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DATASHEET

TMP115

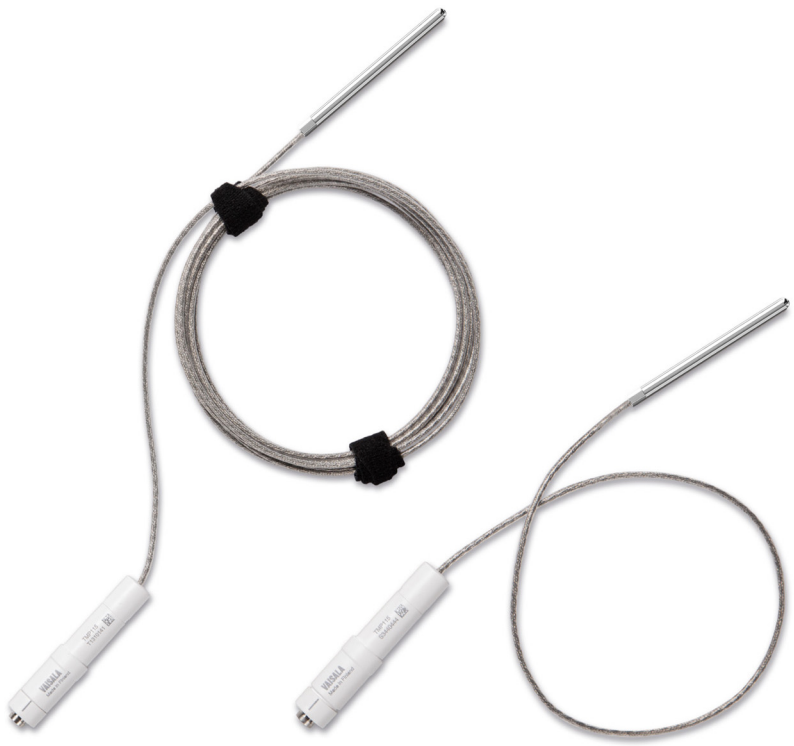
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VAISALA

TMP115 Wide-Range Temperature Probe



Features

- Measurement range −196 ... +150 °C (−320 ... +302 °F)
- Platinum RTD temperature sensor for outstanding measurement stability
- Available as 0.5 m (1 ft 7.7 in) and 3 m (9.8 ft) long versions
- Can be used in Vaisala RFL100, CWL100, and VDL200 data loggers, and TMT120 and TMT130 transmitters
- Compatible with Vaisala Insight PC software and Vaisala Indigo80 Handheld Indicator
- Traceable calibration certificate

Wide-Range Temperature Probe TMP115 is ideal for use in temperature-controlled chambers, cryogenic applications, incubators, LN_2 tanks, and blood/tissue banks. TMP115 uses a platinum RTD temperature sensor for outstanding measurement stability.

Flexible connectivity

TMP115 can be used in Vaisala RFL100, CWL100, and VDL200 data loggers, and TMT120 and TMT130 transmitters. It can also be used as a standalone digital Modbus RTU transmitter over an RS-485 serial bus. The probe is available in two lengths: 0.5 m (1 ft 7.7 in) and 3 m (9.8 ft). The length includes probe body and sensor tip.

The operating temperature range of the probe body is −40 ... +60 °C (−40 ... +140 °F). It is usually best to leave the probe body outside the measured environment, and just insert the probe tip and some cable.

Low power consumption

TMP115 is suitable for battery-powered applications due to its very low power consumption. It also has an extremely fast start-up time.

Features for cold storage applications

Some cold storage applications may require slowing down the naturally fast response time of the probe. You can easily accomplish this by adding more thermal mass to the sensor tip. The thermal dampener block accessory (item code 236310SP) is designed for this purpose. The damping effect of the block is equivalent to that of 40 ml of glycol.

The 4.8 mm (0.19 in) diameter sensor tip withstands immersion in glycol and liquid nitrogen.

Flat cables are available as accessories for the compatible data loggers in case door seal insertion to chambers and freezers is required.

