
Digital Dream -Self-Test Guide for New V5 version Mach3 motion control cards(include models: EC300, EC300, LAN5160T4):

This document is only the self-test guide for customers if with issues. the details/functions about our products, please refer to our user manual.

1. Self-test under Windows

1.1 IP setting

Ethernet cable connection: please set local(computer) IP to 192.168.4.X (X=2~254, X≠5) ;
Router connection: No need to set the local IP, but please set the router's IP to 192.168.4.1;

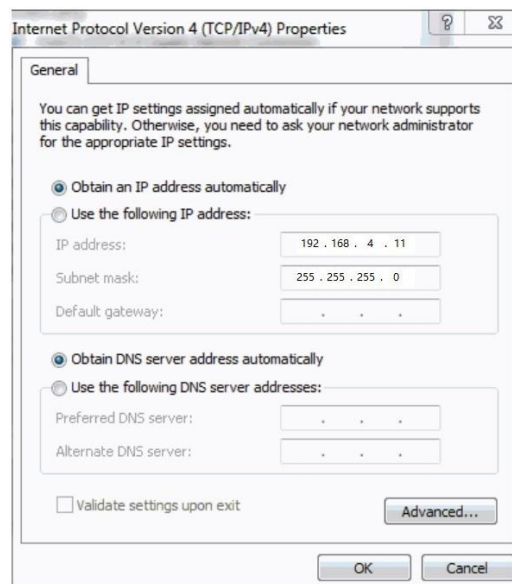


Figure1: Directly Ethernet cable connection, local IP setting

1.2 Firewall setting

Ethernet cable connection: The local firewall needs to be completely turned off.
Router connection: No need to disable the firewall.

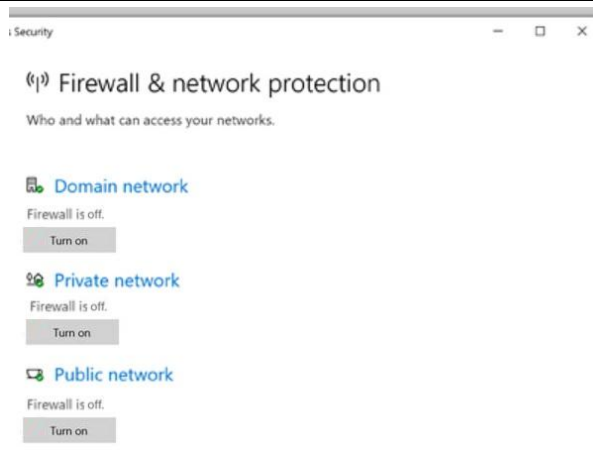


Figure2: Turned off all firewalls of the computer

1.3 Connection testing of the control board card

1, Press WIN+R to quickly launch Run window.

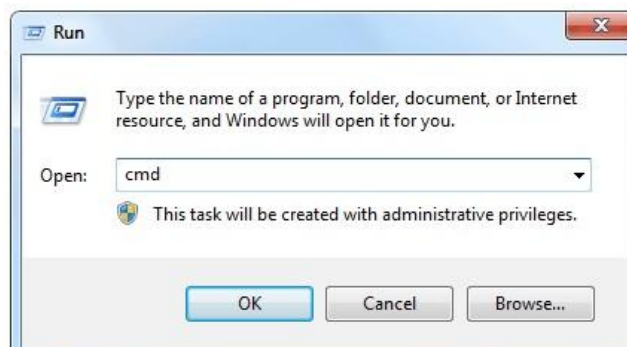


Figure3

2, Type cmd and then press “Ok” key.

