

Configuration of ETport with two meters to consolidate data to SMA DataManager M for Zero Export

Date: July 10, 2025

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IMPORTANT: Before beginning, ensure that the meters are properly installed and that each meter is correctly measuring it's own circuits. Incorrect installation can lead to measurement inaccuracy of each individual meter, which will then cause incorrect summation results.

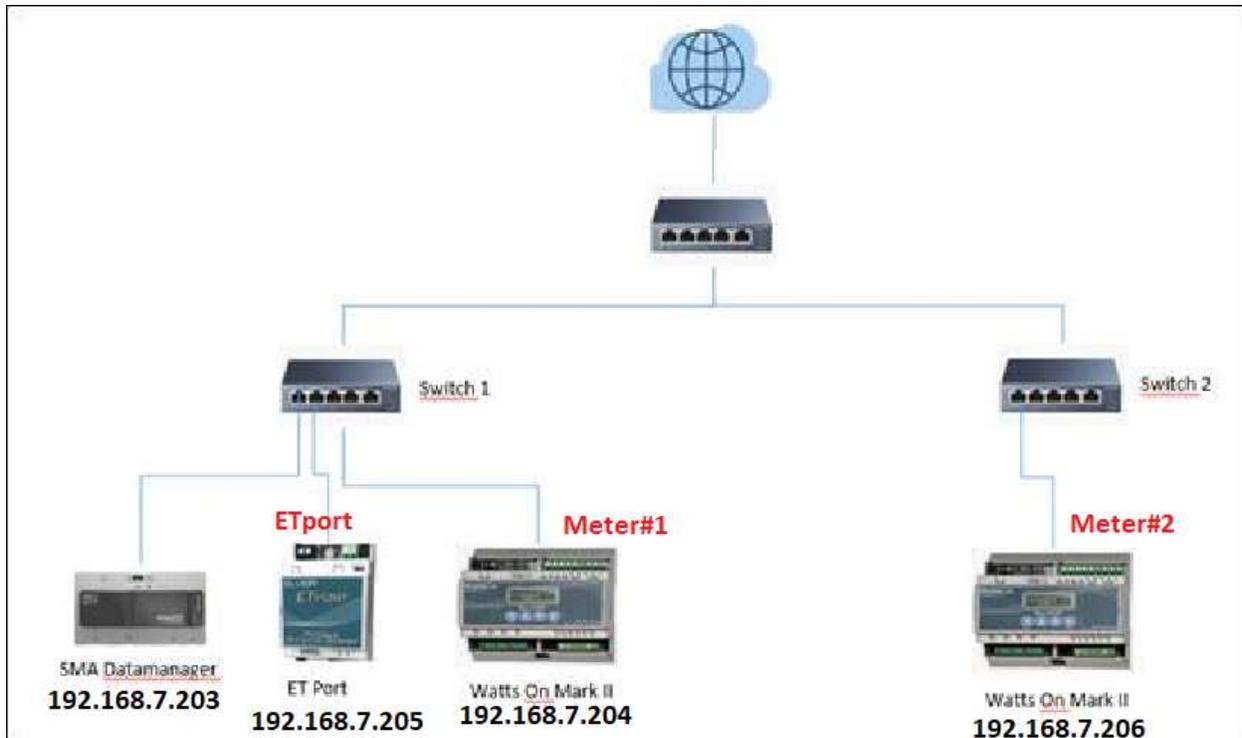
Please review the installation and troubleshooting videos and ensure that each meter is working and measuring correctly.

This document also does not cover SMA DataManager / Meter / ETport initial setup (ie: CT Ratios), or configuration of IP addresses.

Resources:

- **Configuration Files:**
https://elkor.net/bin/SMA_ETport_dual/SMA_EDMM_and_ETport_dual_meter.zip
- **WattsOn-Mark II Installation:**
<https://support.elkor.net/knowledgebase.php?article=37>
- **WattsOn-Mark II Measurement Troubleshooting:**
<https://support.elkor.net/knowledgebase.php?article=39>
- **Configuring Network Settings:**
<https://support.elkor.net/knowledgebase.php?article=28>
- **WattsOn-Mark II with SMA DataManager M for Export Limit and Zero Export Applications**
<https://support.elkor.net/knowledgebase.php?article=29>

Site network topology:



Step 1)

All devices shall be assigned a static IP address (these are used as an example, the site's subnet may be different, but for consistency we will use the numbers above). Adjust your site's configuration accordingly:

1. SMA DataManager M: **192.168.7.203**
2. ETPort: **192.138.7.205**
3. Meter#1: **192.168.7.204**
4. Meter#2: **192.168.7.206**

Step 2) Prepare configuration files.

