



User Manual

OMNI LINK TX 7 GHz

External Document

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Chapter 1

Safety Instructions

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1 Safety Instructions

1.1 Safety suggestion

Regardless of how well electrical equipment is designed, personnel can be exposed to **dangerous electrical shock** when protective covers are removed for maintenance or other activities.

Therefore, it is incumbent in the user to see that all safety regulations are consistently observed and that each individual assigned to the equipment has a clear understanding of the first aid related to electrical shocks (see next pages).

In addition these safety practices must be followed:

- Do not attempt to adjust unprotected circuit controls or to dress leads with power on.
- Always avoid placing parts of the body in series between ground and circuit points.
- To avoid burns, do not touch heavily loaded or overheated components without precautions.
- Remember that some semiconductor cases and solid-state circuits carry high voltages.
- Do not assume that all danger of electrical shock is removed when the power is off.

Charged capacitors can retain dangerous voltages for a long time after power is turned off.

These capacitors should be discharged through a suitable resistor before any circuit points are touched.

- Don't take chances. Be fully trained.

Screen Service Italia equipment should be operated and maintained by fully qualified personnel.

- Do not service alone and do not perform internal adjustments of this unit unless another person capable of rendering first aid and resuscitation is present.
- Some components used in the construction of this equipment contain Beryllium Oxide (BeO).

This substance is harmless as it is, but becomes highly dangerous if it is ground to powder.

Special procedures of disposal must be observed in case of failure of these devices.

NOTE: This section is not intended to contain a complete statement of all safety precautions which should be observed by personnel in using this electronic equipment or others.

Screen Service shall not be responsible for injury or damage resulted from improper procedures or from using it by improperly trained or inexperienced personnel.

1.2 General safety recommendations

When connecting the equipment to the power , please follow these important recommendations:

- This product is intended to operate from a power source that will not apply more than 10% of the voltage specified on the rear panel between the supply conductors or between either supply conductor and ground.

A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

- This equipment is grounded through the grounding conductor of the power cord.

To avoid electrical shock, plug the power cord into a properly wired socket before connecting to the product input or output terminals.

- Upon loss of the protective-ground connection, all accessible conductive parts (including parts that may appear to be insulating) can render an electric shock.

- To avoid fire hazard, use only the fuse of correct type, voltage rating, and current rating.

Refer fuse replacement to qualified service personnel.

- To avoid explosion, do not operate this equipment in an explosive atmosphere.

- To avoid personal injury, do not remove the product covers or panels.

Do not operate the product without the covers and panels properly installed.

1.3 Good practices

In maintaining the equipment covered in this manual, please keep in mind the following, standard good practices:

- At regular intervals, the condition of the equipment and the correct functioning of protective and safety devices shall be checked by a skilled person approved by the appropriate authority for this duty.

Functional checks shall be carried out on interlocking systems of doors, mechanical interlocks, isolating switches, earthing switches, parallel resistances and protective devices against over-voltages and over-currents.

The above checks shall not be carried out after the protective and safety devices have operated under fault conditions.

The safety devices shall not be altered or disconnected except for replacement, nor shall the safety circuit be modified without specific approval of the appropriate authority in each case.

- When connecting any instrument (wattmeter, spectrum analyzer, etc.) to a high frequency output, use the appropriate attenuator or dummy load to protect the final amplifiers and the instrument input.
- When inserting or removing printed circuit boards (PCBs), cable connectors, or fuses, always turn off power to the affected portion of the equipment.

After power is removed, allow sufficient time for the power supplies to bleed down before reinserting PCBs.

- When troubleshooting, remember that FETs and other metal-oxide semiconductor (MOS) devices may appear defective because of leakage between traces or component leads on the printed circuit board.

Clean the printed circuit board and recheck the MOS device before assuming it is defective.

- When replacing MOS devices, follow standard practices to avoid damage caused by static charges and soldering.
- When removing components from PCBs (particularly ICs), use care to avoid damaging PCB traces.

1.4 Procedure for establish the absence of voltage

Follow these simple steps for establish the absence of voltage:

- Before starting work on the equipment, it shall be isolated from the mains supply.

This disconnection shall always be checked by visual inspection.

Further precautions shall be taken to ensure that the mains supply cannot be restored whilst work is being carried out.

After the mains supply has been disconnected, all other lines such as control, interlocking and modulation lines shall be disconnected if they carry dangerous voltages.

Moreover, the antenna or the antenna transmission line shall be disconnected from the antenna terminal device to prevent the introduction of dangerous voltages due to antenna pick-up.

When disconnection of the antenna or antenna transmission line is not possible, other suitable precautions shall be taken, for example, earthing, when necessary at several places, to esablish absence of voltage.

These earthing connections shall be very short compared with the wave-lenght.

- Capacitors which are connected to a circuir isolated from its supply shall be discharged and have their terminals permanently short-circuited and the casing earthed during the whole period of the work.
- The electrical charge retained by electrical machinery when stopped may, in certain cases, be sufficient to cause a severe shock.

This shall be taken into account when making connections to an apparently "dead" machine.

Therefore all machinery shall be discharged and earthed using an adequately insulated lead for this purpose.

The discharge operation shall be repeated several times.

- Before any maintenance work is carried out on automatic or remote controlled equipment, the remote swithching circuits shall be made inoperative.

1.4.1 Procedure for determination of the absence of voltage

After the equipment has been isolated according to the standard EN60215, the absence of voltage shall be determined at the work place.

This may be done by the use of voltage indicators, measuring instruments, glow discharge lamps for indicating radio-frequency voltage or other suitable means.

1.5 First aid in case of electrical shock

If someone seems unable to free himself while receiving an electric shock, **turn power off** before rendering aid.

A muscular spasm or unconsciousness can make a victim unable to free himself from the electrical power.

**DO NOT TOUCH VICTIM OR HIS CLOTHING BEFORE
POWER IS DISCONNECTED OR YOU CAN ALSO BECOME
A SHOCK VICTIM**

If power cannot be turned off immediately, **very carefully** loop a length of dry non-conducting material (such as a rope, insulating material, or clothing) around the victim and pull him free of the power.

Carefully avoid touching him or his clothing until free of power.

1.5.1 Emergency resuscitation technique



Step 1

Check the victim for unresponsiveness. If there is no response, immediately call for medical assistance, and then return to the person.



Step 2

Position the person flat on their back. Kneel by their side and place one hand on the forehead and the other under the chin. Tilt the head back and lift the chin until teeth almost touch. Look and listen for breathing.



Step 3

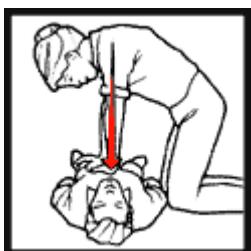
If not breathing normally, pinch the nose and cover the mouth with yours. Give two full breaths. The person's chest will rise if you are giving enough air.

**Step 4**

Put the fingertips of your hand on the Adam's apple, slide them into the groove next to the windpipe. Feel for a pulse. If you can not feel a pulse or are unsure, move on to the next step.

**Step 5**

Position your hands in the center of the chest between the nipples. Place one hand on top of the other.

**Step 6**

Push down firmly two inches. Push on chest 15 times.

CONTINUE WITH TWO BREATHS AND 15 PUMPS UNTIL HELP ARRIVES.

1.5.2 Treatment for burns

- Continue treat victim for electrical shock.
- Check for points of entry and exit of current.
- Cover burned surface with a clean dressing.
- Remove all clothing from the injured area, but cut around any clothing that adheres to the skin and leave it in place.
Keep the patient covered, except the injured part, since there is a tendency to chill.
- Splint all fractures.
(Violent muscle contractions caused by the electricity may result in fractures.)
- Never permit burned surfaces to be in contact with each other, such as: areas between the fingers or toes, the ears and the side of the head, the undersurface of the arm and the chest wall, the folds of the groin, and similar places.
- Transport to a medical facility

1.5.3 Electric safety precautions

All the parts making up the equipment have got danger identification tags (with a yellow background) to highlight the parts dangerous for the operator that has access to the system.



Presence of hazardous energy levels

A hazardous energy level is defined as a stored energy level of 20 J or more, or an available continuous power level of 240 VA or more, at a potential of 2 V or more.

1.5.4 Electrostatic precautions

Before removing or replacing any PCB assembly within the equipment, make sure that all precautions comply with ESD protections (ESD = Electro Static Discharge).

Make sure that electrostatic discharge protections are reset after maintenance and/or measurement operations.



This ATTENTION tag is used for the majority of electronic devices that are sensitive to electrostatic discharges.

If electronic parts have to be touched during installation or repair, please observe the following precautions.

Operators must be equipped with anti-static protection devices such as:



Elastic wrist band. To be fixed on the operator's wrist.



Flexible cord. To be connected to the elastic wrist band and the special plug on the shelf highlighted with the ESD warning label.

1.6 R&TTE directive 1999/5/EC

Table 1-1 Declaration of Conformity with regards to the R&TTE Directive 1999/5/EC

English:	This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC
Deutsch:	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Dansk:	Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EF.
Español:	Este equipo cumple con los requisitos esenciales así como con otras disposiciones de la Directiva 1999/5/EC.
'Ελληνας	Αυτός ο εξοπλισμός συμμορφώνεται με τις ουσιώδεις απαιτήσεις και τις λοιπές διατάξεις της Οδηγίας 1999/5/EK
Français:	Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.
Íslenska:	Þessi búnaður samrýmist lögboðnum kröfum og öðrum ákvæðum tilskipunar 1999/5/ESB.
Italiano:	Questo apparato è conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/EC.
Nederlands:	Deze apparatuur voldoet aan de belangrijkste eisen en andere voorzieningen van richtlijn 1999/5/EC.
Norsk:	Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EC.
Português:	Este equipamento satisfaz os requisitos essenciais e outras provisões da Directiva 1999/5/EC.
Suomalainen:	Tämä laite täyttää direktiivin 1999/5/EY oleelliset vaatimukset ja on siinä asetettujen muidenkin ehtojen mukainen.
Svenska:	Denna utrustning är i överensstämelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

The Declaration of Conformity related to this product can be found at the following URL:
www.screen.it/rtte

The following CE mark is affixed to the equipment:



The identification number of the Notified Body who certified the product might change.

This equipment is intended to be used in all EU and EFTA countries.

The use of this equipment may be restricted to certain frequencies and requires a license for operation. For more details, contact your customer service representative.

1.7 Waste electrical and electronic equipment (WEEE)



The purpose of the DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE) is, as first priority, the prevention of waste electrical and electronic equipment and, in addition, the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste.

To do this, remember to collect separately all the electronic material.

Chapter 2 *Technical Data*

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2 Technical Data

2.1 Product Overview

The OMNI-LINK bridge is a mono directional microwave link based on DVB-T2 transmission technology.

The OMNILINK TX , based on the ARK-6 software defined DVB-T2 transmitter, takes care of the transmission side of the link taking advantage of the throughput and the robustness of the DVB-T2 standard, designed for digital terrestrial television transmission.

Key features of the ARK-6 device are:

- Software defined DVB-T2 modulator;
- Adaptive Linear Compensation;
- Adaptive Non-Linear Compensation;
- Remote management via Java based GUI.

the equipment model OMNI LINK 7 GHz It comprises the IDU model V03001028 - OMNI IDU TX and ODU model V03001029 – OMNI_ODU_STL_7GHZ_TX.

2.2 General Technical Data

Table 1 General technical data

Parameter / Control	Admitted Ranges / Values
Power supply	<ul style="list-style-type: none"> - IEC: 1 - Voltage: 80-264 VAC - Frequency: 50-60 Hz
Inputs	4 ASI, 2 TSOP channels and 1 RF
Outputs	1 RF, 1 RF Monitor, 2 ASI and 2 TSOP channels for input bypass
Frequency references synchronization	External or GPS
System clock synchronization	Internal, GPS or NTP client.
Internal frequency reference	Oven Controlled OCXO oscillator (10MHz and 1 PPS)
Output clock	1 PPS and 10 MHz
Test modes	CW, Force Null Packets and PRBS
Management	<ul style="list-style-type: none"> - Embedded SNMP v1,v2 server - Embedded Web server
GbE Ports	<ul style="list-style-type: none"> - GbE 1: 10/100/1000 Base T Management port - GbE 2: 10/100/1000 Base T Data port
Redundancy	Input autoswitch algorithm supported. On some modes hitless or seamless switching feature is also available
Security	Authentication for GUI access optional
Configuration	<ul style="list-style-type: none"> - Automatic loading of preset configuration supported - Automatic retrieving of configuration data from the RF input supported

Range of Frequency: 6650 - 7410Mhz

Modulation Scheme:

- | | | |
|-------------------|-------------------|--------------------|
| - QPSK (0,4365W); | - 16QAM (0,4365W) | - 32QAM (0,4365W) |
| - 64QAM(0,4266W) | - 128QAM(0,4266W) | - 256QAM (0,4266W) |

Parameter / Control	Admitted Ranges / Values
	<ul style="list-style-type: none"> - ASI <ul style="list-style-type: none"> o Number of inputs: 4 o Connector: BNC o Zin: 75 Ohm o Input voltage: 800mVpp (500 to 1200)
	<ul style="list-style-type: none"> - TSoIP <ul style="list-style-type: none"> o Number of channels: 2 o Connector: RJ45 o Speed: 10/100/1000
	<ul style="list-style-type: none"> - GPS <ul style="list-style-type: none"> o Number of inputs: 1 o Connector: TNC o Zin: 50 Ohm o Sensitivity: -185 dBW
Input interfaces	<ul style="list-style-type: none"> - 10 MHz <ul style="list-style-type: none"> o Number of inputs: 1 o Connector: BNC o Zin: 50 Ohm o Input voltage: 2 Vpp
	<ul style="list-style-type: none"> - 1PPS <ul style="list-style-type: none"> o Number of inputs: 1 o Connector: BNC o Zin: 50 Ohm o Input voltage: TTL (min 1,7 V) o Pulse width: 100 us
	<ul style="list-style-type: none"> - Adaptive Precorrection <ul style="list-style-type: none"> o Number of inputs: 1 o Connector: SMA o Zin: 50 Ohm o Input level: -19 to +1 dBm

Parameter / Control	Admitted Ranges / Values
Output interfaces	<ul style="list-style-type: none"> - ASI Out Monitor <ul style="list-style-type: none"> o Number of outputs: 2 o Connector: BNC o Zout: 75 Ohm
	<ul style="list-style-type: none"> - TSIP <ul style="list-style-type: none"> o Number of channels: 2 o Connector: RJ45 o Speed: 10/100/1000
	<ul style="list-style-type: none"> - RF <ul style="list-style-type: none"> o Number of outputs: 1 o Connector: N Female o Zout: 50 Ohm
	<ul style="list-style-type: none"> - RF Mon <ul style="list-style-type: none"> o Number of outputs: 1 o Connector: SMA o Zout: 50 Ohm
	<ul style="list-style-type: none"> - 10 MHz <ul style="list-style-type: none"> o Number of outputs: 1 o Connector: SMB o Zout: 50 Ohm o Output: 2 Vpp
	<ul style="list-style-type: none"> - 1PPS <ul style="list-style-type: none"> o Number of outputs: 1 o Connector: SMB o Zout: 50 Ohm o Output voltage: TTL (min 2,4 V) o Pulse width: 100 us

Parameter / Control	Admitted Ranges / Values
	<ul style="list-style-type: none"> - GbE 1 <ul style="list-style-type: none"> ○ Number of interfaces: 1 ○ Connector: RJ45 ○ Speed 10/100/1000
	<ul style="list-style-type: none"> - RS485 <ul style="list-style-type: none"> ○ Number of interfaces: 1 ○ Connector: DB9 ○ Type: CAM BUS
	<ul style="list-style-type: none"> - OPTO <ul style="list-style-type: none"> ○ Number of outputs: 4 ○ Connector: SUB-D 15p Female ○ Max current: -5 mA
Control Interfaces	<ul style="list-style-type: none"> - Relays <ul style="list-style-type: none"> ○ Number of outputs: 4 ○ Connector: SUB-D 25p Female ○ Max voltage: 125 VAC / 60VDC @ 0,3 A – 30 VDC @ 1A
	<ul style="list-style-type: none"> - RS232 <ul style="list-style-type: none"> ○ Number of interfaces: 1 ○ Connector: DB9 ○ Speed: Up to 230400 bps ○ Data: 8-bit data ○ Parity: No parity bits ○ Flow control: None ○ Stop: 1 stop bit

Note: described features may be enabled only on some of the modes available. Refer to the mode description for deeper description of the inputs used.

2.2.1 RS232 pinout

Usually personal computers use a standard RS 232 DE-9 connector.

Figure 1 DE-9 Male connector

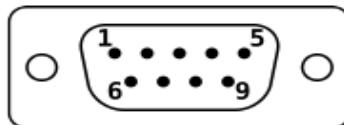


Table 2 RS232 DE-9 pinout

DE-9 Pin	Name	Direction	Description
2	RXD	←	Receive Data
3	TXD	→	Transmit Data
5	GND	-	System Ground

2.2.2 TLC pinout

ARK6 has a SUB-D 15p Female connector for OPTOs with customized pin assignments.

Figure 2 TLC connector

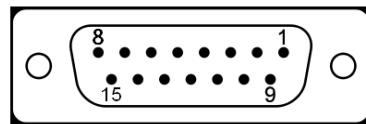


Table 3 TLC pinout

Pin	Signal	Pin	Signal
1	IN_OPTO_0	9	O_GND_0
2	IN_OPTO_1	10	O_GND_1
3	IN_OPTO_2	11	O_GND_2
4	IN_OPTO_3	12	O_GND_3
5	OPTO_GND	13	OPTO_GND
6	VCC_P	14	VCC_P
7	GND	15	GND
8	NC	-	-

2.2.3 TLS pinout

ARK6 has a SUB-D 25p Female connector for Relays with customized pin assignments.

Figure 3 TLS connector

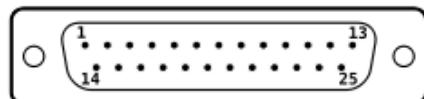


Table 4 TLS pinout

Pin	Signal	Pin	Signal
1	RL_NC0	14	RL0_NC0
2	RL_COM0	15	RL0_COM0
3	RL_NO0	16	RL0_NO0
4	RL_NC1	17	RL1_NC1
5	RL_COM1	18	RL1_COM1
6	RL_NO1	19	RL1_NO1
7	RL_NC2	20	RL2_NC2
8	RL_COM2	21	RL2_COM2
9	RL_NO2	22	RL2_NO2
10	RL_NC3	23	RL3_NC3
11	RL_COM3	24	RL3_COM3
12	RL_NO3	25	RL3_NO3
13	NC	-	-

Chapter 3 *Installation*

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3 Installation

3.1 Installation Procedure.

Use the following specifications to establish criteria for site selection and equipment installation.

3.1.1 Unpacking.

If there is any external damage to the containers, inform the shipping company and request that an agent be present during unpacking.

Carefully unpack the boxes (no special instructions are required) and note any damage.

After all items are unpacked, check the equipment received.

If there are any damages or shortages, notify the carrier and Screen Service spa immediately.

3.1.2 Mounting Specifications.

Use the following criteria for site selection and equipment installation:

- Mount.
 - A floor-standing, open rack or permanent structure with vertical mounting members conforming to EIA Standard 310 is recommended.
- Environment.
 - Refer to Technical Data chapter.
- Clearance.
 - No clearance is required for sides.
 - Access to the rear requires approximately 15 centimeters clearance for making connections.

3.1.3 Mounting Operation.

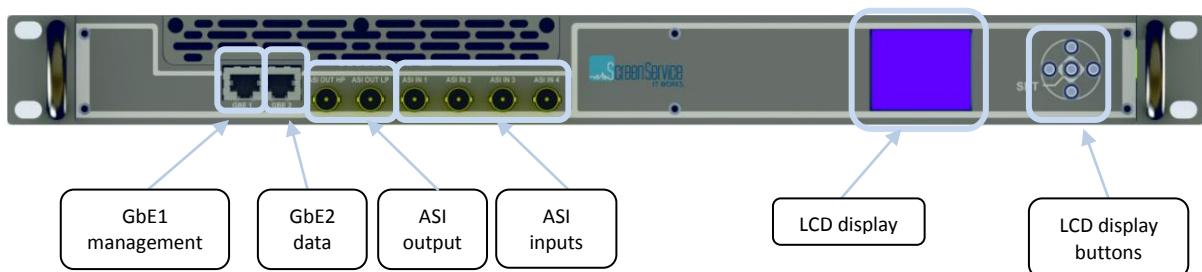
Install the device in an EIA (Standard 310) 19 inch rack as follows:

- Place the equipment into the rack, align the mounting holes, and secure in place with four rack screws.
- On each cable a label is present; on the rear panel a label is present; you must follow this label for the connections.
- Depending from ARK6 version different cable connection must be done.

3.1.3.1 Mounting operation – front panel connectors

Hereafter are described the front panel connections of OMNILINK TX.

Figure 1 OMNILINK TX front panel connectors



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User Interface

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4 User Interface

4.1 Java graphic user interface

The Java Graphic User Interface, stored in the board File System, is downloaded to the local PC every time the user connects to the board with a Web Browser. A proper Java Virtual Machine is needed; refer to the Appendix B for a description of supported Java and Internet Browsers.

4.1.1 Java menu bar

The following figure shows the menu bar of the Java Graphic User Interface. It allows the switching between control pages that provides status information and lets you perform OMNI-LINK TX system management.

Figure 4-1 User Interface – Java menu bar



The following controls are provided:

- **System commands bar** allows the enabling of the following commands:
 - **Connect:** connects/disconnects the local machine to OMNI-LINK TX system

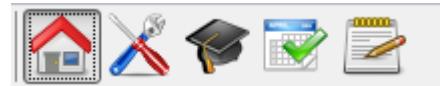


- **Save:** allows saving the device configuration.
- **Load:** allows loading the last saved device configuration.

Figure 4-1 User Interface – System commands bar

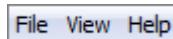
- **Operation pages bar** allows switching between the following operative sections:
 - **General:** provides information about the device definition and allows to locally download the *.jar file.
 - **Basic:** allows to monitor and to set the default configuration.
 - **Advanced:** allows to monitor and to set the advanced DVB-T2 specific parameters.
 - **Alarms:** provides a grid where to set alarms masks for Graphic User Interface, LCD, Events and Traps.
 - **Events:** shows the board events log and allows the manual setting of date and time.

Figure 4-2 User Interface – Operation pages bar



- **System menu (File, View and Help):** allows you to access the same commands and pages as System commands and Operation pages bars plus management options, help and version windows.

Figure 4-3 User Interface – System menu

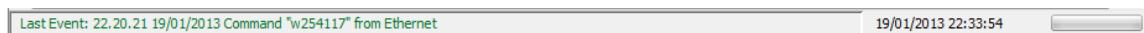


A brief description of all the provided indicators and controls follows in the next paragraphs.

4.1.2 Java status bar

The following figure shows the status bar of the Java Graphic User Interface. It allows the monitoring the connection GUI – OMNI-LINK TX and the board status .

Figure 4-4 User Interface – Java status bar



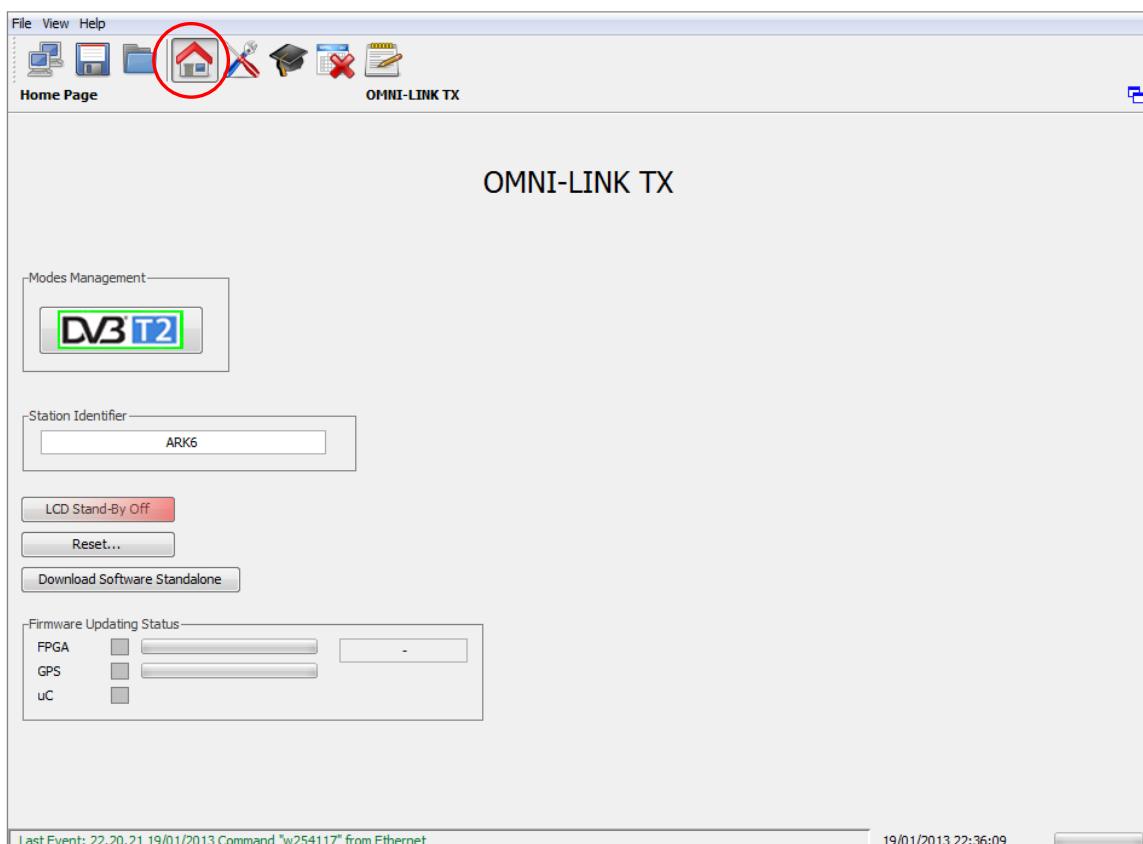
The following indicators are provided:

- **Last event:** shows the last event.
- **Board Monitor:** shows the status of the board. If the yellow cursor, inside the bar, slides then the board is in busy state.
- **Connection Monitor:** shows the status of the connection between the GUI and the device. If the blue cursor, inside the bar, slides, there is a connection problem.

4.1.3 General

Click on General tab, highlighted in the next figure, to access the general window.

Figure 4-5 User Interface – General window



The Home Page provides a general description of the equipment, the firmware updating status and a subset of commands here below described:

- **Modes Management:** shows the list of all the available modes, identified by their transmission standard, and allows to switch between them.
- **Station Identifier:** shows and sets the station name.
- **LCD Standby:** enables the LCD Stand-by button.
- **Reset:** resets the equipment.
- **Download Software Standalone:** performs a local download of the *.jar file (refer to [Download Software Standalone](#) paragraph).
- **Firmware Updating Status:** the three indicators turn into:
 - Yellow during FPGA, uC and GPS updating;
 - Green when the updating process is finished (FPGA and uC);
 - Grey when new code has been loaded (after next system reset).

The progress bars, at the right side of the FPGA and GPS indicators, show the status of firmware loading process into FLASH. The FPGA and GPS indicators remain yellow until the new firmware is loaded. When either FPGA or uC indicators turn into green, the transmitter

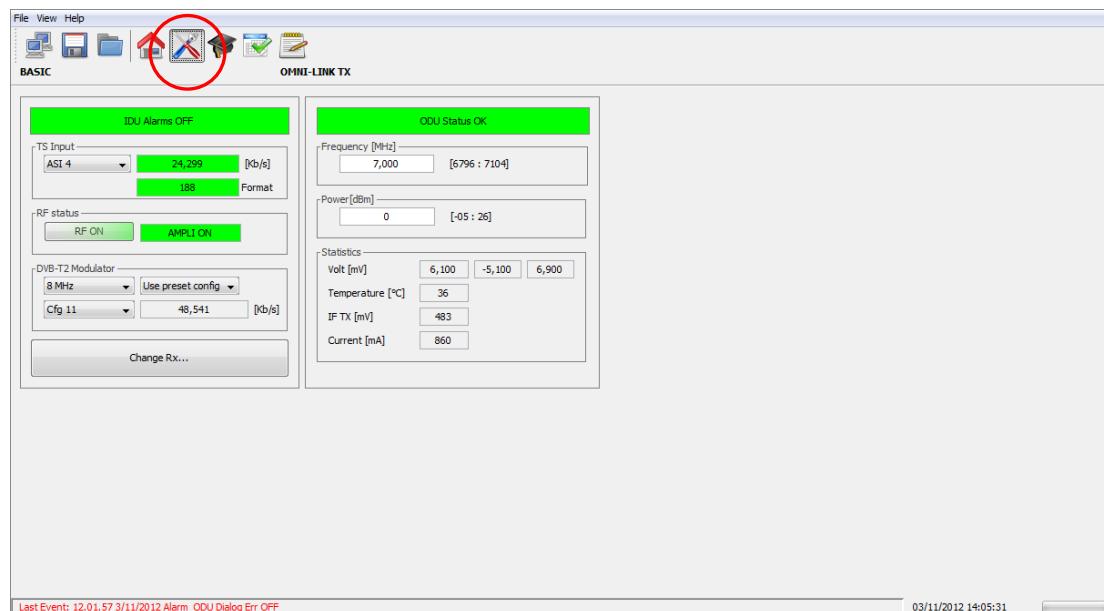
shall be reset in order to load the new software. **After a GPS update, the status LED turns into grey and the transmitter shall be reset in order to load the new software.**

In the Home Page is also specified the installer version the device has been loaded with.

4.1.4 Basic

Click on Input button, highlighted in the next figure, to access the Basic window.

Figure 4-6 User Interface – Basic window



Basic window provides the general transmission information and allows to select the main transmission parameters between some default configurations.

