



# FIDAQUIRE Data logger Model FCD6455-01 User's Manual

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Description – Installation – Technical Data

Software Revision: 2.0.0

Manual Revision: 1.0.0

# Technical specifications of the device

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<b>General</b>	
Dimensions	Height 1.75" Depth 3.75" Width 14" (without rack-mount wings) 19" (with rack-mount wings)
Weight	2.0kg (without card modules)
Operating temperature	-10 to 45 °C
Storage temperature	-20 to 60 °C
Operating humidity	0 to 60%, non-condensing
Warranty	2 years
Rack Mount Size	1.5U rackmount
<b>Hardware</b>	
Architecture	A72 (ARMv8-A) 64-bit
Total CPU cores	quad-core
CPU speed	1.5GHz
RAM	4GB DDR4
OS	Linux
LCD Specifications	2*20 industrial
Power Supply	2A @ 220VAC 50/60Hz
<b>Communication</b>	
Communication Method	Ethernet
Local Access	LCD for vital information, Alarm Status, Power Status, and Ethernet link, USB 2.0 for data export
Remote Access	Website and mobile app to access status
Data Logging	Unlimited samples securely stored on the Local and cloud servers, On-card Programmable sampling Intervals
API Data Interchange Formats	JSON, XML, REST, Web socket

Time Management	NTP Server/Client
SNMP Agent	V1
<b>Input / output</b>	
Number of Input cards	2 (expandable to 5 using expansion module)
Input Types	Based on F series cards
Output Relay	One 1A low voltage NO relay output (software configurable for alarms)
Alarm Notification	An unlimited number of email & text messages
Modbus	RS485 and TCP/IP
Ethernet port	1 RJ-45 Ethernet port 10/100Mbit
USB port	V2.0 Type A

## Device applications

- Monitoring of telecommunication infrastructures (such as server rooms and BTS towers)
- Monitoring of electricity distribution and sub-distribution posts
- Online monitoring of environmental pollution measurement systems.
- Monitoring of meteorological stations
- Monitoring of clean rooms
- Monitoring of cold stores
- Monitoring of greenhouses
- Monitoring of poultry farms
- And ...

# SAFETY PRECAUTIONS

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(Before using this product, read the precautions)

Please carefully read this manual before using the product and pay full attention to the mentioned points to use the product correctly. In this guide, safety measures are classified into two levels: " ⚠ Warning" and " ⚠ Caution"

<b>⚠ Warning</b>	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
<b>⚠ Caution</b>	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage

Follow the safety measures at both levels as they are crucial for personal and system safety. Ensure that users read this manual and then keep it in a safe place for future reference.

## (Design precautions)

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### **⚠ Warning**

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- Configuring external safety circuits such as fuses and circuit breakers before starting the FIDAQUIRE data logger is crucial to ensure that the entire system operates safely in case of an external power supply fault. This is because when the load current exceeds the permissible current or an overcurrent flows into the circuit for an extended period due to a short circuit, it may lead to the production of smoke or even fire. Therefore, the presence of a fuse is essential to prevent damage to the device and connected equipment, as well as to maintain their safety and functionality.

**Note:** The device's power input is equipped with a 3A glass fuse to protect against any overcurrent. If the device does not turn on, check the glass fuse installed on the power input panel and replace it if necessary.

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** Caution**

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- Do not group Ethernet cables, RS-485 cables, UPS connection cables, or data signal cables with the main circuit and power cables, and do not install them close to each other. Maintain a minimum distance of 100 mm (3.94 inches) between them. Failure to maintain this distance may result in interference due to noise.
- In some cases, after saving the data, the device may need to be restarted automatically. In such instances, turn off the data logger from the device menu, and under no circumstances should you unplug the device to power it off.

In some cases, it may be necessary to restart the device after saving data, which is done automatically. In this case, turn off the data logger from the device menu and do not unplug the device to turn it off under any circumstances.

**(Security Precautions)**

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** Warning**

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- To maintain security (confidentiality, integrity, and availability) of the FIDAQUIRE data logger and system against unauthorized access, computer viruses, and other cyber attacks through external devices via the network, adopt appropriate measures such as firewalls and antivirus solutions.

**(Installation precautions)**

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** Warning**

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- Before installing the FIDAQUIRE data logger, ensure the quality of the input voltage. Failure to do so may cause damage to the product.

** Caution**

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- Use the FIDAQUIRE data logger in an environment that complies with the general specifications provided in this manual. Using the FIDAQUIRE data logger in any

other operational environment may result in electric shock, fire, malfunction, or damage, leading to reduced module quality.

- Never directly touch any conductor or electronic component of the FIDAQUIRE data logger. Doing so may cause malfunction or damage to the data logger.
- When mounting the FIDAQUIRE data logger on a wall, securely tighten the rack screws. Loose screws could cause the data logger to fall and result in a short circuit.
- Prevent foreign materials such as dust or wire scraps from entering the interior of the data logger. These foreign materials may cause fire, damage, or malfunction.
- If additional cards need to be installed, ensure they are fully inserted into the card slots. After installation, check that they have been properly seated. Failure to do so may result in poor contact, leading to malfunction.

**Note:** Carefully read the full instructions before installation, and proceed accordingly.

## **(Wiring precautions)**

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### **Warning**

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- Before wiring, ensure the integrity and quality of all input and output cables. Failure to do so may cause damage to the product.
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### **Caution**

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- Before wiring to the FIDAQUIRE data logger, verify the nominal voltage and correctly connect the cables. Connecting the power supply with improper voltage or incorrect wiring may cause fire or damage to the device.
- Before connecting the power cable, UPS cable, Ethernet cable, RS-485 cable, and input data cables, ensure that the type of interface to be connected is correct. Connecting an incorrect interface or incorrect wiring may cause damage to external equipment or the FIDAQUIRE data logger.

- Power cables, UPS cables, Ethernet cables, RS-485 cables, and input data cables connected to the FIDAQUIRE data logger must be installed correctly using standard tools. Improper connections may lead to short circuits, fire, or malfunction.
- When mounting the FIDAQUIRE data logger on a wall, securely tighten the rack screws. Loose screws could cause the data logger to fall and result in a short circuit.
- Safely connect the UPS, Ethernet, power, RS-485, and input data cables to the FIDAQUIRE data logger. Failure to do so may result in cable damage and improper functioning of the device.
- Ensure that the UPS, Ethernet, power, RS-485, and input data cables connected to the FIDAQUIRE data logger are placed in a single channel or securely fastened with a clamp. If the cables are not placed in a channel or securely fastened, they may be unintentionally pulled, which could damage the FIDAQUIRE data logger and the cables or cause module malfunctions due to incorrect cable connections.
- When disconnecting the UPS, Ethernet, power, RS-485, and input data cables from the FIDAQUIRE data logger, do not pull on them. Pulling on the cables connected to the data logger may cause device malfunctions or damage to the FIDAQUIRE data logger and the cables.

## **(Startup and maintenance precautions)**

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### **Warning**

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- When turning on the FIDAQUIRE data logger, do not touch any terminal, conductor, or electronic component. Doing so may result in electric shock or damage to the data logger.
- Connect the battery connector properly. Do not charge the battery, expose it to heat, short-circuit it, solder it, apply strong impact to it, or burn it. Doing so may cause the battery to generate heat, explode, or ignite, leading to damage and fire hazards.
- Before cleaning the FIDAQUIRE data logger or tightening its screws, turn off the external power source used for the data logger. Failure to do so may cause damage to the FIDAQUIRE data logger or result in malfunction or performance issues.

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** Caution**

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- The installation and setup of the FIDAQUIRE data logger should be performed by qualified maintenance personnel with knowledge of electrical shock protection.
- Never apply a strong impact to the battery used in the FIDAQUIRE data logger. Doing so may damage the battery or cause it to leak. If the battery falls from a height or sustains any impact, do not use it and dispose of it properly.

**(Operating precautions)**

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** Warning**

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- While the FIDAQUIRE data logger is operational, do not touch any conductor or electronic component of the data logger directly. Doing so may cause malfunction or damage to the data logger.
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** Caution**

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- Keep any radio communication device such as a mobile phone at least 25 centimeters away from the FIDAQUIRE data logger in all directions. Doing so may cause interference.

**(Transportation Precautions)**

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** Caution**

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- One battery is installed on the FIDAQUIRE data logger. Ensure that when transporting the FIDAQUIRE data logger, it complies with regulations for transportation. Products are properly packaged before shipping and sent according to transportation regulations. The battery in the FIDAQUIRE data logger is a sealed lead-acid battery classified as non-hazardous goods.



## (Disposal precautions)

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### **Caution**

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- Dispose of the FIDAQUIRE data logger as industrial waste.
- When disposing of batteries, separate them from other waste according to local regulations.

In EU member countries, there is a separate collection system for waste batteries. Dispose of batteries properly at a local waste collection/recycling center.

The symbol below is printed on the packaging of used batteries for the FIDAQUIRE data logger. This symbol is specified in Article 20 "Information for end-users" and Annex II of the new Battery Directive of the European Union (2006/66/EC). This symbol indicates that batteries must be disposed of separately from other waste.



Note: This symbol is for EU member states only.

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# Contents of the Box

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Check the contents of the box for completeness according to the packing list. The following items should be included:

- FIDAQUIRE Data Logger Model FCD6455-01<sup>1</sup>
- RS-485 Cable
- Power Cable
- User Manual

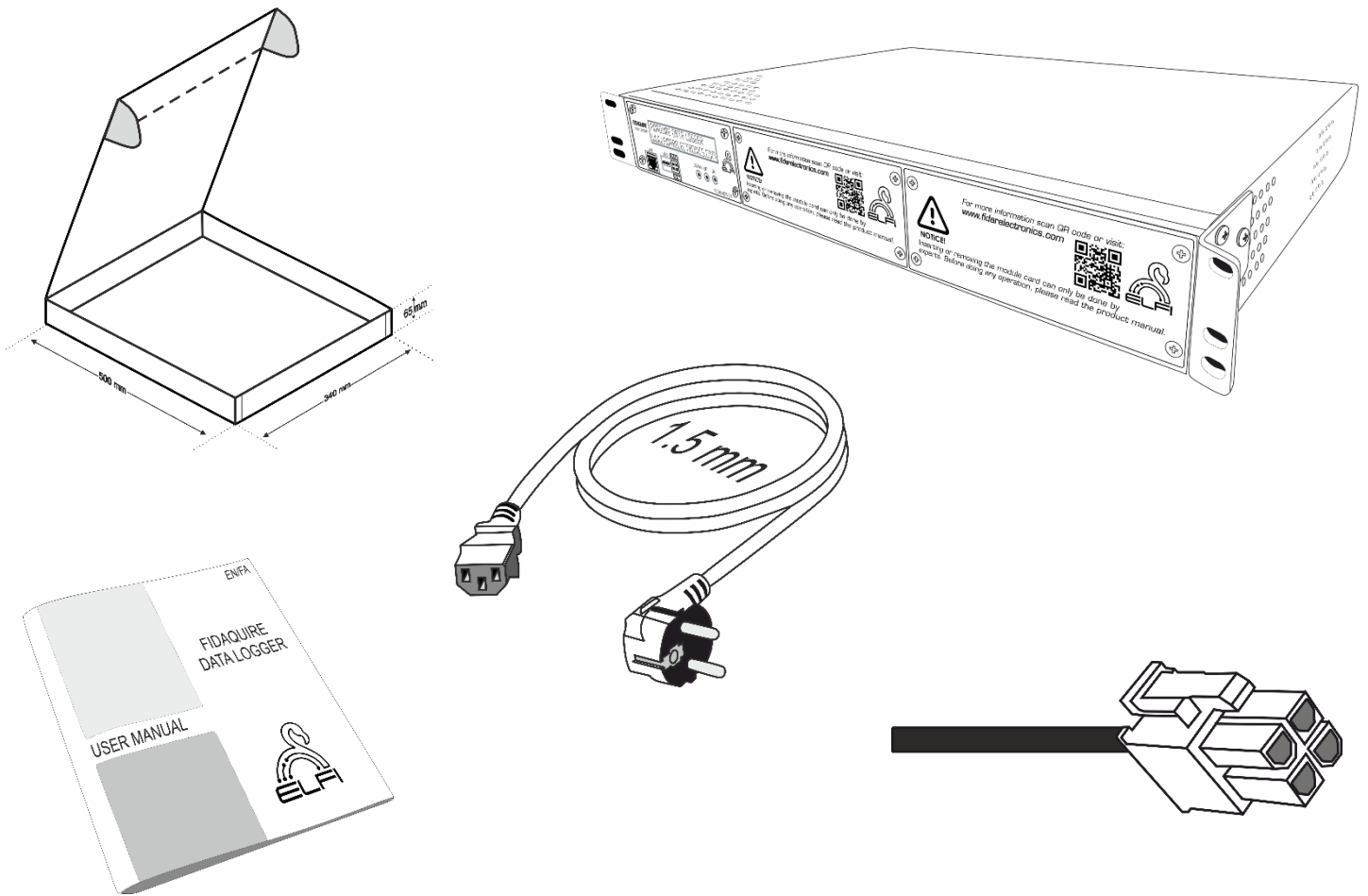


Figure 1: Contents of the Box

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<sup>1</sup> Detailed information about the device's dimensions is provided on page 61 of this manual.

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# 1- Installation and Setup of the FIDAQUIRE Data Logger



Figure 2: Front view of the device



Figure 3: Back view of the device

- (1) **LAN Port:** For connecting the data logger device to an Ethernet network.
- (2) **USB Port:** For downloading data in bulk by connecting the data logger device to a network.
- (3) **RS-485 Port:** For receiving Modbus output.
- (4) **Down Button:** For navigating through menu setting pages of the device.
- (5) **UP Button:** For scrolling through available options in the device's settings menu.

- (6) **OK Button:** For confirming the selected item.
- (7) **Seven-Segment Display:** For displaying settings and vital information of the device.
- (8) **Ear (Bracket):** For securing the device inside a rack.
- (9) **Slot Number One:** For installing the first card.<sup>1</sup>
- (10) **Slot Number Two:** For installing the second card.<sup>2</sup>
- (11) **Expansion Port:** For installing additional cards using the Expansion module and its associated cable.
- (12) and (13) **Device Fan(s).**
- (14) **220-Volt City Power Port:** To connect to city electricity.
- (15) **3-Amp Fuse:** To prevent excessive current from entering the device.
- (16) **Power On/Off Switch:** For turning the device on or off.

Choosing the optimal installation location for the FIDAQUIRE data logger is crucial for its safe operation. When selecting the installation location, consider the following requirements:

- Ambient temperature range: 10°C to 45°C.
- Relative humidity should not exceed 60%. Otherwise, internal components may be damaged.
- Implement measures to prevent moisture and corrosion.

The FIDAQUIRE data logger can be installed on a wall or any other surface. Depending on your location, you can choose the installation position accordingly. However, initially, you must install the FIDAQUIRE data logger inside a rack.

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<sup>1</sup> The images provided in this manual may differ from the actual appearance of the device due to variations in different versions.

<sup>2</sup> The images provided in this manual may differ from the actual appearance of the device due to variations in different versions.

## 1-1- Installing the device inside the rack

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To prevent any debris or dust from entering the FIDAQUIRE data logger during installation and wiring, you should mount the device inside the rack following these steps:<sup>1</sup>

**Step 1:** First, attach the mounting brackets to the FIDAQUIRE data logger using the screws provided (Figure 4).

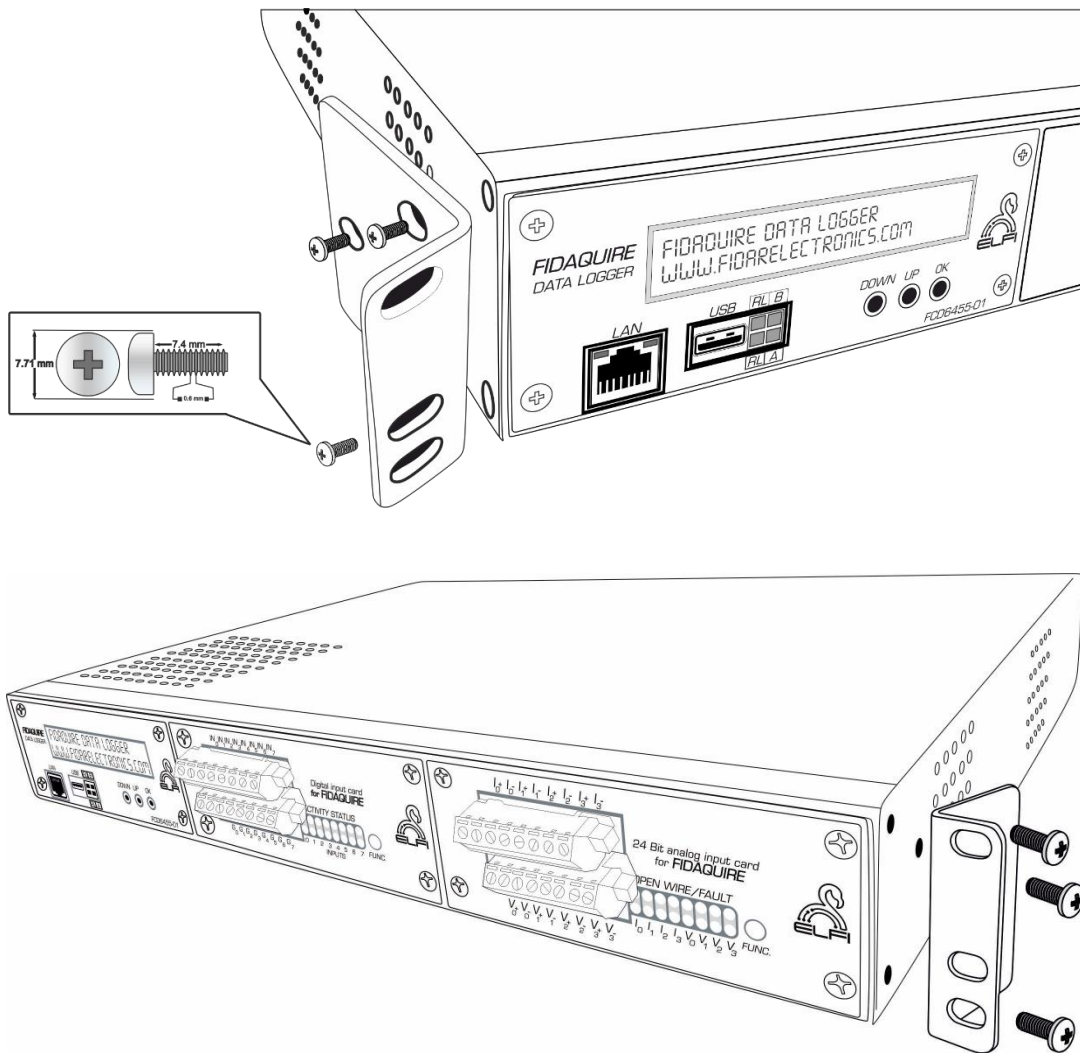


Figure 4: Installing clamps to the device

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<sup>1</sup> The images provided in this manual may differ from the actual appearance of the device due to variations in different versions.

