PhidgetInterfaceKit 0/0/4

Phidgets are the most user-friendly system available for controlling and sensing the environment from your computer. People with absolutely no hardware knowledge or experience can include things like switches, and high-powered output devices such as motors into their projects. It is just a matter of plugging your devices into the Interface Kit, which in turn is plugged into the USB port on your computer. After that, you can use the simple to program Phidgets software libraries to access these devices.

The PhidgetInterfaceKit 0/0/4 board is our most powerful Interface Kit. It is a USB based controller with:

- **4 Digital Output Relays**
- **1 USB input port**

The PhidgetInterfaceKit 0/0/4 board can be controlled from Windows, Linux, and Mac OS X. High-level programming interfaces are available for Visual Basic, C, C++, Flash, .NET, Java, LabVIEW, etc.

What Can the PhidgetInterfaceKit 0/0/4 Do?

Relays can handle a wide range of voltages and currents because they are a mechanical system. The relays used here are tested up to 240 V AC at 10 Amps and 100 V DC at 5 Amps. Applications can include home appliances, automotive or vending machine.

Phidgets are modular devices; if there is something that the PhidgetInterfaceKit 0/0/4 cannot do – for example reading analog sensors or LED dimming – add another Phidget designed for that purpose.

Getting Started on Windows 2000 / XP

The PhidgetInterfaceKit 0/0/4 board can be controlled from a variety of Software Development Environments. In Visual Basic the PhidgetInterfaceKit software component provide a high-level programmer interface. Here is how to get started under Windows 2000 or Windows XP.

Step 1. What you need to have ready

- Your Phidget Interface Kit.
- An external power supply and some sort of load.
- A USB cable.
- A computer running Windows 2000 or Windows XP.
- An Internet connection and a Web browser.

Step 2. Assemble your hardware

- Connect your load and power supply to the relay. To learn more about using the digital output relays please see below.
- Plug the square end of the USB cable into the USB input connector on the Interface Kit.
- Plug the rectangular end of the USB cable into the USB connector on your computer (you can do this at any time).

Step 3. Install the software

Phidgets use a library installed on your computer. This only has to be installed once no matter how many different types of Phidgets you have.

- Have you previously installed the Phidget library? If so, you can skip this step.
- To install the library go to www.phidgets.com >> Downloads >> Release.
- Select the PHIDGET.msi file.
- A dialog box will appear asking if you would like to open the file or save it to your computer. You can do either, but if you are unsure just select "Open" and follow the instructions.
- Do you want to update a previously installed Phidget library? If so, you must remove the old library when prompted to do so.

Step 4. Download the sample programs

- Go to www.phidgets.com >> Downloads >> Release.
- Select the Examples.zip file.
- Save the zip file to a place of your choosing, and then uncompress it.
- You will find many executables in the Visual Basic folder, and their source in the sub-folders.

- PhidgetMonitor.exe will show you what Phidgets are plugged in. If you have followed Step 2 and Step 3, a PhidgetInterfaceKit should be displayed in the list, along with its serial number. The source for this .exe is in the PhidgetManagerExamples folder.
- All PhidgetInterfaceKit samples have an "interfacekit" prefix. Try them! All source code can be found in the PhidgetInterfaceKitExamples folder.

Step 5. Try Programming a Phidget

- Go to www.phidgets.com >> Documentation.
- Read the documentation for the PhidgetManager, the IPhidget, and read the documentation under the PhidgetInterfaceKit heading.
- Based on this documentation, we recommend you examine the source of the sample programs mentioned in Step 4.
- Now try modifying the samples. Or code your own from scratch.

Step 6. Learning more ...

- Explore www.phidgets.com. We recommend you visit Projects and Examples to see what other people have done. For new applications or other programming languages visit the Forums.

Step 7. Read the license agreement

Go to www.phidgets.com >> Documentation and select the License link. Note that the term Phidget™ is trademarked, and that the name PhidgetInterfaceKit is synonymous with Phidget™.

Using the Digital Output Relays

Normally Connected
NC — **Common**
C
NO
Normally Open

The PhidgetInterfaceKit 0/0/4 uses a Single Pole Double Throw (SPDT) relay. The diagram shows how connections are made to the relay. When the output state is False, no power is applied to the relay and NC is electrically connected with C. When the output state is set to True, power is applied to the relay and NO is electrically connected to C.

Hardware Description

The PhidgetInterfaceKits are the most versatile of the Phidgets currently available. This versatility comes at the price of some complexity. In addition to the USB input port, the PhidgetInterfaceKit 0/0/4 has:

- 4 Digital Output Relays.

The relays used are the NAIS model JS1-5V. Note that the higher the current being switched then the shorter will be the expected life of the relay.

Device Specification

Digital Output Update Rate	Approx. 30 Hz
Output Contact Resistance	0.1 ohm
Max. Switching Voltage	250 V (AC), 100 V (DC)
Max. Switching Current	10 A (AC), 5 A (DC)
Max. Switching Speed	20 cycles per minute
USB Current Consumption	Max. 300 mA