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FUYU
福誉科技

AMC4030
三轴运动控制系统
THREE-AXIS MOTION CONTROL SYSTEM
通用触摸屏使用说明书
UNIVERSAL TOUCH SCREEN INSTRUCTION

使用指南手册版本: V 1.0

INSTRUCTION MANUAL

FUYUTECHNOLOGYCO.,LTD

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一、 产品介绍

客户在使用我们的AMC4030三轴运动控制器的基础上，搭配该通用触摸屏使用时，可实现脱机完成手动，半自动控制的运动功能。设计初衷即是为了方便客户操作AMC430运动控制器，为脱机使用控制器提供一种有效的解决办法。

1.功能介绍

1)实现运动参数写入/修改
2)实现三轴的手动控制（运动速度，加速度可调）
3)实现步进运动
4)实现输出口的开启/关闭
5)实现三种三轴的半自动控制模式（点位/步进/往复运动）注：需要输入简单的参数
6)实现控制器内程序的调用（需要电脑编程并导入AMC4030）

2.适用性

本触摸屏适用于使用我们AMC4030且需要脱机条件下进行手动/半自动操作功能的客户。

二、 使用前的注意事项

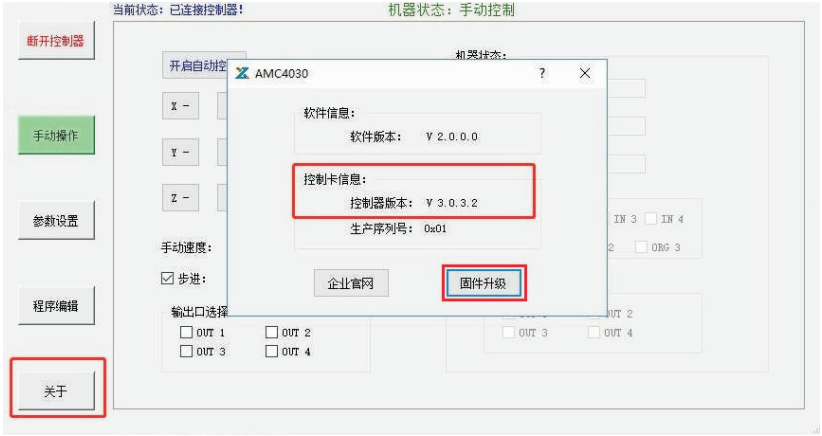
1.核实控制器软件版本
使用本触摸屏时请确认控制卡软件版本号，控制卡软件版本号需要在V3.0.3.2及以上才能正常使用本触摸屏。控制卡版本号获取方式见下。
1)打开PC端AMC4030控制软件，将控制卡上电后用附带的数据线与电脑USB相连。显示为已连接控制器即为连接成功。
2)点击关于按钮，会弹出如下界面，版本号在图中红框内所示。

1.控制器的固件升级

以前单买的控制器再搭配新购的触摸屏使用时，需要对AMC4030控制器进行固件升级。方法见下：

第一步：在官网下载最新的软件，上电并连接控制器

第二步：点击关于，点击固件升级



第三步，选择“AMC4030.bin”文件

2.参数设置

注意：第一次使用以及每次更换新的模组后，上电后都请首先进入参数设置进行设置。方可保证运动能有效进行。(详细说明见说明书第三章第四节)

