



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





**austriamicrosystems AG**

**is now**

**ams AG**

The technical content of this austriamicrosystems document is still valid.

**Contact information:**

**Headquarters:**

ams AG

Tobelbader Strasse 30

8141 Premstaetten, Austria

Tel: +43 (0) 3136 500 0

e-Mail: [ams\\_sales@ams.com](mailto:ams_sales@ams.com)

Please visit our website at [www.ams.com](http://www.ams.com)

## 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.

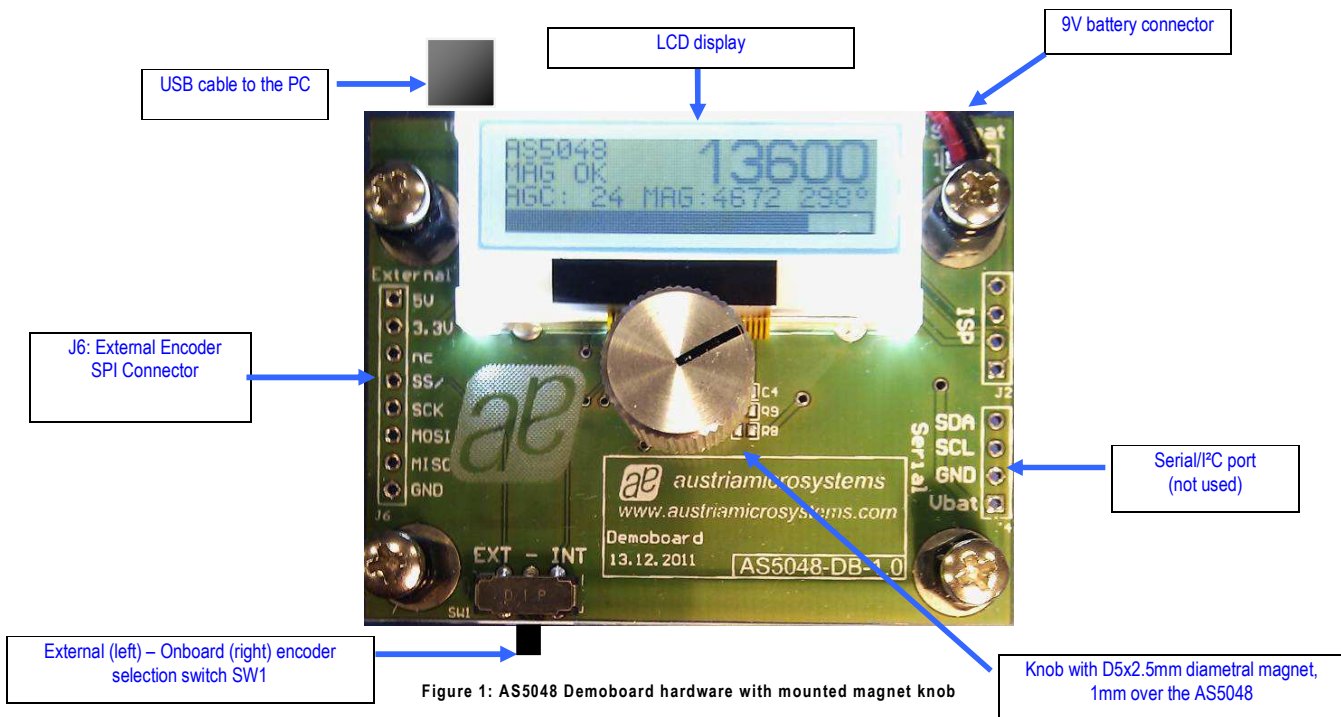


Figure 1: AS5048 Demoboard hardware with mounted magnet knob



## 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) .

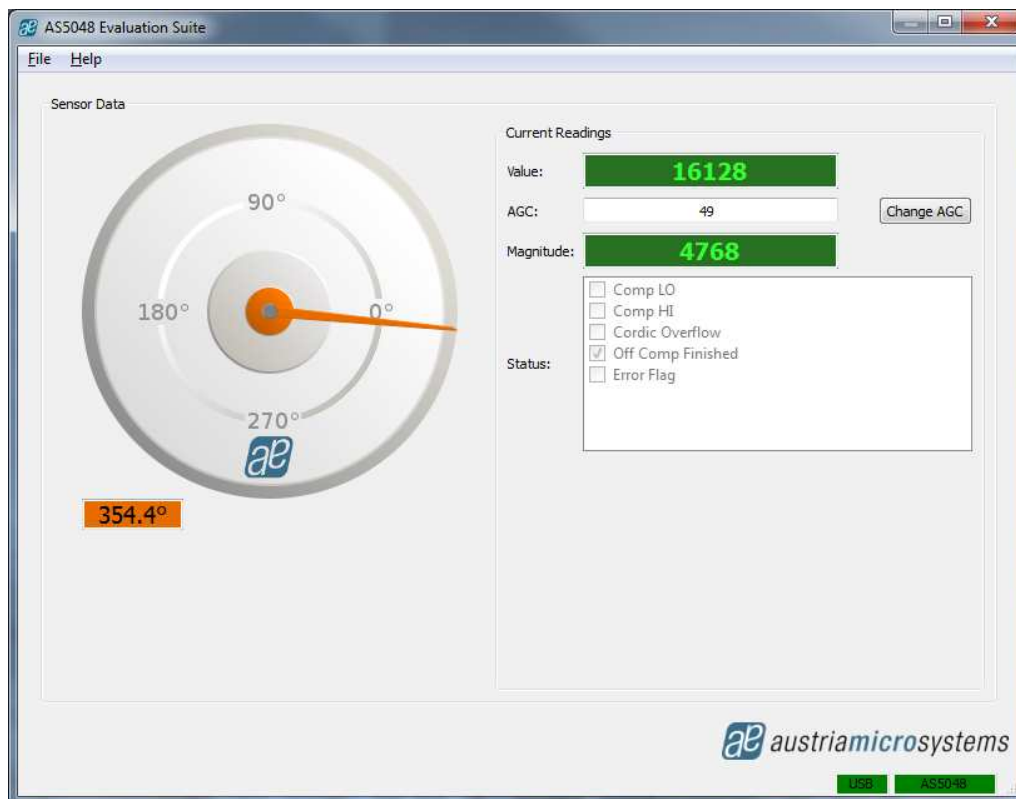


Figure 2 Graphical user interface

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.

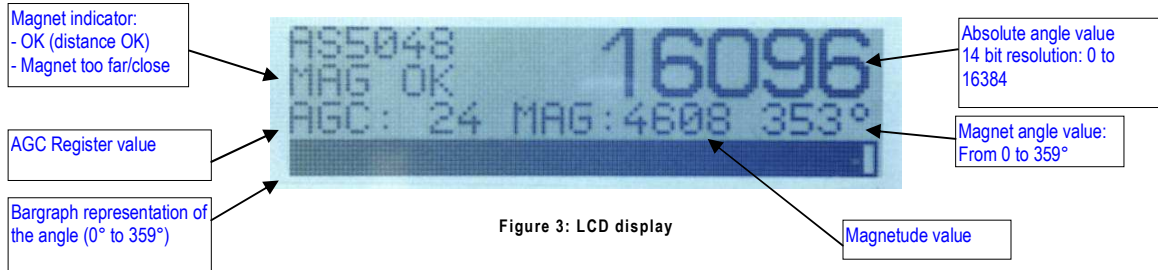


Figure 3: LCD display

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.

