Temperature Sensor

Product Features

- Measures ambient temperature from –40°C to +125°C.
- The sensor is NOT Ratiometric.

Designed to be used with:

- 1018 PhidgetInterfaceKit 8/8/8
- 1202/1203 PhidgetTextLCD with InterfaceKit 8/8/8

Getting Started

Installing the Hardware

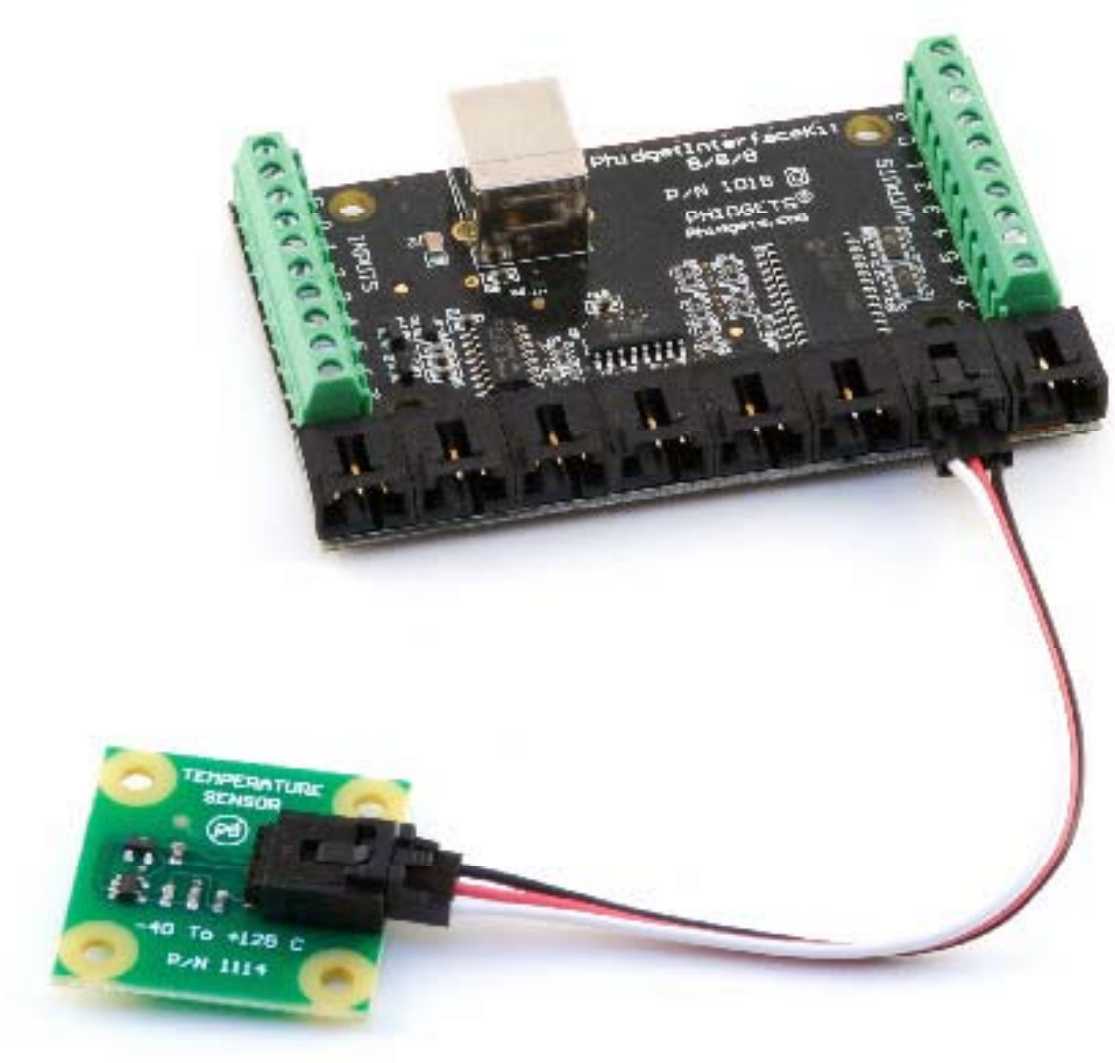
The Kit contains:

