

# V-Series Inclinometer



- Single or dual axis inclinometer
- Measurement range  $\pm 5^\circ$   $\pm 15^\circ$  and  $\pm 45^\circ$
- analogue voltage or current output signal
- AL-housing IP 65

## DESCRIPTION

The **V-Series** of conductive single or dual axis inclinometers offers a modern electronic in an environmentally protected and robust aluminium anodizing housing. This fully calibrated inclinometer is available with an analogue voltage output signals or current output signal. They have a compact study design and show large range of applications are possible.

## FEATURES

- Single or dual axis inclinometer
- Analogue voltage or current output signal
- Easy to mounted
- High resolution
- Protection class IP 65
- Rugged M9 7 pins connector
- Robust AL-housing

## APPLICATIONS

- Drilling machines
- Vehicle applications
- Building control
- Mobile and stationary cranes
- Hydraulic leveling
- Platform leveling
- Road construction machines

# V-Series Inclinator

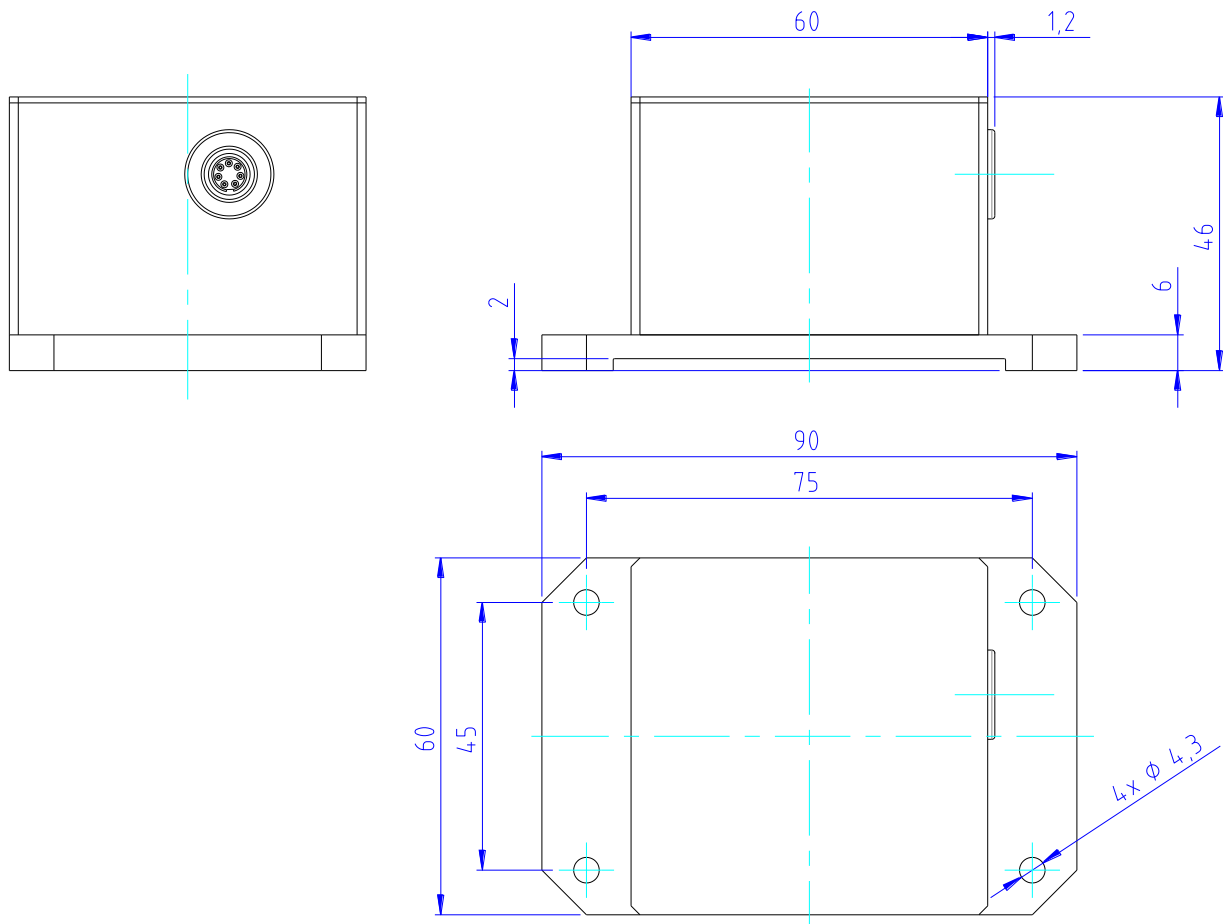
## PERFORMANCE SPECIFICATIONS

|  | Conditions      | Min                              | Type | Max           | Unit  |
|--|-----------------|----------------------------------|------|---------------|-------|
| Measurement range                        |                 | -5 / -15/ -45                    |      | +5 / +15/ +45 | °     |
| Resolution <sup>(1)</sup>                |                 | 0.001                            |      | 0.01          | °     |
| Accuracy                                 | Ta = 0°...70°C, | 0.08 / 0.15 / 0.9 <sup>(4)</sup> |      |               | °     |
| Non-linearity                            |                 | 1.5                              |      |               | %[FS] |
| Cross sensitivity                        |                 | 0.15                             |      |               | %[FS] |
| Voltage output signal <sup>(2),(3)</sup> | V,V2 unit       | -2                               |      | +2            | V     |
| Voltage output signal <sup>(3)</sup>     | V,V2 unit       | 0.5                              |      | 4.5           | V     |
| Current output signal <sup>(3)</sup>     | VI,V2I unit     | 20                               |      | 4             | mA    |
| Current consumption                      |                 | 10                               |      | 30            | mA    |
| Power supply                             |                 | +12                              |      | +24           | VDC   |
| Operation temperature range              |                 | 0                                |      | +70           | °C    |
| Storage temperature range                |                 | -40                              |      | +85           | °C    |
| Weight                                   |                 | 300                              |      | 320           | g     |
