

QG65N-KIXv-360-CANS-C(F)M-UL-2d

Safety inclination sensor

1 axis vertical mounting

Programmable device

Interface: CANopen Safety

SIL CL 2 (acc. to IEC 62061)

PLd (acc. to EN ISO 13849)

Measuring range

±180°



General specifications 12082/12077, v20230310

Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC)

60x50x27 mm

Included: 4x M5x25 mm zinc plated steel pozidrive pan head screws, self-tapping (PZ DIN7500CZ)
Mounting on flat surface only. Screw crosswise with maximum Torque 2.5 Nm

IP67, IP69K (with IP69K mating connector)

0 - 95% (non condensing, housing fully potted)

approx. 110 gram

8 - 32 V dc SELV

Yes

≤ 25 mA For CFM models (daisy-chained CANbus): max. current internal T-junction: 2.5A

-40 .. +80 °C

-40 .. +85 °C

±180°

Yes (CANout 0 = 0°), range: 360°

0 - 10 Hz

0,15° typ.

± 0,05° typ. (± 0,1° 2σ) after centering

± 0,1° typ., ± 0,15° 2σ, ± 0,2° max.

not applicable. Repeatability 0,1°

0.05°

± 0,02°/K typ.

10.000g

According to ISO 11898-1 & ISO 11898-2 (CAN 2.0 A/B), Short circuit protected

CANopen Safety protocol: EN 50325-5, CANopen protocol: EN 50325-4 (CiA 301 v4.0 and 4.2.0)

CANopen device profile for inclinometers: CiA 410 version 2.0.0

125 kbit/s (default, range 10/20/50/100/125/250/500/800/1000 kbit/s)

01h (default, range: 01h - 7Fh)

50 ms (default, range 10-5000 ms)

off (default, range on/off)

off (default, range on/off)

Integer: -17999 to 18000 (SRDO:byte2,1) (byte 3,4,5,6,7,8: integer 0)

101h (default, range: FFh + 2x node ID -> 101h-17Fh)

102h (default, range: 100h + 2x node ID -> 102h-180h)

80ms(default, worst case 100ms)

20ms

Output filter disabled

Emergency message 080h+Node-ID followed by NMT stop state (no CAN communication)

< 1 s

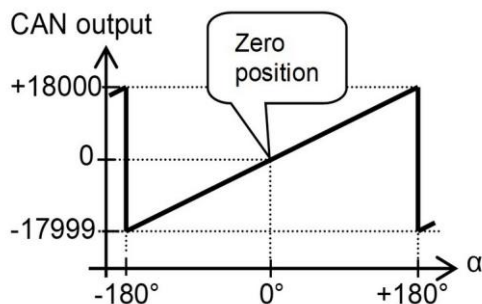
by CANopen object dictionary (CAN parameters, filtering)

| Housing |
|---|
| Dimensions (indicative) |
| Mounting |
| Ingress Protection (IEC 60529) |
| Relative humidity |
| Weight |
| Supply voltage |
| Polarity protection |
| Current consumption |
| Operating temperature |
| Storage temperature |
| Measuring range |
| Centering function |
| Frequency response (-3dB) |
| Accuracy (overall @20°C) |
| Offset error |
| Non linearity |
| Sensitivity error |
| Resolution |
| Temperature coefficient |
| Max mechanical shock |
| CAN interface (physical layer) |
| CANopen application layer and communication profile |
| Baud rate |
| Node Id |
| TPDO1 event time |
| Sync mode (TPDO's) |
| Heartbeat |
| Output format |
| SRDO1 COB-ID1 |
| SRDO1 COB-ID2 |
| Safeguard cycle time (SCT) |
| Safety related validation time (SRVT) |
| Filtering |
| Reaction on error |
| Boot time |
| Programming options |

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CANoutput = $100 \cdot \alpha$

Transfer characteristic

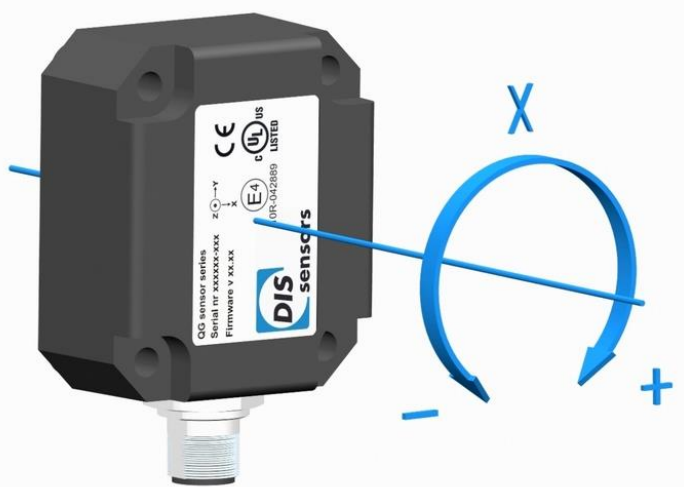


Rotation in vertical plane.

Lateral tilt sensitivity error:
 $< \pm 0,03^\circ$ lateral tilt (typ.)
 Max. lateral tilt: 45°

Drawn in the default 0° position.

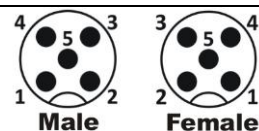
Measurement orientation



Connectivity (cable length $\pm 10\%$)

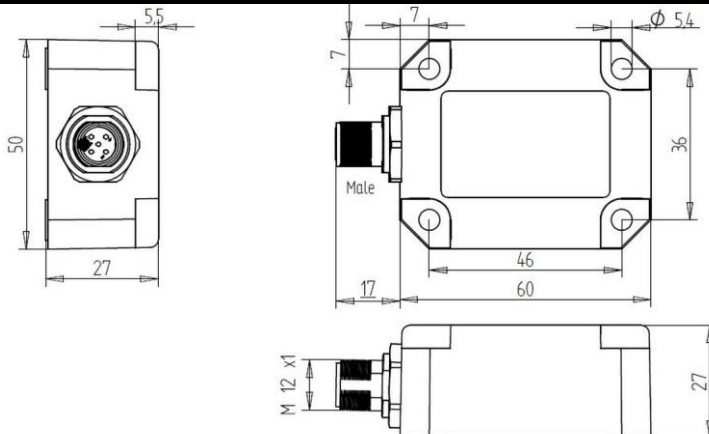
Male only or Male & Female (internal T-junction) M12 connector (5 pins, A-coding)
 (CiA303 V1.8.0) (Brass Nickel coated, contacts copper alloy)
 No bus termination inside. A CANbus always has to be terminated properly. For bus termination order separate M12 termination resistor (optional: T-connector)

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



Wire / pin coding

Mechanical dimensions (indicative only)



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

QG series sensors are intended to measure inclination, acceleration or tilt angle after installing in machines, equipment and systems. Flawless function in accordance with the specifications is ensured only when the device is used within its specifications. Modifications or non-approved use are not permitted and 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)

A CANOpen-safety manual (Dtype), EDS-files (CiA306 V1.3.0) and a Declaration of Conformity are available on www.dis-sensors.com/downloads

Safety information:

- this datasheet + relevant manual must be read and understood before using this safety device
- certified level: SIL CL 2 (acc. to IEC 62061), PLd (acc. to EN ISO 13849)
- EC type examination by DEKRA testing and Certification GmbH Certificate no. 4821024.21001
- Hardware architecture: HFT=1 (according IEC 62061, CAT.3 (according to EN ISO 13849)
- Standard (-40°C to +45°C): MTTFd: 447 year, DC: 93%, CCF: 70 pt, SFF: 98%, PFHd: 14E-09
- High Temp. (up to +85 °C): MTTFd: 73 year, DC: 93%, CCF: 70 pt, SFF: 98%, PFHd: 91E-09
- only a SELV power supply should be used
- Redundancy Compare Time (error if this time is expired): customer adjustable (default 2000ms)
- Redundancy Compare Angle (error if angle-difference > this value): customer adjustable (default 3°)
- Redundancy error: Redundancy Compare Angle & Redundancy Compare Time exceeded
- Error: any detected error or a redundancy error
- Safety Related Fault Respons Time (SRFRT): 100ms + Redundancy Compare Time (default 2000ms)

Optional: for accurate mounting two factory mounted positioning pins can be mounted (Ø4mm) replacing 2x M5x25 mm.

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: QG65N-KIXv-360-CANS-CM-UL-2d, 12082

M12 Male & Female: QG65N-KIXv-360-CANS-CFM-UL-2d, 12077