Fire Department & Project Submittal

for

At

Monte Christo II
3350 Ralph Powell Rd
Lee's Summit, MO 64064

Remote Monitoring Central Station:

Via Cellular Communicator

Alarm Central
13700 E. 42nd Terrace S. - PO Box 3272
Independence, MO 64055
UUFX-S7249-1
816-861-1500

Kansas City CCTV & Security
6415 Universal Ave
Kansas City, MO 64120
855-452-2288

Rodney Sheets
Archway Systems
17020 East 40 Hwy, Suite #1
Independence, MO. 64055
(816) 709-3358

Table of Contents

Part one

System Overview Outline

I.   Location
                Monte Christo II,
                3350 Ralph Powell Rd
                Lee's Summit, MO 64064

II.   Codes
         A.   NFPA 72 Chapters as Applicable(Remote Station)
         B.   NEC Articles as Applicable
         C.   Local, City, State

III.   Control
         A.   1   VS1-GD   1 Loop System, 64 Analog Point Capacity, 2 Class B NA   **NEW**
         B.   1   B465   Universal Dual Path Communicator   **NEW**
         C.   1   B444   Conettix Plug-In 4G LTE Cellular Communicator   **NEW**
         D.   2   AL802ULADA   8 Amp Power Supply   **EXISTING**
         E.   1   FDB-ACE-11   Fire Document Box   **NEW**

IV.   Modules
         A.   2   GSA-CC1S   Synchronization Output Module (One-gang standard mo   **NEW**
         B.   3   GSA-CT2   Dual Input Module   **NEW**

V.   Fire Alarm Initiating Devices
         A.   2   KI-OSD   Optical Smoke Detector   **NEW**
         B.   2   KI-SB   Detector Mounting Base   **NEW**
         C.   2   GSA-M278   Double Action Single Stage Manual Pull Station   **NEW**
         D.   2   WATER FLOW   Connection Only, Provided by Sprinkler Contractor   **EXISTING**
         E.   4   TAMPER SWITCH Connection Only, Provided by Sprinkler Contractor   **EXISTING**

VI.   Fire Alarm Indicating Devices
         A.   1   K-RLCD-C   LCD text annunciator with common controls. English.   **NEW**

VII.   Zones
                Zoned Per Prints

VIII.   Wiring
                All Circuits and Wiring Shall be "Power Limited"
                Initiating Zones Shall be 18/2 or 18/4 U.L. FPL Cable
                Indicating Circuits Shall be 14/2 U.L. FPL Cable
                System Ground Shall be 14 THHN Green Conductor
                Under Ground and Outside Wire shall be 14 THHN in Approved Raceway

IX.   Listings
         A.   All Equipment Shall Be U.L. Listed and Compatible

X.   Power Supply
         A.   Primary - 110 VAC Dedicated 20 Amp Circuit
         B.   Secondary - 18 Amp Hour Batteries

XI.   Alarm Supervision
         A.   Human
         B.   Remote Station   Installing Branch/Contractor
                 Alarm Central   Kansas City CCTV & Security
                 13700 E. 42nd Terrace S. - PO B 6415 Universal Ave
                 Kansas City, MO 64055   Kansas City, MO 64120
                 UUFX-S7249-1   855-452-2288
                 816-861-1500

FIRE ALARM MATRIX WITH OCCUPANT NOTIFICATION

	ANNUNCIATES ALARM SIGNAL AT CONTROL PANEL AND REMOTE ANNUNCIATOR	ANNUNCIATES SUPERVISORY SIGNAL AT CONTROL PANEL AND REMOTE ANNUNCIATOR	ANNUNCIATES TROUBLE SIGNAL AT CONTROL PANEL AND REMOTE ANNUNCIATOR	TRANSMITS ALARM SIGNAL AT CONTROL PANEL CENTRAL STATION	TRANSMITS SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMITS TROUBLE SIGNAL TO CENTRAL STATION	ACTIVATES INTERIOR HORN/STROBES	ACTIVATES EXTERIOR HORN/STROBE/BELL ABOVE FDC
SPRINKLER SYSTEM								
- WATERFLOW SWITCH	●			●			●	●
- VALVE TAMPER SWITCH		●			●			
SMOKE DETECTOR	●			●			●	
MANUAL PULL STATION	●			●			●	
POWER SUPPLY - TROUBLE			●			●		
COMMUNICATOR - COMMUNICATION FAIL			●					
COMMUNICATOR - TROUBLE			●			●		
ABNORMAL CONTROL, CIRCUIT OR DEVICE			●			●		
LOSS OF POWER			●			●		

Part Two

Battery Calculations

Standby Battery Calculations
KIDDE
VS1-GD

Monte Christo II,
3350 Ralph Powell Rd
Lee's Summit, MO 64064

Part Number	Description	Quantity	Standby Per Device	Current All Devices	Alarm Per Device	Current All Devices
VS1-GD	1 Loop System, 64 Analog Point Capacity, 2 Class B NA	1	0.155000	0.155000	0.204000	0.204000
K-RLCD-C	LCD text annunciator with common controls. English.	1	0.099000	0.099000	0.115000	0.115000
KI-OSD	Optical Smoke Detector	2	0.000320	0.000640	0.000450	0.000900
GSA-M278	Double Action Single Stage Manual Pull Station	2	0.000250	0.000500	0.000399	0.000798
GSA-CC1S	Synchronization Output Module (One-gang standard mo	2	0.000223	0.000446	0.000323	0.000646
GSA-CT2	Dual Input Module	3	0.000396	0.001188	0.000680	0.002040
				0.000000		0.000000
				0.000000		0.000000
				0.000000		0.000000
				0.000000		0.000000
TAC-IDC	Total Alarm Current Max IDC		0.000000	0.000000	0.040000	0.000000
TAC-SLC	Total Alarm Current Max SLC		0.000000	0.000000	0.400000	0.000000
				0.257	Alarm	0.323
Total Aux current		Maximum Amps:	1.0000			

Signal Circuits

Circuit	Device	Quantity		Alarm Per Device	Current All Devices
Circuit 1					0.000
					0.000
					0.000
					0.000
					0.000
					0.000
Total 1		Maximum Amps:	2.5000		0.000
Circuit 2					0.000
					0.000
					0.000
					0.000
					0.000
					0.000
Total 2		Maximum Amps:	2.5000		0.000
				Notification Alarm	0.000
Totals		Maximum Amps:	6.0000	Total Alarm Amps	0.323

		Circuit 1	Circuit 2
Max Wire Run Distance For AWG	14		
Actual Wire run Distance			
Voltage Drop for 14 AWG wire			

Voltage Drop = 2 * Wire Run Distance * 3.07 Ohms Per 1000 ft 14 AWG * Total Current for Circuit / 1000

Standby Hours	24
Standby Battery Draw	0.257
Standby Amp Hrs	6.163

Alarm Minutes	5
Alarm Current	0.647
Alarm Current by Minutes	0.054

Battery Size Required with Alarm Time Minutes and 20% Reserve	7.460

Batteries Size Supplied	12	Amp Hours

Current Draws for Fire Communicator

BOSCH

Device	Device Standby Current	Device Alarm Current	Quantity	Total Standby Draw	Total Alarm Draw		Wire Size	Alarm Min
B444	0.035	0.1	1	0.035	0.1		18	15
B465	0.15	0.23	1	0.15	0.23			
				0	0			
				0	0			
				0	0			

		Standby Hours	24
		Alarm Current:	0.330
Total Battery Calculation Standby:	4.440	Battery size Required:	5.427
Alarm Current Min:	0.082	Batteries Supplied (AH):	7

Part Three

U.L. Certificates

CERTIFICATE OF COMPLIANCE

THIS IS TO CERTIFY that the Alarm Service Company indicated below is included by Underwriters Laboratories Inc. (UL) in its Product Directories as eligible to use the UL Listing Mark in connection with Certificated Alarm Systems. The only evidence of compliance with UL's requirements is the issuance of a UL Certificate for the Alarm System and the Certificate is current under UL's Certificate Verification Service. This Certificate does not apply in any way to the communication channel between the protected property and any facility that monitors signals from the protected property unless the use of a UL listed or Classified Alarm Transport Company is specified on the Certificate.

Listed Service From: Independence, MO

Alarm Service Company: (567706-001)

ALARMCENTRAL L L C
13700 E 42ND TER S
PO BOX 3272
INDEPENDENCE MO 64055

Service Center: (567706-001)

ALARMCENTRAL L L C
13700 E 42ND TER S
PO BOX 3272
INDEPENDENCE MO 64055

The Alarm Service Company is Listed in the following Certificate Service Categories:

File - Vol No.	CCN	Listing Category
BP9514-1	CVSU	[Burglar Alarm Systems] Monitoring Station, Residential
S7249-1	UUFX	[Signal and Fire Alarm Equipment and Services] (Protective Signaling Services) Central Station

THIS CERTIFICATE EXPIRES ON 31-DEC-2023

"LOOK FOR THE UL ALARM SYSTEM CERTIFICATE"

Part Four

Equipment Data Sheets

VS1 Intelligent Life Safety System

S3000

S3000

7165-1657: 0244

FDNY
APPROVAL
#6020

FM
APPROVED

Overview

The Vigilant VS1 intelligent life safety system offers the speed 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 quick-to-install system offers versatile features that benefit building owners and contractors alike.

The VS1 provides one Class B analog device loop that supports up to 64 device addresses, and two Class B Notification Appliance Circuits (NACs). Optional Class A device wiring is available with the use of a module.

This life safety system features an attractive contemporary design that fits with any decor. Its gently curved doorfront offers a distinctive flair with available red or silver finishes. Controls are discreetly inset behind a striking black bezel.

The VS1 supports a wide range of accessories and related equipment, including:

- Intelligent modules, detectors, and bases
- R-Series remote annunciators
- Option cards that expand system capacity and extend system capabilities
- Integrated Carbon Monoxide gas sensing with V-PCOS detectors including distinct audible signaling

Features

- Comes standard with one loop that supports up to 64 intelligent devices of any type and two Class B NACs.
- Form C contacts for alarm and trouble, Form A for supervisory
- Electronic addressing with automatic device mapping
- Optional Ethernet port for diagnostics, programming
- Supports systemwide strobe synchronization
- Two programmable switches with LEDs and custom labeling
- Supports fire suppression routines with a dedicated intelligent releasing module
- On board NACs support Genesis horn silence over two wires and UL 1971-compliant strobe synchronization
- Optional Class A wiring
- Supports up to eight serial annunciators, (LCD, LED-only, and graphic interface).
- Can use existing wiring for most retrofit applications
- Supports V-Series single and multisensor detectors
- 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: seismic Importance Factor 1.5

Application

The VS1 life safety system is an easy-to-use intelligent solution for small to mid-sized buildings. Advanced analog technology delivers the benefits of quick and uncomplicated system installation, while a clean and easy-to-operateuser interface makes panel operation and system maintenance quick and intuitive.

The smart choice

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 features allow the system designer to customize powerful built-in features to precisely suit the needs of the building owner.

Versatility built right in

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

Perfect for retrofits

The VS1 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 V-Series technology without the expense or disruption of rewiring the entire building.

Signals with a difference

VS1 NACs are configurable to fully support the advanced signaling features 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 VS1. 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 VS1 also supports graphic annunciation with optional RA Graphic Annunciator interface modules. Each interface provides common control, indicators, and 32 LEDS. Consult the Ordering Information section for details.

A complete line of accessories

The VS1 life safety system is supported by a complete line of intelligent detectors, modules and related equipment. Consult the Ordering Information section for details.

Programming

VS1 life safety systems are simple to set up, quick to program, and easy to maintain. 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, the VS1 interfaces to a PC running compatible VS-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 modem or Ethernet port, which can also be used to connect a system printer.
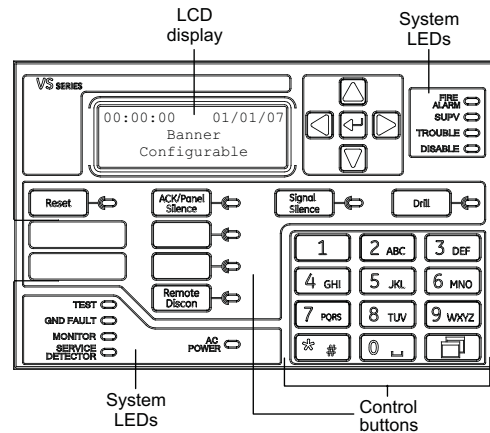
Among the many advanced features of the VS1 is its optional network card. This module provides a standard 10/100 Base T Ethernet® network connection that permits access to the control panel from any remote location with the correct communications protocols. The connection can be used to download to the panel from the VS-CU, or upload and view system reports using the VS-CU.

Available system reports include:

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

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 Central Station communication.
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.
Supv	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.

Wiring & Configuration

Notification appliance circuits (TB2)

The VS1 comes equipped with two notification appliance circuits. Each circuit can be individually configured for continuous, temporal, synchronized, latching, and coded output.

