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Connecting. Converting. Leading!

Document Name: User Manual for SC10EK2 W, Dual Port Serial to Ethernet + Wi-Fi Converter

Introduction

SC10EK2-W Serial to Ethernet + Wi-Fi Converter providing new ways of connecting serial devices to a Wireless LAN (Wi-Fi 802.11 b/g/n). This Converter is designed to operate 2 serial ports through wireless (Wi-Fi 802.11 b/g/n) over 10/100Mbps Ethernet network. As the data is transmitted via TCP/IP protocol, data acquisition and controlling is available to go through Intranet and Internet. 2 Serial ports operate in common RS-232, RS-422 and RS-485 auto selection modes configuration.
SC10EK2-W Serial to Ethernet + Wi-Fi Converter is a high performance design composed with carefully selecting qualified components from reliable and certified sources. This operation manual will guide you to configure functions step by step.

The following topics are covered in this chapter:
Overview
Package Checklist
Product Features
Hardware Specifications

Overview

SC10EK2-W Serial to Ethernet + Wi-Fi Converter provides a perfect solution to make your industrial Serial devices connect to Internet instantly via Wireless and Ethernet LAN. SC10EK2-W embedded with MT7688AN MIPS chipset makes it become the ideal device for transmitting the data from your RS-232 or RS-422/485 Serial interface devices, such as PLCs, various Meters and/or Sensors to an IP-based Wi-Fi LAN, and making it possible for your software to access Serial interface devices anywhere and anytime.
SC10EK2-W providing TCP Server Mode, TCP Client Mode, and UDP Mode for selection.
It supports manual configuration via web browser and support various protocols including TCP, IP, UDP, HTTP, DHCP, ICMP, and ARP. These are the best solution to coordinate your Serial interface devices.

Product Features

Data Conversion between RS-232/422/485 and Wireless Lan
SC10EK2-W Convert Serial interface device (RS-232, RS-422, RS-485) data/signal into the TCP/IP packet and send them out with data stream, or convert the TCP/IP packet into Serial device data/signal.

Wi-Fi Wireless LAN (802.11 b/g/n)
It based on the latest industry standard Wi-Fi certified IEEE **802.11b/g/n** specification, it offers maximum channel speeds of up to 54 Mbps. The Wi-Fi function maintains interoperability within the 2.4 GHz frequency band, offering full compatibility with **802.11b/g/n** networks. This integrated wireless solution of Serial to Ethernet + Wi-Fi Converter is widely deployed in business environments and is the standard for wireless access in public places. It also supports key security features like Wi-Fi Protected Access (WEP, WPA, WPA2).

Wi-Fi + Ethernet to Serial both mode is working simultaneously.

Dynamic IP Configuration
Support DHCP client mode, simplifying network address configuration and management.

Dual LAN Speed
Support 10/100 Mbps, auto-detected.

Server / Client mode
This device can be configured as network server or network client. In the client mode, it can be installed in network which is protected by NAT router or firewall, without the need of a real IP address.
Web-based Setup
Parameters setup is based on HTTPS protocol by using standard browsers (IE and Chrome). No special software required, just type IP address on the browser for entering the web page of converter. (For example: https://192.168.0.100)

Built-in Security Control
This device is protected by login and password in order to prevent intruders.

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Remote updated

Firmware can be updated directly via network to keep up with latest versions.

Hardware Specifications

WLAN

1.	Standard	: 802.11b/g/n
2.	Data Rate	: 11/54/72.2 Mbps @ 20Mhz Band Width
3.	Modulation	: DSSS, OFDM
4.	Frequency	: 2.4GHz
5.	Tx Power 11b	: Max. 22dBm
6.	Tx Power 11g/n	: Max. 19dBm
7.	Rx Sensitivity	: -76dBm @ 54Mbps, -89.5dBm @ 11Mbps
8.	Tx Rate	: Max. 54Mbps with auto fallback
9.	Tx Distance	: Up to 100m
10.	Security	: WEP 64-bit / 128-bit data encryption, WPA / WPA2 personal
11.	Antenna	: 2 dBi, RP-SMA connector
12.	Network Mode	: Infrastructure, Soft AP (for Setup)
13.	Mode	: TCP Server / TCP Client / UDP / Virtual Com / Pairing
14.	Setup	: HTTP Browser Setup (IE, Chrome, Firefox)
15.	Security	: Login Password

Ethernet

1.	Port Type	: RJ-45 Connector
2.	Speed	: 10 /100 M bps (Auto Detecting)
3.	Protocol	: ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, NTP, FTP
4.	Mode	: TCP Server / TCP Client / UDP
5.	Setup	: HTTP Browser Setup (IE & Netscape), Console
6.	Security	: Setup Password
7.	Protection	: Built-in 1.5KV Magnetic Isolation

Serial Communication Parameters

1.	Port 1	: RS232
2.	Port 2	: RS422 / 485 (Surge Protect)
3.	Speed	: 300 bps to 230.4 K bps
4.	Parity	: None, Odd, Even, Mark, Space
5.	Data Bit	: 5, 6, 7, 8
6.	Stop Bit	: 1, 2
7.	RS-232 Pins	: Rx, Tx, GND
8.	RS-422 Pins	: Rx+, Rx-, Tx+, Tx- (Surge Protect)
9.	RS-485 Pins	: Data+, Data- (Surge Protect)
10.	15KV ESD for all signals	

Power input:

1. DC 9~32 V, 1000mA@12V
2. Support DC Jack & Terminal Input

Environmental

1.	**Operating Temperature**	**:** -20 to 70°C, 10% to 95% RH non-condensing
2.	**Storage Temperature**	**:** -25 to 80°C, 5% to 95%RH non-condensing

OS Supported

1. Win2000/2003/XP/Vista/Win 7/Win 8/Win 10
2. Configuration: Web Browser Chrome, IE

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Converter Description

Product Panel Views

Antenna Connector
The connector for antenna is a standard reverse SMA jack. Simply connect it to a 2.0dBi dipole antenna (Standard Rubber Duck) and it is 50 Ohms impedance and can support 2.4GHz frequency.

