

# FJ11 系列 指尖型多轴操作手柄

## FJ11 series Multi-axis finger operated joystick



### 产品特点 Product Features

- 指尖型双轴手柄，弹簧自动复位。
- Dual-axis finger operated, spring return.
- 带中心抽头电位器角度检测方式。
- With center tap potentiometer angle detection.
- 最大电流 2mA 方向开关。
- 2mA maximum current directional switch.
- 可带比例放大板直接驱动液压比例阀。
- Proportional amplifier to direct drive hydraulic proportional valve optional.

### 应用范围 Application

该系列产品主要应用于工程车辆、工业遥控器。

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

### 技术参数 Technical Information

#### 机械参数 Mechanical features

摇动角度 Travel angle:  $\pm 32^\circ$

操作方式: 弹簧自动复位, 双轴任意方向操作

Operating type: Spring return, dual-axis arbitrary directional operated

启动力 Breakout force: 3.8N

最大操作力 Operating force (max): 12N

限位力 Maximum allowance force: 300N (H 上端大于 160N > 160N, H handle)

使用寿命 Expecting life: 大于 200 万次 > 2 million cycles

重量 Weight: 125g

#### 电气参数 Electrical data

电源电压 Power supply: < 36Vdc

总电阻值 Total resistance: 5K $\Omega$

电气角度 Electrical angle:  $\pm 30^\circ$

中位电压 Center tap voltage: 48% ~ 52% (相对电源电压 Percentage of power supply)

中位死区角度 Center tap angle:  $\pm 2.5^\circ$

电位器加载最大电压 On-load voltage (max): 32Vdc

电位器允许最大功耗 Allowance maximum power dissipation: 0.25W (25°C)

方向开关 Directional switch: 负载能力:: 2mA@30Vdc (阻性负载)

Load capacity: 2mA@30Vdc (Resistance load)

起始角度 Breakout angle:  $\pm 3^\circ \sim \pm 5^\circ$

接触电阻 Contact resistance:  $< 200\Omega$

#### 环境参数 Environmental data

工作温度 Operating temperature:  $-30^\circ\text{C} \sim +70^\circ\text{C}$

存储温度 Storage temperature:  $-40^\circ\text{C} \sim +85^\circ\text{C}$

防护等级 Protection level: IP65 (安装面板以上 above the flange)

## 产品选型 Product Configuration

型号 Type FJ11 - □□□ - □□□ - □□□

选型 Code ① ② ③ ④

#### 分项选型说明 Description

##### ① 产品系列号 Product type

FJ11 系列工业手柄, 5K $\Omega$ 带中心抽头电位器, 带 2mA 电流方向开关, 弹簧自动复位, 安装孔距尺寸 44mm\*44mm  
FJ11 series joystick, 5K $\Omega$  center tap potentiometer, 2mA directional switch, spring return, installation dimension 45mm\*45mm

##### ② 输出轴及操作方式 Operating type

1A=弹簧复位, 单轴前后方向操作

Spring return single-axis forward and backward directional operated

2AC=弹簧复位, 双轴任意操作方向 (带导向槽)

Spring return, dual-axis arbitrary directional operated, (with guide groove)

##### ③ 输出信号 Output Signal

P051=电位器型, 输入电压小于 36Vdc, 带 5K $\Omega$ 中心抽头电位器, 0 ~ 100%电压输出, 前后方向开关  
Potentiometer, less than 36Vdc power supply, 5K $\Omega$  center tap potentiometer, 0%-100% output voltage, forward and backward directional switch

