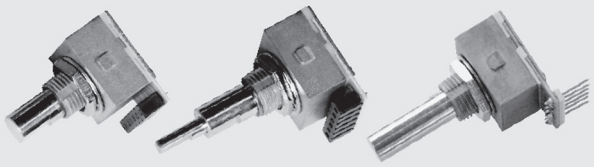
MANUAL SETTING TYPE OPTICAL ENCODERS

REC16K/REC16L/REC16M

FEATURES

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

RoHS compliant



PART NUMBER DESIGNATION

REC16K25-201

Series name
REC : With click

Push switch function and shaft
M : Single shaft without push switch
K : Single shaft with push switch
L : Double shaft with push switch

Resolution (P/R)
25

Output
2 : "A" & "B"

Output interface
1 : Voltage
5 : Open collector

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
		Yes			REC16K25-201
				Open Collector (SOCKET Type)	⊕ REC16K25-205-B
			Double Shaft		⊕ 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 V ± 5 %
Input current		30 mA maximum
Output wave form		Square wave
Output phases		A, B
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
Output Sink Current		30 mA maximum

Switch characteristics

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

Note) Manual setting only.

Mechanical characteristics

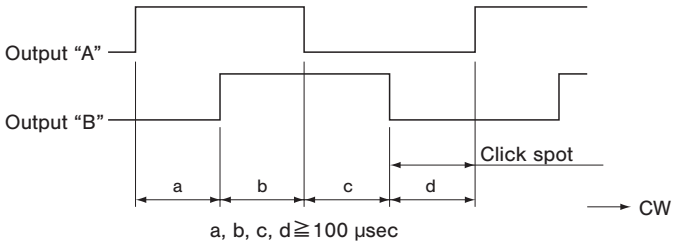
Click torque		7.35 mN·m ± 2.5 maximum (75 ± 25 gf·cm) 〈REC : With click〉
Click number		25
Shaft loading (Pull-push)		19.6 N maximum (2 kgf)
Switch operation force		2.45 ± 1.47 N (250 ± 150 gf)
Switch stroke		0.3 ± 0.2 mm
Rotational life (Mechanical)		2 million cycles
Switching life		1 million cycles
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.

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RELIABILITY TEST

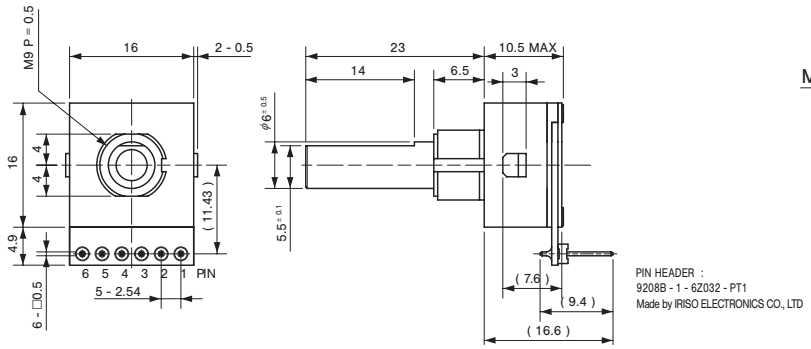
The output shall satisfy the criteria below after the following tests.

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 0.5 h、 − 20 °C 0.5 h	

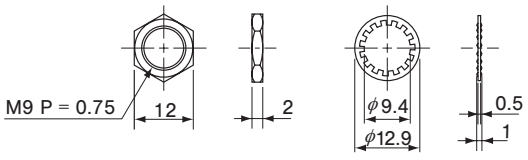
OUTLINE DIMENSIONS

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

● Single shaft and PIN HEADER

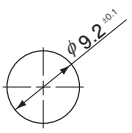


〈**Accessories**〉

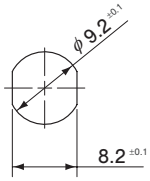


1. Nut

2. Washer



Panel Cut-out Dimensions

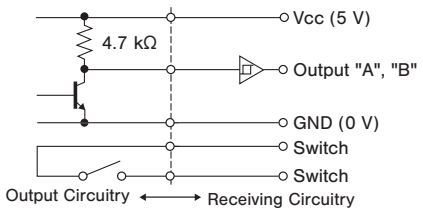


Panel Cut-out Dimensions
(Locking type)

