

Absolute Linear Encoder (Enclosed Type)

Model: RLA-700/900

Suitable for various installation environments
with a maximum resolution of up to 5nm.



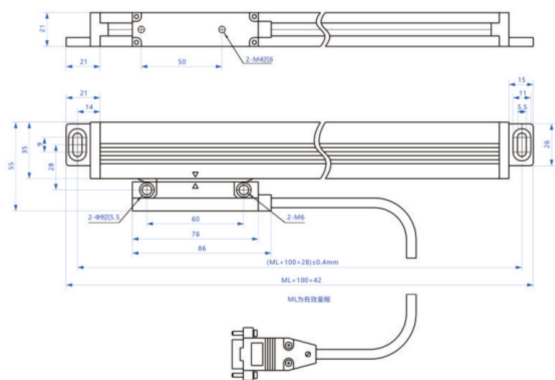
Changchun Rongde Optics Co., Ltd.

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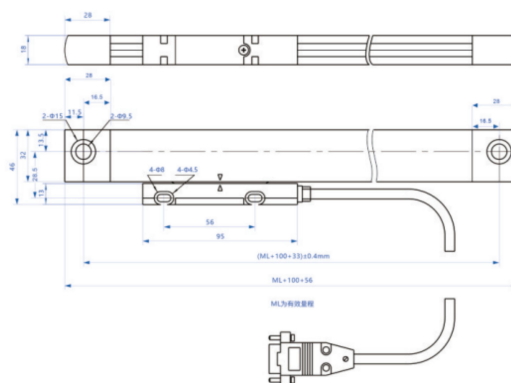
RLA-700 / 900 Models

Adaptable to various installation environments / High speed and high precision

Model	RLA-700	RLA-900
Features	Maximum measuring length up to 3040mm	Suitable for installation in small spaces
Measuring Length	70mm~3040mm	70mm~2040mm
Protection Class	IP53 IP64(with compressed air supply)	
Operating Speed	180m/min	
Accuracy Class	$\pm 3\mu\text{m}, \pm 5\mu\text{m}$	
Communication Protocol	BiSS-C; DRIVE CLIQ; SSI; MODBUS RTU; RS485; Huazhong CNC; Guangzhou CNC; Customizable upon request	



RLA-700



RLA-900

Dimension

Technical Parameters of RLA-700

Suitable for Long-Distance Measurement / High Speed and High Precision

Technical Parameter	RLA-700
Communication Protocol	BiSS C; DRIVE CLIQ; SSI; MODBUS RTU; RS485; Guangzhou CNC; Huazhong CNC
Measuring Reference	Glass grating with absolute and incremental rulings
Coefficient of Linear Expansion	Without mounting plate: $\alpha_{therms} \approx 8 \times 10^{-6} K^{-1}$; With mounting plate: $\alpha_{therms} \approx 9 \times 10^{-6} K^{-1}$
Measuring Length (ML) / Unit: mm	Mounting plate is optional for $ML \leq 1240mm$; mandatory for $ML > 1340mm$. Available ML: 70,120,170,220,270,320,370,420,470,520,570,620,670,720,770,820,920,1020,1140,1240,1340,1440,1540,1640,1740,1840,2040,2440,2640,2840,3040
Accuracy Class	$\pm 3\mu m$; $\pm 5\mu m$
Measuring Step (Resolution)	$1\mu m$, $0.5\mu m$, $0.1\mu m$, $0.01\mu m$, 5nm
Electrical Connection	Independent adapter cable (3m/6m/9m) or customized
Maximum Cable Length	$\leq 30m$
Supply Voltage	DC3.3-14V
Clock Frequency	$\leq 10MHz$ ($\leq 2MHz$ if incremental signal is used)
Incremental Signal	$\sim 1V_{pp}(20\mu m)$
Cut-off Frequency	$\geq 2200KHz$
Current Consumption	$\leq 270mA$
Movement Speed	$\leq 180m/min$ (Maximum acceleration in measuring direction: $\leq 100m/s^2$)
Required Movement Force	$\leq 4N$
Shock (11ms)	$\leq 30g$ (GB/T2423.5-1995)
Vibration (55Hz-2000Hz)	Reading head: $\leq 20g$ (GB/T 2423.10-1995) - Scale housing without mounting plate: $\leq 10g$ (GB/T 2423.10-1995) - Scale housing with mounting plate: $\leq 15g$ (GB/T 2423.10-1995)
Operating Temperature	$0^{\circ}C$ to $50^{\circ}C$
Protection Class	IP53 when installed as required; IP64 with compressed air supply
Weight	$0.2+0.5kg/m$

