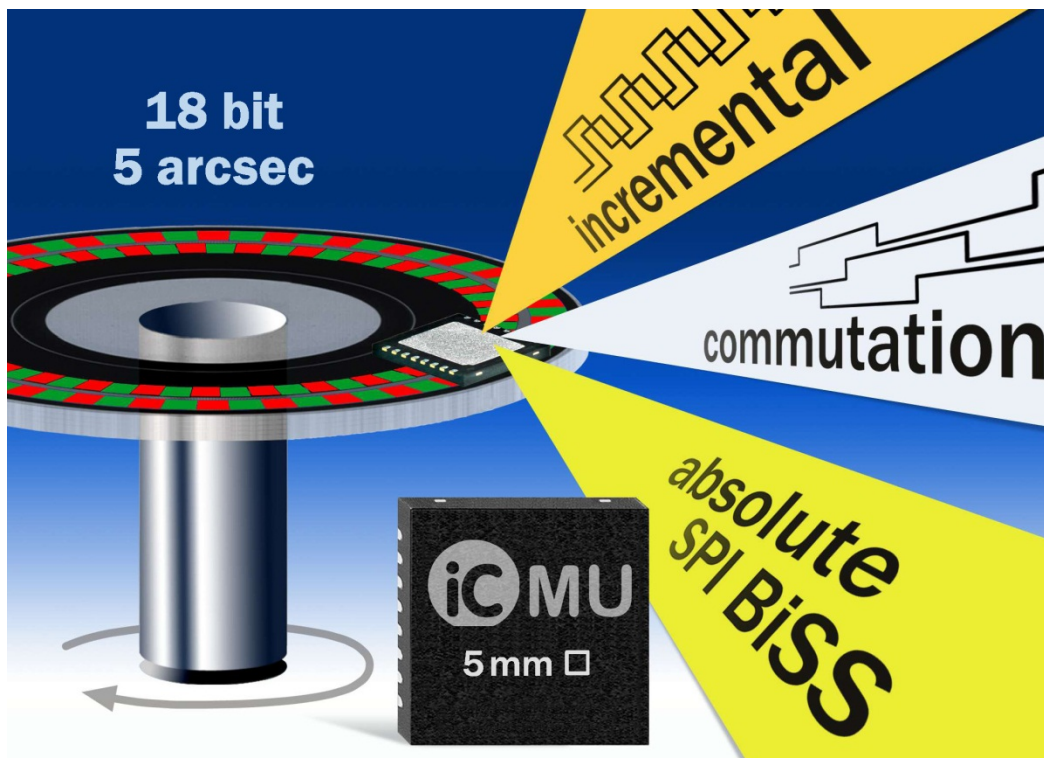


Off-axis magnetic encoder iC sets new standards: 18 bit absolute resolution, suitable for hollow-shaft, through-shaft and linear applications

Unique Hall chip for absolute hollow shaft encoders with up to 18 bits

Fully integrated, single-chip device iC-MU is ideal for the scanning of magnetic pole wheels and tapes for typical motion control applications, such as for absolute position encoders, incremental encoders, and commutation encoders for brushless motors. The position data is generated in real time and provided through serial interfaces (BiSS, SSI, and SPI) and as an incremental signal without processing delay. Thanks to special FlexCount® interpolation, any pulse count can be configured.

Product photo of iC-MU in a 16-pin DFN package, occupying just 5 x 5 mm



Download text and photo at
http://www.ichaus.com/pressroom/ichaus_mu_pre.zip

The magnetic target for iC-MU has two incremental tracks with pole widths of approx. 1.28 mm. A typical operating distance of 4/10 mm is sufficient for the sensor. Two simultaneous sine-to-digital converters are used to achieve the best real time characteristics; these initialize the cyclic nonius calculation. No movement is necessary to determine the absolute position.

Traversing rates of up to 16 m/s are possible in linear systems at an absolute position resolution of 0.16 μm (!) across a distance of 164 mm. To increase this distance iC-MU devices can be cascaded or initiated using multiturn information. In rotary systems or rotary encoders iC-MU permits speeds of up to 24,000 rpm at a resolution of 5 angle seconds.

Optimum reliability, a high resistance to shock and vibration, no breakable parts, insensitivity to dirt and moisture: these are the many benefits that speak for magnetic systems. iC-MU achieves its high immunity to magnetic interference, another prerequisite of such devices, through multiple differential field scanning.

The system-on-chip design integrates all of the required encoder functions onto the smallest possible area as a 16-pin DFN package, requiring just 5 x 5 mm of board space. Off-center or off-axis placement permits hollow shafts for high-resolution, magnetic absolute encoders for the very first time. With the standard MU2S disc with a diameter of 30 mm, axes of up to 10 mm can be used, for example.

The interfaces available for data output are extremely flexible; microcontrollers can be easily connected up through SPI, bidirectional BiSS C and SSI can be used as encoder interfaces, incremental A/B/Z encoder quadrature signals can be programmed with 1 to 65,536 pulses and zero position preset, and U/V/W commutation signals are provided for motors with 1 to 16 pole pairs. Additional

Hall sensors are thus no longer required for commutation. If we consider the total system, iC-MU is a remarkably cost-effective resolver substitute.

iC-MU runs on 5 V in an operating temperature range of -40°C to +110°C. The device comes in a space-saving 16-pin DFN package and requires just 5 mm x 5 mm of board space. Various magnetic measurement standards, demo boards, PC adapters, and operating software for Windows are available for evaluation.

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

Introducing iC-Haus

iC-Haus GmbH is a leading independent German manufacturer of standard iCs (ASSP) and customized ASiC semiconductor solutions. The company has been active in the design, production, and sales of application-specific iCs for industrial, automotive, and medical technology for over 25 years and is represented worldwide. The iC-Haus cell libraries in CMOS, bipolar, and BCD technologies are fully equipped to realize the design of sensor, laser/opto, and actuator ASiCs, among others.

The iCs are assembled in standard plastic packages or using iC-Haus chip-on-board technology to manufacture complete microsystems, multichip modules, and optoBGA™, the latter in conjunction with sensors.

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

If you have any queries, please contact:

Magnus Meier

iC-Haus GmbH, Am Kuemmerling 18, 55294 Bodenheim, Germany

Tel.: +49 (6135) 9292-300 Web: www.ichaus.com

Fax: +49 (6135) 9292-192 Email: magnus.meier@ichaus.de