SS-CO
Intelligent Carbon Monoxide Sensor

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www.systemsensor.com

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Operating Current @ 24 VDC:	200 uA (one communication every 5 seconds with green LED blink on communication)
Maximum Alarm Current:	2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on)
Maximum Current:	4.5 mA @ 24 VDC (one communication every 5 seconds with amber LED solid on)
Operating Humidity Range:	15% to 90% Relative Humidity, Non-condensing
Operating Temperature Range:	32°F to 122°F (0°C to 50°C)
Height:	2.7˝ (69 mm) installed in B200S series sounder base
Diameter:	6.875˝ (175 mm) installed in B200S series sounder bases
Weight:	3.4 oz. (95 g)
Isolator Load Rating:	0.0063*

*Please refer to your isolator base/module manual for isolator calculation instructions.

UL 2075 listed for Carbon Monoxide

This sensor must be installed in compliance with the control panel system installation manual. For local audible indication of a carbon monoxide alarm, it is recommended to install the multi-criteria carbon monoxide (CO) sensor into a B200S series sounder base. If a local audible device is not used, care should be taken to develop a proper response plan. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72 and NFPA 720. For a complete list of compatible bases, refer to the Base/Sensor Cross Reference Chart at systemsensor.com.

GENERAL DESCRIPTION

Model SS-CO is a plug-in type Intelligent CO sensor.

The sensor transmits an analog representation of carbon monoxide density over a communication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 2.)

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA100Z).

System Sensor panels offer different features sets across different models. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others.

The Intelligent CO sensor only supports SS, LiteSpeed, and SK protocol. The possible features available in the Intelligent CO sensor, if supported by the control unit are:

1. The sensor's LEDs can operate in three ways—on, off, and blinking–and they can be set to red, green, or amber. This is controlled by the panel.
2. The remote output may be synchronized to the LED operation or controlled independent of the LEDs.
3. Devices are point addressable up to 159 addresses.

Please refer to the operation manual for the UL listed control panel for specific operation. The intelligent carbon monoxide sensor requires compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPACING

System Sensor recommends spacing sensors in compliance with NFPA 72 and 720. For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72, NFPA 720, and the System-Connected Carbon Monoxide Detectors Application Guide available from System Sensor.

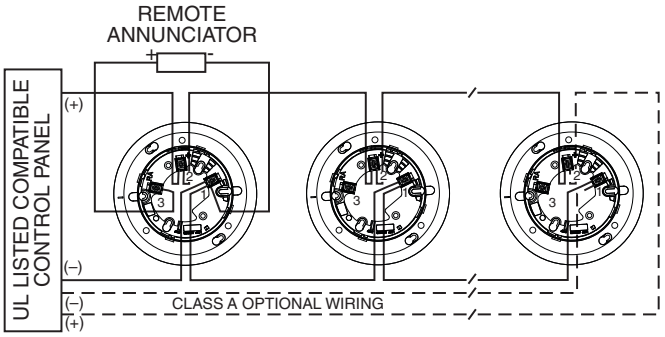
WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) per the base wiring diagram. (See Figure 1.)
2. Set the desired address on the sensor address switches. (See Figure 2.)
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control panel and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

FIGURE 1. WIRING DIAGRAM

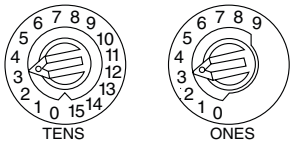


C0129-04

⚠CAUTION

Do not loop wire under terminal 1 or 2. Break wire run to provide supervision of connections.

FIGURE 2. ROTARY ADDRESS SWITCHES



C0162-00

FIGURE 3. FEATURES OF THE CO DETECTOR

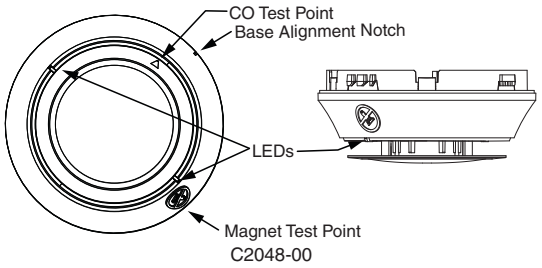
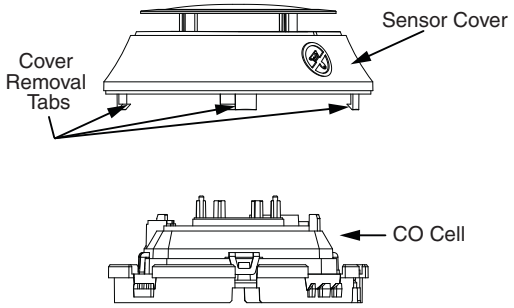


FIGURE 4. CLEANING THE CO DETECTOR



⚠CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense CO. Remove sensors prior to heavy remodeling or construction.