Circuit Specifications	
Circuit Type	2 Class B, Class A optional when Class A card is installed. Each circuit is rated for max. 2.5 Amps.
Voltage	24 VFWR
Current	3.75A total (115/230 60hz) 3.0A total (230v 50hz) 2.5 A max per circuit
Impedance	26 Ω total, 0.35 µF max
EOLR	15 K Ω, ½ W

Class B wiring

TB2
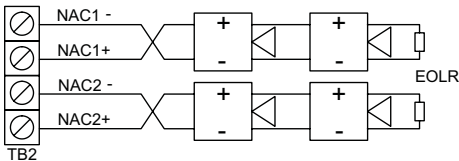
Marking indicates output signal polarity when the circuit is active. Polarity reverses when the circuit is not active. Wire notification appliances accordingly. Notification appliance polarity shown in active state.

Device loop

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

Circuit Specifications	
Device loops	1 Loop Class B or Class A supporting up to 64 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

Class B wiring
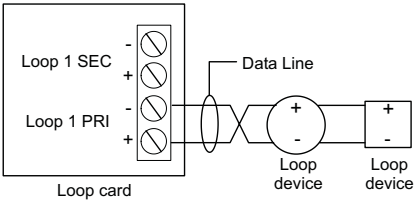
Class A wiring
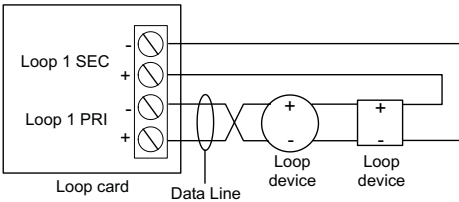
Alarm, trouble, and supervisory relay (TB3)

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.

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 VS1 and VS2 series compatibility list (p/n 3101065).

| 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.
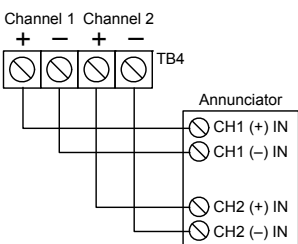
Annunciator loop (TB4)

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

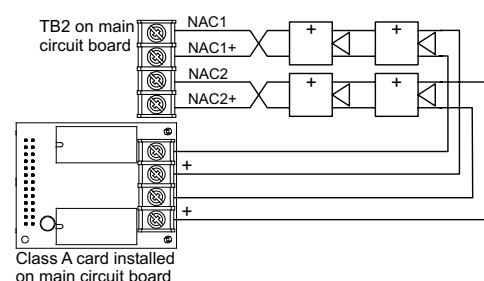| Circuit specifications	
Device loops	Class B (Style Y) or Class A* (Style Z)
Circuit voltage	2.55 V
Circuit current	30 mA max
Circuit impedance	Up to 8 annunciators or 4000 feet, 18AWG wire
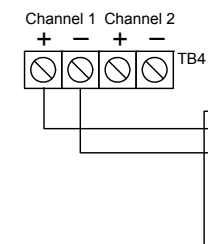
Class B   Class A

Option Cards

V-Series panels are supported by a complete line of modules and related equipment that enhance performance and extend system capabilities. Option cards are easy to install and set up. They simply plug directly into the control panel main circuit board or are connected to it with a ribbon cable. After installation, terminals remain easily accessible for quick connection of field wiring. The cabinet provides ample room for wire routing, keeping wiring neat and easy to service at all times.

SA-CLA Class A Module

The SA-CLA card provides Class A capability for NAC and annunciator wiring. Its terminal block provides the wiring connection for NAC return wiring. The card is required for annunciator Class A wiring even though this wiring does not return to the SA-CLA card. The SA-CLA is compatible with VS1 control panels only. VS2 panels are Class A ready. The SA-CLA is installed directly to the control panel circuit board using its plastic standoffs and plug connection.

SA-CLA wiring
Class A card installed on main circuit board

SA-CLA specifications

Operating voltage	24 VFWR
Operating current	2.5 A/circuit, 3.75A total (115/230 60hz) 3.0A total (230v 50hz)
Circuit impedance	26 Ω, 0.35 µF, max
Terminal rating	12 to18 AWG (0.75 to 2.5 sq mm)
Operating environment Temperature Humidity	32 to 120°F (0 to 49°C) 0 to 93% RH, noncondensing at 90°F (32°C)

SA-ETH Ethernet Interface Card

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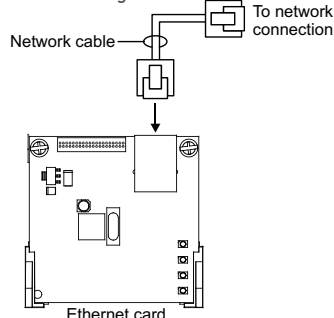
The SA-ETH card provides a standard 10/100 Base T Ethernet network connection for connecting to an intranet, a local network, or the Internet. The card can be used to download configuration programming from the VS-CU to the panel over the network.

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 Humidity	32 to 120°F (0 to 49°C) 0 to 93% RH, noncondensing at 90°F (32°C)

SA-232 RS-232 interface

The SA-232 card provides an RS-232 interface with V-Series 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 VS-CU to the control panel.


SA-232 wiring
GND (black wire)
TXD (white wire)
RXD (red wire)
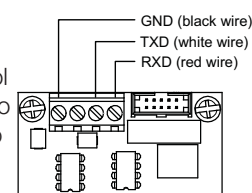
The RS-232 card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-232 specifications

Operating voltage	Standard EIA-232
Terminal rating	12 to18 AWG (0.75 to 2.5 sq mm)
Operating environment Temperature Humidity	32 to 120°F (0 to 49°C) 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.
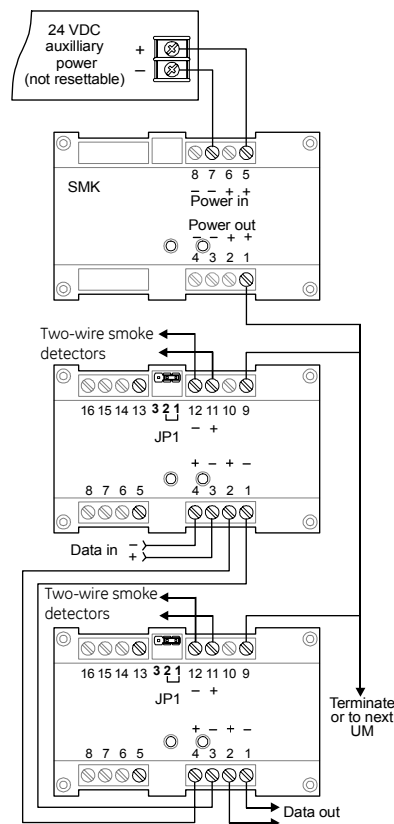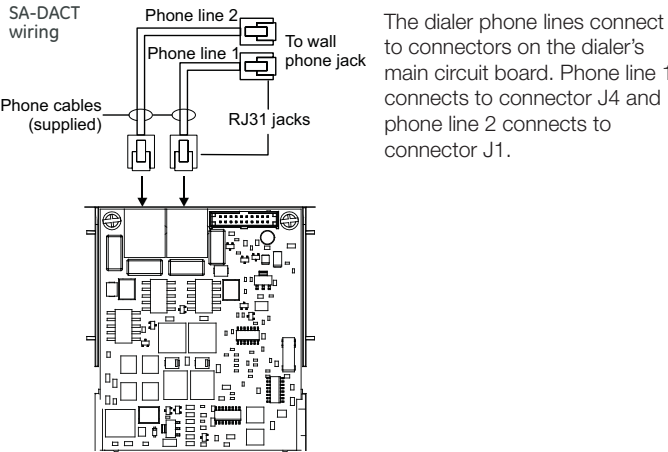

SMK specifications

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-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 VS-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

GSA-REL Releasing Module

The GSA-REL is an analog addressable module that communicates directly with the fire alarm panel Signature loop controller. The GSA-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.
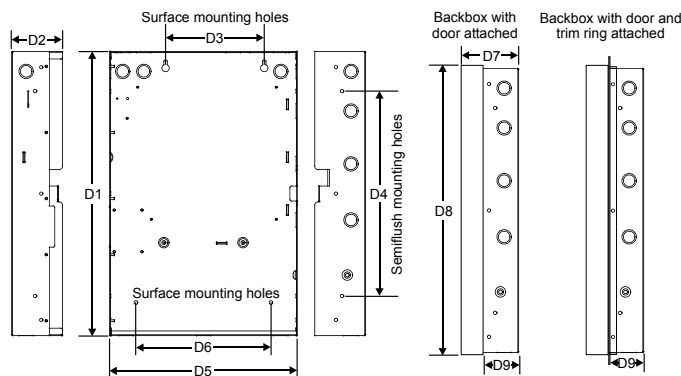
GSA-REL specifications

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.
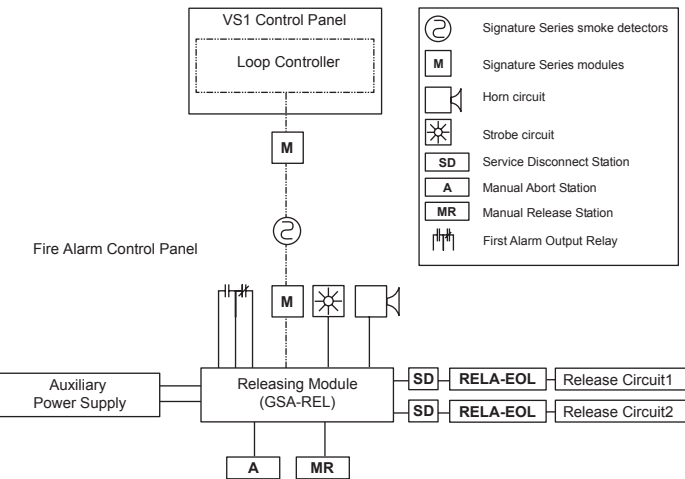
For detailed specification and ordering information on the GSA-REL, refer to Data Sheet M85001-0531 -- Releasing Module.

Dimensions

Backbox and backbox with door

D1 [1]	D2	D3	D4	D5 [1]	D6	D7	D8	D9
21.50 in.	3.85 in.	7.5 in.	15.50in.	14.25in.	10.25 in.	3.9 in.	21.7 in.	2.7 in.
54.6 cm	9.8 cm	19 cm	39.4 cm	36.2 cm	26 cm	9.9 cm	55.1 cm	6.8 cm

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

Backbox and backbox with door
Canadian Models VS1-GL and VS1-GL-F only

D1 [1]	D2	D3	D4	D5 [1]	D6	D7	D8	D9
28.0 in.	3.85 in.	9.0 in.	22.0 in.	15.75in.	10.25in.	3.9 in.	28.2 in.	2.7 in.
71.1 cm	9.8 cm	22.8 cm	55.8 cm	40.0 cm	26.0 cm	9.9 cm	71.6 cm	6.8 cm

[1] Add 1-1/2 in. 3.81 cm to D1 and D5 dimensions for trim kit.

Specifications

Device loops	1 loop Class B, Class A, supporting up to 64 device addresses
NAC circuits	2 Class B, Class A optional, 2.5 amps each
Power supply	3.75 A FWR total at 120/230 VAC 60 Hz, 3.0 A FWR total at 230 VAC 50 Hz 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 operating voltage
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 GSA-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	Standby: 155 mA Alarm: 204 mA
Panel History Log	1,000 events.

Battery placement	VS1 cabinets accommodate up to 10 A/H batteries. Use an external cabinet for larger battery sizes.
Batteries	Batteries must be sealed lead acid type only. Maximum charging capacity = 26 Ah.
SLC circuit	Maximum loop resistance: 66 Ω. Maximum loop capacitance: 0.5 µF. Style 4, 6, and 7 wiring. 64 isolators maximum
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	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 B, Class A optional
Input zones	16 max.
Agency Listing	UL864, UL2017, CSFM, ULC and NYFD COE#6020, FM Approved

Ordering Information

Part	Description
VS1 Intelligent Single Loop Systems, 64 analog point capacity	
VS1-R	1 Loop System, 2 Class B NACs, red door, surface mount enclosure, 115 Vac, English.
VS1-RD	1 Loop System, 2 Class B NACs, 2 Line Dialer, Red Door, surface mount enclosure, 115 Vac, English.
VS1-G	1 Loop System, 2 Class B NACs, Silver door, surface mount enclosure, 115 Vac, English.
VS1-GD	1 Loop System, 2 Class B NACs, 2 Line Dialer, Silver door, surface mount enclosure, 115 Vac, English.
VS1-GL [1]	1 Loop System, 2 Class B NACs, 16 zone LED display, Silver door, surface mount enclosure, 115 Vac, English.
VS1-GL-F [1]	1 Loop System, 2 Class B NACs, 16 zone LED display, Silver door, surface mount enclosure, 115 Vac, French.
VS1-G-2 [2]	1 Loop System, 2 Class B NACs, Silver door, surface mount enclosure, 230vac transformer, English
VS1-R-2 [2]	1 Loop System, 2 Class B NACs, Red door, surface mount enclosure, 230 Vac, English
VS1-G-SP [2]	1 Loop System, 2 Class B NACs, Red Door, surface mount enclosure, 115 Vac, Spanish.
VS1-G-2-SP [2]	1 Loop System, 2 Class B NACs, Red door, surface mount enclosure, 230 Vac, Spanish
VS1-G-PG [2]	1 Loop System, 2 Class B NACs, Red Door, surface mount enclosure, 115 Vac, Portuguese.

