

# HTLST2

REF. 3858



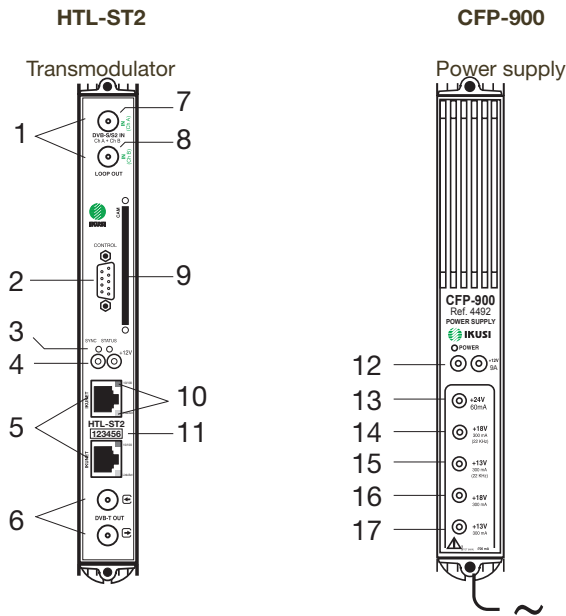


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# General description



- 1 - Input splitter loop
- 2 - DB-9 port
- 3 - Status and Sync control LEDs
- 4 - DC Power
- 5 - RJ-45 ports for IKUNET bus
- 6 - DVB-T output coupling loop
- 7 - Input 1, in twin-input mode
- 8 - Input 2, in twin-input mode
- 9 - Slot for CAM
- 10 - Link/Act and 10/100 and control LEDs
- 11 - Module identification number

- 12 - Output +12 V (9 A)
- 13 - Output +24 V (60 mA)
- 14 - Output +18 V/22 kHz (300 mA)
- 15 - Output +13 V/22 kHz (300 mA)
- 16 - Output +18 V/0 kHz (300 mA)
- 17 - Output +13 V/0 kHz (300 mA)

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

- **HTL-ST2** (Ref. 3858): DVB-S/S2 to DVB-T transmodulator.
- **CFP-900** (Ref. 4492): Power source +12 V/+24 V to select polarisation.

Mount base with capacity for 7 modules or 19" rack mount.

An **HTL-ST2 transmodulator module** places the selected services of two DVB-S/S2 channels of the FI-Sat 950-2150 MHz band in two COFDM channels of the 51-858 MHz band. The module input connection is software-configurable ("loop" or "dual input") and is equipped with DiSEqC function. Each transmodulator includes a Web server.

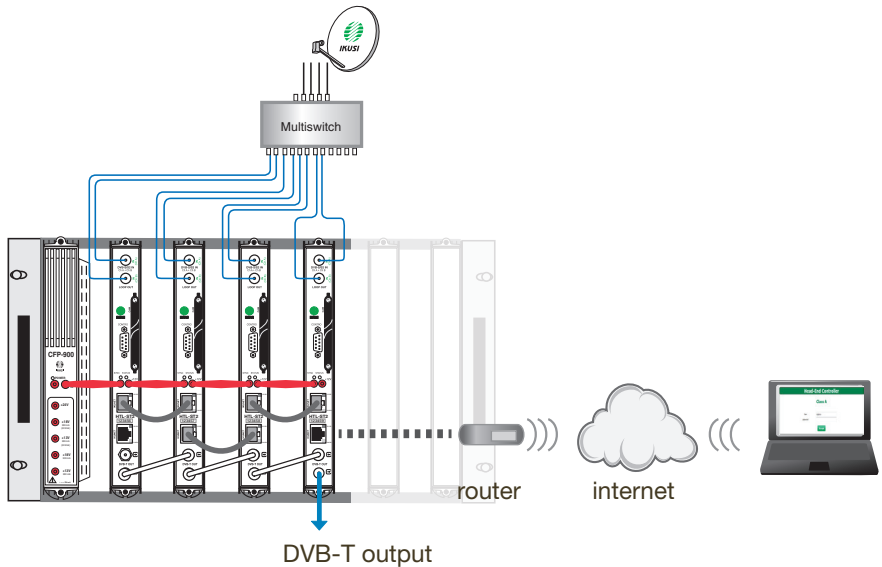
# Installation and basic configuration

A PC with an ethernet network card and a CAT-5E ethernet cable is required in order to communicate with the headend station.



NOTE: To display the graphics provided by the headend station configuration programme, we recommend installing the Mozilla Firefox web browser on the control PC ([www.mozilla.com](http://www.mozilla.com)).

Secure the modules on the base or rack one by one, following the instructions manuals for each module, and the input and output connections.



