Intelligent Multisensor Heat and CO Detector

SIGA-HCD, SIGA-HCD-CA

Overview

The Signature Series SIGA-HCD detector brings advanced multisensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety and property protection capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while environmental compensation helps reduce maintenance costs.

The SIGA-HCD provides the best of both worlds with multisensor life safety monitoring. Rate-of-rise heat sensing technology provides efficient identification of smoldering fires, as well as fast flaming fires. With the added element of CO monitoring, this detector pulls double duty: continually monitoring the environment for signs of fire — as well as its invisible yet deadly companion, carbon monoxide.

Like all Signature Series detectors, the SIGA-HCD gathers analog information from its sensing elements and converts this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes the heat sensor readings and compares this information to historical data. Digital filters remove signal patterns that are not typical of fires, thus virtually eliminating unwanted alarms.

The detector also analyzes heat sensor independently from the CO sensor to determine whether to initiate a fire alarm, a life safety CO alarm, or both.

Standard Features

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

- Next Generation Detection Technology
- Integrates rate-of-rise heat sensing with carbon monoxide detection
- Sensor Markings Provide Easy Testing Identification
- Uses existing wiring
- Automatic device mapping
- Up To 250 Total Signature Addresses Per Loop
- Automatic environmental compensation
- Non-volatile memory
- Electronic addressing
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

Application 1

Heat detection 2

The SIGA-HCD detector provides a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of fast-developing fires, as well as a 135°F (57°C) fixed temperature sensor for slow building-fires. The heat sensors monitor the temperature of the air and determines whether a fire alarm should be initiated. 3

CO Detection 4

Monitored CO detection, such as that provided by the SIGA-HCD is becoming mandated with increasing frequency in all types of commercial applications, but particularly in occupancies such as hotels, rooming houses, dormitories, day care facilities, schools, hospitals, assisted living facilities, and nursing homes. Known as the "Silent Killer," CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually. 5

The SIGA-HCD's CO sensor monitors the presence of CO particles in the air and determines whether a life safety alarm should be initiated. Alarm levels are reached at 70 ppm when detected for 60 to 240 minutes; 150 ppm for 10 to 50 minutes; and, 400 ppm for 4 to 15 minutes. 6

Installation 7

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information. 8

9

Self-locking tab

LED Indicator
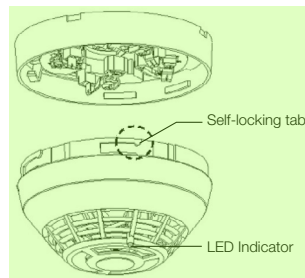
Testing & Maintenance 10

Scheduled maintenance (regular or selected) for proper detector operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72, NFPA 720, and ULC CAN/ULC 536 standards. 11

CO Sensor Life 12

The CO sensor has a 10-year life from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first. When the sensor reaches its end of life, the detector signals a "COMMON TRBL ACT" condition on the control panel. Pressing the *Details* button on the control panel displays "END OF LIFE ACT" providing verification that it is an end-of-life trouble of the CO sensor. This trouble remains active until the detector is replaced, even if the panel is reset. 13

Sensing and reporting technology 14

The microprocessor in each detector provides additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication. 15
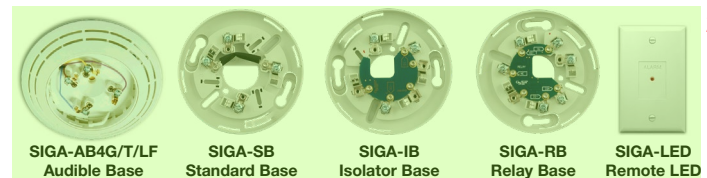
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory. 16

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. 17

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. 18

Accessories 19

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4 inch square box only. 20

21

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

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED. 22

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. 23

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required. 24

- **SIGA-AB4GT** bases provide sounder capability to the SIGA-HCD when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns. 25
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to the SIGA-HCD when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

Warnings & Cautions 26

- This product is intended for use in indoor locations of dwelling units. It is not designed to comply with Occupational Safety and Health Administration (OSHA) commercial or industrial standards. 27
- The detector indicates the presence of CO gas at the detector. Carbon monoxide gas may be present in other areas.
- Failure to properly install, test, and maintain a CO detector may cause it to fail, potentially resulting in loss of life.
- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the authority having jurisdiction (AHJ).

