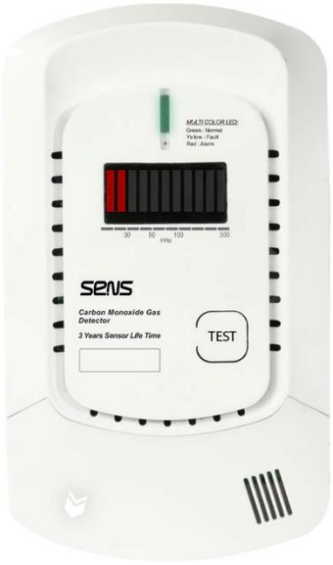
Installation and Operation Manual of

Conventional Carbon Monoxide Detector

S5-COD-20A, S5-COD-20B, S5-COD-20D



SENS

Fire Alarms Systems

Tabel of content

Introduction

Thank you for choosing this company's carbon monoxide gas detector. Utilizing precision sensing technology and advanced processing circuitry, this device has been designed and manufactured for continuous monitoring and rapid detection of carbon monoxide (CO) in residential environments.

Carbon monoxide is a colorless, odorless, and tasteless gas produced by the incomplete combustion of fossil fuels such as natural gas, oil, gasoline, and diesel. Because this gas cannot be detected by human senses, exposure to it can be extremely dangerous. Exposure to high concentrations of CO may cause symptoms such as headache, dizziness, nausea, weakness, unconsciousness, and, in severe cases, death.

By continuously monitoring the gas concentration level in the environment, this detector activates an audible and visual alarm and also provides an output signal to trigger ventilation equipment, etc., when an unsafe increase in gas level is detected.

Timely operation of the device plays a vital role in improving the safety of the protected area and safeguarding the lives of occupants.

Warnings and Safety Instructions

- Read this manual thoroughly and carefully before installing, commissioning, and using the device. This document should be kept in a safe and accessible location for future reference
- This device is solely an alarm instrument and should not be used as a substitute for necessary safety measures such as adequate ventilation, periodic gas system inspections by specialists, and adherence to safety precautions related to gas appliances
- The installation of the device must be performed exclusively by a qualified and trained professional, in accordance with the provisions of this manual and applicable local regulations and requirements. Improper installation can lead to unreliable operation or reduced safety levels.
- Refrain from opening, repairing, modifying, or tampering with the device. Unauthorized intervention will void the warranty and may result in electric shock and reduced operational accuracy. In case of any defect or malfunction, please contact the after-sales service department.
- Avoid placing the device in unsuitable environmental conditions. The following may negatively impact the device's proper function and sensor accuracy:

- High humidity or direct contact with water and liquids.
- Presence of dense dust or airborne particles and contaminants.
- Severe and continuous vibrations or tremors.
- Temperatures outside the permissible operating range (below -10°C or above 50°C).
- Exposure to direct and prolonged sunlight.

- Do not spray any chemical substances such as insecticides, detergents, air fresheners, perfumes, or hairspray directly onto the device. These substances may contaminate the sensor, cause false alarms, or interfere with the device's proper operation.
- Always ensure adequate ventilation in the environment. This device is strictly an alarm and is not a substitute for a standard ventilation system.
- If the alarm is activated, remain calm and immediately take the necessary safety precautions, following the instructions provided in the "Actions in Case of Alarm" section. The safety of individuals in the environment is the absolute priority.
- The sensor used in this device has a specific and limited lifespan, typically 3 years from the date of manufacture. After this period, the reliability of the device's operation decreases due to gradual reduction in sensitivity and measurement accuracy. Therefore, the device must be replaced after the sensor's service life expires, even if no signs of malfunction are visible externally or operationally.

technical specifications

- table of the technical specifications:

