

ROBUST, HIGH PRECISION USB TEMPERATURE AND HUMIDITY SENSOR

TRH450



DESCRIPTION

The TRH450 is designed for environmental temperature and humidity acquisition where enhanced precision (±0.1°C/±1.5 %RH) and extended temperature range (-40°C to +125°C) are required. The TRH450 is field interchangeable, thanks to its factory calibrated, linearized and temperature-compensated digital sensor chip. Additionally, its compact aluminum probe includes extra physical protection for harsh environmental conditions and an internal filter provides protection against dust, soot and other contaminants. Its thin probe eases integration, even in space-constrained locations.

APPLICATIONS

- o OEM
- Greenhouse
- Server rooms
- Manufacturing
- o 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

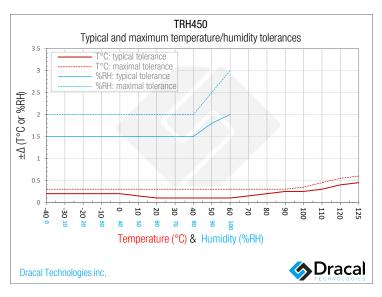
Traceability certificates

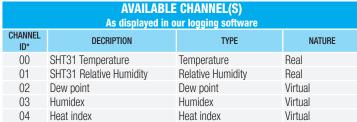
SPECIFICATIONS							
Parameter	Condition			Value	Units		
Temperature							
Operating range	-40 to 125		Max	-	°C		
Accuracy	-40 to 20°C		Typ. Max.	±0.2 ±0.3	°C		
Accuracy	20110 601		Typ. Max	±0.1 ±0.3	°C		
Accuracy	60 to 125°C			±0.4 ±0.6	°C		
Accuracy	-40 to 125°C Typ			±0.4 ±0.6	°C		
Resolution	Тур.			0.015	°C		
Repeatability	Тур.			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 80 %RH	25°C	Typ. Max	±1.5 ±2	%RH		
Accuracy	80 to 100 RH%	25°C	Typ. Max	±2 ±3	%RH		
Accuracy	0 to 80 %RH	10 to 50°C	Typ. Max.	±1.5 ±2	%RH		
Accuracy	0 to 100 %RH	0 to 80°C	Typ. Max.	±2 ±3	%RH		
Resolution	Тур.			0.01	%RH		
Hesterisis	25°C			0.8	%RH		
Factory calibrated	Individually ^[2]			Yes	-		
Probe							
Operating range	-40 to 125			-	°C		
Cable material	Silicon						
Cable lenght	-			1 (3)	m (ft)		
Filter - Layer 1							
Material	Anodized Aluminum						
Filter - Layer 2 Material		DIFF					
iviaterial	PTFE membrane Particles size						
Efficiency	≥200 nm			99.99	%		

SPECIFICATIONS							
Parameter	Condition	Value	Units				
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)				
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)	-	50	g				
Miscellaneous							
ADC resolution	-	16	bits				
Long-term stability	Maximum	0.03	-				
Temperature compensated	By the manufacturer	Yes	-				
Lifetime	-	5	years				

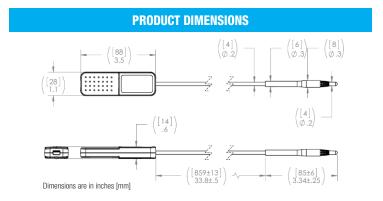
^[2] Each sensor is individually conditioned by the manufacturer of the semi-conductor sensor chips, in the best stable condition and their correction coefficients are recorded in each of them.

^[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





* 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)						
OPTION	DESCRIPTION					
USB-TRH450	Enhanced precision USB temperature and humidity sensor (aluminium probe)					
USB-TRH450-CAL	Enhanced precision USB temperature and humidity sensor (aluminium probe) - calibratable					
VCP-TRH450	Enhanced precision USB temperature and humidity sensor (aluminium probe) - with VCP mode					
VCP-TRH450-CAL	Enhanced precision USB temperature and humidity sensor (aluminium probe) - calibratable with VCP mode					
TRACEABILITY CERTIFICATE(S)						
NT1WT 1-point temperature certificate for one (1) unit						
2-point temperature certificate for one (1) unit						
3-point temperature certificate for one (1) unit						
4-point temperature certificate for one (1) unit						
1-point relative humidity certificate for one (1) unit						
2-point relative humidity certificate for one (1) unit						
3-point relative humidity certificate for one (1) unit						
4-point relative humidity certificate for one (1) unit						
	USB-TRH450 - CAL VCP-TRH450 - CAL VCP-TRH450 - CAL CERTIFICATE(S 1-point temperat 2-point temperat 4-point temperat 1-point relative h 2-point relative h 3-point relative h					

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

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

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

