Eval Kit Manual

AS5115

Adapter Board

AS5115-AB

Table of Contents

Revision History

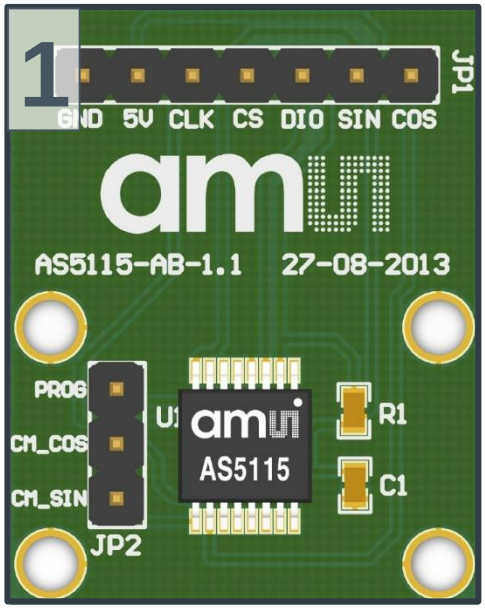
Revision	Date	Owner	Description
1.0	05.03.2010		Initial version
1.1	10.12.2014	mzie	Updated to new corporate template

1 Introduction

The AS5115 adapter board is a small PCB allowing simple and quick testing or evaluation of the AS5115 magnetic position sensor without the need to build a test fixture or design an own PCB.

1.1 Kit Content

Figure 1: Kit content



Pos.	Item	Comment
1	AS5115-AB	Adapter board

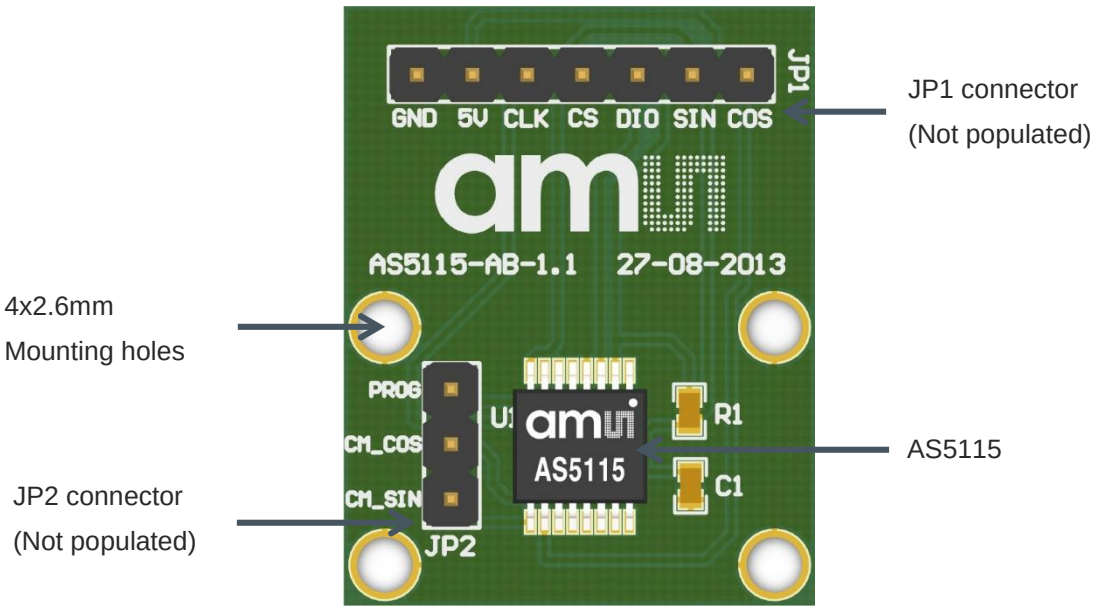
2 Board description

JP1 has to be populated with a 1x8 pin header and is required for power supply as well as programming and signal output.