**Step 2:** Mount the device inside the rack using the installed brackets, as shown in Figure 5.

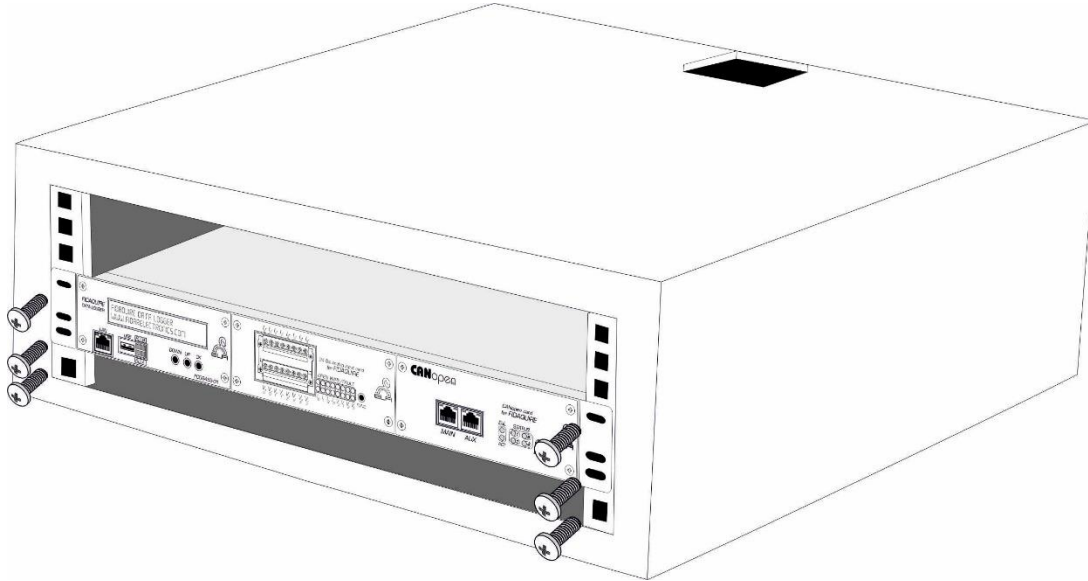


Figure 5: How to Mount the FIDAQUIRE Data Logger in a Rack

## **1-2- Electrical connection**

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**Step 1:** Connect the 220V city power plug to the designated socket.

**Step 2:** Get a network cable and insert it into the LAN port.

**Step 3:** If you are using the Modbus protocol for data retrieval, connect the RS-485 communication cable to its dedicated port on the FIDAQUIRE data logger.

**Caution:** Incorrect cable connections may damage the device or cause personal injury.

**Caution:** All cables must be intact, insulated properly, of appropriate dimensions, securely connected.

### 1-3- Setup the FIDAQUIRE data logger

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Before starting up the FIDAQUIRE data logger, make sure the following steps are followed to avoid any damage to the device or personal injury:

**Step 1:** To power on the data logger, set the switch located at the back of the device to "0" for off or "1" for on.

**Note:** If connecting to LAN, ensure that the switch at the back of the device is set to "1" for on. After turning on, wait for the network parameters to be displayed on the screen. The logger will attempt to obtain an IP address via DHCP (Dynamic Host Configuration Protocol). Once an IP address is obtained (shown on the screen, typically indicated as an IP address that starts with numbers such as 192.168.x.x), note down this IP address as it will be needed for further configuration.

On the device display, in addition to the IP address and date, information such as CPU temperature, fan speed, number of errors, number of installed cards, CPU status, internal memory status, and memory card status is shown. This information is displayed periodically. An example of this information is provided in Figure 6.

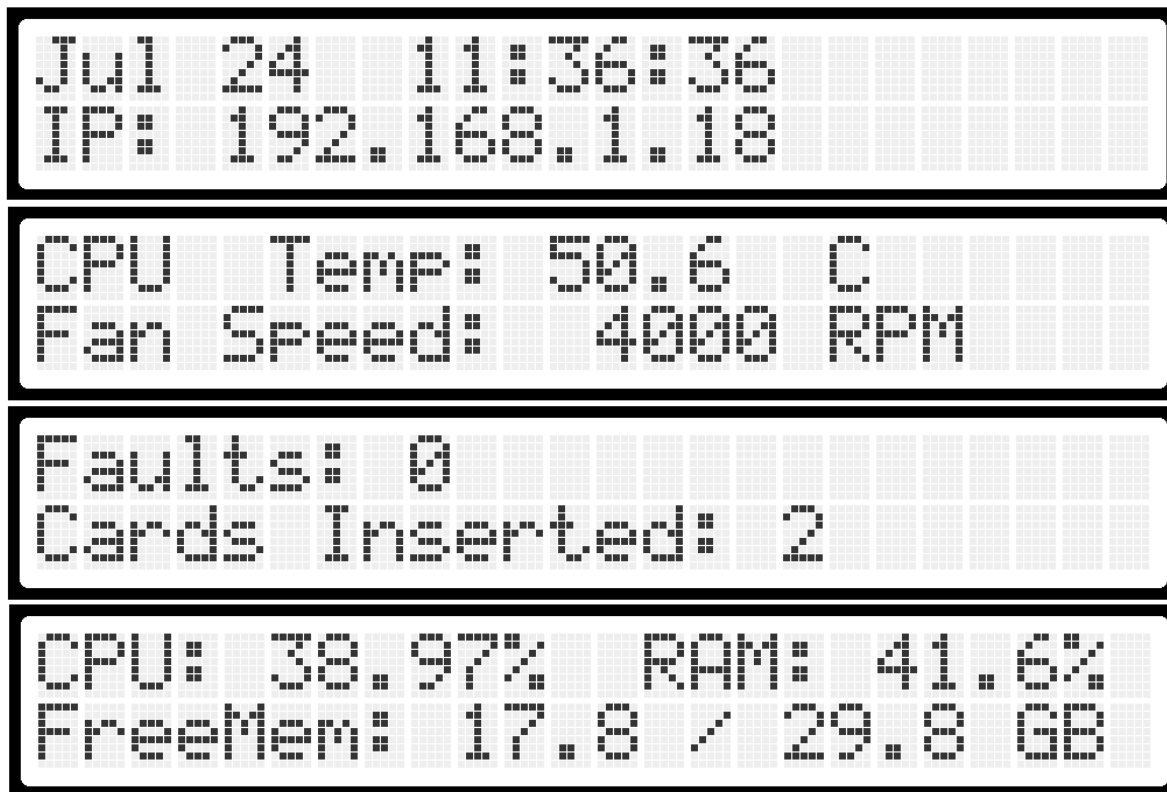


Figure 6: Example of the device's display screen and the information shown



## **1-4- Device menu**

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Some essential parameters of the device can be adjusted using the device menu and input keys. The "OK" key is used to enter the menu, confirm selected options, and navigate through various settings. The "UP" and "Down" keys function to move upwards and downwards through menu pages respectively, allowing for easy navigation and selection. Similarly, the "Left" and "Right" keys are utilized to choose options within each menu page, facilitating efficient interaction with the device's settings. These settings are further detailed below:

## 1-4-1- Date / Time Setting

- By pressing the Ok key once, the first page of the device settings will be displayed (

Figure 7).

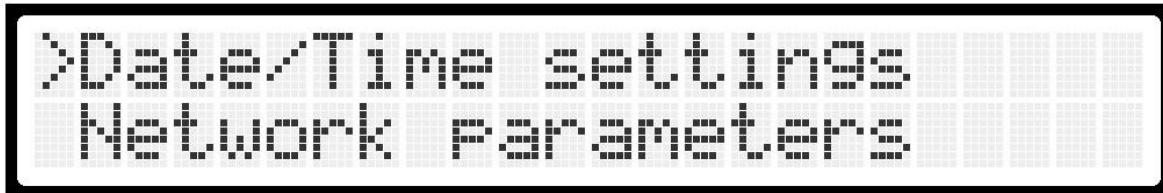


Figure 7: Settings first page

- By entering the Ok key again, you enter the date and time settings section. In this section, there are two modes for setting the clock: NTP<sup>1</sup> and Manual. Use the UP and Down keys to select each of these modes. By selecting the NTP option, the device's clock settings are automatically made through Internet clock servers. But if you select the Manual option, the window for manual date and time setting will appear and the device will exit the NTP receiving mode and you can enter the time information manually (Figure 8).

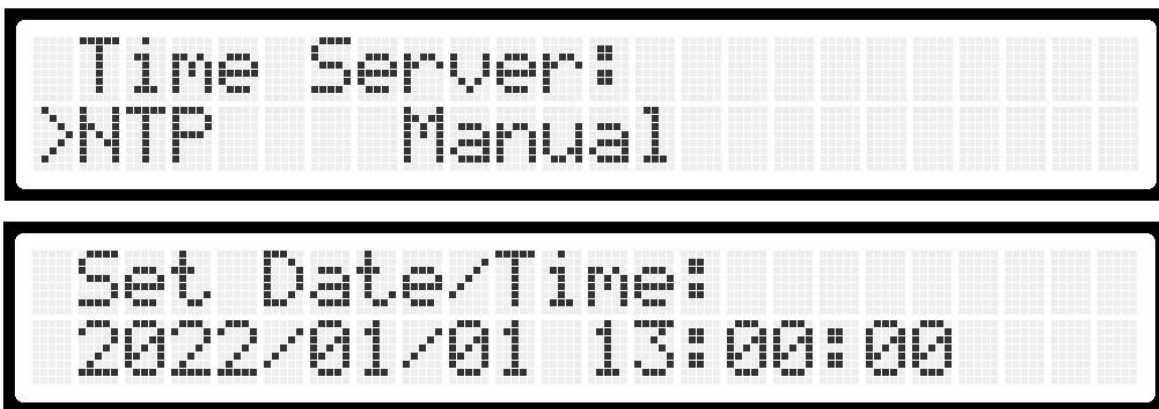


Figure 8: Date / time setting menu

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<sup>1</sup> Time Network Protocol

## 1-4-2- Network Setting

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- After setting the time, you will automatically enter the network settings menu (Network Parameters) and you will be faced with two options, DHCP and Manual. Use the UP and Down keys to select each of these modes. If you select the DHCP option, the device's IP will be assigned automatically through the DHCP server. If you want to set the IP of the device manually, select the Manual option and use the UP, Down and OK keys to enter the three parameters IP, Subnet and Gateway address as well as the DNS address of the network (Figure 9).

**Attention:** If any of the mentioned parameters are entered incorrectly, you must reconfigure all network settings from the beginning. To do this, it's better to wait for approximately 10 seconds until the device automatically displays the first settings page.

**Note:** After configuring the network settings, the device will restart automatically.

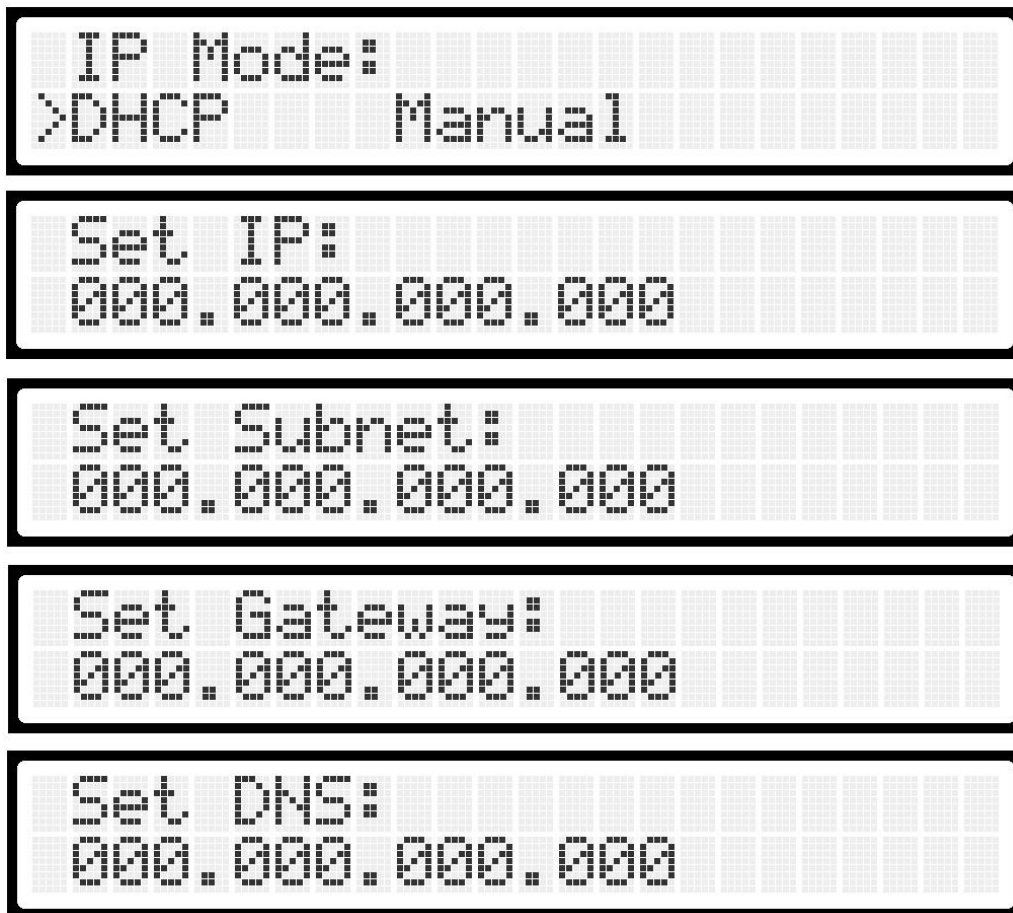


Figure 9: Select device network settings

### 1-4-3- Data recording on USB memory

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If you do not have access to a computer at the location where the data logger is installed, you can easily navigate to the "Export data" menu. Using the UP, Down, and OK keys, you can select the desired slot number and channel. Additionally, you can choose the month and year of the relevant data, and then proceed to extract the data in CSV format (Figure 10).

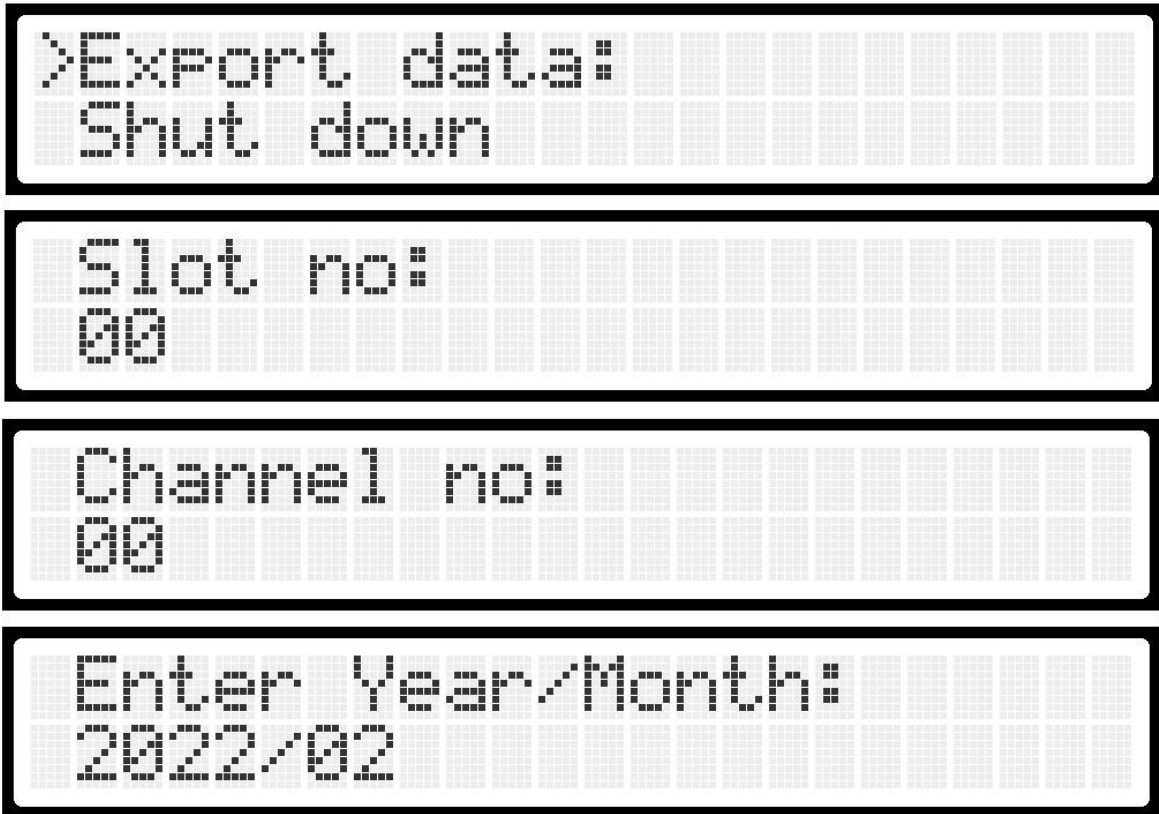


Figure 10: Data extraction menu via USB port

## 1-4-4- Turning off the device

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To power off the device, you have two methods available:

1. Switch Method: Change the switch located at the back of the device from position "1" to "0".

2. Menu Method:

- Press the OK button to enter the setting menu.
- Use the Down button to navigate to the "Shut down" option.
- Select "Yes" to confirm and shut down the device (Figure 11).

**Note:** Never disconnect the power supply directly to turn off the device.

**Note:** It's possible that the settings described in the user manual may have slight differences compared to those displayed on the device screen due to software updates.

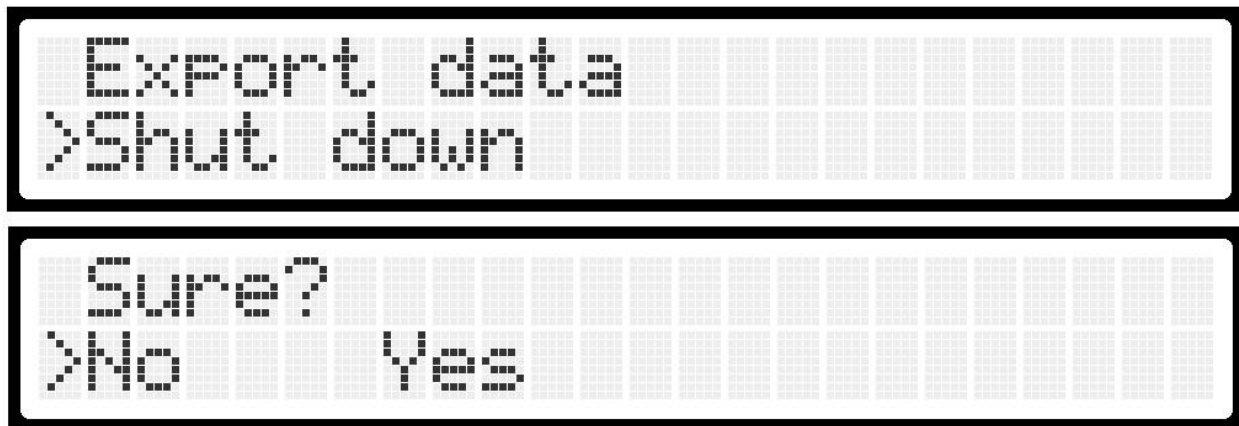


Figure 11: Device shutdown menu

## 2- User Interface

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The FIDAQUIRE device, equipped with a powerful web-based user interface, allows users to monitor the status of cards, data, and the datalogger itself. To access the mentioned system, after connecting the device to the network and ensuring that an IP has been assigned to it, use a computer (or smartphone) connected to the network. By entering the device's IP address in one of the browsers available on the computer's operating system, the web page related to the device will be loaded (Figure 12). After entering the username and password "admin<sup>1</sup>," the main page<sup>2</sup> of the device will be loaded, granting access to all subsections.

