

MANUAL SETTING TYPE OPTICAL ENCODERS

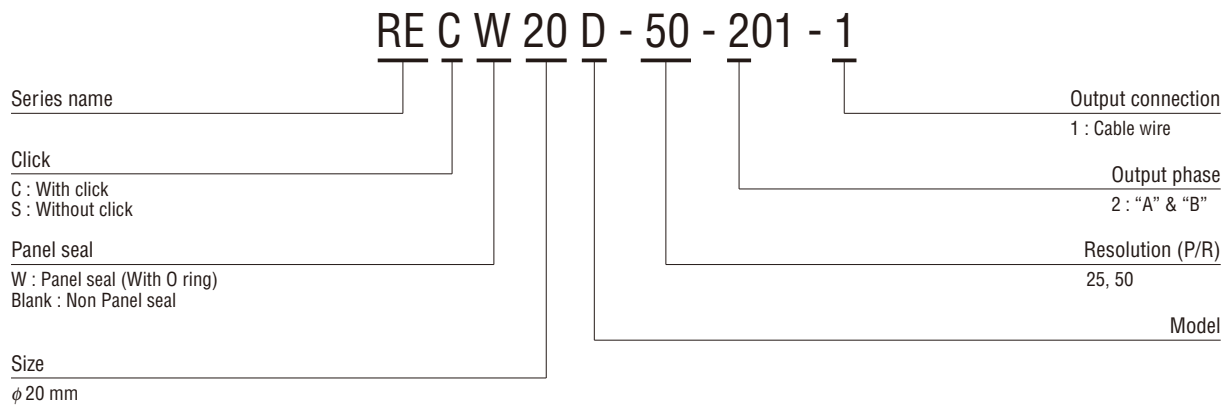
# REC/RES

## FEATURES

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



## PART NUMBER DESIGNATION



## LIST OF PART NUMBERS

Resolution \ Item	Output wave form	Output terminal	Click	Panel seal	Part number		
25 (P/R)	Square wave	Cable wire	Without click	Non Panel seal	RES20B-25-201-1 RES20D25-201-1		
			With click		REC20-25-201-1 REC20D25-201-1		
Without click			RES20D50-201-1				
With click			REC20C-50-201-1 REC20D50-201-1				
25 (P/R)			Square wave	Cable wire	Without click	Panel seal	RESW20D25-201-1
					With click		RECW20D25-201-1
Without click					RESW20D50-201-1		
With click					RECW20D50-201-1		

\* : Verify the above part numbers when placing orders.  
The knob is available.

**STANDARD SPECIFICATIONS**

**Electrical characteristics**

Item	Part number	REC20	RES20B	REC20C	RES20D	REC20D	RESW20D	RECW20D
Input voltage		DC5 V ± 5 %						
Input current		70 mA maximum			50 mA maximum			
Output wave form		Square wave						
Output phases		A, B						
Resolution (P/R)		25		50	25, 50			
Phase difference of outputs A & B		90° ± 45°						
Maximum frequency response		500 Hz			200 Hz			
Output signal	“1 (High)”	+ 4.5 V minimum						
	“0 (Low)”	+ 0.5 V maximum						
Light source		LED						

**Mechanical characteristics**

Item	Part number	REC20	RES20B	REC20C	RES20D	REC20D	RESW20D	RECW20D
Starting torque	mN·m {gf·cm}	—	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. 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	REC20	RES20B	REC20C	RES20D	REC20D	RESW20D	RECW20D
Operating temp. range		0 ~ 50 °C						
Storage temp. range		- 20 ~ 80 °C						

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 <sup>2</sup> (10 G) whichever is smaller. 10 ~ 500 Hz excursion 15 min/cycle, 8 cycles each for X, Y, 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	(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	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**