Ethernet Port
The connector for network is the usual RJ45. Simply connect it to your network switch or Hub. When the connection is made, the green color LED of Ethernet port will light on. When data traffic (Rx/Tx) occurs on the network, yellow color LED will blink during data transferring.

Serial Port of RS-232/RS-422/RS-485
Connect the serial data cable between the SC10EK2-W converter and the Serial interface device. Follow the web page parameter setup
procedures to configure the converter.

DC-IN Power Outlet
The Serial to Ethernet + Wi-Fi Converter is powered by a single 12V DC (Inner positive, outer negative) power supply and 1.0mA of current. Connect the power adaptor to the AC power socket and put the DC Jack plug into the outlet of device. The “SYS” green color LED will be ON when power is properly supplied. Terminal Block 2 wires power supply is an option.

Reset Button(WIFI)
If any chance you forgot the login password, or have incorrect settings making converter inoperable, use RESET. When the power is on and the “SYS” LED light on, use a point tip to press this button and hold it and wait for more than 25 seconds. All the parameters will be reset to the factory default.

.

LED Indicators
SYS (Green): LED is ON after power on, then start blinking per second a after system running.
WIFI(Red): LED is ON after power on, then off a while. It starts blinking after Wi-Fi module is ON
TX / RX (Red / Green): Data sending or receiving indicator. When data sent out to the network or receiving from the network, the LED will be blinking

When you finish the steps mentioned above and the LED indicators are as shown, the converter is installed correctly. You can check the Software Setup CD to find Utility to setup the IP Address.

To proceed with the parameters setup, please use a web browser (IE or Chrome) to continue the detailed settings.

Device Configuration

When setting up your converter for the first time, the first thing you should do is to configure the IP address.

The following topics are covered in this chapter:

IP Search SC10EK2-W Utility Setup
Converter Configuration through Web

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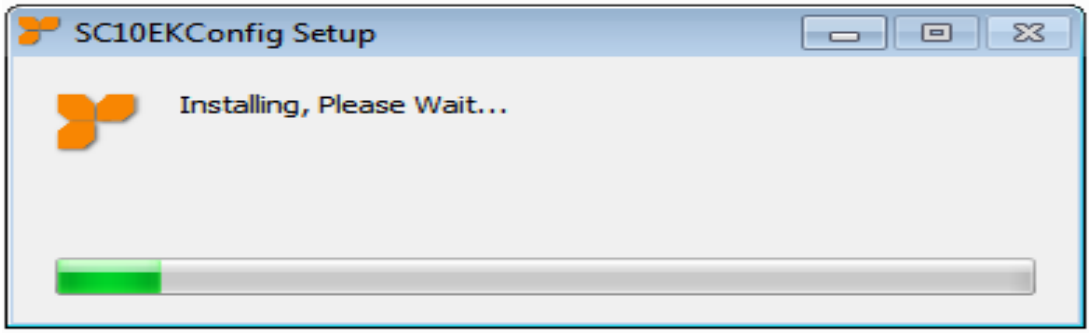
SC10EK2-W Utility

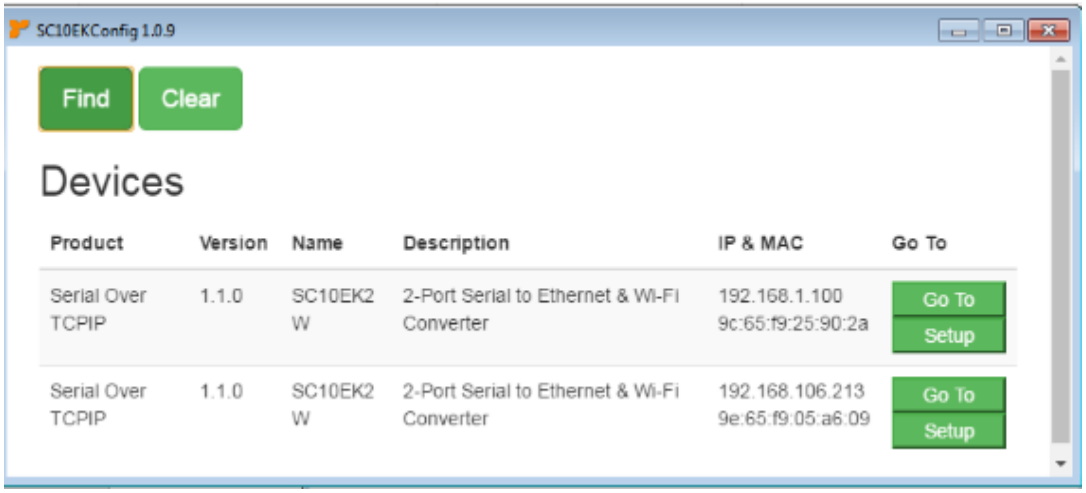
1. Copy SC10EK2-W setup.exe from CD ROM to your host computer or download from www.santelequip.com/download.

