FAGOR ELECTRÓNICA

Flow

Headend

Installation and Setting guide

Index page

1. INTRODUCTION

This document explains how to perform a basic installation of the Ikusi Flow headend.

The document is divided in two parts. In the first part, the physical mounting is described, both in rack mounting and in wall mounting. The second part describes how to configure the headend. In order to do that, initially, it explains how to connect the user configuration terminal (tablet, pc...) to Ikusi Flow. After that, it describes the steps that must be followed in order to define a channel line-up, while mainly focusing on the Service wizard.

2. MOUNTING

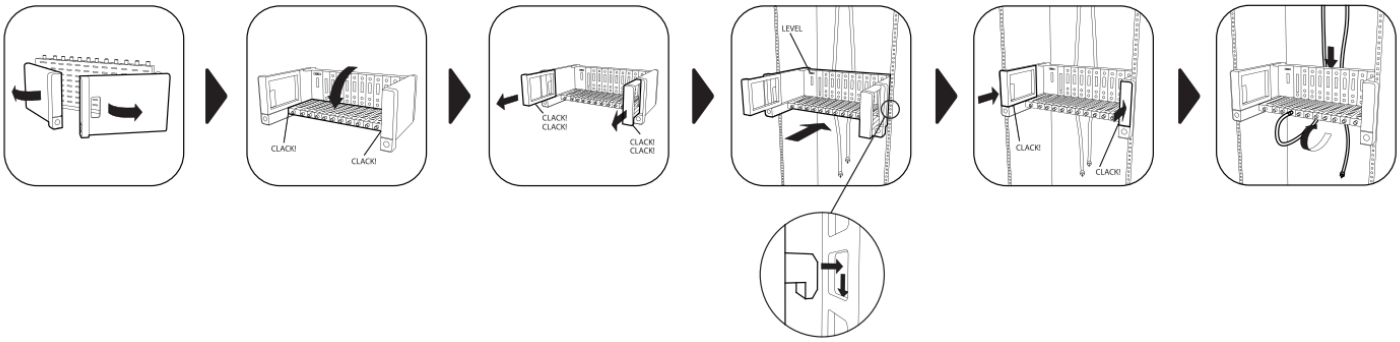
Ikusi Flow can be installed both in a rack cabinet and in wall. Both types of installations are described below.

2.1 Rack cabinet mounting

When opening the box containing Ikusi Flow, you will find a set of modules, numbered from 1 to 5. Follow the order of numbering for a correct installation.

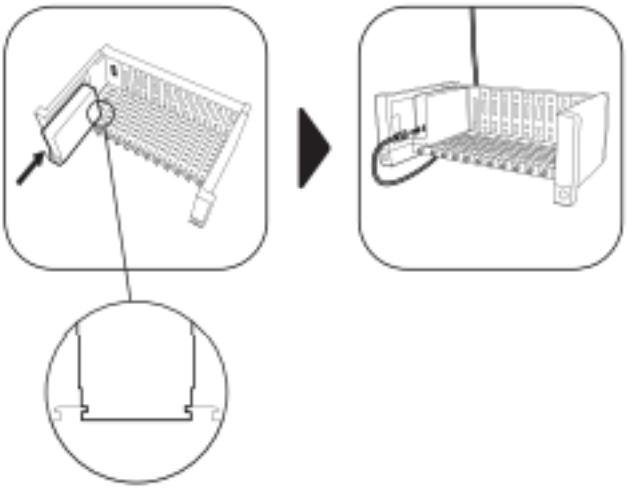
▸ **Step 1: Install FLOW BASE**

Extract FLOW BASE from the box numbered as [1]. The following figure describes the steps that must be followed in order to install FLOW BASE in a rack cabinet



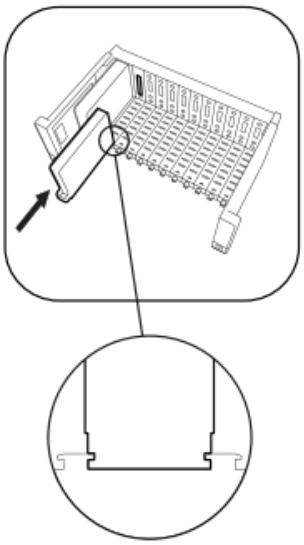
Step 2: Install FLOW PSU

Extract FLOW PSU module from the box numbered as 2. The module must be inserted in the first slot of FLOW BASE. Put it in the rails and slide it until the connectors reach the end. After inserting it, connect the power cord.



Step 3 : Install FLOW HUB

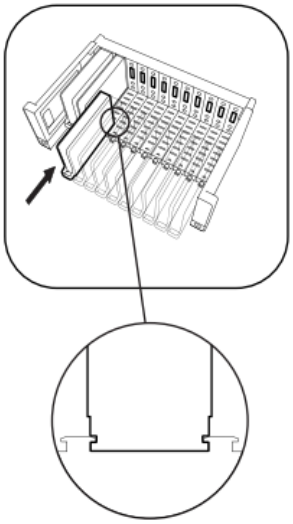
Extract FLOW HUB module from the box numbered as 3. The module must be inserted in the second slot of FLOW BASE. Put it in the rails and slide it until the connectors reach the end.



In the case of IPTV installation, connect TV1 and TV2 ports to two ports of the backbone Gigabit Ethernet switch.

Step 4 : Install the rest of the FLOW modules

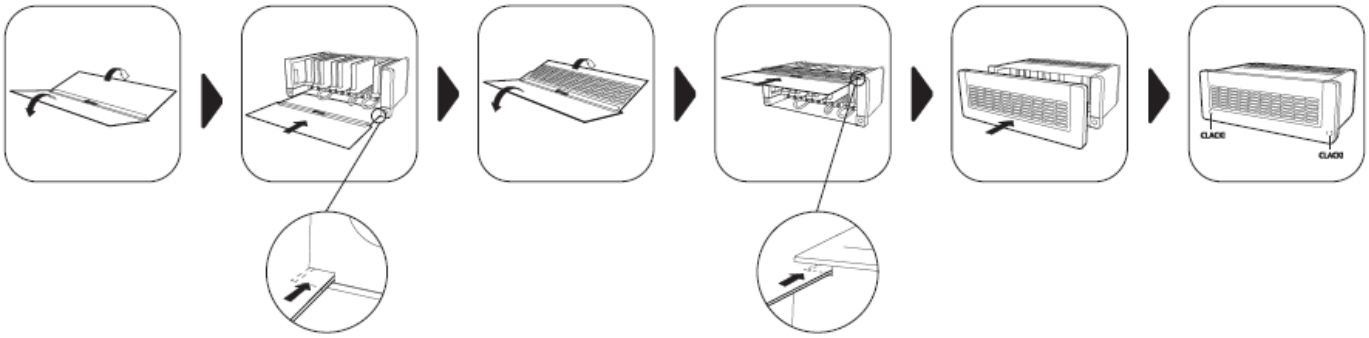
Extract, one by one, the rest of the FLOW modules from the boxes numbered as 4, and insert them in any of the free slots. Put it in the rails and slide it until the connectors reach the end.



In the case of processing of encrypted TV channels, insert the CAMs and the operator smartcards in the FLOW SEC modules.

Step 5: Install FLOW COVER

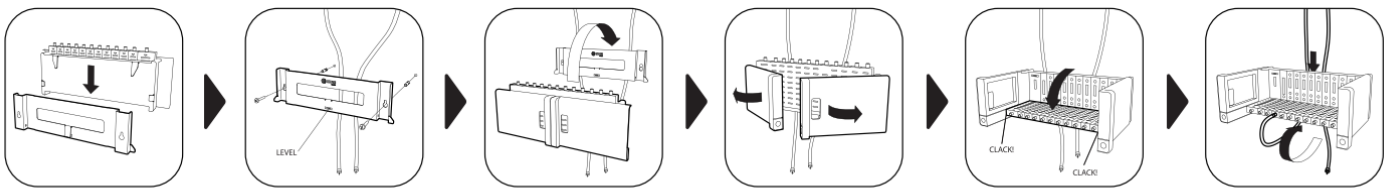
Extract the lower deflector plate from the box numbered as 5 and insert it in FLOW BASE, as it is shown in the picture. The lower deflector plate will allow to gather the coaxial cables. Repeat the same process with the upper deflector plate. Finally, put the cover. If the cover is properly inserted, the fans will start spinning.



2.1 Wall mounting

Step 1: Install FLOW BASE

Extract FLOW BASE from the box numbered as 1. The following figure describes the steps that must be followed in order to install FLOW BASE in the wall.



Following steps
Repeat steps 2 through 5 as per the Cabinet Rack Installation.
The headend is for indoor use only.

2.3 Installation environment recommendations

- Do not plug in the headend in moist rooms.
- Never operate the headend immediately after moving it from a cold location to a hot location. When the device is exposed to such a change in temperature, moisture may condense on the crucial internal parts.
- The device must have sufficient ventilation and may not be covered.
- Protect the device against direct sunlight, heat, intense temperature fluctuations and moisture. Do not place the device in the vicinity of heatersor air conditioners.
- Do not allow liquids to enter into the device. Turn off the device and disconnect it from the main supply if liquids or foreign substances end up inside the device.
- If the device gets too hot or emits smoke, shut it down immediately and unplug the power cable. Arrange for your device to be investigated by a technical service centre.
- Under the following conditions, a layer of moisture can appear inside the device which can lead to malfunctions:
  - if the device is moved from a cold to a warm area.
  - after a cold room is heated.
  - when this device is placed in a damp room.
- The device should not be used in a very dusty or saline environment. Dust or salt particles and other foreign objects may damage the device.
- Do not expose the device to extreme vibrations. It may damage the internal components.

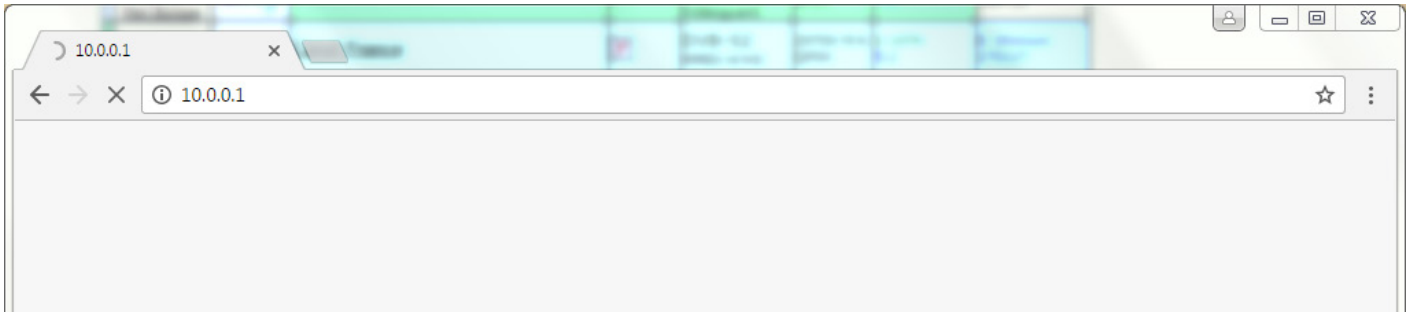
3. BASIC CONFIGURATION

3.1 Connection to the headend

Ikusi Flow is configured through a web page generated by the own headend. To access to that web, you must connect to the headend via WiFi or via Ethernet cable.

- WiFi option

- Connect your terminal (tablet, pc,...) to the Ikusi Flow WiFi network. To do this, choose, among the available WiFi networks, the one named “IKUSI_FLOW_10_0_0_1_XXXX” (where “XXXX” are the last digits of the FLOW HUB MAC address).
- Open your browser and go to 10.0.0.1 address.



- Ethernet cable option

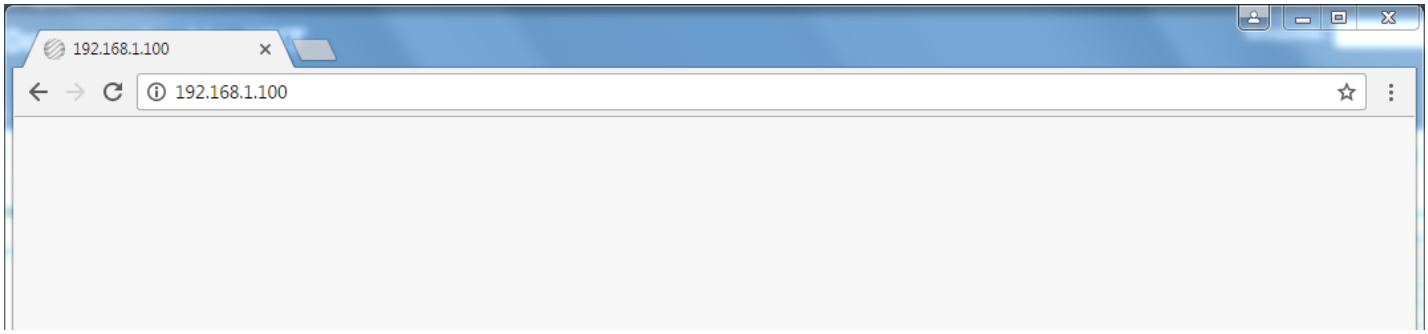
- Connect your terminal (for example, your pc) to the configuration port of the FLOW HUB module, identified as , through an Ethernet cable.
- Configure your terminal to be in the same network than the FLOW HUB module (by default, the FLOW HUB module is 192.168.1.100 IP address). To do this, edit the data related with the IP address of your terminal, for example, with the following information:

  . IP address: 192.168.1.2

  . Subnet mask: 255.255.255.0

  . Default gateway: 192.168.1.1

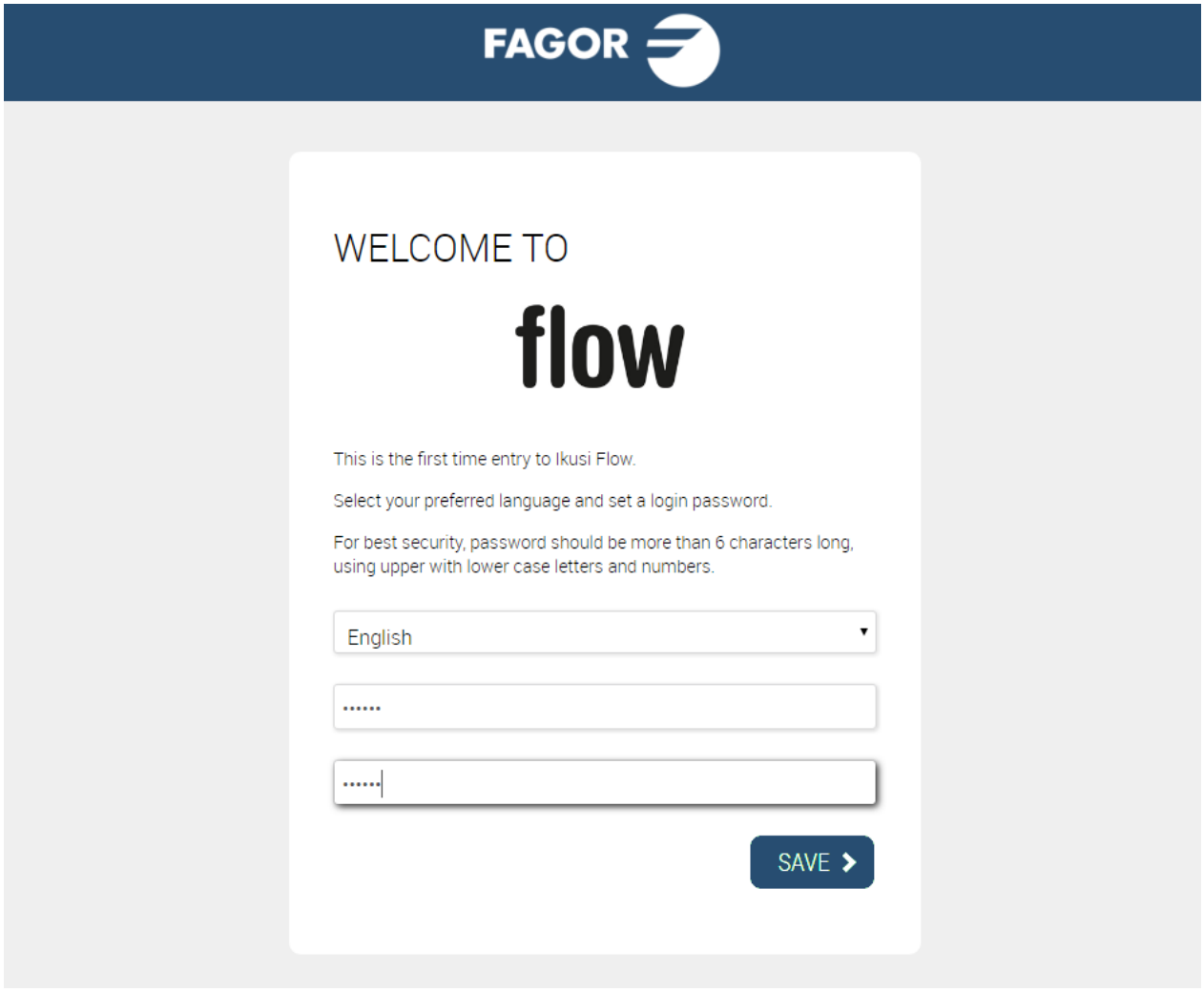
- Open your browser and go to 192.168.1.100 address



