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### 1. Technical specifications

#### 1.1. TWIN A/D PROCESSOR ref. 564901

<table>
<thead>
<tr>
<th>Down-Converter</th>
<th>46 - 862 MHz</th>
<th>IN/OUT Connectors</th>
<th>type</th>
<th>female “F”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input frequency (selec.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input level (-59 a -29 dBm)</td>
<td>dBµV</td>
<td>50 to 80*</td>
<td>Input impedance</td>
<td>ohm</td>
</tr>
<tr>
<td>Frequency steps (selec.) Analog</td>
<td>KHz</td>
<td>250</td>
<td>Input line powering for preamps (&lt; 50 mA)</td>
<td>Vdc</td>
</tr>
<tr>
<td>Frequency steps (selec.) Digital</td>
<td>kHz</td>
<td>166.66 / 125 / 25</td>
<td>Input loop-through gain</td>
<td>dB</td>
</tr>
<tr>
<td>Intermediate freq. Bandwidth (selec.)</td>
<td>MHz</td>
<td>6 / 7 / 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UP-Converter</td>
<td>46 - 862 MHz</td>
<td>Output loop-through losses (typ.)</td>
<td>dB</td>
<td>&lt; 1.5</td>
</tr>
<tr>
<td>Output frequency (selec.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency steps (selec.) Analog</td>
<td>KHz</td>
<td>250</td>
<td>Return losses (typ.)</td>
<td>dB</td>
</tr>
<tr>
<td>Frequency steps (selec.) Digital</td>
<td>kHz</td>
<td>166.66 / 125 / 25</td>
<td>IN/OUT Connectors</td>
<td>type</td>
</tr>
<tr>
<td>Phase noise (typ.)</td>
<td>dBc/Hz</td>
<td>80 @10KHz</td>
<td>Output impedance</td>
<td>ohm</td>
</tr>
<tr>
<td>Output level</td>
<td>dBµV</td>
<td>80 ±5</td>
<td>Spurious level (min.)</td>
<td>dBc</td>
</tr>
<tr>
<td>Output level regulation</td>
<td>dB</td>
<td>&gt; 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption (typ.)</td>
<td>mA</td>
<td>400 @ 24V*** (LNB power OFF)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection level</td>
<td>IP20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Automatic gain for high level input signals.
These technical specifications are defined for a maximum ambient temperature of 45 °C (113 °F). For higher temperatures forced ventilation is required.
### 1.2. Broadband Amplifier Technical Specifications

<table>
<thead>
<tr>
<th>Amplifier ref. 5575</th>
<th>Frequency range</th>
<th>MHz</th>
<th>46 -- 862</th>
<th>Connector</th>
<th>type</th>
<th>female “F”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>dB</td>
<td>44 ± 2.5</td>
<td></td>
<td>Powering voltage</td>
<td>V~</td>
<td>24</td>
</tr>
<tr>
<td>Regulation margin</td>
<td>dB</td>
<td>20</td>
<td></td>
<td>Consumption at 24 V~</td>
<td>mA</td>
<td>450</td>
</tr>
<tr>
<td>Output level (42 CH CENELEC)</td>
<td>dBµV</td>
<td>105</td>
<td></td>
<td>Test output attenuation</td>
<td>dB</td>
<td>-30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amplifier ref. 451202</th>
<th>Frequency range (1)</th>
<th>MHz</th>
<th>47 -- 862</th>
<th>Connector</th>
<th>type</th>
<th>female “F”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain (1) (selec.)</td>
<td>dB</td>
<td>40 -- 53</td>
<td></td>
<td>Mains voltage / frequency</td>
<td>V~ / Hz</td>
<td>196 -- 264 / 50-60</td>
</tr>
<tr>
<td>Output level (1) (DIN 45004B)</td>
<td>dBµV</td>
<td>129</td>
<td></td>
<td>Power consumption (max.)</td>
<td>W</td>
<td>16</td>
</tr>
<tr>
<td>Rango de frecuencia (2)</td>
<td>MHz</td>
<td>5 -- 30</td>
<td></td>
<td>Test output attenuation</td>
<td>dB</td>
<td>-20</td>
</tr>
<tr>
<td>Gain (2) (typ.)</td>
<td>dB</td>
<td>20 / -3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output level (2) (DIN 45004B)</td>
<td>dBµV</td>
<td>129 / --</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Forward channel  (2) Return channel (active/passive)