Table 4-1 Basic window

Box	Parameter / Control	Description	Admitted Ranges / Values
IDU	IDU status	Shows IDU status	<ul style="list-style-type: none"> • Green: no alarms • Red : alarms on
TS input	Input selector	Input selector	<ul style="list-style-type: none"> • ASI 1 • ASI 2 • ASI 3 • ASI 4 • GbE 1 • GbE2
TS input	Input bitrate [Kb/s]	Input bitrate.	<ul style="list-style-type: none"> • Gray input unlock • Green input ok • Red input overflow
TS input	Input Format	Format of received TS Packets.	<ul style="list-style-type: none"> • 188 Bytes • 204 Bytes
RF status	RF ON / OFF	<p>Output RF signal enabling. The possible output RF signal status are the following:</p> <ul style="list-style-type: none"> • ON; • RF OFF: automatic switch off of the output signal (refer to Amplifier status); • OFF: manual switch off of the output signal. 	<ul style="list-style-type: none"> • Green: ON • Green: RF OFF • Red: OFF

Box	Parameter / Control	Description	Admitted Ranges / Values
Status	Ampli status	<p>Current amplifier status indicator:</p> <ul style="list-style-type: none"> • ON: the amplifier has been manually set to on and no alarms or settings switched it off • Stand-by OFF: the equipment has been put on Standby mode and the amplifier has been automatically muted • Init: at every amplifier initialization the amp is automatically switched off. • Alarm OFF: an alarm switched off the amplifier • RF OFF: amplifier manually set to off • Opto OFF: output RF is switched off by an optocoupler • Missing file OFF: the amplifier is automatically switched off because of the lack of *.cdef and *.def files (additional files will be included in future releases). • Loading New Config: the amplifier is automatically switched off during the loading of new T2 configuration parameters. • Reflex Pwr High retry: the output RF stage has been restart because of the reflex power that has gone over the maximum threshold. • Reflex Pwr Alarm: the maximum number of attempts to restore the system after a Reflex Power High warning has been reached, the equipment is in Reflex Power High alarm and the Amplifier has been automatically switched off. • Test Mode: the amplifier is in ON state, but the transmitter is modulating a test signal instead of the selected input. • Start New Firmware: during the loading of a new fw the output RF is OFF. • Restart Mode: a system error occurs and the FPGA fw boot is forced. During this operations the amplifier is turned OFF. 	<ul style="list-style-type: none"> • ON • Stand-by OFF • Init • Alarm OFF • RF OFF • Opto OFF • Missing file OFF • Loading New Config • Reflex Pwr High Retry • Reflex Pwr High Alarm • Test Mode • Start New Fw • Restart Mode
DVB-T2 Modulator	Bandwidth	Bandwidth of the modulated output signal.	<ul style="list-style-type: none"> • 6 MHz • 7 MHz • 8 MHz

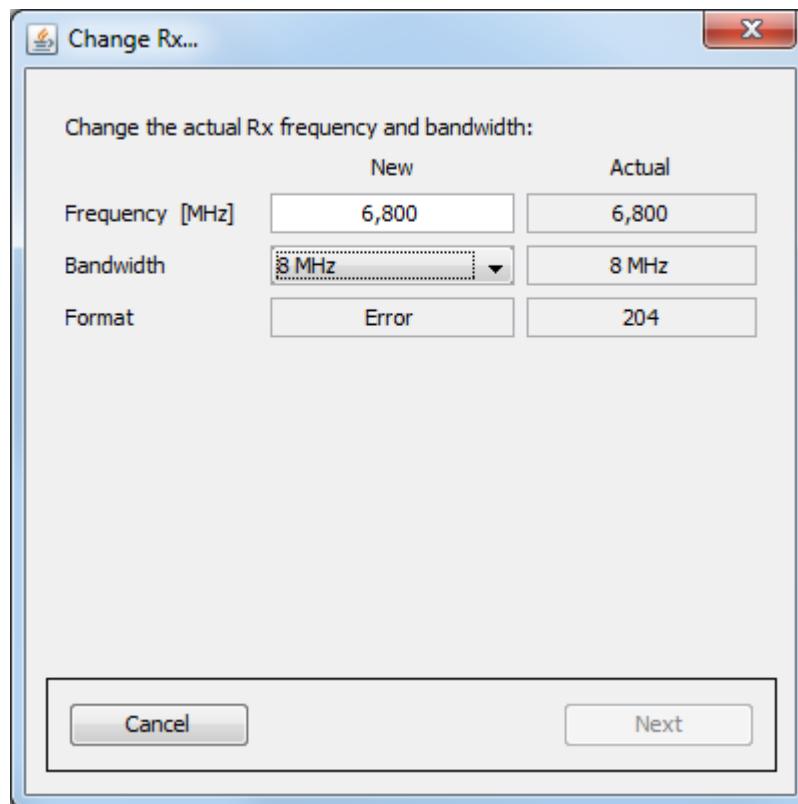
Box	Parameter / Control	Description	Admitted Ranges / Values
DVB-T2 Modulator	configuration	<p>Enables the use of preset configurations.</p> <p>Local configuration allows the manual setting of modulation parameters (ref. to 4.1.5.2 DVB-T2 – Settings).</p> <p>Presets configuration should cover all the principal transmitting conditions and are recommended for users that are not highly skilled on DVB-T2 modulation standard.</p>	<ul style="list-style-type: none"> • Use local config • Use preset config
DVB-T2 Modulator	Select default configuration	Preset configuration selector. Use this control to select one of the available configuration presets. Configurations are in order of raising bitrate,	<ul style="list-style-type: none"> • Cfg01 • Cfg02 • Cfg03 • Cfg04 • Cfg05 • Cfg06 • Cfg07 • Cfg08 • Cfg09 • Cfg10 • Cfg11 • Cfg12
DVB-T2 Modulator	Actual bitrate	<p>Actual bitrate</p> <p>Indicates the data rate achieved through the current modulation parameters.</p> <p>In T2-MI mode this field shows an estimation of the output bitrate performed by the demodulator of the Measure board .</p>	According to the modulation scheme used the transmitted bitrate can range from 4.2 Mbps up to 48.5 Mbps

Box	Parameter / Control	Description	Admitted Ranges / Values
IDU	Change RX	This special feature allows to use a special signaling channel embedded into the modulation in order to force some parameters at the reception side. Refer to	
ODU	ODU status	Shows ODU status	<ul style="list-style-type: none"> • Green: no alarms • Red : alarms on
Frequency	Frequency	Set Output frequency	
Power	Power	Set Output power	
Statistics	Volt[mV]	PSU voltage indicator, expressed in milliVolt	
Statistics	Temperature [c°]	Temperature indicator (values are expressed in °C).	
Statistics	IF TX [mV]	IF voltage indicator, expressed in milliVolt	
Statistics	Current [mA]	PSU current indicator, expressed in milliAmpere	

4.1.4.1 RX Change

This special feature allows to force some parameters at the reception side. This allow to change the bridge's RX without the need to access to its user interface.

Figure 4-7 User Interface - Change RX dialog window



The RX change window allows to change the transmission and reception frequency and the bandwidth of the signal. It also allows to set the TS packet format that the receiver shall use according to the actual input format.

Once selected the parameters to use click to next to apply the configuration.

4.1.5 Advanced

Click on Advanced tab, highlighted in the next figure, to access the Advanced parametters window.

Figure 4-8 User Interface – Advanced window



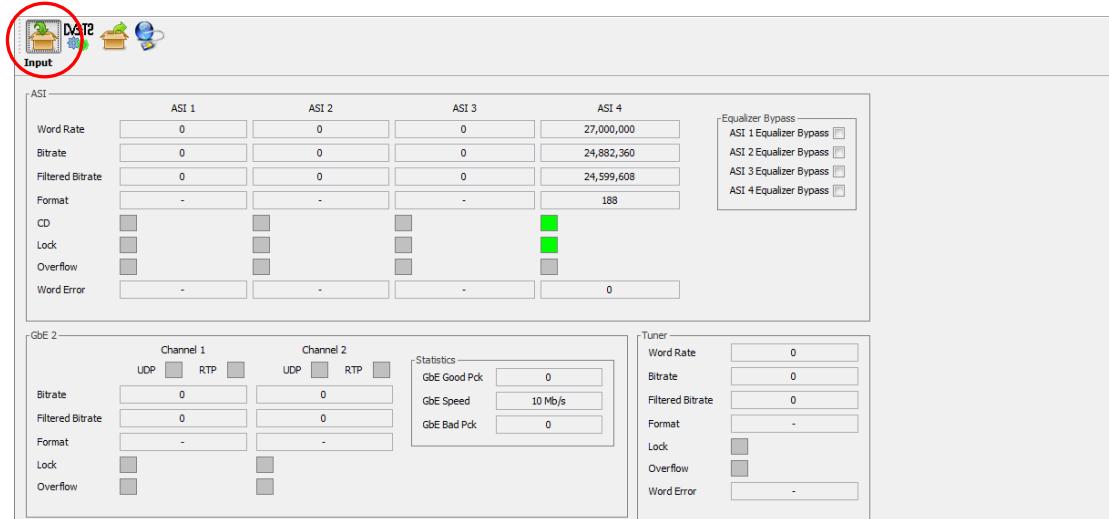
The settings in this subsection can change the modulation process and could cause the not correct transmission of data stream.

Changing any parameter in this section could result in a not correct working transmission and it is recommended only to expert users and for custom solutions that are not covered by factory presets.

4.1.5.1 Input

Click on Input button, highlighted in the next figure, to monitor the input statistics window.

Figure 4-9 User Interface – Input window



The Input window allows to monitor Transport Stream input statistics and to enable the cable equalizer bypass of ASI inputs.

Table 4-2 Input window

Box	Parameter / Control	Description	Admitted Ranges / Values
ASI	Word rate	Input word rate.	Approximately 27 Mword/s
Tuner	Word rate	Input byte rate.	
ASI - Tuner	Bitrate	Input bitrate.	
ASI - Tuner	Filtered bitrate	Bitrate actually used by the modulator.	<ul style="list-style-type: none"> • Zero when the input has not been selected • Equal to the total bitrate, when Delete Null Packets disabled • Less than total bitrate, when Delete Null Packets enabled
ASI - Tuner	Format	Format of received TS Packets.	<ul style="list-style-type: none"> • 188 Bytes • 204 Bytes
ASI	CD	ASI Carrier detect.	<ul style="list-style-type: none"> • Green: Detected • Grey: Not detected
ASI - Tuner	Lock	<p>The actual synchronization of the Transport Stream. It depends on the number of correct sync bytes necessary for the device to synchronize and on the number of destroyed sync bytes which the device can not cope with.</p> <p>Five consecutive correct sync bytes are sufficient for sync acquisition, and two or more consecutive corrupted sync bytes indicate sync loss (Ref. to ETSI TR 101 290)</p>	<ul style="list-style-type: none"> • Green: Locked • Grey: Not locked

Box	Parameter / Control	Description	Admitted Ranges / Values
ASI - Tuner	Overflow	TS input overflow indicator. This alarm condition occurs when the input bit-rate exceeds the capability of the modulation (Ref. to ETSI EN 302 755).	<ul style="list-style-type: none"> Red: Alarm On Grey: Alarm Off
ASI	Word Errors	Input error rate: word errors per second.	
Tuner	Word Errors	Input error rate: Byte errors per second.	
Equalizer Bypass	ASI 1/2/3/4 Equalizer Bypass	Enables/disables the bypassing of cable equalizers at ASI inputs.	<ul style="list-style-type: none"> Checked: Cable equalizer is bypassed Not checked: Cable equalizer is used
GbE 2– Channel 1/2	Protocol	Ethernet input packets protocol.	<ul style="list-style-type: none"> UDP RTP
GbE 2– Channel 1/2	Bitrate	Bitrate of TS from Ethernet input.	
GbE 2– Channel 1/2	Filtered bitrate	Bitrate actually used by the modulator.	<ul style="list-style-type: none"> Zero when the input is not selected Equal to the total bit-rate, when Delete Null Packets disabled Less than total bit-rate, when Delete Null Packets enabled
GbE 2– Channel 1/2	Format	Format of received TS Packets.	<ul style="list-style-type: none"> 188 Bytes 204 Bytes
GbE 2– Channel 1/2	Lock	TS lock status. The input Transport Stream is unlocked when more than two consecutive Sync Byte are missed then five consecutive Sync Bytes must occur to regain the lock (Ref. to ETSI TR 101 290)	<ul style="list-style-type: none"> Green: Locked Grey: Not locked

Box	Parameter / Control	Description	Admitted Ranges / Values
GbE 2– Channel1/2	Overflow	Input GbE overflow alarm status. This alarm condition occurs when the input bit-rate exceeds the capability of the modulation (Ref. to ETSI EN 302 755).	<ul style="list-style-type: none"> Red: Alarm on Grey: Alarm off
GbE 2– Statistics	GBE Good Pck	Total amount of frames delivered to the higher-level protocol.	
GbE 2– Statistics	GbE Speed	Ethernet connection speed. No duplex information is provided.	<ul style="list-style-type: none"> 10 Mbit/s 100 Mbit/s 1 Gbit/s
GbE 2– Statistics	GBE Bad Pck	The number of inbound packets that contained errors.	

4.1.5.2 DVB-T2 – Settings

Click on the DVB-T2 – Settings button, highlighted in the next figure, to access the DVB-T2 general setting.

Figure 4-10 User Interface – DVB-T2 – Settings



Use the DVB-T2 – Settings page to manage Input Autoswitch facility.

4.1.5.2.1 Input Autoswitch

The DVB-T2 regenerative repeater provides an automatic switching control mechanism between incoming signal sources.

The OMNI-LINK TX is capable of switching between inputs based on primary feed quality, depending on how it is presented to the transmitter (RF or ASI - Ethernet feeds). The feed switching algorithm is irrespective of payload and bitrate of both primary and reserve feeds.

The primary input is selected from the drop-down list of Input Selector. It is not allowed to dynamically change the preferred input until the Input Autoswitch is enabled. Secondary inputs are checked in circular order, starting from the one that follows the primary input. The numerical order is:

1. ASI 1
2. ASI 2
3. ASI 3
4. ASI 4
5. Tuner
6. GbE 2 ch1
7. GbE 2 ch2

E.g. If Tuner is set to priority, the algorithm for selecting secondary inputs starts with GbE 2 Ethernet channels and then works down all other ASI inputs.

If the reserve feed, the one being used, does not meet anymore the necessary quality requirements, the secondary to secondary input switch mechanism will start from the input that follows the primary input.

Input switching rules can be selected in the Alarms page through the SWITCH alarm mask. Here below the available rules:

- [DVB-T2] No Input: input Transport Stream not locked;

Feed selection and switching criteria are available via both transmitter SNMP and Java GUI interfaces.

A Finite State Machine has been used to give a description of the behaviour of the system. The FSM of the Input Autoswitch algorithm consists of:

- Four states:
 1. Priority Input Locked
 - Condition: the primary feed is the one being used.
 2. Priority Input Not Locked
 - Condition 1: the primary feed does not meet the necessary quality requirements as well as reserve feeds, if any.
 - Condition 2: the primary feed does not meet the necessary quality requirements and the FSM is waiting for the primary to secondary feed changeover timeout to elapse.
 3. Searching First Locked Input
 - Condition 1: the primary to secondary feed changeover timeout elapsed and the FSM is searching for a reserve feed.
 - Condition 2: the reserve feed, the one being used, does not meet anymore the necessary quality requirements, the secondary to secondary input switch timeout elapsed and FSM is searching for another reserve feed.
 4. Checking Priority Input
 - Condition: the reserve input is the one being used and FSM keeps checking the priority feed to trigger the secondary to primary changeover.
- Three countdowns to N seconds, where N is defined by default in the *.def file:
 1. Primary to Secondary Switch Counter
 - It starts when the primary feed does not meet anymore the necessary quality requirements and the system lay in waiting for the reserve feed to be checked.
 2. Secondary to Secondary Switch Counter
 - It starts when the secondary feed does not meet anymore the necessary quality requirements and the system lay in waiting for another reserve feed to be checked.
 3. Secondary to Primary Switch Counter
 - It starts when the input set to priority is found to meet again the necessary quality requirements and the system is waiting to switch back to the primary input.

Timeouts are reset when the actually used input, whether it is the preferred one or not, regain his quality requirements.

Table 4-3 DVB-T2 – Processing page: DVB-T2 – Settings

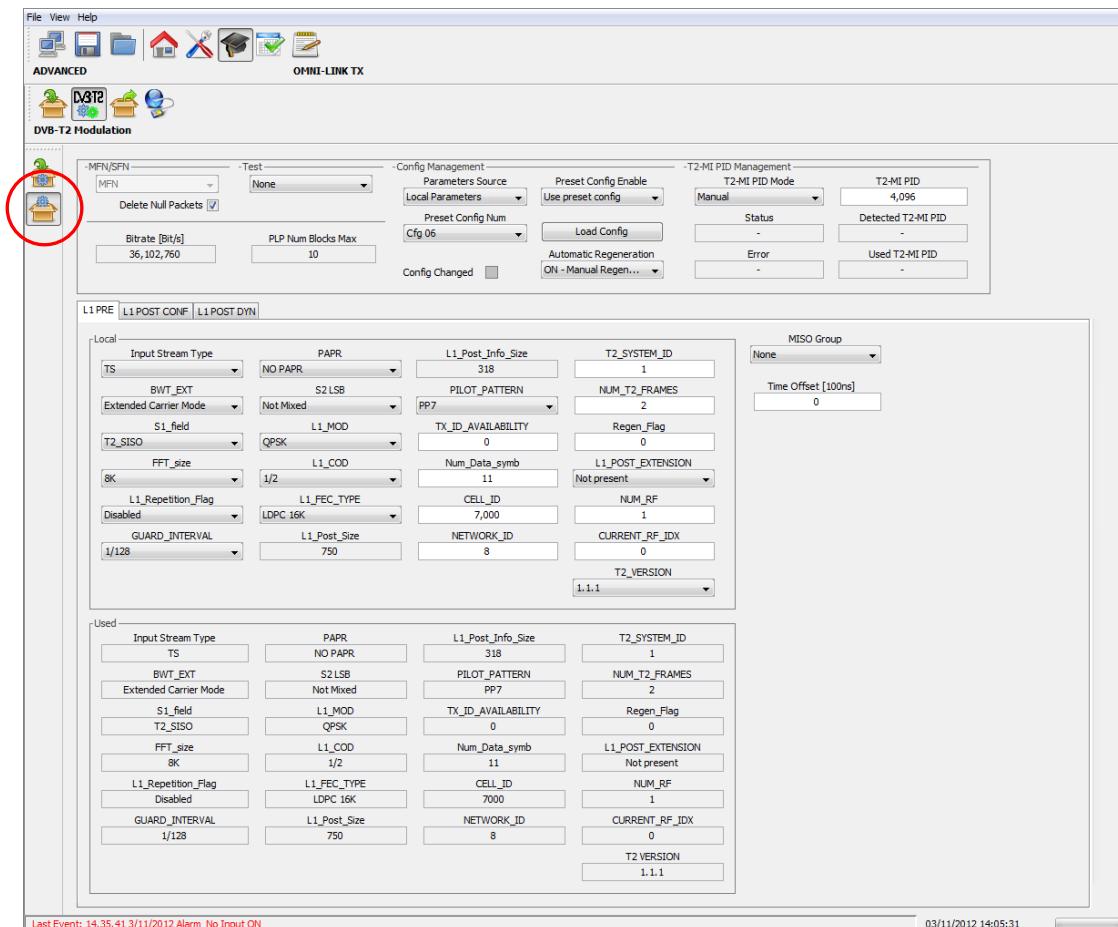
Box	Parameter / Control	Description	Admitted Ranges / Values
Input	Input Selector	<p>Input selector.</p> <p>It is not allowed to change input until the Input Autoswitch is enabled. In order to change the primary input, disable the Input Autoswitch functionality, select a different input through the input selector and then enable the Input Autoswitch functionality.</p>	<ul style="list-style-type: none"> • ASI 1 • ASI 2 • ASI 3 • ASI 4 • Tuner • GbE 2 ch1 • GbE 2 ch2
Input	Input Alarm Delay [s]	<p>Time to wait for No Input alarm rising expressed in seconds (refer to Alarms paragraph).</p> <p>Note: It is highly recommended to set an Input Alarm Delay value different from zero so as to allow the input signal locking.</p>	<ul style="list-style-type: none"> • Min: 1 s • Max: 25.5 s
Input Autoswitch	Auto Input Enable	Enables the use of Input Autoswitch finite-state machine.	<ul style="list-style-type: none"> • Enabled • Disabled
Input Autoswitch	Actual Input	Shows the currently used input.	<ul style="list-style-type: none"> • ASI 1 • ASI 2 • ASI 3 • ASI 4 • Tuner • GbE 2 ch1 • GbE 2 ch2

Box	Parameter / Control	Description	Admitted Ranges / Values
Input Autoswitch	Primary to Secondary Switch Counter	Primary to secondary input switch countdown expressed in seconds.	<ul style="list-style-type: none"> Min: 0 s Max: *.def file dependant Default: 25 s
Input Autoswitch	Secondary to Secondary Switch Counter	Secondary to secondary input switch countdown expressed in seconds.	<ul style="list-style-type: none"> Min: 0 s Max: *.def file dependant Default: 25 s
Input Autoswitch	Secondary to Primary Switch Counter	Secondary to primary input switch countdown expressed in seconds.	<ul style="list-style-type: none"> Min: 0 s Max: *.def file dependant Default: 300 s
Input Autoswitch	State	Current state of the finite-state machine	<ul style="list-style-type: none"> Priority Input Locked Priority Input Not Locked Searching First Input Locked Check Priority Input

4.1.5.3 DVB-T2 – Modulation

Click on the DVB-T2 – Settings button, highlighted in the next figure, to access the DVB-T2 general setting.

Figure 4-11 User Interface – DVB-T2 – Modulation



The DVB-T2 – Modulation window is composed by the following sections:

- Modulator manager;
- L1-pre signalling data;
- L1-post configurable signalling data;
- L1-post dynamic signalling data.

4.1.5.3.1 Modulator manager

Commands and indicators belonging to this section allow to:

- Select the network mode;
- Enable test signals;
- Monitor the data rate achieved through the current modulation parameters;
- Manage the Modulator Interface;
- Manage configurations;
- Manage T2-MI PID selection.

Figure 4-12 User Interface – DVB-T2 – Modulator manager



4.1.5.3.2 Configuration Management

The “Parameters source” selector enables/disables the use of T2-MI inputs. When this selector is put on “T2-MI Parameters”, the modulator configuration is given by the incoming L1 Signaling data that allows the construction of T2 frames by the modulator. The “Used T2-MI PID” indicator shows input packets PID when the format of input interface, carrying T2-MI packets, is MPEG-2 Transport Stream.

When the “Parameters source” selector is put on “Local Parameters”, the modulator configuration can be both manually or automatically set through the use of the “Preset Config Enable” selector. If this selector is set to “Use local config”, the configuration can be manually set and modified. If “Preset Config Enable” is set to “Use preset config”, “Preset Config Num” selector allows the selection of one of the configurations listed in the drop-down menu.

“Config Changed” indicator notifies that some parameters have been changed and that the current configuration has not been loaded yet. If this indicator turns into orange, the user shall click on the “Load Config” button in order to apply the new settings.

Tabs beneath Modulator manager section, change type of information provided on the basis of the “Parameters Source” selector state. When the selected option is “Local Parameters”, L1-pre and L1-post configurable signalling data are referred to local settings and currently used parameters. When the selected option is “T2-MI Parameters”, L1-pre and L1-post configurable signalling data are referred to local settings (not used in T2-MI mode) and T2-MI parameters.

The “Automatic Regeneration” function allows to retrieve the configuration data from the input demodulator. The three options provided by “Automatic Regeneration” selector are:

- OFF: the function is not used;
- ON – Auto Regen_Flag: the configuration is automatically retrieved from the demodulated L1 data and the REGEN_FLAG field is automatically incremented.
- ON – Manual Regen_Flag: the configuration is automatically retrieved from the demodulated L1 signalling and the REGEN_FLAG field is manually set.

This functionality is applicable only if the following conditions are met:

- “Parameters Source” set to “Local Parameters”;
- “Preset Config Enable” set to “Use local config”;
- “Input Selector” set to “Tuner”.

4.1.5.3.3 T2-MI PID Management

The selection of the T2-MI PID can be manually or automatically performed. When the “T2-MI PID Mode” is “Manual”, the PID being used is the one set in the “T2-MI PID” numeric box. When the “T2-MI PID Mode” is “Automatic”, the PID being used is the detected one shown in “Detected T2-MI PID” field. The presence of PAT and PMT tables in the input feed is mandatory to use the automatic detection of T2-MI PID facility.

Events associated to the Automatic T2-MI PID mode are:

1. **T2MI PID PAT Err**
PAT not found in the input Transport Stream.
2. **T2-MI PID Not Valid**
No PIDs with stream type x06 found in the PMT.
3. **T2MI PID PMT Err**
More than one PID with stream type x06 found in the PMT.
4. **T2-MI PID Not Found**
Detected T2-MI PID not found in the input Transport Stream.
5. **T2MI Autodetect PID OK**
The Automatic T2-MI PID detection has been put across.

If an error occurs while using the Automatic T2-MI PID mode, the system automatically switches to Manual mode; once the input T2-MI PID is correctly detected, it will go back to Automatic mode.

Table 4-4 DVB-T2 – Processing page: DVB-T2 – Modulator manager

Box	Parameter / Control	Description	Admitted Ranges / Values
MFN / SFN	MFN/SFN	Selector of Network's Transmitters Synchronization.	<ul style="list-style-type: none"> • MFN • SFN
MFN / SFN	Delete Null Packets	Delete null packets enabling check box.	<ul style="list-style-type: none"> • Checked: Enabled • Not checked: Disabled
Test		<p>The selector of test signal.</p> <p>Note: PRBS Test and Force Null Packets test modes are available only when the Parameters Source selector is set to Local Parameters.</p>	<ul style="list-style-type: none"> • None • CW • PRBS Test • Force Null Packets
General	Bitrate [Bit/s]	<p>Indicates the data rate achieved through the current modulation parameters.</p> <p>In T2-MI mode this field shows an estimation of the output bitrate performed by the demodulator of the Measure board .</p>	
General	PLP Num Blocks Max	<p>Shows the maximum number of FEC blocks contained in the Interleaving Frame for the current PLP. This indicator shows the constraints in terms of PLP_NUM_BLOCKS_MAX achievable through the current PLP configuration.</p> <p>In T2-MI mode this field is not used.</p>	
Config Management	Parameters Source	Enables/disables the use of T2-MI inputs.	<ul style="list-style-type: none"> • Local Parameters • T2-MI Parameters

Box	Parameter / Control	Description	Admitted Ranges / Values
Config Management	Preset Config Enable	Enables the use of preset configurations.	<ul style="list-style-type: none"> • Use local config • Use preset config
Config Management	Preset Config Num	Preset configuration selector. Use this control to select one of the available configuration presets. Configurations are in order of raising bitrate,	<ul style="list-style-type: none"> • Cfg01 • Cfg02 • Cfg03 • Cfg04 • Cfg05 • Cfg06 • Cfg07 • Cfg08 • Cfg09 • Cfg10 • Cfg11 • Cfg12
Config Management	Config Changed	Configuration change indicator notifies that some parameters have been changed and that the current configuration has not been loaded yet. <i>Note: In T2-MI mode, the configuration is automatically updated, nonetheless, if this led does not turn into grey in few seconds, press the Load Config button.</i>	<ul style="list-style-type: none"> • Orange: Not loaded • Grey: Loaded
Config Management	Load Config	Allows the loading of a new configuration.	

Box	Parameter / Control	Description	Admitted Ranges / Values
Config Management	Automatic Regeneration	<p>Enables the Automatic Regeneration function. This function allows to retrieve the configuration data from the input demodulator.</p> <p>Note: This function is selectable only when all the following conditions are satisfied:</p> <ul style="list-style-type: none"> • Parameters Source : Local Parameters; • Preset Config Enable: Use local config; • Actual Input: Tuner. 	<ul style="list-style-type: none"> • OFF: Disabled • ON – Auto Regen_Flag: Enabled and the Regen_Flag is automatically incremented • ON – Manual Regen_Flag: Enabled and the Regen_Flag can be manually set.
T2-MI PID Management	T2-MI PID Mode	<p>Enables the automatic detection of the T2-MI PID.</p> <p>Note: This function works only when the Parameters Source is set to T2-MI Parameters.</p>	<ul style="list-style-type: none"> • Manual • Automatic
T2-MI PID Management	T2-MI PID	<p>Manual setting of the PID of incoming TS packets encapsulating T2-MI packets.</p> <p>It is used only when the T2-MI PID Mode Status is Manual.</p>	<ul style="list-style-type: none"> • Min: 0 • Max: 8191
T2-MI PID Management	Detected T2-MI PID	Shows the detected T2-MI PID.	<ul style="list-style-type: none"> • Min: 0 • Max: 8191
T2-MI PID Management	Used T2-MI PID	Shows the currently used T2-MI PID.	<ul style="list-style-type: none"> • Min: 0 • Max: 8191
T2-MI PID Management	Status	Shows the status of the T2-MI PID mode	<ul style="list-style-type: none"> • Manual • Automatic

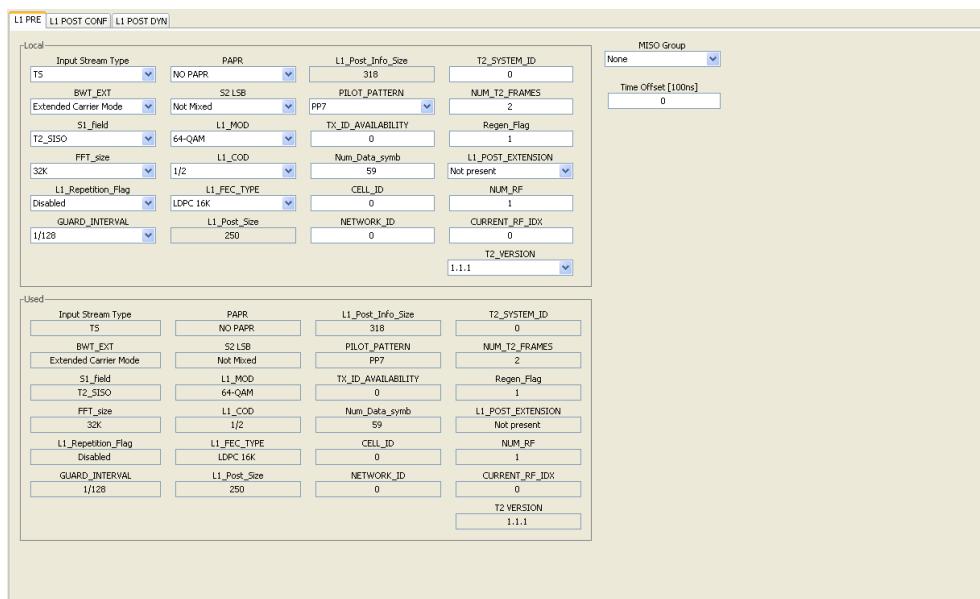
Box	Parameter / Control	Description	Admitted Ranges / Values
T2-MI PID Management	Error	Automatic T2-MI PID mode error.	<ul style="list-style-type: none">• No Errors• T2-MI PID Not Valid• PAT Not Found• Stream Type Error (PMT error)• T2-MI PID Not Present

4.1.5.3.4 L1-pre signalling data

When the “Parameters source” selector is put on “Local Parameters”, L1 PRE tab allows to:

- Set L1-pre signalling data;
- Monitor currently used L1-pre signalling data.

Figure 4-13 User Interface – DVB-T2 – L1-pre signalling data 1



Local		Used	
Input Stream Type	TS	PAPR	NO PAPR
BWT_EXT	S2 LSB	L1_Post_Info_Size	318
Extended Carrier Mode	Not Mixed	T2_SYSTEM_ID	0
S1_field	PP7	PILOT_PATTERN	PP7
T2_SISO	64-QAM	NUM_T2_FRAMES	2
FFT_size	L1_MOD	TX_ID_AVAILABILITY	0
32K	64-QAM	Regen_Flag	1
FFT_size	L1_COD	Num_Data_symb	59
32K	L1_FEC_TYPE	L1_POST_EXTENSION	Not present
L1_Repetition_Flag	LDFC 16K	CELL_ID	0
Disabled	L1_FEC_TYPE	NUM_RF	1
GUARD_INTERVAL	LDFC 16K	NETWORK_ID	0
1/128	L1_Post_Size	CURRENT_RF_IDX	0
	250	T2_VERSION	1.1.1
MISO Group			
None			
Time Offset [100ns]			
0			

When the “Parameters source” selector is put on “T2-MI Parameters”, L1 PRE tab allows to monitor the currently used L1-pre signalling data decoded from incoming T2-MI packets.

