V 613 CI
X-DVB-S2 PAL duo CI

2 x DVB-S2 to 2 x PAL converter

Direct Digital DD by ASTRO

DVB S2 SATELLITE

Operating manual

Version 02-2013A

Device description

The delivery is comprised of the following parts:

- ☐ V 613 CI and X-DVB-S2/PAL duo CI plug-in card
- ☐ 2 connection cables with F connectors, 450 mm & F socket-F socket adapter
- ☐ Operating manual

[1] Tuner A
[2] Tuner B
[3] CI slot A
[4] CI slot B
[5] Slot A for output channel filter (V 613 CI only)
[6] Slot B for output channel filter (V 613 CI only)

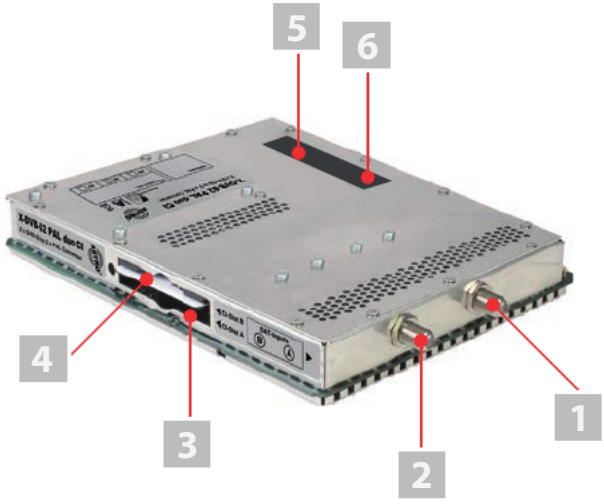


Figure 1: V 613 CI plug-in card

The V 613 CI and X-DVB-S2/PAL duo CI plug-in cards feature a CE marking. This confirms that the product conforms to the relevant EU directives and adheres to the requirements specified therein.

Warranty conditions

The general terms and conditions of ASTROBit GmbH apply.
You will find these in the current catalogue or on the Internet under www.astro-kom.de.

Description of performance

The V 613 CI and X-DVB-S2/PAL duo CI plug-in cards are used for processing 2 digital SAT TV programmes (DVB-S or DVB-S2) from 2 independent SAT input signal sources into 2 independent PAL output channels in the 47 - 862 MHz frequency range. They are only designed for processing signals in the following ASTRO base units:

- V 16 using software version x.34 or higher (V 613 and X-DVB-S2/PAL duo CI)
- X-8 twin using software version x.34 or higher (X-DVB-S2/PAL duo CI only)

The plug-in cards are supported by the HE programming software, version 6.4 and higher.

The V 613 CI and X-DVB-S2/PAL duo CI plug-in cards feature the following performance characteristics:

- 2 electronic level settings for both independent output channels
- Any transport current multiplex can be used between the 2 SAT inputs and the 2 output channels
- Data services such as VPS and teletext can be activated and deactivated by software
- The V 613 CI plug-in card also features two slots for output channel filters
- The output level of the individual output channels is adjusted using the HE programming software
- Two CI slots for connecting CI cards

Ensure you use the card correctly by reading the following safety and operating instructions attentively.

Disposal

All of our packaging material (cardboard boxes, inserts, plastic film and bags) is completely recyclable. Electronic devices must not be disposed of with household waste, but rather – according to DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL from January 27, 2003, on waste electrical and electronic equipment – must be properly disposed of. When it is no longer in use, please bring the device for disposal to one of the public collection points for this purpose.

ASTRO Bit is a member of the Elektro system solution for the disposal of packaging materials. Our contract number is 80395.

Important!

Before using the device, read the operating manually carefully and store it for future reference.

