

QG series



SIL2 / PLd Certified sensor

QG65N-KAXYZ-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
 $\pm 8 \text{ g}$



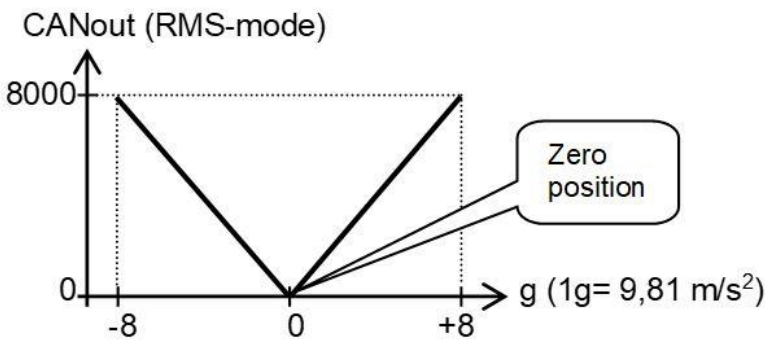
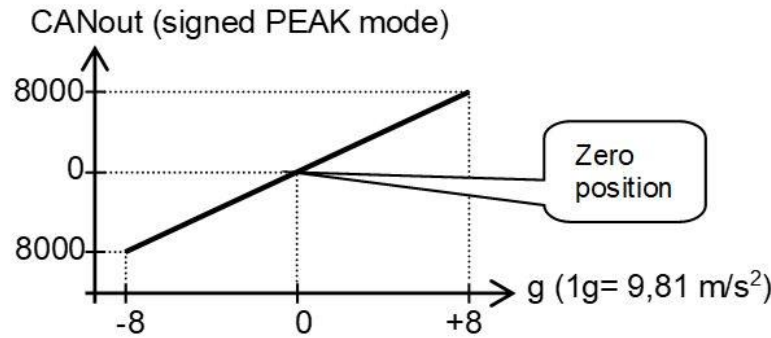
Housing
Dimensions (indicative)
Mounting
Ingress Protection (IEC 60529)
Relative humidity
Weight
Supply voltage
Polarity protection
Current consumption
Operating temperature
Storage temperature
Measuring range
Centering function
Frequency response (-3dB)
Accuracy (overall @20°C)
Offset error
Non linearity
Sensitivity error
Resolution
Temperature coefficient
Max mechanical shock
CAN interface (physical layer)
CANopen application layer and communication profile
Baud rate
Node ID
Event timer for TPDO1
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

General specifications 12847A/12205C, v20241216	
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 with care	
IP67, IP69K (with IP69K mating connector)	
0 - 95% (non condensing, housing fully potted)	
approx. 110 gram	
8 - 32 V dc SELV	
Yes	
$\leq 25 \text{ mA}$ For CFM models (daisy-chained CANbus): max. current internal T-junction: 2.5A	
-40 .. +80 °C	
-40 .. +85 °C	
$\pm 8 \text{ g}$	
Yes, 2 horizontal axes only, (CANout 0 = 0 g), range: $\pm 5^\circ$	
0 - 1600 Hz	
$\pm 1.5/4/8 \text{ g}$: overall 0,05/0,1/0,2 g typ.	
$\pm 20 \text{ mg typ. } (\pm 40 \text{ mg } 2\sigma)$ after zeroing	
$\pm 0,04 \text{ g typ.}$	
$\pm 2\% \text{ typ.}$	
16 mg	
$\pm 0,5 \text{ mg/K typ.}$	
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)	

CANoutput = 1000*g

No clipping outside measuring range

Transfer characteristic



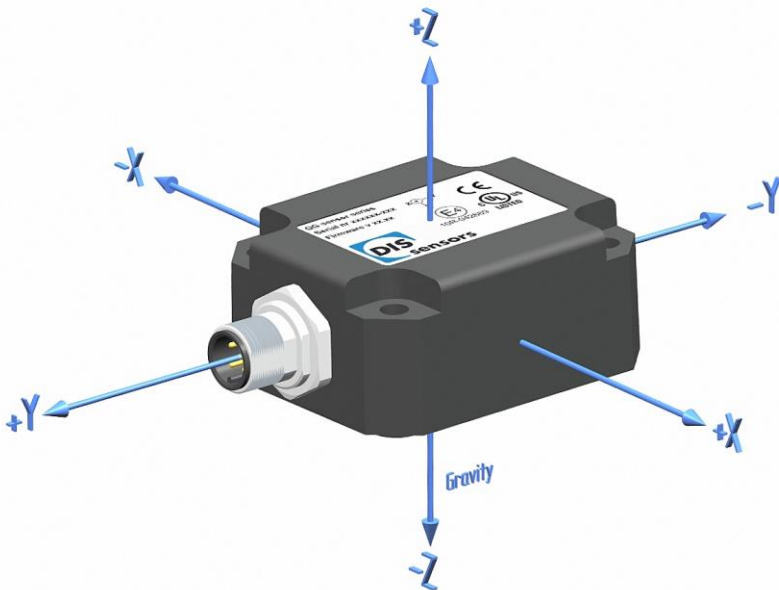
The default 0 g position is when the sensor is mounted horizontal or vertical and no acceleration is applied. The axis parallel to earth gravity will indicate 1 g, the two horizontal axes will indicate 0 g. The two horizontal axes can be zeroed within $\pm 5^\circ$ tilt (by the CAN object dictionary) to eliminate mounting offsets.

The axis parallel to earth gravity cannot be zeroed.

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)

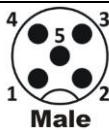
Measurement orientation



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)

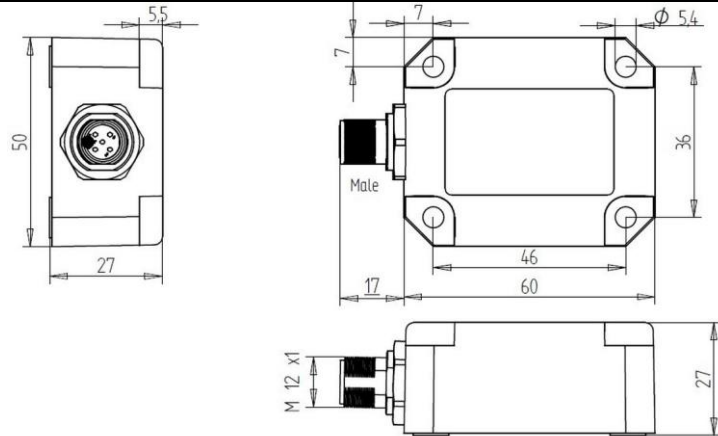
Pin 1: Shield
Pin 2: Vcc
Pin 3: Gnd & CAN_GND
Pin 4: CAN_H
Pin 5: CAN_L



Connection

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 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)

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: QG65N-KAXYZ-8,0-CANS-CM-UL-2d, 12847

M12 Male & Female: QG65N-KAXYZ-8,0-CANS-CFM-UL-2d, 12205