Figure 4-14 User Interface – DVB-T2 – L1-pre signalling data 2

L1 PRE		L1 POST CONF		L1 POST DYN																																																																							
-Local <table border="1"> <tr> <td>Input Stream Type</td> <td>PAPR</td> <td>L1_Post_Info_Size</td> <td>T2_SYSTEM_ID</td> <td>MISO Group</td> </tr> <tr> <td>TS</td> <td>NO PAPR</td> <td>318</td> <td>0</td> <td>None</td> </tr> <tr> <td>BWT_EXT</td> <td>S2 LSB</td> <td>PILOT_PATTERN</td> <td>NUM_T2_FRAMES</td> <td></td> </tr> <tr> <td>Extended Carrier Mode</td> <td>Not Mixed</td> <td>PP7</td> <td>2</td> <td></td> </tr> <tr> <td>S1_field</td> <td>L1_MOD</td> <td>TX_ID_AVAILABILITY</td> <td>Regen_Flag</td> <td></td> </tr> <tr> <td>T2_SISO</td> <td>64-QAM</td> <td>0</td> <td>1</td> <td></td> </tr> <tr> <td>FFT_size</td> <td>L1_COD</td> <td>Num_Data_symb</td> <td>L1_POST_EXTENSION</td> <td></td> </tr> <tr> <td>32K</td> <td>1/2</td> <td>59</td> <td>Not present</td> <td></td> </tr> <tr> <td>L1_Repetition_Flag</td> <td>L1_FEC_TYPE</td> <td>CELL_ID</td> <td>NUM_RF</td> <td></td> </tr> <tr> <td>Disabled</td> <td>LDPC 16K</td> <td>0</td> <td>1</td> <td></td> </tr> <tr> <td>GUARD_INTERVAL</td> <td>L1_Post_Size</td> <td>NETWORK_ID</td> <td>CURRENT_RF_IDX</td> <td></td> </tr> <tr> <td>1/128</td> <td>250</td> <td>0</td> <td>0</td> <td></td> </tr> <tr> <td colspan="5">T2 VERSION</td> </tr> <tr> <td colspan="5">1.1.1</td> </tr> </table>						Input Stream Type	PAPR	L1_Post_Info_Size	T2_SYSTEM_ID	MISO Group	TS	NO PAPR	318	0	None	BWT_EXT	S2 LSB	PILOT_PATTERN	NUM_T2_FRAMES		Extended Carrier Mode	Not Mixed	PP7	2		S1_field	L1_MOD	TX_ID_AVAILABILITY	Regen_Flag		T2_SISO	64-QAM	0	1		FFT_size	L1_COD	Num_Data_symb	L1_POST_EXTENSION		32K	1/2	59	Not present		L1_Repetition_Flag	L1_FEC_TYPE	CELL_ID	NUM_RF		Disabled	LDPC 16K	0	1		GUARD_INTERVAL	L1_Post_Size	NETWORK_ID	CURRENT_RF_IDX		1/128	250	0	0		T2 VERSION					1.1.1				
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1.1.1																																																																											

Table 4-5 DVB-T2 – Processing page: DVB-T2 – L1-pre signalling data

Box	Parameter / Control	Description	Admitted Ranges / Values
General	MISO Group	This selector allows The MISO group to be set.	<ul style="list-style-type: none"> • Group 1 • Group 2 • None
General	Time Offset [100ns]	User time offset setting.	
Local/Used/T2-MI	Input Stream Type	This field indicates the types of the Tx input streams carried within the current T2 super-frame.	<ul style="list-style-type: none"> • Transport Stream (TS) only. • Generic Stream (GSE and/or GFPS and/or GCS) but not TS. • Both TS and Generic Stream (i.e. TS and at least one of GSE, GFPS, GCS). • Reserved for future use.
Local/Used/T2-MI	BWT_EXT	This field indicates whether the extended carrier mode is used in the case of 8K, 16K and 32K FFT sizes. When this field is set to '1', the extended carrier mode is used. If this field is set to '0', the normal carrier mode is used.	<ul style="list-style-type: none"> • Normal Carrier Mode • Extended Carrier Mode

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	S1_field	This field indicates the preamble format.	<ul style="list-style-type: none"> • T2_SISO The preamble is a T2 preamble and the P2 part is transmitted in its SISO format • T2_MIMO The preamble is a T2 preamble and the P2 part is transmitted in its MISO format • Non-T2 • Reserved for future use
Local/Used/T2-MI	FFT_size	Indicates the FFT size of the symbols in the T2-frame.	<ul style="list-style-type: none"> • 2K • 8K • 4K • 1K • 16K • 32K
Local/Used/T2-MI	L1_Repetition_flag	This field indicates whether the dynamic L1-post signalling is provided also for the next frame. If dynamic signalling is provided for the next frame within this frame, it shall follow immediately after the dynamic signalling of the current frame.	<ul style="list-style-type: none"> • Disabled: dynamic signalling shall not be provided for the next frame within this frame. • Enabled: the dynamic signalling shall be also provided for the next frame within this frame.

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	GUARD_INTERVAL	This field indicates the guard interval of the symbols in the T2-frame.	<ul style="list-style-type: none"> • 1/32 • 1/16 • 1/8 • 1/4 • 1/128 • 19/128 • 19/256
Local/Used/T2-MI	PAPR	This field describes what kind of PAPR reduction is used, if any.	<p>When T2_VERSION = '0000':</p> <ul style="list-style-type: none"> • No PAPR reduction is used • ACE-PAPR only is used • TR-PAPR only is used • Both ACE and TR are used • Reserved for future use <p>When T2_VERSION > '0000':</p> <ul style="list-style-type: none"> • L1-ACE is used and TR is used on P2 symbols only • L1-ACE and ACE only are used. • L1-ACE and TR only are used. • L1-ACE, ACE and TR are used. • Reserved for future use.

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	Mixed Indicator	This field indicates whether the preambles are all of the same type or not.	<ul style="list-style-type: none"> Not mixed All preambles in the current transmission are of the same type as this preamble. Mixed Preambles of different types are transmitted
Local/Used/T2-MI	L1_MOD	This field indicates the constellation of the L1-post signalling data block.	<ul style="list-style-type: none"> • QPSK • 256QAM • 16-QAM • 32-QAM • 64-QAM • 128QAM
Local/Used/T2-MI	L1_COD	This field describes the coding of the L1-post signalling data block.	<ul style="list-style-type: none"> • 1/2 • Reserved for future use
Local/Used/T2-MI	L1_FEC_TYPE	This field indicates the type of the L1 FEC used for the L1-post signalling data block.	<ul style="list-style-type: none"> • LDPC 16K • Reserved for future use
Local/Used/T2-MI	L1_Post_Size	This field indicates the size of the coded and modulated L1-post signalling data block, in OFDM cells.	
Local/Used/T2-MI	L1_Post_Info_Size	This 18-bit field indicates the size of the information part of the L1-post signalling data block, in bits, including the extension field, if present, but excluding the CRC.	

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	PILOT_PATTERN	This field indicates the scattered pilot pattern used for the data OFDM symbols.	<ul style="list-style-type: none"> PP1 PP2 PP3 PP4 PP5 PP6 PP7 PP8 Reserved for future use.
Local/Used/T2-MI	TX_ID_AVAILABILITY	This field is used to signal the availability of transmitter identification signals within the current geographic cell. When no transmitter identification signals are used this field is set to 0x00. All other bit combinations are reserved for future use.	<ul style="list-style-type: none"> 0: no transmitter identification signals are used. From 1 to 255: Reserved for future use.
Local/Used/T2-MI	Num_Data_symb	This field indicates the number of data OFDM symbols per T2-frame, excluding P1 and P2.	<ul style="list-style-type: none"> Min: 3 in 32K, 7 in other modes Max: refer to ETSI EN 302 755 for frame length constraints
Local/Used/T2-MI	CELL_ID	This field uniquely identifies a geographic cell in a DVB-T2 network. A DVB-T2 cell coverage area may consist of one or more frequencies, depending on the number of frequencies used per T2 system. If the provision of the CELL_ID is not foreseen, this field shall be set to '0'.	<ul style="list-style-type: none"> 0: no provision of the CELL_ID Min:1 Max: 65535
Local/Used/T2-MI	NETWORK_ID	This field uniquely identifies the current DVB network.	<ul style="list-style-type: none"> Min: 0 Max: 65535

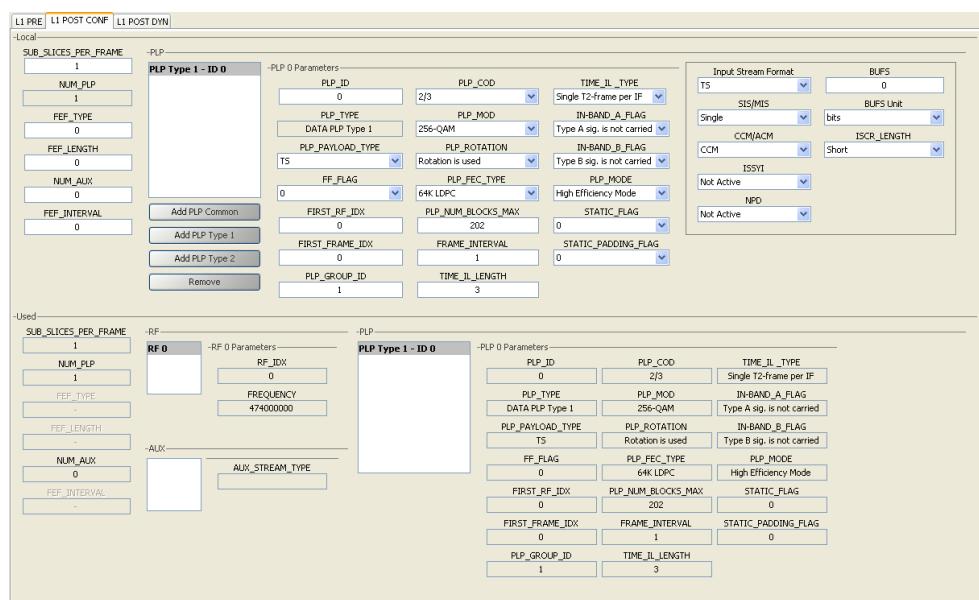
Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	T2_SYSTEM_ID	This field uniquely identifies a T2 system within the DVB network (identified by NETWORK_ID).	<ul style="list-style-type: none"> Min: 0 Max: 65535
Local/Used/T2-MI	NUM_T2_FRAME	This field indicates the number of T2-frames per super-frame.	<ul style="list-style-type: none"> Min: 2 Max: 255
Local/Used/T2-MI	Regen_Flag	This field indicates how many times the DVB-T2 signal has been re-generated. Value '000' indicates that no regeneration has been done. Each time the DVB-T2 signal is regenerated this field is increased by one.	<ul style="list-style-type: none"> 0: no regeneration has been done Min:1 Max: 7
Local/Used/T2-MI	L1_POST_EXTENSION	This field indicates the presence of the L1-post extension field.	<ul style="list-style-type: none"> Not present: the extension field is not present in the L1-post Present: the extension field is present in the L1-post.
Local/Used/T2-MI	NUM_RF	This field indicates the number of frequencies in the current T2 system. The frequencies are listed within the configurable parameters of the L1-post signalling.	<ul style="list-style-type: none"> Min: 1 Max: 7
Local/Used/T2-MI	CURRENT_RF_IDX	If the TFS mode is supported, this field indicates the index of the current RF channel within its TFS structure, between 0 and NUM_RF-1.	<ul style="list-style-type: none"> Min: 0 Max: 7 (TFS mode is not supported)
Local/Used/T2-MI	T2_VERSION	The latest version of the specification standard on which the transmitted signal is based on.	<ul style="list-style-type: none"> 1.1.1 1.2.1 Reserved for future use

4.1.5.3.5 L1-post configurable signalling data

When the “Parameters source” selector is put on “Local Parameters”, L1 POST CONF tab allows to:

- Set L1-post configurable signalling data;
- Monitor currently used L1-post configurable signalling data.

Figure 4-15 User Interface – DVB-T2 – L1-post configurable signalling data 1



SUB_SLICES_PER_FRAME	1
NUM_PLP	1
FEF_TYPE	0
FEF_LENGTH	0
NUM_AUX	0
FEF_INTERVAL	0
Add PLP Common	
Add PLP Type 1	
Add PLP Type 2	
Remove	

SUB_SLICES_PER_FRAME	1
RF 0	RF 0
RF 0 Parameters	RF_IDX: 0, FREQUENCY: 474000000
PLP Type 1 - ID 0	PLP 0 Parameters: PLP_ID: 0, PLP_COD: 2/3, TIME_IU_TYPE: Single T2-frame per IF, PLP_MODE: High Efficiency Mode, etc.

When the “Parameters source” selector is put on “T2-MI Parameters”, L1 POST CONF tab allows to:

- Monitor and set L1-post configurable signalling data of the local configuration; this configuration will be applied if and only if “Parameters source” selector is set to “Local Parameters”;
- Monitor currently used L1-post configurable signalling data decoded from incoming T2-MI packets.

Figure 4-16 User Interface – DVB-T2 – L1-post configurable signalling data 2

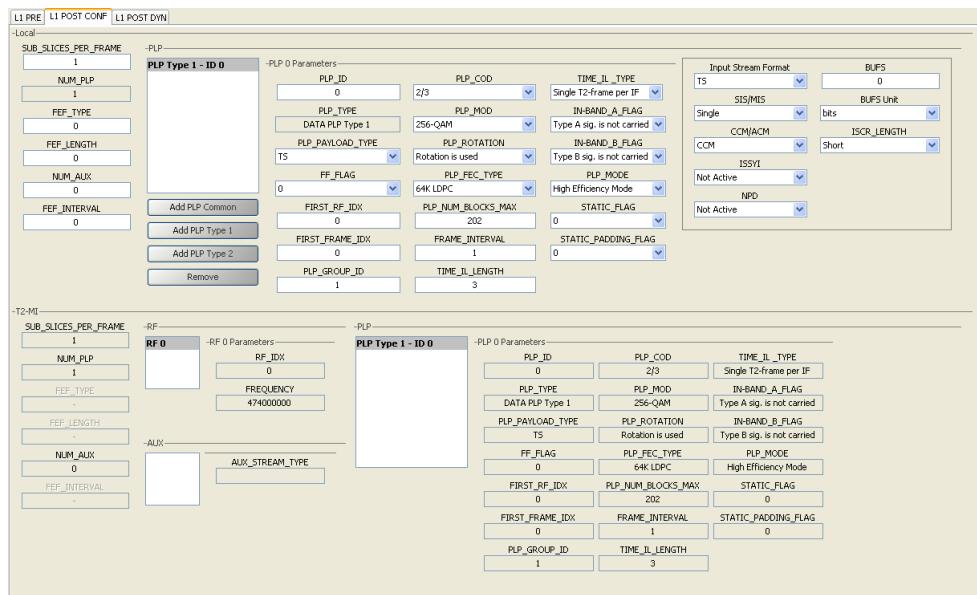


Table 4-6 DVB-T2 – Processing page: DVB-T2 – L1-post configurable signalling data

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	SUB_SLICES_PER_FRAME	This field indicates the total number of sub-slices for the type 2 data PLPs across all RF channels in one T2-frame. If there are no type 2 PLPs, this field shall be set to '1'.	<ul style="list-style-type: none"> Min: 1 Max: Allowable values of this field are listed in annex K of ETSI EN 302 755.
Local/Used/T2-MI	NUM_PLP	<p>This field indicates the number of PLPs carried within the current super-frame. The minimum value of this field shall be '1'.</p> <p>In the Local box, NUM_PLP is a read-only field; in order to increase/decrease the number of PLPs, add/remove PLPs in PLP box.</p>	<ul style="list-style-type: none"> Min: 1 Max: 255
Local/Used/T2-MI	NUM_AUX	<p>This field indicates the number of auxiliary streams. Zero means no auxiliary streams are used.</p> <p>NOT IMPLEMENTED YET</p>	<ul style="list-style-type: none"> Min: 0 Max: 15
Used/T2-MI – AUX	AUX box	All elements of the AUX loop is listed in the AUX box placed on the left side of AUX Parameters box. To view the AUX stream type of each element of this loop, click on the listed elements (each element has a label composed by the string "AUX" followed by the associated index).	<ul style="list-style-type: none"> Min: 0 Max: 7
Used/T2-MI – AUX	AUX_STREAM_TYPE	This field indicates the type of the current auxiliary streams. Zero means no auxiliary streams are used.	<ul style="list-style-type: none"> Min: 0 – TX-SIG All other values: reserved for future use
Local/Used/T2-MI	FEF_TYPE	This field shall indicate the type of the associated FEF part.	<ul style="list-style-type: none"> From 0 to 15: reserved for future use.

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI	FEF_LENGTH	This field indicates the length of the associated FEF part as the number of elementary periods T, from the start of the P1 symbol of the FEF part to the start of the P1 symbol of the next T2-frame.	<ul style="list-style-type: none"> Min: 0 Max: 4.194.303
Local/Used/T2-MI	FEF_INTERVAL	This field indicates the number of T2-frames between two FEF parts.	<ul style="list-style-type: none"> Min: 0 Max: 255
Used/T2-MI - RF	RF box	All elements of the RF loop are listed in the RF box placed on the left side of RF parameters box. To view index and frequency of each element of this loop, click on the listed elements (each element has a label composed by the string "RF" followed by the associated index).	<ul style="list-style-type: none"> Min: 0 Max: 7 (TFS mode is not supported)
Used/T2-MI- RF – RF Parameters	RF_IDX	This field indicates the index of each frequency listed within the RF loop.	<ul style="list-style-type: none"> Min: 0 Max: 7
Used/T2-MI- RF – RF Parameters	FREQUENCY	<p>This field indicates the centre frequency in Hz of the RF channel whose index is RF_IDX.</p> <p>This field is automatically filled with the current output RF centre frequency of the transmitter when the "Parameters Source" is "Local parameters".</p>	
Local/Used/T2-MI – PLP – PLP Parameters	PLP box	<p>All elements of the PLP loop is listed in the PLP box placed on the left side of PLP parameters box. To view the configuration of each element of this loop, click on the listed elements (each element has a label composed by the string "PLP" followed by the PLP_TYPE information and the associated PLP_ID).</p> <p>In order to add PLPs in the Local box, click on one of the below listed buttons corresponding to the desired PLP_TYPE. To remove one PLP, select the PLP and then click on Remove button.</p>	<ul style="list-style-type: none"> Min: 1 Max: 16

Box	Parameter / Control	Description	Admitted Ranges / Values
Local - PLP	Add PLP Common	Adds a PLP with Common as PLP_TYPE.	
Local - PLP	Add PLP Type 1	Adds a PLP with Type 1 as PLP_TYPE.	
Local - PLP	Add PLP Type 2	Adds a PLP with Type 2 as PLP_TYPE.	
Local - PLP	Remove	Removes from the PLP loop the selected PLP.	
Local/Used/T2-MI - PLP – PLP Parameters	PLP_ID	This field identifies uniquely a PLP within the T2 system.	<ul style="list-style-type: none"> • Min: 0 • Max: 255
Local/Used/T2-MI - PLP – PLP Parameters	PLP_TYPE	<p>This field indicates the type of the associated PLP.</p> <p>If value of the PLP_TYPE field is one of the values reserved for future use, the total number of bits in the PLP loop shall be the same as for the other types, but the meanings of the fields other than PLP_ID and PLP_TYPE shall be reserved for future use and shall be ignored.</p>	<ul style="list-style-type: none"> • Common PLP • DATA PLP Type 1 • DATA PLP Type 2 • From 3 to 7: Reserved for future use
Local/Used/T2-MI - PLP – PLP Parameters	PLP_PAYLOAD_TYPE	<p>This field indicates the type of the payload data carried by the associated PLP.</p>	<ul style="list-style-type: none"> • GFPS • GCS • GSE • TS • From 4 to 31: Reserved for future use

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI – PLP – PLP Parameters	FF_FLAG	This field is set to '1' if a PLP of type 1 in a TFS system occurs on the same RF channel in each T2-frame. This flag is set to '0' if inter-frame TFS is applied as described in annex E of ETSI EN 302 755. When TFS is not used, or when TFS is used but PLP_TYPE is not equal to '001', this field shall be set to 0 and has no meaning.	<ul style="list-style-type: none"> • 0: inter-frame TFS is applied as described in annex E of ETSI EN 302 755, or no meaning, TFS is not used or TFS is used but PLP_TYPE is not equal to '001'. • 1: a PLP of type 1 in a TFS system occurs on the same RF channel in each T2-frame.
Local/Used/T2-MI – PLP – PLP Parameters	FIRST_RF_IDX	This field indicates on which RF channel a type 1 data PLP occurs in the first frame of a super-frame in a TFS system.	<ul style="list-style-type: none"> • 0: no meaning, TFS is not used or TFS is used but PLP_TYPE is not equal to '001'. • 1: the field indicates the RF channel the PLP occurs on in every T2-frame
Local/Used/T2-MI – PLP – PLP Parameters	FIRST_FRAME_IDX	This field indicates the IDX of the first frame of the super-frame in which the current PLP occurs. The value of FIRST_FRAME_IDX shall be less than the value of FRAME_INTERVAL.	<ul style="list-style-type: none"> • Min: 0 • Max: 255
Local/Used/T2-MI – PLP – PLP Parameters	PLP_GROUP_ID	This field identifies with which PLP group within the T2 system the current PLP is associated. This can be used by a receiver to link the data PLP to its associated common PLP, which will have the same PLP_GROUP_ID.	<ul style="list-style-type: none"> • Min: 0 • Max: 255

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI - PLP - PLP Parameters	PLP_COD	This field indicates the code rate used by the associated PLP.	<ul style="list-style-type: none"> • 1/2 • 3/5 • 2/3 • 3/4 • 4/5 • 5/6 • From 6 to 7: Reserved for future use
Local/Used/T2-MI - PLP - PLP Parameters	PLP_MOD	This field indicates the modulation used by the associated PLP.	<ul style="list-style-type: none"> • QPSK • 16-QAM • 64-QAM • 256-QAM • From 4 to 7: Reserved for future use
Local/Used/T2-MI - PLP - PLP Parameters	PLP_ROTATION	This 1-bit flag indicates whether constellation rotation is in use or not by the associated PLP.	<ul style="list-style-type: none"> • Rotation is used • Rotation is not used
Local/Used/T2-MI - PLP - PLP Parameters	PLP_FEC_TYPE	This field indicates the FEC type used by the associated PLP.	<ul style="list-style-type: none"> • 16K LDPC • 64K LDPC • From 2 to 3: Reserved for future use

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI - PLP - PLP Parameters	PLP_NUM_BLOCKS_MAX	This field indicates the maximum value of PLP_NUM_BLOCKS for this PLP.	<ul style="list-style-type: none"> Min: 1 Max: 1023
Local/Used/T2-MI - PLP - PLP Parameters	FRAME_INTERVAL	This field indicates the T2-frame interval within the super-frame for the associated PLP.	<ul style="list-style-type: none"> Min: 1 Max: 255
Local/Used/T2-MI - PLP - PLP Parameters	TIME_IL_LENGTH	The use of this field is determined by the values set within the TIME_IL_TYPE -field as follows: - If the TIME_IL_TYPE is set to the value '1', this field shall indicate the number of T2-frames to which each Interleaving Frame is mapped, and there shall be one TI-block per Interleaving Frame. - If the TIME_IL_TYPE is set to the value '0', this field shall indicate the number of TI-blocks per Interleaving Frame, and there shall be one Interleaving Frame per T2-frame.	<ul style="list-style-type: none"> Min: 0 Max: 255
Local/Used/T2-MI - PLP - PLP Parameters	TIME_IL_TYPE	This field indicates the type of time-interleaving.	<ul style="list-style-type: none"> Single T2-frame per IF: one Interleaving Frame corresponds to one T2-frame and contains one or more TI-blocks. Multiple T2-frames per IF: one Interleaving Frame is carried in more than one T2-frame and contains only one TI-block.

Box	Parameter / Control	Description	Admitted Ranges / Values
Local/Used/T2-MI - PLP - PLP Parameters	IN-BAND_A_FLAG / IN-BAND_B_FLAG	This 1-bit field indicates whether the current PLP carries in-band signalling information.	<ul style="list-style-type: none"> Type A/B sig. is not carried: In-band signalling information is not carried Type A/B sig. is carried: In-band signalling information is carried
Local/Used/T2-MI - PLP - PLP Parameters	PLP_MODE	This field indicates whether Normal or High Efficiency Mode is used for the current PLP.	<ul style="list-style-type: none"> Not specified Normal Mode High Efficiency Mode Reserved for future use
Local/Used/T2-MI - PLP - PLP Parameters	STATIC_FLAG	This field indicates whether the scheduling for the current PLP varies from T2-Frame to T2-Frame or remains static.	<ul style="list-style-type: none"> 0: the dynamic L1-post signalling fields may change at any time 1: the dynamic L1-post signalling fields shall change only at a superframe boundary and only when a configuration change is indicated by the L1_CHANGE_COUNTER
Local/Used/T2-MI - PLP - PLP Parameters	STATIC_PADDING_FLAG	This field indicates whether BBFRAME padding is used other than for in-band signalling.	<ul style="list-style-type: none"> 0: the value of DFL for the current PLP may vary from BBFRAME to BBFRAME 1: all BBFRAMEs but the first shall have the same length (see ETSI EN 302 755 for further information)

Box	Parameter / Control	Description	Admitted Ranges / Values
Local - PLP	Input Stream Format	Input stream format selector	<ul style="list-style-type: none"> • GFPS • GCS • GSE • TS
Local - PLP	SIS/MIS	Single or multiple input streams selector	<ul style="list-style-type: none"> • Single • Multiple
Local - PLP	CCM/ACM	Type of coding and modulation selector	<ul style="list-style-type: none"> • ACM • CCM
Local - PLP	ISSYI	Enables the computing of the input stream synchronization (ISSY).	<ul style="list-style-type: none"> • Not Active • Active
Local - PLP	NPD	Enables the null packets deletion.	<ul style="list-style-type: none"> • Not Active • Active
Local - PLP	BUFS	BUFS setting.	
Local - PLP	BUFS Unit	BUFS unit selector.	<ul style="list-style-type: none"> • bits • Kbits • Mbits • 8Kbits
Local - PLP	ISCR_LENGTH	Input Stream Time Reference length selector.	<ul style="list-style-type: none"> • Short • Long

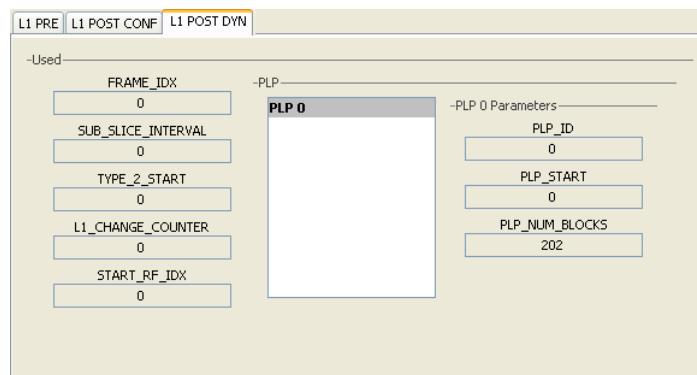


Box	Parameter / Control	Description	Admitted Ranges / Values
Local - PLP	SYNCD	SYNCD indicator. This field is visible only in Normal Mode.	
Local - PLP	UPL	User Packet Length indicator. This field is visible only in Normal Mode.	

4.1.5.3.6 L1-post dynamic signalling data

When the “Parameters source” selector is put on “Local Parameters”, L1 POST DYN tab allows to monitor the currently used L1-post dynamic signalling data.

Figure 4-17 User Interface – DVB-T2 – L1-post dynamic signalling data 1



When the “Parameters source” selector is put on “T2-MI Parameters”, L1 POST DYN tab allows to monitor the currently used L1-post dynamic signalling data decoded from incoming T2-MI packets.

Figure 4-18 User Interface – DVB-T2 – L1-post dynamic signalling data 2

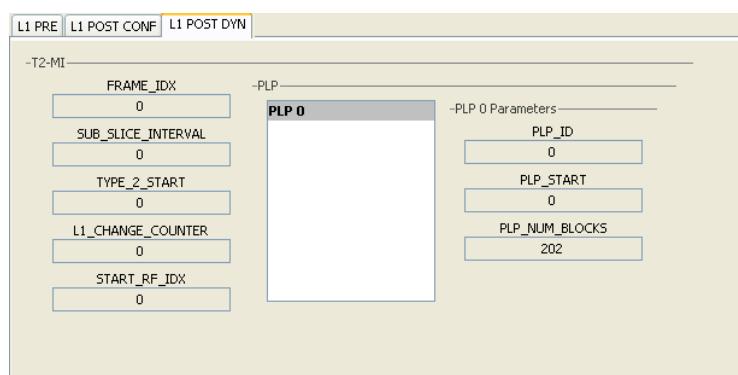


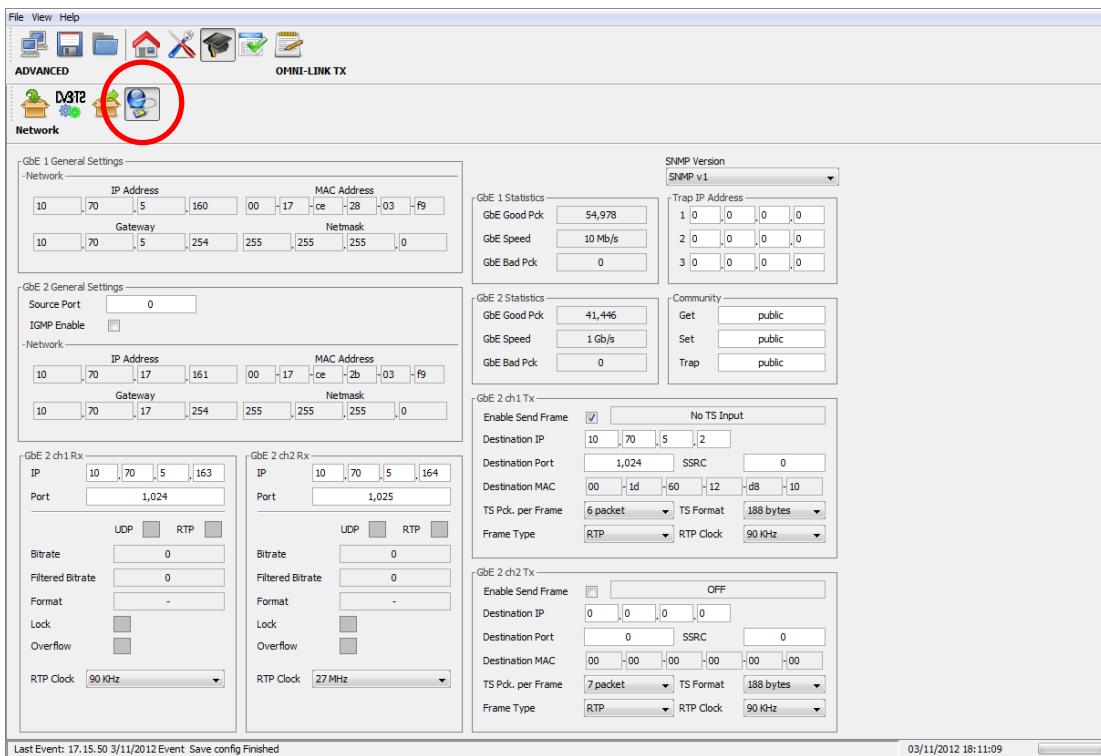
Table 4-7 DVB-T2 – Processing page: DVB-T2 – L1-post dynamic signalling data

Box	Parameter / Control	Description	Admitted Ranges / Values
Used/T2-MI	FRAME_IDX	Index of the current T2-frame within a super-frame.	<ul style="list-style-type: none"> • Min: 0 • Max: 254
Used/T2-MI	SUB_SLICE_INTERVAL	Sub-slice interval.	
Used/T2-MI	TYPE_2_START	Start position of the first of the type 2 PLP.	<ul style="list-style-type: none"> •
Used/T2-MI	L1_CHANGE_COUNTER	L1 change counter.	<ul style="list-style-type: none"> • Min: • Max:
Used/T2-MI	START_RF_IDX	The IDX of the starting frequency.	<ul style="list-style-type: none"> • Min: • Max:
Used/T2-MI	PLP box	All elements of the PLP loop is listed in the PLP box placed on the left side of PLP parameters box. To view the configuration of each element of this loop, click on the listed elements (each element has a label composed by the string "PLP" followed by the associated PLP_ID).	<ul style="list-style-type: none"> • Min: 1 • Max: 16
Used/T2-MI - PLP Parameters	PLP_ID	This field identifies uniquely a PLP within the T2 system.	<ul style="list-style-type: none"> • Min: 0 • Max: 254
Used/T2-MI - PLP Parameters	PLP_START	PLP start.	
Used/T2-MI - PLP Parameters	PLP_NUM_BLOCKS	The number of FEC blocks contained in the current IF.	

