

TRIAX

User guide

TDH 800 – Headend Unit – Art. 692890



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Headend overview

Safety Precautions

Environment

Operating temperature -10 C to +50 C.

Storage temperature -20 C to + 70 C.

Max. Operating humidity 80% (RH).

Max. Storage humidity 90% (RH).

Power supply

The input voltage must be 190-264 VAC. ~ 45/65 Hz / 280 W (Max).

Use only power connections installed by professionals.

Weight

- Minimum weight 8.5 kg
- Maximum weight 11,7 kg

Earth

The headend unit must be correctly earthed according to applicable national regulations.

Disposal



This product may not be disposed of with general household waste.

Follow applicable national legislation when disposing of this product.

Headend overview

Introduction

The TDH800 headend accommodates up to 16 input modules and 6 quad output modules. 24 RF Channels are accommodated.

All incoming signals from input modules initially arrive in a 'pool', where conversion to defined output signals occurs, after which the converted signals are fed to output modules.

Note:

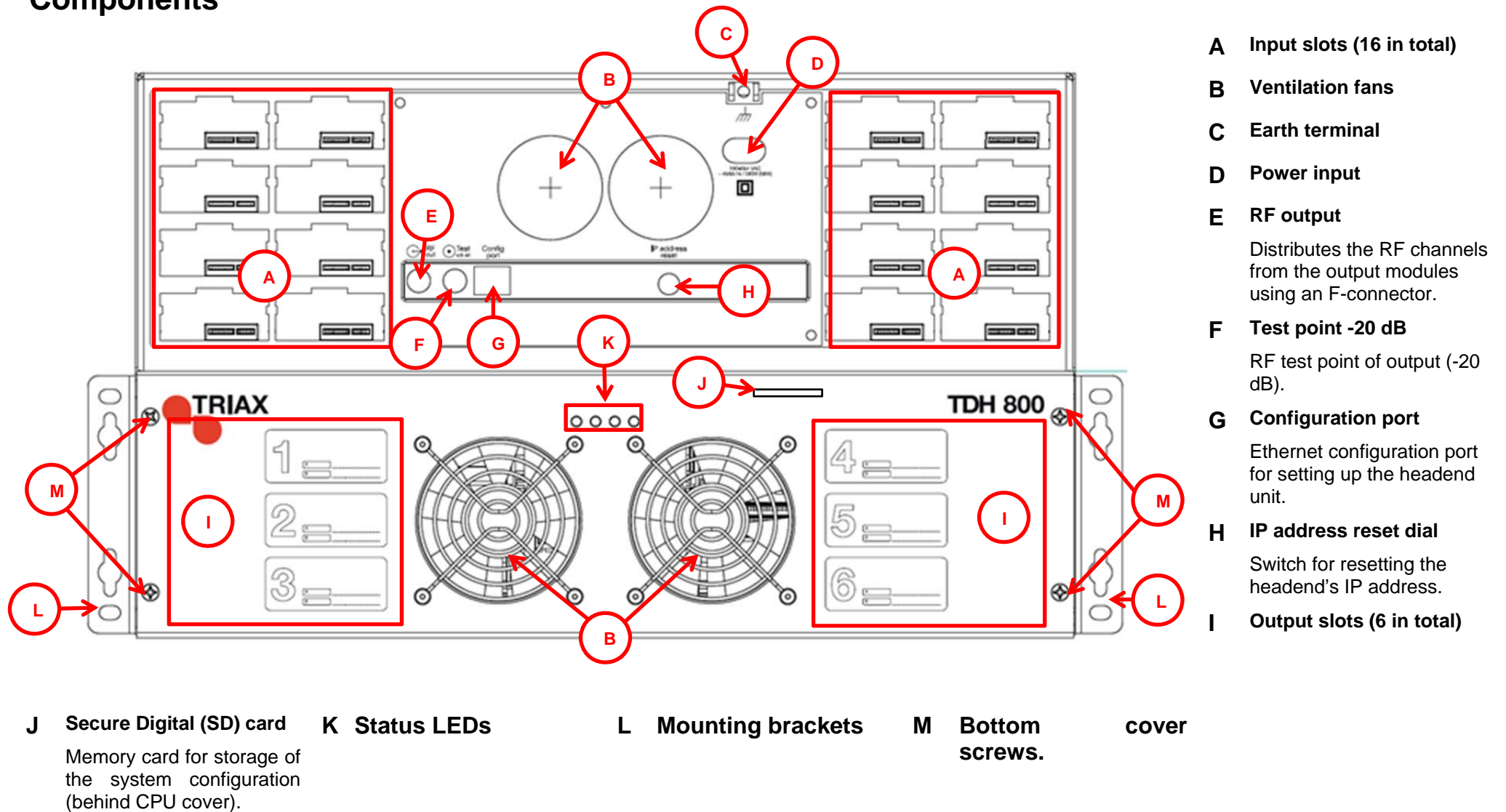
Some specific broadcast types are not generated in the 'pool' but rather in the various output modules.

Box contents

- TDH800 main unit (692890)
- 2 x Mounting brackets (775339)
- 1 bag (890140), containing four M4 x 8screws and one hexagonal key
- 1 x Power cord (453184)

Headend Overview

Components



Headend Installation

Headend installation

Mounting

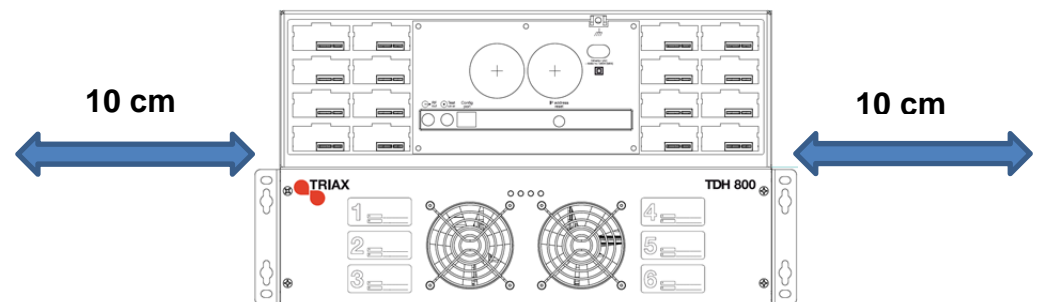
The headend can be mounted either on a system rack or directly to a wall.