3.2 Initial configuration

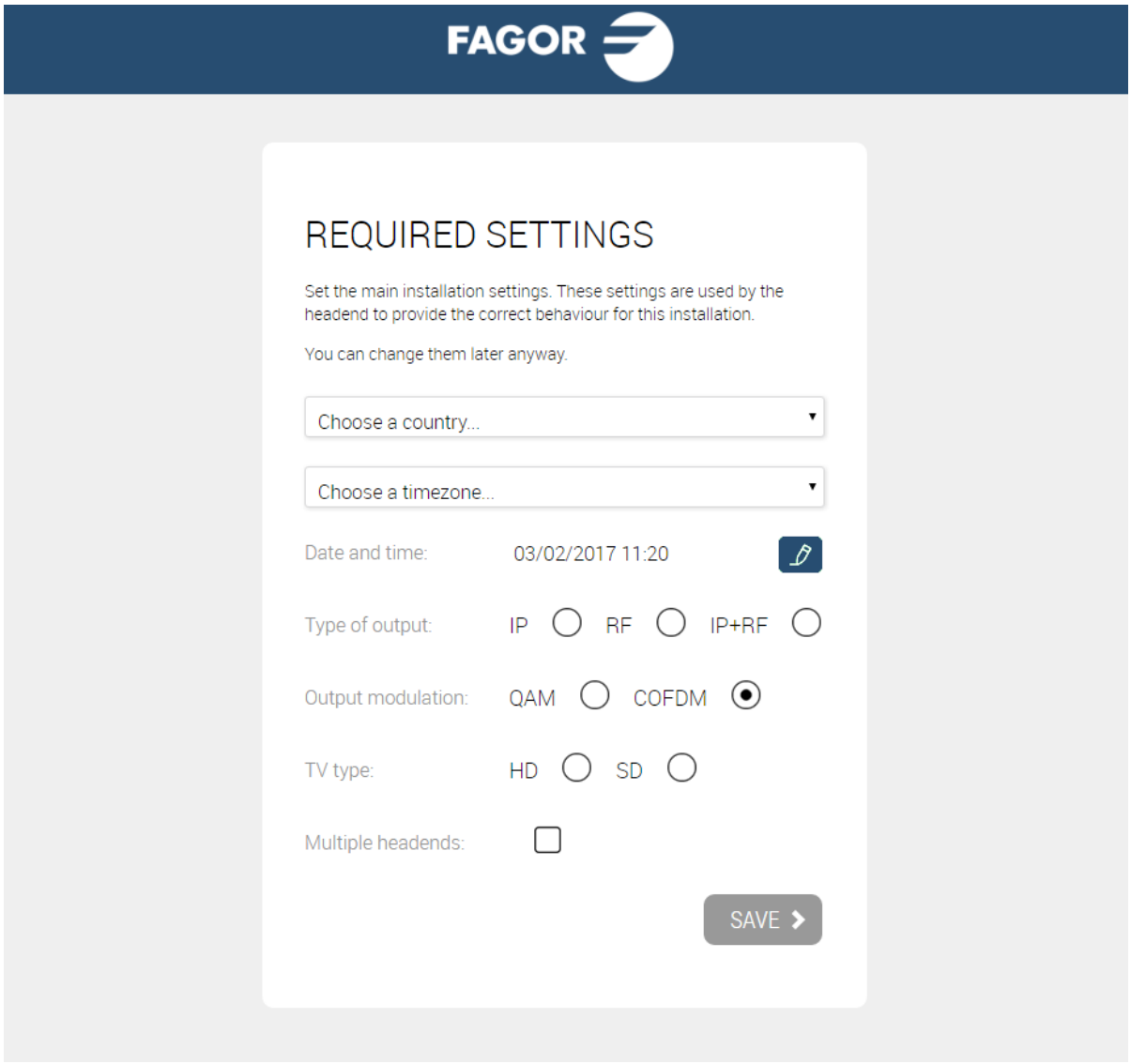
The first time you access to the headend, you must introduce a set of basic data.

Step 1: Language and password



In this first screen, you must choose the desired language for the user interface. You must also define the password that will be used in the next connections.

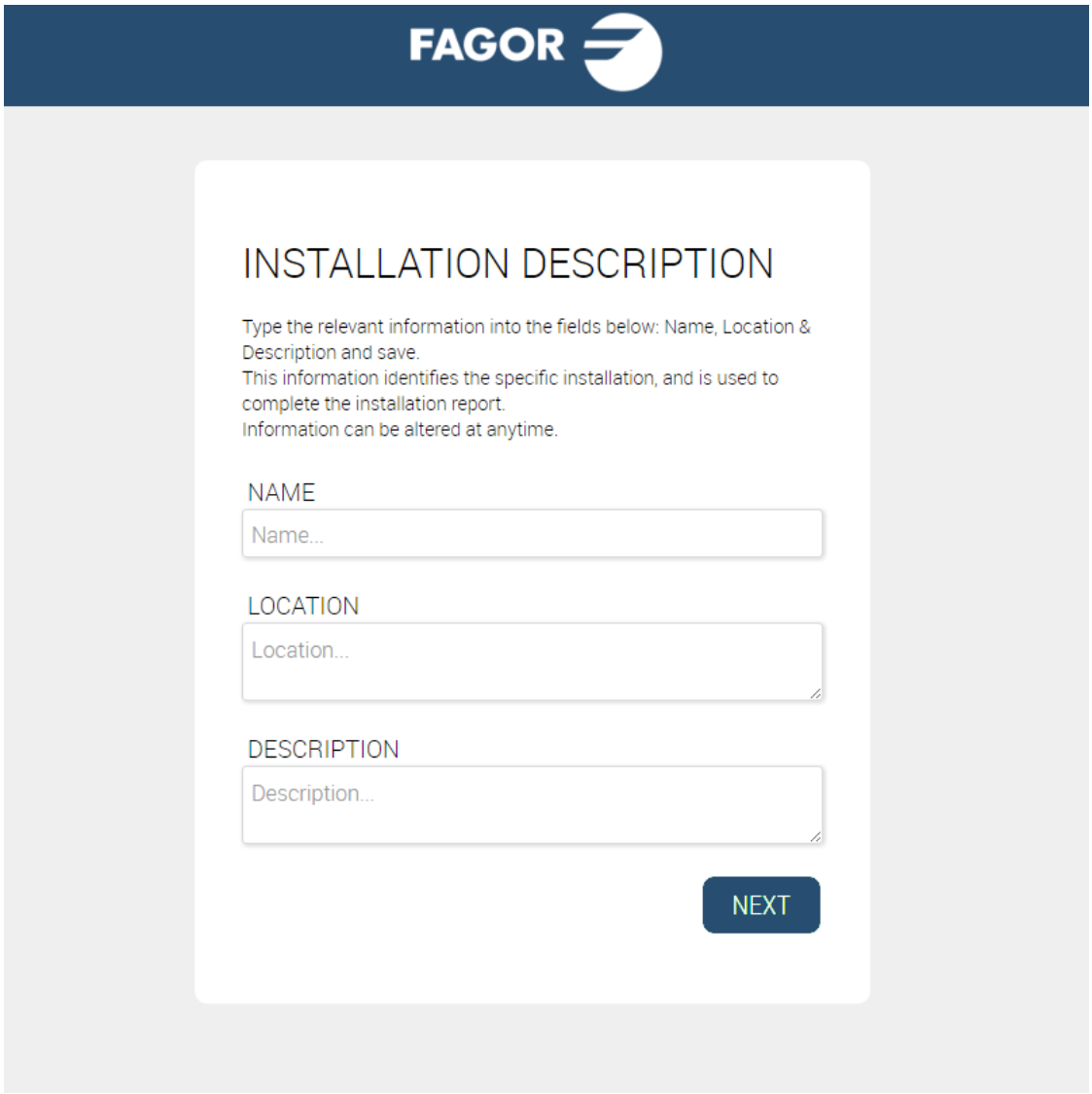
Step 2 : Required settings



In this screen you must define the basic parameters of the installation:

- Country: select the country where the headend is installed. In the case the country doesn't appear in the list, you can select "Other".
- Time zone: select the time zone where the headend is located.
- Date and time: by default, the date and time are configured automatically. In the case you need other date and time, different to the proposed one, push button to edit them.
- Type of output: choose IP when the TV distribution network is pure IP, RF when it is pure RF, or IP+RF when the distribution network is mixed.
- Output modulation: select the type of modulation used in the RF distribution.
- TV type: select the type of TVs that are being used in the installation (HD or SD). This parameter will be used by the headend in order to choose the codecs that will be employed by the FLOW ENC modules. In the case both type of TVs are present, select SD.
- Multiple headends: turn on this option in the case there were more than one Ikusi Flow headend in the same installation.

▸ **Step 3: Installation description**

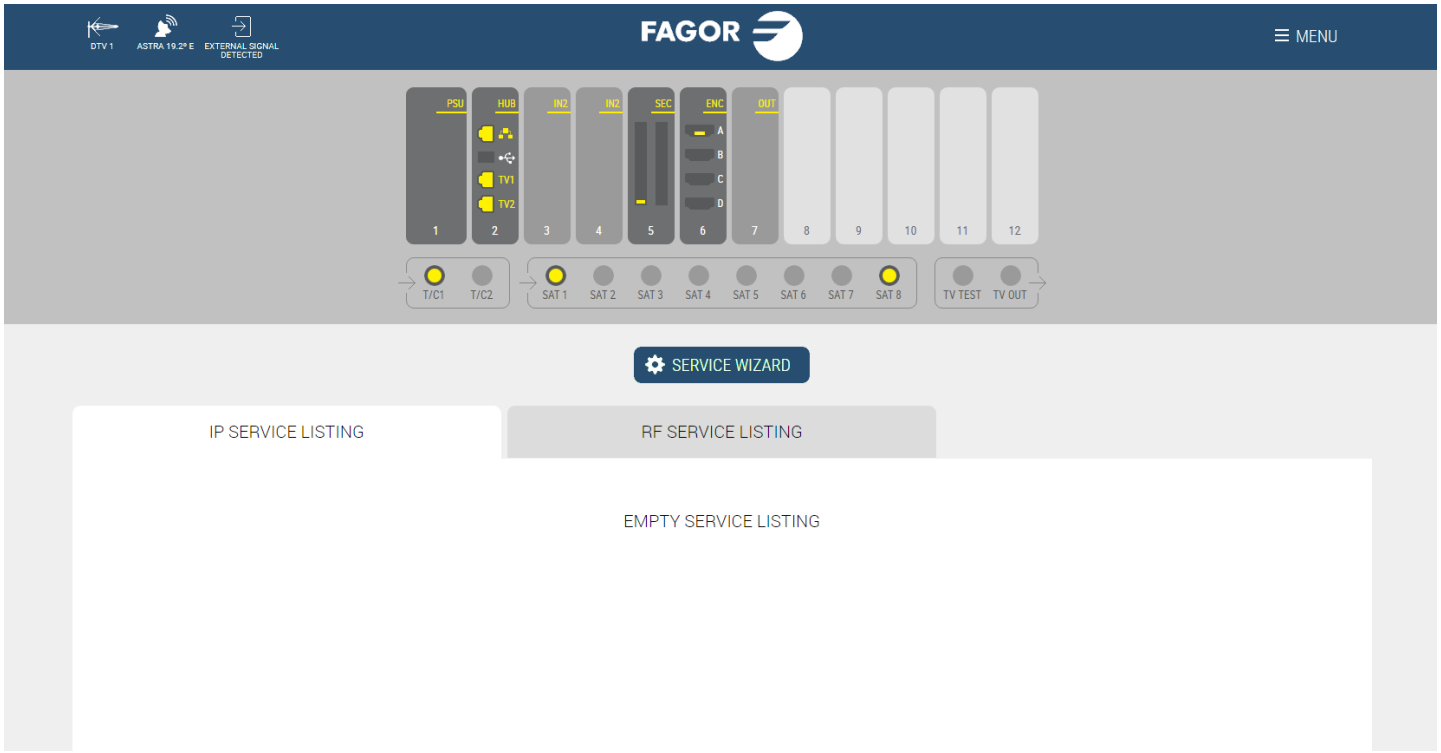


Introduce in this screen the information about name, address and installation description (free text). This information will appear in the reports, and it will allow you to distinguish this particular headend with respect to others.

3.3 "Home" screen

It is the main screen of the user interface. It allows to:

- Know which antennas are being used.
- Know if the current RF distribution is conveyed any TV signal that has not been generated by Ikusi Flow.
- Access to the advanced menu.
- Review each of the modules and its status.
- Launch the service wizard.
- Know which channel line-up is currently configured and its status.



In the example, the top bar informs that two antennas have been connected: one terrestrial antenna identified as DTV1 and one satellite dish pointing to Astra 19.2°E satellite. Also, you could see that RF signal that has not been generated by Ikusi Flow has been detected.

In the same example, you can see that the headend consists of one FLOW PSU module, one FLOW HUB module, two FLOW IN modules, one FLOW SEC module with one FLOW CAM, one FLOW ENC module with one FLOW HDMI source connected to it, and one FLOW OUT module.

Also, you can see that there are three coaxial cables connected to the inputs. One of them with terrestrial signal and the other two with Astra 19.2°E satellite signal. Clicking in each of the used satellite connectors, you could see that the connected polarities are Astra 19.2°E Vertical Low and Astra 19.2°E Horizontal High.

In the required settings screen, the output type that has been selected is IP+RF. For that reason, there are two taps with the service list : one for IP and another one for RF. Both lists are empty, since the headend has not been configured yet.

