Qwiic MultiPort Hookup Guide
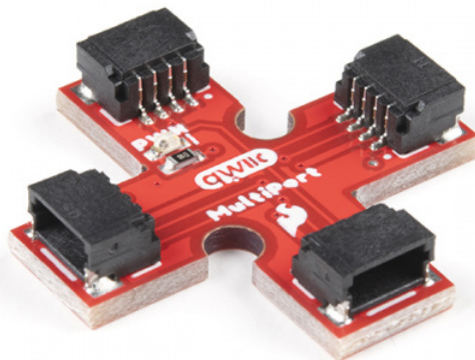
Introduction

The SparkFun Qwiic Multiport adds additional ports to boards that have only one Qwiic port on their I^2C bus. Once added, you can use it as a hub to add as many I^2C devices to the bus as you need [1] ! You can also use the board as an alternative to a daisy chained configuration.

SparkFun Qwiic MultiPort
◉ BOB-18012

Product Showcase: SparkFun Qwiic MultiStar

> **Note:** Technically, there are limitations to how many boards that you can add to the bus. You may need to adjust pull-up resistors depending on what is connected. This is usually about 7x boards. You may also need to disconnect 3.3V to certain devices and inject power depending on the total power required. Keep in mind the Qwiic cable wires are small and have a max current of about 226mA.

Required Materials

To follow along with this tutorial, you will need a microcontroller or single board computer with a Qwiic connector. You will also need a Qwiic cable and a way to power the board. You may not need everything though depending on what you have. Add it to your cart, read through the guide, and adjust the cart as necessary.

Besides having the Qwiic MultiPort in your cart, here are the parts if you decide to go with a microcontroller. You can easily swap out the microcontroller depending on your project's needs with MicroMod. Make sure to include the Qwiic-enabled device in your cart as well!

SparkFun Qwiic Cable Kit
◉ KIT-15081

SparkFun MicroMod SAMD51 Processor
◉ DEV-16791

SparkFun MicroMod ATP Carrier Board
◉ DEV-16885

USB 3.1 Cable A to C - 3 Foot
◉ CAB-14743

Here are the parts if you decide to go with a single board computer. The Qwiic SHIM kit is a great starting point if you do not have a Qwiic-enabled device in mind.

**SparkFun Raspberry Pi 4 Desktop Kit - 4GB**
○ KIT-16386

SparkFun Qwiic SHIM Kit for Raspberry Pi
◓ KIT-16987

Suggested Reading

If you aren't familiar with the MicroMod ecosystem, we recommend reading here for an overview. We recommend reading here for an overview if you decide to take advantage of the Qwiic connector.
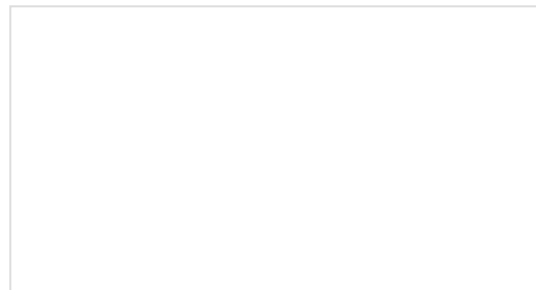
MicroMod Ecosystem	*Qwiic Connect System*

We also recommend taking a look through the following tutorials if you are not familiar with the concepts covered in them:
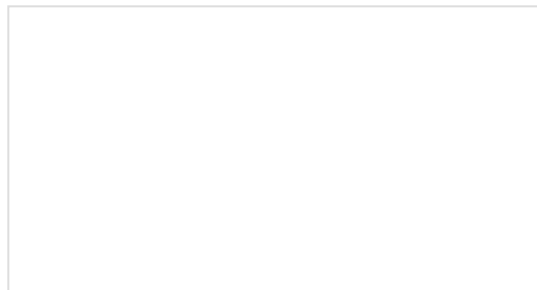
Logic Levels
Learn the difference between 3.3V and 5V devices and logic levels.

I2C
An introduction to I2C, one of the main embedded communications protocols in use today.

Raspberry Pi 4 Kit Hookup Guide

Guide for hooking up your Raspberry Pi 4 Model B basic, desktop, or hardware starter kit together.