The ETport requires to configuration files to be uploaded which define the site setup:

- 1) `remotes_devices.json`: configuration file that defines the meter IP addresses
- 2) `registers.json`: configuration file that defines new (summation) registers based on the input values from the individual meters. The default username / password is **admin / admin**

The file formats are as follows:

remote_devices.json

```
{
  "2": {
    "protocol": "mbtcp",
    "host": "192.168.7.204"
  },
  "3": {
    "protocol": "mbtcp",
    "host": "192.168.7.206"
  }
}
```

registers.json

```
{
  "devices": [
    {
      "addr": "2",
      "name": "Meter"
    },
    {
      "addr": "3",
      "name": "Meter2"
    }
  ],
  "registers": [
    {
      "dev": "0",
      "point": "TTL Power (kW)",
      "formula": "$add($2.float(0x200), $3.float(0x200))",
      "precision": 3,
      "use_locale": false
    },
    {
      "dev": "0",
      "point": "TTL Reactive Power (kVAR)",
      "formula": "$add($2.float(0x202), $3.float(0x202))",
      "precision": 3,
      "use_locale": false
    },
    {
      "dev": "0",
      "point": "Avg Grid V L1",
      "formula": "$divide($add($2.float(0x220), $3.float(0x220)), 2)",
      "precision": 3,

```

```
"use_locale": false
},
{
  "dev": "0",
  "point": "Avg Grid V L2",
  "formula": "$divide($add($2.float(0x222), $3.float(0x222)), 2)",
  "precision": 3,
  "use_locale": false
},
{
  "dev": "0",
  "point": "Avg Grid V L3",
  "formula": "$divide($add($2.float(0x224), $3.float(0x224)), 2)",
  "precision": 3,
  "use_locale": false
},
{
  "dev": "0",
  "point": "TTL Imp Energy (kWh)",
  "formula": "$add($2.float(0x1104), $3.float(0x1104))",
  "precision": 3,
  "use_locale": false
},
{
  "dev": "0",
  "point": "TTL Exp Energy (kWh)",
  "formula": "$add($2.float(0x1106), $3.float(0x1106))",
  "precision": 3,
  "use_locale": false
}
]
}
```

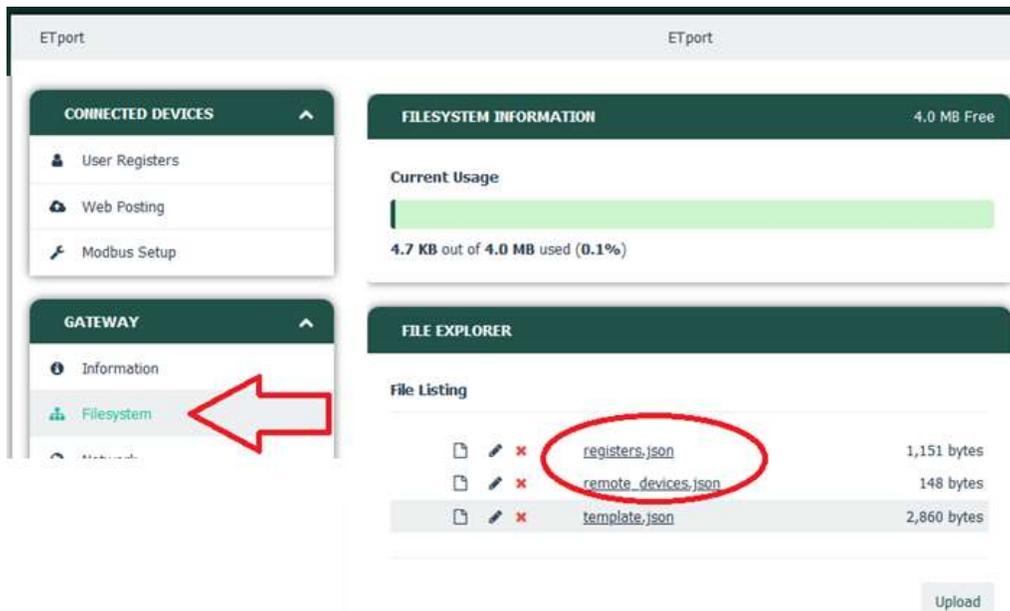
Step 3) Setup ETPORT

ETport accessed via web interface (<http://192.168.7.205>).

