

4x Digital Output Phidget

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Getting Started

Welcome to the OUT1100 user guide! In order to get started, make sure you have the following hardware on hand:

- OUT1100 - 4x Digital Output Phidget
- VINT Hub
- Phidget cable
- USB cable and computer
- something to use with the OUT1100 (LEDs, device with digital input, etc.)

Next, you will need to connect the pieces:



1. Connect the OUT1100 to the VINT Hub using the Phidget cable.
2. Connect the VINT Hub to your computer with a USB cable.
3. Connect the positive end of an LED or small device that runs off of 5V to one of the digital outputs, and the negative end to the ground terminal.

Now that you have everything together, let's start using the OUT1100!

Using the OUT1100

Phidget Control Panel

In order to demonstrate the functionality of the OUT1100, the Phidget Control Panel running on a Windows machine will be used.


The Phidget Control Panel is available for use on both macOS and Windows machines.

Windows

To open the Phidget Control Panel on Windows, find the  icon in the taskbar. If it is not there, open up the start menu and search for Phidget Control Panel

TO
TOP

macOS

To open the Phidget Control Panel on macOS, open Finder and navigate to the Phidget Control Panel in the Applications list. Double click on the  icon to bring up the Phidget Control Panel.

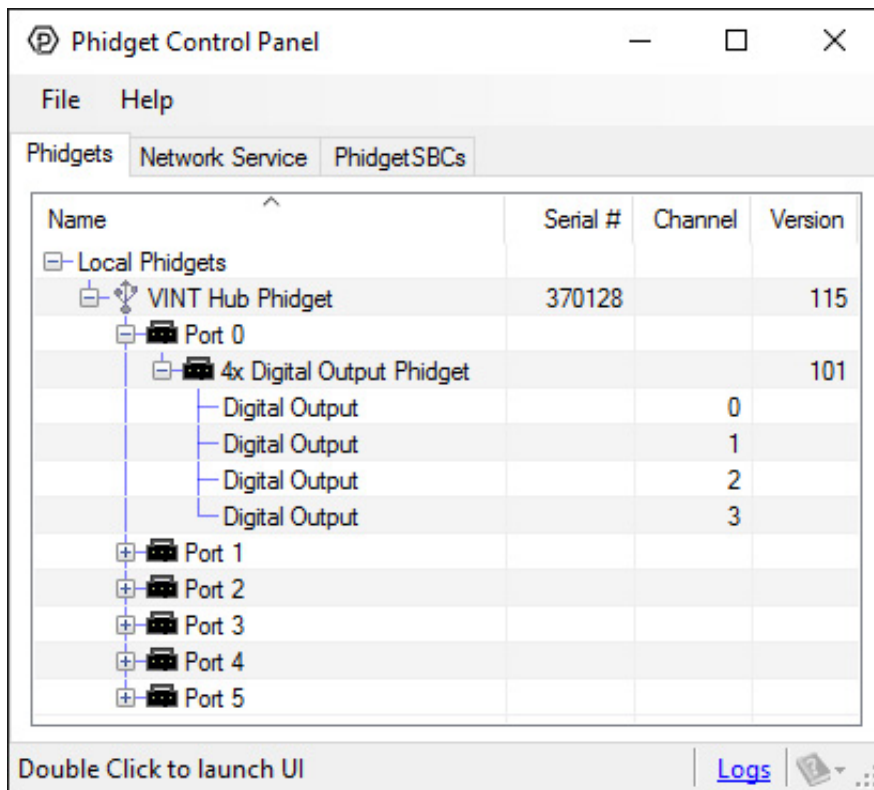
For more information, take a look at the getting started guide for your operating system:

- Getting started with Windows
- Getting started with macOS

Linux users can follow the getting started with Linux guide and continue reading here for more information about the OUT1100.

