

### Compact Inclinometer Sensors: NB2 (0...7 Hz) & NB2S (0...60 Hz) provide High Accuracy for Small Measuring Ranges within $\pm 10^\circ$



#### Description

The NB3 is a static accelerometer (utilized as an inclinometer) with a high degree of accuracy for measuring small tilt angles of any object with respect to gravity. The sensor's primary transformer consists of a capacitive spring-mass system with a special gas damping for fast dynamic response.

Manufactured either with an Analog DC or a Pulse Width Modulated (PWM) output, the integrated sensor electronics require only minimal power and are in conjunction with the capacitive primary transformer characterized by high accuracy, linearity, and long-term stability.

#### Applications

Well suited for industrial use where the demands for compact inclinometers with good long-term stability (very low power consumption) and relatively small tilt angle measuring ranges ( $\pm 10^\circ$ ) are preferred.

Typically used for automation and inspections applications as well as safety engineering, medical & communications equipment, and leveling systems.

#### Features

- *Small compact housing, less than 1" diameter*
- *0.3 or 0.01 Second Response Time*
- *Linear output characteristics*
- *Minimal zero offset drift*
- *Hysteresis free measuring signal*
- *High measurement accuracy*
- *Very low relative linearity errors*
- *High long-term stability*
- *Analog or PWM output signals*
- *Very low power consumption*
- *Hermetically sealed housing to IP65*
- *Low transverse sensitivity over full range*

**Attention!** These sensors are not suited for applications subject to high mechanical shocks! Handle with care.

#### MECHANICAL CHARACTERISTICS

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<b>Housing</b>	Nickel Plated Brass
<b>Mounting</b>	M3 Mounting Stud, M4 optional
<b>Mounting Plane</b>	Vertical Surface
<b>Outline Dimensions</b>	$\varnothing 0.945"$ ( $\varnothing 24\text{mm}$ ) X $.434"$ (11mm) h
<b>Electrical Connection</b>	3 highly flexible, color-coded wires $\varnothing 0.04"$ ( $\varnothing 1.0\text{mm}$ ) x 7.0" (18cm)
	Optional: Shielded cable $\varnothing 0.083"$ ( $\varnothing 2.1\text{mm}$ ) x 1.65' (0.5m)
<b>Weight</b>	Approx. 0.89 ounces (25 grams) (not including cable)
<b>Operating Temperature</b>	-40°F to +185°F (-40° to +85°C), optional +257°F (+125°C)
<b>Storage temperature</b>	-49°F to +194°F (-45° to +90°C), optional +257°F (+125°C)



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# NB3 Series

## General Specifications Brochure

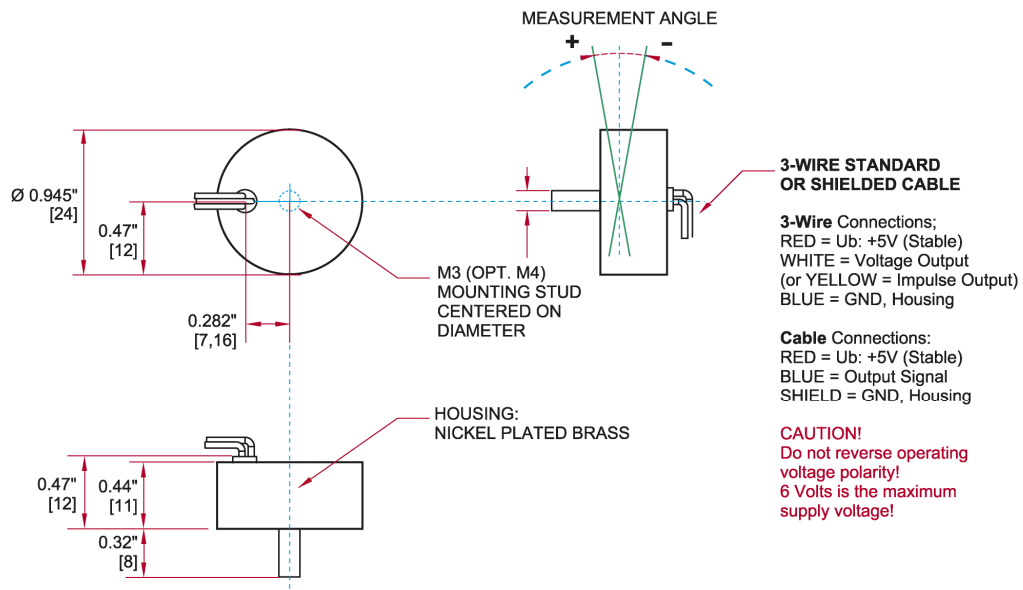
NB MODEL SPECIFICATIONS	
Measuring range	$\pm 10^\circ$
Resolution	$< 0.001^\circ$
Max. Non-linearity	$< 0.2\%$ Full Range for $\pm 10^\circ$ model
	$< 0.5\%$ Expanded Range for $\pm 20^\circ$
Transverse Sensitivity	Negligible
Response Tme	NB3 $< 0.3$ Sec., Frequency 0-7Hz
	NB3S $< 0.01$ Sec., Frequency 0-60Hz
Power Supply $U_b$	5 Volt regulated
Min ... Max. Supply $U_{bz}$	3 ... 6 Volt
Current Consumption $U_b=5$ Volt	Approx. 1mA
Protection Degree	IP65

VALUES FOR ANALOG DC OUTPUT MODEL AT $U_{BN}=5$ VOLT	
Sensitivity	Approx. 15mV/ $^\circ$
Temperature drift of sensitivity	$< +0.01\%$ / $^\circ$ C
Temperature drift of zero	$< \pm 0.025$ mV / $^\circ$ C
Zero offset at $U_b=5$ V	2.5 $\pm$ 0.1 Volt - generally: 0.5 $U_b$ $\pm$ 4%
Output Impedance	10k $\Omega$

Digital pulse-width modulated output signal - linear to the degree of angle - available upon request.

CABLE WIRING TABLE:			
3-WIRE (standard)		SHIELDED CABLE (optional)	
RED	+5VDC Stable	RED	+5VDC Stable
WHITE	Output Signal	BLUE	Output Signal
BLUE	GND (housing)	SHIELD	GND (housing)

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



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