



DIS Sensors QG65 Inclination sensor Installation Guide

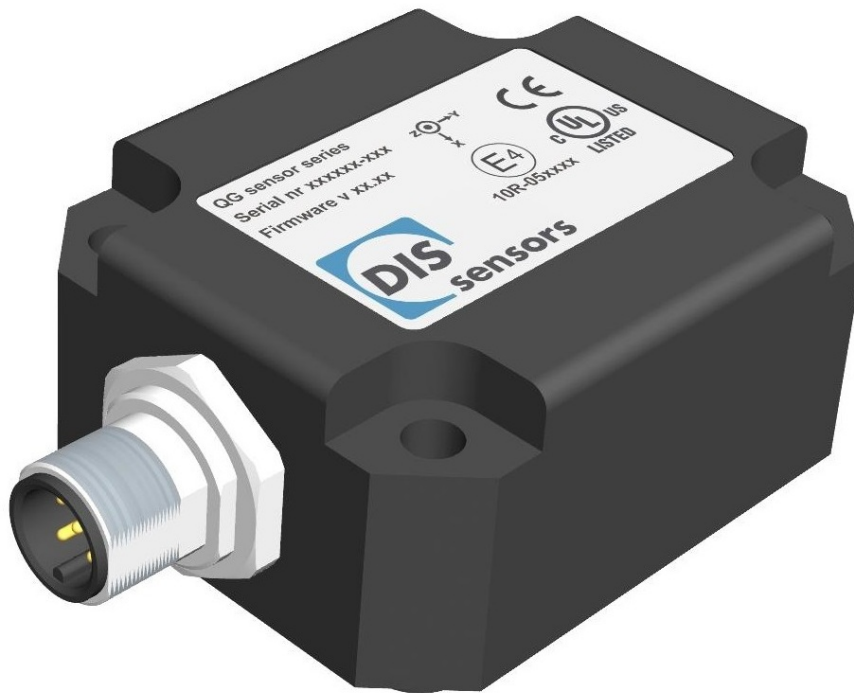
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DIS Sensors QG65 Inclination sensor



Inclination sensor

- 2 axis horizontal mounting
- Factory programmable device Output: 4 – 20 mA
- Measuring range programmable between $\pm 1^\circ$ and $\pm 90^\circ$
- Measuring range
- Factory defaults: $\pm 90^\circ$

Specifications

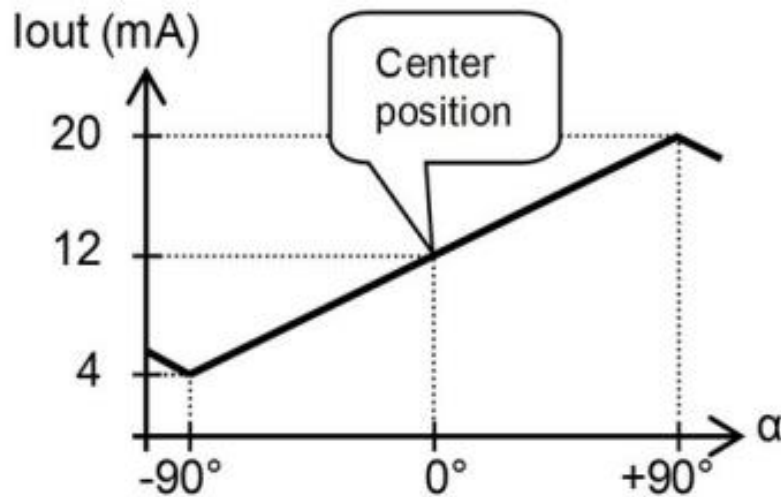
General specifications 11442, v20210921

- Housing Reinforced plastic injection molded (Faradex DS, black, EMI shielded by stainless steel fiber in PC)
- Dimensions (indicative) 60x50x27 mm
- Mounting Included: 4x M5x25 mm zinc plated steel positive pan head screws, self-tapping (PZ DIN7500CZ) (optional: Factory mounted 2x Ø4mm positioning pins replacing 2x M5x25 mm)
- Ingress Protection (IEC 60529) IP67, IP69K (with IP69K mating connector)
- Relative humidity 0 – 95% (noncondensing, housing fully potted)
- Weight approx. 110 gram
- Supply voltage 10 – 30 V dc
- Polarity protection Yes
- Current consumption ≤ 25 mA (excluding output signal)
- Operating temperature $-40 \dots +85^\circ\text{C}$
- Storage temperature $-40 \dots +85^\circ\text{C}$
- Measuring range Factory defaults: $\pm 90^\circ$
- Centering function Yes (12 mA = 0°), range: $\pm 5^\circ$
- Frequency response (-3dB) 0 – 10 Hz
- Accuracy (overall @20°C) 0,09° typ. ($-60^\circ \dots +60^\circ$)

