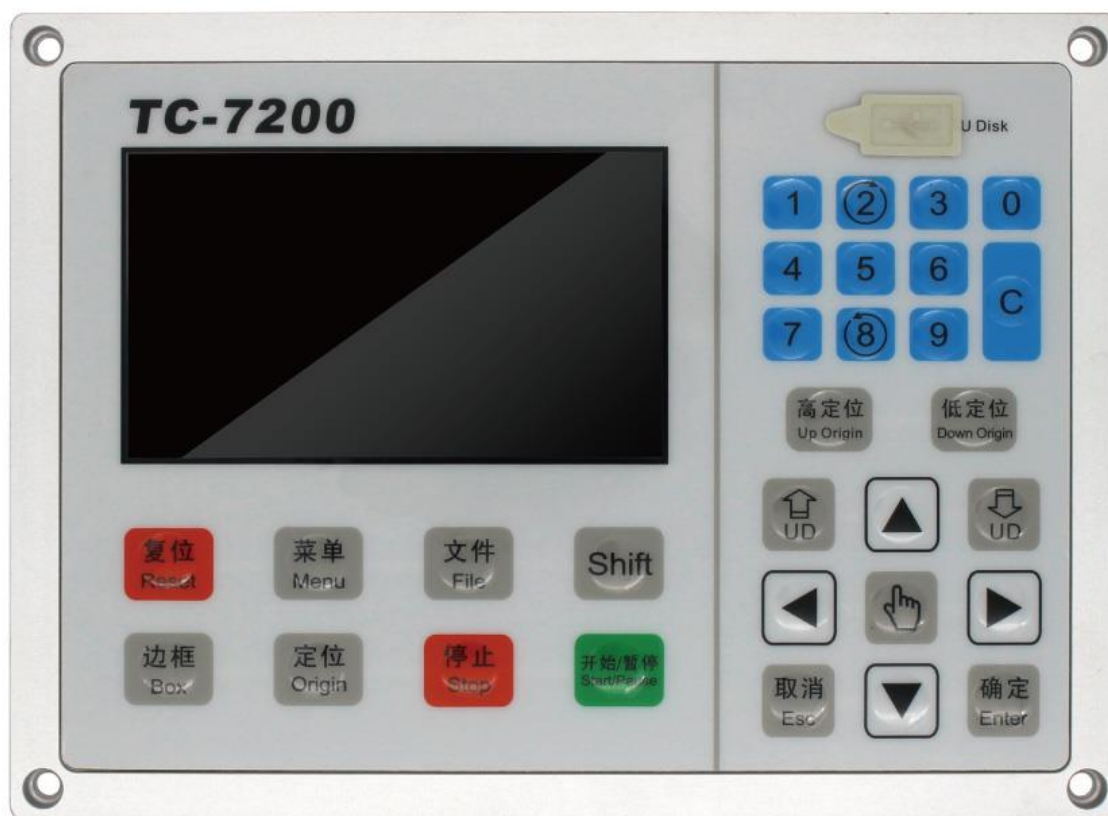


TROCEN[®]

Motion Control is Trocen

TC-7200 Cut-Off Knife User Manual

Cut-Off Knife Motion Control



2018.05

www.sztrocen.com

Copyright © 2016 Trocen Automation Tech. Co. Ltd. All Rights Reserved

Copyright

Shenzhen Trocen Automation Tech. Co. Ltd. (Hereinafter referred as Trocen) reserves the right to modify the products and product specifications in this manual without prior notice.

Trocen is not liable for any loss or liability arising directly, indirectly, specifically, incidental or consequential due to the use of this manual or this product.

The company has the patent, copyright and other intellectual property rights of the product and its software. Without authorization, it shall not directly or indirectly reproduce, manufacture, process, use this product and its related parts.



Users have the responsibility to pay attention to the design error and establish protection mechanisms. Trocen doesn't accept any responsibility or liability for any damage or loss resulting from improper operation.

Contact Us

[Shenzhen Trocen Automation Tech. Co. Ltd.](#)

First Floor, Building 4, Zhiheng Industrial Park, Nantou Pass Second Road,
Nanshan District, Shenzhen City, Guangdong Province, China

Tel: +86-0755-27958262

Fax: +86-0755-27447913-608

Email: qiancheng@sztrocen.com

Website: www.sztrocen.com

Introduction

Thanks for Choosing Trocen Motion Control

In order to feedback customers, we will help you to complete the production of the equipment with first-class quality motion controller, perfect after-sales service and efficient technical support.

More Information about Trocen Products

You could get more information about the company and products on our website www.sztrocen.com, including company profile, product introduction, technical support and the latest release products, etc.

You could call +86 (0755) 27958262 for more information.

Technical Support & After-Sales Service

You could contact technical support and after-sales service by the following ways:

Email: qiancheng@sztrocen.com

Telephone: +86-0755-27958262

Address: First Floor, Building 4, Zhiheng Industrial Park, Nantou Pass
Second Road, Nanshan District, Shenzhen City, Guangdong
Province, China

Code: 518100

User Manual

By reading this instruction, the users will know the basic composition, installation and how to use TC-7200.

For Who

This manual is applicable to engineers who have a certain understanding of laser mechanical automation and electrical circuits.

Main Content

The composition, installation and use of TC-7200 are introduced in detail

Relevant Document

《TroCutCAD Introduction》

Content

1. Product Introduction	8
1.1 System Introduction	8
1.2 Terms and Explanation	9
1.3 Unpack	10
1.4 Panel Preview	11
1.5 Buttons.....	12
1.5.1 Function Keys	13
1.5.2 Direction Keys.....	17
1.5.3 Number Keys	17
1.6 Wiring Board	20
1.6.1 Wiring Board Appearance.....	20
1.6.2 Port Instruction.....	21
2. TroCutCAD Installation	29
3. Simplified Installation.....	30
3.1 Hardware Connection.....	30
3.2 Motion Axis	31
3.3 Input Test	32
3.4 Set the Origin Point of Machine.....	32
3.5 Key Direction	33
3.6 Distance Per Pulse	34
3.7 Range	37
3.8 Up/Down Origin	38

3.9 Elevating Axis Begin Position	38
3.10 Initial Angle of Rotary Axis.....	39
4. Main Interface Preview	43
5. Main Menu Function Settings	45
5.1 File	45
5.1.1 Document Params Settings	45
5.1.2 Layer Params Settings	47
5.2 Count.....	48
5.3 Speed	50
5.4 Up/Down Origin	51
6. System Menu	53
6.1 U Disk Files	53
6.1.1 Work Files	55
6.1.2 Upgrade Files.....	56
6.2 Jog Control	57
6.3 Axes Control	58
6.4 Motion Parameters Settings	58
6.5 Common Parameters Settings	61
6.5.1 Key Move Speeds.....	63
6.5.2 Axis Speed Parameters	64
6.5.3 Work Mode.....	66
6.5.4 CCD Config.....	68
6.6 Network Settings	69

6.7 Language	71
6.8 System Version	72
7. Manufacture Params Settings	74
7.1 Axis Parameters.....	75
7.1.1 X/Y/Z Axis Parameters.....	76
7.1.2 U Axis Parameters.....	79
7.1.3 UD1/UD2 Axis Parameters	81
7.1.4 R1/R2 Axis Parameters	83
7.2 I/O Parameters	85
7.3 AutoReset Settings	86
7.4 Offset Parameters.....	87
7.4.1 V-Shaped Punching Offset	89
7.4.2 Small-Circle Punching Offset.....	90
7.4.3 Big-Circle Punching Offset.....	91
7.4.4 Pen Offset.....	92
7.4.5 Red-Light Offset.....	93
7.4.6 V-Shaped Punching Center Offset	94
7.5 IO Delay Parameters	95
7.6 Multi-Area Adsorption.....	96
7.7 Two-Head Settings.....	97
7.8 Other Config.....	98
7.9 IO Tabel	99
8. Wiring Diagram of Servo Driver.....	101

8.1 Panasonic A5 High Speed Pulse Wiring Diagram.....	101
8.2 Yaskawa Wiring Diagram	103
8.3 Delta A Series High Speed Pulse Wiring Diagram.....	105
8.4 Sanyo R Series Wiring Diagram.....	107
8.5 Schneider 23A High Speed Pulse Wiring Diagram.....	108
8.6 Fuji A5 Series Wiring Diagram	110
8.7 Mitsu Series Wiring Diagram	111
9. FAQ	113
9.1 Time and Date	113
9.2 File Name	113
9.3 Coordinate System	113
9.3.1 Plane Coordinate	114
9.3.2 Rotation Coordinate	115

1. Product Introduction

1.1 System Introduction

TC-7200 motion controller is a motion control system developed by Shenzhen Trocen Automation Tech co., LTD. Featured with feeding, pen,

irregular figure cutting, time saving and materials cutting at high utilization, TC-7200 is designated for double-rail oscillating tool cutting machine and combined auto-distribute double-head cutting with perforation. This system is used by TroCutCAD software and wiring board motion controller, which greatly improves the production efficiency and reduces the production cost.

Features of TroCutCAD

- User-friendly and versatile
- Support CorelDraw and Auto CAD and other professional drawing software.
- Support the file format: AI, PLT, DXF, SVG, PDF, NC, DST, DSB, UD5, BMP, GIF, JPG, JPEG, PNG.
- With simple graphics drawing function.
- Auto typesetting and optimal path function

Features of Wiring Board

- High DSP, quick calculating and optimal algorithm.
- 4.3'' color TFT LCD display with concise operation interface.
- Optical coupler, anti-electromagnetic interface and system stability.
- Faster reading files by USB, network or U disk.
- Support double-head working together with high efficiency.

1.2 Terms and Explanation

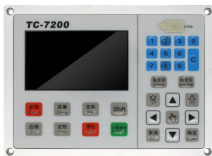
Table1-1 Terms and Explanation






Term	Explanation
TroCutCAD Software	TroCutCAD is a complementary software with auto typesetting for motion controller.
TFT LCD Panel LCD Panel Control Panel Panel (Mainboard)	4.3" color TFT LCD control panel. The panel is used for specific display and control operations, and it is an important part of the system.
Baseboard (Wiring Board)	The baseboard is the control board for the integrated signal input and output control and the motor drive connection.
Hardware	Includes: panel, wiring board, wire and so on.

1.3 Unpack

After receiving the product, please confirm whether the product and accessories are complete. If there is any defect, please contact the after-sales customer service of Trocen company.

Table1-3-1 Wire Introduction

Name	Appearance	Introduction
Front-panel (Mainboard)		The mainboard of TC-7200.

Baseboard		The wiring board of TC-7200.
USB Cable (3m)		Connect computer and panel by USB.
Network Cable (5m)		Connect computer and panel by network.
DB25 (1.6m)		There is one DB25 line to connect the main board and panel by CN port.
8 PIN (1m)		Patch cord with USB and network port.

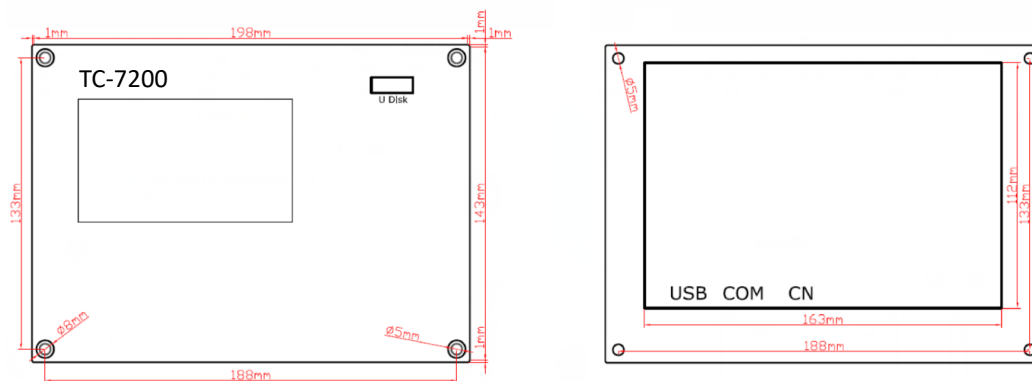
1.4 Panel Preview

There are LCD display, soft keys and U disk slot on panel.

Figure1-4-1 Panel Preview



Figure1-4-2 Size of Main Board



1.5 Buttons







According to the different use of soft keys, all keys are roughly divided into








three categories: function keys, direction keys and number keys.

1.5.1 Function Keys

Function keys are designed to directly realize a specific operation function.

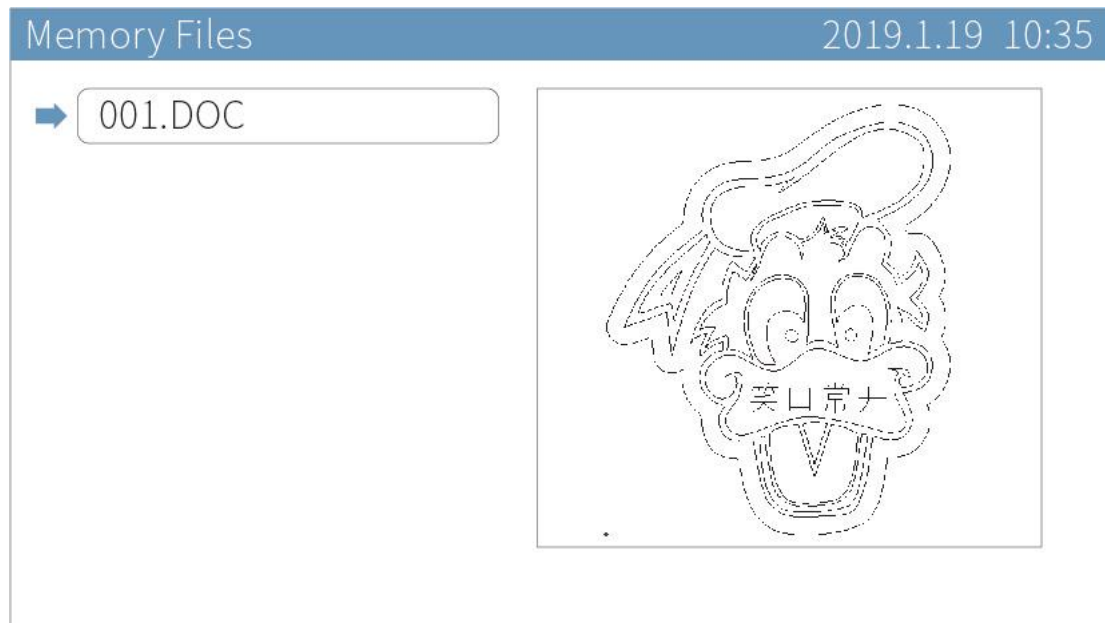
Table1-5-1 Function Keys Instruction

Name	Icon	Instruction
Reset		No matter what the state of the machine is in, pressing this button will make it enter the resetting state.
Menu		Show the main menu.
File		Browse the files stored in the mainboard.
Shift		Combine function key. The second function switching button (for example, exchanging the Up/Down Origin 1/2/3 on the main page).
Box		Frames the working area from the origin point of the current file.
Origin		Setting machine's starting point of the current file.

Stop		Once pressed, the machine will stop its current function and move back to its origin. Press 【Stop】 + direction keys to switch the speed of axis movement, quick to slow or slow to quick.
Start/Pause		Pause the machine and keep it stay at location. Press again to resume.
ESC		Exit edit mode (Exit cursor). Return to previous menu.
Enter		Enter edit mode (Start cursor). Confirm the current operation.
Hand		Switch the moving speed (fast/slow) of axis manually.
Up Origin		Up origin is used to determine the rising extreme of the lifting shaft. This parameter is only valid when you choose the motor control mode for lifting shaft.
Down Origin		Down origin is used to determine the extreme drop of the lifting shaft. This parameter is only valid when you choose the motor control mode for lifting shaft.

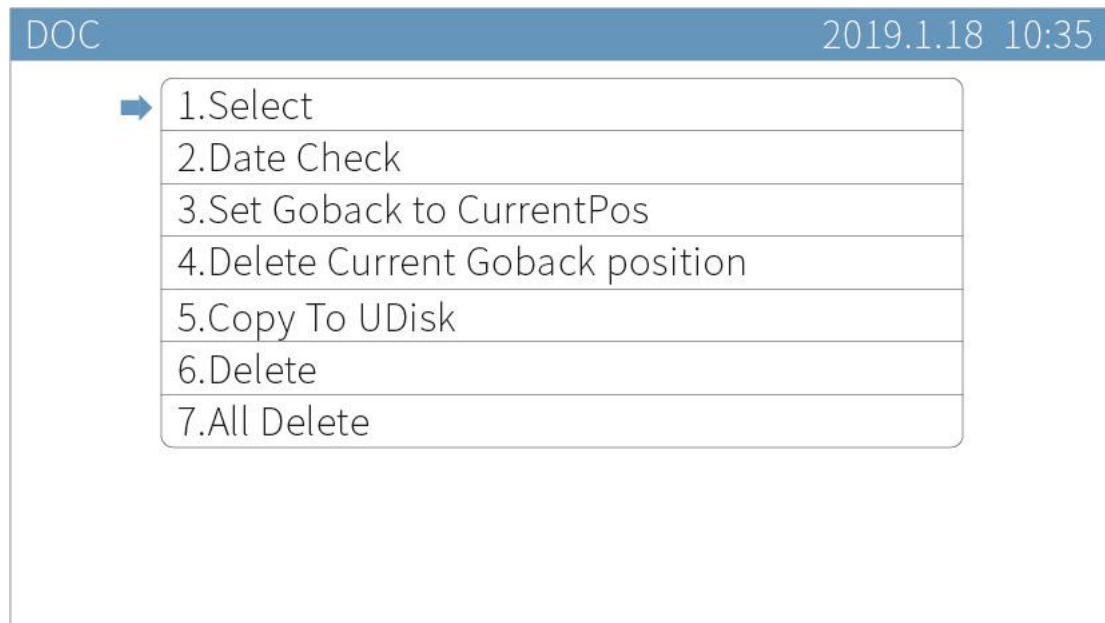
On the main page, press **【File】** and you could see the memory files.

