

Product Selection Guide



RLS Series



Optical linear scales series RLS are accurate and reliable; thanks to their reduced dimensions they can be applied even on small-sized machine tools (millers, lathes, grinders, spark erosion machines). Sealed Sensor ensures the reliable performance and easy installation. High resolutions up to 1 μ m.

Part Number

RLS

500

1

G

1

E

3M

9N

Product Series

Small Linear Scale

Resolution

1: 1 μ m
5: 5 μ m

Operating Voltage

1: 5V
2: 5-24V

Cable Length

Cable Length

Measuring Range

0-1000mm

Reference Mark

G: Reference Marks every 100mm

Output Signal

E: Voltage Output
L: Line Driver Output

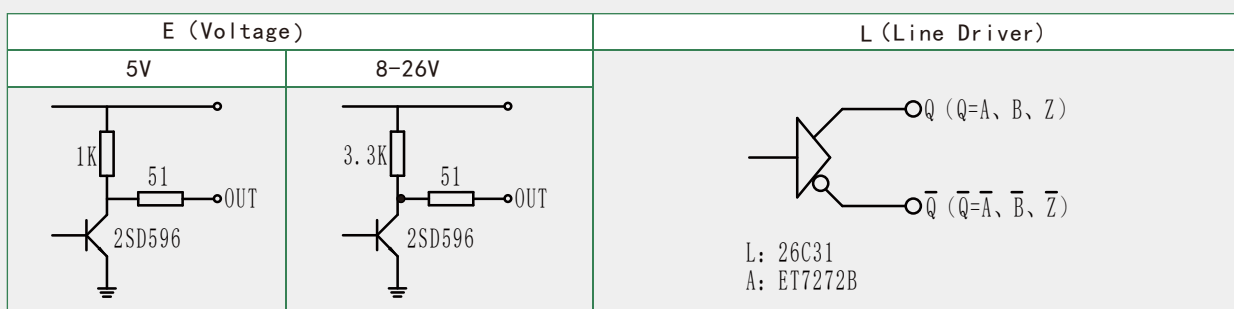
Connector

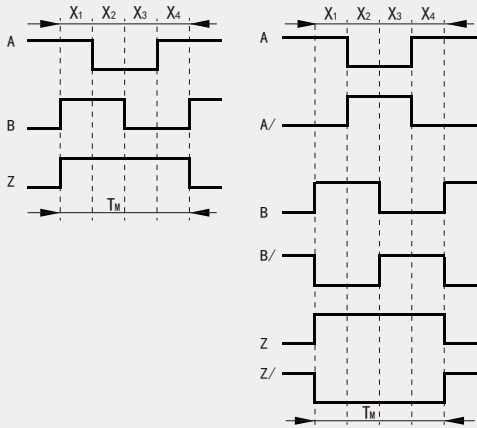
9N: 9 Pins Computer Plug
7C: 7 Pins Aviation Plug

Technical Specifications

Measuring Range	0-1000mm
Resolution	1 μ m, 5 μ m
Accuracy	JB/T10080.2-2000
Reference Mark	Reference marks every 50mm or 100mm
Operating Voltage	5V
Output Signal	Voltage(A,B,Z)/Line Driver (A,B,Z,A/,B/,Z/)
Frequency Response	25m/min,60m/min
Operating Temperature	-20 °C(-40 °C) ~ +85°C
Storage Temperature	-40 °C ~ +55°C
Protection class	IP53

Output Circuits





Wave Ratio: $X1+X2=0.5T \pm 0.1T$ $X2+X3=0.5T \pm 0.1T$

Phase Difference: $Xn \geq 0.125T$ ($n=1, 2, 3, 4$)

Absolute Angle Error: $\leq 0.2T$

Cycle Error: $\leq 0.05T$

$T=360^\circ / N$ (N =lines count per revolution)

Width of Z signal

1、 $T_m=1T \pm 0.5T$

$T_m=nT \pm 0.1T$ ($n \geq 2$)

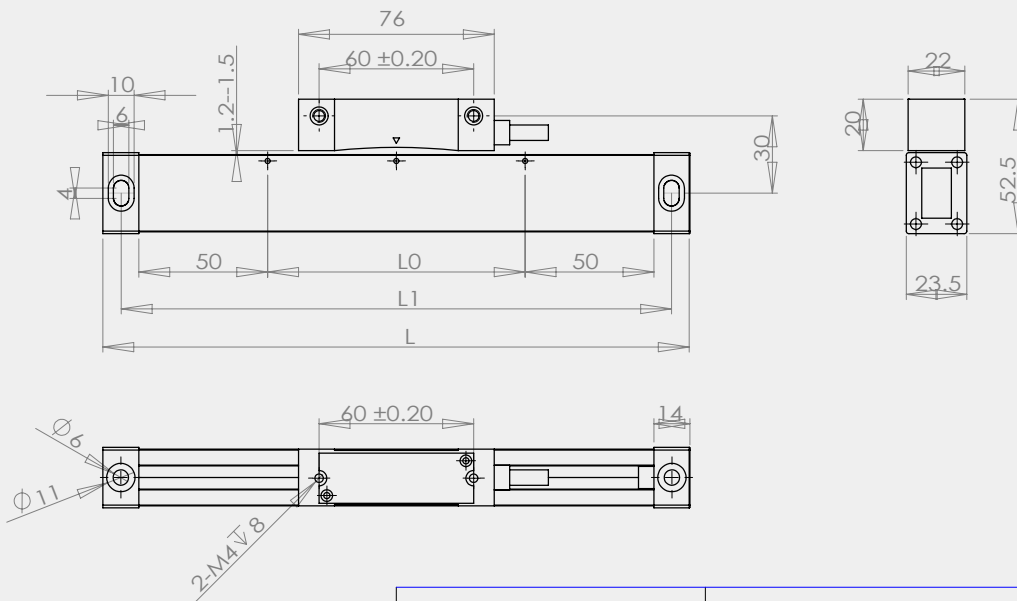
The phase relationship of Z signal and A,B signal is not stipulated.

2、 $T_m=0.5T \pm 0.25T$

$T_m=0.25T \pm 0.125T$

The rising edge of Z signal and B is aligned.

Dimensions



Measuring Range L0 (mm)	10--1000mm
Mounting length L1 (mm)	$L1=L0+2* (50+7) =L0+114$
Total Length L (mm)	$L1=L0+2* (50+14) =L0+128$

Connections

Connector PN	Output Signals	Pins No	1	2	3	4	5	6	7	8	9
7C	Voltage Output(TTL)	Signal	0V	/	A	B	Vcc/VDD	Z	G	/	/
		Cable Color	Black	/	Blue	Green	Red	Yellow	Shield	/	/
9N	Voltage Output(TTL)	Signal	Vcc/VDD	0V	A	B	Z	/	G	G	/
		Cable Color	Red	Black	Blue	Green	Yellow	/	Shield	Shield	/
9N	Line Driver Output	Signal	Vcc	0V	A	B	Z	/A	/B	/Z	Shield
		Cable Color	Red	Black	Blue	Green	Yellow	Brown	Gray	White	Shield

