



# Model 90JA | 90JB Potentiometer outside mounted type 90JA | Potentiometer incorporated type 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**-**0000**

**Number of potentiometers to be incorporated.**

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

**Number of switches to be incorporated.**

**0** no switch incorporated.    **1** switch incorporated.    **2** switches incorporated.  
**3** switches incorporated.    **4** switches incorporated.    **5** switches incorporated.  
**6** and over 6 switches incorporated.    **9** others.

**With spring return device (90JA | JB standard) :**

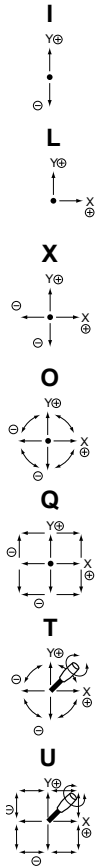
**R1** : with spring return device for 1-dimensional coordinate.  
**R2** : with spring return device for 2-dimensional coordinate.  
**R3** : with spring return device for 3-dimensional coordinate.

**Mounting accessories :**

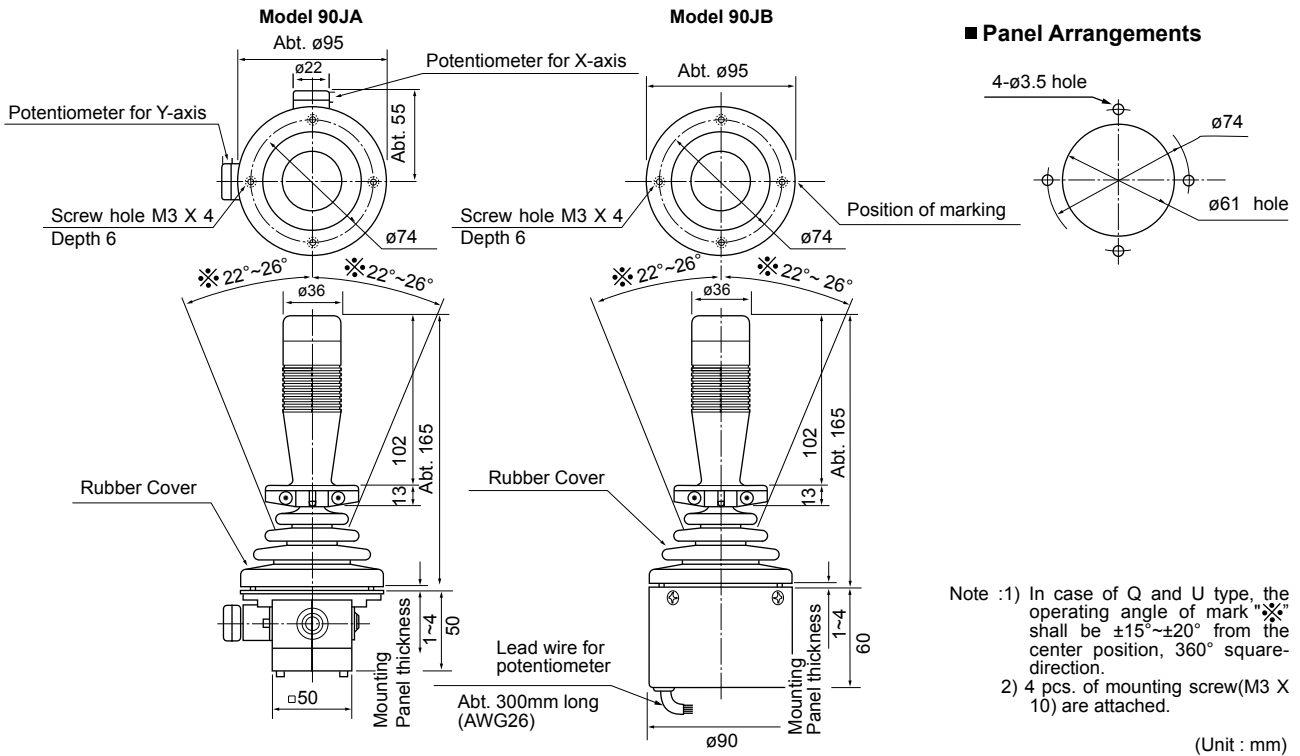
**G** : with dust proof rubber cover.(90JA | JB standard)    **P** : with sub-panel or mounting.

