

## MKF-3-PLC

Mate Wiring diagram of Joystick servo motor control panel



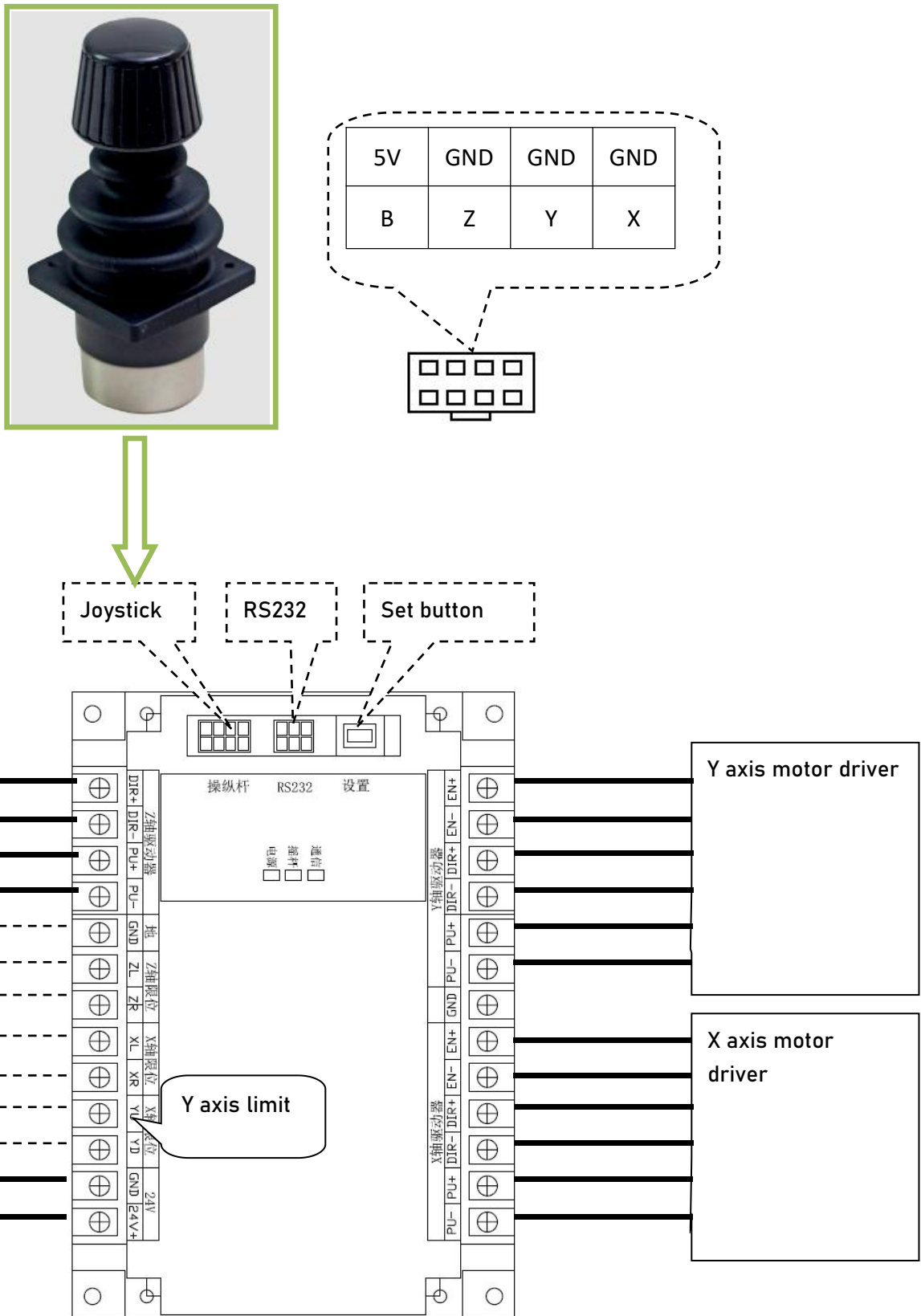
### FEATURES

Joystick	3 axes, Hall effect
Control the number of motors	3 motors , simultaneous control, each axis is independent
Motors	Servo motor or stepping motor
Output frequency	0-10KHZ/axis
Output interface	Differential signal output
Control mode	Location mode(Pulse+direction, differential signal)
Power supply	DC8V~ DC28V /400MA
Limit switch	Each axis 2 pcs (normal open)

