QG series

QG65 CAN series

QG65-KD-090H-CAN-C(F)M

Inclination sensor

2 axis horizontal mounting

Programmable device
Interface: CANopen

Parameters programmable
by CANopen object dictionary

Measuring range
± 90°



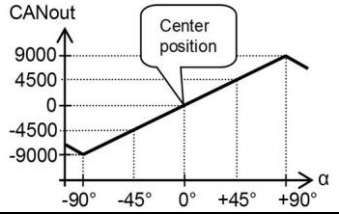
	General specifications 11441/11784, v20180117
Housing	Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC)
Dimensions (indicative)	60x50x27 mm
Mounting	4x M5x25 mm zinc plated pozidrive screws included (optional: 2x Ø4mm positioning pins)
Ingress Protection (IEC 60529)	IP67
Relative humidity	0 - 100%
Weight	approx. 110 gram
Supply voltage	10 - 30 V dc
Polarity protection	Yes
Current consumption	⩽ 50 mA
Operating temperature	-40 .. +85 °C
Storage temperature	-40 .. +85 °C
Measuring range	± 90°
Centering function	Yes (CANout 0 = 0°), range: ±5°
Frequency response (-3dB)	0 - 10 Hz
Accuracy (typ. and/or 2σ)	overall 0,07° typ. (-60°…+60°)
Offset error	< ± 0,05° typ. after centering
Non linearity	< ± 0,06° typ. (< ± 0,15 max.) (-60°…+60°)
Sensitivity error	not applicable
Resolution	0,01°
Temperature coefficient	± 0,005°/K typ.
Max mechanical shock	20.000g
CAN interface (hardware)	According to ISO 11898-1 & ISO 11898-2 (also known as CAN 2.0 A/B)
CANopen application layer and communication profile	CANopen protocol: EN 50325-4 (CiA 301 v4.0 & and v4.2.0) CANopen device profile for inclinometers: CiA 410 version 2.0.0
Baud rate	125 kbit/s (default), 250 kbit/s, 500 kbit/s, 1Mbit/s
Node Id	01h (range: 01h - 7Fh)
TPDO	TPDO1: 181h (for Node ID=01h)
Event time	TPDO1: 5 - 500 ms (default: 100 ms)
Sync mode	On/off (default: off)
Heartbeat	On/off (default: on, 2s)
Programming options	Baudrate, Node Id, Event time, Sync mode, Heartbeat, Output format
Output format	Integer: -9000 to +9000 (PDO1:X=byte2,1;Y=byte4,3)
Temperature compensation	Yes
Filtering	Input filter enabled, output filter disabled
Modes of operation	Event mode, Sync-mode
Boot time	< 1 s
Programming options	by CANopen object dictionary (CAN parameters, filtering)

QG65-KD-090H-CAN-C(F)M

CANoutput = 100*α

No clipping outside measuring range,
within specification up to ±60°
significant inaccuracy from ±70°

Transfer characteristic

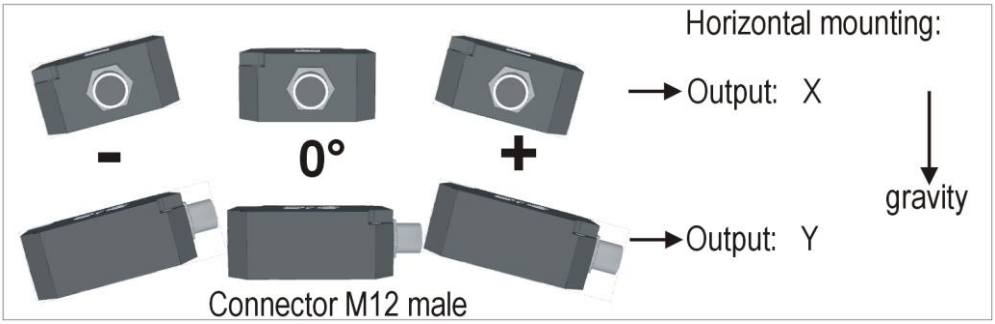


Default 0°: horizontal (label upwards), no acceleration applied.
To eliminate mounting offsets the sensor can be centered within ±5° tilt (by the CAN object dictionary)

Cross tilt sensitivity error:
< (0,12 * cross tilt angle)² % typ.

→ one axis <10° tilt for max. accuracy
→ only one axis may exceed 45° tilt

Measurement orientation



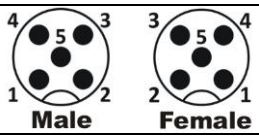
Connectivity (length ±10%)

Connection

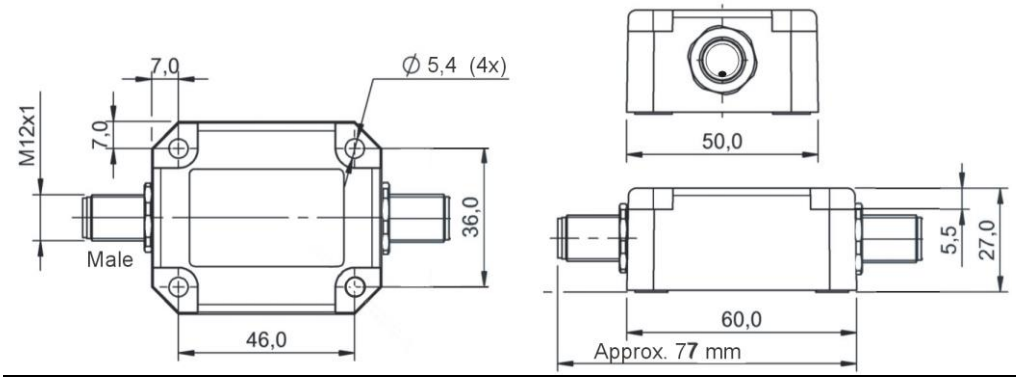
Male only or Male & Female (internal T-junction) M12 connector (5 pins, A-coding)
(CiA303 V1.8.0) (Brass Nickel coated, contacts copper alloy)
No bus termination inside. A CANbus always has to be terminated properly. For bus termination order seperate M12 termination resistor (optional: T-connector)

Wire / pin coding

Pin 1:	Shield
Pin 2:	Vcc
Pin 3:	Gnd & CAN_GND
Pin 4:	CAN_H
Pin 5:	CAN_L



Mechanical dimensions (indicative only)



Center function, CAN-manual, EDS-file, Ordering codes

Centering can be done to eliminate mechanical offsets. (can be done by CAN object 300Fh)
The current sensor position will be stored as the new Center position in the internal Eeprom.

A CAN-manual is available at www.dis-sensors.com, see 'downloads'
EDS-file (CiA306 V1.3.0) is available at www.dis-sensors.com, see 'downloads'

As this device is accelerometer-based the sensor is inherent sensitive for accelerations/vibrations.
Application specific testing must be carried out to check whether this sensor will fulfil your requirements.

Ordering codes:
M12 Male: QG65-KD-090H-CAN-CM, 11784
M12 Male & Female: QG65-KD-090H-CAN-CFM, 11441