- A Temperature Sensor
- A Sensor Cable

You will also need:

- A PhidgetInterfaceKit 8/8/8 or a PhidgetTextLCD
- A USB Cable

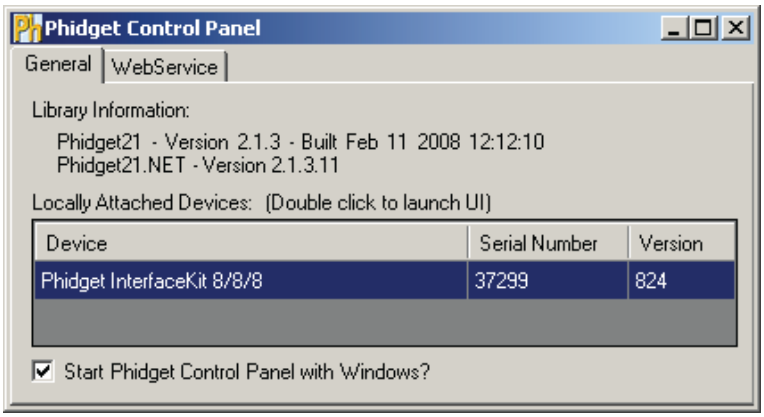
Connecting all the pieces



Connect the Temperature Sensor to an Analog Input on the PhidgetInterfaceKit 8/8/8 board using the sensor cable.

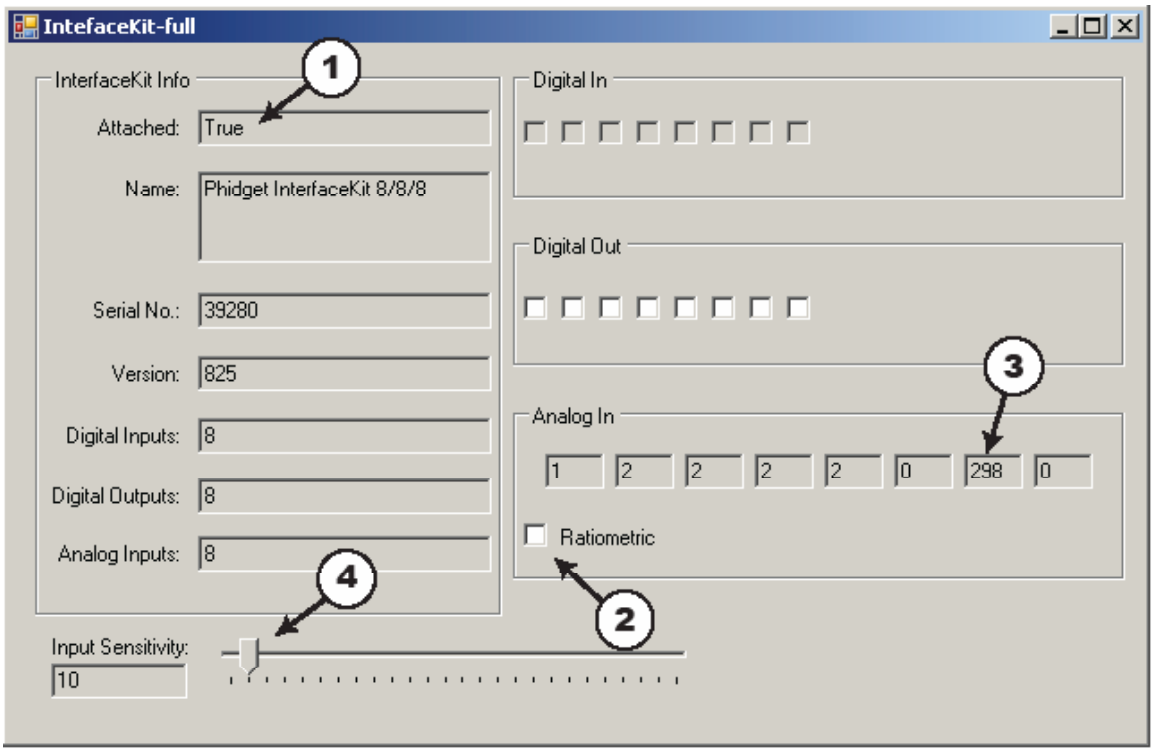
Testing the Temperature Sensor connected to an InterfaceKit 8/8/8

