Product Type

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Document Name

Document Name

ED320

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SUMMARY OF REVISIONS

The information below describes the reviews made in this manual.

Version	Revision	Description
V1.0	R00	First Edition.

1 ABOUT THIS DOCUMENT

This manual contains the necessary information for operating the Edge Device ED320.

1.1 WELCOME

This document was developed for use by professionals with appropriate training or technical qualifications to operate this type of product. For some device configuration steps, the involvement of an IT professional will be necessary, unless the user already is one.

The manual contains the necessary information for correct installation, configuration, and use of the edge device ED320. Some procedures described in this manual may undergo changes that will not affect user understanding.

The user must follow all instructions contained in this manual and defined by local technical standards. Having basic knowledge of wireless networks will be an advantage in implementing this product.

For advanced configurations and projects, contact our Customer Service. These individuals must follow the safety instructions defined by local standards. Failure to follow safety instructions may result in life risk and/or equipment damage.

1.2 ABBREVIATIONS AND DEFINITIONS

API: Set of routines and programming standards that allow access to a software application (Application Programming Interface).

Broker: Server that manages the receipt of messages sent by publisher clients, sending them to subscriber clients through the MQTT protocol.

Container: Execution instance of a Docker image containing all resources necessary to run an application.

DHCP: Protocol that allows devices recently connected to a network to obtain an IP address automatically (Dynamic Host Configuration Protocol).

DNS: System responsible for translating IP addresses into domain names, and vice versa (Domain Name System).

Docker: Software service that establishes an abstraction layer for virtualization of Windows/Linux operating systems, delivering packages called containers.

DVI: Video transmission interface (Digital Visual Interface).

Embedded I/O Connector: Connector for input and output signals of embedded devices.

Ethernet: Interconnection architecture for local networks (IEEE 802.3).

Firmware: Set of operational instructions programmed directly into the hardware of an electronic device. It contains the initialization information that allows the correct functioning of the device.

Edge Device: Hardware device that enables data flow between different communication networks and has some edge processing capability.

Hotspot: Designation of a specific location where a wireless network (Wi-Fi technology) is available for use.

Docker image: Software package used as a template for generating containers.

IoT: Internet of Things.

IP: Protocol used on the internet for forwarding datagrams between networked devices (Internet Protocol).

MQTT: Transport protocol that uses the publish/subscribe topology for transferring lightweight messages between devices (Message Queuing Telemetry Transport).

Cloud platform: Platform that offers a set of cloud services through a cloud infrastructure.

Edge Processing: Data processing performed close to the user or data source (Edge Computing).

QoS: Parameter used to determine the level of quality of service in message exchange using the MQTT protocol (Quality of Service).

RS-232/485: Asynchronous serial communication standards for data transmission (Recommended Standard 232/485).

URL: Web address of a resource available on a network (Uniform Resource Locator).

WEGnology: Cloud service platform used in WEG IoT applications.

WLAN: Wireless Local Area Network.

1.3 OVERVIEW

The ED320 is an IoT device with Edge processing capability, whose main function is to connect machines and equipment to the WEGnology IoT Platform and WEG Smart Machine for use in digital solutions. It serves as a support tool in industrial areas, ensuring connectivity, monitoring, and accurate storage of all equipment and process data, thus assisting decision-making for preventive maintenance and detecting possible issues.

Regarding connectivity, the ED320 by default has Ethernet, Wi-Fi, and Bluetooth interfaces.

1.4 IDENTIFICATION LABEL

The product has an identification label located on its bottom face. The label presents the main information regarding identification, manufacturing, and certification of the device. Fig.1.1 shows the model used for the product label and a description of each informational field.

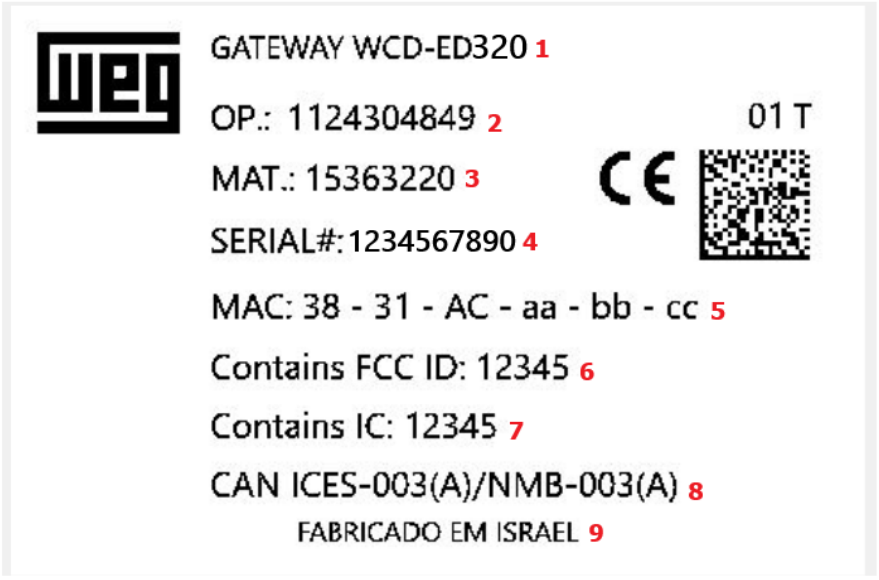


Figure 1.1: *Product Identification Label*

1.5 TECHNICAL SPECIFICATIONS

Basic Data	
Processor	NXP i.MX8M Mini CPU, quad-core Cortex-A53, 1.8 GHz
Co-processor	ARM Cortex-M4
Memory	2 GB RAM LPDDR4
Storage	16GB eMMC
Communication Interface	
Ethernet	2 Ethernet ports (1x100 Mbps + 1x 1000 Mbps) RJ-45
Wi-Fi	Intel WiFi 6 AX200 module - 802.11ax - 2.4/5.0 GHz
Bluetooth	Intel WiFi 6 AX200 module - BLE 5.1
I/O	
USB Ports	3 USB 2.0 ports (*Type-A*)
Serial Ports	1x RS485 (2-wire) / RS232 port, terminal-block
	1 serial console via UART-to-USB (microUSB)
Electrical Specifications	
Power Supply Voltage	8 to 36 V
Digital I/O Voltage	3.3 V
Mechanical Specifications	
Dimensions	112 x 84 x 25 mm
Material	Aluminum
Cooling	Passive (*fanless design*)
Weight	450 grams
Other Information	
Certifications	CE, FCC, ANATEL
MTTF	> 200,000 hours
Operating Temperature	0° to 60° C
Storage Temperature	-40° to 85° C
Relative Humidity	10 to 90% (Operation)
	5 to 95% (Storage)

Table 1.1: *Technical Specifications – ED320*

1.6 SAFETY WARNINGS IN THE MANUAL

The following safety warnings are used in this manual:

DANGER!
The recommended procedures in this warning aim to protect the user against death, serious injury, considerable material damage, and warranty cancellation.

ATTENTION!
The recommended procedures in this warning aim to prevent material damage.

NOTE!
The text aims to provide important information for proper understanding and correct operation of the product.

1.7 PRELIMINARY RECOMMENDATIONS

The next chapters of this manual are designed to give you complete support with step-by-step installation and configuration of the Edge Device ED320.

Chapter 2 will show what needs to be checked upon receiving the product, as well as its mechanical characteristics and details of all available connections.

Chapter 3 will provide support for understanding the operation of the device and its physical installation, along with tips on how to install it for the best possible result. Infrastructure solution options will be presented so that the user can choose the best option according to their context.

Chapter 4 will provide the step-by-step configuration of the device. Once the infrastructure solution is chosen in Chapter 3, the product needs to be configured to work as desired, setting up the necessary networks.

ATTENTION!
Failure to follow the sequence of instructions in the chapters may result in incorrect operation of the product and/or irreparable damage to it. It is recommended to strictly follow the order proposed in this manual to achieve the best result with your product.

NOTE!
Read this manual completely before installing or operating this equipment.

1.8 LEGAL INFORMATION

NOTE!
The software associated with ED320 is protected by copyright laws and international treaties. Its reproduction or distribution, partial or total, without prior authorization, may result in severe civil and criminal penalties, subject to sanctions provided by law.

2 PRODUCT

2.1 BOX CONTENT

2.1.1 RECEIPT CHECK

Upon receiving the ED320 edge device, check if the package contains the following items:

- Edge Device ED320;
- Power supply with universal AC plugs;
- 2x antennas;
- Installation guide;
- Metal plate for DIN rail support;
- DIN rail relay lock;
- 6-pin terminal plug;
- SMA/RP-SMA antenna connection adapter.

Inspect the device immediately after unpacking for possible damage caused by improper transportation. All damage claims must be submitted to the sender without delay and before installation.

ATTENTION!
In case of any damage, record it in writing with the carrier and immediately notify the insurance company and WEG. Failure to report may result in warranty cancellation.

2.1.2 STORAGE

It is recommended to store the ED320 Edge Device inside the closed packaging, in a clean and dry place with a temperature between -40 and 80 °C, avoiding direct exposure to sunlight.

2.1.3 DISPOSAL AND RECYCLING

Thinking about the environment, WEG develops and provides products that contribute to reducing environmental impacts throughout their life cycle. The user's participation in selective collection and recycling of used electrical and electronic equipment is also important to minimize any potential effects on the environment and human health. Proper disposal of the device and its components, following applicable legislation, is very important for your safety and also for the environment, in addition to helping save resources.

For return or collection information available for proper treatment and recycling, contact WEG or send the edge device and its components to our authorized service network. The device and its components must not be disposed of in household, commercial, or industrial waste. Likewise, they must not be disposed of in incinerators or municipal landfills. Disposal of the product and its components must comply with local regulations.

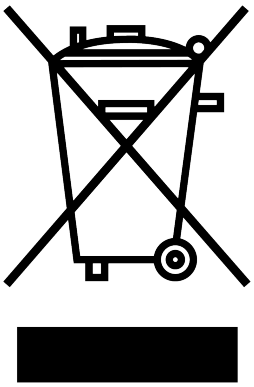


Figure 2.1: *WEEE Seal (Waste from Electrical and Electronic Equipment).*

NOTE!
This symbol above indicates that:

- The product cannot be disposed of at municipal waste collection points.
- It refers to selective collection for electrical, electronic equipment, and batteries.
- The entire device and its packaging are made from materials that can be recycled and at the end of its life cycle should be sent to specialized recycling companies.
- The horizontal bar below the bin indicates that the equipment was marketed after August 13, 2005.

2.2 PHYSICAL STRUCTURE

The ED320 edge device is assembled with parts molded in ABS material and connectors that ensure the equipment's protection rating.