First Look

After plugging the OUT1100 into your computer and opening the Phidget Control Panel, you will see something like this:



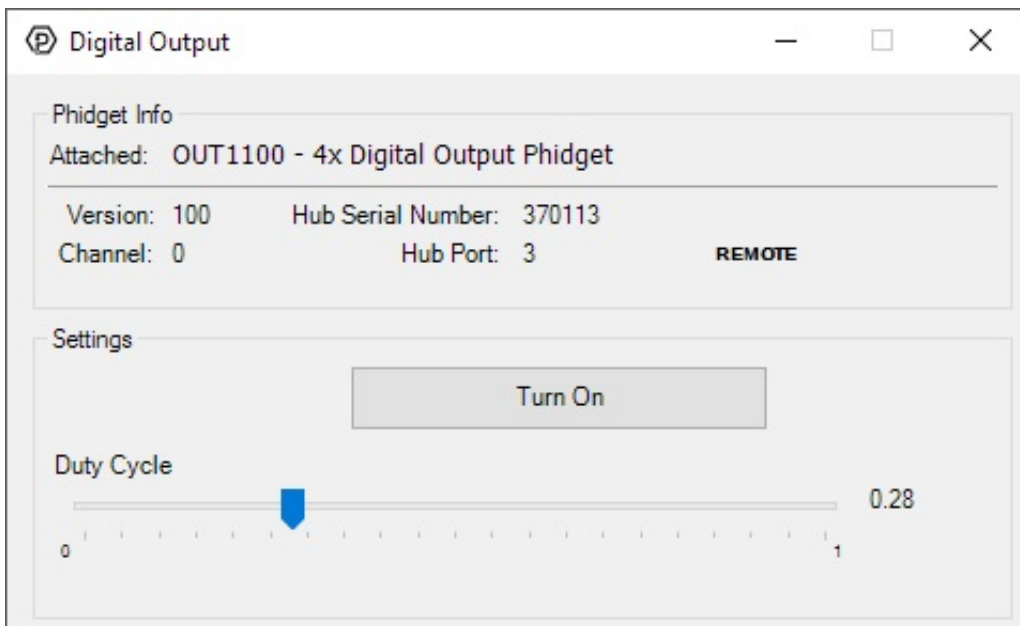
The Phidget Control Panel will list all connected Phidgets and associated objects, as well as the following information:

- **Serial number:** allows you to differentiate between similar Phidgets.
- **Channel:** allows you to differentiate between similar objects on a Phidget.
- **Version number:** corresponds to the firmware version your Phidget is running. If your Phidget is listed in red, your firmware is out of date. Update the firmware by double-clicking the entry.

The Phidget Control Panel can also be used to test your device. Double-clicking on an object will open an example.

Digital Output

Double-click on a Digital Output object in order to run the example:

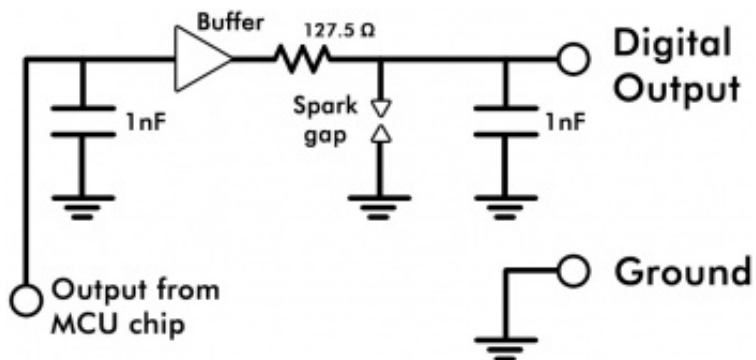


General information about the selected object will be displayed at the top of the window. You can also experiment with the following functionality:

- Toggle the state of the digital output by pressing the button.
- Use the Duty Cycle slider to start using pulse-width modulation. Rather than simply switching on or off, you can select a Duty Cycle to limit the power being supplied to a specific level. This allows you to control devices like a dimmer would.

Technical Details

Output Circuitry

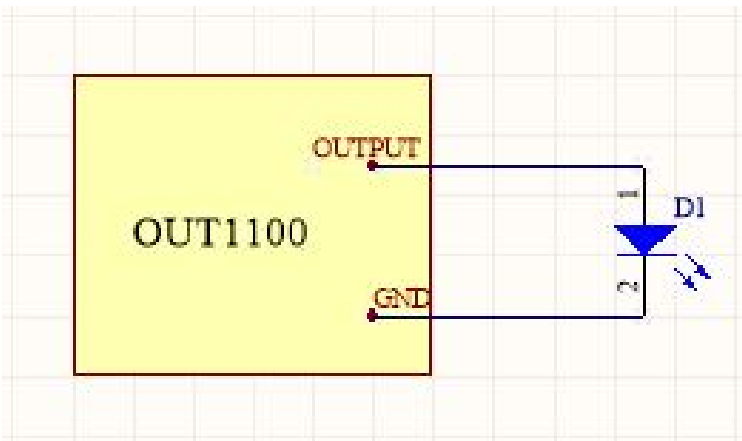


The digital outputs on the OUT1100 are slightly different than the digital outputs on Phidget InterfaceKit boards.

