4next TECHNOLOGY SYSTEMS

USER MANUAL

EasySense

UNIVERSAL MODBUS DATA LOGGER

Table of Contents

Summary

1. General Description

EasySense is a data logger for all systems equipped with the ModBus RTU or ModBus TCP communication protocol.

It is configured via a **Web Server** from any PC, Computer or Mobile device. The configuration is very simple and intuitive and does not require knowledge of any programming language.

Configuration is done using your preferred web browser, i.e. without the installation of application software.

EasySense has a vast library of pre-coded tools and, once you have chosen the tool you are using, the configuration of the variables is automatic. Available on the product website in the library section.

The user can easily decide which variables to store and which not, specifying the sampling time.

The stored data is saved in an **SD card that can be removed** in a text file that can be easily imported by any software.

If the 2G-4G connection is set, EasySense can automatically send data to a remote workstation/server via FTP protocol or directly to a WEB portal via **MQTT** and **HTTP REST protocols**.

Package Contents

- **EasySense**

2. Specifications

EasySense:

CPU	**I/O**
Arm® Cortex-M4® 32-bit RISC	Signal LED
1MBytes Flash ROM	N. 1 galvanically isolated RS485 serial port (on terminal)
1MByte RAM	N. 2 Analog inputs (V, I, NTC, PTC)
	N. 3 Digital inputs (dry contact)
	N. 2 Relays 5A, 240 VAC (resistive load)
MECHANICAL	**ENVIRONMENTAL**
IP67 plastic housing	Operating Temperature: -20°C ÷ 60°C
Dimensions: 90 x 17 x 60 mm, 1 DIN module	Relative humidity: 0 to 80% non-condensing
Slot SD-Card	
POWER SUPPLY AND CONSUMPTION	
Power supply 10-32 V DC	
Battery 3.0-3.8V	
Average power consumption < 3 W	

SAFETY INFORMATION

- **Do not install EasySense near medical devices such as pacemakers or hearing aids.**
- **EasySense must not be used on board aircraft.**
- **Do not install EasySense near oil stations, fuel depots, chemical plants, or in potentially explosive areas.**
- **EasySense may cause interference when used near television, radio, or personal computer.**

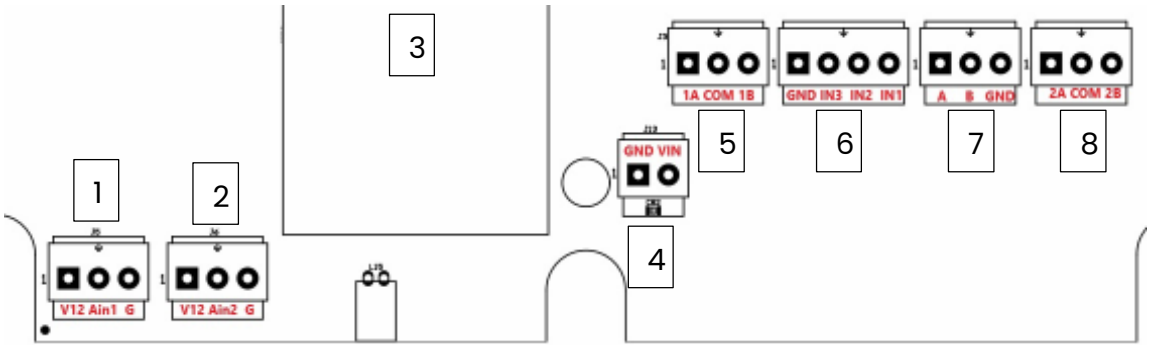
3. Quick Start

3.1 Wiring and connections

Wiring and installing EasySense is very simple. This guide briefly explains how to make electrical connections and settings for initial access.

The following links are available within EasySense:

- Power supply (Fixed or battery)
- RS485 serial compatible only with ModBus protocol
- Analog Inputs (Voltage, Current, NTC/PT)
- Latching relays
- Digital inputs



3.2 SD Card

EasySense stores data on a standard SD card. Insert the SD card with the slats facing the silk-screened part.

The connector is of the slide-in pull type: to insert it, pull the slot and insert the SD card and then press. To remove the SD card, pull slightly; when clicked, the SD card lifts up and can be extracted.

*We always recommend the use of industrial SD cards.

3.3 RS485 Serial (ModBus)

If you are using serial to read data from ModBus RTU devices, connect the RS485 wires respecting the polarities.

Connect the ModBus RTU Slave device to EasySense through terminal 7, as below:

B(-) A(+) GND

3.4 Power Supply

It is possible to power EasySense in two ways:

- Auxiliary power supply (10-32Vdc) [Terminal 4]
- Battery (3.0-3.8Vdc) [Terminal 3]

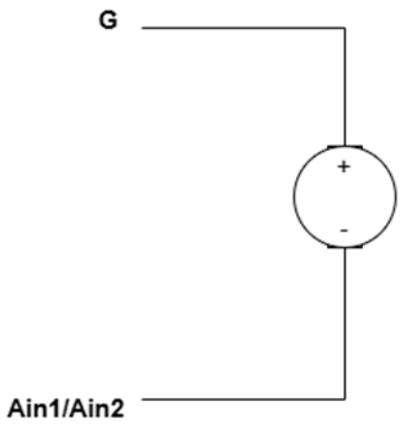
The polarities to be respected are GND and Vin, from left to right.

3.5 Analog Inputs

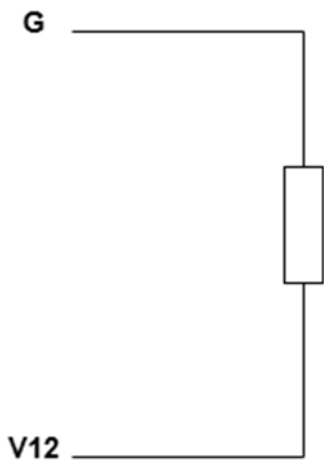
For reading sensors via analog inputs there are 4 reading modes:

- Tension
- Current
- PTC and NTC type temperature sensors

The wiring of terminals 1 and 2 is as follows for all reading modes:



In addition, for Current mode only, the sensor can be powered with the following wiring:

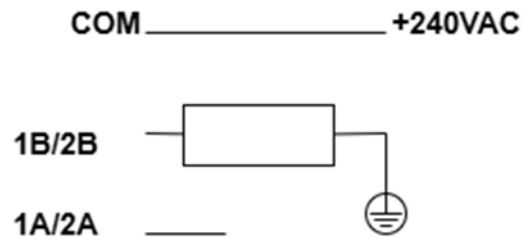


3.6 Relay

EasySense, in addition to having digital or analog inputs, also has the ability to control two bistable relays of 5A and 240 VAC with resistive load. To control them, you need to assign a value in Relay outputs using the **WRITE** function on the home screen of the web interface. The value attributed will correspond to the following methods:

- 0: Off
- 1: Relay 1 active
- 2: Active Relay 2
- 3: Both active relays

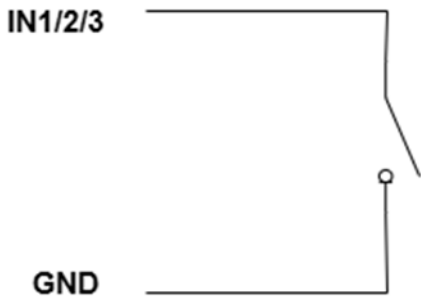
The wiring for terminals 5 and 8 is as follows:



Inputs 1B and 2B of terminals 5 and 8 are normally open. They close when they are enabled through the methods listed above.

3.7 Digital Inputs

To use the digital inputs, which are 3, you must refer to terminal 6 by connecting all the inputs in dry contact.



4. Access and configuration

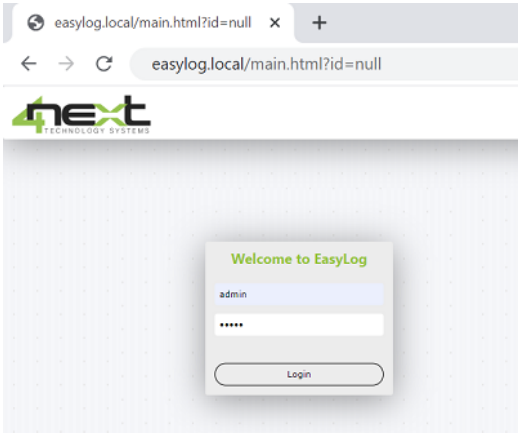


Fig. 5 *Login*

EasySense has a built-in WEB server, so it can be configured using a standard browser. To access the configuration pages, type the EasySense IP address from the browser of your PC, tablet or smartphone.

These are the steps to follow:

1. Connect from your PC to **the EasySense Wi-Fi** network. Each EasySense provides its own network with the name of ESENS-<serial number>, for example if the serial number is 002100100 the available network will be ESENS-002100100
2. To connect, you need to enter the password which by default is: **123456789**
3. Once connected, open your web browser and type in the address **192.168.4.1**

4.1 Login and Authentication

Once connected, you can access EasySense's consultation and configuration pages.

The first screen (Fig. 5) is the username and password authentication page. The default values are:

User name: **Admin**

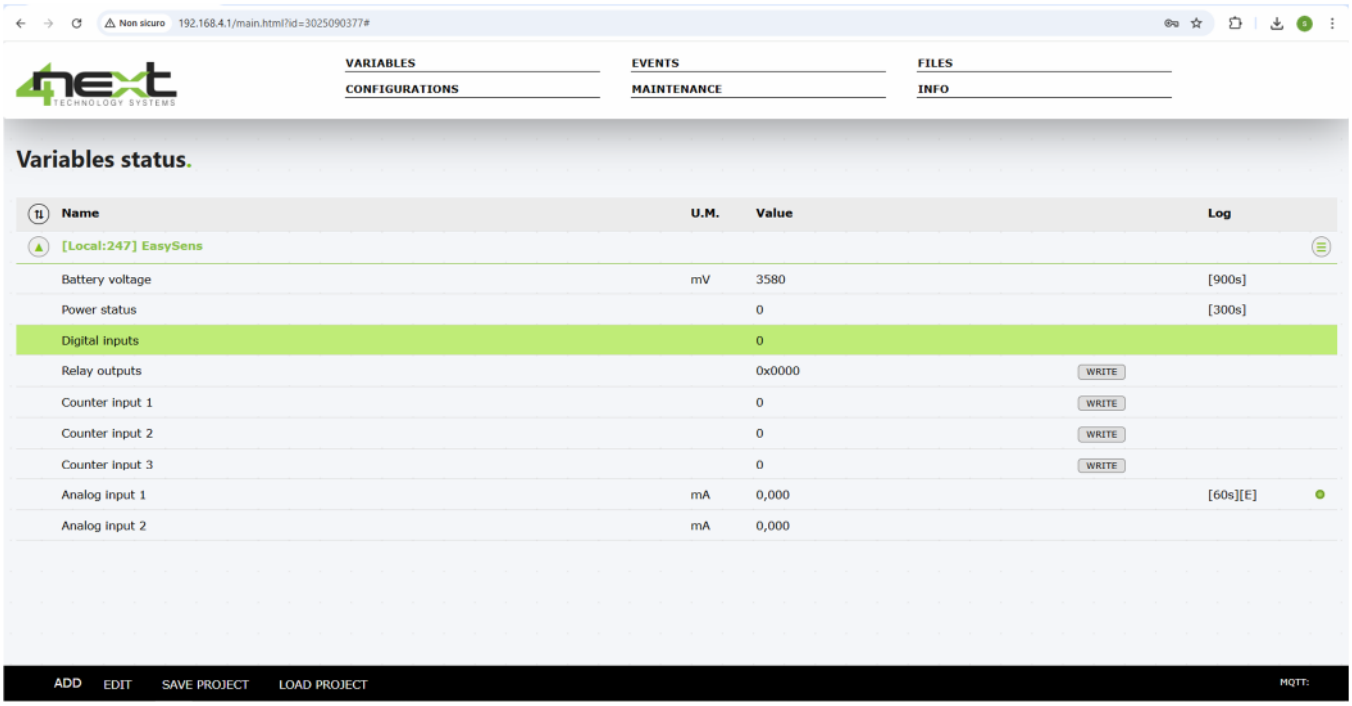
Password: **Admin**

For programming, continue with chapter 5. Programming.

5. Programming

5.1 Main Menu

After logging in, the variable display page appears, representing the default page or Home page. If EasySense has never been configured, the page displayed is as follows:



On all pages of the application, the menu bar is visible at the top, which includes:

- Variables ("**Variables**"): For the display and configuration of the variables read by the ModBus devices.
- Events ("**Events**"): Setting for monitoring user-set events.
- Files ("**Files**"): The list of files created on SD containing the logged data.
- Configuration ("**Configurations**"): For setting all system parameters.
- Maintenance ("**Maintenance**"): For maintenance operations such as Firmware update, factory reset...
- Information ("**Info**"): Displays the version of Firmware, serial number, bootloader and MAC address.