Figure1-5-1 File Interface



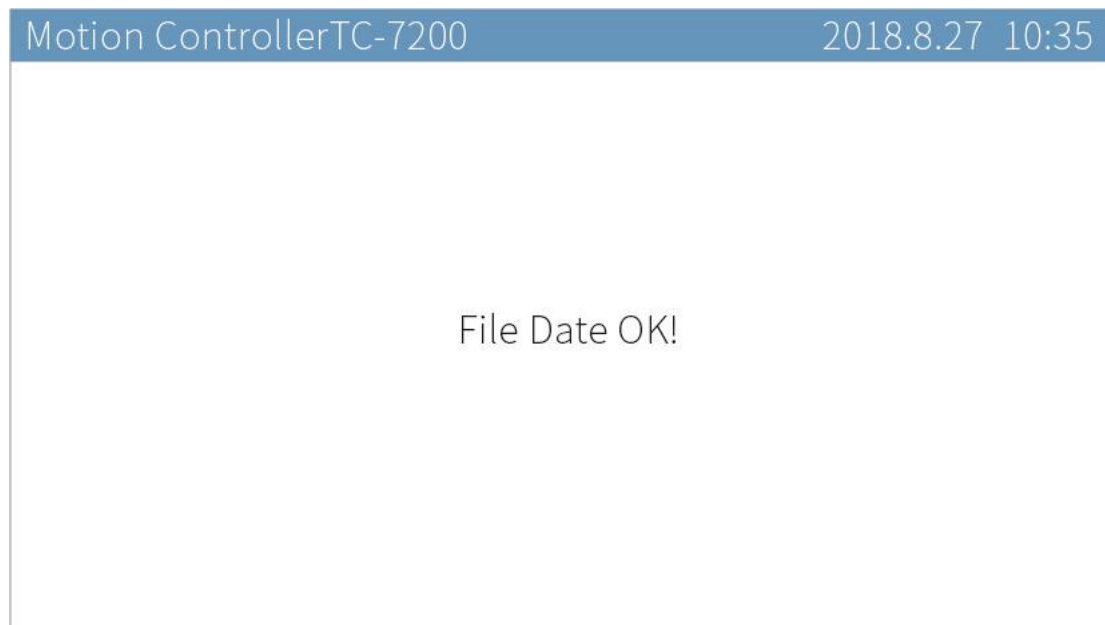
Move cursor to the file you need, press **【Enter】** , you can set the parameters.

Figure1-5-2 File Parameters Setting Page



- Move cursor to **【Select】**, press **【Enter】** and set current file as work file.
- Move cursor to **【Data Check】**, press **【Enter】** to compare the loaded file data, if it is consistent with the computer graphics data. If the result is OK, then the machine will allow to process this graphics.

Figure 1-5-3 File Format Test



Users can set other parameters as need.

1.5.2 Direction Keys

- **【↑】【↓】【←】【→】**

They are used to move the X/Y axis and cursor, also used to modify options in the current view.







- **【UD ↑】【UD ↓】**

Directly control the upward, downward, left and right movement in the main menu. When not highlighted by the cursor, it can be used for changing the parameters. When highlighted, use the **【↑】【↓】** **【←】【→】** for navigating the menus.

1.5.3 Number Keys

Quickly modify the parameters, as well as quick access to digital corresponding menu item.

Table1-5-2 Number Keys Instruction

Name	Icon	Instruction
1		Detect the IO port signal output manually.
2		Rotation axis. Make the rotation axis (R axis) rotate under particular circumstance manually.
3		Split left. Make the split axis (Z axis) move left under particular circumstance manually.
5		Split right. Make the split axis (Z axis) move right under particular circumstance manually.
7		Rotation axis. Make the rotation axis (R axis) rotate under particular circumstance manually.
9		For backspace when you are modifying the parameters.

The number keys **【0-9】** are used to input value on the parameter settings page.

On the main page, press **【1】** to enter ***Manual to Control IO*** interface.

Press number keys to test relevant I/O port manually.

Figure1-5-4 Manual to Control IO Interface

Manual To Control IO

2019.1.18 10:35

- ➡
- | |
|---------------------------|
| 1: Adsorb |
| 2: Knift Work |
| 3: Clip Material |
| 4: Feeding |
| 5: Pen |
| 6: Small-Punching |
| 7: Big-Punching |
| 8: V-shanped punching |
| 9: Circle-Punching Rotate |

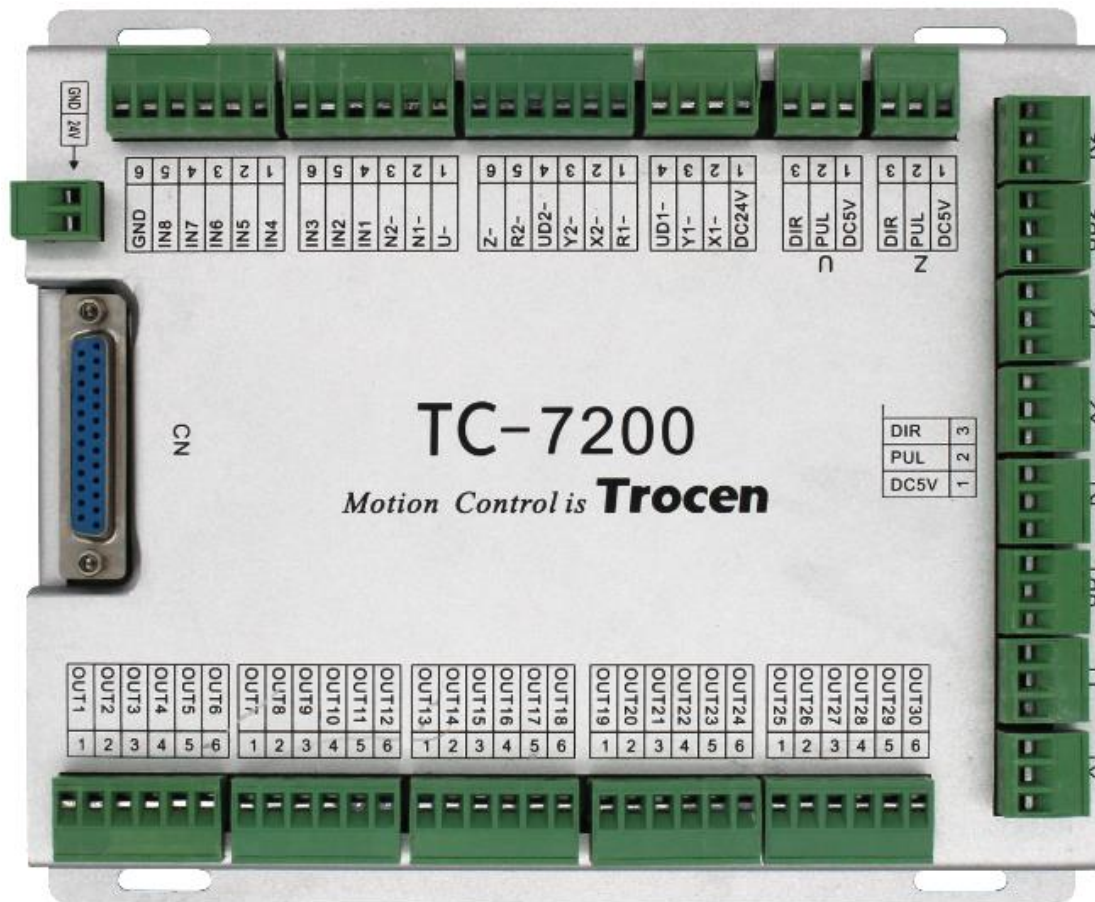
1.6 Wiring Board

The panel and other parts of machine are connected by wiring board. The components as below:

- Connect motor driver
- Detection of motion axis limit signal
- Input signal detection
- Output IO control signal and corresponding power supply

1.6.1 Wiring Board Appearance

Figure1-6-1 Wiring Board Appearance



1.6.2 Port Instruction

1.6.2.1 Power Supply Port

The power supply ports provide power to wiring board and panel. Please pay more attention to polarity when connect them. Don't make the polarity reverse.

Table1-6-1 Instruction of Wiring Board Power Supply Port

Pin	Name	Introduction
1	+24V	Positive pole
2	GND	Power ground.

1.6.2.2 The Connection of Panel and Wiring Board

Connect mainboard and wiring board with DB25 cables.

1.6.2.3 Signal Input

There is two groups of ports for signal input.

Table1-6-3 Wiring Board Signal Input Port Instruction

	PIN	Name	Instruction
IN	1	U-	The origin limit of the U axis. When the U axis moves to

			the minimum coordinate position (zero position), the limit sensor inputs signal.
	2	N1-	
	3	N2-	
	4	IN1	Protection
	5	IN2	Foot Switch
	6	IN3	Servo Error
IN	1	IN4	Feed Forward
	2	IN5	Feed Back
	3	IN6	Crashing Check
	4	IN7	Reserved
	5	IN8	Reserved
	6	GND	Power ground.

1.6.2.4 Signal Output

There are five groups of output ports to supply power and control signal.

Table1-6-4 Signal Output Port Instruction

	PIN	Name	Instruction
1.OUT	1	OUT1	Knife Oscillating1

	2	OUT2	Knife Oscillating2
	3	OUT3	Small -Circle Punch1
	4	OUT4	Small-Circle Punch2
	5	OUT5	Big-Circle Punch1
	6	OUT6	Big-Circle Punch2
2.OUT	1	OUT7	V-Shaped Punch1
	2	OUT8	V-shaped Punch2
	3	OUT9	Pen1
	4	OUT10	Pen2
	5	OUT11	Clip Material
	6	OUT12	Feeding
3.OUT	1	OUT13	(Three-Color) Red
	2	OUT14	(Three-Color) Green
	3	OUT15	(Three-Color) Yellow
	4	OUT16	Adsorb-1
	5	OUT17	Adsorb-2
	6	OUT18	Adsorb-3
4.OUT	1	OUT19	Adsorb-4
	2	OUT20	Adsorb-5

	3	OUT21	Adsorb-6
	4	OUT22	Adsorb-7
	5	OUT23	Adsorb-8
	6	OUT24	Punch Rotate
5.OUT	1	OUT25	Reserved
	2	OUT26	Reserved
	3	OUT27	Reserved
	4	OUT28	Globel Adsorb
	5	OUT29	Reserved
	6	OUT30	Reserved

1.6.2.5 Input Port of Limit Signal

The wiring board provides 10-way sensor limit signal access. Each axis supports minimum coordinate limit signal input. This system supports working range limitation, so users do not need to install hard limit sensor, just set the **【Range】** parameter on the ***Axis Parameters*** page.

Table1-6-6 Limit Signal Instruction

	PIN	Name	Instruction
Limit	1	DC24V	Output DC voltage (24V).

	2	X1-	The origin limit of the X1 axis. When the X1 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	3	Y1-	The origin limit of the Y1 axis. When the Y1 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	4	UD1-	The origin limit of the UD1 axis. When the UD1 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
Limit	1	R1-	The origin limit of the R1 axis. When the R1 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	2	X2-	The origin limit of the X2 axis. When the X2 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	3	Y2-	The origin limit of the Y2 axis. When the Y2 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	4	UD2-	The origin limit of the UD2 axis. When the UD2 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.

	5	R2-	The origin limit of the R2 axis. When the R2 axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.
	6	Z-	The origin limit of the Z axis. When the Z axis moves to the minimum coordinate position (zero position), the limit sensor inputs signal.

1.6.2.6 Motor Drive Control Port

The wiring board can provide up to 10 motor driver connections, and users can choose step driver or servo driver according to the need. The servo driver has higher control accuracy than step driver. Users can choose the appropriate driving mode according to the usage scenario, cutting precision requirements and cost factors. We take the step driver as an example. [Various types of servo driver wiring diagram, please refer to Chapter 8 of this article.](#)

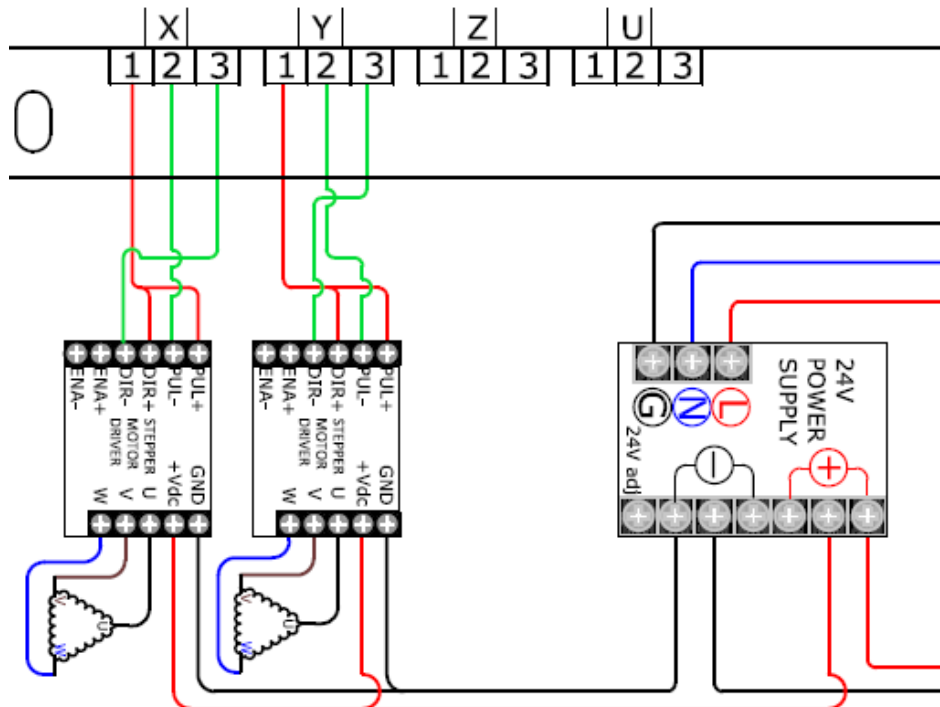
Table1-6-7 Motor Driver Connection Instruction

	PIN	Name	Instruction
X1	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal

Y1	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
UD1	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
R1	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
X2	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
Y2	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
UD2	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
R2	1	DC5V	Output DC voltage (5V).

	2	PUL	Pulse signal
	3	DIR	Direction signal
Z	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal
U	1	DC5V	Output DC voltage (5V).
	2	PUL	Pulse signal
	3	DIR	Direction signal

Figure1-6-2 Diagram of Interface and Driver Connection



2. TroCutCAD Installation

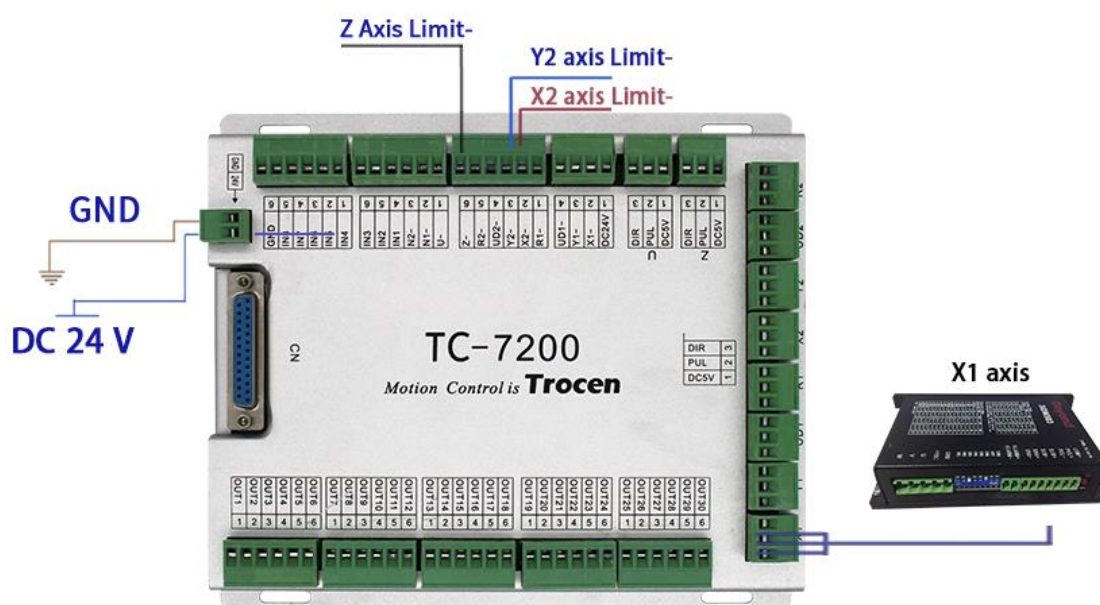
You can go through 《TroCutCAD User Manual》 for more details about installation and how-to-use TroCutCAD.

3. Simplified Installation

The content of this chapter is mainly the hardware initial installation of the product and the basic setting of software parameters. Please refer to the following chapters of this article for the detail settings and descriptions of other parameters.

3.1 Hardware Connection

Figure3-1-1 Integral Wiring Diagram



Please [refer to the Chapter 1.6.2.6](#) to know the connection diagram of motor drivers.

3.2 Motion Axis

Table3-2-1 Motor Axis Instruction

Name	Instruction
X/Y Axis	Axis of plane movement.
Z Axis	Used for double tool head cutting, tool head mutual movable.
U Axis	Feeding axis.
UD1/UD2 Axis	Elevating axis of tool head.
R1/R2 Axis	Rotation axis of tool head.

3.3 Input Test

On the main page, press **【Stop】** and press **【Menu】** two times at the same time, you will see the **Input Test** interface.

Figure3-3-1 Input Test Interface

输入口测试				2018.8.27 10:35	
X1-限位	1	N1限位	1		
Y1-限位	1	N2限位	1		
UD1-限位	1	IN1	1		
R1-限位	1	IN2	1		
X2-限位	1	IN3	1		
Y2-限位	1	IN4	1		
UD2-限位	1	IN5	1		
R2-限位	1	IN6	1		
Z-限位	1	IN7	1		
U-限位	1	IN8	1		

According to different sensor types, you could choose metal products or other shielding objects to close to the corresponding sensors to detect whether the signals changes, so as to confirm whether the wiring is accurate and effective.

3.4 Set the Origin Point of Machine

Connect machine and mainboard, power on and observe the motion directions of axis. If axis moves random, please press **【Stop】** at once. Check your limiters installation and wiring, if no mistake, then reset the direction of origin point.

On the main page, press **【Stop】** + **【Shift】** at the same time to enter the **Manufacture Params Settings** interface. Then enter the **Axis Parameters** page, we choose X axis as an example. Enter the **X Axis Parameters** page, and modify the **【Datum Direction】** with direction keys **【←】****【→】**, press **【Enter】** to save settings.

X Axis Parameters		2018.8.27 10:35
➡	Distance Per Pulse (um) ...	06.500000
	Valid Pulse Edge	Failling Edge
	Datum Direction	Negative
	Key Direction	Negative
	Limit Polarity	Negative
	Range (mm)	00500
	Start Speed (mm/s)	15.0
	Max Acc (mm/s ²)	10000
	Max Speed (mm/s)	0500.0
	Offse(mm)	000

Before start, please make sure to enable the XYZ axis auto reset. [Detail settings refer to Chapter 7.3.](#)

3.5 Key Direction

On the main page, press **【↑】****【↓】****【←】****【→】** to move XY axis, press **【UD ↑】****【UD ↓】** to move UD axis, press **【2】****【8】** to rotate R axis, check whether the motion direction is the same as key direction. If not, please modify the **【Key Direction】** on the **Axis Parameters** page.

3.6 Distance Per Pulse

Distance per pulse refers to the actual distance of motion axis for each pulse instruction sent by the controller.

