San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

User Manual 2-Port Modbus TCP to RTU Gateway, Model SC10MK2 MT

Table of Contents

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

Introduction

SC10MK2 MT RTU/ASCII to TCP Gateway provides the easy way of connecting Modbus Serial devices to Ethernet LAN in Modbus TCP and RTU/ASCII networks at the same time. Ethernet support 10/100 Mbps auto-detecting communication speeds. This Gateway is designed to operate 2 Serial ports (RS-232 and RS-422/485 respectively) over Ethernet network. It allows users to integrate Modbus/RTU and Modbus/ASCII Serial devices to the TCP/IP network-based devices from host to remote site with 8 TCP Masters simultaneously and 32 requests simultaneous per Master.

SC10MK2 MT 2-Port Modbus RTU/ASCII to Modbus TCP Gateway 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.

Overview

SC10MK2 MT 2-Port Modbus RTU/ASCII To Modbus TCP Gateway provides a perfect solution to make your industrial Serial devices connect to Internet instantly via Ethernet LAN.

SC10MK2 MT 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 LAN, and making it possible for your software to access Serial interface devices anywhere and anytime.

SC10MK2 MT provides 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.

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

Product Specifications

System

- CPU : MT7688AN MIPS CPU, 580 MHz
- RAM: 128M Bytes DDR2 RAM
- ROM : 32M Bytes Flash ROM
- OS : OpenWrt Linux OS
- TCP to RTU support 8 simultaneous TCP Master, 32 simultaneous requests per Master
- RTU to TCP support 8 TCP Slaves on each port

Ethernet

- Port Type : RJ-45 Connector
- Speed : 10 /100 M bps (Auto Detecting)
- Protocol : ARP , IP , ICMP , UDP , TCP , HTTP , DHCP
- Protocol：NTP, FTP
- Mode : TCP Server / TCP Client / UDP
- Setup : HTTP Browser Setup (IE, Chrome, Firefox)
- Security : Setup Password
- Protection : Built-in 1.5KV Magnetic Isolation

Serial Ports *2

- Port : RS-232 *1 (RS-232 with RX/TX/GND only)
- Port : RS-422 / 485 *1 (Surge Protect)
- Speed：300 bps ~ 230.4 K bps
- Parity：None , Odd , Even , Mark , Space
- Data Bit：5 , 6 , 7 , 8
- Stop Bit : 1 , 2
- RS-232 Pins : Rx , Tx , GND
- RS-422 : Rx+ , Rx- , Tx+ , Tx- (Surge Protect)
- RS-485 : Data+ , Data- (Surge Protect)
- 15KV ESD for all signals

Power

- DC 9~32 V, 1000mA@12V
- support DC Jack & Terminal Block Input

Mechanical and Environment

- Operating Temperature : -20℃~70℃
- Storage Temperature: -25℃~80℃
- Dimensions : 110 * 90 * 26 mm (W * D * H)
- Weight : 110 ± 5gm
- Housing: plastic.

Other Features

- Led Lamp : SYS, Wi-Fi, RX, TX, LAN
- RTC : Real Time Clock
- Watch Dog Function
- Software : TCP TO RTU Slave, RTU Master TO TCP Slave ,
  TCP TO ASCII Slave, ASCII Master TO TCP Slave

Warranty

- Warranty period: 1 year.

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

Product Panel Views

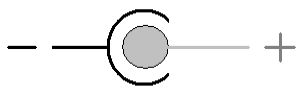
Ethernet Side:

Serial Interface Side:

DC-IN Power Outlet

The Serial to Ethernet Converter is powered by a single 12V DC (Inner positive, outer negative) power supply and 1A 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.

DC Power outlet



San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

LED Indicators

SYS (Green):
Power indicator. When the power is on, the LED will be on and blink per second.

Wi-Fi (Red):
Wi-Fi indicator. When the Wi-Fi is working, this LED will be blinking.

Tx (Green):
Data sending indicator. When data sending to the device from LAN or Wi-Fi, this LED will blink.

Rx (Red):
Data received indicator. When data sending to the device from Serial ports, this LED will blink.

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 blink. When data traffic (Rx/Tx) occurs on the network, yellow color LED will blink during data transferring.

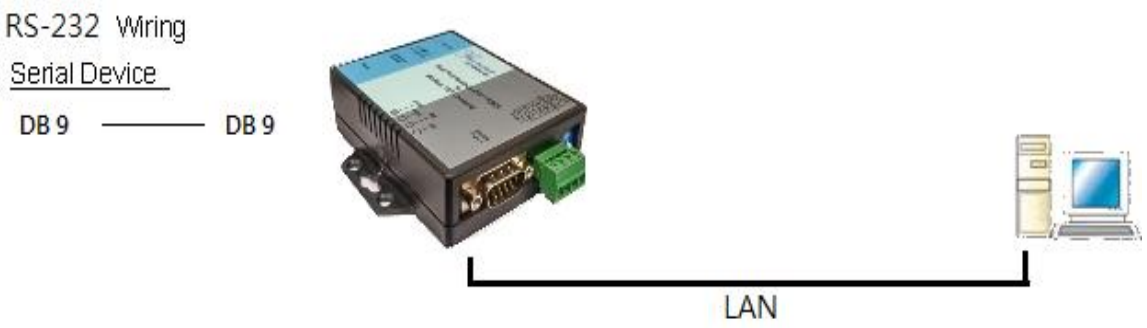
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