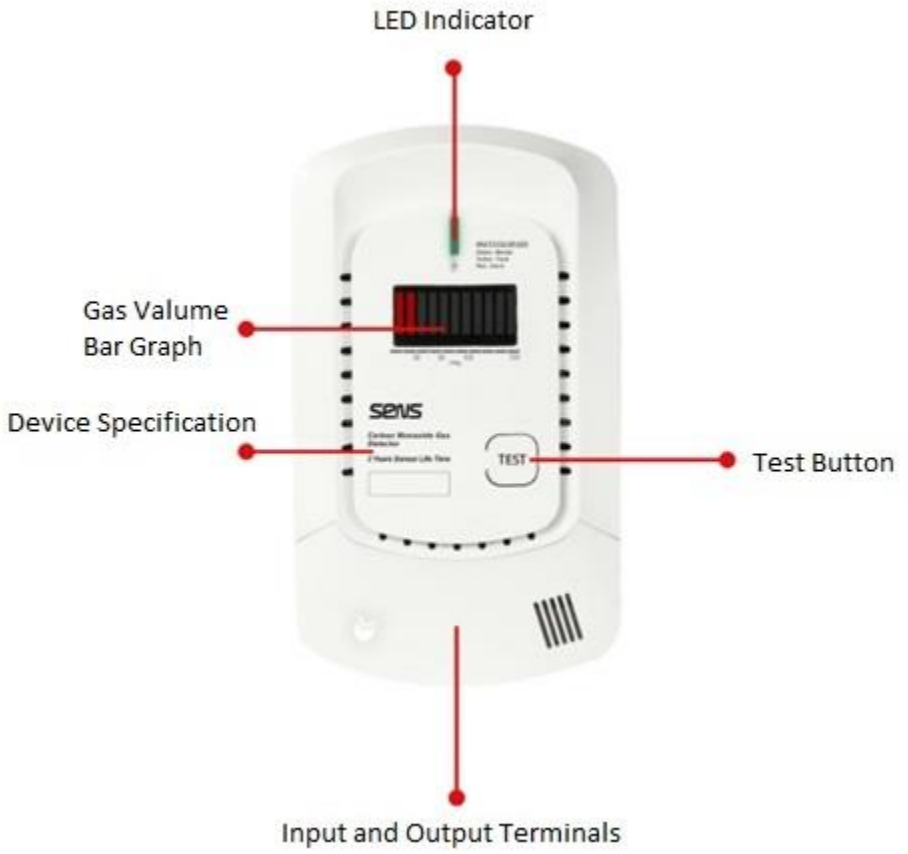
Model	S5-COD-20A S5-COD-20B S5-COD-20D
Class	Conventional
Type	A
Complies with	EN 50291-1:2018
Detection Method	Electrochemical Sensor
Sound Level	85 dB @ 1m
Alarm type	Audible and visual

Relay Output	24V DC, 3A and 250V AC, 1A
Power Supply	220V AC~50Hz (S5-COD-20A) or 24V DC (S5-COD-20D) or 3.7V Lithium Battery (3200mAh) (S5-COD-20B)
Maximum Power Consumption	10W
Operating Temperature	-10°C to 50°C
Operating Humidity	90% non-condensing
Response time	Minimum 30 seconds
Recovery time	Minimum 50 seconds
Sensor Life	3 years
Battery Life (Battery powered model)	3 years
Dimensions	130 × 80 mm
Weight	140 g

- Alarm Conditions

CO Concentration (ppm)	Alarm does not activate before time shown	Alarm activates before time shown
30 ppm	120 minutes	-
50 ppm	60 minutes	90 minutes
100 ppm	10 minutes	40 minutes
300 ppm	-	3 minutes

Different parts of the device



- LED Indicator

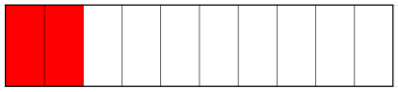
This detector is equipped with an LED indicator, and the device's operating status can be identified by the color it displays. The table below explains each of the indicator states.

Color	Status	Functional Description
Green	Continuously On	Power connected; normal and stable operation (battery free models).
	Blinking	Flashing once every second indicates that the sensor is in its warm-up period and is preparing for normal operation.

		For the S5-COD-20B model (battery-powered version), a brief flash every 10 seconds indicates that the detector is operating normally in low-power standby mode and is ready for use.
Red	Fast blinking with periodic audible alarm	Carbon monoxide leak detected at a concentration above the warning threshold.
Yellow	Continuously On or blinking with short, periodic Beeps	Battery life ended, sensor/electronic circuit malfunction, or sensor end-of-life.

- Gas Level Bar Graph

To provide an approximate display of the detected carbon monoxide level, the device is equipped with a bar graph display. The table below explains how to interpret the different bar graph statuses.

Gas Level	Display Status
More than 30 ppm and less than 50 ppm	
More than 50 ppm and less than 100 ppm	
More than 100 ppm and less than 300 ppm	
More than 300 ppm	

- Test Button

This button is used to test the device's functionality (for more information, refer to the "Initial Setup and Test" section).