1. Attach the mounting brackets to the headend with the supplied screws.

Installation	Bracket position
Rack	At front of headend.
Wall	At rear of headend.

2. Attach the headend to the wall or onto a rack system.

Ventilation requirements



- Ensure that min. 10cm ventilation space is available on both sides and at the front of the headend.

Power/Earth

1. Connect an earth cable to the **Earth** terminal.
2. Attach the other end of the earth cable to an approved 'earth' connection point.
3. Insert the supplied cable into the **Power Input** port.
4. Confirm that the **IP address reset** dial is set to "0".

Resetting IP address

The IP address of a headend unit can be returned to the factory default address by using the **IP address reset** dial.

1. Turn off the power.
2. Set the **IP address reset dial** to "7".
3. Turn on the power.

The LEDs flash red and yellow until the process of resetting the IP address has been completed.

The LEDs show green-constant if the reset process was successful.

1. Turn off the power.
2. Set the **IP address reset dial** back to the initial setting.
3. Turn on the power.

The IP address has been reset to the factory default.

Input modules

Input modules

Input module types

16 input modules can be installed in the headend.

Each input module is identified through use of a specific coloured label. The label also indicates the module type's name and associated item number. The remainder of the label is used for noting post-installation module information.

Another label containing a barcode and serial number is located on the underside of the input module.

Name: DVB-T and DVB-T2 input module

Item number(s) : 692823

Label colour = Purple

Name: DVB-S and DVB-S2 input module

Item number(s): 692820

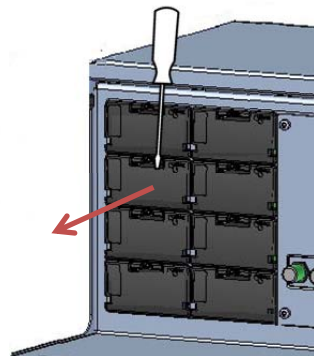
Label colour = Light blue

Name: AV input module

Item number: 692080

Label colour = Yellow

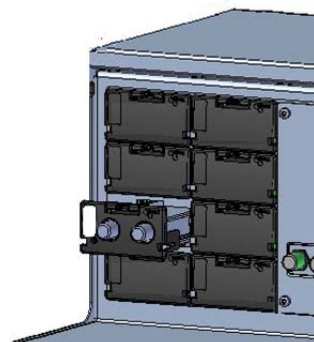
Inserting input modules



1. Remove the protective cover away from an available input slot.
2. Retain the protective cover.

Note:

Any available input slot can be used.



1. Push the input module into the input slot until the input module is locked in position.
2. Note details for the input module on the label (optional).
3. Continue inserting all additional input modules.

Input modules

Attaching cables

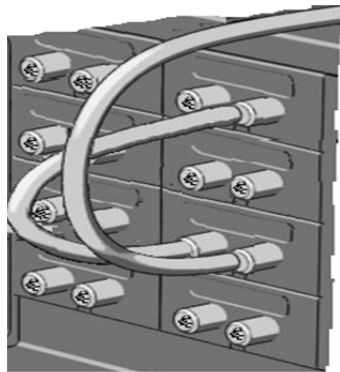
- Attach the signal cables to the 'IN' connector on the input module.

Note:

Ensure that enough cable is available for relocating input modules to alternate input slots at a later date.

Looping cables

Signals can be looped between DVB-S/S2 input modules:



1. Attach the signal cable to the IN port on one DVB-S/S2 input module.
2. Attach a loop cable to the OUT port on the same input module.
3. Attach the other end of the loop cable to the IN port on another DVB-S/S2 input module.

Removing input modules

1. Remove the signal cable from the module.
2. Remove the module out of the headend with a flathead screwdriver.
3. Pull the module out of the headend.

Moving input modules

1. Remove the module out of the headend with a flathead screwdriver.
2. Pull the module out of the headend.
3. Insert the module into a new input slot.

Input module status - LED

Each input module has an LED on the front to indicate its current status when the headend is powered.

Green flashing - The module is yet to be configured.

Green No errors detected and the tuner is locked to the frequency.

Red Error detected and the tuner is not locked to the frequency.

No colour Module is not powered.

Input module software update status are also displayed on the LED.

Orange Booting

Temporary off Initiation of the software update.

Temporary green Every time the module receives a valid data package.

Repeated until the update is completed without errors.

Red Software update failed.

Green Software successfully updated.

Output modules

Output modules

Six output modules, each consisting of four RF channels can be installed.

Output module types

Each output module is identified through use of a specific coloured label. The label also indicates the module type's name and associated item number. The remainder of the label is used for noting post-installation module information.

Another label containing a barcode and serial number is located on the underside of the output module.

