User Manual

Thank you for selecting our products. Please read this manual before use.

C2100 TCP-RS485

Converter

KEYKING GROUP

Index

Chapter 1: Summary

1.1 Technical Summary

The C2100 is a converter between RS485/422 and TCP/IP protocols.

Technical Points:

1. TCP: 10-100M Ethernet interface, the distance to a switch or HUB is up to 100 meters.
2. RS485/422: 110bps~230400Kbps Baud Rate.
3. Setting Parameter: Setting through internet browser.
4. RS485 Output: Can support up to 127 terminals and up to 1200 meters (based on 9600Bps).
5. Dual Mode:

- TCP Server, C2100 will wait for the link command from Host (for example: a PC).
- TCP Client, C2100 will look for the Host (for example: a PC), and send link command to the Host.

Applications:

Access Control, T&A, POS, Car Parking, Power Station, Data Switch.

1.2 Features

- Work Mode: TCP Sever or TCP Client
- Power Supply: DC9V, 500ma
- Speed: 10 -100M
- Speed of COM Port: 110—230400bps
- Communication: RS485/RS422
- Ethernet Socket: RJ45 based on TCP/IP
- MCU: ARM7
- Work Environment: Temperature: -20℃--70℃, Humidity :5%---95%.
- Size: L90mm×W83mm×20mm

1.3 LEDs and Interface

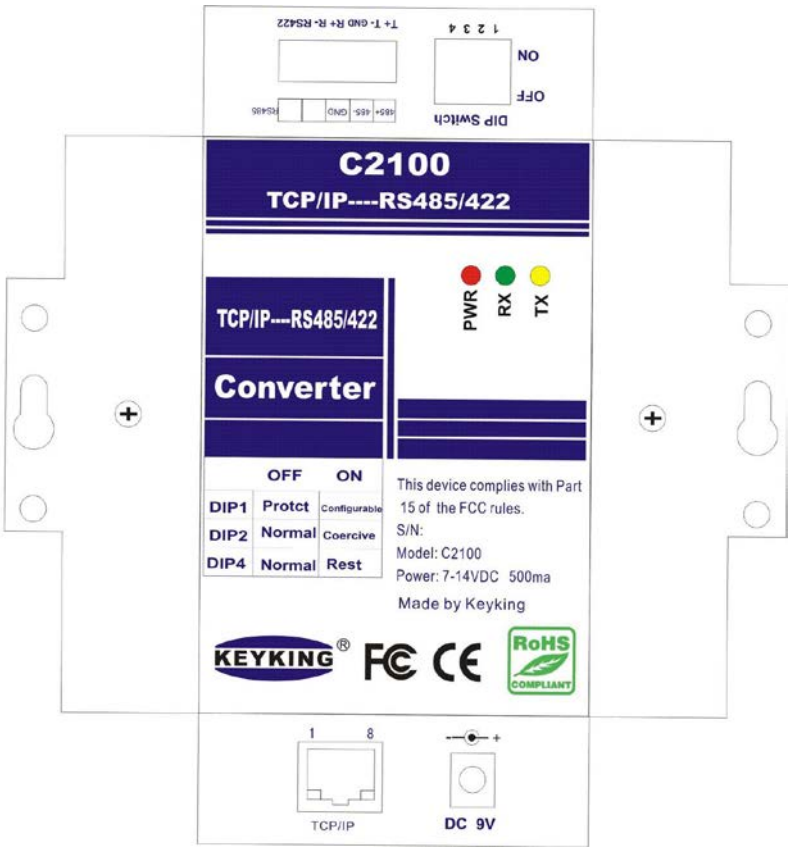


Image #1- 1 C2100 Converter Surface

1.3.1 LED for Communications

PWR: LED for Power Supply,

RX: Receiving Status LED,

TX: Transmitting Status LED.

1.3.2 Ethernet Interface

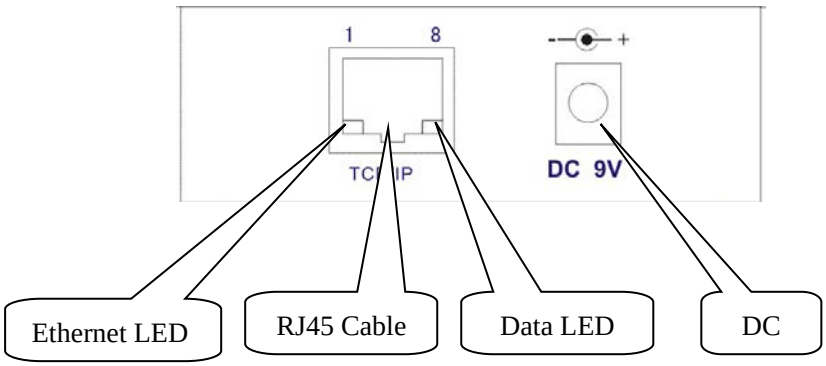


Image #1-2

RJ45 Cable: RJ45 socket.

Ethernet LED: When the cable is connected between the C2100 and a Switch HUB or PC, the Ethernet ID will be lit.

Data LED: When the cable is connected between the C2100 and a Switch HUB or PC, the Data LED will flash.

1.3.3 Power Supply

DC 9V: the Power Supply should be 7~14VDC with a current capacity exceeding 500ma.

1.3.4 DIP Switch

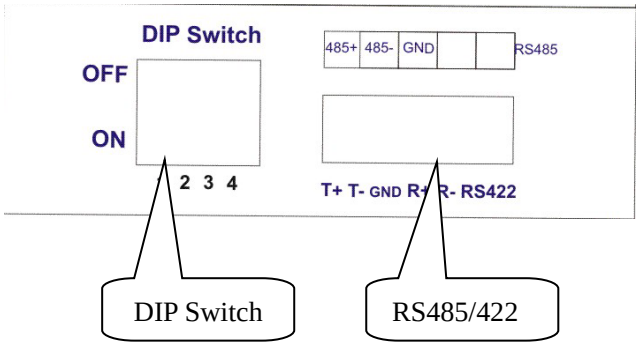


Image #1-3

Switch	State	Function Description	Detail
DIP 1	OFF	Write Protect	Parameters including Password, IP, Host IP cannot be changed.
	ON	Configurable, Writeable	All parameters can be changed.
DIP 2	OFF	Normal	
	ON	Force the IP of converter to the default IP 10.1.1.10	When the IP address of the C2100 is not known, switch DIP2 to on. The IP address will default to 10.0.0.10, and the password will default to “keyking”
DIP 3	OFF	Disable WDT	
	ON	Enable WDT, more stable	Normally ON.
DIP 4	OFF	Normal	Normally OFF
	ON	Reset the converter	Turn DIP4 ON for a second to reset

Sheet 1-1

DIP Switch Default Setting (Default Setting):

Switch	State	Description
DIP 1	ON	Configurable, Writeable
DIP 2	OFF	Normal
DIP 3	ON	WDT is enabled
DIP 4	OFF	Normal

Sheet 1-2

DIP Switch Normal Setting (Normal Operating Conditions):

Switch	State	Description
DIP 1	OFF	Write Protect
DIP 2	OFF	Normal
DIP 3	ON	WDT is Enabled
DIP 4	OFF	Normal

Sheet 1-3

1.4.5 Communication Interface

RS485/422: RS485/422 Interface

Pin	RS485	RS422
1	485-	T-
2	458+	T+
3	GND	GND
4		R+
5		R-

Sheet 1-4

Chapter 2: Network Diagrams

2.1 Network Diagram

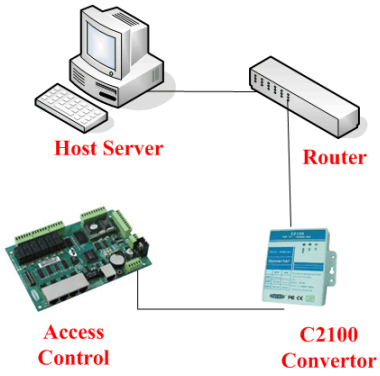


Image #2-1 C2100 Network Diagram

2.2 Wiring

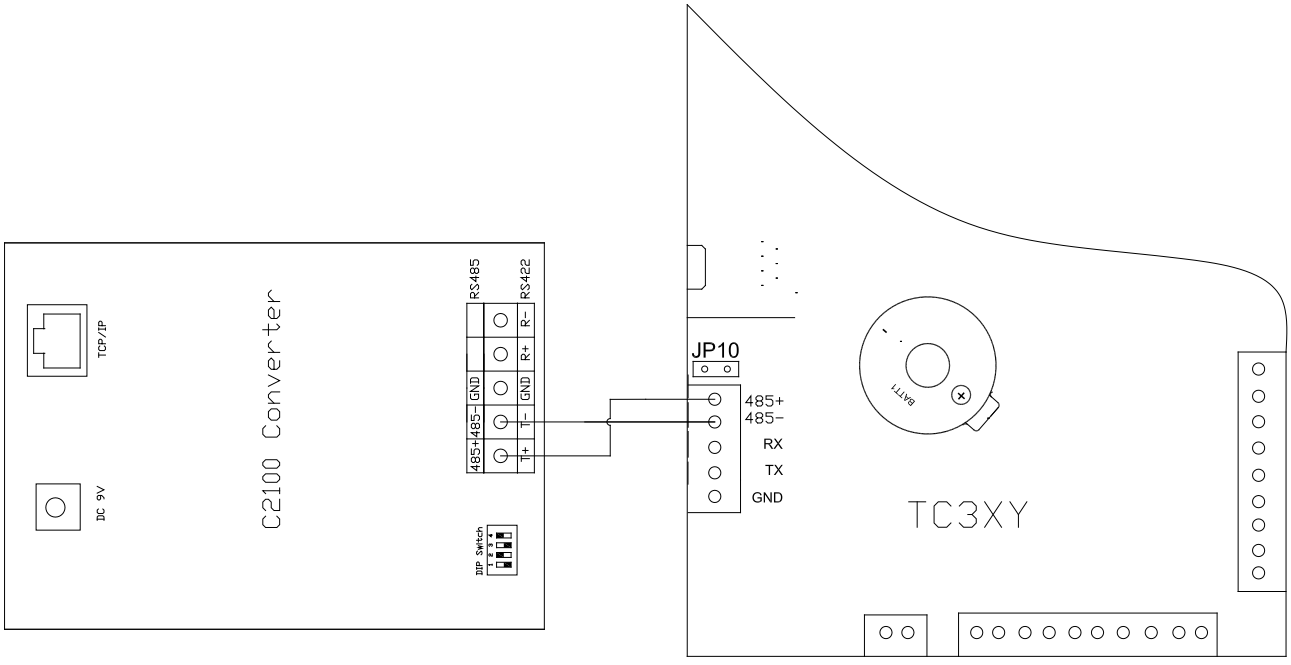


Image #2-2 C2100 wiring diagram with TC3XY

Please connect the wires as per the above diagram and below description.

