

USB TEMPERATURE CONVERTER FOR THERMOCOUPLE

TMC100x



DESCRIPTION

With the TMC100x, connecting a thermocouple to a computer for data acquisition is made easy, allowing you to start recording temperature data, in real time, in just a few minutes. The TMC100x uses a NIST ITS-90 correction table, digital noise filters and compensate the cold junction temperature making the TMC100x an optimal unit with any thermocouple. Sensors connect using a convenient standard mini 2-pin connector.

APPLICATIONS

- Industrial processes
- Pharmaceutical processes
- Food processes
- Environmental chamber
- Engineering and R&D
- Pre-certification
- Scientific research
- Oven
- Temperature detection racks

All types of converters are supplied with their respective connectors.

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
TMC100k			
Thermocouple type	2- or 3-pin	K	–
Thermocouple operating range ^[1]	–	-200 to 1372	°C
Typical accuracy ^[2]	Junction at 25°C	±0.5	°C
Maximum accuracy	Junction from 25 to 50°C	±1.5	°C
TMC100j			
Thermocouple type	2- or 3-pin	J	–
Thermocouple operating range ^[1]	–	-150 to 1200	°C
Typical accuracy ^[2]	Junction at 25°C	±1	°C
Maximum accuracy	Junction from 25 to 50°C	±1.5	°C
TMC100t			
Thermocouple type	2- or 3-pin	T	–
Thermocouple operating range ^[1]	–	-200 to 400	°C
Typical accuracy ^[2]	Junction at 25°C	±0.5	°C
Maximum accuracy	Junction from 25 to 50°C	±1	°C
TMC100n			
Thermocouple type	2- or 3-pin	N	–
Thermocouple operating range ^[1]	–	-200 to 1300	°C
Typical accuracy ^[2]	Junction at 25°C	±0.5	°C
Maximum accuracy	Junction from 25 to 50°C	±1	°C
TMC100e			
Thermocouple type	2- or 3-pin	E	–
Thermocouple operating range ^[1]	–	-100 to 1000	°C
Typical accuracy ^[2]	Junction at 25°C	±0.5	°C
Maximum accuracy	Junction from 25 to 50°C	±1	°C

SPECIFICATIONS

Parameter	Condition	Value	Units
ADC resolution	Hot- and Cold-junction	18	bit
Temperature resolution	–	0.0625	°C
Sampling rate	Up to 3 SPS	320	mS
Cold junction compensation	–	Yes	–
Built-in correction	NIST ITS-90	Yes	–
Built-in noise filter	–	Yes	–
Long-term stability	–	Yes	–
Connector compatibility	mini 2 and mini 3-pin	–	–
Power supply			
Voltage	Powered through a USB port	5	V
Current Consumption	At 5V	13	mA
Mechanical			
Dimensions	See drawing below	–	–
Colour	–	Cyan	–
Weight	–	28	g
Housing			
Temperature operating range	–	0 to 50	°C
Humidity operating range ^[3]	Non-condensing	10 to 90	%RH
Material	–	ABS	–
IP rating ^[3]	–	51	–
System galvanic isolation	–	None	–
Miscellaneous			
Communication	–	USB 2.0	–

^[1] Actual temperature range is probe dependant.

^[2] Minimum precision over the complete thermocouple operating range.

^[3] If water condensation 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.

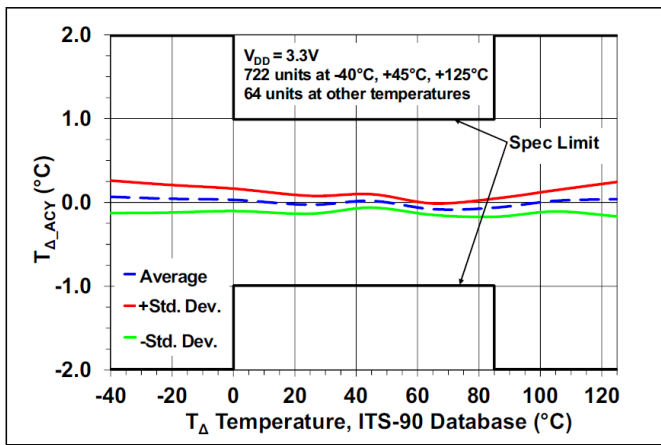
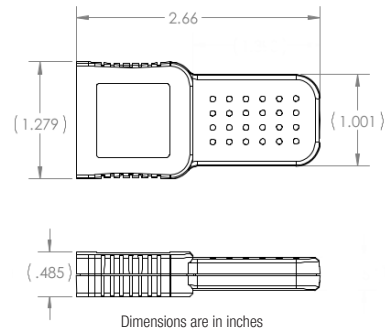


FIGURE 2-20: Cold-Junction Sensor Temperature Accuracy.

PRODUCT DIMENSIONS



AVAILABLE CHANNEL(S) As displayed in our logging software			
CHANNEL ID*	DESCRIPTION	TYPE	NATURE
00	Type-x Thermocouple	Temperature	Real
01	Thermocouple cold junction temperature	Temperature	Real

* 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
601069	USB-TMC100k	USB Type-K thermocouple converter
608069	USB-TMC100k-CAL	USB Type-K thermocouple converter - calibratable
603069	VCP-TMC100k	USB Type-K thermocouple converter - with VCP mode
601065	USB-TMC100t	USB Type-T thermocouple converter
608065	USB-TMC100t-CAL	USB Type-T thermocouple converter - calibratable
603065	VCP-TMC100t	USB Type-T thermocouple converter - with VCP mode
601062	USB-TMC100j	USB Type-J thermocouple converter
608062	USB-TMC100j-CAL	USB Type-J thermocouple converter - calibratable
603062	VCP-TMC100j	USB Type-J thermocouple converter - with VCP mode
601063	USB-TMC100n	USB Type-N thermocouple converter
608063	USB-TMC100n-CAL	USB Type-N thermocouple converter - calibratable
603063	VCP-TMC100n	USB Type-N thermocouple converter - with VCP mode
601064	USB-TMC100e	USB Type-E thermocouple converter
608064	USB-TMC100e-CAL	USB Type-E thermocouple converter - calibratable
603064	VCP-TMC100e	USB Type-E thermocouple converter - 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

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.

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