### DESCRIPTION

- Can control stepping motor,servo motor
- 3 axis independent control, can control 3 motors at the same time, each axis independent control
- Control the nonlinear speed curve, with accurate control and high speed control performance
- Independent S-shaped acceleration and deceleration control for each axis
- Software inertia configuration with good control
- Each axis independent limit switch (normal open, closed limit), support electronic switch
- Support master computer control(customization,software support required)
- Differential signal output, pulse+ direction

### Wiring diagram: Joystick connected directly with controller

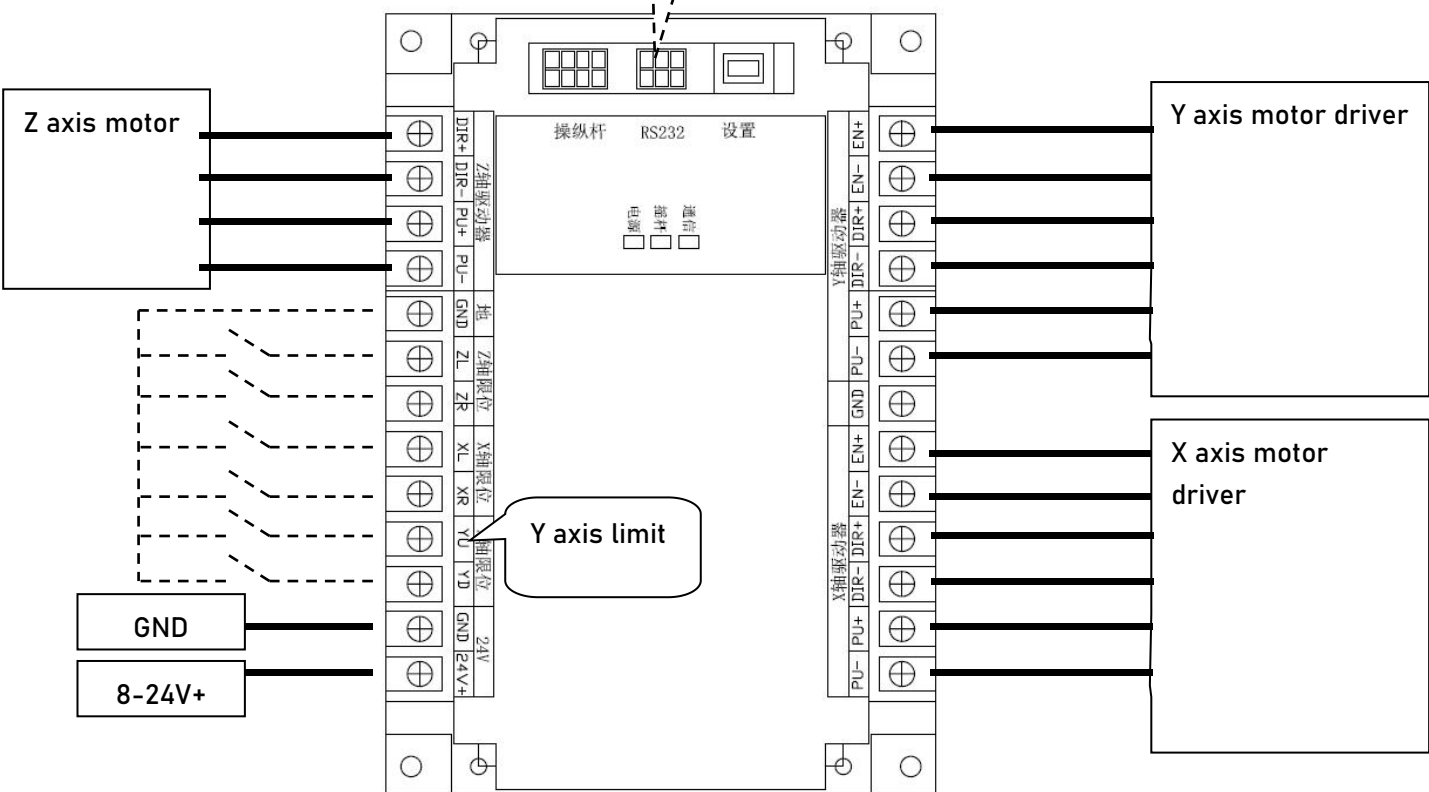


**Wiring diagram: Control box MKF-JS02 and controller connection method**  
**MKF-JS02 control 3-axis controller**



5V	Emergency stop B	Emergency stop A
GND	RXD	TXD

RS232



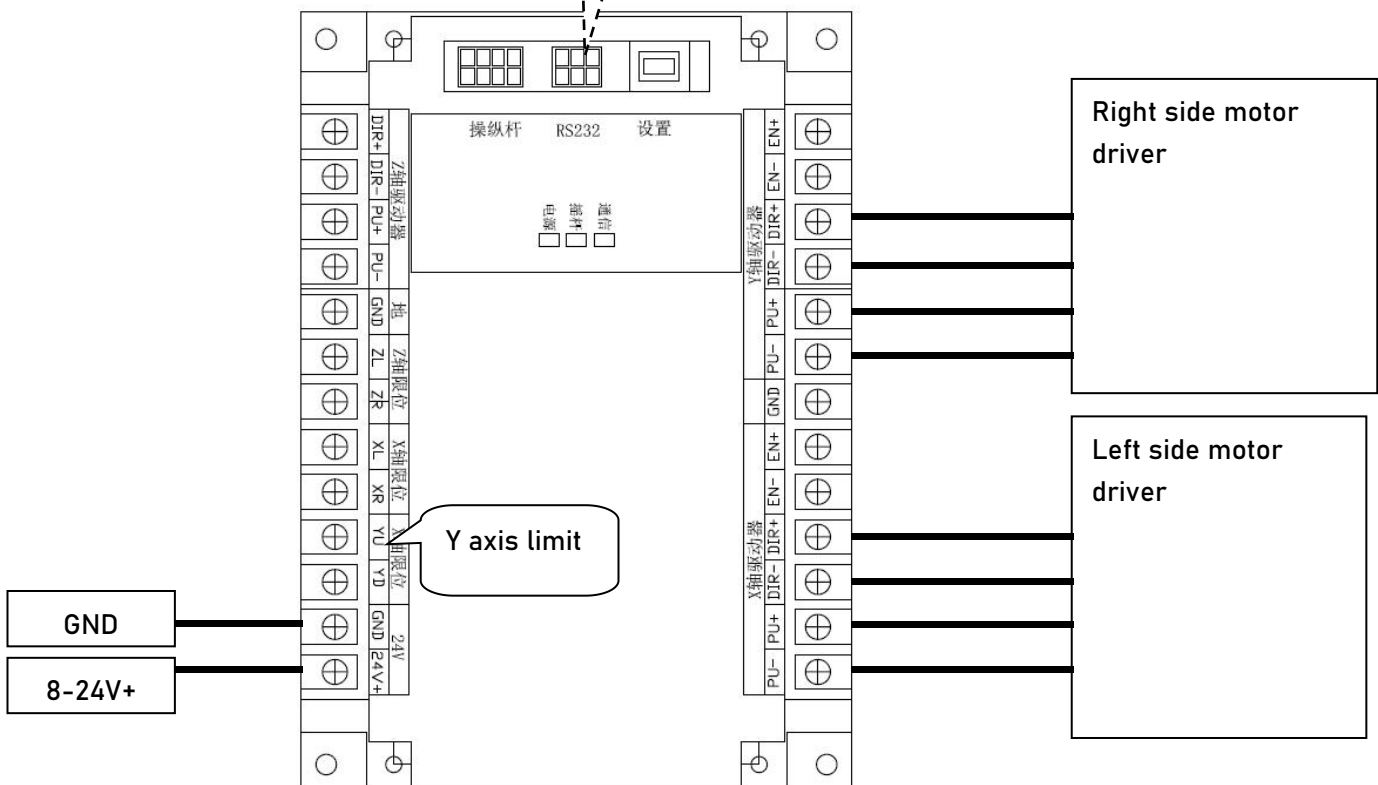
## Wiring Diagram

- 2 DC servo motors, Each one power wheel in left/right
- In a straight line , the two motors turn at the same speed
- Turn while driving, then using differential mode



