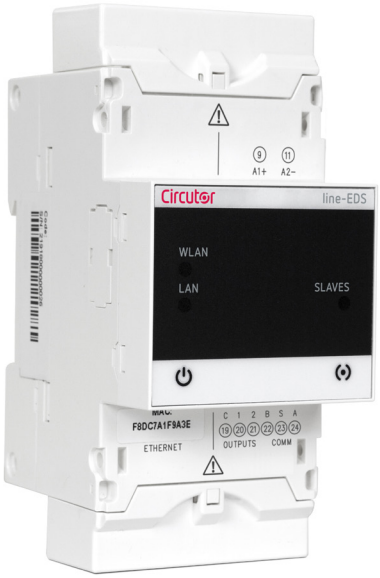
Access point

line-EDS-Cloud



INSTRUCTION MANUAL

(M231B01-03-23A)

CE

SAFETY PRECAUTIONS

Follow the warnings described in this manual with the symbols shown below.

DANGER
Warns of a risk, which could result in personal injury or material damage.

ATTENTION
Indicates that special attention should be paid to a specific point.

If you must handle the unit for its installation, start-up or maintenance, the following should be taken into consideration:

Incorrect handling or installation of the device may result in injury to personnel as well as damage to the device. In particular, handling with voltages applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire.

Read the manual carefully prior to connecting the device. Follow all installation and maintenance instructions throughout the device's working life. Pay special attention to the installation standards of the National Electrical Code.

Refer to the instruction manual before using the device

In this manual, if the instructions marked with this symbol are not respected or carried out correctly, it can result in injury or damage to the device and / or installations.

CIRCUTOR S.A.U. reserves the right to modify features or the product manual without prior notification.

DISCLAIMER

CIRCUTOR S.A.U. reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

CIRCUTOR S.A.U. on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

www.circutor.com

CIRCUTOR S.A.U. recommends using the original cables and accessories that are supplied with the device.

CONTENTS

REVISION LOG

Table 1: Revision log.

Date	Revision	Description
05/20	M231B01-03-19A	First Version
11/20	M231B01-03-20A	Changes in the following sections: 6. - 7.- Annex A.
01/21	M231B01-03-21A	Changes in the following sections: 7. - Annex A.2.
01/22	M231B01-03-22A	Changes in the following sections: 6.- 6.1.3. - 6.1.4. - 6.2. - 6.4. - 6.6.2.
03/23	M231B01-03-23A	Changes in the following sections: 5.2.2. - 7.

SYMBOLS

Table 2: Symbols.

Symbol	Description
CE	In accordance with the relevant European directive.
	Device covered by European Directive 2012/19/EC. At the end of its useful life, do not leave the device in a household refuse bin. Follow local regulations on electronic equipment recycling.
⎓	Direct current.
~	Alternating current.

Note: *The images on the devices are for illustrative use only and may differ from the original device.*

1.- VERIFICATION UPON RECEPTION

Upon reception of the device check the following points:

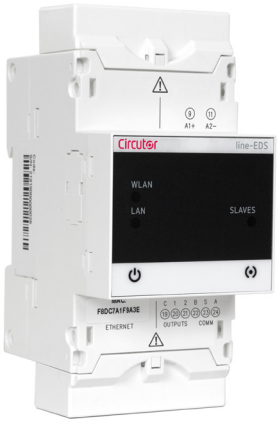
a) The device meets the specifications described in your order.
b) The device has not suffered any damage during transport.
c) Perform an external visual inspection of the device prior to switching it on.
d) Check that it has been delivered with the following:

- An installation guide

If any problem is noticed upon reception, immediately contact the transport company and/or **CIRCUTOR**'s after-sales service.

2.- PRODUCT DESCRIPTION

line-EDS-Cloud is a device that works as connector between field devices with Modbus RTU or Modbus TCP communications and data collection systems in the cloud (Big Data).
The **line-EDS-Cloud** includes a Web page to configure the Modbus devices' memory profiles or maps and select which variables are to be transferred to the Cloud systems.



The device features:

- **5** indication **LEDs**
- **2 digital outputs**.
- **RS-485 and Ethernet** communications.
- **Wi-Fi** connection.

3.- INSTALLATION OF THE DEVICE

3.1.- PRELIMINARY RECOMMENDATIONS

In order to use the device safely, personnel operating it must follow the safety measures that comply with the standards of the country where it is to be installed; operators must wear the required personal protective equipment (rubber gloves, approved facial protection and flame-resistant clothing) to prevent injuries from electric shock or arcs caused by exposure to current-carrying conductors, and they must heed the various warnings indicated in this instruction manual.

The **line-EDS-Cloud** device must be installed by authorised, qualified personnel.

The power supply plug must be disconnected before handling, altering the connections or replacing the device. It is dangerous to handle the device while it is powered.

Cables must always be kept in perfect condition to avoid accidents or injury to personnel or installations.

The manufacturer of the device is not responsible for any damage resulting from failure by the user or installer to heed the warnings and/or recommendations set out in this manual, nor for damage resulting from the use of non-original products or accessories or those made by other manufacturers.

Do not use the device to perform any operation if you detect any anomaly or malfunction.

Before carrying out maintenance, repair or handling of any of the device's connections, the device must be disconnected from all power sources, both from the device's own power supply and the measurement's.
Contact the after-sales service if you detect that the device is not working properly.

3.2.- INSTALLATION

The device must be installed on an electric panel or enclosure, attached to a DIN rail (IEC 60715).

When the device is on, its terminals, opening covers or removing elements may expose the user to parts that are hazardous to touch. Do not use the device until it is fully installed.

The device must be connected to a power supply circuit protected by gI type (IEC 269) or M type fuses, between 0.5 and 2A. It must be fitted with a circuit-breaker or equivalent device to disconnect the device from the mains supply.
The power supply circuit must be connected with a 1mm^2 minimum cross-section cable.

3.3.- 72 x 72 mm PANEL ADAPTER

Note: *The 72 x 72 mm panel adapter is a separately sold accessory.*

CIRCUTOR has a panel adapter for the **line-EDS-Cloud** devices for their installation in 72 x 72 mm panels.

Figure 1 illustrates how the panel adapter connects to a **line-EDS-Cloud**.

Before installing the adapter, the device must be disconnected from all power and measurement supplies.

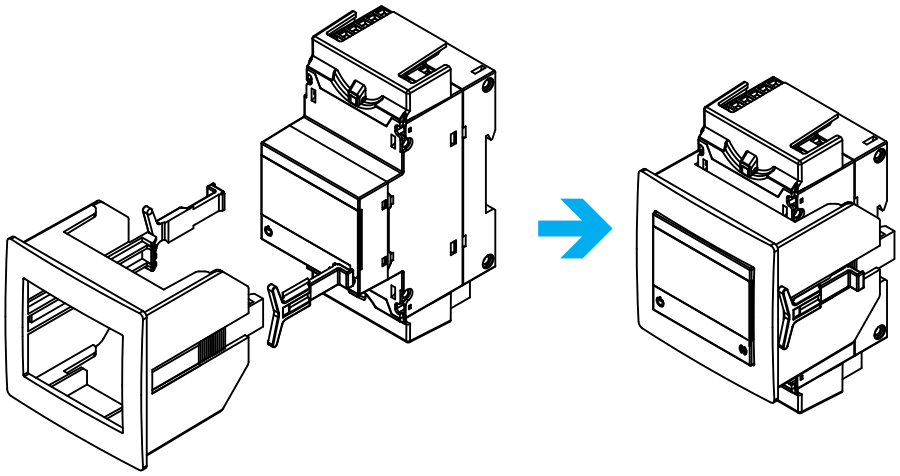


Figure 1: Installation of the panel adapter.

Table 3: Technical characteristics of the Panel Adapter.

Technical Specifications	
Protection degree	IP40
Casing	Self-extinguishing V0 plastic

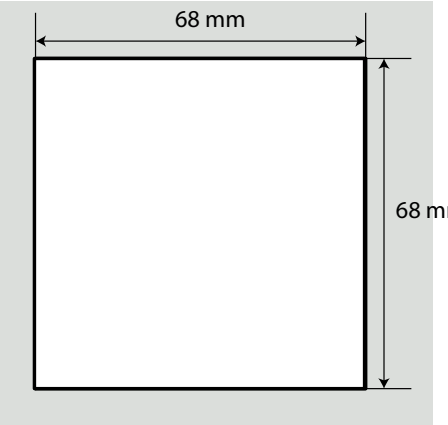


Figure 2: Cut in the panel.

3.4.- DEVICE TERMINALS

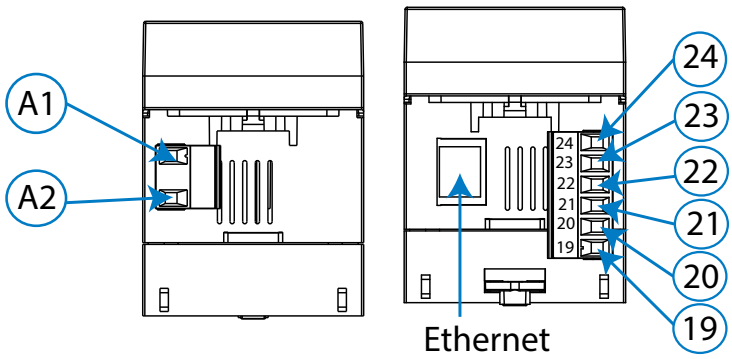


Figure 3: Device terminals: Upper - Lower.

Table 4: List of terminals.

Device terminals	
A1: Power supply	**21: 1**, Digital output 1
A2: Power supply	**20: 2**, Digital output 2
24: A+, RS-485	**19: C**, Common of digital outputs
23: S, **GND** for RS-485	**Ethernet**, Ethernet connection
22: B-, RS-485	

3.5.- EXPANSION WITH OTHER DEVICES

The **line-EDS-Cloud** devices can be expanded with other devices in the line range, the **line-CVM** and **line-M** expansion modules.

The **line-EDS-Cloud** and **line-CVM** devices enable up to 2 expansion modules to be directly connected to their right-hand side(1).

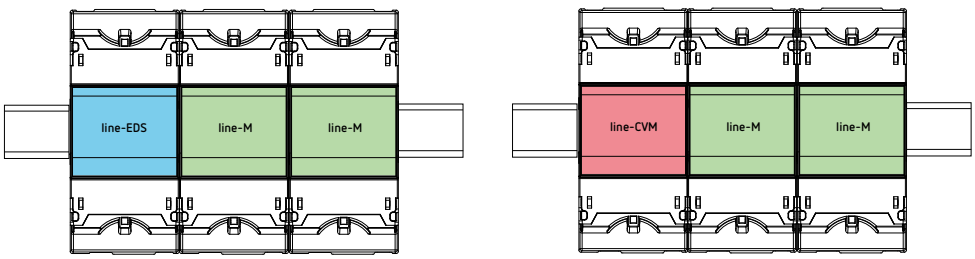


Figure 4: line-EDS-Cloud and line CVM expansion module connection.

(1) Expansion module types: **line-M-410-R**, **line-M-410-T, line-M-410-RV** and **line-M-410-A.**

In installations with **line-EDS-Cloud** devices, a total of up to seven devices may be connected to their right-hand side.

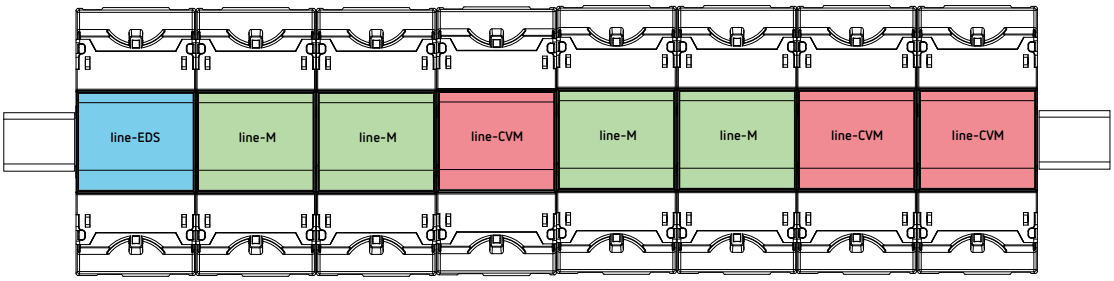


Figure 5: Typical installation of a line-EDS-Cloud with 7 devices.

Note: *An installation may only be fitted with one* ***line-EDS-Cloud*** *device.*

Note: *In installations without* ***line-EDS-Cloud*** *devices,* ***only one line-CVM*** *device may ne installed.*

Note: *All* ***line-EDS-Cloud*** *and* ***line-CVM*** *devices* must be connected to the auxiliary power supply.

3.5.1.- Line-M-EXT-PS POWER ADAPTER

Line-M-EXT-PS is a power adapter belonging to the line family of devices. The module connects to the left-hand side of the devices to be fed. It can supply up to 10 VA, allowing it to power a limited number of devices.

The maximum set it can supply is: 1 **line-EDS-Cloud** + 1 **line-CVM** + 1 **line-M** (**Figure 6**).

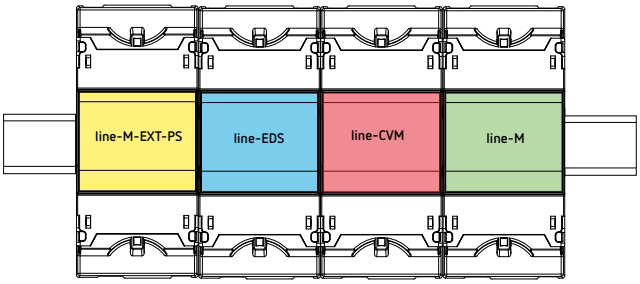


Figure 6: Maximum set a line-M-EXT-PS can supply.

Multiple **line-M-EXT-PS** devices can be connected to supply sets with power above 10VA. Each **line-M-EXT-PS** will power the devices connected to its right-hand side (**Figure 7**).

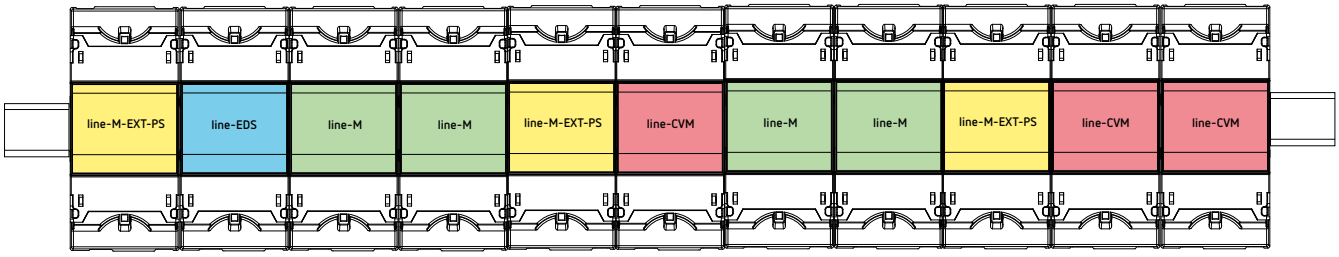


Figure 7: Multiple line-M-EXT-PS connection.

Note: *None of the* ***line-EDS-Cloud*** *or* ***line-CVM*** *devices should be connected to the auxiliary power supply.*

3.5.2.- INSTALLATION

> Before installing a new device, it must be disconnected from all power supplies.

The correct steps to connect the devices are:

1.- Using a flat head screwdriver, remove the expansion connector's protective covers located on the side of the devices, (**Figure 8**).

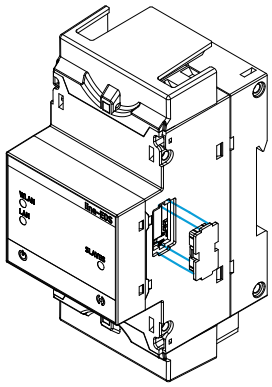


Figure 8: Installation step 1.

2.- Insert the expansion connector and fastening clips into one of the devices (**Figure 9**).

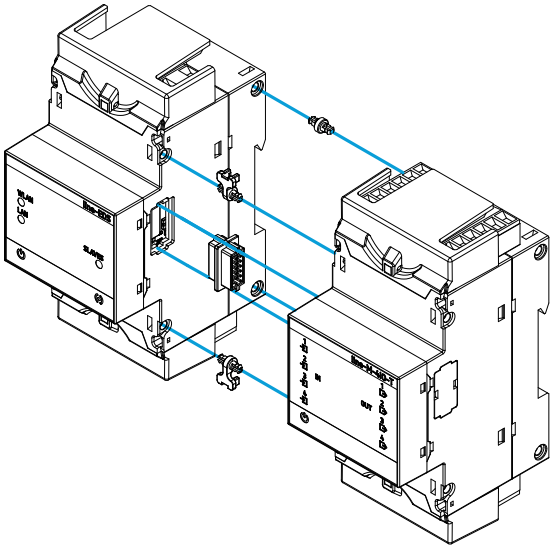


Figure 9: Installation step 2.

3.- Connect both devices and fasten them by pushing the front clips down (**Figure 10**).

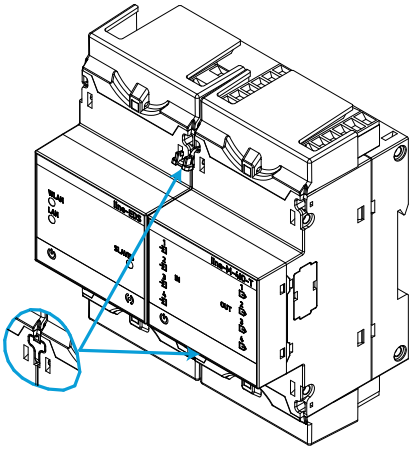


Figure 10: Installation step 3.

For correct installation of all devices, please refer to the instruction manual for the different models:
M237B01-01-xxx: Instruction Manual for **line-CVM** devices.
M239B01-03-xxx: Instruction Manual for **line-M** expansion modules.

3.6.- CONNECTION DIAGRAMS

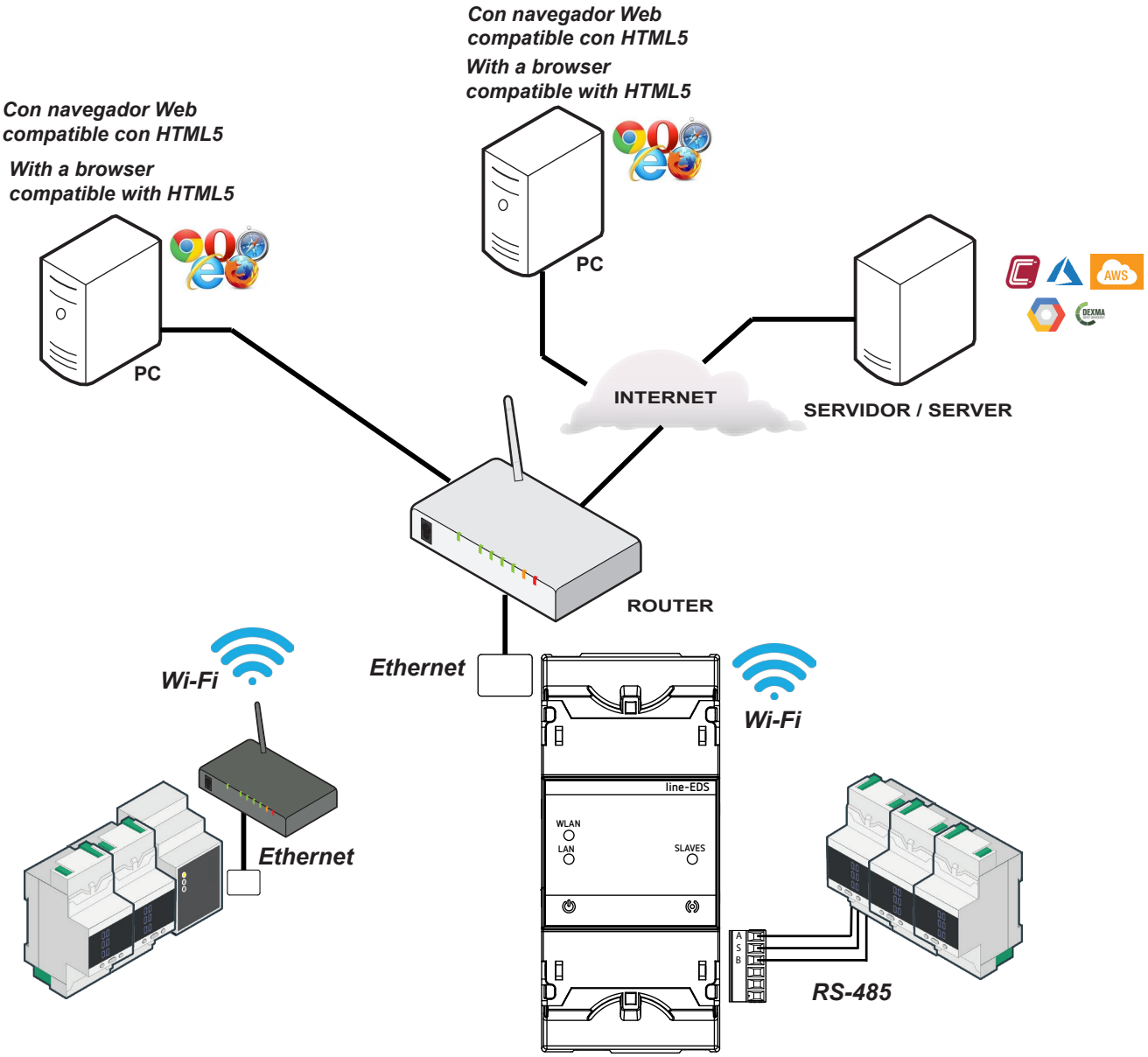


Figure 11: line-EDS-Cloud connection diagrams.

