FS1381

Air quality transducer indoor for CO, VOC, humidity and temperature, digital output

Measuring size: CO, VOC, humidity, temperature
Output: Modbus RTU, Relay
Highlights: modern housing design, optional LCD-Display

MADE IN GERMANY

Description

The air quality transducer FS1381 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 configurated 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 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/m³ (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	mounted inside housing
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	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 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	on-wall or on flush-mounted box
Approvals	CE, EAC, RoHS

Variants

Article Number					
CO	VOC	Humidity	Temperature	Output	Equipment
FS1381-MBR-A1-D					
0-1000 ppm	-	-	-	Modbus RTU	Display
FS1381-MBR-A1-DR					
0-1000 ppm	-	-	-	Modbus RTU	Display, Relay
FS1381-MBR-A1-R					
0-1000 ppm	-	-	-	Modbus RTU	Relay
FS1381-MBR-A1-X					
0-1000 ppm	-	-	-	Modbus RTU	-
FS1381-MBR-A1A4-D					
0-1000 ppm	0-100%	-	-	Modbus RTU	Display
FS1381-MBR-A1A4-DR					
0-1000 ppm	0-100%	-	-	Modbus RTU	Display, Relay
FS1381-MBR-A1A4-R					
0-1000 ppm	0-100%	-	-	Modbus RTU	Relay
FS1381-MBR-A1A4-X					
0-1000 ppm	0-100%	-	-	Modbus RTU	-
FS1381-MBR-A1A4H1T1-D					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Display
FS1381-MBR-A1A4H1T1-DR					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Display, Relay
FS1381-MBR-A1A4H1T1-R					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	Relay
FS1381-MBR-A1A4H1T1-X					
0-1000 ppm	0-100%	0-100% r.H.	-30...+100°C	Modbus RTU	-
FS1381-MBR-A1H1T1-D					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Display
FS1381-MBR-A1H1T1-DR					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Display, Relay
FS1381-MBR-A1H1T1-R					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	Relay
FS1381-MBR-A1H1T1-X					
0-1000 ppm	-	0-100% r.H.	-30...+100°C	Modbus RTU	-

Accessories

FS9510

Table stand for room housing

Dimensional Drawing