

PRECISION USB TEMPERATURE AND HUMIDITY SENSOR, WITH FILTER

TRH320

DESCRIPTION

The TRH320 is specifically designed for environmental temperature and humidity acquisition. The TRH320 is field interchangeable, thanks to its factory calibrated, linearized and temperature-compensated digital sensor chip. With its precision electronics, extremely small variations in temperature and humidity can be detected.

The compact probe eases integration, even in space-constrained locations, and the built-in particle filter provides protection against dust, soot and other contaminants.

APPLICATIONS

- OEM
- Greenhouse
- Server rooms
- Manufacturing
- Pre-certification
- LIMS integration
- Humidity control
- Scientific research
- Building automation
- Engineering and R&D
- Environmental chamber

INSTALLATION TIME

Less than 10 minutes

UNIQUE SERIAL NUMBER

Each unit is assigned a unique serial number allowing for traceability and certification

FREE DAQ SOFTWARE

Real-time data visualization and logging

DATA INTEGRATION

Command-line tools for direct data access and integration

OPTIONS

- Virtual COM Port (VCP) communication protocol
- 3-point user calibration mechanism

ALSO AVAILABLE

Traceability certificates

SPECIFICATIONS

| Parameter | Condition | | Value | Units |
|--------------------------------|---------------------------------------|---------------------------|--------------|-------|
| Temperature | | | | |
| Operating range | Max., -40 to 70°C | | – | – |
| Accuracy | -40 to 70°C | Typ. Max. | ±0.3 ±0.4 | °C |
| Accuracy | -40 to 0°C | Typ. Max. | ±0.3 ±0.4 | °C |
| Accuracy | 0 to 70°C | Typ. Max | ±0.2 ±0.4 | °C |
| Resolution | Typ. | | 0.01 | °C |
| Repeatability | Typ. | | 0.06 | °C |
| Response time | t63% | | 10 | s |
| Factory calibrated | Individually ^[2] | | yes | – |
| Relative humidity | | | | |
| Operating range ^[3] | Non-condensing | | – 0 to 100 | %RH |
| Accuracy | 0 to 100 %RH | 25°C Typ. Max | ±2 ±3.5 | %RH |
| Accuracy | 0 to 90 RH% | 25°C Typ. Max | ±2 ±2.5 | %RH |
| Accuracy | 0 to 90 %RH | 0 to 70°C Typ. Max. | ±2 ±2.5 | %RH |
| Accuracy | 90 to 100 %RH | 0 to 70°C Typ. Max. | ±2 ±3.5 | %RH |
| Resolution | Typ. | | 0.01 | %RH |
| Hysteresis | 25°C | | 0.8 | %RH |
| Factory calibrated | Individually ^[2] | | Yes | – |
| Filter - Layer 1 | | | | |
| Material | Polyethylene terephthalate (PET) mesh | | | |
| Filter - Layer 1 | | | | |
| Material | PTFE membrane | | | |
| Efficiency | Particle size ≥200 nm | | 99.99 | % |

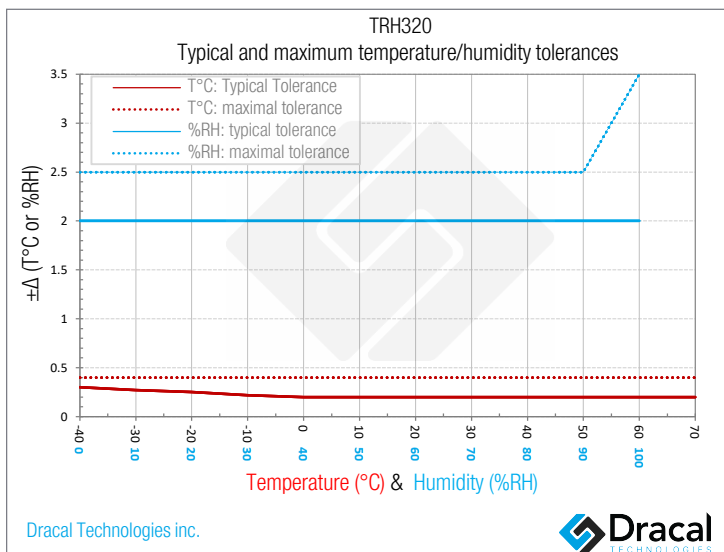
SPECIFICATIONS

| Parameter | Condition | Value | Units |
|------------------------------|----------------------------|----------|--------|
| Power supply | | | |
| Voltage | Powered through a USB port | 5 | V |
| Current consumption | At 5V | ≤18 | mA |
| Mechanical | | | |
| Dimensions | See schema below | — | — |
| Colour | — | Cyan | — |
| Weight (without USB cable) | — | 40 | g |
| Housing and USB cable | | | |
| Temperature operating range | — | 0 to 70 | °C |
| Humidity operating range | Non condensing | 10 to 90 | %RH |
| Material | — | ABS | — |
| IP rating ^[3] | — | 51 | — |
| System galvanic isolation | — | None | — |
| USB cable length | — | 1 (3) | m (ft) |
| Miscellaneous | | | |
| ADC resolution | — | 16 | bits |
| Long-term stability | — | Yes | — |
| Temperature compensated | By the manufacturer | Yes | — |
| Lifetime | — | 5 | years |

