





■ Single axis tilt measuring system

- Measuring range $\pm 3^{\circ}$ up to $\pm 60^{\circ}$ or $0 \dots 90^{\circ}$
- Accuracy $\pm 0.1^{\circ}$ (up to $\pm 15^{\circ}$), 0,5% of measuring range (up to $\pm 60^{\circ}$)
- Analogue output 0 ... (±)10 V or 0(4) ... 20 mA (4-wire-technology)
- Supply voltage 10 ... 18 VDC or 18 ... 30 VDC



Description

The single axis industrial tilt measuring system NM1-IP-4L is the combination of a non-contact inclination and sensor adapted electronics. The measuring system is designed for precise tilt measurement in one axis and intended for side assembly. Available tilt measuring ranges are $\pm 3^{\circ}$ to $\pm 60^{\circ}$ or 0 ... 10° to 0 ... 90°. The electrical wiring is realised in 4-wire-technology. For further evaluation of the measured inclination there are different standard analogue output signals available, depending on the ordered type.

The tilt measuring system is built into a robust EMC-safe die-cast aluminium enclosure (IP66), which is well suited for applications in rough and industrial environments.

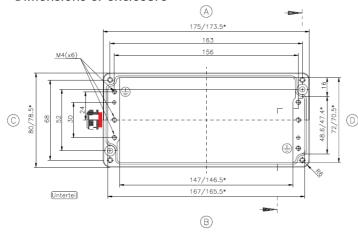
Specifications

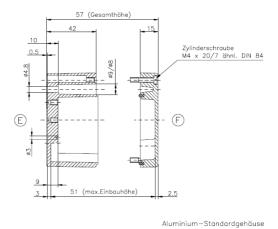
Number of measuring axis:	1				
Supply voltage:	10 18 VDC*, 18 30 VDC*, electronic is protected against voltage reversal				
Voltage insulation between	Galvanic isolation between supply voltage and analogue output,				
supply voltage and analogue output:	200 V, higher voltage insulation on request				
Power consumption:	ca. 3 W				
Analogue output / burden:	010 V / \pm 10 V, max. 1 mA (short-time short-circuit proof) 0 20 mA, 4 20 mA, max. 500 Ω				
Frequency range (-3 dB):	2 Hz				
	±3°, ±5°, ±10°, ±15, ± 20, ±30, ±45°, ±60°				
Preferred measuring range:	0 10°, 0 30°, 0 45°, 0 60°, 0 90°				
	other measuring ranges on request				
A 1.320C	Up to ±15°: ±0,1°				
Accuracy at 23°C:	Up to ±60°: 0,5% of measuring range				
6 11. 11	Up to ±65°: on request				
Cross-sensitivity:	<1% up to ±60°				
Electrical connection:	M16 x 1,5 EMC cable glands on internal spring-cage terminal blocks				
Enclosure:	EMC-safe aluminium die-cast enclosure				
Protection class:	IP66				
Dimensions (W x H x D):	175 x 80 x 57 mm (without EMC cable glands)				
Weight:	1.000 g				
Temperature, storage:	-20 +60 °C				
Temperature, operating:	-20 +60 °C				

*Note: A internal self-restoring "Polyswitch-Resetable"®- fuse, according to the supply voltage, is used to protect the electronics. It is recommended to use a power supply with at least 10 Watt and a slow current limit.



Dimensions of enclosure





Terminal wiring

Electrical connections are made via the EMC-cable glands to the internal spring-cage terminal blocks. The maximal connection cross section is 2,5 mm². Although this system is designed with a high degree of immunity to electromagnetic interferences (EMI), proper installation and wiring methods must be followed to ensure compatibility in each application.

Terminal	Description		
1	Supply voltage		
2	Ground supply voltage		

Terminal	Description		
3	Analogue output		
4	Ground analogue output		

Ordering information

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NM1-IP-4L	Single axis	Single axis tilt measuring system in 4-wire-technology						
	12E	Supply voltage: 10 18 VDC						
	24E	Supply voltage: 18 30 VDC						
		010 Analogue	output:	0 10 V,	zero point at 5 V			
		B10 Analogue output: ±10 V,			zero point at 0 V			
		020 Analogue output: 0 20 mA,			zero point at 10 mA			
		420 Analogue output: 4 20 mA,			zero point at 12 mA			
		xx	xx Measuring range (see note below)					
			V Electronic is potted and protected against humidity and vibrations					

Note: When placing an order, please fill in placeholder "xx" with the wanted tilt measuring range.

Example:

Measuring range ±45°, Analogue output ±10 V, Supply voltage 18 ... 30 VDC
Measuring range 0 ... 60°, Analogue output 0 ... 10 V, Supply voltage 10 ... 18 VDC

- → NM1-IP-4L-24E-B10-B45
- → NM1-IP-4L-12E-010-060

Customized Requirements

Technical modifications according to customer requirements are available on request. Moreover, we deliver customized special solutions for a lot of measuring tasks in the section pressure, force, position and tilt measuring using our measuring transducers. Do not hesitate to contact us.

We reserve the right to do technical changes without prior notice

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