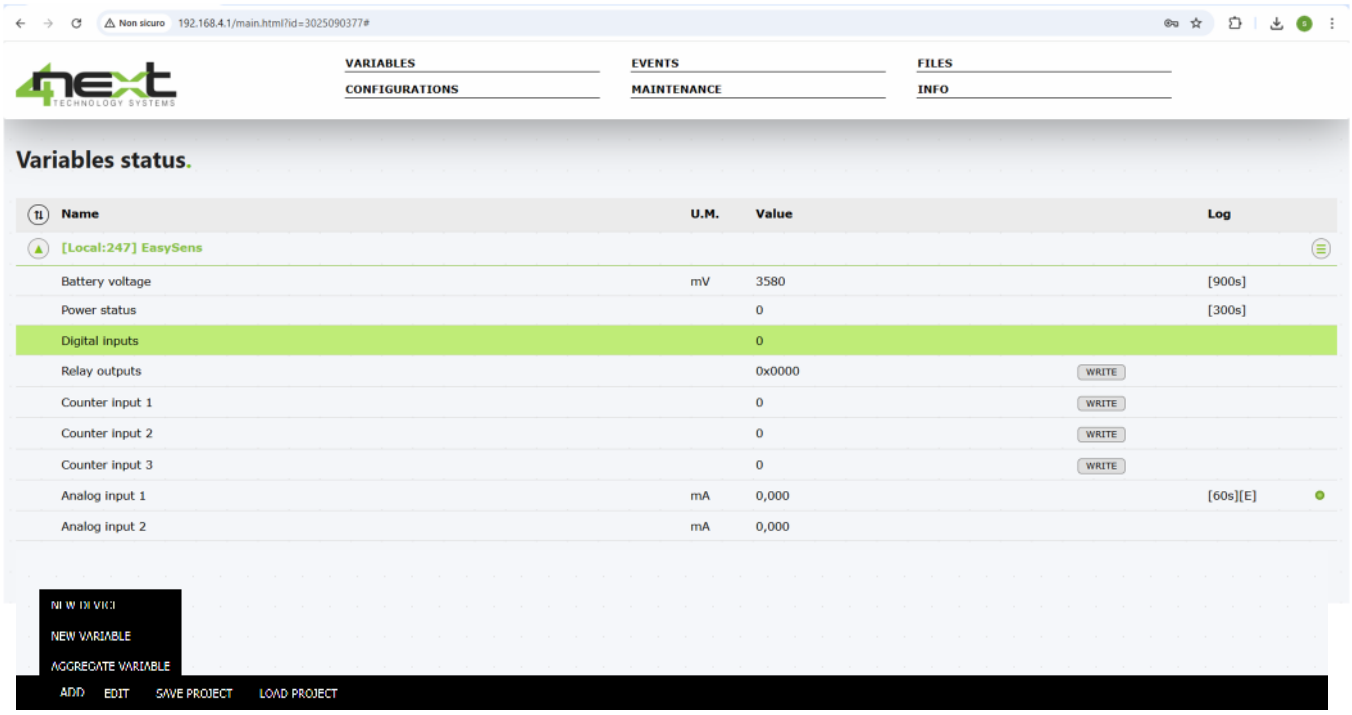
At the bottom is a menu bar whose "buttons" have the following features. In order from left to right, the possible operations are:

- Add ("**Add**"): Creating new devices and variables with choices:
  - New device ("**NEW DEVICE**"): Creates a new device (ModBus Slave) ModBus RTU or ModBus TCP. If you already have the ModBus libraries for your slave, you can import variables with just a few clicks and save a lot of time in configuration.
  - NEW **VARIABLE:** Allows you to add a new variable to a particular

device.

- Aggregate **variable**: Allows you to add a new type of aggregate variable to the main variable with average, minimum, and maximum mathematical functions.

- Change device/variable ("**EDIT**"): This function allows you to modify a variable or a device depending on whether the cursor is positioned over one of the two elements.
- Save Project ("**SAVE PROJECT**"): This function saves the entire EasySense configuration (Variables and System Settings) to a JSON file.
- Load Project ("**LOAD PROJECT**"): Allows you to program an EasySense from a previously saved configuration file



5.2 Inserting a new device

By pressing the function key ("**NEW DEVICE**"): you can add a new device. On the following screen, you can enter information about your new device:

- **Device name**: Device name
- **Read variables period**: Read range of all device variables

Communication:

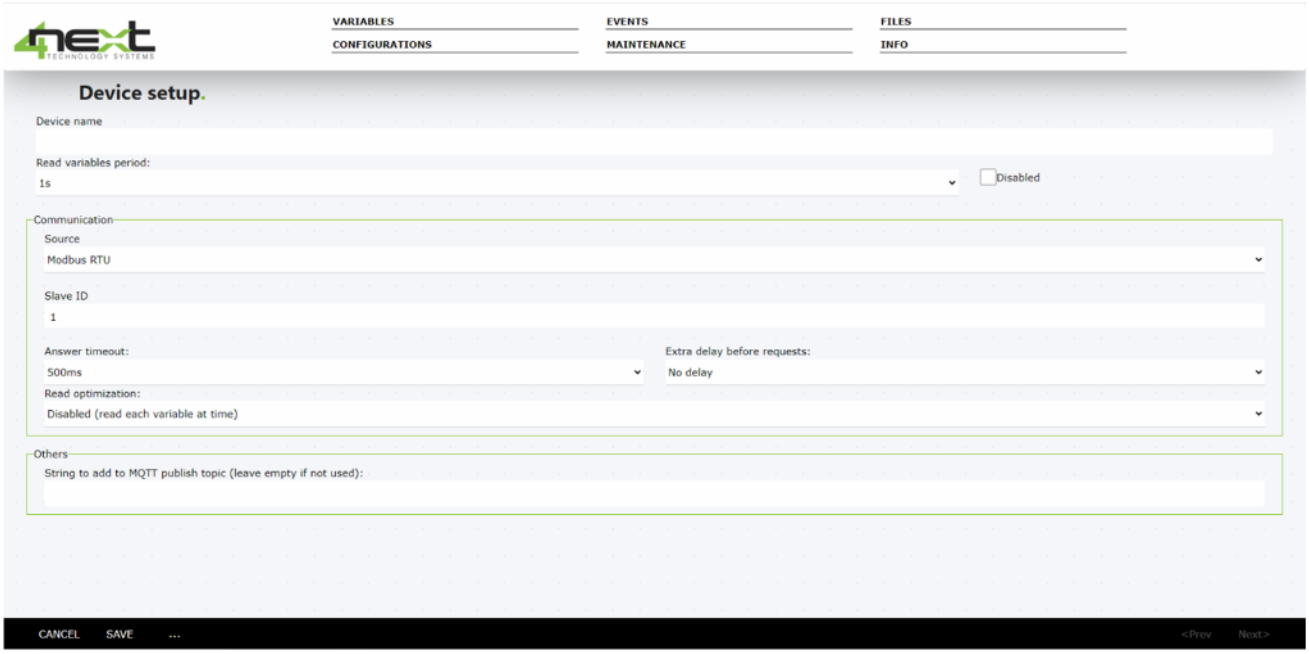
- **Source**: for choosing ModBus RTU or ModBus TCP
- **Modbus Parameters**: the Modbus parameters at the device level (slave)If the device is **ModBus RTU** The parameters are:
    - the **Slave ID** ("Slave Address"): address of the slave device (1 ÷ 255).
    - **Answer timeout**: The timeout for waiting for the master to answer (EasySense).
    - **Extra Delay between request**: the time to wait between one request and the next.

In the case of **ModBus TCP:**

- In addition to "Slave ID", "Answer timeout" and "Extra delay between request", the IP address and port of the slave device are also added.

- **Read optimization**: Optimized variable reading mode in a single request (up to a maximum of 64 variables)
    - **Consecutive addresses** (default): consecutive reading, no discontinuities allowed.
    - **Allow discontinuity of maximum 2 registers**: consecutive reading allowing jumps of maximum 2 registers.
    - **Allow discontinuity of maximum 10 registers**: consecutive reading allowing jumps of up to 10 registers.
    - **Disabled (read each variable at time):** One read request is made at a time for each existing variable.

The last parameter is **MQTT publish topic**: it is the identifier (digital signature) of the device for sending via the MQTT protocol. It is used to differentiate the MQTT topics of publication for each device. The "Separate publish for each device" parameter must be active. In this way, the topic on which the device publishes its log data is given by the concatenation of the publish topic (configuration parameter) and the string defined here.

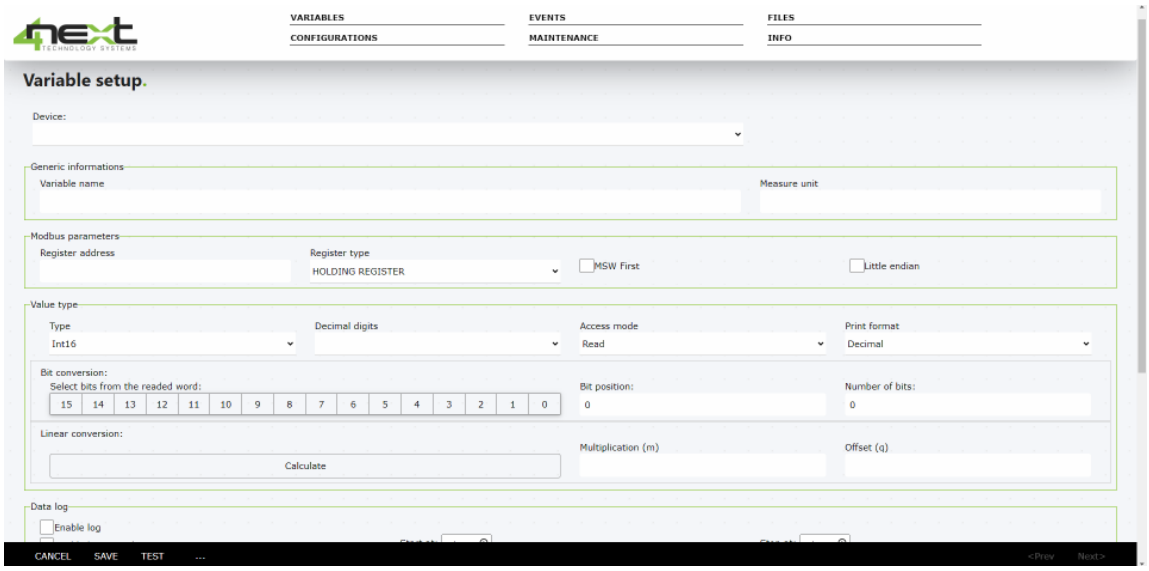


At the bottom left you will find the following items:

- **Cancel**: To cancel the setting made
- **Save**: To save the setting
- "**...**" : this opens a new configuration entry which are:
    - **Delete**: To erase the device
    - **Import variables**: to import variables from a .json data file from an export of another data logger.
      (These are called **Library**)
    - **Export variables**: To export variables to a .json file.

5.3 Configuring variables

From the "ADD" screen, press the "NEW VARIABLE" button at the bottom left.
Your browser displays the following page:



GENERAL INFORMATION

- Device: The device referenced by the variable.
- Variable **name**: Enter the name of the variable.
  The name you choose is also used as a label on the display page.
- **Measure unit**: The unit of measurement of the variable.

MODBUS PARAMETERS

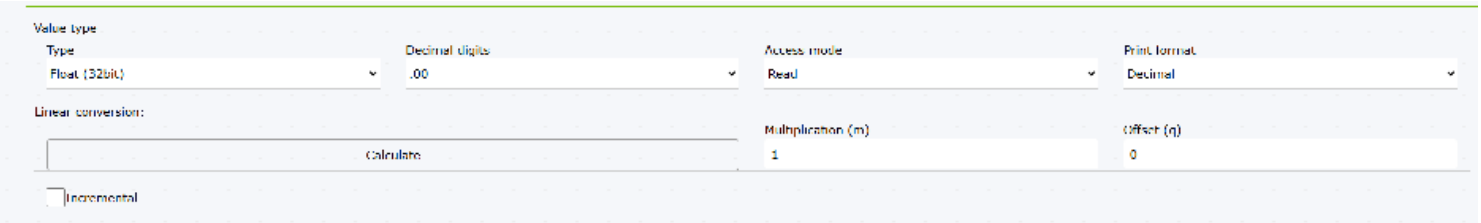
Section that is used to set the identification data to access the variable, and in particular:

- **Register address**: the address of the variable identifiable by the register mapping provided by the constructor.
- **Register Type**: The type of register: Coil, Digital Input, Input register, Holding Register.
- **MSW first**: literally "Most Significant Word first", it is used for variables of type Int, Long or Float that can have a Big-Endian or Little Endian format. The constructor specifies the format used.
- **Little Endian**: For 4-byte variables, represent the Big-Endian or Little Endian order in each WORD.