Figure 2.2: *Physical structure of ED320.*

2.2.1 CONNECTOR DESCRIPTION

The ED320 connector inputs are arranged on 3 surfaces of the device, as shown in the following figures. 2.3

On the front surface, the following connectors are identified: 2.3a

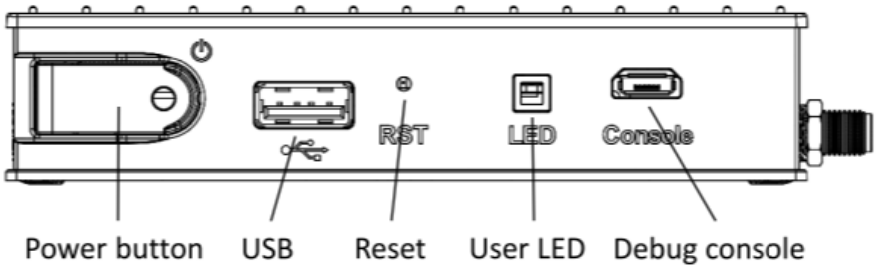
- 1 Power button + 1 power LED indicator;
- 1 USB 2.0 Type A input;
- 1 Reset button;
- 1 general-purpose LED;
- 1 debug console USB input - micro-USB standard;

On the side surface, the following connectors are identified: 2.3b

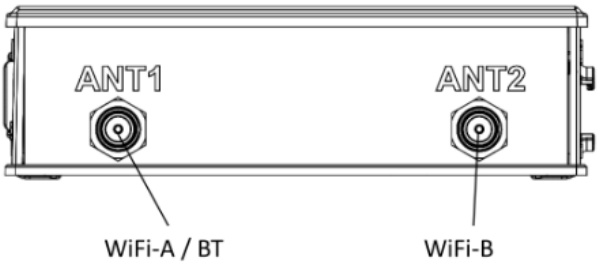
- 1 input for WLAN+BT antenna (WiFi-A + Bluetooth);
- 1 input for auxiliary Wi-Fi antenna (WiFi-B);

On the rear surface, the following connectors are identified: 2.3c

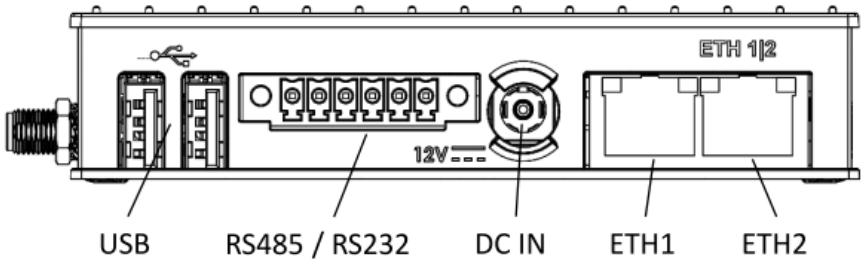
- 2 USB 2.0 Type A inputs;
- 1 terminal block input for RS-232/RS-485 communication;
- 1 DC power input (DC IN);
- 2 Ethernet inputs (ETH1 - 1000 Mbps / ETH2 - 100 Mbps) - RJ-45 standard;



(a) Front view



(b) Side view



(c) Rear view

Figure 2.3: *(a), (b), and (c) show the external interfaces of the ED320*

Pin	RS485 mode	RS232 mode
1	RS485 NEG	RS232 TXD
2	RS485 POS	RS232 RTS
3	GND	GND
4	NC	RS232 CTS
5	NC	RS232 RXD
6	GND	GND

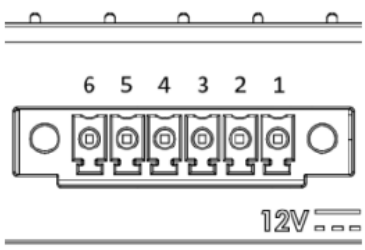


Table 2.1: *Pin details of the RS-232 / RS-485 serial connector input.*

NOTE!
The maximum length of the RS-485 bus without using repeaters is 1200 m considering a baud rate of up to 9.6 kb/s. The maximum communication speed of 10 Mb/s can be achieved for buses up to 50 m long.

2.2.1.1 LEDs

The ED320 has an RGB LED that can be customized by the user, allowing it to be adjusted according to the desired application. In addition, the device has a power LED, located above the power button, which indicates when the device is on.

LEDs	Function	Color	Status	Description
POWER	Power status	Green	On	Power on
			Off	Power off

Table 2.2: *Descriptive table of the LED present on ED320.*

2.2.2 CONNECTIONS

2.2.2.1 ETHERNET

Standard Ethernet connector.

NOTE!
RJ45 plug and network cable are not included.

2.2.2.2 POWER SUPPLY

To start the ED320, simply connect the power supply that comes with the product to the device through the DC power input. The power connector must be inserted into the input and then rotated clockwise so that it is mechanically fixed. Then, just connect the power supply to an outlet that provides 110 or 220 V power so that the ED320 is initialized.

Another power option is to use an external power supply with 36 W capacity, through a P4 connector with an internal diameter of 2.5 mm and an external diameter of 5.5 mm, and a voltage of 8 to 36 V should be present on the inner part of the connector.

Figure 2.4 shows details of the power cable to be used on the ED320:

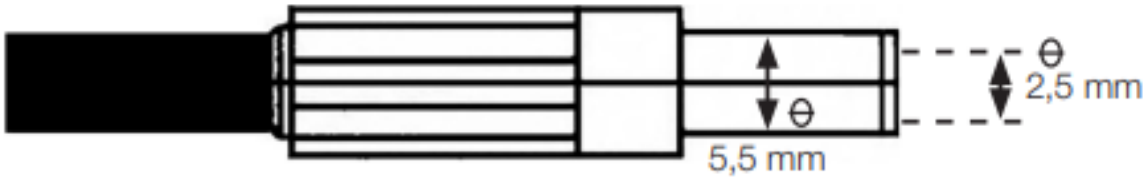


Figure 2.4: *Power cable details*

NOTE!
How to factory reset the ED320:
1. Make sure the device is connected to a power source.
2. Locate the device's button.
3. Press the button 3 times in a row (three short presses).
4. Wait about two minutes until the device restarts with the factory settings.

3 INSTALLATION

3.1 INFRASTRUCTURE

The infrastructure of the ED320 edge device consists of two critical points: power supply and internet connection. Below, we will break down each of these two topics.

NOTE!
Use this section as a basis for infrastructure decision-making, as these decisions will define the installation steps you must follow.

3.1.1 DEVICE POWER SUPPLY

The device is powered through the DC input via a P4 connector, either from the included power supply or an external source.

3.1.2 DEVICE INTERNET CONNECTION

For the correct operation of the device with the online platform, the product needs to establish an internet connection. The table below presents the three possible internet connection options for the ED320.

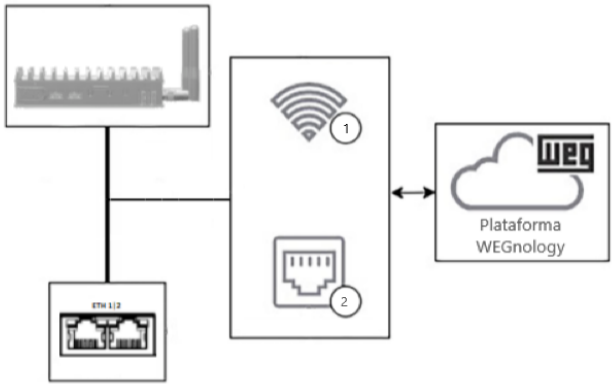


Figure 3.1: *Diagram of ED320 connection options.*

No.	Description
1	Wi-Fi connection
2	Ethernet connection (recommended)

Table 3.1: *Table of ED320 connection options*

3.1.2.1 WI-FI CONNECTION

The ED320 edge device can connect to a Wi-Fi network using IEEE 802.11ac protocols in the 2.4/5/6 GHz frequency range. The method for obtaining the network IP address by the edge device can be configured for either DHCP or static, adapting to the available network type. Once configured and accepted by the Wi-Fi network, the edge device will attempt to connect automatically every time it is powered on or loses connection.

3.1.2.2 ETHERNET CONNECTION

The ED320 edge device can be connected to an Ethernet network with a speed of 10/100/1000 Mbps. The method for obtaining the network IP address by the edge device can be configured for either DHCP or static, adapting to the available network type. This is the recommended type of internet connection for the application, as it provides a more stable connection and does not interfere with Bluetooth operation.

NOTE!
If the network used to connect the ED320 edge device to the internet has a firewall, it will be necessary to allow domains, IP addresses, and communication ports for the product to function correctly. **Failure to configure the firewall may result in incorrect application initialization, causing undesirable behavior and even invalidating its use.** If this occurs, contact WEG Customer Service for software reinstallation on the product. The table of domains, IP addresses, and communication ports to be allowed is found in Appendix A. In addition to the table, use the respective task list to facilitate firewall configuration.

3.2 INSTALLATION STEP-BY-STEP

The installation steps for the ED320 edge device must be followed in the order proposed by the manual. To help the user in this process, an installation task list can be found at the end of the manual to keep track of what has been completed and what still needs to be done.

3.2.1 CONNECT POWER SUPPLY

Figure 3.2 illustrates the process of connecting the power cable to the ED320.

NOTE!
To ensure the power supply cable is properly fixed in the device input, it is necessary to rotate the connector clockwise after insertion.

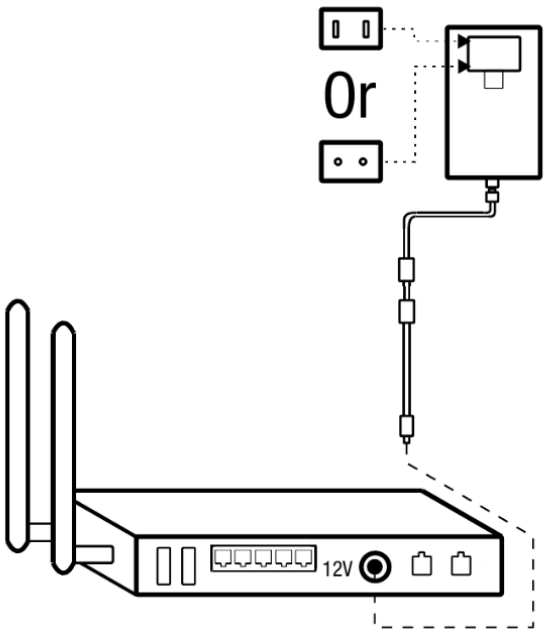


Figure 3.2: *Installation/Removal of ED320 power connector*

3.2.2 CONNECT ETHERNET

The figure below illustrates the process of connecting the internet cable to the ED320.

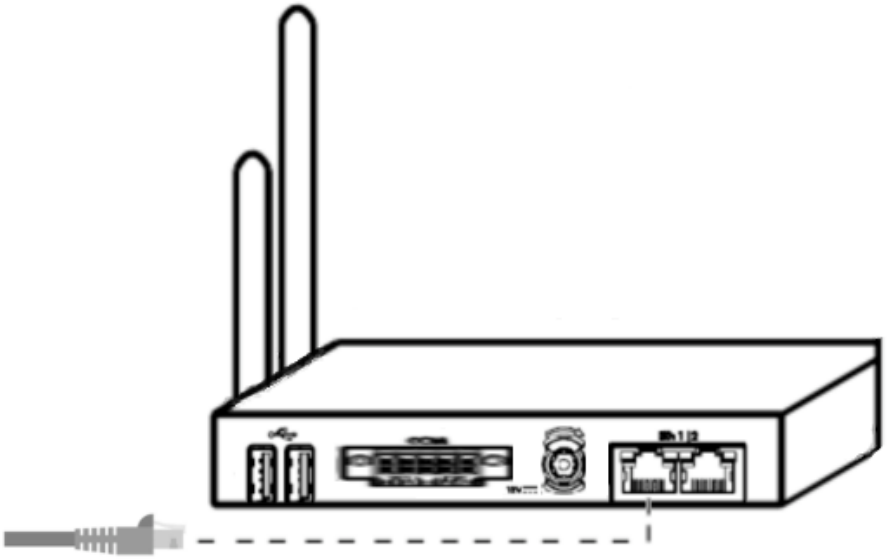


Figure 3.3: *Installation/Removal of ED320 internet connector*

3.2.3 CONNECT EXTERNAL WIFI/BLUETOOTH ANTENNAS

For better Wi-Fi/Bluetooth signal range, use the two antennas included with the product. Screw both antennas clockwise into the N-type connectors located on the side of the edge device. The figure below illustrates the process of connecting the antennas to the ED320.

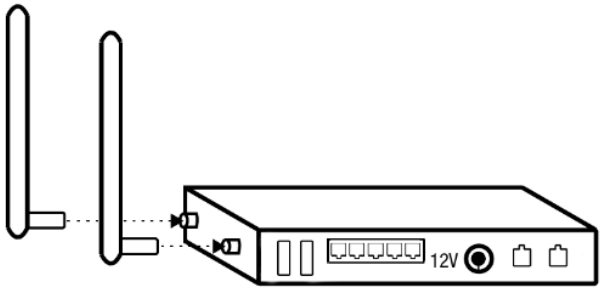


Figure 3.4: *Bluetooth antenna installation*

3.2.4 INSTALL DEVICE

The ED320 can be installed on a DIN rail by attaching the mounting bracket included with the product (relay lock) to the device body (bottom surface), as shown in Figures 3.5 and 3.6. To perform the installation, follow these steps:

1. Position the relay lock so that the screw holes align with those on the device body.
2. Screw the relay lock onto the device body using the two screws included with the product.
3. Attach the equipment to a DIN rail using the relay lock already fixed to the device body.

