

SJ60 Series Multi Axis Joystick

Product Features

- Ergonomics design on mobile application.
- Uncontact hall effect and long expect-life potentiometer optional.
- Various handle, different number and location of button switches optional.
- CAN bus output optional.

Application

Typical application on Cranes, loaders, Forklifts, excavators, access platform, tractors, harvesters, and so on.

Technical Information

Electrical data

Potentiometer	
Power supply	<36Vdc
Resistance	2K Ω , 4K Ω , 5K Ω , 10K Ω
Electrical angle	$\pm 18^\circ$
Center voltage	48%~52%Vdc (Power supply)
Center tap angle	$\pm 2.5^\circ$
On-load voltage (max)	32Vdc
Power dissipation	0.25W (25°)

Hall

Power supply	5 ± 0.5 Vdc
Supply current	<11mA (Each of hall)
Maximum allowable over-load voltage	20Vdc
Reverse maximum allowable voltage	-10Vdc
Output linearity tolerance	± 4 V

Directional switch

Load capacity	2mA@30Vdc (Resistance load)
Breakout angle	$\pm 3^\circ \sim 5^\circ$
Contact resistance	<200 Ω

With electronic amplifier

Power supply	18~36Vdc (U21~U24) 9~36Vdc
Power current consumption	< 20mA
Maximum output current	10mA

CAN BUS

Power supply	9~36Vdc
CAN Version	CAN 2.0B



Electrical data

Protocol	J1939
Connector	6 p-pin (Deutsch)
Microswitch	
Load capacity	4A@30Vdc (Resistance load)
Expecting life	30 million times (Mechanical) 200 thousand times (Electrical)
Insulation resistance	> 100M Ω
Breakout angle	$\pm 3^\circ \sim 5^\circ$

