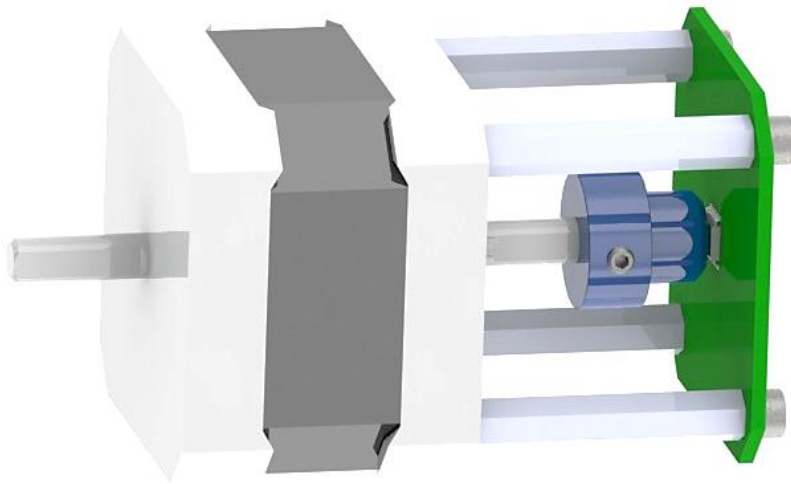




## Operation Manual: AS5145B-EK-AB-STM1.0



# AS5145B Eval-Kit Stepper Motor



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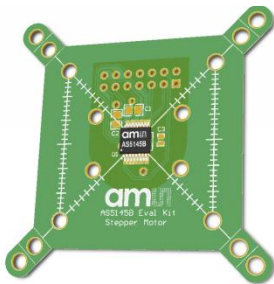
## 1. General Description

The AS5145B 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:

- AS5145B board



- 4 magnet holders



Ø 5mm



Ø 6mm



Ø 8mm

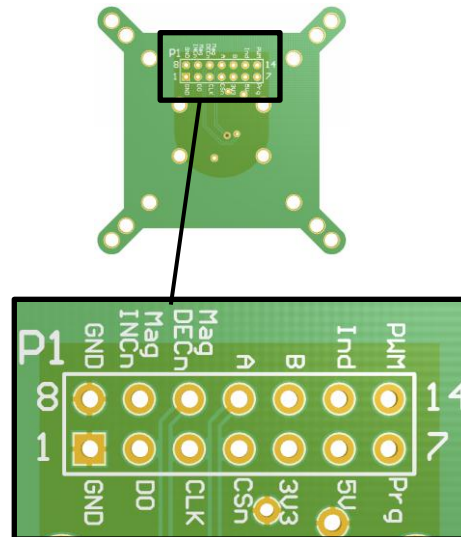


Ø 10mm

- 1 allen key (1.5mm)



- 1 quick start user guide

Figure 1: **Connector**Table 1:  
**Connector pinout**

| Pin | Description | Info                          |
|-----|-------------|-------------------------------|
| 1   | GND         | Ground                        |
| 2   | DO          | Data Output of SSI            |
| 3   | CLK         | Clock Input of SSI            |
| 4   | CSn         | Chip Select                   |
| 5   | 3V3         | 3.3V-Regulator Output.        |
| 6   | 5V          | Positive Supply Voltage.      |
| 7   | Prg         | Programming Input.            |
| 8   | GND         | GND                           |
| 9   | MagINCn     | magnet field status indicator |
| 10  | MagDECn     | magnet field status indicator |
| 11  | A           | Quadrature Output A           |
| 12  | B           | Quadrature Output B           |
| 13  | Ind         | Index Output                  |
| 14  | PWM         | Pulse Width Modulation output |

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

Figure 2:  
5V Power Option

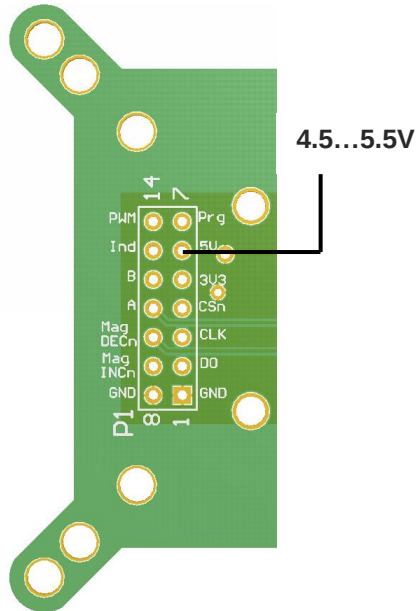
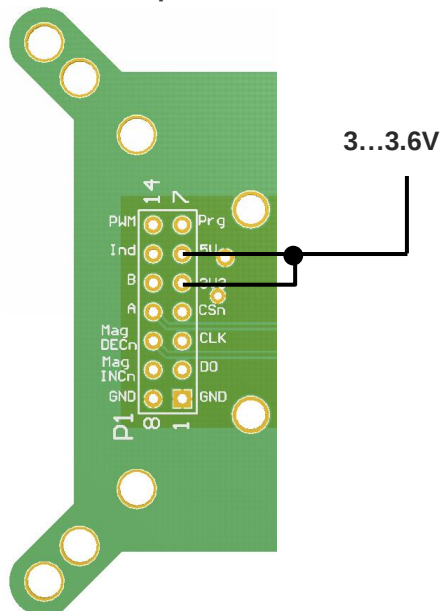