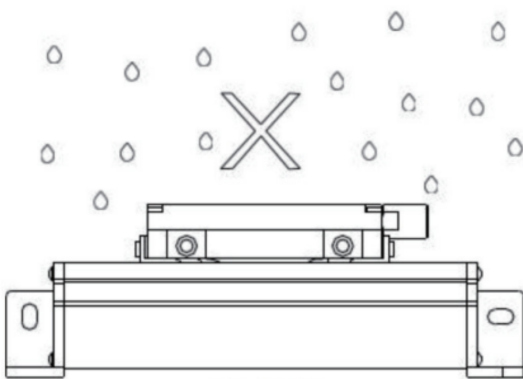
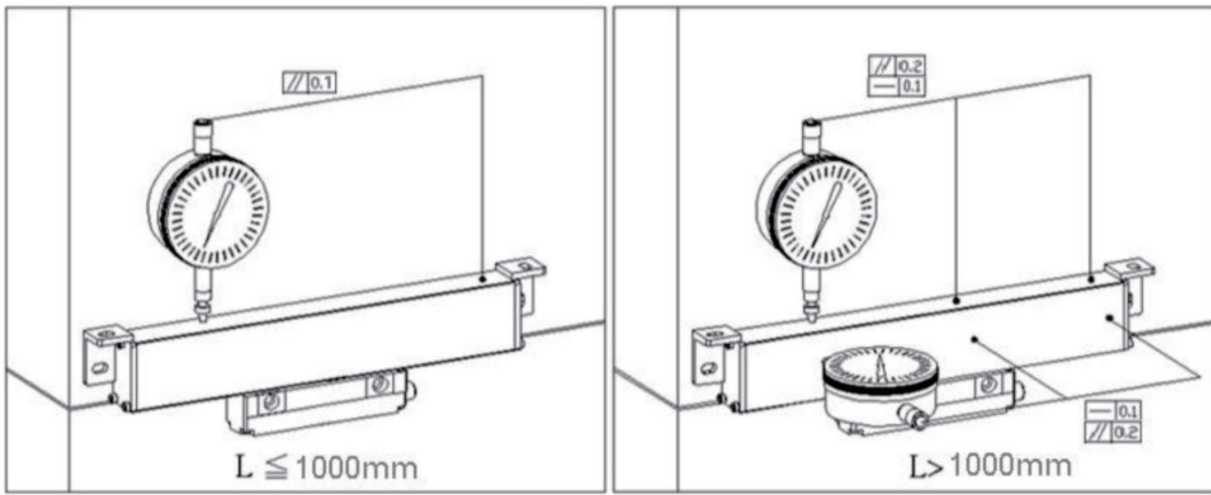
Technical Parameters of RLA-900

