

1. Product description

DVB-S/S2 (tdx410C), DVB-T/T2/C (ttx410C) to DVB-T transmodulators (in the text - modules) designed for digital transmodulation with Transport Stream Processing (of TV or Radio programmes) issued from FTA (Free to air) or encrypted digital reception; in case of encrypted signal, a CAM (Conditional access module) containing the operator's smart card must be fitted in the slot. The streams can be viewed via Web interface using video player plug-in (VLC).

Modules are intended for indoor use only.

2. Characteristics

Input: One DVB transport stream (MPTS - Multiprogram Transport Stream).

Output: MPTS stream with up to 5 PCR restamped services (TV or Radio programs) or Transparent mode of MPTS stream.

- Web interface for configuration and setting.
- SNMP (simple network management protocol) agent for monitoring and alarms.
- PID filtering (up to 31 PID's).
- PSI/SI (Program-specific information) parsing.
- PAT(Program association table), NIT (Network information table) and SDT (Service description table) table regeneration.

3. Safety instructions

Installation of the module must be done according IEC60728-11 and national safety standards.

Any repairs must be made by qualified personnel.

Do not expose this module to moisture or splashing water and make sure no objects filled with liquids, such as vases, are placed near or on the unit.

Avoid placing the module next to heat sources such as central heating components or in areas of high humidity.

Keep the module away from naked flames.

If the module has been kept in cold conditions for a long time, bringing it into a warm environment may cause condensation, so allow it to warm up for no less than 2 hours before plugging into the mains.

Ventilation should not be impeded by covering the module, such as newspapers, table-cloths, curtains etc.

Mount the module in a vertical position only. If installing in a 19" rack system additional forced air cooling fans may be required (see table "Technical specifications" - operating temperature range).

Always allow 10 cm of free space from the top, front and bottom of the unit to enable any heat to be dissipated.

4. External view

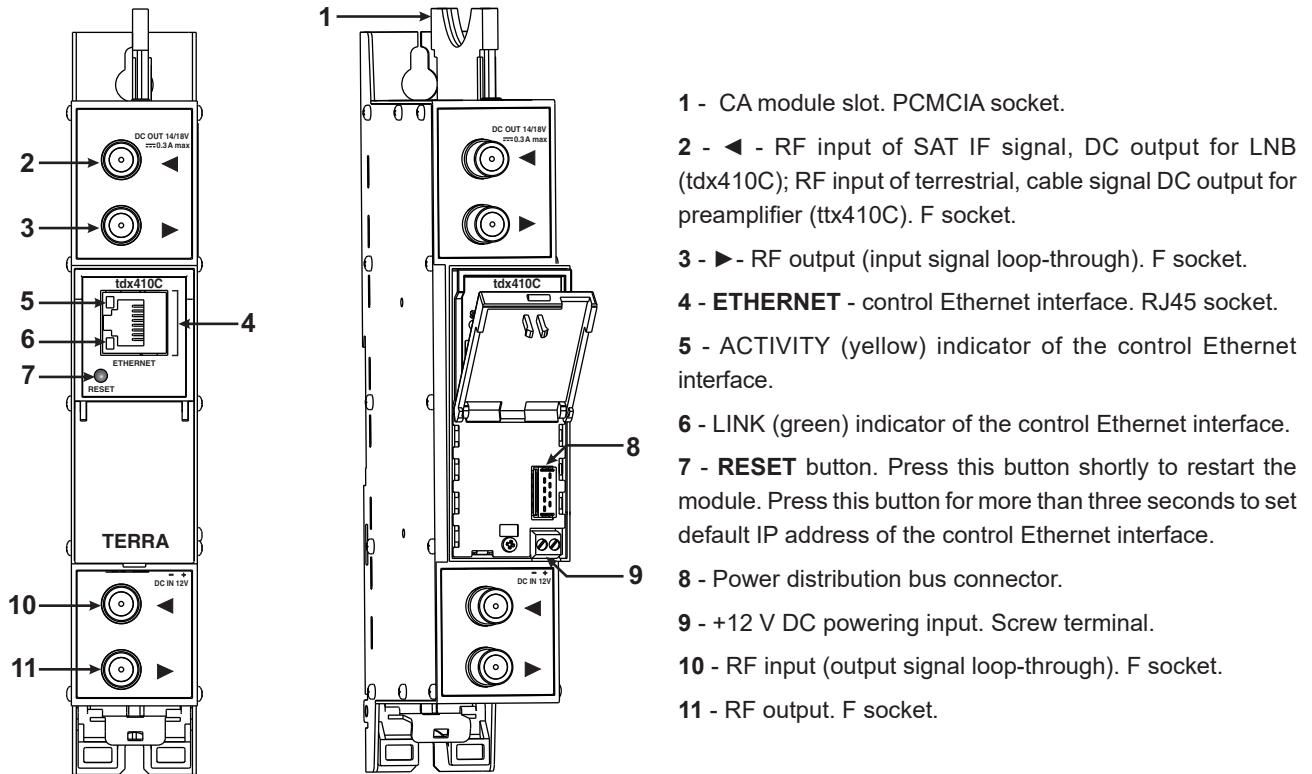


Figure 1. External view of the streamer

5. Installation instructions

Read the safety instruction first.

All settings can be made using the web browser via control Ethernet interface.

Disconnect power supply unit from the mains before making any changes in connections of module.

Fasten the module on DIN RAIL or individual holder. The module or mounting bracket must be fixed with steel screws \varnothing 3.5-4 mm. The screws are not included in a package.

Connect all necessary RF, powering and control cables. Shielded cable is recommended for Ethernet connection.

Connect the 75 Ω load to the unused RF output F sockets.

Connect power supply in to mains.

