# QG series

E-series

QG40-KD-010E-AV-CM-UL

## Inclination sensor

2-axis

Non-programmable device

Output: 0,5 - 4,5 V

2-axis horizontal mounting
1-axis hori-/vertical mounting

For standard applications

Measuring range
± 10°



c UL us LISTED E312057

CE

| | General specifications 12277, v20180111 |
|---|---|
| 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 7500C) |
| Ingress Protection (IEC 60529) | IP67 |
| Relative humidity | 0 - 100% |
| Weight | approx. 45 gram |
| Supply voltage | 10 - 30 V dc |
| Polarity protection | Yes |
| Current consumption | ≤ 10 mA |
| Operating temperature | -40 .. +85 °C |
| Storage temperature | -40 .. +85 °C |
| Measuring range | ± 10° |
| Centering function | No |
| Frequency response (-3dB) | 0 - 10 Hz (±2,5 Hz) |
| Accuracy (typ. and/or 2σ) | overall 0,3° typ. (offset excluded) |
| Offset error | < ± 1° typ. (< ± 3° max.) |
| Non linearity | < ± 0,2° |
| Sensitivity error | < ± 2% typ. (< ± 3.5% max.) |
| Resolution | 0,03° |
| Temperature coefficient | ± 0,01°/K typ |
| Max mechanical shock | 3.500g |
| Output | 0,5 - 4,5 V |
| Output load | Rload ≥20kΩ, Cload ≤20 nF |
| Short circuit protection | Yes (max 10 s) |
| Repeatability | 0,1° |
| Programming options | not applicable |

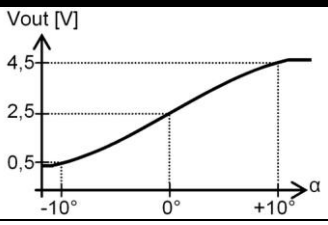
# QG series

## QG40-KD-010E-AV-CM-UL

Uout = 2,5 + 11,52*sin(α) [V]

output clipping outside measuring range at 0,3 V and 4,7 V approximately

### Transfer characteristic




0° positions drawn in plot at the right.

Horizontal mounting:
1-axis or 2-axis usage
Connect output-X and/or output-Y according the plot at the right.

In case of 2-axis usage:
Tilting one axis will influence the other axis, significant influence (10%) when > 25°.

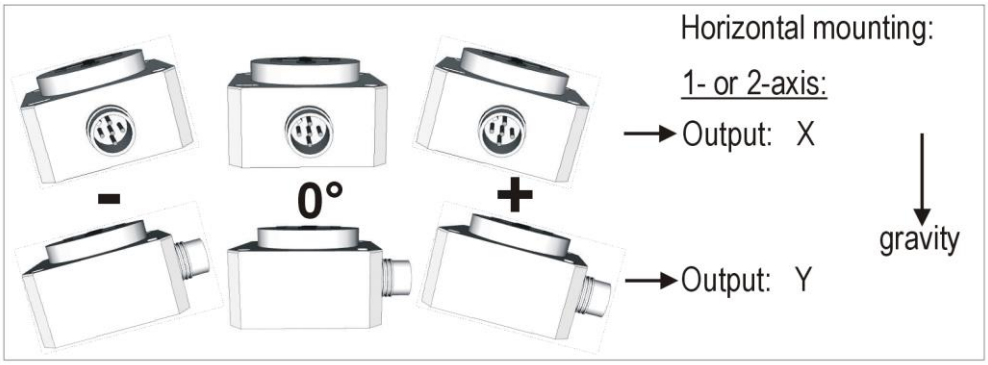
Upside down mounting possible (sensor-nose down)