N.B. The manual of the ModBus device indicates whether or not to select the latter parameters.

DATA TYPE ("**VALUE TYPE**")

- Variable Type ("**Type**"): The data type of the variable. A combo box allows you to easily select from all supported data types without the possibility of making mistakes.
- Decimal **digits**: The number of decimal places that are displayed and stored on a file.
- **Access Mode**: Indicates the mode of the variable at memory access, whether it is read or write only according to the parameters of the datasheet provided by the constructor.
- The format of the print of the value on the screen ("**Print format**"): indicates the format of the number measured in decimal or hexadecimal value.
  Depending on the type of value, we have two types of conversion:
  - Bit **conversion**: Function that allows the choice of the reading on the position of the word of our choice.
  - Linear **conversion**: the function performs a linear conversion, transforming a scale of measurement into another desired one by mathematically proportioning 4 values.
- Multiplication factor**(m)**): the factor by which the raw data is multiplied to obtain the correctly engineered variable. Many devices export information in a non-standard format, such as temperature in tenths of a degree. To display it in degrees, you will have to set this value to 0.1.
- **Offset(q)**: Allow you to add a fixed value to the value of the read variable.
- **Incremental**: it is a checkbox that activates the incremental function that



calculates the variation of the variable between two samples, subtracting the previous value from the current one. It then updates the previous value for the next sampling.

DATA STORAGE ("DATA **LOG**")

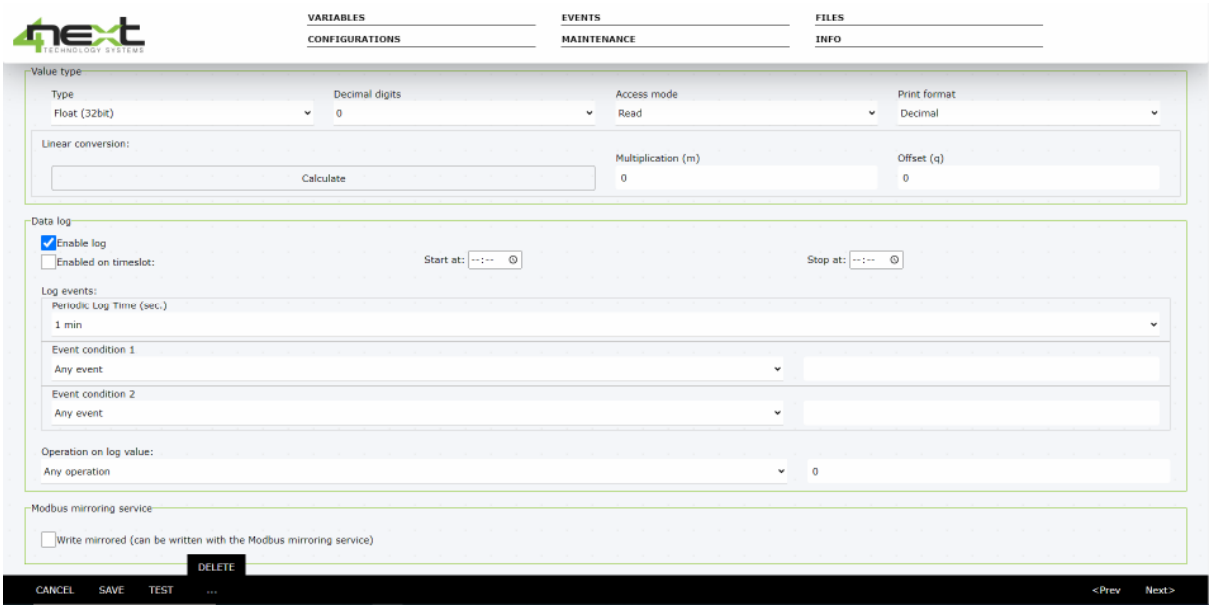
- Enable **log**: This checkbox enables writing to files or not.NOTE: It **absolutely must** be selected to store files on the SD card.
- **Enabled only on timeslot:** If selected, it allows you to define the time interval within which the data is stored. It is used to limit the sending of unnecessary data. E.g. from 8:00 to 20:00.
- Sampling time ("**Periodic log time**"): Sampling time of the variable, defines how often the ModBus network master (EasySense) reads the variable from the Slave and saves it to file if the log option is enabled.
- **Log on event:** EasySense allows you to store data when a specific event occurs, which can be:

  - **Any event:** Any event.
  - **Value changed:** The value of the variable changes.
  - **Value changed at least of:** The variable changes by a minimum value specified in the field next to it.
  - **Value changed at least of %:** The variable changes by a minimum value in percentage specified in the field next to it.
  - **Value lower of:** The variable is less than a value specified in the field next to it.
  - **Value lower or equal of:** The variable is less than or equal to a value specified in the field next to it.
  - **Value higher of:** The variable is greater than a value specified in the field next to it.
  - **Value higher or equal of:** The variable is greater than or equal to a value specified in the field next to it.
- **Operation on log value:** Performs an operation on the read data:
  - **Any operation:** The read data is stored under any conditions.
  - **Cut-off:** ("**Value cut-off to 0 if lower than**"): If the value read is less than the set threshold, it is not considered and will be considered as 0.
  - **Filter: (Discard value that differs from last one more than %:)** does not store the data if it differs from the previous value by x% reported in the field.

The menu at the bottom of the page allows you to do the following:

- **Cancel**: Cancels the operation of modifying or inserting the variable.
- **Save**: Stores the variable you entered or the changes you made.
- **Test:** Sends the test ModBus command by tracing the various packets.
- **Delete**: Deletes the variable.
  N.B. Once the variable deletion operation has been carried out, it will not be possible to annul the operation and the variable will be permanently deleted.

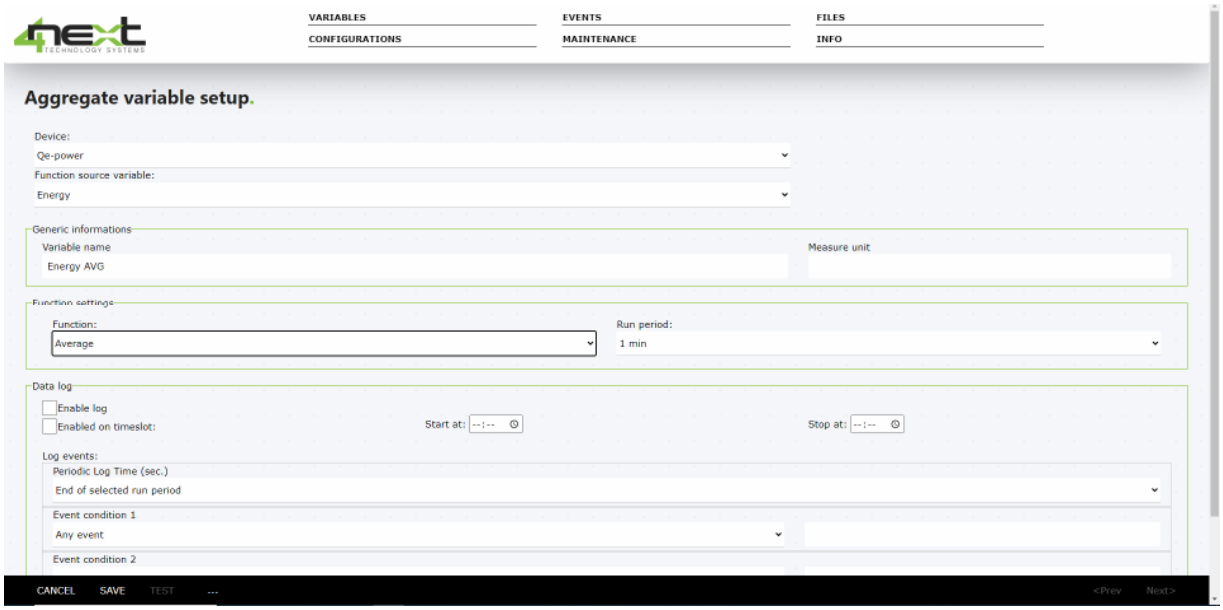
<Prev/Next>: Navigating through variables.



Aggregate variable setup

Aggregate variables are variables that collect data from the variable, process it according to the previously set functions which are average, maximum, and minimum.

By selecting a variable and clicking on the "**ADD**" item at the bottom left "**AGGREGATE VARIABLE"** you add an aggregate variable and this screen will appear.



The difference between variable and aggregate variable is the addition of two new sections:

FUNCTION **SOURCE VARIABLE**

- In this box, you select the available variables to aggregate to add the average, minimum, and maximum functions.
  If you have previously selected a variable after clicking "**AGGREGATE VARIABLE",** this box automatically shows the selected variable.

FUNCTION SETTINGS

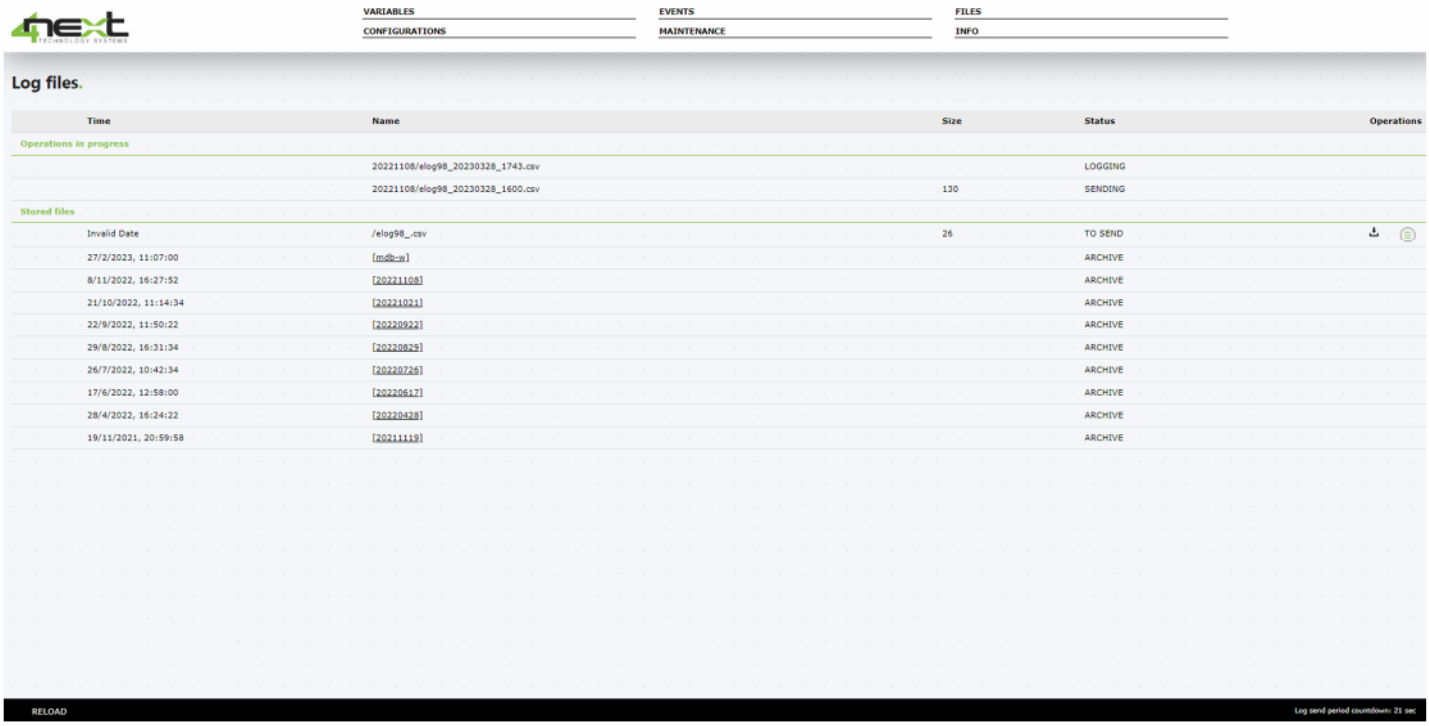
- Functions: in this box you can select the items:
  - Average ("**Average**"): Returns the average of the values over the variable's execution period.
  - Minimum: Returns the minimum measured over the variable's execution period.
  - Maximum: Returns the maximum measured over the variable's execution period.
- Run **period**: In this box, you can set the regularity of the execution of the

function by choosing between: 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 20 min, 30 min, 1 hour, 2 hours, 4 hours, 6 hours, 12 hours, a day, a week and a month.