To avoid danger as far as possible, you must adhere to the following:

- ☐ The device may only be installed and operated by qualified persons **(in accordance with EN 60065)** or by persons who have been instructed by qualified persons. Maintenance work may only be carried out by qualified service personnel.
- ☐ The danger and safety instructions contained in the operating manual of the basic device and also the relevant safety regulations according to DIN VDE 0701-1 and 0701-2 must be adhered to.
- ☐ If a mixture of different signal converters is connected to the basic device, you must note the maximum power output of the base unit. If necessary, contact the ASTRO customer service to clarify whether the required connections to the base unit are permitted.

NOTE: The plug-in cards may only be operated with the ASTRO base units listed in the "Description of Performance" section!

Installing CI cards and channel filters

Inserting CI cards into the CI module

[3] CI slot A
[4] CI slot B

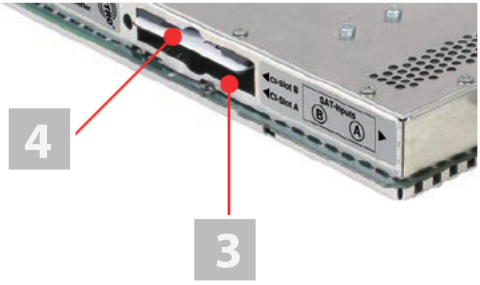


Figure 3: CI module

AUFGABE

1. Put a CI-card into one of the slots each.
   Please consider the labeling on the device (A and B).

V 613 CI only: Inserting the output channel filter

[5] Channel filter slot A
[4] Channel filter slot B

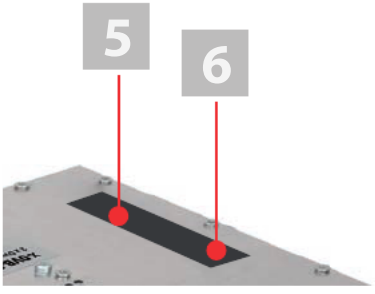


Figure 4: CI module

The V 613 CI plug-in card features two slots to allow optional installation of selected output channel filters of type V-KF, used to maintain the outstanding output parameters. They are available as an accessory.

R?QI

1. Insert the respective channel filter into the slot provided for this purpose (see figure 4). Pay attention to the A or B marking which appears on the device sticker. The filters can be activated using the HE programming software (see section “Programming using the HE programming software”).

RESULT:

The plug-in card in now ready for installation and can be connected.

Connecting the plug-in card

Connecting tuners A and B to SAT-ZF

[1] Tuner A
[2] Tuner B

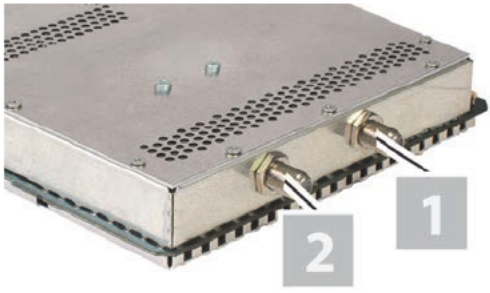


Figure 5: Connecting the tuners to SAT-ZF by cable

AUFGABE

1. Screw the respective F connector at the end of the cable onto the sockets [1] (tuner A) and [2] (tuner B).

RESULT:

The plug-in card is now connected and can be installed in the base unit. Installation instructions can be found in the operating manual for the respective base unit.

Programming using the HE programming software

Activating the V 613 CI and X-DVB-S2/PAL duo CI in the HE programming software

Once you have installed the plug-in card in the base unit, you can start programming. This section tells you how to do this using the HE programming software. You will find information on how to use this software in the operating manual for the programming software. Start by checking whether the card appears in the planning screen of the base unit. To do this, select the menu `Planning – display base unit`. You will now see the planning screen (see figure 6, below).