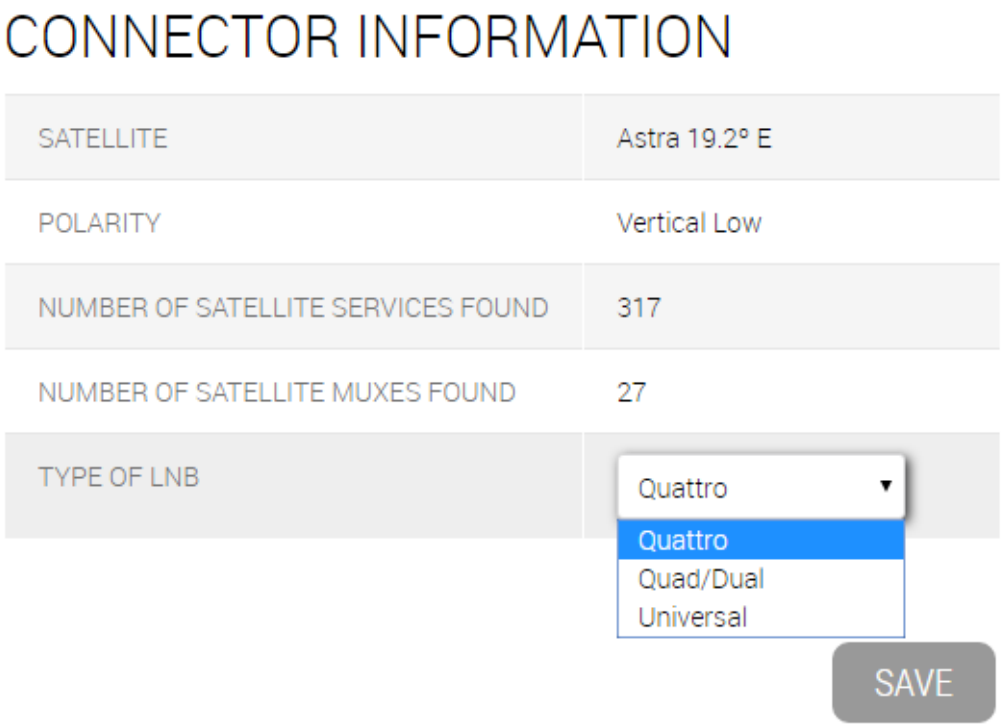
3.4 Automatic scan & LNB powering

Ikusi Flow performs an automatic scanning of the signals. Scanning is launched automatically as soon as a coax cable is connected to the input connectors. During the scanning process, SCANNING message appears in the screen. Until scanning ends, you will not be able to add services through the Service wizard. The input signal connectors will inform about the status and the result of the scanning, using the following color code:

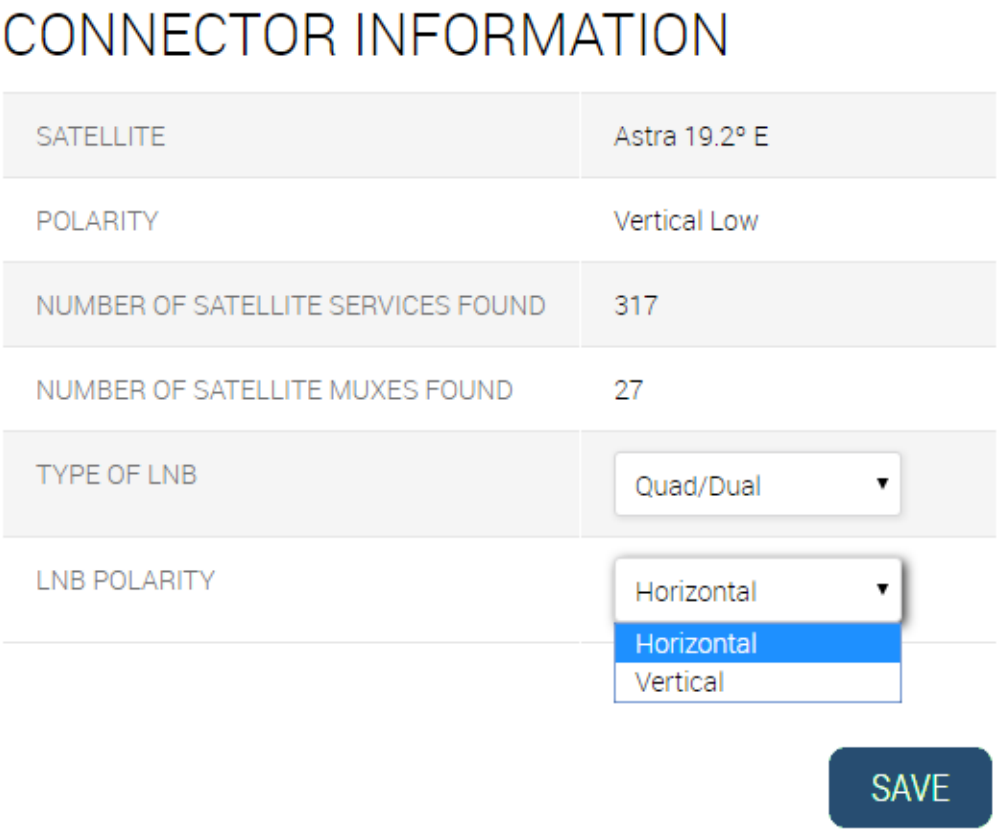
- No cable detected
- Detected cable, scanning
- Detected cable without signal
- Detected cable, ended scanning, detected services

Each connector automatically powers the preamplifiers connected to it (in the case of T/C connectors) with 12/24V (depending on country configuration) or the LNBs (in the case of SAT connectors) with 12V (required voltage to power a Quattro LNB).

Moreover, SAT1 and SAT2 connectors are able to manage universal LNBs (or dual or quad). If this is your case, before launching the Service wizard, modify the power configuration of those connectors. To do that, click over the connector. A window where you could configure the type of LNB will open.

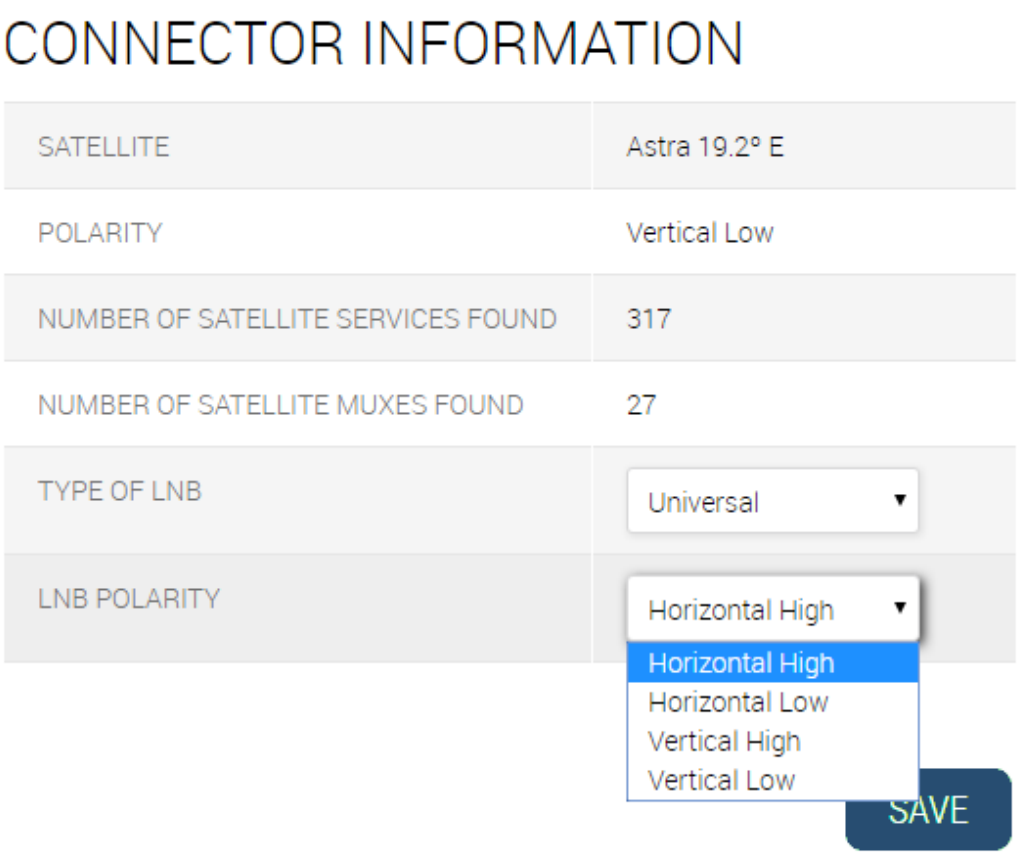


In the case you use a 13/18V without tones switching LNB (tipically used in Australia) select TYPE OF LNB: Quad/Dual.



In LNB POLARITY, select the desired polarity, Horizontal or Vertical.

In the case you use a Universal LNB select TYPE OF LNB: Universal.



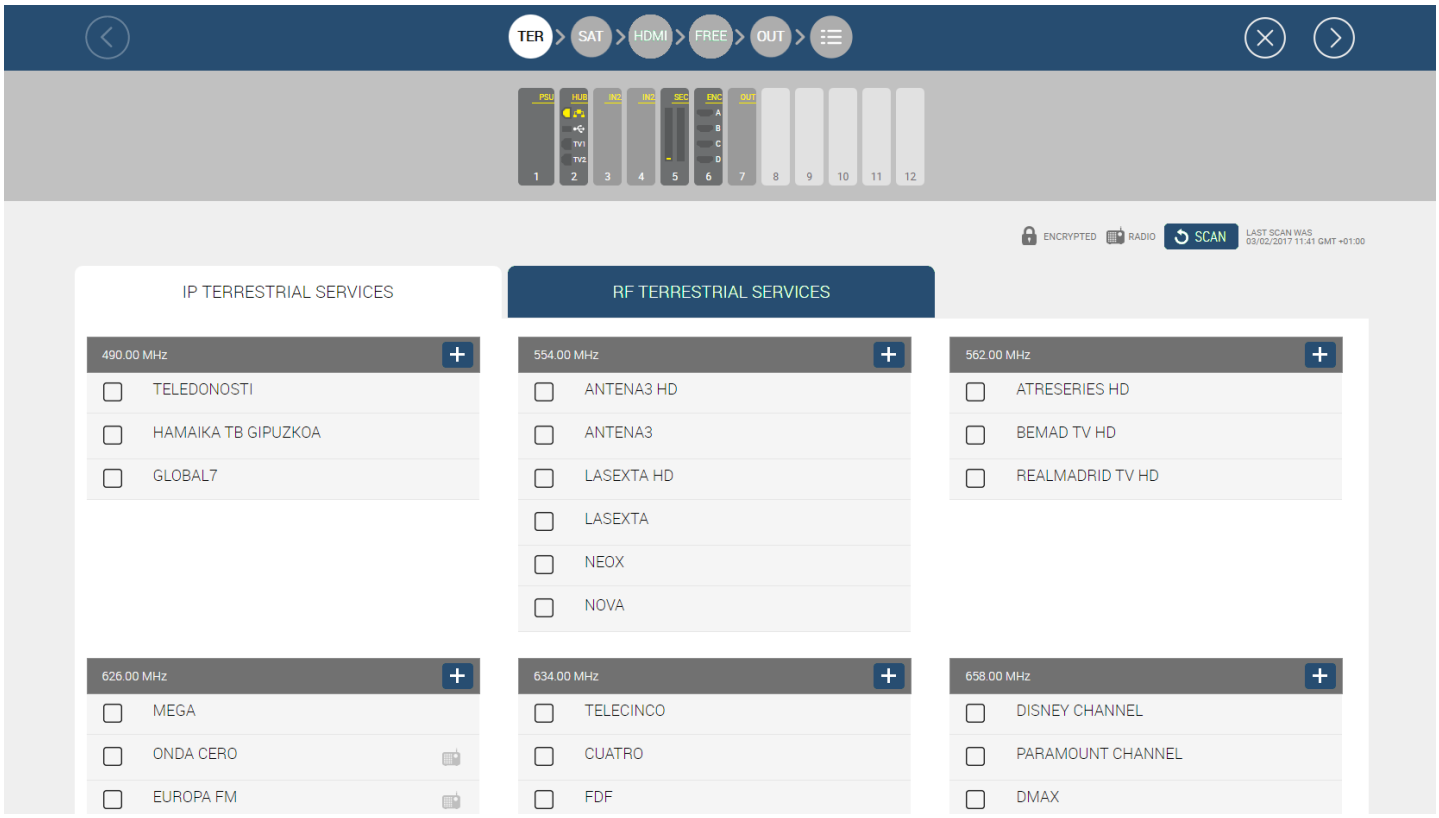
In LNB POLARITY, select the desired polarity, Horizontal High, Horizontal Low, Vertical High or Vertical Low.

Once the connector setup has been done, push SAVE button

3.5 Service wizard

The Ikusi Flow configuration is performed through a wizard that will guide us step by step. To launch the wizard, push "SERVICE WIZARD" button.

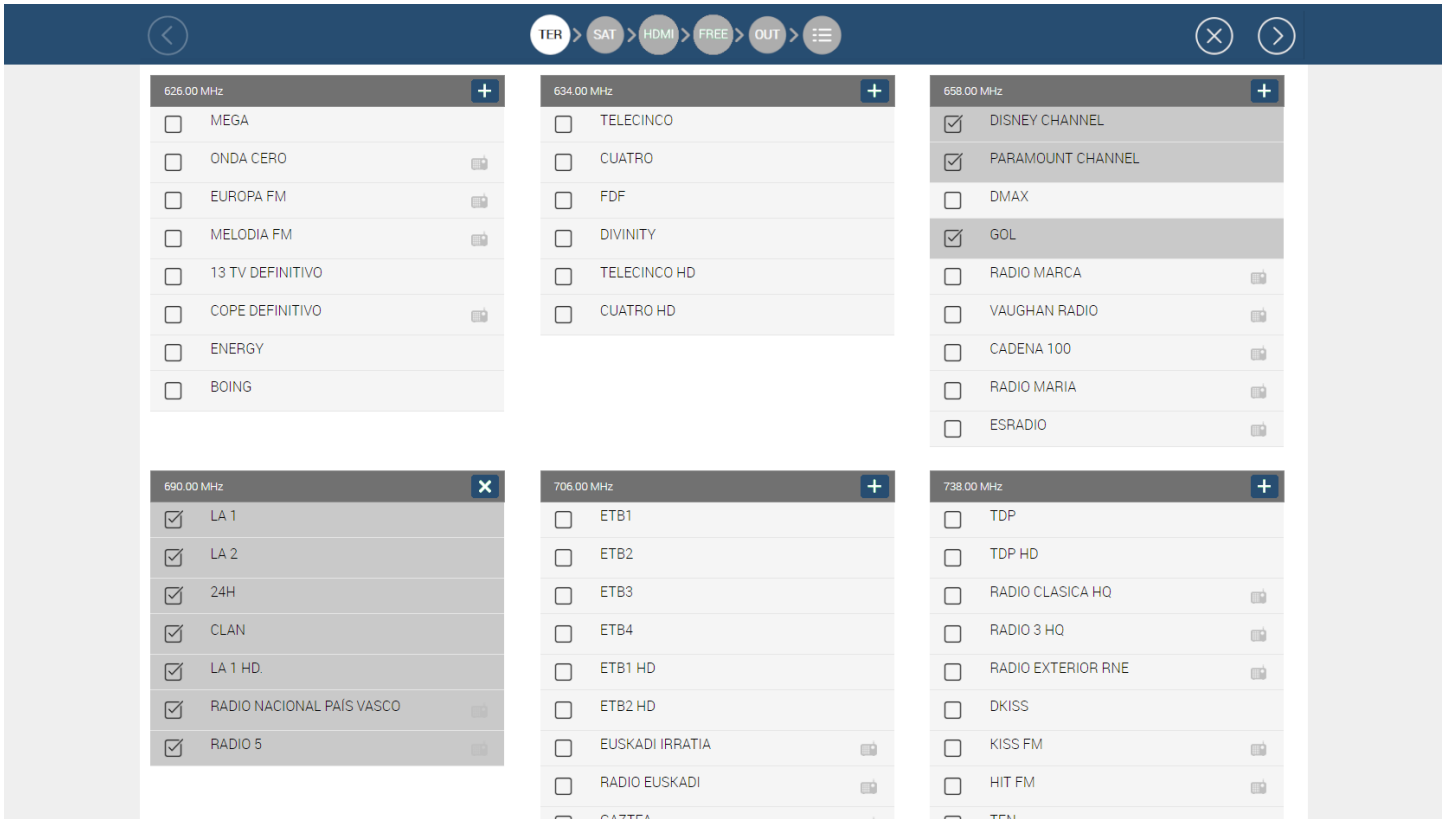
▸ Step 1: Terrestrial services selection 