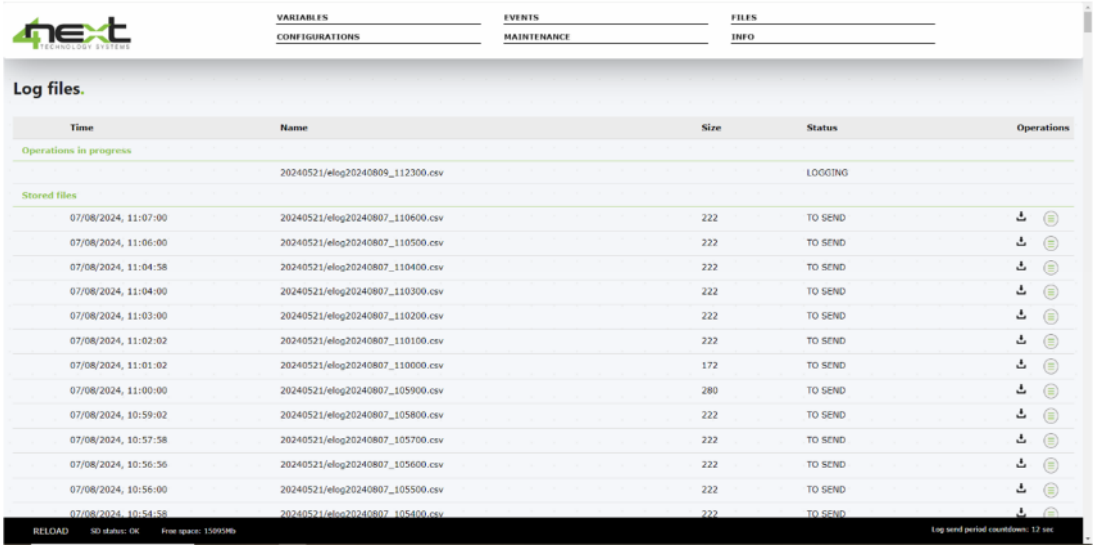
N.B. The aggregate variable does not support the ModBus mirroring service.

5.4 File System

EasySense stores files on the internal SD Card. You can view the list of files via the Files menu. This page allows you to see the files that have been stored and possibly sent and download them locally from the connected PC. The files are stored in the elog_AAAAMMGG_ORA format with the prefix "elog" that can be changed to "CONFIGURATIONS" and are contained in archives defined by a date with the format YYYYMMDG, with the order from the most recent to the oldest, from top to bottom so the first file is the most recent.



To download them, click on the underlined text and a list of .csv stored files appears with the prefix, date and time of the data logging. Finally, by clicking on the download symbol " ⬇ " on the right, the selected file is downloaded and saved in csv format (by default).



5.5 System Configuration

File Logger

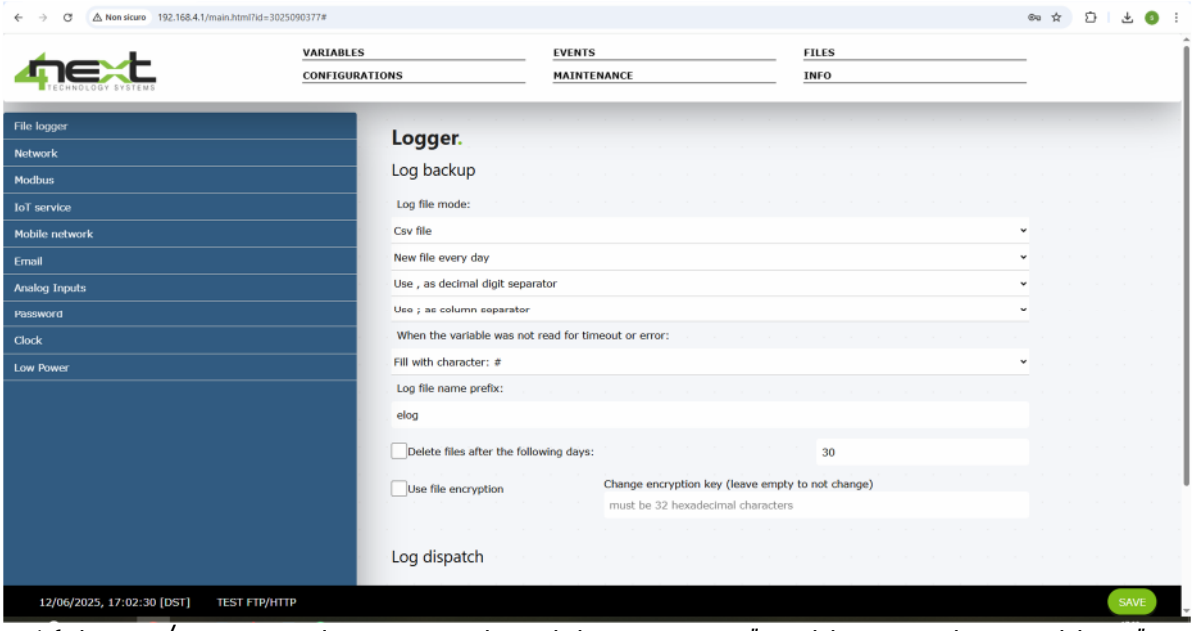
The File logger menu allows you to choose how files will be saved on the SD, in particular:

- **Log File Mode**:
  - File type: None, CSV file, JSON file
  - How often to create a new file: every hour, every day, or write to the same file over and over again
  - Decimal separator: , (comma), or . (period)
  - Separator between fields: ; (semicolon), | (Pipe), # (sharp or sharp)
  - **Log file name prefix:** the prefix of the file name in the SD card
  - **Delete files after the following days:** represents the maximum time of days that the file remains on the SD card. Setting 0 never deletes files. Otherwise they are deleted after n. days from their creation (by default it is 30). Ex. 8 keeps files from the last 8 days
  - **Use file encryption:** check box for enabling file encryption and using a different encryption key to be entered in the field next to max 32 hexadecimal characters or leave it blank so as not to change the encryption
  - **Log Dispatch**: Used to define how often and how to send the file remotely
    - **Log Send Mode**: the sending mode that can be:
      - Disabled / Disabilitato
      - FTP
      - HTTP
      - E-Mail (Option in development)
      - http REST (Option under development)
    - **Log Send Period**: Indicates how often to send the file
      - **Delete file after sent**: If selected the file is deleted after sending

In the menu at the bottom we find from left to right:

- Date and time;
- **FTP/HTTP test:** allows you to perform a connection test with the credentials entered;

- **SAVE:** Save settings.

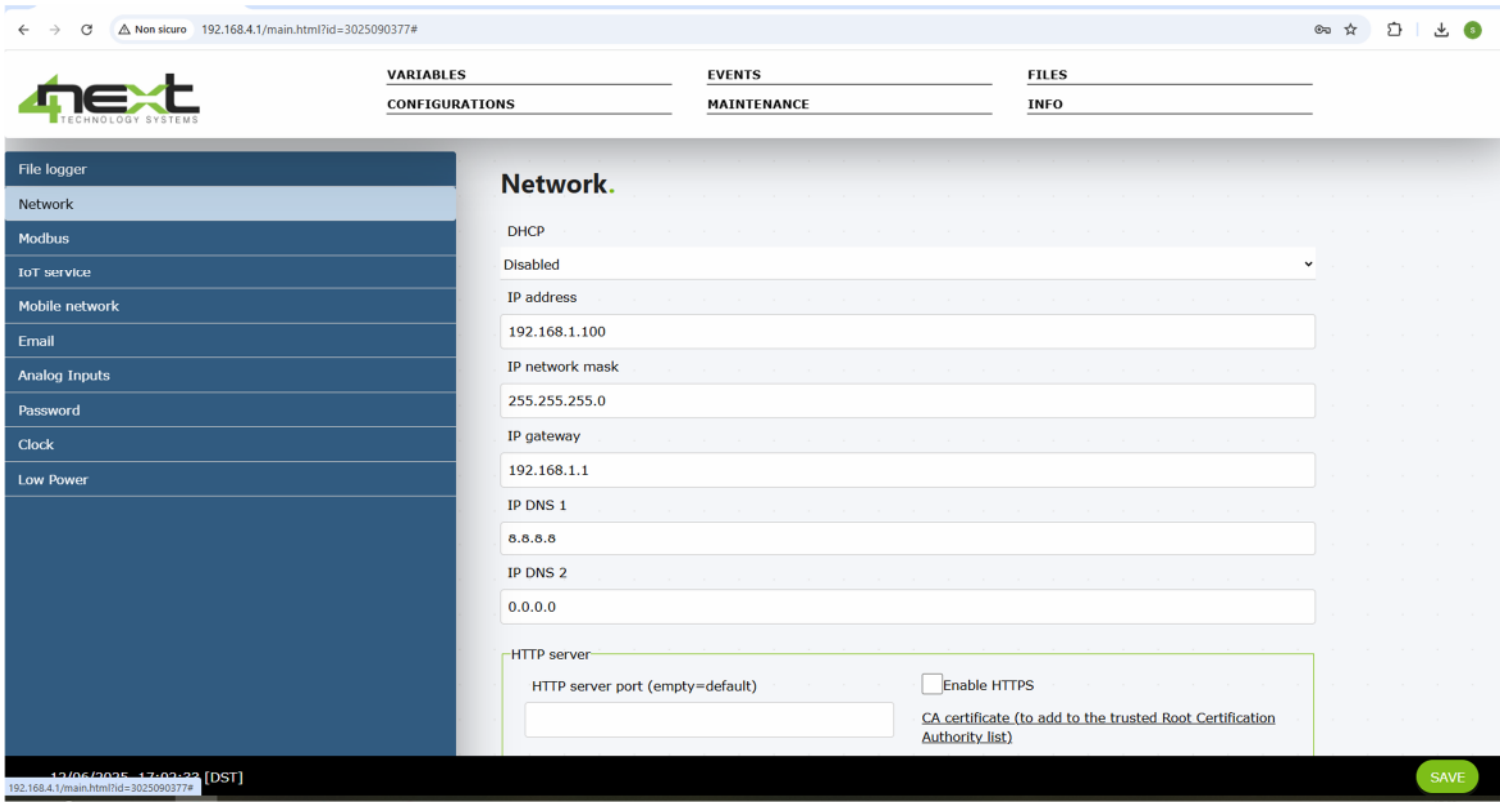


**If the FTP/HTTP Test does not work and the message "Unable to resolve IP address" appears, you need to enable DHCP (Dynamic Host Configuration Protocol) to resolve the error. You can later disable DHCP if you want to set a fixed IP address. If the problem persists, contact the company for further technical assistance.*

Network

In the "**Configurations**" menu we have a list of items, **Network** allows you to enter the parameters of the Ethernet network to which EasySense is connected in order to make it communicate with the servers for sending data. These are the parameters to be configured in detail:

- **DHCP**: Allows you to determine whether you should use the network DHCP server to assign the IP address or not;
- **IP address**: The static IP address assigned to EasySense. If DHCP is enabled or Dip-Switch 2 is set to ON, the IP is not the one displayed, but the current IP of the data logger will be displayed in info;
- **IP network mask**: The subnet mask or netmask allows you to establish the range of IP addresses within a subnet**;**
- **Gateway IP**: IP address of the referring gateway;
- **DNS IP 1**: the DNS of the IP address, by default is 8.8.8.8;
- **DNS IP 2**: the DNS of the IP address alternatively, by default is 0.0.0.0;
- **HTTP server port**: Port of the http server when different from the standard 80 or 8080.



ModBus

In this section you define the configuration parameters of the RS485 serial channel for ModBus communication with Slaves:

ModBus RTU (Remote Terminal Unit):

With this configuration, the data logger is connected directly to the slave via an electrical cable and the following settings define:

- **ModBus RTU speed**: Communication speed;
- **ModBus RTU mode**: Number of bits, stop bits, and parity of serial communication.