“C2100: 485+”----------”TC3XY:485+”

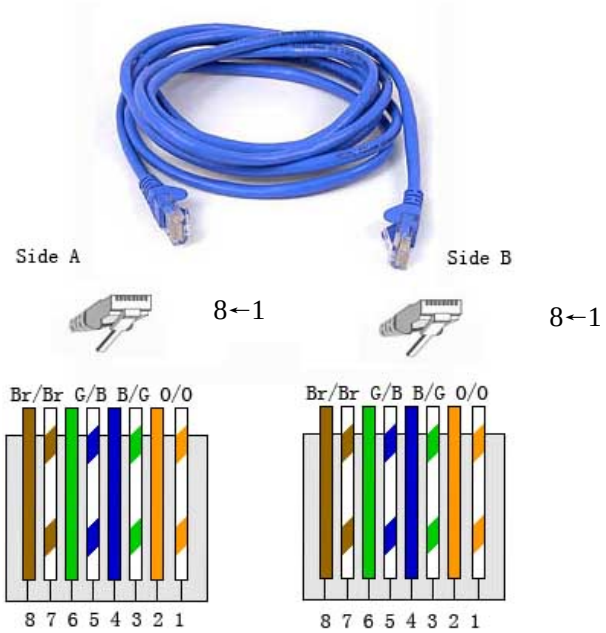
“C2100: 485”----------”TC3XY:485-”

2.2 Cable

The cable between the C2100 and PC or Switch HUB can be a crossover or straight through cable.

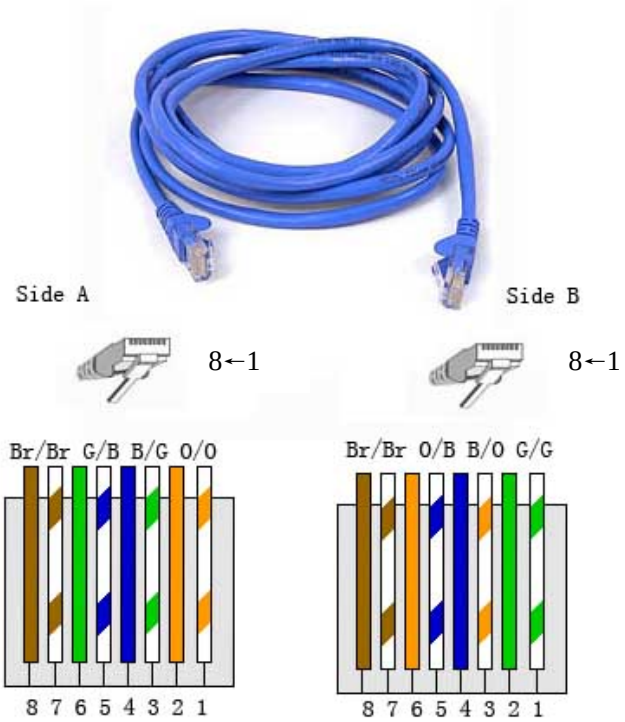
2.2.1 Cable with Switch HUB (Normal Straight Through Cable)

Image #2-3 C2100 Straight through cable for use with Switch or HUB



2.2.2 Direct Connect Cable with PC (Crossover Cable)

Image #2-4 C2100 crossover cable with use with PC



Chapter 3: Browser Settings

3.1 Diagram

Prior to installation please ensure either one of the following:

- Only connect 1 x C2100 converter in this network.
- If connecting multiple C2100 converters they must have different fixed IP addresses.
- Connect the C2100 to a PC directly, as per the image below.

Image #3-1

3.2 Logon

C2100 Parameter:

Default IP: 192.168.1.100; The default IP address is 192.168.1.100.

Forced IP: 10.1.1.10; Set DP2 to the ON position.

Prior to running the browser you need to know the following:

- The C2100 IP Address, ie 192.168.1.100.
- That the current IP of the C2100 converter is in the same subnet as the PC that will be used to undertake the setting procedure, ie 192.168.1.X.
- If the current IP of C2100 is unknown, please refer to chapter 4.

Open Internet Explorer browser and type the current IP address of the C2100, for example: http://192.168.1.100. The following image will appear.

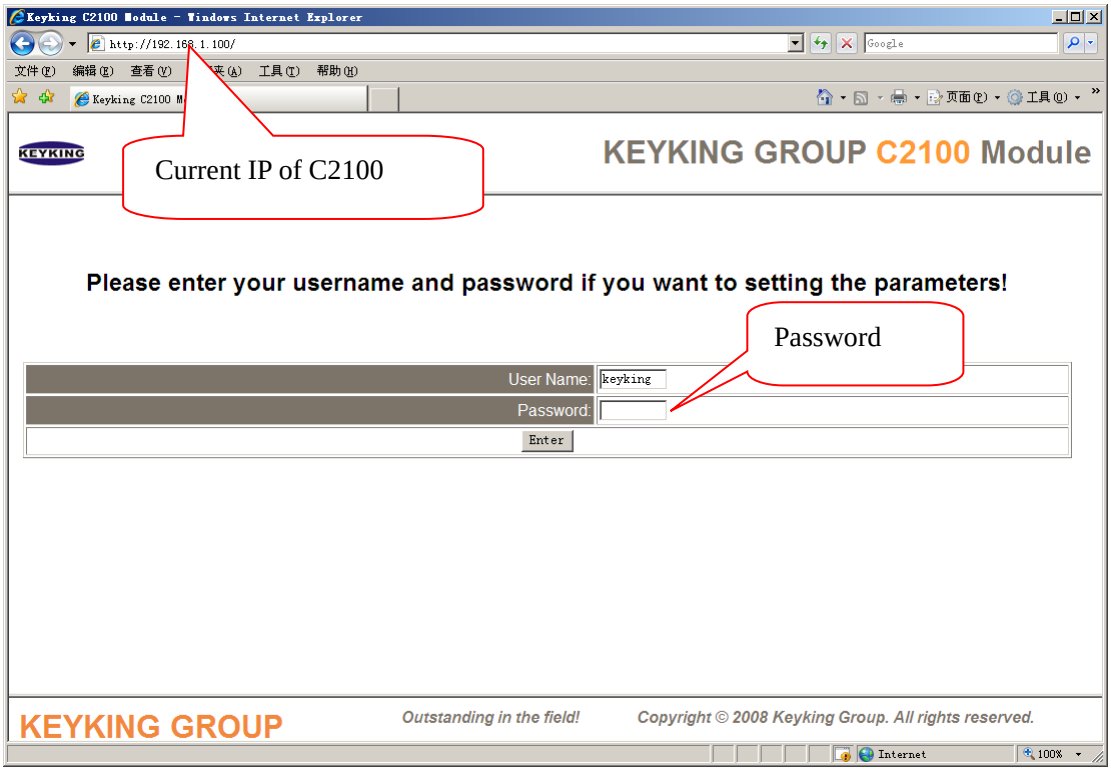


Image #3-2

After the password is entered (default password is “keyking” without capital letter), click ”Enter” to go to the screen below.

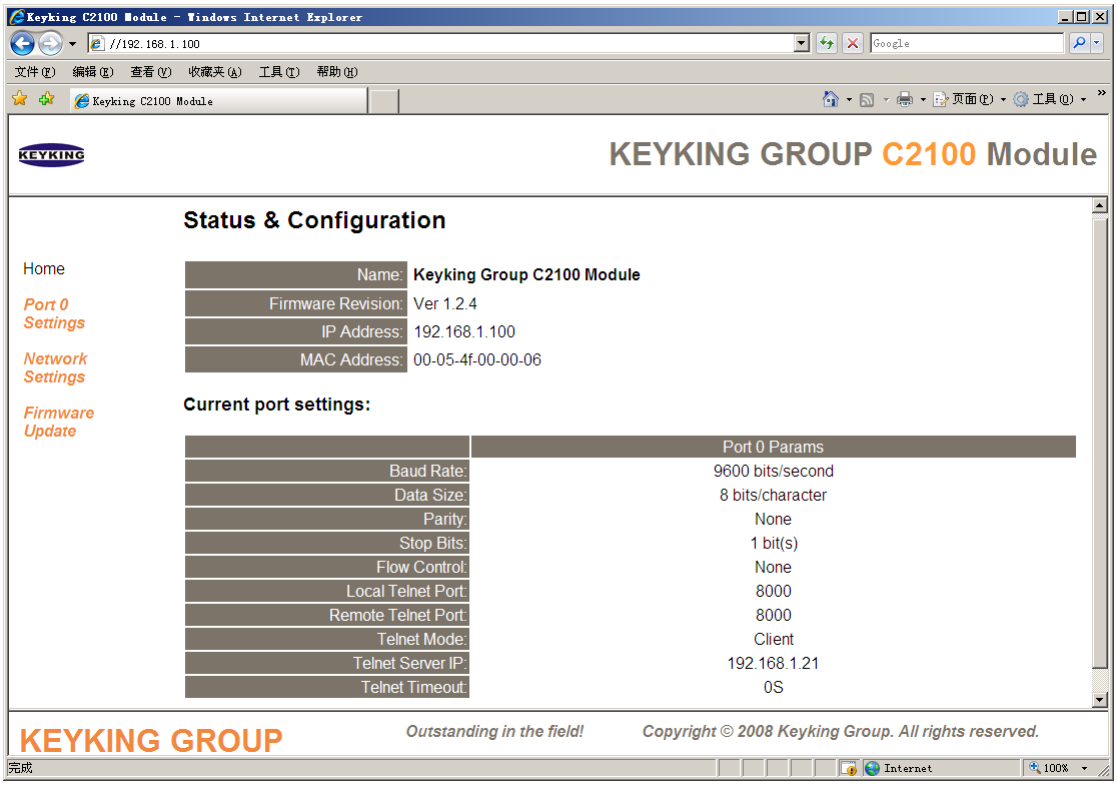


Image #3-3

There are 4 navigation menus on the left hand side of the screen. These are:

“HOME”: Homepage.

