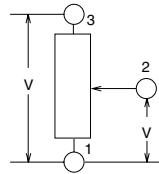


Caution

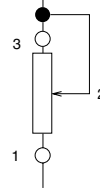
[Recommended Circuit Configuration]

When using variable resistors, it is recommended that you use them as voltage adjusting means, as shown in Fig. A. If the variable resistor is used as a current adjusting means as in Fig. B, it may be influenced by the contact resistance between the resistor body and the slide, depending on the set circuit. Conducting a test under actual operating conditions is highly recommended.

A. Voltage divider type

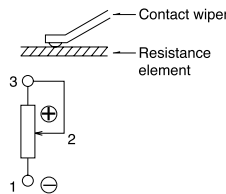


B. Current controller type



[Terminal Connections]

In applications where a direct current is allowed to flow through the potentiometer's sliding arm, there could be a problem of anodic oxidation due to an unusual increase in resistance value. In this case, it is recommended that you connect the negative line to the resistance element and the positive line to the sliding arm.



[Direct Voltage]

When direct voltage is flown through this part, terminal to terminal insulation may deteriorate depending on the use environment. This is due to a migration phenomenon. Contact us if you are planning to use this part under direct voltage.

[Impedance on the Output Side]

There is a possibility that might be affected by contact resistance of resistive element and wiper in case of low impedance of output side in voltage regulation circuit. For this reason, we require that you adjust to impedance of output side more than 100 times of total resistance.

[Residual Resistance]

Although electric poles of resistors are generally formed by silver printing, we provide carbon coating over the silver poles to enhance reliability against sulfurization. Contact us if you wish to use the part in a low residual resistance state.

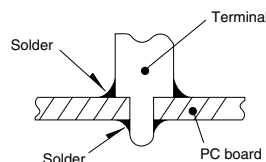
[Dew Condensation]

Avoid using the potentiometer where dew or water drops might occur on the surface of the resistor, etc. Deterioration of insulation or shorting may occur.

[Soldering]

Avoid employing wiring designs and soldering methods in which molten solder flows over the upper surface of PC board, as illustrated in the schematic drawing. This can cause occurrences of imperfect contacts.

Solder all metal inserted fixing including terminals & metal lugs into a substrate.



[Stress Being Applied to the Terminals]

Always pay special attention not to apply excessive stress when handling the terminals. Also, be sure to design appropriate soldering conditions.

Rotary Potentiometers
Slide Potentiometers

Metal Shaft
Insulated Shaft
Knob Operating

Caution

[Looseness of the Shaft]

When lengthy shaft lengths are being employed, the looseness (deviation) tends to grow in proportion to the shaft length. Conducting a test under actual operating conditions is recommended.

[Chassis Mounting]

The use of a nut to fasten this part may lead to excessive tightening and can deteriorate the rotary contact performance, or strip the threads. Handle with care when tightening the nut.

[Operation at Low Temperature]

When these products are expected to be used under low temperature environments such as applications for car radios and car stereos, we can customize them for easier and more smooth rotary movements. When placing orders, indicate whether the low temperature specification is necessary or not.

[Handling of Variable Resistors Equipped with Switches]

To avoid damaging the switch portion, do not package or store potentiometers with a push-on push-off switch and push-on switch with their shafts pushed-in.

[Precautions in Using the Motor-driven Potentiometer]

- ⟨1⟩ Avoid using the potentiometer in silicon or cyanogens-base gas atmosphere. Otherwise, the motor may not operate properly. When using additives, grease and silicon rubber in the same set, pay attention to their composition.
- ⟨2⟩ Avoid connecting the fixed resistance in series with the motor in the motor circuit. When starting up the motor, there may be cases where driving voltage drops, causing a starting failure.
- ⟨3⟩ When soldering motor terminals, be careful not to apply a load in the direction of pressing in the terminals. As motor terminals are constructed integral with contacts, a contact failure may occur.
- ⟨4⟩ Avoid using the potentiometer below specified voltage. For reducing the rotational speed, consult us.

[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.