QG series

QG40N-series

QG40N-KDXYh-090-AI-CM-UL

Inclination sensor

2 axis horizontal mounting

Programmable device
Output: 4 - 20 mA

Measuring range programmable between ±1° and ±90°

Measuring range
Factory defaults: ±90°

c UL us LISTED E312057

CE

General specifications 11746, v20200327	
Housing	Plastic injection molded housing (Arnite T06 202 PBT black)
Dimensions (indicative)	40x40x25 mm
Mounting	Included: 2x M3x25 mm zinc plated steel pozidrive pan head screws, self-tapping (PZ DIN 7500CZ)
Ingress Protection (IEC 60529)	IP67, IP69K
Relative humidity	0 - 95% (non condensing, housing fully potted)
Weight	approx. 45 gram
Supply voltage	10 - 30 V dc
Polarity protection	Yes
Current consumption	≤ 15 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
Typ. Accuracy @20°C (2σ)	overall 0,5° typ.
Offset error	< ± 0,3° (after centering)
Non linearity	< ± 0,4° Typ.
Sensitivity error	not applicable
Resolution	0,1°
Temperature coefficient	± 0,04°/K typ.
Max mechanical shock	10.000 g
Output	4 - 20 mA
Output load	Rload ≤ (50*Vs-300) [Ω] (Eg: Vs = 24 V: Rload ≤ 900 Ω)
Short circuit protection	Yes (T<55°C), Max 10 s (T>55°C)
Output refresh rate	20 ms
Programming options	by optional QG40N-configurator (measuring range, filtering)

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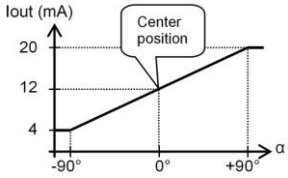
Iout = 12 + 8(α/90) [mA]
clipping outside measuring range

Centering: eliminate mech. offsets
Connect center input to ground (>0,5sec) within 1 min. after power up. Normally the center input should be left unconnected.

Transfer characteristic

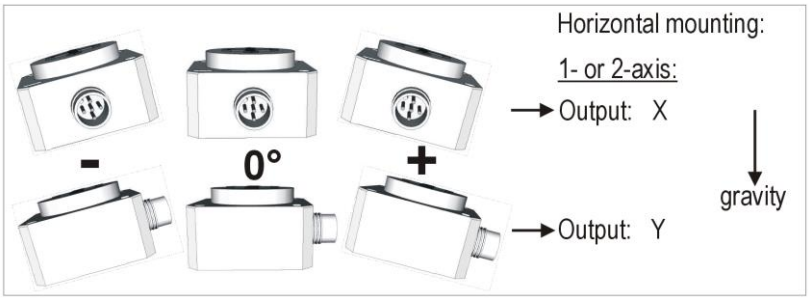


Default 0°: horizontal (round nose upwards), no acceleration applied.

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



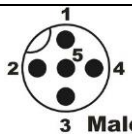
Connectivity (length ±10%)

Connection

M12 5p male connector (Glass fibre reinforced grade, contacts CuZn pre-nickeled galv. Au)

Wire / pin coding

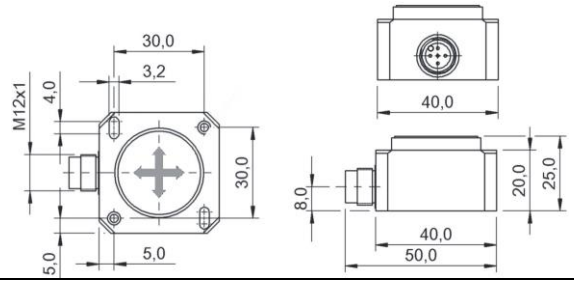
Pin 1:	+ Supply Voltage
Pin 2:	output Y
Pin 3:	Gnd
Pin 4:	output X
Pin 5:	centering



If connected with M12 F (accessoire sold by DIS):

Brown:	'+ Supply Voltage
White:	output Y
Blue:	Gnd
Black:	output X
Green/yellow:	centering

Mechanical dimensions (indicative only)



Intended use, UL, Remarks

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), recommenced ≤23 AWG (≥0,25 mm²)

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.