

MKF-PJS04 series

Mate Industrial Joystick, Hall / Potentiometer effect, Dual axis, Panel Mounted

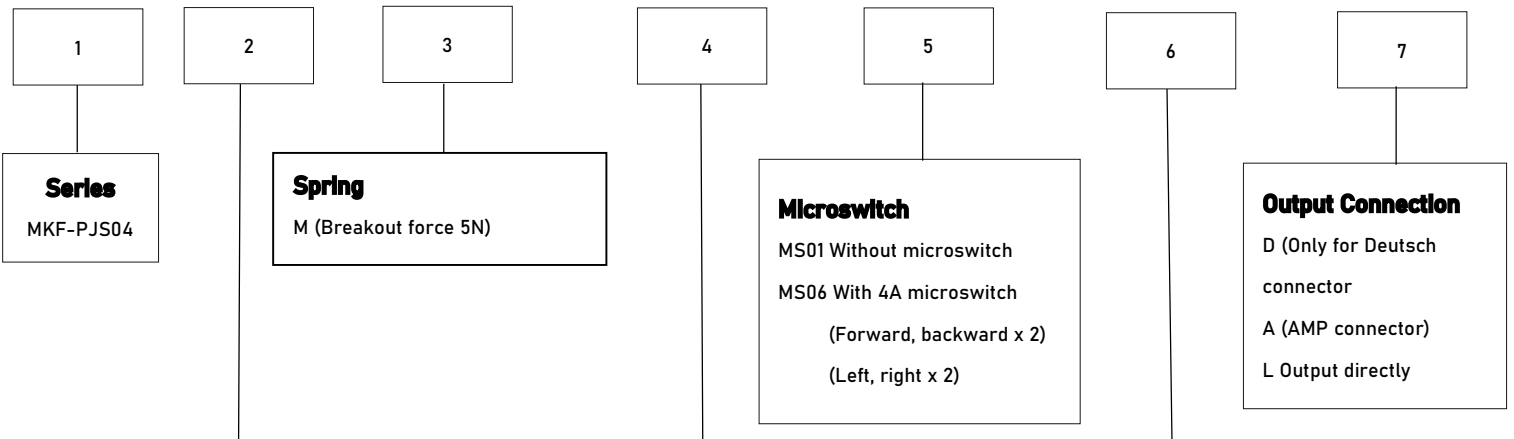


APPLICATION

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

DESCRIPTION

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



Operating Limiter
 1X (X Single axis)
 1Y (Y Single axis)
 2P (dual-axis for cross direction)
 2C (dual-axis for any direction)

Output signal
Potentiometer (power supply 36Vdc)
 P05A 5KΩ potentiometer, 0%~100%Vdc output
 P05B 5KΩ potentiometer, 10%~90%Vdc output
 P05C 5KΩ potentiometer, 25%~75%Vdc output
 P10A 10KΩ potentiometer, 0%~100%Vdc output
Hall (Power supply 5Vdc)
 H01 each axis of single hall, 0.5~2.5~4.5Vdc output
 H02 each axis of single hall, 0~2.5~5Vdc output
 H03 each axis of single hall, 1.25~2.5~3.75Vdc output each
 H04 axis of single hall, 1.0~2.5~4.0Vdc output
 H05 each axis of single hall, 1.15~2.5~3.85Vdc output
 2H01 each axis of redundant hall, 0.5~2.5~4.5Vdc output
 2H02 each axis of redundant hall, 0~2.5~5Vdc output
 2H03 each axis of redundant hall, 1.25~2.5~3.75Vdc output
 2H04 each axis of redundant hall, 1.0~2.5~4.0Vdc output
 2H05 each axis of redundant hall, 1.15~2.5~3.85Vdc output
With electronic amplifier
 WV21 18~36Vdc power supply, -10V~0V~ +10V output
 WV22 18~36Vdc power supply, +10V~ 0V~ +10V output
 WV23 18~36Vdc power supply, -5V~0V~ +5V output
 WV24 18~36Vdc power supply, +5V~0V~ +5V output
 WI21 9~36Vdc power supply, 2-wire system 4mA~12mA~20mA output
 WI22 9~36Vdc power supply, 2-wire system 20mA~4mA~20mA output
CAN BUS(9~36Vdc power supply)
 WJ33 Can 2.0B output, source address 33
 WJ34 Can 2.0B output, source address 34
 WJ35 Can 2.0B output, source address 35
 WJ36 Can 2.0B output, source address 36
 NA Without analog signal output

