



HTL-STC / HTL-TRX

Ref. 3860

Ref. 3861



Index

1. Introduction	4
1.1 General safety instructions.....	4
1.2 Installation environment recommendations	5
2. General description	5
3. Basic installation	6
3.1 Headend connection	6
3.2 Definition of the master module	7
4. Setup Wizard	9
4.1. Step 1: Remote access configuration	9
4.2. Step 2: Global configuration	10
4.3. Step 3: Output channel configuration	11
4.4. Step 4: Satellite.....	13
4.5. Step 5: Service management.....	13
4.5.1. Satellite input case	14
4.5.2. Terrestrial/cable input case	16
4.6. Step 6: Service configuration.....	17
4.7. Step 7: LCN, SID, Output Name configuration.....	19
4.8. Step 8: Search for supported configuration	20
4.9 Step 9: Confirmation of the new service configuration.....	21
5. Manual Configuration	23
5.1 Headend.....	23
5.1.1 Main Parameters.....	23
5.1.2 (Un)Register Modules	27
5.1.3 Input and Output Configuration	28
5.1.4 Headend Networks.....	32
5.1.5 Headend Module List.....	34
5.1.6 Detailed Status	35
5.2 Headend Services.....	36
5.3 System Logs.....	38
5.4 Upgrade Report	39
5.5 Select Language.....	39
5.6 Exit.....	40

1. Introduction

To ensure the correct use and installation of the headend, it is necessary to read the user manuals and the installation manuals of the modules included in their own packages.

1.1 General safety instructions

Read all of this user manual carefully before plugging in the unit.

Always have these instructions to hand during installation.

Follow all of the instructions and safety notices regarding unit handling.



Danger of death or injury

This safety notice indicates a possible danger for the life and health of people. Not following these instructions may lead to serious consequences to health and may even cause fatal injuries.

Do not install the unit during an electrical storm. This could lead to electrostatic discharge from lightning.

Do not open the unit. There is a risk of electrostatic discharge.



Risk of damage to the unit

This safety notice indicates a possible dangerous situation. Not following these instructions may lead to the unit being damaged.

The unit must be appropriately ventilated. Install the unit in a dust-free location. Do not place the unit in a location where the ventilation slots are covered or blocked. Install the unit in a location with at least 20 cm around it free of other objects.

Do not expose the unit to rain or moisture. Install the equipment in a dry location with no infiltration or condensation of water. Should a liquid enter the unit, disconnect it immediately from the mains.

Keep the unit away from flammable objects, candles and anything that may cause a fire.

Connect the unit to an easily accessible power socket. In the event of an emergency, it will then be possible to quickly unplug the unit.

Do not expose the unit to sources of heat (sun, heating, etc.).



Handling the inside of the unit is forbidden

This notice forbids any work that may affect the working order of the unit or its warranty



Do not dispose of as urban waste

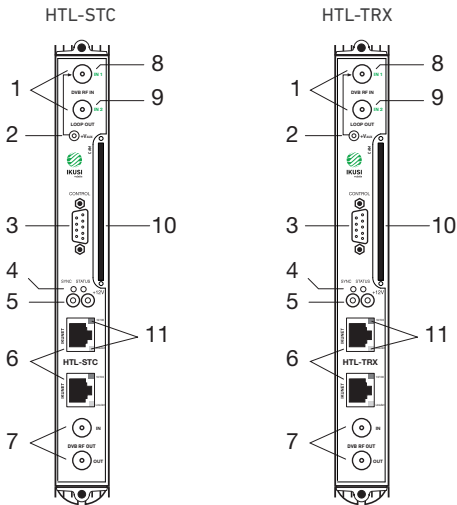
This type of notice indicates that the unit must not be disposed of as unselected urban waste.

NOTE: This type of notice is a note containing applicable advice and useful information for optimum use of the unit.

1.2 Installation environment recommendations

- The headend is for indoor use only.
- 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 heaters or 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.

2. General description



1	Input splitter loop DVB-T/T2/S/S2/C
2	Preamplifier remote-powering socket
3	DB-9 port
4	Status and Sync control LEDs
5	DC Power
6	RJ-45 ports for IKUNET bus and PC
7	DVB-T / DVB-C output coupling loop
8	Input 1, in twin-input mode
9	Input 2, in twin-input mode
10	Slot for CAM
11	Link/Act and 10/100 and control LEDs

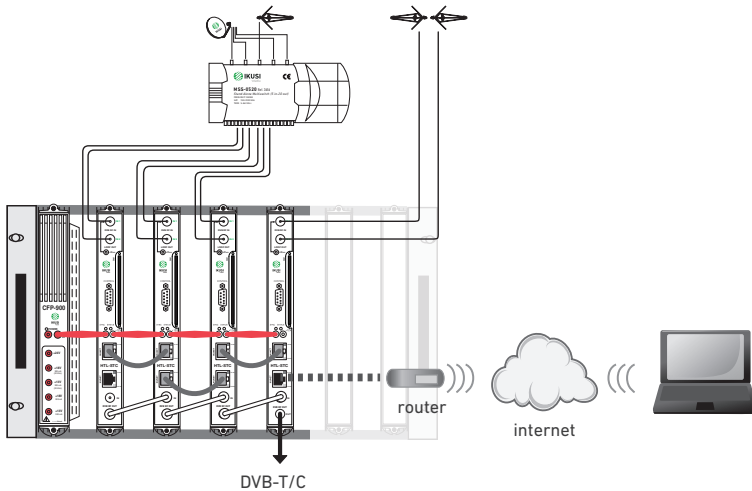
This headend station is designed for broadcasting DVB-T or DVB-C signals based on open or encrypted DVB-S/S2/T/T2/C signals, and is made up of the following elements:

- HTL-STC (Ref. 3860): DVB-S/S2/T/T2/C to DVB-T/C transmodulator
- HTL-TRX (Ref. 3861): DVB-S/S2/T/T2/C to DVB-T/C transmodulator, MPEG4 to MPEG2 transcoder

- An HTL-STC transmodulator module places the selected services of two DVB-S/S2 transponders or two DVB-T/T2/C muxes of the FI-Sat 950-2150 MHz band or 51-858 MHz band, respectively, in two DVB-T or DVB-C channels of the 51-858 MHz band. The module input connection is software-configurable ("2 inputs" or "1 Input + Loop through") and is equipped with DiSEqC function. Each transmodulator includes a Web server.
- An HTL-TRX transmodulator/transcoder modules offers the same transmodulation functionalities as an HTL-STC, allowing also to transcode up to four MPEG4 (1080i or 576i) services to MPEG2 576i with a maximum of four audio channels in total (AC3/AC3+ to MPEG1 Layer II).

3. Basic installation

This document explains how to perform a basic installation of a headend based on HTL-STC or HTL-TRX modules. The document describes how the headend is configured. For that, initially the physical mounting is described. After that, it explains how to connect the user pc to the headend through IKUSI HEADEND DISCOVERY application and how to convert one of the modules into master module. Finally, it describes the steps that must be followed in order to define a channel lineup, mainly focusing on the Wizard.



Remote configuration through web interface of a headend station comprising 4 HTL-STC modules, interconnected with an ethernet adapter (BUS IKUNET) + 1 CFP-900 power source.

3.1 Headend connection

The instructions for connecting the headend are described in detail in the guide that is provided with the HTL-STC or HTL-TRX module. Also, that guide can be downloaded from our web page www.ikusi.tv

Briefly, the steps to follow are:

- Connect the different cables from the multiswitch to the module inputs.
- Interconnect the modules through the supplied ethernet adapters.
- Interconnect the output line bridges.
- Connect the power line.
- Connect the PC to a headend station module through its ethernet connection with an RJ-45 cable.

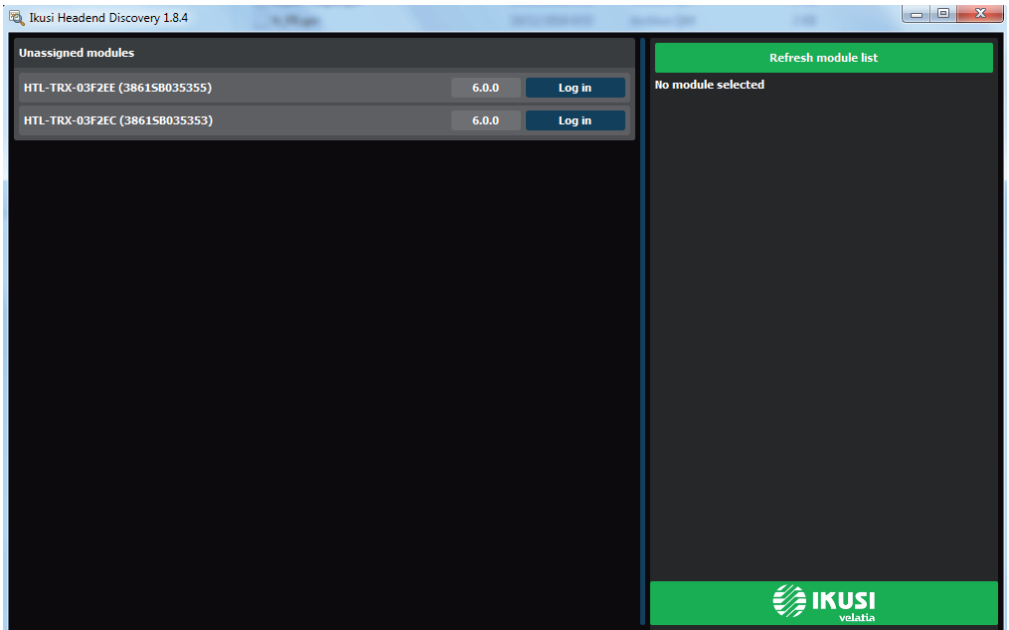
3.2 Definition of the master module

Communication with the headend takes place based on the definition of a module as a master and the others as slaves. By default, all the modules are slaves. The first step consists on converting one of the modules in master. Control and access to the headend is done through the master module, which allows us to configure the other modules.

Use IKUSI HEADEND DISCOVERY application to communicate with the modules without modifying manually the network configuration of your pc. You can download the IKUSI HEADEND DISCOVERY application from www.ikusi.tv web page.

NOTE: You must use IKUSI HEADEND DISCOVERY version 1.8.4 or higher.

Open IKUSI HEADEND DISCOVERY application (the network card IPV6 protocol will be automatically enabled or permission will be requested to do so).



The window will show the names of the connected modules along with the last six numbers of the MAC address and the batch serial number. Select the module you want to convert in master and push on **Log in** button.

The web browser of the PC will open automatically, showing the access page of the headend.

NOTE: HTL web interface uses https protocol. It is likely that your browser doesn't recognize the security certificate generated by the HTL. To continue configuring the module without problems, add the security exception requested by your browser in a permanent way.

NOTE: To display the graphics provided in the system's configuration programme, we recommend installing the Mozilla Firefox 1.5 web browser or later (www.mozilla.com) on the control PC.




Module HTL-TRX

Class A

User:

password:

© 2015 IKUSI - a Velatia company -

By default, the language of the web interface is the same than the one used by the browser. If you want to change it, choose in the    icon, the flag related with the desired language.