Within 5-30 seconds of powering the module will run in normal operation mode.

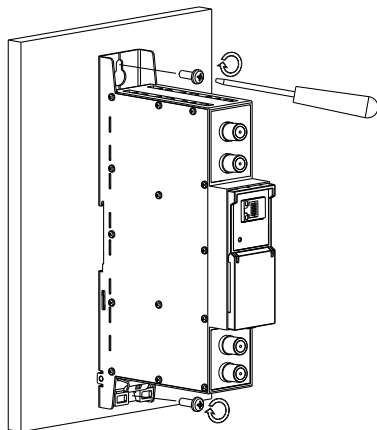
Comments of the front panel indicators:

if the link with the control Ethernet interface is established - the LINK [6] indicator blinks;

if communication via the control Ethernet interface is active - the ACTIVITY [5] indicator blinks.

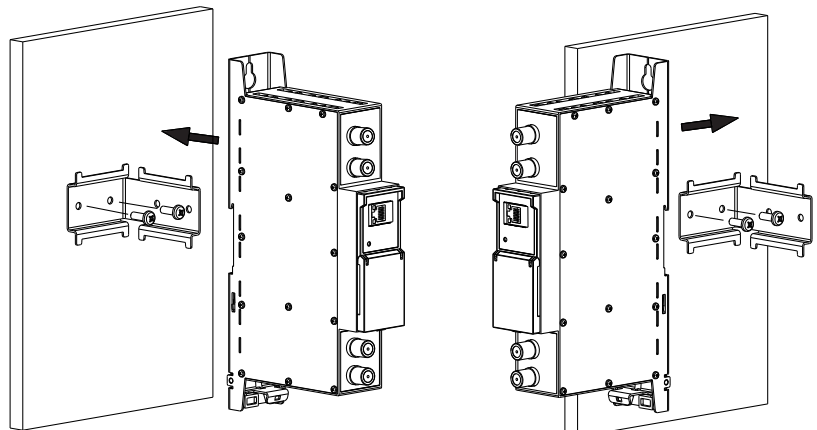
6. MOUNTING

Mounting on a wall by screws



Perpendicular to the wall

Mounting on a bracket (supplied)



Parallel to the wall

Figure 2. Mounting of the streamer

Mounting on DIN rail

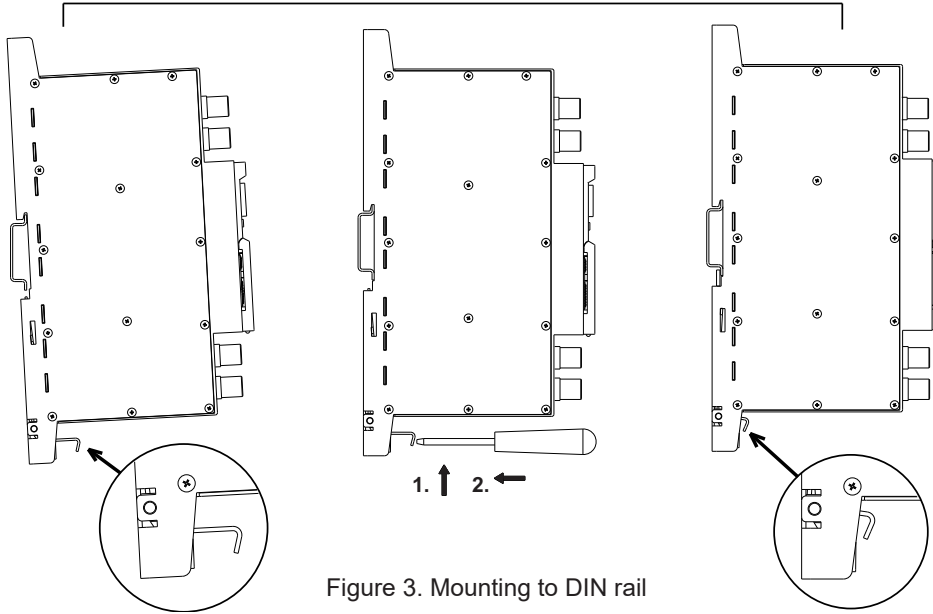
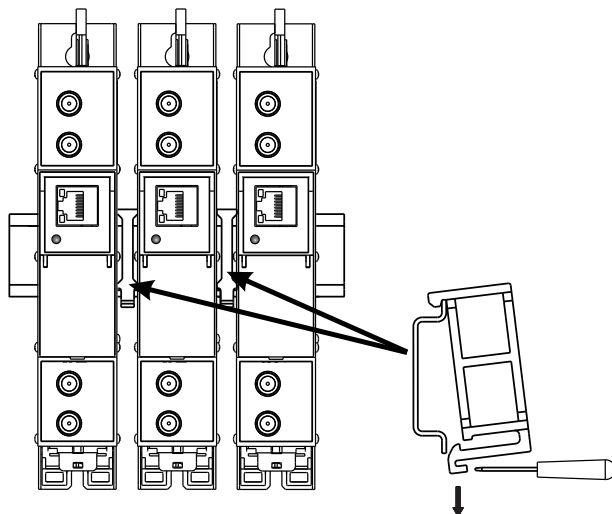
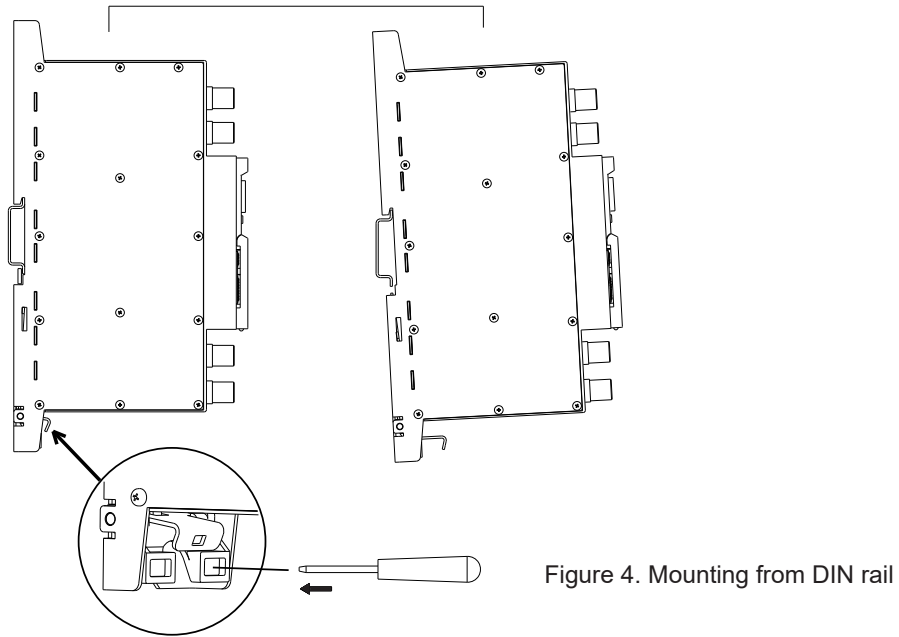