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 + 5 V	Power + 5 V

OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY



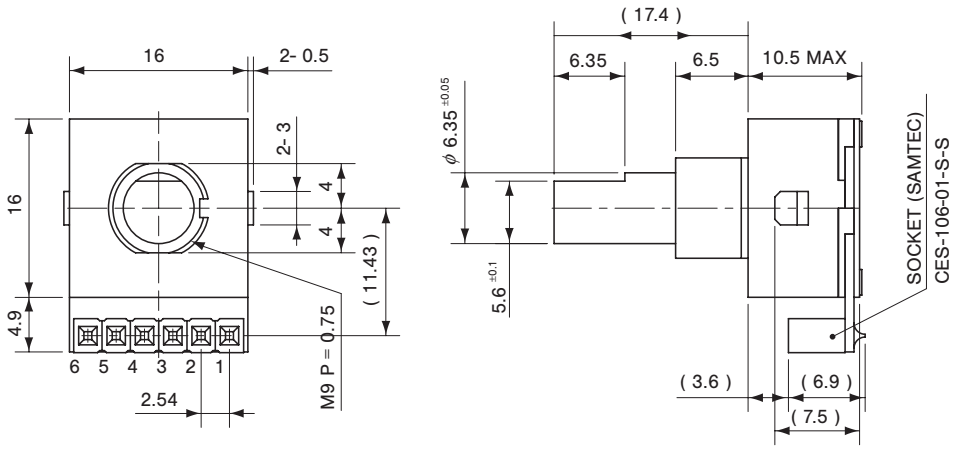
Transistor / RN1707JE eqivalent
Schmitt IC / TC7W14FK eqivalent

