

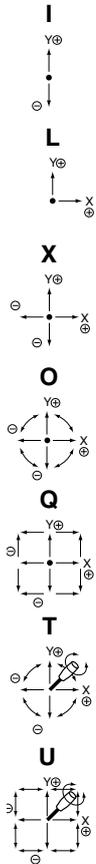
# 90JA · 90JB

Potentiometer with a conductive plastic resistive element

## Nomenclature

S means special mechanical specifications not applicable to our standards.

- **90** means approx. size of base housing in mm.
- **J** means joystick controller.
- **A** means kind of type :
  - A** : 1,2 or 3-dimensional coordinate is available and also means Potentiometer outside-mounted type.
  - B** : 1,2 or 3-dimensional coordinate Potentiometer is incorporated inside the housing.
- **M** : means round type
- **Y** means kind of mechanism : **X** 1-dimensional coordinate. **Y** : 2-dimensional coordinate. **Z** : 3-dimensional coordinate. **4** and more numbers : Over 4-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 directional of X and Y operating type.
  - Q** : Square-directional 360° operating angle.
  - T** : In addition to omni-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is incorporated.
  - U** : In addition to square-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is incorporated.
  - S** : Special operating directions other than the above-mentioned types.



**S** **90** **J** **A** **M** - **Y** **O** - **2** **0** **R2** **G** - **00000**

### Number of potentiometers to be incorporated.

0...no potentiometer incorporated. 2...2 potentiometers incorporated.  
1...1 potentiometer 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...others.

### With spring return device (90JA · JB standard) :

**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.

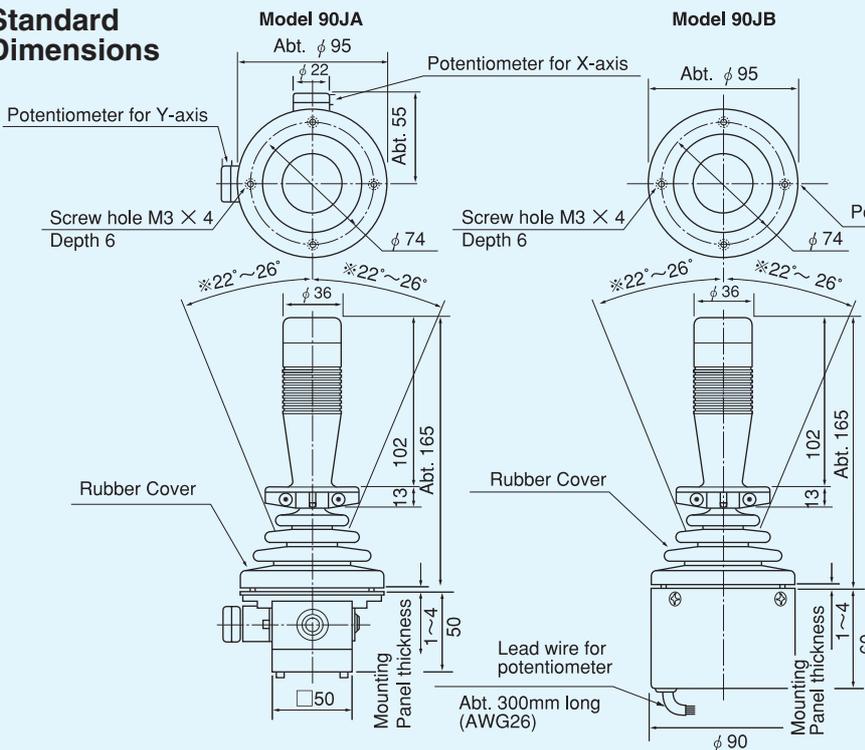
### Mounting accessories :

**G** : with dust proof rubber cover.(90JA · JB standard) **P** : with sub-panel or mounting.

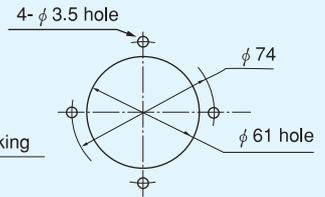
### Special part number :

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

## Standard Dimensions



## Panel Arrangements



- Note :1) In case of Q and U type, the operating angle of mark “\*” shall be ±15°~±20° from the center position, 360° square-direction.  
2) 4 pcs. of mounting screw(M3 x 10) are attached.

