

MANUAL SETTING TYPE OPTICAL ENCODERS

REC/RES

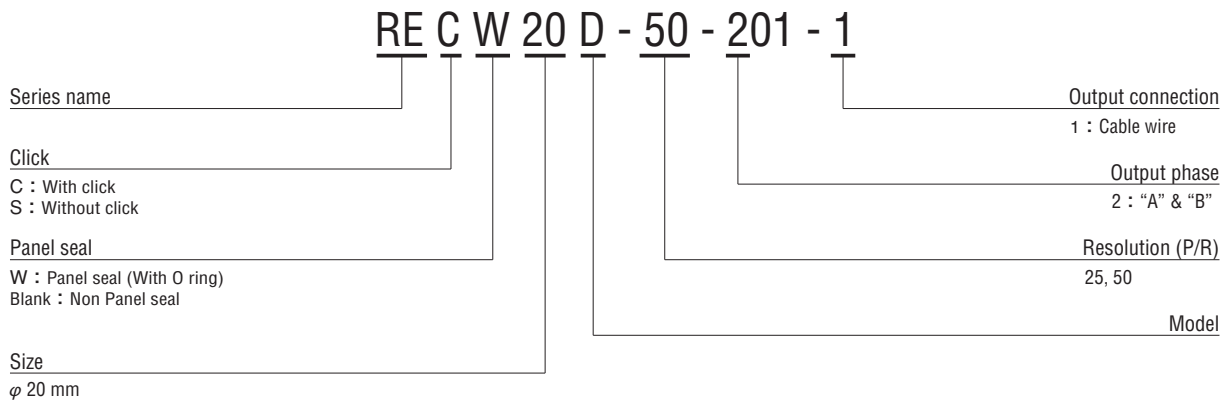
FEATURES

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

RoHS compliant



PART NUMBER DESIGNATION



LIST OF PART NUMBERS

Item Resolution	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.

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 Vp-p minimum	1 Vp-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	(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

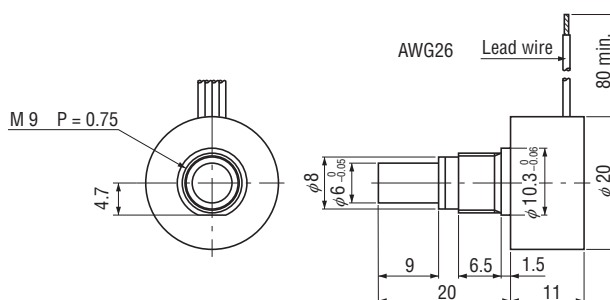
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

RES20D/RESW20D

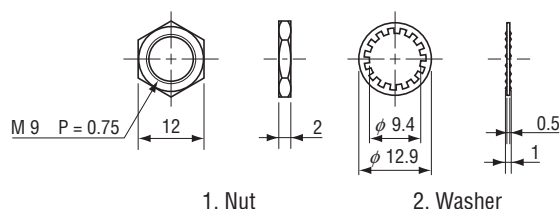
(Without click / Without click, With panel seal)

REC20D/RECW20D

(With click / With click, With panel seal)



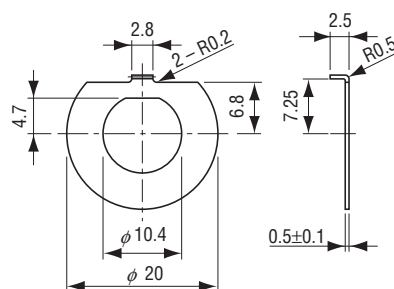
< Attachment >



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

< Option (Stopper) >

● RES20D / REC20D / RESW20D / RECW20D



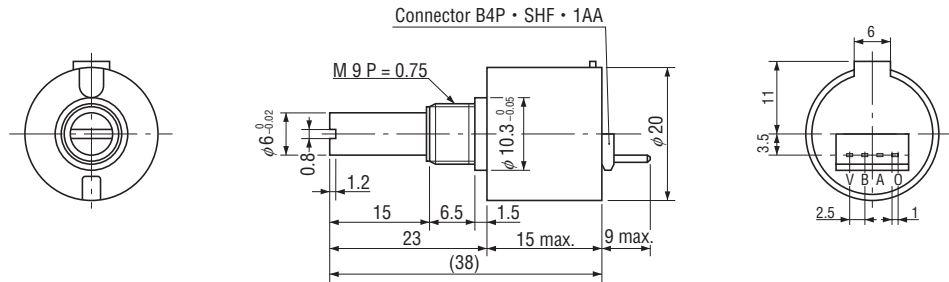
The stopper can be provided upon request.

