



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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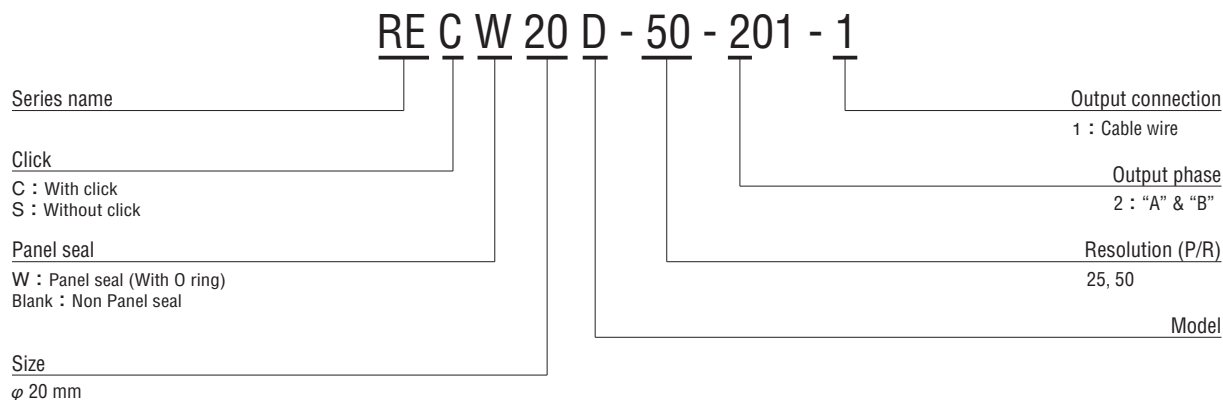
FEATURES

- 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)		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.

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 _{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								

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
	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

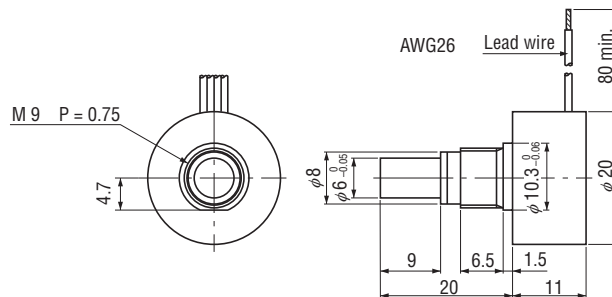
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

RES20D/RESW20D

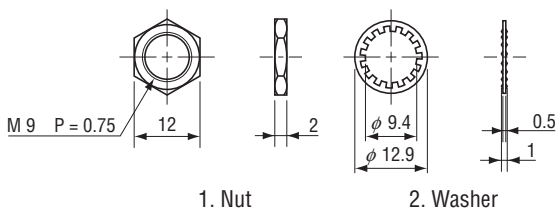
(Without click / Without click, With panel seal)

REC20D/RECW20D

(With click / With click, With panel seal)



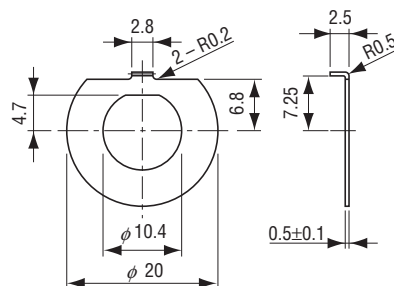
< Attachment >



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

< Option (Stopper) >

RES20D / REC20D / RESW20D / RECW20D



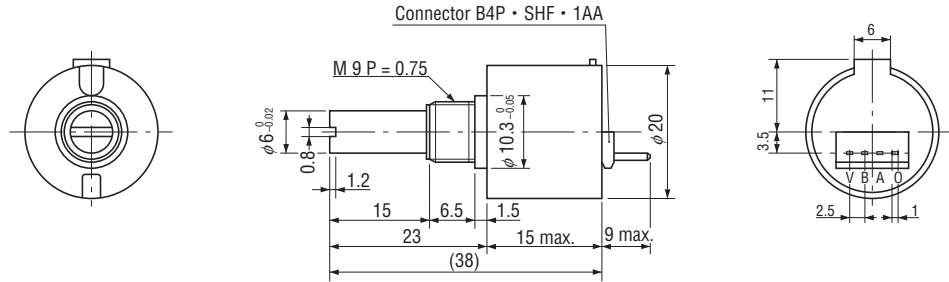
The stopper can be provided upon request.