1. Distance per pulse of plane axis (take X axis as an example)
 - a) Reset motion axis to registration point, and mark the current position with A.
 - b) On the main page, press **【Menu】** and enter the **Jog Control** page. Set the **【Jog Distance】** to 200mm as an example. Then press **【Enter】** to save your modification. If you haven't set the **【Range】** on **Axis Parameters** page, please don't set the **【Jog Distance】** value too large.
 - c) On the **Jog Control** page, move cursor to **【X/Y/Z Jog】**, then press direction keys (**【←】** or **【→】**). The X axis will move a distance and stop. Mark the current position of X axis with B.
 - d) Measure the distance between A and B, and input the value into **【Actual Length】**.
 - e) On the main page, press **【Stop】** + **【Shift】** at the same time to open the **Manufacture Params Settings** page. Then move cursor to **【Axis Parameters】** and press **【Enter】**. Then open the **X Axis Parameters** page and move cursor to **【Distance Per Pulse】**, press **【Enter】**. Input 200mm into **【Expected Length】** and input the distance between A and B into **【Actual Length】**. Then press

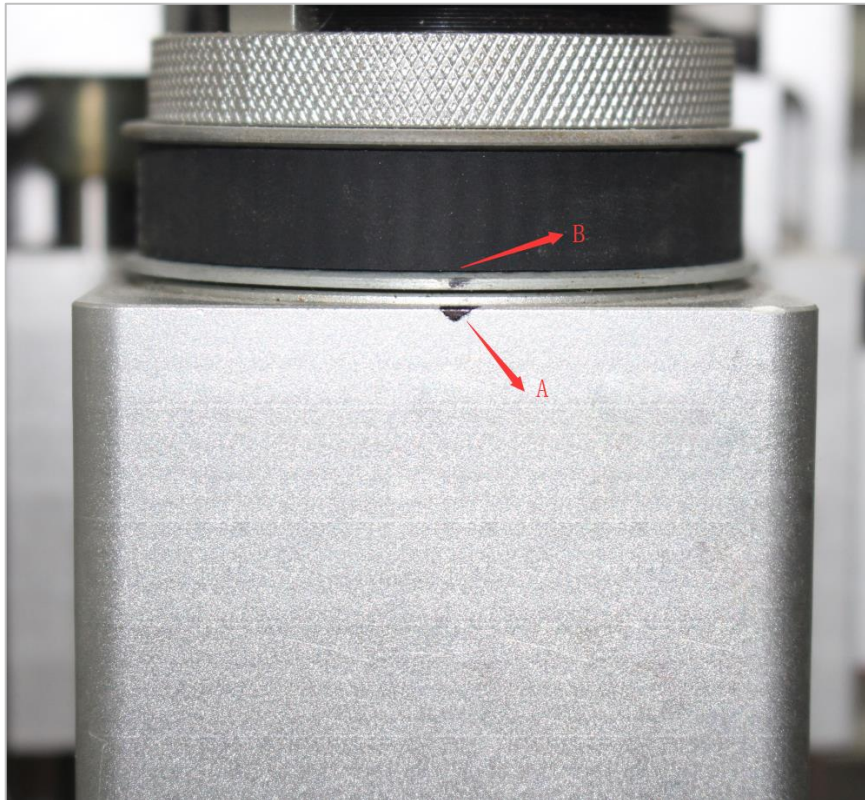
【Enter】 , the distance per pulse of X axis will be calculated.

f) The calculation methods of Y/U/UD1/UD2 are the same as X axis.

2. Distance per pulse of rotary axis (R1/R2)

a) Usually select rotary axis plane as reference. Manually adjust rotary axis and make the reference paralleled with X+ direction.

Mark A and B points.



b) Enter **AutoReset Settings** page and set R1/R2 to Disable.

c) Click 【Reset】 and you will see the rotary axis stay still and the coordinate value is “0” on the panel.

d) Enter the **Jog Control** page, set the 【Jog Distance】 to 360, then move cursor to 【R Jog】 and press direction keys to make R axis jog. On the **To Calculate the Pulse Distance** page, input 360 into

the **【Expected Length/ Expected Degree】** .

- e) During rotation, observe whether point B overlaps with A. If point B doesn't overlap with A, then input the coordinate value "C" into **【Expected Length/Expected Degree】** . If point B overlaps with A, then input the coordinate value "C+360" into **【Actual Length/ Actual Degree】** .
- f) Back to **To Calculate the Pulse Distance** page, input the relevant parameters and press **【Enter】** . Then the distance per pulse will be set successfully.

3. Distance per pulse of Z axis (multi-head working)

When the machine does multi-head cutting, the distance per pulse of Z axis is calculated as below:

- a) Reset machine. Make the head1 cut a line, then mark the cutting position with A.
- b) On the main page, press **【Menu】** and enter the **Jog Control** page. Set the **【Jog Distance】** to 200mm as example. Then press **【Enter】** to save your modification. If you didn't set the **【Range】** on **Axis Parameters** page, please do not set the **【Jog Distance】** value too large.
- c) On the **Jog Control** page, move cursor to **【Z Jog】** , then press direction key (**【←】** / **【→】**) one time to make the cut heads move a jog distance on the X direction. Then make the head1 cut a line again and mark the position with B.

- d) Measure the distance between A and B, then input the value into **【Actual Length/Actual degree】** .
- e) On the main page, press **【Stop】** + **【Shift】** at the same time to open the **Manufacture Params Settings** page. Then move cursor to **【Axis Parameters】** option and press **【Enter】** . Then open the **Z Axis Parameters** page and move cursor to **【Distance Per Pulse】** , press **【Enter】**. Input 200mm into **【Expected Length/Expected degree】** and input the distance between A and B into **【Actual Length/Actual degree】** . Then press **【Enter】** , the distance per pulse of Z axis will be calculated.



When the pulse distance value of any axis is close to or less than 1, the pulse distance can't be adjusted and is always 1. The recommended pulse distance value is 5 or more.

3.7 Range

On the main page, press **【Stop】** + **【Shift】** at the same time to open the **Manufacture Params Settings** page. Then move cursor to **【Axis Parameters】** and press **【Enter】** . Move cursor and enter the relevant axis parameter settings page to set **【Range】** .

Set the distance per pulse of X/Y/Z axis according to the content of the Chapter 3.6. Then move motion axis to the maximum distance towards

positive direction. You can set the coordinate value on the panel as range.

3.8 Up/Down Origin

Up/down origin is applied to determine the extreme value of rise and fall of elevating axis. It is valid if the elevating axis is controlled by motor. Now we take Up Origin as an example. Down Origin is in the same operation.

1. Make sure that elevating axis is controlled by motor.
 - a) On the main page, press **【Stop】+【Shift】** at the same time, enter the ***Manufacturer Parameters Settings*** page.
 - b) Move cursor to **【Axis Parameters】** and press **【Enter】**.
 - c) Check if **【UpDown-Control-Mode】** is Motor Control or not.
 - d) If not, change it to Motor Control.
2. Back to main page, click **【UD ↑】 / 【UD ↓】** to adjust the height of elevating axis.
3. Click **【Up Origin】** and check whether the coordinate value of UD is the same as it is of Up Origin on the panel. When set **【Down Origin】**, the last step is pressing **【Down Origin】**.

3.9 Elevating Axis Begin Position

All the cutting heads should be on the same level under multi-head working situation, but it is hard to make them really stay at the same level during installation. Here we need to try height compensation with the help of software. We suppose the case that the UD1 is the highest as

example here.

1. Enter **Manufacturer Parameters Settings** page, move cursor to **【Other Config】** and press **【Enter】**. Then input "0" into **【UD1/UD2 Begin Position】** .
2. Reset elevating axis.
3. The vertical height of cutting heads is different. Pick out the one (UD1) with max height as a benchmark and measure the height difference.
4. Back to **Other Config page**, and input "0" in **【UD1 Begin Position】** and input the height difference in **【UD2 Begin Position】** .

3.10 Initial Angle of Rotary Axis

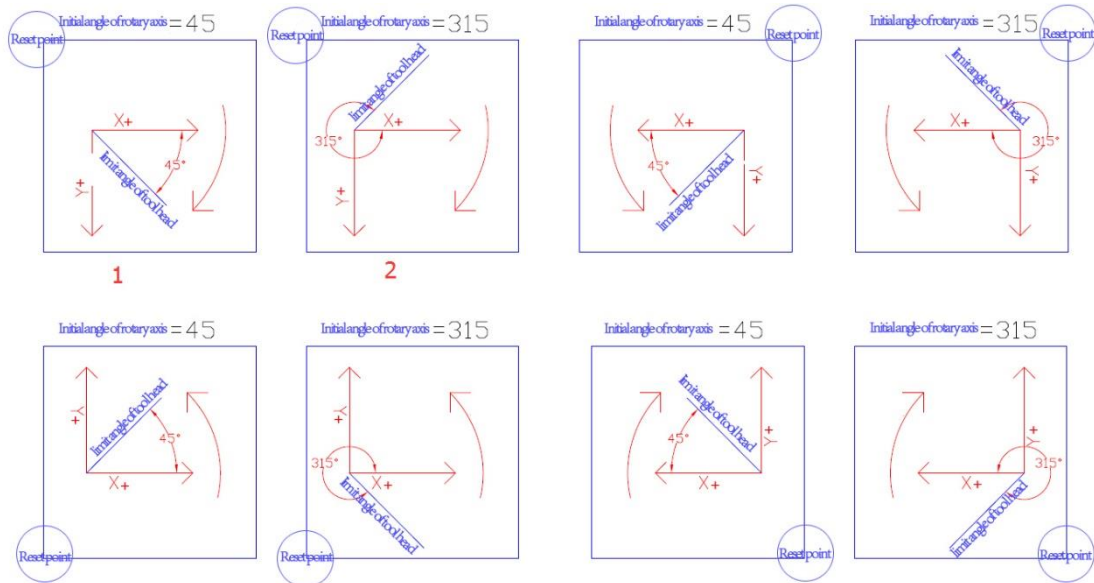
The initial angle of rotary axis means the angle between limit switch of rotary axis and X+ direction. It is normally used with plane coordinate system. And it is hard to make limit switch parallel to X+ direction exactly, which means there is always tiny deviation so we need to use this parameter to correct the angle.

The setting of this parameter will vary by different reset points (limit point of X/Y axis) in practice. Here four different situations are listed below. Positive and negative rotation is based on reset point. For example, positive rotation is clockwise while negative rotation is counter-clockwise and it is the same thing if they are reversed.

The first picture shows the situation that the angle between limit switch and X+ direction is 0 ~180 degree. The second picture shows the situation

that the angle between limit switch and X+ direction is 0~360 degree.

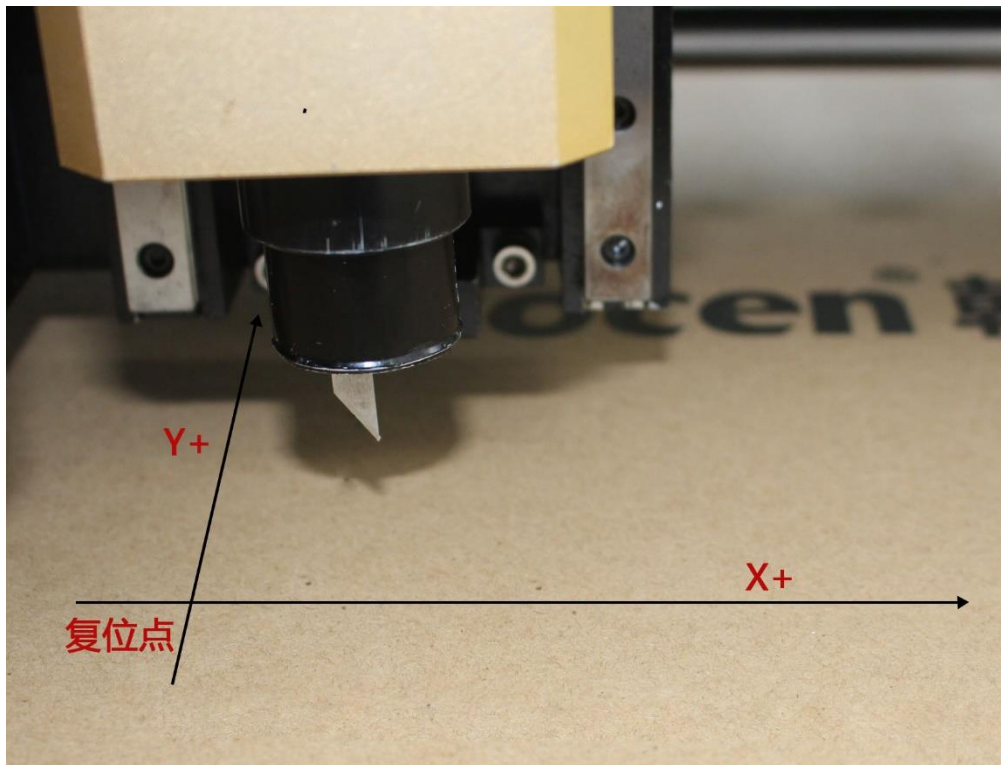
Figure3-10-1 Initial Angle of Rotary Axis Instruction



From the figure above, you can get a good understanding of the initial angle of rotation and how to set it correctly. The angle value can be easily read by following procedure. Here, we take the left bottom as the machine origin point for example. For the convenience of customer observation and understanding, a thick paper has been placed on the machine cutting platform.

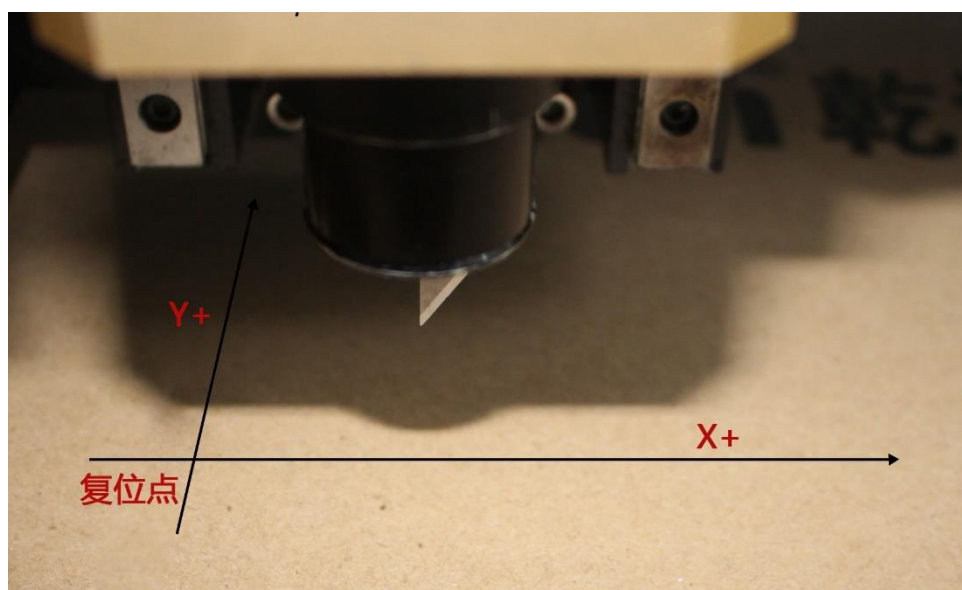
1. Enter **Manufacturer Parameters Settings**→**Other Config** page, move cursor to【R1 Begin Degree】, press 【Enter】. Set the 【Begin Degree】 to “0”.
2. Reset rotary axis, the rotation axis will stay at where the limit switch is located instead of going back to X+ direction. And there will be a certain angle between cutting edge direction and X+ direction, this angle is initial angle of rotation axis.

Figure3-10-2 Initial Angle of Rotation Axis



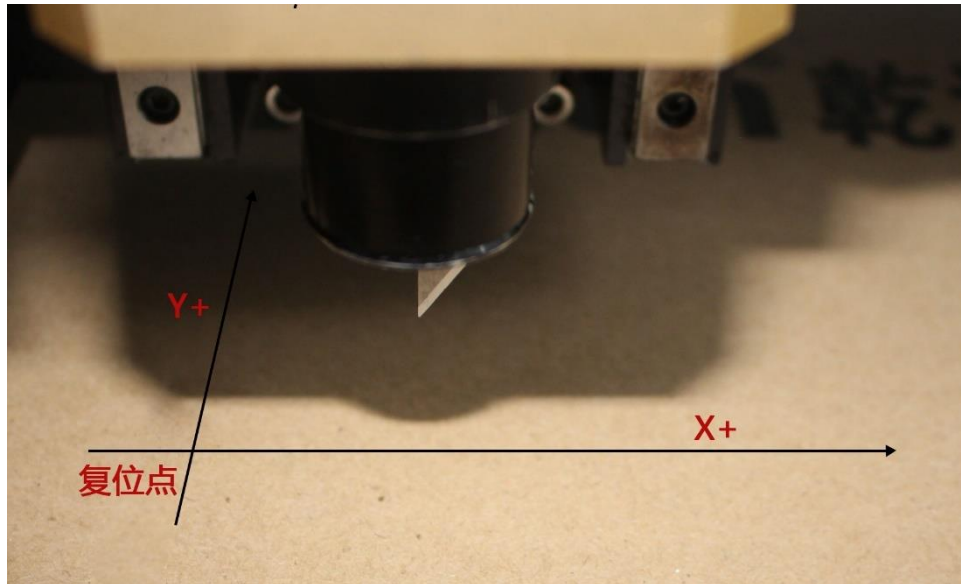
3. Press digital keys **【2】【8】** to adjust rotation axis to be in parallel with X+ direction in negative rotation direction manually. Check the coordinate value of R axis on the panel and take note of it as “a”.

Figure3-10-3 Rotary Axis in Negative Rotation Direction



Users could make the cutting head cut downward to determine whether the blade is in parallel with the X-axis through the cutting line.

