATED BRANCH CIRCUIT FOR FMCP AC SUPPLY. THE CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKINGS, SHALL BE ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL, AND SHALL IDENTIFIED AS "FIRE ALARM CIRCUIT".
5. PULL ALL CONDUCTORS SPLICE FREE. WHERE SPLICE ARE UNAVOIDABLE PROVIDE INSULATED BARRIER TYPE TERMINAL STRIPS AT JUNCTION POINTS. THE USE OF WIRENUTS, CRIMP CONNECTORS OR TWISTING OF CONDUCTORS IS PROHIBITED.
6. ALL INITIATING DEVICE CIRCUITS SHALL BE CLASS "A" SUPERVISED. ALL NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS "A" SUPERVISED. ALL SIGNALING LINE CIRCUITS SHALL BE CLASS "A" SUPERVISED. THE RETURN LOOP (HOMERUN) OF EACH CIRCUIT SHALL BE ROUTED IN A SEPARATE RACEWAY FROM THE PORTION OF THE LOOP. ALL LOOPS SHALL HAVE OUTGOING AND RETURN CONDUCTORS IN SEPARATE CONDUIT. "T" TAPPING, SPLICING AND WIRENUTS SHALL BE PROHIBITED ON ALL CIRCUITS.
7. CLASS "A" CIRCUITS SHALL BE INSTALLED SUCH THAT THE OUTGOING AND RETURN CONDUCTORS ARE SEPARATED BY 0.305m WHERE THE CABLE IS INSTALLED VERTICALLY AND 1.22m WHERE THE CABLE IS INSTALLED HORIZONTALLY. THE OUTGOING AND RETURN CIRCUIT CONDUCTORS ARE PERMITTED TO BE INSTALLED IN THE SAME CONDUIT FOR A MAXIMUM OF 3m WHERE THE OUTGOING AND RETURN CONDUCTORS ENTER OR EXIT THE DEVICE.
8. IF REQUIRED, CONTRACTOR/INSTALLER SHALL PROVIDE WEATHER-PROOF BACK BOX/NEMA RATED ENCLOSURE FOR ALL MONITOR MODULES, FACP AND BATTERY CABINET.
9. IT IS THE RESPONSIBILITY OF THE SYSTEM INSTALLER TO SIZE CONDUITS ACCORDING TO WIRE COUNTS AS PER NATIONAL ELECTRICAL CODE. MINIMUM CONDUIT SIZE SHALL BE 19mm (3/4").
10. DEVICES ARE SHOWN IN SUGGESTED LOCATIONS. FINAL QUANTITY AND LAYOUT SHALL BE IN ACCORDANCE WITH APPLICABLE CODES, MANUFACTURER'S RECOMMENDATIONS AND EQUIPMENT LISTINGS. COORDINATE LOCATIONS WITH LIGHTING AND AIR HANDLING SYSTEMS. SMOKE DETECTORS SHALL BE LOCATED NO LESS THAN 3 FEET FROM ALL AIR DIFFUSERS OR RETURN AIR OPENING AND BATHROOM DOORS, ALSO NO CLOSER THAN 12 INCHES TO LIGHT BALLASTS.
11. FIRE ALARM SYSTEM GROUNDING SHALL BE CONNECTED TO AN INDIVIDUAL GROUNDING ROD AS PER NFPA70 (NEC) ARTICLE 250.
12. IT IS THE RESPONSIBILITY OF THE SYSTEM INSTALLER TO BRING ANY WIRING RELATED ISSUE OR DISCREPANCY TO THE ATTENTION OF PHOENIX PACIFIC, INC. FOR CLARIFICATION PRIOR TO SYSTEM INSTALLATION.

REVISIONS

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
5				
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1				

Phoenix Pacific (Guam), Inc.
System Integrators
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY FIRE ALARM SYSTEM, FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
- ☑ Fire Alarm
- ☐ Suppression
- ☐ Sprinkler
- ☐ Public Address
- ☐ Intercom
- ☐ Access Control
- ☐ CCTV
- ☐ Nurse Call
- ☐ Traffic
- ☐ Other: ________

RADIO TYPE (IF APPLICABLE) ANTENNA
- ☐ KING FISHER ☐ OMNI
- ☐ MONACO ☐ UNI-DIR
- ☐ Other:_______ ☐ Other:______

INSTALLATION TYPE
- ☑ NEW INSTALLATION
- ☐ ADD TO EXISTING SYSTEM
- ☐ SYSTEM UPGRADE

APPROVED BY: FRANCISCO B. GUINTO, JR.
NICET #126649
FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC
CHECKED BY: ANO/MPM
REVIEWED BY:
DATE: 9/19/13
SCALE: NOT TO SCALE
DRAWING TITLE: PROJECT TITLE, FIRE ALARM SYSTEM NOTES, LEGEND, AND INDEX OF DRAWINGS
DRAWING NO. 137166-1
PPGI DRAWING NO.
SHEET: 1 OF 15

FIRE ALARM SYSTEM SEQUENCE OF OPERATIONS

SYSTEM OUTPUT:
1. ANNUNCIATE ALARM AT FACP & FAA
2. ANNUNCIATE SUPERVISORY AT FACP & FAA
3. ANNUNCIATE TROUBLE AT FACP & FAA
4. ACTIVATE HORN / STROBE ALARMS
5. SHUTDOWN ASSOCIATED AIR HANDLING UNIT
6. TRANSMIT ALARM SIGNAL TO REMOTE RECEIVING STATION VIA DIALER OF FACP
7. ELEVATOR RECALL TO PRIMARY FLOOR
8. ELEVATOR RACALL TO ALTERNATE FLOOR
9. SHUTDOWN ASSOCIATED ELEVATOR POWER (SHUNT TRIP)

	SYSTEM INPUT	1	2	3	4	5	6	7	8	9	
A	SMOKE DETECTOR	X			X		X				A
B	DUCT SMOKE DETECTOR		X			X					B
C	MANUAL PULL STATION	X			X		X				C
D	WATERFLOW SWITCH	X			X		X				D
E	TAMPER SWITCH		X								E
F	LOW AIR PRESSURE SWITCH		X								F
G	SYSTEM TROUBLE			X							G
H	FIRE PUMP POWER FAILURE (PF)		X								H
I	FIRE PUMP PHASE REVERSAL (PH)		X								I
J	SMOKE/HEAT DETECTOR AT 1ST FLOOR LOBBY	X			X		X		X		J
K	SMOKE/HEAT DETECTOR AT 2ND FLOOR LOBBY	X			X		X	X			K
L	SMOKE/HEAT DETECTOR AT 3RD FLOOR LOBBY	X			X		X	X			L
M	SMOKE/HEAT DETECTOR AT ELEVATOR SHAFT	X			X		X	X		X	M
N	LOSS OF VOLTAGE TO CONTROL CIRCUIT FOR DISCONNECTING ELEVATOR POWER(SHUNT TRIP)		X								N
		1	2	3	4	5	6	7	8	9	

SUBMITTAL REVIEW

A ☑ NO EXCEPTIONS TAKEN
No further review of Submittal is required.

B ☐ MAKE CORRECTIONS AS NOTED
Incorporate corrections in work; resubmittal is not required if contractor cannot comply with corrections as noted, revise to respond to exceptions and resubmit.

C ☐ REVISE AND RESUBMIT
Revise as noted, and resubmit for further review.

D ☐ RESUBMIT PROPERLY
Submittal not reviewed because it does not contain contractor's signature indicating its review and approval, and/or is not in proper condition for review. Resubmit.

E ☐ NOT REVIEWED
Submittal is not required by contract documents.

This submittal has been reviewed only for the intended purpose of checking general conformance with the design concept as expressed in the Contract Documents, subject to the requirements of the Contract Documents. The contractor, not the engineer, is responsible for checking for deviations between submittal and the contract documents and field conditions for correlating and confiming dimensions and quantities, for safety precautions, construction means, methods, techniques, schedules, sequences, procedures end fabrication processes, for errors and omissions in the submittals, for coordination of the work of the trades, and for performing the work in a safe and satisfactory manner and conformance with all the requirements of the contract documents.

NOTE: No submittal shall be used as a substitute for requests or approvals changes or substitutions, or other procedures required by the contract documents. The contractor shall notify the engineer immediately of any intent to make any claim based on this submittal or notations thereon. If more then one submittal review stamp appears on the submittal, the most stringent action and notations thereon shall apply. Signature of a submittal review stamp by the engineer or consultant does not imply that it has reviewed work not within its professional discipline or scope of services.

By ________ Date ________

WIXON & ASSOCIATES Tel. (671) 646-1033

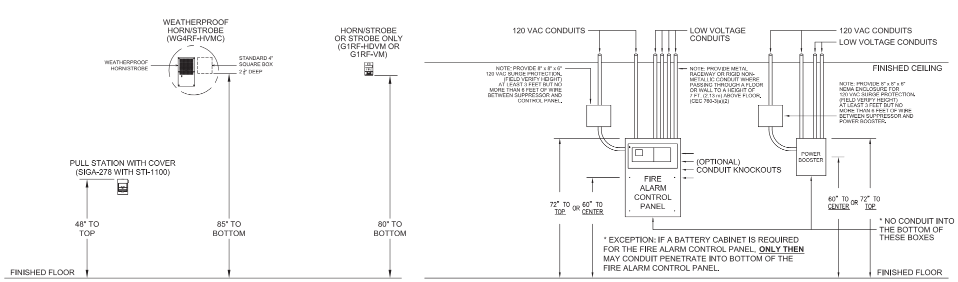
REVIEWED
By VIC CABINTA at 3:34 pm, Oct 16, 2013