三、 触摸屏使用详细步骤及功能解读

(1) 检查注意事项内容 — (2) 控制统接线并上电 — (3) 确认连接状态

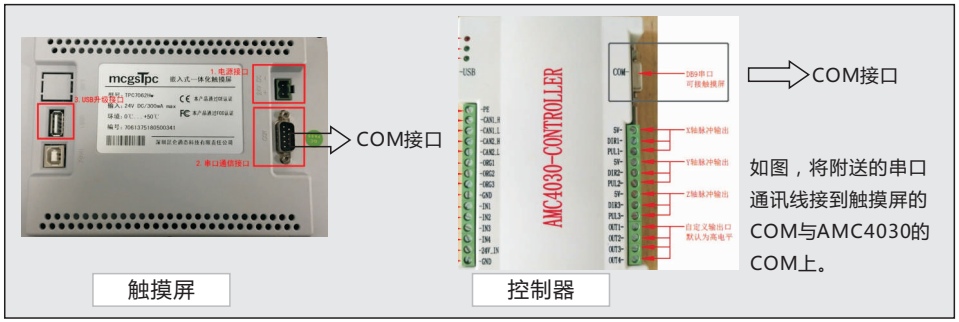
(4) 完成参数设置 — (5) 启用控制

(1)检查注意事项内容

对照说明书章节二“使用前的注意事项”前两步，完成软件版本核对以及可能出现的控制器固件升级。

(2)控制系统接线并上电

AMC4030、触摸屏、驱动器、模组，电源等接线上电后，将触摸屏的通讯线连好也接到AMC4030的COM端口。



(3)确认连接状态

触摸屏上电后会启动，显示如下图所示的主界面，可点击左上角的语言选项切换中文/英文。

如弹出如下所示的对话框，请检查通讯线是否连接到位或者AMC4030控制器三个指示灯是否正常（中间灯闪烁其余常亮）

(4)完成参数设置

如图，当触摸屏通电并和AMC4030控制器的连接状态正常时，我们在触摸屏主界面看到参数设置的按钮。第一次使用以及每次更换新的模组后，上电后都请首先进入参数设置进行设置。方可保证运动能有效进行。

点击参数设置

参数设置界面

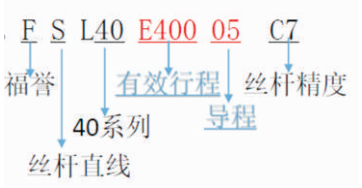
1、脉冲当量的含义：控制器发一个脉冲给驱动，驱动驱使电机转动并使得滑台前行的距离。因此，脉冲当量设置错误，则会出现控制距离错误的情况。

2、导程：若为丝杆直线，则填对应的导程。若为皮带模组，则填齿轮周径，80皮带为165、60皮带为135、100皮带为89、95。

3、行程：填写对应模组的有效行程。

4、导程和行程在哪看呢？

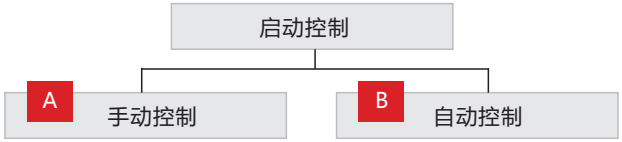
如图：我们在每个模组上都有这样一个标签。



F	S	L120	E100	05	C7
公司名称代号	丝杆和皮带模组 Screw and Belt linear module	型材宽度 Profile width	有效行程 Effective trip	丝杆导程 Effective trip	丝杆精度 Screw accuracy class
福誉科技 FUYU	S 丝杆模组 Screw linear module	40	50-2000mm 丝杆模组 Screw linear module	05 mm	C5
	B 皮带模组 Belt linear module	60	100-3000mm 皮带模组 Belt linear module	10 mm	C7
	PS 精密丝杆模组 Precise screw	80	（依客户要求定制生产） Customized production according to customer requirements	16 mm	
	DB 双导轨皮带模组 Double rail belt	100		20 mm	
	HS 手轮丝杆模组 Hand-wheel screw	120			

