

# Spark Optical

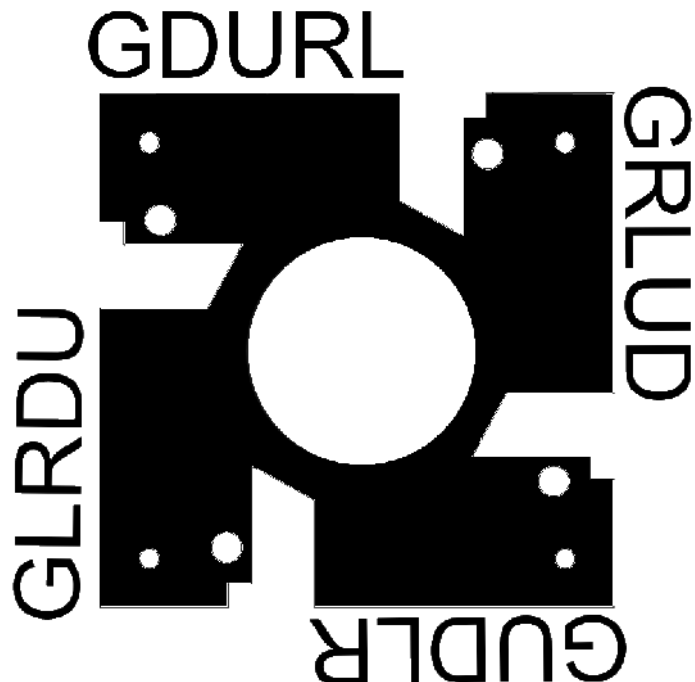
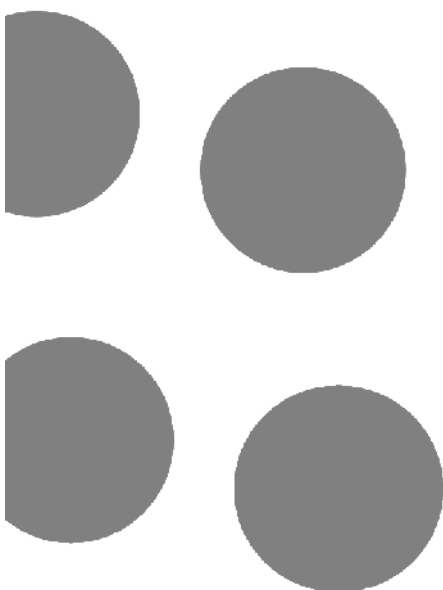
Thank you for purchasing a Spark optical control board! Before beginning, please make sure all of the required parts are in the bag:

- Spark PCB
- Spark plastic housing
- Power wire with three pin connector

The Spark optical control board is an after-market part for Sanwa brand, JLF model joysticks. It replaces the original, TP-MA micro switch board with optical sensors for completely silent operation.

The five pin connector is wired identical to the original TP-MA board it replaces. As long as the Spark pins point in the same direction the original TP-MA pins pointed, there is no need to change anything with the five pin connector. If you are installing a new five pin harness, the pins will be responsible for different directions based on where the pins are pointing. Use the following diagram to know what each pin's role is. Please remember, this diagram represents someone looking at the bottom of the control panel, from underneath the joystick.

G=Ground U=Up D=Down R=Right L=Left



## **Power**

The Spark requires a +5 volt DC power source in order to run properly. In your kit should be a single, long wire ending in a three pin connector that plugs into the three pin connector on the Spark board. The other end of the wire needs to be securely connected to your power source. Since every arcade stick and arcade cabinet is different, I cannot point out exactly where it should go in every instance, but I can give tips that should cover the majority of uses.

**Installation in an arcade cabinet:** Crimp an eyelet quick disconnect to the free end of the power wire, and screw down securely to one of the +5v terminals on your cabinet power supply.

**Installation in a production USB arcade stick:** Solder the free end of the power wire to the spot on the arcade stick PCB where the red USB wire is connected.

**Installation with a Cthulhu or Chimp board:** Screw down the free end of the power wire to one of the VCC screw terminals.

**Installation with a TE Kitty-modded MadCatz FightStick:** Screw down the free end of the power wire into the 'V Red' screw terminal in the 'XBOX' section; the bottom-most screw terminal.

Depending on what arcade stick you are installing it into, there may be a solderless method of connecting the power. Feel free to look through the Spark thread on Shoryuken.com to see other examples, or ask for any tips with your specific arcade stick.

<http://shoryuken.com/forum/index.php?threads/w.22310/>

Since the Spark requires a +5v power supply, it is entirely unsupported and not expected to work on any wireless stick, or connected to any console that does not supply a +5v DC power source, such as Wii-mote based controls or PlayStation1/PlayStation2 consoles. The Spark is also ONLY supported on common ground based controllers. If the electronics in your arcade stick are not common ground, the Spark will NOT work properly. These could probably be made to work with some severe electronics hackery, but there will not be any support to help you in this regard.

Spark kits are hand adjusted and hand tested. While every precaution has been taken to ensure proper operation, there is always the chance that a problem could be missed in testing. If a Spark shows behavior of either a direction not registering, or a direction not returning to neutral properly, within 30 days of purchase, please contact me to see about a replacement.

Happy Hacking!  
Marcus "Toodles" Post