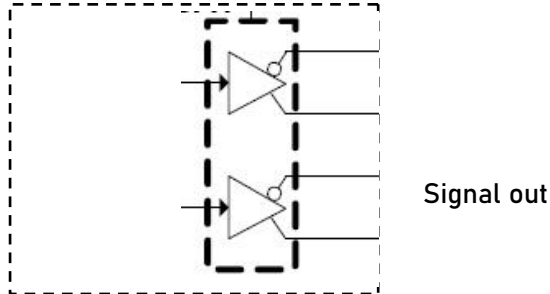
5V	Emergency stop B	Emergency stop A
GND	RXD	TXD

RS232



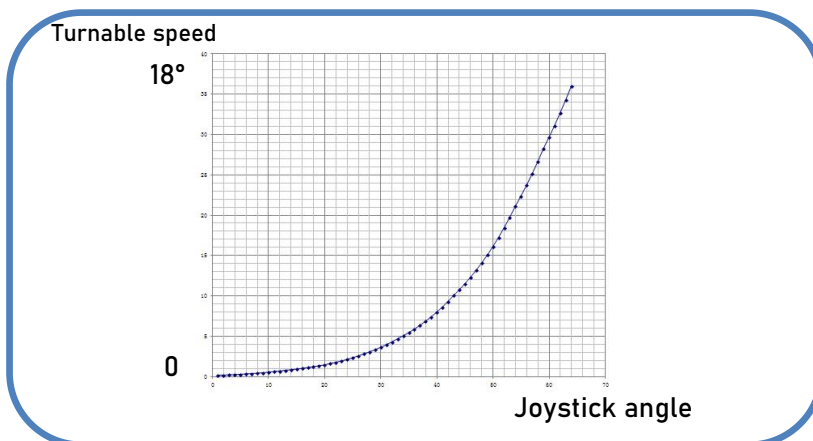
## Signal Input/Output

- Limit signal: Normal open, Closed limit;
- Motor drive signal output: Differential signal output, drive capability  $\pm 15\text{ma}$



- The motor rotation direction is opposite to the actual, then DIR+ and DIR- can be switched positions
- Output pulse: 0-5KHZ
- Indicator light: Power indicator normally open; Rocker light on during joystick moves. Communication light on during communication