The connector JP2 provides acces to PROG, CM_COS and CM_SIN.

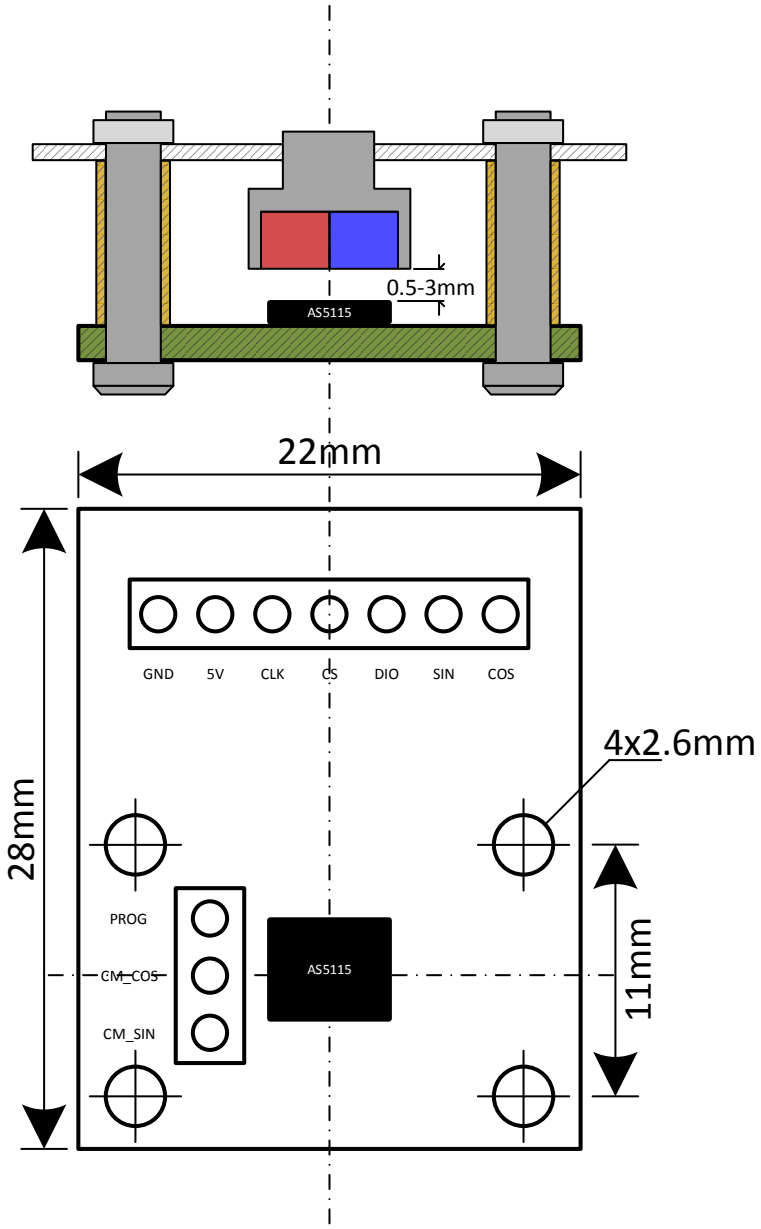
Resistor R1 (100k) is used as Pull-up on CS pin and capacitor C1 (2.2uF) is placed between VDD and GND.

