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Inclination sensors

2-dimensional, measuring range up to ±60°

Analog

GIM140R - 2-dimensional, analog



GIM140R

Features

- **Size 48 mm**
- **Interface Analog**
- **MEMS capacitive measuring principle**
- **Measuring range 2-dimensional: up to ±60°**
- **Aluminium housing**
- **Protection IP 67/IP 69K**
- **Connection cable**
- **Teach input for adjustment of zero position**

Optional

- **Analog output with out-of-range diagnostic**

Technical data - electrical ratings

Voltage supply	8...30 VDC 12...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption typ.	8 mA (24 VDC, w/o load, voltage output) 12 mA (w/o load, current output)
Interface	Analog (4...20 mA / 0.5...4.5 V / 0...10 V)
Load resistor	Between Out/0 V ≥3 kΩ / voltage output 270 Ω at 10 VDC (500 Ω at 15 VDC) / current output
Measuring range	±10°/±30°/±45°/±60°
Resolution	0.05 °
Accuracy (+25 °C)	±0.4°
Sensing method	MEMS technology
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Programmable parameters	Preset
Diagnostic function	Out-of-range diagnostics

Technical data - mechanical design

Dimensions W x H x L	48 x 14 x 45 mm
Protection DIN EN 60529	IP 67/IP 69K
Material	Housing: aluminium, anodised
Corrosion protection	ISO 9227:2017 salt mist according to ISO 12944-6:1998 C5-M (CX)
Operating temperature	-40...+85 °C
Resistance	DIN EN 60068-2-6 Vibration 10 g, 10-2000 Hz DIN EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	50 g
Connection	Cable 0.3 m, radial

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Part number

GIM140R-	M	2		.	K		.A	

Option
- Without option
- /4822 Output signal with out-of-range diagnostics

Voltage supply / interface
- V3 8...30 VDC / Analog 0.5...4.5 VDC
- V6 12...30 VDC / Analog 0...10 VDC
- C0 12...30 VDC / Analog 4...20 mA

Connection
- K Cable 0.3 m, Standard 5x0.5 mm²

Measuring range
- 10 ±10°
- 45 ±45°
- 30 ±30°
- 60 ±60°

Number of axes
- 2 2-dimensional

Housing
- M Metal

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Installation position



The 2-dimensional inclination sensor must be mounted with the base plate in horizontal position, i.e. parallel to the horizontal line. The sensor can be inclined both towards the X and Y axis at the same time. For each axis a separate measured value is provided.

Default on delivery the inclination sensor will apply the selected sensing range to both axis, for example ±30° with the zero passage being precisely in the horizontal line.

Y = 0°



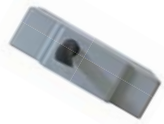
Y = -30°



X = 0°



X = +30°



Terminal assignment

Cable		
Core color	Signal	Description
White	0 V	Ground relating to +Vs
Brown	+Vs	Voltage supply
Green	Out_X	Output
Yellow	Out_Y	Output
Grey	Teach	Teach-input
Cable data: 5 x 0.5 mm²		

Teach process

The teach-in function enables rapid and easy commissioning in the field.

Setting zero

- Get inclination sensor on position intended for zero position.
- Set teach input for 5 < t < 10 seconds on high level.

Trigger level

Teach-input	
High level	>2.1 V
Low level	<1 V
Maximum	+Vs

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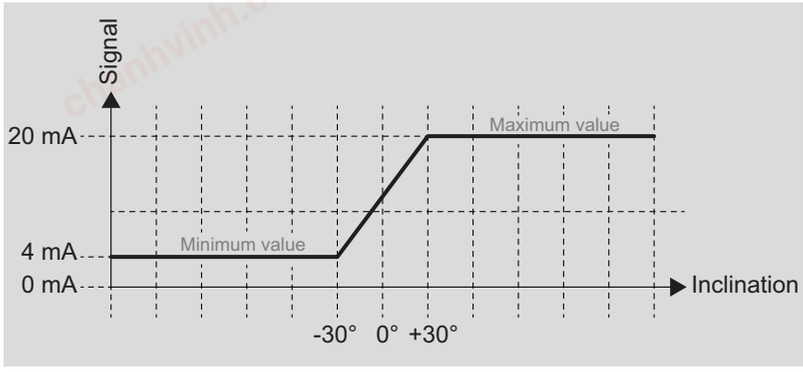
Analog

