



Eval Kit Manual

AS5170

Adapter Board

AS5170-SO_EK_AB

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Revision History

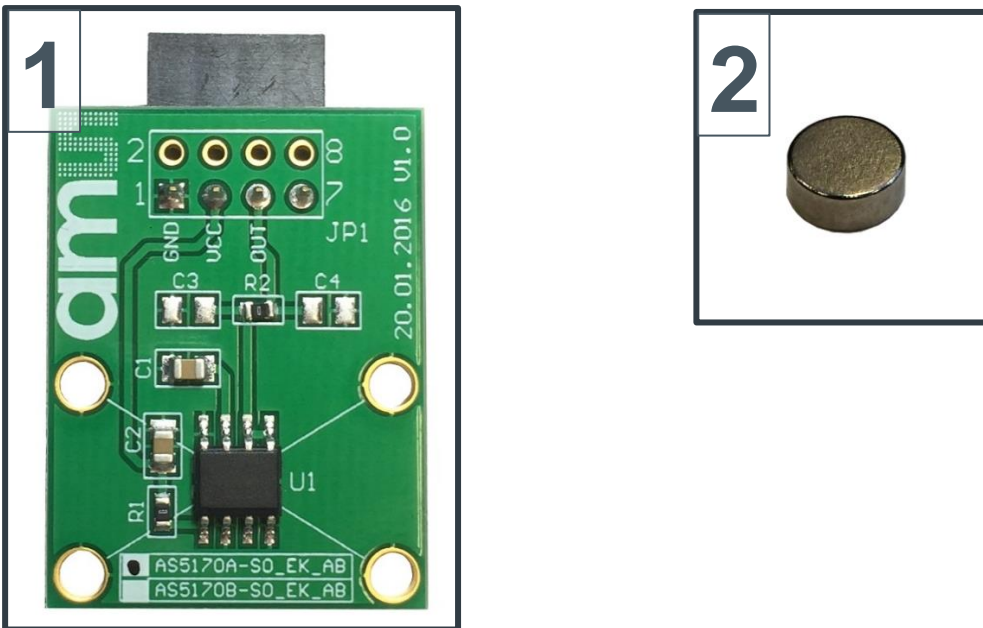
| Revision | Date | Owner | Description |
|----------|------------|-------|-----------------|
| 1.0 | 26.06.2016 | mzie | Initial version |

1 Introduction

The AS5170 adapter board is a small PCB allowing simple and quick testing or evaluation of the AS5170 magnetic position sensor without the need to design and manufacture an own PCB.

1.1 Kit Content

Figure 1: Kit content



| Pos. | Item | Comment |
|------|-----------------|---|
| 1 | AS5170-SO_EK_AB | Adapter board |
| 2 | AS5000-MD8H-1 | Diametric Magnet, D8x2.5mm, NdFeB, Bomatec AG |

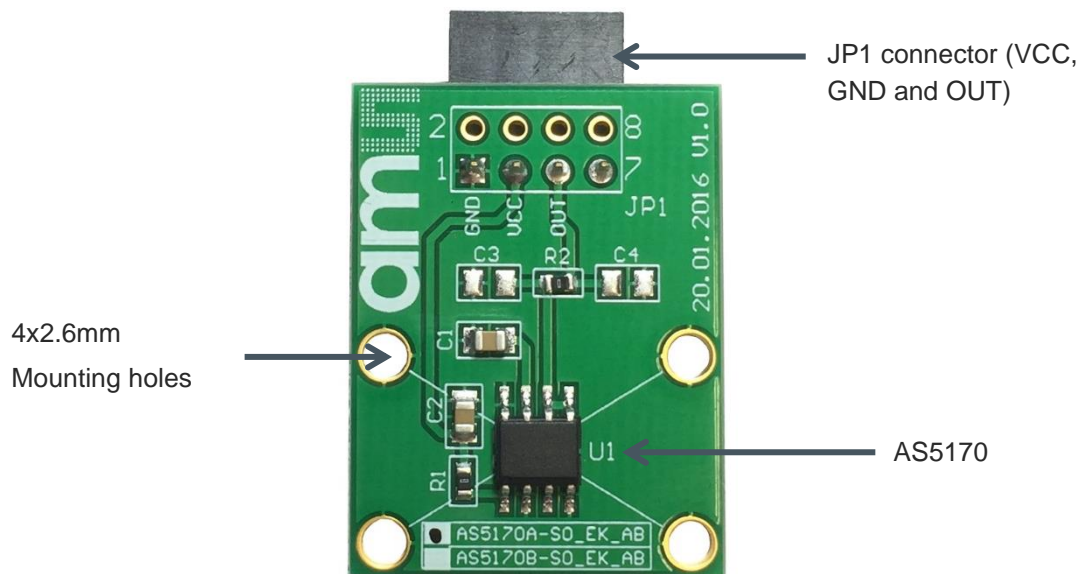
2 Board description

The PCB can be connected to an external microcontroller or to the AS5xxx-EK-USB-PB UART Programmer which can be used in combination with the AS5170 Software GUI provided by ams AG.