Remote configuration through web interface of a headend station comprising

4 HTL-ST2 modules, interconnected with an ethernet adapter (BUS IKUNET) + 1 CFP-900 power source.

## Main characteristics

- > Generates 1 programme in the TV set for each language associated to the channel.
- > Add services without retuning TV sets.
- > Configuration wizard, “drag and drop”.
- > Easier complete remote control.
- > Ikusi Headend Discovery application

Headend connection

- 1. Connect the different cables from the multiswitch to the module inputs.
- 2. Interconnect the modules through the supplied ethernet adapters.
- 3. Interconnect the output line bridges.
- 4. Connect the power line.
- 5. Download the (\*) IKUSI HEADEND DISCOVERY application from [www.ikusi.tv](http://www.ikusi.tv), connect the PC to a headend station module through its ethernet connection with an RJ-45 cable.



(\*) IKUSI  
HEADEND  
DISCOVERY

Definition of the master module

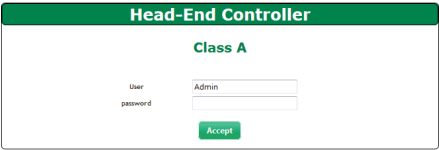
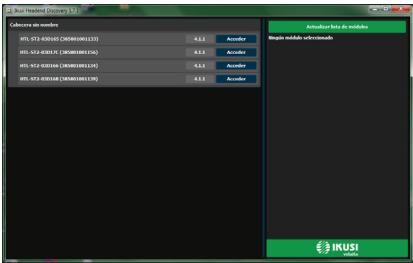
Communication with the headend takes place based on the definition of a module as a master and the others as slaves.

Control and access to the headend is through the master module, which allows us to configure the other modules. Open the IKUSI HEADEND DISCOVERY (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. Taking into account that each module is labelled with the last 6 numbers of the MAC, locate the one located in one end of the headend and click on the "Accept" button.

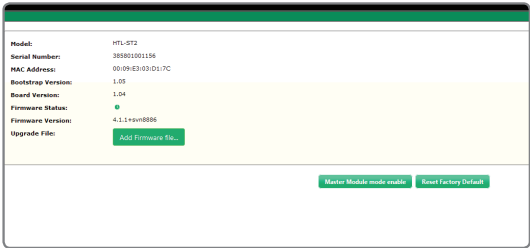
The application is redirected to the web interface, showing the access page with the word "Admin" in the User field. Enter the word "admin" in the Password field and click on the Accept button.



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](http://www.mozilla.com)) on the control PC.



The screen shows the module identification in the selected module interface; click on the button "Convert into Master Module".



Note: The wizard opens automatically the first time the headend is configured, having first interconnected all the headend modules and created a master module.

The setup wizard will guide you simply and quickly through set-up.

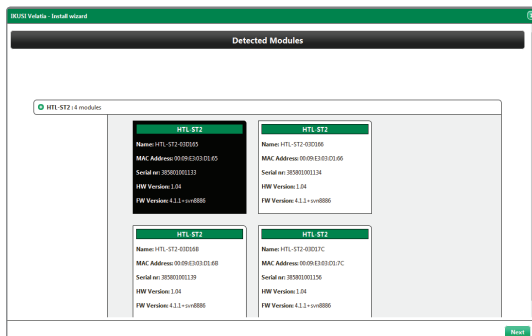
This wizard should be used once the PC has been connected to a module and the headend is fully interconnected by way of the IKUNET communication bus.

Click on the [x] in the top right of the screen to exit the wizard.

## Detected Modules

The setup wizard shows an initial screen with the name of the headend and the number of modules; hover over with the mouse to show each of the modules with their main characteristics (name, serial number, MAC and version). One of them, with a black background, indicates that it has been designated as a master module.

... click on next



## Global Configuration

The setup wizard shows several menu types:

**NETWORK SETTINGS** (this configuration is not necessary at this point):

Activate External Access and configure the IP address, netmask, main gateway and primary and secondary DNS servers. These details are not required when using DHCP (a protocol which allows a system connected to a network to obtain its configuration dynamically, i.e. without any intervention).

**TV SETTINGS:**

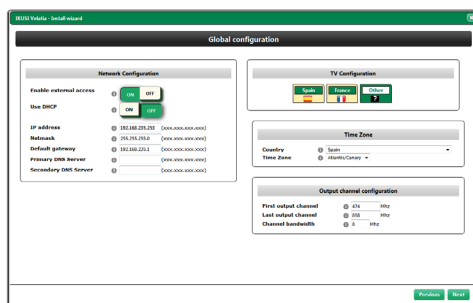
The setup wizard configures the output parameters by simply indicating the country and time zone required.

