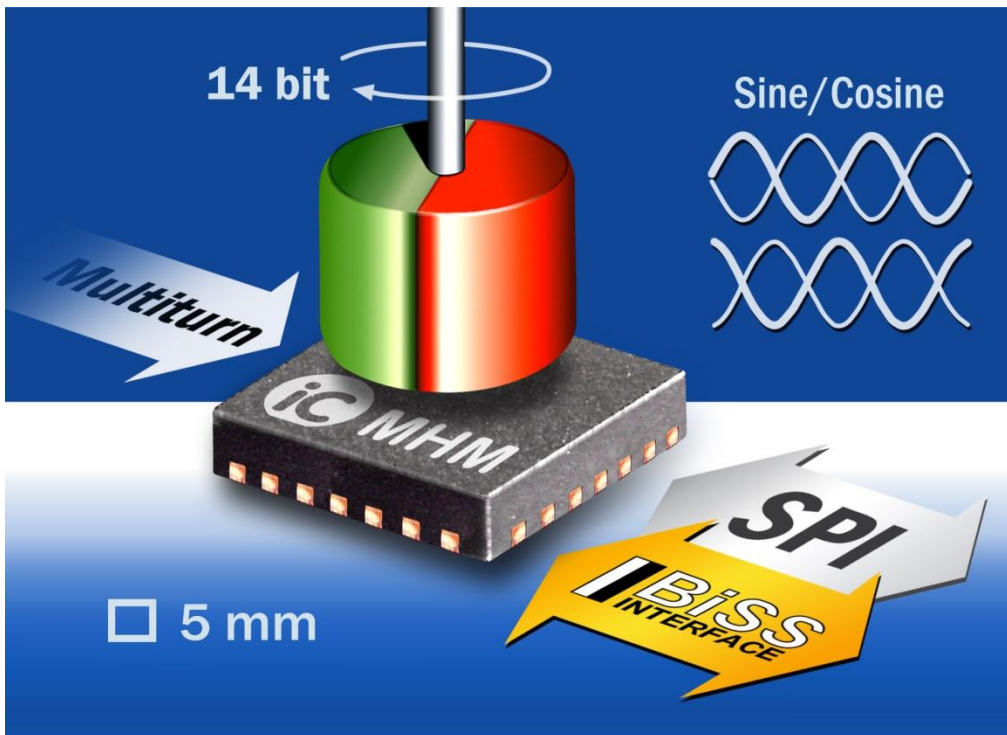


14-bit Magnetic BiSS/SSI Encoder iC with Multiturn Interface

Magnetic 14-bit Sin/Cos Encoder iC with BiSS/SSI- and Multiturn Interface

The absolute Hall angle encoder iC-MHM is a magnetic single-chip encoder with 14 bit singleturn resolution over 360° (0.02° angular resolution). Together with the multiturn encoder device iC-PV connected to the multiturn interface of the iC-MHM, a total resolution of up to 46 bit can be obtained. The absolute position can be read out via the open BiSS/SSI standard interface or via SPI.

Integrated RS422/LVDS transceivers support clock rates in the BiSS/SSI communication up to 10 MHz. In addition to the serial BiSS/SSI interface the iC-MHM provides differential analog sine/cosine signals with 1 V_{ss} signal amplitude at 100 Ω load.



Product photo iC-MHM in a 28-pole, 5 mm x 5 mm QFN28 package. Download text and photo: http://www.ichaus.de/iC-Haus_MHM_newsrelease_en

Optionally, incremental signals (ABZ), test signals for calibration of the device or special functions for digital input/output are available at configurable I/O pins.

The iC-MHM's singleturn resolution is configurable from 9 to 14 bit, the multiturn operation ranges from 4 to 32 bit. At a singleturn resolution of 12 bit, revolutions up to 80.000 rpm are safely processed. In safety applications the integrated life counter, which is incremented at each data inquiry, can be used. The counter value is transmitted with the position data and with an additional 16-bit safety polynomial. The internal error monitor activates the NERR output in case of CRC multiturn, synchronization, and Hall sensor errors. The error code is available from the error register.

Typical applications are:

- High-resolution incremental encoders with sine/cosine outputs
- Battery-buffered multiturn absolute encoders (e.g. with iC-PV)
- Absolute encoders with BiSS/SSI and SPI interface
- SIL-certified absolute encoders
- High accuracy motor encoders for positioning systems

At power-on the CRC-secured configuration data is loaded from an external EEPROM. Alternatively, a microcontroller can initialize the iC-MHM via the multi-master SPI interface.

The iC-MHM is supplied in a space-saving QFN28 package (5 x 5 mm²). For a fast system development an evaluation board with USB connection and a PC-based graphical user interface (GUI) is provided. The iC-MHM is operated at 5 V (+/- 10%) and has an integrated reverse polarity protection which can be also used by optionally connected multiturn components. The device is designed for an industrial operating temperature range (-40 to +125°C).

Further information is available at <http://www.ichaus.com/product/ic-mhm>.

Introducing iC-Haus

iC-Haus GmbH is a leading, independent German manufacturer of standard iCs (ASSP) and customized ASiC semiconductor solutions with worldwide representation. For more than 25 years the company has been active in the design, production, and sales of application-specific iCs for industrial, automotive, and medical applications.

The iC-Haus cell libraries in CMOS, bipolar, and BCD technologies are specifically suited to realize the design of sensor, laser/opto, and actuator ASiCs, amongst others. The iCs are assembled in standard plastic packages or using the iC-Haus chip-on-board technology to manufacture complete microsystems, multichip modules, and optoBGA/QFN in conjunction with sensors.

Further information is available at <http://www.ichaus.com>.

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