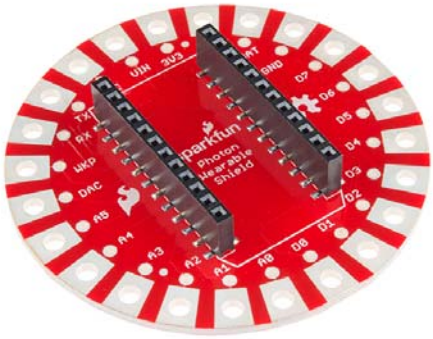
Photon Wearable Shield Hookup Guide

Introduction

The SparkFun Photon Wearable Shield breaks out each pin on the Photon, so it is easier to use the Photon in WiFi wearables projects. Due to the large pins, you can also use other conductive materials like copper tape and conductive paint for non-wearable projects.



Please Note: All SparkFun shields for the Photon are also compatible with the Core from Particle. The WKP, DAC and VBT pins on the Photon will be labeled A7, A6 and 3V3*, respectively, on the Core, but will not alter the functionality of any of the Shields.

Suggested Reading

If you have never worked with the Photon or the Core before, we highly recommend visiting the getting started documentation available on the Particle site.

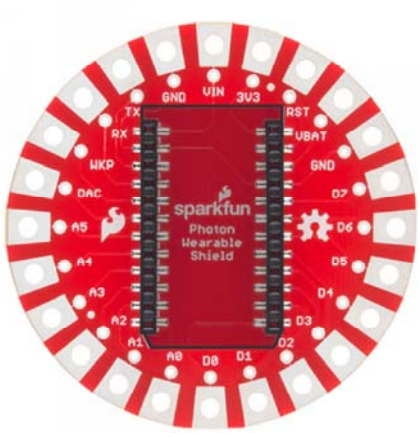
If you are unfamiliar with any of the concepts below, we suggest checking out those tutorials as well.

- E-Textile Basics
- Sewing with Conductive Thread

Hardware Overview

This might be a simple shield for the Photon, but you can use it in many different types of projects! Here is a list of hardware features for this shield.

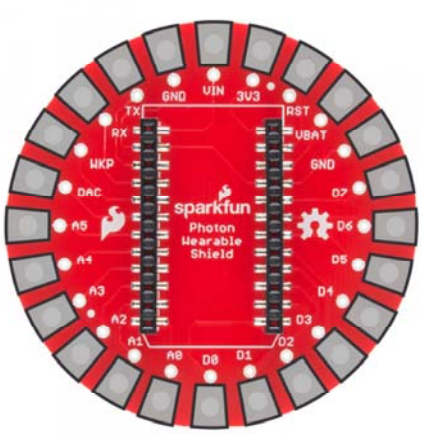
Female Headers for the Photon



Double check that you put the Photon in the female headers the correct way!

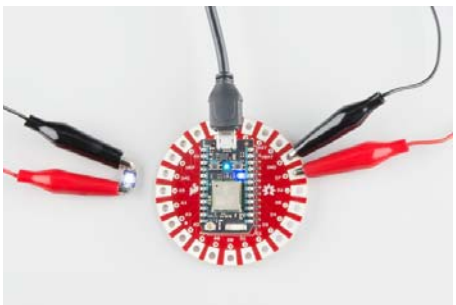
No soldering required! The shield comes with two SMD headers already soldered on, which makes easy to place the Photon on top and start a new project. There is a white Photon silkscreen outline to help show what direction the Photon needs to be placed.

Large Sewable Pins



There is a large pad for each one of the Photon's pins.

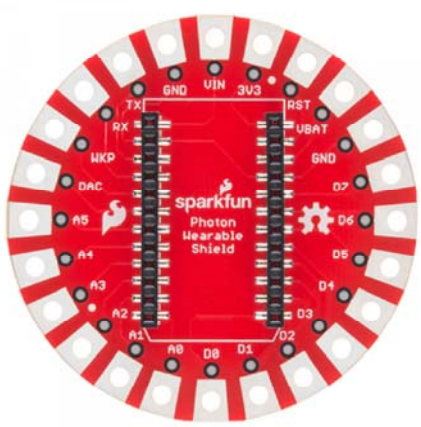
The larger pins makes it possible to use different types of conductive materials to connect sensors, LEDs, and other components to the Photon. Conductive paint, conductive thread, and copper tape are just few different conductive materials you can use with the large pins. When prototyping, the large pads makes it easy to use alligator clips.



Alligator clips are great to make sure connections and code examples are

correct before sewing components into a garment.