Enter the following data, User: Admin Password: admin. Push **Accept** button. A window as the following one will open:

The screenshot shows the IKUSI web interface with a green header and a navigation bar. The main content area displays system information:

Model:	HTL-TRX
Serial Number:	396159035355
MAC Address:	00:09:E3:03:F2:EE
Bootstrap Version:	1.06
Board Version:	1.06
Firmware Status:	✓
Firmware Version:	6.0.0+svn10828 (Updated on 03-15-2017)
Upgrade File:	<input type="button" value="Add Firmware file..."/>

At the bottom of the main content area, there are two buttons: **Master Module mode enable** and **Reset factory Default**.

Push **Master Module mode enable** button. The module will launch a readjustment process and, after few seconds, it will display again the access screen.

Module HTL-TRX

Class A

User:

password:

© 2015 IKUSI - a Velatia company -

Enter again User: Admin, Password: admin. As it is the first connection, setup wizard will be launched automatically.

4. Setup Wizard

Setup wizard will guide you simply and quickly through set-up. It will be launched automatically the first time the headend is configured. To access to wizard subsequently, you can do it from the Advanced adjustment menu of the headend, selecting Wizard option.

Wizard will open indicating step by step the actions that must be done.

4.1 Step 1: Remote access configuration

The first step consists on configuring the remote access.

IKUSI Velatia - Install wizard

1/9 Remote access configuration

HTL-TRX - MASTER	HTL-TRX
Name: HTL-TRX-03F2EE	Name: HTL-TRX-03F2EC
MAC Address: 00:09:E3:03:F2:EE	MAC Address: 00:09:E3:03:F2:EC
Serial nr: 38615B035355	Serial nr: 38615B035353
HW Version: 1.06	HW Version: 1.06
FW Version: 6.0.0+svn10828	FW Version: 6.0.0+svn10828

Enable external access

A window with information about the modules of the headend will open. By default, external access option is disabled. To enable it, go to drop down Enable external access list and select ON.

IKUSI Velatia - Install wizard

1/9 Remote access configuration

HTL-TRX - MASTER	HTL-TRX
Name: HTL-TRX-03F2EE	Name: HTL-TRX-03F2EC
MAC Address: 00:09:E3:03:F2:EE	MAC Address: 00:09:E3:03:F2:EC
Serial nr: 38615B035355	Serial nr: 38615B035353
HW Version: 1.06	HW Version: 1.06
FW Version: 6.0.0+svn10828	FW Version: 6.0.0+svn10828

Enable external access

Use DHCP

IP address	192.168.235.83
Netmask	255.255.255.0
Default gateway	192.168.235.1
Primary DNS Server	8.8.8.8
Secondary DNS Server	8.8.4.4

Select DHCP ON when the network settings are provided automatically by a DHCP server. In other case, select OFF and enter the network parameters manually (IP address, Netmask, Default gateway, Primary DNS Server, Secondary DNS Server). Consult network manager to get those parameters.

Push **Next** button.

4.2 Step 2: Global configuration

A window as the following one will open:

IKUSI Velatia - Install wizard

2/9 Global configuration

TV Configuration

Spain France Australia Italy

Sweden Portugal United Kingdom Greece

Other

RF Input Mode

RF Input DVB-S/S2

Time Zone

Country United Kingdom

Time Zone Europe/London

Transcoding

TV types SD

RF Output mode

RF Output DVB-T

Previous Next

In this window you can configure the following parameters:

- TV Configuration: choosing an specific country, the headend will be configured respecting the particularities of the TV standards of that country (RF frequency plan, modulation scheme, LCN descriptors, etc). These parameters, selected automatically by the headend, can be modified subsequently form the Advanced adjustment menu.
- Time zone: select the time zone where the headend is located.
- TV types: 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 activate transcoding when the contents are HD and the TVs are SD. In the case both type of TVs were present, select SD.
- RF Input mode: choose the signal type is going to be received (DVB-S/S2, DVB-T/T2 or DVB-C)
- RF Output mode: select the type of modulation used in the RF distribution (DVB-T or DVB-C).

NOTE: TV Types parameter only will be displayed in case there is any HTL-TRX in the headend.

NOTE: When the selected country is "Others", besides selecting the modulation type, you must indicate the frequencies of the first and the last channels of the reserved spectrum for TV and the bandwidth of the TV channels.

Once the desired parameters have been configured, push **Next** button.

4.3 Step 3: Output channel configuration

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

IKUSI Velatia - Install wizard ✕

3/9 Output channel configuration

Drag and drop for change the channel

C21 - 474Mhz HTL-TRX-03F2EE	C22 - 482Mhz HTL-TRX-03F2EE	C23 - 490Mhz HTL-TRX-03F2EC	C24 - 498Mhz HTL-TRX-03F2EC	C25 - 506Mhz	C26 - 514Mhz	C27 - 522Mhz
C28 - 530Mhz	C29 - 538Mhz	C30 - 546Mhz	C31 - 554Mhz	C32 - 562Mhz	C33 - 570Mhz	C34 - 578Mhz
C35 - 586Mhz	C36 - 594Mhz	C37 - 602Mhz	C38 - 610Mhz	C39 - 618Mhz	C40 - 626Mhz	C41 - 634Mhz
C42 - 642Mhz	C43 - 650Mhz	C44 - 658Mhz	C45 - 666Mhz	C46 - 674Mhz	C47 - 682Mhz	C48 - 690Mhz
C49 - 698Mhz	C50 - 706Mhz	C51 - 714Mhz	C52 - 722Mhz	C53 - 730Mhz	C54 - 738Mhz	C55 - 746Mhz
C56 - 754Mhz	C57 - 762Mhz	C58 - 770Mhz	C59 - 778Mhz	C60 - 786Mhz	C61 - 794Mhz	C62 - 802Mhz
C63 - 810Mhz	C64 - 818Mhz	C65 - 826Mhz	C66 - 834Mhz	C67 - 842Mhz	C68 - 850Mhz	C69 - 858Mhz

[Previous](#) [Next](#)

Setup wizard shows a frequency plan with all the available channels. By default, setup wizard proposes the lowest channels. To change that selection, move the channels manually, dragging and dropping them in an empty channel.

NOTE: As a useful aid, the unwanted channes can be marked (for example, because they are already occupied by other services which do not form part of this headend), clicking on the channel boxes (background colour will change).

3/9 Output channel configuration

Drag and drop for change the channel

C21 - 474Mhz HTL-TRX-03F2EE	C22 - 482Mhz	C23 - 490Mhz HTL-TRX-03F2EC	C24 - 498Mhz HTL-TRX-03F2EC	C25 - 506Mhz	C26 - 514Mhz	C27 - 522Mhz HTL-TRX-03F2EE
C28 - 530Mhz	C29 - 538Mhz	C30 - 546Mhz	C31 - 554Mhz	C32 - 562Mhz	C33 - 570Mhz	C34 - 578Mhz
C35 - 586Mhz	C36 - 594Mhz	C37 - 602Mhz	C38 - 610Mhz	C39 - 618Mhz	C40 - 626Mhz	C41 - 634Mhz
C42 - 642Mhz	C43 - 650Mhz	C44 - 658Mhz	C45 - 666Mhz	C46 - 674Mhz	C47 - 682Mhz	C48 - 690Mhz
C49 - 698Mhz	C50 - 706Mhz	C51 - 714Mhz	C52 - 722Mhz	C53 - 730Mhz	C54 - 738Mhz	C55 - 746Mhz
C56 - 754Mhz	C57 - 762Mhz	C58 - 770Mhz	C59 - 778Mhz	C60 - 786Mhz	C61 - 794Mhz	C62 - 802Mhz
C63 - 810Mhz	C64 - 818Mhz	C65 - 826Mhz	C66 - 834Mhz	C67 - 842Mhz	C68 - 850Mhz	C69 - 858Mhz

Previous

Next

Push **Next** button to accept the channel distribution.

4.4 Step 4: Satellite

This screen allows to configure the parameters related with the used satellite installation. It only appears when RF Input has been selected as DVB-S/S2 in the step 2. In other case, setup wizard skips this step and goes directly to step 5.

IKUSI Velatia - Install wizard

4/9 Satellite

Multiswitch configuration

Enable DiSEqC: DiSEqC ON

Number of polarities: 4

oscillators

Low oscillator: 9750 Mhz

High oscillator: 10600 Mhz

Multiswitch Input

DiSEqC A

Astra 1KR,1L,1M,1N (19.2E)

Position	Voltage	Tone	Satellite	Polarity	Band	Multiswitch Input Name
1	13V	0Khz	Astra 1KR,1L,1M,1N (19.2E)	Vertical	Low	Astra 1KR,1L,1M,1N (19.2E)VL
2	18V	0Khz	Astra 1KR,1L,1M,1N (19.2E)	Horizontal	Low	Astra 1KR,1L,1M,1N (19.2E)HoL
3	13V	22Khz	Astra 1KR,1L,1M,1N (19.2E)	Vertical	High	Astra 1KR,1L,1M,1N (19.2E)VHi
4	18V	22Khz	Astra 1KR,1L,1M,1N (19.2E)	Horizontal	High	Astra 1KR,1L,1M,1N (19.2E)HoHi

Previous Next

When the satellite signal is delivered to the HTL through a multiswitch, select Enable DiSEqC: DiSEqC ON, introducing the number of inputs of the multiswitch in Number of polarities (in the example, 4 inputs, i.e., a complete satellite). In the case there is not a multiswitch, select DiSEqC OFF.

In oscillators box, introduce the oscillator frequencies used by your LNB..

Finally, Multiswitch Input box is displayed. For each of the inputs, defined by its position and grouped in fours, you must identify which polarity is (Vertical or Horizontal) and in which band is transmitted (Low or High). Setup wizard proposes a name for that input as a combination of the satellite name, polarity and band. This name can be edited.

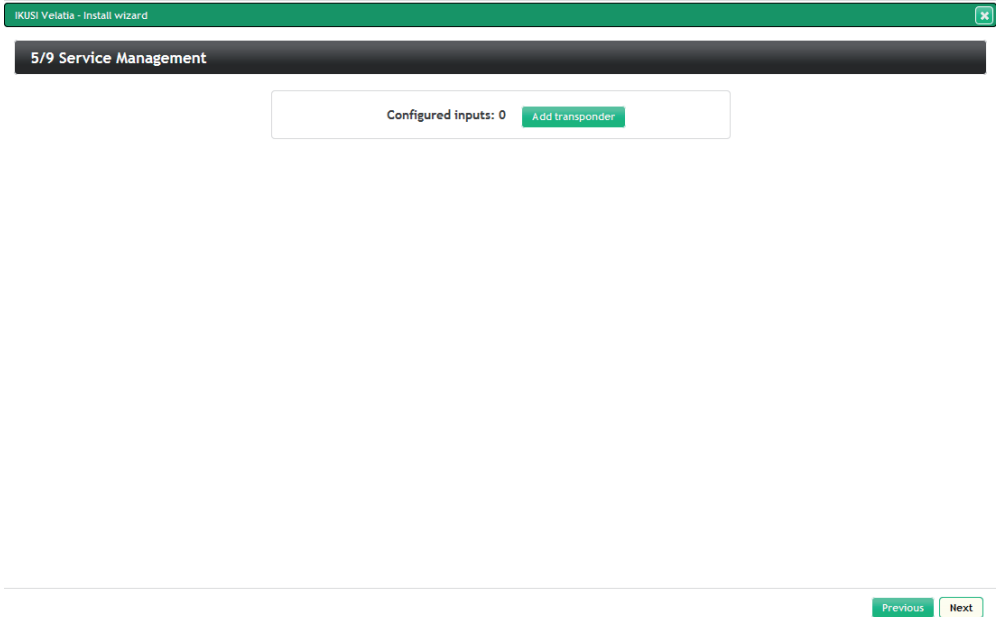
To go to the next step, push **Next** button.

