Televes®

T.0X SERIES

Ref. 555902

EN CDC H/E MANAGER

User instructions

Televes

CDC H/E Manager

Contents

1. Technical specifications

1.1. CDC H/E Manager   ref. 555902 (IP)

CPU	Processor	ARM920T™ ARM®			
Memories	Type	8 MB Flash 64 MB de SDRAM 128M x 8 Bit NAND Flash Memory			
Interfaces Connectors	T.0X powering	24V⎓		RJ45 connector	10/100 Base-T Ethernet
	Interface	RS-485		RJ45 connector	Debugging / Programmer LCD
	Interface	USB 2.0 Full Speed Host (12 Mbps)			
Peripherals		Real Time Clock/ Alarm Digital thermometer			
Operating system		Linux Kernel 2.6.16			
General	Powering	24 V⎓		Operating temperature	+23 .... +113°F
	Consumption	300 mA		Protection index	IP20

1.2. Technical specs. Broaband Amplifiers

	Frequency range	MHz	46 ... 862	Connector	type	"F"
Amplifier 5575	Gain	dB	44 ± 2.5	Powering voltage	Vdc	24
	Regulation margin	dB	20	Consumption at 24 Vdc	mA	450
	Output level (60 dB 42 CH CENELEC	dBmV	45	Test socket	dB	-30

1.3. Technical specs. Power Supply Unit

Power Supply Unit 563901	Mains voltage	Vac/Hz	108 - 132 V~ 50/60 Hz	Total current (max) (output 1 + output 2)	A	5 (24V⎓)
	Output voltage	Vdc	24	Max. current per output	A	4 (24V⎓)

These technical specifications are defined for an ambient temperature of 113 º F. For higher temperatures forced ventilation must be used.

## 2. Description of references

Product Range	
555902	T.0X Headend Manager CDC-IP
5575	T.0X Broadband Amplifier 44dB 60dBmV
563901	Power Supply Unit (110 Vac UL)

Accessories	
7234	Universal Programmer
5301	19" Subrack frame
4061	75 Ohm DC-Block terminal load
4058	75 Ohm terminal load
422601	T05 to T.0X Power interconnection lead L=15.7 in
422602	T05 to T.0X Management interconnection lead L=15.7 in
422603	T.0X Management interconnection lead L=39.37 in
5673	Blank plate

3. Mounting

3.1. 19" rack mounting

CDC module   Modules under CDC control

PSU

5301
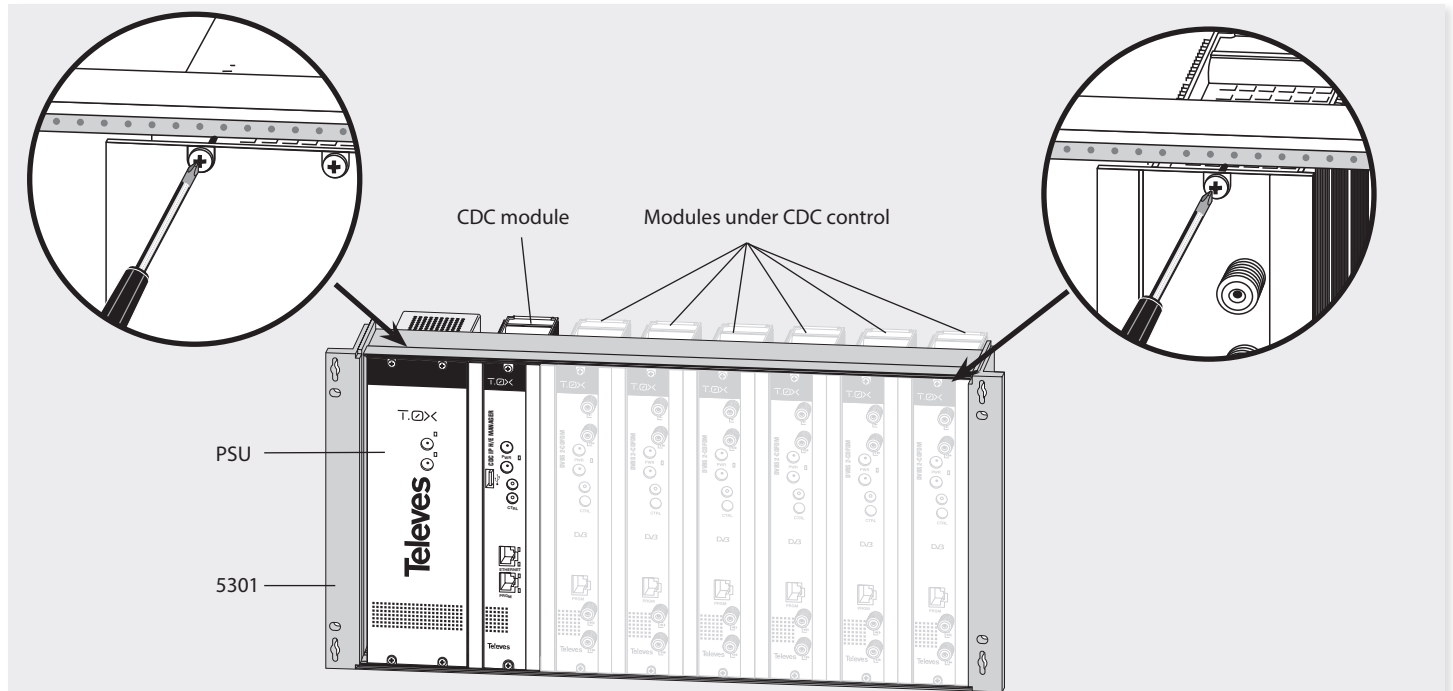
NOTE: The use of both PSU power outputs is recommended to balance the consumption. For example, 4+3 or 3+4

4. The CDC system

The **CDC H/E Manager** implements an element with ability to convert Televés headends in a **communications center** via the Ethernet interface for IP communications (Ref. 555902). This way, the IP world is enabled to access the control bus of all Televes headends.

