

## Accurate Electronic Inclinometer with an Integrated Signal Amplifier for Analog 0...5V Output in $\pm 10$ , $\pm 30$ and $\pm 80^\circ$ Ranges.



### Description

The NGU Series of inclinometers - NG2U ( $\pm 10^\circ$ ), NG3U ( $\pm 30^\circ$ ), and NG4U ( $\pm 80^\circ$ ) - are liquid capacitive gravity based sensors with integrated sensor and excitation electronics. The thermal drift of the primary sensor is further compensated by an electronic equalization of the temperature.

An integrated highly stable voltage regulator makes it possible to supply the inclinometer from any unregulated supply or battery as low as +8V and up to +30VDC. The measuring principle assures a linear angle output with 0...5VDC calibrated to equal the measuring range of the sensor. The measuring time constant can be ordered with longer rise times upon request.

### Applications

The NGU Series is well suited for industrial use where high accuracy, long-term stability, and high voltage outputs are desired in environments that experience large temperature changes and where non-stable supply voltages are present.

For additional functionality the SB1U and SB2G Inclinometer Sensor Packages have both zero and gain adjustments. For dual axis applications refer to the SB2G.

Typically used in building and bridge construction, mining, radar alignment systems, pitch and roll, agricultural/construction equipment, and process machinery.

### Features

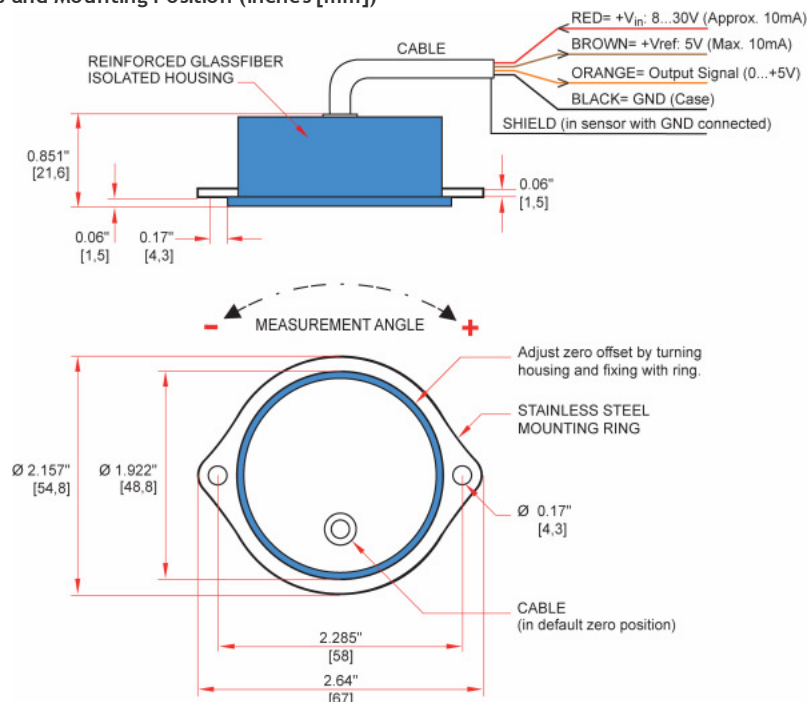
- Temperature Compensated 0...5V output
- Non regulated +8...+30VDC supply input
- Integrated sensor electronics with 5VDC excitation
- Linear output characteristics
- High measurement accuracy
- Very low relative linearity errors
- High long-term stability
- Hysteresis free measuring signal
- Not affected by ambient electromagnetic fields
- Vibration and shock insensitive due to non mechanical internal parts
- Hermetically sealed housing to IP65
- Sensor galvanically isolated from housing
- Sensor zero offset mechanically adjusted with mounting ring
- EMC Certified



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NGU Model Specifications	NG2U	NG3U	NG4U
MEASURING RANGE	±10°	±30°	±80°
RESOLUTION	< 0.001°	< 0.003°	< 0.01°
SENSITIVITY	200 mV/°	66.67 mV/°	25 mV/°
MAX. NON-LINEARITY	< 1*10 <sup>-3</sup> FS		
TRANSVERSE SENSITIVITY	<1% at 45° tilt		
RESPONSE TIME	< 0.3 Sec. (<300mSec), (optional 1s, 2s, 3s)		
TEMPERATURE DRIFT OF SENSITIVITY	<-0.01% /°C		
TEMPERATURE DRIFT OF ZERO	<±10 <sup>-3</sup> °/°C		
ZERO OFFSET	2.5 V		
POWER SUPPLY	8...30VDC non-regulated		
CURRENT CONSUMPTION	Approx. 10mA		
MECHANICAL CHARACTERISTICS			
HOUSING	30% Glass Filled PBT Plastic		
ENVIRONMENTAL PROTECTION	IP65		
MOUNTING	Flat Vertical Surface with Supplied Mounting Ring		
OUTLINE DIMENSIONS	Ø 1.92" (Ø 48.8mm) X 0.85" (21.6mm) h		
	With Mounting Ring: Ø 2.64" (Ø 67mm) X .85" (21.6mm) h		
ELECTRICAL CONNECTION	Ø 0.182" (Ø 4.6mm) Shielded Cable x 1.65' (0.5m) pigtail leads		
WEIGHT	Approx. 3.88 ounces (110 grams) (not including mounting ring)		
OPERATING TEMPERATURE	-40°F to +185°F (-40° to +85°C)		
STORAGE TEMPERATURE	-49°F to +194°F (-45° to +90°C)		

**Figure 1:** Dimensions and Mounting Position (inches [mm])



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