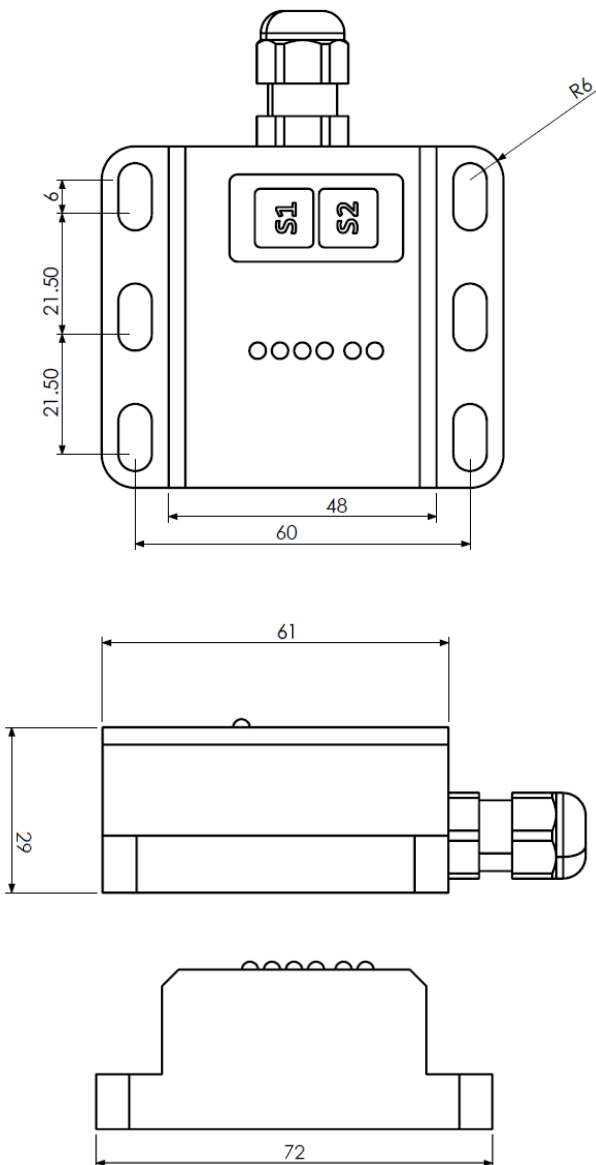




INS 110 SERIES TILT SENSOR

- Can measure two axes(XY)
- Four different set options(can be changed as desired)
 - A: X= $\pm 2^\circ$ Y= $\pm 3^\circ$
 - B: X= $\pm 1.5^\circ$ Y= $\pm 1.5^\circ$
 - C: X= $\pm 1.5^\circ$ Y= $\pm 3^\circ$
 - D: X= $\pm 2^\circ$ Y= $\pm 2^\circ$
- Switching output (≤ 300 mA)
- PNP Open Collector output type
- High accuracy $\pm 0.15^\circ$
- Ability to specify the 0° point
- Easy installation
- IP67 High protection class
- Small and strong metal body
- Compact structure

