# QG series

QG65N2 Analog Standard accuracy series

QG65N2-KDXYh-090-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°




c UL us LISTED E312057

CE

| | General specifications 14312, v20250811 |
|---|---|
| Housing | Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC) |
| Dimensions (indicative) | 60x50x27 mm |
| Mounting | Not included: M5 pan head screws. 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. 110 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) | 0,2° typ. |
| Non linearity | ± 0,15° typ., ±0.2° 2σ, ± 0,25° max. |
| Resolution | 0,01° |
| Temperature coefficient | T>0°C: 0.02°/K typ. en T<0°C: 0.03°/K typ. |
| 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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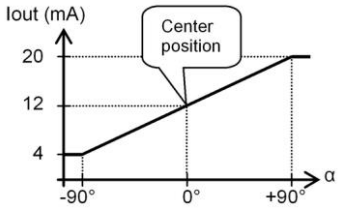
## QG65N2-KDXYh-090-AI-CM-UL

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

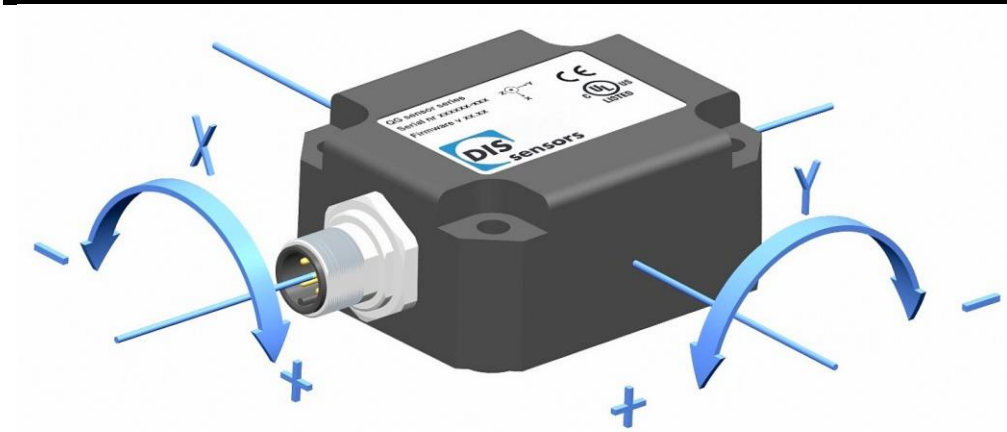



Default 0°: horizontal (label upwards), no acceleration applied.

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



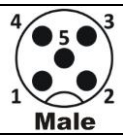

### Connectivity (cable length ±10%)

Connection

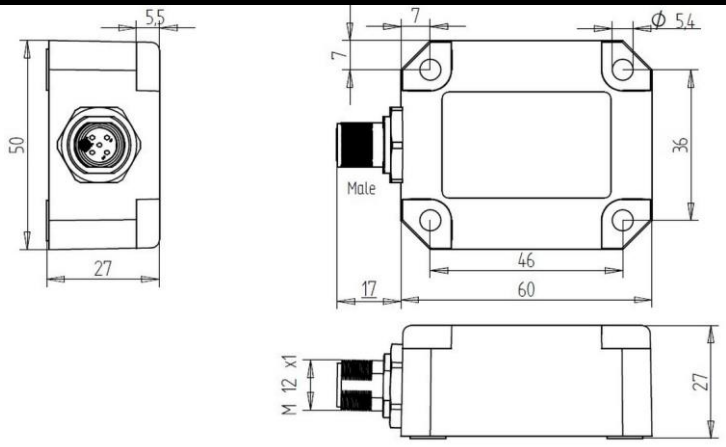
M12 male 5p A-coding connector (Brass Nickel coated, contacts copper alloy)

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

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,



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| | |
|---|---|
| | max. input Voltage 32V dc (see also datasheet, lowest value applies), max. current 200mA<br>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)<br><br>Installation instructions:<br>1. The cable must always be used as a whole (wires may not be separated from each other)<br>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.<br><br>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) |



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