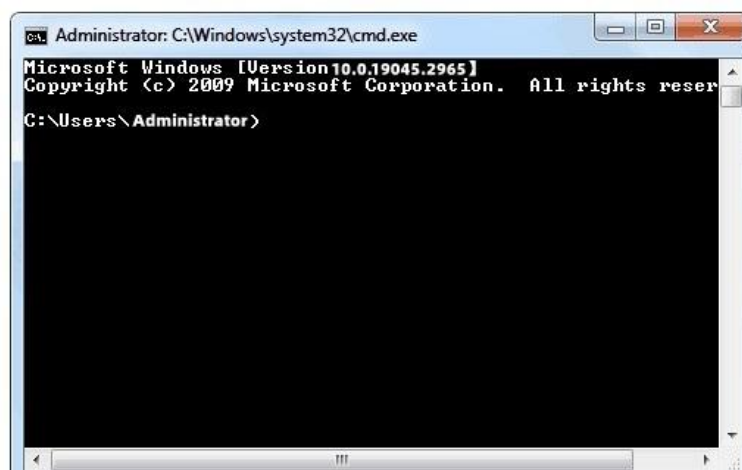


Figure4: Launching CMD

3, Type ping 192.168.4.5 and then press “Enter”

As shown in Figure5. “Request Timed Out” means the control board is not recognized by the Windows.

As shown in Figure6. “Reply from..” means the control board connection is fine.

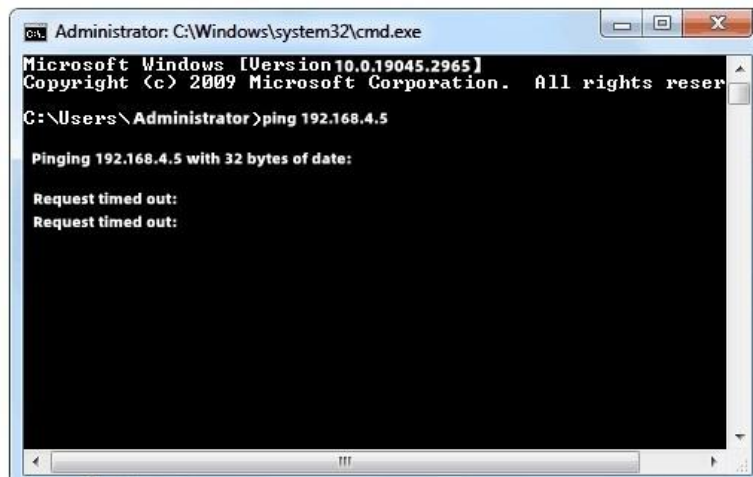


Figure5

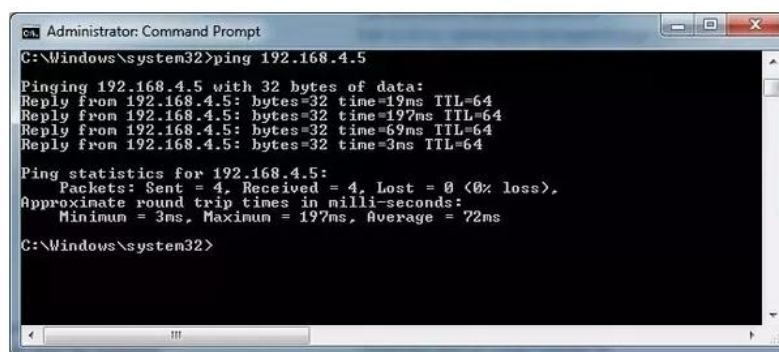


Figure6

In conclusion:

As shown in Figure6:

Receiving a reply from 192.168.4.5 indicates that the Mach3 board connection is functioning properly, so can directly proceed to test with Mach3, and no need to return to the current test section if any issues during the mach 3 testing.

As shown in Figure5:

- 1, it indicates that the Mach3 control board is not recognized by Windows. So 1st please check the status of the 2 lights on the Ethernet port when the power is on.
- 2, Normally, 1 light should be constantly and the other one should be flashing.
- 3, If the lights are not lit, please replace the Ethernet cable or computer for testing.
- 4, If the lights are lit, please check if all firewalls are completely disable and verify if the Local IP is correctly set.