### 1.3. Power Supply Unit Technical Specifications

<table>
<thead>
<tr>
<th>PSU ref. 5629</th>
<th>Mains voltage / frequency</th>
<th>V~ / Hz</th>
<th>196 - 264 / 50-60</th>
<th>Max. total current (output 1 + output 2)</th>
<th>A</th>
<th>5 (24V~)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>V~</td>
<td>24</td>
<td>Max. current per output</td>
<td>A</td>
<td>4 (24V~)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PSU ref. 562901</th>
<th>Mains voltage / frequency</th>
<th>V~ / Hz</th>
<th>102 - 138 / 50-60</th>
<th>Max. total current (output 1 + output 2)</th>
<th>A</th>
<th>4.5 (24V~)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>V~</td>
<td>24</td>
<td>Max. current per output</td>
<td>A</td>
<td>4 (24V~)</td>
<td></td>
</tr>
</tbody>
</table>

### 1.4. Block diagram

![Block diagram](Image)
## 2. Reference description

<table>
<thead>
<tr>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>564901</td>
<td>TWIN A/D PROCESSOR T.0X</td>
</tr>
<tr>
<td>5575</td>
<td>Broadband amplifier 44dB 120dµV</td>
</tr>
<tr>
<td>451202</td>
<td>DTKom Amplifier (47 - 862 MHz)</td>
</tr>
<tr>
<td>5559</td>
<td>Headend Remote Management CDC-IP T.0X</td>
</tr>
<tr>
<td>555901</td>
<td>Headend Remote Management CDC-IP GSM T.0X</td>
</tr>
<tr>
<td>5629</td>
<td>Power Supply Unit 220Vac - 24V/5A T.0X</td>
</tr>
<tr>
<td>562901</td>
<td>Power Supply Unit 110Vac - 24V/4.5A T.0X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7234</td>
<td>Universal Programmer</td>
</tr>
<tr>
<td>5071</td>
<td>Wall support T03-T05-T.0X; Length=50 cm</td>
</tr>
<tr>
<td>5239</td>
<td>Wall support T03-T05-T.0X 12 Modules + PSU; Length= 56 cm</td>
</tr>
<tr>
<td>5301</td>
<td>19” rack frame</td>
</tr>
<tr>
<td>507202</td>
<td>T.0X Enclosure with forced ventilation (7 Modules + PSU)</td>
</tr>
<tr>
<td>4061</td>
<td>DC-blocked terminal load, male “F”</td>
</tr>
<tr>
<td>4058</td>
<td>Terminal load, male “F”</td>
</tr>
<tr>
<td>422601</td>
<td>T05 to T.0X Power interconnection lead L=40 cm</td>
</tr>
<tr>
<td>422602</td>
<td>T05 to T.0X Management interconnection lead L=40 cm</td>
</tr>
<tr>
<td>422603</td>
<td>T.0X Management interconnection lead L=1m</td>
</tr>
<tr>
<td>5673</td>
<td>Blank plate (50 mm width)</td>
</tr>
</tbody>
</table>
3. Installation

3.1. Wall mount

REMARK: It is recommended to use both outputs of the PSU to balance consumption between them. For example, 4+3 r 3+4 modules.
3.2. 19” rack mount
4. Product description

4.1. Introduction

The TWIN A/D PROCESSOR contains two processors, herein known as module A and module B. Each one of them can be used independently either as a channel converter (output channel different of input channel) or as an amplifier (output channel equal to input channel).

When used as a converter, it allows to select any channel in the VHF or UHF band (46-862 MHz) and translate it in frequency to any position within these bands.

