

IP MOTOR 9203
Network Stepper Motor
USER MANUAL

USER MANUAL



IP MOTOR 9203
Version :x.x
2005.3

Warning: any changes to this equipment without permission may cause damages to your equipment! This equipment has been proved to can be prevented from the influence of harmful electronic jamming in normal business use condition.

IMPORTANT NOTICE

1. IP MOTOR 9203 is deigned on the fundamental principle of learning in kit.
2. IP MOTOR 9203 is deigned to be used in-door, we have no responsibility for the possible damage in out-door use especially in the rain.
3. Please use the power adaptor provided by the dealer, we have no responsibility for the possible damage in using other adaptors.
4. Do not use IP MOTOR 9203 in strong shaking condition
5. Please contact the dealer If IP MOTOR 9203 works improperly
6. Aviosys reserve the right of IP Motor 9203 and the decision of S/W update

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1. Introduction

Imaging when you at office, you can control the movement of mechanism through the network at the far end, such as opening or closing the doors, windows, curtains, the rotation direction and speed of advertisement exposition mechanism – Post Sign or Neon Lighting, the sound volume of broadcast system.

Web browsing becomes a daily habit of people. With IP MOTOR 9203, you can control any rotary mechanism by using any PC connected to the network from the far site. It will be easy and brings you more convenience and time savings for you.

Features:

1. Embedded web server can be used through the Ethernet or Internet—you can remote control the rotation direction, speed and step of stepper motors.
2. Built in network browser interface, no need any other software you can operate the motor at the far end.
3. Support 2 Axis stepper motor with 5 wire connectors.
4. Support presetting for rotation direction, total rotation steps and steps per second.
5. Supported HTTP, fixed IP in Internet network, DHCP, and virtual IP in Ethernet.
6. Security passwords identify & manual reset to default settings.
7. Easily installed and can be updated online
8. Safely designed for high voltage resistance and protection for leakage of electrical currency, using nonflammable material.
9. Polarity protective—no damage to your equipment if you reverse the polarity in installation
10. Worldwide voltage supported within 90-240 Volt
11. Embedded “ WATCH DOG “
12. It can be used separated or associated with other products of AVIOSYS such as IP Kamera, and IP Video in all-directional network security monitoring.

Specification: 1. DC 12V (AC90-240 input) 2. D-SUB Out port. 3. RJ45 Internet jack

Application field: you can control and machine with a rotation mechanism through the internet, such as the equipment in your home or in industrial application field. It will bring you much more conveniences.

Household field: doors, windows, curtain.

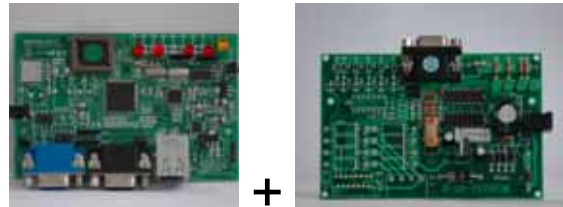
Industrial application field: web robot, rolling shutters of the shop, advertisement exposition stage, barrier in the park.

Stepper Motor: One kind of electric motor which is used frequently in electromechanical devices like printers, various floppy disk systems. It rotates by a fixed amount every time it receives an electrical pulse. Stepper motors are generally the best solution when designers want precise economical movements with minimum wear.

2. Before you start

9203 package contents

- A set of IP MOTOR 9203
(9200 Module + 9203 Module)



- RJ 45 network wire



- An adaptor with 1A, 12V output



- One D-Sub 15 Pin cable



- One two phases stepper motor.



- Install disc (include rapid installation manual)

Minimum System Requirements

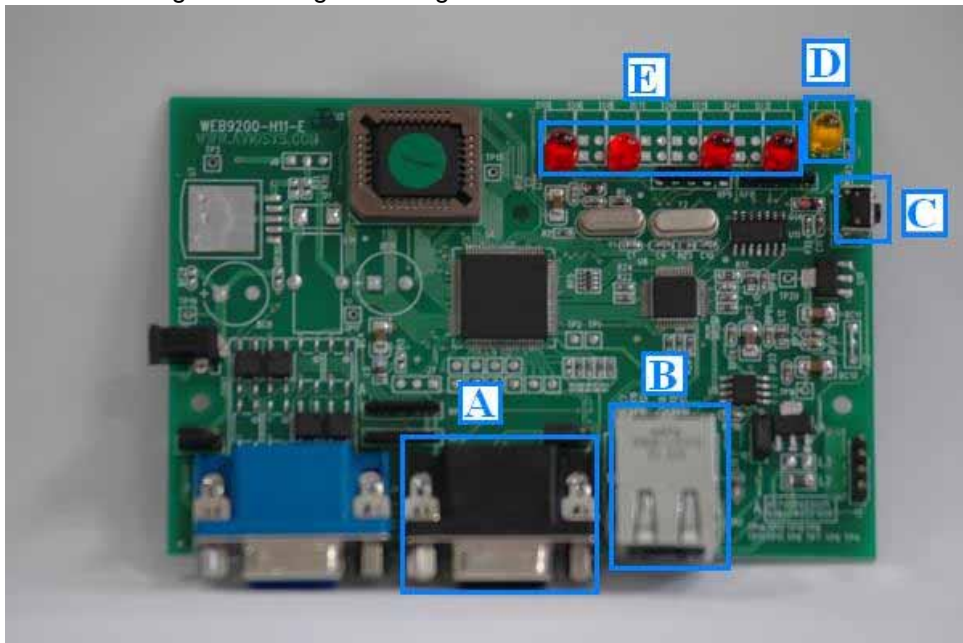
- Minimum Intel Pentium II 300MHz/compatible AMD processor
- WINDOWS operating system (IE5.0+SP1)
- Minimum 64MB RAM
- VGA Card: with capability of displaying full-Colors and DirectDraw support
- Network card with RJ45 port
- Ethernet Hub / Router
- Internet network (Ethernet, ADSL or other ways, depends on whether you need far end control ability or not)