• It allows **control and monitoring**, **both locally and remotely**, of T.0X headends of Televes, serving as a base platform for the implementation of current and possible future services.

• **Proprietary hardware platform** capable of processing, treating and properly send all the information generated by the different systems of the headend.

• It uses the 32-bit RISC microprocessor. Complete system (System on Chip - SoC), implemented with a microprocessor ARM (Advanced RISC Machines) ARM920T ™ ARM ® Thumb ® Processor.
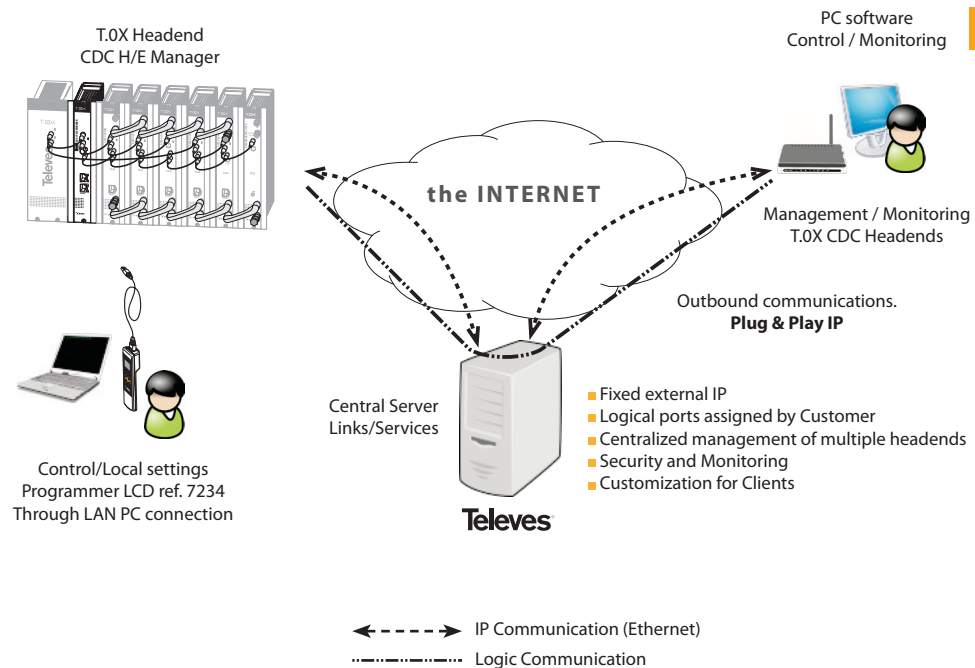
Operating System (GNU / Linux)

The CDC H/E Manager has the ability to access the external IP world (the Internet) using any of the available technologies, preferably broadband, always-on Internet connection (Always On).

New services oriented to Televés customer, through our Central Server of Links-Services, where you can "centralize" all communications to the end customer.
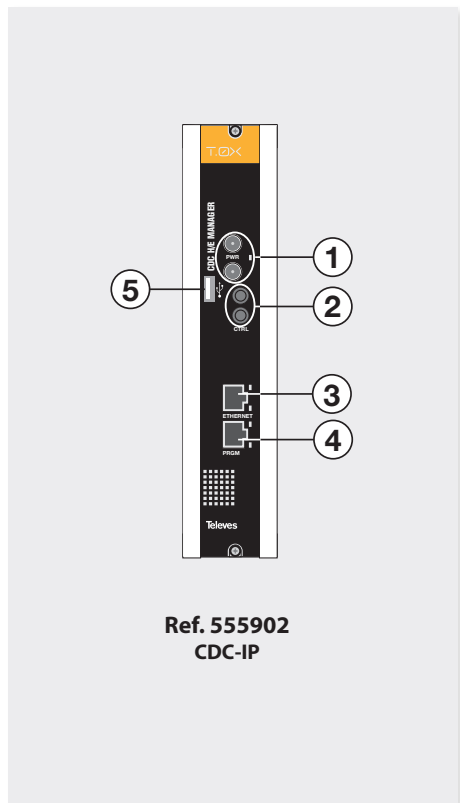
Allows for easy IP installation, by centralizing the connections.

Plug-and-play IP installation.

T.0X Headend
CDC H/E Manager

Control/Local settings
Programmer LCD ref. 7234
Through LAN PC connection

the INTERNET

Central Server
Links/Services

PC software
Control / Monitoring

Management / Monitoring
T.0X CDC Headends

Outbound communications.
Plug & Play IP

■ Fixed external IP
■ Logical ports assigned by Customer
■ Centralized management of multiple headends
■ Security and Monitoring
■ Customization for Clients

- - - - ▷ IP Communication (Ethernet)
· — · · — · · · Logic Communication

5. Description of modules

5.1. Module CDC H/E Manager

Ref. 555902
CDC-IP

Product description

1. **Powering bus connector. LED status.** Power input of 24 Vdc single voltage from which we obtained the rest of the internal voltages.
   External LED indicator for 24 Vdc input detection.

2. **BUS control connector.** Jack input for the RS485 BUS. Comunication via EIA-485[TIA-485] standard.

3. **ETHERNET. RJ-45 Ethernet connector.** Input Ethernet 10/100 Base-T standard.

4. **Programmer/PC connector**. Connector that supports configuration using the LCD RCU Ref. 7234 and can be used for debugging the system using the Linux Session..

5. **USB Host Type A connector**. Host Port Connector USB 2.0 Full Speed (12Mbps).

