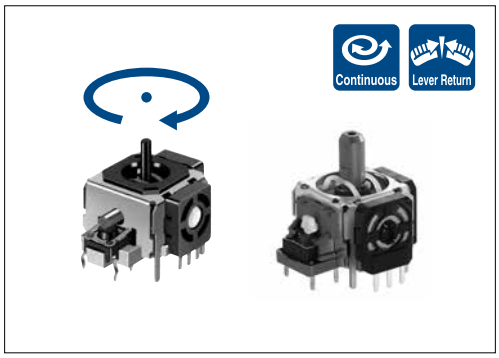
RKJXK RKJXV ThumbPointer™ (Stick Controller)

Compact size, standard type. Also available with lever return mechanism



Typical Specifications (Potentiometer)

Items	RKJXK	RKJXV
Rated power	0.0125W	
Maximum operating voltage	50V AC, 5V DC	
Operating angle	60° ±6°	23° max. in each direction ※
Operating force	8mN·m max. (Not lever return type) 6±4mN·m (Lever return type)	14±10mN·m
Operating life	100,000 cycles	2,000,000 cycles

Note

※ If the lever is tilted more than 23° from the vertical position, operating feel irregularities or return mechanism errors may occur. Therefore, please do not tilt more than 23° .

Typical Specifications (Center-push)

Items	RKJXK	RKJXV
Ratings (max.)	50mA 12V DC	
Operating force	5.2±2.6N	7.4±3N
Travel	$0.5^{+0.5}_{-0.4}$ mm	$0.4^{+0.5}_{-0.3}$ mm
Operating life	100,000 cycles	500,000 cycles

Product Line

Product No.	Lever return mechanism	Center-push	Total resistance (kΩ)	Resistance taper	Minimum order unit (pcs.) Japan	Minimum order unit (pcs.) Export	Drawing No.
RKJXK122400Y	With	With	10	B(0B)	500	1,000	1
RKJXK122000D		Without					2
RKJXK1210002	Without						
⚠ **RKJXV1224005**	With	With			1,420	1,420	3
RKJXV1220001		Without					4

Packing Specifications

Tray

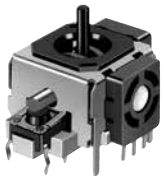
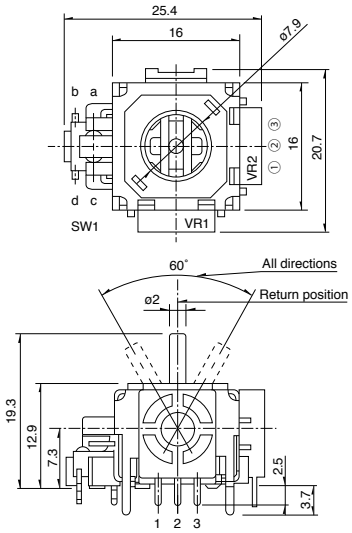
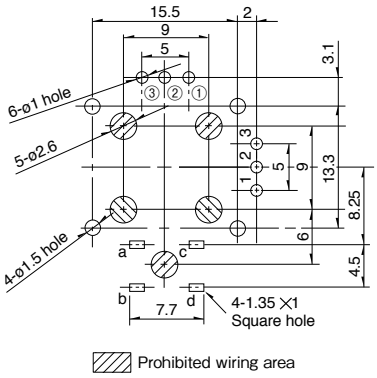
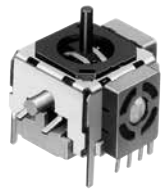
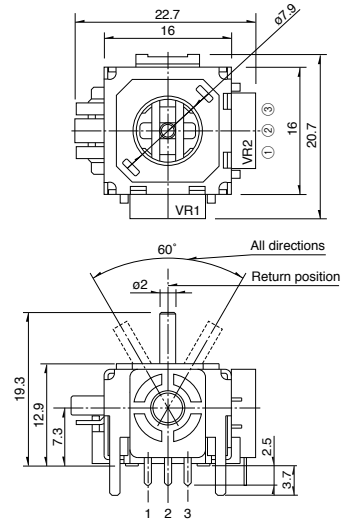
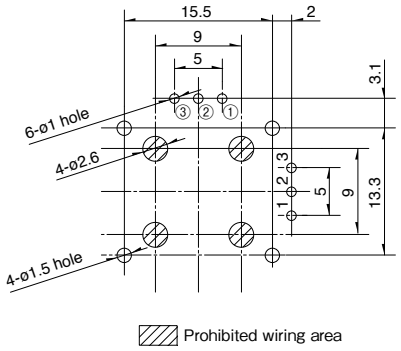
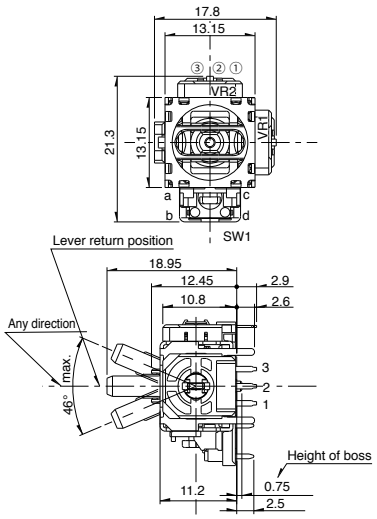
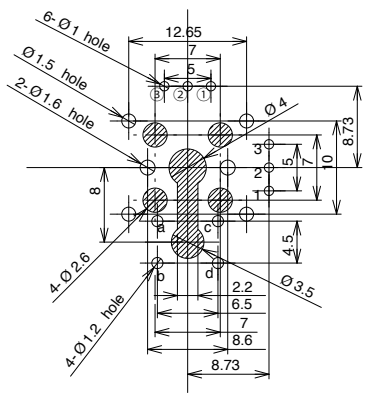
Product No.	Number of packages (pcs.) 1 case / Japan	Number of packages (pcs.) 1 case / export packing	Export package measurements (mm)
RKJXK	500	1,000	540×373×225
RKJXV	1,420	1,420	544×364×178