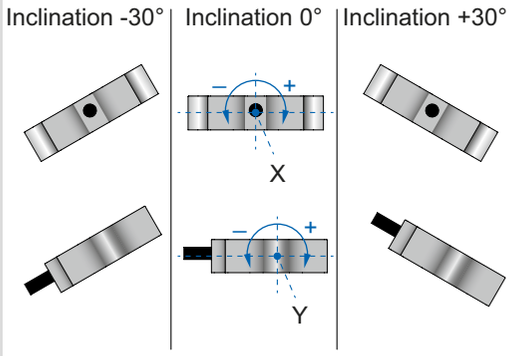
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Output signals

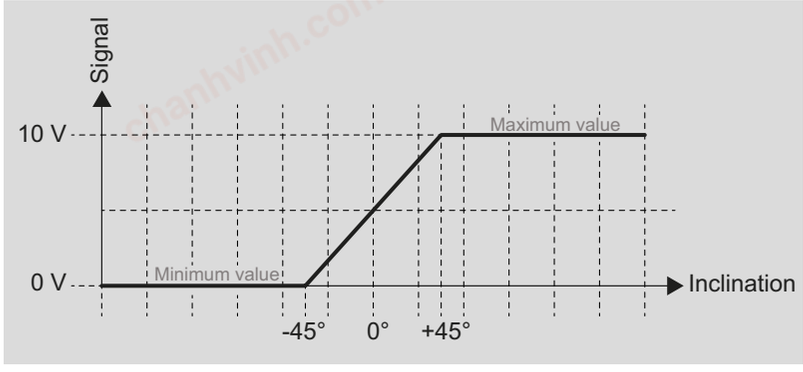
Analog output

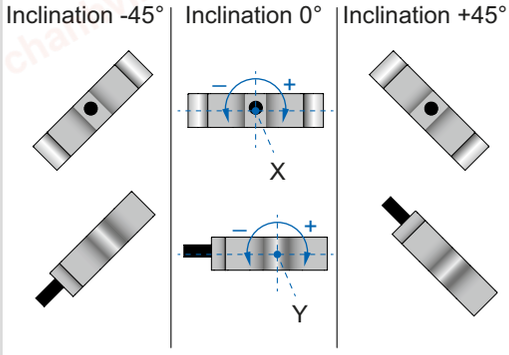
Measuring range -30...+30°



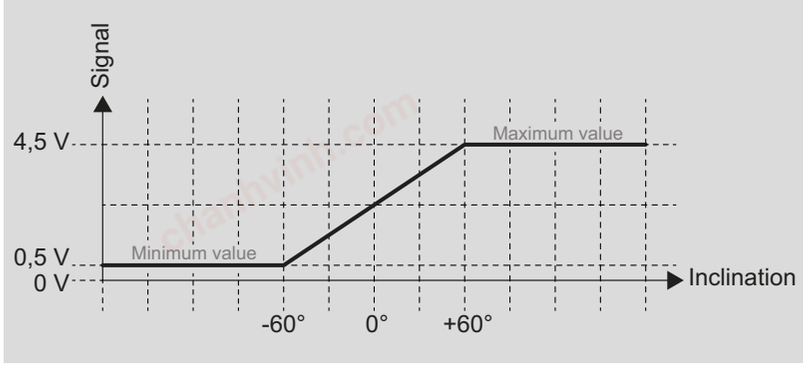


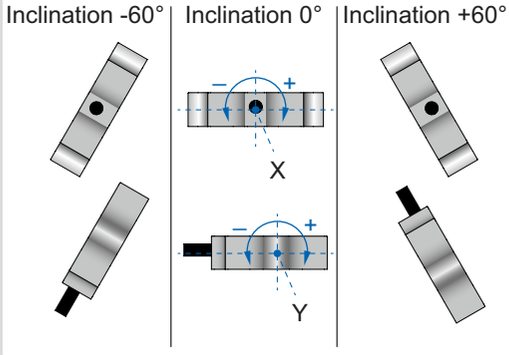
Measuring range -45...+45°





