



Appearance patent no. . . ZL 201830752874.1

V1.7

VOLTAGE TYPE SINGLE/DUAL AXIS INCLINOMETER

RION LCA310T/LCA320T

TECHNICAL MANUAL

LCA310T/LCA320T VOLTAGE TYPE INCLINOMETER

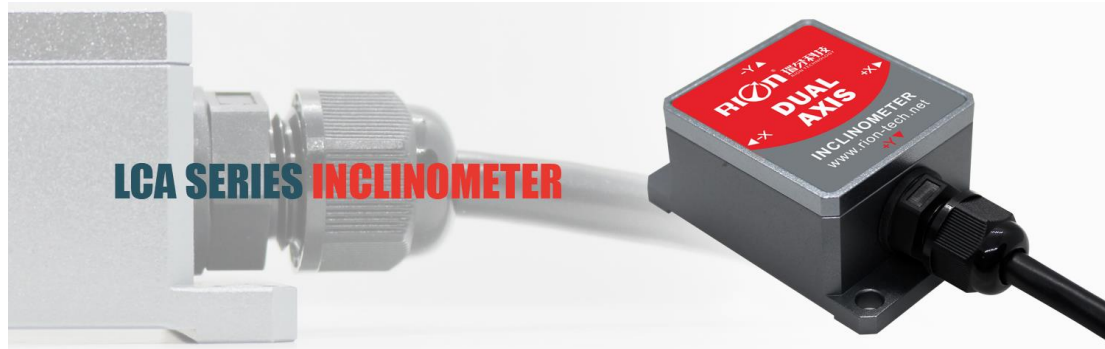


RION-TEHC QUALIFICATION CERTIFICATION

- Quality management system certification: GB/T19001-2016 idt ISO19001:2015 standard (certificate no.: 128101)
- High-tech enterprise (certificate No.: GR201844204379)
- CE certification: AT18250EC100244
- China National Intellectual Property Appearance Patent (Patent No. : ZL 201830752874.1)
- Revision date: 2022-1-4

Note: Product functions, parameters, appearance, etc. will be adjusted as the technology upgrades, please contact our pre-sales business to confirm when purchasing.

LCA310T/LCA320T VOLTAGE TYPE INCLINOMETER



► INTRODUCTION

LCA310T/LCA320T is a small-volume low-cost single-axis tilt sensor developed by RION technology. The output voltage is internally quadratic linearity corrected. It is a linearity voltage output tilt sensor. It is mainly aimed at applications where volume and cost are highly restrictive. Due to the built-in tilting unit of the latest technology micro-electromechanical production process, the volume is small, the power consumption is low, and the consistency and stability of the micro-electromechanical process are very high. The working temperature reaches industrial level $-40 \sim +85 \text{ }^{\circ}\text{C}$, which is a high cost performance Inclination module.

This product adopts the non-contact measurement principle, which can output the current inclination angle in real time. It is simple to use, small size, strong resistance to external electromagnetic interference, and strong ability to withstand shock and vibration; it is an ideal choice for industrial equipment and platform measurement attitude!

► MAIN FEATURES

- ★ Single and biaxial inclination measurement
- ★ Accuracy: 0.1 °
- ★ Output mode $0 \sim 5\text{V}$
- ★ IP67 protection level
- ★ Resolution 0.02 °
- ★ Any range within 360 ° is optional
- ★ Wide voltage input $9 \sim 36\text{V}$
- ★ Wide temperature operation $-40 \sim +85 \text{ }^{\circ}\text{C}$
- ★ High anti-vibration performance $> 3500\text{g}$
- ★ Small size $55 \times 37 \times 24\text{mm}$ (customizable)

► APPLICATION RANGE

- ★ Electric blind chair leveling
- ★ Medical bed level
- ★ Various engineering machinery angle control
- ★ Gimbal operation monitoring
- ★ Car chassis measurement
- ★ Satellite antenna positioning
- ★ Four-wheel positioning system



