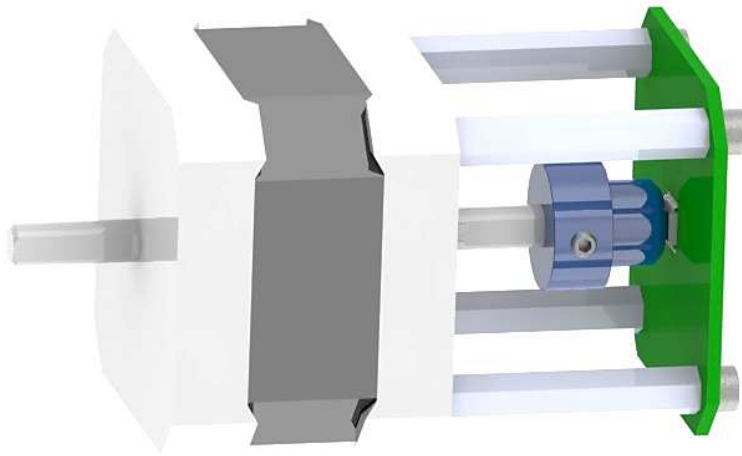




Operation Manual: AS5048-EK-AB-STM1.0



## AS5048 Eval-Kit Stepper Motor



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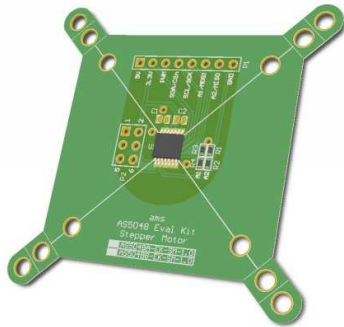
## 1. General Description

The AS5048 Eval-Kit is designed to adapt standard size stepper motors with a contactless rotary position sensor. Rotation of the magnet holders is sensed by the rotary position sensor, soldered on the PCB board.

## 2. Package and Board Description

### Content of the Eval-Kit:

- AS5048 board



- 4 magnet holders



Ø 5mm

Ø 6mm

Ø 8mm

Ø 10mm

- 1 allen key (1.5mm)



- 1 quick start user guide

Figure 1:  
Connector

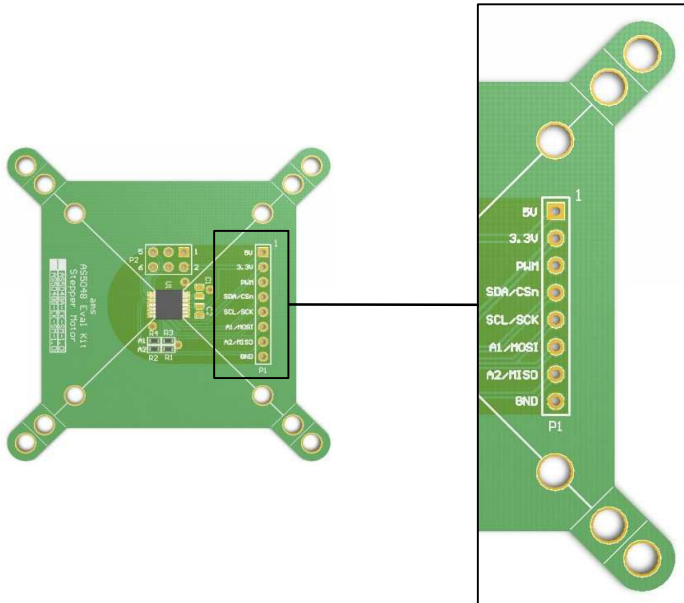


Table 1:  
Connector pinout

| Pin | Description | Info  |
|-----|-------------|---|
| 1   | GND         | Ground  |
| 2   | A2/MISO     | SPI master in/slave out; shared with I2C address selection A2 |
| 3   | A1/MOSI     | SPI master out/slave in; shared with I2C address selection A1 |
| 4   | SCL/SCK     | SPI clock input; shared with I2C clock input                  |
| 5   | SDA/CSn     | SPI chip select - active low; shared with I2C data pin        |
| 6   | PWM         | Pulse Width Modulation output                                 |
| 7   | 3V3         | 3.3V-Regulator Output.  |
| 8   | 5V          | Positive Supply Voltage.                                      |

