PolyGard® 2

Sensor Cartridge SC2 with CO₂ infrared sensor for dispensing and refrigeration systems

Exchangeable sensor including digital value processing, temperature compensation and self control for the continuous monitoring of the ambient air to detect CO₂.

The sensor cartridge SC2 includes a CO₂ sensor element with infrared sensor and an amplifier as well as a µController for measured values processing. The IR measuring principle with integrated temperature compensation ensures highest accuracy, selectivity and reliability despite the long calibration interval. In the µController, all the data and measured values of the sensor element are stored fail-safe and transmitted digitally via the local bus to the sensor board SB2 or MSB2. The calibration management is also integrated in the µController of the sensor cartridge.

Calibration is done either by simply replacing the sensor cartridge or by using the comfortable, integrated calibration routine directly at the system.

APPLICATION

The PolyGard® 2 Sensor Cartridge is used for the detection of CO₂ leakages in dispensing and refrigeration systems.

FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Hardware Watchdog
- Data / measured values in µC Sensor Cartridge, therefore simple exchange of SC uncalibrated <> calibrated
- High accuracy, selectivity and reliability
- Low zero point drift
- Sensor with long life expectancy > 15 years
- Software according to SIL2 compliant development process
- Modular technology (plug-in and replaceable)
- Easy maintenance and calibration by exchange of the sensor cartridge or by comfortable on-site calibration
- Reverse polarity protected, overload and short-circuit proof
- Integrated heating down to -35 °C
- IP 65 version
- Conformity to
  - EN 378-1
  - EN 61010-1
  - ANSI/UL 61010 1
  - CAN/CSA-C22.2 No. 61010-1
PolyGard®2

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SPECIFICATIONS

**Electrical**
- **Power supply**: 5 V DC from SB, reverse polarity protected
- **Power consumption**: 50 mA, max. (0.25 VA)
- **Serial interface local bus**: 1-wire / 19200 Baud

**Sensor element**
- **Gas type**: Carbon dioxide CO₂
- **Sensor element**: Infrared (NDIR)
- **Measuring range**: 5 vol. %
- **Measuring interval**: 2 sec.
- **Accuracy**: < 10 % of range
- **Response time**: t₉₀ < 120 s
- **Sensor life time**: 15 years for normal ambient conditions
- **Calibration interval (recommendation)**: 5 years
- **Temperature range**: -35 °C to +40 °C (-31 °F to +104 °F)
- **Humidity range**: 0 - 90 % RH not condensing
- **Pressure range**: Atmospheric ± 30 % (influence + 1.6 % on measured value per kPa)
- **Storage temperature range**: +5 °C to +30 °C (+41 °F to +86 °F)
- **Storage time**: 6 months

**Physical**
- **Housing M25**: Polycarbonate
- **Combustion**: UL 94 V2
- **Housing colour**: RAL 7032 (light grey)
- **Dimensions: M25 housing**: (D x H) 24 x 22 mm (0.94 x 0.87 in.)
- **Weight**: ca. 30 g (0.07 lb)
- **Protection class**: IP 65
- **Mounting**: Screw mounting
- **Connection type**: 3-pin connector
- **Cable length**: 110 mm (4.33 in.)

**Directives**
- **EMC directives 2014/30/EU**
- **CE**
- **Conformity to**:
  - EN 378-1
  - EN 61010-1:2010
  - ANSI/UL 61010-1
  - CAN/CSA-C22.2 No. 61010-1CE

**Warranty**
- 1 year on material (without sensor element)

ORDERING INFORMATION

**SC2 I1164-X**

<table>
<thead>
<tr>
<th>Gas type</th>
<th>Sensor type</th>
<th>Measuring range</th>
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<tr>
<td>I1164-C</td>
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<tr>
<td>I1164-B</td>
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<tr>
<td>I1164-A</td>
<td>Carbon dioxide CO₂</td>
<td>Infrared</td>
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</table>

**EXAMPLE 1**
CO₂ Sensor Cartridge, measuring range 5 vol %
Order number: SC2-I1164-B