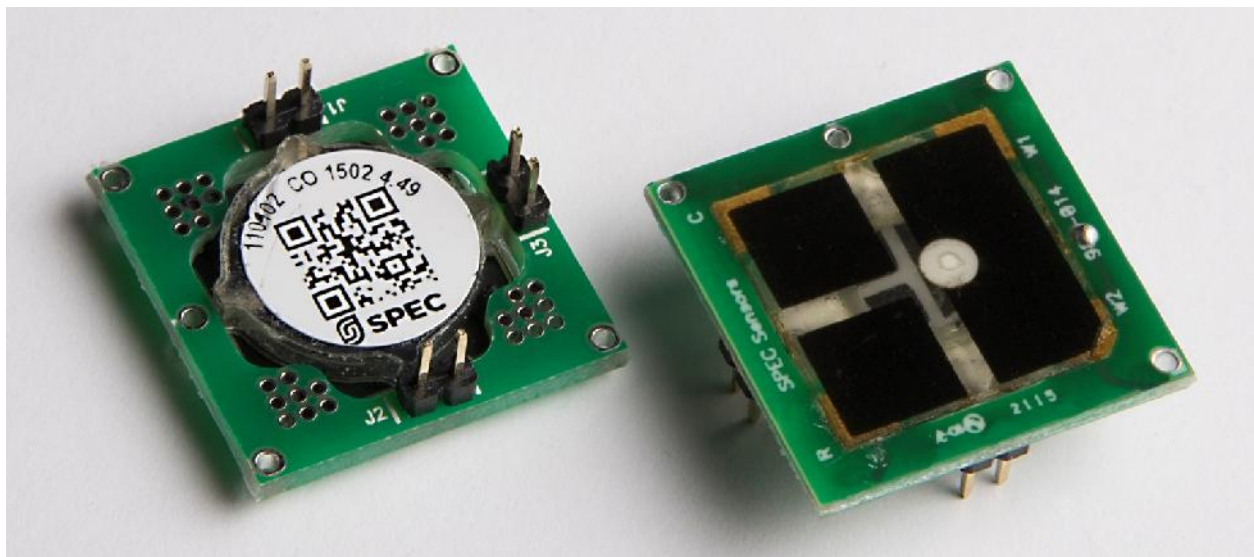


# IAQ\_100 P Package 110-801

February 2016

## 15x15 Indoor Air Quality Sensor 100 ppm P Package 110-801



### DESCRIPTION

SPEC Sensors' IAQ\_100 is a Screen Printed ElectroChemical sensor component specifically designed for the broad detection of gases associated with poor air quality: sulfides, alcohols, ammonia, odorous gases, and Carbon Monoxide.

### BENEFITS

- Zero Power Sensor
  - Sensor Circuit - < 10 uW max
- Cold operation - No Heating required
- Rugged Design- Not poisoned by sulfides, chlorides, NH<sub>3</sub>
- Stable Response– Not affected by humidity, CO<sub>2</sub>, N<sub>2</sub>, Ar, most saturated hydrocarbons, hexane
- Small Size& Low Profile - 20x20x3 mm
- Sensitive - In the ppm range
- Easy to Use - Linear Response
- Long Life - 10 years expected life
- Fast Response - < 20 seconds
- ROHS Compliant

### APPLICATIONS

- Bad Air Quality Detection
- Indoor Air Monitor
- Air Purifier Controls
- Weather Stations
- Internet of Things
- Smart Homes
- Early Fire Detection
- Leak Detection
- HVAC Ventilation Control

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## SPECIFICATIONS

|  |   |
|--|---|
| <b>Measurement Range</b>                   | 0 to 100 ppm (calibrated as CO equivalents)   |
| <b>Response Time to 90%</b>                | < 20 seconds typical                          |
| <b>Sensitivity</b>                         | 12 +/- 3 nA/ppm (CO equivalents)              |
| <b>Expected Operating Life</b>             | > 5 years (10 years @ 23+/-3C; 40+/-10% RH)   |
| <b>Operating Temperature Range</b>         | -10 to 40 C (0 to 40 C continuous)            |
| <b>Operating Humidity – non-condensing</b> | 0 to 100% RH (15 to 95% continuous)           |
| <b>Power Consumption</b>                   | < 50 uW circuit & ambient gas dependent       |
| <b>Zero Drift (Over Temperature Range)</b> | +/- 2 ppm (CO equivalents)                    |
| <b>Lower Detection Limit</b>               | 0.1 ppm CO (depends on the gas & electronics) |

## CROSS SENSITIVITY

This sensor exhibits sensitivity to a wide range of gases. The following table lists the relative response of common gases.

