

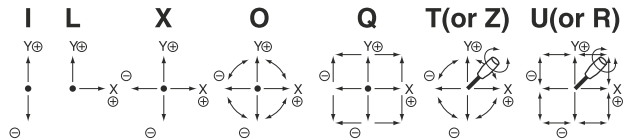


# Model 50JA

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.  $320^\circ$  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 : $-20^\circ\text{C} \sim +65^\circ\text{C}$

Vibration : 10~ 55Hz 98m/s<sup>2</sup>

Shock : 294m/s<sup>2</sup>

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.  $60^\circ$

For Z axis : Electrical rotating angle : Approx.  $320^\circ$

With spring return device for Z axis : Electrical rotating angle approx.  $90^\circ$

[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.  $90^\circ$ )

**Output smoothness :** Below 0.2% against input voltage.

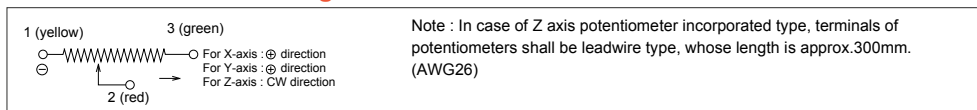
**Contact resistance variation :** Below 5% C.R.V.

**Resolution :** Essentially infinite

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

**Insulation resistance :** Over 1,000M $\Omega$  at 500V.D.C.

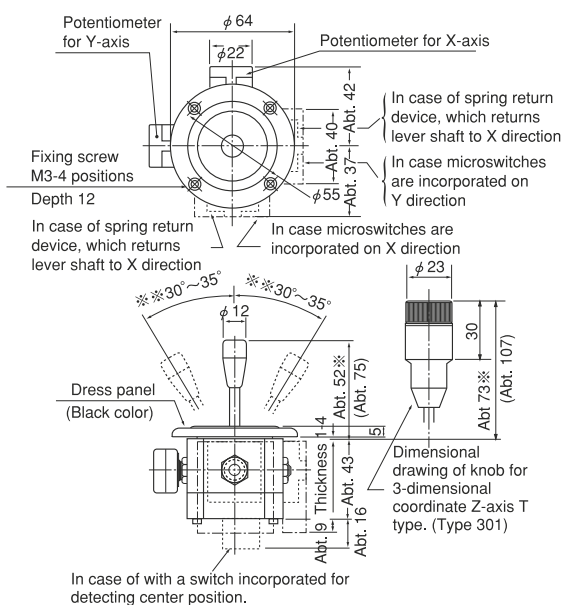
### Terminal Connection Diagram



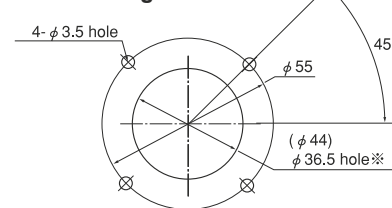
### Special Specifications Available

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

## Standard dimensions



### Panel Arrangements



Note : In case of JC with dust proof rubber cover, the dimensions of "※" part changes to  $\phi 44$  mm. hole.

- 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  $20^\circ \sim 25^\circ$  from center position.
- 3) 4 pcs. of mounting screw (M3 x 14) are attached.

(Unit : mm)

LEADERS IN SENSORS & HEAVY DUTY JOYSTICKS

### ALTHEERIS bv

Scheveningseweg 15  
2517 KS DEN HAAG  
The Netherlands

+31 (0)70 3924421

+31 (0)70 3644249

Offices in : Benelux | Germany | France | UK | Italy | USA

www.altheris.com

sales@altheris.nl

**ALTHEERIS**  
SENSORS & CONTROLS