**Special part number :**

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



## Standard Dimensions



## Standard Specifications

### Mechanical Performance

#### Controlling range of operating lever :

- 2-dimensional coordinate type : Approx.  $\pm 22^\circ \sim \pm 26^\circ$  omni-direction from center position.
- 3-dimensional coordinate type : Approx.  $\pm 45^\circ \sim \pm 50^\circ$  operation from center position of knob in addition to the operating range of 2-dimensional coordinate type.

#### Operating force and 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

### Electrical Performance

#### Potentiometer mounted :

90JA type : SF22E, 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°.

90JB type : Special resistive element is exclusively used for 90JB series: 10k 15%, 0.2W, Independent linearity tolerance 3% (conductive plastic resistive element), Electrical rotating angle for X and Y axis : Approx. 44°.

In case of 90JA and 90JB with 3-dimensional coordinate Z-axis potentiometer-inside-knob incorporated type, the following potentiometer is used : SF22AC, 10k $\Omega$  $\pm 15\%$ , 0.3W, Independent linearity tolerance  $\pm 3\%$ , Electrical rotating angle : Approx. 90°.

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

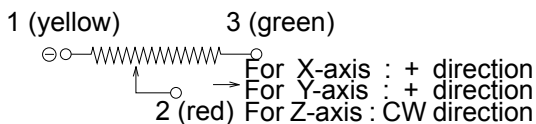
**Contact resistance variation :** Below 5% C.R.V.

**Resolution :** Essentially infinite.

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

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

### Terminal Connection Diagram



### Special Specifications Available

For outdoor applications, please use model 90JA series.



**90JAM-YO-20R2G**  
(Standard)  
(2-dimensional coordinate type)



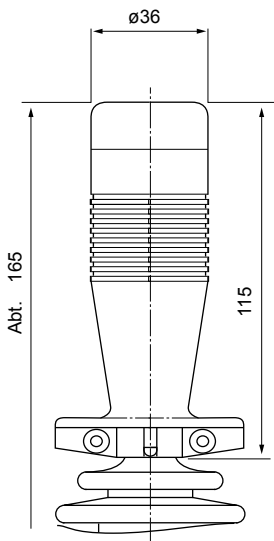
**90JBM-YO-20R2G**  
(Standard)  
(2-dimensional coordinate type)

■ **Specially Ordered Versions for Z axis**

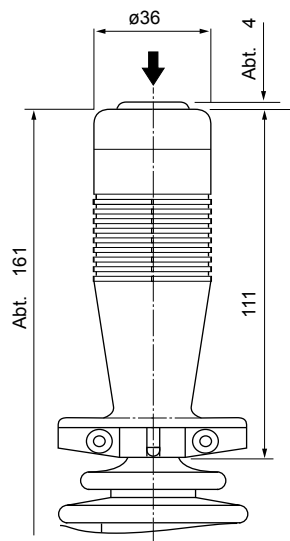
The following versions are available to Z axis knob for both models 90JAM and 90JBM.

(Unit : mm)

**Standard knob**

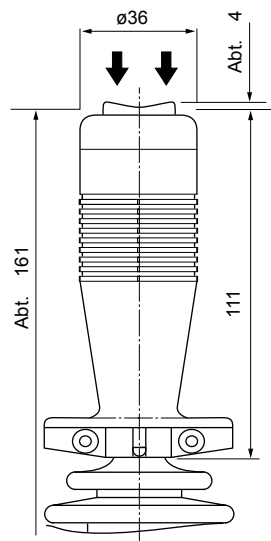


**With push-button switch on the top of knob**  
S90JAM-YO-21R2G  
S90JBM-YO-21R2G



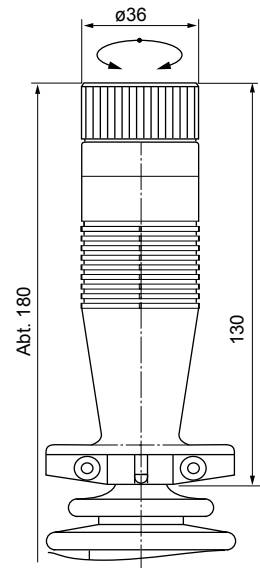
(knob type 105)

**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)

**ALTHERIS 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

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