Figure3-10-4 Check Rotation Result



4. Back to **【R1 Axis parameters】** page, enter (360-a) in **【Begin Degree】**, press **【Enter】** to save settings.

4. Main Interface Preview

Figure4-1 Main Interface

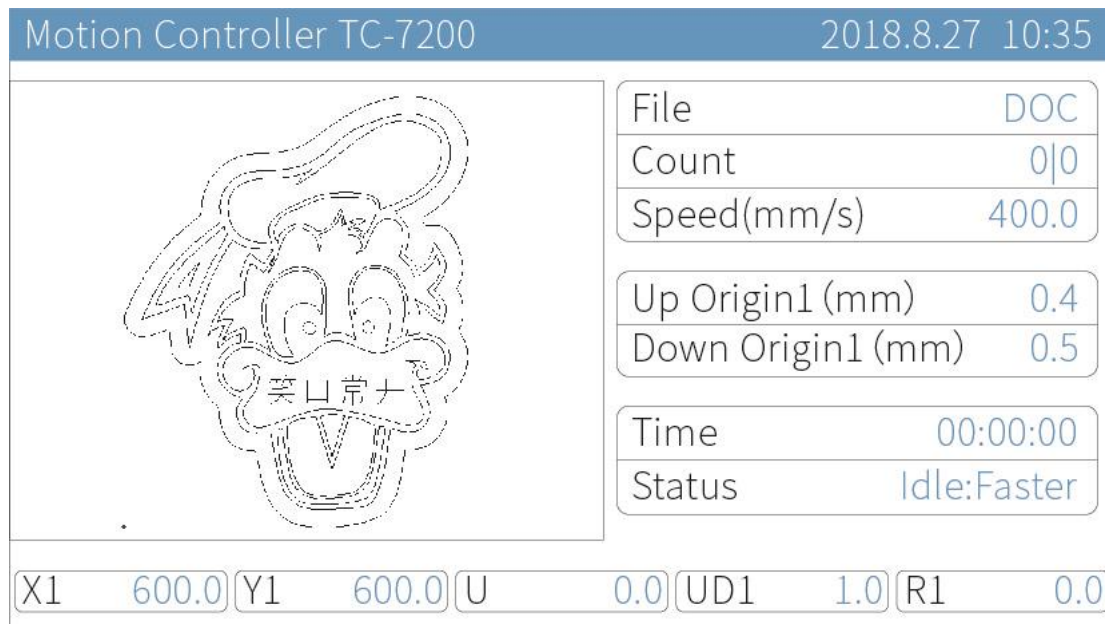


Table4-1 Main Interface Introduce

Name	Instruction
Top Bar	Display the type of control card, date and time.
File	Displays the file name currently being processed. The file name consists of letters, numbers and Chinese. The letters and numbers must be no more than 8, and the Chinese must be no more than 4.
Count	Number of graphics processed.
Speed (mm/s)	Displays the cutting speed of current file.

Up Origin1 (mm)	High position of tool head.
Down Origin1 (mm)	Low position of tool head.
Time	Displays the amount of time worked with this task.
Status	Displays the machine state. Includes working state, idle state, pause state. There will be a percentage to show the working process of the current file under working state.
X/Y/U/UD/R	Display the X/Y/Z/UD/R axis coordinate in working state.

5. Main Menu Function Settings

5.1 File

5.1.1 Document Params Settings

On the main page, press **【Enter】**, then move cursor to File. Press **【Enter】** to make the file name highlighted to open **Document Params Settings** interface as shown below.

Figure5-1-1 Select File Name

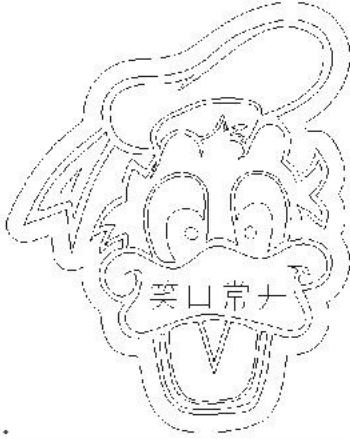
Motion Controller TC-7200		2018.8.27 10:35	
	File	DOC	
	Count	0 0	
	Speed(mm/s)	400.0	
	Up Origin1 (mm)	0.4	
	Down Origin1 (mm)	0.5	
	Time	00:00:00	
	Status	Idle:Faster	
	<div> X1 600.0 Y1 600.0 U 0.0 UD1 1.0 R1 0.0 </div>		

Figure5-1-2 Document Params Settings

Document Params Settings		2018.8.27 10:35
➔	01.Document Property Settings	
	02.Layer Params Settings	

Move the cursor to the options you want to change, input numbers, then press **【Enter】** to finish it.

Figure5-1-3 Set Document Property

Set Document Property		2018.8.27 10:35
➔	Repeat Count	10000
	Repeat Delay (s)	000
	Feed Distance (mm)	0000
	X Count	00001
	Y Count	00001
	X Size (mm)	97.2
	Y Size (mm)	121.7

Table5-1-1 Set Document Property Instruction

Name	Instruction
Repeat Count	Machine repeat working times.
Repeat Delay (s)	The interval between the initial file being finished and the next one of the same.
Feed Distance (mm)	Distance of each movement of the feeding axis.
X Count	The number in X direction of the file.
Y Count	The number in Y direction of the file.
X Size (mm)	The size in X direction of the file.
Y Size (mm)	The size in Y direction of the file.

5.1.2 Layer Params Settings

On the **Document Params Settings** page, move cursor to **【Layer Params Settings】** and press **【Enter】** . On the **Layer Params Settings** page, press **【↑】【↓】** to move cursor, press number keys to modify parameters, press **【Enter】** to save settings.

Figure5-1-4 Layer Params Setting

Layer Params Settings 2018.8.27 10:35

Work Mode Cut

Speed (mm/s) 0300.0

Table5-1-2 Layer Params Setting Instruction

Name	Instruction
Work Mode	Choose the working state of the current file.
Speed (mm/s)	Set the cutting speed of the current file.

5.2 Count

On the main page, press **【Enter】** to make the highlighted cursor to be displayed and move it to **【Count】** , then press **【Enter】** . Move cursor to **【To Clear Total Count】** or **【To Clear Cumulative Counts】** to clear the value.

Figure5-2-1 Count


Motion Controller TC-7200		2018.8.27 10:35													
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">File</td> <td style="text-align: right; padding: 2px 5px;">DOC</td> </tr> <tr> <td style="padding: 2px 5px;">Count</td> <td style="text-align: right; padding: 2px 5px;">0 0</td> </tr> <tr> <td style="padding: 2px 5px;">Speed(mm/s)</td> <td style="text-align: right; padding: 2px 5px;">400.0</td> </tr> <tr> <td style="padding: 2px 5px;">Up Origin1 (mm)</td> <td style="text-align: right; padding: 2px 5px;">0.4</td> </tr> <tr> <td style="padding: 2px 5px;">Down Origin1 (mm)</td> <td style="text-align: right; padding: 2px 5px;">0.5</td> </tr> <tr> <td style="padding: 2px 5px;">Time</td> <td style="text-align: right; padding: 2px 5px;">00:00:00</td> </tr> <tr> <td style="padding: 2px 5px;">Status</td> <td style="text-align: right; padding: 2px 5px;">Idle:Faster</td> </tr> </table>	File	DOC	Count	0 0	Speed(mm/s)	400.0	Up Origin1 (mm)	0.4	Down Origin1 (mm)	0.5	Time	00:00:00	Status	Idle:Faster
File	DOC														
Count	0 0														
Speed(mm/s)	400.0														
Up Origin1 (mm)	0.4														
Down Origin1 (mm)	0.5														
Time	00:00:00														
Status	Idle:Faster														
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid #ccc; padding: 2px 10px;">X1</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">600.0</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">Y1</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">600.0</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">U</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">0.0</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">UD1</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">1.0</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">R1</td> <td style="border: 1px solid #ccc; padding: 2px 10px;">0.0</td> </tr> </table>			X1	600.0	Y1	600.0	U	0.0	UD1	1.0	R1	0.0			
X1	600.0	Y1	600.0	U	0.0	UD1	1.0	R1	0.0						

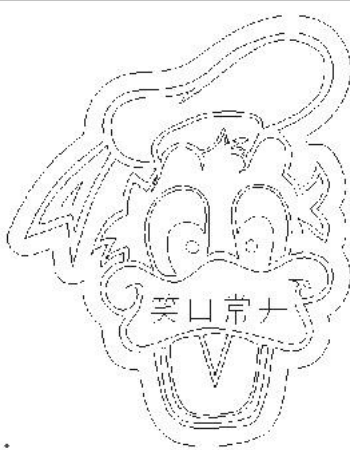
Figure5-2-2 Clear Total Count

Motion Controller TC-7200		2018.8.27 10:35	
➡	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">To Clear Current Counts</td> </tr> <tr> <td style="padding: 5px;">To Clear Cumulative Counts</td> </tr> </table>	To Clear Current Counts	To Clear Cumulative Counts
To Clear Current Counts			
To Clear Cumulative Counts			

5.3 Speed

On the main page, press **【Enter】** to make the highlighted cursor to be displayed. Move it to **【Speed】**. Press **【Enter】**, then find **【Set Work Property】** as shown below.

Figure5-3-1 Select Speed Option

Motion Controller TC-7200		2018.8.27 10:35	
		File	DOC
		Count	0 0
		Speed(mm/s)	400.0
		Up Origin1 (mm)	0.4
		Down Origin1 (mm)	0.5
		Time	00:00:00
		Status	Idle:Faster
X1	600.0	Y1	600.0
U	0.0	UD1	1.0
R1	0.0		

Press number keys to modify parameters and press **【Enter】** to save settings.

Figure 5-3-2 Set Work Speed

Table 5-3-1 Set Work Speed

Name	Instruction
Speed (mm/s)	The cutting speed of the current file.

5.4 Up/Down Origin

On the main page, press **【Enter】** and move cursor to **【Up/Down Origin】**. Press **【Enter】** to open **Up & Down Origin** page. Press **【↑】****【↓】** to move cursor, press number keys to modify parameters and press **【Enter】** to save settings.

On the main page, press **【 Shift 】** to change **【 Up/Down Origin1 】** ,
【 Up/Down Origin2 】 and **【 Up/Down Origin3 】** .

Figure 5-4-1 Up & Down Origin

The screenshot shows a menu titled 'Up&Down Origin' with a timestamp '2018.8.27 10:35'. Below the title, there is a blue arrow pointing to a list of two items: 'Up Origin1(mm)' with a value of '000.4' and 'Down Origin1(mm)' with a value of '000.5'. The values are displayed in a light blue box with a small blue cursor at the end of each number.

Table 5-4--1 Up/Down Origin Instruction

Name	Instruction
Up Origin1 (mm/s)	High position of the tool head.
Down Origin1(mm/s)	Low position of the tool head.

6. System Menu

6.1 U Disk Files

Insert U disk to USB port. If your U disk has a "light indicator" (shows connectivity) and shows that it's connected, press **【Menu】** to enter the main menu, move the cursor to **【U Disk Files】** then press **【Enter】** to enter U disk files management.

Figure6-1-1 Main Menu Interface

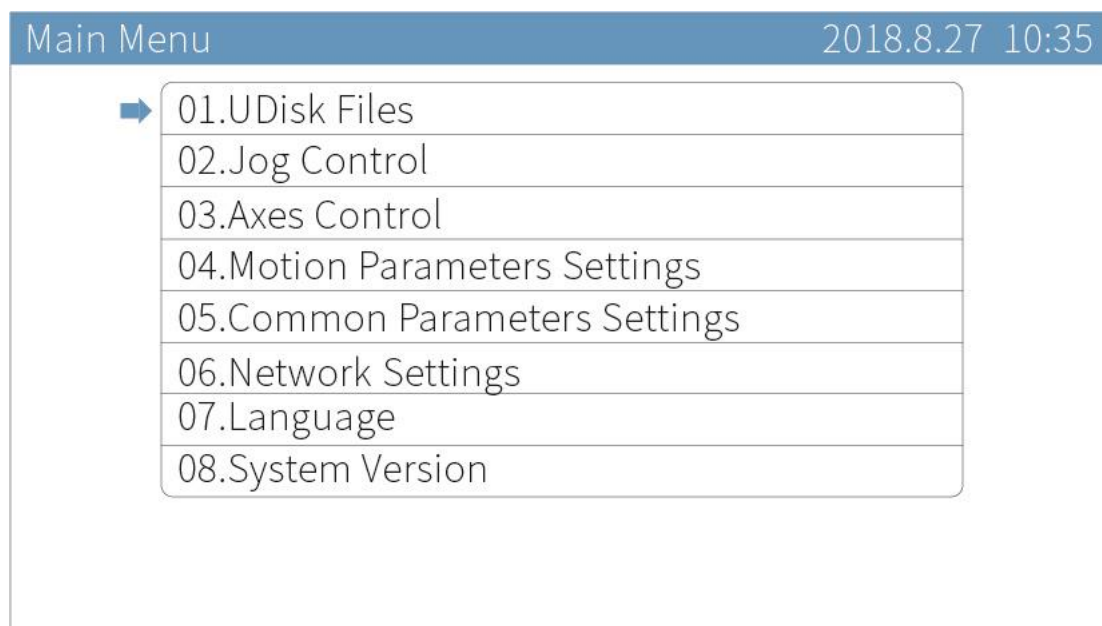
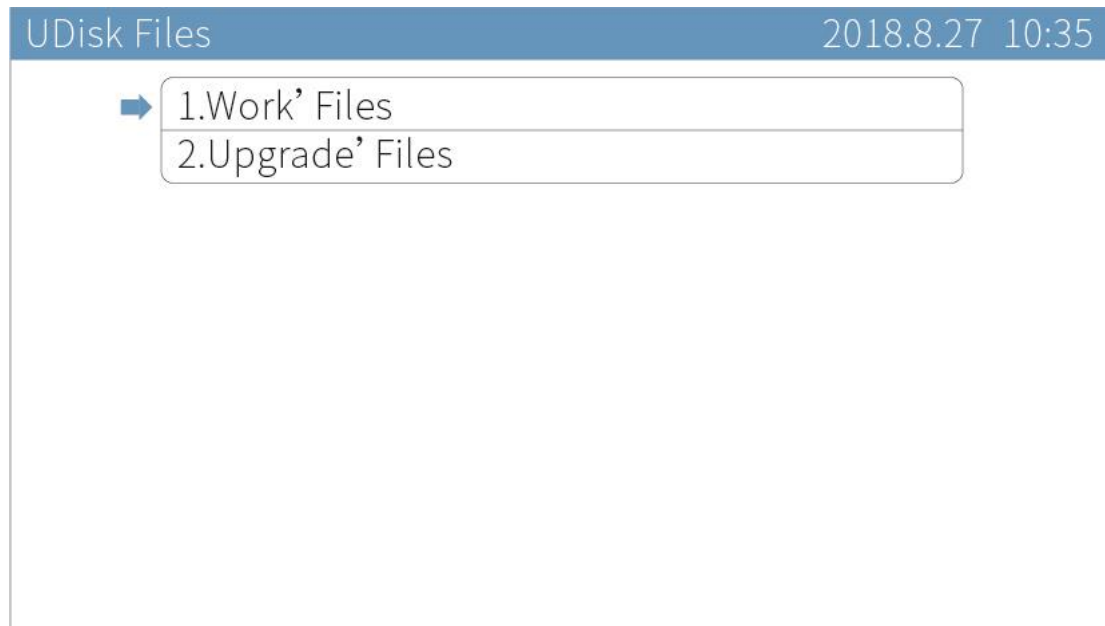


Figure6-1-2 U Disk Files

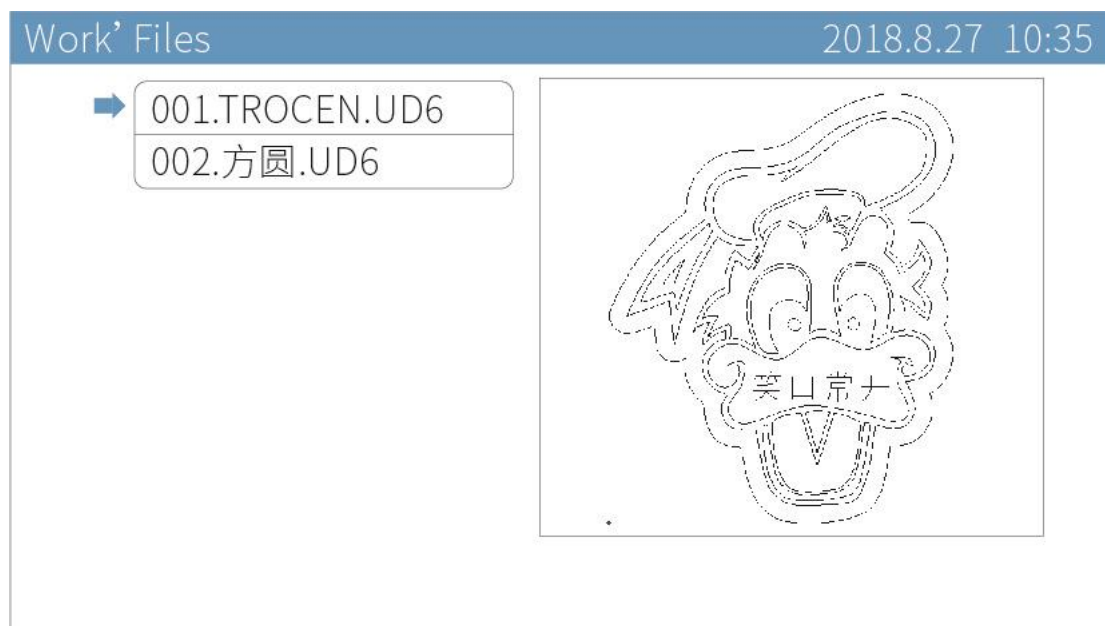


- U disk should be formatted to FAT 32 File system. Quick Format is forbidden. Any other files formations are not supported.
- Recommend using a U disk with a "light indicator" to ensure if the U disk is connected successfully with the main board.
- When the U disk has never been able to read, try using a different U disk.
- The U disk can't be used to install system.

6.1.1 Work Files

On the panel, the working file in the U disk will be presented. The right side shows the working file previewing. Press **【Enter】** to copy the working file from U disk to main board storage.

Figure6-1-4 U Disk Work Files List

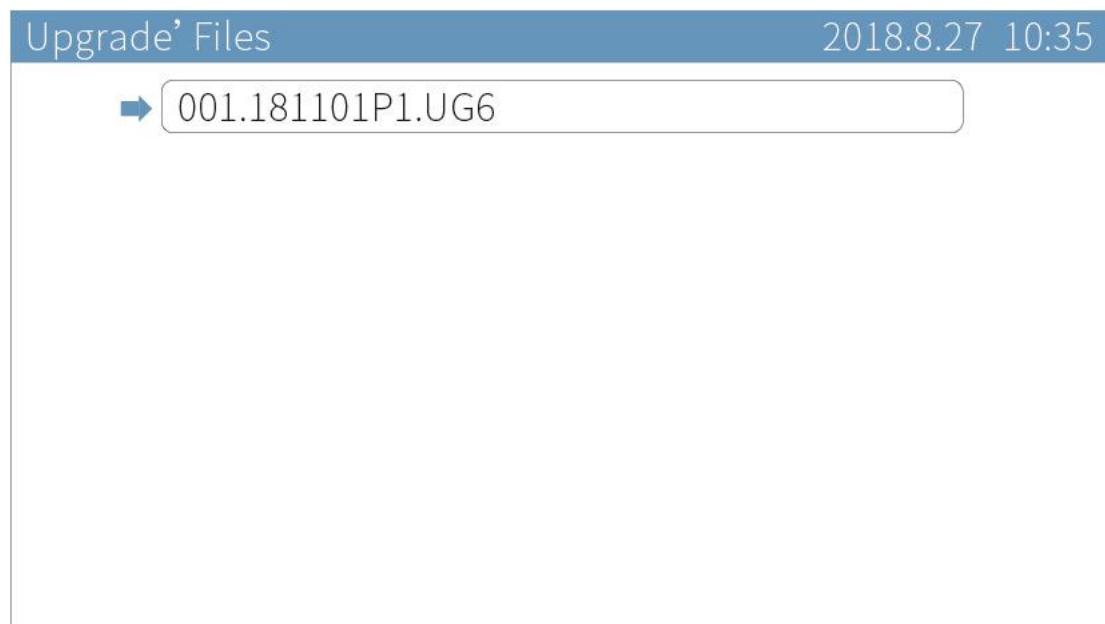


The working file in the U disk is saved with a suffix of UD6. Files other than the .UD6 file extension will not be readable.