- Insert the upper part (with springs) of the relay lock bracket into one of the DIN rail slots (tilt the bracket for insertion).
- Gently push the device against the rail until the lower part of the bracket can fit into the other DIN rail slot.
- Insert the lower part of the bracket into the DIN rail without disconnecting the upper part.

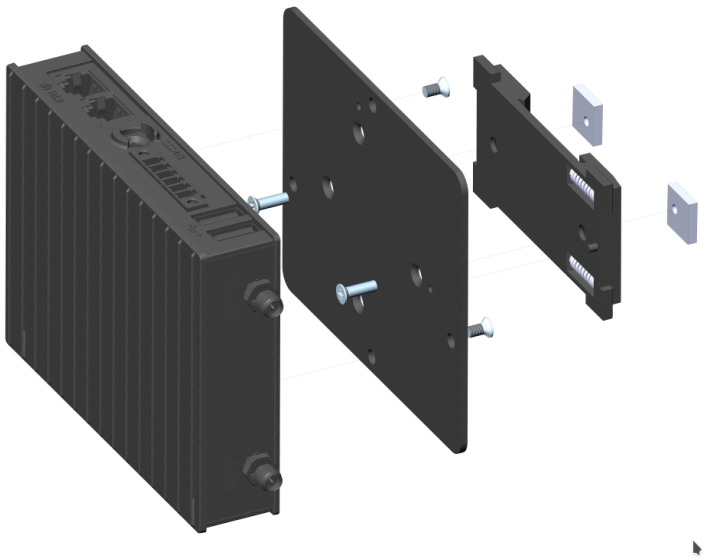


Figure 3.5: *ED320 DIN rail mounting (exploded view)*

Figure 3.6: *ED320 DIN rail mounting (assembled view)*

4 DEVICE CONFIGURATION

The ED320 configuration is done through the device's WEB Interface; therefore, the sections below show the step-by-step process for correct system configuration.

4.1 INITIAL CONFIGURATION

When powered on, the ED320 will create a Wi-Fi network (Access Point) following the naming pattern (SSID):

ED320-XX:XX:XX

Where XX:XX:XX are the last 6 digits of the MAC ID printed on the product label, e.g., MAC ID: 3831AC**00000B**. The initial Wi-Fi network password will be "3831ac**xxxxxx**", where **xxxxxx** are the last 6 digits of the MAC ID, all in lowercase letters.

Connect to this network with DHCP Client enabled (the ED320 acts as a DHCP Server).

Through a computer, tablet, or smartphone browser, access the address: https://wcd.ed320 or https://10.3.0.254

The figure below shows the login screen (which should appear):

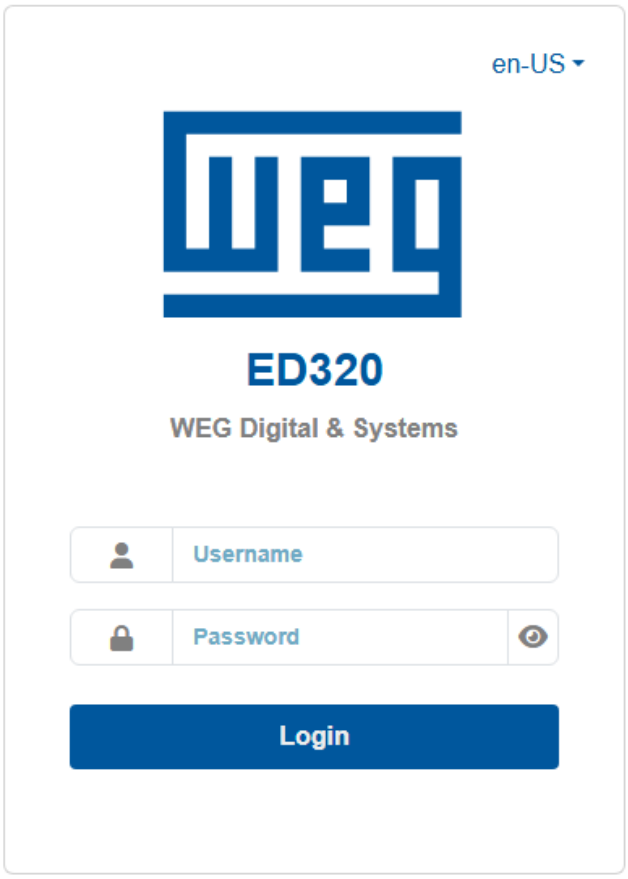


Figure 4.1: *ED320 login screen*

Default access credentials are:

- User: weg
- Password: weg@XXXX
  Where XXXX are the last 4 digits of the product serial number printed on the label.

These credentials are initial credentials that will not allow direct access to the product but will open a screen to change the user password. This password must meet certain security criteria. After that, the user can use the newly created credentials to access the device.

4.2 FIRST ACCESS

On the first access attempt, the modification of username and password will be required, as shown in Figure 4.2. The new password must meet the following security criteria:

- Minimum of 8 characters;
- At least 1 numeric character;
- At least 1 special character (symbol).

The figure below shows the user creation screen:

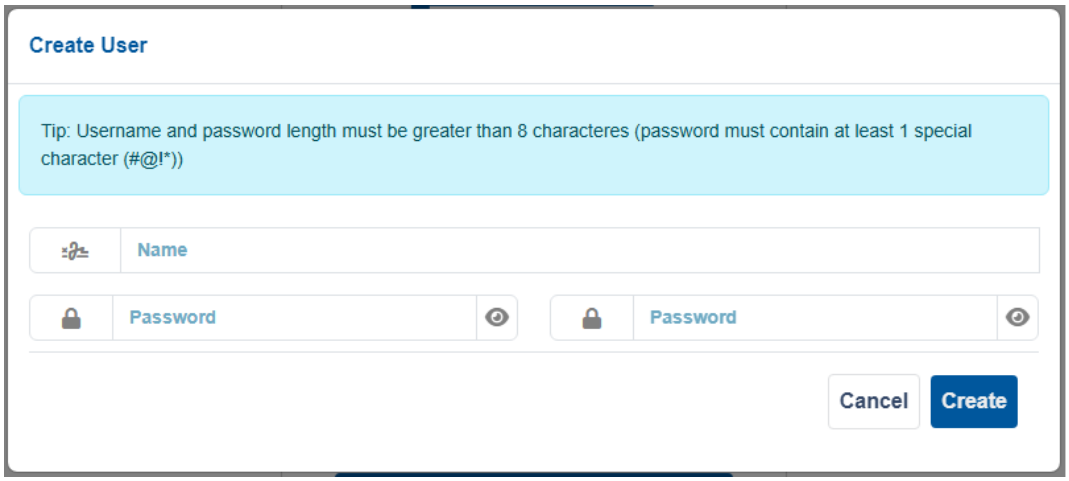


Figure 4.2: *ED320 user creation screen*

After filling in the fields and clicking the Create button, it will be possible to access the interface shown in Figure 4.1 again. After this procedure, you can log in normally using the new credentials.

4.3 WIZARD

After logging into the device, an initialization popup for the configuration wizard will appear, as shown in Figure 4.3.

The wizard is divided into four main parts: first, choose and configure one of the available network interfaces to access the internet; then, connection tests are performed to validate domain availability on the network; next, integrate the device with the WEGnology IoT platform; and finally, configure the available applications.

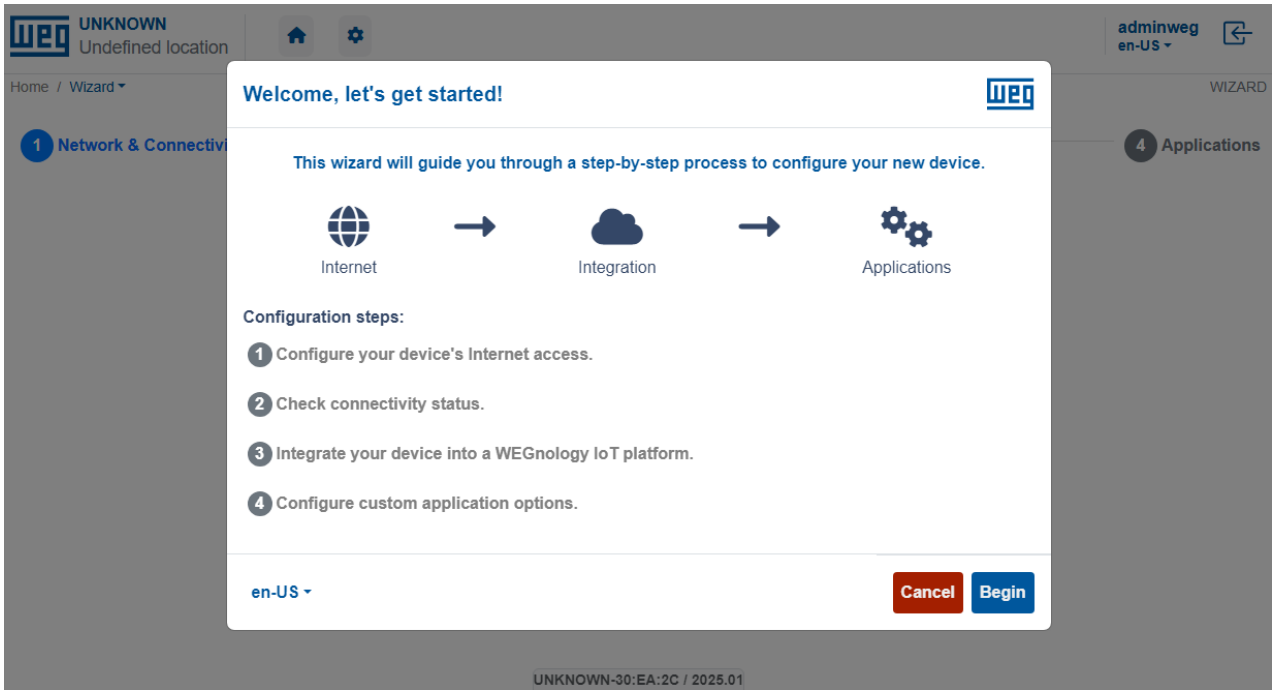


Figure 4.3: *Initial configuration wizard popup*

Initially, you must register a name for the device, as shown in Figure 4.4, to make identification easier.

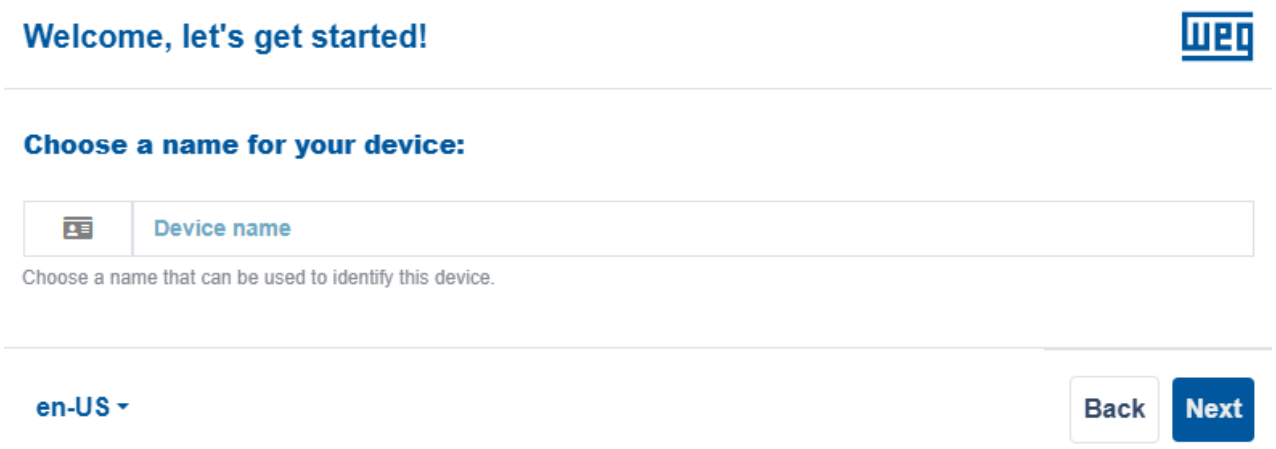


Figure 4.4: *Name configuration screen*

Next, choose one of the available network interfaces illustrated in Figure 4.5 to configure and connect to the internet. For each interface, enter the necessary information to establish the connection.

