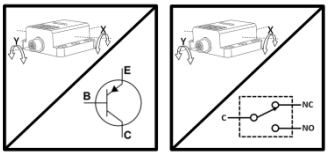
INCLINOMETER (TILT SENSOR)
"Transistor or Relay Output"

INS 110

GENERAL SPECIFICATIONS

- Two axes (XY) measurement
- Four different set options (customizable)
- Relay or PNP Open Collector output model options
- High Sensivity: ±0.15°
- Ability to specify 0° point
- Easy installation
- IP64 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 ±90° 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 (for Open Collector) 24 VDC (for Relay)	
Measurement Range	±90°	
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.	
Measurement Axes	XY	
***Output Type**	PNP Open Collector or Relay Output	
Open Collector Specifications	**Output Voltage**	~(V-1) Volt
	Current Consumption	<200 mA

Relay Specifications	**Relay Contact Capacity**	250V AC / 1,25A
	Current Consumption (when relay is active)	65 mA
Response Frequency	10Hz	
Angle Resolution	0,05°	
Accuracy	±0,15°	
Protection Class	IP64	
Operating Temp.	-30°C … +70°C	
Relative Humudity	%10 … %90	
Weight	~200 gr	
Body Material	Aluminium	
***Electrical Connection**	3m 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

	X	Y
A	±2°	±3°
B	±1,5°	±1,5°
C	±1,5°	±3°
D	±2°	±2°

N2

	X	Y
A	±1,5°	±3°
B	±2°	±4°
C	±2,5°	±5°
D	±3°	±5°

N3

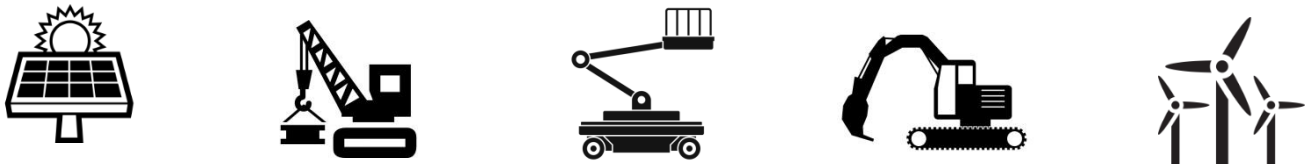
	X	Y
A	±5°	±5°
B	±10°	±10°
C	±15°	±15°
D	±20°	±20°

N5

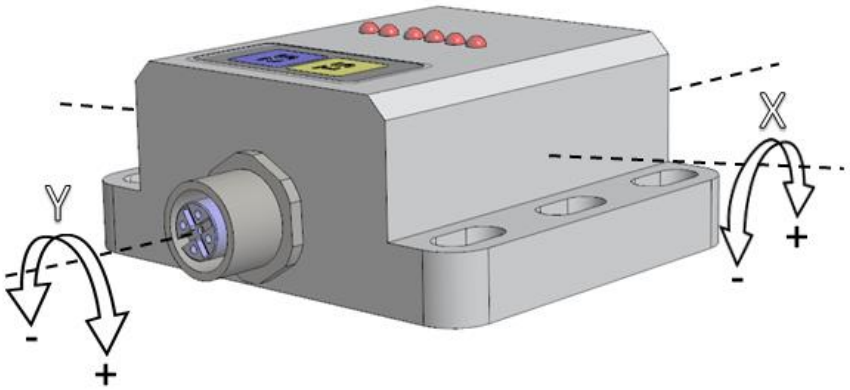
	X	Y
A	±1°	±1°
B	±2°	±2°
C	±3°	±3°
D	±4°	±4°

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

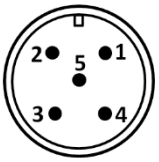
For Transistor Output:

