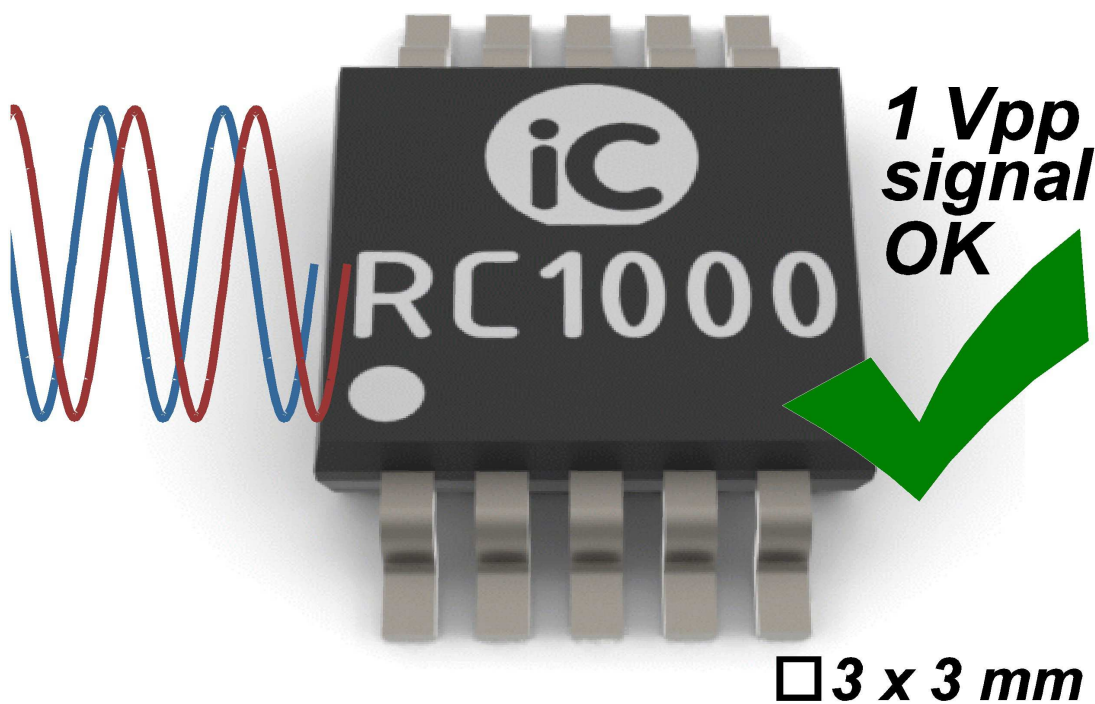


Analog monitoring of sine/cosine encoders for SIL and high speeds

Easy retrofitting of safety requirements for sine/cosine position sensors

iC-RC1000 acts as an analog watchdog IC for industrial controllers and drive systems in the evaluation of sine encoders for SIL applications. From standstill to high speeds two diagnostic channels monitor the encoder signals to check whether they keep to the 1 V specification, signaling OK or ERROR to the controller independently of one another for safe error detection with the minimum circuitry.

Product photo of iC-RC1000 in a 10-pin MFP package



Download text and photo at

http://www.ichaus.com/pressroom/ichaus_rc1000_pre.zip

The FMEA-based architecture of iC-RC1000 has the necessary intrinsic safety required for SIL, enabling errors to be securely identified through redundancy. It is now possible to implement the required plausibility check of the line signals and cable connection parallel to the process channel without the need for additional A/D converters and safety-critical controller software.

iC-RC1000 monitors up to four signal lines for the correct DC voltage and the differential signal amplitude of two paired lines to see whether these remain within the specified range of 0.8 V_{pp} to 1.2 V_{pp}. An analog circuit derives the Lissajous curve from the sine and cosine signal and comparators monitor the vector length in real time. Any error indication is lengthened to at least 4 ms so that the controller can reliably detect an interrupt. The diagnostic outputs permit optocouplers to be directly connected up for galvanic isolation.

Safety watchdog iC-RC1000 can be used in the following applications:

- SIL-compatible linear and rotary encoders
- Encoder interfaces with SIL monitoring of sine/cosine inputs
- Redundant functions monitoring in robot and handling systems
- Test and monitoring units for sine/cosine encoders
- Detection of cable breakages for PLC and controller inputs.

iC-RC1000 is designed for use at operating temperatures of -40°C to 110°C and operates on a supply voltage of 5 V. A 1.4 mA supply is typically sufficient for the two diagnostic channels which can be supplied by either one common or two separate power supplies and which monitor one another. The device is protected against ESD and is overvoltage-proof up to 36 V at the front end thanks to an internal clamp circuit.

The small, 10-pole MSOP package, just 3 mm in length and width, is available in production quantities. Further information is available at

<http://www.ichaus.com/iC-RC1000>.

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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