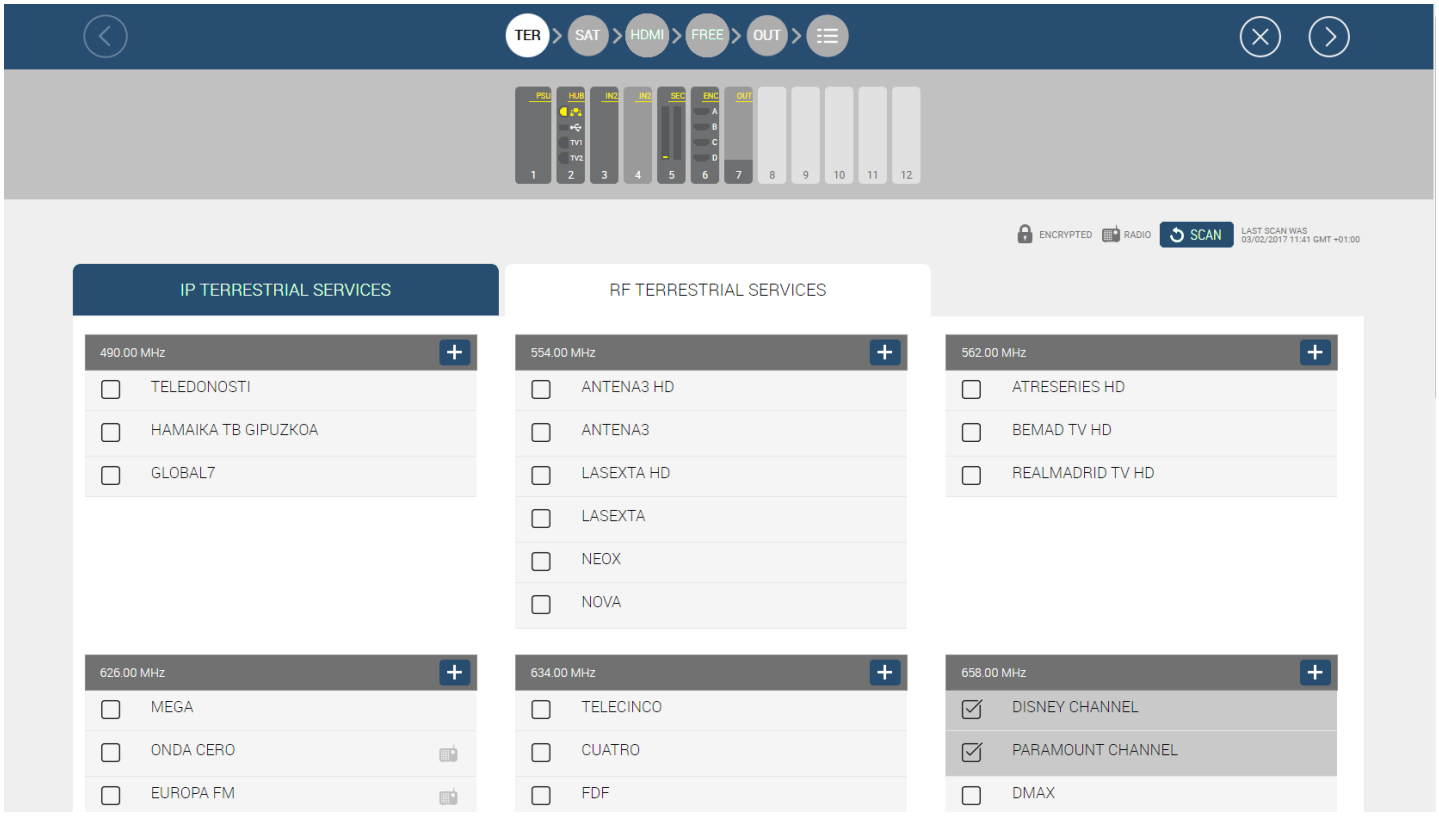
This screen allows the selection of the desired terrestrial services.

There are two identical tabs, one for defining the terrestrial services that will be conveyed in the IP network ("IP TERRESTRIAL SERVICES") and the other one for defining the terrestrial services that will conveyed in the RF network ("RF TERRESTRIAL SERVICES").

Start with the IP tab. The screen shows all the terrestrial services detected in the cable, grouped by mux. To choose a complete terrestrial mux, push + button. Also, you can select particular services, clicking them individually.

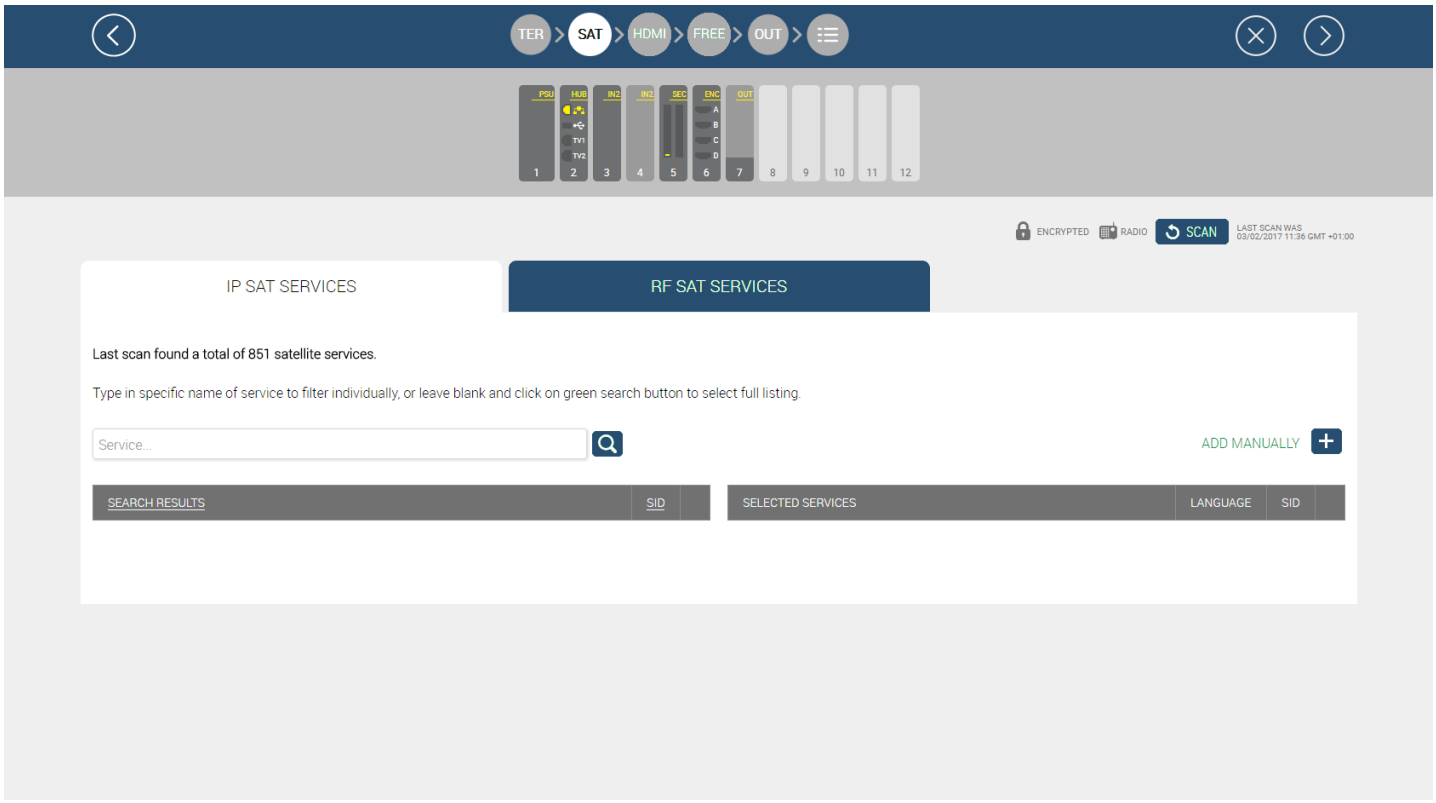


Perform the same procedure in the RF tab with the services that must be conveyed in RF (in the current example, they are the same as in IP).



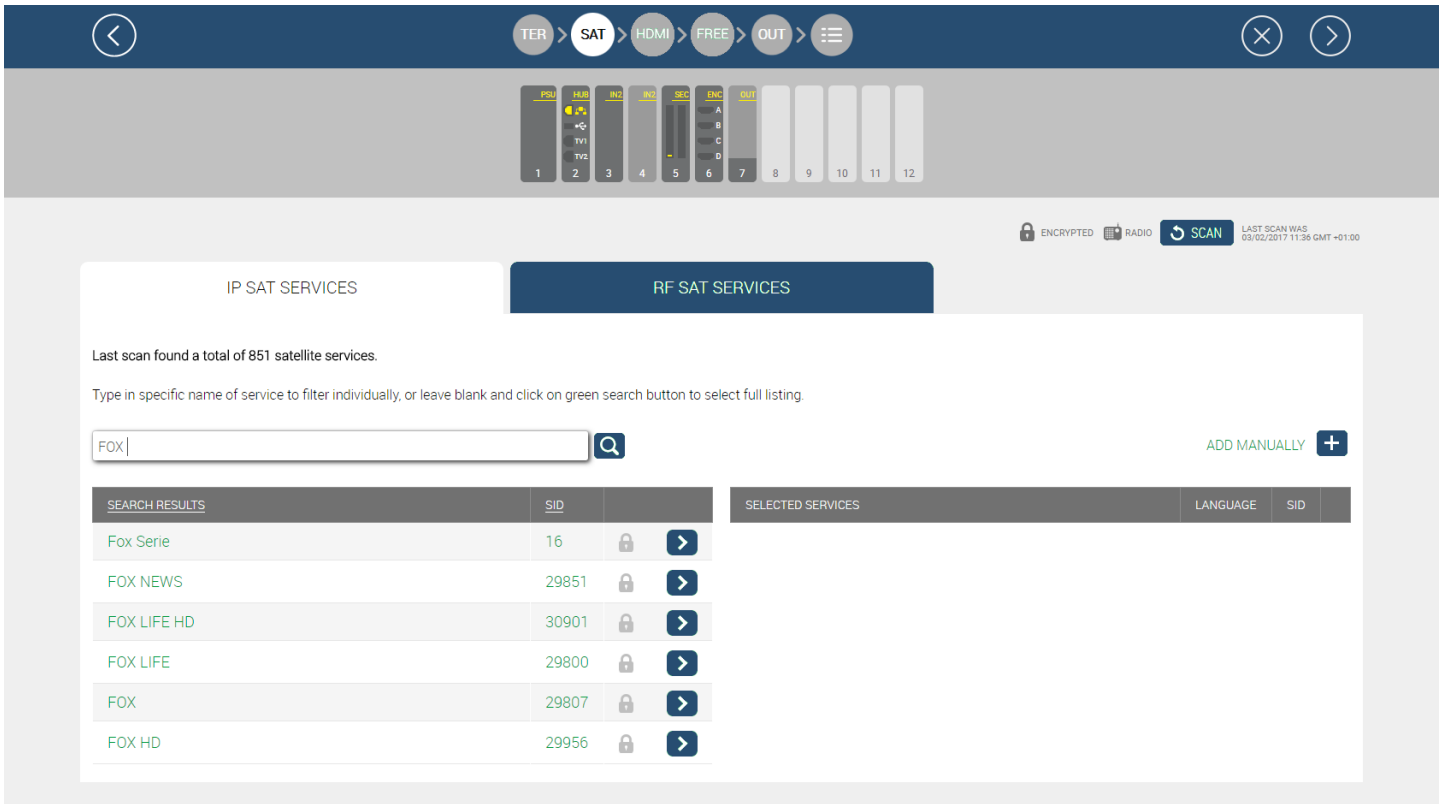
Push button to advance to the next step.

Step 2: satellite services selection 

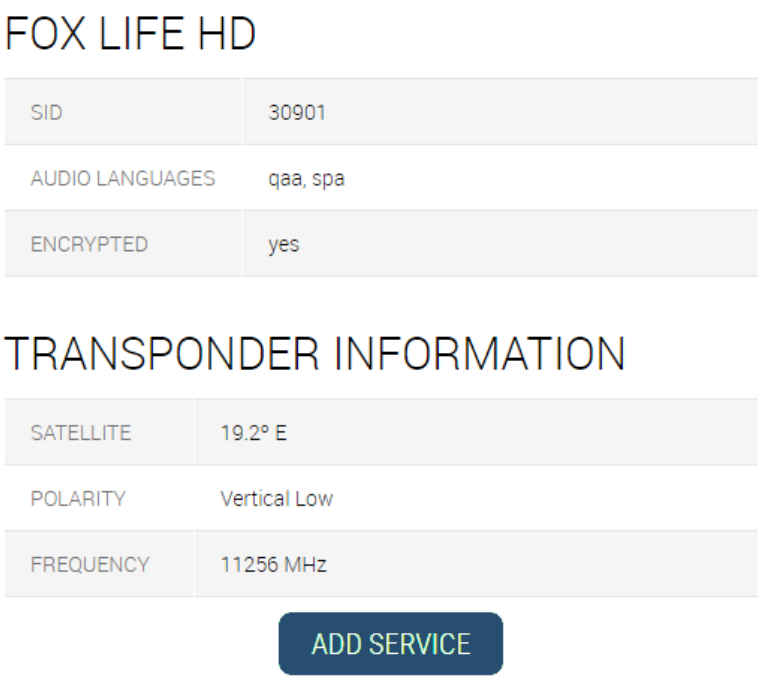


This screen allows the selection of the desired satellite services.
As the previous step, there are two identical tabs, one for defining the satellite services that will be conveyed in the IP network ("IP SAT SERVICES") and the other one for defining the satellite services that will conveyed in the RF network ("RF SAT SERVICES").