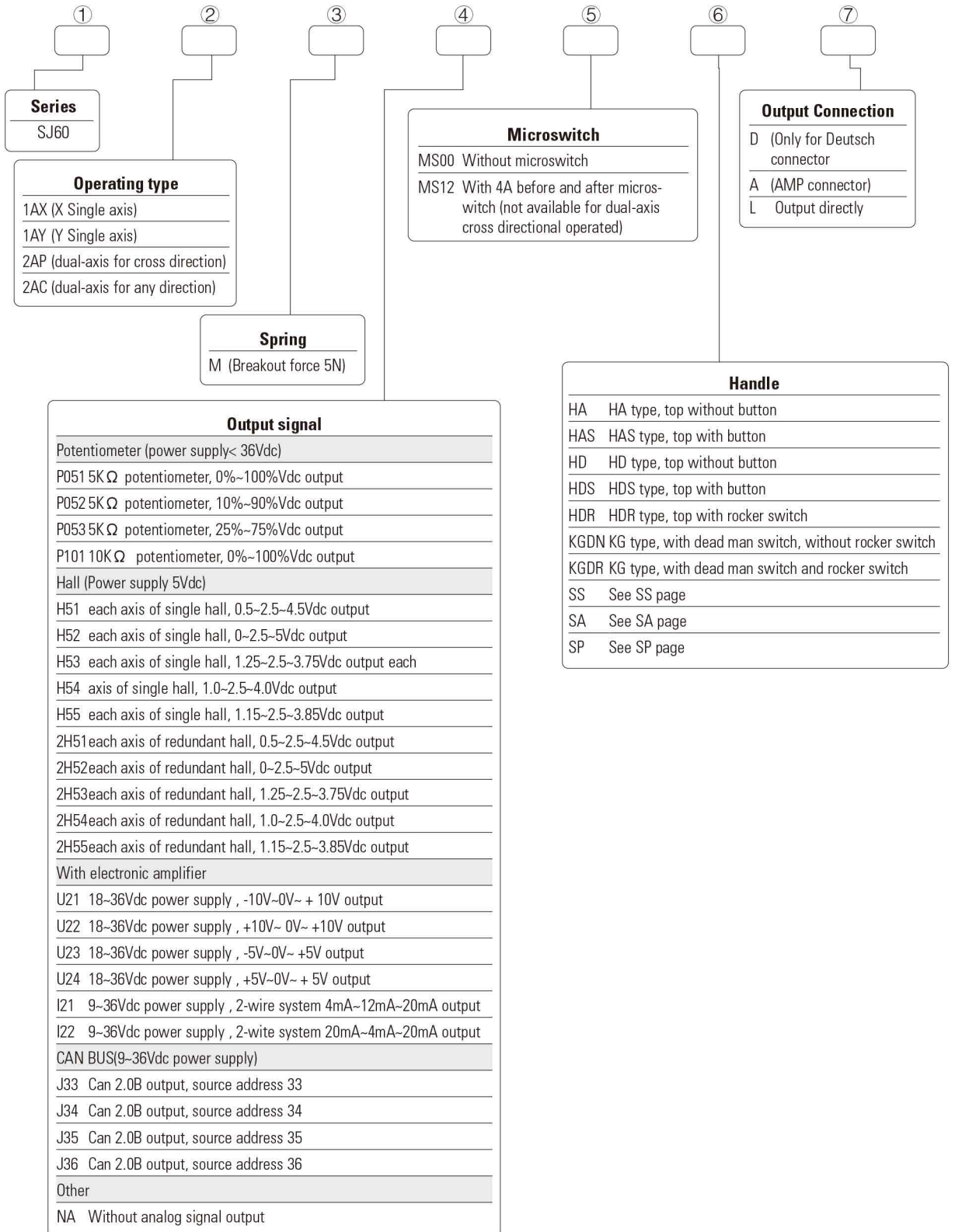
Mechanical features

Travel angle	$\pm 20^\circ$
Operating type	Spring return
Breakout force	7N
Operating force(max)	16N
Maximum allowable force	>300N
Expecting life	>2million cycles (Potentiometer) >5 million cycles (Hall effect)
Weight	475g (Without handle)

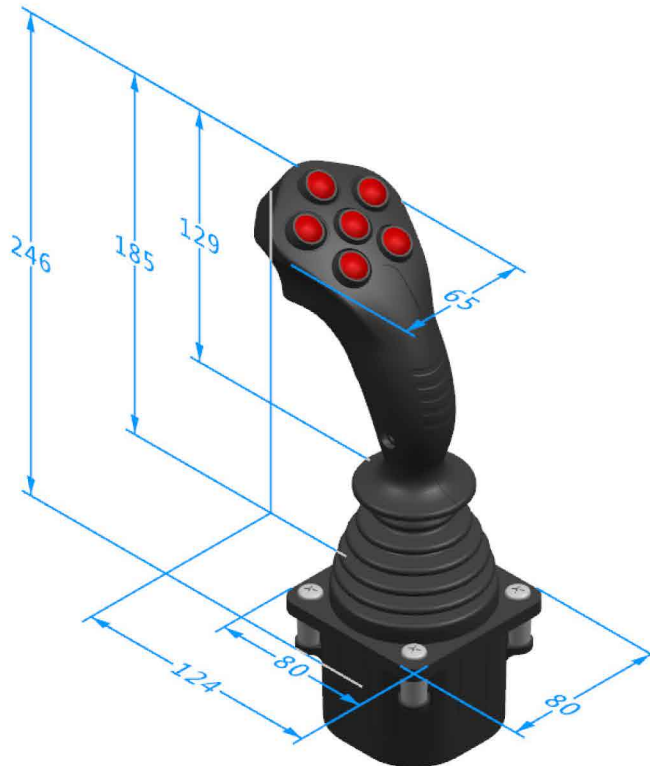
Environmental data

Operating Temperature	-30 $^\circ$ C~+70 $^\circ$ C
Storage Temperature	-40 $^\circ$ C~+85 $^\circ$ C
Protection level	IP65 (Above the flange)