Part	Description
VS1-G-2-PG [2]	1 Loop System, 2 Class B NACs, Red door, surface mount enclosure, 230 Vac, Portuguese
SA-TRIM1	Flush mount trim, black, small enclosure
SA-TRIM2	Flush mount trim, black, large enclosure

Replacement Electronics	
64elec-VS	Replacement electronics kit, complete motherboard and user interface, English
64elec-VS-Fr [1]	Replacement electronics kit, complete motherboard and user interface, French
64elec-VS-Pg [2]	Replacement electronics kit, complete motherboard and user interface, Portuguese
64elec-VS-SP [2]	Replacement electronics kit, complete motherboard and user interface, Spanish

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
SA-CLA	Class A adapter module. Provides Class A capacity on NACs. Mounts in cabinet on main board.

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. Off-white 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. Off-white housing.
RLCD-CR	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Red housing.
RLCDF [1]	Remote Annunciator, 4X20 LCD & Common Indicators for displaying system status. Off-white housing. French.
RLCD-CF [1]	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Off-white housing. French.
RLCD-SP [2]	Remote Annunciator, 4X20 LCD. Common system status indicators. Off-white housing. Spanish.
RLCD-PG [2]	Remote Annunciator, 4X20 LCD. Common system status indicators. Off-white housing. Portuguese.
RLCD-C-SP [2]	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Off-white housing. Spanish.
RLCD-C-PG [2]	Remote Annunciator, 4X20 LCD. Common controls and status indicators. Off-white housing. Portuguese.

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. Off-white housing.
RLED-CR	Remote Annunciator. Common controls and status indicators with 16 X 2-LED groups for zone display. Red housing.
RLED-CF [1]	Remote Annunciator. Common controls and status indicators with 16 X 2-LED groups for zone display. Off-white housing, French.
RLED-C-SP [2]	Remote Annunciator, common controls and status indicators. 16 groups w/2 LEDs each for zone display. Off-white housing. Spanish.
RLED-C-PG [2]	Remote Annunciator, common controls and status indicators. 16 groups w/2 LEDs each for zone display. Off-white housing. Portuguese.
RLED24	Remote Annunciator Zone expander. 24 X 2-LED groups with custom label areas for display of alarm and trouble. Off-white 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.

Graphic Annunciator Drivers (comes with a snap track for mounting in custom graphic enclosures)

GCI	Provides outputs for common indicators and 32 alarm/supv zones as well as inputs for common switches.

Programming Tools

VS-CU	Vigilant VS Series configuration and diagnostics utility.
260097	RS232 cable, 4 conductor, DB9 PC interface

Notes: [1] Available in Canada only.   [2] Available in international markets only.

Part Number	Description	Ship wt.
Analog Addressable Detectors and Bases		
V-PHS	Intelligent Analog Optical/Fixed Temperature Detector	0.25 (0.11)
V-PS	Intelligent Analog Optical Smoke Detector	0.25 (0.11)
V-HRD	Intelligent Analog Rate-of-Rise Heat Detector	0.25 (0.11)
V-HFD	Intelligent Analog Fixed Temperature Heat Detector	0.25 (0.11)
V-PCOS	Intelligent Photoelectric Detector with carbon monoxide sensor	0.4 (0.16)
GSA-SBT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
GSA-SD	Intelligent Analog Duct Detector	2.4 (1.1)
B4U	Standard Base	0.11 (0.05)
RB4U	Relay Detector Base	0.11 (0.05)
IB4U	Isolator Detector Base	0.11 (0.05)
SB4U	Audible (Sounder) Detector Base	0.11 (0.05)

Part Number	Description	Ship wt.
AB4G-SB	Surface Box for Audible Base	1.0 (0.45)
RLED	Remote alarm LED, use with standard base only	0.2 (.09)
System Accessories		
CTM	City Tie Module. Mounts in 2-gang electric box. Provides connection to a local energy fire alarm box.	0.6 (0.3)
BC-1	Battery Cabinet. 14.0" x 18.25" x 7.25" Free-standing cabinet with key lock. Supports up to 40 Ah batteries. Holds up to 2 12V24A batteries.	50.0 (22.7)
BC-1R	Battery Cabinet - Red. 14.0" x 18.25" x 7.25" Free standing cabinet with key lock. Supports up to 40 Ah batteries. Holds up to 2 12V24A batteries.	50.0 (22.7)
BC-1EQ	Seismic hardening Kit for VS series panels. Includes battery hardening for BC-1 enclosure and components to harden panel internal components. See note.	
IOP3A	Isolator Module - RS232. For use with short haul modems.	1.61 (0.7)
RPM	Reverse Polarity Module	3.0 (1.36)

Part Number	Description	Ship wt.
MFC-A	Multifunction Fire Cabinet, 8" x 14" x 3.5" - RED.	20.6 (9.4)
MIR-PRT/S	System Printer - Desktop style.	36.6 (16.6)

Analog Addressable Modules

Part Number	Description	Ship wt.
GSA-CC1	Single Input Signal Module (Standard Mount)	0.5 (0.23)
GSA-MCC1	Single Input Signal Module (UIO Mount)	0.18 (0.08)
GSA-CC1S	Synchronization Output Module (Standard Mount)	0.5 (0.23)
GSA-MCC1S	Synchronization Output Module (UIO Mount)	0.18 (0.08)
GSA-T3T4	Temporal Pattern Generator	0.2 (0.1)
GSA-CC2	Dual Input Signal Module (Standard Mount)	0.5 (0.23)
GSA-MCC2	Dual Input Signal Module (UIO Mount)	0.18 (0.08)
GSA-CR	Control Relay Module (Standard Mount)	0.4 (0.15)
GSA-MCR	Control Relay Module (UIO Mount)	0.18 (0.08)
GSA-CRR	Polarity Reversal Relay Module (Standard Mount)	0.4 (0.15)
GSA-MCRR	Polarity Reversal Relay Module (UIO Mount)	0.18 (0.08)
GSA-RM1	Riser Monitor Module (Standard Mount)	0.5 (0.23)
GSA-MRM1	Riser Monitor Module (Plug-in)	0.18 (0.08)
GSA-IO	Input/Output Module (Standard Mount)	0.34 (0.15)
GSA-MIO	Input/Output Module (Plug-in)	0.22 (0.10)
GSA-CT1	Single Input Module	0.4 (0.15)
GSA-CT2	Dual Input Module	0.4 (0.15)
GSA-MCT2	Dual Input Plug-in (UIO) Module	0.1 (0.05)
GSA-IM	Fault Isolator Module	0.5 (0.23)
GSA-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)
GSA-MM1	Monitor Module	0.4 (0.15)
GSA-WTM	Waterflow/Tamper Module	0.4 (0.15)
SMK	Smoke Power Converter Module	0.4 (0.15)

Note:
For earthquake anchorage, including detailed mounting weights and center of gravity detail, please refer to Seismic Application Guide 3101987-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 aand BC-1EQ separately.

DATA SHEET M85005-0131
Not to be used for installation purposes.   Issue 6.1

11-04-14

B444 Conettix Plug-in 4G LTE Cellular Communicator

www.boschsecurity.com

BOSCH
Invented for life
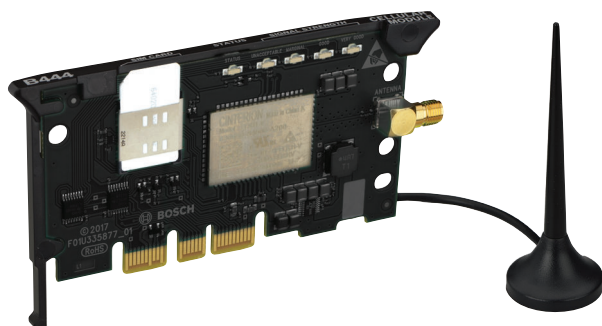
▶ Secure Conettix IP communication from compatible Bosch panels to Bosch receivers using Verizon 4G LTE cellular network

▶ Remote programming and monitoring of compatible Bosch panels

▶ Personal SMS message and e-mail notification options

▶ Direct configuration from Bosch Remote Programming Software (RPS) eliminating the need for separate configuration

▶ Simple LED status information and advanced keypad diagnostics available with easy 2 step plug-in installation, troubleshooting, and maintenance

The cellular communicator enables secure two-way IP communication over the Verizon 4G LTE cellular network by plugging into a compatible control panel or communicator interface.
Typical applications are:

- Alarm reporting to a central station
- Remote control panel programming through Remote Programming Software with supported control panels
- Remote monitoring and control through a mobile application with supported control panels
- Personal notification using SMS for compatible control panels

ℹ **Notice**

Cellular capability requires an Installer Services account and appropriate data plan.

System overview
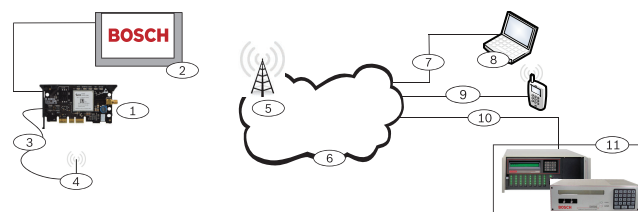
Callout — Description	Callout — Description
1 — Cellular communicator	7 — Remote PC's network connection
2 — Compatible control panel	8 — Remote PC running RPS
3 — Antenna cable	9 — Personal SMS notification
4 — Magnetic base antenna	10 — Ethernet connection

5 — Base station on wireless carrier's network	11 — Central monitoring station	
6 — IP network cloud		

Functions

Activation
The B444 module is shipped pre-activated.
The B444-C module needs to be activated. Activate the module by emailing: installer.services@us.bosch.com, or by call Bosch Installer Services at: 800-289-0096, option 6.

Conettix IP communication via Cellular
In addition to the security provided by the network operator, the cellular communicator uses our Conettix IP protocol that supports:
- Flexible polling intervals
- Resistance to Denial of Service attacks
- 128-bit to 256-bit AES encryption with Cypher Block Chaining
- Anti-replay/anti-substitution keys

Easy Installation, troubleshooting, and maintenance
- No networking expertise required at field site (no firewall or router settings)
- No PC or special tools required for installation and troubleshooting
- Service plans and settings managed through RPS
- Diagnostic LEDs for on-site troubleshooting

LED	Function
Blue (heartbeat)	System status indicator
Red	Unacceptable signal strength
Yellow	Marginal signal strength
1 Green	Good signal strength
2 Green	Very good signal strength

Remote programming of Bosch control panels
The cellular communicator supports secure RPS programming of compatible Bosch control panels.

Personal notification and control
The cellular communicator supports the Bosch Remote Security Control mobile application and can be configured for SMS personal notification reports to mobile phones or e-mail addresses.

Remote Connect Service Support
Remote Connect Service enables a secure control panel connection to remote programming software (RPS) using Bosch Cloud services. The service allows a secure TLS connection to a control panel without specific port and router settings and without a static IP or DNS.

Certifications and approvals

Region	Certification	
USA	Verizon	Open Development Certified

Region	Regulatory compliance/quality marks	
USA	UL	UL 864 - Standard for Control Units and Accessories for Fire Alarm Systems
	UL	UL 1076 - Proprietary Burglar Alarm Units and Systems
	UL	UL 1610 - Central Station Burglar Alarm Units
	UL	UL 365 - Police Station Connected Burglar Alarm Units
	UL	UL 609 - Standard for Local Burglar Alarm Units and Systems
	UL	UL 636 - Holdup Alarm Units and Systems
	UL	UL 985 - Household Fire Warning System Units
	UL	UL 1023 - Household Burglar Alarm System Units
	CSFM	see www.boschsecurity.com (the Bosch website)
	FCC	Part 15 Class B
Canada	ULC	S1871-20121210

Installation/configuration notes

Mounting considerations
The module plugs into any compatible control panel, available in a variety of enclosures.
Wiring considerations
The module connects to any compatible control panel without tools or physical wiring for power. When used with the B450, the B450 is wired to the control panel data bus. The cellular module has a screw on SMA antenna connection.
Compatibilities

Devices	B9512G/B9512G-E, B8512G/B8512G-E B6512 B6512/B5512/B4512/B3512, B5512E/B4512E/B3512E control panel with firmware v3.05 or higher (direct insertion) The module is compatible with most Bosch control panels when used with a B450 Conettix Plug-in Communicator Interface with firmware v3.05 or higher. Refer to the B450 datasheet for complete control panel compatibility listings. B465 Conettix Universal Dual Path Communicator with firmware v2.0 or higher. B40 antennas
Cellular	4G LTE - Cat 1

Commercial Fire and Burglary applications

Approved for Commercial Fire/Burglary applications as sole, primary, or secondary communications path when the system is installed to the NFPA-72 specification

Technical specifications

Electrical

Current (operating)	Standby: 35 mA Alarm: 100 mA
Voltage (operating)	12 VDC nominal
Radio	Verizon LTE CAT 1 Band 4 and 13

