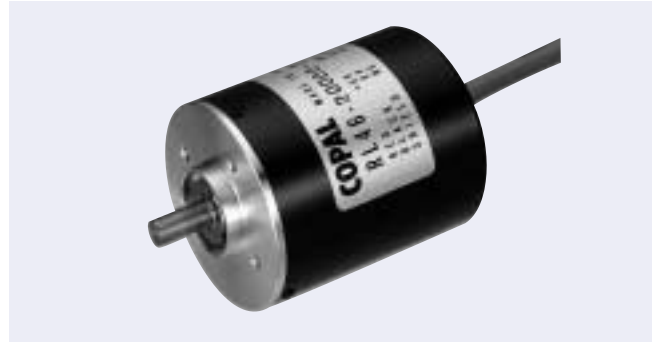


## LASER ENCODERS

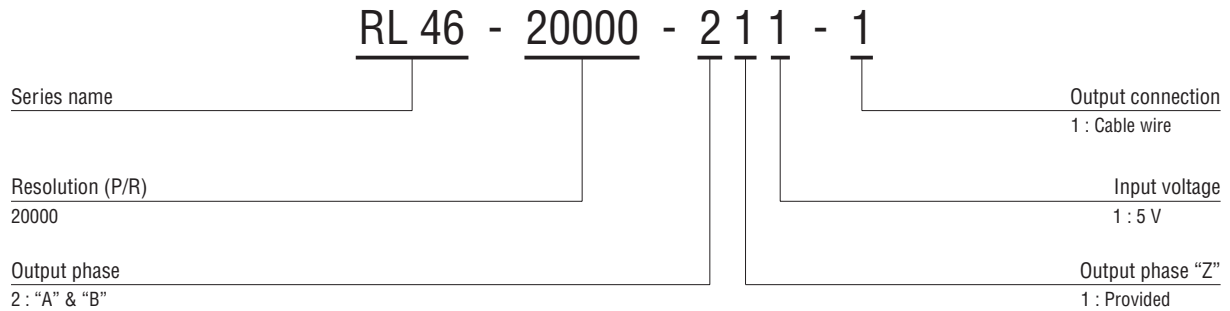
# RL46

### FEATURES

- High resolution — 20000 P/R
- High frequency response — 500 kHz
- Compact  $\phi$  46 and light weight 150 g
- Simple construction



### PART NUMBER DESIGNATION



### LIST OF PART NUMBERS

Resolution	Item	Input voltage	Maximum frequency response	Part number
20000 (P/R)		5 V	500 kHz	RL46-20000-211-1

\* Verify the above part numbers when placing orders.

### STANDARD SPECIFICATIONS

#### Electrical characteristics

Input voltage	DC5 V $\pm$ 5 %	
Input current	180 mA maximum	
Output wave form	Square wave	
Output phases	A, B, Z	
Resolution (P/R)	20000	
Phase difference of outputs A & B	90° $\pm$ 45°	
Maximum frequency response	500 kHz	
Output signal	"1 (High)"	+ 3.6 V minimum
	"0 (Low)"	+ 0.5 V maximum
Light source	Semiconductor laser	

#### Mechanical characteristics

Starting torque	2.45 mN·m (25 gf·cm) maximum	
Inertia	25 g·cm <sup>2</sup> maximum	
Shaft loading (When mounting)	Radial	19.6 N (2 kgf) maximum
	Axial	9.81 N (1 kgf) maximum
Net weight	Approx. 150 g	

