

# Product Document



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**is now**

**ams AG**

The technical content of this austriamicrosystems document is still valid.

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## 1 AS5048 Demoboard

The AS5048 Demoboard is a complete rotary encoder system with built-in microcontroller, USB interface and graphical LCD display.

The board is USB powered or externally supplied with a 9V battery for standalone operation.

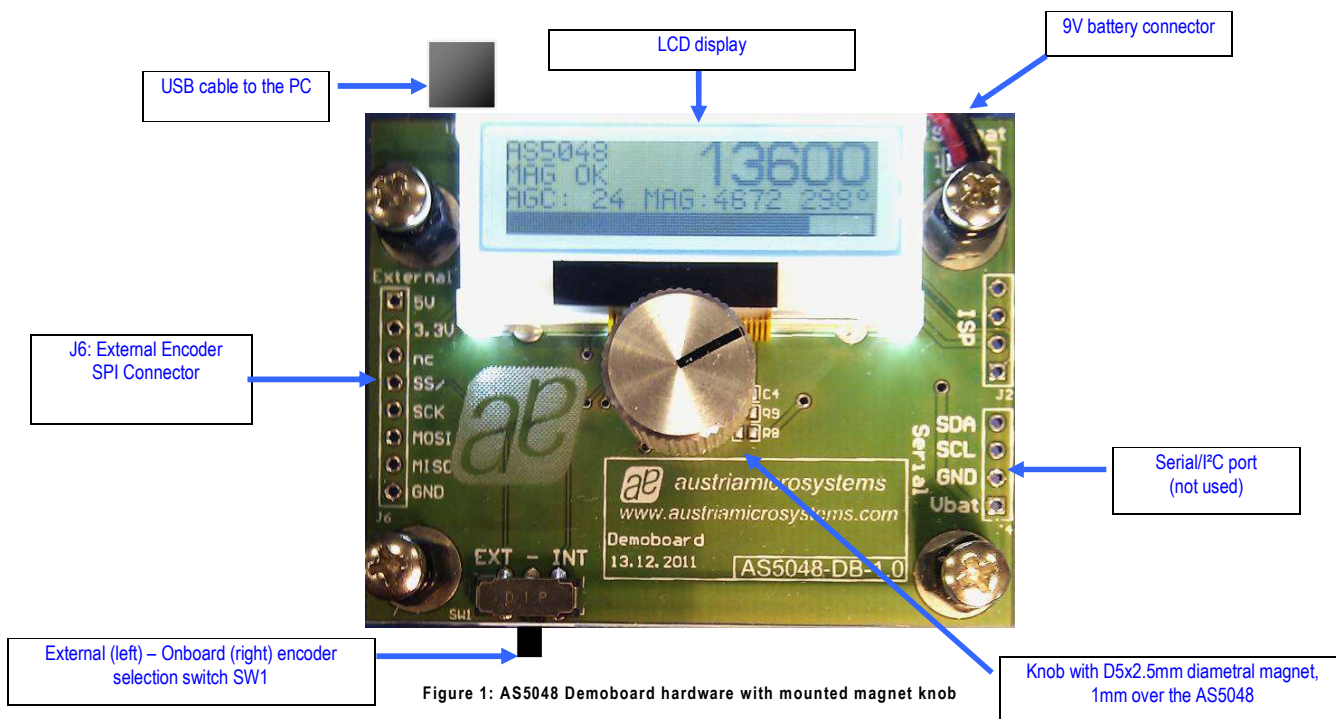


Figure 1: AS5048 Demoboard hardware with mounted magnet knob

## 2 Operating the AS5048 Demoboard

The AS5048 Demoboard can be used in several ways:

- **As standalone unit supplied by a 9V battery**

Connect a 9V battery to the battery connector on the top right side of the board. No other connections are required.

- **As standalone unit supplied by an USB port**

Connect the Demoboard to a PC using a USB cable (included in Demoboard shipment). The board is supplied by the 5V supply of the USB port. No other connections are required.

After installation of the AS5xxx Evaluation software (available on our AMS website) .



Figure 2 Graphical user interface

Hardware Indicators and Connectors

2.1.1 Graphic LCD display

The LCD display shows the realtime absolute angle position of the magnet and the absolute value of the angle. Turning the knob clockwise will increase the angle value until 359° then 0°.