Both modules A and B feature its own Up-converter, thus enabling to allocate independently the two output channels to any position within the TV band.

The parameters are selected by the programmer ref. 7234, which is connected to the front of the unit.

By using the universal programmer, both modules can be programmed with the operating parameters required by the premises: input and output frequencies, output levels and bandwidth, mainly.

Both modules A and B share the same input port (loop-through).

The input loop-through allows the input signal be available to a number of units interconnected. At the same time it allows to power a preamplifier through the signal input cable (12 / 24 Vdc).

If a shortcircuit occurs at the input port, a LED on the front panel of the unit will start to flash and the input power will be switched-off. The programmed voltage at the input will be reset once repaired the shortcircuit.

It features also an input RF connector and an output RF connector in loop-through in order to mix the channels for subsequent amplification.
4.2. PROCESSOR A/D Twin

1. RF Input (12V/24V/Off)
2. RF Output (input loop-through)
3. RF Input (output loop-through)
4. RF Output
5. Power BUS connectors
6. Status LED
7. Control BUS connectors
8. Programmer / PC socket
4.3. Power Supply Unit

Remarks:
- The **5629** PSU can power **up to 12** TWIN A/D PROCESSOR units.
- The **562901** PSU can power **up to 11** TWIN A/D PROCESSOR units.
- It must be used both outputs whenever the current demanded by all units installed is greater than 4 A (maximum current per output).
4.4. Broadband amplifiers

**OPTION “A” - 5575**

1. RF Output  
2. Test Output  
3. RF Input  
4. RF Input  
5. Powering connectors  
6. Attenuator  
7. Status LED

It features two signal input connectors, to allow mixing of the channels provided by two systems. Whenever is only used one input, please remember to terminate the non used port with the corresponding 75 ohm load, ref. 4061.

On its upper part the unit features one signal output connector and a test output connector (-30 dB)

The unit is powered via a power BUS made by independent power leads, which interconnect all the units each other.

**OPTION “B” - 451202**

1. Mains socket (196-264 V~ 50/60 Hz)  
2. Ground terminal  
3. ON/OFF LED  
4. MATV input / Return channel output  
5. MATV input test connector  
6. MATV output test connector  
7. MATV output / Return channel input
4.5. Universal Programmer PCT 5.0

The programmer features 1 display, 3 LEDs and 4 buttons:

<table>
<thead>
<tr>
<th>Programmer button function</th>
<th>Button</th>
<th>Press mode</th>
<th>Function description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>short</td>
<td>Enables parameter selection by shifting the cursor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Allows to swap between main and extended menus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>short</td>
<td>Change the parameter value selected by the flashing cursor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Changes menu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Save parameters to memory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Increase screen contrast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Decrease screen contrast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>long</td>
<td>Selects cloning menu</td>
</tr>
</tbody>
</table>
5. - Instructions for use

Insert the programmer into the corresponding connector (“PRGM socket”) of the unit. Then the unit sends the parameters with what it was previously configured (frequency, output channels, input channels, output levels, ...) and a new configuration process can be carried out. The first item displayed is the version of the Programmer firmware:

```
PCT firmware version
-----------
x.xx
```

Next it shows the firmware version of the TWIN A/D PROCESSOR unit:

```
Unit firmware version: U=x.xx
```

Finally, it will be displayed the first device configuration menu, that is the one corresponding with its output menu.

5.1. Main Menu

To switch between A and B modules of the TWIN unit, keep pressed the button ● until the A/B indication starts to flash in the upper left corner of the display. Then use buttons ▲ and ▼ to select the desired module.

In both modules A and B, parameters changed are updated instantly; but in order to keep these operating parameters it will be necessary to save them before elapse 30 sec from the last change.

By short presses on the button ■, you can move through the available menus.

If it has been chosen converter mode, it will be displayed the sequence Output menu => Input menu, and so on.

In the case of being chosen amplifier mode, there is only one menu since both input and output channels are the same.