“Port0 Settings”: Serial COM Port Parameters.

“Network Settings”: Network Parameters.

“Firmware Update”: Firmware update for C2100 converter.

3.3 Homepage

- **Status & Configuration**

  Name: Converter name, like **Keyking Group C2100 Module;**

  Firmware Revision: C2100firmware version.

  IP Address: The current C2100 IP, ie 192.168.1.100 (default value).

  MAC Address: Every C2100 has a unique fixed Mac Address.

- **Current Port Settings**

  Baud Rate: Default value is 9600bps

  Data Size: Data Length, default value is 8 bits

  Parity: Odd/Even Parity, default is None.

  Stop Bits: Default is 1bit

  Flow Control: Default is None.

  Local Telnet Port: The local Port of C2100, default value is 8000

  Remote Telnet Port: The Host Port, default value is 8000

  Telnet Mode: Work Mode, TCP/IP or Client, default is Client.

  Telnet Server IP: Host IP.

  Telnet Timeout: Default is 0.

3.4 COM Port Parameters

Click "**Port0 Settings"** in image #3-3, then image #3-4 will appear.

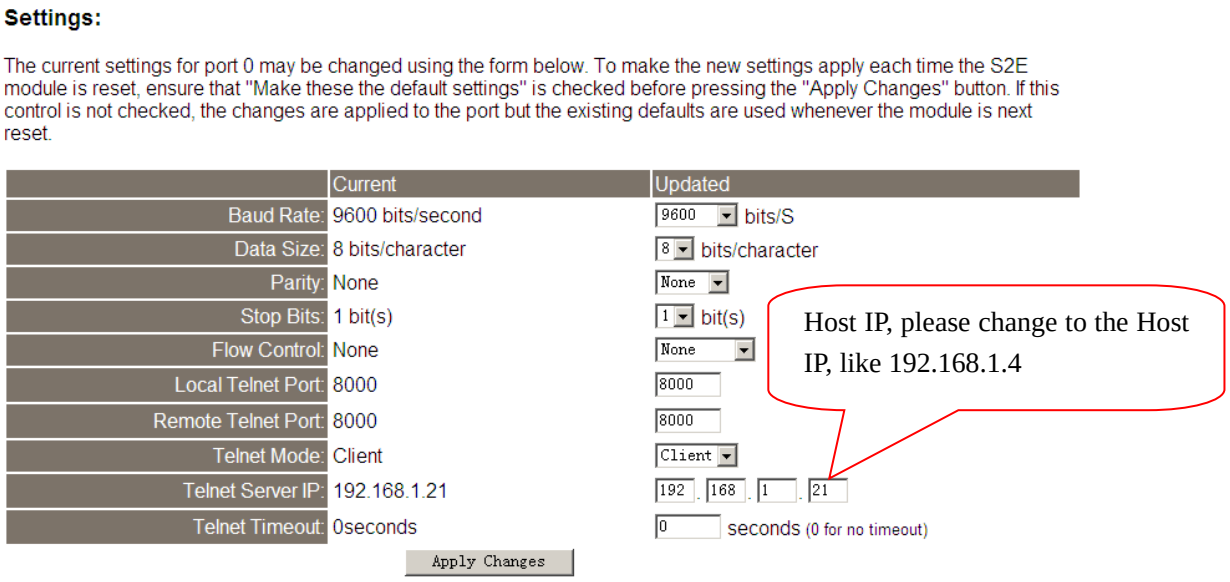


Image #3-4

3.4.1 Port0 Setting (Serial COM Port):

Baud Rate: Default value is 9600bps

Data Size: Data Length, default value is 8 bits

Parity: Odd/Even Parity, default is None.

Stop Bits: Default is 1bit

Flow Control: Default is None.

3.4.2 Port Parameters (TCP Port)

Local Telnet Port: The local Port of C2100, default value is 8000

Remote Telnet Port: The Host Port, default value is 8000

Telnet Mode: Work Mode, TCP/IP or Client, default is Client.

- TCP Server, C2100 will wait for the link command from the Host (for example: a PC).
- TCP Client, C2100 will look for the Host (for example: a PC), and send a link command to the Host. "TCP Client" mode use is recommended

Telnet Server IP: Host IP.

Telnet Timeout: Default is 0.

"Apply Changes": Click Apply Changes to apply all changes.

3.5 Network Settings

Click "**Network Settings"** in image #3-3, then image #2-5 will appear.

3.5.1 IP Address Selection

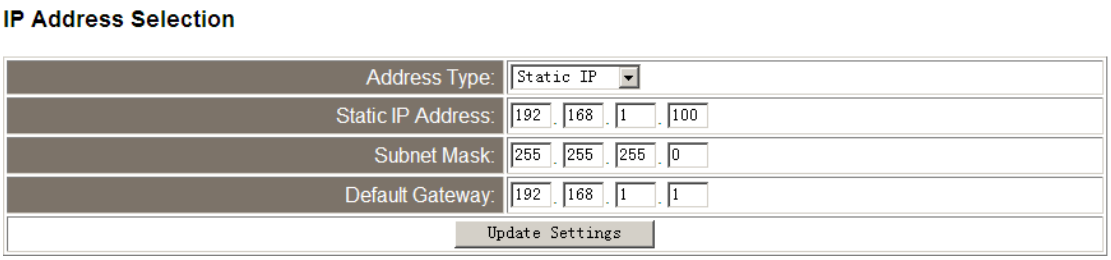


image #3-5

Address Type:

"DHCP/Auto IP" : Dynamic IP, C2100 converter will get an IP by DHCP of router. This mode of operation is not recommended

"Static IP" : Fixed IP.

Static IP address: IP Address of C2100 converter, eg 192.168.1.100;

Subnet Mask: for example: 255.255.255.0;

Default Gateway: Gateway of this subnet, eg 192.168.1.1.

"Update Settings": After any parameters have been changed, please click "Update Settings" to save the configuration.

3.5.2 User Name and Password

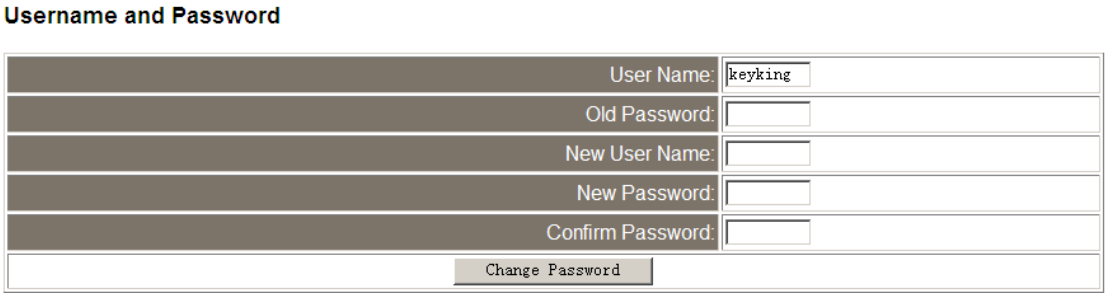


Image #3-6

User Name:

Old Password:

New User Name:

New Password:

Confirm Password:

"Change Password": After the parameters have been changed, please click "Change Password" to save the configuration.

3.5.3 General Configuration Settings

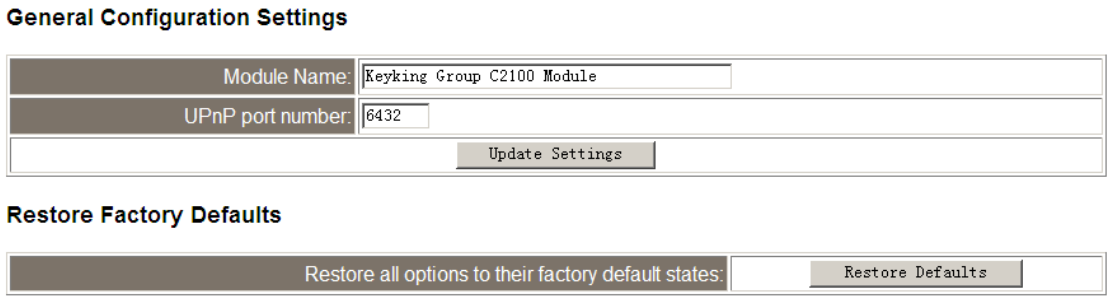


Image #3-7

Module Name: Default value is Keyking Group C2100 Module, this can be modified by the user.

UPnP Port number: Default value is 6432.

"Update Settings": After any parameters have been changed, please click "Update Settings" to save the configuration.

3.5.4 Restore Factory Defaults

Click "Restore Defaults" button, then all parameter of C2100 will go back default value.

Chapter 4: Setting Steps

If the IP of the C2100 is not known and the default IP address of 192.168.1.100 is uncertain, follow the steps below:

Prior to installation please ensure either one of the following:

- Only connect 1 x C2100 converter in this network.
- If connecting multiple C2100 converters they must have different fixed IP addresses.
- Connect the C2100 to a PC directly, as per the image below.