- Input and Output Terminals

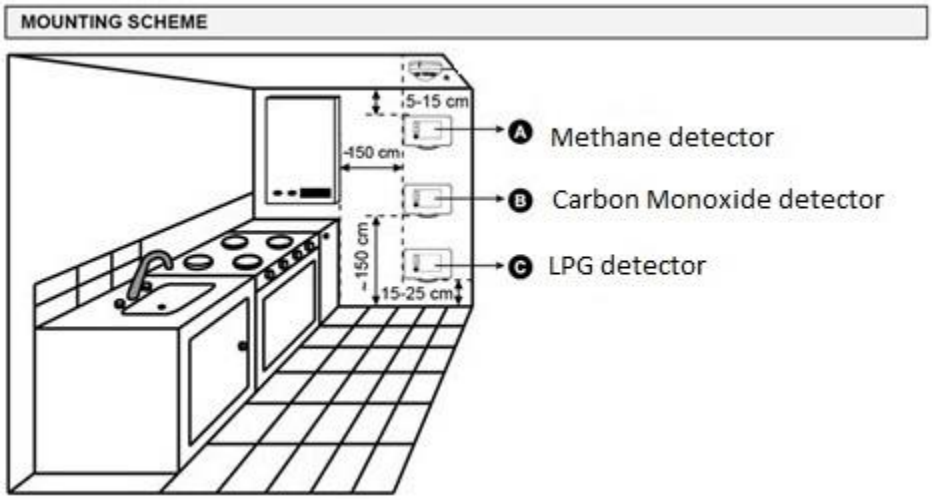
This section is used to connect the device's input wires (for the battery-less model) as well as the output wires. Removing the cover here allows access to the terminals.

For details on the correct wiring method and how to connect the conductors, please refer to the “Installation” section.

Once wiring is complete, it’s essential to securely replace the cover in its proper position to ensure the device’s safety and correct operation.

Installation

For the device to operate correctly and safely, precise and proper installation is essential. The installation process must be carried out by a qualified and experienced individual, in accordance with the instructions in this manual and relevant local regulations.
The figure below shows the distance between the carbon monoxide gas detector and other components of the fire alarm system:



- Suitable Installation Location

To ensure the device operates correctly, selecting the installation location is very important. The suggested locations are as follows

- In areas with gas-fired appliances such as heaters, fireplaces, and other combustion equipment.
- In areas with gas-fired appliances such as heaters, boilers, fireplaces, and other combustion equipment.
- At a distance if 1 of 3 meters from any gas source.
- If only one device is installed in the house, the best location is the hallway leading to the bedrooms.

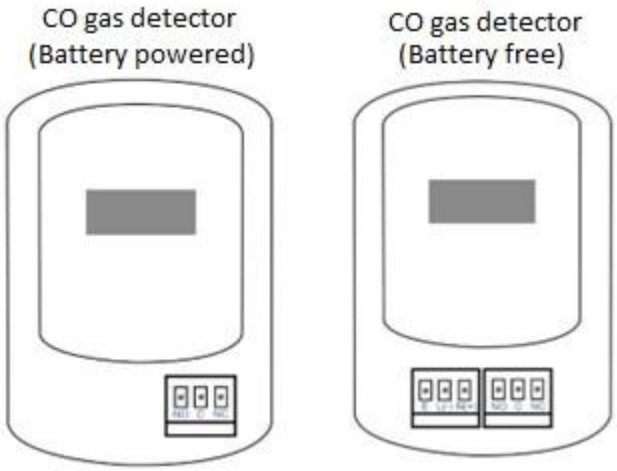
- Unsuitable Installation Locations

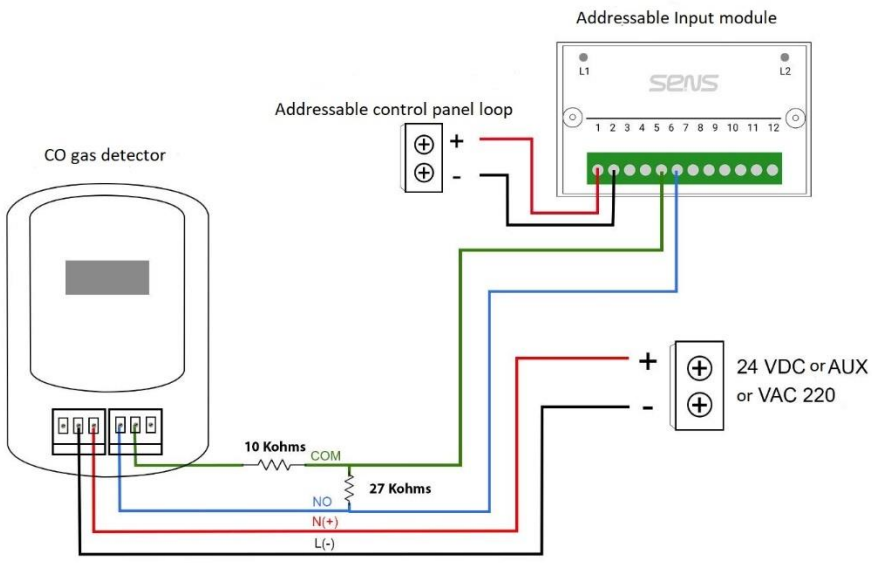
To prevent interference with the device's operation and reduce sensor accuracy, avoid installing the detector in the following locations:

