



FS1301

Air quality transducer on-wall for CO, VOC, humidity and temperature, digital output

Measuring size: CO, VOC, humidity, temperature

Output: Modbus RTU, Relay

Highlights: sensor protection with sinter, easy-to-install surface-mounted housing, optional LCD-Display



Description

The air quality transducer FS1301 registers CO, VOC, humidity and temperature. The measuring transducer converts the measured values into a digital output signal.

In the register the switching threshold, hysteresis, offset value etc can be specified.

As special equipment a potential-free alternating contact and/or a backlit display are available. The contents of the display can be rotated in steps of 90° by using a command.

As special functions a series of defined measured values from other bus-participants (also cross-manufacturers) can be shown in the display. To display measured values from other bus-participants these are entered into the corresponding register by the bus-Master. The optional alternating contact can be configured for measured values from other bus-participants.

The configuration of address, transmission mode/speed, terminating resistor and master/slave function of the bus-devices can easily be done using the innovative DIP switch technology. Thus devices can quickly and easily be integrated into the system and later parameterised via the master.

The bus-devices can even be reset to the works settings during operation of the master. Thus the basic functionality of the device is recreated in a matter of seconds. This can be necessary in the event of incorrect parameterisations of, e.g. offset, switching threshold, display modes etc..

By means of the FS master/slave topology autarkic nodes without additional SPS master can be installed within the device series. Hereby a bus-device assumes the master function in the node. This requests the measured values from other bus-participants, automatically enters these into the corresponding register and shows them in the internal display. Furthermore the master can evaluate and operate additional actuators in the device series (analogue in- and outputs, relay station).



Technical Specifications

Measurement range CO	0-1000 ppm
Measurement range r.H.	0-100% r.H.
Measurement range abs. humidity	0-80 g/m ³ (calculated)
Measurement range air fuel ratio	0-80 g/kg (calculated)
Measurement range dew point	-20...+80°C DP (calculated)
Measurement range temp.	-30...+100°C
Measurement range VOC	0-100% (good / bad air quality, referring to the calibration gas)
Accuracy CO	±5 ppm + max. ±5% from measured value (at 20°C, 1013 mbar)
Accuracy humidity	±3% r.H. (30-70% r.H., else ±5% r.H., at 20°C)
Accuracy temperature	±0,3 K (10...40°C, else ±0,5 K),
Accuracy voc	±15% FS
Temperature dependency	CO: ±5 ppm / K, Humidity: ±0,02% r.F. / K, Temperature: ±0,05°C / 10 K
Running-in time	CO: 1 min, Humidity: 1 min, Temperature: 1 min, VOC: 1 h
Response time (t90)	< 5 min
Long term stability	CO: ±1% FS/year, Humidity: ±1%/year, VOC: ±10% FS/year
Offset	can be entered in the register
Sensor	CO: electrochemical sensor, Humidity/Temperature: combined electronic sensor, VOC: metal oxide sensor
Sensor protection	sinter filter
Supply voltage	24 V DC (±5%)
Current consumption	max. 100-200 mA, depending on the selected measurand and equipment
Digital output	Modbus RTU
Alarm output	1 x potential-free change-over contact, 48 V, 1 A
Switching Hysteresis Relay	can be entered in the register
Electrical connection	push-in terminal, no tools required, time-saving
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 it runs a self-test and the zero-point calibration. Depending on the ambient conditions, this process takes approx. 1 min., during this time, the digitally output value deviates from the actual value.
Automatic calibration	The automatic VOC 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 with fresh air once for approx. 10 minutes within this period. The automatic calibration can be deactivated if necessary and performed manually.
Installation	screw fastening
Approvals	CE, EAC, RoHS



Variants

Article Number					
CO	VOC	Humidity	Temperature	Output	Equipment
FS1301-MBR-A1-D					
0-1000 ppm	-	-	-	Modbus RTU	Display
FS1301-MBR-A1-DR					
0-1000 ppm	-	-	-	Modbus RTU	Display, Relay
FS1301-MBR-A1-R					
0-1000 ppm	-	-	-	Modbus RTU	Relay
FS1301-MBR-A1-X					
0-1000 ppm	-	-	-	Modbus RTU	-
FS1301-MBR-A1A4-D					
0-1000 ppm	0-100%	-	-	Modbus RTU	Display
FS1301-MBR-A1A4-DR					
0-1000 ppm	0-100%	-	-	Modbus RTU	Display, Relay
FS1301-MBR-A1A4-R					
0-1000 ppm	0-100%	-	-	Modbus RTU	Relay
FS1301-MBR-A1A4-X					
0-1000 ppm	0-100%	-	-	Modbus RTU	-
FS1301-MBR-A1A4H1T1-D					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Display
FS1301-MBR-A1A4H1T1-DR					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Display, Relay
FS1301-MBR-A1A4H1T1-R					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Relay
FS1301-MBR-A1A4H1T1-X					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	-
FS1301-MBR-A1H1T1-D					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Display
FS1301-MBR-A1H1T1-DR					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Display, Relay
FS1301-MBR-A1H1T1-R					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Relay
FS1301-MBR-A1H1T1-X					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	-



Dimensional Drawing

