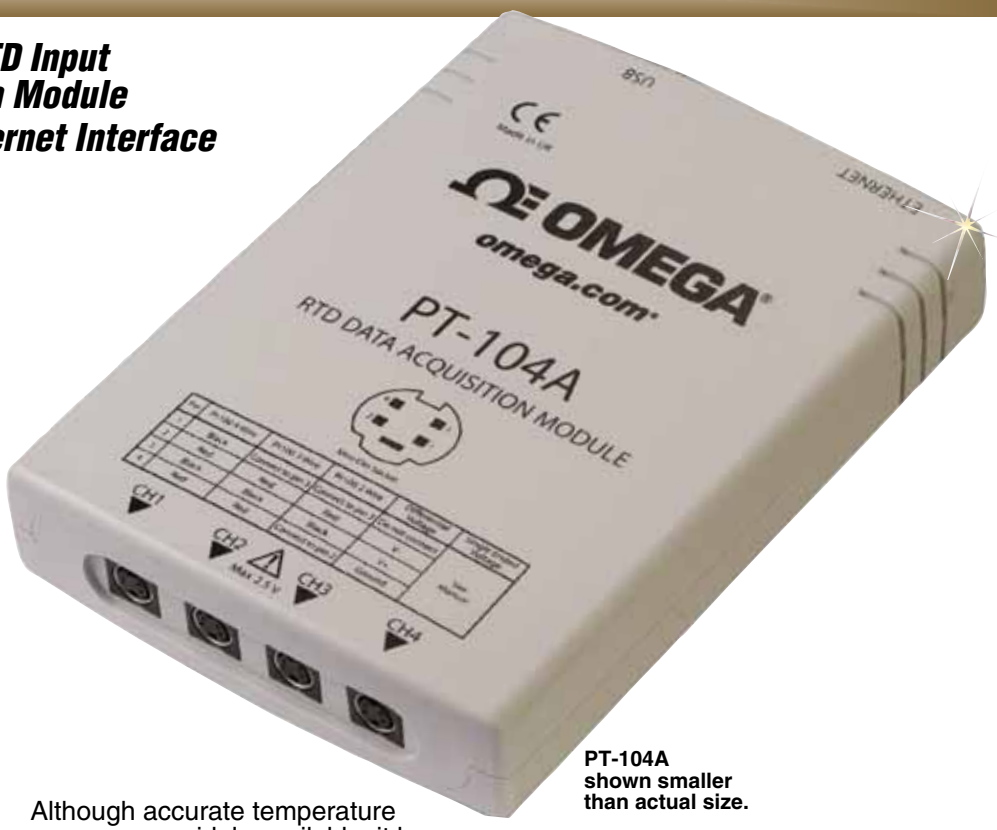
NEW

Four Channel RTD Input Data Acquisition Module with USB or Ethernet Interface

PT-104A

5 YEAR WARRANTY

- **Measures Temperature (RTDs), Resistance and Voltage**
- **High Accuracy (0.01°C) and Resolution (0.001°C)**
- **Powered by USB Port or Power-Over-Ethernet (PoE)**
- **For Use with 2, 3 and 4-Wire Pt100 and Pt1000 RTD Sensors**



PT-104A shown smaller than actual size.

The PT-104A is a four-channel, high-resolution temperature data acquisition module for use with PT100 and PT1000 RTD sensors. It can also be used to measure resistance (375 Ω and 10,000 Ω ranges) and voltage (115 mV or 2.5V ranges). In PT100/PT1000/ resistance mode, the unit uses a four wire circuit. In voltage mode, the input connector can be treated as a differential input with ground, or two single-ended inputs. Both inputs must be 0V or above, though it does not matter which input has the higher voltage. For the 115 mV voltage range, the accuracy may vary by 2%, and the temperature coefficient will be 100 ppm/°C.

Although accurate temperature sensors are widely available, it has been difficult to take advantage of them due to errors caused by the measuring device. The PT-104A, however, is designed to be inherently accurate. Rather than relying on voltage references (which tend to be temperature sensitive) it uses reference' resistors which are extremely stable (low temperature coefficient and drift). The exact value of each resistor is stored in an EEPROM to provide the ultimate in accuracy (yearly re-calibration is recommended). To achieve the 0.001°C resolution a highly-advanced ADC is used that can resolve to better than 1 part in 16 million.

Temperature

The PT-104A measures temperature using platinum resistance temperature sensors (RTDs). Both common industry standards (PT100 and PT1000) are supported. The unit is compatible with 2, 3 and 4 wire sensors (4 wire PT100 sensors are recommended for accurate measurements).

