

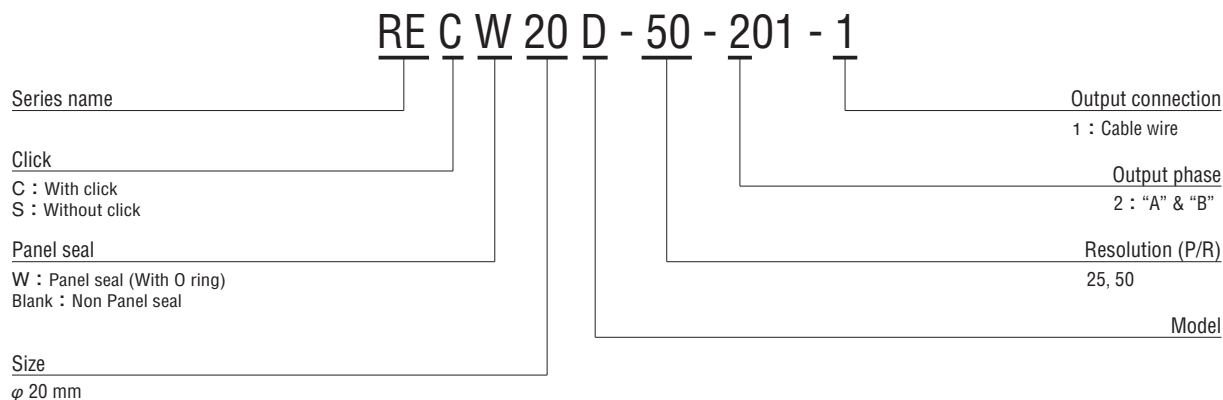
## FEATURES

- 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)		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)							Panel seal	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 <sub>p-p</sub> minimum	1 V <sub>p-p</sub> 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 <sup>2</sup> (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 <sup>2</sup> (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

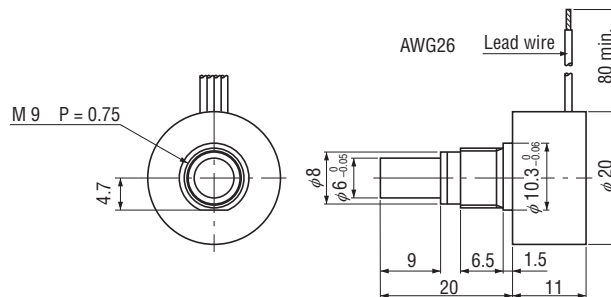
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

### RES20D/RESW20D

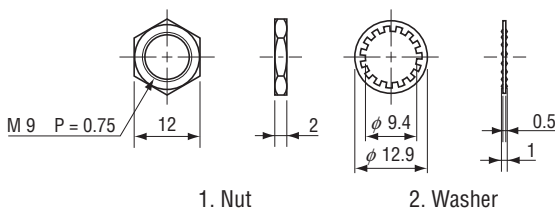
(Without click / Without click, With panel seal)

### REC20D/RECW20D

(With click / With click, With panel seal)



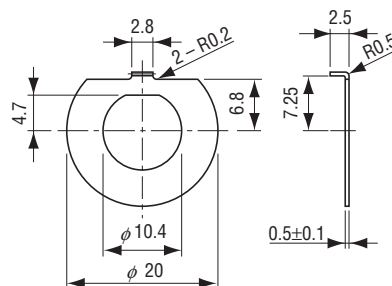
### < Attachment >



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

### < Option (Stopper) >

#### RES20D / REC20D / RESW20D / RECW20D



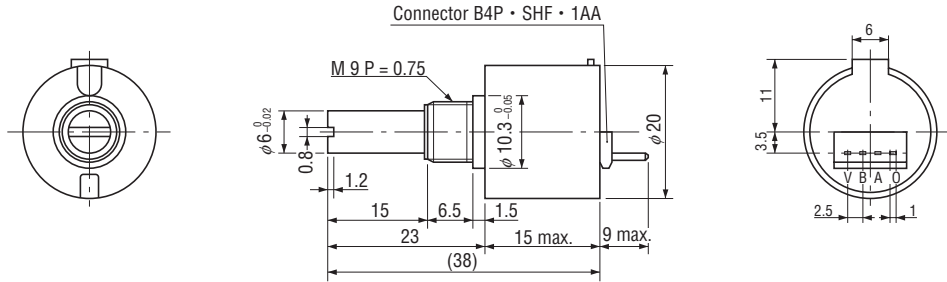
The stopper can be provided upon request.

