



### Weather sensor for humidity and temperature

- Parameters measured**  
 Air temperature and relative air humidity (measured), absolute air humidity, dewpoint and mixing ratio (calculated)
- Measurement range**  
 PT1000, capacitive
- Product Highlights**  
 Low power draw, long-term stable, suitable for extreme temperatures, protective housing included
- Interface**  
 SDI-12 V1.3

The compact, long-term stability weather sensor OTT TRH is responsible for the measurement of relative humidity and temperature. In addition it can calculate the values for absolute humidity, dew point and mixing ratio and output these via the SDI-12 interface. A protective cap prevents dust and dirt from entering the sensor system. The included protective housing provides weather and radiation protection.

#### Sensor TR20

##### Sensor output

measured	Temperature in °C or °F, relative humidity in %
calculated	Absolute humidity in g/m <sup>3</sup> , dew point in °C or °F, mixing ratio in g/kg

Relative humidity	
Measuring range	0 ... 100 % RH
Accuracy at 25 °C and 4.5 V DC ...15 V DC* (incl. repeatability, hysteresis and calibration uncertainty)	max. $\pm 2$ % RH ( 0 ... 90 % RH)**; max. $\pm 3$ % RH ( 90 ... 100 % RH)** *for supply voltages of >15V DC, other accuracy values apply **temperature dependency: $<\pm 2\%$ at -10°C ... 60°C
Resolution	0.10%
Repeatability	$\pm 0.1$ %RH
Hysteresis	$<1$ % RH
Long-term stability	typ. $< \pm 1.5$ %/year
Response time with protection cap	RH90 typ. $<15$ s at 0.35 m/s
Temperature	
Sensor	PT1000 DIN A
Measuring range	-40 °C ... +80 °C
Accuracy at 4.5 V DC ...15 V DC*	$\pm 0.1$ °C at 20 °C; $\pm 0.5$ °C at -40 °C, 80 °C linearity
Resolution	0.01 °C
Response time with protection cap	T90 $<300$ s at 1 m/s airflow; T90 $<250$ s at 2 m/s airflow
Absolute humidity	
Measuring range	0 ... 1000 g/m <sup>3</sup>
Resolution	0.1 g/m <sup>3</sup>
Dew point	
Measuring range	-40 °C ... +80 °C
Resolution	0.01 °C
Mixing ratio	
Measuring range	0 ... 1000 g/kg
Resolution	0.1 g/kg
Interface	SDI-12 V1.3
Supply voltage	
4.5 V DC ... 28 V DC	
Current consumption	
Quiescent	$< 20$ $\mu$ A at 12 V
Temperature measurement	typ. 550 $\mu$ A
Humidity measurement	typ. 260 $\mu$ A
Ambient conditions	
Operating temperature	-40 °C ... +80 °C
Storage temperature	-50 °C ... +80 °C
Operating humidity	0 ... 100 % RH
Protection class	
IP65	

<b>Sensor protection</b>		Protection cap with metal grid filter
<b>Material and dimensions</b>		
Housing sensor		Polycarbonate
Dimension sensor		Ø 12 mm x 140 mm
Material cable		PUR (black), moulded/shielded
Available cable lengths		3.5 m and 10 m
<b>Wiring</b>		color code printed on housing
<b>Standards</b>		EG (2004/108/EG), EN 61326-1:2006
<b>OTT RS7 Weather and Radiation Protection</b>		
<b>Number of lamellae</b>		7
<b>Operating temperature</b>		-40 °C ... +80 °C
<b>Material and dimensions</b>		
Lamellae		2 components (PS, PA)
Bracket		stainless steel
Height incl. mount		230 mm
<b>Weight (without sensor)</b>		700 g
<b>Pole/pipe diameter for</b>		
horizontal (pipe)		3/4 ... 5/4 inch (27 mm ... 43 mm)
vertikal (pole/pipe)		1 ... 2 inch (27 mm ... 60 mm)