4.- OPERATION

4.1.- OPERATING PRINCIPLE

Line-EDS-Cloud is a device that works as connector between field devices with Modbus RTU or Modbus TCP communications and data collection systems in the Cloud.

Line-EDS-Cloud connects field devices with Modbus via RS-485, Wi-Fi or via a Modbus TCP Ethernet connection and sends data to Cloud platforms. The parameters that you want to upload to the Cloud platform can be selected on the device's configuration website.

The device currently works with the following Cloud platforms: **MyCircutor, Amazon, Azure, DEXMA** y **Google**.

4.2.- LED INDICATORS

The devices have 5 indicating LEDs:

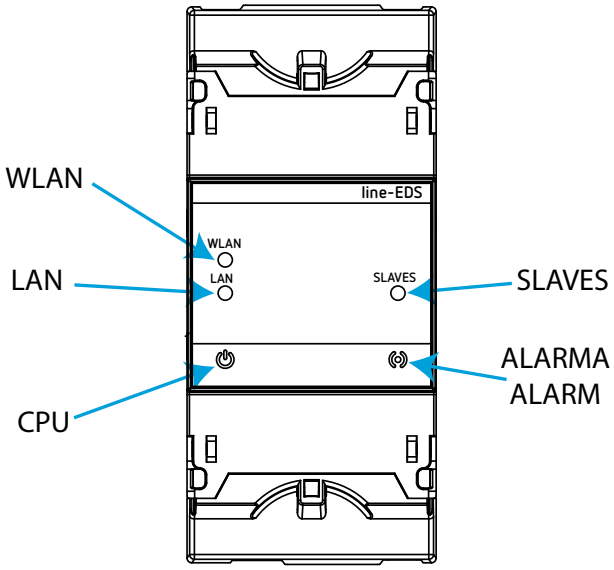


Figure 12: LED indicators.

✓ **CPU**, Device status:

Table 5: CPU LED.

LED	Description
CPU	Flashing (white color)
	Device powered

✓ **LAN**, Ethernet connection

Table 6: LAN LED.

LED	Description
LAN	**On (green color)**
	Connection to a local network
	Flashing (green color)
	Activity in the network

✓ **WLAN**, Wi-Fi connection:

Table 7: WLAN LED.

LED	Description
WLAN	**On (blue color)**
	Connection to a Wi-Fi network
	Flashing (blue color)
	Activity in the Wi-Fi network

✓ **ALARM**:

Table 8: ALARM LED.

LED	Description
CPU	**On (red color)**
	Alarm activated

✓ **SLAVES**, Connection with slave device:

Table 9: SLAVES LED.

LED	Description
SLAVES	**On (red color)**
	The slave device doesn't communicate

4.3- DIGITAL OUTPUTS

The device has 2 digital outputs, optoisolator NPN transistors (terminals **19, 20** and **21** in **Figure 3**).

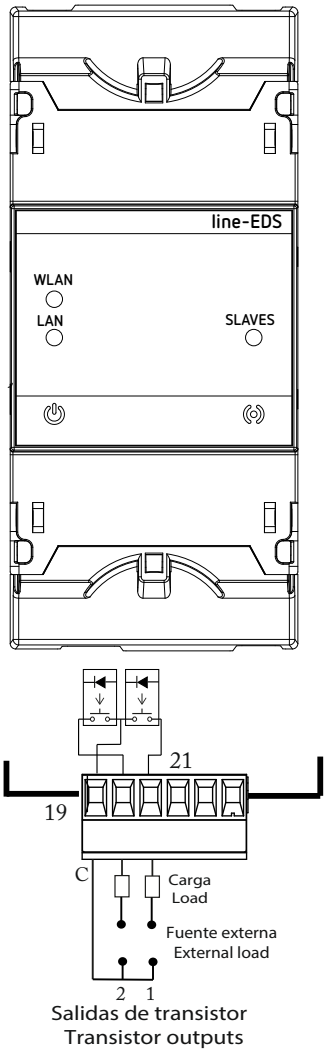


Figure 13: Digital outputs.

5.- COMMUNICATIONS

5.1- RS-485 COMMUNICATIONS

line-EDS-Cloud devices have an RS-485 communications port.

5.1.1.- CONNECTIONS

The RS-485 cable must be wired using twisted pair cable with mesh shield (minimum 3 wires), with a maximum distance of **1200 meters** between the **line-EDS-Cloud** and the slave devices.
In this bus we can connect a maximum of 32 slave devices.

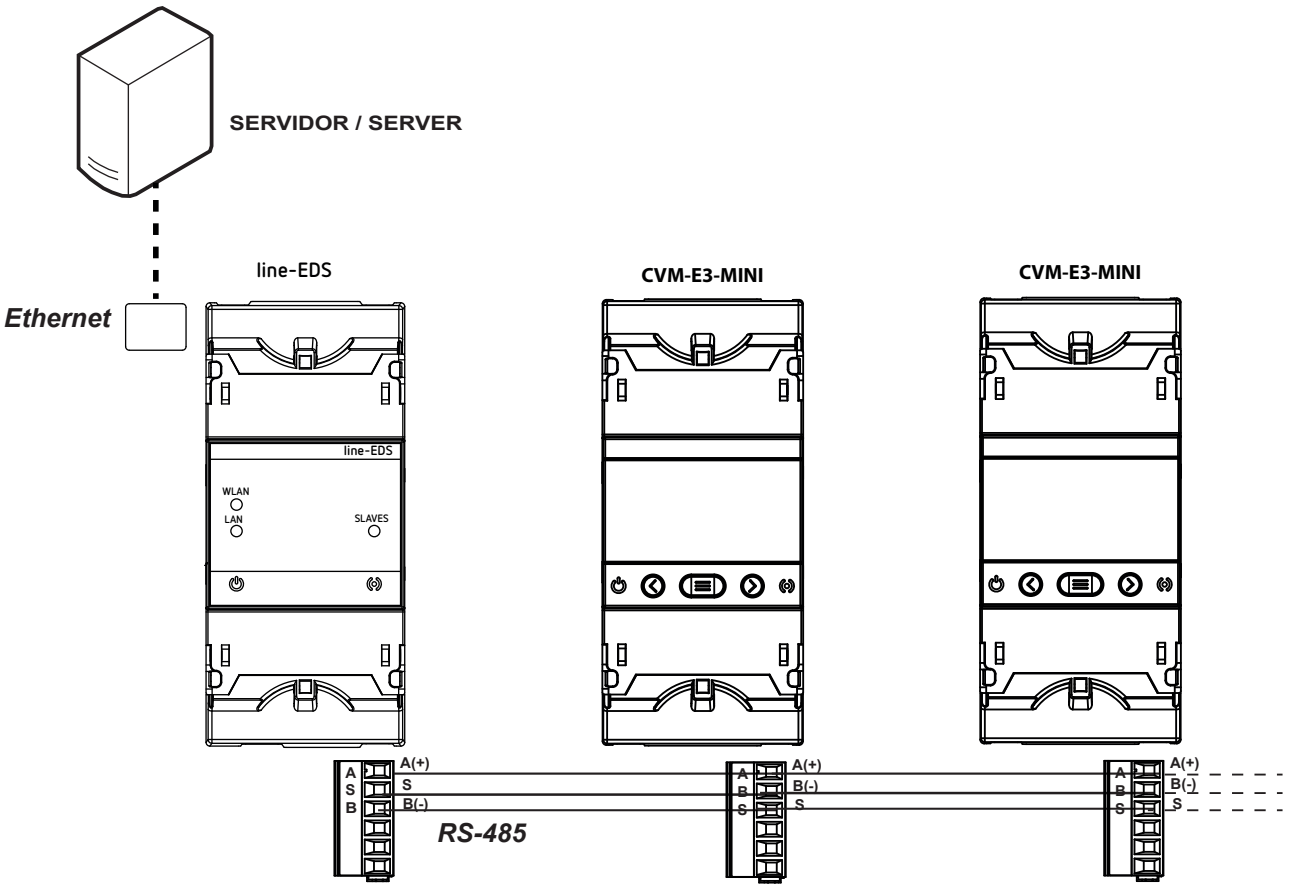


Figure 14: RS-485 connection diagram.

5.2- Wi-Fi COMMUNICATIONS

5.2.1.- USAGE ENVIRONMENT AND HEALTH

Wireless communications emit radio frequency electromagnetic energy, like other radio devices.

Because wireless communications operate under the guidelines found in radio frequency standards and recommendations, they are safe for users to use.

In some settings and situations the use of wireless communications may be restricted by the building's owner of representatives of the organisation.
These may include:

✓Use of wireless connections on board aircraft, in hospitals or near service stations, blasting areas, medical implants or electronic medical devices implanted in the human body (pacemakers, etc.).

✓ In any other setting where the risk of interference with other devices or services is a hazard.

If you are not sure of the applicable usage policy for wireless devices in a specific organisation (airport, hospital, etc.) we recommend requesting permission to use wireless communications.

5.2.2.- Wi-Fi COMMUNICATIONS

Wi-Fi is one of the most widely-used wireless technologies today, used to connect electronic devices and exchange information between them without a physical connection.

The **line-EDS-Cloud** has Wi-Fi communications over the 2.4 GHz band, in accordance with the IEEE 802.11 b / g / n standards.

Table 10:Security features of Wi-Fi communications.

Security features of Wi-Fi communications	
Security protocol	WPA2

6.- CONFIGURATION WEBSITE

The configuration website for the device is accessed via the IP address. The default configuration for **line-EDS-Cloud** is in DHCP mode; the device can be identified by its MAC address using software such as the *Advanced IP Scanner*.

Note: *There are two options for finding the* ***line-EDS-Cloud*** *device on a local network:*
- ✓ *Using the* ***Avahi / bonjour*** *discovery protocol.*
- ✓ *Access via crossover cable to the local IP of the device:****100.0.0.1*** *with a subnet mask* ***255.255.255.0***

To access the configuration website, open the screen shown in **Figure 15**, where you enter the User and Password. The default values are shown in **Table 11**.

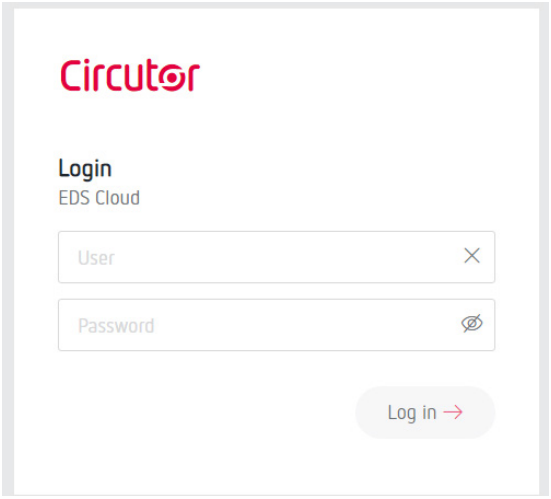


Figure 15: Accessing the configuration website.

Table 11:Accessing the configuration website.

Accessing the configuration website.	
Use	admin
Password	circutor

Note: *For security reasons, you need to change the login password. When you first log into the website and enter the default password, a screen opens for you to change the password.*

Once validated, the main screen can be accessed, **Figure 16**.

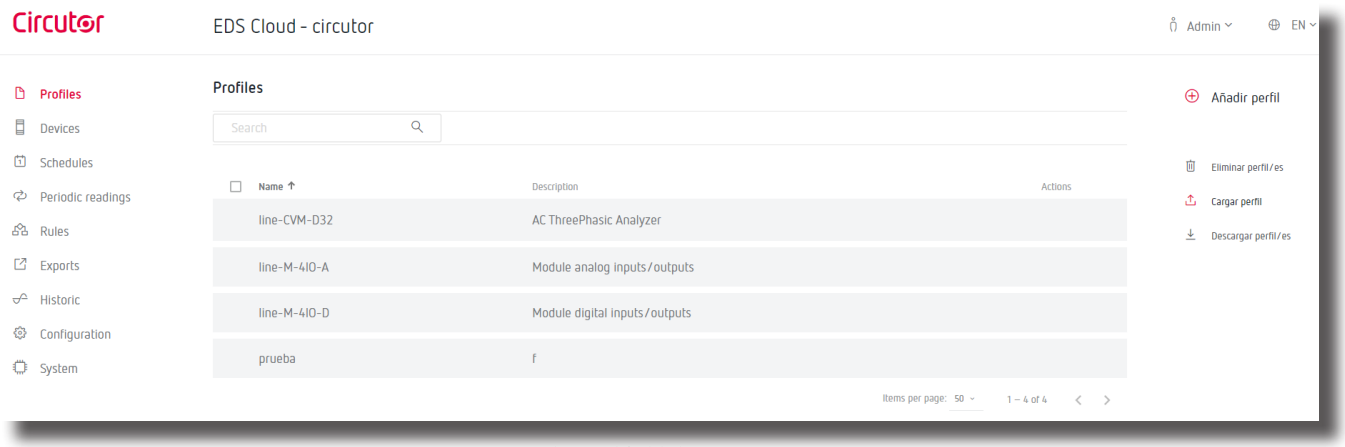


Figure 16: Main screen.

From this screen you can access the menu of the configuration website, **Figure 17**.

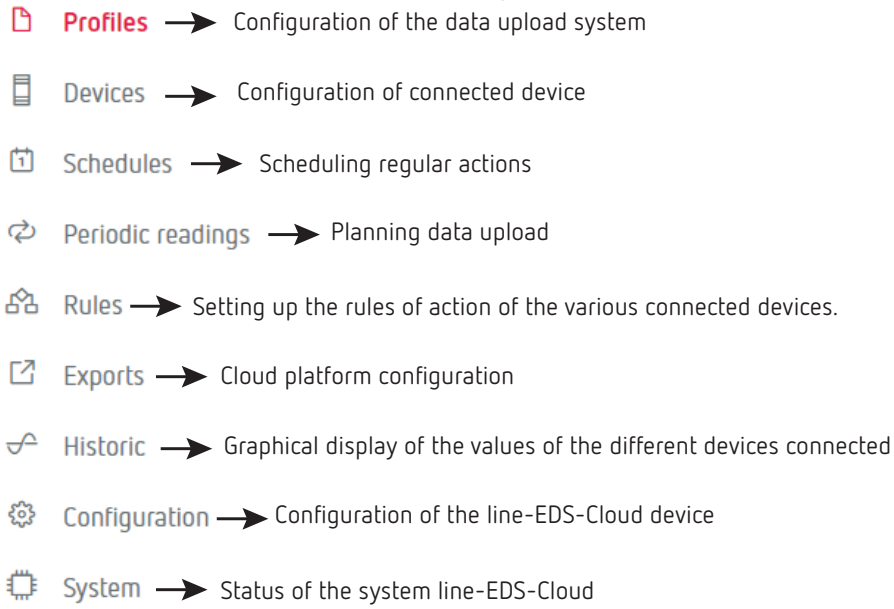


Figure 17: Menu of configuration website.

On the configuration website, you can perform 3 main actions:

- ✓ Configure the **line-EDS-Cloud** device.
- ✓ Configure the system for uploading data to the Cloud platforms.
- ✓ Check the status of the system.

6.1- CONFIGURATION OF THE line-EDS-Cloud DEVICE

The **Configuration**, screen allows the configuration of the DNS/NTP parameters, the communications and the Security parameters, **Figure 18**.

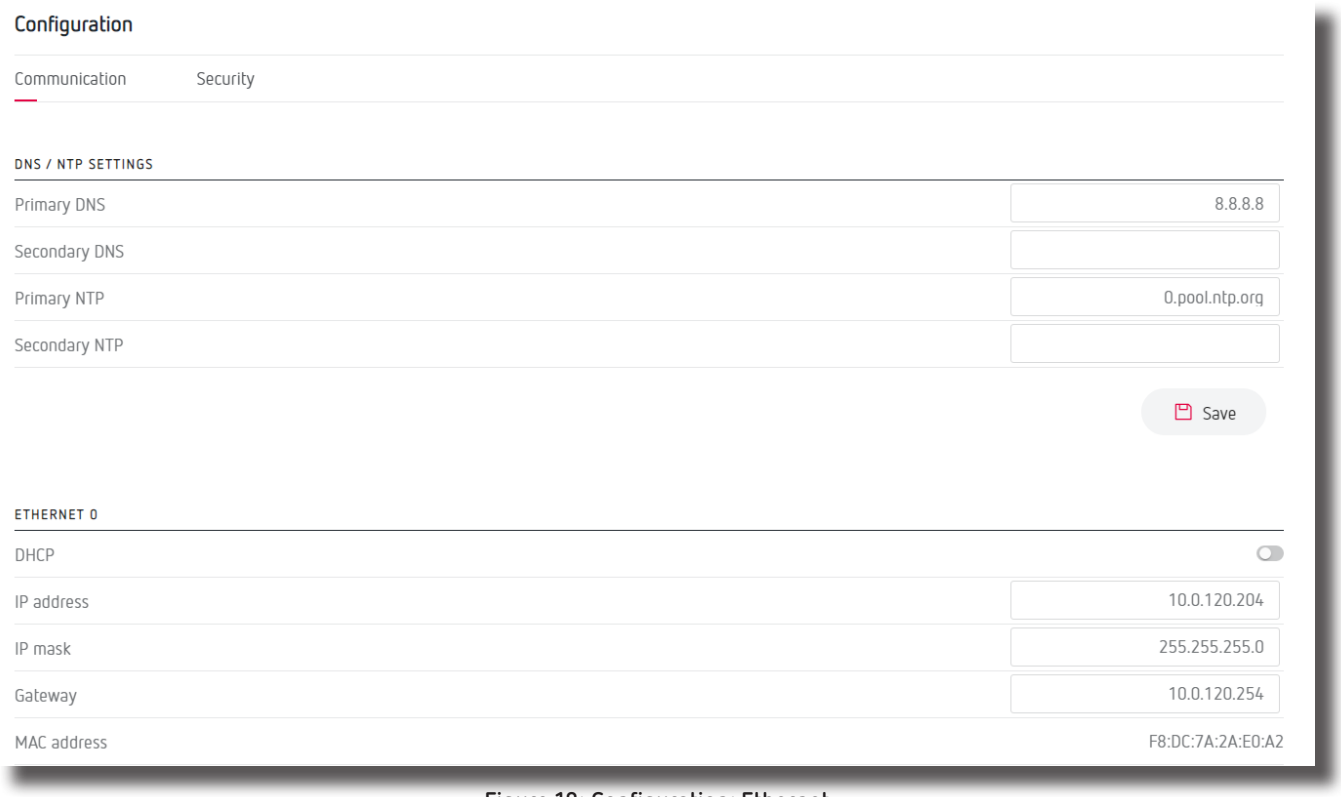


Figure 18: Configuration: Ethernet.