REC16K/REC16L/REC16M
OPTICAL ENCODERS

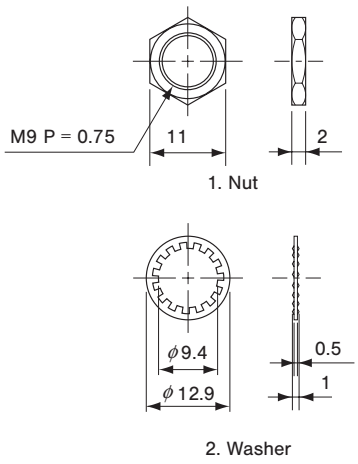
OUTLINE DIMENSIONS

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

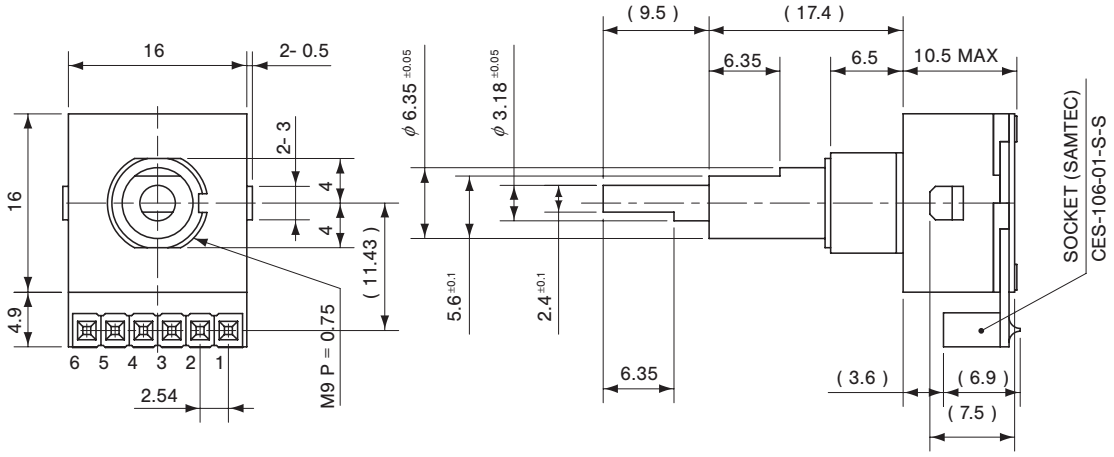
Single shaft and SOCKET



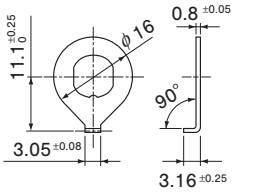
〈Accessories〉

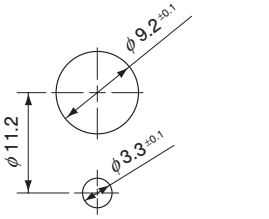


Double shaft and SOCKET

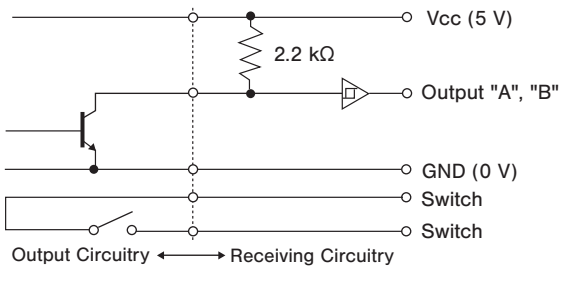


〈Option〉





OUTPUT CIRCUITRY AND RECEIVING CIRCUITRY



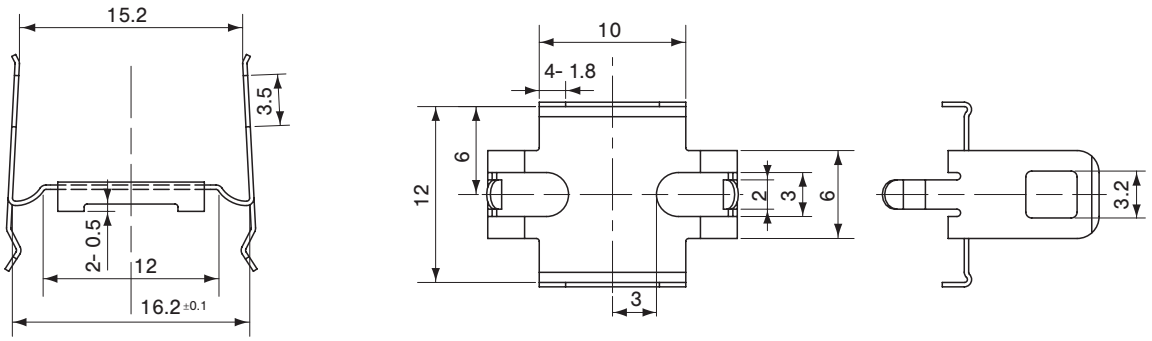
Transistor / RN1707JE eqivalent
Schmitt IC / TC7W14FK eqivalent

PIN ASSIGNMENT

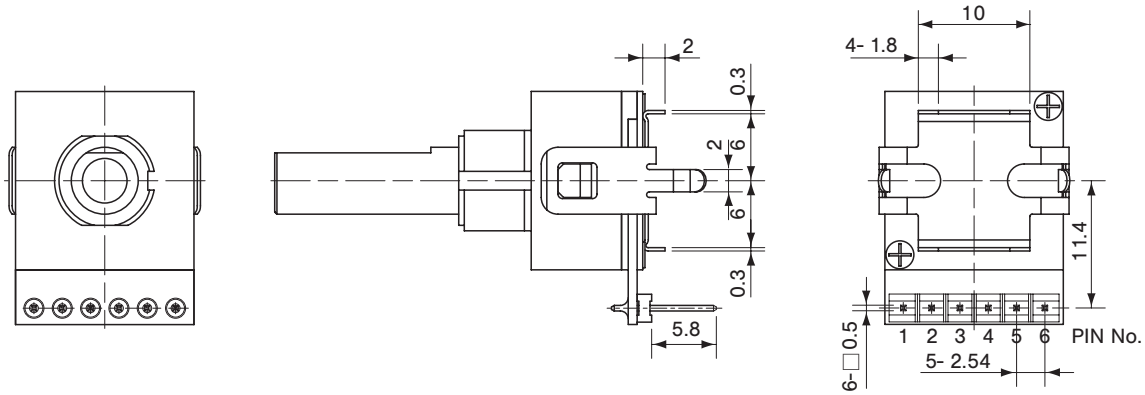
Pin No.	Function
1	Power 0 (V)
2	For switch
3	For switch
4	Output “B”
5	Output “A”
6	Power +5 V

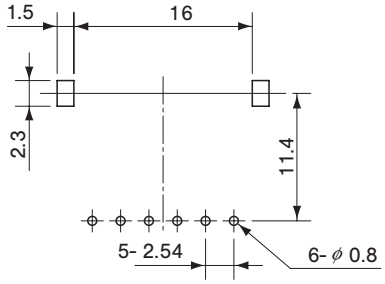
■ Option (Snap-in Holder)

●Available mounting on PC board with Snap-in Holder as an optional item separately.



●With Snap-in Holder





Mounting hole dimentions
(Tolerance : ± 0. 1)
(Thickness : t = 1. 6)