

JC50C Series

Multi-Axis Joystick Controller (Potentiometer)



- Single, Dual, Triple or Quad Axis
- Position Hold or Spring Return
- Multiple Pushbutton Options
- Center and/or Directional Micro-Switches
- Center and/or Positional Detents
- 5 Mio. Operations Mechanical Life
- **RoHS**

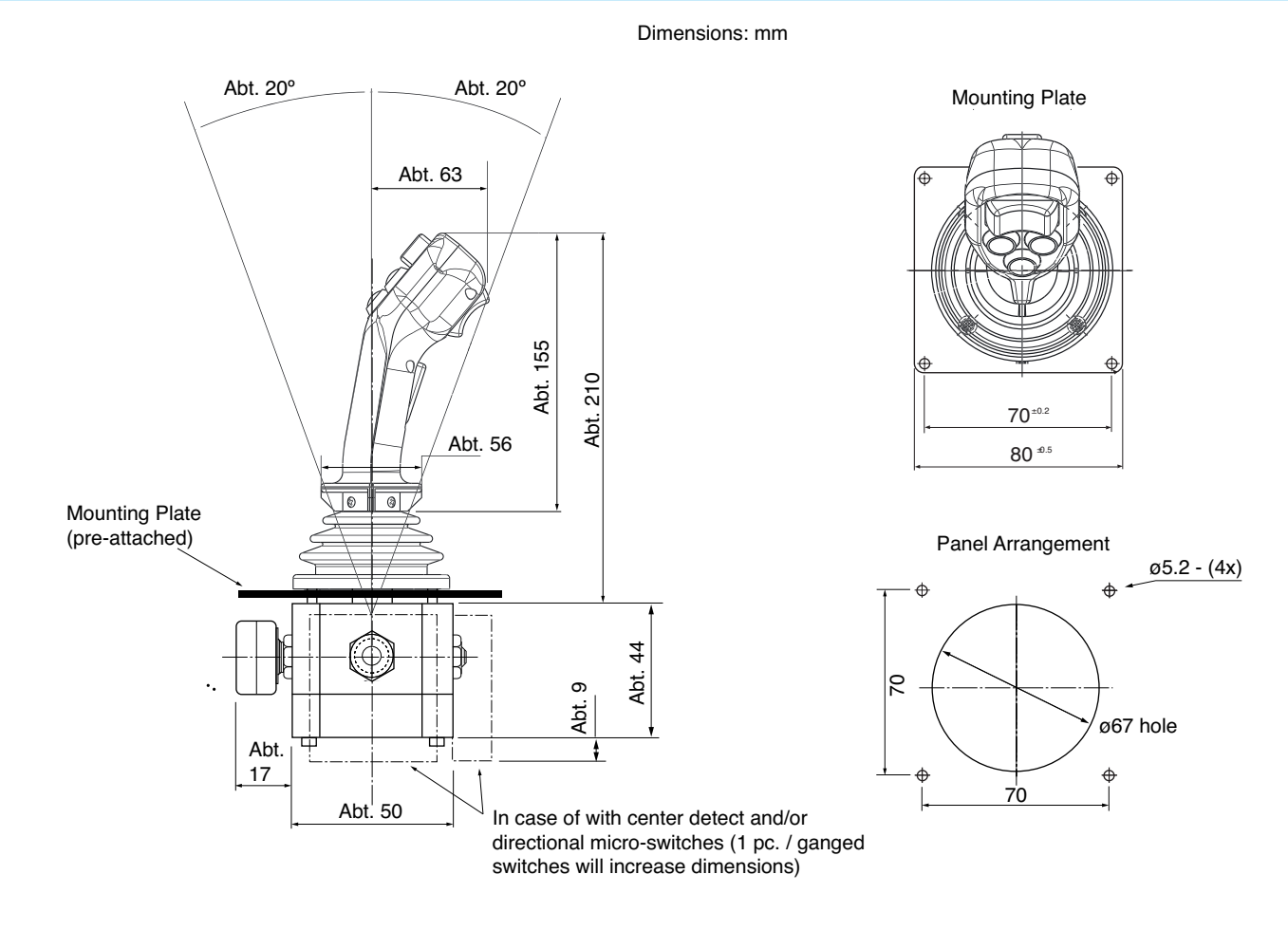


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Mechanical Data (Note 1)	
Mechanical Travel	X, Y Axes: approx. $\pm 20^\circ$ from center (40° overall)
Operating Force	X, Y, Axes: 3 ~ 15N (300 ~ 1500gf) w/standard spring return
Operating Temperature	-20°C ~ +65°C
Vibration	10 ~ 55Hz 98m/s ² (10G)
Shock	30G
Life Expectancy	> 5,000,000 random operations
Protection Grade	IP40
Weight	approx. 550g

Basic Dimensions



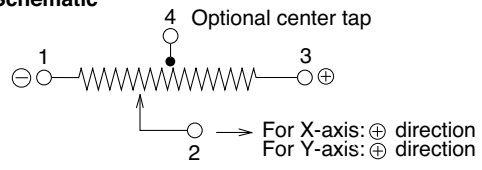
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Specifications of X and Y Axes Potentiometer (Note 1)

Electrical Travel	60° ($\pm 30^\circ$ from center)
Resistance Value	10k Ω $\pm 15\%$
Independent Linearity Tolerance	$\pm 3\%$
Resolution	Infinite
Contact Resistance Variation	< 5% C.R.V.
Dielectric Strength	500VAC, 1 minute
Insulation Resistance	> 1000M Ω at 500VDC
Rated Power	0.2W (potentiometers)