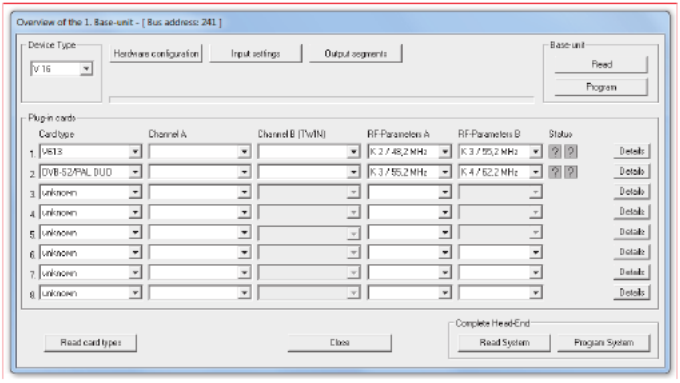


Figure 6: Planning screen for the basic unit

If it is not possible to select the plug-in card on the planning screen of the HE programming software, select the menu `Options – card types used` (see figure 7, below) and check the settings here.

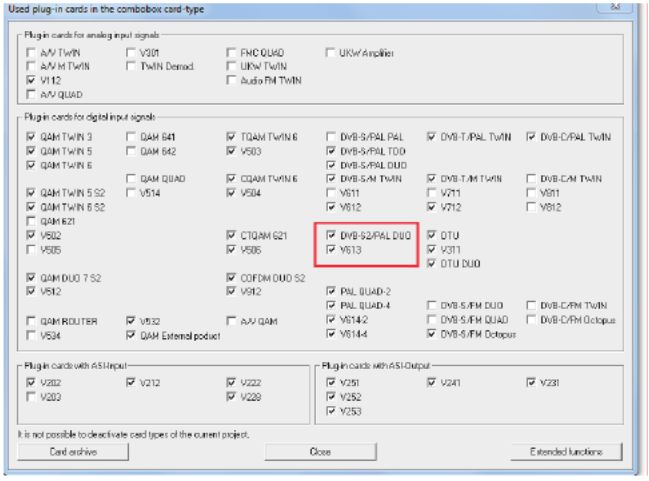
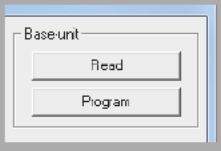


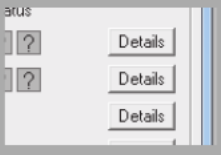
Figure 7: Activating the plug-in card on the "Card types used" screen.

The checkbox assigned to the card must be marked with a tick (see above). If this is not the case, click on the checkbox to activate the card.

RESULT:

The plug-in card is now activated. When you click on the `Read` button in the planning screen (see left), the V 613 CI or X-DVB-S2/PAL duo CI plug-in card appears on the slot used.





Defining the input parameters

In order to define the HF input parameters, you must start by having the detailed settings for the card displayed. To do so, click on the `Details` button assigned to the card in the planning screen (see left).

The `Detailed settings` screen will now appear (figure 8):

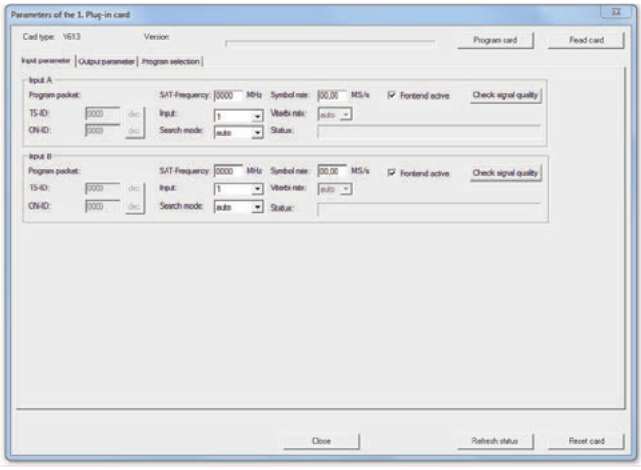


Figure 8: Input parameters

You can define the parameters for the two channels, A and B, using the `Input parameters` tab.

