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Energy Web Server

User Manual

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2. System requirements

Display possible on:

- PC: (Device, Web Browser)
  - Firefox : version 50 and following (v50.0+)
  - Chrome : v55.0+
  - Safari : v10.0+
  - Opera : v53.0+
- Tablet: (Device, Operating system, Web Browser)
  - iPad (all versions), iOS 10+, Safari
  - Android v6.0+, Chrome v55.0+
- Smartphones: (see User Guide)

3. Catalogue numbers

SXWS255: "Energy Web Server 255"
- Management up to 255* devices

Note: for each Gateway max. 32 Modbus addresses or 32 pulse counters

* Recommended value 128

Software version 3.11.0

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4. Languages available

Languages:
-Deutsch
-English
-Español
-Français
-Français (Belgique)
-Ελληνικά
-Italiano
-Magyar
-Nederlands (België)
-Nederlands
-Polski
-Portuguese
-Русский
-Magyar

5. Compatible devices

5.1 Measuring / metering devices

- Range NEMO

- **Multifunction measuring units RS485 :**
  - Nemo D4-L, Cat.No **MF6FT40026**
  - Nemo D4-L +, Cat.Nos **MF6HT40003, MF6HT40006, MF6HT4000H**
  - Nemo D4-e, Cat.No **MFD4E06**
  - Nemo D4-Le, Cat.Nos **MFD4421, MFD4422, KRNEMOD4LE080, KRNEMOD4LE142, KRNEMOD4LE190**
  - Nemo D4-Dc, Cat.Nos **MF6DC4200H, MF6DC42006, MF6DC4206H, MF6DC42066**
  - Nemo D4-EC, Cat.Nos **MKD4R63DT, MKD4R125DT, MFD4ORFCDT1, MFD41ORFCDT, MFD42ORFCDT**
  - Nemo 72-Le, Cat.Nos **MF72421, MF72422**
  - Nemo 96HD-e, Cat.No **MF96E06**
  - Nemo 96HD-Le, Cat.Nos **MF96411 + IF96001, MF96412 + IF96001, MF96411 + IF96012, MF96412 + IF96012, MF96421, MF96422, KRNEMOHDLE080, KRNEMOHDLE142, KRNEMOHDLE190**
  - Nemo 96HD, Cat.Nos **MF96001 + IF96001, MF96002 + IF96001, MF96001 + IF96012, MF96002 + IF96012**
  - Nemo 96HD+, Cat.Nos **MF96021 + IF96001, MF96022 + IF96001, MF96021 + IF96012, MF96022 + IF96012**
  - Nemo 96EA, Cat.Nos **MFQ96021 + IF96001, MFQ96022 + IF96001**
  - Nemo 96-EC, Cat.Nos **MK96R63DT, MK96R125DT, MF96ORFCDT1, MF961ORFCDT, MF962ORFCDT**

- **Multifunction measuring units pulse output (via the Pulse Concentrators Cat.Nos IF4C001* or SXMIMP* or pulse input of Energy counters Cat.Nos CE2DF3DTCL1*, CE4DF3DTCL1* and CE4TBDTCL1*):**
  - Nemo D4-L +, Cat.Nos **MF6HTU0003, MF6HTU0006, MF6HTU000H**
  - Nemo D4-Le, Cat.Nos **MFD4411, MFD4412**
  - Nemo 72-Le, Cat.Nos **MF72411, MF72412**
  - Nemo 96HD-Le, Cat.Nos **MF96411, MF96412**

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- **Range CONTO**

  - Energy counters RS485:
  - Conto D1, Cat.No **CE11165A4**
  - Conto D2, Cat.Nos **CE20195A4, CE2DF3DTCL1**
  - Conto D2 MID, Cat.Nos **CE2DMID11, CE2DF3DTMID**
  - Conto D4-Pd, Cat.Nos **CE4DT06A4, CE4DF3DTCL1**
  - Conto D4-Pd MID, Cat.Nos **CE4DMID31, CE4DF3DTMID**
  - Conto D4-Pt, Cat.Nos **CE4DT12A4, CE4DT12A6, CE4DT14A4, CE4DT14A6, CE4TBDTCL1**
  - Conto D4-Pt MID, Cat.Nos **CE4DMID01, CE4TBDTMID**
  - Conto D6-Pd, Cat.No **CE6DT1256**
  - Conto D6-Pd MID, Cat.No **CE6DMID56**

- Energy counters pulse output (via the Pulse Concentrators **Cat.Nos IF4C001* or SXMIMP*** or pulse input of Energy counters Cat.Nos **CE2DF3DTCL1*, CE4DF3DTCL1* and CE4TBDTCL1*) :**
  - Conto D1, Cat.No **CE11165A2**
  - Conto D1 MID , Cat.No **CE1DMID12**
  - Conto D2, Cat.Nos **CE20195A2, CE2DF30PCL1**
  - Conto D2 MID, Cat.Nos **CE2DMID12, CE2DF30PMID**
  - Conto D4-Pd, Cat.Nos **CE4DT06A2, CE4DT06A23F, CE4DF30PCL1**
  - Conto D4-Pd MID, Cat.Nos **CE4DMID22, CE4DMID32, CE4DF30PMID**
  - Conto D4-Pt, Cat.Nos **CE4DT12A2, CE4DT14A2, CE4TB0PCL1**
  - Conto D6-Pd, Cat.No **CE6DT1252**
  - Conto D6-Pd MID, Cat.No **CE6DMID52**

- Range NEMO SX

- **Multifunction measuring devices:**
  - Single-phase connection via Closed Rogowski coil(s) –Cat.Nos **SX3M63 and SXMM63**
  - Three-phase connection via Closed Rogowski coil(s) –Cat.Nos **SXMT63 and SXMT125**
  - Single-phase or Three-phase (configurable) connection with CT - Cat.No **SXMMT5**
  - Three-phase connection via Open Flexible Rogowski coils - Cat.Nos **SXMR02, SXMR04, SXMR06 and SXMR08**
- **State and Control modules:**
  - Multifunction State Module - Cat.No **SXMC02**
  - Multifunction Control Module - Cat.No **SXM0C1**
  - via Modbus/NEMO SX interface - Cat.No **SXI485**

- Gas counters

- Any device with pulse output via the Pulse Concentrators Cat.Nos **IF4C001* or SXMIMP*** or pulse input of Energy counters Cat.Nos **CE2DF3DTCL1*, CE4DF3DTCL1* and CE4TBDTCL1***

- Water counters

- Any device with pulse output via the Pulse Concentrators Cat.Nos **IF4C001*** or **SXMIMP*** or pulse input of Energy counters Cat.Nos **CE2DF3DTCL1*, CE4DF3DTCL1* and CE4TBDTCL1***

* **Note:** Pulse Concentrator and Energy counters with pulse input must be properly programmed to be compatible with the type of counter (**Refer to the technical documentation of each device**)

- Range Power factor controller ALPTEC

- ALPTEC3.2 + ExtRS485
- ALPTEC5.2 + ExtRS485
- ALPTEC8.2 + ExtRS485
- ALPTEC8 + ExtRS485

- "Generic" Measurement/Counting Devices with Modbus RS485 output

- Any "other manufacturers" meter or counter with Modbus RS485 output, **limited only to positive active energy**

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6. Preliminary operations

ATTENTION!

Before commissioning the installation we recommend you to verify on the legrand "e-catalogue" site if a software update is available.

Download the update file from the Legrand site to your computer.This file will be used to update the firmware.

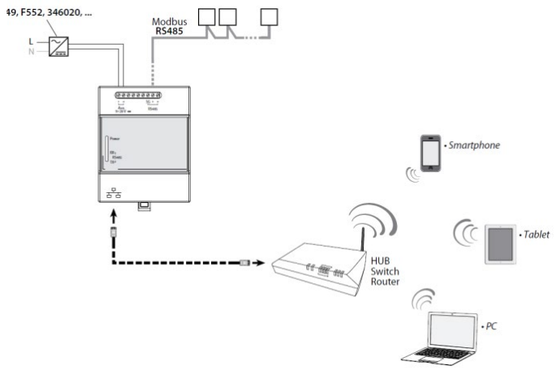
(After downloading the update file follow the procedure detailed on pages 26 to 27 of this manual)

7. Implementation

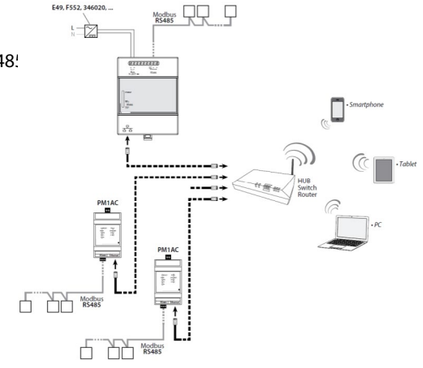
7.1 Installation - ONLY FOR 10/32 VERSION

Mini Web servers allow different installation types:

Type 1: Mini Web server is used as a Modbus/IP gateway
(all Modbus RS485 devices are directly wired to the Web server).

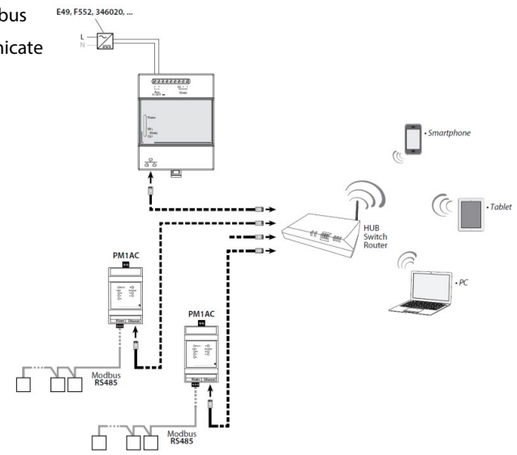


Type 2: Mini server is used as a Modbus/IP gateway (some RS48
devices are directly wired to the Web server) and as a
Gateways IP "Concentrator"



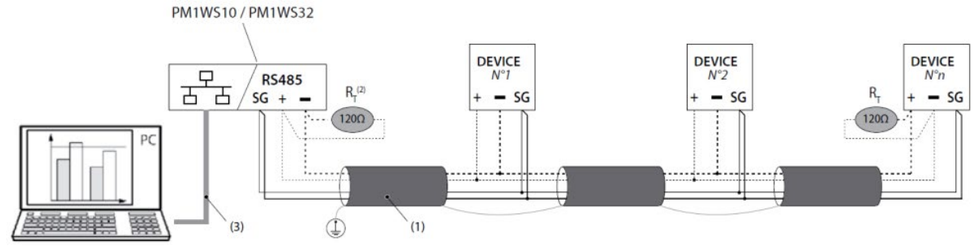
Type 3: Mini Web server is used as a Gateways IP "Concentrator" (All Modbus RS485 devices are wired only to Gateways 0 046 89, which then communicate with the Web Server).

Note: all the IP devices must have a different IP address



7.2 Use of the Modbus RS485 port of the Mini Web Server - ONLY FOR 10/32 VERSION

Wiring diagram



(1) RS485: Prescribed use of Cable Belden 9842, Belden 3106A (or equivalent) for a maximum length of 1000 m, or Category 6 cable (FTP or UTP) for a maximum length of 50 m;

(2) Resistance not furnished

(3) Ethernet: Cat. 6 (FTP/UTP)

7.3 Local settings

Local settings / configuration

- Procedure to configure the Web Server from a computer directly connected to it.

Materials required

- Mini Web Server's instruction sheet
- Mini Web Server's user manual
- PC with a web browser (Chrome, Firefox, etc.)

Note: The local settings must be made mandatorily by a computer

Useful Information

- IP network parameters for Web Server (use the Parameters Table of the Mini Web Server)

7.4 Connecting the device to a PC - Programming

- Connect the Web Server directly to a PC by the Ethernet cable (is possible to pass through a switch)

Note: In this phase don't connect the Mini Web Server to other devices (Gateways, etc.) or to the Building Network

- Supply the Web Server

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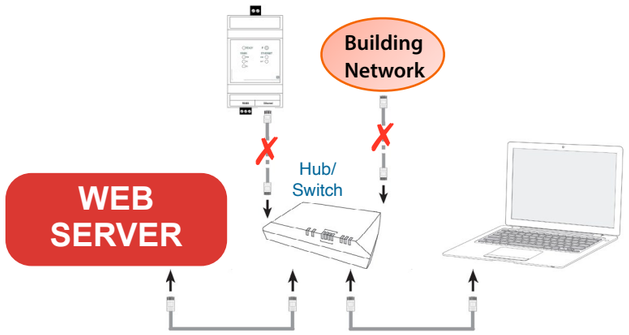


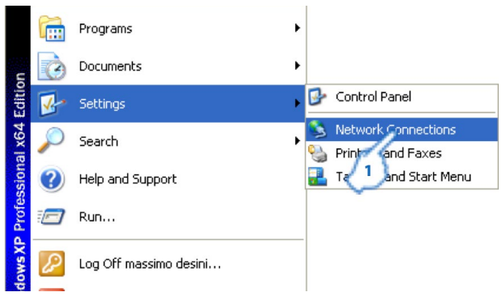
7.5 Mini Web Server default settings

- IP Address: 192.168.1.100
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1

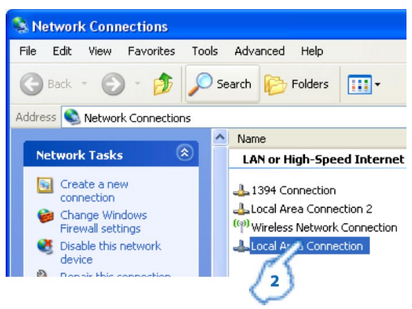
Note: Mini Web Server and Gateway have the same default settings

7.6 LAN configuration of the computer

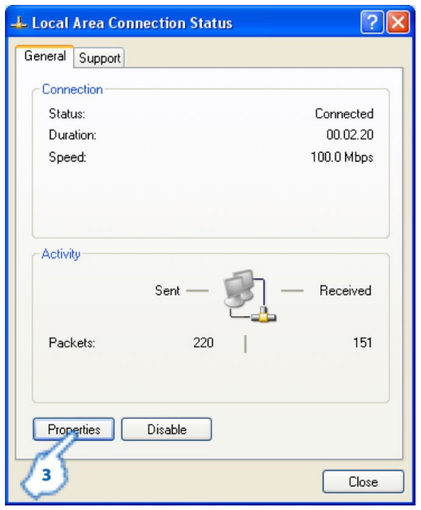
Follow the procedure:



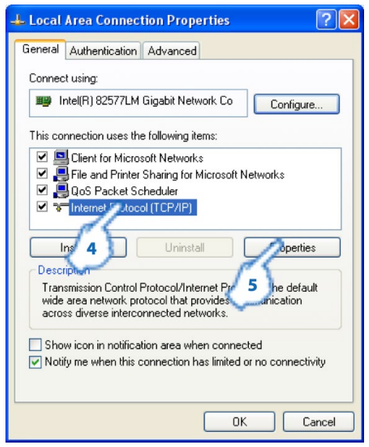
1. In the Start menu choose "Settings" then click "Network Connections"



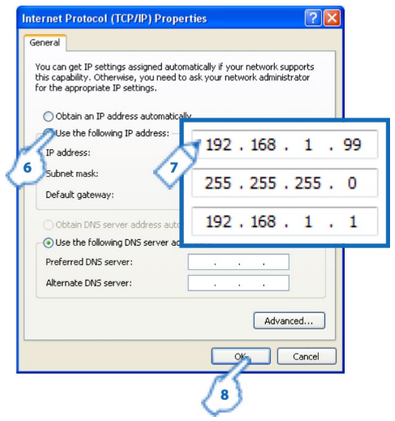
2. Click "Local Area Connection"
3. Click "Properties"



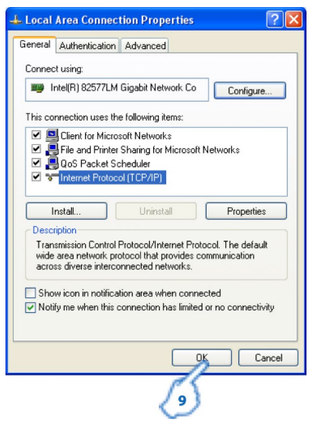
4. Click "Internet Protocol (TCP/IP)"
5. Click "Properties"



6. Click "Use the following IP address"
7. Enter the LAN parameters as shown
8. Click "OK" to confirm



9. Click "OK" to confirm

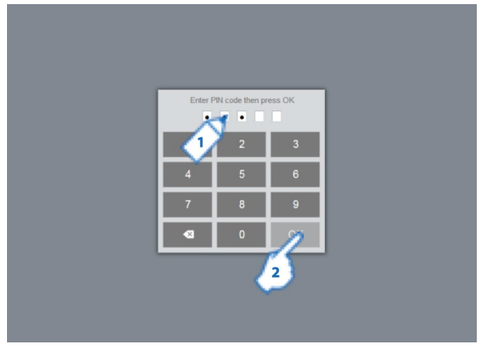


7.7 Configuration of the Web Server

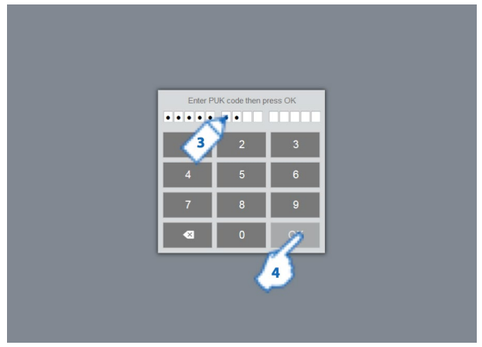
7.7.1 Network Settings - Personal configuration

To access to the Web Server, type the IP address 192.168.1.100 (default IP) in the web browser.

Web Server's Login page appears

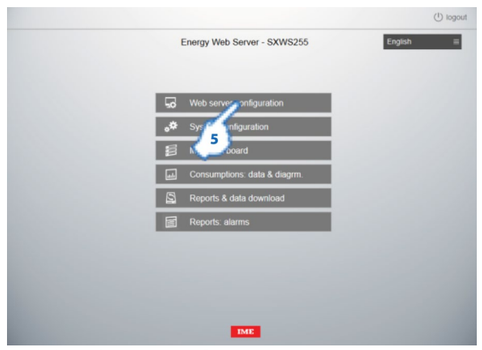


1. Type the access PIN code 99999 (default PIN)
2. Click "OK"



3. Type the access PUK code 00000 9999 00000 (default PUK)
4. Click "OK"

Web Server's Home page appears.



5. Click "Web Server configuration"

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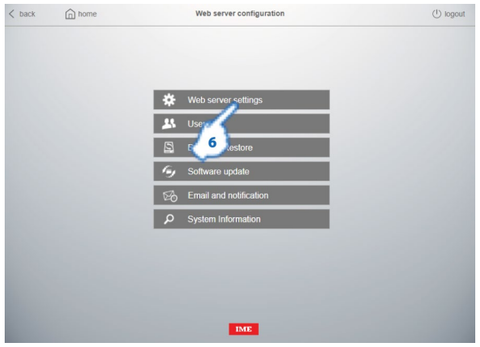
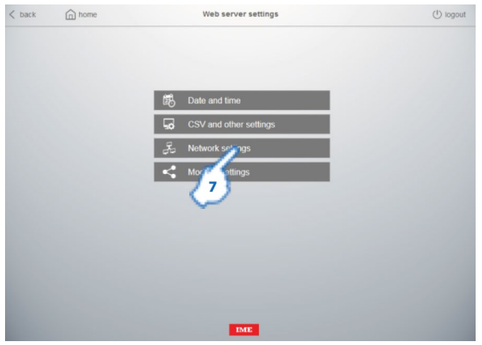
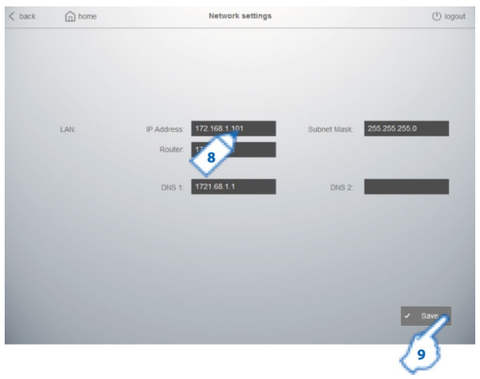


6. Click "Web Server setting"



7. Click "Network settings" to configure the LAN properties of the Server



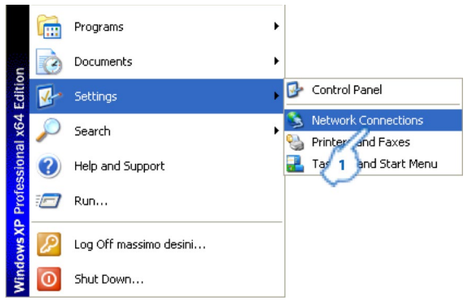
8. Enter the new LAN settings.
   Example of IP network settings to configure on the Web Server
   - IP Address: 172.168.1.101
   - Subnet mask: 255.255.255.0
   - Default gateway: 172.168.1.1

9. Click "Save" 2 times to confirm

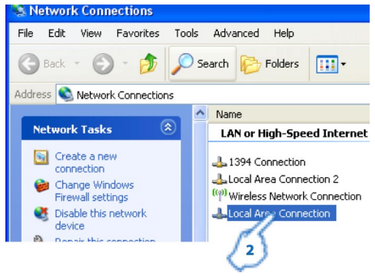
Note: Now the Web server has new network parameters

7.7.2 Access with new Network parameters

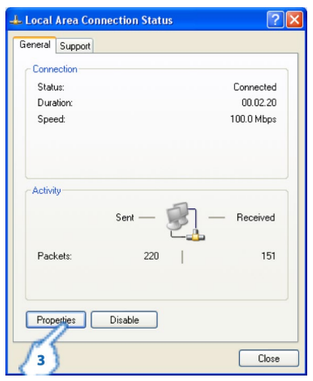
- After changing of the Network parameters of the Server, it is necessary to configure manually an IP address compatible with the new IP address of the web server as shown below: (in the example the server has the IP 172.168.1.101 → use 172.168.1.99)



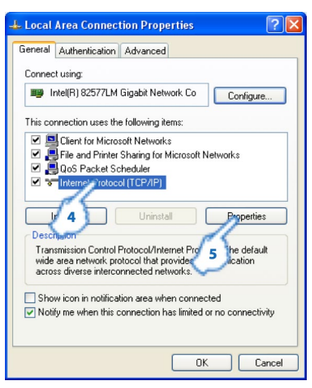
1. In the Start menu choose "Settings" then click "Network Connections"



2. Click "Local Area Connection"

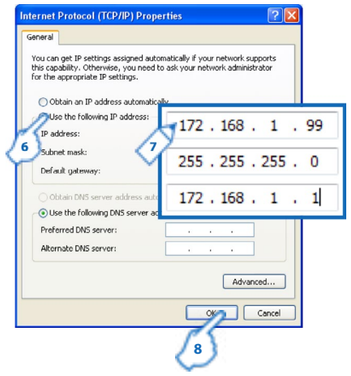


3. Click "Properties"



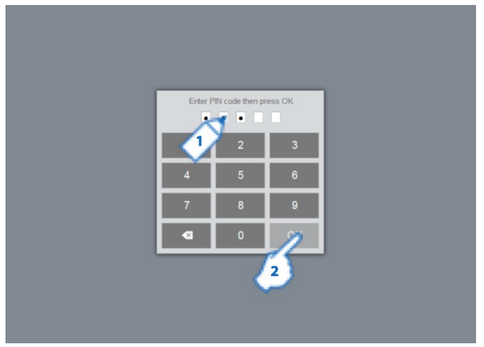
4. Click "Internet Protocol (TCP/IP)"
5. Click "Properties"

6. Click "Use the following IP address"
7. Enter the LAN parameters as shown
8. Click "OK" to confirm

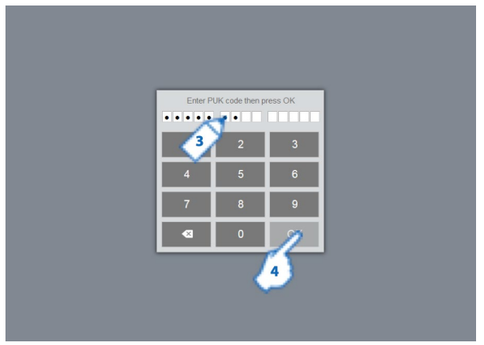


To access to the Web Server, type the new IP address 172.168.1.101 (in the example) in the web browser.

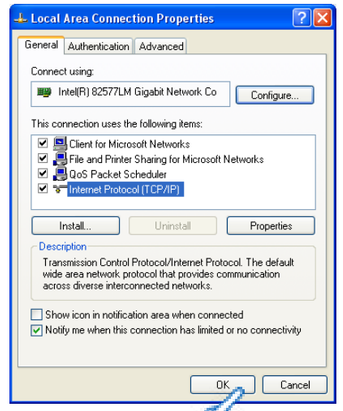
Web Server's Login page appears



1. Type the access PIN code 99999 (default PIN)
2. Click "OK"

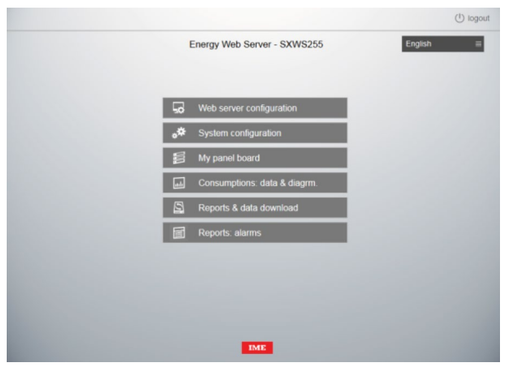


9. Click "OK" to confirm



3. Type the access PUK code 00000 9999 00000 (default PUK)
4. Click "OK"

Web Server's Home page appears.



