

Industrial Joystick

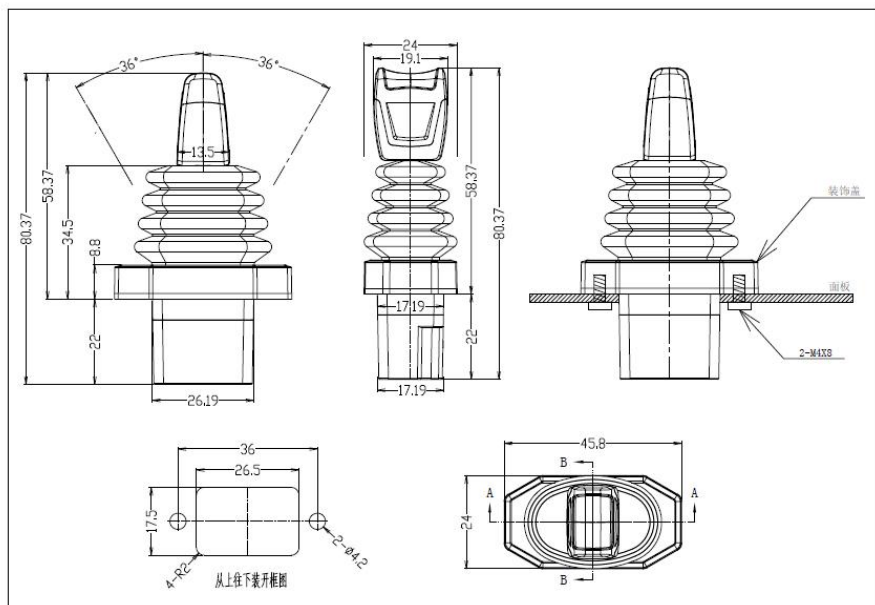


MKF-TS02 Single axis joystick (thumb stick)



A variety of handle colors and printing available, 1 axis, Hall sensor, full temperature range linear compensation, multi-point linearity correction, non-contact of moving parts and sensors, long life.

- Positioning method: spring automatically returns to the neutral position
- Operation angle: ± 36 degrees (72 degrees)
- Power supply: DC3.3V or DC5V
- Power consumption: ultra-low power consumption, minimum working current 8mA, minimum working voltage 3.01V
- Signal output: analog voltage, a variety of specifications are optional
- Life span: more than 5 million times
- Temperature range: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Protection level: IP67 protection

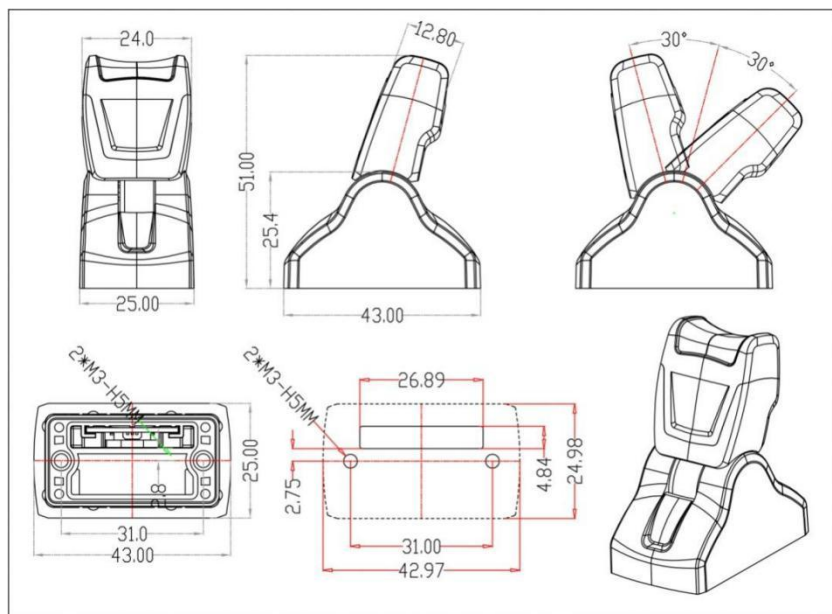


MKF-TS03 Single axis joystick (thumb stick)



MKF-TS03 series single-axis joystick. Adopt German imported Hall sensor, full temperature range linear compensation, multi-point linearity correction, moving parts and sensor non-contact, long life.

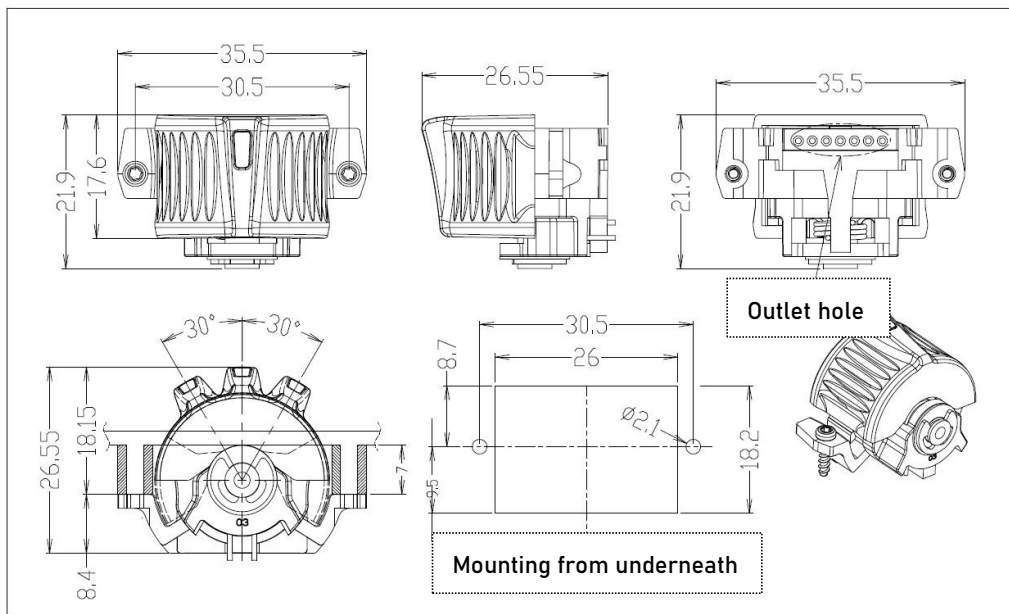
- Axis Number: 1 axis, Hall sensor
- Positioning method: center automatic return, center automatic return + one-way edge lock, one-way automatic return,
- 2 gears + 2 terminal reset, 3 gears + 2 terminal reset, 11 gears
- Operation angle: ± 30 degrees (60 degrees)
- Power supply: DC5V (12MA)
- Signal output: analog voltage 0.5~4.5V
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$ IP65 protection



MKF-TS01 Single axis joystick (thumb stick)



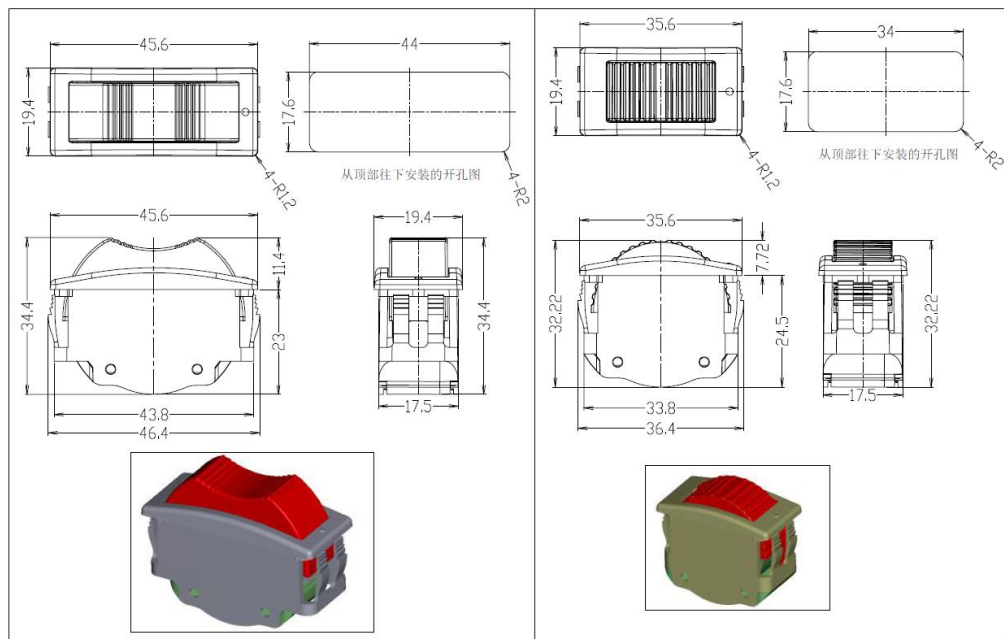
- Axis Number: 1 axis, Hall sensor
- Indicating light: three-color LED light (white/red/green)
- Positioning method: the spring automatically returns to the neutral position
- Operation angle: ± 30 degrees
- Signal output: 0.5-4.5V
- Power supply: DC5V/12MA
- Life span: more than 5 million times;
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$



MKF-TS06 Single axis joystick (thumb stick)



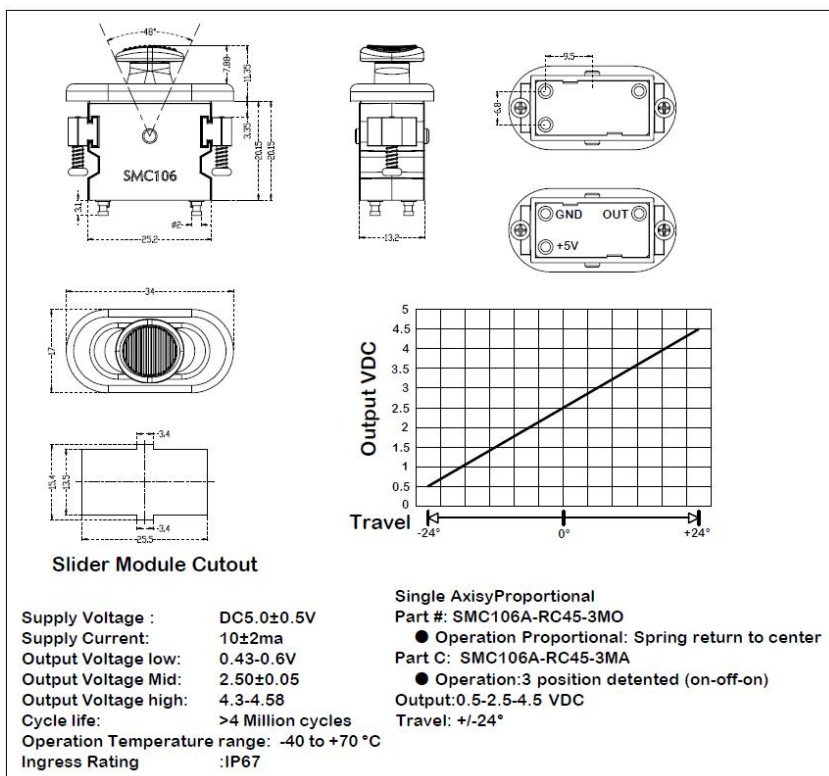
- Axis Number: 1 axis, Hall sensor
- Positioning method: the spring automatically returns to the neutral position
- Operation angle: ± 30 degrees
- Signal output: 0.5-4.5V
- Power supply: DC5V/12MA
- Life span: more than 5 million times;
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$



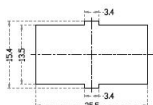
MKF-TS07 Waterproof single-axis joystick (finger wheel)



- Basic parameters: 1 axis, Hall sensor operating angle: $\pm 24^\circ$
- Power supply: DC5V/12MA signal output: 0.5-4.5V
- Life span: more than 5 million times operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Positioning method: the spring automatically returns to the neutral position or the 3rd gear keeps positioning

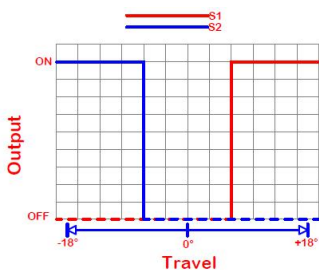


MKF-TS05 Waterproof three-speed switch

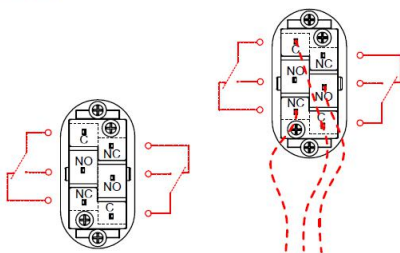


Slider Module Cutout

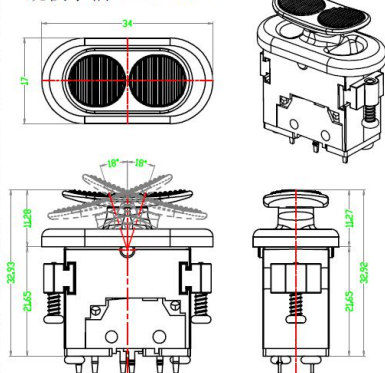
机械档位: 3点-保持
Voltage: 30Vdc
Supply Current: 2A
Cycle life: >1 Million cycles
Operation Temperature range: -40 to +85°C
Ingress Rating: IP67



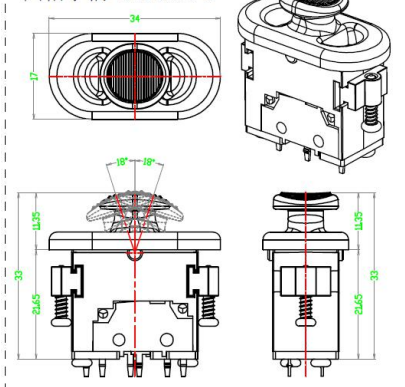
- RC: Return to middle
- Mo: 3 position lock



跷板手柄-SMC106B-1



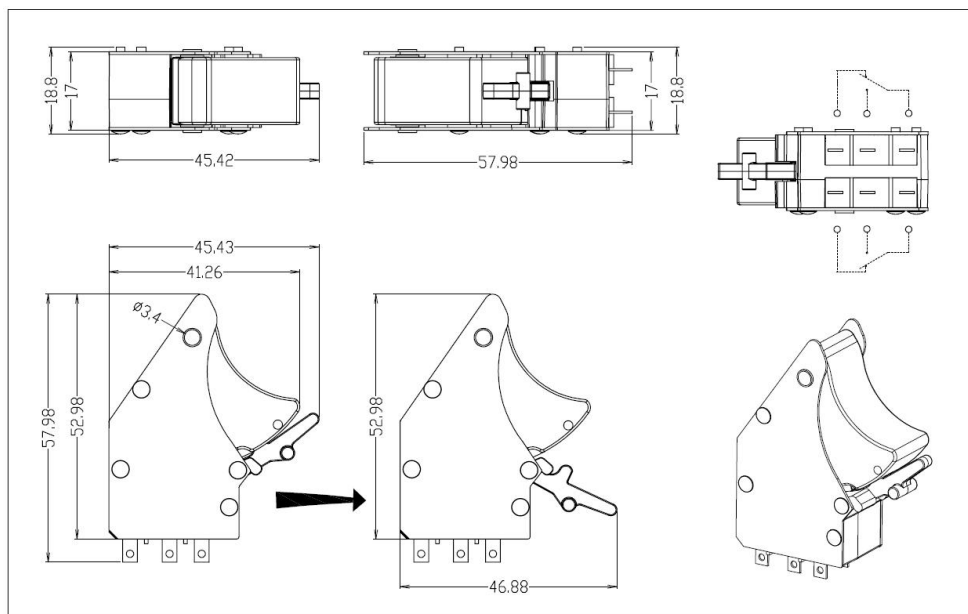
园帽手柄-SMC106B-2



Trigger switch RS-T1



- There are 2 gears and consists of 2 micro switches. This product can replace similar foreign products, adopting fully sealed waterproof switches, advanced mechanical structure, and super-position feel.
- Gear position: 2nd gear (spring automatic return)
- Safety lock: with safety lock function (optional function)
- Travel: first gear angle: 13 degrees (stroke 6mm), second gear angle: 7 degrees (stroke 3mm)
- Working force: 10N for the first gear, 25N for the second gear;
- Contact current: 30V/1A;
- Life: more than 1 million times
- Working temperature: $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$
- Test: Vibration 10-500hz/10g, acceleration 50g
- Protection: electrical ICE IP67



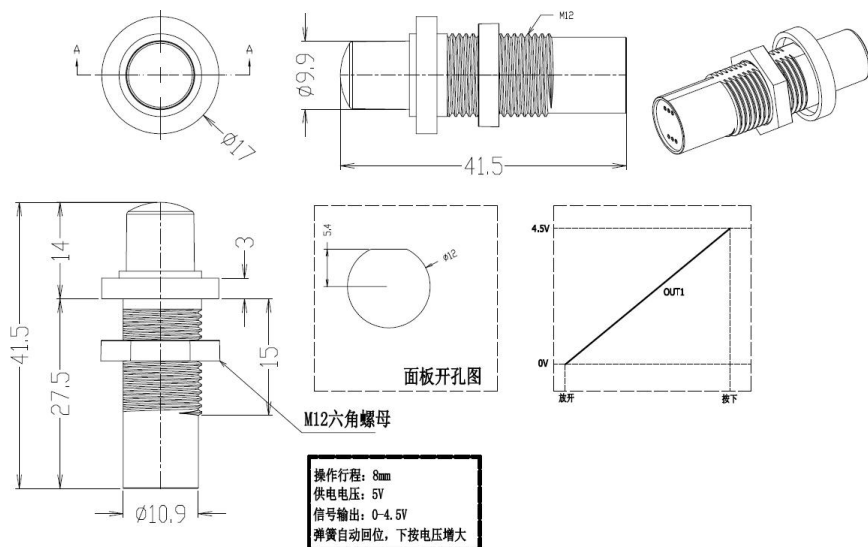
Hall linear button PB-12



PB-12 series Hall linear buttons. The spring automatically returns; linear voltage signal output, 0V when the button is released, 4.5V when it is pressed to the end, linear signal output.