The default username / password is **admin / admin**

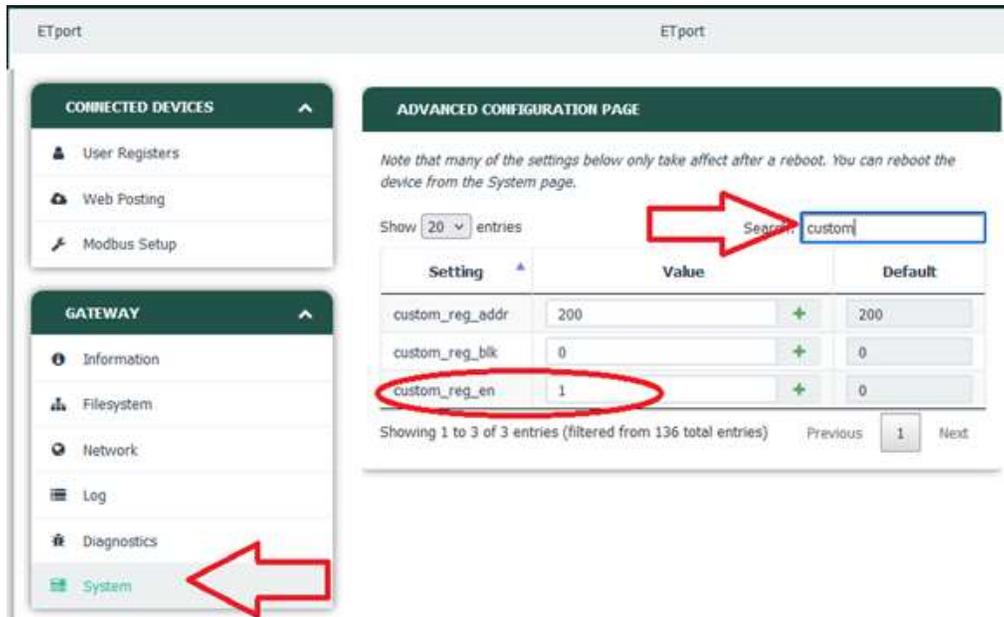
NOTE: for security purposes the username and password should be changed. It is bad practice to leave the default username and password, especially for sites where the ETport may be exposed to the internet.

Two files (`registers.json`, `remote_devices.json`) are uploaded via **“Filesystem Tab”**.



Step 4)

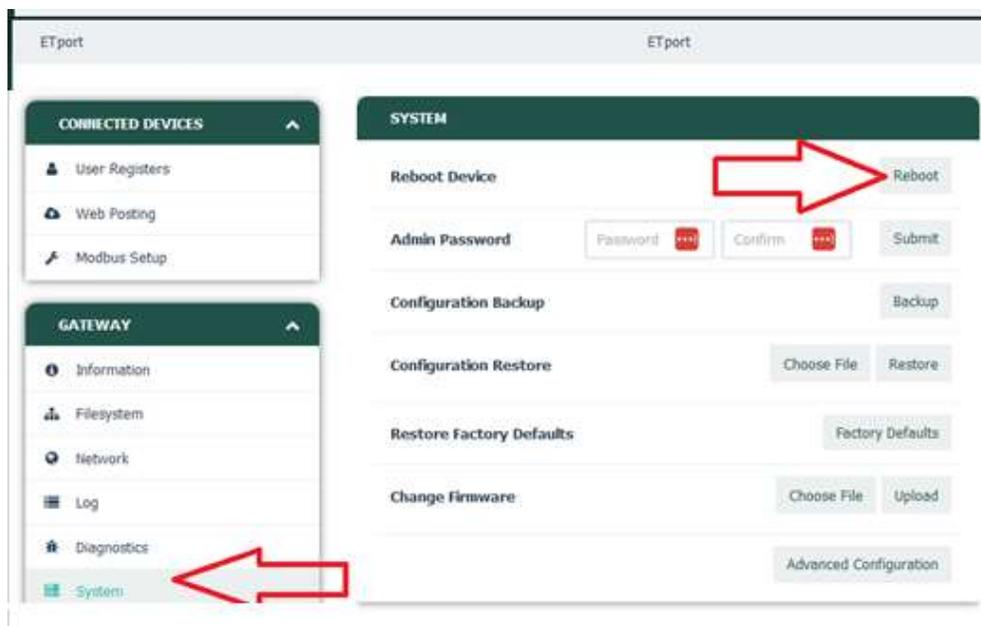
Setup the ETport to accept incoming Modbus connections (**System > Advanced Configuration**)



NOTICE: In this configuration, the ETport created registers will be available via a Modbus/TCP read to the ETport's IP address at Modbus Address (ie: unit ID) "200".

