

Inclinometer

4-20mA and RS232



Real size

Main Features

- Two axis digital inclinometer
- Angle measurement range of $\pm 5^\circ$, $\pm 15^\circ$ and $\pm 30^\circ$, Resolution up to 0.001°
- Active linearization and temperature compensation
- Current output : 4...20mA
- RS232 output : ASCII
- Housing : 70 mm \varnothing

Programmable Parameters

- Transmission mode: Polled Mode, Cyclic Mode
- Cycle Time
- Preset
- Baud-rate 2.4 – 56 Kbaud

Applications

- Structural engineering
- Levelling techniques
- Measuring techniques
- Inclinations
- Mechanical Structure

Electrical Features

- Linear and temperature compensated characteristic line
- Microprocessor controlled
- Polarity inversion protection
- Over-voltage-peak protection
- Highly integrated circuit in SMD-technology

TECHNICAL DATA

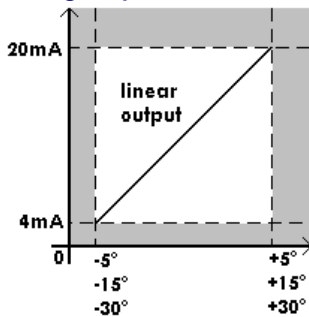
Electrical Data

Model	INC 5	INC 15	INC 30
Measuring range	+/- 5°	+/- 15°	+/- 30°
Resolution digital	0,001°	0,001°	0,01°
Resolution analog	0,001°	0,005°	0,01°
Accuracy (T = 0 °C .. +55 °C)	0,01°	0,01°	0,02°
Accuracy (T = -25 °C .. +85 °C)	0,02°	0,02°	0,03°
Inclination angle in x and y **	+/-15°	+/-40°	+/-60°
Damping period 5° > 0°	typical 1s 10%, 2s 1%, 3s 0.1%		
Digital interface	RS232 format ASCII		
Baud rate	Max. 56 k		
Analog interface	4...20mA, 0°=12mA (300Ohms)		
Supply voltage	10 - 30 V DC (absolute limits) *		
Current consumption	max. 50 mA (24 V DC)		
EMC	EN 50081-2, EN 61000-6-2		
Electrical lifetime	> 10 ⁵ h		

* Supply voltage according to EN 50 178 (safety extra-low voltage)

** Supply voltage is applied.

Analog output



Mechanical Data

Housing	Aluminium
Lifetime	> 10 ⁵ h
Shock	A=30g; t= 11ms, halfsine (EN 60068-2-27)
Vibration	10 to 150 Hz, 2,5 mm amplitude, 5g const. Acceleration, 1 Octave /Minute (EN 60068-2-6)
Weight	350 g

Environmental Conditions

Operating temperature	- 40 °C to + 85 °C
Storage temperature	- 40 °C to + 85 °C
Humidity	98 % (without liquid state)
Protection class (DIN 40 050)	IP 67 (with connection Plug in connected state)

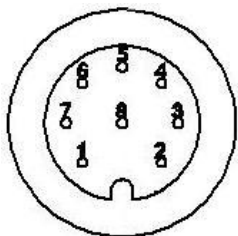
INSTALLATION

Electrical Connection

The inclinometer is connected via 8 pin round connector

Connector Assignment

Pin	Description	Cable
1	+UB Supply voltage	white
2	RxD	brown
3	TxD	green
4	Ground (Supply)	yellow
5	X-Output	grey
6	Signal Ground	pink
7	Y-Output	blue
8		red



8 pin round connector
connector male inlay

Instructions to mechanically install



Do not connect the inclinometer under power!