Figure 3:  
3V Power Option



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 |                                                          |                                            |



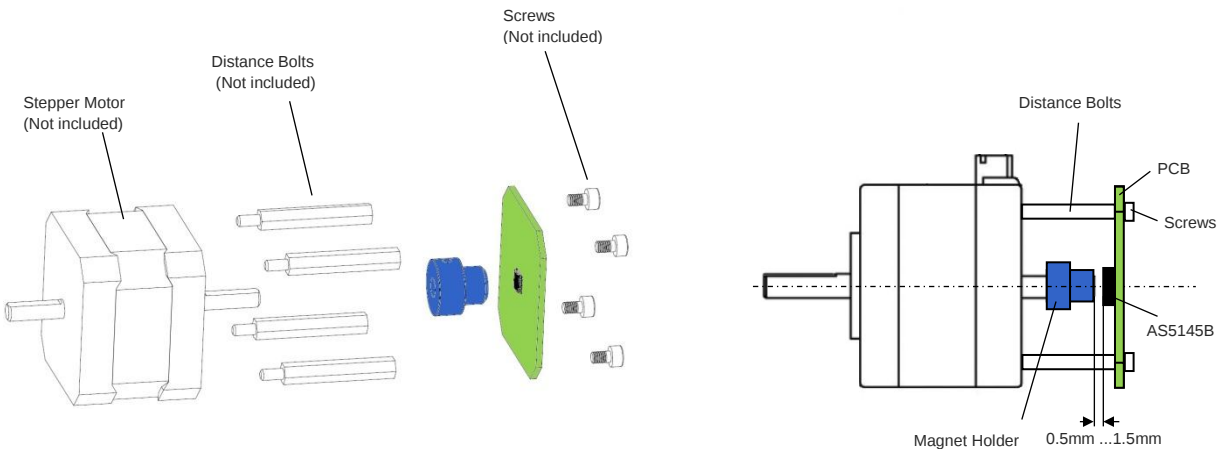
Table 3:  
Used Magnet

| Part Number | Web Page                                                   | Manufacturer                 |
|-------------|------------------------------------------------------------|------------------------------|
| 2910041-1   | <a href="http://www.dexter-mag.com">www.dexter-mag.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 AS5145B Eval-Kit



The AS5145B board can be mounted on double shaft motors. (See figure 4)  
Screws and distance bolts are not included.

5. Schematics, Layout

Figure 5:  
Schematic

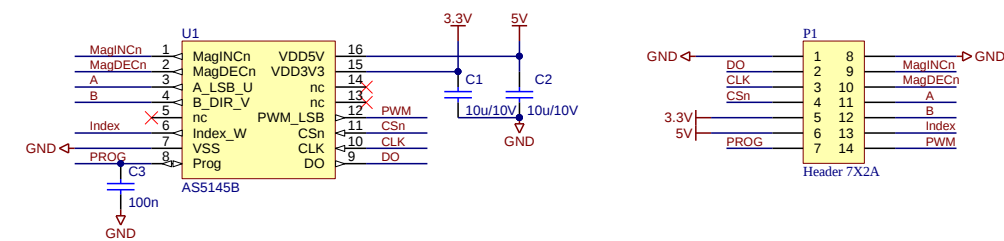


Figure 6:  
Top Layer

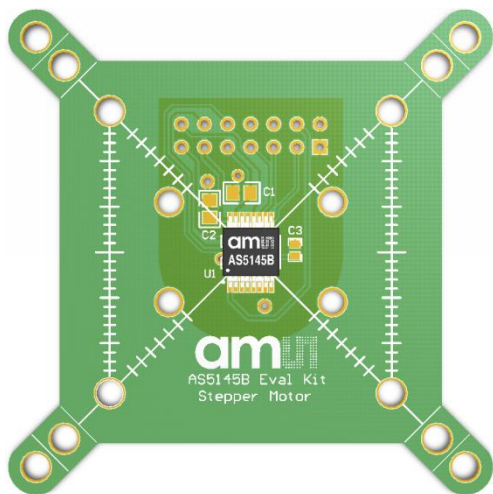


Figure 7:  
Bottom Layer

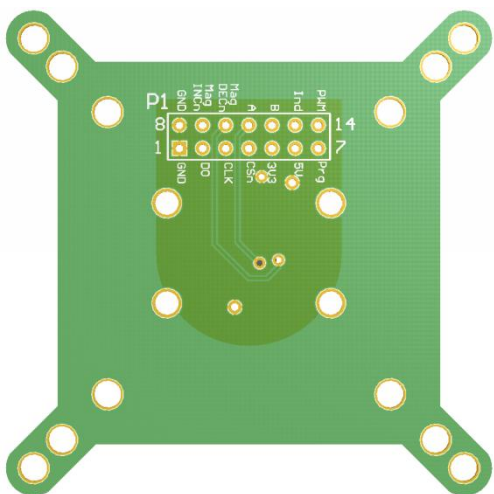
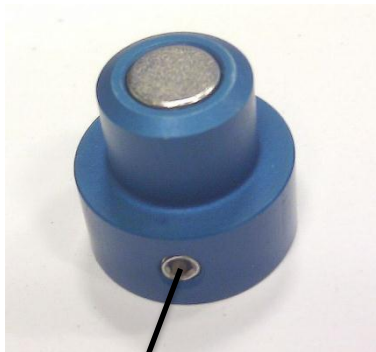


