



PRECISION 2/3 WIRE RTD SENSOR TO USB ADAPTER

RTD300



DESCRIPTION

The RTD300 is an interface for temperature measurements using most of 2- or 3-wire 100 ohms RTDs, such as the popular PT100 probes. Built around a 24-bit data converter combining cutting-edge technologies, the RTD300 brings unmatched precision and resolution to your temperature values, with an improved sample speed. Furthermore, the RTD300 compensates the measured value of errors introduced by the length of a 3-wire probe cable, up to 100 feet, and drastically reduces electronic noise, thanks to its sophisticated built-in digital filters. Sensors connect using a convenient and industry standard mini RTD 3-pin connector. It's 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
- Green house
- Manufacturing
- Engineering

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 | | | |
| Unit operating range | Probe dependant | - 200 to 800 | °C |
| ADC resolution | – | 24 | bits |
| Temperature resolution | Typ. | 0.0001 | °C |
| Accuracy ^[4] | Typ., at 25°C | ±0.005 | °C |
| Accuracy ^[4] | 0°C to 50°C | +0,-0.018 | °C |
| Noise level | Typ., at 25°C | 0.0015 | °C |
| Samples rate | Up to 10 SPS | 100 | ms |
| Response time | t63% | Probe dependant | |
| Sensing element type | RTD | 100 | Ohms |
| Factory calibrated | Individually ^[2] | Yes | – |
| Calibration value point | – | 0.00 | °C |
| Temperature stabilisation time | At 25°C, minimum, following power-up | 15 | min |
| Pre-wired PT100 probe available (optional) | Yes | See image below | – |

SPECIFICATIONS

| Parameter | Condition | Value | Units |
|------------------------------|--|-------------------|-------|
| Power supply | | | |
| Voltage | Powered through a USB port | 5 | V |
| Current Consumption | At 5V | ≈19 | mA |
| Mechanical | | | |
| Dimensions | See schema below | – | – |
| Colour | Cyan | – | – |
| Weight | Without USB cable | 25 | g |
| Housing and USB cable | | | |
| Operating temperature | – | -20 to 60 | °C |
| Operating relative humidity | Non-condensing | 10 to 90 | %RH |
| Material | ABS plastic | | |
| IP rating | – | 51 ^[3] | – |
| System galvanic isolation | – | None | – |
| Miscellaneous | | | |
| Connection | Polarized 3-pin standard ^[1] miniature receptacle | | |
| Built-in noise filter | – | Yes | – |
| Low drift | – | Yes | – |
| Long-term stability | – | Yes | – |
| Temperature compensated | – | Yes | – |

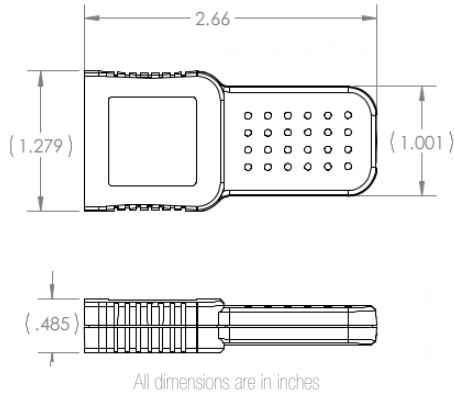
^[1] Not all pre-wired probes are wired the same and may require wiring rearrangement in its connector.

^[2] Each sensor is individually calibrated by Dracal technologies and their correction coefficients are stored in each of them.

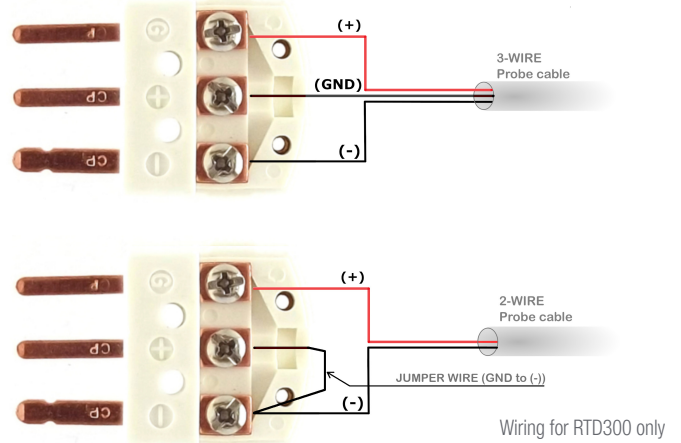
^[3] If water condensation is possible, it is recommended to install the probe pointing down to reduce the risk of water build-up in the sensor. If water splashing is possible, protect the sensor and cable converter using extra precautions. Extra housing may be required depending on the application.

^[4] Subsequent to a warm-up time of 30 minutes and a Dracal Technologies calibration at 0°C during final test, without a RTD probe.

PRODUCT DIMENSIONS



PROBE WIRING OPTIONS



AVAILABLE CHANNEL(S)

As displayed in our logging software

| CHANNEL ID* | DESCRIPTION | TYPE | NATURE |
|-------------|--------------------------|-------------|--------|
| 00 | PT100 Temperature sensor | Temperature | Real |

* Channel Id as it appears in QTenki. Virtual channel Id differ in QTenki and usbtenkiget.

RTD300 WITH OUR OPTIONAL PROBE (RTD-PT100_SIL_B)



CAUTION: Keep in mind that electromagnetic interferences (EMI) may adversely reduce the precision of the sensor. Avoid using this unit close to EMI sources such as or, transformers, high voltage and fluorescent light.

NOTE: This product is not waterproof and must be protected if contact with water is possible.

TIP: Avoid installing the sensor in a location where considerable vibrations may be present. Large vibrations can introduce extra inaccuracy in the pressure readings.

TIP: As for any precision measurement equipment, it is advised to power on the unit at least 10 minutes before using it.

ORDERING

PRODUCT(S)

| PART NUMBER | OPTION | DESCRIPTION |
|-------------|-----------------|--|
| 601048 | USB-RTD300 | 2/3 Wire RTD sensor to USB adapter |
| 603048 | VCP-RTD300 | 2/3 Wire RTD sensor to USB adapter - with VCP mode |
| 608048 | USB-RTD300-CAL | 2/3 Wire RTD sensor to USB adapter - calibratable |
| 601109 | RTD-PT100_SIL_B | RTD probe for the RTD300 (sold separately) |

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 is not designed for use in, and should not be used for, human applications.

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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