**FuehlerSysteme** eNET International
Die Marke für Sensorik

## CO2-R/A

CO2 air quality sensor for indoor with measuring range switching, analog output

Measuring size: CO2
Output: 0-10 V, 4-20 mA, Relay
Highlights: modern room hoousing, optional LDC-Display

MADE IN GERMANY   EAC   CE   RoHS COMPLIANT

### Description

The indoor air quality sensor CO2-R/A registers the CO2 concentration in the air in the environment in a range from 0-10000 ppm via a nondispersive infrared sensor (NDIR) into a linear output signal 0-10 V respectively 4-20 mA.

As an option the air quality sensor has a potential-free changeover contact and a backlit display. The display content can be rotated in 90° steps using a menu and the measured value, the switching threshold set, the state of the relay, the MIN/MAX measured values for the selected intervals (1 h / 6 h / 12 h / 24 h) etc. can be read out.

3 different measuring ranges can be selected (0-2000 ppm, 0-5000 ppm, 0-10000 ppm) which can be switched, according to requirements, by the innovative DIP switching technology.

The zero point balance depending on the actual ambient conditions can be performed on the device by manual calibration. The quality sensor performs an automatic self-calibration at regular interval, thus ensuring a long-term stable CO2 measurement.

## Technical Specifications

| | |
|---|---|
| Measurement range CO2 | 0-10000 ppm, scales: 0-2000/5000/10000 ppm |
| Scales | 0-2000/5000/10000 ppm |
| Accuracy | 0-2000 ppm: ±50 ppm + 2% f. mv,  0-5000 ppm: ±50 ppm + 3% f. mv, else: ±100 ppm + 5% f. mv (at 20°C, 1013 mbar, auto-calibration ON) |
| Temperature dependency | CO2: ±5 ppm / K |
| Pressure dependency | CO2: 0,16% f. mv/hPa |
| Running-in time | 10 min |
| Response time (t90) | < 5 min |
| Long term stability | ±1% FS/year |
| Sensor | Nondispersive infrared sensor (NDIR) |
| Sensor protection | mounted inside housing |
| Supply voltage | 24 V AC/DC (±5%) |
| Current consumption | Ø 100 mA |
| Analogue output 0-10 V | 3-wire connection |
| Analogue output 4-20 mA | 3-wire connection |
| Alarm output | 1 x potential-free change-over contact, 48 V, 1 A |
| Switching Hysteresis Relay | 2% FS (without Display), 0,5...5% FS adjustable (with Display) |
| Electrical connection | screw terminals max. 1,5 mm² |
| Housing | ABS polyman, colour signal white like RAL 9003 |
| Cable gland | on the back or housing side (predetermined breaking point) |
| Display | optional LCD display with backlight on/off/auto |
| Dimensions | Housing: L 82 x W 82 x H 25 mm |
| Protection type | IP30, IP20 (with display) |
| Protection class | III |
| Working range r.H. | 0...98% r.H. in contaminant-free, non-condensing air |
| Working temperature | 0...+50°C |
| Storage temperature | -20...+50°C |
| Initial operation | After switch-on of the device follows a self-test and the tempering, which takes ca. 10 minutes depending on the environmental conditions. At this time the analogue output drifts from the actual measurement value. |
| Automatic calibration | The automatic CO2 calibration takes place every 7 days, this compensates for any drifts and achieves excellent long-term stability. To ensure this function, the device must be supplied with power for at least 7 days without interruption and ventilated once with fresh air (CO2 300...400 ppm) for approx. 10 minutes within this period. For the CO2 calibration, the device saves the minimum CO2 value measured during this period internally. After 7 days, this minimum value is normalized to 400 ppm CO2 and the output signal corrected accordingly. The maximum correction is limited to half of the determined drift. If the measured value falls below approx. 300 ppm, the calibration is initialized to 400 ppm.<br>The automatic calibration can be deactivated if necessary and performed manually. |
| Manual calibration | The manual CO2 calibration of the output signal to 400 ppm (zero point) is started by pressing the button on the circuit board (hold it down for approx. 5 seconds until the LED flashes). Before that, continuous operation of min. 10 minutes in fresh air. The LED is deactivated after successful calibration. |

| Installation | on-wall or on flush-mounted box |
|---|---|
| Approvals | CE, EAC, RoHS |

## Variants

| Article Number | | |
|---|---|---|
| CO2 | Output CO2 | Version CO2 |

| **CO2-R/A-I** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 4-20 mA | without Display |

| **CO2-R/A-UI** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA | without Display |

| **CO2-R/A-UI6L** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA | LED display |

| **CO2-R/A-UID** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA | with Display |

| **CO2-R/A-UIR** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA, Changer | without Display |

| **CO2-R/A-UIR6L** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA, Changer | LED display |

| **CO2-R/A-UIRD** | | |
|---|---|---|
| 0-2000/5000/10000 ppm | 0-10 V, 4-20 mA, Changer | with Display |

## Accessories

FS9510

 Table stand for room housing

motrona AX350

AX350: touchMATRIX® Process Indicator with two 16 bit Analog Inputs

motrona AX020

AX020: Process Indicator for Analog Signals

## Dimensional Drawing