Getting Started with MicroMod

Dive into the world of MicroMod - a compact interface to connect a microcontroller to various peripherals via the M.2 Connector!

Hardware Overview

The board is a simple design that allows you to connect devices to the I^2C bus easily with the Qwiic Connect System. Power and logic levels are set to 3.3V. Make sure to use a logic level converter if your board uses a voltage higher than 3.3V.

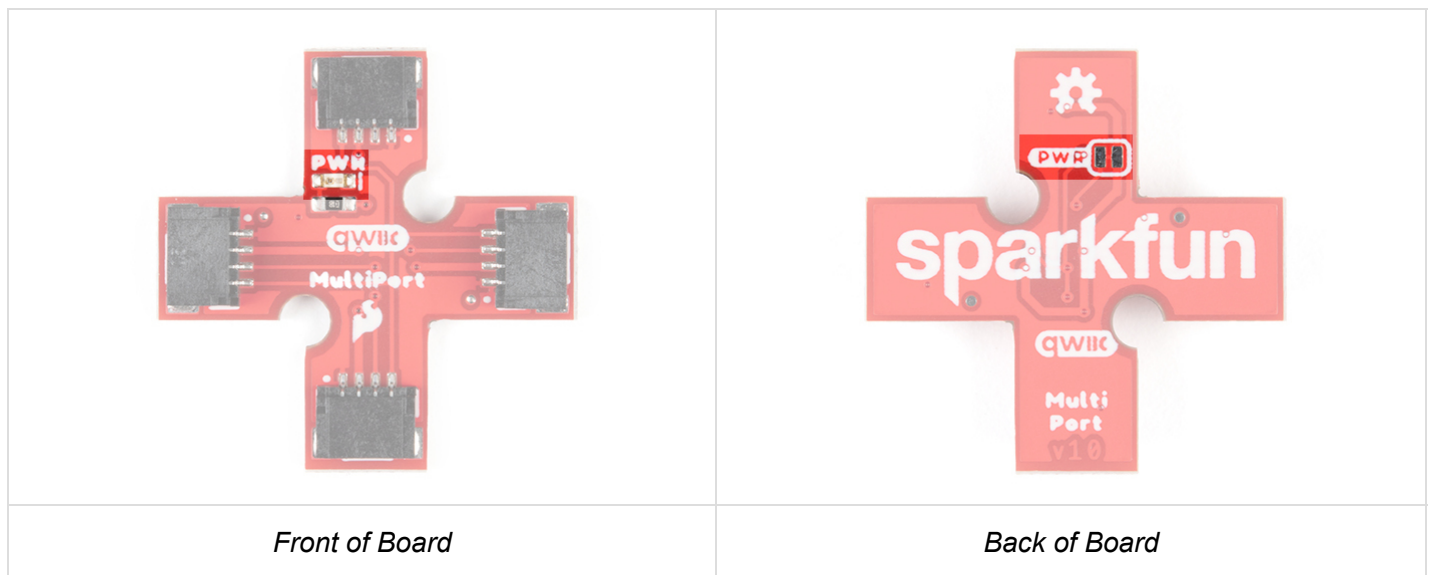| Wire Color	Signal
Black	GND
Red	3.3V
Blue	SDA
Yellow	SCL

Qwiic Connectors

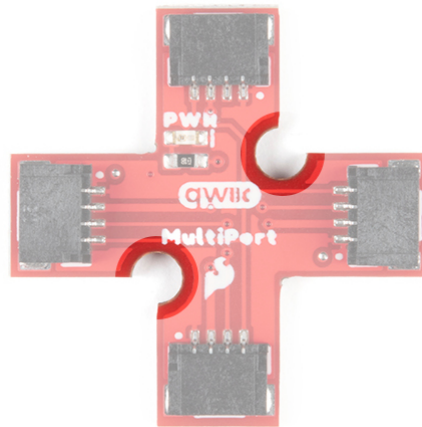There are 4x Qwiic connectors populated on the board.
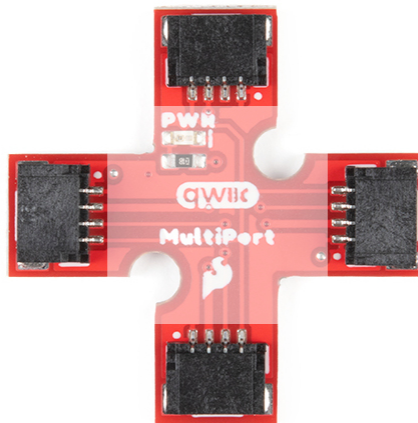
LED and Jumper

In addition to the connectors, there is an LED to indicate when power is available on the I^2C bus. On the back, there is a jumper in case you would like to disable the LED.

