

Multi-Function Joystick Controller

Series JH60C



- Dual, Triple or Quad Axis
- Precision Hall Effect Potentiometers
- Multiple Pushbutton Options
- Dual Output Option for all Axis
- High EMS / ESD Durability
- 5 Mio. Operations Mechanical Life
- **RoHS**



Note: Customers should test and verify device performance in any given application. specifications are subject to change without notice.

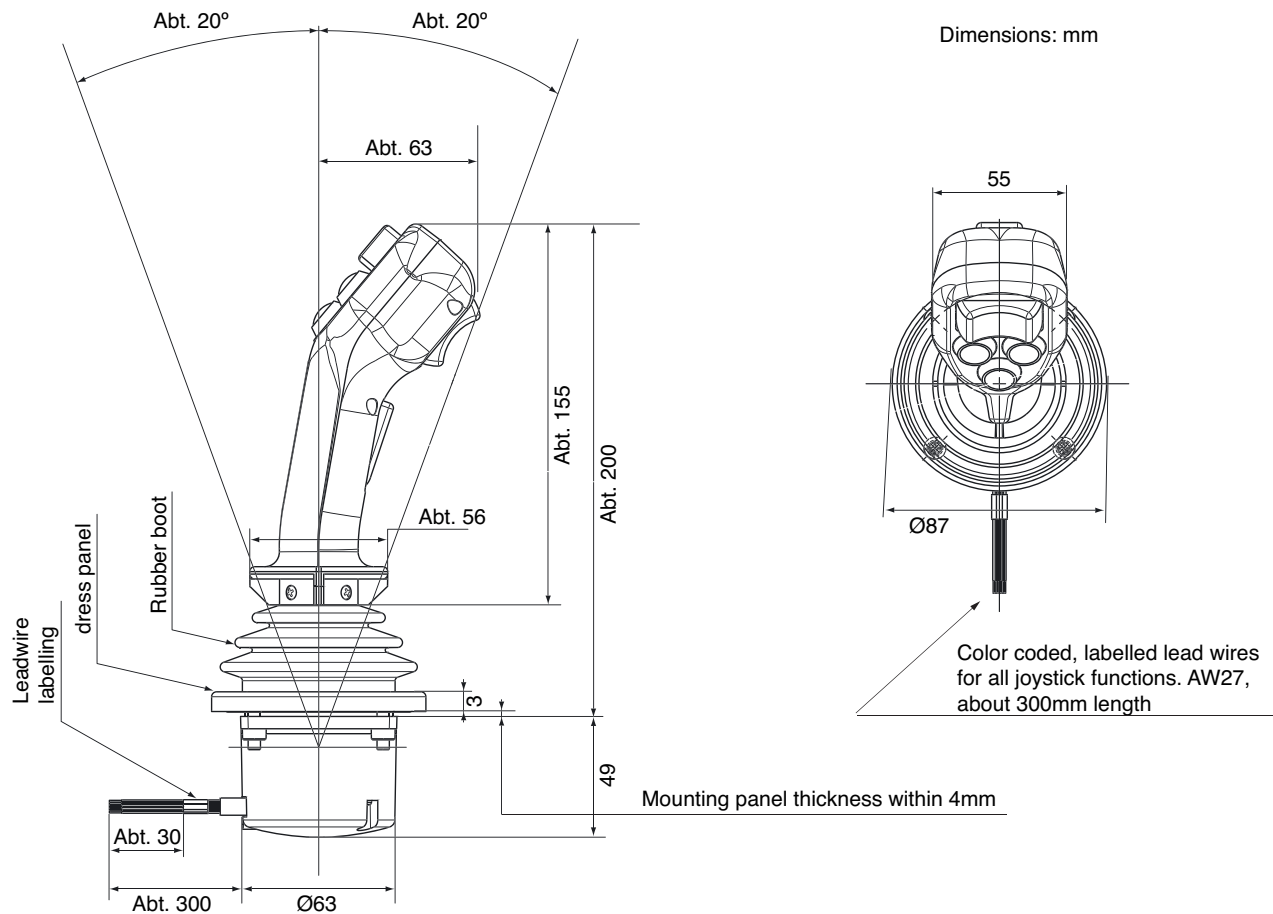
Multi-Axis Joystick Controller

Series JH60C

X and Y Axis Mechanical Data