Aluminum alloy housing material, imported from Germany Hall sensor, full temperature range linear compensation, multi-point linearity correction, moving parts and sensor non-contact, long life.

- Returning method: spring automatic return
- Mechanical stroke: 8mm
- Power supply: DC5-7V
- Working current: 12mA
- Signal output: analog voltage 0~4.5V (other voltage ranges can be customized)
- Life: more than 5 million times;
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- Protection level: IP54 protection



Buttons and accessories

Cutout diameter: 12MM;

IP rate: IP67;

Lifespan: 1 million

contact capacity: 2A/DC24V

Color: Red,green,yellow,blue,black



Push-button cover (Cutout diameter: 12mm)

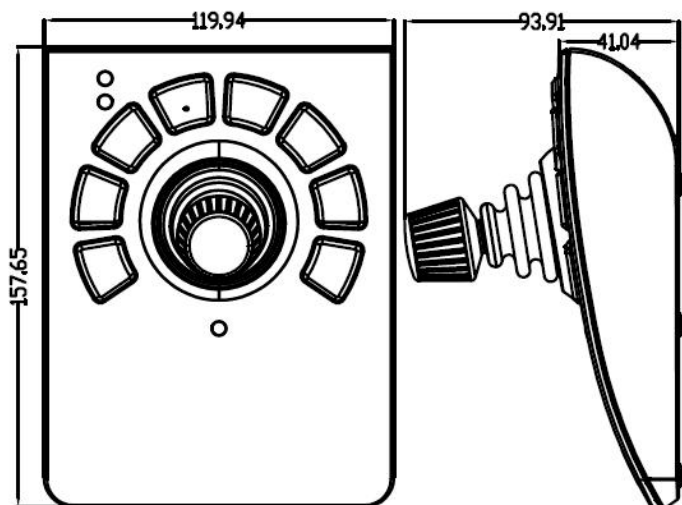
Material: Stainless steel 316



MKF-JS01



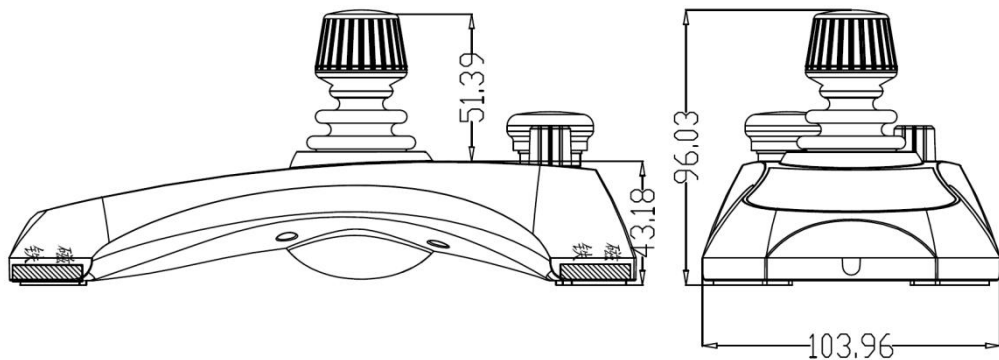
- Keys: 8 keys, lifespan of 5 million times
- Indicators: 3 LED indicators
- Interface mode: USB2.0HID, driver-free
- Other interfaces: RJ45 (RS232+RS485)
- (Only one interface method can be selected)
- Weight: 0.6kg
- Size: (W)120X(L)157X(H)97
-
- USB interface products:
- MKF-JS01-USB standard USB joystick, driver free
- MKF-JS01-M standard USB, joystick + mouse, driver free
- MKF-JS01-L analog voltage interface, 0-5V signal output.



MKF-JS02



- Three-axis Hall joystick
- Buttons: 15 buttons, emergency button, encoder knob
- Display: 4-digit LED
- Power supply: DC5V or DC12V optional
- Weight: 0.6kg
- Size: (W)220X(L)107X(H)55
- Communication interface: CAN, RS232, RS485, USB
- Accessories: 3M long cable, manual

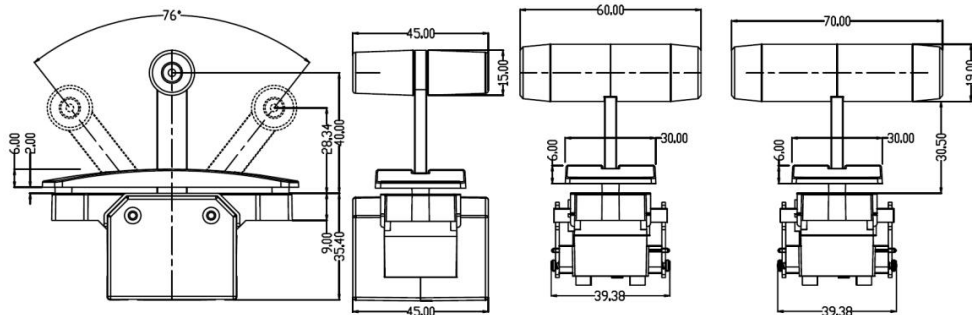


MKF-JS23 Single axis joystick series



Suitable for director switchers and industrial applications

- Single axis, Hall sensor
- Handle size: 45mm/60mm/70mm
- Positioning: friction resistance positioning (standard configuration)
- Spring automatic return (customized)
- Central gear: central mechanical gear (optional)
- Operation angle: XY axis $\pm 38^\circ$ (total 76°)
- Power supply: DC5V
- Signal output: analog voltage 0-5V, USB
- Current 0-20MA,
- Life span: 5 million times;
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$

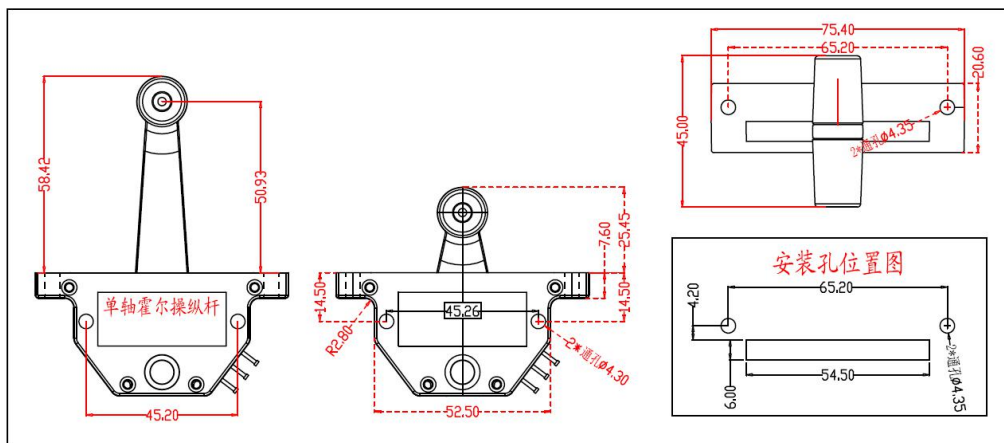


MKF-JS18 Single-axis joystick (T-BAR)



MKF-JS18 series single-axis joystick is the main accessory of video switcher products. It adopts German imported Hall sensor, full temperature range linear compensation, multi-point linearity correction, non-contact of moving parts and sensor, long life, advanced structure design and imported damping material, with good hand feeling, widely used in broadcasting TV products.

- Axis Number: 1 axis
- Sensor: Hall sensor
- Handle material: aluminum alloy, anodized surface
- Positioning method: friction resistance positioning
- Operation angle: 60 degrees
- Power supply: DC5V
- Power consumption: 12MA (Test conditions: 5V power supply, analog signal output)
- Signal output: analog voltage 0-5V
- Life: more than 5 million times;
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- Protection: IP54

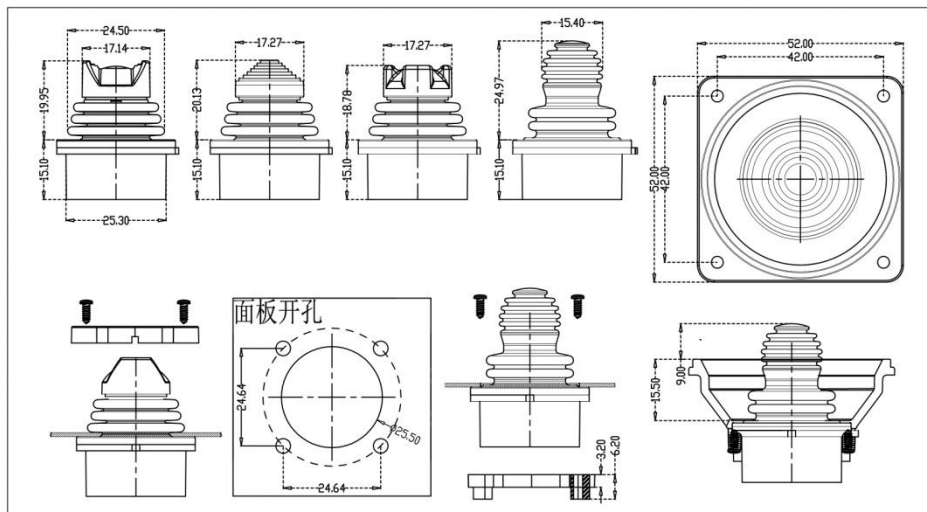


MKF-JS09 2-axis joystick



Optional sink cup decorative ring

- 1-axis or 2-axis, Hall sensor, 4 types of handles
- Operation mode: full range (360 degree range), one word (only front and back, no left and right)
- Returning method: spring automatic return
- Operation angle: XY axis $\pm 25^\circ$ diagonal $\pm 31^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), USB2.0
- Life span: 5 million times;
- Material: synthetic engineering plastic handle
- Replacement accuracy: less than 2%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: part of the panel is IP67

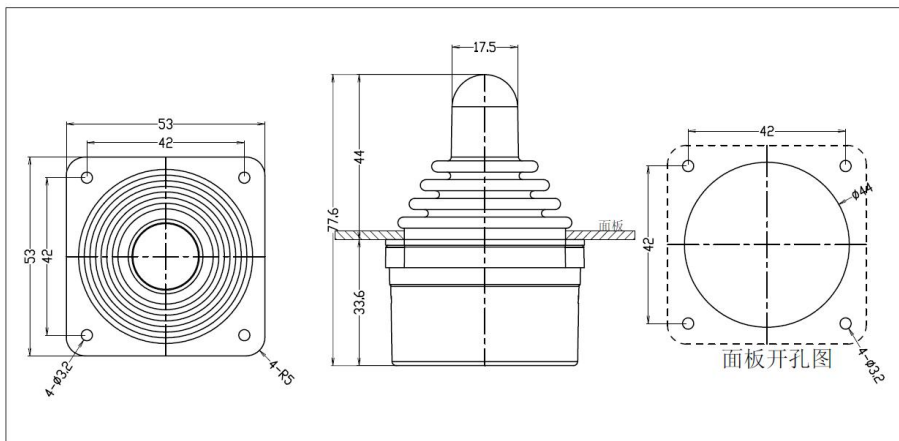


MKF-JS24



The rubber handle has an orthogonal guiding function and has a good control feel. It is specially designed for the field of industrial remote controllers. There are many configurations, which can replace other brand products.

- Basic parameters: 2-axis, Hall sensor
- Positioning method: The spring automatically returns to the neutral position
- Operating range: square, with orthogonal cross guide
- Gear position feel: There is gear shock feeling in the middle position, 4 gears each (optional)
- Operating angle: $\pm 25^\circ$
- Power supply: DC5V, minimum 4.1V, maximum 5.5V
- Signal output: analog voltage 0.5-2.5-4.5V@DC5V power supply
- Lifespan: more than 5 million times
- Return accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +85^\circ\text{C}$
- Protection level: IP65 above the panel

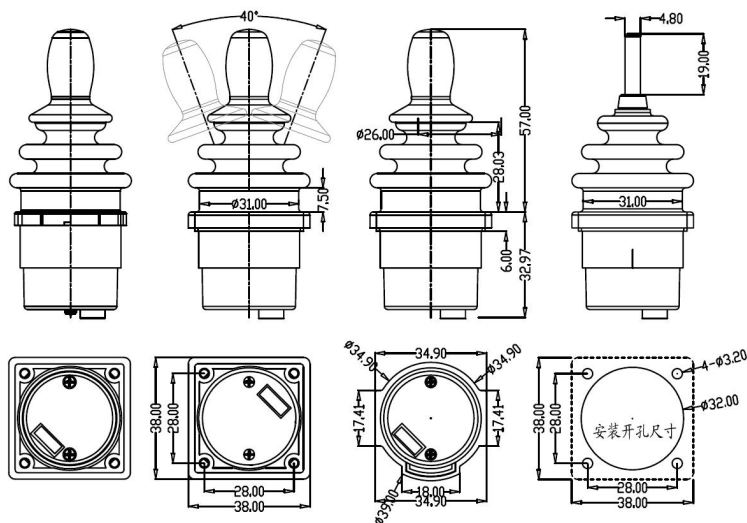


MKF-JS25 2-axis Hall joystick

Suitable for electric wheelchairs, machinery and equipment



- Number of axes: 2 axes, Hall sensor,
- Operation angle: XY axis $\pm 20^\circ$ diagonal $\pm 28^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, USB, CAN
- Life: 5 million times; button > 1 million times
- Material: Aluminum handle
- Replacement accuracy: less than 1%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel

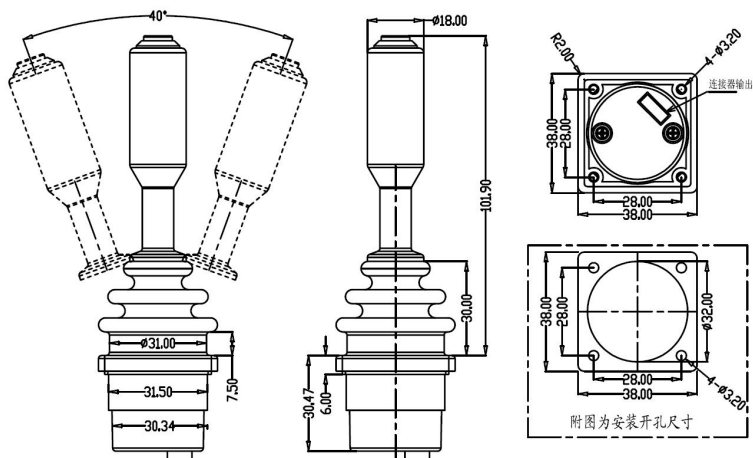


MKF-JS26 2-axis Hall joystick

Suitable for desktop systems and industrial equipment



- 2 axis, Hall sensor, 1 button (reset)
- Operation angle: XY axis $\pm 20^\circ$ diagonal $\pm 28^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, USB, CAN
- Life span: 5 million times; button 1 million times
- Material: Aluminum handle
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Protection level: IP65 above the panel

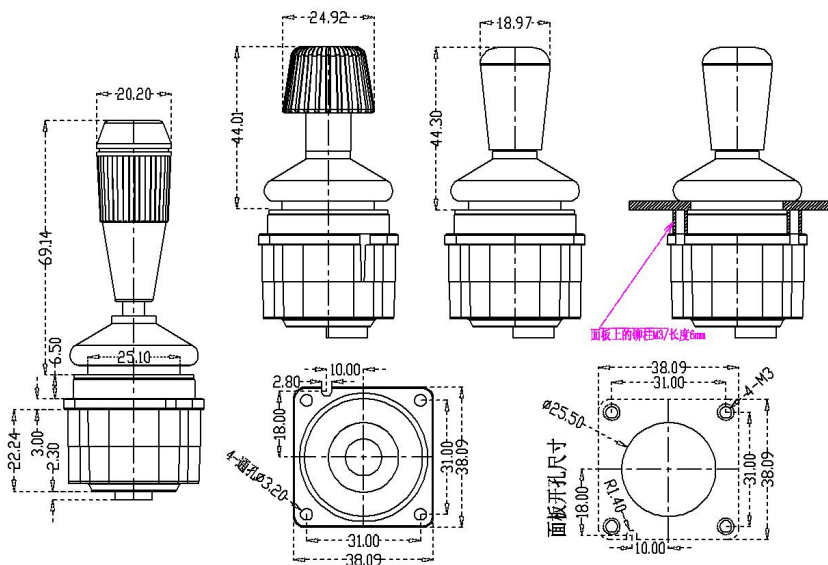


MKF-JS27 2-axis Hall joystick

Suitable for Robots, medical equipment, industrial equipment



- Material: aluminum alloy shell, stainless steel shaft.
- 2-axis Hall sensor
- Operation angle: $\pm 20^\circ$
- Power supply: DC5V
- Signal output: 0-5V (0.5-4.5)
- Digital interface (optional): RS232, CAN
- Life span: more than 5 million times;
- Replacement accuracy: less than 0.1%.
- Protection level: IP65 above the panel
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$

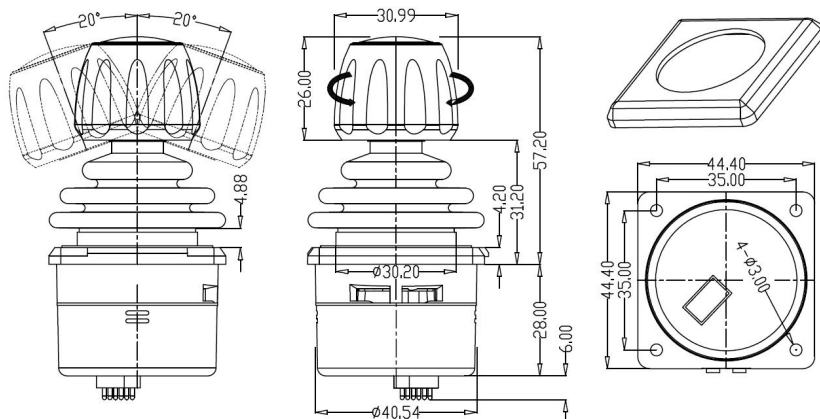


MKF-JS08 3-axis Hall Joystick

Suitable for industrial robots, medical equipment, optical instruments



- Three-axis, Hall sensor
- Operating range: round, one word, cross
- Button (optional): no button
- Operation angle: XY axis $\pm 20^\circ$ Z axis $\pm 18^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (0.5-4.5), RS232, RS485, USB, CAN (2.0B)
- Life span: 5 million times
- Material: stainless steel shaft and synthetic plastic
- Replacement accuracy: less than 1%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel

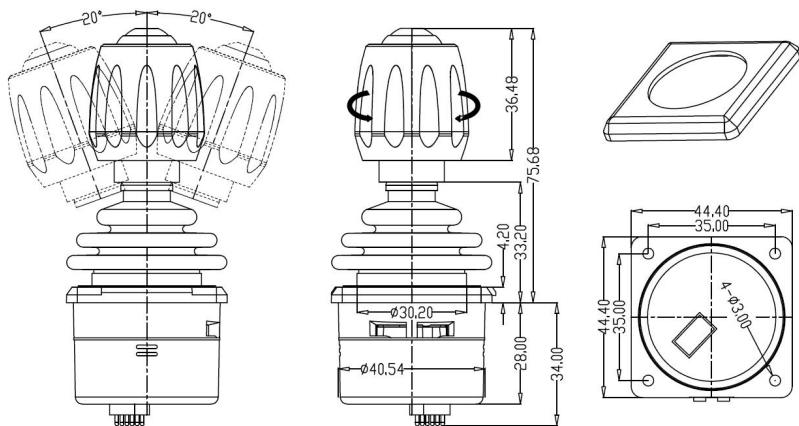


MKF-JS03 3-axis Hall Joystick

Suitable for industrial robots, medical equipment, optical instruments



- Three-axis, Hall sensor
- Operating range: round, one word, cross
- Button: 1 button
- Operation angle: XY axis $\pm 20^\circ$ Z axis $\pm 18^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (0.5-4.5), RS232, RS485, USB, CAN (2.0B)
- Life span: 5 million times
- Material: stainless steel shaft and synthetic plastic
- Replacement accuracy: less than 1%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel

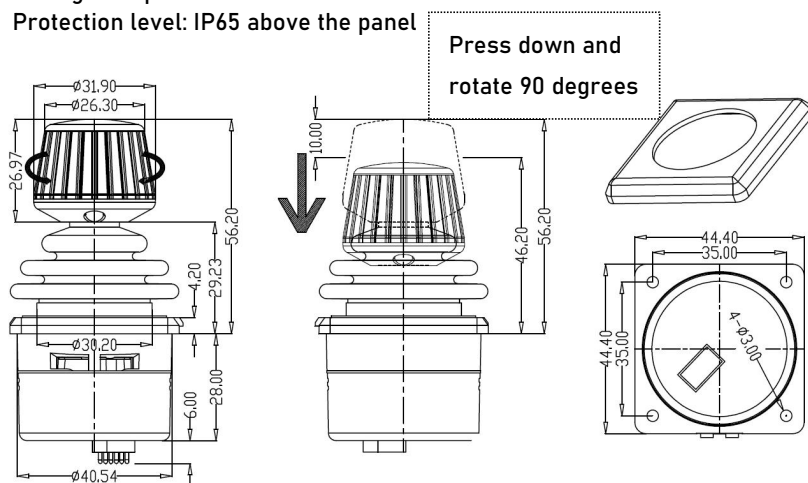


MKF-JS20 3-axis Telescopic joystick

The handle can be compressed 10mm for use in portable devices



- Compression distance: 10mm
- 3-axis, Hall sensor
- Operation angle: XY axis $\pm 20^\circ$, Z axis $\pm 18^\circ$
- Power supply: DC5V, DC12V optional
- Signal output: 0-5V (or 0.5-4.5)
- Communication: RS232, RS422, CAN, USB
- Life span: 5 million times
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel



MKF-JS04 Hall joystick (1-3 axis)

Suitable for industrial robots, medical equipment, optical instruments



With decorative cover

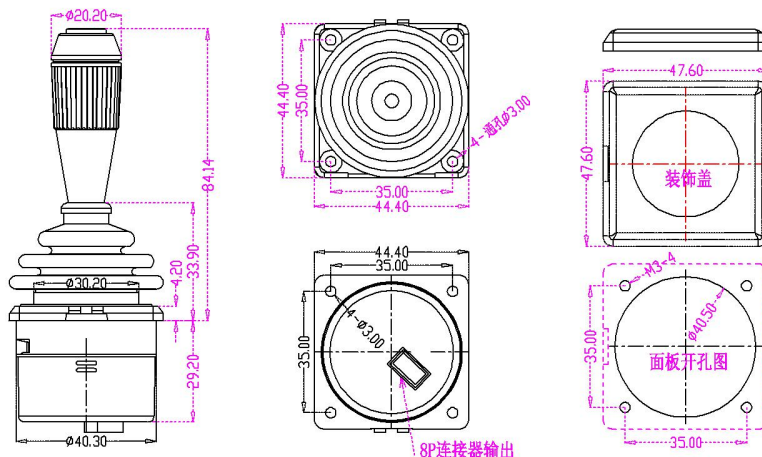


with button



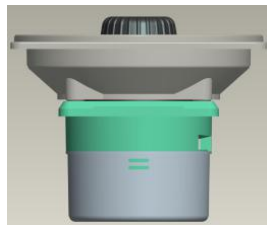
without button

- One, two, three axis, Hall sensor,
- Button: 1 button (reset) or no button
- Operation angle: XY axis $\pm 20^\circ$ Z axis $\pm 18^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, USB, CAN (2.0B)
- Life span: 5 million times
- Material: stainless steel shaft and synthetic plastic
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel

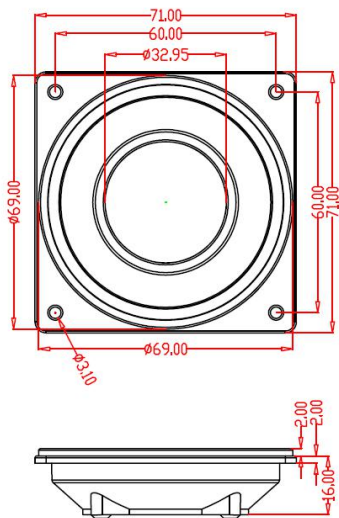
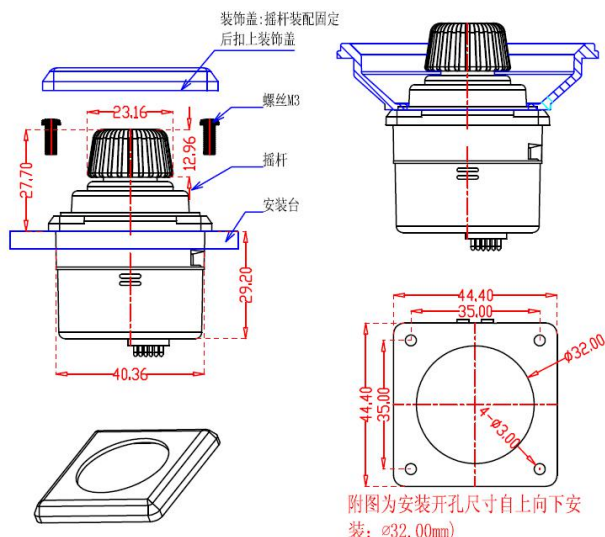


MKF-JS10 3-axis Hall joystick

Suitable for use in portable devices



- With decorative ring
- 2-3 axis, Hall sensor
- Operation angle: XY axis $\pm 20^\circ$ Z axis $\pm 18^\circ$
- Power supply: DC5V, DC12V optional
- Signal output: 0-5V (or 0.5-4.5)
- Communication interface: RS232, RS422
- Life span: 5 million times
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Storage temperature: $-50^\circ\text{C} \sim +80^\circ\text{C}$
- Protection level: IP65 above the panel

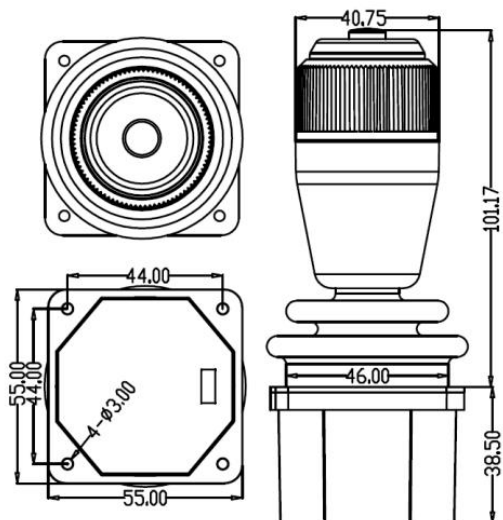


MKF-JS07 3-axis Hall joystick

Used in TV cameras, industrial robots, medical equipment, optical instruments



- Three-axis, Hall sensor
- Button: 1 button (reset)
- Operating angle: XY axis $\pm 25^\circ$; Z axis $\pm 36^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, RS422, USB, CAN (2.0B)
- Life span: 5 million times; button 1 million times
- Material: aluminum alloy, stainless steel and engineering plastics
- Replacement accuracy: less than 0.1%.
- Protection level: IP54 above the panel
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$

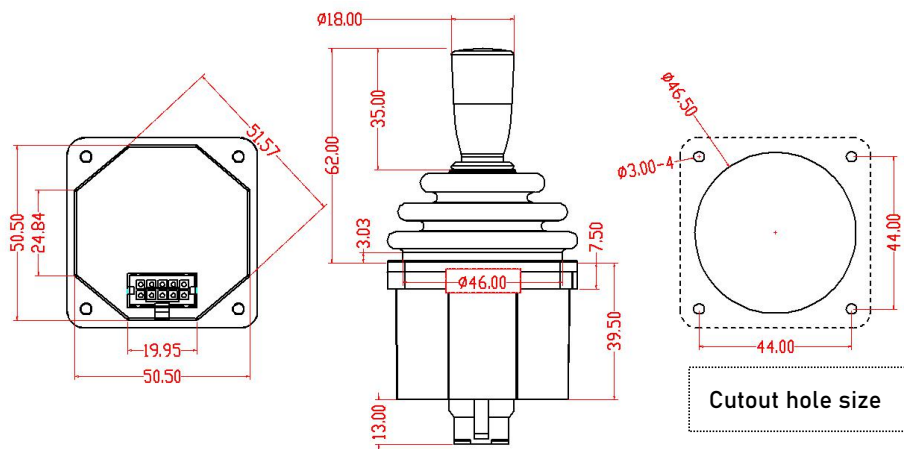


MKF-JS29 2-axis Hall joystick

Used in industrial robots, medical equipment, optical instruments



- 1-2 axis, Hall sensor
- Operation angle: XY axis $\pm 25^\circ$
- Operating range: round, one word, cross
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, USB, CAN (2.0B),
- Life span: 5 million times; button 1 million times
- Material: aviation aluminum alloy and ABS+PC material
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Protection level: IP65 above the panel

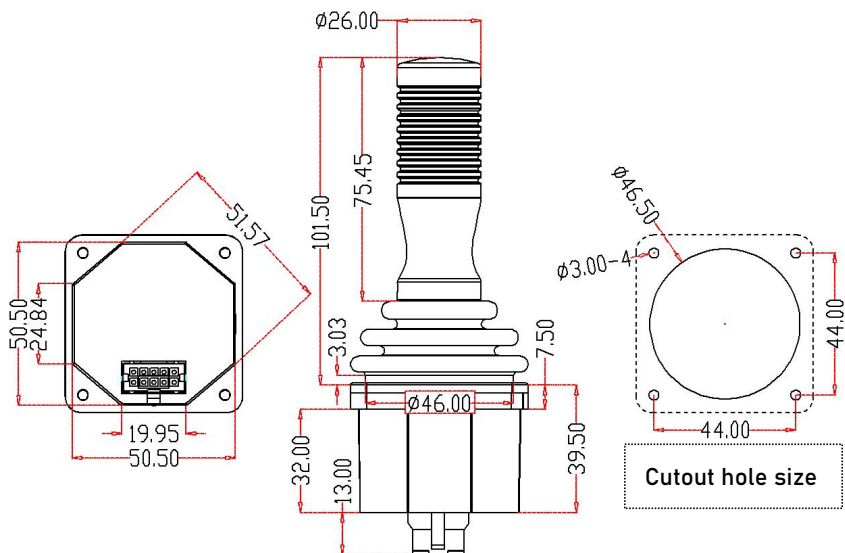


MKF-JS30

Used in machinery and equipment, industrial control, engineering machinery



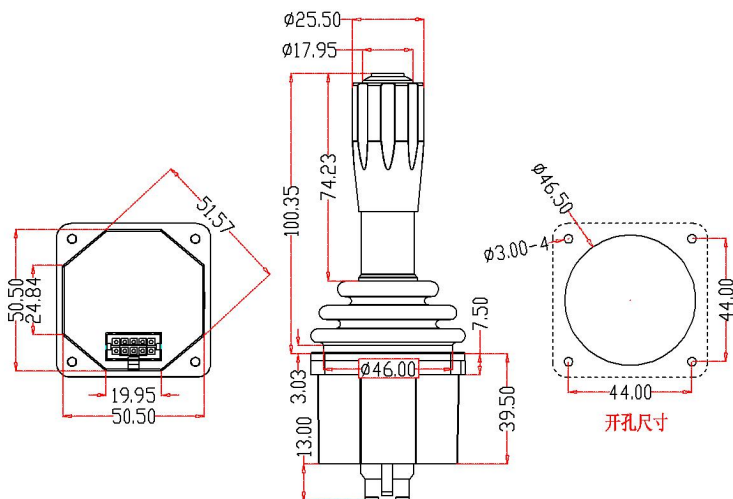
- 1-2 axis, Hall sensor
- Operation angle: XY axis $\pm 25^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V (or 0.5-4.5), RS232, RS485, USB, CAN (2.0B),
- Life span: 5 million times
- Material: stainless steel, aluminum alloy and engineering plastics
- Replacement accuracy: less than 1%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Protection level: IP65 above the panel



Used for machinery and equipment, industrial control, construction machinery



- 2-axis Hall sensor, 1 button, automatic return
- Operation angle: XY axis $\pm 25^\circ$
- Power supply: DC5V or 12-24V (Optional)
- Signal output: analog voltage 0-5V, RS232, RS485, USB, CAN (2.0B)
- Life span: 5 million times; button > 5 million times
- Material: aviation aluminum alloy and ABS+PC material
- Replacement accuracy: less than 0.8%.
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$
- Protection level: IP65 above the panel

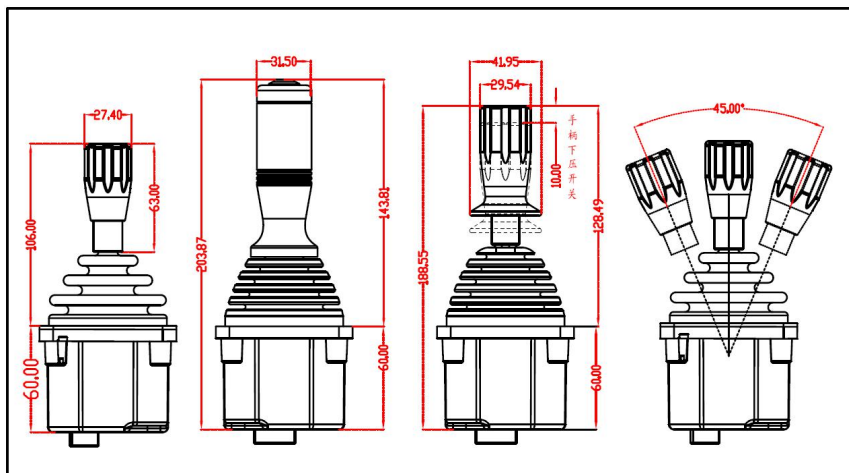


MKF-JS32 2-axis Hall joystick

Suitable for aviation/ Ship/ Construction machinery



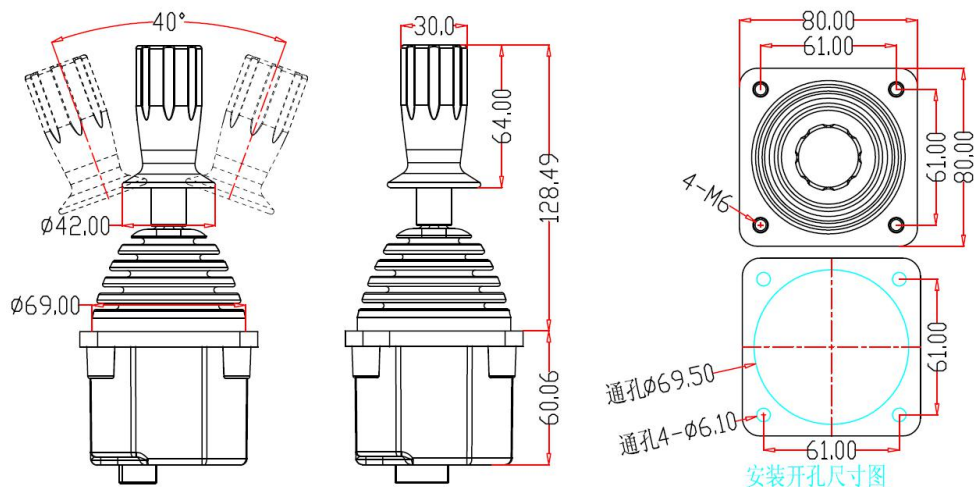
- Positioning method: spring return
- Button: 1 button
- Operation angle: $\pm 22.5^\circ$
- Central gear: independent central mechanical gear
- Power supply: DC5V, 12-28V (optional)
- Signal output: 0-5V/RS232/RS422/ CAN, PWM (0-500mA) proportional valve signal
- Life span is 5 million times; accuracy: less than 0.1%.
- Material: aluminum alloy + stainless steel
- Protection level: IP65 above the panel
- Proportional valve control has acceleration and deceleration speed, curve, maximum current, minimum current setting functions



MKF-JS33 2-axis Hall joystick, with a push-down switch



- Positioning method: spring automatic reset
- Operation angle: $\pm 22.5^\circ$
- Power supply: DC5V, 12-28V (optional)
- Signal output: 0-5V/RS232/RS422/CAN/USB/PWM (0-500mA) proportional valve signal
- Life span: 5 million times
- Repeat accuracy: less than 1%
- Material: plastic, aluminum alloy, stainless steel
- Protection level: IP65 above the panel