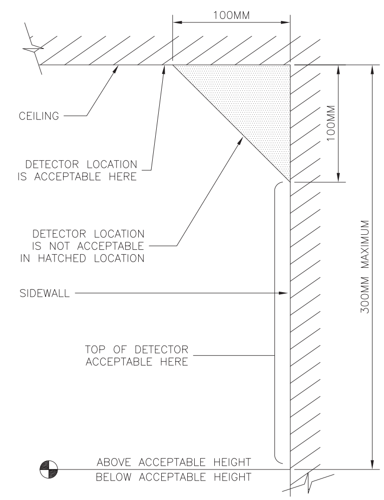
WIRING LEGEND

SYMBOL	WIRE TYPE	USED ON	WIRE COLOR	RECOMMENDED WIRE TYPE
1D	2-CONDUCTOR AWG #16 SOLID COPPER, TWISTED OR EQUIVALENT	ADDRESSABLE (DATA) CIRCUIT	RED (+) BLACK (-)	PAIGE 4731A
1H	2-CONDUCTOR AWG #14 SOLID COPPER, UNSHIELDED OR EQUIVALENT	HORN/STROBE CIRCUIT	RED (+) BLACK (-)	PAIGE 4755A
1R	2-CONDUCTOR AWG #14 SOLID COPPER, UNSHIELDED OR EQUIVALENT	ACTIVATION CIRCUIT	RED (+) BLACK (-)	PAIGE 4755A
1N	2-CONDUCTOR, AWG #14 SOLID COPPER, TWISTED OR EQUIVALENT	NETWORK CIRCUIT	RED (+) BLACK (-)	PAIGE 4726A
1P	2-CONDUCTOR, AWG #14 PARALLEL ZIP WIRE, UNSHIELDED OR EQUIVALENT	24V DC CIRCUIT	RED (+) BLACK (-)	PAIGE 4702A
AC	3-CONDUCTOR AWG #12 SOLID COPPER	120V AC CIRCUIT	RED (+) BLACK (-) GREEN (GROUND)	THHN / THWN

WIRE COUNT EXAMPLE: 2 D
- QUANTITY OF PAIRS
- 2-CONDUCTOR AWG #14, SOLID COPPER, TWISTED ADDRESSABLE (DATA) CIRCUIT

DEVICES MOUNTING HEIGHT DETAILS





PROPER MOUNTING FOR DETECTORS DETAIL

SCALE: NONE

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
1				
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R E V I S I O N S

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Phoenix Pacific (Guam), Inc.
System Integrators
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY FIRE ALARM SYSTEM
FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
☑ Fire Alarm
☐ Suppression
☐ Sprinkler
☐ Public Address
☐ Intercom
☐ Access Control
☐ CCTV
☐ Nurse Call
☐ Traffic
☐ Other: ______

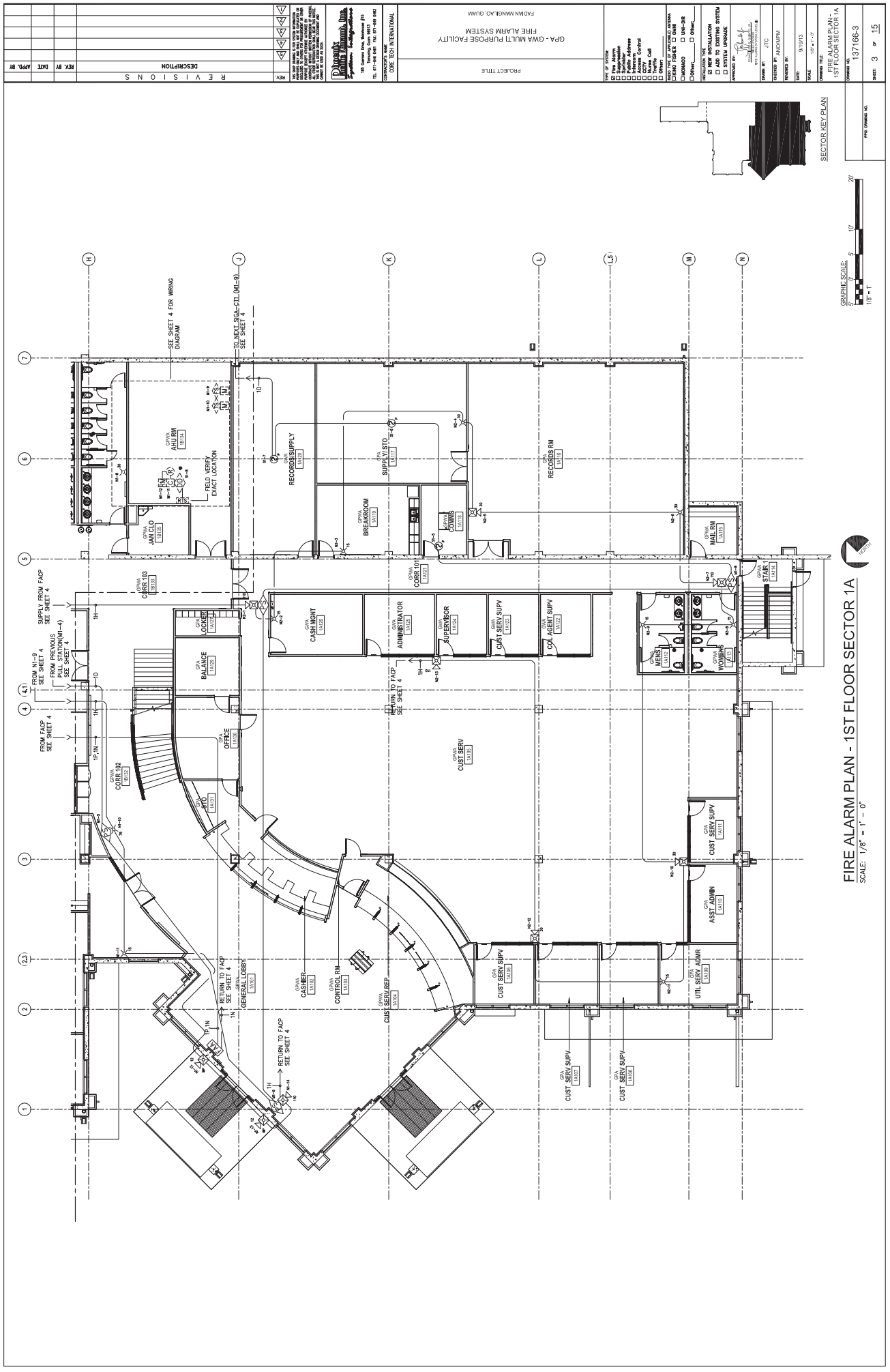
RADIO TYPE (IF APPLICABLE) ANTENNA
☐ KING FISHER ☐ OMNI
☐ MONACO ☐ UNI-DIR
☐ Other:______ ☐ Other:______

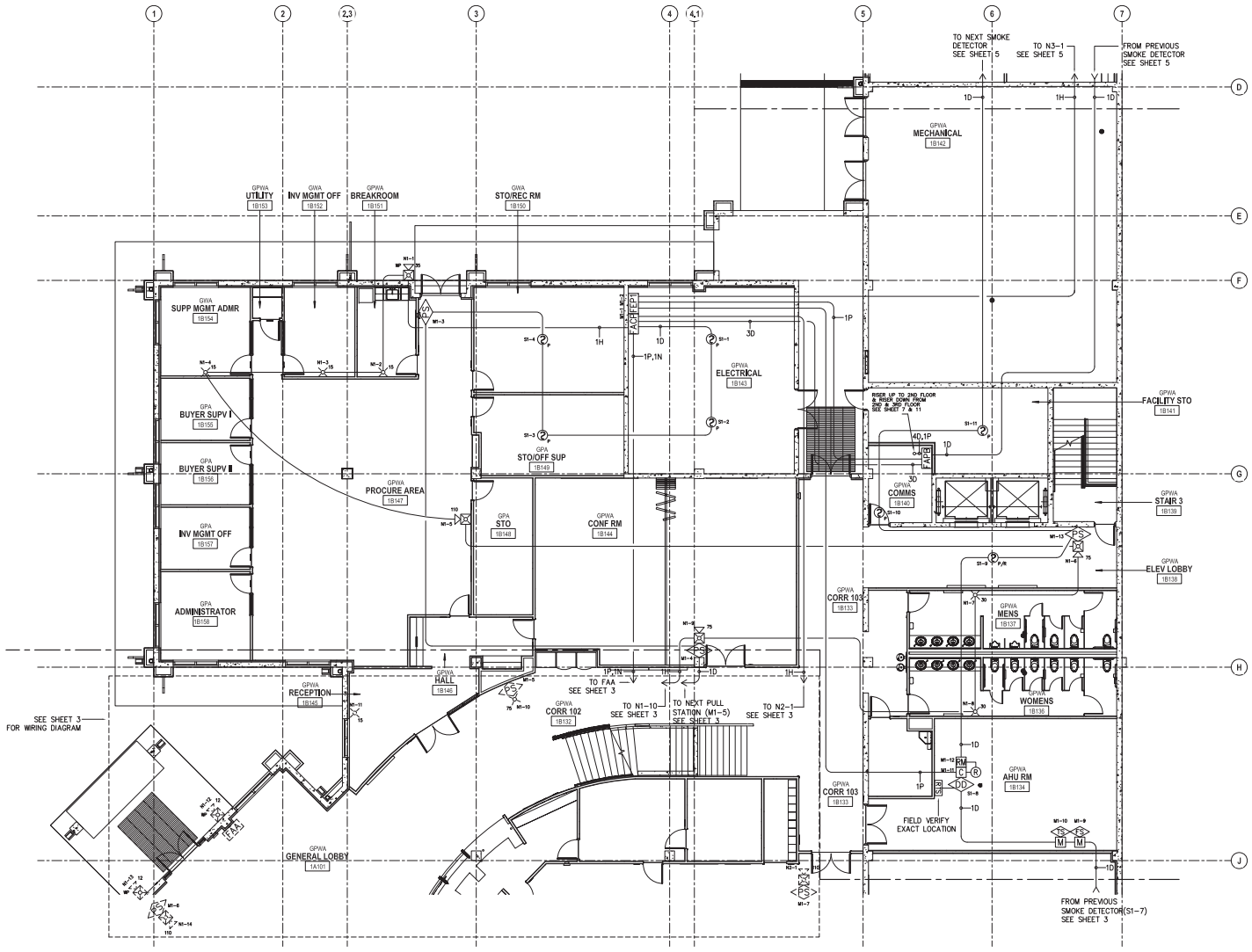
INSTALLATION TYPE
☑ NEW INSTALLATION
☐ ADD TO EXISTING SYSTEM
☐ SYSTEM UPGRADE

APPROVED BY: FRANCISCO B. GUINTO, JR.
NICET #126649
FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC
CHECKED BY: ANO/MPM
REVIEWED BY:
DATE: 9/19/13
SCALE: NOT TO SCALE
DRAWING TITLE: SEQUENCE OF OPERATIONS MATRIX, WIRING LEGEND, DEVICE AND DETECTORS MOUNTING DETAILS
DRAWING NO. 137166-2
PPGI DRAWING NO.
SHEET: 2 OF 15