3. Interface Description

IP MOTOR 9203 has two modules – 9200 Module and 9203 Module,

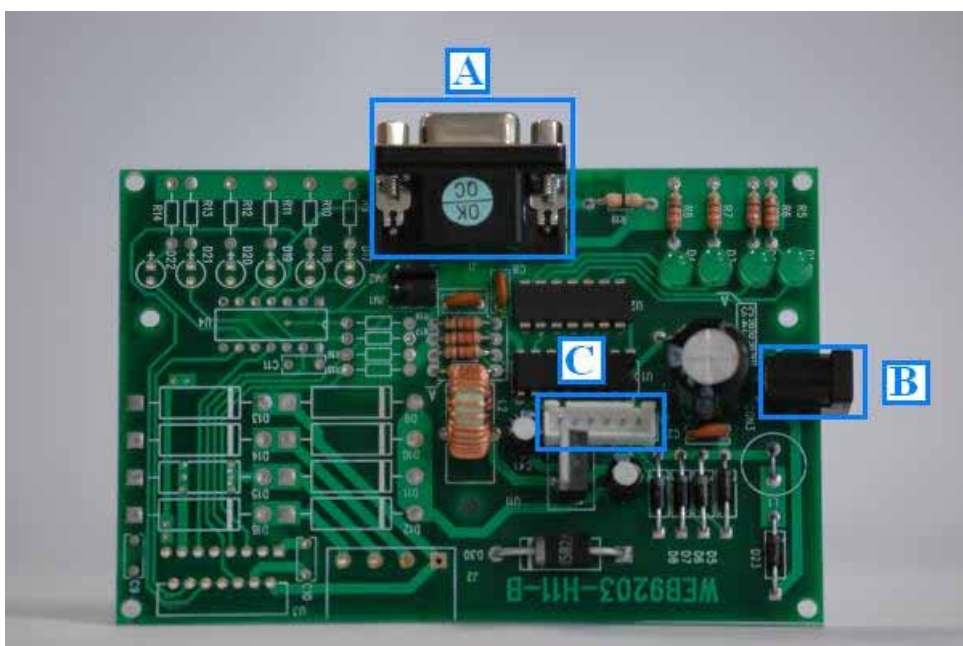
1. 9200 is the network module, and the followed picture shows its interface:

- A : D-SUB jack – connect 9203 B : RJ45 jack C : Reset button
- D : Power LED light E : Signal LED light



2. 9203 is the output module for motor and figure below shows its interface:

- A : D-Sub connector (connect 9200 module) B : 12V Power jack
- C : 2 Axis stepper motor with 5 wire connectors. (The plug in above pictures from right to left is A , A` , B , B` , No , COM .)



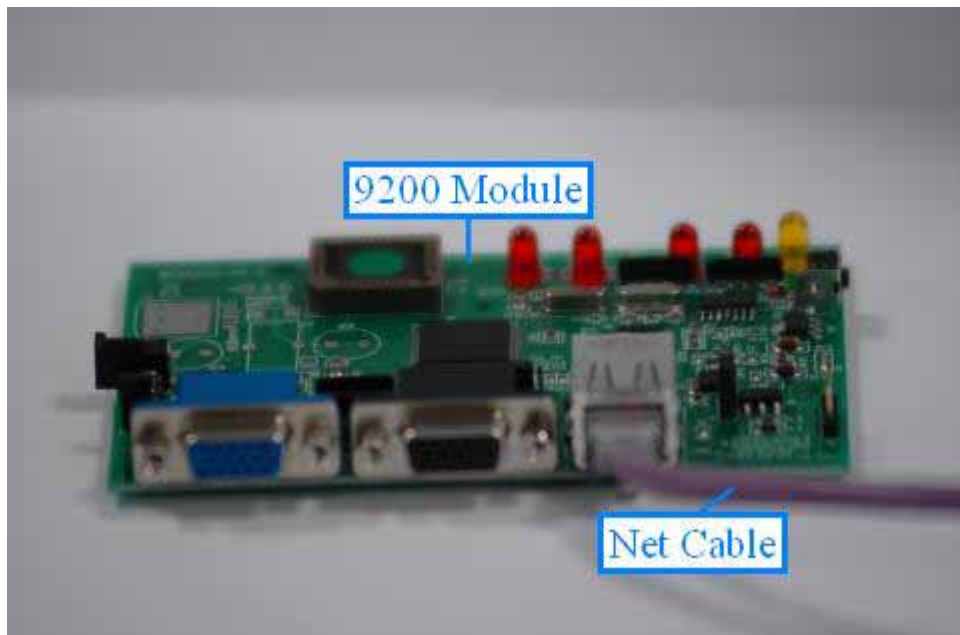
4. Hardware & Software installation

Before you start to use IP MOTOR 9203, please follow the steps below:

- Check the package to make sure the contents is complete.
- prepare one Ethernet HUB, or Router
- Check the voltage of the power supply to make sure it is AC 110-240 volt.

