

MANUAL SETTING TYPE OPTICAL ENCODERS

REC/RES

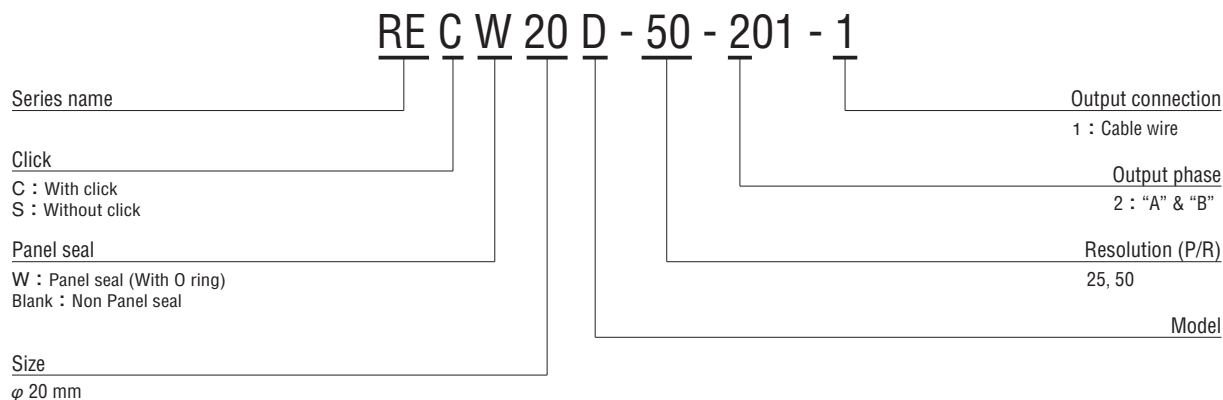
FEATURES

- Contactless, manual adjustment only
- Compact, light weight
- With click (REC20, REC20C, REC20D, RECW20D)
- Panel seal type (RESW20D, RECW20D)
- RoHS compliant

RoHS compliant



PART NUMBER DESIGNATION



LIST OF PART NUMBERS

| Resolution | Item | Output wave form | Output terminal | Click | Panel seal | Part number |
|------------|-------------------|------------------|-----------------|------------------------------------|-----------------|------------------|
| 50 (P/R) | Saturated wave | Pin terminal | Without click | Non Panel seal | RES20-50-200 | |
| 100 (P/R) | | | | | RES20-100-200 | |
| 50 (P/R) | | | | | RES20-50-200-Z | |
| 100 (P/R) | | | | | RES20-100-200-Z | |
| 25 (P/R) | Pseudosquare wave | Cable wire | Without click | RES20B-25-201-1 | | |
| | | | With click | RES20D-25-201-1 | | |
| 50 (P/R) | | | Without click | RES20D-50-201-1 | | |
| | | | With click | REC20C-50-201-1 REC20D-50-201-1 | | |
| 25 (P/R) | | | Square wave | Cable wire | Without click | RESW20D-25-201-1 |
| | | | | | With click | RECW20D-25-201-1 |
| 50 (P/R) | | | | | Without click | RESW20D-50-201-1 |
| | | | | | With click | RECW20D-50-201-1 |

※ Verify the above part numbers when placing orders.
The knob is available.

STANDARD SPECIFICATIONS

Electrical characteristics

| Item | Part number | RES20 | RES20-Z | REC20 | RES20B | REC20C | RES20D | REC20D | RESW20D | RECW20D |
|-----------------------------------|-------------|-------------------------------|-------------------------------|--------------------|--------|--------|-----------------|--------|---------|---------|
| Input voltage | | DC5 V ± 5 % | | | | | | | | |
| Input current mA maximum | | 40 | 50 | 70 | | | 50 | | | |
| Output wave form | | Saturated wave | Pseudosquare wave | Square wave | | | | | | |
| Output phases | | A, B | | | | | | | | |
| (P/R) Resolution | | 50 | 100 | 50 | 100 | 25 | 50 | 25, 50 | | |
| Phase difference of outputs A & B | | 90° ± 45° | | | | | | | | |
| Maximum frequency response Hz | | 500 | 100 | 500 | | | 200 | | | |
| Output signal | "1 (High)" | 2 V _{p-p} minimum | 1 V _{p-p} minimum | + 4.0 V minimum | | | + 4.5 V minimum | | | |
| | "0 (Low)" | | | + 1.0 V maximum | | | + 0.5 V maximum | | | |
| Light source | | LED | | | | | | | | |

