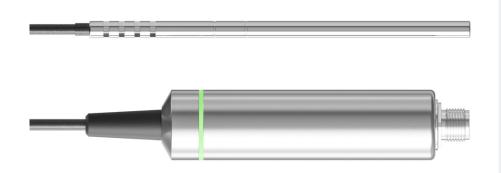
## **VAISALA**

### TMP1 Temperature Probe



#### **Features**

- Temperature accuracy up to ±0.1 °C (±0.18 °F)
- Temperature measurement range -70 ... +180 °C (-94 ... +356 °F)
- Modbus® RTU over RS-485
- Compatible with Vaisala Indigo products and Insight PC software
- Traceable 2-point calibration certificate with calibration points at +20 and +70 °C (+68 and +158 °F)

Vaisala Temperature Probe TMP1 is designed for demanding temperature measurements in industrial applications such as pharmaceutical industry and calibration laboratories, where accuracy and robustness are essential.

#### Flexible connectivity

The probe can be used as a standalone digital Modbus RTU transmitter over an RS-485 serial bus, and it can also be connected to Indigo transmitters and the Indigo80 handheld indicator. For easy-to-use access to field calibration, device analytics, and configuration functionality, the probe can be connected to Vaisala Insight software for Windows®. For more information, see www.vaisala.com/insight.

#### Vaisala Indigo product family

Indigo transmitters extend the capabilities of Indigo-compatible measurement probes. The transmitters can display measurements on the spot as

well as transmit them to automation systems through analog signals, digital outputs, and relays. Cable length between probe and transmitter can be extended to up to 30 meters.

The Indigo80 handheld indicator is ideal for spot-checking and process monitoring, as well as for configuring, troubleshooting, calibrating, and adjusting the probe. For more information, see www.vaisala.com/indigo.

# Relative humidity measurements in high humidities

When the TMP1 probe is connected to a control system in parallel with HMP7 Relative Humidity and Temperature Probe, it is possible to have relative humidity measurement in actual process temperature while using probe heating in the relative humidity probe. Probe heating helps to avoid condensation in situations where the dew point temperature of the process is close to the ambient temperature.

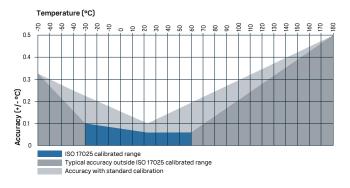
When the humidity probe is heated above dew point temperature, condensation can be avoided and the relative humidity in the actual process temperature can be back-calculated based on the true process temperature measurement received from TMP1.

## Technical data

#### **Measurement performance**

Measurement range	-70 +180 °C (-94 +356 °F)
Sensor	Pt100 RTD Class F0.1 IEC 60751
Standard calibration 1)	
Accuracy at +23 °C (+73.4 °F)	±0.1 °C (±0.18 °F)
Factory calibration uncertainty <sup>2)</sup>	±0.1 °C (±0.18 °F) at +23 °C (+73.4 °F)
Optional ISO 17025 calibration 3)	
Accuracy at +23 °C (+73.4 °F) 1)	±0.06 °C (±0.108 °F)
Calibration uncertainty 2)	±0.03 °C (±0.054 °F)

- Defined against calibration reference. Including non-linearity, hysteresis, and repeatability. Defined as ±2 standard deviation limits. Small variations possible; see calibration certificate. Accuracy depends on selected calibration points. Accuracy with 150 17025 calibration is defined here using a 5-point calibration in the following points: -30, -10, 0, +30, and +60 °C. For more information on calibration services offered by Vaisala, see vaisala.com/calibration.



TMP1 temperature measurement accuracy over full range

#### **Operating environment**

Operating temperature of probe body	-40 +80 °C (-40 +176 °F)
Operating temperature of probe head	-70 +180 °C (-94 +356 °F)
Storage temperature	-40 +80 °C (-40 +176 °F)
Operating environment	Suitable for outdoor use
IP rating	
Probe body	IP66
Probe head and cable	IPX8/IPX9

#### Inputs and outputs

Operating voltage	15-30 V DC	
Current consumption	10 mA typical	
Digital output	RS-485, non-isolated	
Protocols	Modbus RTU	
Output parameters	Temperature (°C) Water vapor saturation pressure (hPa)	

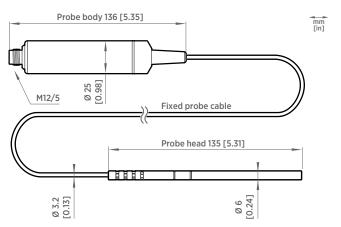
#### **Compliance**

EU directives and regulations	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	EN 61326-1, industrial environment
Type approvals	DNV GL certificate no. TAA00002YT
Compliance marks	CE, China RoHS, RCM



#### **Mechanical specifications**

Connector	M12 5-pin A-coded male
Weight (with a 2-m cable)	224 g (7.9 oz)
Probe cable length	2 m (6.56 ft) or 10 m (32.8 ft)
Materials	
Probe	AISI 316L
Probe body	AISI 316L
Cable jacket	FEP



TMP1 probe dimensions

#### **Accessories**

Duct installation kit for temperature probe	215003
Swagelok® for 6 mm probe, 1/8" ISO thread	SWG6ISO18
Swagelok® for 6 mm probe, 1/8" NPT thread	SWG6NPT18
Indigo USB adapter <sup>1)</sup>	USB2

1) Vaisala Insight software for Windows available at www.vaisala.com/insight.





Published by Vaisala | B211685EN-H © Vaisala 2024

All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. Any reproduction, transfer, distribution or storage of information contained in this document is strictly prohibited. All specifications — technical included — are subject to change without notice.