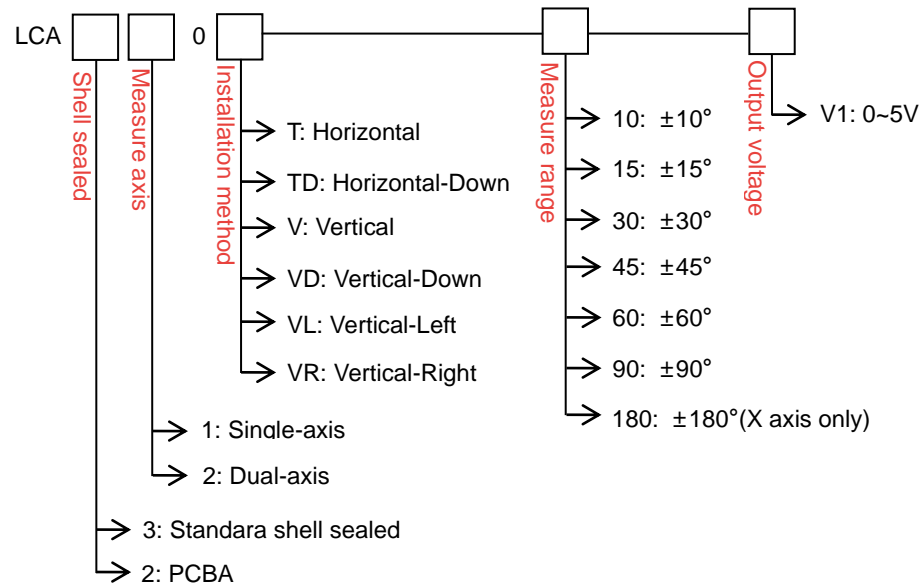
LCA310T/LCA320T VOLTAGE TYPE INCLINOMETER

► PERFORMANCE INDEX

LCA310T/LCA320T	CONDITION	PARAMETER				UNIT
Measure range		±30	±60	±90	0~360	°
Measure axis		X Y	X Y	X Y	X Y	Axis
Zero output	0° output	2.5	2.5	2.5	2.5	V
Resolution		0.02	0.03	0.05	0.08	°
Measure accuracy	@25°C	0.1	0.1	0.15	0.2	°
Long term. stability		<0.5	<0.5	<0.5	<0.5	°
Zero Temp.coefficient	-40 ~ 85°C	±0.02	±0.02	±0.02	±0.02	°/°C
Sensitivity temp-coeffi	-40 ~ 85°C	≤150	≤150	≤150	≤150	ppm/°C
Power-on start time		0.5	0.5	0.5	0.5	S
Response time		0.02	0.02	0.02	0.02	s
Response frequency		1 ~ 20	1 ~ 20	1 ~ 20	1 ~ 20	Hz
EMC	According to EN61000 and GBT17626					
MTBF	≥45000 hours/times					
Insulation Resistance	≥100 MΩ					
Impact resistance	100g@11ms, 3 Axial Direction (Half Sinusoid)					
Anti-vibration	10grms、10 ~ 1000Hz					
Protection grade	IP67					
Cables	standard configuration: 1 meter wearproof、grease proofing、wide temperature、Shielded cables 4*0.3mm2					
Weight	≤135g (including 1 meter cable)					

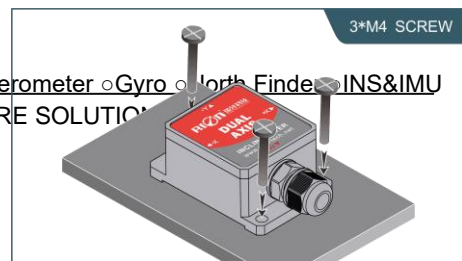
* This performance parameter only lists ± 30 °, ± 60 °, ± 90 °, ± 360 ° series as a reference, for other measurement ranges, please refer to the adjacent parameters.

► ORDER INFORMATION



E.g : LCA310T-10-V1: Standard shell sealed / single axis / horizontal installation / ±10 °measure range / 0~5V output voltage.

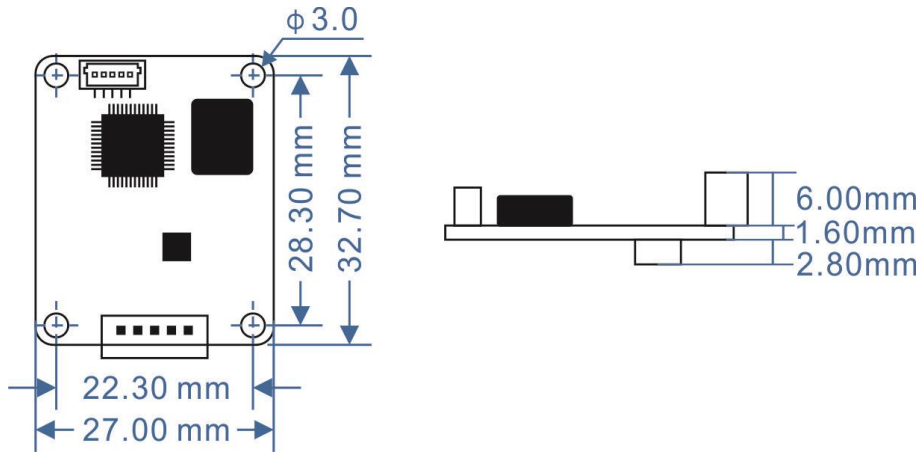
○Tilt sensor ○Electric Compass ○Digital Inclinometer ○Accelerometer ○Gyro ○North Finder ○INS&IMU
 RION-TECH SINCE2008 · ATTITUDE MEASURE SOLUTION



