SPECIALTY SENSORS

CARBON MONOXIDE SENSORS
MODELS WCO-1B / WCO-1D
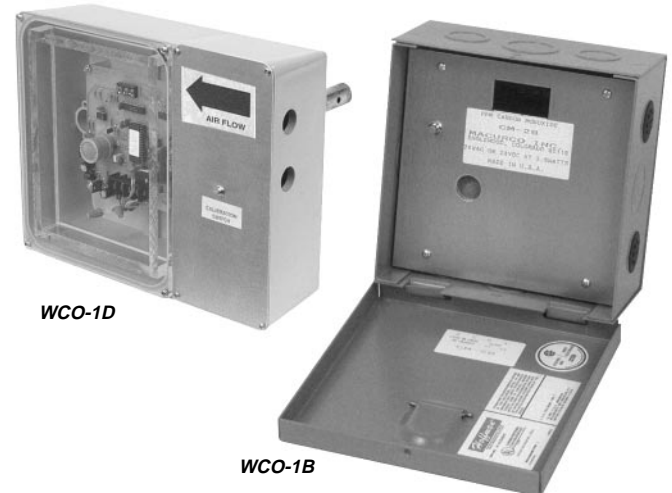
RE TECHNOLOGIES

DESCRIPTION

The **WCO-1B** is 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-221** may be used with the **WCO-1B** to provide two digital outputs for remote alarm. A three-digit LED display on the **WCO-1B** shows the current level of CO between 0 and 200 parts per million (ppm). The **WCO-1B** averages samples over a time period and updates the display and output every 2 1/2 minutes. The **WCO-1B** 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 **WCO-1B**, and provides an easy-to-mount, sturdy housing for the system.

The **WCO-1D** is a modified version of the **WCO-1B** for duct mounting. It is housed in a duct aspiration box which allows the sensor to monitor the air in the system. A clear cover is provided on the aspiration box so the digital display may be seen.

FEATURES

- *Digital display of the CO level: 0 to 200 ppm*
- *Analog output: 4 to 20 mA*
- *Low voltage operation: 24 VAC/VDC*
- *Wall mount and duct mount configurations*

WCO-1D

WCO-1B

- *Test switch: provides mode for system self-test*
- *Automatic calibration with optional CM-FCK (Field Calibration Kit)*
- *Overrange indication*
- *Start-up mode: steps display and output through test ranges*
- *Operating range: within OSHA range for CO exposure*
- *Solid-state sensor: Life expectancy of 7 to 10 years*
- *Multiple sensors with one power supply*

OPERATION

Detector Location
A **WCO-1B** can cover up to 5000 square feet 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 feet above the floor, as this is where people breathe. Do not mount in corners where air flow could be restricted. The **WCO-1D** is normally installed in the return air duct.

