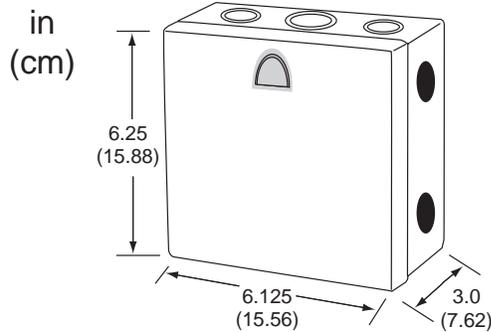# CARBON MONOXIDE SENSOR
MODEL WCO-1B

DESCRIPTION

The **Model WCO-1B Carbon Monoxide Sensor** is comprised of a carbon monoxide meter and a 4-20 mA transmitter. It is an all-electronic system that utilizes a microprocessor to measure carbon monoxide (CO), calculate various calibration factors, and provide a digital display and analog output. A Model UCS-121 may be used with the **Model WCO-1B** to provide a digital output for remote alarm. A three-digit LED display on the **Model WCO-1B** shows the current level of CO between 0-200 ppm. It averages samples over a time period and updates the display and output every 2-1/2 minutes. It is intended to be used in enclosed parking garages, where it provides CO data to building automation computers or controllers. A UL knockout box houses the **Model WCO-1B** and provides an easy-to-mount, sturdy housing for the system. If duct mounting is required, refer to the GMT line of gas sensors.

FEATURES

- *Digital display of the CO level from 0-200 ppm*
- *Analog output of 4-20 mA*
- *Low voltage operation of 24 VAC/DC*
- *Test switch to provide mode for system self-test*
- *Automatic calibration with optional Model CM-FCK*
- *Overrange indication*

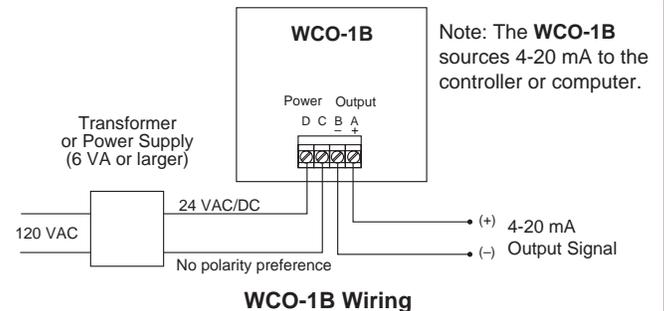- *Start-up mode to step display and output through test ranges*
- *Operating range within OSHA range for CO exposure*
- *Solid-state sensor with life expectancy of 7-10 years*
- *Only one power supply needed to power multiple sensors*

DIMENSIONS

in
(cm)

6.25
(15.88)

6.125
(15.56)

3.0
(7.62)

WIRING

WCO-1B

Note: The **WCO-1B** sources 4-20 mA to the controller or computer.

Power   Output
D C B A
            – +

Transformer
or Power Supply
(6 VA or larger)

120 VAC

24 VAC/DC

No polarity preference

(+) 4-20 mA
(–) Output Signal

WCO-1B Wiring

SPECIFICATIONS

Power	24 VAC/DC @ 220 mA
Color	Gray
Measurement range	0-200 ppm of CO (4-20 mA)
Sensor maintenance	Not required
Electrical class	General-purpose, nonhazardous
Sensor life	7-10 years typical
Warranty	One year
Operating temp	0° to 125°F (-18° to 52°C)
Shipping weight	3 lb (1.4 kg)

EXPOSURE

TIME OF EXPOSURE		
PPM CO	**UL 2034**	**OSHA**
400	15 min	No spec
200	35 min	15 min
100	90 min	No spec
50	No STD	8 hr TWA
35	No STD	8 hr TWA

SPECIALTY SENSORS

CARBON MONOXIDE SENSOR
MODEL WCO-1B

OPERATION

Detector Location
A **WCO-1B** can cover up to 5000 ft^2 if there is normal air circulation within the facility. Locations should be specified by a qualified engineer. Extra detectors may be needed near occupied work areas. Mount the detectors on walls or columns about 5' (12.7m) above the floor, where people breathe. Do not mount in corners where air flow could be restricted.

WCO-1B Power-Up
When power is first applied to the **WCO-1B,** it will go through a 2-1/2 minute start-up cycle. The internal ppm meter will step through a 0-150 reading at a rate of one count per second. The output will move through a range of 4-16 mA as the meter counts from 0 to 150.

At the count of 150, the **WCO-1B** finishes the test cycle, takes the first sample of air, displays this reading, and sets the 4-20 mA output to the appropriate current. It is not unusual for the display to read near zero or zero. This and future readings will hold for 2-1/2 minutes. This reading will not change during each 2-1/2 minute accumulation cycle.

WCO-1B Operation
Normally, the cover of the case is closed so there is no visible external indication of operation. Only the 4-20 mA output indicates proper operation. The BAS computer can be set to alarm at any point in the 4-20 mA out (0-200 ppm).

The **WCO-1B** continuously monitors various internal parameters. If a problem is discovered, the internal display will indicate E1 to E6, and the output will switch to 0 mA. Interrupt the power to reset the **WCO-1B**. It will restart by stepping through the warm-up cycle. If a second E error occurs, consult Kele. The internal pushbutton switch is used to set the unit for calibration with the optional Model CM-FCK field calibration kit.
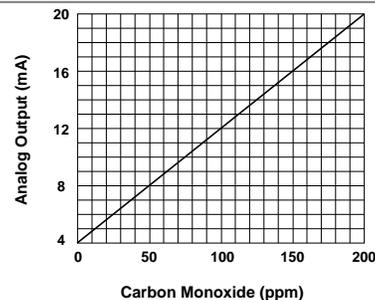
Error Codes
E1 = Microcontroller failure
E2 – E4 = High or low current to sensor
E6 = Low temperature

GENERAL INSTALLATION

- Place at least one sensor for every 5,000 ft^2 with adequate air movement.
- Sensors mount on walls or columns about 5' (12.7m) above the floor.
- Space sensors evenly. Do not put in corners or directly in front of air inlets (i.e., doors, windows, open ramps, dampers, etc.).
- Each sensor must have a cable directly to the control panel.
- One system of sensors, panel, and fan per floor is preferred.
- Refer to installation instructions for more complete data.

PERFORMANCE

WARNING: **Not for diesel fume applications.**
Not to be used as a life safety device.

ORDERING INFORMATION

MODEL	DESCRIPTION
WCO-1B	Carbon Monoxide Sensor with 4-20 mA Output
CM-FCK	Field Calibration Kit

RELATED PRODUCTS

UCS-121	Alarm relay module
GMT-CO-S1-DT	CO sensor for duct applications