Handle
 MHA top without button
 MHAS top with button
 MHD top without button
 MHDS top with button
 MHDR top with rocker switch
 MKG DN with dead man switch, without rocker switch
 MKG DR with dead man switch and rocker switch
 MSS See SS page
 MSA See SA page
 MSP See SP page

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 $^\circ$)

Hall

Power supply	5 \pm 0.5Vdc
Supply current	<11mA (Each of hall)
Maximum allowable overload 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 (WV21~WV24) 9~36Vdc
Power current consumption	<20mA
Maximum output current	10mA

CAN BUS

Power supply	9~36Vdc
CAN Version	CAN 2.0B
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	±20°
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)

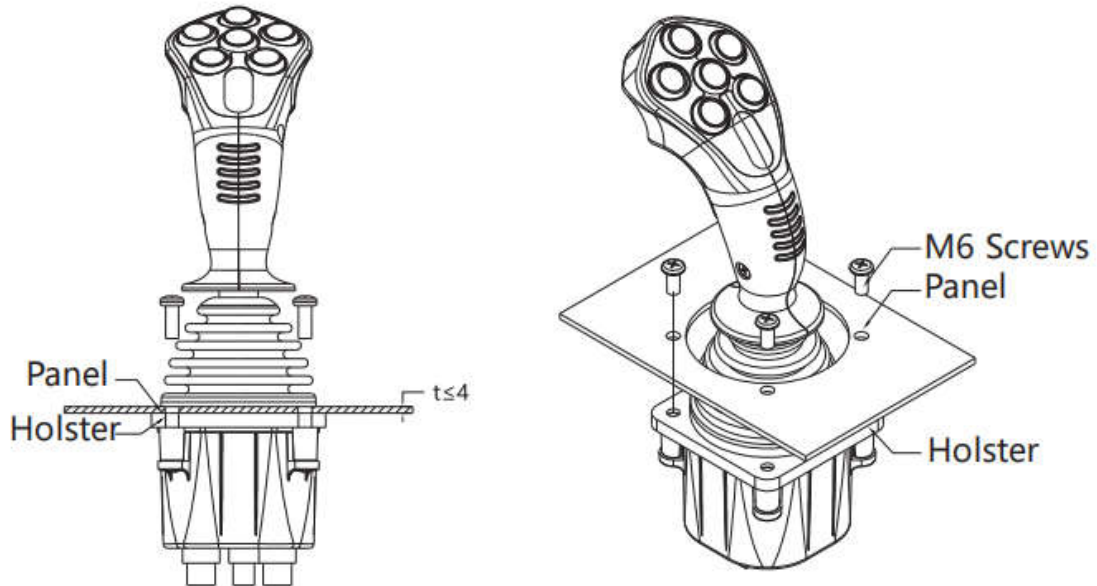
Environmental data

Operating Temperature	-30°C~+70°C
Storage Temperature	-40°C~+85°C
Protection level	IP65 (Above the flange)