6.1.1.- COMMUNICATION: DNS/NTP SETTINGS

This section is used to set up the DNS servers and the NTP protocol.

✓**Primary DNS:** Address of the primary DNS server.

✓**Secondary DNS:** Address of the secondary DNS server.

✓**Primary NTP:** Watch synchronisation protocol address, Network Time Provider.

✓**Secondary NTP:** Network Time Provider's secondary address, in case Primary NTP fails.

Press Save to save the configuration and send it to the device.

6.1.2.- COMMUNICATION: ETHERNET

In this section, the Ethernet communications of the **line-EDS-Cloud** are configured.

✓**DHCP:** If DHCP is enabled, the IP address is dynamically assigned by a central server and no further parameters need to be configured.
If this option is disabled, the IP address is fixed and the following parameters need to be configured:

- **IP address:** IP address.
- **IP mask:** IP mask.
- **Gateway:** Gateway.

✓**MAC address:** MAC address of the device, non-configurable parameter.

Press Save to save the configuration and send it to the device.

6.1.3.- COMMUNICATION: 3G

This section is displayed when the **line-EDS-Cloud** is connected to a **line-M-3G**, a device that adds 3G connectivity to the **line-EDS-Cloud** device, **Figure 19**.

Figure 19:Configuration: 3G.

✓**APN:** Name of the access point to the 3G modem.

✓**User:** 3G network username.

✓**Password:** Network password.

✓**PIN:** PIN to access the 3G network

✓**Status:** Connection status.

✓**IP:** IP adress.

Press Save to save the configuration and send it to the device.

6.1.4.- COMMUNICATION: DYNAMIC DNS

This section is displayed when the **line-EDS-Cloud** is connected to a **line-M-3G**, a device that adds 3G connectivity to the **line-EDS-Cloud** device, **Figure 20**.

Figure 20:Configuration: Dynamic DNS.

Select to enable or not a dynamic DNS.

✓**Service:** The service available is selected: DynDNS, DNS-O-Matic or No-IP.

✓**User:** DNS username.

✓**Password:** Password.

✓**Host:** Device name.

Press Save to save the configuration and send it to the device.

6.1.5.- COMMUNICATION: Wi-Fi

In this section, Wi-Fi communications are enabled on the device, **Figure 21**.

Figure 21:Configuration: Wi-Fi.

Select whether to enable Wi-Fi communications or not.

✓**Wi-Fi name (SSID):** Name of Wi-Fi network.

✓**Password:** Password of the selected Wi-Fi network.

✓**Status:** Wi-Fi status.

✓**IP:** Network IP address.

✓**MAC address:** MAC address of the device, non-configurable parameter.

Press Save to save the configuration and send it to the device.

6.1.6.- SECURITY

In this section, you can change the password used to log into the website, **Figure 22**.

Figure 22:Configuration: Security.

✓**Current password:** current password of the website.

✓**New password:** new password for the website.

✓**Confirm password:** repeat the new password.

Press Save to save the configuration and send it to the device.

6.2- CONFIGURATION OF THE DATA UPLOAD SYSTEM

This section describes the steps for configuring the system used to upload data to the Cloud platforms.

STEP 1: CREATE A PROFILE OF THE DATA YOU WANT TO UPLOAD TO THE CLOUD PLATFORM

On the **Profiles** screen, you can create the profile and memory map of the data you want to upload to the Cloud platform, **Figure 23**.

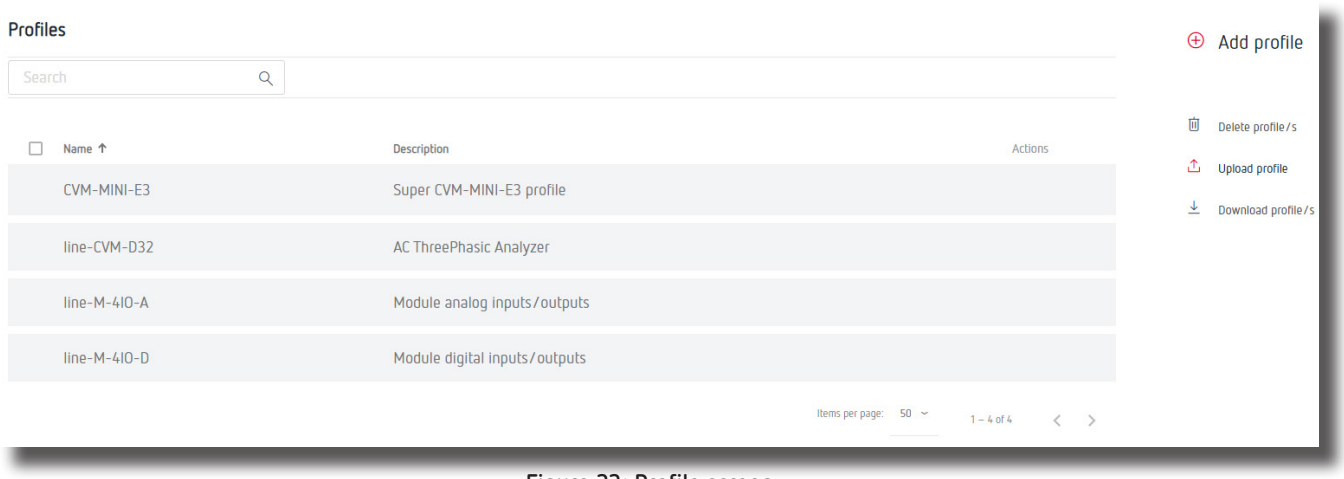


Figure 23: Profile screen.

On this screen you can:

- ✓ Create a new profile
- ✓ Load an existing profile onto the device,
- ✓ Download a device profile to the website,
- ✓ Delete a profile,
- ✓ Edit an existing profile,

STEP 1.1.- Creating a new profile

Press ⊕ to create a new profile, the screen shown in **Figure 24** will appear.

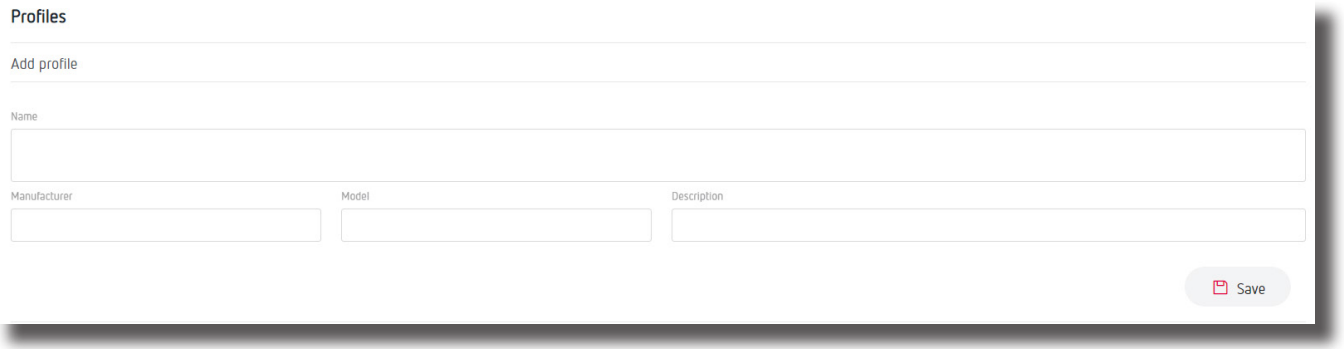


Figure 24: Profile: Create profile.

✓**Name:** Name of the profile to be created.

✓**Manufacturer:** Manufacturer's name.

✓**Model:** Device model of the new profile: CVM, CEM, EDMk ....

✓**Description:** Brief description of the profile.

When you press Save, the new profile is saved and a new section is displayed to create the profile variables, , **Figure 25**.

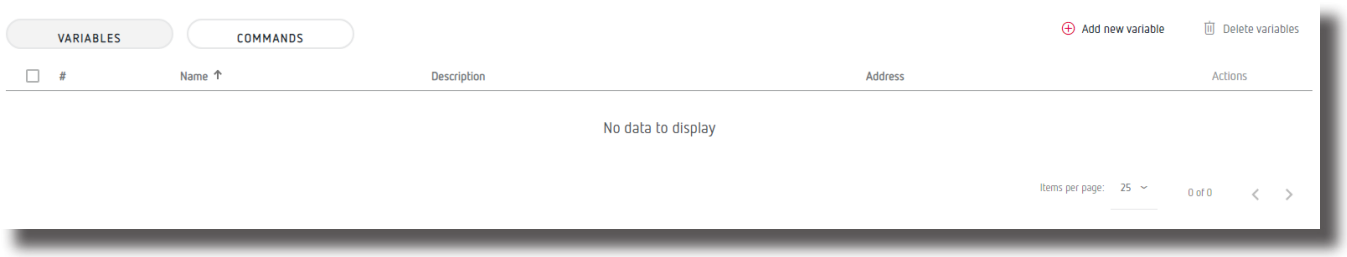


Figure 25: Profiles: Variables.

✓ **VARIABLES** tab: In this tab, the memory locations (variables in a Modbus map) can be created that will be part of the profile.

When you press the **Add new variable**, button, the screen in **Figure 26** is shown.

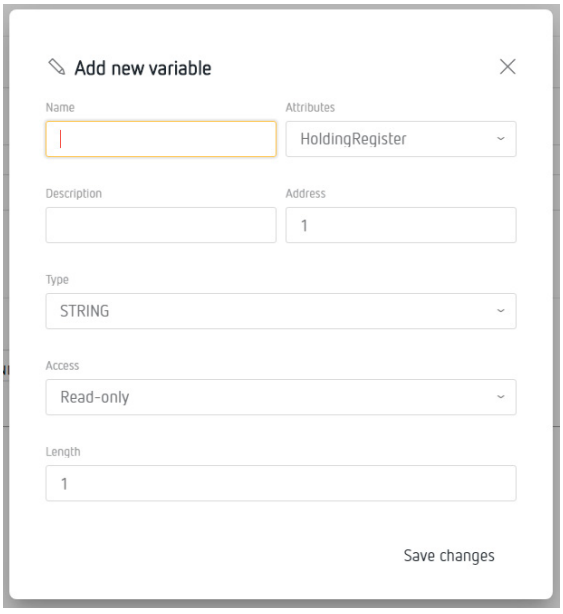


Figure 26:Add new variable.

✓ **Name:** Variable name.

✓ **Description:** Brief description of the variable.

✓ **Attributes:** Select the data type of the variable: *HoldingRegister, ImputRegister, DiscreteInput o Coil.*

✓ **Address:** Modbus address of the variable; its memory location on the device.

✓ **Type:** Variable type, the different types are shown on **Table 12**.
Note: *Variable visible when selecting types in* **Attributes**: *HoldingRegister, ImputRegister.*

Table 12: Type: Variable type

Type: Variable type	
STRING	Variable type string (character string)
UINT8	Variable type unsigned integer of 1 byte
UINT16	Variable type unsigned integer of 2 byte
UINT32	Variable type unsigned integer of 4 byte
UINT64	Variable type unsigned integer of 8 byte
INT8	Variable type integer of 1 byte
INT16	Variable type integer of 2 byte
INT32	Variable type integer of 4 byte
INT64	Variable type integer of 8 byte
FLOAT32	Variable type float of 4 byte
FLOAT64	Variable type float of 8 byte
ARRAY	Variable type array
BOOL	Variable type bool (logical)

✓ **Scale factor:** Multiplication factor.
Note: *Variable visible when selecting types in* **Type:** *UINT8, UINT16, UINT32, UINT64, INT8, INT16, INT32 and INT64 .*

✓ **Precision:** Select the number of decimal places to be shown.
Note: *Variable visible when selecting types in* **Type:** *FLOAT32 and FLOAT64.*

✓ **Length:** Variable length, only visible when selecting the variables *String* and *Array.*
Note: *Variable visible when selecting types in* **Attributes**: *HoldingRegister and ImputRegister.*

✓ **Access:** Select whether the variable is only for *Read-only, Write-only or Read-write.*
Note: *Variable visible when selecting types in* **Attributes**: *HoldingRegister and ImputRegister.*

✓ **Units:** Select the units of the variable.
Note: *Variable visible when selecting types in* **Attributes**: *HoldingRegister and ImputRegister.*

Press Save changes to save the variable.

✓**COMMANDS** tab: This tab is used to create groupings of variables that you want to upload to the Cloud platform.

When you press the ⊕ **Add new command**, button, the screen in **Figure 27** is shown.

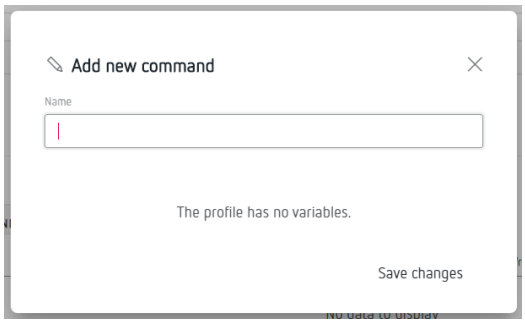


Figure 27:Add new command.

✓ **Name:** Name of the location groupings.

With the ☐ option, Select the variables that will be part of the grouping.

Press Save changes to save the grouping created.

STEP 2: ENTERING INTO THE SYSTEM THE DEVICES THAT HAVE THE DATA PROFILE YOU WANT TO UPLOAD TO THE CLOUD PLATFORM

The devices with the data profiles that you want to upload to the Cloud platform can be entered on the **Devices** screen, **Figure 28**.

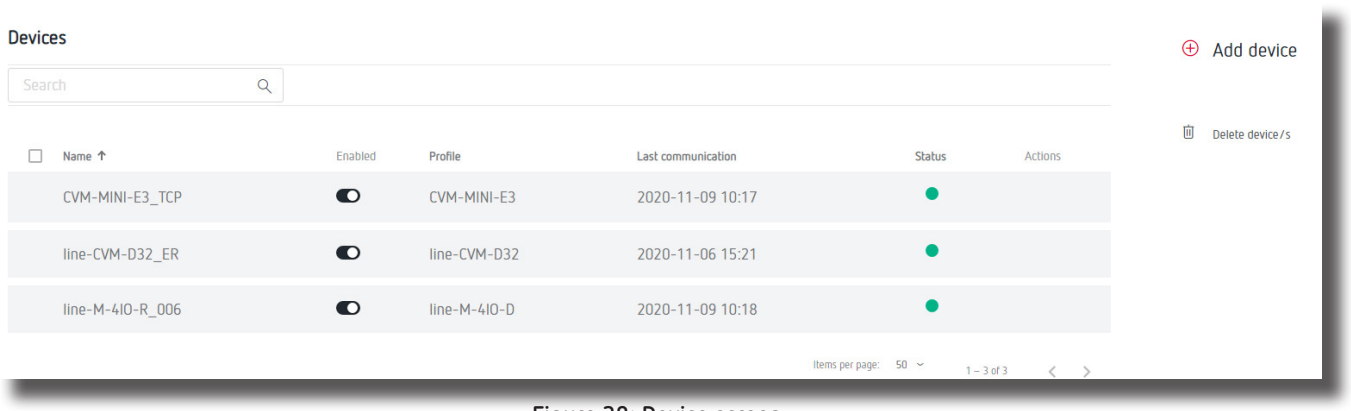


Figure 28: Device screen.

On this screen you can:

✓ Add a new device to the system,
✓ Delete a device,
✓ Enable or disable a device in the system,
✓ Check the status and date and time of the last communication,
✓ Edit the characteristics of the device,
✓ Test communication with a device, ⚙. Pressing the button makes the screen in **Figure 29**, appear, where you can select and send a request for a device memory location to test the communication.

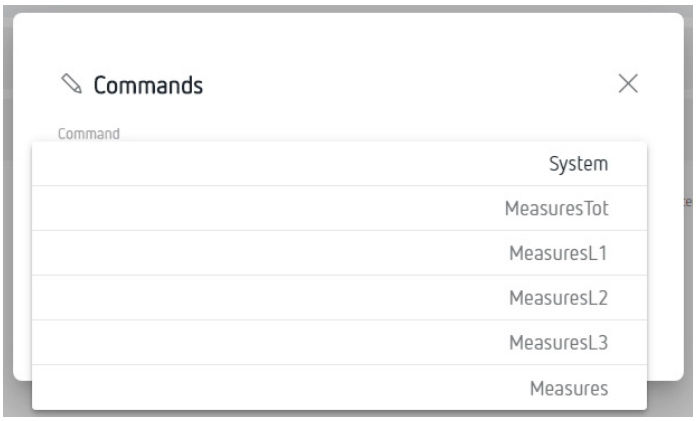


Figure 29: Device screen: Commands.

STEP 2.1.- Entering a new device

Press ⊕ **Add device,** to add a new device, the screen in **Figure 30** will be shown.

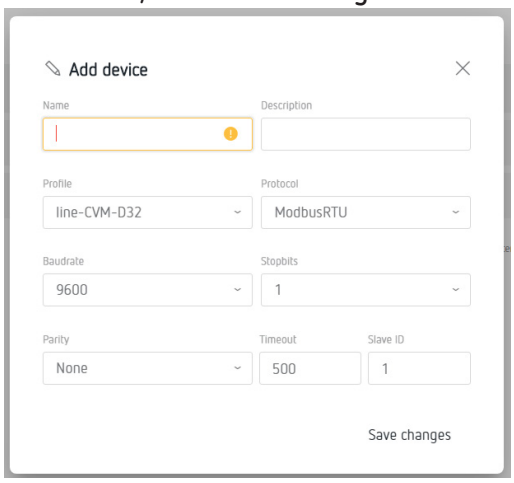


Figure 30: Device screen: Add Device.

✓**Name:** Device name.

✓**Description:** Brief description of the device.

✓**Profile:** Select the device's data profile, configured in the section ***"STEP 1.1.- Creating a new profile".***

✓**Protocol:** Select the type of communication: *ModbusRTU* or *ModbusTCP*.
When selecting the *ModbusRTU* communication type, the following parameters have to be configured:

- **Baudrate:** Select the communications baud rate: *9600, 19200, 38400, 57600, 115200.*
- **Stop bits:** Select the bits stop number: *1 or 2.*
- **Parity:** Select the parity type: *None*, *Even*, *Odd*.
- **Slave ID:** Indicate the slave ID or Modbus peripheral.
- **Timeout:** Indicate the communications wait time in seconds.

When selecting the *ModbusTCP* communication type, the following parameters have to be configured:

- **IP address:** IP address of the device.

- **Port:** Communication port.
- **Timeout:** Indicate the communications wait time in seconds.
- **Slave ID:** Indicate the slave ID or Modbus peripheral.

Press Save changes to save the new device.

STEP 3: DEFINE THE DATA TO BE UPLOADED TO THE CLOUD PLATFORM AND HOW OFTEN

On screen **Scheduler** the data to be uploaded from each device can be programmed, as well as the frequency of uploads to the Cloud platform, **Figure 31**.