Serial Port of RS-232/RS-422/RS-485

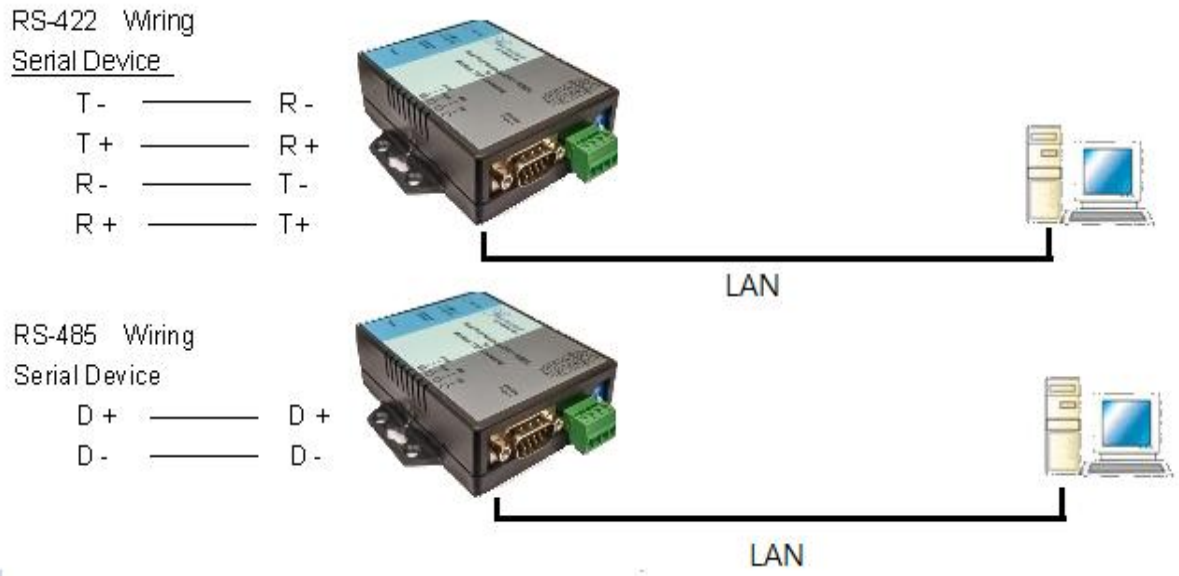
Connect the Serial data cable between the device and the Serial interface device. Follow the procedure of web page configuration to set up parameters.

Wiring Architecture

1. RS-232



2. RS-422/RS-485



When you finish the steps mentioned above and the LED indicators are as shown, the converter is install correctly. You can check the Software Setup CD OR download from our web site “www.santelequip.com/download” to find IP Search Utility. To proceed with the parameters setup, please use a web browser (IE or Chrome) to continue the detailed settings.

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

Configuration

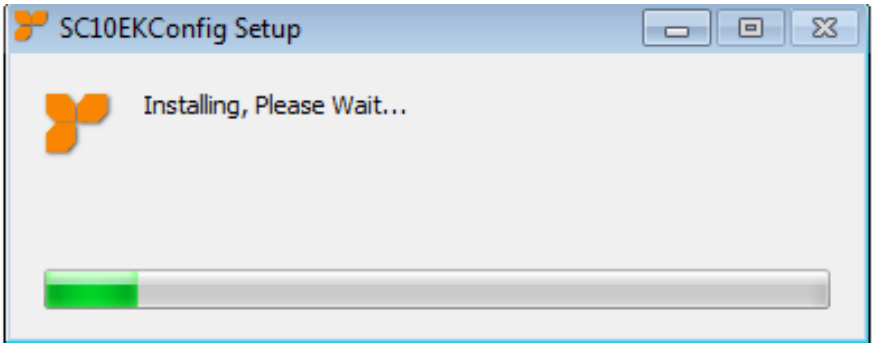
When setting up your Gateway for the first time, the first thing you should do is to configure the IP address. The following topics are covered in this chapter:

IP Search Utility Setup

- Web Browser Configuration
- IP Search Utility Setup

SC10MK2 MT Config

1. Copy IP search config Utility from Our Web site" www. Santelequip.com / download" to your host computer.
2. "SC10MK2 MT" is a self-extract-install program. Double click it to install this Wi-Fi IP Searching tool into host computer.

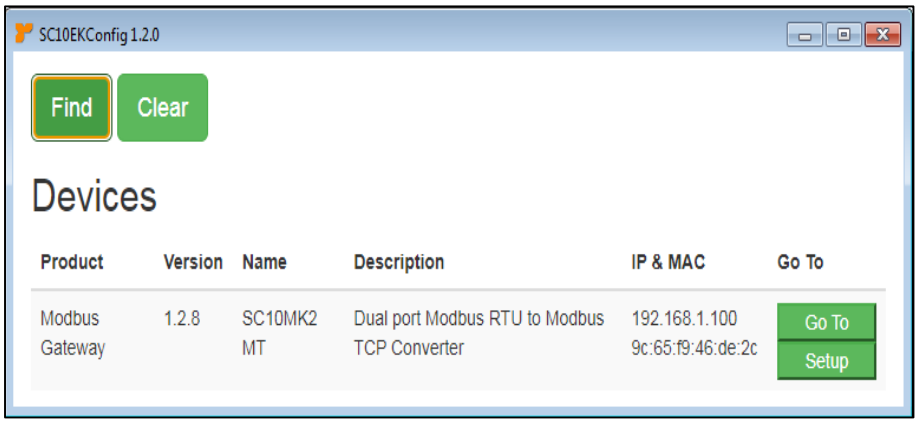


3. Upon running IP search Utility SC10MK2 MT, if a firewall warning pop up, please click to accept the program pass through firewall.

