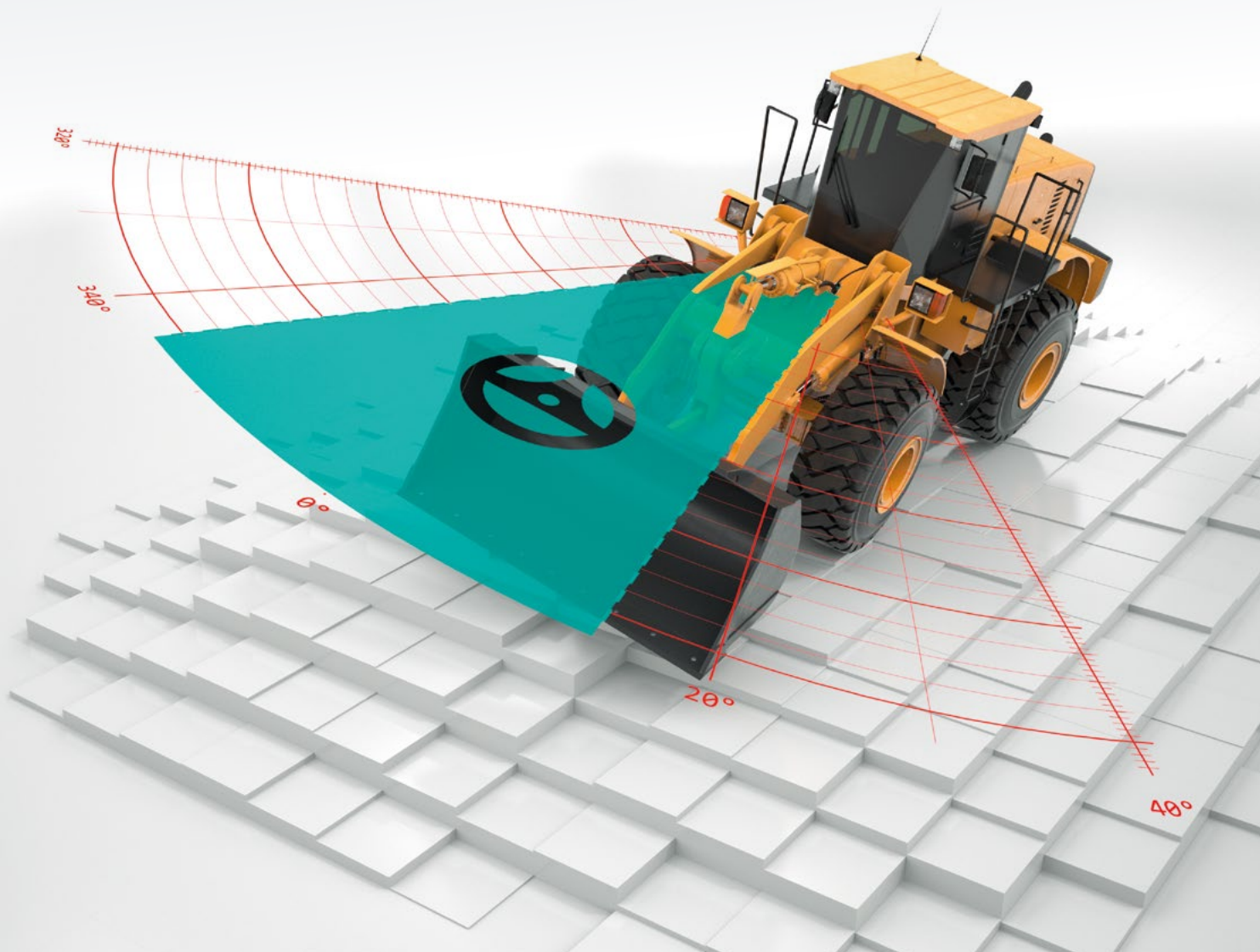


Steering-Angle Limit on Inclines

Reliable Inclination Monitoring on Applications in Motion

At a Glance

- Compensation of multidirectional acceleration enables quick, precise, and dynamic inclination measurement
- Optimal measurement results: individual adaptation to ambient conditions by selecting the suitable compensation range
- Variety of outputs for complete application flexibility
- Reduced installation effort: measurement data in three axes for mounting in any orientation

