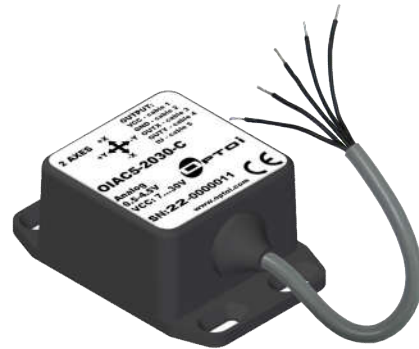


## General Description

**OIAC5** is a 1D or 2D inclination sensor based on MEMS (Micro Electro Mechanical Systems) technology. The device senses tilt angles up to  $\pm 60$  degrees in the pitch and roll axis and 360 degrees in a mono-axis measure. Output signal is 0.5-4.5V.

**OIAC5** is suitable for many applications, it is compact and rugged: the metal enclosure and internal resin protect electronic parts and connections against mechanical shocks, vibrations, thermal shocks, humidity and other external agents. An input protection circuit makes the inclinometer highly robust to external electrical disturbances, due to switching processes and transients generated for example in an automotive environment or in an industrial environment. MEMS signals are internally filtered using an analog low-pass filter, with a cut-off frequency of 50Hz, and again using a second moving average software filter.

**OIAC5** is guaranteed in the full industrial temperature range  $[-40;+85]^{\circ}\text{C}$ . MTTF is greater than 100 years, in order to have high reliability. The 1/2 meter output lead cable can be customized with a male M12 connector on request.



## Applications

- Stability control for agricultural machinery
- Stability control for construction machinery
- Mowers inclination control
- Leveling control
- Tractors safety applications

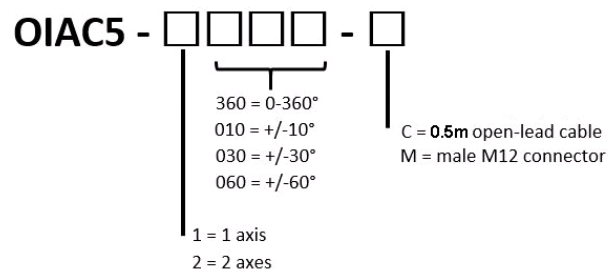
## Pin Functions

No.	Name	Function
1	IU	Internal use only (leave it open if present)
2	VCC	Power Supply
3	GND	Ground
4	OUTX	Analog output (x-axis in 2 axes mode and 1-axis mode)
5	OUTY	Analog output (y-axis in 2 axes mode, not present in 1-axis mode)

## Features

- Robust metal case protects from shocks and vibrations
- Rugged and protected against electrical disturbs and transients
- Filling resin protects against thermal shocks, moisture and harsh environments (IP67)
- Analog output (0.5-4.5V)
- Protected against reverse bias
- Medium accuracy
- Available in different angle ranges
- Customizable connection system on request

## Ordering information



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Min	Max	Unit
T <sub>s</sub>	Storage Temperature	-40	85	°C
T <sub>A</sub>	Operating Temperature Range	-40	85	°C
V <sub>CC</sub>	Supply Voltage Range	7	30	V

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

**ELECTRICAL CHARACTERISTICS**

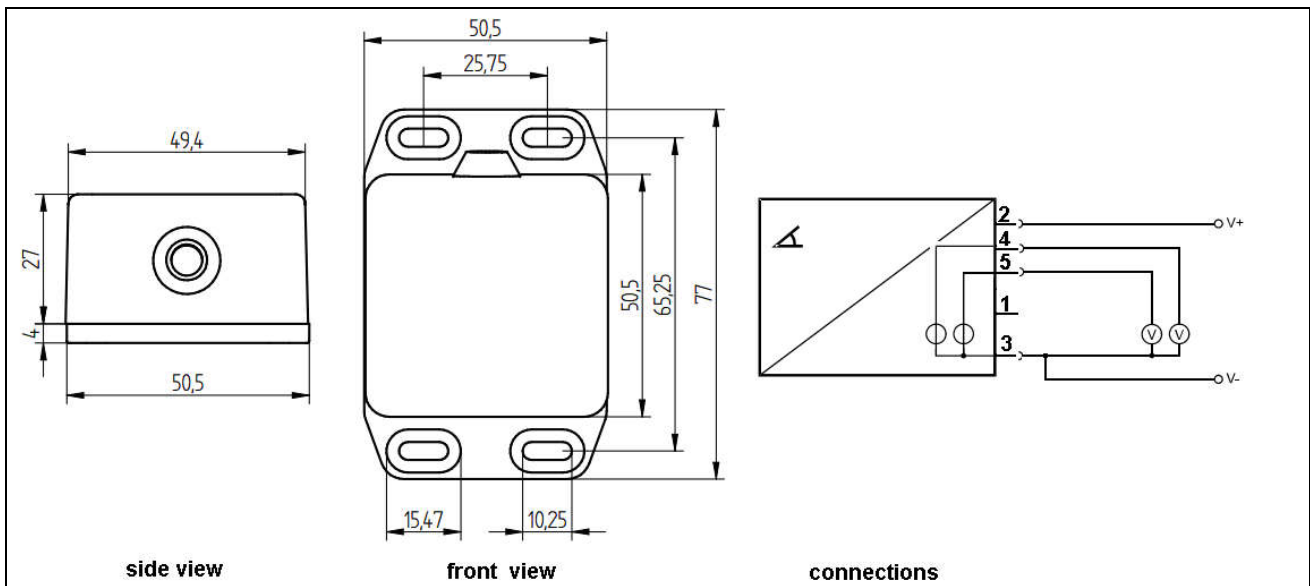
T<sub>A</sub> = 25°C, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage Range		7	12/24	30	V
I <sub>CC</sub>	Current consumption			40		mA
Rg <sub>1</sub>	Range of measurement	model OIAC5-1360		±180		deg
Rg <sub>2</sub>	Range of measurement	model OIAC5-20xx	±10	±30	±60	deg
Res	Resolution of the analog output			1.67		mV
A	Accuracy	Rg <sub>1</sub> =±180°; Rg <sub>2</sub> <+/-30°		±0.20	±0.50	deg
X <sub>A</sub>	Cross Axis Error			±1.0		% FS
D <sub>T</sub>	Temperature drift			± 0.008		deg/°C
R <sub>L</sub>	Load resistor		20			kΩ

**MECHANICAL CHARACTERISTICS AND DIMENSIONS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Wdt	Width		50	50,50	51	mm
Lgt	Length		76,50	77	77,50	mm
Hgt	Height		30,50	31	31,50	mm
Wgt	Weight			200		g
C	Connection		4 or 5 poles open lead cable, 0.5m			

Units = mm ; Mechanical tolerance=+/-0.2mm



Zero degree on the single-axis model (OIAC5-1360) is obtained keeping the connector to the left.

OUTPUT CHARACTERISTICS