Docusign Envelope ID: 23A0E580-22BD-4F89-A323-2C52F29F70A4





FIRE ALARM PLAN - 1ST FLOOR SECTOR 1B

SCALE: 1/8" = 1' – 0"

GRAPHIC SCALE: 0' 5' 10' 20' — 1/8" = 1'

REVISIONS				
REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
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Phoenix Pacific Guam, Inc. Systems Integrators
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6481 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY FIRE ALARM SYSTEM — FAONAN MANGILAO, GUAM

TYPE OF SYSTEM:
- ☑ Fire Alarm
- ☐ Suppression
- ☐ Sprinkler
- ☐ Public Address
- ☐ Intercom
- ☐ Access Control
- ☐ CCTV
- ☐ Nurse Call
- ☐ Traffic
- ☐ Other: _____

RADIO TYPE (IF APPLICABLE) ANTENNA
- ☐ KING FISHER ☐ OMNI
- ☐ MONACO ☐ UNI-DIR
- ☐ Other:_____ ☐ Other:_____

INSTALLATION TYPE
- ☑ NEW INSTALLATION
- ☐ ADD TO EXISTING SYSTEM
- ☐ SYSTEM UPGRADE

APPROVED BY: [signature] PHOENIX PACIFIC GUAM, INC. TEST ALARM SYSTEMS, LEVEL II

DRAWN BY: JTC

CHECKED BY: ANO/MPM

REVIEWED BY:

DATE: 9/30/13

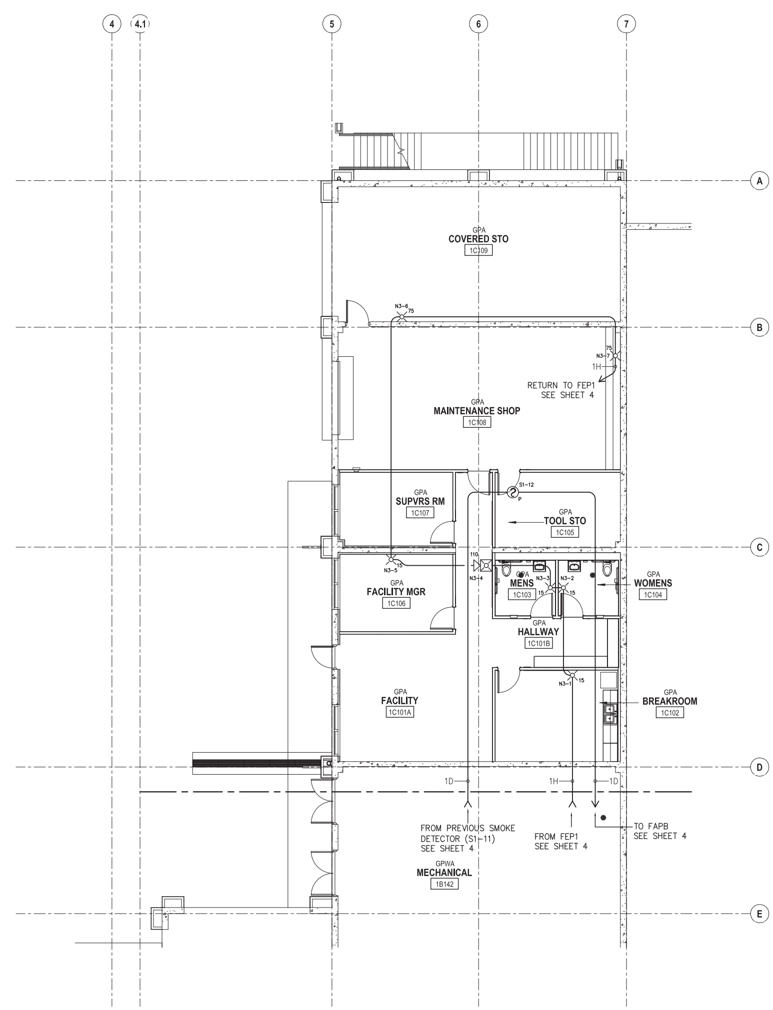
SCALE: 1/8" = 1' - 0"

DRAWING TITLE: FIRE ALARM PLAN - 1ST FLOOR SECTOR 1B

DRAWING NO.: 137166-4

PPGI DRAWING NO.:

SHEET: 4 OF 15



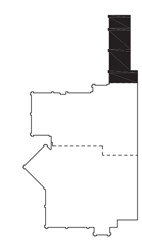
FIRE ALARM PLAN - 1ST FLOOR SECTOR 1C

SCALE: 1/8" = 1' - 0"

NORTH

GRAPHIC SCALE: 5' 0' 5' 10' 20'

1/8" = 1'



SECTOR KEY PLAN

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY

REVISIONS

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Phoenix Pacific (Guam), Inc. System Integrators

185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY
FIRE ALARM SYSTEM
FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
- ☑ Fire Alarm
- ☐ Suppression
- ☐ Sprinkler
- ☐ Public Address
- ☐ Intercom
- ☐ Access Control
- ☐ CCTV
- ☐ Nurse Call
- ☐ Traffic
- ☐ Other: ______

RADIO TYPE (IF APPLICABLE) ANTENNA
- ☐ KING FISHER ☐ OMNI
- ☐ MONACO ☐ UNI-DIR
- ☐ Other:______ ☐ Other:______

INSTALLATION TYPE
- ☑ NEW INSTALLATION
- ☐ ADD TO EXISTING SYSTEM
- ☐ SYSTEM UPGRADE

APPROVED BY: [signature] FRANCISCO B. GUERRERO, JR. NICET #109593 FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC

CHECKED BY: ANO/MPM

REVIEWED BY:

DATE: 9X/X0/XX

SCALE: 1/8" = 1' - 0"

DRAWING TITLE: FIRE ALARM PLAN - 1ST FLOOR SECTOR 1C

DRAWING NO. 137166-5

PPGI DRAWING NO.

SHEET: 5 OF 15

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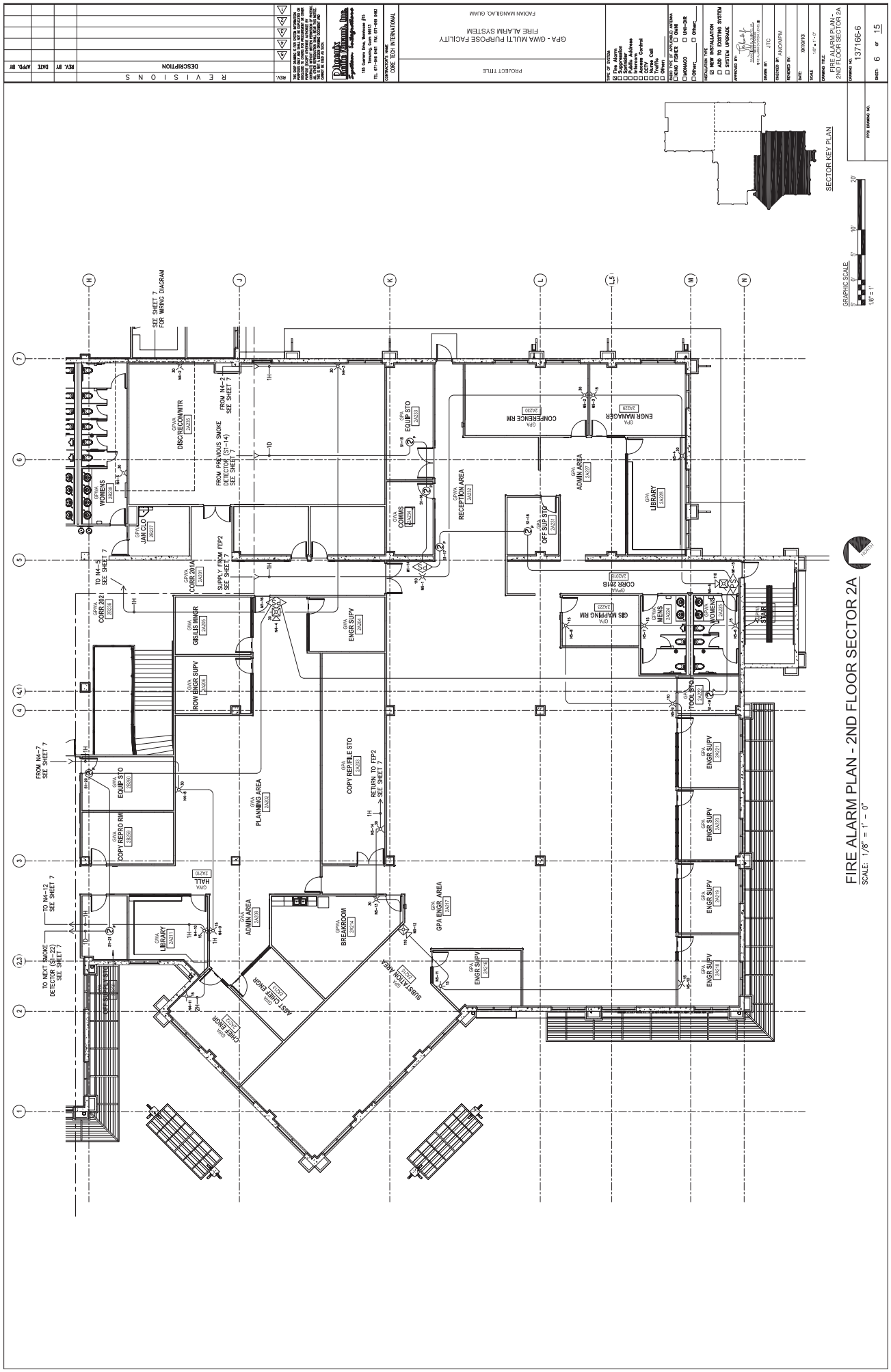