When you select a transponder in the planning screen, the input parameters used for this transponder will then be automatically copied to the detailed settings.
You can, however, also enter the input parameters manually should the required transponder not appear in the satellite data base. Make sure that you assign the correct input on the base unit to the plug-in card when entering information manually.
Proceed as follows to enter the input parameters manually:

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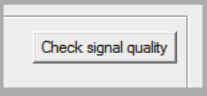
1. Activate the input for which you wish to enter the settings by activating the checkbox `Frontend active`. To do so, click on the corresponding box.
2. Enter the required value in the input field `SAT-Frequency`.
3. Select the required input from the drop-down menu.
4. Select one of the options, `auto`, `DVB-S` or `DVB-S2` from the drop-down menu.
5. Enter the required value in the input field `Symbol rate`.
6. Copy the settings entered to the plug-in card by clicking the `Program card` button.

RESULT:

The input parameters have now been defined.

Checking the input signal quality

The V 613 CI and X-DVB-S2/PAL duo CI plug-in cards feature a test function for identifying the input signal quality. This gives you the opportunity to carry out a quick check of the quality of the input signal being fed to the tuner.
Proceed as follows to identify the quality of the input signal:



AUFGABE

1. In the `Detailed settings` screen, click on the `Check signal quality` button to open the `Signal quality` window (see left).
2. You can now check the quality of the available signal (see example at left). Click on `Stop measurement` to complete the test.

RESULT:

The signal quality has now been checked.

Defining the output parameters

You can define the output channels for the V 613 CI and X-DVB-S2/PAL duo CI in the planning screen; these are the channels which are used to supply the cable with the programmes sourced from the DVB-S or DVB-S2 bouquet.

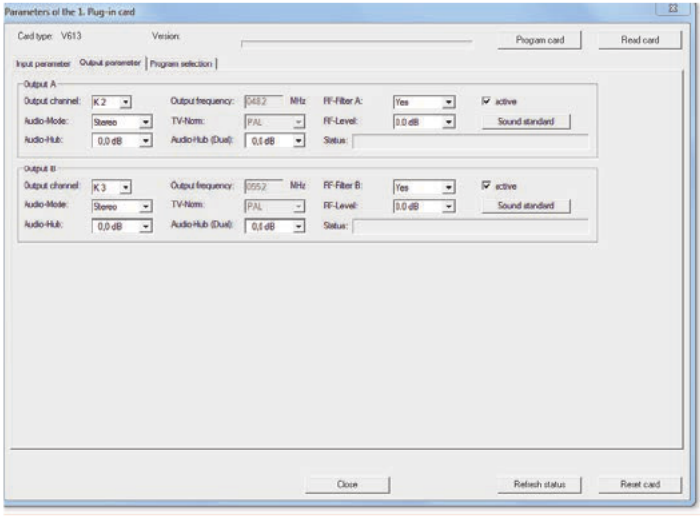
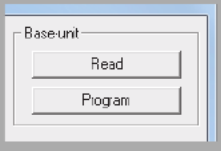


Figure 9: Output parameters

AUFGABE

1. Click on the `Details` button in the planning screen to open the `Detailed settings` screen. Here you can enter all the settings required for operation.
2. You can activate or deactivate the channel selected using the `Output parameters` tab by placing a tick or removing the tick from the respective checkbox.
3. Select the required channel from the `Output channel` drop-down menu.

4. Select one of the settings `Mono`, `Stereo`, `Dual L (R)`, `Dual R (L)`, `Auto-Mode`, `dual2PIDs`, `auto2PIDs` from the `Audio-Mode` drop-down menu. Make your selection according to the signal feed and requirements of the output signal.
5. The audio hub – and therefore the volume of the output signal – can be adjusted separately for each output channel. Select a value between +3 dB and -20 dB from the `Audio-Hub` drop-down menu.
6. Set the audio hub (dual) according to the description above.
7. The output frequency displayed depends on the output channel selected in the planning screen of the basic unit. If no output channel is selected in the planning screen, but rather the “free” setting, the frequency field in the `Detailed settings` screen is activated and it is possible to enter any output frequency. Enter the required value, where relevant, in the input field `Output frequency`.
8. When the V 613 CI plug-in card is used, there is an additional option of activating output channel filters for output channels A and B, if they have been connected to the card. Activate the channel filter by selecting the option `Yes` from the `Channel filter` drop-down menu.
9. You can copy the changes to the configuration onto the plug-in card by clicking the `Program` button at the top right of the `Detailed settings` screen (see left).



