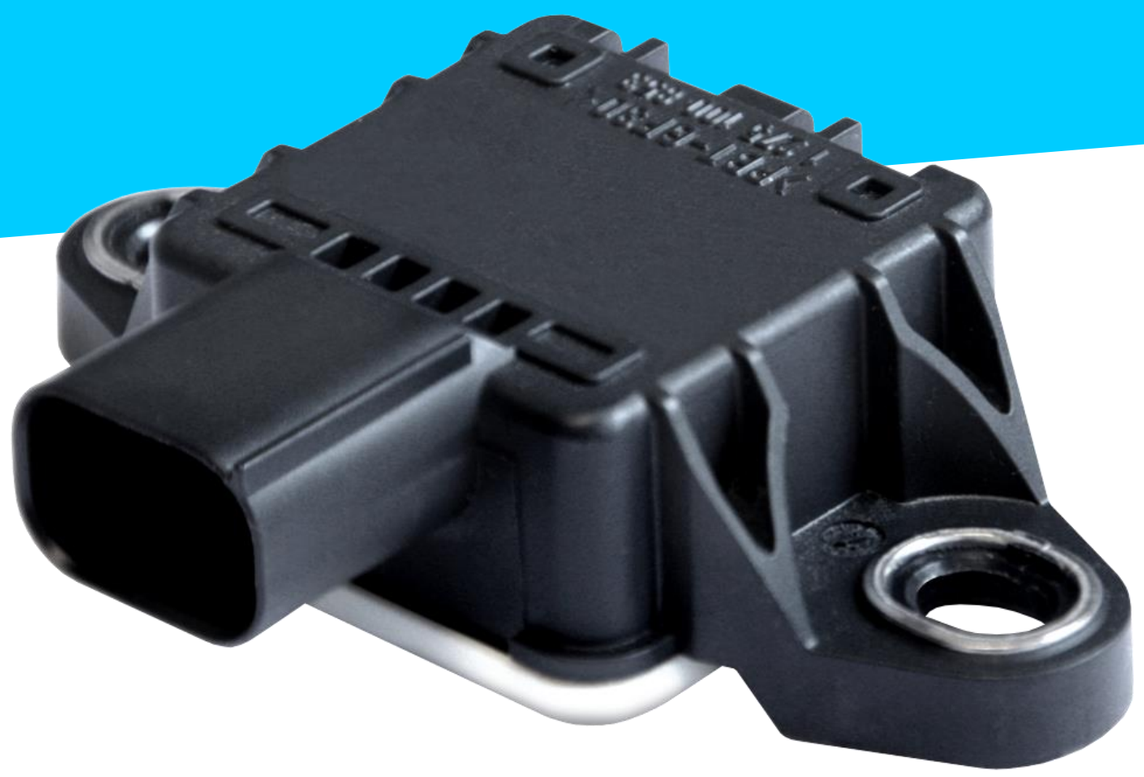
BODAS Inertial sensor MM7.10

Compact sensor with high measuring accuracy for determining angle and acceleration

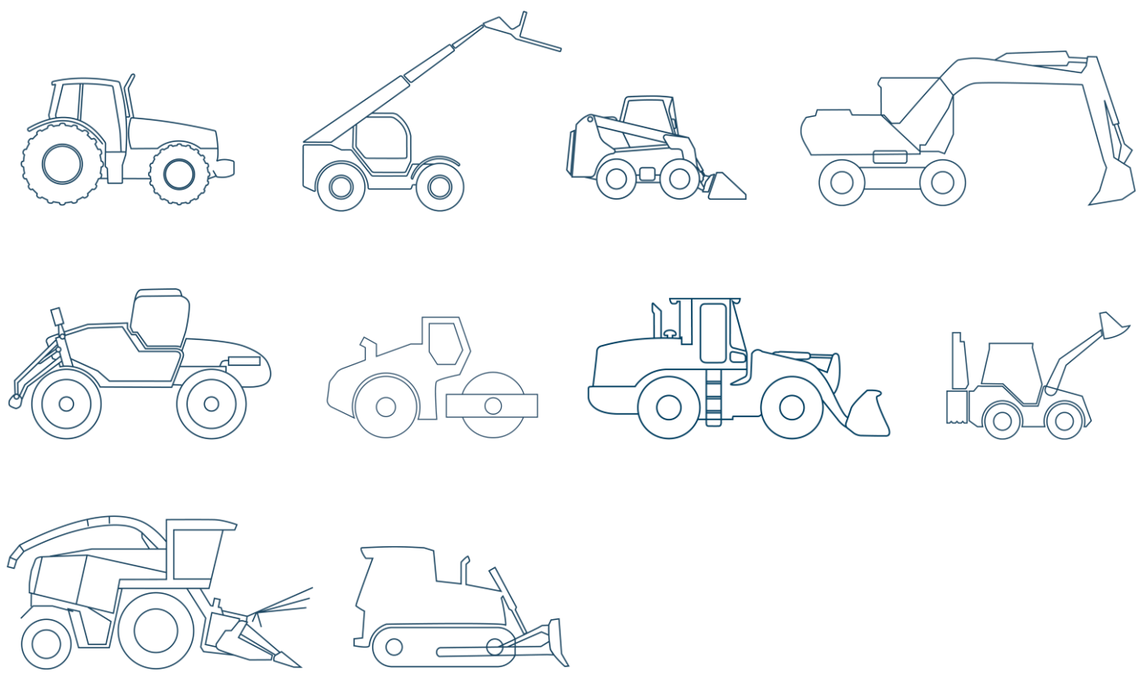


A requirement for controlling different functions in mobile working machines is the precise measurement of the angles, accelerations, and positions of moving machine parts or of the vehicle. With the BODAS MM7.10 sensor, Bosch Rexroth is offering an extremely compact inertial sensor for the highly precise measurement of yaw and roll rates as well as lateral, longitudinal, and vertical acceleration. The inertial sensor also enables automation functions, for example, through a combination of multiple BODAS MM7.10 sensors within one mobile working machine.