Figure 3. Mounting to DIN rail



7. Operating

7.1 Initial configuration

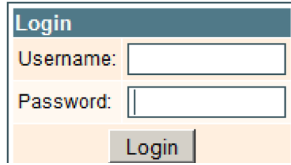
All modules leave the factory with this control: Ethernet interface IP address: 192.168.1.10. In order to avoid conflicts with other IP addresses, it is necessary to perform an initial configuration in local mode. Subsequently, it will be possible to access the modules via the local area network (LAN), either to re-programme it or to check its operating status.

The modules leave the factory with the following Control Ethernet interface TCP/IP configuration:

IP address of the module: **192.168.1.10**

Subnet mask: **255.255.255.0**

Default Gateway: **192.168.1.1**



Login	
Username:	<input type="text"/>
Password:	<input type="password"/>
<input type="button" value="Login"/>	

To access each module, use a personal computer (PC) equipped with an Ethernet card and RJ-45 cable (CAT-5E or CAT-6). The IP address of the PC/MAC must be configured within the following range: 192.168.1.2 - 192.168.1.254 (do not use 192.168.1.10, since this is the IP address of the module to be configured). To start the configuration of the module, open your web browser and type in the following direction: http://192.168.1.10. The login prompt will appear on the screen (see Figure 6.).

Figure 6. Login prompt

Access to the site is protected by user name and password. The default user name and password is **admin**. Enter the user name and password and click on "**Login**" button.

Note: the default password - **admin** - can (and must) be changed as explained in the section 7.7.5.

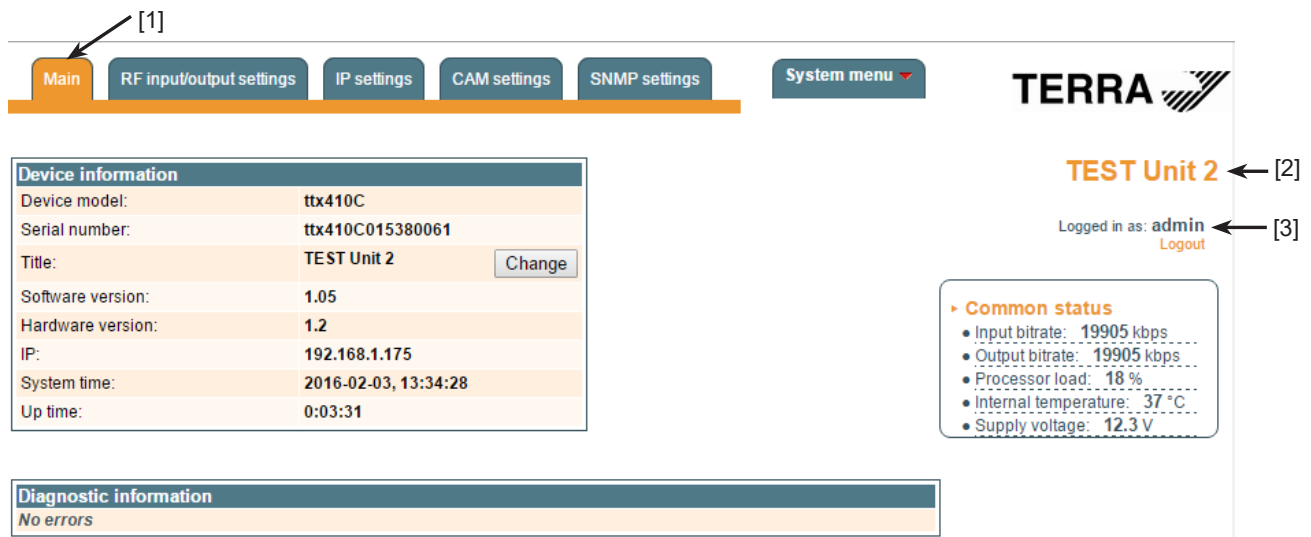
During initial configuration you need to change the default control interface TCP/IP configuration as explained in the section 7.4.

Control interface IP address reset to default procedure: press the "RESET" [7] button for more than 3 seconds and release it. After this operation the control interface IP address will be set to **192.168.1.10**, user name and password set to **admin**.

7.2 General configuration

Initial Web interface screen

The first screen that appears when the module accessed contains the "Main" window, which gives general information on the device.