Using Windows 2000/XP/Vista



Double Click on the  icon to activate the Phidget Control Panel and make sure that the ***Phidget InterfaceKit 8/8/8*** is properly attached to your PC.

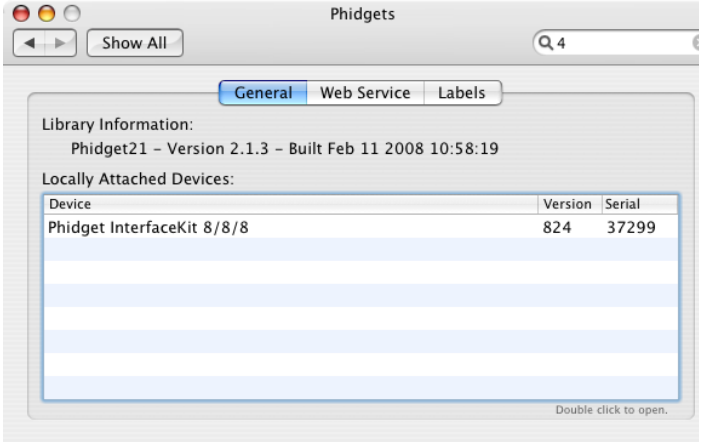
1. Double Click on Phidget InterfaceKit 8/8/8 in the Phidget Control Panel to bring up InterfaceKit-full and check that the box labelled Attached contains the word True.



2. Make sure that the Ratiometric box is NOT Ticked.
3. The Analog In box will display the ambient temperature: the value of 298 in the display is equal to 24.5°C.
4. You can adjust the input sensitivity by moving the slider pointer.

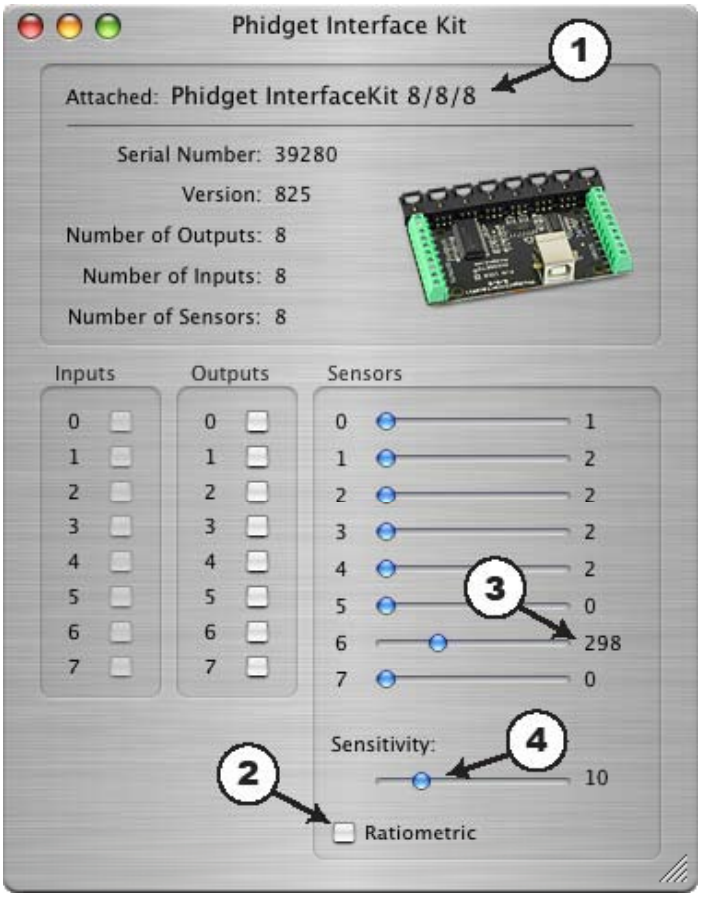
Testing the Temperature Sensor connected to an InterfaceKit 8/8/8