## OUTLINE DIMENSIONS

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

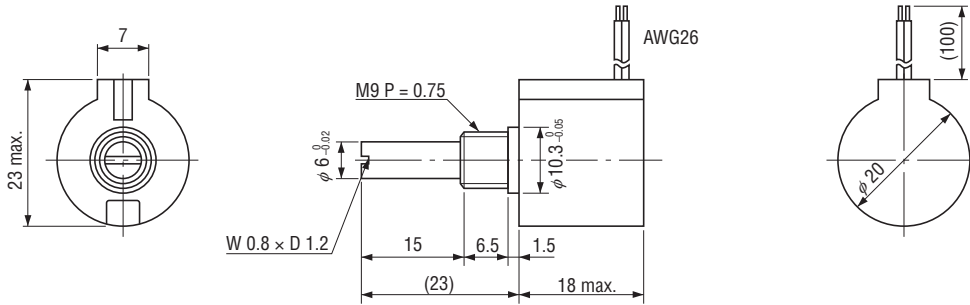
### RES20/RES20-Z

(Without click)



### REC20

(With click)

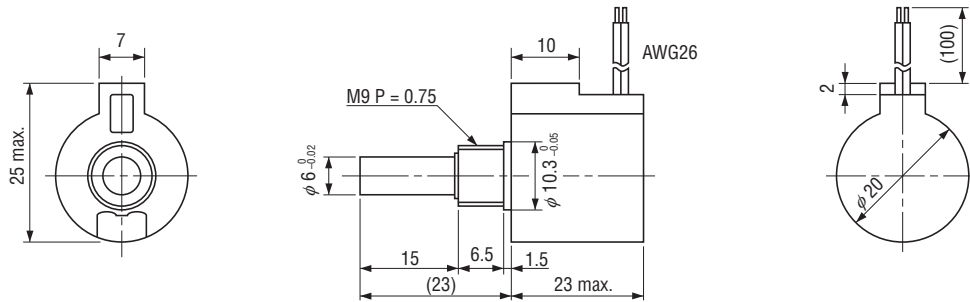


(Without click)

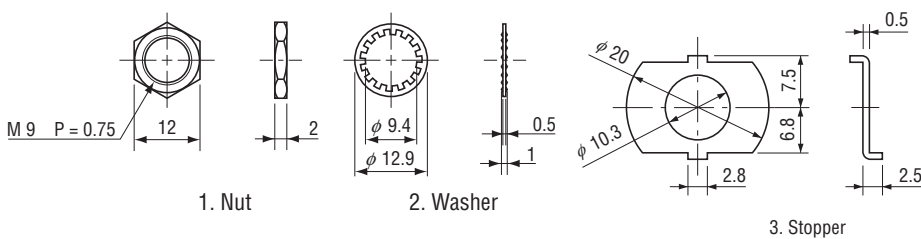
W 0.8 x D 1.2

### REC20C

(With click)



## < Accessories >



1. Nut

2. Washer

3. Stopper

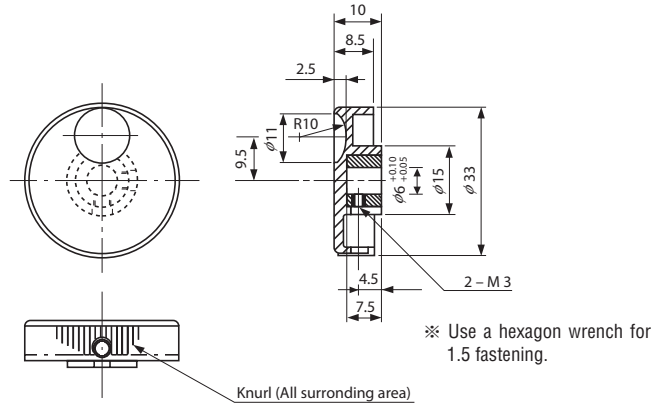
# REC/RES OPTICAL ENCODERS

## ● KNOB FOR SETTING ENCODERS

The knobs are sold separately as an optional item.

