




## Precision Thermistor Measurements

Thermistors are favored in many applications because they are accurate, rugged and extremely stable. In addition their most accurate range of 0 – 70°C (32 – 158°F) is in the middle of the temperature range in which plants and animals live. They are extremely accurate and repeatable around freezing, making them ideal for roads, water and other environmental measurements.

The most common probes are the 400 series probes. Standard 400 series probe information is available on our website at [400 Series Probes](#). We can also supply custom probes as required.

Since thermistor probes are non-linear, it is necessary to use a compatible device to measure them. This application note will cover Single Channel devices. **Next month we will cover Data Acquisition Solutions.**

Our most popular products for Single Point Thermistor Measurement:

		
<p><b>Analog Transmitter</b></p>	<p><b>Precision Thermometer with Data Output (Software Available)</b></p>	<p><b>Thermometer</b></p>

### [Analog Transmitter](#)

If you need an analog output, then Advanced Industrial Systems has the PR-5343A-2252BW. This is a custom programmed transmitter that provides a linear 4 - 20 mA output for a 400 series probe.

The PR-5343A-2252BW provides a 4 – 20 mA signal to a PLC, SCADA or panel meter. 24V excitation is required. Power may be supplied either by the readout or PLC device, or may be supplied by a separate 24V external power supply.

If you are using an FDA probe, or you want to maintain probe integrity you may wish to use an adapter. Input for a 400 Series Probe or a 2252Ω thermistor is standard. This transmitter is also available

### **Advanced Industrial Systems, Inc.**

PO Box 470 Harrods Creek, KY 40027

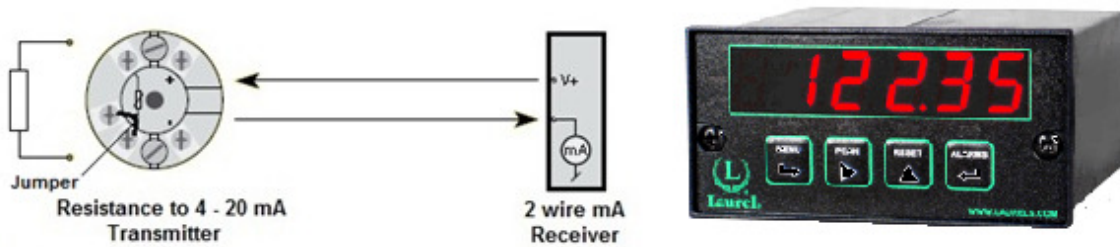
1-800-532-2477 502-292-0213 502-228-0127 - Fax

[David@AdvIndSys.com](mailto:David@AdvIndSys.com) - E-mail Visit us on the web at: [www.AdvIndSys.com](http://www.AdvIndSys.com)

for other thermistor values.

The PR-5343A comes completely programmed and tested. Currently available are Part Numbers PR5343A-2252BW (2252Ω probe) and PR5343A-5000BW (5000Ω probe). Other curves values are available on special order.

*The hook-up is typical of most 4 - 20 mA loop powered devices...*



*A panel meter, SCADA, PLC or similar device may be used as a receiver.*



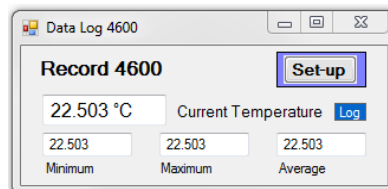
[Learn More](#)

## [4600 Precision Thermometer](#)

**Connects Directly to 400 Series Probes (Disposable Probes Require an Adapter)**

The handheld 4600 Series Precision Thermometers take meteorology-level temperature measurement to the laboratory, the manufacturing floor and the field...at an affordable price. The 4600 offers high precision and convenience. A wide selection of off-the-shelf [400 Series Precision Temperature Probes](#) is available.

Software is available to conveniently interface to a PC for Data Acquisition.



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[David@AdvIndSys.com](mailto:David@AdvIndSys.com) - E-mail Visit us on the web at: [www.AdvIndSys.com](http://www.AdvIndSys.com)

### [4600 Precision Thermometer \(cont'd\)](#)

The most popular version of the 4600 includes:

- Resolution to 0.01 ° on display; 0.001 °C on Serial Output
- **RS232 port (Software Available)**
- **Traceability to National Institute of Standards and Technology (NIST)**
- °F or °C readout
- Hold
- Min/max
- delta T
- Battery Life Approx. **20 Hrs.**
- **Computer Software is Available**



The 4600 is a precision thermometer for use with [Standard 400 Series Probes](#) over the wide range of -40° to +150°C. The system accuracy is ± 0.115°C. The 4600 is compatible with most styles of standard or custom 400 Series Temperature Probes.

[Learn More](#)

### [Doric 450-TH Thermistor Thermometer](#)



#### **Connects Directly to 400 Series Probes (Disposable Probes Require an Adapter)**

The [Doric 450 Series](#) digital thermometers are among the most accurate, reliable, and convenient handheld instruments ever developed. Using a unique, patented noise reduction circuit, the Series 450 achieves the high repeatability and accuracy of many line-powered bench top units in a handheld instrument.

A custom-designed dual integrated circuit set gives you a single instrument with wider temperature ranges, higher resolutions, and longer performance than most other handheld thermometers. Data hold freezes the displayed reading for easy viewing away from difficult measurement locations.

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Battery life is unsurpassed, with a single 9V battery providing more than **1200 hours** of use. An externally available zero pot, conveniently located at the back of the instrument, lets you match ice point calibrations to specific probes for even greater system accuracy.

The 450-TH is compatible with 2252Ω B curve thermistors and 400 series probes. The input is a standard 1/4" phone plug. Resolution is 0.1 °.

The 450 is also available in [Thermocouple, RTD, and Thermistor](#) configurations.

[Learn More](#)

Additional Applications Notes and Tables are available at [www.AdvIndSys.com/ApplicationsNotes.htm](http://www.AdvIndSys.com/ApplicationsNotes.htm).

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