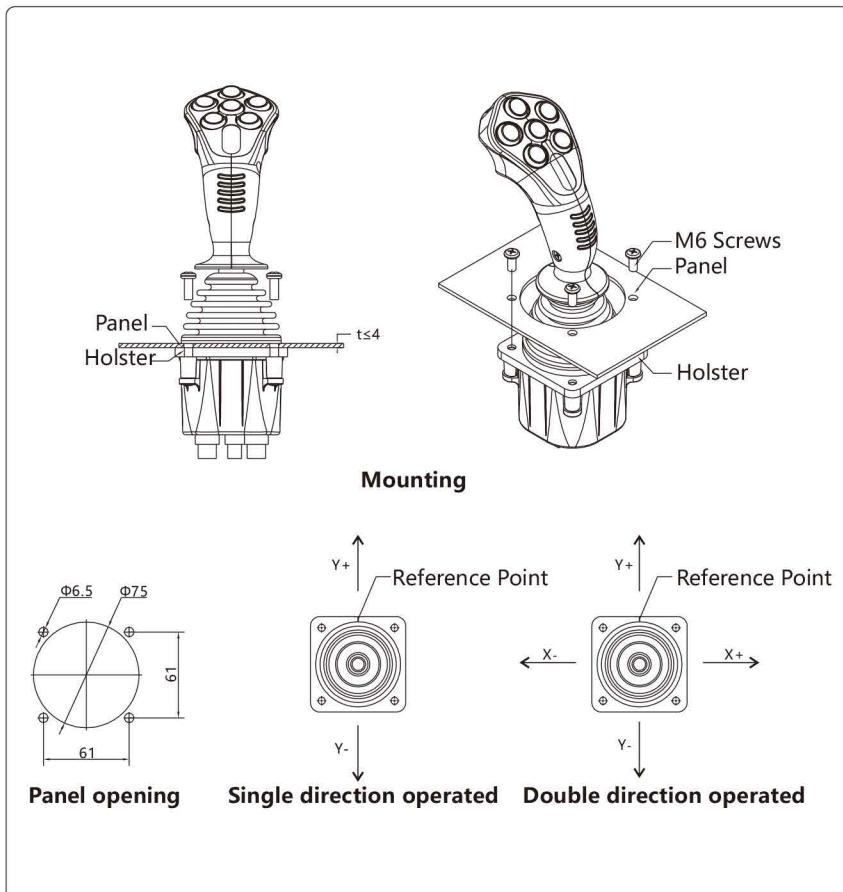
Product Configuration



Dimensions



Product Installation



Electrical Connections

AMP Connector

16 Pin

Pin	Potentiometer	Hall	With electrical amplifier for output voltage	With electrical amplifier for output current
1	Y-axis forward directional switch	Button switch 4	Common terminal of button switch	Common terminal of button switch
2	N/A	Button switch 3	Button switch 1	Button switch 1
3	X-axis pot left terminal	Button switch 2	Button switch 2	Button switch 2
4	X-axis pot wiper	Button switch 1	Button switch 3	Button switch 3
5	X-axis pot right terminal	Top Button	Button switch 3	Button switch 3
6	X-axis pot right terminal	Button switch 5	Button switch 5	Button switch 5
7	X-axis switch common terminal	Button switch 6	Button switch 6	Button switch 6
8	X-axis left directional switch	Deadman switch	Top Button	Top Button
9	Y-axis pot backward terminal	Button switch 9	Deadman switch	Deadman switch
10	Y-axis pot wiper	Button switch 10	Deadman switch	Deadman switch
11	Y-axis pot forward terminal	Common terminal of button switch	X-axis left directional switch	X-axis left directional switch
12	Y-axis pot center tap	Deadman switch	X-axis pot right terminal	X-axis pot right terminal
13	Y-axis switch common terminal	N/A	Y-axis backward directional switch	X-axis switch common terminal
14	Y-axis backward directional switch	N/A	Y-axis forward directional switch	Y-axis forward directional switch
15	X-axis right directional switch	N/A	Switch common terminal	Y-axis forward directional switch
16	N/A	N/A	N/A	Y-axis switch common terminal

12 Pin

Pin	Potentiometer	Hall
1	Button switch 4	+5V + 5V (redundant hall)
2	Button switch 3	0V (redundant hall)
3	Button switch 2	+5V power supply
4	Button switch 1	0V power supply
5	Top button	Y-axis output (redundant hall)
6	Button switch 5	X-axis output
7	Button switch 6	X-axis output (redundant hall)
8	Deadman switch	Y-axis output
9	Button switch 9	Z1-axis output
10	Button switch 10	Z2-axis output
11	Button switch common terminal	Z-axis output (redundant hall)
12	Deadman switch	Z2-axis output (redundant hall)

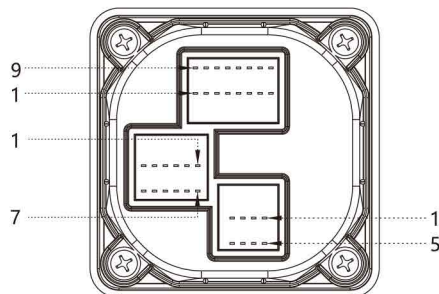
8 Pin

Pin Hall	Conversion circuit output
1 Forward directional microswitch common terminal	VCC
2 Forward directional microswitch output terminal	GND
3 Backward directional microswitch output terminal	X-axis output
4 Backward directional microswitch common terminal	Y-axis output
5 Left directional microswitch common terminal	Out com
6 Left directional microswitch output terminal	NA
7 Right directional microswitch output terminal	NA
8 Right directional microswitch common terminal	NA

Deutsch connection

Pin	Can output	Color
1	GND	Black
2	VCC	Red
3	CAN high	Yellow
4	CAN low	Green
5	CAN shield	N/A
6	N/A	N/A

AMP Connector



Deutsch connector

