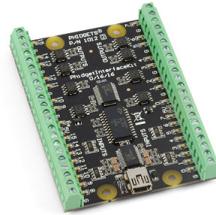


1012 User Guide



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

Getting Started

Checking the Contents

You should have received:

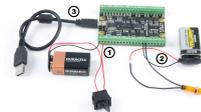
- A Phidget Interface Kit 0/16/16
- A mini-USB cable

In order to test your new Phidget you will also need:

- A switch, a piece of wire
- An incandescent bulb

Connecting the Pieces

1. Digital Inputs: Connect the black wire (-) from the battery to the ground terminal (G). Connect the red wire (+) to one of the switch terminals. Connect the other switch terminal to the digital input terminal block number 0 using a piece of wire.
2. Digital Outputs: Connect one of the bulb's wires to the (+) terminal on the battery. Connect the bulb's other wire to one of the open collector digital output terminals. Connect the (-) terminal on the battery to the ground terminal (G) on the 1012.
3. Connect the board to the 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

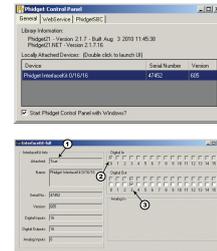
Double clicking on the **Ph** icon loads the Phidget Control Panel; we will use this program to ensure that your new Phidget works properly.

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If an entry in this list is red, it means the firmware for that device is out of date.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 0/16/16 is properly attached to your PC.



1. Double Click on Phidget InterfaceKit 0/16/16 in the Phidget Control Panel to bring up InterfaceKit-full and check that the box labelled Attached contains the word True.
2. To test the digital input, toggle the switch on and off. When on, a tick mark will appear in the Digital In box and the on-board LED will also turn on; the tick mark will disappear when the switch is off and the onboard LED light will go off.
3. To test the digital output, put a tick mark in the digital out box and both the on-board LED and the incandescent bulb will turn on. If you click on the box again the tick mark will go away and both lights will turn off. The bottom row shows the status of the request, while the top row displays the status of the digital output as reported by the device.

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 Phidget InterfaceKit 0/16/16 is properly attached.
5. Double Click on Phidget InterfaceKit 0/16/16 in the Phidget Preference Pane to bring up the InterfaceKit-Full 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.

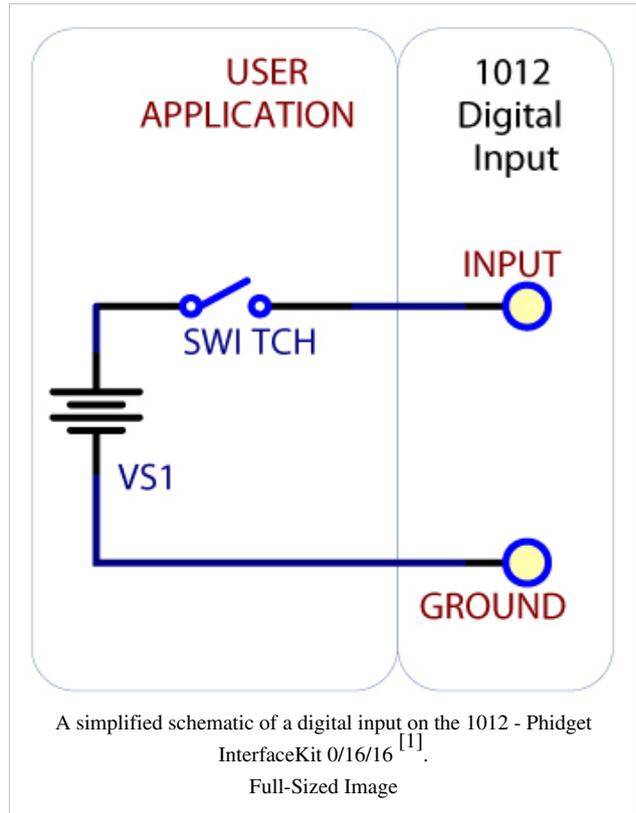
Technical Details

Digital Inputs

There is built-in filtering on the digital input, to eliminate false triggering from electrical noise. The digital input is first RC filtered by a 10K/100nF node, which will reject noise of higher frequency than 1Khz. This filter generally eliminates the need to shield the digital input from inductive and capacitive coupling likely to occur in wiring harnesses.