**Remark 1:** Depending on how the processor is programmed (this is done accessing the extended menu, press button ■ twice and then, using buttons ▲ or ▼, select mode of operation) may function as amplifier (input frequency equal to output frequency) or converter (input frequency is not equal to output frequency).

If the processor is programmed to operate as an Amplifier there is only one setup menu; and if it is programmed to operate as a Converter, there will be two setup menus: output and input.

**Remark 2:** To change the menu language before starting the device configuration, you must access the “Language” menu.

To do so, press button ● (long press) to access the Extended menu, press button ■ six times in a row, and then, using buttons ▲ or ▼, select the language.

Finally press button ■ (long press) to save changes. For more information, see paragraph “Extended Menu” => “Language Selection Menu”.

**a. Output menu**

This menu allows to select:

- **Output channel**, in both channel and frequency modes.
- **Output frequency offset** (in case of digital channel mode).
- **Output level**.

The contents of the output menu depends on how the unit has been programmed the last time (frequency or channel mode, analog or digital mode; options available in the extended menu).
Channel mode operation for digital signals
If the digital signal option has been selected, it is displayed the number of the output channel as well as its central frequency.

The offset option shifts the central frequency of the output channel an amount which can be configured by selecting one of the following values: +4, +3, +2, +1, 0, -1, -2, -3, -4.

Frequency steps for this option can also be configured in the corresponding extended menu.

There are three choices: 25 KHz, 125 KHz and 166.66 KHz.

Finally, it will be displayed the output level, which can be changed using a scale of selectable values from 00 to 99:
- By selecting 99, the output level is the maximum that the unit can deliver (85 dBµV approx.).
- As soon as it is selected a lower value than 99, the output level will decrease all the way down till select 00, which is an output level 15 dB less than its maximum output level.

b. Input Menu
Allows selection of the input channel, in either channel mode or frequency mode, and the input frequency offset for digital channels.

The contents of the input menu depends on how the unit has been programmed the last time (frequency mode/channel mode; digital mode/analog mode) as can be done in the extended menu.

Channel mode operation for analog signals
The display will show the number of the output channel as well as its Video Carrier frequency.

This operating mode has not available the offset option.
Concerning the output level, it follows the same rules as above, and the display shows:

Frequency mode operation
The display will show, either the Video Carrier frequency (for analog signals) or the central frequency of the channel (for digital signals).

Output frequency values range from 47 to 862 MHz.
The output level follows the same rules as above.
To modify parameters, scroll through the menu by pressing button (short press) until the required parameter flashes; then change it with buttons or .

Channel mode operation for digital signals
The display will show the input channel as well as its central frequency.
Additionally, the offset option shifts the central frequency of the input channel an amount which can be configured by selecting one of the following values: +4, +3, +2, +1, 0, -1, -2, -3, -4.
Frequency steps for this option can also be configured in the corresponding extended menu.
There are three choices: 25 KHz, 125 KHz and 166.66 KHz.
Channel mode operation for analog signals
The display will show the number of the output channel as well as its Video Carrier frequency.
This operating mode has not available the offset option.

Frequency mode operation
The display will show, either the Video Carrier frequency (for analog signals) or the central frequency of the channel (for digital signals).
Output frequency values range from 47 to 862 MHz.
To modify parameters, scroll through the menu by pressing button ● (short press) until the required parameter flashes; then change it with buttons ▲ or ▼.

5.2. Extended Menu
By keeping pressed the button ● for more than 3 sec, the programmer displays a number of menus less frequently used, which are called extended menus.

a. Menú de Configuración 1
This menu allows the selection of the processor’ address, for the remote management of the headend by means of a CDC unit, as well as the powering voltage for preamplifiers.

