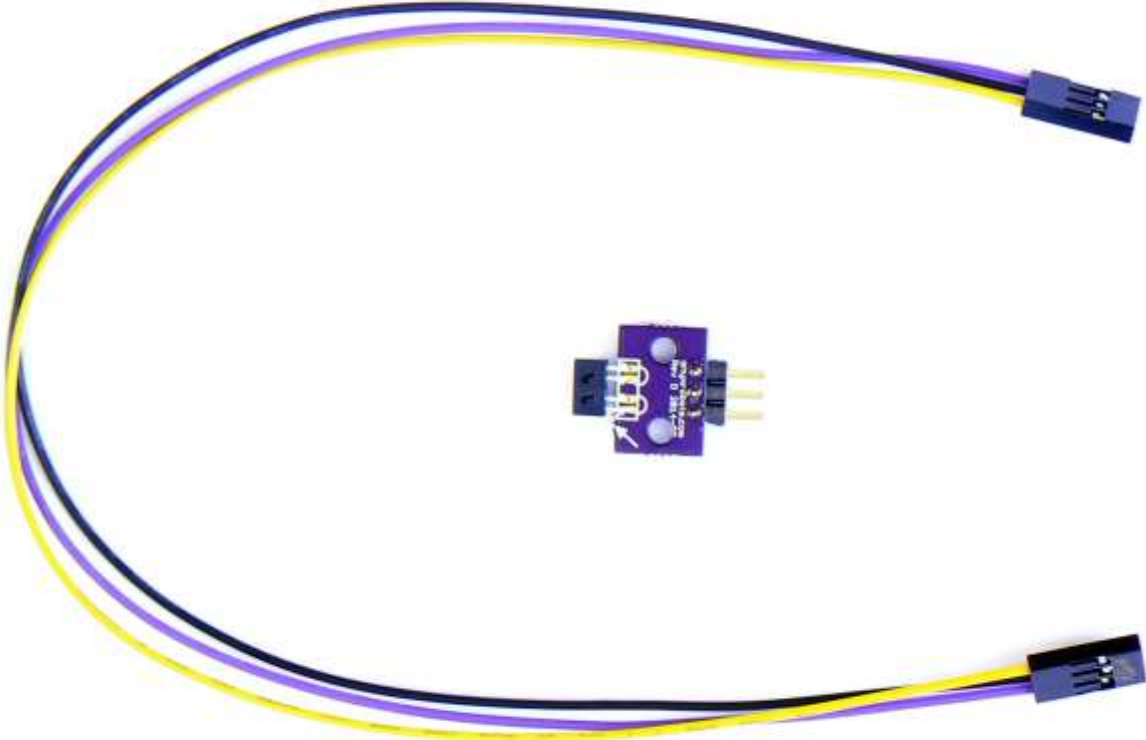


Onyx Slide



Description

Onyx Slide is an infrared reflectance based proximity sensor. It is designed to fit with the Onyx Fire II mechanism control board, to provide feedback for when a mechanism has completed a cycle in cycle-based triggering mode.

It is also designed to mount on the main housing of Part Assembly A from Shapeways:

<https://www.shapeways.com/model/1745328/bundle-of-robot-parts.html?modelId=1745328&materialId=25>

The mounting holes are designed to co-locate with the main M3 hardware mounting hole, and the Part Assembly A has a groove that gives clearance for the soldered bottom of the pin header connector.

Specifications

Variable	Min	Typ	Max	Unit
Sensing Distance	0.4	1.0	4.0	mm
Temperature Range	0	25	70	°C
Emitter Current		20	50	mA
Emitter Voltage	0.95	1.25	1.6	V
Sensor Current	0.2	0.5		mA
Sensor Saturation Voltage			0.3	V
Sensor Reverse Voltage			5	V
Sensor Forward Voltage	2	5	24	V
Sensor Dark Current			200	nA

The SLIDE port on the Onyx Fire II control board is properly provisioned to supply an appropriate voltage and current for the emitter side of the sensor, and to detect the presence of an object near the sensor as an active-low input.

Electrical Connections

The sensing side of the sensor is the side with the two small black circles on the black sensor head, and an arrow pointing at the emitting half of the sensor head.

