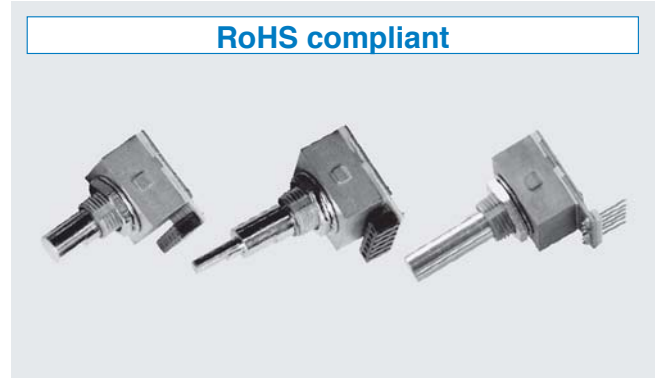
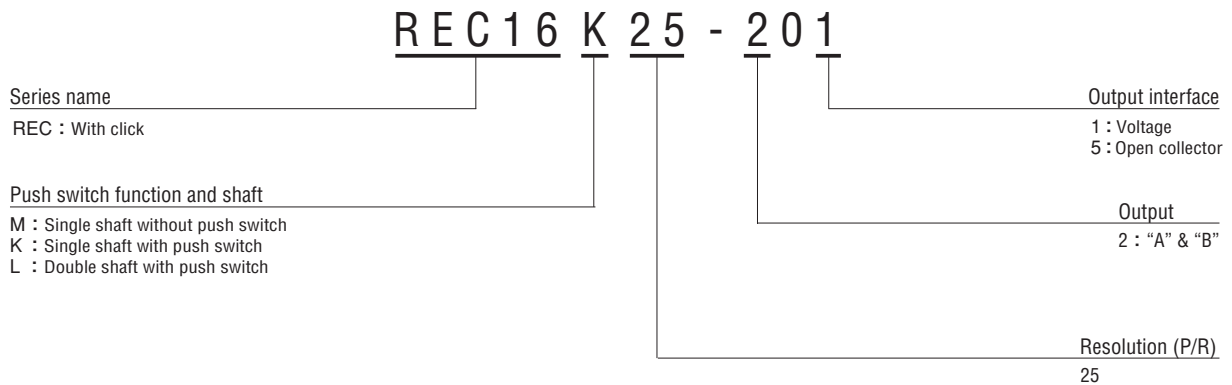


## FEATURES

- 16mm square compact size
- Excellent click & switch feelings
- Long life of 2 million cycles



## PART NUMBER DESIGNATION



## LIST OF PART NUMBERS

Resolution	Click	Push switch function	Shaft	Output interface	Part number
25 (P/R)	With Click	No	Single Shaft	Voltage (PIN HEADER Type)	REC16M25-201
					REC16K25-201
		Yes	Double Shaft	Open Collector (SCOKET Type)	➡ REC16K25-205-B
					➡ REC16L25-205-B

The products indicated by ➡ mark are manufactured upon receipt of order basis.

# REC16K/REC16L/REC16M

## OPTICAL ENCODERS

### STANDARD SPECIFICATIONS

#### Electrical characteristics

Input voltage	DC5 ± 5 %	
Input current	30 mA maximum	
Output wave form	Square wave	
Output phases	A, B	
(P/R) Resolution	25	
Phase difference of outputs A & B	90° ± 45°	
Maximum frequency response	100 Hz	
Output signal	"1 (High)"	+ 4.5 V minimum
	"0 (Low)"	+ 0.5 V maximum
Light source	LED	

#### Switch characteristics

Maximum contact rating	DC15 V, 20 mA
Contact resistance	2 Ω maximum (Initial value)

Note) Manual setting only.