  - Directly above the gas stove or oven: Steam, heat, smoke, and cooking grease can disrupt the sensor, causing false alarms or damage.
  - Near doors, windows, vents, and ventilation systems: Strong air currents may prevent gas from reaching the sensor, delaying detection.
  - Very humid environments like bathrooms or laundry rooms where humidity levels exceed the device's operating range: High humidity can damage electronic components and impair device performance..
  - Locations with temperatures outside the operating range (-10°C to 50°C).
  - Behind curtains, large furniture, or other physical obstacles: These barriers can restrict gas flow to the sensor.
  - Environments with excessive dust or airborne particles, such as unventilated carpentry workshops: Dust can clog the sensor and disrupt its function.
  - Exposure to direct sunlight or intense heat sources.
  - Proximity to volatile chemicals: Including adhesives, paints, thinners, alcohols, and similar substances that may cause false alarms or damage the sensor.

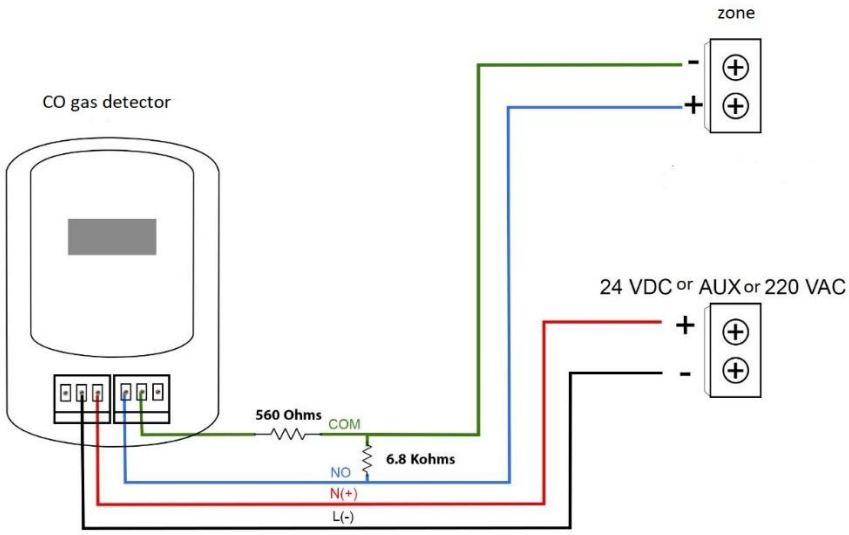
- Installation Steps
  - **Cut off the power (for battery-free models):** Before starting any installation work, always turn off the main power supply to the area via the meter or fuse box to prevent the risk of electric shock.
  - **Select the exact location:** Mark the precise installation spot based on the guidelines in the "Suitable Installation Location" section.
  - **Mount the detector:** Secure the detector base to the wall or ceiling using screws and wall plugs. Ensure the detector is completely stable and level to guarantee proper operation.

- **Wiring Connection:** For battery-free models, connect the power wires, including Live (L), Neutral (N), and Ground (E) if available, to the corresponding terminals on the device. (For model S5-COD-20D, connect the 24V input to the relevant terminals according to its polarity). Then, ensure all connections are tight and secure, with no loose wires or poor contacts. If you need a relay output to control auxiliary systems, connect the relay wires according to the letters marked on the terminals (NC, NO, C). The wiring diagrams for addressable and conventional systems are shown in the figures below.





Wiring Guide for Addressable Systems



Wiring Guide for Conventional Systems

- **Restoring Power:** After verifying that the installation is correct and safe, restore power to the area to make the device ready for operation. If your detector is battery-powered, open the terminal compartment cover and remove the protective battery tab to activate the detector.

Initial Setup and Test

Once power is connected, the device enters the sensor warm-up phase, which typically takes about 1 minutes. During this time, the status LED blinks green periodically, and the built-in bar graph gradually fills and empties .

- Functional Test (Manual Test)
  - After the warm-up period ends, press and hold the “Test” button on the device for at least 1 second.
  - The detector should immediately activate a strong audible alarm (loud periodic beep) and a visual alarm (blinking red LED).
  - This test should be performed at least once a month to ensure the warning system is functioning correctly.
  - If the alarm does not activate, check the installation and power/battery connections. If the issue persists, the device may require service or replacement .