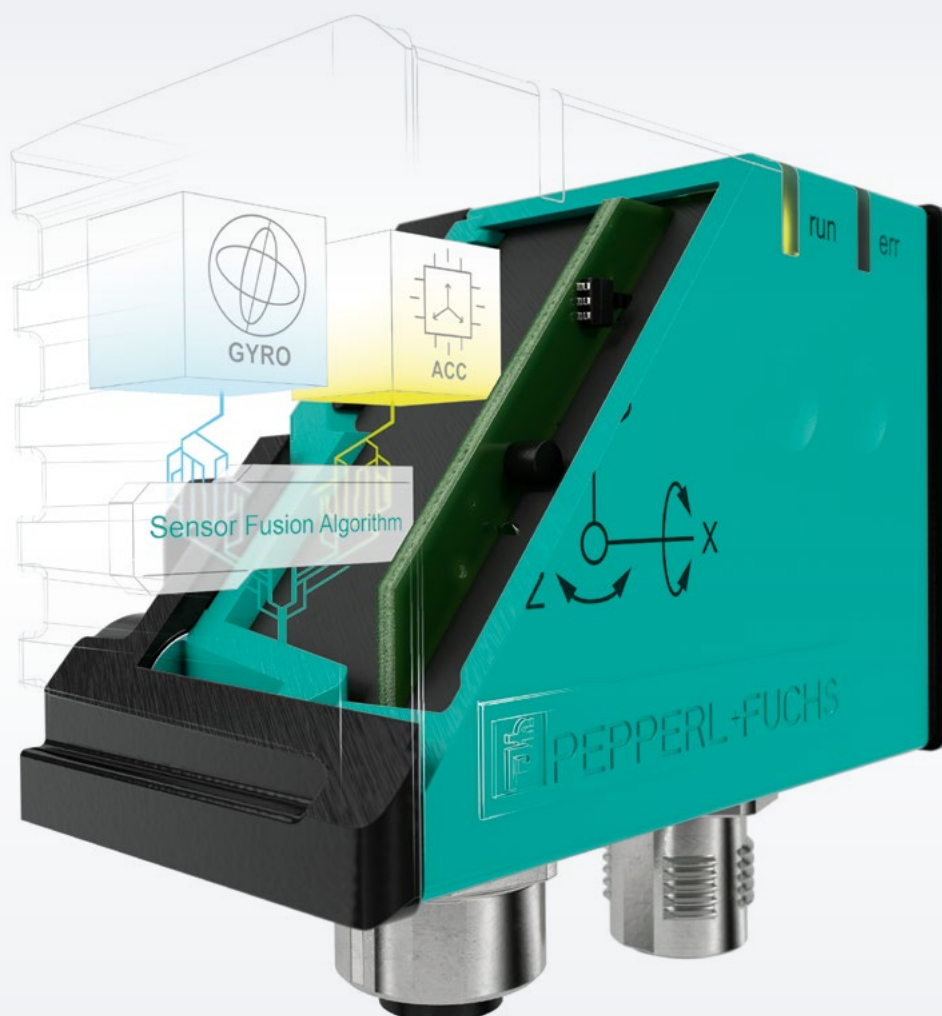


The Application

Monitoring inclination on large vehicles such as wheel loaders and dump trucks is necessary to prevent damage or injury. If these machines are used on uneven or steep surfaces, a sharp turning angle in an inclined position can cause the vehicle to tip over. The risk is greatest for vehicles with a small turning radius.

The Goal

The sharper the steering angle of a vehicle, the higher the risk of an accident. Therefore, the steering angle has to be limited based on the vehicle's inclination. To do this, the vehicle's overall inclination has to be reliably monitored, even when there is multidirectional motion. External influences like changes in speed or direction should not affect measurements.



The Solution

The inertial measurement unit F99 is used to measure vehicle inclination. Its ability to compensate for external acceleration that occurs during braking, acceleration, or when driving around curves makes it the perfect solution. An intelligent combination of an acceleration sensor and a gyroscope, the IMU F99 compensates for external acceleration and enables high-precision inclination measurement. This allows the steering angle to be regulated and the vehicle to be kept upright.

The Benefits

An intelligent Sensor Fusion Algorithm allows the inertial measurement system F99 to reliably measure inclination, even when there is dynamic movement. In addition, the type of acceleration compensation can be configured and optimally adapted to the individual motion pattern of the application by selecting a compensation range. Specially developed for outdoor use (IP68/69K) and use on public roads (E1 approval), it helps keep personnel and equipment safe.

Technical Features

- Inclination, acceleration, and rotation rate measurement along three axes
- Adjustable compensation range
- Degree of protection: IP68/IP69K
- Temperature range of $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
- Housing withstands mechanical impact up to 100 g
- Interface for parameterization
- Output formats and values can be selected
- Suitable for dynamic applications
- E1 approval

