



GENERAL FEATURES

- Two axis measurement
- Angle and inclination measurement from 0 to 360°
- Programmable measurement ranges
- Analog output options : 0...5VDC, 0...10VDC or 4...20mA
- Programmable Switching output (≤ 300 mA)
- PNP Open Collector output
- High Sensitivity: $\pm 0.15^\circ$
- Easy installation
- IP67 protection class
- Small and robust housing
- Compact structure

INS 130 series angle and inclination sensors are the sensors that show the inclination and angle of rotation of objects standing perpendicular to the earth. Measurement information can be obtained from these sensors between 0-360°. The measurement limits can be set according to the user request. These sensors which can offer both analog output and open collector output, can take measurement with $\pm 0.15^\circ$ accuracy.

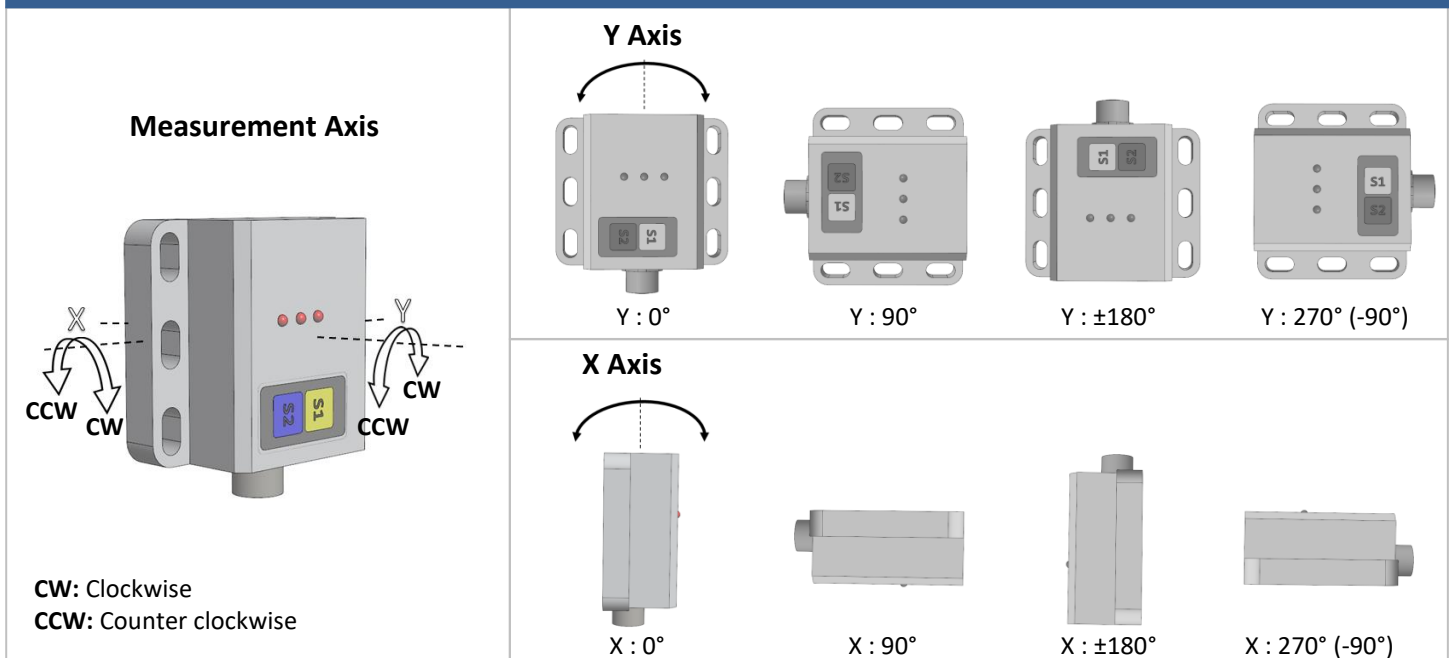
INS 130 series sensors with high precision, compact design and durable construction offers suitable solutions for angle measurement in industrial areas like crane and lifting systems, construction machinery and special purpose vehicles, solar energy and photovoltaic systems, wind farms and so on. Thanks to their high IP protection class, they can work easily in outdoor environments.

