SPECIFICATIONS

Sensing element	Electrochemical
Gas sampling method	Diffusion
Measuring range	CO, 0 ~ 100 ppm
Sensor Life expectancy	5 years
Warm-up time	less than 1 minutes
Power requirement	20 ~ 30V DC
Power consumption	20mA
Calibration interval	12 months
Response time	less than 1 minute
Output	4 ~ 20mA
Operating temperature	-10 ~ 50 deg. C
Humidity	5 ~ 90%
Linearity	Linear
Dimension	15 x 8.5 x 5 (cm)
Enclosed material	ABS FR
Weight	200 grams
Approvals	Pending

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TELASIA SYMTONIC

MODEL CO-T1

INSTRUCTION MANUAL

CARBON MONOXIDE SENSOR

INSTALLATION and CALIBRATION

INSTALLATION:

1. Locate a flat surface to mount the sensor enclosure. Use the mounting template provided to mark the three mounting locations. Drill three holes with diameter of 6mm, 40mm deep. Insert the wall plug into the drill holes.
2. Remove the enclosure top cover by pressing the hook at the lower side of the enclosure. Mount the bottom housing onto the flat surface with three wall-plug screws.
3. The cable entry is from upper surface of the enclosure. A PG9 cable gland has been provided. If a GI conduit is used, the entry hole can be enlarged or have the conduit rest on the upper surface of the enclosure.

   Pass the electrical wires through the cable gland into the enclosure. NOTE: BE SURE WIRING IS DONE ACCORDING TO THE LOCAL ELECTRICAL CODE REQUIREMENTS**.**
4. Connect the wires to the terminal block as shown on the wiring drawing. NOTE POLARITY. (See Wiring drawing). Use 1mm diameter (AWG 20 gauge minimum), twisted-pair control wires for the electrical connections. It is recommended that shielded wire be used if it is not being run in metal conduit.
5. Cover the enclosure with the top cover, be sure that the hook is properly secured.

CALIBRATION AND CONTROLLER SETUP:

The Telasia CO-T1 CO (Carbon Monoxide) gas detection sensor/transmitter is calibrated at the factory to a 4 to 20 milliamp output in proportion to a CO concentration range of 0 to 100ppm. No further calibration should be required upon initial installation. Since the output of the sensor is linear, a simple formula (see below) can be used to calculate the output signal level for a given gas concentration. These calculated signal levels can be used to set a controllers ventilation or alarm trip points.

The sensor should be recalibrated if, during a verification test, the output reading is off by more than +/- 5% of full scale or, if the sensor has been in service for approximately 1 year after last calibration. Follow the steps below to recalibrate the sensor at site.

1. Make sure that CO-T1 is powered up with 24VDC connected and output (Io) connected to external load resistor (500ohm). The red LED should be lit indicating normal operation of the sensor.
2. Using a DVM (Digital Volt Meter), monitor the voltage at test points (Vo) and (GND). [Note : test point voltage is 0 ~ 5V corresponding to 0 ~ 100ppm or 0.05V per ppm CO.]
3. While still monitoring the test points, apply calibration gas to the sensor using the cap provided. (Flow rate 0.4 to 0.6 LPM). Wait until the reading stabilizes.
4. 4. After the test point voltage has stabilized (approximately 1 minute) adjust the SPAN Trim-pot so the voltage at the test points reads the desired output (0.05V = 1ppm) for the calibration gas concentration. See examples and formulas below.
5. Note : due to nature of the sensor cell and the circuitry design, ZERO point calibration can be omitted.

CALCULATING PPM TO SIGNAL OUTPUT AND OUTPUT TO PPM:

Formula…

Output Signal (mA) = [CO Reading (ppm) ÷ Full Scale Reading (ppm) x 16] + 4

For example a unit calibrated to a full scale CO concentration of 100ppm will produce an output signal of (50 ÷ 100) x 16 + 4 = 12mA 12mA at 50ppm CO.

For 35ppm……(35 ÷ 100) x16 + 4 = 6.8mA.

To determine the CO concentration level a sensor is detecting by it's output use the following formula.

[Output Signal (mA) – 4] ÷ 16 x Full Scale Concentration

For example a unit is reading 10mA and is calibrated to 100ppm full scale, the CO concentration detected would be 37.5ppm or [10 – 4] ÷ 16 x 100 = 37.5ppm.

CO-T1 Wiring: