

QG series

SIL2 / PLd Certified sensor

QG76N-SIXv-360-CANS-C(F)M-2d

Safety inclination sensor

1 axis vertical mounting

Programmable device

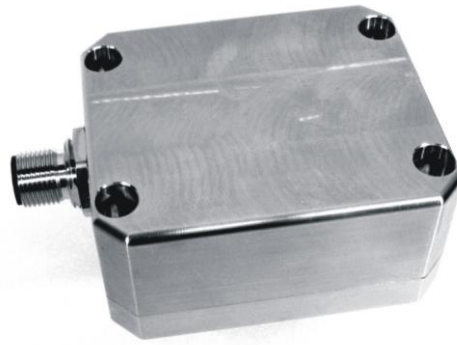
Interface: CANopen Safety

SIL CL 2 (acc. to IEC 62061)

PLd (acc. to EN ISO 13849)

Measuring range

360°



CANopen
safety easy to use



General specifications v20190501

Stainless steel (AISI 316)

70x60x33 mm

Included: 4x M4x30 mm stainless steel (A4) Hexagon socket head screws

IP67 (IP68 with optional cable gland)

0 - 100%

approx. 700 gram

8 - 60 V dc SELV

Yes

≤ 25 mA

-40 .. +85 °C

-40 .. +85 °C

360°

Yes (CANout 0 = 0°), range: 360°

0 - 20 Hz

overall 0,15° typ.

< ± 0,05° typ. (< ± 0,1° max.) after centering

< ± 0,1° typ. (< ± 0,2° max.)

not applicable

0.05°

± 0,01°/K typ.

10.000 g

According to ISO 11898-1 & ISO 11898-2 (also known as CAN 2.0 A/B)

CANopen Safety protocol: EN 50325-5, CANopen protocol: EN 50325-4 (CiA 301 v4.0 & 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 - 3Fh) (01h - 7Fh with adapted COB-ID's)

50 ms (default, range 10-500 ms)

off (default, range on/off)

Integer: -17999 to 18000 (SRDO:byte2,1)

FFh + 2x node ID (for Node ID=01h: SRDO1 COB-ID1=101h)

100h + 2x node ID (for Node ID=01h: SRDO1 COB-ID2=102h)

80ms in CAN object dictionary, 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)

Typ. Accuracy @20°C (2σ)

Offset error

Non linearity

Sensitivity error

Resolution

Temperature coefficient

Max mechanical shock

CAN interface (hardware)

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

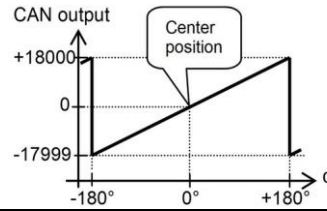
Boot time

Programming options

QG76N-SIXv-360-CANS-C(F)M-2d

CANoutput = 100*α

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



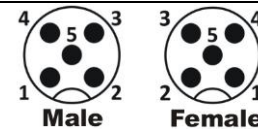
Connection

Connectivity (length ±10%)

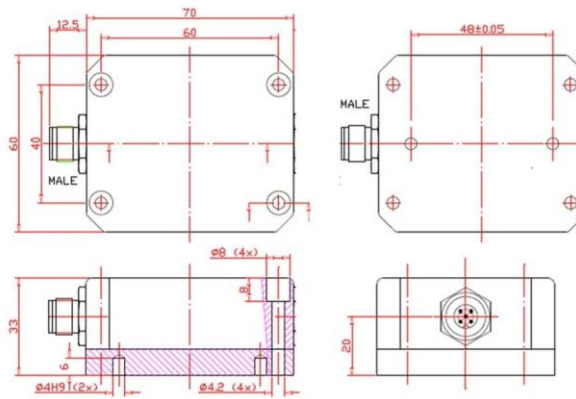
Male only or Male & Female (internal T-junction) M12 connector (5 pins, A-coding) (CiA303 V1.8.0) (stainless steel 1.4404 (316L), contacts copper alloy)
No bus termination inside. A CANbus always has to be terminated properly. For bus termination order separate M12 termination resistor (optional: T-connector)

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)



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

A CANopen-safety manual, 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 EXAM GmbH Reg. no.: ZP/C015/16
- hardware architecture: HFT=0 (according IEC 62061, CAT.2 (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)

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-CANS-CM-2d
M12 Male & Female: QG76N-SIXv-360-CANS-CFM-2d