Environmental

Environment	Environmental Class III - Indoor
Relative humidity	5 - 93% at +32℃ (+90℉) non-condensing
Operating temperature	0℃ to +49℃ (+32℉ to +120℉)

Mechanical

Board dimensions	2 in x 3.68 in x 0.60 in (50 mm x 93.5 mm x 15.25 mm)
Antenna (included)	• Magnetic base omni-directional • 8.2 ft (2.5 m) cable with SMA connector

Ordering information

B444 Conettix Plug-in 4G LTE Cellular Communicator
Pre-activated 4G LTE cellular communicator for secure two-way IP communication on the Verizon Wireless LTE network.
Order number **B444**

B40-P Outdoor puck antenna, cell, 6.5ft
Omnidirectional, low profile antenna for metallic indoor/outdoor surface mounting. Supports LTE, and 2G/3G/4G data communication. Operates over 698-960 MHz and 1710-2170 MHz bands.
Order number **B40-P**

B40-MB50 Outdoor multiband antenna, cell, 50ft
Provides wide bandwidth and low angle radiation pattern for indoor/outdoor applications. Supports 2G/3G/4G data communication, Domestic (US) LTE 700 band, Global LTE 2600 band, Domestic (US) Cellular, Global GSM, and WiMAX 2300/2500/2600 bands. Includes a 50 ft (15.2 m) cable, and a mounting bracket.
Order number **B40-MB50**

B40-MB25 Outdoor multiband antenna, cell, 25ft
Provides wide bandwidth and low angle radiation pattern for indoor/outdoor applications. Supports 2G/3G/4G data communication, Domestic (US) LTE 700 band, Global LTE 2600 band, Domestic (US) Cellular, Global GSM, and WiMAX 2300/2500/2600 bands. Includes a 25 ft (7.6 m) cable, and a mounting bracket.
Order number **B40-MB25**

B444-C Plug-in cell module, VZW LTE, cold
Non-activated 4G LTE cellular communicator for secure two-way IP communication on the Verizon Wireless LTE network.
Order number **B444-C**

B465 Universal Dual Path Communicator

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BOSCH

Invented for life

▶ Compatible with any control panel using Contact ID, SIA, Pulse 3/1 or Pulse 4/2 communication formats (auto detecting)

▶ No control panel reprogramming required to install

▶ Supports Ethernet directly and optional plug-in cellular communication technologies in single, or multi-path configurations

▶ Supports four configurable inputs and three configurable outputs

▶ Approved for Commercial Fire/Burglary applications as sole, primary, or secondary communication path

The B465 Conettix Universal Dual Path Communicator converts the Public Switch Telephone Network (PSTN) digital dialer, or dry contact outputs from an intrusion/fire control panel to an IP signal for transmission over the Ethernet or cellular network. The B465 Conettix Universal Dual Path Communicator is UL 864 10th Edition approved per NFPA 72 version 2013.
The module can use its built-in Ethernet connection, and/or an optional Conettix plug-in cellular module (B440/B441/B442/B443) to send reports to the central station receiver.
Automation programming for the supported control panel remains unchanged with the installation of the B465 module, thus simplifying the installation process This allows for a smooth transition from the PSTN realm into IP. All messages generated internally by the B465 are shown in Contact ID format at the central station.
The module can be powered from a 16.5 VAC transformer or 24 VDC power supply.

System overview

The B465 simulates dial tone and line voltages when the digital dialer has a report to send. The module simulates a PSTN connection to the central station. The module decodes the control panel's PSTN dialer report and sends the decoded reports by IP connection using Bosch's Conettix Protocol to the Conettix D6600, D6100IPv6, or D6100i Communication Gateway/Receiver (referred to as the receiver). When the receiver acknowledges receipt of the message, it sends an acknowledgement report to the module which in turn sends an acknowledgement to the connected control panel. This process maintains true end-to-end security.

Callout — Description
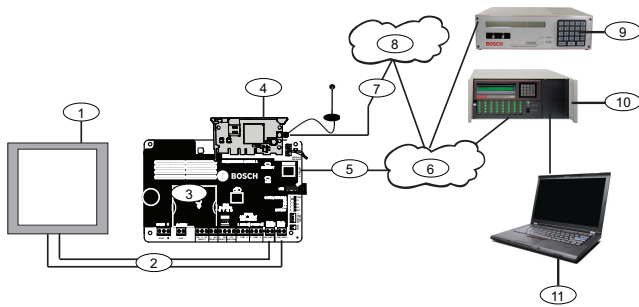
Callout — Description
1 — Intrusion/fire control panel
2 — Control panel phone line connections
3 — B465 Conettix Universal Dual Path Communicator
4 — B44x plug-in cellular communicator
5 — Ethernet connection (LAN/WAN)
6 — Internet
7 — Cellular communication to cellular carrier
8 — Cellular carrier network
9 — Conettix receiver/gateway
10 — Conettix receiver/gateway
11 — Monitoring center automation

Functions

PSTN inputs (2)

When the control panel's PSTN dialer sends a message, the module simulates a PSTN connection to the central station. The module connects to the host control panel through either one or both of the Phone Line inputs. Both Panel Line 1 and Panel Line 2 of the module run 28 VDC and support Contact ID (4 and 10 digit account codes), Pulse 3/1, Pulse 4/2, and SIA communication formats. The B465 is setup to auto detect the communication format which eliminates programming steps.

IP Communication options

The module uses the on-board Ethernet connector, and/or optional B440 Conettix Plug-in Communicator, Cellular (3G), B441 Conettix Plug-in CDMA Cellular Communicator, B442 Conettix Plug-in GPRS Cellular Communicator, or B443 Conettix Plug-in HSPA+ Cellular Communicator to communicate with a Conettix D6600, Conettix D6100i or a Conettix D6100IPv6 Communications Receiver/Gateway. Using Conettix IP communication protocol offers a secure path that includes anti-replay/anti-substitution features and provides enhanced security with up to AES 256-bit encryption.

The module supports Domain Name System (DNS) for central station communication. DNS provides ease of use, eliminating the need to use static IP addresses as your reporting destination, and accommodates a simple solution for central station disaster recovery.

Direct wire inputs

The B465 provides four on-board inputs. Each input functions independently and does not interfere with the operation of the others. The module monitors the input loops for normal, shorted, or open conditions between an input terminal and any of the input common terminals. Inputs are disabled by default so no EOL resistors are required until activated.

These four inputs on the B465 connect to dry contact outputs on the control panel and generate Contact ID reports instead of using a phone line connection/or in addition to using the control panel phone connection. The available functions are:

- Panel System Trouble
- Panel AC Fail
- Panel Battery Trouble
- Fire Alarm
- Fire Trouble
- Burg Alarm
- Burg Trouble
- Fire Supervisory

Each input allows the use of dry contacts or powered outputs up to 30 VDC if needed. The inputs use 2.2K EOLs to monitor the dry contact outputs when connected to dry contacts. The inputs recognize the following thresholds when using dry contacts: 2.0 to 3.0 VDC = Normal, 3.7 to 5.0 VDC = Open, 0.0 to 1.3 VDC = Short.

Outputs

Includes three programmable output relays rated at 30 VDC, 0.1 A. These outputs can be used to show the status of the B465 or they can be connected to the control panel zone inputs for reporting B465 system faults. The three outputs consist of RELAY 1, RELAY 2, and RELAY 3.

- RELAY 1 is active (energized) once the B465 is running. If the B465 detect a problem or loses power, RELAY 1 de-energizes, which can be used to indicate a system trouble on the local control panel's zone inputs, if required. Depending on the configuration required to create a system trouble on the control panel, the installer needs to use either the NO and COM or the NC and COM connections. Refer to the control panel manual for the required zone configuration to obtain the proper input response.
- RELAY 2 is a normally open (NO) relay with contacts that close when the desired function programmed is detected.
- RELAY 3 is a normally open (NO) relay with contacts that close when the desired function programmed is detected.

Input power supply

The B465 uses a 16.5 VAC transformer or 24 VDC voltage for its primary power source. The approved transformers are the D1640 plug-in transformer, D1640-CA plug-in transformer, or D1640-120WI transformer. The B465 can optionally be powered from 24 VDC power source applied to the AC terminals.

B465 modular connections

The B465 module has three modular connections.

- **Cellular plug-in connector.** Connects to a cellular communication module.
- **Tamper connector.** Connects the ICP-EZTS Dual Tamper Switch for monitoring the enclosure cover.
- **External Annunciator connector.** Connects to the optional B46 module.

On-board LED Indicators

The B465 has a total of ten on-board LEDs that indicate the module's status (SYSTEM TROUBLE, TX, RX, POWER, BATTERY, HEARTBEAT, Panel Line 1 (ACT),Panel Line 2 (ACT), 100BASE-T and ETHERNET LINK).

B46 External Annunciator (Optional)

The B46 is an optional module that provides external module LED and sounder status when installed in a supported enclosure. The module has 3 LEDs (System Trouble, Power, and Battery) which illuminate through the B46 LED cover. The LED cover snaps into a knockout in the enclosure door.

The B46 is compatible with the B10, B10R, B11, B11R, and D8103 enclosures.

Certifications and approvals

Region	
USA	UL 365 - Police Station Connected Burglar Alarm Units and Systems
	UL 609 - Local Burglar Alarm Units and Systems
	UL 636 - Holdup Alarm Units and Systems
	UL 864 - Control Units and Accessories for Fire Alarm Systems (Commercial Fire)
	UL 985 - Household Fire Warning System Units
	UL 1023 - Household Burglar Alarm System Units
	UL 1076 - Proprietary Burglar Alarm Units and Systems
	UL 1610 - Central Station Burglar Alarm Units
	NIST FIPS 197 AES Certification (IP Communications)
	CSFM approved
	FCC Part 15 Class B
Canada	CAN/ULC S303 - Local Burglar Alarm Units and Systems
	CAN/ULC S304 - Signal Receiving Centre and Premise
	CAN/ULC S545 - Residential Fire Warning System Control

	ICES-003 - Information Technology Equipment (ITE)
	ULC-ORD C1023 - Household Burglar Alarm System Units
	ULC-ORD C1076 - Proprietary Burglar Alarm Units and System

Region	Certification	
USA	UL	20150807-S1871
	CSFM	7300-1615:0253
	FDNY-CoA	6214

Parts included

Quantity	Component
1	B465 Conettix Universal Dual Path Communicator
1	Hardware pack
1	Quick Start Guide (hardcopy)
1	Wiring label (hardcopy)
1	Literature (mini-CD)

Technical specifications

Properties

Dimensions	4.40 in x 6.90 in x 1.50 in (111 mm x 175 mm x 38 mm)

Environmental considerations

Relative humidity	5% to 93% at +32℃ (+90℉)
Temperature (operating)	0℃ to +49℃ (+32℉ to +120℉)
Operational use	Indoor use only

Power requirements

Standby battery current	Battery input: B465: Idle 150 mA; Alarm 230 mA
24 VDC input current	24 VDC input: B465: Idle 120 mA; Alarm 160 mA

Wiring

Terminal wire size	12 AWG to 22 AWG (2.0 mm to 0.65 mm)
Transformer secondary wiring length	15 m (50 ft) maximum unshielded wire
Control panel phone line wiring	100 Ω loop resistance, maximum unshielded wire

Input loop wiring	100 Ω loop resistance, maximum unshielded wire
Ethernet wiring	100 m (328 ft) maximum using Cat 5 wire or better

Compatibility

Compatible PSTN input formats	Ademco Contact ID (SIA DC-05) +10 digit account codes Pulse 3/1, 3/1 Checksum (2300 Hz ACK Tone) Pulse 3/1, 3/1 Checksum (1400 Hz ACK Tone) Pulse 4/2 (2300 Hz ACK Tone) Pulse 4/2 (1400 Hz ACK Tone) SIA (SIA8, SIA20) – 110 and 300 baud
Receivers	D6600 D6100i D6100IPv6
Cellular	B440 Conettix Plug-in Communicator, Cellular (3G) B441 Conettix Plug-in CDMA Cellular Communicator B442 Conettix Plug-in GPRS Cellular Communicator B443 Conettix Plug-in HSPA+ Cellular Communicator
Modules	B46 External Annunciator
Enclosures	B10 Medium Control Panel Enclosure B10R Medium Control Panel Enclosure (Red) B11 Small Control Panel Enclosure B11R Small Control Panel Enclosure (Red) D8103 Universal Enclosure D8108A Attack Resistant Enclosure
Transformers	D1640 transformer 120 VAC input, 16.5 VAC, 40 VA output plug-in D1640-CA transformer 120 VAC input, 16.5 VAC, 40 VA output plug-in D1640-120WI transformer 120 VAC input, 16.5 VAC, 40 VA output wired in

Ordering information

B465 Universal Dual Path Communicator
Compatible with control panels using a standard digital dialer format. Provides end-to-end security. Allows digital dialer control panels to work over an IP network (such as LAN, WAN, or the Internet).
Order number **B465**

Accessories

B46 External Annunciator
An optional module that uses audio and LEDs to show System Trouble, Power, and Battery status through a knockout on select enclosure doors
Order number **B46**

