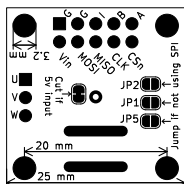
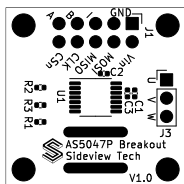


AS5047P breakout board

TL;DR SPI and 3.3V operation are default. If you want something else, change some jumpers.

For more resources, scan the QR code or go to bit.ly/encoder_resources.



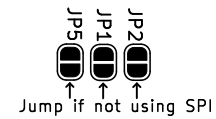
Interfaces:

- **SPI** (default) is the most flexible way to get absolute position from the sensor. Connect to **VIN**, **MOSI**, **MISO**, **CLK**, **CSn**, and **GND**. When only one-way communication is required, like when interfacing with a VESC motor controller, MOSI may be connected directly to VIN. For use with Arduino, search for AS5047P in the library manager.
- **ABI**, quadrature encoder mode offers broad compatibility. Absolute position is known after the first index pulse (once per revolution). The **I** (or **Z**) pin can be left unconnected if absolute position is unnecessary.
- **UVW** commutation signals are similar to the outputs of the three hall sensors built-in to some brushless motors.



Jumpers:

If not using SPI, the datasheet recommends pull-up resistors on CLK and MISO and a pull-down resistor on CSn. These resistors are built-in, and you can individually solder across the 3 jumpers to enable them.



If powering the board with 5V, cut this jumper with an x-acto knife. Re-solder this jumper if you ever return to 3.3V. **Never apply more than 5V.**



Sensor magnet:

Only diametrically-magnetized magnets (like the included one) will work. Most similar-looking magnets are axially-magnetized! The magnet should be mounted several mm above the AS5047P chip. For testing purposes, you can secure the magnet on the end of a shaft with a dab of superglue. If sensor readings cut in and out, the magnet is probably too far, too close, or has too much misalignment from the center of the sensor.

Wiring: A 2.54mm pitch header is included for use with the common DuPont jumper cables. For more permanent connection, a ribbon cable can be routed through the strain-relief slots in the PCB as shown.