JP1 is populated with a 1x4 female pin header it is required for the power supply (VCC and GND) and output (OUT). This connector directly fits to the UART Programmer.

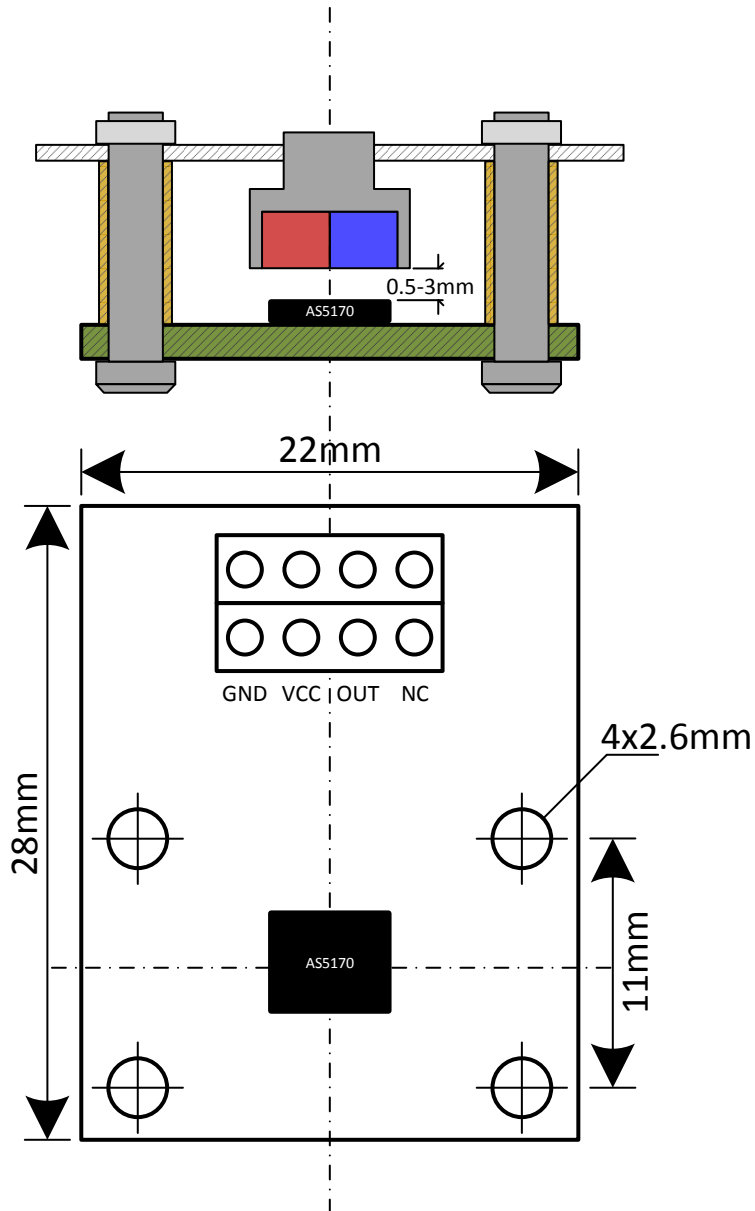
All necessary external components C1 (VDD3V3-GND) and C2 (VDD-GND) are already populated to the PCB.

