

QG series

QG40N-series

QG40N-KDXYh-030-AV-CM-UL

Inclination sensor

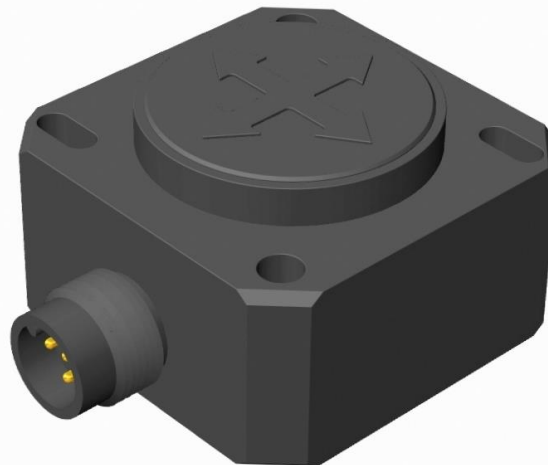
2 axis horizontal mounting

Programmable device

Output: 0,5 - 4,5 V

Measuring range programmable
between $\pm 1^\circ$ and $\pm 30^\circ$

Measuring range
Factory defaults: $\pm 30^\circ$



General specifications 11927B, v20241216

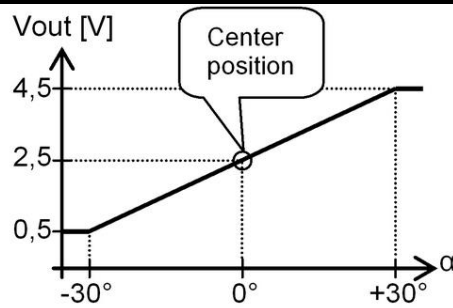
| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Housing | Plastic injection molded housing (Arnite T06 202 PBT black) |
| Dimensions (indicative) | 40x40x25 mm |
| Mounting | Included: 2x M3x25 mm zinc plated steel pozidrive pan head screws, self-tapping (PZ DIN 7500CZ) Mounting on flat surface only. Screw with care |
| 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: $\pm 30^\circ$ |
| Centering function | Yes (2,5 V = 0°), range: $\pm 5^\circ$ |
| Frequency response (-3dB) | 0 - 10 Hz |
| Accuracy (overall @20°C) | 0,5° typ. |
| Offset error | $\pm 0,2^\circ$ typ. after centering |
| Non linearity | $\pm 0,4^\circ$ typ. |
| Sensitivity error | not applicable. Repeatability 0,2° |
| Resolution | 0,1° |
| Temperature coefficient | $\pm 0,04^\circ/\text{K}$ typ. |
| Max mechanical shock | 10.000g |
| Output | 0,5 - 4,5 V |
| Output load | Rload $\geq 20\text{k}\Omega$, Cload ≤ 20 nF |
| Short circuit protection | Yes (max 10 s) |
| Output refresh rate | 20 ms |
| Programming options | by optional QG40N-configurator + brakeout cable (measuring range, filtering). |

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Transfer characteristic

$V_{out} = 2,5 + 2 \cdot (\alpha/30)$ [V]
clipping outside measuring range

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

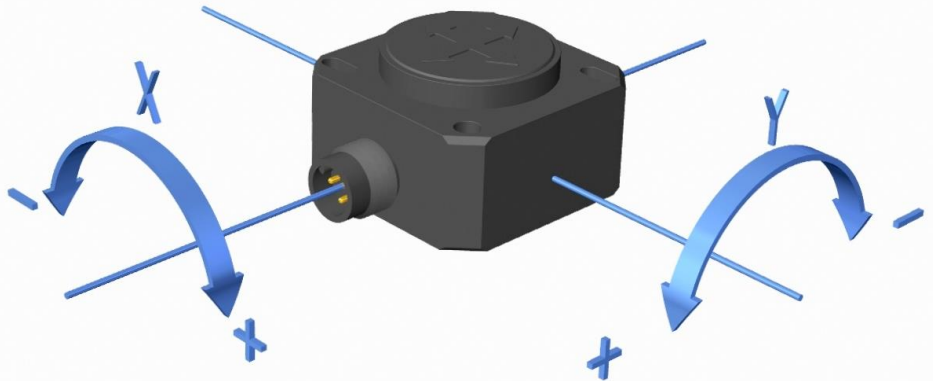


Default 0°: horizontal (round nose upwards), no acceleration applied.

Cross tilt sensitivity error:
 $< (0,12 \cdot \text{cross tilt angle})^2$ % typ.

→ one axis $<10^\circ$ tilt for max. accuracy

Measurement orientation



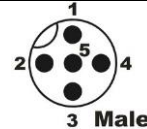
Connectivity (cable length $\pm 10\%$)

Connection

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

Wire / pin coding

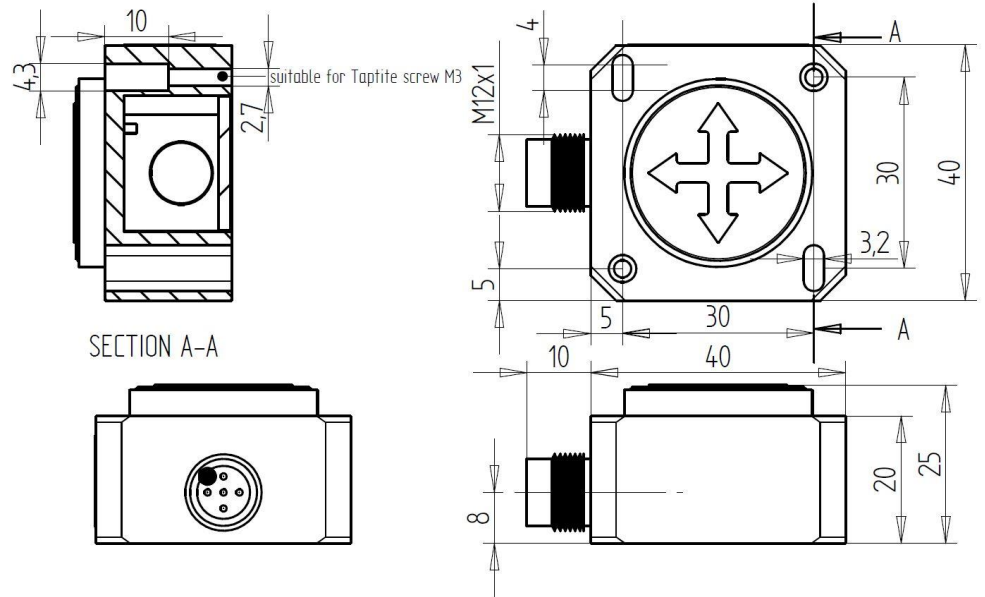
Pin 1: + Supply Voltage
Pin 2: output Y
Pin 3: Gnd
Pin 4: output X
Pin 5: centering



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), 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.