4.5 Step 5: Service management

This screen allows to select which services must be received, and it is different depending on the value of RF Input that has been configured in step 2. Below, the two types of screens are described.

4.5.1 Satellite input case

In the case you have configured DVB-S/S2 as RF input in the step 2, a window as the following one will be displayed:



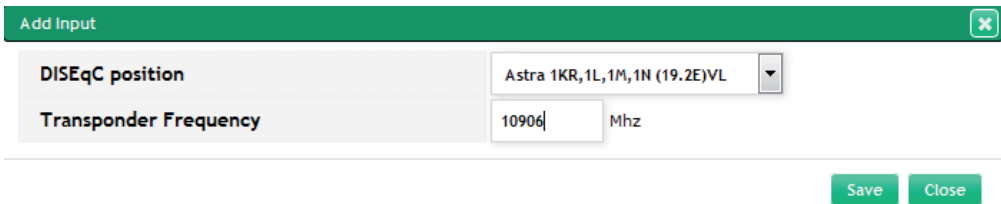
IKUSI Velatia - Install wizard

5/9 Service Management

Configured inputs: 0 [Add transponder](#)

[Previous](#) [Next](#)

Push [Add transponder](#) button. A window will open, where you must indicate the frequencies of the transponders you want to receive and in which position of the multiswitch are.



Add Input

DISEqC position Astra 1KR,1L,1M,1N (19.2E)VL

Transponder Frequency 10906 Mhz

[Save](#) [Close](#)

After introducing a transponder, push [Save](#) button. The headend will try to tune it. Once it tunes it, a list with all the services of that transponder will be displayed.

5/9 Service Management

Configured inputs: 1/4 Add transponder

+ Astra 1KR,1L,1M,1N (19.2E)VL - 10906 🗑️	
<input type="checkbox"/> AMC HD	H.264 HD 🗑️
<input type="checkbox"/> ANTENA 3 HD	H.264 HD 🗑️
<input type="checkbox"/> CUATRO HD	H.264 HD 🗑️
<input type="checkbox"/> LA SEXTA HD	H.264 HD 🗑️
<input type="checkbox"/> M.FORMULA1HD	H.264 HD 🗑️
<input type="checkbox"/> M.MOTOGPHD	H.264 HD 🗑️
<input type="checkbox"/> TELECCINCO HD	H.264 HD 🗑️

Previous Next


Repeat the same process with all the satellite transponders. In this example, the headend is formed by 2 HTL-TRX modules, therefore you can receive up to 4 satellite transponders.

5/9 Service Management

Configured inputs: 4/4 Add transponder

+ Astra 1KR,1L,1M,1N (19.2E)VL - 10906 🗑️		+ Astra 1KR,1L,1M,1N (19.2E)VL - 11259 🗑️		+ Astra 1KR,1L,1M,1N (19.2E)HoL - 11362 🗑️	
<input type="checkbox"/> AMC HD	H.264 HD 🗑️	<input type="checkbox"/> BEIN SPORTS	H.264 HD 🗑️	<input type="checkbox"/> ZDF HD	H.264 HD 🗑️
<input type="checkbox"/> ANTENA 3 HD	H.264 HD 🗑️	<input type="checkbox"/> COMEDYCENTRALHD	H.264 HD 🗑️	<input type="checkbox"/> zdf_neo HD	H.264 HD 🗑️
<input type="checkbox"/> CUATRO HD	H.264 HD 🗑️	<input type="checkbox"/> COSMO HD	H.264 HD 🗑️		
<input type="checkbox"/> LA SEXTA HD	H.264 HD 🗑️	<input type="checkbox"/> FOX LIFE HD	H.264 HD 🗑️		
<input type="checkbox"/> M.FORMULA1HD	H.264 HD 🗑️	<input type="checkbox"/> M. GOLF HD	H.264 HD 🗑️		
<input type="checkbox"/> M.MOTOGPHD	H.264 HD 🗑️	<input type="checkbox"/> M. SeriesXtraHD	H.264 HD 🗑️		
<input type="checkbox"/> TELECCINCO HD	H.264 HD 🗑️				
+ Astra 1KR,1L,1M,1N (19.2E)HoL - 11494 🗑️					
<input type="checkbox"/> Das Erste HD	H.264 HD 🗑️				
<input type="checkbox"/> SWR BW HD	H.264 HD 🗑️				
<input type="checkbox"/> SWR RP HD	H.264 HD 🗑️				
<input type="checkbox"/> arte HD	H.264 HD 🗑️				

Previous Next

If you want to remove any of the transponders, push  button.

After that, select the services that are going to be included in the output channel lineup. To select a specific service, click in the check box next to that service. If you want to select all the services of a transponder, push **+** button.

IKUSI Velatia - Install wizard

5/9 Service Management

Configured inputs: 4/4 Add transponder

Astra 1KR,1L,1M,1N (19.2E)VL - 10906		Astra 1KR,1L,1M,1N (19.2E)VL - 11259		Astra 1KR,1L,1M,1N (19.2E)HoL - 11362	
<input type="checkbox"/>	AMC HD H.264 HD	<input checked="" type="checkbox"/>	BW SPORTS H.264 HD	<input checked="" type="checkbox"/>	ZDF HD H.264 HD
<input type="checkbox"/>	ANTENA 3 HD H.264 HD	<input type="checkbox"/>	COMEDYCENTRALHD H.264 HD	<input checked="" type="checkbox"/>	zdf_neo HD H.264 HD
<input type="checkbox"/>	CUATRO HD H.264 HD	<input type="checkbox"/>	COSMO HD H.264 HD		
<input type="checkbox"/>	LA SEXTA HD H.264 HD	<input checked="" type="checkbox"/>	FOX LIFE HD H.264 HD		
<input checked="" type="checkbox"/>	M.FORMULA1HD H.264 HD	<input type="checkbox"/>	M. GOLF HD H.264 HD		
<input checked="" type="checkbox"/>	M.MOTOCPHD H.264 HD	<input type="checkbox"/>	M. SeriesXtraHD H.264 HD		
<input type="checkbox"/>	TELECINCO HD H.264 HD				
Astra 1KR,1L,1M,1N (19.2E)HoL - 11494					
<input checked="" type="checkbox"/>	Das Erste HD H.264 HD				
<input type="checkbox"/>	SWR BW HD H.264 HD				
<input type="checkbox"/>	SWR RP HD H.264 HD				
<input checked="" type="checkbox"/>	arte HD H.264 HD				

Previous Next

NOTE: Each HTL-TRX module is able to transcode up to 4 HD services. If you select more HD services than the headend can transcode and the TVs are SD, a message will be displayed, indicating the transcoding capacity has been exceeded.

After selecting the desired services, push **Next** button to go to step 6.

4.5.2 Terrestrial/cable input case

In the case you have configured DVB-T/T2 or DVB-C as RF input in the step 2, a window as the following one will be displayed:


IKUSI Velatia - Install wizard

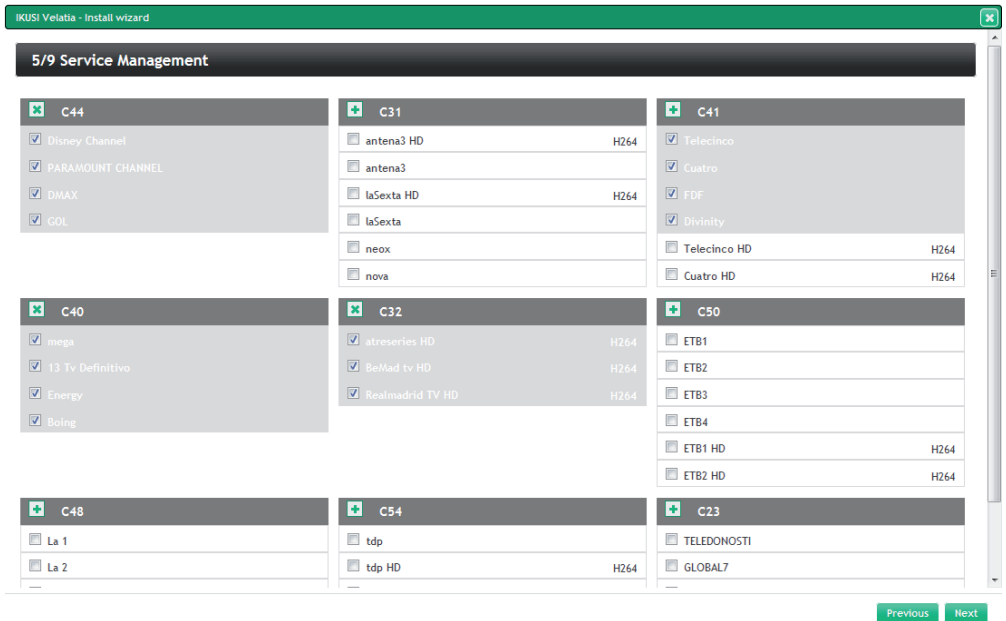
5/9 Service Management

Scan Services


40%

Previous Next

The headend will scan the input signal automatically. A progress bar will be displayed, indicating the percentage of the scanning that has been performed. When the scanning finish, the information of the detected multiplexes will be displayed. Select the desired services clicking in the check box next to those services. If you want to select all the services of a multiplex, push  button.



NOTE: Each HTL-TRX module is able to transcode up to 4 HD services. If you select more HD services than the headend can transcode and the TVs are SD, a message will be displayed, indicating the transcoding capacity has been exceeded.

After selecting the desired services, push  button to go to step 6

4.6 Step 6: Service configuration

In this step, a window with a list of the selected services will open.

6/9 Service configuration

	Input SID	Name	Service Quality	Decrypt	Transcoding	Language
+	30001	M.FORMULA1HD	H.264 HD	YES	ON	
+	30002	M.MOTOGPHD	H.264 HD	YES	ON	
+	30900	BEIN SPORTS	H.264 HD	YES	ON	
+	30901	FOX LIFE HD	H.264 HD	YES	ON	
+	11110	ZDF HD	H.264 HD	NO	ON	
+	11130	zdf_neo HD	H.264 HD	NO	ON	
+	10301	Das Erste HD	H.264 HD	NO	ON	
+	10302	arte HD	H.264 HD	NO	ON	

[Previous](#) [Next](#)

You can change the distribution mode of the services according to the audios. To do that, push button or over icon. Audio configuration box will open.