Hardware Installation

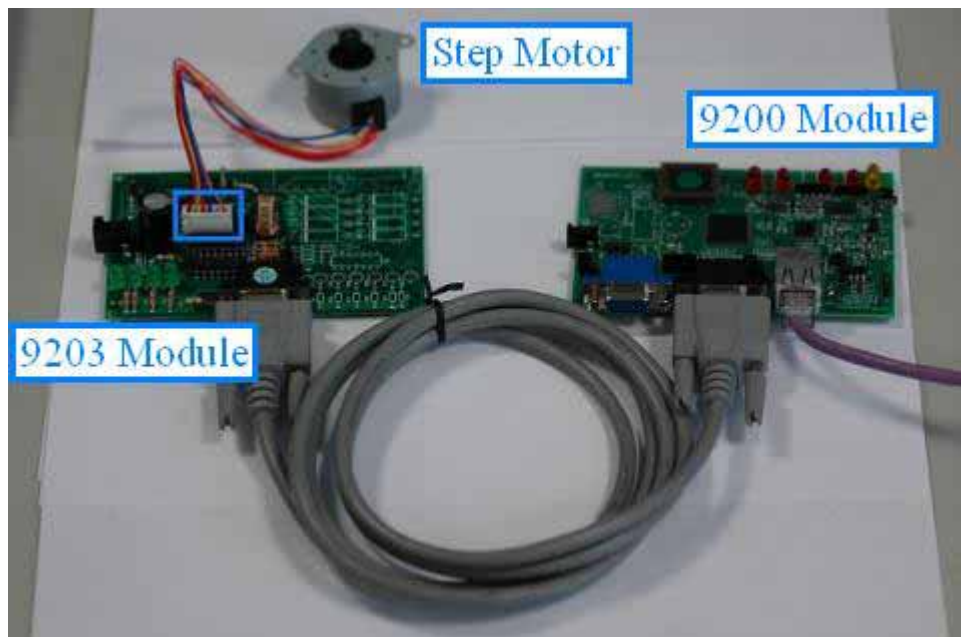
1. Connect the 9200 to HUB through network wire



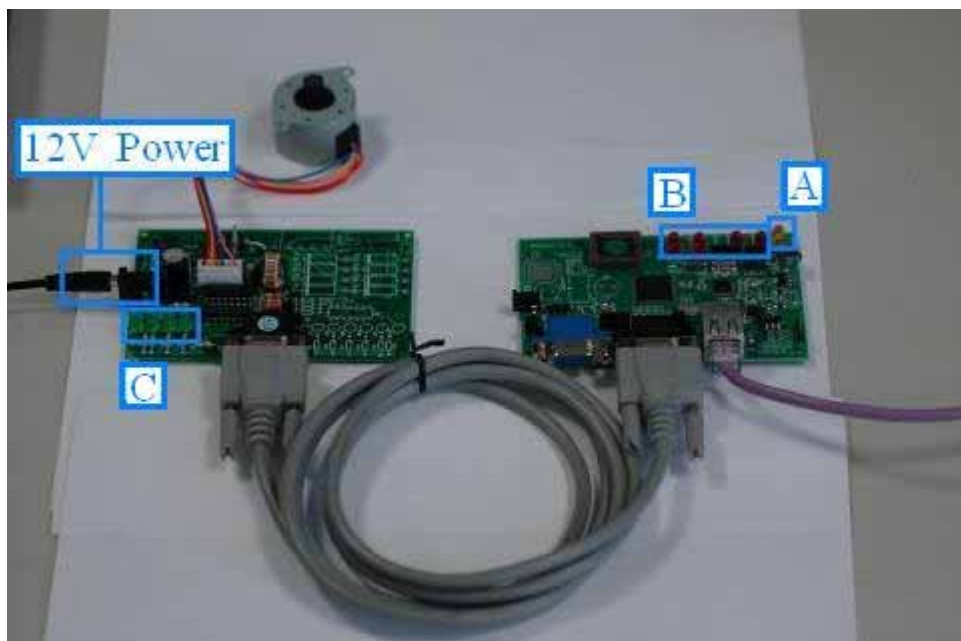
2. Connect the 9200 to 9203 through D-SUB cable by black jack.



3. Connect the stepper motor to the 9203 (the line of stepper motor is : RED – A , Yellow – A ' , Orange – B , Blue – B ' , Pink – C O M)



4. Connect the 12V power adapter with the 9203 and confirm if each signal is correct .
9200 Module : A – Power light always on . B – Signal light all off then all on.
9203 Module : C – Signal light all on then all off.



Note: If the signal is not correct , please press RESET bottom on the 9200 module and restart .