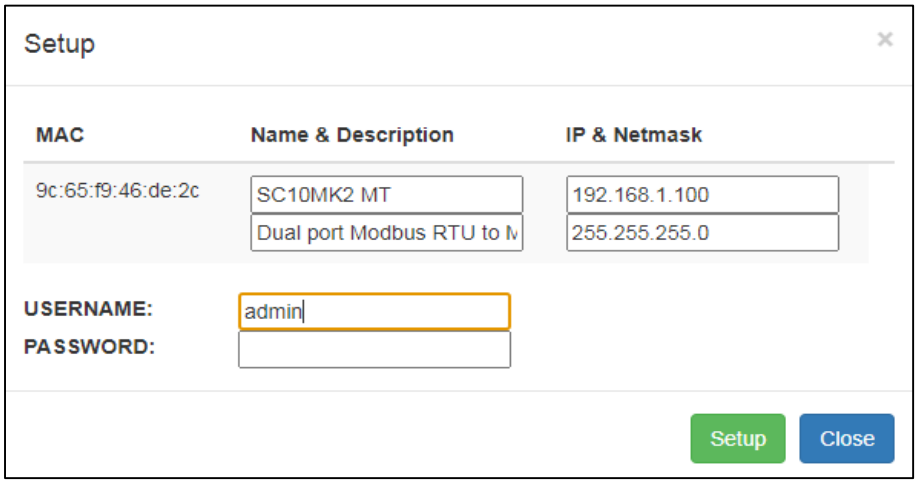
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

4. SC10MK2 MT will pop up on the screen after installation or you may double click the icon on desktop of host computer to open this tool.

5. Click on "**Find**" button. It will scan the network and show up the IP of Gateway.



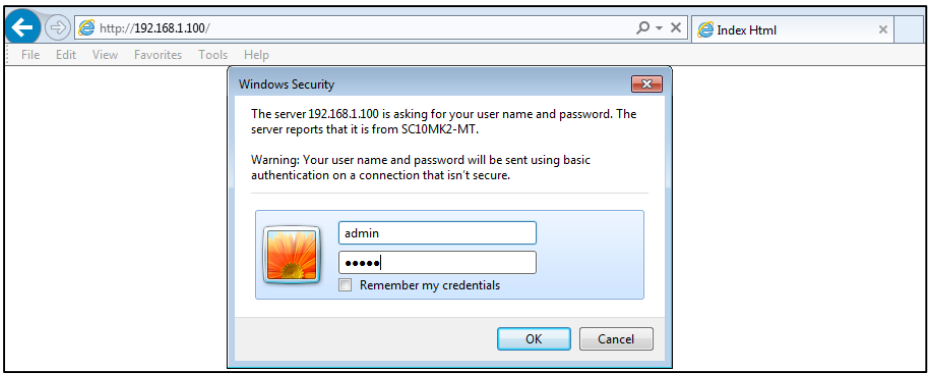
6. Click "Setup" button will pop up a window. You may change Name,Description, IP, Netmask of device. Click "Setup" to save setup. The device's IP must be same subnet with host PCenable to use web browser open configuration page.



San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

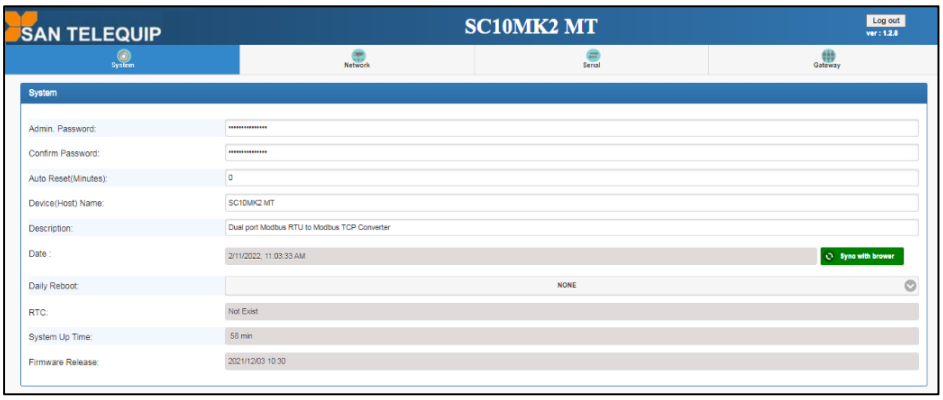
7. Click “GoTo” button will open a web page of configuration. (Default ID: admin; password: admin).

Login:



