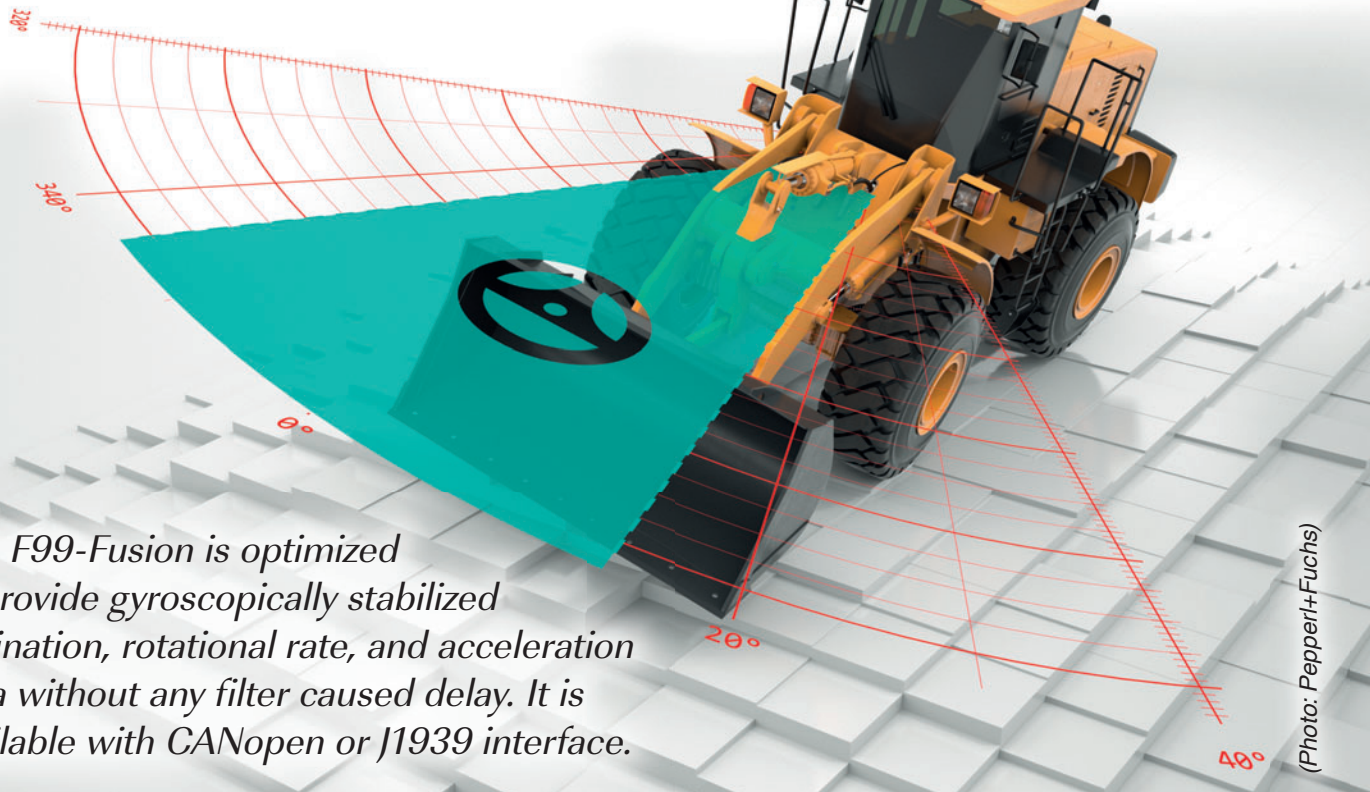


Accurate leveling even during acceleration, braking, and cornering



(Photo: Pepperl+Fuchs)

The F99-Fusion is optimized to provide gyroscopically stabilized inclination, rotational rate, and acceleration data without any filter caused delay. It is available with CANopen or J1939 interface.

At the heart of the F99-Fusion is the adaptive sensor fusion algorithm. This algorithm has been developed and implemented to detect orientation in three dimensions with extremely effective compensation of external acceleration. Multiple output values available for selection (acceleration, inclination, yaw rate, euler angle, euler vector, quaternions, etc.) and programmable filters allow the F99-Fusion to adapt to the relevant application. J1939 or CANopen interfaces are available.

In order to level mobile work equipment such as construction machinery, work platforms or trucks, inclination sensors are required that are able to function with precision when machines are moved in a dynamic fashion. Inclination sensors commonly found on the market adopt

different measurement principles based on acceleration. However, due to the physical principle of these sensors, they are unable to differentiate between external forces of acceleration and acceleration caused by gravity. As such, the measurements produced by these sensors when moving off or braking, for example, are often erroneous.

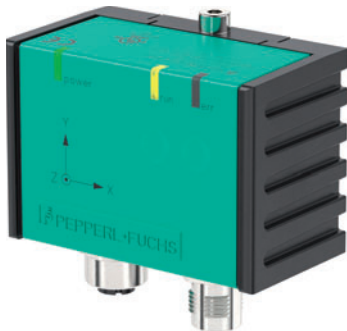


Figure 1: 360° inclination, rotational rate, and acceleration measurement in six axes in one device (Photo: Pepperl+Fuchs)

The F99-Fusion makes use of both 3-axis acceleration elements and 3-axis gyroscope elements. With the company's sensor fusion algorithm, the various items of information provided by these elements – all of which serve to supplement one another – are intelligently linked. This optimizes the performance of the system as a whole. As a result, external forces of acceleration are cut out in a targeted manner, without any impact on the reaction time. Hence a fault-free inclination detection is also achieved in dynamic applications.

Both the raw data from the individual sensor elements as well as various sensor fusion data are available to the user. These are calculated in real-time by intelligent sensor fusion algorithm and can be used immediately. The product is also optimized for use in harsh outdoor applications, both mechanically and in terms of EMC, making it ideal for performing inclination measurements on mobile work equipment.

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CAN Newsletter Online: Sensors

The CAN Newsletter Online has reported briefly about CAN-connectable sensors.



Weighing system **Digitizer for load cells features CANopen**

Laumas (Italy) has introduced the LCBCANopen digitizer. It transforms an analog load cell (output mV/V) into digital and can also be used on existing load cells or strain gauge sensors.

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Encoder and inclinometer **Comes with CANopen and CANopen Safety interface**

FSG (Germany) has developed the MH64-II-CAN/Mems/GS65 series of rotary encoders with integrated tilt sensor. The housing is IP67-rated.

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Draw-wire sensor **IP69K-rated device complies with CiA 406**

Waycon has developed the MH60 draw-wire sensor. It features CANopen connectivity..

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Encoder **Multi-turn sensor for safety applications**

FSG (Germany) has launched the MH64-II-CAN/MU series of functional-safe rotary encoders. The product addresses price-sensitive applications.

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Non-contact encoder **Rectangular housing can be mounted on flat surfaces**

The PE18-BX Proxencodier by Joral is a rotary encoder. It comes with J1939 interfaces, but not with CANopen support.

[Read on](#)



Wind sensor **Measuring speed and direction with CANopen**

The precise measurements of wind speed and wind direction are prerequisite for maximum energy generation from a wind turbine. Mesa Systemtechnik (Germany) has unveiled its Sonic Anemometer with CANopen output for this purpose.

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