B10 Medium Control Panel Enclosure
White, steel enclosure. Accepts an optional lock and tamper switch. Measures 35.6 cm x 31.8 cm x 7.6 cm (14 in x 12.5 in x 3 in).
Order number **B10**

B10R Medium Control Panel Enclosure (Red)
Red, steel enclosure. Accepts an optional lock and tamper switch.
Order number **B10R**

B11 Small Control Panel Enclosure
White, steel enclosure. Accepts an optional lock and tamper switch. Measures 27.8 cm x 25.9 cm x 8.32 cm (10.9 in x 10.2 in x 3.3 in).
Order number **B11**

B11R Small Control Panel Enclosure (Red)
Red, steel enclosure. Accepts an optional lock and tamper switch. Measures 27.8 cm x 25.9 cm x 8.32 cm (10.9 in x 10.2 in x 3.3 in).
Order number **B11R**

D8103 Enclosure
Grey steel enclosure measuring 41 cm x 41 cm x 9 cm (16 in. x 16 in. x 3.5 in.).
Order number **D8103**

D8108A Attack Resistant Enclosure
Grey steel enclosure measuring 41 cm x 41 cm x 9 cm (16 in. x 16 in. x 3.5 in.). UL Listed. Includes lock and key set. B520, B4512, and B5512 require the B12 mounting plate.
Order number **D8108A**

B12 Mounting Plate for D8103 Enclosure
Required for mounting select control panels and other devices in D8103, D8108A, D8109, or BATB Battery Box enclosures.
Order number **B12**

D101 Lock and Key Set
Short-body lock set with one key supplied. Uses the D102 (#1358) replacement key.
Order number **D101**

ICP-EZTS Dual Tamper Switch
Combination tamper switch with a wire loop for additional tamper outputs.
Order number **ICP-EZTS**

D1640 Transformer
System transformer rated at 16.5 VAC, 40 VA.
Order number **D1640**

D1640-CA Transformer
For use in Canada. System transformer rated at 16.5 VAC, 40 VA.
Order number **D1640-CA**

B440 Conettix Plug-in Cellular Communicator
Dual technology 3G EVDO/CDMA cellular
communicator for secure two-way IP communication
on the Verizon Wireless network.
Order number **B440**

B441 Conettix Plug-in Cellular Communicator
Multi-function CDMA cellular communicator for secure
two-way IP communication on the Verizon Wireless
network.
Order number **B441**

B442 Conettix Plug-in GPRS Cellular Communicator
Multi-function cellular communicator that provides IP
communication over a (GPRS) cellular network.
Order number **B442**

B443 Conettix Plug-in HSPA+ Cellular Communicator
Multi-function 3G/4G cellular communicator providing
IP communication over a GPRS/EDGE/UMTS/HSPA+
cellular network.
Order number **B443**

R-Series Remote Annunciators
RLCD, RLCD-C, RLED, RLED-C, RLED24, GCI

Technology that saves lives

FDNY COA 6020   7120-1657: 0254   S3424

Overview

Kidde R-Series Annunciators are high-performance remote annunciators that provide status indication and common controls for compatible fire alarm control panels. 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 annunciator 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 receives 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
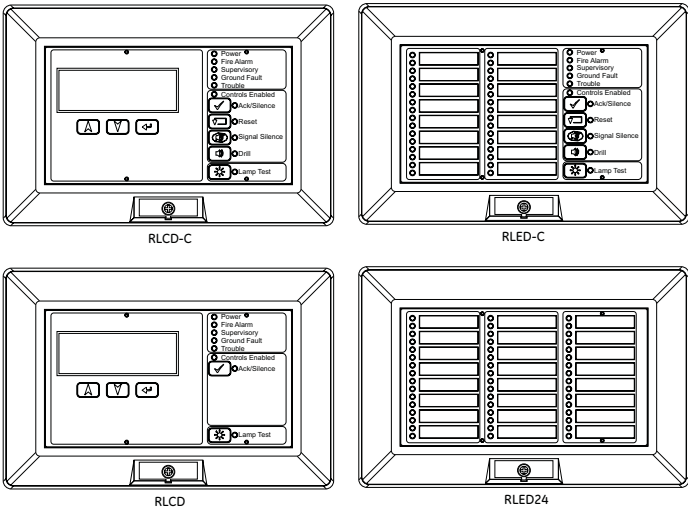
RLED-C

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 FX-64 and VS1
** zones 13-16 and 29-32 may be selected as Supervisory on FX-1000 and VS4

Graphic Annunciator 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

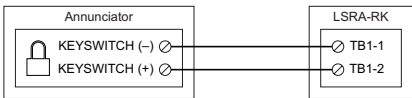|	
Alarm current	146 mA at 24 Vdc (with 36 LEDs ON)
Standby current	36 mA at 24 Vdc (with no LEDs ON)
Maximum current	10 mA per LED

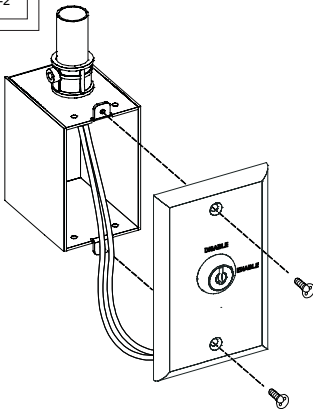## Annunciator Wiring

Annunciator, Class A
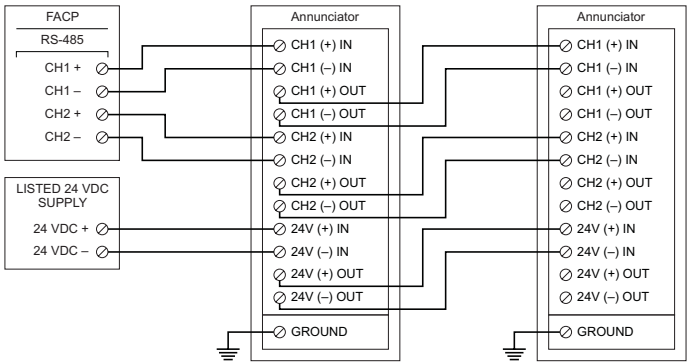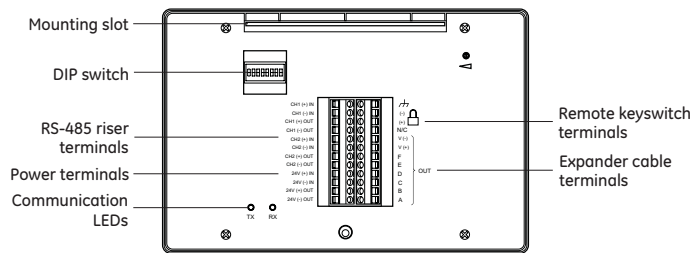

Annunciator, Class B
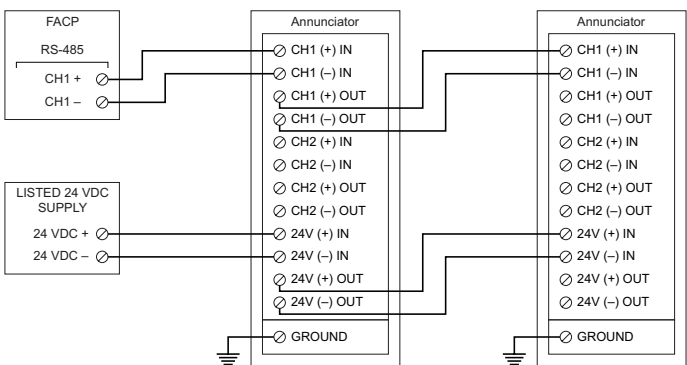
Expander
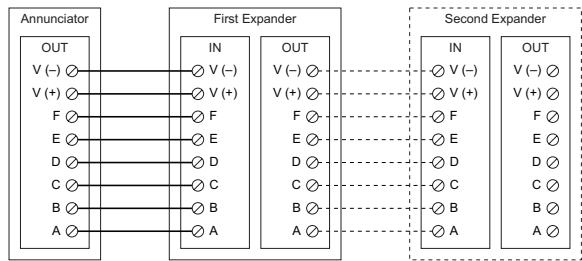
Remote Keyswitch

Keyswitch Specifications

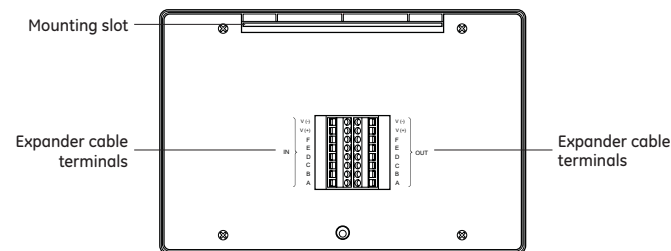|	
Maximum voltage	5 Vdc
Maximum current	200 mA
Mounting	2-1/2 in (64 mm) deep 1-gang box
Termination	Screw terminals
Maximum wire size	12 AWG (2.5 mm sq)
Contact configuration	Normally open

Annunciator Connections

Annunciator

Mounting slot

DIP switch

RS-485 riser terminals

Power terminals

Communication LEDs

Remote keyswitch terminals

Expander cable terminals

Expander

Mounting slot

Expander cable terminals

Expander cable terminals

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   RS-485 RISER

EXPANDER CABLE

MOUNTING RING

EXPANDER   ELECTRICAL BOX
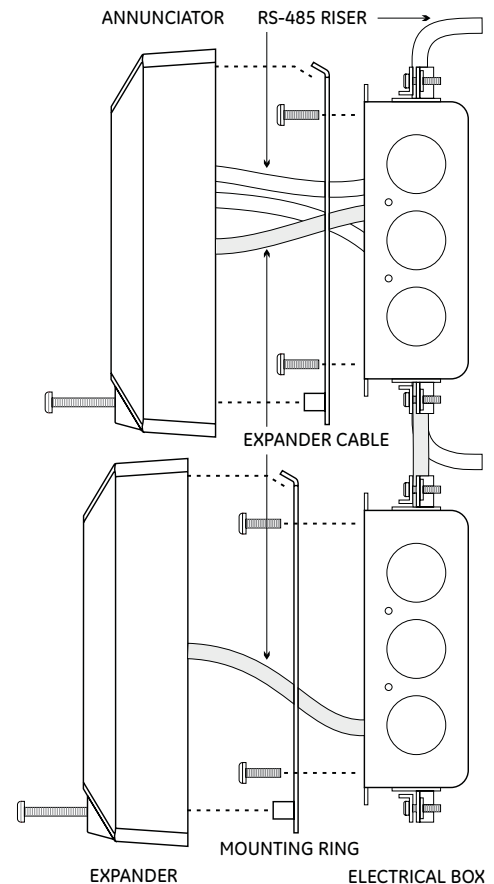
Annunciator Enclosures

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.

RA-ENC1

RA-ENC2

RA-ENC3

6.0 in
15.2 cm

H

0.9 in
2.3 cm

9.5 in
24.1 cm

9.8 in
24.9 cm
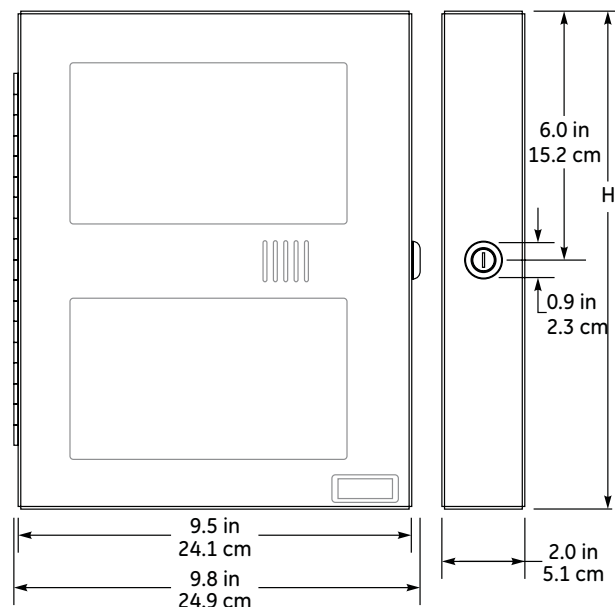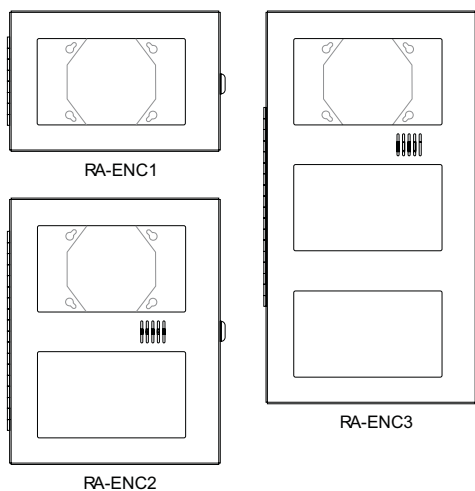
2.0 in
5.1 cm

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.