Name: QAM FTA/CI output module

Item number(s) : 692855/962856

Label colour = Pink

Name: PAL FTA/CI output module

Item number(s): 692850/692851

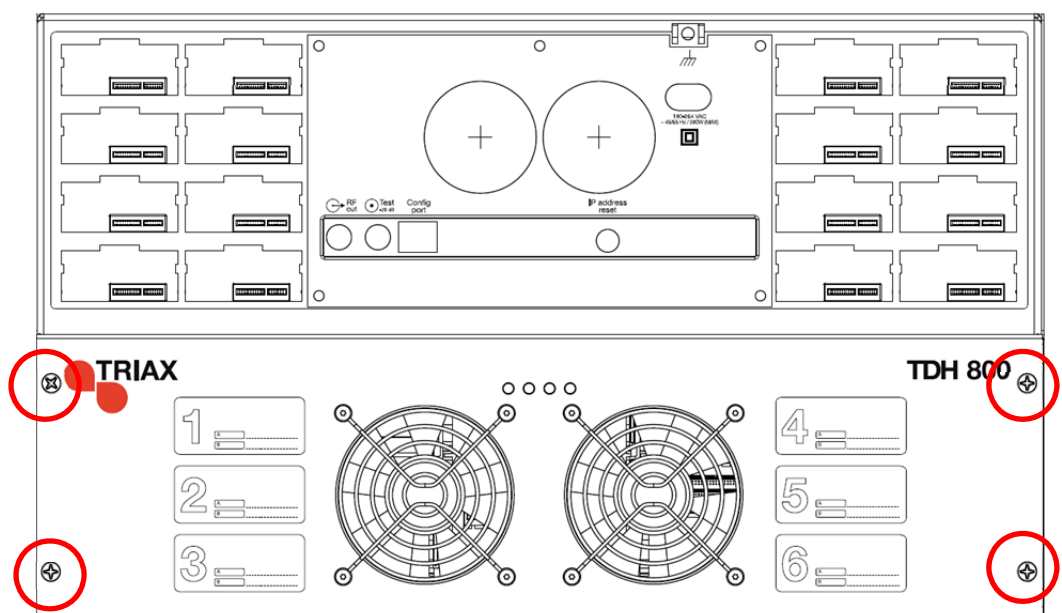
Label colour = Green

Name: COFDM FTA/CI output module

Item number: 692860/692861

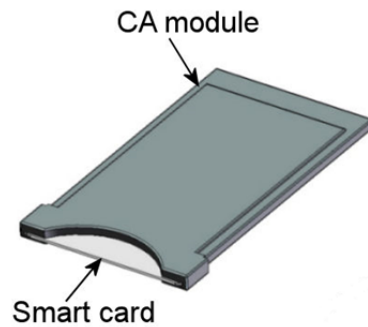
Label colour = Purple

Inserting output module



1. Remove the power cable from the headend.
2. Remove the bottom front cover by unscrewing the 4 screws indicated above.

Output modules



3. Insert smart cards (if relevant).
 - Insert the service provider's smartcard into the CA module.
 - Insert the CA module into either of the available slots in the output module.

4. Push the output module into an available output slot.
5. Press until the output module is locked in position.
6. Continue inserting all additional output modules.
7. Note details for the output module on the label (optional).
8. Reattach the bottom front cover.
9. Insert the power cable.

Removing output module

1. Remove the power cable from the headend.
2. Remove the bottom front cover by unscrewing the 4 screws.
3. Release the lock mechanism on the module to be removed.
4. Extract the module from the headend.
5. Confirm that the extractor fan is located in the centre of the output area.
6. Reattach the bottom front cover.
7. Insert the power cable.

System monitoring

System Monitoring

LEDs

Four LEDs are placed at the top of the output section of the headend unit, two of which provide information on the state of the headend.

The LEDs are named (from left to right):

System Status Tuner Status LED3 LED4

The LEDs can be green - constant, green – flashing, red, or no colour is displayed. The message indicated is different for each LED.

LED Name	Colour	Message
System Status	Green constant	– Power is on and the headend is operational.
	Green flashing	– The headend is booting up.
	Red	An error has been detected in the headend, which must be investigated.
Tuner Status	Green constant	– The input module tuners are locked.
	Red	One or more Input module tuners are not locked.
LED 3	Not used	
LED 4	Not used	

Headend configuration

Headend configuration

The TDH800 headend needs to be configured before it can be used.

System requirements

Computer minimum requirements

A computer meeting the following minimum requirements is required for configuring the headend.

Operating system Windows XP or above

Browser Windows Internet Explorer version 6.0 or equivalent

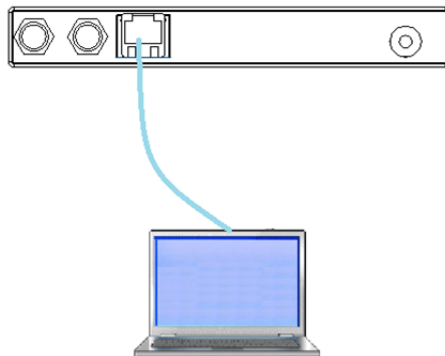
Additional software Microsoft® Silverlight Runtime version 3.0 or above

Static IP address

A static address must be used on the computer used to configure the headend.

Refer to the computer's operating software documentation for assistance on configuring static IP addresses.

Physical connection to headend

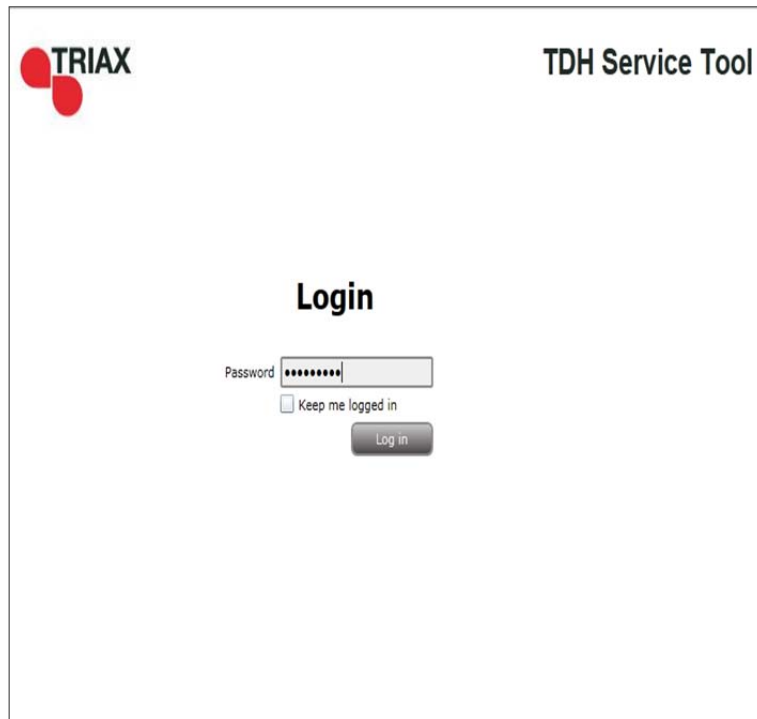


- Connect a Cat5e shielded cable or better between the computer's network port and the configuration port on the headend.