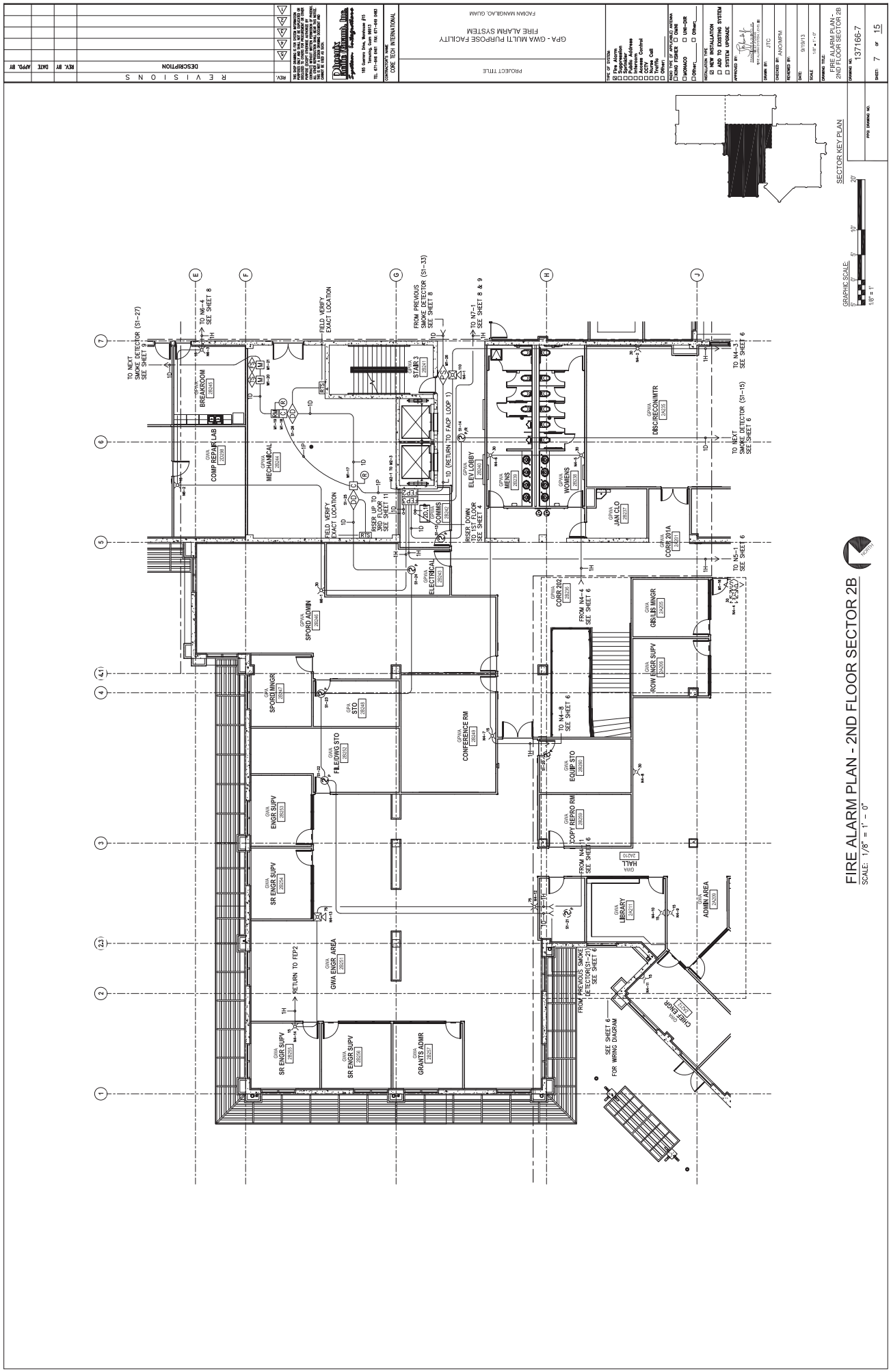

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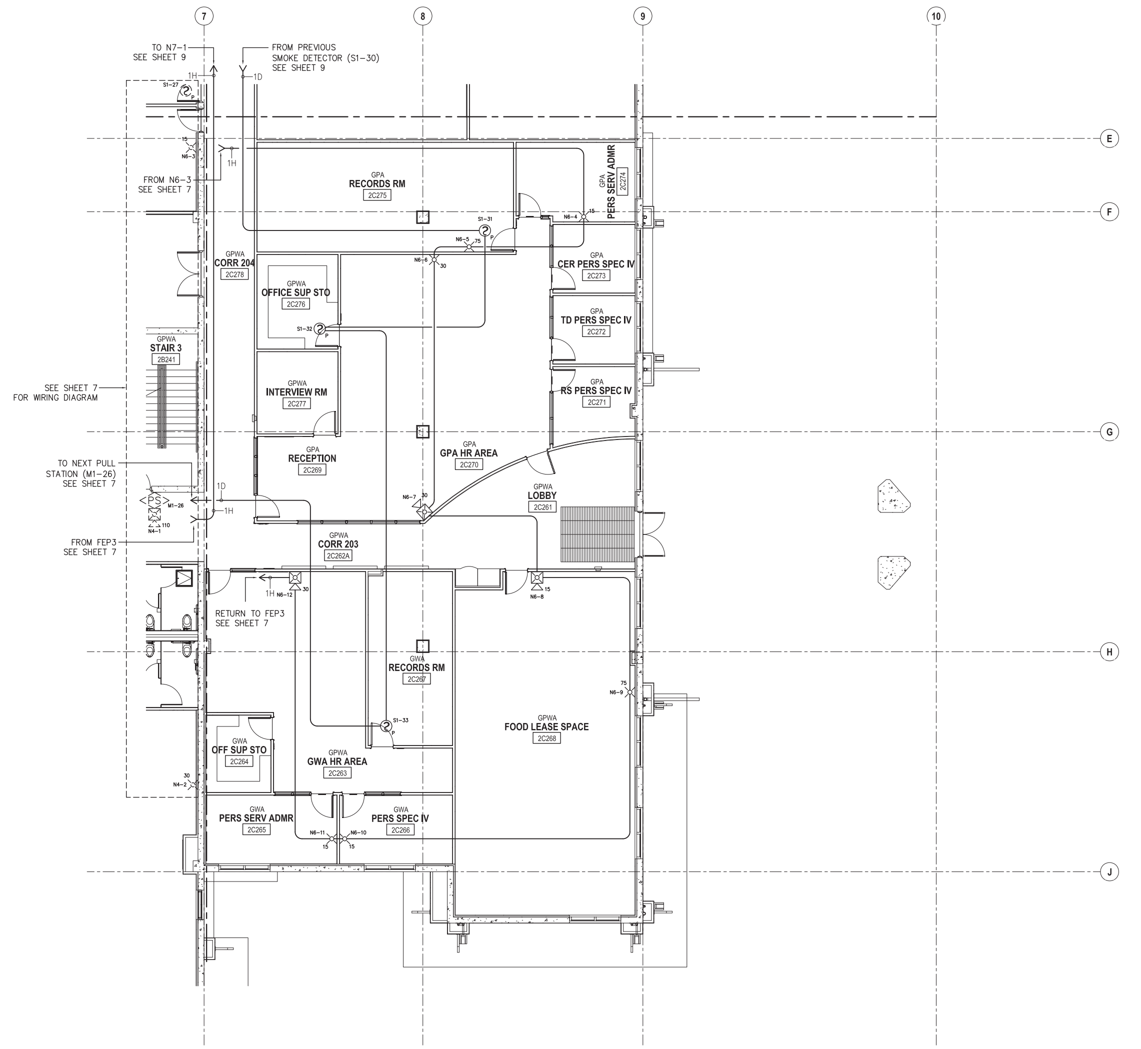
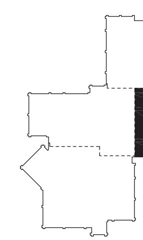


FIRE ALARM PLAN - 2ND FLOOR SECTOR 2C

SCALE: 1/8" = 1' – 0"

NORTH

GRAPHIC SCALE:
5' 0' 5' 10' 20'
1/8" = 1'



SECTOR KEY PLAN

PPGI DRAWING NO.

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
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R E V I S I O N S

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Phoenix Pacific (Guam), Inc.
System Integrations
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME
CORE TECH INTERNATIONAL

PROJECT TITLE
GPA - GWA MULTI PURPOSE FACILITY
FIRE ALARM SYSTEM
FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
☑ Fire Alarm
☐ Suppression
☐ Sprinkler
☐ Public Address
☐ Intercom
☐ Access Control
☐ CCTV
☐ Nurse Call
☐ Traffic
☐ Other: ______

RADIO TYPE (IF APPLICABLE) ANTENNA
☐ KING FISHER ☐ OMNI
☐ MONACO ☐ UNI-DIR
☐ Other:______ ☐ Other:______

INSTALLATION TYPE
☑ NEW INSTALLATION
☐ ADD TO EXISTING SYSTEM
☐ SYSTEM UPGRADE

APPROVED BY:
FRANCISCO B. GUINTO, JR.
NICET #129533
FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC
CHECKED BY: ANO/MPM
REVIEWED BY:
DATE: 9/19/13
SCALE: 1/8" = 1' - 0"
DRAWING TITLE: FIRE ALARM PLAN - 2ND FLOOR SECTOR 2C
DRAWING NO. 137166-8
SHEET: 8 OF 15

