RIEKER
ELECTRONICS INC

N2, N3, N4 ELECTRONIC INCLINOMETERS

FEATURES

- **Convenient small size**
- **Ranges of ±10, ±30 and ±70 degrees**
- **Non-amplified or digital pulse output**
- **Typical OEM product at low cost**
- **Linear output characteristics**
- **Minimal zero offset drift**
- **Hysteresis free measuring signal**
- **High measurement accuracy**
- **Very low relative linearity errors**
- **Long-term stability**
- **Analog or PWM output signals**
- **Hermetically sealed housing to IP65**
- **Sensor zero mechanically adjusted with mounting ring**

DESCRIPTION

Seika inclination sensors - **N2**, **N3** and **N4** - are capacitive liquid based sensors with integrated sensor electronics. These sensors can be supplied with an analog DC output or with a digital pulse-width modulated output signal that is linear to the degree of angle. The power consumption of these sensors is very low (approx. 1mA).

The measuring principle assures a linear angle output equal to the measuring range of the sensor with a maximum range of ±80 degrees on model N4. This is independent of the size of gravity at the measuring point, so it doesn't matter if you are in Europe, Australia or on the moon, the angle of inclination is measured correctly everywhere.

APPLICATIONS

The **N Series** is well suited for industrial use where the demands for compact inclinometers with good long-term stability and relatively large tilt angle measuring ranges are wanted.

These **N Series** inclinometers have been used with very good results in the medical industry, food industry, agriculture machinery, cranes, process machines, transport systems, and for vehicle tilt monitoring, plus many other applications. They are commonly used as OEM sensors combined with OEM electronics.

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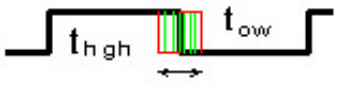
TECHNICAL DATA

	N2	N3	N4
Measuring range	±10°	±30°	±70°
Resolution	< 0.002°	< 0.005°	0.01°
Dimensions **- with Mounting Ring**	.976” (24.8mm) dia. X .46” (11.7mm) h 1.46” (37mm) dia. X .46” (11.7 mm) h		
Max. Non-linearity	<0.2% from measuring value!		
Transverse Sensitivity	<1% at 30° tilt		
Response time	< 0.3 Sec.		
Power Supply U_{bN} (Regulated)	5 Volt		
Min ... Max. Supply U_{bz}	3 ... 6 Volt		
Current consumption U_b=5Volt	Approx. 1mA		
Protection degree	IP65		
Operating temperature	-40 to +85°C		
Storage temperature	-45 to +90°C		
Weight (without cable and mounting ring)	Approx. .653 ounces (18.5 grams)		
Cabling	Standard: 3 highly flexible, individually shielded wires; shielding .039” (Ø 1.0mm) x 7.09” (180mm) l Optional: Shielded cable .083” (Ø2.1mm) x 19.69” (0.5m) l		
Values for analog DC output model at U_{bN}=5Volt			
Sensitivity	Approx. 12mV/°	Approx. 5mV/°	Approx. 3.2mV/°
Temperature drift of sensitivity	-0.17%/°C	< -0.12%/°C	
Temperature drift of zero	< ±0.05mV/°C	< ±0.025mV/°C	
Zero offset at Ub=5V	2.5 ±0.1 Volt - generally: 0.5Ub ±4%		
Output Impedance	10kΩ		
Values for duty cycle for digital pulse width modulated output model at U_{bN}=5Volt			
			
Sensitivity $dt_{(E)}/(t_{high}+t_{low})$	Approx. $76*10^{-3}$/°	Approx. $33*10^{-3}$/°	Approx. $20*10^{-3}$/°
Temperature drift of sensitivity	-0.17%/°C	< -0.12%/°C	
Temperature drift of zero	< ±$1.6*10^{-4}$ FS/°C	< ± $8*10^{-5}$ FS/°C	
Middle initial point t_{high}/t_{low}	1 ±4%		
Output frequency	Approx. 20Hz to approx. 1MHz (optional)		

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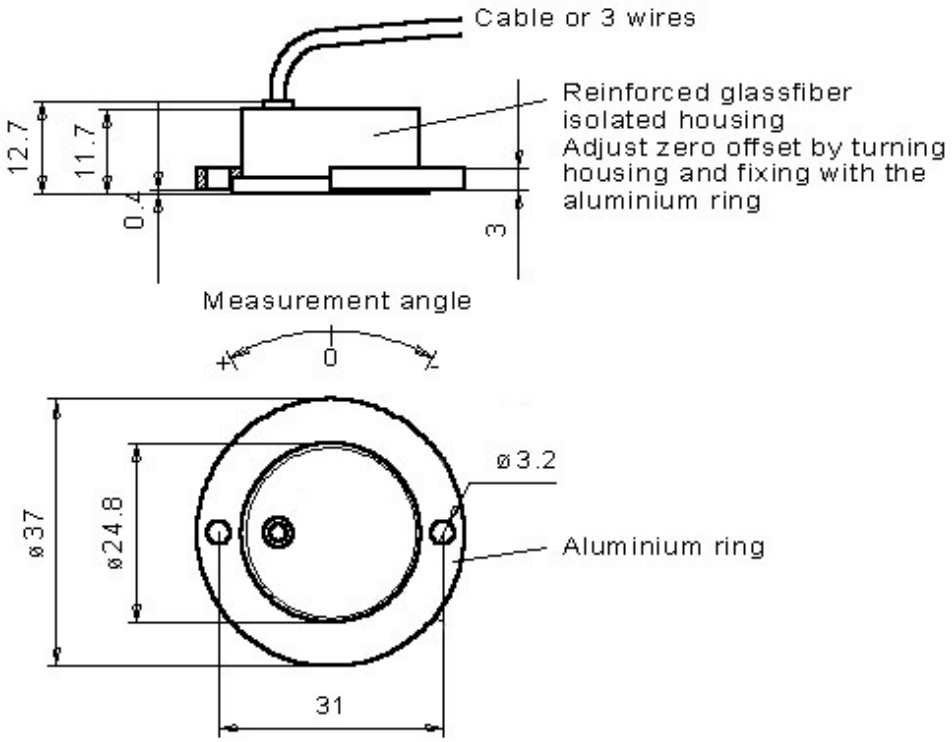
DIMENSIONS (in mm) and CONNECTIONS



Connections 3 wires:
red: +5 Volt stable
white: output signal
blue: GND, inside shield

Cable connections:
red: +5V stable
blue: output signal
shield: GND, inside shield

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