RJ-45 connectors

ETHERNET
→ 10/100 BT
→ Ethernet activity

PRGM
→ ON/OFF CDC T-0X
→ CPU activity
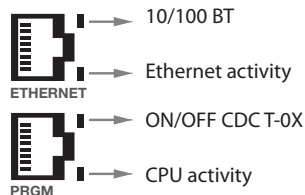
Indicators LEDs

LED indicator for 24 Vdc voltage. It is used to indicate that the device is properly powered from the power bus.
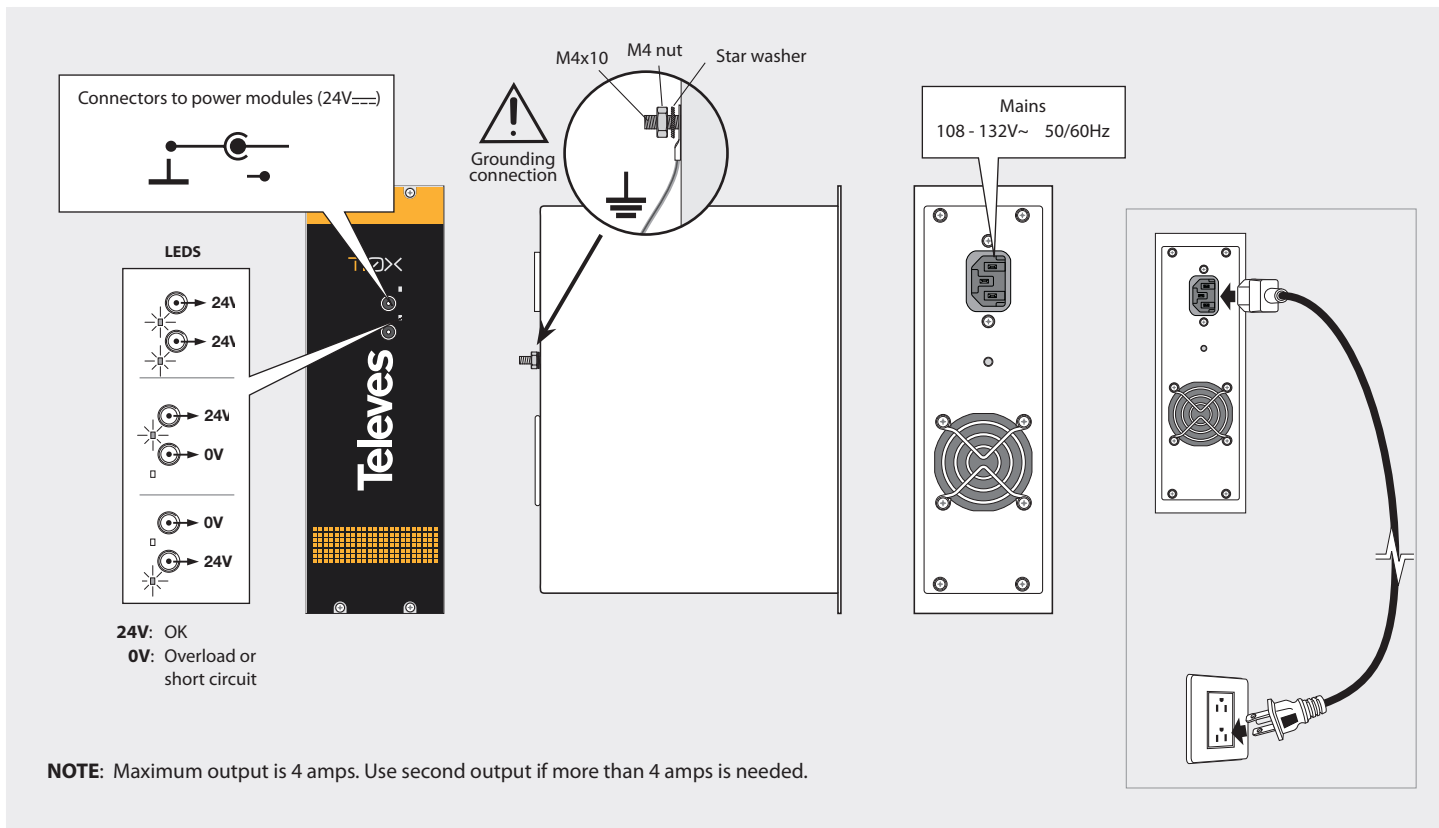

Ethernet Rate. ON: 100Mbps; OFF: 10 Mbps.

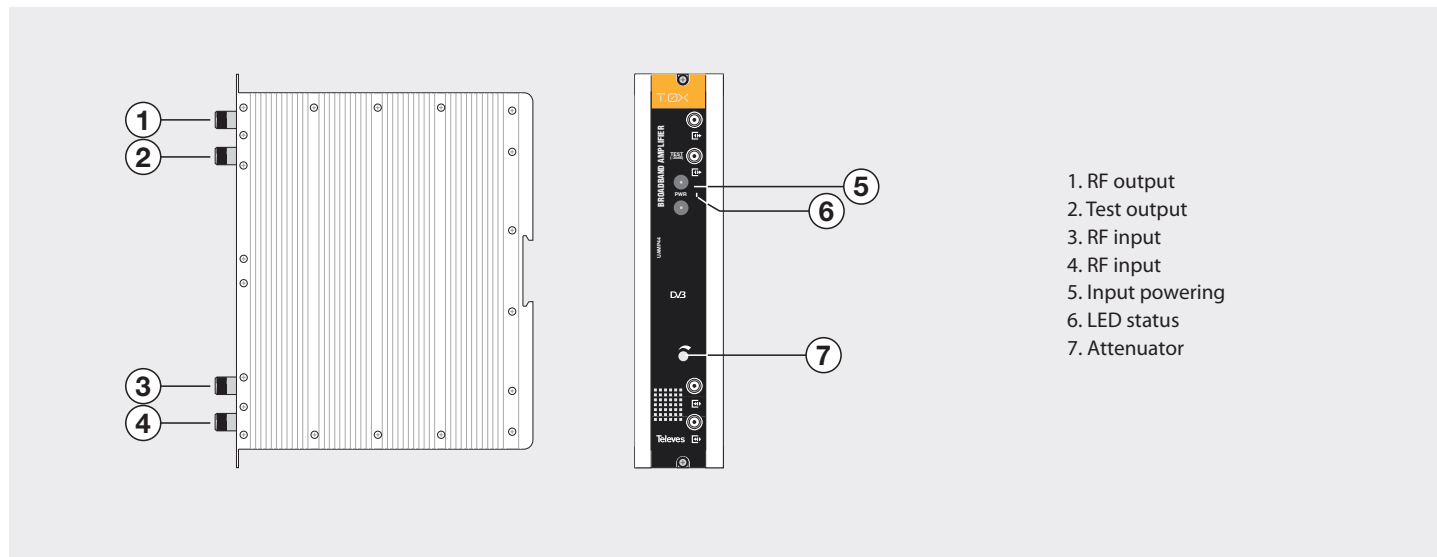**Ethernet link.** It indicates activity when blinking.