Measuring range -60...+60°





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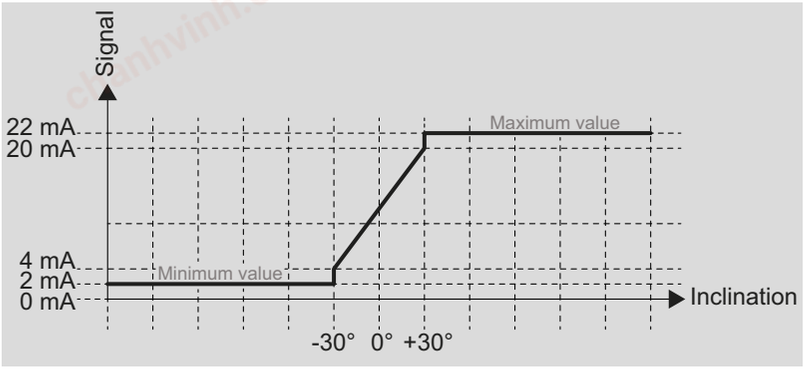
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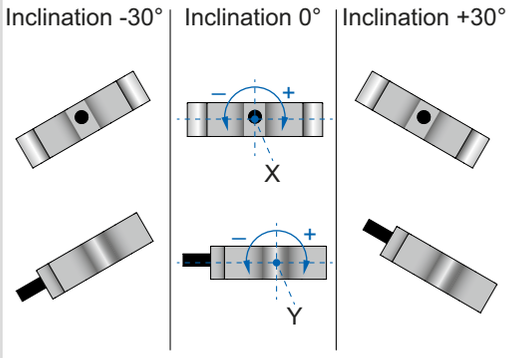
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Output signals

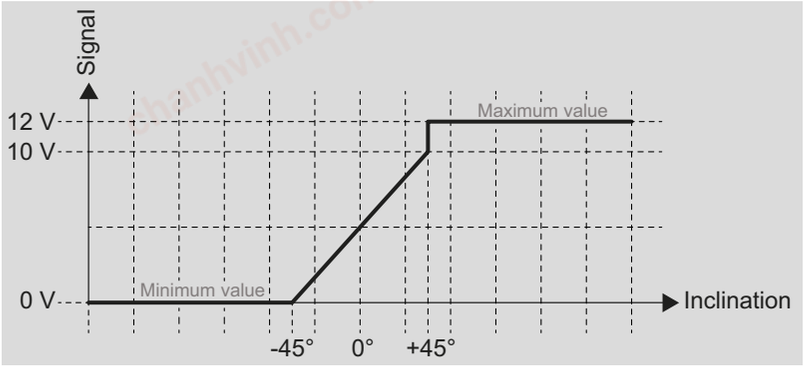
Analog output with out-of-range diagnostic