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 to 150 reading at a rate of one count per second. The output will move through a range of 4.0 to 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 at very 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 to 20 mA output indicates proper operation. On the **WCO-1D** the LED display is visible. The Building Automation System computer can be set to alarm at any point in the 4-20 mA output (0-200 ppm).
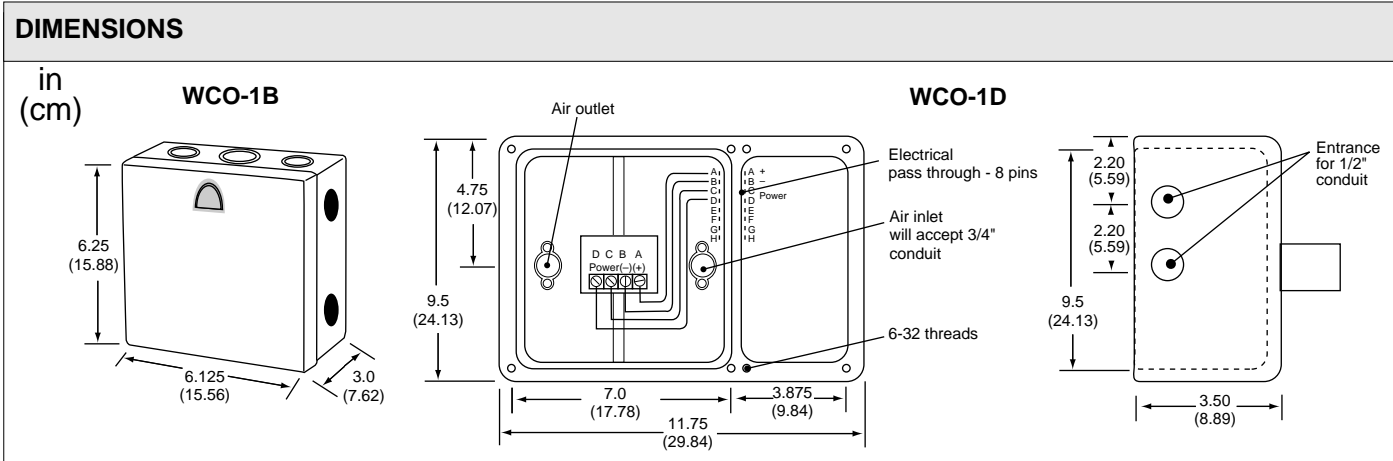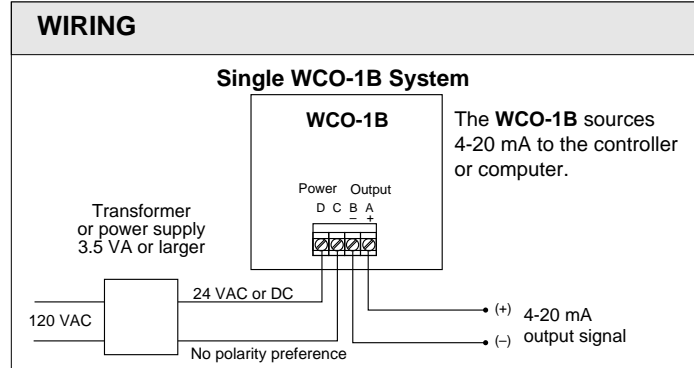
The **WCO-1B** continuously monitors various internal parameters. If a problem is discovered, the internal display will indicate E1 to E6, and the output will switch to 0 mA. Interrupt the power to reset the **WCO-1B.** It will restart by stepping through the warm-up cycle. If a second E (error) occurs, consult Kele. The internal push-button switch is used to set the unit for calibration with the optional **Field Calibration Kit CM-FCK.**
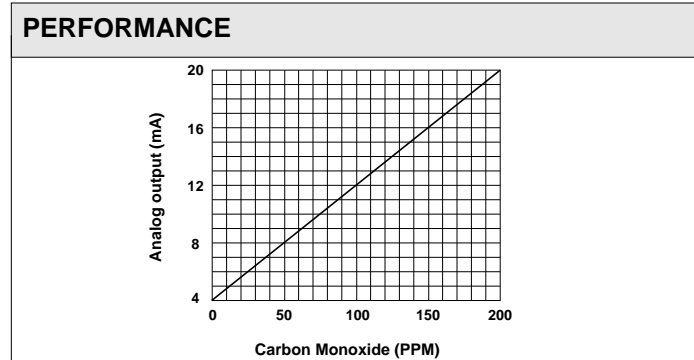
SPECIALTY SENSORS

CARBON MONOXIDE SENSORS
MODELS WCO-1B / WCO-1D

SPECIFICATIONS

Power	24 VAC / VDC @ 150 mA
Color	Gray
Measurement range	0 to 200 ppm of CO (4-20 mA)
Sensor maintenance	Not required
Electrical class	General purpose, non-hazardous
Warranty	One year
Operating temperature range	0° to 125°F (-18° to 52°C)
Shipping weight	3 lbs (1.4 kg)

WIRING

Single WCO-1B System

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

Transformer or power supply 3.5 VA or larger

120 VAC

24 VAC or DC

No polarity preference

(+) 4-20 mA
(−) output signal

DIMENSIONS

in (cm)

WCO-1B

6.25 (15.88)
6.125 (15.56)
3.0 (7.62)

WCO-1D

Air outlet

Electrical pass through - 8 pins

Air inlet will accept 3/4" conduit

6-32 threads

4.75 (12.07)
9.5 (24.13)
7.0 (17.78)
3.875 (9.84)
11.75 (29.84)

Entrance for 1/2" conduit

2.20 (5.59)
2.20 (5.59)
9.5 (24.13)
3.50 (8.89)

INSTALLATION (General Only)

- At least one sensor for every 5,000 square feet with adequate air movement.
- Sensors mount on walls or columns about 5 feet above the floor.
- Space sensors evenly, do not put in corners, or directly in front of air inlets. *(Air inlets can be 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 preferable.
- 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

WCO-1B	**Standard meter and 4-20 mA output**
WCO-1D	**Optional duct mounted version**
CM-FCK	**Field Calibration Kit**

	Related Products
UCS-221	**Alarm relay module**