Figure 4.5: *Network interface configuration screen*

The connectivity test will check if the device can connect to the internet and WEG servers essential for product operation.

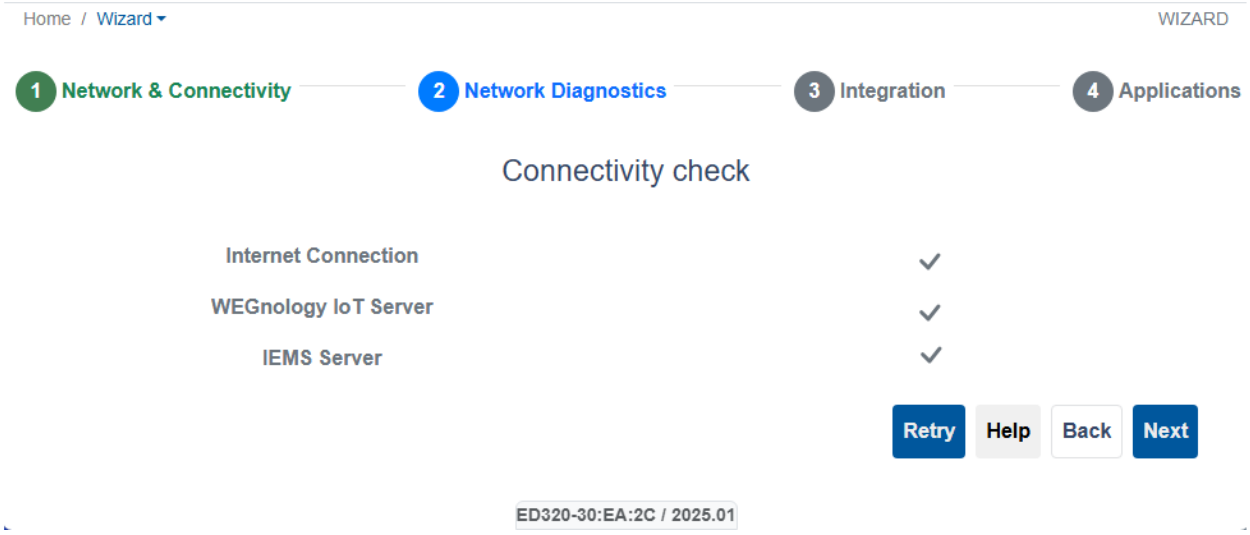


Figure 4.6: *Connectivity test screen*

To integrate with the WEGnology IoT platform, the device must first be registered on the WEGnology® platform. Choose 'Local Integration' if the file with connection credentials has already been downloaded from the platform, or choose 'Remote Integration' if the application supports registration via IEMS.

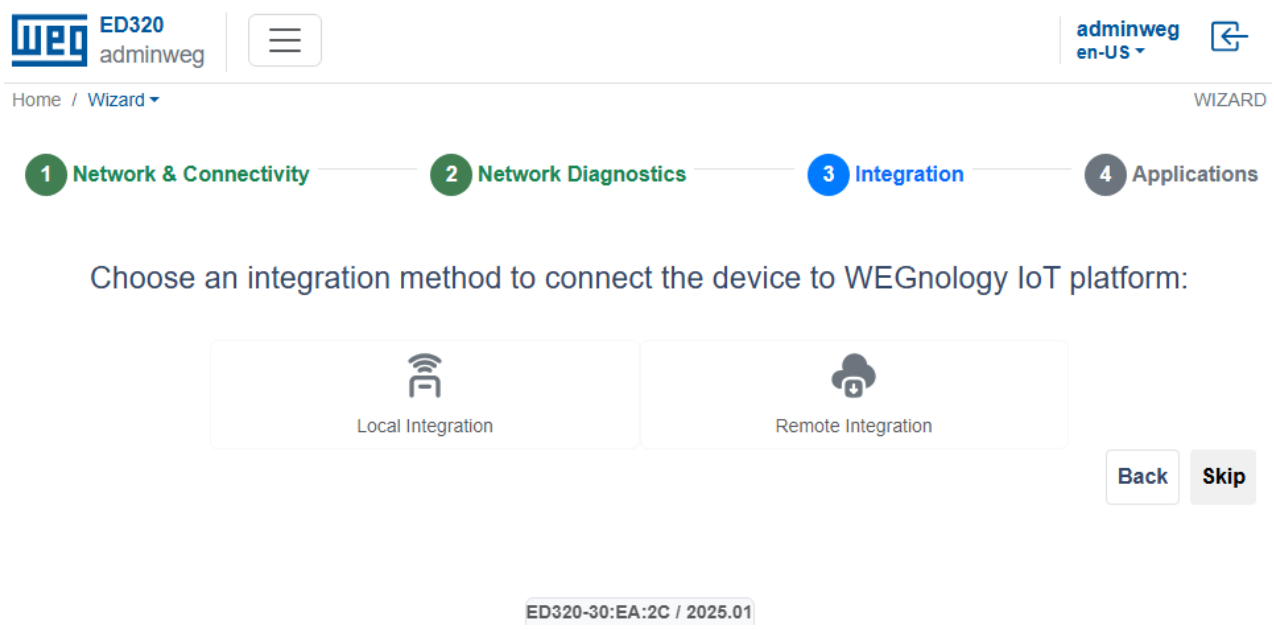


Figure 4.7: *Integration screen*

At the end of the configuration wizard, shortcuts for configuring the main applications available on the device are provided. If no additional configuration is needed, click 'Finish'.

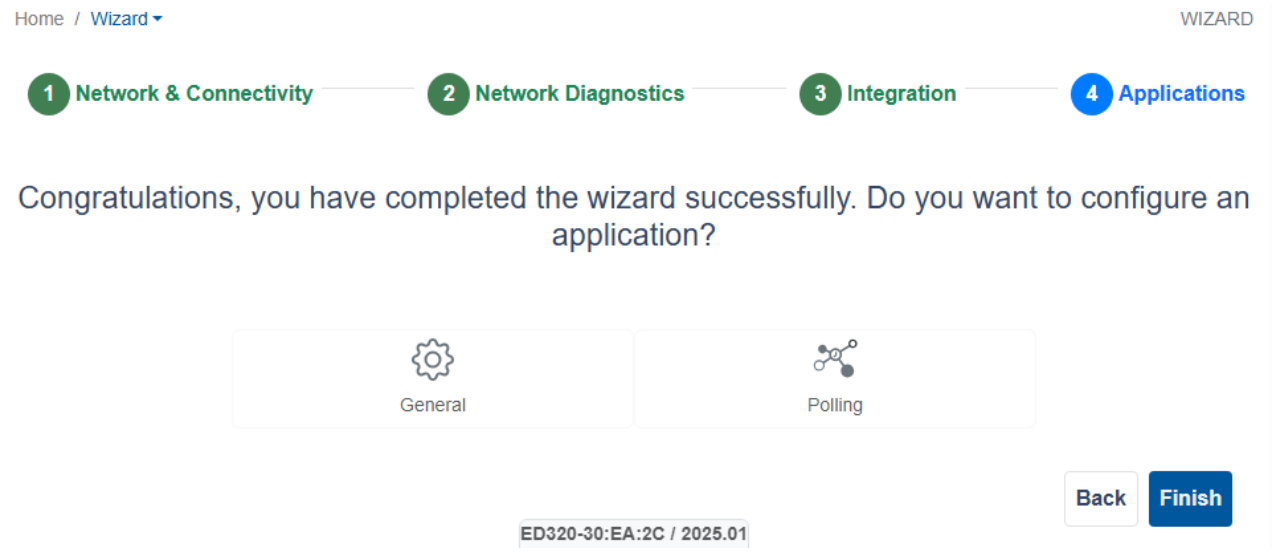


Figure 4.8: *Configuration wizard finalization screen*

NOTE!
The WEB interface is disabled until the next device restart.

4.4 OVERVIEW

After logging into the device, the Overview page ( ) of the WEB Interface will be displayed, as shown in Figure 4.9. This screen allows you to check the general status of the device.

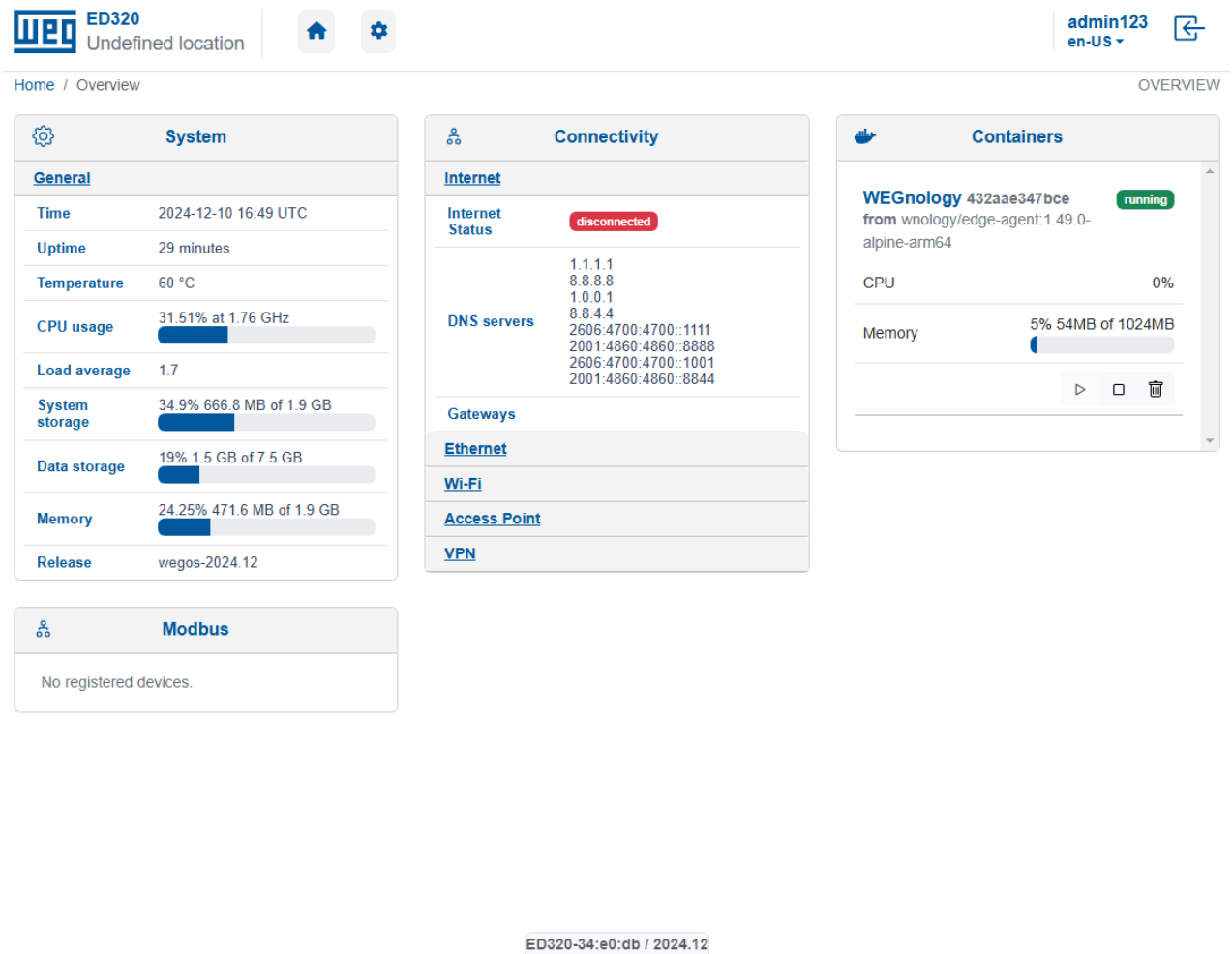


Figure 4.9: *Overview of ED320 WEB interface*

The Overview screen is divided into the following blocks:

- **System:** Displays some device information, such as uptime, temperature, resource usage levels (CPU, memory, storage), and the current system version.
- **Connectivity:** Shows the current configurations and status of each network interface available on the device.
- **Containers:** Displays which Docker containers exist in the system and their operational status.
- **Modbus:** Shows Modbus communication information if configured.

