

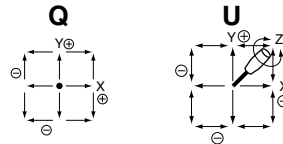
H60JH

New Product

Potentiometer with a hall effect IC type resistive element

Nomenclature

- **S** means special mechanical specifications.
- **H** means hall effect IC type resistive element incorporated.
- **60** means approx. size of base housing in mm.
- **J** means joystick controller.
- **Kind of types**
 - **H** means 2 dimensional coordinate low-cost type.
 - **K** means square shape.
- **Mechanism**
 - **Y** means mechanism of 2-dimensional coordinate type.
- **Available directions of lever operation**
 - **Standard Q type** : 360° square-directional operation
 - **Special lever operation U type**: In addition to 360° square-directional operation, 3-dimensional coordinate operation is possible.



S **H** **60** **J** **H** **K**-**Y** **Q**-**2** **S** **0** **R2** **G** - ○ ○ ○ ○

- **Number of potentiometers to be incorporated**
 - 0...No potentiometer incorporated. 1...1 potentiometer incorporated.
 - 2...2 potentiometers incorporated.
- **Number of output and kind of output characteristic**
 - S...Single output X...Dual cross output P...Dual parallel output
- **Switch function (Using output like switch)**
 - 0... No switch function. 1...1 switch function. 2...2 switch function. 3...3 switch function.
 - 4...4 switch function. 5...5 switch function. 6...6 and over 6 switch function.
- **Spring return device:**
 - R2...With spring return device for 2 dimensional coordinate type.
- **Mounting accessories:**
 - G : With dust proof rubber cover.
 - P : With sub-panel for mounting.
- **Special part number:**
 - In case we produce customized product, we add 4 or 5-digit branch number.

*Switch function means using 1 analog output like switch.



H60JHK-YQ-2S0R2G
(Standard)
(2-dimensional coordinate type)

STANDARD SPECIFICATIONS

Mechanical performance

Controlling range of operating lever: 2 dimensional coordinate type
X and Y directions : $\pm 17.5^\circ \sim \pm 22.5^\circ$ from center position.

Operating force : Spring return device with directive feeling: Automatically return to center

X and Y directions : Approx. 3N \sim 4.5N(300 \sim 450gf)

Operating temperature range: $-20^\circ\text{C} \sim +60^\circ\text{C}$

Vibration : 10 \sim 55Hz 98m/s²

Shock: 294m/s² (30G)

Life expectancy: Approx. 5,000,000 operations

Mass: Approx. 300 g

Electrical performance

Hall effect IC type resistive element incorporated

- Applied voltage : D.C. 5V \pm 10 %

- Effective output : 0.5V \sim 4.5V

- Electrical rotating angle: Approx. $\pm 20^\circ$

- Independent linearity tolerance : $\pm 3\%$

- Load resistance : Over 10K Ω

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

Insulation resistance: Over 1000M Ω at 500 V. D.C.

EMC durability : 100V/m 80MHz \sim 1GHz

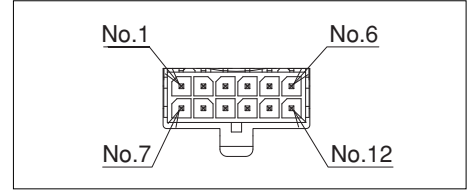
ESD durability : $\pm 8\text{kV}$ Contact/ $\pm 15\text{kV}$ Air

Special Specifications

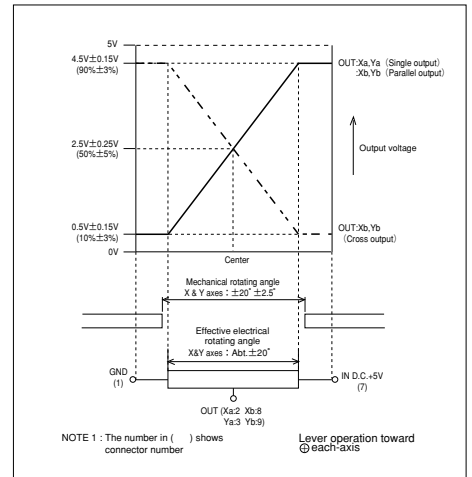
Please refer to page XX.

Dual cross and dual parallel output are available.