Warning:
All devices controllable by the CDC (headend management system) are linked by a common control BUS (connectors labeled “CTRL”), and each device must have a unique address selected among 1 and 254, inside the bus (0 and 255 are values reserved for other purposes).
To change on address, you must press the ● key until the desired digit flashes. Then you can modify that digit by using buttons ▲ and ▼.
The next parameter in this menu is the voltage to be available on the input port of the unit, intended to power preamplifiers.
To select powering voltage for preamplifiers, use also buttons ▲ and ▼.

b. Configuration Menu 2
This menu allows to select one of the two possible processor operating modes: Amplifier or Converter.
In the Amplifier option, output frequency is equal to input frequency, as well as the offset, and therefore is shown only the output menu.
In the Converter option, output frequency is not equal to input frequency, and therefore are shown both output and input menus.
In the case of converter mode operation, use buttons ▲ and ▼ to choose how to select the input and output frequencies for:

- frequency mode, or
- channel mode.

In channel mode (Tables of Channels) there are the following choices:

- CCIR N.Z. Ind
- China Taiwan
- America M/N
- Italy
- France
- Russia (OIR)
- Ireland
- South Africa
- Poland
- Australia
- EIA

The options 8-MHz and 7-MHz are most selective versions of filters 8MHz and 7MHz respectively. Specifically, these most selective filters may be used when the processing channel in the input signal has an adjacent channel (in lower or upper frequency), and when the output channel of the processor has also an adjacent channel, in the headend output signal.

In these cases, you can test both types of filters, normal and selective, to determine which one performs better.

The next parameter is the Slope. Choices are 0, 1, 2, 3 and 4.

The slope balances the signal within the channel.

When the signal is analog, it changes the level difference between video carrier and audio carrier.

**Digital signals**

There are three possible choices for frequency steps: 25, 125 and 166.66 KHz.

**Analog signals**

The frequency step is 250 KHz only.

In any of the extended menus 1, 2 and 3, the first press on button ● (short press) allows accessing to the selection of module A or B within the processor, by highlighting one of the two letters. Then use buttons ▲ and ▼ to select one of both modules.

The next press on button ● (short press) makes flash the name of the parameter to be modified. Then use buttons ▲ and ▼ to change its value.

**e. Configuration Menu 5**

Each time you save a new configuration, processor adjusts automatically the SAT stage, both gain and frequency, to get the best possible quality parameters of the output signal.

This menu allows you to modify slightly the automatic adjustment made by processor to optimize the characteristics of a specific input signal, if necessary.

The first parameter of this menu adjusts the SAT frequency of the processor.

The possible values are -4, -3, -2, -1, AUTO, +1, +2, +3, +4.
Positive values force the processor to increase slightly the central frequency of internal filters; a higher value means a higher increase. On the contrary, negative values decrease this frequency.

The second parameter of this menu adjusts the SAT gain of the processor. The possible values are AUTO, +1, +2, +3. Positive values force the processor to increase slightly the SAT gain; a higher value means a higher increase.

The third and last parameter in this menu sets the degree of selectivity in the adjustment of SAT internal filters.

**f. Temperature Menu**

The next extended menu displays the current temperature of the processor, as well as the maximum value recorded. The maximum recorded temperature may also be reset by pressing and holding the button for a few seconds.

The working temperature ranges displayed are the following:
- Optimum temperature: 0-6
- Temperature is high: 7-8
- Temperature is excessive: 9-10

The temperature accuracy is ± 5ºC. To give an idea, a displayed value equal to 3 is equivalent to a working temperature between 25 and 34 ºC.

In the event that the maximum temperature recorded is outside the optimal range, the headend installation should be modified to try to reduce its ambient temperature, e.g. by mounting the units inside a ventilated T.0X cabinet ref. 507202.

To check whether this change is effective, reset the maximum temperature recorded and check again its value after some working time has elapsed.

**g. Version menu**

This menu shows to the user the firmware versions loaded in the processor.

**h. Language menu**

This menu allows to select the language used to program the processor (Spanish / English / German): Select one of them by pressing buttons ▲ and ▼.
5.3. Saving parameters

After setting up the unit by means of the two menus available, main and extended, all data will be saved by pressing the button ■ for about 3 seconds.

The display shows:

```
Saving settings and restarting ...
```

Do not remove the programmer before the message disappears from the screen.

