QG series

QG76N2 Analog High accuracy series

QG76N2-SDXYh-090H-AI-CM-UL

Inclination sensor

2 axis horizontal mounting

Factory programmable device
Output: 4 - 20 mA

Measuring range programmable
between ±1° and ±90°

Measuring range
Factory defaults: ± 90°

	General specifications 14324, v20241017
Housing	Stainless steel (AISI 316)
Dimensions (indicative)	70x60x33 mm
Mounting	Not Included: 4x M4 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	10 - 32 V dc
Polarity protection	Yes
Current consumption	≤ 25 mA (excluding output signal)
Operating temperature	-40 .. +80 °C
Storage temperature	-40 .. +85 °C
Measuring range	Factory defaults: ± 90°
Centering function	Yes (12 mA = 0°), range: ±5°
Frequency response (-3dB)	0 - 10 Hz
Accuracy (overall @20°C)	0,1° typ.
Offset error	± 0,05° typ. (± 0.1° 2σ) after zero adjustment
Non linearity	± 0,08° typ., ± 0,15° 2σ, ± 0,2° max.
Sensitivity error	not applicable. Repeatability 0,05°
Resolution	0,01°
Temperature coefficient	±0,3° typ., ±0,5° 2 sigma (over full temperature range)
Max mechanical shock	10,000g (max 0,2ms, non-repetitive)
Output	4 - 20 mA
Output load	0 ≤ Rload ≤ (Vcc-3) / 20mA (Ω), 32 ≥ Vcc ≥ 3+(Rload * 20) (V)
Short circuit protection	Yes
Output refresh rate	10 ms
Programming options	Factory programmable (measuring range, filtering)

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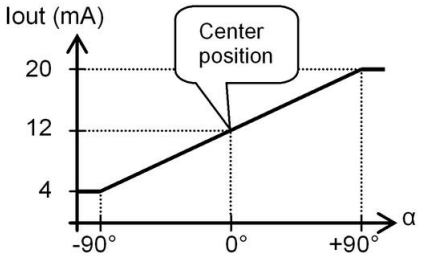
Iout = 12 + 8*(α/90) [mA]

Clipping outside measuring range

Zero adjustment: eliminate mech. offsets
Connect zero adjustment input to ground (>0,5sec) within 1 min. after power up. Normally this input should be left unconnected or permanent connected to Gnd

Transfer characteristic

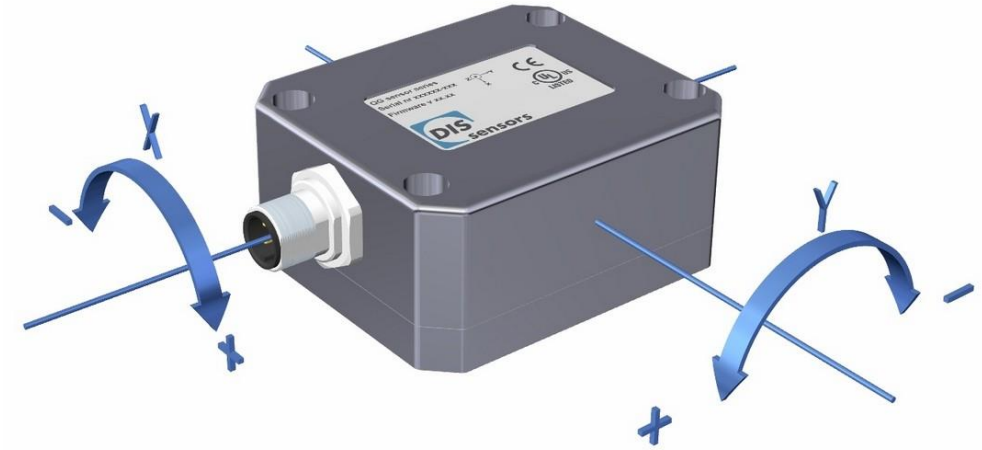


Default 0°: horizontal (label upwards), no acceleration applied.

Cross tilt sensitivity error:
< (0,12 * cross tilt angle)² % typ.

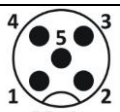
→ one axis <10° tilt for max. accuracy
→ only one axis may exceed 45° tilt

Measurement orientation

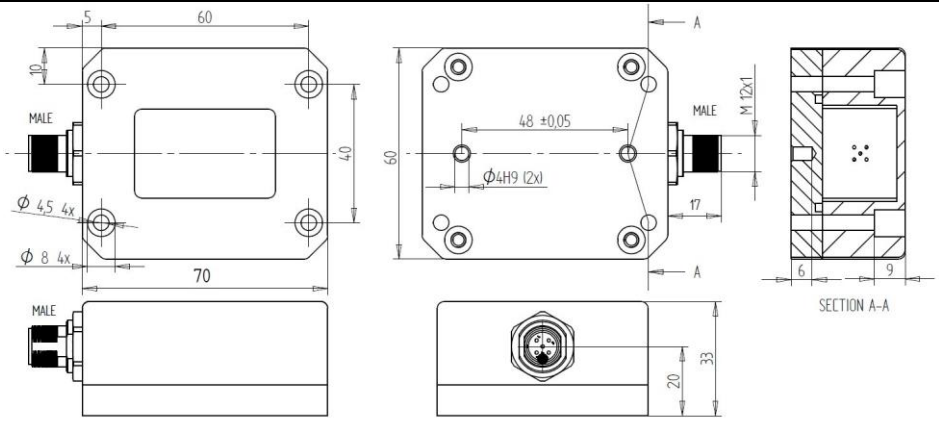


Connectivity (cable length ±10%)

Connection		
Wire / pin coding		
Pin 1:	+ Supply voltage	
Pin 2:	Output Y	
Pin 3:	Gnd	
Pin 4:	Output X	
Pin 5:	Zero adjustment input	



Mechanical dimensions (indicative only)



Remarks, Installation instructions, UL, E4ready

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)

Installation instructions:
1. The cable must always be used as a whole (wires may not be separated from each other)
2. For the automotive (non-R10) standards ISO 13766-1 and -2 (earth moving machinery) and ISO 14982 (agricultural), the sensor may not be directly powered from the vehicle's battery.

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

This product is E4ready and meets Automotive EMC requirements