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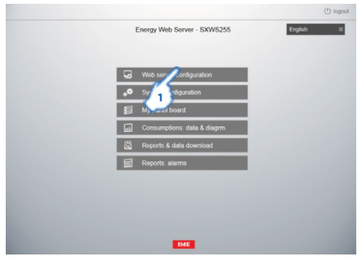
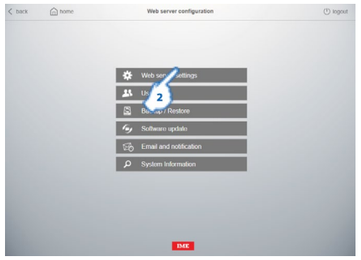
7.8 Modbus settings - ONLY FOR VERSION 10/32

In the Web Server's Home page

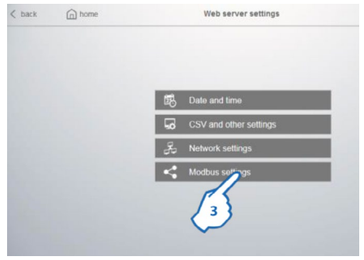
1. Click "Web Server configuration

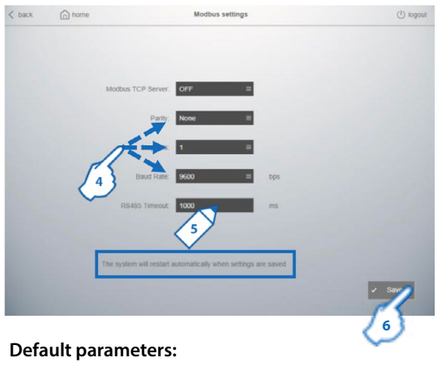


2. Click "Web server settings"



3. Click "Modbus settings" to set these parameters





4. Enter the new parameters
- Parity
- Stop bits
- Baud Rate (bps)

5. Assign the RS485 Timeout
6. Click "Save" 2 times to confirm

Note 1: System will restart automatically when settings are saved.

Note 2: If you want to use Mini Web server also as a Modbus/IP gateway for other Servers (Mini or 255), you have to Enable ("ON") the Modbus TCP Server option and, as for the other parameters of this page, click "Save" 2 times to confirm.

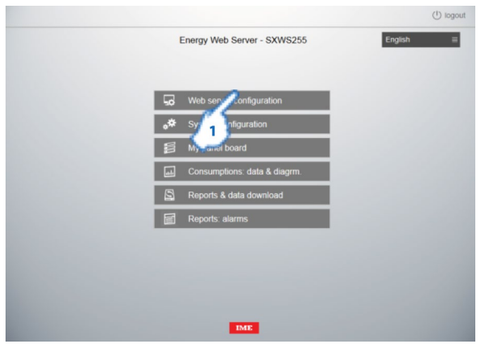
Default parameters:

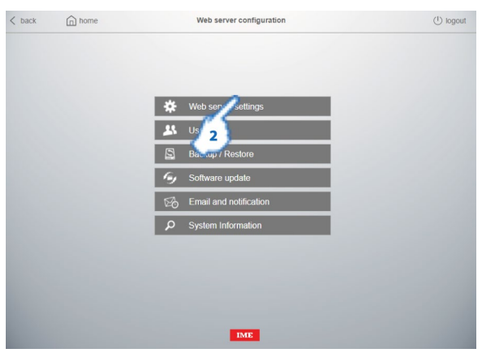
- Modbus TCP Server: OFF
- Parity: Even
- Stop bits: 1
- Baud Rate: 19200 bps
- RS485 Timeout: 300 ms

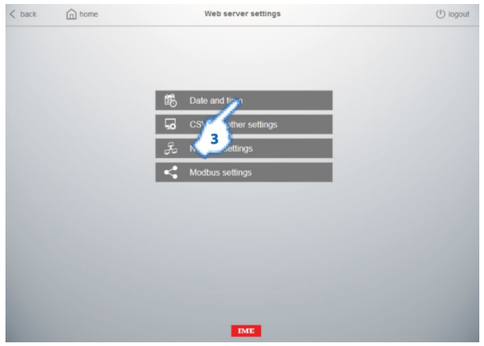
7.9 Date and Time settings

In the Web Server's Home page

1. Click "Web Server configuration
2. Click "Web server settings"
3. Click "Data and Time" to set these parameters



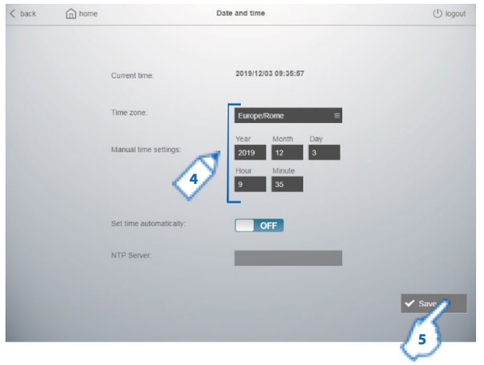




4. Enter the new parameters
- Time zone
- Data and time

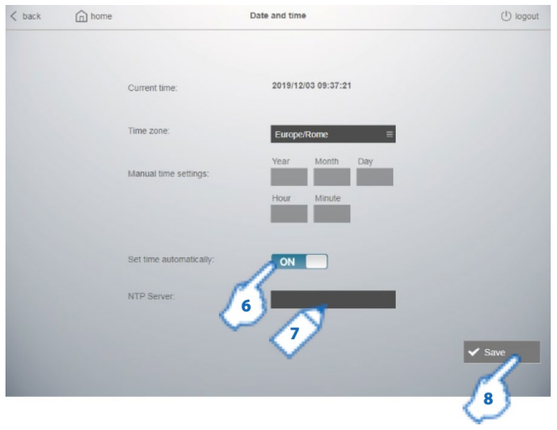
5. Click "Save" to confirm

Alternatively, you can use the "Automatic time settings" function that allow the Web Server reach the clock from a Network time protocol (NTP) Server.



6. Click to enable (ON) "Automatic time settings".
7. It is possible to set:- the IP address of an internal NTP server, if the Web server is connected to an intranet that doesn't allow Internet connection- the address of a public NTP server, if the Web server is connected to Internet (e.g. of an European public NTP server: 0.europe.pool.ntp.org)
8. Click "Save" to confirm

Note: To get correct Date & Time using the "Automatic time settings", is fundamental to set the correct Time zone.



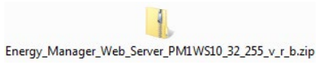
Energy Web Server

7.10 Update of the Web Server

Materials required:

- File downloaded from the "e-catalogue" legrand :

• Energy_Manager_Web_Server_414947_48_49_v_r_b.zip



Energy_Manager_Web_Server = Product Name
414947_48_49 = Catalog number
v_r_b = Version of the embedded application

The folder .zip contains the following files:

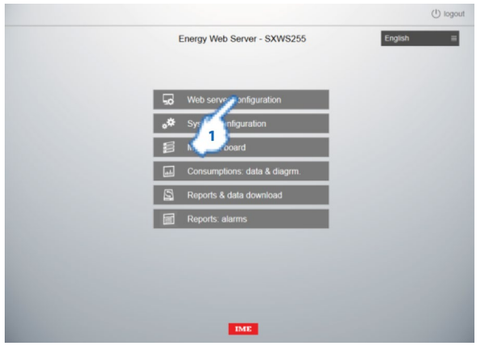
• File ".jar": web server's update package

- Procedure for updating the Web Server: follow the procedure

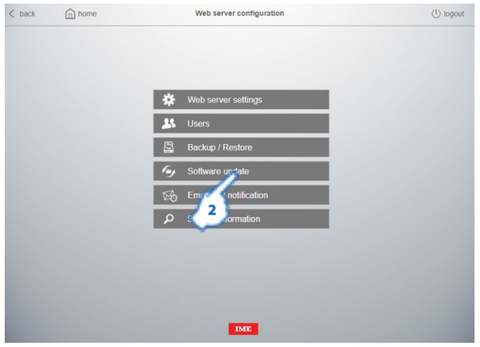
Access to the Web server typing PIN and PUK codes

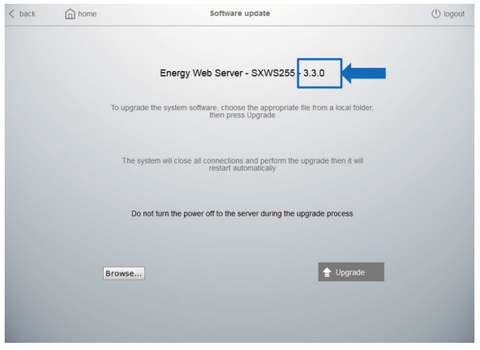
Web Server's home page appears

1. Click "Web Server configuration"



2. Click "Software update"





Compare the version of the installed software with the version of the file received from technical customer service. Update the Software if the file version is more recent than the installed version.

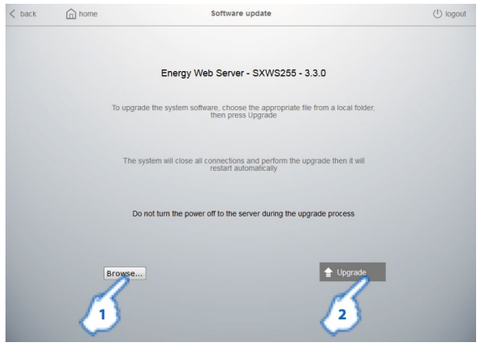
7.10.1 Update procedure

- From the compressed folder, extract on your computer the file:

"wsmeasure.jar"

Note: Mini web server automatically recognizes the type of license.

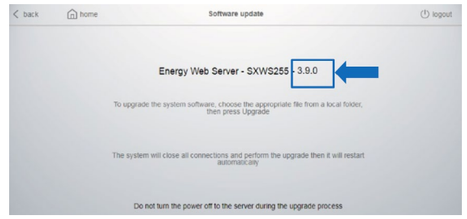
In the "Software update" page



1. Click "Browse" to select the file ".jar" from your computer
2. Click "Upgrade"

IMPORTANT: please allow the time for the updating procedure: about 30 seconds

- Verify that the update has been done checking the software version on the "Software's update" page

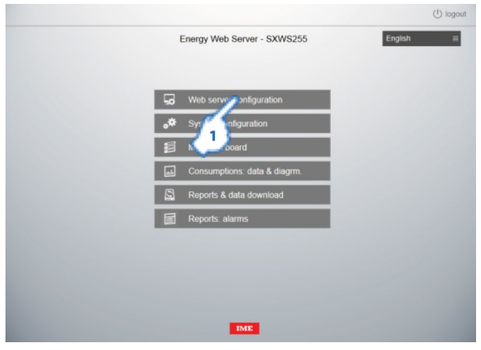


7.11 Changing of the Web Server's language

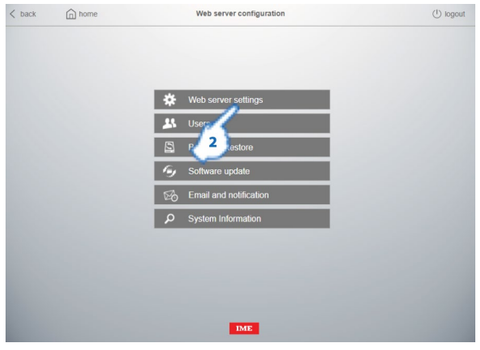
7.11.1 Changing of the default language

In the Web Server's home page

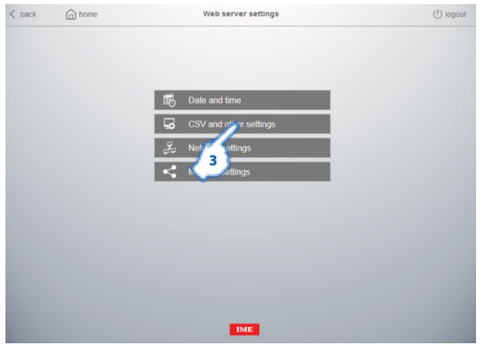
1. Click "Web Server configuration"



2. Click "Web server settings"

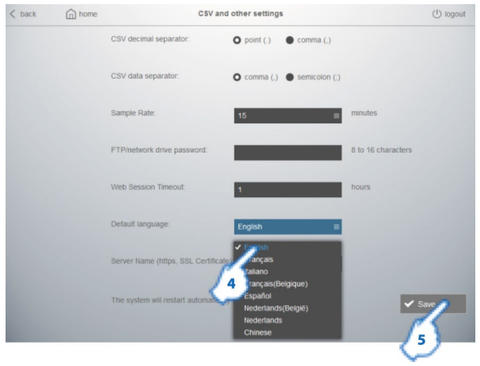


3. Click "CSV and other settings"



4. Choose the language from the list of languages
5. Click on "Save" to confirm

Note: the language will be changed at the next login.



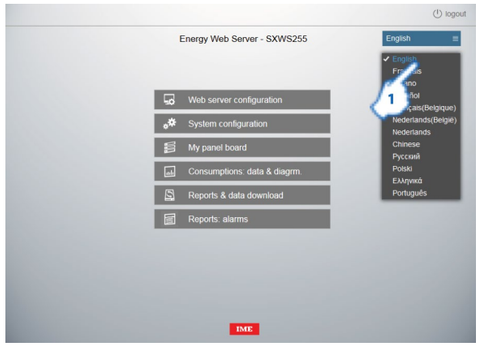
Energy Web Server

7.11.2 Changing of the display language

In the Web Server's Home page

1. Choose the proper language from the list box.

Note: this operation doesn't change the default language



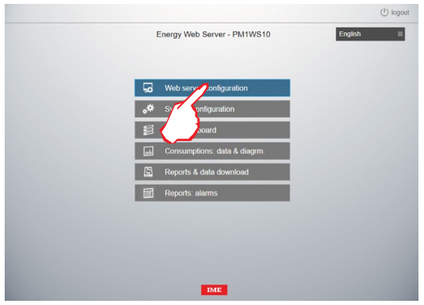
7.12 Connector function

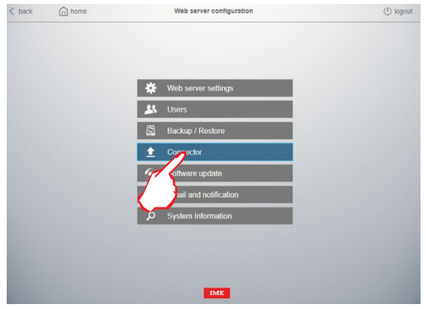
Access to external server or cloud

The Connector function allows the user to connect the Energy Web Server to any remote cloud or server that offers SCP or SFTP services to save all the consumption data on that machine. The consumption data are the CSV files stored in the internal memory.

- Configure Connector function

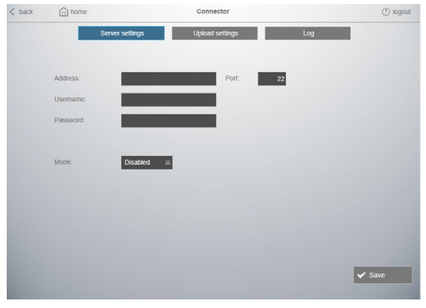
Open the configuration page; click on "Web server configuration" and then click on "Connector"





In the "Connector" page there are three sub-sections:

I."Server settings" section



In this area it's possible to configure the required parameters to use the file transfer protocol offered by the chosen remote server: to retrieve their values, please contact the service supplier.

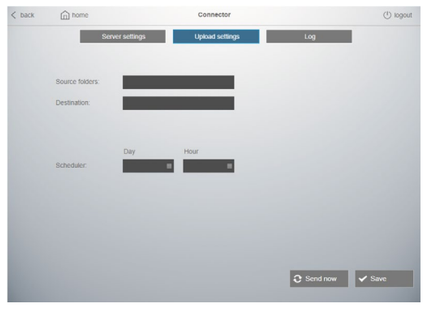
Address: The server's IP address or its DNS name.

Port: The server's port where the chosen service is available (if that field remains empty, the default value will be 22).

Username and Password: The credentials to access to the service.

Mode: The protocol used to transfer files ("SFTP" or "SCP") to the remote server or the flag ("OFF") to disable the Connector function.

II."Upload settings" page



This page contains parameters about the source folder, the destination path, and the scheduling of the operations.

- **Source folders:** This field indicates which folders of the Energy Web Server should be processed through the Connector function. If it remains empty, the default value will be all the user's folders of the Energy Web Server. A specific group of folders can be explicitly declared in the field as a comma-separated list (example: "devices, energy"): a complete list of them is available in the manual at §8.4.3. (Let's create a link to this chapter, with the possibility to come back again to this section)
- **Destination:** This field has different behaviors depending on the selected mode in the "Server Settings" page.

If "SFTP" is selected, it is path/name of the folder created or already available on the destination target where the selected folders of the Energy Web Server will be synchronized (example: test/name will synchronize the CSV files in the folder "name" inside the "test" one on the remote machine. The CSV files are the ones stored in the webserver and defined in the source folder field).

If "SCP" is selected, it is the path/name of the zip folder that will be transferred on the chosen server or cloud (example: test/name will create a "name.zip" file in the "test" folder. The "name.zip" file will contain the CSV files stored in the webserver and defined in the "Source folder" field).

All the paths are relative to the home directory of the remote machine for the given user.

Special "key words" can be added in the destination field. They are:

- %date: the current date/time (yyyyMMddHHmm)
- %day: the current day (2 digits, 01-31)
- %dow: the current day of week (mon-sun)
- %hour: the current hour (2 digits, 00-23)

The "current" value is interpreted in the moment when the scheduled operation is performed, so it may be changed time by time.

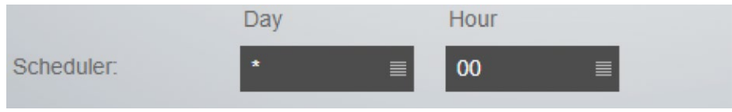
Example: in SFTP, path/backup%date will be interpreted as "path/backup202211301400" folder.

Example: in SCP, path/energyOf%dow will be interpreted as "energyOfwed.zip" file in the "path" folder.

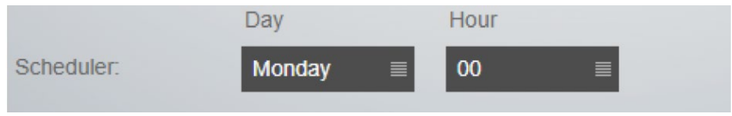
- **Scheduler:** Day and Hour when files will be transferred. It's possible to set a specific day and/or a specific hour. If you insert "*" in these fields, the web server will send the files every day and/or every hour according to the related selection.

Examples of scheduling:

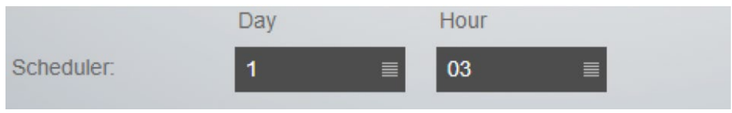
Files will be transferred every day at every hour



Files will be transferred every day at 0h00



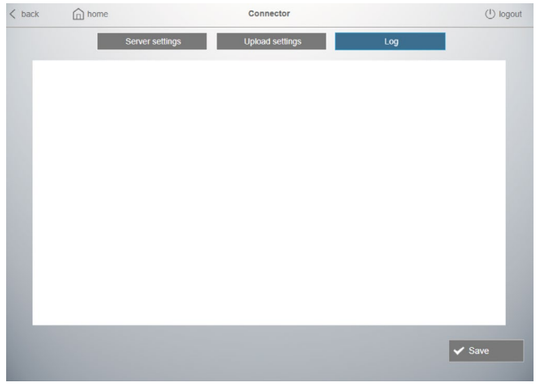
Files will be transferred every Monday at 0h00



Files will be transferred the 1st of every month at 3h00

Energy Web Server

"Send now" button: once pressed, it tries to process the folders immediately. The outcome is a transfer attempt performed by the Energy Web Server that can be used to test the correctness of all parameters or to perform an on-demand operation.



This area gives log and info about the Connector function: if it's working properly (example: when the transfer is started and when is completed) or if there is any issue (example: it isn't possible to reach the external server).

III."Log" page

7.13 Remote settings

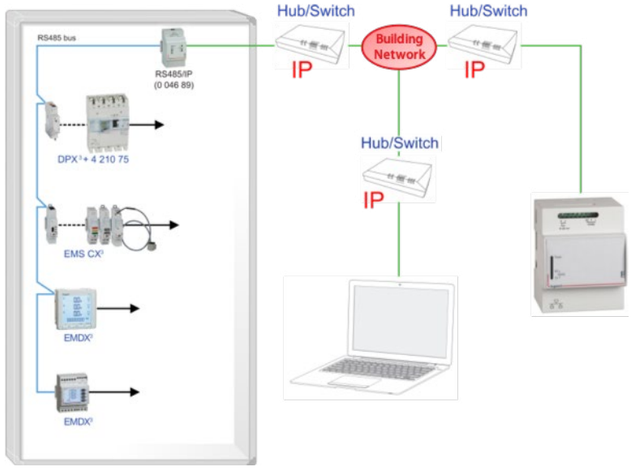
Settings / configurations of the electrical installation:
- Procedure to configure the different devices on the web server

Materials required:
- Mini Web Server's user manual
- A computer with a web browser (Chrome, Firefox, etc.)

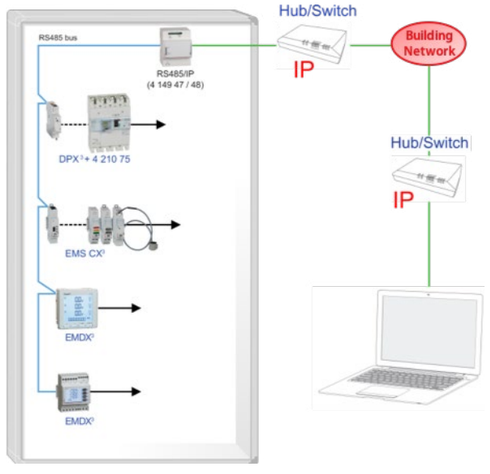
Useful Information:
- Network and RS485 bus parameters for Gateways and Devices (use the Parameters Table of the Mini Web Server)

7.14 Connection schemes - Normal Use

Example of "Type 1" connection scheme



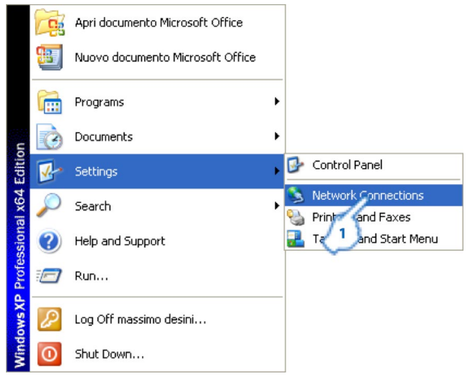
Example of "Type 3" connection scheme



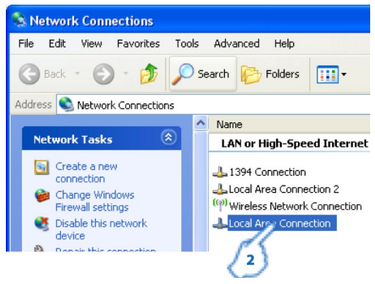
7.15 LAN configuration of the computer - Automatic IP address

Follow the procedure:

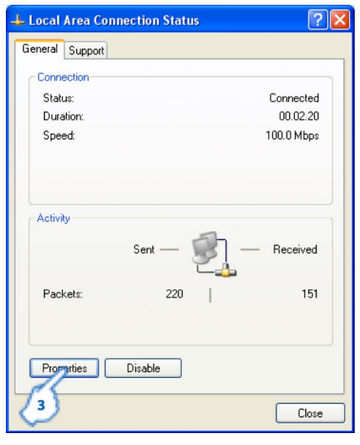
1. In the Start menu choose "Settings" then click "Network Connections"



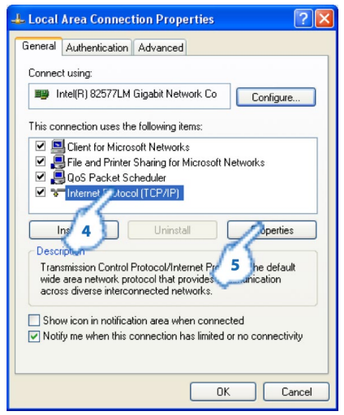
2. Click "Local Area Connection"



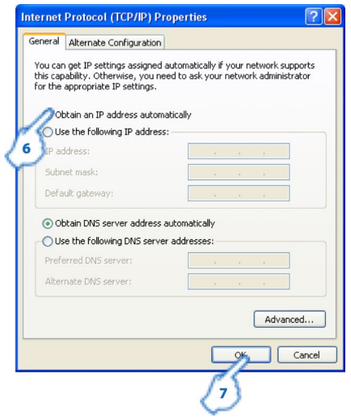
3. Click "Properties"



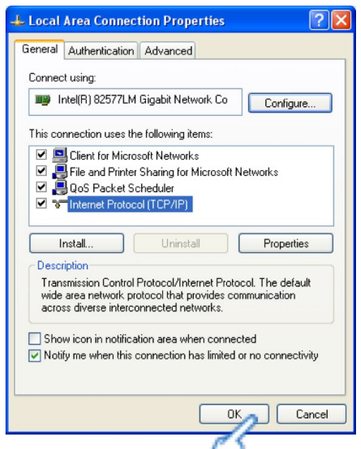
4. Click "Internet Protocol (TCP/IP)"
5. Click "Properties"



6. Click "Obtain an IP address automatically"
7. Click "OK" to confirm



8. Click "OK" to confirm

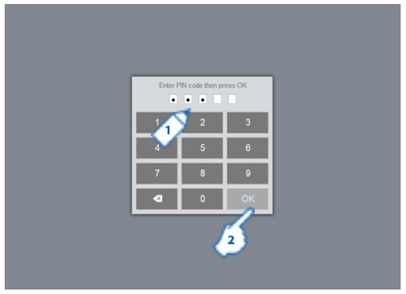


Energy Web Server

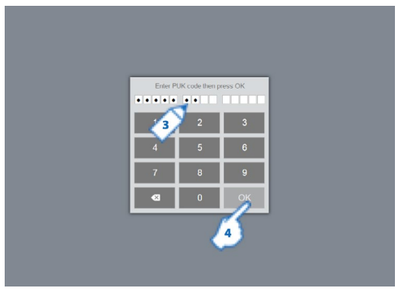
7.16 Configuration of the electric installation in the Web Server - "System configuration"

Type the set IP address in the web browser.