2. SC10EK2W is a self –extract install program. Double click it to install this Wi-Fi IP Searching tool into host computer.



3. SC10EK2W will pop up on the screen after installation or you may double click the icon on desktop of host computer to open this tools.

4. Click on "**Find**" button. It will scan the network and show up the IP Address of Converter.



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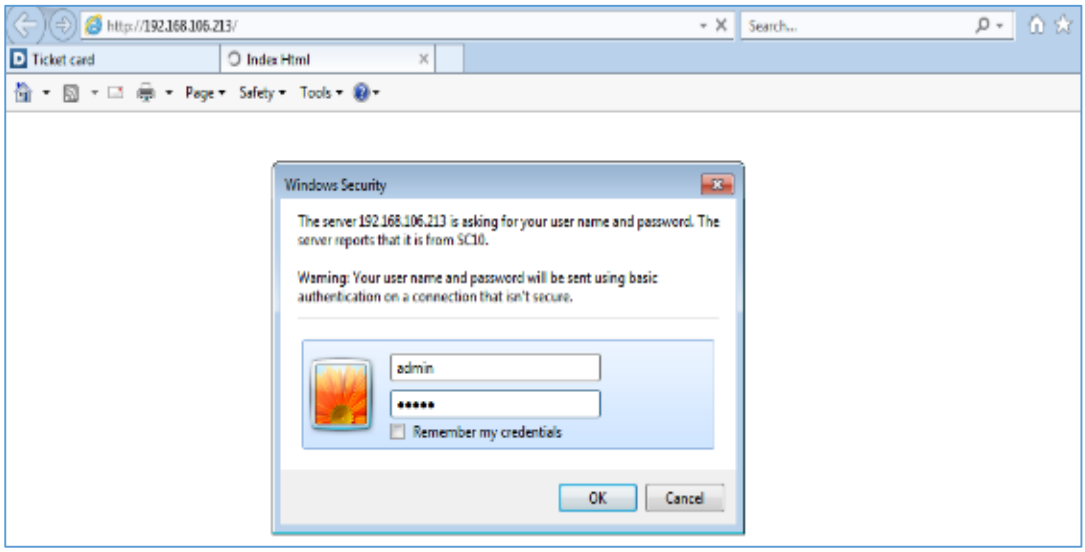
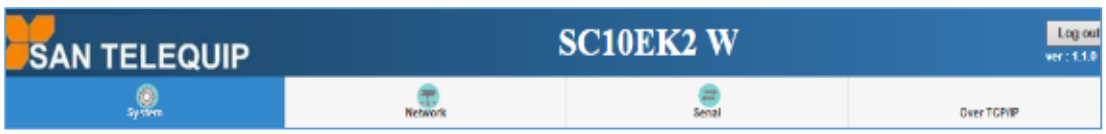
5. Click “Go to” button will open a web page of configuration. (default ID: admin, password: admin).



6. Click “Setup” button will pop up a window. You may change Name, Description, IP, Netmask of device.Click “Setup” to save setup. The device’s IP must be same subnet with host PC/NB enable to use web browser open configuration page.

7. Follow #5 step, now you have successfully connected to the Converter.

Converter Configuration
There are 3 setup pages as “System”, “Network”, “Serial” and “Over TCP/IP”



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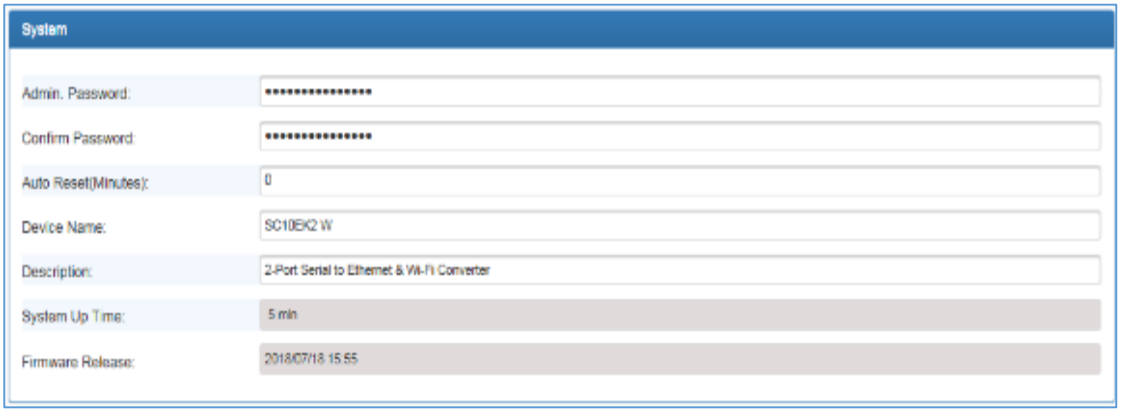
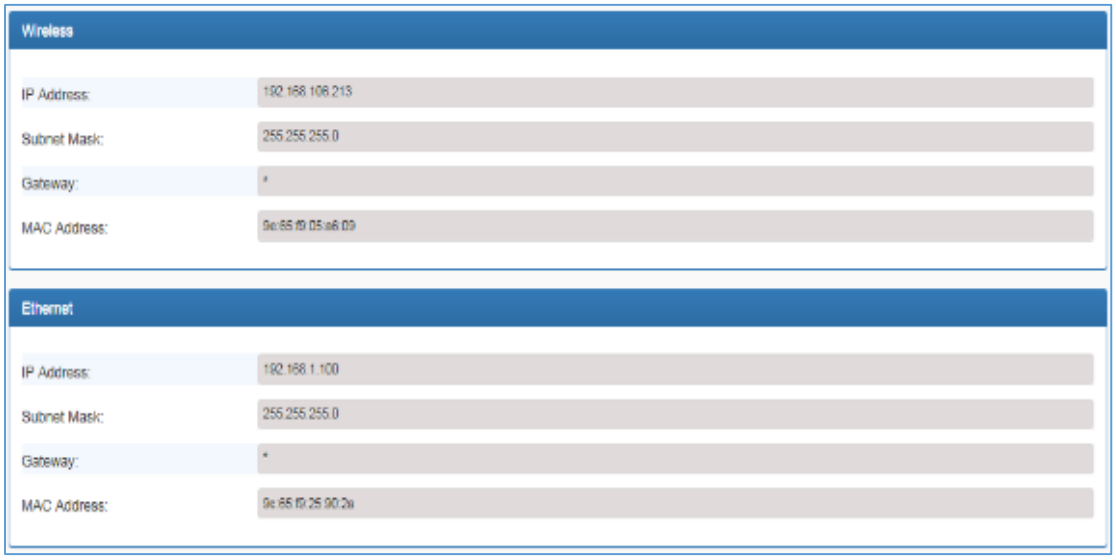
1. System Setup