OUTLINE DIMENSIONS

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

RES20/RES20-Z

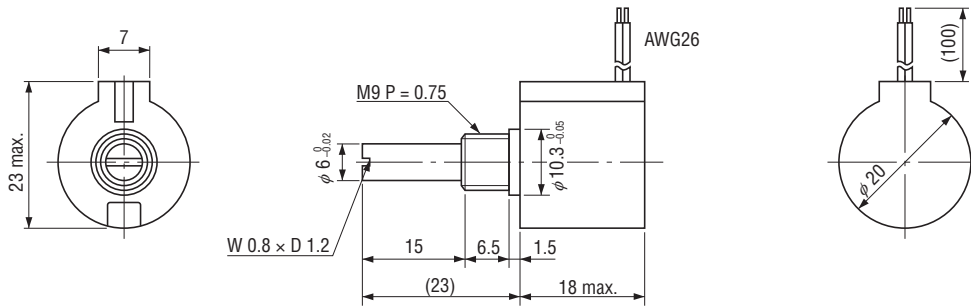
(Without click)



REC20

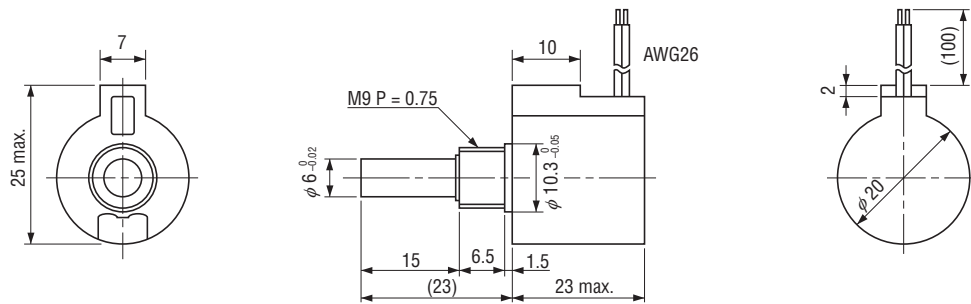
(With click)

(Without click)

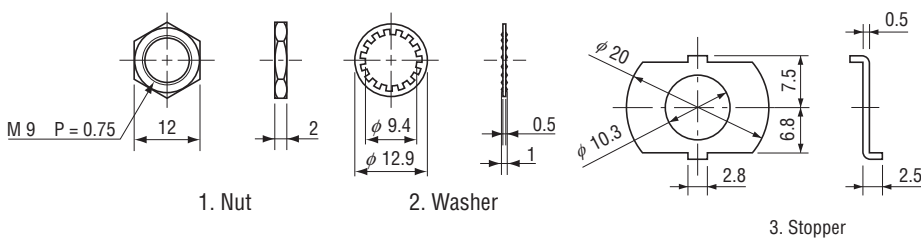


REC20C

(With click)



< Accessories >



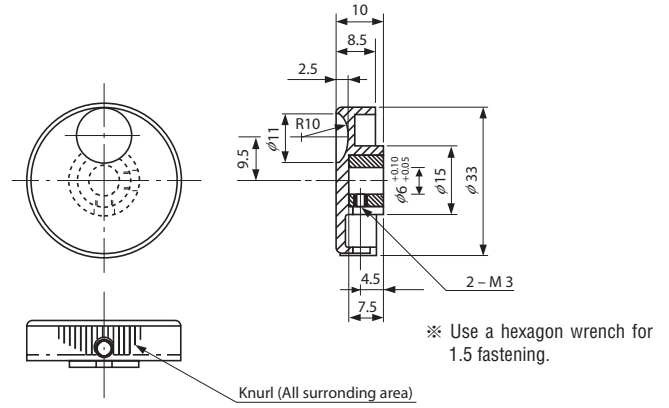
REC/RES OPTICAL ENCODERS

● KNOB FOR SETTING ENCODERS

The knobs are sold separately as an optional item.

