FuehlerSysteme eNET International
Die Marke für Sensorik

EN **DATA SHEET**

CO-M/A

Multifunctional air quality sensor for CO, mixed gas VOC, humidity, temperature and atmospheric/barometric air pressure

Measuring size: CO, VOC, humidity, temperature, air pressure
Output: 5 x 0-10 V, 5 x 4-20 mA, Relay
Highlights: The multifunctional air quality transducer - everything at a glance

MADE IN GERMANY

Description

The multifunctional air quality sensor CO-M/A registers the CO concentration, mixed gas VOC, temperature, humidity, air pressure and converts the respective measured result into a linear output signal 0-10 V or 4-20 mA for further processing. In addition the device has a potential free changeover contact that can be defined for CO, VOC, temperature or humidity.
The CO concentration is measured using an electro-chemical sensor. 3 different CO2 scales can be selected - 0-200 ppm, 0-500 ppm, 0-1000 ppm.
The sensitivity VOC can be set on the device at ?low?, ?medium? and ?high?.
The ´humidity and temperature are registered using a capacitive humidity sensor. 4 different scales can be selected for the temperature output signal - -30...+70°C, -20...+80°C, 0...+50°C, 0...+100°C.
As parameter for the humidity output signal the relative humidity % r.h., absolute humidity g/m³, mixing ratio g/kg or dew point temperature dp °C can be specified. The air pressure can be defined and outputted as atmospheric air pressure, or, by entering the altitude above sea level in the menu, as barometric air pressure. The VOC zero point balance depending on the actual ambient conditions can be performed at any time on the device by manual calibration.

Technical Specifications

Measurement range atm. air pressure	750-1150 mbar
Measurement range bar. air pressure	750-1150 mbar
Measurement range CO	0-1000 ppm
Measurement range r.H.	0-100% r.H.
Measurement range abs. humidity	0-50 g/m³, 0-80 g/m³ (calculated) selectable by DIP switch
Measurement range air fuel ratio	0-50 g/kg, 0-80 g/kg (calculated) selectable by DIP switch
Measurement range dew point	-20...+50°C DP, -20...+80°C DP, 0...+50°C DP (calculated) selectable by DIP switch
Measurement range temp.	-30...+70°C, -20...+80°C, 0...+50°C, 0...+100°C selectable by DIP switch
Measurement range VOC	0-100% (good / bad air quality, referring to the calibration gas)
Scales	0-200/500/1000 ppm
Accuracy	CO: ±5 ppm + max. ±5% f. mv VOC: ±15% FS; Humidity: ±3% r.H. (30...70% r.H., else ±5% r.H.); Temperature: 0,5 K (15...35°C, else ±1 K); Air pressure: ±5 mbar; all specifications at 20°C, 45% r.H. 1013 mbar, auto-calibration ON;
Temperature dependency	CO: ±5 ppm / K, Humidity: ±0,04% r.H. / K; Temperature: ±0,1°C / 10 K
Long term stability	±1% FS/year
Sensor	CO: electrochemical sensor; VOC: metal oxide sensor; Humidity/Temperature: capacitive humidity sensor
Sensor protection	sinter filter, mounted inside housing
Supply voltage	24 V AC/DC (±5%)
Current consumption at 0-10 V	Ø 100 mA
Current consumption at 4-20 mA	ca. 200 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%
Electrical connection	screw terminals max. 1,5 mm²
Housing	ABS housing with hinge closure, colour light grey like RAL 7024
Cable gland	M16x1,5 high-strength cable gland with strain relief
Display	LCD display with backlight
Dimensions	Housing: L 150 x W 80 x H 62 mm
Protection type	IP65 (housing), IP54 (probe)
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	To ensure an excellent long-term stability, in the interval of ca. 20 days (VOC) starts an automatic recalibration. Through this automatic calibration possible drifts are compensated. This feature can be disabled on the device by DIP switch.
Manual calibration	The manual calibration of the output signal to 1 V (VOC zero point) will be started by pushing the button on the circuit board (push ca. 5 s until "CAL" appears in the display). Before this it is to ensure a non-stop operating of min. 10 minutes on fresh air. After successful calibration "CAL" disappears from the display.
Installation	screw fastening
Approvals	CE, EAC, RoHS

Variants

Article Number	
Output	Description

CO-M/A-ID	
4-20 mA, changer	CO: 0-200/500/1000 ppm , VOC: 0-100%, Humidity: 0...100% r.F., Temperature: -30...+70°C/-20...+80°C/0...+50°C/0... +100°C, Air pressure: 750...1150 mbar

CO-M/A-UD	
0-10 V, changer	CO: 0-200/500/1000 ppm , VOC: 0-100%, Humidity: 0...100% r.F., Temperature: -30...+70°C/-20...+80°C/0...+50°C/0... +100°C, Air pressure: 750...1150 mbar

Dimensional Drawing