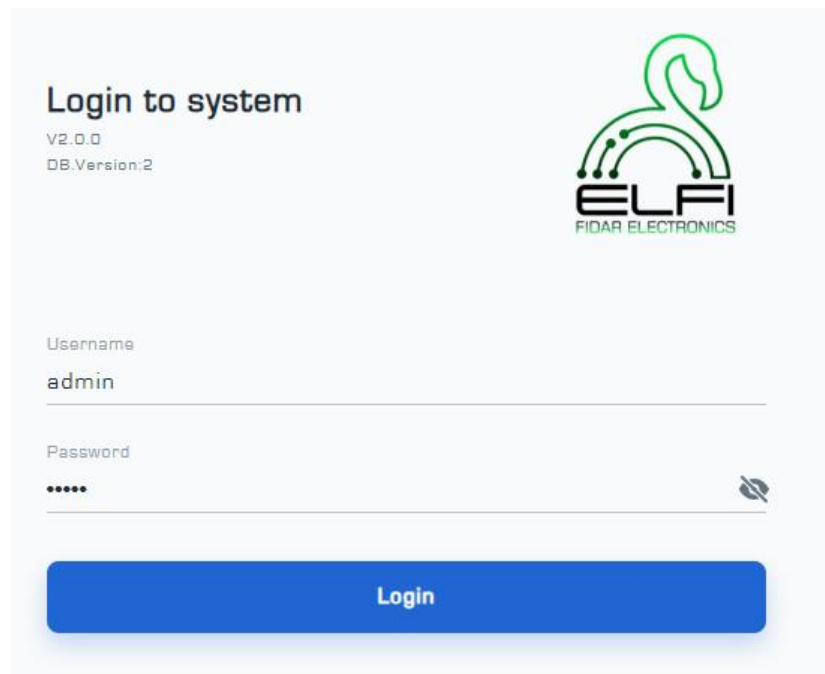


Figure 12: The login page to the user interface

The Overall page (Figure 13) displays general information about the device's status. Table 1 shows the configuration of the toolbar, and Table 2 provides a brief description of each status.

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<sup>1</sup> Username and initial password are provided on the device.

<sup>2</sup> Overall page

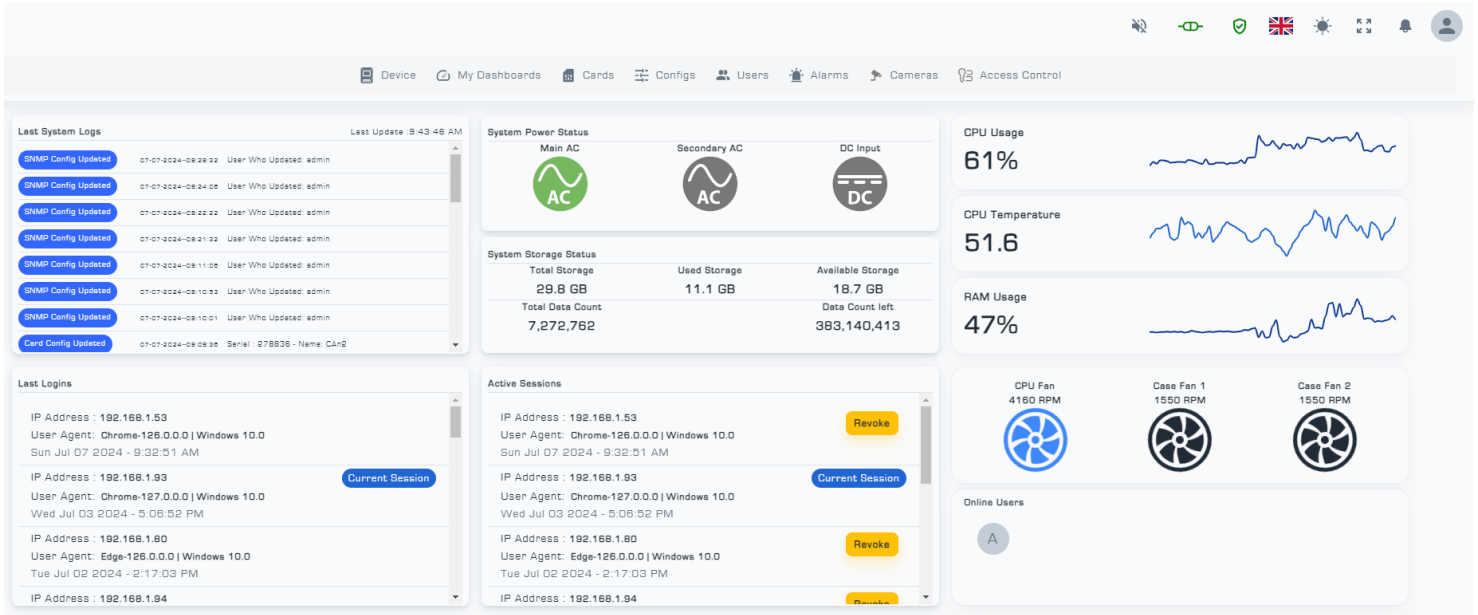


Figure 13: Overall page

The toolbar configuration is as follows:

Table 1: Toolbar configuration

Icon	Description
	User profile <sup>1</sup>
	Notifications
	Full screen display
	Display light or dark screen
	System language
	System module health status
	Indicates whether the device is offline or online
	Indicates whether the system warning alarm is enabled or disabled.

<sup>1</sup> User profile includes user name, profile for updating user information and logout options.

Table 2: Information on the Overall Page

<b>Item</b>	<b>Description</b>
Last System Logs	Indicates the time of the last system changes. These changes are updated continuously, keeping the user informed of the latest system status. Table 3 lists all possible states that may occur.
Last Logins	Displays the details of users who have logged into the system recently.
System Power Status	Indicates the status of the input power (main, auxiliary or DC power source), which is displayed in green when each is active.
System Storage Status	Shows the status of the device's memory: Total Storage: total memory of the device Used Storage: used memory Available Storage: Remaining memory for use Total Data Count: The total number of stored data Data Count left: The number of data that can be saved.
Active Sessions	Shows the IP addresses of computers connected to the device (i.e., users who have logged in but exited the page without logging out). If you want to log out a specific user from the system, you can do so by selecting the 'Revoke' option next to each user.
CPU Usage	Displays the processor performance for the user.
CPU Temperature	Displays the processor temperature for the user.
RAM Usage	Displays the RAM usage of the Fidaquire datalogger.
CPU Fan-Case Fan 1- Case Fan 2	Displays the status of the Fidaquire datalogger's cooling fans.
Online Users	Displays the names of online users to the user.



Table 3: All possible states of the latest system changes

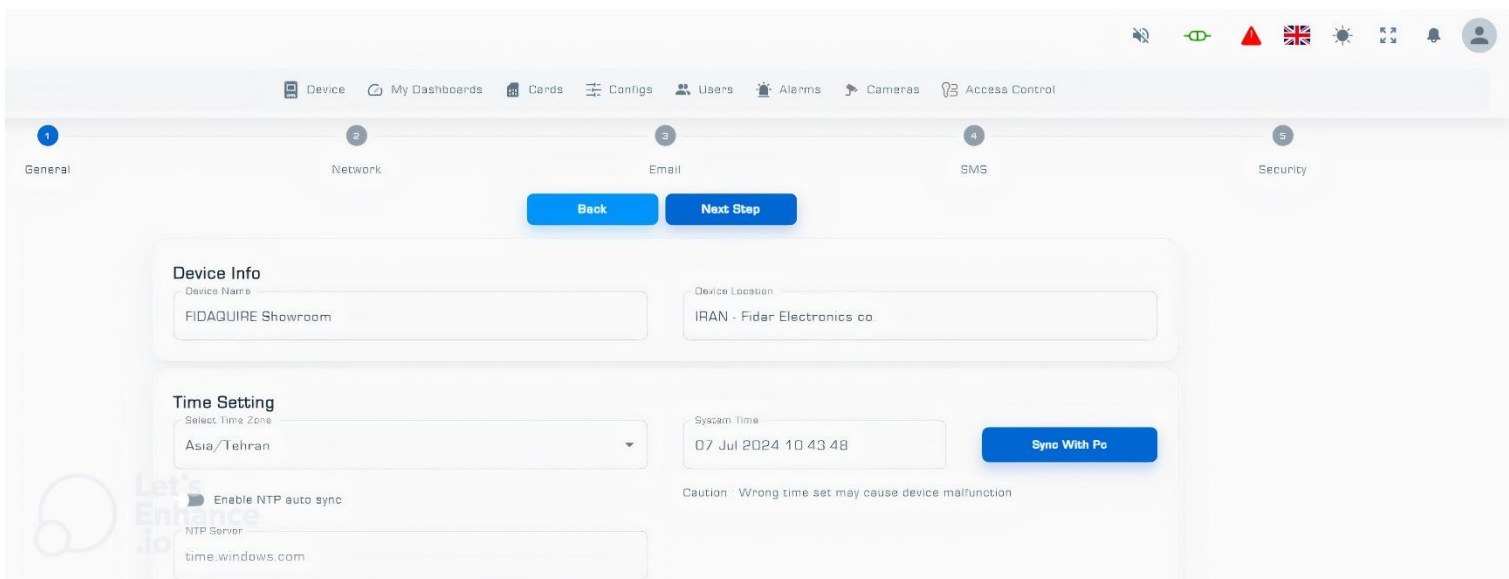
<b>Item</b>	<b>Description</b>
Data Rotation	Old data has been deleted due to insufficient internal storage space.
System Power Failed	The system has shut down unexpectedly or due to a power outage.
System Power On	The system is powered on.
System Shutdown	The system is powered off.
Alarm Added	A warning alarm has been set by the user.
Alarm Config Updated	The alarm warning configuration has been updated.
Alarm Deleted	A warning alarm has been deleted
Card Canfig Updated	The card configuration has been updated."
Card Initialized	A new card has been installed.
Card canfig Changed	The card configuration has been changed."
Device Initialized Successfully	The device has been successfully installed and configured
Device Setting Changed	The device settings have been changed.
System Shutdown	The system is powered off.
Modbus RTU Config Updated	The Modbus RTU configuration has been updated.
Modbus TCP Config Updated	The Modbus TCP configuration has been updated.
SNMP Config Updated	The SNMP configuration has been updated.
User Added	A new user has been added.
User Profile Updated	The user has updated their profile page.
User Removed	A user has been deleted.
User Deactivated	A user has been deactivated
User Activated	A user has been activated
Role Added	A role has been defined
Role Updated	The defined role has been updated.
Role Removed	A role has been deleted.
Role Assigned to User	A role has been assigned to the user.
Role Unassigned from User	A role has been removed from the user.
Admin Password reset by hardware	The admin user has reset the system login password.

## 2-1- Device Menu

The Device menu includes four submenus: Overall, Device Setting, Device Info, and Hardware Raw Data:

- **Overall** submenu has been explained in the previous section.
- **Device Setting** submenu pertains to the configuration of the FIDAQUIRE datalogger and includes five stages: General, Network, Email, SMS, and Security:
  - The first stage involves configuring the device's general information, including the device name, installation location, global time synchronization settings, device time and date, and synchronization settings with the NTP and DTS protocols. By enabling the NTP option, the device's clock is automatically set via internet time servers. Disabling this option allows for manual time adjustments (Figure 14).

**Caution:** Incorrect time settings may cause malfunction of the device.



The screenshot displays the 'Device Info' configuration page for a FIDAQUIRE device. The interface features a top navigation bar with icons for various system functions and a breadcrumb trail indicating the current stage: General (1), Network (2), Email (3), SMS (4), and Security (5). Below the breadcrumb, there are 'Back' and 'Next Step' buttons. The main content area is divided into two sections: 'Device Info' and 'Time Setting'. The 'Device Info' section contains two input fields: 'Device Name' with the value 'FIDAQUIRE Showroom' and 'Device Location' with the value 'IRAN - Fidar Electronics co.'. The 'Time Setting' section includes a 'Select Time Zone' dropdown menu set to 'Asia/Tehran', a 'System Time' input field showing '07 Jul 2024 10:43:48', and a 'Sync With Po' button. Below these fields, there is a checkbox for 'Enable NTP auto sync' and an 'NTP Server' input field containing 'time.windows.com'. A caution message at the bottom of the 'Time Setting' section reads: 'Caution: Wrong time set may cause device malfunction'.

Figure 14: Device information settings

- The second stage involves configuring the device's network settings. In this stage, settings for DHCP with failover can be configured. If there is an issue with DHCP, the option to assign a static IP address is available. Additionally, this page provides settings for TLS and the uploading of TLS certification files (Figure 15).

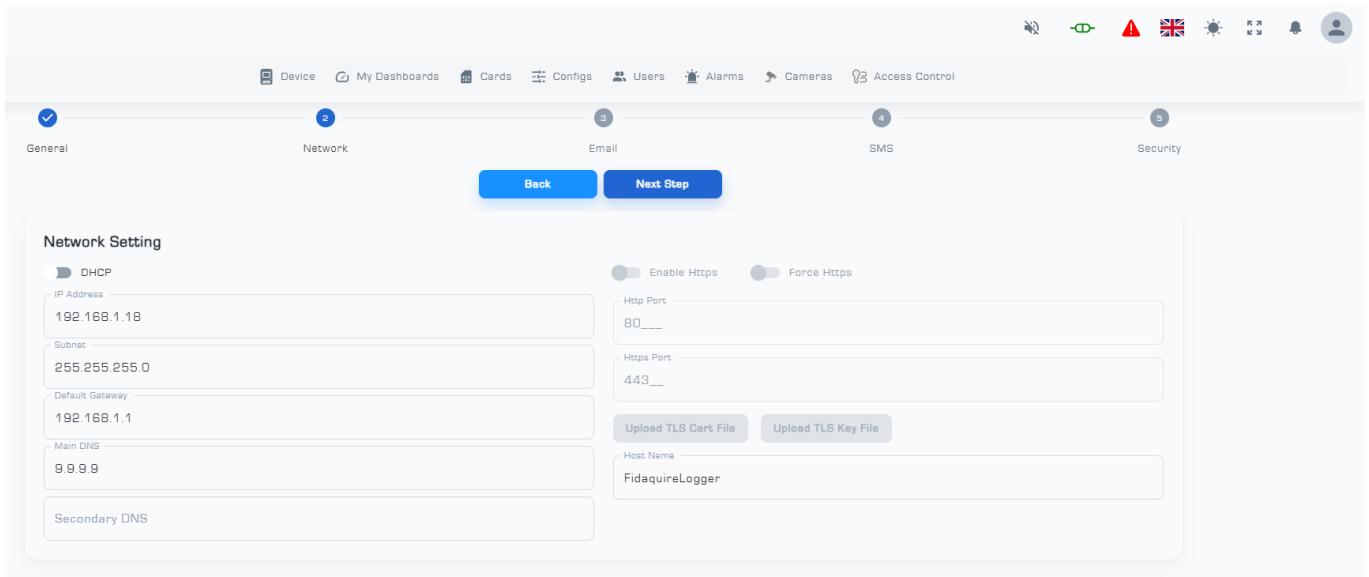


Figure 15: Network Settings Page

- The third stage involves configuring email settings, including SMTP settings and cloud email services (Figure 16).

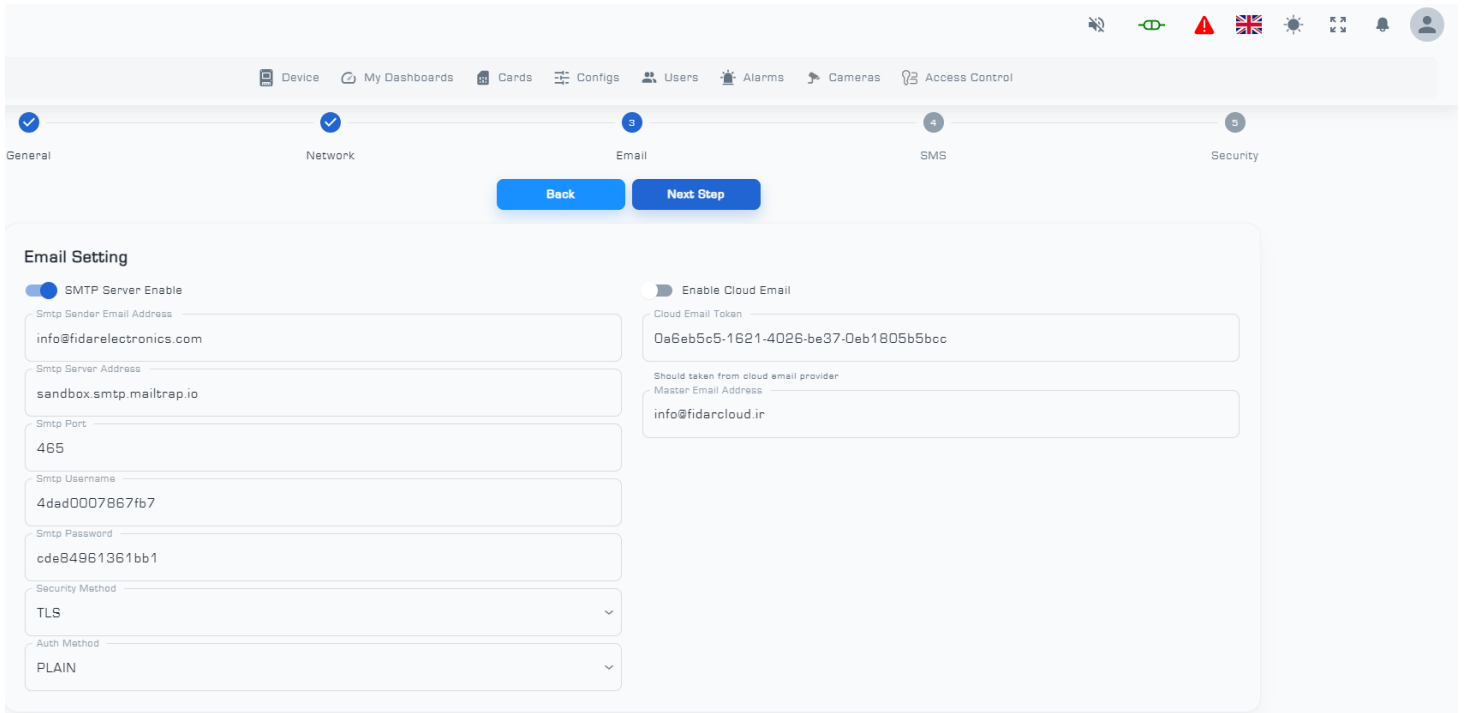


Figure 16: Email settings

- The fourth stage involves configuring SMS settings, either through the device itself or via a cloud SMS service (Figure 17).

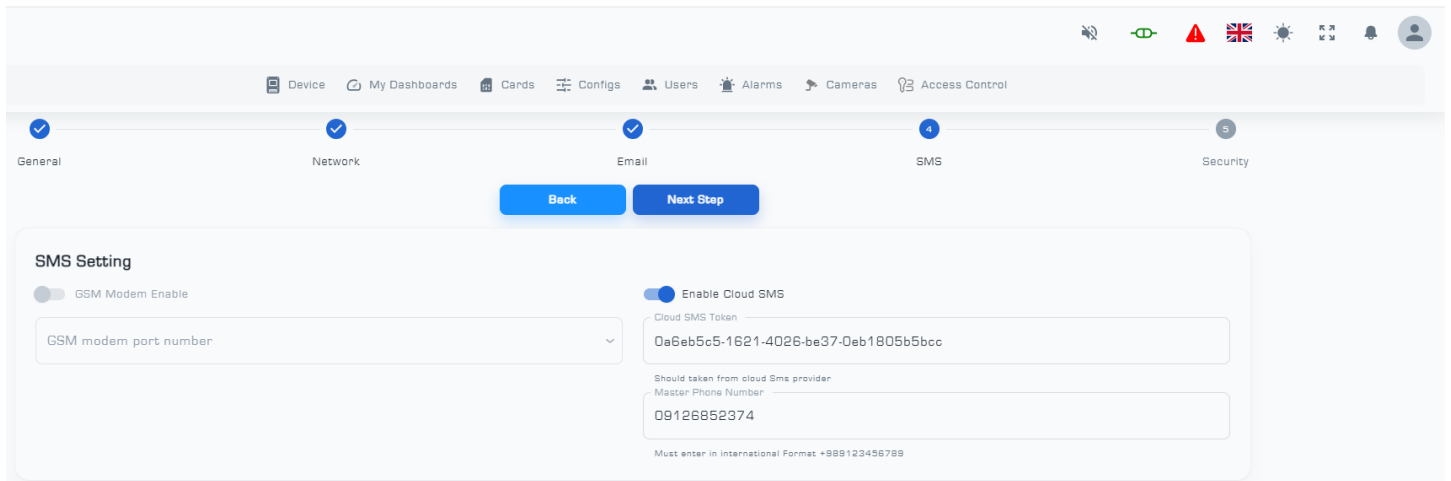


Figure 17: SMS settings

**Note:** Some of the mentioned services (including cloud SMS services) require purchasing a token from the provider.

**Note:** The ability to send alarm SMS messages via the internal modem is only available on devices equipped with a modem.