然后设置“回零方向（N/P）”,请连接好控制器后调试一下就可以了，总之，回原点的方向是朝着原点开关的方向。

参数都设置完成后才可以进行下一步操作控制



1.手动操作说明：

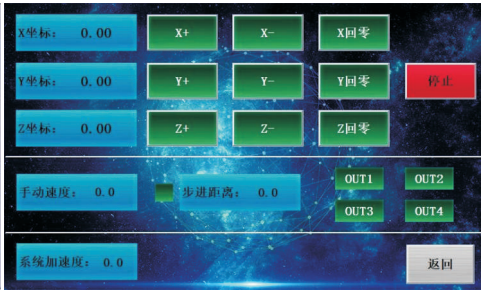
a)在没有执行自动控制的情况下，才可以进行手动控制操作。

b)先设置好“手动速度”和“系统的加速度”，接下来才可以对XYZ三个轴手动操作。

c)需要使用步进功能时请点选步进距离旁边的绿色框。选中后单击X+或X−，电机会移动设置的步进距离。

d)OUT口的目的是将控制器默认的高电平OUT输出切换成低电平输出。具体使用方法参见AMC4030软件配套的操作说明书。

注：所有显示框均为蓝色，按键均为绿色，按下为橙红色，停止按键均为红色。



2.自动控制步骤：

1)使用前，主界面的“参数设置”请一定要设置正确

2)选择自己需要的运动模式，点击后按钮状态显示为红色。

3)选择需要运动的轴，点击后按钮状态栏显示为红色

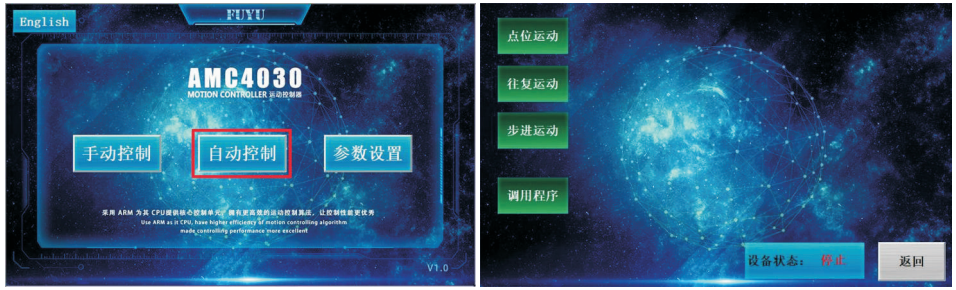
4)设置好所需要的参数，速度最小单位为1，距离最小单位为0.1

5)选好运动方向。注：可将默认“参数设置”里的“回原点方向”定义为运动反方向。再根据这个来设置需要电机运行的方向是N还是P。

6)参数设置完成后，首次启动前请先点击复位，再点击启动，发现运行不正常请检查运行方向是否选择错误以及原点开关是否安装到位。

7)注意1：手动运行过程中必须停止下来后启用自动控制才会有效。

8)注意2：需要运动停下来才能切换运动模式。



点击自动控制出现上述四种不同的运动控制模式，“点位运动”、“往复运动”、“步进运动”与“调用程序”。如上图。无需电脑编程即可使用，但都需要客户根据自己的需求完成关键参数的设置方可使用。

几种自动控制运动模式界面

1.调用程序模式步骤：

1)本模式设计初衷是为了让客户能执行自己在PC端编写并导入AMC4030控制器里的程序。

2)执行前需保证AMC4030里有程序。

3)在运动模式里点击需要运动的轴

4)点击“启动”点击“启动”执行程序，期间可点击“停止”停下。

四、 致用户

首先，非常感谢您信赖我们公司的产品，如果您在运行本软件时出现不可处理的问题或者BUG，可以直接与公司的技术支持人员联系，我们会非常感谢您的建议。

如果你想更加详细地了解我们公司，欢迎您直接访问我们公司的官网。如果您对我们公司的产品有任何的意见和建议，也欢迎您在公司的官网上留言或与我们的技术支持人员沟通。

技术支持官网：http://www.fuyuautomation.com/article/cpsysc.html

A、Preface

1.Design original intention

Matching with the universal touch screen on the basis of using our AMC 4030 three-axis motion controller, customers can realize the manual and semi-automatic motion function without PC. The original intention of the design is to be more convenient for user and provide an effective solution for offline use of the controller.

2.Function introductions

1)Edit and modify the motion parameters

2)Manual control 3-axis step motor（velocity and acceleration are adjustable）

3)Stepping motion

4)Open/close the four output ports

5)Three kinds of 3-axis motion patterns（Point/Step/Cycle）Note: Need customer to fill the parameters in

6)Read and perform the program in the controller (Need customer to write program on PC and download into AMC4030)

3.Product Applicable Groups

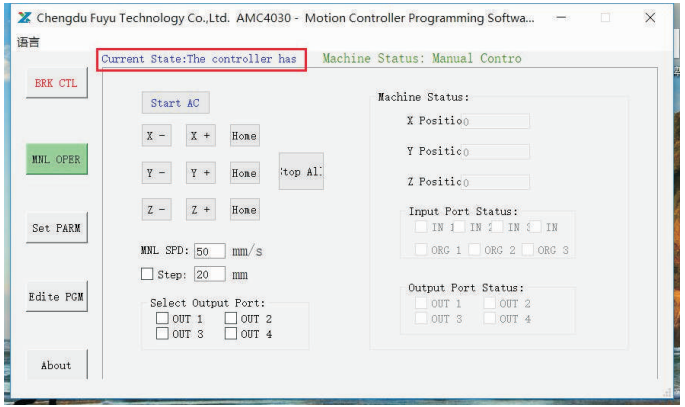
This touch screen is suitable for customers who use our AMC 4030 and need manual/semi-automatic operation under off-line conditions.

