QG series

QG40N-series

QG40N-KDXYh-090-AV-CM-UL

Inclination sensor

2 axis horizontal mounting

Programmable device
Output: 0,5 - 4,5 V

Measuring range programmable between ±1° and ±90°

Measuring range
Factory defaults: ±90°



General specifications 11740, v20210611	
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) Mounting on flat surface only. Screw with maximum Torque 2 Nm
Ingress Protection (IEC 60529)	IP67, IP69K (with IP69K mating connector)
Relative humidity	0 - 95% (non condensing, housing fully potted)
Weight	approx. 45 gram
Supply voltage	6 - 30 V dc
Polarity protection	Yes
Current consumption	≤ 15 mA
Operating temperature	-40 .. +80 °C
Storage temperature	-40 .. +85 °C
Measuring range	Factory defaults: ±90°
Centering function	Yes (2,5 V = 0°), range: ±5°
Frequency response (-3dB)	0 - 10 Hz
Accuracy (overall @20°C)	0,5° typ.
Offset error	± 0,2° typ. after centering
Non linearity	± 0,4° typ.
Sensitivity error	not applicable. Repeatability 0,2°
Resolution	0,1°
Temperature coefficient	± 0,04°/K typ.
Max mechanical shock	10.000g
Output	0,5 - 4,5 V
Output load	Rload ≥20kΩ, Cload ≤20 nF
Short circuit protection	Yes (max 10 s)
Output refresh rate	20 ms
Programming options	by optional QG40N-configurator (measuring range, filtering)

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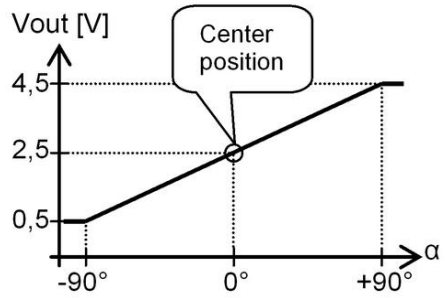
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Uout = 2,5 + 2*(α/90) [V]]
clipping outside measuring range

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

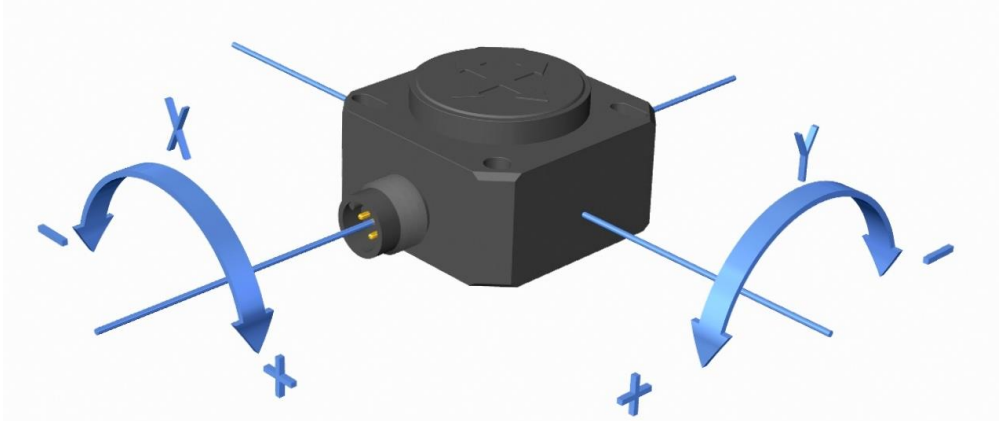


Default 0°: horizontal (round nose upwards), no acceleration applied.

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



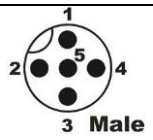
Connectivity (cable length ±10%)

Connection

Wire / pin coding

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

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

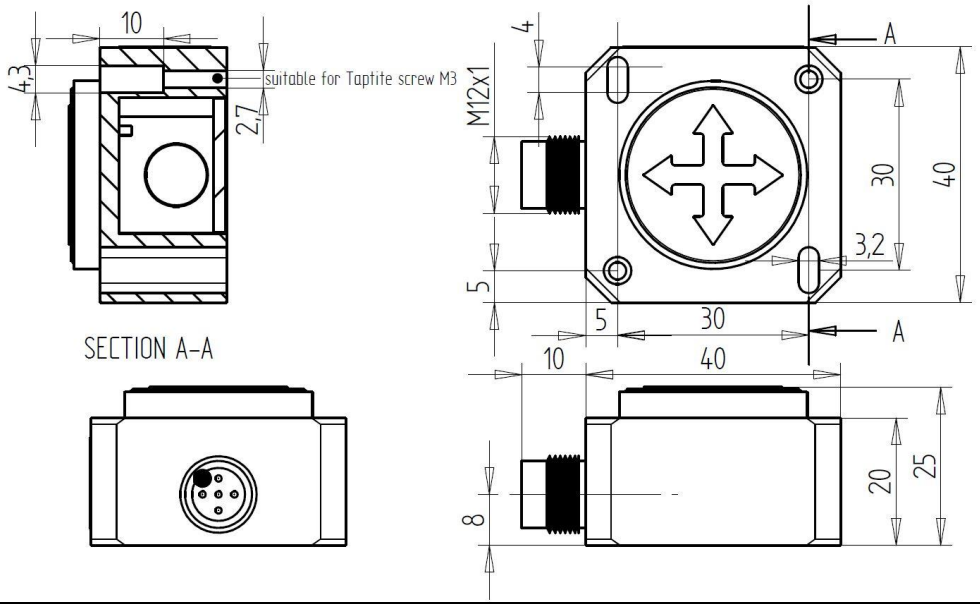


If connected with M12 F (accessoire sold by DIS):

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

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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), recommended ≤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.

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