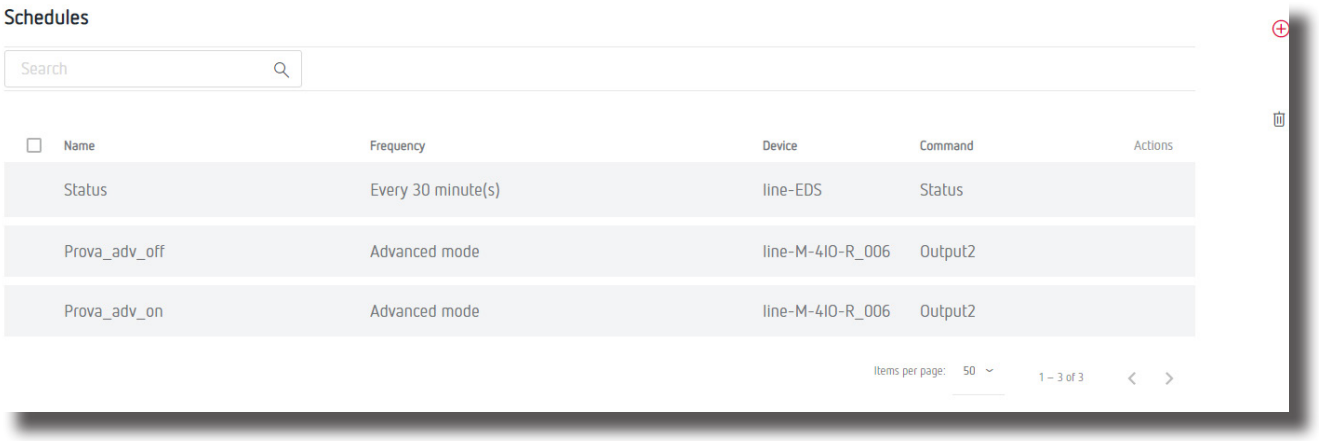


Figure 31: Schedule screen.

On this screen you can:

- ✓ Add a new schedule,
- ✓ Delete a schedule,
- ✓ Edit a schedule,

STEP 3.1.- Add a new schedule

Press **Add shedule,** to add a new schedule, the screen shown in **Figure 32** will appear.

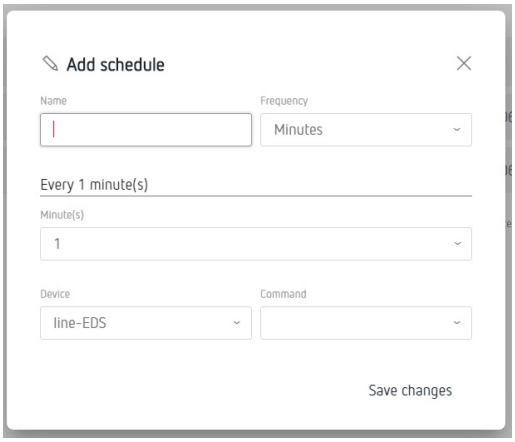


Figure 32: Schedule screen: Add Schedule.

✓**Name:** Name of the new schedule.

✓**Frequency:** Select how often to upload data to the Cloud platform: *Minutes, Hourly, Daily, Weekly, Monthly or Advanced mode*.
Once the frequency is selected, you have to select *Minutes, Hours*.... based on the option selected.

✓**Device:** Select the device from which the data will be uploaded.

✓**Command:** Select the data set to upload.

Press Save changes to save the new schedule.

STEP 4: SPECIFY THE CLOUD PLATFORM TO WHICH THE DATA WILL BE UPLOADED

The Cloud platform to which the data will be uploaded is specified on screen **Exports, Figure 33**.

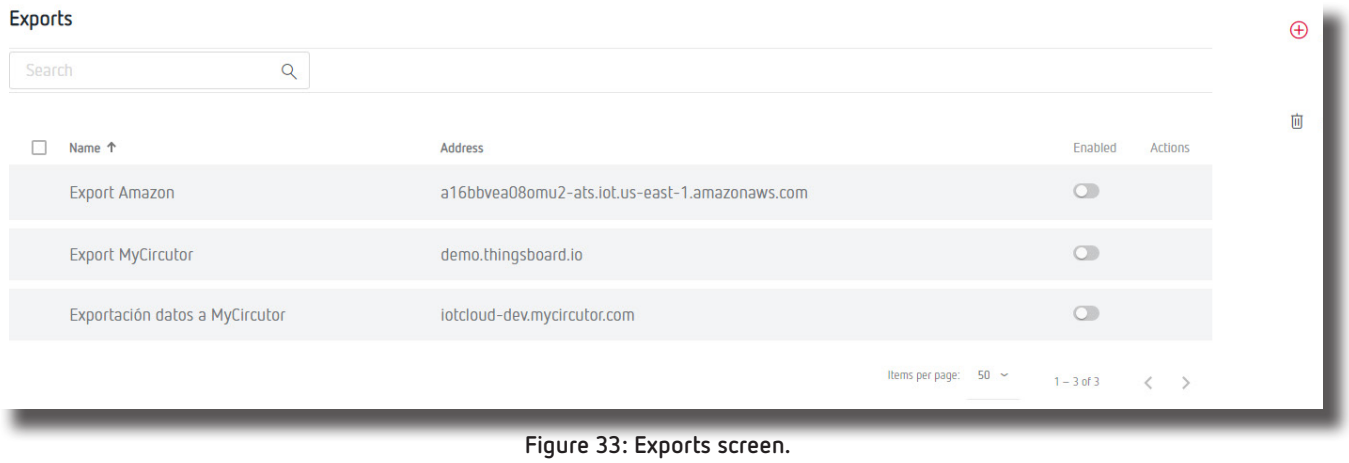


Figure 33: Exports screen.

On this screen you can:

- ✓ Specify the Cloud platform,
- ✓ Delete the configuration of a platform
- ✓ Edit the Cloud platform,

STEP 4.1.- Specify the Cloud platform

Press ⊕ **Add export,** to select and configure the Cloud platform, the screen shown in **Figure 34** will appear.

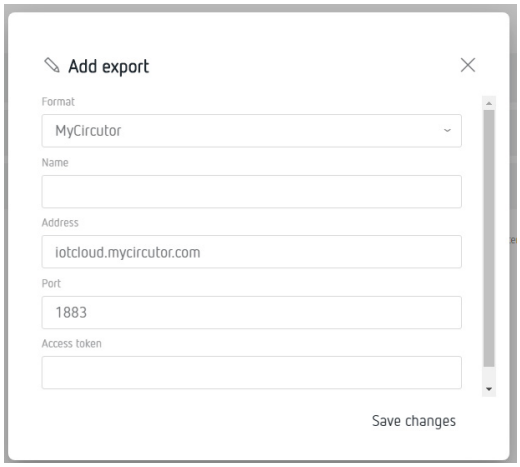


Figure 34:Export screen: Add Export.

✓**Format:** Select the Cloud platform. The **line-EDS-Cloud** can connect to the following platforms: *MyCircutor, Amazon, Azure, Dexma* and *Google*.

Depending on the platform selected, the configuration parameters may vary.

When selecting the *MyCircuit* platform, you have to configure:

- **Name:** Name of the data upload.
- **Address:** Platform address.
- **Port:** Port.
- **Access token:** Platform access token.

When selecting the *Amazon* platform, you have to configure:

- **Name:** Name of the data upload.
- **Address:** Platform address.
- **Object:** Object created from the *Amazon Web Services (AWS)* platform.
- **Certificate**: Upload certificate file.
- **Key**: Upload file with the private key.

When selecting the *Azure*, you have to configure:

- **Name:** Name of the data upload.
- **Address:** Platform address.
- **Port:** Port.
- **SAS token:** Platform access token.
- **Device ID:** Device ID on the platform.

When selecting the *Dexma* platform, you have to configure:

- **Name:** Name of the data upload.
- **Address:** Platform address.
- **Port:** Port.
- **Key:** Platform access token.
- **Token:** Platform access token.

When selecting the *Google* platform, you have to configure:

- **Name:** Name of the data upload.
- **Project identifier:** Project identifier on the platform.
- **Location:** Location of the platform server.
- **Registry identifier:** Registry identifier on the platform.
- **Device identifier:** Device identifier on the platform.
- **Certificate:** Upload certificate file.
- **Key:** Upload file with the private key.

Press Save changes to save the platform configuration.

***Note: "ANNEX A:CONFIGURATION OF CLOUD PLATFORMS"**, summarises the basic steps for configuring the relationship between the **line-EDS-Cloud** device and the platform in the Cloud where you want to export the data you have obtained.*

Once the configuration steps for the upload system have been completed, the device automatically begins uploading the data to the specified Cloud platform.

6.3- PERIODIC READINGS

The **Periodic readings**, screen lets you schedule periodic readings of the devices connected to the **line-EDS-Cloud,, Figure 35**.

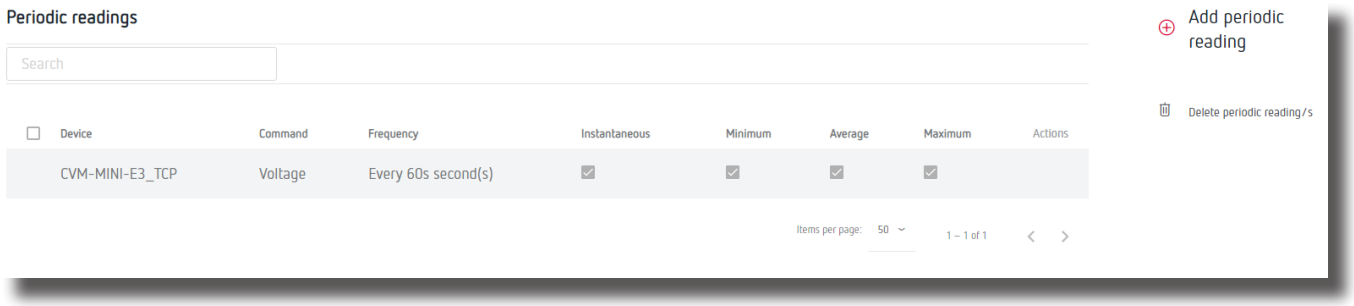


Figure 35: Periodic readings.

On this screen you can:

- ✓ Add a new periodic reading,
- ✓ Delete a periodic reading,
- ✓ Edit a periodic reading,

Press ⊕ **Add periodic reading,** to enter a new reading. The screen shown in **Figure 36** will appear.

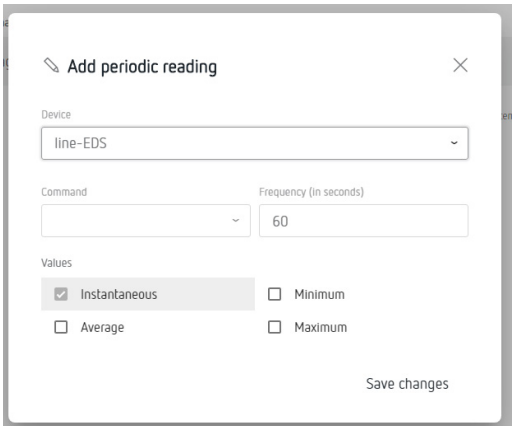


Figure 36: Periodic readings: Add periodic reading.

✓**Device:** Select the device to be read.

✓**Command:** Command to read.

✓**Frequency:** Read frequency in seconds.

✓**Values:** Select the values to read: *Instantaneous, Average, Minimum or Maximum.*

Click Save changes to save the new schedule.

6.4- RULES

The **Rules** screen lets you add actions to the devices based on programmed conditions, **Figure 37**.

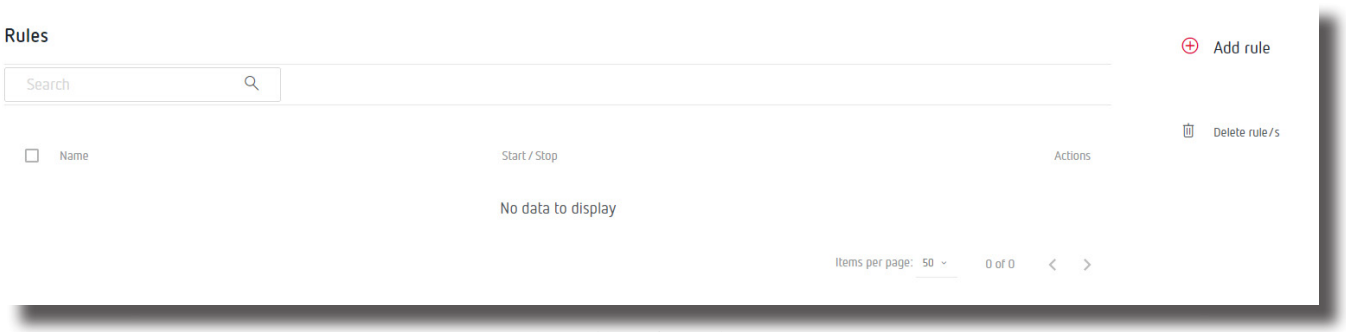


Figure 37: Rules.

On this screen you can:

- ✓ Add a new rule,
- ✓ Delete a rule,
- ✓ Modify a rule.

Press ⊕ **Add rule** to enter a new rule. The screen shown in **Figure 38** ill appear.

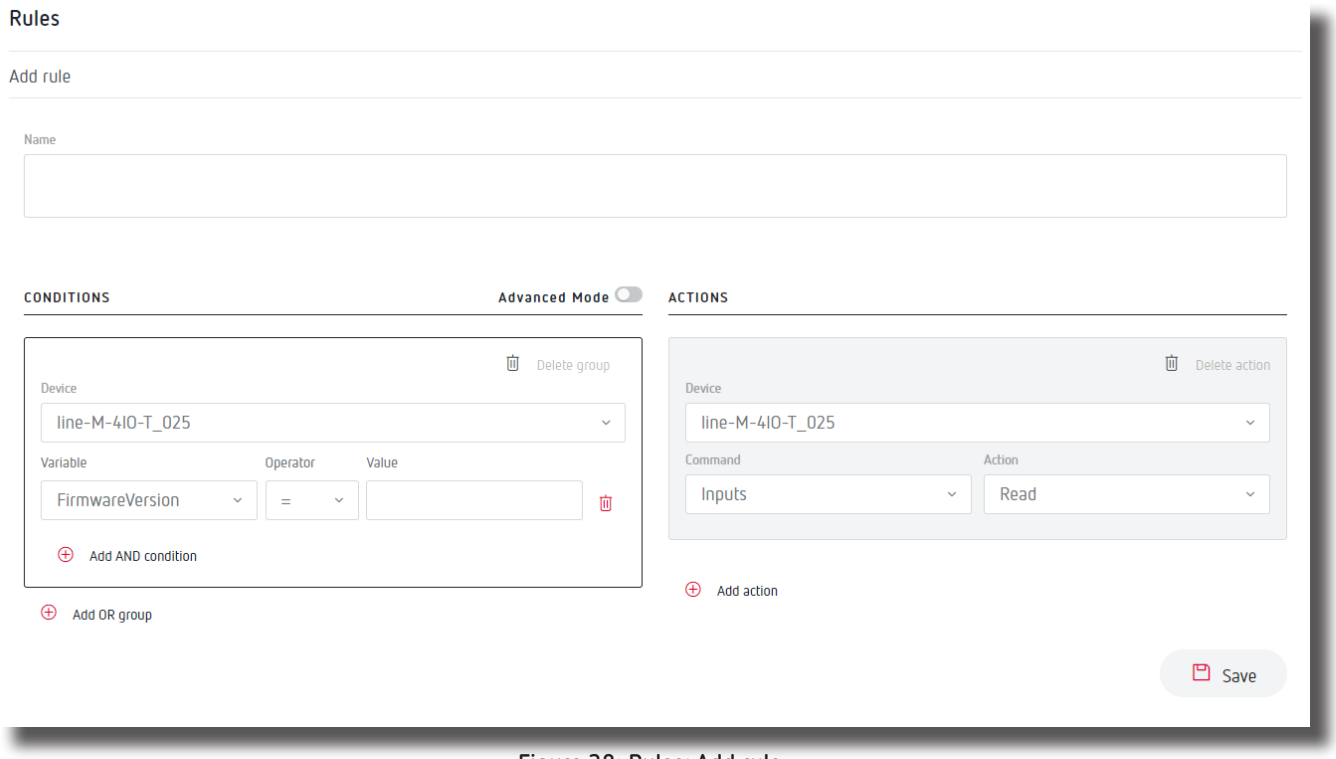


Figure 38: Rules: Add rule.

✓**Name:** Name of the new rule.

✓**CONDITIONS:** This section is used to define the conditions that will trigger the actions. You have to specify:

- **Device:** select the device that triggers the condition.
- **Variable:** select the variable that triggers the condition.
- **Operator: select the operator: =** *Equal*, **!=** *Different*.
- **Value:** value that the variable must satisfy.

⊕ Add AND condition to add a new condition that must be met, together with the first condition, to trigger the action.

⊕ Add OR group to add a new set of conditions. The action is triggered when the conditions of one of the groups are met.

Advanced Mode, If advanced mode is selected to program the Conditions, an SQL query can be programmed directly.

Figure 39: Rules: Advanced Mode.

✓**ACTIONS:** This section is used to define the actions that will be carried out when the conditions are met. You have to specify:

- **Device:** select the device to be acted upon.
- **Command:** select the command to be acted upon.
- **Action:** select the action.

Add action to add different actions to carry out when the conditions are met.

Press Save to save the new rule.

6.5- HISTORIC

The **Historic**, screen can be used to graphically display the values of the different devices connected to the **line-EDS-Cloud**, **Figure 40**.

Figure 40: Historic.

6.6- CHECKING THE STATUS OF THE SYSTEM

The **System**, screen allows you to check the status of the system, update the device, change the password, etc **Figure 41**.

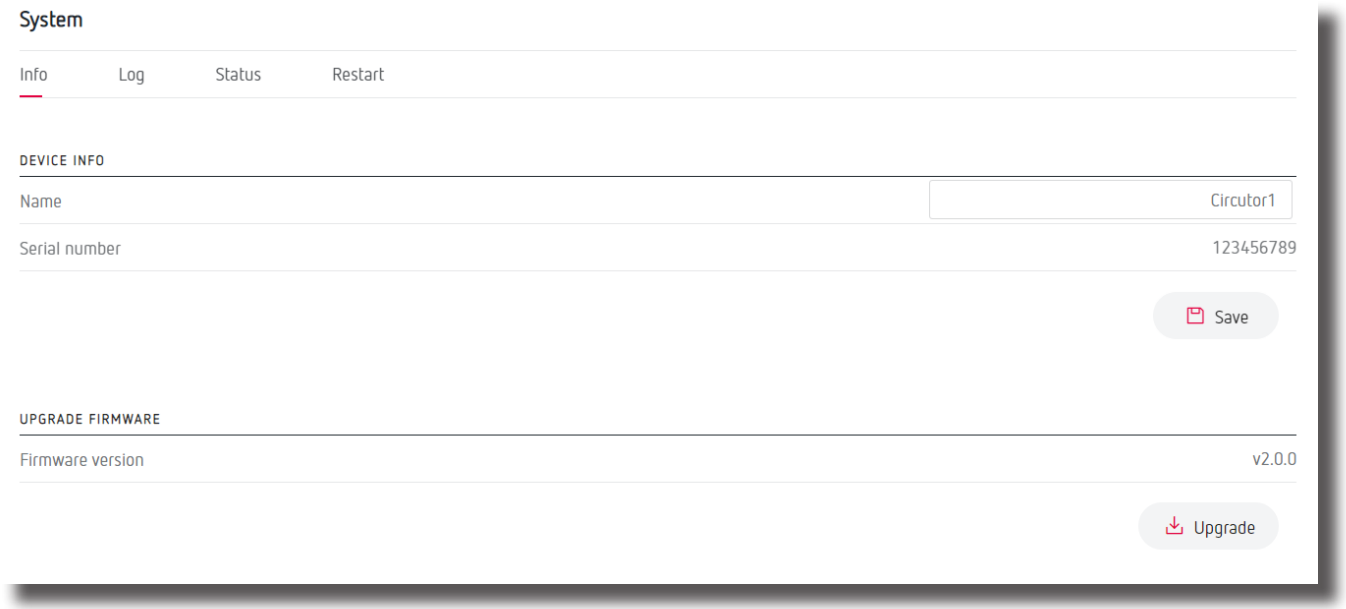


Figure 41: System: Info.

6.6.1.- INFO

In this section you can find the **line-EDS-Cloud** serial number and firmware version, **Figure 41**.

If a name is entered in the **Name** parameter, all the information on the device can be saved by clicking Save.

You can also to update the device firmware:

1.- Download the update file from **CIRCUTOR** website.

2.- Select the update file by pressing Upgrade. Updating the device takes about 1 minute.

6.6.2.- LOG

In this section, **Figure 42**, all the operations performed by the data upload system are recorded.