Figure 2: AS5115 adapter board



2.1 Mounting the AS5115 adapter board

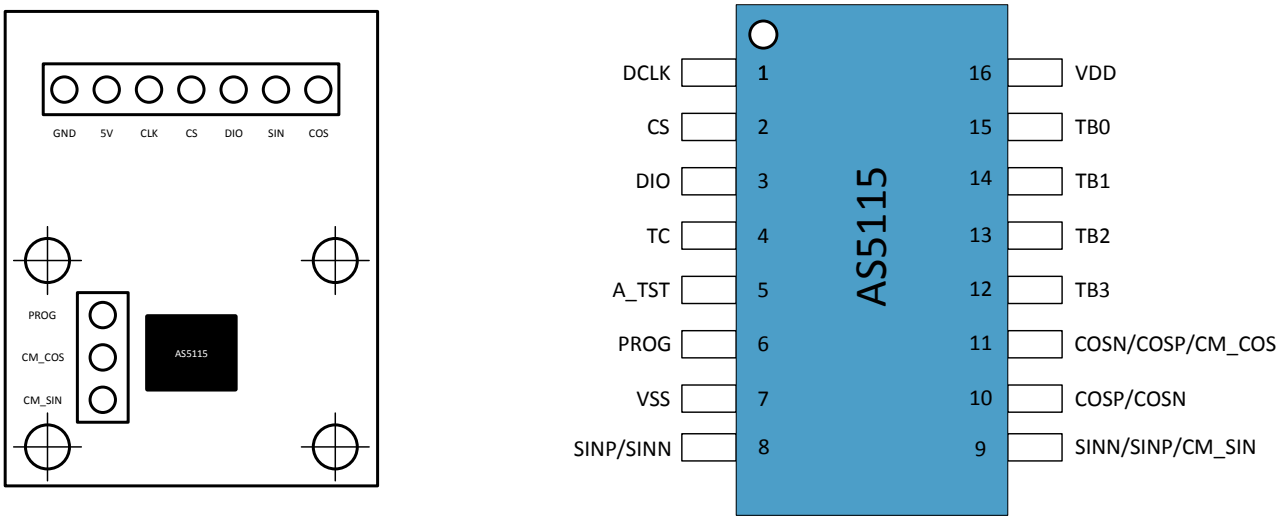
Figure 3: Mounting and dimensions



A 6x2.5mm diametric magnet must be placed over or under the AS5115 sensor, and should be centered on 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 AS5115 adapter board and pinout

Figure 4: AS5115 adapter board and sensor pinout



Pin# Board	Pin# AS5115	Symbol board	Type	Description
JP1 - 1	7	GND	Power supply	Ground
JP1 - 2	16	5V	Power supply	Positive supply voltage
JP1 - 3	1	CLK	Digital input	Clock for digital interface
JP1 - 4	2	CS	Digital input	Chip select for digital interface (active low)
JP1 - 5	3	DIO	Digital input	Data I/O for digital interface
JP1 - 6	8	SIN	Digital input	Switchable buffered analog outputs
JP1 - 7	10	COS	Analog output	Switchable buffered analog outputs
JP2 - 1	6	PROG	Power supply	OTP programming pad
JP2 - 2	11	CM_COS	Analog output	Switchable buffered analog outputs
JP2 - 3	9	CM_SIN	Analog output	Switchable buffered analog outputs