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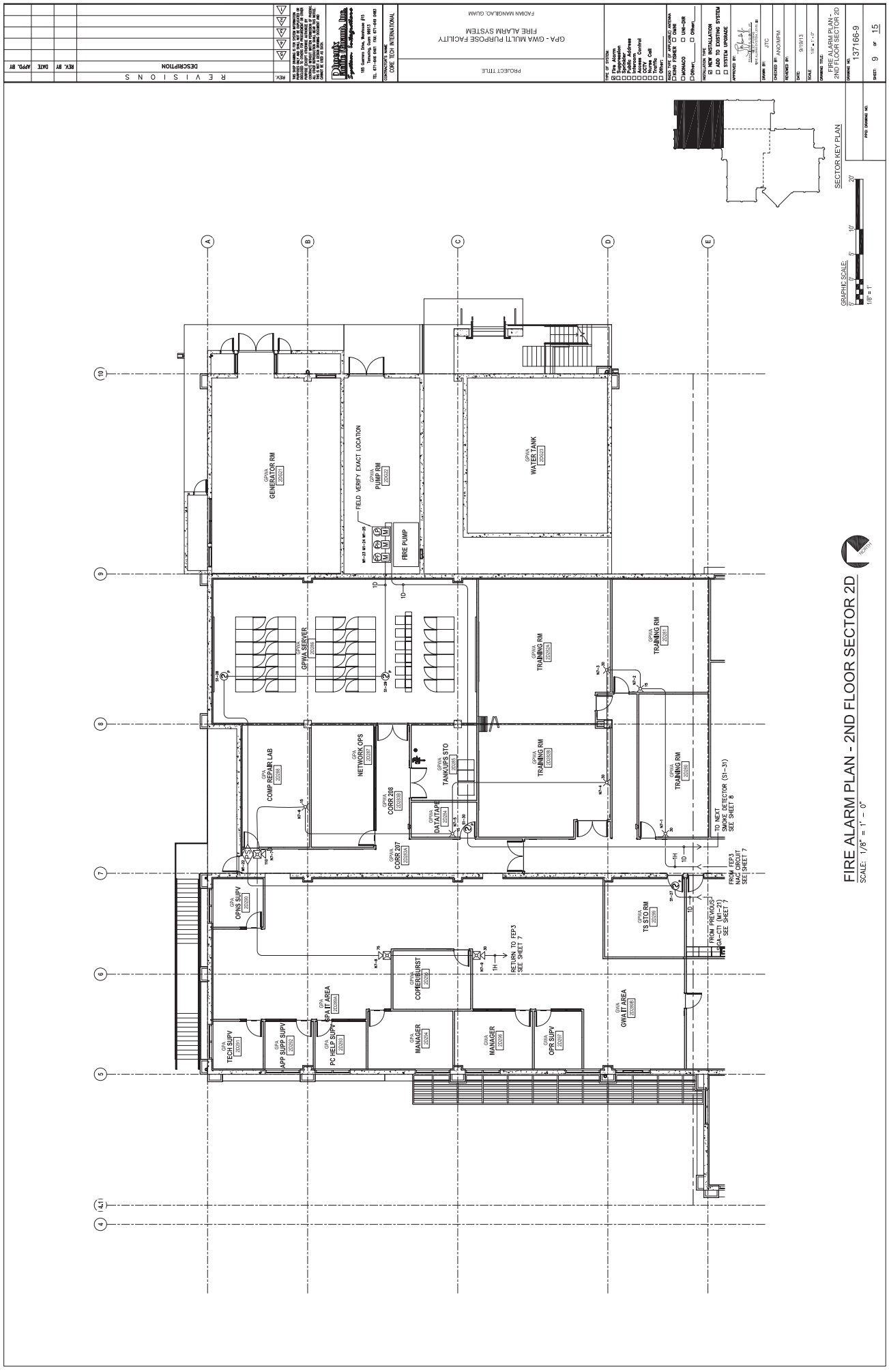

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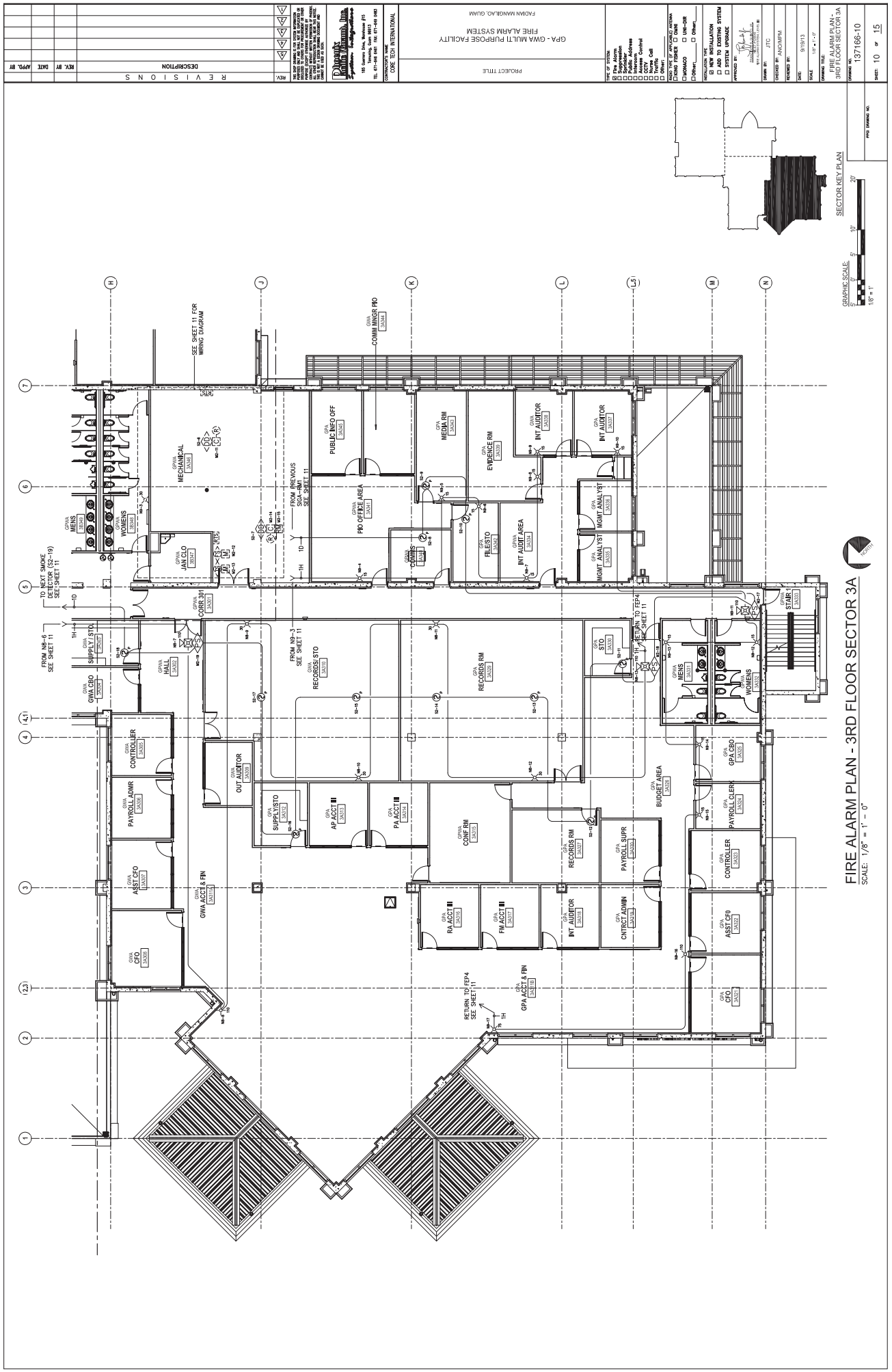

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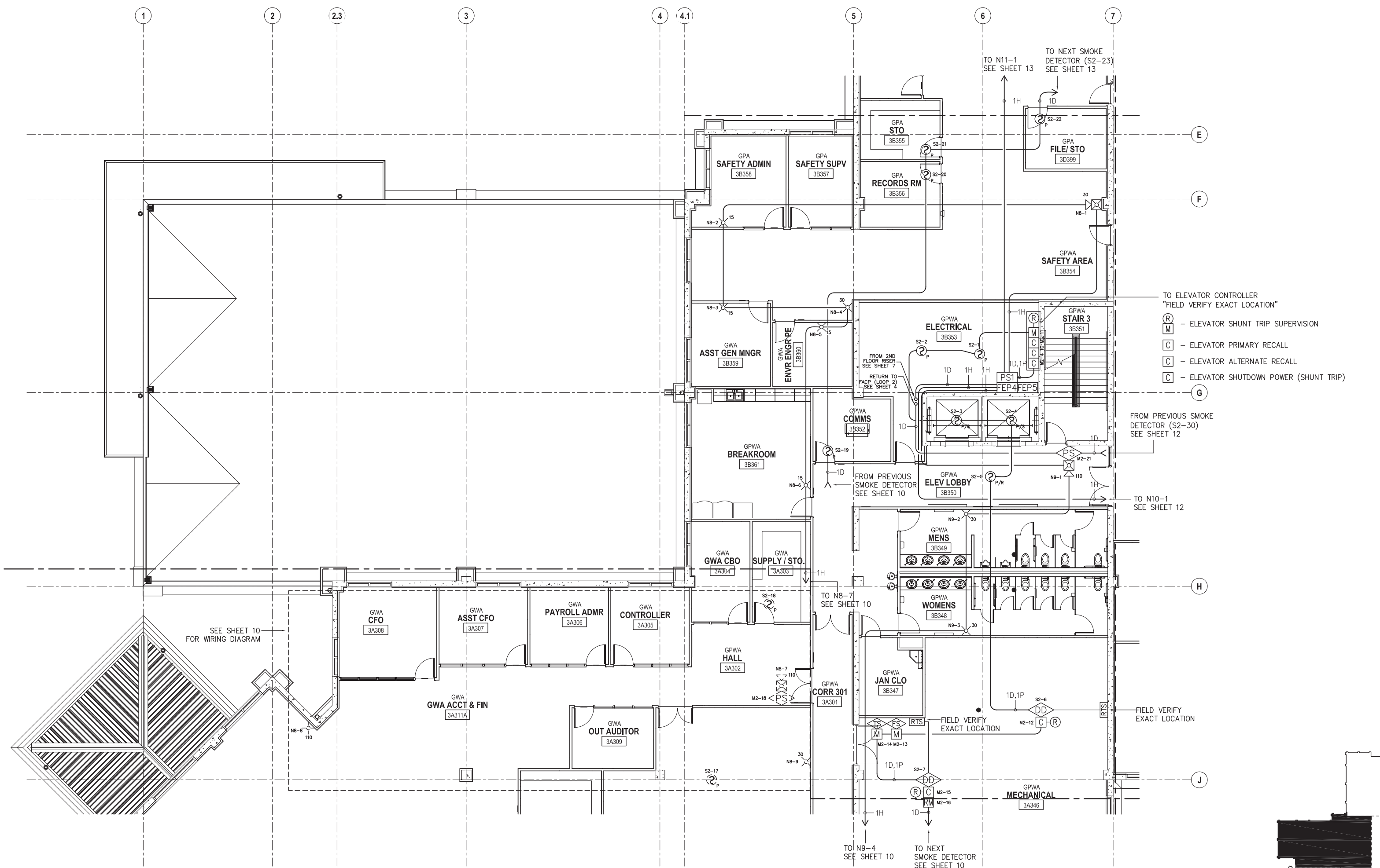
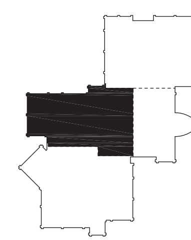


FIRE ALARM PLAN - 3RD FLOOR SECTOR 3B

SCALE: 1/8" = 1' - 0"

GRAPHIC SCALE: 5' 0' 5' 10' 20'

1/8" = 1'



SECTOR KEY PLAN

PPGI DRAWING NO.