Example Use

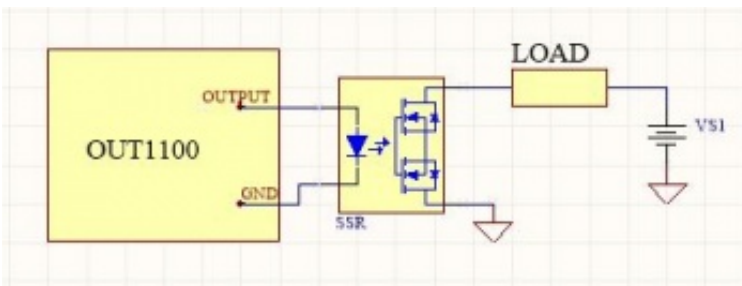
Here are a few things you can do with the OUT1100 Digital Output Phidget

Drive LEDs



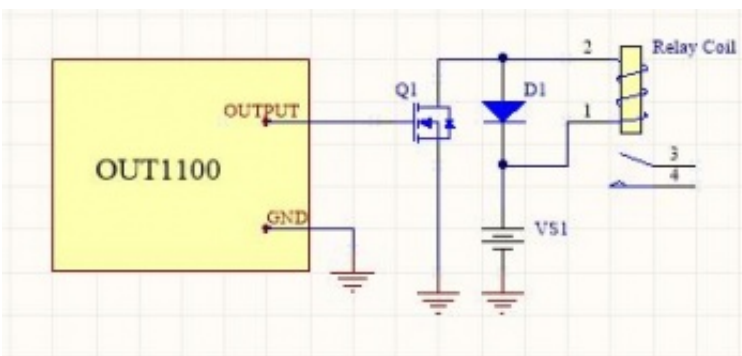
To drive an LED with the OUT1100, simply attach the anode to one of the digital output terminals, and the cathode to the the corresponding ground terminal. The built-in series resistance will limit the current and keep the LED from burning out.

Drive SSRs



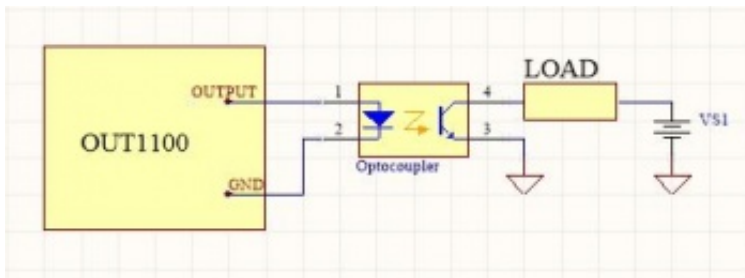
To control an SSR with the OUT1100, attach the positive + terminal to the output terminal, and the ground - terminal to the corresponding ground terminal on the OUT1100.

Control Relays with Transistors



An inexpensive mosfet and flyback diode circuit can be used to control larger loads (such as relays) from the OUT1100. Be sure to use a Logic-Level MOSFET so that the +5V Digital Output is able to turn it on. Similarly, an NPN transistor could be used in place of the MOSFET, in cases where they may be easier to obtain.

Isolation with Optocouplers



In some applications, particularly where there is a lot of electrical noise (automotive), or where you want maximum protection of the circuitry (interactive installations, kiosks), electrical isolation buys you a huge margin of protection. Driving the LED causes the output transistor to sink current.

The maximum current through the transistor will depend in part on the characteristics of the optocoupler.

Note that in cases where many isolated outputs are required, you may want to consider using the REL1100 or REL1101, which are ready-made isolated digital output Phidgets.

What to do Next

- Software Overview - Find your preferred programming language here to learn how to write your own code with Phidgets!
- General Phidget Programming - Read this general guide to the various aspects of programming with Phidgets. Learn how to log data into a spreadsheet, use Phidgets over the network, and much more.
- Phidget22 API - The API is a universal library of all functions and definitions for programming with Phidgets. Just select your language and device and it'll give you a complete list of all properties, methods, events, and enumerations that are at your disposal.