Image #4-1

4.1 Setting a New IP Address for the C2100

If you know the password and the IP address of the C2100, please proceed directly to Section 4.2.

1. Switch DIP1 and DIP2 to ON, DIP3 and DIP4 should be OFF.
2. Setup the IP address of the PC to 10.0.0.X, with X being any number from 1 to 254 except 10.
3. Open Windows Browser, and type http://10.0.0.10 and the following image will appear:

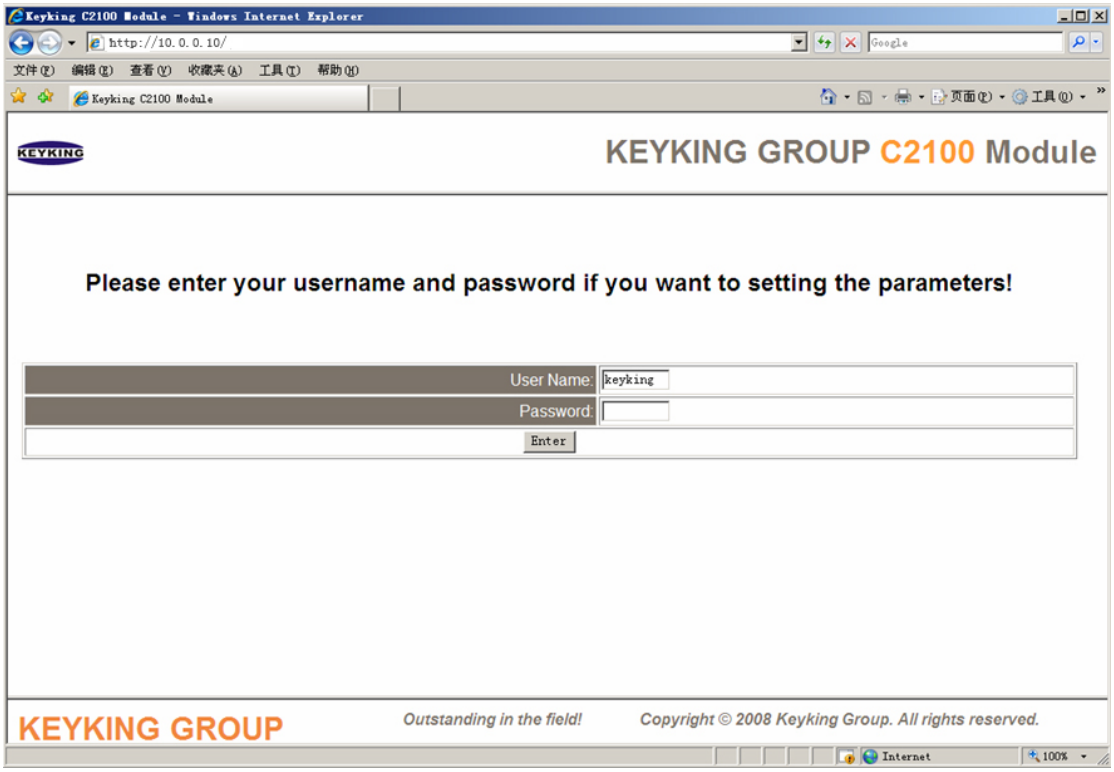


Image #4-2

4. Type the default password: keyking, and the following home page will appear:

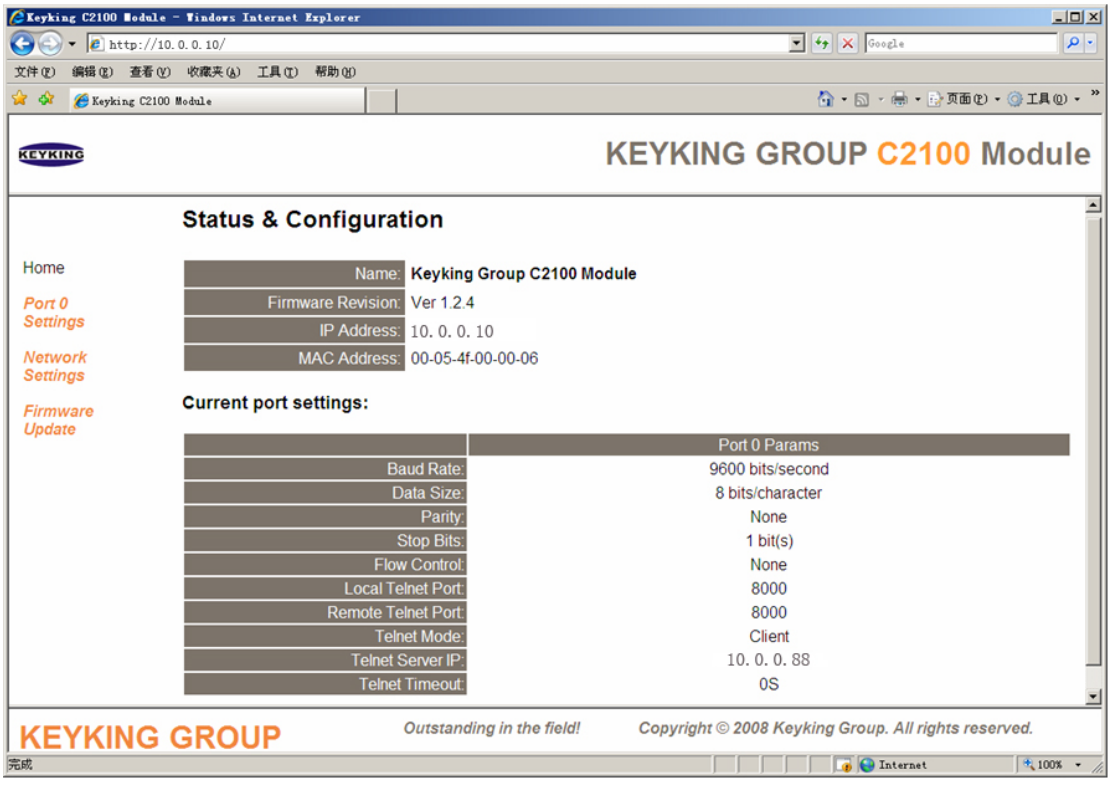


Image #4-3

5. Click “Network Setting”, and the following image will appear. Allocate the C2100 a static IP Address, for example 192.168.1.100. Then click “Update Setting”. A message will appear to say that the software “Can not find the page”.

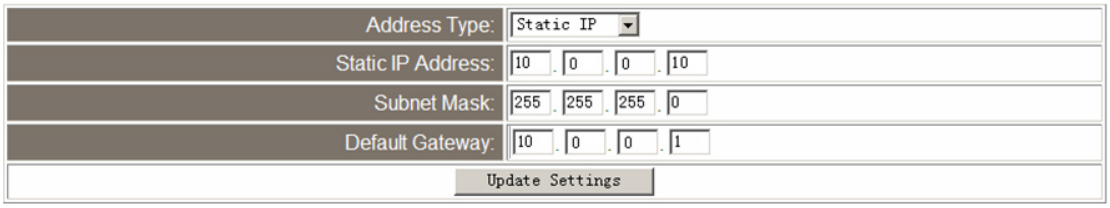


Image #4-4

6. Done.

4.2 Setting the Server IP Address

1. Switch DIP1 to ON, and DIP2 to OFF. DIP3 and DIP4 should be OFF.
2. Allocate the PC an IP address in the same subnet as the C2100. If the IP address of the C2100 is 192.168.1.100, then the PC IP address should be 192.168.1.X where X equals any number between 2 and 254 except 100 which is the same IP address as the C2100.
3. Open Windows browser, and type http://192.168.1.100. The Logon interface will appear. Click “Port0 Setting”and the following image will appear.