Device information	
Device model:	ttx410C
Serial number:	ttx410C015380061
Title:	TEST Unit 2 <input type="button" value="Change"/>
Software version:	1.05
Hardware version:	1.2
IP:	192.168.1.175
System time:	2016-02-03, 13:34:28
Up time:	0:03:31

Common status	
• Input bitrate:	19905 kbps
• Output bitrate:	19905 kbps
• Processor load:	18 %
• Internal temperature:	37 °C
• Supply voltage:	12.3 V

Figure 7. General information screen

In the top of each configuration screen you will see a main menu tabs [1].

Using it, you can switch between the different configuration menus. The tab highlighted in yellow shows which menu is active at a given moment. The "System menu" tab contains several submenu items.

Also common elements for all screens are module title [2] and login information strings [3]. The module title can be changed after pressing the "Change" button in the "Device information" table. Pressing on the "Logout" string you can logout from module control.

Device information table

This shows the data of module:

“Device model”: model of the module.

“Serial number”: serial number of the module.

“Software version”: module software version number.

“Hardware version”: module hardware version number.

“IP”: IP address of the control interface.

“System time”: current time, synchronized from the TDT table of the input stream. Local time offset can be selected in the "IP settings" tab, see section 7.4.

“Up time”: time passed from last power-up or restart of the module.

In the "Common status" table the following parameters are displayed at real time: input bit rate in kbps, output bit rate in kbps, processor load in percents, internal temperature in degrees of Celsius, power voltage in Volts.

In the "Diagnostic information" table all module errors and comments how to eliminate these errors are displayed.

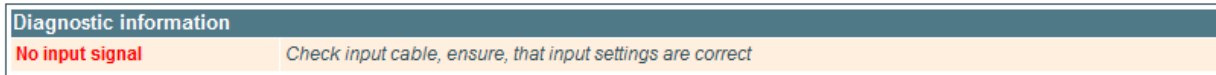


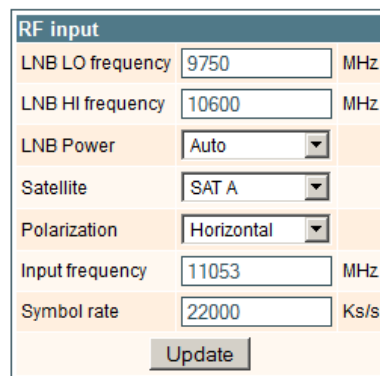
Figure 8. Diagnostic information table with errors

7.3 RF input/output settings

This screen consists of six tables: "RF input", "RF output", "List of services", "Input status", "RF output status", "Description of other streams in the network". The "RF input" table is used to configure parameters corresponding to the input satellite transponder (tdx410C module), terrestrial or cable transponder (tx410C module). In the "List of services" table the list of services, available in the input transponder is displayed. In the "Input status" table you can see real time status of the input section. In the "RF output status" table you can see real time status of the output section.

The "RF input" table is different according to the input signal of module.

7.3.1. RF input table



RF input	
LNB LO frequency	9750 MHz
LNB HI frequency	10600 MHz
LNB Power	Auto
Satellite	SAT A
Polarization	Horizontal
Input frequency	11053 MHz
Symbol rate	22000 Ks/s
<input type="button" value="Update"/>	

Figure 9. The "RF input" table of the tdx410C module

The „RF input" table (Figure 9) for tdx410C module consists of the following parameters:

"LNB LO frequency" - the LNB local oscillator lower frequency in megahertz. Use 9750 MHz for the universal converter.

"LNB HI frequency" - the LNB local oscillator upper frequency in megahertz. Use 10600 MHz for the universal converter.

"LNB voltage" – power supply of the converter – can be set to "Off", "Auto", "13V", "18V", "13V/22kHz", "18V/22kHz". If "Auto" is selected, power supply voltage of the converter is chosen according to set the polarization – 18V Horizontal, 13V Vertical; if the "Frequency" of the satellite exceeds the value $F=(950+\text{LNB Hi}+2150+\text{LNB Lo})/2$, the 22 kHz signal is switched ON and "LNB Hi freq." is selected.

For example: LNB Hi=10,600, LNB Lo=9750, then $F=(950+10,600+2150+9750)/2=11,725$ MHz. When power supply of the converter is set to value different from "Auto." to "LNB HI frequency", "Satellite" and "Polarization" rows are disabled and the "LNB LO frequency" value is used for IF frequency calculation.

"Satellite" – DISEQC command is used to select the satellite when the switch that supports DISEQC protocol is present. Possible commands: "None", "SAT A", "SAT B", "SAT C", "SAT D".

"Polarization" - the polarization of converter. Can be "Horizontal" or "Vertical".

"Frequency" – the frequency of the satellite transponder in megahertz.

"Symbol rate" – the symbol rate of the satellite transponder in kilo symbols per second.

RF input	
Modulation standard	DVB-T/T2
Preamplifier power	Off
Input bandwidth	8MHz
Input frequency	658000 C44 kHz
Update	

Figure 10. The "RF input" table of the ttx410C module DVB-T/T2 standard

The „RF input" table for ttx410C module consists of following parameters:

"Modulation standard" - used to select from the "DVB-T/T2" and "DVB-C" modulation standards.

"Preamplifier power" - used to switch on/off the power for the RF preamplifier.

"Input bandwidth" - the bandwidth of DVB-T/T2 transponder. Can be selected from values 8 MHz and 7 MHz.

"Input frequency" – the frequency of the terrestrial or cable transponder in kilohertz.

