PRELIMINARY

GEMAC Motus® GREENLINE

The FIRST POWER-IMU for Mobile POWER-Machines

GEMAC Motus® ***GREENLINE*** with its slim design puts the focus above all on flexibility and price. With the two standard housing variants available for 2- or 4-point mounting, the user gains more independence from the existing hole patterns on the mobile machine. Customerspecific mounting variants are possible on request.

With a static accuracy of ±0.5° the **GEMAC Motus®** ***GREENLINE*** offers a wide range of applications, e.g. in **agriculture and forestry, crane and lifting technology, industrial trucks** and **industrial automation**.

Other variants of the **GEMAC Motus®** ***GREENLINE*** are also capable of measuring inclination in dynamic processes via a sensor fusion algorithm developed in-house by GEMAC.

The **GEMAC Motus®** ***GREENLINE*** portfolio is rounded off by IMU cost effective solutions, which, in addition to inclination, also measure acceleration and rotation rate in all 3 axes via the digital interface.

The sensor measuring units can be parameterized very conveniently via a programming kit and enable the user to optimally match his applications with the sensors to the existing technical requirements.

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GEMAC Motus® GREENLINE variants

- Recording of static inclination:
  GEMAC Motus® *GREENLINE* SE
- Recording of static and dynamic inclination:
  GEMAC Motus® *GREENLINE* NE
- Recording of inclination (static and dynamic), acceleration and rotation rate:
  GEMAC Motus® *GREENLINE* XE

Variants	SE	NE
General parameters	Inclination static	Inclination static and dynamic
Measurement range digital	±90°/ ±180° (360°) [2]	±90°/ ±180° (360°) [2]
Measurement range analog	±5° to ±180° (360°) [2]	±5° to ±180° (360°) [2]
Resolution digital	0.01°	0.01°
Resolution analog	0.01° to 0.1°	0.01° to 0.1°
Temperature coefficient	±0.02 °/K	±0.02 °/K
Static accuracy [1]	±0.1° to ±0.5°	±0.1° to ±0.5°
Dynamic accuracy [1]		±0.8°
Interface	CAN, CANopen, SAE J1939, Current 4...20 mA, Voltage 0...10 V	

Note:
Resolution and accuracy depend on the measuring range of the sensor. With a lower measuring range, a higher resolution and accuracy are achieved (with default settings, see minimum values in table). The number of measuring axes (max. 2), their axis assignment, measuring range and range of the analog output are preconfigured in the factory or can be parameterized by the customer.

Variants	XE		
General parameters	Inclination	Accelerometer	Gyroscope
Measurement range	±90°/ ±180° (360°) [2]	±2 g	±250 °/s
Resolution	0.01°	0.488 mg	0.035 °/s
Temperature coefficient	±0.02 °/K	0.4 mg/K	0.02 °/s/K
Static accuracy [1]	±0.5°		
Dynamic accuracy [1]	±0.8°		
In run bias stability			10°/h
Angle Random Walk (ARW)			0.4 °/√h
Interface	CAN, CANopen, SAE J1939		

[1] incl. compensated cross sensitivity [2] up to 2 measuring axes with configurable orientation

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...10 V), customized values on request
- Output linearized or non-linearized (configurable)

Mechanical parameters:

Connector: cable (0.2 m) with sensor connector M12 5-pole, A-coded (customer-specific connection variants on request)
Degree of protection: IP6K7/IP6K9K, Operating temperature: -40 °C to +80 °C
Dimensions and weight: 4-hole variant 62 x 32.3 x 18.7 mm (without cable), 2-hole variant 43.5 x 76.3 x 18.7 mm (without cable), approx. 30 g without cable
Housing material: plastic (PA)

Electrical parameters:

Supply Voltage: 11 V to 30 V (in some cases from 7.5 V)
Current consumption at 24 V: approx. 12 mA (digital), max. 70 mA (analog)

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