B、Before Using

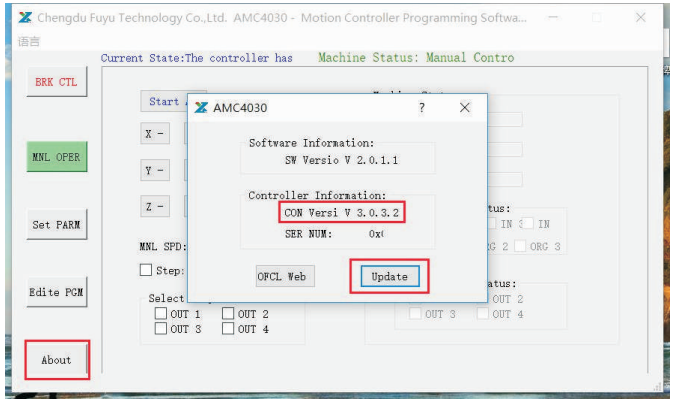
1.Verify the Software Version of Controller

Please check the software version of controller whether is V3.0.3.2 before using, the methods of checking are as follows.

1)Open the control software of AMC 4030 on PC and connect the control card to the computer USB with the USB data line after power-on.



Connection is successful when “Current State” displays on“The controller has”.



2)Click “About”, the controller information is shown in the figure.

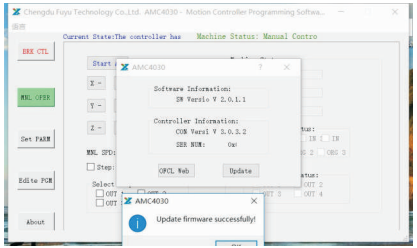
Please contact with our technical support staff if yours is under V3.0.3.2.

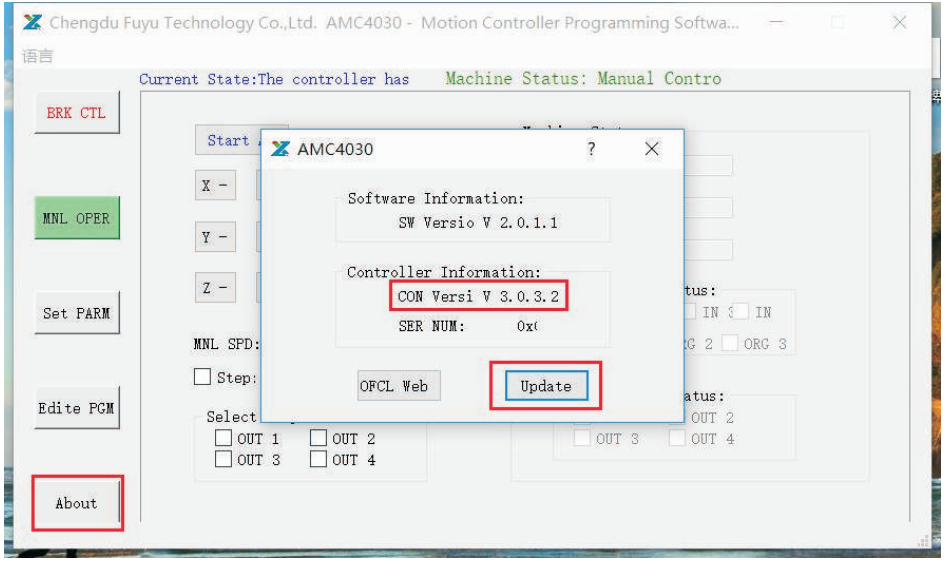
2.Update Firmware

When using a separately purchased controller with a newly purchased touch screen, a firmware upgrade is required for the AMC4030 controller. The method is as follows:

The first step: Use the latest software, power on and connect to the controller.

Step 2: Click on “About” and click on “Firmware Upgrade”.





Step 3: Pitch on “AMC4030.bin”.

If fail, please try again.

3.Setting parameters

Note: The first use and every time you replace a new module, please enter the parameter settings for setting after power-on. Only to ensure that the exercise can be carried out effectively. (For details, see Chapter 4, Section 4 of the Manual)

C.Operational steps and instructions

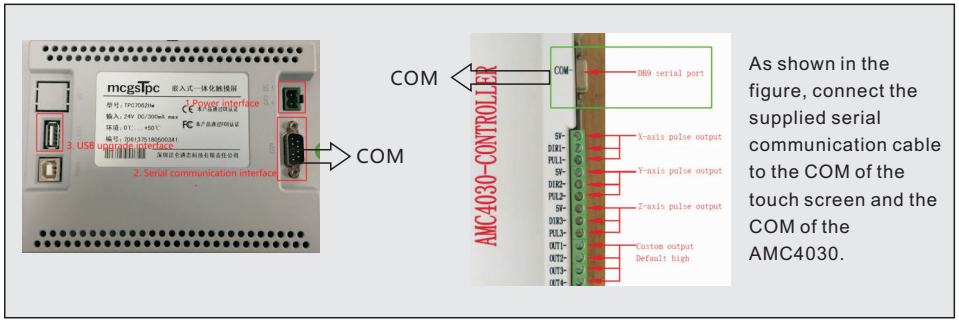
(1) Check the contents of precautions → (2) Wiring and powering up → (3) Confirm connection status → (4) Complete the parameter setting → (5) Enabling Control

1)Check the contents of precautions

Check the software version and the possible controller firmware upgrades in the first two steps of Chapter 2, “Before Using”.

