# QG series

## QG65D Analog Standard accuracy series

QG65D-KIXv-360-AI-CM-UL

**Dynamic Inclination sensor**
1 axis vertical mounting

Factory programmable device
Output: 4 - 20 mA

Measuring range programmable between 1° and 360°

Measuring range
Factory default: ±180°




| | **General specifications** 14337, 20241112 |
|---|---|
| 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 default: ±180° |
| Centering function | Yes (12 mA = 0°), range 360° |
| Frequency response (-3dB) | 0 - 50 Hz, Max angle rate 500°/s |
| Accuracy (overall @20°C) | 0,2° typ. (static), 0,8° typ. (dynamic) |
| Offset error | ± 0,1° typ. (± 0.2° 2σ) after zero adjustment |
| Non linearity | ± 0,15° typ., ± 0,2° 2σ, ± 0,25° max., Dynamic: ±0,8° typ. (*) (**) |
| Sensitivity error | not applicable. Repeatability 0,1° |
| 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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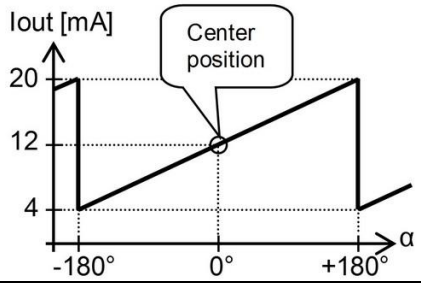
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Iout = 12 + 8*(α/180)  [mA]

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

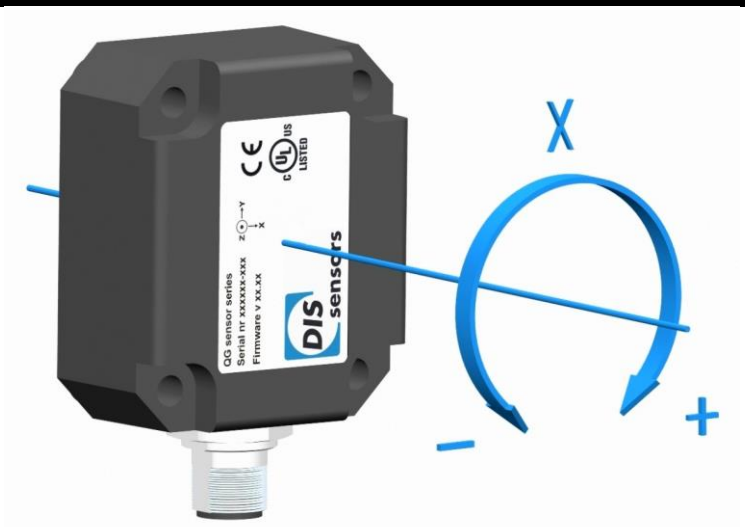



Rotation in vertical plane.

Lateral tilt sensitivity error:
< ± 0,03°/° lateral tilt (typ.)
Max. lateral tilt: 45°

Drawn in the default 0° sensor orientation position
Zeroing can be done to change the sensor orientation at 0° point

### Measurement orientation

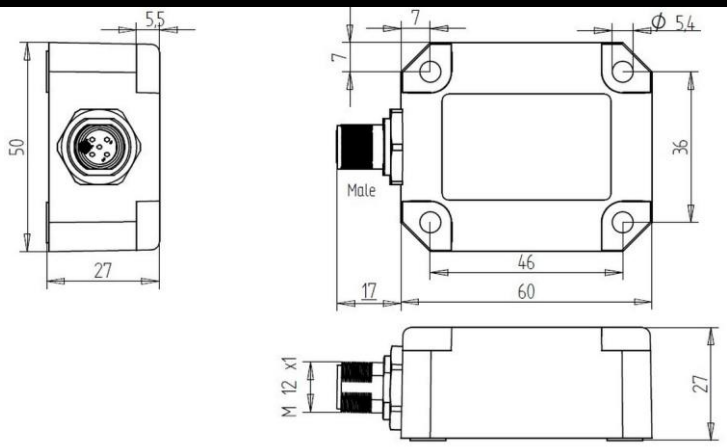



### Connectivity (cable length ±10%)

| Connection | | |
|---|---|---|
| Wire / pin coding | | |
| Pin 1: | + Supply voltage | |
| Pin 2: | For factory use only | |
| Pin 3: | Gnd | |
| Pin 4: | Output X | |
| Pin 5: | Zero adjustment input | |




### Mechanical dimensions (indicative only)






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## 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



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