Table 4:  
Bill of Materials

| Pos | Part Number | Reference      |
|-----|-------------|----------------|
| 1   | PCB Board   | PCB1           |
| 2   | U1          | AS5145B        |
| 3   | C1          | 10uF/10V/0805  |
| 4   | C2          | 10uF/10V/0805  |
| 5   | C3          | 100nF/10V/0603 |
| 6   | P1          | 14 Pin Header  |

Figure 8:  
Magnet Holder



Grub screw for fixing  
on the shaft of the  
motor.

Figure 9:  
Magnet Holder Dimensions

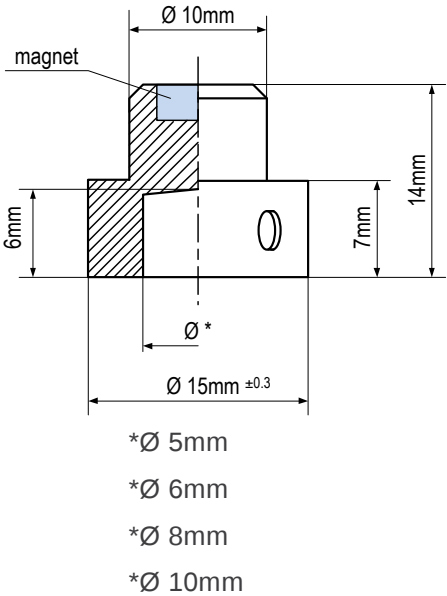
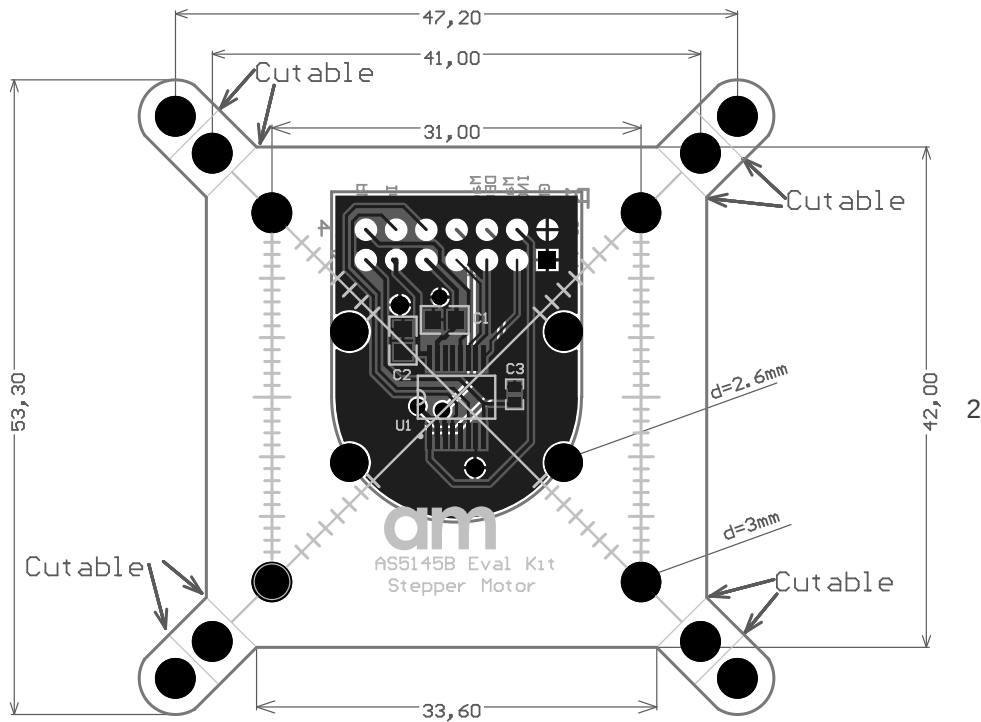


Figure 10:  
Layout Dimensions



## 6. Ordering Information

Table 5:  
**Ordering Information**

| Ordering Code        | Description                                       |
|----------------------|---------------------------------------------------|
| AS5145B-EK-AB-STM1.0 | AS5145B Eval-Kit Stepper Motor with ABI, SSI, PWM |

## Revisions History

| Revision | Date            | Description                 |
|----------|-----------------|-----------------------------|
| 1.0      | August 6, 2012  | First version               |
| 1.1      | Januar 23, 2014 | Updated to new board design |

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## Contact Information

### Headquarters

ams AG  
Tobelbader Strasse 30  
8141 Unterpremstaetten  
Austria  
T. +43 (0) 3136 500 0

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