



Distributing Solar Power in Apartment Buildings

2024-06-24 ... Coming soon ...

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1. Download link for all original component manuals

All original components can be downloaded via the following link:

<https://api-01.eoproc.com/docs/marsolar-component-manuals.zip>

2. Configuring a waveshare RS485 to Ethernet converter

The waveshare server is used for converting RS485 to Ethernet, respectively serial ModBus to TCP.

Reason: rather than running numerous point to point serial ModBus lines, these signals are converted to TCP and aggregated via standard Ethernet switches. This makes a MarSolar system far more structured and manageable for admins used to TCP networks.

ModBus messages typically are short and slow, so a single TCP line at 100 Mbit/sec can handle easily hundreds of ModBus devices at the same time.



Waveshare converters come in two versions:

- Requiring a separate power supply (DD 6 – 36 V)
- Powered via the Ethernet line (power over Ethernet = POE)

This requires a POE network switch.

POE is the preferred version, as it is very convenient powering the waveshare device simply via the Ethernet connection.

There are two sources of documentation for this device:

- zip file with all manuals for devices used for MarSolar
(link in separate section in this document)
- a pretty good wiki web manual, maintained by the manufacturer
[https://www.waveshare.com/wiki/RS485_TO_ETH_\(B\)#Overview](https://www.waveshare.com/wiki/RS485_TO_ETH_(B)#Overview)

Setting up the waveshare converter

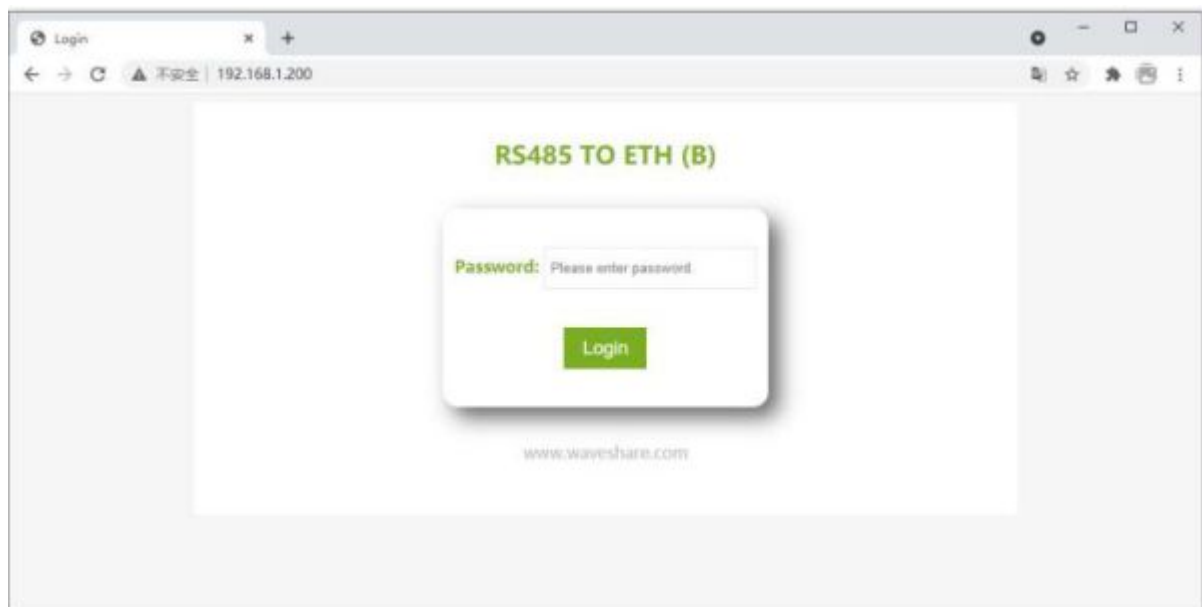
The waveshare converter comes with a factory set IP address of 192.168.1.200
You temporarily need to set your PC IP address to be in the 192.168.1.xxx subnet
(e.g. 192.168.1.1)

Then connect the POE switch to the waveshare converter and to your PC.

In your PC browser enter the URL <http://192.168.1.200>

Details are also provided in the web wiki.

The waveshare server will respond with a web page.



The factory set password is empty, so you can login without a password and the device will show a setup page:

The screenshot shows the Waveshare configuration web interface. At the top left is the Waveshare logo with the tagline 'share awesome hardware'. At the top right are 'Logout' and 'Chinese' links. The interface is divided into several sections: 'Device Information' (Device Name: WSC0V001, Firmware Version: V1.452, Device MAC: 28-5B-6F-D7-94-A7), 'Network Settings' (Device IP: 192.168.1.208, Device Port: 4196, Device Web Port: 88, Work Mode: TCP Server, Subnet Mask: 255.255.255.0, Gateway: 192.168.1.1, Destination IP/DNS: 192.168.1.3, Destination Port: 4196, IP mode: Static), 'Serial Settings' (Baudrate: 115200, Databits: 8, Parity: None, Stopbits: 1, Flow control: None), 'Advanced Settings' (No Data Restart: Disable, No Data Restart Time: 300 second, Reconnect-time: 12), and 'Multi-Host Settings' (Protocol: None, Instruction Time out: 0, Enable Multi-host: No). Below these is a 'Modify Web Login Key' section with 'New Key' and 'Input Key Again' fields, both containing asterisks, and a 'Submit' button. A note at the bottom of the Multi-Host section states: 'NOTE: 1. Multi-host is always enabled when Protocol is Modbus TCP to RTU. 2. Time out is always 0 when Multi-host is disabled. 3. Time out only can be set as multiply of 32.'

In this setup page enter the new IP address for your waveshare converter.


Network Settings

Device IP	<input type="text" value="192.168.11.123"/>
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Important: note this new IP address, otherwise you can only factory reset the device.

For reading EASTRON grid meters SDM230 / SDM 630 / SDM 72D
populate the setup page with the following parameters below

Set your IP address as required (in this example: 192.168.11.63)
and submit.



LogoutChinese

Device Information

Device Name	WSDEV0001	Firmware Version	V1. 452	Device MAC	28-6E-66-04-40-D4
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Network Settings

Device IP	192.168.11.63	Device Port	502	Device Web Port	80
Work Mode	TCP Client	Subnet Mask	255.255.255.0	Gateway	192.168.1.1
Destination IP/DNS	192.168.1.3	Destination Port	4196	IP mode	Static

Serial Settings

Baud Rate	9600	Databits	8	Parity	None
Stopbits	1	Flow control	None		

Advanced Settings

No-Data-Restart	Disable	No Data Restart Time	300	5~1270	Reconnect-time	12	1~255 second
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Multi-Host Settings

Protocol	Modbus TCP to RTU	Instruction Time out	0	32~8000ms	Enable Multi-host	No
RS485 Conflict Time Gap	0					

NOTE: 1. Multi-host is always enabled when Protocol is Modbus TCP to RTU. 2. Time out is always 0 when Multi-host is disabled.
3. Time out only can be set as multply of 32.

Modify Web Login Key

New Key		Input Key Again	
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Submit

Now connect your waveshare converter to your ModBus device you want to read.

Important: Don't forget to set your PC IP address back to normal.

In case you can not access your converter's setup page via the web browser, you can factory reset the waveshare converter:

After power on, short the top two right pins for 5 sec.

These two pins are labeled NC/NC on the converter with external power and GND/DEF on the POE converter.