*Products marked with a ⚠ are not recommended for new designs

Refer to P.433 for soldering conditions.

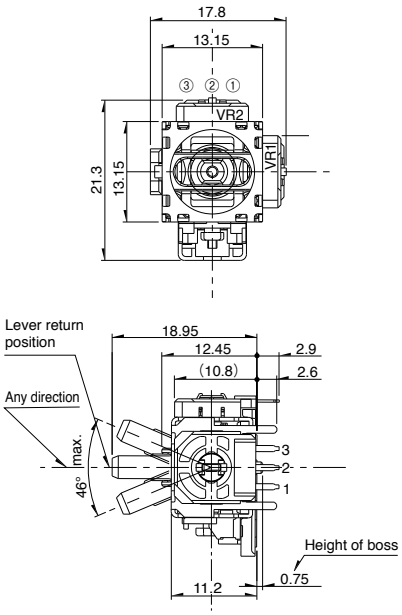
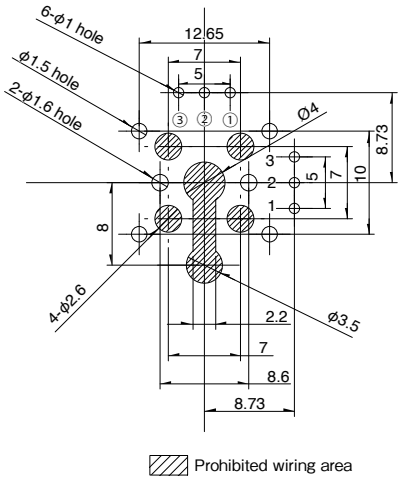
Dimensions

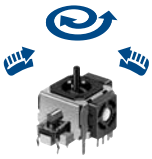
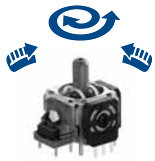
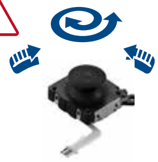
Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
1	**RKJXK1224** 		
2	**RKJXK1210** **RKJXK1220** 		
3	**RKJXV1224** 		

Dimensions

Unit:mm

No.	Photo	Style	PC board mounting hole dimensions (Viewed from mounting side)
4	**RKJXV1220** 		

