



NM1-IP-4L-12E/24E-xxx-xx-2G

Single Axis Industrial Tilt Measuring System with 2 Adjustable Threshold Value Set Points as well as Potential-Free Switching Contacts



- ▣ Supply voltage 10 ... 18 VDC or 18 ... 30 VDC
- ▣ Measuring range up to $\pm 45^\circ$ or 0 ... 90°
- ▣ Accuracy 0.1° (up to $\pm 10^\circ$), 0.4° (beyond $\pm 10^\circ$)
- ▣ Analogue output 0 ... (\pm)10 V or 0(4) ... 20 mA (4-Wire-Technology)

The single axis industrial tilt measuring system exists by the combination of a non-contact working inclination sensor of the type AccuStar™ and an electronic-board, which is adapted to the sensor. The measuring system is designed for precise tilt measuring in x-axis and is planned for the side wall assembly. The inclination measuring range, that is to be acquired, can be, depending on version, in the area of $\pm 3^\circ$... $\pm 45^\circ$ or 0 ... 30° up to 0 ... 90° .

The electrical connection occurs in 4-wire technology. For further evaluation are several standard analogue output signals (see Order Description) and 2 adjustable threshold value set points as well as potential-free switching contacts (max. 30 VDC / 0.5 A) available.

The tilt measuring system is built-in in a robust EMC-safe aluminium diecast enclosure (IP65), which is suited for the application in rough and industrial surroundings.

▣ Technical Data

Number of measuring axis:	1	
Supply voltage:	10 ... 18 VDC (Version 12E)* 18 ... 30 VDC (Version 24E)*	Electronic protected against voltage reversal
Isolating proof voltage input to output:	200 V	Higher isolated proof voltage on request
Power consumption:	approx. 5 W	
Analogue output:	0 ... 10 V / ± 10 V 4 ... 20 mA	max. 1 mA (short-period short-circuit proof) max. 500 Ω
Frequency range (-3dB):	0,5 Hz	
Preferred measuring range:	$\pm 3^\circ$, $\pm 5^\circ$, $\pm 10^\circ$, $\pm 15^\circ$, $\pm 20^\circ$, $\pm 30^\circ$, $\pm 45^\circ$ 0 ... 10° , 0 ... 30° , 0 ... 45° , 0 ... 60° , 0 ... 90° Other ranges on request	
Number of relay switching contacts:	2	
Max. Power rating of relay:	30 VDC / 0.5 A	
Accuracy at 23 °C:	Up to $\pm 10^\circ$ inclination $\pm 10^\circ$ up to $\pm 45^\circ$ inclination Inclination $> 45^\circ$	$\pm 0.1^\circ$ $\pm 0.4^\circ$ on request
Switching accuracy at 23 °C:	max. $\pm 0.15^\circ$	
Electrical connection:	M16x1.5 EMC-cable fitting on internal terminal block	
Enclosure:	EMC-safe aluminium-diecast enclosure (IP65)	
Protection class:	IP65	
Dimensions (W x H x D):	160 x 61 x 100 mm (without cable gland)	
Weight:	870 g	
Temperature, storage:	-20 °C ... +60 °C	
Temperature, operating:	-20 °C ... +60 °C	

* **Notice:** To protect the electronic, an internal "Polyswitch- Resetable®" fuse that corresponds to the supply voltage, is available.

Further specifications see datasheet AccuStar™

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Order Description

NM1-IP-4L... Single axis industrial tilt measuring system (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-... Tilt measuring range (see notice below)

...-2G 2 adjustable threshold value switching points as well as potential-free switching contacts (max. 30 VDC/ 0,5 A)

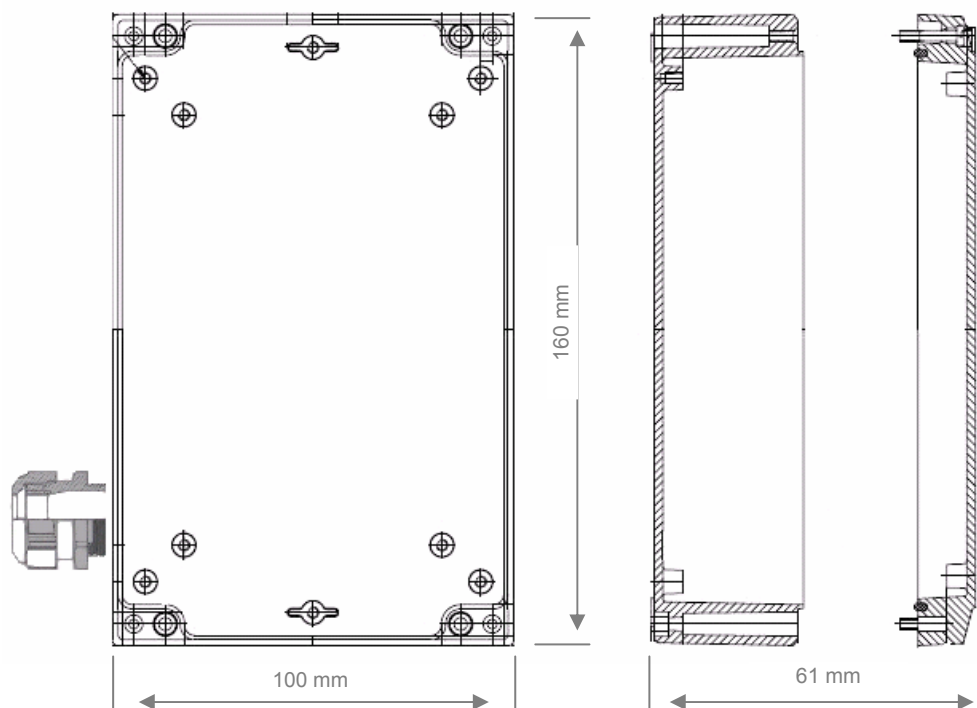
Notice: With order, the desired tilt measuring range as well as the desired analogue output range is to be given as the example shown below.

Example:

Tilt measuring range $\pm 45^\circ$, analogue output range ± 10 V, Supply voltage 18 ... 30 VDC \rightarrow NM1-IP-4L-24E-B10-B45-2G

Tilt measuring range 0 ... 60° , analogue output range 0 ... 10 V, Supply voltage 10 ... 18 VDC \rightarrow NM1-IP-4L-12E-010-060-2G

Enclosure Dimensions



Terminal Wiring

Electrical connections are made via cable gland on terminal block located in the inside of the enclosure. The maximum cable cross section amounts 2.5 mm². The clip numbering is located on the terminal block.

Terminal	Description
1	Supply voltage
2	GND Supply voltage
3	Set point SP1 N/O contact
4	Set point SP1 COM
5	Set point SP1 N/C contact

Terminal	Description
6	Set point SP2 N/O contact
7	Set point SP2 COM
8	Set point SP2 N/C contact
9	Analogue output x-axis
10	Analogue output GND

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Page 2/3

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▣ Alignment/Calibration

A calibration with a traceable factory calibration certificate is possible on request and for an extra charge.

▣ Customized Requirements

Technical modification according customized requirement are possible on request. Moreover, we deliver customized special solutions for a lot of measuring tasks in the section pressure-, force-, distance - and tilt-measuring using our offered measuring transducer. Do not hesitate to contact us.

Our policy is to improve specification of our products continuously, so technical and production details can be changed without any notice.