Front of Board	Back of Board

Front of Board | *Back of Board*

Mounting Holes

There are 2x mounting holes included on the board.

Board Dimensions

Below are the board dimensions. The overall size of the board is 1.00" x 1.00". Each connector extending from the center has a width of about 0.30". As stated earlier, this board has 2x mounting holes located around the center.
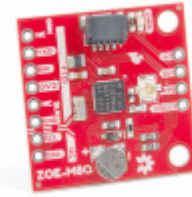
Hardware Assembly

Expanding on Boards with One Qwiic Connector

Depending on the design, there may only be enough room for one Qwiic connector. Below are a few of these boards from the SparkFun catalog

SparkFun 16x2 SerLCD - RGB Backlight (Qwiic)
O LCD-16396

SparkFun GPS Breakout - ZOE-M8Q (Qwiic)
◉ GPS-15193

SparkFun Power Delivery Board - USB-C (Qwiic)
◉ DEV-15801

SparkFun 16x2 SerLCD - RGB Text (Qwiic)
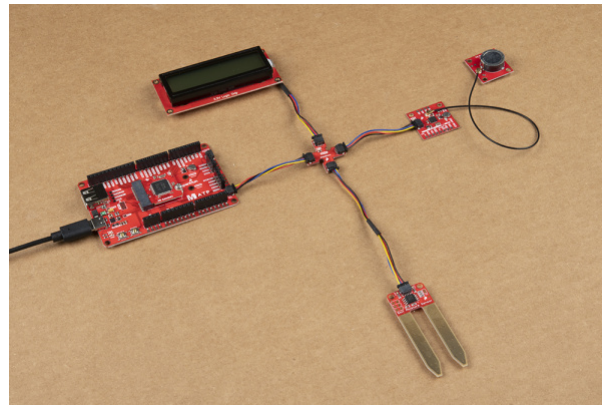O LCD-16397

### SparkFun 20x4 SerLCD - RGB Backlight (Qwiic)
O LCD-16398

SparkFun Qwiic Soil Moisture Sensor
◉ SEN-17731

If you are looking to connect more than one device with one Qwiic connector to your development board, you will just need a Qwiic MultiPort board and an additional Qwiic cable for each device.

Alternative to a Daisy Chained Configuration

The Qwiic MultiPort can also be used as a hub so that you do not have to place the board with one Qwiic connector at the end of the daisy chain. Below is an example with the Qwiic SHIM Kit for Raspberry Pi. Instead of having the Qwiic 9DoF between the Pi and Qwiic SerLCD,
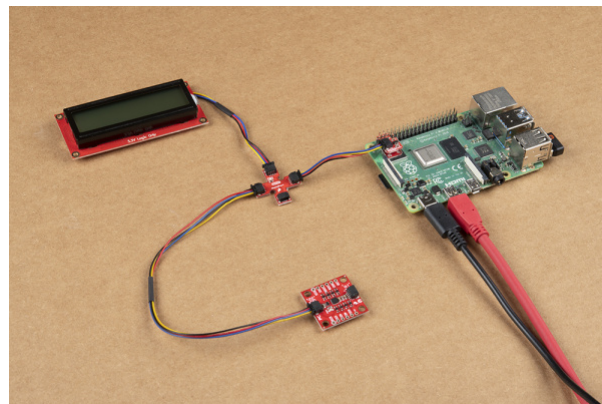
Mounting with Standoffs