Suitable for Installation in
Small Spaces / High Speed and
High Precision

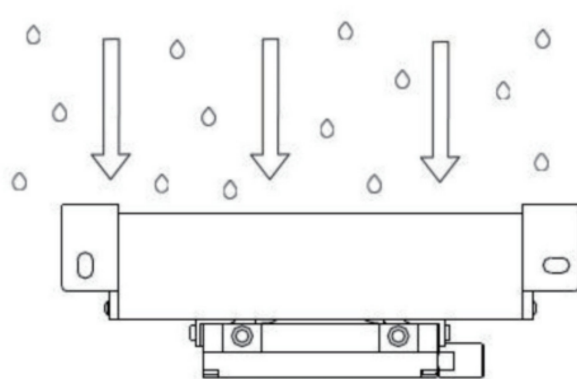
Technical Parameter	RLA-900
Communication Protocol	BiSS C; DRIVE CLIQ; SSI; MODBUS RTU; RS485; Guangzhou CNC; Huazhong CNC
Measuring Reference	Glass grating with absolute and incremental rulings
Coefficient of Linear Expansion	Without mounting plate: α therms $\approx 8 \times 10^{-6} \text{ K}^{-1}$; With mounting plate: α therms $\approx 9 \times 10^{-6} \text{ K}^{-1}$
Measuring Length (ML) / Unit: mm	For grating scales with $ML \leq 1240\text{mm}$, the mounting plate is optional; for those with $ML > 1340\text{mm}$, the mounting plate is mandatory. Available ML values (unit: mm): 70, 120, 170, 220, 270, 320, 370, 420, 470, 520, 570, 620, 670, 720, 770, 820, 920, 1020, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040
Accuracy Class	$\pm 3\mu\text{m}$; $\pm 5\mu\text{m}$
Measuring Step (Resolution)	$1\mu\text{m}$, $0.5\mu\text{m}$, $0.1\mu\text{m}$, $0.01\mu\text{m}$, 5nm
Electrical Connection	Independent adapter cable (3m/6m/9m) or customized
Maximum Cable Length	$\leq 30\text{m}$
Supply Voltage	DC3.3-14V
Clock Frequency	$\leq 10\text{MHz}$ ($\leq 2\text{MHz}$ if incremental signal is used)
Incremental Signal	$\sim 1\text{Vpp}(20\mu\text{m})$
Cut-off Frequency	$\geq 2200\text{KHz}$
Current Consumption	$\leq 270\text{mA}$
Movement Speed	$\leq 180\text{m/min}$ (Maximum acceleration in measuring direction: $\leq 100\text{m/s}^2$)
Required Movement Force	$\leq 4\text{N}$
Shock (11ms)	$\leq 30\text{g}$ (GB/T2423.5-1995)
Vibration (55Hz-2000Hz)	Reading head: $\leq 20\text{g}$ (GB/T 2423.10-1995) - Scale housing without mounting plate: $\leq 10\text{g}$ (GB/T 2423.10-1995) - Scale housing with mounting plate: $\leq 15\text{g}$ (GB/T 2423.10-1995)
Operating Temperature	0°C to 50°C
Protection Class	IP53 when installed as required; IP64 with compressed air supply
Weight	$0.2+0.5\text{kg/m}$

Installation Guide

1. Before installation, check the position on the equipment where the grating scale will be installed, and choose a machining surface with minimal vibration for installation whenever possible.
2. To avoid the impact of temperature on measurement accuracy, keep it as far away from heat sources as possible.
3. For the installation of the grating scale body: if the length of the scale body is within 1000mm, the vertical and horizontal deviations of the scale body relative to the guide rail shall not exceed 0.1-0.15mm; if the length of the scale body exceeds 1000mm, the vertical and horizontal deviations shall not exceed 0.2mm. For the installation of the reading head: the gap between the reading head and the scale body shall be 0.8-1.2mm.
4. After the reading head is installed, be sure to remove the plastic positioning block.



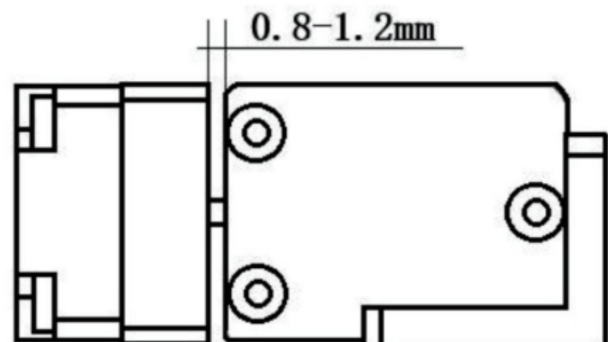
Incorrect Installation



Correct Installation



Reading Head Mounting Bracket



Gap Between Reading Head and Scale Body (0.8-1.2mm)

Selection Guide

Selection Item	Description
Product Model	RLA 700/900
Measuring Length (ML) / Unit: mm	RLA700: 70 120 170 220 270 320 370 420 470 520 570 620 670 720 770 820 920 1020 1140 1240 1340 1440 1540 1640 1740 1840 2040 2440 2640 2840 3040
	RLA900: 70 120 170 220 270 320 370 420 470 520 570 620 670 720 770 820 920 1020 1140 1240 1340 1440 1540 1640 1740 1840 2040
For grating scales with ML \leq 1240mm, the mounting plate is optional; for those with ML > 1340mm, the mounting plate is mandatory.	
Accuracy	$\pm 3\mu\text{m}, \pm 5\mu\text{m}$
Resolution	1 μm , 0.5 μm , 0.1 μm , 0.01 μm , 5nm
Supply Voltage	1.DC3.3-14V
Electrical Output Interface	BC: Biss-C; D:DRLVE CLiQ; S:SSI; M:MODBUS RTU; RS485; HZSK: Huazhong CNC; GZSL: Guangzhou CNC; Customizable
Cable Length	3M/6M/9M/Customized by User
Plug Type	9N: DB9 Pin Type; 7C: 7-Pin Circular Type

Reference Selection Example: RLA700-3040-3 μm /1 μm /1S-3M9N