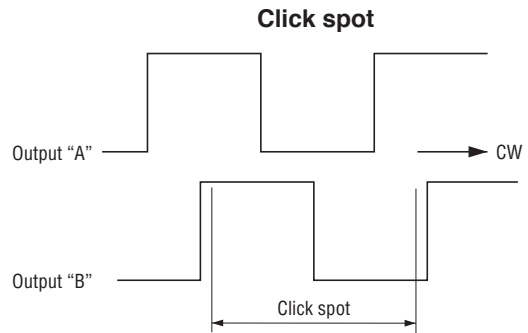
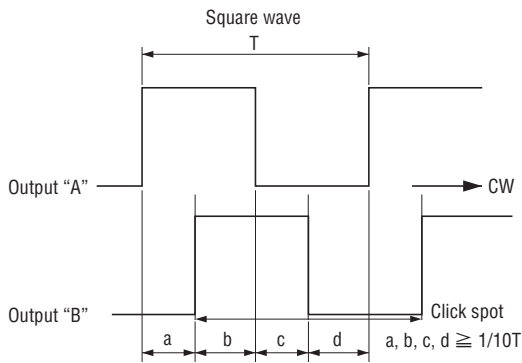


Unless otherwise specified, tolerance:  $\pm 0.4$  (Unit: mm)

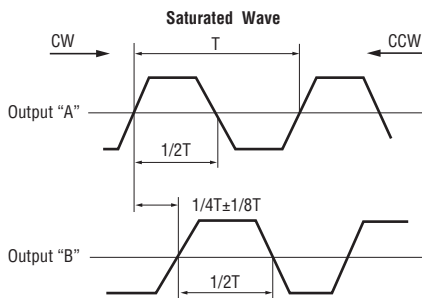


## ■ OUTPUT

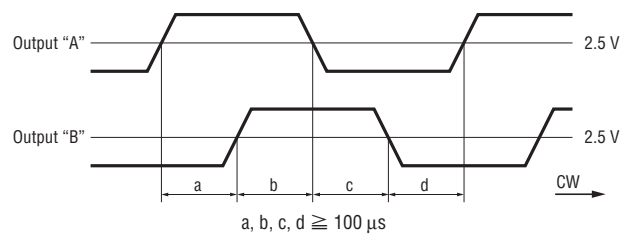
### ● RES20D/REC20D/RESW20D/RECW20D



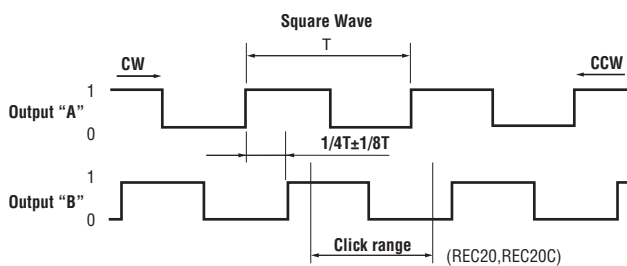
### ● RES20



### ● RES20 \* \* \* Z

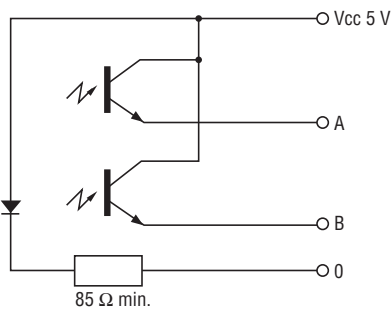


### ● REC20/RES20B/REC20C

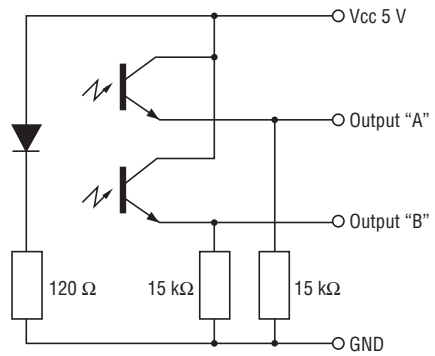


## OUTPUT CIRCUIT

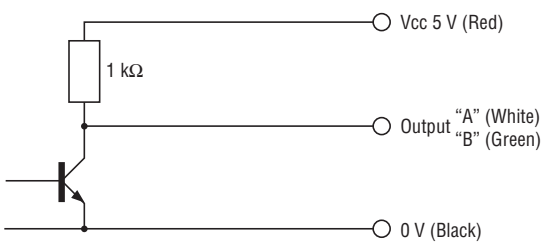
### RES20



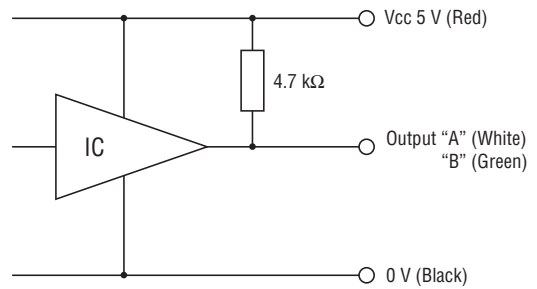
### RES20-Z



### REC20/RES20B/REC20C



### RES20D/REC20D/RESW20D/RECW20D



## EXTERNAL SCHEMATICS

### RES20