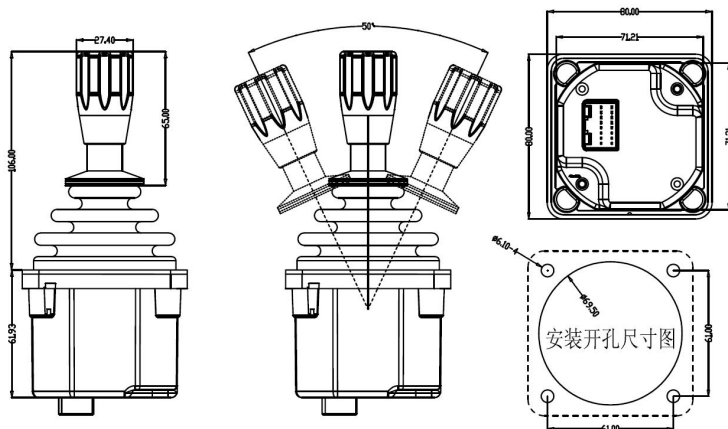


MKF-JS34 3-axis Hall joystick

Suitable for aviation and ships



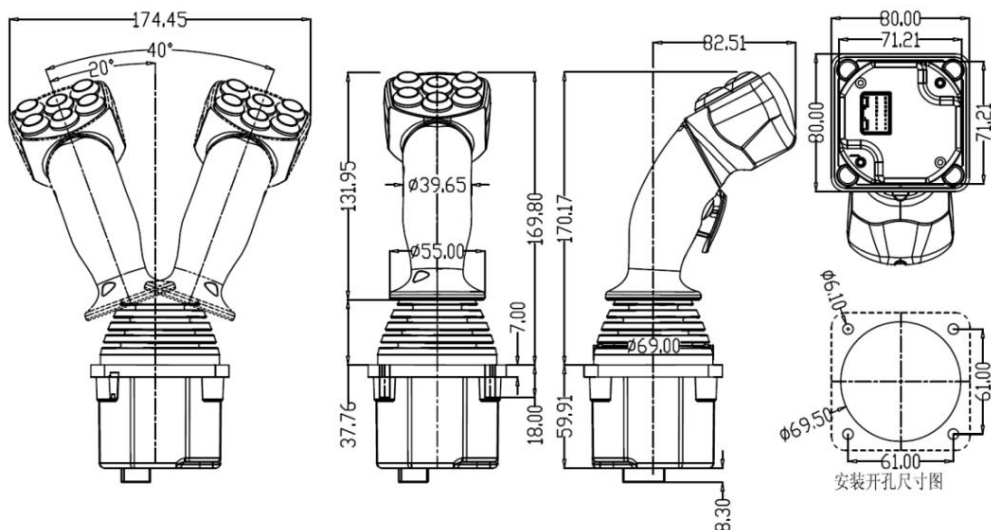
- XY axis positioning: automatic spring reset
- Z axis positioning: friction resistance positioning
- Operation angle: XY axis $\pm 22.5^\circ$ Z axis $\pm 135^\circ$
- Central gear: obvious manipulator feel in the center of Z axis
- Power supply: DC5V, 12-24V (optional)
- Signal output: 0-5V, USB, RS232, RS422, CAN
- PWM (0-500mA) proportional valve signal
- Life: 5 million times; accuracy: less than 0.1%.
- Material: aluminum alloy + stainless steel
- Protection level: IP65 above the panel



MKF-JS05 series



- 2-4 axis Hall sensor
- Button: 2~6 buttons + trigger switch
- Trigger switch, thumb wheel
- Button color: red/green/blue/yellow/black
- Direction switch: 4 direction switches
- Positioning method: spring automatic reset
- Operation angle: $\pm 22.5^\circ$
- Power supply: DC5V, 12-24V (optional)
- Signal output: single sensor or double sensor (cross)
- /Analog voltage 0-5V/0.5-4.5V/0.3-4.7V@middle position 2.5V
- /Analog voltage signal, linear V-curve + direction switch
- /Analog voltage signal, V-shaped curve (low middle position) + direction switch
- /RS232/RS422/RS485/CANOPEN/CAN J1939/USB(HID2.0)
- / PWM (0-500mA) proportional valve signal
- /Modbus master or slave
- Life: more than 5 million times;
- Repeat accuracy: less than 0.8%.
- Material: plastic, aluminum alloy, stainless steel
- Protection level: IP65 above the panel
- Working temperature: $-40^\circ\text{C} \sim +75^\circ\text{C}$
- Proportional valve control has acceleration and deceleration, curve, maximum current, minimum current setting functions



MKF-JS35

Used in heavy machinery, hydraulic equipment, electric vehicle control

单轴多按钮



单轴1按钮



2轴
手柄可旋转



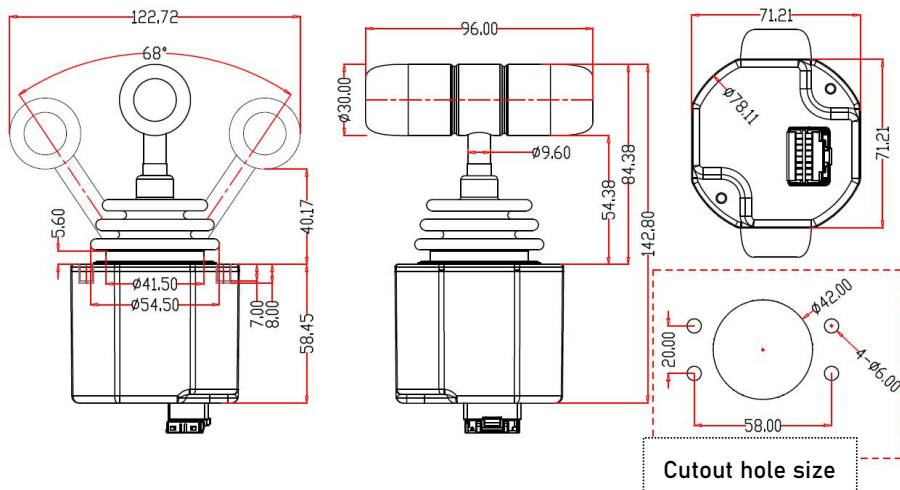
单轴



1 axis,multi button 1 axis,1 button 2 axis

1 axis

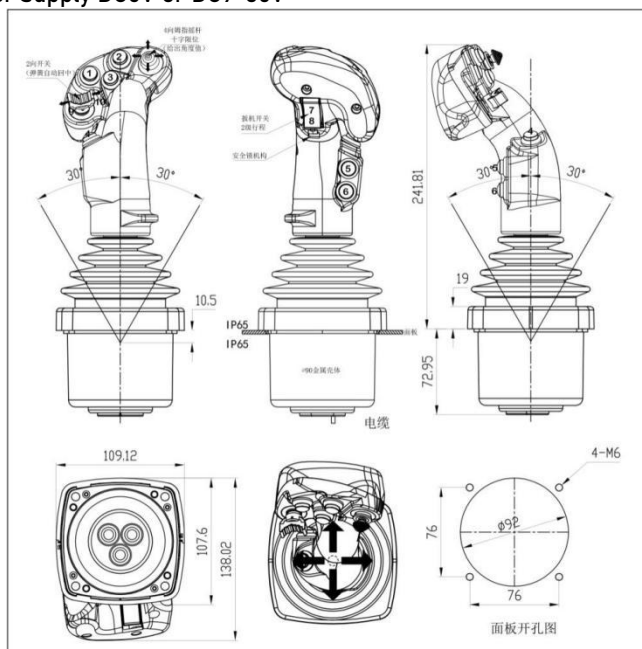
- Positioning method: spring automatic reset/resistance positioning
- Mechanical gear position: feel of mechanical gear position (positioning with limited resistance)
- Sensor: Hall sensor
- Direction switch: 2 * 2A/12V operating angle: $\pm 34^\circ$, total angle 68°
- Power supply: DC5V/12-29V
- Signal output: voltage 0-5V, USB, CAN PWM (0-500mA) proportional valve signal
- Life: 5 million times; accuracy: less than 0.8%.
- Material: aluminum alloy, stainless steel
- Protection level: IP65 above the panel
- Proportional valve control has acceleration and deceleration speed, curve, maximum current, minimum current setting functions



MKF-JS40 series drone joystick



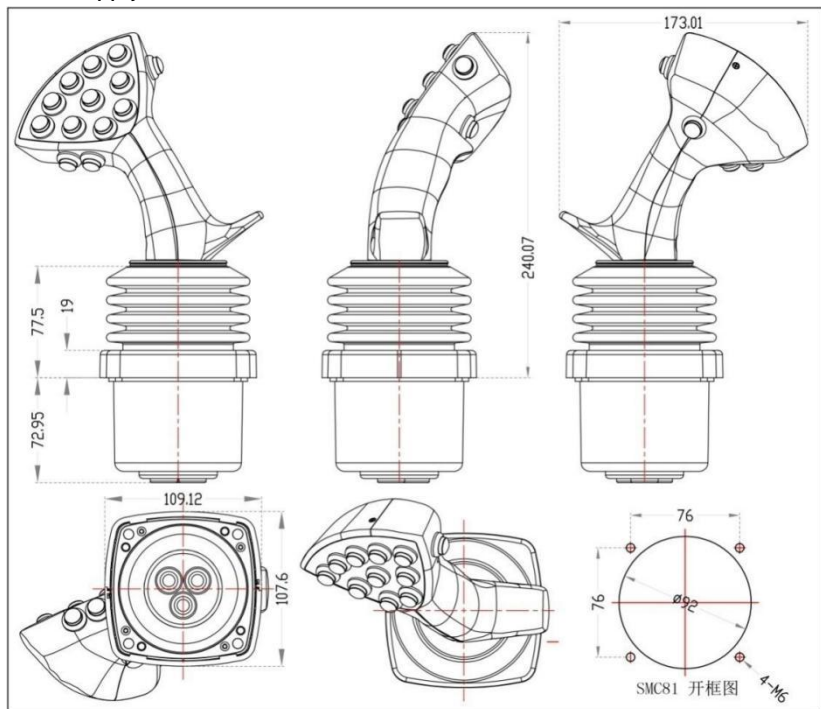
- Handle material: aluminum-magnesium alloy
- Return mode: the spring automatically returns to the neutral position;
- Configuration parameters: 6 waterproof button switches
- 1 * trigger switch with 2 strokes
- 1 * 2-way self-reset switch
- 1 * cross thumb Hall rocker
- Signal output: 0.5-4.5V/RS422/232/CAN/USB/ switch
- Life span is greater than 5 million times
- Power supply DC5V or DC9-36V



MKF-JS11 (Right handle)



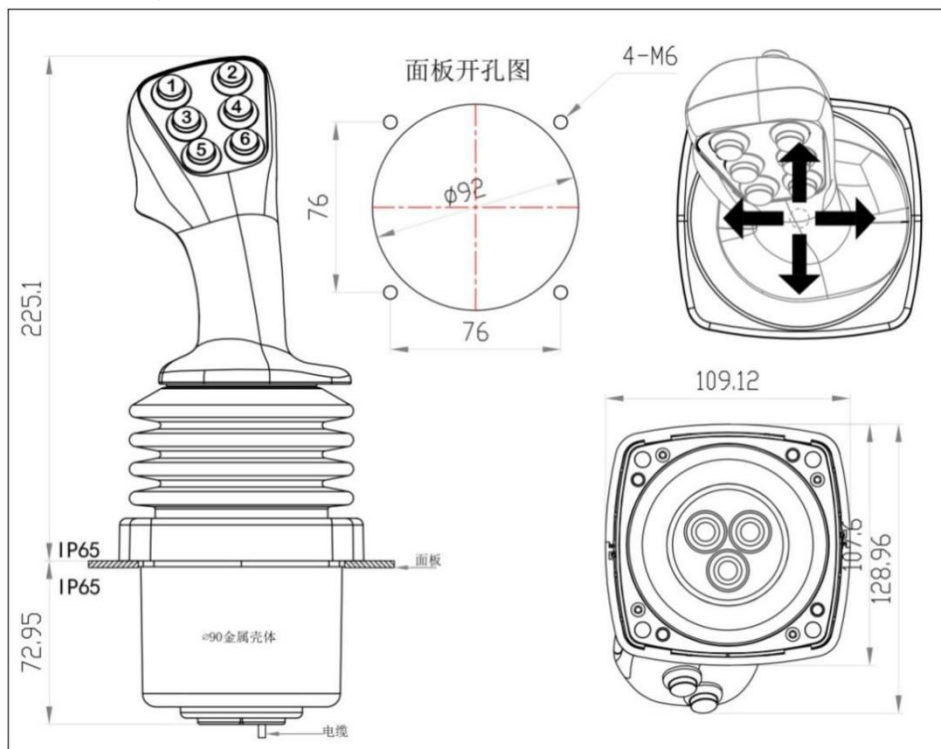
- Multi-axis friction positioning or a combination of spring return and friction positioning
- Various operation ranges such as one-word limit, cross limit, square limit, T-shape, H-shape, etc.
- Signal output: 0.5-4.5V, RS422, RS232, CAN, USB, switch, etc.
- IP65 protection; temperature: -40 degrees to +70 degrees
- Power supply DC5V or DC9-36V



MKF-JS12 (Both left and right handles)



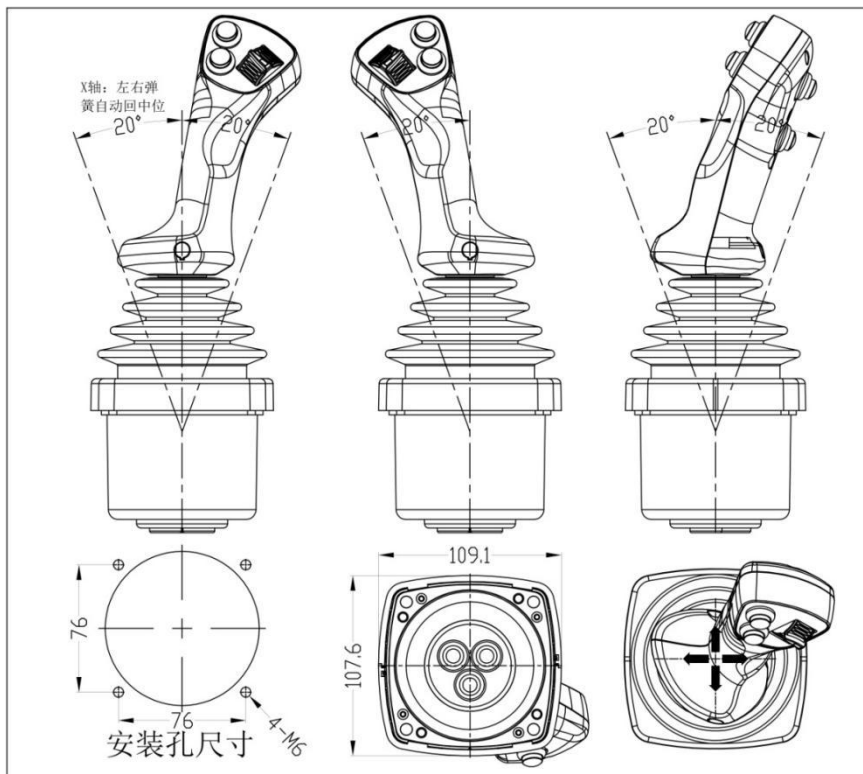
- The same feel as the hydraulic control; the spring returns to the neutral position
- Various operation ranges such as one-word limit, cross limit, square limit, T-shape, H-shape, etc.
- Signal output: 0.5-4.5V, RS422, RS232, CAN, USB, switch, etc.
- IP65 protection; temperature: -40 degrees to +70 degrees
- Power supply DC5V or DC9-36V



MKF-JS13 (Both left and right handles)



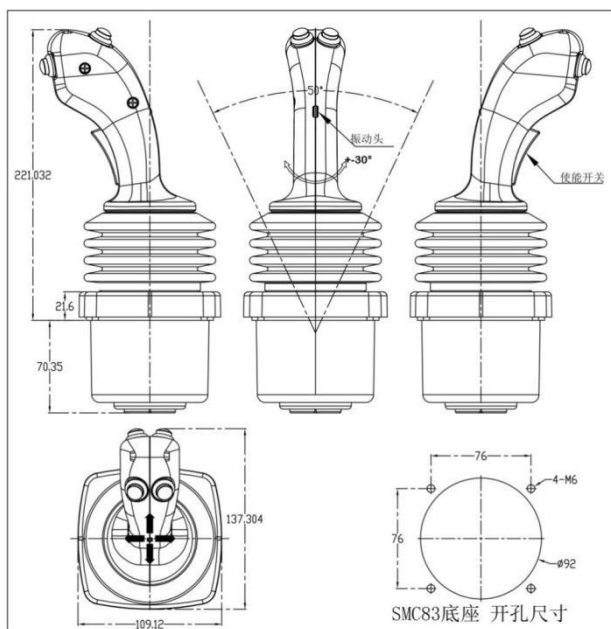
- The same as the hydraulic control feel; the spring returns to the neutral position; one-word limit, cross limit, square limit, T-shaped, H-shaped and other operating ranges signal output (0.5-4.5V, RS422, RS232, CAN etc.
- IP65 protection; temperature: -40 degrees to +70 degrees; life is greater than 5 million times; Power supply DC5V or DC9-36V



MKF-JS14



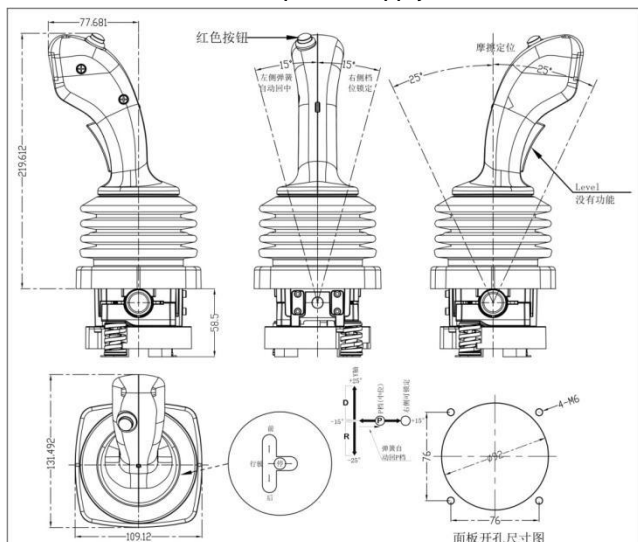
- Same as the hydraulic control feel
- Multi-axis: XY axis, XYZ axis, Z axis handle ± 30 degree rotation (optional)
- Hall sensor; with vibration feedback
- Any combination of spring return and friction positioning
- One word/cross/square/T-shaped/Z-shaped limit
- Signal output (0.5-4.5V, RS422, RS232, CAN, USB, switch, etc.)
- IP65 protection; temperature: -40 degrees to +70 degrees
- Life span: more than 5 million times



MKF-JS36



- Front and rear throttles, left and right gears
- Hall sensor
- With vibration feedback
- Y-axis friction positioning, the middle position has gear vibration feeling
- X axis: left D gear (spring return to center) middle N, right P gear
- Multiple signal output (0.5–4.5V, RS422, RS232, CAN, and switch combination, etc.)
- IP65 protection; temperature: -40 degrees to +70 degrees
- 1 enable switch, multiple waterproof button switches
- Life is more than 5 million times; power supply is DC5V or DC9–36V

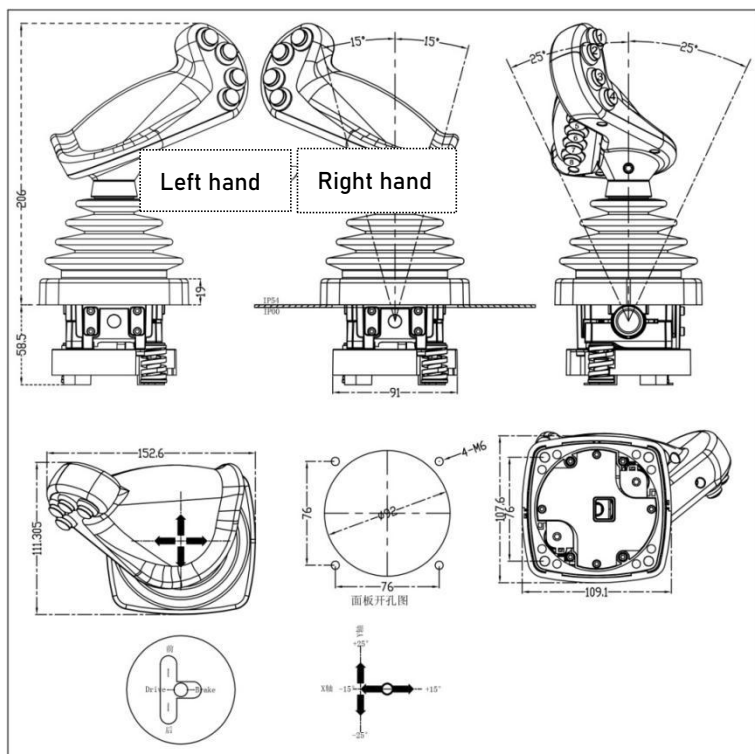


MKF-JS21 (Both left and right handles)

Used in road roller and bulldozer control



- Front and rear throttle, left and right gear
- Y-axis friction positioning, the middle position has gear vibration feeling
- X axis: left D gear (spring return to center), Middle N gear, right P gear
- Signal output 0.5-4.5V, RS422, RS232, CAN, etc.

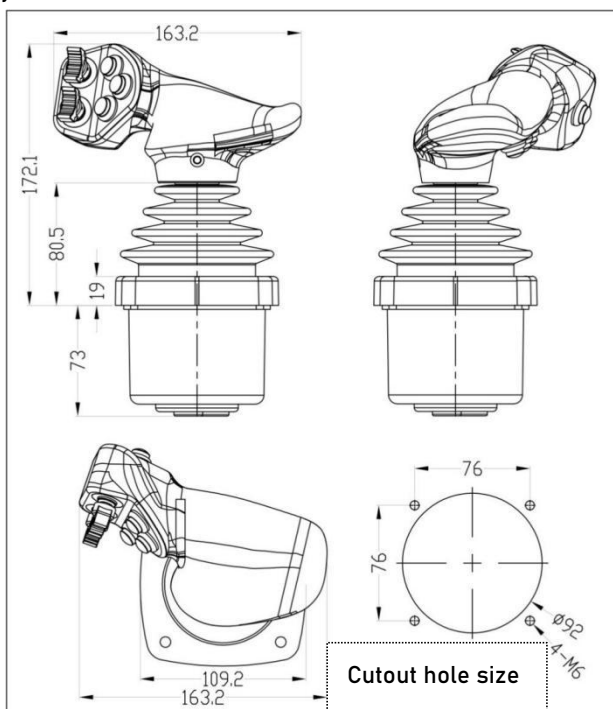


MKF-JS37 (Right handle)

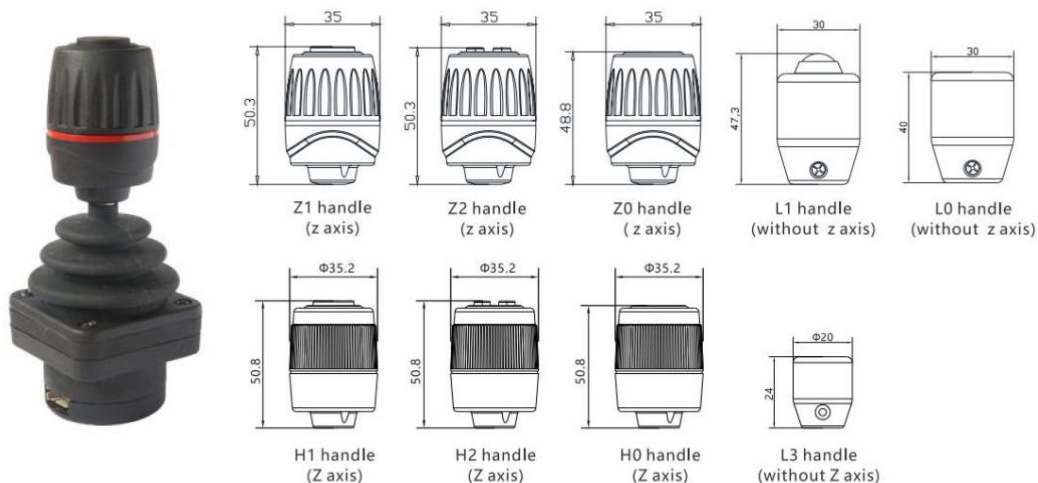
Used in reach crane control



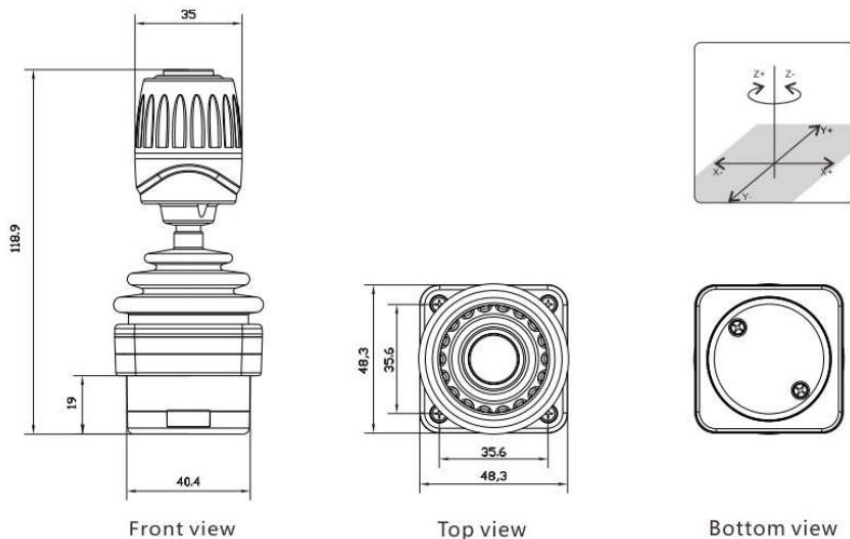
- The spring automatically returns to the neutral position
- Operation range of one-word limit, cross limit, square limit, etc.
- Signal output: 0.5-4.5V, RS422, RS232, CAN
- IP65 protection; temperature: -40 degrees to +70 degrees
- Power supply DC5V or DC9-36V



MKF-JS91 3-axis Hall joystick



- The spring automatically returns to the neutral position
- Operation range in any direction
- Signal output: USB or RS232
- Operation angle: XY axis $\pm 28^\circ$ Z axis $\pm 42^\circ$
- IP65 protection; temperature: -30 degrees to $+70$ degrees
- Power supply DC5V or DC9-36V
- Protection level: IP65 above the panel



MKF-JS15

Friction resistance positioning, Dedicated for unmanned boats, anti-salt fog

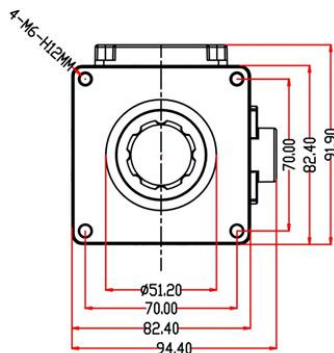
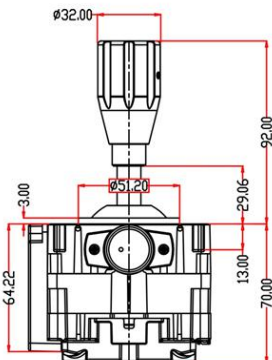
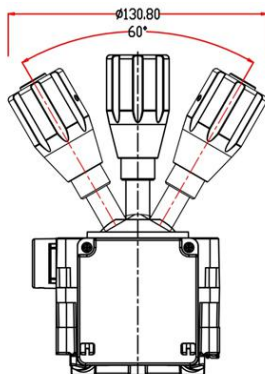


3 axis with button



3 axis without button

- Stainless steel structure, panel IP65 protection, anti-salt spray, sensor and circuit waterproof design;
- 1 axis, 2 axis, 3 axis, friction resistance positioning, the center mechanical gear position of each axis, the gear position feels obvious
- High-precision Hall sensor, linear correction in the whole temperature range, Smooth operation feel
- Multiple signal output options
- Waterproof button design
- Applicable to the control of unmanned ships, unmanned boats, ships, etc.
- Suitable for ship hydraulic control and other fields
- Operation angle: ± 30 degrees
- Signal output: 0.3-4.7V, RS232, RS422, CAN
- Power supply: DC5V/DC12V/DC24V

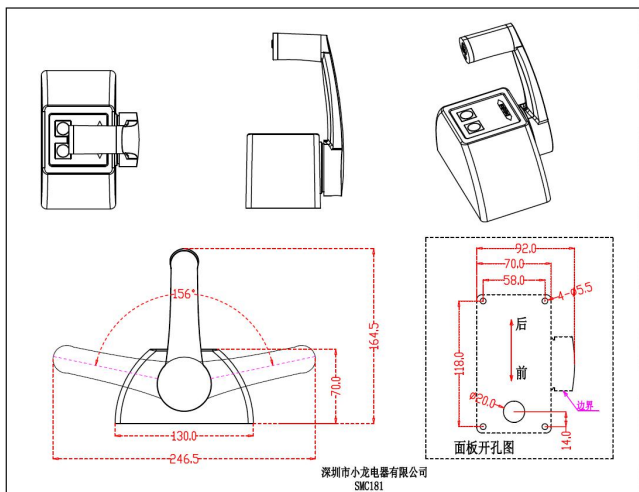


MKF-JS38 Single engine throttle controller

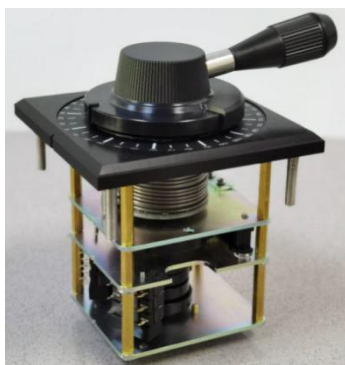


MKF-JS38 single engine throttle controller. Suitable for ship engine throttle control, gear control, etc. There are gear indicator lights and signal indicator lights. It adopts Hall sensor, full temperature range linear compensation, stainless steel shell, waterproof and salt spray design, friction resistance positioning, 3 mechanical gears (DNR).

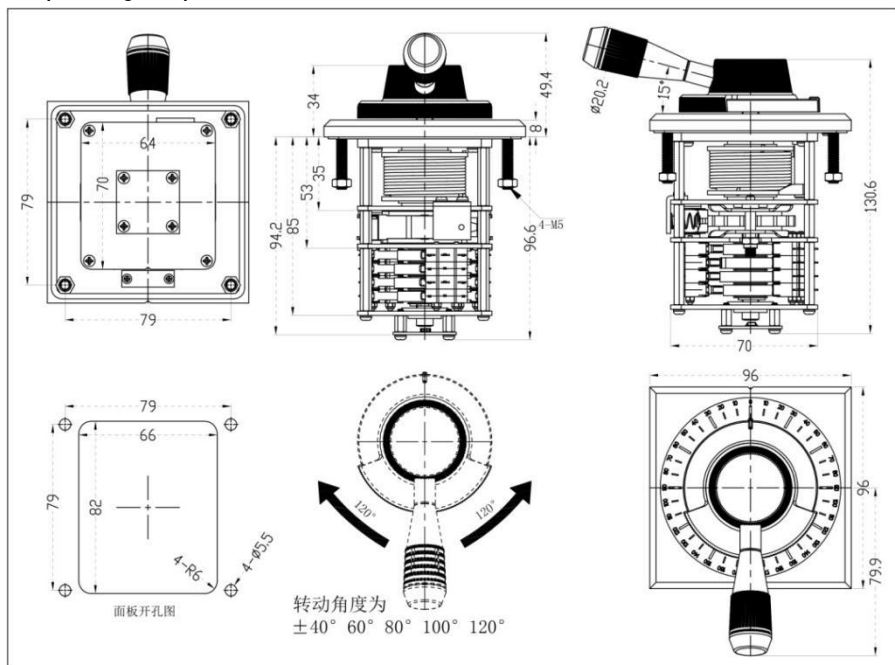
- Sensor: Double Hall sensor
- Operation angle: 156 degrees
- Center gear: 3 gears (DNR)
- Life span: more than 5 million times
- Power supply: DC5V/DC12V/DC24V
- Signal output: analog voltage 0-5V, CAN, RS485, 0-20MA
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- Protection: IP67



MKF-JS17 Rudder



- Signal output: multiple groups of switching signals + voltage signal 0.5-2.5-4.5V
- Positioning: The friction resistance positioning and the spring automatic return to the center position are two kinds of first.
- Angle: $\pm 40^\circ$, $\pm 60^\circ$, $\pm 80^\circ$, 100° , 120° or continuous rotation optional
- Hand feeling: gear position feeling ($22.5^\circ/\text{gear}$), smooth damping (medium gear)
- Power supply: DC5V
- Life span: 5 million times
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$

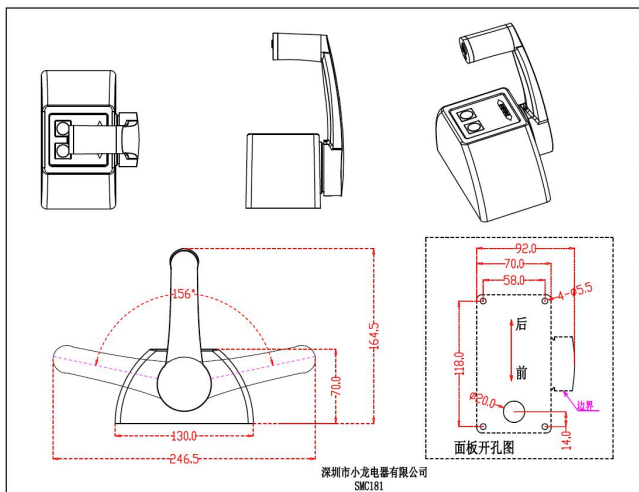


MKF-JS38 Single engine throttle controller



MKF-JS38 single engine throttle controller. Suitable for ship engine throttle control, gear control, etc. There are gear indicator lights and signal indicator lights. It adopts Hall sensor, full temperature range linear compensation, stainless steel shell, waterproof and salt spray design, friction resistance positioning, 3 mechanical gears (DNR).

- Sensor: Double Hall sensor
- Operation angle: 156 degrees
- Center gear: 3 gears (DNR)
- Life span: more than 5 million times
- Power supply: DC5V/DC12V/DC24V
- Signal output: analog voltage 0-5V, CAN, RS485, 0-20MA
- Operating temperature: $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- Protection: IP67



MKF-PJS01 Hall / Potentiometer, Single/Dual Axis, Panel Mounted

Typical application on various electro-hydraulic control system of engineering vehicles and other electrical control system.