In the final stage, the login password for the user interface can be changed to maintain security (Figure 18).

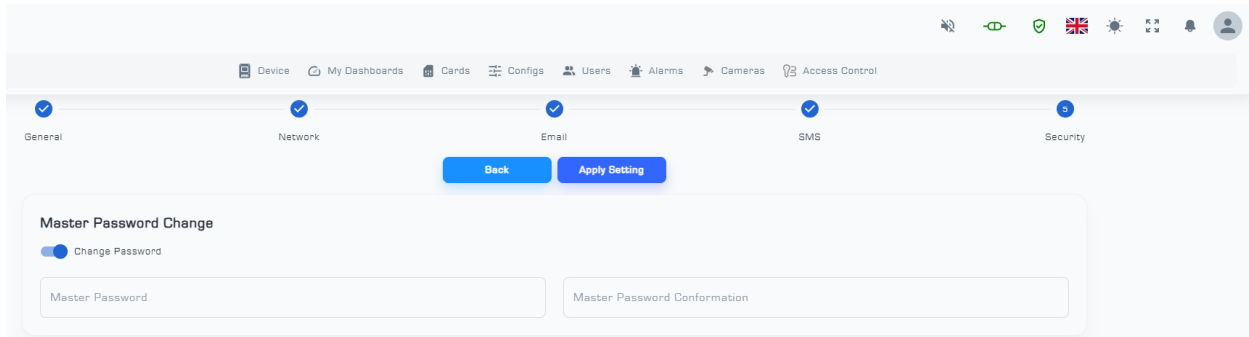


Figure 18: Change Password

■ The **Device Info** submenu includes system information about the device, including the product code, serial number, MAC address, and firmware version (Figure 19).

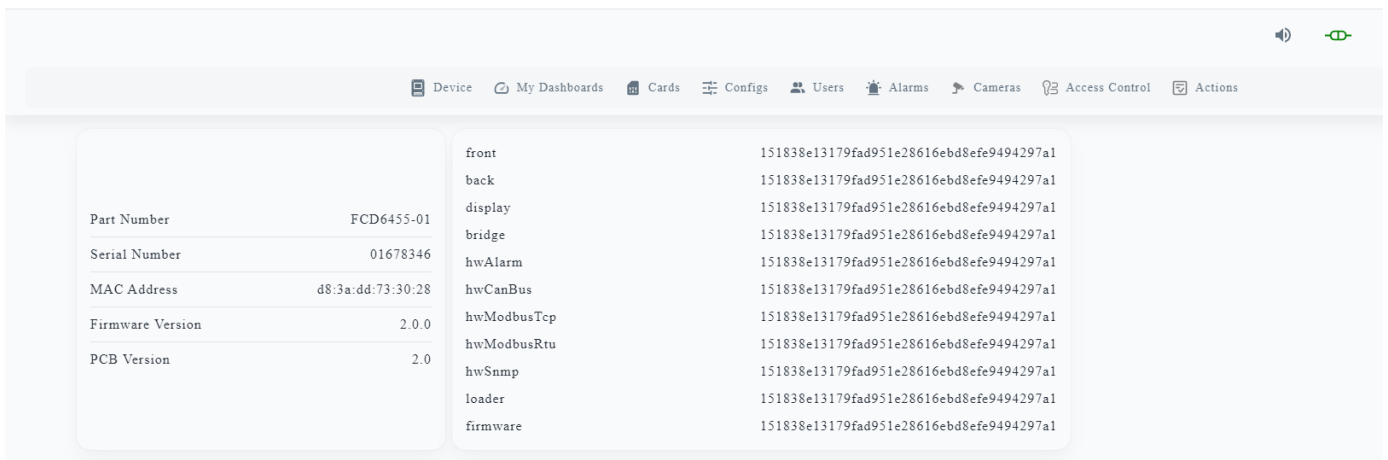


Figure 19: Device Info Page

■ The **Hardware Raw Data** submenu displays the status of data transmission from each channel and slot (Figure 20). Table 4 also provides the toolbar configuration for the Hardware Raw Data page.

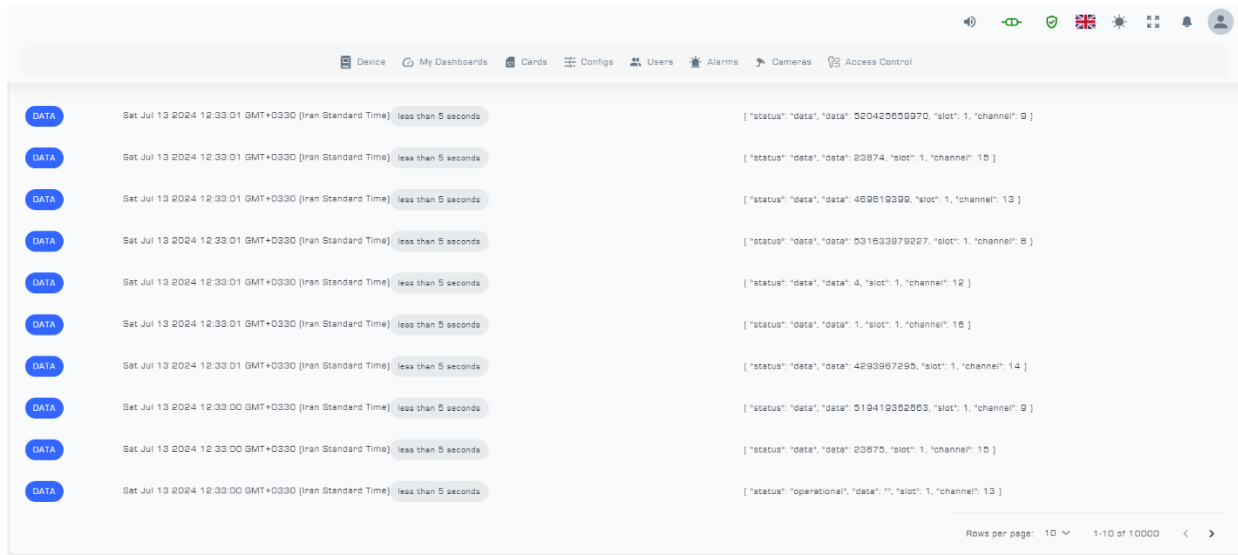





Figure 20: Hardware Raw Data Page

Table 4: Toolbar configuration for the Hardware Raw Data page

Icon	Description
	Stops data collection.
	Select the number of columns to display
	Search for the desired channel and slot

**Note:** The Hardware Raw Data submenu provides raw data for detailed review by network experts. In other words, this information is not sufficient for monitoring purposes.

■ The **Ping And Trace** submenu is used to check the datalogger's network connectivity status. It employs two commands, Ping and Traceroute, to evaluate network connections.

The ping command is used to check the reachability and measure the response time of the FADAQUIRE datalogger on the network. This command sends a data packet to a specified IP address and waits for a response. The results include information such as the round-trip time (RTT) of packets and packet loss. The ping command

helps identify network issues such as packet loss or delays, measures network response time, and verifies network connectivity to a specific device (Figure 21).

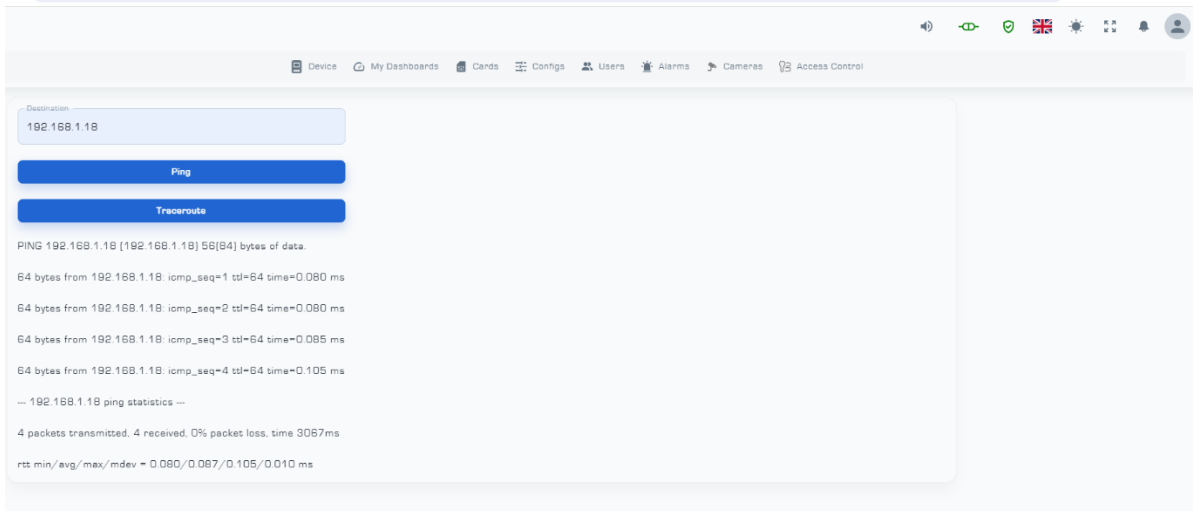


Figure 21: Executing the Ping command in the Ping and Trace submenu

The Traceroute command is used to trace the path that packets take from the source to the destination. In other words, this command shows the route (routers and devices) that packets pass through to reach their destination. Traceroute helps identify the exact path of data across the network, detect points where delays or issues occur, and ultimately examine alternative routes for network optimization (Figure 22).

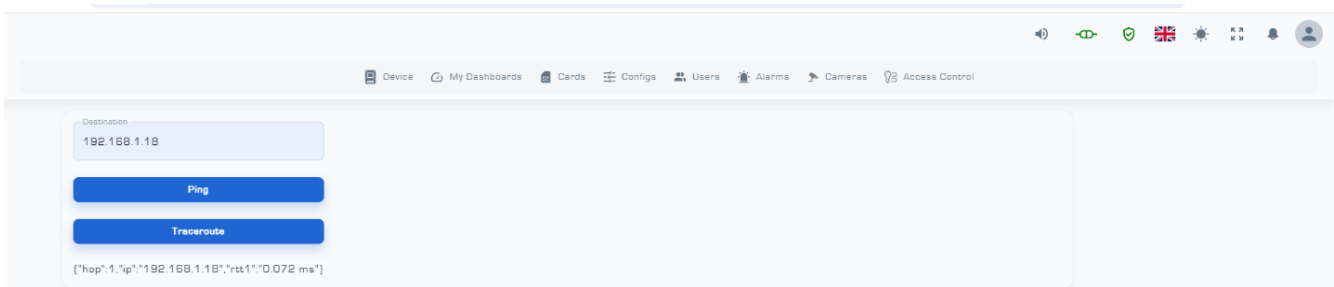


Figure 22: Executing the Traceroute command in the Ping and Trace submenu

**Note:** These two commands are used solely for diagnosing and troubleshooting network issues, helping network administrators quickly identify and resolve problems.

## 2-2- My Dashboards menu

In this section, the user can create a custom dashboard to display each of the channels and cards on a single page. To do this, you can click on the 'Add New Dashboard' option, choose a desired name <sup>1</sup>for it, and finally press the 'Add' button to create a custom dashboard for yourself (Figure 23).

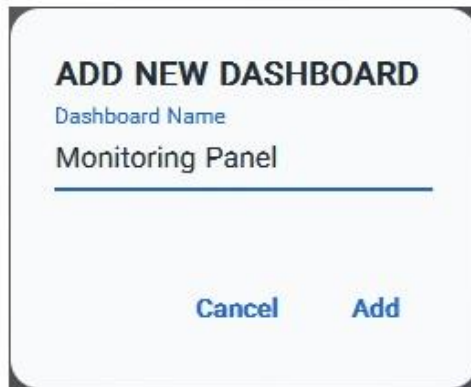


Figure 23: Create a new dashboard page

On the created page, as shown in Figure 24, there is no data from the channels or sensors. To create a custom page for viewing data from your desired card and channel, follow the steps below:

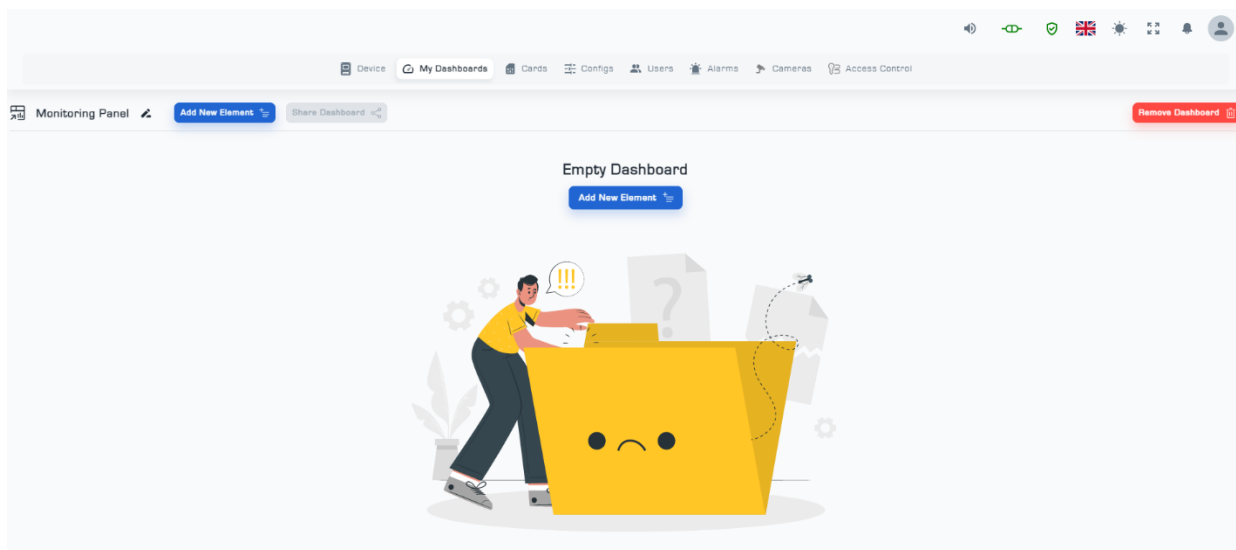


Figure 24: User created dashboard

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<sup>1</sup> Make sure that the selected name must have at least four characters.



- (1) Click on the 'Add New Element' option in Figure 24.
- (2) Select your desired card, channel, or, if applicable, sub-channel, and then press 'Select Element Type' (Figure 25).

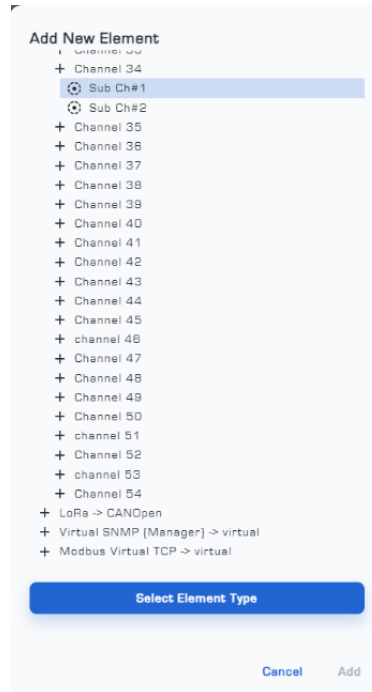


Figure 25: Card, channel or sub-channel selection screen

- (3) Select your desired chart or gauge and click on the 'Select' option to display the real-time data from the selected channel (in both the graph or gauge). Examples of these charts are shown in Figure 26<sup>1</sup>.

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<sup>1</sup> The shape of the device's graphs and gauges may be different depending on its software version.

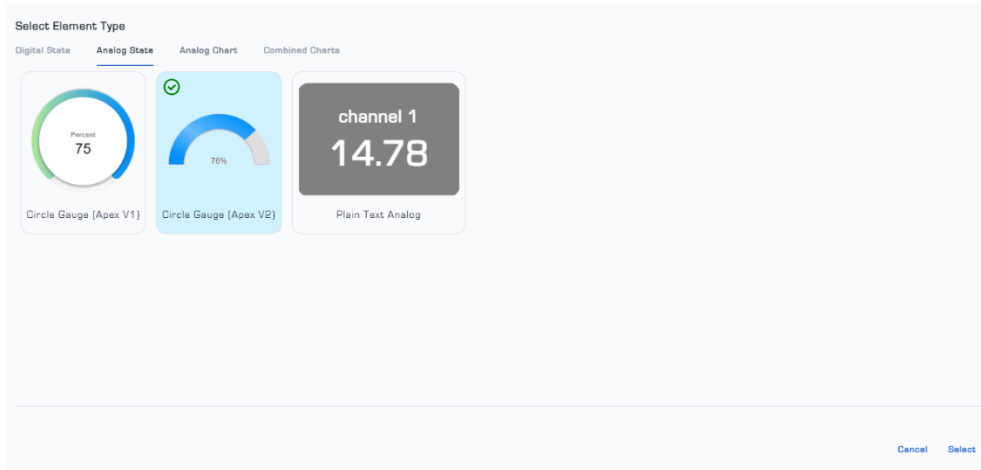


Figure 26: Graph or gauge creation page

(4) Finally, by selecting the 'Add' button, you can view the desired data from your selected card (Figure 27).

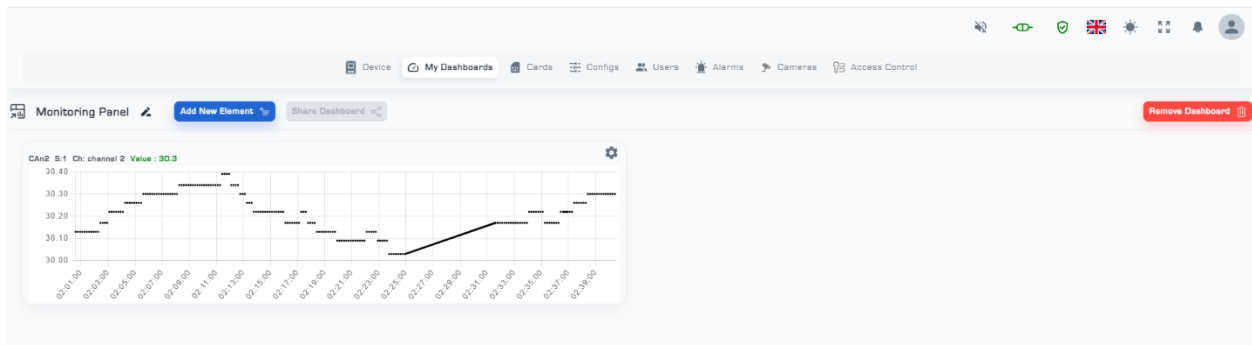


Figure 27: An example of a created dashboard

**Note:** If you need to delete or share a dashboard, you can use the 'Remove Dashboard' and 'Share Dashboard' options, respectively.

## 2-3- Cards menu

In this menu, information related to the cards identified by the device is displayed. The FIDAQUIRE datalogger supports the installation and setup of five types of input cards: analog, digital, CANopen, LoRa (wireless), and output relay cards, which are physically installed on the device. Additionally, the FIDAQUIRE datalogger also supports three types of virtual cards: Modbus RTU, Modbus TCP/IP, and SNMP. This allows you, as a master in Modbus and a manager in SNMP, to monitor not only the FIDAQUIRE datalogger itself but also all devices connected to the network.

■ In the 'Cards List' submenu, information about the identified physical cards is displayed, including card code, serial number, and installation slot number. Additionally, a live display of the cards and their input data (in real-time) is available (Figure 28). The status of each card, whether it is Online or Offline, is also shown. Furthermore, there are menus such as 'Config,' 'Alarms,' and 'Errors Log,' which correspond to the settings, list of alarms defined for each channel or sub-channel, and list of nodes with errors, respectively. Each of these menus has different settings and functionalities depending on the type of card<sup>1</sup>.