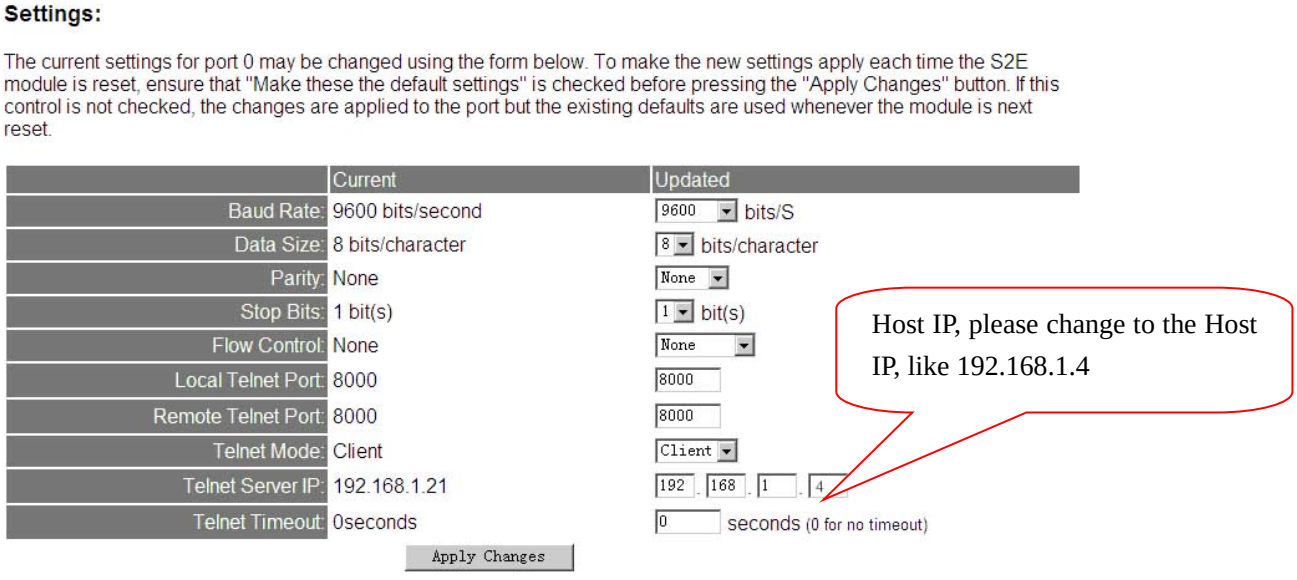
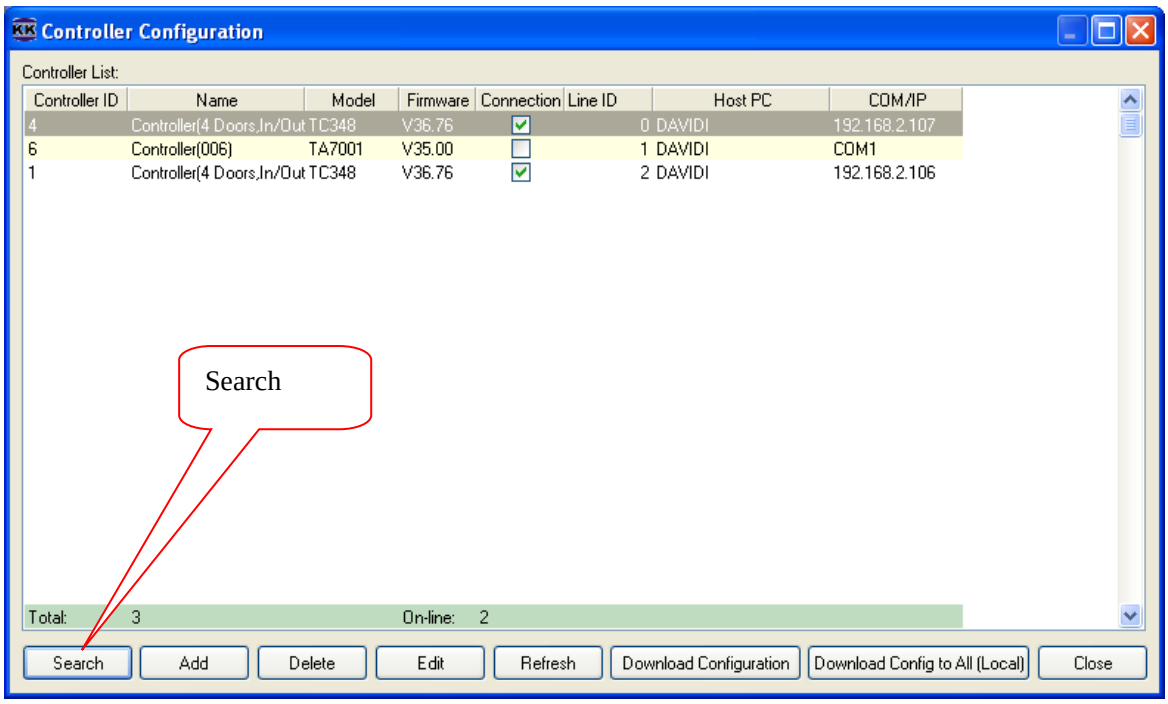


Image #4-5

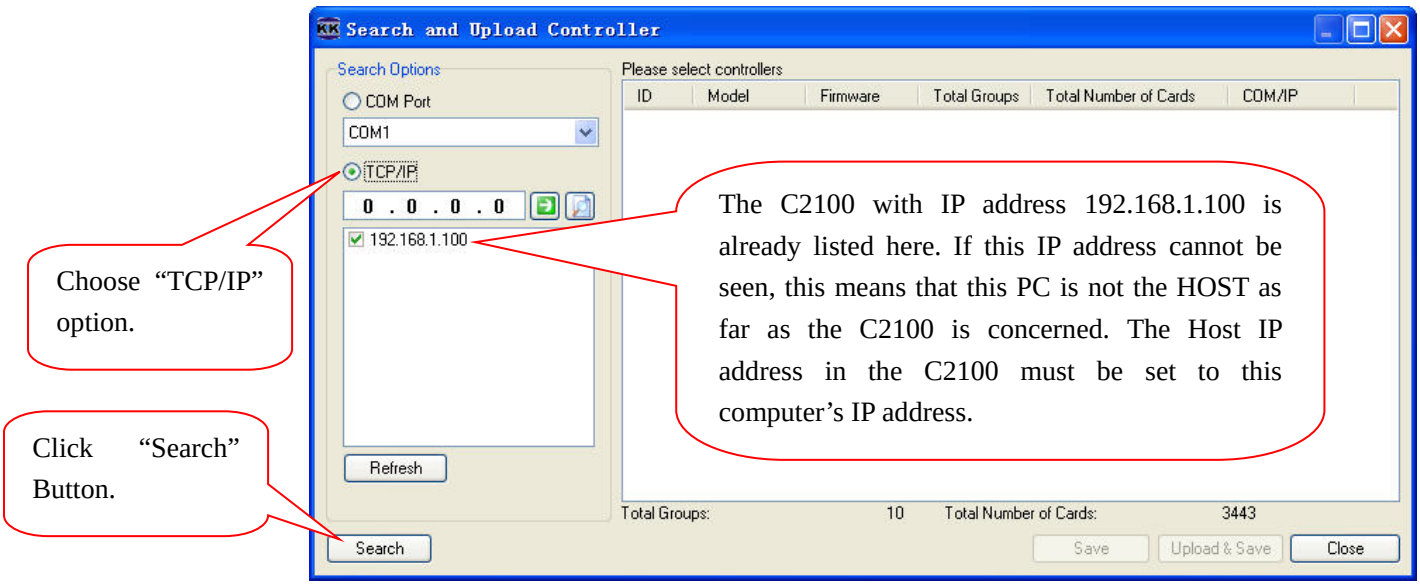
4. Type the IP address of the PC as the Host IP (Telnet Server IP), like 192.168.1.4, and click “Apply Changes”.
5. Switch DIP1 to OFF, and DIP2 to OFF. DIP3 and DIP4 should be OFF.
6. Done.

4.3 Search for the Controller by the Sphinx4 Software

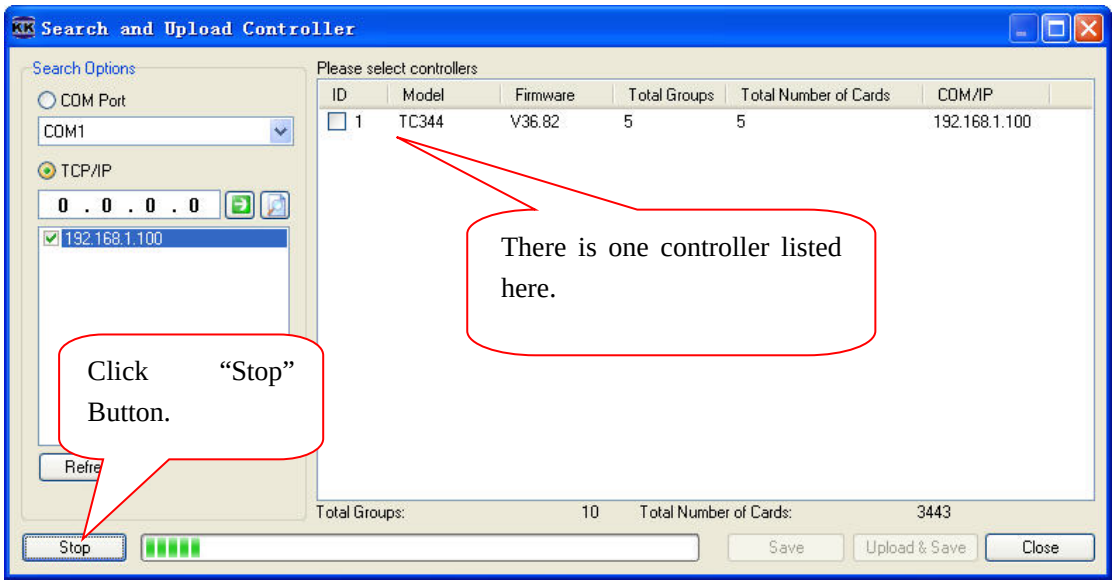
1. Run the Sphinx4 software.
2. Click Setup/Hardware/Controller Configuration and the image below will appear.



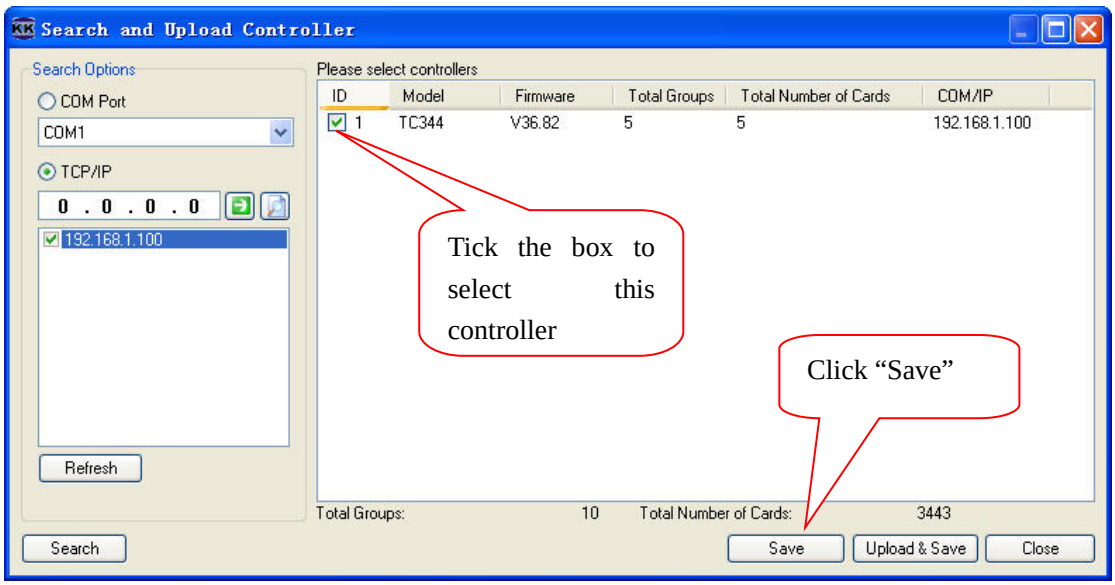
3. Click the “Search” button and the following image will appear:



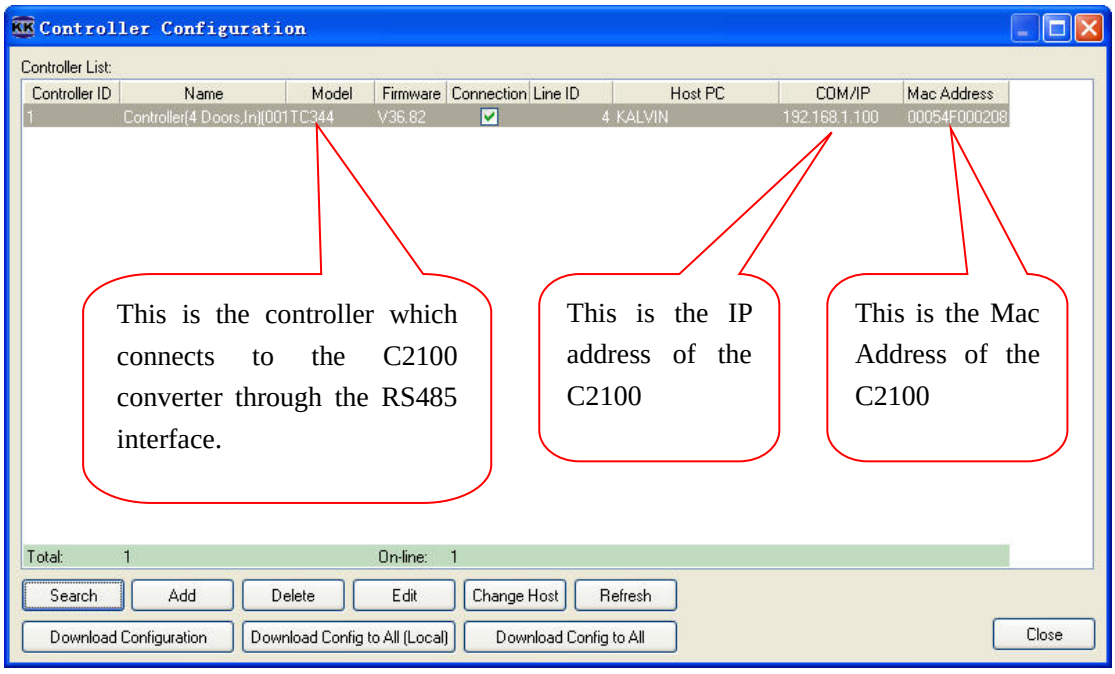
4. Choose "TCP/IP" option, and click "Search" on the above image. The following image will appear:



5. Any controllers which are connected to the C2100 converter should now be found and listed on the right hand side of the above screen. Once all the controller(s) are listed click the "Stop" button. The image below shows a single controller has been found.



6. Select the controller to be saved into the database by ticking the box then click the "Save" button. Click "Close", and the controllers will appear in the next screen.



7. Done.

Chapter 5: Remote Control based on Client

If the C2100 is to be controlled through the internet follow the steps below:

Note that the Router 1# must either:

- Have a Global fixed IP, like 124.93.56.37 or
- Supports the “Map Port” feature.

For example:

The image #5-1 gives the following parameters:

No.	Item	Value	Description
LAN 1	Host Server IP	192．168．0．2	
	Router #1 IP in LAN	192．168．0．1	
	Gateway #1	192．168．0．1	
	Router Global IP	124.93.56.37	Global Fixed IP
LAN 2	C2100 IP	192．168．1．100	
	Router #2 IP in LAN	192．168．1．1	
	Gateway #2	192．168．1．1	
	Router Global IP	Dynamic	Like 121.35.94.126

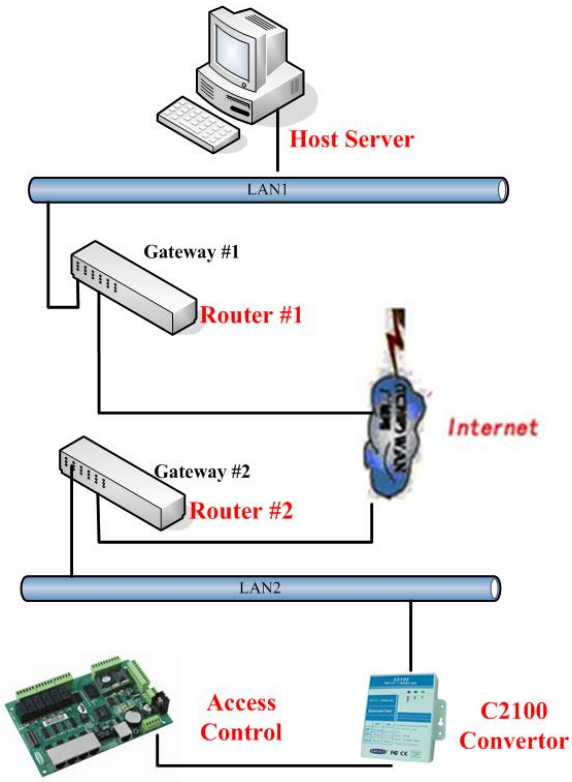


Image #5-1

5.1 Setup C2100 in LAN2

Connect the C2100 to a PC directly and setup all parameters as follows.

1. Allocate the C2100 a fixed IP, like 192.168.1.100, and setup the Gateway to 192.168.1.1.
2. Setup the Telnet Server IP to the Router #1 (eg 124.93.56.37).
3. Setup the C2100 to work under “TCP Client” mode.

5.2 Map the Port of #1 Router to Host PC

Allocate a fixed IP to the Host Server, eg 192.168.0.2, and setup the Gateway to 192.168.0.1.

With the administrator password, logon to Router #1 by typing http://192.168.0.1

1. Establish the Map function for the Host, select a free port (eg 8000) .

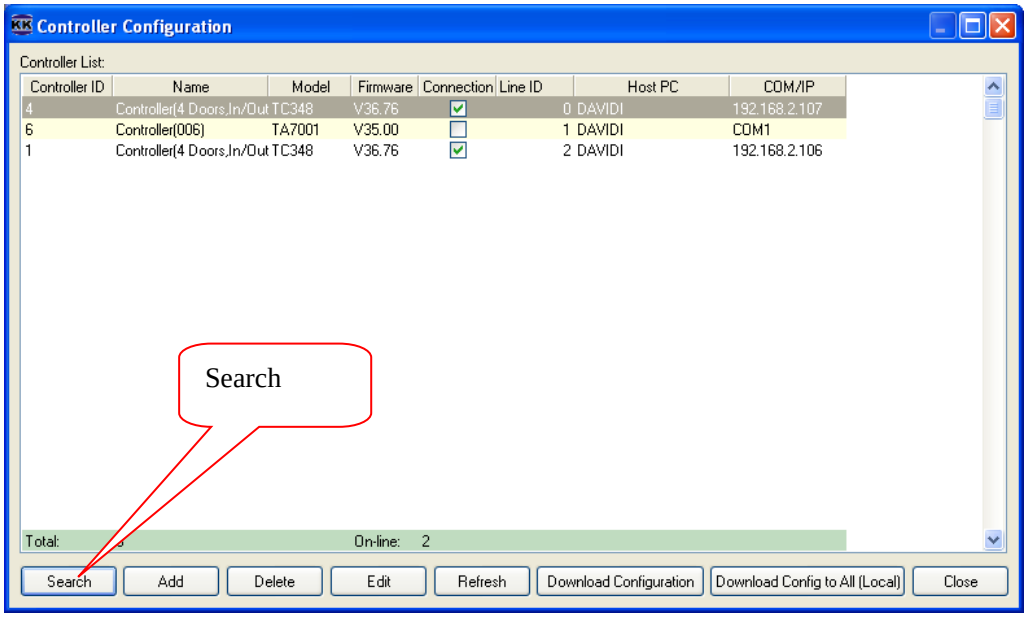
   Eg: map rule `Intranet` 192.168.0.2:8000; `Extranet8000`. protocol: TCP

2. Port #8000 cannot be occupied by another system. If port #8000 is in use then use another port like #8001.
3. Save all changes and restart the router.

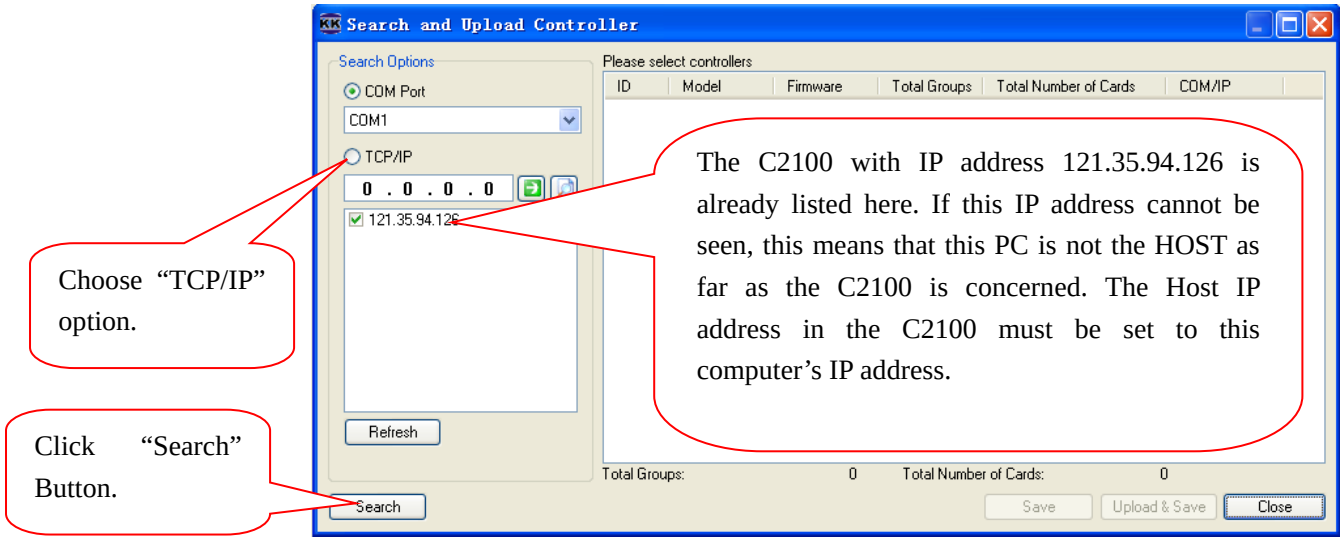
Once sections 5.1 and 5.2 have been completed then the C2100 will look for the Host server via the internet.