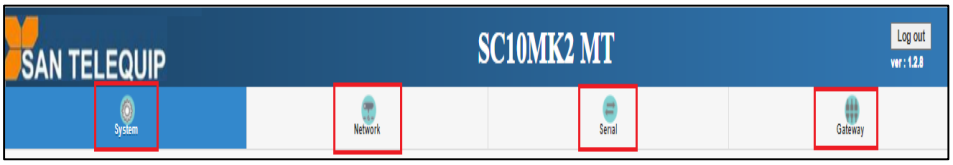
User : admin
Password : admin

8. Follow #5 step, now you have successfully connected to the Gateway.



Web Browser Configuration

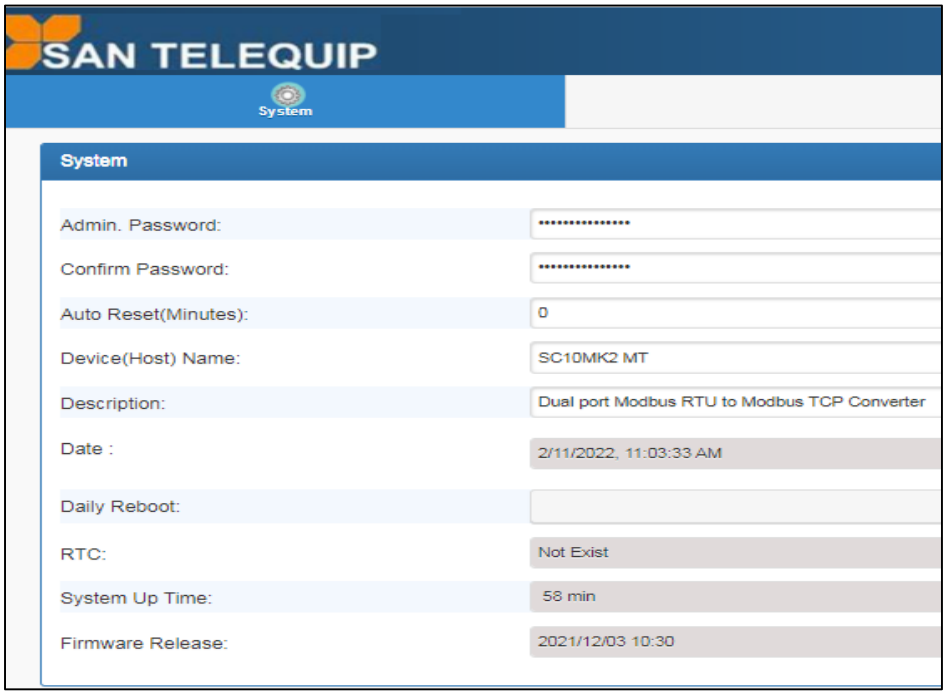
There are 4 setup pages as “System”, “Network”, “Serial” and “Over TCP/IP”.



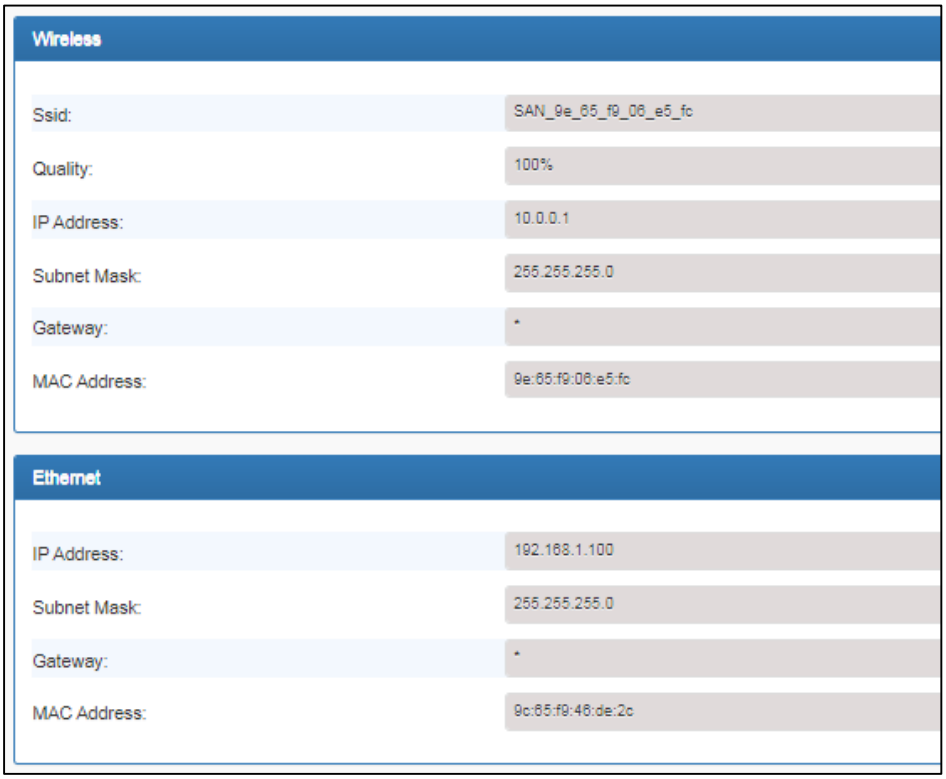
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

1. System Setup

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

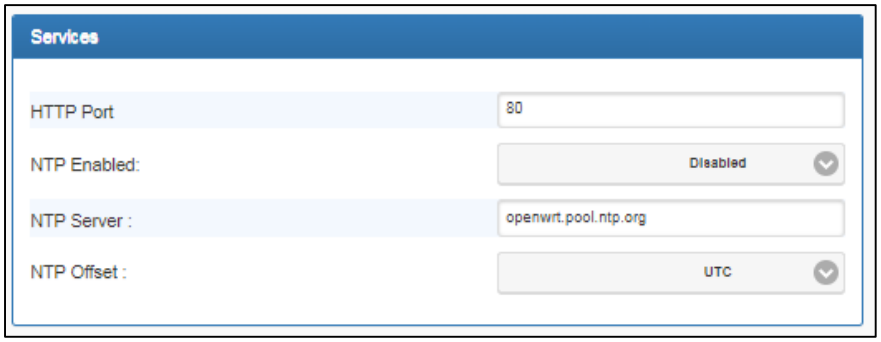


1.2 Appearance of Wireless and Ethernet setup.



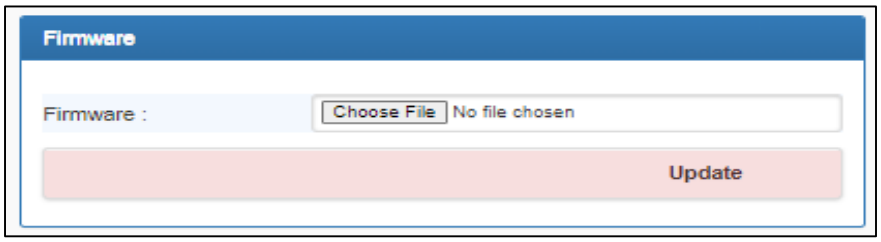
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