2)Wiring and powering up

When AMC4030, touch screen, driver, module, power supply and other wiring are all powered on, connect the communication line of the touch screen to the COM port of the AMC4030.



As shown in the figure, connect the supplied serial communication cable to the COM of the touch screen and the COM of the AMC4030.

3)Confirm connection status

The touch screen will start up and display the main interface as shown below when it is powered on. You can switch between Chinese/English by clicking the language option in the upper left corner.

Main interface

If the dialog box shown below pops up, please check if the communication line is connected or the three indicators of the AMC4030 controller are normal (the middle light flashes and the rest is always on).

“Status not connected” dialog

4)Complete the parameter setting

As shown in the figure, when the touch screen is energized and the connection status of the AMC4030 controller is normal, we can see the button of parameter setting in the main interface of the touch screen. After the first use and each replacement of the new module, please enter the parameter settings to set up after power-on. Only in this way the exercise can be carried out effectively.

Click "Parameter"

Parameter setting interface

Parameter instruction is as follows:

1. Impulse Equivalent Meaning: The controller sends a pulse to drive, which drives the motor to rotate and makes the sliding table move forward.

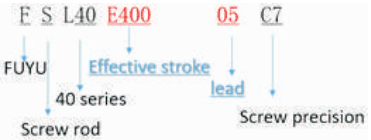
Therefore, if the pulse equivalent setting is wrong, the control distance will be wrong.

2. Lead: If the screw is straight, fill in the corresponding lead. If it is a belt module, the filling gear circumference (80 belt 165, 60 belt 135, 100 belt 89.95).

3. Travel: Fill in the valid itinerary of the corresponding module.

4. Where are the guides and itineraries?

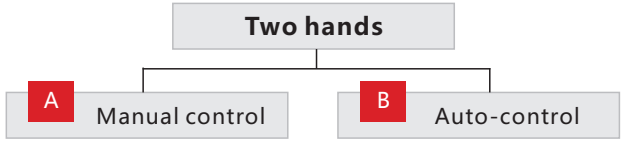
Figure: We have such a label on each module.



F	S	L120	E100	05	C7
公司名称代号	丝杆和皮带模组 Screw and Belt linear module	型材宽度 Profile width	有效行程 Effective trip	丝杆导程 Effective trip	丝杆精度 Screw accuracy class
福雷科技 FUYU	S:丝杆模组 Screw linear module	40	50-2000mm 丝杆模组 Screw linear module	05 mm	C5
	B:皮带模组 Belt linear module	60	100-3000mm 皮带模组 Belt linear module	10 mm	C7
	PS:精密丝杆模组 Precise screw	80	（依客户要求定制生产） Customized production according to customer requirements	16 mm	
	DB:双导轨皮带模组 Double-rail belt	100		20 mm	
	HS:手轮丝杆模组 Hand-wheel screw	120			

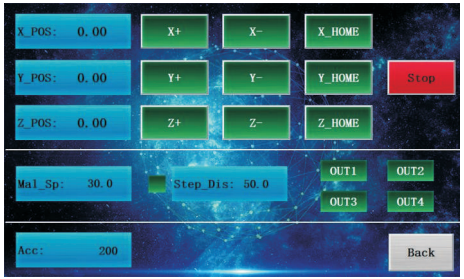
Then set the "return to zero direction" (N/P). Please connect the controller and debug it. In short, the return to the origin is in the direction of the origin switch. The next step can be controlled only when the parameters have been set up right.

5)Enabling Control



Manual control:

A Click "Manual"



Manual operation interface

1.Manual operation instructions：

a)Manual control operations can only be performed without automatic control.

b)Set the "Manual Speed" and "Acceleration" first, and then you can manually operate on the XYZ three axes.

