Technology that saves lives

Intelligent CO Detector
KI-COD

Overview

The KI-COD carbon monixide detector brings advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while advanced electrochemical CO sensing technology provides performance benefits that keep occupants safe from carbon monoxide, the "silent killer".

Like all KI Series detectors, the KI-COD is an intelligent device that gathers analog information from its CO sensor, converting this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes sensor readings over time. Digital filters remove signal patterns that are not typical of life safety events, thus virtually eliminating unwanted alarms.

The KI-COD includes an advanced carbon monoxide sensor. When the electrochemical cell reaches its end of life after approximately ten years, the detector signals a trouble condition to the control panel. Refer to the control panel documentation for specific end of life timing.

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 CO Sensing Technology
- Advanced electrochemical carbon monoxide sensing technology
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Addresses Per Loop
- Non-volatile memory
- Electronic addressing
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

Application

CO detection has rapidly become a standard part of life safety strategies everywhere. Monitored CO detection is mandated with increasing frequency in all types of commercial applications, but particularly in occupancies such as hotels, rooming houses, dormitories, day care facilities, schools, hospitals, assisted living facilities, and nursing homes. In fact, more than half of the U.S. population already lives in states requiring the installation of CO detectors in some commercial occupancies. This is because carbon monoxide is the leading cause of accidental poisoning deaths in America. Known as the "Silent Killer," CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually.

Concentration	Symptoms	Duration of Exposure
35PPM	None	<=8 hours
150PPM	Mild Headache	2 – 3 hours
400PPM	Headache/Nausea	1 – 2 hours
800 PPM	Headache/nausea/dizziness/ Progressing to unconscious	45 min. to 2 hours
6,400 PPM	Headache/nausea & dizziness	1 – 2 min.
12,800 PPM	Immediately dangerous to life or health	

Compatibility

The KI-COD detector is compatible only with the KI Series Loop Controller.

Installation

KI 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
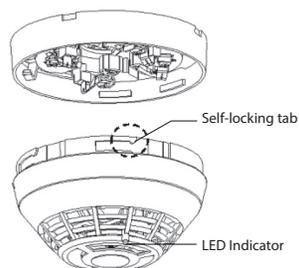
Testing & Maintenance

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

Sensor Life

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

Sensing and reporting technology

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

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

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

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

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The 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 GSA-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/T/LF Audible Base | KI-SB Standard Base | KI-IB Isolator Base | KI-RB Relay Base | GSA-LED 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.

GSA-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 - KI Series sounder bases are designed for use where localized or group alarm signaling is required.
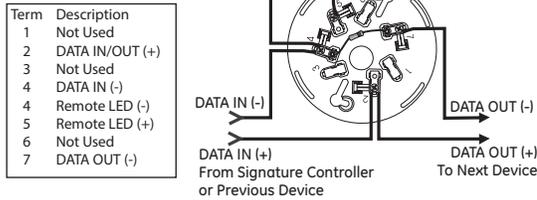
- KI-ABDT bases provide sounder capability to the KI-COD when used with a GSA-T3T4 Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.
- KI-ABLT bases provide 520 Hz low frequency sounder capability to the KI-COD when used with a GSA-T3T4 Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern. 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 KI 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 Signature Controller or Previous Device
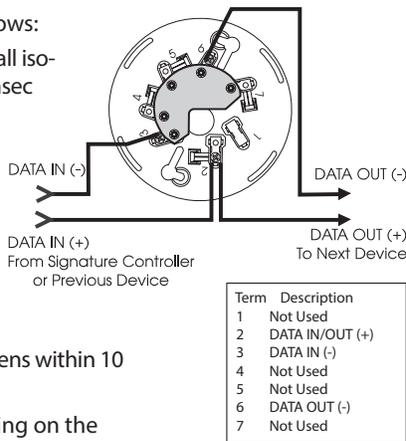DATA OUT (+)
To Next Device

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.
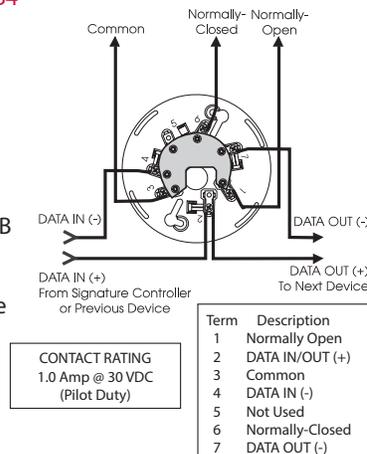
The isolator operates as follows:

- 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 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, 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 Signature Controller or Previous Device
DATA OUT (+)
To Next Device

CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

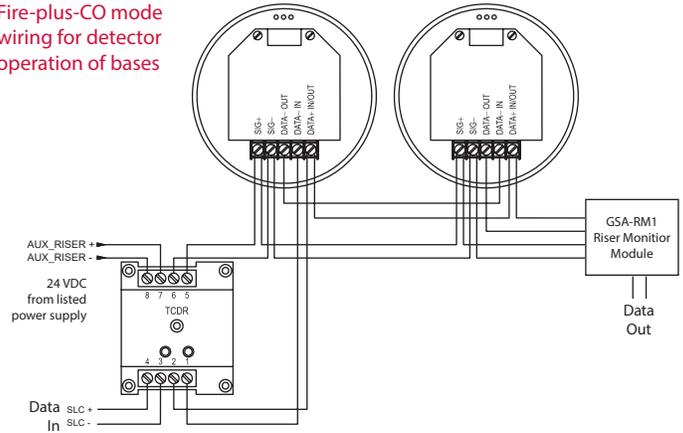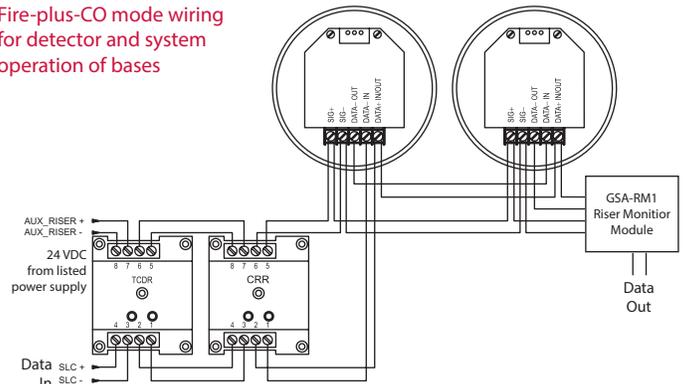| Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire-plus-CO Mode

AB4GT and AB4G-LF sounder bases.

These configurations require a GSA-T3T4 Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.

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

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

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

AUX_RISER +
AUX_RISER -
24 VDC from listed power supply

8 7 6 5
TCDR
4 3 2 1

GSA-RM1 Riser Monitior Module

Data Out

Data In   SLC +
SLC -

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

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

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

AUX_RISER +
AUX_RISER -
24 VDC from listed power supply

8 7 6 5
TCDR
4 3 2 1

8 7 6 5
CRR
4 3 2 1

GSA-RM1 Riser Monitior Module

Data Out

Data In   SLC +
SLC -

Warnings & Cautions

- This detector is designed to protect individuals from the acute affects of CO exposure. It will not fully safeguard individuals with specific medical conditions. People with special medical problems should consider using specialized detection devices with less than 30 ppm (parts per million) alarming capabilities. If in doubt, consult a medical practitioner.

- If the detector is in trouble or at the end of its life, it may not sense CO and cannot be relied upon to monitor CO levels. Replace the detector every ten years from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first.

- A detector installed outside a bedroom may not awaken a sleeper.

- Normal noise due to stereos, television, etc. may also prevent the detector from being heard if distance or closed or partly closed doors muffle the sounder. This unit is not designed for the hearing impaired.

- CO detectors are not a substitute for life safety. Though these detectors will warn against increasing CO levels, we do not warrant or imply in any way that they will protect lives from CO poisoning. They should only be considered as an integral part of a comprehensive safety program.
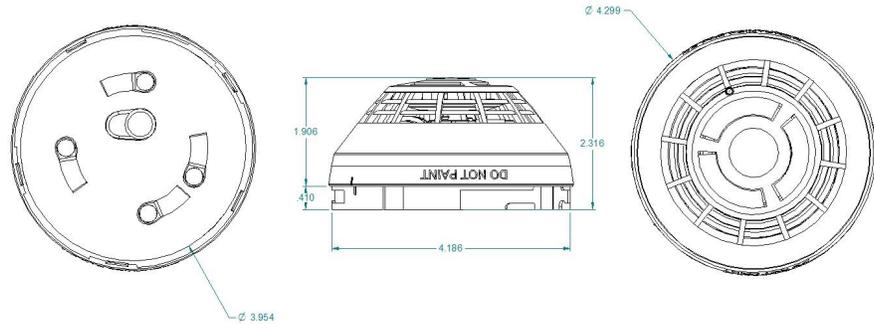
Dimensions

Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	32 µA
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Compatible bases	See Ordering Information
Compatible detector testers	Testifire 1000, Testifire 2000
Operating environment	32 to 120°F (0 to 49°C), 0 to 90% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
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, KI-COD	UL 2075. Evaluated to the CO alarm sensitivity limits of UL 2034.
Agency Listings, KI-COD	ULC Listed to CAN/CSA 6.19.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
KI-COD	Intelligent Carbon Monoxide Detector	0.4 (0.16)

Compatible Bases		
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 (not for EN54 applications)	
GSA-T3T4	Tone Generator for Detector Sounder Bases with CO mode	0.2 (0.1)
KI-ABLT	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
KI-ABDT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
GSA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
SIGA-RTA	Detector Removal Tool	