4.5 LANGUAGE

The page offers the option to change the language, allowing users to choose between English, Portuguese, and Spanish, as shown in Figure 4.10.

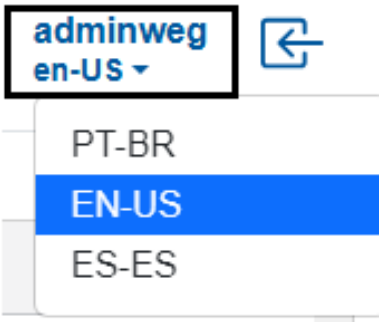


Figure 4.10: *Language selection option*

4.6 GENERAL SETTINGS

To access the general settings page of the device (Figure 4.12), click the icon highlighted in Figure 4.11.

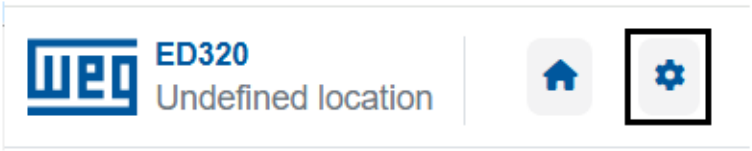


Figure 4.11: *Access to ED320 settings*

The settings are grouped into the following topics:

- **Network & Connectivity:** Configuration of ED320 communication interfaces.
- **Integration:** Settings for registering the device on the WEGnology® platform and other WEG device management platforms.
- **Virtualization:** Settings for downloading and installing new container images.
- **Applications:** General system settings and advanced Modbus configurations.
- **Access Control:** Security and access configuration for ED320.
- **System Management:** System management settings, such as log analysis, diagnostics, updates, factory reset, among others.

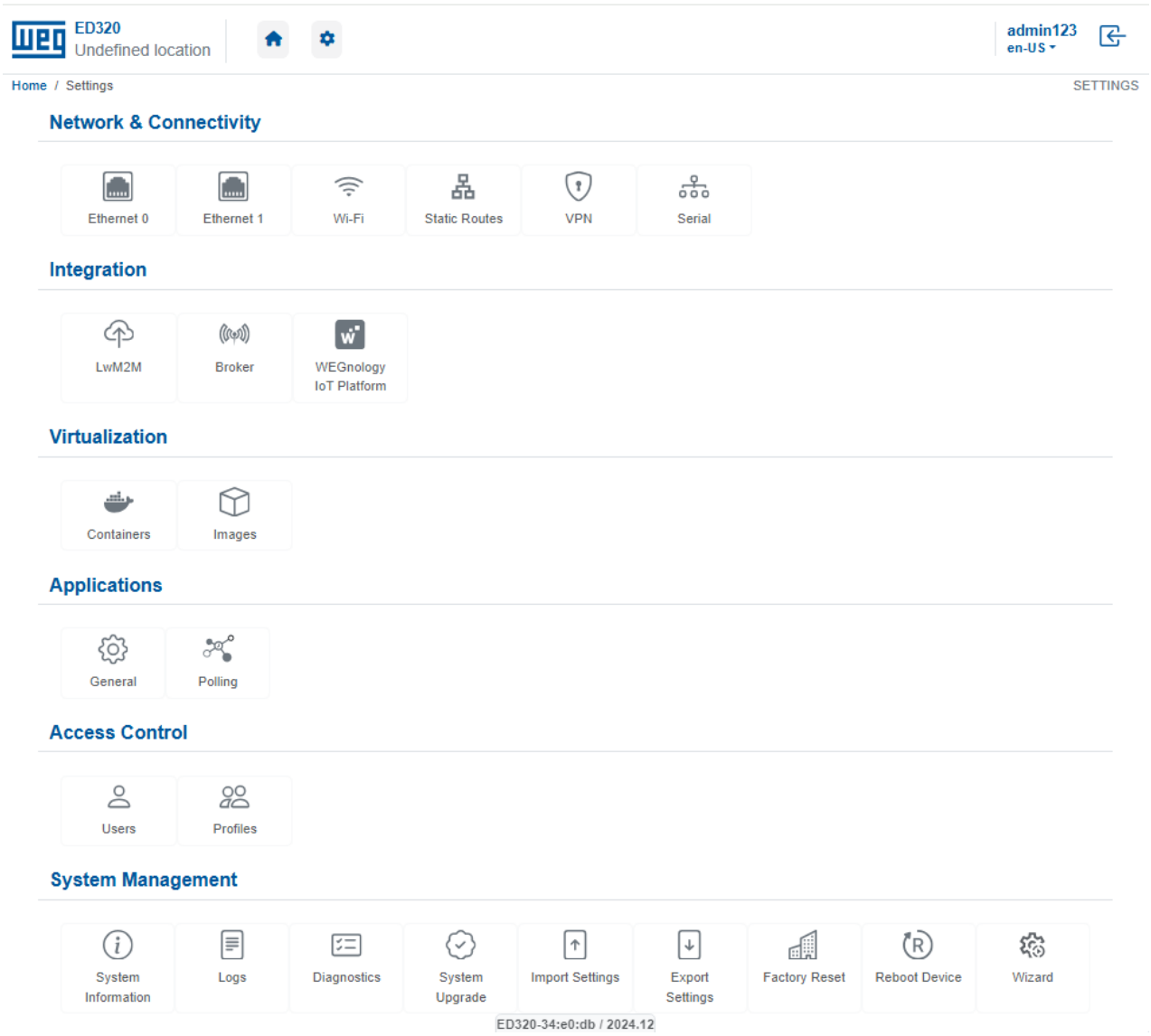


Figure 4.12: *ED320 settings screen*

4.6.1 NETWORK & CONNECTIVITY

For proper device operation and integrations, the target network must have the following permissions:

- The user's network must not have a PROXY.
- Ports and addresses must be accessible.

NOTE!
To allow addresses, ports, and internet access, request assistance from the IT team responsible for the network. If the firewall system allows domain-based rules without specifying IP addresses, configure the rules using only domains and ports.

4.6.1.1 ETHERNET

The Ethernet interface configuration is shown in Figure 4.13. Options for static IP in "Manual Settings" and dynamic IP in "DHCP" are supported by the ED320 interface.

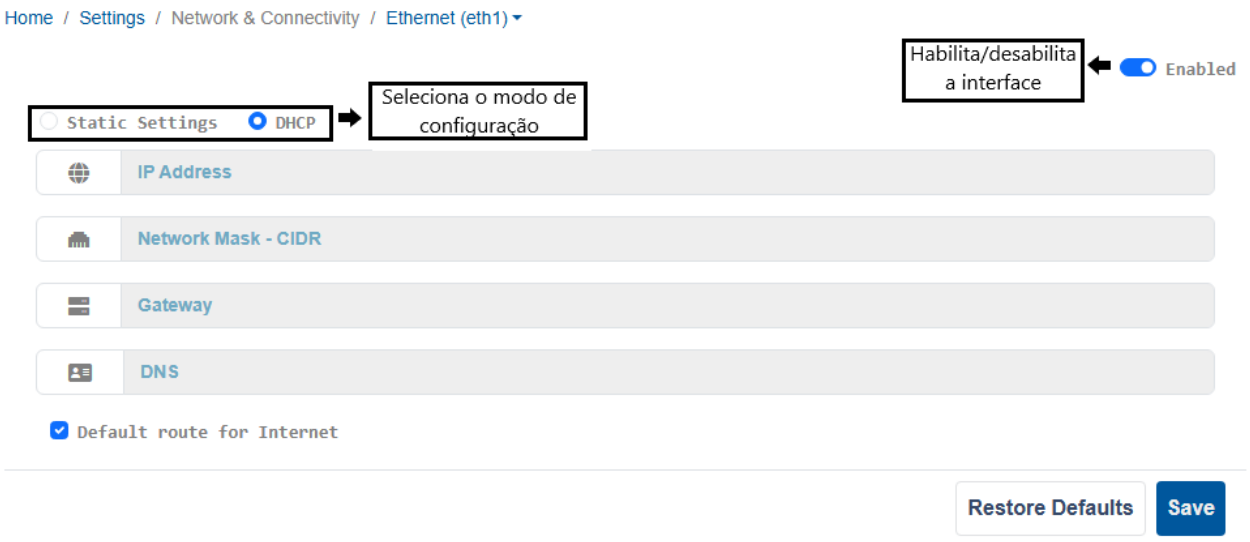


Figure 4.13: *Ethernet interface configuration screen*

ATTENTION!
All configuration changes must be saved to take effect. To do this, click the ”Save” button available on the respective configuration screen. To restore factory defaults for any configuration, click the ”Restore Defaults” button.

4.6.1.2 WIFI

The Wi-Fi interface can be configured through the screen below. Enter the network name to connect, security type, and password.

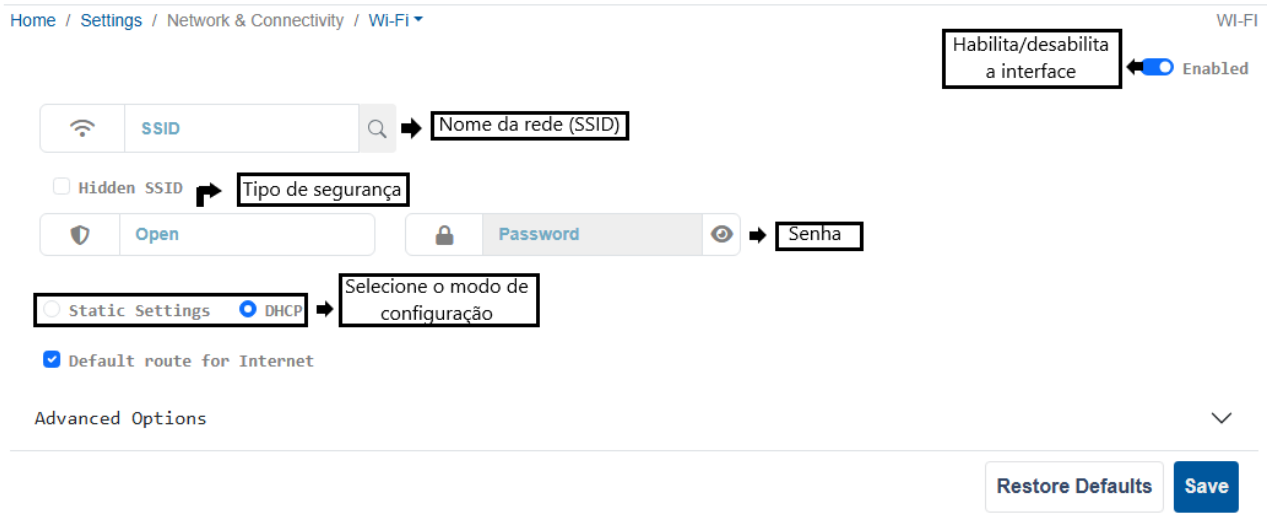


Figure 4.14: *Wi-Fi interface configuration screen*

When clicking the magnifying glass in the SSID field, it is possible to scan available networks and select the one you want to connect to. See Fig.4.15

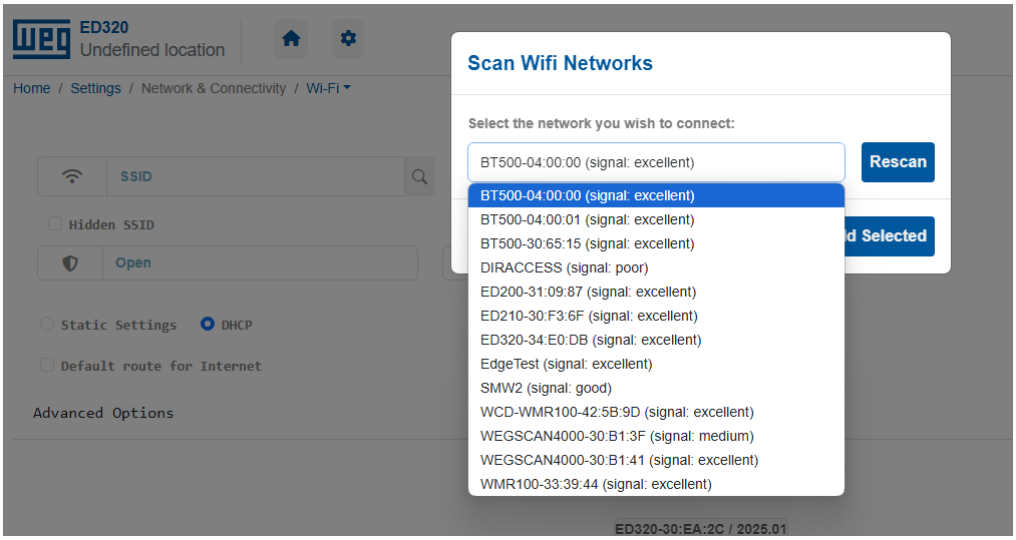


Figure 4.15: *Available networks*

NOTE!
The Wi-Fi interface enables the local access service (AP) regardless of its use for data communication. Both functionalities can operate simultaneously.

