Micronas sets new standards for linear Hall-effect sensors with its new HAL® 24xy family

The new HAL 24xy family offers extended distance measurement, smaller magnet dimensions, improved robustness and state-of-the-art diagnostic functions for stringent automotive and industrial applications.

**Freiburg, May 16, 2012** – Micronas (SIX Swiss Exchange: MASN), known and recognized in the automotive and industrial business as a reliable global acting partner for intelligent, sensor-based system solutions, today announced the HAL 24xy family of high precision programmable linear Hall-effect sensors designed to match the performance, diagnostic and reliability requirements of today’s most demanding automotive applications.

“We have designed the HAL 24xy family to provide a robust sensor solution to our automotive customers, offering a very high immunity to temperature variation and increased protection for ESD and EMC,” says Dirk Behrens, Vice President Automotive at Micronas. “The sensor offers a highly improved linearization by incorporating a flexible output compensation function with 16 programmable set points. This way, our customers can reduce their system costs using smaller magnets or can increase distance measurements while keeping their existing solution. In addition, angles up to 180° can be measured even with a simple magnet configuration. This new sensor is particularly suitable for throttle position, pedal and exhaust gas recirculation applications but also for every kind of position detection and contactless potentiometers”.

The new HAL 24xy family uses Micronas’ latest technology node, a new digital architecture as well as further improved Hall plates. All new family members will leverage upon Micronas’ long success in linear Hall-effect sensors, full in-house manufacturing and automotive-proven zero-ppm track record.

Like its predecessors, the HAL 24xy family has an integrated non-volatile memory to store all sensor parameters. Proven in previous generations of Micronas Hall-effect sensors, this memory is extremely robust and reliable, up to a maximum junction temperature of 170°C.

The sensor’s high accuracy is based on a sophisticated 16-bit signal path with an integrated DSP core delivering a ratiometric 12-bit analog output signal. Micronas’ designers put extra effort to maximize the sensitivity and minimize the offset drifts over the whole temperature range. This guarantees long-term stability of critical parameters, which ensures the car’s optimum performance for many years. Electrostatic discharge (ESD) is a severe issue in automotive applications and the 8-kV (HBM) rating of the HAL 24xy significantly surpasses other existing linear Hall-sensors in the market today.

Moreover, all new HAL 24xy family members feature enhanced diagnostic functions to improve the detection and identification of potential errors thus facilitating implementation of our customer fail-safe strategy. One first set of features allows the ECU to detect and report problems with the car’s wiring through wire break detection for supply and ground line. Short circuit at the output stage is easily detectable thanks to a dedicated undervoltage detection and thermal supervision.

Another set of features enhances error diagnostic coverage and is extremely valuable in safety critical automotive applications. It provides supervision and internal self-tests of the whole sensor signal path and memory map: A specific EEPROM check is done at each power-on and in addition, a ROM parity check and different state machine self-tests run continuously during normal operation.

All HAL 24xy family members simplify customer programming operations and make them more robust. Unlike other sensors on the market, the HAL 24xy does not need a dedicated programming pin. Instead commands are sent directly via the bi-directional output pin. A robust programming is further guaranteed thanks to various integrated protection features: A CRC (Cyclical Redundancy Check) monitors the communication protocol. The supervision of the supply and the internal programming voltages as well as the monitoring of the programming time ensure that an operation is successfully performed. Furthermore, the HAL 24xy family uses standard TTL level programing voltages, eliminating the need for a dedicated power supply.

A development board to ease design and production activities is available together with a LabView™ based programming software.

All members of the RoHS-compliant HAL 24xy family are available in the TO‑92UT package, suitable for overmolding, and operate at ambient temperatures between –40°C and +160°C. The whole family is designed for harsh industrial and automotive applications (junction temperature up to 170°C) and operates with standard 5 V supply voltage. Furthermore, all family members are fully qualified according to the automotive standard AECQ100.

The first member of the family to be introduced to the market will be the HAL 2420, featuring an analog output without set points. Samples will be available in September 2012. Start of production is in early 2013.

Micronas will present the HAL 24xy family at the Sensor+Test trade fair in Nuremberg (hall 12, booth 12-302) from May 22 to 24, 2012, at the Automotive Engineering Exposition in Yokohama, Japan (booth P-96) from May 23 to 25, 2012, and at the Sensors Expo & Conference in Chicago, USA, (booth 614) from June 7 to 9, 2012.

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**About Micronas**

Micronas (SIX Swiss Exchange: MASN) is known and recognized in the automotive and industrial business as a reliable global acting partner for intelligent, sensor-based system solutions. Micronas offers a variety of Hall sensors and embedded controllers for smart actuators for automotive and industrial applications, such as drive trains, chassis frames, engine management and convenience functions.

Micronas serves all major automotive electronics customers worldwide, many of them in continuous partnerships seeking joint success. While the holding company is headquartered in Zurich (Switzerland), operational headquarters are based in Freiburg (Germany). Currently, the Micronas Group employs around 900 persons. For more information about Micronas and its products, please visit [www.micronas.com](http://www.micronas.com).