6/9 Service configuration


	Input SID	Name	Service Quality	Decrypt	Transcoding	Language
+	30001	M.FORMULA1HD	H.264 HD	YES	ON	
+	30002	M.MOTOGPHD	H.264 HD	YES	ON	
+	30900	BEIN SPORTS	H.264 HD	YES	ON	
+	30901	FOX LIFE HD	H.264 HD	YES	ON	
+	11110	ZDF HD	H.264 HD	NO	ON	
+	11130	zdf_neo HD	H.264 HD	NO	ON	
+	10301	Das Erste HD	H.264 HD	NO	ON	
-	10302	arte HD	H.264 HD	NO	ON	

Audio mode	Audio mode								
Aggregate	<table border="1"> <tbody> <tr> <td> MPEG-1 audio</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td> MPEG-1 audio</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td> Dolby Digital</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td> MPEG-1 audio</td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>	MPEG-1 audio	<input checked="" type="checkbox"/>	MPEG-1 audio	<input checked="" type="checkbox"/>	Dolby Digital	<input checked="" type="checkbox"/>	MPEG-1 audio	<input checked="" type="checkbox"/>
MPEG-1 audio	<input checked="" type="checkbox"/>								
MPEG-1 audio	<input checked="" type="checkbox"/>								
Dolby Digital	<input checked="" type="checkbox"/>								
MPEG-1 audio	<input checked="" type="checkbox"/>								

[Previous](#) [Next](#)







The headend has two working modes, disaggregated languages or aggregated languages. When disaggregated languages mode is selected, in the case a multi-language service, one service will be










generated for each language. The disaggregation 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 aggregated languages mode is selected, a single service will all the languages will be generated.

Select Aggregate as audio mode to work with aggregated languages. However, if you want to work with disaggregated languages, select Disaggregate. In that case, also you can choose which audio channels are included and which aren't. Furthermore, when you select Disaggregate, that change will be reflected in Language icon, becoming to .

IKUSI Velata - Install wizard

6/9 Service configuration

	Input SID	Name	Service Quality	Decrypt	Transcoding	Language
+	30001	M.FORMULA1HD	H.264 HD	YES	ON	
+	30002	M.MOTOGPHD	H.264 HD	YES	ON	
+	30900	BEIN SPORTS	H.264 HD	YES	ON	
+	30901	FOX LIFE HD	H.264 HD	YES	ON	
+	11110	ZDF HD	H.264 HD	NO	ON	
+	11130	zdf_neo HD	H.264 HD	NO	ON	
+	10301	Das Erste HD	H.264 HD	NO	ON	
-	10302	arte HD	H.264 HD	NO	ON	

Audio mode	Audio mode								
Disaggregate ▼	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td> MPEG-1 audio</td> <td style="text-align: right;"><input checked="" type="checkbox"/></td> </tr> <tr> <td> MPEG-1 audio</td> <td style="text-align: right;"><input checked="" type="checkbox"/></td> </tr> <tr> <td> Dolby Digital</td> <td style="text-align: right;"><input type="checkbox"/></td> </tr> <tr> <td> MPEG-1 audio</td> <td style="text-align: right;"><input type="checkbox"/></td> </tr> </table>	 MPEG-1 audio	<input checked="" type="checkbox"/>	 MPEG-1 audio	<input checked="" type="checkbox"/>	 Dolby Digital	<input type="checkbox"/>	 MPEG-1 audio	<input type="checkbox"/>
 MPEG-1 audio	<input checked="" type="checkbox"/>								
 MPEG-1 audio	<input checked="" type="checkbox"/>								
 Dolby Digital	<input type="checkbox"/>								
 MPEG-1 audio	<input type="checkbox"/>								

Previous
Next

After doing the desired adjustments, push **Next** button.

4.7 Step 7: LCN, SID, Output Name configuration

In this step, a screen with a list of all the services that will be sent to the outputs will be displayed, with the LCN, SID and name values.

7/9 LCN, SID, Output Name configuration

LCN	SID	Name	Languages service	
400	30001	M.FORMULA 1 HD	MPEG-1 audio V.O. MPEG-1 audio	
401	30002	M.MOTOGPHD	MPEG-1 audio V.O. MPEG-1 audio	
402	30900	BEIN SPORTS	Dolby Digital V.O. Dolby Digital MPEG-1 audio MPEG-1 audio	
403	30901	FOX LIFE HD	Dolby Digital V.O. Dolby Digital	
404	11110	ZDF HD	MPEG-1 audio MPEG-1 audio Dolby Digital MPEG-1 audio	
405	11130	zdf_neo HD	MPEG-1 audio MPEG-1 audio Dolby Digital MPEG-1 audio	
406	10301	Das Erste HD	MPEG-1 audio MPEG-1 audio Dolby Digital	
407	10302	arte HD Deutsch	MPEG-1 audio	
408	10303	arte HD Français	MPEG-1 audio	

[Previous](#) [Send](#)

If you want it, you can edit those fields. Also, you can remove any of the the services, pushing button .

To send the configuration that has been defined through setup wizard, push [Send](#) button. A confirmation window will open, informing that the configuration will be stored in the modules.

Would you like to continue?



Processing selected data: Searching for a viable configuration for your current headend.

WARNING: The resulting configuration will be stored in the modules. Do you wish to continue?

Cancel

Continue

If you agree, push [Continue](#) button.

4.8 Step 8: Search for supported configuration

The headend will calculate how to apply the proposed configuration over the headend. While this calculation process is in course, a waiting screen will be displayed.

8/9 Looking for a suitable configuration


[Previous](#)

When the process ends, the configuration will be stored in the modules and setup wizard will go to step 9.

4.9 Step 9: Confirmation of the new service configuration

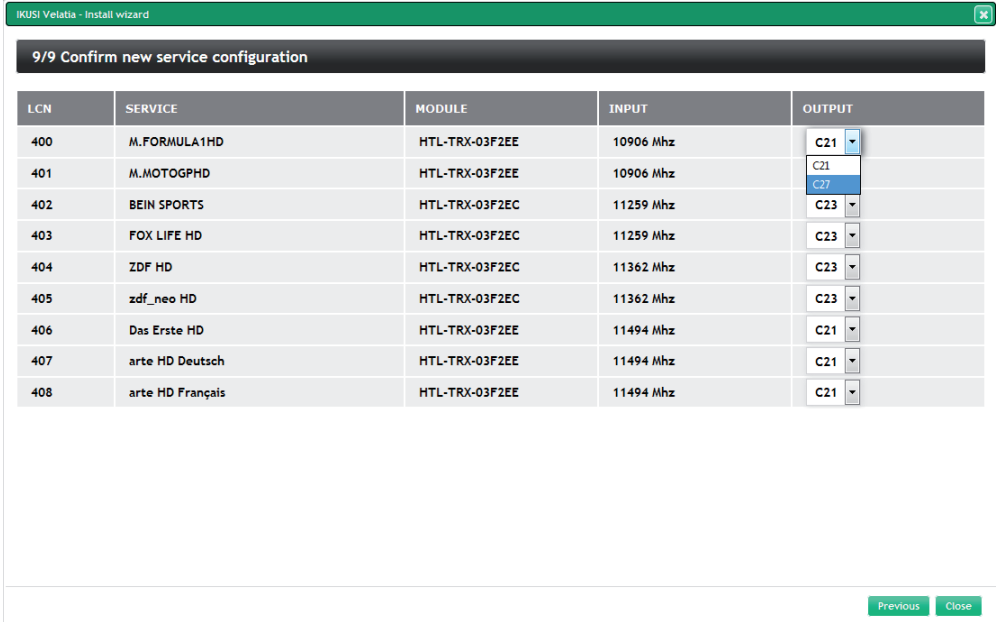
In the final step, a summarize window will be displayed, with a list of the services that forms the selected channel lineup, indicating in which RF channel will be transmitted each one.

9/9 Confirm new service configuration

LCN	SERVICE	MODULE	INPUT	OUTPUT
400	M.FORMULA1HD	HTL-TRX-03F2EE	10906 Mhz	C21
401	M.MOTOGPHD	HTL-TRX-03F2EE	10906 Mhz	C21
402	BEIN SPORTS	HTL-TRX-03F2EC	11259 Mhz	C23
403	FOX LIFE HD	HTL-TRX-03F2EC	11259 Mhz	C23
404	ZDF HD	HTL-TRX-03F2EC	11362 Mhz	C23
405	zdf_neo HD	HTL-TRX-03F2EC	11362 Mhz	C23
406	Das Erste HD	HTL-TRX-03F2EE	11494 Mhz	C21
407	arte HD Deutsch	HTL-TRX-03F2EE	11494 Mhz	C21
408	arte HD Français	HTL-TRX-03F2EE	11494 Mhz	C21

[Previous](#)
[Close](#)

If you want it, you can substitute that RF channel by other of the channels generated by the module that is processing that service.

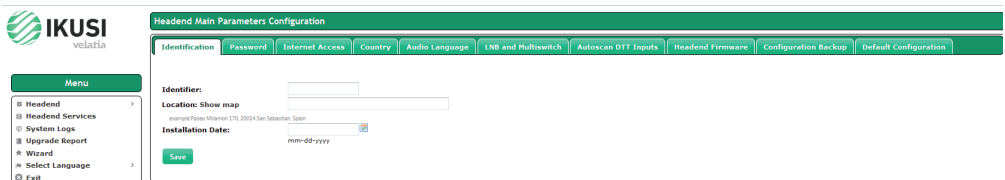


9/9 Confirm new service configuration

LCN	SERVICE	MODULE	INPUT	OUTPUT
400	M.FORMULA1HD	HTL-TRX-03F2EE	10906 Mhz	C21
401	M.MOTOGPHD	HTL-TRX-03F2EE	10906 Mhz	C21
402	BEIN SPORTS	HTL-TRX-03F2EC	11259 Mhz	C23
403	FOX LIFE HD	HTL-TRX-03F2EC	11259 Mhz	C23
404	ZDF HD	HTL-TRX-03F2EC	11362 Mhz	C23
405	zdf_neo HD	HTL-TRX-03F2EC	11362 Mhz	C23
406	Das Erste HD	HTL-TRX-03F2EE	11494 Mhz	C21
407	arte HD Deutsch	HTL-TRX-03F2EE	11494 Mhz	C21
408	arte HD Français	HTL-TRX-03F2EE	11494 Mhz	C21

Previous Close

To finish with setup wizard, push **Close** button. Browser will go automatically to the Advanced adjustment menu. From there, you can relaunch setup wizard when you want, selecting Wizard option.



IKUSI velatia

Headend Main Parameters Configuration

- Identification
- Password
- Internet Access
- Country
- Audio Language
- SNB and Multiswitch
- Autoscan DTT Inputs
- Headend Firmware
- Configuration Backup
- Default Configuration

Menu

- Headend
- Headend Services
- System Logs
- Upgrade Report
- Wizard
- Select Language
- Exit

Identifier:

Location: Show map

Installation Date: mm-dd-yyyy

Save

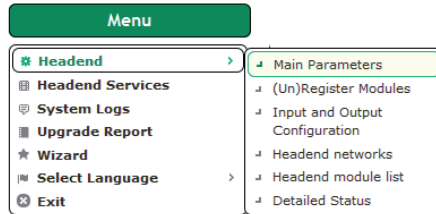


5. Manual configuration

HTL headend allows a quick and agile configuration through the Installation Wizard. However, there are situations where this configuration must be customized. In those cases, the advanced interface is available. In that interface, we will also find additional information about the status of the headend.