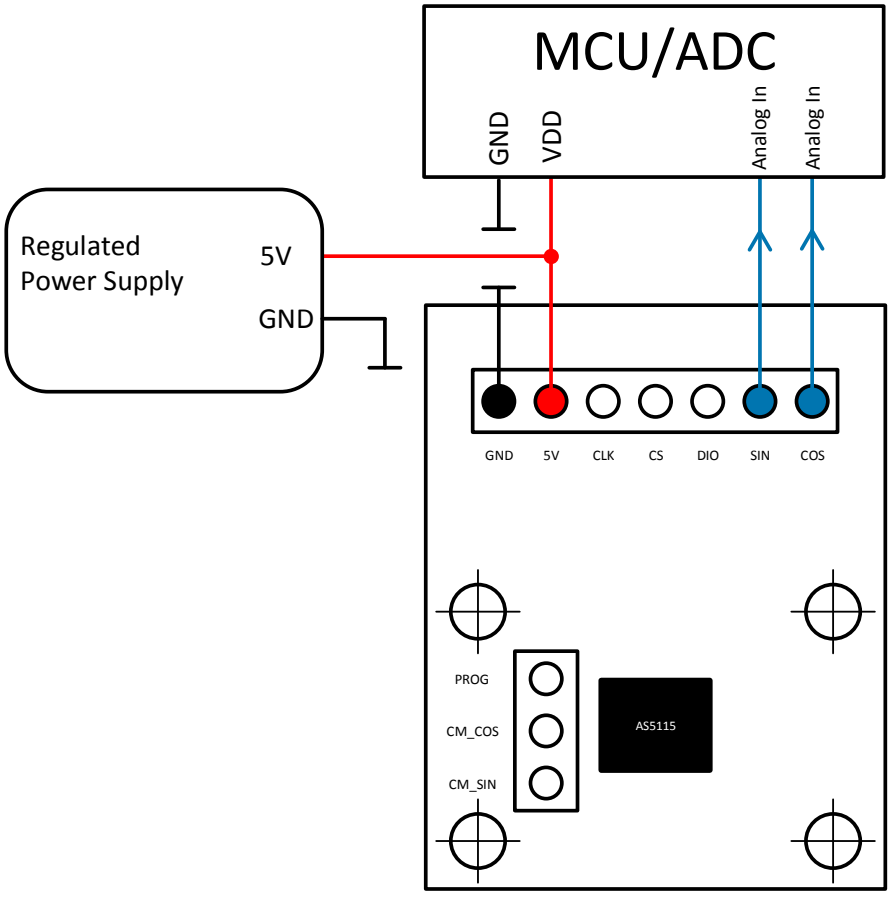
4 Operation case

4.1 Standalone sine-cosine output

The AS5115 provides analog Sine and Cosine outputs (JP1 – 6 and JP1 – 7). These outputs allow the user to perform the angle calculation by an external ADC + µC, e.g. to compute the angle with a high resolution. The signal lines should be as short as possible, longer lines should be shielded in order to achieve best noise performance. Through the programming of one bit, you have the possibility to choose between the analog Sine and Cosine outputs (SINP, COSP) and their inverted signals (SINN, COSN). Furthermore, by programming the bits <9:10> you can enable the common mode output signals of SIN and COS (JP2 – 2 and JP – 3). The DC bias voltage is 1.5 or 2.5 V.

For further information, please refer to datasheet.