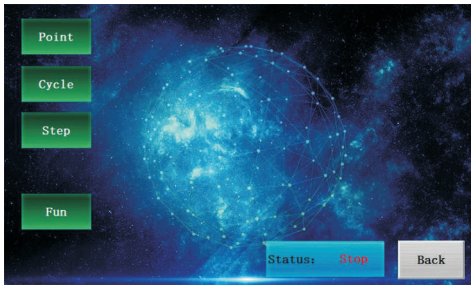
c)When need to use the step function, please click the green box next to the step distance. After selection, click X + or X-, and the motor moves the set step distance.

d)The purpose of the out port is to switch the controller's default high level out output to low level output. You can see the operating instructions of AMC4030 software for specific use methods.

Note: All display boxes are blue, the keys are all green, press and then they become Orange red, the stop keys are all red.

Auto-control

Click “Automatic”



Auto-control interface

Click “Automatic”, then there will be four different motion control modes above, "point Motion", "Cycle Motion", "Step Motion" and "Function". As shown above. It can be used without computer programming, but it requires customers to complete the setup of key parameters according to their needs.

2.Automatic control steps：

1)Before using, the“Parameter”on the main interface must be set correctly.

2)Select the motion mode you need, and the button status will be displayed in red after clicking.

3)Select the axis you need, and the button status will be displayed in red as well.

4)Set up the parameters you want, the minimum unit of velocity is 1 and the minimum unit of distance is 0.1.

5)Choose the direction. Note: The "back to origin direction" in the default "Parameter " can be defined as the opposite direction.

6)After setting parameters, please click “Reset” before “start”. If you find that the actual motion is wrong, please check whether the direction is wrong and whether the origin switch is installed appropriate.

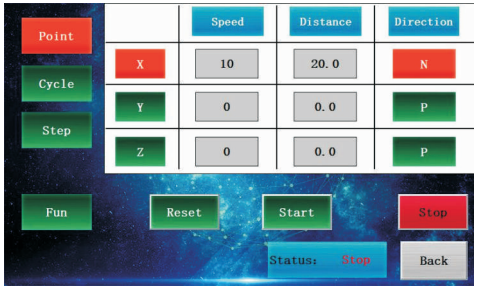
7)Note1： Manual control operations can only be performed without automatic control.

8)Note2: Switching the sport mode needs to stop the motion first.

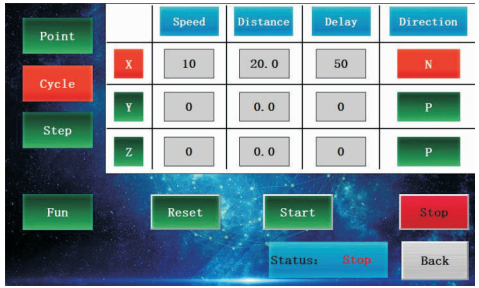
3.Invoke program steps：

1)This model was originally designed to allow customers to execute their own program which was written on the PC side and imported into the AMC4030 controller.

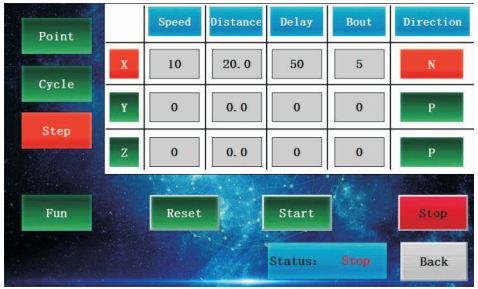
Interfaces of several motion mode :



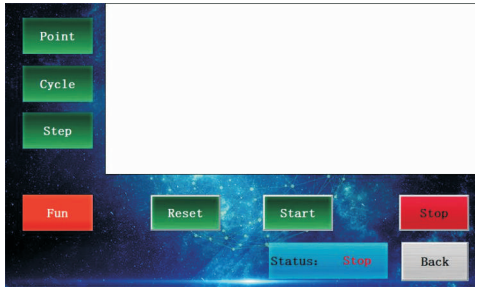
Point to point motion mode



reciprocating motion mode



Step motion



Invoke program mode

2)Before execution, you must ensure that there is a program in AMC4030 controller.

3)You should click on the axis you need to move in the motion mode.

4)Click "Start" to execute the program, and click "Stop" to stop.

D、To users

First of all, thank you very much for trusting our products. If you have any unresolved problems or bugs when using this software, you can contact with our technical support staff directly, we will be very grateful for your suggestions.

If you want to know more about us, you are welcome to visit our company's official website directly. If you have any comments or suggestions about our company's products, you are also welcome to leave a message on the company's official website or contact with our technical support staff.