Hardware connection (recommend): Connect RJ45 first then POWER jack

Choose the stepper motor: 9203 stepper motor driver module is a constant voltage driver module, can drive one 2 Axis stepper motor . We suggest you use the stepper motor provided by us, or choose the stepper motor following these principles:

- 1. For 2 axis stepper motor:** Working in 2 phase condition.
The Working voltage is no more than 12V and axis currenxy no more than 1A..
- 2. The 5 lines sequence is :** A phase、 A ' phase 、 B phase 、 B ' phase 、 C O M。
- 3. The sequence to driver 9203 Module rotate CLOCKWISE :**
A B phase B A ' phase A ' B ' phase B ' A phase。
If want to driver 9203 Motor rotate COUNTER CLOCKWISE :
A B phase B A ' phase A ' B ' phase B ' A phase 。

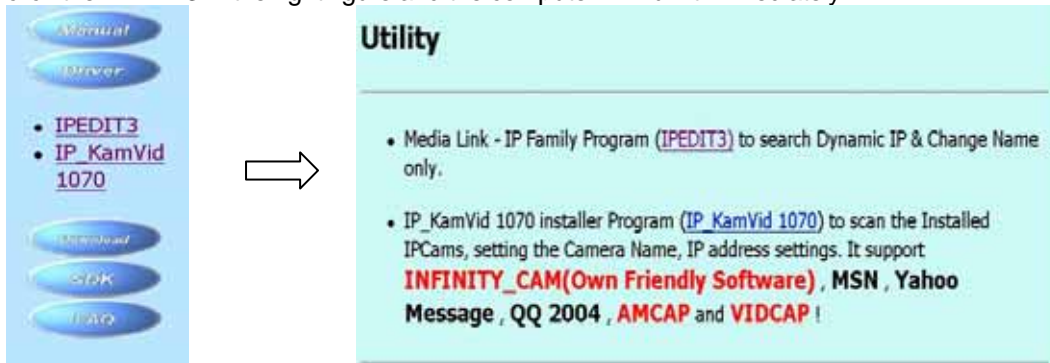
Software Installation – IP EDIT

Having power IP MOTOR 9203 on and connected its RJ45 network wire to the stepper motor, user can install the software---ipedit.exe following the steps below.

1. Power on your PC, put the install disk to the CD-ROM. The disk will auto run and shows the figure below:



2. Click the button driver in the left side, and then click IPEDIT3 in the pulldown menu. After that, click the IPEDIT3 in the right figure and the computer will run it immediately.



You can find the ipeditv3.exe in the subdirectory of \Tools in the install disk. You can copy it to the desk or anywhere you want to save it to, double click to run it.

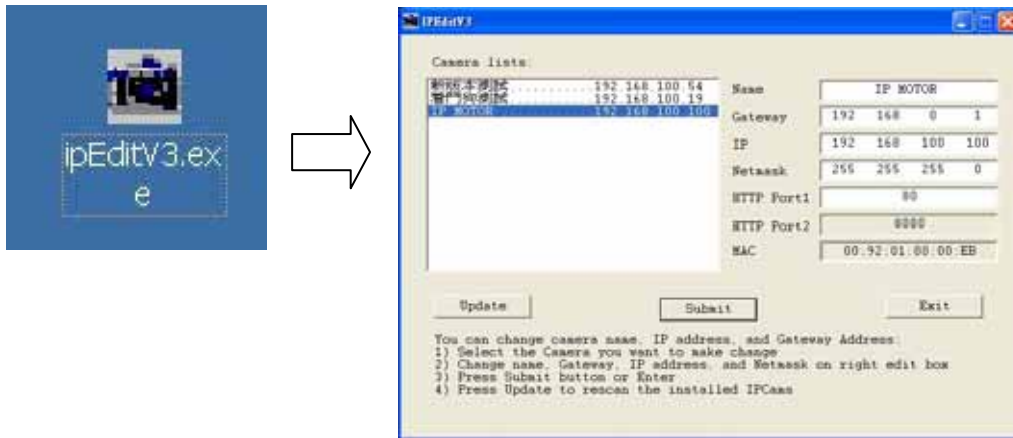
3. You can finish its initial settings following the constructions in the next section.

NOTE: IP MOTOR 9203 need not any other driver of application software. All the operation interfaces are built in the hardware. IPEDIT3.exe will bring more convenience for you looking for the IP address.

5. Initial Settings

Initial setting through the Ethernet

1. Double click the EditV3.exe



IPeditV3 可修改(Name / Gateway / IP / Netmask / HTTP Port1)

Name	IP MOTOR
Gateway	192 168 0 1
IP	192 168 100 100
Netmask	255 255 255 0
HTTP Port1	80
HTTP Port2	8080
MAC	00:92:01:00:00:EB

2. All the IP 9200 series, IP Kamera 9000 series/IP Video 9100 series in the same subnet of the Ethernet will be found and be display in the window by the software. The default name of IP MOTOR 9203 is IP MOTOR.

2-1 : Change Name : MAXIMUM 10 DIGIT

2-2 : After Change Gateway , IP, Netmask (xxx.xxx.xxx.0 ~ xxx.xxx.xxx.254) or Port1(1~32767) , the device will turn off DHCP .

