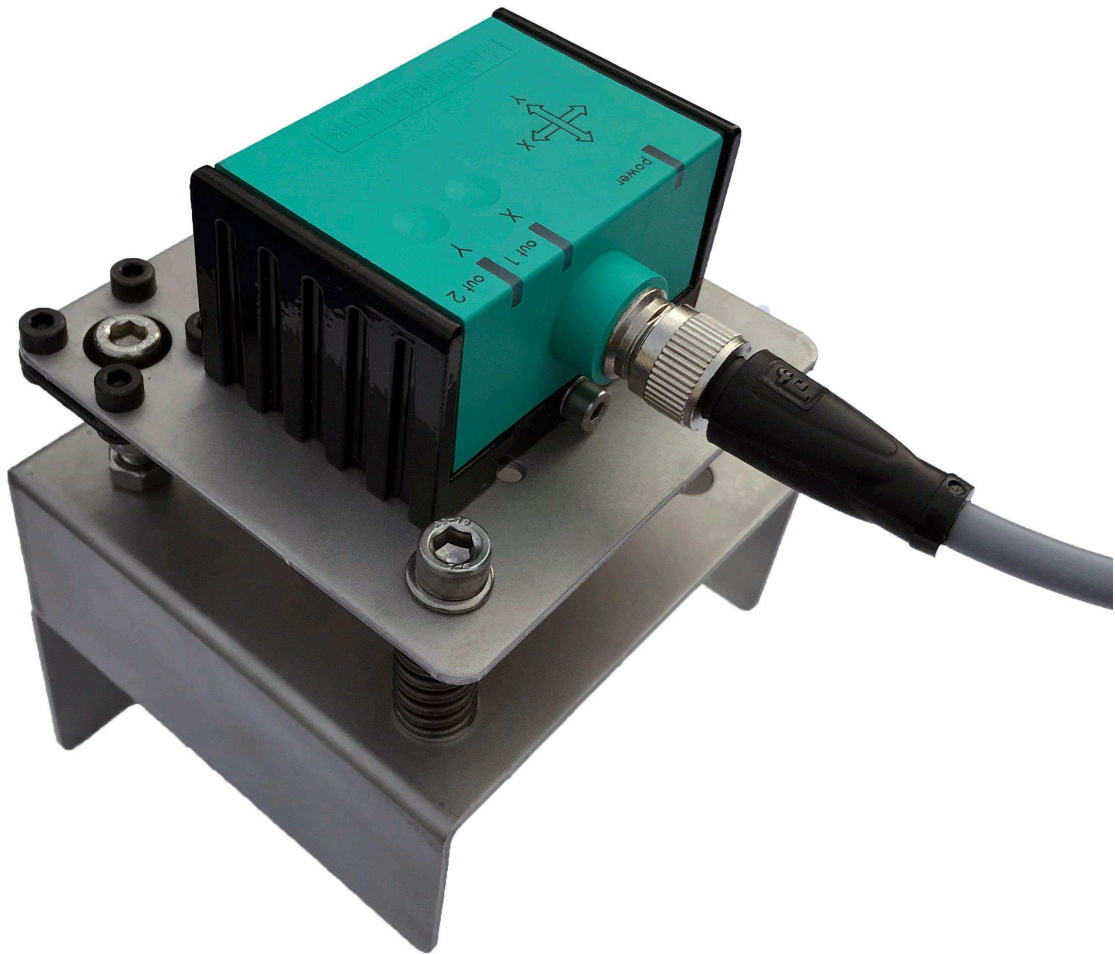


Marine Inclinator

General



General Description

The inclinometer unit is an electronic angle measurement system, intended for Trim and Heel measurements onboard any vessel. The angle measurement is performed upon the signal from a solid state gravity sensor. This signal is amplified, and converted into 4 - 20 mA standard loop.

Mount the box or unit longitudinal or across.

Features

- E1-Type approval
- Measuring range -15° to +15°
- Analog output 4 mA to 20 mA
- Fixed evaluation limits
- High shock resistance
- Increased noise immunity 100 V/m

Installation of the Inclinometer

Due to the sensitive angle measuring nature of this device, the inclinometer unit must be mounted with care:

- Mount the unit vertically.
- Mount on a rigid construction longitudinal or across.
- If possible, mount in locations with fairly stable ambient temperature (e.g. in accommodation quarters).
- With reference to even keel, the horizontal edge of the unit has to be mounted within $\pm 5^\circ$.

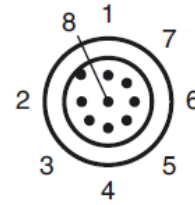
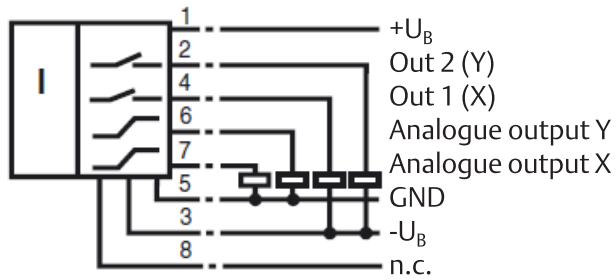
Technical Data