Using Mac OS X



Click on System Preferences >> Phidgets (under Other) to activate the Preference Pane. Make sure that the Phidget InterfaceKit 8/8/8 is properly attached.

1. Double Click on Phidget InterfaceKit 8/8/8 in the Phidget Preference Pane to bring up the Phidget Interface Kit Example and check that the Phidget InterfaceKit 8/8/8 is attached.
2. Make sure that the Ratiometric box is NOT Ticked.
3. The Sensors box will display the ambient temperature: the value of 298 in the display is equal to 24.5°C.
4. You can adjust the input sensitivity by moving the slider pointer.



Technical Information

The Temperature Sensor measures ambient temperature from –40 to +125 degrees Celsius. This device is a precision temperature to voltage converter that outputs a voltage that is directly proportional to temperature.

Formulas

The Formula to translate SensorValue into Temperature is:

Temperature (°C) = (SensorValue/4) - 50

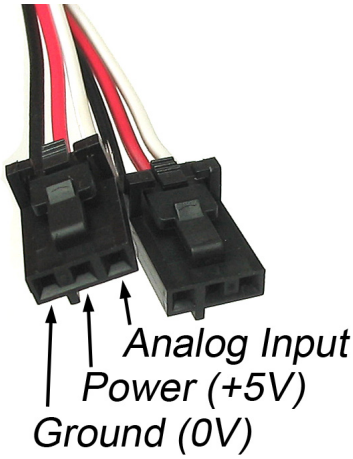
Other Interfacing Alternatives

If you want maximum accuracy, you can use the RawSensorValue property. To modify the formula, substitute (SensorValue) with (RawSensorValue / 4.095)

If the sensor is being interfaced to your own Analog to Digital Converter (not a Phidget device), our formulas can be modified by replacing (SensorValue) with (Vin * 200). It is important to consider the voltage reference and input voltage range of your ADC for full accuracy and range.

Analog Input Cable Connectors

Each Analog Input uses a 3-pin, 0.100 inch pitch locking connector. Pictured here is a plug with the connections labeled. The connectors are commonly available - refer to the Table below for manufacturer part numbers.

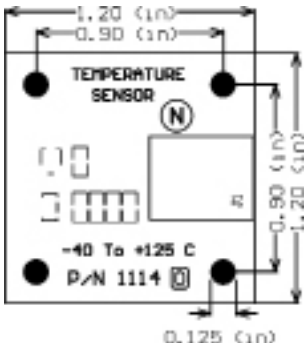


Cable Connectors		
Manufacturer	Part Number	Description
Molex	50-57-9403	3 Position Cable Connector
Molex	16-02-0102	Wire Crimp Insert for Cable Connector
Molex	70543-0002	3 Position Vertical PCB Connector
Molex	70553-0002	3 Position Right-Angle PCB Connector (Gold)
Molex	70553-0037	3 Position Right-Angle PCB Connector (Tin)
Molex	15-91-2035	3 Position Right-Angle PCB Connector - Surface Mount

Note: Most of the above components can be bought at www.digikey.com

Mechanical Drawing

1:1 scale



Device Specifications

Current Consumption	120uA
Output Impedance	1K ohms

Product History

Date	Product Revision	Comment
September 2003	n/a	Product Release
August 2004	n/a	Analog input connector changed from stereo jack to 32-pin Molex