4.1.5.4 Network

Click on Network button, highlighted in the next figure, to access the Network management window.

Figure 4-19 User Interface – Network window



This window allows the Network management on both PRO-MPEG COP 3 RX and TX sides. It also allows the monitoring of the board IP and MAC addresses.

Note: The Clock Recovery Function, used in MFN transmissions of received streams on Ethernet channels 1 and/or 2, is based on the timestamps of incoming packets. UDP packets do not contain STS information therefore it is not allowed using GbE inputs with UDP protocol in MFN transmission mode.

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Table 4-8 Network window

Box	Parameter / Control	Description	Admitted Ranges / Values
GbE 1/2 General Settings / Network	IP address	Gbe port 1 / 2 IP address.	
GbE 1/2 General Settings / Network	MAC address	Gbe port 1 / 2 MAC address.	
GbE 1/2 General Settings / Network	Gateway	Gbe port 1 / 2 Gateway address.	
GbE 1/2 General Settings / Network	Netmask	Gbe port 1 / 2 Netmask.	
GbE 2 General Settings / Network	IGMP Enable	Enables the IGMP protocol.	<ul style="list-style-type: none"> • Checked: Enabled • Not checked: Disabled
GbE 2 General Settings / Network	Source Port	Board transmitting port.	<ul style="list-style-type: none"> • Min: 0 • Max: 65.535
Trap IP address	1/2/3	Manager Trap 1/2/3 IP addresses.	
GbE 2 ch1/2 Rx	IP Address	Channel 1/2 receiving IP address.	
GbE 2 ch1/2 Rx	Port	Channel 1/2 receiving port.	<ul style="list-style-type: none"> • Min: 0 • Max: 65,535

Box	Parameter / Control	Description	Admitted Ranges / Values
GbE 2 ch1/2 Rx	Protocol	Ethernet input packets protocol.	<ul style="list-style-type: none"> • UDP/RTP: <ul style="list-style-type: none"> ◦ Green: Detected ◦ Grey: Not detected
GbE 2 ch1/2 Rx	Bitrate	Bit-rate of TS from Ethernet input.	
GbE 2 ch1/2 Rx	Filtered bitrate	Bit-rate actually used by the modulator.	<ul style="list-style-type: none"> • Zero when the input is not selected • Equal to the total bit-rate, when Delete Null Packets disabled • Less than total bit-rate, when Delete Null Packets enabled
GbE 2 ch1/2 Rx	Format	Received transmission format.	<ul style="list-style-type: none"> • 188 Bytes • 204 Bytes
GbE 2 ch1/2 Rx	Lock	Ethernet input lock status indicator. The input Transport Stream is locked when no more than two consecutive Sync Byte are missed.	<ul style="list-style-type: none"> • Green: Lock • Grey: Not locked
GbE 2 ch1/2 Rx	Overflow	Input GbE overflow alarm status. This alarm condition occurs when the input bit-rate exceeds the capability of the modulation (Ref. to ETSI EN 302 755).	<ul style="list-style-type: none"> • Red: Alarm on • Grey: Alarm off
GbE 2 ch1/2 Rx	RTP Clock	RTP packets source clock reference.	<ul style="list-style-type: none"> • 90 kHz • 27 MHz
GbE 1 / 2 Statistic	GbE Good Pck	Total amount of frames delivered to the higher-level protocol.	
GbE 1 / 2 Statistic	GbE Speed	Ethernet connection speed. No duplex information is provided.	<ul style="list-style-type: none"> • 10 Mbit/s • 100 Mbit/s • 1 Gbit/s

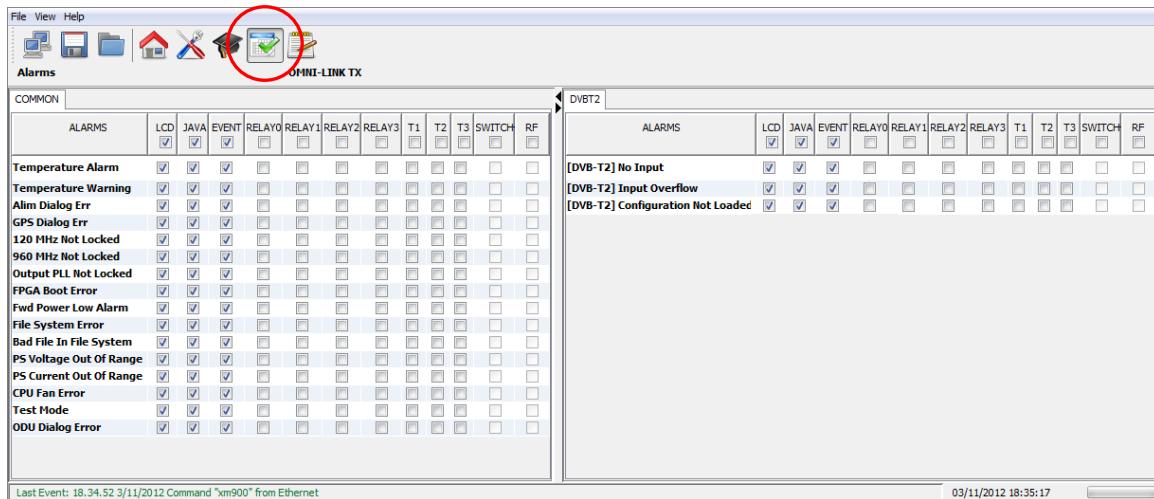
Box	Parameter / Control	Description	Admitted Ranges / Values
GbE 1 / 2 Statistic	GbE Bad Pck	The number of inbound packets that contained errors.	
Community	Get	Read community setting.	
Community	Set	Set community setting.	
Community	Trap	Trap community setting.	
GbE 2 ch1/2 Tx	Enable send frame	Channel 1/2 Ethernet transmission enabling.	<ul style="list-style-type: none"> • Checked: Enabled • Not checked: Disabled
GbE 2 ch1/2 Tx	IP	Channel 1/2 Ethernet transmission IP address.	
GbE 2 ch1/2 Tx	Port	Port used for RTP/UDP data transmission	<ul style="list-style-type: none"> • Min: 0 • Max: 65,535
GbE 2 ch1/2 Tx	Status	Ethernet transmission on channel 1/2 status indicator.	<ul style="list-style-type: none"> • Resolving IP Addr. • IP not found • No entry • Transmitting data • Transmitting data multicast • ON • OFF
GbE 2 ch1/2 Tx	Destination MAC	Destination MAC address.	
GbE 2 ch1/2 Tx	SSRC	SSRC identifier of the RTP transmission on channel 1/2.	

Box	Parameter / Control	Description	Admitted Ranges / Values
GbE 2 ch1/2 Tx	TS Pck per Frame	Number of packets per frame.	<ul style="list-style-type: none"> • Min: 1 • Max: 7
GbE 2 ch1/2 Tx	Frame type	Transmission protocol selector.	<ul style="list-style-type: none"> • RTP • UDP
GbE 2 ch1/2 Tx	TS Format	Transmission format.	<ul style="list-style-type: none"> • 188 Bytes • 204 Bytes
GbE 2 ch1/2 Tx	RTP Clock	RTP packets clock reference.	<ul style="list-style-type: none"> • 90 kHz • 27 MHz

4.1.6 Alarms

Click on Alarms button, highlighted in the next figure, to access the alarms management window.

Figure 4-20 User Interface – Alarms window



The Alarm window allows the setting of alarm masks and the monitoring of alarms status. Use alarm masks to select how and which alarm have to be notified.

Masks are organized in columns. The eleven columns represent eleven destinations of each alarm notification:

- **GUI:** the selected alarms status is notified on the Java alarm page icon.
- **LCD:** the selected alarms status is notified on LCD display lighting the alarm button and listing the alarms in the Alarms menu (refer to [LCD alarms](#) paragraph).
- **Event:** the selected alarms status generate an alarm event that will be logged in the event memory (refer to paragraph).
- **Systemlog:** the selected alarms status generate an alarm event that will be logged in system log server.
- **Traps:** the selected alarms generate the corresponding trap messages (refer to [Network](#) paragraph to set destination IP addresses).

In the Alarms window, when an alarm condition occurs, the relative alarm is red highlighted. The Total check box enables all alarms-to-masks associations.

Table 4-9 Alarms window

Alarm	Description and limitations	Troubleshooting	C/T2(2)	RF mask (1)
Temperature Alarm (-3dB)	<p>Temperature level goes over the alarm threshold.</p> <p>The output power is consequently lowered by 3 dB (always within the admitted power range).</p>	<ul style="list-style-type: none"> • Check alarm and warning thresholds • Lower the output power to decrease internal temperature • Check the device airflow • Check fans 	C	0
Temperature Warning	Temperature level goes over the warning threshold.			
Alim Dialog Err	Communication errors between the main board and the power supply board.	<ul style="list-style-type: none"> • Hardware fault 	C	1
GPS Dialog Err	<p>Communication errors between main board and GPS board.</p> <p>The monitoring of this alarm is disabled when GPS is not used as clock reference.</p>	<ul style="list-style-type: none"> • Hardware fault 	C	1
120MHz Not Locked	<p>120 MHz is not locked.</p> <p>The monitoring of this alarm is disabled when the Signal 10 MHz Not Locked alarm is raised or when GPS is used as clock reference and GPS alarm (GPS Not Locked, GPS Dialog Err) is raised.</p>	<ul style="list-style-type: none"> • In SFN configuration, when selected TS input or MIP are not detected, 120 MHz oscillator can lose the lock • Hardware fault 	C	1
960MHz Not Locked	960 MHz is not locked.	<ul style="list-style-type: none"> • Hardware fault 	C	1

Alarm	Description and limitations		Troubleshooting	C/T2(2)	RF mask (1)
Output PLL Not Locked	Output PLL not locked alarm		<ul style="list-style-type: none"> Hardware fault 	C	1
FPGA Boot alarm	FPGA boot has not been successfully completed.		<ul style="list-style-type: none"> Restart the machine Reload the file system 	C	1
Forward Power Low Alarm	FWD power level goes over the alarm threshold.		<ul style="list-style-type: none"> Check alarm and warning thresholds At every amplifier initialization the FWD power alarm and warning are temporary on Amplifier is not properly working, hardware fault 	C	0
File System Error	File System loading error.		<ul style="list-style-type: none"> File system partition damage 	C	1
Bad File In File System	One or more of the following files are not present in the File System:		<ul style="list-style-type: none"> Check files list Reload the file system 	C	1
	*.cfg *.drlin *.ochf *.fpga6 *.snmp *.htm	*.jar *.def *.pwr2 *.sav *.cdef2 *.gpsf			

Alarm	Description and limitations	Troubleshooting	C/T2(2)	RF mask (1)
PS Voltage Out Of Range	Power Supply voltage out of range. This alarm is risen when at least one of the following conditions is met: <ul style="list-style-type: none"> • PS 26V < 24V or > 28V • PS1/PS2 50V < 45V or > 55V 	<ul style="list-style-type: none"> • Hardware fault 	C	1
PS Current Out Of Range	Power Supply current out of range. This alarm is risen when at least one of the following conditions is met: <ul style="list-style-type: none"> • PS Current 26V > 8A • PS1/PS2 Current 50V> 18A 	<ul style="list-style-type: none"> • Hardware fault 	C	1
CPU Fan Error	CPU fan speed equal to zero or CPU fan not connected.	<ul style="list-style-type: none"> • Check fan connection 	C	1
Test Mode	The equipment is generating a test signal.	<ul style="list-style-type: none"> • Disable the test signal 	C	0
ODU Dialog Error		<ul style="list-style-type: none"> • 		
[DVB-T2] No Input	Selected TS input not locked.	<ul style="list-style-type: none"> • Check input cable • Check input statistics 	T2	X
[DVB-T2] Input Overflow	Selected TS input overflow.	<ul style="list-style-type: none"> • Check the capability of the current modulation scheme • Check if the configuration has been loaded 	T2	X
[DVB-T2] Configuration Not Loaded	Some configuration parameters have been changed and the current configuration has not been loaded yet.	<ul style="list-style-type: none"> • Load the configuration through the Load Config button in DVB-T2 Processing window 	T2	X

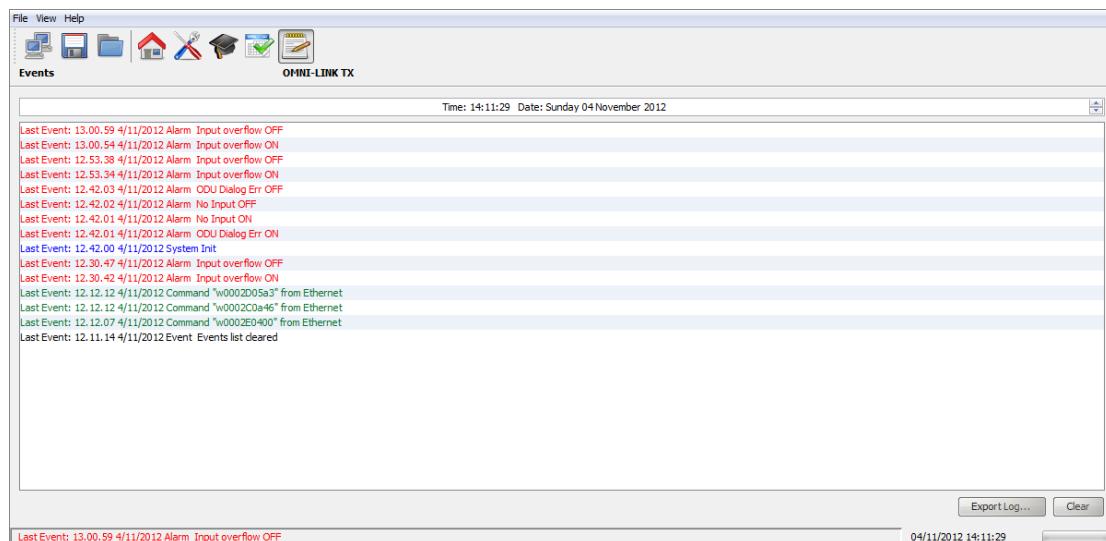
Notes to the table:

- (1) 0/1 stands for disabled/enabled and is fixed, X stands for not fixed.
- (2) C/T2 stands for Common/T2-Specific alarm. Alarms are divided in two different classes: common alarms and mode-specific alarms. Common alarms are those which are HW dependant or are dependent on how the operating system has been designed. Common alarms are shared by all the operational modes.
Mode-specific alarms are those which depend on the implemented functionalities and standards. Mode-specific alarms can be easily recognized thanks to the addition of the mode prefix enclosed in squared brackets.

4.1.7 Events

Click on Events button, highlighted in the next figure, to access the events windows.

Figure 4-21 User Interface – Events window



Open the Events window to slide the events list.

Events are reported with the following information:

- **Date & Time:** event detection date and time.
- **Type:** event type:
 - **Alarm** (refer to *Alarms description list* table);
 - **Command** (refer to *Commands description list* table);
 - **Event** (refer to *Events description list* table);
 - **System initialization** (refer to [Init System Event](#) paragraph);
- **Description:** event description:
 - if the event type is **Alarm**: which alarm generated the event followed by "**ON**" or "**OFF**";
 - if the event type is **Command**: the low level code and command source;
 - if the event type is **Event**: event description;
 - if the event type is **System Init**: system initialization, followed by the alarm in case of error.

Each event type is characterized by a different colour, the following list explain the mean of each colour:

- **Red:** alarm (refer to alarms list in [Alarms](#) paragraph and to Alarms list table);
- **Green:** command;
- **Blue:** system Init (refer to [System Initialization Event](#) paragraph);
- **Black:**
 - **Event** (refer to Events list table);
 - **TASK_ERR** (refer to [Task Error Event](#) paragraph);
 - **SYS_ERR** (refer to [System Error Event](#) paragraph).

Use the following buttons, sited on the right side of the window, to manage the Events list:

- **Clear:** resets the events list.
- **Get History:** gets all the stored events from the last board reset (max 512 events).

Table 4-10 Events descriptions list

Description-Event	Event Description
RF OFF enabled from OPTO	RF output switched off through OPTO 0.
RF OFF dis. from OPTO	RF output switched on through OPTO 0.
Stand-by ON from OPTO	Stand-by mode enabled through OPTO 3.
Stand-by ON from LCD	Stand-by mode enabled through LCD button or OPTO 3.
Stand-by ON CPU Fan Err	Stand-by mode enabled because of a CPU Fan error.
Stand-by OFF	Stand-by mode disabled through LCD button.
Power = <i>xx.x</i> dBm (Local)	New output power setting. <i>xx.x</i> : output power expressed in dBm.
Update file *. <i>xxxx</i>	New file loading. <i>xxxx</i> : file extension.
P5K open: <i>xx.xx.xx.xx</i>	Connection to port 5000 open. <i>xx.xx.xx.xx</i> : host IP address.
P5K closed	Connection to port 5000 closed.
File system busy	File system already in use while trying to employ it (e.g. change mode during a file loading).
Mode A= (<i>mode</i>)	Manual change mode. <i>mode</i> : <ul style="list-style-type: none"> • "OFF", • "ISDBT", • "ITU", • "DVB-T", • "ATSC", • "DVB-T2", • "ECHO", • "Rep. Analog", • "Rep. Digital".
UTC Time set from GPS	Time and date set by GPS. As soon as the GPS lock is regained, once lost, and if the current time and date are different from the GPS ones, the UTC time is set by GPS.

Description-Event	Event Description
PS Restart <i>N</i>	<p>This event is reported when one of the following alarms is raised:</p> <ul style="list-style-type: none"> • PS1/2 50V voltage out range • PS1/2 50V current out of range <p>The fourth time one of the preceding alarms is raised the amplifier is restarted (from 1 up to 4 times).</p> <p><i>N</i>: number of amplifier restarting.</p> <p>Only in SDTX 201 and 501 versions.</p>
PS OFF	<p>After the fourth time the amplifier has been restarted, if an alarm condition causing a PS Restart event occurs, PS OFF event is reported and the amplifier is turned off</p> <p>When this event is reported amplifier can be turned on only by OPTO 2 or by the Restart button in the Output window (only in SDTX 201 and 501 versions).</p>
Restart Amp. from OPTO	<p>This event is reported when the retry command is given by the Retry Alarm OPTO (OPTO 2).</p>
PS ON	<p>This event is reported at every amplifier restarting</p>
Events List cleared	<p>This event is reported when the events list is cleared.</p>
Updating <i>string</i> fw...	<p>This event is reported when the update of the FPGA firmware starts.</p> <p>String values:</p> <ul style="list-style-type: none"> • "ISDBT", • "ITU", • "DVB-T", • "ATSC", • "DVB-T2", • "ECHO", • "Rep. Analog", • "Rep. Digital".
FPGA firmware err <i>xx</i>	<p>This event is reported when an error occurs during the update of the FPGA firmware.</p> <p><i>xx</i>: error code:</p> <ul style="list-style-type: none"> • 0x10, 0x20, 0x01, 0x02, 0x03: programming error; • 0x11: firmware not found in FS (for the current mode); • 0x22: FPGA file opening error; • 0x33: FPGA file reading error; • 0x44: erasing FLASH memory block error.
FPGA firmware OK	<p>New FPGA firmware successfully loaded.</p>
Saving config...	<p>Saving configuration task started (after the command "s" given by RS232 or GbE commands).</p>
Save config Finished	<p>Saving configuration task correctly ended.</p>
Save config error: <i>xx</i>	<p>An error occurs during saving configuration.</p> <p><i>xx</i>: error code:</p> <ul style="list-style-type: none"> • 0x80: File system busy; • 0x01: New *.sav file opening error; • 0x02: uC header writing error; • 0x03: uC data writing error; • 0x04: FPGA header writing error; • 0x05: FPGA data writing error; • 0x07: File date writing error; • 0x08: Old *.sav file deleting error • 0x09: New file naming error (deleting of "*"); • 0x0A: File date writing error it can't be found into the FS • 0x10: file already opened.
Pwr adjusted to <i>xx.x</i> dBm	<p>New output power setting due to a set value exceeding the mode specific power range.</p> <p><i>xx.x</i>: output power expressed in dBm.</p>

Description-Event	Event Description
In. AUTO switch to <i>string</i>	<p>When Input Select Mode is set on Autoswitch and the selected input is not locked the device switch to the next available locked input (refer to Task Error Event paragraph) and this event is generated.</p> <p><i>string:</i></p> <ul style="list-style-type: none"> • ASI1 • ASI2 • ASI3 • ASI4 • Tuner • RxCh1 • RxCh2
Forced A = <i>mode</i>	<p>If the device is in Mode A and the selected working mode is disabled by default (as established in the MODE_DIS field of the *.def file), the next available working mode is forced.</p> <p><i>mode:</i></p> <ul style="list-style-type: none"> • "ISDBT", • "ITU", • "DVB-T", • "ATSC", • "DVB-T2", • "ECHO", • "Rep. Analog", • "Rep. Digital".
Forced Ch In A= <i>string</i>	Channel input.
Forced ChOut A= <i>string</i>	Channel output.
Forced reset for IIC err	An IIC error forced the board reset.
=> <i>string</i> err <i>status</i>	<p>It notifies which file generated the Bad file in File System alarm.</p> <p><i>string:</i> file extension <i>status:</i> ON or OFF</p>
ERR on delete file ' <i>string</i> '	<p>After a FS file update the old file is renamed and then deleted. This event is reported when the deletion of the old file during the system initialization does not succeed.</p> <p><i>string:</i> file extension.</p>
Delete file ' <i>string</i> '	<p>FS file deleted.</p> <p><i>string:</i> file extension.</p>
Init FS date	This event is reported once time and date table of the File System is initialized for the first time.
Error init FS date <i>xx</i>	<p>An error occurs during FS initialization.</p> <p><i>xx:</i> error code:</p> <ul style="list-style-type: none"> • 0x01: EEPROM data reading error; • 0x02: EEPROM data writing error; • 0x03: CRC error in time and date table.
Error on delete *. <i>string</i>	<p>FS file deleting error.</p> <p><i>string:</i> file extension.</p>
S1/S2 changed, P1 loading	Automatic update of P1 symbol. This event is reported at every system initialization and, in T2-MI mode, when S1 and S2 fields of incoming T2-MI pkts change.
Saving drlin ...	Saving linear coefficients task started (after the command "p2" given by RS232 or GbE commands).
Saving drlin Finished	Saving linear coefficients task correctly ended.

Description-Event	Event Description
Save drlin err: <i>xx</i>	<p>An error occurs during saving linear precorrection coefficients. <i>xx</i>: error code:</p> <ul style="list-style-type: none"> • 0x80: File system busy; • 0x01: New *.drlin file opening error; • 0x02: number of coefficients information writing error; • 0x03: linear coefficients writing error; • 0x07: File date writing error; • 0x08: Old *.drlin file deleting error • 0x09: New file naming error (deleting of "*"); • 0x10: file already opened; • 0x0A: File date writing error it can't be found into the FS.
New T2MI PID <i>N</i>	New T2-MI PID found by the Automatic T2-MI PID Mode mechanism.
IIC Error	IIC bus error
DVB-T2 params err <i>xx</i>	<p>An error occurs during T2 parameters loading. <i>xx</i>: error code:</p> <ul style="list-style-type: none"> • 0x01: P1 symbol loading error; • 0x02: P1 symbol loading error due to a not valid T2-MI input.
Re-start mode	When DVB-T2 params err 01 occurs during T2 parameters loading, the FPGA firmware is reloaded and this event is generated.
DVB-T2 preset err <i>xx</i>	<p>An error occurs during T2 preset configuration loading. <i>xx</i>: error code:</p> <ul style="list-style-type: none"> • 0x80: File system busy; • 0x01: *.t2cfg file opening error; • 0x02: *.t2cfg file header reading error; • 0x03: the selected configuration is corrupted; • 0x04: preset configuration data too big; • 0x05: memory allocation error; • 0x06: *.t2cfg file header reading error; • 0x09: *.t2cfg file not found; • 0x10: the selected configuration is not present.
RFL Power Warning	RFL power goes over the alarm threshold for the first time and the "Number of attempts" is different from zero.
RFL Power OK	RFL power goes under the alarm threshold.
RFL Power Alarm	RFL power goes over the alarm threshold for N times, where N is the number of attempts specified in the Output page of the Java GUI.
RFL RF ON " <i>N</i> "	When RFL power goes over the alarm threshold the system switch off and on the output RF signal for a maximum number of times. N is the current number of attempt.
T2-MI Autodetect PID OK	The Automatic T2-MI PID detection has been put across
T2MI PID PAT Err	During Automatic T2-MI PID operations, PAT has not been found in the input Transport Stream.
T2-MI PID Not Valid	During Automatic T2-MI PID operations, no PIDs with stream type x06 has been found in the PMT.
T2MI PID PMT Err	During Automatic T2-MI PID operations, more than one PID with stream type x06 has been found in the PMT.
T2-MI PID Not Found	During Automatic T2-MI PID operations, the detected T2-MI PID has not been found in the input Transport Stream
Freq Ref Forced: GPS	If the Network mode is SFN but the clock reference is set to Internal, the frequency reference is automatically forced to GPS and this event is generated.
Freq Ref set to <i>string</i>	<p>Event generated at every new Frequency Reference selection. <i>string</i>: the clock reference</p> <ul style="list-style-type: none"> • External • Internal • GPS

Description-Event	Event Description
Holdover OFF	Condition 1: the clock reference is changed and the OCXO is not locked yet. Condition 2: the input clock reference is not present.
Holdover SFN Ready	The OCXO is locked to the selected frequency reference and the system is waiting for the OCXO stabilization.
Holdover Ready	Condition 1: the OCXO is stable and the Holdover function is now available. Condition 2: the system quit the Holdover mode because the OCXO regain the lock to the selected clock reference.
Holdover ON	If the OCXO is no more locked to the selected frequency reference and the Holdover function is enabled and available, the equipment enters in holdover mode.
Holdover TMO Expired	Condition: the Holdover state is "ON" (the function is enabled) and the Holdover timeout period elapses prior to regain the lock of the selected clock reference source.
Fan <i>N</i> Speed <i>string</i>	It notifies which fan caused the Fans Speed Low alarm. <i>string</i> : <ul style="list-style-type: none">• Low;• OK
Updating GPS fw...	This event is reported when the update of the GPS firmware starts.
GPS firmware err <i>xx</i>	This event is reported when an error occurs during the update of the GPS firmware. <i>xx</i> : error code: <ul style="list-style-type: none">• 0x80: File system busy;• 0x01: firmware not found in FS (for the current mode);• 0x02: GPS file opening error;• 0x03: GPS file reading error;• 0x06:GPS fw transferring into buffer error.
GPS firmware OK	New GPS firmware successfully loaded.
Updating GPS fw (NILL)...	When an error occurs during the update of the GPS firmware, the system reloads the Nill firmware prior to attempt another update.

The following table lists the descriptions of all the alarm type events (refer to [Alarms](#) paragraph for further information about alarms).

Table 4-11 Alarms descriptions list

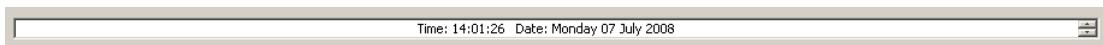
Alarm	Description-Alarm
Temperature Alarm (-3dB)	Temp. High -3dB
Temperature Warning	Temp. High Warning
Alim Dialog Err	Alim Dialog Err
GPS Dialog Err	GPS Dialog Err
120MHz Not Locked	120MHz Not Locked
960MHz Not Locked	960MHz Not Locked
Output PLL Not Locked	Out PLL Not Locked
FPGA Boot Error	FPGA Boot Err
Forward Power Low Warning	FWD Pwr Low Warning

Alarm	Description-Alarm
File System Error	File System Err
Bad File In File System	File Err
PS Voltage Out Of Range	PS1 V Out Of Range
PS Current Out Of Range	PS1 I Out Of Range
CPU Fan Error	CPU Fan Error
Test Mode	Test Mode
[DVB-T2] No Input	No Input
[DVB-T2] Input Overflow	Input overflow
[DVB-T2] Configuration Not Loaded	Cfg. Not Loaded

4.1.7.1 Date and Time Setting

The upper part of the event window shows the actual time and date and allows the manual setting of those parameters.

Figure 4-22 User Interface – Time and date setting



Click to each part of the date and time to change the parameter and then increase or decrease its value with the up/down arrows.

Note: When the onboard GPS receiver is locked and GPS frequency reference is enabled, the date and time information are received by GPS satellite and updated every thirty seconds.

The board incorporates a rechargeable battery to maintain the time when there isn't a power supply. The battery supplies the clock for two or three days, after that the time shall be reset either by char interface, or LCD display, or Java interface or selecting the GPS as frequency reference.

4.1.7.2 Task Error Event

The watchdog performs a periodic (every 20 seconds) polling of tasks and triggers a system reset if one or more tasks do not answer, restarting the Code loader (See Codeloader_Operations_Note_v1.1.doc for further information) and generating a TSK ERR event as follows:

TSK ERR 00000028, 00000003c

The blue underlined 32-bits word is the enabling status of the alarms mask. The red underlined 32-bits word indicates the status of tasks (1 if the task has been successfully performed, otherwise 0) as specified in the following table:

Table 4-12 Task error event specific data

TASK	Description	Bit
WD_FAN_TASK	This task controls fans speed on the basis of the board temperature.	0
WD_UPCV_TASK	This task controls the Up-converter status.	1
WD_GPS_TASK	This task controls the GPS status.	2
WD_STATUS_TASK	This task gathers quite all the board information in order to perform the following operations: <ul style="list-style-type: none"> • It updates all variables of the system; • It manages alarms; • It manages the RF status (e.g. on, off...); • It manages the mode switch; • It manages the ARP resolution in DVB mode. 	3
WD_TCP_IP_TASK	This task implements the TCP-IP protocol stack.	4
WD_TIMER_TICK_TASK	This task generates the clock for the TCP-IP task.	5
WD_STV0362_TASK	This task gathers information from both the HP and LP tuners and configures them.	6
WD_ARK6AL_TASK	This task gathers information from: <ul style="list-style-type: none"> • Get ADC value • Get Amplifier Voltage and current measure • Calculate FWD power level • Output AGC • Calculate Reflex power • Get temperature • Get opto & relay status • Disable alim status 	7

The default tasks mask at the board startup is set to 0x0000007D (please note that the up-converter task is initially skipped). Once the presence of the up-converter is assured, the up-converter task bit is automatically enabled and the mask is set to 0x0000007F. Tasks execution is stopped during de-fragmentation operations and FPGA boots.

4.1.7.3 System Error Event

For critical and fatal errors, the system calls the system error function and the SYS_ERR event is reported.