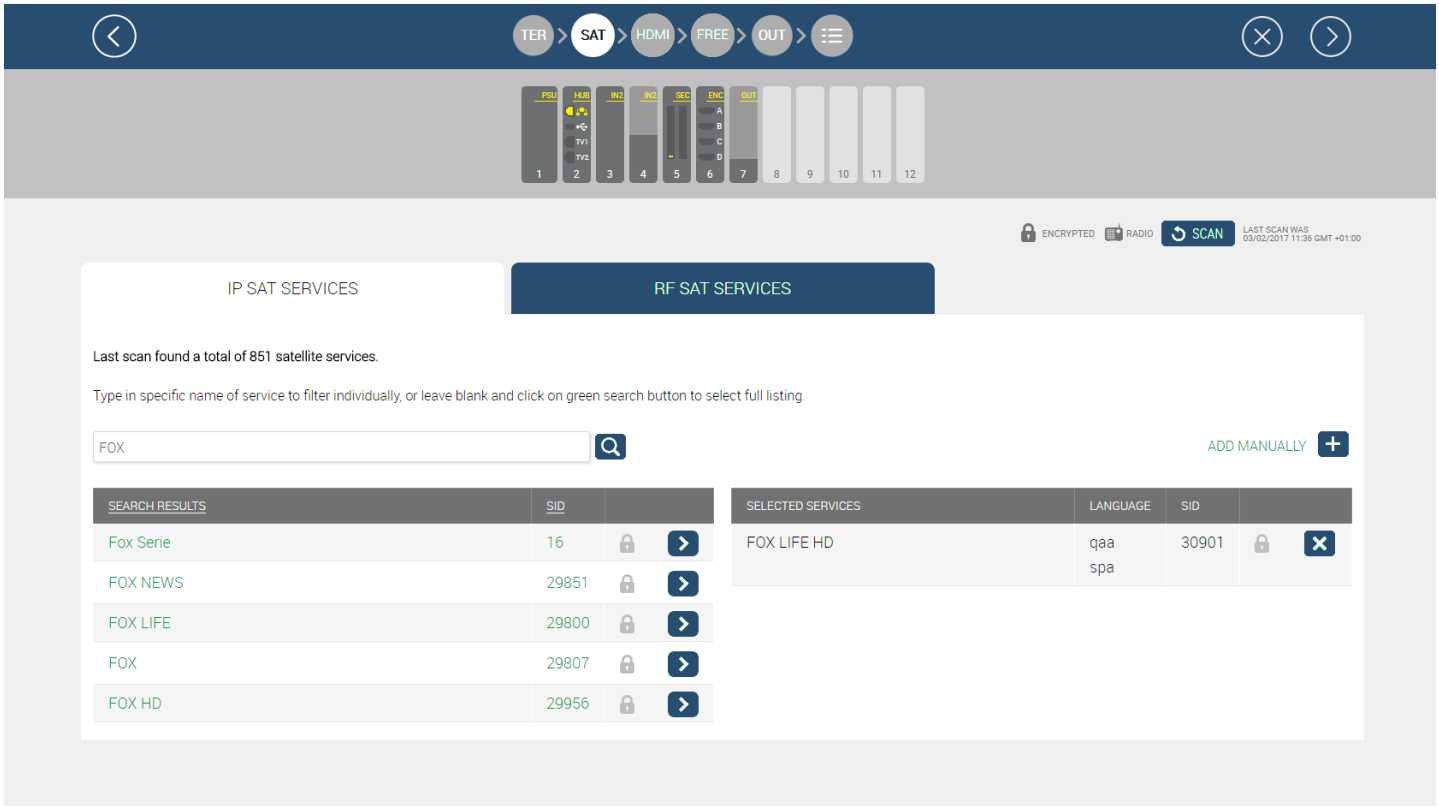
Start with the IP tab. Use the search box to search by name a service among all the detected ones in the satellite cables. For example, if you type “FOX”, a list with all the detected services whose name include “FOX” will appear:



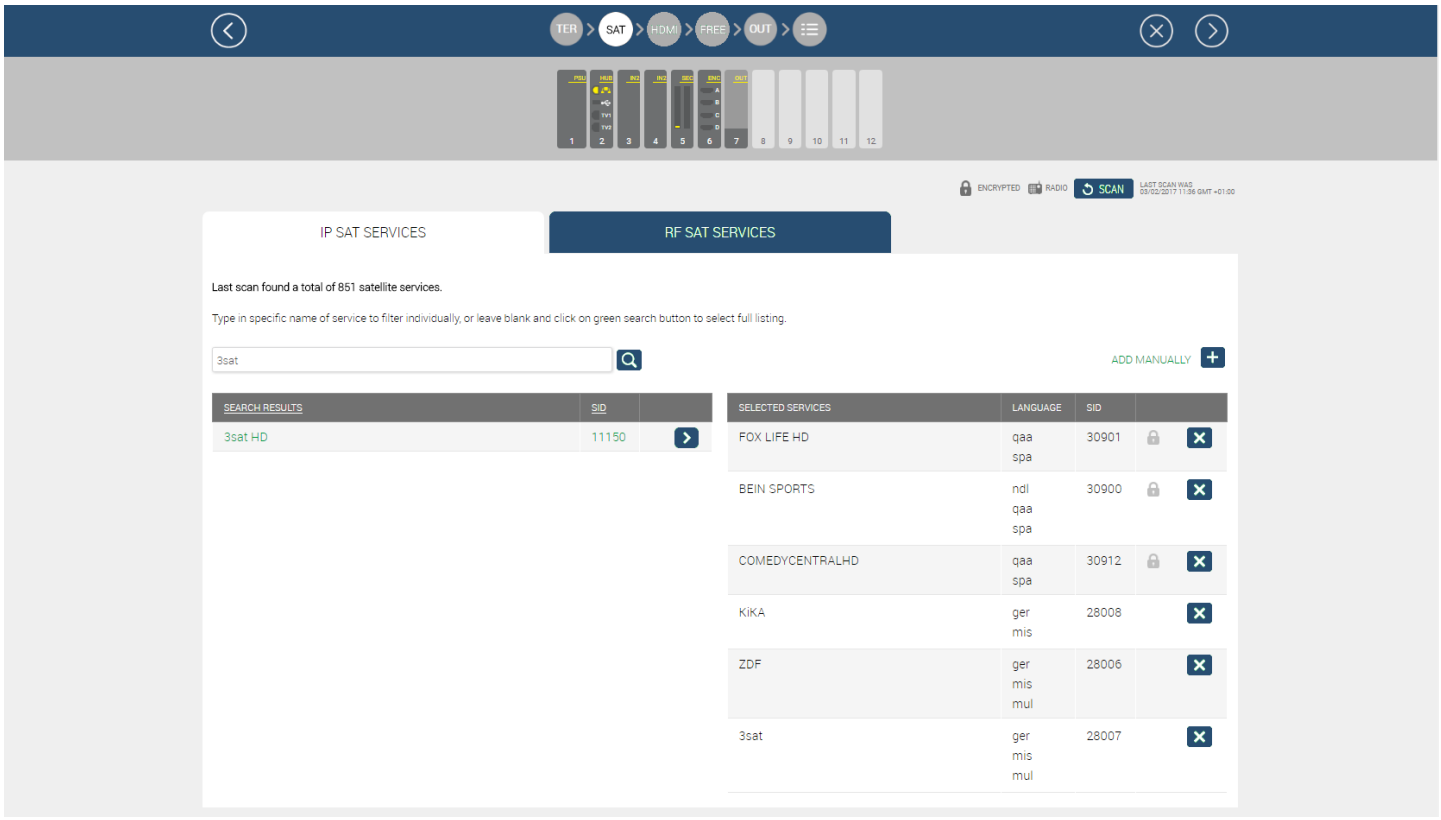
To obtain more information about a particular service, click over the name of the service. For example, clicking over FOX LIFE HD service, the following window will open:



To add the service to the output, push “ADD SERVICE” button. Also, it can be added from the previous screen, pushing .

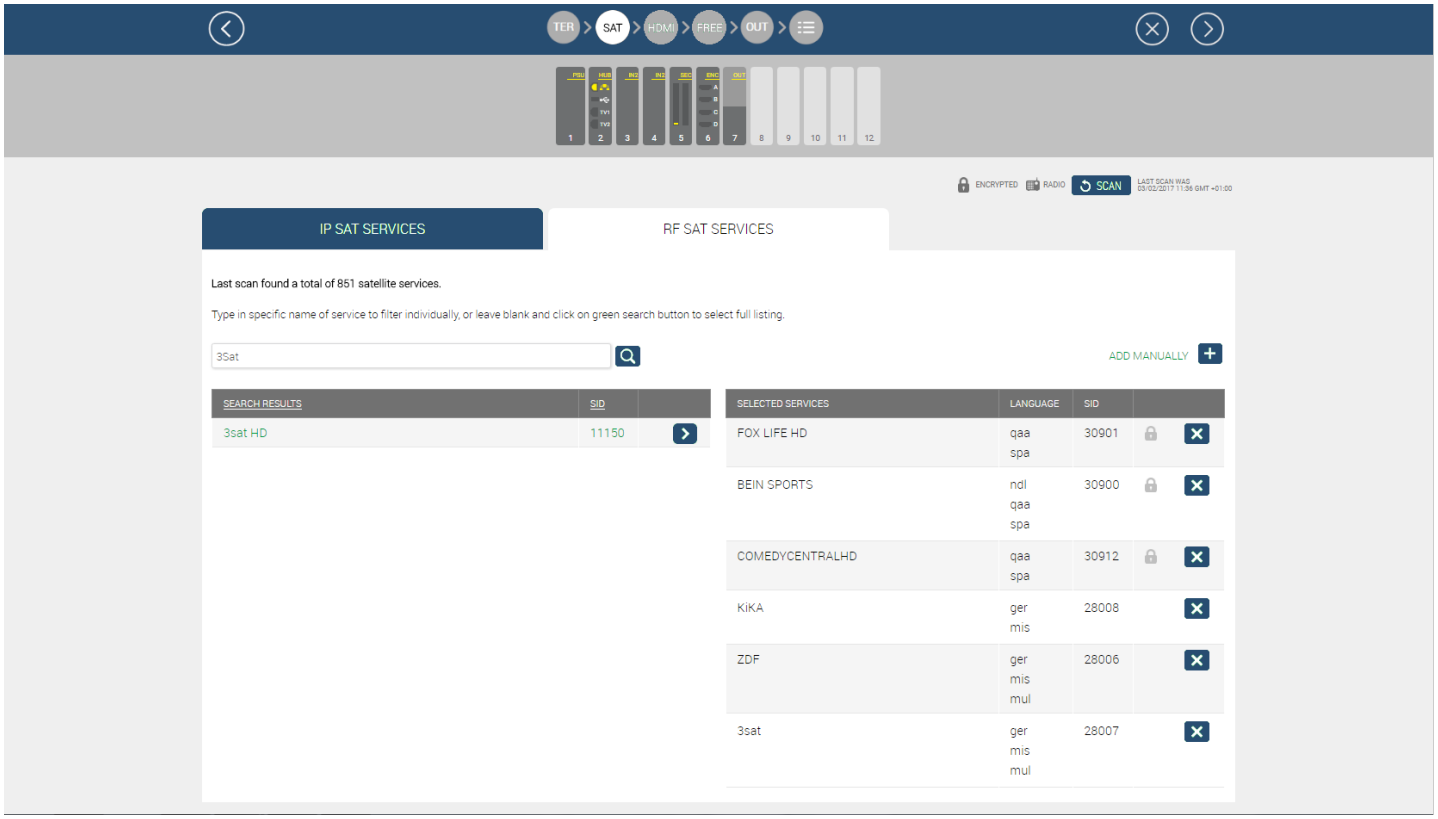


One by one, search the desired services and add them to the output.



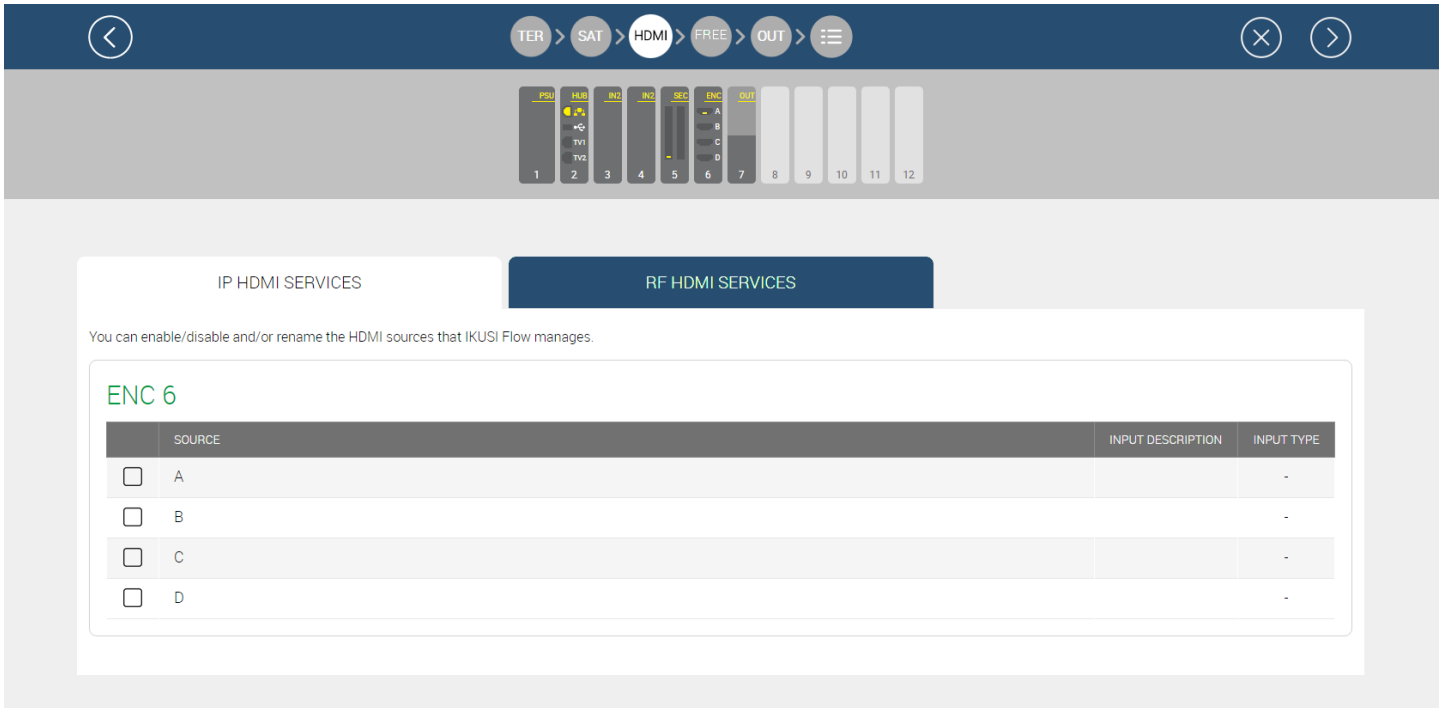
NOTE : If instead of looking for a specific service, you leave the search box empty and press the , button , a list will appear with all the services detected in the satellite cables.

Repeat the process in the RF tap to configure the satellite services that must be conveyed in the RF network.



Push button to advance to the next step.

