

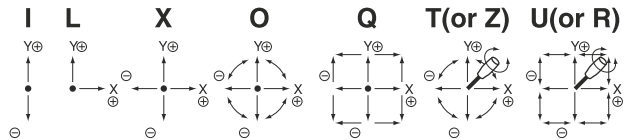


Model 50JA

Potentiometer with a conductive plastic resistive element (Potentiometer outside mounted type)

Nomenclature

S means special mechanical specifications not applicable to our standard.
50 means approx. size of base housing in mm.
J means joystick controller.
A means type 1-, 2-, or 3-dimensional coordinates is available and also means potentiometers are mounted outside housing case.
K means square shape.
Y means kind of mechanism:
X means 1-dimensional coordinate. **Y** means 2-dimensional coordinate
Z means 3-dimensional coordinate.
Available directions of lever operation
Standard version:
O : Omni-directional 360° operating type.
Special version:
I : I figure (Y) directional operating type.
L : L figure(+Y, +X only) directional operating type.
X : Cross direction of X and Y operating type.
Q : Square-directional 360° operating angle.
Z : In addition to omni-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is mounted on the body side of joystick, and this is standard version, and also can be incorporated inside the rotating knob(T type) on request.
R : In addition to square-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is mounted on the body side of joystick, and this is standard version, and also can be incorporated inside the rotating knob(U type) on request.
S : Special operating directions other than the above-mentioned types.



S **50** **J** **A** **K**-**Y** **O**-**2** **0** **R2** **G**-**00000**

Number of potentiometers to be incorporated.

- 0... no potentiometer incorporated.
- 1... 1 potentiometer incorporated.
- 2... 2 potentiometers incorporated.
- 3... 3 potentiometers incorporated.

Number of switches to be incorporated.

- 0... no switch incorporated.
- 1... 1 switch incorporated.
- 2... 2 switches incorporated.
- 3... 3 switches incorporated.
- 4... 4 switches incorporated.
- 5... 5 switches incorporated.
- 6... 6 and over 6 switches incorporated.
- 9... other switches to your special request.

With spring return device :

- R1** : with spring return device for 1-dimensional coordinate.
- R2** : with spring return device for 2-dimensional coordinate.
- R3** : with spring return device for 3-dimensional coordinate.

Mounting accessories :

- G** : with dust proof rubber cover.
- P** : with sub-panel for mounting.

Special part number :

In case we produce customized products, we add 4-digit or 5-digit branch number.

Standard specifications

Mechanical Performance

Controlling range of operating lever :

- 2-dimensional coordinate type : Omni-directionally approx. $\pm 30^\circ \sim \pm 35^\circ$, operation from center position.
- 3-dimensional coordinate type : Approx. 320° rotation by knob-operation in addition to the controlling range of 2-dimensional coordinate operation.
(in case of center-returning type with spring return device, the operating range is approx. $\pm 45^\circ \sim \pm 50^\circ$ from center position.)

Operating force : Without spring return device.

Standard : Approx. 0.5~ 0.8N (50~ 80gf.)

High torque type : Approx. 2~ 6N (200~ 600gf.)

With spring return device : (subject to directivity)

X, Y directions : Approx. 0.8~ 1.5N (80~ 150gf)

Z direction : Approx. 20~ 85mN \cdot m (200~ 850gf \cdot cm.)

Operating temperature range : -20 $^\circ$ C~+ 65 $^\circ$ C

Vibration : 10~ 55Hz 98m/s²

Shock : 294m/s²

Life expectancy : Approx. 5,000,000 operations.

Mass : 2-dimensional coordinate type : Approx. 280g

3-dimensional coordinate type : Approx. 230g

Electrical Performance

Potentiometers mounted : SFCP22E 10k $\Omega \pm 15\%$, 0.2W, independent linearity tolerance $\pm 3\%$ (conductive plastic resistive element).

For X and Y axes : Electrical rotating angle : Approx. 60°

For Z axis : Electrical rotating angle : Approx. 320°

With spring return device for Z axis : Electrical rotating angle approx. 90°

[All terminals can be fitted with the AMP110 series fasten receptacle (2.8 x 0.5mm) or equivalents.]

In case of 3-dimensional coordinate Z-axis potentiometer inside-knob incorporated type (T-type), the following potentiometer is used : SFCP12AC 10k $\Omega \pm 15\%$, independent linearity tolerance $\pm 3\%$, 0.06W (Electrical rotating angle : Approx. 90°)

Output smoothness : Below 0.2% against input voltage.

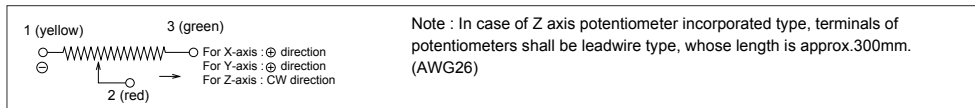
Contact resistance variation : Below 5% C.R.V.

Resolution : Essentially infinite

Dielectric strength : 1 minute at 500V.A.C.

Insulation resistance : Over 1,000M Ω at 500V.D.C.

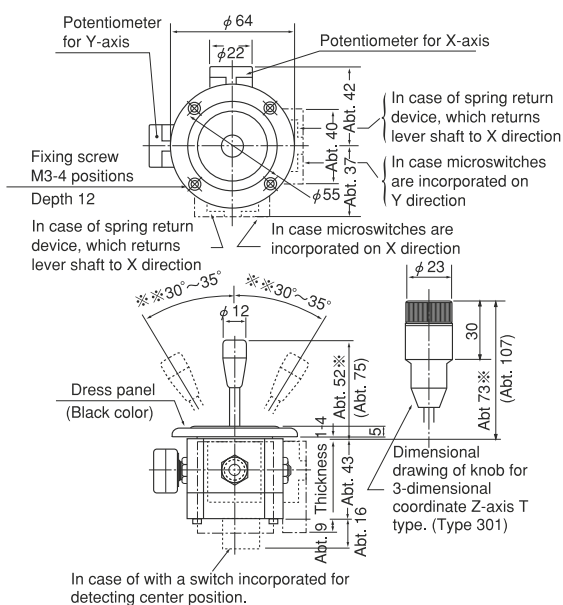
Terminal Connection Diagram



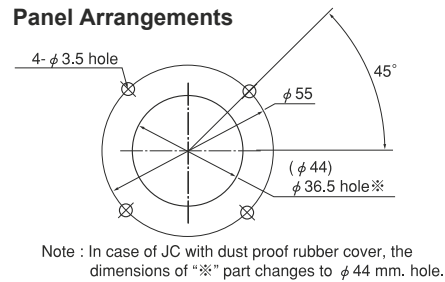
Special Specifications Available

Please see page 47, a table of "Standard and Special Specifications Available".

Standard dimensions



Panel Arrangements



- Note: 1) In case of JC with dust-proof rubber cover, the dimensions of dress panel and "*" part dimension shall be changed numbers in parentheses.
- 2) In case of type Q, R and U, the angle of mark "*" becomes 360 $^\circ$ square-directional and 20 $^\circ$ ~25 $^\circ$ from center position.
- 3) 4 pcs. of mounting screw (M3 X 14) are attached.

(Unit : mm)

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