... click on next

**OUTPUT CHANNELS SETTINGS:**

When choosing Another country, make sure to check the range of output channels in which the module can be adjusted and the channel width in the pop-up window.

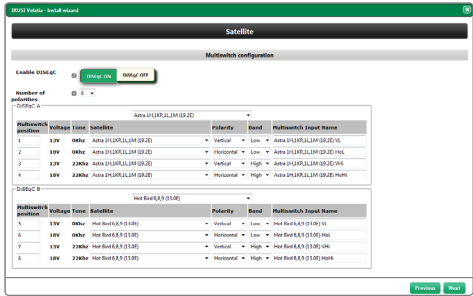
... click on next



Satellite

The wizard has a menu to configure DiSEqC and Satellites. By default it is configured to control a 4-input multiswitch, along with the Astra satellite and its four polarities, and it is also possible to add polarities and rename the multiswitch inputs with a personalised text.

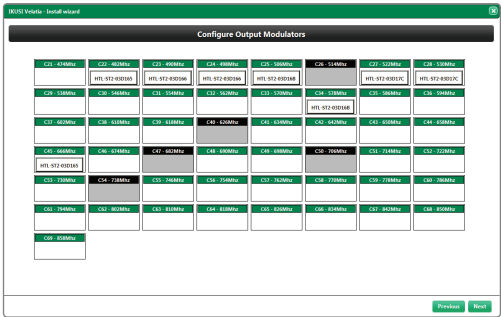
... click on next



Output channels settings

The setup wizard proposes a frequencies plan with all the available channels. The channels can be moved manually by clicking on them and dragging them to an empty/unoccupied channel, changing the organisation of the grid. To make it easier, the channels which are occupied by other services which do not form part of this headend can be checked by clicking on the boxes, which then change background colour.

... click on next



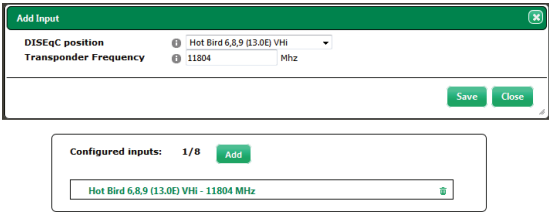
Input settings

The wizard has a menu to add the inputs. Pull down the DiSEqC position menu, select the satellite and key in the transponder frequency. Repeat this operation with the Add button for all the satellite inputs to be worked with.

Save: Click on the button to save the changes once all the inputs are configured.

... click on next

NOTE: A "recycle bin" icon to delete an entry.





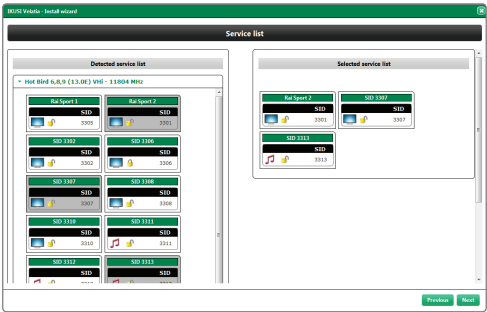
Service list

List of services found: Clicking on each input will display a drop-down list with all the services available in this frequency. Each service shows the SID (services identifier), the different icons show whether it is a TV or Radio service and whether it is encrypted (padlock) or free-to-air.

To select the required services, click on them to configure the "List of Selected Services". Click on the service again to deselect.

Repeat this operation for the different inputs.

... click on next



Selected audio services settings

Audio selection in selected services: Once all the services to be distributed have been selected, this screen can be used to configure the audio services in two modes:

NOTE: By clicking on the + symbol, all audio associated to the video service will be shown.

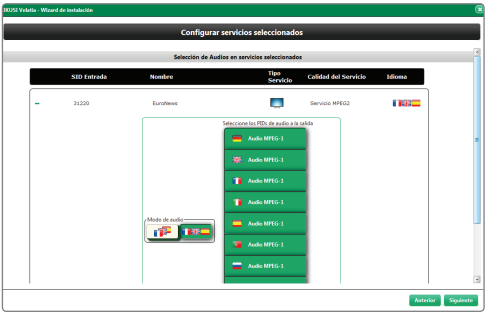
**1. One channel for all audios:** The TV set tunes a programme with all available audios, which the user can then choose using the language button on the TV remote control.

**2. One channel for each audio:** The TV set tunes a video and an audio in each programme and a programme for each audio the service contains. The user simply has to move through the programmes to find the required audio. This option is interesting in the hospitality sector (e.g. EURONEWS in English TV set programme 1; EURONEWS in French TV set programme 2, etc).

... click on next



NOTE: In the case number 2, click on the audio to deselect it.



