Single-axis inclinometer −3…93°, 4–20 mA output

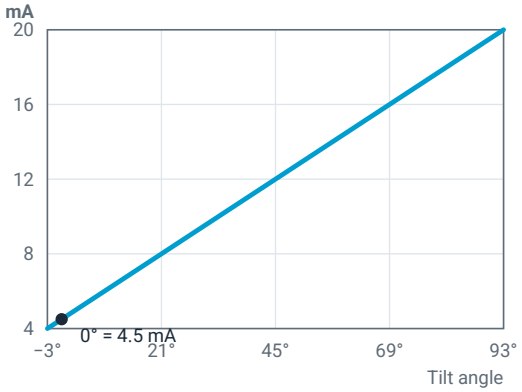
IMA-1-093-CL · MEMS capacitive · IP67 · 9…36 V DC



FEATURES

- MEMS capacitive inclinometer, single axis, range −3…93°
- Output: 4–20 mA analog · resolution 0.1°
- Accuracy ±0.2° at 25 °C · IP67
- Supply 9…36 V DC · operating temperature −40…85 °C

OUTPUT CHARACTERISTIC



Angle = −3° + (I − 4 mA) / 0.167 mA/°
4 mA = −3° · 20 mA = 93°

PERFORMANCE

Measuring range	−3…93°
Number of axes	1
Resolution	0.1°
Accuracy at 25 °C	±0.2°
Temperature drift	±0.5° (−40…85 °C)
Response time	0.05 s
Sensor technology	MEMS capacitive

INTERFACE

Output signal	4–20 mA analog
Sensitivity	0.167 mA/°
Zero point	4.5 mA at 0°
Zero setting	Gray wire to GND for > 3 s; the LED flashes and the current position is stored as 0°

ELECTRICAL

Supply voltage DC	9…36 V
Protection functions	Overcurrent, overheat and overvoltage protection
Insulation resistance	> 100 MΩ
Connection	1 m cable, Ø5.5 mm
Cable	Ø5.5 mm, 5 cores Ø1.3 mm

MECHANICAL & AMBIENT

Housing material	Electroplated metal
Dimensions (L × W × H)	61 × 35 × 21 mm
Weight	≤ 200 g
Mounting and zero setting	Six mounting orientations, 3 × M4 screws, zero point settable on site
Mounting holes	3 × Ø4.2 mm, spacing 52 × 17 mm
Protection class	IP67
Operating temperature	−40…85 °C
Vibration resistance	10 grms, 10…1000 Hz
Shock resistance	100 g / 11 ms, 3 axes, half-sine

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RELIABILITY & COMPLIANCE

MTBF	50 000 h
Service life	Up to 10 years
Manufacturer quality system	IATF 16949:2016

ORDERING INFORMATION

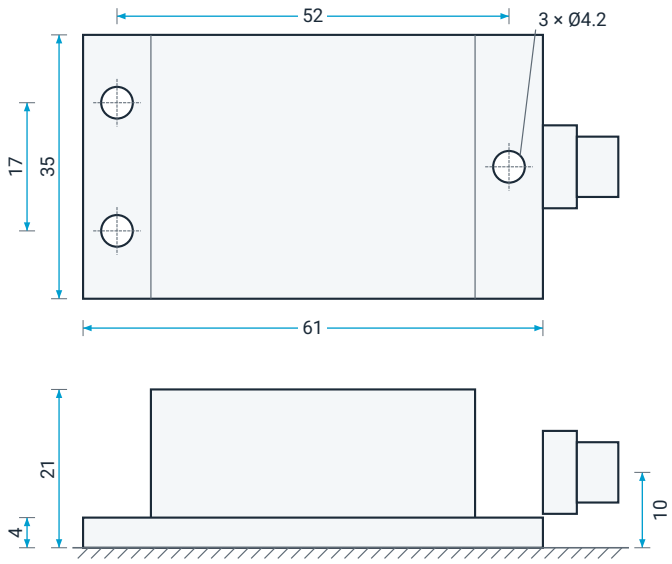
Article	IMA-1-093-CL
Series	IMA-1-CL – Single-axis inclinometer, 4–20 mA output

WIRING

Red	Supply + (9…36 V DC)
Black	GND / signal –
White	X output (4–20 mA)
Green	Y output (4–20 mA, dual-axis)
Gray	Zero set (leave open in operation)

Signal – and supply – share the black wire: connect the input – of your PLC to the sensor GND. Never connect the gray wire to supply +.

DIMENSIONS



Dimensions in mm · 3 mounting holes Ø4.2 mm

RANGE VARIANTS – SAME HOUSING AND OUTPUT

Article	Measuring range	Sensitivity
IMA-1-010-CL	±10°	0.800 mA/°
IMA-1-015-CL	±15°	0.533 mA/°
IMA-1-030-CL	±30°	0.267 mA/°
IMA-1-045-CL	±45°	0.178 mA/°
IMA-1-060-CL	±60°	0.133 mA/°
IMA-1-090-CL	±90°	0.0889 mA/°
IMA-1-093-CL	**–3…93°**	**0.167 mA/°**
IMA-1-180-CL	±180°	0.0444 mA/°
IMA-1-360-CL	0…360°	0.0444 mA/°

Also available with 0–5 V and RS485 Modbus output.

Need another range or a special version? Talk to an engineer: info@mekelson.com

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