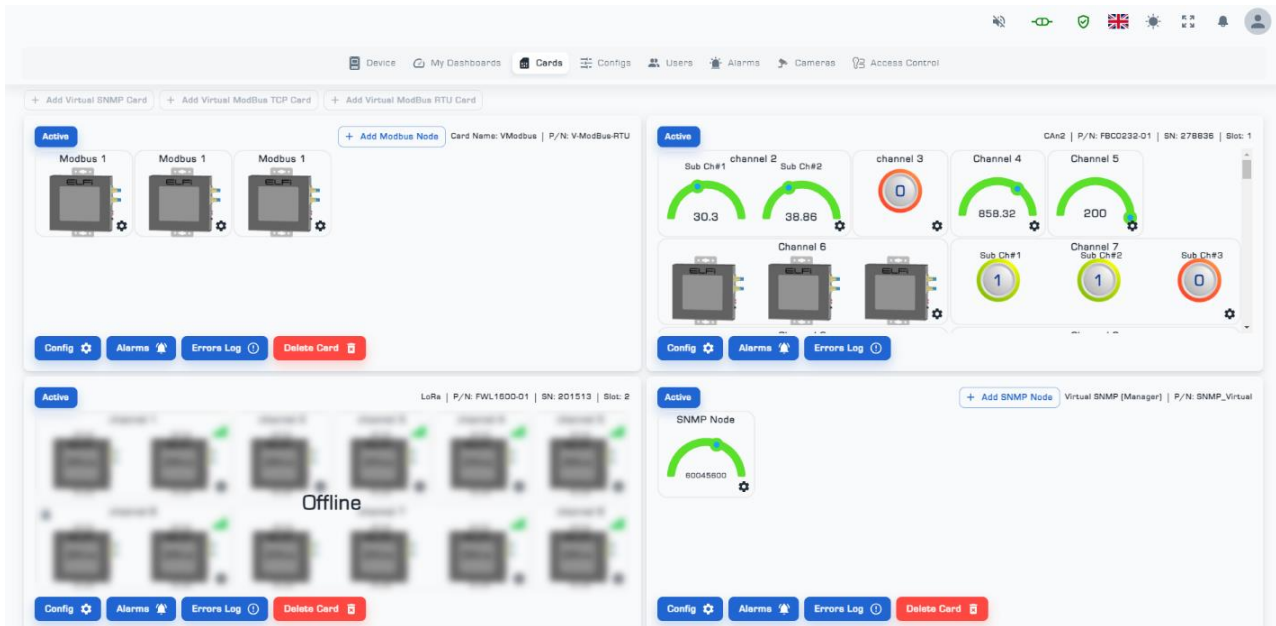


Figure 28: Cards screen

- To add and configure a virtual SNMP card, follow these steps:

<sup>1</sup> To configure each of the physical cards, please refer to the corresponding user manual.

(1) On the 'Cards List' page, click on the '+Add Virtual SNMP Card' option (Figure 28).

(2) To perform the initial configuration of the card, click on the 'Start Initialize' option (Figure 29).

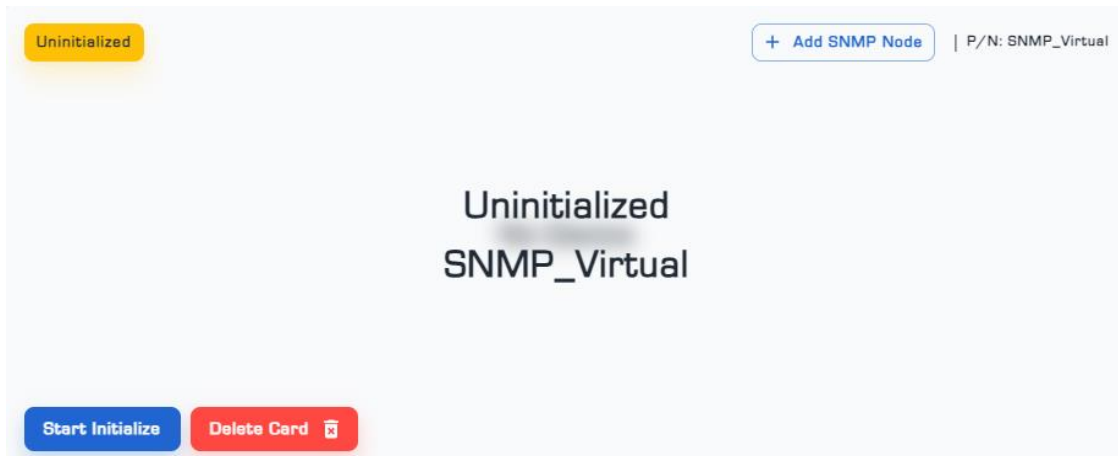


Figure 29: The added virtual SNMP card is without initial configuration.

(3) Fill in the 'Card Name' and 'Card Description'<sup>1</sup> fields (Figure 30).

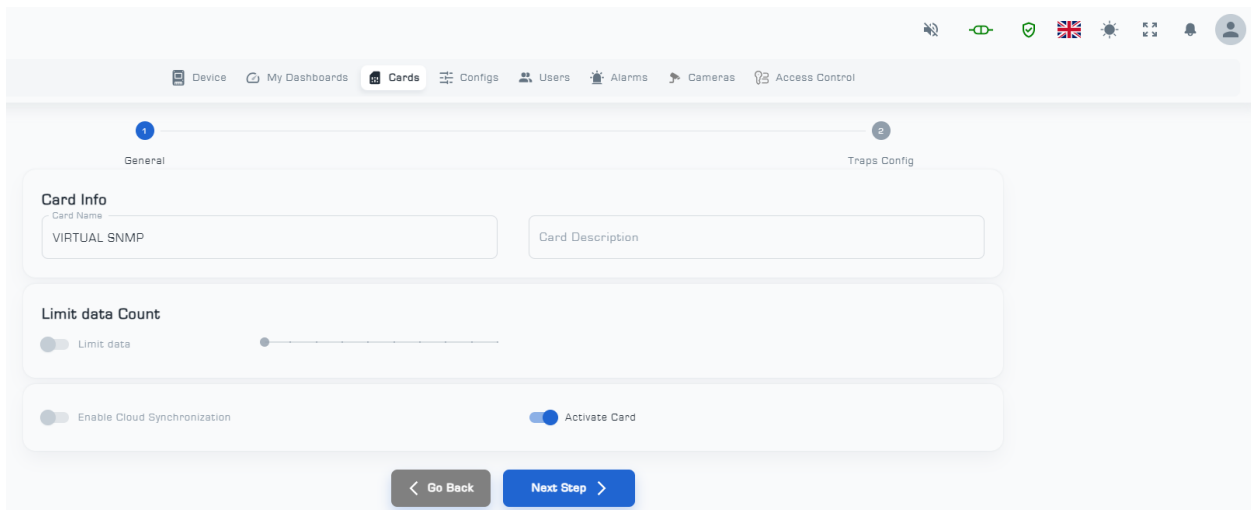


Figure 30: First page of settings on the virtual card

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<sup>1</sup> Filling in this field is optional.

(4) Click on 'Next Step' to continue the configuration (Figure 30).

(5) Select your desired SNMP version (Figure 31).

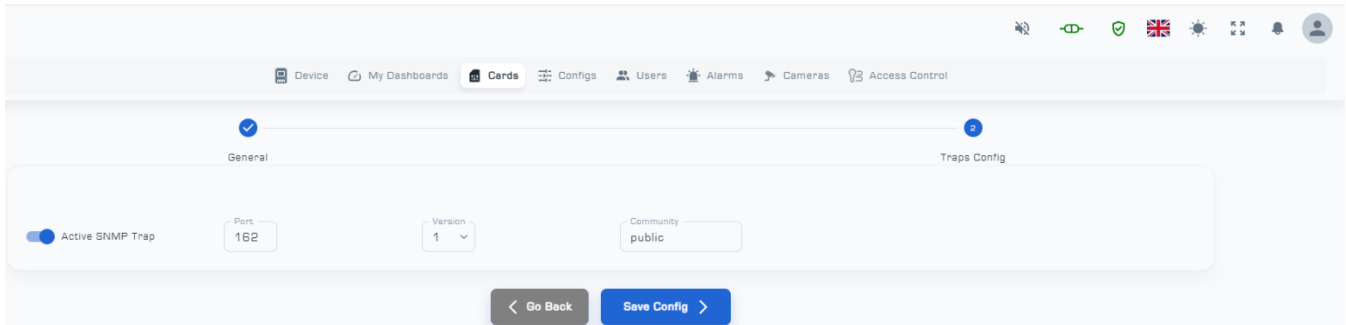


Figure 31: Second page of settings on the card

(6) Finally, click on the 'Save Config' button to save the initial settings (Figure 31).

Doing so will display the details of the virtual SNMP card on the 'Cards List' page (Figure 32).

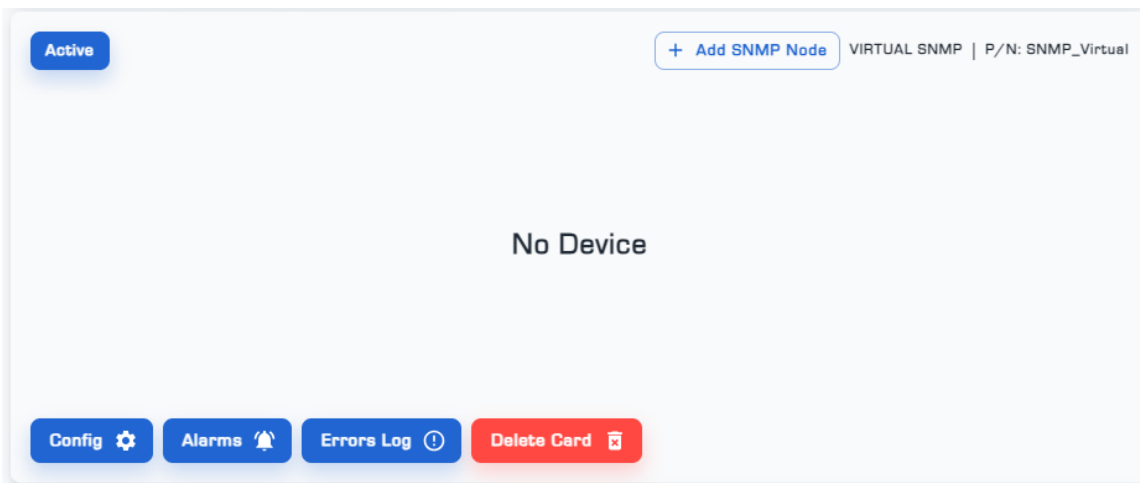


Figure 32: Display of the virtual SNMP card on the 'Cards List' page

**Note:** Please be aware that you are only allowed to select one card of each virtual type.

To perform monitoring, you first need to add a Node. For this, follow these steps:

(1) In Figure 32, click on the '+ Add SNMP Node' option.

(2) Add general SNMP settings on the 'General' page and other configuration settings for the Node on the 'Config' page (Figure 33).

(3) To save the settings, click on the 'Create Node' option on the 'General' page (Figure 33).

(4) You can apply the remaining settings on any other SNMP management software to read the information of that Node.

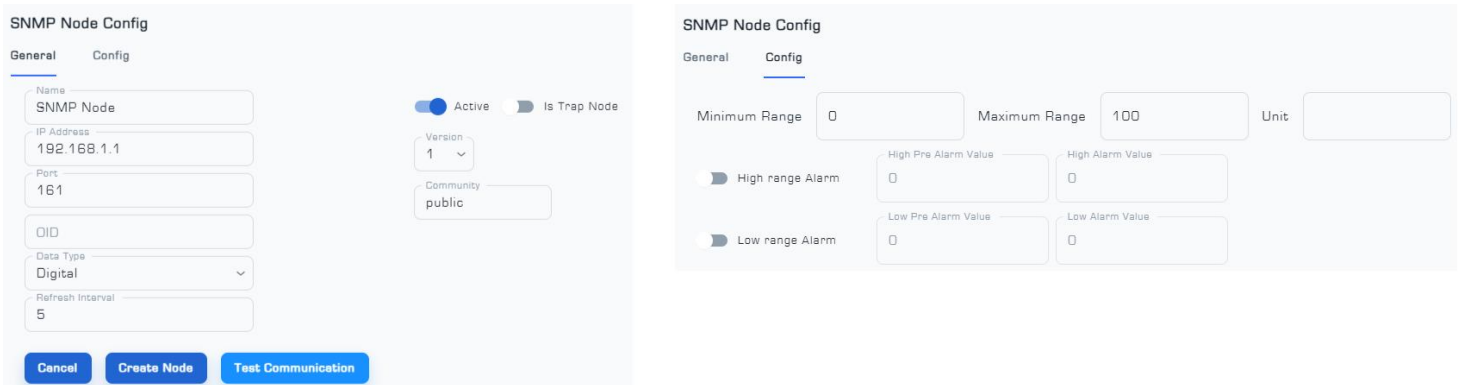


Figure 33: Settings related to adding a new Node in the virtual card

Figure 34 shows an example of a Node created in the SNMP protocol.

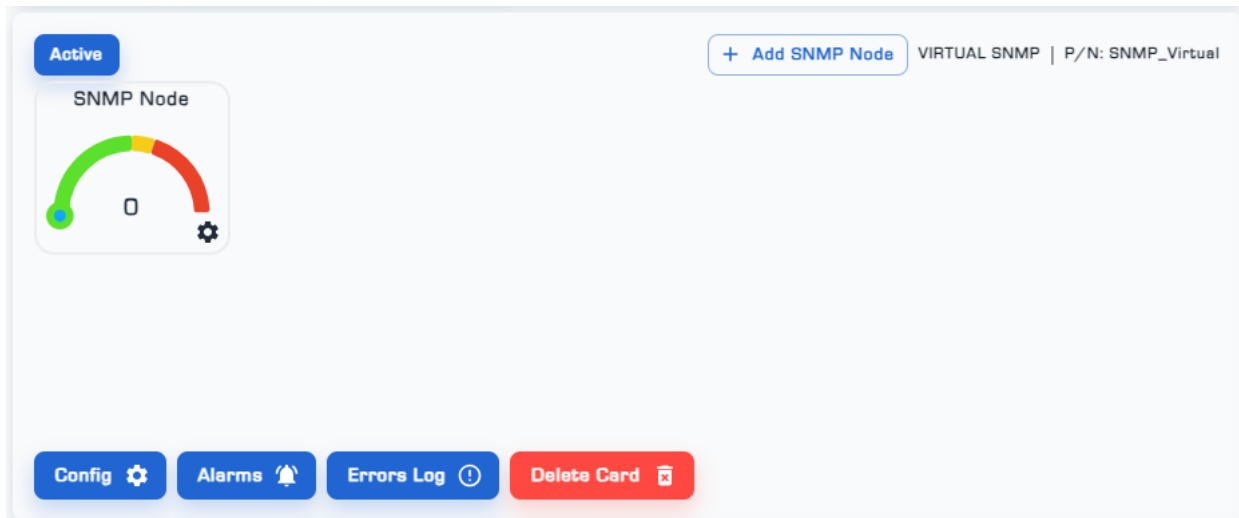


Figure 34: An example of a Node created in the SNMP protocol

The red area in Figure 34 corresponds to the High Alarm Value settings on the 'Config' page and indicates the danger zone. You can take preventive measures as soon as you enter this zone. Additionally, by defining an alarm, you can receive a warning at a remote location. The yellow area corresponds to the High Pre Alarm Value settings, which represent the zone approaching dangerous levels, while the green area indicates the safe or non-danger zone.

The toolbars 'Config,' 'Alarms,' 'Errors Log,' and 'Delete Card' are used respectively for changing the initial settings of the card, displaying the list of alarms defined for the Node, showing the list of nodes with errors, and finally, deleting the card.

**Note:** To disable the card, you can do so from the 'General' page of the card's 'Config' menu.

- To add and configure a virtual Modbus TCP card, follow these steps:

(1) On the 'Cards List' page, click on the '+Add Virtual ModBus TCP Card' option (Figure 28).

(2) To perform the initial configuration of the card, click on the 'Start Initialize' option (Figure 35).

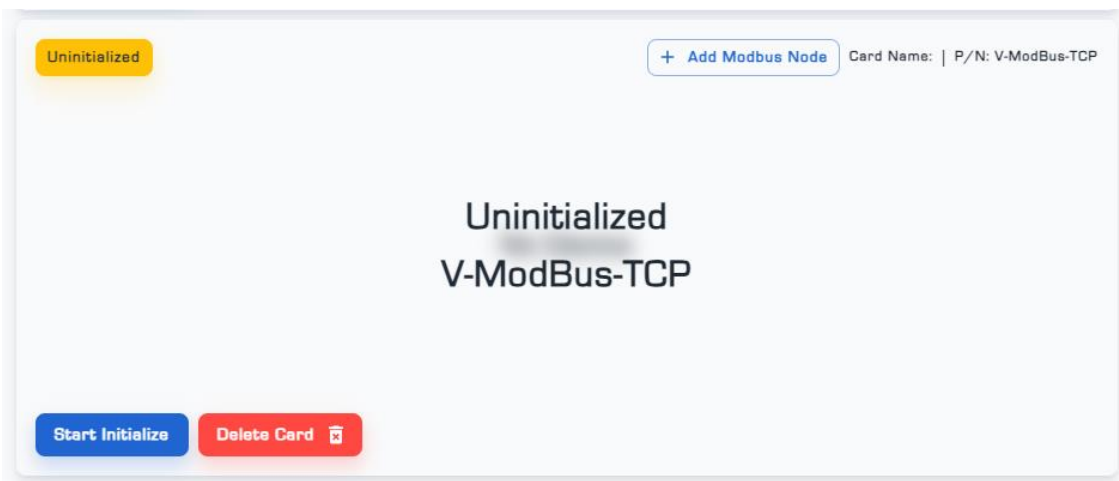


Figure 35: The added virtual card is without initial configuration.

(3) Fill in the 'Card Name' and 'Card Description'<sup>1</sup> fields (Figure 36).

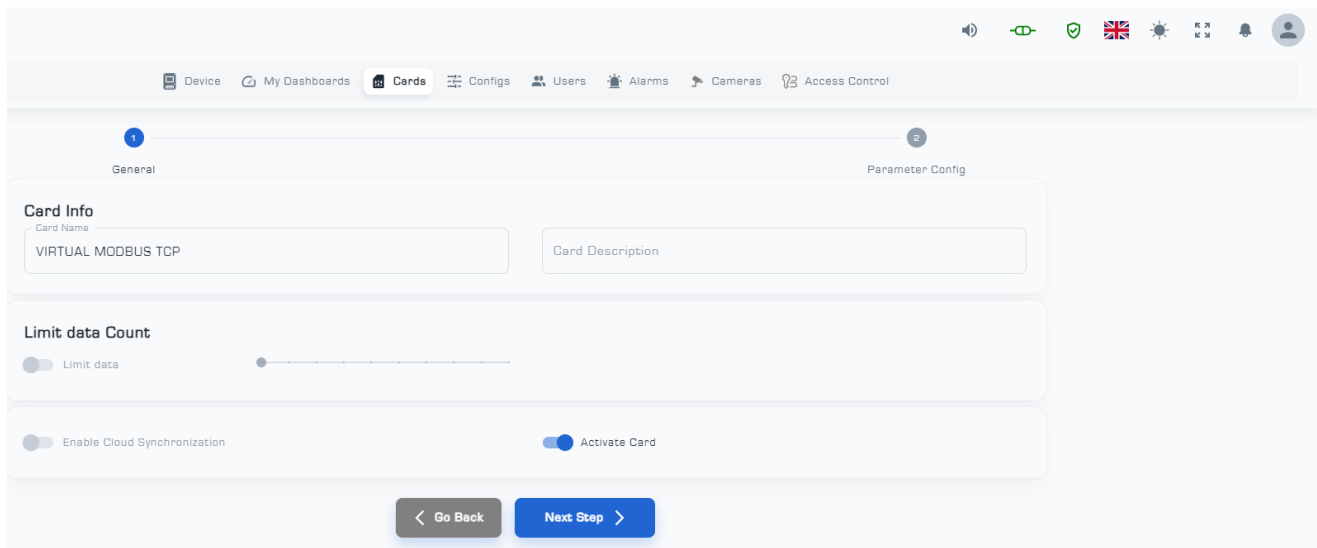


Figure 36: First page of settings on the virtual card

(4) Click on 'Next Step' for further configuration.