4.6.1.3 VPN CONFIGURATION

The VPN interface can be used for remote access to the ED320, either for maintenance purposes or other needs. For this, a VPN server must exist for the device to connect to.

The configuration is performed by uploading configuration files through the ”Choose file” button. The configuration files must be generated by WEG.

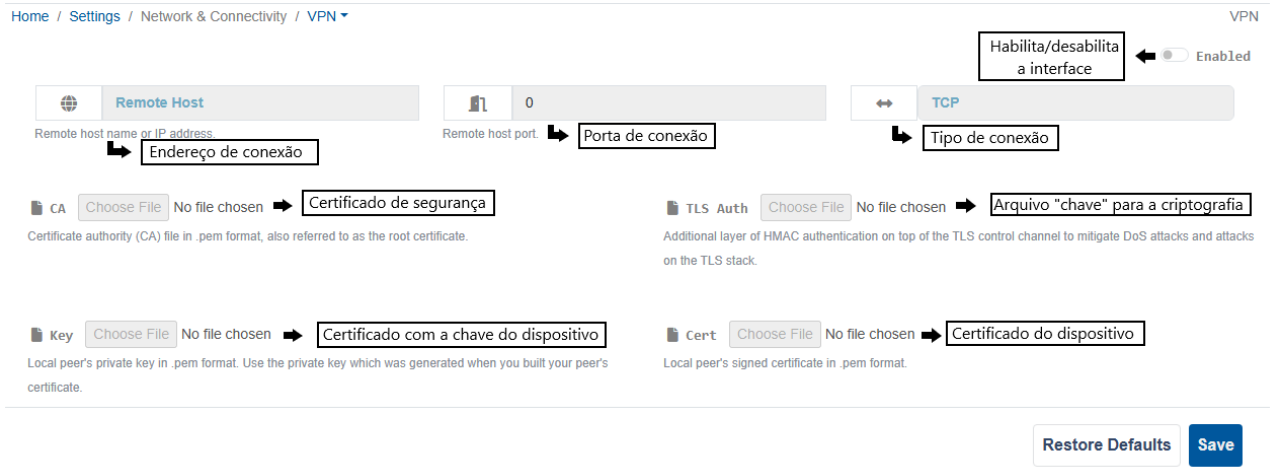


Figure 4.16: *VPN interface configuration screen*

4.6.1.4 ROUTE CONFIGURATION

Ethernet and Wi-Fi connections offer the option to configure additional routes, allowing changes in priority, adding new devices, among others. Figure 4.17 illustrates the ”Static Routes” configuration screen, where the user can add the address, network mask, and the edge device address.

Figure 4.17: *Connection route configuration screen*

Ethernet and Wi-Fi connections also offer route prioritization, as indicated in Figure 4.18, in the ”General” tab. This option should be selected when one or more communication methods are active, prioritizing the network that should have Internet access. In other words, only on the network interface that will connect to the internet, the option ”Default Route for Internet” must be enabled.

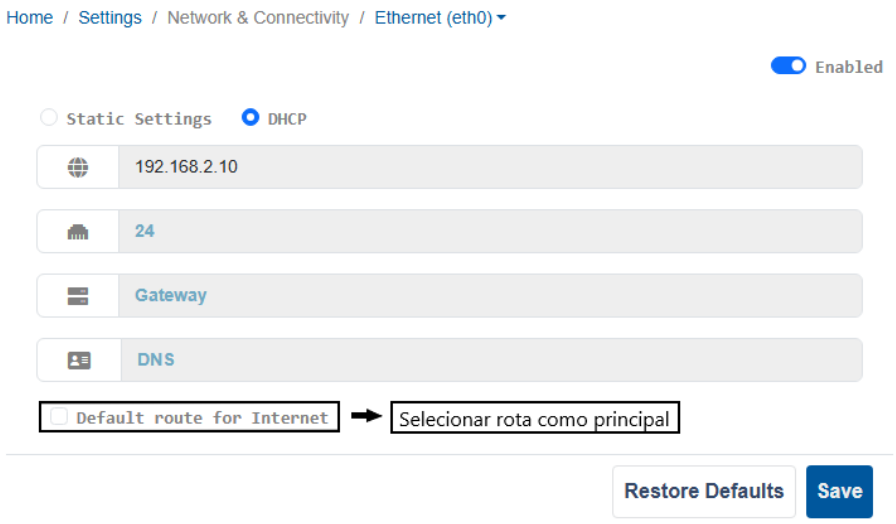


Figure 4.18: *Main route configuration*

4.6.2 INTEGRATION

4.6.2.1 LWM2M

This configuration is intended for setting up a connection with WEG’s device health management server, IEMS, using the LwM2M protocol.

By default, the device targets an internal WEG server (highlighted in Figure 4.19). However, it is possible to modify the settings to connect to new LwM2M servers.

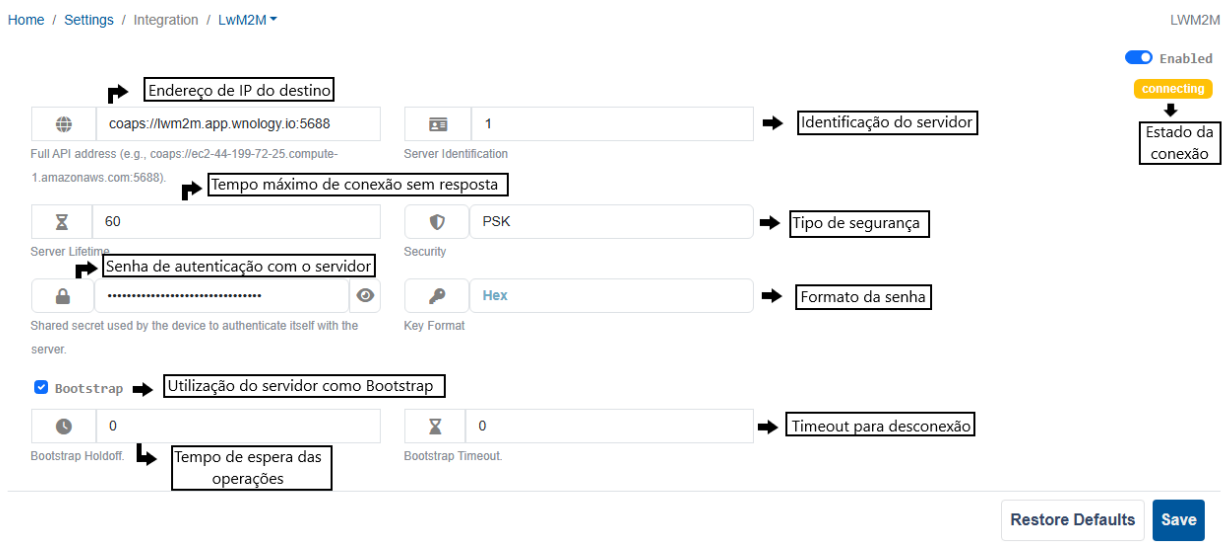


Figure 4.19: *LwM2M connection configuration screen*

> **NOTE!**
> In support cases, the device must be registered on WEG's internal platform by providing the product's serial number to the responsible team.

4.6.2.2 BROKER

The broker is an essential part of the device's communication system, responsible for managing message exchange between the device and the central platform (highlighted in Figure 4.20).

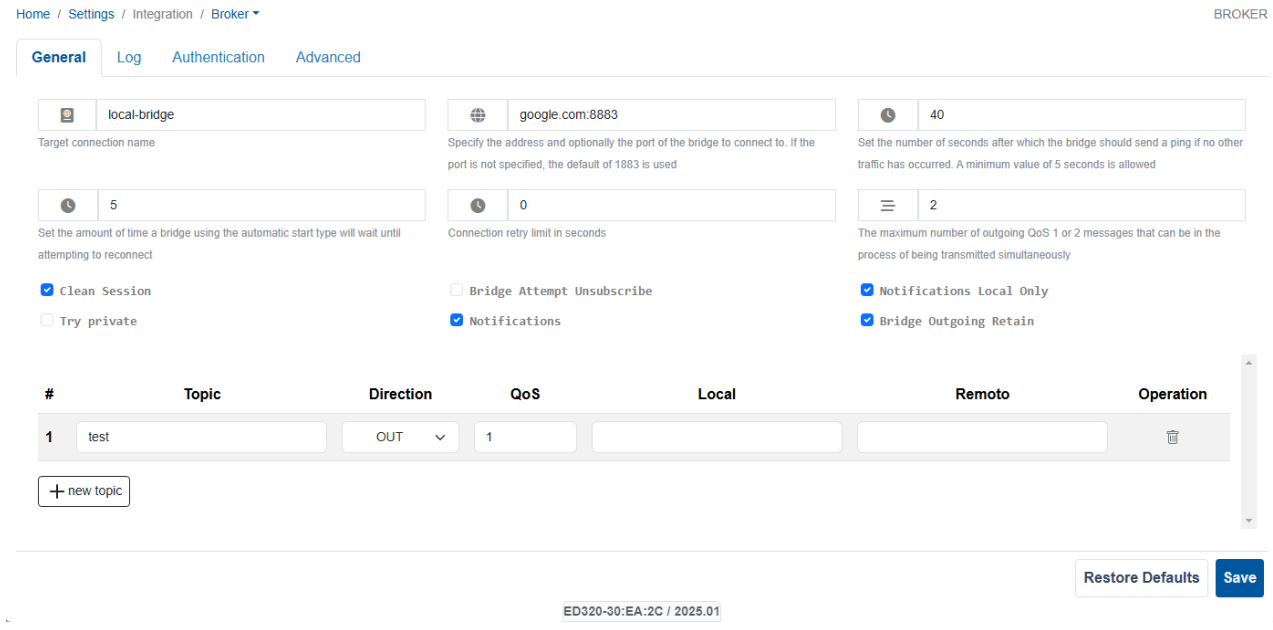


Figure 4.20: *Broker configuration screen*

4.6.2.3 WEGNOLOGY PLATFORM

To integrate with the WEGnology® platform, follow these steps:

1) Device Registration.

2) Container Creation and Activation.

4.6.2.3.1 DEVICE REGISTRATION

To register the device on the WEGnology® platform, select the available management platform (WEGnology®) in the ”Integration” item on the general settings screen (Figure 4.21).

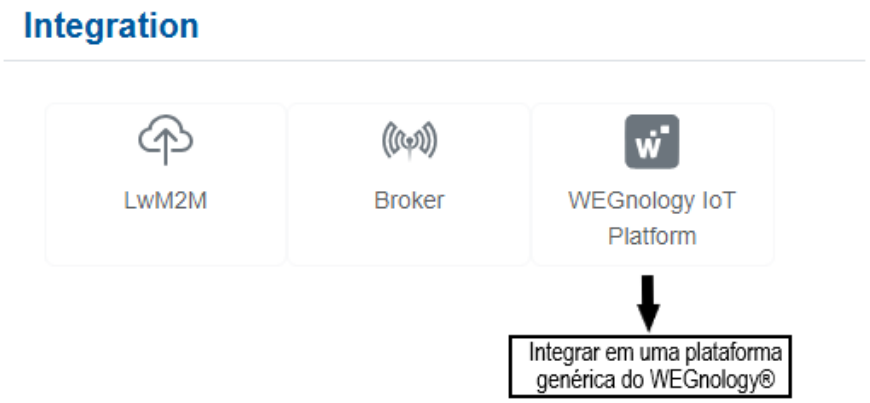


Figure 4.21: *Device management platform*

Figure 4.22 illustrates the initial device registration screen. URI, username, and password information must be provided.