Mechanical Travel	approx. $\pm 20^\circ$ from center (40° overall)
Operating Force	Spring return w/guided feel; 3N ~ 4.5N (300 ~ 450gf)
Operating Temperature	$-20^\circ\text{C} \sim +60^\circ\text{C}$
Vibration	10 ~ 55Hz 98m/s^2 (10G)
Shock	30G
Life Expectancy	> 5,000,000 random operations
Protection Grade	IP40
Weight	approx. 800g

Basic Dimensions



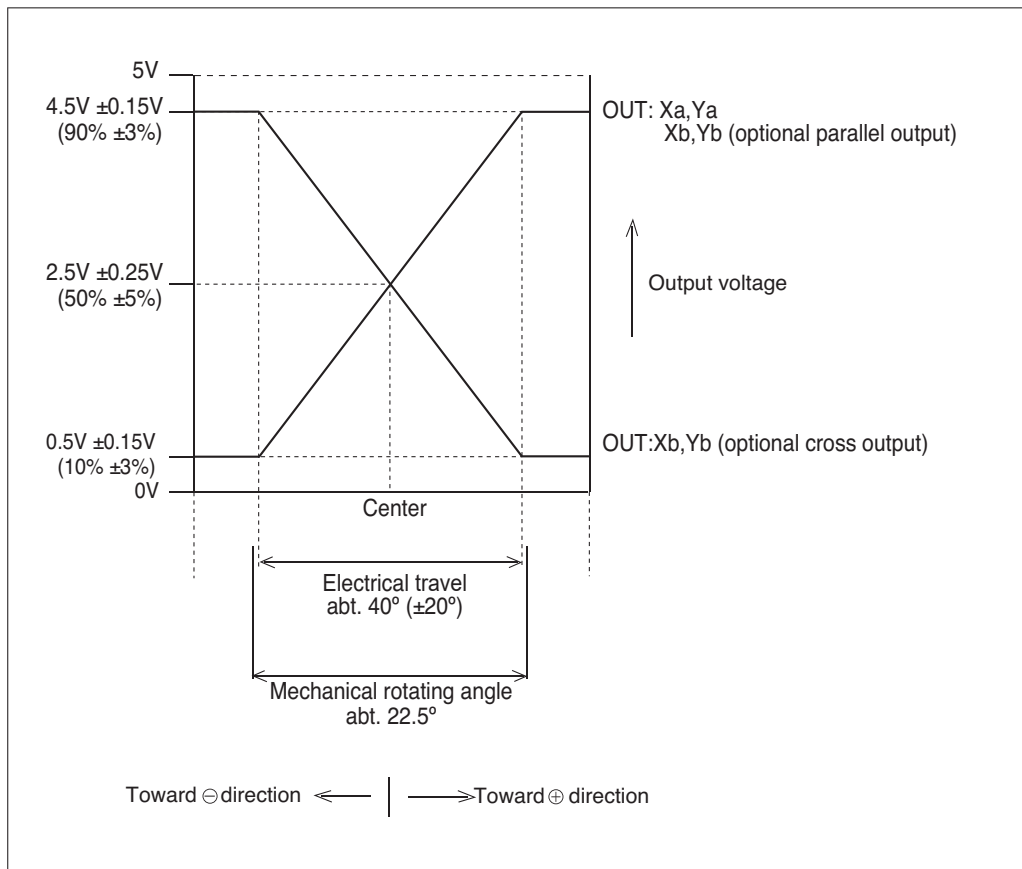
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Specifications of X and Y Axis Hall Effect Potentiometer

