Calibrated Digital CO Sensor Module

BENEFITS

- **Low Power – 1 mW @1 minute sampling**
- **Fast Response – 15 seconds typical**
- **Calibrated & Temp. Compensated Output**
- **Simple Digital UART Interface**
- **Integrated T & RH Sensors**
- **Robust 10-year Estimated Lifetime**
- **ROHS Compliant**
- **Small form Factor**
- **UART to USB adapter provided**
- **Lightweight (< 2 Oz.)**
- **Scalable to high volume**

CO MONITORING APPLICATIONS

- **Life Safety Levels**
- **Air Quality Levels**

DESCRIPTION

SPEC Sensors now offers an easy way to add gas sensing to the Internet of Things. Combining our Screen Printed ElectroChemical sensor technology (SPEC Sensor™) with state-of-the-art electronics and algorithms, enables easy integration of small, lightweight, high performance, ultra-low power consumption gas sensing into wireless, portable, and networked solutions.

Measurement Range	0 to 1000 ppm
Resolution	0.1 ppm
Zero Accuracy	+/- 1 ppm when Zeroed after Power-up Stabilization
Measurement Accuracy	10% of reading
Measurement Repeatability	< +/- 3 % of reading or 0.5 ppm, whichever is greater
T90 Response Time (100 ppm step)	< 30 seconds (15 seconds typical)
Power Consumption	1 mW for 1 minute triggered samples 12 mW for continuous sampling 5, 10 30, 60 second intervals
Expected Operating Life	> 5 years (10 years @ 25+/-10C; 60+/-30% RH)
Operating Temperature Range	-20 to 40 C (-30 to 55C intermittent)
Operating Humidity Range	15 to 95% (0 to 100% non-condensing intermittent)
Mechanical Dimensions	1.75 x 0.82 x 0.35 in. (44.5 x 20.8 x 8.9 mm)
Weight	< 2 Ounces

NOTES:

1) Standard test conditions 15 to 30C and 20-60% RH
2) Contact factory for custom calibration for improved measurement performance

CROSS SENSITIVITY

The following table lists the relative response of common potential interfering gases, and the concentration at which the data was gathered.

Gas/Vapor	Concentration	Typical Response PPM CO
Carbon Dioxide	5000 ppm	< 1
Methane	3000 ppm	< 1
Ammonia	100 ppm	< 1
Nitrogen Dioxide	10 ppm	< 1
Hydrogen Sulfide	25 ppm	< 1
Carbon Monoxide	400 ppm	400
Ozone	5 ppm	< 1
Sulfur Dioxide	20 ppm	< 1
Chlorine	10 ppm	< 1
n-Heptane	500 ppm	< 1
Toluene	200 ppm	< 1
Isopropyl Alcohol	200 ppm	1.3
Acetone	200 ppm	< 1

SIMPLE COMMAND LIBRARY

- Continuous Data Acquisition with 5,10, 30 or 60 second
- Sensor Re-Zero
- Restore factory default calibration factors
- Trigger a Measurement
- Enable/Disable Verbose Data Output
- Request Calibration info in EEPROM

IMPORTANT PRECAUTIONS

All sensor designs are made for air monitoring @ 1 atm +/- 0.2 atm. Because applications of use and device implementation are outside our control, SPEC Sensors cannot guarantee performance in a given device or application, and disclaims any and all liability therefore. **Customers should test under their own conditions to ensure the sensors are suitable for their requirements.**

Contact the factory to discuss specific concerns that might damage the sensor performance or life.
- Condensation and Water (1)
- High Temperature Operation (> 40C) for more than 1 month
- Low Humidity Operation (< 15% RH) for more than 3 months
- Highly contaminated air over a prolonged period
- High levels of particles or soot (unless proper filtering is provided)[2]

(1) Use of porous PTFE membrane or filter cap may address this concern)
(2) Use of replaceable filter recommended where dust and particulate is expected.