- Single-axis forward and backward directional or single directional operated
- Friction lock or spring return
- Center and start (end) position mechanical lock optional
- Hall and potentiometer is selectable
- Microswitch optional (maximum 10A@30Vdc)
- A variety of handle models can be configured

Potentiometer

Power Supply Resistance	<36Vdc
Resistance	2KΩ, 5KΩ, 10KΩ
Center Angle	±3°
Maximum Dissipation	0.2W

Hall

Power Supply	5±0.5Vdc
Supply Current	<11mA (Setting Power supply)
Maximum Allowable Overload Voltage	20Vdc
Reverse Maximum Allowance Voltage	-10Vdc
Output Linearity Tolerance	<± 0.2V

With electronic amplifier

Supply Voltage	18~36Vdc (U 21~U 25), 9~36Vdc (I 21~I 22)
Current Consumption	<20mA
Maximum Output Current	10mA(Standard power supply)

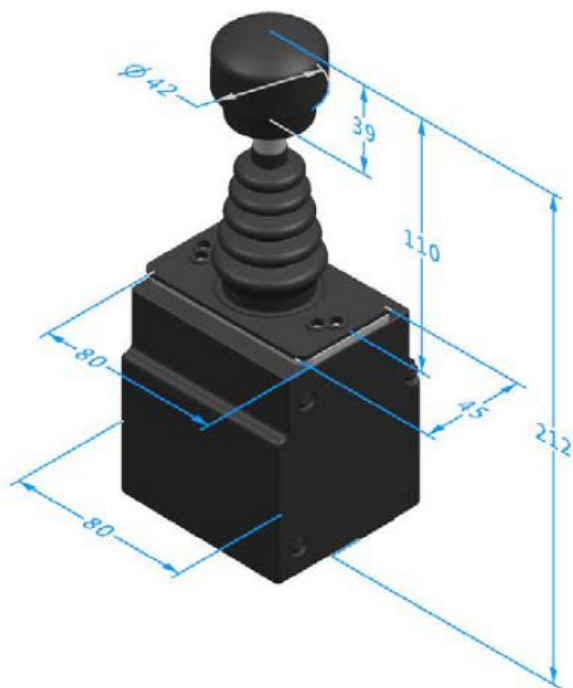
Microswitch

Load Capacity	10A@30Vdc (Resistive load))
Expecting Life	5 million times (Mechanical), 200 thousand times (Electrical))
Insulation Resistance	>100MQ (500Vdc Insulating-resistance)
Breakout Angle	± 5°
Storage Temperature	-40℃~~+85℃
Protection Level	IP65 (Above the Panel)
Breakout Angle	±5°

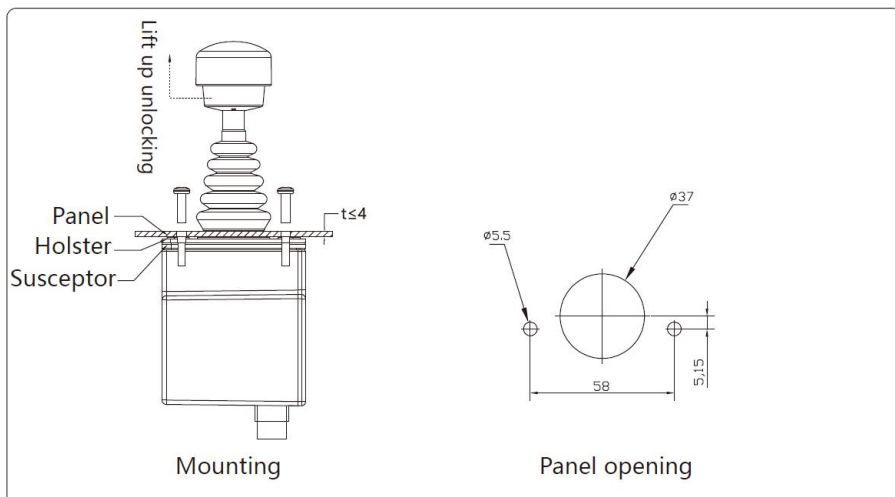
Mechanical Features

Travel Angle	±37.5°or 75°(single direction)
Operating Type	Spring return or Friction
Breakout Force	8N (spring) 16N (Friction)
Operating Force(max)	18N (spring) 16N (Friction)
Maximum Allowable Force	>260N
Expecting Life	>1 million cycles(potentiometer), >5million cycles (hall)
Weight	500g (without handle)

TECHNICAL DRAWINGS



Product Installation



MKF-PJS02 Hall / Potentiometer, Single/Dual Axis, Panel Mounted

Typical application on various electro-hydraulic control system of engineering vehicles and other electrical control system.



DESCRIPTION

- Spring return, single-axis or dual-axis operated
- Cross direction or arbitrary direction operated optional
- Potentiometer or hall effect angle detection, long life
- Large current microswitch optional (10A@30Vdc)
- Various output optional
- Various handle optional

Electrical Data

Potentiometer	
Power Supply Resistance	<36Vdc
Resistance	5KΩ, 10KΩ
Center Angle	±3°
Maximum Dissipation	0.2W

Hall

Power Supply	5±0.5Vdc
Supply Current	<11mA (Single axis), <22mA (Dual-axis)
Maximum Allowable Overload Voltage	20Vdc
Reverse Maximum Allowance Voltage	-10Vdc
Output Linearity Tolerance	< ± 0.2V

With electronic amplifier

Supply Voltage	18~36Vdc (U 21~U 25)
Current Consumption	<20mA
Maximum Output Current	10mA with standard voltage output

2-wire system current

Power Supply	9~36Vdc (I21~I22)
--------------	-------------------

4-wire system current

Power Supply	9~36Vdc (I41~I42)
Breakout Angle	± 5°

Microswitch

Load Capacity	1 0A@30Vdc (Resistance load)
Expecting Life	>30 million cycles (Mechanical) >200 thousand cycles (Electrical)
Insulation Resistance	>100MΩ 500Vdc Insulating-resistance meter
Breakout Angle	± 3° ~ ± 5°

Environmental Data

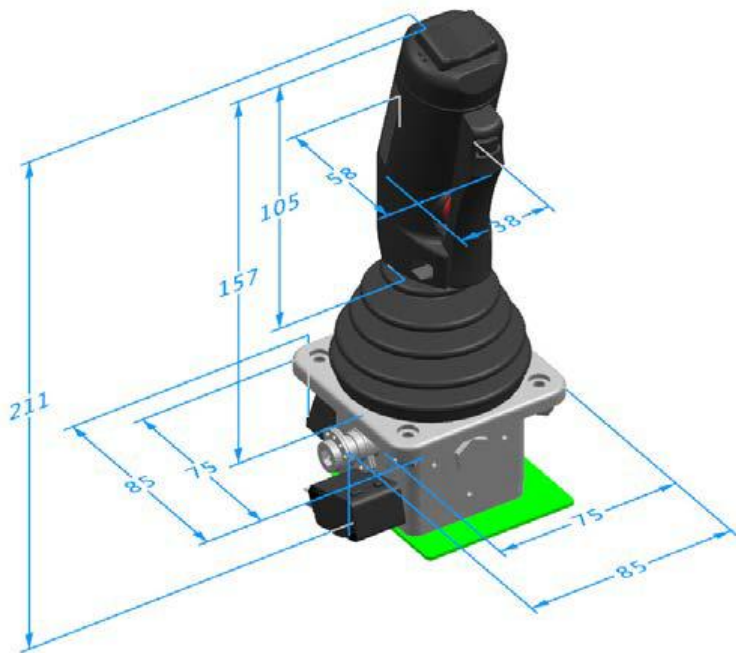
Operating Temperature	-30℃~+70℃
Storage Temperature	-40℃~+85℃
Protection Level	IP65 (Above the Panel)

Mechanical Features

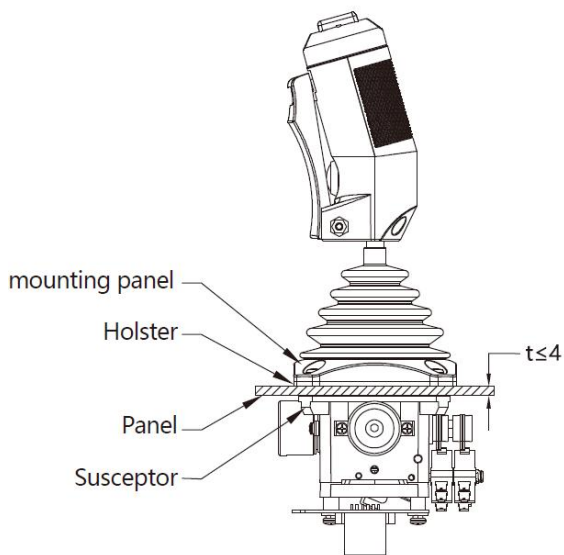
Travel Angle	±25°
Operating Type	Spring return
Breakout Force	15N

Operating Force(max)	30N
Maximum Allowable Force	>300N
Expecting Life	>2 million cycles(potentiometer), >5million cycles (hall)
Weight	460g (without handle)

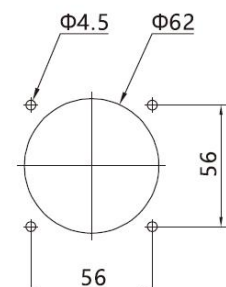
TECHNICAL DRAWINGS



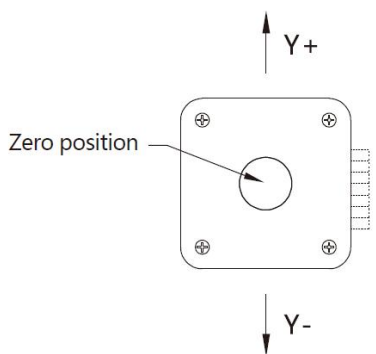
Product Installation



Mounting

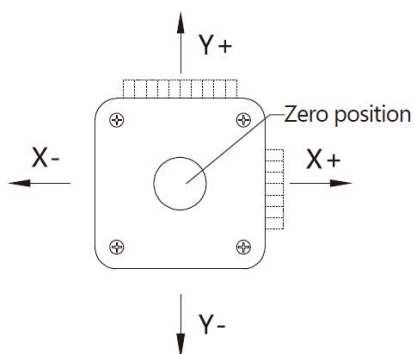


Panel opening



Single-axis operated

Top view



Dual-axis operated

MKF-PJS03 Hall / Potentiometer, Single Axis, Panel Mounted

Typical application on various electro-hydraulic control system of engineering vehicles and other electrical control system.



DESCRIPTION

- Rugged components designed for the construction environment
- Potentiometer tracks for angular-detecting
- Friction held and spring return for choice
- Center-lock is a mechanical option
- Providing optional grips with different shapes
- The number and position of the switches are customized designed
- PWM output drives proportional solenoid valve
- Depending on the proportional solenoid valve to set starting current, maximum current and PWM frequency
- CAN output is an option

Electrical data

Potentiometer

Power supply	<36Vdc
Resistance	200Ω, 1KΩ
Electrical angle	±18°
Center voltage	48%~52%Vdc (of Power supply)
Center tap angle	±2.5°
On-load voltage (max)	32Vdc
Power dissipation	2W (200Ω), 0.5W (1KΩ)

Directional switch

Load capacity	10A@30Vdc (Resistance load)
Breakout angle	± 5°
Contact resistance	<200Ω

Digital Proportional Amplifier Driver

Power supply	9~36Vdc
Output Driving Current PWM	PWM Maximum Current 3A
PWM Frequency	100HZ~1000HZ
Minimum Current	0~0.4A
Maximum Current	0.4~3A

Microswitch

Load capacity	10A@30Vdc (Resistance load)
Expecting life	30 million times (Mechanical) 200 thousand times (Electrical)
Insulation resistance	>100MΩ
Breakout angle	±3°~ 5°

Mechanical features

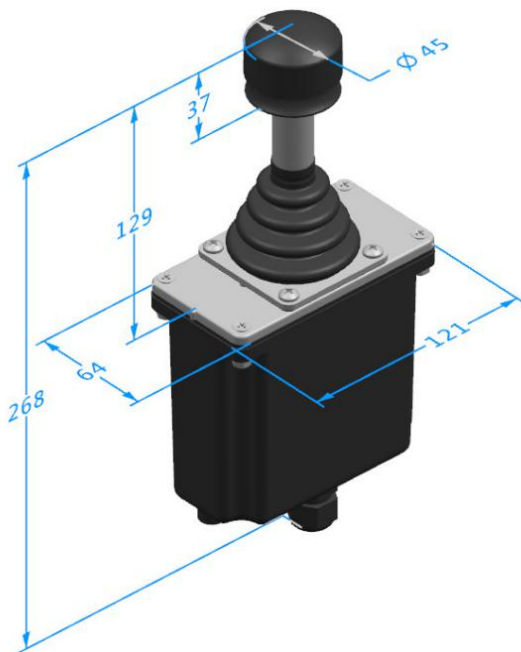
Travel angle	±20°
Operating type	Spring return, Friction held
Breakout force	5N

Operating force(max)	11N
Maximum allowable force	>300N
Expecting life	>2 million cycles (Potentiometer)
Weight	475g (Without handle)

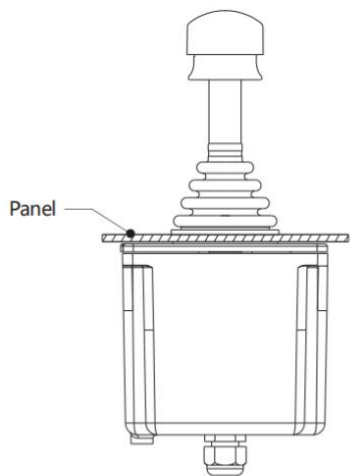
Environmental data

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

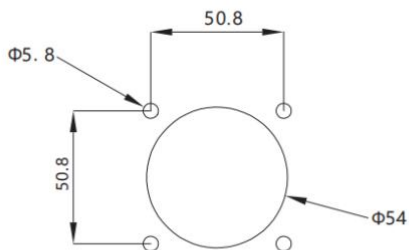
Dimensions



Product installation



Mounting



MKF-PJS04 Hall / Potentiometer, Multi Axis, Panel Mounted

Typical application on various electro-hydraulic control system of engineering vehicles and other electrical control system.



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.

Electrical data

Potentiometer

Power supply	<36Vdc
Resistance	2K Ω , 4K Ω , 5K Ω , 10K Ω
Electrical angle	$\pm 18^{\circ}$
Center voltage	48%~52Vdc (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	< \pm 4V

Directional switch

Load capacity	2mA@30Vdc (Resistance load)
Breakout angle	$\pm 3^{\circ}$ ~ 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
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	>100MΩ
Breakout angle	±3°~5°

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)

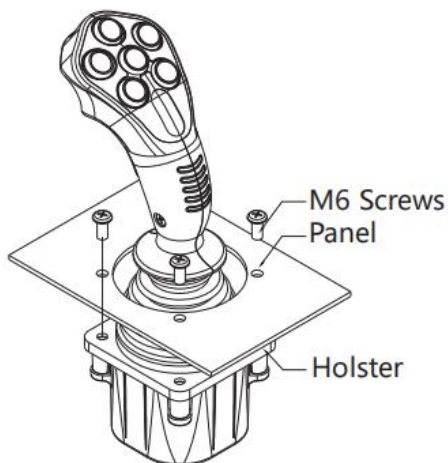
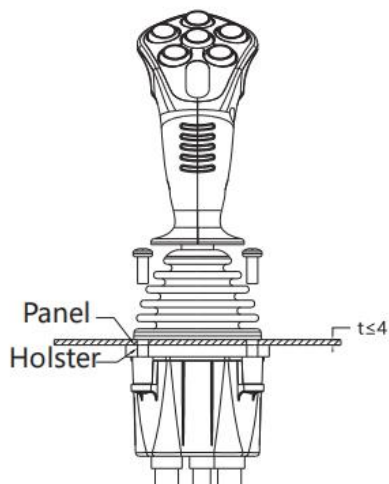
Environmental data

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

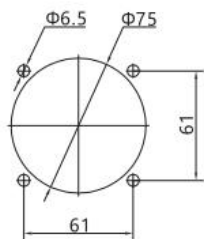
Dimensions



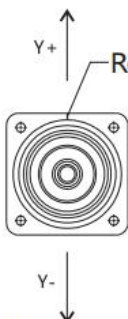
Product installation



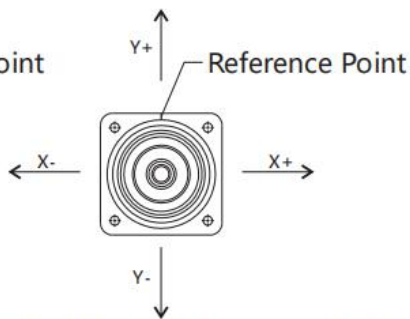
Mounting



Panel opening



Single direction operated



Double direction operated

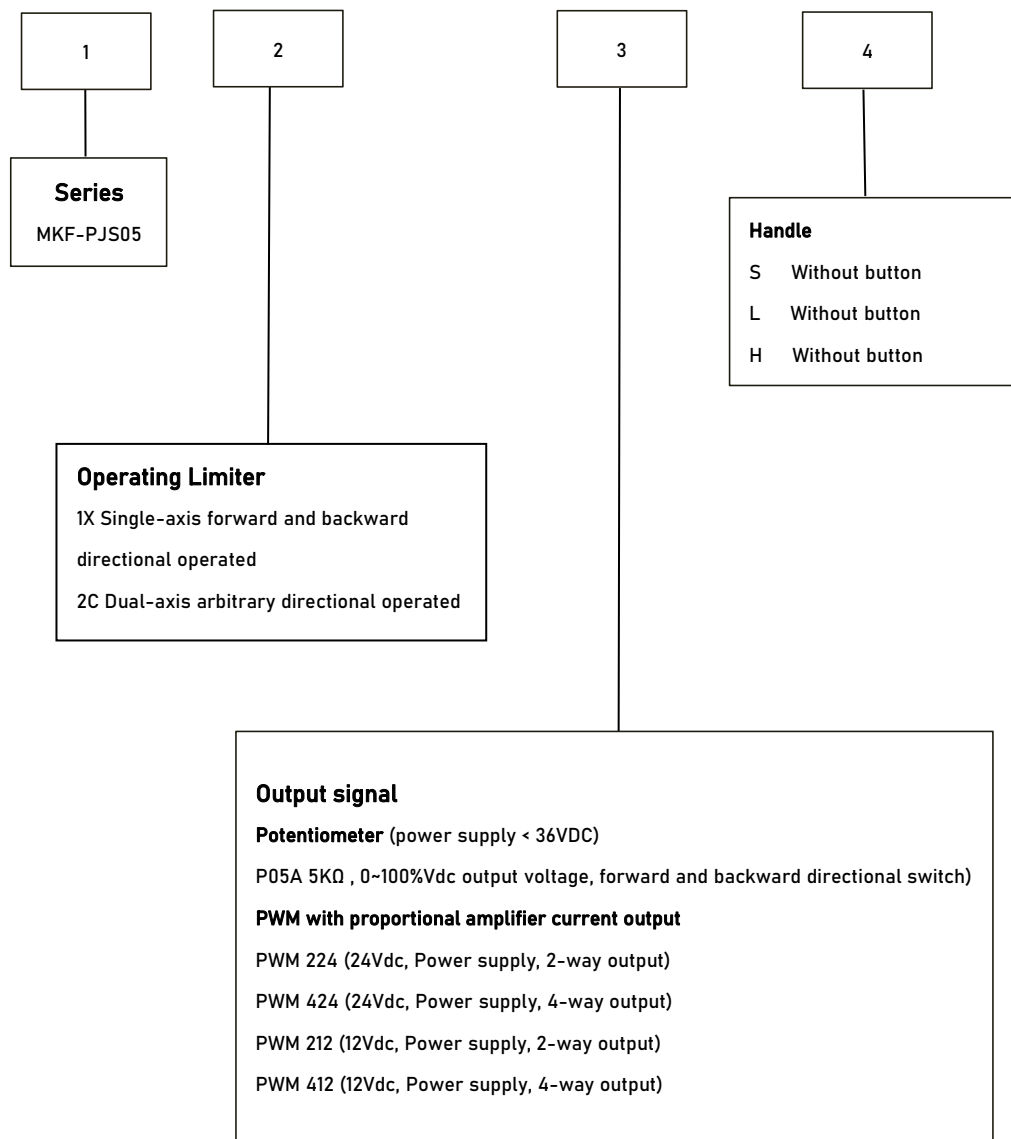
MKF-PJS05 Potentiometer, Multi Axis, Panel Mounted

Typical application on remote control box, off-highway vehicle.



