

4CFC GAS SENSOR

002848

Issue 4

CiTiceL Carbon Monoxide (CO) Gas Sensor



Carbon Monoxide (CO) Sensor:
4CFC

Part Number: 2112B2006

DESCRIPTION

CiTiceL® 4 Series gas sensors are the industry standard for portable gas detectors. The range includes sensors which detect oxygen and toxic gases and fully certified pellistors for combustible gas detection.

DOCUMENT PURPOSE

The purpose of this document is to present the performance specification of the 4CFC carbon monoxide sensor.

This document should be used in conjunction with Operating Principles (OP08) and the Product Safety Datasheet (PSDS 12.1).

The data provided in this document are valid at 20°C, 50 %RH, and 1013 mBar for three months from the date of sensor manufacture. Output signal can drift below the lower limit over time.

For guidance on the safe use of the sensor, please refer to the Operating Principles.

APPLICATIONS

- Portable life safety

PORTFOLIO

The 4 Series CiTiceL® sensor family is part of the extensive line of Honeywell gas sensors. To learn more about the product, or the many other gas sensors in this series, [click here](#).

FEATURES AND BENEFITS



Industry-leading reliability



Improved performance variability



Low long-term output drift



Extended operating range

CITICEL GAS SENSORS

4CFC SERIES

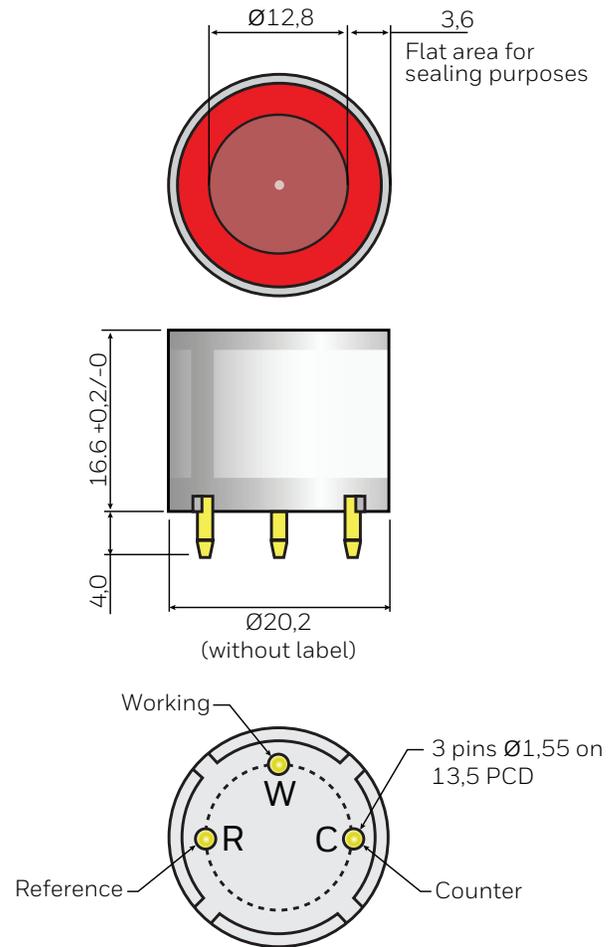
TABLE 1. TECHNICAL SPECIFICATIONS

| MEASUREMENT | |
|--|--|
| Operating Principle | 3-electrode electrochemical |
| Measurement Range | 0 ppm CO to 1000 ppm CO |
| Maximum Overload | 2000 ppm CO |
| Filter | To remove acid gases and hydrocarbons |
| Sensitivity* | 0.07 μ A/ppm \pm 0.015 μ A/ppm |
| T90* Response Time | < 20 seconds |
| Baseline Offset (clean air)* | < \pm 2 ppm equivalent |
| Zero Shift (-40°C to 50°C) | < 12 ppm equivalent |
| Repeatability | < \pm 3 % |
| Linearity | Within \pm 5 % |
| ELECTRICAL | |
| Recommended Load Resistor | 5 Ohm |
| Bias Voltage | Not required |
| MECHANICAL | |
| Weight | 5 g (nominal) |
| Housing Material | Noryl 110 |
| Orientation | Any |
| ENVIRONMENTAL | |
| Operating Temperature Range | -20°C to 40°C (continuous) -40°C to 55°C (intermittent) |
| Operating Pressure Range | 1 atm \pm 10 % |
| Operating Humidity Range | 15 %RH to 90 %RH non-condensing |
| INTRINSIC SAFETY DATA | |
| Maximum Current at 2000 ppm | 0.2 mA |
| Maximum o/c Voltage | 1.3 V |
| Maximum s/c Current | < 1.0 A |
| LIFETIME | |
| Long-Term Output Drift | < 5 % per annum |
| Recommended Storage Temp | 10°C to 30°C |
| Expected Operating Life | 2 years in air |

*Specifications are valid at 20°C, 50%RH, and 1013 mBar using Honeywell recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first three months.

Output signal can drift below the lower limit over time.

Product Dimensions



All dimensions in mm

All tolerances \pm 0,15mm unless otherwise stated

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Poisoning

CiTiceLs are designed for operation in a wide range of environments and harsh conditions. However, it is important that exposure to high concentrations of solvent vapours is avoided, both during storage, fitting into instruments, and operation.

When using sensors with printed circuit boards (PCBs), degreasing agents should be used before the sensor is fitted. Do not glue directly on or near the CiTiceL as the solvent may cause crazing of the plastic

Cross Sensitivity Data

Whilst CiTiceLs are designed to be highly specific to the gas they are intended to measure, they will still respond to some degree to various other gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

IMPORTANT NOTE : The cross sensitivity data shown below does not form part of the product specification and is supplied for guidance only. Values quoted are based on tests conducted on a small number of sensors and any batch may show significant variation. For the most accurate measurements, an instrument should be calibrated using the gas under investigation.

TABLE 2. CROSS SENSITIVITY

| Gas | Concentration Used (ppm) | Reading (ppm CO) |
|---|--------------------------|------------------|
| Ammonia, NH ₃ | 50 | 0 |
| Carbon Dioxide, CO ₂ | 5000 | 0 |
| Carbon Monoxide, CO | 50 | 50 |
| Chlorine, Cl ₂ | 0.5 | 0 |
| Ethylene, C ₂ H ₄ | 100 | 100 |
| Hydrogen, H ₂ | 200 | ~25 |
| Hydrogen Sulfide, H ₂ S | 20 | < 5 |
| Methanol, CH ₃ OH | 200 | 0 |
| Nitrogen Dioxide, NO ₂ | 20 | -5 ≤ X ≤ 0 |
| Nitric Oxide, NO | 50 | < 25 |
| Sulfur Dioxide, SO ₂ | 20 | < 5 |

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

For more information

Honeywell Sensing & Safety Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

| | |
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WARNING MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SAFETY NOTE

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardize the safety of people and property.

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