PWM224=PWM 带放大板电流输出, 电源电压 24Vdc, 2 路输出

PWM with proportional amplifier current output, 24Vdc power supply, 2-way output

PWM424=PWM 带放大板电流输出, 电源电压 24Vdc, 4 路输出

PWM with proportional amplifier current output, 24Vdc power supply, 4-way output

PWM212=PWM 带放大板电流输出, 电源电压 12Vdc, 2 路输出

PWM with proportional amplifier current output, 12Vdc power supply, 2-way output

PWM412=PWM 带放大板电流输出, 电源电压 12Vdc, 4 路输出

PWM with proportional amplifier current output, 12Vdc power supply, 4-way output

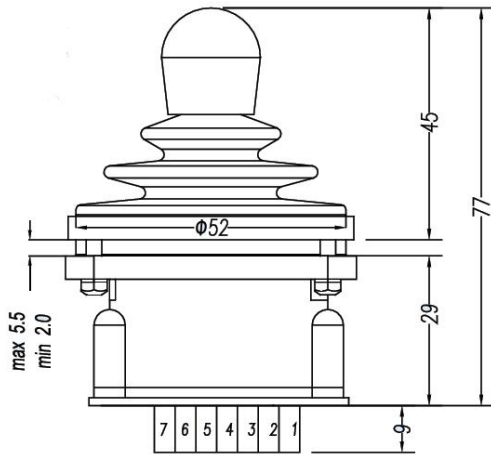
##### ④ 手柄上端 Handle

S=无按钮 Without button

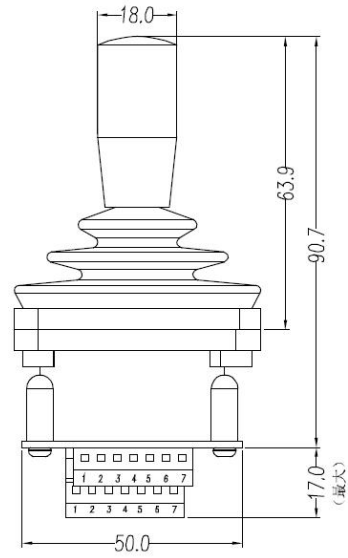
L=无按钮 Without button

H=带按钮 With button

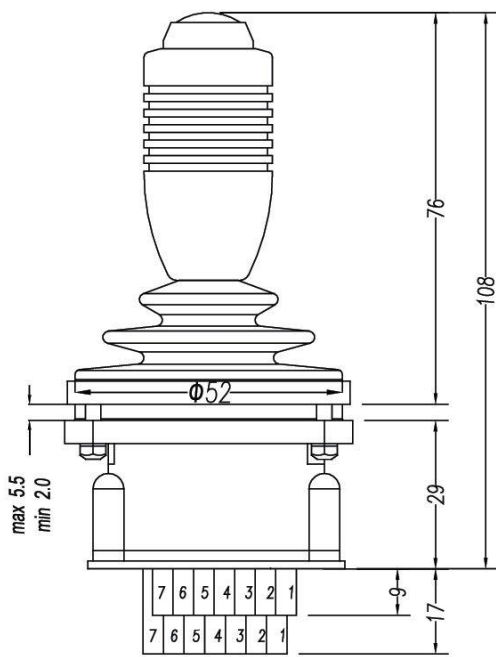
## 外形尺寸 Dimensions



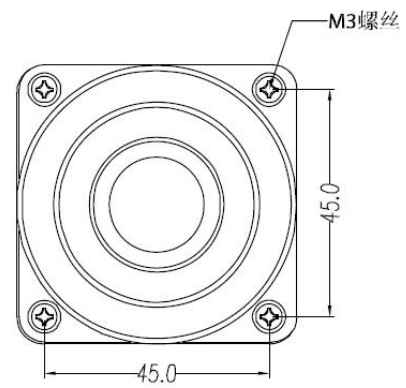
S 上端 handle



L 上端 handle

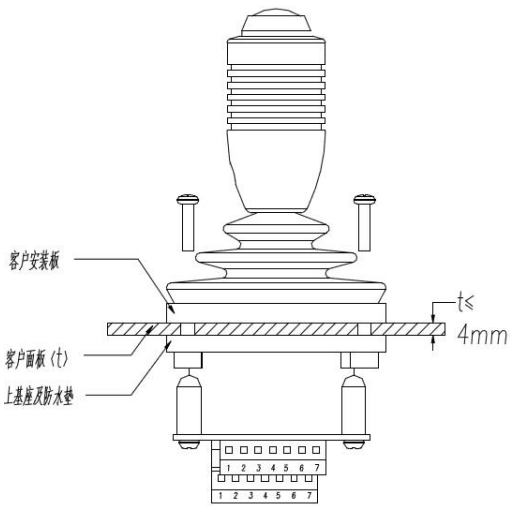


H 上端 handle

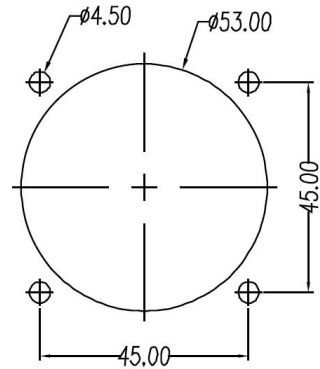