This section explains the possibilities offered by the advanced interface.

NOTE: advanced interface will be displayed each time you access to the headend, except for the first connection, where the Install Wizard will be launched.



5.1. Headend

5.1.1 Main Parameters

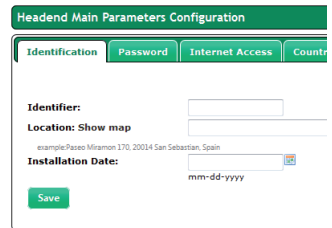
Identification

IDENTIFIER: Used to enter a designation to identify the headend.

LOCATION: Used to enter the name of the city where the unit is installed.

INSTALLATION DATE: Used to enter the installation date of the headend unit.

Save: Click on the button to keep the changes.



Password

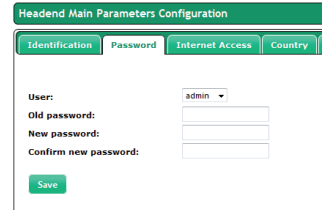
USER: Enter the username. By default it is "admin"

OLD PASSWORD: Enter the current homepage password.

NEW PASSWORD: Enter the new password.

CONFIRM NEW PASSWORD: Re-enter the new password.

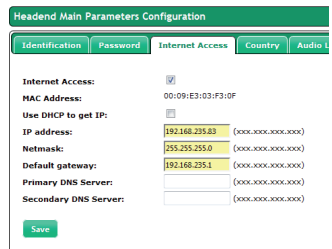
Save: Click on the button to keep the changes.



Internet Access

INTERNET ACCESS: Internet access not only allows the headend to access the Internet (e.g. to show its location), but also allows an engineer to access and configure the headend from the outside. Click on the box to activate Internet access.

MAC ADDRESS: Shows the number which identifies the unit for the network connection.



USE DHCP: Enable the checkbox for the DHCP server to automatically assign an IP address. Disable the checkbox to manually enter the IP address, the netmask and the preset gateway.

IP ADDRESS: Enter the IP address if DHCP is not enabled.

NETMASK: Enter the netmask if DHCP is not enabled.

GATEWAY: Shows the gateway IP address. Enter the preset gateway if DHCP is not enabled.

PRIMARY AND SECONDARY DNS SERVER: In order to use a DNS server, first enter the primary and secondary DNS server IP address as given by the domain provider.

Save: Click on the button to keep the changes.

Country

The screenshot shows the 'Country' configuration tab. It includes a 'Current Date and Time' field displaying '11:42 06-26-2017 (HH:MM mm-dd-yyyy)'. Below it are dropdown menus for 'Country' (set to 'United Kingdom') and 'Time Zone' (set to 'Europe/London'). A green 'Save' button is located at the bottom left of the configuration area.

CURRENT DATE AND TIME: Shows the current time and date.

COUNTRY: Used to enter the country where the unit is installed.

TIME ZONE: The time zone is presented depending on the country entered.

Save: Click on the button to keep the changes.

Audio Language

Audio Language tab allows to inform to the headend which is the list of preferred audios. This list is used by the transcoder to automatically choose the audios that will be transcoded, in case the service is multilingual.

To create the list, select the desired languages, dragging them from Unselected Audios List and dropping them in Preferred Audio Languages. In the same way, you can sort the list to prioritize some audios against other.

The screenshot shows the 'Audio Language' configuration tab. It features two main sections: 'Unselected Audio List' and 'Preferred Audio Languages'. The 'Unselected Audio List' contains a grid of language buttons including Arabic, Audio Description, Bengali, Breton, Catalan, Chinese, Czech, Danish, German, Hebrew, Hindi, Indonesian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Slovak, Spanish, Swedish, and Turkish. The 'Preferred Audio Languages' section currently contains buttons for English and French. A green 'Save' button is located at the bottom left.

LNB and Multiswitch

Headend Main Parameters Configuration

Identification Password Internet Access Country Audio Language LNB and Multiswitch Autoscan DTT Inputs Headend Firm

LNB:

Local Oscillator Low Frequency (MHz): 9750

Local Oscillator High Frequency (MHz): 10000

Multiswitch:

Input number: 4

DS90C04

Adstra 1KRILL1M1N (DS2E)

Position Multiswitch	Voltage Tone	Satellite	Polarity	Band	Multiswitch Input Name
1	13V 0KHz	Adstra 1KRILL1M1N (DS2E)	Vertical	Low	Adstra 1KRILL1M1N (DS2E)VB
2	18V 0KHz	Adstra 1KRILL1M1N (DS2E)	Horizontal	Low	Adstra 1KRILL1M1N (DS2E)HB
3	13V 220KHz	Adstra 1KRILL1M1N (DS2E)	Vertical	High	Adstra 1KRILL1M1N (DS2E)VA
4	18V 220KHz	Adstra 1KRILL1M1N (DS2E)	Horizontal	High	Adstra 1KRILL1M1N (DS2E)HA

Save

LOCAL OSCILLATOR FREQUENCY (MHz): Used to enter the local oscillator frequency value for the high and low band and inform the master module of the presence and characteristics of the multiswitch.

MULTISWITCH. INPUT NUMBER: Click on the drop-down list to select the number of multi-switch inputs.

For connection without multiswitch, select the value "0" as input number.

For connection with multiswitch, select the value corresponding to the number of multiswitch inputs. Then use the LNB/multiswitch drop-down list:

MULTISWITCH POSITION, VOLTAGE AND TONE

SATELLITE: Designation of the multiswitch input signal for identification in subsequent configurations. IKUSI recommends identifying the type of satellite, polarity and signal band.

POLARITY: Click on the drop-down list to select the vertical or horizontal polarity.

BAND: Click on the drop-down list to select the band: Low or High.

MULTISWITCH INPUT NAME: Informs of the multiswitch input being described.

Save: Click on the button to keep the changes.

Autoscan DTT Inputs

Autoscan DTT inputs tab allows to enable/disable automatic scanning of DTT inputs in case of a change in the frequency plan.

Thus, if Autoscan is enabled, when a frequency change is done in a DTT signal that was tuned previously, the HTL will lose sync and will launch a scan of the inputs, in order to search the new frequency of the signal (identified with the same TS_ID and SID values).

If the Autoscan is disabled, when a change in the frequency plan happens, the HTL must be reconfigured manually.

To enable the Autoscan of DTT inputs, push **Enable Autoscan** button. To disable it, push **Disable Autoscan** button. By default, the Autoscan is disabled.

Headend Main Parameters Configuration

Identification Password Internet Access Country Audio Language LNB and Multiswitch Autoscan DTT Inputs Headend Firmware Con

Enable Autoscan Disable Autoscan

Headend Firmware

Headend Main Parameters Configuration

Identification Password Internet Access Country Audio Language LNB and Multiswitch Autoscan DTT Inputs Headend Firmware Configuration Backup

Name	Model	Version	Info
HTL-STC-03F30F	HTL-STC	6.0.0+svn10918	✓
HTL-TRX-03F2EE	HTL-TRX	6.0.0+svn10918	✓

Add Firmware file...

To update the headend with a new firmware, push **Add firmware file...** button to select the file of that new firmware.

Configuration Backup

Headend Main Parameters Configuration

Identification Password Internet Access Country Audio Language LNB and Multiswitch Autoscan DTT Inputs Headend Firmware Configuration Backup Default Configuration

Generate the configuration backup: Configuration Report

Select the configuration file: Add Backup file...

Used to create a backup of the current configuration of the station or apply an update.
Configuration report: Used to save the backup copy in the location chosen by the user or download it to another station.
Add a backup file: Used to choose backup files stored in any of the available storage units.

Default Configuration

Headend Main Parameters Configuration

Identification Password Internet Access Country Audio Language LNB and Multiswitch Autoscan DTT Inputs Headend Firmware Configuration Backup Default Configuration

Name	Model	Type
<input checked="" type="checkbox"/> HTL-STC-03F30F	HTL-STC	Master
<input type="checkbox"/> HTL-TRX-03F2EE	HTL-TRX	Slave

Apply default configuration

APPLY DEFAULT CONFIGURATION: Used to carry out a factory reset module by module or for the whole headend station at the same time.

NOTE: Do not disconnect the module until the end of the reset process.

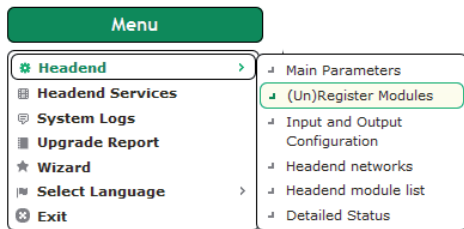
The window shows the following information for each module:

NAME: Shows the module identification designation.

MODEL: Shows the model designation.

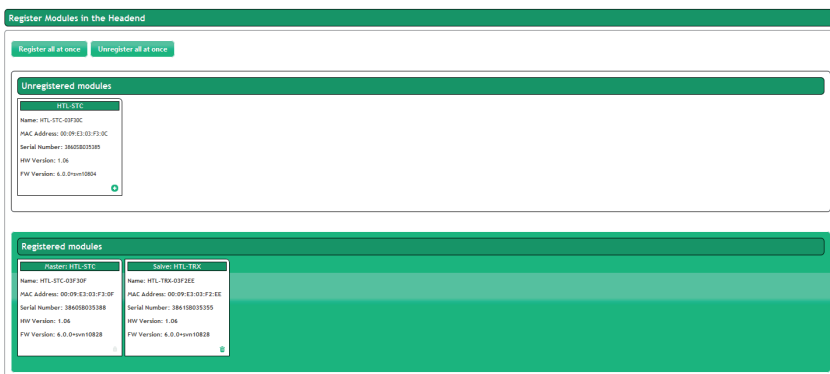
TYPE: Master or slave.

Clicking on any of the boxes will activate the “apply default configuration”, moving on to the reset confirmation window. Enabling the box to the left of the title will select all the headend modules.





5.1. Headend

5.1.2 (Un)Register Modules



All the modules which are connected to the IKUNET bus must appear on the screen inside a cell headed by the type of module and the function it represents within the headend (slave). It also shows the identification name, the MAC address, the serial number and the hardware version, all of which are factory-set.

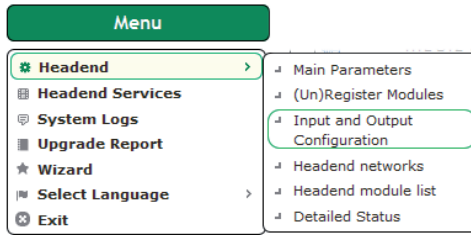
The master module is the only one which cannot be unregistered. Thus, it presents a padlock icon instead of the recycle bin icon used to unregister modules.