Electrical Travel	40° (±20° from center)
Load Resistance	over 10kΩ
Independent Linearity Tolerance	±3%
Resolution	Infinite
Applied Voltage	5VDC ±10%
Effective Output	0.5V ~ 4.5V (redundant option)
EMS Durability	100V/m (80MHz~1GHz sine-wave 80% AM modulation)
ESD Durability	±8KV contact ±15KV aerial discharge (IEC61000-4-2)
Dielectric Strength	1 minute at 500VAC
Insulation Resistance	Over 1000M ohms at 500VDC

Output Characteristics



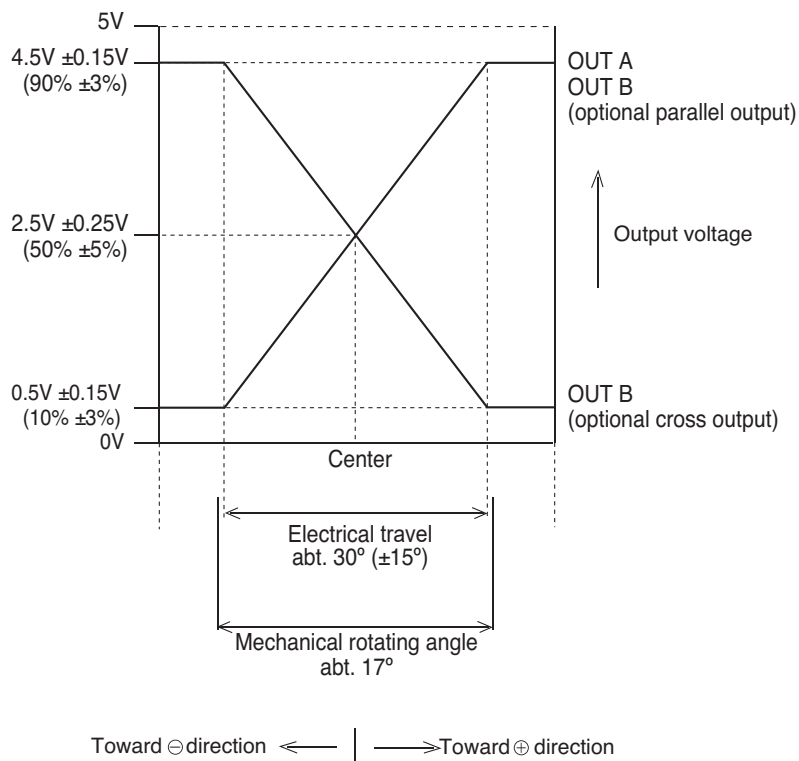
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Specifications of Z Axis (see-saw type) Hall Effect Potentiometer

Electrical Travel	30° ($\pm 15^\circ$ from center)
Operating Force	Spring return; 24mN · m ~ 30mN · m
Return to Center Accuracy	50% $\pm 3\%$
Load Resistance	over 10k Ω
Independent Linearity Tolerance	$\pm 3\%$
Resolution	Infinite
Applied Voltage	5VDC $\pm 10\%$
Effective Output	0.5V ~ 4.5V (redundant option)
EMS Durability	100V/m (80MHz~1GHz sine-wave 80% AM modulation)
ESD Durability	± 8 KV contact ± 15 KV aerial discharge (IEC61000-4-2)
Dielectric Strength	1 minute at 500VAC
Insulation Resistance	Over 1000M ohms at 500VDC

Output Characteristics






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Specifications of Pushbutton Switches

Model Number	59-111 (black) Manufactured by ITW Switches
Operating Characteristics	Momentary type (SW-ON when pushed)
Rating	100mA, 50VDC
Dielectric Strength	1000VAC, 1 minute
Insulation Resistance	> 1000MΩ at 500VDC
Mechanical Life Expectancy	500,000 operations max.

Circuit diagram and wiring connection diagram for push button switch


SW1 (Yellow)  (Yellow)
 SW2 (Gray)  (Gray)
 SW3 (White)  (White)



Specifications of Trigger (Dead Man) Switch

Model Number	SPVQ810100 Manufactured by ALPS
Operating Characteristics	Momentary type (SW-ON when pushed)
Rating	100mA, 12VDC
Dielectric Strength	500VAC, 1 minute
Insulation Resistance	> 100MΩ at 500VDC
Mechanical Life Expectancy	300,000 operations max.