6.1.2 Upgrade Files

Move cursor to **【Upgrade Files】** and press **【Enter】**. Move cursor to the upgrade file you need, then Press **【Enter】** to upgrade your mainboard.

Figure6-1-5 Upgrade Files



Do NOT cut off electricity before the upgrade has finished. Otherwise it may lead to a burn out. The upgrade period lasts for 30 seconds. After that, the main board will reset automatically.

6.2 Jog Control

On the main page, press **【Menu】**, move cursor to **【Jog Control】** and press **【Enter】**. Then press number keys to change the jog distance, press **【Enter】** to save settings.

On the **Jog Control** page, press **【UD ↑】** **【UD ↓】** to move cursor to a relative joy axis. Press **【↑】** **【↓】** **【←】** **【→】** to control their movement.

The jog control can make the axis move accurately and adjust the distance per pulse. [Please check the Chapter 3.6 to know more about distance per pulse.](#)

Fiugre6-2-1 Jog Control Interface

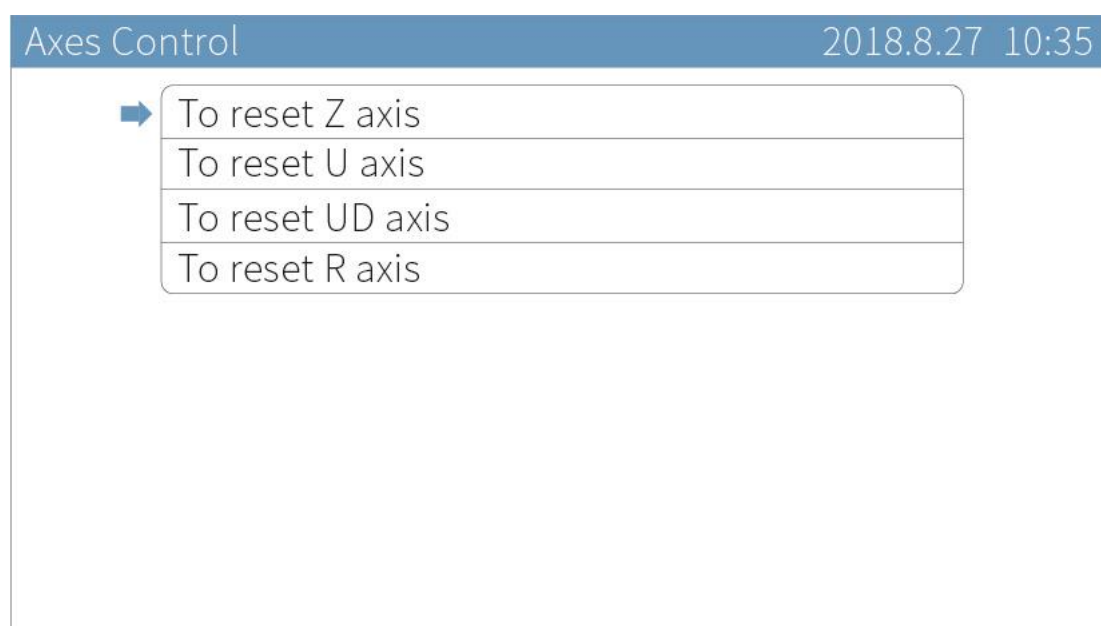
Jog Control		2018.8.27 10:35
➡	Jog Distance (mm)	00000.5
	XY Jog	
	Z Jog	
	U Jog	
	UD Jog	
	R Jog	

6.3 Axes Control

On the main page, press **【Menu】** , move cursor to **【Axes Control】** and press **【Enter】** . Move the cursor to the axes option you need to do the reset on. Press **【Enter】** to start it.

Motion axis reset refers to that no matter what the current state and position it is, it will return to the initial point and state. For the horizontal motion axis, it usually resets to the limit point of the motion axis. For the rotation axis, it usually resets to the position which is in parallel with X+ direction.

Figure 6-3-1 Axes Control Interface



6.4 Motion Parameters Settings

On the main page, press **【Menu】** , move cursor to **【Motion Parameters Settings】** and press **【Enter】** . Press **【↑】****【↓】** to move cursor and press

number keys to modify parameters. Press **【Enter】** to save settings.

Figure 6-4-1 Motion Parameters Settings Interface

Motion Parameters Settings		2018.8.27 10:35
➡	Space Speed (mm/s)	0800.0
	Cut Accel Jerk (10000mm/s ³)	10.0
	Cut Decel Jerk (10000mm/s ³)	03.0
	Space Accel Jerk (10000mm/s ³)	12.0
	Space Decel Jerk (10000mm/s ³)	04.0
	Min Acc (mm/s ²)	0300
	Start Speed (mm/s)	30.0
	Speed Factor	2.0
	X Max Change Speed (mm/s)	25.0
	Y Max Change Speed (mm/s)	40.0



The settings of motion parameters interface are valid for X/Y axis and have no influence on other axis.

Table 6-4-1 Motion Parameters Instruction

Name	Instruction
Space Speed (mm/s)	The movement speed of tool head without cutting.
Cut Accel Jerk (10000mm/s ³)	Cutting speed jerk of axes, increases or decreases in units of 10000 at a time.

Cut Decel Jerk (10000mm/S3)	Cutting speed Decel Jerk of axes, increases of decreases in units of 10000 at a time.
Space Accel Jerk (10000mm/s3)	The Jerk speed of axes without cutting, increases of decreases in units of 10000 at a time.
Space Decel Jerk (10000mm/S3)	The Decel Jerk speed of axes without cutting, increases of decreases in units of 10000 at a time.
Min Acc (mm/s2)	Min acceleration when axes are sped up and down during motion cutting, increases or decreases in units of 50 or 100 at a time.
Start Speed (mm/s)	Speed of axes from no movement to startup.
Speed Factor	It has an impact on smoothness when turning the corner. We suggest that lower speed is going to be filled in with 0.5 or 1 while regular speed with 2 and high speed with 3 or 4. It should be filled in with 0.05 when cutting acrylic or wood.
X &Y Max Change Speed (mm/s)	The instantaneous velocity change in X or Y cannot exceed this value, the default value is 25-35.

During the cutting process, if the actual cutting speed is far less than the working speed users have set, it indicates that the **【Cut Jerk】** is set too

small, so that the laser head cannot reach the set working speed quickly. If the actual cutting speed is relatively fast, the cutting line will jitter, this case indicates that the **【Cut Jerk】** is set too high and the parameter value should be reduced. In the same way, if the **【Space Jerk】** is set too small, the speed of laser head will not reach the set speed when there is no laser output. If the parameter is set too large, the initial position of cutting (after the laser head moving without laser) will jitter.

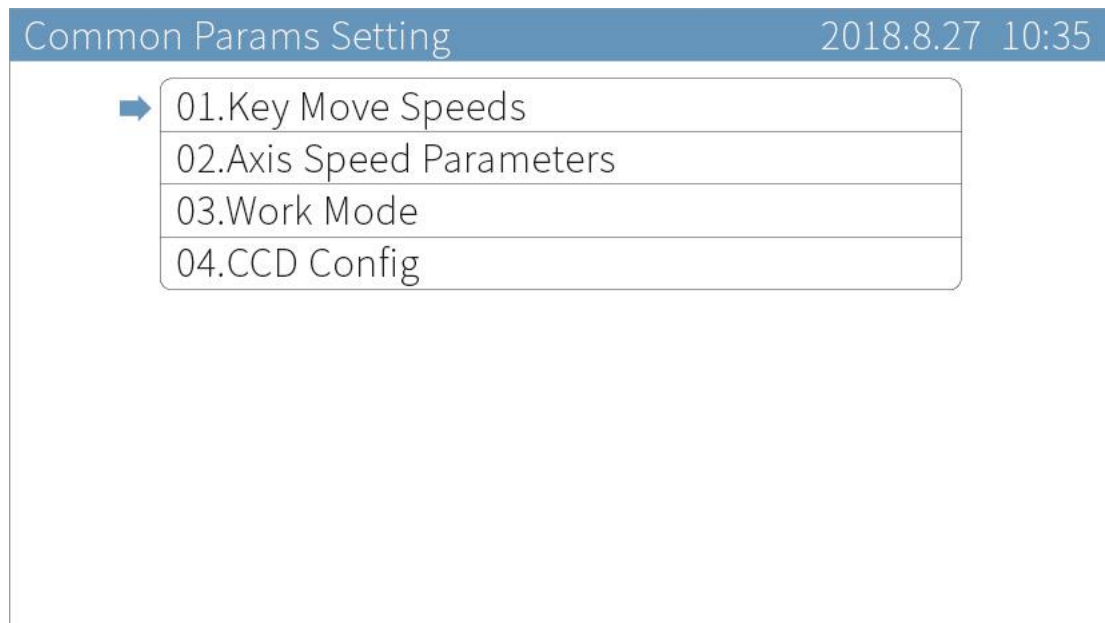
The start speed is the initial speed of the laser head from rest to start movement. If the cutting line is too thick at the initial position of cutting, it indicates that the parameter value is too small. If the line jitters at the initial position of cutting, this parameter value is set too large.

The speed factor controls the speed of turning during cutting. If the cutting line is too thick when turning, the parameter is too small. If the cutting line is too thin when turning and the graphics cannot be cut completely, this case indicates that this parameter value is set too large, users should set a smaller value.


6.5 Common Parameters Settings

On the main page, press **【Menu】** , move cursor to **【Common Parameters Settings】** and press **【Enter】** . Move cursor to **【Key Move Speeds】** and press **【Enter】** .

Figure6-5 Common Params Settings Interface



6.5.1 Key Move Speeds

The key move speed refers to the speed value of moving the motion axis through the panel keys manually. Users could switch quick/slow by .

On the **Key Move Speed** page, press **【 ↑ 】****【 ↓ 】** to move cursor and press number keys to modify parameters. Press **【Enter】** to save settings.

Figure6-5-1 Key Move Speeds Interface

Key Move Speed		2018.8.27 10:35
➡	XY Move Speed	080.0
	XY Move Slower Speed	010.0
	Z Move Speed	010.0
	Z Move Slower Speed	001.0
	UD Move Speed	010.0
	UD Move Slower Speed	001.0
	R Move Speed	100.0
	R Move Slower Speed	001.0
	Run Box' Speed (mm/s)	200.0

Table6-5-1 Key Move Speeds Instruction

Name	Instruction
XY Move Speed	The quick speed of XY axis when press keys.
XY Move Slower Speed	The slow speed of XY axis when press keys.
Z Move Speed	The quick speed of Z axis when press keys.

Z Move Slower Speed	The slow speed of Z axis when press keys.
UD Move Speed	The quick speed of UD axis when press keys.
UD Move Slower Speed	The slow speed of UD axis when press keys.
R Move Speed	The quick speed of R axis when press keys.
R Move Slower Speed	The slow speed of R axis when press keys.
RunBox Speed (mm/s)	The speed of running box.

6.5.2 Axis Speed Parameters

On the **Common Parameters Settings** page move cursor to **【Axis Speed Parameters】** and press **【Enter】**. Press **【↑】** **【↓】** to move cursor and press number keys to modify parameters. Press **【Enter】** to save settings.

Figure6-5-2 Axis Speed Parameters Interface

Axis Speed parameters		2018.8.27 10:35
➡	Feed Speed (mm/s)	0080.0
	R-Bend Speed (mm/s)	0200.0
	UD Work Speed (mm/s)	0100.0
	Z Work Speed (mm/s)	0100.0
	XY Home Speed (mm/s)	0050.0
	Z Home Speed (mm/s)	0040.0
	UD Home Speed (mm/s)	0050.0
	R Home Speed (mm/s)	0050.0

Table6-5-2 Axis Speed Parameters Instruction

Name	Instruction
Feed Speed (mm/s)	The speed of feeding.
UD Work Speed (mm/s)	The speed of cutting (UD elevating axis).
Z Work Speed (mm/s)	The speed of cutting (Z axis).
XY Home Speed (mm/s)	The reset speed of XY axis.
Z Home Speed (mm/s)	The reset speed of Z axis.
UD Home Speed (mm/s)	The reset speed of UD elevating axis.
R Home Speed (degree/s)	The reset speed of R axis.

6.5.3 Work Mode

On the **Common Parameters Settings** page, move cursor to **【Work Mode】** and Press **【Enter】**. Press **【↑】【↓】** to move cursor, Press **【←】【→】** to switch functions and press number keys to modify parameters. Press **【Enter】** to save settings.

Figure6-5-3 Work Mode Interface

Work Mode		2018.8.27 10:35
➡	Two-heads Up-Down Origin Mode	Alone
	Multi-Range Absorb	Enable
	Open Feed-Out While Working	Enable
	Up to Zero Before Punching	Disable
	Max Angle Error (Degree)	05.0
	Go Origin After Reset	Enable
	Origin Mode	Key Origin
	GoBack Position	Current Origin
	Count Mode	Count per Work

Table6-5-3 Work Mode Instruction

Name	Instruction
Two-heas up-down origin mode	Users can set Alone or Together for double-rail oscillating tool cutting machine.
Multi-ranges absorb	Enable or disable this function.
Open feed-out while	Enable or disable this function.

working	
Up to zero before punching	When punching, the cutting head go up to zero point, usually the limit point.
Max angle after reset	The allowable error of angle during the operation of the machine.
Go Origin After Reset	When it's opened, tool head will be back to Origin after resetting. Or It will stay at machine origin point.
Origin Mode	<p>Current Position: keep the current origin point of machine.</p> <p>Key Origin: press panel "Origin" button after tool head moved to the chosen position.</p> <p>Soft Origin: the origin point when drawing a file.</p> <p>Machine Zero As Origin: set an appointed position as machine's origin point.</p>
GoBack Position	<p>Current Position: tool head stay at where task finished.</p> <p>Current Origin: go back to Origin point after that.</p> <p>Zero Coord: back to machine zero point since all finished.</p>
Count Mode	<p>Count per Work: it will be counted as once after all files cut.</p> <p>Count per Single Object: it will be counted as once after one file is cut.</p>

	Single of Array: it will be counted as once after one of all files in this task is cut.
--	---

6.5.4 CCD Config

If the visual recognition system is used in the machine, the CCD function needs to be turned on.

On the **Common Parameters Settings** page move cursor to **【CCD Config】** and Press **【Enter】**. Press **【←】【→】** to modify functions and press **【Enter】** to save settings.

Figure6-5-4 CCD Config Interface

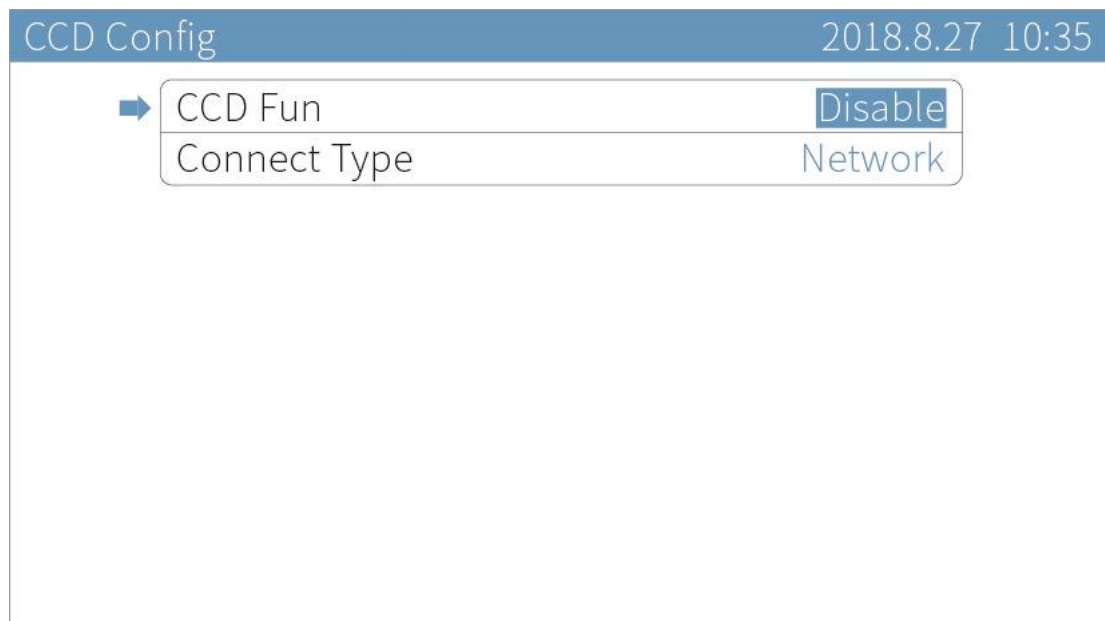


Table6-5-4 CCD Config Instruction

Name	Instruction
CCD Fun	Enable or Disable the function.
Connect Type	Set the type of connection (USB or Network).

6.6 Network Settings

On the main page, press **【Menu】** and move cursor to **【Network Settings】**, press **【Enter】**. Press **【↑】** **【↓】** to move cursor, press number keys to modify parameters and press **【Enter】** to save settings.