(5) Make the necessary changes in the 'Timeout' and 'retriesCount' sections (Figure 37).

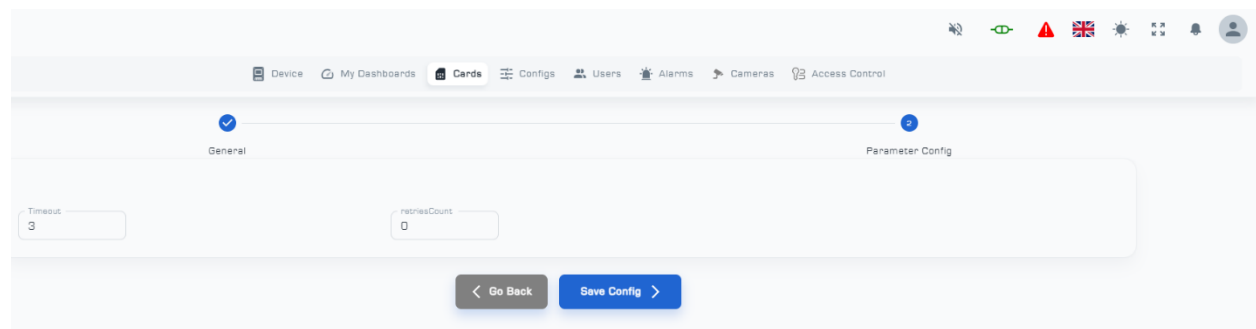


Figure 37: Second page of settings on the card

(6) Finally, click on the 'Save Config' button to save the initial settings (Figure 37).

---

<sup>1</sup> Filling in this field is optional.



Doing so will display the details of the virtual ModBus TCP card on the 'Cards List' page (Figure 38).

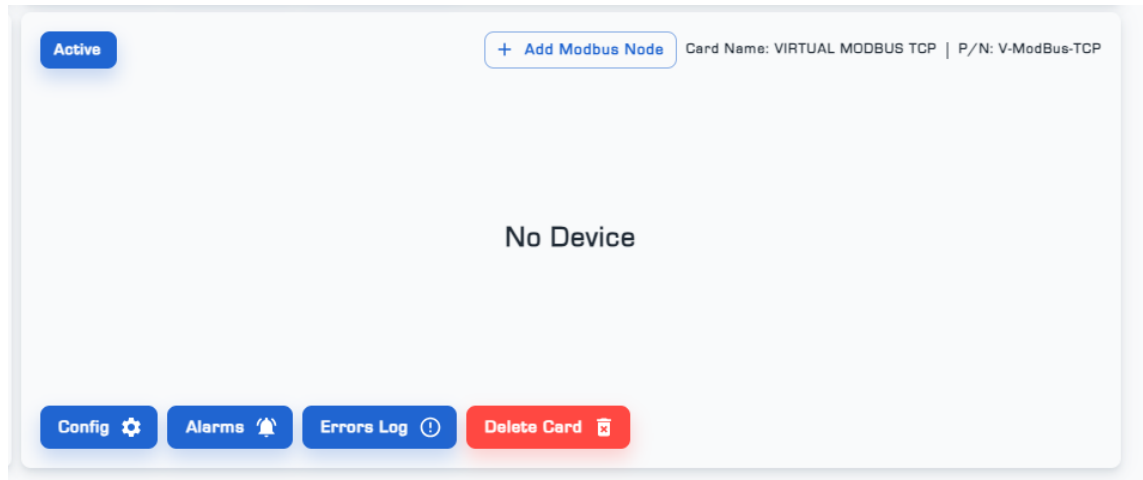


Figure 38: Display of the virtual ModBus TCP card on the 'Cards List' page

**Note:** Please be aware that you are only allowed to select one card of each virtual type.

To perform monitoring, you first need to add a Node. For this, follow these steps:

- (1) In Figure 38, click on the '+ Add Modbus Node' option.
- (2) Add the general settings for Modbus TCP on the 'General' page and other configuration settings for the Node on the 'Config' page (Figure 39).
- (3) To save the settings, select the 'Create Node' option on the 'General' page (Figure 39).
- (4) You can apply the remaining settings on any Modbus management software to read the information of that Node.

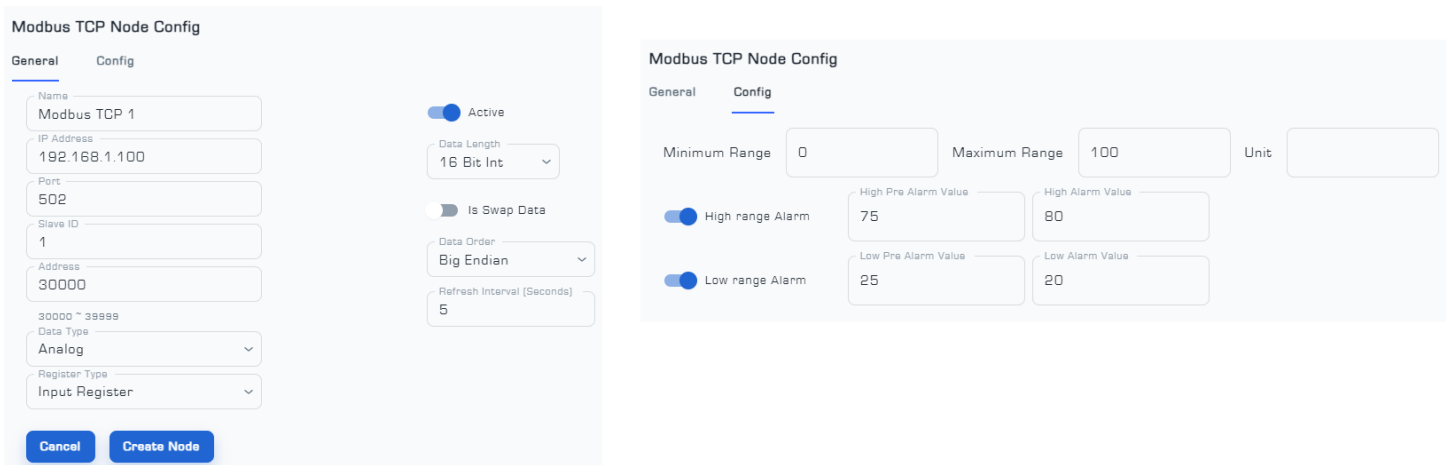


Figure 39: Settings related to adding a new Node in the virtual card

Figure 40 shows an example of a Node created in the Modbus TCP protocol.

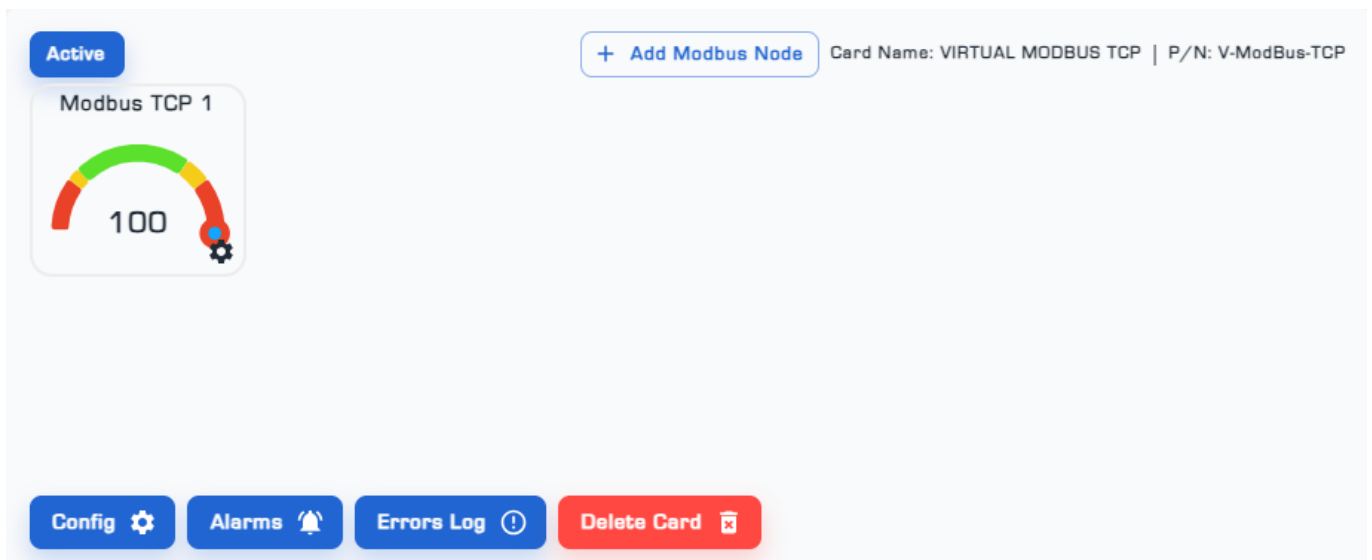


Figure 40: An example of a Node created in the Modbus TCP protocol

The red areas in Figure 40 correspond to the High Alarm Value and Low Alarm Value settings, indicating the danger zone. You can take preventive measures as soon as you enter this zone. Additionally, by defining an alarm, you can receive a warning at a remote location. The yellow areas correspond to the High Pre Alarm Value and Low Pre Alarm Value settings, representing the zone approaching dangerous levels, while the green area indicates the safe or non-danger zone.

The toolbars 'Config,' 'Alarms,' 'Errors Log,' and 'Delete Card' are used respectively for changing the initial settings of the card, displaying the list of alarms defined for the Node, showing the list of errors for each Node, and finally, deleting the card.

**Note:** To deactivate (make inactive) the card, you can do so from the 'General' page of the card's 'Config' menu.

- To add and configure a virtual Modbus RTU card, follow these steps:

(1) On the 'Cards List' page, click on the '+Add Virtual ModBus RTU Card' option (Figure 28).

(2) To perform the initial configuration of the card, click on the 'Start Initialize' option (Figure 41).

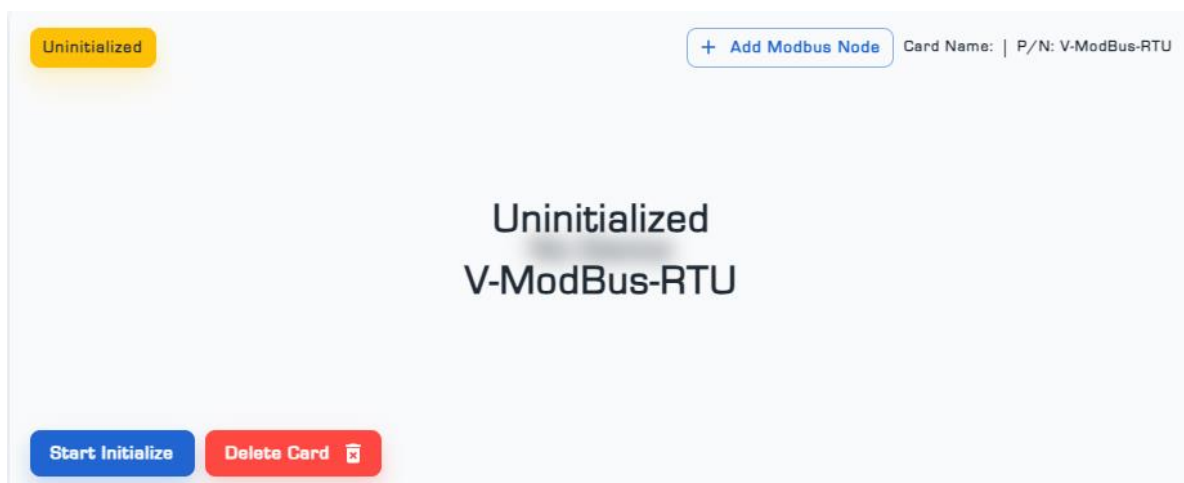


Figure 41: The added virtual card is without initial configuration.

(3) Fill in the 'Card Name' and 'Card Description'<sup>1</sup> fields (Figure 42).

---

<sup>1</sup> Filling in this field is optional.

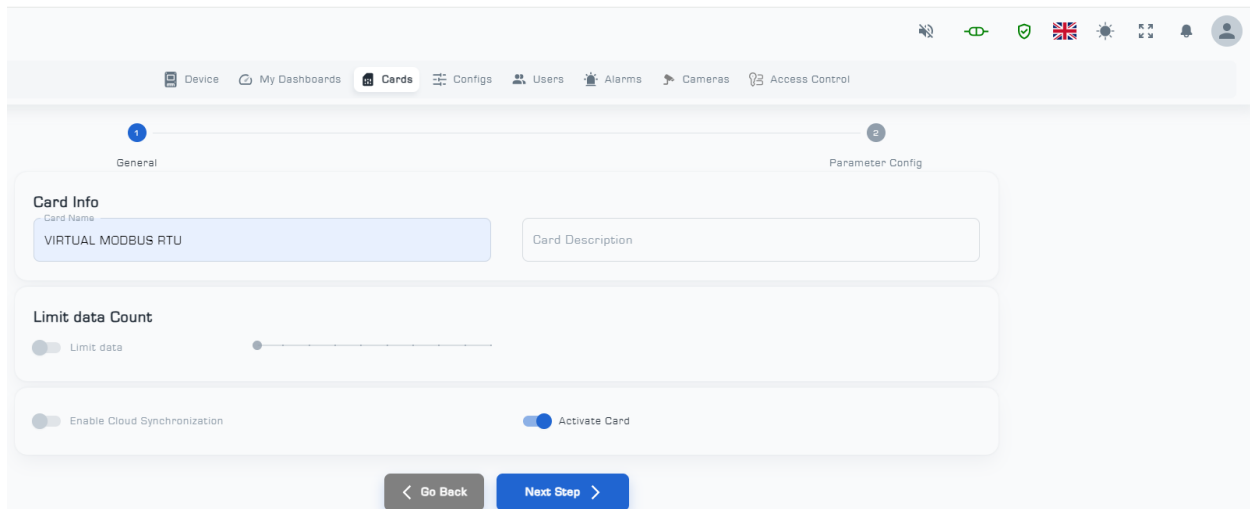


Figure 42: First page of settings on the virtual card

(4) Click on 'Next Step' for further configuration.

(5) Make the necessary changes in the 'BaudRate,' 'Data Bits,' 'Stop Bits,' 'Parity,' 'Timeout,' and 'retriesCount' sections (Figure 43).

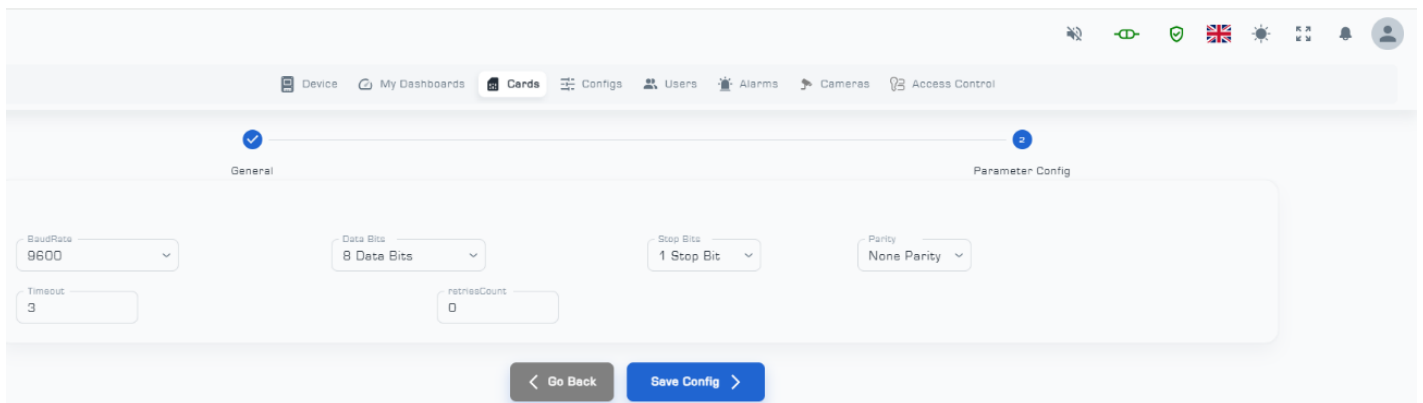


Figure 43: Second page of settings on the card

(6) Finally, click on the 'Save Config' button to save the initial settings (Figure 43).

Doing so will display the details of the virtual ModBus RTU card on the 'Cards List' page (Figure 44).

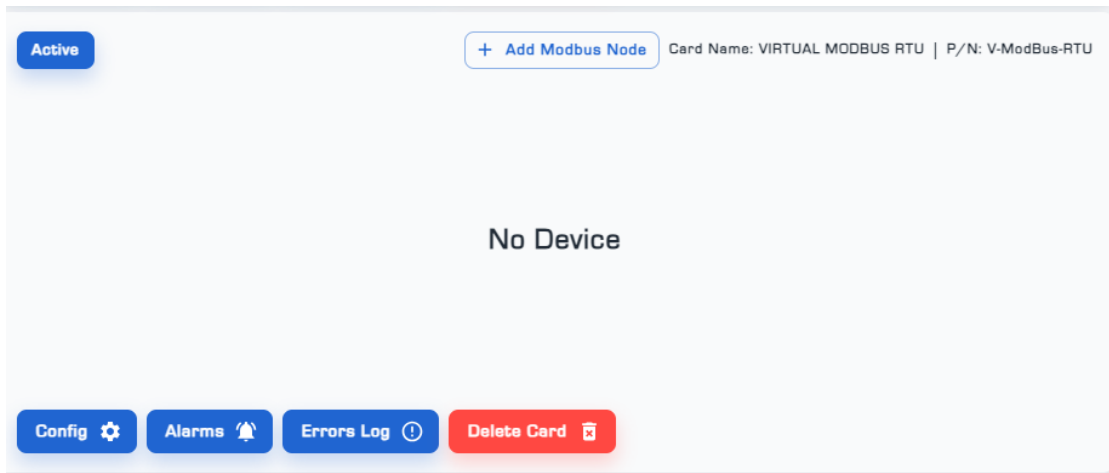


Figure 44: Display of the virtual Modbus RTU card on the 'Cards List' page

To perform monitoring, you first need to add a Node. For this, follow these steps:

- (1) In Figure 44, click on the '+ Add Modbus Node' option.
- (2) Add the general settings for Modbus RTU on the 'General' page and other configuration settings for the Node on the 'Config' page (Figure 45).
- (3) To save the settings, select the 'Create Node' option on the 'General' page (Figure 45).
- (4) You can apply the remaining settings on any Modbus management software to read the information of that Node.