Configure LCN, SID, Output Name

This screen presents all the services resulting from the configuration:  
The LCN assigned to each service, the SID, the name of the service, the audio present in each of them, the output signal format (SD/HD) where they can be edited.

... click on send

LCN	SID	Name	Language	Audio format
1	3001	Par Sport 2	Italian	MPEG-1 audio
2	2007	SD 2007	Italian	MPEG-1 audio
3	3002	SD 3002	Italian	MPEG-1 audio

Finish configuration

The headend station is now configured, and the wizard shows the final screen with the services each module contains.

It may be the case that more services than the output module is capable of processing have been selected, in which case an error message will indicate that the requested configuration is not possible. Click back to the "Services offer" screen and delete one of the services.

Before closing the wizard a *PDF* file can be printed with the configuration for registration purposes.

... click on print or close

To finish, the wizard asks us whether to continue and definitively leave the start menu.

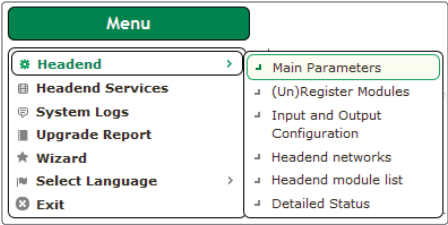


Note: A timer icon indicates that the interface is processing the information, stand by ...

Input				Output		
IP Frequency	Satellite	Polarity	Status	Output Frequency	Bandwidth	Status
490MHz	8MHz			522MHz	8MHz	
490MHz	8MHz			530MHz	8MHz	

# User interface description

The interface allows the user to communicate with the headend station. The schematic structure of the menus and submenus which make up the interface is as shown below:



## 1. HEADEND

### 1.1. Settings

#### 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 head-end unit.

Save: Click on the button to keep the changes.

Headend Main Parameters Configuration

Identification Password Internet Access Coun

Identifier:

Location: Show map

example: Paseo Miramon 170, 20014 San Sebastian, Spain

Installation Date:

mm-dd-yyyy

Save

#### 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.

Headend Main Parameters Configuration

Identification Password Internet Access Coun

User: admin

Old password:

New password:

Confirm new password:

Save

#### 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.

Headend Main Parameters Configuration

Identification Password Internet Access Country LNB and R

Configure Internet Access: ☒

MAC Address: 00:09:E3:03:D1:65

Use DHCP to get IP: ☐

IP address: 192.168.255.253 (000.000.000.000)

Netmask: 255.255.255.0 (000.000.000.000)

Default gateway: 192.168.255.1 (000.000.000.000)

Primary DNS Server: (000.000.000.000)

Secondary DNS Server: (000.000.000.000)

Save

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' tab of the 'Headend Main Parameters Configuration' window. It contains three fields: 'Current Date and Time' with the value '12:20 01-23-2015 (HH:MM mm-dd-yyyy)', 'Country' with a text input containing 'Spain', and 'Time Zone' with a dropdown menu showing 'Atlantic/Canary'. A green 'Save' button is at the bottom left.

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.

## LNB and Multiswitch

The screenshot shows the 'LNB and Multiswitch' tab of the 'Headend Main Parameters Configuration' window. It includes fields for 'LNB:' (Local Oscillator Low Frequency (MHz): 9750, Local Oscillator High Frequency (MHz): 10600) and 'Multiswitch:' (Input number: 8). Below these is a table for multiswitch inputs.

Position	Voltage	Tone	Satellite	Polarity	Band	Multiswitch
1	13V	0KHz	Astra 1H1KRJL1M (19.2E)	Vertical	Low	Astra 1H1KJ
2	18V	0KHz	Astra 1H1KRJL1M (19.2E)	Horizontal	Low	Astra 1H1KJ
3	13V	22KHz	Astra 1H1KRJL1M (19.2E)	Vertical	High	Astra 1H1KJ
4	18V	22KHz	Astra 1H1KRJL1M (19.2E)	Horizontal	High	Astra 1H1KJ

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.

Headend Firmware

Headend Main Parameters Configuration

IdentificationPasswordInternet AccessCountryLNB and MultiswitchHeadend FirmwareConfiguration Backup

Name	Model	Version
HTL-ST2-03D165	HTL-ST2	4.1.1+svn8886
HTL-ST2-03D168	HTL-ST2	4.1.1+svn8886
HTL-ST2-03D166	HTL-ST2	4.1.1+svn8886

Add Firmware file...

It presents the list of the headend modules with name, type of module and installed firmware version.

"Add firmware file..."