The two boards can be mounted with standoffs for a secure connection. Below is the Qwiic Micro (SAMD21), Qwiic MultiPort, Qwiic GPS (ZOE-M8Q), and a GPS antenna (W3062A) connected stacked on top of each other. They are all connected to the Qwiic SerLCD connect using Qwiic cables (with the exception of the antenna).
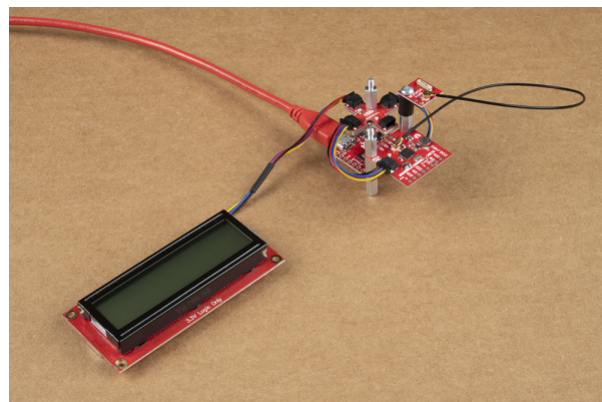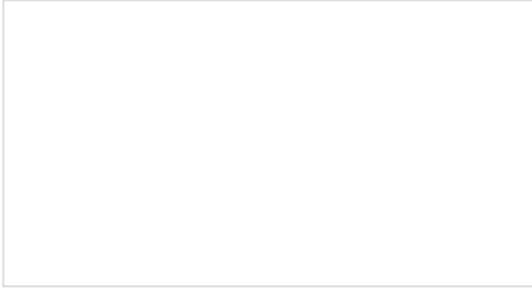

Resources and Going Further

Now that you've connected your Qwiic MultiPort, it's time to incorporate it into your own project! For more information, check out the resources below:

- Schematic (PDF)
- Eagle Files (ZIP)

- Board Dimensions (PNG)
- GitHub Repo

Looking for inspiration? Check out any of the tutorials tagged with Qwiic for ideas on what to connect to your Qwiic system!

SparkFun Pro nRF52840 Mini Hookup Guide
A hardware overview and hookup guide for the SparkFun Pro nRF52840 Mini -- a breakout for Nordic's impossibly cool Bluetooth/ARM Cortex M4 SoC.
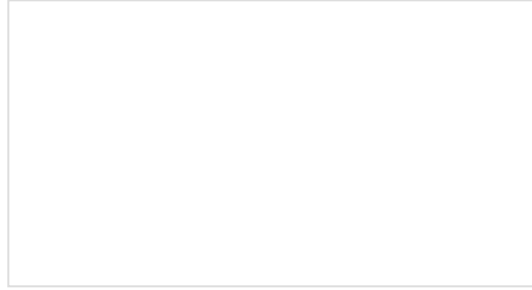
Qwiic Twist Hookup Guide
Take your volume knob beyond 11 with the Qwiic Twist digital RGB LED encoder via I2C!
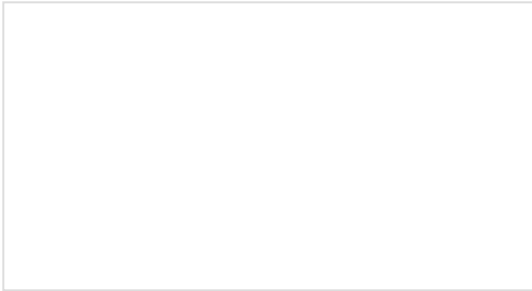
Power Delivery Board - USB-C (Qwiic) Hookup Guide
This guide will go over how to use the USB Type-C Power Delivery Board.
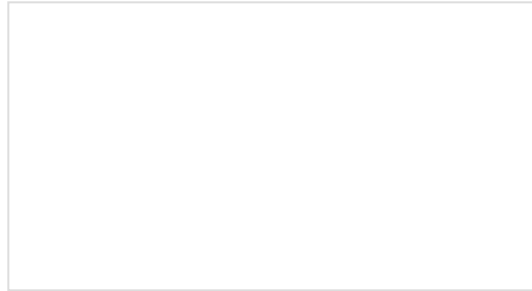
Basic Servo Control for Beginners
An introductory tutorial demonstrating several ways to use and interact with servo motors!