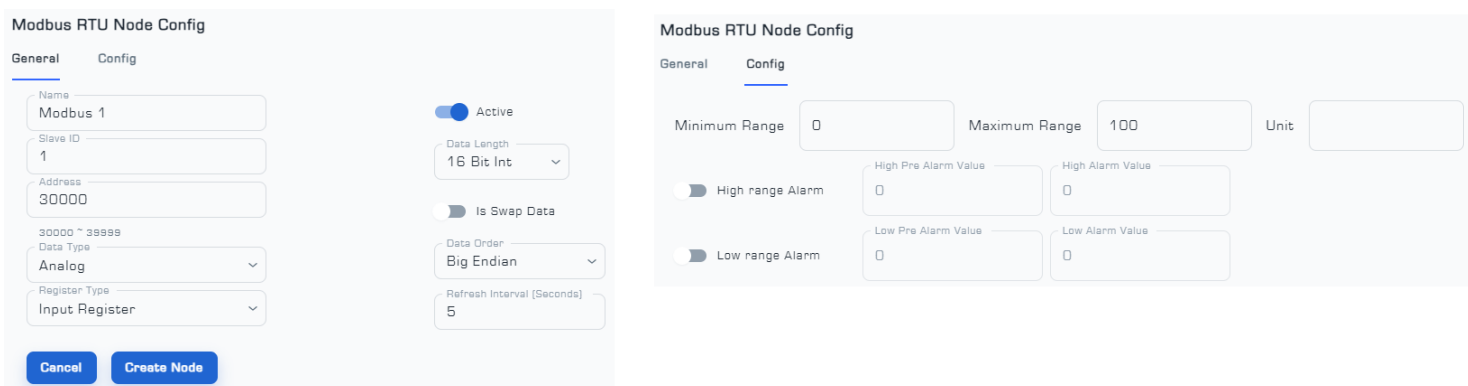


Figure 45: Settings related to adding a new Node in the virtual card

Figure 46 shows an example of a Node created in the Modbus RTU protocol.

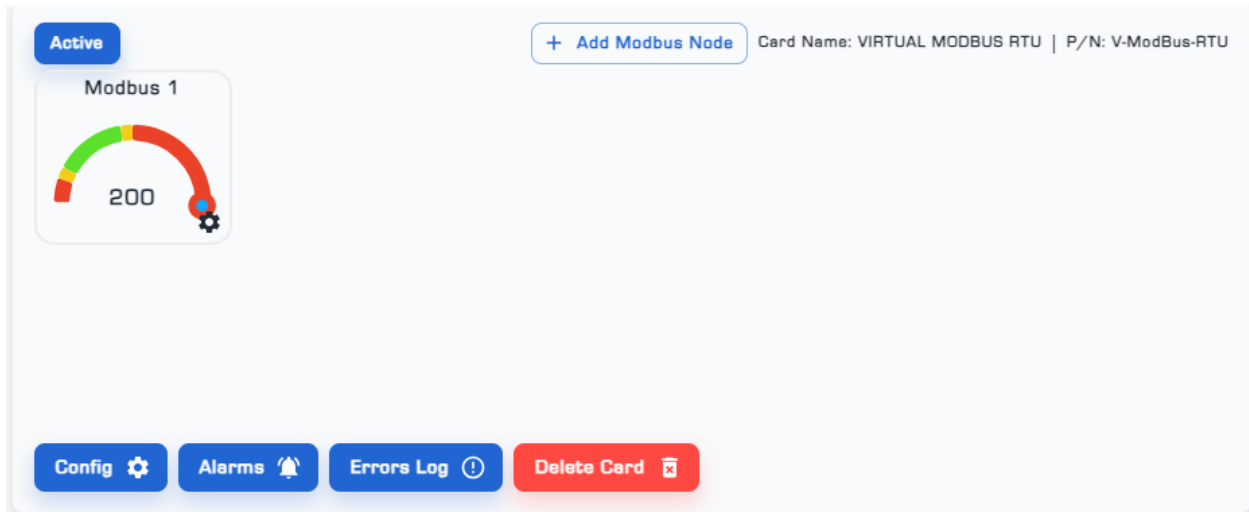


Figure 46: An example of a Node created in the Modbus RTU protocol

The red areas in Figure 46 correspond to the High Alarm Value and Low Alarm Value settings, indicating the danger zone. You can take preventive measures as soon as you enter this zone. Additionally, by defining an alarm, you can receive a warning at a remote location. The yellow area corresponds to the High Pre Alarm Value and Low Pre Alarm Value settings, representing the zone approaching dangerous levels, while the green area indicates the safe or non-danger zone.

The toolbars 'Config,' 'Alarms,' 'Errors Log,' and 'Delete Card' are used respectively for changing the initial settings of the card, displaying the list of alarms defined for the Node, showing the list of errors for each Node, and finally, deleting the card.

**Note:** To deactivate (make inactive) the card, you can do so from the 'General' page of the card's 'Config' menu.

■ The 'Export Data' submenu is used for extracting sensor output. To do this, in the 'Export Data' submenu, click on 'New Export' and then 'New Channel' to select the card, channel, and, if applicable, the sub-channel you need. You can also set the start and end dates for the stored data. Finally, by selecting the 'Add' option, the chosen items will be displayed as a list, which you can download in CSV format (Figure 47).

### Add New Export

**Select Channel**

Card Name

Channel Number

Format   
 CSV ▼

Time Range Select

Start

End

Estimated Data Count

[Cancel](#) [Add](#)

Figure 47: Data Export Page

■ The 'Report' submenu displays data sent by each Node or sensor in graphical form and allows you to increase the number of sensors to up to four. To do this, you can select the desired channel and sub-channel by choosing 'Select Channel' and view the output of that sensor. Additionally, by selecting the '+ Add Another Channel' option, you can gather data from up to four sensors simultaneously. Finally, you can save the results as images in PNG, JPEG, CSV formats, or as a PDF file (Figure 48).

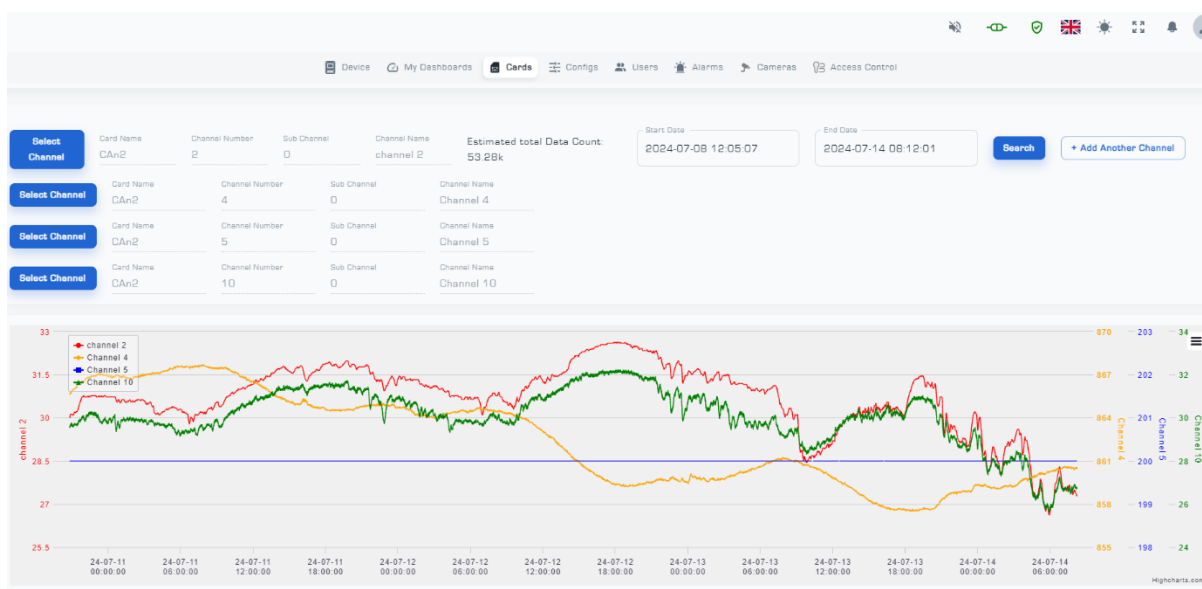


Figure 48: An example of data sent by the Nodes

## 2-4- Configs menu

In this section, you can modify the settings related to the internal database servers designed based on Modbus and SNMP protocols.

Using the 'Configs' menu, you can access all channels and sub-channels of the FIDAQUIRE datalogger through any preferred software. This capability allows you to easily extract and manage the required information from the datalogger using various tools. In other words, under such conditions, the FIDAQUIRE datalogger functions as a Slave in the Modbus protocol and as an Agent in the SNMP protocol. These features provide high flexibility, enabling effective interaction with diverse systems and software.

■ In the 'Modbus RTU' submenu, as shown in Figure 49, you can activate or deactivate the Modbus module, set the address, configure data type, adjust data byte swap, and specify whether the data transmission is Big-endian or Little-endian. After making changes, it is necessary to select the 'Apply Config' option to save the changes. To add one of the input channels to the Modbus protocol, after selecting the '+Add Channel' option, a window will appear to enter the card, channel, register address, and multiplier, as shown in Figure 50.

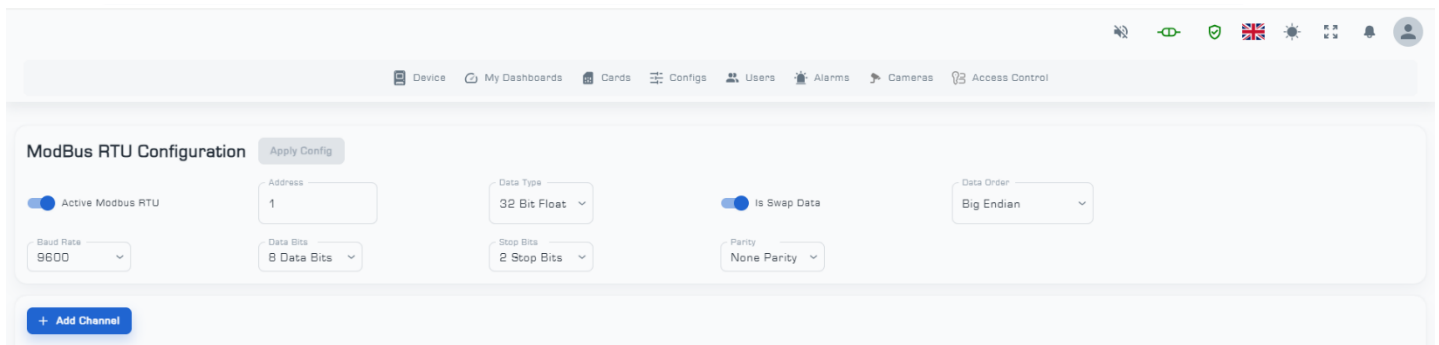


Figure 49: Modbus RTU Settings Page



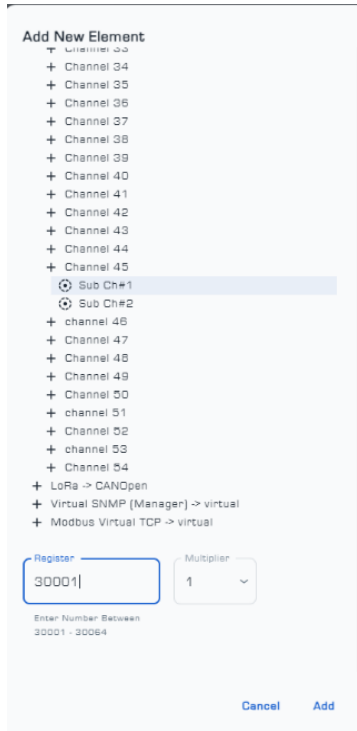


Figure 50: Channel Linking to Modbus Protocol Page

**Note:** To record data based on Big-endian and Little-endian formats, refer to Figure 51.

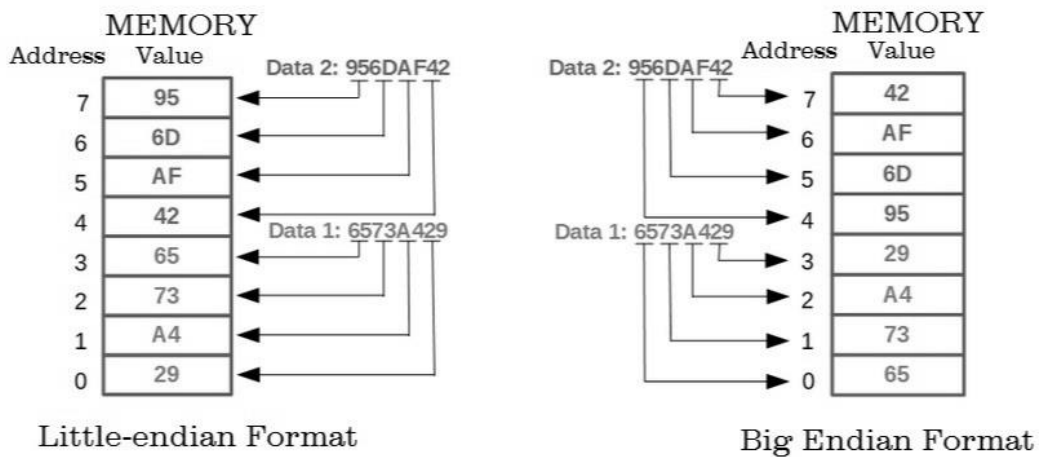


Figure 51: Data Recording Format for Big-endian and Little-endian Methods

■ Settings for the 'Modbus TCP' submenu are similar to those for the Modbus RTU protocol. The difference is that, due to the nature of the network communication layer, this section allows for configuring the Modbus protocol address and port (Figure 52).

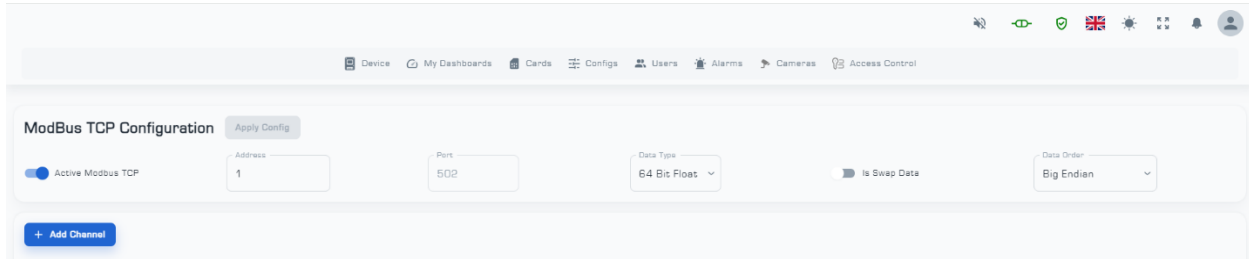


Figure 52: Modbus TCP Settings Page

■ In the 'SNMP Agent' submenu, settings related to the SNMP protocol can be modified. In addition to enabling or disabling SNMP, you can change the SNMP address and version, as well as assign an OID (Object Identifier) to each channel of every input card (Figure 53).<sup>1</sup>

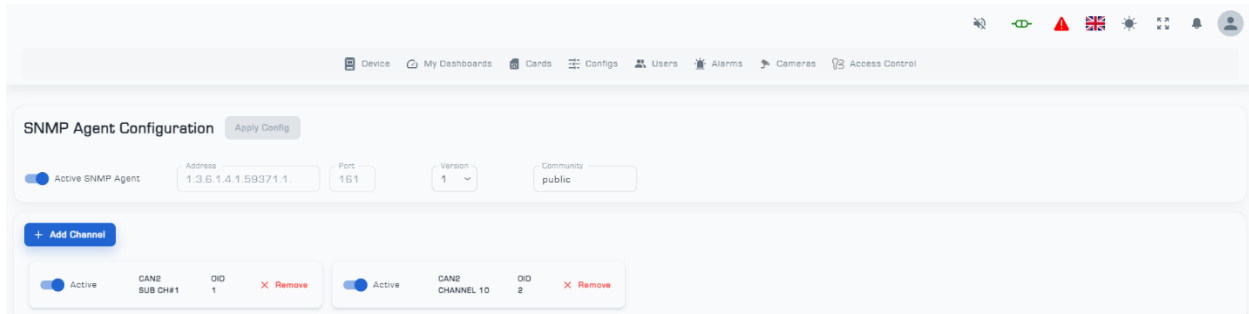


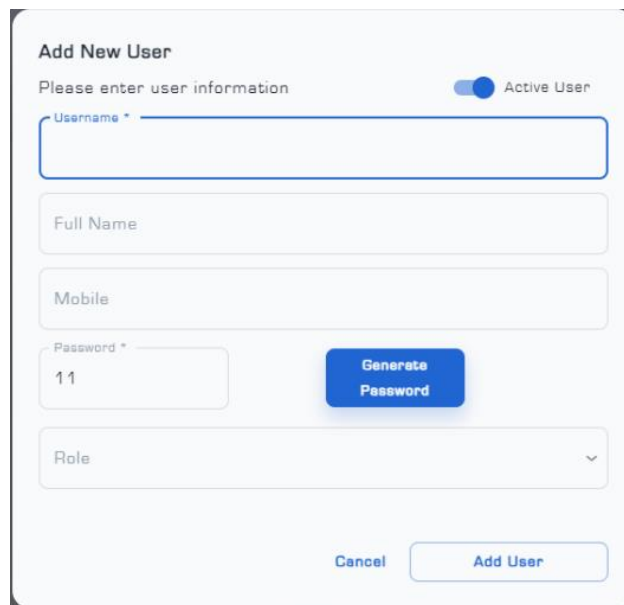
Figure 53: SNMP Agent Settings Page

<sup>1</sup> The dedicated address for accessing SNMP data from the datalogger is 1.3.6.1.4.1.59371.1.

## 2-5- Users menu

This menu allows for user control and access level management, as well as defining each user's role in using the device.

- The 'Users List' submenu displays active users, their information, and their assigned roles (as defined in the 'Roles' submenu). It also allows the Admin user to add new users (Figure 54). Additionally, it provides options to activate or deactivate, delete a user, and change the user's password.



The screenshot shows a web form titled "Add New User". At the top, it says "Please enter user information" and has a toggle switch for "Active User" which is turned on. The form contains several input fields: "Username \*" (required), "Full Name", "Mobile", "Password \*" (required) with the value "11" entered, and a "Role" dropdown menu. A blue button labeled "Generate Password" is positioned next to the password field. At the bottom of the form, there are two buttons: "Cancel" and "Add User".

Figure 54: User Management Menu

- In the 'Roles' submenu, you can define a role for a user to control access to each of the available menus in the system. To do this, as shown in Figure 55, select the 'Add New Role' option to display the role definition window. The Admin<sup>1</sup> can then activate any of the options Device, Cards, Alarms, Users, and Other to define different levels of access for the user.

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<sup>1</sup> The user who first logs into the system using the username and password provided by Fidar Electronic is the Admin user.

Figure 55: Role Definition Menu for Added Users

## 2-6- Alarms menu

The 'Alarms' menu includes three submenus: 'Alarms List', 'Alarms Send Queue List', and 'Add New Alarms'.

■ The 'Alarms List' submenu displays a list of all defined alarms. On this page, as shown in Figure 56, you can edit alarms, enable or disable them, and delete alarms. Additionally, the 'Logs' menu provides a detailed list of alarm information and the time of occurrence.

Status	ID	Name	Description	Card	Channel Number	Sub Channel	Actions
Active	88C813	AlarmTest		Modbus Virtual TCP	Ch[1] - Modbus TCP 1	-	Edit Deactivate Delete Alarm Logs
InActive	E984F1	relaytest		CAN2	Ch[7] - Sub Ch#1	Ch[1]	Edit Activate Delete Alarm Logs

Figure 56: Alarms List Submenu

■ The 'Alarms Send Queue List' submenu displays alarms related to the Send Delay Configs settings<sup>1</sup>.

<sup>1</sup> Send Delay Configs refers to the duration after the last status change before the alarm is activated.

■ The 'Add New Alarms' submenu is used to define alarms to alert users about abnormal environmental conditions. Table 5 provides a brief description of each section on this page.

Table 5: Details of the Add New Alarms Page

<b>Item</b>	<b>Description</b>
General Configs	General alarm settings include selecting the name and the desired channel, as well as configuring the timing for when the alarm should be activated.
Time Conditions Configs	Settings for selecting the hours and days of the week, as well as defining the end time for the alarm schedule, are configured in this section.
Notifications Configs	Alert notifications are configured in this section, allowing for the activation of email, SMS, internal relays (if available), and the device's own siren. Additionally, by enabling the existing cameras, they can capture images when an alert occurs. (By disabling the 'image' option, video recording mode is activated, allowing you to adjust the video recording duration.)
SNMP Trap Notification Configs	Relates to SNMP Trap settings.
Send Delay Config	In this section, you can specify a desired duration to determine how long after the last status change the alarm should be activated.
Maximum Alerts Config	You can set the number of status changes for the sensor within a desired time period.
Alarm Condition	Configures the alert activation states. This means you can enable each of the statuses: Error, Offline, and also record the necessary changes for each of the analog and digital channels.