Normal Sized Pins



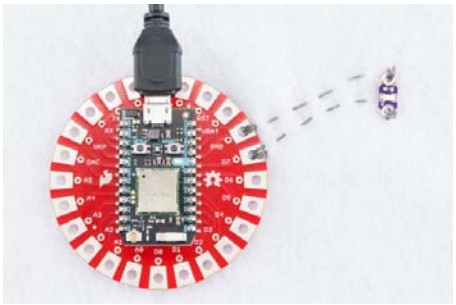
There are normal sized pins for soldering hook-up wire to the shield. Which, is great for projects needing tons of LEDs or a solid connection.

Hardware Hookup (Conductive Thread, Paint, and Tape)

There are different types conductive materials that can be used with the shield. Depending on the project, some materials are better then others. Here are the most common conductive materials to hook-up external components to the shield and the Photon.

Conductive Thread

Want to make an IoT wearable fitness project and be able to sew an accelerometer into your clothes? Sewing with conductive thread is a great way to add sensors into a wearables or other e-textiles projects. It provides more flexibility then standard hook-up wire.

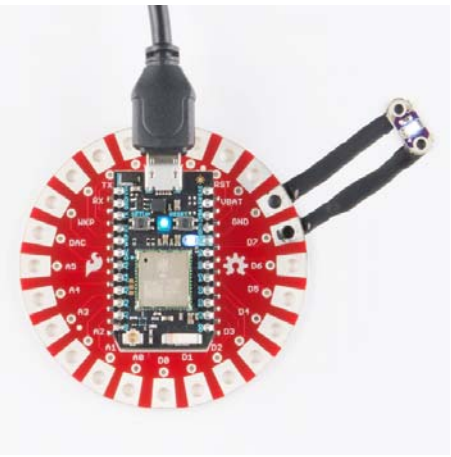


Tip: Loop around a large pin hole and component three or more times, with conductive thread, to get a solid connection.

The Photon can also work with 3.3V LilyPad products like the LilyPad Temperature Sensor, LilyPad Accelerometer, and LilyPad Vibe Board.

Conductive Paint

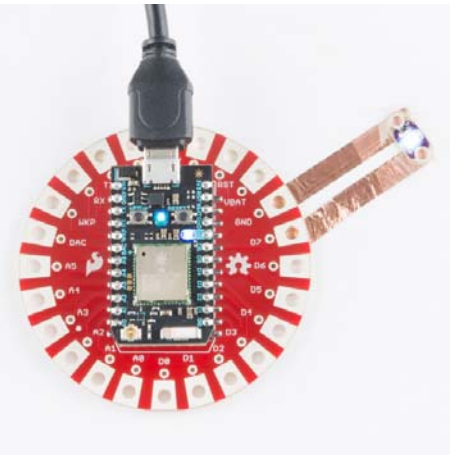
Thinking of doing an interactive art painting or wall? Conductive paint opens doors for traditional artists and tinkers to combine art and electronics together. The conductive paint can go under or over the large pads on the shield.



Great for art installations!

Copper Tape

Copper tape is great for paper crafts or other e-crafts. Copper tape has an adhesive backing, which isn't as conductive as the nonadhesive side. We recommend to place the copper tape under the large pads on the shield.



Use the copper tape with the large pins on the shield.

Resources & Going Further

Now that you know a little bit more about the Photon Wearables Shield, it is time to start your project! These links may be useful in your journey:

- SparkFun Photon Wearables Shield Repo – this is where to go for the hardware files and documentation.
- Particle Documentation Pages – go here to set up and configure your Photon (or other Particle devices).
- Particle Community Forum – anything that you couldn't find in the docs should be easily found in the community forum. If you are having trouble, search this forum first, as many of the answers are there already.

Check out these related wearables tutorials:

LDK Experiment 1: Lighting Up a Basic Circuit

The first experiment in the LilyPad Design Kit series. In this exercise, you will learn how a basic e-textiles circuit works, and light up a sewable LED using a coin cell battery holder and conductive thread.

Insulation Techniques for e-Textiles

Learn a few different ways to protect your conductive thread and LilyPad components in your next wearables project.

Bare Conductive Musical Painting

Learn how to make a musical painting using the Bare Conductive Touch Board and Conductive Paint.

Origami Paper Circuits

A quick tutorial to get you started in the world of light up origami flowers.

The Wearables Shield pairs very well with any of our other Photon Shields; check out our hookup guides for those shields:

Photon Battery Shield Hookup Guide

The Photon Battery Shield has everything your Photon needs to run off, charge, and monitor a LiPo battery. Read through this hookup guide to get started using it.

Photon OLED Shield Hookup Guide

The Photon OLED Shield has everything you need to add a small yet crisp OLED screen to your Photon projects. This hookup guide will show you how to get started.

Photon IMU Shield Hookup Guide

Learn how to use the SparkFun Photon IMU Shield for your Photon device which houses an on-board LSM9DS1 system-in-a-chip that houses a 3-axis accelerometer, 3-axis gyroscope, and 3-axis magnetometer.