QG series

QG76N CAN series (discontinued, successor: QG76N2 Standard accuracy series)

QG76N-SIXv-360-CAN-C(F)M-UL

Inclination sensor
(discontinued)

1 axis vertical mounting

Programmable device
Interface: CANopen

Parameters programmable
by CANopen object dictionary

Measuring range
±180°

General specifications v20210720	
Housing	Stainless steel (AISI 316)
Dimensions (indicative)	70x60x33 mm
Mounting	Included: 4x M4x30 mm stainless steel (A4) Hexagon socket head screws
Ingress Protection (IEC 60529)	IP67, IP69K (with IP69K mating connector), (IP68 with optional cable gland)
Relative humidity	0 - 95% (non condensing, housing fully potted)
Weight	approx. 700 gram
Supply voltage	8 - 30 V dc
Polarity protection	Yes
Current consumption	≤ 25 mA For CFM models (daisy-chained CANbus): max. current internal T-junction: 2.5A
Operating temperature	-40 .. +80 °C
Storage temperature	-40 .. +85 °C
Measuring range	±180°
Centering function	Yes (CANout 0 = 0°), range: 360°
Frequency response (-3dB)	0 - 20 Hz
Accuracy (overall @20°C)	0,15° typ.
Offset error	± 0,05° typ. (± 0,1° 2σ) after centering
Non linearity	± 0,1° typ., ± 0,15° 2σ, ± 0,2° max.
Sensitivity error	not applicable. Repeatability 0,1°
Resolution	0,05°
Temperature coefficient	± 0,01°/K typ.
Max mechanical shock	10.000g
CAN interface (physical layer)	According to ISO 11898-1 & ISO 11898-2 (CAN 2.0 A/B), Short circuit protected
CANopen application layer and communication profile	CANopen protocol: EN 50325-4 (CiA 301 v4.0 and v4.2.0)
Baud rate Node Id TPDO Event time Sync mode Heartbeat Programming options Output format Filtering Modes of operation	125 kbit/s (default), 250 kbit/s, 500 kbit/s, 1Mbit/s 01h (range: 01h - 7Fh) TPDO1: 181h (for Node ID=01h) TPDO1: 5 - 500 ms (default: 100 ms) On/off (default: off) On/off (default: on, 2s) Baudrate, Node Id, Event time, Sync mode, Heartbeat, Output format Integer: -17999 to +18000 (PDO1:byte 2,1) Input filter enabled, output filter disabled Event mode, Sync-mode
Boot time	< 1 s
Programming options	by CANopen object dictionary (CAN parameters, filtering)

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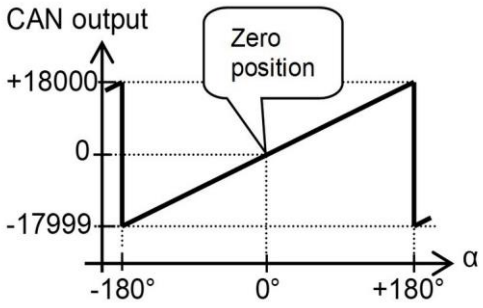
CANoutput = 100*α

Transfer characteristic

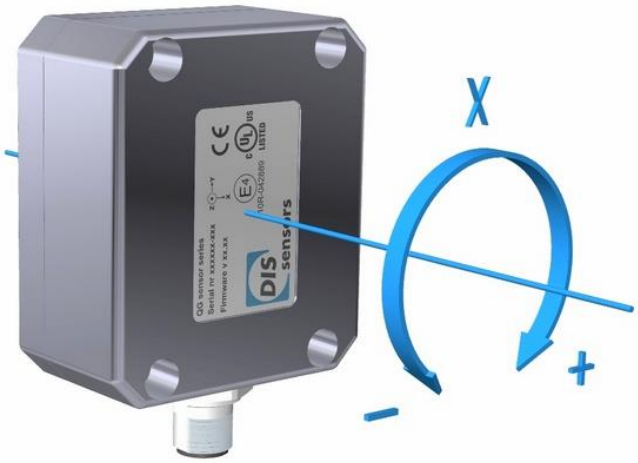


Measurement orientation

Rotation in vertical plane.

Lateral tilt sensitivity error:
< ± 0,03°/° lateral tilt (typ.)
Max. lateral tilt: 45°

Drawn in the default 0° position.



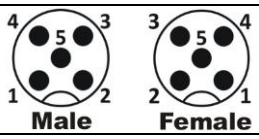
Connectivity (cable length ±10%)

Connection

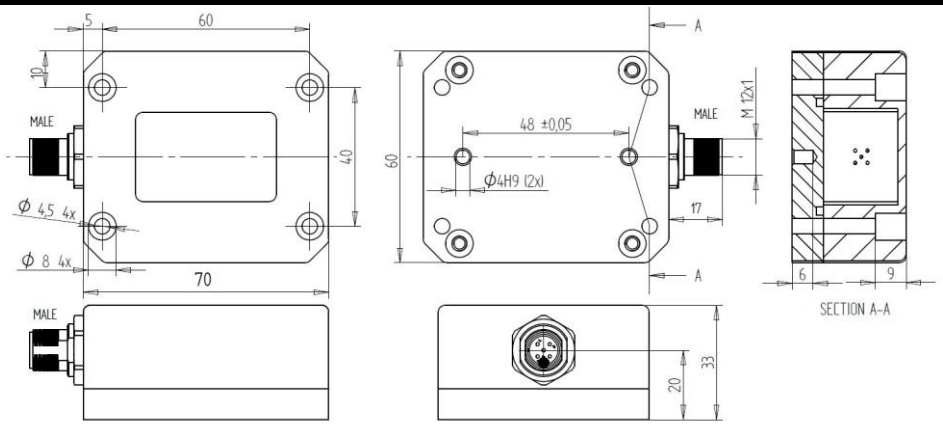
Male only or Male & Female (internal T-junction) M12 connector (5 pins, A-coding)
(CiA303 V1.8.0) (stainless steel 1.4404 (316L), contacts copper alloy)
No bus termination inside. A CANbus always has to be terminated properly. For bus termination order seperate M12 termination resistor (optional: T-connector)

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, UL, CAN-manual, EDS-file, Ordering codes

Before using this device, please read this datasheet, the Manual and the Declaration of Conformity carefully (download from dis-sensors.com)

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'

QG series sensors are intended to measure inclination/acceleration/tilt. Flawless function (acc. spec.) is ensured only when used within specifications. This device is not a safety component acc. to EU Machine Directive (ISO13849). For full redundancy two devices can be used. Modifications or non-approved use will result in loss of warranty and void any claims against the manufacturer.

UL & c-UL listed product (File number E312057, UL508 standards UL60947-5-2 & CSA-C22,2 No. 14)
Product Identity / Category Code Number (CCN): Industrial Control Equipment / NRKH & NRKH7
Enclosure rating: type 1, Ambient temperature: max 80 °C (see also datasheet, lowest value applies)
Electrical ratings: Intended to be used with a Class 2 power source in accordance with UL1310,
max. input Voltage 32V dc (see also datasheet, lowest value applies), max. current 200mA
Accessory Cable Assembly: Any UL-listed (CYJV/7) mating connector with mechanical locking, wire thickness of at least 30 AWG (0,05 mm²), recommended ≤23 AWG (≥0,25 mm²)

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: QG76N-SIXv-360-CAN-CM-UL
M12 Male & Female: QG76N-SIXv-360-CAN-CFM-UL