ModBus TCP (Transmission Control Protocol):

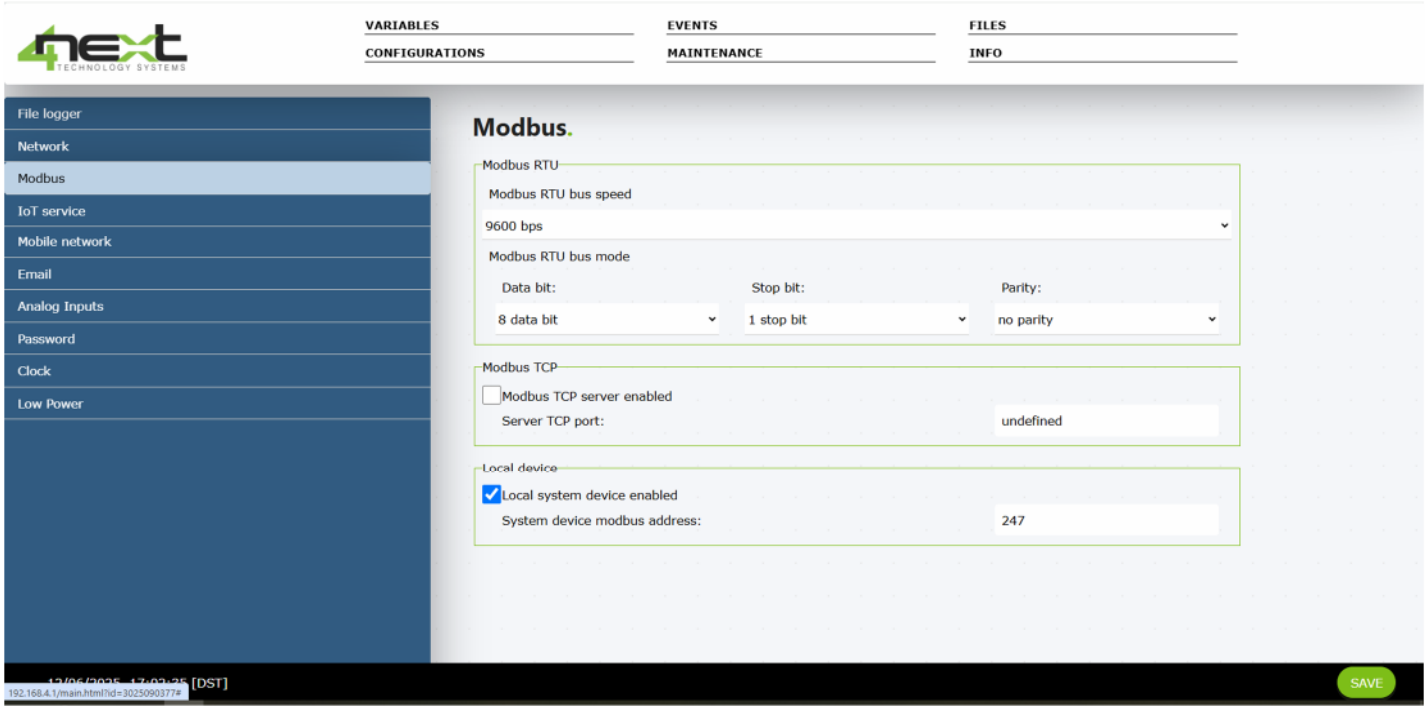
With this configuration it is possible to choose whether to make slaves connected to other masters accessible or to query them directly through TCP/IP requests, transforming EasySense into an effective ModBus server:

- **Server mode**: ModBus server mode choice;
    - **Disabled :** [default] disabled
    - **Modbus TCP slave :** availability to be queried by another master in ModBus TCP
    - **Modbus TCP to RTU bridge:** direct communication with devices connected to the EasySense
- **TCP server port**: the serial port of the TCP server is used to identify a connection endpoint or direct data to the service (by default it is 502 for the application of ModBus devices).

Local device:

This function allows the data logger to make its I/O modules available for reading and writing to the user:

- **Local system device enabled**: check box for enabling for local system;
- **System device modbus address**: the serial port of the local system (by default it is 247).



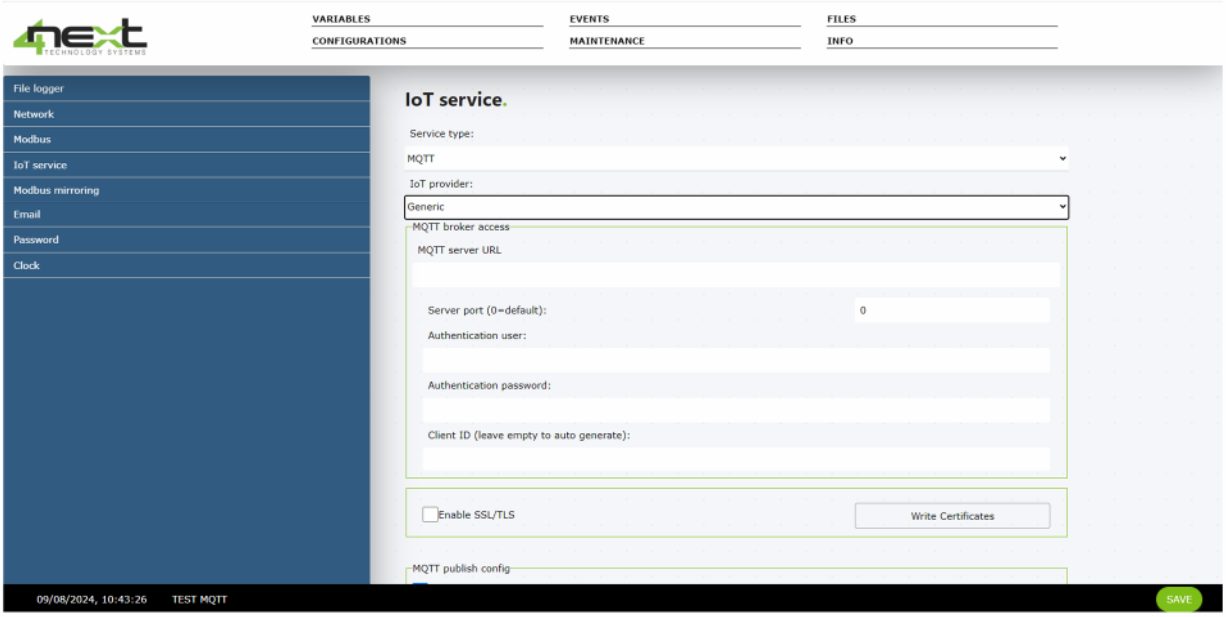
**This function creates in "Variables" a new device called "Local" containing the parameters and information of the device, if it is equipped with I/O modules it is detected.*

IoT Service - MQTT

This configuration menu is used to set the parameters for sending data via the MQTT protocol.

- **Service type**: Enable or disable sending in MQTT
- **MQTT Provider**: This is the type of MQTT broker available by default. At the moment EasySense provides connection to a generic MQTT broker in Rilheva and ConnHex
- **MQTT server URL:** The address (URL) of the server
- **Authentication user:** Username for accessing the server
- **Authentication password:** Server access password
- **Client ID:** This is the identifier of the EasySense client that connects to the MQTT broker. It is a unique ID for a particular broker. The broker uses this to identify the client and the current status of the client.
- **Enable SSL/TLS (server port 8883):** Enable if the remote broker uses SSL/TLS encryption for data transfer.
- **Publish topic:** The topic of the MQTT broker on which to send the log data publications. It's a string that represents a path in the broker, such as "EasySense/location1".
- **Separate publish for each device:** Indicates whether you want to use a different topic in the broker for each device configured in EasySense. In this case, the topic on which a device will publish its log data will be given by the concatenation of the publish topic (previous parameter) and the topic defined on the configuration of each individual device.
- **Publish QoS:** Defined by the MQTT standard, it indicates the level of assurance that a message will actually be received by the broker:
  QoS 0 (At most once) = the guarantee is delegated to the TCP protocol
  QoS 1 (At least once) = The collateral is managed by an acknowledgment by the broker. The risk is duplication of a publication
  QoS 2 (Exactly once) = The warranty is managed by a double acknowledgment between device and broker. There is no risk of duplication but there are 2 more posts per post. The choice should be made based on how much traffic is allowed for publications.

- **Retain:** Activate if a possible subscriber to the topic used by EasySense for publication wants to receive the latest published data as soon as the connection is made.



In the MQTT section you can enable the "subscribe config" function to edit the messages of the topic and read them:

- **Enable**: Enables the subscription service. It can be used to manage message read and write configurations.
- **Subscribe topic**: The topic to subscribe to. After subscribing, the device can receive any message posted by other clients on that topic.
- **Qos**: MQTT Service Quality.
  MQTT has three levels of QoS:
  - QoS 0 (At most once) = the guarantee is delegated to the TCP protocol
  - QoS 1 (At least once) = The collateral is managed by an acknowledgment by the broker. The risk is duplication of a publication
  - QoS 2 (Exactly once) = The warranty is managed by a double acknowledgment between device and broker.

At the bottom left we have the button:

- **MQTT test**: used to verify the connection to the server you want to connect which will send a test message
  **If the FTP/HTTP Test does not work and the message "Unable to resolve IP address" appears, you need to enable DHCP (Dynamic Host Configuration Protocol) to resolve the error. You can later disable DHCP if you want to set a fixed IP address. If the problem persists, contact the company for further technical assistance.*

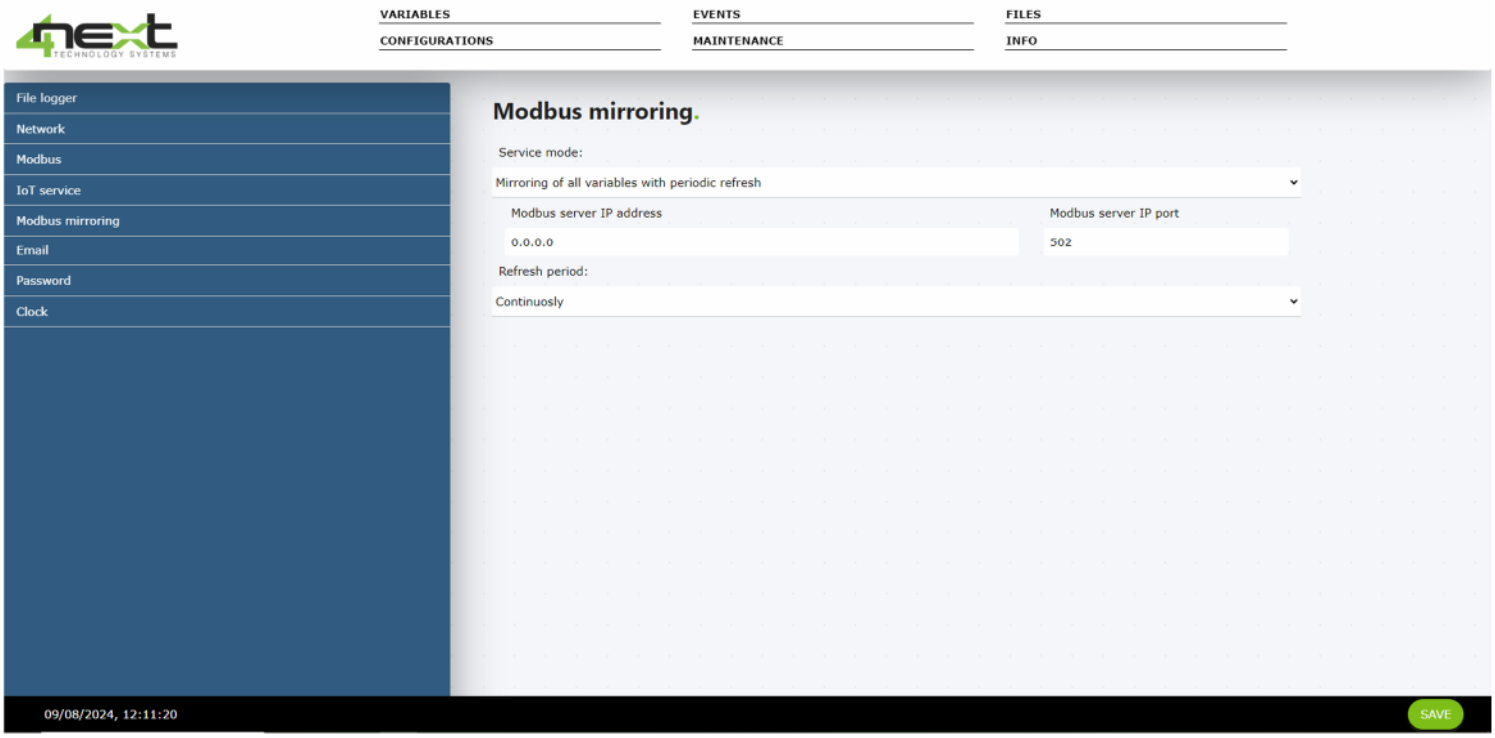
Modbus Mirroring

This function allows you to bridge the slave devices on the RS485 and a ModBus TCP Master (Client). The variables read and logged by RS485 are written to the respective Modbus TCP addresses.

The Service Mode combo allows you to:

- **Disabled:** Disable the service
- **Mirroring of logged variables on log event:** Copying logged variables to an event
- **Mirroring of all variables with periodic refresh:** Copy all variables at defined intervals

The Modbus Server IP address and Modbus server IP port parameters are used to address the Modbus TCP client.
"Refresh period" is the time it takes for variables on the Modbus TCP client to be updated.