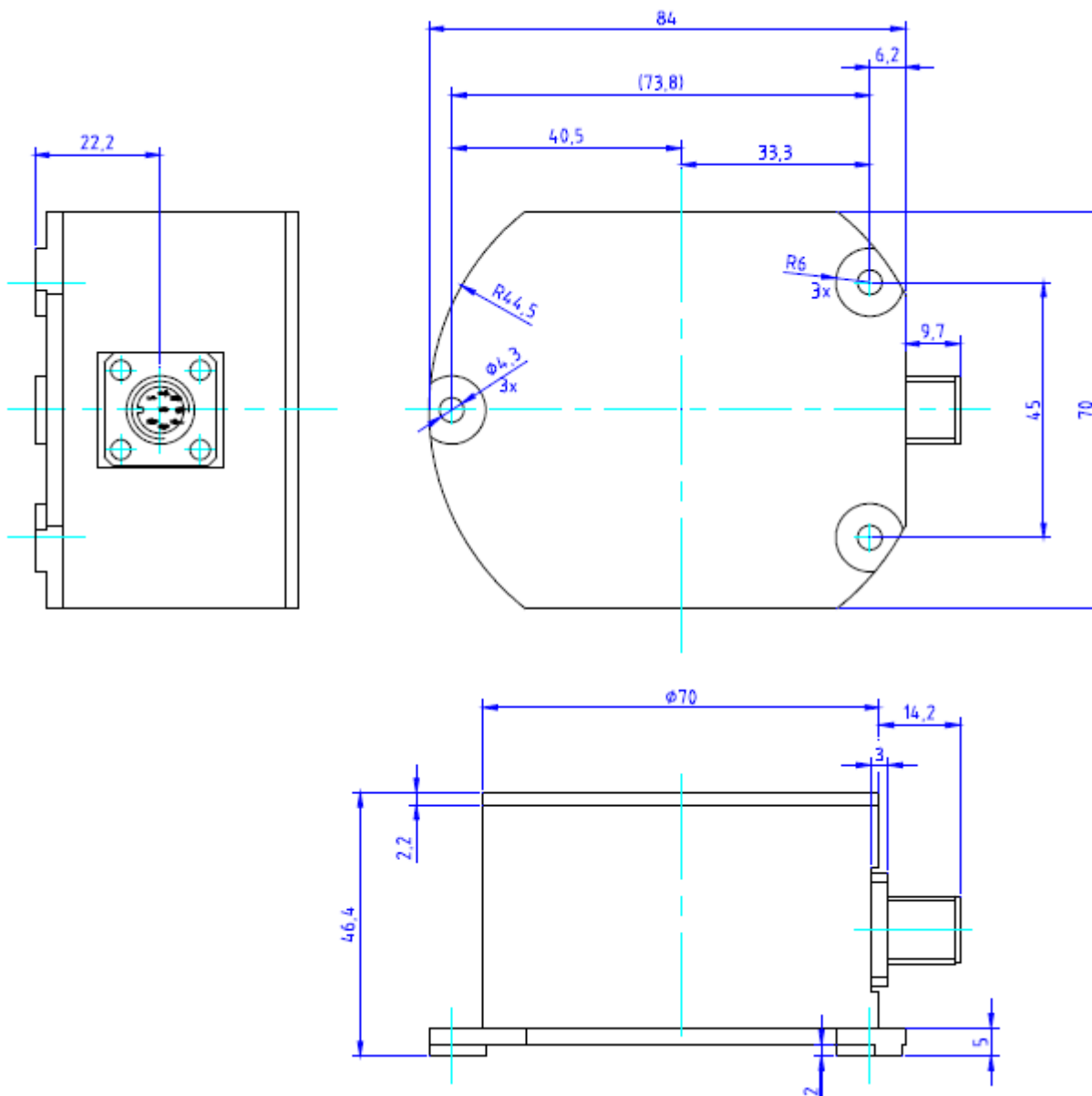


Do not stand on the inclinometer!



Avoid mechanical load!

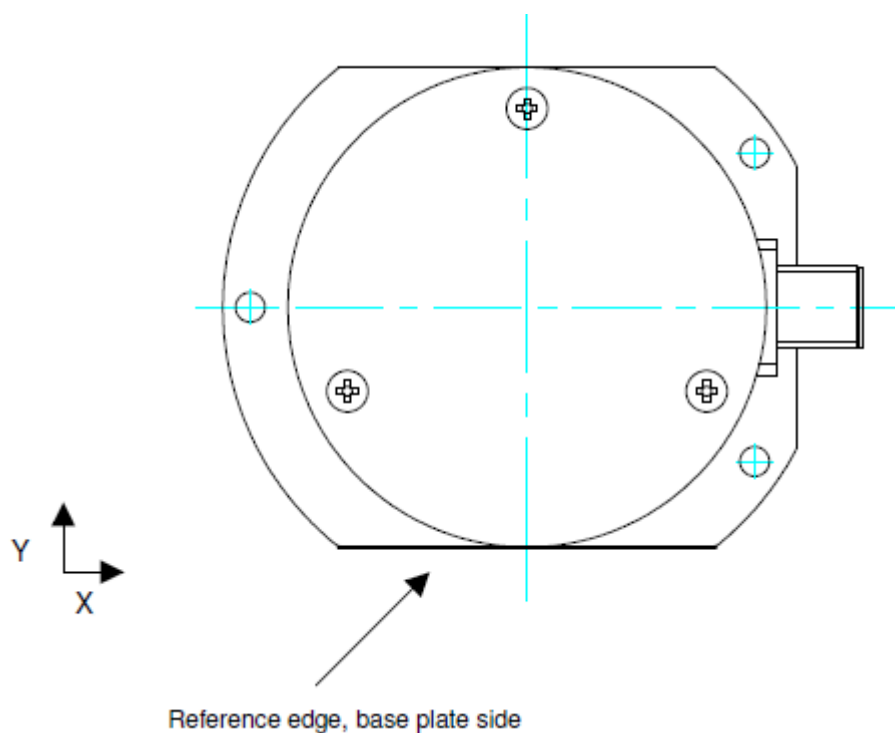
Mechanical Drawings



Dimension housing (mm)