The error codes are described below:

- 0x00: Out of memory. Memory pool size is too small.
- 0x01: Invalid memory block release. Buffer data has been written out of boundaries of the allocated memory block.
- 0x02: Link pointer corrupted. Buffer data has been written out of boundaries of the allocated memory block.
- 0x03: No free UDP Sockets. The system has run out of UDP Sockets.
- 0x04: No free TCP Sockets. The system has run out of TCP Sockets.
- 0x05: TCP socket is in an undefined state. System memory has been accidentally overwritten.

4.1.7.4 System Initialization Event

At every system initialization the event System Init is generated.

This event is followed by 25 bytes specifying type and specific code of errors occurred during system initialization.

Each byte refers to an error as described in the following table:

Table 4-13 Init system event specific data

Description	Errors code	Byte
FS_ERR File System error.	<ul style="list-style-type: none"> • 0x00: File System ok. • 0x01: FS partition error (invalid FS). 	1°
INFO_ERR .cfg file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File not found or File open error. • 0x02...0x03: Invalid file (syntax errors). 	2°
DEF_ERR .def file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File open error. • 0x02: File not found. 	3°

Description	Errors code	Byte
LCD_ERR LCD error.	<ul style="list-style-type: none"> • 0x00: LCD ok. • 0x01: LCD not found. 	4°
PLL_960M_ERR 960 MHz PLL error.	<ul style="list-style-type: none"> • 0x00: PLL locked. • 0x01: PLL not locked 	5°
BOOT_ERR FPGA boot error.	<ul style="list-style-type: none"> • 0x00: FPGA boot ok. • 0x01: FPGA NILL boot error • 0x02: FPGA file version error • 0x03: FPGA code error. 	6°
LOAD_CFG_ERR *.sav file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File open error. • 0x02...0x05: Invalid file (syntax errors). 	7°
SNMP_ERR SNMP file error.	<ul style="list-style-type: none"> • 0x00: SNMP file ok. • 0x01: SNMP file not found. • 0x02: File open error. • 0x03: UDP socket initialization error. • 0x04: Port 161 open error. 	8°
CALIB_ERR *.pwr file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: Current AGC mode file not found. • 0x02: Current AGC mode file open error. • 0x03...0x12: Invalid current AGC mode file (syntax error). • 0x20: Other AGC mode file not found • 0x21: Other AGC mode file open error. • 0x22...0x26: Invalid other AGC mode file (syntax error). <p>Please note that the AGC mode may be analog or digital. Actual AGC mode is displayed in Java output window.</p>	9°
PREC_ERR	<ul style="list-style-type: none"> • 0x00: File ok. 	10°
LINEAR_ERR	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File not found. • 0x02: File open error. • 0x03...0x06: Invalid file (syntax errors). 	11°
DOWNCV_ERR Downconverter PLL not locked error.	<ul style="list-style-type: none"> • 0x00: PLL locked. • 0x01: PLL not locked • 0x10: PLL disabled. 	12°
UPCV_ERR Upconverter error.	<ul style="list-style-type: none"> • 0x00: Upconverter ready. 	13°

Description	Errors code	Byte
CH_FILT_ERR *.chf7 or *.chf8 file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File not found. • 0x02: File open error. • 0x03...0x06: Invalid file (syntax errors). <p>Please note that checked file is the one which refers to the current signal bandwidth: *.chf7 refers to VHF bandwidth, *.chf8 refers to UHF bandwidth.</p>	14°
CH_DEF_ERR *.cdef file error.	<ul style="list-style-type: none"> • 0x00: File ok. • 0x01: File not found. • 0x02: File open error. • 0x03: syntax error or lack of input number of channels. • 0x13: syntax error or lack of output number of channels. • 0x04: input channels memory allocation error. • 0x14: output channels memory allocation error. • 0x05: when the automatic indexing of channels listed in *.cdef file is disabled, it notifies syntax errors or lack of input channels definition lines. • 0x15: when the automatic indexing of channels listed in *.cdef file is disabled, it notifies syntax errors or lack of output channels definition lines. • 0x06: when the automatic indexing of channels listed in *.cdef file is enabled, it notifies syntax errors or lack of input channels definition lines. • 0x16: when the automatic indexing of channels listed in *.cdef file is enabled, it notifies syntax errors or lack of output channels definition lines. 	15°

4.1.8 System menu

The menu bar allows the access to three menus:

- **File:** allows the enabling of saving configuration
- **View:** allows to manage sections windows showing, java update time and events alert messages
- **Help:** informs about board name, file system and operator managing system characteristics, and allow downloading OMNI-LINK TX manual.

Figure 4-23 User Interface – Menu bar



4.1.8.1 File menu

Figure 4-24 User Interface – File menu

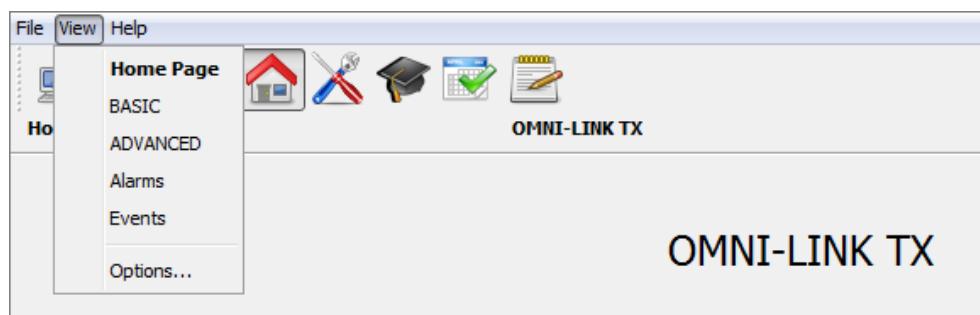


The File menu allows the enabling of the following commands:

- **Save:** allows saving the device configuration.
- **Load:** allows loading the last saved device configuration.
- **Export Config:** exports last saved configuration of the device (the *.sav file).
- **Import Config:** imports a new configuration file (the *.sav file).
- **Capture screenshots:** downloads a screenshot for each one of the selected windows.

4.1.8.2 View menu

Figure 4-25 User Interface – View menu



The View menu allows the enabling of the following commands:

- **Home Page:** allows to show the general window.
- **Basic:** allows to show the basic window.
- **Advanced:** allows to show the advanced window.
- **Alarms:** allows to show the alarms window.
- **Events:** allows to show the events window.
- **Options:** allows to open the option sub-menu.

4.1.8.3 Option sub-menu

The Option sub-menu allows two controls type:

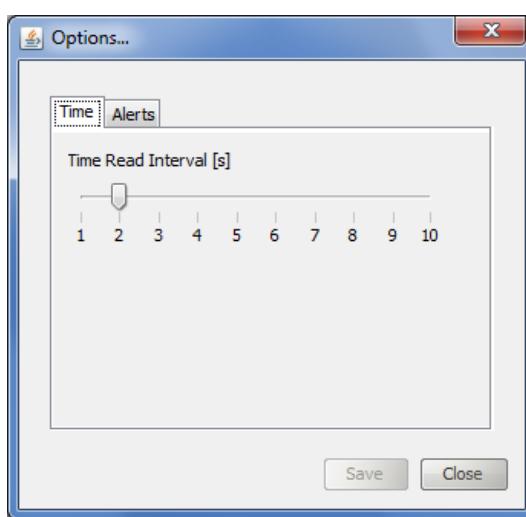
- **Time:** Time Read Interval [s];
- **Alerts:** the selection of events to display.

Click on the Save button to save Java options; a *.properties file will be created.

The device is not loaded with a factory default *.properties file, but it is created and then stored in System File once the properties have been saved.

4.1.8.3.1 Time

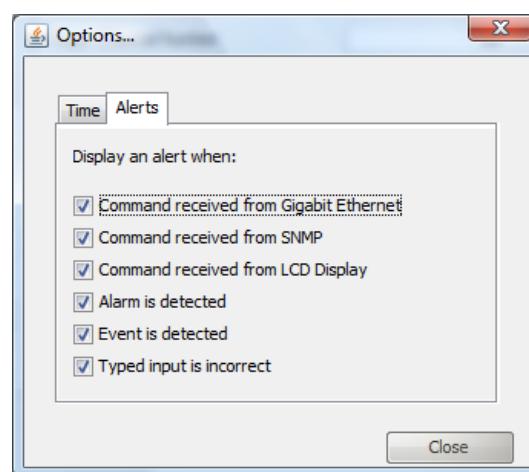
Figure 4-26 User Interface – Time window



This control allows changing the device-to-management PC java update time. The default value is 2 seconds. Click on Close button quit this sub-window.

4.1.8.3.2 Alerts

Figure 4-27 User Interface – Alerts window



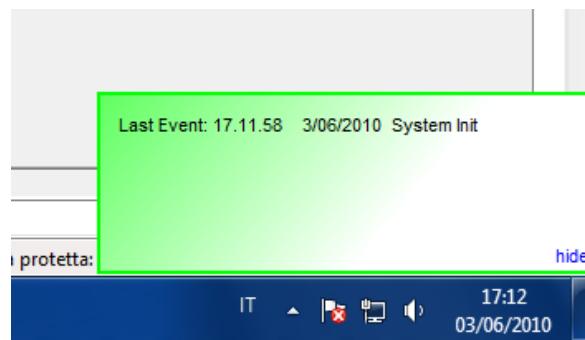
The Alert sub-window allows the selection of which type of event has to be notified through an Alert box.

Alert boxes appear on the right side of the monitor. The selection is performed among the following types of event:

- **Commands (blue boxes):**
 - Gigabit Ethernet commands;
 - SNMP commands;
 - LCD Display commands.
- **Alarms (red boxes);**
- **Events (green messages):**
 - Board events.
- **Typing error (yellow messages):**
 - Typed setting is incorrect.

Click on *hide* button to close these alert popup windows.

Figure 4-28 User Interface – Alert message

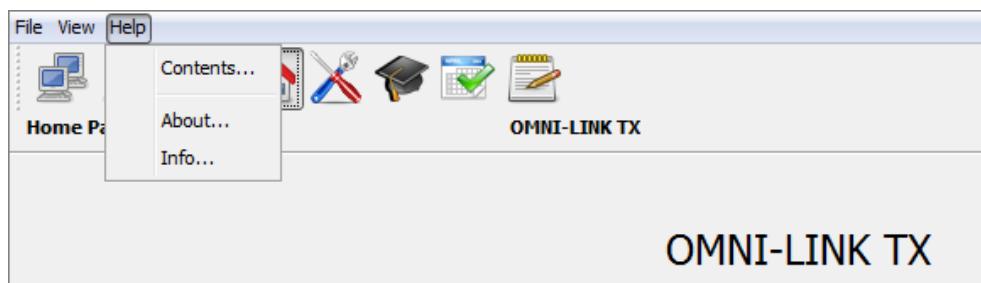


Alert boxes can be disabled through the hide button located on the right side of the box.

The hide button, once clicked, disables all boxes belonging to the same class.

4.1.8.4 Help menu

Figure 4-29 User Interface – Help menu

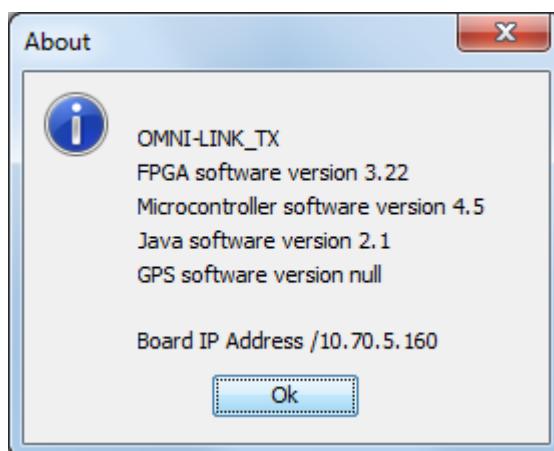


The Help menu allows the enabling of the following commands:

- **About:** shows information about board name, board IP address and file system.
- **Info:** shows information about “Server File System Content” and “Client System Parameters”.

4.1.8.4.1 About

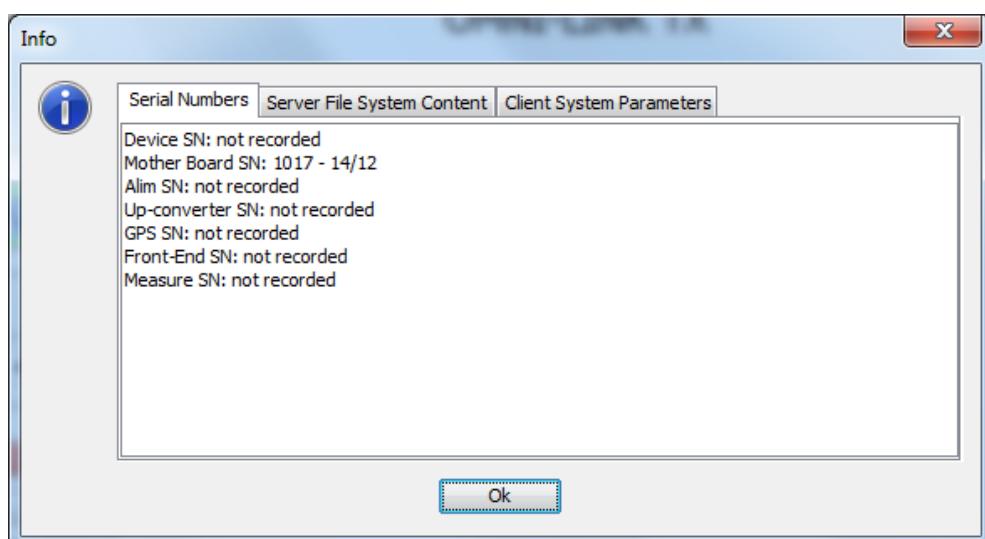
Figure 4-30 User Interface – About window



The About window shows the board name and the GbE1 IP address. It also informs about the board uC, fpga and java software versions. Click on OK button to close the window.

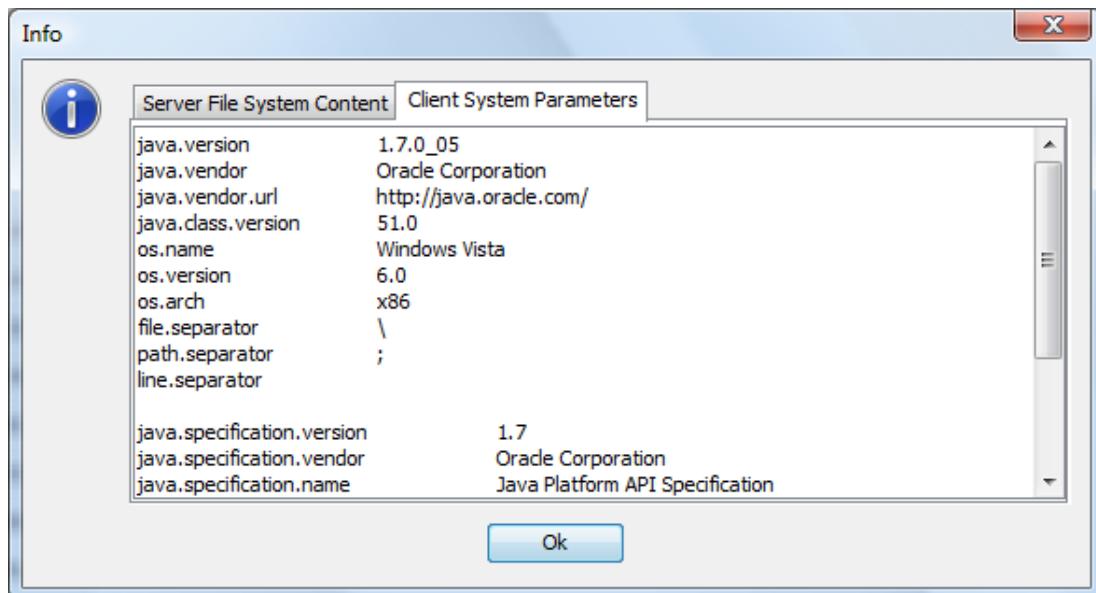
4.1.8.4.2 Info

Figure 4-31 User Interface – Info window: Server file system content



The server file system content section of info window shows the entire board system files list. Use scroll bars to view all the items.

Figure 4-32 User Interface – Info window: Client system parameters



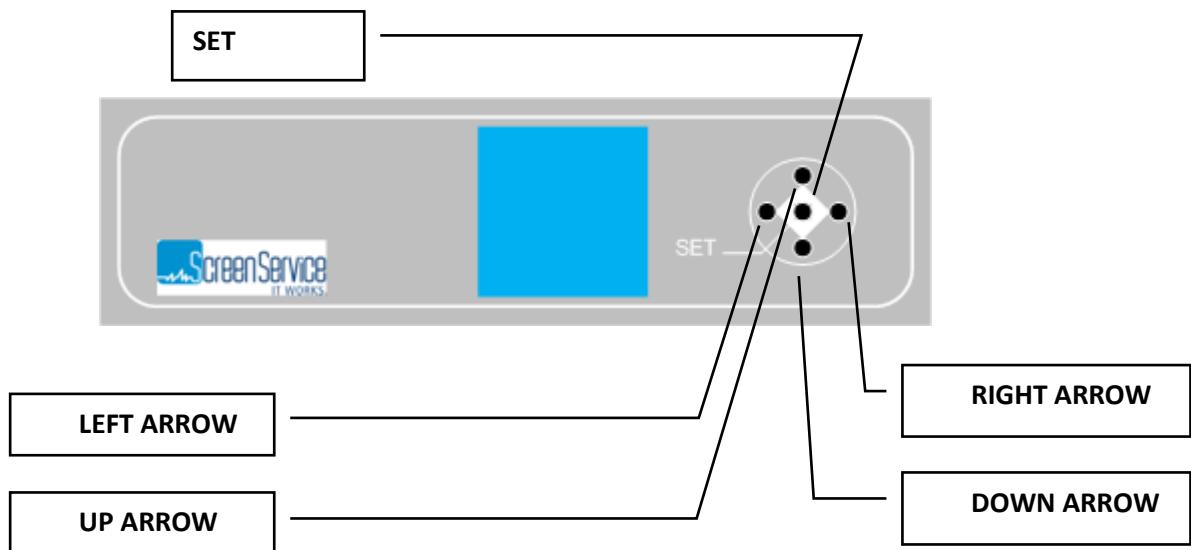
The client system parameters section of info window shows the operator managing system characteristics list. Use scroll bars to view all the items. Click on OK button to close the window.

4.2 Local User Interface

The following paragraphs describe the local user interface of OMNI-LINK TX devices.

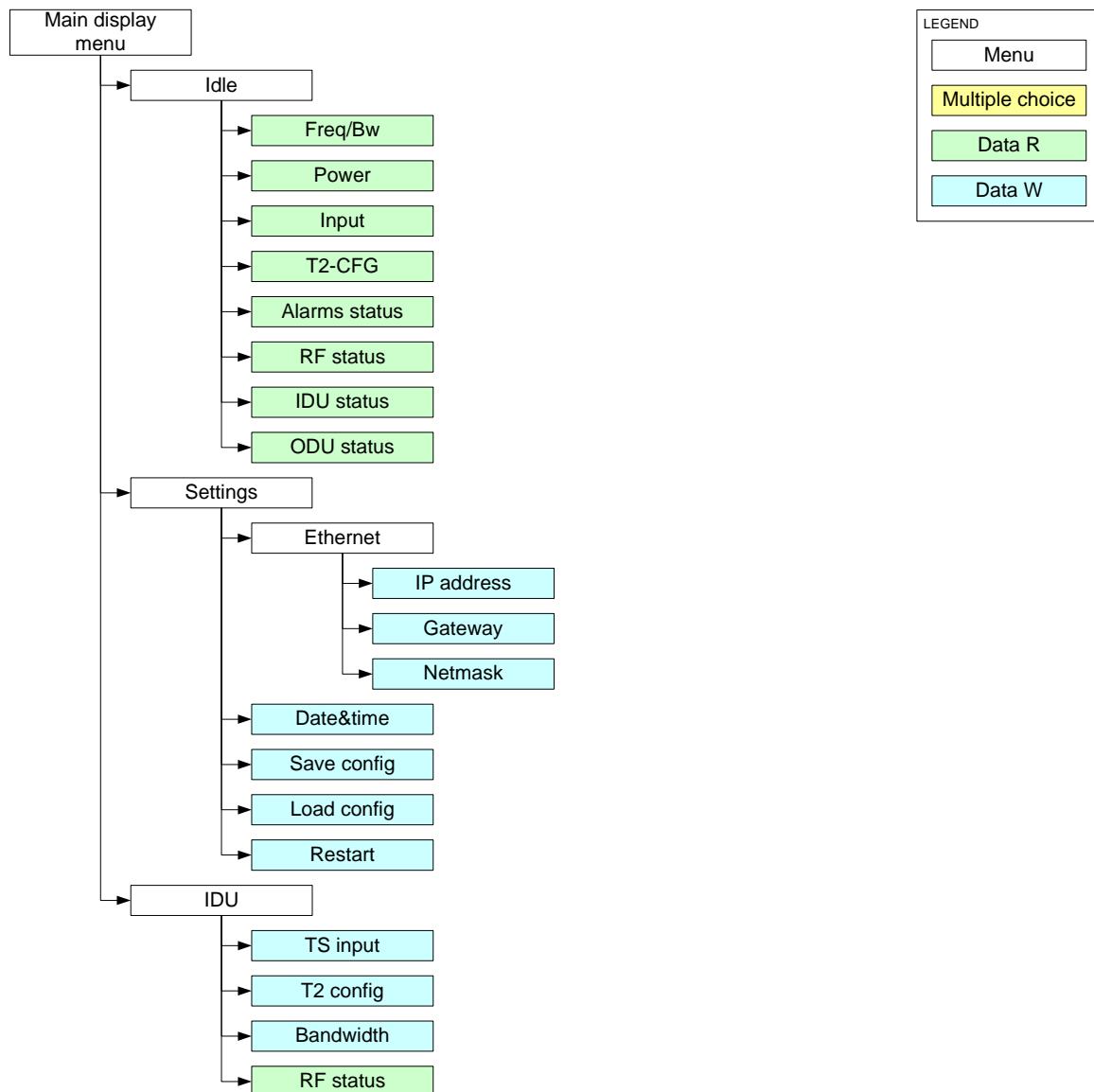
This user interface is composed of LCD Display, seven buttons and two status leds.

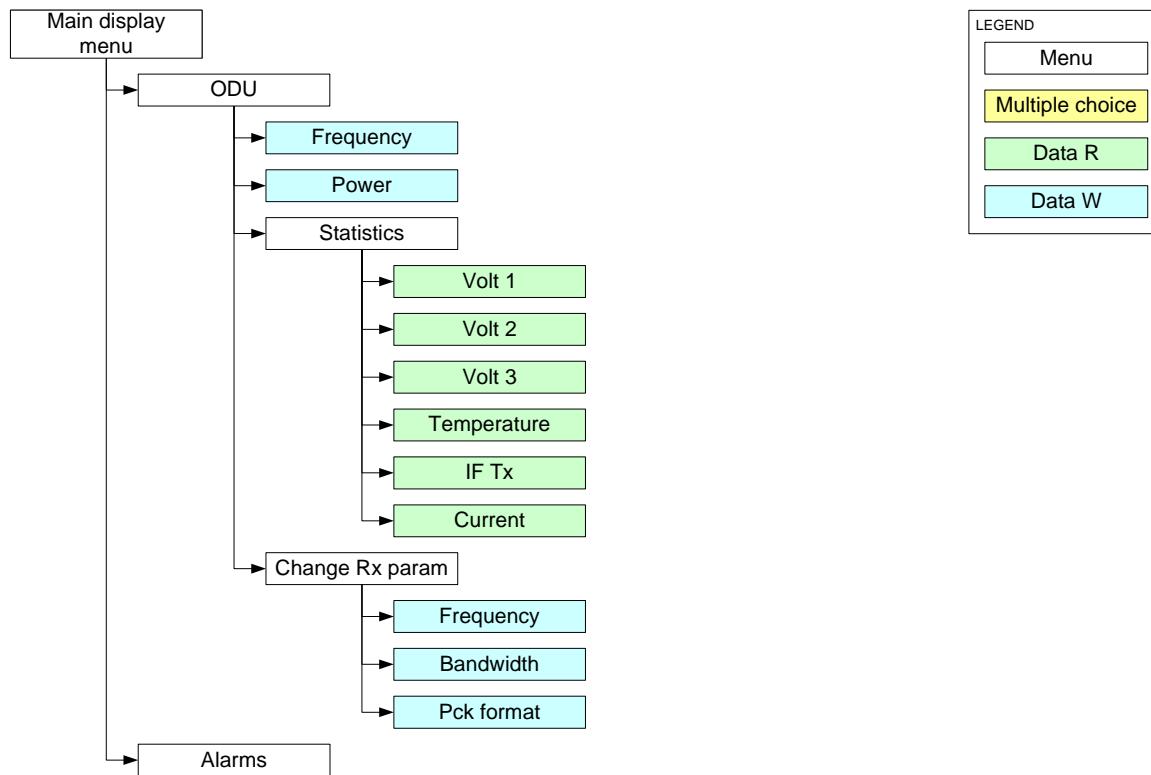
Here below is depicted the OMNI-LINK TX Front Panel.



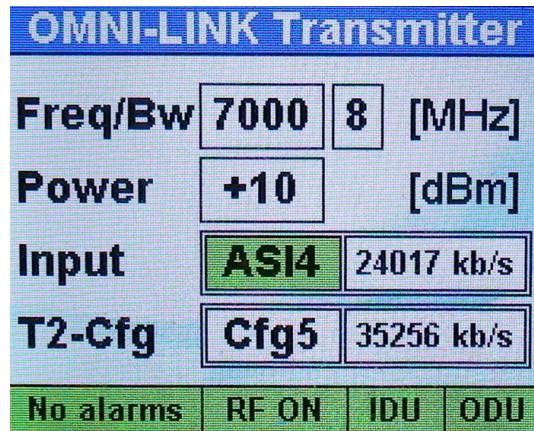
- **SET:** push this button to select or to confirm the submenu or the value respectively. Touching the screen with a finger the green led lights up.
- **UP ARROW:** push this button to scroll up menus or to increase a value. Touching the screen with a finger the green led lights up.
- **DOWN ARROW:** push this button to scroll down menus or to decrease a value. Touching the screen with a finger the green led lights up.
- **LEFT ARROW:** push this button to move within a string. Touching the screen with a finger the green led lights up.
- **RIGHT ARROW:** push this button to move within a string. Touching the screen with a finger the green led lights up.

4.2.1 Local interface menu tree





4.2.2 Idle Menu



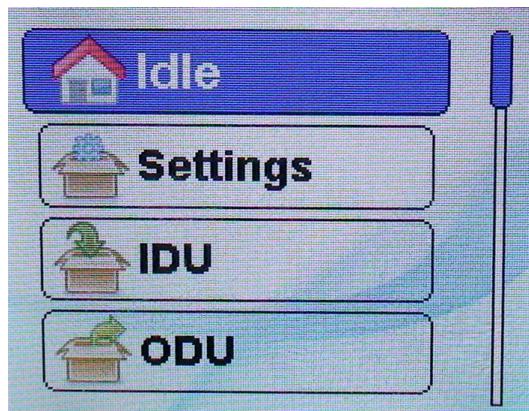
This menu appears after one minute waiting from the last touch. Information contained in the Idle Menu are described in next table.

Figure 4-33 Local User Interface: Idle Menu

Event	Description
OMNI-LINK Transmitter	Product Name
Freq/Bw	Shows the actual used frequency and the actual used Bandwidth
Power	Shows the actual output power
Input	Shows the actual used input
Input bitrate	Shows the actual used input bitrate
T2-Cfg	Shows the actual used configuration
T2-Cfg bitrate	Shows the actual used configuration bitrate
Alarms status	Shows Alarms status
RF status	Shows RF status
IDU status	Shows IDU status
ODU status	Shows ODU status

status Press SET to enter the MAIN MENU.

4.2.3 Main Menu



This menu shows five submenus. It is possible to view them sliding the menu up and down, with the UP or DOWN ARROWS, and to select one of them by pushing on the SET button.

Submenus contained in the Main Menu are described in next table.

Figure 4-34 Local User Interface: Main Menu

Submenu	Description
Idle	<p>Enter this submenu to see:</p> <ul style="list-style-type: none"> • OMNI-LINK Transmitter • Freq/Bw • Power • Input • Input bitrate • T2-Cfg • T2-Cfg bitrate • Alarms status • RF status • IDU status • ODU status
Settings	<p>Enter this submenu to:</p> <ul style="list-style-type: none"> • Set Ethernet Address • Set Ethernet Gateway • Set Ethernet Netmask • Set Time • Set Date • Save config • Load config • Restart system

Submenu	Description
IDU	<p>Enter this submenu to change:</p> <ul style="list-style-type: none"> • TS input • T2 config2 • Bandwidth <p>And see:</p> <ul style="list-style-type: none"> • RF status
ODU	<p>Enter this submenu to change:</p> <ul style="list-style-type: none"> • Output frequency • Output Power • Rx frequency • Rx bandwidth • Rx pck. format <p>And see:</p> <ul style="list-style-type: none"> • Output status
Alarms	Enter this submenu to view the list of raised alarms.

4.2.4 Ethernet

In this submenu it is possible to configure the network parameters of the GbE port (IP address, NetMask and Gateway address). This menu shows three submenus. It is possible to view them sliding the menu up and down, with the UP or DOWN ARROWS, and to select one of them by pushing on the OK button.

Submenus contained in the Network setup are described in next table.

Figure 4-35 Local User Interface: Network setup

Submenu	Description
IP addr GBE	<p>Enter this submenu to change the IP address. Use the front panel buttons to change the four values (e.g. 010.077.114.015). The range of each value is from 0 to 255.</p> <ul style="list-style-type: none"> • ▲▼ Increment and Decrement the value • ▲▼ Move the prompt between the values
Netmask GBE	<p>Enter this submenu to change the Net mask address. Use the front panel buttons to change the four values (e.g. 255.255.000.000). The range of each value is from 0 to 255.</p> <ul style="list-style-type: none"> • ▲▼ Increment and Decrement the value • ▲▼ Move the prompt between the values
Gateway addr GBE	<p>Enter this submenu to change the Gateway address. Use the front panel buttons to change the four values (e.g. 010.077.114.001). The range of each value is from 0 to 255.</p> <ul style="list-style-type: none"> • ▲▼ Increment and Decrement the value • ►◀ Move the prompt between the values

4.2.5 Time & Date setup

In this submenu it is possible to configure the current Date, time and time offset. This menu shows three SUBMENUS. It is possible to view them sliding the menu up and down, with the UP or DOWN ARROWS, and to select one of them by pushing on the OK button.

Submenus contained in the Time & Date setup are described in next table.

Figure 4-36 Local User Interface: Time & Date setup

Submenu	Description
Time setup	<p>Enter this submenu to change the current time. Use the front panel buttons to change the three values (format: hour:minute:second). The range of hour value is 00 to 24, that ones of minute and second is from 00 to 59.</p> <ul style="list-style-type: none">• ▲▼ Increment and Decrement the value• ►◀ Move the prompt between the values
Date Setup	<p>Enter this submenu to change the current Date. Use the front panel buttons to change the three values (format: Day/Month/Year (Month string)). The range of Day value is 00 to 31, that one of Month id from 01 to 12 and that one of year is from 00 to 99.</p> <ul style="list-style-type: none">• ▲▼ Increment and Decrement the value• ►◀ Move the prompt between the values

4.3 SNMP – Simple Network Management Protocol

The SNMP model assumes the existence of managers and agents. A manager is a software module in a management system responsible for managing the device. An agent is a software module in a managed device responsible for maintaining local management information and delivering that information to a manager via SNMP. A management information exchange can be initiated by the manager (via polling) or by the agent (via trap).