TECHNICAL SPECIFICATIONS

| | | | | |
|--------------------------------------|--|-------------------------------|--|---------------|
| Supply Voltage (V) | 12 ... 24 VDC | Resolution | $\pm 0,05^\circ$ | |
| *Measurement Range | 0...360° | Accuracy | $\pm 0,15^\circ$ | |
| Measurement Axis | XY | Protection Class | IP67 | |
| *Output Type | 2xPNP Open Collector or Analog Signal Output | Operating Temp. | - 30°C...+70 °C | |
| | | Relative Humidity | %10...%90 | |
| Open Collector Specifications | Output Voltage | $\sim(V-1)$ Volt | Weight | ~ 200 gr |
| | Current Consumption | ≤ 300 mA | Body Material | Aluminum |
| Analog Outputs | 0-5 VDC, 0-10 VDC or 4-20 mA | *Electrical Connection | 8x0,14 mm ² shielded cable or M12 / 8 pin male socket | |
| Response Time | 10 Hz | | | |

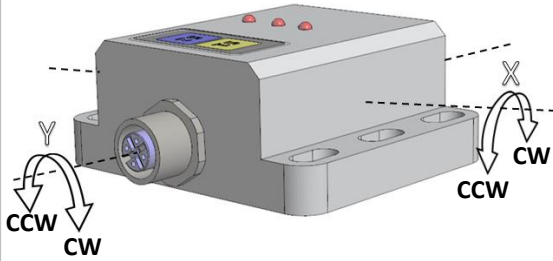
Note: The specifications specified by (*) vary depending on the model selected. The detailed code table for product selection is shown on page 3.

ANGLE MEASUREMENT AXIS



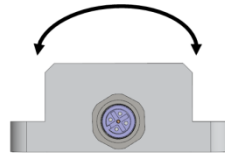
INCLINATION MEASUREMENT AXIS

Measurement Axis



CW: Clockwise
CCW: Counter clockwise

Y Axis



Y : 0°



Y : 90°

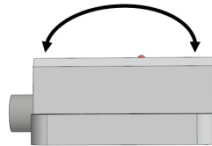


Y : ±180°



Y : 270° (-90°)

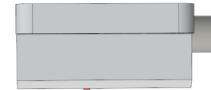
X Axis



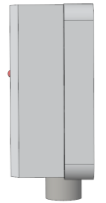
X : 0°



X : 90°



X : ±180°

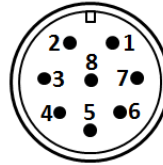


X : 270° (-90°)

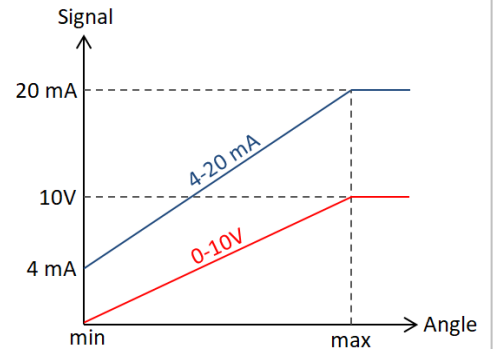
ELECTRICAL CONNECTION

| Signal | M12-8 Pin Male Socket | Cable |
|---------------------|-----------------------|--------|
| V+ (12...24VDC) | Pin 1 | Red |
| Transistor Output X | Pin 2 | Yellow |
| GND (0V) | Pin 3 | Black |
| Transistor Output Y | Pin 4 | Green |
| - | Pin 5 | Blue |
| Analog Output X | Pin 6 | Pink |
| Analog Output Y | Pin 7 | White |
| - | Pin 8 | Grey |

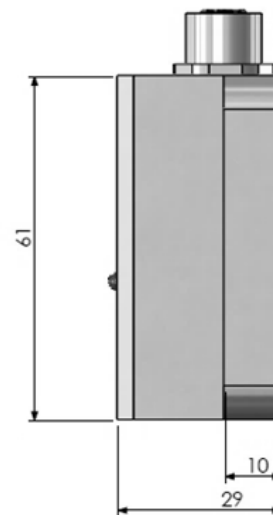
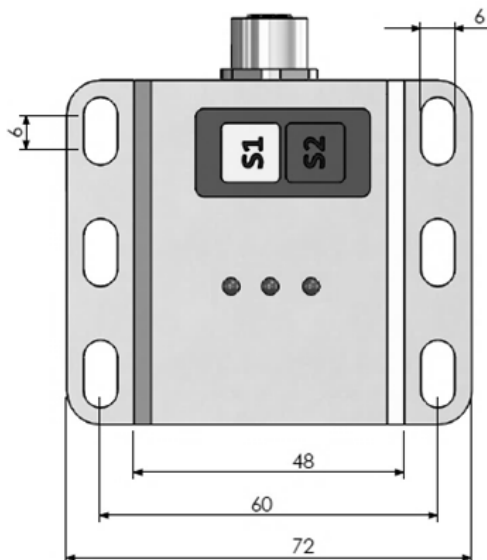
M12 - 8 PIN MALE SOCKET