Overview

Service tool

1. Open a web browser window.
2. Enter '**http://192.168.0.100**' in the web address field.
3. Press **Enter**.



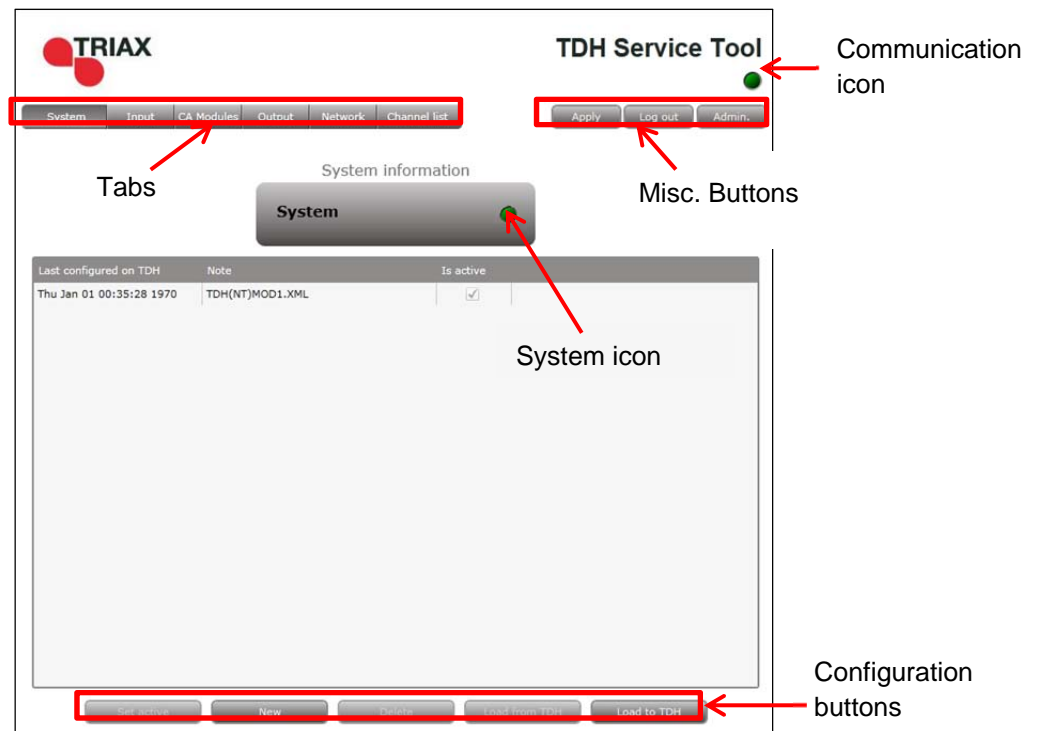
4. Enter the password.
5. Press the **Log in** button.

Note:

Password = '**triax1234**' when the service tool is opened for the first time.

The **Keep me logged in** checkbox overrides the system's automatic time out function, which is activated after 20 minute's inactivity.

Overview



Icons

Indicates whether the service tool is communicating correctly with the headend unit.

Green The service tool and headend are communicating correctly.

Red The service tool and headend are NOT communicating correctly.

Indicates whether the headend unit is functioning correctly.

Green The headend unit is functioning correctly.

Red The headend unit is functioning correctly.

Overview

Tabs	Accesses the various tabs used to configure the headend's input and output modules.	
	System	The service tool's 'home' window. Provides system overview information and configuration activation/control.
	Input	Tab for configuring input modules and services. Refer to input module manuals for information.
	CA Modules	Tab for configuring CI modules and CA cards. Refer to output module manuals for information.
	Output	Tab for configuring output modules and services. Refer to output module manuals for information.
	Network	Tab for defining customer specific settings that are network related, e.g. Network name, ID, and for defining HD/SD channel numbering.
Misc. Buttons	Channel List	Tab for viewing the channels being transmitted from the headend, as defined in the Input , CA Modules and Output tabs. Refer to input module manuals for information.
	Apply	Stores configuration settings on the SD card located in the headend.
	Button colour	
	Red	There are changes that have not been stored on the headend's SD card.
	Grey	All changes are stored on the headend's SD card.
	Log In/Out Admin.-	Service tool access control. Opens the settings for service tool window, where language, location, time zone, and initial IP addresses are specified.

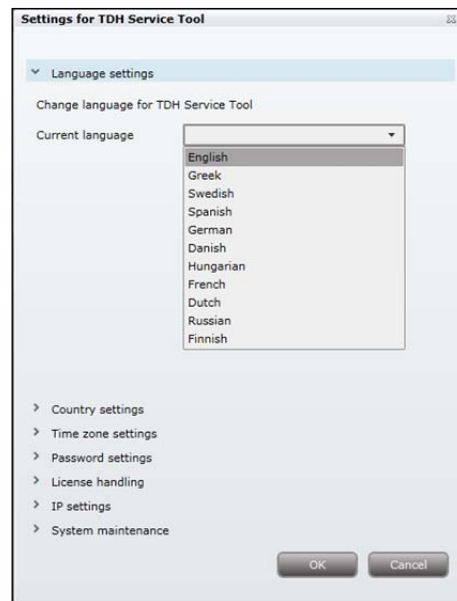
General setting administration

Administration

The system language, locale, and time zone must be specified for the headend unit.