Step 5)

Reboot ETport (**System > Reboot**)



Step 6)

Confirm “User Registers” are being read correctly (**User Registers**)

The screenshot displays the ETport web interface. On the left, there are two main sections: 'CONNECTED DEVICES' and 'GATEWAY'. Under 'CONNECTED DEVICES', 'User Registers' is highlighted with a red arrow. The 'GATEWAY' section includes options like Information, Filesystem, Network, Log, Diagnostics, and System. The main content area is divided into 'READING TIMESTAMP' and 'USER DEFINED REGISTERS'. The 'READING TIMESTAMP' shows 'Tue Jun 11 19:09:36 UTC 2024' and a 'Polling Freq' of '1 sec'. The 'USER DEFINED REGISTERS' section contains a table with 7 entries, circled in red. The table has columns for '#', 'Device', 'Point', and 'Value'.

#	Device	Point	Value
1	Meter	TTL Power (kW)	432.657
2	Meter	TTL Reactive Power (kVAR)	65.742
3	Meter	Avg Grid V L1	278.765
4	Meter	Avg Grid V L2	277.465
5	Meter	Avg Grid V L3	278.642
6	Meter	TTL Imp Energy (kWh)	1563.125
7	Meter	TTL Exp Energy (kWh)	0.000

Showing 1 to 7 of 7 entries

Step 7)

Setup the SMA DataManager M remote device profile for the ETport.

Log into the SMA DataManager (192.168.7.203). Configure the system to work with Modbus TCP and setup a new device (ETport) as per the configuration/screenshots below. The file “etport.json” may be imported as a device profile (it was created by exporting the working profile).

Step 8)

Configure the SMA DataManager M for Zero Export (Gabriella may need to fill this in).

The screenshot shows a web browser window displaying the SMA Data Manager M interface. The browser address bar shows the URL `https://192.168.7.203/webui/Plant:1/co...`. The page title is "SMA DATA MANAGER M" and the user is logged in as "Intaco Guapinol".

The main content area is titled "Meter at the grid feed-in point" and includes the following text: "Configure the energy meters that supply the measured values for grid-supplied power and grid feed-in at the point of interconnection. These measured values is used by the grid management services." Below this text is a "Read more" button.

The "Electrical" section contains a table with the following configuration:

Position	Device	Channel
Grid-supplied power	Modbus-ETport-1	Grid reference co...
Grid feed-in	Modbus-ETport-1	Grid feed-in counter

The Windows taskbar at the bottom shows the time as 11:17 on 11/6/2024.

Configuring Modbus profile ?

Process your own Modbus profiles or create new Modbus profiles. Corresponding register values must be configured depending on the Modbus device.

Saved Modbus profiles

ETport   

[Create a new Modbus profile](#)

Name of Modbus profile*

ETport 

[Export](#)

Device manufacturer*

Elkor

Model designation*

ETport

[Cancel](#) [Save](#)

Configuring Modbus profile ?

Device type*

Bidirectional energy meter with one channel

Mapping template*

Active and reactive power

Byte sequence*

Big-Endian

Channel designation	Register address	Register type	Function code	Scaling factor	
Power	0	float32	{0x03} ...	-1,000	
Reactive power grid feeding	2	float32	{0x03} ...	1,000	

[Cancel](#) [Save](#)

Configuring Modbus profile register +

Channel designation	address	Register type	Function code	Scaling factor	
Power	0	float32	{0x03} ...	-1,000	
Reactive power grid feeding	2	float32	{0x03} ...	1,000	
Grid voltage phase L1	4	float32	{0x03} ...	1	
Grid voltage phase L2	6	float32	{0x03} ...	1	
Grid voltage phase L3	8	float32	{0x03} ...	1	

Cancel Save

Configuring Modbus profile register +

Reactive power grid feeding	2	float32	{0x03} ...	1,000	
Grid voltage phase L1	4	float32	{0x03} ...	1	
Grid voltage phase L2	6	float32	{0x03} ...	1	
Grid voltage phase L3	8	float32	{0x03} ...	1	
Counter reading of power drawn counter	10	float32	{0x03} ...	1,000	
Grid feed-in counter reading	12	float32	{0x03} ...	1,000	

Cancel Save

Step 9) Configure SMA DataManager M for Zero Export

With the above steps, the SMA DataManager M will now see the sum of the measurements of the two meters. Essentially the ETport is acting as a “virtual meter” that aggregates the readings from the two individual meters.

You may now follow the normal steps to configure the SMA DataManager M for Zero Export/Export Limit as per SMA’s instructions:

<https://support.elkor.net/knowledgebase.php?article=29>