CPU activity. It will blink slowly in case of little activity (and vice versa).

5.2. Power Supply Unit

Connectors to power modules (24V⎓)

LEDS

24V
24V
24V
0V
0V
24V

24V: OK
0V: Overload or short circuit

M4x10   M4 nut   Star washer

Grounding connection

Mains
108 - 132V~   50/60Hz

NOTE: Maximum output is 4 amps. Use second output if more than 4 amps is needed.

5.3. Amplifier

1. RF output
2. Test output
3. RF input
4. RF input
5. Input powering
6. LED status
7. Attenuator

It features two input signal connectors to allow channel mixing coming from two different systems. If using only one input, it is recommended to load the unused input with a 75 ohm load, ref 4061.

Features an output connector and a test output (-30dB) located at the top front panel.

The module is powered with 24V, through a patch cable equal to that used to power the other system modules.

This is a broadband amplifier for all channels within the frequency band from 47 to 862 MHz.

5.4. Universal programmer PCT 5.0
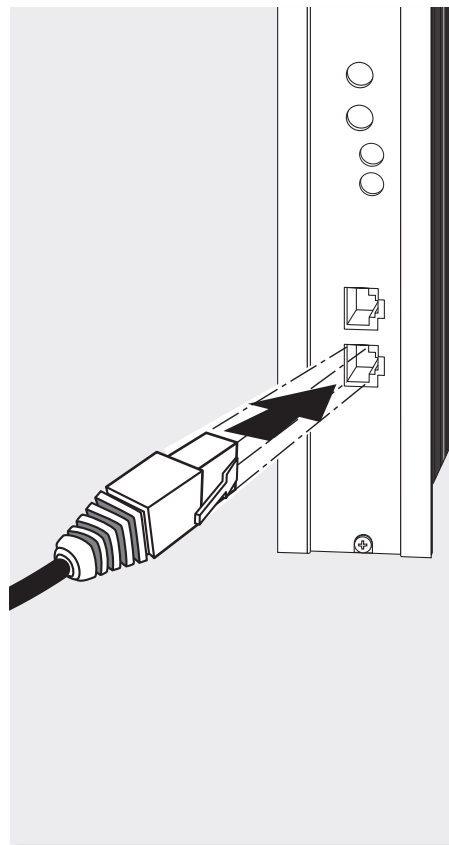
The programmer is handled with 4 keys:

●	(short press) - Selection of parameter positioning of the cursor).
▲-▼	Modification of the parameter chosen by the cursor (flashing)
■	(short press) - Change menu
●	(long press) - Change between Principal and Extended menus
■	(long press) - Save changes to memory
■ + ● + ▲	Increases the contrast of the screen.
■ + ● + ▼	Decreases the contrast of the screen.

6. Installation of CDC H/E Manager

The basic installation of the CDC H / E MANAGER start with a **local setting**, either through the **LCD Programmer** Ref 7234 or by the **Local Web** in IP alias (169.254.1.254)**.**

Programmer LCD ref. 7234

Insert the programmer in the socket ("PRGM") that is located on the front of the CDC module. First, it will display the firmware version of the programmer:

```
PCT Firmware
   version
_____
V:5.02
```

Afterwards, it is displayed the information about the CDC module connected to the programmer. (device name, SW version and serial number). Finally, the main menu appears.

```
CDC H/E
MANAGER
00.00.00000
000000000000
```

```
▶ SYSTEM    ▇
▶ CONF.COMM▇
▶ UPGRADE   ▇
▶ HELP      ▇

▶RESET      ▇
```
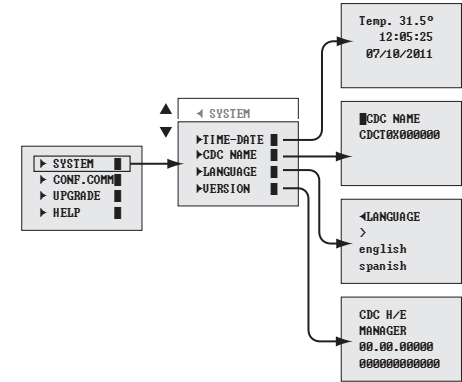▲
▼
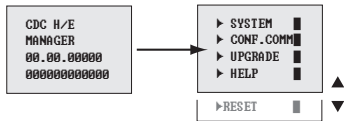
How to manage the menus:

- The selected option in the menu is displayed blinking.
- To move around the menu, use ▲ or ▼ keys.