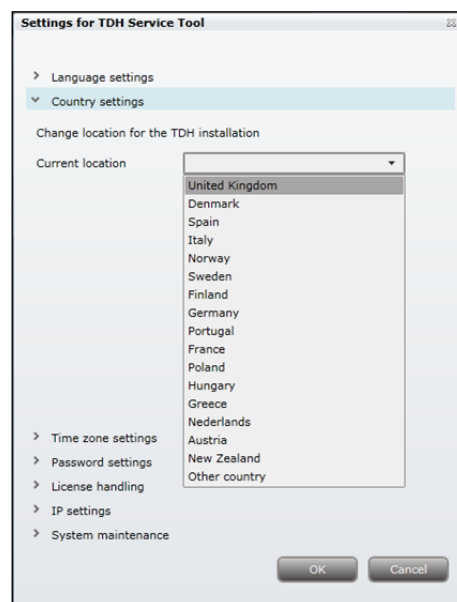
It is also necessary to specify IP addresses for headends which are located on a distribution network.

Language



1. Press the **Admin** button at the top right-hand corner of the **System** window.
2. Open the **Current language** drop-down list.
3. Select the desired language.
4. Press the **OK** button.

Location

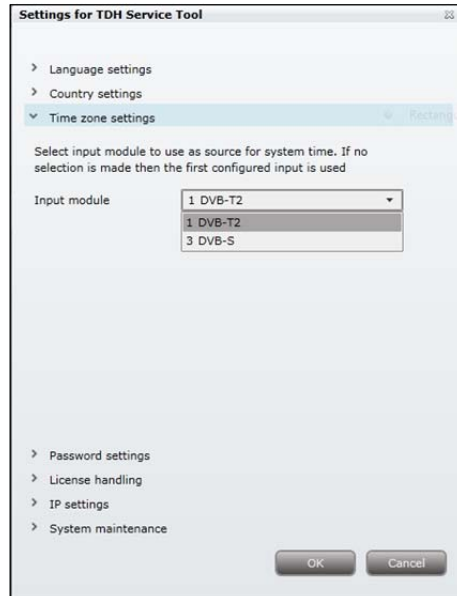


1. Press the **Admin** button at the top right-hand corner of the **System** window.
2. Expand the **Country settings** area.

General setting administration

3. Open the **Current location** drop-down list.
4. Select the country where the headend is located
5. Press the **OK** button.

Time zone



1. Press the **Admin** button at the top right-hand corner of the **System** window.
2. Expand the **Time zone settings** area.
3. Open the **Input module (Main unit)** drop-down list.
4. Select the input module that is to be used for setting the headend's system date/time/time zone.
5. Press the **OK** button.

Security



1. Press the **Admin** button at the top right-hand corner of the System window.
2. Expand the **Password settings** area.
3. Specify the current password in the **Old password** field. ('triax1234')

General setting administration

if the service tool is being used for the first time.

4. Specify a new password in the **New password** field.
5. Re-specify the new password in the **Confirm password** field.
6. Press the **OK** button.

Licences

Licenses for some particular services need to be activated in the headend system.

1. Press the **Admin** button at the top right-hand corner of the **System** window.
2. Expand the **Licence handling** area.
3. Contact Triax Sales and provide the contents of the serial number and unique ID fields.
4. Enter the code provided by Triax Sales into the **Activation key** field.
5. Press the **Activate** button.
6. Press the **OK** button.

Note:

Clicking the **Activate** button accesses the available licence(s), the unique ID changes, the activation key is deleted, and the activated licenses are listed in the grid.

Additional licenses are purchased by contacting Triax and providing the serial number and unique ID. A new activation key will then be provided for accessing the additional licences.

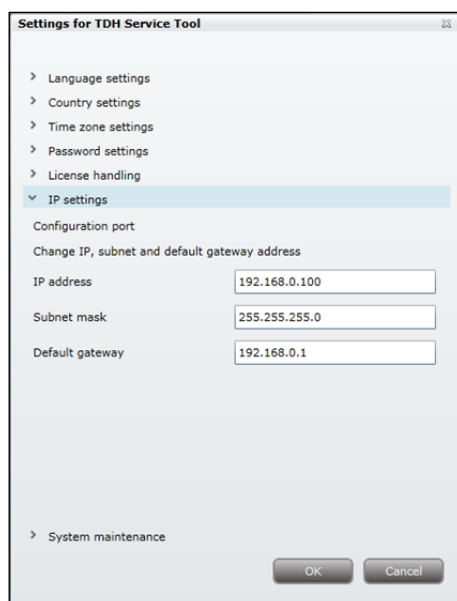
General setting administration

IP addresses

It may be necessary to specify specific IP addresses for the headend to avoid network IP address conflicts.

Note:

Headend IP addresses can be reset to factory default settings if required. This is done via the ID switch located on the headend unit.



1. Press the **Admin** button at the top right-hand corner of the **System** window.
2. Expand the **IP settings** area.
3. Specify the headend's IP address, subnet mask and default gateway in the corresponding fields.
4. Press the **OK** button.

Rebooting



1. Expand the **System maintenance** area.
2. Press the **Reboot** button.

General setting administration

Note:

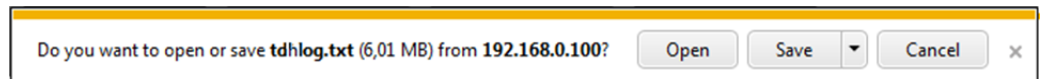
Changes to IP addresses only take effect when the headend has been rebooted.

Viewing system log

It is possible to save log files for viewing headend actions.



1. Expand the **System maintenance** area.
2. Press the **Save log** button.



3. Press **Open** to view the log file in notepad.
4. Press **Save** in notepad to specify a file location and if required rename the log file as per normal windows operating system procedure.

General setting administration

Firmware

Updating

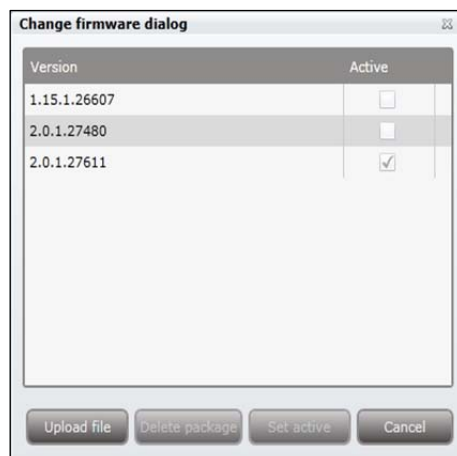
Firmware updates are available from the Triax home page, www.Triax.com and then applied to the headend.

