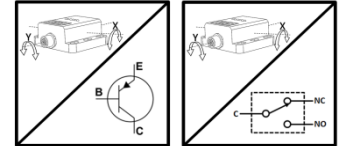




GENERAL SPECIFICATIONS

- Two axes (XY) measurement
- Four different set options (customizable)
- Relay or PNP Open Collector output model options
- High Sensivity: $\pm 0.15^\circ$
- Ability to specify 0° point
- Easy installation
- IP67 protection class
- Small and robust housing
- Compact Structure



INS 110, 2-axis tilt sensors are used for angle measurement in X and Y axes. It has $\pm 90^\circ$ measuring range. There are 4 different set options which can be optionally changed.

INS 110 tilt sensors with high precision, compact design and durable construction; It provides suitable solutions for measuring inclination in industrial areas such as crane and lifting systems, construction machinery and special purpose vehicles, solar energy and photovoltaic systems, wind power plants.

TECHNICAL SPECIFICATIONS

Supply Voltage (V)	12 ... 24 VDC	Relay Specifications	Relay Contact Capacity	250V AC / 1,25A
Measurement Range	$\pm 90^\circ$		Current Consumption (when relay is active)	60 mA
Set Options	4 different set options (A, B, C, D) Standard application examples (N1, N2, N3, N5) are shown below. If the desired angle values are not in the following tables, please contact the company for different set values.	Angle Resolution	$\pm 0,05^\circ$	
		Accuracy	$\pm 0,15^\circ$	
		Protection Class	IP67	
		Operating Temp.	-30°C ... +70°C	
Measurement Axes	XY	Relative Humidity	%10 ... %90	
*Output Type	PNP Open Collector or Relay Output	Weight	~200 gr	
Open Collector Specifications	Output Voltage	~(V-1) Volt	Body Material	Aluminium
	Current Consumption	≤ 300 mA	*Electrical Connection	3 meters cable or M12 5 pin (male) socket

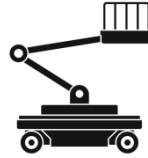
Note: The specifications specified by (*) vary depending on the model selected. The detailed code table for product selection is shown on page 3.

STANDARD APPLICATION SAMPLES

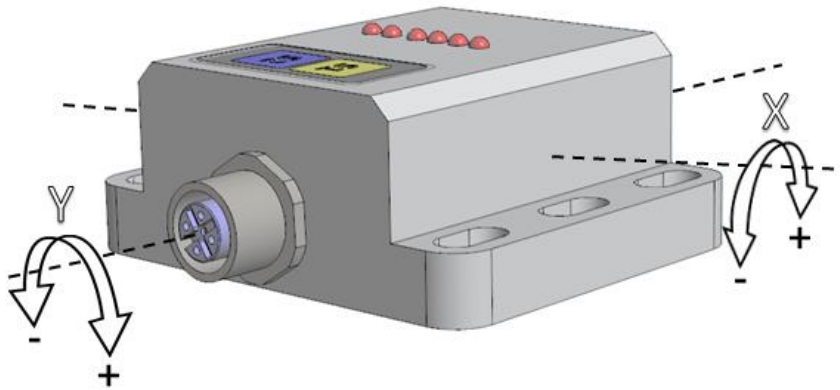
	N1		N2		N3		N5	
	X	Y	X	Y	X	Y	X	Y
A	$\pm 2^\circ$	$\pm 3^\circ$	$\pm 1,5^\circ$	$\pm 3^\circ$	$\pm 5^\circ$	$\pm 5^\circ$	$\pm 1^\circ$	$\pm 1^\circ$
B	$\pm 1,5^\circ$	$\pm 1,5^\circ$	$\pm 2^\circ$	$\pm 4^\circ$	$\pm 10^\circ$	$\pm 10^\circ$	$\pm 2^\circ$	$\pm 2^\circ$
C	$\pm 1,5^\circ$	$\pm 3^\circ$	$\pm 2,5^\circ$	$\pm 5^\circ$	$\pm 15^\circ$	$\pm 15^\circ$	$\pm 3^\circ$	$\pm 3^\circ$
D	$\pm 2^\circ$	$\pm 2^\circ$	$\pm 3^\circ$	$\pm 5^\circ$	$\pm 20^\circ$	$\pm 20^\circ$	$\pm 4^\circ$	$\pm 4^\circ$

SAMPLE APPLICATION AREAS

- Agricultural and forestry machinery
- Construction machinery and special-purpose vehicles
- Solar thermal energy and photovoltaics
- Automated guided systems
- Crane and lifting technology
- Wind power plant



AXES



ELECTRICAL CONNECTION

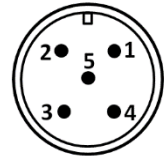
For Transistor Output:

Signal	M12 Socket	Cable
V+ (12..24VDC)	Pin 1	Red
Output	Pin 2	Yellow
GND (0V)	Pin 3	Black
-	Pin 4	Green
-	Pin 5	Pink