| Gas                           | ppm        | Typical Response<br>(as ppm CO) |
|-------------------------------|------------|---------------------------------|
| <b>Carbon Monoxide</b>        | <b>100</b> | <b>100</b>                      |
| <b>Hydrogen Sulfide</b>       | 100        | 370                             |
| <b>Ozone</b>                  | 100        | -70                             |
| <b>Nitrogen Dioxide</b>       | 100        | -50                             |
| <b>Sulfur Dioxide</b>         | 100        | 70                              |
| <b>Ethanol</b>                | 100        | 140                             |
| <b>Nitric Oxide (NO)</b>      | 100        | 80                              |
| <b>Chlorine</b>               | 100        | -50                             |
| <b>n-Heptane</b>              | 100        | 0                               |
| <b>Ammonia</b>                | 100        | 1                               |
| <b>Methane</b>                | 100        | 0                               |
| <b>Saturated Hydrocarbons</b> | 100        | 0                               |

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## 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)
- 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 may address this concern)

## MARKING INFORMATION

All gas sensors are tested and marked at the SPEC Sensors factory. Sensors include a label with an alpha-numeric code and a two-dimensional bar code. The codes include the information indicated in the table below.

|  | Unique Serial Number             | Sensor Part Number | Target Gas | Date Code<br>(YYMM) | Sensitivity Code<br>(nA/ppm) |
|---|----------------------------------|--------------------|------------|---------------------|------------------------------|
| Alpha-Numeric Code:   | 110201 CO 1501 5.57              |                    |            |                     |                              |
| 2D Code:  | 010715010101 110201 CO 1501 5.57 |                    |            |                     |                              |

## STORAGE CONDITIONS

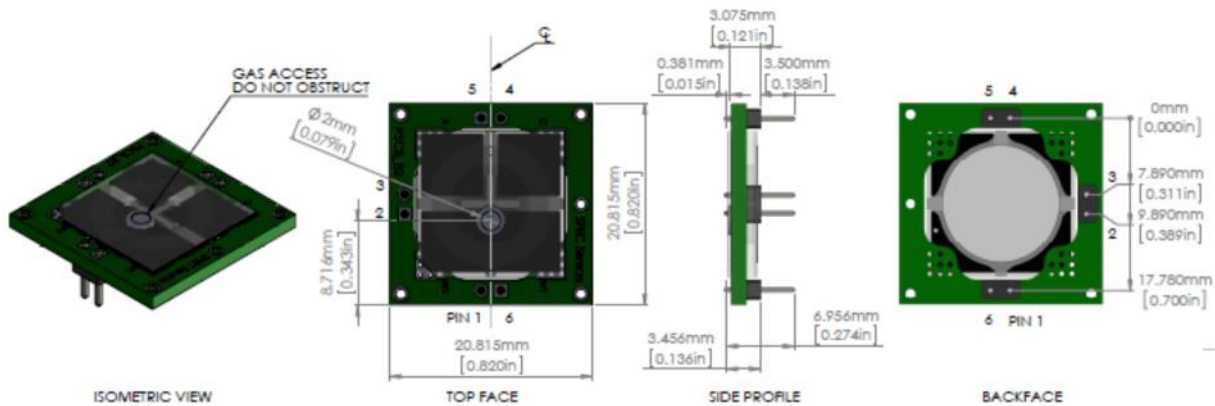
The calculated shelf life for sealed, packaged components is 12 months from the pack seal date, when stored in the factory-sealed bag under the following conditions:

- A. Temperature: 5 to 25 °C
- B. Relative Humidity: 20 to 80%
- C. Pressure: 1 ± 0.2 atm
- D. Storage Time: 12 months

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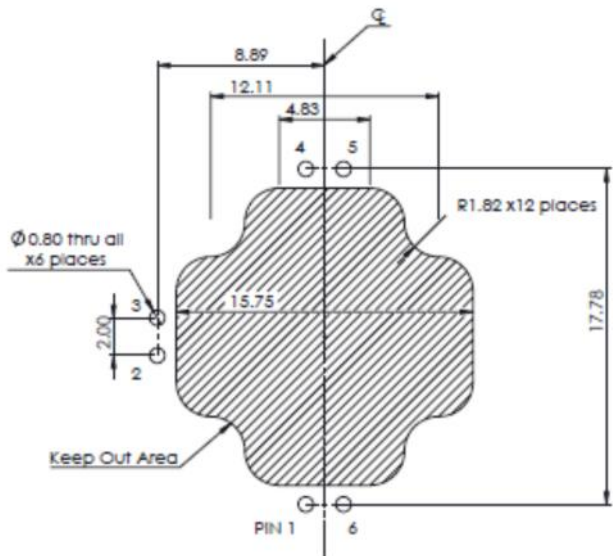
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## DIMENSIONS



| PIN | CONNECTION |
|-----|------------|
| 1   | WORKING    |
| 2   | N/A        |
| 3   | N/A        |
| 4   | REFERENCE  |
| 5   | COUNTER    |
| 6   | WORKING    |

## PCB LAYOUT GUIDELINES



| PIN | CONNECTION |
|-----|------------|
| 1   | WORKING    |
| 2   | NC         |
| 3   | NC         |
| 4   | REFERENCE  |
| 5   | COUNTER    |
| 6   | WORKING    |

Notes:  
 -(6) 0.8 mm drilled diameter Holes  
 -Recommended Socket  
 (for removable sensor option)  
 PN: 3M 950502-60102-AR  
 -If using socket, keep out area  
 may not be required. Use caution.

Dimensions are in millimeters