



**THE DATASHEET OF
RECW20D-50-201-1**

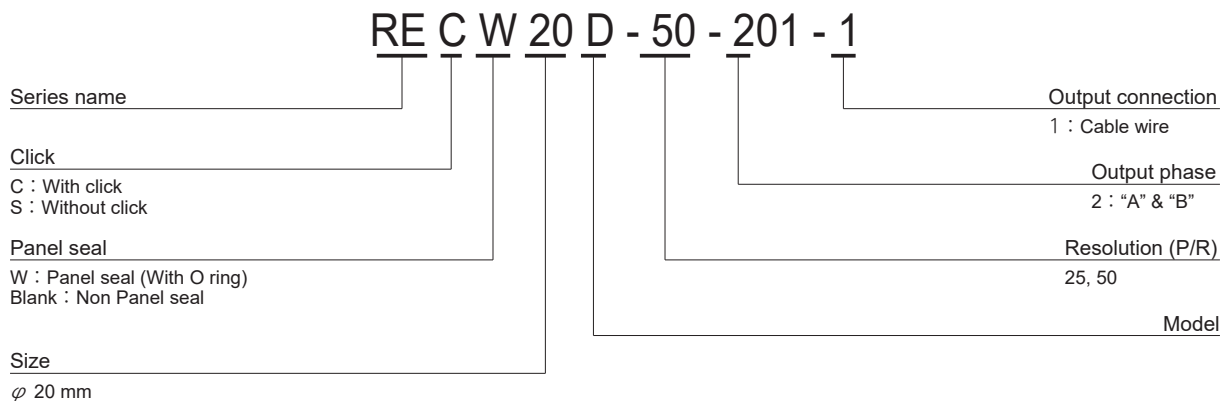


FEATURES

- Contactless, manual adjustment only
- Compact, light weight
- With click (REC20, REC20C, REC20D, RECW20D)
- Panel seal type (RESW20D, RECW20D)
- 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) | Pseudosquare wave | | | | | RES20-50-200-Z |
| 100 (P/R) | | | | | | RES20-100-200-Z |
| 25 (P/R) | Square wave | Cable wire | Without click | | RES20B-25-201-1 RES20D-25-201-1 | |
| | | | With click | | REC20-25-201-1 REC20D-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) | | | Without click | Panel seal | 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.

REC/RES

OPTICAL ENCODERS

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 | | | | | | | | | |
| Resolution(P/R) | | 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 | | | | | | | | | |
| Output Sink Current | | — | | | 40 mA maximum | | | 3 mA maximum | | | |

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.

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 | To be measured after leaving samples for 1 h at normal temperature and humidity after the test. |
| | 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 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

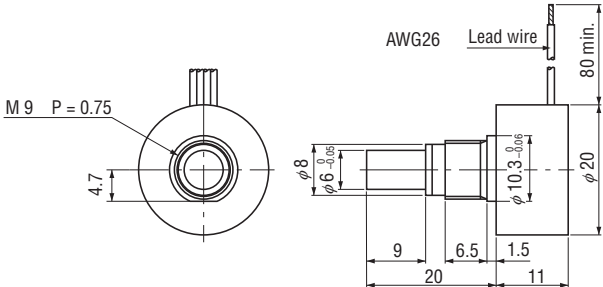
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

RES20D/RESW20D

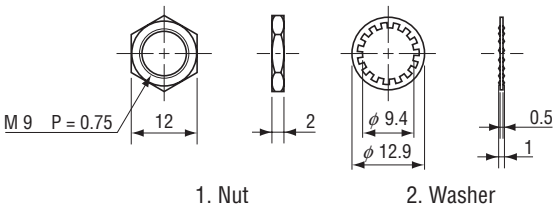
(Without click / Without click, With panel seal)

REC20D/RECW20D

(With click / With click, With panel seal)



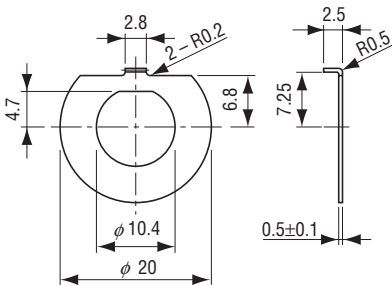
<Attachment>



※ 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.

REC/RES

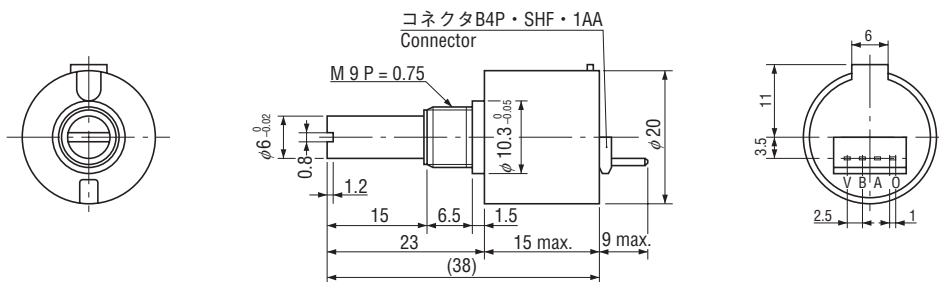
OPTICAL ENCODERS

OUTLINE DIMENSIONS

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

RES20/RES20-Z

(Without click)

