



## NM1-2L

### Single Axis Industrial Tilt Measuring System

- ▣ Supply voltage 18 ... 28 VDC
- ▣ Measuring range up to  $\pm 45^\circ$  or 0 ...  $90^\circ$
- ▣ Accuracy 0.1° (up to  $\pm 10^\circ$ ), 0.4° (beyond  $\pm 10^\circ$ )
- ▣ Analogue output 4 ... 20 mA (2-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 measurement in x-axis and is planned for the side wall assembly. The tilt measuring range, that is to be acquired, can be, depending on version, in the area of  $\pm 3^\circ$  ...  $\pm 45^\circ$  or 0 ...  $30^\circ$  to 0 ...  $90^\circ$ .

The tilt measuring system is built-in in a robust EMC-safe die-cast aluminum enclosure (IP65), which is suited for the application in rough and industrial surroundings. Moreover, the built-in electronic is moulded in casting compound for the protection from humidity and vibrations.

#### ▣ Technical Data

Number of measuring axis:	1	
Supply voltage:	18 ... 28 VDC	Electronic protected against voltage reversal
Power consumption:	Approx. 3 W	
Analogue output:	4 ... 20 mA (2-wire)	Max. burden depending on supply voltage
Frequency range (-3 dB):	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 ... $30^\circ, 0 \dots 45^\circ, 0 \dots 60^\circ, 0 \dots 90^\circ$ Other ranges on request	
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
Electrical connection:	3 meter cable 2 x 0.25mm <sup>2</sup> (AWG20), length varies depending on type and version of the tilt measurement system	
Enclosure:	EMC-safe aluminum die cast enclosure	
Protection class:	IP65	
Dimensions (B x H x D):	98 x 38 x 63 mm (Standard Version, without cable gland ) 130 x 60 x 80 mm (Option -A, without cable glands)	
Weight:	Approx. 550 g (Standard version with 3m connecting cable) Approx. 800 g (Option -A)	
Temperature, storage:	-20 °C ... +60 °C	
Temperature, operating:	-20 °C ... +60 °C	

**Notice:** Further specifications see datasheet Accustar™

#### ▣ Ordering Information

NM1-IP-2L-24-420-...	Single axis industrial tilt-measuring system (2-Wire-Technology)	
...-xx-...	Tilt measuring range (see notice below)	
...-A	Option A → Electrical connection on tension spring clamps	

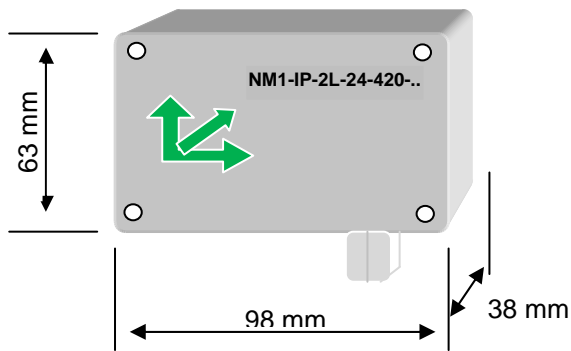
**Notice:** With order, the desired tilt measuring range is to be given as the example shows

**Example:** Tilt measuring range  $\pm 45^\circ$  → NM1-IP-2L-24-420-B45

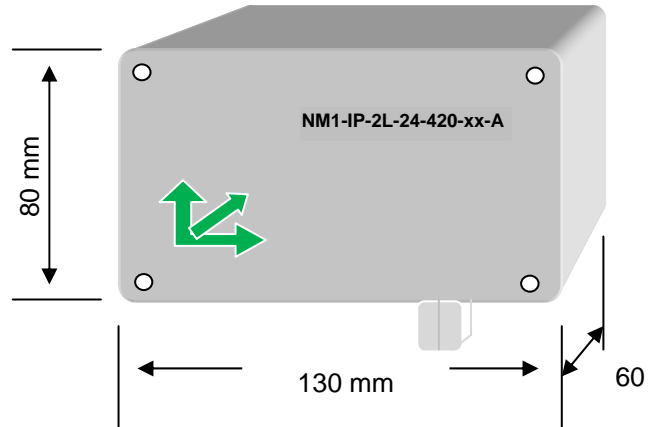


## Enclosure Dimensions

Version "Standard"



Version -A



## Terminal Wiring

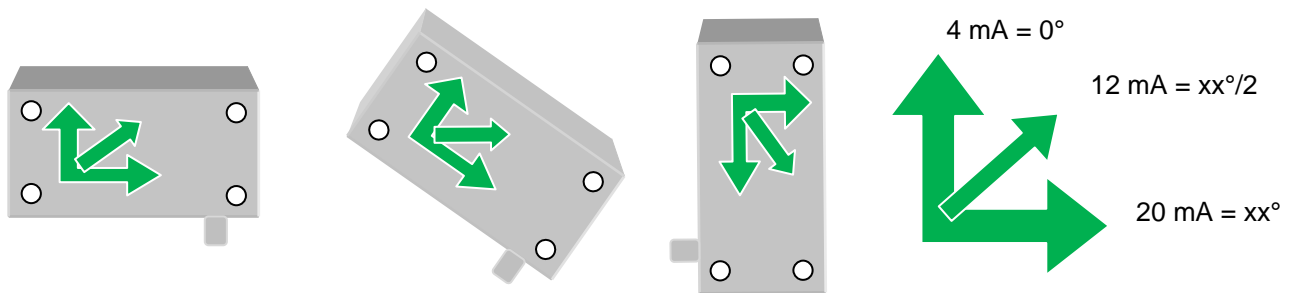
Electrical connections are made via cable gland on terminal block located inside of the enclosure or about a connecting cable (AWG20). The length of the cable varies according to type and version of the inclination measurement system. The cable shield is connected with the enclosure.

Version „Standard“ NM1-IP-2L-24-420-xx

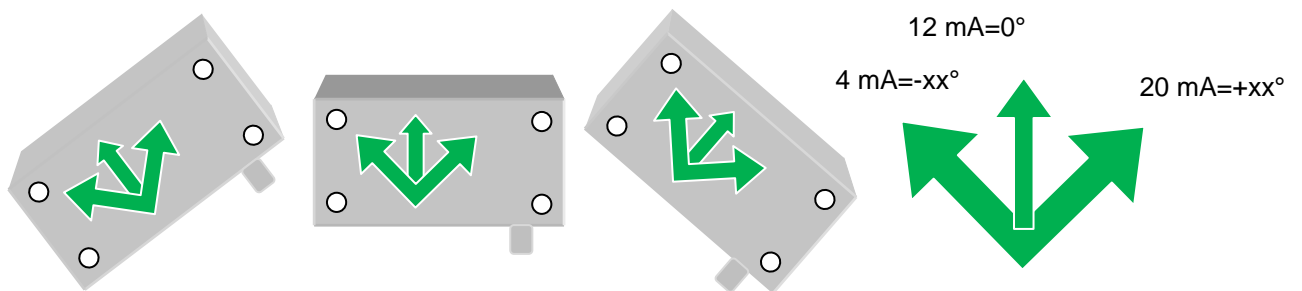
Cable colour	Description
Red	Supply voltage
Black	Signal (Loop)

Version "A" NM1-IP-2L-24-420-xx-A

Terminal	Description
1	Supply voltage
2	Signal (Loop)



Version 0 ... xx° (Notice: Example shows a tilt of 0 ... 90 °)



Version 0 ... ± xx° (Notice: Example shows a tilt of ± xx °)

## 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.