

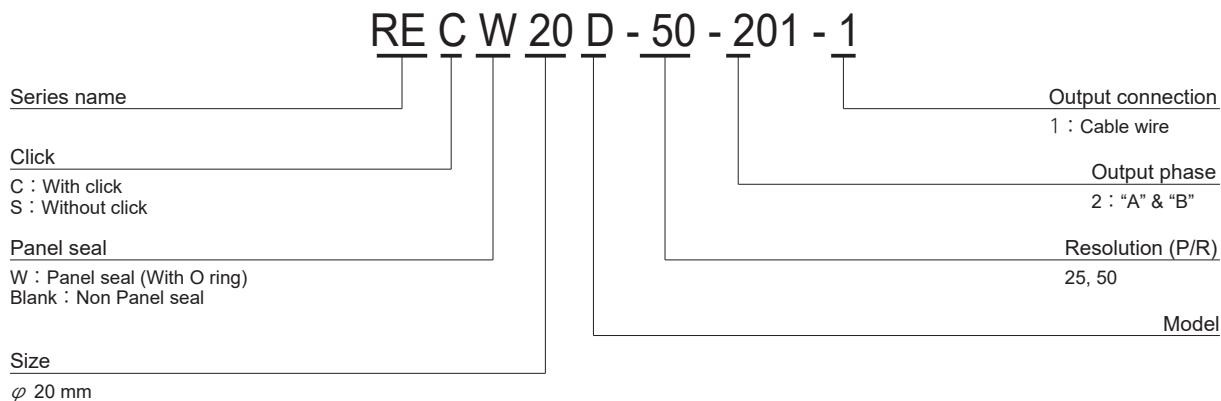
MANUAL SETTING TYPE OPTICAL ENCODERS **REC/RES**

FEATURES

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



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)					Square wave	Cable wire	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

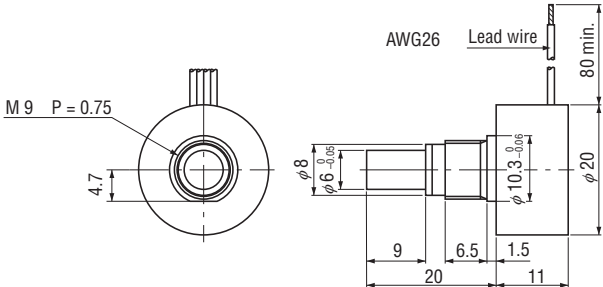
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

RES20D/RESW20D

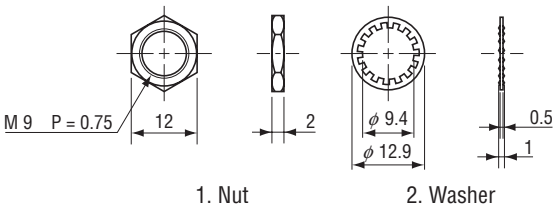
(Without click / Without click, With panel seal)

REC20D/RECW20D

(With click / With click, With panel seal)



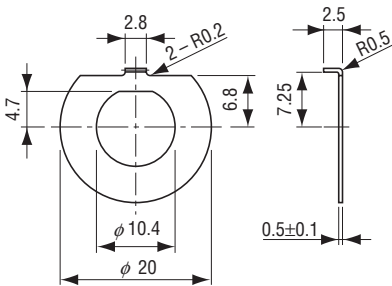
<Attachment>



※ 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

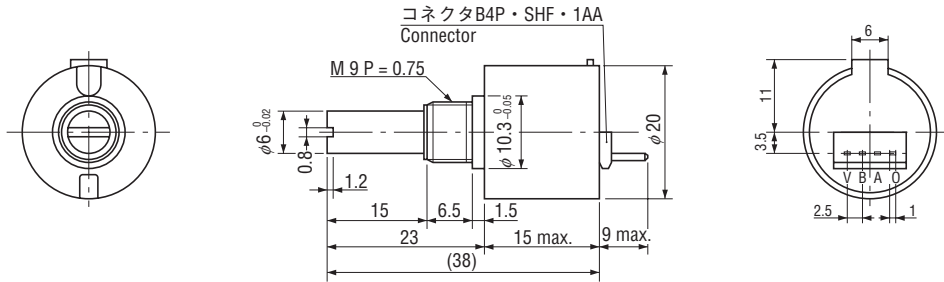
OPTICAL ENCODERS

OUTLINE DIMENSIONS

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

RES20/RES20-Z

(Without click)