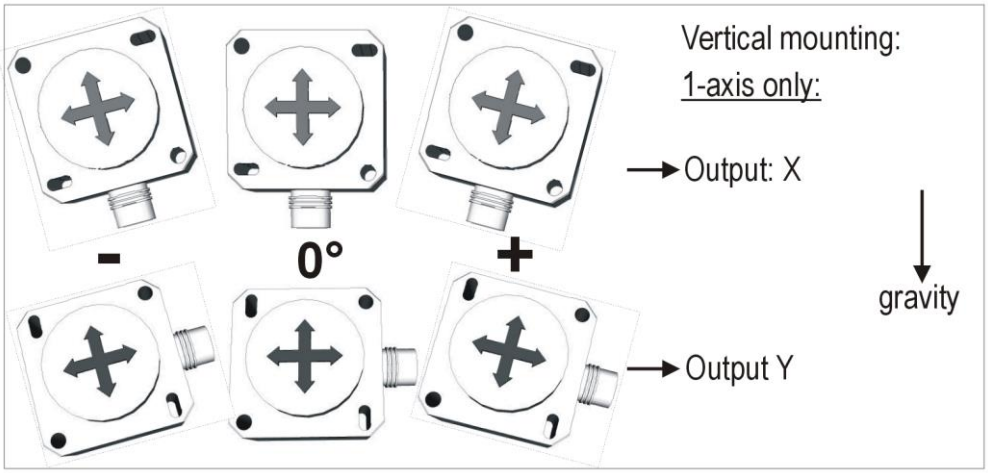
Vertical mounting:
1-axis usage only
Connect output-X and/or output-Y according the plot at the right.

Connector down: Y-output not valid
Mounting with M12 to top possible

Connector side: X-output not valid
Mounting with M12 to left possible

### Measurement orientation



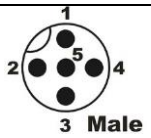

### Connectivity (length ±10%)

Connection

Wire / pin coding

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

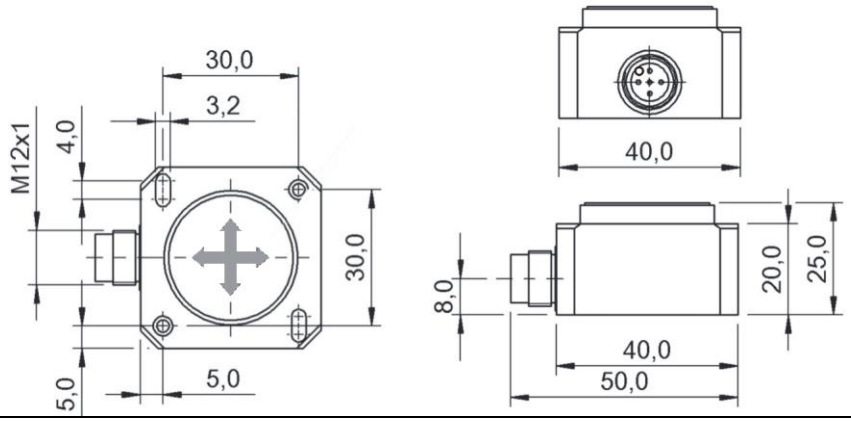
| | |
|---|---|
| Pin 1: | + Supply Voltage |
| Pin 2: | output Y |
| Pin 3: | Gnd |
| Pin 4: | output X |
| Pin 5: | not connected |




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

| | |
|---|---|
| Brown: | '+ Supply Voltage |
| White: | output Y |
| Blue: | Gnd |
| Black: | output X |
| Green/yellow: | not connected |

## Mechanical dimensions (indicative only)




## Intended use, UL, Remarks

QG series sensors are intended to measure inclination, acceleration or tilt angle after installing in machines, equipment and systems. Flawless function in accordance with the specifications is ensured only when the device is used within its specifications. This device is not a safety component according to the EU Machine Directive (ISO13849). For full redundancy two devices can be used in the application. Modifications or non-approved use are not permitted and will result in loss of warranty and void any claims against the manufacturer.

UL certificate: UL File number: E312057
UL & c-UL listed product (UL508 standards UL60947-5-2 & CSA-C22,2 No. 14)
Product Identity / Category Code Number (CCN): Industrial Control Equipment / NRKH & NRKH7
Enclosure / Temperature rating: Enclosure type 1 / Temperature -40° . .+85 °C
Electrical rating: Intended to be used with a Class 2 power source in accordance with UL1310
Electrical ratings: max. input Voltage 30V dc, max. current 500mA
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.