Settings Backup

Headend Main Parameters Configuration

IdentificationPasswordInternet AccessCountryLNB and MultiswitchHeadend FirmwareConfiguration Backup

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 Settings

Headend Main Parameters Configuration

IdentificationPasswordInternet AccessCountryLNB and MultiswitchHeadend FirmwareConfiguration BackupDefault Configuration

<input checked="" type="checkbox"/>	Name	Model	Type
<input checked="" type="checkbox"/>	HTL-ST2-03D165	HTL-ST2	Master
<input checked="" type="checkbox"/>	HTL-ST2-03D168	HTL-ST2	Slave
<input checked="" type="checkbox"/>	HTL-ST2-03D166	HTL-ST2	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.

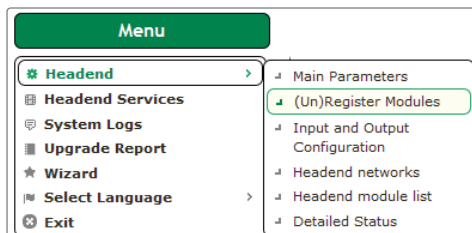
The window shows the following information for each module:

NAME: Shows the module identification designation.

MODEL: Shows the model designation.

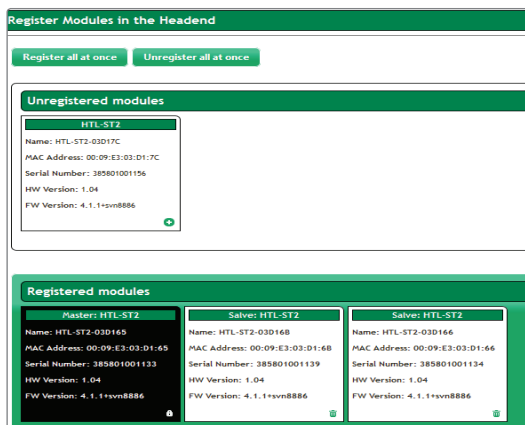
TYPE: Master or slave.

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.





## 1. HEADEND

### 1.2. Modules register.



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.

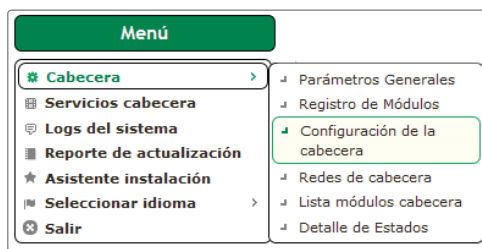
The master module is the only one which, given its condition, is "locked" and cannot be de-registered; it is clearly differentiated by its black background.

The other modules can be registered or de-registered 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.



## 1. HEADEND

### 1.3. Headend settings

Inputs

Input and Output configuration

Input

CA Embedded

Output

Name		Model				
HTL-ST2-03D165		HTL-ST2				
Input	Frequency	Synchronized	BER/PER	C/N	Signal Quality	Receiver
Input 1	1204 MHz	✓	0.00E+0	11.7 dB		
Input	Frequency	Synchronized	BER/PER	C/N	Signal Quality	Receiver
Input 2	1511 MHz	✓	0.00E+0	11.7 dB		
Name		Model				

A drop-down icon can be used to modify the parameters of Inputs 1 and 2 of each module. Click on the drop-down list to access the following options:

Input Parameters1

Multiswitch

Astra 1H1MR1L1IM (B9.2B) VB

IF Band (BIS): Low Low

Status: Disabled Disabled

Transponder Frequency: 11900 MHz 11900

Intermediate Frequency (BIS): 2150 MHz 2150

Save

Input Parameters2

RF Input:

2 Inputs

2 Inputs

Multiswitch

IF Band (BIS): Low 1 Input + Loop through

Status: Disabled Disabled

Transponder Frequency: 11900 MHz 11900

Intermediate Frequency (BIS): 2150 MHz 2150

Save

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

IF BAND: Low or High.

STATUS: Used to enable or disable each of the two module inputs.

TRANSPONDER FREQUENCY: Used to select the transponder frequency value to be received.

IF INTERMEDIATE FREQUENCY (MHz): Used to select the intermediate frequency value to be received.

INPUT REGIME: Used to modify the input speed value.

Save: Click on the button to keep the changes.



NOTE: Whenever the same polarity is used for the 2 inputs, access Input Parameters 2 and choose "1 input + loop" in the drop-down list.