The magnet status indicator is related to the magnet position. If the magnet is too close to the encoder, "TOO CLOSE" will be displayed. If the magnet is too far away from the encoder, "TOO FAR" will be displayed.

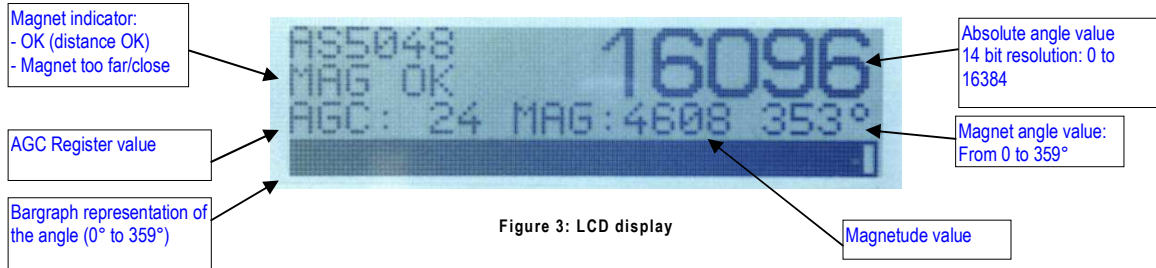


Figure 3: LCD display

2.1.2 Encoder selection switch

The switch SW1 selects the encoder which communicates with the microcontroller through the SSI bus:

1. Right position (default): Onboard AS5048
2. Left Position: External AS5048 connected on J6  
 The signals of the synchronous serial interface (MOSI, MISO, SCK, SS/) and the power supply (3.3V, GND) of an external device can be connected directly to J6. In this configuration, the data of the serial interface are displayed on the LCD.