Type	Potentiometer type			
Series	RKJXK	RKJXV	RKJXY	RKJXU
Photo				
Dimensions (typical value) (mm) W	20.7	17.8	19.6	18.6
Dimensions (typical value) (mm) D	25.4	21.3	18.1	24.3
Dimensions (typical value) (mm) H	12.9	11.2	4.9	5.2
Number ofoperating shafts	Single-shaft			
Shaft material	Metal	Resin		
Directional resolution	Continuous			
Directional operating feeling (tactile feeling)	Without			
Lever return mechanism	With / Without	With		
Center-push switch	With / Without		Without	
Encoder	Without			
Operating temperature range	−10℃ to +70℃			
Operating life: Directional operation	100,000 cycles	2,000,000 cycles	1,000,000 cycles	2,000,000 cycles
Operating life: Center-push	100,000 cycles	500,000 cycles	—	—
Automotive use	—	—	—	—
Life cycle (availability)				
Electrical performance: Insulation resistance	100MΩ min. 250V DC		—	—
Electrical performance: Voltage proof	250V AC for 1 minute		—	—
Electrical performance: Slider noise	300mV p-p max. by JIS method			
Mechanical performance: Directional operating force	8mN·m max. Without Lever return mechanism 6±4mN·m With Lever return mechanism	14±10mN·m	With knob type 0.43±0.25N (3.33±2.0mN·m) Without knob type 3.33±2.0mN·m	0.75±0.3N
Mechanical performance: Push operating force	5.2±2.6N	7.4±3N	—	—
Mechanical performance: Lever return precision	±5°			±0.1mm
Mechanical performance: Actuator strength: Push / pull directions	50N min. (Push/Pull)	98N min. (Push), 50N min. (Pull)	100N min. (Push), 49N min. (Pull)	100N min. (Push), 30N min. (Pull)
Mechanical performance: Actuator strength: Operating direction	0.3N·m	—	50N	
Environmental performance: Cold	−30℃ 96h			
Environmental performance: Dry heat	80℃ 96h			
Environmental performance: Damp heat	60℃, 90 to 95%RH 96h			
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Potentiometer Type / Soldering Conditions

Reference for Manual Soldering

Series	Tip temperature	Soldering time	No. of solders
RKJXK, RKJXV	350℃max.	3s max.	1 time

Reference for Dip Soldering

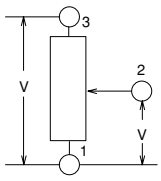
Series	Preheating		Dip soldering		No. of solders
	Soldering surface temperature	Heating time	Soldering temperature	Soldering time	
RKJXK	90 to 100℃	45s max.	255 to 260℃	2 to 3s	1 time
RKJXV	90 to 120℃	60s max.	260℃	5s	1 time

Potentiometer Type / Cautions

〔Circuit Used for Analog Stick Controller〕

We recommend you use the potentiometer type in a voltage divider type as shown in Fig. A.

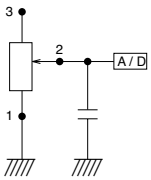
Fig.A.Voltage divider type



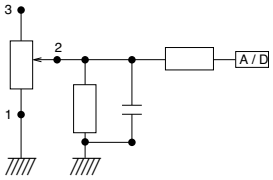
〔Impedance on the Output Side〕

Since this pot is designed to use with its output is connected directly to A/D port. Impedance is considered to be mega ohm level. Then contact resistance in the pot is higher. Please refer to Flg-1. So when you use it in the circuit like Flg-2.Please make sure that impedance should be over than 1M-ohm.

[Fig.1]



[Fig.2]

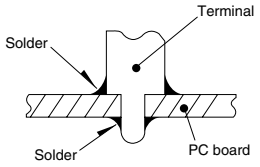


〔Dew Condensation〕

Avoid using the product when condensation or drops of water might occur inside the product. Otherwise, insulation deterioration or shorting may occur.

〔Soldering〕

Do not employ wiring designs and soldering methods as illustrated in the schematic drawing. Molten solder flowing over the upper surface of PC board can cause imperfect contacts. Solder all metal inserted fixing including terminals & metal lugs into a substrate.



〔Stress Being Applied to the Terminals〕

Always be careful not to apply excessive stress on the terminals. Design appropriate soldering conditions.

〔Handling of Variable Resistors Equipped with Switches〕

Exercise care when packing or storing. Packaging or storing while load is applied to the shaft may cause a malfunction in performance.

〔Storage〕

① Store the products as delivered, at a normal temperature and humidity, without direct sunshine and corrosive gas ambient. Use them at an earliest possible timing, not later than six months upon receipt.
② After breaking the seal, keep the products in a plastic bag to shut out ambient air, store them in the same environment as above, and use them up as soon as possible.
③ Do not stack too many switches.

The above operation notes are quoted from the

"Precaution and Guideline of Potentiometer for Electrical Devices" , a technical report issued by the Japan Electronics and Information Technology Industries Association EIAJ RCR-2191A (in March 2002).

For details, refer to the original technical report.