



RAF/A

Humidity transducer

Measuring size: rel. humidity

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

Highlights: heating function for condensation protection



Description

The RAF/A humidity transducer registers the relative humidity 0...100% r.h. of the air in the environment using a capacitive sensor and converts this measured value into a standard output signal 0-10 V respectively 4-20 mA.

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 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 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.
Accuracy	±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
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 ($U_{bmin} = 15 \text{ V} + R_{Load} \cdot 0,02 \text{ A}$)
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. $R_{Load}(\text{Ohm}) = (+U_b - 15 \text{ V}) / 0,02 \text{ A}$
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			
Supply voltage	Humidity	Output r.H.	Version
RAF/A-I			
15...36 V DC	0-100% r.H.	4-20 mA	without display
RAF/A-ID			
15...36 V DC	0-100% r.H.	4-20 mA	with display
RAF/A-IR			
15...36 V DC	0-100% r.H.	4-20 mA, changer	without display
RAF/A-IRD			
15...36 V DC	0-100% r.H.	4-20 mA, changer	with display
RAF/A-U			
24 V AC/DC	0-100% r.H.	0-10 V	without display
RAF/A-UD			
24 V AC/DC	0-100% r.H.	0-10 V	with display
RAF/A-UR			
24 V AC/DC	0-100% r.H.	0-10 V, changer	without display
RAF/A-URD			
24 V AC/DC	0-100% r.H.	0-10 V, changer	with display

Accessories

SB/E

Snap-on mounting for DIN rails



motrona AX350

AX350: touchMATRIX® Process Indicator with two 16 bit Analog Inputs



motrona AX020

AX020: Process Indicator for Analog Signals





Dimensional Drawing

