1144 User Guide

Go to this device's product page [1]

Getting Started

Checking the Contents

You should have received:	In order to test your new Phidget you will also need:
• A 12V Sensor Adapter	• A PhidgetInterfaceKit 8/8/8 or a PhidgetTextLCD
• A sensor cable	• A USB cable
• Two 10kΩ resistors	• A 12V Sensor

Connecting the Pieces

1. Connect the 12V Sensor Adapter to a 12V Sensor.
2. Connect the 12V Sensor Adapter to an Analog Input on the PhidgetInterfaceKit 8/8/8 using the sensor cable.
3. Connect the PhidgetInterfaceKit to your PC using the USB cable.
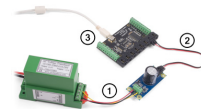
Testing Using Windows 2000 / XP / Vista / 7

Make sure you have the current version of the Phidget library installed on your PC. If you don't, follow these steps:

1. Go to the Quick Downloads section on the Windows page
2. Download and run the Phidget21 Installer (32-bit, or 64-bit, depending on your system)
3. You should see the icon on the right hand corner of the Task Bar.

Running Phidgets Sample Program

Double clicking on the icon loads the Phidget Control Panel; we will use this program to ensure that your new Phidget works properly.

The source code for the **InterfaceKit-full** sample program can be found in the quick downloads section on the C# Language Page. If you'd like to see examples in other languages, you can visit our Languages page.

Updating Device Firmware

If an entry in this list is red, it means the firmware for that device is out of date. Double click on the entry to be given the option of updating the firmware. If you choose not to update the firmware, you can still run the example for that device after refusing.

Double Click on the ![icon] icon to activate the Phidget Control Panel and make sure that the **Phidget InterfaceKit 8/8/8** is properly attached to your PC.
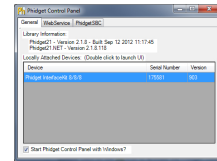
1. Double Click on **Phidget InterfaceKit 8/8/8** in the Phidget Control Panel to bring up InterfaceKit-full and check that the box labelled Attached contains the word True.
2. Make sure that the Ratiometric box is NOT Ticked.
3. Test your sensor by introducing stimulus (eg. put a warm object on a temperature sensor) and you should see the value change in the box that corresponds to the analog input that the 12V sensor adapter is plugged into.
4. You can adjust the input sensitivity by moving the slider pointer.
5. Click on the Sensors button to bring up the Advanced Sensor Form.
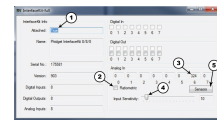
1. In the Sensor box of the input you plugged the sensor into, select the type of sensor attached to the 1144. If you're using a sensor that's not on the list, divide the base value by 200 in order to get the output voltage of the sensor. See you sensor's data sheet for a formula to convert output voltage to the measured value.
2. The measured value is shown here.
3. Formula used to convert the analog input SensorValue into the measured value.
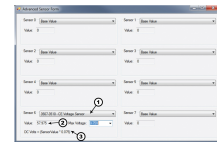
Testing Using Mac OS X

1. Go to the Quick Downloads section on the Mac OS X page
2. Download and run the Phidget OS X Installer
3. Click on System Preferences >> Phidgets (under Other) to activate the Preference Pane
4. Make sure that the is properly attached.
5. Double Click on in the Phidget Preference Pane to bring up the Sample program. This program will function in a similar way as the Windows version.

Using Linux

For a step-by-step guide on getting Phidgets running on Linux, check the Linux page.