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
	REVISIONS			

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Phoenix Pacific (Guam), Inc. System Integrators
185 Guerrero Drive, Warehouse #15, Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY FIRE ALARM SYSTEM, FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
- ☒ Fire Alarm
- ☐ Suppression
- ☐ Sprinkler
- ☐ Public Address
- ☐ Intercom
- ☐ Access Control
- ☐ CCTV
- ☐ Nurse Call
- ☐ Traffic
- ☐ Other: ______

RADIO TYPE (IF APPLICABLE) ANTENNA: ☐ KING FISHER ☐ OMNI ☐ MONACO ☐ UNI-DIR ☐ Other:____ ☐ Other:____

INSTALLATION TYPE:
- ☒ NEW INSTALLATION
- ☐ ADD TO EXISTING SYSTEM
- ☐ SYSTEM UPGRADE

APPROVED BY: FRANCISCO B. GUERERO, JR., NICET #139020, FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC

CHECKED BY: ANO/MPM

REVIEWED BY:

DATE: 9/19/13

SCALE: 1/8" = 1'-0"

DRAWING TITLE: FIRE ALARM PLAN - 3RD FLOOR SECTOR 3B

DRAWING NO.: 137166-11

SHEET: 11 OF 15

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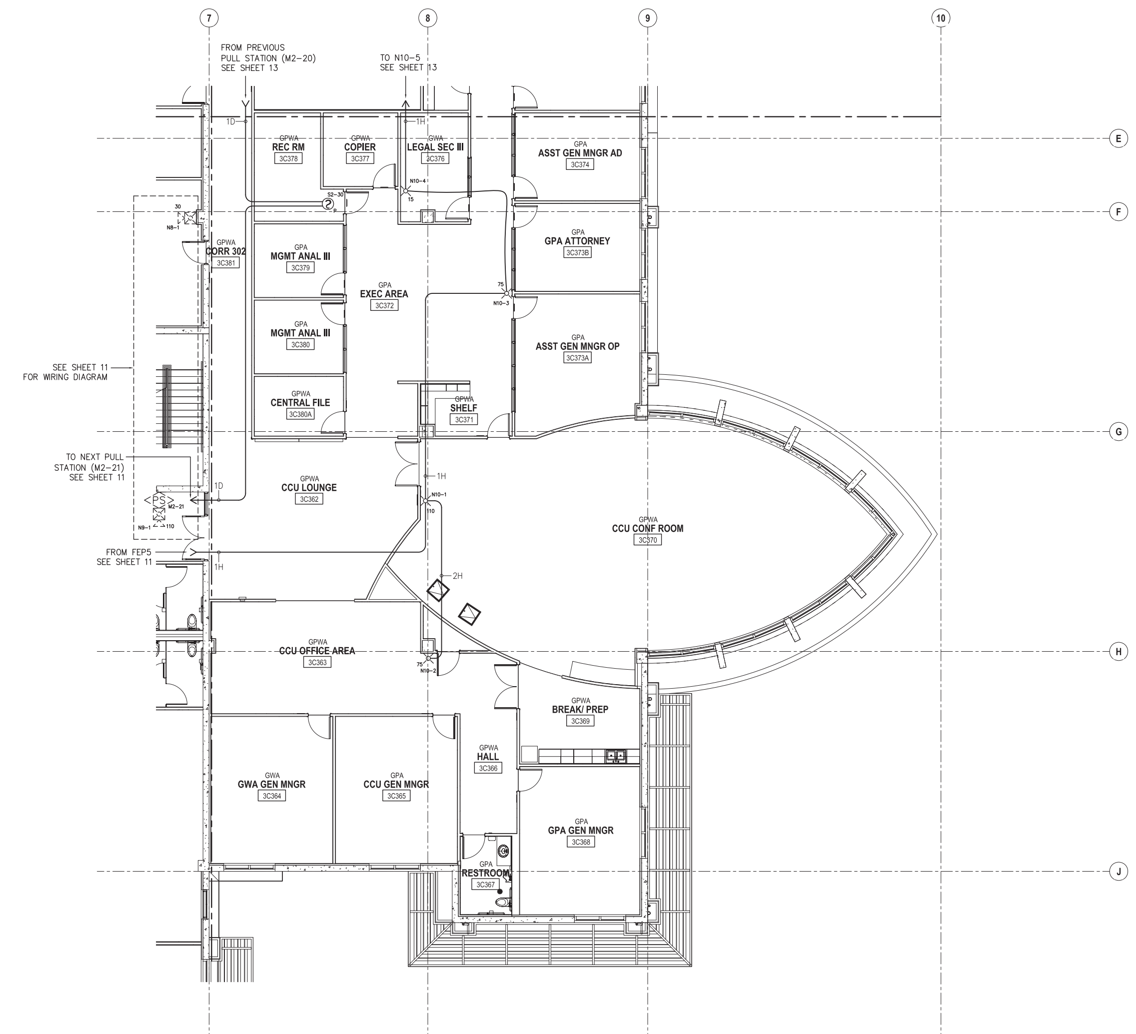
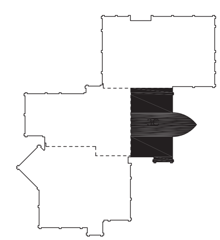


FIRE ALARM PLAN - 3RD FLOOR SECTOR 3C

SCALE: 1/8" = 1' – 0"

NORTH



SECTOR KEY PLAN

GRAPHIC SCALE:
5' 0' 5' 10' 20'
1/8" = 1'

PPGI DRAWING NO.

REV.	DESCRIPTION	REV. BY	DATE	APPD. BY
1				
2				
3				
4				
5				

R E V I S I O N S

THIS SHOP DRAWING IS FOR SYSTEM INFORMATION PURPOSES ONLY AND SHALL NOT BE DUPLICATED OR DISCLOSED TO OTHERS FOR PROCUREMENT OR OTHER PURPOSE (EXCEPT OTHERWISE AUTHORIZE BY CONTRACT) WITHOUT WRITTEN PERMISSION OF PHOENIX. ALL OTHER REPRODUCTION SHALL BEAR THIS NOTICE. THIS IS NOT A DESIGN DRAWING DOCUMENT AND CANNOT BE USED AS SUCH.

Phoenix Pacific (Guam) Inc.
System Integrators
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6461 FAX: 671-649 0483

CONTRACTOR'S NAME
CORE TECH INTERNATIONAL

PROJECT TITLE
GPA - GWA MULTI PURPOSE FACILITY
FIRE ALARM SYSTEM
FADIAN MANGILAO, GUAM

TYPE OF SYSTEM:
☑ Fire Alarm
☐ Suppression
☐ Sprinkler
☐ Public Address
☐ Intercom
☐ Access Control
☐ CCTV
☐ Nurse Call
☐ Traffic
☐ Other: ______

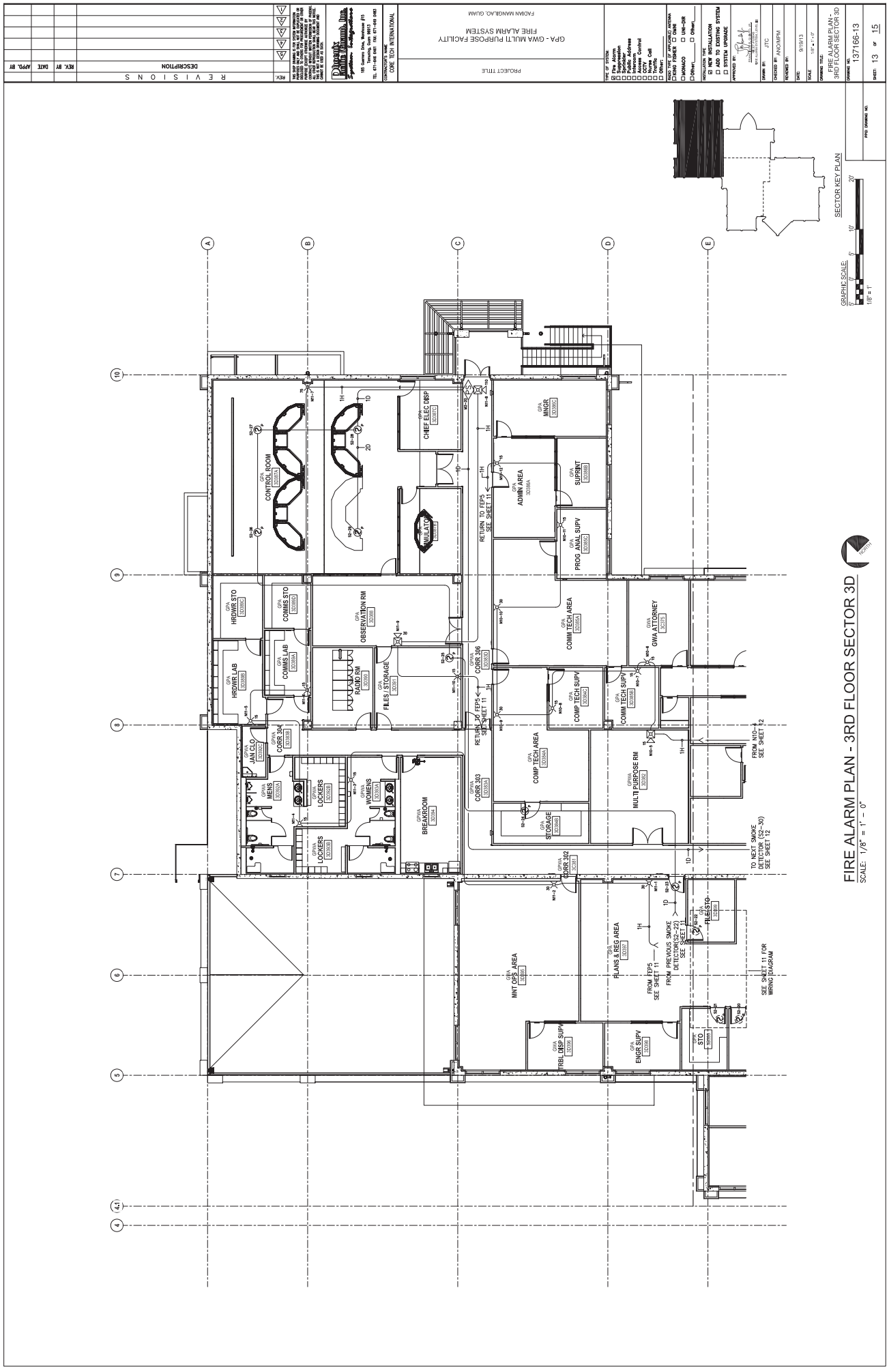
RADIO TYPE (IF APPLICABLE) ANTENNA
☐ KING FISHER ☐ OMNI
☐ MONACO ☐ UNI-DIR
☐ Other:_____ ☐ Other:_____