The other modules can be registered or unregistered by clicking on the  symbol or the recycle bin icon  respectively, and, more straightforwardly, by clicking on each of the modules and dragging them from one window to the other.

A pop-up message shows whether the action has been carried out correctly or there has been any type of error.

REGISTER ALL: Used to act on all modules at the same time and register them jointly in the headend.

UNREGISTER ALL: Used to act on all modules at the same time and delete them jointly in the headend.



5.1. Headend

5.1.3 Input and Output Configuration

Inputs

Input and Output configuration				
Inputs				
Name	Model	RF Input	Input Type	Identification
HTL-STC-03F30F	HTL-STC	2 Inputs	DVB-S/S2	ON
Name	Model	RF Input	Input Type	Identification
HTL-TRX-03F2EE	HTL-TRX	2 Inputs	DVB-S/S2	ON

The Inputs tab shows the following parameters:


NAME: Name to identify each module.







MODEL: Module type designation.


RF Input: Dropdown list that allows to choose the behaviour of the input connectors. Select "2 Inputs" when you want that both connector are independents". Select "1 Input + Loop Through" when you want to use only the first input connector, working the second one as signal loop to facilitate the signal distribution.

INPUT TYPE: Dropdown list that allows to define the input type that can be received. Choose between "DVB-S/S2", "DVB-T/T2" and "DVB-C".

IDENTIFICATION: It allows to identify the module in the headend, visually. Pushing ON button, red led of the associated module starts blinking. To stop blinking, push OFF button.

Besides these parameters, pushing  icon the status and the settings of 1 and 2 inputs will be displayed.

Input and Output configuration																			
Inputs																			
Name	Model	RF Input	Input Type	Identification															
HTL-STC-03F30F	HTL-STC	2 Inputs	DVB-S/S2	ON															
<table border="1"> <thead> <tr> <th>Input</th> <th>Frequency</th> <th>Synchronized</th> <th>Signal Quality</th> <th>Receiver</th> </tr> </thead> <tbody> <tr> <td>Input 1</td> <td>1006 MHz</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>Input 2</td> <td>1006 MHz</td> <td>Synchronized</td> <td>Signal Quality</td> <td>Receiver</td> </tr> </tbody> </table>					Input	Frequency	Synchronized	Signal Quality	Receiver	Input 1	1006 MHz	✓			Input 2	1006 MHz	Synchronized	Signal Quality	Receiver
Input	Frequency	Synchronized	Signal Quality	Receiver															
Input 1	1006 MHz	✓																	
Input 2	1006 MHz	Synchronized	Signal Quality	Receiver															
Name	Model	RF Input	Input Type	Identification															
HTL-TRX-03F2EE	HTL-TRX	2 Inputs	DVB-S/S2	ON															

Pushing  icon you could edit each one of the inputs. The configurable parameters depends on the input type. Thus, in the case of a DVB-S/S2 input, the configurable parameters will be as follows:

Input Parameters1		
Multiswitch	Astra 1KR,1L,1M,1N (19.2E)VA Astra 1KR,1L,1M,1N (19.2E)VA	
IF Band (BIS):	High	High
Status:	Enabled	Enabled
Transponder Frequency:	11686 MHz	11686
Intermediate Frequency (BIS):	1086 MHz	1086

Save

MULTISWITCH: It allows to select the multiswitch signal (or the LNB signal) to be received.

IF BAND: Low or High.

STATUS: It allows to enable or disable any of the two inputs of the module.

TRANSPONDER FREQUENCY: It allows to select the frequency value of the transponder to be received.

INTERMEDIATE FREQUENCY: It allows to select the intermediate frequency value to be received.

In the case of DVB-T/T2 input, the configurable parameters will be as follows:

Input Parameters1		
Status:	Enabled	Enabled
Frequency:	554 MHz	554
Bandwidth:	8 MHz	8 MHz
Hierarchy:	High Priority	High Priority
Autoscan:	Disabled	Disabled

Save

STATUS: It allows to enable or disable any of the two inputs of the module.

FREQUENCY: It allows to select the frequency value of the multiplex to be received.

BANDWIDTH: It allows to select the bandwidth of the multiplex to be received.

HIERARCHY: In broadcasting with several hierarchies, it allows to select the hierarchy of the signal to be received.

AUTOSCAN: It allows to enable or disable the automatic scan of the DTT inputs in case of a change in the frequency plan.

Finally, when the input signal is DVB-C, the displayed parameters will be:

Input Parameters1		
Status:	Enabled	Enabled
Frequency:	554 MHz	554
Bandwidth:	8 MHz	8 MHz
Hierarchy:	High Priority	High Priority
Autoscan:	Disabled	Disabled

Save

STATUS: It allows to enable or disable any of the two inputs of the module.

FREQUENCY: It allows to select the frequency value of the multiplex to be received.

SYMBOLRATE: It allows to select the symbol rate of the multiplex to be received.

CONSTELLATION: It indicates that the constellation of the input signal is detected automatically.

Push **Save** button to store the changes.

CAM

Input and Output configuration

Inputs CAM Output

Name	Model	MAX Allowed PIDs	CAM Status	Identification
HTL-STC-03F30F	HTL-STC	10 / 32	✓ OK	ON
Name	Model	MAX Allowed PIDs	CAM Status	Identification
HTL-TRX-03F2EE	HTL-TRX	10 / 32	✓ OK	ON

This tab allow to access to the information of the CAM. The following information related to each CAM is displayed:


NAME: Identification of the module in which the CAM is inserted.

MODEL: Model of the module in which the CAM is inserted.

MAX ALLOWED PIDS: Maximum number of services and elementary streams (PIDS) that can be decrypted by that CAM.

CAM STATUS: Information about the current status of the CAM.



IDENTIFICATION: It allows to identify the module in the headend, visually. Pushing ON button, red led of the associated module starts blinking. To stop blinking, push OFF button.

Additionally, pushing  icon, you can acced to the MMI menu of the own CAM, through which other data, provided by the CAM and the smartcard, can be displayed.

Outputs

Input and Output configuration

Inputs CAM Output

Name	Model	Attenuation	BitrateMax	Free Space	Output Type	Identification
HTL-STC-03F30F	HTL-STC		90.00 Mbps	86.5 %	DVB-T	ON
Name	Model	Attenuation	BitrateMax	Free Space	Output Type	Identification
HTL-TRX-03F2EE	HTL-TRX		96.00 Mbps	78 %	DVB-T	ON

Output tab shows the following parameters:

NAME: Name to identify each module.

MODEL: Module type designation.


ATTENUATION: Slider bar that allows to modify the power level generated by each module.

BITRATEMAX: Maximum bit rate value that can be offered to the output modulators. Depends on the performance of the CAM that is inserted and on the hw version of the module.

FREE SPACE: It is the value of the unused space respect to the maximum bit rate described in the previous point, expressed in percentage.

OUTPUT TYPE: Dropdown list that allows to define the output type that will be generated. Choose between "DVB-T" and "DVB-C".

IDENTIFICATION: It allows to identify the module in the headend, visually. Pushing ON button, red led of the associated module starts blinking. To stop blinking, push OFF button.

Additionally to these parameters, pushing  icon, information about each output carried will be displayed:

Input and Output configuration									
Inputs CAM Output									
	Name	Model	Attenuation	BitrateMax	Free Space	Output Type	Identification		
	HTL-STC-03F30F	HTL-STC	<input type="range" value="17"/>	90.00 Mbps	85 %	DVB-T	ON		
	Output	Frequency	BitrateMax	Free Space	OFDM Mode	Min. C/N (Theoretical)	Modulator		
	Output 1	474 MHz	31.67 Mbps	75.5 %	8K	20.1 (db)			
	Output	Frequency	BitrateMax	Free Space	OFDM Mode	Min. C/N (Theoretical)	Modulator		
	Output 2	492 MHz	31.67 Mbps	89 %	8K	20.1 (db)			
	Name	Model	Attenuation	BitrateMax	Free Space	Output Type	Identification		
	HTL-TRX-03F2EE	HTL-TRX	<input type="range" value="19"/>	96.00 Mbps	82.5 %	DVB-C	ON		
	Output	Frequency	BitrateMax	Free Space	SymbolRate	Constellation	Min. C/N (Theoretical)	Modulator	
	Output 1	490 MHz	38.01 Mbps	82 %	6875 Kbaud	64 QAM	24 (db)		
	Output	Frequency	BitrateMax	Free Space	SymbolRate	Constellation	Min. C/N (Theoretical)	Modulator	
	Output 2	498 MHz	38.01 Mbps	72 %	6875 Kbaud	64 QAM	24 (db)		

OUTPUT: Identifier of the output that is being described (Output 1 or Output 2).

FREQUENCY: Frequency of the output carrier.

BITRATEMAX: Maximum bit rate value supported by the output carrier. Depends on the output type and the used values for its setting.

FREE SPACE: It is the value of the unused space respect to the maximum bit rate described in the previous point, expressed in percentage.

OFDM Mode: Number of subcarriers of the output COFDM carrier (2K or 8K). Only available if the output type is DVB-T.

SYMBOLRATE: Symbol rate of the output QAM carrier. Only available if the output type is DVB-C.

CONSTELLATION: Constellation of the output QAM carrier. Only available if the output type is DVB-C.

MIN. C/N (THEORETICAL): Minimum C/N value that the signal must have at the reception point to make possible the demodulation of the signal without erroneous bits.

MODULADOR: It indicates if the modulator is enabled (green icon) or disabled (red icon).

Pushing icon you could edit each one of the outputs. The configurable parameters depends on the output type. Thus, in the case of a DVB-T output, the configurable parameters will be as follows:

Output Parameters1

Status:	Enabled	Enabled <input type="button" value="v"/>
Frequency:	474 MHz	<input type="text" value="474"/>
OFDM Mode:	8K	8K <input type="button" value="v"/>
Bandwidth:	8 MHz	8 MHz <input type="button" value="v"/>
Guard Interval:	1/32	1/32 <input type="button" value="v"/>
Constellation:	64 QAM	64 QAM <input type="button" value="v"/>
Code Rate:	7/8	7/8 <input type="button" value="v"/>

STATUS: It allows to enable or disable any of the two outputs of the module.

FREQUENCY: It allows to select the frequency value of the carrier to be generated.

OFDM Mode: Number of subcarriers of the output COFDM carrier to be generated (2K or 8K).

BANDWIDTH: Bandwidth of the output carrier to be generated. Choose between 6 MHz, 7 MHz and 8 MHz.

GUARD INTERVAL: Guard interval of the output carrier to be generated. Choose between 1/4, 1/8, 1/16 and 1/32.

CONSTELLATION: Constellation of each one subcarrier of the COFDM output carrier. Choose between QPSK, 16QAM and 64QAM.

CODE RATE: Value of the convolutional code rate used as error protection. Choose between 1/2, 2/3, 3/4, 5/6 and 7/8.

Finally, when the output signal is DVB-C, the displayed parameters will be:

Output Parameters1
✕

Status:	Enabled	Enabled ▾	
Frequency:	490 MHz	490 ⊖ ⊕	
SymbolRate:	6875 Kbaud	6875 ⊖ ⊕	
Constellation:	64 QAM	64 QAM ▾	

Save

STATUS: It allows to enable or disable any of the two outputs of the module.