Figure6-6-1 Network Settings Interface

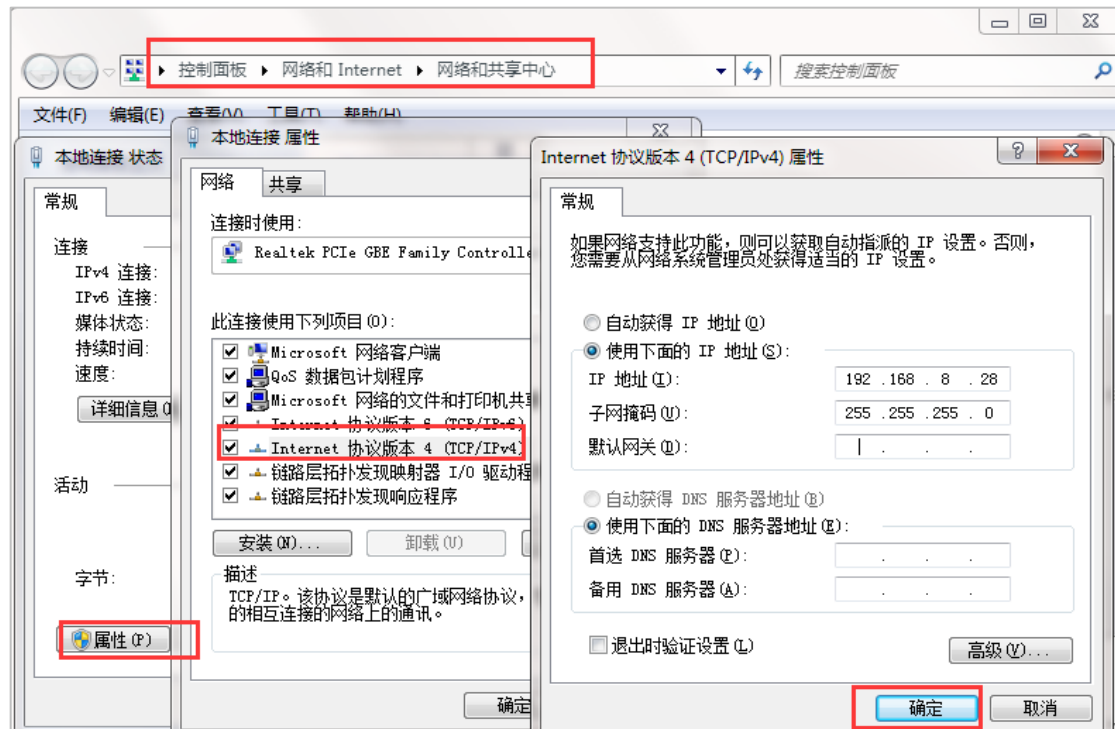
The screenshot shows a 'Network Setting' screen with a timestamp '2018.8.27 10:35' in the top right corner. A blue arrow points to a table with four rows for IP configuration:

IP Part1	192
IP Part2	168
IP Part3	008
IP Part4	008

The default IP address of panel is 192.168.8.8. When connect computer and panel by network, you need to modify your computer IP address to make it in the same network segment with panel. For example, the panel

IP address is 192.168.8.8 and change the IP address of computer to 192.168.8.33.

Figure6-6-2 Modify IP Address



6.7 Language

On the main page, press **【Menu】** and move cursor to **【Language】**, press **【Enter】**. Press **【←】****【→】** to modify options and press **【Enter】** to save settings.

Figure6-7-1 Language Setting Interface



6.8 System Version

On the main page, press **【Menu】**, move cursor to **【System Version】** and press **【Enter】** to see system information. If the encryption or decryption of the mainboard is successful, the product ID will change.

Figure6-8-1 System Information Interface

System Version		2019.3.5 10:35
Product Name	TC-7200	
Product ID	0802402D 00000000	
Version	3.18.12.1	
➡ User authorization code		

Move cursor to **【User authorization code】** and press **【Enter】** to see authorization code. Press **【↑】** **【↓】** to move cursor, press number keys to modify parameters, and press **【Enter】** to save settings.

The user authorization code is used for encryption or decryption. If you don't need encryption, there is no need to modify it. Otherwise see the encryption manual.

Figure6-8-2 User Authorization Interface

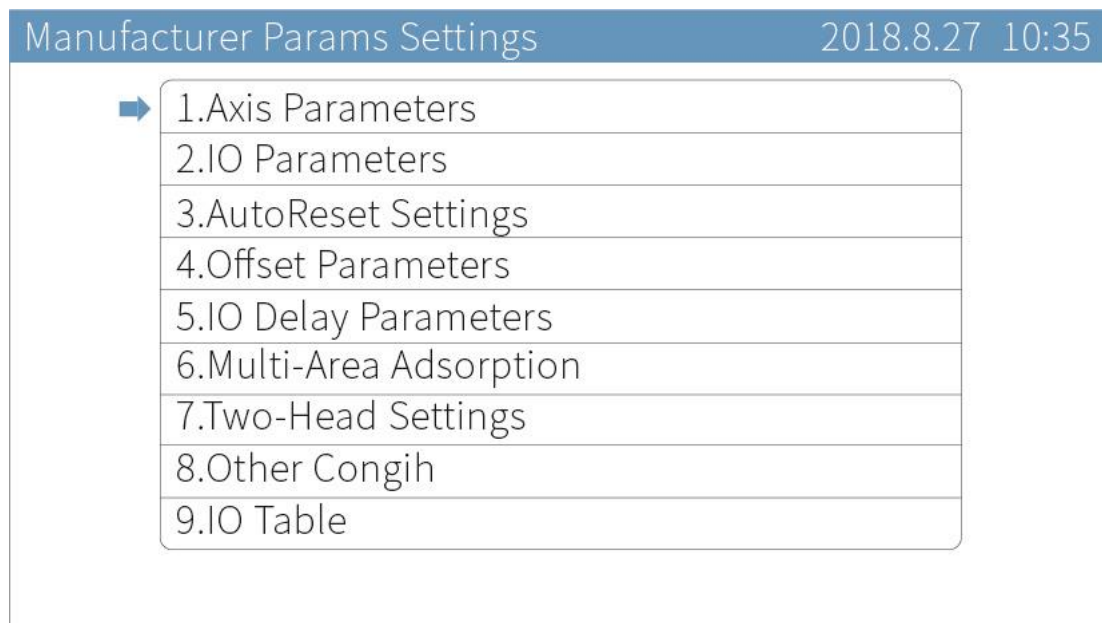
User authorization code		2018.8.27 10:35
➡	Code 1	100000
	Code 2	100000
	Code 3	100000

7. Manufacture Params Settings

The manufacturer parameters are set by the integrator. The characteristics of these parameters are that the mechanical characteristics and actual cutting effects of the machine need to be considered comprehensively.

On the main page, press **【Stop】** + **【Shift】** at the same time, you will see ***Manufacture Params Setting*** page.

Figure7-1 Manufacture Params Interface



7.1 Axis Parameters

Move cursor to **【Axis Parameters】** and press **【Enter】** .

Figure7-1 Axis Parameters Interface

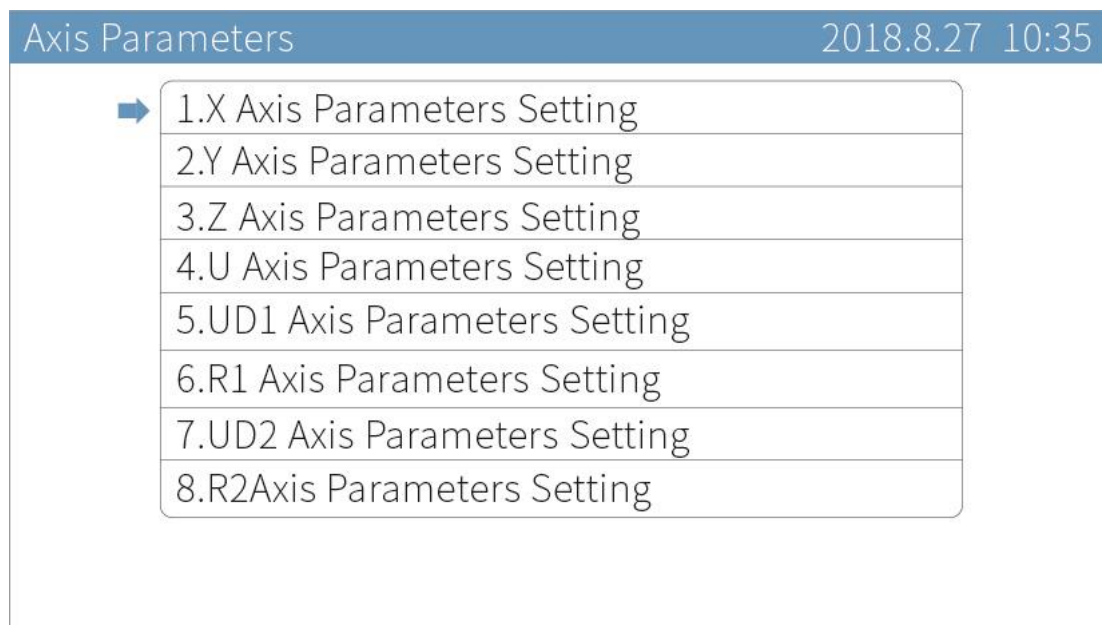


Table7-1 Motion Axis Instruction

Name	Instruction
X/Y Axis	Axis of plane movement.
Z Axis	Used for double tool head cutting, tool head mutual movable.
U Axis	Feeding axis.
UD1/UD2 Axis	Elevating axis of tool head.
R1/R2 Axis	Rotation axis of tool head.

7.1.1 X/Y/Z Axis Parameters

The configurable parameter options of the X/Y/Z axis are almost the same.

This paper takes the setting of the X axis parameters as example.

On the **Axis Parameters** page, move cursor to **【X Axis Parameters】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-1-1 X Axis Parameters Interface

X Axis Parameters		2018.8.27 10:35
➡	Distance Per Pulse (um) ...	06.500000
	Valid Pulse Edge	Failling Edge
	Datum Direction	Negative
	Key Direction	Negative
	Limit Polarity	Negative
	Range (mm)	00500
	Start Speed (mm/s)	15.0
	Max Acc (mm/s2)	10000
	Max Speed (mm/s)	0500.0
	Offse(mm)	000

Table7-1-1 X Axis Parameters Instruction

Name	Instruction
Distance Per Pulse (um)	When the controller sends a pulse signal, the motor moves a distance or rotates fixed angle. If set incorrectly, the graphics will change.

Valid Pulse Edge	The effective pulse value of motor drive. The optional way is Rising Edge or Falling Edge.
Datum Direction	The direction in which the machine moves when reset. If set an error direction, the machine moves against origin direction.
Key Direction	The direction in which the axis moves when press keys on the panel. When set incorrectly, the axis moves opposite direction.
Limit Polarity	The control level that limit switch passes to control panel. When set incorrectly, the limit will fail.
Range (mm)	The working range of machine.
Start Speed	The speed at which the axis moves from rest to motion.
Max ACC	The maximum acceleration value of the motion axis, increases or decreases 50 or 100 at a time.
Max Speed	The maximum speed which the motion axis supports.
Offset (mm)	The zero point of machine will move a zero offset distance along X+ direction.

In some special cases, the machine's origin point cannot be cut. AWC708C LITE supports the Zero Offset function, which can move the zero point of machine to other positions along the positive direction of the motion axis. Take X axis as example, if the X axis **【Offset】** is set to 50mm, the machine origin point will move 50mm along X+ direction, and this position is the new origin (zero) point of machine.

Move cursor to **【Distance Per Pulse】** , press **【Enter】** . Input Expected length/Expected degree and Actual Length/Actual degree by number keys

to calculate the pulse distance automatically. [The detail about distance per pulse please refer to the Chapter 3.6.](#)

Figure7-1-2 Pulse Distance Calculation

To Calculate the pulse Distance		2018.8.27 10:35
➡	Expected Length/Expected Degree	0200.00
	Actual Length/Actual Degree	0200.00

7.1.2 U Axis Parameters

On the **Axis Parameters** page, move cursor to **U Axis Parameters** and press **Enter** . Press **↑** **↓** to move cursor, press **←** **→** to modify options, press number keys to modify parameters and press **Enter** to save settings.

Figure7-1-3 U Axis Parameters Interface

U Axis Parameters		2018.8.27 10:35
➡	Distance Per Pulse (um) ...	06.500000
	Valid Pulse Edge	Failling Edge
	Datum Direction	Negative
	Key Direction	Negative
	Limit Polarity	Negative
	Range (mm)	00500
	Start Speed (mm/s)	15.0
	Max Acc (mm/s2)	10000
	Max Speed (mm/s)	0500.0

Table7-1-2 X Axis Parameters Instruction

Name	Instruction
Distance Per Pulse (um)	When the controller sends a pulse signal, the motor moves a distance or rotates fixed angle.
Valid Pulse Edge	The effective pulse form of motor drive. The optional way is Rising Edge or Failling Edge.
Datum Direction	The direction in which the machine moves when reset. If set

	incorrectly, the machine moves against origin direction.
Key Direction	The direction in which the axis moves when press keys on the panel. When set incorrectly, the axis moves opposite direction.
Limit Polarity	The control level that limit switch passes to control panel. When set incorrectly, the limit will fail.
Range (mm)	The working range of machine.
Start Speed	The speed at which the axis moves from rest to motion.
Max ACC	The maximum acceleration value of the motion axis, increases or decreases 50 or 100 at a time.
Max Speed	The maximum speed which the motion axis supports.

7.1.3 UD1/UD2 Axis Parameters

On the **Axis Parameters** page, move cursor to **UD1 Axis Parameters** and press **Enter** . Press **↑** **↓** to move cursor, press **←** **→** to modify options, press number keys to modify parameters and press **Enter** to save settings.

Figure7-1-4 UD1 Axis Parameters Interface

UD Axis Parameters		2018.8.27 10:35
➡	Distance Per Pulse (um) ...	06.500000
	Valid Pulse Edge	Failling Edge
	Datum Direction	Negative
	Key Direction	Negative
	Limit Polarity	Negative
	Range (mm)	00500
	Start Speed (mm/s)	15.0
	Max Acc (mm/s2)	10000
	Max Speed (mm/s)	0500.0
	UpDown-Control-Mode	Motor Control

Table7-1-3 UD1 Axis Parameters Instruction

Name	Instruction
Distance Per Pulse (um)	When the controller sends a pulse signal, the motor moves a distance or rotates fixed angle.
Valid Pulse Edge	The effective pulse form of motor drive. The optional way is Rising Edge or Falling Edge.
Datum Direction	The direction in which the machine moves when reset. If set

	an error direction, the machine moves against origin direction.
Key Direction	The direction in which the axis moves when press keys on the panel. When set incorrectly, the axis moves opposite direction.
Limit Polarity	The control level that limit switch passes to control panel. When set incorrectly, the limit will fail.
Range (mm)	The working range of machine.
Start Speed	The speed at which the axis moves from rest to motion.
Max ACC	The maximum acceleration value of the motion axis, increase or decrease 50 or 100 at a time.
Max Speed	The maximum speed which the motion axis supports.
Up-Down Control Mode	The mode of controlling elevating axis, Motor Control or IO Control.

7.1.4 R1/R2 Axis Parameters

On the **Axis Parameters** page, move cursor to **【R1 Axis Parameters】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-1-5 R1 Axis Parameters Interface

R Axis Parameters		2018.8.27 10:35
➡	Distance Per Pulse (um) ...	06.500000
	Valid Pulse Edge	Failling Edge
	Datum Direction	Negative
	Key Direction	Negative
	Limit Polarity	Negative
	Start Speed (mm/s)	15.0
	Max Acc (mm/s ²)	10000
	Max Speed (mm/s)	0500.0
	Max Degree of Enable-Rotate	180

Table7-1-4 R1 Axis Parameters Instruction

Name	Instruction
Distance Per Pulse (um)	When the controller sends a pulse signal, the motor moves a distance or rotates fixed angle.
Valid Pulse Edge	The effective pulse form of motor drive. The optional way is Rising Edge or Failling Edge.
Datum Direction	The direction in which the machine moves when reset. If set

	an error direction, the machine moves against origin direction.
Key Direction	The direction in which the axis moves when press keys on the panel. When set incorrectly, the axis moves opposite direction.
Limit Polarity	The control level that limit switch passes to control panel. When set incorrectly, the limit will fail.
Start Speed	The speed at which the axis moves from rest to motion.
Max ACC	The maximum acceleration value of the motion axis, increases or decreases 50 or 100 at a time.
Max Speed	The maximum speed which the motion axis supports.
Max Degree of Enable-Rotate	Due to the mechanical characteristics of the tool head, when cutting a curve graphics with a certain angle, the tool head can't support rotation cut. The machine will lift and drop the tool head to cut. The curve angle here is the maximum angle of rotation cut.

7.2 I/O Parameters

On the **Manufacture Params Settings** page, move cursor to **IO Parameters** and press **Enter**. Press **↑** **↓** to move cursor, press **←** **→** to modify options and press **Enter** to save settings.

Figure7-2-1 I/O Parameters Interface

IO Parameters		2018.8.27 10:35
➡	Foot Switch(IN2)	Disable
	Open Protection(IN1)	Disable
	Servo Error Check(IN3)	Disable
	Feed Switch(IN4,IN5)	Disable
	Two-Heads Crashing Check(IN6)	Disable
	Input Valid Level	Low Level

Table7-2-1 I/O Parameters Instruction

Name	Instruction
Foot Switch (IN2)	Enable: Turn on foot switch. Disable: Turn off foot switch.
Open Protection (IN1)	Enable: Turn on open protection. Disable: Turn off open protection.
Servo Error Check	A low level (zero voltage) is detected and an alarm is called.

(IN3)	
Feed Switch (IN4, IN5)	Enable or disable feed function.
Two-Heads Crashing Check (IN6)	Enable or disable this function.

7.3 AutoReset Settings

AutoReset refers to whether the motion axis needs to be reset when the system gets power supply. In normal use, the XY/UD1/UD2/R1/R2 axis must be reset.

On the **Manufacture Params Settings** page, move cursor to **【Auto Reset Settings】** and press **【Enter】**. Press **【↑】****【↓】** to move cursor, press **【←】****【→】** to modify options and press **【Enter】** to save settings.

Figure7-3-1 Auto Reset Setting Interface

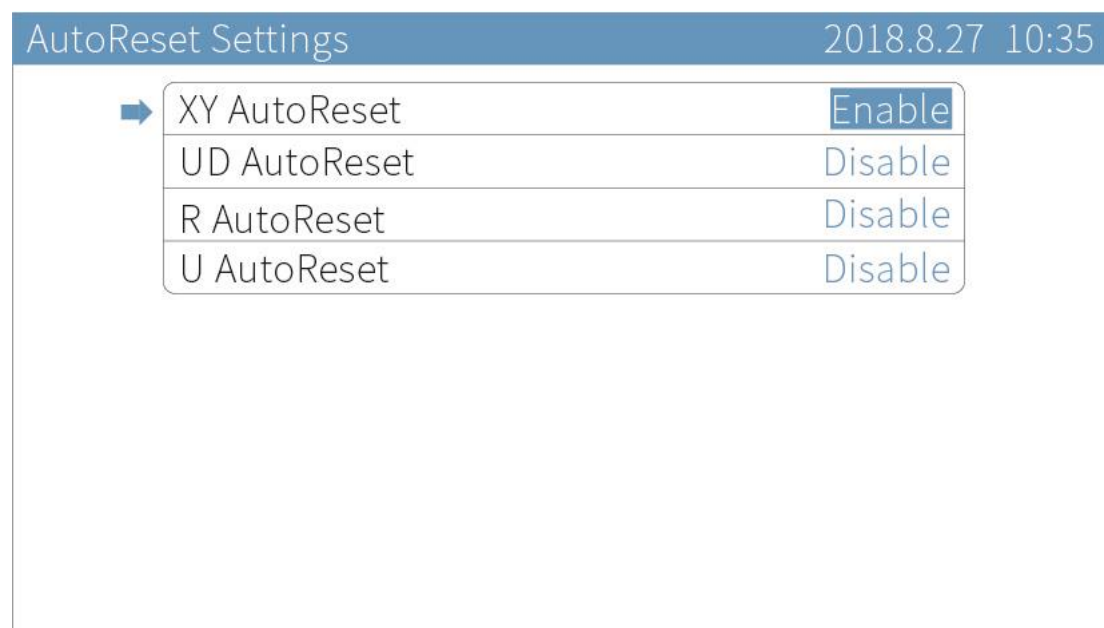


Table7-3-1 Auto Reset Settings Instruction

Name	Instruction
XY Auto Reset	Enable: when the power is on, X/Y axis resets automatically. Disable: when the power is on, X/Y axis doesn't reset.
UD Auto Reset	Enable: when the power is on, UD axis resets automatically. Disable: when the power is on, UD axis doesn't reset.
R Auto Reset	Enable: when the power is on, R axis resets automatically. Disable: when the power is on, R axis doesn't reset.
U Auto Reset	Enable: when the power is on, U axis resets automatically. Disable: when the power is on, U axis doesn't reset.