2-3 : Click the IP in Lists will open the webpage , please type the IP Address if using Netscape

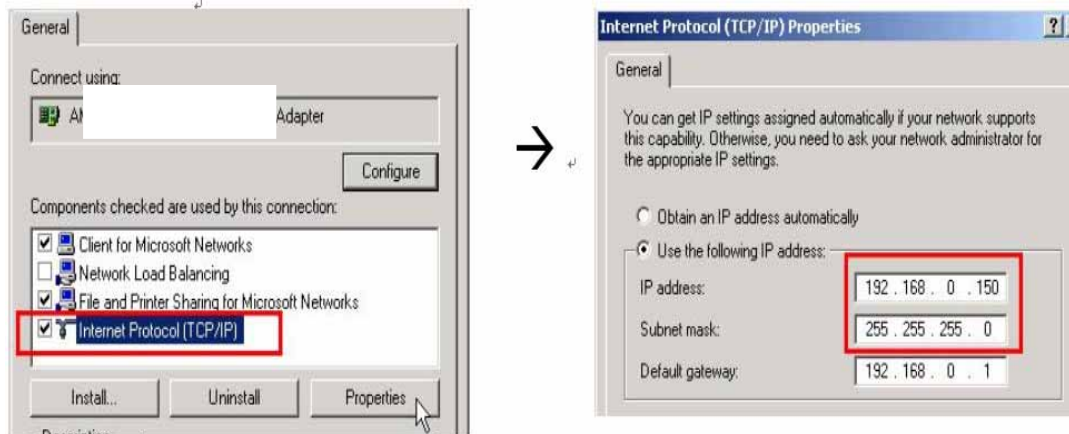
3. Click the equipment's name that you want to edit in the left of the window; it will turn fuscous, the equipment's name and IP address will display in the windows, you can rename (use numbers and letters). After that, click the update button and the new setting will be work in 20 seconds.

4. Double click the name of the equipment you want to control, the IE browser window will open and connected to this equipment in that Ethernet automatically. You also can type the IP address of the 9203 in the IE browser to open the web page of 9203. We suggest you to update the IE to version 6.0 with SP1 or higher if your IE notices you the security level is too low to open that web page.

NOTICE:

1. Make sure the RJ45 network wire have been connected correctly and the 9200, 9203 are power connect .
2. It can obtain the virtual IP address after you run the ipeditv3.exe only if the Ethernet support DHCP. Click the IP address to enter the web page. If the Ethernet not support DHCP, IP92XX will change it's IP address to fixed IP address. Please follow the steps below to change the subnet of your PC.

Use Windows XP to for example: Click My network neighborhood---->right click---->property---->local network---->right click---->property ---->TCP/IP---->property, like the figure:



The IP address of your computer should in the same subnet with that of IP Power 9212's, so that you can open the web page of 9200. In the figure above, the IP address of IP Power 9212 is 192.168.0.150, so your computer needs to gain an IP address looks like 192.168.0.XXX to get connection to IP Power 9212.

The IP address of your computer should in the same subnet with that of IP MOTOR 9203's, so that you can open the web page of 9203. In the figure above, the IP address of IP MOTOR 9203 is 192.168.0.2, so your computer needs to gain an IP address looks like 192.168.0.XXX to get connection to IP MOTRO 9203.

- 3.. The default username and password of IP Power 9212 are:
Username: admin
Password: 12345678

If forget the new password , you can key in superuser in username , and hardware reset the device to set the default setting Password : 12345678 . (for security concern) .

6. Control and settings through the Internet Explore

Type the IP address of IP MOTOR 9203 in the IE address field and you can enter the login web page. Input the default password 12345678(you can change the password as you wish), click the OK and then you can enter the WebControl page.

Aviosys Inc.

Welcom to IP Family WebControl

Please enter User name & Password. (maximum = 8)

User Name

Password

www.aviosys.com

IP Motor
(www.aviosys.com)

IP MOTOR

GPIO

- [Set Motor](#)

System

- [Change Password](#)
- [Setup](#)
- [Firmware Update](#)

Motor Control

Motor	STEP	Timer	Direct
NO. 1	<input type="text" value="0"/>	<input type="text" value="0"/> (1/100 Sec)	<input type="radio"/> Left <input checked="" type="radio"/> Right

Web control operation of IP MOTOR 9203

1. Control the rotation of motor

Fill the blank with proper number, and click **apply** button. IP MOTOR 9203 can control three parameters of stepper motor: left/right rotation, rotation step, rotation speed.

* Filling in the **STEP** blank with proper number, you can control the rotation step of stepper motor.

Total rotation angles = rotation step x step angle of stepper motor

(The step angle of our stepper motor is 7.5°)

Note : If you fill in it with number 0, it means the stepper motor will have been kept rotating all the time.

* Filling in the **TIMER** blank with proper number, you can control the speed of rotation. The unit of **TIMER** is 0.01 second. If you fill in it with number 5, it means the stepper motor run a rotation

angle every 0.05 second. If you fill in it with number 2, it means the stepper motor run a rotation angle every 0.02 second.

* Selecting **Left** or **Right** in the **Direct** blank, you can choose the rotation direction.

* Click "Apply" after the parameter setting finish , the motor will start rotating .

2. Stop the unfinished rotation task

Having finished setting the parameter and click apply button, the stepper motor will start running. You can stop the unfinished rotation by clicking the **cancel** or **reset** button.

* After you click **cancel** button, the stepper motor will stop but the parameter you set will be saved. You can click **apply** button to make the stepper motor running again.

* After you click **reset** button, the stepper motor will stop and the parameter you set will be cleared. You need to set the parameters again and click **apply** button to make the stepper motor running again.

Setting the password for 9203

Click the **change password** option at the left window and you can enter the change password page. Follow the instructions, fill in the old password and new password, then click the **apply** button to confirm.



Setting the IP address for 9203

1. Setting a fixed IP address for IP Power 9202.

Click the **setup** option in the left side of the window and you can enter the setting web page. Then follow the instructions fill in the new IP address, mask, and gateway for IP Sensor 9201, disable the DHCP service, click the **submit** button to confirm.