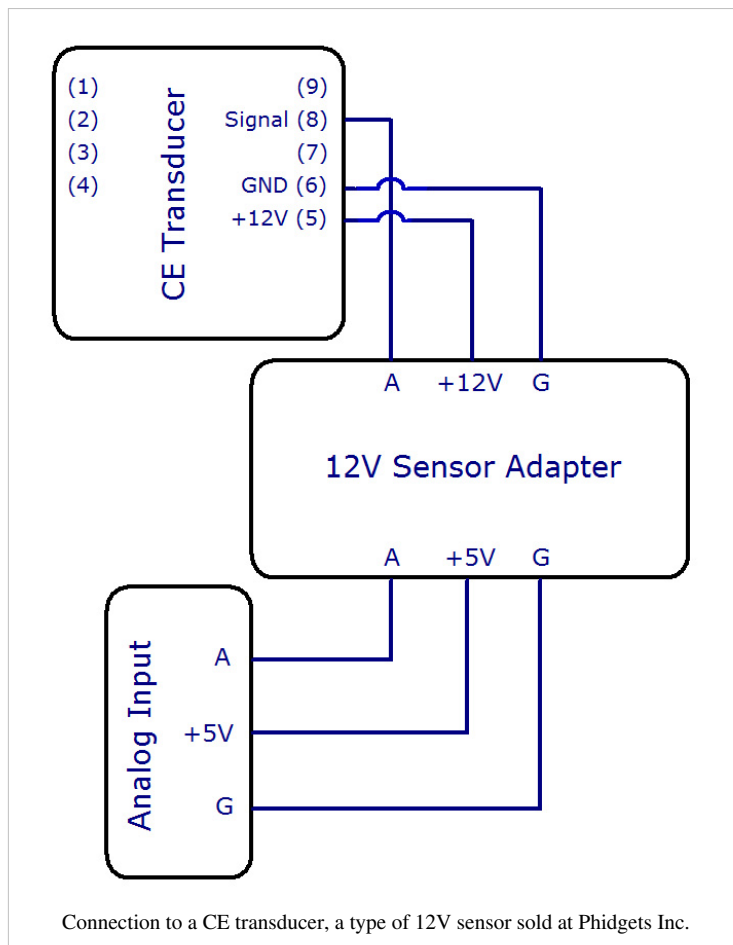### Using Windows Mobile / CE 5.0 / CE 6.0

For a step-by-step guide on getting Phidgets running on Windows CE, check the Windows CE page.

Technical Details

Interfacing a CE Transducer

To interface with a CE transducer sold at Phidgets Inc., simply connect the wires as shown in the following image.

Connection to a CE transducer, a type of 12V sensor sold at Phidgets Inc.

Interfacing a 12V NPN Sensor

In order to interface with a 12V sensor with an NPN output, you need a 12V sensor adapter and an Interface Kit. There are two ways to connect them, as shown in the figures. The first way simply involves connecting the 12V sensor adapter to an analog input on the Interface Kit, and then attaching the 12V sensor to the adapter with a 10kΩ pull-up resistor placed across the +12V and analog signal lines, as pictured. There should be two 10kΩ resistors packaged with your 12V sensor adapter.

When using this setup, the analog input will show a sensorvalue of about 1000 when the NPN sensor is open, and a much lower value (less than 200) when the sensor is closed. Likewise, if you're using an active-low digital input, the input will be low when the NPN sensor is open, and high when it is closed.

Left: Connection using an analog input and a pull-up resistor.
Right: Connection using an analog input and a digital input.
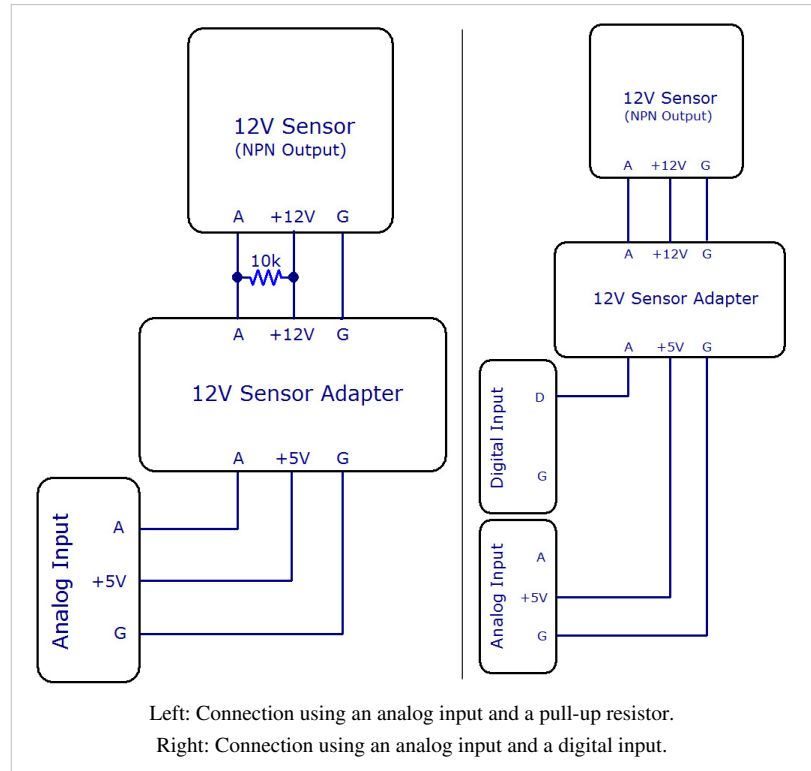
Interfacing a 12V PNP Sensor

In order to interface with a 12V sensor with an PNP output, you need a 12V sensor adapter and an Interface Kit. Simply connect the 12V sensor adapter to an analog input on the Interface Kit, and then attach the 12V sensor to the adapter with a 10kΩ pull-down resistor placed across the ground and analog signal lines, as pictured. There should be two 10kΩ resistors packaged with your 12V sensor adapter.

Formulas

The formula to translate SensorValue into the return voltage of an attached 12V sensor (with 0-5V output) is:

$$\text{Sensor Voltage (V DC)} = \frac{\text{Sensorvalue}}{200}$$

Check the documentation for your sensor to determine the formula for converting from return voltage to the measured value.

Other Interfacing Alternatives

If you want maximum accuracy, you can use the RawSensorValue property from the PhidgetInterfaceKit. To adjust a formula, substitute (SensorValue) with (RawSensorValue / 4.095) If the sensor is being interfaced to your own Analog to Digital Converter and 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.

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

Connection using an analog input and a pull-down resistor.

Analog Input Power (+5V)
Ground (0V)
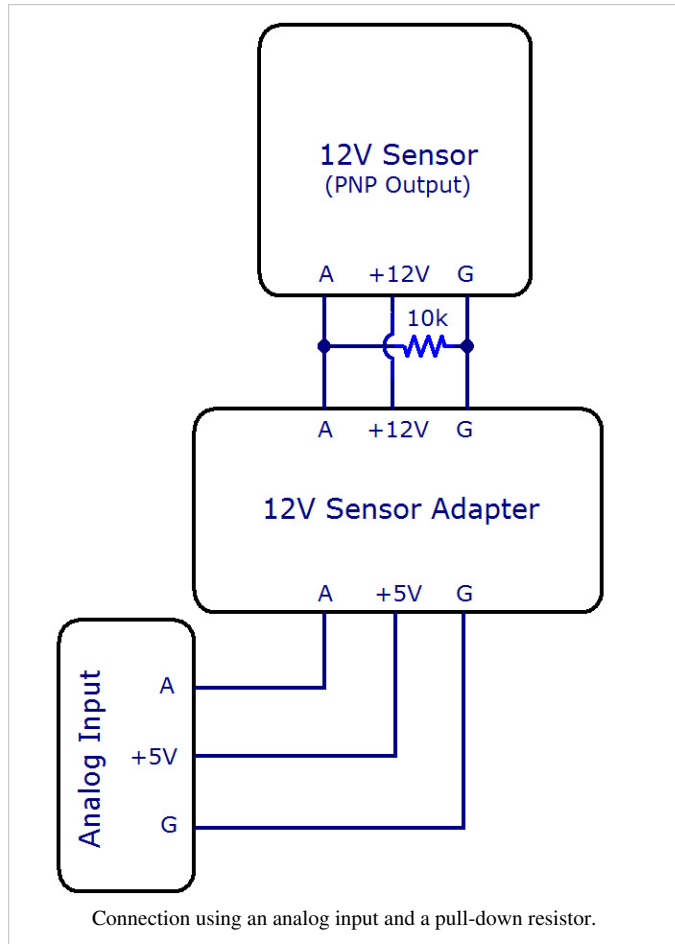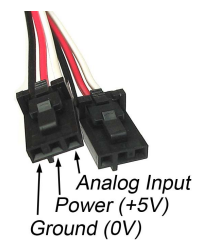
Product History

Date	Board Revision	Device Version	Comment
October 2012	0	N/A	Product Release

References

[1] http://www.phidgets.com/products.php?product_id=1144

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