Web Server's login page appears

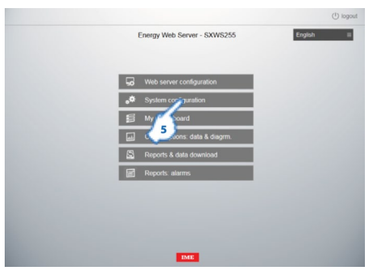


1. Type an access PIN code (ex. 99999 - default PIN)
2. Click "OK"



3. Type the access PUK code 00000 9999 00000 (default PUK)
4. Click "OK"

Web Server's Home page appears

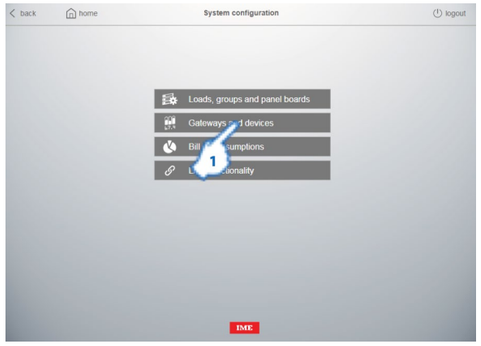


5. Click "System configuration"

System configuration page appears

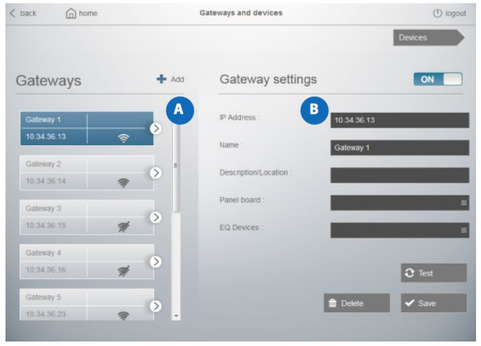
- Configuration sequence:
  - Gateways and Devices configuration
  - Loads, groups and panel boards configurations
  - Bill of Consumptions configuration

7.16.1 Gateways and Devices configuration



1. Click "Gateways and devices"

Gateway's settings page appears



The page is divided into two sections:
section A is the "Gateways" area.
section B shows the "Gateway Settings" area, where the configuration fields for the selected gateway are available.

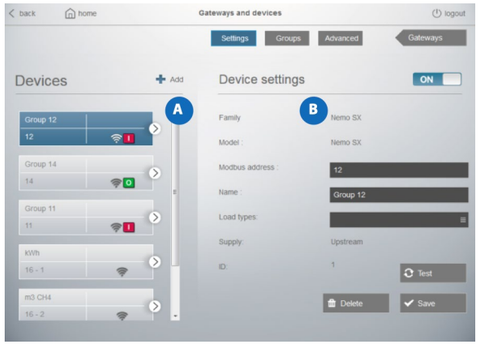
7.16.1.1 Creating and Saving new Gateways

1. Click "Add"
2. Assign the gateway parameters:IP Address (required parameter)Name (required parameter) Description/Location (optional parameter)
3. Click "Save"
4. Click "Test" to verify the correct operation of the communication between the Web Server and the Gateway
5. Click "Devices" to configure the physical or virtual devices connected to the Gateway

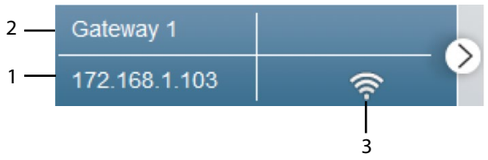
Device's settings page appears

Energy Web Server

The page is divided into two sections:
section (A) is the "Added Devices" area.
section (B) shows the "Device Settings" area, where the configuration fields for the selected device are available.



- Description of the Gateway selection button



1. IP address assigned to the gateway
2. Name of the gateway
3. Gateway status
   - On
   - Off
   - Communication error

7.15.1.2 Creating and Saving of "Physical" Devices

- Procedure for Measure device with RS485 output

1. Click "Add"
2. Choose the Device family from the families list (e.g. Nemo D4-Le)
3. Choose the Model from the models list (e.g. MFD4421)
4. Assign the Device parameters:Modbus address (required parameter)Name (required parameter)Load type (optional parameter)
5. Click "Save"
6. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

Repeat the operations 1. to 6. to add more devices

7.15.1.3 Creating and Saving of "Physical" Devices

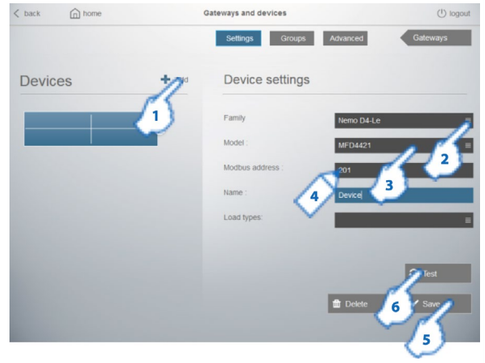
- Procedure for Measure device with RS485 output

1. Click "Add"
2. Choose the Device family from the families list
3. Choose the Model from the models list
4. Assign the Device parameters:

Modbus address (required parameter)
Name (required parameter)
Load type (optional parameter)

5. Click "Save"
6. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

Repeat the operations 1. to 6. to add more devices



- Procedure for NEMO SX modules

1. Click "Add"
2. Choose the Device family from the families list
3. Choose the model from the model list
4. Assign the Device parameters: Modbus address of the Device/Group of devices EMS CX³ (required parameter)

   Note: in case of an EMS system in "remote addressing mode", the Modbus address is composed as shown: "address of the device/group of devices" - "address of the EMS interface to which the devices are connected" (e.g.: device address: 2, interface address: 1➔ write: 2-1)

   Name (required parameter)
   Load type (optional parameter)
   Supply: current direction in the measuring sensors (required parameter for cat. Nos. 4 149 19/20/23)
5. Click "Save"
6. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

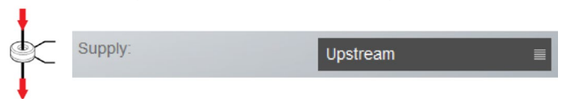
Repeat the operations 1. to 6. to add more devices

Note: pulse concentrator module NEMO SX (cat. no SXMIMP) is to be managed as a standard pulse concentrator (see next page).

- Details for Measurement modules NEMO SX

Supply: to ensure correct measurement of various electrical quantities, it is necessary to indicate the current versus trough the CT(s) or Rogowski sensor(s):

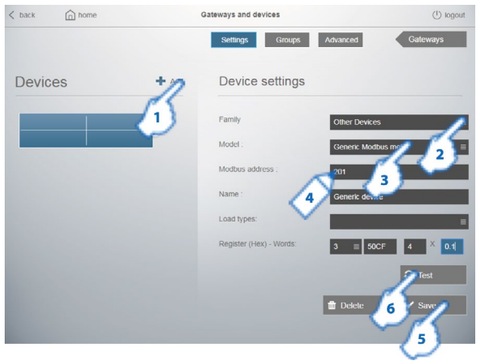
current versus upstream of tore/CT➔ choose Upstream (default setting)



current versus downstream of tore/CT➔ choose Downstream

Energy Web Server

- Procedure for Measure devices with pulse output (Electricity, Water and Gas counters)

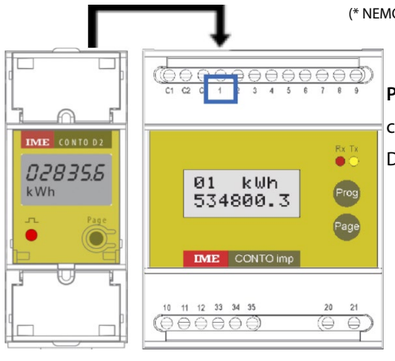


1. Click "Add"
2. Choose the Device family from the families list
3. Choose the model from the models list
4. Assign the Device parameters:Modbus address (address of the pulse concentrator) - Position (required parameters)Name (required parameter)Load type (optional parameter)

   Note: for Water and Gas Counters, load type is automatically assigned
5. Choose the Concentrator from the list (e.g. 4 120 65)
6. Click "Save"
7. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

Repeat the operations 1. to 7. to add more devices

- Details for Pulse output Meters (Electricity, Water and Gas counters)



(* NEMO SX Device)

Position: is the input of the Concentrator (Cat. Nos IF4C001 or SXMIMP*) or of the Energy counter with pulse input counter function (Cat.Nos CE2DF3DTCL1, CE4DF3DTCL1 or CE4TB-DTCL1) on which the pulse output of the counter is connected.

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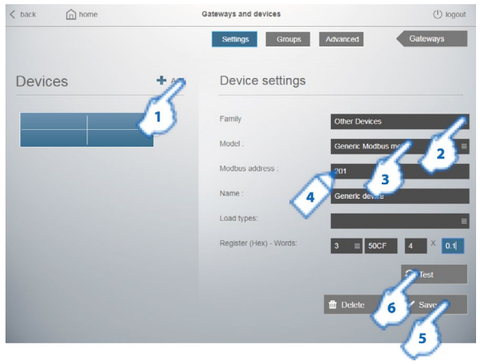
- Procedure for "Generic" Measurement/Counting Devices with Modbus RS485 output



1. Click "Add"
2. Choose the Family "Other devices" from the families list
3. Choose the model "Generic Modbus meter" from the models list
4. Assign the Device parameters:

   Modbus address of the Measurement / Counting device (required parameter).

   Name (required parameter)

   Load type (optional parameter)

   Register (hex) - Word: in these 4 fields you must enter the following parameters:

   - Modbus register read code (3 or 4)
   - Modbus register of positive active energy (value in hexadecimal)
   - number of words to read
   - multiplying factor to use to obtain the correct value

   Note: these four information can be found in the documentation of the meter / counter, provided by the device manufacturer.
5. Click "Save"
6. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

Repeat the operations 1. to 6. to add more "Generic" measurement/counting devices

- Procedure for Power factor controller ALPTEC

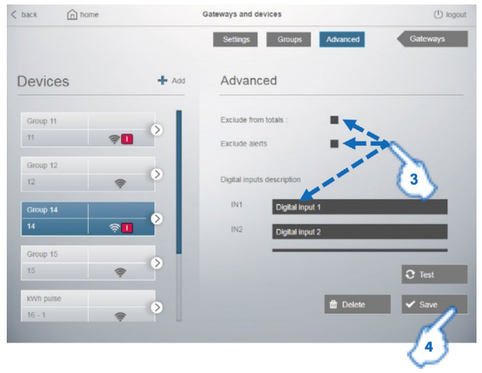
1. Click "Add"
2. Choose the Device family "ALPTEC" from the families list
3. Choose the Model from the models list
4. Assign the Device parameters:Modbus address (required parameter)Name (required parameter)
5. Click "Save"
6. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

Repeat the operations 1. to 6. to add more Power factor controllers

Energy Web Server

7.16.1.4 Advanced options

In the "Devices" page

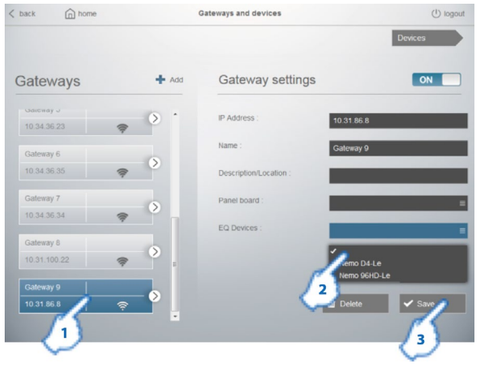


1. Select a Device
2. Click "Advanced"
3. In this page for each device configured by the user, it is possible to set following options:
   - "Exclude from totals". Select this option if you don't want that the quantities measured by this device are added on the histograms in the "Grand Total" and "Partials" page of the menu "Consumptions". Histograms of consumptions will be displayed only in the "Details" page of the menu "Consumptions".
   - "Exclude alerts". Option available for NEMO SX and ALPTEC devices.Allows you to disable/exclude reports of alert(s) on events related to these types of devices.

   Note: configuration of the type of events that cause a report, is available in the "Alert settings" page of the "Email and notification" menu of the Web server (see § 8.5.4)
   - Customize the description of inputs and outputs for Multifunction State (SXMC02) and Multifunction Control (SXM0C1) Modules, of the NEMO SX range, in generic configuration.
4. Click "Save" to confirm settings

- **Procedure to activate the "EQ device" function**

EQ device is an optional function used to perform the energy quality check according to standard EN 50160.
To do this is necessary set a device as "EQ device" in Gateways and devices page.



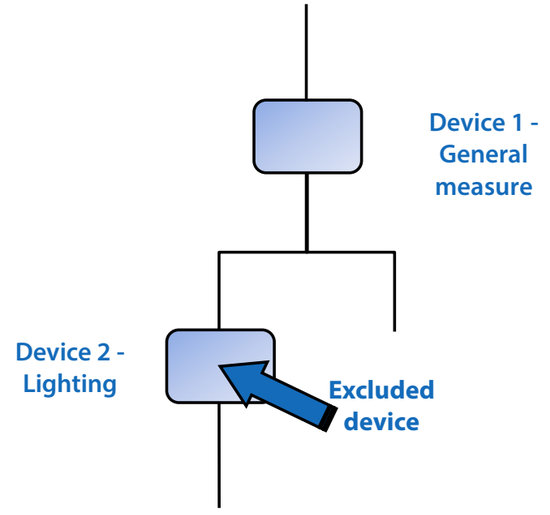
1. Select a Gateway
2. In correspondence of EQ device choose from the list box the device to set as energy quality device (in the list box are displayed only devices with THD or THD + Harmonics functions added to the selected gateway).
3. Click "Save"

Note: for each gateway is possible to set only one device as "EQ device".
Software perform automatically the weekly check and shows the result in the Consumption Details page with the label "LAST WEEK EN50160 CHECK: OK or KO"

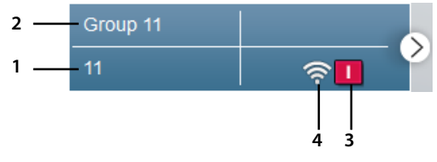
At the same time the software creates the folder "eqcheck " in the web server's data base saved on the HDD of the Web Server (see 8.4.3).

- **Details for the option "Exclude from totals"**

This option must be enabled if the measurement of a device is cumulative with the measurement carried out by a general measuring device.
In the example: consumptions of the line "Lighting" would be counted twice in the histograms of global consumption.
The device 2 will be excluded from the totals to ensure the accuracy of the measurements, but its data will be displayed on the page "Details" of the menu "Consumption".



- **Description of the device selection button**



Energy Web Server

1. **Modbus Address** (Modbus Address - Position for the counters with pulse output orModbus Address - Side for the "two-sides" charging stations)
2. **Name of the device**
3. **This symbol appears only if the device is a protection device and shows the circuit-breaker state:**
   - O Open
   - I Closed
   - O Tripped
4. **Device status**
   - On
   - Off
   - Communication error

7.16.1.5 System functions

- ON/OFF Button 

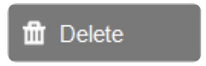
Allows to enable/disable a Gateway or a Device; the function is available only for Gateways and Devices.

1. Click "ON" to switch off a Gateway / Device

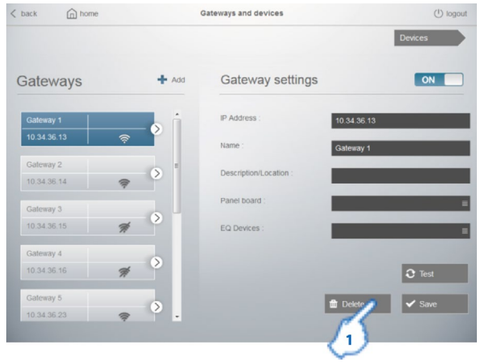
The selected Gateway / Device and the button switch into the OFF state.

Note:

- The deactivation of a Gateway causes the deactivation of all devices connected to it.
- If a device is turned-off, its measurement data will not be displayed in the "Devices" page.
- To return a Gateway / Device in the ON state, simply click "OFF"

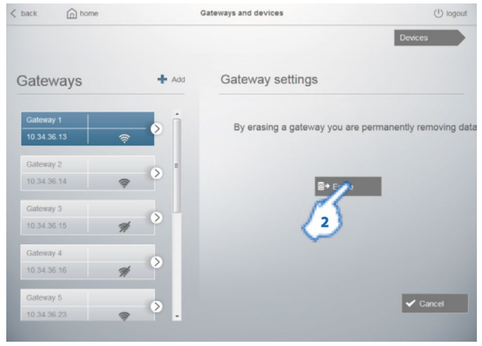
- DELETE Button 

Allows to erase a Gateway or a Device.



1. Click "Delete" in the "Gateway settings" or "Device settings" page

A confirmation page appears.



2. Click "Erase" to confirm the deletion of the Gateway or the Device

Note 1: To erase a Gateway, is necessary delete all the devices connected to it at first!

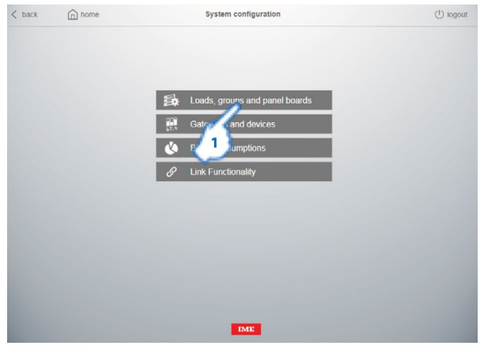
Note 2: "Local" Gateway can not be erased but only put in "OFF" state! *Only for webserver 10/32*

- **LIST OF REQUIRED PARAMETERS:**

- Highly required parameters - Address/Position:
  - √ Modbus Address, a different Modbus address for each device connected to the same bus RS485
  - √ Positions, different for wiring reasons; (only for Counters with pulse output)
- Essential parameter – Name:
  - √ Impossible to use several times the same name
  - √ If forgotten during the settings, Web Server will assign a default value (IP Address for Gateway, Modbus Address for Devices RS485, Modbus Address-Position for Devices with pulse output, Modbus Address-Side for the Charging stations "two sides").
- Useful parameter – Model:
  - √ Possibility to have one, two or several identical models.
  - √ If forgotten during the settings is shown the message "Configuration

7.16.2 Loads, Groups and Panel boards configuration

Optional setup, used to give a description of the electrical installation by panel board(s), load(s) and group(s)



1. Click "Loads, groups and panel boards"

Loads, groups and panel boards settings page appears.

2. Click "Panel boards", "Loads" or "Measure Groups" to create a panel board, a load or a measure group.

Every page is divided into two sections:

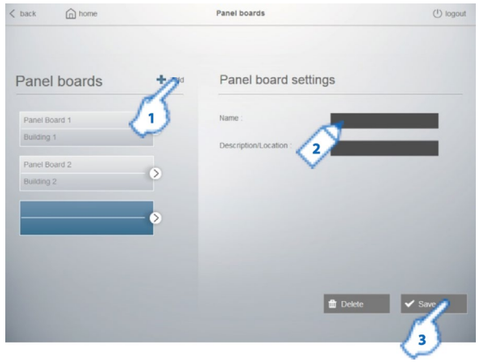
- left section is the "Added Panel boards / Loads / Measure groups" area.
- right section shows the "Panel boards / Loads / Measure groups" settings area, where the configuration fields are available.

7.16.2.1 Panel boards

- **CREATING AND SAVING PANEL BOARD**

For a physical distribution of the different panel boards of the installation.

Recommended architecture: only one Gateway per Panel board



To create a Panel board:

1. Click "Add"
2. Assign the panel board parameters:
   Name (required parameter)
   Description/Location (optional parameter)
3. Click "Save"

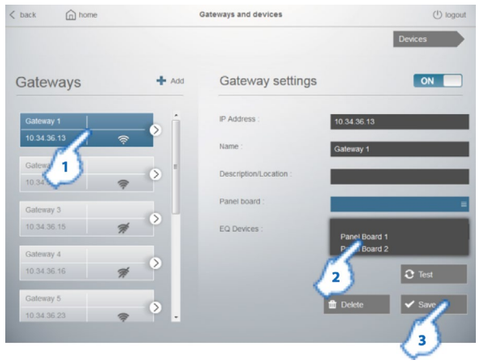
Repeat the operations 1. to 3. to add more panel boards

- **ASSIGNMENT OF PANEL BOARDS**

Return to the section "Gateways and Devices" in "System configuration"

In the Gateway settings area of the Gateways page, is possible to assign each gateway previously created, to a Panel board

Note: a gateway can be assigned to only one panel board



1. Choose a Gateway
2. Choose a Panel board from the Panel boards list
3. Click "Save"

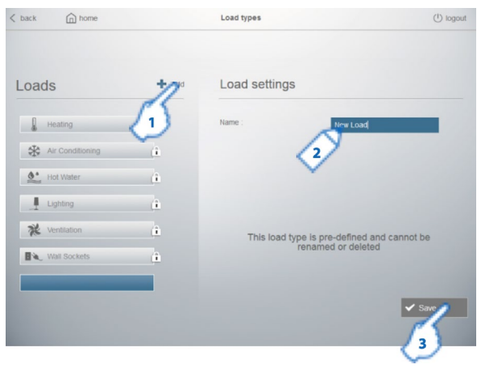
Energy Web Server

7.16.2.2 Loads

- **CREATING AND SAVING LOADS**

are available:

- 6 "pre-defined" categories (heating, air conditioning, etc.) according by the Thermal Regulations 2012 (RT 2012)
- Category "Others" to display the measurement without Load assigned
- 8 additional categories, user-creatable



To create a Load:

1. Click "Add"
2. Assign the load parameter:
   Name (required parameter)
3. Click "Save"

Repeat the operations 1. to 3. to add more loads

Note: it is possible to have a maximum of 14 loads.

- **ASSIGNMENT OF LOADS**

Return to the section "Gateways and Devices" in "System configuration".

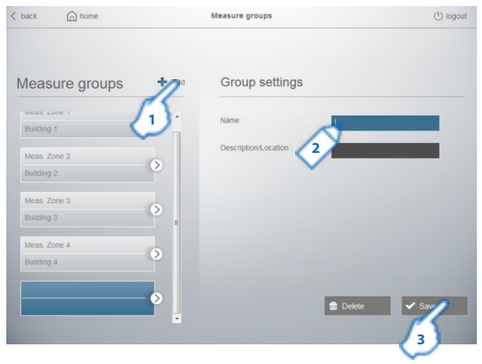
In the Device settings area of the Devices page, is possible to assign a Load to each virtual or physical Device previously created.

1. Click "Settings"
2. Choose a Device
3. Choose a Load from the Loads list
4. Click "Save

7.16.2.3 Measure groups

- **CREATING AND SAVING MEASURE GROUPS**

For a logical distribution of the measuring points of the installation



To create a Measure group:

1. Click "Add"
2. Assign the measure groups parameters:Name (required parameter) Description/Location (optional parameter)
3. Click "Save"

Repeat the operations 1. to 3. to add more groups

- **ASSIGNMENT OF MEASURE GROUPS**

Return to the section "Gateways and Devices" in "System configuration".

In the Device settings area of the Devices page, is possible to assign a Measure group to each virtual or physical Device previously created.

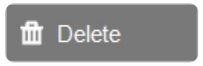
1. Click "Groups"
2. Choose a Device
3. Choose a Measure group from the Measure groups list
4. Click "Save"

Repeat the operations 2. to 4. to assign a device to another group

Note: a device can be associated with several groups simultaneously (up to 5).

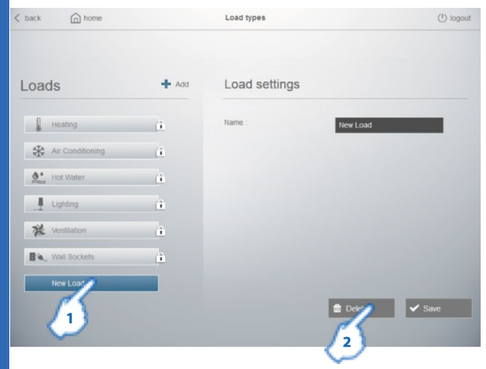
Energy Web Server

7.16.2.4 System functions

- Delete Button 

Allows to disable / erase a Panel board, a Load or a Measure group.

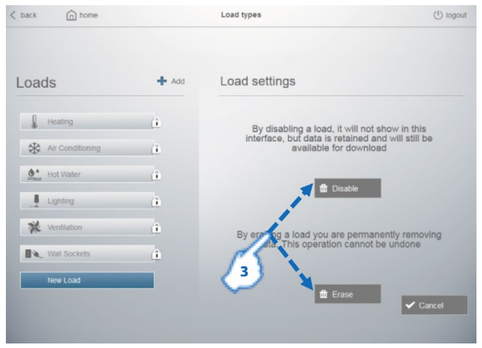
Note: For the "pre-defined" loads the disabling is the only function permitted.



In the Panel boards / Loads / Measure groups settings area:

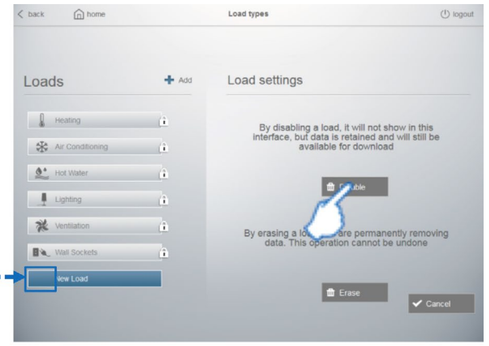
1. Choose a Panel board / Load / Measure group
2. Click "Delete

An intermediate page in which, the deactivation (Disable) or the erasing (Erase) of the selected Panel board / Load / Measure group is proposed.

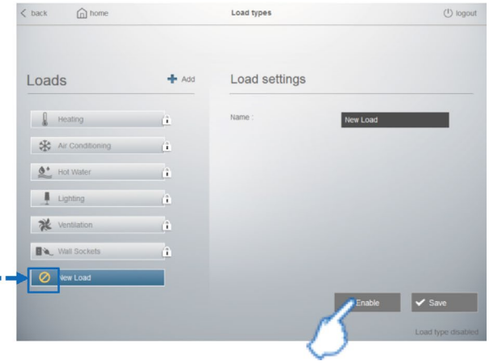


3. Click "Disable" to deactivate the Panel board / Load / Measure group or "Erase" to remove definitively the Panel board / Load (possible only for the "user-creatable" loads) / Measure group.

By clicking on "Disable" the selected Panel board / Load / Measure group, goes into "Deactivated" state.



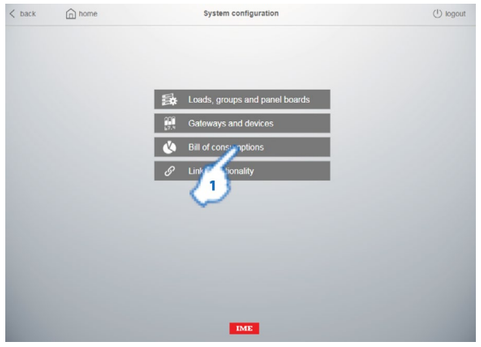
ard / Load / Measure group's name.