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	
K-RLCD	LCD text annunciator without common controls. English.
K-RLCD-R	LCD text annunciator without common controls. English. Red.
K-RLCDF	LCD text annunciator without common controls. French.
K-RLCD-C	LCD text annunciator with common controls. English.
K-RLCD-CR	LCD text annunciator with common controls. English. Red.
K-RLCD-CF	LCD text annunciator with common controls. French.
K-RLED-C	16-pair LED zone annunciator with common controls. English.
K-RLED-CR	16-pair LED zone annunciator with common controls. English. Red.
K-RLED-CF	16-pair LED zone annunciator with common controls. French.
Remote Expanders	
K-RLED24	24-pair LED zone expander with expander cable and zone card insert.
K-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-MIR-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 common controls (Lock/Unlock).
27193-16	Electrical box, surface mount, white, single-gang, for RKEY.

DATA SHEET **K85005-0128**
Not to be used for installation purposes. **Issue 1**

10-11-16

Kidde

Technology that saves lives

Intelligent Smoke Detector

KI-OSD

FM APPROVED 7272-1657: 0511 UL CERTIFIED SAFETY SIGNALING 60 S853 Helps Reduce Cooking Nuisance Alarms UL 268 7th Ed.

Overview

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

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

Standard Features

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

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

DATA SHEET **K85001-1001**
Not to be used for installation purposes. **Issue 1**

Application

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

Compatibility

The KI-OSD detector is compatible only with control panels using a Kidde Intelligent Loop controller.

Installation

Kidde Intelligent 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.

Self-locking tab

LED Indicator
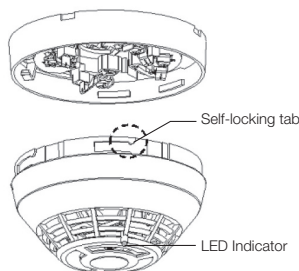
Sensing and reporting technology

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

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

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

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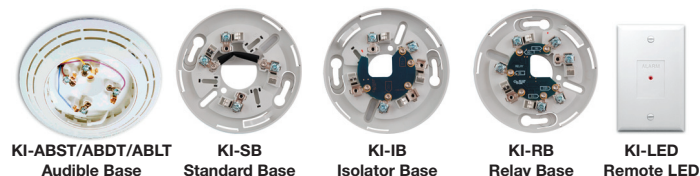
Testing & Maintenance

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

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

Accessories

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

| KI-ABST/ABDT/ABLT | KI-SB | KI-IB | KI-RB | KI-LED |
| Audible Base | Standard Base | Isolator Base | Relay Base | Remote LED |

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

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

Sounder Bases - Kidde Intelligent Series sounder bases are designed for use where localized or group alarm signaling is required.
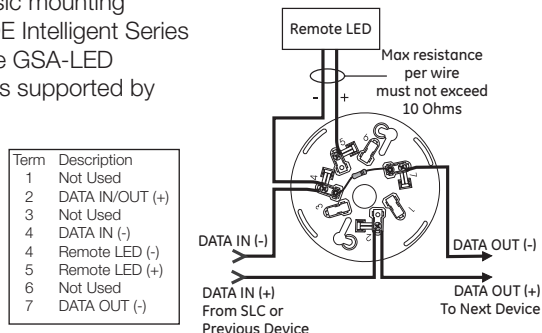
- **KI-ABST** bases provide sounder capability to Kidde Intelligent Series to heat and smoke detectors. They are not intended for use with combination carbon monoxide detectors in Fire-plus-CO mode.

- **KI-ABDT** bases provide sounder capability to Kidde Intelligent Series smoke and heat detectors, as well as carbon monoxide detectors when used with a GSA-T3T4 Temporal Pattern Generator.

- **KI-ABLT** bases provide 520 Hz low frequency sounder capability to Kidde Intelligent Series smoke and heat detectors, as well as carbon monoxide detectors when used with a GSA-T3T4 Temporal Pattern Generator. The KI-ABLT is suitable for applications requiring low frequency audible tones.

Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.5mm²), and #12 AWG (2.5mm²) wire sizes. Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation.

Standard Detector Base, KI-SB, KI-SB4

This is the basic mounting base for KIDDE Intelligent Series detectors. The GSA-LED Remote LED is supported by this Base.
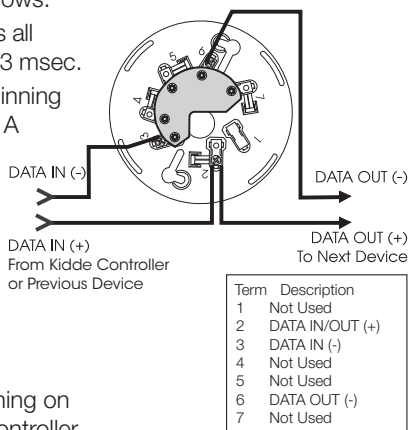
Remote LED

Max resistance per wire must not exceed 10 Ohms

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

DATA IN (-)

DATA OUT (-)

DATA IN (+)
From SLC or Previous Device

DATA OUT (+)
To Next Device

Isolator Detector Base, KI-IB, KI-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 GSA-LED Remote LED.

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

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

DATA IN (-)

DATA OUT (-)

DATA IN (+)
From Kidde Controller or Previous Device

DATA OUT (+)
To Next Device

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, KI-RB, KI-RB4

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

Common

Normally-Closed

Normally-Open

DATA IN (-)

DATA OUT (-)

DATA IN (+)
From Kidde Controller or Previous Device

DATA OUT (+)
To Next Device

CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)
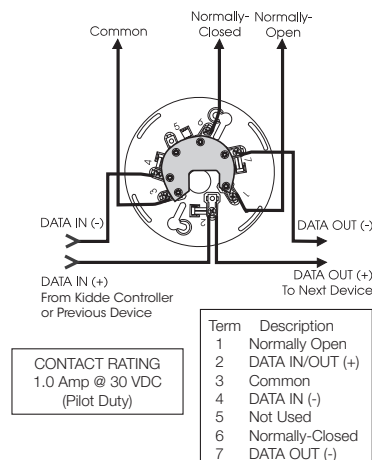
Audible Sounder Bases, Fire Mode

ABST, ABDT, ABLT sounder bases

KI-ABST
KI-ABDT
KI-ABLT:
Volume Setting
Default = High
Cut/remove jumper for low dB

Jumper cuts

KI-ABLT:
Output Mode
Default = Fire
Cut/remove jumper for Fire plus CO

KI-ABST:
Tone Setting
Default = Temporal
Cut/remove jumper for Steady

SIG+ SIG- DATA-OUT DATA-IN DATA+IN/OUT

24 Vdc in
From power supply or previous base

24 Vdc out
To next base or EOL relay

Data in
From Kidde Controller or previous device

Data out
to next Kidde device

Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.

- This detector does not sense fires in areas where smoke cannot reach the detector. Smoke from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.

- In Canada, install according to CAN/ULC-S524 Standard for the Installation of Fire Alarm Systems, CSA C22.1 Canadian Electrical Code, and the local authority having jurisdiction.
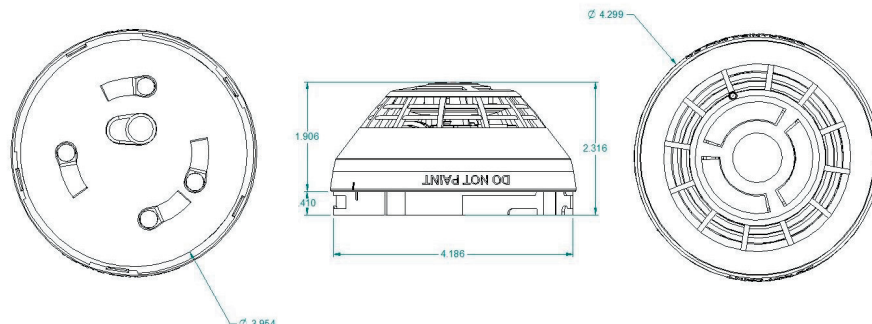
Dimensions

Specifications

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

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
KI-OSD	Intelligent Optical Smoke Detector	0.4 (0.16)
Accessories		
KI-SB	Detector Mounting Base - Standard	
KI-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
KI-RB	Detector Mounting Base w/Relay	
KI-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	0.2 (.09)
KI-IB	Detector Mounting Base w/Fault Isolator	
KI-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
GSA-LED	Remote Alarm LED	
KI-ABST	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
KI-ABLT	Low Frequency Audible (Sounder) Base for CO and/or Fire Detectors	0.3 (0.15)
KI-ABDT	Audible (Sounder) Base for CO and/or Fire Detectors	0.3 (0.15)
GSA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (0.04)
GSA-TS	Trim Skirt - (optional for non 4-inch bases)	0.1 (0.04)
GSA-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

DATA SHEET **K85001-1001**

04-06-20

Kidde
United Technologies

E L E C T R O N I C
Compatible with VS & VM control systems
A D D R E S S I N G

Technology that saves lives

Manual Pull Stations
GSA-M270, GSA-M270P, GSA-M278

GSA-M270 SERIES

GSA-M278

7150-1483: 0139

FM APPROVED

MEA

UL

ULC S2318

Overview

The GSA-M270 and GSA-M278 series Manual Pull Stations are part of Kidde's Signature Series system. The GSA-M270 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 (GSA-M270P) 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.

Kidde's double action single stage GSA-M278 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 systems. Check your control panel's Installation and Operation Guide for details.*

- **Traditional familiar appearance**
  GSA-M270 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**
  GSA-M270 models are available for one or two stage alarm systems. The single stage double action GSA-M278 features a rugged Lexan housing with keyed reset mechanism.

- **Break glass operation**
  An up-front visible glass rod on the GSA-M270 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 Kidde'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 GSA-M270 series are opened with a tool; the GSA-M278 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

⚠ Refer to Signature Loop Controller manual for maximum wire distance.

2. All wiring is power limited and supervised.
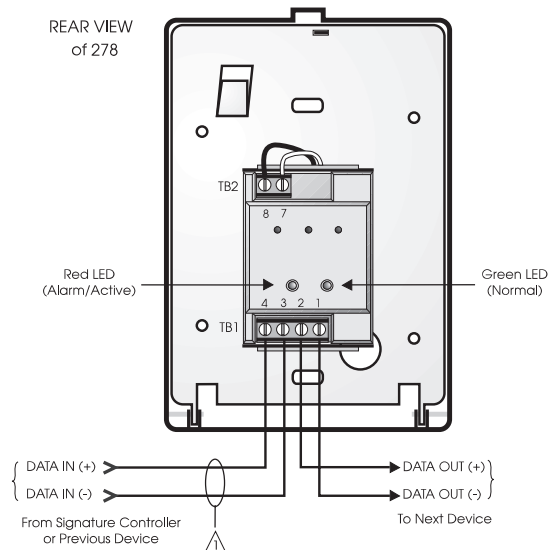
Figure 4. Single Stage Systems
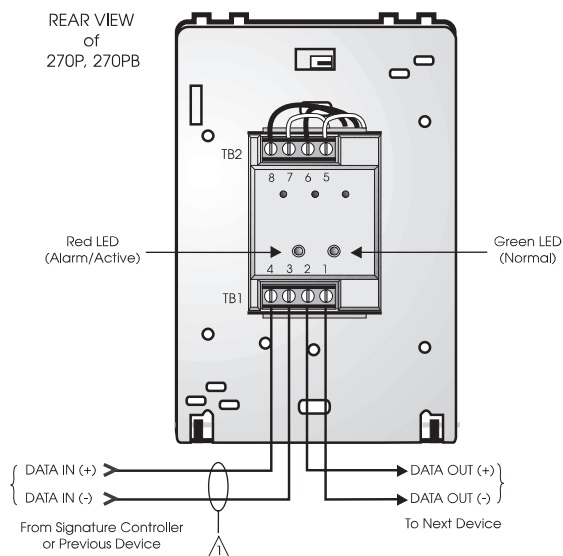
Figure 5. Two Stage Systems