Resistance

When measuring resistance, the unit uses a four-wire circuit to give the greatest possible accuracy.

Two resistance ranges are available (0 to 375 Ω and 0 to 10,000 Ω).

The unit is calibrated for 0 to 375 Ω so this range should be used for accurate measurements.

Voltage

For voltage measurements, each input connector can be treated as a differential input with ground, or two single-ended inputs.

Both inputs must be zero volts or above, though it does not matter which input has the higher voltage. Two voltage ranges are available (0 to 115 mV and 0 to 2500 mV). For the most accurate measurements use the 0 to 2500 mV range.

Remote Data Collection

The new USB/Ethernet interface allows the logger to be used in a variety of situations: USB-only, USB-powered with Ethernet data, and Ethernet data with Power-over-Ethernet (PoE). Using the Ethernet interface, the PT-104A can be located anywhere on a LAN or on the internet.

Power over Ethernet (PoE)

The PT-104A can obtain its power from the Ethernet port as a Powered Device (PD) according to the PoE standard. To use this feature, you must connect the unit to Power Sourcing Equipment (PSE) such as a network switch, router or power injector that also supports the PoE standard. Any standard Ethernet cable up to 100 m (about 328') in length can be used.

Software

The PT-104A is supplied with Windows Logging and Player Software. The software will automatically detect which sensor is connected and will display readings in the correct units. Also supplied is a software development kit (SDK). The SDK contains a range of software drivers and example code that you can use to write your own software or to use your PT-104A data logger with third party software.

With the included Logging Software you can set the sampling interval from 1 second to several hours and set the maximum number of readings. You can also tell the PT-104A data acquisition module what do to when the temperature readings have been taken—either: stop; repeat immediately (start again); scroll (oldest recordings disappear); or repeat after delay (where the delay is set by the user)

Multiple PT-104A modules can be used simultaneously with the logging software. Also, PT-104A modules can be mixed with TC-08 thermocouple input modules and used at the same time. Up to 20 units of any kind (PT-104A or TC-08) can be connected.

Using the PT-104A logging software, data can be viewed in a spreadsheet and/or in a graph as it is being recorded. Data collected from previous recordings can also be viewed using the Player.

Specifications

PT-104A Platinum Resistance Data Logger			
Temperature	**Resistance**	**Voltage**	
Sensor	Pt100[1], Pt1000	N/A	N/A
Range	-200 to 800°C (-328 to 1472°F)	0 to 375 Ω[1] 0 to 10 kΩ	0 to 115 mV 0 to 2.5V[1]
Linearity	20 ppm	20 ppm	20 ppm
Accuracy @ 25°C	0.01°C[1]	20 ppm[1]	0.2%[1]
Temperature Coefficient	5 ppm/°C	5 ppm/°C	100 ppm/°C
RMS Noise (Using Filter)	0.01°C	10 ppm	10 ppm
Resolution	0.001°C	1 µ Ω	0.156 µV
Conversion Time Per Channel		720 mS	
Number of Inputs		4	
Connectors		4-pin mini DIN	
Input Impedance		>>1 MΩ	
Overvoltage Protection		±30V	
Power	Powered by USB or Ethernet: USB 1.1: 5V ±10% @ <100 mA USB 2.0: 5V ±10% @ <200 mA Ethernet: 48V ±20% @ <40 mA (<2W)		
Environmental	20 to 30°C (68 to 86°F) for stated accuracy, 0 to 70°C (32 to 158°F) operating, 20 to 90% RH		
Software	Logging Software for 32-bit or 64-bit editions of Windows XP (SP2 or greater), Vista, 7. Software Development Kit containing drivers and example code for C, C++, Excel and LabView.		
Ethernet Port	Conforms to IEEE 802.3 10Base-T. Compatible with 10/100/1000Base-T networks. Conforms to IEEE 802.3af Power-over-Ethernet (PoE)		
USB Port	Conforms to USB 2.0 full-speed (12 Mbps)		
Computer Interface	USB or Ethernet		
Dimensions	36 H x 135 W x 184 mm D (1.42 x 5.31 x 7.24")		
Weight	500 g (1.1 lb)		

