CO2T-A/A

CO2 and temperature sensor with measurement range switch

Measuring size: temperature, CO2
Output: 2 x 0-10 V, 2 x 4-20 mA, Relay
Highlights: non-dispersive infrared sensor (NDIR)

MADE IN GERMANY

Description

The air quality sensor CO2T-A/A registers the CO2 concentration in the air in the environment in the range of 0-10000 ppm via a nondispersive infrared sensor (NDIR) and the air temperature 0...+50°C. The measuring transducer converts this measured value into a linear output signal 0-10 V.
As an option the air quality sensor has a potential-free changeover contact and a backlit display. The changeover contact can be defined for one of the two measured values. 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
Measurement range temp.	0...+50°C
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), ±1 K
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	CO2: non-dispersive infrared sensor (NDIR); Temperature: resistance sensor
Sensor protection	sinter filter
Supply voltage	24 V AC/DC (±5%)
Current consumption	Ø 100 mA
Analogue output 0-10 V	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	Polycarbonate PC UL 94 V0 with hinge locks, color signal white similar to RAL 9003
Cable gland	PG11 high-strength cable gland with strain relief
Display	optional LCD display with backlight on/off/auto
Dimensions	Housing: L 89 x W 80 x H 47 mm
Protection type	Housing/electronic: IP65, Sensor: IP30
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. 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	screw fastening
Approvals	CE, EAC, RoHS

Variants

Article Number			
CO2	Temperature	Output	Version
CO2T-A/A-U			
0-2000/5000/10000 ppm	0...+50°C	2 x 0-10 V	without display
CO2T-A/A-UD			
0-2000/5000/10000 ppm	0...+50°C	2 x 0-10 V	with display
CO2T-A/A-UR			
0-2000/5000/10000 ppm	0...+50°C	2 x 0-10 V, changer	without display
CO2T-A/A-URD			
0-2000/5000/10000 ppm	0...+50°C	2 x 0-10 V, changer	with display

Dimensional Drawing