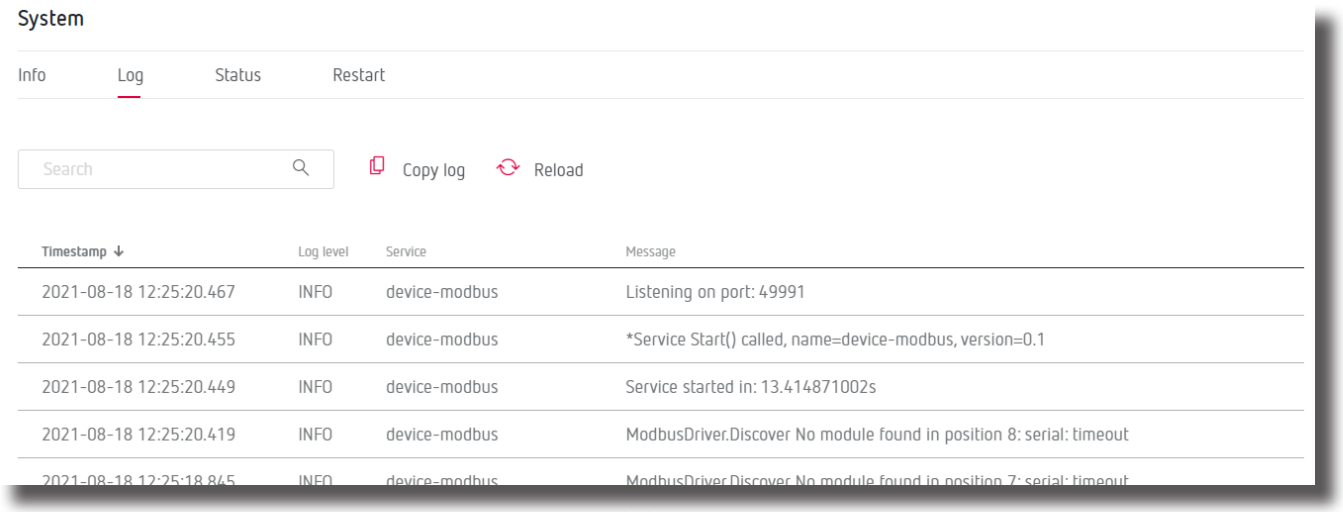


Figure 42: System: Log.

Click Copy log to save the event log in a file.
Press Reload to reload the event log.

6.6.3.- STATUS

This section, **Figure 43**, shows the device status.

Figure 43: System: Status.

6.6.4.- RESTART

In this section, **Figure 44**, the **line-EDS-Cloud** device can be reset by clicking the button Restart.

Figure 44: System: Restart.

7.- TECHNICAL FEATURES

AC Power supply	
Rated voltage	120 ... 264 V ~
Frequency	50 ... 60 Hz
Consumption	11 ... 28 VA
Installation category	CAT III 300 V

DC Power supply	
Rated voltage	190 ... 300 V ⎓
Consumption	2.5 ... 7 W
Installation category	CAT III 300 V

Digital outputs	
Quantity	2
Type	Optocoupler (Open-collector)
Maximum voltage	48V ⎓
Maximum current	120 mA
Maximum frequency	500 Hz
Pulse width	1 ms

RS-485 communication	
Bus	RS-485
Protocol	Modbus RTU
Baud rate	9600 - 19200 - 38400 - 57600 - 115200 bps
Data bits	8
Stop bits	1 - 2
Parity	without - even - odd

Ethernet communication	
Type	Ethernet 10BaseT - 100BaseTX self-detectable
Connector	RJ45
Protocol	Web server - MQTT - REST
Connection mode to Network	DHCP ON/OFF (ON by default)
Secondary service IP address	100.0.0.1

Wi-Fi communication	
Band	2.4 GHz
Standard	IEEE 802.11 b / g / n.
Output power	8.9 dBm
Effective radiated power (ERP)	11.25 dBm
Effective isotropic radiated power (EIRP)	13.4 dBm

User interface	
LED	5 LEDs

Environmental features	
Operating temperature	-10 °C... +50 °C
Storage temperature	-20 °C ... +80 °C
Relative humidity (non-condensing)	5 ... 95 %

(Continuation) Environmental features	
Maximum altitude	2000 m
Protection degree	IP30, **Front:** IP40

Mechanical features	
Dimensions (mm)	52.5 x 118 x 70 mm
Weight	180 g
Enclosure	Self-extinguishing V0 plastic
Attachment	DIN rail

Standards	
Safety requirements for electrical equipment for measurement, control and laboratory use -- Part 1: General requirements	EN 61010-1
Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments	EN 61000-6-2
Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments	EN 61000-6-4
Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements	UL 61010-1
Audio/video, information and communication technology equipment - Part 1: Safety requirements	EN IEC 62368-1[(2)]

[(2)] To comply with the mechanical requirements of **EN IEC 62368-1**, additional protection against mechanical impacts must be provided by the cabinet on which the device is to be mounted, with a minimum impact resistance of **6.5J.**

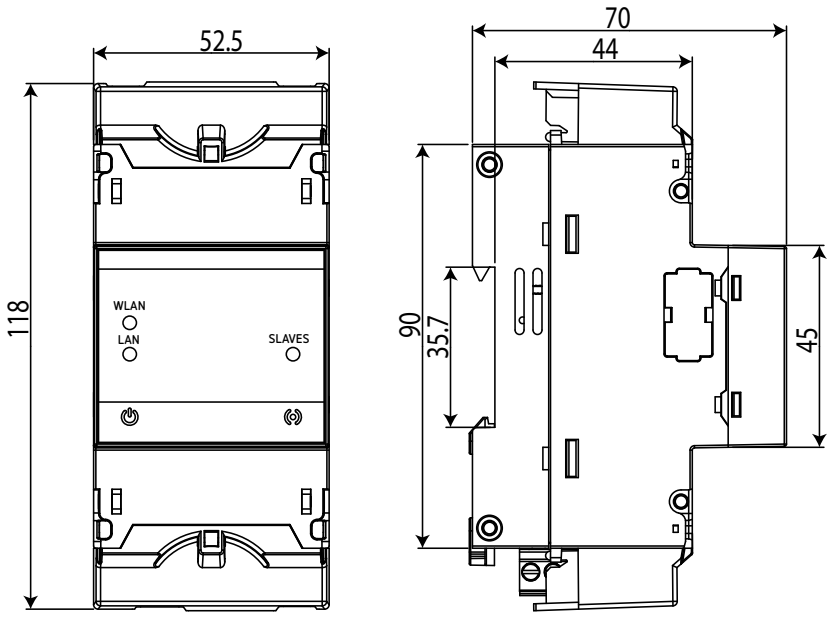


Figure 45: line-EDS-Cloud dimensions.

8.- MAINTENANCE AND TECHNICAL SERVICE

In the case of any query in relation to device operation or malfunction, please contact the **CIRCUTOR S.A.U.** Technical Support Service.

Technical Assistance Service
Vial Sant Jordi, s/n, 08232 - Viladecavalls (Barcelona)
Tel: 902 449 459 (Spain) / +34 937 452 919 (outside of Spain)
email: sat@circutor.com

9.- GUARANTEE

CIRCUTOR guarantees its products against any manufacturing defect for two years after the delivery of the units.

CIRCUTOR will repair or replace any defective factory product returned during the guarantee period.

- No returns will be accepted and no unit will be repaired or replaced if it is not accompanied by a report indicating the defect detected or the reason for the return.
- The guarantee will be void if the units has been improperly used or the storage, installation and maintenance instructions listed in this manual have not been followed. "Improper usage" is defined as any operating or storage condition contrary to the national electrical code or that surpasses the limits indicated in the technical and environmental features of this manual.
- **CIRCUTOR** accepts no liability due to the possible damage to the unit or other parts of the installation, nor will it cover any possible sanctions derived from a possible failure, improper installation or "improper usage" of the unit. Consequently, this guarantee does not apply to failures occurring in the following cases:
  - Overvoltages and/or electrical disturbances in the supply;
  - Water, if the product does not have the appropriate IP classification;
  - Poor ventilation and/or excessive temperatures;
  - Improper installation and/or lack of maintenance;
  - Buyer repairs or modifications without the manufacturer's authorisation.

CIRCUTOR, SA – Vial Sant Jordi, s/n
08232 Viladecavalls (Barcelona) Spain
(+34) 937 452 900 – info@circutor.com

(ES) DECLARACIÓN UE DE CONFORMIDAD

La presente declaración de conformidad se expide bajo la exclusiva responsabilidad de CIRCUTOR con dirección en **Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) España**

Producto:

Energy Data Server

Serie:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

Marca:

CIRCUTOR

EL objeto de la declaración es conforme con la legislación de armonización pertinente en la UE, siempre que sea instalado, mantenido y usado en la aplicación para la que ha sido fabricado, de acuerdo con las normas de instalación aplicables y las instrucciones del fabricante

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

Está en conformidad con la(s) siguiente(s) norma(s) u otro(s) documento(s) normativos(s):

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Año de marcado “CE”:

2020

(EN) EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of CIRCUTOR with registered address at **Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spain**

Product:

Energy Data Server

Series:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

Brand:

CIRCUTOR

The object of the declaration is in conformity with the relevant EU harmonisation legislation, provided that it is installed, maintained and used for the application for which it was manufactured, in accordance with the applicable installation standards and the manufacturer’s instructions

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

It is in conformity with the following standard(s) or other regulatory document(s):

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Year of CE mark:

2020

(FR) DÉCLARATION UE DE CONFORMITÉ

La présente déclaration de conformité est délivrée sous la responsabilité exclusive de CIRCUTOR dont l’adresse postale est **Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelone) Espagne**

Produit:

Energy Data Server

Série:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

Marque:

CIRCUTOR

L’objet de la déclaration est conforme à la législation d’harmonisation pertinente dans l’UE, à condition d’avoir été installé, entretenu et utilisé dans l’application pour laquelle il a été fabriqué, conformément aux normes d’installation applicables et aux instructions du fabricant

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

Il est en conformité avec la(les) suivante (s) norme(s) ou autre(s) document(s) réglementaire (s):

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Année de marquage « CE »:

2020

Viladecavalls (Spain), 7/9/2021
General Manager: Ferran Gil Torné

CIRCUTOR, SA – Vial Sant Jordi, s/n
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(DE) KONFORMITÄTSERKLÄRUNG UE

Vorliegende Konformitätserklärung wird unter alleiniger Verantwortung von CIRCUTOR mit der Anschrift, Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Spanien, ausgestellt

Produkt:

Energy Data Server

Serie:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

Marke:

CIRCUTOR

Der Gegenstand der Konformitätserklärung ist konform mit der geltenden Gesetzgebung zur Harmonisierung der EU, sofern die Installation, Wartung undVerwendung der Anwendung seinem Verwendungszweck entsprechend gemäß den geltenden Installationsstandards und der Vorgaben des Herstellers erfolgt.

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

Es besteht Konformität mit der/den folgender/folgenden Norm/Normen oder sonstigem/sonstiger Regelwerk/Regelwerken

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Jahr der CE-Kennzeichnung:

2020

(PT) DECLARAÇÃO DA UE DE CONFORMIDADE

A presente declaração de conformidade é expedida sob a exclusiva responsabilidade da CIRCUTOR com morada em
Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Espanha

Producto:

Energy Data Server

Série:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

Marca:

CIRCUTOR

O objeto da declaração está conforme a legislação de harmonização pertinente na UE, sempre que seja instalado, mantido e utilizado na aplicação para a qual foi fabricado, de acordo com as normas de instalação aplicáveis e as instruções do fabricante.

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

Está em conformidade com a(s) seguinte(s) norma(s) ou outro(s) documento(s) normativo(s):

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Ano de marcação “CE”::

2020

(IT) DICHIARAZIONE DI CONFORMITÀ UE

La presente dichiarazione di conformità viene rilasciata sotto la responsabilità esclusiva di CIRCUTOR, con sede in
Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcellona) Spagna

prodotto:

Energy Data Server

Serie:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

MARCHIO:

CIRCUTOR

L’oggetto della dichiarazione è conforme alla pertinente normativa di armonizzazione dell’Unione Europea, a condizione che venga installato, mantenuto e utilizzato nell’ambito dell’applicazione per cui è stato prodotto, secondo le norme di installazione applicabili e le istruzioni del produttore.

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

È conforme alle seguenti normative o altri documenti normativi:

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Anno di marcatura “CE”:

2020

Viladecavalls (Spain), 7/9/2021
General Manager: Ferran Gil Torné

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DEKLARACJA ZGODNOŚCI UE

Niniejsza deklaracja zgodności zostaje wydana na wyłączną odpowiedzialność firmy CIRCUTOR z siedzibą pod adresem: **Vial Sant Jordi, s/n – 08232 Viladecavalls (Barcelona) Hiszpania**

produk:

Energy Data Server

Seria:

Equipo/Device: line-EDS, line-CVM-D32, line-SVG, LNE-STM
Módulo/Module:line-M-4I0-T, line-M-4I0-R, line-M-4I0-A, line-M-EXT-PS, line-M-20I, line-M-3G, line-TCPRS1

marka:

CIRCUTOR

Przedmiot deklaracji jest zgodny z odnośnymi wymaganiami prawodawstwa harmonizacyjnego w Unii Europejskiej pod warunkiem, że będzie instalowany, konserwowany i użytkowany zgodnie z przeznaczeniem, dla którego został wyprodukowany, zgodnie z mającymi zastosowanie normami dotyczącymi instalacji oraz instrukciami producenta

2014/35/EU: Low Voltage Directive	2014/30/EU: EMC Directive
2014/53/EU: RED Directive	2011/65/EU + 2015/863/EU: RoHS Directive

Jest zgodny z następującą(ymi) normą(ami) lub innym(i) dokumentem(ami) normatywnym(i):

ETSI EN 301 489-17 Ver. 3.2.1	
EN 61010-1:2010/A1:2019/AC:2019-04	EN IEC 61010-2-030:2021
EN IEC 61326-1:2021	EN IEC 61000-6-2:2019
EN IEC 61000-6-4:2019	ETSI EN 301 489-1 Ver. 2.1.1

Rok oznakowania “CE”:

2020

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Viladecavalls (Spain), 7/9/2021
General Manager: Ferran Gil Torné

ANNEX A: CONFIGURATION OF THE CLOUD PLATFORMS

This annex contains a summary of the basic steps required to configure the relationship between the **line-EDS-Cloud** device and the Cloud platform where you want to export the data.

Currently, **line-EDS-Cloud can** connect to 5 different platforms: *MyCircutor, Amazon Web Services (AWS), Azure IoT Hub, DEXMA* and *Google Cloud IoT Core*.

A.1- MyCircutor

To configure the data for export to the *MyCircutor* platform, the steps are as follows:

1.- On the configuration website of the device, open the **Exports** screen where the Cloud platform can be defined.
Press **Add export,** to select and configure the Cloud platform, the screen shown in **Figure 46** will appear.

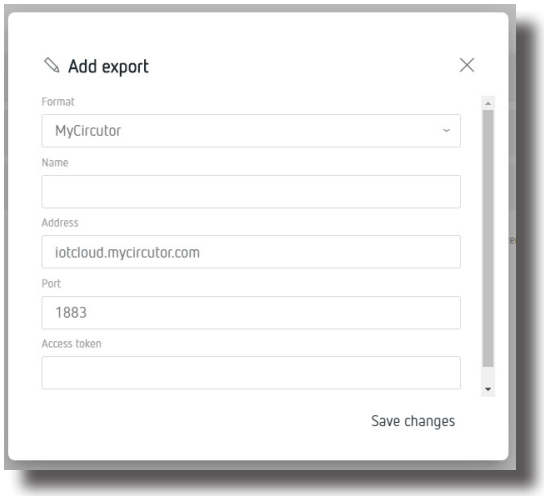

Figure 46:Export screen: Add Export.

Fill in the screen parameters with the following values:

✓**Format:** Select *MyCircutor*

✓**Address:** iotcloud-dev.mycircutor.com

✓**Port:** 1883

✓**Access token:** Information for this field is obtained on the *MyCircutor* platform.

2.- To fill in the **Access token** field you need to access MyCircutor platform. To do this, you have to log into **https://iotcloud-dev.mycircutor.com/login**

Figure 47: MyCircutor platform: Login screen.

3.- Once in the platform, select **Grupos de dispositivos (Groups of devices) → All.** And in **Agregar Dispositivo (Add Device)**, add the **line-EDS-Cloud**, enter a name, the device type and select the **Es puerta de entrada (It's an input gateway**) option.

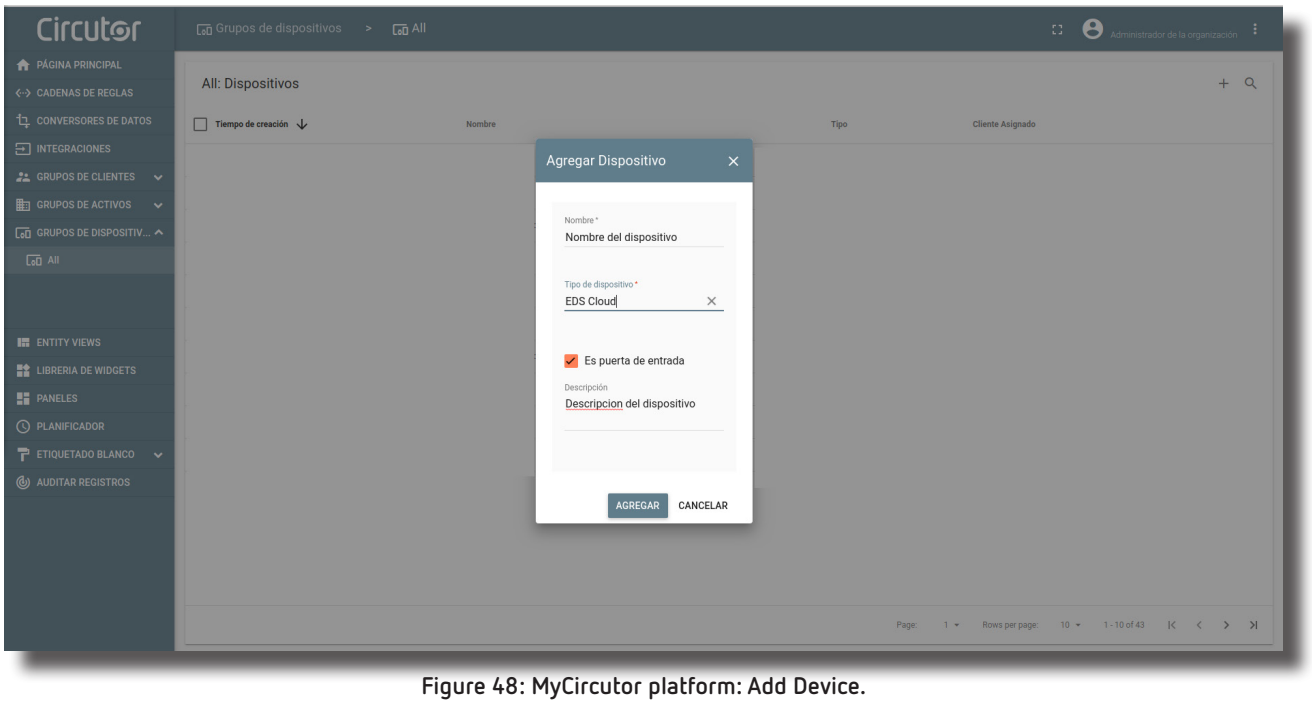

Figure 48: MyCircutor platform: Add Device.

4.- Once **line-EDS-Cloud** has been added, it is shown in the list of devices.