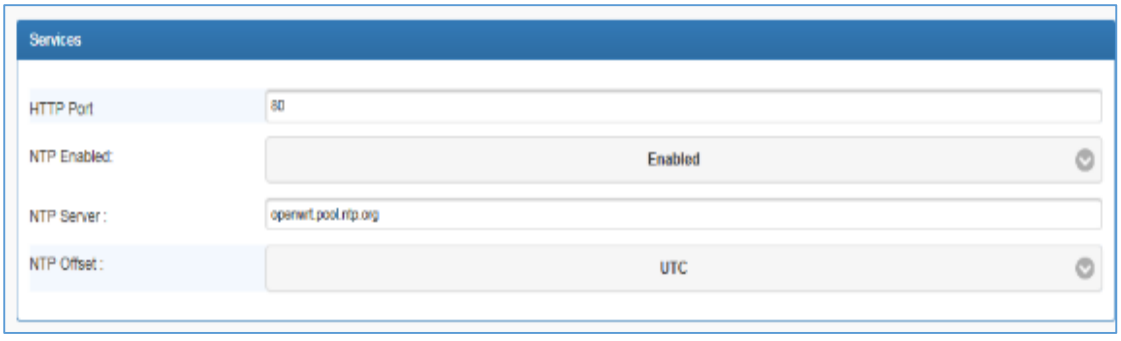
1.1 System: where you can change Password, set up Auto Reset time and modify Device Name, Description of device.



1.2 Appearance of Wireless and Ethernet setup.



1.3 NTP: Enable / Disable NTP function, Set up NTP server and Time Zone.



1.4 Firmware update: Click “Browse” to open file manager

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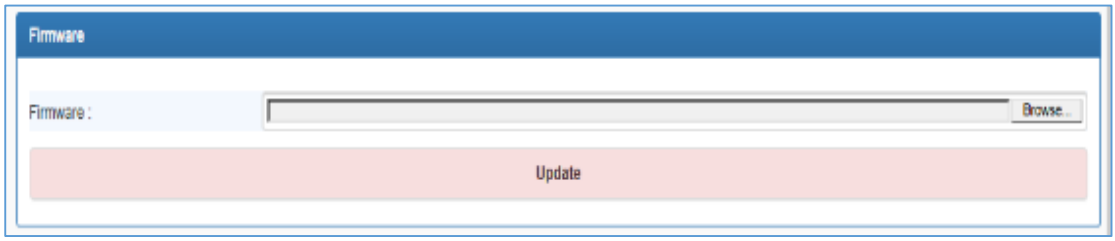
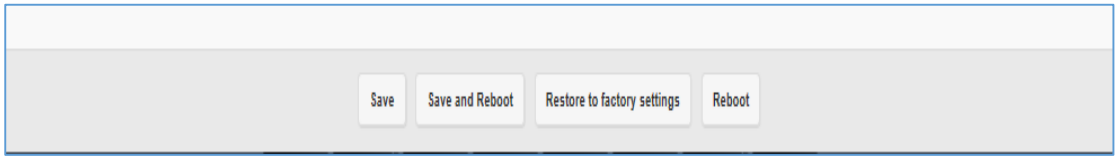


Click to select the file with specified version and click “Confirm” button. When the selected file name appears on the input column, click “Update” button