## Diagram of the angle of the joystick and the speed of the motor



## Joystick configuration

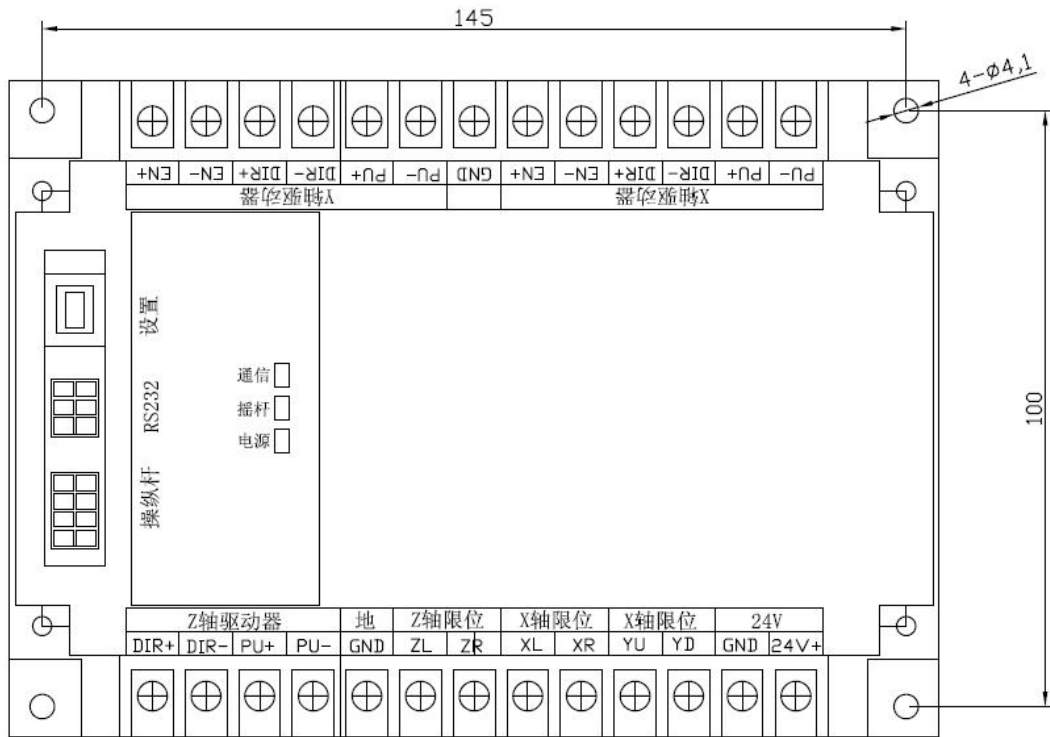
When connecting the joystick for the first time or replacing a new joystick, it is necessary to configure the midpoint of the joystick (to keep the center position of the joystick)

- 1) Press "Set" button for 3 seconds
- 2) Power off and restart.

In normal use, this operation is not required, when replacing the joystick, you need to reconfigure it.

## INSTALLATION

1. Rail-mounted install: Standard electrical track installation(35mm wide), clip-on installation;
2. Screw fixed install: 45X100;



## Master computer instruction-RS232 communication protocol

Master computer(PC) send instruction to the controller via RS232 port.

Baud rate 115200, no check bit, 8 data bits, 1 stop bit

### 1. Relative motion control instruction(PC→Controller)

Instruction format (HEX)

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8	Byte9	Byte10
Head	Command	X pulse High	X pulse Low	Y pulse High	Y pulse Low	Z pulse High	Z pulse Low	Tail	Checksum
0XFF	COM	XH	XL	YH	YL	ZH	ZL	0XAF	CH
		0x0000-0xFFFF		0x0000-0xFFFF		0x0000-0xFFFF			

#### Byte2 COM

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	Z up	Z down	Y front	Y rear	X left	X right
1=Other command 0=Rotation control							

1=Valid, 0=Invalid

Checksum (Byte10) CH = Byte2+Byte3+Byte4+Byte5+Byte6+Byte7+Byte8

The sum of all the previous bytes except the Head/Tail, take the lower byte of the result.

E.g.: FF 01 05 22 00 00 00 00 AF 28

### 2. Controller's joystick zero calibration (PC→Controller)

Calibrate controller's joystick

FF 80 00 00 00 00 00 00 AF 80

### 3. Read controller status (PC→Controller)

FF 81 00 00 00 00 00 00 AF 81

Controller reply (Controller→PC)

Byte1	Byte3	Byte4	Byte8
A5	81	LimeSta PtzSta	00 00 00 00 AF CH

Checksum CH = Byte2+Byte3+Byte4+Byte5+Byte6+Byte7+Byte8

The sum of all the previous bytes except the Head(A5)Tail(AF), take the lower byte of the result.

LimeSta (Byte3) Limit status

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	ZR Z right limit	ZL Z left limit	YU Y up limit	YD Y down limit	XL X left limit	XR X right limit

1=Limit, 0=No limit

PtzSta (Byte4 motion state, the state that is currently in motion, if no motion, the value is 0)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	Z up	Z down	Y front	Y rear	X left	X right

1=Move, 0=Stop

R.g.: returned value: A5 81 00 00 00 00 00 00 AF 81

**Note: Technical data subject to change without notice!**