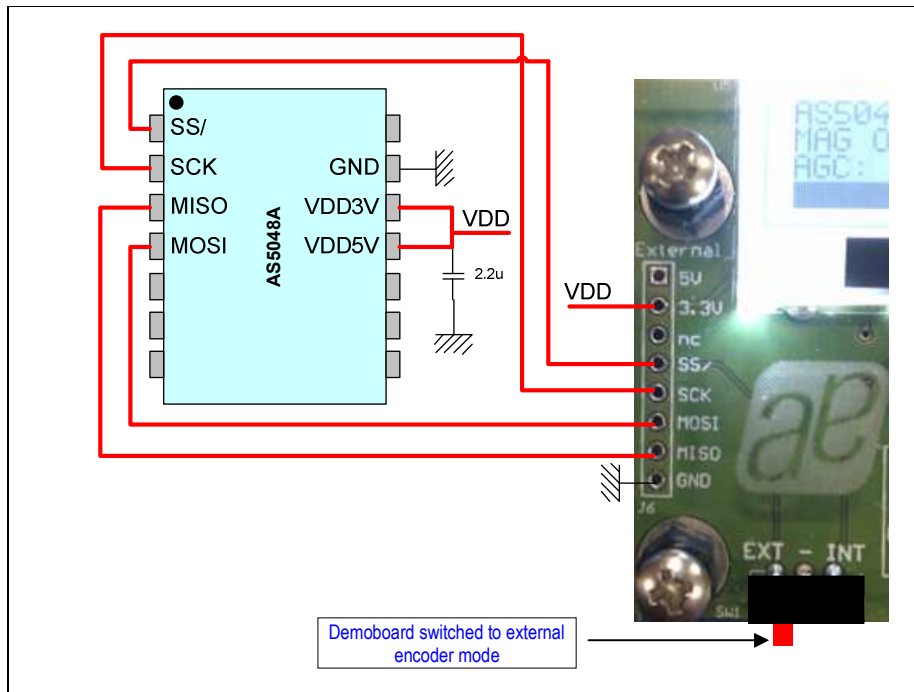


Figure 4: external AS5048 connection to the demoboard

### 3 AS5048 Demoboard, Schematics, block diagram

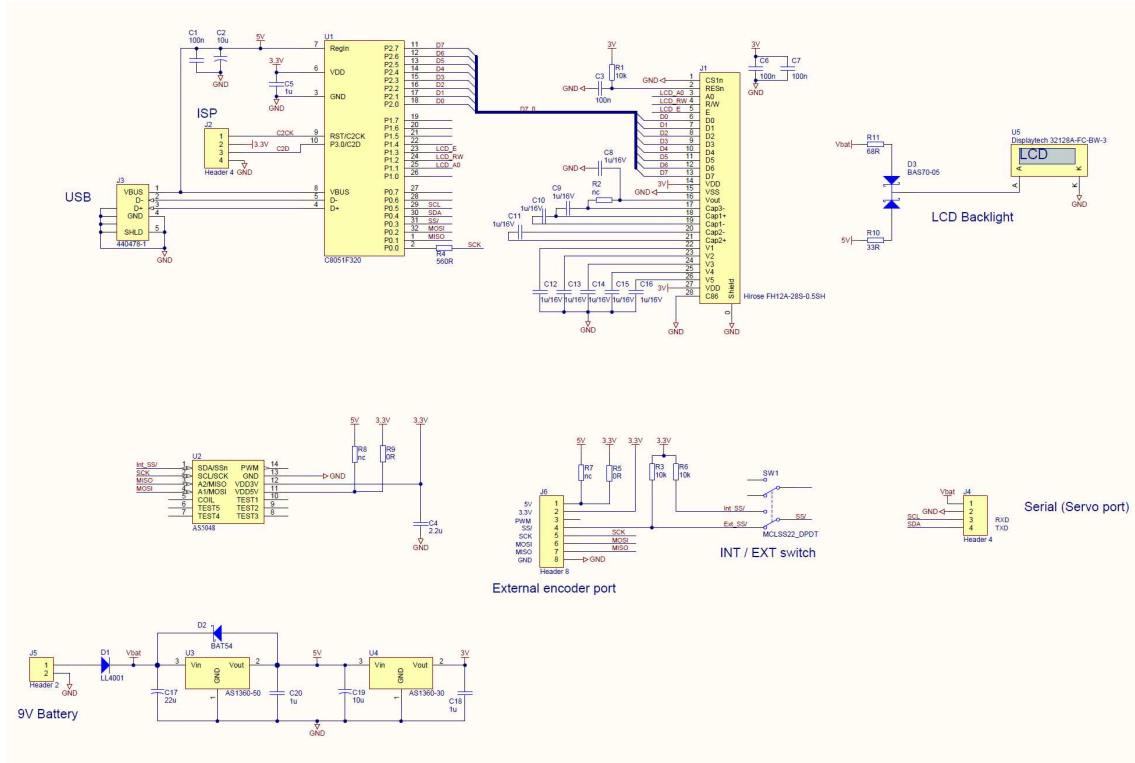


Figure 5: AS5048 Demoboard schematics

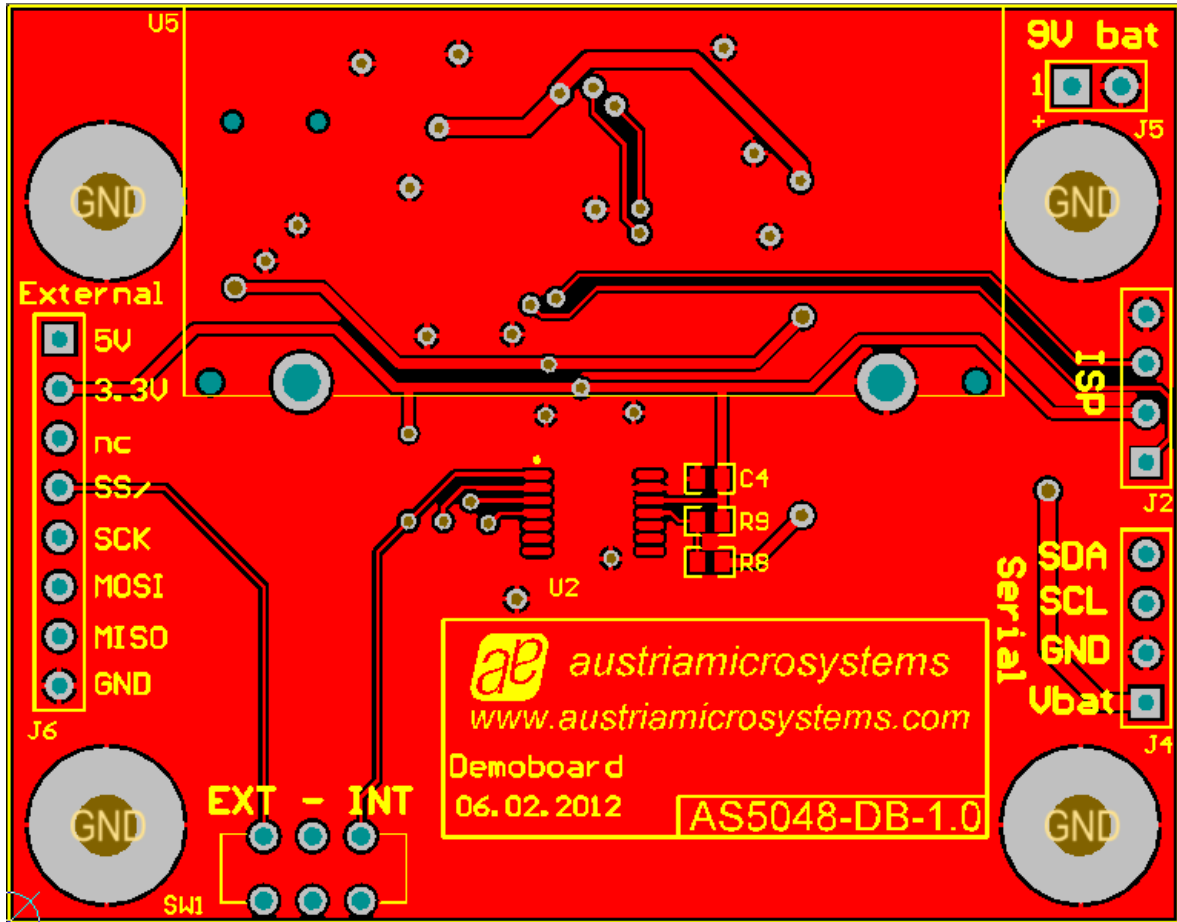


Figure 6: AS5048 Demoboard PCB Layout

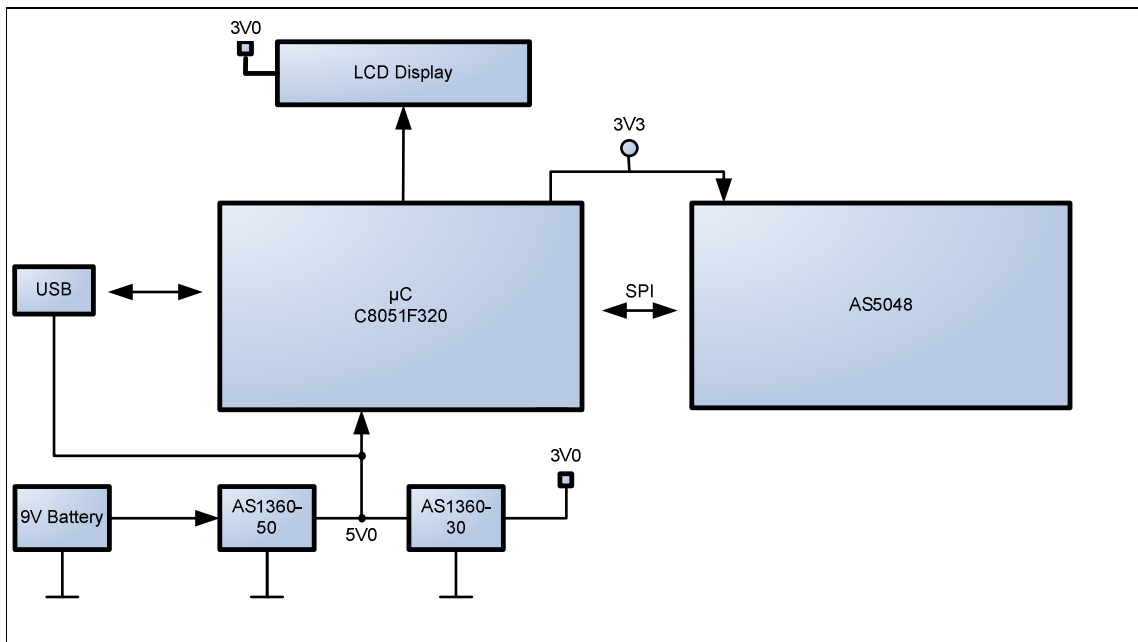


Figure 7: AS5048 block diagram

**Index**

|       |   |   |
|-------|---|---|
| 1     | AS5048 Demoboard .....                            | 1 |
| 2     | Operating the AS5048 Demoboard .....              | 2 |
| 2.1.1 | Graphic LCD display .....                         | 3 |
| 2.1.2 | Encoder selection switch .....                    | 3 |
| 3     | AS5048 Demoboard, Schematics, block diagram ..... | 4 |
|       | Index.....  | 6 |
|       | Revision History .....                            | 7 |
|       | Contact .....                                     | 8 |
|       | Copyright .....                                   | 9 |



**Revision History**

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

## Contact

### Headquarters

austriamicrosystems AG  
 A 8141 Schloss Premstätten, **Austria**  
 Phone: +43 3136 500 0  
 Fax: +43 3136 525 01  
[industry.medical@austriamicrosystems.com](mailto:industry.medical@austriamicrosystems.com)  
[www.austriamicrosystems.com](http://www.austriamicrosystems.com)