- Offset error $\pm 0,03^\circ$ typ. ($\pm 0,08^\circ$ 2σ) after centering
- Non-linearity $\pm 0,07^\circ$ typ., $\pm 0,1^\circ$ 2σ $\pm 0,15^\circ$ max. ($-60^\circ \dots +60^\circ$)
- Sensitivity error not applicable. Repeatability $0,05^\circ$
- Resolution $0,01^\circ$
- Temperature coefficient $\pm 0,005^\circ/\text{K}$ typ.
- Max mechanical shock $20.000g$
- Output $4 - 20 \text{ mA}$
- Output load $R_{\text{load}} \leq (50 \cdot V_s - 300) (\Omega)$ (Eg: $V_s = 24 \text{ V}$: $R_{\text{load}} \leq 900 \Omega$)
- Short circuit protection Yes ($T < 55^\circ\text{C}$), Max 10 s ($T > 55^\circ\text{C}$)
- Output refresh rate 20 ms
- Programming options Factory programmable (measuring range, filtering)

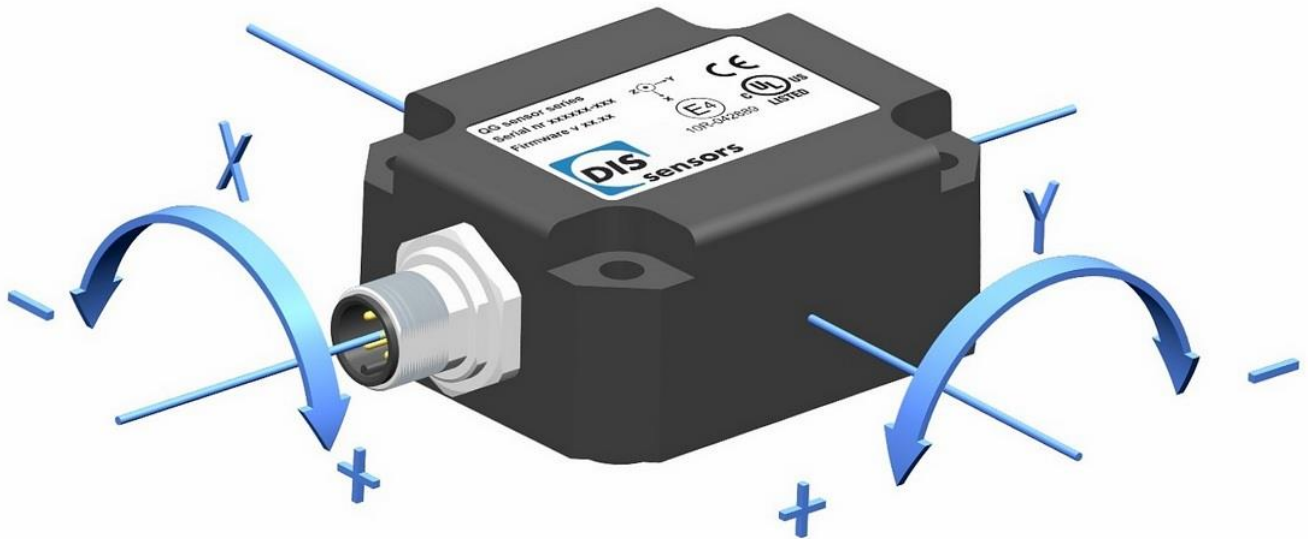
Transfer characteristic

$I_{\text{out}} = 12 + 8 \cdot (\alpha/90) [\text{mA}]$ No clipping outside measuring range



Measurement orientation

- Default 0° : horizontal (label upwards), no acceleration applied.
- Cross tilt sensitivity error: $< (0,12 \cdot \text{cross tilt angle})^2 \% \text{ typ.}$
- one axis $< 10^\circ$ tilt for max. accuracy
- only one axis may exceed 45° tilt