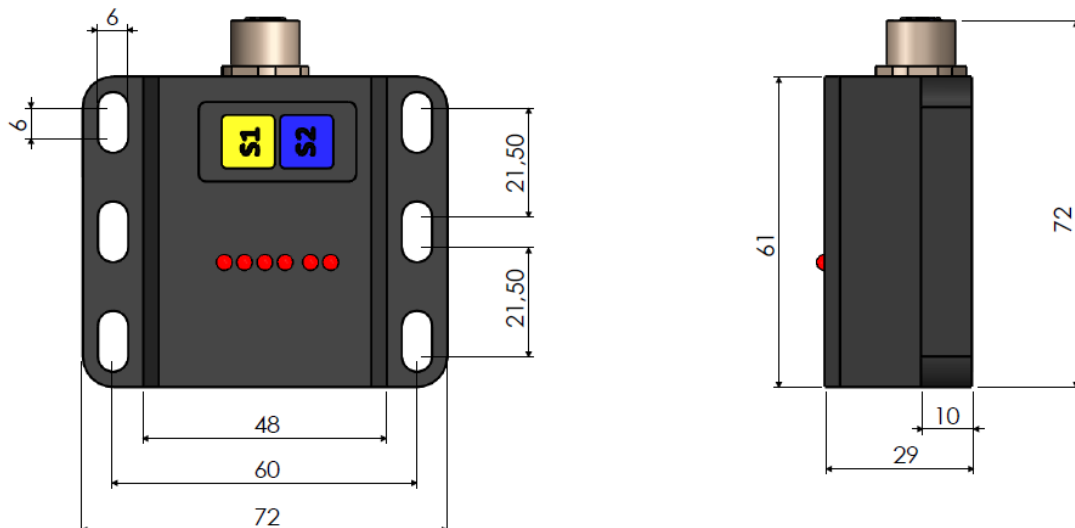
For Relay Output:

Signal	M12 Socket	Cable
V+ (+ 24VDC)	Pin 1	Red
Relay Common Terminal	Pin 2	Pink
GND (0V)	Pin 3	Black
Relay Normally Closed Terminal	Pin 4	Yellow
Relay Normally Open Terminal	Pin 5	Green

M12 - 5 PIN SOCKET



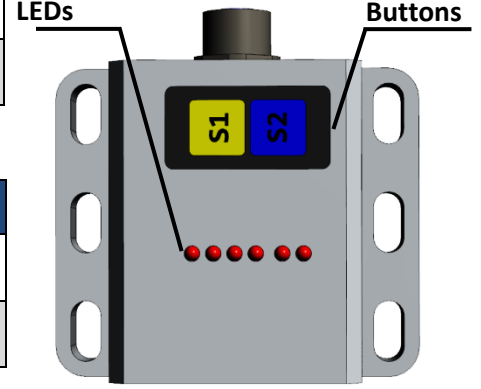
MECHANICAL DIMENSIONS



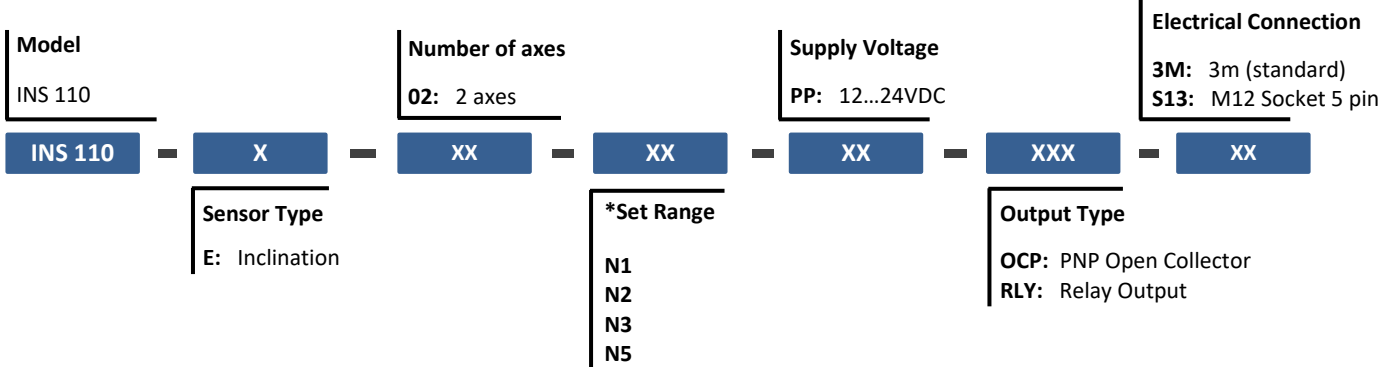
LED AND BUTTON FUNCTIONS

LED	Color	Function
A	Yellow	Indicates that the angle values are within the set range for A.
B	Yellow	Indicates that the angle values are within the set range for B.
C	Yellow	Indicates that the angle values are within the set range for C.
D	Yellow	Indicates that the angle values are within the set range for D.
Ok	Blue	The sensor is in the selected range while the "Ok" led lights up. In this case, the output is equal to the sensor supply.
Al	Red	The sensor isn't in the selected range while the "Al" led lights up. In this case the output is at 0 volt level.

Button	Color	Function
S1	Yellow	S1 button is used to change the set range. For detailed information, please refer to the user manual.
S2	Blue	S2 button is used to change the 0° point. For detailed information, please refer to the user manual.




PRODUCT CODE





(*) Standard set values (N1, N2, N3, N5) are given in the technical specifications table. Optionally, different set values can be requested. You must specify your non-standard set point requests at the order stage.


OPTIONAL PRODUCTS

Product	Code	Description
	CB5 5M / S13F	5 meters 5x0,14 mm ² extension cable + M12/5 pin female connector (IP67)

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