When the tuner is locked to the DVB-T2 transponder with multi PLP modulation, the additional parameter "PLP number" is displayed in the "RF input" table. When the "Modulation standard" is set to DVB-C, the „Preamplifier power" parameter is hidden and power for the RF preamplifier is switched off; instead of the "Input bandwidth" parameter the "Symbol rate" parameter is displayed. Enter the value in kilo symbols per second.

RF input	
Modulation standard	DVB-C
Symbol rate	6750 Ks/s
Input frequency	658000 C44 kHz
Update	

Figure 11. The "RF input" table of the ttx410C module DVB-C standard

Once the different data values have been entered, click on Update to conclude the input settings.

7.3.2. Input/output status table

The following information is displayed in the table "Input status".

"Lock status" "Locked" - the module has synchronized with the input signal; "Unlocked" - the module has not synchronized with the input signal.

"Input level" - RF signal level at the module input. Level indication - approximate.

The values of the following parameters are displayed only if the module has synchronized with the input signal.

"Modulation standard" - detected standard of the input signal. Possible values of the standard: DVB-S, DVB-S2 (ttx410C); DVB-T, DVB-T2, DVB-C (ttx410C).

RF output	
● Output bandwidth:	30915 kbps
● Output usage:	34 %
Input status	
● Lock status:	Locked
● Modulation standard:	DVB-T
● Input level:	52 dBμV
● Frequency:	666000 kHz
● Modulation:	QAM64
● Modulation mode:	8K
● FEC:	3/4
● Guard interval:	1/4
● SNR:	36.2 dB
● VBER:	<1.0E-08
● PER:	9.0E-09
● Input bitrate:	22390 kbps

"Frequency" - intermediate frequency (ttx410C) or RF frequency (ttx410C) at the module input.

"Modulation" - modulation scheme of the input signal. Possible values of the modulation scheme: QPSK, 8PSK (ttx410C); QPSK, QAM16, QAM32, QAM64, QAM128, QAM256 (ttx410C).

"Modulation mode" - OFDM modulation mode of the input signal (ttx410C only). Values: 8k or 2k.

"FEC" - forward error correction.

"Guard interval" - guard interval of OFDM signal (ttx410C only).

"Symbol rate" - the symbol rate of the satellite transponder in kilo symbols per second (ttx410C only).

"SNR" - RF signal/noise ratio at the input of module.

"VBER" - bit error rate after Viterbi corrector. To get the signal without any errors at the output of the tuner, VBER shall not exceed 2E-4.

"PER" - ratio of the MPEG2 transport error packets to the whole number of packets. If the number of error packet is equal to zero, the opposite value to whole number of packets is displayed. Packet counters are reset during RF input parameters update.

"Input bitrate" - bitrate of the input signal.

Figure 12. Input status and output status table

Output Status

“Output bandwidth” - maximum bitrate with currently selected RF output settings.

“Output usage” - current usage of output bandwidth in percents.

7.3.3. List of services table

The table (Figure 13) shows all of the input transport stream services, including different details (type, name, identifier). Also UDP unicast streaming via the control interface can be started, services for descrambling by CA module can be selected and descrambling status observed. In the „Enable“ column services for output TS are selected. Column „CC errors“ shows incoming TS CC error (continuity count error) status.

List of services




























Service title	Service ID	Descramble	Enable	Descrambling status	CC errors
Update					
+   RTL (TEO) Watch	201	<input type="checkbox"/>	<input type="checkbox"/>		0
+  TV Polonia (TEO) Watch	202	<input type="checkbox"/>	<input type="checkbox"/>		0
+   Nickelodeon (TEO) Watch	203	<input type="checkbox"/>	<input type="checkbox"/>		0
+   EuroNews (TEO) Watch	204	<input type="checkbox"/>	<input type="checkbox"/>		0
+   MTV (TEO) Watch	205	<input type="checkbox"/>	<input type="checkbox"/>		0
+   Discovery World (TEO) Watch	206	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		0
+   CNN International (TEO) Watch	207	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		2
+   Eurosport 2 (TEO) Watch	208	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		0
+   Discovery Science (TEO) Watch	209	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		0
+   FOX life (TEO) Watch	210	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		1

Figure 13. The "List of services" table

The service type icon meanings:  SD TV service,  HD TV service,  radio service.

Click on the "Watch" button to see selected channel. The module will start an UDP unicast streaming via the control interface. Maximum output bitrate of the UDP unicast is 8 Mbps (for TS monitoring only). VLC Media Player must be installed, downloadable from <http://www.videolan.org/>.



Figure 14. UDP streaming video

The checkboxes in the "Descramble" column are used to select services for descrambling by CA module. Several services can be selected, if the module supports simultaneous descrambling of several services.


The "Descrambling status" icon meanings:  - service is descrambled successfully,  - service is not descrambled.

7.3.4. Detailed service information

Press the  icon at the start of the list of services line. The detailed service information table will appear:

Service title:	Discovery World (TEO)	New service title:	Discovery World
Service provider:	TEO	New service provider:	TEO
Service ID:	206		
PMT PID:	272	LCN:	6
H.264 Video PID:	528	Descramble	<input checked="" type="checkbox"/>
MPEG1 Audio PID:	608 eng	Descramble	<input checked="" type="checkbox"/>
MPEG1 Audio PID:	610 rus	Descramble	<input checked="" type="checkbox"/>
PCR PID:	528		

Figure 15. Detailed service information

This table is used to see the detailed service information and select individual streams for descrambling and output stream. The following service information is shown in the table: service title, service provider, service id, PMT (program map table) PID, types and PID-s of service streams, PCR (program clock reference) PID, New service title, New service provider, LCN (logical channel number). After checking the "Descramble" checkbox of service line, all streams of this service are included in a descrambling list of the CA module. Unnecessary streams can be deselected from the descrambling list by unchecking corresponding "Descramble" checkboxes of streams. Close the table by clicking on the  icon. "New service title" - the name given to the service. The name that the service has on the input transport stream is the default name. Also this name will be used as the output service name. "New service provider" - enter the provider name of the output stream. This name will be used in the SDT table. LCN: Logical channel number for outputted TS can be placed.