1.5 Up to now, Setup is successfully configured. Please click “Save” before change web pages



2. Network setup

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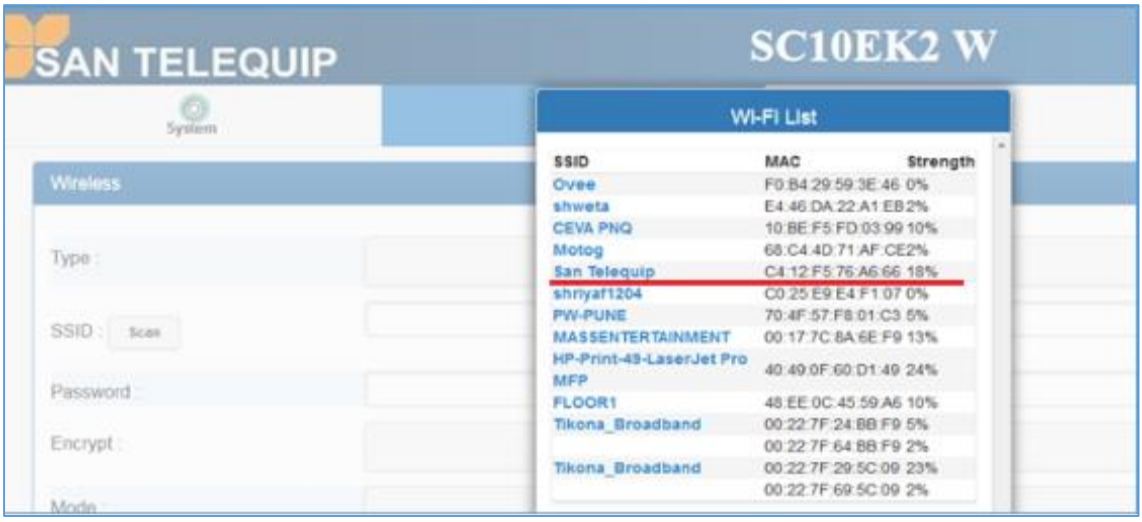
2.1 Wireless section:

2.1.1 Type: to select “INFRASTRUCTURE” or “ACCESS POINT”



2.1.2 When selected “INFRASTRUCTURE”, go to **SSID**, click “Scan” will get list of available SSID, select one to link.

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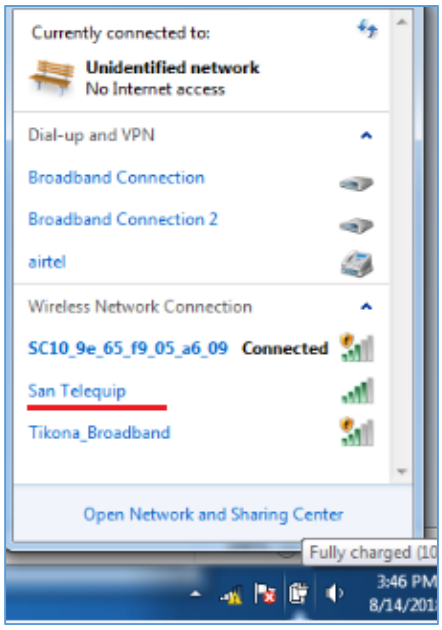
2.1.3 Input password for the AP and assign STATIC IP address

2.1.4 In NB/PC, choose same SSID to link. NB/PC must close Ethernet in advance



2.2 When selected “ACCESS POINT”, Converter acts as an Access Point which is allowed to be connected by PC /NB /Smart Phone/ PAD. It supports DHCP server function. Soft AP broadcasts its SSID “SC10 XX.XX.XX.XX.XX.XX”

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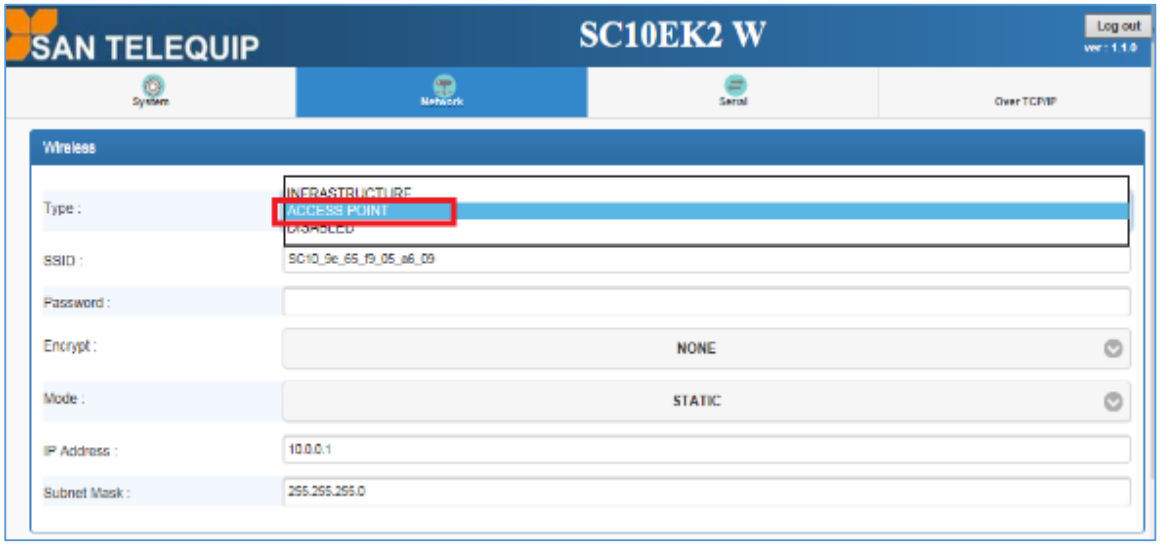
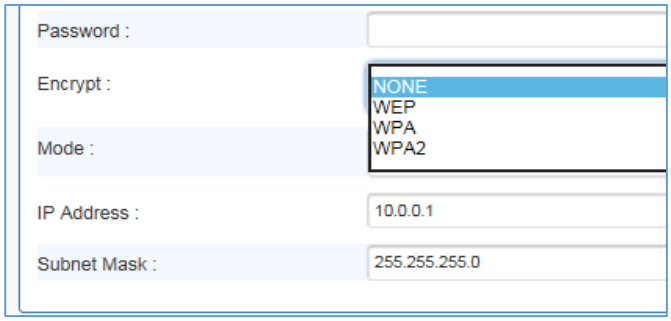
PC /NB /Smart Phone/PAD should connect to this SSID and then open web browser with default IP for Converter setup.



