



FS1141

Humidity transducer with pendulum sensor for relative/absolute humidity, dewpoint temperature, mixing ratio and temperature, digital output

Measuring size: temperature, dew point temperature, rel. humidity, abs. humidity, mixing ratio

Output: Modbus RTU, Relay

Highlights: pendular probe



Description

The FS1141 humidity transducer registers the temperature and relative humidity of the ambient air and converts this measured value into a digital output signal.

The humidity measuring device has a heating function to protect the sensor at high humidity 95...99% r.h.. If the relative humidity exceeds the threshold value set ex-works for a certain period of time the heating function is activated. The sensor is heated for a limited time and thus dried and protected against condensation. During the heating and the subsequent temperature balancing phase the output signal is kept stable at the last measured value before the heating function was triggered.

The humidity and temperature sensor is very well protected against contamination by a screwable sintered filter and can, if required, be finely calibrated in the register using an offset value.

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 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.	-20...+80°C
Accuracy humidity	±3% r.H. (30-70% r.H., else ±5% r.H., at 20°C)
Accuracy temperature	±0,5 K
Temperature dependency	±0,02% r.H. / K (voltage output), ±0,04% r.H. / K (current version); ±0,05°C / 10 K (voltage version), ±0,07°C / 10 K (current output)
Long term stability	±1%/year
Offset	can be entered in the register
Sensor	Combined electronic humidity and temperature sensor
Sensor protection	screwable stainless steel sinter filter, condensation protection by heating function in the range of 95...99% r.H.
Flow rate	< 2 m/s
Supply voltage	24 V DC (±5%)
Current consumption	max. 20 mA + 30 mA (option display) + 20 mA (option relay)
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
Cable	2 m PVC cable
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
Material	Pendulum: brass nickel-plated
Dimensions	Housing: L 89 x W 80 x H 47 mm, Protection tube: Ø 16 x 60 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	Probe: -20...+80°C, Electronic: -20...+70°C
Storage temperature	-20...+50°C
Installation	screw fastening
Approvals	CE, EAC, RoHS



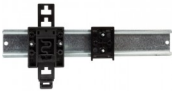
Variants

Article Number			
Humidity	Temperature	Output	Equipment
FS1141-MBR-H1T1-D			
0-100% r.H., 0-80 g/m ³ , 0-80 g/kg, -20...+80°C DP	-20...+80°C	Modbus RTU	Display
FS1141-MBR-H1T1-DR			
0-100% r.H., 0-80 g/m ³ , 0-80 g/kg, -20...+80°C DP	-20...+80°C	Modbus RTU	Display, Relay
FS1141-MBR-H1T1-R			
0-100% r.H., 0-80 g/m ³ , 0-80 g/kg, -20...+80°C DP	-20...+80°C	Modbus RTU	Relay
FS1141-MBR-H1T1-X			
0-100% r.H., 0-80 g/m ³ , 0-80 g/kg, -20...+80°C DP	-20...+80°C	Modbus RTU	-

Accessories

SB/E

Snap-on mounting for DIN rails





Dimensional Drawing