TAMPER RESISTANCE

Model SS-CO includes a tamper-resistant capability that prevents removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72 and 720. Refer to the manufacturer's published instructions for proper use.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)

This sensor can be functionally tested with a test magnet. The test magnet electronically simulates CO in the sensing chamber, testing the sensor electronics and connections to the control panel.

a. Hold the test magnet in the magnet test area as shown in Figure 3.
b. The sensor should alarm the panel.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

NOTE: The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

B. Functional Gas Test

NOTE: Check with local codes and the AHJ to determine whether or not a functional gas test is desired for an installation.

A canned CO testing agent may be used to verify the detector's ability to sense CO. Carbon Monoxide alarm thresholds are designed around CO concentrations over time, as defined in UL standard 2034. Therefore, a single burst of CO test agent will not immediately place the detector into an alarm condition. In order to perform functional testing of the CO sensor, the device must be placed into test mode. Test mode eliminates the time and concentration requirements needed for alarm and allows the CO sensor to be tested. The device can be placed into test mode through either of the following methods.

a. Put the device into test mode by holding a test magnet in the magnet test area as shown in Figure 3 for 6-12 seconds.

NOTE: If the magnet is held in place for too long the fire alarm test function will be triggered. Reset the panel and proceed with testing the CO portion of the device.

b. Perform functional gas entry testing immediately following the magnet test. The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

Once in test mode, test the CO sensor using a tested and approved canned CO testing agent. A tested and approved canned CO testing agent is Solo detector testers model C6 CO Detector Tester available from SDi. Complete the CO sensor testing as follows:

Spray a UL approved CO agent into the top of the detector near the CO sensor opening for at least 1 second. CO sensor opening is indicated by a triangle on the sensor cover. (See Figure 3.) Use the applicator straw included with the CO agent to more efficiently direct the CO into the detection cell during testing.

The detector will go into alarm if gas entry is successful. It may take up to 1 minute for the device to alarm. Once the detector is in alarm allow 5 minutes for the CO to clear and exit the detector.

The detector will automatically enable the signal processing after 10 minutes.

T**esting the detector will activate the alarm relay and send a signal to the panel.**

CLEANING

Before removing the detector, notify the proper authorities that the CO detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

ABOUT CARBON MONOXIDE DETECTORS

⚠CAUTION

CAUTION: This carbon monoxide detector is designed for indoor use only. Do not expose to rain or moisture. Do not knock or drop the detector. The detector will not protect against the risk of carbon monoxide poisoning if not properly wired. The detector will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

This carbon monoxide detector is NOT:

- Designed to detect any gas other than carbon monoxide
- To be seen as a substitute for the proper servicing of fuel-burning appliances or the sweeping of chimneys.
- To be used on an intermittent basis, or as a portable alarm for the spillage of combustion products from fuel-burning appliances or chimneys.

Carbon monoxide gas is a highly poisonous gas which is released when fuels are burnt. It is invisible, has no smell and is therefore impossible to detect with the human senses. Under normal conditions in a room where fuel burning appliances are well maintained and correctly ventilated, the amount of carbon monoxide released into the room by appliances should not be dangerous.

SYMPTOMS OF CARBON MONOXIDE POISONING

Carbon monoxide bonds to the hemoglobin in the blood and reduces the amount of oxygen being circulated in the body. The following symptoms are examples taken from NFPA 72 and 720. They represent approximate values for healthy adults:

Concentration (ppm CO)	Symptoms
200	Mild headache after 2-3 hours of exposure
400	Headache and nausea after 1-2 hours of exposure
800	Headache, nausea, and dizziness after 45 minutes of exposure; collapse and unconsciousness after 2 hours of exposure

Many causes of reported carbon monoxide poisoning indicate that while victims are aware that they are not well, they become so disoriented that they are unable to save themselves by either exiting the building or calling for assistance.

Also young children and pets may be the first to be affected.

Per UL standard 2075, SS-CO has been tested to the sensitivity limits defined in UL standard 2034.

ALARM THRESHOLDS ARE AS FOLLOWS:

Parts Per Million	Detector response time, min.
70 ±5ppm	60-240
150 ±5ppm	10-50
400 ±10ppm	4-15

What to do if the carbon monoxide detector goes into alarm:

Immediately move to a spot where fresh air is available, preferably outdoors.

IMPORTANT: This detector should be tested and maintained regularly following National Fire Protection Association (NFPA) 72 and 720 requirements.

CO SENSOR LIFETIME

The CO cell has an expected lifetime of approximately ten years. The detector is programmed to signal the approach of end of this lifetime to the control panel. The CO cell is not a field replaceable component. The CO detector will not operate once the CO cell has reached its end of life.

SUPPLEMENTAL INFORMATION

For Limitations of Fire Alarm Systems, please go to: http://www.systemsensor.com/en-us/Documents/I56-1558.pdf

Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

DEVICE AND SYSTEM SECURITY

Before installing this product ensure that the tamper seal on the packaging is present and unbroken and the product has not been tampered with since leaving the factory. Do not install this product if there are any indications of tampering. If there are any signs of tampering the product should be returned to the point of purchase.

It is the responsibility of the system owner to ensure that all system components, i.e. devices, panels, wiring etc., are adequately protected to avoid tampering of the system that could result in information disclosure, spoofing, and integrity violation.

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