Interaction between a user of board management and the board management software takes place across a user interface. Such an interface is needed to provide users with a monitoring and controlling tool in order to allow some parameters to be viewed or set locally.

The operations that are supported in SNMP network management are the alteration and inspection of variables. Specifically, three general-purpose operations may be performed on scalar objects:

- Get: a management station retrieves a scalar object value from a managed station.
- Set: a management station updates a scalar object value in a managed station.
- Trap: a managed station sends an unsolicited scalar object value to a management station.

Management information accessible via SNMP is maintained in a management information base (MIB) at each manager and agent node.

On manager side, OMNI-LINK TX management system has been tested with MG-SOFT as MIB Browser; besides compatibility with any other MIB browser is assured.

The following MIB libraries are required for the SNMP management of the equipment:

- | | |
|--|---|
| <ul style="list-style-type: none">• screenservice.mib• screen-common-types.mib• ark6-t2.mib• clk-ref.mib• clock.mib• gps.mib• hw-monitor.mib• input.mib | <ul style="list-style-type: none">• network.mib• output.mib• screen-common.mib• t2-fe.mib• t2-modulation.mib• ts-over-ip.mib• ark6.mib• time-src-ntp.mib |
|--|---|

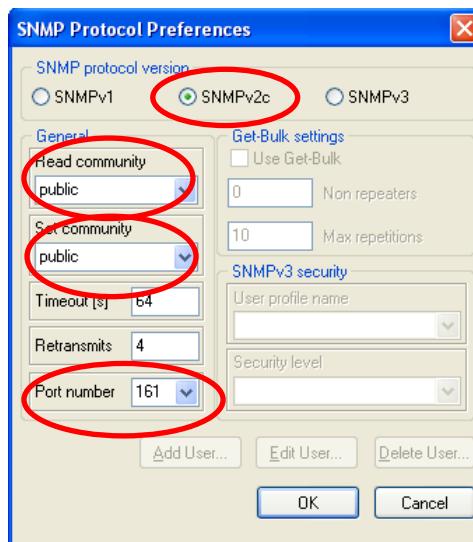
4.3.1 SNMP Protocol Preferences

Go to SNMP Protocol Preferences. The following parameters should be set in order to correctly configure the SNMP Manager:

- SNMP protocol version: SNMPv1, SNMPv2c, SNMPv3;
- Read Community: the same of the one set in the Get field of Java interface, community section;
- Set Community: the same of the one set in the Set field of Java interface, community section;
- Timeout [s]: user defined;
- Retransmits: user defined;
- Port number: 161.

Next figure illustrates how to configure SNMP Protocol Preferences using MG_SOFT MIB Browser as an example.

Figure 4-37 User Interface – SNMP Protocol Preferences

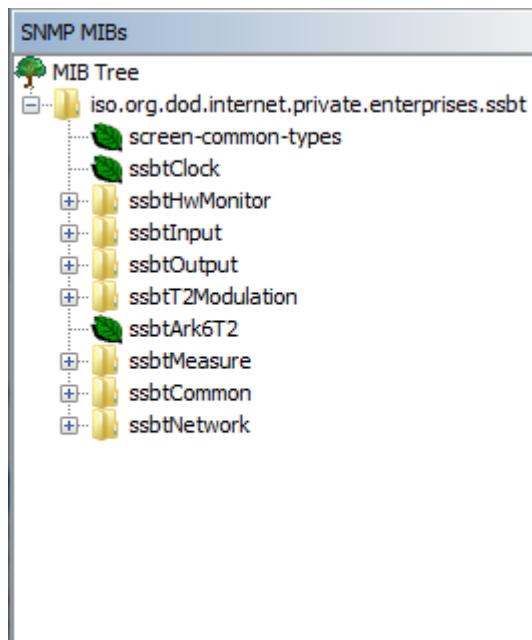


4.3.2 Monitoring

All status and setup information can be queried via SNMP. To get the setup and status information you need a management system (or a special MIB browser).

Next figure, referring to MG-SOFT MIB Browser as an example, is a broad view of the OMNI-LINK TX tree structure.

Figure 4-38 User Interface – OMNI-LINK TX MIB browser



The SSBT MIBs are:

- ssbtArk6T2: the specific AK6-T2 MIB.
- ssbtCommon: the MIB module housing SSBT common objects.
- ssbt-common-types: the MIB module housing SSBT Textual Conventions.

OMNI-LINK TX SNMP tree structure

OID	Name	R/W	Description
1	iso		
1.3	org		
1.3.6	dod		
1.3.6.1	internet		
1.3.6.1.2	mgmt		
1.3.6.1.2.1	mib-2		
1.3.6.1.2.1.1	system		
1.3.6.1.2.1.1.1	sysDescr	R	A textual description of the entity. This value includes the full name and version identification of the system
1.3.6.1.2.1.1.2	sysObjectID	R	
1.3.6.1.2.1.1.3	sysUpTimeInstance	R	
1.3.6.1.2.1.1.4	sysContact	R	
1.3.6.1.2.1.1.5	sysName	R	Identification name of the equipment managed
1.3.6.1.2.1.1.6	sysLocation	R	
1.3.6.1.2.1.1.7	sysServices	R	
1.3.6.1.4	private		
1.3.6.1.4.1	enterprise		
1.3.6.1.4.1.21678	ssbt		
1.3.6.1.4.1.21678.303	ssbtClock		
1.3.6.1.4.1.21678.303.1	reference		
1.3.6.1.4.1.21678.303.1.1	refClock	RW	Frequency reference selector
1.3.6.1.4.1.21678.303.1.3	refTimeSource	RW	TimeSource.
1.3.6.1.4.1.21678.303.1.4	refOffset	RW	Offset [Hour].
1.3.6.1.4.1.21678.303.1.5	refNtpServer	RW	NTP Server IP Address (Gbe1).
1.3.6.1.4.1.21678.303.1.6	refNtpServerLock	R	NTP Server lock.
1.3.6.1.4.1.21678.303.2	gps		
1.3.6.1.4.1.21678.303.2.1	satellites		
1.3.6.1.4.1.21678.303.2.1.1	satVisible	R	Number of visible satellites.
1.3.6.1.4.1.21678.303.2.1.2	satTracked	R	Number of locked satellite.
1.3.6.1.4.1.21678.303.2.2	position		
1.3.6.1.4.1.21678.303.2.2.1	positionLatitude	R	Latitude position [°]
1.3.6.1.4.1.21678.303.2.2.2	positionLongitude	R	Longitude position [°]
1.3.6.1.4.1.21678.303.2.3	utc		

OID	Name	R/W	Description
1.3.6.1.4.1.21678.303.2.3.1	utcDate	R	UTC date and time as specified in SNMPv2-TC
1.3.6.1.4.1.21678.303.2.4	gpsLockStatus		
1.3.6.1.4.1.21678.303.2.4.1	glsGps	R	GPS lock status derived from live data provided by the GPS receiver
1.3.6.1.4.1.21678.303.3	ocxo		
1.3.6.1.4.1.21678.303.3.1	fineFreqAdjust	RW	Enables the Holdover mechanism
1.3.6.1.4.1.21678.303.3.2	dataToFlash	R	Sets the timeout of the Holdover in hour
1.3.6.1.4.1.21678.303.3.3	ocxoLockStatus		
1.3.6.1.4.1.21678.303.3.3.1	olsGps	R	OCXO locked to the external GPS reference
1.3.6.1.4.1.21678.303.3.3.2	ols10Mhz	R	OCXO locked to the external 10 MHz reference
1.3.6.1.4.1.21678.303.3.3.3	ols1Pps	R	OCXO locked to the external 1PPS reference
1.3.6.1.4.1.21678.303.4	holdover		
1.3.6.1.4.1.21678.303.4.1	hEnable	RW	Enables the Holdover mechanism
1.3.6.1.4.1.21678.303.4.2	hTimeout	RW	Sets the timeout of the Holdover in hour
1.3.6.1.4.1.21678.303.4.3	hStatus	R	The status of the Holdover mechanism
1.3.6.1.4.1.21678.303.4.4	hTmoStatus	R	The countdown of the Holdover timeout expressed in seconds
1.3.6.1.4.1.21678.306	ssbtHwMonitor		
1.3.6.1.4.1.21678.306.1	reflexPower	R	Reflex power [dBm x 10]
1.3.6.1.4.1.21678.306.2	amplifierStatus	R	Amplifier status
1.3.6.1.4.1.21678.306.3	powerSupplies		
1.3.6.1.4.1.21678.306.3.1	psNumber	R	The number of power supplies present on this system
1.3.6.1.4.1.21678.306.3.2	psTable	NA	
1.3.6.1.4.1.21678.306.3.2.1	psEntry	8	
1.3.6.1.4.1.21678.306.3.2.1.1	psIndex	R	
1.3.6.1.4.1.21678.306.3.2.1.2	psDescr	R	Power supply description
1.3.6.1.4.1.21678.306.3.2.1.3	psVMeasUnit	R	Voltage unit of measurement
1.3.6.1.4.1.21678.306.3.2.1.4	psVoltage	R	Voltage indicator
1.3.6.1.4.1.21678.306.3.2.1.5	psCMeasUnit	R	Current unit of measurement
1.3.6.1.4.1.21678.306.3.2.1.6	psCurrent	R	Current indicator
1.3.6.1.4.1.21678.306.3.3	psRestart	W	Restarts the amplifier
1.3.6.1.4.1.21678.306.5	fans		
1.3.6.1.4.1.21678.306.5.1	fansNumber	R	The number of fans present on this system
1.3.6.1.4.1.21678.306.5.2	fansTable	NA	
1.3.6.1.4.1.21678.306.5.2.1	fansEntry	8	
1.3.6.1.4.1.21678.306.5.2.1.1	fansIndex	R	

OID	Name	R/W	Description
1.3.6.1.4.1.21678.306.5.2.1.2	fansDescr	R	Fan description
1.3.6.1.4.1.21678.306.5.2.1.3	fansMeasUnit	R	Fan speed unit of measurement
1.3.6.1.4.1.21678.306.5.2.1.4	fansSpeed	R	Fan speed
1.3.6.1.4.1.21678.306.6	temperatures		
1.3.6.1.4.1.21678.306.6.1	tempNumber	R	The number of temperature sensors present on this system
1.3.6.1.4.1.21678.306.6.2	tempTable	NA	
1.3.6.1.4.1.21678.306.6.2.1	tempEntry	8	
1.3.6.1.4.1.21678.306.6.2.1.1	tempIndex	R	
1.3.6.1.4.1.21678.306.6.2.1.2	tempDescr	R	Temperature indicator description
1.3.6.1.4.1.21678.306.6.2.1.3	tempMeasUnit	R	Temperature unit of measurement
1.3.6.1.4.1.21678.306.6.2.1.4	tempLevel	R	Temperature indicator
1.3.6.1.4.1.21678.306.7	relays		
1.3.6.1.4.1.21678.306.7.1	rlNumber	R	The number of relays present on this system
1.3.6.1.4.1.21678.306.7.2	rlTable	NA	
1.3.6.1.4.1.21678.306.7.2.1	rlEntry	8	
1.3.6.1.4.1.21678.306.7.2.1.1	rlIndex	R	
1.3.6.1.4.1.21678.306.7.2.1.2	rlDescr	R	Relay description
1.3.6.1.4.1.21678.306.7.2.1.3	rlStatus	R	Relay status
1.3.6.1.4.1.21678.306.8	optocouplers		
1.3.6.1.4.1.21678.306.8.1	optNumber	R	The number of optocouplers present on this system
1.3.6.1.4.1.21678.306.8.2	optTable	NA	
1.3.6.1.4.1.21678.306.8.2.1	optEntry	8	
1.3.6.1.4.1.21678.306.8.2.1.1	optIndex	R	
1.3.6.1.4.1.21678.306.8.2.1.2	optDescr	R	Optocoupler description
1.3.6.1.4.1.21678.306.8.2.1.3	optStatus	R	Optocoupler status
1.3.6.1.4.1.21678.306.9	cpuFan		
1.3.6.1.4.1.21678.306.9.1	cfNoFan	R	CPU Fan missing alarm status
1.3.6.1.4.1.21678.306.9.2	cfFanFault	R	CPU ventilation blocked alarm status
1.3.6.1.4.1.21678.307	ssbtInput		
1.3.6.1.4.1.21678.307.1	inputSettings		
1.3.6.1.4.1.21678.307.1.1	isT2InputManagement		
1.3.6.1.4.1.21678.307.1.1.1	ist2imInputSel	RW	Input selector
1.3.6.1.4.1.21678.307.1.1.2	ist2imRfChannel	RW	Input channel selector
1.3.6.1.4.1.21678.307.1.1.3	ist2imRfFreqOff	RW	Input frequency offset expressed in Hz (1Hz steps, from -200 kHz to 200 kHz)
1.3.6.1.4.1.21678.307.1.2	isT2InputAutoswitch		

OID	Name	R/W	Description
1.3.6.1.4.1.21678.307.1.2.1	ist2iaEnable	RW	Enables the use of Input Autoswitch finite-state machine
1.3.6.1.4.1.21678.307.1.2.2	ist2iaState	R	Current state of the finite-state machine
1.3.6.1.4.1.21678.307.1.2.3	ist2iaActualInput	R	Shows the currently used input
1.3.6.1.4.1.21678.307.1.2.4	ist2iaPrimaryToSecondaryCounter	R	Primary to secondary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.1.2.5	ist2iaSecondaryToSecondaryCounter	R	Secondary to secondary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.1.2.6	ist2iaSecondaryToPrimaryCounter	R	Secondary to primary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.1.4	isTSeamlessSwitch		
1.3.6.1.4.1.21678.307.1.4.1	istssHplInput		
1.3.6.1.4.1.21678.307.1.4.1.1	istsshiForceInput	RW	Forces the use of the selected input as High Priority input
1.3.6.1.4.1.21678.307.1.4.1.2	istsshiPriorityInput	RW	Sets the priority input
1.3.6.1.4.1.21678.307.1.4.1.3	istsshiUsedInput	R	Shows the currently used input
1.3.6.1.4.1.21678.307.1.4.1.4	istsshiSwitchState	R	Shows the status of the Seamless Switch
1.3.6.1.4.1.21678.307.1.4.2	istsslInput		
1.3.6.1.4.1.21678.307.1.4.2.1	istsslForceInput	RW	Forces the use of the selected input as Low Priority input
1.3.6.1.4.1.21678.307.1.4.2.2	istsslPriorityInput	RW	Sets the priority input
1.3.6.1.4.1.21678.307.1.4.2.3	istsslUsedInput	R	Shows the currently used input
1.3.6.1.4.1.21678.307.1.4.2.4	istsslSwitchState	R	Shows the status of the Seamless Switch
1.3.6.1.4.1.21678.307.1.4.3	istssSeamlessAlarms		
1.3.6.1.4.1.21678.307.1.4.3.1	istsssInputNumber	R	The number of inputs depending on the Hierarchical Mode and on the HP/LP Force Input selectors
1.3.6.1.4.1.21678.307.1.4.3.2	istssaTable	NA	
1.3.6.1.4.1.21678.307.1.4.3.2.1	istssaEntry	8	
1.3.6.1.4.1.21678.307.1.4.3.2.1.1	istssalIndex	R	
1.3.6.1.4.1.21678.307.1.4.3.2.1.2	istssalInputDescr	R	Input description
1.3.6.1.4.1.21678.307.1.4.3.2.1.3	istssaPatCrcEn	RW	Enables the PAT CRC alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.4	istssaMipCrcEn	RW	Enables the MIP CRC alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.5	istssaSyncErrEn	RW	Enables the Sync alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.6	istssaPktJitterEn	RW	Enables the Packet Jitter alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.7	istssaTransportErrEn	RW	Enables the Transport Error alarm bit in the Seamless Alarm Mask

OID	Name	R/W	Description
1.3.6.1.4.1.21678.307.1.4.3.2.1.8	istsssaAsiWordErrEn	RW	Enables the ASI Word Error alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.9	istsssaMipPriorityErrEn	RW	Enables the MIP Priority alarm bit in the Seamless Alarm Mask
1.3.6.1.4.1.21678.307.1.4.3.2.1.10	istsssaNetworkDelay	R	Shows the Network Delay of the specific entry
1.3.6.1.4.1.21678.307.1.4.3.2.1.11	istsssaWatchdogErr	R	Input Watchdog alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.12	istsssaLateMipErr	R	Late MIP alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.13	istsssaNotValidErr	R	Invalid Input alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.14	istsssaPatCrcErr	R	PAT CRC alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.15	istsssaMipCrcErr	R	MIP CRC alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.16	istsssaSyncErr	R	Transport Stream Sync Error alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.17	istsssaPktJitterErr	R	Packet Jitter alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.18	istsssaTransportErr	R	Transport Error alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.19	istsssaAsiWordErr	R	ASI Word Error alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.20	istsssaNetworkDelayErr	R	Network Delay alarm status
1.3.6.1.4.1.21678.307.1.4.3.2.1.21	istsssaMipPriorityErr	R	MIP Priority alarm status
1.3.6.1.4.1.21678.307.1.6	isAInputManagement		
1.3.6.1.4.1.21678.307.1.6.1	isaimInputSel	RW	Input selector
1.3.6.1.4.1.21678.307.1.6.2	isaimRfChannel	RW	Input channel selector
1.3.6.1.4.1.21678.307.1.6.3	isaimRfFreqOff	RW	Input frequency offset +/- 200 kHz (1Hz step)
1.3.6.1.4.1.21678.307.1.7	isAInputAutoswitch		
1.3.6.1.4.1.21678.307.1.7.1	isaiaEnable	RW	Enables the use of Input Autoswitch finite-state machine
1.3.6.1.4.1.21678.307.1.7.2	isaiaState	R	Current state of the finite-state machine
1.3.6.1.4.1.21678.307.1.7.3	isaiaActualInput	R	Shows the currently used input
1.3.6.1.4.1.21678.307.1.7.4	isaiaPrimaryToSecondaryCounter	R	Primary to secondary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.1.7.5	isaiaSecondaryToSecondaryCounter	R	Secondary to secondary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.1.7.6	isaiaSecondaryToPrimaryCounter	R	Secondary to primary input switch countdown expressed in seconds
1.3.6.1.4.1.21678.307.2	inputStatistics		
1.3.6.1.4.1.21678.307.2.1	isNumber	R	Number of inputs
1.3.6.1.4.1.21678.307.2.2	isTable	NA	
1.3.6.1.4.1.21678.307.2.2.1	isEntry	10	
1.3.6.1.4.1.21678.307.2.2.1.1	isIndex	R	
1.3.6.1.4.1.21678.307.2.2.1.2	isDescr	R	Input descriptor
1.3.6.1.4.1.21678.307.2.2.1.3	isType	R	Input type

OID	Name	R/W	Description
1.3.6.1.4.1.21678.307.2.2.1.4	isWordRate	R	Input word rate
1.3.6.1.4.1.21678.307.2.2.1.5	isBitRate	R	Input bitrate
1.3.6.1.4.1.21678.307.2.2.1.6	isFiltered	R	Filtered bitrate
1.3.6.1.4.1.21678.307.2.2.1.7	isOverflow	R	Overflow
1.3.6.1.4.1.21678.307.2.2.1.8	isLock	R	Lock status
1.3.6.1.4.1.21678.307.2.2.1.9	isPckFormat	R	Packet format
1.3.6.1.4.1.21678.307.2.2.1.10	isCarrierDetect	R	Carrier detect indicator
1.3.6.1.4.1.21678.307.2.2.1.11	isErrors	R	Wrong bytes received
1.3.6.1.4.1.21678.307.2.2.1.12	isBypassEnable	RW	Cable equalizer bypass enable
1.3.6.1.4.1.21678.307.3	t2FrontEnd		
1.3.6.1.4.1.21678.307.3.1	t2feStatistics		
1.3.6.1.4.1.21678.307.3.1.1	t2fesRxLevel	R	Input RX level 127: over input -128: low power -63...62: power expressed in dB
1.3.6.1.4.1.21678.307.3.1.2	t2fesCarrierOffset	R	Input carrier offset
1.3.6.1.4.1.21678.307.3.1.3	t2fesIfAgc	R	Input IF AGC level
1.3.6.1.4.1.21678.307.3.1.4	t2fesRfAgc	R	Input RF AGC level
1.3.6.1.4.1.21678.307.3.1.5	t2fesTsLock	R	Demodulated TS Lock
1.3.6.1.4.1.21678.307.3.1.6	t2fesSyncStat	R	Sync statistics
1.3.6.1.4.1.21678.307.3.1.7	t2fesMer	R	Input MER [dBx1e3]
1.3.6.1.4.1.21678.307.3.1.8	t2fesSnr	R	Input SNR [dBx1e3]
1.3.6.1.4.1.21678.307.3.1.9	t2fesPreLdpcBer	R	Input Pre LDPC BER [1e7]
1.3.6.1.4.1.21678.307.3.1.10	t2fesPostBchFer	R	Input Post BCH FER [1e6]
1.3.6.1.4.1.21678.307.3.1.11	t2fesPreBchBer	R	Input Pre BCH BER [1e9]
1.3.6.1.4.1.21678.307.3.1.12	t2fesDemodPpm	R	Demodulated PPM [ppmx1e2]
1.3.6.1.4.1.21678.307.3.1.13	t2fesSignalQuality	R	Signal quality [%]
1.3.6.1.4.1.21678.307.3.1.14	t2fesBitrate	R	Expected bitrate
1.3.6.1.4.1.21678.307.3.1.15	t2fesLdpclter	R	LDPC iterations per minute
1.3.6.1.4.1.21678.307.3.2	t2feL1Pre		
1.3.6.1.4.1.21678.307.3.2.1	t2feL1PreType	R	Input stream type
1.3.6.1.4.1.21678.307.3.2.2	t2feL1PreBwt	R	BWT extension indicator
1.3.6.1.4.1.21678.307.3.2.3	t2feL1PreS1	R	S1 field
1.3.6.1.4.1.21678.307.3.2.4	t2feL1PreS2	R	S2 field
1.3.6.1.4.1.21678.307.3.2.5	t2feL1PreFftSize	R	FFT size
1.3.6.1.4.1.21678.307.3.2.6	t2feL1PreMixed	R	Mixed indicator
1.3.6.1.4.1.21678.307.3.2.7	t2feL1PreL1Repeat	R	L1 repeat enable flag
1.3.6.1.4.1.21678.307.3.2.8	t2feL1PreGuardInterval	R	Guard Interval

OID	Name	R/W	Description
1.3.6.1.4.1.21678.307.3.2.9	t2feL1PrePapr	R	PAPR
1.3.6.1.4.1.21678.307.3.2.10	t2feL1PreL1Mod	R	L1 modulation scheme
1.3.6.1.4.1.21678.307.3.2.11	t2feL1PreL1CodeRate	R	L1 code rate
1.3.6.1.4.1.21678.307.3.2.12	t2feL1PreL1Fec	R	L1 FEC Type
1.3.6.1.4.1.21678.307.3.2.13	t2feL1PreL1PostSize	R	L1 Post Size
1.3.6.1.4.1.21678.307.3.2.14	t2feL1PreL1PostInfoSize	R	L1 Post Info Size
1.3.6.1.4.1.21678.307.3.2.15	t2feL1PrePilotPattern	R	Pilot Pattern
1.3.6.1.4.1.21678.307.3.2.16	t2feL1PreTxIdAvailability	R	TX Id
1.3.6.1.4.1.21678.307.3.2.17	t2feL1PreCellId	R	Cell Id
1.3.6.1.4.1.21678.307.3.2.18	t2feL1PreT2NetworkId	R	T2 Network Id
1.3.6.1.4.1.21678.307.3.2.19	t2feL1PreT2SystemId	R	T2 System Id
1.3.6.1.4.1.21678.307.3.2.20	t2feL1PreNumT2Frames	R	Number of T2 frames
1.3.6.1.4.1.21678.307.3.2.21	t2feL1PreNumDataSymb	R	Number of data symbols
1.3.6.1.4.1.21678.307.3.2.22	t2feL1PreRegenFlag	R	Regeneration count indicator
1.3.6.1.4.1.21678.307.3.2.23	t2feL1PreL1PostExt	R	L1 Post extension enabled
1.3.6.1.4.1.21678.307.3.2.24	t2feL1PreRfIndex	R	The current RF index
1.3.6.1.4.1.21678.307.3.3	t2feL1Post		
1.3.6.1.4.1.21678.307.3.3.1	t2feL1PostSubSliceNum	R	Number of sub-slices per frame
1.3.6.1.4.1.21678.307.3.3.2	t2feL1PostFefType	R	The type of the associated FEF part
1.3.6.1.4.1.21678.307.3.3.3	t2feL1PostFefLength	R	FEF length
1.3.6.1.4.1.21678.307.3.3.4	t2feL1PostFefInterval	R	FEF interval
1.3.6.1.4.1.21678.307.3.3.5	t2feL1PostAux		
1.3.6.1.4.1.21678.307.3.3.5.1	t2feL1PostAuxNum	R	Number of AUXs
1.3.6.1.4.1.21678.307.3.3.5.2	t2feL1PostAuxTable	NA	
1.3.6.1.4.1.21678.307.3.3.5.2.1	t2feL1PostAuxEntry	10	
1.3.6.1.4.1.21678.307.3.3.5.2.1.1	t2feL1PostAuxIndex	R	
1.3.6.1.4.1.21678.307.3.3.5.2.1.2	t2feL1PostAuxStreamType	R	The type of the current auxiliary stream
1.3.6.1.4.1.21678.307.3.3.5.2.1.3	t2feL1PostAuxPrivateConf	R	RFU
1.3.6.1.4.1.21678.307.3.3.6	t2feL1PostRf		
1.3.6.1.4.1.21678.307.3.3.6.1	t2feL1PostNumRf	R	The number of RF frequencies in use
1.3.6.1.4.1.21678.307.3.3.6.2	t2feL1PostRfTable	NA	
1.3.6.1.4.1.21678.307.3.3.6.2.1	t2feL1PostRfEntry	8	
1.3.6.1.4.1.21678.307.3.3.6.2.1.1	t2feL1PostRfIndex	R	
1.3.6.1.4.1.21678.307.3.3.6.2.1.2	t2feL1PostRfIdx	R	RF index
1.3.6.1.4.1.21678.307.3.3.6.2.1.3	t2feL1PostFrequency	R	Frequency
1.3.6.1.4.1.21678.307.3.3.7	t2feL1PostPlp		

OID	Name	R/W	Description
1.3.6.1.4.1.21678.307.3.3.7.1	t2feL1PostPlpNum	R	Number of PLPs
1.3.6.1.4.1.21678.307.3.3.7.2	t2feL1PostPlpTable	NA	
1.3.6.1.4.1.21678.307.3.3.7.2.1	t2feL1PostPlpEntry	10	
1.3.6.1.4.1.21678.307.3.3.7.2.1.1	t2feL1PostPlpIndex	R	
1.3.6.1.4.1.21678.307.3.3.7.2.1.2	t2feL1PostPlpId	R	PLP ID
1.3.6.1.4.1.21678.307.3.3.7.2.1.3	t2feL1PostPlpType	R	PLP type
1.3.6.1.4.1.21678.307.3.3.7.2.1.4	t2feL1PostPlpPayloadType	R	PLP payload type
1.3.6.1.4.1.21678.307.3.3.7.2.1.5	t2feL1PostFfFlag	R	FF flag
1.3.6.1.4.1.21678.307.3.3.7.2.1.6	t2feL1PostFirstRfIdx	R	First RF index
1.3.6.1.4.1.21678.307.3.3.7.2.1.7	t2feL1PostFirstFrameIdx	R	First frame index
1.3.6.1.4.1.21678.307.3.3.7.2.1.8	t2feL1PostGroupId	R	PLP group id
1.3.6.1.4.1.21678.307.3.3.7.2.1.9	t2feL1PostPlpCod	R	The code rate used by the associated PLP
1.3.6.1.4.1.21678.307.3.3.7.2.1.10	t2feL1PostPlpMod	R	The modulation used by the associated PLP
1.3.6.1.4.1.21678.307.3.3.7.2.1.11	t2feL1PostPlpRotation	R	DVBT2 rotated constellation indicator
1.3.6.1.4.1.21678.307.3.3.7.2.1.12	t2feL1PostPlpFec	R	The FEC type used by the associated PLP
1.3.6.1.4.1.21678.307.3.3.7.2.1.13	t2feL1PostNumBlocksMax	R	Maximum number of PLP blocks
1.3.6.1.4.1.21678.307.3.3.7.2.1.14	t2feL1PostFrameInterval	R	Frame interval
1.3.6.1.4.1.21678.307.3.3.7.2.1.15	t2feL1PostTimeIntLength	R	Time interleaving length
1.3.6.1.4.1.21678.307.3.3.7.2.1.16	t2feL1PostTimeIntType	R	Time interleaving type
1.3.6.1.4.1.21678.307.3.3.7.2.1.17	t2feL1PostInbandA	R	In-band A flag
1.3.6.1.4.1.21678.307.3.3.7.2.1.18	t2feL1PostInbandB	R	In-band B flag
1.3.6.1.4.1.21678.307.3.3.7.2.1.19	t2feL1PostPlpMode	R	PLP mode
1.3.6.1.4.1.21678.307.3.3.7.2.1.20	t2feL1PostStaticFlag	R	Static flag
1.3.6.1.4.1.21678.307.3.3.7.2.1.21	t2feL1PostStaticPaddFlag	R	Static padding flag
1.3.6.1.4.1.21678.310	ssbtOutput		
1.3.6.1.4.1.21678.310.1	outputSettings		
1.3.6.1.4.1.21678.310.1.1	osOutputManagement		
1.3.6.1.4.1.21678.310.1.1.4	osomRflManagement		
1.3.6.1.4.1.21678.310.1.1.4.1	osomrmNumberAttempts	RW	Number of attempts to restore the system after a Reflex Power warning
1.3.6.1.4.1.21678.310.1.1.4.2	osomrmStatus	R	Reflex Power status
1.3.6.1.4.1.21678.310.1.1.4.3	osomrmRflHigh	R	Shows if the Reflex Power High goes over the alarm threshold
1.3.6.1.4.1.21678.310.1.1.4.4	osomrmCurrNumAttempt	R	Shows the current number of attempt to restore the system after a Reflex Power warning
1.3.6.1.4.1.21678.310.1.1.4.5	osomrmAttemptTimeout	R	Shows the countdown expressed in seconds between two attempts

