iC-MH8 – iC-Haus press release

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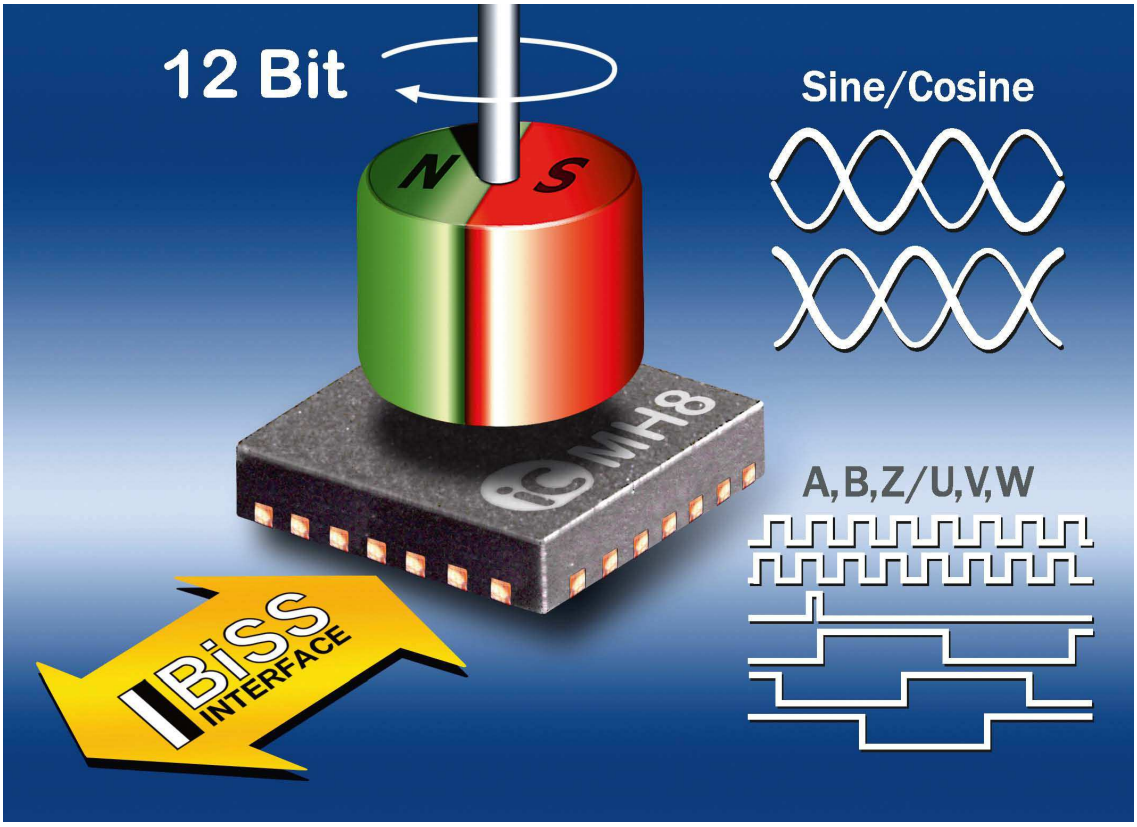
iC-MH8: fast, universal 12-bit encoder IC for BLDC motor control

One-chip UVW commutation for 2-pole, 4-pole, and 8-pole DC motors

iC-MH8 is a large-scale integrated systems solution for magnetic sensor applications in fast motor control units. Combined with a diametrically magnetized permanent magnet, the tiny device (QFN28 5x5 package) can be used to create a robust, universal encoder for motor commutation and positioning. The chip includes a Hall sensor array with signal amplification control, two interpolators for incremental (ABZ, 12-bit) and commutation (UVW) signals, differential sine/cosine outputs (1 Vpp to 100 Ω), integrated RS422 line drivers, and a serial SSI/BiSS interface.



Press photo of iC-MH8
Download text and photo at http://www.ichaus.com/pressroom/ichaus_mh8_pre.zip

iC-MH8 is typically used in industrial, automotive, and medical applications, such as:

- Fast motor control with short sensor latencies
- Fast position control in robots with safety requirements
- Speed control of up to 120,000 rpm at a 12-bit resolution
- Absolute detection/measurement of angles of rotation
- As universal absolute encoders (with sine/cosine and SSI/BiSS options)
- As substitute resolvers or optical absolute encoders.

The angle resolution can be programmed in up to 4,096 steps per revolution. With an ABZ incremental signal output edge rate of 8 MHz, speeds of up to 120,000 rpm can be recorded. 360,000 rpm can be obtained with a resolution of 10 bits.

UVW commutation is available for 2-pole, 4-pole, or 8-pole DC motors. For safety applications the differential sine/cosine outputs provide redundant capture and transmission of the angle position at 1 Vpp to 100 Ω. The sine/cosine, ABZ, and UVW outputs have been implemented as configurable RS422 line drivers, enabling the device to be perfectly adapted to suit various line lengths and transmission rates.

A bidirectional or synchronous serial SSI/BiSS-C interface is also integrated for data output. The resolution, hysteresis, edge distance, zero position of the ABZ and UVW signals, and direction of rotation for iC-MH8 can also be configured through BiSS-C. These settings can be permanently stored in an OTP-ROM.

An automatic gain regulator compensates for variations in the Hall sensor signals due to fluctuations in the ambient temperature or changes in distance to the magnet.

iC-MH8 operates on a supply voltage of +5 V (±10%) within an operating temperature range of -40 to +125°C.

Further information is available at http://www.ichaus.com/product/iC-MH8.

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/.

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