(Source: Adobe Stock)

News in this regular column came in, close to the editorial deadline. Nevertheless, they have been doublechecked on accuracy and correctness.

Ultrasonic sensor for precision farming


The Agri-Sonic sensor features echo filtering, enabling a reliable depth measurement (Source: Moba)

Moba, a CiA member company, has developed the Agri-Sonic sensor, coming with a CAN interface in an IP67-rated housing. The implemented echo filtering enables reliable depth measurements in different crop and soil conditions.

Legacy ultrasonic or radar sensors require frequent recalibration, struggle with false echoes, and deliver erratic data. That made existing ultrasonic distance measurement unreliable in agricultural environments. Users often face echo interference from vegetation, soil moisture, and surface irregularities, leading to inaccurate readings and suboptimal control.

The Agri-Sonic sensor addresses these challenges. The implemented echo filtering uses a signal processing engine that isolates valid depth returns while suppressing noise from vegetation and field clutter, ensuring reliable and repeatable measurements. The echo discrimination filters out vegetation and noise, ensuring centimeter-level accuracy in all field conditions. The auto-calibration adapts continuously to changing environments, reducing setup time and maintenance effort.

The hardware is designed as a ready-to-inte-grate, low-maintenance module with plug-and-play connectors and self-tuning thresholds, minimizing setup time and virtually eliminating recalibration interruptions. Due to its CAN interface, the sensor can be integrated into embedded implement control systems.

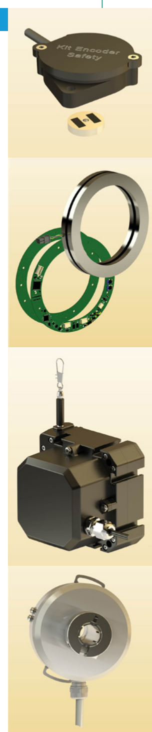
The ultrasonic sensor measures working depth in shallow tillage in real time. A constant depth is crucial for the success of non-inversion tillage. Yet in practice, changing conditions such as wet or sandy soils and tool wear often lead to deviations. The sensor detects variations – even with vegetation or stubble – and provides the data needed to actively compensate. *hz*

Galvanic-isolated CAN repeater


(Source: Axiomatic)

CiA member Axiomatic (Canada) has launched the AX140180 two-ports repeater. It is suitable especially for rolling stock applications. The CAN and power-line ports are galvanically isolated from each other with 500-V_{DC} isolation. The physical layer complies with different SAE J1939 specifications with bit rates of 250 kbit/s and 500 kbit/s. The product operates with a nominal power-supply input of 12 V_{DC} or 24 V_{DC}, provides a nominal isolated output supply voltage of 24 V_{DC}, and features an output current of 100 mA. The repeater is configurable using the company's Electronic Assistant tool. The module comes in an IP67-rated enclosure, resistant against dust and water exposure, and is compliant with the EN 50155 standard. The AX140180 repeater is suited for rolling stock equipment, while the AX140100-03 and AX140100-04 repeaters are intended for engine applications. *hz*

CANopen Safety sensors


(Source: TWK)

CiA member TWK (Germany) exhibited its sensors for angle, displacement, and inclination measurement at Agritechnica (Hanover, Germany) and SPS (Nuremberg, Germany) trade shows. The products comply with IEC 61508 and ISO 13849-1 standards, offering SIL 2 (safety integrity level) and SIL 3 respectively PL d (performance level) and PL e capability. The redundant (two-channel measurements) sensor devices are optionally available with CANopen Safety connectivity. The product portfolio includes rotary encoders based on an inductive measurement principle. The devices can be mounted on drive shafts with diameters of up to 150 mm and are dedicated for routing cables or placing contact units in slip ring assemblies. The rotor and stator can be used as electronic circuit boards or housed in aluminum or stainless-steel housings with an outer diameter of up to 220 mm. The encoders feature a resolution of up to 22 bit and are resilient to magnetic interference fields and harsh environmental conditions, making it suitable for use in drive-by-wire applications.

Another presented product is a cable pull sensor, which provides safe length measurement. This compact SIL-2 sensor outputs the position and speed of the cable via CANopen Safety. Due to the encoder's 14-bit resolution (16-bit resolution is available on request), the selectable measuring range of 1,5 m to 6 m is displayed in increments of 0,1 mm to 0,39 mm or better. This sensor is intended for mobile machine applications. The same applies to the SIL 2/PL d encoder kit, which features a CANopen Safety interface. Due to its magnetic measuring principle, the magnet is positioned in front of the encoder within the application. The company offers also an SIL-3 encoder with a CANopen Safety interface. This 16-bit resolution device is part of the 42-mm encoder family. There is also a redundant single-turn encoder with a CANopen Safety interface, comprising two independent SIL-2 sensors built into a housing measuring less than 35 mm in diameter and length. *hz*