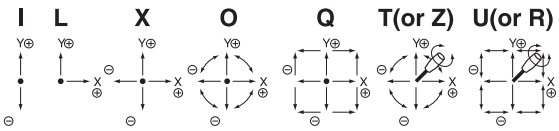
50JA

● Potentiometer outside-mounted type ● With conductive plastic element

● 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.

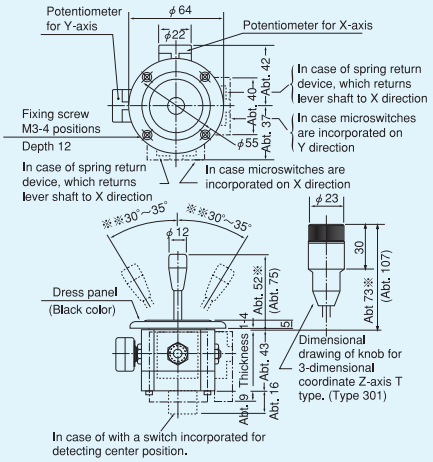
Number of switches to be incorporated.
0···no switch incorporated. **1**···1 switch incorporated. **2**···2 switches incorporated.
3···3 switches incorporated. **4**···4 switches incorporated. **5**···5 switches incorporated.
6···6 and over 6 switches incorporated. **9**···other switches to your special 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.

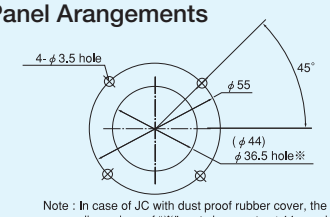
Mounting accessories :
G : with dust proof rubber cover. **P** : with sub-panel for mounting.

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

● Standard Dimensions



■ Panel Arangements



Note : In case of JC with dust proof rubber cover, the dimensions of "※" part changes to φ44 mm. hole.

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

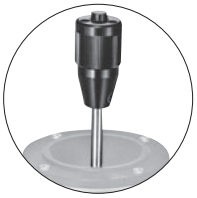
(Unit:mm)

50JAK-YO-20
(Standard
2-dimensional coordinate type)

50JAK-ZZ-30
(3-dimensional coordinate type)

Special Knobs Available

For detailed dimensions, please refer to page 52.



Knob 101

Knob 103

Knob 201

Knob 202

Knob 301

Knob 302

Knob 303

STANDARD SPECIFICATIONS

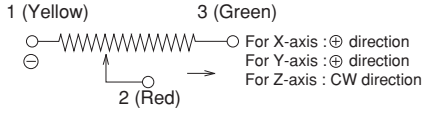
Mechanical Performance

Controlling range of operating lever	2-dimensional coordinate type : Omni-directionally approx.±30°～±35°, 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. ±45°～±50° 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～m (200～850gf・cm.)
Operating temperature range	–20°C～+65°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 Ω±15%, 0.2W (conductive plastic resistive element) Independent linearity tolerance ±3% - For X and Y axes : Electrical rotating angle : Approx. 60° - For Z axis : Electrical rotating angle : Approx. 320° - In case of spring return type for Z axis : Electrical rotating angle approx. 90° All terminals can be fitted with the Tyco 110 series fasten receptacle (2.8 × 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 10kΩ ±15%, independent linearity tolerance ±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 1,000MΩ at 500V.D.C.

Terminal Connection Diagram



Note : In case of Z axis potentiometer incorporated type, terminals of potentiometers shall be leadwire type, whose length is approx.300mm. (AWG26)

Special Specifications Available

Please see page 51, a table of "Standard and Special Specifications Available".