IP Motor
(www.aviosys.com)

IP MOTOR

GPIO

- [Set Motor](#)

System

- [Change Password](#)
- [Setup](#)
- [Firmware Update](#)

System Configuration

Set Network

IP Address: 192 . 168 . 100 . 100 : 80

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 192 . 168 . 0 . 1

DHCP Client Enable Disable

Set Controlled Device

Connect Client Divide Light Motor

Controlled IP Address: 255 . 255 . 255 . 255

Product Name: IP Motor 9203-E

Firmware Version: Version 0.96

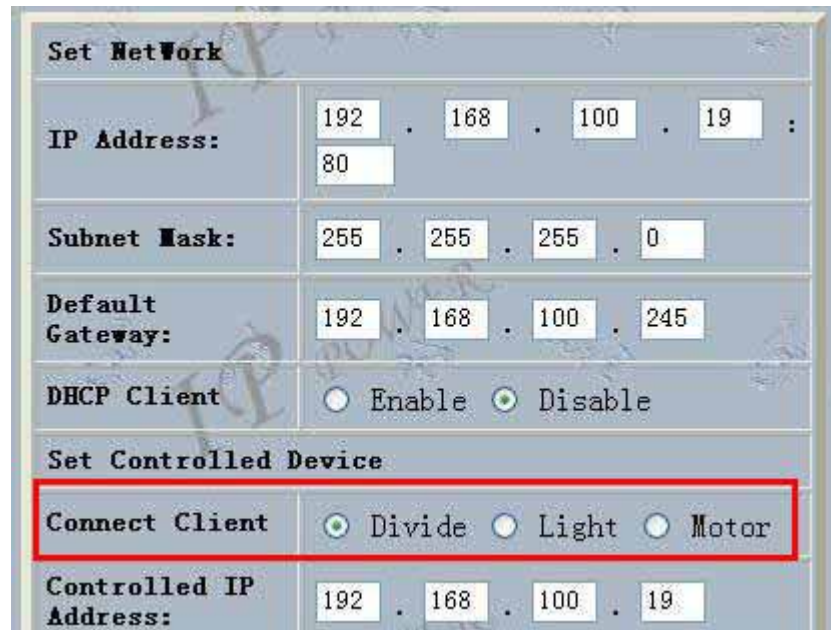
Release Version: 1.03 2005/03/11

Submit Cancel

Notice :

- 1)The format of IP Address : xxx.xxx.xxx.xxx: yyyy , the port range of yyyy is 1~32767.
- 2) The range of Subnet Mask is xxx.xxx.xxx.0 ~ xxx.xxx.xxx.254.
- 3) If disable DHCP , you can set TCP Port and Default Gateway ; the default port of DHCP Enable is xxx.xxx.xxx.xxx:80 , and the Default Gateway is supply by server .
- 4) If use the port other than 80 , you need to key full address <http://xxx.xxx.xxx.xxx:yyyyy> in IE/ Netscape , or use the attached program IPeditV3.exe to login.

Special Hardware Inter-Control - 92XX series : Use 9201 / 9212 (DI part) to control (IP Power 9212 & 9202 / IP Sensor 9201 / IP Motor 9203)



1. 92XX series Inter-Control function : Use DI (Digital Input) sensor device as main controller A (Like 9212 or 9201) to controlled device B (like 9212 / 9202 / 9203) .

Correspondance connectors :

Main Controller					
9212	IN 1	IN 3	IN 6	IN 8	IN 3 + IN 6
Controlled device					
9202	IN 1	IN 2	IN 3	IN 4	X
9212	IN 1	IN 3	IN 6	IN 8	X
9203	Keep turn left	Turn left-1step	Turn left-1step	Keep turn left	STOP

Main Controller					
9201	IN 1	IN 2	IN 3	IN 4	IN 1 + IN 3
Controlled device					
9202	IN 1	IN 2	IN 3	IN 4	X
9212	IN 1	IN 3	IN 6	IN 8	X
9203	Keep turn left	Turn left-1step	Turn left-1step	Keep turn left	STOP

2. Connect Client setup :
 - A. Divide : this device word separate ly and do not use Inter-Control
 - B. Light : This device can control 9202 / 9212 (IP Power) - by change the default setting of : Normal close or normal open
 - C. Motor : This device can control 9203(IP Motor) –control the tdirection of turning..
3. Controlled IP Address: Setting the Ip Address of controlled device .

In Inter - control mode when transfer ,. the Out Light(P6.1/P6.2) will always on , if the maincontroller freeze the Out Light P6.1 is always on , if the controlled device freeze , the light of P6.2 is always on..

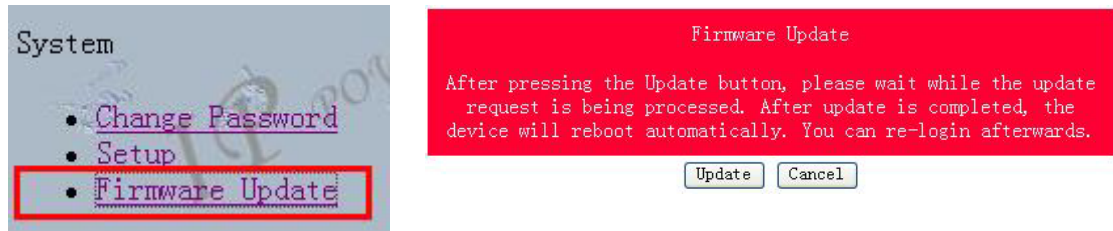
- 2-1 For example : Control Ip Motor by DI board of IP Power 9212**
Step 1 : Go to SETUP , change Connect Client and set as Motor ,
Step 2 : key in the IP address of controlled device (IP Motor)

Step 3 : Click Submit to confirm setting , whrn the count windows is off , the new login windows jump out as following pictures.

