

# QG series

## QG40N-series

QG40N-KIXv-170-ASP-CM-UL

### Tilt switch

1 axis vertical mounting

Programmable device

Output: PNP

Switch points programmable  
between  $\pm 1^\circ$  and  $\pm 170^\circ$

Measuring range  
Factory defaults:  $\pm 90^\circ$  &  $\pm 170^\circ$



### General specifications 12262, v20190121

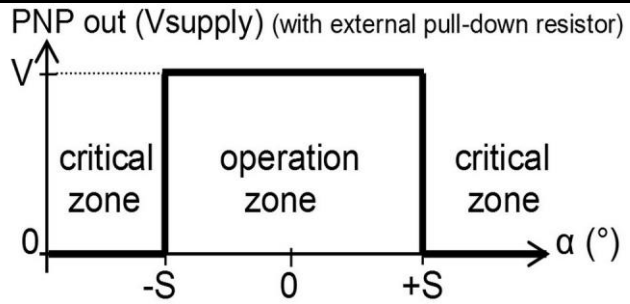
Housing	Plastic injection molded housing (Arnite T06 202 PBT black)
Dimensions (indicative)	40x40x25 mm
Mounting	Included: 2x M3x25 mm zinc plated steel pozidrive pan head screws, self-tapping (PZ DIN 7500C)
Ingress Protection (IEC 60529)	IP67, IP69K
Relative humidity	0 - 100%
Weight	approx. 45 gram
Supply voltage	8 - 30V dc
Polarity protection	Yes
Current consumption	$\leq 25$ mA
Operating temperature	-40 .. +60 °C
Storage temperature	-40 .. +85 °C
Measuring range	Factory defaults: $\pm 90^\circ$ & $\pm 170^\circ$
Centering function	Yes (0°), range: 360°
Frequency response (-3dB)	0-0,5 Hz
Typ. Accuracy @20°C (2 $\sigma$ )	$\pm 0,5^\circ$
Offset error	0° (after zeroing)
Non linearity	not applicable
Sensitivity error	not applicable
Resolution	0,1°
Temperature coefficient	$\pm 0,04^\circ/\text{K}$ typ.
Max mechanical shock	10.000g
Output	dual PNP
Output load	150 mA cont., 250 mA max 10 sec., protected against back EMF
Short circuit protection	Yes (max 10 s)
Boot time	< 100 ms
Programming options	by optional QG40N-configurator (switch points, delay times, filtering)

## QG40N-KIXv-170-ASP-CM-UL

2 independent PNP outputs:  
 - Programmable switchpoints  $\pm S$  (optional QG40N Configurator)  
 - Operation zone: conducting  
 - Critical zone: non-conducting  
 - Unpowered sensor: non-conducting

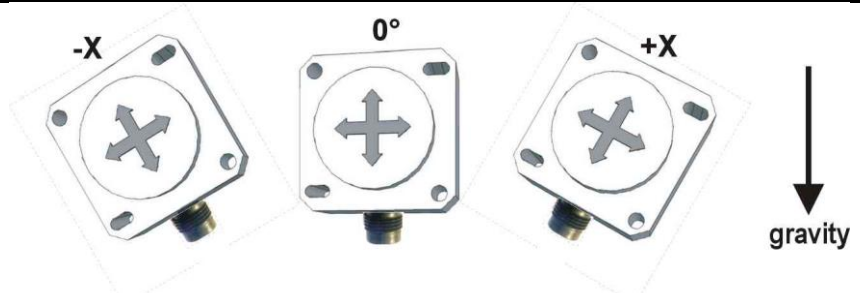
Factory defaults:  
 - Switchpoint  $\pm S$  output 1:  $\pm 90^\circ$   
 - Switchpoint  $\pm S$  output 2:  $\pm 170^\circ$   
 - hysteresis:  $0,5^\circ$   
 - operation  $\blacktriangleright$  critical delay : 0,5 s  
 - critical  $\blacktriangleright$  operation delay : 1 s

### Transfer characteristic



The default  $0^\circ$  position is when the sensor is mounted vertically (M12 downwards) and no acceleration is applied.  
 Zeroing: eliminate mech. offsets  
 Connect zeroing input to ground ( $>0,5\text{sec}$ ) within 1 min. after power up. Normally the zeroing input should be left unconnected.  
 Zeroing is possible at any position in vertical plane.

### Measurement orientation



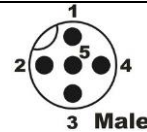
### Connectivity (length $\pm 10\%$ )

#### Connection

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

#### Wire / pin coding

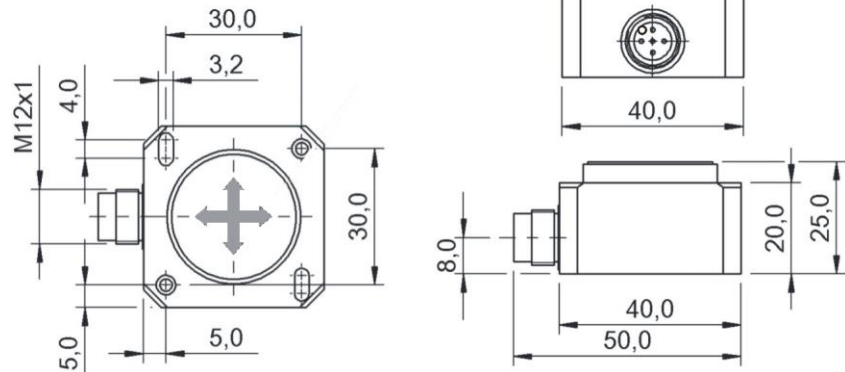
Pin 1: + Supply Voltage  
 Pin 2: output 2  
 Pin 3: Gnd  
 Pin 4: output 1  
 Pin 5: zeroing



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

Brown: '+ Supply Voltage  
 White: output 2  
 Blue: Gnd  
 Black: output 1  
 Green/yellow: zeroing

### 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 50mA

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.