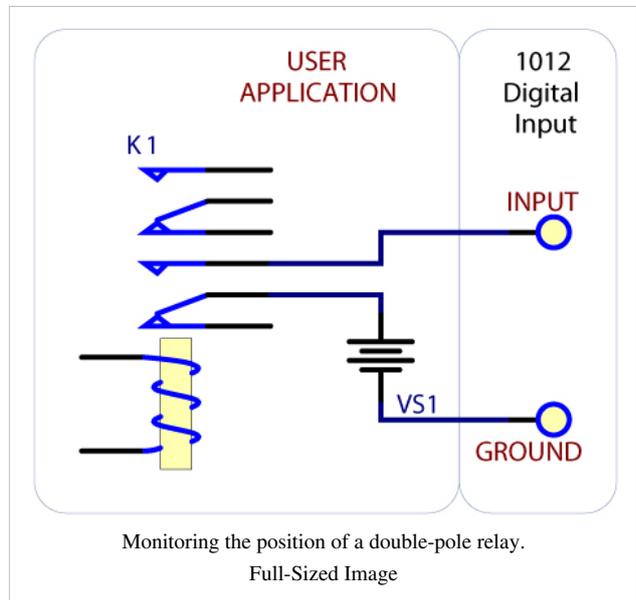
Monitoring a Switch

To test your digital input, wire it up to a switch as shown in the diagram. The power supply **VS1** needs to be within 4-30V DC in order to guarantee a response from the digital input when the switch is closed.



Monitoring the Position of a Relay

If you have a double-pole relay (that is, a relay that is designed to close two switches at once with the same control input), you can switch a load with one pole, and monitor the state of the relay with the other pole. This can come in handy as a safety feature- if the relay were to fail, your software would normally not have any way of knowing.

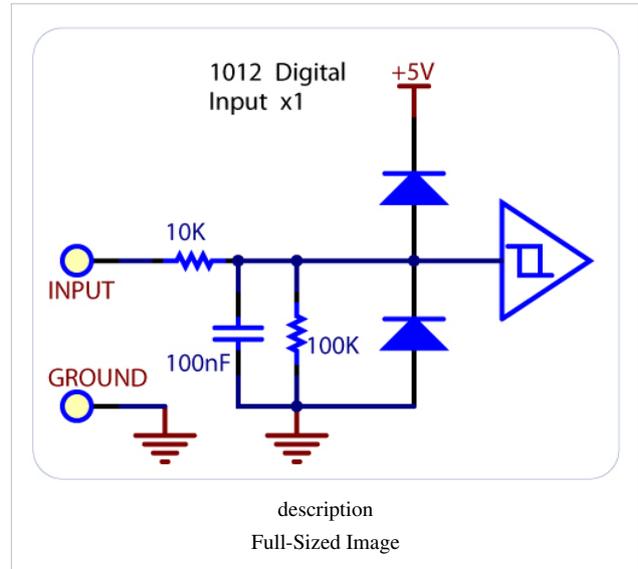


Functional Block Diagram

Unlike typical Phidgets Digital Inputs, these are capable of receiving up to 30VDC. These inputs are **active high**: A voltage of 4VDC to 30VDC will be read as True or logical 1; below 1VDC will be read as a False or logical 0. The input is high impedance, which means current flowing into the Phidget device will be limited. Ground terminals are provided in multiple locations along the input terminal strip; it is recommended that the ground terminal located nearest the input terminal be used.

Open Collector Digital Outputs

For more information, check the Open Collector Digital Output Primer.



API

We document API Calls specific to this product in this section. Functions common to all Phidgets and functions not applicable to this device are not covered here. This section is deliberately generic. For calling conventions under a specific language, refer to the associated API manual in the Quick Downloads section for that language. For exact values, refer to the device specifications.

Functions

int InputCount() [get] : Constant = 16

Returns the number of digital inputs supported by this PhidgetInterfaceKit.

bool InputState(int InputIndex) [get]

Returns the state of a particular digital input. Digital inputs read True where they are activated and false when they are in their default state.

int OutputCount() [get] : Constant = 16

Returns the number of digital outputs supported by this PhidgetInterfaceKit.

bool OutputState (int OutputIndex) [get,set]

Sets/returns the state of a digital output. Setting this to true will activate the output, False is the default state. Reading the OutputState immediately after setting it will not return the value set - it will return the last state reported by the Phidget.

Events

OnChange(int InputIndex, bool State) [event]

An event that is issued when the state of a digital input changes.

OnOutputChange(int OutputIndex, bool State), [event]

An event that is issued when the state of a digital output changes.

Product History

Date	Board Revision	Device Version	Comment
January 2003	0 ^[2]	600	Product Release
January 2004	0 ^[2]	601	Added State Echoing
September 2008	1 ^[3]	601	Added Digital Input Filtering
September 2010	2 ^[4]	605	Smaller Terminal blocks, Mini-USB connector, red Digital Outputs and green Digital Inputs LEDs, added two +5V terminal blocks

References

- [1] http://www.phidgets.com/products.php?product_id=1012
- [2] http://www.phidgets.com/products.php?product_id=1012_0
- [3] http://www.phidgets.com/products.php?product_id=1012_1
- [4] http://www.phidgets.com/products.php?product_id=1012_2

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