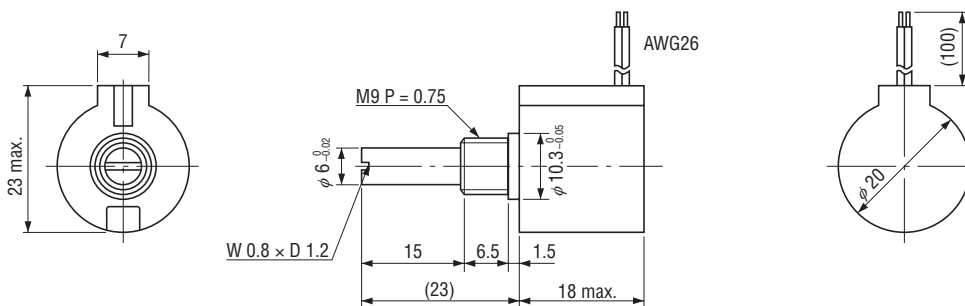


REC20

(With click)

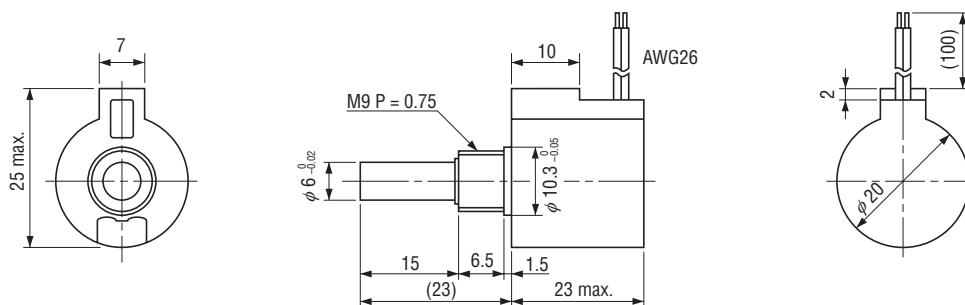
RES20B

(Without click)

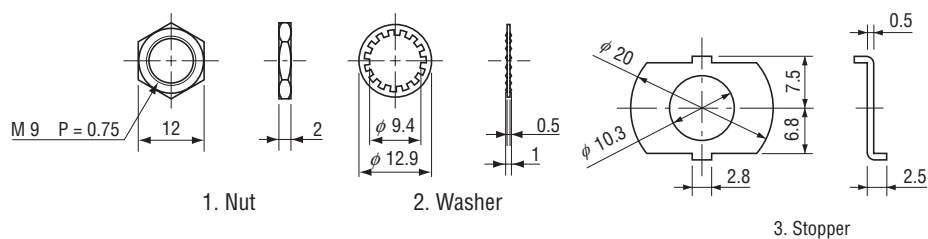


REC20C

(With click)



<Accessories>



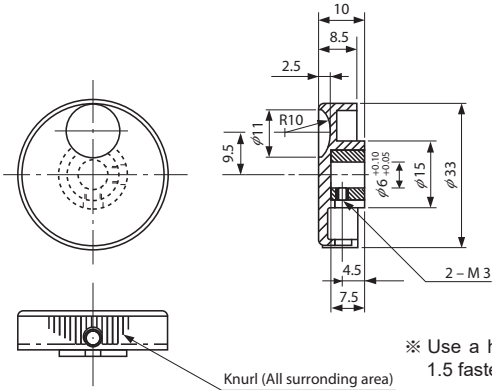
REC/RES OPTICAL ENCODERS

● KNOB FOR SETTING ENCODERS

The knobs are sold separately as an optional item.
You can choose gray or black color. The hexagon socket head screws are attached. (3 pieces)



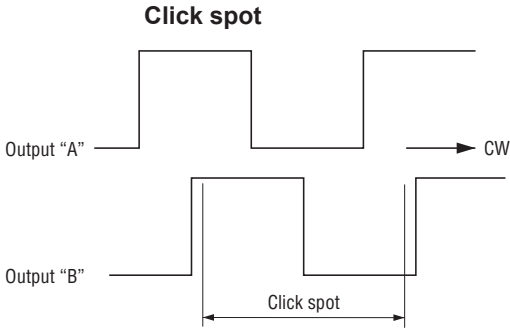
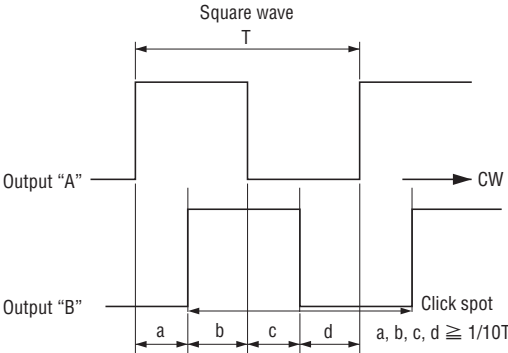
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)



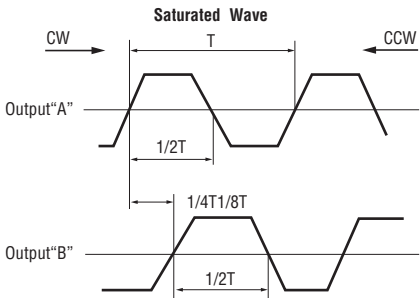
※ Use a hexagon wrench for 1.5 fastening.