俯视图 Top view

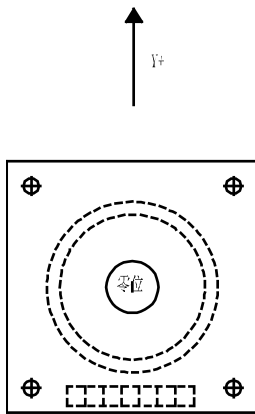
## 机械安装 Product Installation



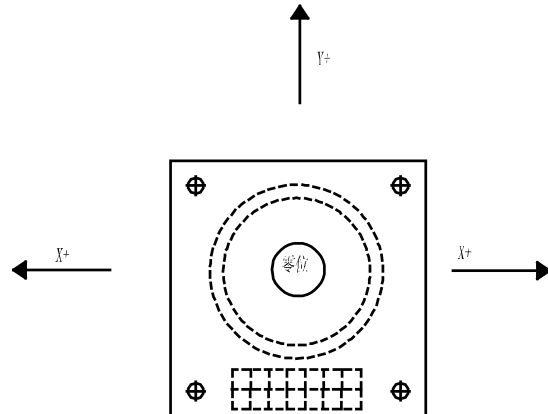
安装示意图 Mounting



安装面板开孔示意图 Panel opening



单轴操作方向定义  
Single-axis operated

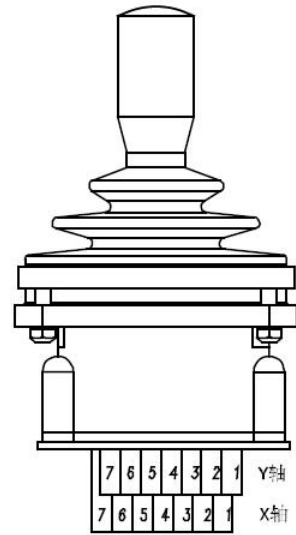
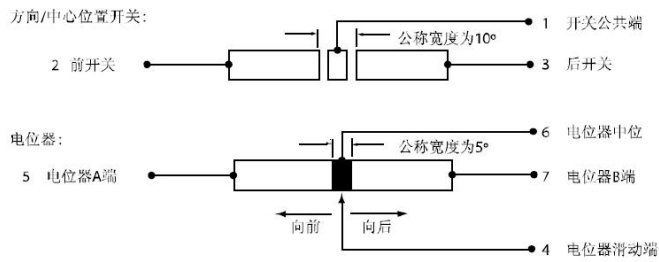


双轴操作方向定义  
Dual-axis operated

## 电气安装 Electrical Connections

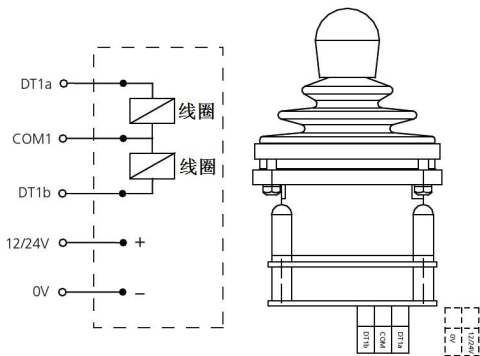
### 电位器接线方式 Potentiometer connections:

接线端 connector	功能 Function
1	开关公共端 Switch common terminal
2	前开关 Forward switch
3	后开关 Backward switch
4	电位器滑动端 Potentiometer wiper
5	电位器 A 端 Potentiometer terminal A
6	电位器中位 Potentiometer center
7	电位器 B 端 Potentiometer terminal B
8	按钮开关 Button switch
9	按钮开关 Button switch



单轴, PWM 带放大板电流输出接线图

Single-axis, PWM with amplifier current output



双轴, PWM 带放大板电流输出接线图

Dual-axis, PWM with amplifier current output