2.3 Password: Key in selected AP log in password

2.4 Encrypt



2.5 Mode: IP Address

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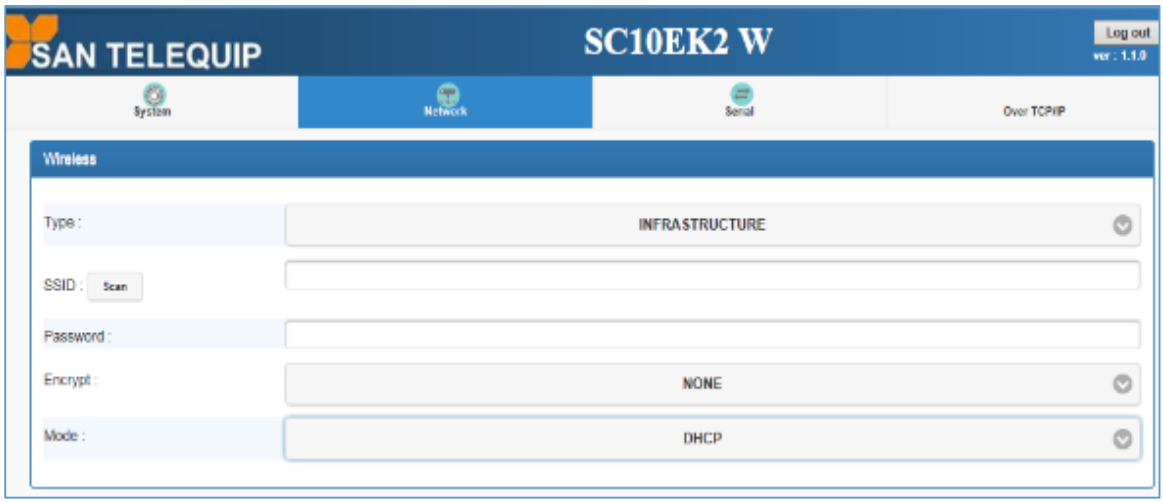
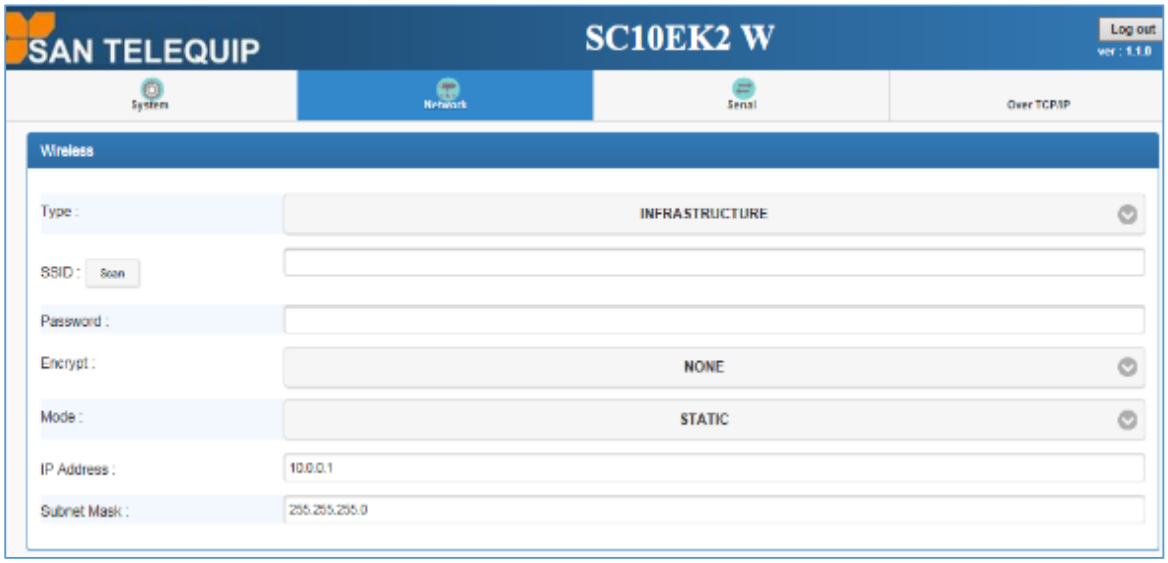
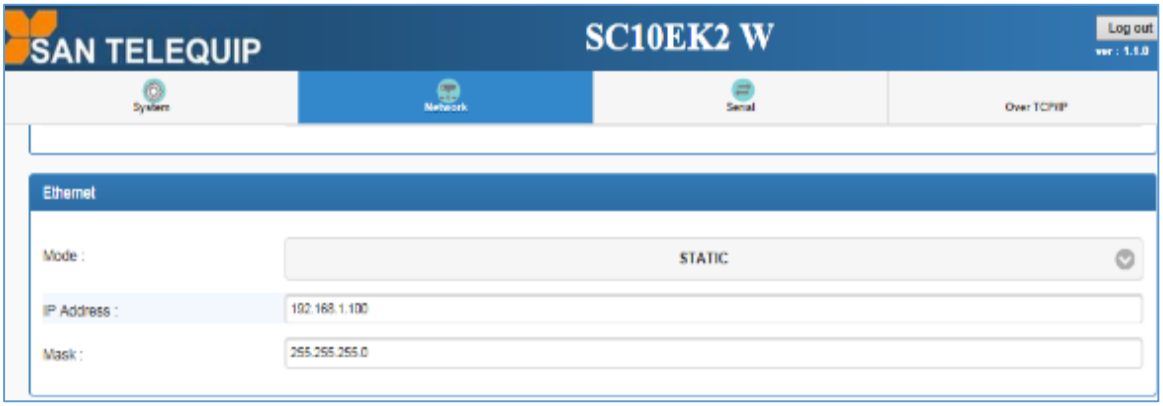
2.5.1 “DHCP”: Let AP to assign IP address to itself.