Note: *If the menu is longer than one page, use the ▲ or ▼ to scroll the menu and access the options that are hidden.*
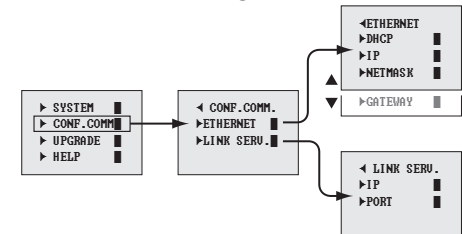
- To browse the normal menus (shown with ▶). Press ▇ to enter. Press ● to go back.
- In the final menus (shown with ▇), press and hold ▇ to accept. Press the ● key to return to normal menu.

The following figures show the different menus. As shown, if you select SYSTEM, you can change the name of the **CDC H/E Manager** to enable better tracking, set the **date and time**, select the **menu language** and finally **display the Start Menu** to check the software versions and reference number of the unit.

System

```
▲
▼
◀ SYSTEM
▶TIME-DATE ▇
▶CDC NAME  ▇
▶LANGUAGE  ▇
▶VERSION   ▇
```

```
▶ SYSTEM    ▇
▶ CONF.COMM▇
▶ UPGRADE   ▇
▶ HELP      ▇
```

```
Temp. 31.5°
   12:05:25
07/10/2011
```

```
▇CDC NAME
CDCI0X000000
```

```
◀LANGUAGE
〉
english
spanish
```

```
CDC H/E
MANAGER
00.00.00000
000000000000
```

Communications settings

```
▶ SYSTEM    ▇
▶ CONF.COMM▇
▶ UPGRADE   ▇
▶ HELP      ▇
```

```
◀ CONF.COMM.
▶ETHERNET
▶LINK SERV.▇
```

```
◀ETHERNET
▶DHCP      ▇
▶IP        ▇
▶NETMASK   ▇

▶GATEWAY   ▇
```
▲
▼

```
◀ LINK SERV.
▶IP
▶PORT      ▇
```
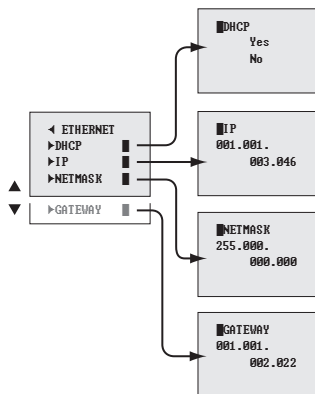
EN

Communications settings
Ethernet

In the IP configuration is desirable to **enable the DHCP** (default), thus avoiding setting a static IP with all its parameters.
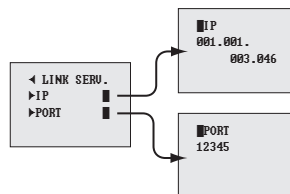
The configuration depends on the LAN that connects to the CDC H/E MANAGER.

```
┌─────────────┐         ┌─────────────┐
│ ◄ ETHERNET  │    ┌───▶│ ▮DHCP       │
│ ▶DHCP     ▮ │────┘    │       Yes   │
│ ▶IP       ▮ │         │       No    │
│ ▶NETMASK  ▮ │──┐      └─────────────┘
├─────────────┤  │      ┌─────────────┐
│             │  └─────▶│ ▮IP         │
│ ▲           │         │ 001.001.    │
│ ▼   ▶GATEWAY ▮│────┐   │       003.046│
└─────────────┘    │   └─────────────┘
                   │   ┌─────────────┐
                   ├──▶│ ▮NETMASK    │
                   │   │ 255.000.    │
                   │   │       000.000│
                   │   └─────────────┘
                   │   ┌─────────────┐
                   └──▶│ ▮GATEWAY    │
                       │ 001.001.    │
                       │       002.022│
                       └─────────────┘
```
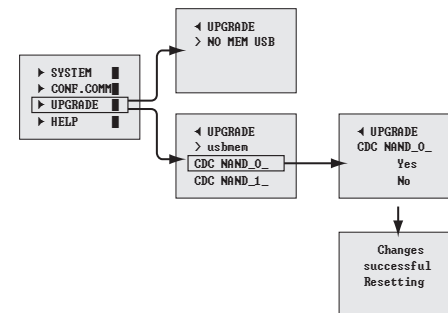
Communications settings
Links server

The Link Server setup, by default, brings the address and the IP port that allows to use the Links Server.

```
┌──────────────┐       ┌─────────────┐
│ ◄ LINK SERV. │  ┌───▶│ ▮IP         │
│ ▶IP       ▮  │──┘    │ 001.001.    │
│ ▶PORT     ▮  │──┐    │       003.046│
└──────────────┘  │    └─────────────┘
                  │    ┌─────────────┐
                  └───▶│ ▮PORT       │
                       │ 12345       │
                       └─────────────┘
```

Firmware update using the LCD programmer.

Using the programmer Ref 7234, and an USB memory device that contains valid files to be updated, you can carry out the updating of the CDC H/E Manager.

```
                        ┌──────────────┐
                   ┌───▶│ ◄ UPGRADE    │
                   │    │ > NO MEM USB │
┌──────────────┐   │    └──────────────┘
│ ▶ SYSTEM   ▮ │   │
│ ▶ CONF.COMM▮ │───┤    ┌──────────────┐   ┌──────────────┐
│ ▶ UPGRADE  ▮ │   │    │ ◄ UPGRADE    │   │ ◄ UPGRADE    │
│ ▶ HELP     ▮ │   └───▶│ > usbmem     │   │ CDC NAND_0_  │
└──────────────┘        │ CDC NAND_0_  │──▶│       Yes    │
                        │ CDC NAND_1_  │   │       No     │
                        └──────────────┘   └──────────────┘
                                                   │
                                                   ▼
                                           ┌──────────────┐
                                           │   Changes    │
                                           │  successful  │
                                           │  Resetting   │
                                           └──────────────┘
```

After inserting the USB storage device, and making use of the programmer, it will be shown all files that can be updated from the root of the device. By selecting one of them starts the update process. The updating will be successful if, after restarting the programmer, the home menu appears again.
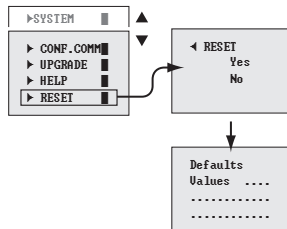
Help and Reset with the programmer.