#### Environmental characteristics

Operating temp. range	0 ~ 60 °C	
Storage temp. range	- 40 ~ 80 °C	

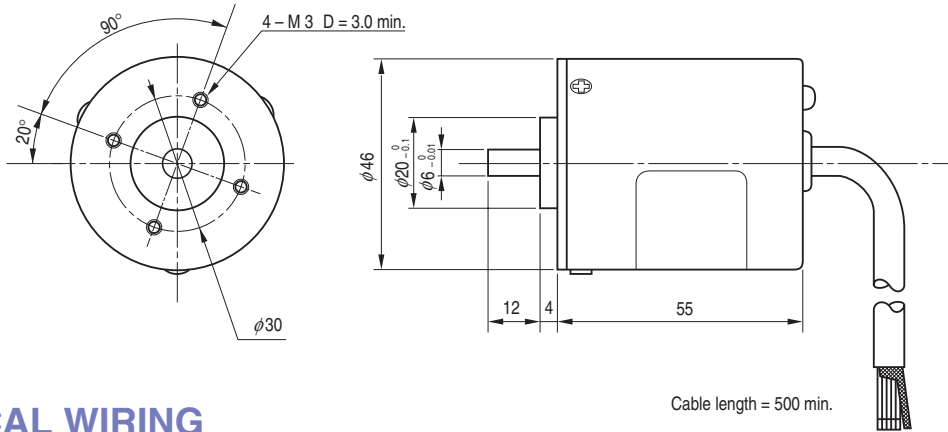
## ■ RELIABILITY TEST

The output wave form shall satisfy the standard specifications after the following tests.

Test item		Test conditions	
Vibration	Power OFF	Amplitude : 1.52 mm or 98.1 m/s <sup>2</sup> (10 G) whichever is smaller. 10 ~ 500 Hz, excursion 15 min/cycle, 8 cycles each for X, Y, Z, directions.	
Shock	Power OFF	3 times each in directions (X, Z) at 294 m/s <sup>2</sup> (30 G), 11 ms.	
High temperature exposure	Power OFF	80 °C ± 2 °C 96 h	(To be measured after leaving samples for 1 h at normal temperature and humidity after the test.)
	Power ON	60 °C ± 2 °C 96 h	
Low temperature exposure	Power OFF	- 40 °C ± 2 °C 96 h	
	Power ON	0 °C ± 2 °C 96 h	
Humidity	Power OFF	40 °C ± 2 °C Relative humidity 90 ~ 95 % 96 h (To be measured after wiping out moisture and leaving samples for 1 h at normal temperature and humidity after the test.)	
Thermal shock	Power OFF	To be done 10 cycles with the following condition (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) 80 °C ± 2 °C 0.5 h, - 40 °C ± 2 °C 0.5 h	

### OUTLINE DIMENSIONS

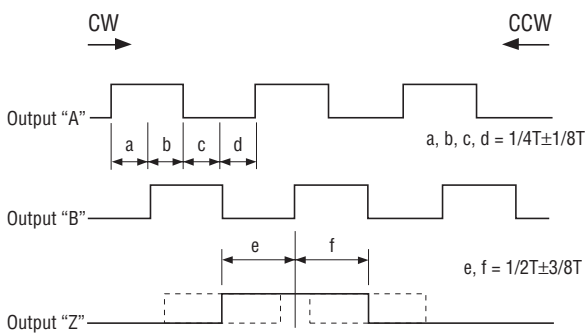
Unless otherwise specified, tolerance:  $\pm 0.4$  (Unit: mm)



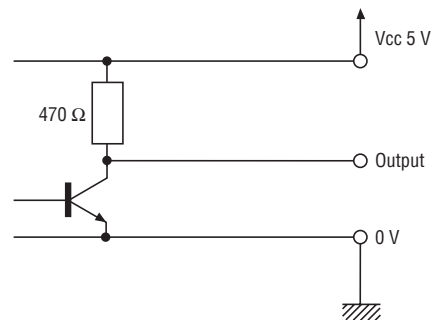
### ELECTRICAL WIRING

Red	Power $\oplus$
Black	Power 0 (V)
White	Output "A"
Green	Output "B"
Yellow	Output "Z"
Cable shield	NC

### OUTPUT



### OUTPUT CIRCUIT



Sink current of output circuit 40 mA maximum (at 25  $^\circ\text{C}$ )