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

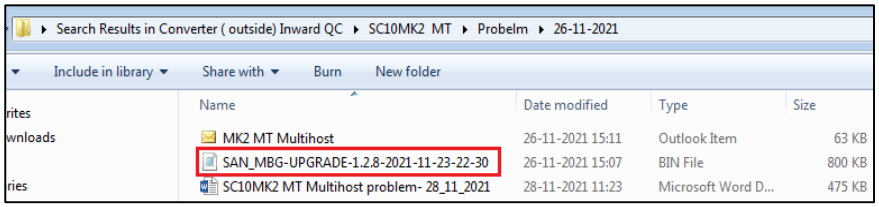


1.4 Firmware update:

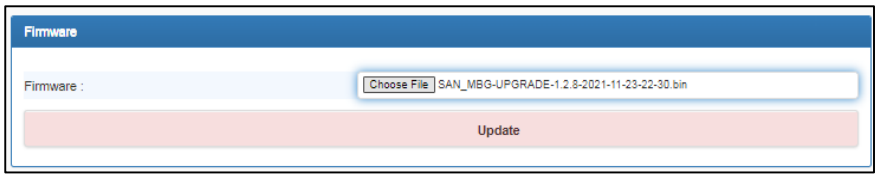
If necessary, click “Choose File” to open file manager.



Then, select the file with specified version and click “open” button.



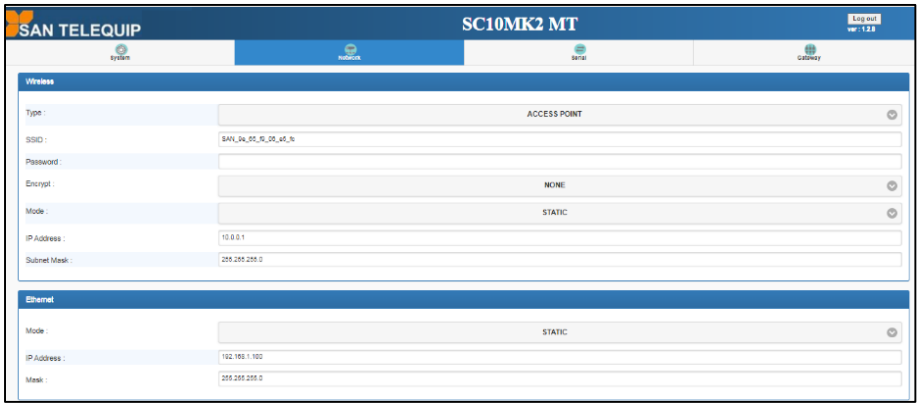
When the selected file name appears on the input column, click “Update” button.



1.5 Up to now, Setup is successfully configure. Please click “Save” and go to other pages for configuration or click “Save and Restart” to run new configuration.

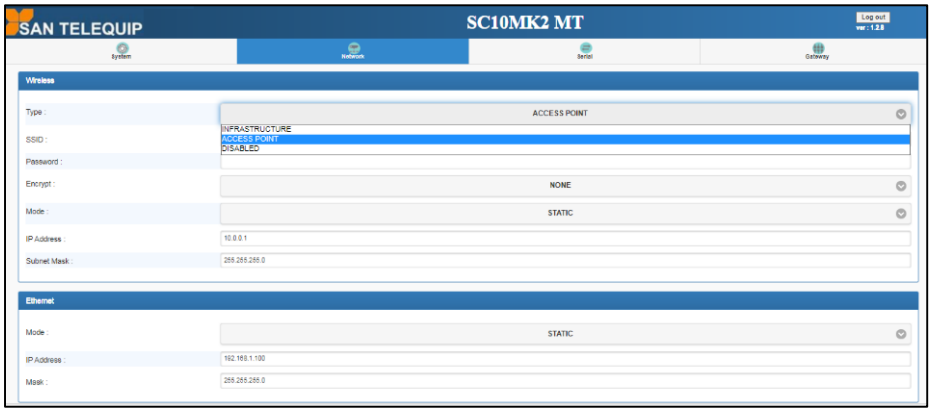
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