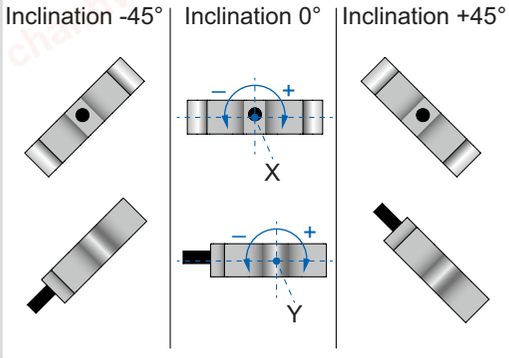
Measuring range -30...+30°



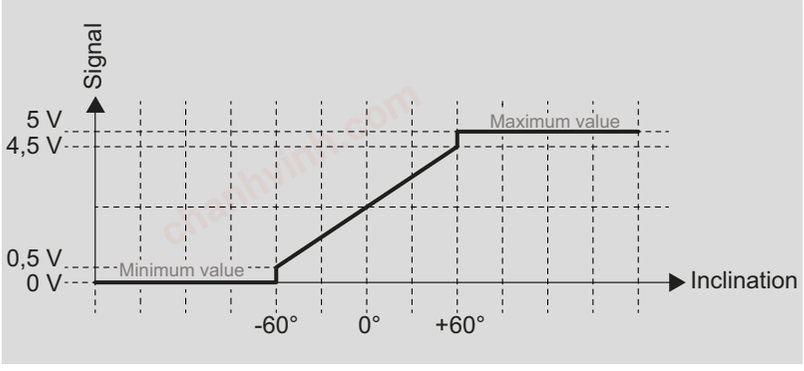


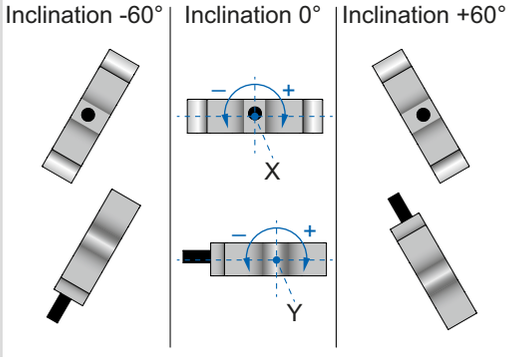
Measuring range -45...+45°





Measuring range -60...+60°





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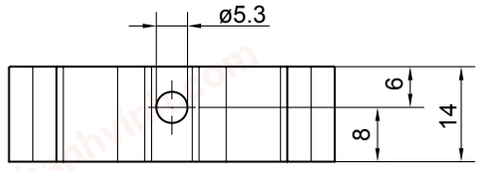
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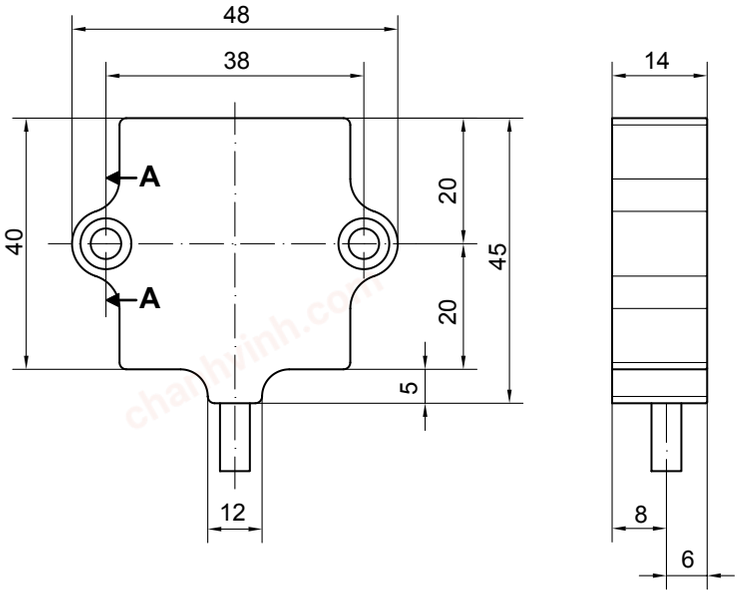
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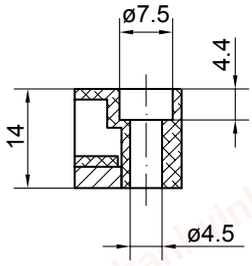
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Dimensions





A-A



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