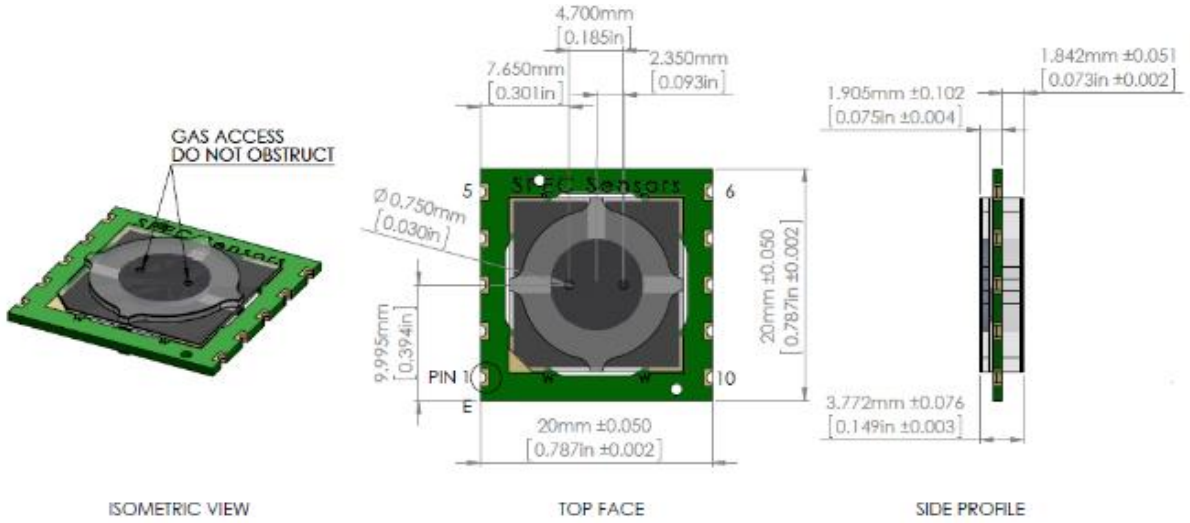
3SP_CO_1000 Package 110-109

June 2015

15x15 CO Sensor 1000 ppm with Side Solder Mount



BENEFITS

- **Small Size with Low Profile (20x20x3.8 mm)**
- **Long Life (10 years expected life)**
- **Fast Response (< 15 seconds)**
- **Robust (passes 5000 ppm overload)**
- **Low Power (0 mW @ 0 mV bias)**
- **Individually Calibrated (NIST Traceable)**
- **ROHS Compliant**

APPLICATIONS

- **Residential and Commercial CO Monitoring**
- **Industrial CO Monitors**
- **Ventilation Control**
- **RV and Marine CO Monitoring**
- **Indoor Air Quality**
- **Outdoor Air Quality**

DESCRIPTION

SPEC Sensors' Screen Printed ElectroChemical sensor technology (SPEC Sensor™) revolutionizes the current state of the art, enabling new applications in consumer and industrial safety monitoring. SPEC's printed sensors offer the performance of the best quality electrochemical sensors at a fraction of the price. SPEC's printed sensors are also ultra-thin, offering easy integration into wireless, portable, and networked solutions. These sensors are ideal for health, environmental, industrial and residential monitoring, because of their high performance, low cost and small size.

Measurement Range	0 to 1000 ppm
Lower Detectable Limit	< 80 ppb (instrumentation dependent)
Repeatability	< +/- 1 % of reading
Response Time	< 15 seconds
Sensitivity @ 3 mV bias	4.75 +/- 2.75 nA/ppm
Overload	Passes EN20291-1 Sec. 5.3.6 5000 ppm overload
Expected Operating Life	> 5 years (10 years @ 23+/-3C; 40+/-10% RH)
Operating Temperature Range	-40 to 70 C (-20 to 40 C continuous)
Operating Humidity Range – non-condensing	0 to 100% RH (15 to 95% continuous)
Power Consumption	circuit & ambient CO dependent

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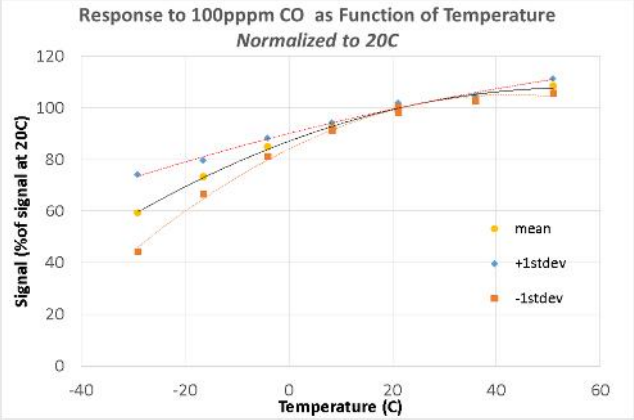
CROSS SENSITIVITY