### Sales Offices

austriamicrosystems Germany GmbH  
 Tegemseer Landstrasse 85  
 D-81539 München, **Germany**  
 Phone: +49 89 69 36 43 0  
 Fax: +49 89 69 36 43 66

austriamicrosystems Italy S.r.l.  
 Via A. Volta, 18  
 I-20094 Corsico (MI), **Italy**  
 Phone: +39 02 4586 4364  
 Fax: +39 02 4585 773

austriamicrosystems France S.A.R.L.  
 124, Avenue de Paris  
 F-94300 Vincennes, **France**  
 Phone: +33 1 43 74 00 90  
 Fax: +33 1 43 74 20 98

austriamicrosystems Switzerland AG  
 Rietstrasse 4  
 CH 8640 Rapperswil, **Switzerland**  
 Phone: +41 55 220 9008  
 Fax: +41 55 220 9001

austriamicrosystems UK, Ltd.  
 88, Barkham Ride,  
 Finchampstead, Wokingham  
 Berkshire RG40 4ET, **United Kingdom**  
 Phone: +44 118 973 1797  
 Fax: +44 118 973 5117

austriamicrosystems AG  
 Klaavuntie 9 G 55  
 FI 00910 Helsinki, **Finland**  
 Phone: +358 9 72688 170  
 Fax: +358 9 72688 171

austriamicrosystems AG  
 Bivågen 3B  
 S 19163 Sollentuna, **Sweden**  
 Phone: +46 8 6231 710

austriamicrosystems USA, Inc.  
 8601 Six Forks Road  
 Suite 400  
 Raleigh, NC 27615, **USA**  
 Phone: +1 919 676 5292  
 Fax: +1 509 696 2713

austriamicrosystems USA, Inc.  
 4030 Moorpark Ave  
 Suite 116  
 San Jose, CA 95117, **USA**  
 Phone: +1 408 345 1790  
 Fax: +1 509 696 2713

austriamicrosystems AG  
 Suite 811, Tsimshatsui Centre  
 East Wing, 66 Mody Road  
 Tsim Sha Tsui East, Kowloon, **Hong Kong**  
 Phone: +852 2268 6899  
 Fax: +852 2268 6799

austriamicrosystems AG  
 AIOS Gotanda Annex 5<sup>th</sup> Fl., 1-7-11,  
 Higashi-Gotanda, Shinagawa-ku  
 Tokyo 141-0022, **Japan**  
 Phone: +81 3 5792 4975  
 Fax: +81 3 5792 4976

austriamicrosystems AG  
 #805, Dong Kyung Bldg.,  
 824-19, Yeok Sam Dong,  
 Kang Nam Gu, Seoul  
**Korea** 135-080  
 Phone: +82 2 557 8776  
 Fax: +82 2 569 9823

austriamicrosystems AG  
 Singapore Representative Office  
 83 Clemenceau Avenue, #02-01 UE Square  
 239920, **Singapore**  
 Phone: +65 68 30 83 05  
 Fax: +65 62 34 31 20

## Copyright

Devices sold by austriamicrosystems are covered by the warranty and patent indemnification provisions appearing in its Term of Sale. austriamicrosystems makes no warranty, express, statutory, implied, or by description regarding the information set forth herein or regarding the freedom of the described devices from patent infringement. austriamicrosystems reserves the right to change specifications and prices at any time and without notice. Therefore, prior to designing this product into a system, it is necessary to check with austriamicrosystems for current information. This product is intended for use in normal commercial applications.

Copyright © 2012 austriamicrosystems. Trademarks registered ®. All rights reserved. The material herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner. To the best of its knowledge, austriamicrosystems asserts that the information contained in this publication is accurate and correct. However, austriamicrosystems shall not be liable to recipient or any third party for any damages, including but not limited to personal injury, property damage, loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages, of any kind, in connection with or arising out of the furnishing, performance or use of the technical data herein. No obligation or liability to recipient or any third party shall arise or flow out of austriamicrosystems rendering of technical or other services.