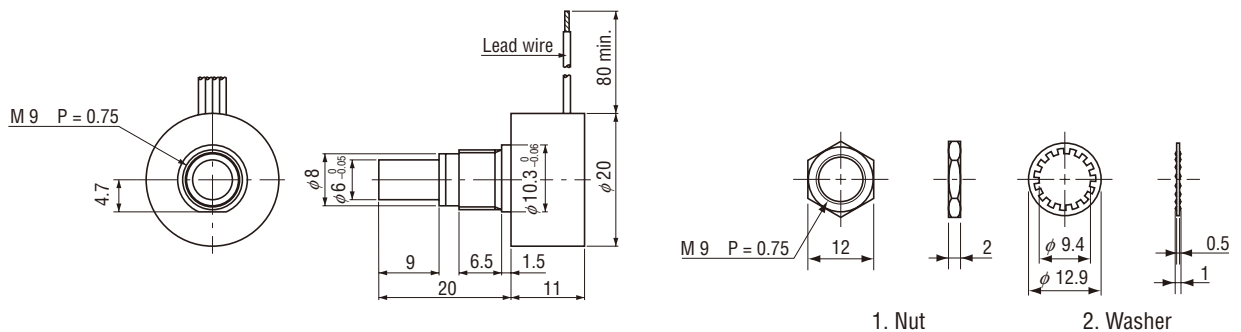
Unless otherwise specified, tolerance : ± 0.4 (Unit: mm)

**RES20D/RESW20D**

(Without click / Without click, With panel seal)

**REC20D/RECW20D**

(With click / With click, With panel seal)

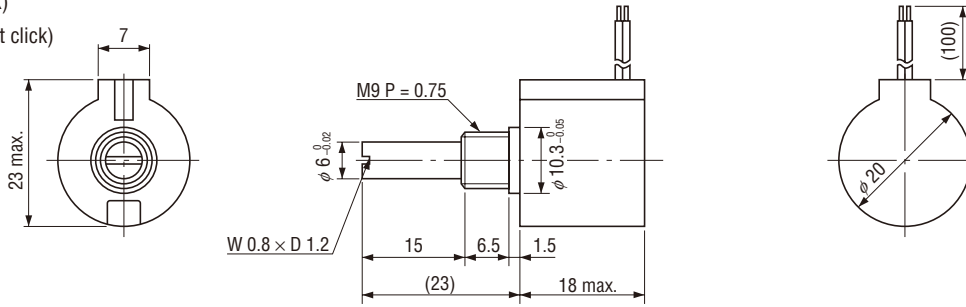


\* : Water resistant washer will be provided for panel seal type.  
Position stopper (metal piece) is available.

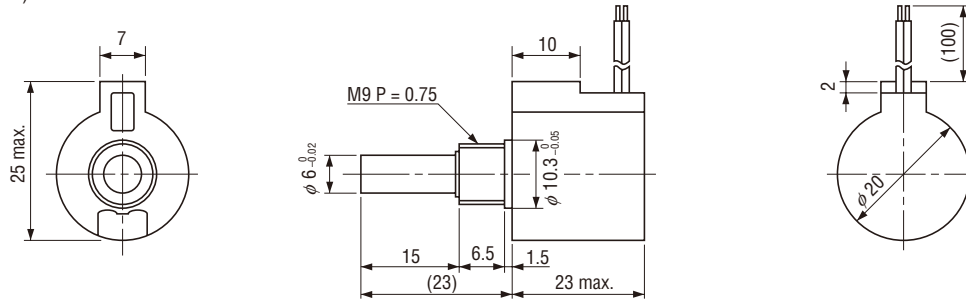
**OUTLINE DIMENSIONS**

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

- **REC20** (With click)
- **RES20B** (Without click)



- **REC20C** (With click)

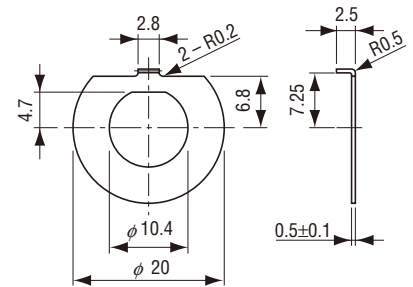
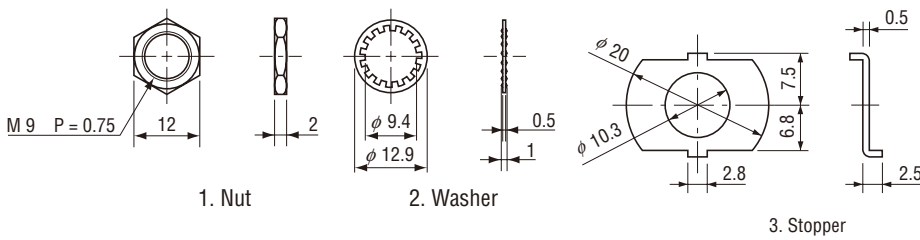


**<Accessories>**

**<Stopper>**

- **REC20 / RES20B / REC20C**

- **RE20D / REC20D / RESW20BD / RECW20D**



The stopper can be provided upon request.

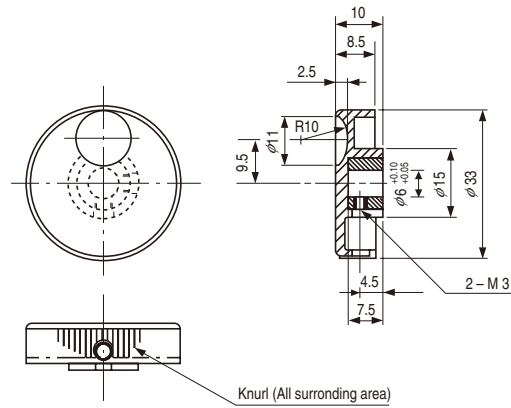
**RES/REC  
OPTICAL ENCODERS**

● **KNOB**

The knobs are sold separately as an optional item.



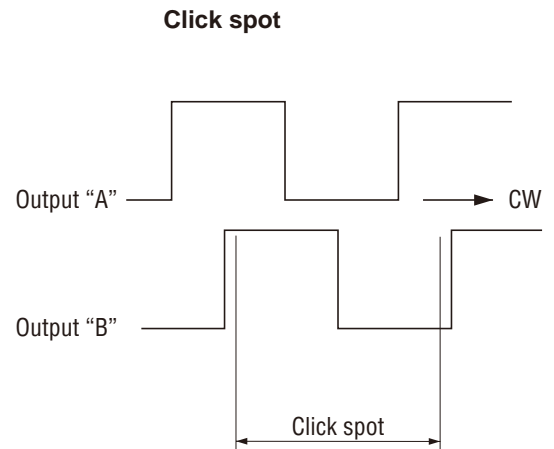
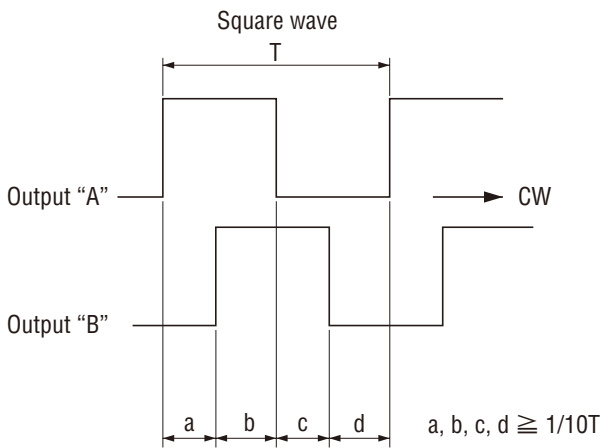
Unless otherwise specified, tolerance:  $\pm 0.4$  (Unit: mm)



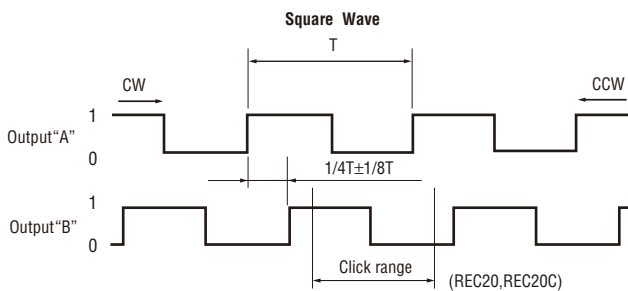
※ : Use a hexagon wrench for 1.5 fastening.

■ **OUTPUT**

● **RES20D/REC20D/RESW20D/RECW20D**

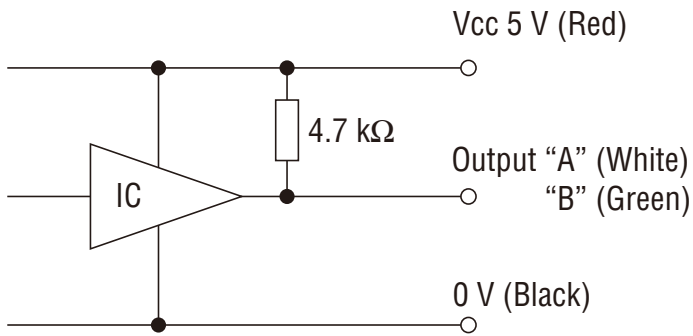


● **REC20/RES20B/REC20C**



■ **OUTPUT CIRCUIT**

● RES20D/REC20D/RESW20D/RECW20D



● REC20/RES20B/REC20C