Analog Signal Output

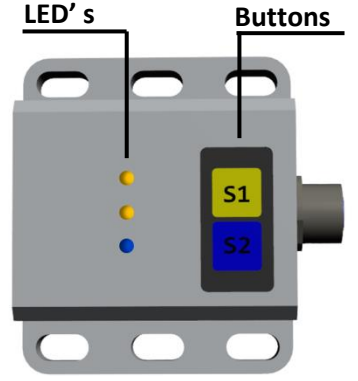


MECHANICAL DIMENSIONS (mm)



LED AND BUTTON 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 |

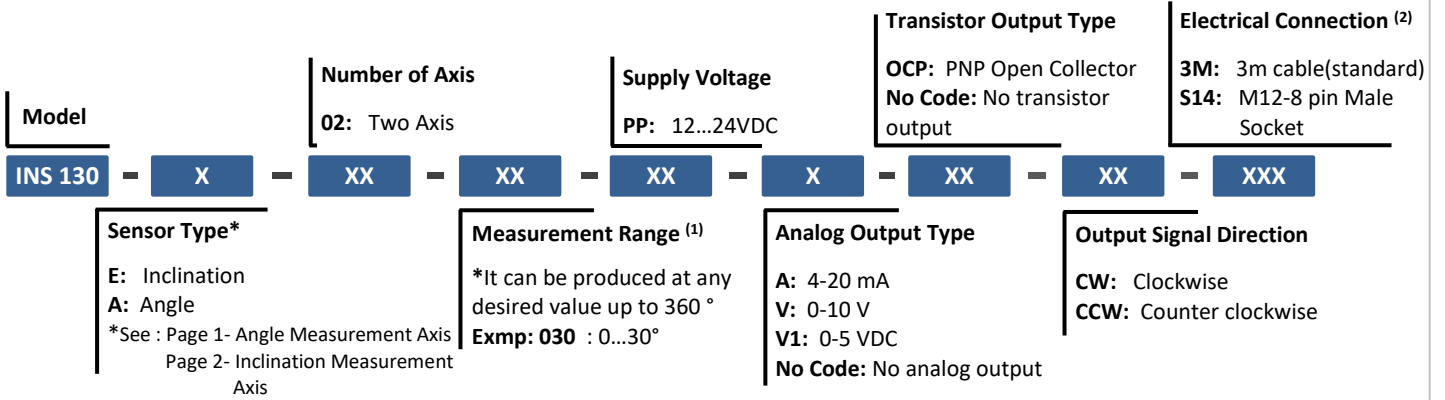


| | | |
|-----------|--------|--|
| S1 | Yellow | Used to change the set range for switching and analog outputs of X axis. Please refer to the user manual for detailed information. |
| S2 | Blue | Used to change the set range for switching and analog outputs of Y axis. Please refer to the user manual for detailed information. |

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

PRODUCT CODE



- (1) The angle and inclination measurement range can be selected differently for transistor output and analog output. For example, the measuring range can be selected 0-360° for the analog output and 0-50° for the transistor output. You need to specify your different measurement range requirements at the order stage
- (2) Different cable lengths can be requested upon user request.

Sample Code 1: INS 130 E 02 -30...+30 PP A OCP CW S14

INS 130 series, inclination, two axis, -30°...+30°, PP supply, 4-20 mA analog output, PNP open collector output, output signal direction clockwise, M12-8 pin male socket

Örnek Kod 2: INS 130 A 02 030 PP A OCP CW S14

INS 130 series, angle, two axis, 0...30°, PP supply, 4-20 mA analog output, PNP open collector output, output signal direction clockwise, M12-8 pin male socket

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OPTIONAL PRODUCTS

| Product | Code | Description |
|---|---------------|---|
|  | CB8 5M / S14F | 5 meters 8x0,14 mm ² extension cable + M12/8 pin female connector (IP67) |

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