NOTE: PMT tables are not regenerated, so even if service is descrambled, some TV's might show "service scrambled" message, because CA descriptors are left at PMT table.

7.3.5. Output settings

RF output	
RF output	On
Constellation	QAM-64
Code Rate	7/8
Guard interval	1/32
Transmission mode	2K
Output frequency	794000 C61 kHz
Output bandwidth	8 MHz
RF level	0 -dB
Update	

RF output - On/Off turns on off RF output.

Constellation - modulation scheme of the output signal. Possible values of the modulation scheme: QPSK, QAM16, QAM64.

Code Rate (FEC) - There are five valid coding rates: 1/2, 2/3, 3/4, 5/6, and 7/8.

Guard interval - guard interval of OFDM signal available selections: 1/32, 1/16, 1/8, 1/4.

Modulation mode - modulation mode of the output signal. Values: 8k or 2k.

Output frequency - values from 170-230/470-860 MHz

Output bandwidth - the bandwidth of DVB-T transponder. Can be selected from values 8 MHz and 7 MHz.

RF level - OFDM signal attenuator control Can be selected from values 0-(-15) dB.

Once the different data values have been entered, click on Update to conclude the Output settings.

Figure 16. RF output setting table

7.3.6. TS output

Global TS parameters	
Network ID	1
Private data specifier (hex)	0000233A
Network name	TERRA
Original network ID	8632
Transport stream ID	92
Transparent mode	Off
Update	

Several tables related to NIT generation exist in this section. „Global TS parameters“(Figure 17) describes following TS parameters:

“NetworkID” is unique within the geographical region defined by the “country code”. For a cable network, usually this is a single country code plus 0x2000 (8192). If there are more modulators in the network, they must have the same Network ID. Proper value depending on your country and operator can be found here:

http://www.dvbservices.com/identifiers/network_id?page=1

“Private data specifier” (in hex format) can be inserted in the NIT table for proper LCN description. This value is described in TS 101162 specification. Valid value for each operator can be found here:

http://www.dvbservices.com/identifiers/private_data_spec_id?page=1

„Network name“ is the name of the network.

Figure 17. Global TS parameters

Also you can change Transport stream ID and Original network ID, see Figure 17. Each stream in a network must have unique ID, called „Transport stream ID“. An Original_Network_ID is defined as the “unique identifier of a network”. It can be linked to NetworkID, or used value from this location:

http://www.dvbservices.com/identifiers/original_network_id?page=1

In case of transparent mode, Fields in Figure 18 will not be used! These values will be the same as in input transport stream. Also all services will enabled (Column „Enable“ will be greyed in Figure 13).

NOTE: If Transport stream ID or Original Network ID is changed (from original ones), the EIT/EPG will not be available, because EIT is not regenerated!

Very important part in this page is the 2nd table, where other streams in the network can be described (see Figure 18).

Description of other streams in the network							
Frequency, MHz	Constellation	Code Rate	Guard interval	T. Mode	Output Bw.	Original network ID	Transport stream ID
Load information from other device			IP address:	<input type="text"/>			<input type="button" value="Load"/>

Figure 18. Streams in network

Every channel in the network must be described in NIT. Otherwise TV automatic channel tuning function will not find all channels. So, if there are more modulators in the network, all channels must be included in this table. If there are more devices manufactured by Terra, which are controlled via Ethernet, all broadcast information can be captured automatically by adding its IP address and pressing „Load“ button. In case if the frequency was added manually already, that record will be updated. Otherwise, a new record will be inserted.

7.4. IP settings

This screen (Figure 19) consists of three tables: "Control interface IP parameters", "Time parameters" and "IP status". The IP parameters tables are used to configure Ethernet connection parameters. In the "Time parameters" table a local time offset can be set. In the "IP status" table current status of Ethernet interface is displayed.

Control interface IP parameters	
MAC address	00-1C-A3-00-20-DB
IP address	<input type="text" value="192.168.1.178"/>
Subnet mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.1.1"/>
Watching UDP port	<input type="text" value="1234"/>
<input type="button" value="Update"/>	

Time parameters	
Local time offset, hour	<input type="text" value="0"/>
<input type="button" value="Update"/>	

Logged in as: **admin**
[Logout](#)

IP status

- Control interface: **100 FULL**

Figure 19. IP settings screen

The description of the "IP parameters"

"MAC Address" - the physical address of the module's Ethernet network card is displayed automatically.

"IP Address" - enter the IP address that you wish to assign to the module. This address must fall within the range of local network addresses.

"Subnet mask" - enter the local network mask.

"Gateway" - enter the IP address of this gateway. This information is only required if you want to access the module from the Internet.

7.5. CAM settings

This screen consists of three tables: "CA module monitor", "CA module information" and "CA module menu". In the "CA module monitor" table CAM restart function in case of descrambling error can be enabled. It is recommended to turn off this option if inactivated conditional access card has been inserted.

The content of the remaining tables depends on the inserted CA module.

CA module monitor	
<input type="checkbox"/>	CAM restart on descrambling error

CA module information	
Status	Initialised
Manufacturer	G
Product	M
Title	
Supported CA systems	0500 France Telecom 0B00 Norwegian Telekom

CA module menu	
PCAM V5.1	
Select a language	
English	
French	
Spanish	
German	
Russian	
Arabic A	
Arabic B	
Back	Home

Figure 20. CAM settings screen

In the CA module information table general information about inserted CA module is displayed. When there no CA module inserted, in the "Status" line is a message: "No module inserted" and remaining lines are empty. Otherwise, the "Status" contains message "Initialized" and remaining lines are filled with information read from the CA module.