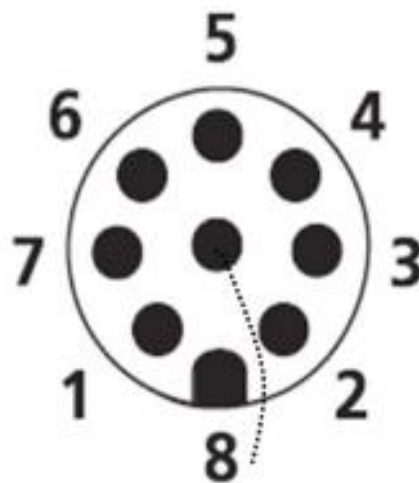
Connectivity (cable length $\pm 10\%$)

Connection

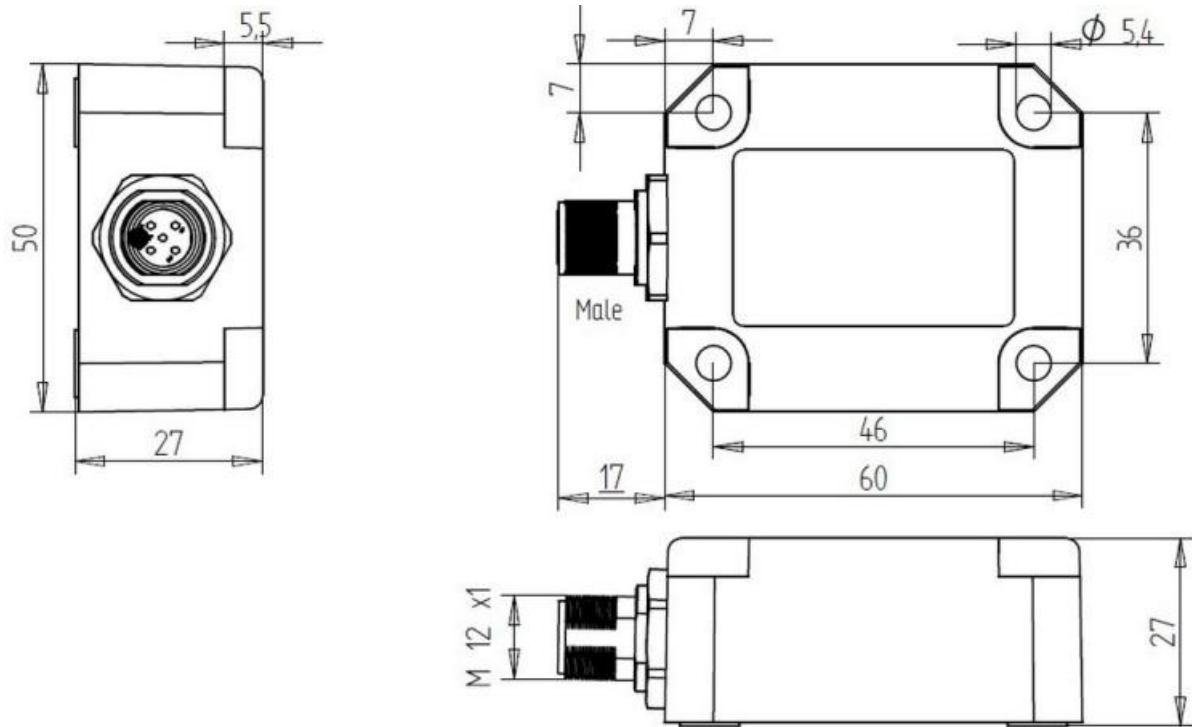
M12 male 8p A-coding connector (Brass Nickel coated, contacts copper alloy)

Wire/pin coding

- 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



Mechanical dimensions (indicative only)



Center function

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. As this device is accelerometer-based the sensor is inherently sensitive to accelerations/vibrations. Application-specific testing must be carried out to check whether this sensor will fulfill your requirements.

DIS Sensors – Oostergracht 40 – 3763 LZ SOEST – The Netherlands www.dis-sensors.com Subject to change without notice.

Documents / Resources

	DIS Sensors QG65 Inclinometer sensor [pdf] Installation Guide QG65 Inclinometer sensor, QG65, Inclinometer sensor, sensor
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References

- [DIS Sensor technology & solutions](#) | [DIS Sensors intelligent sensors](#) | [DIS Sensors](#)