▸ Step 3: HDMI services selection

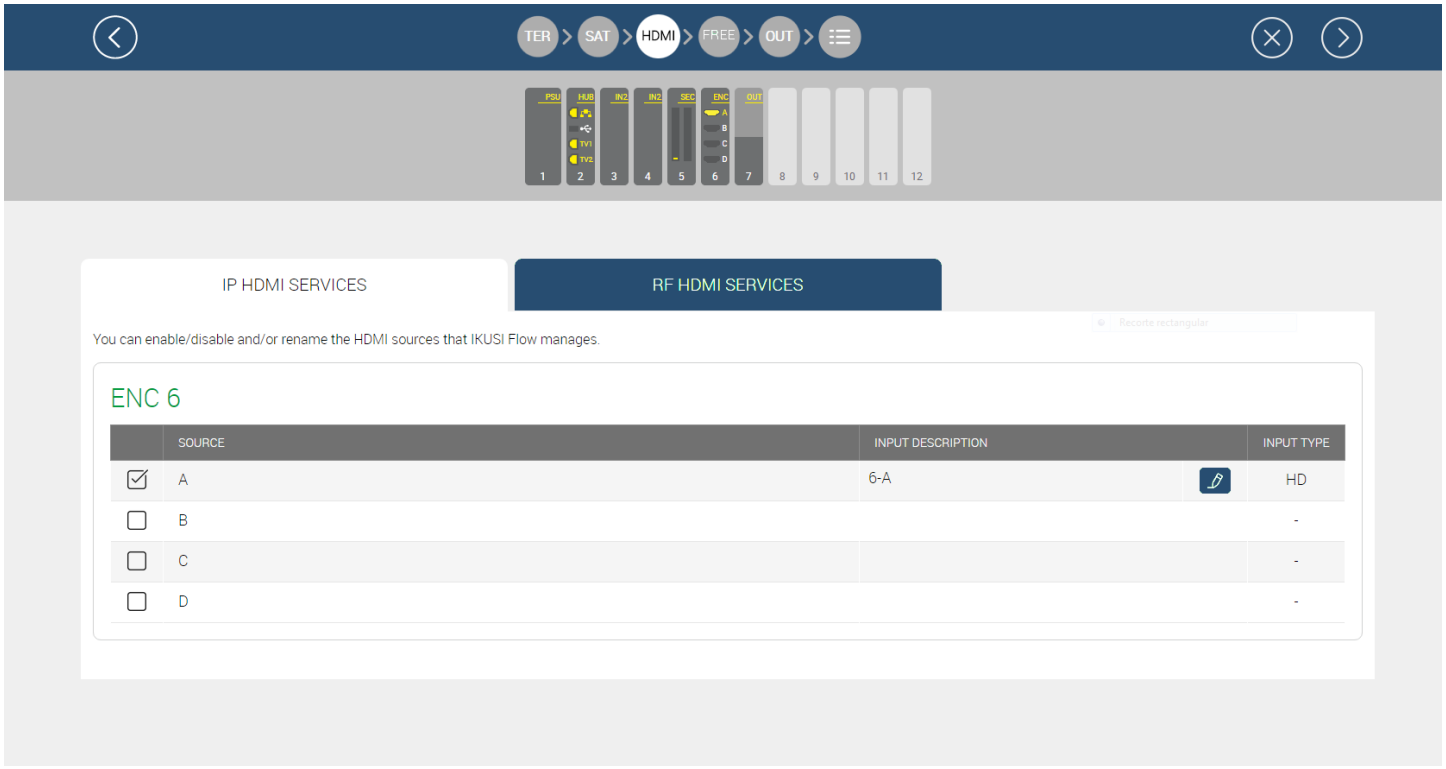


This screen allows the selection of the desired services comming from HDMI sources (DVD, STB,...).

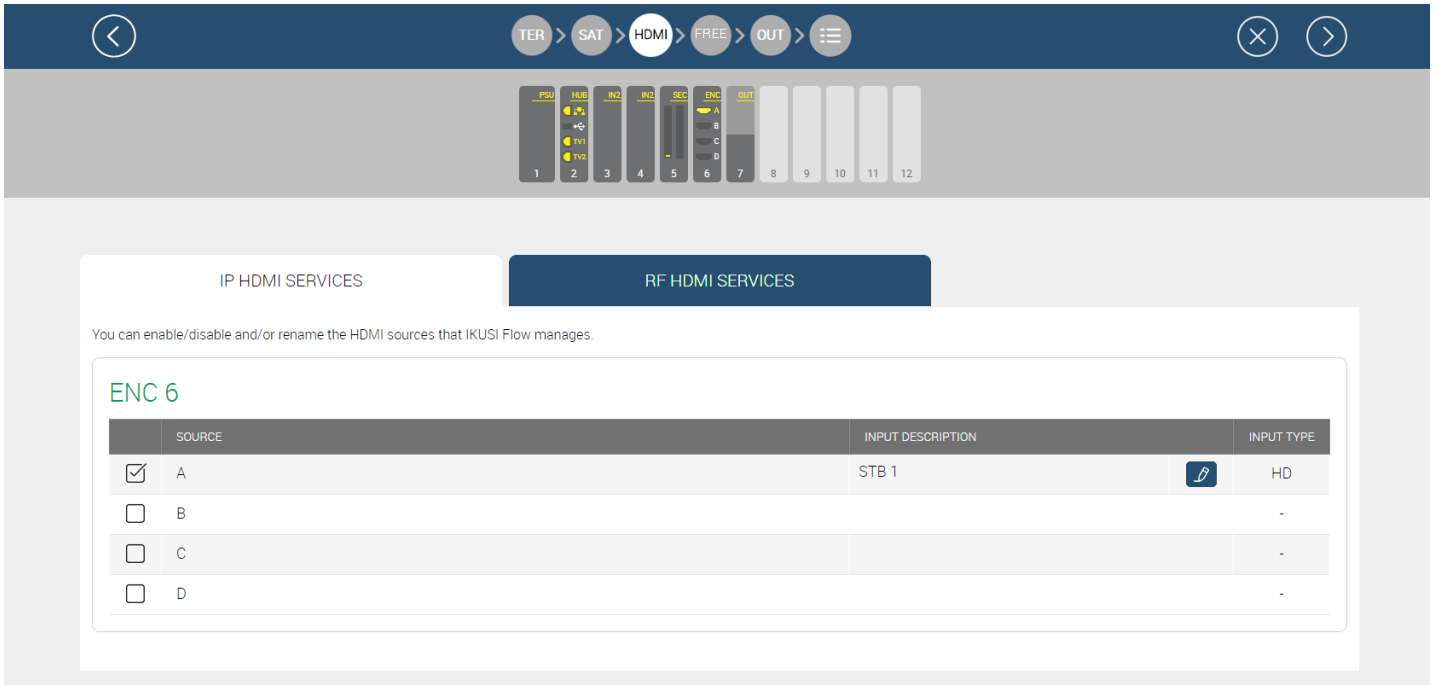
There are two identical tabs, one for defining the HDMI services that will be conveyed in the IP network ("IP HDMI SERVICES") and the other one for defining the HDMI services that will conveyed in the RF network ("RF HDMI SERVICES").

Start with the IP tab. The screen shows all the available HDMI sources, grouped by FLOW ENC module. Each FLOW ENC has 4 HDMI inputs, labelled as A, B, C and D.

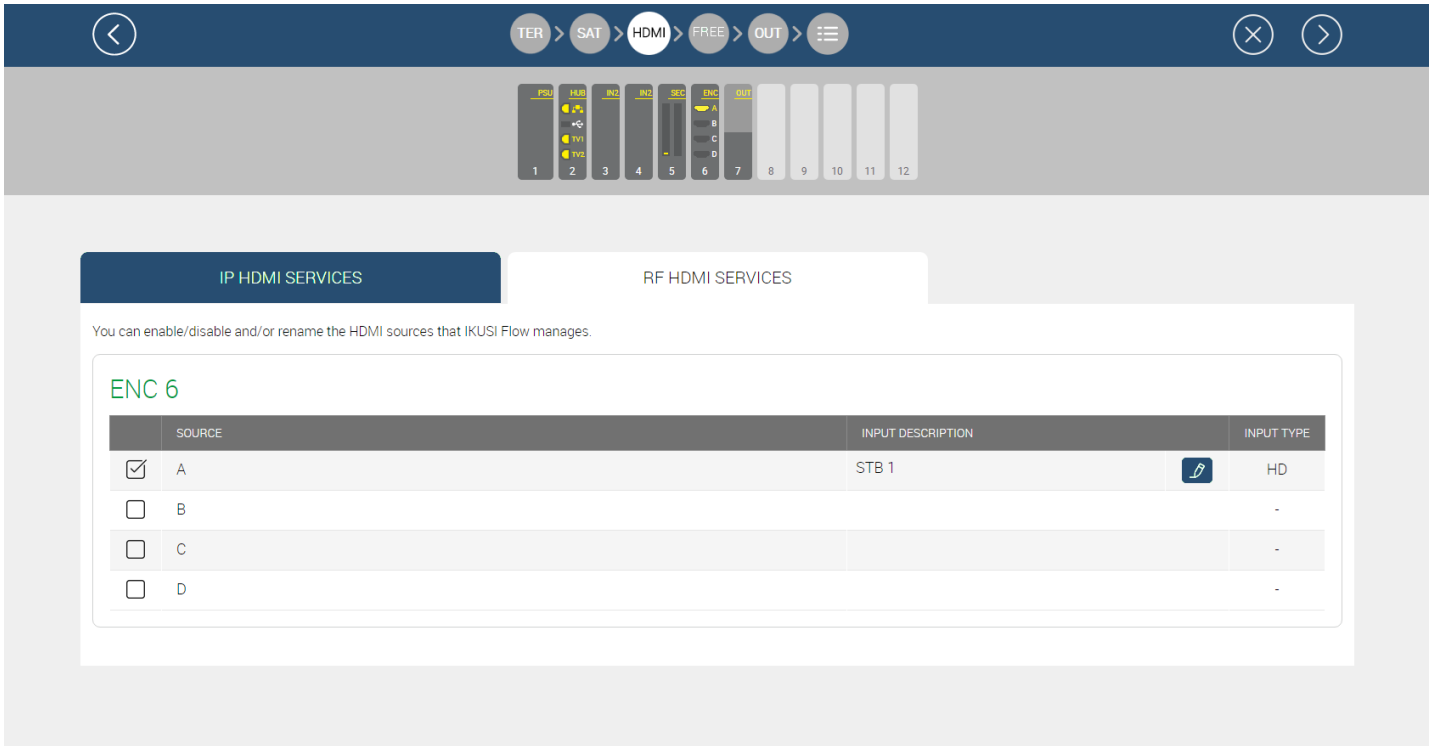
Turn on the input you want to process (in the example, A input of the FLOW ENC module inserted in the 6th slot).



By default, the assigned name to the service is composed by the combination of the slot number and the connector position, in this case 6-A. If you want to change the name of the service, push button and edit it (in the example, the name has been changed from 6-A to STB 1).

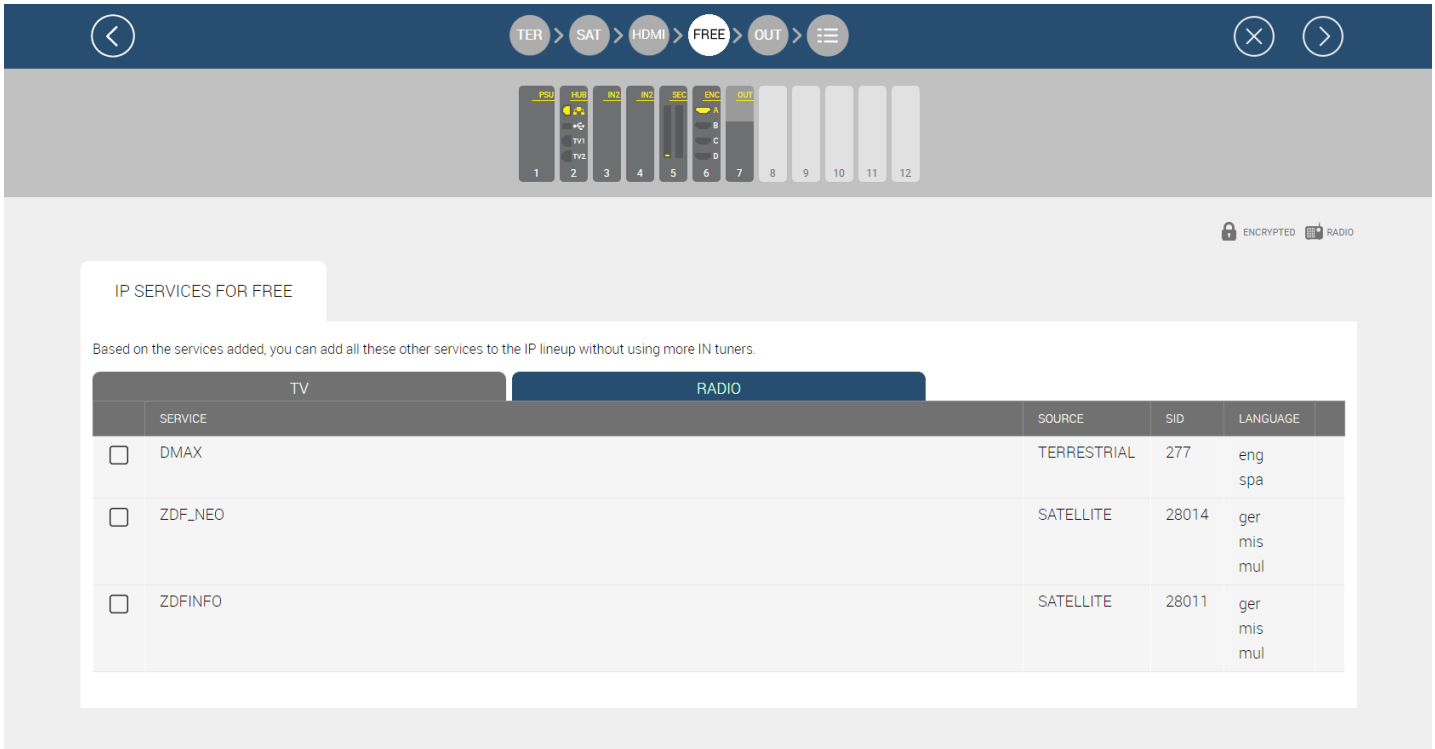


Repeat the process in the RF tap to configure the HDMI services that must be conveyed in the RF network.



Push button to advance to the next step.

