

QG series



SIL2 / PLd Certified sensor

QG76N-SAXYZ-8,0-CANS-C(F)M-UL-2d

Safety acceleration sensor

3 axis horizontal/vertical mounting
(RMS or Signed Peak value)

Programmable device

Interface: CANopen Safety

SIL CL 2 (acc. to IEC 62061)

PLd (acc. to EN ISO 13849)

Measuring range
 ± 8 g



General specifications v20210720

Stainless steel (AISI 316)

70x60x33 mm

Included: 4x M4x30 mm stainless steel (A4) Hexagon socket head screws
IP67, IP69K (with IP69K mating connector), (IP68 with optional cable gland)

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

approx. 700 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

± 8 g

Yes, 2 horizontal axes only, (CANout 0 = 0 g), range: $\pm 5^\circ$

0 - 1600 Hz

$\pm 1.5/4/8$ g: overall 0,04/0,07/0,1 g typ.

± 20 mg typ. (± 40 mg 2σ) after zeroing

$\pm 1\%$ typ. full scale

$\pm 2\%$ typ.

16 mg

$\pm 0,3$ mg/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)

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: -8000 to +8000 (SRDO:X=byte 2,1; Y=byte 4,3; Z=byte 6,5) (byte 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. Default output mode: Signed Peak

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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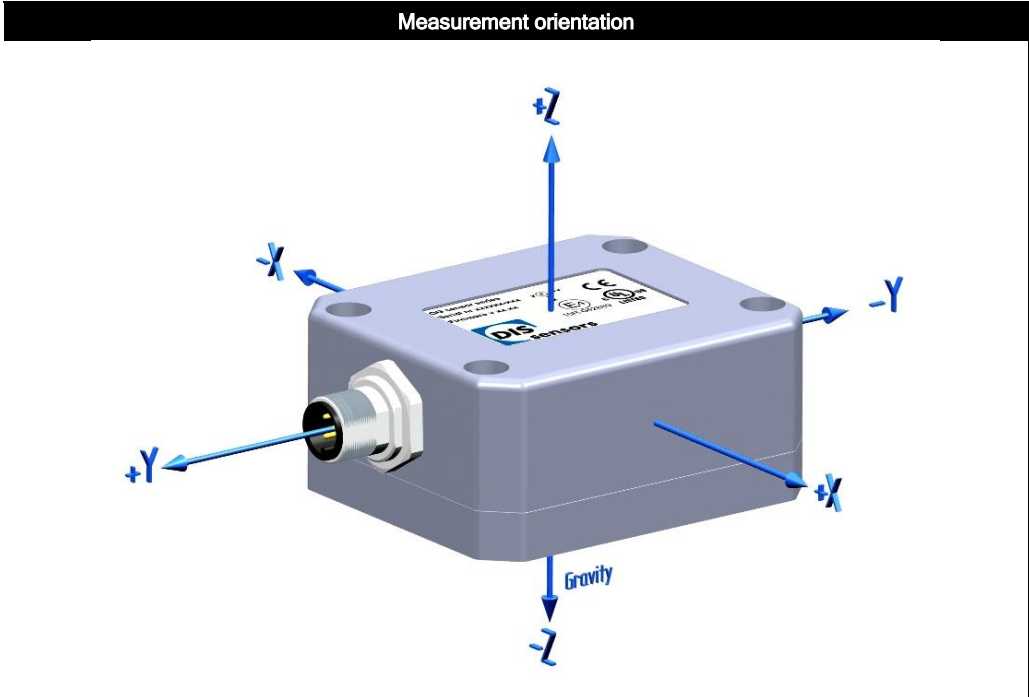
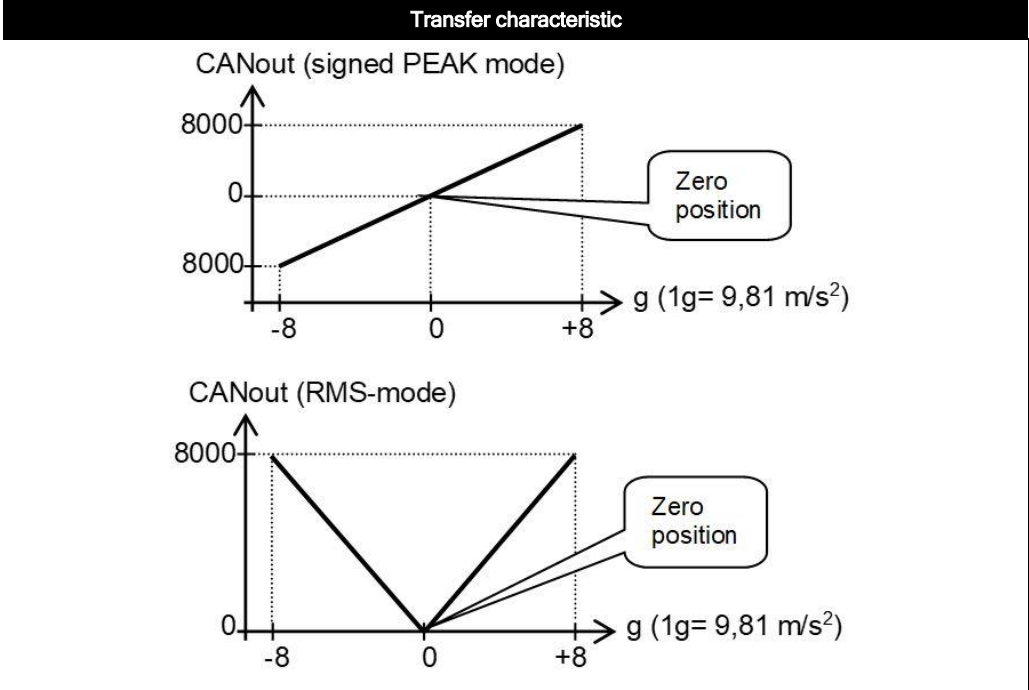
CANoutput = 1000*g
 No clipping outside measuring range

