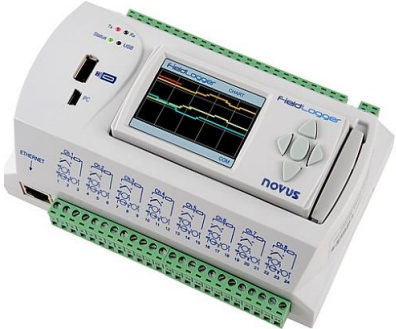# Thermistor Data Logging

It is often useful to have a data logging system for Thermistor measurements. One way to do it is the clipboard technique. This has many drawbacks. The data is not in a form that lends itself to convenient analysis, and it is very labor intensive. When I was in graduate school, I was often the data logger; automated data logging is much preferred and more consistent.

There are two ways to automatically acquire data. The first is to convert the data to analog form and use a basic data logger, PAC, or PLC. See App note 1309 for methods of generating linearized data for analog data logging. This applications note will discuss methods of automated digital acquisition and storage.

Three of our most popular solutions are shown below. We have other solutions as well, including linearizing panel meters and transmitter with Modbus RTU or Modbus IP. These may also be used for TC's and RTD's.

4600 Precision Thermometer with Data Logging Software	Wireless ThermaViewer with Built in Storage	Field Logger with Built in Storage
1 Input	Up to 4 Inputs	8 Inputs Expandable to 64

The most widely used program for data analysis is an Excel spreadsheet. All of the above generate files that directly input to Excel. Data analysis using Excel's built-in data analysis, archival and graphical capabilities is widely used. The ThermaViewer and the FieldLogger both contain internal memory, so the computer does not have to be connected at all times. The 4600 uses the computer's memory to store the data. The FieldLogger requires an adapter to plug in the Thermistor probe. The 4600 and the ThermaViewer connect directly to the probe's plug-in connector. Both ThermaViewer and FieldLogger are network compatible. The ThermaViewer and Field Logger are also available for TC's and RTD's. Both include software to retrieve the data and display it. Wireless sensor connections are built into the ThermaViewer.
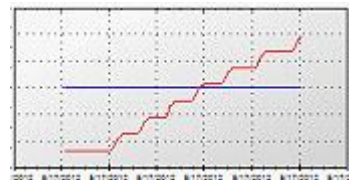
Brief System Descriptions:

4600 Precision Thermometer with Data Logging Software…
The 4600 is designed for precision thermistor temperature measurement. With display resolution of 0.01° and digital resolution of 0.001°, it provides excellent accuracy and resolution. It is battery operated (9 V DC) with optional wall power adapter. It connects to the PC through and RS-232 connector. This may require a USB adapter if your computer does not have RS-232. The 4600 is single channel. Data is stored in an Excel compatible .csv file. Includes min, max and average.
Additional Info: www.advindsys.com/Products/ThermistorThermometers.htm#YSI4600

Approximate Cost $ 1200 plus the cost of the probe.

Wireless ThermaViewer with Built in Storage…
The ThermaViewer is a flexible product designed for both laboratory and field use. It is easy to operate, and set-up. Its wireless input modules may be used in a range of up to 100', and are easy to set-up and use. You should go from opening the box to taking data in less than 1 hour. It uses a USB connection to the computer

Each input has its own wireless module. The sensor battery lasts up to 1 year depending on the sampling frequency.
ThermaViewer comes with an extensive software package, although **no software is required for set-up.** On screen graphics provide convenient trending on the ThermaViewer for each channel. Extensive Software is included. The display shows up to four readings, with the graphical display available by touching the screen.
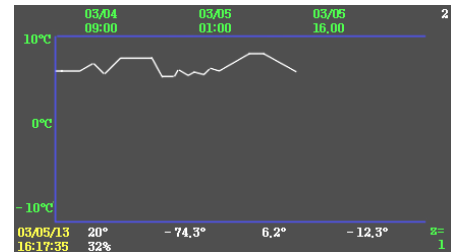
The ThermaViewer provides built in alarms. An autodialer is also available. Battery back-up keeps the ThermaViewer data logging active even in the event of a power failure. ThermaViewer also accepts TC's and RTD's. Other input configurations available.   Extensive software is included. Data is also available in an Excel compatible file. 120VAC or 5 - 24 VDC powered.
Additional Info: www.advindsys.com/ThermaViewer.htm

Approximate Cost: $ 800 + $ 340 per input. Does not include the price of the probes. Use standard 400 series probes.

Field Logger with Built in Storage…
This product has all of the capability of a traditional Data Logger. In addition it has internal data storage and myriad connectivity including Modbus IP, USB, and Modbus RTU. From 8 – 72 channels may be connected. Eight alarm outputs + 2 built in relays are included. A 2.4" front panel HMI provides set-up and operating information. Thermistors require special linearization software available from A.I.S.

Accepts inputs from temperature, pressure, RH, and other sensors. Math is included. Available wireless adapters include Modbus and Cell (GPRS). Includes configuration and download software.
Additional Info: http://www.advindsys.com/DataLoggers.htm .

Approximate Cost $ 1650 for 8 input channels plus sensors and adaptor cables.

Additional Applications Notes and Tables: http://www.advindsys.com/ApplicationsNotes.htm