DESCRIPTION

- Dual-axis finger operated, spring return
- Spring return
- With center tap potentiometer angle detection
- 2mA (max) current directional switch
- Proportional amplifier to direct drive hydraulic proportional valve optional



Technical Information

Power supply	<36Vdc
Total resistance	5k Ω
Electrical angle	$\pm 30^\circ$
Center tap voltage	48%~52%Vdc
Center tap angle	$\pm 2.5^\circ$
On-load voltage (max)	32Vdc
Allowance maximum power dissipation	0.25W (25°)
Load capacity	2mA@30Vdc (Resistance load)
Breakout angle	$\pm 3^\circ \sim \pm 5^\circ$
Contact resistance	<200 Ω

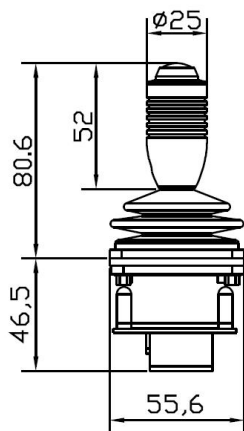
Mechanical features

Travel angle	$\pm 32^\circ$
Operating type	Spring return
Breakout force	3.8N
Operating force (max)	12N
Maximum allowable force	300N
Expecting life	>2 million cycles
Weight	125g

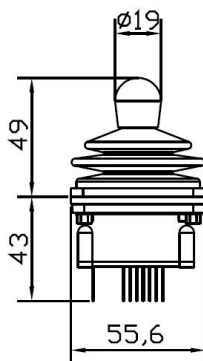
Environmental data

Operating Temperature	-30℃ ~ +70℃
Storage Temperature	-40℃ ~ +85℃
Protection level	IP65 (above the flange)

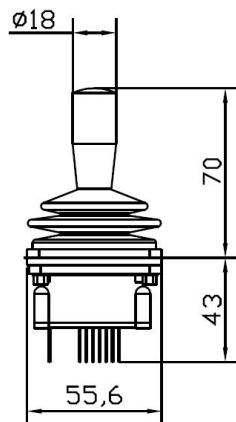
Dimensions



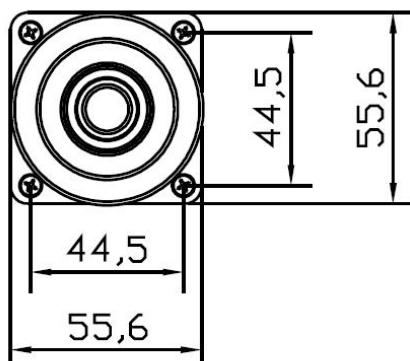
H handle



S handle



L handle



H handle top view

MKF-JS53 Series

Mate Industrial Joystick, Hall sensor, Single/Dual Axis, Panel Mounted

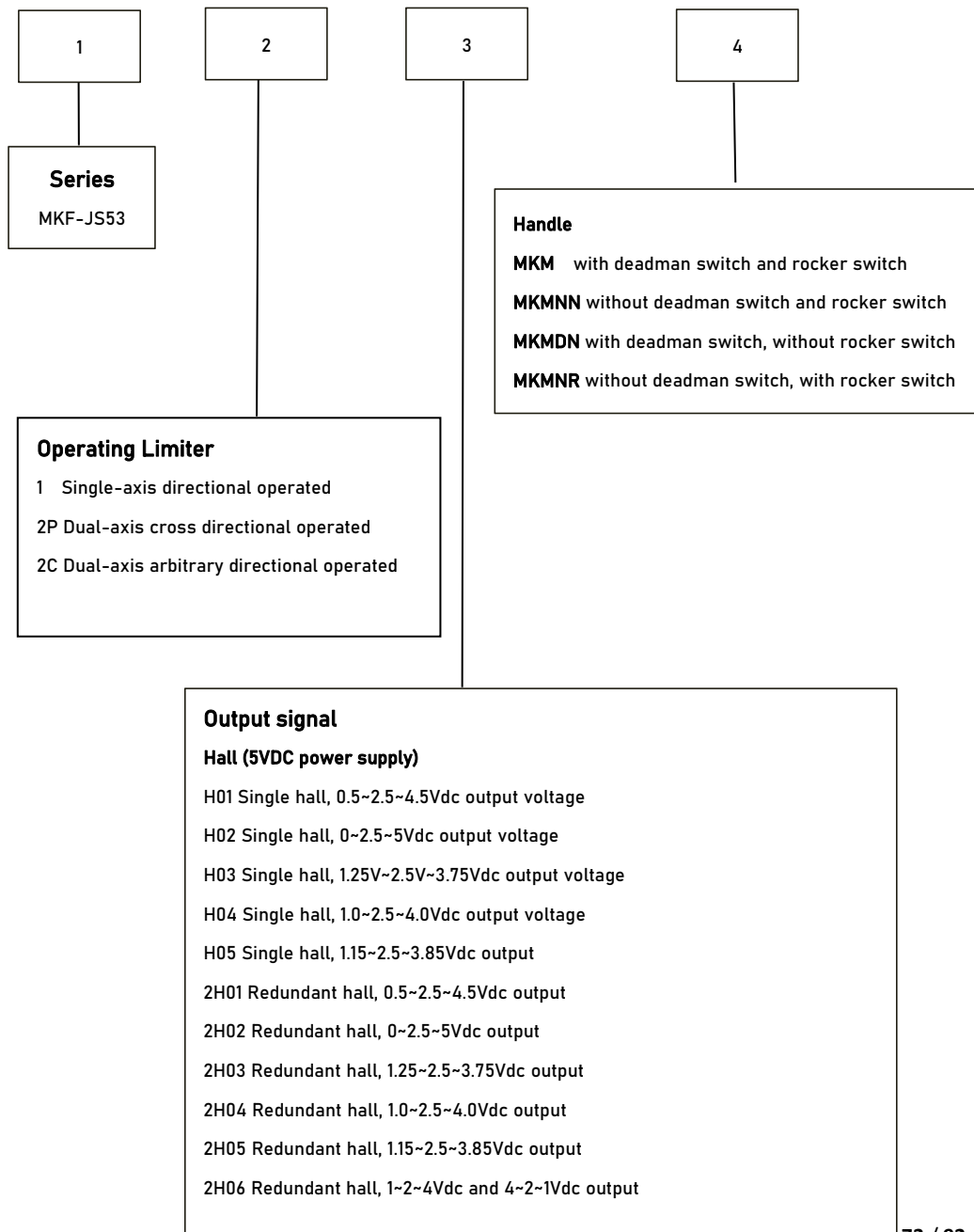


APPLICATION

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

DESCRIPTION

- Spring return, single-axis or dual-axis operated
- Cross direction or arbitrary direction operated optional
- Hall effect angle detection, long life
- Various output optional



Electrical Data

Hall	
Power Supply	5±0.5Vdc
Supply Current	<11mA (Single axis), <22mA (Dual-axis)
Maximum Allowable Overload Voltage	20Vdc
Reverse Maximum Allowance Voltage	-10Vdc
Output Linearity Tolerance	<± 0.2V

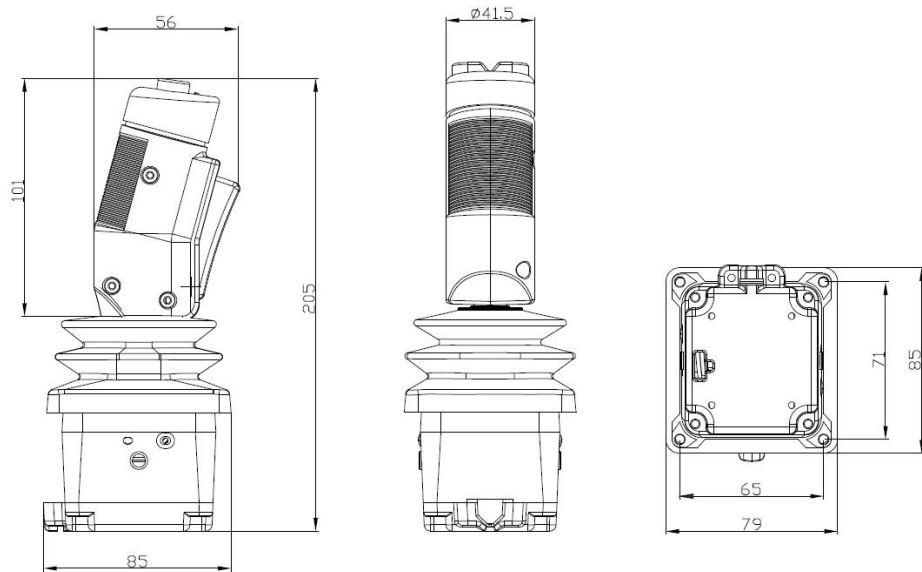
Environmental Data

Operating Temperature	-30℃~+70℃
Storage Temperature	-40℃~+85℃
Protection Level	IP65 (Above the Panel)

Mechanical Features

Travel Angle	±20°
Operating Type	Spring return
Breakout Force	9N
Operating Force(max)	20N
Maximum Allowable Force	>300N
Expecting Life	>1 million cycles (Hall effect)
Weight	450g (without handle)

TECHNICAL DRAWINGS



MKF-MJS-85

Mate Industrial Joystick mouse, Hall effect, Two axis, Desk Top Version



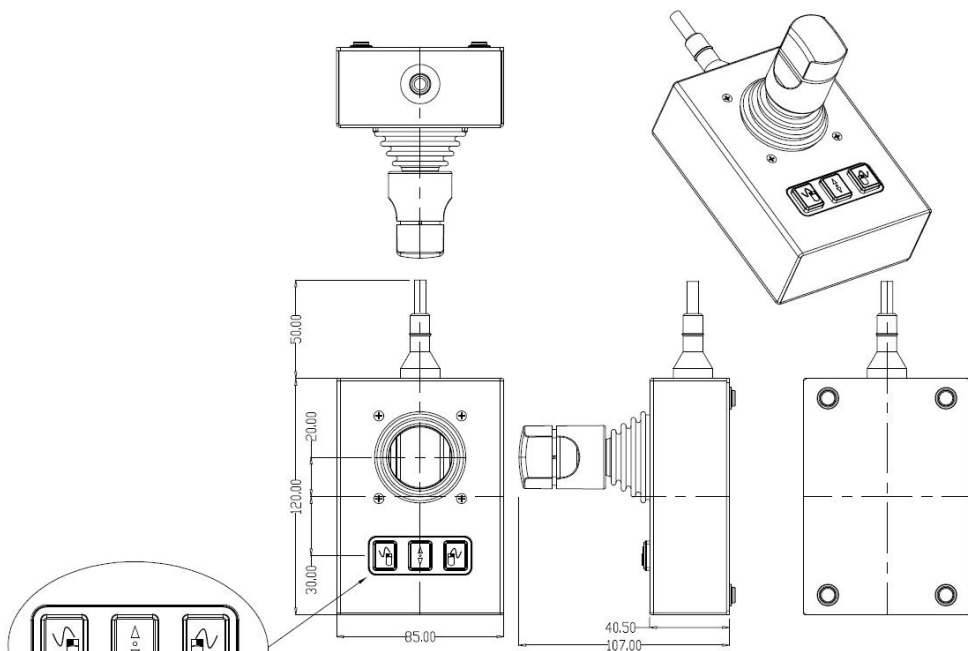
DESCRIPTION

MKF-MJS-85 is a Hall effect, desktop joystick mouse, robust design with main materials - aluminum case, engineering plastic. Two axis, with spring automatic return. High-precision Hall sensor, linear correction in the whole temperature range. Smooth operating experiences. Ergonomic mechanical design. With 3 mouse buttons button for left, right clicking and scrolling key in the middle. Top button can be used for left clicking. USB interface for easy plug and play. Suitable for medical equipment, surgery room etc that needs waterproof, rugged and long life span joystick with buttons.

SPECIFICATION

Material	Aluminum case + engineering plastic
Protection	IP68
Positioning	spring returns
Sensor	Hall sensor
Power supply	DC5V
Signal output	USB
Operating life	10 million times
Working temperature	-40℃~+70℃
Current	<100mA

TECHNICAL DRAWINGS



MKF-JS55

Mate Industrial Joystick, Hall effect, 2 axis, Panel Mounted



DESCRIPTION

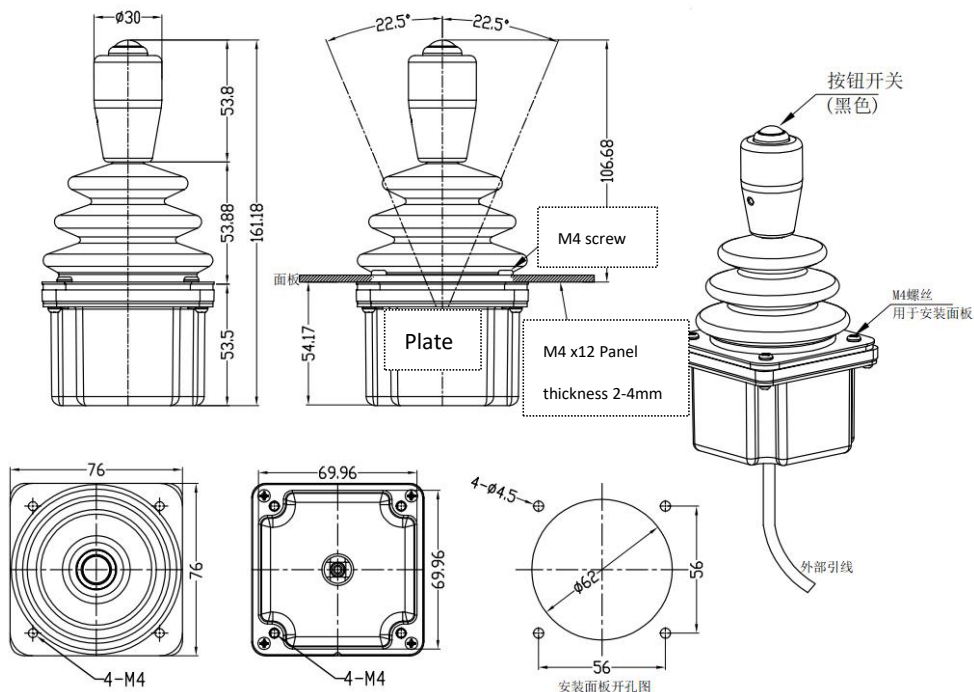
MKF-JS55 is a 2 axis Hall-type industrial joystick, instrument panel installation method, stainless steel and aluminum alloy materials, spring automatic return structure, German high-precision Hall-type sensor, full temperature range linear correction, IP65 protection level, smoother operation Feel, ergonomic mechanical design. reliable for long life span usage. This joystick is specially designed for rotary excavator and other heavy-duty or safety-critical applications.