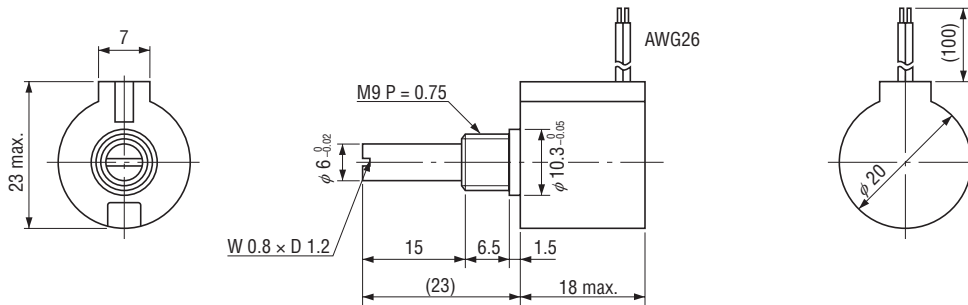


REC20

(With click)

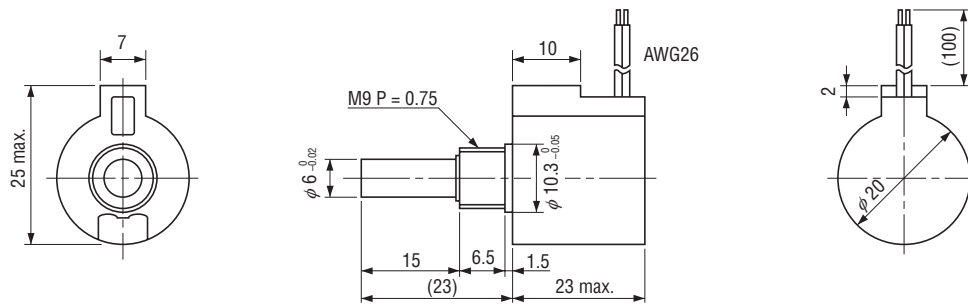
RES20B

(Without click)

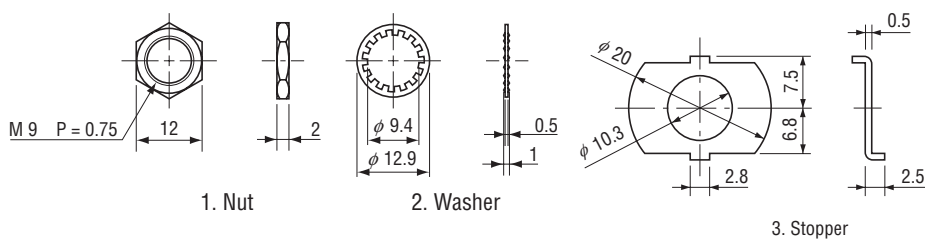


REC20C

(With click)



<Accessories>



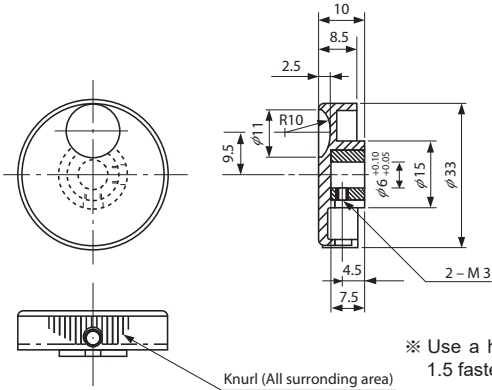
REC/RES OPTICAL ENCODERS

● 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)



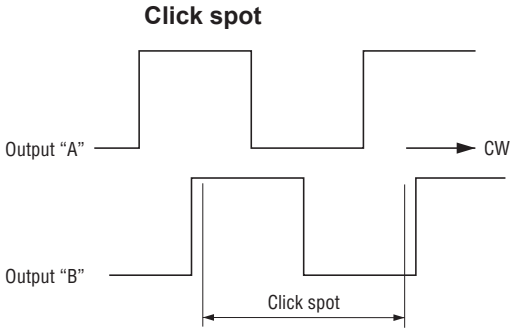
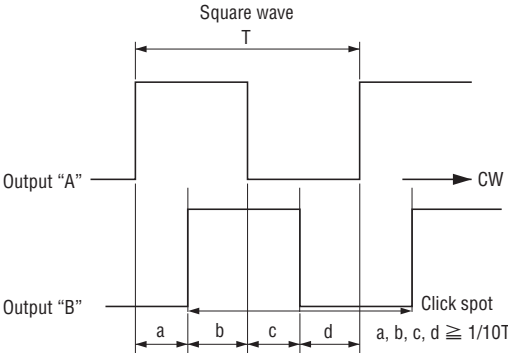
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)



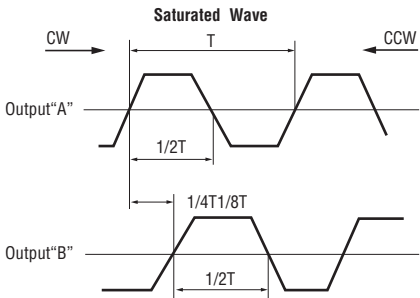
※ Use a hexagon wrench for 1.5 fastening.

■ OUTPUT

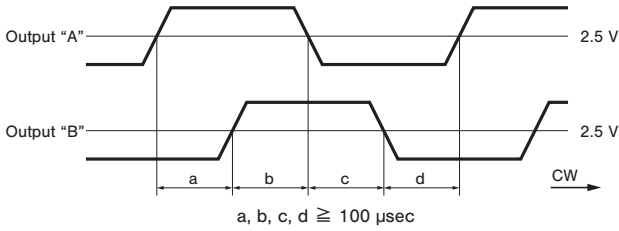
● RES20D/REC20D/RESW20D/RECW20D



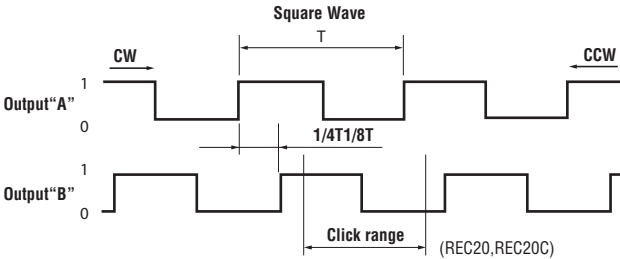
● RES20



● RES20 * * * Z



● REC20/RES20B/REC20C

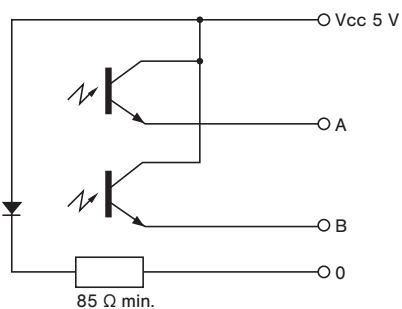


REC/RES

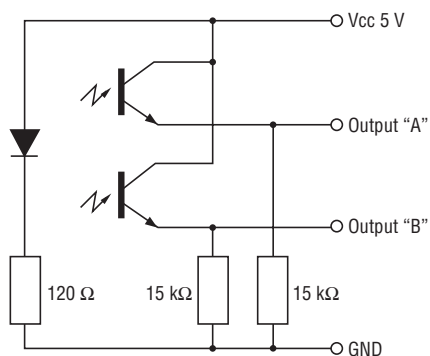
OPTICAL ENCODERS

OUTPUT CIRCUIT

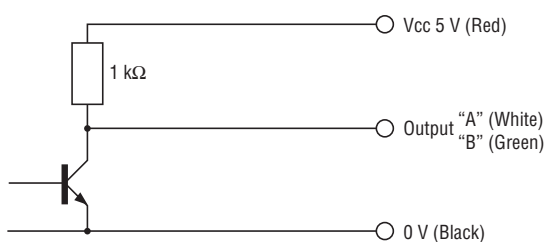
RES20



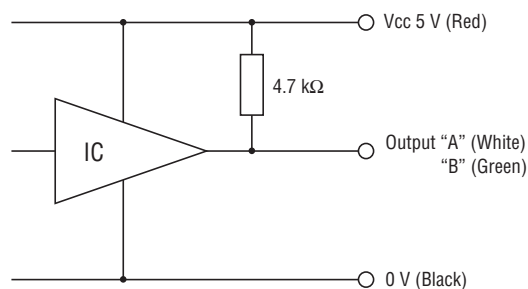
RES20-Z



REC20/RES20B/REC20C



RES20D/REC20D/RESW20D/RECW20D



EXTERNAL SCHEMATICS

RES20