7.4 Offset Parameters

On the **Manufacture Params Settings** page, move cursor to **【Offset Parameters】** and press **【Enter】**.

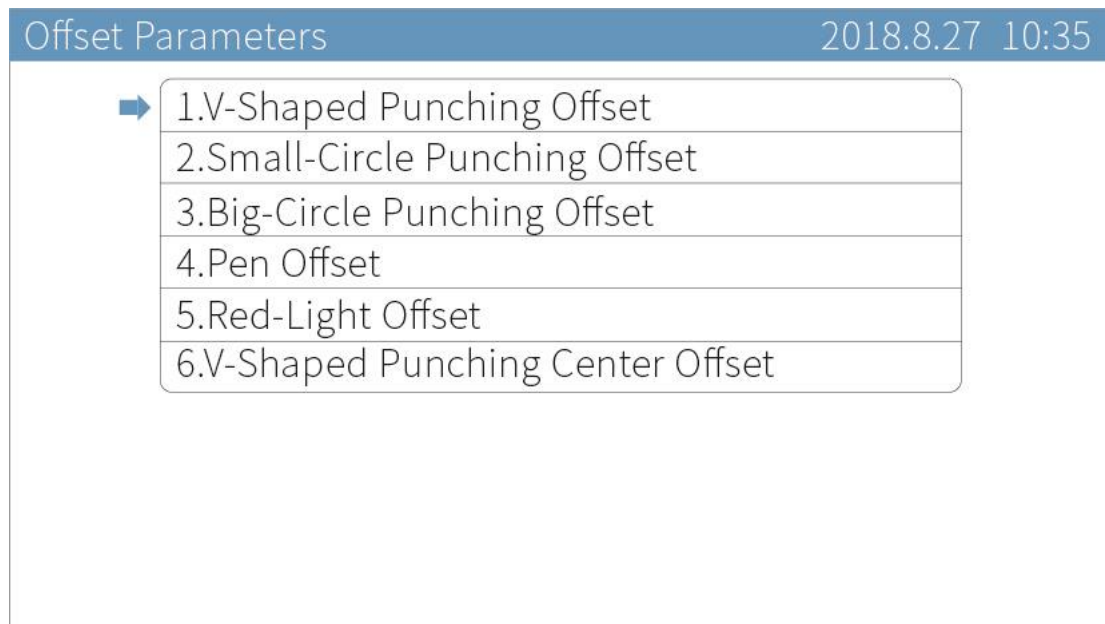
The default main cutter axis is UD1, and the setting of other offset parameters is based on the main cutter.

The user can determine whether the offset parameters are set correctly by the following steps:

1. Cut graphics by the main cutter.
2. Set the offset parameters.

3. Auxiliary tool head cuts. If the graphics cut by auxiliary tool head and main tool head are completely overlapping, the offset parameters are set accurately. If they are not completely overlapping, modify the offset parameters and repeat the above steps.

Figure7-4 Offset Parameters Interface



7.4.1 V-Shaped Punching Offset

On the **Offset Parameters** page, move cursor to **【V-Shaped Punching Offset】** and press **【Enter】**. Press **【↑】****【↓】** to move cursor, press **【←】****【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-4-1 Notch Offset Interface

V-Shaped Punching Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.4.2 Small-Circle Punching Offset

On the **Offset Parameters** page, move cursor to **【Small-Circle Punching Offset】** and press **【Enter】**. Press **【↑】****【↓】** to move cursor, press **【←】****【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-4-2 Small-Circle Punching Offset Interface

Smnall-Circle Punching Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.4.3 Big-Circle Punching Offset

On the **Offset Parameters** page, move cursor to **Big-Circle Punching Offset** and press **Enter**. Press **↑** **↓** to move cursor, press **←** **→** to modify options, press number keys to modify parameters and press **Enter** to save settings.

Figure7-4-3 Big-Circle Punching Offset Interface

Big-Circle Punching Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.4.4 Pen Offset

On the **Offset Parameters** page, move cursor to **【Pen Offset】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-4-4 Pen Offset Interface

Pen Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.4.5 Red-Light Offset

On the **Offset Parameters** page, move cursor to **【Red-Light Offset】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-4-5 Red-Light Offset Interface

Red-Light Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.4.6 V-Shaped Punching Center Offset

On the **Offset Parameters** page, move cursor to **【V-Shaped Punching Center Offset】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-4-6 V-Shaped Punching Center Offset Interface

V-Shaped Punching Center Offset		2018.8.27 10:35
➡	(Head-1) X Offset Direction	Positive
	(Head-1) X Offset(mm)	000.0
	(Head-1) Y Offset Direction	Positive
	(Head-1) Y Offset(mm)	000.0
	(Head-2) X Offset Direction	Positive
	(Head-2) X Offset(mm)	000.0
	(Head-2) Y Offset Direction	Positive
	(Head-2) Y Offset(mm)	000.0

7.5 IO Delay Parameters

On the **Manufacture Params Settings** page, move cursor to **IO Delay Parameters** and press **Enter**. Press **↑** **↓** to move cursor, press number keys to modify parameters and press **Enter** to save settings.

Figure7-5-1 IO Delay Parameters Interface

IO Delay Parameters		2018.8.27 10:35
➡	Adsorb Open Delay(s)	01.00
	Adsorb Close Delay(s)	01.00
	Feed Open Delay(s)	00.05
	Feed Close Delay(s)	00.05
	Knife Work Start Delay(s)	00.05
	Knife Work End Delay(s)	00.05
	Notch Open Delay(s)	0.05
	Notch Close Delay(s)	0.05
	Punching Open Delay(s)	0.05
	Punching Close Delay(s)	0.05

7.6 Multi-Area Adsorption

On the **Manufacture Params Settings** page, move cursor to **【Multi-Area Adsorption】** and press **【Enter】**. Press **【↑】****【↓】** to move cursor, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-6-1 Multi-Area Adsorption Interface

The figure consists of two screenshots of the Multi-Area Adsorption interface. The top screenshot shows the main menu with the title 'Multi-Area Adsorption' and the date/time '2018.8.27 10:35'. Below the title, there is a list of options: '1.X Multi-Area' and '2.Y Multi-Area'. The bottom screenshot shows the 'X Multi-Area' sub-menu with the title 'X Multi-Area' and the date/time '2018.8.27 10:35'. Below the title, there is a single parameter 'Areas Count' with a value of '1'.

7.7 Two-Head Settings

Tc-7200 can support double-rail oscillating cutting. If the machine adopts double-rail oscillating cutting in the cutting process, relevant parameters shall be set in this interface.

On the **Manufacture Params Settings** page, move cursor to **【Multi-Head Settings】** and press **【Enter】**. Press **【↑】** **【↓】** to move cursor, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-7-1 Two-Head Settings Interface

Two-Head Settings		2018.8.27 10:35
➡	Two Table Direction	X
	X1,X2 Head Space (mm)	0196.9
	Y1,Y2 Head Space (mm)	0196.9

7.8 Other Config

On the **Manufacture Params Settings** page, move cursor to **【Other Config】** and press **【Enter】**. Press **【↑】【↓】** to move cursor, press **【←】【→】** to modify options, press number keys to modify parameters and press **【Enter】** to save settings.

Figure7-8-1 Other Config Interface

Other Config		2018.8.27 10:35
➡	UD1 Begin Position	00.0
	UD2 Begin Position	00.0
	R1 Begin Degree	216.9
	R2 Begin Degree	039.4
	Feed Direction	Negative
	Close Adsorption While Feeding	Enable
	Rotate Rate of V-Shaped Punching	001.000000

7.9 IO Tabel

On the **Manufacture Params Settings** page, move cursor to **【IO Tabel】** and press **【Enter】**.

Figure7-9-1 IO Tabel Interface

IO Table
2018.8.27 10:35

➡

1.IO Table1

2.IO Table2

IO Tabel 1				2018.8.27 10:35
IN1	Protection	OUT3	Small-Circle Punch1	
IN2	Foot Switch	OUT4	Small-Circle Punch2	
IN3	Servo Error	OUT5	Big-Circle Punch1	
IN4	Feed Forward	OUT6	Big-Circle Punch2	
IN5	Feed Back	OUT7	V-Shaped Punch1	
IN6	Crashing Check	OUT8	V-Shaped Punch2	
IN7	Reserved	OUT9	Pen1	
IN8	Reserved	OUT10	Pen2	
OUT1	Knife Oscillating1	OUT11	Clip Material	
OUT2	Knife Oscillating2	OUT12	Feeding	

IO Tabel 2

2018.8.27 10:35

OUT13	(Three-Color)Red	OUT22	Adsorb-7
OUT14	(Three-Color)Green	OUT23	Adsorb-8
OUT15	(Three-Color)Yellow	OUT24	Punch Rotate
OUT16	Adsorb-1	OUT25	Reserved
OUT17	Adsorb-2	OUT26	Reserved
OUT18	Adsorb-3	OUT27	Reserved
OUT19	Adsorb-4	OUT28	Globel Adsorb
OUT20	Adsorb-5	OUT29	Reserved
OUT21	Adsorb-6	OUT30	Reserved

8. Wiring Diagram of Servo Driver

8.1 Panasonic A5 High Speed Pulse Wiring Diagram

Figure 8-1 Panasonic A5 High Speed Pulse Wiring Diagram

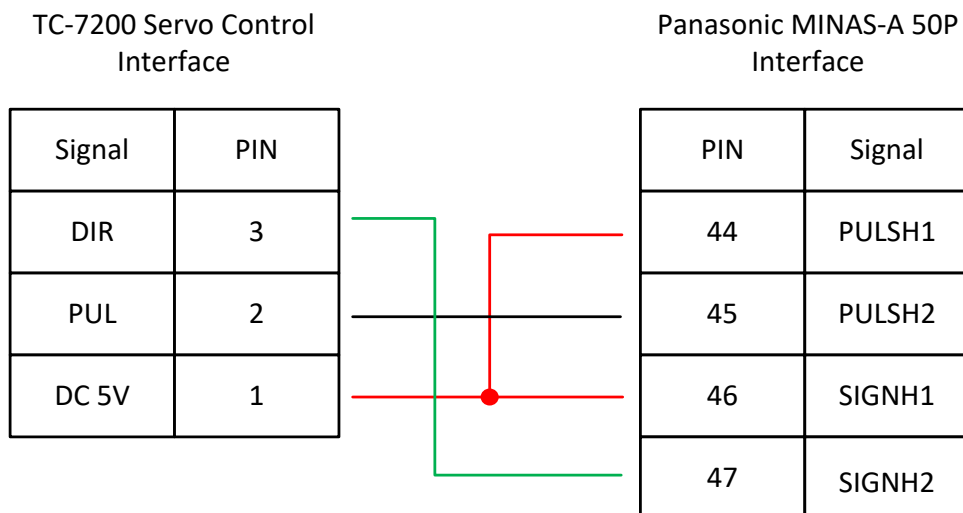


Figure 8-2 Panasonic A5 Low Speed Pulse Wiring Diagram

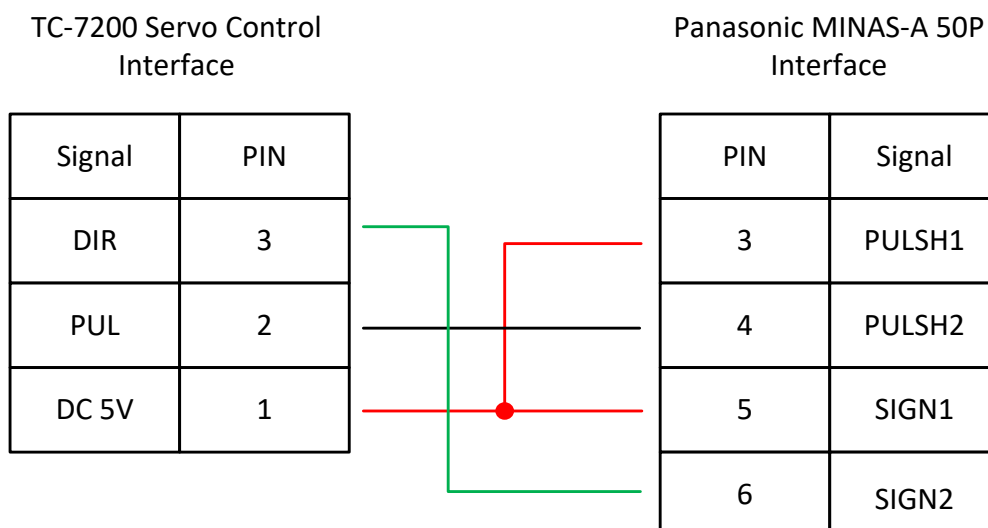


Table8-1 Panasonic A5 Series Basic Setting Parameters

Mode	Value	Instruction
Pr001	0	Control mode, must be set to position mode.
Pr007	3	Must be "Pulse + Direction" mode.
Pr005	1	<p>High-speed pulse connection mode, the parameter is set to "1", and the maximum pulse frequency is 3Mpps.</p> <p>Low speed pulse connection mode, the parameter is set to "0", and the maximum pulse frequency is 500Kpps.</p>

8.2 Yaskawa Wiring Diagram

Figure 8-3 Yaskawa Wiring Diagram

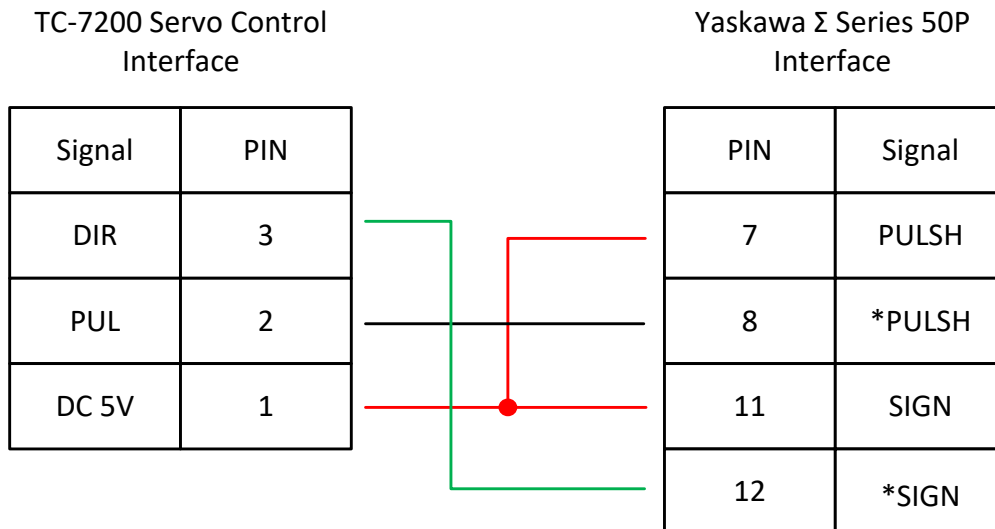


Table8-2 Yaskawa Σ Series Basic Setting Parameters

Mode	Value	Instruction
Pn000	001X	Position mode.
Pn00B	None	When single-phase power input, the parameter is set to "0100".
Pn200	2000H	<p>Positive logic: Pulse + Direction;</p> <p>0005H negative logic: Pulse + Direction;</p> <p>When the pulse frequency is less than 1Mpps, please select "0000H".</p> <p>When the pulse frequency reaches 1Mpps~4Mpps,</p>

		please select "2000H".
Pn50A	8100	Positive rolling side can be driven.
Pn50B	6548	Negative rolling side can be driven.

8.3 Delta A Series High Speed Pulse Wiring Diagram

Figure 8-4 Delta A Series High Speed Pulse Wiring Diagram

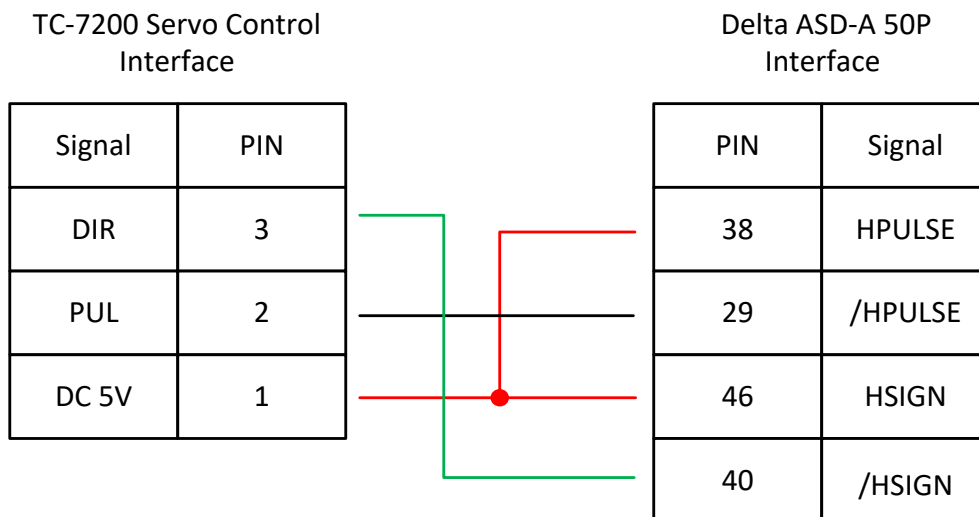


Figure 8-5 Delta A Series Low Speed Pulse Wiring Diagram

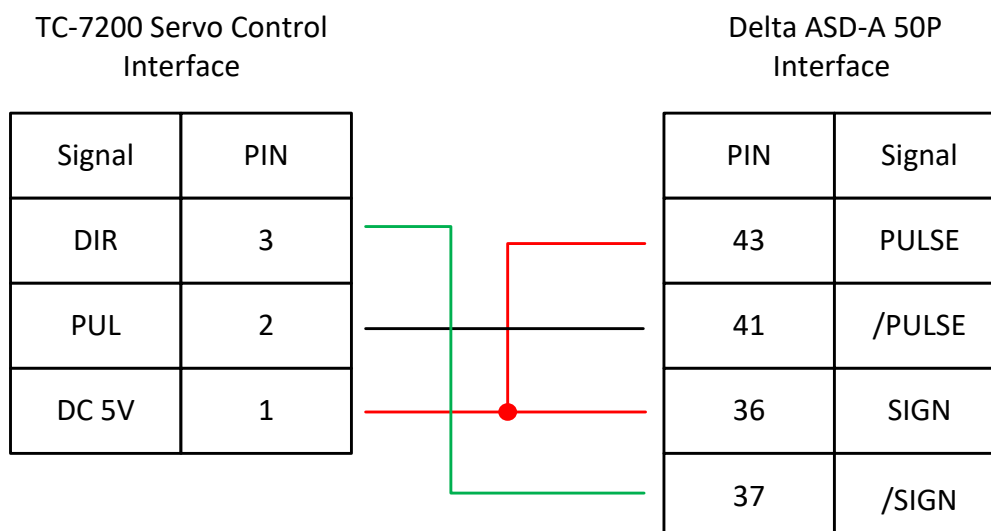


Table8-3 Delta ASD-A Series Basic Setting Parameters

Mode	Value	Instruction
P1-00	1102H	<p>Position control mode, negative logic: "Pulse + Direction".</p> <p>Set the parameter to "1102H" to open the high-speed differential signal, and the maximum pulse frequency is 4Mpps;</p> <p>Set the parameter to "0102H" low-speed pulse signal, and the maximum pulse frequency is 500K.</p>
P1-01	00	Select the location mode controlled by the external instruction.
P2-10	101	DI1 is set to SON servo enablement, and the logic is normally open.
P2-14	102	DI5 is set as ARST clear alarm function, the logic is normally open.
P2-12	007	DO5 is set as ALRM servo alarm function, the logic is normally closed.

