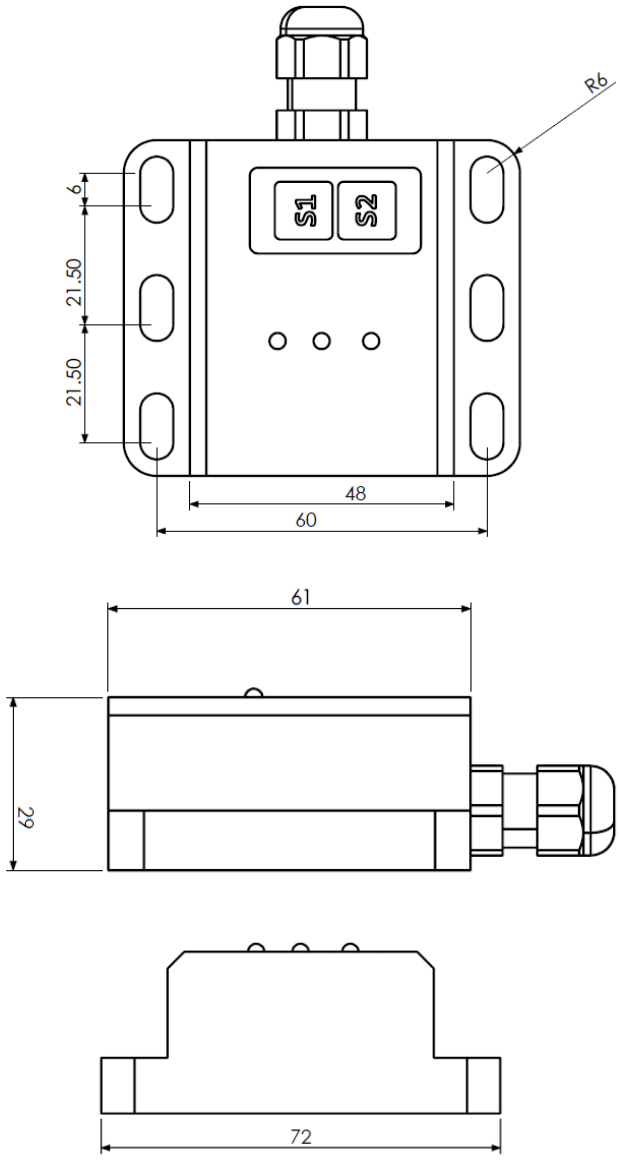
TILT SENSOR
Transistor ve Analogue Çıkışlı

INS 130 Series

INS 130 SERIES TILT SENSOR

- Ability to measure two axes(XY)
- Tilt measurement up to ±90°
- Programmable measurement limits
- Analog output options; 0,1…10VDC veya 4…20mA
- Programmable Switching output (≤ 300 mA)
- PNP Open Collector output type
- High precision ±0.15°
- East setup
- IP67 hıgh protection class
- Small and strong metal body
- Compact structure

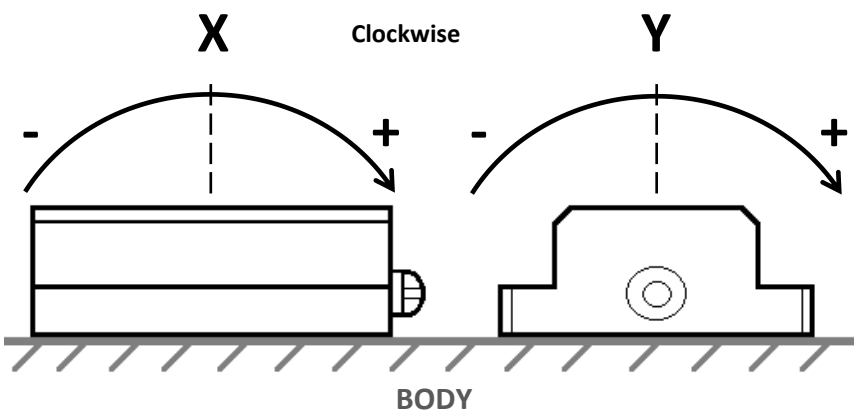
MECHANICAL MEASUREMENTS



TECHNICAL SPECIFICATIONS

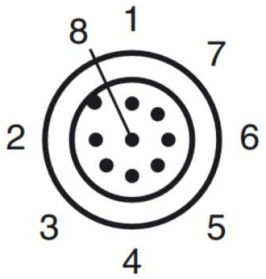
Supply Voltage (U)	12..24VDC
Measurement Range	Programmable at ±90° interval
Measuring Axes	XY
Switching Output Type	PNP Open collector
Switching Output Voltage	~(U-1) Volt
Switching Output Current	≤ 300 mA
Analogue Output	0,1…10VDC veya 4…20mA (Programmable at ±90° interval)
Angle Resolutıon	±0,05°
Accuracy	±0,15°
Protection Class	IP67
Operating Temperature	Between (-30)-(+70℃)
Relative Humidty	Between (%10)--(%90)
Weight	200 gram
Electrical Connection	3 Meter cable or M12 8 pin(male)

AXIS



ELECTRICAL CONNECTION

Bağlantı Ucu	M12 Soket	Kablo
+U (12..24VDC)	Pin 1	Red
Output X	Pin 2	Yellow
GND (0V)	Pin 3	Black
Output Y	Pin 4	Green
Empty	Pin 5	Blue
Analogue Output X	Pin 6	Pink
Analogue Output Y	Pin 7	Whıte
Empty	Pin 8	Gray



SETUP

Working Principle : If the sensor angle is within the selected range, switching output goes up to "Supply Voltage" level. Otherwise the output is 0 volts. The sensor has two switching outputs as well as two analog output. Analog output can be selected from 0,1…10V or 4…20mA. Switching ang analogue outputs are all programmable.(adjustable)

Örneğin; *In case of the angle range for X is set to "+15°" and "+30°" ;*
Output X = "Supply Voltage" (+U)becomes and "Out X"LED is constanly ON. Otherwıse the output is 0 volts and "Out X" LED goes OFF.