Potentiometer Schematic

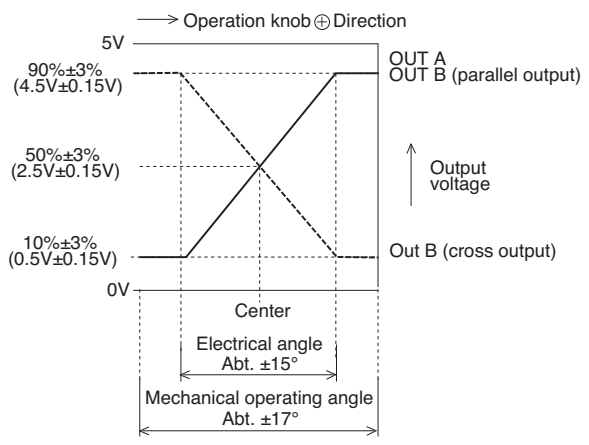


Potentiometer terminals can be fitted with AMP 110 series connectors (2.8 X 0.5mm) or equivalent.

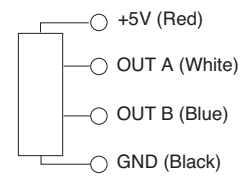
Specifications of Z Axis (see-saw type) Hall Effect Potentiometer (Note 1)

Electrical Travel	30° ($\pm 15^\circ$ from center)
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

Z Axis Output Characteristics



Terminal Designations



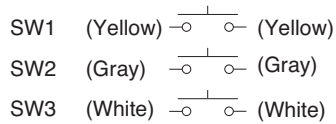
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Specifications of Pushbutton Switches (Note 1)

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.

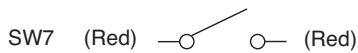
Circuit diagram and wiring connection diagram for push button switch



Specifications of Trigger (Dead Man) Switch (Note 1)

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

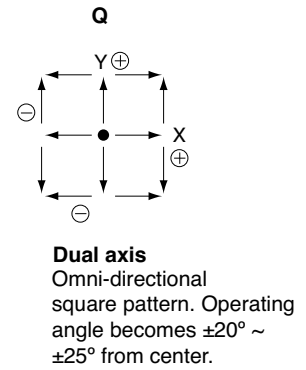
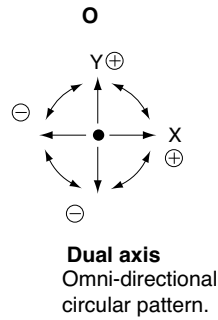
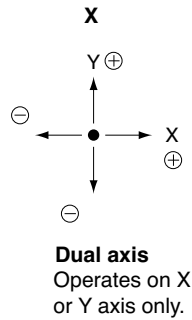
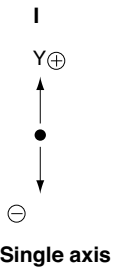


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Handle Operating Patterns

Type:



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 pushbutton switches and trigger switch



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



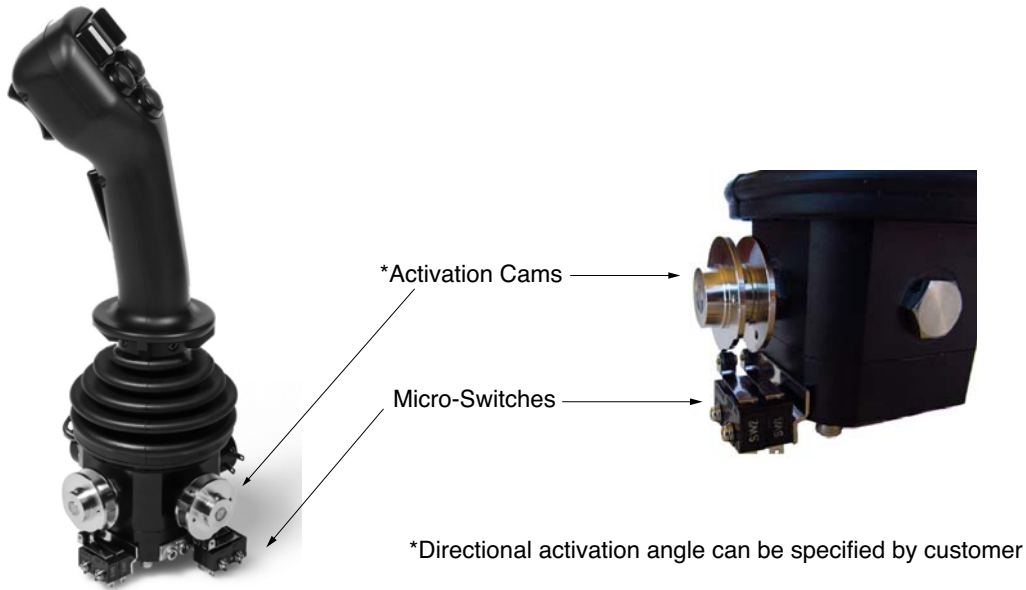
w/five colored pushbutton switches and trigger switch

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Specifications of Center Detect and/or Directional Micro-Switches (Note 1)

Model	OMRON
Type	SPDT
Rating	5A / 125VAC
Life Expectancy	> 200,000 operations
Center Detect Switch Activation	ON @ center position. OFF @ $\pm 5^\circ$ from center
Directional Micro Switch Activation	ON @ $\pm 5^\circ$ from center. OFF @ center.



Detent Mechanism(s)

Detents provide operator with a distinct tactile feedback of a specific position. In case of configurations without spring return to center (position hold with increased operating friction), tactile sense of center position is missing. A center detent can be utilized to provide the operator with this positive feel.

In joystick configurations with or without spring return to center, detents can be spaced along the X and/or Y axis to provide a specific feedback of a specified position.

In case of spring return to center types, detent force can be adjusted to either maintain a specified position without operator or allow handle to return to center. Please consult us for specific applications.