^[1] Only if cable is not moved/flexed while the temperature is below 0°C.

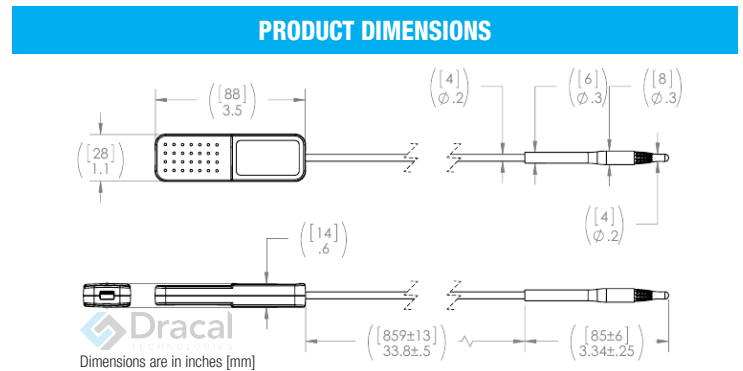
^[2] Each sensor is individually conditioned by the manufacturer of the semi-conductor sensor chips, in the best stable condition and their correction coefficients are recorded in each of them.

^[3] If water condensation or splashing is possible, it is recommended to install the probe pointing down to reduce the risk of water build-up in the sensor. If water splashing is possible, protect the sensor and cable converter using extra precautions. Extra housing may be required depending on the application.



| AVAILABLE CHANNEL(S) As displayed in our logging software | | | |
|--|-------------------------|-------------------|---------|
| CHANNEL ID* | DESCRIPTION | TYPE | NATURE |
| 00 | SHT31 Temperature | Temperature | Real |
| 01 | SHT31 Relative Humidity | Relative Humidity | Real |
| 02 | Dew point | Dew point | Virtual |
| 03 | Humidex | Humidex | Virtual |
| 04 | Heat index | Heat index | Virtual |

* Channel Id as it appears in DracalView. Virtual channel Id differ in DracalView and dracal-usb-get.



CAUTION: Please keep in mind that electromagnetic interference (EMI) may decrease the accuracy of the sensor. Avoid using this device near EMI sources such as motors, high voltage transformers and fluorescent tubes.

NOTE: Note that this product is not waterproof and requires protection if contact with water is possible.

TIP: Avoid installing the sensor in a location where strong vibration is likely to occur. Strong vibrations may cause slight inaccuracies in the reading.

TIP: As for any precision measurement equipment, it is advised to power on the unit at least 15 minutes before using it.

| ORDERING | | |
|-------------|----------------|---|
| PRODUCT(S) | | |
| PART NUMBER | OPTION | DESCRIPTION |
| 601032 | USB-TRH320 | Precision USB temperature and humidity sensor, with filter |
| 608032 | USB-TRH320-CAL | Precision USB temperature and humidity sensor, with filter - calibratable |
| 603032 | VCP-TRH320 | Precision USB temperature and humidity sensor, with filter - with VCP mode |
| 605032 | VCP-TRH320-CAL | Precision USB temperature and humidity sensor, with filter - calibratable with VCP mode |

| TRACEABILITY CERTIFICATE(S) | |
|-----------------------------|--|
| NT1WT | 1-point temperature certificate for one (1) unit |
| NT2WT | 2-point temperature certificate for one (1) unit |
| NT3WT | 3-point temperature certificate for one (1) unit |
| NT4WT | 4-point temperature certificate for one (1) unit |
| NT1WH | 1-point relative humidity certificate for one (1) unit |
| NT2WH | 2-point relative humidity certificate for one (1) unit |
| NT3WH | 3-point relative humidity certificate for one (1) unit |
| NT4WH | 4-point relative humidity certificate for one (1) unit |

Warning: This product should not be used in applications where its failure may cause personal injury.

Note: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions.

Note: Data may change without notification, and you are strongly advised to obtain copies of the most recently issued datasheet.