

**Multi Control Devices** Potentiometer Type  
ThumbPointer™ (Stick Controller) RKJXV Series

Part number

**RKJXV122400R**

Standard ?

Basic information ▾

Dimensions ▾

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NET SHOP

3D CAD

RoHS

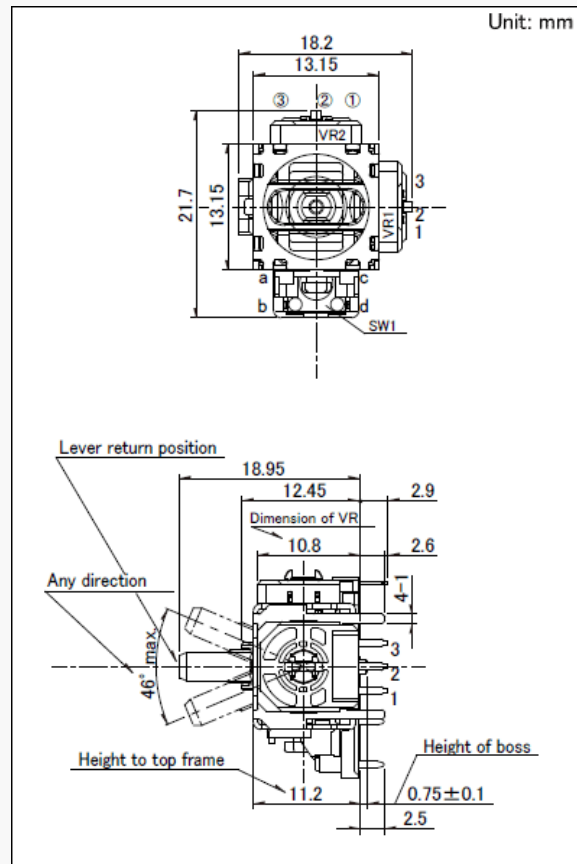
Reference Drawings

Inquiry

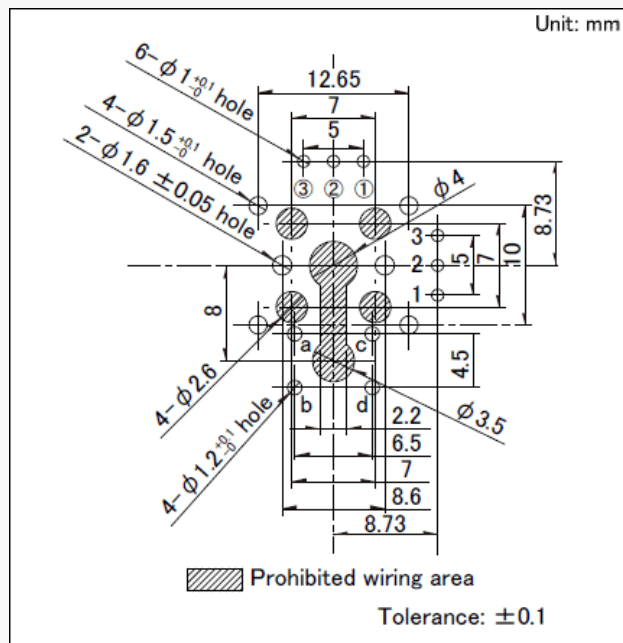
Print

Number of operating shafts	Single-shaft		
Shaft material	Resin		
Lever return mechanism	With		
Potentiometer part	Maximum operating voltage	5V DC	
	Operating angle	Each direction 23° max.	
	Resistance taper	B	
	Total resistance	10k Ω	
Center push part	Center push	With	
	Ratings (max.)	50mA 12V DC	
	Travel	0.4(+0.5, -0.3)mm	
Dimensions (W×D×H)	18.2×21.7×11.2mm		
Operating temperature range	-10°C to +70°C		
Electrical performance	Directional resolution	Continuous	
	Insulation resistance	100M Ω min. 250V DC	
	Voltage proof	250V AC for 1 minute	
	Rated power	0.0125W	
	Slider noise	300mV p-p max. by JIS method	
Mechanical performance	Directional operating force	14±10mN·m	
	Push operating force	7.4±3N	
	Lever return precision	±5°	
	Actuator strength	Push/pull directions	98N min. (Push), 50N min. (Pull)
Durability	Operating life	Directions	2,000,000 cycles
		Center push	500,000 cycles
Environmental performance	Cold	-30°C 96h	
	Dry heat	80°C 96h	
	Damp heat	60°C, 90 to 95%RH 96h	
Minimum order unit(pcs.)	Japan	1,420	
	Export	1,420	