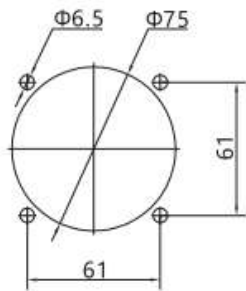
Dimensions



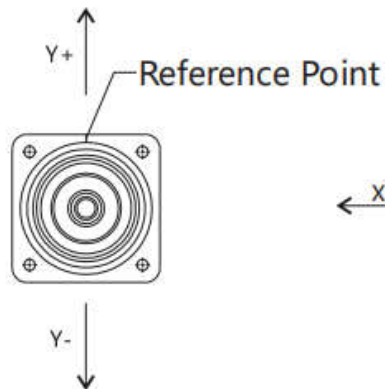
Product Installation



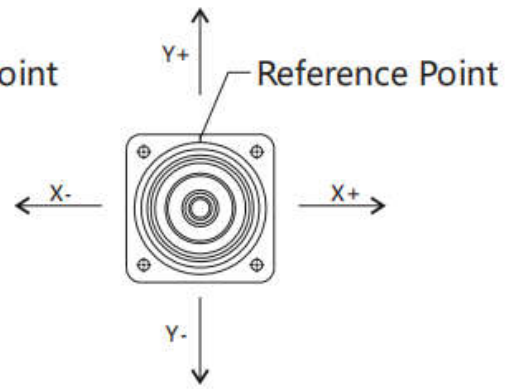
Mounting



Panel opening

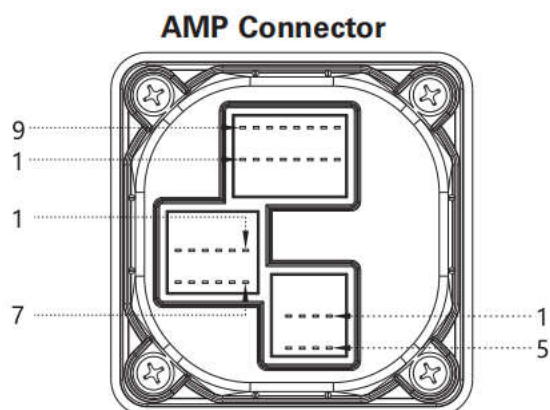


Single direction operated



Double direction operated

Electrical Connections



16 Pin

Pin	Pontentiometer	Hall	w/ electrical amplifier of output voltage	W/ electrical amplifier of 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 port left terminal	Button switch 2	Button switch 2	Button switch 2
4	X-axis port wiper	Button switch 1	Button switch 3	Button switch 3
5	X-axis port right terminal	Top button	Button switch 4	Button switch 4
6	X-axis port 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 port backward terminal	Button switch 9	Deadman switch	Deadman switch
10	Y-axis port wiper	Button switch 10	Deadman switch	Deadman switch
11	Y-axis port forward terminal	Common terminal of button switch	X-axis left directional switch	X-axis left directional switch
12	Y-axis port center tap	Deadman switch	X-axis port right terminal	X-axis port 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	Pontentlometer	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	Common terminal of button switch	Z-axis output(redundant hall)
12	Deadman swtich	Z2-axis output(redundant hall)

