OPTICAL ENCODERS

RE12D

■FEATURES

- φ12 mm, 2 phases square wave
- High resolution 100 to 300 P/R
- Low torque, low inertia
- Cost effective
- RoHS compliant

■PART NUMBER DESIGNATION

R E 1 2 D – 1 0 0 – 2 0 1 – 1

Series name

Resolution (P/R)
100, 200, 300

Output phase
2 : "A" & "B"

Input voltage
1 : 5 V

Output phase "Z"
0 : Non

Output connection
1 : Cable wire
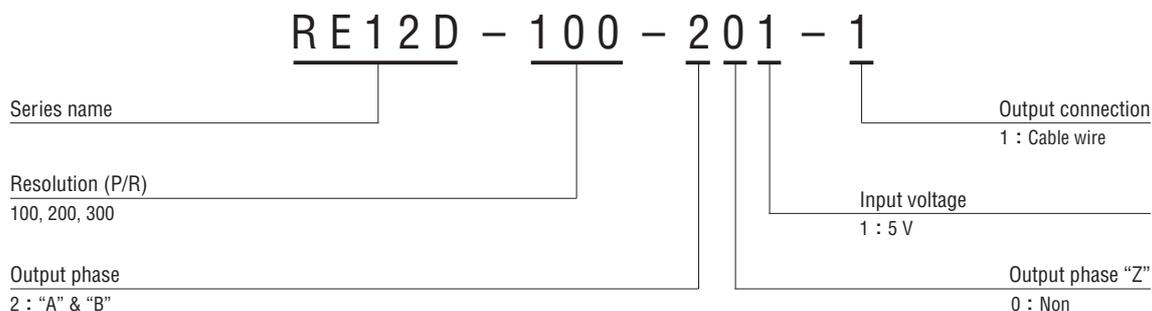
■LIST OF PART NUMBERS

Resolution \ Item	Part number
100 (P/R)	RE12D-100-201-1
200 (P/R)	RE12D-200-201-1
300 (P/R)	RE12D-300-201-1

※Verify the above part numbers when placing orders.

■MECHANICAL CHARACTERISTICS

Starting torque		0.05 mN·m {0.5 gf·cm} maximum
Inertia		0.01 g·cm²
Shaft loading (When mounting)	Radial	1.96 N {200 gf} maximum
	Axial	1.96 N {200 gf} maximum
Net weight		10 g

■ELECTRICAL CHARACTERISTICS

Input voltage		DC5 V ± 5 %
Input current		50 mA maximum
Output wave form		Square ware
Output phases		A, B
Resolution		100, 200, 300
Phase difference of A & B outputs		90° ± 45°
Maximum frequencies response		10 kHz
Output signal	"1 (High)"	+ 4.5 V minimum
	"0 (Low)"	+ 0.5 V maximum
Output impedance		1 kΩ
Light source		LED

■Environmental characteristics

Operating temp. range	0 ~ 50 °C
Storage temp. range	− 20 ~ 80 °C
Protection grade	IP − 40

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■RELIABILITY TEST

Test item		Test conditions
Vibration	Power OFF	Amplitude : 1.52 mm or 98.1 m/s^2 (10 G) whichever is smaller. 10 ~ 500 Hz excursion 5 min/cycle, 1 hour each for X, Y, Z, directions.
Shock	Power OFF	1 time each in 6 directions (X, Y, Z) at 490 m/s^2 (50 G), 11 ms.
High temperature exposure	Power OFF	80 °C 96 h
	Power ON	50 °C 96 h
Low temperature exposure	Power OFF	− 20 °C 96 h
	Power ON	0 °C 96 h
Humidity	Power OFF	(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 5 cycles with the following condition (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) 70 °C 0.5 h、− 20 °C 0.5 h

(For High/Low temperature exposure rows, the Test conditions cell spans: (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.))

■OUTPUT

CW   CCW

T

Output "A"

Output "B"

a b c d

a, b, c, d = 1/4T±1/8T

■OUTPUT CIRCUIT

Vcc

1 kΩ

Output A/B

0 V
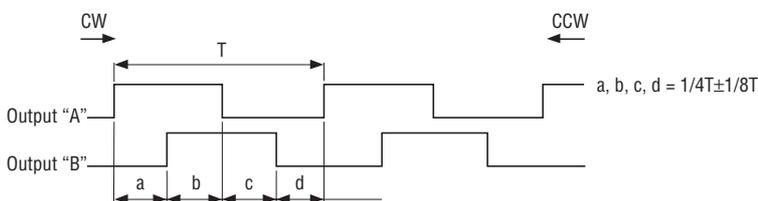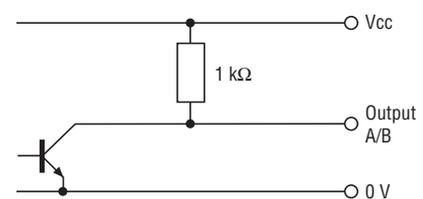
■OUTLINE DIMENSIONS
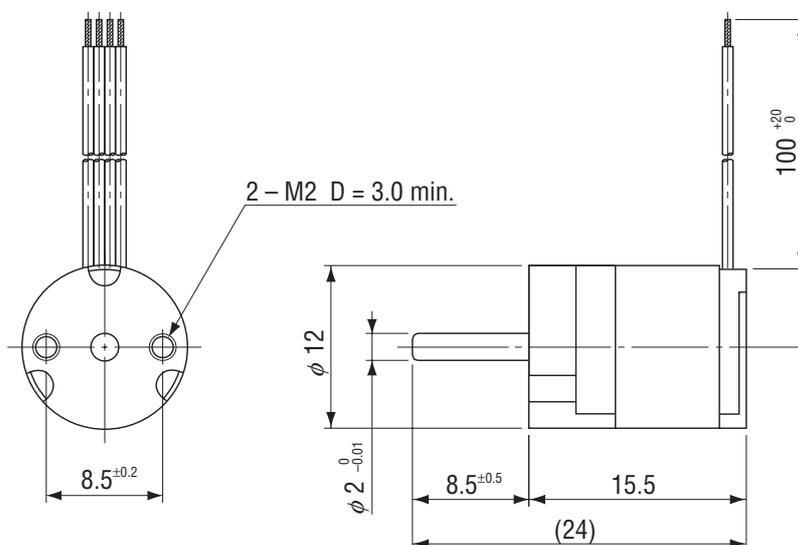
Unless otherwise specified, tolerance : ± 0.4 (Unit : mm)

2 – M2 D = 3.0 min.

8.5$^{±0.2}$

ϕ 12

ϕ 2 $^{0}_{-0.01}$

8.5$^{±0.5}$ 15.5

(24)

100 $^{+20}_{0}$

AWG28
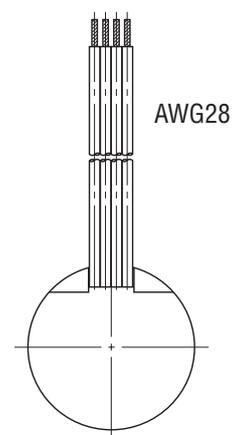
■ELECTRICAL WIRING

Red	Power ⊕
Black	Power 0 (V)
White	Output "A"
Green	Output "B"

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2009