2. Network setup

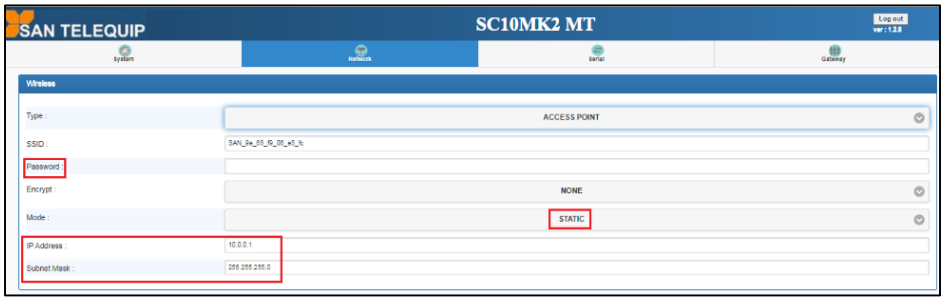


2.1 Wireless section: (Optional)

2.1.1 Type: Click to select “Access Point” or “Infrastructure”. “Infrastructure” is for connecting to a local Router.



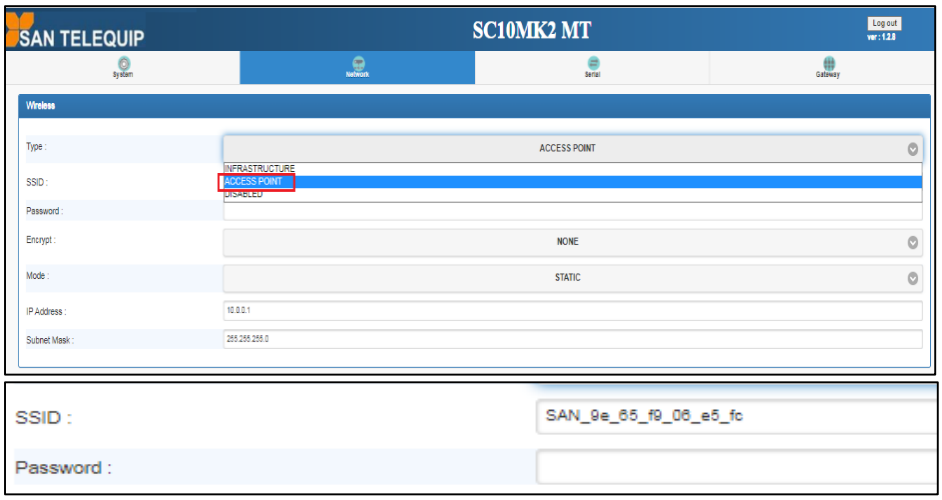
2.1.2 If select, “ACCESS POINT”, input password for the AP and assign IP address with “DHCP” or “STATIC”.



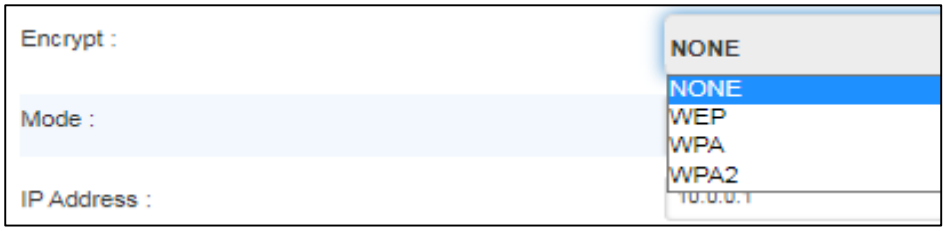
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

2.1.3 When selected “ACCESS POINT” this Device acts as an Access Point, which is allow to be connected by PC .It supports DHCP server function. Soft AP broadcasts its SSID “SAN_9e_65_f9 _06 _e5_fc”. PC should connect to this SSID and then able to open web browser with default IP of this Device.

2.1.4 Password: Key in selected AP log in password

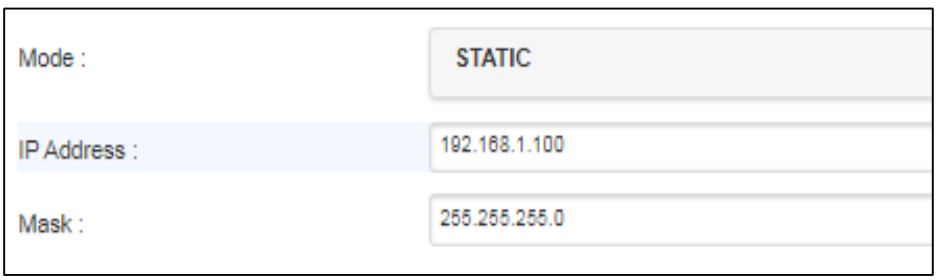


2.1.5 Encrypt



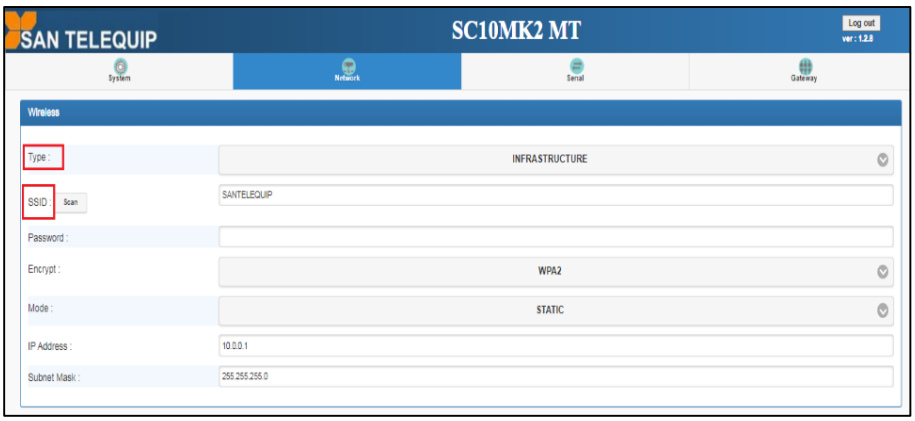
2.1.6 Mode: select “DHCP” to let AP assign IP address to itself,

Or select “STATIC” to input assigned IP address, Subnet Mask manually.