5.3 Search for the Controller by the Sphinx4 Software

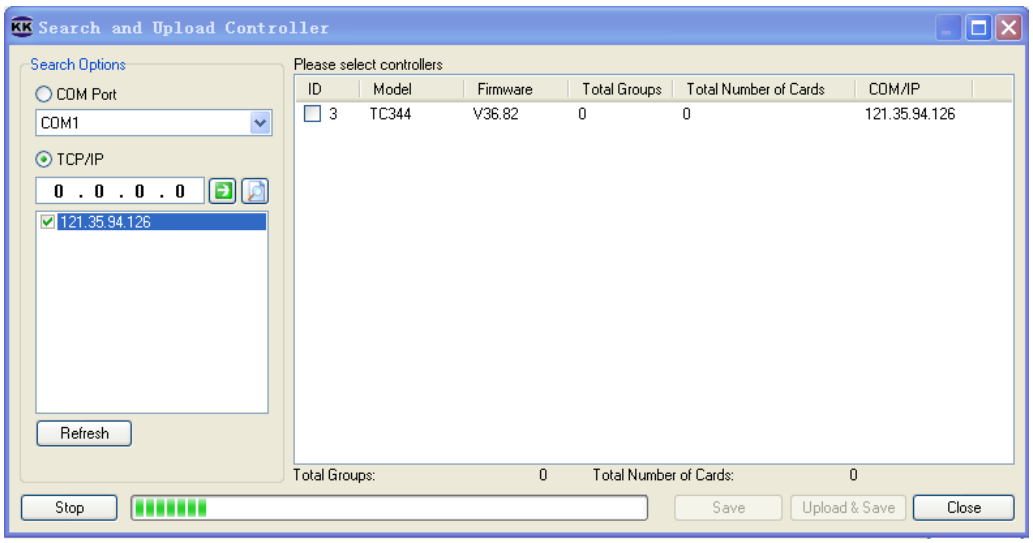
1. Run Sphinx4.
2. Click Setup/Hardware/Controller Configuration and the image below will appear.



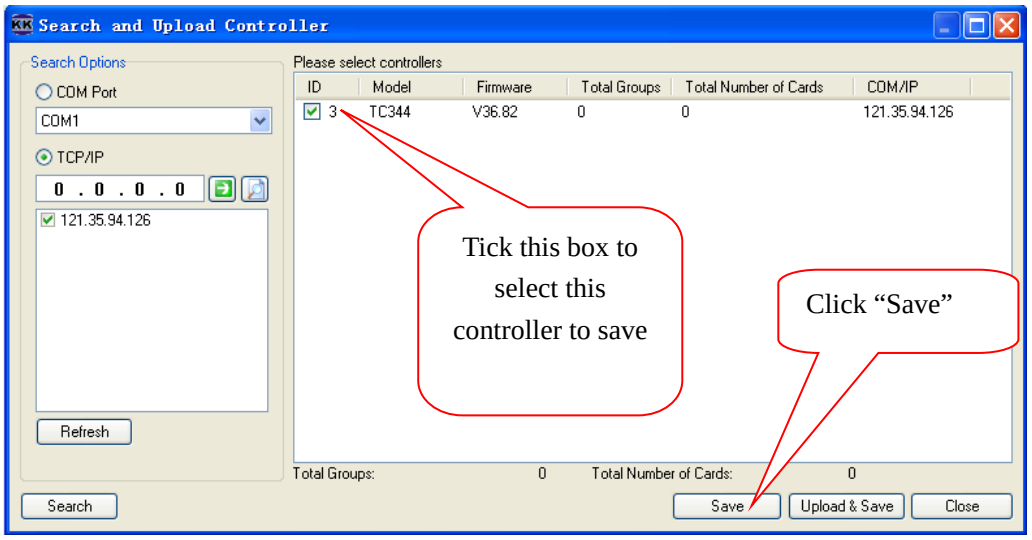
3. Click “Search” and the following image will appear.



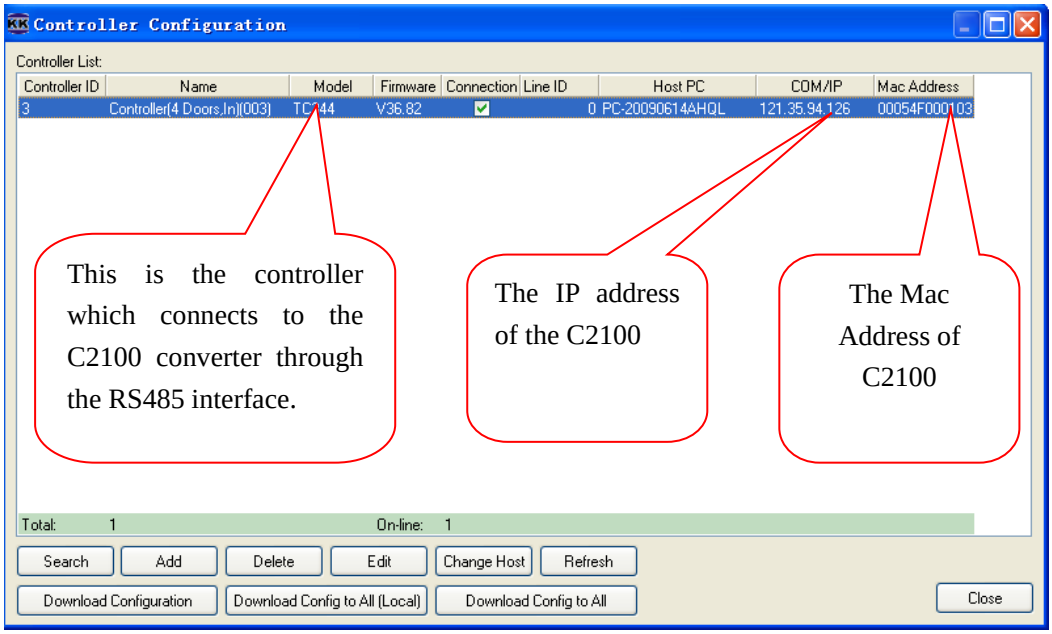
4. Choose “TCP/IP” option, and click “Search”. The following image will appear:



5. Any controllers which are connected to the C2100 converter should now be found and listed on the right hand side of the above screen. Once all the controller(s) are listed click the “Stop” button. The image below shows a single controller has been found.



6. Select the controller to be saved into the database by ticking the box then click the “Save” button. Click “Close”, and the controllers will appear in the next screen.


Controller Configuration
Controller List:
Controller ID
Name
Model
Firmware
Connection
Line ID
Host PC
COM/IP
Mac Address
3
Controller(4 Doors,In)(003)
TC444
V36.82
0
PC-20090614AHQL
121.35.94.126
00054F000103
This is the controller which connects to the C2100 converter through the RS485 interface.
The IP address of the C2100
The Mac Address of C2100
Total: 1
On-line: 1
Search
Add
Delete
Edit
Change Host
Refresh
Download Configuration
Download Config to All (Local)
Download Config to All
Close

7. Done.

Chapter 6: Remote Control based on Server

If the C2100 is to be controlled through the internet follow the steps below:

Note that the Router 2# must either:

- Have a Global fixed IP, like 121.35.94.126 or
- Supports the “Map Port” feature.

For example:

The image #6-1 gives the following parameters:

No.	Item	Value	Description
LAN 1	Host Server IP	192．168．0．2	
	Router #1 IP in LAN	192．168．0．1	
	Gateway #1	192．168．0．1	
	Router Global IP	124.93.56.37	Dynamic IP or Global Fixed IP
LAN 2	C2100 IP	192．168．1．100	
	Router #2 IP in LAN	192．168．1．1	
	Gateway #2	192．168．1．1	
	Router Global IP	121.35.94.126	Global Fixed IP

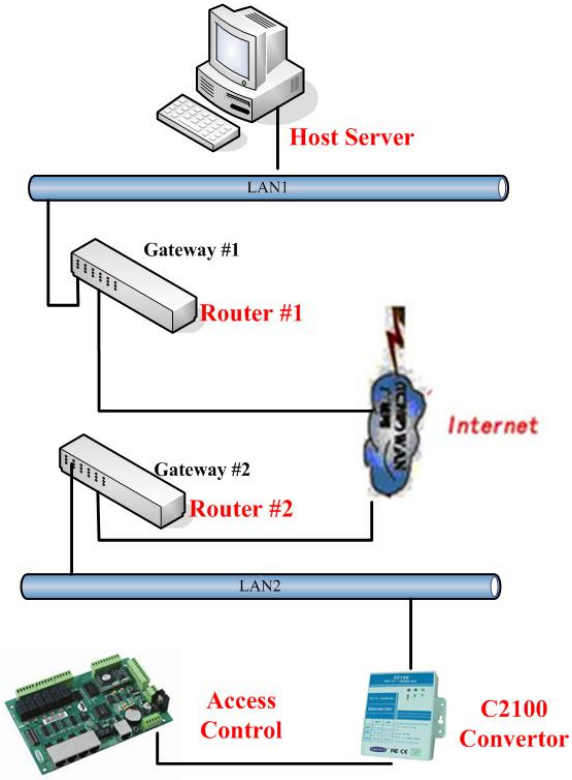


Image #6-1

6.1 Setup the C2100 in LAN2

Connect the C2100 to a PC directly and setup all parameters as follows.