Figure 5: Standalone sine-cosine output

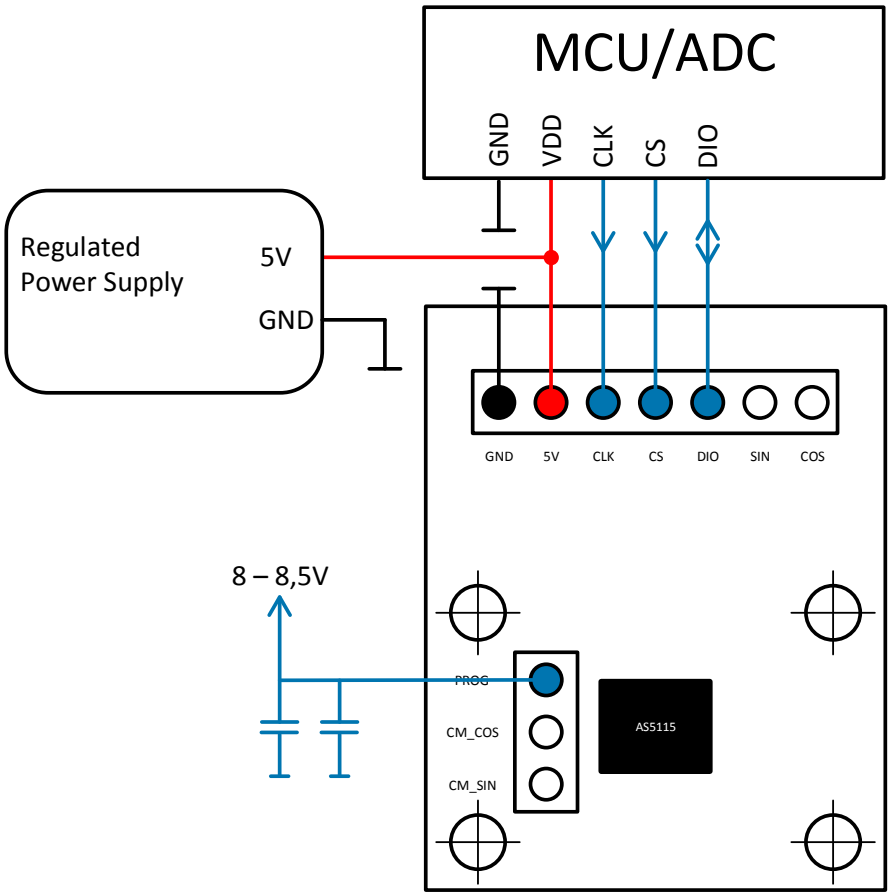


4.2 Programming of the AS5115

For programming of the OTP, an additional voltage has to be applied to the pin PROG. It has to be buffered by a fast 100nF capacitor (ceramic) and a 10µF capacitor (as close as possible to PROG pin). Programming of the AS5115 OTP memory does not require a dedicated programming hardware. The programming can be simply accomplished over the serial 3-wire interface. For permanent programming (command PROG OTP, #25), a constant DC voltage of 8.0 – 8.5V (=100mA) must be connected to PROG. For temporary OTP write (“soft write”; command WRITE OTP, #31), the programming voltage is not required.

For further information, please refer to datasheet.