2, MACH3 Connection

If the control board connection is functioning properly after self-test under Windows, you can proceed to the Mach3 testing phase:

2.1, Requirements of Power Supply:

Our board request 2pcs independent switching power supply with a driving capacity of 24V voltage above 1A, please ensure that both 24V/GND an COM+/COM- power supplies are working properly, more details please refer to our user manual.

2.2, DLL Plugin installation:

1, Please copy our newest DLL file to X:/mach3/Plugins folder, and make sure that the DLL is the only non-mach3 official Plug-in in this folder (the latest DLL file named: DIGITALDREAM_20230513)

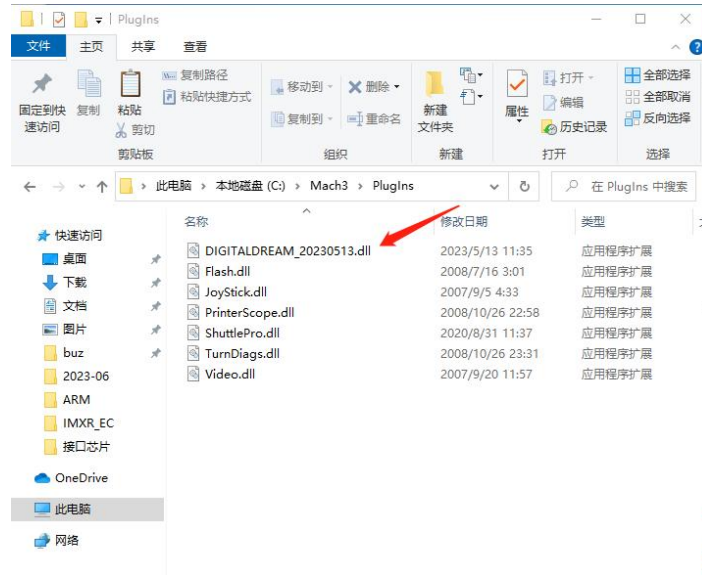


Figure7

2, Open mach3 software: If the DLL file is installed correctly, it will pop-up a window of Plugin selection dialog as Figure8, please choose our DLL and then press OK.

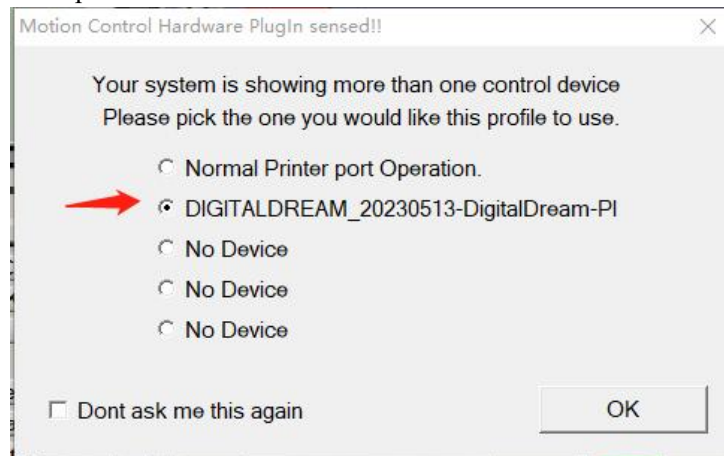


Figure8

3, Open the plug-in page to check the connection device in the Mach3 software : Config->Config plugins->DigitalDream's CONFIG