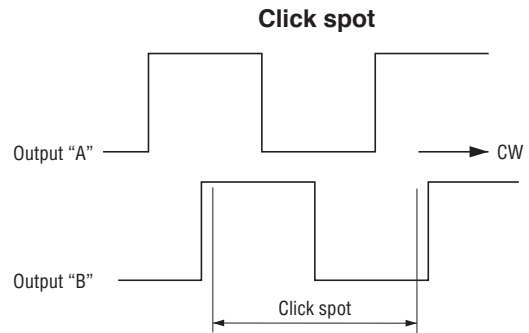
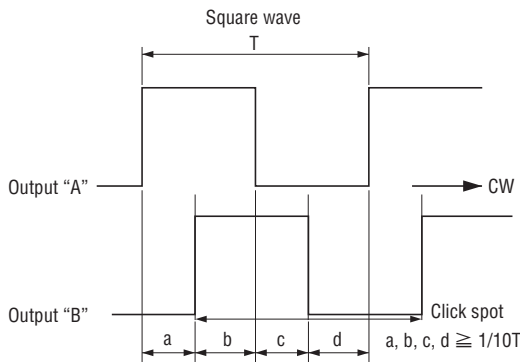


Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

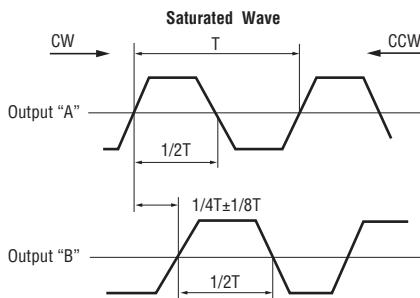


■ OUTPUT

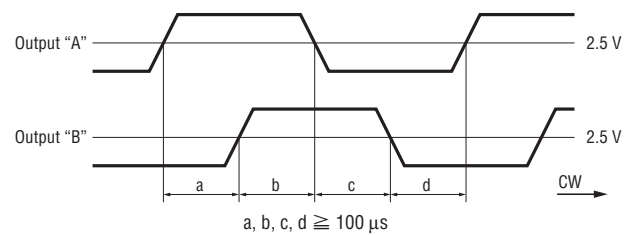
● RES20D/REC20D/RESW20D/RECW20D



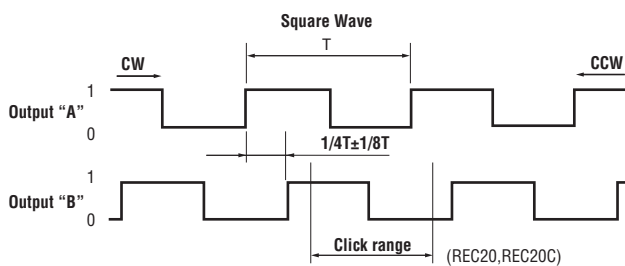
● RES20



● RES20 *** Z

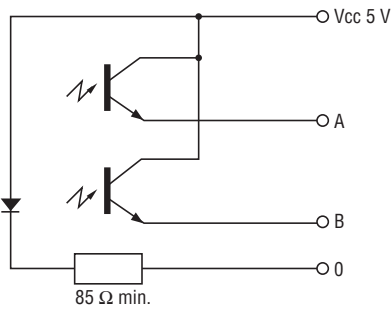


● REC20/RES20B/REC20C

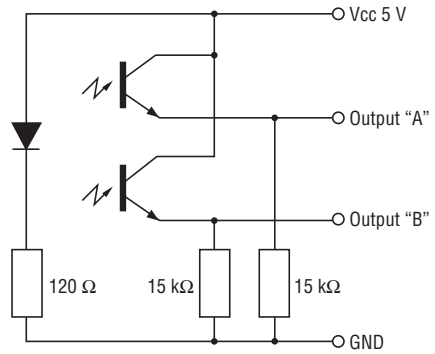


OUTPUT CIRCUIT

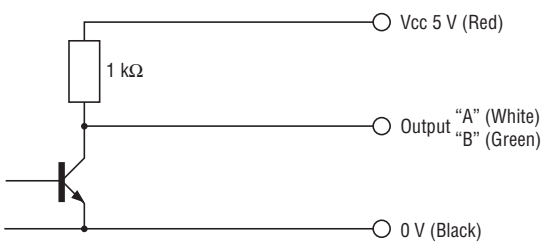
RES20



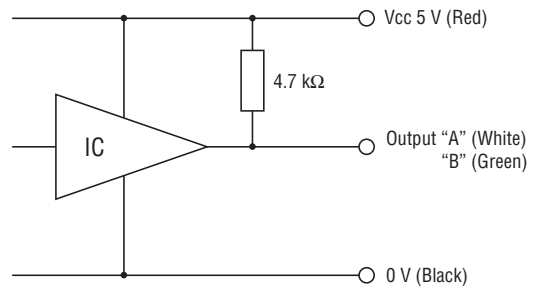
RES20-Z



REC20/RES20B/REC20C



RES20D/REC20D/RESW20D/RECW20D



EXTERNAL SCHEMATICS

RES20