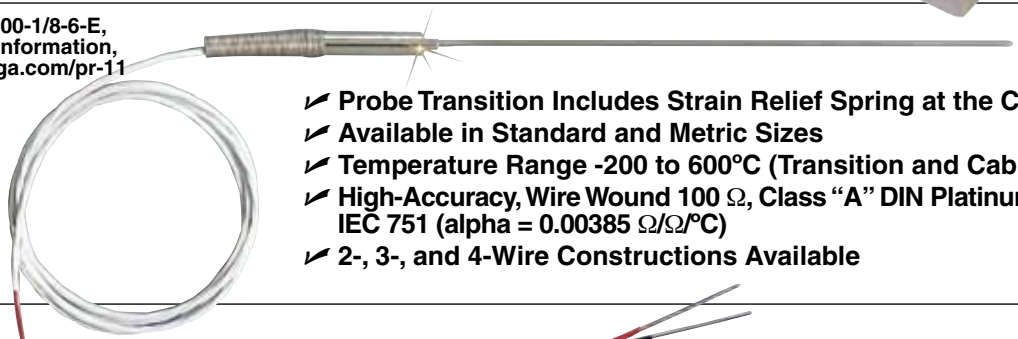
[1] *Quoted accuracy is for options marked*

PT-104A logging software, displays data in graphical or tabular format.

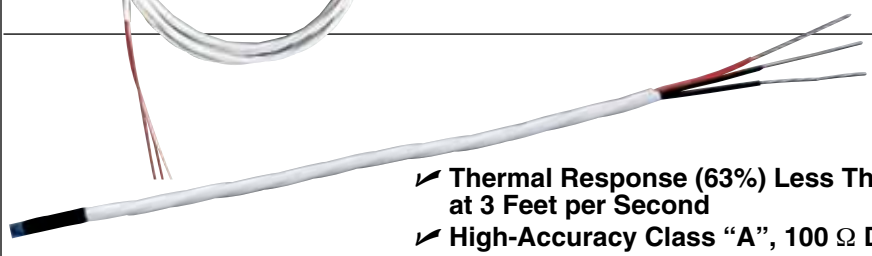
PT-104A, shown smaller than actual size.

Compatible RTD Probes

PR-11-2-100-1/8-6-E, for more information, visit omega.com/pr-11

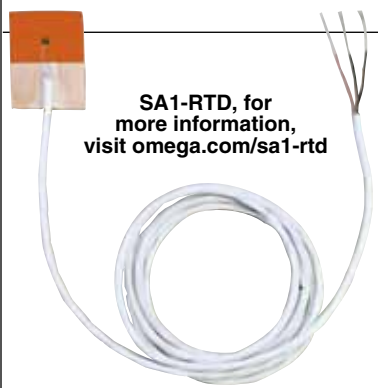


- Probe Transition Includes Strain Relief Spring at the Cable Exit
- Available in Standard and Metric Sizes
- Temperature Range -200 to 600°C (Transition and Cable to 260°C Max)
- High-Accuracy, Wire Wound 100 Ω, Class "A" DIN Platinum Elements per IEC 751 (alpha = 0.00385 Ω/Ω/°C)
- 2-, 3-, and 4-Wire Constructions Available



RTD-2-F3105-36-T, for more information, visit omega.com/rtd-2-f3105

- Thermal Response (63%) Less Than 75 Milliseconds in Water Flowing at 3 Feet per Second
- High-Accuracy Class "A", 100 Ω DIN Platinum Elements Standard
- Ultra Precise Accuracy ⅓ and 1/10 DIN, and Economical Class "B" Also Available
- Operating Range Up to 480°C (900°F) Available
- 1 m (40") Long 2-, 3-, or 4-Wire #26 AWG Cables for Connecting to Most Handheld Instruments



SA1-RTD, for more information, visit omega.com/sa1-rtd

- 100 Ω DIN Class A (±0.06 Ω or ±0.15°C at 0°C) Accuracy Standard
- Easy-Installation Silicone-Based, Self-Adhesive Backing Rated to 260°C (500°F)
- Sensor Can be Re-Applied
- 290°C (554°F) Short-Term Operation When Used as a "Cement-On" (OMEGABOND® Air Set Cements)
- Stripped 3-Wire or 4-Wire Leads Standard (Connectors Optional)
- Stocked in 1 m (40") Lengths; Also Available in 2 and 3 m (80 and 120") and Custom Length Lead Wires
- Other Resistances/Accuracies Available on Request

To Order *Visit omega.com/pt-104a for Pricing and Details*

Model No.	Description
PT-104A	4-channel RTD input data acquisition module

Comes complete with USB cable, ethernet patch cable, 4 mating mini DIN screw terminal connectors, quick start guide, Windows software and complete operator's manual on CD.

***Ordering Example: PT-104A,** 4-channel RTD input data acquisition module.*