

## IOT\_CO\_1000 Gas Sensor 968-028

July 2016

## 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.

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

### NOTES:

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

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## 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.