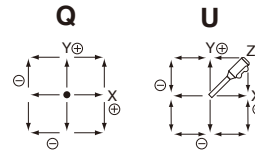
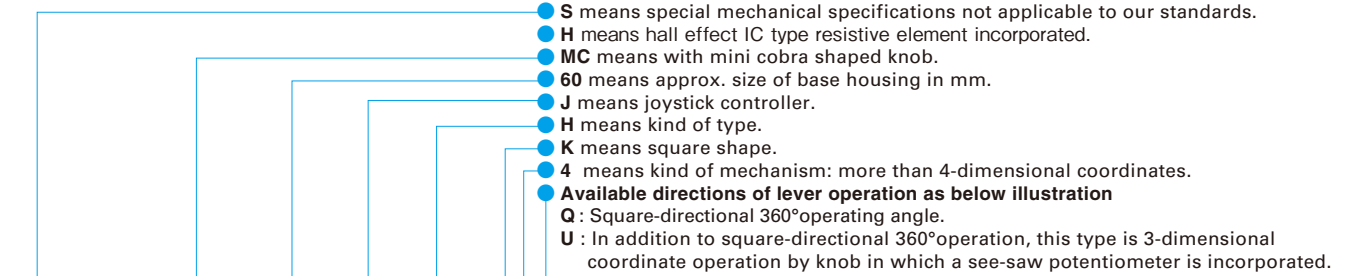


HMC60JH

● For multi functional control with compact sized cobra shaped knob ● Potentiometer incorporated type

Nomenclature



S H MC 60 J H K - 4 U - 4 S 4 R4 G - 00000

Number of potentiometers to be incorporated. ●

4...4 potentiometers incorporated. 1...1 potentiometers incorporated.
 2...2 potentiometers incorporated. 3...3 potentiometers incorporated.

Number of output and kind of output characteristic ●

S...Single output X...Dual cross output P...Dual parallel output.

Number of switches to be incorporated. ●

4...4 switches incorporated. 5...5 switches incorporated.
 6...6 and over 6 switches incorporated.

With spring return device ●

R4 : with spring return device for 2-dimensional coordinate as well as for 2 pcs. of see-saw pots.

R2 : with spring return device for 2-dimensional coordinate.

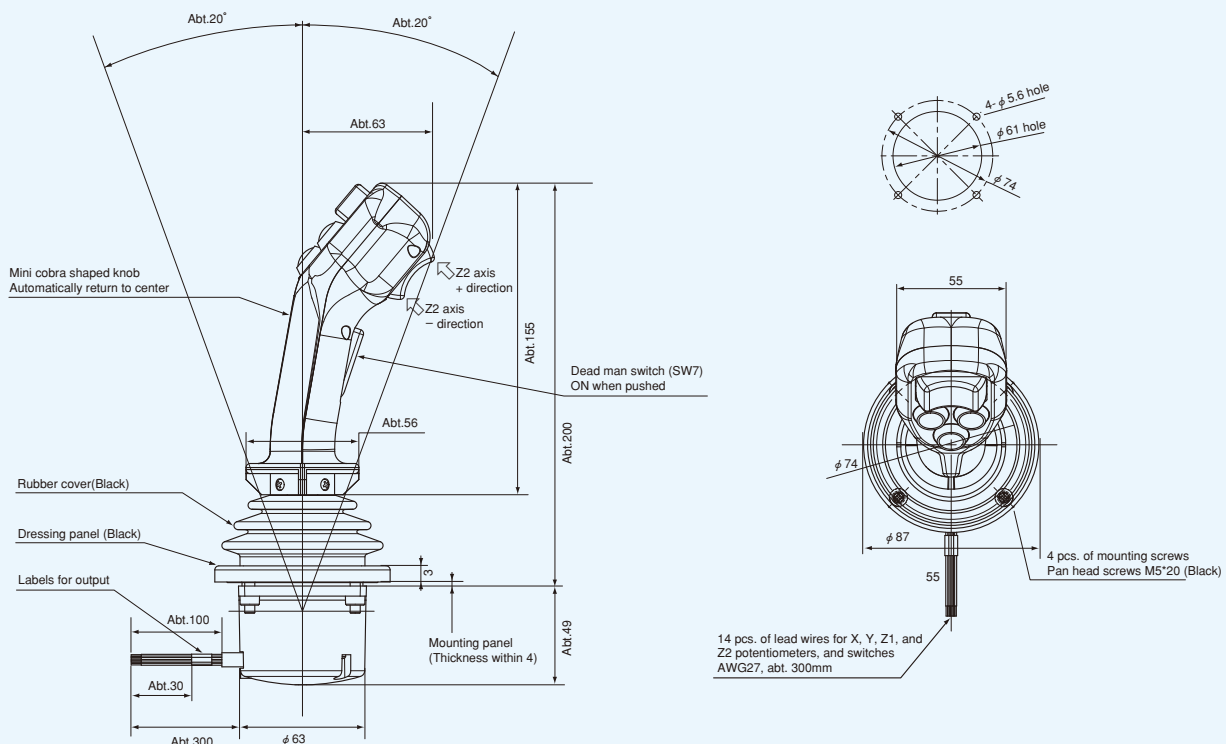
R3 : with spring return device for 2-dimensional coordinate as well as for 1 pc. of see-saw pot.