### 3. How to get the Eval-Kit running

Figure 2:  
5V Power Option

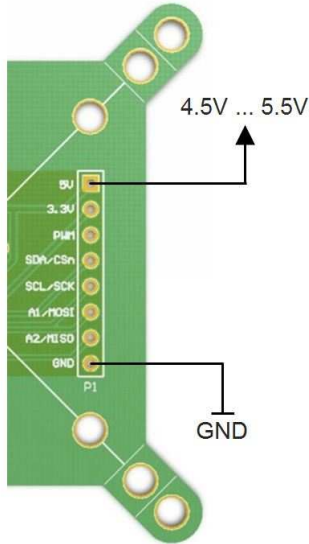
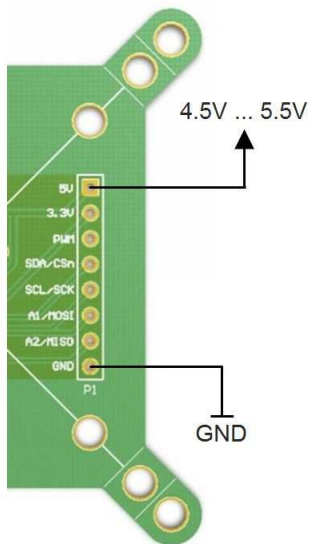


Figure 3:  
3V Power Option



## 4. Mechanical Design Considerations

Table 2:  
Motor References (Examples)

| Part Number    | Web Page   | Manufacturer                               |
|----------------|--|--|
| 17PY-X0XX      | <a href="http://www.nmbtc.com">www.nmbtc.com</a>         | NMB Technologies Corporation - Motor Group |
| 17PY-X8XX      |  |  |
| 17PY-X4XX      |  |  |
| 17H018D series | <a href="http://www.portescap.com">www.portescap.com</a> | Portescap                                  |
| 17H118D series |  |  |
| 17H218D series |  |  |



Table 3:  
Used Magnet

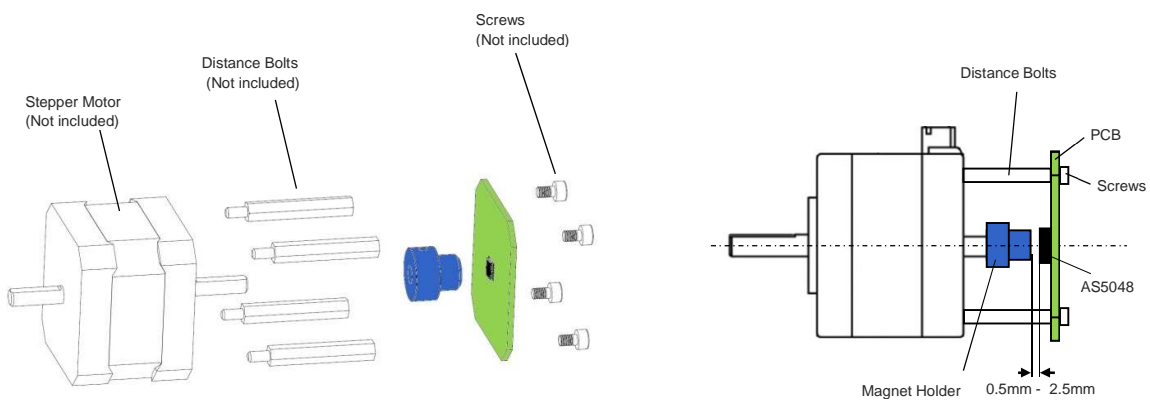
| Part Number | Web Page   | Manufacturer                 |
|-------------|--|------------------------------|
| 2910041-1   | <a href="http://www.dextermag.com">www.dextermag.com</a> | Dexter Magnetic Technologies |



Additional recommended magnet suppliers refer to our homepage:

<http://www.ams.com/eng/Products/Magnetic-Encoders/Magnets2/Recommended-Magnet-Suppliers>

Figure 4:  
Mounting the AS5048 Eval-Kit



The AS5048 board can be mounted on double shaft motors. (See figure 4)

Screws and distance bolts are not included.