## CAM

Input and Output configuration			
Input	CA Embedded	Output	
Name	Model	MAX Allowed PIDs	CAM Status
HTL-ST2-03D165	HTL-ST2	0 / 0	⚠ Check CAM
MMI Access			
Name	Model	MAX Allowed PIDs	CAM Status
HTL-ST2-03D16B	HTL-ST2	0 / 0	⚠ Check CAM
Name	Model	MAX Allowed PIDs	CAM Status
HTL-ST2-03D166	HTL-ST2	0 / 0	⚠ Check CAM

This window provides information on the CAM

## Outputs

Input and Output configuration							
Input	CA Embedded	Output					
Name	Model	Attenuation					
HTL-ST2-03D165	HTL-ST2						
Output	Frequency	BitrateMax	Free Space	OFDM Mode	Min. C/N (Theoretical)	Modulator	
Output 1	474 MHz	31.67 (Mbps)	69 %	8K	20.1 (db)		ⓘ
Output	Frequency	BitrateMax	Free Space	OFDM Mode	Min. C/N (Theoretical)	Modulator	
Output 2	482 MHz	31.67 (Mbps)	86 %	8K	20.1 (db)		ⓘ
Name	Model	Attenuation					
HTL-ST2-03D16B	HTL-ST2						

An ATTENUATION bar on the right of the screen can be used to equalise the headend module outputs.

Manually configure the entire headend attenuation values when all the modules are interconnected, through the frequency spectrum screen of a field gauge. These values will remain in red colour until saved, with the process taking a few seconds.

It can also be used to modify the operation parameters of the 2 module outputs assigned in the headend.

All modules can be equalised at the same time from the same screen. The numbers in red indicate that the change was not completed.

**Output Parameters1**

Status:	Enabled	Enabled
Frequency:	474 MHz	474
OFDM Mode:	8K	8K
Bandwidth:	8 MHz	8 MHz
Guard Interval:	1/32	1/32
Constellation:	64 QAM	64 QAM
Code Rate:	7/8	7/8

STATUS: Used to enable or disable each of the two module outputs.

FREQUENCY (MHz): Used to modify the output frequency value.

COFDM MODE: Click on the drop-down list to select the number of output channel sub-carriers, 2k or 8k.

BANDWIDTH (MHz): Click on the drop-down list to select the bandwidth output signal bandwidth value.

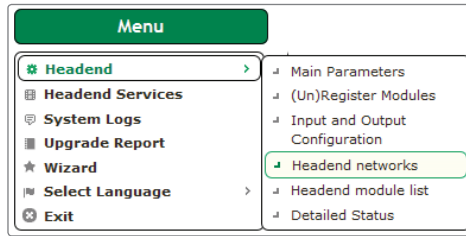
GUARD TIME: Click on the drop-down list to select the FEC encoding convolutional code (error detection).

CONSTELLATION: Click on the drop-down list to select the digital constellation system.

CODE RATE: Click on the drop-down list to select the FEC encoding convolutional code (error detection).

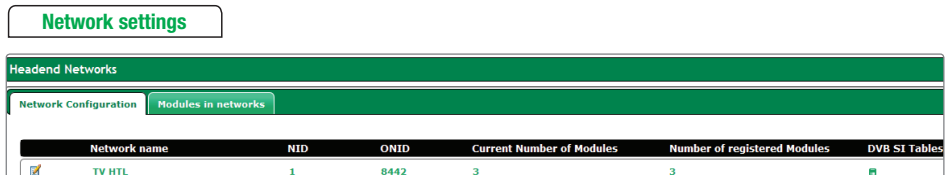
Save: Click on the button to keep the changes.





## 1. HEADEND

### 1.4. Headend networks.



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

Network configuration		
Name:	TV HTL	<input type="text" value="TV HTL"/>
NID:	1	<input type="text" value="1"/>
ONID:	8442	<input type="text" value="8442"/>
Cell ID:	50000	<input type="text" value="50000"/>
Auto Service List:	Disabled	<input type="text" value="Disabled"/>
NIT LCN Mode:	Europe Mode	<input type="text" value="Europe Mode"/>
NIT Pattern:	No NIT Pattern	<input type="text" value="No NIT Pattern"/>

NETWORK NAME: Shows the proposed network name.

NID: Shows the network identifier.

ONID: Shows the originating network identifier.

Cell ID: Click to modify the number of cells to be assigned to the COFDM channel output.

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.

LCN MODE NIT: Click on the drop-down list to select the LCN transmission standard in the NIT: EUROPEAN STANDARD (by default), NORDIG STANDARD V2 3, GENERIC MODE (e.g., for Australia). Disable to not enter LCN.

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

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

NIT INTEGRATION: 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 NITs as DVB-S/S2 input signals standard.





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

Save: Click on the button to keep the changes.

