



GEMAC Motus®

The **FIRST POWER-IMU** for Mobile **POWER-Machines**

Our configurable sensor measuring unit GEMAC Motus® enables 6-axis motion detection on Mobile POWER-Machines, such as **construction machinery, agricultural and forestry machinery, cranes and lifting technology**, as well as **ships**. Our proprietary **sensor fusion algorithm** performs high-precision orientation calculation, supported by sensor fusion filters that suppress external accelerations. The combination and calculation of the six measured values mean that only one measuring system needs to be integrated for a wide range of requirements.

GEMAC Motus® stands for the highest performance in the high-precision recording and digitization of movements with the aim of guaranteeing the greatest possible safety when using Mobile POWER-Machines. The design and functionality also ensure maximum durability and economy.



GEMAC Motus® variants



- Recording of inclination:
GEMAC Motus® NB and NC
- Recording of acceleration and rotation rate:
GEMAC Motus® IB
- Recording of inclination, acceleration and rotation rate:
GEMAC Motus® XB and XC

Variants	NB		NC	IB	
General parameters	Inclination			Accelerometer	Gyroscope
Measurement range	360°/±90°			±8g	±250°/s
Resolution	0.01°			0.244 mg	0.00875°/s
Temperature coefficient	±0.01%/K	±0.0016%/K		0.2 mg/K	0.005°/s/K
Static accuracy	±0.3°	±0.1°			
Dynamic accuracy	±0.5°	±0.25°			
In run bias stability					2.5°/h
Angle Random Walk (ARW)					0.1°/√h
Interface	U, I, CAN, CANopen, SAE J1939			CAN, CANopen, SAE J1939	

Variants	XB			XC		
General parameters	Inclination	Accelerometer	Gyroscope	Inclination	Accelerometer	Gyroscope
Measurement range	360°	±8g	±250°/s	360°	±8g	±250°/s
Resolution	0.01°	0.244 mg	0.00875°/s	0.01°	0.244 mg	0.00875°/s
Temperature coefficient	±0.005%/K	0.2 mg/K	0.005°/s/K	±0.0016%/K	0.02 mg/K	0.005°/s/K
Static accuracy	±0.3°			±0.1°		
Dynamic accuracy	±0.5°			±0.25°		
In run bias stability			2.5°/h			2.5°/h
Angle Random Walk (ARW)			0.1°/√h			0.1°/√h
Interface	CAN, CANopen, SAE J1939			CAN, CANopen, SAE J1939		

Available interfaces:

- CAN 2.0 A and B (11- and 29-Bit-ID) according ISO 11898-2
- CANopen according CiA DS-301, profile according CiA DSP-410
- SAE J1939, configurable process data
- Starter kit (including programming adapter, cables and PC software)
- Analog: Current (4 ... 20 mA), Voltage (0 ... 10V)

Mechanical parameters:

Connector: 1 or 2 sensor connectors 5-pole M12, A-coded
Degree of protection: IP6K7/IP6K9K, Operating temperature: -40°C to +85°C
Dimensions and weight: 114 mm x 66 mm x 30 mm, approx. 330 g
Housing material: zinc die casting, nickel plated

Electrical parameters:

Supply Voltage: 10V to 36V (in some cases from 7.5V)
Current consumption at 24 V: approx. 12 mA (digital), max. 70 mA (analog)