OID	Name	R/W	Description
1.3.6.1.4.1.21678.310.1.1.4.6	osomrmReset	W	Resets the output amplifier stage once the device is in Reflex Power Alarm
1.3.6.1.4.1.21678.310.1.1.4.7	osomrmResetTimeout	R	Shows the countdown expressed in seconds to come back from Warning to Ok state
1.3.6.1.4.1.21678.310.1.1.5	osomT2Output		
1.3.6.1.4.1.21678.310.1.1.5.1	osomt2oRfChannel	RW	Output channel
1.3.6.1.4.1.21678.310.1.1.5.2	osomt2oRfFreqOff	RW	Output frequency offset expressed in Hz (from -200 kHz up to 200 kHz)
1.3.6.1.4.1.21678.310.1.1.5.3	osomt2oOutPower	RW	Output power
1.3.6.1.4.1.21678.310.1.1.10	osomIfOutput		
1.3.6.1.4.1.21678.310.1.1.10.1	osomtolfoEnable	RW	Enable IF output mode
1.3.6.1.4.1.21678.310.1.1.10.2	osomtolfoPower	RW	Output power expressed in dbm * 10
1.3.6.1.4.1.21678.310.1.1.10.3	osomtolfoOffset	RW	Output frequency offset expressed in Hz
1.3.6.1.4.1.21678.310.1.1.10.4	osomtolfoSlideBand	RW	Output slide band 0: normal 1: inverted
1.3.6.1.4.1.21678.310.1.1.10.5	osomtolfoBandwidth	RW	Output Bandwidth 5..8
1.3.6.1.4.1.21678.310.1.2	osT2TsProcessing		
1.3.6.1.4.1.21678.310.1.2.1	ost2tpDelNullPck	RW	Delete null packets enable 0: disabled 1: enable
1.3.6.1.4.1.21678.310.1.3	osT2TsMonitoring		
1.3.6.1.4.1.21678.310.1.3.1	ost2tmAsiOut1Sel	RW	The input to ASI OUT HP output bypass selector
1.3.6.1.4.1.21678.310.1.3.2	ost2tmAsiOut2Sel	RW	The input to ASI OUT LP output bypass selector
1.3.6.1.4.1.21678.310.2	rf		
1.3.6.1.4.1.21678.310.2.1	rfEnable	RW	RF output enable 0: disabled 1: enabled
1.3.6.1.4.1.21678.310.2.2	rfStatus	R	RF output status 0: off 1: on
1.3.6.1.4.1.21678.310.3	testSignals		
1.3.6.1.4.1.21678.310.3.1	tsNumber	R	Number of available test signals.
1.3.6.1.4.1.21678.310.3.2	tsTable	NA	
1.3.6.1.4.1.21678.310.3.2.1	tsEntry	8	
1.3.6.1.4.1.21678.310.3.2.1.1	tsIndex	R	
1.3.6.1.4.1.21678.310.3.2.1.2	tsDescr	R	Test signal description.
1.3.6.1.4.1.21678.310.3.2.1.3	tsEnable	RW	Test signal enable 0: disabled 1: enabled.
1.3.6.1.4.1.21678.310.3.3	tsItu		
1.3.6.1.4.1.21678.310.3.3.1	video		
1.3.6.1.4.1.21678.310.3.3.1.1	videoTestSel	RW	Video test signal selector
1.3.6.1.4.1.21678.310.3.3.2	audio		
1.3.6.1.4.1.21678.310.3.3.2.1	audioToneEnable	RW	Enables the audio test tones
1.3.6.1.4.1.21678.310.3.3.2.2	audioToneRight	RW	Right tone frequency (range:0 to127) [unit x 100Hz]

OID	Name	R/W	Description
1.3.6.1.4.1.21678.310.3.3.2.3	audioToneLeft	RW	Left tone frequency (range:0 to127) [unit x 100Hz]
1.3.6.1.4.1.21678.310.3.3.2.4	audioMuteEnable	RW	Enables the audio muting
1.3.6.1.4.1.21678.310.3.3.3	its		
1.3.6.1.4.1.21678.310.3.3.3.1	itsEnable	RW	Enables ITS test signal insertion
1.3.6.1.4.1.21678.310.3.3.3.2	its0	RW	ITS number 0 position
1.3.6.1.4.1.21678.310.3.3.3.3	its1	RW	ITS number 1 position
1.3.6.1.4.1.21678.310.3.3.3.4	its2	RW	ITS number 2 position
1.3.6.1.4.1.21678.310.3.3.3.5	its3	RW	ITS number 3 position
1.3.6.1.4.1.21678.310.3.3.3.6	its4	RW	ITS number 4 position
1.3.6.1.4.1.21678.310.4	outputMonitor		
1.3.6.1.4.1.21678.310.4.1	omFwdPower	R	Forward power [dBm x 10] indicator
1.3.6.1.4.1.21678.310.4.2	omAgcMode	R	AGC mode status 0: analog 1: digital
1.3.6.1.4.1.21678.310.4.3	omAgcOn	R	Auto AGC status 0: off 1: on
1.3.6.1.4.1.21678.310.5	standBy		
1.3.6.1.4.1.21678.310.5.1	sbEnable	RW	LCD stand-by button enable
1.3.6.1.4.1.21678.310.5.2	sbStatus	R	Current device mode
1.3.6.1.4.1.21678.311	ssbtTsOverIP		
1.3.6.1.4.1.21678.311.1	inputChannels		
1.3.6.1.4.1.21678.311.1.1	iclgmpEnable	RW	IGMP enable
1.3.6.1.4.1.21678.311.1.2	icNumber	R	Number of input Ethernet channels.
1.3.6.1.4.1.21678.311.1.3	icTable	NA	
1.3.6.1.4.1.21678.311.1.3.1	icEntry	8	
1.3.6.1.4.1.21678.311.1.3.1.1	icIndex	R	
1.3.6.1.4.1.21678.311.1.3.1.2	icDescr	R	Description of input channel
1.3.6.1.4.1.21678.311.1.3.1.3	icLocallpAddr	RW	IP address
1.3.6.1.4.1.21678.311.1.3.1.4	icLocalPort	RW	Port
1.3.6.1.4.1.21678.311.1.3.1.5	icSourceClkReference	RW	Source clock reference selector
1.3.6.1.4.1.21678.311.2	outputChannels		
1.3.6.1.4.1.21678.311.2.1	ocPort	RW	UDP port
1.3.6.1.4.1.21678.311.2.2	ocNumber	R	Number of output Ethernet channels.
1.3.6.1.4.1.21678.311.2.3	ocTable	NA	
1.3.6.1.4.1.21678.311.2.3.1	ocEntry	8	
1.3.6.1.4.1.21678.311.2.3.1.1	ocIndex	R	
1.3.6.1.4.1.21678.311.2.3.1.2	ocDescr	R	Description of output channel
1.3.6.1.4.1.21678.311.2.3.1.3	ocStatus	R	Transmission state
1.3.6.1.4.1.21678.311.2.3.1.4	ocDestIpAddr	RW	Destination IP address

OID	Name	R/W	Description
1.3.6.1.4.1.21678.311.2.3.1.5	ocDestPhysAddr	R	Destination MAC address
1.3.6.1.4.1.21678.311.2.3.1.6	ocDestPort	RW	Destination port
1.3.6.1.4.1.21678.311.2.3.1.7	ocInputSelector	RW	Input selector
1.3.6.1.4.1.21678.311.2.3.1.8	ocProtocol	RW	Transmission protocol
1.3.6.1.4.1.21678.311.2.3.1.9	ocPckFormat	RW	Packet format
1.3.6.1.4.1.21678.311.2.3.1.10	ocPckPerFrame	RW	Number of TS packets per frame (when the packet format is 204, the maximum number of packets per frame is 6)
1.3.6.1.4.1.21678.311.2.3.1.11	ocSsrc	RW	SSRC identifier
1.3.6.1.4.1.21678.311.2.3.1.12	ocSourceClkReference	RW	Source clock reference selector
1.3.6.1.4.1.21678.311.2.3.1.13	ocEnable	RW	Transmission enable
1.3.6.1.4.1.21678.313	ssbtT2Modulation		
1.3.6.1.4.1.21678.313.1	t2mSettings		
1.3.6.1.4.1.21678.313.1.1	t2msUseT2Mi	RW	T2-MI enable 0: disabled 1: enabled
1.3.6.1.4.1.21678.313.1.2	t2msMiPid	RW	T2-MI PID setting
1.3.6.1.4.1.21678.313.1.3	t2msNetworkMode	RW	Transmitter mode selection.
1.3.6.1.4.1.21678.313.1.4	t2msPresetConfig	RW	Enables the use of preset configurations when the T2-MI is disabled
1.3.6.1.4.1.21678.313.1.5	t2msPresetConfigNum	RW	Configuration number selector
1.3.6.1.4.1.21678.313.1.6	t2msConfigChanged	R	Shows the status of the configuration
1.3.6.1.4.1.21678.313.1.7	t2msLoadConfig	W	Load configuration command
1.3.6.1.4.1.21678.313.1.8	t2msAutoRegen	RW	Enables the Automatic Regeneration function. This function allows to retrieve the configuration data from the input demodulator and to automatically or manually increment the REGEN_FLAG field of the L1-Pre signalling.
1.3.6.1.4.1.21678.313.1.9	t2msAutoRfLoop	RW	Enables the Automatic Frequency Loop function. This function allows to automatically set the FREQUENCY field of the L1-Post signalling to the currently used RF output frequency.
1.3.6.1.4.1.21678.313.1.10	t2msPidMode		
1.3.6.1.4.1.21678.313.1.10.1	t2mspmAutoPidEn	RW	Enables the automatic detection of the T2-MI PID
1.3.6.1.4.1.21678.313.1.10.2	t2mspmDetectedPid	R	Shows the detected T2-MI PID
1.3.6.1.4.1.21678.313.1.10.3	t2mspmUsedPid	R	Shows the currently used T2-MI PID
1.3.6.1.4.1.21678.313.1.10.4	t2mspmStatus	R	Shows the status of the T2-MI PID mode
1.3.6.1.4.1.21678.313.1.10.5	t2mspmError	R	Automatic T2-MI PID mode error
1.3.6.1.4.1.21678.313.2	t2mCurrentParameters		
1.3.6.1.4.1.21678.313.2.1	t2mcpSource	R	Current parameters source
1.3.6.1.4.1.21678.313.2.2	t2mcpL1Pre		

OID	Name	R/W	Description
1.3.6.1.4.1.21678.313.2.2.1	t2mcpL1PreType	R	Input stream type
1.3.6.1.4.1.21678.313.2.2.2	t2mcpL1PreBwt	R	BWT extension indicator
1.3.6.1.4.1.21678.313.2.2.3	t2mcpL1PreS1	R	S1 field
1.3.6.1.4.1.21678.313.2.2.4	t2mcpL1PreS2	R	S2 field
1.3.6.1.4.1.21678.313.2.2.5	t2mcpL1PreFftSize	R	FFT size
1.3.6.1.4.1.21678.313.2.2.6	t2mcpL1PreMixed	R	Mixed indicator
1.3.6.1.4.1.21678.313.2.2.7	t2mcpL1PreL1Repeat	R	L1 repeat enable flag
1.3.6.1.4.1.21678.313.2.2.8	t2mcpL1PreGuardInterval	R	Guard Interval
1.3.6.1.4.1.21678.313.2.2.9	t2mcpL1PrePapr	R	PAPR
1.3.6.1.4.1.21678.313.2.2.10	t2mcpL1PreL1Mod	R	L1 modulation scheme
1.3.6.1.4.1.21678.313.2.2.11	t2mcpL1PreL1CodeRate	R	L1 code rate
1.3.6.1.4.1.21678.313.2.2.12	t2mcpL1PreL1Fec	R	L1 FEC Type
1.3.6.1.4.1.21678.313.2.2.13	t2mcpL1PreL1PostSize	R	L1 Post Size
1.3.6.1.4.1.21678.313.2.2.14	t2mcpL1PreL1PostInfoSize	R	L1 Post Info Size
1.3.6.1.4.1.21678.313.2.2.15	t2mcpL1PrePilotPattern	R	Pilot Pattern
1.3.6.1.4.1.21678.313.2.2.16	t2mcpL1PreTxIdAvailability	R	TX Id
1.3.6.1.4.1.21678.313.2.2.17	t2mcpL1PreCellId	R	Cell Id
1.3.6.1.4.1.21678.313.2.2.18	t2mcpL1PreT2NetworkId	R	T2 Network Id
1.3.6.1.4.1.21678.313.2.2.19	t2mcpL1PreT2SystemId	R	T2 System Id
1.3.6.1.4.1.21678.313.2.2.20	t2mcpL1PreNumT2Frames	R	Number of T2 frames
1.3.6.1.4.1.21678.313.2.2.21	t2mcpL1PreNumDataSymb	R	Number of data symbols
1.3.6.1.4.1.21678.313.2.2.22	t2mcpL1PreRegenFlag	R	Regeneration count indicator
1.3.6.1.4.1.21678.313.2.2.23	t2mcpL1PreL1PostExt	R	L1 Post extension enabled
1.3.6.1.4.1.21678.313.2.2.24	t2mcpL1PreRfIndex	R	The current RF index
1.3.6.1.4.1.21678.313.2.2.25	t2mcpL1PreT2Version	R	T2 version
1.3.6.1.4.1.21678.313.2.3	t2mcpL1Post		
1.3.6.1.4.1.21678.313.2.3.1	t2mcpL1PostSubSliceNum	R	Number of sub-slices per frame
1.3.6.1.4.1.21678.313.2.3.2	t2mcpL1PostFefType	R	The type of the associated FEF part
1.3.6.1.4.1.21678.313.2.3.3	t2mcpL1PostFefLength	R	FEF length
1.3.6.1.4.1.21678.313.2.3.4	t2mcpL1PostFefInterval	R	FEF interval
1.3.6.1.4.1.21678.313.2.3.5	t2mcpL1PostAux		
1.3.6.1.4.1.21678.313.2.3.5.1	t2mcpL1PostAuxNum	R	Number of AUXs
1.3.6.1.4.1.21678.313.2.3.5.2	t2mcpL1PostAuxTable	NA	
1.3.6.1.4.1.21678.313.2.3.5.2.1	t2mcpL1PostAuxEntry	10	
1.3.6.1.4.1.21678.313.2.3.5.2.1.1	t2mcpL1PostAuxIndex	R	
1.3.6.1.4.1.21678.313.2.3.5.2.1.2	t2mcpL1PostAuxStreamType	R	The type of the current auxiliary stream

OID	Name	R/W	Description
1.3.6.1.4.1.21678.313.2.3.5.2.1.3	t2mcpL1PostAuxPrivateConf	R	RFU
1.3.6.1.4.1.21678.313.2.3.6	t2mcpL1PostRf		
1.3.6.1.4.1.21678.313.2.3.6.1	t2mcpL1PostNumRf	R	The number of RF frequencies in use
1.3.6.1.4.1.21678.313.2.3.6.2	t2mcpL1PostRfTable	NA	
1.3.6.1.4.1.21678.313.2.3.6.2.1	t2mcpL1PostRfEntry	8	
1.3.6.1.4.1.21678.313.2.3.6.2.1.1	t2mcpL1PostRfIndex	R	
1.3.6.1.4.1.21678.313.2.3.6.2.1.2	t2mcpL1PostRfIdx	R	RF index
1.3.6.1.4.1.21678.313.2.3.6.2.1.3	t2mcpL1PostFrequency	R	Frequency
1.3.6.1.4.1.21678.313.2.3.7	t2mcpL1PostPlp		
1.3.6.1.4.1.21678.313.2.3.7.1	t2mcpL1PostPlpNum	R	Number of PLPs
1.3.6.1.4.1.21678.313.2.3.7.2	t2mcpL1PostPlpTable	NA	
1.3.6.1.4.1.21678.313.2.3.7.2.1	t2mcpL1PostPlpEntry	10	
1.3.6.1.4.1.21678.313.2.3.7.2.1.1	t2mcpL1PostPlpIndex	R	
1.3.6.1.4.1.21678.313.2.3.7.2.1.2	t2mcpL1PostPlpId	R	PLP ID
1.3.6.1.4.1.21678.313.2.3.7.2.1.3	t2mcpL1PostPlpType	R	PLP type
1.3.6.1.4.1.21678.313.2.3.7.2.1.4	t2mcpL1PostPlpPayloadType	R	PLP payload type
1.3.6.1.4.1.21678.313.2.3.7.2.1.5	t2mcpL1PostFfFlag	R	FF flag
1.3.6.1.4.1.21678.313.2.3.7.2.1.6	t2mcpL1PostFirstRfIdx	R	First RF index
1.3.6.1.4.1.21678.313.2.3.7.2.1.7	t2mcpL1PostFirstFrameIdx	R	First frame index
1.3.6.1.4.1.21678.313.2.3.7.2.1.8	t2mcpL1PostGroupId	R	PLP group id
1.3.6.1.4.1.21678.313.2.3.7.2.1.9	t2mcpL1PostPlpCod	R	The code rate used by the associated PLP
1.3.6.1.4.1.21678.313.2.3.7.2.1.10	t2mcpL1PostPlpMod	R	The modulation used by the associated PLP
1.3.6.1.4.1.21678.313.2.3.7.2.1.11	t2mcpL1PostPlpRotation	R	DVBT2 rotated constellation indicator
1.3.6.1.4.1.21678.313.2.3.7.2.1.12	t2mcpL1PostPlpFec	R	The FEC type used by the associated PLP
1.3.6.1.4.1.21678.313.2.3.7.2.1.13	t2mcpL1PostNumBlocksMax	R	Maximum number of PLP blocks
1.3.6.1.4.1.21678.313.2.3.7.2.1.14	t2mcpL1PostFrameInterval	R	Frame interval
1.3.6.1.4.1.21678.313.2.3.7.2.1.15	t2mcpL1PostTimeIntLength	R	Time interleaving length
1.3.6.1.4.1.21678.313.2.3.7.2.1.16	t2mcpL1PostTimeIntType	R	Time interleaving type
1.3.6.1.4.1.21678.313.2.3.7.2.1.17	t2mcpL1PostInbandA	R	In-band A flag
1.3.6.1.4.1.21678.313.2.3.7.2.1.18	t2mcpL1PostInbandB	R	In-band B flag
1.3.6.1.4.1.21678.313.2.3.7.2.1.19	t2mcpL1PostPlpMode	R	PLP mode
1.3.6.1.4.1.21678.313.2.3.7.2.1.20	t2mcpL1PostStaticFlag	R	Static flag
1.3.6.1.4.1.21678.313.2.3.7.2.1.21	t2mcpL1PostStaticPaddFlag	R	Static padding flag
1.3.6.1.4.1.21678.313.3	t2mLocal		
1.3.6.1.4.1.21678.313.3.1	t2mlL1Pre		
1.3.6.1.4.1.21678.313.3.1.1	t2mlL1PreType	RW	Input stream type

OID	Name	R/W	Description
1.3.6.1.4.1.21678.313.3.1.2	t2ml1PreBwt	RW	BWT extension indicator
1.3.6.1.4.1.21678.313.3.1.3	t2ml1PreS1	RW	S1 field
1.3.6.1.4.1.21678.313.3.1.4	t2ml1PreS2	R	S2 field
1.3.6.1.4.1.21678.313.3.1.5	t2ml1PreFftSize	RW	FFT size
1.3.6.1.4.1.21678.313.3.1.6	t2ml1PreMixed	RW	Mixed indicator
1.3.6.1.4.1.21678.313.3.1.7	t2ml1PreL1Repeat	RW	L1 repeat enable flag
1.3.6.1.4.1.21678.313.3.1.8	t2ml1PreGuardInterval	RW	Guard Interval
1.3.6.1.4.1.21678.313.3.1.9	t2ml1PrePapr	RW	PAPR
1.3.6.1.4.1.21678.313.3.1.10	t2ml1PreL1Mod	RW	L1 modulation scheme
1.3.6.1.4.1.21678.313.3.1.11	t2ml1PreL1CodeRate	RW	L1 code rate
1.3.6.1.4.1.21678.313.3.1.12	t2ml1PreL1Fec	RW	L1 FEC Type
1.3.6.1.4.1.21678.313.3.1.13	t2ml1PreL1PostSize	R	L1 Post Size
1.3.6.1.4.1.21678.313.3.1.14	t2ml1PreL1PostInfoSize	R	L1 Post Info Size
1.3.6.1.4.1.21678.313.3.1.15	t2ml1PrePilotPattern	RW	Pilot Pattern
1.3.6.1.4.1.21678.313.3.1.16	t2ml1PreTxIdAvailability	RW	TX Id
1.3.6.1.4.1.21678.313.3.1.17	t2ml1PreCellId	RW	Cell Id
1.3.6.1.4.1.21678.313.3.1.18	t2ml1PreT2NetworkId	RW	T2 Network Id
1.3.6.1.4.1.21678.313.3.1.19	t2ml1PreT2SystemId	RW	T2 System Id
1.3.6.1.4.1.21678.313.3.1.20	t2ml1PreNumT2Frames	RW	Number of T2 frames
1.3.6.1.4.1.21678.313.3.1.21	t2ml1PreNumDataSymb	RW	Number of data symbols
1.3.6.1.4.1.21678.313.3.1.22	t2ml1PreRegenFlag	RW	Regeneration count indicator
1.3.6.1.4.1.21678.313.3.1.23	t2ml1PreL1PostExt	RW	L1 Post extension enabled
1.3.6.1.4.1.21678.313.3.1.24	t2ml1PreRfIndex	RW	The current RF index
1.3.6.1.4.1.21678.313.3.1.25	t2ml1PreT2Version	RW	T2 version
1.3.6.1.4.1.21678.313.3.2	t2ml1Post		
1.3.6.1.4.1.21678.313.3.2.1	t2ml1PostSubSliceNum	RW	Number of sub-slices per frame
1.3.6.1.4.1.21678.313.3.2.2	t2ml1PostFefType	RW	The type of the associated FEF part
1.3.6.1.4.1.21678.313.3.2.3	t2ml1PostFefLength	RW	FEF length
1.3.6.1.4.1.21678.313.3.2.4	t2ml1PostFefInterval	RW	FEF interval
1.3.6.1.4.1.21678.313.3.2.5	t2ml1PostAux		
1.3.6.1.4.1.21678.313.3.2.5.1	t2ll1PostAuxNum	RW	Number of AUXs
1.3.6.1.4.1.21678.313.3.2.5.2	t2ll1PostAuxTable	NA	
1.3.6.1.4.1.21678.313.3.2.5.2.1	t2ll1PostAuxEntry	10	
1.3.6.1.4.1.21678.313.3.2.5.2.1.1	t2ll1PostAuxIndex	R	
1.3.6.1.4.1.21678.313.3.2.5.2.1.2	t2ll1PostAuxStreamType	RW	The type of the current auxiliary stream
1.3.6.1.4.1.21678.313.3.2.5.2.1.3	t2ll1PostAuxPrivateConf	RW	RFU

OID	Name	R/W	Description
1.3.6.1.4.1.21678.313.3.2.6	t2mL1PostRf		
1.3.6.1.4.1.21678.313.3.2.6.1	t2LL1PostNumRf	RW	The number of RF frequencies in use
1.3.6.1.4.1.21678.313.3.2.6.2	t2LL1PostRfTable	NA	
1.3.6.1.4.1.21678.313.3.2.6.2.1	t2LL1PostRfEntry	8	
1.3.6.1.4.1.21678.313.3.2.6.2.1.1	t2LL1PostRfIndex	R	
1.3.6.1.4.1.21678.313.3.2.6.2.1.2	t2LL1PostRfIdx	RW	RF index
1.3.6.1.4.1.21678.313.3.2.6.2.1.3	t2LL1PostFrequency	RW	Frequency
1.3.6.1.4.1.21678.313.3.2.7	t2mL1PostPlp		
1.3.6.1.4.1.21678.313.3.2.7.1	t2mL1PostPlpNum	RW	Number of PLPs
1.3.6.1.4.1.21678.313.3.2.7.2	t2mL1PostPlpTable	NA	
1.3.6.1.4.1.21678.313.3.2.7.2.1	t2mL1PostPlpEntry	10	
1.3.6.1.4.1.21678.313.3.2.7.2.1.1	t2mL1PostPlpIndex	R	
1.3.6.1.4.1.21678.313.3.2.7.2.1.2	t2mL1StreamFormat	RW	Input stream format
1.3.6.1.4.1.21678.313.3.2.7.2.1.3	t2mL1SisMis	RW	Single or multiple input streams
1.3.6.1.4.1.21678.313.3.2.7.2.1.4	t2mL1CcmAcm	RW	Input stream format
1.3.6.1.4.1.21678.313.3.2.7.2.1.5	t2mL1Issyi	RW	Input stream synchronization indicator
1.3.6.1.4.1.21678.313.3.2.7.2.1.6	t2mL1Npd	RW	Null packet deletion
1.3.6.1.4.1.21678.313.3.2.7.2.1.7	t2mL1PostPlpId	RW	PLP ID
1.3.6.1.4.1.21678.313.3.2.7.2.1.8	t2mL1PostPlpType	RW	PLP type
1.3.6.1.4.1.21678.313.3.2.7.2.1.9	t2mL1PostPlpPayloadType	RW	PLP payload type
1.3.6.1.4.1.21678.313.3.2.7.2.1.10	t2mL1PostFfFlag	RW	FF flag
1.3.6.1.4.1.21678.313.3.2.7.2.1.11	t2mL1PostFirstRfIdx	RW	First RF index
1.3.6.1.4.1.21678.313.3.2.7.2.1.12	t2mL1PostFirstFrameIdx	RW	First frame index
1.3.6.1.4.1.21678.313.3.2.7.2.1.13	t2mL1PostGroupId	RW	PLP group id
1.3.6.1.4.1.21678.313.3.2.7.2.1.14	t2mL1PostPlpCod	RW	The code rate used by the associated PLP
1.3.6.1.4.1.21678.313.3.2.7.2.1.15	t2mL1PostPlpMod	RW	The modulation used by the associated PLP
1.3.6.1.4.1.21678.313.3.2.7.2.1.16	t2mL1PostPlpRotation	RW	DVBT2 rotated constellation indicator
1.3.6.1.4.1.21678.313.3.2.7.2.1.17	t2mL1PostPlpFec	RW	The FEC type used by the associated PLP
1.3.6.1.4.1.21678.313.3.2.7.2.1.18	t2mL1PostNumBlocksMax	RW	Maximum number of PLP blocks
1.3.6.1.4.1.21678.313.3.2.7.2.1.19	t2mL1PostFrameInterval	RW	Frame interval
1.3.6.1.4.1.21678.313.3.2.7.2.1.20	t2mL1PostTimeIntLength	RW	Time interleaving length
1.3.6.1.4.1.21678.313.3.2.7.2.1.21	t2mL1PostTimeIntType	RW	Time interleaving type
1.3.6.1.4.1.21678.313.3.2.7.2.1.22	t2mL1PostInbandA	RW	In-band A flag
1.3.6.1.4.1.21678.313.3.2.7.2.1.23	t2mL1PostInbandB	RW	In-band B flag
1.3.6.1.4.1.21678.313.3.2.7.2.1.24	t2mL1PostPlpMode	RW	PLP mode
1.3.6.1.4.1.21678.313.3.2.7.2.1.25	t2mL1PostStaticFlag	RW	Static flag

OID	Name	R/W	Description
1.3.6.1.4.1.21678.313.3.2.7.2.1.26	t2ml1PostStaticPaddFlag	RW	Static padding flag
1.3.6.1.4.1.21678.313.3.3	t2mlFunctions		
1.3.6.1.4.1.21678.313.3.3.1	t2mlfTxIdentifier	RW	Transmitter identifier
1.3.6.1.4.1.21678.313.3.3.2	t2mlfTxMisoGroup		
1.3.6.1.4.1.21678.313.3.3.2.1	misoGroup	RW	MISO group
1.3.6.1.4.1.21678.317	ssbtCommon		
1.3.6.1.4.1.21678.317.1	info		
1.3.6.1.4.1.21678.317.1.1	infoName	RW	The station identifier
1.3.6.1.4.1.21678.317.1.2	infoManufacturer	R	Manufacturer name
1.3.6.1.4.1.21678.317.1.3	infoVersion		
1.3.6.1.4.1.21678.317.1.3.1	versionNumber	R	Number of software versions
1.3.6.1.4.1.21678.317.1.3.2	versionTable	NA	
1.3.6.1.4.1.21678.317.1.3.2.1	versionEntry	8	
1.3.6.1.4.1.21678.317.1.3.2.1.1	versionIndex	R	Software version index
1.3.6.1.4.1.21678.317.1.3.2.1.2	versionDescr	R	Software description
1.3.6.1.4.1.21678.317.1.3.2.1.3	versionVersion	R	Software version
1.3.6.1.4.1.21678.317.1.4	infoHw		
1.3.6.1.4.1.21678.317.1.4.1	hwNumber	R	Number of devices
1.3.6.1.4.1.21678.317.1.4.2	hwTable	NA	
1.3.6.1.4.1.21678.317.1.4.2.1	hwEntry	8	
1.3.6.1.4.1.21678.317.1.4.2.1.1	hwIndex	R	Device index
1.3.6.1.4.1.21678.317.1.4.2.1.2	hwDescr	R	Device description
1.3.6.1.4.1.21678.317.1.4.2.1.3	hwSerialNumber	R	Serial number
1.3.6.1.4.1.21678.317.1.4.2.1.4	hwUniqueId	R	Unique device ID
1.3.6.1.4.1.21678.317.2	settings		
1.3.6.1.4.1.21678.317.2.1	sDate	RW	Device date and time as specified in SNMPv2-TC
1.3.6.1.4.1.21678.317.2.2	sSystem		
1.3.6.1.4.1.21678.317.2.2.1	ssLoadConfig	W	Load configuration
1.3.6.1.4.1.21678.317.2.2.2	ssSaveConfig	W	Save configuration
1.3.6.1.4.1.21678.317.2.2.3	ssReset	W	Reset board
1.3.6.1.4.1.21678.317.3	events		
1.3.6.1.4.1.21678.317.3.1	evNumber	R	The total number of alarms
1.3.6.1.4.1.21678.317.3.2	evOverwritten	R	The events list has been overwritten. Obsolete events began to be overwritten.
1.3.6.1.4.1.21678.317.3.3	evPageSel	RW	Events page selector
1.3.6.1.4.1.21678.317.3.4	evTable	NA	Events table

OID	Name	R/W	Description
1.3.6.1.4.1.21678.317.3.4.1	evEntry	10	
1.3.6.1.4.1.21678.317.3.4.1.1	evIndex	R	Event index
1.3.6.1.4.1.21678.317.3.4.1.2	evNum	R	Event number.
1.3.6.1.4.1.21678.317.3.4.1.3	evDate	R	Event date and time as specified in SNMPv2-TC
1.3.6.1.4.1.21678.317.3.4.1.4	evCode	R	Event code
1.3.6.1.4.1.21678.317.3.4.1.5	evDescr	R	Event description
1.3.6.1.4.1.21678.317.4	alarms		
1.3.6.1.4.1.21678.317.4.1	alNumber	R	The total number of alarms
1.3.6.1.4.1.21678.317.4.2	alSeverityStatus	R	Maximum severity
1.3.6.1.4.1.21678.317.4.3	alThresholds		
1.3.6.1.4.1.21678.317.4.3.1	altNumber	R	Number of alarm thresholds
1.3.6.1.4.1.21678.317.4.3.2	altTable	NA	Alarm thresholds table
1.3.6.1.4.1.21678.317.4.3.2.1	altEntry	10	
1.3.6.1.4.1.21678.317.4.3.2.1.1	altIndex	R	Threshold index
1.3.6.1.4.1.21678.317.4.3.2.1.2	altDescr	R	Threshold description
1.3.6.1.4.1.21678.317.4.3.2.1.3	altAlarmCode	R	Code of the alarm this threshold is referred to
1.3.6.1.4.1.21678.317.4.3.2.1.4	altMeasUnit	R	Temperature unit of measurement
1.3.6.1.4.1.21678.317.4.3.2.1.5	altSetting	RW	Threshold setting
1.3.6.1.4.1.21678.317.4.4	alTable	NA	Alarms table. This table contains all alarms that can be managed by screen service devices
1.3.6.1.4.1.21678.317.4.4.1	alEntry	40	
1.3.6.1.4.1.21678.317.4.4.1.1	allIndex	R	Alarm index
1.3.6.1.4.1.21678.317.4.4.1.2	alStatus	R	Alarm status
1.3.6.1.4.1.21678.317.4.4.1.3	alCode	R	Alarm code
1.3.6.1.4.1.21678.317.4.4.1.4	alDescr	R	Alarm description
1.3.6.1.4.1.21678.317.4.4.1.5	alSeverity	R	Severity associated to the alarm
1.3.6.1.4.1.21678.317.4.4.1.6	alTrapManager1	RW	Enables trap messages to be sent to the manager with IP address 1
1.3.6.1.4.1.21678.317.4.4.1.7	alTrapManager2	RW	Enables trap messages to be sent to the manager with IP address 2
1.3.6.1.4.1.21678.317.4.4.1.8	alTrapManager3	RW	Enables trap messages to be sent to the manager with IP address 3
1.3.6.1.4.1.21678.317.4.4.1.9	alR0Enable	RW	Enables relay 0 to be switched on/off depending on the status of this alarm
1.3.6.1.4.1.21678.317.4.4.1.10	alR1Enable	RW	Enables relay 1 to be switched on/off depending on the status of this alarm