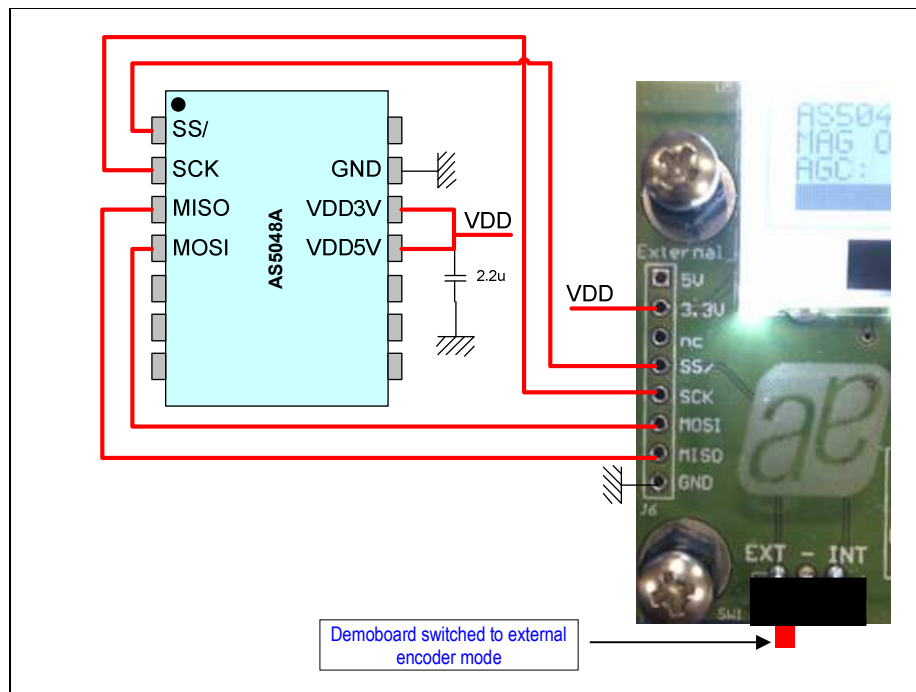


Figure 4: external AS5048 connection to the demoboard

### 3 AS5048 Demoboard, Schematics, block diagram

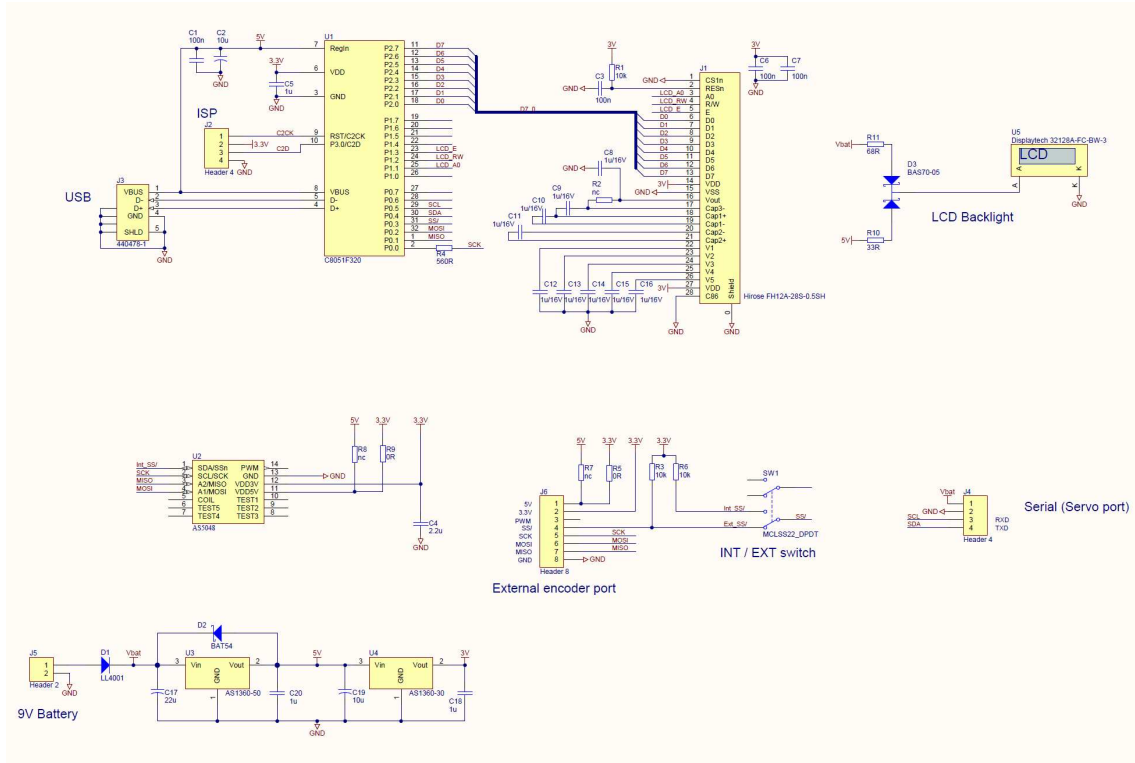


Figure 5: AS5048 Demoboard schematics

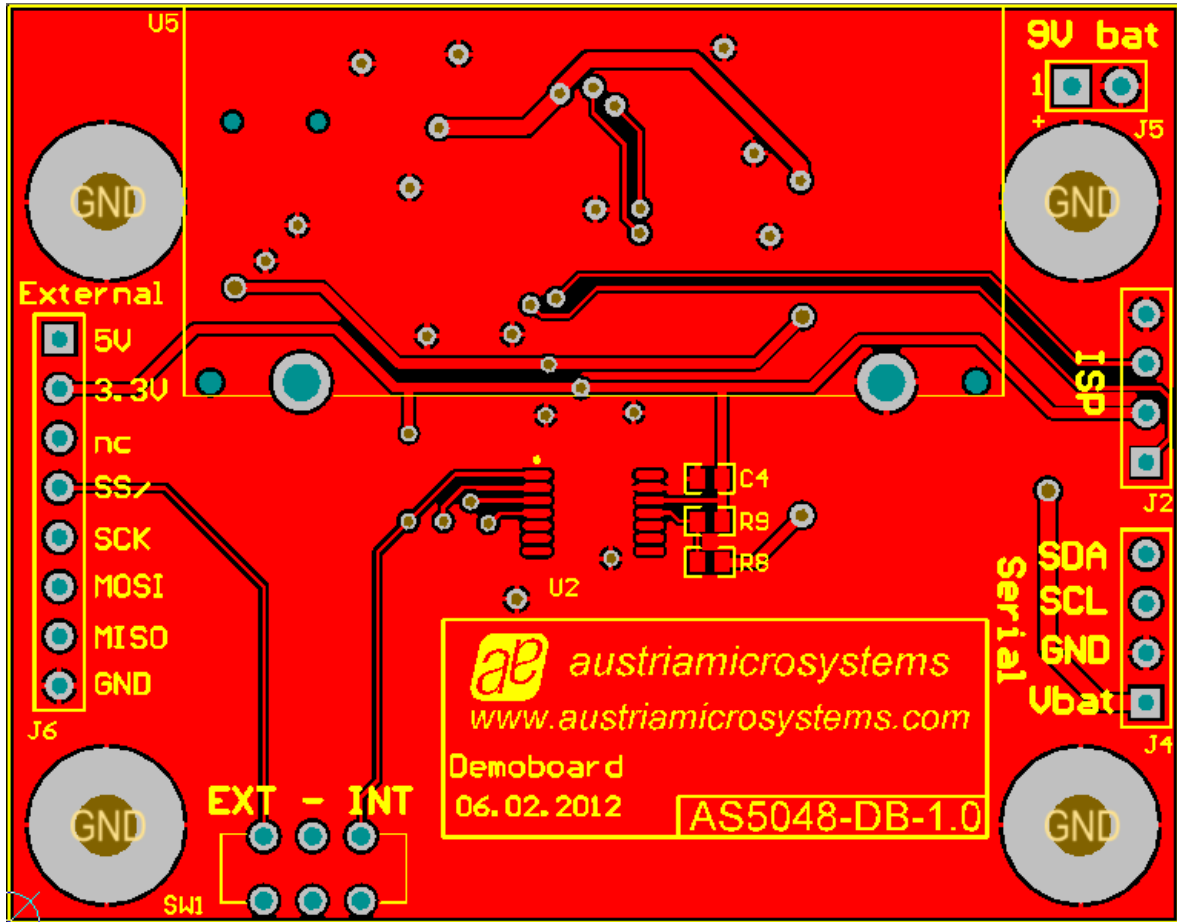


