



RAFTP/A

Humidity transducer with passive temperature output

Measuring size: temperature, rel. humidity

Output: 0-10 V, 4-20 mA, Relay, passive sensor

Highlights: heating function for condensation protection, easy-to-install surface-mounted housing



Description

The RAFTP/A humidity transducer registers the relative humidity 0...100% r.h. using a capacitive sensor and converts this measured value into a linear output signal 0-10 V respectively 4-20 mA. An additional passive resistive sensor is available for measuring temperature.

As an option the device has a potential-free changeover contact and a backlit display.

The display content can be rotated in 90° steps using a menu and the measured value, the switching threshold set, the state of the respective relay, the MIN/MAX measured values for the selected intervals (1 h / 6 h / 12 h / 24 h) etc. can be read out. In addition 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 more than 10 minutes 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 sensor is very well protected against contamination by a screwable sintered filter and can, if required, be finely calibrated in situ using an offset controller.



Technical Specifications

Measurement range r.H.	0-100% r.H.
Measurement range temp.	-20...+80°C
Accuracy humidity	±3% r.H. (30-70% r.H., else ±5% r.H., at 20°C)
Temperature dependency	±0,02% r.H. / K (voltage output), ±0,04% r.H. / K (current output)
Long term stability	±1%/year
Sensor	capacitive humidity sensor; Pt100, Pt500, Pt1000, Ni1000, KTY, NTC, LM235Z (other on request)
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 analog 0-10 V	24 V AC/DC (±5%)
Supply voltage analog 4-20 mA	15...36 V DC (U _{min} = 15 V + R _{Load} *0,02A)
Current consumption at 0-10 V	typ. 10 mA, 30 mA peak current consumption for 50 ms at switching moment at option relay
Current consumption at 4-20 mA	max. 20 mA / output, 40 mA peak current consumption for 50 ms at switching moment at option relay
Analogue output 0-10 V	3-wire connection, load current < 0,1 mA
Analogue output 4-20 mA	2-wire connection (transmitter), max. R _{Load} (Ohm) = (+U _b - 15 V) / 0,02 A
Alarm output	1 x potential-free change-over contact, 48 V, 1 A
Switching Hysteresis Relay	2% of the selected scaling (without display), 0,5...5% of the selected scaling adjustable (with display)
Electrical connection	screw terminals max. 1,5 mm ²
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	Protection tube: stainless steel V2A
Dimensions	Housing: L 89 x W 80 x H 47 mm, Protection tube: Ø 16 x 40 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 r.H.	Output temperature	Version
RAFTP/A-I10				
0-100% r.H.	-20...+80°C	4-20 mA	Pt100 (DIN EN 60751 Cl. B)	without display
RAFTP/A-I10D				
0-100% r.H.	-20...+80°C	4-20 mA	Pt100 (DIN EN 60751 Cl. B)	with display
RAFTP/A-I20				
0-100% r.H.	-20...+80°C	4-20 mA	Pt1000 (DIN EN 60751 Cl. B)	without display
RAFTP/A-I20D				
0-100% r.H.	-20...+80°C	4-20 mA	Pt1000 (DIN EN 60751 Cl. B)	with display
RAFTP/A-IR10				
0-100% r.H.	-20...+80°C	4-20 mA, changer	Pt100 (DIN EN 60751 Cl. B)	without display
RAFTP/A-IR10D				
0-100% r.H.	-20...+80°C	4-20 mA, changer	Pt100 (DIN EN 60751 Cl. B)	with display
RAFTP/A-IR20				
0-100% r.H.	-20...+80°C	4-20 mA, changer	Pt1000 (DIN EN 60751 Cl. B)	without display
RAFTP/A-IR20D				
0-100% r.H.	-20...+80°C	4-20 mA, changer	Pt1000 (DIN EN 60751 Cl. B)	with display
RAFTP/A-U20				
0-100% r.H.	-20...+80°C	0-10 V	Pt1000 (DIN EN 60751 Cl. B)	without display
RAFTP/A-UR10				
0-100% r.H.	-20...+80°C	0-10 V, changer	Pt100 (DIN EN 60751 Cl. B)	without display
RAFTP/A-UR10D				
0-100% r.H.	-20...+80°C	0-10 V, changer	Pt100 (DIN EN 60751 Cl. B)	with display
RAFTP/A-UR20				



0-100% r.H.	-20...+80°C	0-10 V, changer	Pt1000 (DIN EN 60751 Cl. B)	without display
RAFTP/A-UR20D				
0-100% r.H.	-20...+80°C	0-10 V, changer	Pt1000 (DIN EN 60751 Cl. B)	with display

Accessories

SB/E

Snap-on mounting for DIN rails





Dimensional Drawing

