

# QG series

## QG76 analog H-series

QG76-SD-030H-AI-CM-UL

### Inclination sensor

2 axis horizontal mounting

Factory programmable device

Output: 4 - 20 mA

Measuring range programmable

between  $\pm 1^\circ$  and  $\pm 30^\circ$

Measuring range

Factory defaults:  $\pm 30^\circ$



### General specifications v20210921

Stainless steel (AISI 316)

70x60x33 mm

Included: 4x M4x30 mm stainless steel (A4) Hexagon socket head screws

IP67, IP69K (with IP69K mating connector), (IP68 with optional cable gland)

0 - 95% (non condensing, housing fully potted)

approx. 700 gram

10 - 30 V dc

Yes

$\leq 25$  mA ( excluding output signal )

-40 .. +80 °C

-40 .. +85 °C

Factory defaults:  $\pm 30^\circ$

Yes (12 mA = 0°), range:  $\pm 5^\circ$

0 - 10 Hz

0,05° typ.

$\pm 0,03^\circ$  typ. ( $\pm 0,08^\circ$  2 $\sigma$ ) after centering

$\pm 0,04^\circ$  typ.,  $\pm 0,07^\circ$  2 $\sigma$ ,  $\pm 0,09^\circ$  max.

not applicable. Repeatability 0,05°

0,01°

$\pm 0,005^\circ$ /K typ.

20.000g

4 - 20 mA

Rload  $\leq (50 \cdot V_s - 300)$  ( $\Omega$ ) (Eg:  $V_s = 24$  V: Rload  $\leq 900 \Omega$ )

Yes (T<55°C), Max 10 s (T>55°C)

20 ms

Factory programmable (measuring range, filtering)

### Housing

Dimensions (indicative)

Mounting

Ingress Protection (IEC 60529)

Relative humidity

Weight

Supply voltage

Polarity protection

Current consumption

Operating temperature

Storage temperature

Measuring range

Centering function

Frequency response (-3dB)

Accuracy (overall @20°C)

Offset error

Non linearity

Sensitivity error

Resolution

Temperature coefficient

Max mechanical shock

Output

Output load

Short circuit protection

Output refresh rate

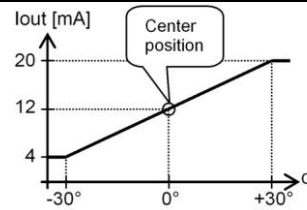
Programming options

## QG76-SD-030H-AI-CM-UL

$$I_{out} = 12 + 8 \cdot (\alpha/30) \text{ [mA]}$$

clipping outside measuring range

### Transfer characteristic

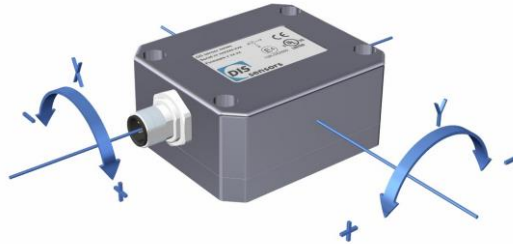


Default 0°: horizontal (top upwards), no acceleration applied.

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

→ one axis <10° tilt for max. accuracy

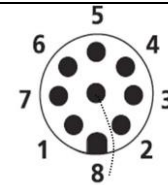
### Measurement orientation



### Connectivity (cable length ±10%)

M12 male 8p connector (stainless steel 1.4404 (316L), contacts copper alloy)

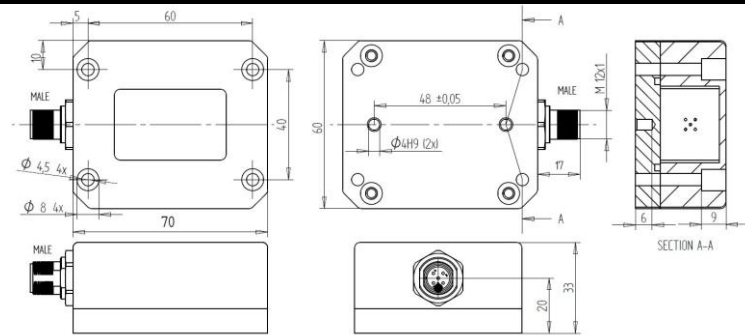
- Pin 1: Output Y
- Pin 2: Supply voltage
- Pin 3: for factory use only
- Pin 4: for factory use only
- Pin 5: Gnd
- Pin 6: Centering input
- Pin 7: Output X
- Pin 8: Not connected



Connection

Wire / pin coding

### Mechanical dimensions (indicative only)



### Center function, intended use & UL

Centering can be done to eliminate mechanical offsets. To execute centering connect center input to ground (>0,5sec) within 1 min. after power up. After centering you have 1 min. left for another centering. Normally the center input should be left unconnected.

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 mm<sup>2</sup>), recommended ≤23 AWG (≥0,25 mm<sup>2</sup>)

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.