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

Special part number ●

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

Standard Dimensions





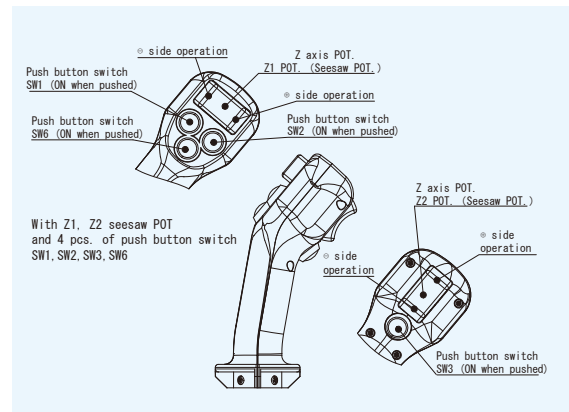
HMC60JHK-4U-4S4R4G
(Z1 and Z2 potentiometers,
3 pieces of push button switch, and 1 dead man
switch on the mini cobra shaped knob)

STANDARD SPECIFICATIONS

Mechanical Specifications

Operating force	Spring return device (Automatically return to center) X & Y directions: Approx. 1.5N~3N Z direction: Approx. 10mN・m~25mN・m
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Note 1: The basement is the same as our H60JHK model. For all the specifications excluding the mechanical operating force, please refer to page 41.
Note 2: The standard H60JHK model has a Tyco connector. On the contrary, in case of H60JHK with the mini cobra knob, AWG27 lead wires (approx. 300mm long) are coming out from the joystick base in order to mount optional switches and potentiometers.



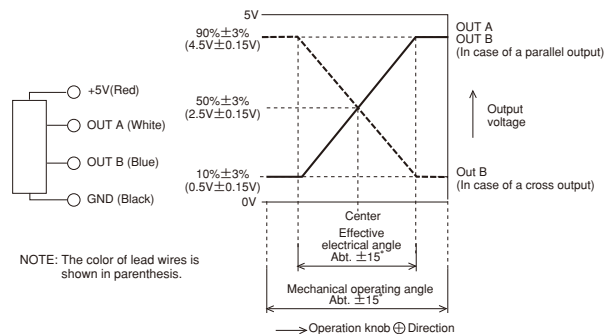
Potentiometers & Switches Available on Mini Cobra Knob

Specs of Z axis potentiometer

Model No.	SRMP12HYS (Single output) SRMP12HYP (Parallel output) SRMP12HYX (Cross output)
Operating temperature range	-20°C~+60°C
Vibration	10Hz~55Hz 98m/s ²
Shock	294m/s ²
Mechanical life expectancy	Approx. 5,000,000 operations
Mass	Single output type: Approx. 25g Dual output type: Approx. 30g
Applied voltage	D. C. 5V ±10%
Effective output	0.5V~4.5V
Electrical rotating angle	Approx. ±15°(Approx.30°)
Independent linearity tolerance	±3%FS
Load resistance	Over 10kΩ
Dielectric strength	1 minute at A. C. 500V
Insulation resistance	Over 1,000MΩ at D. C. 500V

EMS tolerance	100V/m (80MHz~1GHz 1kHz sine-wave 80%AM modulation)
ESD tolerance	±8kV contact ±15kV air discharge (Based on IEC61000-4-2)

Terminal connection diagram and output characteristics for Z-axis pot



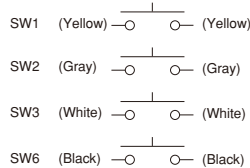
Specs of push button switch

Model No.	59-111 (Black) Manufactured by ITW Switches
Operating characteristics	Momentary type (SW-ON when pushed)
Rating	100mA , 50V D.C
Dielectric strength	1 minute at A. C. 1,000V
Insulation resistance	Over 1,000MΩ at D. C. 500V
Mechanical life expectancy	Max 500,000 operations

Specs of Dead man switch

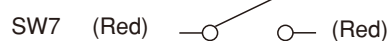
Model No.	SPV0810100 Manufactured by ALPS
Operating characteristics	Momentary type (SW-ON when pushed)
Rating	100mA , 12V D.C
Dielectric strength	1 minute at A. C. 500V
Insulation resistance	Over 100MΩ at D. C. 500V
Mechanical life expectancy	Max. 300,000 operations

Circuit diagram and wiring connection diagram for push button switch



NOTE: The color of lead wires is shown in parenthesis.