## 5. Schematics, Layout

Figure 5:  
Schematic

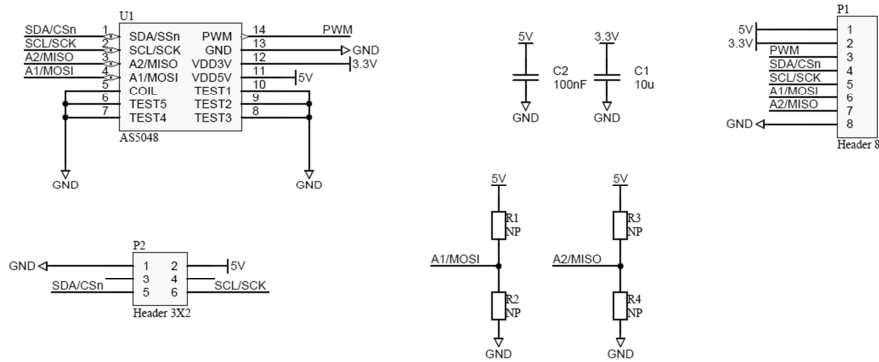


Figure 6:  
Top Layer

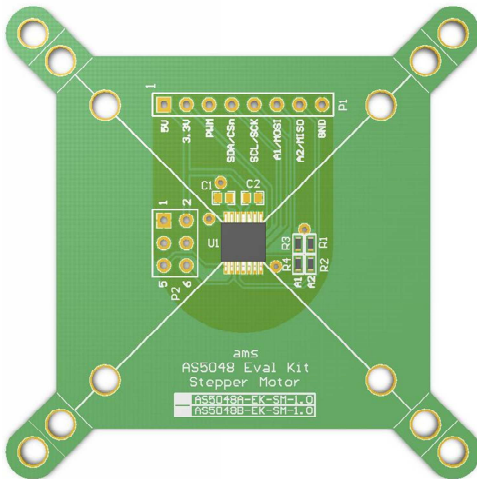


Figure 7:  
Bottom Layer

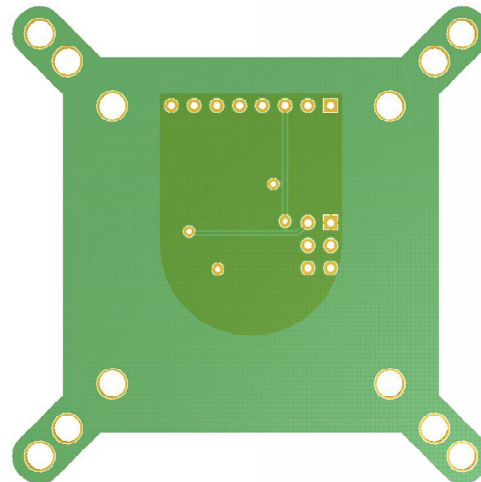


Table 4:  
Bill of Materials

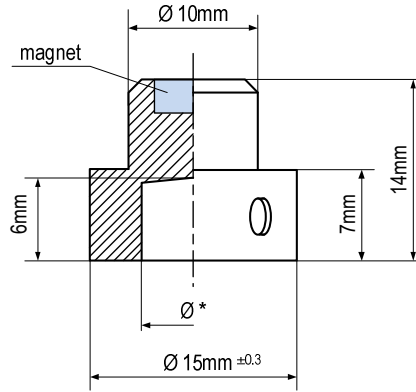
| Pos | Part Number | Reference      |
|-----|-------------|----------------|
| 1   | PCB Board   | PCB1           |
| 2   | U1          | AS5048         |
| 3   | C1          | 10uF/10V/0603  |
| 4   | C2          | 100nF/10V/0603 |

Figure 8:  
Magnet Holder



Grub screw for fixing on the shaft of the motor.

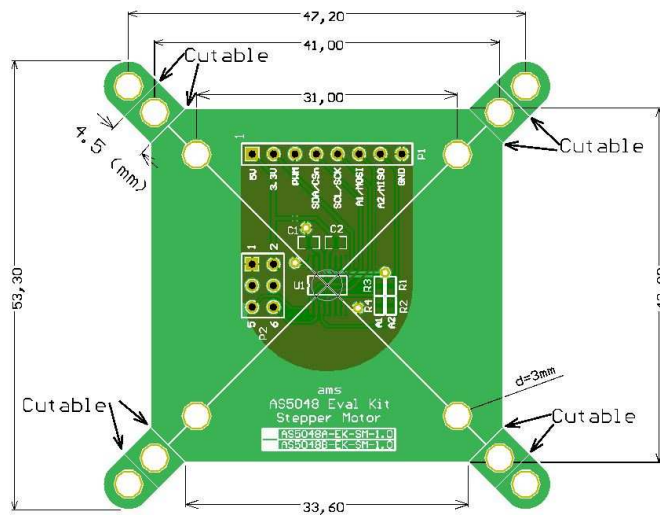
Figure 9:  
Magnet Holder Dimensions



- \*Ø 5mm
- \*Ø 6mm
- \*Ø 8mm
- \*Ø 10mm

Figure 10:  
Layout Dimensions

All values in mm





## 6. Ordering Information

Table 5:  
Ordering Information

| Ordering Code        | Description                                       |
|----------------------|---|
| AS5048A-EK-AB-STM1.0 | AS5048A Eval-Kit Stepper Motor with SPI interface |
| AS5048B-EK-AB-STM1.0 | AS5048B Eval-Kit Stepper Motor with I2C interface |

## Revisions History

| Revision | Date           | Description   |
|----------|----------------|---------------|
| 1.0      | August 6, 2012 | First version |

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