| General Specifications | |
|---|--|
| Type | Inclination sensor, 2-axis |
| Measurement range | -15 ... +15 ° |
| Absolute accuracy | ≤ ± 0.2 ° |
| Response delay | ≤ 25 ms |
| Resolution | ≤ 0.01 ° |
| Repeat accuracy | ≤ ± 0.02 ° |
| Temperature influence | ≤ 0.004 °/K |
| Functional Safety Related Parameters | |
| MTTF _d | 304 a |
| Mission Time (T _M) | 20 a |
| Diagnostic Coverage (DC) | 0 % |
| Indicators/Operating Means | |
| Operation indicator | LED, green |
| Switching state | 2 yellow LEDs: Switching status (each output) |
| Electrical Specifications | |
| Operating voltage U _B | 10 ... 30 V DC |
| No-load supply current I ₀ | ≤ 25 mA |
| Time delay before availability t _v | ≤ 200 ms |
| Switching Output | |
| Output type | 2 switch outputs PNP, NO, reverse polarity protected, short-circuit protected |
| Operating current I _L | ≤ 100 mA |
| Voltage drop | ≤ 3 V |
| Analog Output | |
| Output type | 2 current outputs 4 ... 20 mA (one output for each axis) |
| Load resistor | 0 ... 200 Ω at U _B = 10 ... 18 V 0 ... 500 Ω at U _B = 18 ... 30 V |
| Ambient Conditions | |
| Ambient temperature | -40 ... 85 °C (-40 ... 185 °F) |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) |
| Mechanical Specifications | |
| Connection type | 8-pin, M12 x 1 connector |
| Housing material | PA |
| Degree of protection | IP68 / IP69K |
| Mass | 240 g |

| Factory Settings | | | | | | |
|--|--|-----|-----|-----------------|-----|-----|
| Analog output (X) | -15° ... 15° | | | | | |
| Analog output (Y) | -15° ... 15° | | | | | |
| Switching output (X) | -15° ... 15° | | | | | |
| Switching output (Y) | -15° ... 15° | | | | | |
| Compliance with Standards and Directives -Standard Conformity | | | | | | |
| Shock and impact resistance | 100 g according to DIN EN 60068-2-27 | | | | | |
| Standards | EN 60947-5-2:2007 IEC 60947-5-2:2007 | | | | | |
| Approvals and Certificates | | | | | | |
| UL approval | cULus Listed, Class 2 Power Source | | | | | |
| CSA approval | cCSAus Listed, General Purpose, Class 2 Power Source | | | | | |
| E1 Type approval | 10R-04 | | | | | |
| EMC Properties | | | | | | |
| Interference immunity in accordance with DIN ISO 11452-2: 100 V/m Frequency band 20 MHz up to 2 GHz Mains-borne interference in accordance with ISO 7637-2: | | | | | | |
| Pulse | 1 | 2a | 2b | 3a | 3b | 4 |
| Severity level | III | III | III | III | III | III |
| Failure criterion | C | A | C | A | A | C |
| EN 61000-4-2: Severity level | CD: 8 kV IV | | | AD: 15 kV IV | | |
| EN 61000-4-3: Severity level | 30 V/m (80...2500 MHz) IV | | | | | |
| EN 61000-4-4: Severity level | 2 kV III | | | | | |
| EN 61000-4-6: Severity level | 10 V (0.01...80 MHz) III | | | | | |
| EN 55011 | Klasse A | | | | | |

Electrical Connection and Pinout

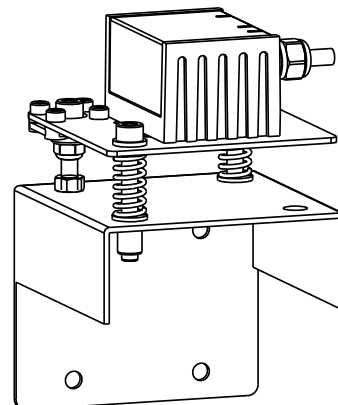
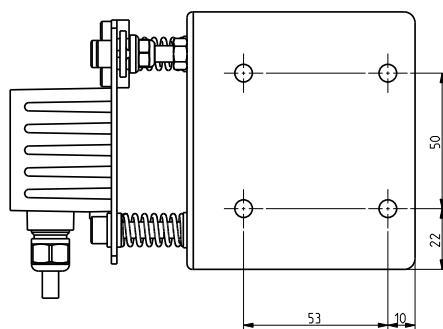
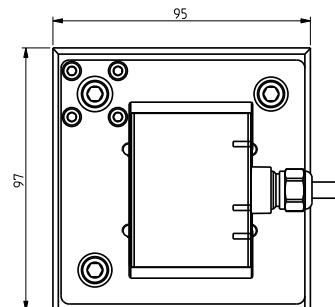
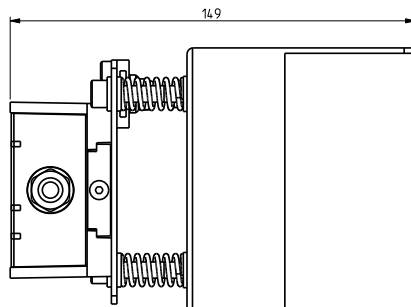
Standard symbol/Connection:



Wire Colors

| | |
|---|-------------|
| 1 | WH (white) |
| 2 | BN (brown) |
| 3 | GN (green) |
| 4 | YE (yellow) |
| 5 | GY (gray) |
| 6 | PK (pink) |
| 7 | BU (blue) |
| 8 | RD (red) |

Main Dimensions



This product is sourced and managed by:

Emerson Automation Solutions

Damcos A/S
Aaderupvej 41
DK-4700 Naestved
T +45 5578 7200
F +45 5578 7272

www.Emerson.com/marine

©2019 Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Damcos and the Damcos logotype are trademarks of Damcos A/S. Damcos is a member of the Emerson family of companies. All other marks are the property of their respective owners.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, expressed or implied, regarding the products or services described herein or their use or applicability. Standard Terms and Conditions of Sale can be issued by contacting Damcos A/S. We reserve the right to modify or improve the designs and specifications of our products at any time without notice. Damcos A/S accepts no responsibility for any errors that may appear in this publication.