Headend Networks

Network Configuration

Modules in networks

Name		Model	
	HTL-ST2-03D165	HTL-ST2	
	Output	Frequency	ONID
	Output 1	474 MHz	8442 (0x20FA)
	Output 2	482 MHz	8442 (0x20FA)
	HTL-ST2-03D168	HTL-ST2	
	HTL-ST2-03D166	HTL-ST2	

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

Output Configuration 1

ONID:

8442

8442

TSID:

23

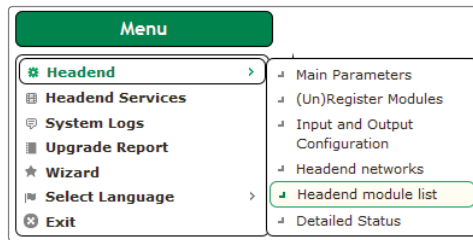
23

Save

ONID: Network operator identifier which disseminates the input signal (by default 8442).

TSID: Numeric identifier assigned to a transponder/multiplex.

Save: Click on the button to keep the changes.



## 1. HEADEND

### 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		
HTL-ST2-03D165			3			00:09:E3:03:D1:65			●			ON		

Input N		Frequency		Receiver		Signal Quality		Status	
Input 1		1204 MHz		✓		✓		✓	
Input 2		1511 MHz		✓		✓		✓	
Output N		Frequency		Current Bitrate		Modulator		Overflow Status	
Output 1		474 MHz		31.668 (Mbps)		✓		✓	
Output 2		482 MHz		31.668 (Mbps)		✓		✓	

HW		TEMP		SYSTEM		CAM		DECRYPTED		NIT		IKUNET	
✓		✓		✓		▲		✓		✓		✓	

Name			Model			MAC			Alarm / Status			IKUNET Identification		
------	--	--	-------	--	--	-----	--	--	----------------	--	--	-----------------------	--	--

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).

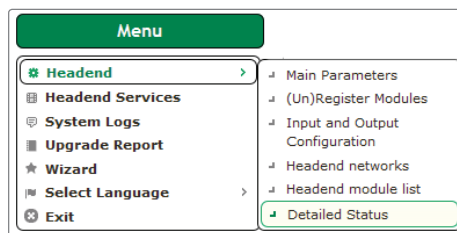
RESTART MODULE: Used to restart the module.

Three icons    identify the different windows which can be accessed:

 The drop-down list shows basic module information.

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

 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.



## 1. HEADEND

### 1.6. Status details

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

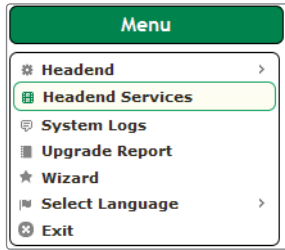
HTL-ST2-03D165 HTL-ST2-03D168 HTL-ST2-03D166

Module Status Details

Generate detailed module diagnostics: [Module Diagnostic](#)

Input 1		Input 2	
Configuration :	1204 Mhz	Configuration :	1511 Mhz
Status :	✓	Status :	✓
BER (post-viterbi) :	0.00E+0	BER (post-viterbi) :	0.00E+0
C/N :	11.7 dB	C/N :	11.7 dB
Modulation :	DVB-S	Modulation :	DVB-S
Signal Quality :		Signal Quality :	

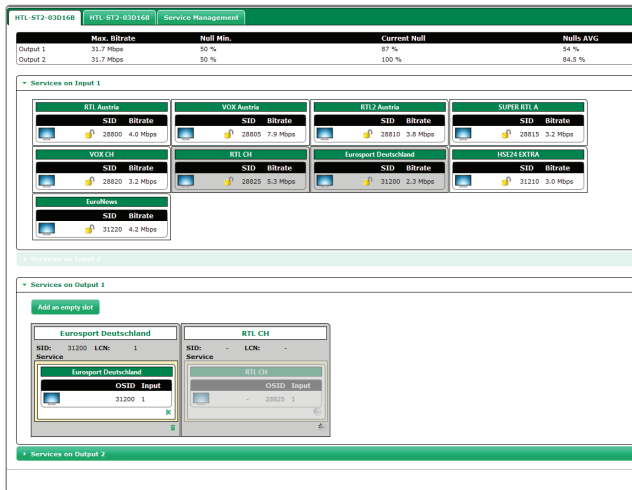
Output 1		Output 2	
Configuration :	474 Mhz	Configuration :	482 Mhz
Output Status :	✓	Output Status :	✓
BitRate Max. :	31.67 Mbps	BitRate Max. :	31.67 Mbps
Number of Services :	2	Number of Services :	1
Minimum Null Packages :	52 %	Minimum Null Packages :	84 %
Current Null Packages :	53 %	Current Null Packages :	86 %
Overload :	✓	Overload :	✓



## 2. HEADEND SERVICES

### 2.1. Headend transport process

This function is used to manage all services available in the different headend inputs, distributing them towards the outputs, by simply dragging each service from the input window to the output window.



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

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

The following parameters are used to control the output flow and the free space in the band:

MAXIMUM BITRATE: For the output configuration.