Typical Wiring

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

Standard Detector Base, SIGA-SB, SIGA-SB4

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

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 (+)
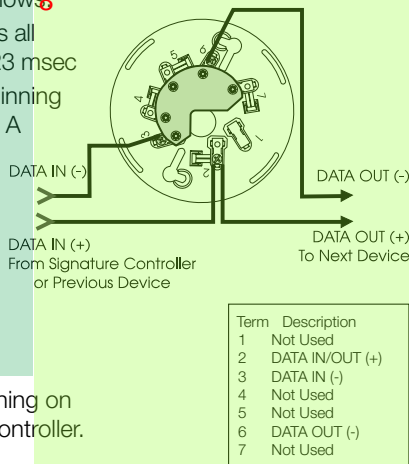From Signature Controller or Previous Device

DATA OUT (+)
To Next Device
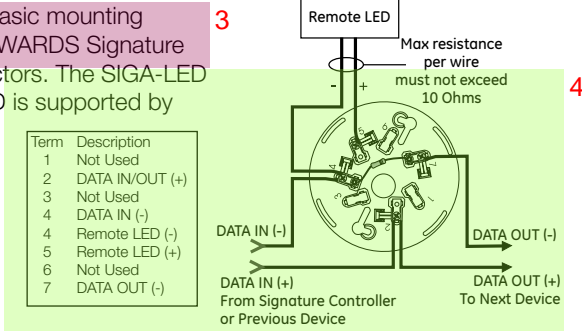
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.
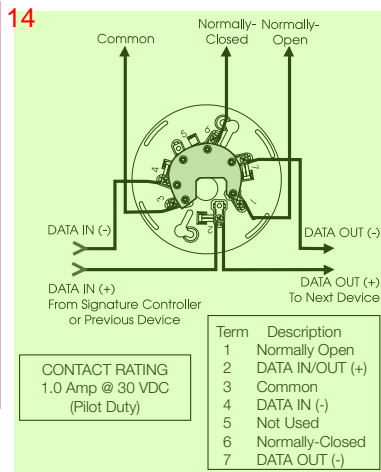
The isolator operates as follows:
- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within 10 msec.

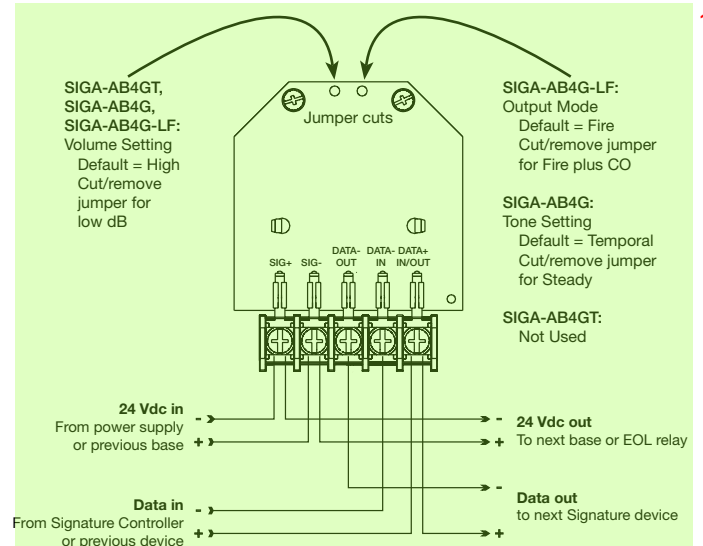The process repeats beginning on the other side of the loop controller.

DATA IN (-)

DATA OUT (-)

DATA IN (+)
From Signature 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, SIGA-RB, SIGA-RB4

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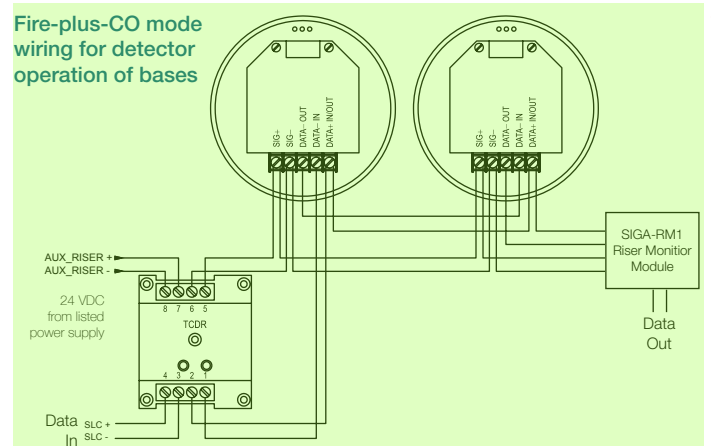
Common

Normally-Closed

Normally-Open

DATA IN (-)

DATA OUT (-)

DATA IN (+)
From Signature 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

AB4GT, AB4G, AB4G-LF sounder bases

Jumper cuts

SIGA-AB4GT, SIGA-AB4G, SIGA-AB4G-LF:
Volume Setting
  Default = High
  Cut/remove jumper for low dB