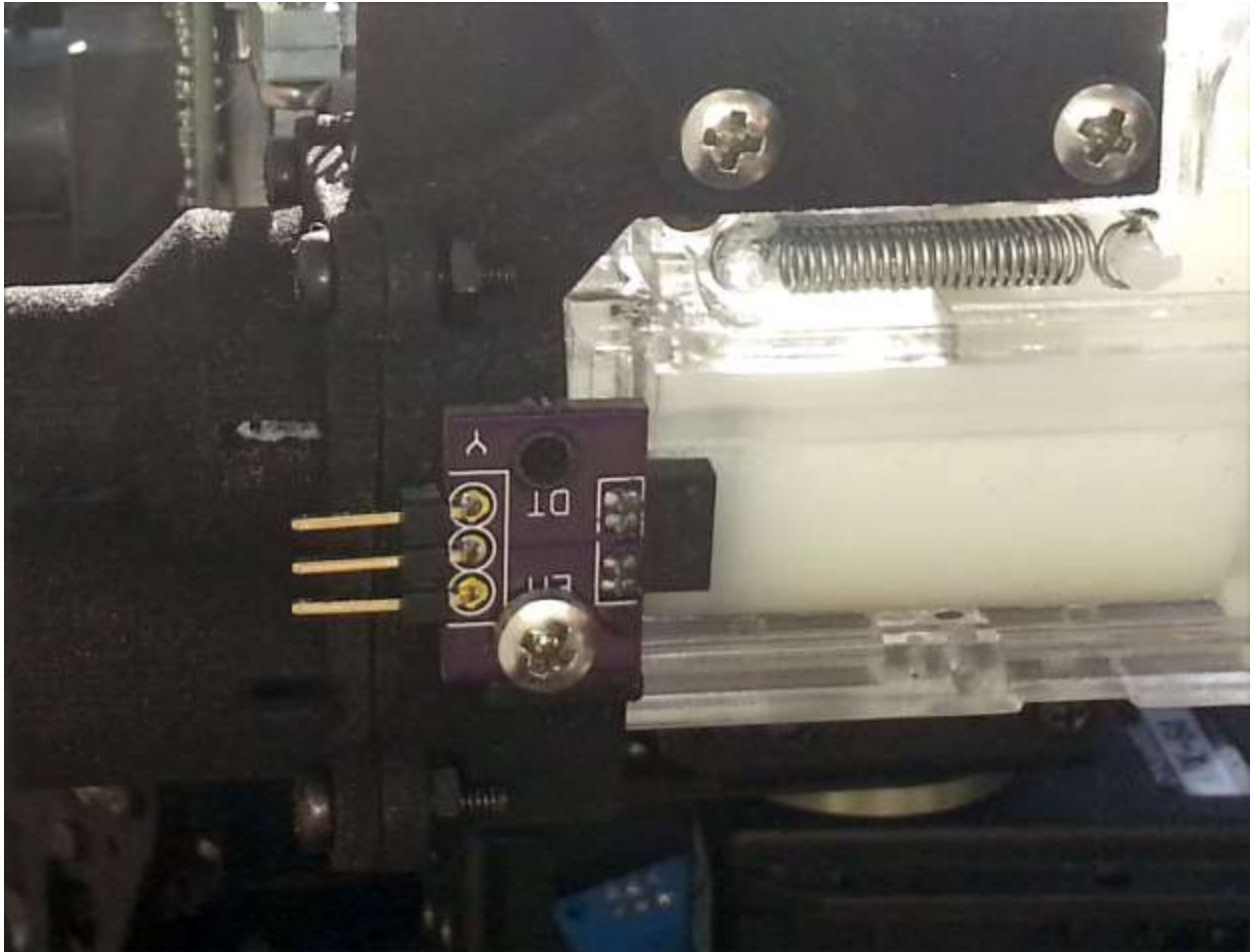
Plug the supplied cable into the Onyx Slide with the yellow wire facing the “Y” marking on the board. This side is also marked “DT” for “detector.”

Plug the other end of the cable into the Onyx Fire II board SLIDE connector in the lower-right corner, close to the J2 switch output. Make sure to not confuse the SLIDE port with the SVO power port at the top of the Onyx Fire II, as plugging the Onyx Slide into a three-pin servo connector will destroy internal parts of the Onyx Slide in a way that may not be detectable from the outside without using measuring instruments.