Circuit diagram and wiring connection diagram for dead man switch


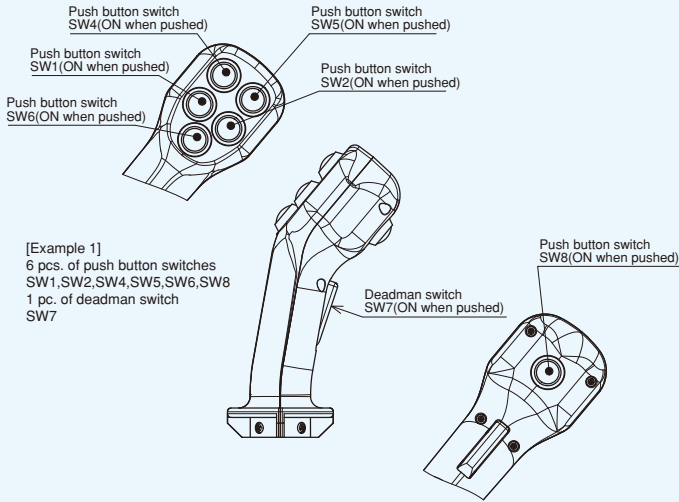

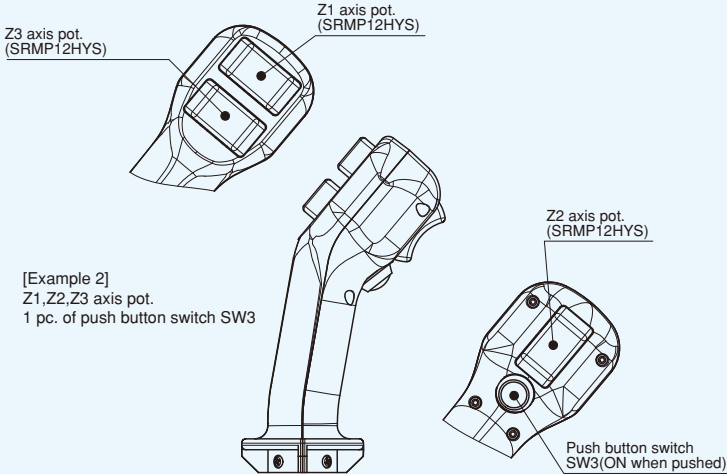

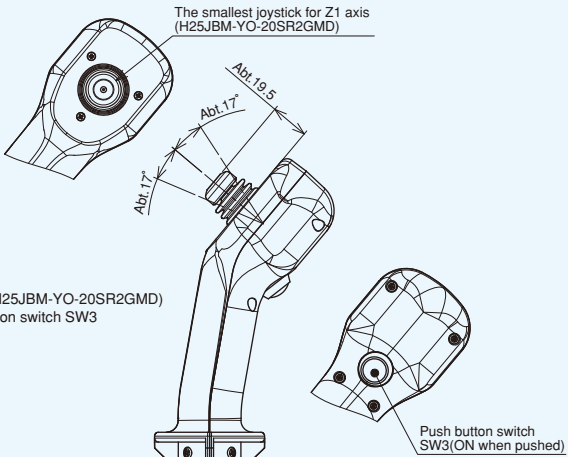


NOTE: The color of lead wires is shown in parenthesis.

Other Notes

- The standard basement is our H60JHK model, but the mini cobra shaped knob is also mounted on (H)50JC, (H)90JA, (H)90JB models on your request.
- When the mini cobra is mounted on (H)50JC model, it should have the sub panel for mounting due to its strength.
- As an option, H25JBM model can be assembled on the mini cobra shaped knob.
- Colors of lead wires for X and Y axes potentiometers are the same as those of Z axis (shown above).
- Please see page 55, a table of "Special Specifications Available".

Examples of configurations for mini cobra knob

<p>Example 1</p>  <p>SHMC60JHK-YQ-2S6R2G</p>	 <p>Push button switch SW4(ON when pushed)</p> <p>Push button switch SW5(ON when pushed)</p> <p>Push button switch SW1(ON when pushed)</p> <p>Push button switch SW2(ON when pushed)</p> <p>Push button switch SW6(ON when pushed)</p> <p>[Example 1] 6 pcs. of push button switches SW1,SW2,SW4,SW5,SW6,SW8 1 pc. of deadman switch SW7</p> <p>Deadman switch SW7(ON when pushed)</p> <p>Push button switch SW8(ON when pushed)</p>
<p>Example 2</p>  <p>SHMC60JHK-5U-5S1R5G</p>	 <p>Z3 axis pot. (SRMP12HYS)</p> <p>Z1 axis pot. (SRMP12HYS)</p> <p>[Example 2] Z1,Z2,Z3 axis pot. 1 pc. of push button switch SW3</p> <p>Z2 axis pot. (SRMP12HYS)</p> <p>Push button switch SW3(ON when pushed)</p>
<p>Example 3</p>  <p>SHMC60JHK-4U-4S1R4G</p>	 <p>The smallest joystick for Z1 axis (H25JBM-YO-20SR2GMD)</p> <p>Abt.19.5</p> <p>Abt.17</p> <p>Abt.17</p> <p>[Example 3] Z1 axis joystick(H25JBM-YO-20SR2GMD) 1 pc. of push button switch SW3</p> <p>Push button switch SW3(ON when pushed)</p>