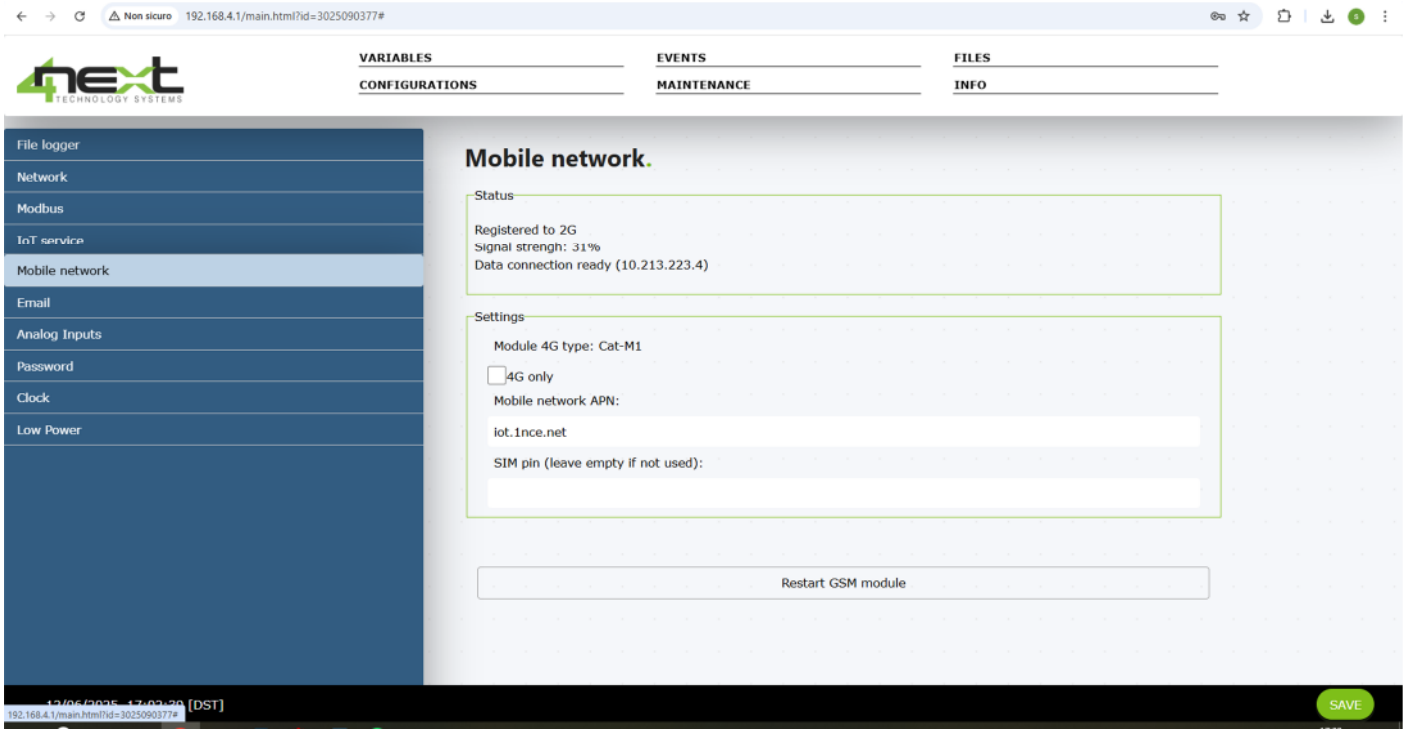
Mobile Network

Allows you to check the modem's activity status. In the "Status" box, you can see the quality of the network signal and the connectivity status. If the connection has been successful, the words "Data connection ready" will appear.

In the "Settings" box there is the possibility to set the APN depending on the SIM and the provider used, by entering the pin for unlocking the SIM card.

Alternatively, if you want to use Ethernet as the main connection, enable the "Use Ethernet as main Network Interface" checkbox.

The "Restart GSM Modem" button allows the modem to restart.



**__Attention__: before purchasing EasySense, please communicate the country of origin, as there are two versions of the GSM module available:*

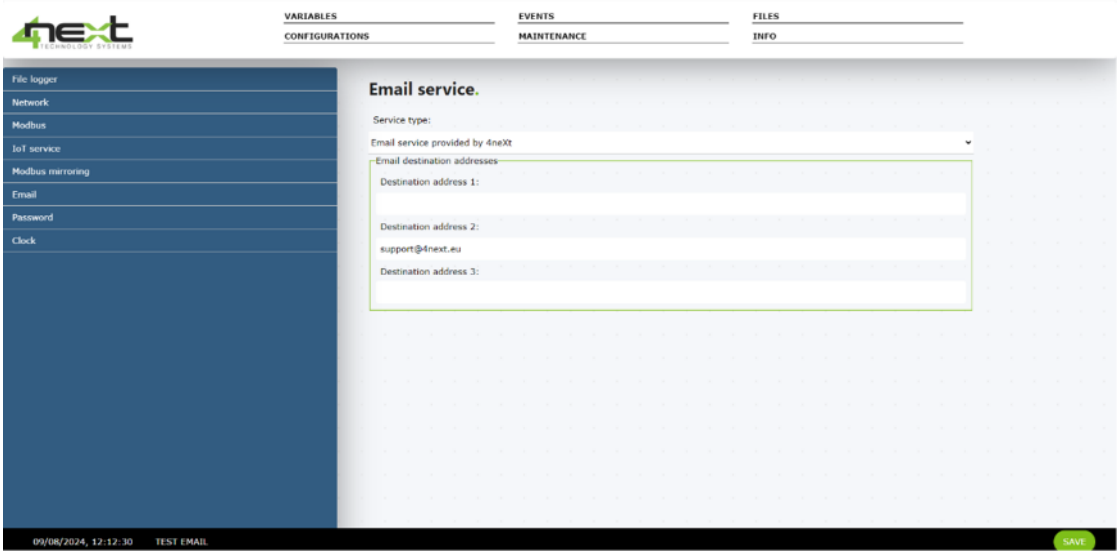
-Global

-European

E-mail Service

This feature allows you to receive emails in case of set events. Here are the possible options to enable:

- **Disabled**: disabled (by default)
- **E-mail service provided by 4next**: the e-mail service offered by our company
- **SMTP server**: Setting up addressing servers with SMTP protocol.



After running the **Test Email**, a test email will be sent.

Above is the default message that arrives after setting up the destination email using the email service.

Analog inputs

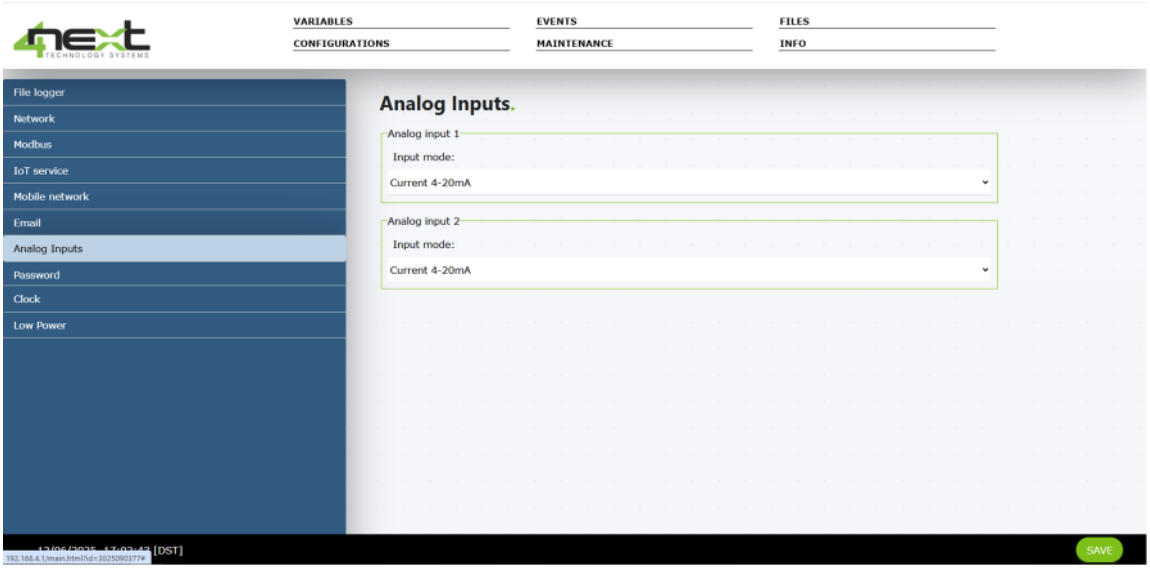
This is the configuration of the analog inputs with the following modes:

- Voltage [0-24 V]
- Current [4-20 mA]
- PTC-generic [°C]
- NTC-generic [°C]

To configure the NTC you need to have the following parameters:

- resistance at 25°C in Ohms (Ω)
- Best Beta Coefficient(β)

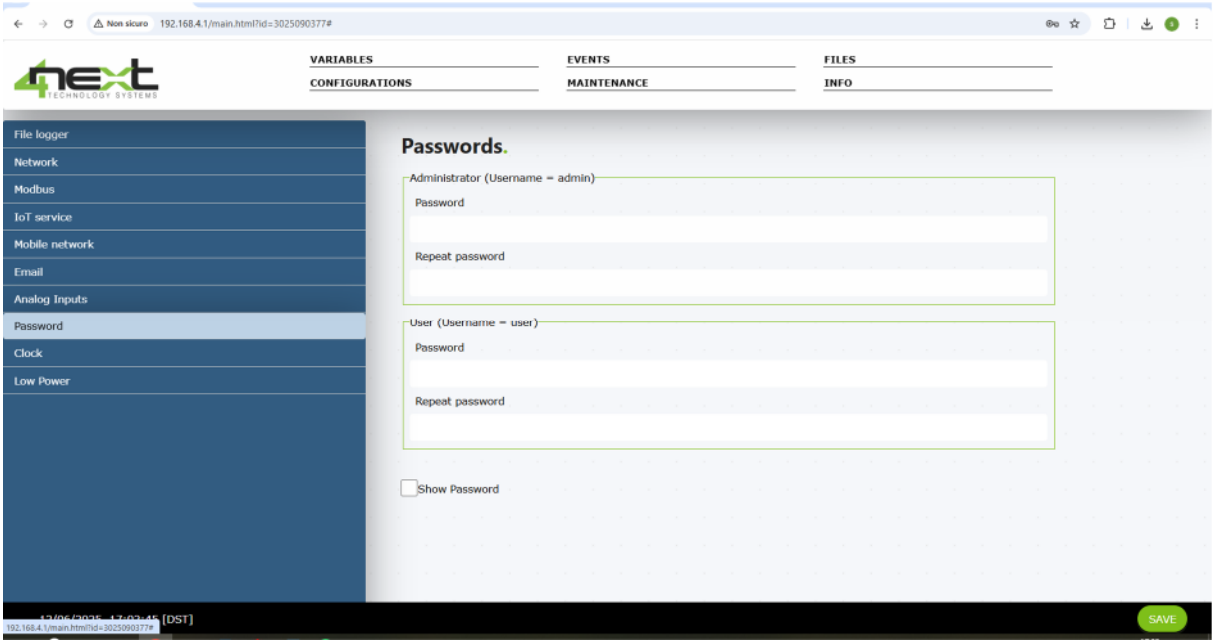
To configure the PT you need the alpha coefficient α which by default is 0.003851/°C.