Reference Level

The Inclinometer has a mounting reference angle (black line) for an optimal mounting of the inclinometer, which is parallel to the x-axis. This reference angle must be placed exactly parallel to the object to be measured to prevent or minimize any mechanical offset/cross sensitivity.



Mounting and Installation Instruction

The inclinometer is designed for a horizontal mounting, i.e. the base plate of the inclinometer with the three mounting holes needs to be placed on the horizontal plane of the object to be measured. It can be mounted with M4 screw as a maximum.

The mounting surface must be plane and free of dust and grease.

We recommend cheese head screws with metrical thread M4 for the mounting.

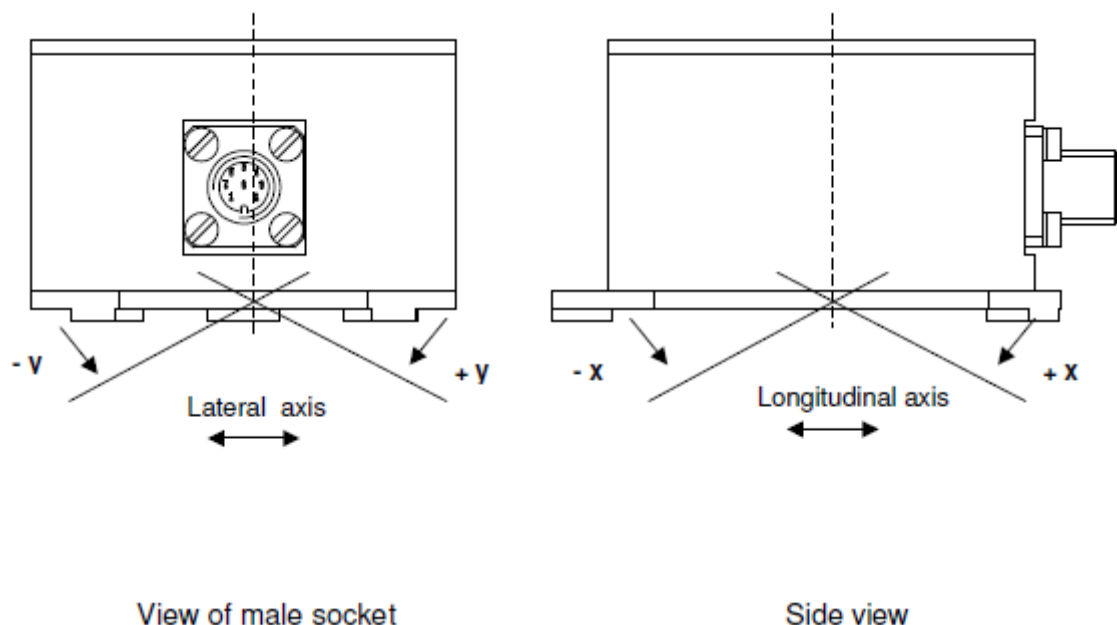
Maximum fastening torque for the mounting screws is 10 Nm.

Installation

Prior to installation, please check for all connection and mounting instructions to be complied with. Please also observe the general rules and regulations on low voltage technical devices. Avoid shock and vibration during measurement, as these could corrupt the measurement results. Inclination sensors that base on a fluidic measurement principle are optimal for static measurements and suitable to only a limited extent of dynamic measurement.

Measurement

The measurement of the tilt angle of the single measurement axis is carried out over the respective longitudinal and lateral axis of the inclination sensor. Reference is always the horizontal plane.



Models/Ordering Description

Description	Type Key
Absolute inclinometer	INC- ... 2-S . 1 H0 ... -
Measuring range	005 015 030
Number of axis	
RS232	
Voltage interface	V
Current interface	C
PWM	P
Switch	S
Version	
Mechanical	Horizontal
Dynamic	2 mPas
Connection	plug, 8 pins P8M 1 m cable exit CRWW
Option	-

We do not assume responsibility for technical inaccuracies or omissions. Specifications are subject to change without notice