



Weather Sensors  
Humidity and temperature  
OTT TRH –  
Digital Sensor including  
weather and radiation protection

## OTT TRH

Digital humidity and temperature sensor  
with protective housing

The OTT TRH unit reliably measures the relative humidity and temperature in a large variety of applications. It is used e.g. in automatic weather stations, often together with the OTT Pluvio series precipitation gauges. Other applications include environmental monitoring, hydro-meteorological applications, agricultural weather stations, and many more.

The compact, long-term stability sensor has an SDI-12 digital interface through which the unit may output up to five values. In addition to the measured values for relative humidity and temperature, the sensor provides the calculated values for absolute humidity, dew point, and mixing ratio. A protective cap prevents dirt, dust, and insects from entering the sensor system, avoiding inaccurate measuring results to be created.

The weather and radiation protection included is UV and weather resistant and may easily be installed to vertical poles or horizontal pipes. It protects the sensor from solar radiation, precipitation, and wind thus ensuring precise measuring results.

# Meteorology

# OTT TRH – compact and well protected

## Features and Benefits

### OTT TR20 Sensor

- Relative humidity and temperature measurements
- Absolute humidity, dew point, and mixing ratio calculations
- Highly compact and rugged design for long service life
- Protective cap including metal grid filter for protection against dirt, dust, and insects
- Particular long-term stability
- May be used in extreme temperatures (–40 °C to +80 °C)
- Very low power consumption
- Metric or imperial unit output, may be set through SDI-12
- Supports SDI-12 protocol, V1.3; easy connection to SDI-12 master, e.g. to the OTT netDL datalogger

### Applications

Weather stations in meteorology and hydrology, environmental monitoring, research projects, agriculture and forestry.



### OTT RS7 Weather and Radiation Protection

- Naturally vented protective housing fitted with 7 lamellae
- Easy installation at horizontal or vertical pipes
- UV and weather resistant plastic
- White outside coating, black inside coating for optimum protection against radiant heat
- Rugged stainless steel bracket
- Sensor is easily installed – simply insert it and tighten screw

## Technical data

### OTT TR20 Sensor

#### Interface

SDI-12 V1.3

#### Sensor output

- Temperature in °C or °F (measured)
- Relative humidity in % (measured)
- Absolute humidity in g/m<sup>3</sup> (calculated)
- Dew point in °C or °F (calculated)
- Mixing ratio in g/kg (calculated)

#### Supply voltage

4.5 V DC ... 28 V DC

#### Current consumption

- Quiescent: < 20 µA @ 12 V
- Temperature measurement: typ. 550 µA
- Humidity measurement: typ. 260 µA

#### Relative humidity

- Measuring range: 0 ... 100 % RH
- Accuracy @ 25 °C and 4.5 V DC ... 15 V DC\*:  
Max. ±2 % RH (0 ... 90% RH)\*\*,  
Max. ±3 % RH (90 ... 100 % RH)\*\*  
(including repeatability, hysteresis and calibration uncertainty)
- Resolution: 0.1 %
- Repeatability: ±0.1 % RH
- Hysteresis: <1 % RH
- Long-term stability: typ. < ±1.5 %/year
- Response time with protection cap: RH90 typ. <15 s @ 0.35 m/s

#### Temperature

- Sensor: PT1000 DIN A
- Measuring range: –40 °C ... +80 °C
- Accuracy @ 4.5 V DC ... 15 V DC\*: ±0.1 °C @ 20 °C, ±0.5 °C @ –40 °C, 80 °C linearity
- Resolution: 0.01 °C
- Response time with protection cap: T90 <300 s @ 1 m/s, T90 <250 s @ 2m/s

#### 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

#### Operating temperature

–40 °C ... +80 °C

#### Storage temperature

–50 °C ... +80 °C

#### Operating humidity

0 ... 100 % RH

#### Protection class

IP65

#### Dimension sensor

Ø 12 mm x 140 mm

#### Housing sensor

Polycarbonate

#### Sensor protection

Protection cap with metal grid filter

#### Cable

- Molded/shielded, PUR (black)
- Length: 3.5 m
- Wiring: color code printed on housing

#### Standards

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

### OTT RS7 Weather and Radiation Protection

#### Operating temperature

–40 °C ... +80 °C

#### Number of lamellae

7

#### Material

- Lamellae: 2 components (PS, PA)
- Bracket: stainless steel

#### Weight (without sensor)

700 g

#### Height incl. mount

230 mm

#### Pole/pipe diameter for installation

- Horizontal (pipe): 3/4" ... 5/4"
- Vertical (pole/pipe): 1" ... 2"

\*For supply voltages of >15 V DC, other accuracy values apply; \*\*Temperature dependency: < ±2 % @ –10 °C ... 60 °C  
For detailed information please visit us at [www.ott.com/resources](http://www.ott.com/resources)