**For links follow section 3*

Passwords

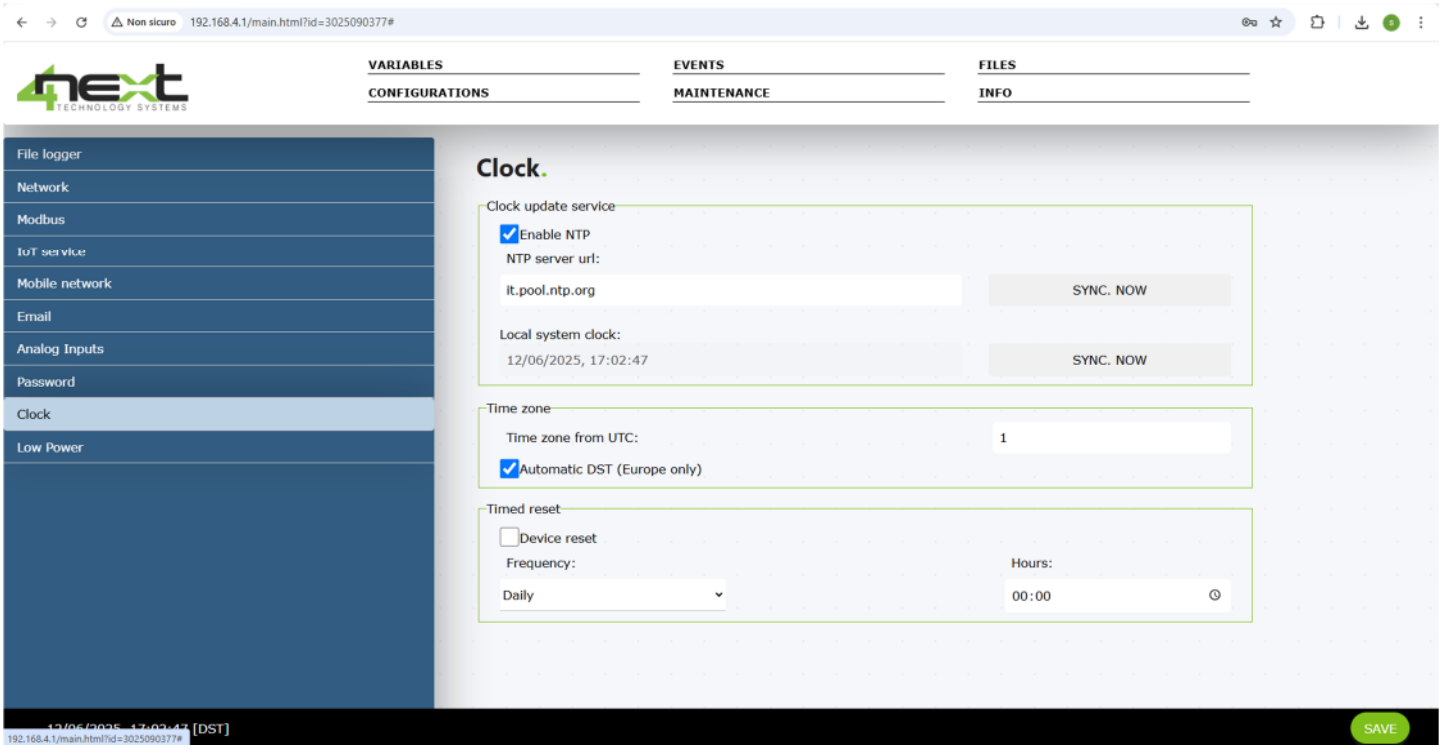
Set passwords for access to the EasySense configuration page.



Clock

Allows updating between standard time and daylight saving time. When the **Automatic DST** Check box is checked, the update is done automatically. Clock alignment is always possible from the configuration page by clicking on the SYNC button**. NOW.**

By selecting the **NTP Check box** in the "clock update service" EasySense, if connected to the Internet, performs the alignment of the clock with the NTP



server.

**To configure automatic time in Italy, synchronization with the NTP service is required and the Time zone from UTC must be set to a value of 2, from spring to summer and to a value of 1 from autumn to winter, depending on daylight saving time.*

In the "Timed reset" section, you can set an automatic restart with the desired frequency and time.

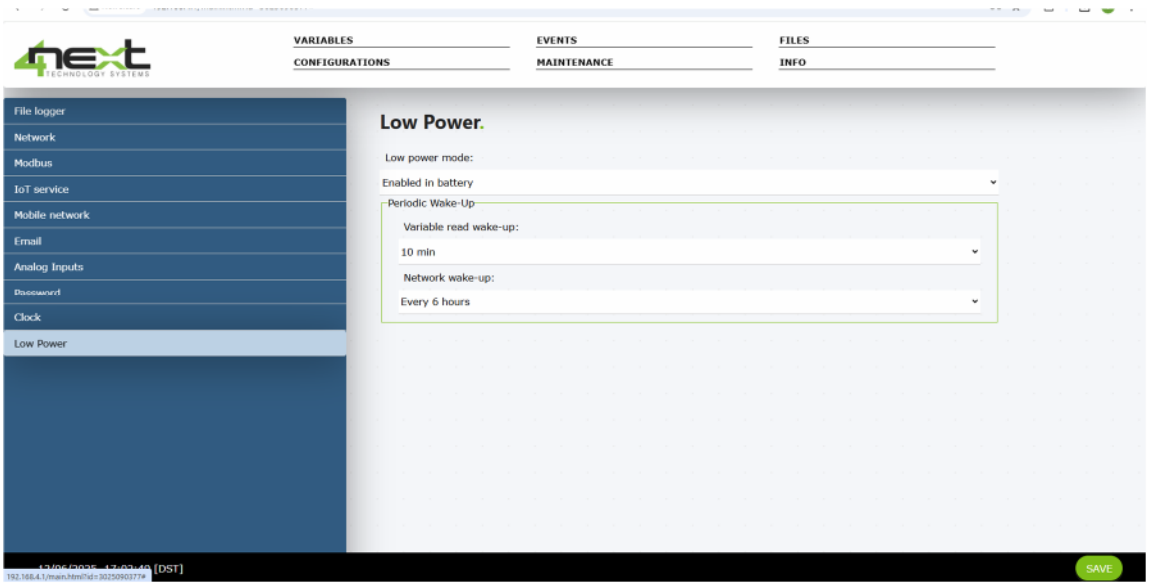
Low Battery

In this section, you can decide the power consumption of the battery. To prolong its operation so that it does not completely consume its capacity, enable battery saver:

- **Low power mode:** enable battery conservation function
    - **Disabled:** Disabled
    - **Enabled in battery:** enabled with battery

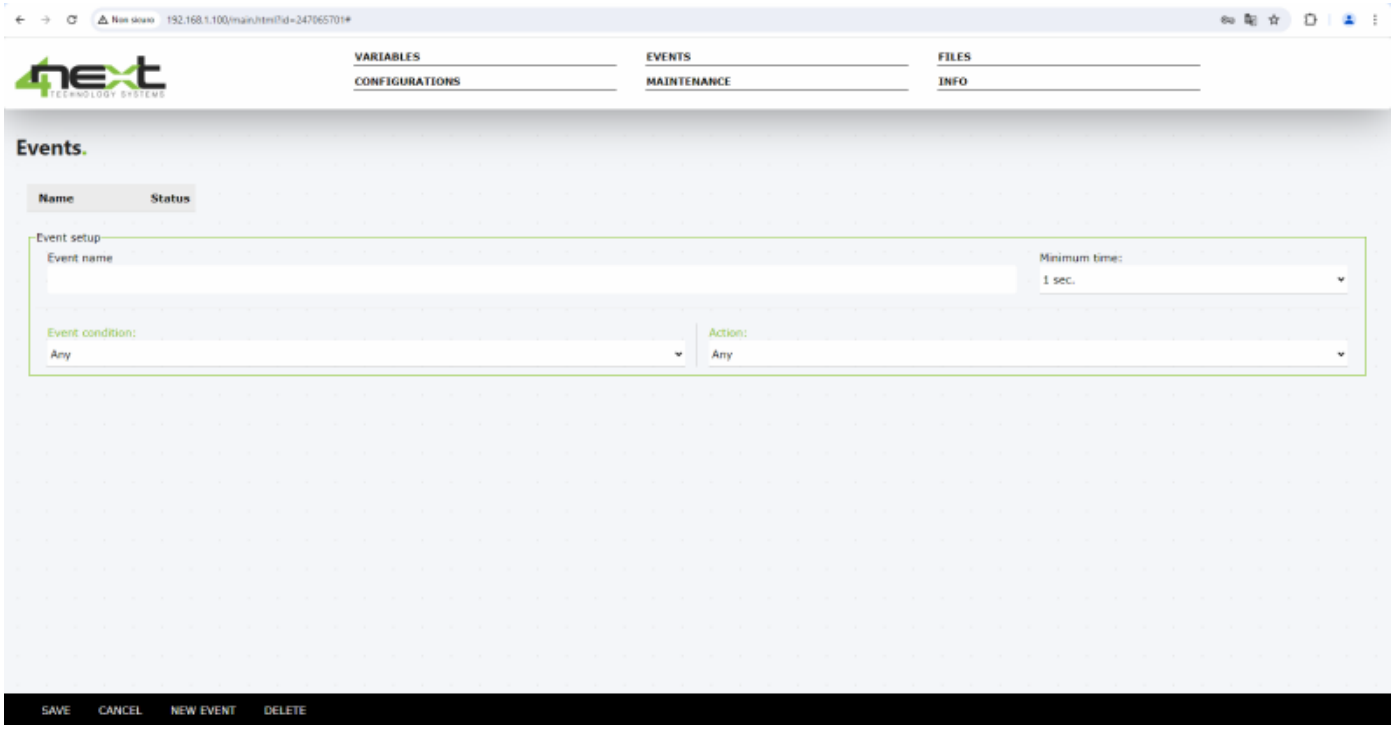
Periodic wake-up : set the frequency of reading the variables and the frequency of connection with:

- **Variable read wake-up:** variable reading periodicity
- **Network wake-up:** the frequency with which the GSM connection is reactivated



5.6 Events

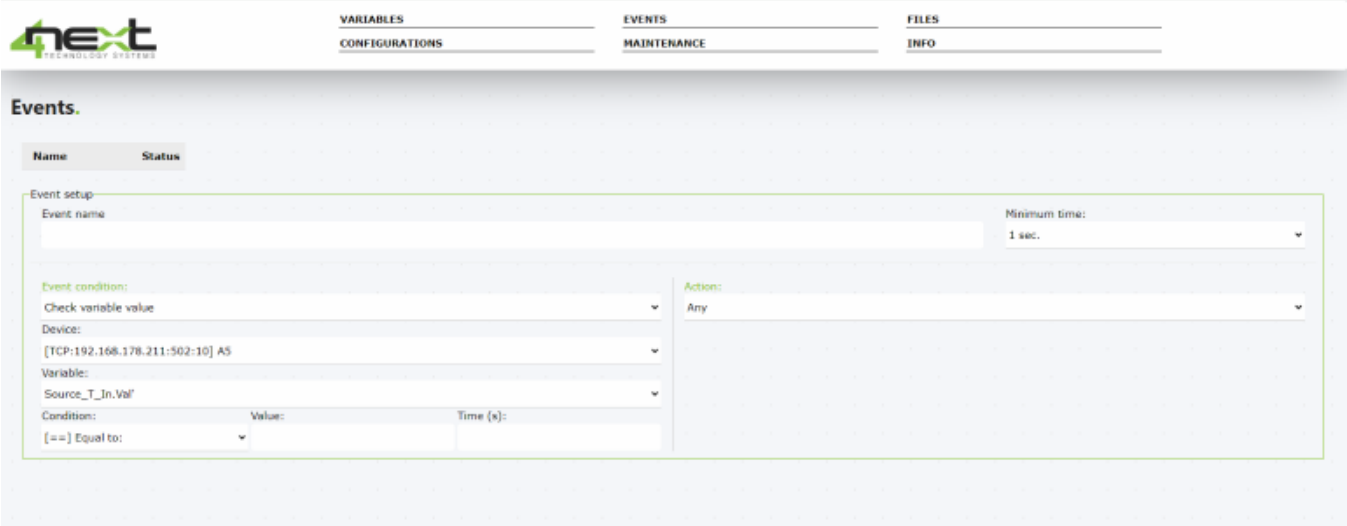
In this section you can set events to manage and intervene autonomously, for example the sending of emails from the data logger to our email mail at the start or the variation of a variable configured according to the previously set conditions.



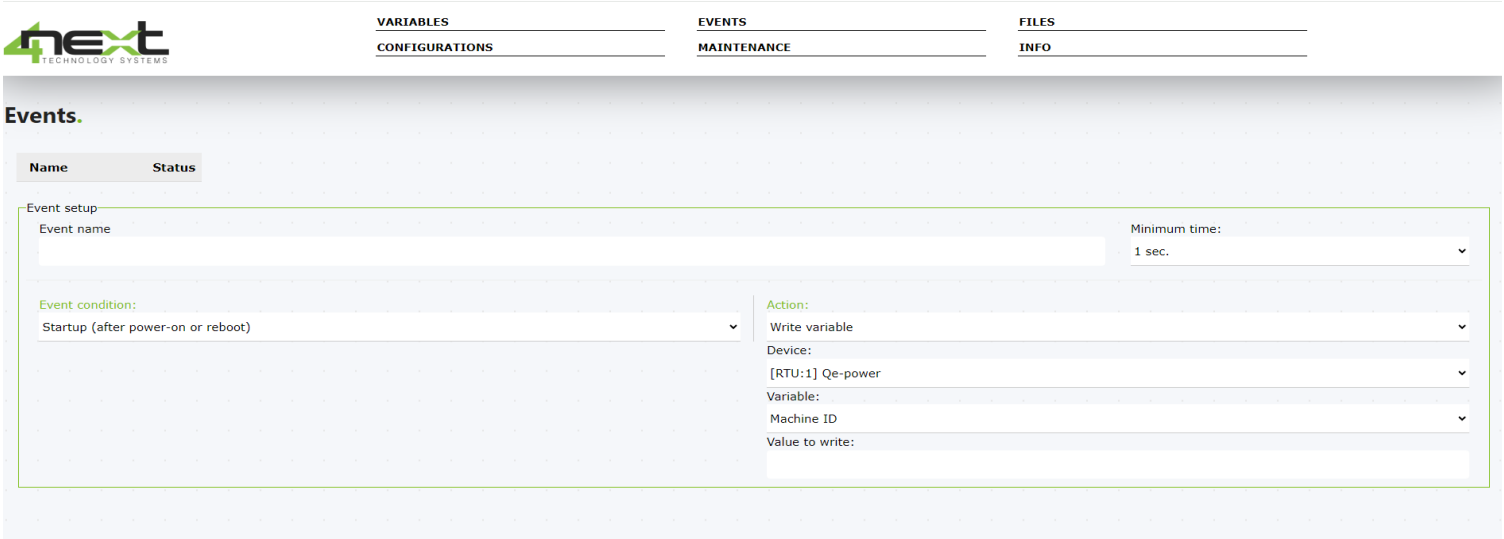
The items are:

- **Event name** : name of the event
- **Minimum time**: minimum execution time
- **Event condition**: Event condition with the following options:
  - **Any** : any;
  - **Check variable value** : check a value of the selected variable;
    - **Device**: reference device
    - **Variable**: variable on which you want to apply the condition
    - **Condition:** Applicable conditions are equal to, not equal to, less than, less than equal to, greater than, and greater than
    - **Value:** Trigger threshold
    - **Time(s):** execution time.

