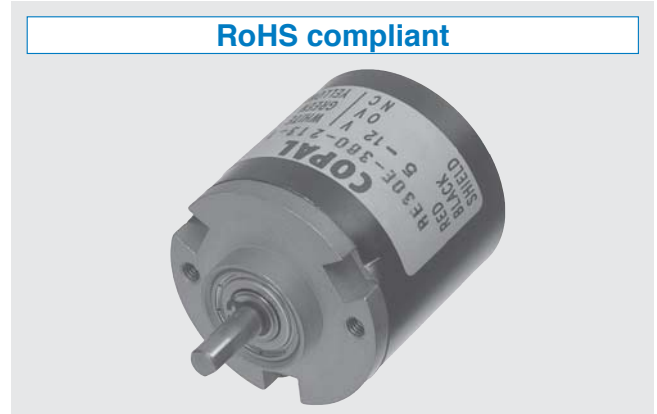


OPTICAL ENCODERS

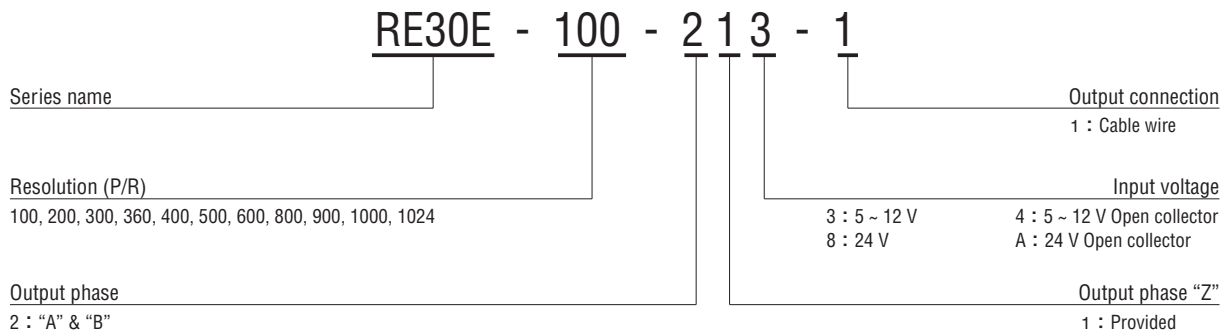
RE30E

FEATURES

- With temp. compensation circuit
- With zero index signal
- Power supply voltage is for 5 ~ 12 V, 24V
- Economy type
- RoHS compliant



PART NUMBER DESIGNATION



LIST OF PART NUMBERS

| Resolution | Item | Input voltage | | | |
|------------|------------------|--------------------|-------------------------|--------------------|---------------------|
| | | 5 ~ 12 V | 5 ~ 12 V Open collector | 24 V | 24 V Open collector |
| 100 (P/R) | RE30E-100-213-1 | ➔ RE30E-100-214-1 | ➔ RE30E-100-218-1 | ➔ RE30E-100-21A-1 | |
| 200 (P/R) | RE30E-200-213-1 | ➔ RE30E-200-214-1 | ➔ RE30E-200-218-1 | ➔ RE30E-200-21A-1 | |
| 300 (P/R) | RE30E-300-213-1 | ➔ RE30E-300-214-1 | ➔ RE30E-300-218-1 | ➔ RE30E-300-21A-1 | |
| 360 (P/R) | RE30E-360-213-1 | ➔ RE30E-360-214-1 | ➔ RE30E-360-218-1 | ➔ RE30E-360-21A-1 | |
| 400 (P/R) | RE30E-400-213-1 | ➔ RE30E-400-214-1 | ➔ RE30E-400-218-1 | ➔ RE30E-400-21A-1 | |
| 500 (P/R) | RE30E-500-213-1 | ➔ RE30E-500-214-1 | ➔ RE30E-500-218-1 | ➔ RE30E-500-21A-1 | |
| 600 (P/R) | RE30E-600-213-1 | ➔ RE30E-600-214-1 | ➔ RE30E-600-218-1 | ➔ RE30E-600-21A-1 | |
| 800 (P/R) | RE30E-800-213-1 | ➔ RE30E-800-214-1 | ➔ RE30E-800-218-1 | ➔ RE30E-800-21A-1 | |
| 900 (P/R) | RE30E-900-213-1 | ➔ RE30E-900-214-1 | ➔ RE30E-900-218-1 | ➔ RE30E-900-21A-1 | |
| 1000 (P/R) | RE30E-1000-213-1 | ➔ RE30E-1000-214-1 | ➔ RE30E-1000-218-1 | ➔ RE30E-1000-21A-1 | |
| 1024 (P/R) | RE30E-1024-213-1 | ➔ RE30E-1024-214-1 | ➔ RE30E-1024-218-1 | ➔ RE30E-1024-21A-1 | |

※ Verify the above part numbers when placing orders.

The products indicated by ➔ mark are manufactured upon receipt of order basis.