SPECIFICATION

Button	1 momentary push button
Positioning	Spring automatically return
Operation Angle	±22.5°
Operation Limiter	Square or round
Power Supply	DC5V

Power consumption	20mA
Maximum voltage limit	7V
Direction switch contact capacity	1A/30V
Button switch contact capacity	2A/30V
Signal Output	Analog voltage, RS232, RS422, USB, CAN(2.0), CAN J1939
Life Span	5 million operating cycles
Material	Aluminium, stainless steel, engineering plastics
Degree of protection	IP67 (Above on panel)
Operation Temperature	-40°C to +75°C

TECHNICAL DRAWINGS

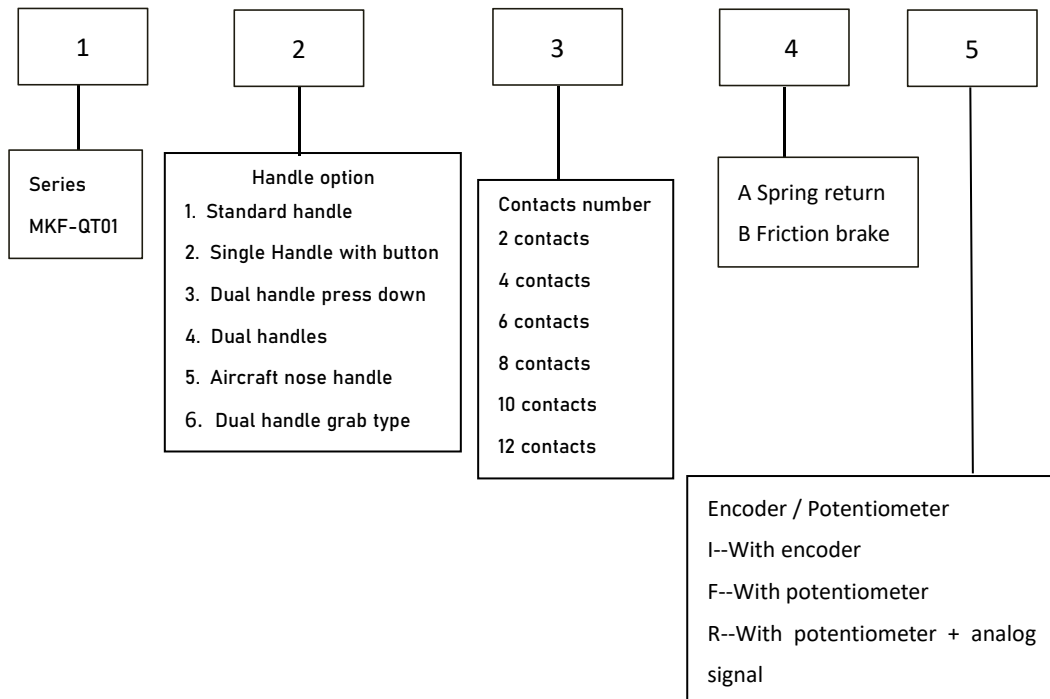


MKF-QT01 series



QT01 series controller type crane console is mainly used in AC 50HZ(60HZ),rated voltage 380V(440V) in the following secondary circuits , realize motor commutation, speed regulation, braking, linkage, and transfer operate control etc

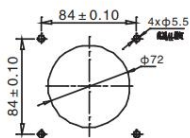
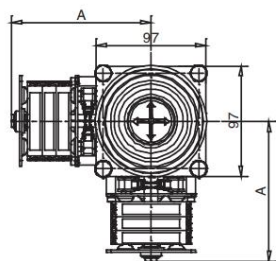
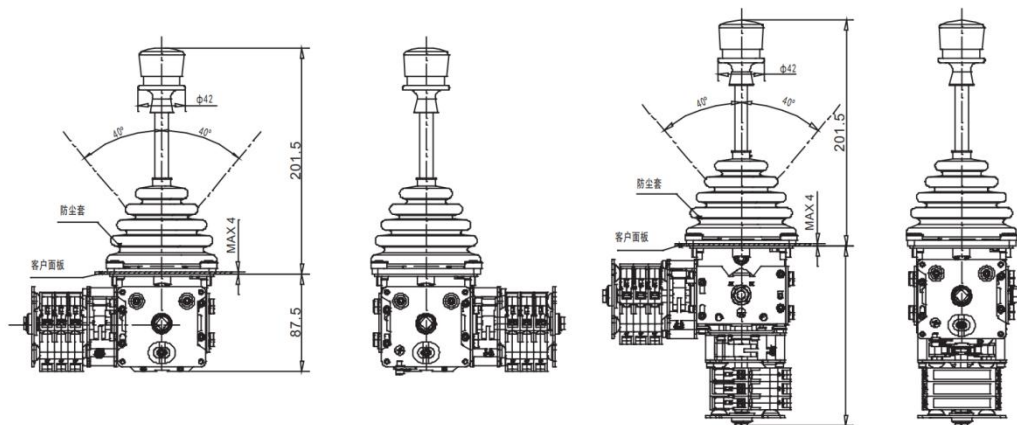
Qt01 rotary crane console is ergonomically designed with excellent and comfort operation feeling. The equipment box is made of steel sheet, standard deploy hinged cover with locking function. It is also easy to maintain. The joystick indicator and control unit are arranged according to customer specifications.combined with the available customized dimension and shaped equipment boxes.



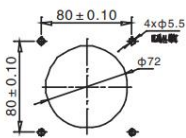
TECHNICAL PARAMETER

Frequency	50Hz
Handle operating force	≤50N
Contact feature	Rated current 10A, rated voltage AC 380V
Maximum operating direction	8
Joystick quantity	≤6
Maximum number per direction	6

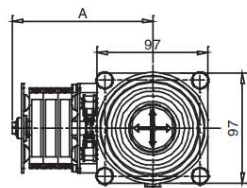
MECHANICAL DRAWING



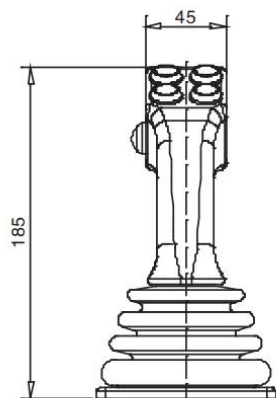
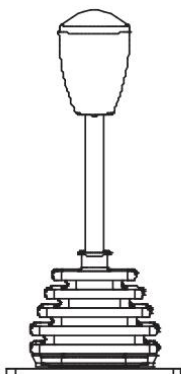
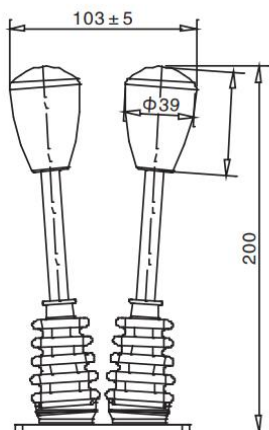
客户面板开孔尺寸A型



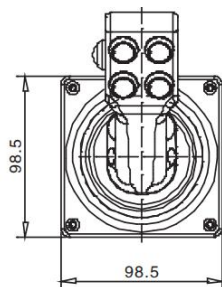
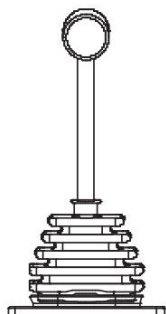
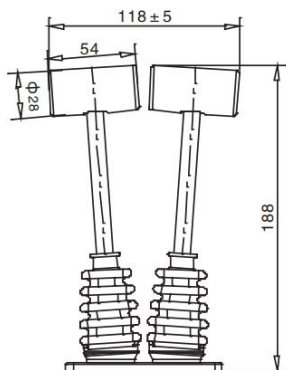
客户面板开孔尺寸B型



Main and auxiliary hook



Grab



Contacts	Size A	Size B
2	98	135
4	110.5	147.5
6	123	160
8	135.5	172.5
10	148	185
12	160.5	197.5

4	110.5	147.5
6	123	160
8	135.5	172.5
10	148	185
12	160.5	197.5

MKF-RC01

Mate wireless Joystick station for remote control



The joysticks station is suitable for the hoisting and lifting equipments through auxiliary devices and contactors. Special wireless and handiness version designed to be ideal for unsupervised or dangerous / hostile hard working condition. It can be mounted in the compact case, which is also feasible with customized design like optional buttons and variety joysticks.

- Frequency: 470.00Mhz
- 1 x Hall effect joystick, 2 x momentary push buttons, 1 x emergency button, 2 x toggle switch
- Remote control distance: 100M
- Battery: 3.7V, 5000mA
- Frequency: 470Mhz
- Automatic shutdown after 15 minutes of inactivity
- The battery can be connected for about 30 hours
- Power-on method: turn on the emergency stop switch → long press the START button for 8 seconds (bottom side) → release when the sound is heard, then short press
- START key 1 click→automatically start

MKF-FS01

Mate Joystick, With force sensor and Momentary push buttons, Panel Mounted



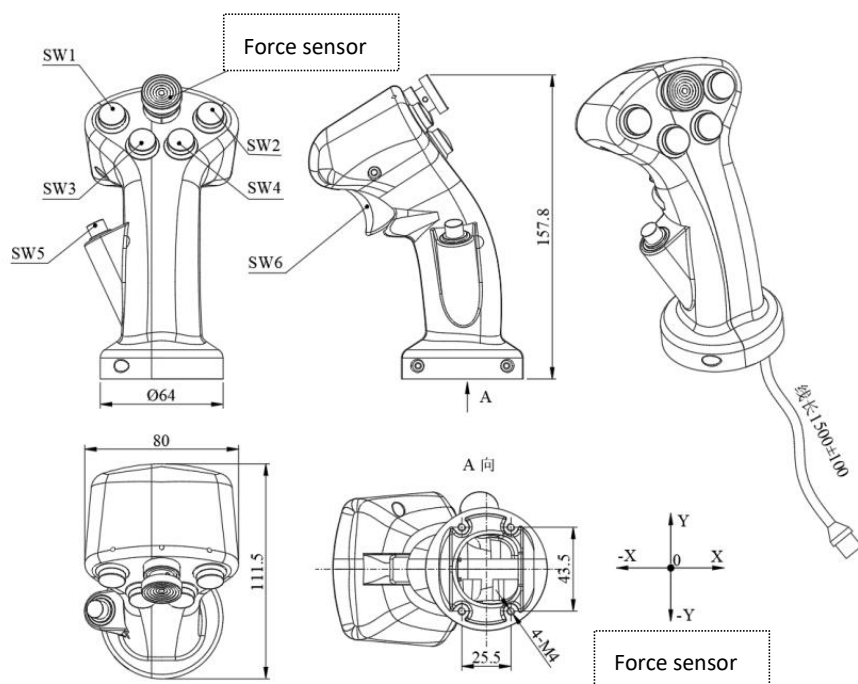
DESCRIPTION

MKF-FS01 is made of aviation aluminum alloy, which has good environmental adaptability and strong experimentation. Safe and reliable. With an ergonomic design, the handle is installed with 5 momentary push buttons, one trigger switch and one force sensor joystick. Mainly used in construction machinery, aerospace equipment. The protection level can reach IP65, the handle can be equipped with various types of switches, and the sensor can achieve the implementation of related functions.

SPECIFICATION

Button	5 push buttons, one trigger switch, one force sensor
Handle Material	aluminum alloy
Force sensor operating force	0-15N, Maximum 111N
Power Supply	DC5V
Signal Output	USB 2.0
Life Span	1 million operating cycles
Degree of protection	IP65
Operation Temperature	-40°C to +70°C
Storage Temperature	-45°C to +80°C
Humidity	93± 3%RH
Weight	0.5KG

TECHNICAL DRAWINGS



MKF-JS89

Mate Industrial Joystick, Hall effect, 2 axis, Panel Mounted



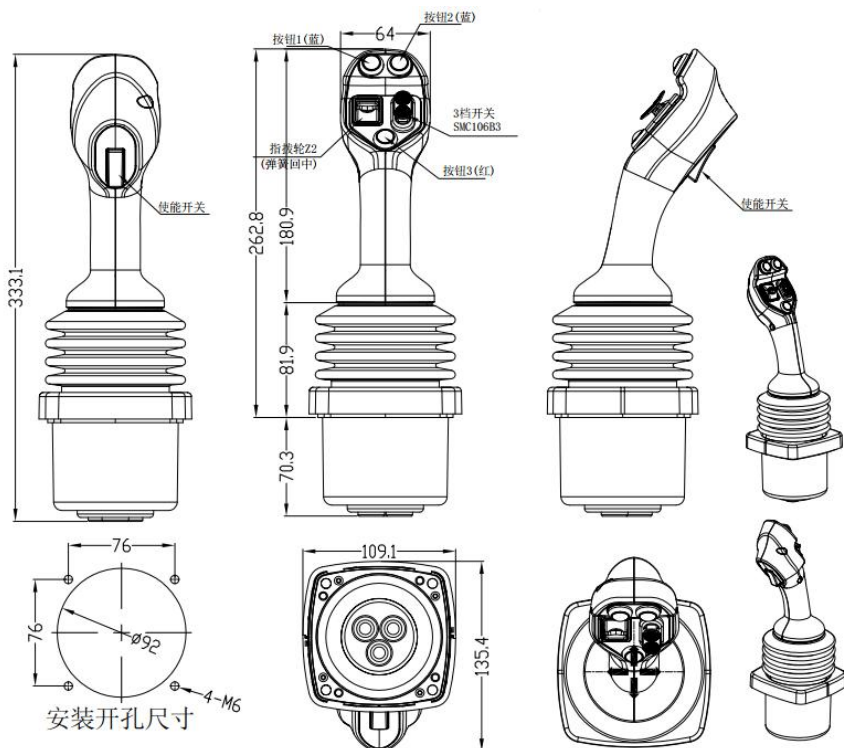
DESCRIPTION

MKF-JS89 is a 2 axis Hall-type industrial joystick, instrument panel installation method, stainless steel and aluminum alloy materials, spring automatic return structure, German high-precision Hall-type sensor, full temperature range linear correction, IP65 protection level, smoother operation Feel, ergonomic mechanical design. reliable for long life span usage. This joystick is widely used in TV camera, CCTV, industrial robot, medical equipment, optical instrument, heavy-duty and safety-critical applications.

SPECIFICATION

Button	3 push buttons + 1 enabling switch + 1 thumbwheel
Axis	2 axis
Positioning	Spring return automatically
Operation range	Straight, cross, square, T, H or customized
Operation Angle	$\pm 20^\circ$ or $\pm 30^\circ$
Power Supply	DC5V, 9-36V(Optional)
Signal Output	0.5-4.5V, RS422, RS232, CAN, USB, switch signal
Life Span	10 million operating cycles
Material	Aluminium alloy, stainless steel
Degree of protection	IP65
Operation Temperature	-40°C to $+70^\circ\text{C}$

TECHNICAL DRAWINGS

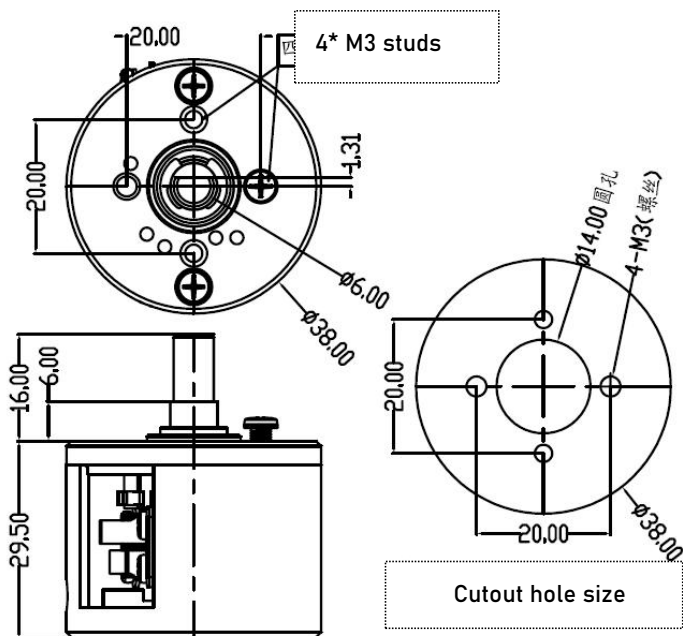


Hall knob (1 axis)

Suitable for military industry, aviation, simulator



- Sensor: Hall sensor
- Positioning: friction resistance positioning (standard configuration) 0-320°
- Spring automatic return (optional) $\pm 36^\circ$
- Angle: 320° standard, (360° continuous optional)
- Hand feeling: scale hand feeling, smooth damping, adjustable strength
- Power supply: DC5V
- Signal output: analog voltage 0-5V
- Life span: 5 million times;
- Material: Aluminum alloy
- Operating temperature: $-40^\circ\text{C} \sim +70^\circ\text{C}$

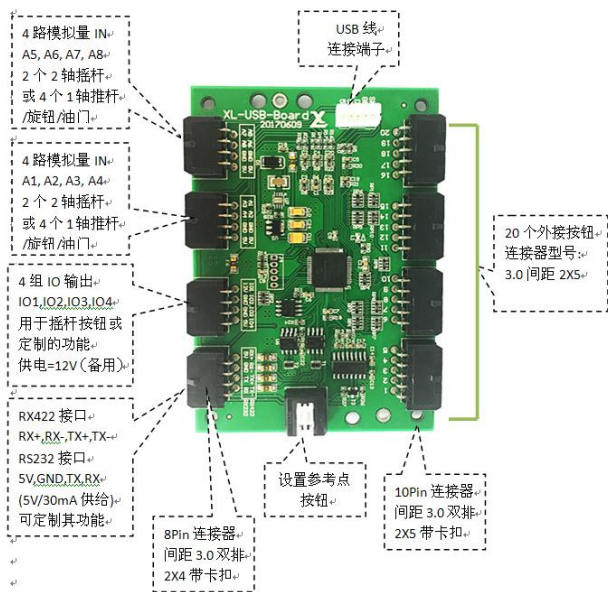


USB Emulator board



Emulator board, USB interface, driver-free, can be recognized as a joystick in the computer, support Microsoft operating system, Linux operating system. It is suitable for simulator console, ground station, man-machine input panel interface, etc.

- Analog input (joystick): 8-axis, 10-bit precision, (0-5V signal input)
- IO input (button): 20 external buttons
- Programmable IO (indicator output): 4 output ports (for LED indicator)
- Communication interface: USB2.0, RS232, RX422 or RS485
- USB driver: USB HID protocol, no driver, only supports "joystick, mouse, keyboard" and combination mode
- Dimensions: (W)100X(L)70X(H)12
- Positioning hole size: (W)90X(L)60, through hole $\varnothing 3.0\text{mm} \times 4$



CAN Emulator board



CAN communication acquisition board, CAN interface, CAN2.0B protocol standard, supports standard frame ID and extended frame ID, user can modify ID, ID standard of CIA J1939 and CAN OPEN protocol. Supports 8 analog inputs, 20 buttons, 3 indicator lights, 1 CAN interface, and 1 RS232 interface. A control panel suitable for CNA communications.

- Analog input: 8-channel 0-5V signal input, 12-bit precision
- IO input: 20 (external button or switch)
- Indicator output: 1 power light, 1 function indicator, 2 programmable LED indicators
- Communication interface: CAN2.0 (J1939) and RS232
- Dimensions: (W)100X(L)70X(H)12
- Positioning hole size: (W)90X(L)60, through hole $\varnothing 3.0\text{mm} \times 4$
- CAN parameters can be set (CAN communication parameters can be set through the RS232 interface)
- Support standard frame ID, extended frame ID and remote frame
- Dimensions: (W)100X(L)70X(H)12
- Positioning hole size: (W)90X(L)60, through hole $\varnothing 3.0\text{mm} \times 4$



Mate Technology Shenzhen Limited

Address: 411, Bld. 1A, Zhida Industrial Park, Longgang District,
Shenzhen, Guangdong Province, P.R China

Zip code: 518000

Tel / Fax: 86-755-8939 8907

Email: info@matend.com

Web: www.matend.com / www.matend.cn