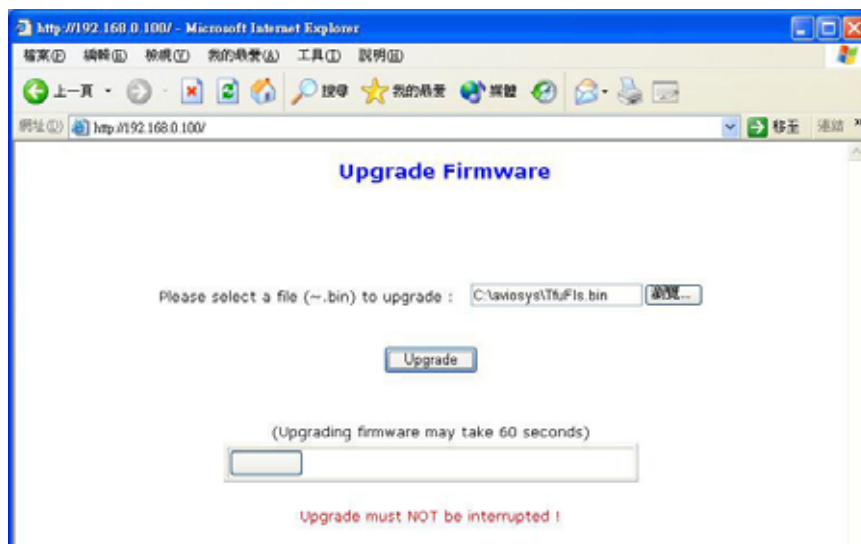
Software online update :

For wild application in different filed , IP POWER 9212 support online update .It safe time and money as developing your product .

- Step 1 Login the webpage
- Step 2 Click Firmware Update and click update



Step 3 Click browser to use latest Firmware then click Upgrade to update Firmware



Step 4 after finish update please wait some second and then re-log In



ps : If use DHCP please enable DHCP

7. Control the 9203 through SDK

You can control the 9203 through the web page, and you can also control the rotation of 9203 by program. You can announce and quote the functions provide by us in VB or VC, associate it to the other equipment to build your own control system. Insert the install disk to your CD-ROM, it will run automatically and pop up the figure below:



Click the **driver** button in the left side, and click **92xx series (VC) SDK** or **92xx series (VB) SDK** in the pulldown menu; it will pup up the figure like bellows in the right side:

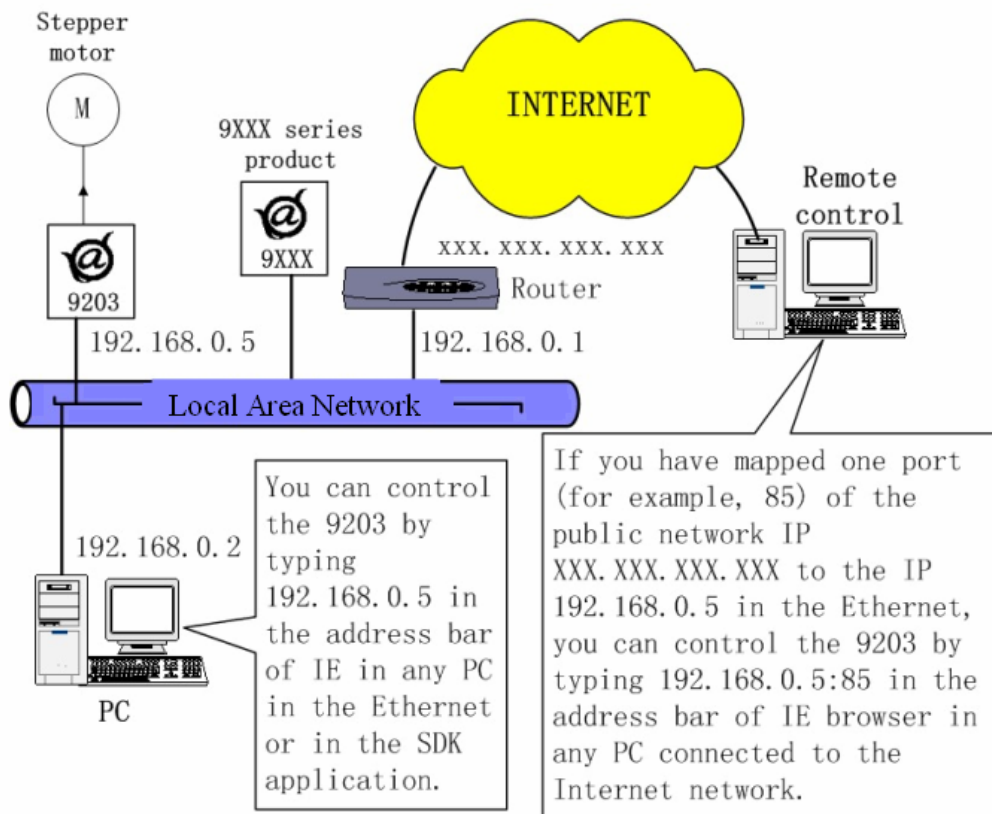


Click **application**, you can enter the VC or VB operation interface (Attention: you should use the ipedit.exe to find the IP address of 9203 and fill it to the interface of VB or VC first). Please reference the SDK Manual (Chinese) in this web page for details. You can get the root resource program by clicking **SDK (Visual C++ 6.0)** or **SDK (Visual Basic 6.0)**.