INSTALLATION TYPE
☑ NEW INSTALLATION
☐ ADD TO EXISTING SYSTEM
☐ SYSTEM UPGRADE

APPROVED BY:
FIRE ALARM SYSTEM, LEVEL III

DRAWN BY: JTC
CHECKED BY: ANO/MPM
REVIEWED BY:
DATE: 9/19/13
SCALE: 1/8" = 1' - 0"
DRAWING TITLE: FIRE ALARM PLAN - 3RD FLOOR SECTOR 3C
DRAWING NO. 137166-12
SHEET: 12 OF 15

Docusign Envelope ID: 23A0E580-22BD-4F89-A323-2C52F29F70A4



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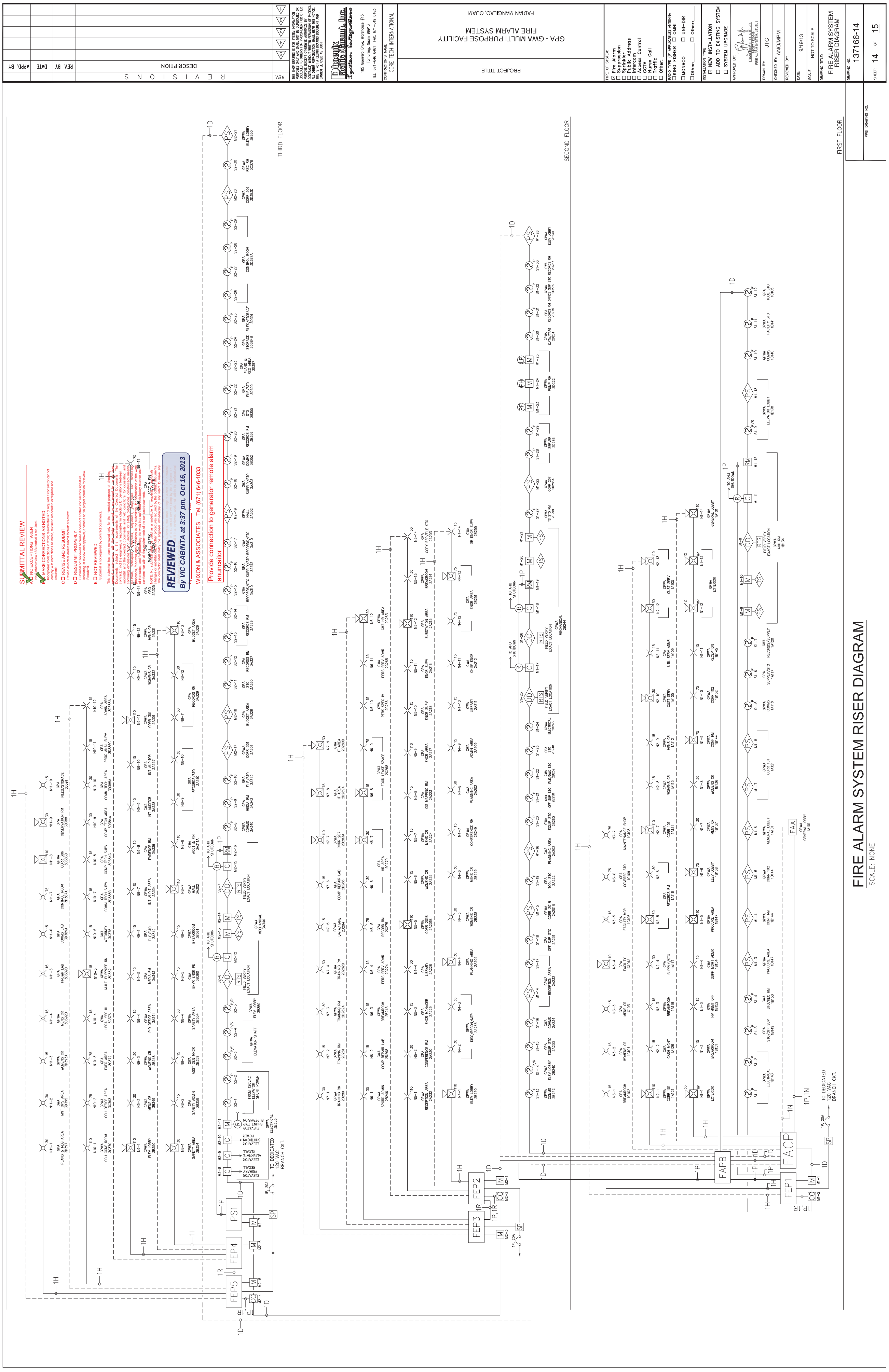

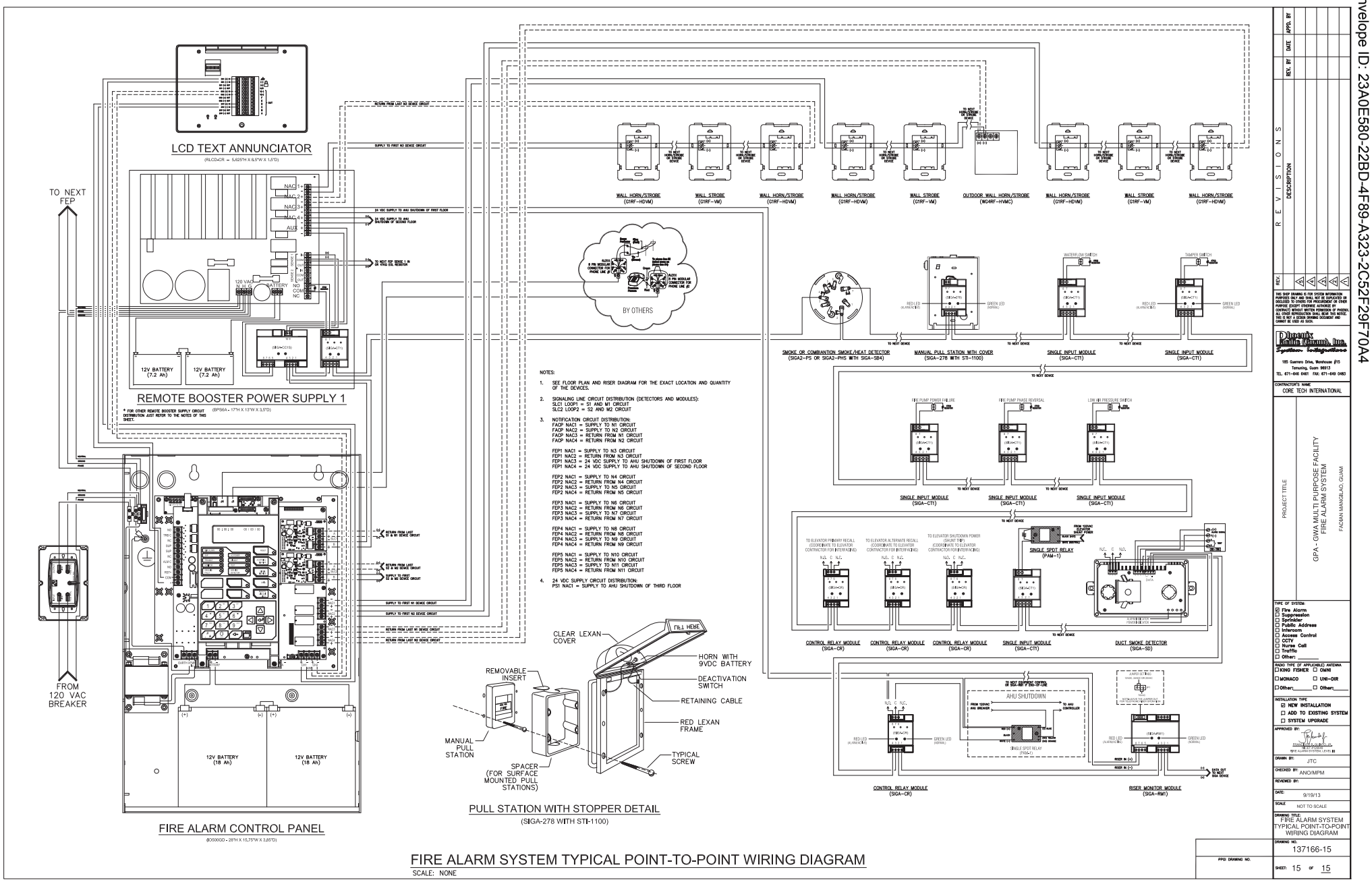

NOTES:

1. SEE FLOOR PLAN AND RISER DIAGRAM FOR THE EXACT LOCATION AND QUANTITY OF THE DEVICES.
2. SIGNALING LINE CIRCUIT DISTRIBUTION (DETECTORS AND MODULES):
   SLC1 LOOP1 = S1 AND M1 CIRCUIT
   SLC2 LOOP2 = S2 AND M2 CIRCUIT
3. NOTIFICATION CIRCUIT DISTRIBUTION:
   FACP NAC1 = SUPPLY TO N1 CIRCUIT
   FACP NAC2 = SUPPLY TO N2 CIRCUIT
   FACP NAC3 = RETURN FROM N1 CIRCUIT
   FACP NAC4 = RETURN FROM N2 CIRCUIT

   FEP1 NAC1 = SUPPLY TO N3 CIRCUIT
   FEP1 NAC2 = RETURN FROM N3 CIRCUIT
   FEP1 NAC3 = 24 VDC SUPPLY TO AHU SHUTDOWN OF FIRST FLOOR
   FEP1 NAC4 = 24 VDC SUPPLY TO AHU SHUTDOWN OF SECOND FLOOR

   FEP2 NAC1 = SUPPLY TO N4 CIRCUIT
   FEP2 NAC2 = RETURN FROM N4 CIRCUIT
   FEP2 NAC3 = SUPPLY TO N5 CIRCUIT
   FEP2 NAC4 = RETURN FROM N5 CIRCUIT

   FEP3 NAC1 = SUPPLY TO N6 CIRCUIT
   FEP3 NAC2 = RETURN FROM N6 CIRCUIT
   FEP3 NAC3 = SUPPLY TO N7 CIRCUIT
   FEP3 NAC4 = RETURN FROM N7 CIRCUIT