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

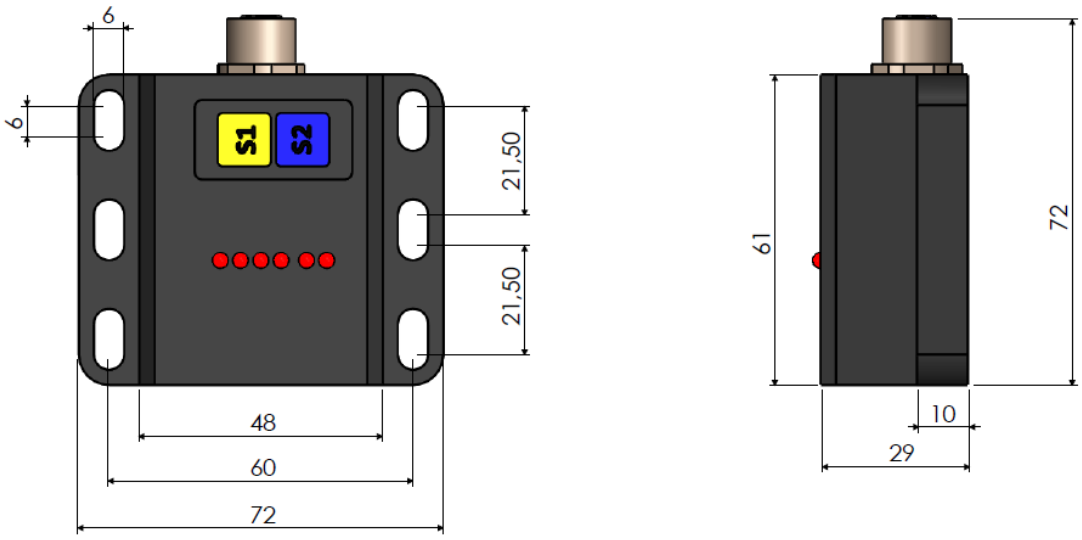
For Relay Output:

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



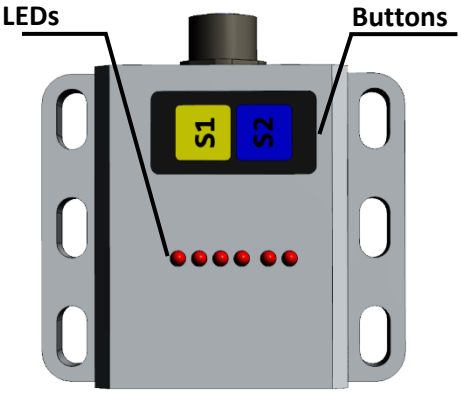
MECHANICAL DIMENSIONS



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^o point. For detailed information, please refer to the user manual.



Model
INS 110

Number of axes
02: 2 axes

Supply Voltage(2)
PP: 12…24VDC

Electrical Connection
3M: 3m cable (standard)
S13M: M12 5 pin male socket

INS 110 - **X** - **XX** - **XX** - **XX** - **XXX** - **XX**

Sensor Type
E: Inclination

Set Range(1)
N1
N2
N3
N5

Output Type
OCP: PNP Open Collector
RLY: Relay Output

(1) 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.

(2) For PNP Open Collector (OCP) Output; Supply Voltage : 12…24VDC,
For Relay Output; Supply Voltage : 24VDC

OPTIONAL PRODUCTS

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

Atek Elektronik Sensör Teknolojileri Sanayi ve Ticaret A.Ş.

Gebze OSB, 800. Sokak, No:814 Gebze/KOCAELİ/TURKEY

Tel: +90 262 673 76 00 Fax: +90 262 673 76 08

www.ateksensor.com info@ateksensor.com

DISTRIBUTOR / DISTRIBUIDOR

Brazil and South America / Brasil e América do Sul

www.metrolog.net

Metrolog Controles de Medição

Address / Endereço:

Rua Sete de Setembro, 2656
13560-181 - São Carlos - SP
Brazil / Brasil

Phone / Telefone:

+55 (16) 3371-0112
+55 (16) 3372-7800

Internet:

www.metrolog.net
metrolog@metrolog.net