Figure 2: AS5170 adapter board



2.1 Mounting the AS5170 adapter board

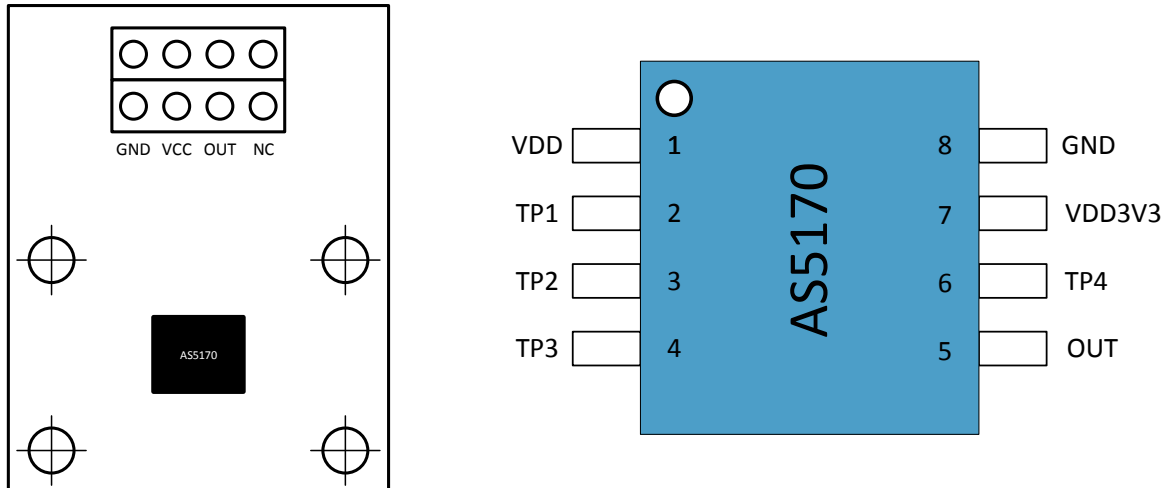
Figure 3: Mounting and dimensions



A 8x2.5mm diametric magnet must be placed over or under the AS5170 sensor, and should be centered in the middle of the package with a tolerance of 0.5mm. The airgap between the magnet surface and the package should be maintained in the range 0.5mm to 3mm. The magnet holder must not be ferromagnetic. Materials as brass, copper, aluminum, stainless steel are the best choices to make this part.

3 AS5170 adapter board and pinout

Figure 4: AS5170 adapter board and sensor pinout



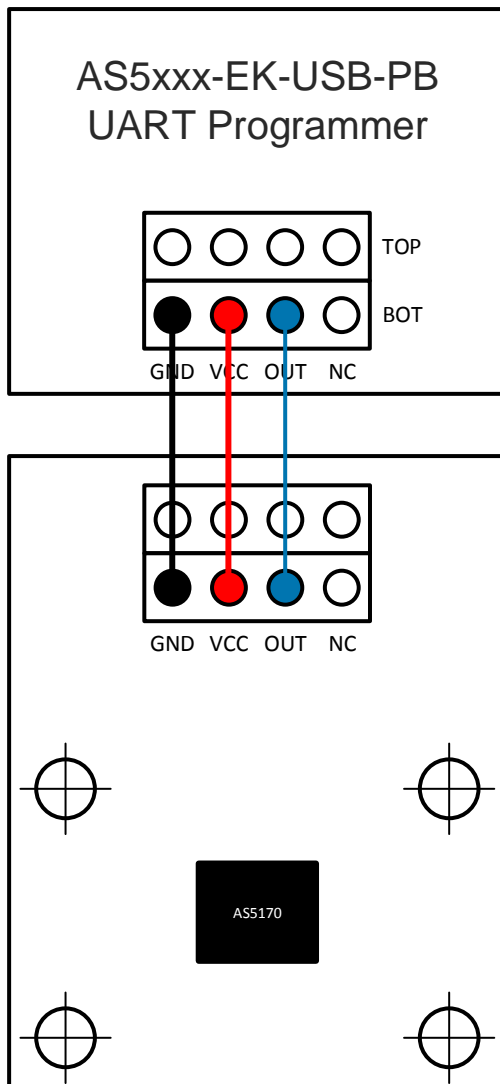
| Pin# Board | Pin# AS5170 | Symbol board | Type | Description |
|------------|-------------|--------------|--------------------------|-------------------------------------|
| JP1 - 1 | 8 | GND | Power supply | Ground |
| JP1 - 2 | | NC | | |
| JP1 - 3 | 1 | VCC | Power supply | Positive supply voltage |
| JP1 - 4 | | NC | | |
| JP1 - 5 | 5 | OUT | Analog or digital output | Output (UART in communication mode) |
| JP1 - 6 | | NC | | |
| JP1 - 7 | | NC | | |
| JP1 - 8 | | NC | | |

4 Operation case

4.1 Connection to AS5xxx-EK-USB-PB UART Programmer

The AS5170 adapter board can be directly connected to the AS5xxx-EK-USB-PB UART Programmer using only 3 lines (VDD, GND and OUT). The voltage supply is coming directly from the programmer which can either be supplied directly via 5V from USB or externally. The UART communication is taking place over the OUT pin. The necessary pull-up resistor is already in place on the programmer PCB. For AS5170 always use the BOT (bottom) connector of the programmer as shown in figure below.