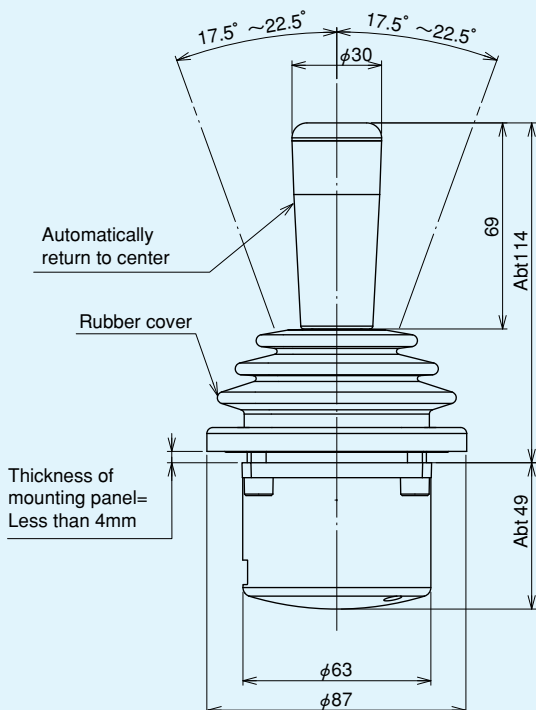
Terminal Connection Diagram



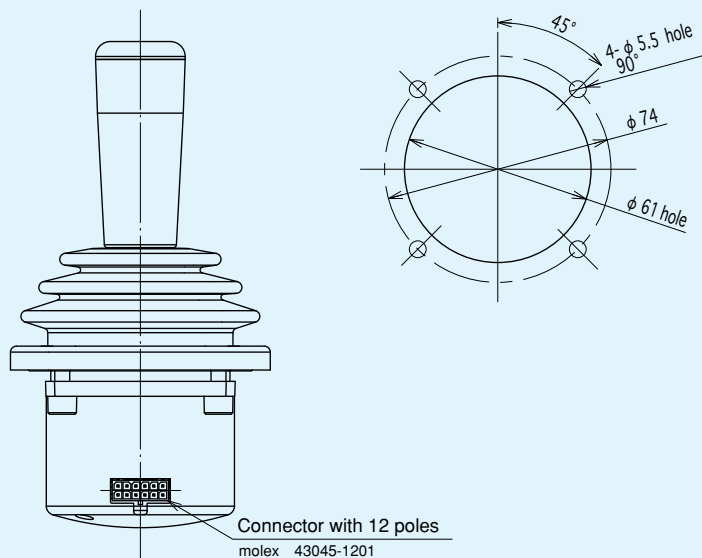
Output Characteristic



Standard Dimensions



Panel Arrangements



Note 1 : 4 pcs. of screw M5 \times 20 are attached.

Note 2 : Mating connector with 300mm long lead wires(AWG22) is not standard. This is option.

Standard and Special Specifications Available

As special combinations are not always available,
please consult us before ordering.