To enable a Panel board / Load / Measure group, simply click "Enable".

7.16.3 Bill of Consumptions configuration

This optional setting, based on Cost Rules, allows the economic accounting of Electricity, Water and Gas consumptions



1. Click "Bill of consumptions"

Bill of Consumptions setting page appears

Energy Web Server

The page is divided into three sections:

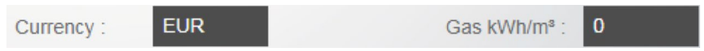
section A shows the Cost Rules created by the users.

Note: in a new factory web server or in an updated web server where no tariffs was configured, this area is empty.If, on the other hand, Electricity, Gas or Water tariffs were already configured before the updating of an installed web server, they are here displayed in a Rule with the wording "DEFAULT"

section B is the area where is possible to assign:

Currency using the three-letter alphabetical code according to ISO 4217 standard (e.g. EUR, USD, GBP, …)

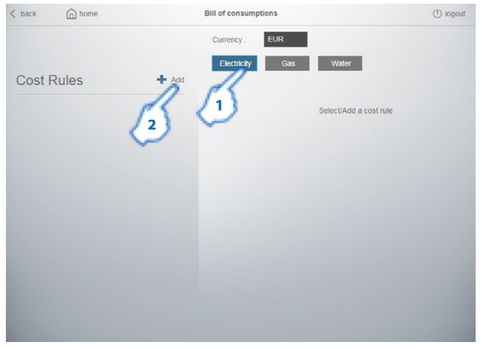
Conversion factor (kWh/m3) to display Gas consumptions also in "Equivalent kWh". This parameter appears only when Gas page is selected



Note: Conversion factor should be provided by your Gas supplier; contact it to get the conversion rate

Section C shows configuration parameters for the selected/new Cost Rule

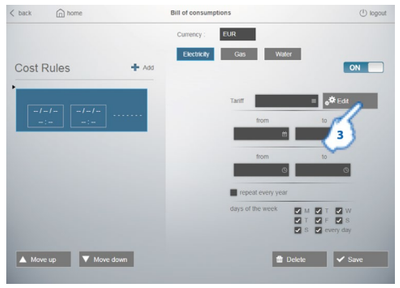
7.16.3.1 Creating and Saving Tariffs and new Cost Rules



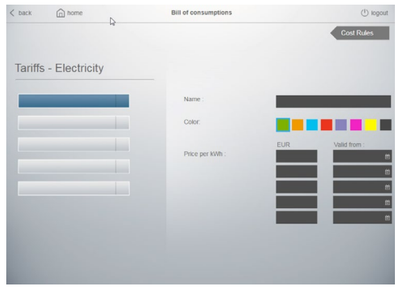
1. Select Electricity, Gas or Water
2. Click "Add"

Section with configuration parameters appears

3. Clicking on "Edit" button, the page where it is possible to create Tariffs to be assigned to Cost Rules is displayed.



For each type of load (Electricity, Gas, Water) it is possible to create up to 5 tariffs with a different display colour and up to 5 different cost values can be assigned for each tariff, specifying the validity date.



- **Procedure to create Tariffs**

Each Tariff is defined by assigning the following parameters (some are mandatory while others are optional):

- the Name- the Colour by which the tariff will be identified in histograms and charts- one or more Prices- validity Date for each price

- To create a Tariff

In the Tariffs edit page:

1. Select a Tariff button

Assign Tariff parameters:

2. the Name
3. the Colour
4. Price per kWh of Electricity or per m^3 of Gas/Water
5. the Date from which the set price is valid

Note: if only one price is assigned to a tariff it is not necessary to set a validity date. If not, a validity date must be associated to each price entered; Web server automatically will assign correct price to tariff according the date set in this page.

6. Click "Save"

Repeat the operations 1. to 6. to add more tariffs

7. Click "Cost Rules" to return to the previous page

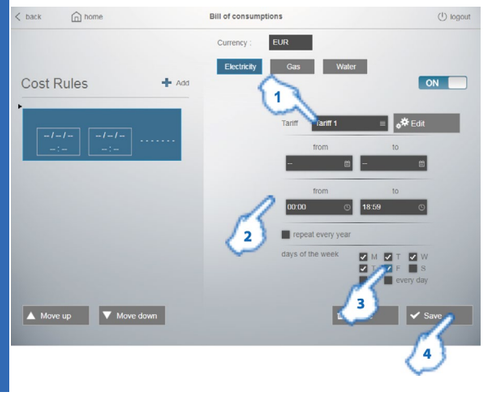
Energy Web Server

- **Procedure to create Cost Rules**

Each cost rule is defined by assigning the following parameters (some are mandatory while others are optional):

- a Tariff among those previously created
- a specific validity date or validity period
- a time frame where the rule is true
- a checkbox useful to define rules that are repeated every year on the same day or period (e.g. Christmas, New Year's Day, etc...) and which constitute an exception in standard programming
- several checkboxes to define for which days of the week the rule is true (is possible to check one or more specific days or "every days")

- To create a Cost rule



In the Cost Rules page:

1. Select one of the Tariff previously created
2. Define:
   - a specific validity date or period (If necessary)
   - a time frame where the rule is true

   Note: flagging "repeat every year" checkbox, you can define that the rule being created is valid every year for the date or period indicated
3. Select the days of the week when the rule is valid
4. Click "Save"

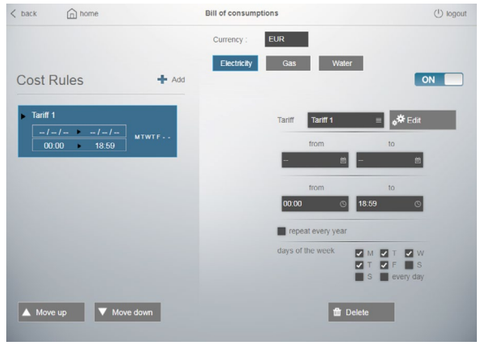
Repeat the operations 1. to 4. to add more rules

Notes:

- active rule is highlighted by the symbol ▶ flashing to the left of the name of the associated tariff

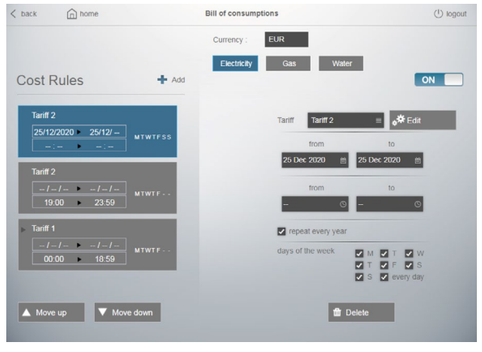
- it is always possible to add or edit a Tariff by selecting any of the rules created and pressing the "Edit" button

Example 1: Rule with Tariff 1, valid all year round from 00:00 to 18:59, from Monday to Friday



Example 2: Rule with Tariff 2, valid all year round from 19:00 to 23:59, from Monday to Friday

Example 3: Exception for Christmas day with Tariff 2, valid every year, all day whatever the day of the week

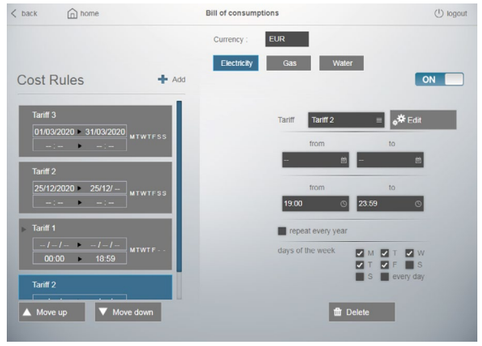


Energy Web Server

Example 4: Exception for the month of March 2020; the rule created provides Tariff 3 all day any day of the week

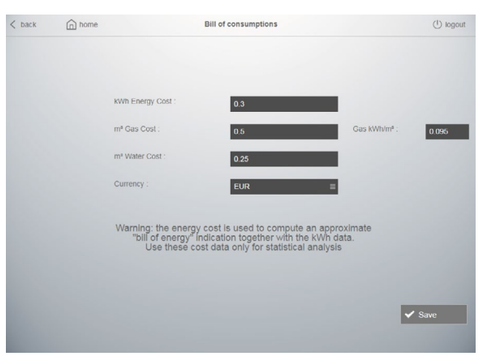
IMPORTANT: the operating logic of the cost rules is based on a "true" or "false" criteria of the rules.The web server analyzes the rules created by the user starting from the top down. Once a true rule has been identified, the server stops the analysis until the end of the period defined in the true rule.For this reason it is necessary to arrange the created rules and move them using the "Move up" and "Move down" buttons placing the Exceptions always in the first positions in the rules list.

Using Rules of the example 4, correct order is (see image below):
1st: Rule related to March 2020 with Tariff 3
2nd: Rule related to Christmas day with Tariff 2
3rd: Rule from 00:00 to 18:59 with Tariff 1
4th: Rule from 19:00 to 23:59 with Tariff 2

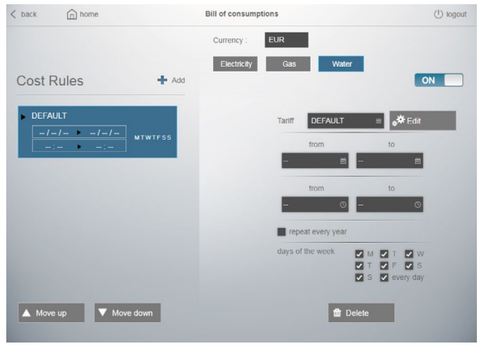


- **Consumptions costs set and assigned with previous versions**

As previously said, updating a web server in which Electricity, Gas or Water consumption costs were already set (see image below as example), in the new "Bill of consumptions" page these are displayed as an always valid Rule (one for each load type) with which the tariff called "DEFAULT" is associated.

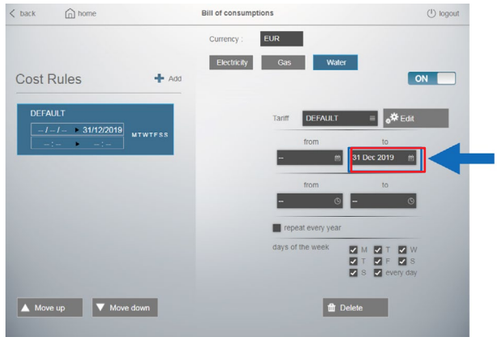


Bill of consumptions page up to 3.7.1 version, with consumption costs set



Bill of consumptions page from 3.8.1 version, with Rule associated to "Default" tariff

If you don't want to create new Tariffs or Cost Rules, you can keep this configuration with which web server continue the economic accounting of Electricity, Water and Gas consumptions as before.Otherwise, before creating new Tariffs and Rules, we suggest to you to edit "Default" Rule fixing an end validity date (e.g. the end of the month preceding the month in which the web server was updated)

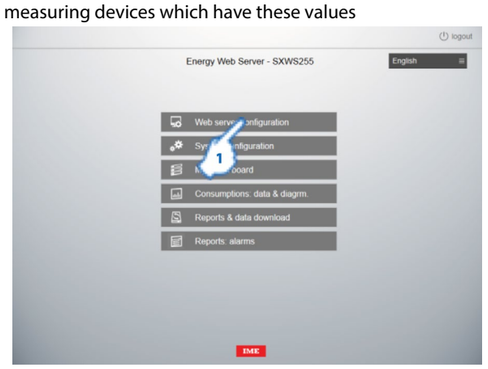


7.16.4 Configuration of the data sample rate

Optional setting, allows to edit the recording time of Electricity data including statistical data (if available in the devices), of Water and of Gas in the Web Server database.
Note: default value: 10 minutes

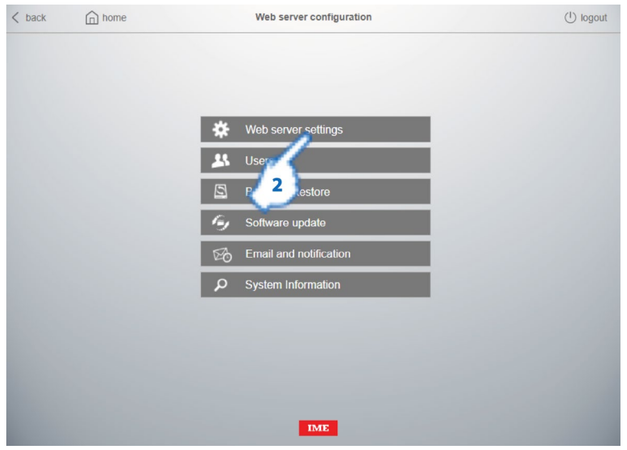
Parameter "Sample rate" affects :
- histograms updating in the consumptions display pages
- Recording of consumptions data in the database
- recording of the statistical values (average values, minimum, maximum, ...) for measuring devices which have these values
- "CSV" files saved in the FTP space of the web server
- "CSV" files downloaded with the "Data download" function

Procedure to edit the setting:
In the Web Server's home page
1. Click "Web Server configuration"

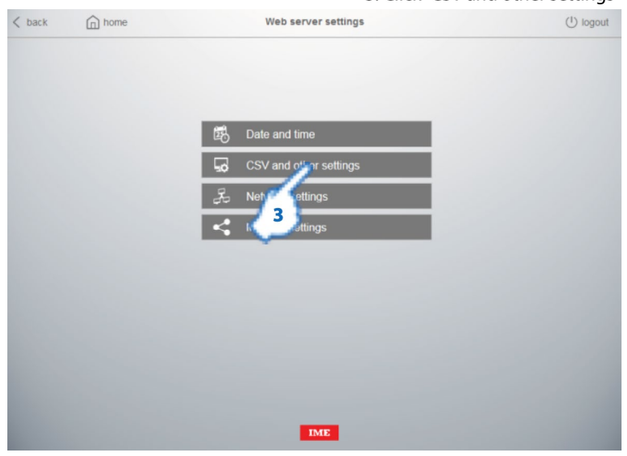


Energy Web Server

2. Click "Web server settings"

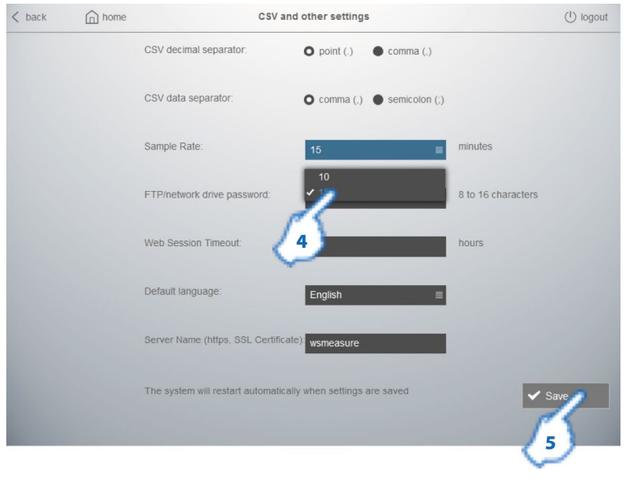


3. Click "CSV and other settings"



4. Select the "Sample rate" value.

5. Click "Save".



Note: Editing of this setting does not affect data already saved by the Web Server before changing the value.

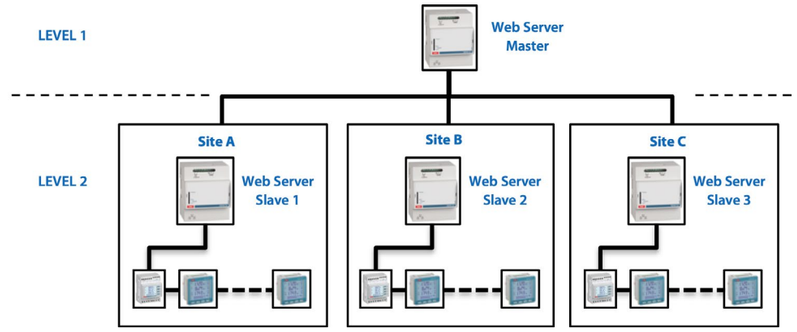
7.16.5 Master/Slave function

This function allows you to use a web server as "Master" of one or more "Slave" web servers in order to let the "Master" acquire consumption data recorded by the "Slaves".

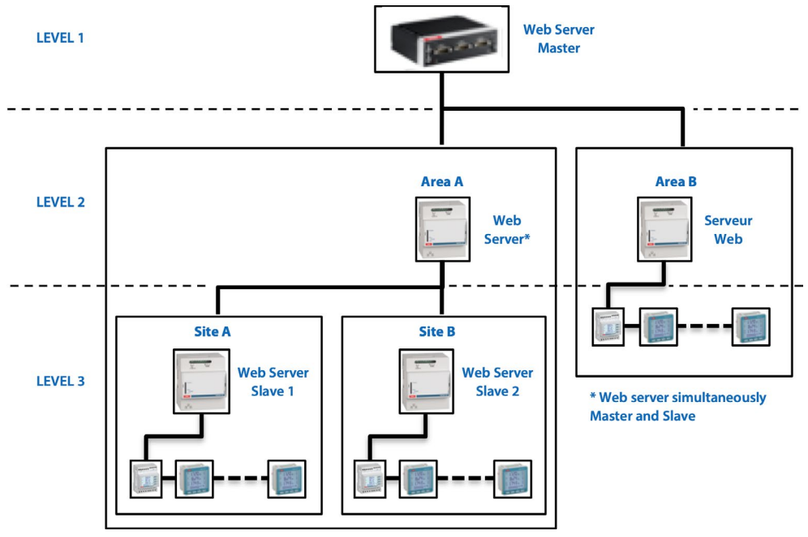
The function allows you to manage, for example:

- installations with multiple levels
- systems with more than 255 measuring points

Example 1:



Example 2:



The data that can be acquired from the "Master" web server are the following:

- Positive active Energy of a specific Device
- Positive active energy of a specific Load
- Positive active energy of a specific Measure group
- Total Positive active energy of all Electrical Loads

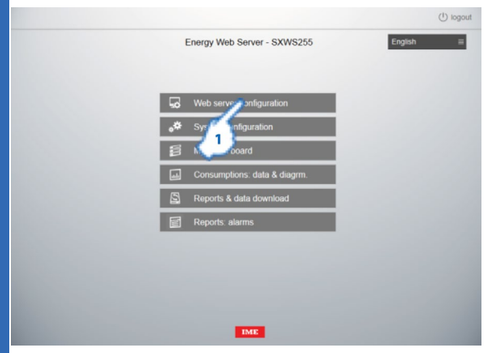
Energy Web Server

7.16.5.1 Activation of the Function

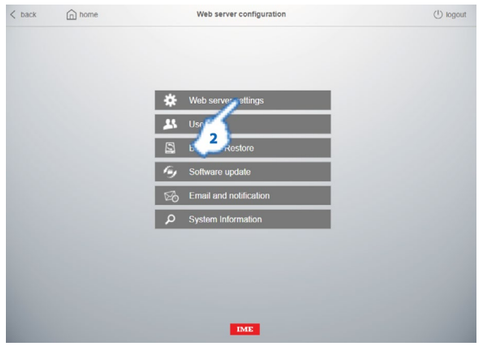
This configuration is to be performed only on Slave Web Server(s) and is used to give the Master permission to access the data registered by the Slave(s).

Procedure to activate the function on the Slave Web Server(s):In the Web Server's Home page

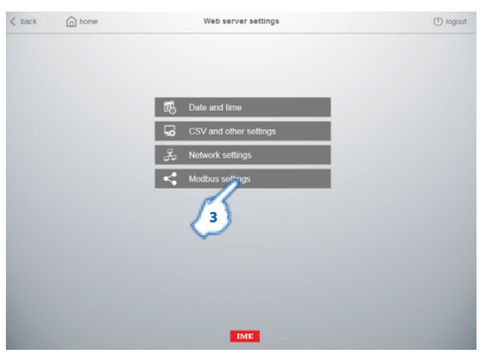
1. Click "Web Server configuration"



2. Click "Web server settings"

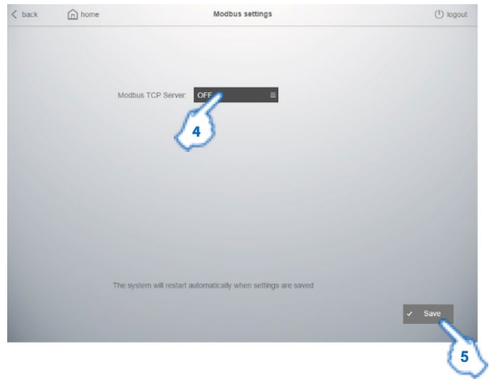


3. Click "Modbus settings"



4. Click to to Enable ("ON") the Modbus TCP Server used forMaster/ Slave function
5. Click "Save" 2 times to confirm

Note: System will restart automatically when settings are saved

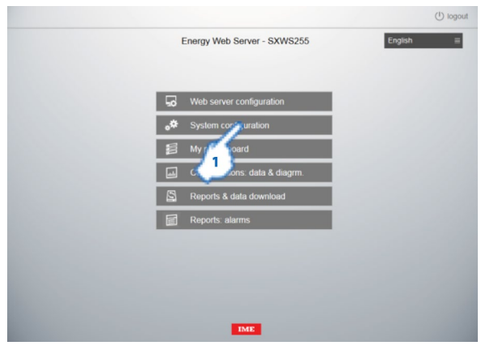


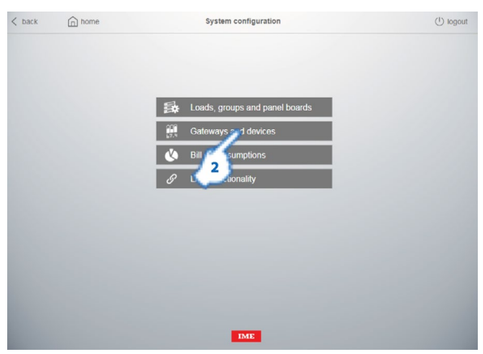
7.16.5.2 Creating and Saving of "Virtual" Gateways and Devices

Procedure for creating and saving "Virtual" Gateways and Devices is the same used for physical Gateways and Devices.

In the Web Server's Home page

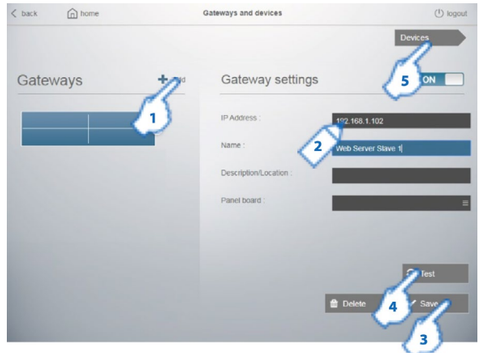
1. Click "System configuration"
2. Click "Gateways and devices"





1. Click "Add"
2. Assign the parameters to the Virtual gateway = Slave Web server:IP Address of the Slave Web Server (required parameter)Name (required parameter) Description/Location (optional parameter)
3. Click "Save"
4. Click "Test" to verify the correct operation of the communication between the Web Server and the Gateway
5. Click "Devices" to configure the devices connected to the Slave Web server

Device's settings page appears



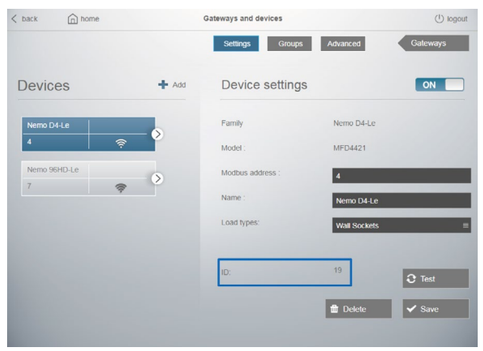
1. Click "Add"
2. Choose the family "WSMEASURE" from the families list
3. Choose the Model from the models list
4. Assign the Device parameters:
   Name (required parameter)
   Load type (optional parameter)
   Note: Modbus Address is automatically filled
5. Enter the specific "Remote ID" of a Device, Load or Measure Group configured in the Slave Web server or 6. Click on "All" to return Total Active Energy of all Electrical Loads of the slave web server (the "Remote ID" field will be filled automatically)
7. Click "Save"
8. Click "Test" to verify the correct operation of the communication between the Device and the Gateway

- **Details for the "Remote ID" parameter**

The "Remote ID" is the ID number of a Device, Load or Measure Group in the slave web server database.

This unique number is assigned to a Device, Load or Measure Group during the system configuration and it is shown:

- in the "Gateway and devices" page for Devices (see image below)



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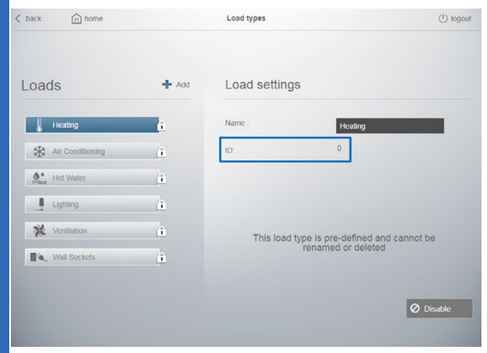
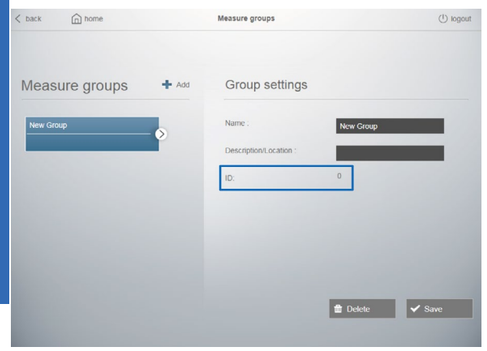
- in the "Load types" page for preconfigured or user-created Loads (see image below)



- in the "Measure groups" page for Measure Groups (see image below)



- **Description of the device selection button**

1. Modbus Address (fixed value equal to 247) - Indication of the virtual device type:

247 - 1XXXX = Positive active energy of the Device with ID = XXXX

247 - 2YYYY = Positive active energy of the Load with ID = YYYY

247 - 3ZZZZ = Positive active energy of the Measure Group with ID = ZZZZ

247 - 29999 = Total Positive active energy of all Electrical Loads

2. Name of the device
3. Device status
   - On
   - Off
   - Communication error

8. Use

8.1 Access

The access to the Web Server data is protected by identification codes (PIN and PUK codes).