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. Kidde 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.
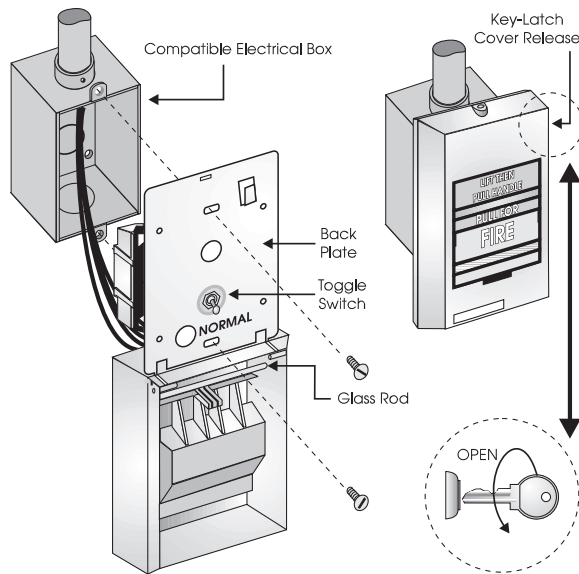
Figure 1. GSA-M278 installation
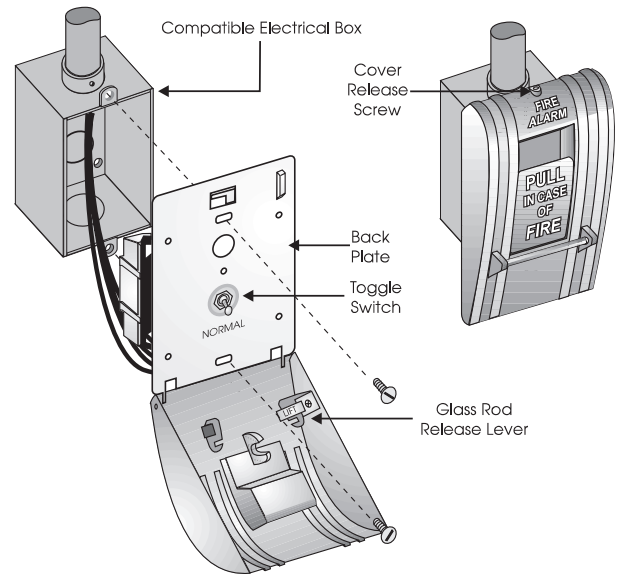
Figure 2. GSA-M270 installation
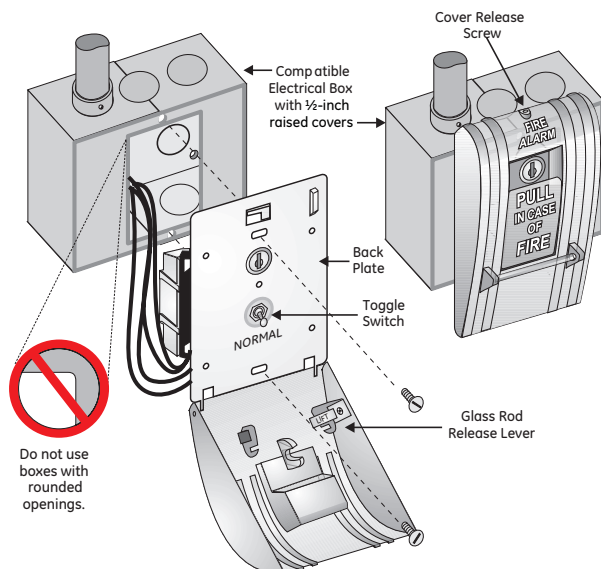
Figure 3. GSA-M270P installation

Specifications

Catalog Number	GSA-M270	GSA-M270P,	GSA-M278
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		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC, MEA, CSFM, FM		

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
GSA-M270	One Stage Fire Alarm Station, English Markings - UL/ULC Listed	
GSA-M270P	Two Stage (Presignal) Fire Alarm Station, English Markings - UL/ULC Listed	1 (0.5)
GSA-M278	Double Action (One Stage) Fire Alarm Station, English Markings - UL/ULC Listed	

Accessories		
270-GLR	20 Glass Rods - for GSA-M270 series (USA ONLY)	
276-GLR	20 Glass Rods - for GSA-M278 series	

Kidde
United Technologies

Technology that saves lives

Signal Modules
GSA-CC1, GSA-MCC1, GSA-CC2 & GSA-MCC2

ELECTRONIC
Compatible with VS & VM control systems
ADDRESSING

FM
APPROVED

MEA

7300-1483:
0115

S3424

GSA-MCC

SIGA-CC

Overview

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

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

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

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

Standard Features

- **Single and Dual input (riser) select**
  Use for connecting supervised 24 Vdc Audible/Visible signal circuits, or 25 and 70 VRMS Audio Evacuation and Telephone circuits to their power inputs.

- **Ring-tone generator**
  When configured for telephone circuits, the GSA-CC1 generates its own ring-tone signal eliminating the need for a separate ring-tone circuit.

- **Plug-in (UIO) or standard 2-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 2-gang mount version is ideal for remote locations that require a single module.

- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.

- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.

- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.

- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Installation

The GSA-CC1 and GSA-CC2: mount to North American 2-1/2 inch (64 mm) deep two-gang boxes and 1-1/2 inch (38 mm) deep 4-inch square boxes with two-gang covers and GSA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.
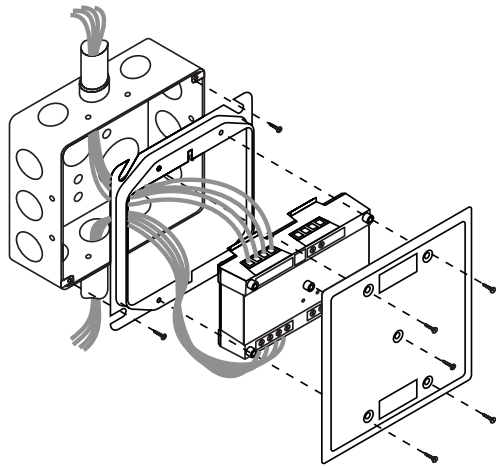
GSA-MCC1 and GSA-MCC2: mount the UIO motherboard inside a suitable Kidde enclosure with screws and washers provided. Plug the GSA-MCC1 or GSA-MCC2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.

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

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

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

Application

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

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

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

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

Warnings & Cautions

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

Compatibility

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

Testing & Maintenance

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

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.
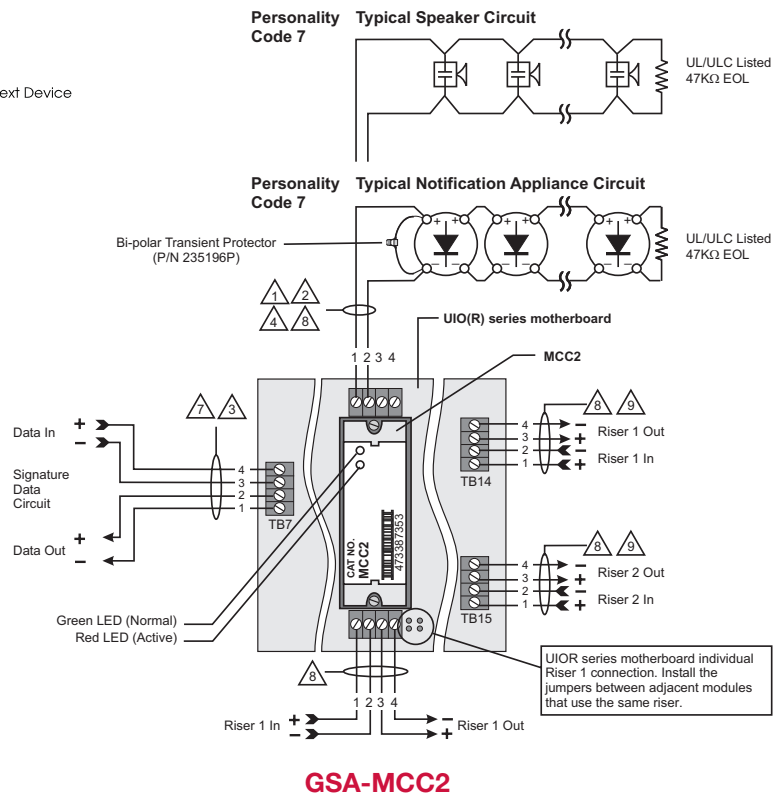
Typical Wiring (GSA-CC2/MCC2)

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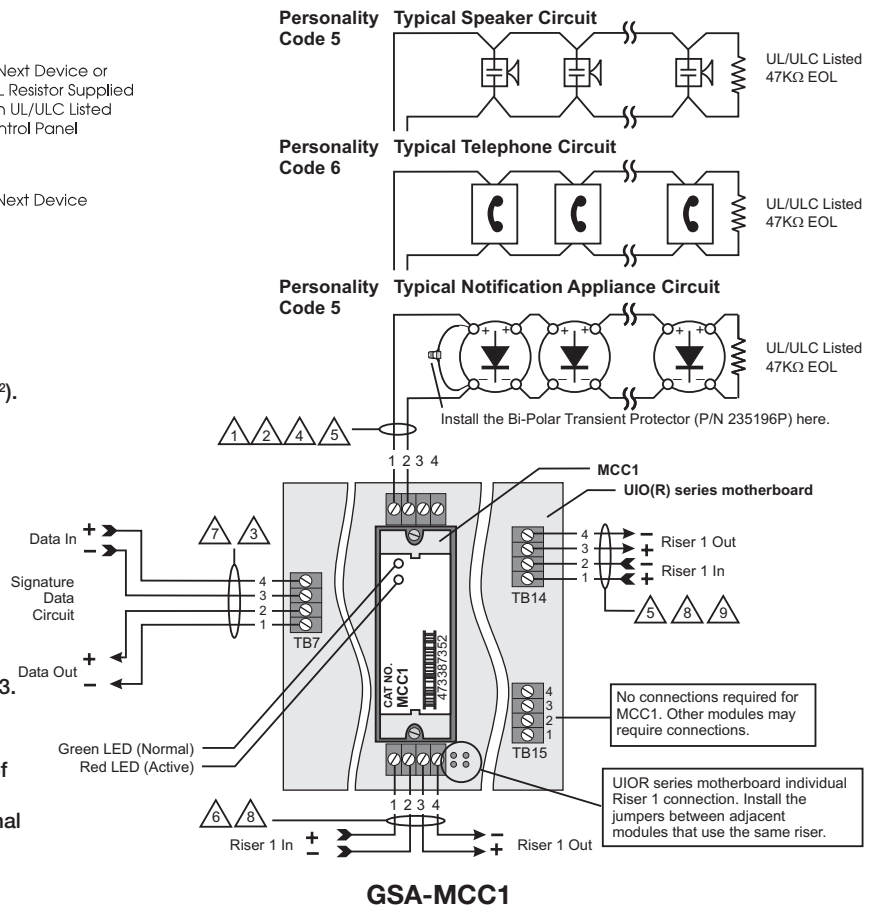
Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

GSA-CC2

GSA-MCC2
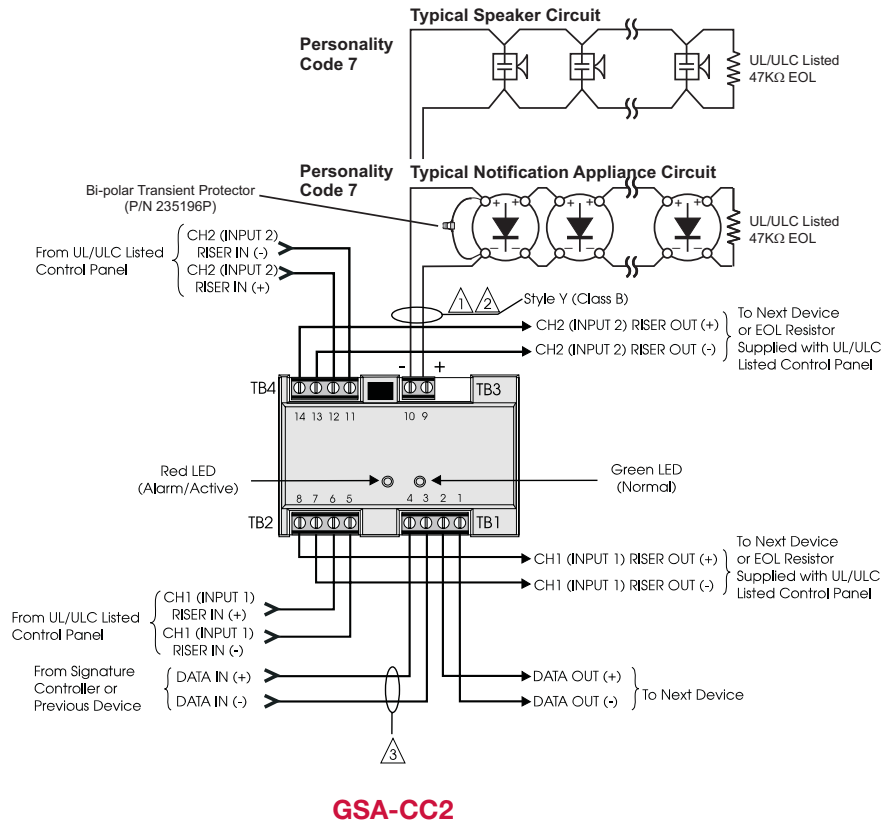
Notes

△1 For maximum wire resistance and maximum wire distances, refer to IOMC Manual (P/N 270144).

△2 Maximum #12 AWG (2.5mm^2) wire. Min. #18 (0.75mm^2).

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

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

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

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

△7 Supervised and power-limited.

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

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

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

Typical Wiring (GSA-CC1/MCC1)

Modules will accept #18 AWG ($0.75mm^2$), #16 ($1.0mm^2$), #14 AWG ($1.50mm^2$) and #12 ($2.5mm^2$) 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.

Personality Code 5 — **Typical Speaker Circuit**

UL/ULC Listed 47KΩ EOL

Personality Code 6 — **Typical Telephone Circuit**

UL/ULC Listed 47KΩ EOL

Personality Code 5 — **Typical Notification Appliance Circuit**

UL/ULC Listed 47KΩ EOL

Install the Bi-Polar Transient Protector (P/N 235196P) here.