Circuit diagram and wiring connection diagram for dead man switch

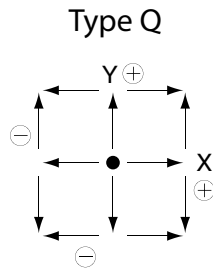
SW7 (Red)  (Red)



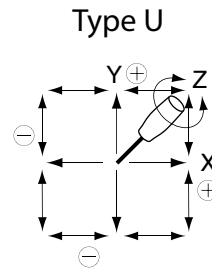
Multi-Axis Joystick Controller

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X and Y Axis Lever Operating Pattern



**Dual axis
 Omni directional (360°)**



**Triple axis
 X and Y axis, Omni directional (360°)
 Z axis, rocker potentiometer**

Handle Variations



**w/dual axis
 thumb control
 hall effect
 controller**

**w/three see-saw
 potentiometer
 single axis
 controls**

**w/two see-saw
 potentiometer
 single axis
 controls, three
 pushbuttons
 switches
 and trigger switch**

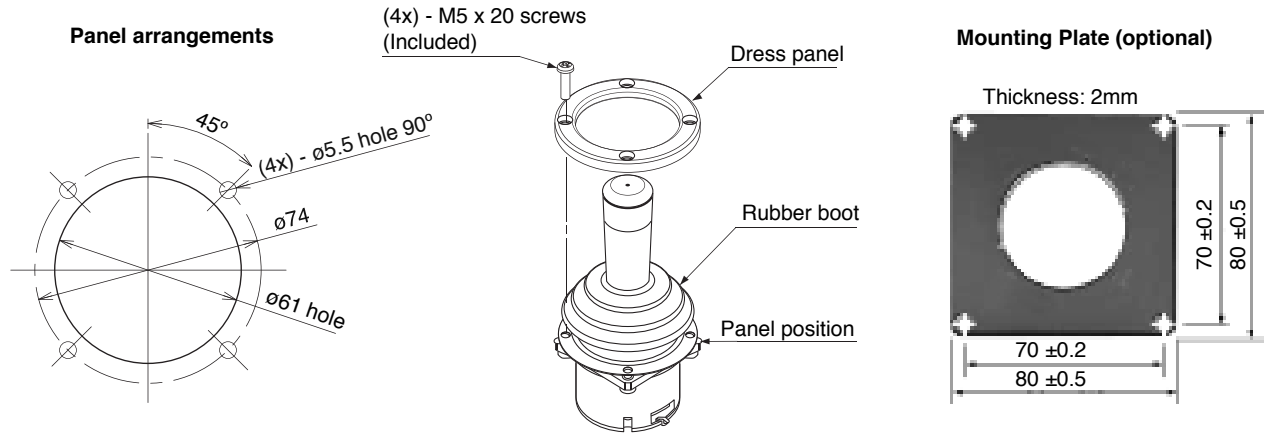
**w/two see-saw
 potentiometer
 single axis
 controls, two
 colored switches.**

**w/five colored
 pushbutton switches
 and trigger switch**

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Mounting Details



Dimensions (mm)

1. Remove 4 screws from dress panel.
2. Put joystick from below panel as shown
3. Assemble the dust proof rubber boot and dress panel as shown with 4 supplied screws.

Wire Terminations

Function	Color	Function	Color	Function	Color
Ground: X, Y, Z1, Z2	Black	Signal X-Axis	White	Signal X-Axis Dual Output	Blue
Supply Voltage: X, Y, Z1, Z2	Red	Signal Y-Axis	White	Signal Y-Axis Dual Output	Blue
		Signal Z1	White	Signal Z1 Dual Output	Blue
		Signal Z2	White	Signal Z2 Dual Output	Blue

Each product comes with individually labelled wires, please compare prior to installation.
Lead wires AWG27, length ca. 300 mm.
Please contact us for specific connector and cable length requirements.