Four types of "default" users are configurated:

- "administrator"
- "installer"
- "user"

The home page ("home") will be different depending on the type of user that access to the device.

8.1.1 Access right

- "Administrator"

Access to the pages:
- Web Server configuration
- System configuration
- My panel board (display of all measuring/metering devices)
- Consumption: data & diagrm.
- Reports & Data download
- Reports: alarms

Default access PIN code:
- 99999 (5 characters)

Default access PUK code:
- 00000 9999 00000 (14 characters)

- "User"

Limited access to display pages of data (not configurations possible in mode "user"):
Consumption: data & diagrm.
Reports: alarms

Default access PIN code:
11111 (5 characters)

Default access PUK code:
00000 1111 00000 (14 characters)

- "Installer"

Access to the pages:
- System configuration
- My panel board (display of all measuring/metering devices)
- Consumption: data & diagrm.
- Reports: alarms

Default access PIN code:
- 55555 (5 characters)

Default access PUK code:
- 00000 5555 00000 (14 characters)

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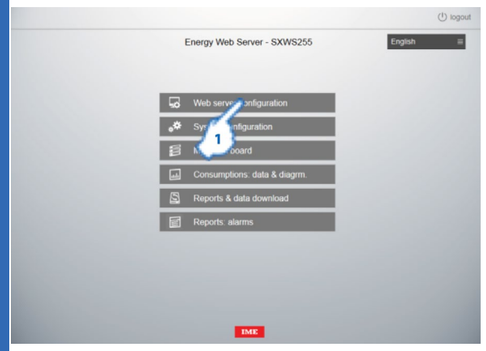
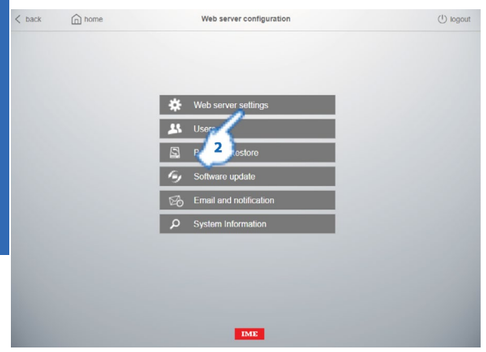
8.1.2 Creating a new User

Only the users "Administrator" can add new users.



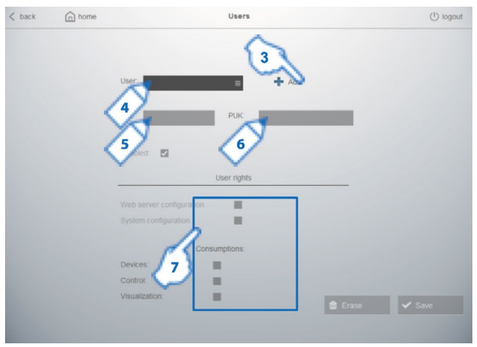
1. Click "Web Server configuration"

Web Server configuration's page appears



2. Click "Users"

Users configuration page appears



3. Click "Add".

4. Assign a name to the new user.

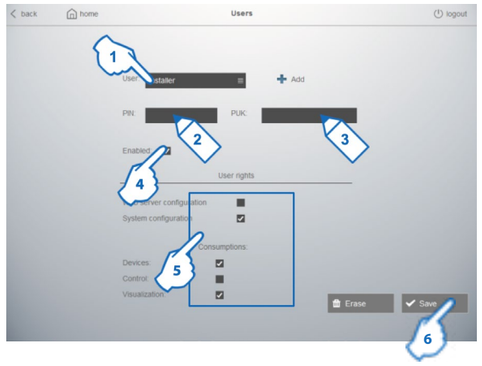
5.- 6. Type the PIN and PUK codes for the new user.

7. Choose which pages the new user can see.

8. Click "Save"

8.1.3 ChangSing of the access rights

The access rights of a user can be modified only by the users "administrator".



In the Users configuration page

1. Choose from the list a "name of a user" (ex. installer) to edit it.

2.- 3. Type the PIN and PUK codes for the user to edit.

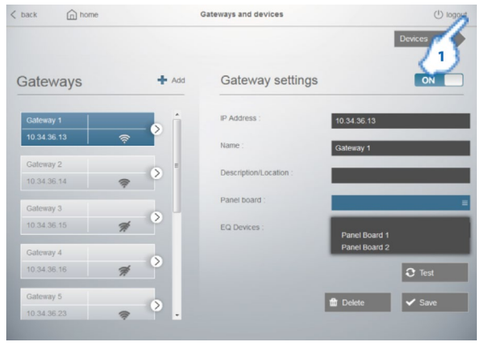
4. This option allow to disable a user without erase it once the "Save" button is clicked.

5. Choose, for the user to edit, which pages it can see.

6. Click "Save".

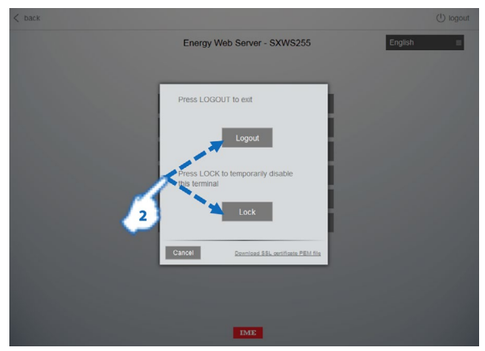
8.1.4 Logout procedure

The symbol logout appears on all pages of the web server.



1. Click "logout"

A confirmation page appears.



2. Click "Logout" or "Lock" to confirm the exit from the web server.

Note:

Logout ➔ closing the session, reconnection with the PIN code

Lock ➔ temporary disabling of the application, reconnection with the codes PIN+PUK

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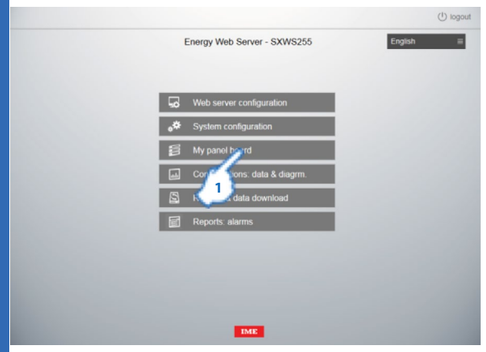
8.2 Data display pages

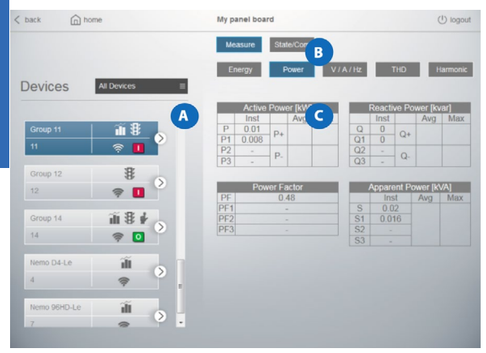
8.2.1 My panel board



In the Home Page

1. Click "My panel board"

Devices page appears



The page is divided into three sections:

section A shows the devices added by the users with their characteristics and status icons. It is possible to choose a device per Gateway , Panel board or "All Devices"

section B is the area where is possible to select two pages:

- Measure: display of the quantities measured by a device:

 - Electricity measuring devices: Energy, Power, Voltages / Currents / Frequency, THD (if available on the Device) and Harmonics (if available on the Device)Note: for "generic" measurement/counting devices and "Virtual" devices created with the Master/Slave function, only the table with the value of positive active energy is available.

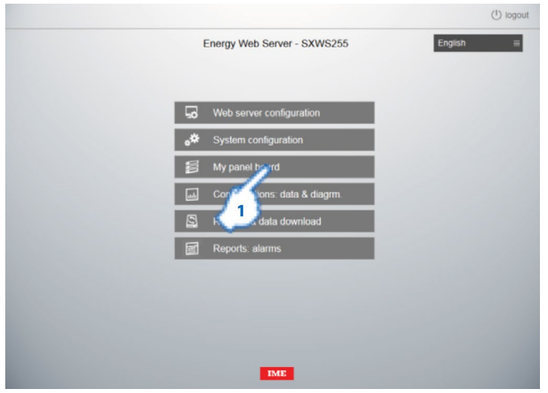
 - Water Counters: Water consumptions

 - Gas Counters: Gas consumptions

State/Com.: page dedicate to NEMO SX devices; display of devices status, control buttons… for each NEMO SX device/group of devices

section C shows the values measured by the selected device, status icons and command buttons (if available).

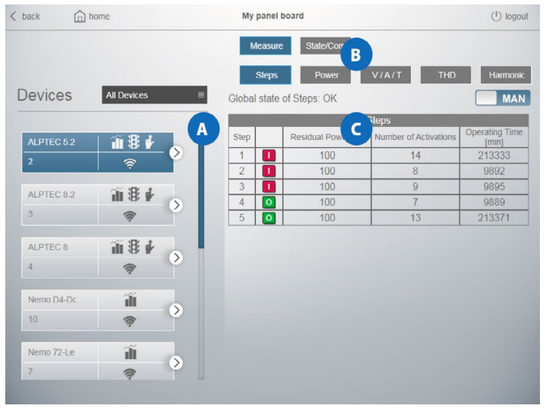
For Power Factor Controllers of ALPTEC range, "My panel board" page is structured as follows:



In the Home Page

1. Click "My panel board"

Devices page appears



The page is divided into three sections:

section A shows the devices added by the users with their characteristics and status icons. It is possible to choose a device per Gateway , Panel board or "All Devices"

section B is the area where is possible to select two pages:

- Measure: display of parameters and electrical quantities measured by the Power Factor Controller:

 - Steps: State (: Step not inserted, : Step inserted), Residual power (in % for APLTEC3.2/5.2/8.2 and in kvar for ALPTEC8), Number of insertions and Insertion time for each step; indication of the Global state of Steps (OK or Default), AUTO/MAN control button used to show the state of the power factor controller and to switch the device between two operating modes

 - Others quantities: Power, Power Factor, Voltages/Currents/Temperature, THD and Harmonics

- State/Com.: display of residual time to maintenance (for APLTEC3.2/5.2/8.2) and possibility to reset this time

section C shows the values measured by the selected power factor controller

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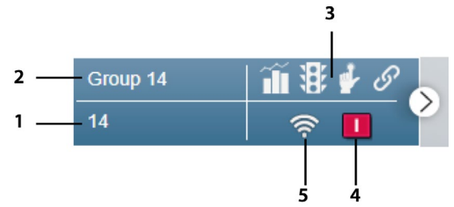
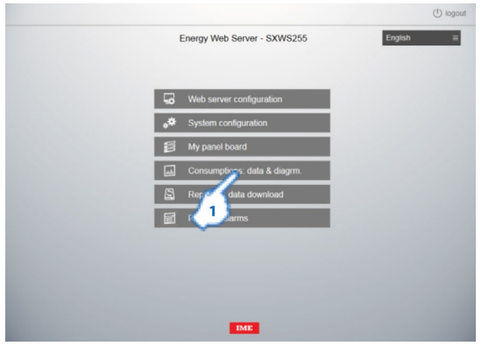
- **Description of the device selection button**



1. Modbus Address (Modbus Address - Position for counters with pulse output or Modbus Address - Indication of the virtual device type for the Master/Slave function)
2. Name of the device
3. Symbols of the functions associated to the Device
   - Measure
   - State
   - Command
   - Link Functionality
4. This symbol appears only if the Device integrates the state function related to a protection device and shows the circuit-breaker state:
   - Open
   - Closed
   - Tripped
5. Device status
   - On
   - Off
   - Communication error

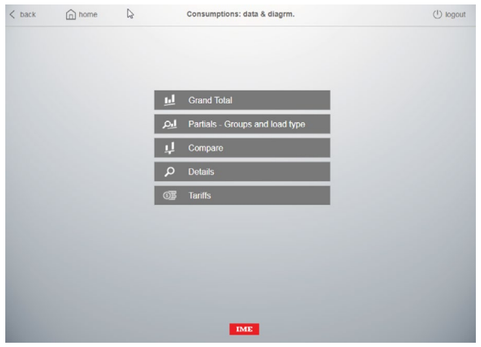
8.2.2 Consumptions: data & diagrm.



In the Home Page

1. Click "Consumptions: data & diagrm."

Consumptions page appears



Are available 5 ways of displaying data:

Grand Total (Consumption of the entire installation)

Partials (Consumptions per Load and/or Measure group)

Compare (Comparison of the Global Consumptions between two Devices)

Details (Consumptions of a single Device)

Tariffs (Display of the Cost of Consumptions according to configured Tariffs)

For each page are available:

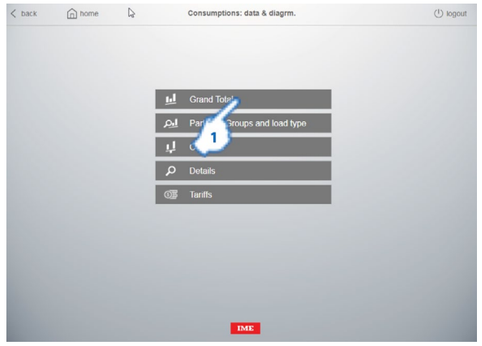
- Histograms of Consumptions divided per:
  - Day (per hour)
  - Month (per day)
  - Year (per month)
- Comparison between the actual and the previous value (ex. today/yesterday, etc.)
- Values in:
  - Wh (and multiples of Wh), dm^3 (and multiples of dm^3) of water, dm^3 (and multiples of dm^3) of gas and "Wh (and multiples of Wh) equivalent" of gas.

Note: displayed values (resolution , decimal values, etc.) depend only on the quantities read by the measuring instruments.

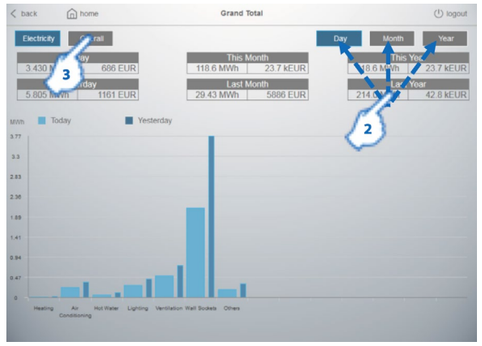
- EUR (or other configured currency)

8.2.2.1 Grand Total

1. Click "Grand total"
Grand total page appears

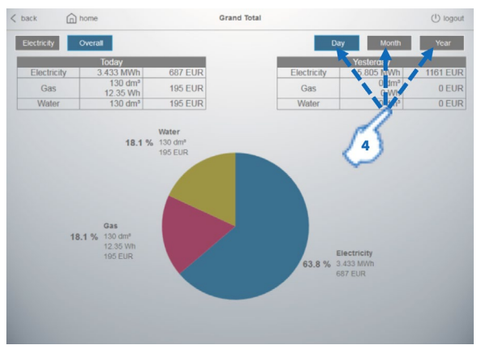


Visualization of Total Energy Consumptions (Ea +) on histograms divided per Load
2. Click "Day", "Month" or "Year" to view the consumptions on a different time period (Day (hours) / Month (days) / Year (months))
3. Click "Overall" to display the page of the Overall Consumptions (Electricity, Gas and Water) of the system.
Note: in this visualization, consumption data for "virtual" devices not excluded from Total are also taken into account.



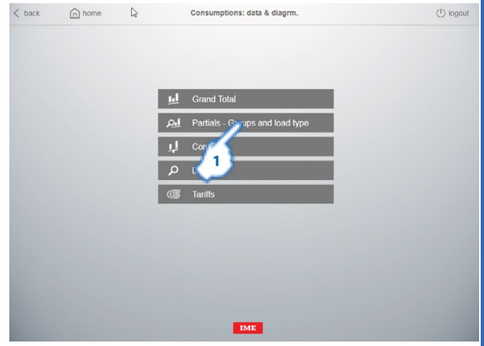
Overall consumptions page appears

Visualization of the Overall Consumptions of the system on tables and on a pie chart showing:
- consumptions subdivided per type:
  Electricity (orange area)
  Gas (green area)
  Water (blue area)
- consumptions valued according to the measurement unit and the configured currency
4. Click "Day", "Month" or "Year" to view the consumptions on a different time period (Day (hours) / Month (days) / Year (months))
Note: in this visualization, consumption data for "virtual" devices not excluded from Total are also taken into account.

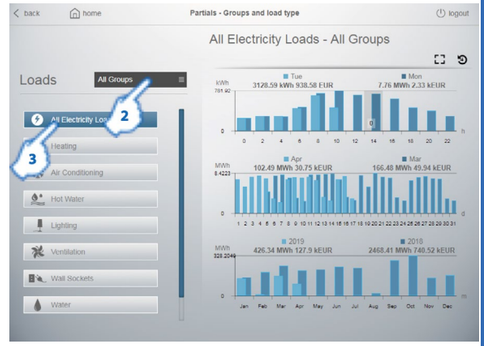


8.2.2.2 Partials - Groups and load type

1. Click "Partials - Groups and load type"



Visualization of Partials Consumptions on histograms per Day / Month / Year
2. Click to view the consumption of a specific Measure group or of "all groups"
3. Click to view the consumption of a specific Load (ex. Ventilation, Water, Gas, …) or of "All electricity loads"
Note: in this visualization, consumption data of "virtual" devices according to the Loads and/or the assigned Measure Groups are also taken into account.



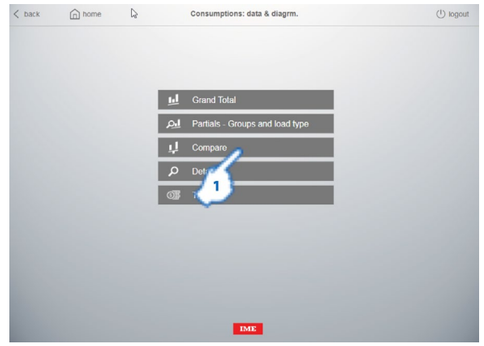
8.2.2.3 Compare

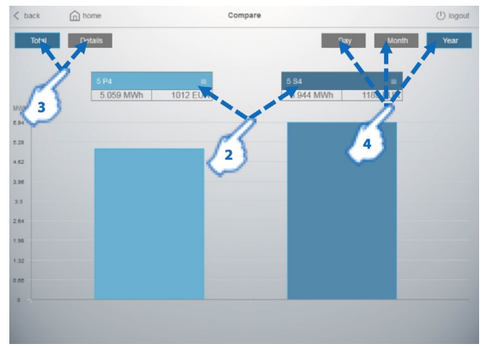
1. Click "Compare"
Comparison of the Consumptions between two Devices.

2. Click to select the two "physical" or "virtual" Devices to compare
Note: Selecting two non homogeneous Devices (ex Electricity and Gas), comparison is evaluated only according to the currency (EUR or other currency) and not according to the measurement units.It is not possible to compare kWh of energy and "Equivalent kWh of gas.

3. Click "Total" or "Details" to view the Total or Detailed comparison between the two selected Devices

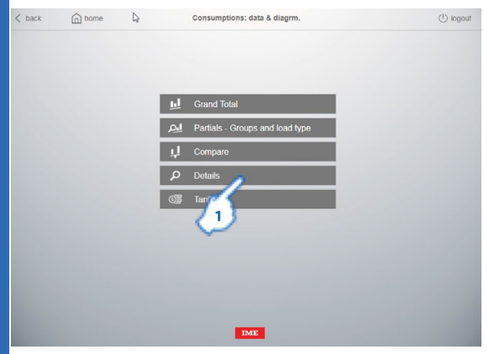
4. Click "Day", "Month" or "Year" to view the consumptions on a different time period (Day (hours) / Month (days) / Year (months))





Energy Web Server

8.2.2.4 Details



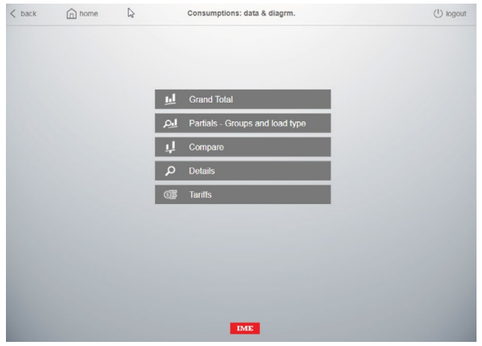
1. Click "Details"

The page is divided into three sections:
section A shows the devices added by the users with their characteristics and status icons. It is possible to choose a device per Groups / Loads B All Devices"
section is the area where is possible to select two pages:

- Measure: display of the quantities measured by a device:
  - Electricity measuring device: Energy, Power, Voltages / Currents / Frequency, THD (if available on the Device) and Harmonics (if available on the Device)Note: for "generic" measurement/ counting devices and "Virtual" devices created with the Master/Slave function, only Energy histograms are available.
  - Water Counters: Water consumptions
  - Gas Counters: Gas consumptions
- State/Com.: page dedicate to NEMO SX devices; display of devices status… for each NEMO SX device/group of devices

section C shows the histograms of the consumptions, values measured by the selected device and status icons (if available).

For Power Factor Controllers of ALPTEC range, "Details" page of the "Consumptions: data & diagrm." menu is structured as follows:



1. Click "Details"

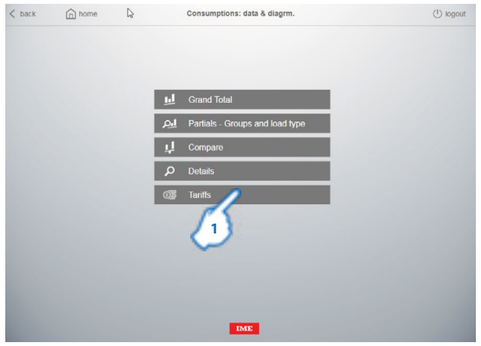
Details page appears

The page is divided into three sections:
section A shows the devices added by the users with their characteristics and status icons. It is possible to choose a device per Gateway , Panel board or "All Devices"
section B is the area where is possible to select two pages:
Measure: display of parameters and electrical quantities measured by the Power Factor Controller:
PF: linear graphs with power factor trend
Others quantities: Power, Power Factor, Voltages/Currents/Temperature, THD and Harmonics
section C shows the values measured by the selected power factor controller

8.2.2.5 Tariffs

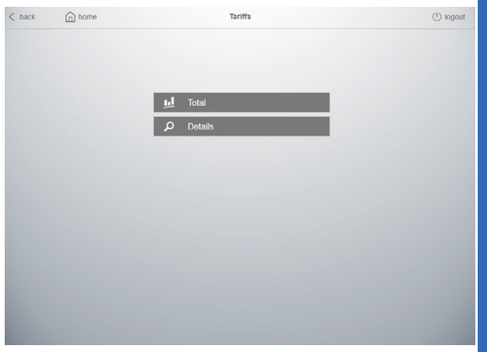
1. Click "Tariffs"

Tariffs page appears



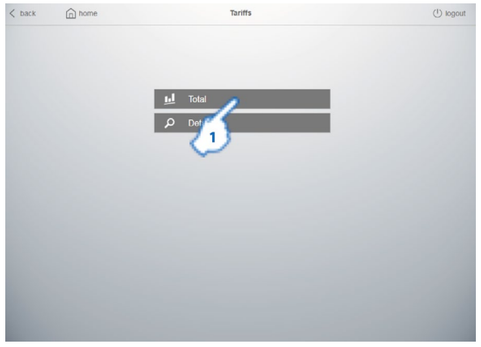
Are available 2 ways of displaying data:

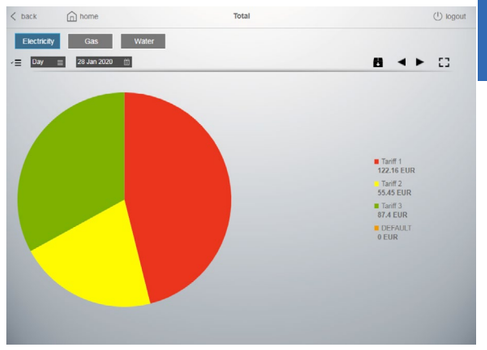
- Total (Consumption costs of the entire installation)
- Details (Consumptions costs of a single Device)



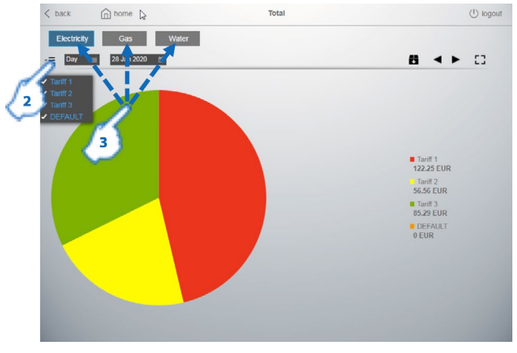
8.2.2.5.1 Total

1. Click "Total"





Visualization of Total cost of Consumptions in EUR (or other configured currency) on a pie chart showing costs subdivided according to the configured tariffs (in the example 4 tariffs configured and only 3 with data)



2. Clicking on the drop-down menu it is possible to select or deselect the tariffs to be displayed on the pie chart (the pie chart is automatically updated)
3. Click "Electricity", "Gas" or "Water" to view the costs of this type of load

Note: in this visualization, consumption data for "virtual" devices not excluded from Total are also taken into account.

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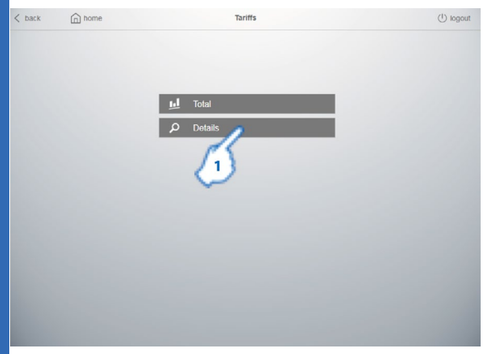
8.2.2.5.2 Details

1. Click "Details"



The page is divided into two sections:
- section A shows the devices added by the users with their characteristics and status icons. It is possible to choose a device per Groups / Loads or "All Devices"
- section B shows the histograms with the Cost of Consumptions in EUR (or other configured currency) subdivided according to the configured tariffs

Clicking on the drop-down menu it is possible to select or deselect the tariffs to be displayed on the histograms (histograms are automatically updated).