| Dimensions                               | W x D x H       | 90 x 60 x 45.5                   |      |               | mm    |

- (1) depend on measurement range
- (2) ratiometric to signal ground GNDx,y
- (3) depending on the circuitry wiring, see pinning schema
- (4) up to measurement range +/-30°

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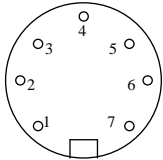
## DIMENSIONS [MM]



# V-Series Inclinometer

## PINNING

Pinning single axis unit with voltage output signal: NS-5/V, NS-15/V, NS-45/V



| Pin | Name   | Description                             | Type          | Color schema(1) |
|-----|--------|---|---------------|-----------------|
| 1   | Vcc    | Positive power supply +12...+24VDC      | Supply, Input | white           |
| 2   | GND    | Ground, negative supply voltage         | Supply, Input | brown           |
| 3   | Earth  | Protection conductor                    | Supply, Input | green           |
| 4   | GNDx   | Ground for output voltage signal X axis | Output        | yellow          |
| 5   | n.c.   | n.c.                                    | -             | grey            |
| 6   | Out Vx | Output voltage signal X axis            | Output        | pink            |
| 7   | n.c.   | n.c.                                    | -             | blue            |

(1) by using a Measurement Specialties cable

### Output connecting possibility 1

Pin 6 output voltage signal Vx x-axis



Output signal – 2V ( - 5°) up to +2V ( + 5°)

Output signal – 2V (-15°) up to +2V (+15°)

Output signal – 2V (-45°) up to +2V (+45°)

Pin 4 GNDx analogue ground x-axis

### Output connecting possibility 2

Pin 6 output voltage signal Vx x-axis



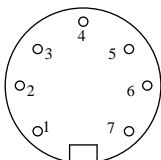
Output signal + 0,5V ( - 5°) up to + 4,5V ( + 5°)

Output signal + 0,5V (-15°) up to + 4,5V (+15°)

Output signal + 0.5V (-45°) up to + 4,5V (+45°)

Pin 2 GND supply ground

Pinning single axis unit with current output signal: NS-5/VI, NS-15/VI, NS-45/VI

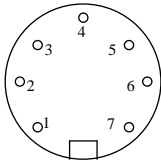


| Pin | Name   | Description                             | Type          | Color schema(1) |
|-----|--------|---|---------------|-----------------|
| 1   | Vcc    | Positive power supply +12...+24VDC      | Supply, Input | white           |
| 2   | GND    | Ground, negative supply voltage         | Supply, Input | brown           |
| 3   | Earth  | Protection conductor                    | Supply, Input | green           |
| 4   | GNDx   | Ground for output current signal X axis | Output        | yellow          |
| 5   | n.c.   | n.c.                                    | -             | grey            |
| 6   | Out Ix | Output Current signal X axis            | Output        | pink            |
| 7   | n.c.   | n.c.                                    | -             | blue            |