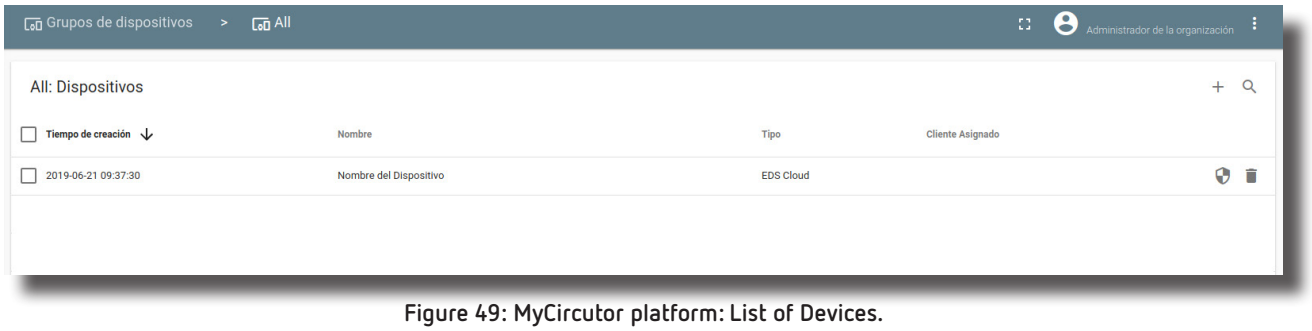

Figure 49: MyCircutor platform: List of Devices.

5.- To get the **Access token** for **line-EDS-Cloud**, click on the device name to view its features, and click on **Gestionar Credenciales (Manage Credentials)** in the **Detalles (Details)** tab. A new screen appears where you can specify the **Access token** for the device.

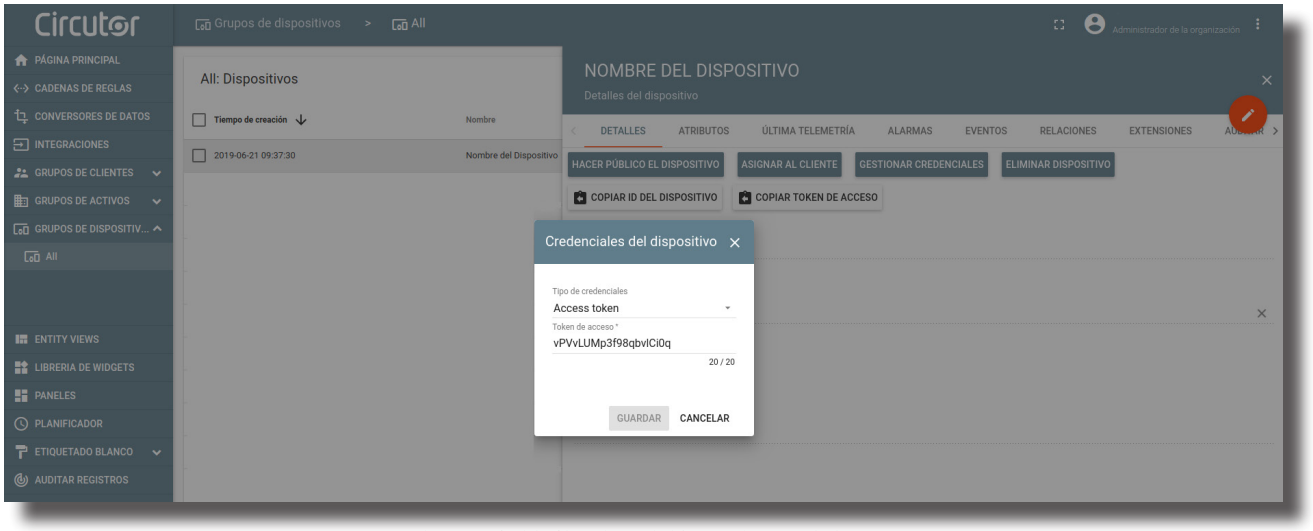

Figure 50: MyCircutor Platform: Access token.

6.- Copy the Token and enter it into the configuration website of the device, **Figure 46.**

7.- Once the data export to *MyCircutor* platform has been configured, the readings for the values from the linked **line-EDS-Cloud** devices will be shown in *MyCircutor*.

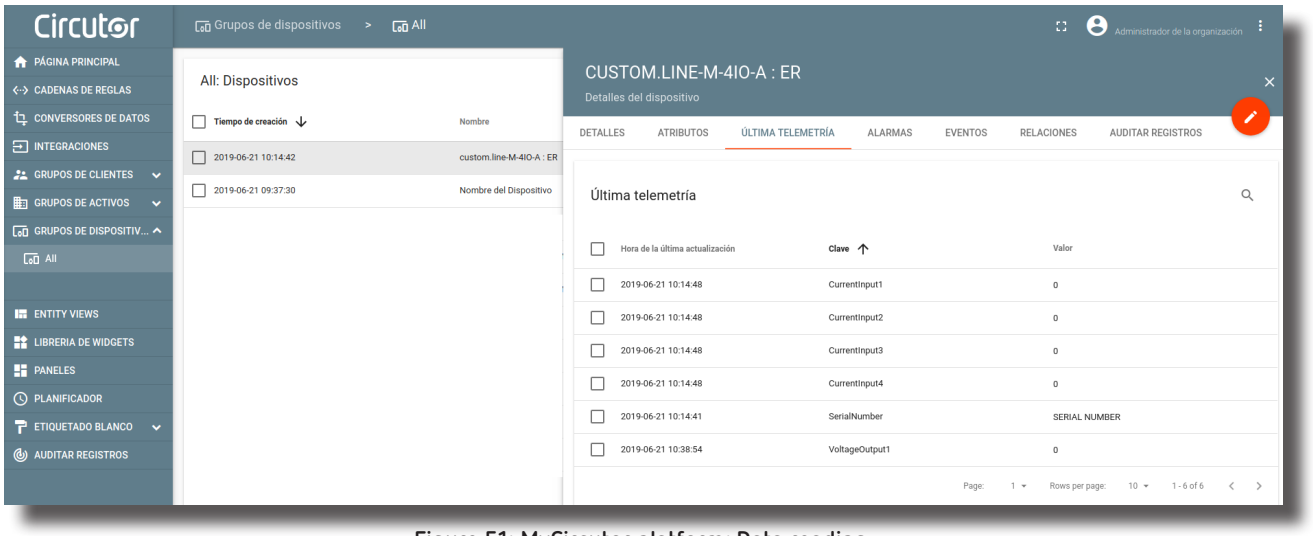

Figure 51: MyCircutor platform: Data reading.

A.2- Amazon Web Services (AWS)

To configure data export to the *AWS* platform, the steps are as follows:

1.- On the configuration website for the device, go to the **Exports** screen, where the Cloud platform is specified.
Press **Add export** to select and configure the Cloud platform, the screen shown in **Figure 44** will appear.

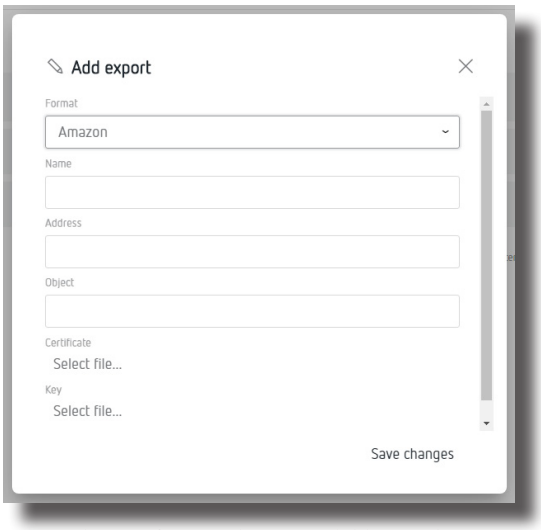

Figure 52: Export screen: Add Export.

Fill in the screen parameters with the following values:

✓**Format:** Select *Amazon*

✓**Address:** The information for this field is obtained on the *AWS* platform.

✓**Object:** The information for this field is obtained on the *AWS* platform.

✓**Certificate:** The information for this field is obtained on the *AWS* platform.

✓**Key:** The information for this field is obtained on the *AWS* platform.

2.- To fill in all the above fields, you have to go to the *Amazon Web Services (AWS)* platform. In the **Consola de administración de AWS (AWS administration console),** screen, go into the **Internet de las cosas (Internet of things) → IoT Core.**

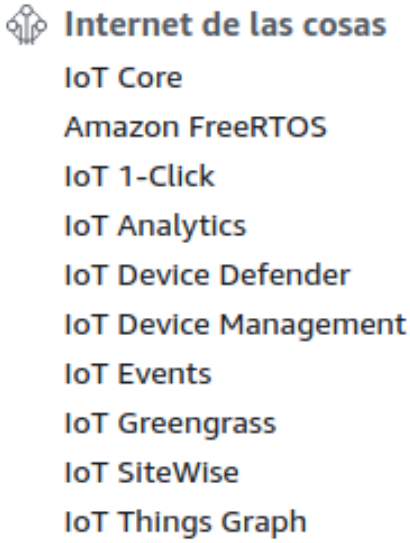

Figure 53: AWS platform: Internet of things.

3.- In the **AWS IoT** menu, go into **Administración (Administration) → Objetos (Objects)** and click **Crear.**

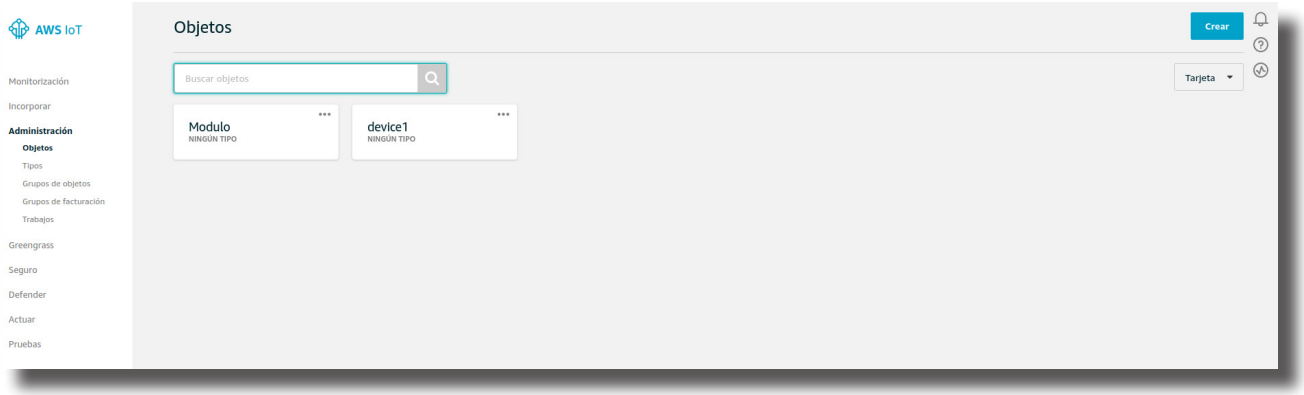

Figure 54: AWS platform: Objects.

4.- Several steps are required to create an object:

4.1.- On the **screen Creación de objetos de AWS IoT (Creation of AWS IoT objects)**, click on the option **Crear un solo objeto (Create a single object).**

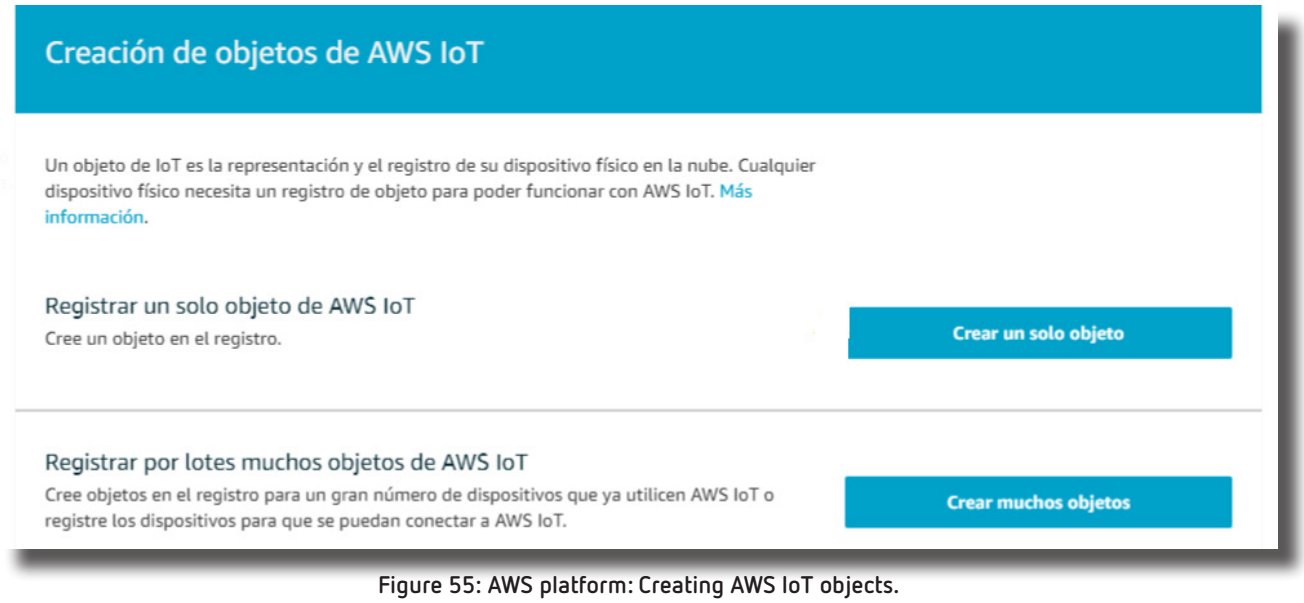

Figure 55: AWS platform: Creating AWS IoT objects.

4.2.- On the screen **Añadir su dispositivo al registro de objetos (Add your device to the object registry)**, assign a **Nombre (Name)** and click Next.

Figure 56: AWS platform: Add your device to the object registry.

4.3.- On the screen **Añadir un certificado para el objeto (Add a certificate for the object)**, click **Crear un certificado (Create a certificate)** to create the object and the certificates. Take note of the location in which the created certificates are downloaded to as they will be used later.

Figure 57: AWS platform: Add a certificate for the object.

4.4.- Click on **Listo (List)**, omitting the other options.

5.- It is now necessary to create a policy in **AWS IoT**:

5.1.- In the **AWS IoT** menu, go to **Seguro (Insurance)** → **Políticas (Policies)** and click **Crear.**

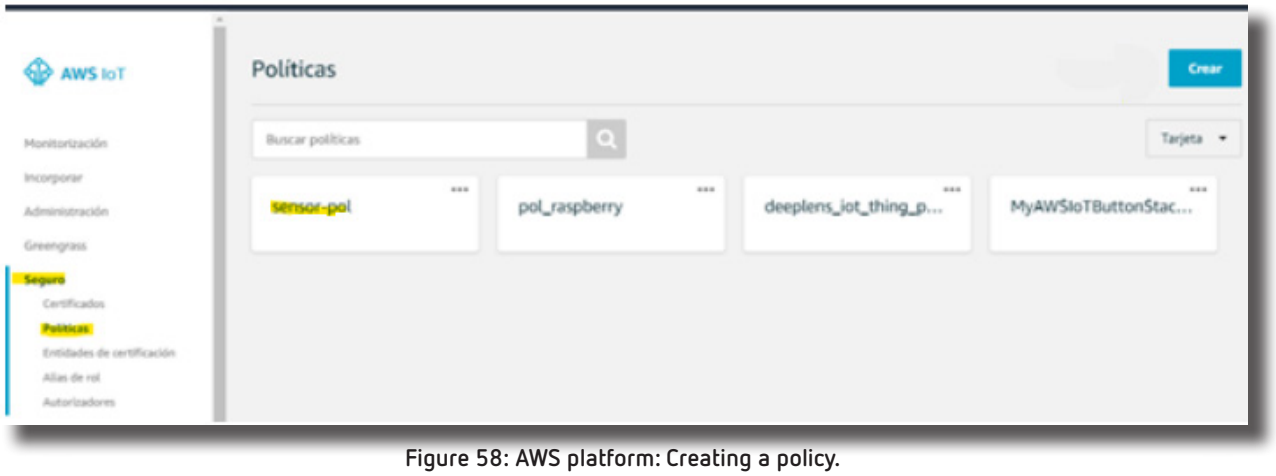

Figure 58: AWS platform: Creating a policy.

5.2.- On the screen **Crear una política (Create a policy)**, asignar un **Nombre (Name)** and add a security configuration. If we do not know the appropriate configuration for our case, we can select Advanced Mode and use the following minimum security configuration:

```
{
        "Version": "2012-10-17",
        "Statement": [
                {
                        "Effect": "Allow",
                        "Action": "iot:connect",
                        "Resource": "*"
                },
                {
                        "Effect": "Allow",
                        "Action": "iot:Publish",
                        "Resource": "arn:aws:iot: [A]: [B]:topic/$aws/things/[C]/shadow/update"
                }
        ]
}
```

On : [A] = Region Code, [B] = AWS ID, [C] = Object name

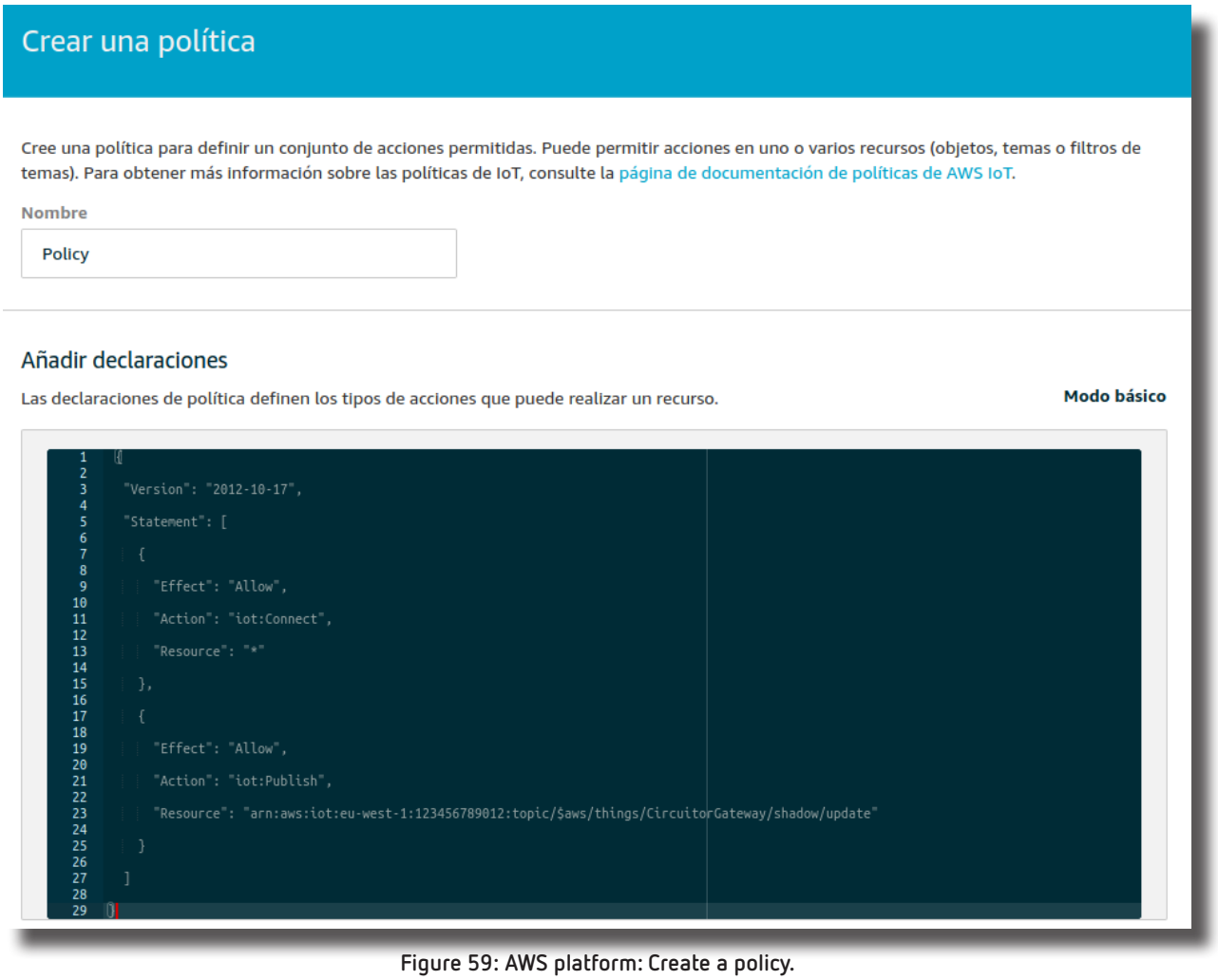

Figure 59: AWS platform: Create a policy.