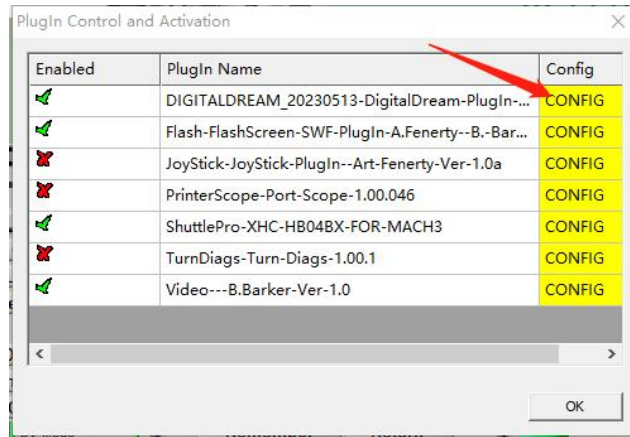


Figure9

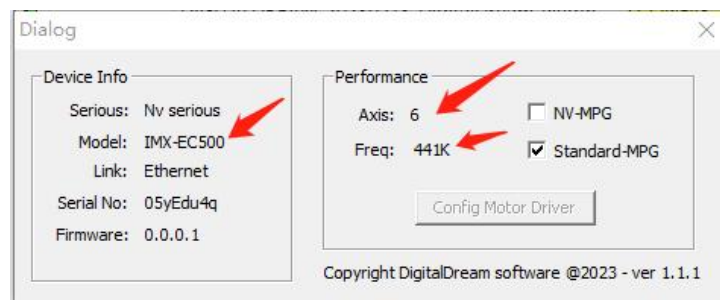


Figure10

As shown in Figure10, with displays “the model number, No.axes, Max.Freq”, it indicates that the control board connect successfully. So please proceed to the next test.

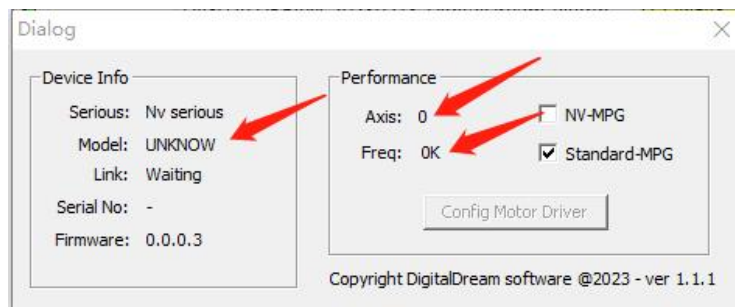


Figure11

As shown in Figure11, with displays "Model - UNKNOWN, Axis-0, Freq-OK", it indicates that the control board is not recognized. So please check the status of Router , firewalls, or replace the computer.

3 MACH3 software settings

3.1 Motor Parameters Configuration (Config->Motor tuning)

Please make sure to configure the Pulse Equivalent (Steps per), Speed (Velocity), and Acceleration correctly for each axis. After configuring each axis, remember to click the "Save axis settings" button before proceeding to the next axis.