OID	Name	R/W	Description
1.3.6.1.4.1.21678.317.4.4.1.11	alR2Enable	RW	Enables relay 2 to be switched on/off depending on the status of this alarm
1.3.6.1.4.1.21678.317.4.4.1.12	alR3Enable	RW	Enables relay 3 to be switched on/off depending on the status of this alarm
1.3.6.1.4.1.21678.317.4.4.1.13	alFrontPanelEnable	RW	Enables this alarm to be notified on LCD display
1.3.6.1.4.1.21678.317.4.4.1.14	alJavaEnable	RW	Enables this alarm to be notified on the Java alarm page icon
1.3.6.1.4.1.21678.317.4.4.1.15	alEventEnable	RW	Enables this alarm to be notified through an event
1.3.6.1.4.1.21678.317.4.4.1.16	alRfOffEnable	RW	Enables this alarm to switch off the output RF signal
1.3.6.1.4.1.21678.317.4.4.1.17	alAutoSwitchEnable	RW	Enables this alarm to trigger the automatic input switching
1.3.6.1.4.1.21678.317.5	snmp		
1.3.6.1.4.1.21678.317.5.1	managerTrapNumber	R	Number of manager Trap IP addresses
1.3.6.1.4.1.21678.317.5.2	managerTrapTable	NA	Manager Trap IP addresses table
1.3.6.1.4.1.21678.317.5.2.1	managerTrapEntry	8	
1.3.6.1.4.1.21678.317.5.2.1.1	managerTrapIndex	R	SNMP Manager index
1.3.6.1.4.1.21678.317.5.2.1.2	managerTrapIp	RW	SNMP Manager IP listening address
1.3.6.1.4.1.21678.317.5.3	traps		"Traps section"
1.3.6.1.4.1.21678.317.5.3.1	alarmTraps1		Traps definition for Trap Manager 1. An alarmTrap1 trap signifies that the sending protocol entity recognizes that some state transitions occurred in the alarms table.
1.3.6.1.4.1.21678.317.5.3.2	alarmTraps2		Traps definition for Trap Manager 2. An alarmTrap2 trap signifies that the sending protocol entity recognizes that some state transitions occurred in the alarms table.
1.3.6.1.4.1.21678.317.5.3.3	alarmTraps3		Traps definition for Trap Manager 3. An alarmTrap3 trap signifies that the sending protocol entity recognizes that some state transitions occurred in the alarms table.
1.3.6.1.4.1.21678.317.6	mode		
1.3.6.1.4.1.21678.317.6.1	transmissionMode	RW	The transmission mode of the device
1.3.6.1.4.1.21678.317.6.2	modesManagement		
1.3.6.1.4.1.21678.317.6.2.1	mmNumber	R	Number of available modes
1.3.6.1.4.1.21678.317.6.2.2	mmTable	NA	Modes management table
1.3.6.1.4.1.21678.317.6.2.2.1	mmEntry	8	
1.3.6.1.4.1.21678.317.6.2.2.1.1	mmIndex	R	Mode index
1.3.6.1.4.1.21678.317.6.2.2.1.2	mmType	R	Mode type
1.3.6.1.4.1.21678.317.6.2.2.1.3	mmStatus	R	Mode status
1.3.6.1.4.1.21678.321	ssbtNetwork		
1.3.6.1.4.1.21678.321.1	netInterfaces		

OID	Name	R/W	Description
1.3.6.1.4.1.21678.321.1.1	nifNumber	R	The number of network interfaces
1.3.6.1.4.1.21678.321.1.2	nifTable	NA	
1.3.6.1.4.1.21678.321.1.2.1	nifEntry	8	
1.3.6.1.4.1.21678.321.1.2.1.1	nifIndex	R	
1.3.6.1.4.1.21678.321.1.2.1.2	nifDescr	R	Interface description
1.3.6.1.4.1.21678.321.1.2.1.3	nifType	R	The type of interface
1.3.6.1.4.1.21678.321.1.2.1.4	nifIpAddr	R	The IP address of this entry
1.3.6.1.4.1.21678.321.1.2.1.5	nifPhysAddr	R	The physical address of this entry
1.3.6.1.4.1.21678.321.1.2.1.6	nifNetMask	R	The subnet mask associated with the IP address of this entry
1.3.6.1.4.1.21678.321.1.2.1.7	nifGateway	R	The gateway IP address of this entry
1.3.6.1.4.1.21678.321.1.2.1.8	nifSpeed	R	The current bandwidth of this interface
1.3.6.1.4.1.21678.321.1.2.1.9	nifInPkts	R	The number of packets delivered to higher-level protocol
1.3.6.1.4.1.21678.321.1.2.1.10	nifInErr	R	The number of inbound packets that contained errors
1.3.6.1.6	snmpV2		
1.3.6.1.6.3	snmpModules		
1.3.6.1.6.3.1	snmpMIB		
1.3.6.1.6.3.1.1	snmpMIBObjects		
1.3.6.1.6.3.1.1.4	snmpTrap		
1.3.6.1.6.3.1.1.4.1	snmpTrapOID	AFN	
1.3.6.1.6.3.1.1.4.3	snmpTrapEnterprise	AFN	

4.3.3 Events Monitoring

In MIB *ssbtCommon* the *events* node allows the monitoring of events.

evNumber object specifies the total number of events stored in memory.

evOverwritten object notifies if the events list exceeded the memory limit. If this object returns “1”, obsolete events have begun to be overwritten.

evPageSel object selects which page has to be monitored through the events table. Each page is composed by 16 events.

The total number of entries of the *evTable* is fixed to 16. Each entry in the table is defined as follows:

```
EvEntry ::= SEQUENCE {  
    evIndex INTEGER,  
    evNum INTEGER,  
    evDate DateAndTime,  
    evCode EvType,  
    evDescr DisplayString  
}
```

evIndex is the index of the specific entry.

evNum object specifies the numerical order of the specific entry.

evDate object provides the date and time of the event generation as specified in SNMv2-TC.

evCode object provides the Type of the specific entry (ref. to [Events](#) chapter for further information).

evDescr object provides the Description of the specific entry (ref. to [Events](#) chapter for further information).

4.3.4 Configuring alarm masks and alarm thresholds

In *ssbtCommon* MIB the *alarms* node allows the monitoring of alarms status, the setting of alarm masks and thresholds.

4.3.4.1 Alarms Table

The *aTable* table is used to monitor alarms status and to set alarm masks. *a/Number* object specifies the total number of entries in the alarms table. *a/SeverityStatus* specifies the maximum severity of currently raised alarms. Each entry in the table is defined as follows:

```
AIEntry ::= SEQUENCE {  
    alIndex INTEGER,  
    alStatus OnOff,  
    alCode INTEGER,  
    alDescr DisplayString,  
    alSeverity Severity,  
    alTrapManager1 EnDis,  
    alTrapManager2 EnDis,  
    alTrapManager3 EnDis,  
    alR1Enable EnDis,  
    alR2Enable EnDis,  
    alR3Enable EnDis,  
    alR4Enable EnDis,  
    alFrontPanelEnable EnDis,  
    alJavaEnable EnDis,  
    alEventEnable EnDis,  
    alRfOffEnable EnDis,  
    alAutoSwitchEnable EnDis  
}
```

alIndex is the index of the specific entry.

alStatus object shows the alarm status (on/off).

alCode object univocally identifies the alarm (refer to Alarms Code and Description table).

alDescr object provides a textual description of the specific entry (refer to Alarms Code and Description table for the complete list of alarms descriptions).

alSeverity defines the severity associated to the alarm.

alTrapManager1 object allows to enable trap messages, associated to the entry, to be sent to the manager with IP address 1

alTrapManager2 object allows to enable trap messages, associated to the entry, to be sent to the manager with IP address 2

alTrapManager3 object allows to enable trap messages, associated to the entry, to be sent to the manager with IP address 3

alR0Enable, *alR1Enable*, *alR2Enable*, *alR3Enable* objects enable relay 0, 1, 2, 3 respectively, to be switched on/off depending on the status of this entry.

alFrontPanelEnable object enables the alarm to be notified on LCD display lighting the alarm button and listing the alarms in the Alarms menu.

alJavaEnable enables the alarm to be notified on the Java alarm page icon.

alEventEnable enables the alarm to be notified through an event.

alRfOffEnable enables the entry to switch off the RF output.

Alarms are divided in two different classes: common alarms and mode-specific alarms. Common alarms are those which are HW dependant or are dependent on how the operating system has been designed. Common alarms are shared by all the operational modes. Mode-specific alarms are those which depend on the implemented functionalities and standards. Mode-specific alarms can be easily recognized thanks to the addition of the mode prefix enclosed in squared brackets.

The alarms table lists both common and mode-specific alarms. Indexes of alarms may change from one operational mode to another, but alarm codes do not. Alarm codes of common alarms are the same whatever the working mode. Alarm codes of mode-specific alarms uniquely identify the specific alarm and are not shared by operational modes.

Table 4-14 Bit-to-alarm association map

aiDescr	Alarm Description	Alarm Code
Temp. High	Temperature High Alarm	0
Temp. High Warning	Temperature High Warning	2
Alim Dialog Err	Alim Dialog Err	4
GPS Dialog Err	GPS Dialog Err	7
120MHz Not Locked	120MHz Not Locked	9
960MHz Not Locked	960MHz Not Locked	10
Out PLL Not Locked	Output PLL Not Locked	12
FPGA Boot Err	FPGA Boot Error	15
FWD Pwr Low	Forward Power Low Alarm	18
File System Err	File System Error	20
File Err	Bad File In File System	21
PS1 V Out Of Range	PS Voltage Out Of Range	22
PS1 I Out Of Range	PS Current Out Of Range	23
CPU Fan Err	CPU Fan Error	24
Test Mode	Test Mode	25
[DVB-T2] No Input	[DVB-T2] No Input	1312
[DVB-T2] Input overflow	[DVB-T2] Input overflow	1313
[DVB-T2] Cfg. Not Loaded	[DVB-T2] Cfg. Not Loaded	1329

4.3.4.2 Thresholds Table

The *aThresholds* subtree is used to set alarms thresholds. *altNumber* object specifies the total number of entries in the alarm thresholds table. Each entry in the table is defined as follows:

```
AltEntry ::= SEQUENCE {
    altIndex INTEGER,
    altDescr DisplayString,
    altAlarmCode INTEGER,
    altMeasUnit MeasureType,
    altSetting INTEGER
}
```

altIndex is the index of the specific entry.

altDescr object provides a textual description of the specific entry (refer to Alarm Thresholds Description table for the complete list of thresholds descriptions).

altAlarmCode object univocally identifies the alarm this threshold refers to (refer to Alarms Code and Description table).

altMeasUnit object specifies the unit of measurement of the entry.

altSetting object is used to set the threshold.

The thresholds table lists both common and mode-specific alarm thresholds. Indexes of thresholds may change from one operational mode to another, but alarm codes of the alarms they refer to do not. Alarm codes of common alarms are the same whatever the working mode. Alarm codes of mode-specific alarms uniquely identify the specific alarm and are not shared by operational modes.

Table 4-15 Alarm Thresholds Description

altDescr	Threshold Description	Alarm Code
Temp. High -3dB	Temperature alarm threshold expressed in °C.	1
Temp. High Warning	Temperature warning threshold expressed in °C.	2
FWD Pwr Low Warning	Forward power warning threshold expressed in dB.	17
FWD Pwr Low	Forward power alarm threshold expressed in dB.	18

4.3.5 Traps

While a management station can poll, at fixed time interval, all the agents it knows for some key information, each agent is responsible for notifying the management station of any alarm condition. These events are communicated in SNMP messages known as *traps*.

The following parameters shall be set in order to correctly configure traps:

- SNMP Agent Port: 162.
- SNMP Agent Transport protocol: IP/UDP.

4.3.5.1 SNMPv1

ARK6 devices transmit alarm-specific traps. For every Trap Manager there is a different SNMPv1 trap definition:

```
alarmTrap1 TRAP-TYPE
    ENTERPRISE ssbt
    VARIABLES { alIndex, alStatus, alCode, alDescr, alSeverity}
    DESCRIPTION
        "Traps definition for Trap Manager 1"
    ::= 0

alarmTrap2 TRAP-TYPE
    ENTERPRISE ssbt
    VARIABLES { alIndex, alStatus, alCode, alDescr, alSeverity}
    DESCRIPTION
        "Traps definition for Trap Manager 2"
    ::= 1

alarmTrap3 TRAP-TYPE
    ENTERPRISE ssbt
    VARIABLES { alIndex, alStatus, alCode, alDescr, alSeverity}
    DESCRIPTION
        "Traps definition for Trap Manager 3"
    ::= 2
```

VARIABLES clause defines the ordered sequence of MIB objects, belonging to the specific entry of the *alTable*, which are contained within every instance of the trap type. Each variable is placed, in order, inside the variable-bindings field of the SNMP Trap Message as shown in the following figure (refer to [Alarms Table](#) paragraph for further information about alIndex, alStatus, alCode, alDesc, alSeverity objects).

Figure 4-39 User Interface – SNMPv1 Trap Messages



4.3.5.2 SNMPv2

ARK6 devices transmit alarm-specific traps. For every Trap Manager there is a different SNMv2 trap definition:

```
traps OBJECT IDENTIFIER ::= { snmp 3 }
```

```
alarmTraps1 NOTIFICATION-TYPE
    OBJECTS {alIndex, alStatus, alCode, alDescr, alSeverity}
    STATUS current
    DESCRIPTION
        "Traps definition for Trap Manager 1. An alarmTrap1 trap signifies that the
        sending
            protocol entity recognizes that some state transitions occurred in the
            alarms
            table."
    ::= { traps 1 }
```

```
alarmTraps2 NOTIFICATION-TYPE
    OBJECTS {alIndex, alStatus, alCode, alDescr, alSeverity}
    STATUS current
    DESCRIPTION
        "Traps definition for Trap Manager 2. An alarmTrap2 trap signifies that the
        sending
            protocol entity recognizes that some state transitions occurred in the
            alarms
            table."
    ::= { traps 2 }
```

```
alarmTraps3 NOTIFICATION-TYPE
    OBJECTS {alIndex, alStatus, alCode, alDescr, alSeverity}
    STATUS current
    DESCRIPTION
        "Traps definition for Trap Manager 3. An alarmTrap3 trap signifies that the
        sending
            protocol entity recognizes that some state transitions occurred in the
            alarms
            table."
    ::= { traps 3 }
```

VARIABLES clause defines the ordered sequence of MIB objects, belonging to the specific entry of the *alTable*, which are contained within every instance of the trap type. Each variable is placed, in order, inside the variable-bindings field of the SNMP Trap Message as shown in the following figure (refer to [Alarms Table](#) paragraph for further information about alIndex, alStatus, alCode, alDesc, alSeverity objects).

Figure 4-40 User Interface – SNMPv2 Trap Messages



4.3.5.3 Configuring traps

Use Java (refer to [Network](#) and [Alarms](#) paragraphs for further information) or SNMP user interfaces to configure traps.

The configuration of traps is performed through the setting of three different alarm masks, by means of *alTrapManager1*, *alTrapManager2*, *alTrapManager3* objects in the *alTable* (refer to [Alarms Table](#) paragraph), and through the setting of the destination IP Address of the receiving management stations, by means of the *managerTrapTable* in the *snmp* subtree in *ssbtCommon* MIB.

managerTrapNumber object specifies the total number of entries in the trap manager address table.

Each entry of the *managerTrapTable* is defined as follows:

```
ManagerTrapEntry ::= SEQUENCE {
    managerTrapIndex INTEGER,
    managerTrapIp IpAddress
}
```

managerTrapIndex is the SNMP manager index.

managerTrapIp object allows the setting of the SNMP manager IP listening address. There are up to 3 different manager IP addresses that can be configured, one for each *alTrapManager* mask.

The Community shown in trap messages can be set from Java interface in the Community box within the Network window (refer to [Network](#) paragraph).

Chapter 5

Maintenance & Troubleshooting

External Document

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5 Maintenance & Troubleshooting

5.1 Maintenance

No particular maintenance is required.

5.2 Troubleshooting

No particular troubleshooting paths have been reported up to date.

Appendix A *Software Upgrade*

External Document

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Appendix A. Software Upgrade

All the following operations are essential to run an update safety without loss of information.

A.1 Ethernet cable connection

Make sure the Ethernet cables are properly connected: check the ethernet data activity by the LED blinking.

Connect the PC will be used for upgrade operation to the same network of the machine and check that all devices are responding using the ping command.

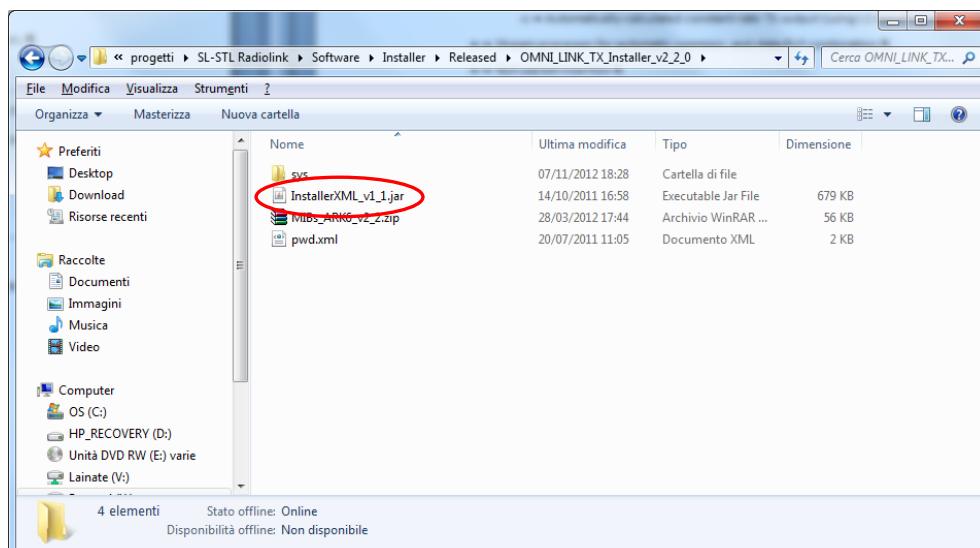
Software installation:

A.2 How to update

1. Launch the installer by double-click on the file "InstallerXML_v1_3.jar".

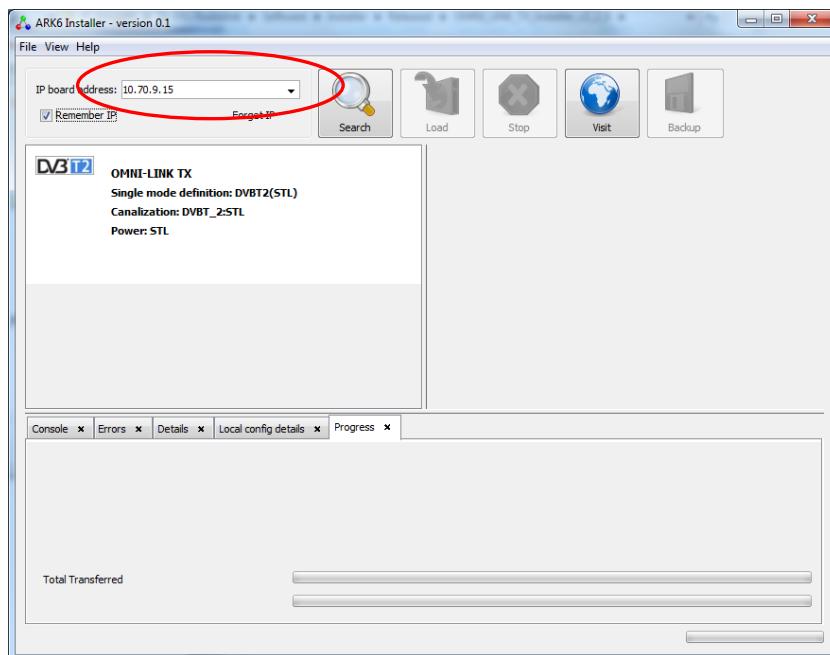
If the file is opened as a data archive WinRAR, select the file with the right mouse button and open it manually with the Java platform.

Appendix Figure A-1 Java Installer – Java installer



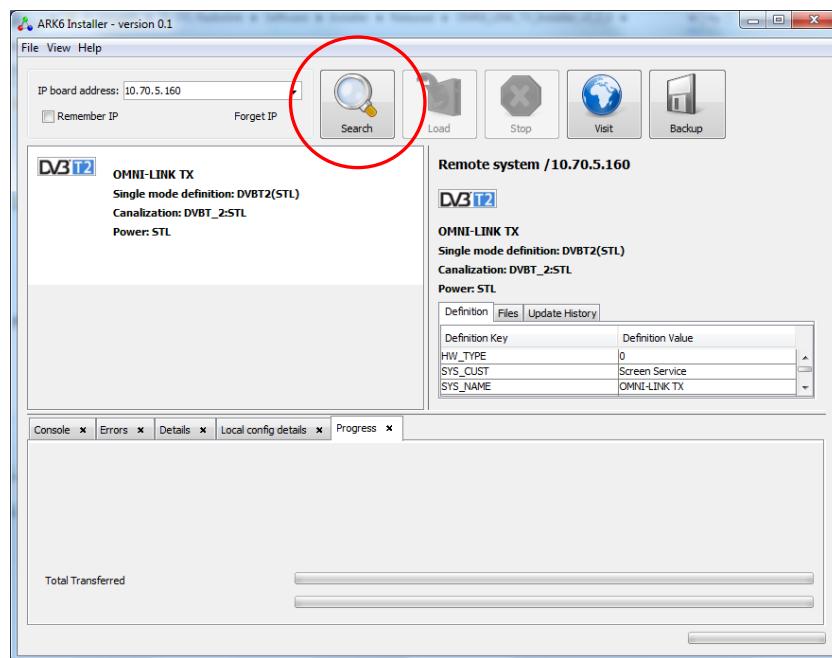
2. Insert the IRRM2 BTS Remux IP address into the numeric field.

Appendix Figure A-2 Java Installer – IP address insertion



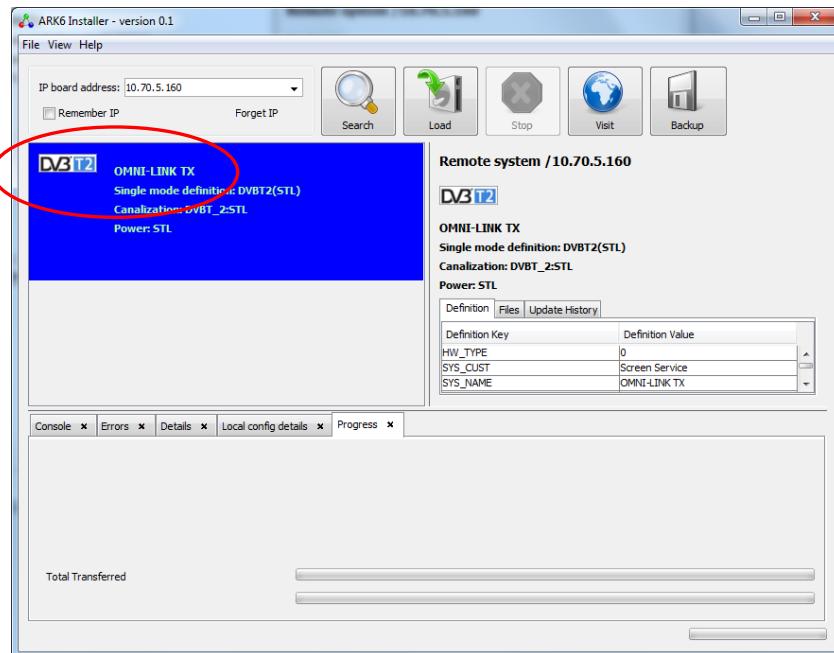
3. Click the Search button.

Appendix Figure A-3 Java Installer – Search button



4. Select the device version you want to load.

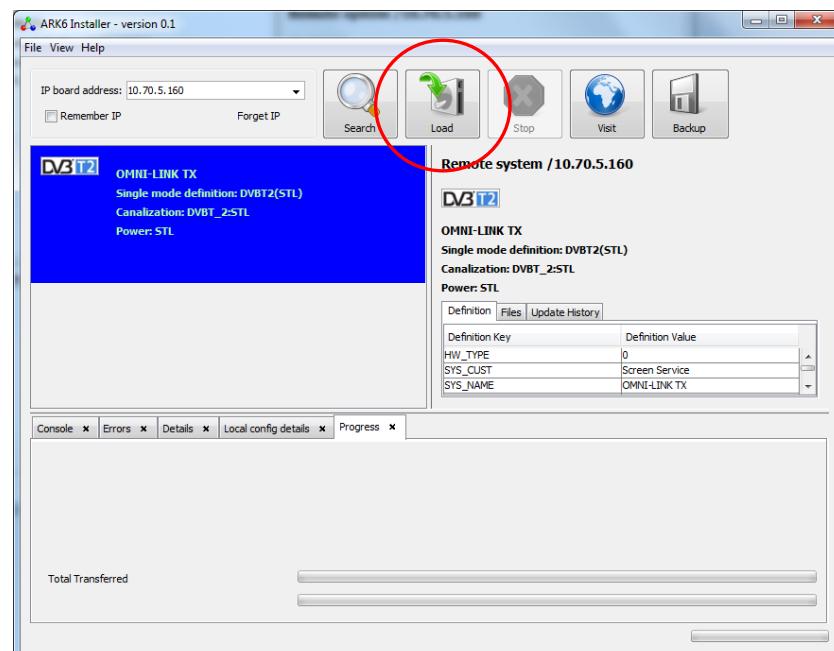
Appendix Figure A-4 Java Installer – Device selection



5. Click on the “Load” button.

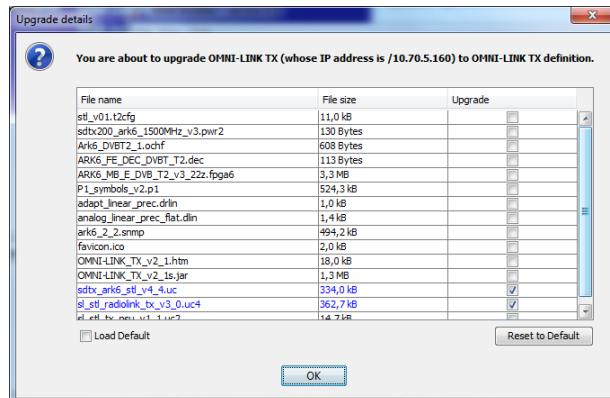
Appendix Figure A-5 Java Installer – Load button

6.



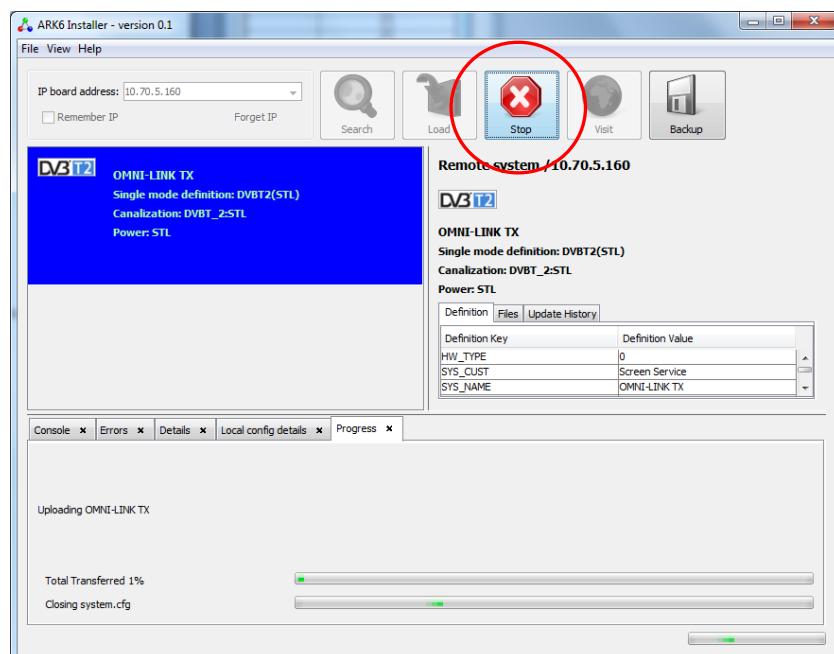
If you want to update only some software versions, click on the check boxes corresponding to the software version you want to load, otherwise click on the check box corresponding to the Load All option. Click on the “Enter” button to start the loading.

Appendix Figure A-6 Java Installer – Software versions selection



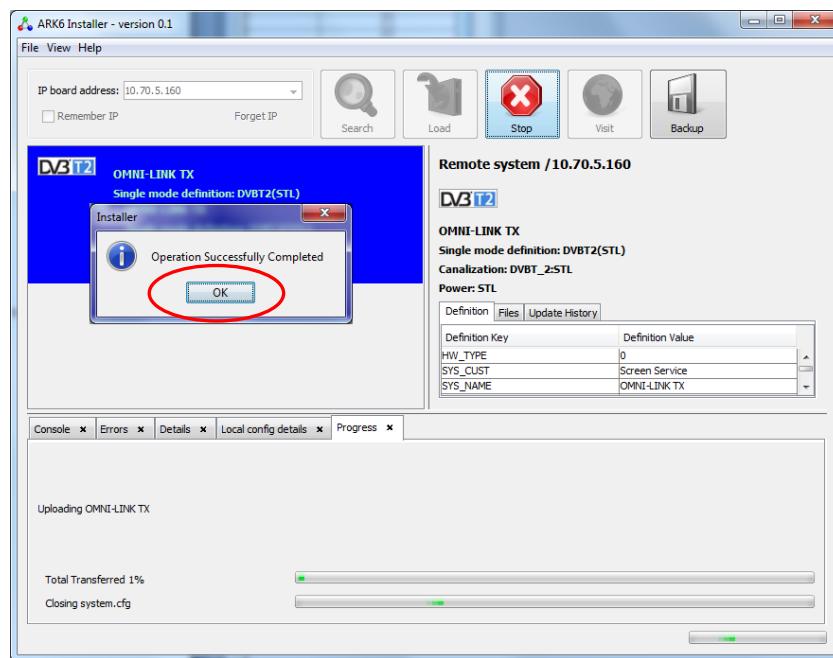
- Once started the loading, the “Stop” button lights up. Click on this button to interrupt the programming.

Appendix Figure A-7 Java Installer – Stop button



8. When the loading is complete, the pop-up window “Operation Successfully Completed” appears. Click on the “OK” button.

Appendix Figure A-8 Java Installer – Operation Successfully Completed



9. To save a copy of the file system click on “Backup” button. A pop-up window “Salva” appears. Specify the saving path, then click on “Salva” button.

Appendix Figure A-9 Java Installer – Backup Save button