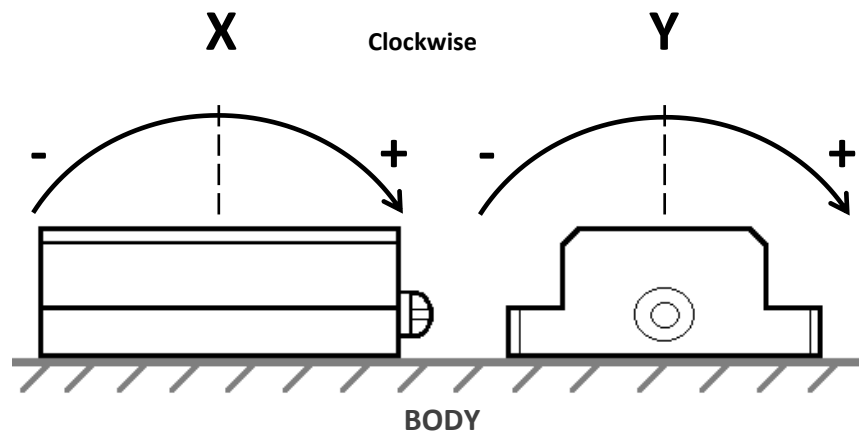
MECHANICAL MEASUREMENTS



TECHNICAL SPECIFICATIONS

Supply Voltage (U)	12..24VDC
Measurement Range	$\pm 90^\circ$
Set Ranges	A: X= $\pm 2^\circ$ Y= $\pm 3^\circ$ B: X= $\pm 1.5^\circ$ Y= $\pm 1.5^\circ$ C: X= $\pm 1.5^\circ$ Y= $\pm 3^\circ$ D: X= $\pm 2^\circ$ Y= $\pm 2^\circ$
Measuring Axes	XY
Output type	PNP Open collector
Output Voltage	$\sim(U-1)$ Volt
Output Current	≤ 300 mA
Angle Resolution	$\pm 0,05^\circ$
Accuracy	$\pm 0,15^\circ$
Protection Class	IP67
Working Temperature	- 30 to +70 °C
Relative Humidity	%10 to %90
Weight	200 gram
Electrical Connection	3 Meter cable or M12 5 pin (male)

AXES



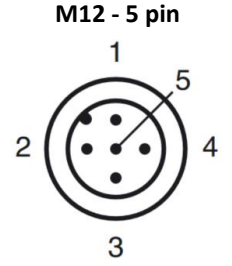
ELECTRICAL CONNECTION

For transistor output

Connection Tip	M12 Soket	Cable
U+ (12..24VDC)	Pin 1	Red
Output	Pin 2	Yellow
Ground (0V)	Pin 3	Black
Boş	Pin 4	Green
Boş	Pin 5	Pink

For relay output

Connection Tip	M12 Soket	Kablo
U+ (+ 24VDC)	Pin 1	Kırmızı
Relay Common Terminal	Pin 2	Pembe
Ground (0V)	Pin 3	Siyah
Relay Normally Closed End	Pin 4	Sarı
Relay Normally Open End	Pin 5	Yeşil



SETUP

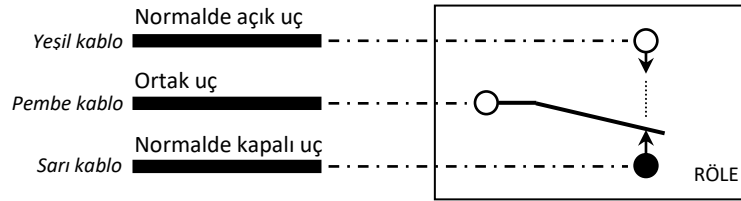
Working principle for transistor output : If the sensor angle is within the selected range, the output rises to the supply voltage level and "OK" lights up. Otherwise, the output is 0 volts and "AI" is lit. Four different ranges can be selected via the sensor, the zero point can be changed.

For example; If the set range "A" is selected, the angle on the X axis is between $+2^\circ$ and -2° and the angle on the Y axis is between $+3^\circ$ and -3°

Output = Supply voltage (U). Otherwise the output is 0 volts.

Working principle for relay output : If the sensor angle is within the selected range, the output is in the "Normally Closed" position and the "OK" LED is lit. Otherwise the output is in the "Normally Open" position and the "AI" is lit. Four different ranges can be selected via the sensor and the zero point can be changed.

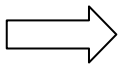
Röle Bağlantısı:



Örneğin; If the set range "A" is selected, the angle on the X axis is between $+5^\circ$ and -5° and the angle on the Y axis is between $+5^\circ$ and -5° ;

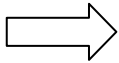
Röle Çıkışı = The "common terminal" and the "normally closed terminal" are in contact with each other. Otherwise, the contact between the "common terminal" and the "normally open terminal" is in the form of a contact.

Set Range Change : The sensor has four predefined ranges. The desired set range is selected with the S1 button on the sensor.



- 1) Press and hold S1 button to change the range
- 2) The button is released when the interval (A, B, C, D) starts to flash,
- 3) Range is selected by pressing S1 button one by one,
- 4) The blinking led is on continuously after a while. The process is thus completed

Changing the Zero Point : The zero point is when the sensor is parallel to the edge ($X = 0^\circ$, $Y = 0^\circ$). You can change the zero point using the S2 button.