Mechanical characteristics

| Item | Part number | RES20 | RES20-Z | REC20 | RES20B | REC20C | RES20D | REC20D | RESW20D | RECW20D |
|------------------------------------|-------------|------------------------------|----------------------|-----------------------|----------------------|-----------------------|-----------------------------|--------------------------|--------------------------|--------------------------|
| Starting torque mN·m {gf·cm} | | 2.94 {30} maximum | 4.90 {50} maximum | — | 2.94 {30} maximum | — | 1.18 ± 0.78 {12 ± 8} | — | 2.94 ± 1.96 {30 ± 20} | — |
| Click torque mN·m {gf·cm} | | — | — | 19.6 {200} maximum | — | 19.6 {200} maximum | — | 9.81 ± 4.9 {100 ± 50} | — | 11.8 ± 4.9 {120 ± 50} |
| Click number | | — | — | 25 | — | 50 | — | 25, 50 | — | 25, 50 |
| Shaft loading (When mounting) | Radial | 9.81 N {1 kgf} maximum | | | | | 4.90 N {500 gf} maximum | | | |
| | Axial | 4.9 N {500 gf} maximum | | | | | 2.94 N {300 gf} maximum | | | |
| Net weight | | Approx. 20 g | Approx. 20 g | Approx. 25 g | | | Approx. 10 g | | | |
| Strength of tighten screw | | 0.98 N·m {10 kgf·cm} maximum | | | | | 0.49 N·m {5 kgf·cm} maximum | | | |

Environmental characteristics

| Item | Part number | RES20 | RES20-Z | REC20 | RES20B | REC20C | RES20D | REC20D | RESW20D | RECW20D |
|-----------------------|-------------|--------------|---------|-------|--------|--------|--------|--------|---------|---------|
| Operating temp. range | | 0 ~ 50 °C | | | | | | | | |
| Storage temp. range | | - 20 ~ 80 °C | | | | | | | | |
| Protection grade | | IP40 | | | | | | | | |

Note) Manual setting only.

REC/RES OPTICAL ENCODERS

RELIABILITY TEST

The output shall satisfy the criteria below 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 15 min/cycle, 8 cycles each for X, Z, directions. |
| Shock | Power OFF | 3 times each in directions (X, 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 | 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 ± 2 °C 0.5 h、-20 °C ± 2 °C 0.5 h |

OUTLINE DIMENSIONS

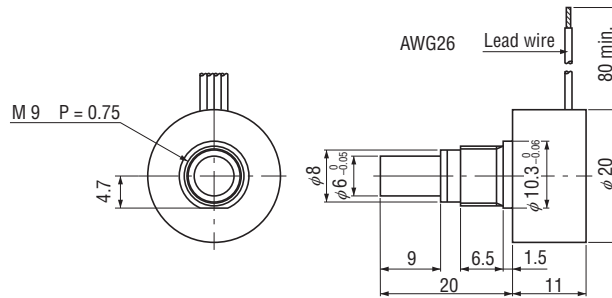
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

RES20D/RESW20D

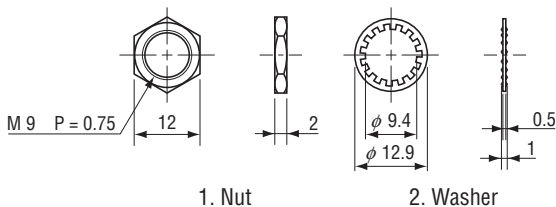
(Without click / Without click, With panel seal)

REC20D/RECW20D

(With click / With click, With panel seal)



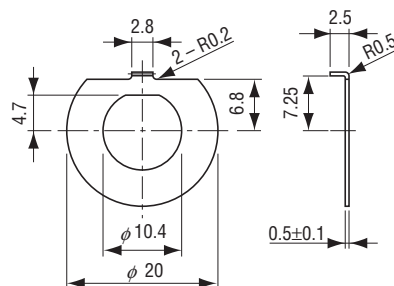
< Attachment >



※Water resistant washer will be provided for panel seal type.
Position stopper (metal piece) is available.

< Option (Stopper) >

RES20D / REC20D / RESW20D / RECW20D



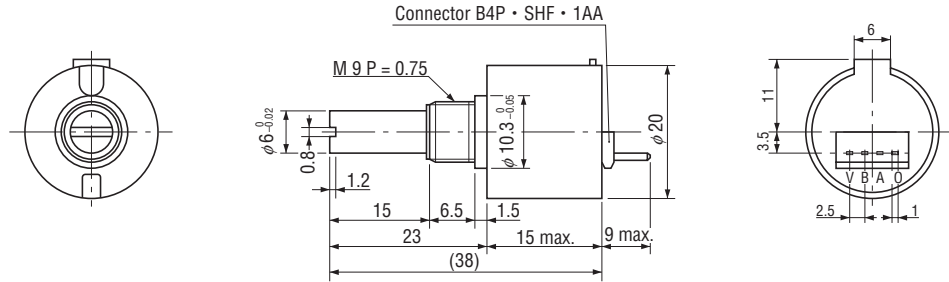
The stopper can be provided upon request.

