



### 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)**<br>*for supply voltages of >15V DC, other accuracy values apply<br>**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   |  |

|                   |                                       |
|-------------------|---------------------------------------|
| Sensor protection | Protection cap with metal grid filter |
|-------------------|---------------------------------------|

| Material and dimensions |                               |
|-------------------------|-------------------------------|
| 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                |

|        |                               |
|--------|-------------------------------|
| Wiring | color code printed on housing |
|--------|-------------------------------|

|           |                                   |
|-----------|-----------------------------------|
| Standards | EG (2004/108/EG), EN 61326-1:2006 |
|-----------|-----------------------------------|

### OTT RS7 Weather and Radiation Protection

|                    |   |
|--------------------|---|
| Number of lamellae | 7 |
|--------------------|---|

|                       |                   |
|-----------------------|-------------------|
| Operating temperature | -40 °C ... +80 °C |
|-----------------------|-------------------|

| Material and dimensions |                       |
|-------------------------|-----------------------|
| Lamellae                | 2 components (PS, PA) |
| Bracket                 | stainless steel       |
| Height incl. mount      | 230 mm                |

|                         |       |
|-------------------------|-------|
| Weight (without sensor) | 700 g |
|-------------------------|-------|

| Pole/pipe diameter for |                                    |
|------------------------|------------------------------------|
| horizontal (pipe)      | 3/4 ... 5/4 inch (27 mm ... 43 mm) |
| vertikal (pole/pipe)   | 1 ... 2 inch (27 mm ... 60 mm)     |