Figure 5: One device SPI mode, unidirectional – 3 wire

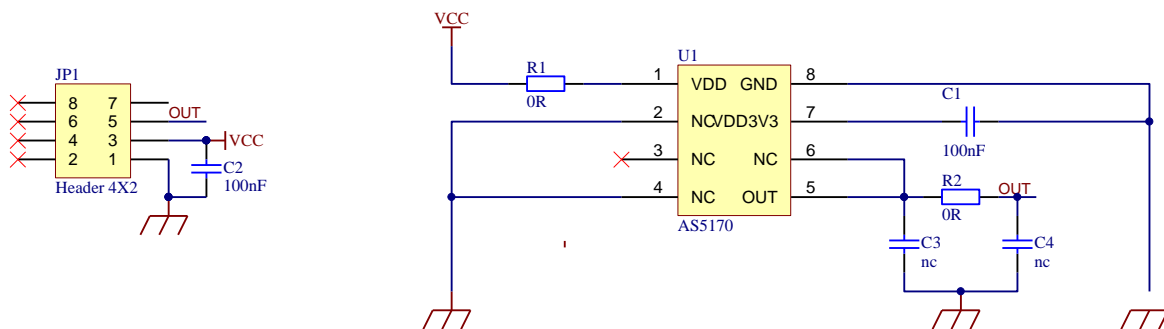


5 AS5170-SO_EK_AB Hardware

5.1 AS5170-SO_EK_AB schematics

The PCB schematic is shown in Figure 6: Schematics.

Figure 6: Schematics



5.2 AS5170-SO_EK_AB PCB layout

The PCB layout is shown in Figure 7: Top Layer and Figure 8: Bottom Layer.

Figure 7: Top Layer

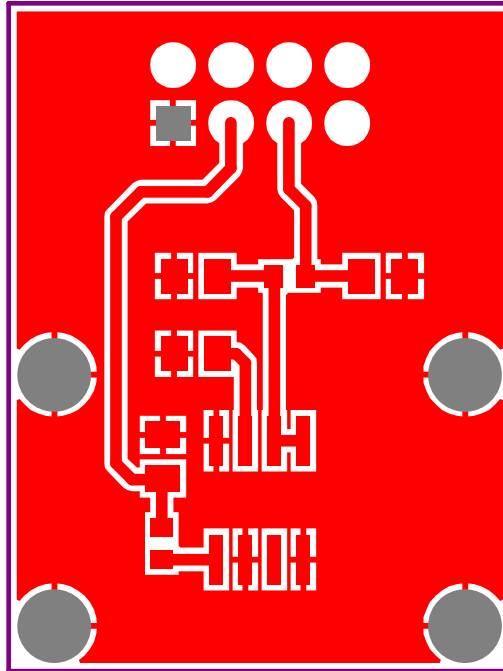
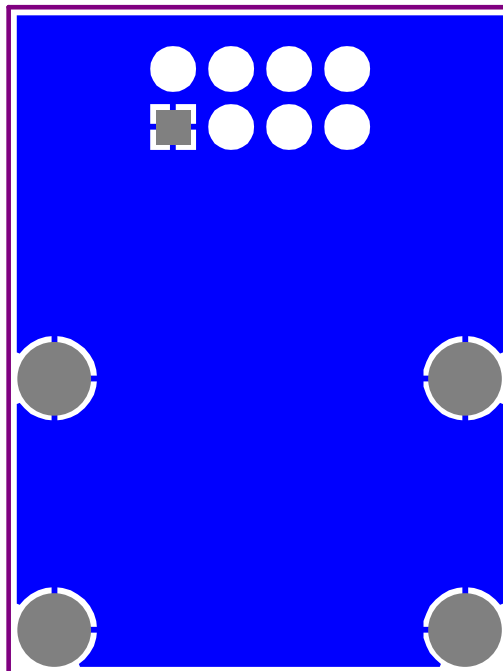


Figure 8: Bottom Layer



6 Ordering & Contact Information

| Ordering Code | Description |
|-----------------|-------------------------------|
| AS5170-SO_EK_AB | AS5170 Eval Kit Adapter Board |

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