Help

All program menus have self-help text, as well as the menu that has been exposed, which explains the possible navigation through menus and configuration of the parameters.
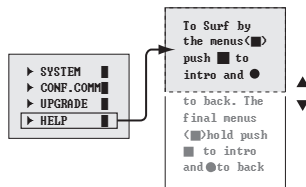

Reset

You can perform a restart of the application by using the programmer and reinstall the default values.

Local Web Server

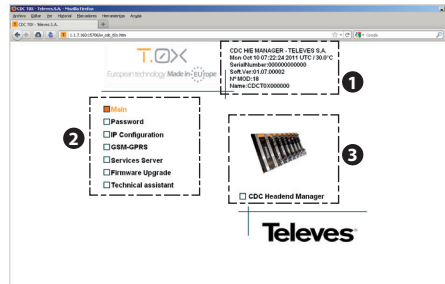Local Web Server enables both the configuration and the firmware update through the different websites.

The Web Server will be published both on the local LAN address of the device as in the alias address 169.254.1.254 on port 15 706 (http://169.254.1.254:15706).
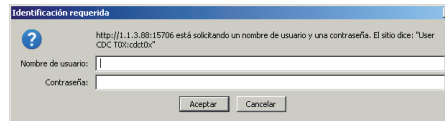
By default, the Login is:

User's name: cdct0x
Password: Televes1

The following is the the homepage of the CDC T.0X.

As you can see, the page is divided into three zones:

Information Box (1).
Product information is displayed as:
- Date/Time; CDC module temperature.
- Manufacturing serial number.
- Version of Software.
- Number of modules installed.
- The name of this T.0X CDC module.
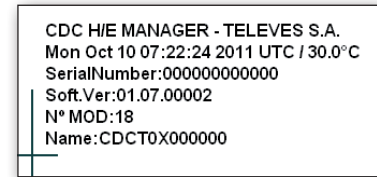
Main Menu (2).
Access to the different module configuration options:
- Main
- Password
- IP Configuration
- Services Server
- Firmware Upgrade
- Technical Assistance

Status of the headend (3).
Access to a list of modules connected to the CDC.
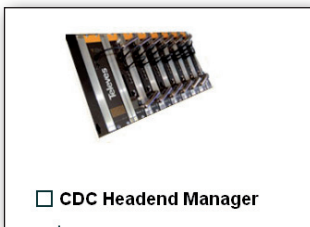
Monitoring

The website allows monitoring at the level of operation of the devices in the RS485 BUS, sending surveys and waiting for the answer. This lets you know which devices are correct or not in the BUS.

Here is a table that contains the T0X elements of the headend and displays their status by colors.

Correct (green)

Add.	Ref.	Vers.	LED	Description
1	5806	1.02	●	TWIN MODULADOR T0X

Identified (ambar)

102	5633	1.03	●	DVBS2-COFDM C.I.T0X

Error (red)

8	5631	1.03	●	DVBS2-COFDM T0X

There are 3 additional buttons:

MAIN: Return to main menu.
SCAN: it performs a full checking of the headend and deletes existing items.
RESET: Resets the application with the default values.
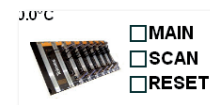
Password and IP Configuration

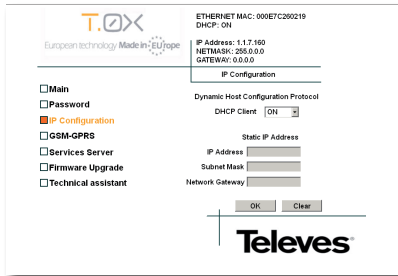The Web server allows the configuration of Web or SSH access by password.

Change Password for Web access and SSH access.

The IP Configuration allows you to enable or not the DHCP as well as statically configure the Ethernet interface.

IP configuration, similar to the LCD controller.

Links Server

In the area for Server Configuration Links are shown the current values and the status of the connection.
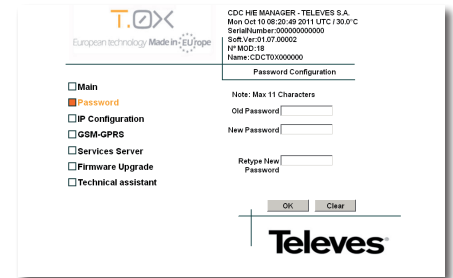

Firmware Update Website

Simple process using the Web interface, which updates the firmware of the CDC H/E Manager. After selecting the file, the upload process will show a progress bar, ending with the confirmation of the file and restarting the application.
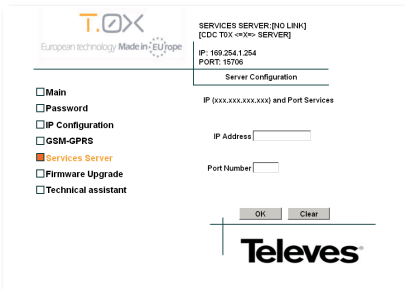

SSH (Secure SHell)

The CDC H / E Manager also features a SSH secure shell, through which you can access the operating system and control actions and management.

NOTE: *Both the user and the password of the SSH and Web Server are the same and can only be changed via the web access to that page.*

7. Rackmount Standards (max. 49 T.0X modules - 7 subracks with 5U height - 8,7")

7.1. Installation of the rack with ventilation facilities

To facilitate the renewal and circulation of the air inside the rack, in order to reduce the temperature of the units and improving their performances, it is advisable to place 2 ventilation units of 25W, particularly when the rack with the DVBS2-QAM CI is located in warm places, with ambient temperatures higher than 113°F.