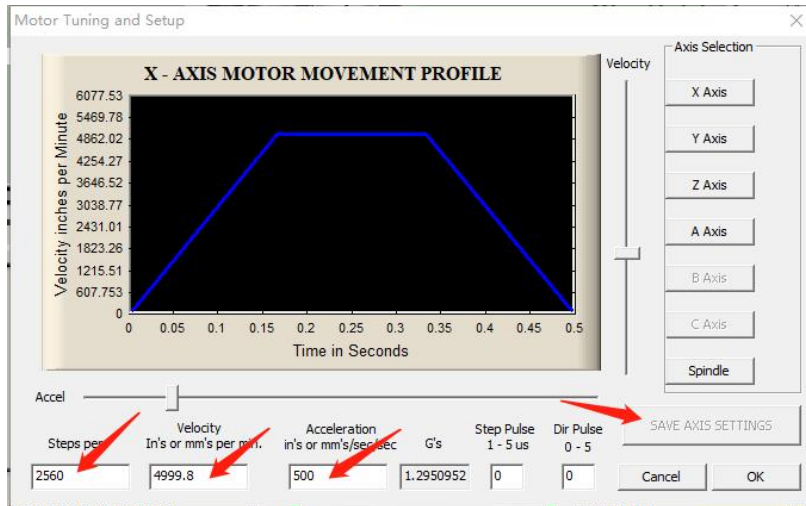


Figure12

3.2 Axis Configuration

Signal	Enabled	Step Pin#	Dir Pin#	Dir LowActive	Step Low Ac...	Step Port	Dir Port
X Axis	<input checked="" type="checkbox"/>	2	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1
Y Axis	<input checked="" type="checkbox"/>	3	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1
Z Axis	<input checked="" type="checkbox"/>	4	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1
A Axis	<input checked="" type="checkbox"/>	5	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	1
B Axis	<input type="checkbox"/>	0	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0
C Axis	<input type="checkbox"/>	0	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0
Spindle	<input checked="" type="checkbox"/>	0	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	0

Figure13

As Figure13 Axis configuration, you need to Enable(✓) the axes that will be used.

3.3 Input Configuration

Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
X --	<input checked="" type="checkbox"/>	1	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
X Home	<input checked="" type="checkbox"/>	1	3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Y ++	<input checked="" type="checkbox"/>	1	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Y --	<input checked="" type="checkbox"/>	1	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Y Home	<input checked="" type="checkbox"/>	1	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Z ++	<input checked="" type="checkbox"/>	1	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Z --	<input checked="" type="checkbox"/>	1	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Z Home	<input checked="" type="checkbox"/>	1	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
A ++	<input checked="" type="checkbox"/>	1	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
A --	<input checked="" type="checkbox"/>	1	11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
A Home	<input checked="" type="checkbox"/>	1	12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0

Pins 10-13 and 15 are inputs. Only these 5 pin numbers may be used on this

Buttons: Automated Setup of Inputs, 确定, 取消, 应用(A)

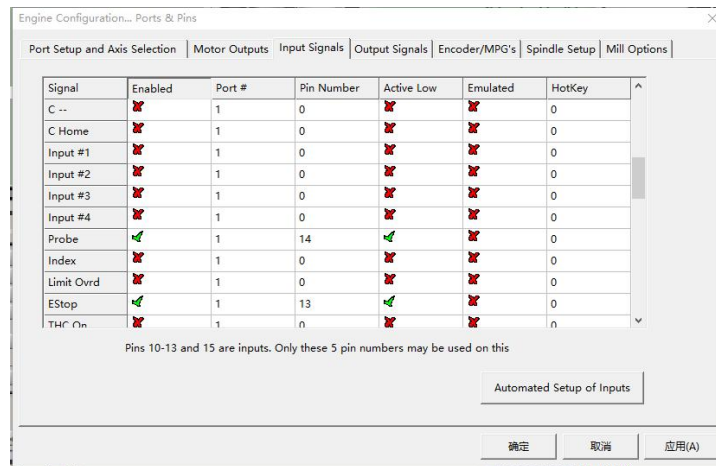


Figure14

Figure 14 as an example, all input channels are open and configured sequentially.

But please configure the port numbers base on your own requirements. Make sure to select "✓" for the Active Low input.