■ OUTPUT

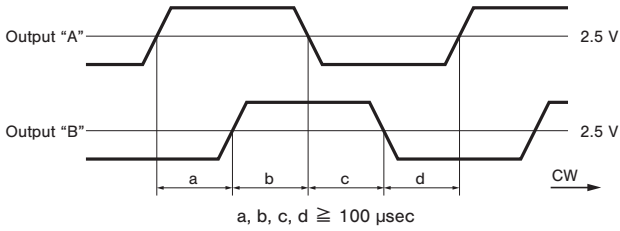
● RES20D/REC20D/RESW20D/RECW20D



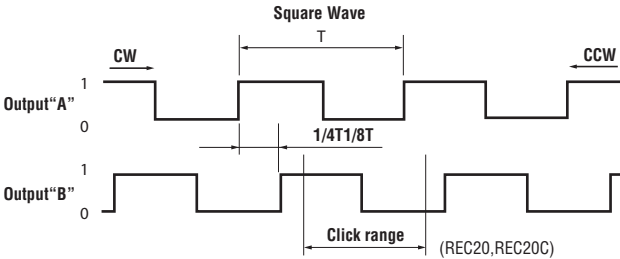
● RES20



● RES20 * * * Z



● REC20/RES20B/REC20C

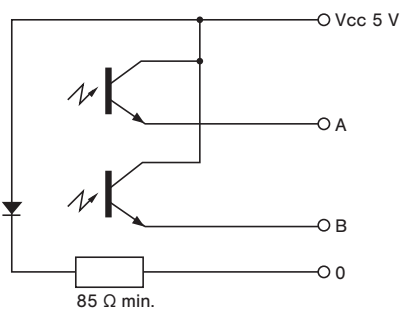


REC/RES

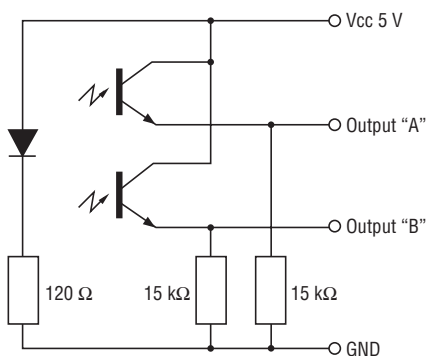
OPTICAL ENCODERS

OUTPUT CIRCUIT

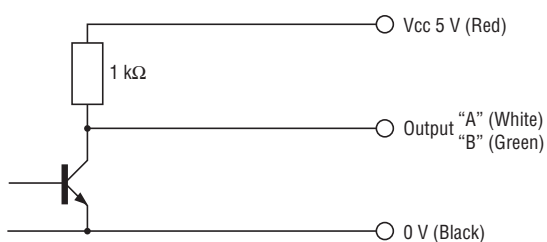
RES20



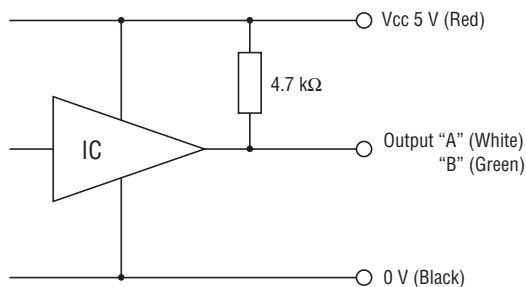
RES20-Z



REC20/RES20B/REC20C

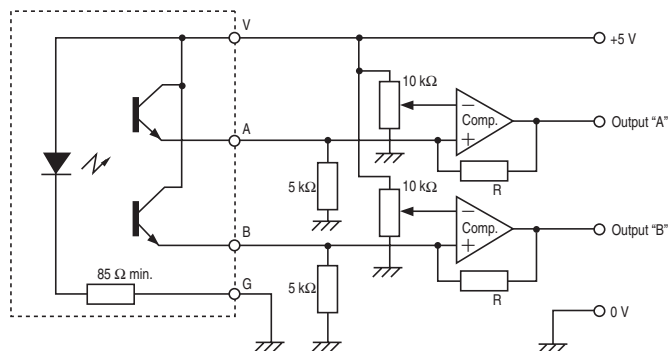


RES20D/REC20D/RESW20D/RECW20D



EXTERNAL SCHEMATICS

RES20



Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View RECW20D-50-201-1 on WIN SOURCE](#)
- ⊖ [Nidec Copal Electronics Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management