SIGA-AB4G-LF:
Output Mode
  Default = Fire
  Cut/remove jumper for Fire plus CO

SIGA-AB4G:
Tone Setting
  Default = Temporal
  Cut/remove jumper for Steady

SIGA-AB4GT:
  Not Used

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
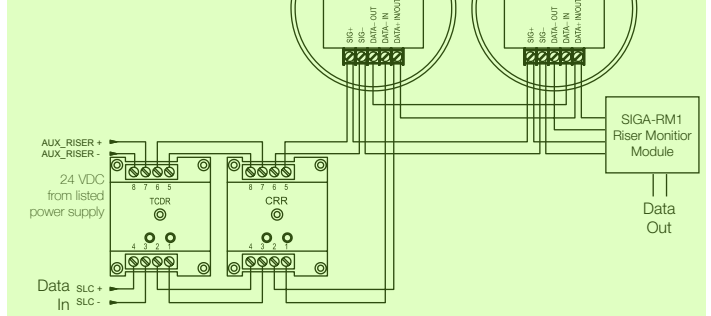From Signature Controller or previous device

Data out
to next Signature device

Audible Sounder Bases, Fire-plus-CO Mode
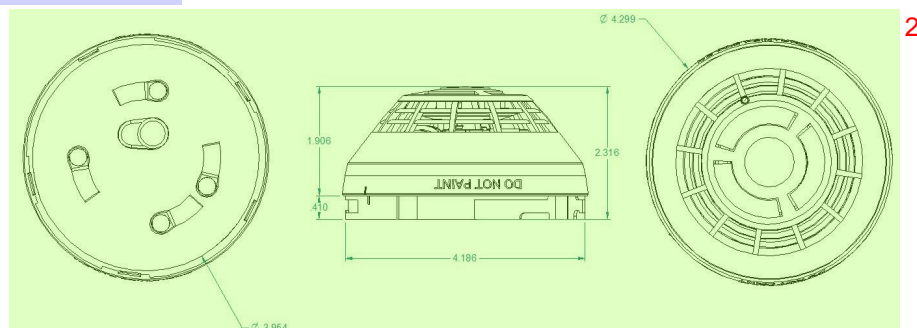
AB4GT and AB4G-LF sounder bases only.

These configurations require a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns.

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

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

AUX_RISER +
AUX_RISER -

24 VDC from listed power supply

TCDR

Data In   SLC +
          SLC -

SIGA-RM1 Riser Monitior Module

Data Out

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

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

AUX_RISER +
AUX_RISER -

24 VDC from listed power supply

TCDR   CRR

Data In   SLC +
          SLC -

SIGA-RM1 Riser Monitior Module

Data Out

Dimensions 1

Specifications 3

Operating voltage	15.20 to 19.95 VDC	4
Normal operating current	51 µA	
Alarm current	68 µA	
Rate-of-rise rating	15°F/min (9°C/min)	
Fixed temperature rating	135°F (57.2°C). Actual alarm point 129 to 141°F (53.9 to 60.6°C).	
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.	
Spacing, heat detectors	Max. 50 ft. (15.2 m) centers	
Factory Mutual rating	Fixed - Special, Fixed/ROR - Ultra-fast	
Compatible detector testers	Testifire 2000	
Operating environment	32 to 100°F (0 to 38°C), 0 to 90% RH, noncondensing	
Construction	High Impact Engineering Polymer, White	
Storage temperature	-4 to 140°F (-20 to 60°C)	
Environmental compensation	Automatic	
UL CO alarm level per UL 2034, CAN/CSA 6.19	70 ppm 60 to 240 minutes; 150 ppm 10 to 50 minutes; 400 ppm 4 to 15 minutes	
UL CO false alarm level per UL 2034, CAN/CSA 6.19	30 ppm 30 days 70 ppm 60 minutes	
Agency Listings, SIGA-COD, SIGA-HCD, SIGA-HCD-CA	UL521, UL2075 and ULC-s530. Evaluated to the CO alarm sensitivity limits of UL 2034. CSFM, FM approved.	

Ordering Information 5

Catalog Number	Description	Ship Wt. lbs (kg)	6
SIGA-HCD	Multisensor Heat, and CO Detector	0.4 (0.16)	
SIGA-HCD-CA	Multisensor Heat, and CO Detector, Canadian Market	0.4 (0.16)	

Compatible Bases			7
SIGA-SB	Detector Mounting Base - Standard		
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt		
SIGA-RB	Detector Mounting Base w/Relay		
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	0.2 (.09)	
SIGA-IB	Detector Mounting Base w/Fault Isolator		
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt		
SIGA-LED	Remote Alarm LED (not for EN54 applications)		
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)	
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors		
SIGA-LED	Remote Alarm LED (not for EN54 applications)		
SIGA-TCDR	Tone Generator for Detector Sounder Bases with CO mode	0.2 (0.1)	
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)	
SIGA-RTA	Detector Removal Tool		
SIGA-VA	Detector Cleaning Tool		