



Inclinometers of high measuring accuracy for inclination measurement in the ranges of ± 10 , ± 30 and ± 80 degrees with a non-amplified, non-conditioned output signal

Features

- linear output characteristics
- high measurement accuracy
- minimal linearity deviation
- high long-term stability
- hysteresis free output signal
- minimal zero point drift
- integrated sensor electronics
- low power consumption
- different output signal options
- no interference by ambient electromagnetic fields
- shockproof as without moving mechanical parts
- hermetically sealed
- sensor electrically isolated within the housing from point of measurement – no ground connections
- zero point adjustable through 360° using clamping ring

Description

The NG2, NG3 and NG4 are capacitive, liquid based inclinometers with integrated sensor electronics. They are manufactured with an analog DC output and, optionally, a pulse-width modulated PWM signal. The sensor electronics require only minimal power and are in conjunction with the capacitive primary transformer characterized by high accuracy and high long-term stability. The measurement technique enables a linear relationship between the angle to be measured and the output signal. The determined angle is independent of the local gravitational acceleration, that means that no matter where the measurement is being taken, whether in Europe, Australia, on Mount Everest or on the moon, the inclination will be measured correctly anywhere.

Application

The inclinometers NG2, NG3 and NG4 are suitable for applications requiring high measurement accuracy with low linearity deviations and high long-term stability for measurement of relatively large inclination angles. Typical areas of application include construction, mining, vehicles, surveying equipment, aircraft, transportation and conveyor systems as well as ships.

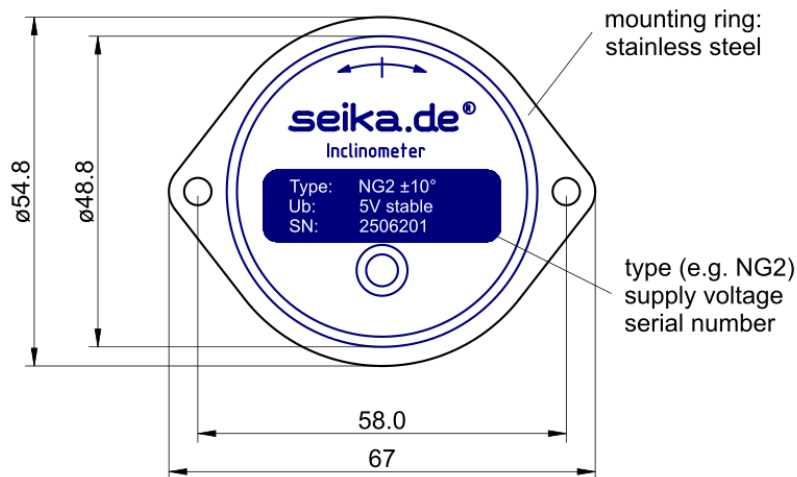
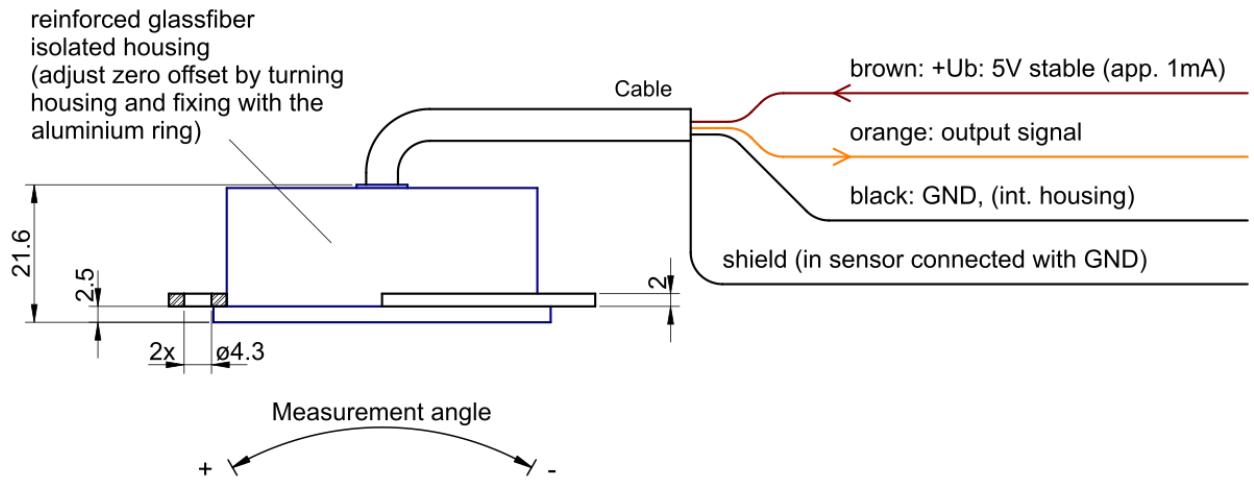
Specifications

Type	NG2	NG3	NG4
Measuring range	± 10 degrees	± 30 degrees	± 80 degrees
Resolution	<0.001 degrees	<0.003 degrees	<0.01 degrees
Values at $U_b = 5$ Volt			
Sensitivity	approx. 9 mV/degree	approx. 6,5 mV/degree	approx. 4 mV/degree

Shared specifications	
Dimensions	see dimension drawing
Linearity deviation	<0.1% of measuring range
Transverse sensitivity	<0.5% at 45° tilt [TBD]
Settling time	approx. 0.3 seconds
Nominal supply voltage (regulated externally)	$U_{bN} = 5 \text{ Volt}$
Permissible supply voltage range U_b	3V ... 6V
Degree of protection	IP65
Operating temperature	-40°C ... +85°C
Storage temperature	-45°C ... +90°C
Weight (without clamping ring or cable)	approx. 111g
Electrical connection	0.5m shielded cable Ø4.6mm
Mechanical overload resistance	10 000 g
Values at $U_b = 5 \text{ Volt}$	
Zero offset	$2.5 \pm 0.1 \text{ V}$ - generally: $0.5U_b \pm 4\%$
Current drawn	approx. 1mA
Temperature drift of sensitivity	approx. -0.24%/K
Temperature drift of zero point	approx. $0.001(5)^\circ/\text{K}$
Output impedance	10 kOhm

• Each sensor is calibrated after production. It is delivered with an individual calibration record that includes the precise offset and sensitivity values, the static characteristic curve and the linearity deviation curve.

Dimensions (in mm) and Connections



Caution! The operating voltage must not be reversed and must not exceed 6 volts.