## Dimensions

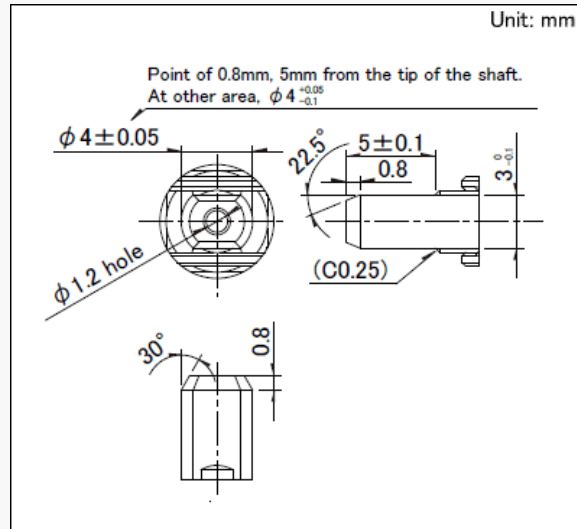


## Mounting Hole Dimensions



Viewed from mounting side.

## Lever Dimensions



## Packing Specifications

### Tray

#### Number of packages (pcs.)

1 case / Japan	1,420
1 case / export packing	1,420

#### Export package measurements (mm)

544 × 364 × 178

## Soldering Conditions

### Reference for Dip Soldering

#### Preheating

Soldering surface temperature	90 to 100°C
Heating time	60s max.

### Dip soldering

Soldering temperature 260°C max.  
Soldering time 5s

### No. of solders

1 time

### Reference for Hand Soldering

#### Tip temperature

350°C max.

#### Soldering time

3s max.

#### No. of solders

1 time

## Notes are common to this series/models

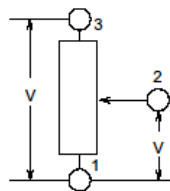
1. This site catalog shows only outline specifications. When using the products, please obtain formal specifications for supply.
2. Please place purchase orders per minimum order unit (integer).

## Cautions

### Circuit Used for Analog Stick Controller

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

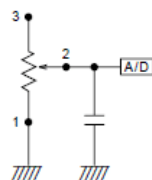
#### A.Voltage divider type



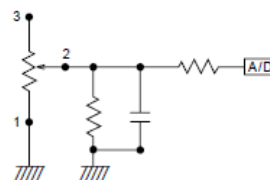
### Impedance on the Output Side

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 Fig-1. So when you use it in the circuit like Fig-2. Please make sure that impedance should be over than 1M-ohm.

[Fig.1]



[Fig.2]



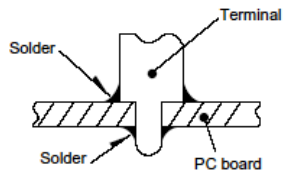
### Dew Condensation

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", which is a technical report issued by the Japan Electronics and Information Technology Industries Association EIAJ RCR-2191A (in March 2002). For details, see the above technical report.

## Measurement and Test Methods

### Electrical performance

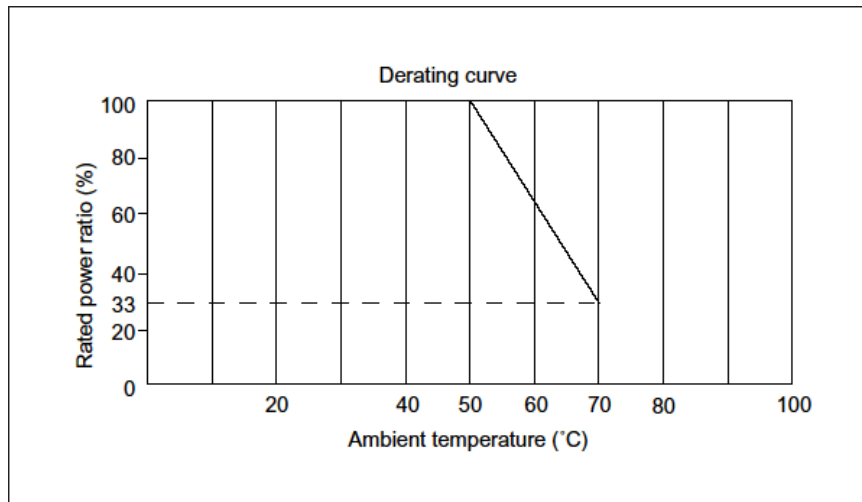
#### Total Resistance

With the shaft (lever) placed at the termination of terminal 1 or 3, total resistance shall be determined by measuring the resistance between the resistor terminals 1 and 3 unless otherwise specified.