| Specifications/Model | 30JB | 30JE | 30JH | H30JH | 30JL | H30JL | 40JB | 40JE | H40JH | 50JA | H50JA | 50JC | 60JB | H60JH | 90JA | H90JA | 90JB | H90JB | C90J | 100JB | Remarks | | |
|--|-------------------------------------|--------------|--------------|-------|--------------|-------|-------------|--------------|-------|-------------|-------------|-------------|-------------|----------------|--------------|--------------|--------------|--------------|--------------|-------|--|--|---------|
| Directions of Lever Operation | 1-and 2-dimensional coordinate type | O | ⊙ | — | — | — | — | ⊙ | — | — | ⊙ | ⊙ | ⊙ | ⊙ | — | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | — | | |
| | | X | ○ | ○ | — | — | — | ○ | ○ | — | ○ | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | — | |
| | | I | ○ | ○ | — | — | ⊙ | ⊙ | ○ | ○ | — | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | — | |
| | | Q | ○ | ⊙ | — | ○ | — | — | ○ | ⊙ | — | ○ | ○ | ○ | ⊙ | ○ | ○ | ○ | ○ | ○ | ○ | ⊙ | |
| | | L | — | — | — | — | — | — | — | — | — | ○ | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | — |
| | 3-dimensional coordinate type | Z | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | ○ | — | — | ⊙ | — | | |
| | | T | ○ | — | ⊙ | — | — | — | — | — | ○ | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ⊙ | — | | |
| | | R | — | — | — | — | — | — | — | — | ○ | ○ | — | — | — | — | ○ | — | — | — | — | | |
| | | U | ○ | ○ | — | ⊙ | — | — | — | ⊙ | ○ | ○ | — | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ⊙ | note 15 |
| | Other dimensional coordinate type | S | — | — | — | — | — | — | — | — | ○ | ○ | ○ | — | — | ○ | ○ | ○ | ○ | ○ | ○ | | |
| Spring return device | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ○ | ⊙ | ⊙ | ○ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | | | |
| Dust-proof rubber | ○ | ○ | ⊙ | ○ | ○ | ○ | ○ | ○ | ⊙ | ○ | ○ | ⊙ | ○ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | ⊙ | note 14 | | |
| Micro-switch | — | ⊙ note 12 | ○ note 12 | — | ○ note 2 | — | — | — | — | ○ note 3 | ○ note 3 | ○ note 3 | ○ note 4 | ○ note 16 | ○ note 3 | ○ note 2 | ○ | ○ | ○ | ○ | — | Number of switch to be incorporated is depending on models. | |
| Digital code switch | — | — | — | — | — | — | — | ⊙ note 10 | — | — | — | — | — | — | — | — | — | — | — | — | | | |
| Alteration of potentiometer's total resistance value | ○ | — | ○ | — | ○ | — | ○ | — | — | ○ | — | ○ | ○ | — | ○ | — | ○ | — | ○ | — | Standard is 10kΩ. | | |
| Intermediate tap of potentiometer | ⊙ | — | — | — | ○ | — | ○ | — | — | ○ | — | ○ | ○ | — | ○ | — | ○ | — | ○ | — | Standard is current tap. (with blind zone of approx. 3°) | | |
| Center position detecting switch | — | — | — | — | — | — | ○ note 3 | — | — | ○ note 3 | ○ note 3 | ○ note 3 | ○ note 6 | — | ○ note 3 | ○ note 3 | ○ note 7 | ○ note 7 | ○ | ○ | — | Available for 2-dimensional coordinate type only. | |
| Switch incorporated inside knob | ○ note 12 | ○ note 12 | — | — | ○ note 12 | — | ○ note 8 | ○ note 8 | — | ○ note 8 | ○ note 8 | ○ note 9 | ○ note 8 | ○ note 9-11 | ○ note 11 | ○ note 11 | ○ note 11 | ○ note 11 | ○ note 11 | ⊙ | — | Automatically return type. | |
| Rocker switch incorporated inside knob | — | — | — | — | — | — | — | — | — | — | — | — | — | ○ note 11 | ○ note 11 | ○ note 11 | ○ note 11 | ○ note 11 | ○ | — | — | Automatically return type. | |
| Sub-panel for mounting | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ⊙ | — | | |
| Potentiometer's "0" position adjusting mechanism | — | — | — | — | — | — | — | — | — | ○ | — | ○ | — | — | ○ | ○ | — | — | ○ | — | | | |
| Special knob shapes | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | — | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | — | — | | |
| Detent mechanism | — | — | — | — | — | — | — | — | — | ○ | ○ | ○ | — | — | ○ | ○ | — | — | ○ | — | — | Max.7 positions available in each X and Y axis. Max.5 for H50JA. | |

- (Note) 1. ⊙ means standard specifications ○ means special specifications and — means "not available".
2. Life expectancy : min. 100,000 operations under the ratings at 30V.D.C./100mA.
 3. Life expectancy : min. 200,000 operations under the ratings at 125V.A.C./5A.
 4. Life expectancy : min. 100,000 operations under the ratings at 30V.D.C./100mA.
 5. No. of contacts : 3 contacts per 1 circuit, Rating 100V. A.C./200mA Life expectancy: min. 50,000 operations.
 6. With 1 pc. each micro-switch for X and Y axis under series connections. Rating 30V.D.C./100mA. Life expectancy: min. 100,000 operations.
 7. With 1 pc each micro-switch for X and Y axis under series connections. Rating 30V.D.C./100mA. Life expectancy: min. 100,000 operations.
 8. Rating 125V.A.C./3A. Life expectancy : min. 25,000 operations.
 9. Rating 125V.A.C./3A. Life expectancy : min. 25,000 operations.
 10. Rating 12V.D.C./1mA Life expectancy : min. 1,000,000 operations.
 11. Rating 250V.A.C./10A Life expectancy : min. 300,000 operations.
 12. Rating 24 V.D.C./50mA Life expectancy : 1,000,000 operations.
 13. Please apply 0.15W or 5mA, or higher voltage, or higher current to all switches mentioned in the above, When using the switch below the voltage or current values, there may be caused an interruption. If you require to use under such below values, please consult us before ordering.
 14. We are using a rather stronger rubber material against environmental conditions for our dust-proof rubber cover and however, when you use it in an atmosphere of oil or lower temperature, please consult us before ordering. Please also note that, when changing the dust-proof rubber covers, some types of them can not be changed by yourselves, which means, in that case, we would kindly request you to return it to do so at our side.
 15. Seesaw type potentiometer used.
 16. 1 analog output can be used like switch. Available up to 2 switch function.
 17. Please consult us for other special specifications except the above-mentioned.
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When the switch is under non-operating condition, the condition between terminals COM and NO is "ON" and when the switch is under operating the condition, between terminal COM and NC is "ON".