## 2-7- Cameras menu

The 'Cameras' menu consists of two submenus: 'Cameras List' and 'Logs'. The FIDAQUIRE data logger supports up to 16 network cameras for environment security.

■ In the 'Cameras List' submenu, you can add cameras to the data logger. To do this, select the 'Add' option on the creation page, click on the displayed IP to enter the camera details, then select 'Add To Info.' Finally, enter a desired password, click 'Test Communication,' and then press '+ Add' (Figure 57). Table 6 describes the toolbar configuration.

Table 6: Toolbar Configuration for the Cameras List Submenu

Item	Description
Edit	Change the applied settings
Logs	Displays images or videos recorded by the cameras.
Remove	Delete Camera
View	Displays live camera images.

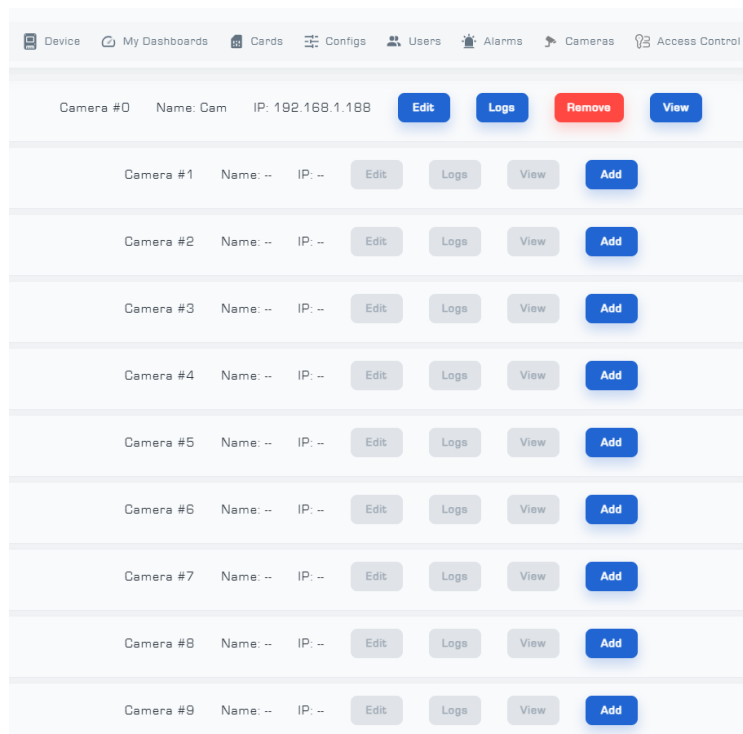


Figure 57: Cameras List Submenu

- The 'Logs' submenu displays images or videos that were recorded by the cameras when an alarm was triggered (Figure 58).

Time	Alarm Name	Card	Channel Number	Options
10/07/2024 11:22:20	ASC	ASC	ASC	Download Video Remove
10/07/2024 11:21:08	ASC	ASC	ASC	View Image Download Image Remove
09/07/2024 18:28:27	ASC	ASC	ASC	View Image Download Image Remove
09/07/2024 17:45:41	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:43:18	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:42:37	ASC	ASC	ASC	View Image Download Image Remove
09/07/2024 17:40:48	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:40:21	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:39:23	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:38:59	ASC	ASC	ASC	Download Video Remove
09/07/2024 17:38:15	ASC	ASC	ASC	Download Video Remove

Figure 58: Logs Submenu in the Cameras Menu

## 2-8- Access Control menu

The FIDAQUIRE datalogger, with support for Access Control systems, can record all moments of entry and exit of individuals at the location. The Access Control system includes a door magnet sensor and an authentication device.

- In the 'Setting' submenu, 'Door Sensor' refers to the door magnet, and 'Access Control Relay Sensor' indicates the authentication device. To define alerts for monitoring unauthorized access, you need to configure the settings for the sub-sections: Access Control Setting, Notification On Valid Access, Notification On Invalid Access, Notification On Lock Timeout, and Time Conditions Configs. Table 7 provides a brief explanation of the details for each of these sub-sections.

Table 7: Description of the sub-sections related to Access Control settings

Item	Description
Door Sensor	A door magnet that detects whether the door is open or closed
Access Control Relay Sensor	An authentication device used for identifying and verifying the identity of individuals
Delay Time +	Authentication timeout duration from the moment the door is opened
Delay Time -	Authentication validity period from the moment the door is opened
Lock Timeout	Authorized duration (in minutes) for the door to remain open
Notification On Valid Access	Notification when access is recognized as valid and the door is opened.
Notification On Invalid Access	Notification when access is detected as invalid.
Notification On Lock Timeout	Notification of door remaining open beyond the authorized duration
Time Conditions Configs	Setting the time and days of the week to enable or disable Access Control settings
Internal Relay	An internal relay that can be connected to a siren or any other type of alarm
Internal Buzzer	Internal buzzer of the data logger device

- The Logs sub-menu displays the door opening status according to time (Figure 59)

Sent Time	Event Type
09/07/2024 17:45:35	Valid Access
09/07/2024 17:43:38	Invalid Access
09/07/2024 17:43:13	Valid Access
09/07/2024 17:43:00	Invalid Access
09/07/2024 17:42:34	Door Lock Timeout
09/07/2024 17:42:30	Invalid Access
09/07/2024 17:40:42	Valid Access
09/07/2024 17:40:18	Valid Access
09/07/2024 17:39:17	Valid Access
09/07/2024 17:38:54	Valid Access
09/07/2024 17:38:10	Valid Access
09/07/2024 17:38:08	Door Lock Timeout

Figure 59: The Logs sub-menu from the Access Control menu



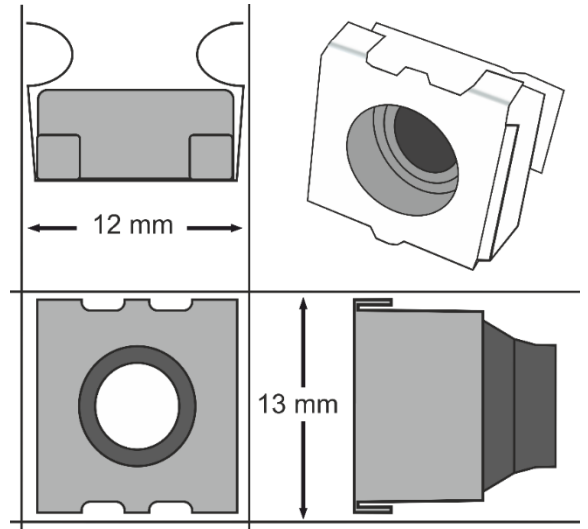
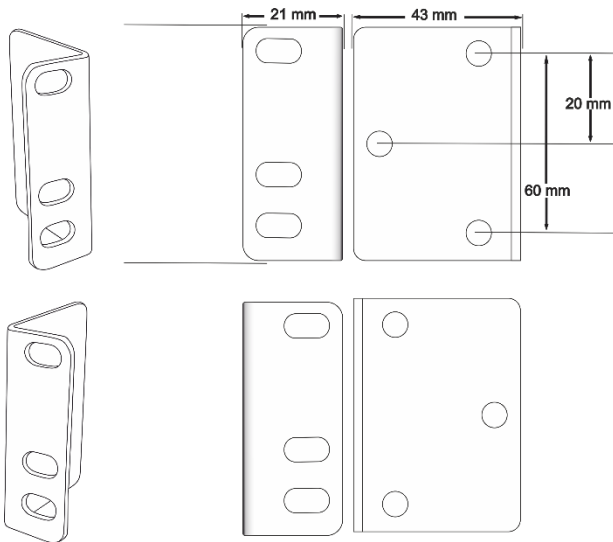
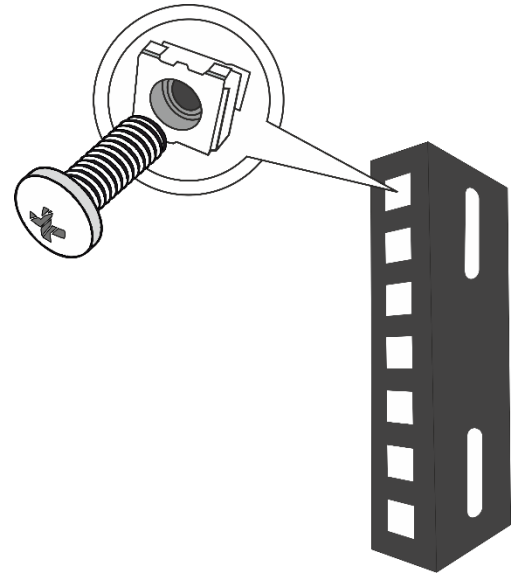
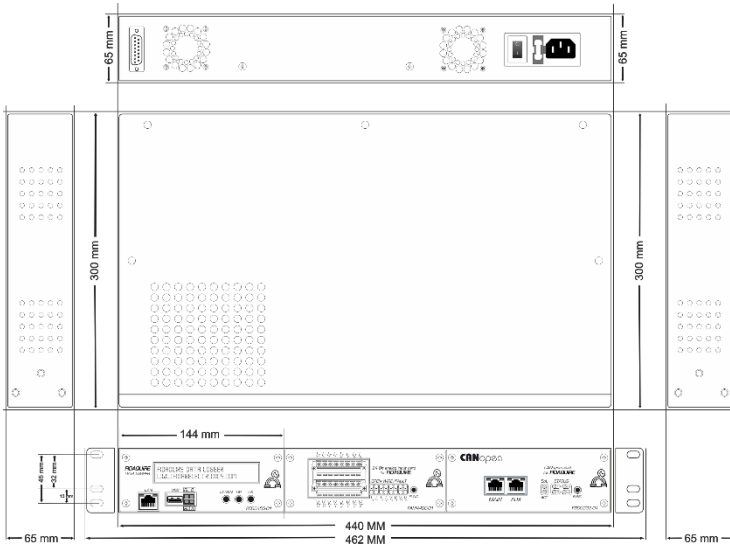
### **3- Return to factory settings**

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In order to return the device to the factory settings, enter the following link in the browser by changing the sample IP to the IP of your device. Obviously, by doing this, all data will be deleted from the device database and all settings will return to factory settings.

192.168.1.19/device/resetfactory

# 4- Dimensions of the device



## **5- Troubleshooting**

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Please regularly check the following to ensure that the data logger is operating normally:

- 1- Clean dust off the data logger.
- 2- Check the operation and status of the data logger.
- 3- Inspect all wiring to ensure there is no corrosion or breakage.
- 4- Check all terminals to ensure they are secure.

Refer to the table below to resolve these issues. If the problem persists, please contact the support department for further assistance.

Abnormal conditions	solution
LCD turning off or incorrect display in it	<ul style="list-style-type: none"> <li>● If the device is in startup or restart mode, wait at least 90 seconds.</li> <li>● Check the AC connection such as fuses, breakers and wires.</li> <li>● Turn the device off and on again.</li> </ul>
Disconnect RS-485 signal	<ul style="list-style-type: none"> <li>● Check the wiring and connector.</li> <li>● Check if the cable is properly inserted.</li> <li>● Keep the 485RS cable at least 10 cm away from AC and DC wires or use a cable with metal shield insulation.</li> </ul>
Interruption of the network signal	<ul style="list-style-type: none"> <li>● Check whether the Ethernet port and its cable are in good condition.</li> <li>● Check if the router is working properly.</li> <li>● Check if the router has locked the IP.</li> </ul>
A beeping sound is heard from the device	<ul style="list-style-type: none"> <li>● Check the occurrence of the error.</li> <li>● Check the alarm occurrence.</li> </ul>
Error in inserting the date of saved data	<ul style="list-style-type: none"> <li>● Reset the date and time on the data logger.</li> </ul>
It takes too long to copy data to the flash drive.	<ul style="list-style-type: none"> <li>● The internal memory may be full. It is better to clear the internal memory of the data logger.</li> </ul>

## **6- Warranty conditions**

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Fidar Electronics Company is not responsible for any damage caused by the following.

- 1- Improper opening of the box
- 2- Installation problems such as inappropriate working environment, unprincipled wiring and incorrect use of data logger
- 3- Working conditions beyond the set limit
- 4- Violation of the safety instructions contained in this manual
- 5- Damage during transportation
- 6- Damage to the electronic and electrical parts of devices due to electrocution, lightning, etc
- 7- Carrying out repairs and maintenance by unauthorized personnel
- 8- Power supply fluctuations (Using UPS is strongly recommended).

## Attachment 1: How to set up the internal relay hardware of the data logger

The internal relay of the data logger can be activated from the alarm<sup>1</sup> definition section for each of the Nodes for low current values (up to a maximum of 800 mA). This relay essentially acts as a switch for triggering warning devices such as sirens, buzzers, light alarms, etc. As shown in the figure below, set up the socket for the internal relay of the data logger and Modbus:

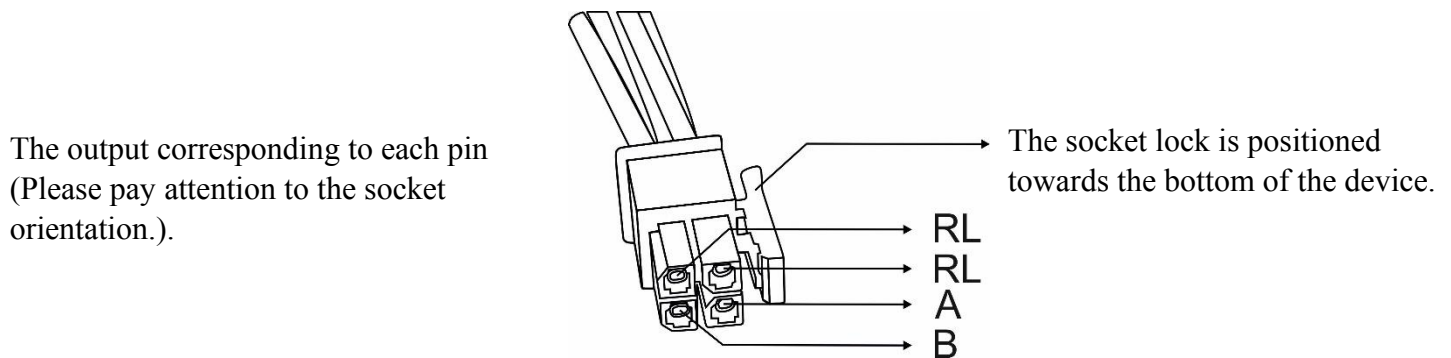
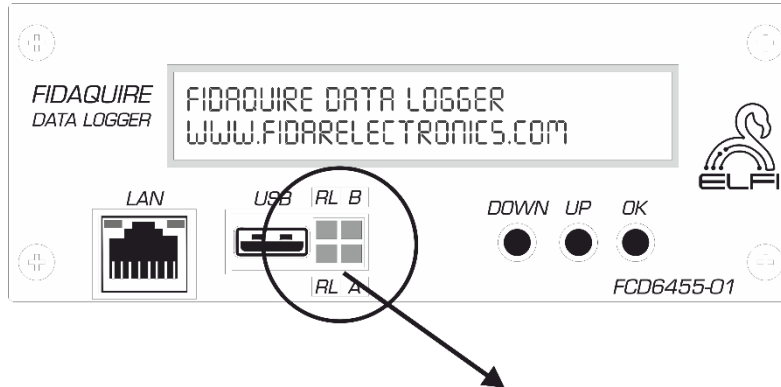


Figure 60: Socket related to the internal relay of the data logger and Modbus



Socket lock (toward the bottom of the device - the RL output on the device is related to the alarm setting relay)

Figure 61: FIDAQUIRE data logger main page

**Note:** two ports A and B have been installed to start the Modbus part of the device and they have no role in starting the internal relay.

<sup>1</sup> It is given in Section 2-6

- How to start currents less than 800 mA:

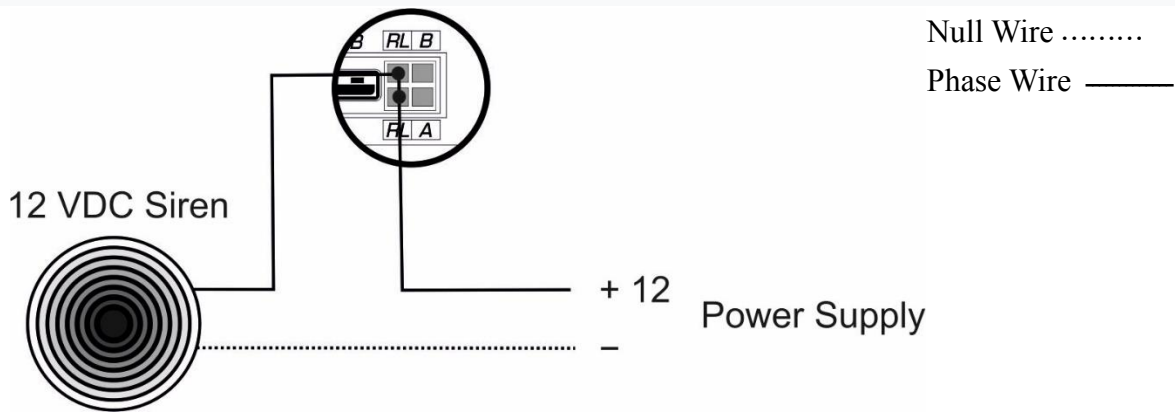


Figure 62: How to start current less than 800mA

- For currents greater than 800 mA, an external starter relay or contactor should be used.

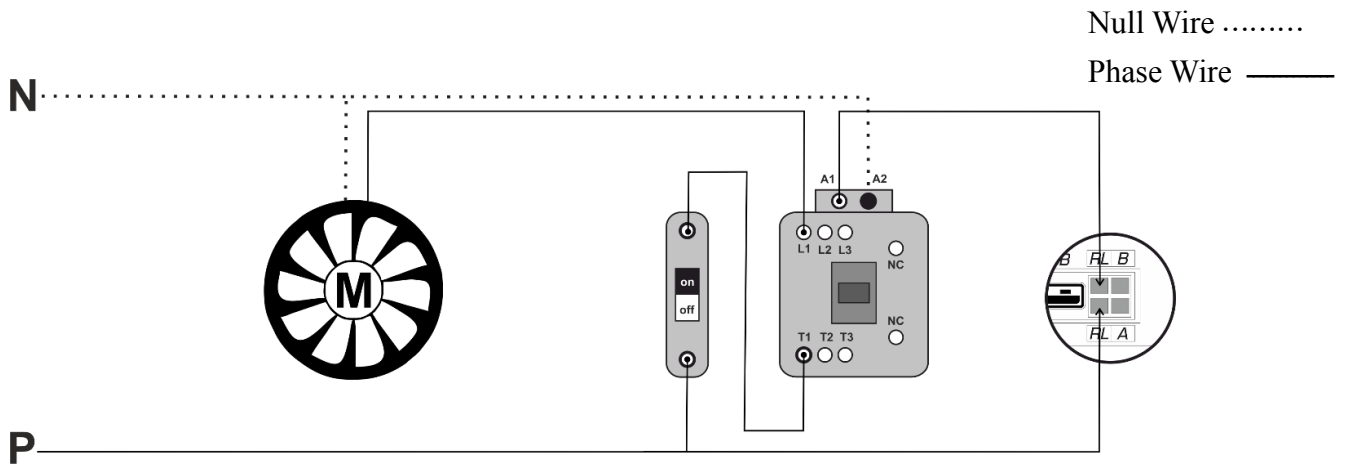


Figure 63: How to start current over 800mA

## **Contact information**

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