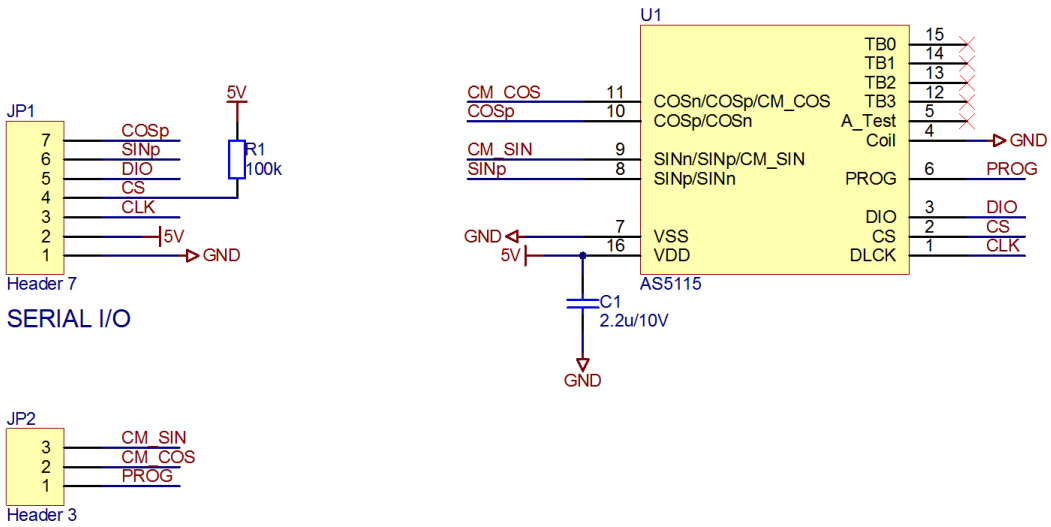
Figure 6: Programming of the AS5115



5 AS5115-AB Hardware

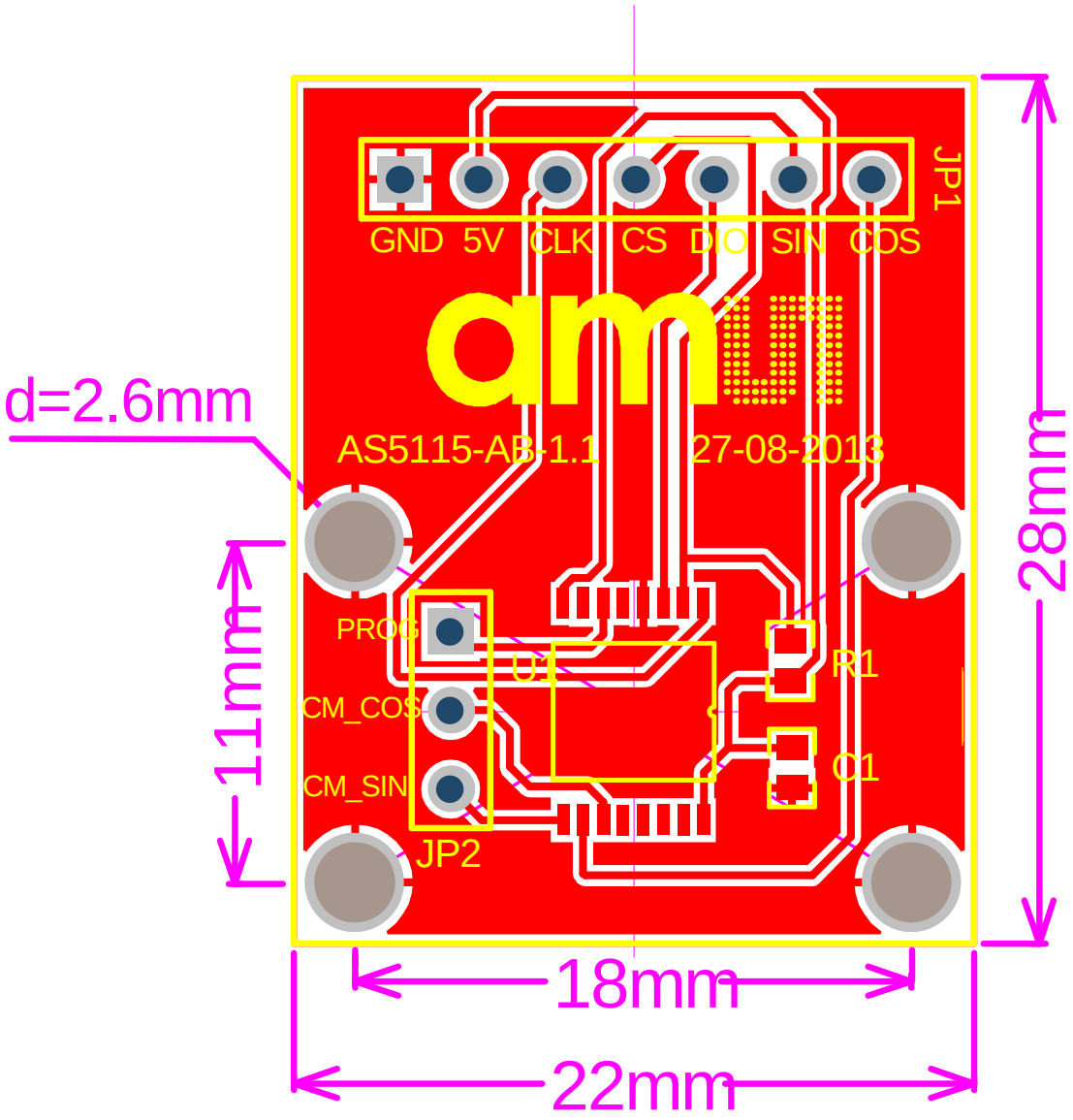
5.1 AS5115-AB schematics

Figure 7: AS5115-AB schematics



5.2 AS5115-AB PCB layout

Figure 8: AS5115-AB PCB layout



6 Ordering & Contact Information

Ordering Code	Description
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