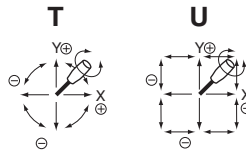


HMC60JH

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

Nomenclature

- S means special mechanical specifications not applicable to our standards.
- H means hall effect IC type resistive element incorporated.
- MC means with mini cobra shaped knob.
- 60 means approx. size of base housing in mm.
- J means joystick controller.
- H means kind of type.
- K means square shape.
- 4 means kind of mechanism: more than 4-dimensional coordinates.
- Available directions of lever operation as below illustration
- U : In addition to square-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is incorporated.
- T : In addition to omni-directional 360° operation, this type is 3-dimensional coordinate operation by rotating knob in which a potentiometer is incorporated.



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...Dal 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.

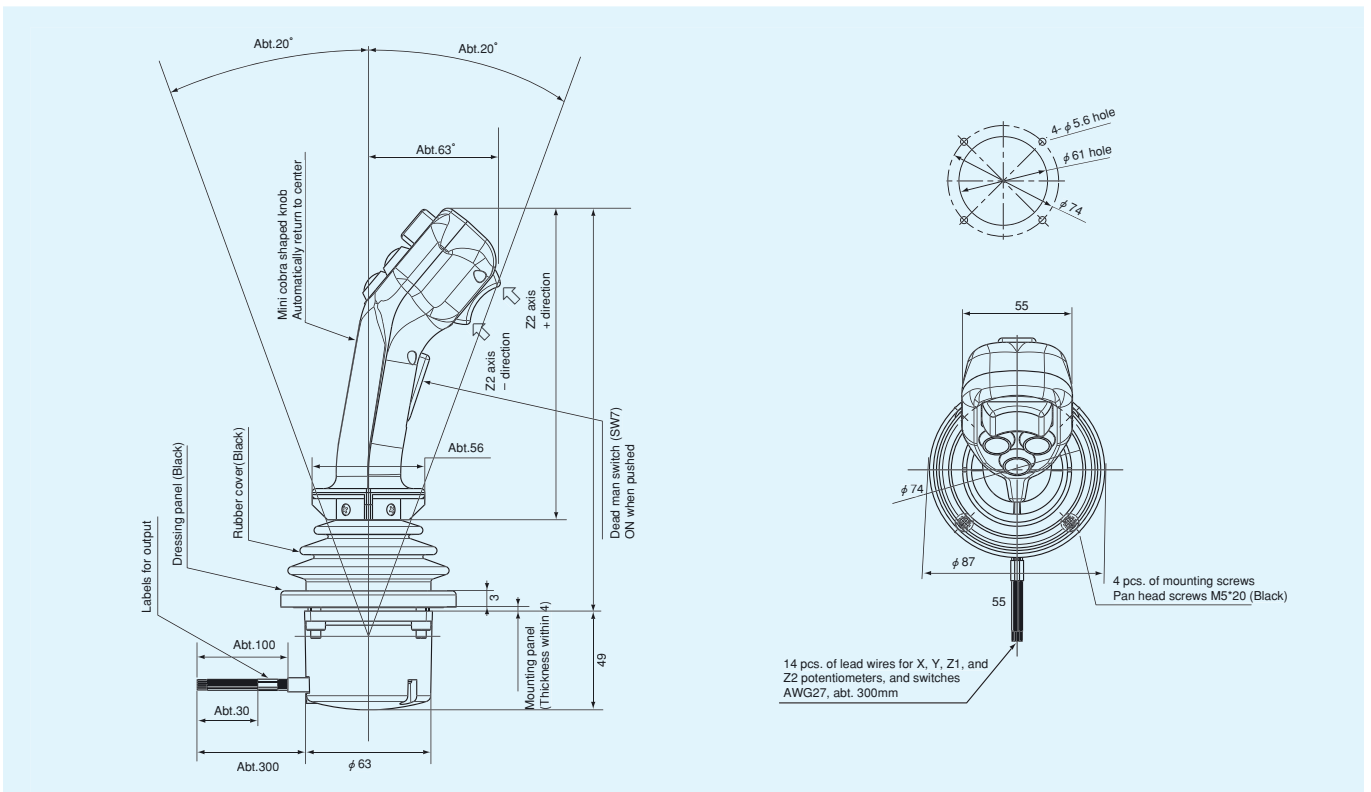
R3 : with spring return device for 2-dimensional coordinate as well as for 1 pc. of see-saw pot.

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

Special part number

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

Standard Dimensions



Examples of Customized Knobs



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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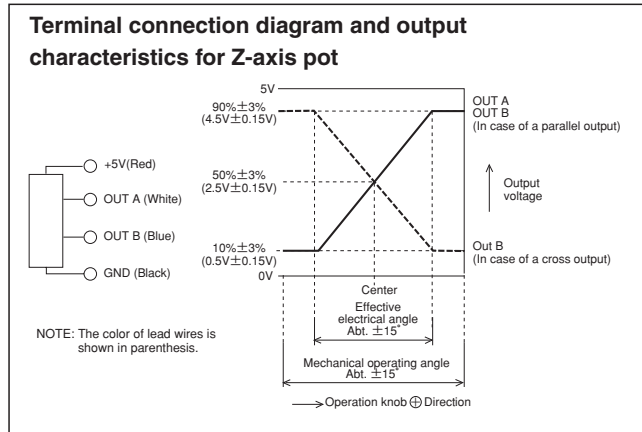
Note 1: The basement is the same as our H60JHK model. For all the specifications excluding the mechanical operating force, please refer to page 38.
 Note 2: The standard H60JHK model has a Tyco connector. On the contrary, in case of H60JHK with the mini cobra knob, AWG27 lead wires (approx. 300mm long) 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 axes 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 durability	100V/m (80MHz~1GHz 1kHz sine-wave 80%AM modulation)
ESD durability	±8kV contact ±15kV aerial discharge (Based on IEC61000-4-2)

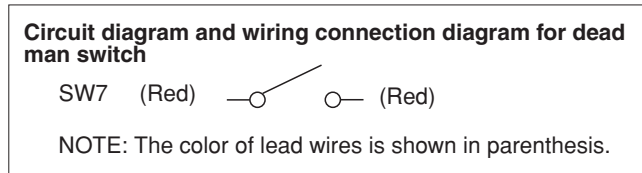
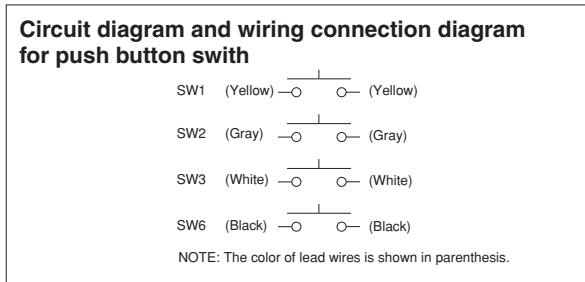


Specs of push button switch

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.	SPVQ810100 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



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 51, a table of Standard and Specifications Available.