As an example, above "CA module menu" table shows the menu for a particular CAM. Click on the corresponding band to access different options. Click on the "Back" button to return to previous menu, click on the "Home" button to return to start menu.

7.6. SNMP settings

This menu tab contains the SNMP configuration table.

SNMP configuration	
Read Community	<input type="text" value="public"/>
Write Community	<input type="text" value="private"/>
Enable TRAP	<input type="checkbox"/>
TRAP Community	<input type="text" value="public"/>
Host IP #1	<input type="text" value="192.168.1.1"/>
Host IP #2	<input type="text" value="192.168.1.2"/>
Download MIB file	
<input type="button" value="Update"/>	

The description of the "SNMP configuration" table rows.

"Read Community" - community name acts as a password that is shared by multiple SNMP agents and one or more SNMP managers. The "Read Community" password is used for read-only access to the modules parameters.

"Write Community" - is the password used for read-write access to the modules parameters.

"Enable TRAP" - SNMP traps are alerts generated by agents on a managed device. Check this box to enable TRAP generation. The module generates traps when the diagnostic message occurs.

"TRAP Community" - is the password used for accessing of TRAPS.

"Host IP #1", "Host IP #2" - IP addresses of hosts with SNMP managers, where TRAPS will be send.

Figure 21. SNMP configuration

7.7. System menu

This menu tab contains following submenu items: "Event logs", "Export parameters", "Import parameters", "Firmware upgrade", "User management", "Restore defaults", "Reset the device", "Language".

7.7.1 Event logs

Move the mouse on the System menu tab then click on the "Event logs" line. The event logs screen will appear.

Logs filtering

System error
 High priority error
 Low priority error
 Event

Critical error
 Error
 Warning
 Message

Date/Time	Event type	Event description
2015-10-02 00:00:00	Event	Midnight date changed
2015-10-01 13:47:38	Event	Service MTV8 LAST requested from CAM
2015-10-01 13:47:38	Event	Service Focus MORE requested from CAM
2015-10-01 13:47:38	Event	Service GIALLO FIRST requested from CAM
2015-10-01 13:46:22	Event	Service MTV8 LAST requested from CAM
2015-10-01 13:46:21	Event	Service Focus FIRST requested from CAM
2015-10-01 13:46:21	Event	System time updated
2015-10-01 13:46:02	Event	CA module initialised
2015-10-01 13:45:56	Event	CA module inserted
2015-10-01 13:45:52	Event	Control ETH interface link up: 100Base-TX full-duplex
2015-10-01 13:45:52	Event	System started
2015-10-01 13:45:52	Event	Software restart occurred
2015-10-01 13:45:47	Event	Restarting
2015-10-01 12:48:11	Error	Tuner 1375 packets lost
2015-10-01 11:04:02	Event	Service MTV8 LAST requested from CAM
2015-10-01 11:04:02	Event	Service Focus FIRST requested from CAM
2015-10-01 10:53:32	Event	Service MTV8 LAST requested from CAM
2015-10-01 10:53:32	Event	Service Focus MORE requested from CAM
2015-10-01 10:53:32	Event	Service GIALLO FIRST requested from CAM
2015-10-01 10:53:31	Event	System time updated
2015-10-01 10:53:12	Event	CA module initialised
2015-10-01 10:53:06	Event	CA module inserted
2015-10-01 10:53:02	Event	Control ETH interface link up: 100Base-TX full-duplex
2015-10-01 10:53:02	Event	System started
2015-10-01 10:53:02	Event	Software restart occurred
2015-10-01 10:52:57	Event	Restarting
2015-10-01 08:30:26	Event	Service MTV8 LAST requested from CAM
2015-10-01 08:30:26	Event	Service Focus MORE requested from CAM
2015-10-01 08:30:26	Event	Service GIALLO FIRST requested from CAM
2015-10-01 08:30:24	Event	System time updated

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Figure 22. Event logs table

This enables you to see a list of the log messages of the module. Log contents remains after the power loss of module. Events in the log e are sorted by time – the newest are in the beginning. Information events are shown in blue background, error messages are in red. After switching on the unit, the current date is set to 2000:01:01 and time to 00.00.00. When the MPEG stream is received, the information about the date is decoded too, and the values of these parameter are corrected. Local time offset in the log is used from the time parameters table (see Figure 19). You can filter required messages setting corresponding "Logs filtering" checkboxes.

7.7.2. Export parameters

All of the data established on the module can be saved onto a backup file. Inversely, the configuration data saved on an appropriate file can be restored on the module. Move the mouse on the System menu tab then click on the "Export parameters" line. A window is displayed which allows you to select the action for the data file for the current module configuration. You need to select the "save file to disk" option.

7.7.3. Import parameters

Select this option in "System menu" tab. The Import parameters window is displayed.

Import parameters

parameters.xml

Expected file name: *.xml

Figure 23. Import parameters window

Click on "Click to select file" and select the file containing the configuration data that you wish to restore on the module. Once you have selected the file, click on the "Upload" button at the bottom of the screen. The upload confirmation window will be displayed.

7.7.4. Firmware upgrade

If you wish to update the module's firmware, select this option in "System menu". The card displayed shows the firmware version that the module has at the present time.

Current software version: **1.32**
[Check online](#) for new software release

Firmware upgrade

Expected file name: **943XX.bin**

Figure 24. Firmware upgrade table

Click on "Click to select file" and select the firmware update file from the hard drive. When the file name is in the box, click on "Upload". The new firmware will be installed on the module.