Step 4: "IP services for FREE" selection



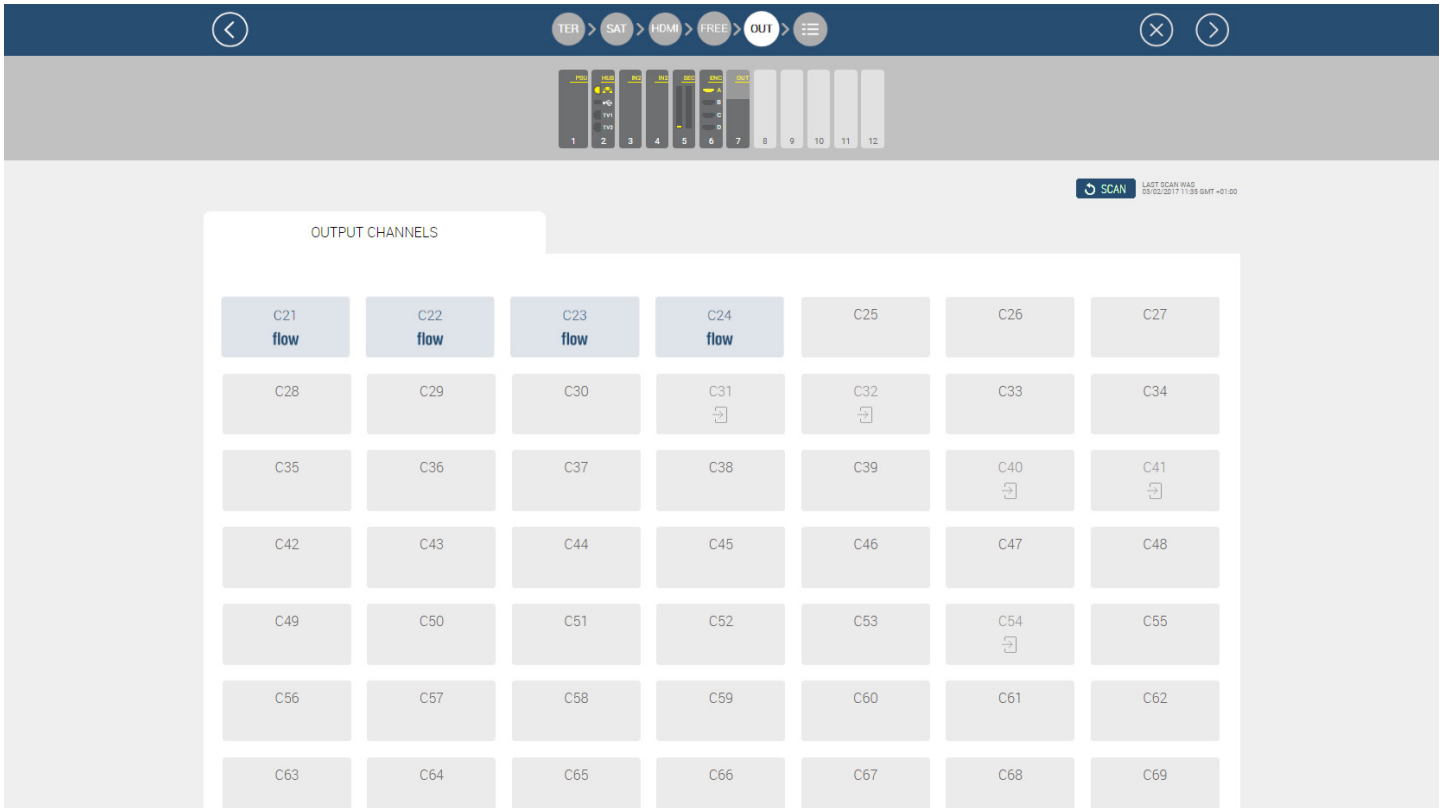
This screen shows a list with all the services (TV and radio) that shares mux with the already selected services in the previous steps, but have not been added by the user.

Taking for granted that the IP network has enough bandwidth, these services could be added to the IP channel line up without using any additional hardware ("IP SERVICES FOR FREE").

If it so wishes, you can add any of these services in this screen.

Push button to advance to the next step.

Step 5: Output RF channels selection

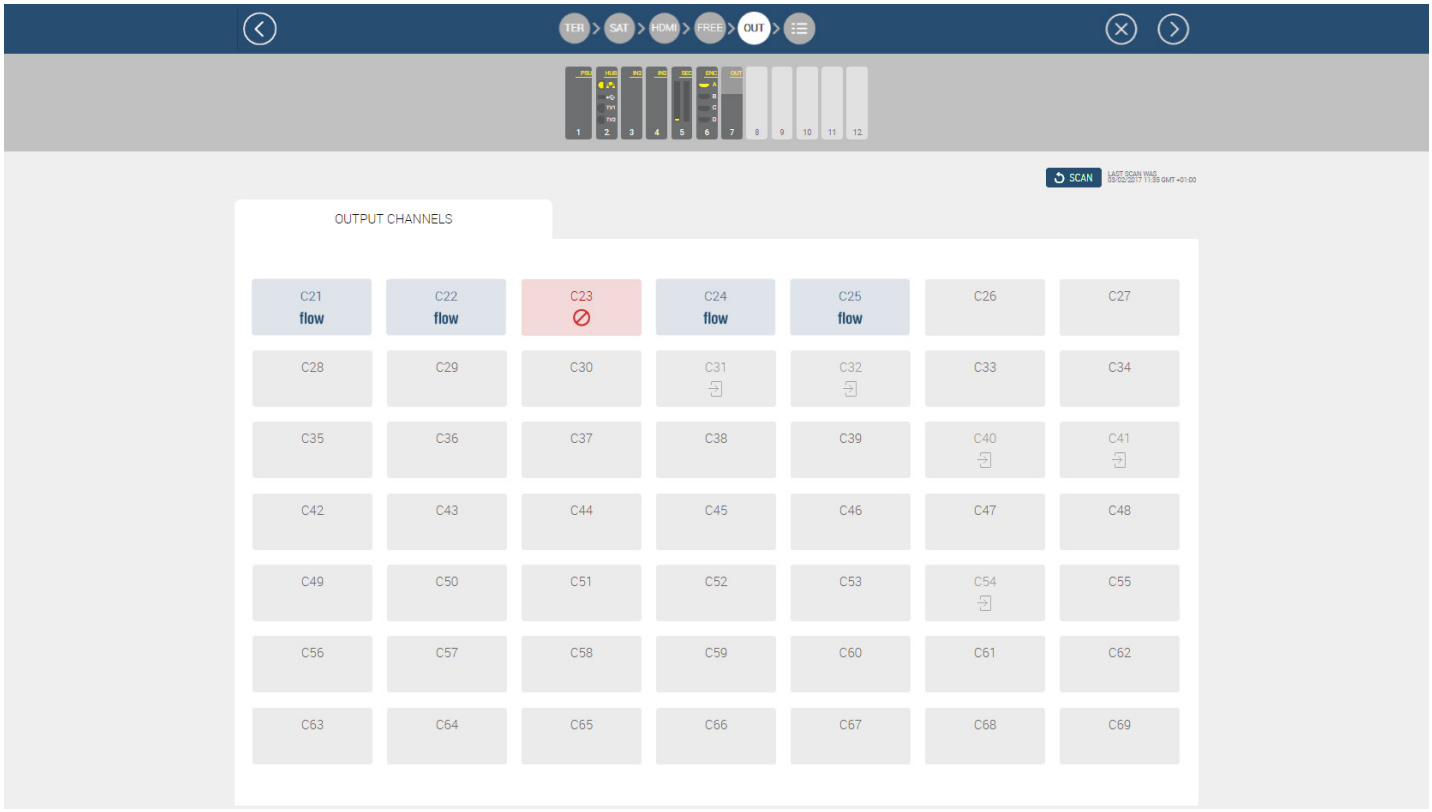


This screen allows to select the output RF channels where the contents will be transmitted.

By default, the headend choose the output channels automatically, using the first ones that were declared as eligible. The used channels will labelled with the flow icon.

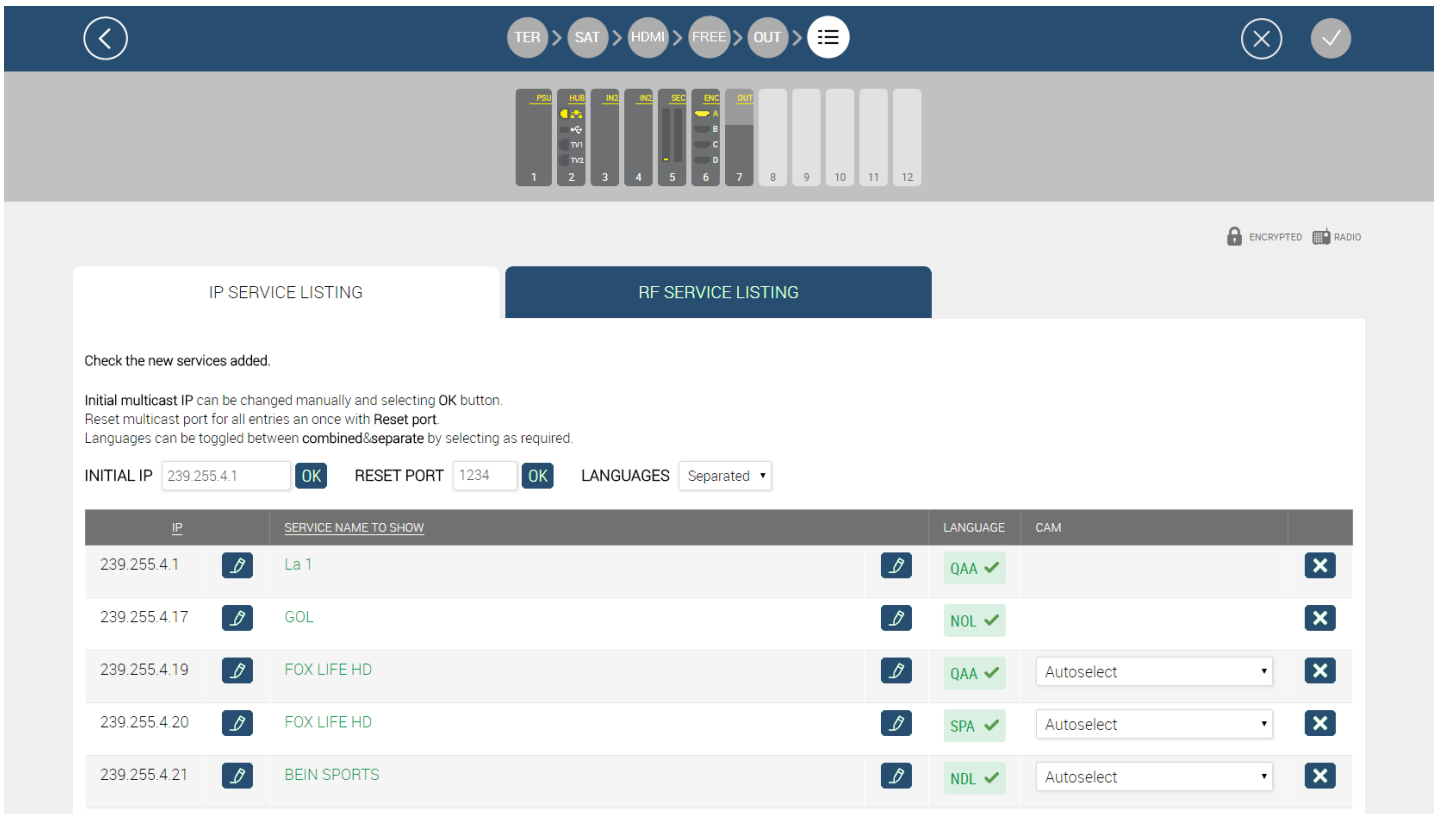
There are two reasons why a channel could be declared as non-eligible:

1. The headend has detected another signal in the installation that is using that channel, and, therefore, it could cause some interference. Those channels are labelled with the icon. You can relaunch the detection of external signals that has not been generated by Ikusi Flow pushing the “SCAN” button.
2. The user has decided manually that channel should not be used. To do that, you must click over the channel. The channel will become red and automatically the headend will leave to use it.