6.- Link the policy to the object created:

6.1.- In the **AWS IoT** menu, go to **Administración (Administration)** → **Objetos (Objects)** and click on the object created previously.

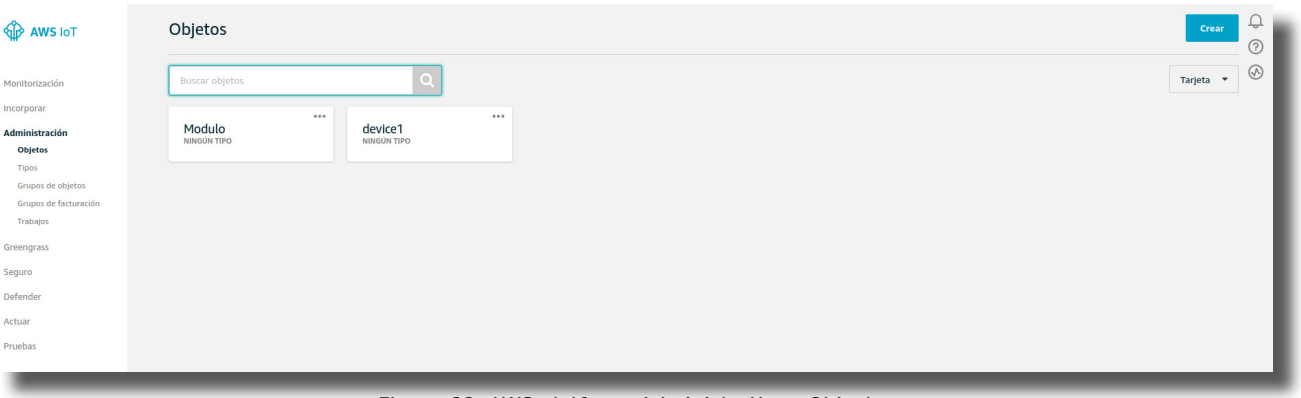

Figure 60: AWS platform: Administration - Objects.

6.2.- Select **Seguridad (Security)** and click on the certificate created.

6.3.- Click on the **Acciones (Actions)** menu and select **Asociar política (Link policy)**.

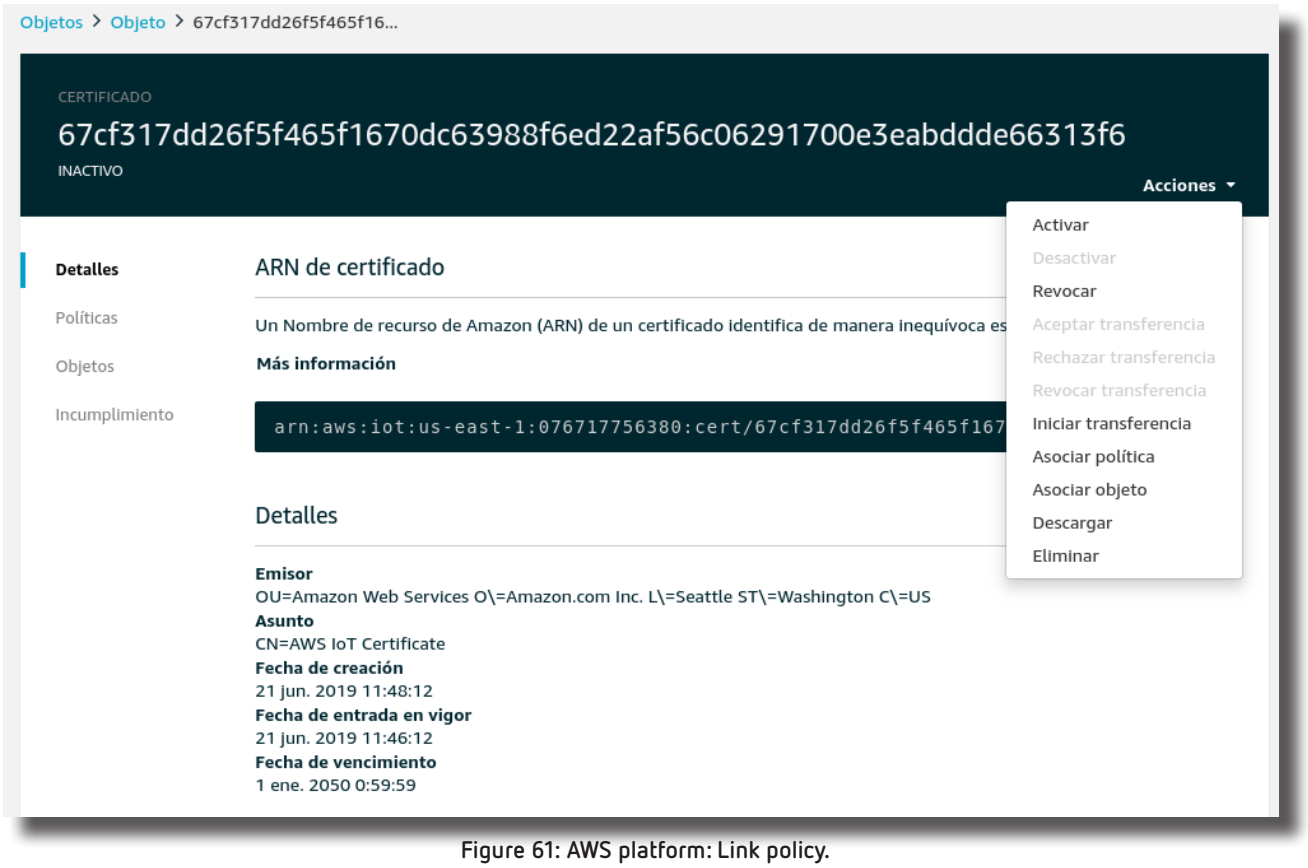

Figure 61: AWS platform: Link policy.

6.4.- Select the previously created policy from the list of possible policies and click **Asociar**.

6.5.- Finally, click **Activar**.

7.- Enter the new data on the device configuration website:

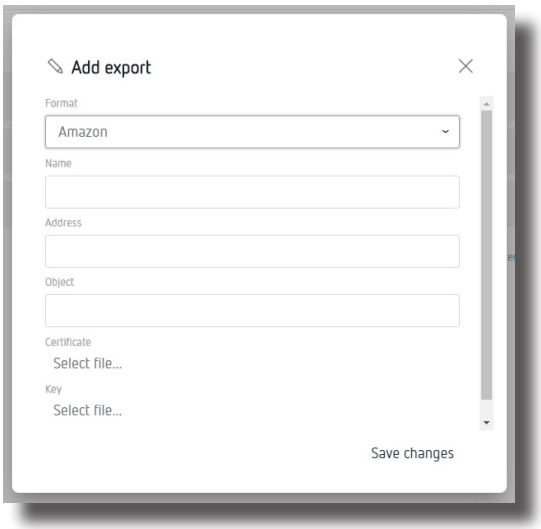

Figure 62: Export Screen: Add Export.

✓**Address:** This field is in the **Interactuar (Interact)** → **HTTPS** menu of the created object.

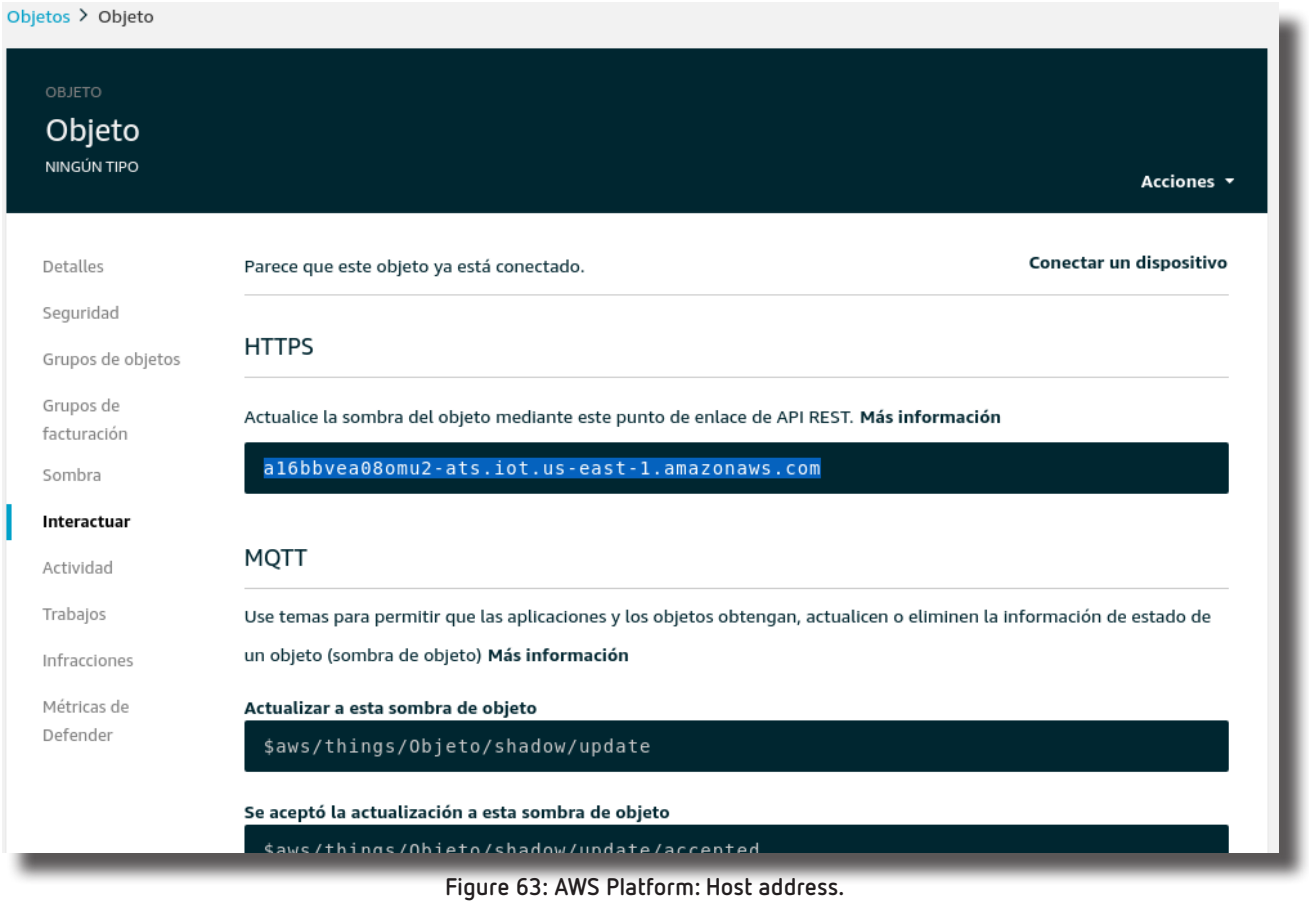

Figure 63: AWS Platform: Host address.

✓**Object:** Add the name of the created object in this field.

✓**Certificate:** Select the created certificate file.

✓**Key:** Select the created certificate file.

8.- Once the data export to the *Amazon Web Services (AWS)* platform has been configured, the readings of the values from the devices associated with the **line-EDS-Cloud** are shown on the platform. To do this, in the **AWS IoT** menu, go to **Administración (Administration)** → **Objetos (Objects)** and select the desired object.
Within the object, select **Sombra (Shadow)** to display the exported data.

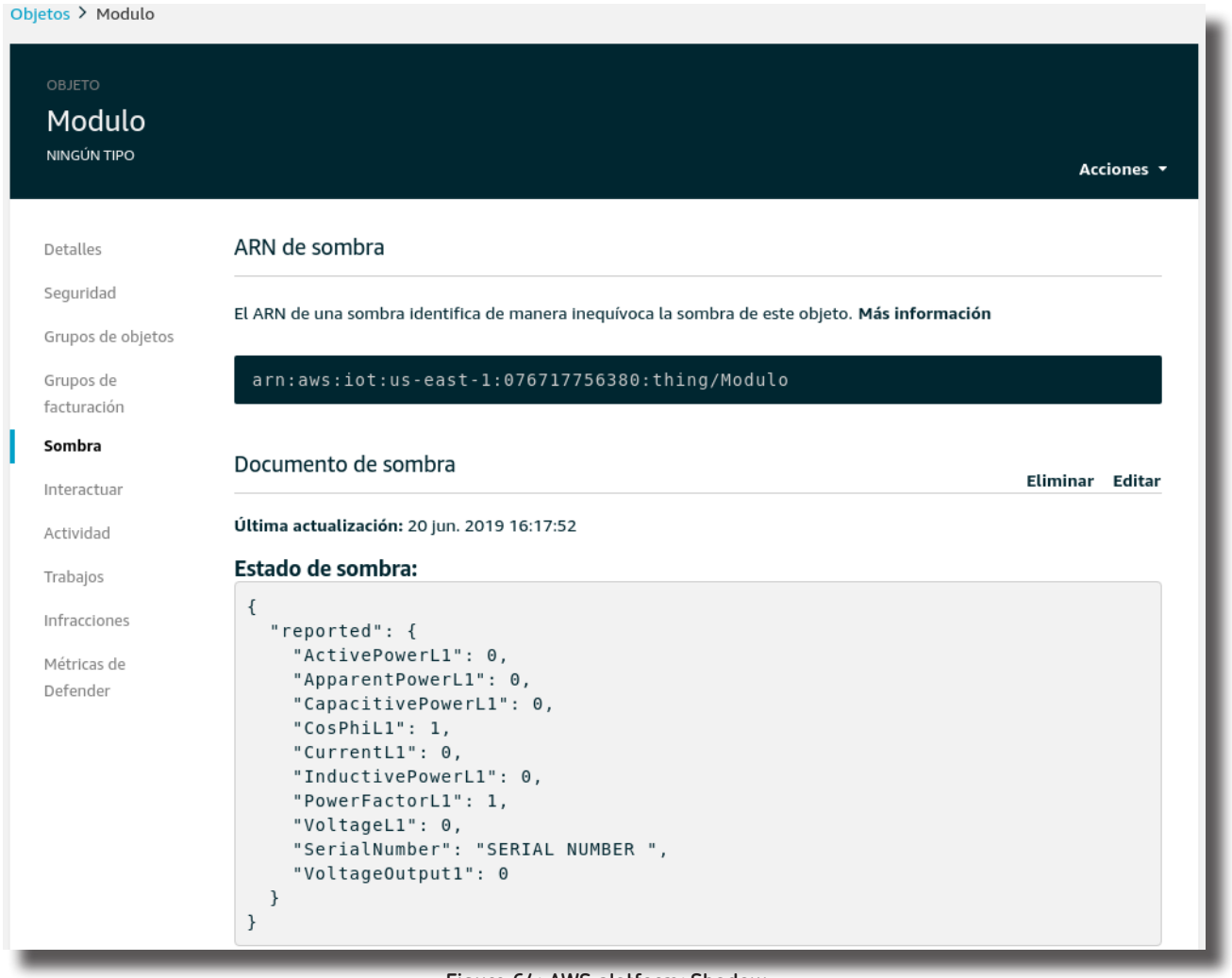

Figure 64: AWS platform: Shadow.

A.3- Google Cloud IoT Core

To configure the data export to the *Google Cloud IoT Core* platform, the steps are as follows:

1.- On the device configuration website, go to the **Exports** screen where the Cloud platform can be specified.

Press **Add export,** to select and configure the Cloud platform, the screen shown in **Figure 65** will appear.

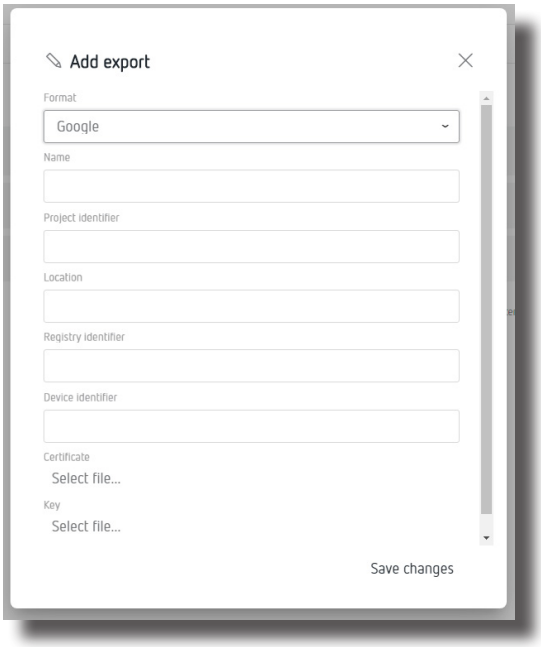

Figure 65:Export Screen: Add Export.

2.- To fill in all the above fields, you need to log into the *Google Cloud IoT Core* platform.*And* create a project by going into the *Google Cloud Platform (GCP).*To do this, open the **IAM y administración (IAM and administration)** menu and go to **Administrar recursos (Manage resources).**

In the new screen, select **Crear Proyecto (Create Project).**

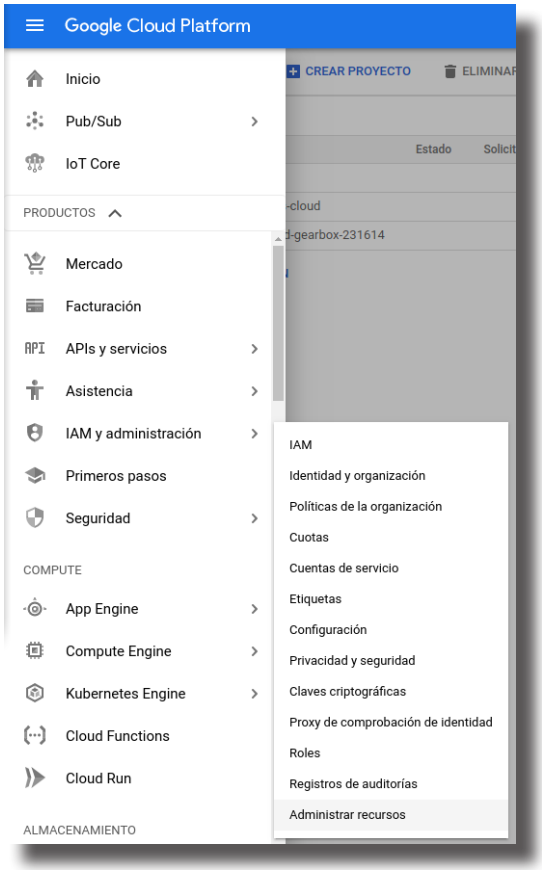

Figure 66: Google screen: Google Cloud Platform.

3.- Create a new project by assigning a name in **Nombre del proyecto (Project Name)** and an ID in **ID del proyecto (Project ID)**. Make a note of the ID, as it will be used later.

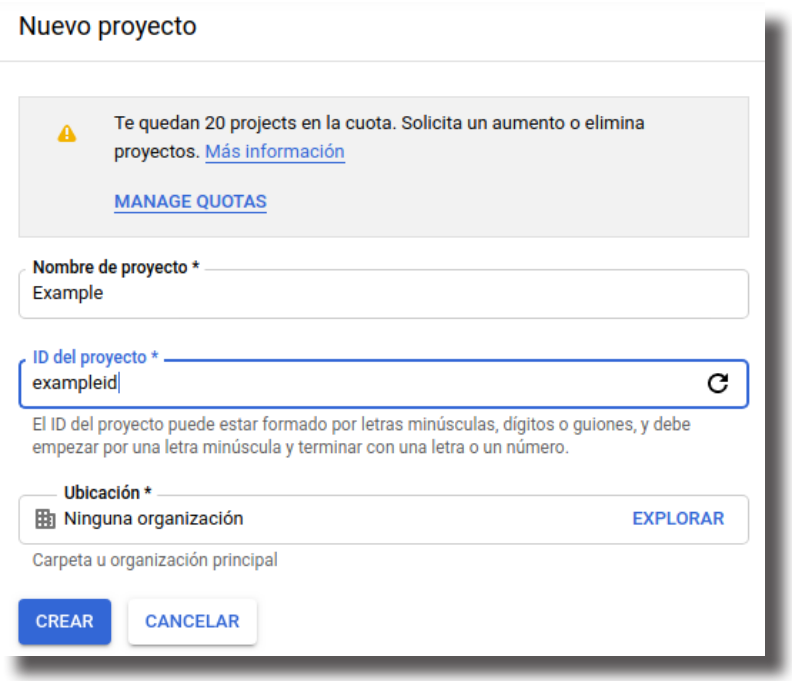

Figure 67: Google screen: New project.