These ventilators will be installed on a tray that is fixed on top of the cabinet (fig. 1 & 2). This way, the fans are forcing circulate the cool air that enters through the base of the cabinet between the modules, which is expelled through slots on top of the cabinet (1.1-1.9 in approx.). See fig. 3.

Front

Subrack

fig. 1   fig. 2

fig. 3
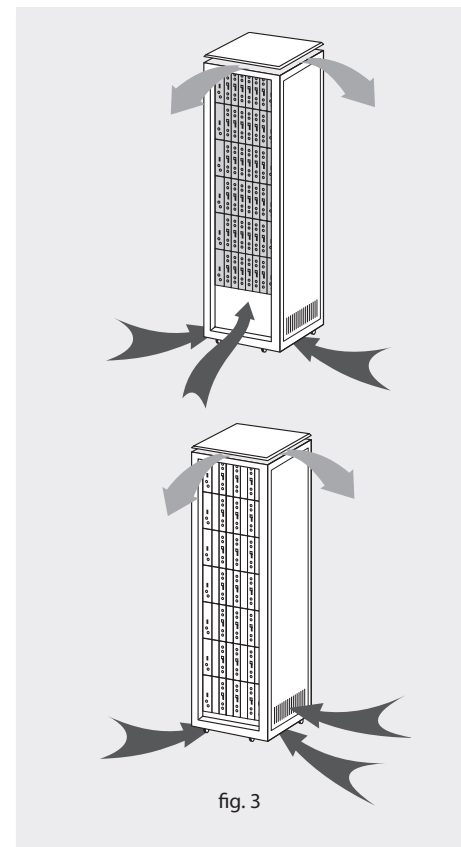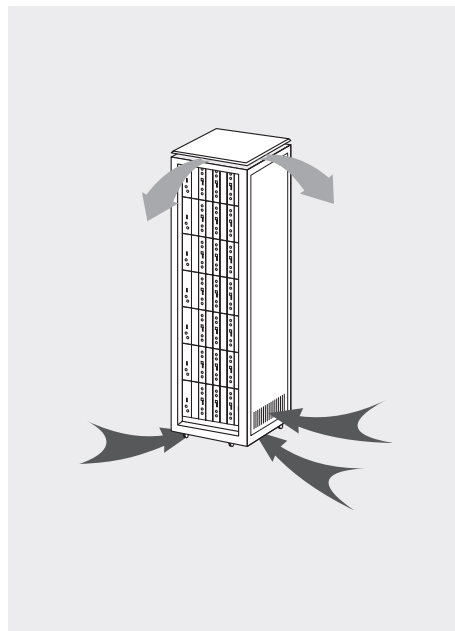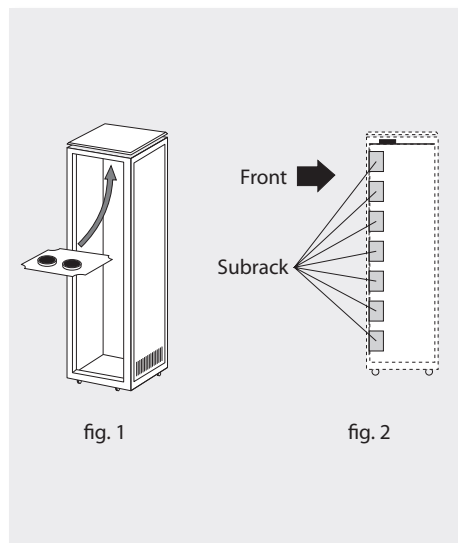
It is very important that this process operates correctly, therefore the following must be observed:
- Do not open the side doors, as this would cause the ventilators to extract the air from the outside rather than the air inside the rack.

- Do not place objects near the rack that could clog the ventilation inlets and outlets.

- If the rack is not complete, the subracks must be placed from the top downwards without leaving any gaps in between, fig. 4.
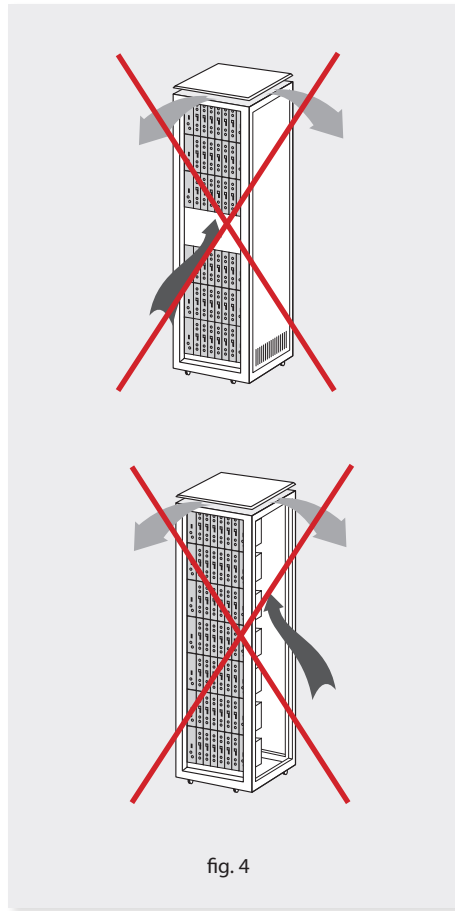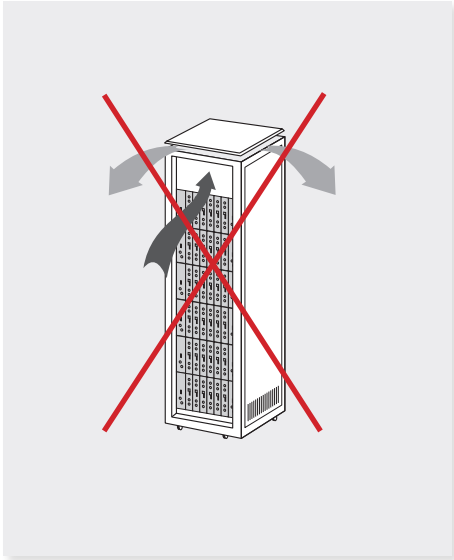