Note : When use the VC or VB interface , user of IP MOTOR 9203 only need to setup Input ip address and IP MOTOR Setting parts .

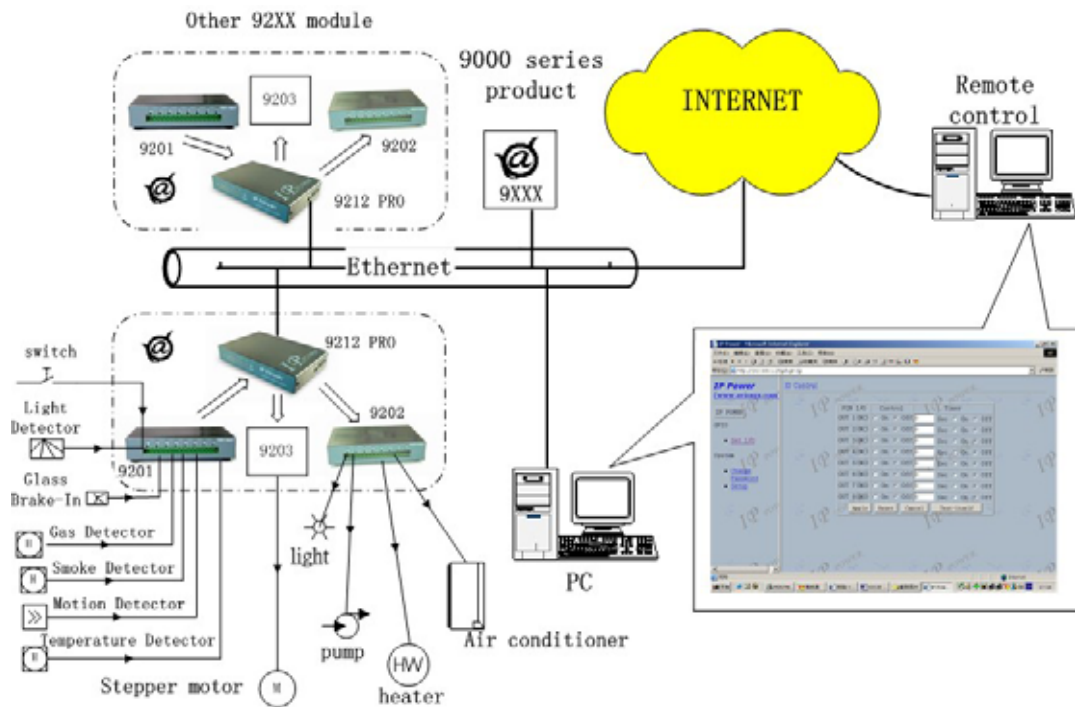
8. Setting the IP MOTOR 9203 through the Internet

After you have setting the Ethernet and router properly, you can access the IP MOTOR 9203 from the Internet. It will bring you all kinds of convenience. Distribute different IP address to 9203, mapped it to the port of router, you can visit 9203 in the Ethernet from the Internet network.



9. Associate the IP MOTOR 9203 with other IP network product

You can associate the IP MOTOR 9203 with other IP network product of AVIOSYS in your home Ethernet, such as IP Kamera 9000 network camera, IP Video 9100 network video server and IP Sensor 9201, to monitor the equipments or sensors installed in the doors or windows. This is an economic solution to achieve the network monitor, detection and control.



10. FAQ

Q1: I forgot the password and can not enter the administration page now, what can I do?

A1: Turn on the power normally, and then click the ipedit.exe program to enter the web page. Type in the username "superuser" and then press the reset button in 9200; it will back to the default settings. Now you can enter the administration page.

Q2: I cannot open the IE web page, why?

A2: Please update your IE or use the up-to-date version of Netscape browser.

Q3: Why the on/off operation can work immediately?

A3: if you operate the IP Motor 9203 in Ethernet, the operation will work immediately. If you operate it through the Internet, the response speed depends on the situation of the network. Normally the delay is not obvious because the data need to be transported during operating the IP Motor 9203 is very little.

Q4: why my stepper motor's total rotation angle is not equal to rotation step plus to the rotation angle of stepper motor?

A4: maybe the moment needed to driver your machine is too big. We suggest you use the following method to solve this problem:

- A. changes the drive ratio of the machine;
- B. increases the inertia of your machine;
- C. use high speed or bigger moment stepper motor.
- D. use low speed when the stepper motor starts, increase the speed to normal speed step by step.

Q5: how to overcome the shaking and noise when the 2 phase running in low speed?

A5: the shaking and noise is the inherent vice of 2 phase when it running in low speed. You can overcome this follow the instructions below:

- A. If the stepper motor working in the sympathetic vibration area, you can change the decelerate ratio to avoid it.
- B. Use our 9203PRO; it has the better performance, which is the most common and convenient method.
- C. Use the small step angle stepper motor.