% FREE (MIN) : This is used to check the minimum free space available taken by the module since a specific interval.

% FREE (CURRENT): Used to check the current free space.

% FREE (MEAN): Used to check the percentage of space in a specific interval.



Note: Leaving at least 15% free bandwidth is recommended.

Within each module, the available services of each of the two inputs can be used in either of the two output channels.

## 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 services grid is complete, the LCN, PID and SID parameters can be edited using the SERVICES MANAGEMENT tab.

Save: Click on the button to keep the changes.

Transport Processing of the Headend

TV HTL

LCN Offset	Block PIDs	Decrypt PIDs
1	Data	Automatic

HTL-ST2-03D165
HTL-ST2-03D16B
HTL-ST2-03D166
Service Management

LCN	Service name	SID	Decrypt	Edit PIDs	Module	Input	Output
26	<input type="checkbox"/> Rai Sport 1	3305	<input type="checkbox"/>		HTL-ST2-03D165	Input1	Output1
27	<input checked="" type="checkbox"/> Al Jazeera	708	<input type="checkbox"/>		HTL-ST2-03D165	Input2	Output1
28	<input type="checkbox"/> Al Jazeera	3306	<input type="checkbox"/>		HTL-ST2-03D165	Input2	Output2
50	<input type="checkbox"/> TELESUR	13737	<input type="checkbox"/>		HTL-ST2-03D16B	Input2	Output1
53	<input type="checkbox"/> SCT PROMO id	13772	<input type="checkbox"/>		HTL-ST2-03D16B	Input2	Output2

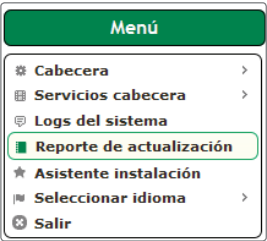
Store Configuration



### 3. SYSTEM LOGS

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

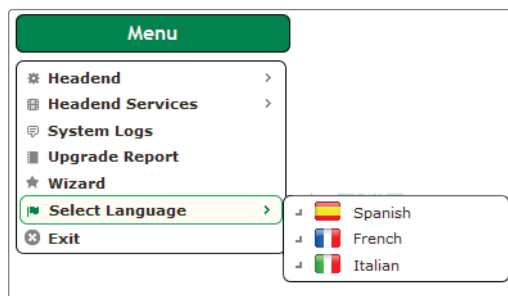
Logs del sistema					
<div>TODO HEADEND UI SYSTEM INPUT OUTPUT CAM</div> <div>Todo Error Alerta Aviso</div> <div>Todos los módulos</div>					
Nivel de Log	Fecha	Hostname	Subsistema	Msj	
●	Jan 14 10:09:29	HTL-ST2-03D165	HEADEND	Generated new NIT with NID 1 and version 4	
●	Jan 14 10:09:28	HTL-ST2-03D165	HEADEND	Generated network SDT with version 4	
●	Jan 14 10:07:41	HTL-ST2-03D165	HEADEND	Register module HTL-ST2-03D17C to headend	
●	Jan 14 10:07:36	HTL-ST2-03D165	HEADEND	Register module HTL-ST2-03D166 to headend	
●	Jan 14 10:07:33	HTL-ST2-03D165	HEADEND	Register module HTL-ST2-03D168 to headend	
●	Jan 14 10:07:31	HTL-ST2-03D165	INPUT	Bad Signal Quality!!!	



### 4. UPDATE REPORT

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

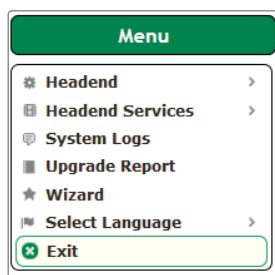
Reporte de actualización					
Hostname	Nombre	Versión	Estado	Fecha	Msj
HTL-ST2-03D165	HTL-ST2-03D165	4.1.1+svn8886	✓	16-12-2014	OK
HTL-ST2-03D168	HTL-ST2-03D168	4.1.1+svn8886	✓	16-12-2014	OK
HTL-ST2-03D166	HTL-ST2-03D166	4.1.1+svn8886	✓	16-12-2014	OK
HTL-ST2-03D17C	HTL-ST2-03D17C	4.1.1+svn8886	✓	16-12-2014	OK



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## 5. LANGUAGE SELECTION

Used to select the application language.



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## 6. LEAVE

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

A screenshot of a login screen titled 'Head-End Controller' in a green header bar. Below the header, the text 'Class A' is displayed. There are two input fields: one labeled 'User' containing the text 'Admin', and another labeled 'password' which is empty. Below these fields is a green button labeled 'Accept'.







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