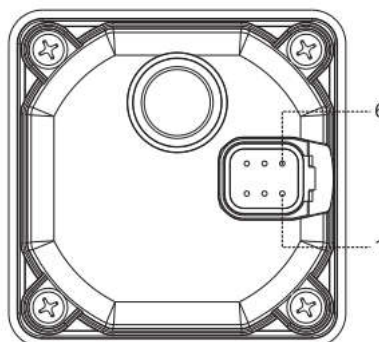
8 Pin

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

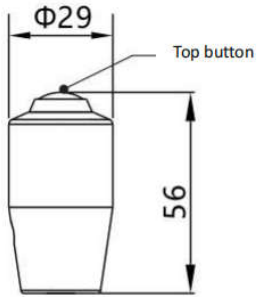
Electrical Connections

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

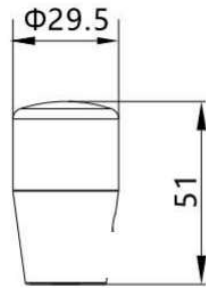
Deutsch connector



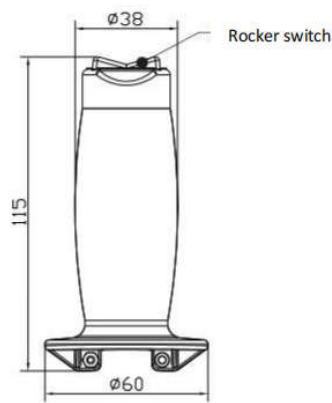
Handle Optional



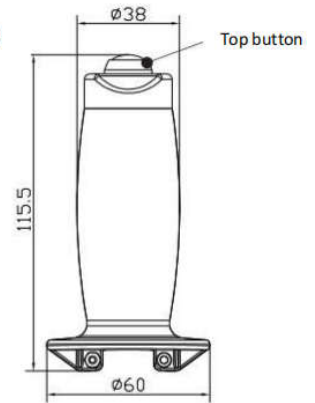
MHAS



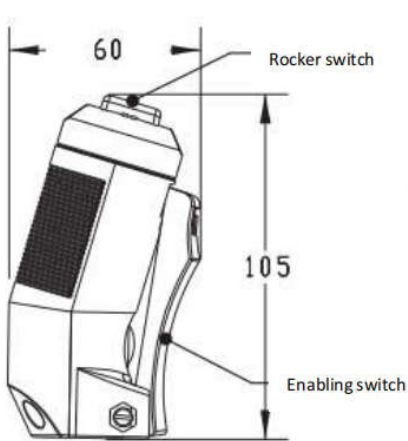
MHA



MHDR

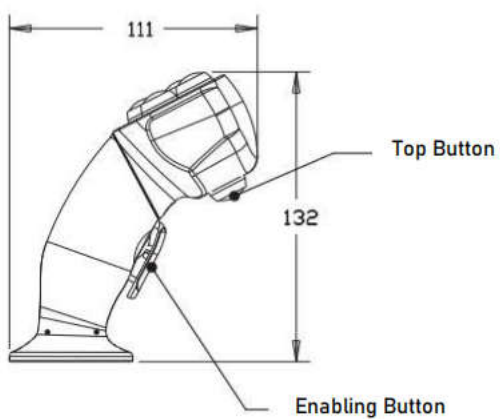


MHDS

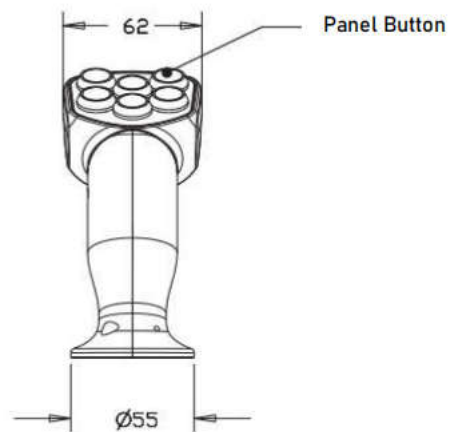


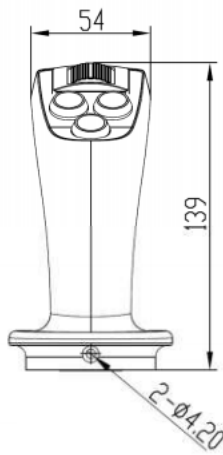
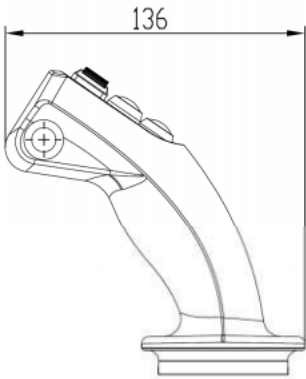
MKG DN with enabling switch, No rocker switch

MKG DR with enabling switch, with rocker switch

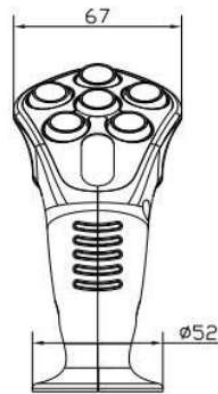
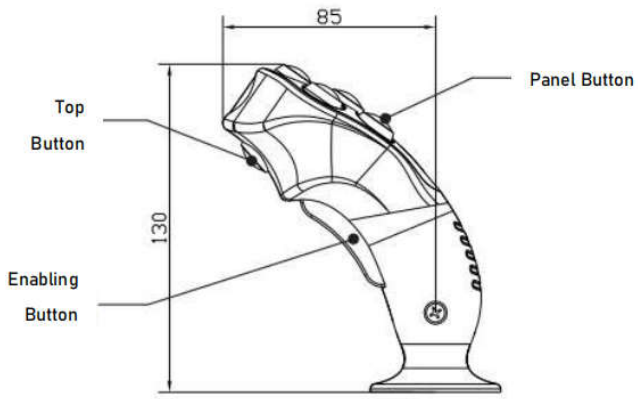


MSA





MSP



MSS