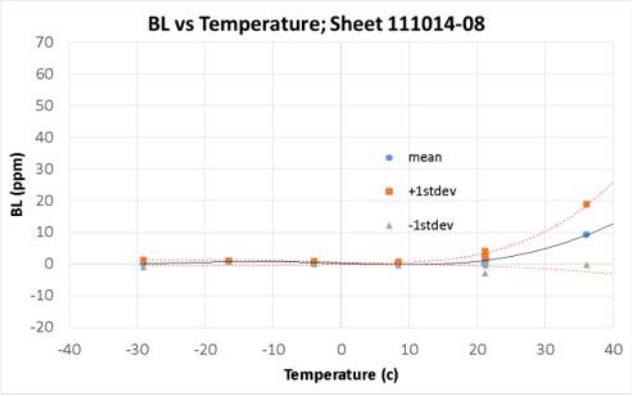
Gas/Vapor	Concentration	Typical Response PPM CO
Carbon Dioxide	5000 ppm	< 1
Methane	3000 ppm	< 1
Ammonia	100 ppm	< 1
Nitrogen Dioxide	10 ppm	< 1
Hydrogen Sulfide	25 ppm	< 1
Carbon Monoxide	400 ppm	400
Ozone	5 ppm	< 1
Sulfur Dioxide	20 ppm	< 1
Chlorine	10 ppm	< 1
n-Heptane	500 ppm	< 1
Toluene	200 ppm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

TEMPERATURE EFFECT

Temperature fluctuations have a predictable, easily compensated effect on the sensor signal**.** The figures at below shows the typical Temperature dependency the output and baseline of 3SP_CO_1000 sensors under constant humidity of 40-50 % RH. This is a very uniform and repeatable effect, easily compensated for in hardware or software.



MARKING INFORMATION



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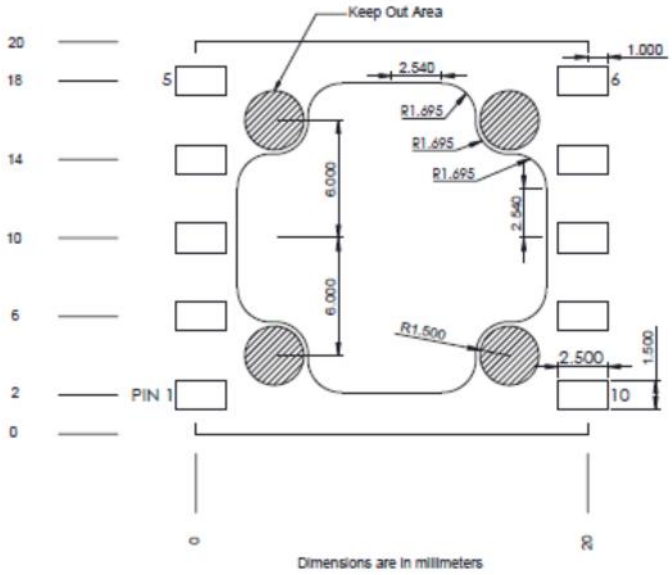
Sensors have serial numbers printed with individual NIST Traceable calibration data printed on each sensor.

PCB LAYOUT GUIDELINES



PIN	CONNECTION
1	WORKING
2	NC
3	NC
4	NC
5	REFERENCE
6	COUNTER
7	NC
8	NC
9	NC
10	WORKING

IMPORTANT PRECAUTIONS

All sensor designs are made for air monitoring @ 1 atm +/- 0.2 atm. As applications of use are outside our control, all information is given without legal responsibility. Customers should test under their own conditions to ensure the sensors are suitable for their requirements. Contact the factory to discuss any application beyond human breathable air to discuss specific concerns.

- Condensation and Water (1)
- Salt Water Contamination (1)
- High Temperature Operation (> 70C) for more than 1 month
- Low Humidity Operation (< 15% RH) for more than 3 months
- High Bias voltage
- Highly contaminated air over a prolonged period
- High levels of particles or soot (unless proper filtering is provided)

(1) Use of porous PTFE membrane or filter cap will address this concern)