FREQUENCY: It allows to select the frequency value of the carrier to be generated.

SYMBOLRATE: It allows to select the symbol rate the symbol rate of the output carrier to be generated.

CONSTELLATION: Constellation of the output carrier. Choose between 16QAM, 32QAM, 64QAM, 128QAM, 256QAM.

Push Save button to store the changes.

Menu

<div style="border: 1px solid black; padding: 2px;"> ✱ Headend > </div> <div style="border: 1px solid black; padding: 2px;"> ⊞ Headend Services </div> <div style="border: 1px solid black; padding: 2px;"> ⊞ System Logs </div> <div style="border: 1px solid black; padding: 2px;"> ⊞ Upgrade Report </div> <div style="border: 1px solid black; padding: 2px;"> ★ Wizard </div> <div style="border: 1px solid black; padding: 2px;"> ⊞ Select Language > </div> <div style="border: 1px solid black; padding: 2px;"> ⊞ Exit </div>	<ul style="list-style-type: none"> ⊞ Main Parameters ⊞ (Un)Register Modules ⊞ Input and Output Configuration <li style="background-color: #e0ffe0; padding: 2px;">⊞ Headend networks ⊞ Headend module list ⊞ Detailed Status
---	--

5.1. Headend

5.1.4 Headend networks

Networks configuration

Headend Networks

Network Configuration
Modules in networks

Network name	NID	ONID	Current Number of Modules	Number of registered Modules	DVB SI Tables
⊞ TV HTL	1	8442	3	3	⊞

Click on the drop-down list ⊞ to check and edit the following parameters:

Network configuration
⊞

Name:	TV HTL	TV HTL ⊞	
NID:	1	1	
ONID:	100	100	
Auto Service List:	Disabled	Disabled ▾	
NIT LCN Mode:	Europe Mode	Europe Mode ▾	
NIT Pattern:	No NIT Pattern	No NIT Pattern ▾	

Save

NAME: Shows the proposed network name.

NID: Shows the network identifier.

ONID: It allows to select the value that will be included as original network identifier in all multiplex that forms the network.

AUTOMATIC SERVICES LIST: Activate the box to include a service_list_descriptor in the NIT, generated by the master module and based on the services available at the headend station output.

NIT LCN MODE: Click on the drop-down list to select the LCN transmission standard in the


NIT: EUROPEAN STANDARD (by default), NORDIG STANDARD V1 2, NORDIG STANDARD V2 3, GENERIC MODE (e.g., for Australia). Disable to not enter LCN.

NIT PATTERN Click on the drop-down list to select one of the three available NIT models:

NO NIT PATTERN: The master module generates a NIT from zero, based on the selected output frequencies, the output services and the selected LCNs.

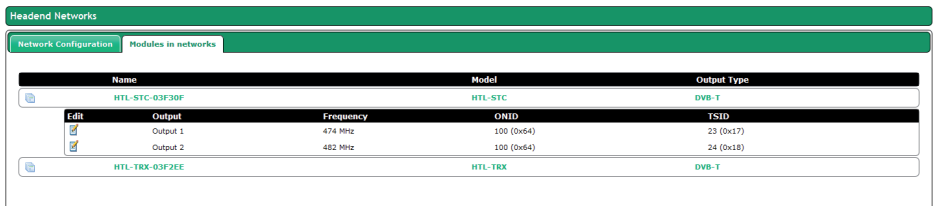
MERGED NITS: Calculates a new NIT based on the NITs in the input signals; if there is relevant information in the input NITs, it is sent to the output.



INPUT NITS: Calculates a new NIT based on the input NITs selected as pattern.


DVB-SI TABLES: Click on the icon  to download the headend module tables.

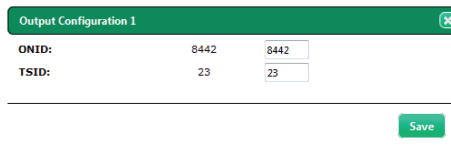
Save: Click on the button to keep the changes.



Modules in networks



Name	Model	Output Type		
 HTL-STC-03F30F	HTL-STC	DVB-T		
Edit	Output	Frequency	ONID	TSID
<input checked="" type="checkbox"/>	Output 1	474 MHz	100 (0x64)	23 (0x17)
<input checked="" type="checkbox"/>	Output 2	482 MHz	100 (0x64)	24 (0x18)
 HTL-TRX-03F2EE	HTL-TRX	DVB-T		

A drop-down icon  can be used to edit the following parameters:

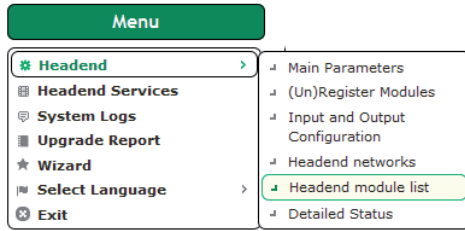


Output Configuration 1 		
ONID:	8442	<input type="text" value="8442"/>
TSID:	23	<input type="text" value="23"/>
		

ONID: It allows to select the value that will be included as original network identifier in a specific multiplex.

TSID: It allows to select the value that will be included as transport stream identifier of a specific multiplex.

Save: Click on the button to keep the changes.



5.1. Headend

5.1.5 Headend modules list

This section contains all the information on the main parameters of the headend station.

Headend Module List

TV HTL

NIT status ✓ SDT status ✓ TOT status ✓ IKUNET status ✓

Name	Model	MAC	Alarm / Status	IKUNET Identification	Module Reboot																																															
HTL-STC-03F30F	HTL-STC	00:09:E3:03:F3:0F	ON	ON	Reboot																																															
<table border="1"> <thead> <tr> <th>Input N</th> <th>Frequency</th> <th>Receiver</th> <th>Signal Quality</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Input 1</td> <td>1006 MHz</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> <tr> <td>Input 2</td> <td>1006 MHz</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Output N</th> <th>Frequency</th> <th>Current Bitrate</th> <th>Modulator</th> <th>Overflow</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Output 1</td> <td>474 MHz</td> <td>31.668 (Mbps)</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> <tr> <td>Output 2</td> <td>482 MHz</td> <td>31.668 (Mbps)</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>HW</th> <th>TEMP</th> <th>SYSTEM</th> <th>CAM</th> <th>DECRYPTED</th> <th>NIT</th> <th>IKUNET</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> </tr> </tbody> </table>						Input N	Frequency	Receiver	Signal Quality	Status	Input 1	1006 MHz	ON	ON	ON	Input 2	1006 MHz	ON	ON	ON	Output N	Frequency	Current Bitrate	Modulator	Overflow	Status	Output 1	474 MHz	31.668 (Mbps)	ON	ON	ON	Output 2	482 MHz	31.668 (Mbps)	ON	ON	ON	HW	TEMP	SYSTEM	CAM	DECRYPTED	NIT	IKUNET	ON	ON	ON	ON	ON	ON	ON
Input N	Frequency	Receiver	Signal Quality	Status																																																
Input 1	1006 MHz	ON	ON	ON																																																
Input 2	1006 MHz	ON	ON	ON																																																
Output N	Frequency	Current Bitrate	Modulator	Overflow	Status																																															
Output 1	474 MHz	31.668 (Mbps)	ON	ON	ON																																															
Output 2	482 MHz	31.668 (Mbps)	ON	ON	ON																																															
HW	TEMP	SYSTEM	CAM	DECRYPTED	NIT	IKUNET																																														
ON	ON	ON	ON	ON	ON	ON																																														
HTL-TRX-03F2EE	HTL-TRX	00:09:E3:03:F2:EE	ON	ON	Reboot																																															

The first window shows the following details:

NAME: Name to identify each module.




MODEL: Module type designation.


MAC: Number which identifies each module for the network connection.

ALARM/STATUS: Operation alarm in the module.


IKUNET IDENTIFICATION: The ON button is used to identify the module position (the red LED flashes).

RESTART MODULE: Used to restart the module.

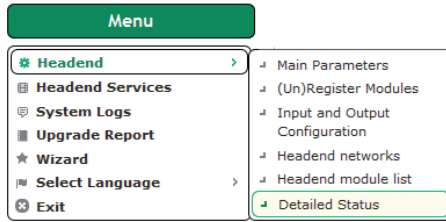
Three icons    identify the different windows which can be accessed:

 This icon shows detailed information on the status of the module, input parameters, output parameters and CAM (where appropriate).

 The drop-down list shows basic module information.

 The drop-down list shows the option of editing the name of the module, which by default is the MAC address.

Save: Click on the button to keep the changes.



5.1. Headend

5.1.6 Detailed Status

This section contains all the information on the status of the headend modules.

The screen shows the input and output parameters corresponding to each module, along with the alarms and CAM details.

Show Status Details

HTL-STC-03F30F HTL-TRX-03F2EE

Module Status Details

Generate detailed module diagnostic: Module Diagnostic

Input 1

Configuration : 1412 MHz (Normal)
 Status : ✓
 PER : 0.00E+0
 C/N : 14.2 dB
 Modulation : DVB-S2
 Signal Quality :

Input 2

Status : ⊖

Output 1

Configuration : 490 MHz
 Output Status : ✓
 BitRate Max. : 31.67 Mbps
 Number of Services : 2
 Minimum Null Packages : 52 %
 Current Null Packages : 76 %
 Overload : ✓

Output 2

Configuration : 498 MHz
 Output Status : ✓
 BitRate Max. : 31.67 Mbps
 Number of Services : 2
 Minimum Null Packages : 50.5 %
 Current Null Packages : 70 %
 Overload : ✓

CAM Details

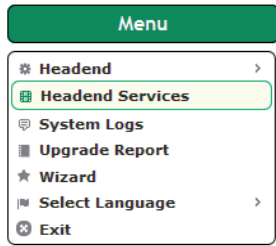
CAM Hardware Alarm : ✓
 CAM present : ✓
 Status CAM : CAM OK
 Number of Decrypted Services : 4 / 10
 Number of Decrypted PIDs : 8 / 32
 BitRate Max. : 96.00 Mbps

Transcoding Details

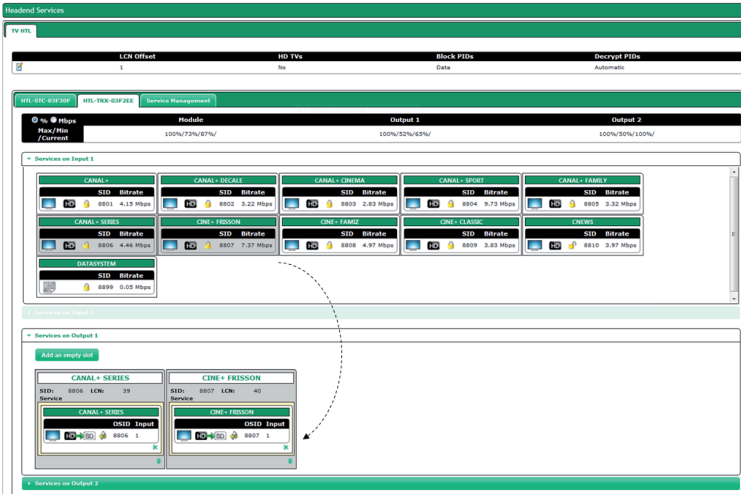
Transcoding Hardware Alarm : ✓
 Transcoding status : ✓

General

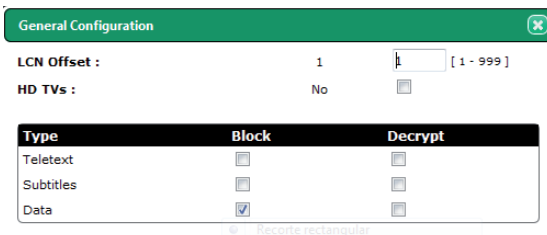
HW Alarm : ✓
 Temperature Alarm : ✓
 Temperature : 39.5 °C
 NIT Alarm : ✓
 SI Insertion : ✓
 Input Service Overload : ✓
 Fans : ✓
 Time Alarm : ✓



5.2. Headend Services



Click on the drop-down list  to access the following options:



Save

Click on the drop-down list  to access the following options:

LCN OFFSET: Defines the LCN position of the first service:

HD TVs: If it is enabled, it indicates that there are HD TVs in the current premises. This parameter will be used by the headend to activate the transcoding when the TV contents are HD and the TVs are SD.