- 1) The sensor is set to the zero position to be accepted.
- 2) Press and hold the S2 button,
- 3) "Ok" and "AI" leds will blink sequentially,
- 4) Press S2 once to accept the position,
- 5) When the "OK" stops blinking, the process is completed

Reset Zero Point to Factory Setting:

- 1) Press and hold S2 button,
- 2) "Ok" and "AI" leds will blink sequentially,
- 3) Press the S1 button once to return to the factory default zero point,
- 4) When "AI" stops blinking, the process is completed .

Note: During all adjustments, the output drops to 0 volts

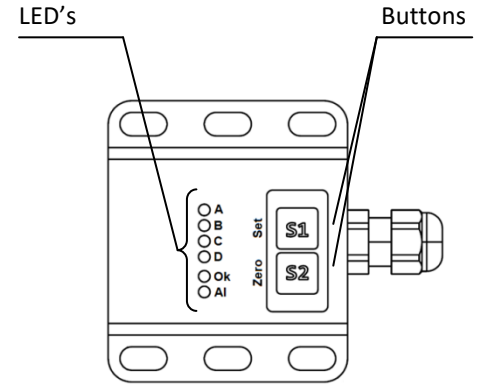


SAFETY WARNING:

This sensor can not be used especially in applications where the safety of goods and life depends on the operation of the device. The sensor assembly and installation must be performed by people with technical competence. Our company can not be held liable for any loss or damage caused by incorrect assembly or installation.

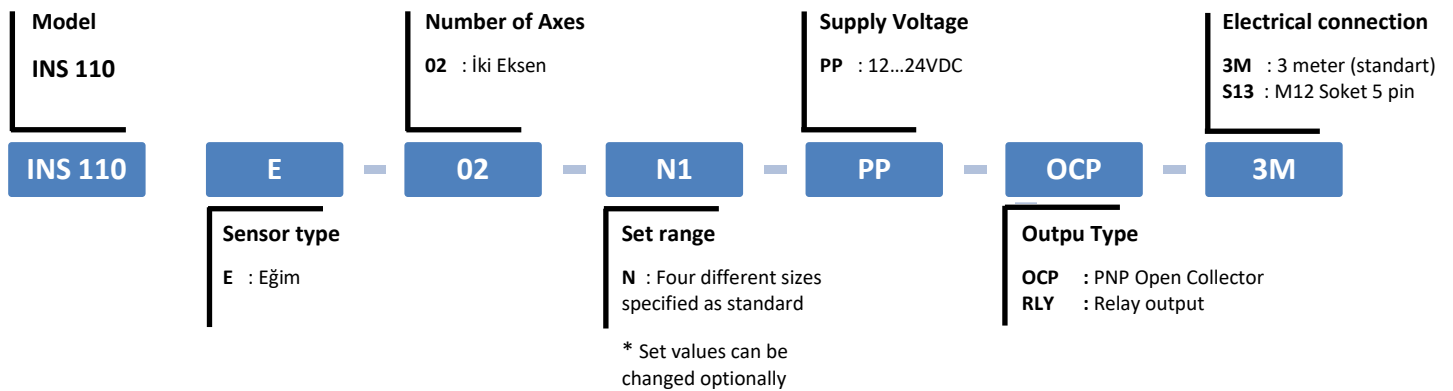
LED AND BUTTON FUNCTIONS

LED	Clour	Functions
A	Yellow	It indicates that the set range is $X = \pm 2^\circ$ and $Y = \pm 3$.
B	Yellow	It indicates that the set range is $X = \pm 1.5^\circ$ and $Y = \pm 1.5$.
C	Yellow	It indicates that the set range is $X = \pm 1.5^\circ$ and $Y = \pm 3$.
D	Yellow	It indicates that the set range is $X = \pm 2^\circ$ and $Y = \pm 2$.
Ok	Blue	The sensor is in the selected range while the "OK" lights up. In this case, the output is equal to the sensor supply.
Al	Red	The sensor is not in the selected range while the "Al" is on. In this case the output is 0 volt level.



Button	Clour	Functions
S1	Yellow	The S1 button is used to change the set range. "Set Range Change"
S2	Blue	The S2 button is used to change the 0 position

ORDER CODING



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