OUTLINE DIMENSIONS

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

RES20/RES20-Z

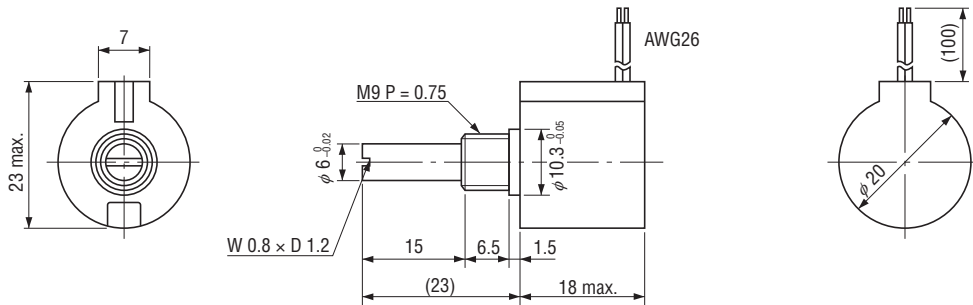
(Without click)



REC20

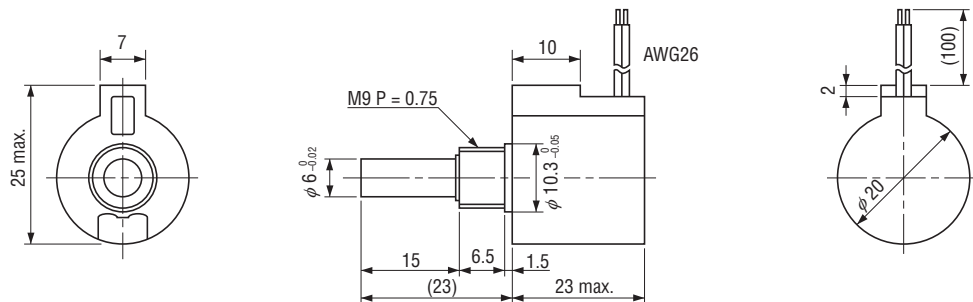
(With click)

(Without click)

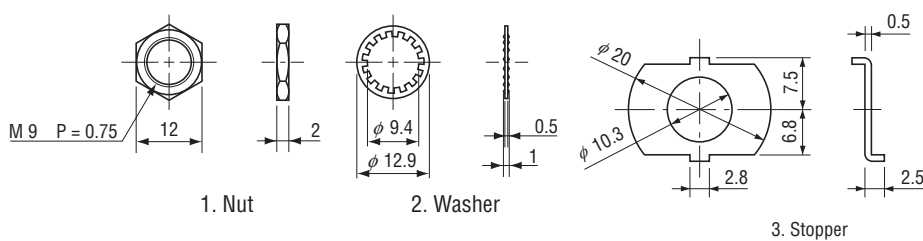


REC20C

(With click)



< Accessories >



REC/RES

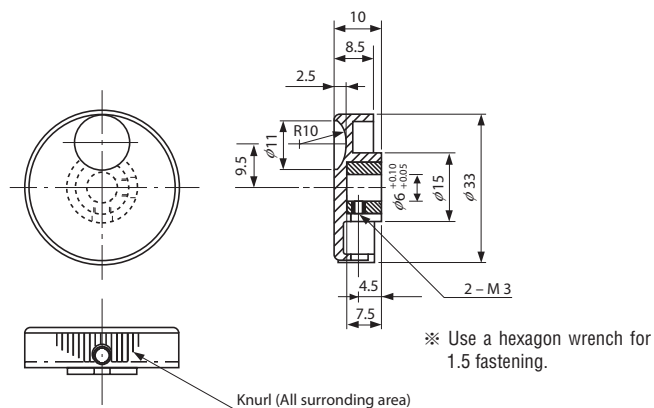
OPTICAL ENCODERS

● KNOB FOR SETTING ENCODERS

The knobs are sold separately as an optional item.