TELETEXT: It allows to block or to not block, to decrypt or to not decrypt, the teletext information of the source signal.

SUBTITLES: It allows to block or to not block, to decrypt or to not decrypt, the subtitling information of the source signal.

DATA: It allows to block or to not block, to decrypt or to not decrypt, the data information of the source signal.

Finally, in this window information about free space of the module and of the output carriers is displayed.

● % ● Mbps	Module	Output 1	Output 2
Max/Min/Current	90.0Mbps/71.5Mbps/75.1Mbps/	31.7Mbps/18.5Mbps/22.3Mbps/	31.7Mbps/20.0Mbps/26.0Mbps/

The data can be displayed in percentage (selecting “%”) or in absolute value, expressed in Mbps (selecting “Mbps”). The displayed data are:

MAX: Maximum free space that has been measured since the last start of the headend.

MIN: Minimum free space that has been measured since the last start of the headend.

CURRENT: It is the free space that exist in a specific moment.

Output Services

Add empty slot to the output 1 ✕

Name of the Slot

Input of the Service:

SID:

Save

ADD EMPTY SLOT: Used to create an empty slot in order to add a service in the future.

Complete the following details: Name of the slot, service input, SID.

The “clone” option is used to copy a service in the same output as many times as necessary. This means a different audio can be assigned to each one on the same video.


Click on the recycle bin icon to delete a service.

The changes will be saved when retuning the TV set.

The “cut” option (scissors icon) provides the option to delete the current service and leave the space empty in order to position another one in its place, thus avoiding having to retune the TV set. A service can also be replaced by dragging another one onto it.

Services Management

Once the channel lineup is completed, through SERVICES MANAGEMENT tab, we could perform the following actions:

- To edit LCN, Service name and SID parameters.
- To decrypt or not a specific service.
- To transcode or not a specific service.
- To modify the management of the elementary streams, through Edit PIDSs  button . Through this option, user can force the blocking of a specific PID, pass it to the output or let the headend makes the decision of processing it or not.

LCN Offset	HD TVs	Block PIDs	Decrypt PIDs
1	No	Date	Automatic

LCN	Service name	SID	Decrypt	Transcoding	Edit PIDs	Module	Input	Output
1	CANAL+	8801	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		HTL-TRX-03F2EE	Input 1 (12012MHz)	Output 1 (490MHz)
26	M_DEP.2	30220	<input checked="" type="checkbox"/>	<input type="checkbox"/>		HTL-STC-03F30F	Input 1 (11686MHz)	Output 1 (474MHz)
27	EUROSPORT 2	30222	<input checked="" type="checkbox"/>	<input type="checkbox"/>		HTL-STC-03F30F	Input 1 (11686MHz)	Output 1 (474MHz)
28	R MADRID TV	30209	<input checked="" type="checkbox"/>	<input type="checkbox"/>		HTL-STC-03F30F	Input 1 (11686MHz)	Output 2 (482MHz)
29	PARAMOUNT	30201	<input checked="" type="checkbox"/>	<input type="checkbox"/>		HTL-STC-03F30F	Input 1 (11686MHz)	Output 2 (482MHz)
39	CANAL+ CINEMA	8803	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		HTL-TRX-03F2EE	Input 1 (12012MHz)	Output 1 (490MHz)
40	CANAL+ SPORT	8804	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		HTL-TRX-03F2EE	Input 1 (12012MHz)	Output 2 (498MHz)
44	CANAL+ SERIES	8806	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		HTL-TRX-03F2EE	Input 1 (12012MHz)	Output 2 (498MHz)

[Store Configuration](#)

Menu

- Headend** >
- Headend Services** >
- System Logs**
- Upgrade Report**
- Wizard**
- Select Language** >
- Exit**

5.3. System Logs

This query screen is used to obtain an overview of all incidents in the status of the headend in chronological order.

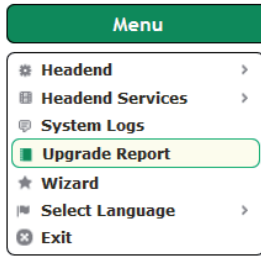
ALL
HEADEND
UI
SYSTEM
INPUT
OUTPUT
CAM
TRANSCODING

All
Error
Warning
Notice

All Modules

Delete logs

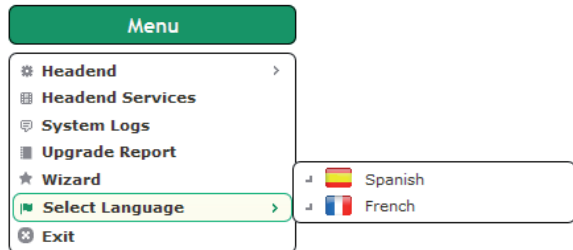
LogLevel	Date	Hostname	Subsystem	Msg
●	Jun 26 17:20:18	HTL-TRX-03F2EE	SYSTEM	Transcoder OK
●	Jun 26 17:20:10	HTL-TRX-03F2EE	SYSTEM	Transcoder board comm timeout. Rebooting?
●	Jun 26 17:20:06	HTL-STC-03F30F	HEADEND	Generated new NIT with NID 1 and version 29
●	Jun 26 17:20:05	HTL-STC-03F30F	HEADEND	Generated network SDT with version 6
●	Jun 26 17:18:50	HTL-STC-03F30F	UI	Backup file correctly applied.
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New Module parameters: attenuation: 0
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New SERVICE parameters: outputSid: 8806inputId: 1 inputSid: 8806outputSid: CANAL+ SERIES forcedName: 0 outputName: CANAL+ SERIES lcn: 44 olcn: 65534 simulcastLcn: 65535 forcedLcn: 1 iDEPG: 0 serviceTypeDVB: 1 serviceTypeCanal: 0 videoFormat: 1 cloned: 0decrypt: 1transcoding: 1videoPeakBitRate: 7000
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New SERVICE parameters: outputSid: 8804inputId: 1 inputSid: 8804outputSid: CANAL+ SPORT forcedName: 0 outputName: CANAL+ SPORT lcn: 40 olcn: 65534 simulcastLcn: 65535 forcedLcn: 1 iDEPG: 0 serviceTypeDVB: 1 serviceTypeCanal: 0 videoFormat: 1 cloned: 0decrypt: 1transcoding: 1videoPeakBitRate: 7000
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New SERVICE parameters: outputSid: 8803inputId: 1 inputSid: 8803outputSid: CANAL+ CINEMA forcedName: 0 outputName: CANAL+ CINEMA lcn: 39 olcn: 65534 simulcastLcn: 65535 forcedLcn: 1 iDEPG: 0 serviceTypeDVB: 1 serviceTypeCanal: 0 videoFormat: 1 cloned: 0decrypt: 1transcoding: 1videoPeakBitRate: 7000
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New SERVICE parameters: outputSid: 8801inputId: 1 inputSid: 8801outputSid: CANAL+ forcedName: 0 outputName: CANAL+ lcn: 1 olcn: 0 simulcastLcn: 65535 forcedLcn: 1 iDEPG: 0 serviceTypeDVB: 1 serviceTypeCanal: 0 videoFormat: 1 cloned: 0decrypt: 1transcoding: 1videoPeakBitRate: 7000
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New OUTPUT parameters: onid: 100 lcid: 22 active: 1 frequency: 498000 symbolRate: 0 modeOFDM: 8K bandwidth: 8 MHz guardInterval: 1/32 constellation: 64 QAM codeRate: 7/8formatIQ: Normal
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New OUTPUT parameters: onid: 100 lcid: 21 active: 1 frequency: 490000 symbolRate: 0 modeOFDM: 8K bandwidth: 8 MHz guardInterval: 1/32 constellation: 64 QAM codeRate: 7/8formatIQ: Normal
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New INPUT parameters: frequency: 11739 rFLoc: 0
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New INPUT parameters: frequency: 12012
●	Jun 26 17:18:50	HTL-STC-03F30F	HEADEND	New Module parameters: attenuation: 0



5.4. Upgrade Report

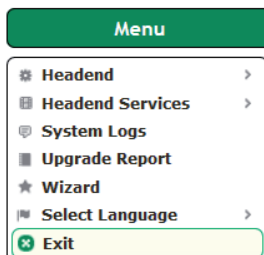
This screen is used to see if all the firmware upgrades have been completed successfully.

Upgrade Report						
Hostname	Name	Version	Status	Date	Msg	
HTL-STC-03F30F	HTL-STC-03F30F	6.0.0+svn10918	✓	06-20-2017	OK	
HTL-TRX-03F2EE	HTL-TRX-03F2EE	6.0.0+svn10918	✓	06-20-2017	OK	



5.5. Select Language

Used to select the application language.



5.6. Exit

Used to leave the interface, returning to the home screen.



The screenshot shows a login interface for a 'Head-end Controller'. At the top, there is a green header bar with the text 'Head-end Controller' in white. Below the header, the text 'Class A' is displayed in green. The login form consists of two input fields: 'Usuario' (User) with the value 'Admin' and 'Contraseña' (Password) which is empty. A green 'Aceptar' (Accept) button is located below the password field.

Equipment recycling



RECYCLING OF ELECTRICAL AND ELECTRONIC EQUIPMENT

(Applicable in the European Union and in European countries with selective waste collection systems)

This symbol on your equipment or its packaging indicates that this product cannot be treated as general domestic waste and must be handed in at the corresponding point of collection for electric and electronic equipment. By ensuring this product is disposed of correctly you will help prevent negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. Recycling of materials helps preserve natural resources. For more detailed information on the recycling of this product, please contact your local council, your nearest collection point or the distributor from whom you purchased the product.



Donostia Ibilbidea, 28
20115 Astigarraga
Gipuzkoa · España
Tel.: +34 943 44 88 95
television@ikusi.com
www.ikusi.tv