OUTLINE DIMENSIONS

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

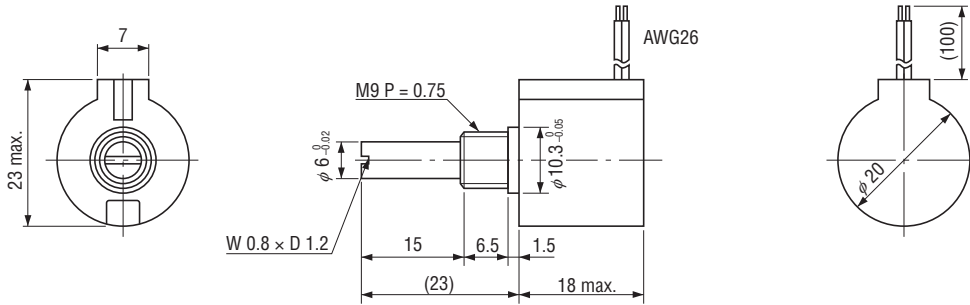
RES20/RES20-Z

(Without click)



REC20

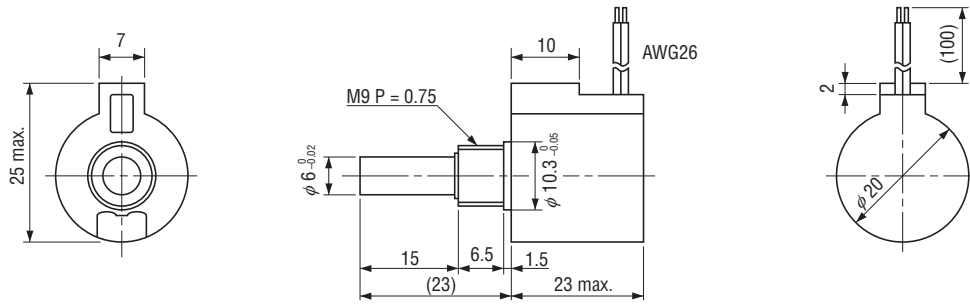
(With click)



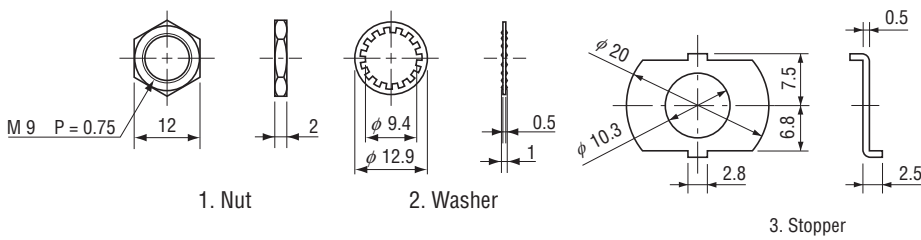
(Without click)

REC20C

(With click)



< Accessories >



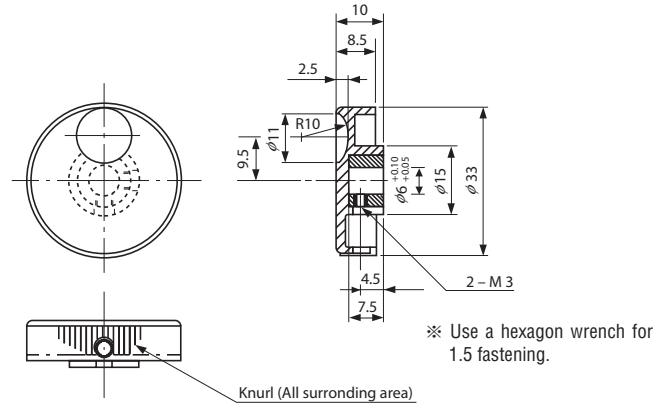
REC/RES OPTICAL ENCODERS

● KNOB FOR SETTING ENCODERS

The knobs are sold separately as an optional item.