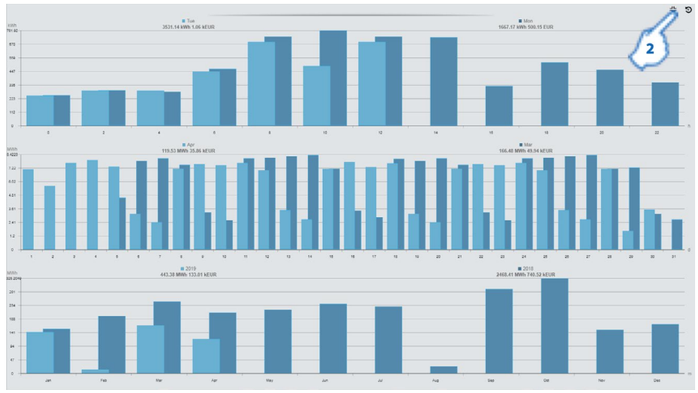
8.2.2.6 Advanced histograms and charts display

For histograms and pie charts of the menus "Partial – Groups and Load type", "Details", "Tariffs-Total" and "Tariffs-Details" an advanced display mode is available.

- Full screen display

1. Clicking on the button ⛶, histograms/charts can be enlarged to full screen. This function can be useful for projecting histograms/charts on screens in public places, processing departments, ... to create an awareness on consumption.

Note: image format and resolution will depend on the screen on which the data will be displayed (see example below for a screen 16:9)



2. To return to the standard format, press the button ⛶ at the top right.

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- Detailed view and direct download of data

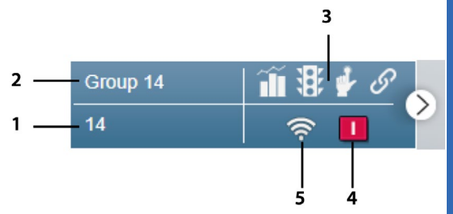
1. Clicking on the button , it is possible to browse the histograms/charts in detailed mode by:
- Day (per hours)
- Month (per days)
- Year (per months)
- 10 years (per years)

2. Click to select the histogram/chart viewing period (Day, Month, Year or 10 years)
3. Click to choose a specific date in the selected period
4. Clicking on two arrows (◀ or ▶) it is possible to pass from one to another histogram/chart in the selected period (e.g. today, yesterday, two days ago, ...)
5. Clicking on the button , it is possible to download a ".csv" file named "datalogger.csv" with the data saved by the web server in the selected period
6. Click to return to the standard view

Note: it is still possible to put in full screen this type of histogram by pressing the button .

- **Description of the device selection button**

1. Modbus Address (Modbus Address - Position for counters with pulse output orModbus Address - Side for charging stations "two" sides or Modbus Address - Indication of the virtual device type for the Master/Slave function)
2. Name of the device
3. Symbols of the functions associated to the Device
   - Measure
   - State
   - Command
   - Link Functionality



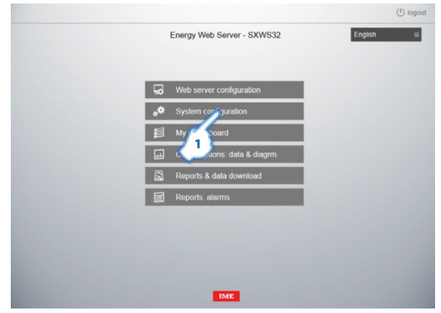
4. This symbol appears only if the Device integrates the state function related to a protection device and shows the circuit-breaker state:
   - O Open
   - I Closed
   - O Tripped

5. Device status:
   - On
   - Off
   - Communication error

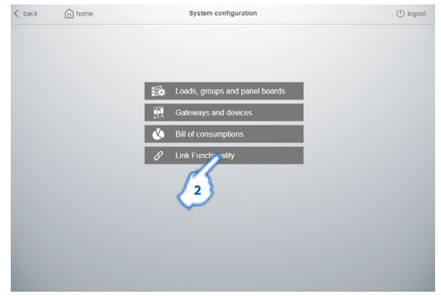
8.2.3 Link Function

This function allows you to link two NEMO SX modules to create automatic actions between a module that generates an event and a module that performs an action as a result of the event; these automations, once programmed, can run independently without a connection to a manager is needed.
Programming is done using the NEMO SX configuration software. The Web Server can see which links are created between the NEMO SX modules.

In the Web Server's home page
1. Click "System configuration"
System configuration page appears



2. Click "Link Functionality"
Link functionality page appears



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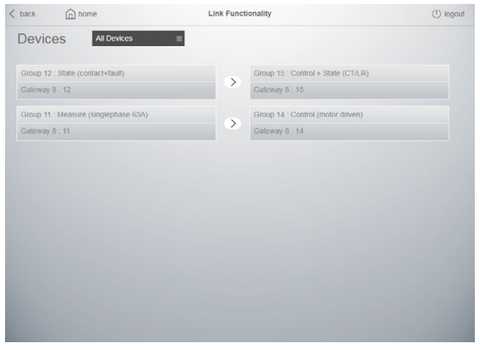
In this page are shown the existing links between the NEMO SX modules configured in the Web Server: - on the left, modules that generate events- on the right, modules that generate actions in response to the events
Each module is indicated with its name, function, name of the Gateway under which is the NEMO SX module and the Modbus address of the NEMO SX module



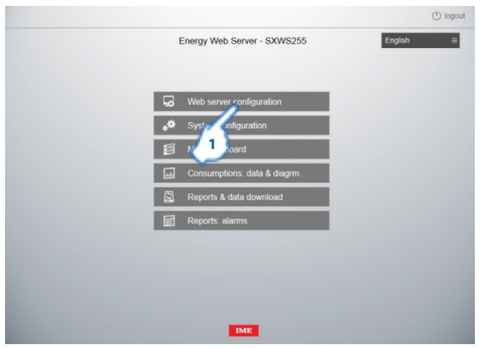
In case of an error an alert icon is displayed.Note: to check and correct errors it is necessary to use the NEMO SX configuration software.
At the same time, the symbol appears in the device selection button to indicate that there is one or more modules that have been configured as part of a Link

8.3 Historical of consumptions

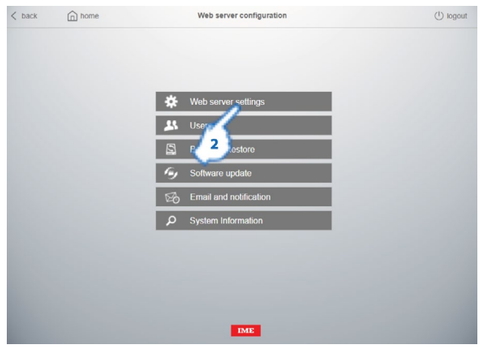
All the measured quantities are saved automatically in files ".CSV" compatibles with Excel or "csv" reader.It could be necessary to export these files to manipulate the information; to do this are required some settings in the Web server.

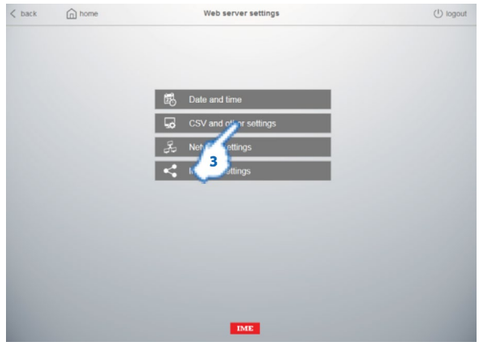
8.3.1 CSV files options

In the Web Server's home page
1. Click "Web Server configuration"



2. Click "Web server settings"





3. Click "CSV and other settings"
4.Click to set the CSV decimal separator: "point" or "comma" (default)
5. Click to set the CSV fields separator: "comma" or "semicolon" (default)
6. It's possible to change the default password (default password: wsmeasure) used to access to the CSV files contained in the HDD of the Web Server. (See § 8.4.2)
7. Click "Save"
Note: The system restart automatically when settings are saved.

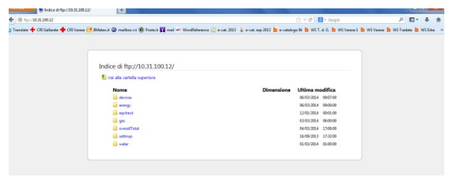
8.3.2 Access to CSV files

Access to CSV files contained in the HDD of the Web Server, it is possible via File Transfer Protocol (FTP):

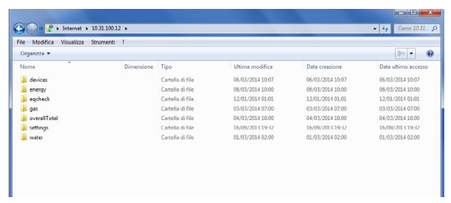
- **ACCESS VIA FTP**

Type the command FTP://"Web Server IP Address" (ex. FTP:// 172.168.1.101) in the Web browser or in the "address area" of a folder; an intermediate page appears.
User name and password are requested:
1. Type the requested fields
- User name: type "wsmeasure" (default user name; not changeable by the user).
- Password: type "wsmeasure" (default password)
or "password modified by the user" (see § 8.3.1)
2. Click "Log On"

Access to the server by web browser allows you to view and/or saving single "CSV" files only.



For the full download of all "CSV" files at once, access to the web server via the "address area" of a folder.



8.3.3 Management of CSV files

CSV files are created automatically according to the settings done by theuser in "System Configuration".

Files are saved in the HDD of the Web Server in the following sub-folders:

- "devices": contains the data recorded by each device (multifunctiondevice, energy meter, etc.)
- "energy": contains data related to energy consumption Ea+ (files are recorded per "all devices" / "Loads" / "Groups")
- "eqcheck": contains information on the energy quality (according to EN 50160) read by a device set as "Eq device" in Gateways and Devices(see page 36)
- "gas": contains data related to gas consumption (files are recorded per "Devices" and "Groups")
- "overall Total": contains data related to total consumptions of electricity, gas and water
- "settings": contains files which show the system structure detailed perIP and Modbus addresses, groups, loads, etc.
- water: contains data related to water consumption (files are recorded per "Devices" and "Groups")

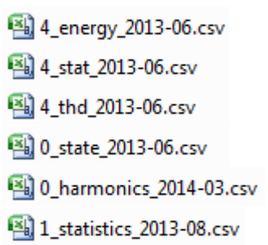
Notes:

- all consumption values are saved in Wh for Electricity data and dm3 for Water and Gas data
- saved values (resolution, decimal digits, etc.) depend only on the quantities read by the measuring instruments.

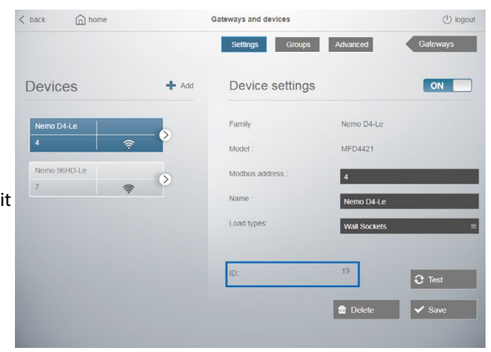
8.3.3.1 "devices" folder

It contains a folder for each device set in the system.

Folder name: "Device ID"

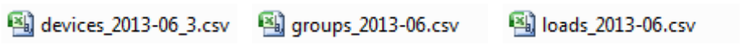


- ID: (identification number of the "physical" or "virtual" device in the database) is an unique number assigned to the device during the system configuration and it is shown in the Gateway and devices page (see image below)
- type of data recorded: energy, gas, water, statistics, THD, harmonics, etc.
- sampling-period: year-month of recording



8.3.3.2 "energy" folder

It contains a series of ".csv" files with the recording of energy consumptions subdivided per "Devices", "Groups" and "Loads".Files name "type_sampling period_file version"

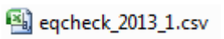


- type: consumptions distributed per devices, groups or loads
- sampling period: year-month of recording
- file version: increases in case of changes in the system configuration (adding of a Load/Group/etc.)

8.3.3.3 "eqcheck" folder

It contains a file named

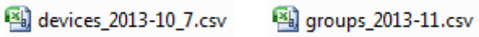
"eqcheck_sampling period_file version"



- sampling period: year of recording
- file version: increases in case of changes in the system configuration (changing of EQ device)

8.3.3.4 "gas" folder

It contains a series of ".csv" files with the recording of gas consumptions subdivided per "Devices" and "Groups"Files name "type_sampling period_file version"



- type: consumptions distributed per devices or groups
- sampling period: year-month of recording
- version: increases in case of changes in the system configuration (adding of a Group/etc.)

8.3.3.5 "overall total" folder

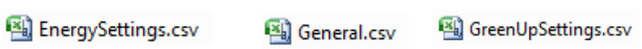
It contains a series of ".csv" files with the recording of total consumptions of energy, gas and water

Files name "type_sampling period"

- type: consumptions distributed per cost (currency set) or per values (kWh of energy, m^3 of gas and m^3 of water)
- sampling period: year-month of recording

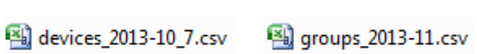
8.3.3.6 "settings" folder

It contains two files which show the system structure detailed per Gateways IP, Modbus addresses, groups, loads, etc.



8.3.3.7 "water" folder

It contains a series of ".csv" files with the recording of consumptions subdivided per "Devices" and "Groups"Files name "type_sampling period_file version"



- type: consumptions distributed per devices or groups
- sampling period: year-month of recording
- version: increases in case of changes in the system configuration (adding of a Group / etc)

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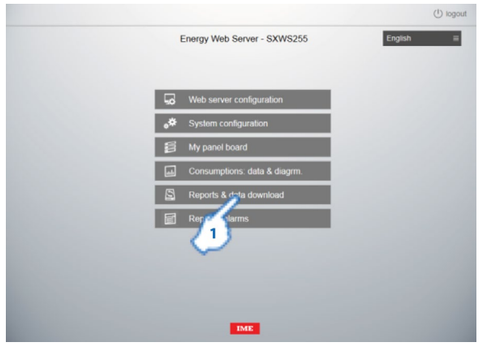
8.4 Reports & data download

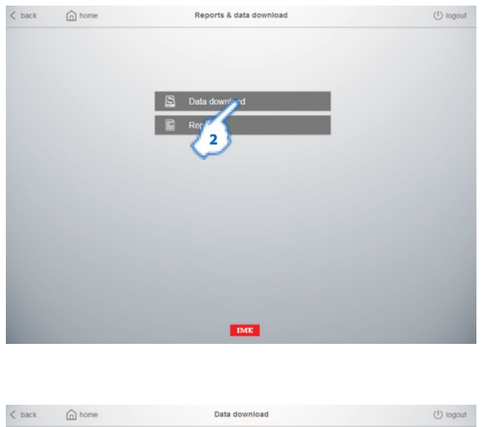
8.4.1 Data Download

This function allows you to directly export consumption data in ".csv" format for a single device, a group of devices or for all devices installed in the system.

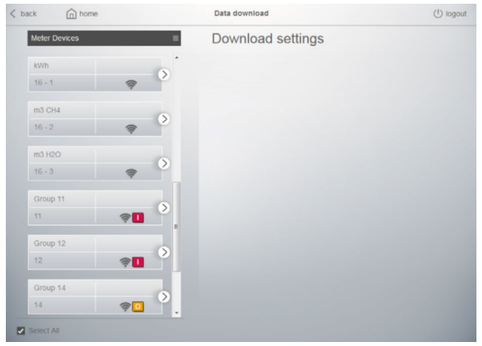
In the Web Server's home page



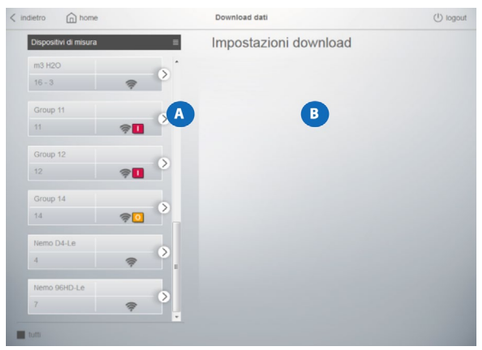
1. Click "Reports & data download"



2. Click "Data download"
Data download settings page appears



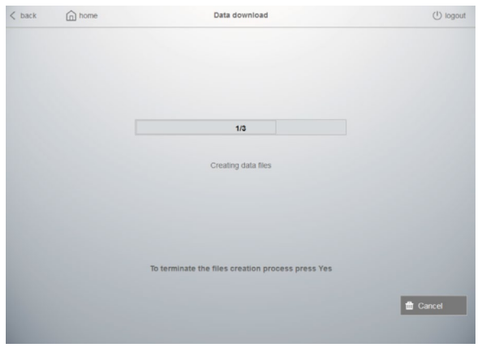
The page is divided into two sections:
section A shows the "physical" or "virtual" devices added by the users with their characteristics and status icons. It is possible to create a list of Meter devices, Groups or Loads
section B is the area where, once performed a selection, is possible to set:
starting and ending date of the reference period
whether to include in the download also costs file(s)
sample rate: 15 minutes (default), 1 hour or 1 day



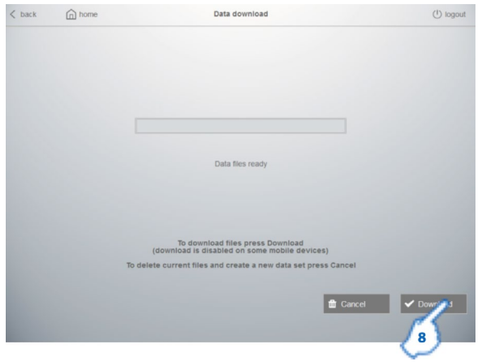
To download csv files:

1. Click to select the list type that will be displayed: Meter Devices (default), Groups or Loads
2. Click to select Devices / Groups or Loads one by one (objects selected are highlighted in green) or 3. click "Select All" to select all Devices / Groups or Loads at once
4. Type starting and ending date
5. Click if you want to include in the download also a file with costs
6. Choose the sample rate according to which consumption and costs data will be grouped
7. Click "Download" to complete the process
An intermediate window with file(s) creation progress appears

At the end of file creation process

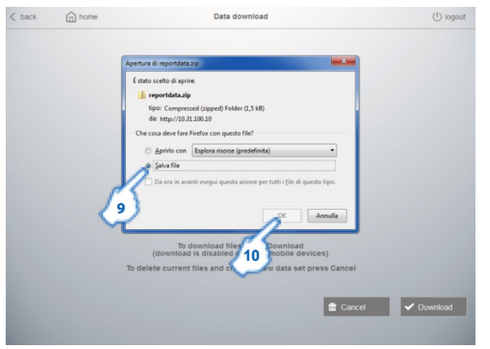


8. Click "Download"
A pop-up window appears



9. Click to save the file on your computer , then 10. click "OK"
Files are now downloaded on your computer from the web server's database in an archive named "reportdata.zip".

Note: files will contain only data correctly saved on the database of the software; if a device is in communication error state or the web server is not running properly, consumption data won't be present on downloaded files.



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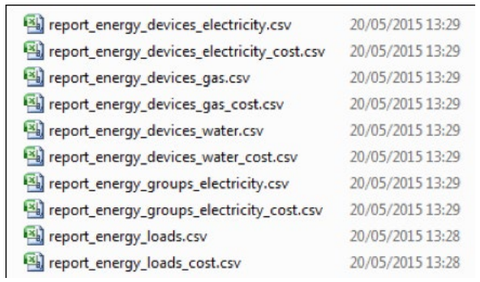
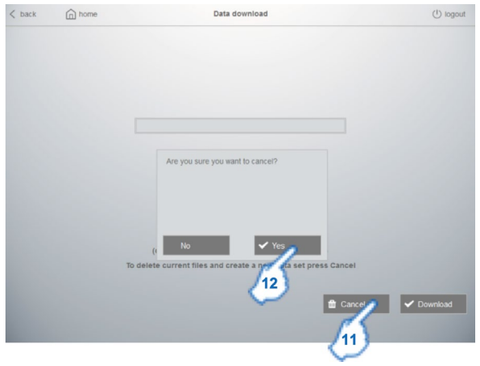
In the .zip archive you can find a file with consumption data and a file with costs data for each consumption type: electricity, gas and water for the selected Device(s) / Load(s) or Group(s)



Note: all consumption values in "csv" files are saved in Wh for Electricity data and dm³ for Water and Gas data

To perform a new csv files download

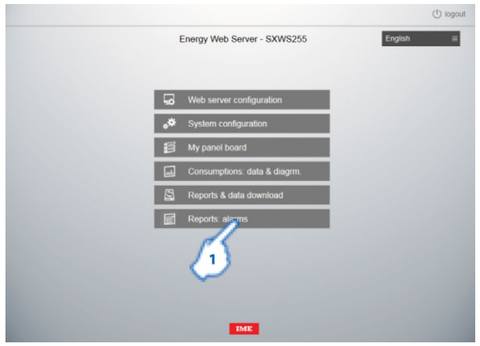


11. Click "Cancel"
A pop-up window appears
12. Click "Yes" to return to the Data download settings page

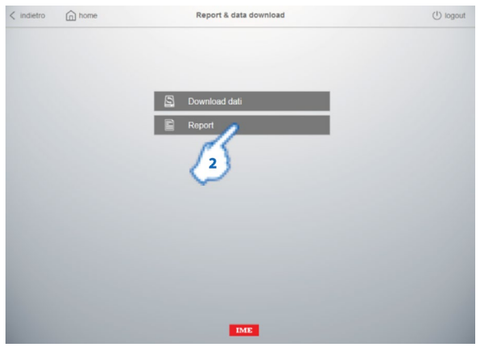
8.4.2 Reports

This function allows you to create a ".pdf" report starting from data contained in the database saved of the web server.Two types of reports are available:
- a general report, monthly or yearly, containing overall consumption data of the system divided per type: Electricity, Gas and Water
- a detailed report, monthly or yearly, containing consumption data of the selected Device(s).

In the Web Server's home page

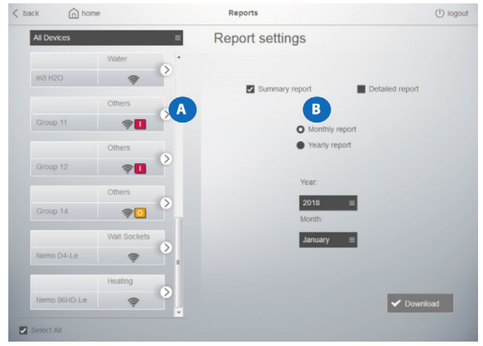


1. Click "Reports & data download"



2. Click "Reports"
Reports settings page appears

The page is divided into two sections:
section A shows the "physical" or "virtual" devices added by the users with their characteristics and status icons
section B is the area where is possible to select:
- which type of report: Summary or Detailed
- the report period: Monthly or Yearly report
- specific month and year



To create a Summary report:

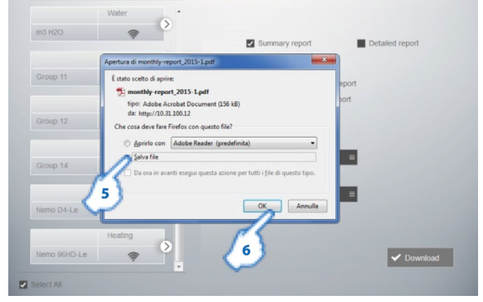
To create this kind of report it is not necessary to select any device because this is a general document that contains Overall consumption data.
1. Select "Summary report"
2. Click to choose the report period: monthly or yearly
3. Choose month and year (for monthly reports) or only the year (for yearly reports)
4. Click "Download" to complete the process
A pop-up window appears

5. Click to save the file on your computer , then 6. click "OK"
The file is now downloaded on your computer from the web server's database.
Note: files will contain only data correctly saved on the database of the software; if a device is in communication error state or the web server is not is not running properly, consumption data won't be present on downloaded files.

In the destination folder you can find a file named:
"Report type and period"

monthly-report_2014-12.pdf yearly-report_2014.pdf

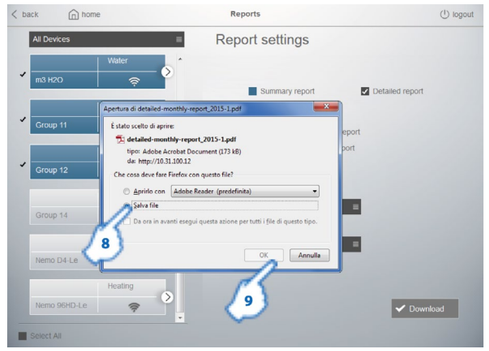
- report type: monthly or yearly report
- period: year-month (for monthly reports) or year (for yearly reports)



To create a Detailed report:
1. Select "Detailed report"
2. Click to filter the Devices list per Groups / Loads or "All Devices"
3. Click to select Devices one by one (objects selected are highlighted in green) or 4. click "Select All" to select all Devices at once
5. Click to choose the report period: monthly or yearly
6. Choose month and year (for monthly reports) or only the year (for yearly reports)
7. Click "Download" to complete the process
A pop-up window appears

Energy Web Server

8. Click to save the file on your computer , then 9. click "OK"
The file is now downloaded on your computer from the web server's database.
Note: files will contain only data correctly saved on the database of the software; if a device is in communication error state or the web server is not is not running properly, consumption data won't be present on downloaded files.

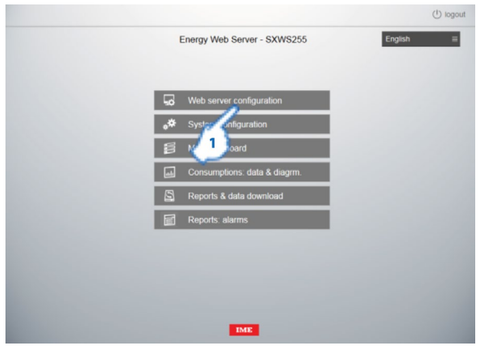


In the destination folder you can find a file named:
"Report type and period"

- report type: monthly or yearly report
- period: year-month (for monthly reports) or year (for yearly reports)

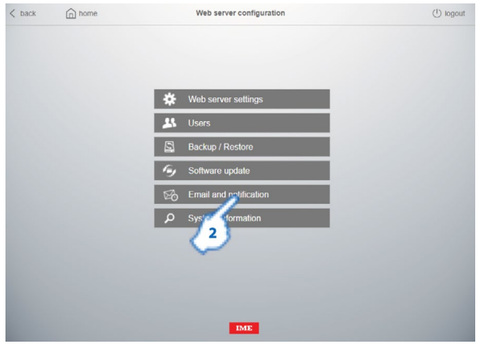
8.5 Pushing e-mail and notifications

This function allows you to send via e-mail, monthly or yearly, to one or several e-mail address(es) an automatic reports in ".pdf" or in ".csv" format. To do this are required some settings in the Web server.