Push button to advance to the next step

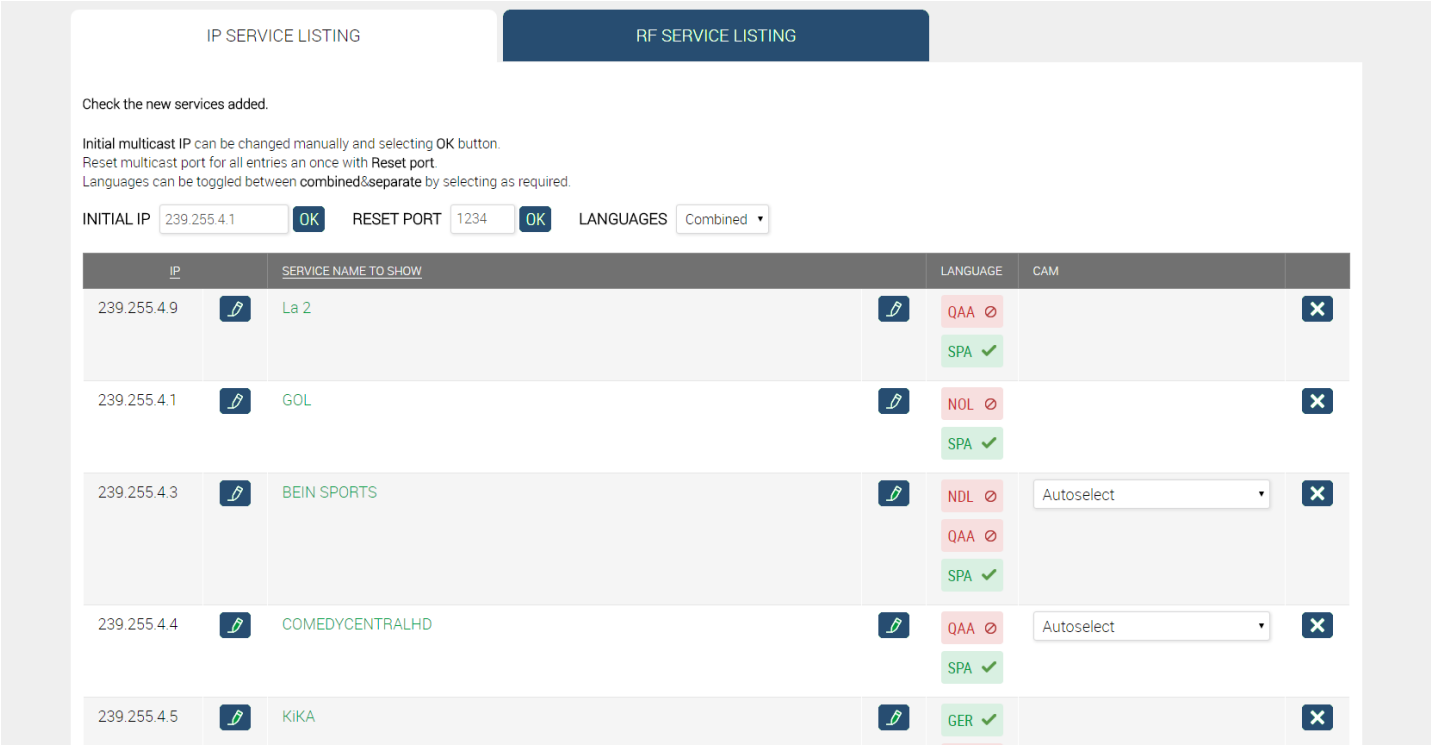
Step 6: Summary screen



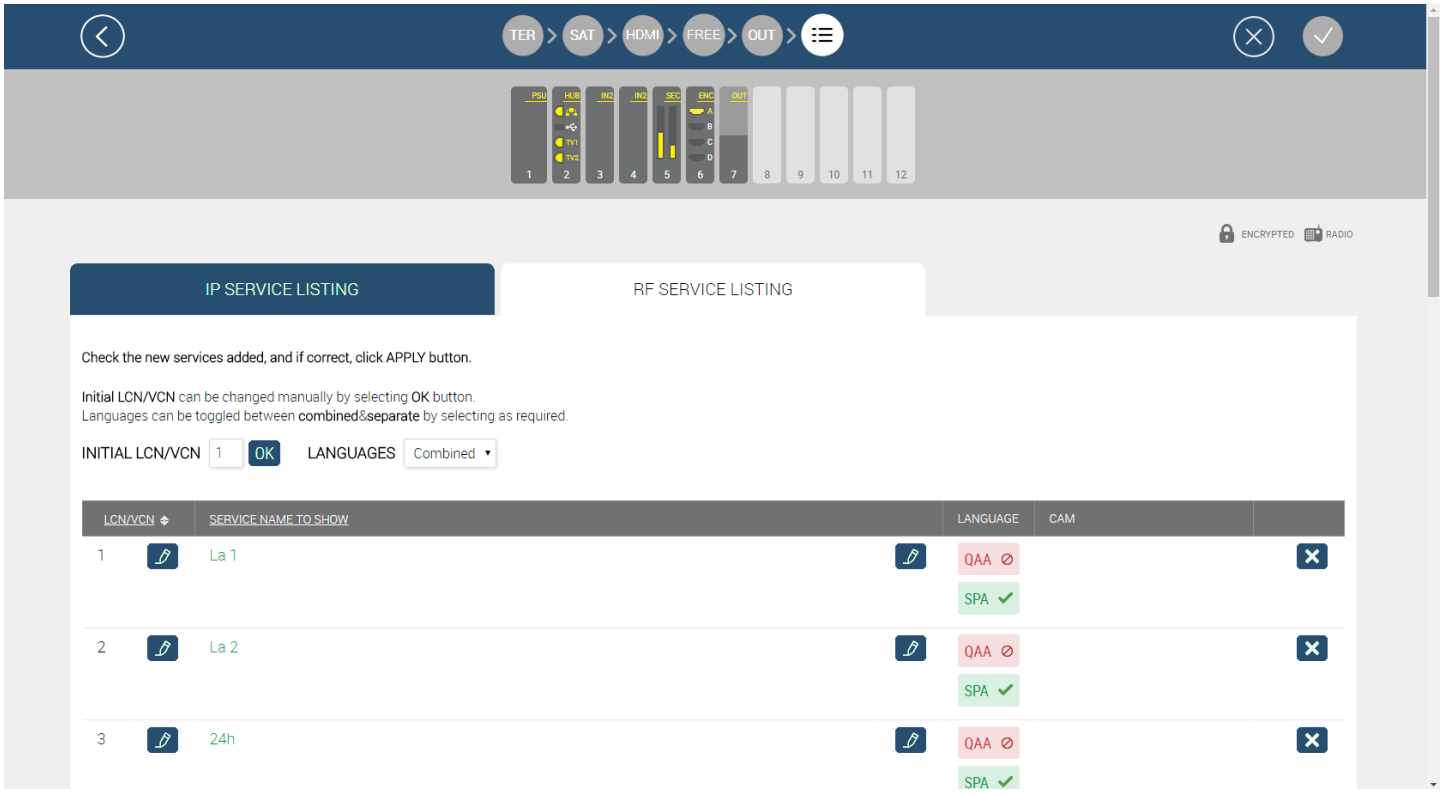
The summary screen allows to perform the last adjustments over the channel line-up before being sent to the headend. There are two tabs, one related with the services that will be conveyed in the IP network ("IP SERVICES LISTING") and another one with the services that will conveyed in the RF network ("RF SERVICES LISTING").

Select “IP SERVICES LISTING” tab. This tab shows a list with all the services that are going to be conveyed over IP, with a multicast address that has been assigned automatically. The user could perform the following adjustments over the channel list:

- INITIAL IP: the headend assigns multicast IP address automatically starting from 239.255.4.1 address. If this range was not the proper one (because it is already in use or because it has been reserved by the network manager for other purposes), you must change the initial IP and push OK button.
- RESET PORT: by default, the headend uses the 1234 port in all the multicast channels. If you want to change it, edit the port in the RESET PORT box and push OK.
- LANGUAGES: the headend has two working modes, separated languages or combined languages. When separated languages mode is selected, in the case a multi-language service, one multicast stream will be generated for each language. When combined languages mode is selected, a single multicast stream will be generated. That stream will include all the languages of that multi-language service.
- IP: you will be able to edit the IP address and port, suggested automatically by the headend, individually. To do that, click over button and configure the desired IP address and port.
- SERVICE NAME TO SHOW: you can change the service name that will be shown in the TV. To do that, edit the name suggested by the headend pushing button.
- LANGUAGE: you can delete the audio channels (languages) of a particular service that you don’t want to transmit. To do that, click over the audio channel, and it will become red, indicating that it has been deleted.
- CAM: the headend automatically decides which CAM will decrypt a particular service. The user can cancel this selection, and choose manually the proper CAM, among the list of the CAMs that are inserted in the headend.
- SERVICE REMOVAL: if you want to fully remove a service from the IP channel line-up, push button corresponding to that service.



After doing all the desired changes over the IP channel line-up, you should perform a similar process over the RF channel line-up. To do that, select the “RF SERVICE LISTING” tab.



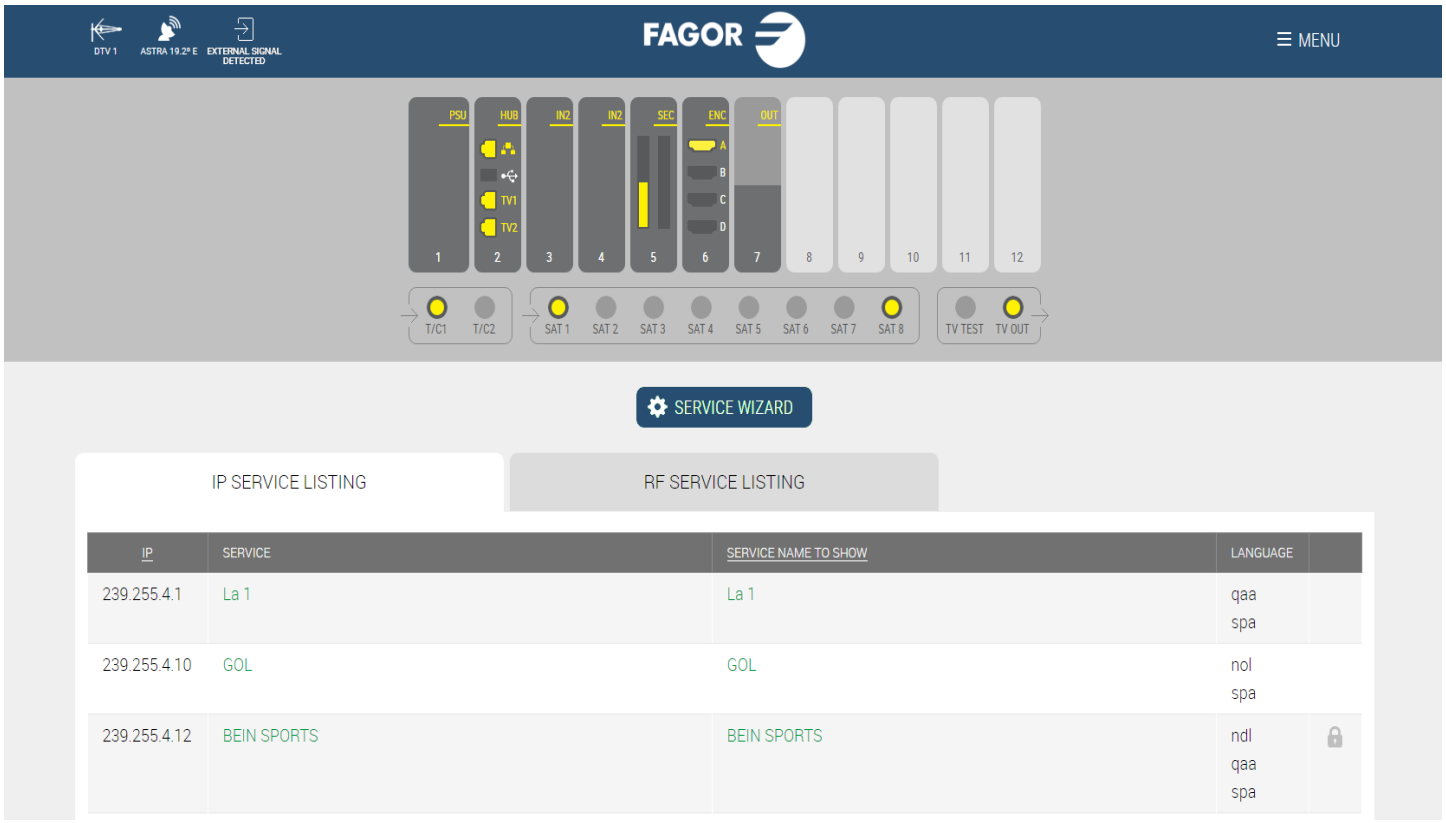
This tab shows a list with all the services that are going to be conveyed over RF with an LCN/VCN that has been assigned automatically. The LCN/VCN value corresponds with the LCN parameter in the case DVB signalling was used or with the minor_channel_number (VCN) parameter in the case ATSC signalling was used. The user could perform the following adjustments over the channel list:

- INITIAL LCN/VCN: the headend assigns LCN/VCN values automatically starting from 1. If this range was not the proper one (because it is already in use or because it has been reserved by the network manager for other purposes), you must change the initial LCN/VCN and push OK button.
- LANGUAGES: the headend has two working modes, separated languages or combined languages. When separated languages mode is selected, in the case a multi-language service, one service will be generated for each language. The separation is done at logical level, i.e., the used bandwidth is the same as the used with a single service conveying all the languages; however the TV is detecting several independent services. Therefore, the final user can select the desired language simply changing the channel. When combined languages mode is selected, a single service will all the languages will be generated.
- LCN/VCN: you will be able to edit the LCN/VCN value suggested automatically by the headend, individually. To do that, click over , button and configure the desired LCN/VCN.
- SERVICE NAME TO SHOW: you can change the service name that will be shown in the TV. To do that, edit the name suggested by the headend pushing button.
- LANGUAGE: you can delete the audio channels (languages) of a particular service that you don't want to transmit. To do that, click over the audio channel, and it will become red, indicating that it has been deleted.
- CAM: the headend automatically decides which CAM will decrypt a particular service. The user can cancel this selection, and choose manually the proper CAM, among the list of the CAMs that are inserted in the headend.
- SERVICE REMOVAL: if you want to fully remove a service from the RF channel line-up, push button corresponding to that service.

After doing all the required adjustments over the IP and RF channel line-ups, push button to apply the configuration to the headend. After a while, the configuration will have been applied. the wizard will close, and the "Home" screen will appear again.

3.6 “Home” screen review

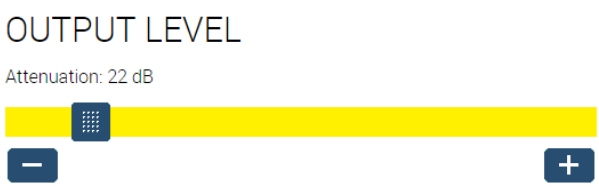
After applying the configuration, the “Home” screen will have a look as the following one:



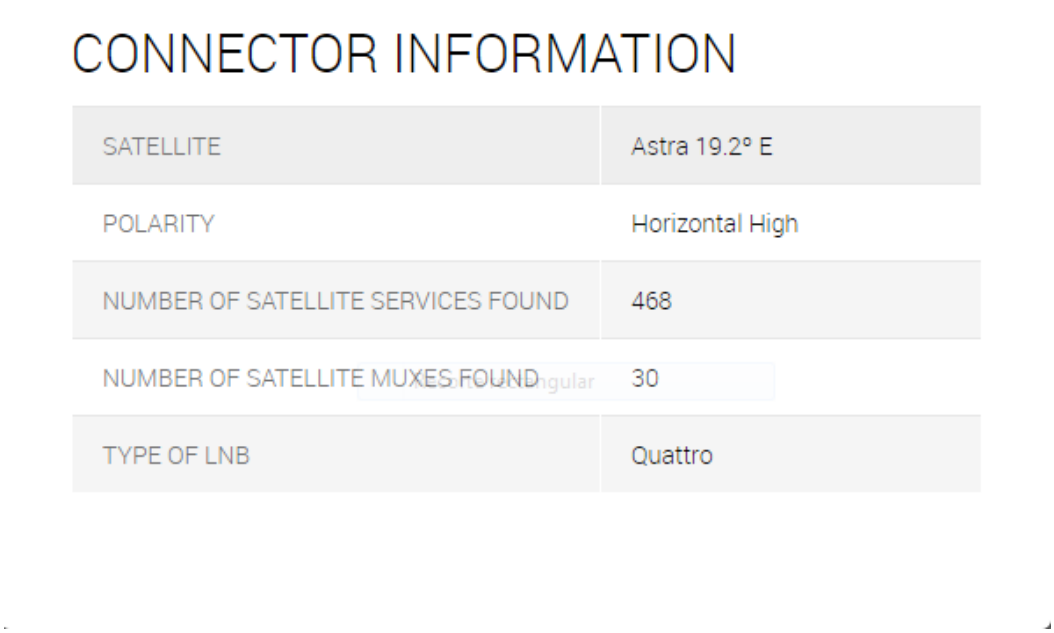
In this screen you can see a list of the configured services, in IP and in RF. In the case any of them fails, it become red.

Also, from this screen you will be able to:

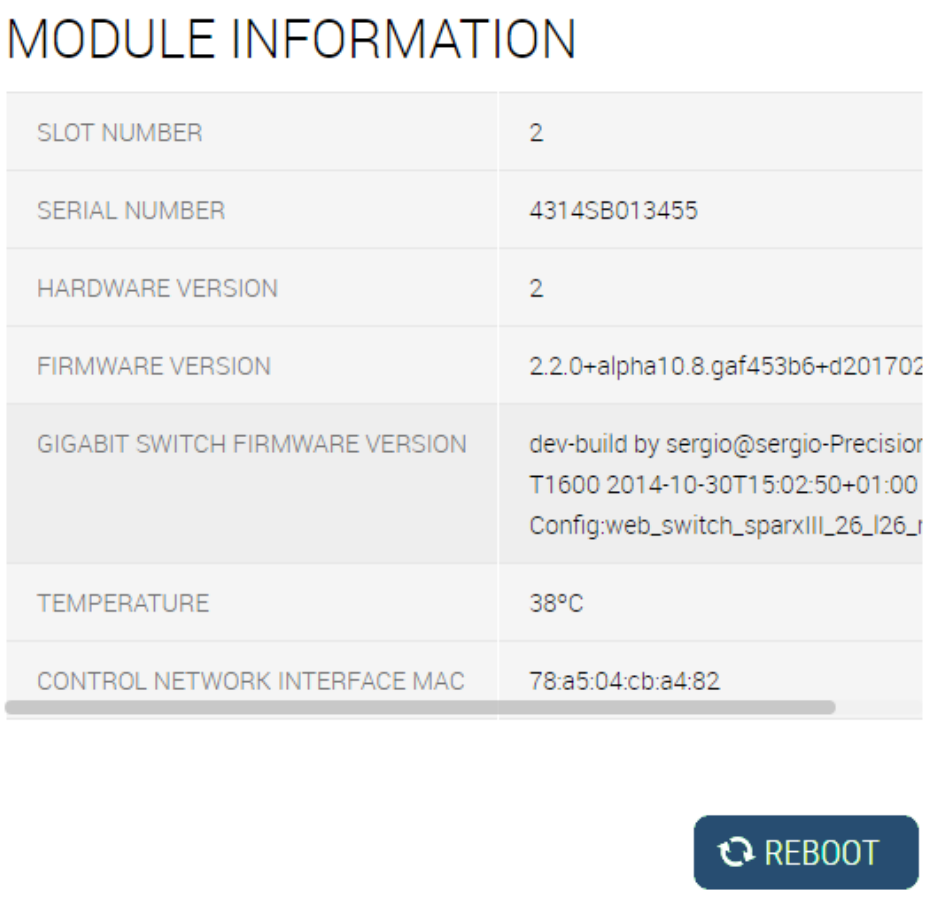
- Change the RF output level. To do that, push TV OUT connector. A window with a slider will open. Move the slider to adjust the output level.



- Obtain information about the coaxial cables that are connected to each input, clicking over the connector.



- Obtain information about each module. When you click over a module, a window opens, with information about position, serial number, hardware version, firmware version, temperature, other data related to each particular module, and data about the TV processing that it is performing. From this window, the module can be rebooted pushing “REBOOT” button.



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