#### Mechanical characteristics

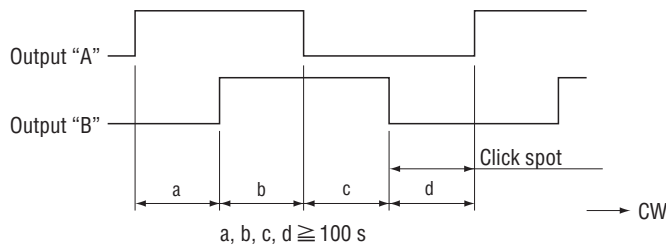
Click torque	7.35 mN·m ± 2.5 maximum (75 ± 25 gf·cm) <REC : With click>	
Click number	25	
Shaft loading (Pull-push)	19.6 N maximum (2 kgf)	
Switch operation force	2.45 ± 1.47 N (250 ± 150 gf)	
Switch stroke	0.3 ± 0.2 mm	
Rotational life (Mechanical)	2 million cycles	
Switching life	1 million cycles	
Shaft loading (When mounting)	Radial	4.90 N maximum (500 gf)
	Axial	2.94 N maximum (300 gf)
Net weight	Approx. 12 g	
Strength of tighten screw	1 N·m {10.2 kgf·cm} maximum	

#### Environmental characteristics

Operating temp. range	0 ~ 50 °C
Storage temp. range	-20 ~ 80 °C
Protection grade	IP40

### OUTPUT

#### Click spot for 25P/R



The click spot is located somewhere outputs A & B are at Lo level.

# REC16K/REC16L/REC16M

## OPTICAL ENCODERS

### RELIABILITY TEST

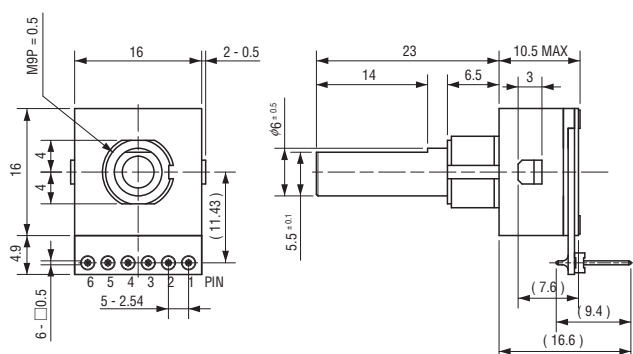
The output shall satisfy the criteria below after the following tests.

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	(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 0.5 h, - 20 °C 0.5 h	

### OUTLINE DIMENSIONS

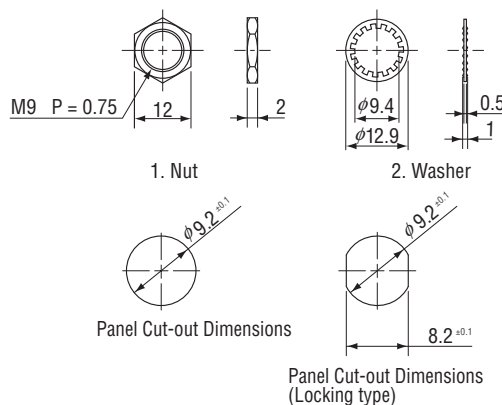
Unless otherwise specified, tolerance: ± 0.4 (Unit: mm)

#### Single shaft and PIN HEADER



PIN HEADER :  
Made by IRISO ELECTRONICS CO.,LTD  
S208B - 1 - 6Z032 - PT1

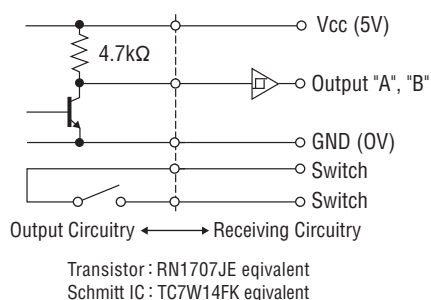
#### < Accessories >



### PIN ASSIGNMENT

Pin No.	Without switch	With switch
1	Power 0 (V)	Power 0 (V)
2	N C	For switch
3	N C	For switch
4	Output "B"	Output "B"
5	Output "A"	Output "A"
6	Power + 5V	Power + 5V

### OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY



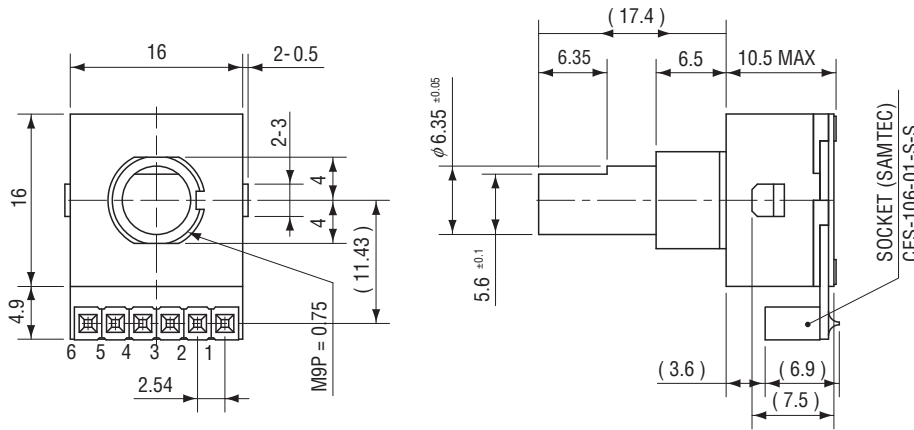
# REC16K/REC16L/REC16M

## OPTICAL ENCODERS

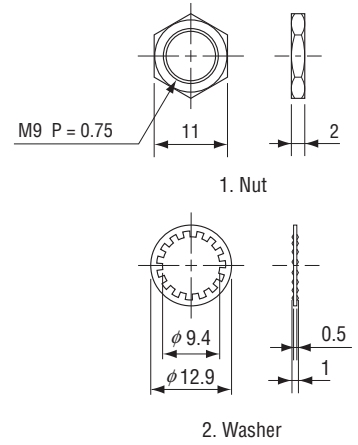
### OUTLINE DIMENSIONS

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

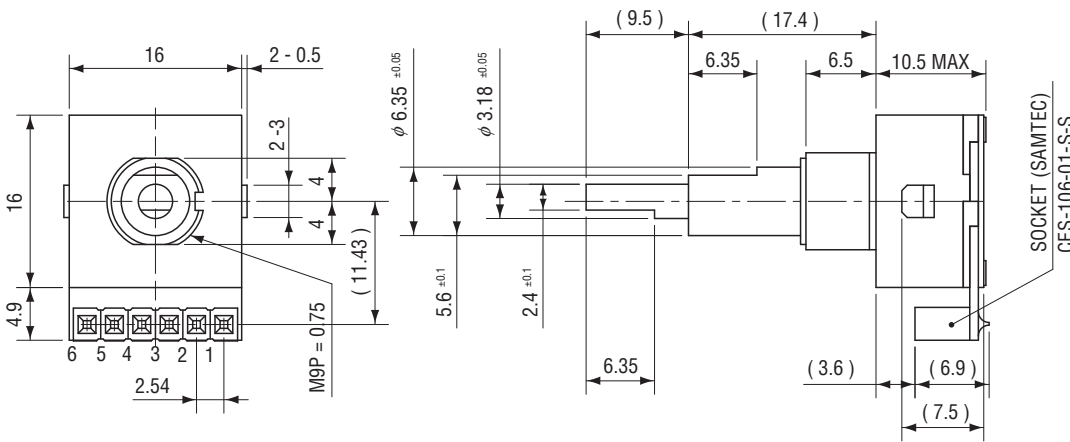
#### Single shaft and SOCKET



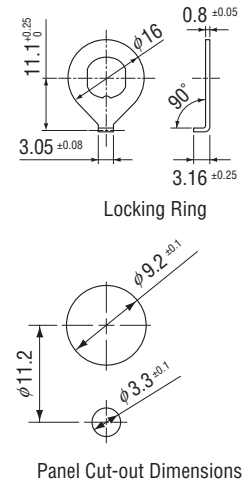
#### <Accessories>



#### Double shaft and SOCKET



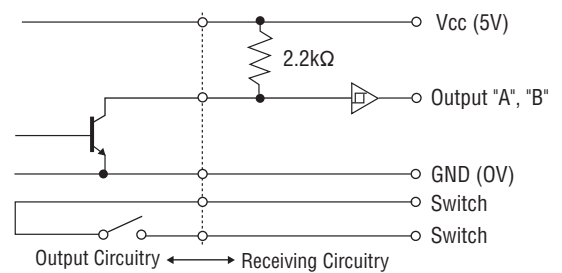
#### <Option>



### PIN ASSIGNMENT

Pin No.	Function
1	Power 0 (V)
2	For switch
3	For switch
4	Output "B"
5	Output "A"
6	Power +5 V

### OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY



Transistor : RN1707JE equivalent  
Schmitt IC : TC7W14FK equivalent