The default 0 g position is when the sensor is mounted horizontal or vertical and no acceleration is applied. The axis parallel to earth gravity will indicate 1 g, the two horizontal axes will indicate 0 g. The two horizontal axes can be zero-ed within ±5° tilt (by the CAN object dictionary) to eliminate mounting offsets. The axis parallel to earth gravity cannot be zero-ed. Optional the axis parallel to earth gravity can be compensated for 1 g gravity by the CAN object dictionary

Output value: Signed Peak (default) or RMS (selectable by CAN object dictionary)

Connection

Wire / pin coding



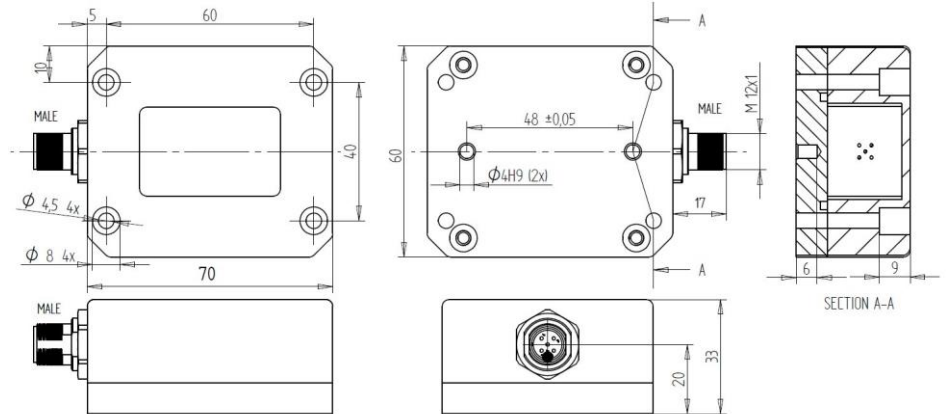
Connectivity (cable length ±10%)

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)

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

Male **Female**

Mechanical dimensions (indicative only)



CAN-manual, EDS-file, UL, 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 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 Acceleration (error if acceleration-difference > this value): customer adjustable (default 580mg)
- 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)

QG series sensors are intended to measure inclination/acceleration/tilt. Flawless function (acc. spec.) is ensured only when used within specifications. 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)

This 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-SAXYZ-8,0-CANS-CM-UL-2d

M12 Male & Female: QG76N-SAXYZ-8,0-CANS-CFM-UL-2d