fig. 4

fig. 4

7.2. Installation of the rack without ventilation facilities

To install the units in racks without installation facilities, and when the rack is located in places with temperatures around 113°F, it is advisable to place the rack completely open; in other words, do not use the side doors. This is to facilitate the ventilation of the units , fig. 5.
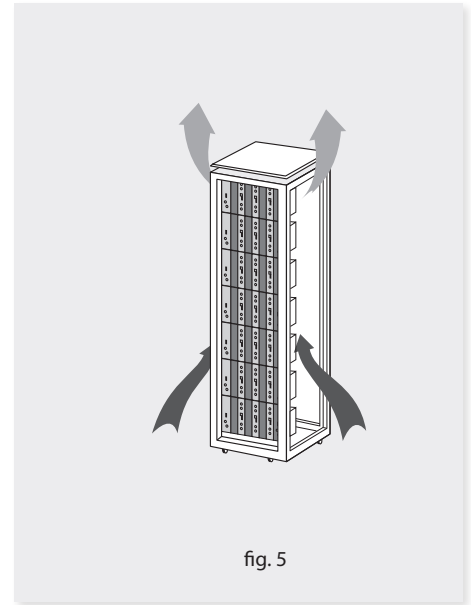

fig. 5

Televés Limited Warranty

(A) Televés warrants, only to the original Purchaser, all Products be free from any defect in materials or workmanship for a period of two (2) years from the date of original purchase, unless otherwise specified.

(B) Televés shall, free of charge and in its sole discretion, either repair, replace with a new or factory reconditioned equivalent, or refund the purchase price of the Product(s), that has been determined by Televés to be defective in material or workmanship, subject to the limits of this warranty.

(C) This warranty excludes any damage or inoperability resulting from:

(I) use or installation that is not in strict compliance with the written instructions and specifications;

(II) any modification or alteration performed by any third party not authorized in writing by Televés;

(III) service or repair performed by any third party not authorized in writing by Televés;

(IV) misuse, abuse, intentional harm, or lack of reasonable care;

(V) fire, ice, snow, rain, wind, water, volcano, excessive heat or cold, lightning, flood, power surge, earthquake, or any other acts of God;

(VI) war, crime, strike, riot, electro-magnetic pulse, or any other acts beyond the control of Televés;

(VII) shipping.

(D) All claims under the terms of this warranty must be made in writing, by the original Purchaser, within fourteen (14) days of the defect being known to the Purchaser. Such claims shall be accompanied by a description of any material facts related to the claimed defect and the invoice or other proof of original purchase date and price. If Televés so requests, the Purchaser shall, at Purchaser's expense, deliver the claimed Product(s) to Televés, within 14 days of the date of the return authorization. Under no circumstances shall the Product(s) be returned to Televés without a return authorization.

(E) Any refund to the Purchaser, shall be limited to the purchase price of the Product(s), excluding any applicable taxes, duties, freight costs, removal costs, installation costs, or any other charges incident to the purchase of the product.

(F) Any damage caused by shipper shall be claimed with the shipper in accordance with the shipper's policies and procedures.

(G) **Televés shall in no event and under no circumstances be liable or responsible for any consequential, indirect, incidental, punitive, direct or special damages based upon breach of warranty, breach of contract, negligence, strict tort liability or otherwise or any other legal theory, arising directly or indirectly from the sale, use, installation or failure of any product acquired by Purchaser from Televés.**

(H) This limited warranty extends to the original Purchaser and cannot be assigned or transferred to any other party without the prior express written permission of Televés, which permission Televés may withhold for any reason or for no reason at all.

(I) Televés will not assume any liabilities for any other warranties, whether statutory, express or implied, made by any other person.

(J) **Televés reserves the right to modify or discontinue this warranty at Televés' sole discretion without notification. No other warrantees are expressed or implied.**

Televés Extended Five (5) Year Warranty

K. Any product in the T.OX family is subject to a five (5) year warranty from the date of original purchase. This three (3) year extension applies only to new Product(s) in its initial installation and only extends the duration of the warranty beyond the original duration subject to the addition of the following terms:

I. The Product(s) shall have been installed in one and only one location and its use shall be in strict compliance with the written instructions and specifications;

II. An approved forced air ventilation system, designed to extend tile life of the product, shall be in use during the entire installed life of the Product(s);

III. The Product(s) shall be registered with Televés, at the time of installation;

IV. Photographic evidence of the proper installation of the Product(s) shall be provided at the time of registration;

V. Televés reserves the right to physically inspect the installation of any claimed Product(s);

VI. The registration number, provided by Televés, at the time of registration, shall be provided by the Purchaser at the time of claim;

VII. Photographic evidence of the Installation of the claimed Product(s) shall provided at the time of claim documenting the status of the installation at the time the defect is made known to the Purchaser;

VIII. Any cost incurred by Televés, related to a claim under the terms of this extended warranty, for a product that is found to not be defective under the terms of this warranty, may be charged to the Purchaser.

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: **TELEVES, S.A.**

Address: Rúa B. de Conxo, 17
15706 Santiago de Compostela
A Coruña-Spain

Phone / Fax Nº: +34 981522200 / + 34 981522262

Hereby declares that the product

Product Name: CDC H/E MANAGER T.0X
Model Number: 555902

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(e) and section 15.109(g)

Supplementary Information:

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name: **José Luis Fernández Carnero**

Signature:

Date : 19/12/2012

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