Figure 6: AS5048 Demoboard PCB Layout

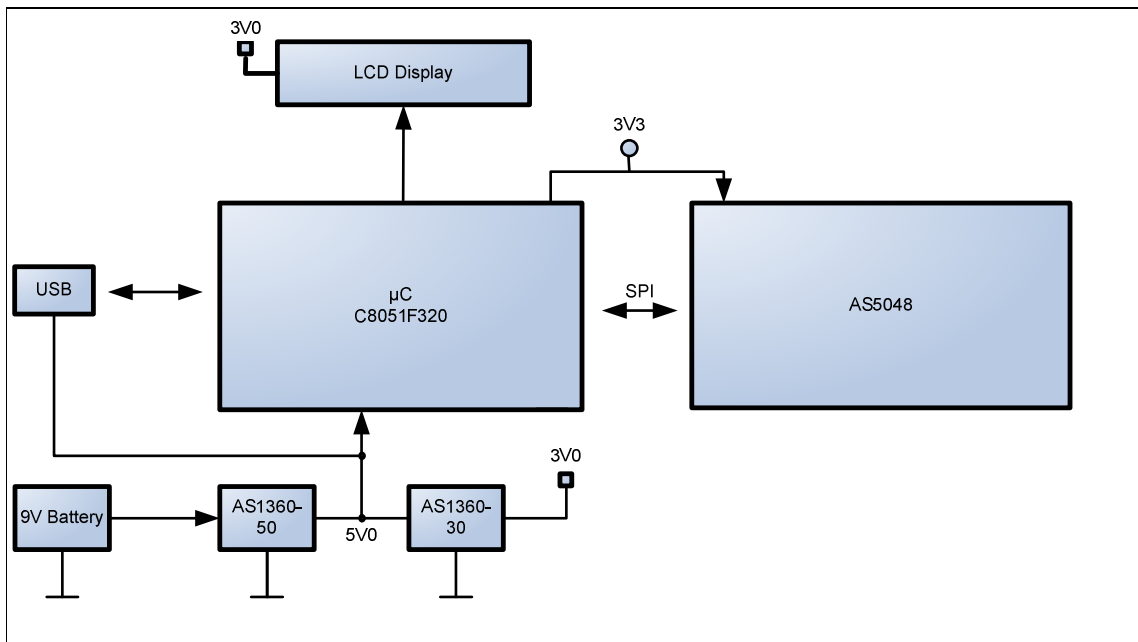


Figure 7: AS5048 block diagram

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**Revision History**

Revision	Date	Description	
R1.0	January 9, 2012	First version	

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