Baumer
Passion for Sensors

Compact inclination sensors. Precise. Reliable. Robust.

GIM500R

Angular measurements even in harsh environments.

Acting as a kind of electronic water scale, inclination sensors by Baumer are the perfect alternative to conventional angular measuring technology, particularly where rotation shafts are not accessible. Baumer inclination sensors substantially contribute towards increased safety, for example on vehicles in mobile automation. The robust and seawater-resistant aluminum housing with IP 69K protection makes them ideal for use in harsh environments.

Thanks to ISO 13849 – compliant firmware, it is possible to integrate the inclination sensors into safety functions up to PLd. Final sytem classification and PLd approval (hardware & software) must only be carried out by the corresponding supervisory authorities.

GIM500R – reliable and precise

Technical highlights

- Absolute accuracy up to ±0.1°
- Extended temperature range –40...+85 °C
- High protection against shocks and vibration up to 200 g / 20 g
- Protection rating up to IP 69K
- Corrosion resistance CX (C5-M)
- E1 compliant design
- Applicable up to PLd (ISO 13849)
- Possible redundant use
- User-configurable low-pass filter

Your benefits at a glance

- Accurate positioning thanks to high measuring precision
- Absolute operation reliability in harsh environments
- Maximum flexibility by versatile connection technology
- Excellent price-performance ratio
- Use in safety functions up to performance level PLd
- Output signal reliability by user-configurable filter

High protection

Low temperatures

Extremely high EMC immunity

Extremely robust and compact.

Thanks to their extremely robust and resilient design, the inclination sensors of the GIM500R series are ideal in any environment, particularly in mobile automation. In a saltwater-resistant aluminium housing and with fully encapsulated electronics they ensure operation safety with IP 69K rating.

In addition, the sensors guarantee absolute operation reliability at temperatures from -40 °C to +85 °C. Further optimized enclosure coating makes the sensors endure corrosion up to CX (C5-M) in permanent outdoor deployment.

Thanks to the very compact aluminium housing, the inclination sensors are not only extremely cost-efficient but also provide maximum flexibility in your application design.

The new GIM500R series is ideal for the most limited installation space in heavy machinery and vehicles in mobile automation.

GIM500R: vehicle leveling and boom angle positioning

Easy connection and networking with high flexibility.

Inclination sensors of the GIM500R series excel by simple and convenient connection technology. They are available with the commonly used SAE J1939 and CANopen® DS410 interface and as analog variants with 4...20 mA, 0.5...4.5 V, 0...5 V and 0...10 V. Connection is optionally provided by one or two M12 flange connectors (CAN-in, CAN-out), cable outlet or with DEUTSCH connector fitted to the cable end. Also the variants with analog interface enable calibration to the zero position for compensating installation tolerances.

CANopen®

4...20 mA / 0...5 V
0.5...4.5 V / 0...10 V

SAE J1939

MEMS technology

The Baumer inclination and acceleration sensors operate on the capacitive MEMS technology (micro-electro-mechanical). Compared with alternative technologies, capacitive MEMS sensing components excel by their small size, no moving parts and high cost-effectiveness while in parallel ensuring absolute operation reliability in the harshest environments.
The capacitive MEMS sensing elements deployed by Baumer are particularly designed for tough applications in mobile automation, and their long-term availability is assured.

Product overview GIM500R

GIM500R

	GIM500R 1-dimensional	GIM500R 2-dimensional
Sensing method	MEMS capacitive	
Size (housing)	48 × 24 × 52 mm	
Sensing range	0...90° 0...120° 0...180° 0...270° 0...360°	±10° ±30° ±45° ±60° ±90°
Interface	8...36 VDC / CANopen® (Option: terminating resistor integrated) 8...36 VDC / SAE J1939 (Option: terminating resistor integrated) 8...36 VDC / analog 0...5 V / 0.5...4.5 V / 0...10 V 8...36 VDC / analog 4...20 mA	
Connection	Cable 1 m (default 4×2×0.14 mm²) Flange connector M12, 5-pin, male contacts Flange connector M12, 8-pin, male contacts Flange connector 2× M12, 5-pin, male and female contacts Option: resilient 0.34 mm² core cross section matching also cables with mobile automation connection technology (e.g. DEUTSCH)	
Total resolution	0.01° (CANopen®, SAE J1939), 12 bits (Analog)	
Accuracy	Typ. ±0.1° (+25 °C)	
Operating temperature	−40...+85 °C	
Protection	IP 66, IP 67, IP 68, IP 69K	
Filter	The customer-configurable low-pass filter supports compensation of external interference and vibration. Limit frequency configurable within 0.1...25 Hz	

Learn more about our GIM500R series at:
www.baumer.com/inclination

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