#### Rated Power

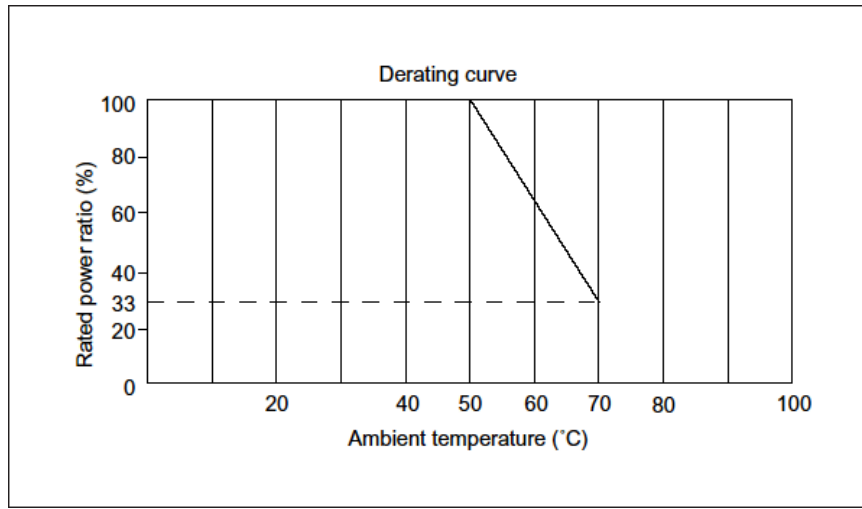
Rated power shall be the maximum value of electric power that can be applied continuously to the whole area of a resistor (between terminals 1 and 3) at the rated ambient temperature.

The rated ambient temperature of a carbon film resistor shall be 50° C. The maximum power at an ambient temperature of 50 to 70° C shall be obtained by multiplying the rated power by the rated power ratio determined from the derating curve shown below.



#### Rated Voltage

Rated voltage is associated with the rated power and shall be determined by the following equation. When the resulting rated voltage exceeds the maximum operating voltage of a specific resistor, the maximum operating voltage shall be taken as the rated voltage.



#### Voltage Withstand

Determined by applying AC voltage to the specified locations for one minute to checking for arc, burning, dielectric breakdown and other abnormalities. Respective terminals may be tested together. The locations described below shall be tested unless otherwise specified. However, if the section concerned is so constructed as to conduct, that particular part shall not be tested.

#### Insulation Resistance

Measured with a megger by applying specified voltage to the specified locations.

The locations below shall be tested unless otherwise specified. However, if the section concerned is so constructed as to conduct, that particular part shall not be tested.

#### Measuring Locations For Withstand Voltage and Ins

- Between terminal and shaft (lever).
- Between terminal and metal cover (frame).
- Between terminals connected to separate resistor element and terminal connected to another resistor element (of multi-ganged-unit)
- Between switch terminal and shaft
- Between switch terminal and resistance terminal
- Between switch terminal and metal cover

#### Contact Resistance of Switch

Unless otherwise specified, contact resistance of switch shall be determined by measuring drop voltage when 5V DC, 1A is applied between contacts and the contacts are closed.

## Mechanical Performance

#### Total Rotational Angle (Travel)

Determined by measuring the rotational angle (travel) when the shaft (lever) is turned (moved) from the termination position of terminal 1 to the termination position of terminal 3.

#### Rotational Torque (Operating Force)

Determined by measuring the torque (operating force) necessary to turn (move) the shaft (lever). Unless otherwise specified, measurement shall be made at an ambient temperature of 5 to 35° C, and the shaft rotational speed shall be 60° per second and the lever moving speed 20mm per second.

#### Shaft Wobble

Determined by measuring the amount of deflection at a position of 30mm from the reference surface with a bending moment of 0.1N·m (50mN·m for insulated shaft) applied perpendicularly to the shaft from 180° different directions at a point within 3mm from the place where a smooth cylindrical surface of the shaft ceases to exist. However, if the length of the shaft is less than 30mm, proportional calculation shall be used.

#### Allowable Operating Torque for Shaft (Lever)

With the shaft (lever) placed at the termination of terminal 1, a specified torsional moment (force) shall be applied in that direction for 10 seconds. Next, the shaft (lever) shall be placed at the termination of terminal 3 and a specified torsional moment (force) shall be applied similarly, to check the control part and other related sections for any deformation or breakage.

#### Push-pull Strength (Lever Push-pull Strength)

A specified force shall be applied in the axial direction of the shaft (lever) for 10 seconds to check the control part and other sections for any deformation or breakage and for operating condition.