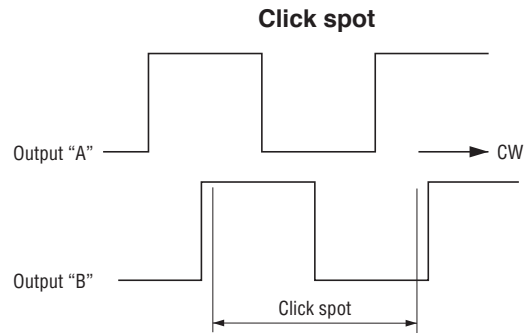
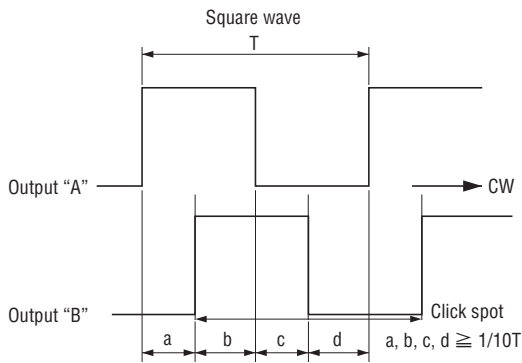


Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

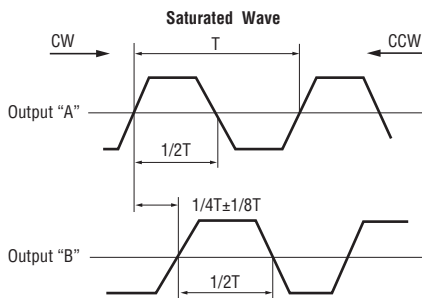


■ OUTPUT

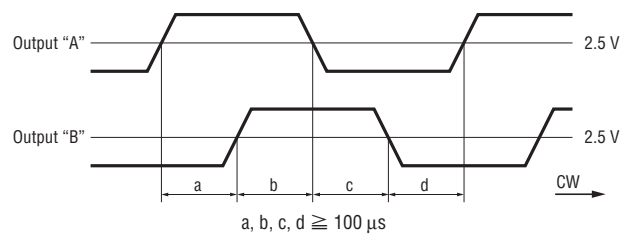
● RES20D/REC20D/RESW20D/RECW20D



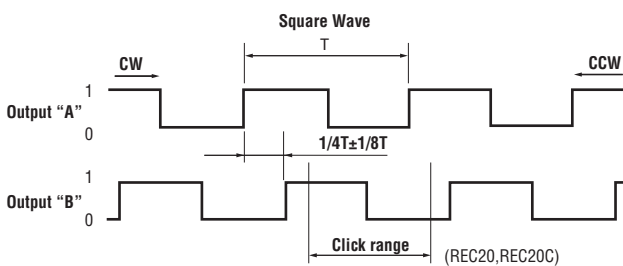
● RES20



● RES20 *** Z

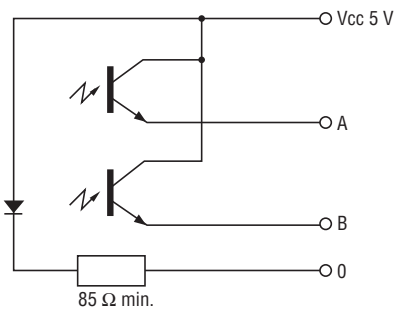


● REC20/RES20B/REC20C

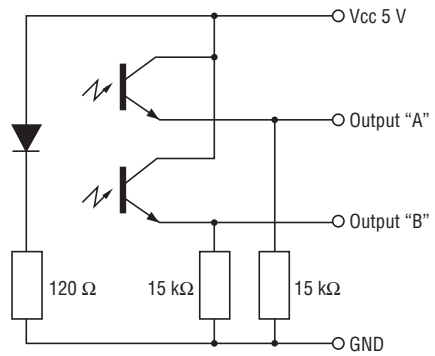


OUTPUT CIRCUIT

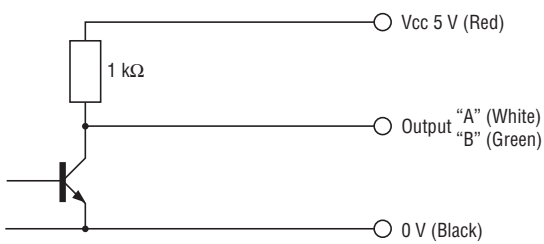
RES20



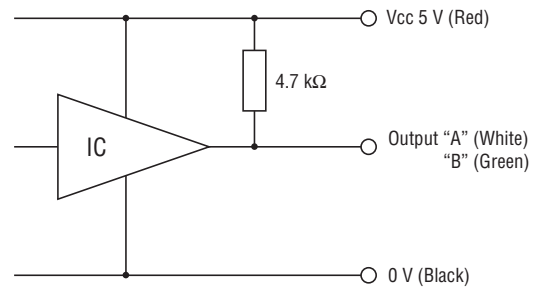
RES20-Z



REC20/RES20B/REC20C



RES20D/REC20D/RESW20D/RECW20D



EXTERNAL SCHEMATICS

RES20