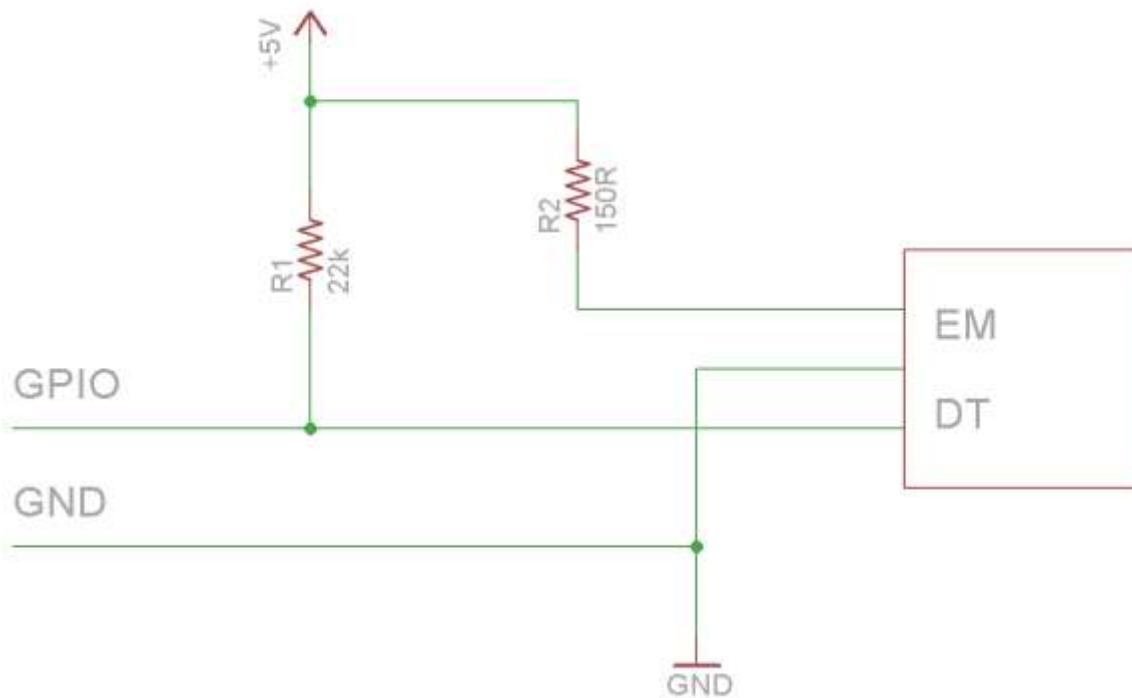
Physical Mounting

If using the Parts Bundle A assembly, mount the sensor to the main housing on the side of the assembly that best suits your robot. Here is an example picture:



Circuit Diagram

You can also use the Onyx Slide with most microcontroller digital inputs. A suggested wiring circuit uses a 150 Ohm current limiting resistor from a +5V supply into the emitter side (labeled EM,) and a 22 kOhm pull-up to the detector, which can pull a GPIO pin low on the microcontroller when an object is close to the detector head. The center pin of the Onyx Slide three-pin connector is ground.



If you have questions, please check the latest information available on onyxrobots.com.

Contact Information

For the latest version of this manual, other Onyx Robots products, and general information, please visit our website:

<http://onyxrobots.com>

For customer service, please file a request on the web site, or send e-mail to:

helpme@onyxrobots.com

Warranty and Limitations of Liability

We've done a lot of work to develop a high quality product, and run tests on every item before it leaves the factory. Despite this, a small percentage of early failures are impossible to avoid in modern electronics, unless you have the budget and resources of NASA or the US Air Force. We do not, and neither do our customers.

The Onyx Slide board is warranted against defects in materials and workmanship for a period of 90 days after purchase. Should the board fail to operate as documented in this manual when correctly installed and configured by the user, we will gladly replace it with a working version. All you pay is postage to send it to our service center; we pay for any repairs or replacement and shipping back to you. Please contact us using one of the methods above and we will promptly arrange for replacement or refund.

The above warranty does not hold in case we've made an embarrassing and impossible-to-fulfill typo in the manual, in which case your sole recourse is to shame us in public forums until and unless we are told by such a typo and correct it in an updated version of the manual.

The Onyx Slide board is an electronic component that is intended to be integrated into a larger system by the end user. As such, it is impossible for the manufacturer to foresee all possible problems and dangers that could arise in the end system. The purchaser should be capable of making appropriate engineering and safety considerations to use the Onyx Slide component. In all engineering, there is danger of improper operation, fire, electrocution, and lost hair, and the purchaser must accept and control for such danger. In other words, we do our best to provide a high-quality product that operates as per this manual; if you should use this product to shoot eggs at neighbors, trigger flammable rockets, or build a robot army that rises up and exterminates humanity, those are your actions, not ours, and you will have to live with yourself afterwards.

If you believe you do not possess the appropriate level of engineering and safety awareness to integrate the Onyx Slide board in your system, we will happily refund your purchase price if you return the board and its accessories undamaged in its original packaging to us within 30 days of purchase. Please contact us at the above locations if you need to arrange for this.

Version History

2014-05-01		Initial Version