Always read the release notes to determine whether the headend would benefit from available firmware updates or not.



1. Expand the **System maintenance** area.
2. Press the **Change** button.

The **Firmware** window lists the headend's current and previous firmware versions.



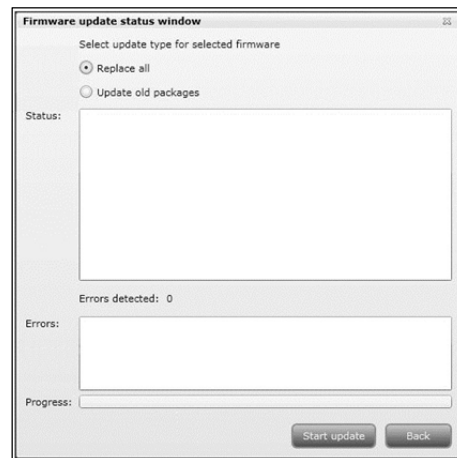
3. Press the **Upload file** button.
4. Navigate to where the update file is saved.
5. Select the file.
6. Press the **Open** button.

The new firmware update file is listed in the **Change firmware** dialog.

7. Check the **Active** check box for the new update file.

General setting administration

8. Press the **Set active** button.



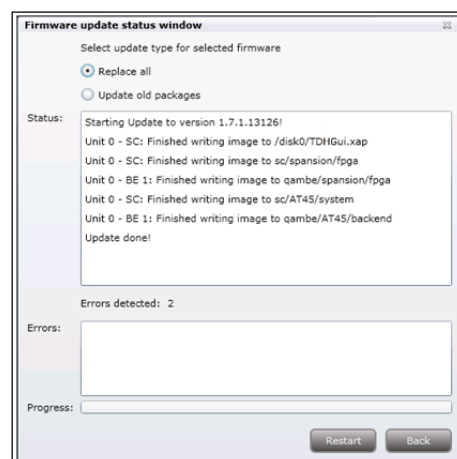
9. Select the **Replace** all radio button to update all of the headend's firmware, i.e. modules, system controller and user interface. (Recommended)

10. Select the **Update old packages** radio button to only update outdated modules.

11. Press the **Start update** button.

Note:

The **Update old packages** radio button should only be used in cases where the headend consists mainly of new modules, but also contains some older modules that might benefit from an update.



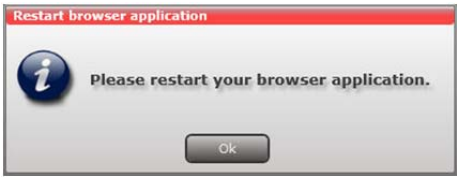
The firmware update takes approximately 5 minutes, during which time upgrade information is displayed in the **Status** area.

12. Press the **Restart** button when the firmware update has completed.

Note:

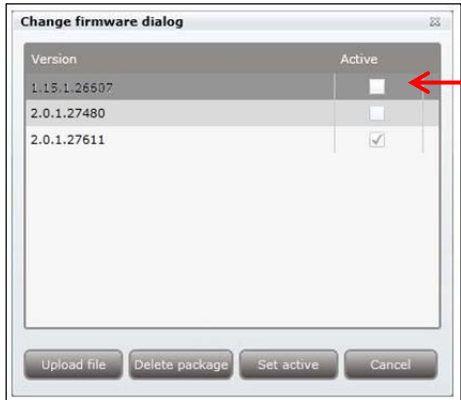
Service distribution to end-users will be disrupted while the headend restarts.

General setting administration



13. Logon to the system tool and make any further changes.

Cleaning up



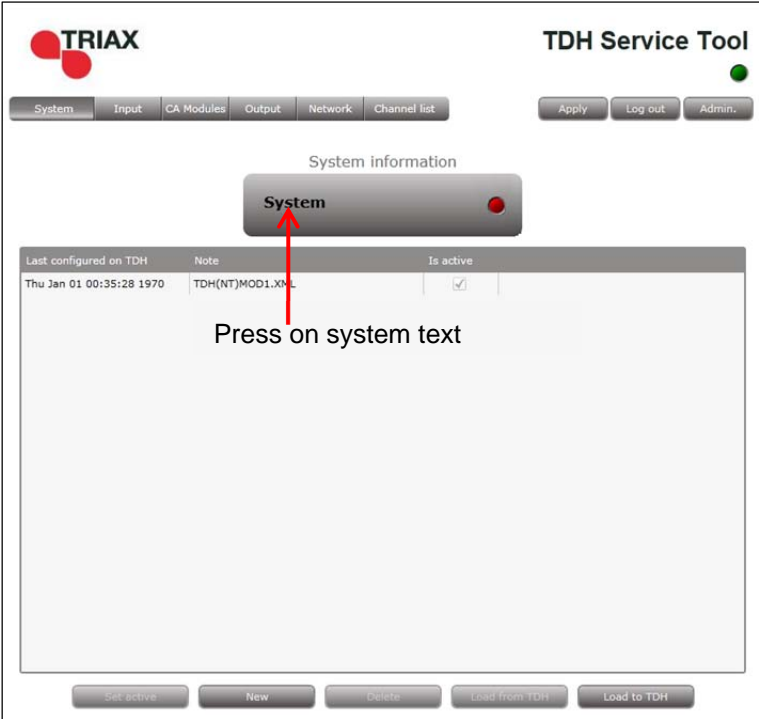
Firmware to be deleted

1. Select the firmware updates to be removed from the system tool.
2. Press the **Delete** package button.

Viewing system information

Detailed information is available on headend units. This is especially relevant if the system icon is red.