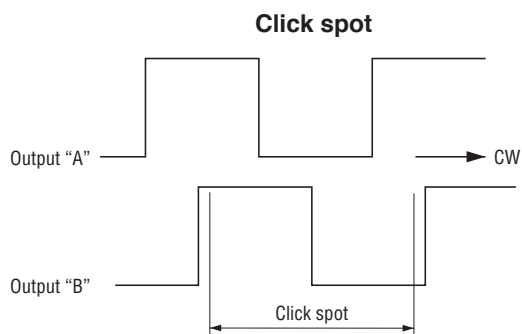
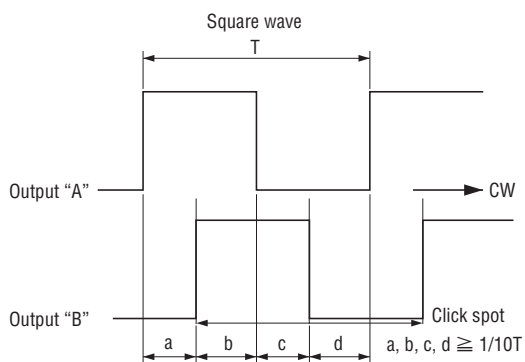


Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

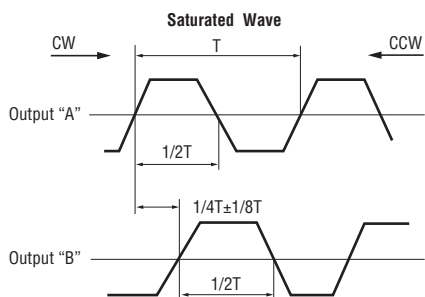


■ OUTPUT

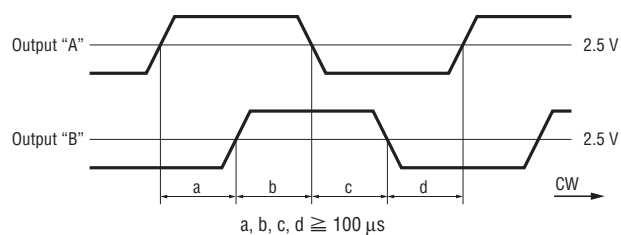
● RES20D/REC20D/RESW20D/RECW20D



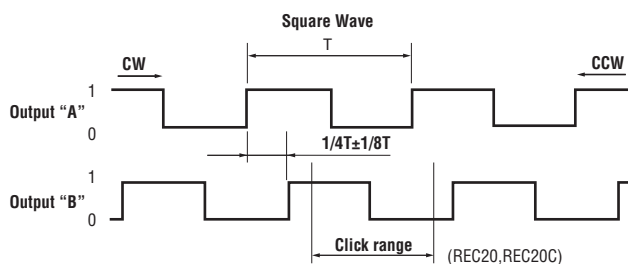
● RES20



● RES20 * * * Z

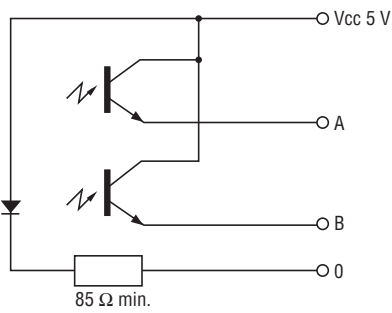


● REC20/RES20B/REC20C

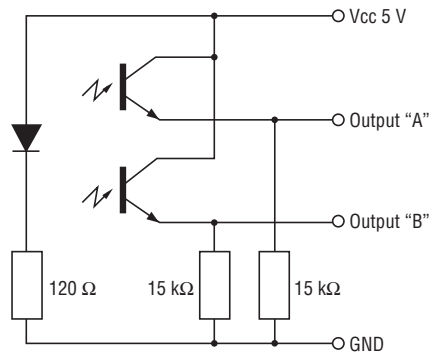


OUTPUT CIRCUIT

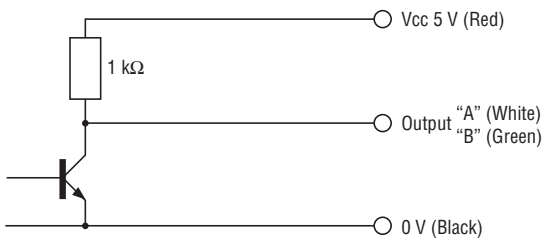
RES20



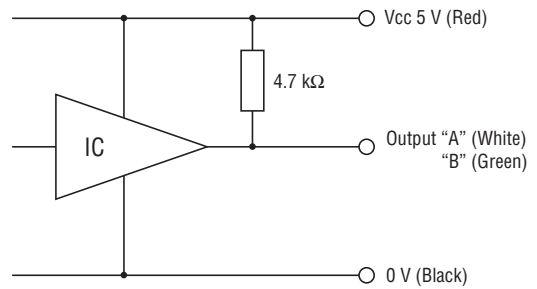
RES20-Z



REC20/RES20B/REC20C



RES20D/REC20D/RESW20D/RECW20D



EXTERNAL SCHEMATICS

RES20