- **Startup (after power-on or reboot)** : condition of boot or restart of the device;



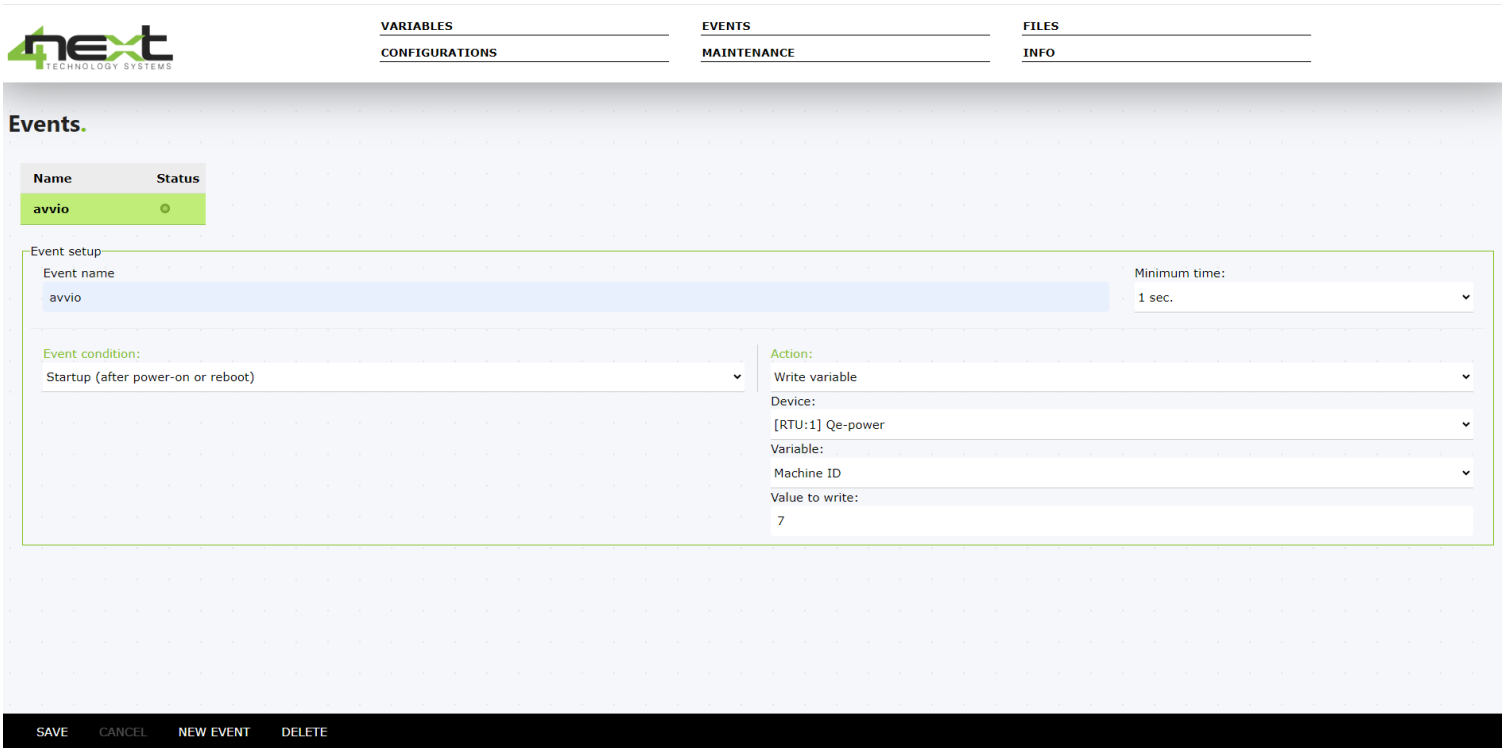
- **Action :** operations
  - **Any:** any;
  - **Write variable:** write to the variable;
    - **Device:** source device
    - **Variable:** Target variable
    - **Value to write:** value to be attributed



- **Send email:** sending recipient email (you can select a maximum of 3 emails by activating them via checkbox);
  **To use the Email function, you need to enter and enable email in Configurations -> Email service. (For Notice or Notification purposes only).*

At the bottom left are the following features:

- **Save:** Rescue
- **Cancel:** cancel
- **New event:** creating a new event
- **Delete:** Delete event



This is the screenshot of the correct saving of an event with its status.

5.7 Maintenance

The maintenance menu is used to update the device's firmware and enable debugging for technical support. Clicking on "**Update firmware**" performs the update by selecting the latest firmware version.

To enable the debugging feature, choose from the following modes:

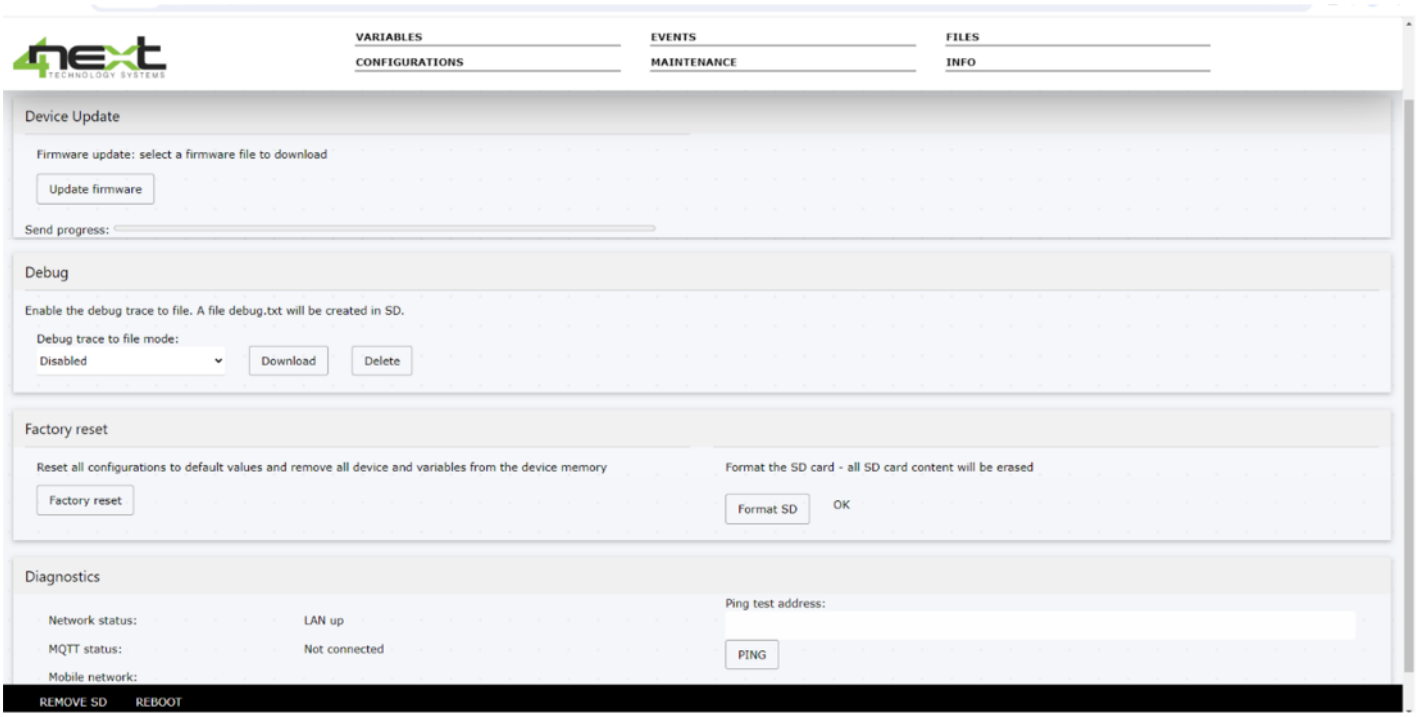
- **Disabled**: Disabled by default
- **Basic messages[Lv1]**: Logs basic clock renewal request and network operations
- **Application debug[Lv2]**: Records all operations that the device performs at the application layer
- **Application and network debug[Lv3]**: Records all the operations listed above and also records network operations in detail allowing accurate error analysis.

You can store data on the SD card. You can download the data or delete it with "**Download**/**Delete**".
With the "**Fabric reset**" button, each configuration is reset to factory defaults and all devices and variables are removed from the device's memory.
Next to it there is the "**Format SD"** button with the function of formatting and erasing all the contents of the inserted SD card.

In addition, a "Diagnostics" diagnostic section, which allows you to monitor the current connection of the device to the network with the following items:

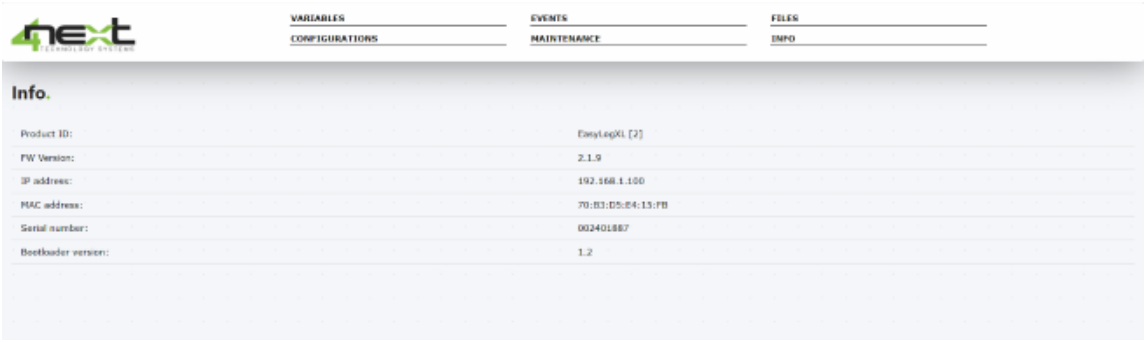
- **Network status**
- **MQTT status**
- **Mobile network**
  (exclusive function of EasySense and Easynet for the GSM module)

With the wording "**Ping test address**" it is possible to test the communication on the network by entering an IP address and clicking the "**PING"** button, a log window appears where the connection is verified.


VARIABLES
EVENTS
FILES
CONFIGURATIONS
MAINTENANCE
INFO
Device Update
Firmware update: select a firmware file to download
Update firmware
Send progress:
Debug
Enable the debug trace to file. A file debug.txt will be created in SD.
Debug trace to file mode:
Disabled
Download
Delete
Factory reset
Reset all configurations to default values and remove all device and variables from the device memory
Factory reset
Format the SD card - all SD card content will be erased
Format SD
OK
Diagnostics
Network status:
LAN up
MQTT status:
Not connected
Mobile network:
Ping test address:
PING
REMOVE SD
REBOOT

5.8 Info

The info menu displays the Hardware and Firmware information for the device. Always check on the 4next.eu/EasySense site if the firmware is updated to the latest version.



6. Return and repair

The return for repair or replacement must be authorized in advance by requesting the RMA number.

Then send a card with the following information by e-mail to support@4next.eu or your dealer/retailer:

- Company name and customer details (address, phone, fax, email)
- Referent
- Point of purchase
- P/N and S/N product details located on the back of each product or on the original box
- Detailed description of the fault or anomaly detected

4neXt will send the RMA number with which the customer can send the material for repair. The products must be shipped carriage paid.

If the material arrives without the factory seals, it will automatically be considered "out of warranty".

*The warranty in Italy is valid for two years from the date of purchase.

Technology systems
FOR YOUR BUSINESS

WWW.4NEXT.EU

4NEXT S.R.L.S.
Via L. da Vinci, 15
30030 Vigonovo VE
Italy

E : info@4next.eu
W : www.4next.eu
P : +39 049 0981450