(1) by using a Measurement Specialties cable

# V-Series Inclinometer

**Pinning dual axis unit with voltage output signal: NS-5/V2, NS-15/V2, NS-45/V2**



| Pin | Name   | Description                             | Type          | Color schema(1) |
|-----|--------|---|---------------|-----------------|
| 1   | Vcc    | Positive power supply +12...+24VDC      | Supply, Input | white           |
| 2   | GND    | Ground, negative supply voltage         | Supply, Input | brown           |
| 3   | Earth  | Protection conductor                    | Supply, Input | green           |
| 4   | GNDx   | Ground for output voltage signal X axis | Output        | yellow          |
| 5   | GNDy   | Ground for output voltage signal Y axis | Output        | grey            |
| 6   | Out Vx | Output voltage signal X axis            | Output        | pink            |
| 7   | Out Vy | Output voltage signal Y axis            | Output        | blue            |

(1) by using a Measurement Specialties cable

## Output connecting possibility 1

Pin 6,7 output voltage signal Vx x-axis, Vy y-axis



Pin 4,5 GNDx,y analogue ground x,y-axis

Output signal – 2V ( - 5°) up to +2V ( + 5°)

Output signal – 2V (-15°) up to +2V (+15°)

Output signal – 2V (-45°) up to +2V (+45°)

## Output connecting possibility 2

Pin 6,7 output voltage signal Vx x-axis, Vy y-axis



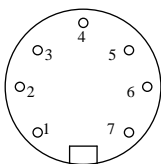
Pin 2 GND supply ground

Output signal + 0,5V ( - 5°) up to + 4,5V ( + 5°)

Output signal + 0,5V (-15°) up to + 4,5V (+15°)

Output signal + 0.5V (-45°) up to + 4,5V (+45°)

**Pinning dual axis unit with current output signal: NS-5/V2I, NS-15/V2I, NS-45/V2I**



| Pin | Name   | Description                             | Type          | Color schema(1) |
|-----|--------|---|---------------|-----------------|
| 1   | Vcc    | Positive power supply +12...+24VDC      | Supply, Input | white           |
| 2   | GND    | Ground, negative supply voltage         | Supply, Input | brown           |
| 3   | Earth  | Protection conductor                    | Supply, Input | green           |
| 4   | GNDx   | Ground for output current signal X axis | Output        | yellow          |
| 5   | GNDy   | Ground for output current signal Y axis | Output        | grey            |
| 6   | Out Ix | Output Current signal X axis            | Output        | pink            |
| 7   | Out Iy | Output Current signal Y axis            | Output        | blue            |

(1) by using a Measurement Specialties cable

# V-Series Inclinometer

## ORDERING INFORMATION

| PART NUMBERING          | UNIT       | SHORT DESCRIPTION                                 |
|-------------------------|------------|---|
| <b>Single axis unit</b> |            |   |
| G-NSV-001               | NS- 5/V    | single axis,range +/- 5°,Vcc 12...24VDC,output V  |
| G-NSVI-001              | NS- 5/VI   | single axis,range +/- 5°,Vcc 12...24VDC,output I  |
| G-NSV-002               | NS-15/V    | single axis,range +/--15°,Vcc 12...24VDC,output V |
| G-NSVI-003              | NS-15/VI   | single axis,range +/--15°,Vcc 12...24VDC,output I |
| G-NSV-005               | NS-45/V    | single axis,range +/--45°,Vcc 12...24VDC,output V |
| G-NSVI-006              | NS-45/VI   | single axis,range +/--45°,Vcc 12...24VDC,output I |
| <b>Dual axis unit</b>   |            |   |
| G-NSV2-001              | NS- 5/V2   | dual axis,range +/- 5°,Vcc 12...24VDC,output V    |
| G-NSV2I-001             | NS- 5/V2I  | dual axis,range +/- 5°,Vcc 12...24VDC,output I    |
| G-NSV2-003              | NS-15/V2   | dual axis,range +/--15°,Vcc 12...24VDC,output V   |
| G-NSV2I-003             | NS-15/V2I  | dual axis,range +/--15°,Vcc 12...24VDC,output I   |
| G-NSV2-006              | NS-45/V2   | dual axis,range +/--45°,Vcc 12...24VDC,output V   |
| G-NSV2I-006             | NS-45/V2I  | dual axis,range +/--45°,Vcc 12...24VDC,output I   |
| <b>Accessories</b>      |            |   |
| G-NSMIS-001             | Connection | Connector,straight, Submin. 712-series            |
| G-NSMIS-015             | Connection | Connector, angle 90°, Submin. 712-series          |
| G-NSMIS-002             | Connection | 2 m cable, straight connector Submin. 702-series  |
| G-NSMIS-003             | Connection | 2 m cable, angle 90° connector Submin. 702-series |

Other cable length on request

| NORTH AMERICA   | EUROPE   | ASIA  |
|---|--|---|
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