San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

2.1.7 If The Type selected with “Infrastructure”, set SSID of Router and the other inputs.

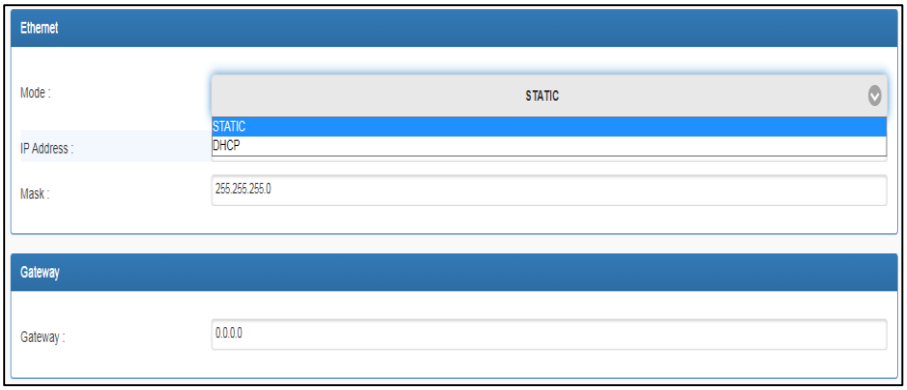


2.1.8 Go to item SSID, click “Scan” will get list of available SSID of Access Points, select the one in your network to link. For example:

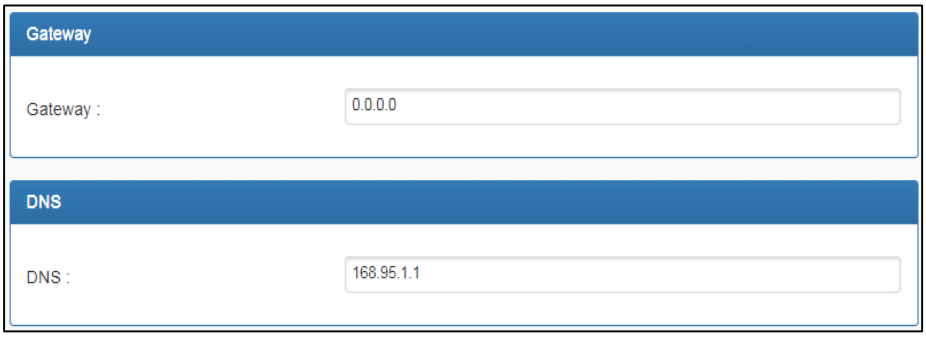
2.1.9 On the LAPTOP/PC, choose same SSID to link. LAPTOP/PC must close Ethernet in advance otherwise; the data transmission would not work.

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

2.2 Ethernet section: select “STATIC” or “DHCP” to assign IP address.

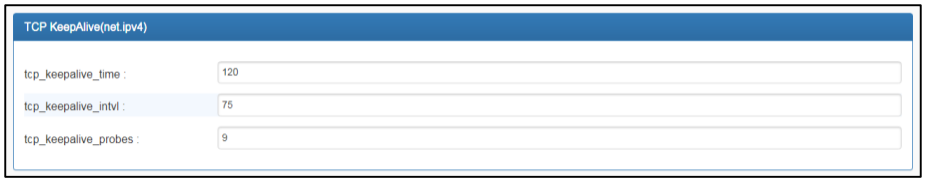


2.3 Gateway and DNS section: check with MIS for right IP address of Ethernet or Wi-Fi. The Gateway must be set with correct IP enable to connect with other devices.

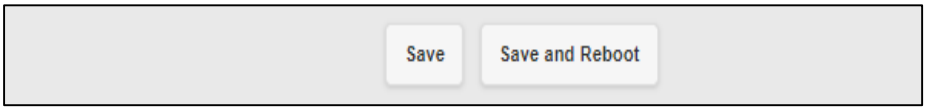


2.4 TCP_ Keepalive

Time : It’s editable for idle time setting. The Probes will start after the idle time.
Intvl : It’s editable for the interval time between every Probes.
Pobes : It’s editable for number of Probes to find out whether TCP connection broken or not.



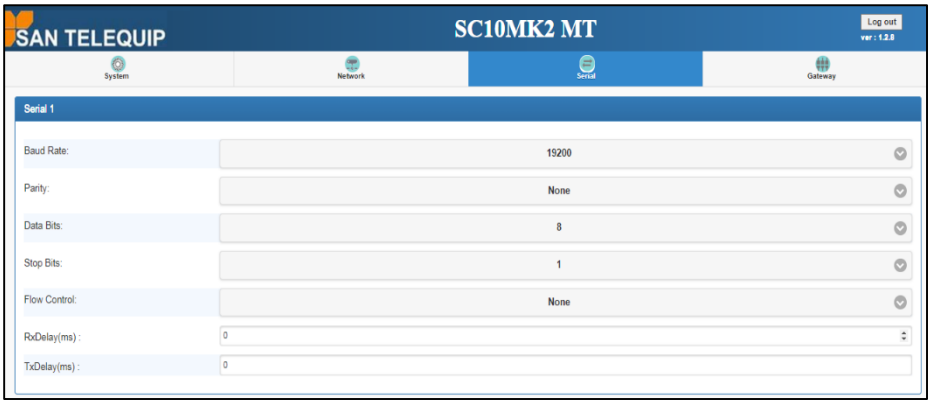
2.5 Up to now, Setup is successfully configure. Please click “Save” for this page temporarily and go to other pages for configuration or click “Save and Restart” to run this Device with new settings.



San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

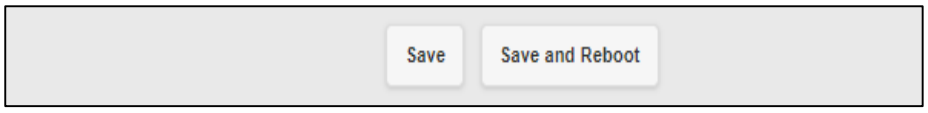
3. Serial Port page

Please clearly set each parameters from Serial 1 to Serial 2 (default 9600, n, 8, 1).