LCA310T/LCA320T VOLTAGE TYPE INCLINOMETER

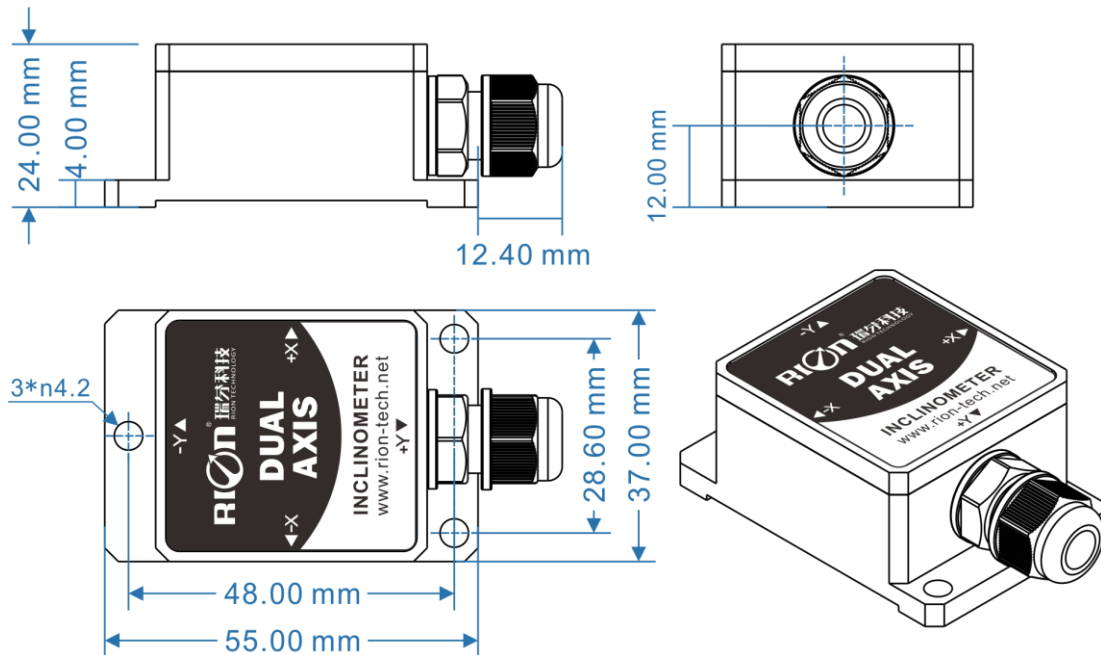
► **SIZE**

PCBA SIZE



SIZE: L27×W33×H10.5mm

SHELL SIZE



SIZE: L55mm×W37mm×H24mm

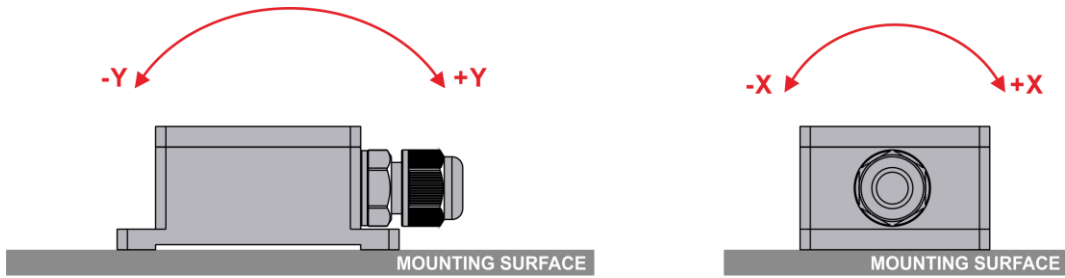
Shell size: L55×W65×H40mm

Installation size: L96×W50×H40mm

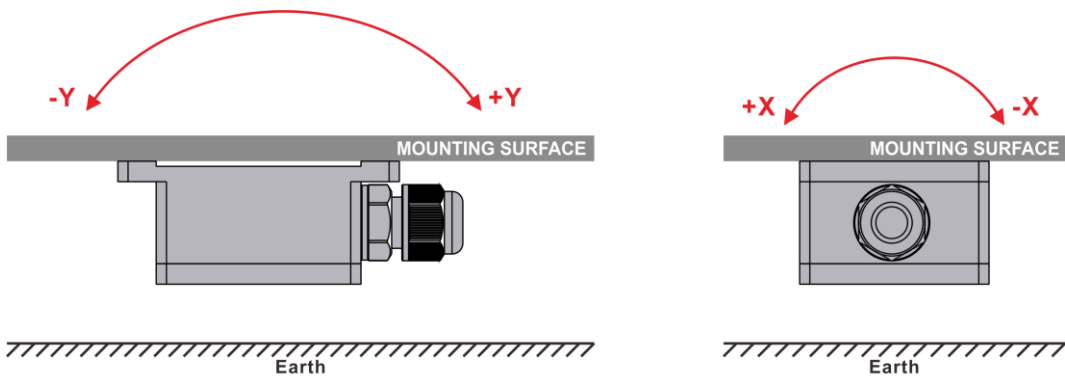
Mounting screws: 4 M5 screws

► INSTALLATION DIRECTION

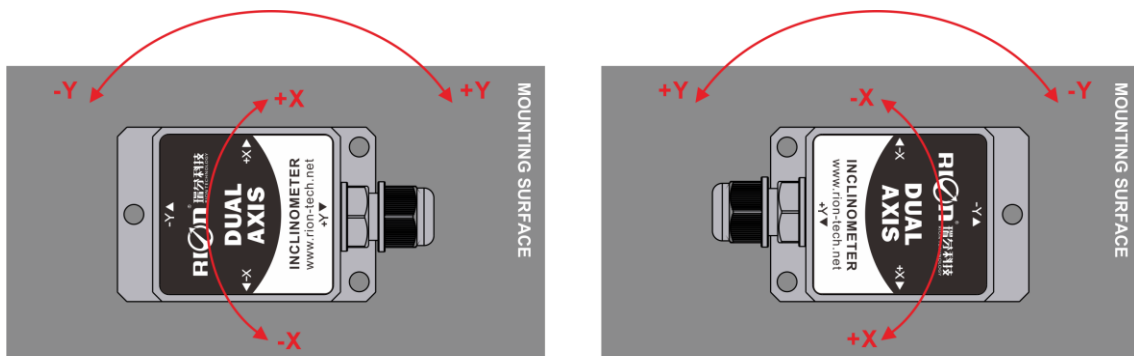
During installation, keep the sensor mounting surface parallel to the target surface to be measured, and reduce the impact of dynamics and acceleration on the sensor. This