If configuration data are changed but not saved, previous settings will be restored after about 30 seconds. Therefore all changes made would be cancelled.

6. - Device control

This version of the TWIN A/D PROCESSOR allows configuration and monitoring via a PC, both locally and remotely.

a. Local control

The “Headend Management” programme (v2.14 or higher) is required, as well as a special lead (provided with the programme) that connects a PC serial port to the “PRGM” socket of the TWIN A/D PROCESSOR.

The programme can be used to set up and read all the operating parameters, as well as to monitor the correct operation of the device.

b. Remote control

It is necessary to have a Headend Control module (ref. 5559 or 555901) that includes the programme mentioned above.

Once the communication with the headend control has been established, all the controllable devices that have been installed in the headend can be accessed. In this case it is imperative that each module is programmed with a different device address selected between 1 and 254.
At any moment, modules A and B can be switched by pressing keys ▲ and ▼ when the cursor is over the A/B indication situated on the upper left corner.
7. Example of application

Distribution of 20 channels

This figure depicts a headend configured for distributing 10x2 channels processed. It is necessary to take into account the constraint of 4 A per each one of the outputs of the PSU.
8. 19” Rackmount standards (max. 56 units - 7 subracks with 5U height - 8’7”)

8.1. Installation of the rack with ventilation facilities

To aid in cooling for proper operation, especially in warm locations (>45 C ambient), installation of 2 25W or greater fans is recommended at the top of the rack. See fig 1 and 2.

Estos ventiladores irán colocados en una bandeja atornillada en la parte superior del Rack, fig. 1 y 2. De esta manera, los ventiladores harán circular entre los módulo el aire fresco que entra por la parte inferior del armario (fig.3), y lo expulsarán a través de la rendija (de unos 3 a 5 cm) que hay en su parte superior.
In order to provide adequate cooling, proper airflow must be established. As such, the following items must be observed:

- Do not open the side doors. This could cause fans to move air from outside rather than through 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 large gaps in between, fig. 4.

8.2. Installation of the rack without fans

If fans are not available and the rack is installed in ambient temperatures near 45°C, it is advisable to leave the rack sides completely open. See fig. 5.
9. Standards for mounting wall cabinets

**IMPORTANT**

The figure on the right suggests how to arrange wall cabinets for an optimal ventilation, as well as additional actions to do it.

La temperatura máxima en las proximidades del cofre situado a mayor altura no debe ser superior a 45ºC, tanto si la disposición de los cofres es horizontal como vertical.

**EXTRACTOR**
for forced ventilation. It must be located higher than the top cabinet.

Maximum environment temperature: 45ºC.

Horizontal arrangement

Vertical arrangement

The lower grid may be located on any wall.
IMPORTANT

Horizontal placement of cabinets is strongly recommended by hanging them as near as possible to the floor.

If the horizontal placement is impossible, then vertical placement is allowed.

Respect the recommended minimum distances in the attached schemes.

Install the cabinet as low as possible.

Maximum Temp: 45°C.
# A. Table of channels

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10. Guarantee

Televés S.A. offers a two year guarantee, beginning from the date of purchase for countries in the EU. For countries that are not part of the EU, the legal guarantee that is in force at the time of purchase is applied. Keep the purchase invoice to determine this date.

During the guarantee period, Televés S.A. complies with the guarantee by repairing or substituting the faulty equipment.

The harm produced by improper usage, wear and tear, manipulation by a third party, catastrophes or any other cause beyond the control of Televés S.A. is not included in the guarantee.
DECLARATION OF CONFORMITY Nº 120618123208

Manufacturer: Televes S.A.
Rúa Beneficio de Coruxo, 17 - 15706 - Santiago de Compostela - Spain

Declarer under our own responsibility the conformity of the product. Declaro bajo su exclusiva responsabilidad la conformidad del producto. Declaras un seu exclusivo responsableaza a conformidade do producto. Declarer under our own responsibility the conformity of the product. We declare under our exclusive responsibility the conformity of this product.

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