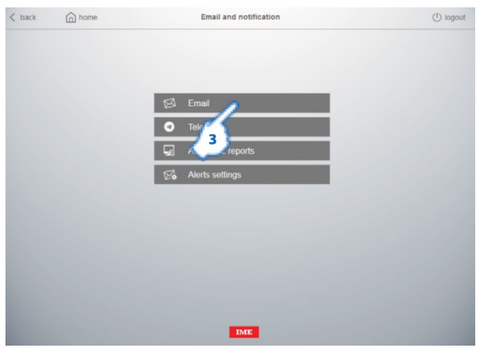


8.5.1 E-mail settings
In the Web Server's home page

1. Click "Web Server configuration"



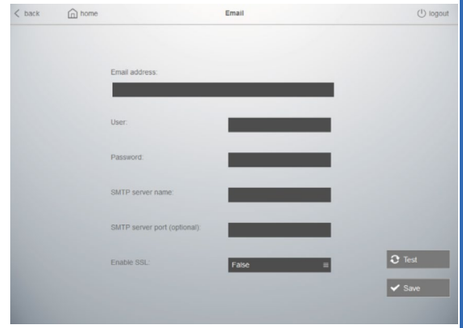
2. Click "Email and notification"



3. Click "Email"

Email configuration page appears

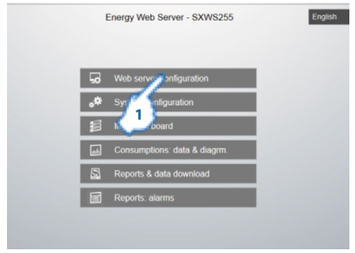
This page is used to configure the sender e-mail profile; e-mail recipients will receive messages containing alerts, events, reports, … with the email address configured here as "sender".



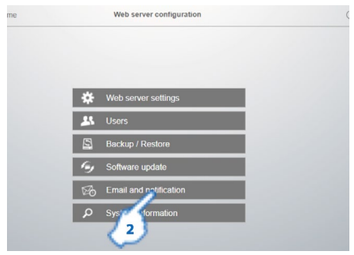
1. Type the sender complete e-mail address (ex. abc@gmail.com)
2. Type the others e-mail account elements:
   - User: is the user name with which the sender access to his e-mail account
   - Password: is the password with which the sender access to his e-mail account
   - SMTP server name: is the Simple Mail Transfer Protocol name of the e-mail provider (ex. for gmail: smtp.gmail.com).
   - SMTP server port: optional setting used if the SMTP server port indicated by the provider is different from the default port value (port 465).
3. Enable SSL: Secure Sockets Layer is an encryption system that is used by all those organizations that need to transit safely and indecipherable data, so that only the intended recipient can view it.Enable this option if it's indicated by your e-mail provider.
Note: the elements of points 2. and 3. are obtainable from your email provider or, for the main providers, by internet with a search engine looking for the SMTP characteristics for the outgoing mail.
4. Click "Save"
5. Clicking "Test" a sample e-mail is sent to the sender e-mail address set in this page in order to test the connection/configuration

8.5.2 Telegram
In the Web Server's home page

1. Click "Web Server configuration"



2. Click "Email and notification"



3. Click "Telegram"
Telegram configuration page appears
Telegram is a cloud-based mobile and desktop messaging application with a focus on security and speed

Energy Web Server

This page is used to configure the sender Telegram profile; Telegram users will receive messages containing alerts, events, … with the Telegram BOT configured here as "sender".

Procedure:

1. Download the application (available for free for Android, iOS and Windows phones) on your smartphone and follow the installation process and the user profile configuration
2. Create the BOT Telegram using the procedure described on the application site (https://core.telegram.org/bots#3-how-do-i-create-a-bot).

Note: BOT is a simply Telegram account used to create services.

3. Type the account elements :
   - Name: name set in the BOT configuration process
   - Token: unique alphanumeric code created during the BOT configuration process; It is used to identify univocally the BOT
   - Password: it is created and inserted directly on this page; it is used to recognize users enabled to receive notifications from the Web server

Note: in this page will also appear the list of all users who have requested to receive notifications.

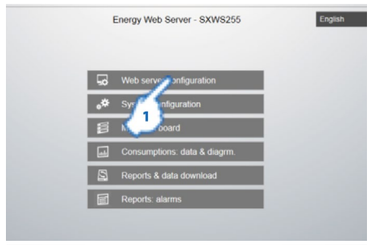
4. Click to enable/disable sending notifications to each Telegram user
5. Click "Save"
6. Clicking "Test" a sample massage is sent to all selected Telegram users in order to test the connection/configuration

Note: a telegram user, to be enabled to receive notifications from the Web server, will have to open the Telegram app on its smartphone and send to the BOT a message containing the password configured in this web page.

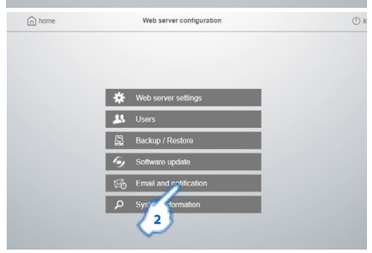
8.5.3 Automatic reports

In the Web Server's home page

1. Click "Web Server configuration"

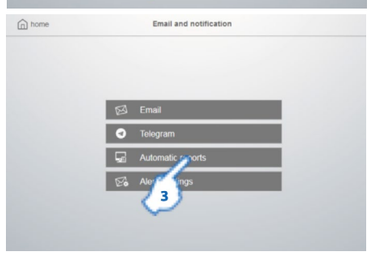


2. Click "Email and notification"



3. Click "Automatic reports"

Automatic report configuration page appears



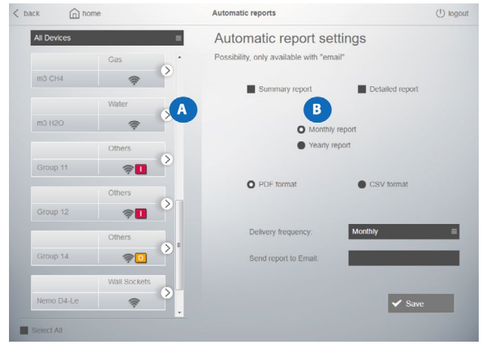
The page is divided into two sections:

section **A** shows the "physical" or "virtual" devices added by the users with their characteristics and status icons

section **B** is the area where is possible to select and set:

- which type of report: Summary or Detailed
- the report period: Monthly or Yearly report
- the report format: pdf or csv
- the e-mail address(es) of recipient(s).

Note: to enter multiple email addresses, use the comma (,) as separator (ex. aaa@bbb.xy,ccc@ddd.wz)

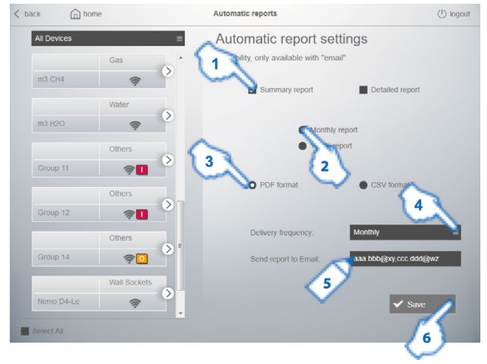


To set the sending of a Summary report:

To create this kind of report it is not necessary to select any device because this is a general document that contains Overall consumption data.

1. Select "Summary report"
2. Click to choose the report period: monthly or yearly
3. Click to choose the report format: pdf or csv
4. Click to choose the report Delivery frequency: Monthly, Weekly or Daily
5. Type e-mail address(es) of recipient(s)
6. Click "Save" to complete the process

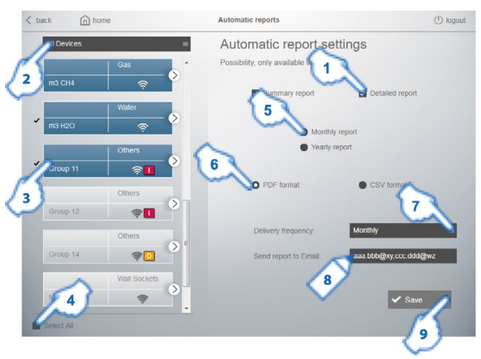
According to the selected period recipient(s) will receive the selected Summary report



To set the sending of a Detailed report:

1. Select "Detailed report"
2. Click to filter the Devices list per Groups / Loads or "All Devices"
3. Click to select Devices one by one (objects selected are highlighted in green) or 4. click "Select All" to select all Devices at once
5. Click to choose the report period: monthly or yearly
6. Click to choose the report format: pdf or csv
7. Click to choose the report Delivery frequency: Monthly, Weekly or Daily
8. Type e-mail address(es) of recipient(s)
9. Click "Save" to complete the process

According to the selected period recipient(s) will receive the selected Detailed report



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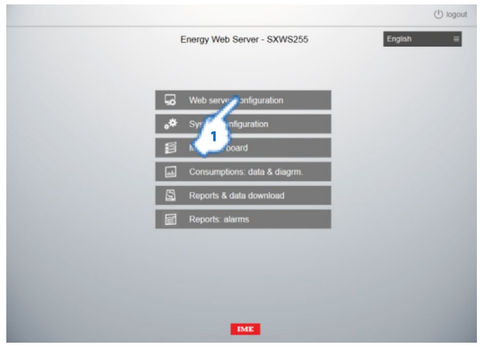
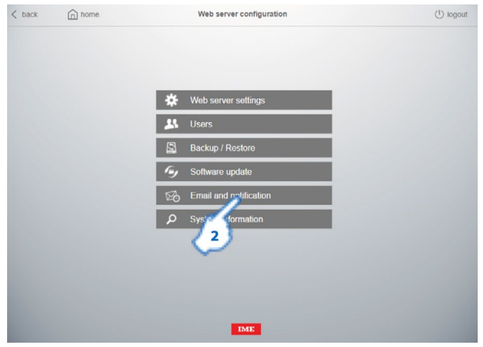
8.5.4 Alert settings

In the Web Server's home page

1. Click "Web Server configuration"

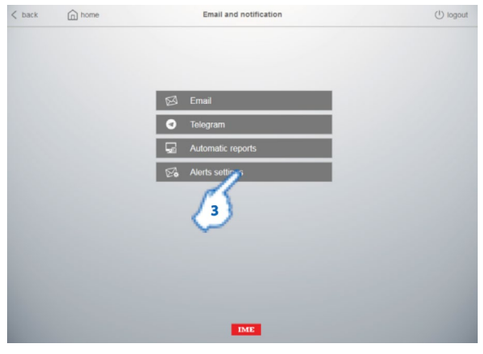


2. Click "Email and notification"

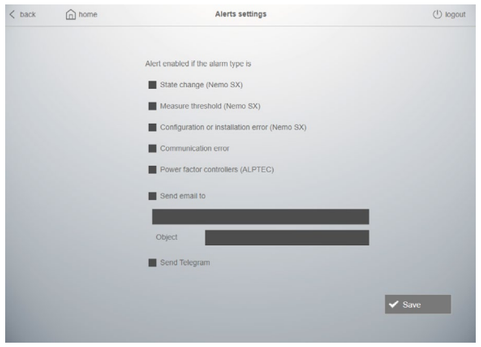


3. Click "Alert settings"

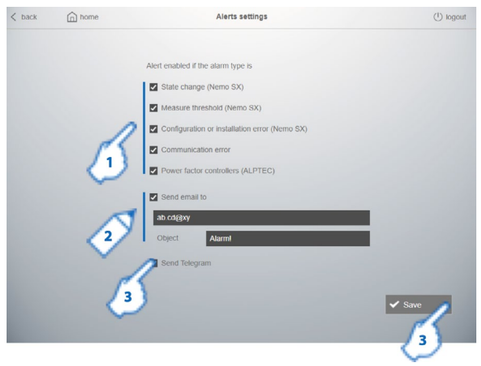
Alert settings page appears



This page is used to set the type(s) of alarm/event for which are sent e-mail or Telegram messages



1. Select error/event causing the sending of e-mail or Telegram messages:
   State change
   Measure threshold
   Configuration or installation error
   Communication error
   Power Factor Controller (ALPTEC)
2. Flag "Send email to" and type e-mail address(es) of recipient(s) and the object of the e-mail message if you want to send alert e-mail
3. Flag "Send Telegram" if you want to send alert Telegram messages
4. Click "Save"



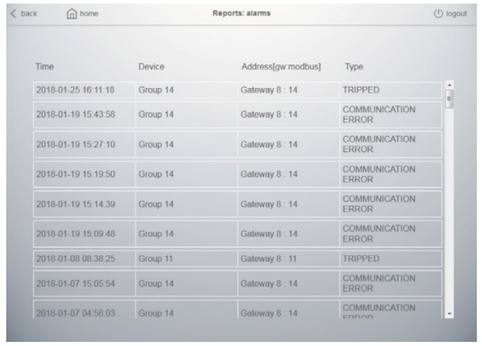
8.6 Reports: alarms

This function allows the automatic creation and display of the list of alarms, events, … , registered by each Modbus RS485/NEMO SX interface (cat.no SXI485) installed in the system.

In the Web Server's home page

1. Click "Reports: alarms"

The page with the list of registered alarms appears



The page shows:
Data & Time of the alarm, event, …
Name assigned to the device/group of devices NEMO SX
Name of the Gateway and Modbus address of the device/group of devices NEMO SX in which the event occurred
Type of alarm/event: e.g. Tripped, Duplicated function, Communication error, …

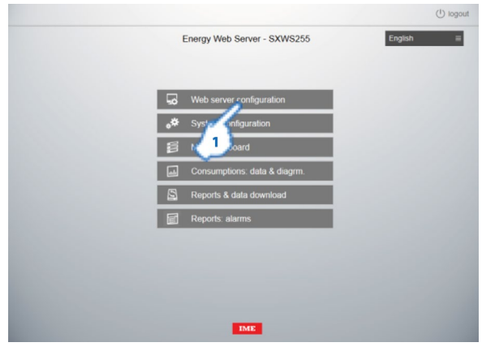
8.7 System information

"System information" page allows the user to have information relating to the operation of the Web Server such as:
- Firmware version installed
- Date and Time of the last restart
- System resources allocated
- Storage space allocated and Integrity of the database
- …

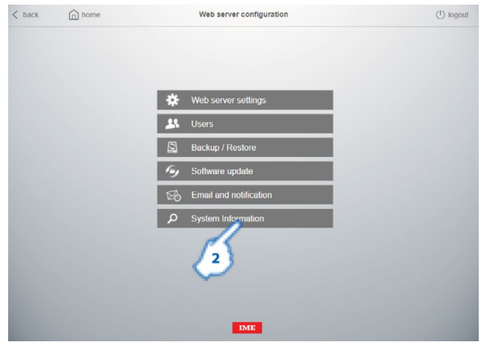
Access to the page

In the Web Server's home page

1. Click "Web Server configuration"

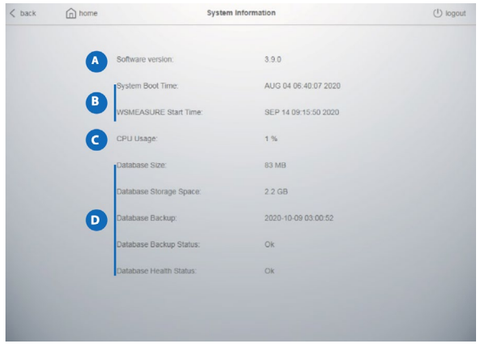


2. Click "System information"



Energy Web Server

System information page appears

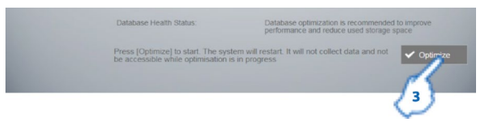


The page contains following information:

- A Firmware version installed
- B Date and Time of the last restart of the hardware
  Date and Time of the last restart of the application embedded on the hardware
- C Percentage of CPU used. A consistently high value (> 80%) can indicate some hardware problems
- D Information about the Database saved in the Web server:
  - **Database size**
  - **Available storage space for the Database**
  - **Date and time of the Database Backup performed by the Web server**

    Note: this Backup is different from the one created by the user with the "Backup" function, as describe in the next chapter of this manual.
  - **Status of the Database Backup:** "Ok" or "Error" (in case of error contact technical support)
  - **Database Health status:** informs the user on the necessity to optimise the internal Database of the Web Server. If the database becomes too large, performances of the Web Server will deteriorate and there is the risk of errors in histograms displaying and in the saving of data. Consequently, it is suggested to optimize the Web Server database via the "Optimize" button that appears in the lower part of the page.

To perform the optimization of the Database, 3. Click "Optimize".



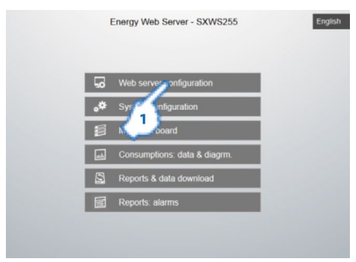
9 Backup and Restore

These procedures are used to create a backup of the device configuration and to perform the restore of a saved configuration.

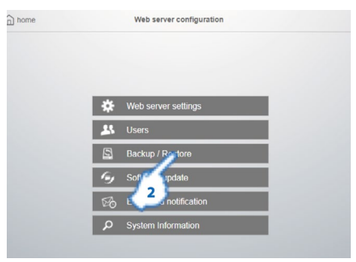
9.1 Backup procedure

In the Web Server's home page

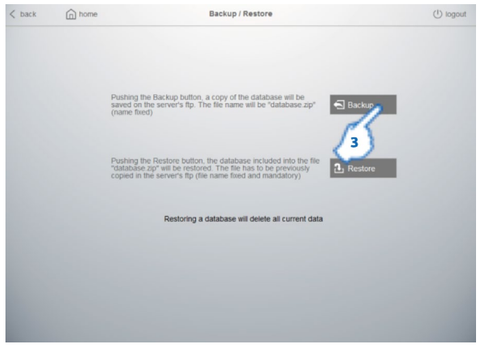
1. Click "Web Server configuration"



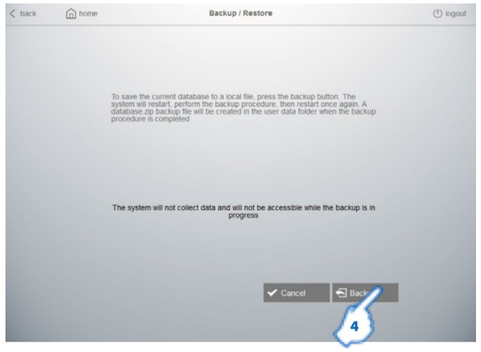
2. Click "Backup/Restore"



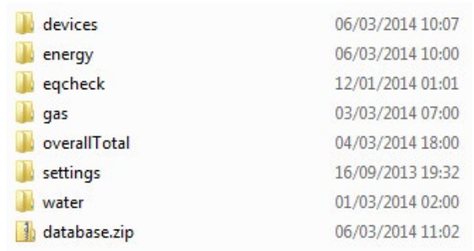
Backup and restore page appears



3. Click "Backup" to access the page



4. Click "Backup" to perform the function.
A file named "database.zip" is automatically saved on the HDD of the web server.
It's possible to save in local the file by accessing to the HDD via FTP or Network drive (see 8.4.2)

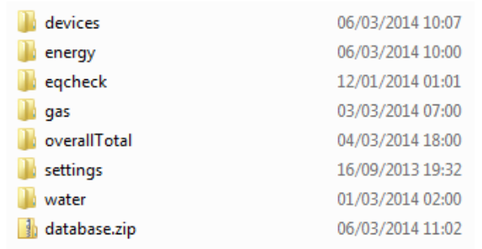


Note: not modify the zip folder's name and its contents to avoid problems during the restore procedure! (names and types of files, etc..)

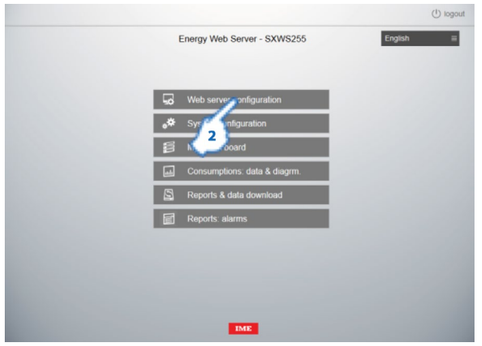
9.2 Restore procedure

1. Copy the file to restore "database.zip" in the Web server's FTP

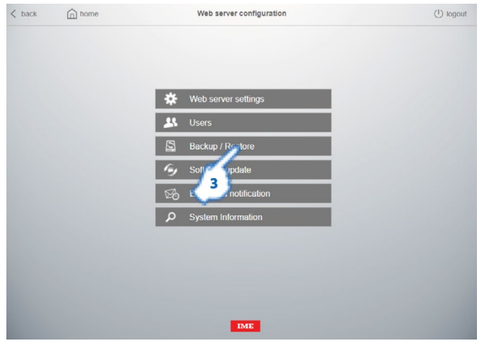
In the Web Server's home page



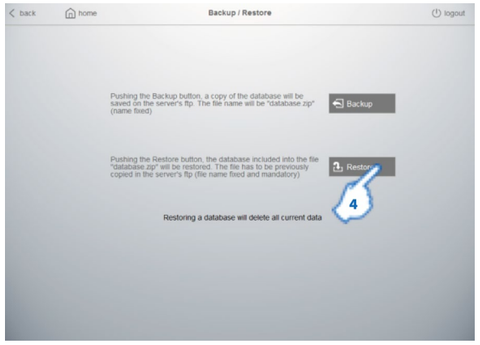
2. Click "Web Server configuration"



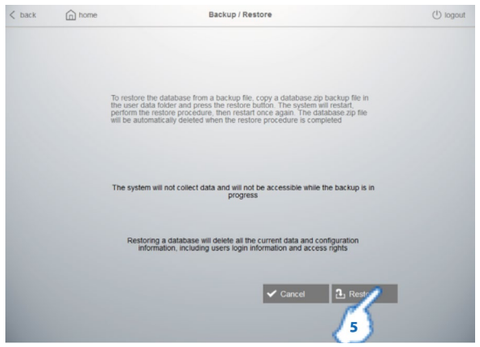
3. Click "Backup/Restore"



Backup and restore page appears



4. Click "Restore" to access the page



5. Click "Restore" to perform the function.

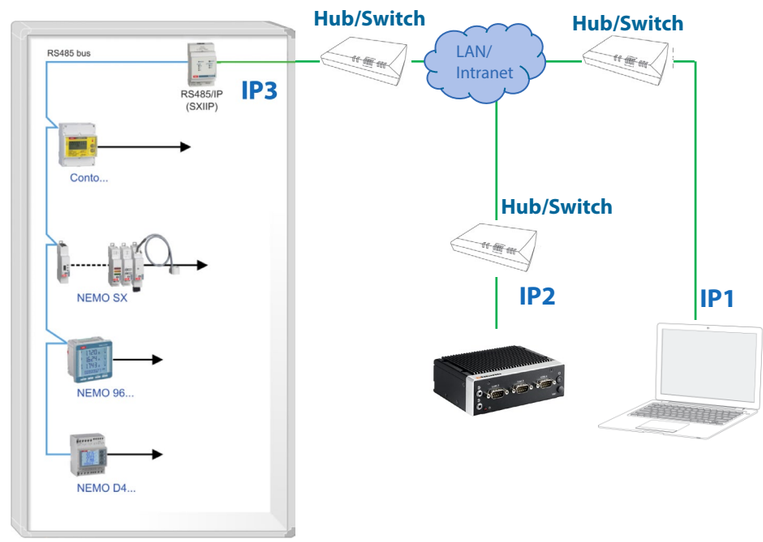
Note: the good result of the operation will be guaranteed only if the folder's name and its contents has not been modified after the backup (names and types of files, etc..).

10. Network type and access mode

10.1 LAN/intranet

Private network

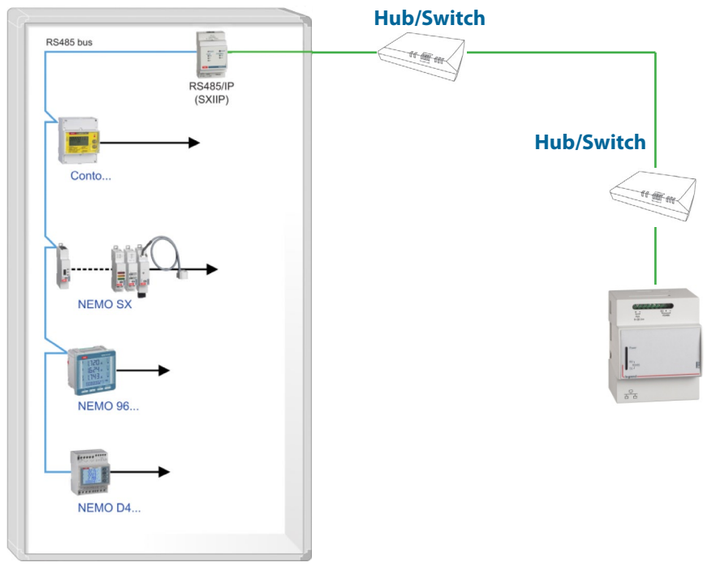
Addresses and rights managed by the Manager of the Building



10.1.1 Ports

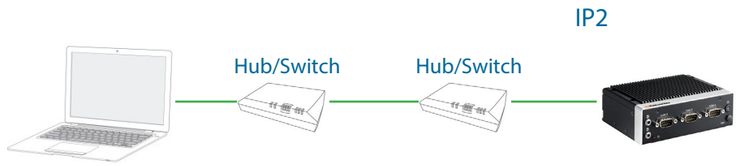
- Web Server to Gateways or to Slave Web servers:

  - Port 502, Modbus TCP



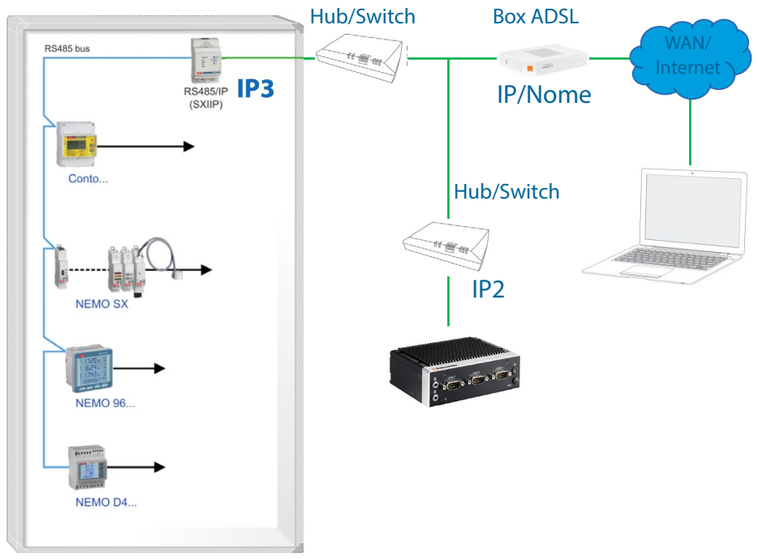
Energy Web Server

- Users to Web Server:
  - Port 80, HTTP (http://IP2 by web browser)
  - Port 443, HTTPS (https://IP2 by web browser)
  - Port 443, Telegram
  - Ports 20 and 21, FTP (ftp://IP2 by web browser or in “My Computer”)
  - Port 502, Modbus over IP if Mini Web Server used as RS485/IP converter



10.2 WAN/Internet

Public network



Fixed* IP Box: the IP address remains the same

➔ Access by IP address (Fixed IP paying according to the operators)

Dynamic* IP Box : the address may change

➔ Access by Name (possibility of creating a dynamic DNS account – Example www.dyndns.org).