product can be installed horizontally or vertically, please refer to the following diagram for the installation method:

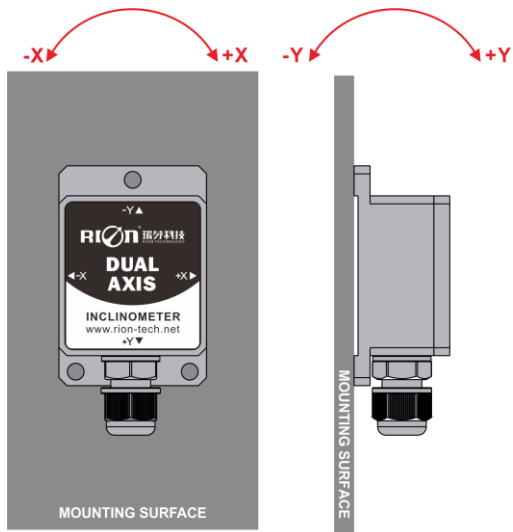


Horizontal installation

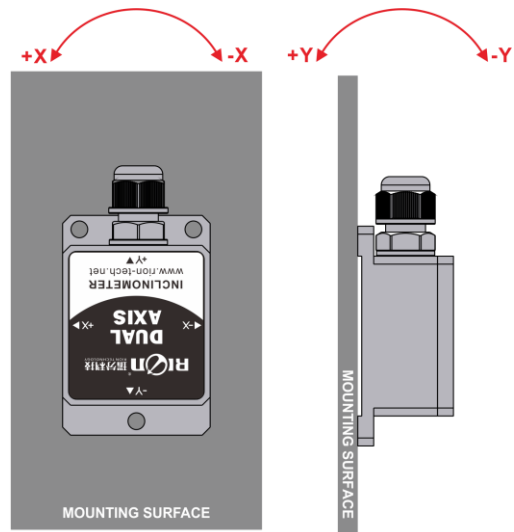


Horizontal-down installation





Vertical installation



Vertical-down installation



Add: Building 1, COFCO (Fu'an) Robot Intelligent Manufacturing Industrial Park,

No. 90 Dayang Road, Fuhai Street, Bao'an District, Shenzhen, China

Tel : (86) 755-29657137 (86) 755-29761269

Fax: (86) 755-29123494

E-mail: sales@rion-tech.net

Web: www.rion-tech.net