1. Allocate the C2100 a fixed IP, eg 192.168.1.100, and setup the Gateway to 192.168.1.1.
2. Setup the Telnet Server IP to the Router #1 eg 124.93.56.37 .
3. Setup the C2100 to work under “TCP Server” mode.

6.2 Map the Port of #2 Router to C2100

On the C2100 location side of the internet, ADSL or a popular internet such as VPN can be used. Even though a fixed IP address for this Router is preferable, this is not mandatory as a dynamic IP address will suffice.

Using an administrator password connect to Router #2 through the Windows browser by typing http://192.168.1.1.

1. Establish the Map function for the C2100 and select a free port (eg 8000)

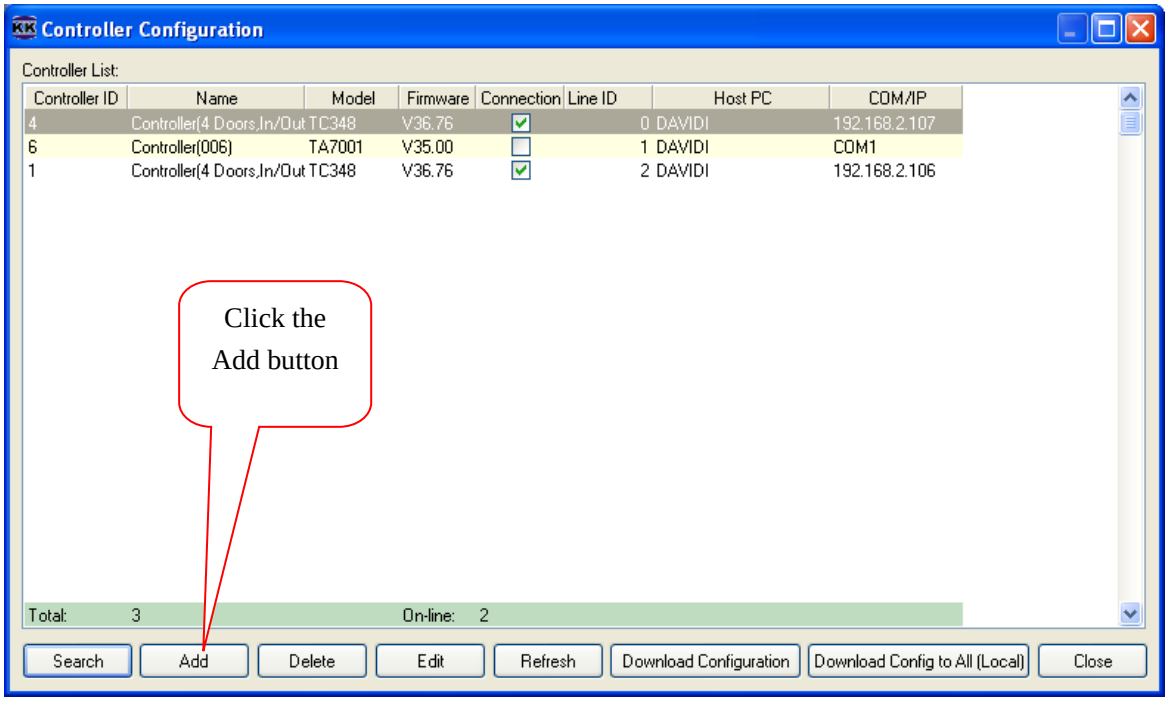
   Eg: map rule `Intranet` 192.168.1.100:8000; `Extranet8000`. protocol: TCP

Port #8000 cannot be occupied by another system. If port #8000 is in use then use another port like #8001.

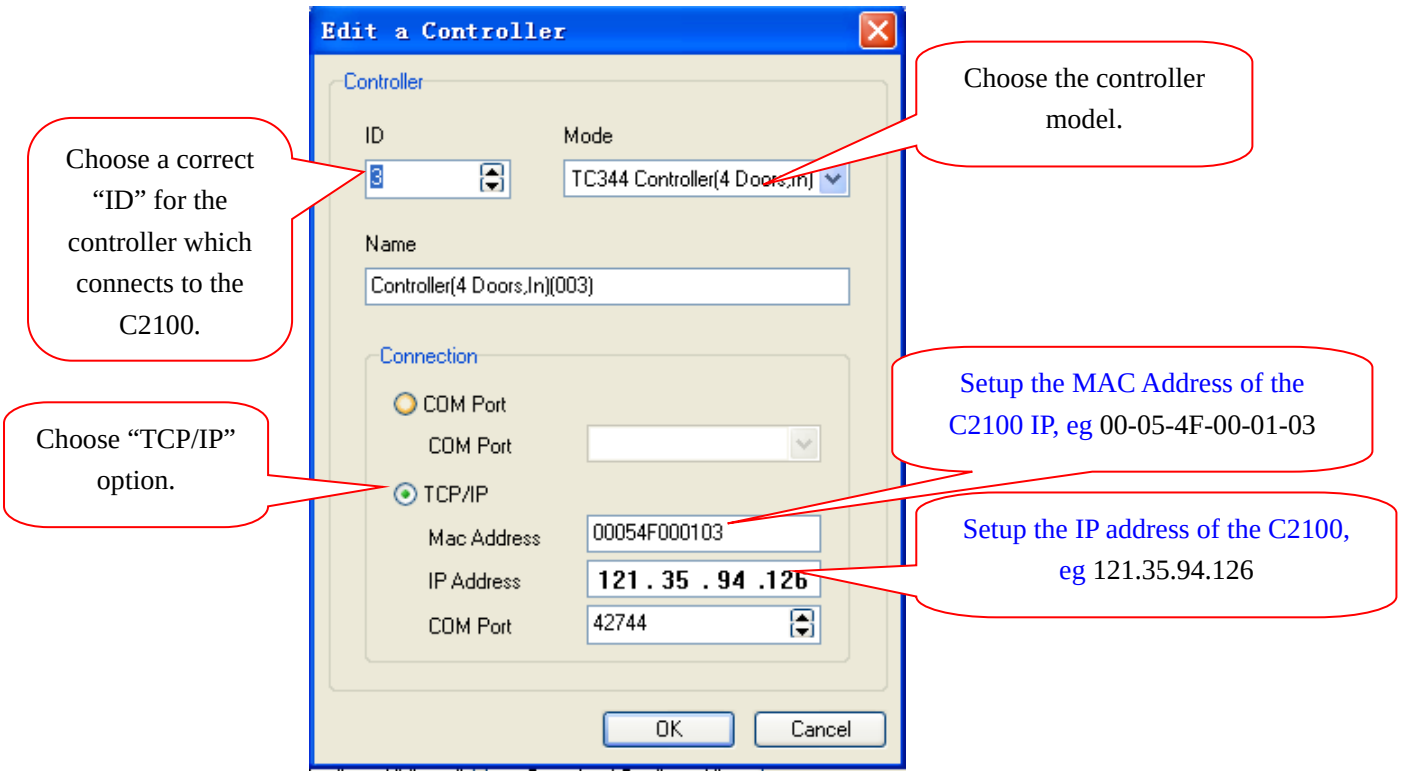
2. Save all changes and restart the router..

6.3 Adding a Controller in the Sphinx4 Software

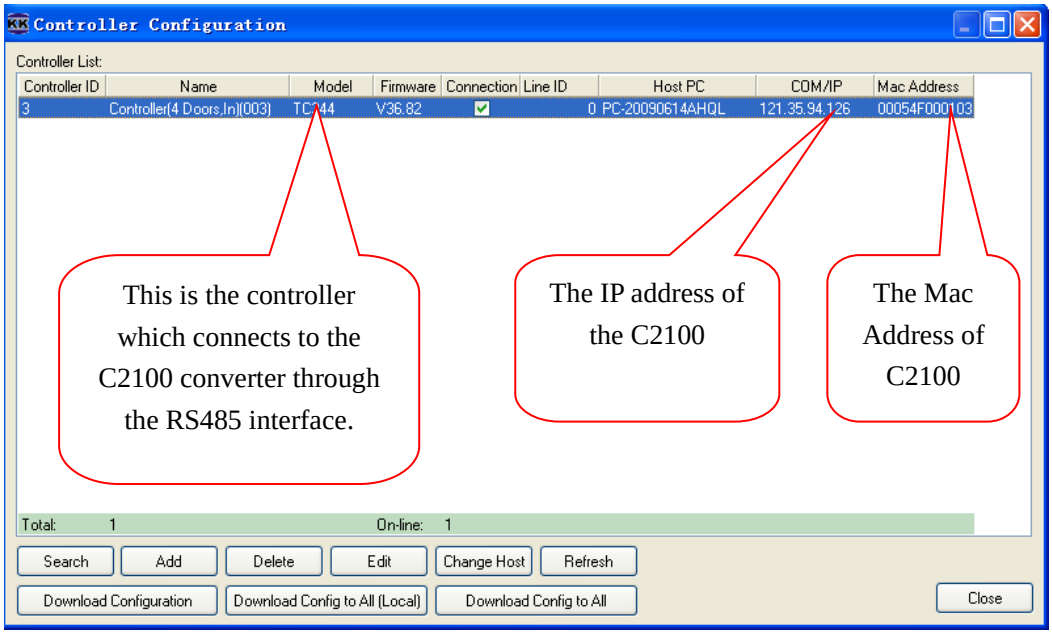
1. Run Sphinx4.
2. Click Setup/Hardware/Controller Configuration and the below image will appear.



3. Click the “Add” button and the following image will appear. Proceed as listed in the image.



4. Once the above items have been completed then click OK, and the following image will appear.



5. Done.