CUSTOMER BENEFITS

- High precision in the tightest of installation spaces
- Excellent vibration resistance
- Approved for safety functions (ASIL B, safety category 2)
- Highly flexible thanks to varied sensor configurations
- Angle output in combination with control unit and software library
- High quality standards of Bosch Automotive Electronics

APPLICATIONS



FUNCTION AND BENEFITS

High precision in the tightest of installation spaces
Thanks to its small size, the Rexroth BODAS MM7.10 can be used to easily implement measurement-based functional controllers, even for small working machines with very limited installation space. The sensor is also extremely vibration-resistant.

Approved for safety functions
The Rexroth inertial sensor can also be used to control safety functions through measurement. BODAS MM7.10 has a safety category 2 architecture and also meets the requirements of fundamental and proven safety principles as well as the requirements of ISO 26262 ASIL B, which enables support up to AgPL d.

Extreme flexibility thanks to varied sensor configurations
Suitable versions are available for a wide range of customer-specific requirements. The BODAS MM7.10 inertial sensor is available in various standard versions and can also be ordered from Bosch Rexroth in configurations that vary in terms of CAN ID, baud rate, CAN update rate, identifier length, etc.

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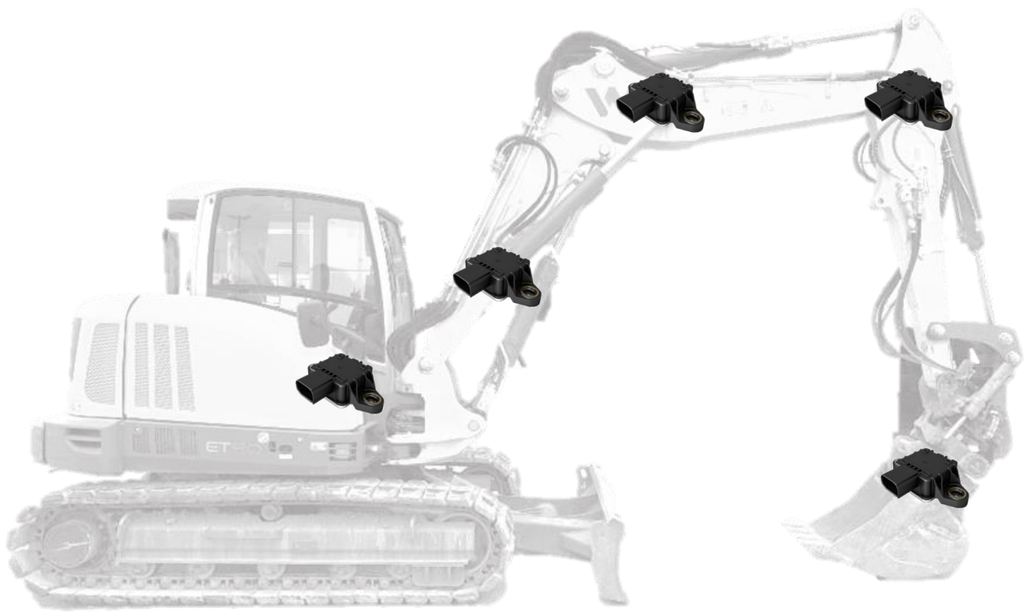
TECHNICAL DATA

BODAS MM7.10 inertial sensor	
Measuring element:	MEMS
Supply voltage:	8 to 16 V
Sensor signals:	3 acceleration and 3 rotation rate signals provided via CAN 2.0 B (ISO 11898)
Class of protection:	IPX6K, IPX7K, IPX9k
Electrical connection:	AMP-MQS Superseal connector
Operating temperature range:	–40 to 85°C
CE conformity	CE conformity according to EMC Directive 2014/30/EU (EN ISO 14982, ISO 13766-1 and EN 13309)
Electrical protection:	Short-circuit protection 0 to 18 V
Safety:	ISO 26262 ASIL B, up to AgPL d, ISO 25119:2018 AgPL d Additional standards on requests
MTTFd:	MTTFd values available according to ISO 25119
ROHS:	ROHS-konform
Data sheet:	95178



For automation functions, a combination of several BODAS MM7.10 inertial sensors can be used. For example, kinematic position recording software on a control unit can record the position of a tool (tool center point).

Angle output via control unit and software library
When the Rexroth inertial sensor, a control unit, and the ASlib-IMU software library that is integrated in the control unit are combined, it’s possible to realize an angle output in Euler format. Communication between the sensor and control unit is via a CAN interface. The sensor signals are read in via the control unit and the ASlib-IMU offsets these signals to angle values that are made available on the CAN bus. The ASlib-IMU is available in the programming language C and BODAS design.

Functional safety is developed according to SRL1. The sensor’s installation positions can be configured in the MATLAB® library. The library can be accessed via the myRexroth portal.

High quality standards of Bosch Automotive Electronics
As part of an automotive platform, BODAS MM7.10 is manufactured according to the high quality standards of Bosch Automotive Electronics.

EXPLORE MORE

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