3.4 Spindle Output Configuration

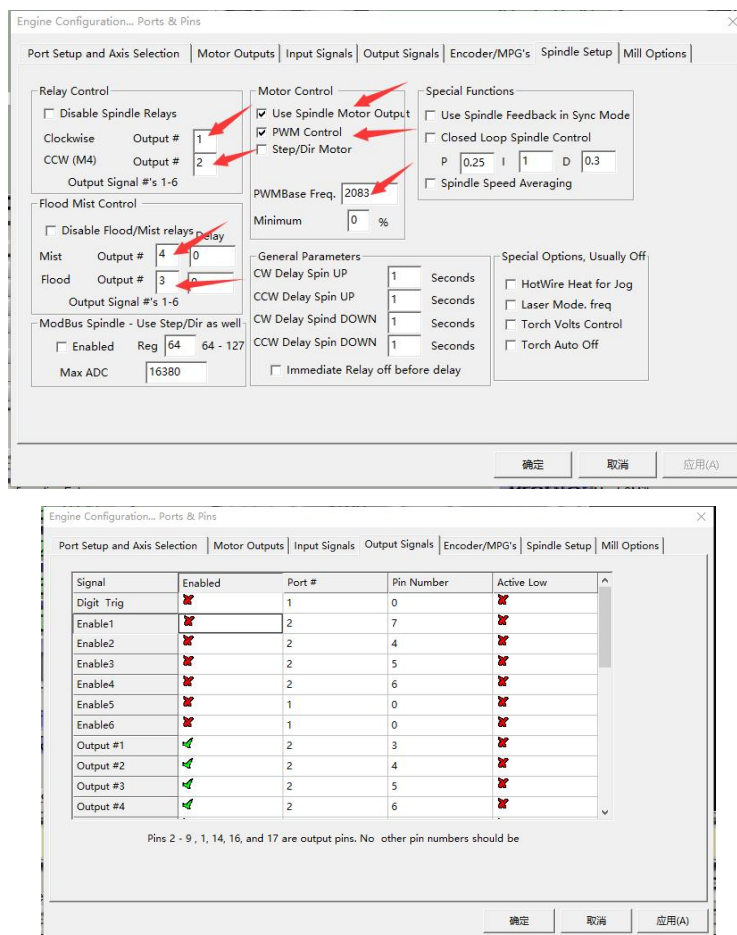


Figure15 Spindle & Output configuration

Spindle setting corresponds to the output configuration, as Figure15, we have configured CW, CCW, MIST, FLOOD as 1, 2, 3, 4, which corresponding to ports numbers of Output #1 to Output #4 in the output signal setup dialog.

Notes: 1, All output ports must be set as 2.

2, Configure the PIN numbers according to the actual connection to the output ports of the control card.

3, Active low must be set / select "X"

4, For spindle speed control, please note to select “√” PWM control, and enter the PWMBase frequency value of 2083

Base on our previous experience, some beginners using Mach3 with a common issue, that all previous steps are configured correctly, but the reset button keeps flashing and unable to establish a connection. In this case, please pressing ALT+7 keys switches to the last page of Mach3, for checking the signal ports status.

If the signal ports are all black, it indicates that the connections and settings of the ports are correct and functioning properly. If any of the signal ports are displaying in Yellow / Red (Emergency), it indicates that there is a problem with the corresponding ports, so need to check and rectify the problem with the specific port (settings of the port).

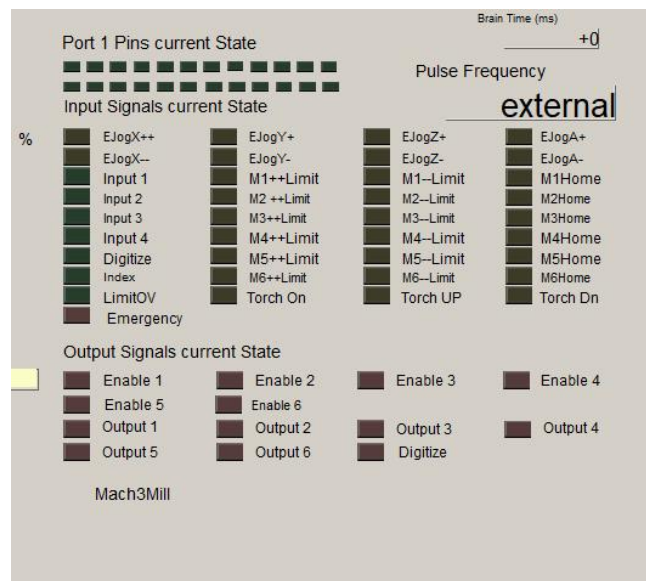


Figure15

4 Summary:

Key aspects : IP Settings, Firewares settings, Self-test by PING 192.168.4.5, Power supply, Plug-in, Input and output ports configuration.