7.7.5. User management

Select this option in "System menu" tab. The user management window is displayed.

Change password

Username:

Current password:

New password:

Repeat new password:

User management

Username:	Password:	Role:	
<input type="text" value="testuser"/>	<input type="password"/>	<input type="text" value="User"/>	<input type="button" value="Update"/> <input type="button" value="Remove"/>
Username:	Password:	Role:	
<input type="text"/>	<input type="password"/>	<input type="text" value="User"/>	<input type="button" value="Add"/>

Figure 25. User management window

This window consists of two tables: "Change password" and "User management". The „Change password" table allows you to change the password. Enter the new password in the "New password" field and confirm the new password retyping it in the "Repeat new password" field. The change of password will not take effect until you press the "Modify" button.

In the "User management" table you can manage users, who will be able to login into the module. Enter the new username and password in the appropriate fields, select desired role for user and press the "Add" button to add new user or "Update" button to change settings of the user. User role "Admin" enables the password change function and user management function. User role "User" enables only password change function and read only function for parameters. Press the "Remove" button to remove user from list.

NOTE: By giving your personal password or user access account for another person, you take full responsibility for all module settings modifications made by that person or anyone else they may give the password to.

7.7.6. Restore defaults

Clicking on the "Restore defaults" submenu in the "System menu" tab resets the configuration of the streamer module to the factory default values. The Control ip parameters remains unchanged.

7.7.7. Restart the device

Clicking on the "Restart the device" submenu in the "System menu" tab causes the module to restart.

7.7.8. Language

If you wish to change the module's menu language, select this option in "System menu".

Technical specifications

Type	tdx410C			ttx410C		
RF input	frequency range (pr.)	950-2150 MHz			47-862 MHz	
	LNB powering/control (pr.)	0/14/18 V & 300 mA max. DiSEqC 1.0			12 V 100 mA	
	level / impedance	45-85 dB μ V / 75 Ω			40-80 dB μ V / 75 Ω	
	loop through gain	-1 \pm 1 dB			0 \pm 1 dB	
	standard (pr.)	DVB-S	DVB-S2	DVB-T	DVB-T2	DVB-C
	modulation	QPSK	QPSK, 8PSK	QPSK, QAM16, QAM64	QPSK, QAM16, QAM64, QAM256	QAM16, QAM32, QAM64, QAM128, QAM256
	bandwidth (pr.)	-	-	7 MHz, 8 MHz	7 MHz, 8 MHz	-
	symbol rate (pr.)	2 \div 45 Ms/s	2 \div 45 Ms/s	-	-	1 \div 7.2 Ms/s
	code rate	1/2, 2/3, 3/4, 5/6, 7/8	QPSK 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 8PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 3/5, 2/3, 3/4, 4/5, 5/6	-
	roll off	35 %	20 %, 25 %, 35 %	-	-	15 %
RF output	frequency range (pr.)	170-230 MHz / 470-860 MHz				
	level / impedance	90 \pm 2 dB μ V / 75 Ω				
	spurious level	< -60 dB				
	loop through frequency range	47-862 MHz				
	loop through loss	\leq 2.5 dB				
	MER	\geq 35 dB				
	modulation (pr.)	QPSK, QAM16, QAM64				
	channel bandwidth (pr.)	7/8 MHz				
	guard interval (pr.)	1/4, 1/8, 1/16, 1/32				
	code rate (pr.)	1/2, 2/3, 3/4, 5/6, 7/8				
	transmission mode (pr.)	2K / 8K				
	output level adjustment range (pr.)	0 \div -15.0 dB by 1 dB step				
	Transport stream parameters	max. bit rate	31670 kbps			
	max. PID filter count**	31				
	PCR restamping	up to 5 PID's (services)				
Management port	standard IEEE802.3 10/100 Base T					
Supply voltage	12 V \pm 1 V					
Current consumption*	400 mA			450 mA		
Operating temperature range	0 $^{\circ}$ \div +50 $^{\circ}$ C					
Dimensions/Weight (packed)	36x198x112 mm/0.78 kg					

* without external DC feeding and CAM; with CAM \approx 0.6 A, absolut max with CAM and external load 1 A for tdx410C and 0.75 A for ttx410C


** number of PID that can be blocked or passed, for example: 10 services, each have 6 PID's so there are 60 individual PID's plus tables (like PAT, SDT, NIT, EIT etc.) so all in all \sim 70 PID's


1) if you enable 6 services there will be 36 individual PID's + 4 PID's for tables (40 PID's to pass). In this case filter works in "Pass All" mode while blocking remaining 70-40=30 PID's.


2) if you enable 4 services there will be 24 individual PID's + 4 PID's for tables (28 PID's to pass). In this case filter works in "Block All" mode while passing those 28 PID's.

3) if you select 5 services there will be 30 individual PID's + 4 PID's for tables (34 PID's to pass). In this case the "Error to many PID's" is shown, because module has to pass 34 PID's in Blocking mode or block 70-34=36 PID's in Passing mode and the limit is 31 in either mode.


(pr.) software control

 This product complies with the relevant clauses of the European Directive 2002/96/EC. The unit must be recycled or discarded according to applicable local and national regulations.

 Equipment intended for indoor usage only.

 TERRA confirms, that this product is in accordance to following norms of EU: EMC norm EN50083-2, safety norm EN60065, RoHS norm EN50581.

 TERRA confirms, that this product is in accordance with Custom Union Technical Regulations: "Electromagnetic compatibility of technical equipment" CU TR 020/2011, "On safety of low-voltage equipment" CU TR 004/2011.

 TERRA confirms, that this product is in accordance with safety standard AS/NZS 60065 and EMC standards of Australia.