1. Select the **System** tab.



Press on system text

2. Select the headend in the **System information list** area.

General setting administration

Name	Value
System errors (4 items)	
System error	Error on master unit
Unit error	Error on input module
Input module 1 error	Missing input
Input module 2 error	Missing input
Software versions (9 items)	
Unit SW Version	2.0.1.27611
Input #1 SW Version	2.0.1.27611
Input #3 SW Version	2.0.1.27611
Input #9 SW Version	2.0.1.27611
Output #1 SW Version	2.0.1.27611
Output #2 SW Version	2.0.1.27611
Output #3 SW Version	2.0.1.27611
Output #4 SW Version	2.0.1.27611
Output #6 SW Version	2.0.1.27611

Errors are present

All Software versions must be identical

The **System information for unit window** is displayed; containing information relating to:

- Any headend system errors
- Name and associated software version of input and output modules

Note that the software versions installed on the TDH 800 main unit and each input/output module must be identical.

Update the software for the entire TDH 800 headend (including input/output modules) if this is not the case.

- MAC addresses
- Current/minimum/maximum temperatures
- Power supply

Managing configuration files

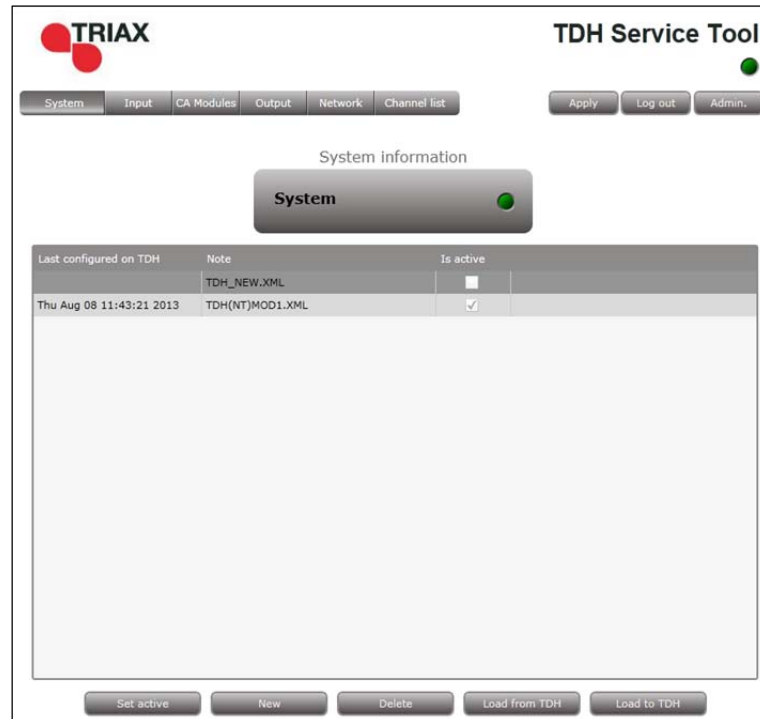
Managing configuration files

Creating

1. Select the **System** tab.
2. Select the **New** button.

An empty configuration file is created and listed in the configuration list area.

Activating

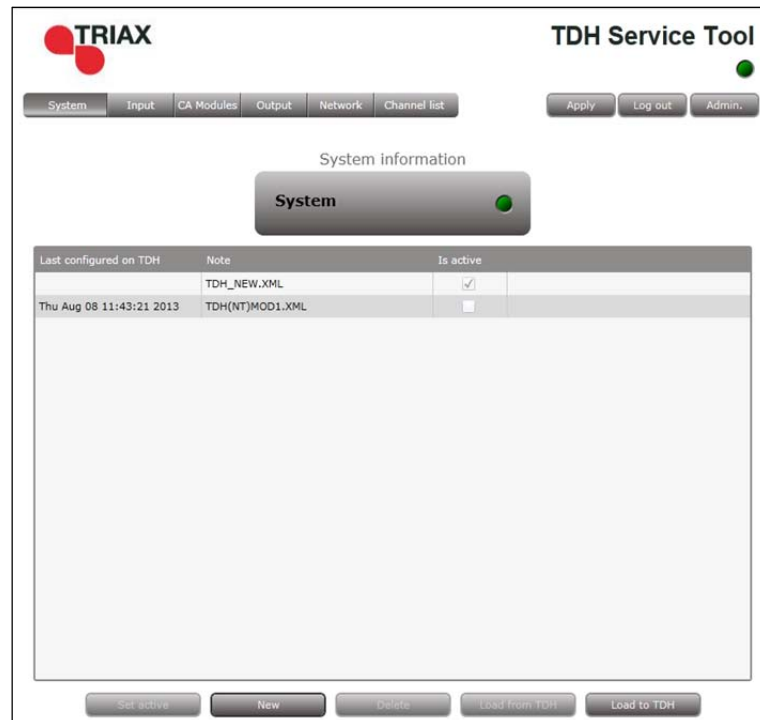


The screenshot shows the TDH Service Tool interface. At the top, there is a TRIAX logo and the title 'TDH Service Tool'. Below the title, there is a navigation bar with tabs: System, Input, CA Modules, Output, Network, and Channel list. The 'System' tab is selected. To the right of the tabs are buttons for 'Apply', 'Log out', and 'Admin.'. Below the navigation bar, there is a 'System information' section with a 'System' button and a green status indicator. Below this is a table with the following columns: 'Last configured on TDH', 'Note', and 'Is active'. The table contains two rows: one for 'TDH_NEW.XML' and one for 'TDH(NT)MOD1.XML'. The 'Is active' column for 'TDH_NEW.XML' has an unchecked checkbox, and for 'TDH(NT)MOD1.XML' it has a checked checkbox. Below the table is a large empty area. At the bottom of the interface are buttons for 'Set active', 'New', 'Delete', 'Load from TDH', and 'Load to TDH'.