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

Style Y (Class B)

Red LED (Alarm/Active)
Green LED (Normal)

TB3
TB2
TB1

From UL/ULC Listed Control Panel

RISER IN (+)
RISER IN (-)

RISER OUT (+)
RISER OUT (-)

To Next Device or EOL Resistor Supplied with UL/ULC Listed Control Panel

DATA IN (+)
DATA IN (-)

DATA OUT (+)
DATA OUT (-)

To Next Device

From Signature Controller or Previous Device

GSA-CC1

Notes

2. Maximum #12 AWG ($2.5mm^2$) wire. Min. #18 ($0.75mm^2$).

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

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

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

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

7. Supervised and power-limited.

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

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

Personality Code 5 — **Typical Speaker Circuit**

UL/ULC Listed 47KΩ EOL

Personality Code 6 — **Typical Telephone Circuit**

UL/ULC Listed 47KΩ EOL

Personality Code 5 — **Typical Notification Appliance Circuit**

UL/ULC Listed 47KΩ EOL

Install the Bi-Polar Transient Protector (P/N 235196P) here.

MCC1
UIO(R) series motherboard

Data In

Signature Data Circuit

Data Out

TB7

Green LED (Normal)
Red LED (Active)

TB14
Riser 1 Out
Riser 1 In

TB15

No connections required for MCC1. Other modules may require connections.

UIOR series motherboard individual Riser 1 connection. Install the jumpers between adjacent modules that use the same riser.

Riser 1 In
Riser 1 Out

GSA-MCC1

Signature Series Overview

The Signature Series intelligent analog-addressable system from Kidde 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.

Specifications

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

Ordering Information

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

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

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

12-18-17

DATA SHEET **K85001-0237**
Not to be used for installation purposes. **Issue 1**

Kidde

Technology that saves lives

ELECTRONIC
Compatible with VS & VM control systems
ADDRESSING

Input Modules
GSA-CT1, GSA-CT1HT, GSA-CT2, GSA-MCT2

FM APPROVED

MEA

7300-1483: 0115

UL
ULC
S3424
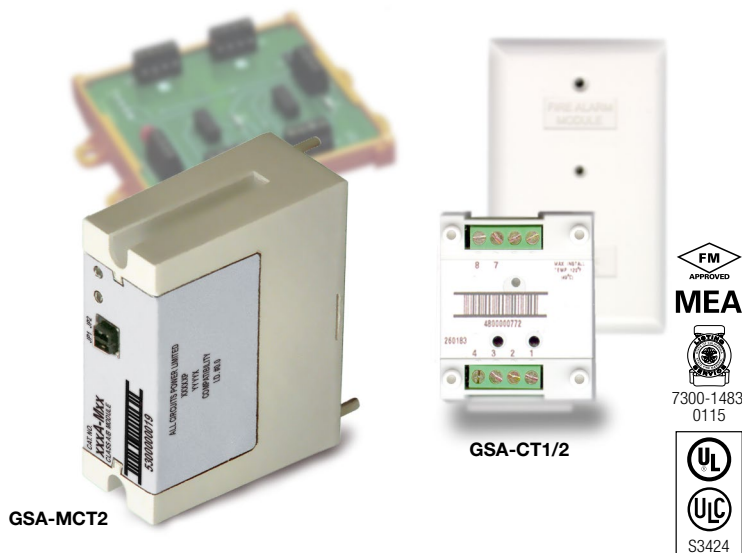
GSA-CT1/2

GSA-MCT2

Overview

The GSA-CT1 Single Input Module, GSA-CT1HT High Temperature Single Input Module and GSA-CT2/GSA-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 GSA-CT1, GSA-CT1HT and GSA-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 GSA-CT1HT module operates at an expanded temperature range of 32 ℉ to 158 ℉ (0 ℃ to 70 ℃) for those applications requiring more extreme environmental temperature variation.

The GSA-MCT2 is part of the UIO family of plug-in Signature Series modules. It functions identically to the GSA-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 Kidde 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.

- **GSA-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 Signature Program/Service Tool. There are no switches or dials to set.

- **Ground fault detection by address**
  Detects ground faults right down to the device level.

UIO Motherboard

Plug-in (UIO) Module

Signature Series Overview

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

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

GSA-CT1, GSA-CT1HT and GSA-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 GSA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm² to 0.75 mm²) wire size.

Compatible electrical box

Wall plate, white (1-gang)

FIRE ALARM MODULE

Status LEDs

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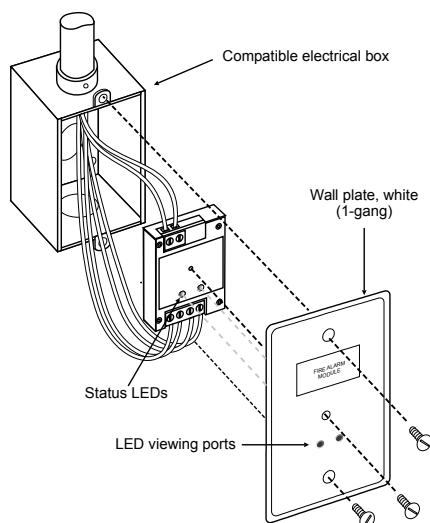
GSA-MCT2: mount the UIO motherboard inside a suitable Kidde enclosure with screws and washers provided. Plug the GSA-MCT2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see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

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

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

Application

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

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

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

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

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

Typical Wiring

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

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

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

GSA-CT1, GSA-CT1HT

GSA-CT2
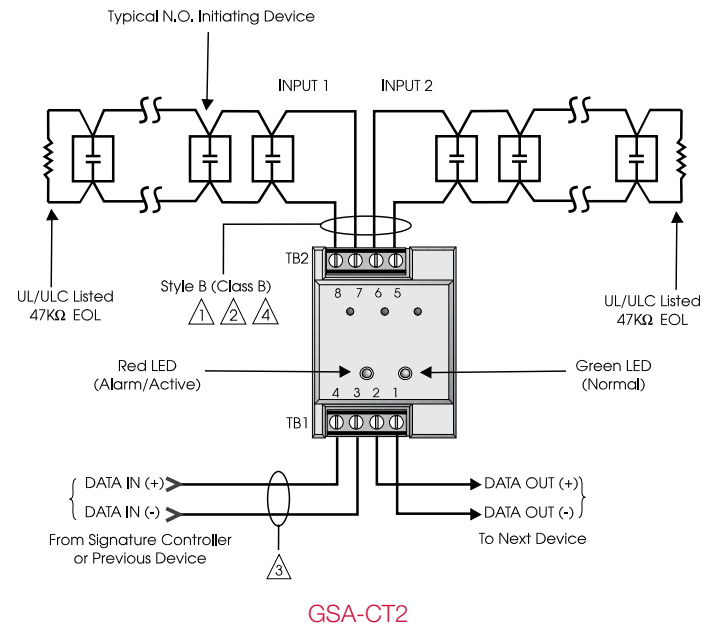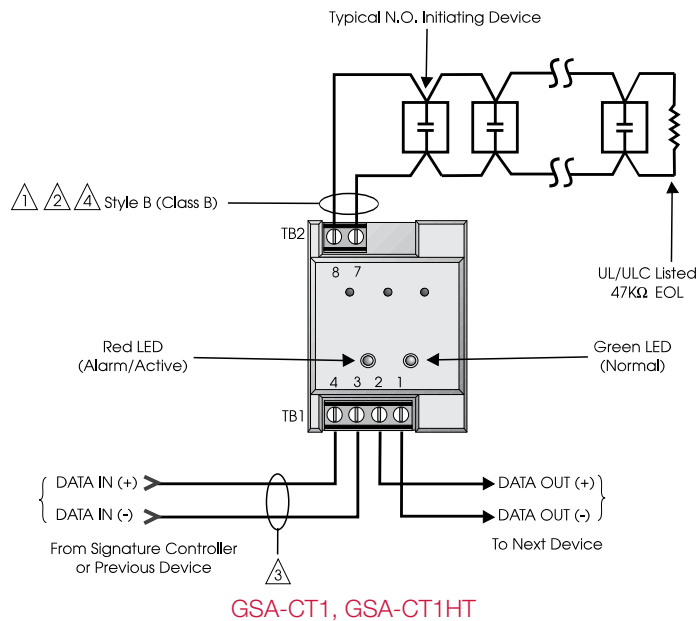
NOTES

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 GSA-UIO6R and the GSA-UIO2R do not come with TB14.

6. All wiring is supervised and power-limited.

7. These modules will not support 2-wire smoke detectors.

GSA-MCT2

Warnings & Cautions

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

Compatibility

These modules are part of Kidde's Signature Series intelligent processing and control platform. They are compatible with VM, and VS Series control panels.
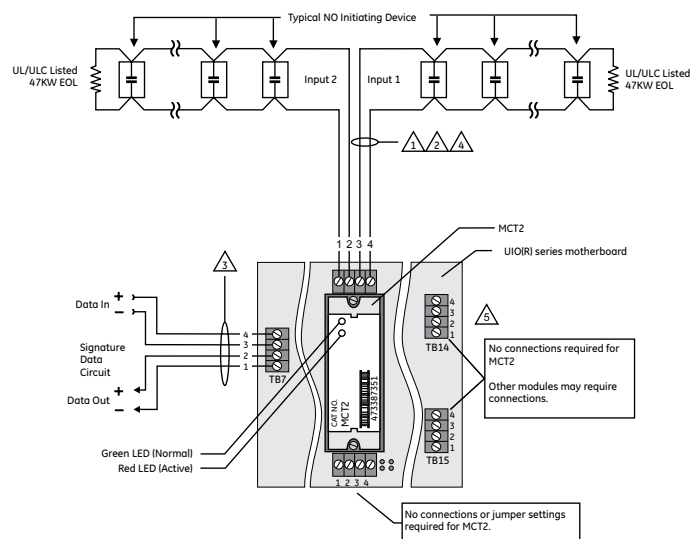
Specifications

Catalog Number	GSA-CT1HT	GSA-CT1	GSA-CT2	GSA-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 GSA-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			
Compatibility	Use with Signature Loop Controller			
Agency Listings	UL, ULC, MEA, CSFM			

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
GSA-CT1	Single Input Module — UL/ULC Listed	0.4 (0.15)
GSA-CT1HT	Single Input Module High Teperature Operation UL/ULC Listed	0.4 (0.15)
GSA-CT2	Dual Input Module — UL/ULC Listed	0.4 (0.15)
GSA-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)
GSA-UIO2R	Universal Input-Output Module Board w/Riser Inputs — Two Module Positions	0.32 (0.15)
GSA-UIO6R	Universal Input-Output Module Board w/Riser Inputs — Six Module Positions	0.62 (0.28)
GSA-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)
GSA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
GSA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
GSA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
GSA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

SIGNALING
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FDB
ACE-11

FIRE DOCUMENT BOX

The FDB is the perfect fit to meet the demanding code requirements today. SAE's number one goal is to manufacture code compliant solutions and this product allows you to do just that. NFPA 72 2007 section 6.2.2.1 states, "A record of installed software and firmware version numbers shall be maintained at the location of the fire alarm control unit."

This durable 16 gauge steel enclosure with a solid piano hinge and key lock will keep all of your code required documents in one safe place. Along with your fire alarm software you can store your test & inspection documents, service records, manuals & AS built drawings for the system.

The FDB is designed to hold critical manuals and documents with a durable steel retainer. It has designated hooks to organize key rings and hold important business cards for easy access and reference. Inside the cover it has a organized note table that allows for documentation for passwords and other critical system information.

FIRE ALARM DOCUMENTS
Records / Programs / Software

Standard Features:

- 2 Key ring hooks to hold system keys
- Business card holder for key contacts
- Overall Dimensions are 12" x 13" tall and 2 ¼ deep
- 16 gauge steel box and cover for security
- Durable powercoat baked on finish other colors available
- Standard ¾"cat 30 key lock other lock assemblies available
- Solid stainless steel piano hinge
- Permanently screened white ink 1" high "Fire Alarm Documents"
- Legend sheet for passwords and system information

NFPA MEMBER

CAL FIRE SINCE 1885

NEMA

Made In U.S.A.

ISO 9001 REGISTERED COMPANY

AceBOX

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

No Excuses, Just Solutions!

Specifications:

The fire alarm documents box (FDB) shall be constructed of 18 gauge cold rolled steel. It shall have a red powder coat epoxy finish. The cover shall be permanently screened with 1" high lettering "FIRE ALARM DOCUMENTS " with white indelible ink. The access door shall be locked with a 3/4" barrel lock and the hinge shall be a solid width 12" stainless steel piano hinge. The enclosure will supply 4 mounting holes. Inside the enclosure will accommodate standard 8 1/2 x 11 manuals and loose document records that will be protected within the enclosure. A legend sheet will be permanently attached to the door for system required documentation, key contacts and system information. The enclosure shall also provide 2 key ring holders with a location to mount standard business type cards for key contact personnel.

Key Ring Hooks

Business Card Holder

Legend sheet for storing system information including contacts, sign-off , maintenance & test information, and alternate locations of additional records.

Ordering Information:

Part #	Description
SSU00672	Fire Document Box RED
SSU00673	Custom screening with your Logo
EA0315	10 pack door legend sheet

No Excuses, Just Solutions!

Part Five

Floor Plan Layout