RE30E

OPTICAL ENCODERS

STANDARD SPECIFICATIONS

Electrical characteristics

| | | |
|-----------------------------------|---|-----------------------------------|
| Input voltage | DC5 ~ 12 V ± 10 % | DC24 V ± 10 % |
| Input current | 50 mA maximum | |
| Output wave form | Square wave | |
| Output phases | A, B, Z | |
| (P/R) Resolution | 100, 200, 300, 360, 400, 500 600, 800, 900, 1000, 1024 | |
| Phase difference of outputs A & B | 90° ± 45° | |
| Maximum frequency response | 10 kHz (100 P/R), 20 kHz (200P/R) 25 kHz (300 ~ 500 P/R), 60 kHz (600 P/R) 80 kHz (800 P/R), 90 kHz (900P/R) 100 kHz (1000 ~ 1024 P/R) | |
| Output signal | "1 (High)" | (Vcc - 1) V min. (Vcc - 2) V min. |
| | "0 (Low)" | + 0.5 V max. + 1.0 V max. |
| Output impedance | 2.2 kΩ | |
| Light source | LED | |

Mechanical characteristics

| | | |
|-------------------------------|-----------------------------|------------------------|
| Starting torque | 0.29 mN·m {3 gf·cm} maximum | |
| Inertia | 2 g·cm ² maximum | |
| Shaft loading (When mounting) | Radial | 19.6 N {2 kgf} maximum |
| | Axial | 9.81 N {1 kgf} maximum |
| Net weight | Approx. 70 g | |

Environmental characteristics

| | |
|-----------------------|--------------|
| Operating temp. range | 0 ~ 70 °C |
| Storage temp. range | - 20 ~ 80 °C |
| Protection grade | IP40 |

RELIABILITY TEST

The output wave form shall satisfy the STANDARD SPECIFICATIONS after the following tests.

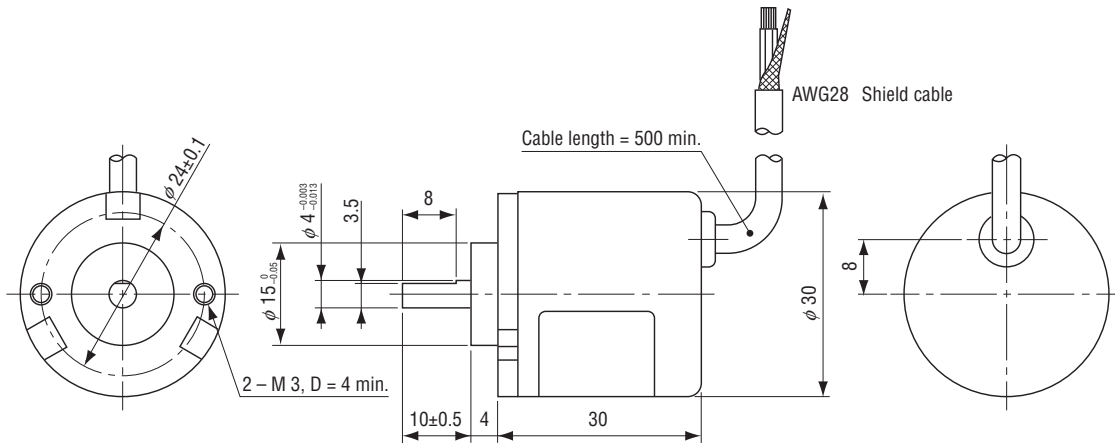
| Test item | | Test conditions | |
|---------------------------|-----------|--|---|
| Vibration | Power OFF | Amplitude : 1.52 mm or 98.1 m/s ² (10 G) whichever is smaller. 10 ~ 500 Hz excursion 0.25 h/cycle, 8 cycles each for X, Y, Z, directions. | |
| Shock | Power OFF | 3 times each in 6 directions (X, Y, Z) at 490 m/s ² (50 G), 11 ms. | |
| High temperature exposure | Power OFF | 80 °C 96 h | (To be measured after leaving samples for 1 h at normal temperature and humidity after the test.) |
| | Power ON | 70 °C 96 h | |
| Low temperature exposure | Power OFF | - 20 °C 96 h | |
| | Power ON | 0 °C 96 h | |
| Humidity | Power OFF | 40 °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 1 h, - 20 °C 1 h | |

RE30E

OPTICAL ENCODERS

OUTLINE DIMENSIONS

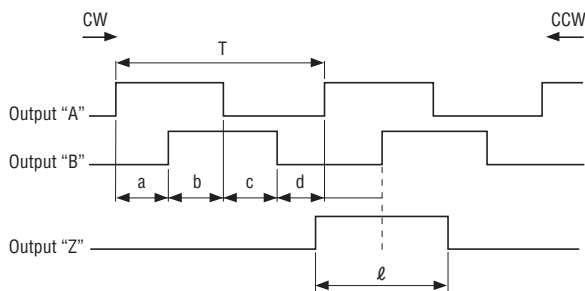
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)



ELECTRICAL WIRING

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

OUTPUT



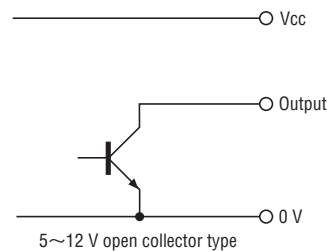
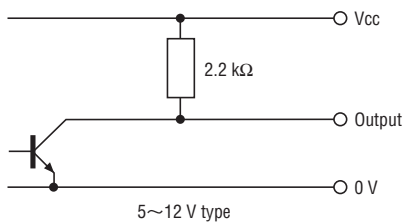
$$a, b, c, d = 1/4 \pm T1/8T$$

$$l = T \pm 3/4T$$

The "Z" phase, however, includes no more than two "B" phase startups (CW rotation)

OUTPUT CIRCUIT

RE30E



Sink current of output circuit 80 mA maximum (at 25 °C)