Actions to Take in the Event of an Alarm

If the carbon monoxide (CO) alarm is activated—indicated by a flashing red LED accompanied by a loud periodic audible alarm—take the following actions :

- Remain Calm: Stay calm and avoid any impulsive actions.
- Ventilate the Area Immediately: If it is safe to do so, open all doors and windows to allow fresh air to circulate and reduce the concentration of carbon monoxide.
- Evacuate the Area Immediately: Move all occupants to a safe outdoor location without delay. Do not remain in the contaminated area.
- Contact Emergency Services: Once everyone has safely exited the building, contact local emergency services from a safe location (such as outdoors or from a neighboring residence) and report the situation.
- Do Not Re-enter the Building: Do not return to the premises until the area has been declared safe by the appropriate authorities or a qualified technician.
- Identify and Eliminate the Source: After the emergency has been addressed, have a qualified technician inspect the premises to identify the source of carbon monoxide and perform any necessary repairs or corrective actions.

Maintenance and Care

To ensure proper operation, maximize service life, and maintain the reliability of the detector, follow the maintenance instructions below:

- Periodic Testing
  - Press the Test button at least once a month to verify that the audible and visual alarm functions are operating correctly (refer to the Initial Setup and Testing section).
- Regular Cleaning
  - Clean the exterior surface of the detector at least once every three months using a soft, dry, clean cloth.
  - Do not use detergents, chemical cleaners, solvents, or aerosol sprays to clean the detector, as these substances may damage the sensor.
  - Ensure that the sensor air inlets remain free from dust, lint, or any other obstruction. If necessary, use a vacuum cleaner with a soft brush attachment to gently clean around the openings.
- End of Sensor Life
  - The gas sensor has a limited service life (typically about 3 years). After this period, its accuracy and sensitivity may gradually decline.
  - Check the manufacturing date indicated on the product label and replace the detector before the end of its service life. Continued use beyond the sensor's specified service life may significantly reduce the level of protection provided.
- Do Not Paint or Cover the Detector
  - Do not paint, decorate, or cover the detector with any protective or decorative material, as doing so may interfere with the sensor's operation and affect its performance.

Troubleshooting

Problem	Possible Cause	Solution
The detector does not power on	Power supply disconnected; incorrect wiring; depleted	Check the power connection and electrical outlet. Verify the corresponding fuse in the

	battery; battery installed incorrectlly	fuse box. For battery-powered models, install or replace the batteries according to the correct polarity (+/-). For hardwired models, have the wiring checked against the wiring diagram by a qualified technician.
False alarms	Presence of chemicals in the air (e.g., aerosols, paint, insecticides); dirty sensor; excessive humidity or steam; electromagnetic interference	Ventilate the area thoroughly. Carefully clean the detector and sensor openings. Relocate the detector away from sources of steam or excessive humidity. If the problem persists, the detector may require servicing or replacement
Alarm does not activate during testing	Faulty Test button; internal device malfunction; damaged or expired sensor	Ensure that the Test button is pressed correctly and held long enough to initiate the test. If the problem persists, contact customer support. Replace the detector if the sensor has reached the end of its service life.
Yellow LED remains illuminated or the detector emits periodic short beeps	Sensor failure; internal device fault; end of sensor service life; low battery (battery-powered models)	The detector requires inspection, servicing, or replacement. If applicable, replace the batteries. If the yellow LED remains illuminated after battery

		replacement, contact customer support or replace the detector.

After-Sales Service and Warranty

- Warranty Period: This detector is warranted against defects in materials and workmanship for a period of _____ from the date of purchase / date of manufacture ._____
- Warranty Conditions: This warranty does not cover damage resulting from improper installation, misuse, unauthorized modification, repair by unauthorized personnel, accidents, natural disasters, or failure to follow the maintenance instructions provided in this manual.
- Technical Support: If you experience any problems or require technical assistance, please contact us at +98 41 36379707-8 or by email at sensglobalco@gmail.com.
- Service Center Address: Shahin Shahr Industrial Town, Tabriz, East Azerbaijan Province, Iran
- Product Record: Please record the purchase information below for future reference:
  - Date of Purchase: .....
  - Recommended Replacement Date (Based on Sensor Service Life): .....
- Manufacturer: Sens
- Company Address: Shahin Shahr Industrial Town, Tabriz, East Azerbaijan Province, Iran
- Website: www.se-ns.com

**This user manual should be kept with the detector at all times. If the detector is relocated or transferred to another owner, this manual should accompany the product.