2.5.2 “STATIC”: To input assigned IP address, Subnet Mask



2.6 Ethernet: select STATIC or DHCP to assign IP address.



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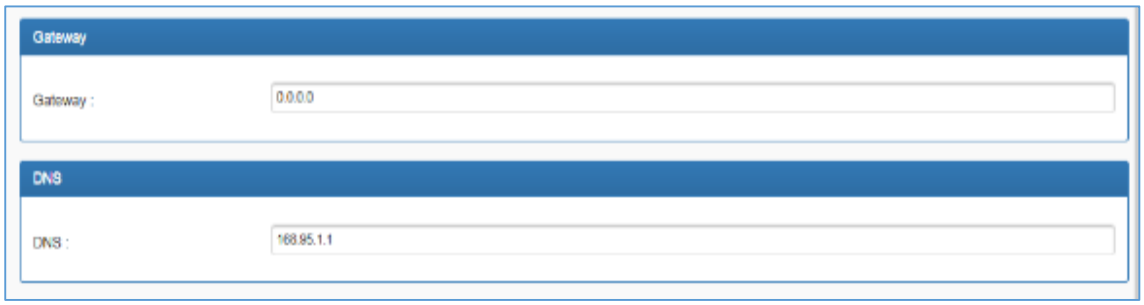
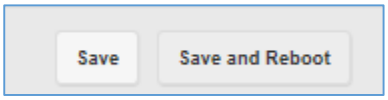
2.7 Gateway and DNS: To check with MIS for right IP address.