Analogue outputs and switching outputs can be indepently programmed (adjustable). For exampe, if the switching output is operating in this range fort he above example, the analog outputs can be programmed to work between different angle values(adjustable)

Switching Output Adjustment for X Axis :

S1

1) S1 button is hold as pressed, When the "Out X" LED starts blinking, the buton is being left free.
2) The sensor is brought to limit position 1.
3) S1 button is pressed again, the "Out X" LED will light continuously for 2 seconds and the start flashing again, so 1st position is set.
4) The sensor is brought to 2nd limit position
5) S1 button is pressed again , so , 2nd position is being set.
6) Sensor returns to its normal operation.

The output is always in the active state between the 1st limit position and the 2nd limit position.

Example:
In case of the position 1 is +30 and the position 2 is +45; The output is active between +30°and +45°.

Switching Output Adjustment for Y Axis :

S2

1) S2 button is hold as pressed. When the "Out Y" LED starts blinking, the buton is being left free.
2) The sensor is brought to limit position 1.
3) S2 button is pressed again, the "Out Y" LED will light continuosly 2 seconds and then starts flashing again, so 1st position is set.
4) The sensor is brought to 2nd limit position
5) S2 button is pressed again, so, 2nd position is being set..
6) Sensor returns to 1st normal position

The output is always in the active state between the 1st limit position and 2nd limit position..
Example:
In case of the position 1 is +30 and the position 2 is +45; The output is active between +30°and +45°.

Switching Output Adjustment for X Axis :

1) At the same time S1 and S2 buttons are hold as pressed, When the "Out X" and "Out Y"LEDs starts blinking, the buttons are being left free.
2) The Sensor is brought to the position to receive the minimum analog signal output.
3) S1 buttons is pressed again , The "Out X" LED will light continuosly for 2 seconds and then start flashing again,so that the minimum values point is being set
4)The Sensor is brought to the position to receive the maximum analog signal output.
5) S1 button pressed again , The "Out X" LED will light continuously for 2 seconds and then start flashing again so that the maximum value point is being set.
6) Sensor returns to its normal operation.

Switching Output Adjustment for Y Axis:

1) At the same time S1 and S2 buttons are hold as pressed, When the “Out X” and “Out Y”LEDs starts blinking, the buttons are being left free.
2) The Sensor is brought to the position to receive the minimum analog signal output.
3) S1 buttons is pressed again , The “Out X” LED will light continuosly for 2 seconds and then start flashing again,so that the minimum values point is being set
4)The Sensor is brought to the position to receive the maximum analog signal output.
5) S1 button pressed again , The “Out X” LED will light continuously for 2 seconds and then start flashing again so that the maximum value point is being set.
6) Sensor returns to its normal operation.

If the sensor crosses the maxımum point, the analog output keeps its final value

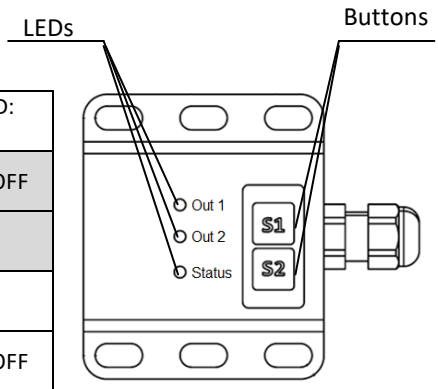
Reset to Factory Settings :

1) At the same time S1 and S2 buttons are hold as pressed, when the “ Status” LED starts blinking, the buttons are being left free.
2) The “Status” LED stops blinking after 10 seconds, so the sensor returns to factory settings.

Not: During all adjustments, the output drops to 0 volts

LED FUNCTIONS

Working Status:	Blue LED Status	Yellow LED: Out X	Yellow LED: Out Y
During setting of switching output for X Axis	Light goes OFF	Starts blinking	Light goes OFF
During setting of switching output for Y Axis	Light goes OFF	Light goes OFF	Starts blinking
While switching to analogue setting mode	Light goes OFF	Starts blinking	Starts blinking
During setting of switching output for X Axis	Light goes OFF	Starts blinking	Light goes OFF
During setting of switching output for Y Axis	Light goes OFF	Light goes OFF	Starts blinking
During normal operation	Intermittent blinking	switching mode Status	switching mode Status
Reset to Factory settings : Between 5 seconds- 10 seconds	Light goes OFF	Starts blinking	Starts blinking
>10 seconds the end of the process of returning to factory setting, its continue is normal operating mode	Starts blinking	Light goes OFF	Light goes OFF



SİPARİŞ KODLAMASI

Model
INS 130

Number of Axes
01 : Single Axis
02 : Two Axes

Supply voltage
PP : 12…24VDC

Output type
OCP : PNP Open Collector

Electrıcal Connection
3M : 3 meter (standard)
S14 : M12 Socket 8 pin

INS 130	E	02	030	PP	A	OCP	CW	3M

Sensör Type
E : TILT

Measurement Range
030 : Measurement between ± 30°
It can be produced between ± 90° values

Analogue Output Type :
4…20 mA analogue current
V : 0,1…10 V analogue voltage
Empty : No analogue output

Output signal Direction
CW : Output signal increases on clockwise direction
CCW : Output signal increaes on counter clockwise direction

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