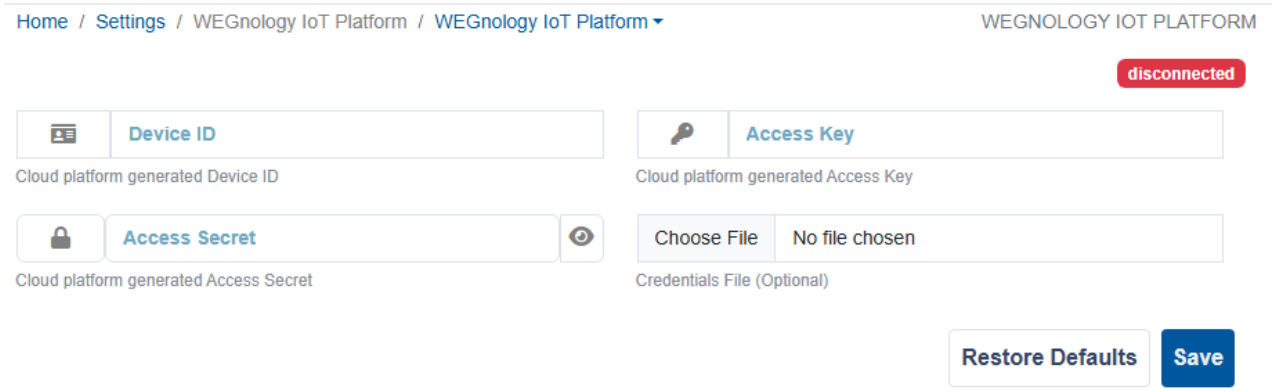


Figure 4.22: *Initial registration screen on WEGnology® platform*

NOTE!
The integration process is performed during the configuration in the Setup Wizard on the first access. The steps described above are only necessary if this step was not completed during the first access.

4.6.3 VIRTUALIZATION

4.6.3.1 CONTAINER CONFIGURATION

After registering the device on the WEGnology® platform, the creation of a Container for running the WEGnology® Agent can be performed if necessary. It is important to note that the container is already ready for use, and its creation is not mandatory, being an optional feature.

If the user wishes to use this feature, they must access the ”Containers” menu within the ”Virtualization” option on the general settings screen. Figure 4.23 shows the container configuration screen. This container and image menu should only be used if there is a specific user need.

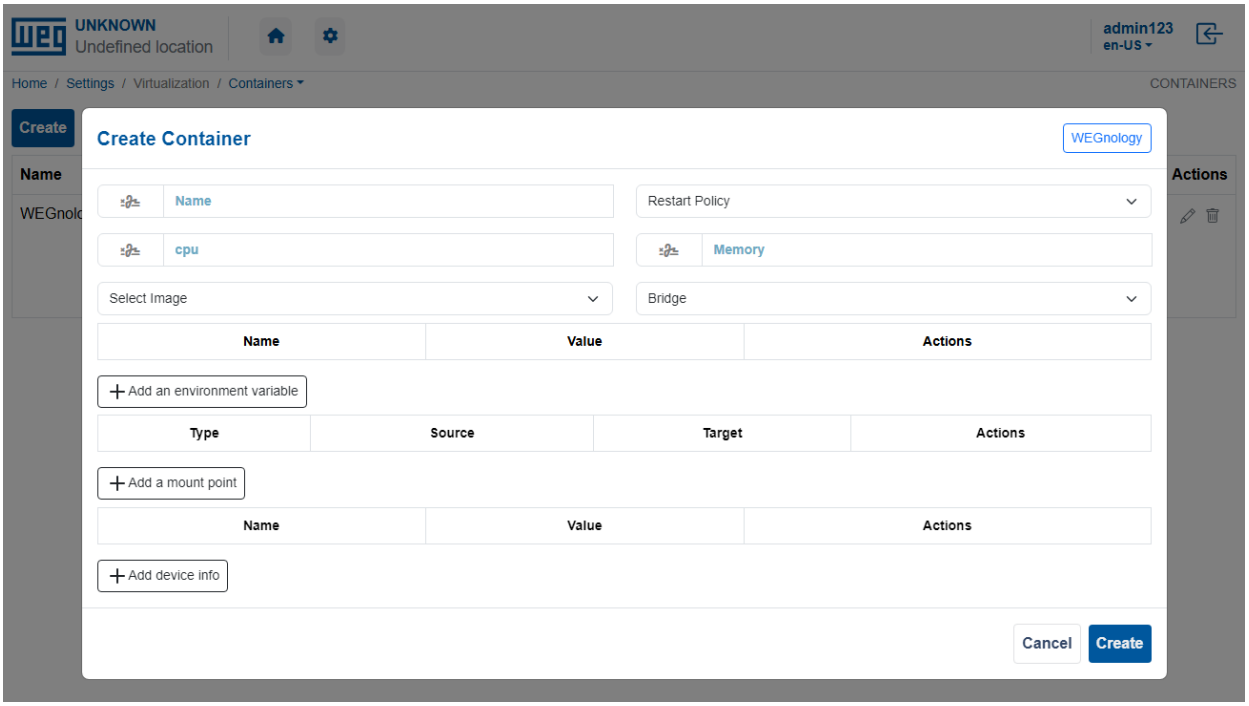


Figure 4.23: *Container configuration screen*

To create a Container, fill in the ”Name” field with a name, choose the container image to be created, click ”Create,” and wait for the process to finish. Once created, the Container will appear in the list, as shown in Figure 4.24.

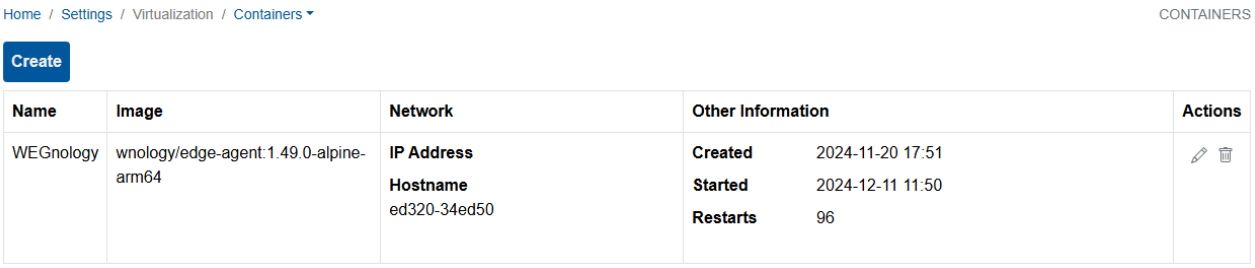


Figure 4.24: *Container successfully created*

4.6.3.2 IMAGES

The image screen is where you can view all images stored in the system. In this interface, you can see the available images and, if necessary, add new images by clicking the ”Create” button. By clicking this button, you can access images available in the remote repository, download them, and add them to your system. Figure 4.25 shows the image configuration screen and how to create new ones.

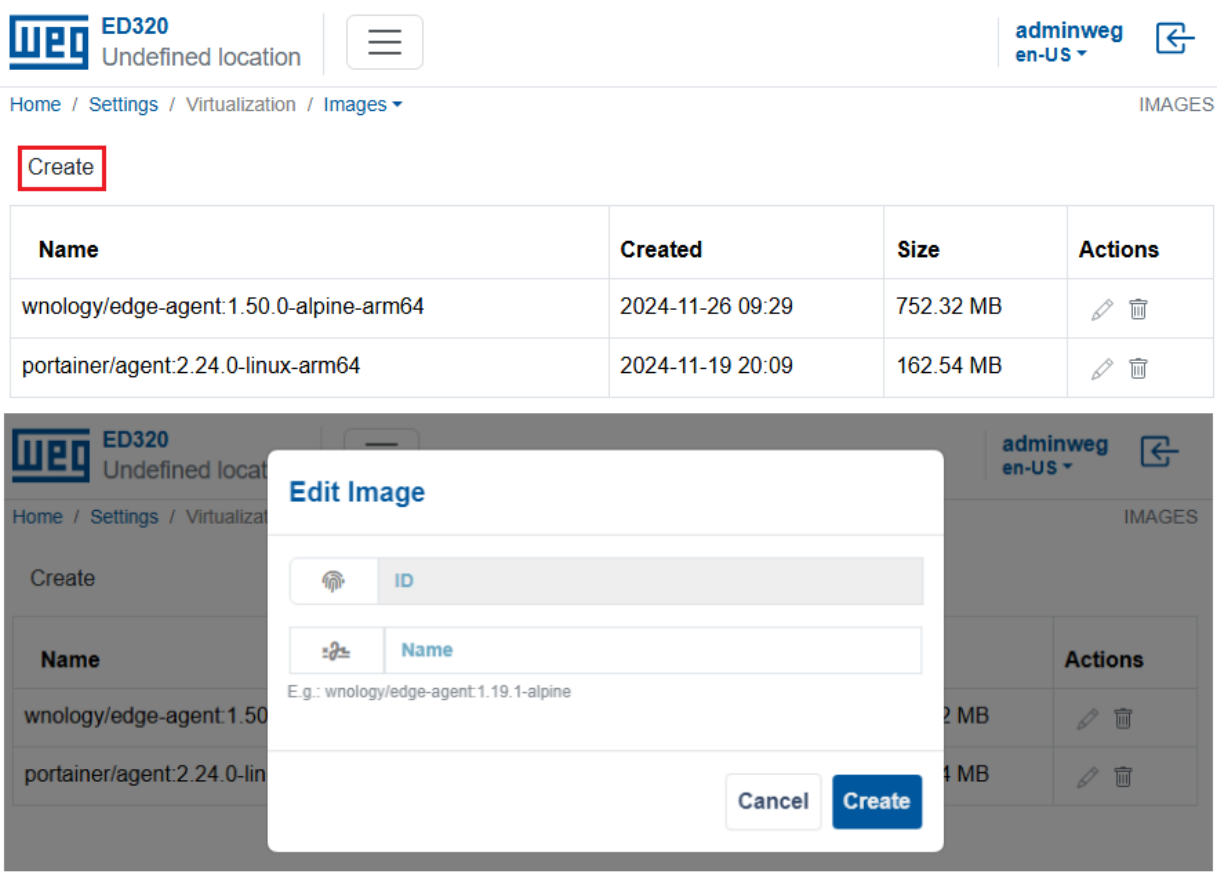


Figure 4.25: *Image configuration screen*

4.6.4 APPLICATIONS

4.6.4.1 GENERAL

There are settings that can be adjusted to optimize device operation, accessible through the ”General” option on the general settings screen. However, it is important to note that, by default, these settings are already adjusted to ensure full device functionality. The available options are completely optional and only need to be changed if the user wants to customize or adjust a specific aspect of operation. Figure 4.26 shows the configurable options:

- **Local webpage HTTP server:** Allows choosing the port and enabling/disabling the HTTP server.
- **SSH Server:** Allows choosing the port and enabling/disabling the SSH server.
- **Access Point Password:** Change password.
- **Location (Deploy Site):** Change/add device location.
- **Internet Check Interval:** Change interval.
- **Date/Time:** Change manually or add servers for remote date/time updates.
- **Automatic System Upgrades:** Automatic update check if connected to the internet.
- **Default DNS:** Change the system’s default DNS.