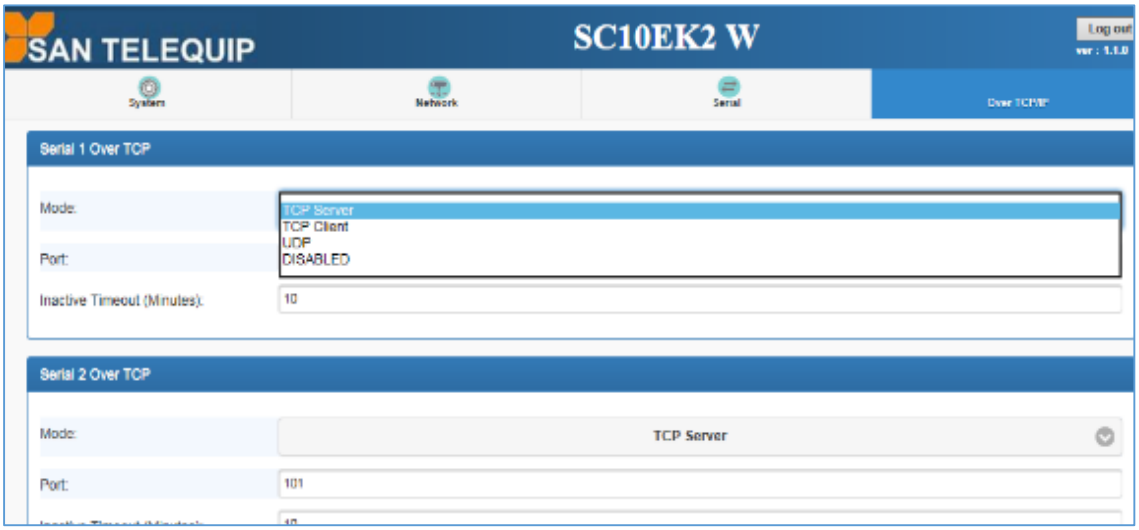


2.8 Up to now, Setup is successfully configured. Please click “Save” before change web pages.

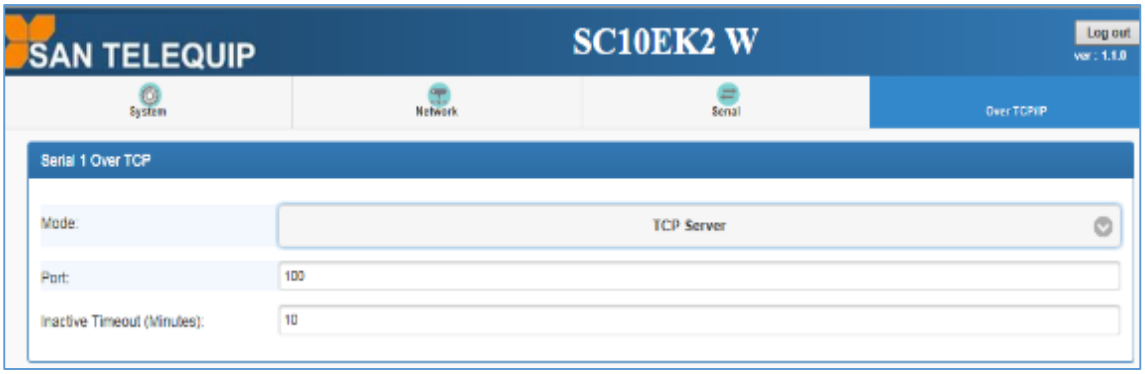


3. Serial to Wi-Fi Setup

3.1 There are TCP modes for selection: TCP Server / TCP Client / UDP



3.2 TCP Server: Configure TCP server port number and message time out period. At this mode, SC10EK2-W will wait for client connection.



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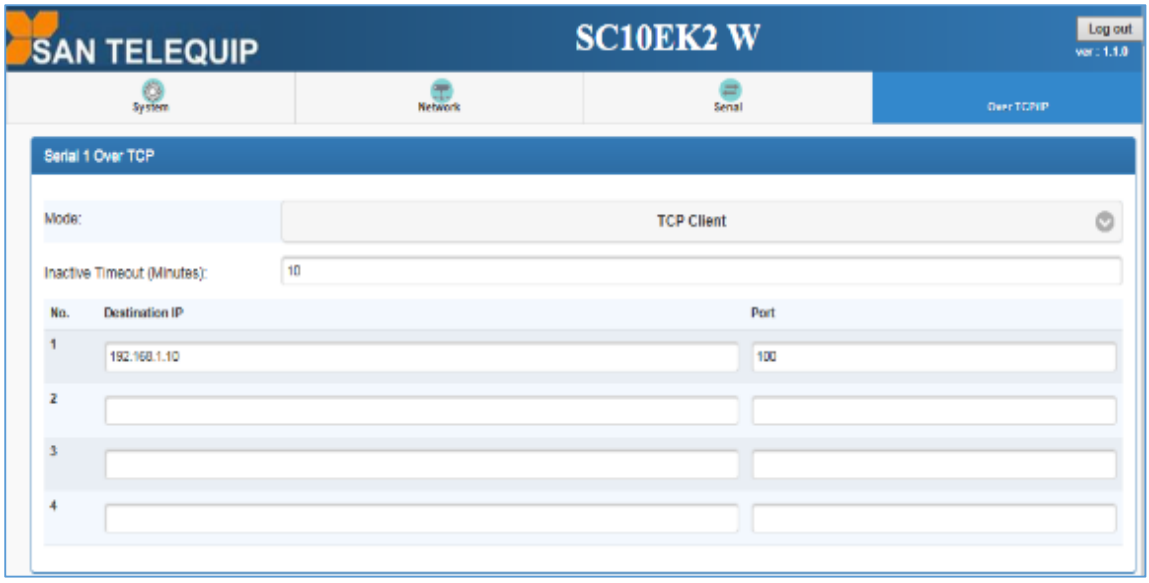
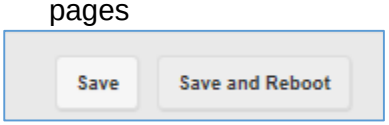
.3 TCP Client: Allow to configure 4 remote destination host IP address, port number. At TCP client mode, SC10EK2-W establishes a connection with remote host and sending data to remote host actively.

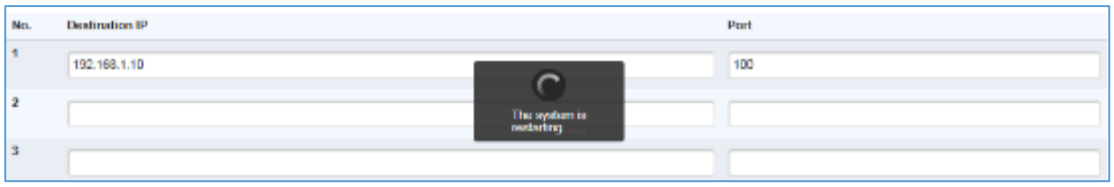


3.4 UDP: Picture as above TCP client mode. Allow to configure 4 remote destination host IP address, port number. At UDP mode, SC10EK2-W establishes a connection with remote host and sending data to remote host actively.

3.5 Up to now, Setup is successfully configured. Please click “Save” before change web pages



3.6 After configued all parameters, click “Save and Restart” to reboot system.



DC Power outlet

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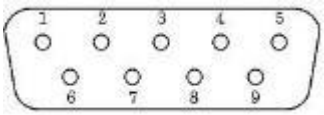
Connection Details



PIN 1: DCD PIN 2: RXD PIN 3: TXD PIN 4: DTR
PIN 5: GND PIN 6: DSR PIN 7: RTS PIN 8: CTS
PIN 9: X

For RS232 Side

SC10EK2-W Side	COM Port Side
TX	RX
RX	TX
RTS	CTS
CTS	RTS
DSR	DTR
DTR	DSR

For RS422

SIGNAL of SC10EK2-W	Will Connect to
TX +	RX + of your device.
TX --	RX -- of your device.
RX +	TX + of your device.
RX --	TX – of your device.

For RS485, 2 wire

SIGNAL of SC10EK2-W	Will Connect to
D +	TX + of your device.
D --	TX -- of your device.