

PRECISION TEMPERATURE SENSOR

TMP300

DESCRIPTION

The TMP300 is a precision temperature sensor designed to meet the needs of air and liquid temperature measurement. Featuring a stainless steel probe and a silicone cable, the TMP300 covers temperature ranges from -50 °C to 150 °C, making it the ideal solution for OEM integration into systems operating in versatile or harsh environments. Using state-of-the-art chip technology, the TMP300 delivers unparalleled resolution for your temperature readings across a broad range. Its compact USB-key form factor simplifies integration even in space-constrained applications.



APPLICATIONS

Research & development
Aerospace
Biomedical
Robotics
Environmental chamber
Pre-certification
Server rooms
Building automation
Greenhouse
Manufacturing
Engineering

AT A GLANCE

INSTALLATION TIME

Less than 10 minutes

UNIQUE SERIAL NUMBER

Each unit is uniquely numbered for traceability and certification.

FREE DAQ SOFTWARE

Real-time visualization and logging (DracalView).

DATA INTEGRATION

CLI tools, [REST JSON API](#) and [MQTT publisher](#).

OPTIONS

- Virtual COM (serial) protocol ([VCP option](#))
- 3-point user calibration ([-CAL option](#))

ALSO AVAILABLE

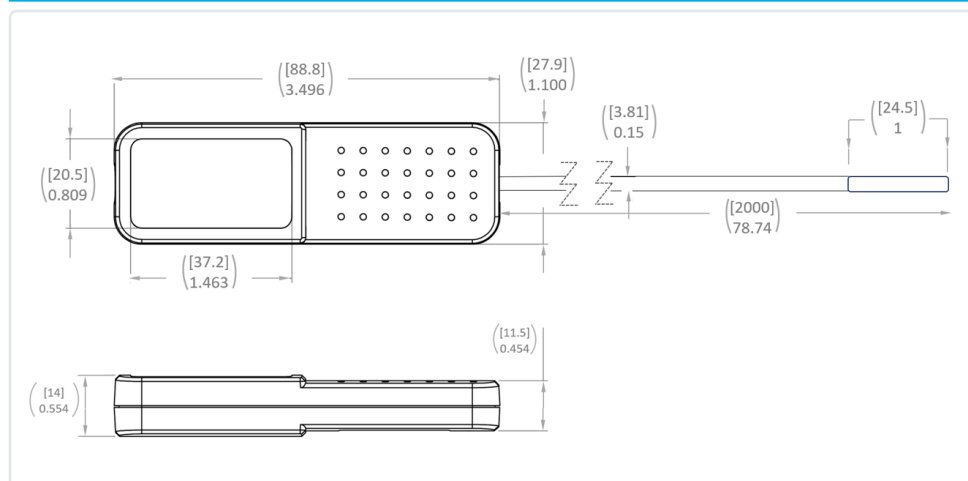
[Traceability certificates](#)

AVAILABLE CHANNEL(S)

CHANNEL ID*	DESCRIPTION	TYPE	NATURE
00	Temperature	Temperature	Real

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

PRODUCT DIMENSIONS



Dimensions are in inches [mm]

COMPLIANCE



SPECIFICATIONS

TEMPERATURE			
Measurement range		-50 to 150 °C	
ADC resolution		24 bits	
Temperature resolution	Typ.	0.001 °C	
Factory calibrated	Individually ^[1]	Yes	–
Accuracy -50 to -20 °C ^[2]	Typ. / Max.	±0.370 / ±0.655 °C	
Accuracy -20 to 0 °C ^[2]	Typ. / Max.	±0.166 / ±0.304 °C	
Accuracy 0 to 30 °C ^[2]	Typ. / Max.	±0.101 / ±0.165 °C	
Accuracy 30 to 60 °C ^[2]	Typ. / Max.	±0.036 / ±0.145 °C	
Accuracy 60 to 100 °C ^[2]	Typ. / Max.	±0.054 / ±0.185 °C	
Accuracy 100 to 150 °C ^[2]	Typ. / Max.	±0.126 / ±0.235 °C	
Noise level	Typ., at 25 °C	0.0015 °C	
Sample rate	10 SPS	100 ms	
Temperature stabilisation time	At 25 °C, min, after power-up	15 min	
Long-term drift ^[3]	Typ., at 25 °C, reading 0 °C	±0.008 °C/yr	
POWER SUPPLY			
Voltage	Powered through USB	5 V	
Current	At 5 V	≈19 mA	
MECHANICAL			
Dimensions	See schema below	–	
Colour	Cyan	–	
Weight	Without USB cable	35 g	
HOUSING AND USB CABLE			
Temperature operating range		-20 to 70 °C	
Humidity operating range	Non-condensing	10 to 90 %RH	
Material	ABS	–	
IP rating ^[3]		51	–
USB cable length		1 (3) m (ft)	
POWER SUPPLY			
Voltage	Powered through USB	5 V	
Current	At 5 V	15 mA	
MISCELLANEOUS			
Built-in noise filter		Yes	–
Low drift		Yes	–
Long-term stability		Yes	–
Temperature compensated		Yes	–
CERTIFICATION(S)			
RoHS	RoHS3	Yes	–
CE	CE/REACH	Yes	–

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, no responsibility can be accepted for errors or omissions. Data may change without notice; always obtain the most recently issued datasheet. Dracal Technologies Inc. All Rights Reserved.

NOTES

[1] Dracal Technologies individually calibrates each sensor, and their correction coefficients are stored in each unit.

[2] After a warm-up time of 15 minutes, housing @25°C.

[3] Based on two years of data, using a stable, very low drift resistor with precision equivalent to a 0.00 °C RTD element.

CAUTION
EMI may reduce accuracy. Keep away from motors, transformers and fluorescent tubes.

NOTE
Not waterproof. Protect from water contact.

TIP
Avoid strong vibration; it may affect readings.

TIP
Power the unit 15 minutes before precision measurements.

ORDERING PRODUCT(S)

PART #	OPTION	DESCRIPTION
601220	USB-TMP300	Precision temperature sensor.
608220	USB-TMP300-CAL	Same as USB-TMP300, calibratable.
603220	VCP-TMP300	Same as USB-TMP300, with VCP mode.
603220	VCP-TMP300-CAL	Same as USB-TMP300, calibratable, with VCP mode.

TRACEABILITY CERTIFICATE(S)

CERTIFICATE #	DESCRIPTION
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
NTW+	Accelerated calibration service for (1) product - max 5 days instead of 15