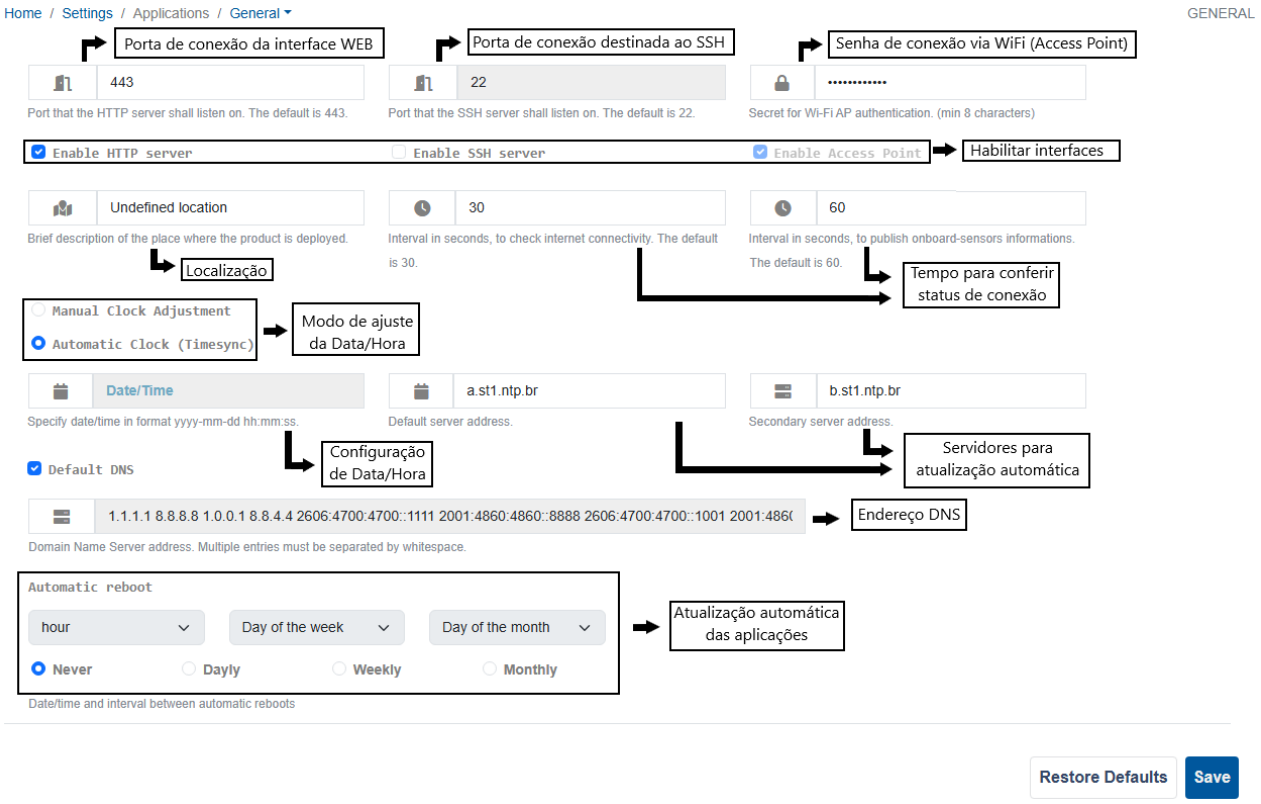


Figure 4.26: *General configuration*

NOTE!
The user must ensure that there is a password in the Access Point field.

NOTE!
Manual date/time adjustment must follow the format specified in the field.

4.6.5 ACCESS CONTROL

The ED320 allows managing user access to device settings. Registration can be done on the screen shown in Figure 4.27, by accessing the General Settings area (Settings), under the User option in Access Control. In addition to registering (Create) a new user, other actions such as editing (Edit) or removing (Remove) an existing user can be performed on this screen.

The device comes from the factory with the user ”weg,” characterized by full access privileges. Password change is mandatory on first access.

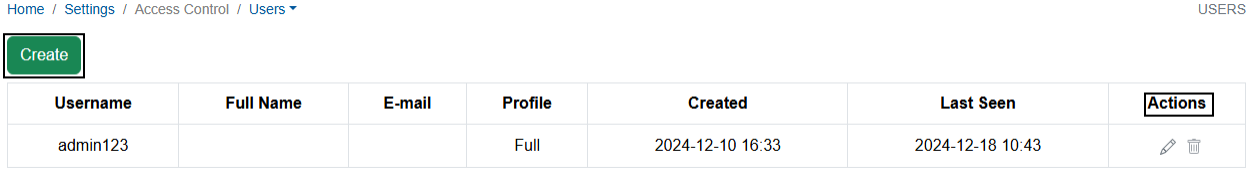


Figure 4.27: *User access control*

4.6.6 SYSTEM MANAGEMENT

The ED320 provides access to System Management through the General Settings area (Settings), as shown in Figure 4.28.

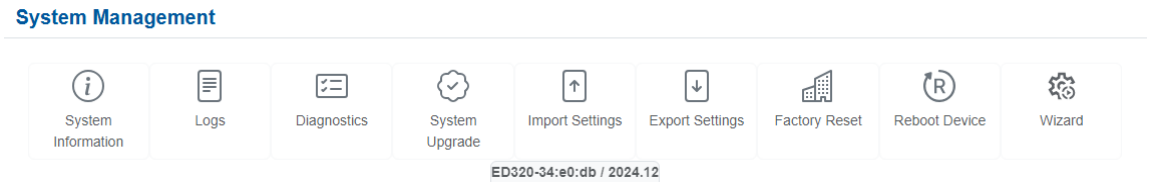


Figure 4.28: *System management*

The following resources are available for ED320 System Management:

- **System Information:** Displays product information and versions related to the device's operating system, hardware, and software (applications).
- **Diagnostic:** Performs an analysis of the device's network connection.
- **System Upgrade:** Allows uploading a new software package from an update file.
- **Import Settings:** Allows importing ED320 system settings from other devices.
- **Export Settings:** Allows exporting ED320 system settings to other devices.
- **Factory Reset:** Restores the device to factory settings. All customizations, such as users, profiles, network interfaces, containers, will be reset to their defaults.
- **Reboot Device:** Restarts the device.

NOTE!
After selecting device reboot, the execution time depends on closing all running applications. Therefore, the time interval may vary depending on the number of applications and/or containers performing activities. Approximate operation time: 1 to 5 minutes.

5 CERTIFICATIONS AND REGULATIONS

5.1 ANATEL APPROVAL

NOTE!
This equipment is not entitled to protection against harmful interference and cannot cause interference in duly authorized systems.

ANATEL
Agência Nacional de Telecomunicações

14242-20-04423

5.2 CE REGULATION

NOTE!
EU SIMPLIFIED DECLARATION OF CONFORMITY
Hereby, WEG Drivers Controls - Automação LTDA declares that the radio equipment type WCD-ED320 and WEGscan 1000 complies with Directive 2014/53/EU.

5.3 FCC REGULATION

NOTE!
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

5.4 ISED REGULATION

NOTE!
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-003(A)/NMB-003(A)

6 WARRANTY TERMS

WEG Equipamentos Elétricos S/A, Unidade Motores (“WEG”), offers a warranty against manufacturing and material defects for the Edge Device product for a period of 12 months, counted from the date of issuance of the invoice by the factory or distributor/reseller.

The warranty periods above include the legal warranty periods and are not cumulative. If a different warranty period is defined in the technical-commercial proposal for a specific supply, it will prevail over the periods above.

The periods established above are independent of the product installation date and its commissioning. In the event of a deviation from normal product operation, the customer must immediately notify WEG in writing about the defects and make the product available to WEG or its Authorized Technical Assistant for the time necessary to identify the cause of the deviation, verify warranty coverage, and perform the necessary repair.

To be entitled to the warranty, the customer must comply with the specifications of WEG technical documents, especially those provided in the Installation and Operation Manual of the products, and with the standards and regulations in force in each country.

Defects resulting from improper or inappropriate use, operation, and/or installation of the equipment, as well as defects caused by external factors or equipment and components not supplied by WEG, are not covered by the warranty.

The warranty does not apply if the customer, on their own initiative, performs repairs and/or modifications to the equipment without prior written consent from WEG. The warranty does not cover equipment, parts, and/or components whose useful life is shorter than the warranty period. Likewise, it does not cover defects and/or problems resulting from force majeure or other causes that cannot be attributed to WEG, such as, but not limited to: incorrect or incomplete specifications or data provided by the customer, transportation, storage, handling, installation, and operation contrary to the provided instructions, accidents, deficiencies in civil works, use in applications and/or environments for which the product was not designed, equipment and/or components not included in WEG’s supply scope. The warranty does not include disassembly services at the customer’s facilities, product transportation costs, and travel, lodging, and meal expenses for Technical Assistance personnel when requested by the customer.

Warranty services will be provided exclusively at WEG-authorized Technical Assistance workshops or at WEG’s own factory. Under no circumstances will these warranty services extend the equipment’s warranty periods.

WEG’s civil liability is limited to the supplied product and does not cover indirect or consequential damages, such as loss of profits, revenue losses, and similar that may arise from the contract signed between the parties.

7 APPENDIX A: FIREWALL CONFIGURATION TABLE

If the firewall system allows domain-based rules without specifying IP addresses, configure the rules using only domains and ports.

Domain Name	IP Address	Description	Port	Protocol
broker.app.wnology.io	3.234.136.81 3.227.206.235 52.22.246.163	WEGnology Broker	8883	TCP
*.wnology.io api.app.wnology.io		WEGnology REST API	443	TCP
[1] lwm2m.app.wnology.io	44.211.23.49 3.227.206.235 3.234.136.81	IEMS	5683 5686 5688	TCP/UDP
ec2-44-199-72-25.compute-1.amazonaws.com	44.199.72.25	Support	5685	TCP
		Container Agent	8000 9443	TCP
registry-docker.weg.net	57.74.24.237	Container Registry	443	TCP
api.netbird.io signal.netbird.io turn.netbird.io	35.186.199.111	WEGnology Remote Access	80 443	TCP/UDP
			443-65535	TCP
nexus3.weg.net	189.16.25.212	APT	443	TCP
a.st1.ntp.br	200.160.7.186	NTP	123	UDP
b.st1.ntp.br	201.49.148.135			
–	8.8.8.8 8.8.4.4	Google Public DNS	53	TCP/UDP

Table 7.1: *Network permissions required for ED320 operation.*

NOTE!
[1] The IP address may change; it is recommended to check your address via the URL of the domain provided.

NOTE!
For security reasons, all connections are initiated exclusively by the device, which is considered ”Outbound only,” preventing any attempt at external connection via remote servers.

APPENDIX A: FIREWALL CONFIGURATION TABLE

8 APPENDIX B: SUPPORT TASK LIST

Domain Name	IP Address	Port	Direction	Mandatory	Permit
ec2-44-199-72-25.compute-1.amazonaws.com	44.199.72.25	5685 5686 5688 8000 9443	Bidirectional	Yes	☐
a.st1.ntp.br	200.160.7.186	123	Bidirectional	Sim	☐
b.st1.ntp.br	201.49.148.135			Yes	☐
broker.app.wnology.io	3.234.136.81 3.227.206.235 52.22.246.163	8883	Bidirectional	Yes	☐
*.wnology.io api.app.wnology.io		443	Bidirectional	Yes	☐
lwm2m.app.wnology.io	44.211.23.49 3.227.206.235 3.234.136.81	5683 5686 5688	Bidirectional	Yes	☐
nexus3.weg.net	189.16.25.212	443	Bidirectional	Sim	☐
api.netbird.io signal.netbird.io turn.netbird.io	35.186.199.111	80 / 443	Bidirecional	Yes	☐
registry-docker.weg.net	57.74.24.237	443	Bidirectional	Yes	☐
dns.google	8.8.8.8 8.8.4.4	53	Output	Yes	☐

Table 8.1: *Firewall configuration task list.*

Steps	Mandatory	Options	Chosen	Done
1. Allow domains, IP addresses, and ports in the Firewall	YES			☐
2. Install the ED320	YES			☐
3. Configure the Ethernet	NO			☐
4. Connect the power cable	YES			☐
5. Access the configuration page	YES			☐
6. Run the setup wizard	YES			☐
7. Connect the ED320 to the internet	YES			☐
8. Perform a network diagnostics	YES			☐
9. Confirm the connection with the commissioning platform through the LwM2M page	YES			☐
10. Register the device on the desired WEGnology platform (MFM, TMF, among others)	YES			☐
11. Check the connection status on the desired platform	YES			☐

Table 8.2: *Support task checklist.*

WEG Digital & Sistemas LTDA.
Jaraguá do Sul - SC - Brazil
Phone 55 (47) 3276-4000 - Fax 55 (47) 3276-4020
São Paulo - SP - Brazil
Phone 55 (11) 5053-2300 - Fax 55 (11) 5052-4212
digitalesistemas@weg.net
www.weg.net