   FEP4 NAC1 = SUPPLY TO N8 CIRCUIT
   FEP4 NAC2 = RETURN FROM N8 CIRCUIT
   FEP4 NAC3 = SUPPLY TO N9 CIRCUIT
   FEP4 NAC4 = RETURN FROM N9 CIRCUIT

   FEP5 NAC1 = SUPPLY TO N10 CIRCUIT
   FEP5 NAC2 = RETURN FROM N10 CIRCUIT
   FEP5 NAC3 = SUPPLY TO N11 CIRCUIT
   FEP5 NAC4 = RETURN FROM N11 CIRCUIT
4. 24 VDC SUPPLY CIRCUIT DISTRIBUTION:
   PS1 NAC1 = SUPPLY TO AHU SHUTDOWN OF THIRD FLOOR

FIRE ALARM SYSTEM TYPICAL POINT-TO-POINT WIRING DIAGRAM

SCALE: NONE

REVISIONS

REV:	DESCRIPTION	REV. BY	DATE	APPD. BY
1				
2				
3				
4				
5				

Phoenix Pacific Guam, Inc.
Systems Integrators
185 Guerrero Drive, Warehouse #15
Tamuning, Guam 96913
TEL. 671-646 6481 FAX: 671-649 0483

CONTRACTOR'S NAME: CORE TECH INTERNATIONAL

PROJECT TITLE: GPA - GWA MULTI PURPOSE FACILITY FIRE ALARM SYSTEM
FADMIN MANGILAO, GUAM

TYPE OF SYSTEM:
- ☑ Fire Alarm
- ☐ Suppression
- ☐ Sprinkler
- ☐ Public Address
- ☐ Intercom
- ☐ Access Control
- ☐ CCTV
- ☐ Nurse Call
- ☐ Traffic
- ☐ Other: _____

RADIO TYPE (IF APPLICABLE) ANTENNA
- ☐ KING FISHER ☐ OMNI
- ☐ MONACO ☐ UNI-DIR
- ☐ Other:_____ ☐ Other:_____

INSTALLATION TYPE
- ☑ NEW INSTALLATION
- ☐ ADD TO EXISTING SYSTEM
- ☐ SYSTEM UPGRADE

APPROVED BY: PHOENIX PACIFIC GUAM, INC. FIRE ALARM SYSTEMS, LEVEL II

DRAWN BY: JTC

CHECKED BY: ANO/MPM

REVIEWED BY:

DATE: 9/19/13

SCALE: NOT TO SCALE

DRAWING TITLE: FIRE ALARM SYSTEM TYPICAL POINT-TO-POINT WIRING DIAGRAM

DRAWING NO.: 137166-15

PPGI DRAWING NO.:

SHEET: 15 OF 15

ATTACHMENT B -

Gloria B. Nelson Fire Protection Certification

Phoenix Pacific
The Fire and Life Safety Experts

ATTACHMENT B

CERTIFICATE OF COMPLETION

Name of Protected Property: **GPA / GWA Gloria B. Nelson Combined Utilities Facility**
Mailing Address: **P.O. Box 2977**
Agana, Guam 96932-2977

Representative of Protected Property: **Jerald Guzman**
Authority Having Jurisdiction: **GUAM FIRE DEPARTMENT (ONE STOP)**
Address/Contact Number(s): **(671) 646-3102**

1. Type(s) of System or Service:
X NFPA 72, Chapter 3-Local
If Alarm is transmitted to location(s) off premise, list where received:

N/A NFPA 72, Chapter 3 -Emergency Voice/Alarm Service
Quantity of voice/alarm channels: N/A Single: N/A Multiple: N/A

N/A NFPA 72, Chapter 4 –Auxiliary
Indicate type of connection:
Local energy: N/A Shunt: N/A **Parallel telephone:** N/A
Location and telephone number for receipt of signals:

N/A NFPA 72, Chapter 4-Remote Station
Alarm: N/A
Supervisory: N/A
N/A NFPA 72, Chapter 4-Proprietary
If alarms are re-transmitted to public fire service communications center or others, indicate location and telephone number of the organization receiving alarm:
N/A
Indicate how alarm is re-transmitted:
N/A

N/A NFPA 72, Chapter 4-Central Station
The Prime Contractor:
N/A
Central Station Location:
N/A
Means of transmission of signals from the protected premise to the central station:
N/A McCulloh N/A Multiplex N/A One-Way Radio
N/A Digital Alarm Communicator N/A **Two-Way Radio** N/A Others
Means of transmission of alarms to the public fire service communications center:
Type(s) of System or Service:

1. **MANUAL DIALING 911**
System Location: **Mangilao, Guam**

Phoenix Pacific
The Fire and Life Safety Experts

	Organization	Representative (Name/Number)
Installer:	**Existing System**	
Supplier:	Phoenix Pacific (Guam), Inc.	Sharoll Mobel – 646-6461
Service Organization:	Phoenix Pacific (Guam), Inc.	Vince Castro – 646-6461

Location of Record (As-Built) Drawings:

Location of Owner's Manuals:

Location of Test Reports:
Phoenix Pacific (Guam), Inc.

A contract, dated 10/21/2021 **, for test and inspection in accordance with NFPA standard(s)** No.**(s)** 72 dated 10/21/2021 , is in effect.

2. Certification of System Installation:
Fill out after installation is complete and wiring checked for open, shorts, ground faults and improper branching, but prior to conducting operational acceptance tests.)
This system has been installed in accordance with the NFPA standards as listed below, and was **Inspected by** **Existing System** On _____ includes the devices listed below and has been in service since _____ .

X NFPA 72, Chapters 1 3 4 5 6 7 (circle all that apply)
X NFPA 70, National Electrical Code, Article 760
X Manufacturer's Instructions
Other (specify): _____

Signed: **Existing System** Date: October 21, 2021
Organization: _____

3. Certification of System Operation:
All operational features and functions of this system were tested by Alvin Hernandez
On 10/21/2021 **and found to be operating properly in accordance with the requirements of:**

X NFPA 72, Chapters 1 3 4 5 6 7 (circle all that apply)
X NFPA 70, National Electrical Code, Article 760
X Manufacturer's Instructions
Other specify: _____

Signed: **Alvin Hernandez Tech Rep. NICET # 146107** Date: October 21, 2021
Organization: **Phoenix Pacific (Guam), Inc.**

4. Alarm Initiating Devices and Circuits (Use blanks to indicate quantity of devices).
MANUAL
a) **17** **Manual Stations** X **Non-coded, Activating** _____ Transmitters _____ Coded
b) -0- Combination Manual Fire Alarm and Guard's Tour Coded Stations
AUTOMATIC

Coverage	100%	Complete:	100%			Partial:	N/A		
a)	**70**	**Smoke Detectors**	-0-	Ion	**70**	**Photo**			
b)	**5**	**Duct Detectors**	-0-	Ion	**5**	**Photo**			
c)	0	**Heat Detectors**	-0-	FT	-0-	RR	_____	FT/RR	_____ RC

d) -0- **Sprinkler Water Flow Switches** ____ **Non-coded, activating** ____ **Transmitters** ____ **Coded**
e) ____ Other (list): Water Flow/Tamper Switch
f) ____ Other (list): ____

5. Supervisory Signal Initiating Devices and Circuits (Use blanks to indicate quantity of devices.)

GUARD'S TOUR

a) -0- Coded Stations
Non-Coded Stations
b) -0- Activating ____ Transmitters
c) -0- **Compulsory Guard Tour System Comprised of** ____ **Transmitter Stations and** Intermediate Stations.

SPRINKLER SYSTEM **NOT PROVIDED BY PHOENIX PACIFIC (GUAM), INC.**

a) -0- Coded Valve Supervisory Signaling Attachments
Valve Supervisory Switches Activating ____ Transmitters.
b) -0- Building Temperature Points
c) -0- Site Water Temperature Points
d) -0- Site Water Supply Level Points

ELECTRIC FIRE PUMP:

e) -0- Fire Pump Power
f) 0 Fire Pump Running
g) -0- Phase Reversal

ELECTRICA-DRIVEN FIRE PUMP:

h) -0- Selector in Auto Position
i) -0- Engine or Control Panel Trouble
j) -0- Fire Pump Running

ENGINE DRIVEN GENERATOR:

k) -0- Selector In Auto Position
l) -0- Control Panel Trouble
m) -0- Transfer Switches
n) -0- Engine Running

Other Supervisory Function (s) (specify):

6. Alarm Notification Appliances and Circuits
Quantity of indicating appliance circuits connected to the system: -0-

Types and quantities of alarm indicating appliances installed:

a) -0- Bells -0- Inch -0- Speakers
b) -0- Horns
c) -0- Chimes
d) -0- Other: ____
e) **142** **Visual Signals** Type: **15/75Cd Wall Mount Horn/Strobe**
30 **with audible** **112** **without audible**
f) **-1-** **Local Annunciator**

7. Signaling Line Circuits:
Quantity and Style (See NFPA 72, Table 3-6.1) of signaling line circuits connected to system:
Quantity: N/A Style: N/A

Phoenix Pacific
The Fire and Life Safety Experts

8. System Power Supplies: Inside Electrical Room
Quantity and Style (See NFPA 72, Table 3-6.1) of signaling line circuits connected to system:

a) **Primary (Main):** **110VAC** Nominal Voltage: **110VAC** Current Rating: _____
Over-current Protection: Type: **FUSE** Current Rating: **6A** Location: **Int.**

b) Secondary (Standby):
02 **Storage battery:** Amp-Hour Rating: **18 AH**
Calculated capacity to drive system, in hours: X 24 _____ 60
-0- Engine-driven generator dedicated to fire alarm system
Location of fuel storage: _____

c) Emergency or Standby System used as backup to Primary Power Supply, instead of using a Secondary Power Supply:
-0- Emergency System described in NFPA 70, Article 700
-0- Legally Required Standby System described in NFPA 70, Article 701
-0- Optional Standby System described in NFPA 70, Article 702, which also meets the Performance requirements of Article 700 or 701.

9. System Software
a) Operation System Software Revision Level(s): **IO500**
b) Application Software Revision Level(s): **REV. 4.11**
c) Revision Completed by (Name): **EDWARDS**
Revision Completed by (Firm): **EDWARDS**

** COMMENTS:

By: **Phoenix Pacific (Guam), Inc.** October 21, 2021
Central Station or Alarm Service Company — Date

Vince Castro, NICET # 124020 — **Lead System Technician**
Name — Title

Under completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction):

By: _____ _____
Representative of the authority having jurisdiction — Date

_____ _____
Name — Title