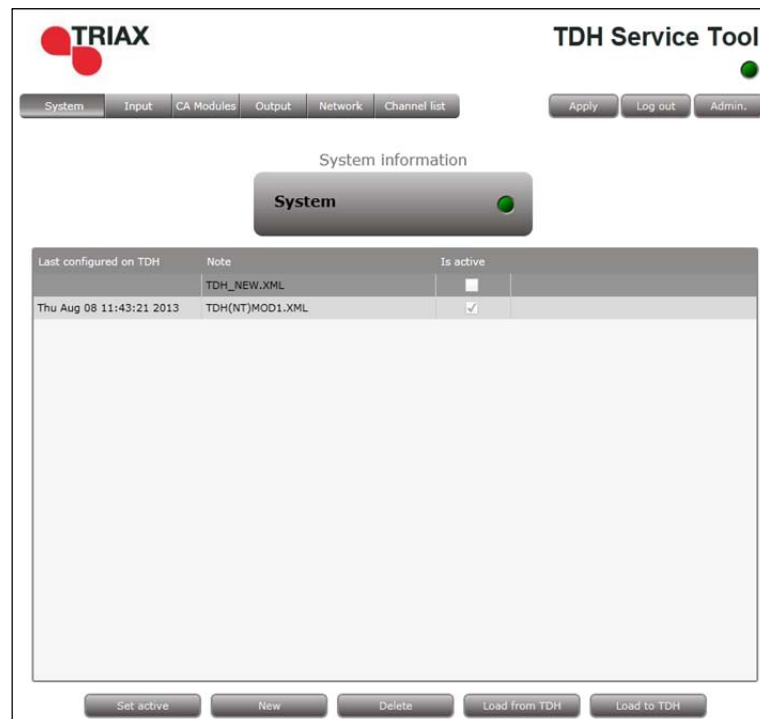
Last configured on TDH	Note	Is active
Thu Aug 08 11:43:21 2013	TDH_NEW.XML	<input type="checkbox"/>
	TDH(NT)MOD1.XML	<input checked="" type="checkbox"/>

1. Select the **System** tab.
2. Select the configuration that is to be actively used on the headend.
3. Press the **Set active** button.

Managing configuration files



Deleting



1. Select the **System** tab.
2. Highlight the configuration file to be deleted.
3. Press the **Delete** button.

Managing configuration files

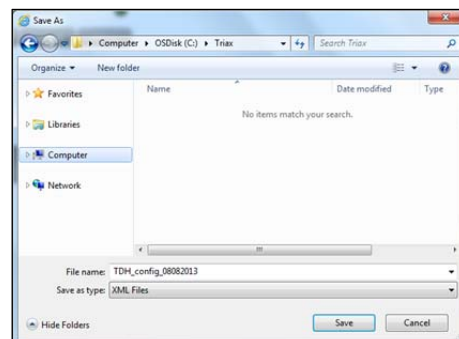
Saving

Headend configuration files can, if desired, be saved on a computer. This simplifies the process of configuring additional headends.

A saved configuration file can be used on headends that do not contain exactly the same modules. It will, however, be necessary to reconfigure/delete/add the modules that differ between the initial headend and that being configured.



1. Select the **System** tab.
2. Highlight the configuration file to be saved on the computer.
3. Press the **Load from TDH** button.



4. Navigate to where the configuration file is to be saved.
5. Enter a name for the configuration file.
6. Select 'XML' in the **File type** field.

Managing configuration files

7. Press the **Save** button.

Uploading

Configuration files previously saved on a computer can be transferred to the service tool to simplify the configuration process.

Any module differences will need to be manually configured.

1. Select the **System** tab.
2. Press the **Load to TDH** button.
3. Navigate to the folder where the configuration file to be uploaded is located.
4. Select the file.
5. Press the **Open** button.
6. The configuration file will now be listed in the configuration list area.
A number in brackets, e.g. [1], is added to the name of the new file if an identically named configuration file is already present.

Configuring network

Configuring Network

1. Click the **Network** tab in the TDH Service Tool.

TDH Service Tool

System Input CA Modules Output **Network** Channel list Apply Log out Admin.

DVB-T

Network ID: 100
Network name: TDH-NET
Set original ID: ☐
Orig. network ID: 9018
NIT Standard: ☒ DVB ☐ Nordig
EIT: Full Actual - No Other

DVB-C

Network ID: 200
Network name: TDH-NET
Set original ID: ☐
Orig. network ID: 70
NIT Standard: ☒ DVB ☐ Nordig
EIT: Full Actual - No Other

LCN numbering Enable HD LCN ☒

Services	LCN number	HD LCN number
arte	10	110
Einsfestival	110	111

Shared settings

Use static NIT version: ☐
NIT version: -1
Enable CAT tables: ☒

Submit

The **Network** tab initially contains default values for the services that have been configured on the **Output** tab.

Network ID's are required by end-users when they have to perform a NIT (Network Information Table) search when searching for services on their televisions or set-top boxes.

Note that Network ID's and Network names are required for both DVB-T and DVB-C.

Network ID

Provided by the TDH 800 Service Tool.

This cannot be modified.

Network name

Provided by the TDH 800 Service Tool.

This cannot be modified.

Set original ID

Check the **Set original ID** check box to enable the **Orig. network ID** field.

Orig. network ID

Enter an original network ID in the **Orig. network ID** field. This may be required by some set-top boxes.

NIT Standard

Default is 'DVB', 'Nordig' can also be selected.

EIT

This field displays the EIT method being used and cannot be modified.

Use static NIT version

Check the **Use static NIT version** checkbox if the default NIT method is not to

Configuring network

Enable HD LCN

be used. It is recommended that this checkbox is left unchecked.

Check the **Enable HD LCN** checkbox if an HD channel is to take precedence over the same channel in SD mode.

LCN numbers for both the SD and HD channels need to be specified in the **LCN number** field and **HD LCN number** fields.

2. Press the **Submit** button when the required changes have been made.
3. Press the **Apply** button.



Manufacturer

Dear Customer

Should you require technical assistance in the event that your expert dealer is unable to help you, please contact us at:

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DECLARATION OF CONFORMITY

TRIAX confirms that the product conforms to relevant EEC harmonised standards and consequently can carry the CE-mark.

Relevant harmonised standards:

DE/EN 60728-2 2010, DS/EN 60728-11 2010 and DS/EN 50083-2 2006

This document is only valid with the signature of the person responsible for CE-marking by Triax

Date: October 2012

Signature: