

1142 User Guide



Go to this device's product page ^[1]

Getting Started

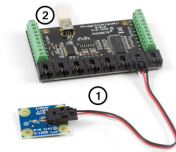
Checking the Contents

You should have received: **In order to test your new Phidget you will also need:**

- A light sensor
- A sensor cable
- A PhidgetInterfaceKit 8/8/8 or a PhidgetTextLCD
- A USB cable

Connecting the Pieces

1. Connect the Light Sensor to an Analog Input on the PhidgetInterfaceKit 8/8/8 using the sensor cable.
2. 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 **Ph** icon on the right hand corner of the Task Bar.

Running Phidgets Sample Program

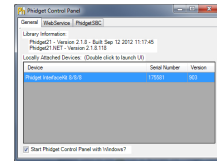
Double clicking on the **Ph** icon loads the Phidget Control Panel; we will use this program to ensure that your new Phidget works properly.

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.

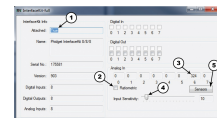
Updating Device Firmware

If an entry in this list is red, it means the firmware for that device is out of date.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.

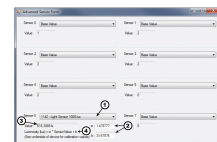
Double Click on the  icon to activate the Phidget Control Panel and make sure that the **Phidget InterfaceKit 8/8/8** is properly attached to your PC.



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. Move the Precision Light Sensor around and the amount of human perceivable luminosity is displayed in the Analog in Box.
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 **1142 - Light Sensor 1000 lux** from the drop down menu.
2. On the underside of the board, there are a set of calibration values printed on a label. Enter those values in these boxes. See the formula section for more details.
3. The amount of luminosity in lux is shown here.
4. Formula used to convert the analog input SensorValue into lux.



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.

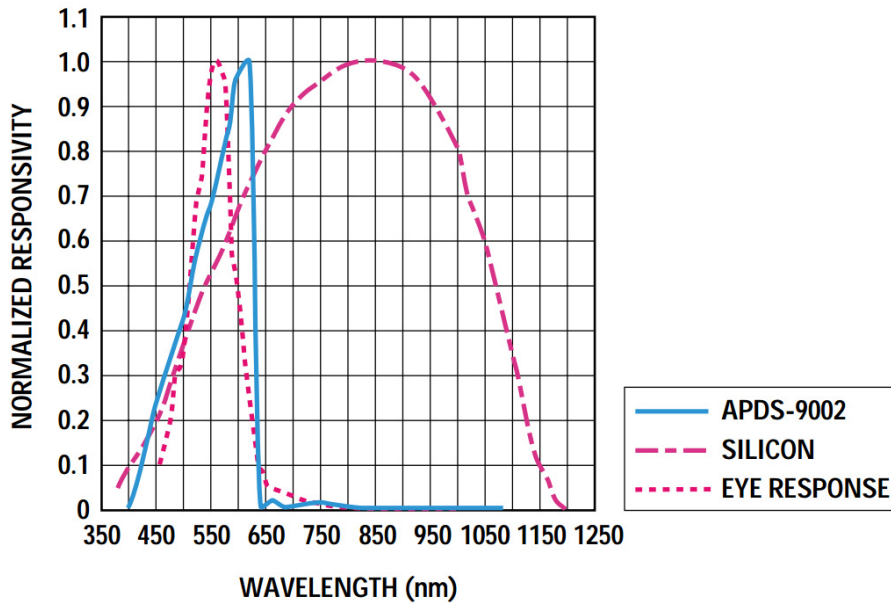
Technical Details

The human eye is less sensitive to changes in light intensity than the 1142, but is able to see a wider range. The Human eye range is from 50 μ lux (starlight) to 100 klx (extremely bright sunny day). The 1142, on the other hand, is able to measure from 1 lux (Moonlight) to 1000 lux (TV studio lighting). If you notice noise on the signal that you cannot perceive yourself, it could be due to incandescent light flicker, or other varying light sources.

The 1142 is Non-Ratiometric which means that you cannot rely on the sensor saturating at 1000 SensorValue. To be conservative, interpret SensorValue over 950 as saturated, with the true light level being unknown.

Sensitivity Response

The 1142 uses the APDS-9002 light sensor package. The following graph illustrates the sensor's sensitivity to specific wavelengths of light.



Formulas

The formula to translate SensorValue into luminosity is:

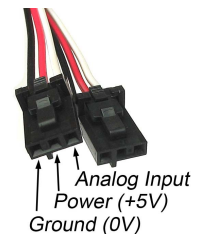
$$\text{Luminosity (lux)} = m * \text{SensorValue} + b$$

Where 'm' and 'b' are calibration values found on the label on the underside of the 1142. If for some reason you can't use the calibration values that come with the sensor, you can use the generalized values of **m = 1.478777** and **b = 33.67076** to get a rough approximation.

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.



Product History

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

References

[1] http://www.phidgets.com/products.php?product_id=1142

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