4.- Configure a Pub/Sub communication. To do this, in the **Big Data** menu, go to **Pub/Sub → Temas (Subject).** Enable the API and then create a subject.

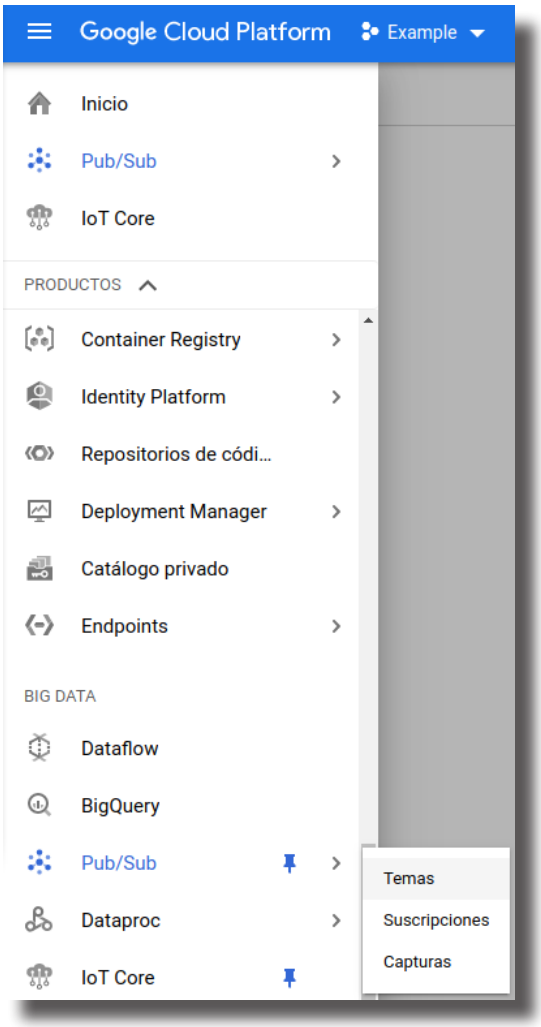

Figure 68: Google screen: New project.

5.- Add a subject name and make a note of it, as it will be used later on.

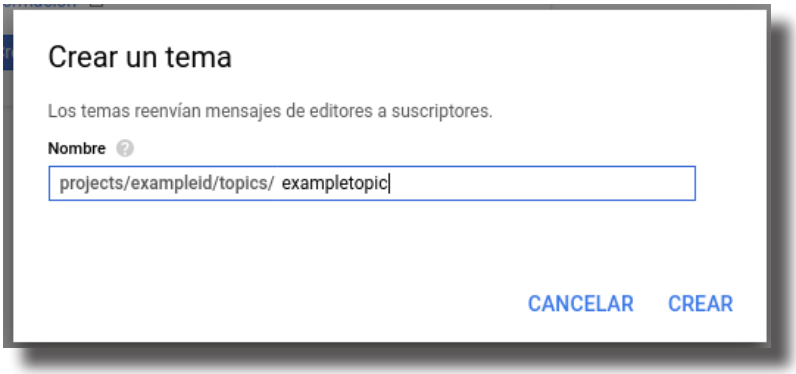

Figure 69: Google screen: Create a subject.

6.- Create certificates.

Before creating the device registry, an RS256 key has to be generated with a self-signed X.509 certificate. The X.509 certificate must be valid when creating or updating a device or an error will be generated.

By default, X.509 certificates expire 30 days after creation.

To generate a private RSA-256 key with a key size of 2048 bits and a self-signed X.509 certificate, enter the following command:

openssl req -x509 -nodes -newkey rsa:2048 -keyout rsa_private.pem -out rsa_cert.pem -subj "/CN=unused"

The files **rsa_cert.pem** and **rsa_private.pem**, are created, which will be used for the **line-EDS-Cloud** configuration.

7.- Creating a device registration.

7.1.- In the menu **Big Data** go to **IoT Core.**

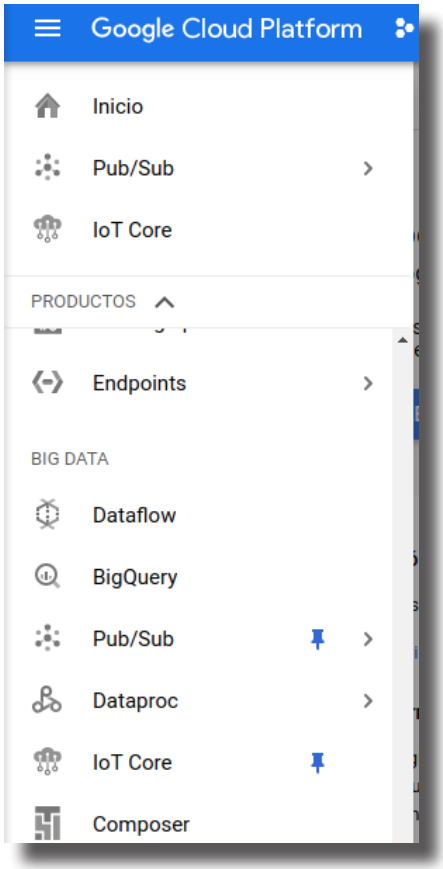

Figure 70: Google screen: Google Cloud Platform - IoT Core.

7.2.- Enable API.

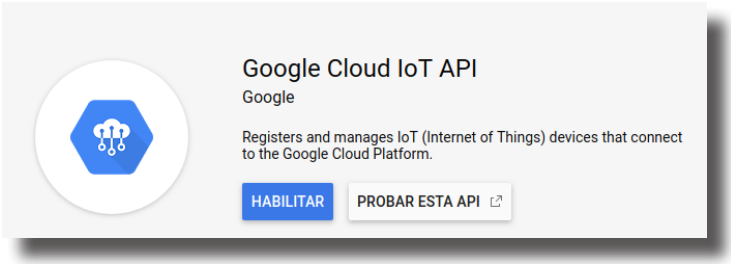

Figure 71:Google screen: Enable API.

7.3.- Press **Crear registro (reate registry)**. To create a new registry, fill in the following sections:

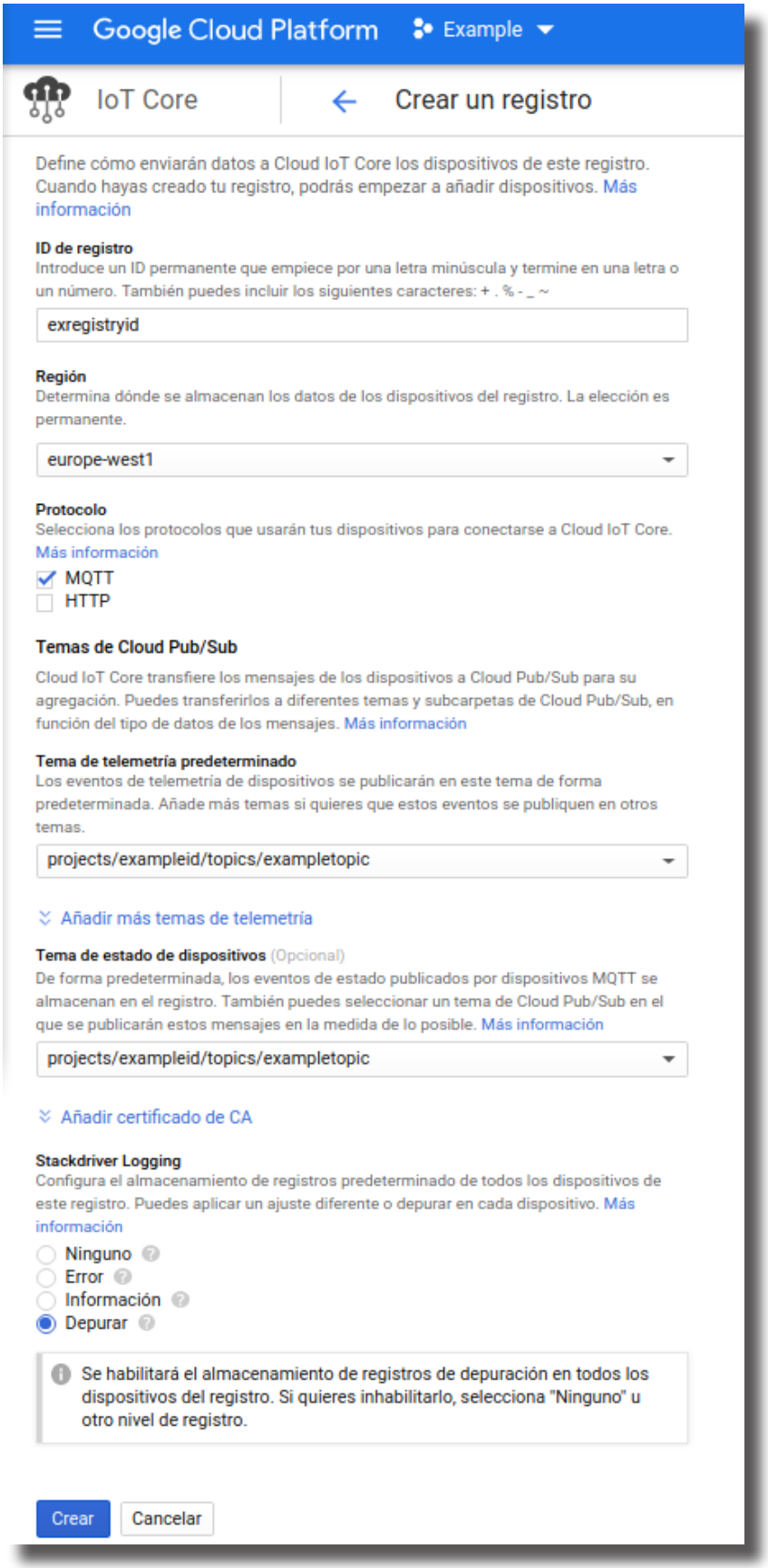

Figure 72: Google screen: Create a registry.

✓**ID de registro:** Make a note of this, as it needs to be used in the **line-EDS-Cloud** configuration.

✓**Región:** Select the nearest one.

✓**Protocolo:** Select MQTT.

✓**Temas de Cloud Pub/Sub:** Choose the subject created in point **5.-**

✓**Stackdriver Logging:** Select *Depurar (Debug)* o *Ninguno (None)*.

Finish creating the registry by clicking **Crear**.

8.- Creating a device.

8.1.- In the **IoT Core** screen, click on **Crear dispositivo (Create device).**

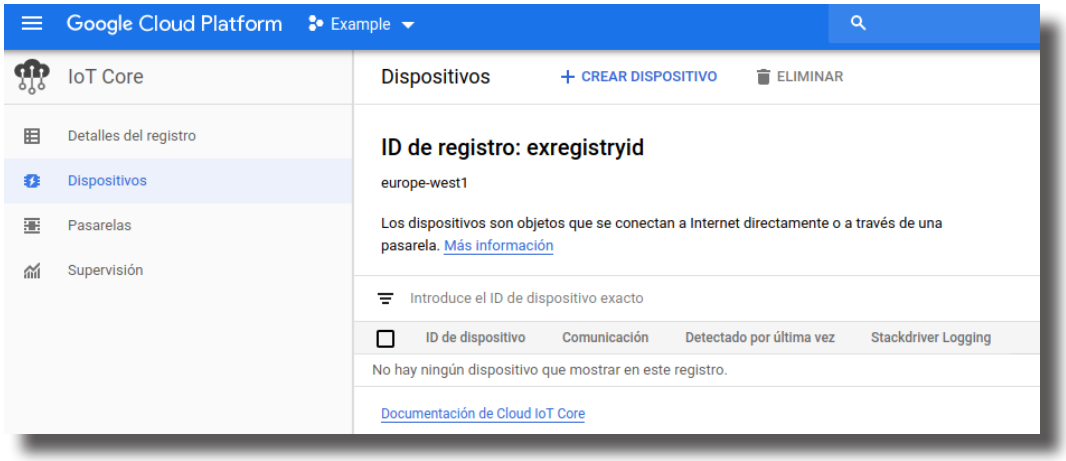

Figure 73: Google screen: Devices.

8.2.- To create a new device, fill in the following sections:

✓**ID de Dispositivo:** Make a note of this, as it needs to be used in the **line-EDS-Cloud** configuration.

✓**Comunicación de Dispositivo:** Select *Permitir*.

✓**Autenticación:**

- In **Método de introducción (Introduction method)**, select *Subida*.
- In **Formato de clave pública (Public key format)**, select *RS256*.
- In **Valor de clave pública (Public key value)**, upload the file **rsa_cert.pem** generated previously.

✓**Stackdriver Logging:** Select U*sar el ajuste predeterminado de registro (Use the default registry setting).*

Finish creating the device by clicking **Crear**.

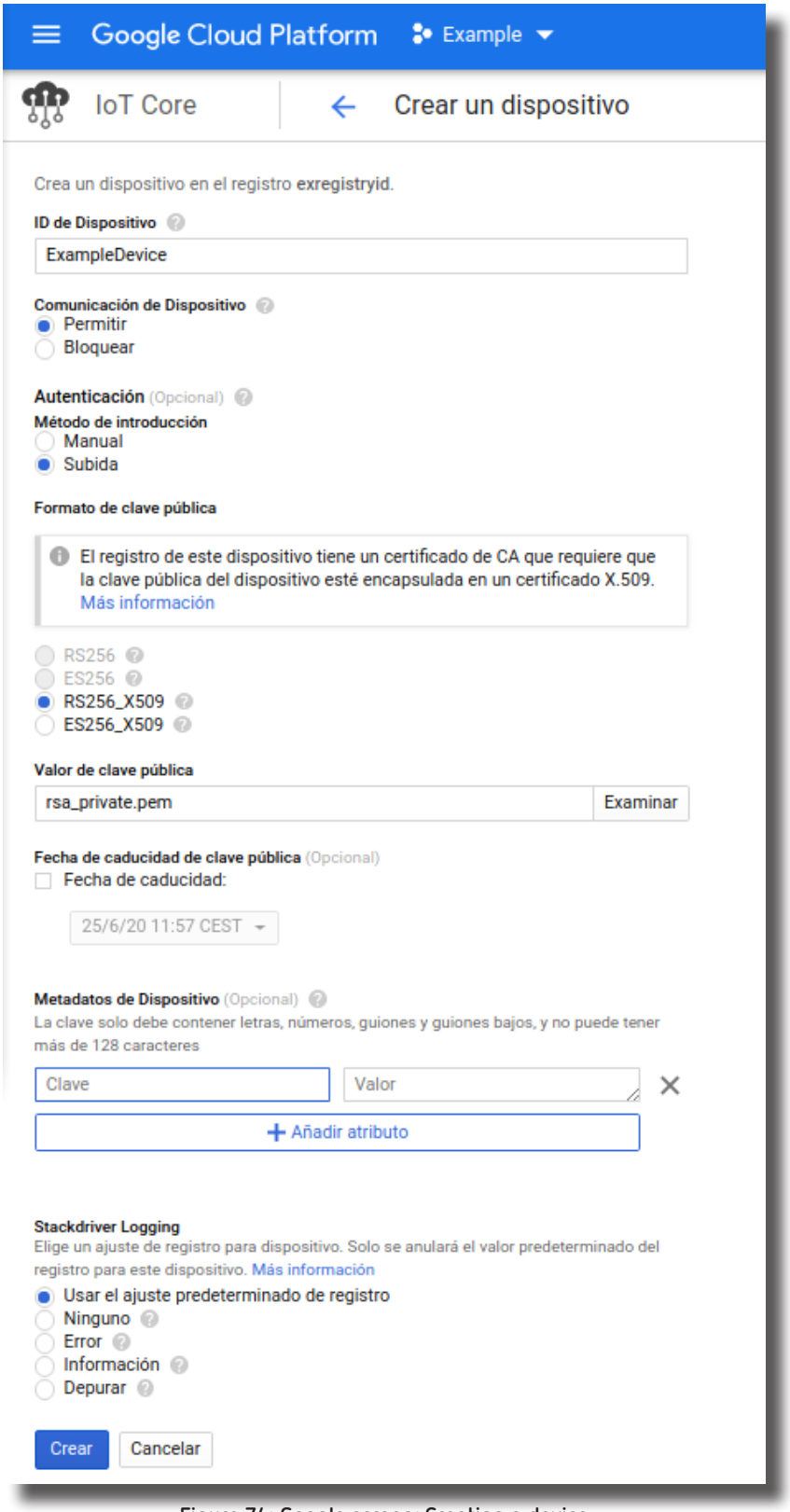

Figure 74: Google screen: Creating a device.

9.- Enter all the data obtained from the *Google Cloud IoT Core* platform into the device configuration website.

10.- Once the data export to the *Google Cloud IoT Core* platform has been configured, the readings for the values from the devices linked to the **line-EDS-Cloud** will be shown on the platform.

To do this, in the navigation menu, go to **Big data → IoT Core** and select the registry and the device created.
The dates of the last data sets received are displayed on the screen.

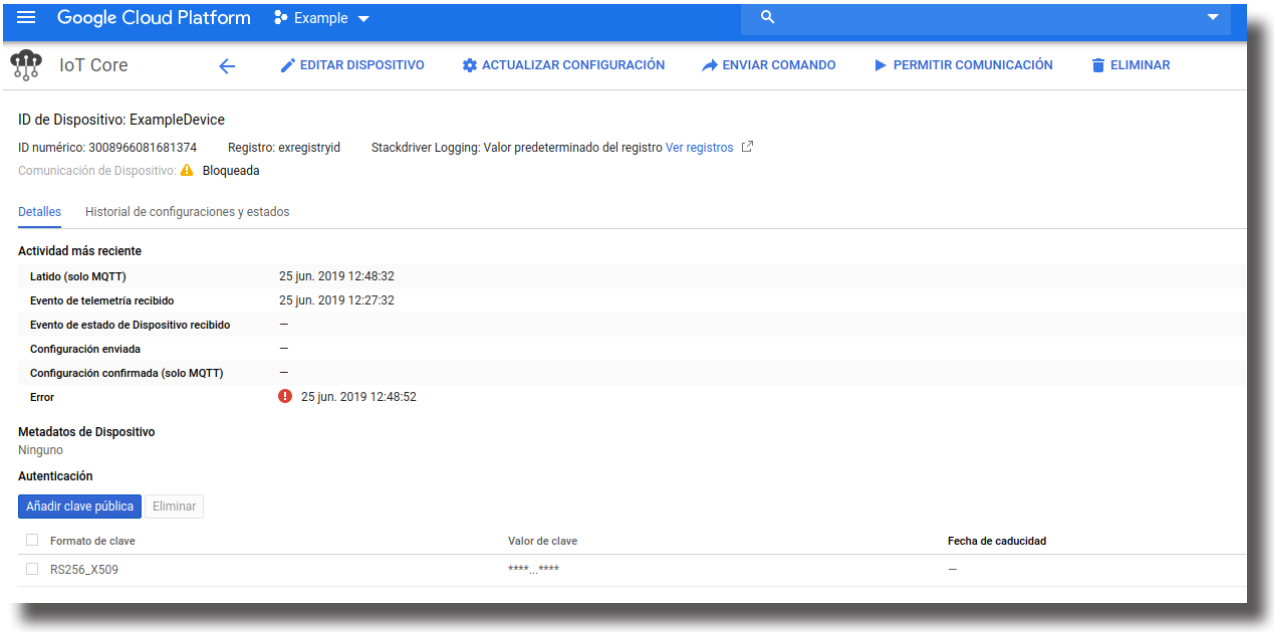

Figure 75: Google screen: Device.

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