3.1 Baud Rate: 300 bps to 921.6K bps
3.2 Parity: None, Even, Odd
3.3 Data Bits: 5, 6, 7, 8
3.4 Stop Bits: 1, 2
3.5 Flow Control: None, XON/XOFF
3.6 RxDelay (ms)
3.7 TxDelay (ms)

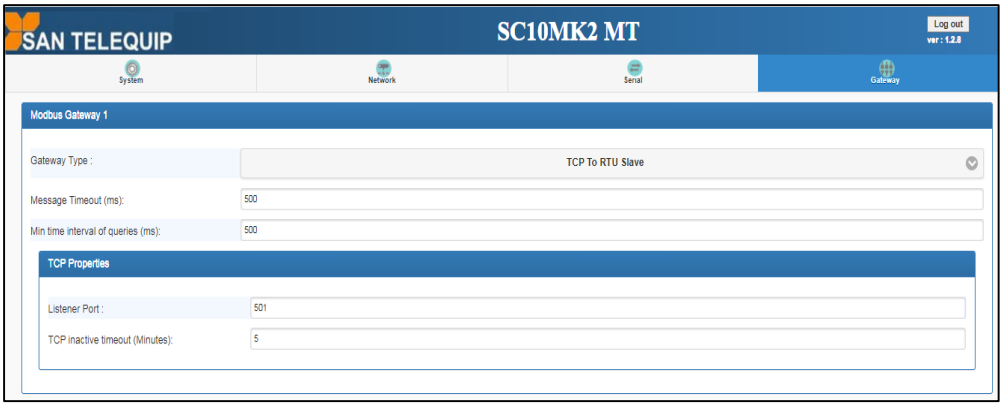
3.8 Up to now, Setup is successfully configure. Please click “Save” for this page temporarily and go to other pages for configuration or click “Save and Restart” to run this Device with new settings.



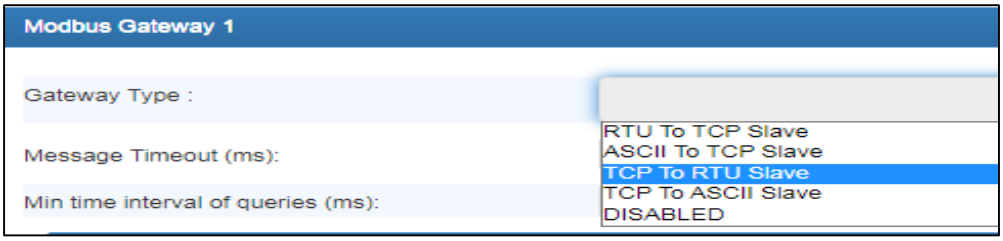
San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

4. Modbus Gateway page

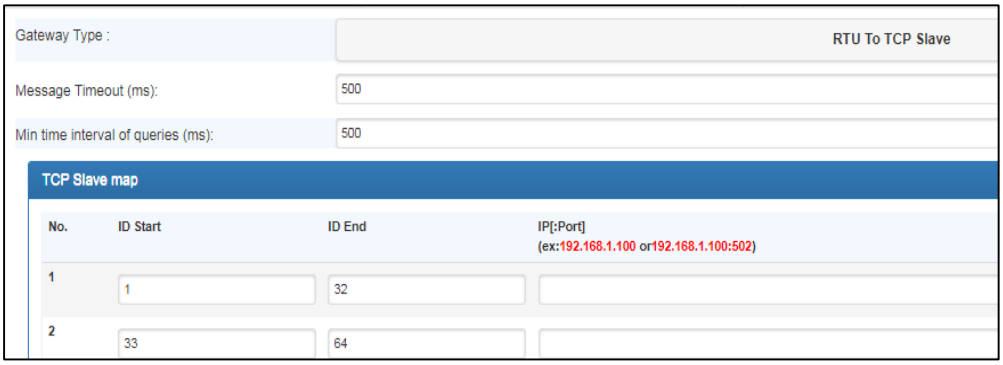
4.1 There are “Modbus Gateway” #1 and #2 port.



4.2 Gateway Type: 4 types for selection or to disable.



4.3 For RTU to TCP Slave can set up to 8 slaves.



Up to now, Setup is successfully configure. Please click “Save” and go to other pages for configuration or click “Save and Restart” to run new configuration.

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

San Telequip (P) Ltd.,
504,505 Deron Heights, Baner Road
Pune 411 045, India
Phone : +91-20-27293455, 9764027070, 8390069393
email : info@santelequip.com

5. Reset (if needed)

- Press reset key after 5 seconds until SYS LED flash then release the key will reset network default IP and gateway IP back to default. The other parameters keep same as last confirmation.
- Press reset key after 5 seconds until both SYS LED and Wi-Fi LED flash then release the key will make all parameters back to factory default.
- Press reset key within 5 seconds without LED flash will reboot the equipment. Last configuration no change

Serial Port Connection details

RS232 Connection details

SC10MK2 MT	COM Port Side
TX	RX
RX	TX
RTS	CTS
CTS	RTS
DSR	DTR
DTR	DSR

RS-422 Connection details

SC10MK2 MT	Will Connect to
T+	RX+ of your device
T-	RX- of your device
R+	TX+ of your device
R-	TX- of your device

RS485 2 Wire Connection details

SC10MK2 MT	Will Connect to
D+	D+ of your device
D-	D- of your device