User: access by the public address of the Box (IP/Name, Internet)

Web Server: always has a fixed private address (IP2, Intranet)

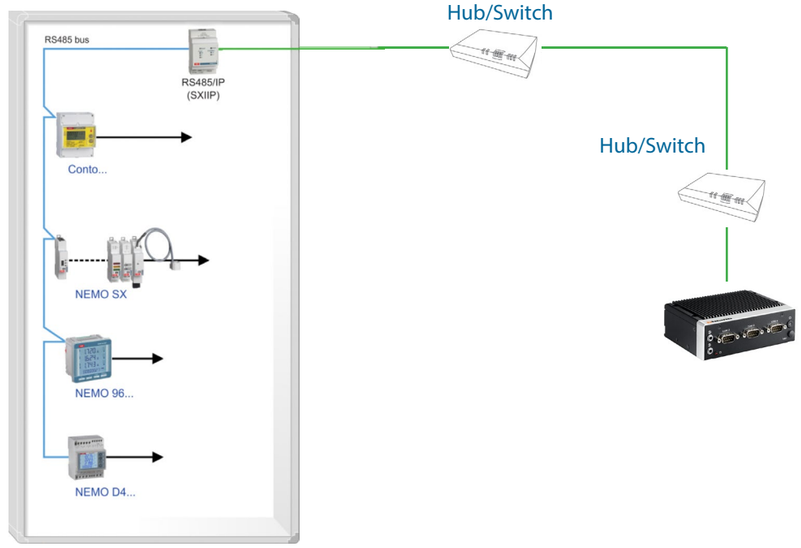
➔ It is necessary to achieve the association web server/Box*

* More information from the ADSL operator

10.2.1 Ports

Web Server to Gateway:

Port 502, Modbus TCP

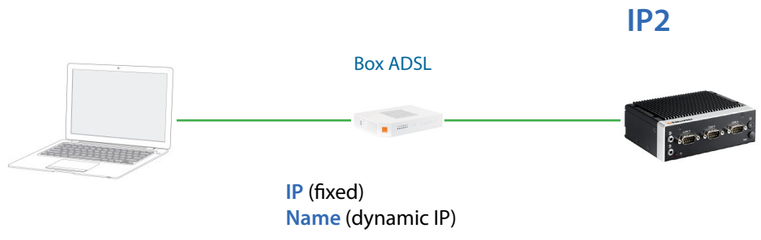


Users to Web Server:

Port 80, HTTP (http://IP2 by web browser)

Port 443, HTTPS (https://IP2 by web browser)

Ports 20 and 21, FTP (by web browser or in “My Computer”)



IP (fixed)
Name (dynamic IP)

Energy Web Server

11. FAQ

11.1 Access problems

If typing the PIN and PUK codes, Web Server's home page is not displayed correctly (continuous refresh of the page), you have to do the following operations :

- delete the cookies
- delete the internet temporary files
- delete the cache
- delete the chronology

11.2 Telegram problems

If the "Test" function in the Telegram page does not work correctly, you have to check:

- the correct opening of the communication port 443 (see § 10.1.1)
- the correct configuration of the DNS of the Mini Web server in the "Network settings" page (see § 7.7.1)

11.3 E-mails sending test problems

If the "Test" function in the e-mails sender configuration page (page "Email" in the "Email and notification" menu) does not work correctly, you have to check:

- the correct opening of the communication port configured in the menu
- the correct configuration of the DNS of the Mini Web server in the "Network settings" page (see § 7.7.1)
- Options of your e-mail account related to access by deemed less secure applications

MOBILE VERSION MANUAL

12. Use

12.1 Access

The access to the Web Server's data is protected by identification codes (PIN and PUK codes).

Four types of "default" users are configurated:

- "administrator"
- "installer"
- "user"

The home page ("home") will be different depending on the type of user that access to the device.

12.1.1 Access rights

- "administrator"

Access to the pages:
- My panel board
- Consumptions: data & diagrm.

Default access PIN code:
99999 (5 characters)
Default access PUK code:
00000 9999 00000 (14 characters)

- "installer"

Access to the pages:
- My panel board
- Consumptions: data & diagrm.

Default access PIN code:
55555 (5 characters)
Default access PUK code:
00000 5555 00000 (14 characters)

- "user"

Access to the pages:
- Consumptions: data & diagrm.

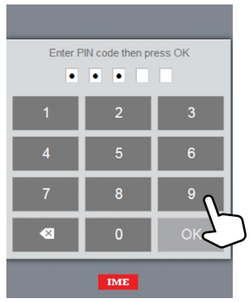
Default access PIN code:
11111 (5 characters)
Default access PUK code:
00000 1111 00000 (14 characters)

12.1.2 Login procedure

Connect to the Web Server from your smart-phone by typing in the web browser the IP address set in the configuration procedure (refer to the "User manual" § 7.5)

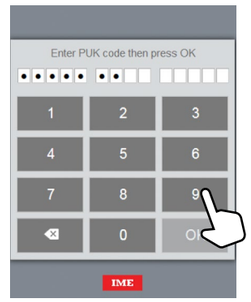
Web Server's login page appears

Type an access PIN code(e.g. 99999 - default PIN) then press on "OK".



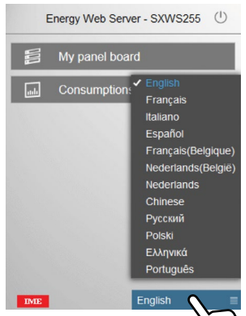
Type the access PUK code 00000 9999 00000 (default PUK) then press on "OK".

Web Server's home page appears



Energy Web Server

12.1.3 Changing of the display language

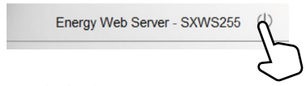


In the Web Server's Home page, touch on the list box in the lower part of the page to choose the proper language.

Note: this operation doesn't change the default language. To change the default language follow the procedure described in the User manual (§ 7.11.1)

12.1.4 Logout procedure

The Logout icon appears in the Web Server's home page.



Touch the logout icon.

A confirmation page appears.

Touch "Logout" or "Lock" to confirm the exit from the web server.

Note:

Logout ➔ closing the session; reconnection with the PIN code.

Lock ➔ temporary disabling of the application; reconnection with the codes PIN+PUK.

12.2 Data display pages

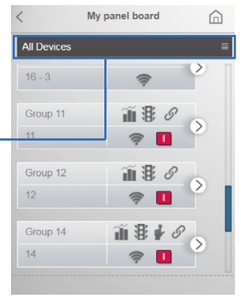
12.2.1 My panel board

"Devices" page allows to view the data measure by each device added by the users and to .

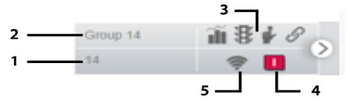
In the Web Server's home page press on "My panel board"

A page with the Devices list's appears.
This page shows the devices added with their characteristics and status icons.

Possibility to choose a device per "Gateway", "Panel board" or "All devices".



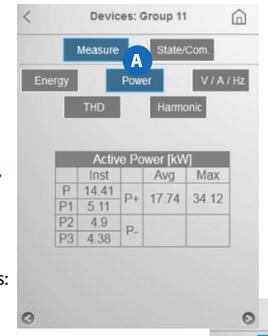
- **Description of the device selection button**



1. Modbus Address (Modbus Address - Position for counters with pulse output or Modbus Address - Side for charging stations "two" sides or Modbus Address - Indication of the virtual device type for the Master/Slave function)
2. Name of the device
3. Symbols of the functions associated to the Device
   - Measure
   - State
   - Command
   - Link Functionality
4. This symbol appears only if the Device integrates the state function related to a protection device and shows the circuit-breaker state:
   - O Open
   - I Closed
   - O Tripped
5. Device status
   - On
   - Off
   - Communication error

The procedure to switch ON/OFF a device is described in the "User Manual" (§ 7.16.1).

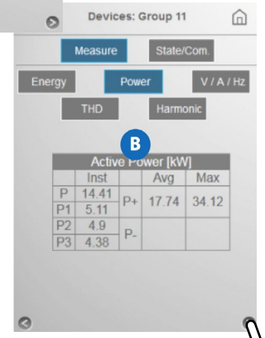
In the Devices list's page press on a Device button.



Details page of the selected device appears.The page is divided into two parts:

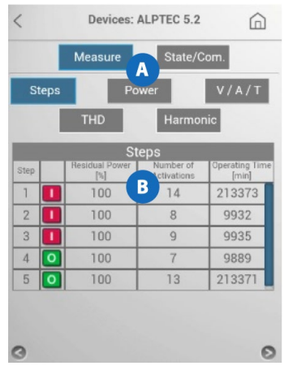
section A is the area where is possible to select two pages:

- Measure: display of the quantities measured by a device:
  - Electricity measuring device:
    Energy, Power, Voltages/Currents/Frequency, THD (if available on the Device) and Harmonics (if available on the Device)
    Note: for "generic" measurement/counting devices and "Virtual" devices created with the Master/Slave function, only the table with the value of positive active energy is available.
  - Water Counters: Water consumptions
  - Gas Counters: Gas consumptions
- State/Com.: page dedicate to NEMO SX devices; display of devices status, control buttons… for each NEMO SX device/group of devices



For Power Factor Controllers of ALPTEC range, "My panel board"page is structured as follows:

In the Devices list's page press on a Power factor controller button.



Details page of the selected PFC appears.

The page is divided into two parts:

section A is the area where is possible to select two pages:

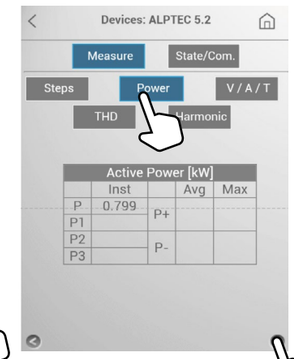
- Measure: display of parameters and electrical quantities measured by the Power Factor Controller:
  - Steps: State (: not inserted, : inserted), Residual power (in % for APLTEC3.2/5.2/8.2 and in kvarfor ALPTEC8), Number of insertions and Insertion time for each step;
  - Others quantities: Power, Power Factor, Voltages/Currents/ Temperature, THD and Harmonics
  - State/Com.: display of residual time to maintenance (for APLTEC3.2/5.2/8.2) and possibility to reset this time;

section B shows the values measured by the selected power factor controller

Touch the two arrows in the lower part of the page to pass to the page containing indication of the Global state of Steps (OK or Default) and AUTO/MAN control button used to show the state of the power factor controller and to switch the device between two operating modes

Press on one of the buttons to view the other measure delectrical quantities.

Use two arrows in the lower part of the page to display the different tables for the selected electrical quantity (e.g. for the Power: Active,Reactive and Apparent power andPower factor).

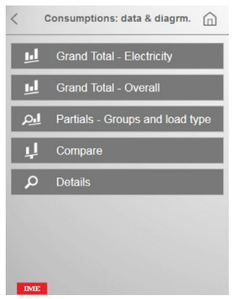


Energy Web Server

12.2.2 Consumptions: data & diagrm.

"Consumptions" page allows to view the global or detailed consumptions of the devices added by the users.

In the Web Server's home page press on"Consumptions: data & diagrm." Consumptions page appears.



Are available 5 ways of displaying data:

Grand Total - Electricity (Electrical Consumptions of the entire installation)

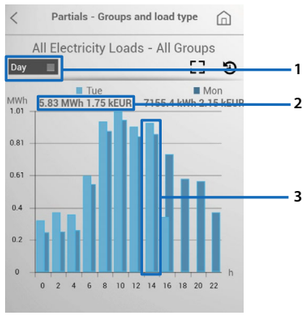
Grand Total - Overall (Overall Consumption of the installation)

Partials (Consumptions per Load and/or Measure group)

Compare (Comparison of the Global Consumptions between two Devices)

Details (Consumptions of a single Device)

For each page are available:



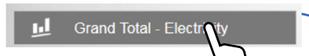
1. Histograms of the consumptions divided per:
- Day (per hours)
- Month (per days)
- Year (per months)

2. Values in:
- Wh (and multiples of Wh), dm^3 (and multiples of dm^3) of water, dm^3 (and multiples of dm^3) of gas and "Wh (and multiples of Wh) equivalent" of gas.

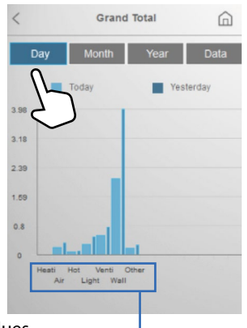
Note: displayed values (resolution , decimal values, etc.) depend only on the quantities read by the measuring instruments.
- EUR (or other configured currency)

3. Comparison between the actual and the previous value (e.g. today/yesterday, etc.)

- **Grand Total - Electricity**



In the Consumptions menu page press on"Grand Total - Electricity".

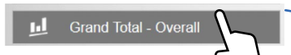


Visualization of Total Energy (Ea+) Consumptions on histograms.

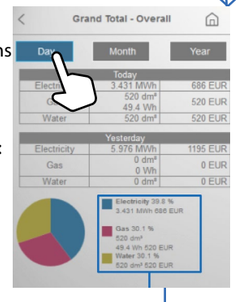
Press "Day", "Month" or "Year" to view consumptions on a different time period (Day (per hours) / Month (per days) / Year (per months)).
Press "Data" to view the table with the values (in Wh and Currency) of global consumptions in different time periods.

Histograms divided per Load

- **Grand Total - Overall**



In the Consumptions menu page press on"Grand Total - Overall".



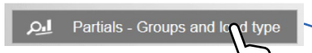
Visualization of Overall Consumptions of the system on tables and on a pie chart showing:
- consumptions subdivided per type:
  Electricity (orange area)
  Gas (green area)
  Water (blue area)
- consumptions valued according to the measurement unit and the currency set

Press "Day", "Month" or "Year" to view consumptions on a different time period (Day (per hours) / Month (per days) / Year (per months)).

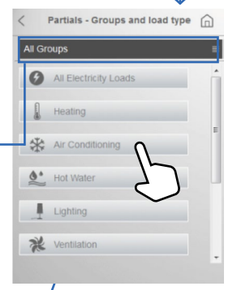
The percentage shown in the pie chart is calculated based on the currency set

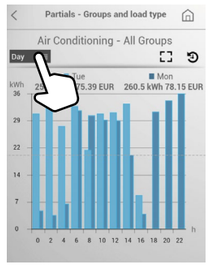
Note: in this visualization, consumption data for "virtual" devices not excluded from Total are also taken into account.

- **Partials - Groups and Loads**



In the Consumptions menu page press on "Partials - Groups and load type".
Loads list's page appears.
This page shows "pre-defined" loads and loads added by the users;
Possibility to choose a load filtering the research per "Measure Group".



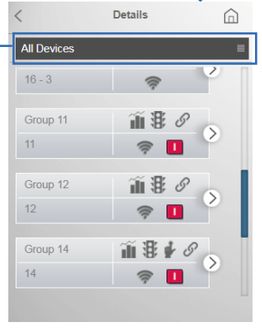


Pressing on a load button the partials consumptions page appears.
Press the drop-down menu to view histograms over a different time period (Day/Month/Year).

- **Details**

In the Consumptions menu page press on "Details".
Devices list's page appears.

This page shows the devices added by the users with their characteristics and status icons.



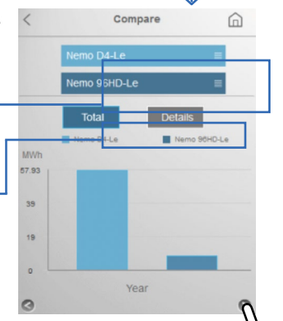
Possibility to choose a device per "Group", "Load" or "All devices".

- **Compare**

In the Consumptions menu page press on "Compare".
Comparison page of Consumptions between two Devices.

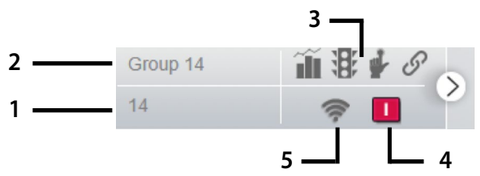
Selection of two devices to be compared

Selection of Total or Detailed comparison between the two selected devices



Note: Selecting two non homogeneous Measuring Devices(ex Electricity and Gas), comparison is evaluated only according to the currency (EUR or other currency) and not according to the measurement units. It is not possible to compare kWh of energy and "Equivalent" kWh of gas.

Touch the two arrows in the lower part of the page to view the comparison histograms on a different time period (Day / Month / Year).



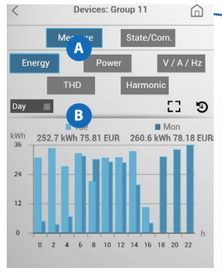
- **Description of the device selection button**

1. Modbus Address (Modbus Address - Position for counters with pulse output or Modbus Address - Side for charging stations "two" sides or Modbus Address - Indication of the virtual device type for the Master/Slave function)
2. Name of the device
3. Symbols of the functions associated to the Device
   Measure State
   Command Link Functionality
4. This symbol appears only if the Device integrates the state function related to a protection device and shows the circuit-breaker state:
   O Open
   I Closed
   O Tripped
5. Device status
   On
   Off
   Communication error

The procedure to switch ON/OFF a device is described in the "User Manual" (§ 7.16.1).

Energy Web Server

In the Devices list's page press on a Device button.

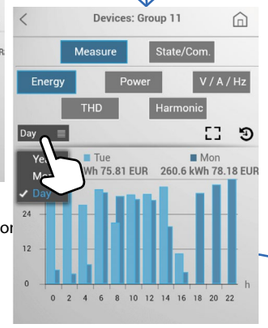


Details page of the selected device appears.
The page is divided into two parts:
section A is the area where is possible to select two pages:

- Measure: display of the quantities measured by a device:
  - Electricity measuring device: Energy, Power, Voltages/Currents/ Frequency, THD (if available on the Device) and Harmonics (if available on the Device)

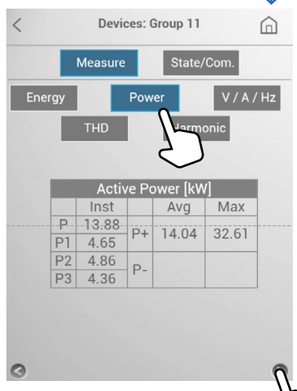
  Note: for "generic" measurement/counting devices and "Virtual" devices created with the Master/Slave function, only Energy histograms are available.
  - Water Counters: Water consumptions
  - Gas Counters: Gas consumptions
- State/Com.: page dedicate to NEMO SX devices; display of devices status for each NEMO SX device/group of devices

section B shows histograms of the consumptions, values measured by the selected device, status icons (if available).



Press the drop-down menu to view energy histograms over a different time period (Day/ Month/Year).

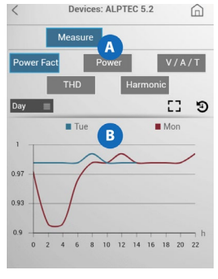
Press on one of the buttons to view the other measured electrical quantities.



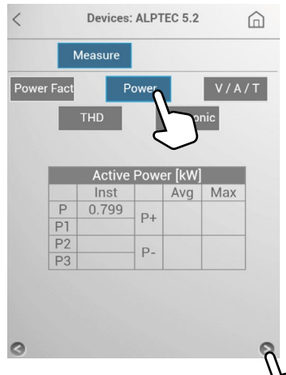
For Power Factor Controllers of ALPTEC range, "Details" page of the"Consumptions: data & diagram." menu is structured as follows:

In the Devices list's page press on a Power factor controller button.

Details page of the selected PFC appears.
The page is divided into two parts:
section A is the area where is possible to select two pages:
Measure: display of parameters and electrical quantities measured by the Power Factor Controller:
Power Fact: linear graphs with power factor trend
Others quantities: Power, Power Factor, Voltages/Currents/ Temperature, THD and Harmonics
section B shows the values measured by the selected power factor controller



Use two arrows in the lower part of the page to display the different tables for the selected electrical quantity (e.g. for the Power: Active,Reactive and Apparent power and Power factor).



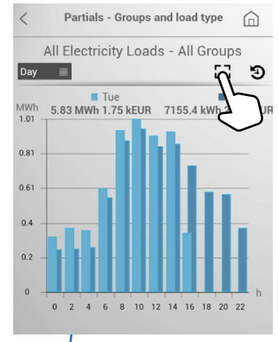
- **Advanced histograms display**

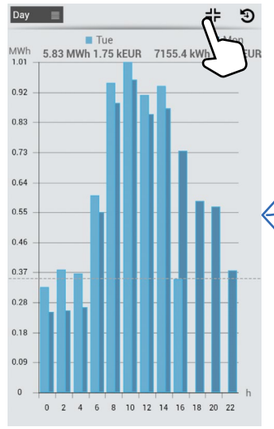
For consumptions histograms of the menus "Partial – Groups and Load types" and "Details", an advanced display mode is available.

- Full screen display

Pressing on the button ⛶ , histograms can be enlarged to fullscreen on the device.

Note: image format and resolution will depend on the screen on which the data will be displayed (see example for a 4,5" screen).
To return to the standard format,press the button at the top right.

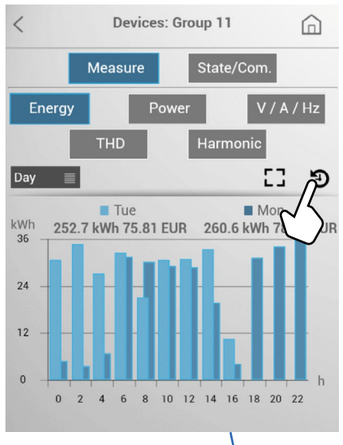


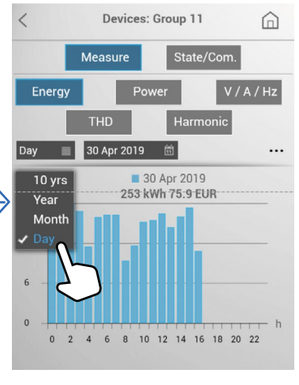


- Detailed view and direct download of data

Pressing on the button ⟲, it is possible to browse the histograms in detailed mode by :
- Day (per hours)
- Month (per days)
- Year (per months)
-10 years (per years)

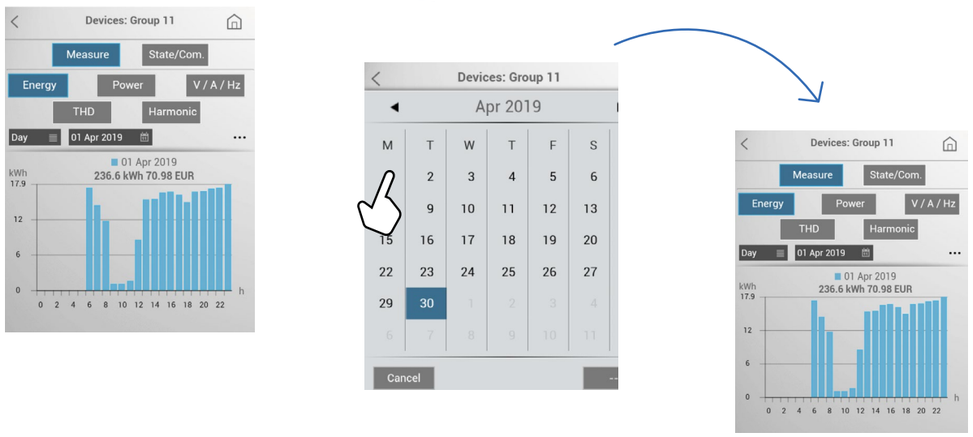
Press the drop-down menu to select the histogram viewing period (Day, Month, Year, 10 years)

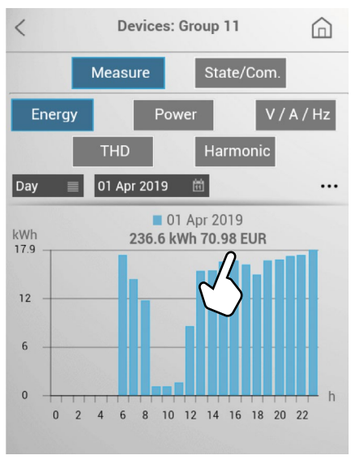




Energy Web Server

Example: display by "Day" and choice of a specific date in the selected period.





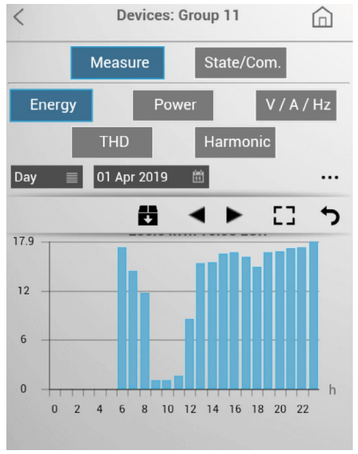
Pressing on the three points "…", another set of options is displayed.

Pressing on two arrows (or), it is possible to pass from one to another histogram in the selected period (e.g. today, yesterday, two days ago, ...).

Pressing on the button , it is possible to download a ".csv" file named "datalogger.csv" with the data saved by the web server in the selected period.

Pressing on the button , it is possible to return to the standard view.

Note: it is still possible to put infull screen this type of histogram by pressing the button .



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