

# QG series

QG65-KD-010..060H-ASN-CM

## Tilt switch

2 axis horizontal mounting

Programmable device

Output: NPN

Switch points programmable  
between  $\pm 1^\circ$  and  $\pm 60^\circ$

Measuring range  
Factory default:  $\pm 60^\circ$



### General specifications 12406, v20180125

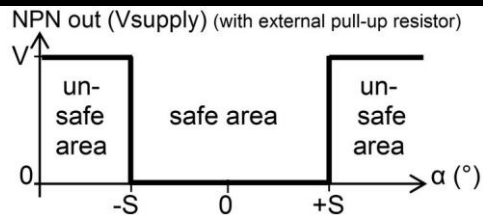
Housing	Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC)
Dimensions (indicative)	60x50x27 mm
Mounting	4x M5x25 mm zinc plated pozidrive screws included (optional: 2x Ø4mm positioning pins)
Ingress Protection (IEC 60529)	IP67
Relative humidity	0 - 100%
Weight	approx. 110 gram
Supply voltage	8 - 30V dc
Polarity protection	Yes
Current consumption	$\leq 50$ mA
Operating temperature	-40 .. +85 °C
Storage temperature	-40 .. +85 °C
Measuring range	Factory default: $\pm 60^\circ$
Centering function	Yes ( $0^\circ$ ), range: $\pm 5^\circ$
Frequency response (-3dB)	0,5 Hz
Accuracy (typ. and/or $2\sigma$ )	$< \pm 0,4^\circ$
Offset error	$< \pm 0,01^\circ$ (after zeroing)
Non linearity	not applicable
Sensitivity error	not applicable
Resolution	$0,01^\circ$
Temperature coefficient	$\pm 0,005^\circ/\text{K}$ typ.
Max mechanical shock	20.000g
Output	dual NPN
Output load	100 mA cont., 250 mA max 10 sec., Resistive
Short circuit protection	No
Boot time	$< 100$ ms
Programming options	by optional QG65-configurator (switch points, delay times, filtering)

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### NPN-output:

- Programmable switchpoints  $\pm S$  (opt. QG65 Configurator RS232)  
Factory default:  $S = \pm 60^\circ$
- at  $0^\circ$ : safe area, conducting
- outside  $\pm S$ : unsafe, non-conducting
- Unpowered sensor: non-conducting
- hysteresis :  $0,2^\circ$
- safe  $\blacktriangleright$  unsafe delay : 500 mS
- unsafe  $\blacktriangleright$  safe delay : 1000 mS

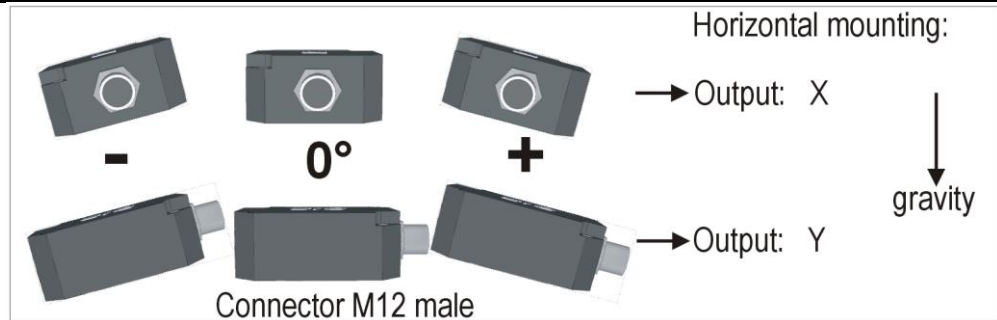
### Transfer characteristic



The default  $0^\circ$  position is when the sensor is mounted horizontally (label upwards) and no acceleration is applied.

$\rightarrow$  only one axis may exceed  $45^\circ$  tilt

### Measurement orientation



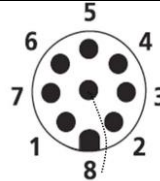
### Connection

Wire / pin coding

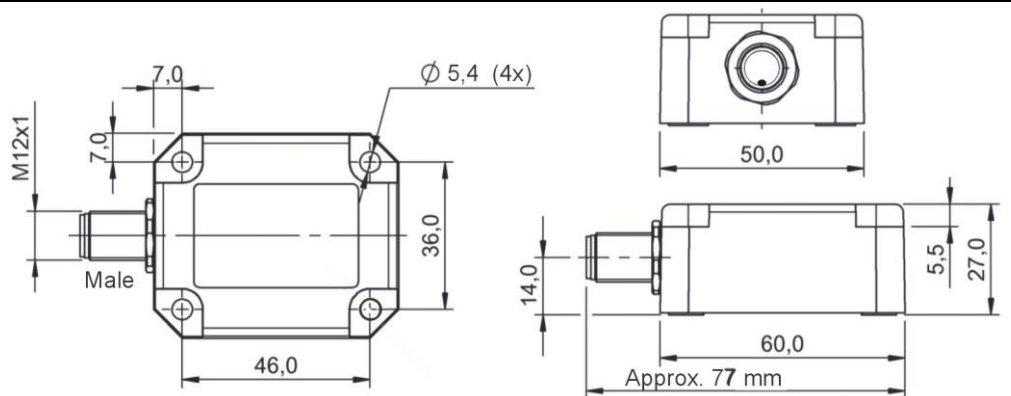
### Connectivity (length $\pm 10\%$ )

M12 male 8p connector (Brass Nickel coated, contacts copper alloy)

- |        |                                |
|--------|--------------------------------|
| Pin 1: | Output Y                       |
| Pin 2: | Supply voltage                 |
| Pin 3: | Programming interface RS232 Rx |
| Pin 4: | Programming interface RS232 Tx |
| Pin 5: | Gnd                            |
| Pin 6: | Zero input                     |
| Pin 7: | Output X                       |
| Pin 8: | Not connected                  |



### Mechanical dimensions (indicative only)



### Zero function

Zeroing should be done within 1 min. after power up. After zeroing you've 1 min. left for another centering.  
Normally the zero input should be left unconnected. Connect zero input to ground for more than 0,5s

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.