Variety of calibration options

A quick field calibration can easily be carried out using a handheld device, for example, Vaisala Indigo80 Handheld Indicator or Vaisala Handheld Meter HM40. Alternatively, the probe can be calibrated using a PC with Vaisala Insight PC software and a compatible USB connection cable, or sent to Vaisala for calibration. Vaisala Service Centers offer both ISO 9001 and ISO 17025 calibrations.

Technical data

Measurement performance

Temperature	
Measurement range	–196 … +150 °C (–320 … +302 °F) [1]
Accuracy over temperature range [2]	
at –196 … –90 °C (–320 … –130 °F)	±2.5 °C (±4.5 °F)
at –90 … –30 °C (–130 … –22 °F)	±0.75 °C (±1.35 °F)
at –30 … 0 °C (–22 … +32 °F)	±0.5 °C (±0.9 °F)
at 0 … +50 °C (+32 … +122 °F)	±0.25 °C (±0.45 °F)
at +50 … +90 °C (+122 … +194 °F)	±0.75 °C (±1.35 °F)
at +90 … +150 °C (+194 … +302 °F)	±2.5 °C (±4.5 °F)
Temperature sensor	Pt100 RTD Class A IEC 751
Typical factory calibration uncertainty	
at –90 °C (–130 °F)	±0.13 °C (±0.234 °F)
at –45 °C (–49 °F)	±0.07 °C (±0.149 °F)
at 0 °C (32 °F) and warmer	±0.06 °C (±0.128 °F)

1) *The measurement range of TMP115 probes manufactured with firmware version older than 2.6.3 is –196 … +90 °C (–320 … +194 °F).*
2) *Includes non-linearity, hysteresis, and repeatability.*

Operating environment

Operating temperature of sensor tip	–196 … +150 °C (–320 … +302 °F)
Operating temperature of probe body [1]	–40 … +60 °C (–40 … +140 °F)
IP rating of sensor tip	IP67
IP rating of probe body	IP65

1) *Heat conduction along the probe cable may affect the temperature of the probe body. Model with 3 m (9.8 ft) probe cable is recommended for continuous measurement of very hot and cold temperatures.*

Compliance

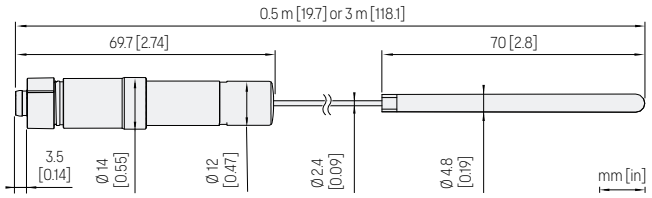
EU directives and regulations	RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	EN 61326-1, industrial environment
Compliance marks	CE, RCM

Inputs and outputs

Operating voltage	5–28 V DC
Start-up time	1 s
Digital output	RS-485 2-wire half duplex, supports Modbus RTU
Output parameters	Temperature (°C)

Mechanical specifications

Cable connector	4-pin male M8 (IEC 60947-5-2)
Materials	
Probe body	PC/ABS blend
Cable	FEP
Sensor tip	Stainless steel (AISI 316)
Dimensions	
Probe length including cable and sensor tip	0.5 m (1 ft 7.7 in) or 3 m (9.8 ft)
Probe body diameter	14 mm (0.55 in)
Sensor tip length	70 mm (2.76 in)
Sensor tip diameter	4.76 mm (0.19 in)



TMP115 dimensions

Accessories

Thermal dampener block for 3/16″ probes (4.8 mm)	236310SP
Probe holder (5 pcs)	ASM213382SP
Probe nut (5 pcs) for connection to VDL200 data logger, TMT120/130 transmitter, and HM40 handheld meter	DRW257207SP
USB cable for PC connection	219690
Connection cable for Indigo80 handheld indicator	262195SP
Connection cable for MI70 indicator	219980SP
Connection cable for HM40 handheld meter	HMT120Z300

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