(Unit : mm)



**90JAM-YO-20R2G**  
(Standard)

(2-dimensional coordinate type)



**90JBM-YO-20R2G**  
(Standard)

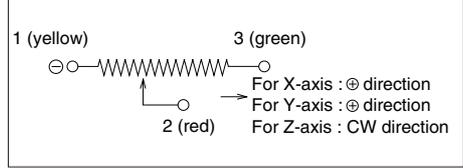
(2-dimensional coordinate type)

**STANDARD SPECIFICATIONS**

● **Mechanical Performance**

- **Controlling range of operating lever :**
  - 2-dimensional coordinate type : Approx.  $\pm 22^\circ$   
~ $\pm 26^\circ$  omni-direction from center position.
  - 3-dimensional coordinate type : Approx.  $\pm 45^\circ$   
~ $\pm 50^\circ$  operation from center position of knob  
in addition to the operating range of 2-dimensional coordinate type.
- **Operating force :** Standard spring return device : Automatically return to center.  
X, Y directions : Approx. 2 ~ 12N (200 ~ 1,200gf)  
Z direction : Approx. 20 ~ 85mN·m (200 ~ 850gf·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. 650g  
3-dimensional coordinate type :  
Approx. 750g

● **Terminal Connection Diagram**



● **Electrical Performance**

- **Potentiometer mounted :**
  - 90JA type : SFCP22E, 10k $\Omega$   $\pm$  15%, 0.2W, independent linearity tolerance  $\pm$  3% (conductive plastic resistive element), electrical rotating angle for X and Y axis : Approx. 44 $^\circ$ .
  - 90JB type : Special resistive element is exclusively used for 90JB series : 10k $\Omega$   $\pm$  15%, 0.2W, Independent linearity tolerance  $\pm$  3% (conductive plastic resistive element), Electrical rotating angle for X and Y axis : Approx. 44 $^\circ$ .
- In case of 90JA and 90JB with 3-dimensional coordinate Z-axis potentiometer-inside-knob incorporated type, the following potentiometer is used : SFCP22AC, 10k $\Omega$   $\pm$  15%, 0.3W, Independent linearity tolerance  $\pm$  3%, 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 500 V.A.C.
- **Insulation resistance :** Over 1,000 M $\Omega$  at 500 V.D.C.

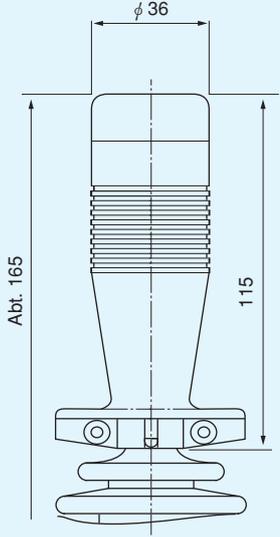
● **Special Specifications Available**

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

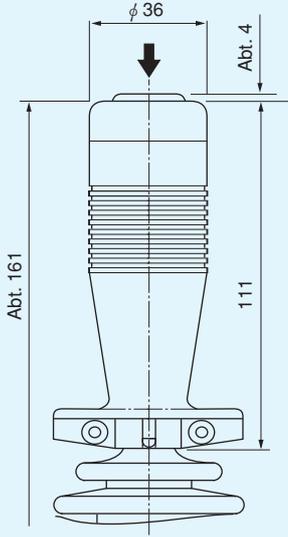
◎ **For outdoor applications, please use model 90JA series.**

■ **Specially Ordered Versions for Z axis** The following versions are available to Z axis knob for both models 90JAM and 90JBM.

Standard knob

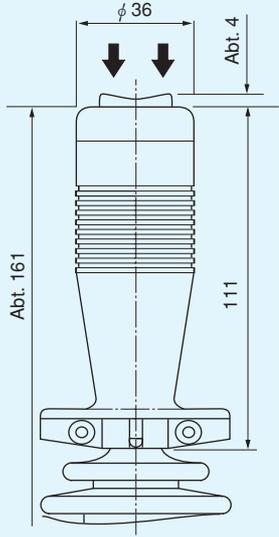


With push-button switch on the top of knob  
S90JAM-YO-21R2G  
S90JBM-YO-21R2G



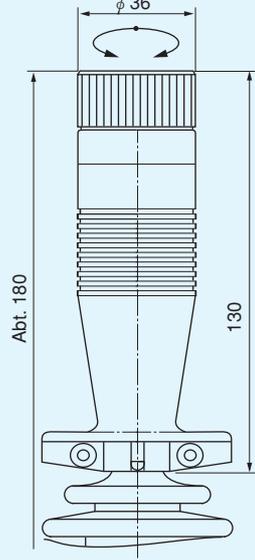
(knob type 105)

With rocker-switch on the top of knob  
S90JAM-YO-21R2G  
S90JBM-YO-21R2G



(knob type 106)

With potentiometer for Z axis operation  
S90JAM-ZT-30R3G  
S90JBM-ZT-30R3G



(knob type 306) (Unit : mm)