8.4 Sanyo R Series Wiring Diagram

Figure 8-6 Sanyo R Series Wiring Diagram

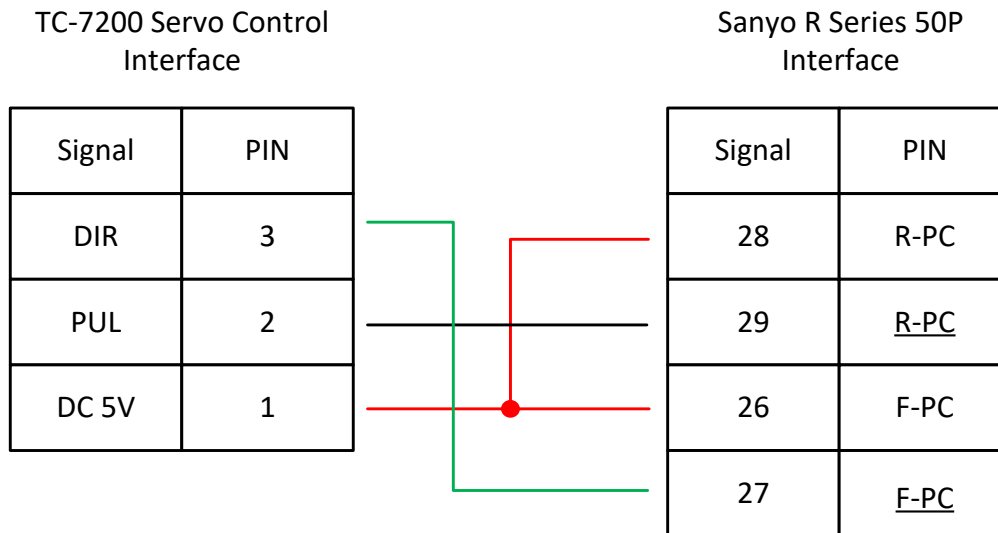


Table8-4 Sanyo R Series Basic Settings Parameters

Mode	Value	Instruction
SY08	00	Position mode.
Gr8.11	02	Pulse signal mode: Pulse + Direction.
Gr9.00	00	Positive rolling side can be driven.
Gr9.01	00	Negative rolling side can be driven.

8.5 Schneider 23A High Speed Pulse Wiring Diagram

Figure 8-7 Schneider 23A High Speed Pulse Wiring Diagram

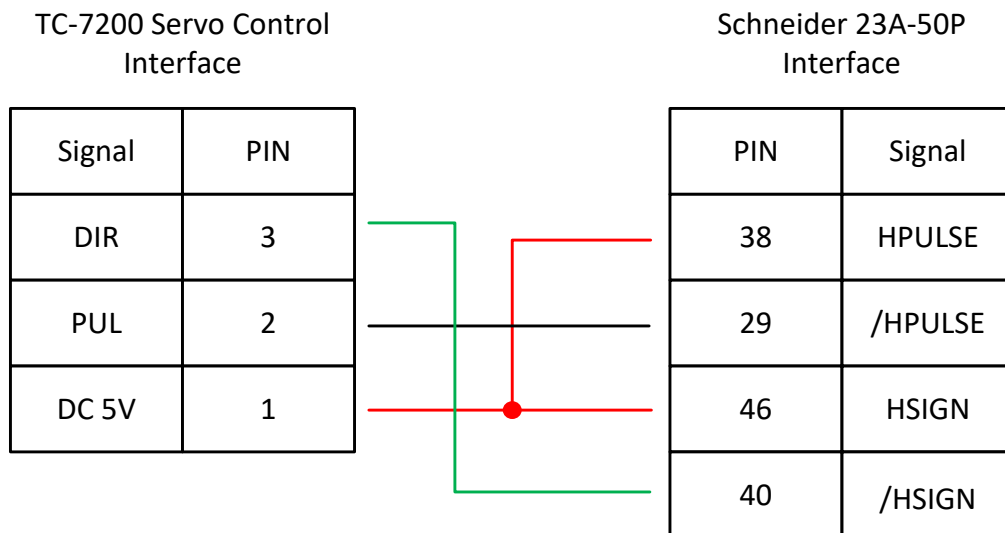


Figure 8-8 Schneider 23A Low Speed Pulse Wiring Diagram

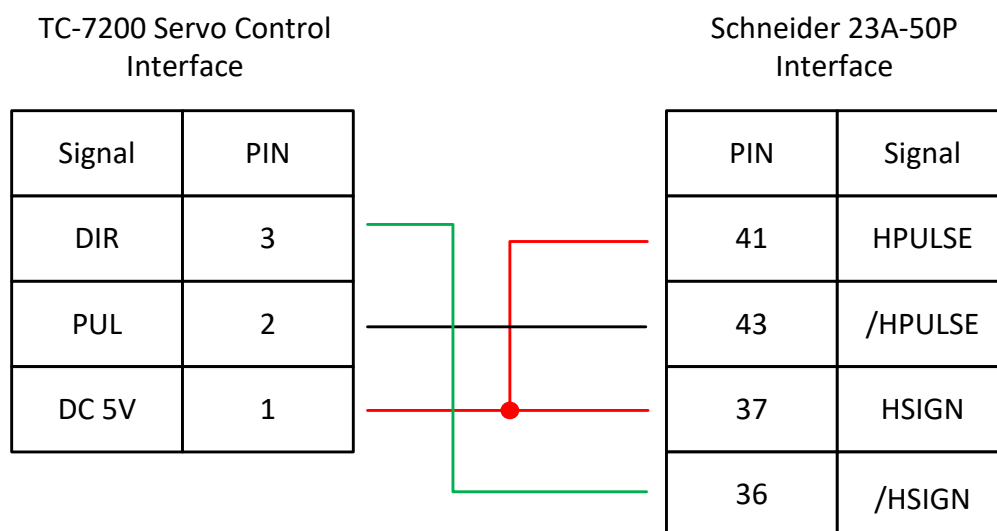


Table8-5 Schneider Lexium 23D Series Basic Settings Parameters

Mode	Value	Instruction
P1-00	1102H	<p>Position control mode, negative logic: "Pulse + Direction".</p> <p>Set the parameter to "1102H" to open the high-speed differential signal, and the maximum pulse frequency is 4Mpps;</p> <p>Set the parameter to "0102H" low-speed pulse signal, and the maximum pulse frequency is 500K.</p>
P1-01	X00	Select the location mode controlled by the external instruction.
P2-10	101	Change the servo IN1 to SON function.
P2-11	0	We don't use IN2。
P2-13~P2-17	0	We don't use IN4~IN8。

8.6 Fuji A5 Series Wiring Diagram

Figure 8-9 Fuji A5 Series Wiring Diagram

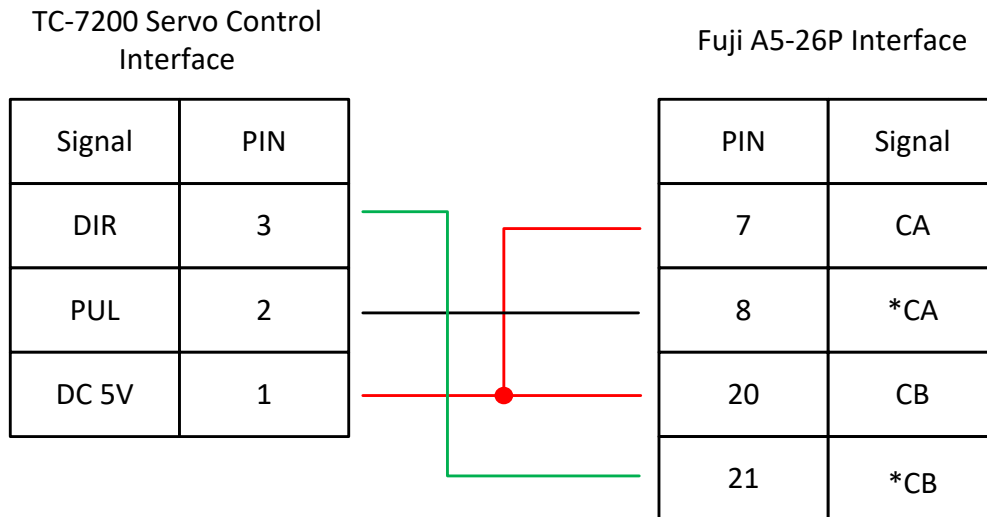


Table8-6 Fuji ALPHA 5 Series Basic Setting Parameters

Mode	Value	Instruction
PA-101	0	Position control mode.
PA-103	0	Pulse + Direction, the maximum pulse frequency is 1Mpps.

8.7 Mitsu Series Wiring Diagram

Figure 8-10 Mitsu J3 Series Wiring Diagram

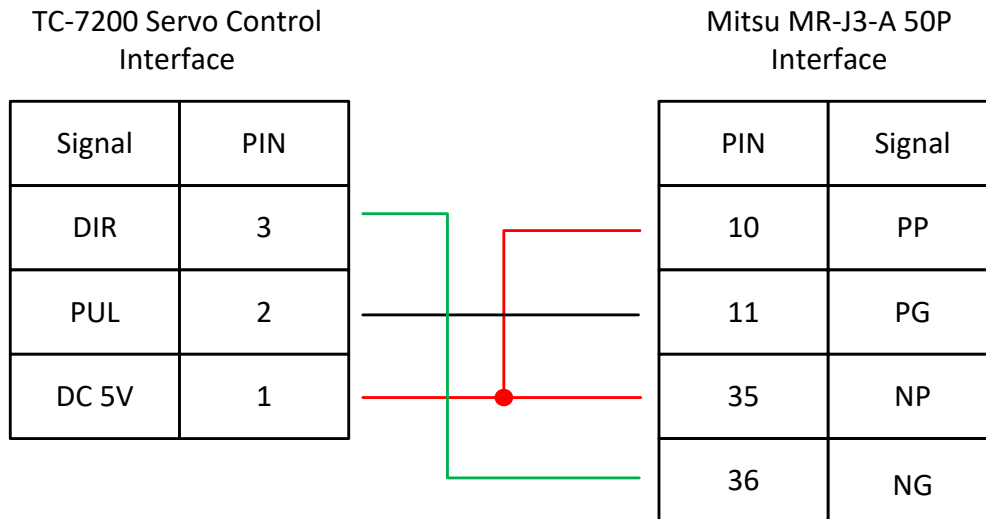


Figure 8-11 Mitsu E Series Wiring Diagram

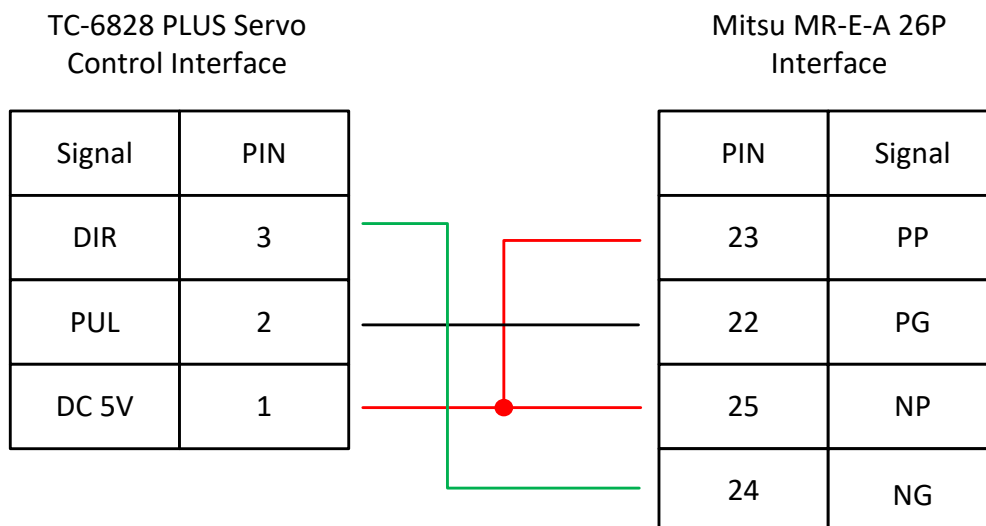


Table8-7 Mitsu MR-J3—A Series Basic Setting Parameters

Mode	Value	Instruction
PA01	0	Control mode: Position mode.
PA13	0011	Negative logic: Pulse + Direction.

Notice: The maximum pulse frequency of Mitsu J3 Series is 1Mpps.

9. FAQ

9.1 Time and Date

The top bar displays local date and time. The date and time can be modified which requires the cooperation of encryption software. If the time changes to 0.0.0, it means the battery in the panel has run out of power and can't set password for control card. The clock doesn't support power off relay function.

9.2 File Name

When the filename is in Chinese, the panel just displays no more than 4 characters and they must be from common Chinese character library. When the filename is in numbers or letters, they must be no more than 8 characters.

9.3 Coordinate System

In order to help the users to understand the relevant operation instructions better, the coordinate system involved is described in detail here. The translation axis is applicable to the cartesian coordinate system (the two-dimensional plane coordinate system). The rotation axis is suitable for the rotation coordinate system.

9.3.1 Plane Coordinate

- Origin

The same position as where limit switch is located in.

- X+ Axis

The positive rotation that is the opposite direction away from limit switch on X axis.

- X- Axis

The negative rotation that is the opposite direction to X+.

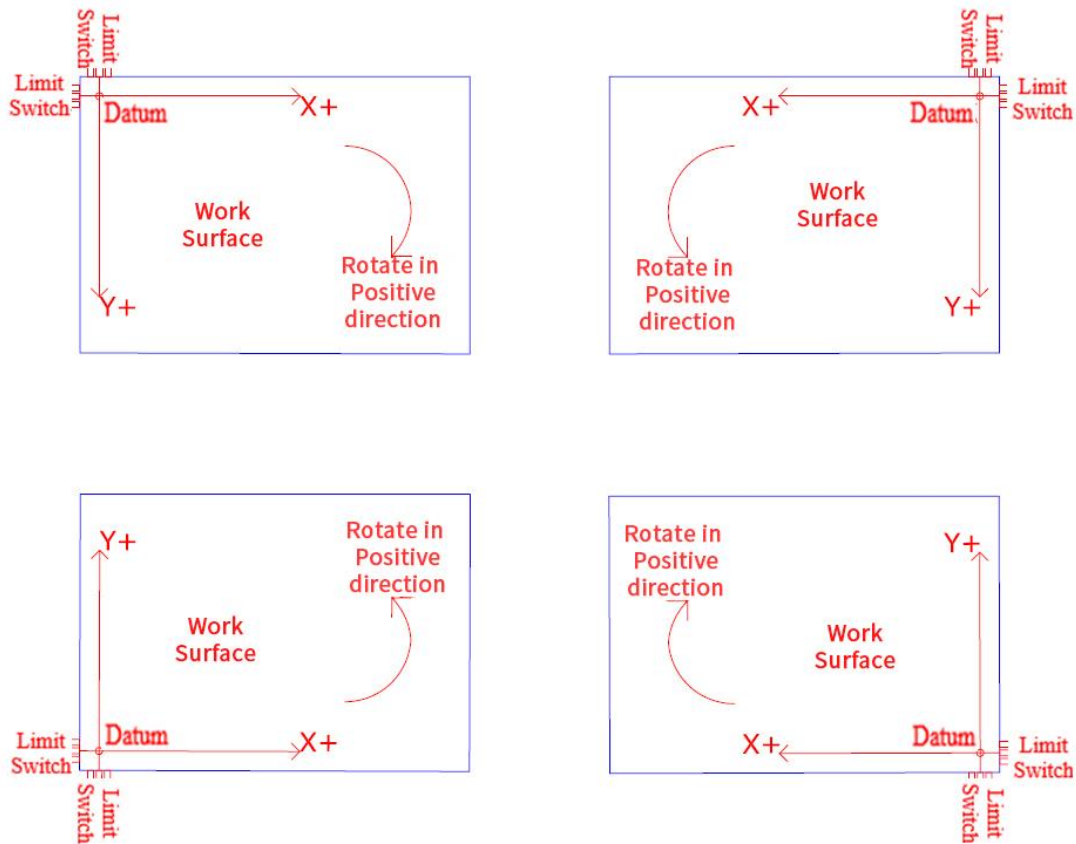
- Y+ Axis

The positive rotation that is the opposite direction away from limit switch on Y axis.

- Y- Axis

The negative rotation that is the opposite direction to Y-.

Figure 9-3-1 Plane Coordinate System



9.3.2 Rotation Coordinate

- Origin

The point of cutting table mapping from center point for rotary axis.

- Clockwise

Rotation from X+ direction to Y+. Coordinate value increases if axis is rotating clockwise.

- Counter-Clockwise

Coordinate value decreases if axis is rotating counter-clockwise. The origin will be changing depending on axis's moving.

- **Coordinate Value**

The rotation coordinate value is the number of cycles, like 360 degree for one cycle. If the axis rotates positively and the coordinate value increases from 0 to 360, then the rotation coordinate value will be reset to 0. If the axis rotates negatively and the coordinate value decreases from 360 to 0, then the rotation coordinate value will be reset to 360.

Coordinate value will be reset to 360 as value is decreasing from 360 to 0 and axis rotating negative. The positive direction varies by changing of limit point like pic above shown.