RESULT:

The output parameters have now been set.

Setting the sound standard

In order to set the sound standard, you must start by clicking the `Sound standard` button in the `Output parameters` area of the `Detailed settings` screen. The `Settings of the sound standard` screen will now appear (see figure 10).

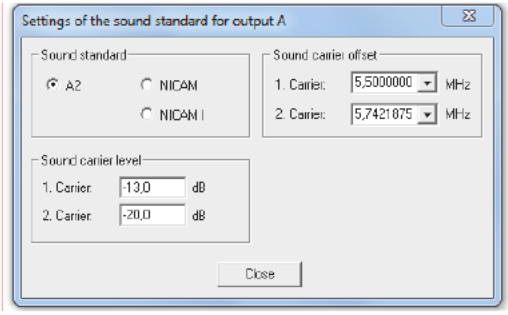
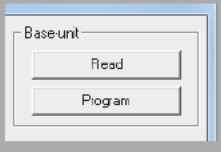


Figure 10: Setting the sound standard

Proceed as follows to set the sound standard:



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1. Activate the radio button for the required sound standard (`A2, NICAM, NICAM I`).
2. Select the sound carrier offset for the 1st and 2nd sound carrier from the respective drop-down menu (see left).
3. Enter the sound carrier level for channels A and B in the respective input fields for the 1st and 2nd sound carrier.
4. You can copy the changes to the configuration onto the plug-in card by clicking the `Program` button at the top right of the `Detailed settings` screen (see left).

RESULT:

The sound standard has now been set.

Selecting a programme and setting options

Once you have set the input and output parameters, the channel search for selecting the required programme can be performed.

Following a successful channel search, a list of the programmes available in the two transponders will appear. You can select a service from the list (see figure 11, below).

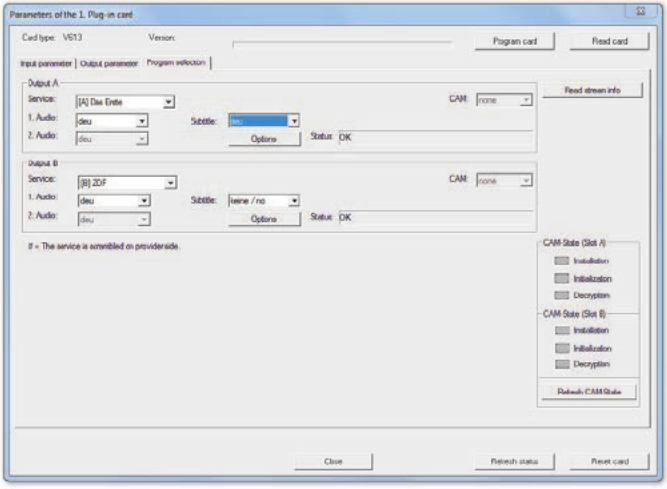
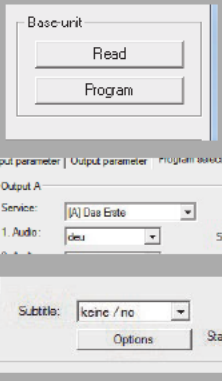


Figure 11: Selecting programmes



You can select the required service using the `Service` drop-down menu. You can copy the changes to the configuration onto the plug-in card by clicking the `Program card` button at the top right of the `Detailed settings` screen (see left).

If you have selected one of the options `dual 2PIDs` or `auto 2 PIDs` from the `Audio-Mode` drop-down menu in the `Output parameters` tab, you can choose between different audio PIDs for multilingual broadcasts (`1. Audio, 2. Audio`).

Use the `Subtitle` drop-down menu to define whether subtitles should be displayed.

To set further options, you must click the `Options` button in the `Detail settings` screen. The `Options` screen now appears (see figure 12, below).

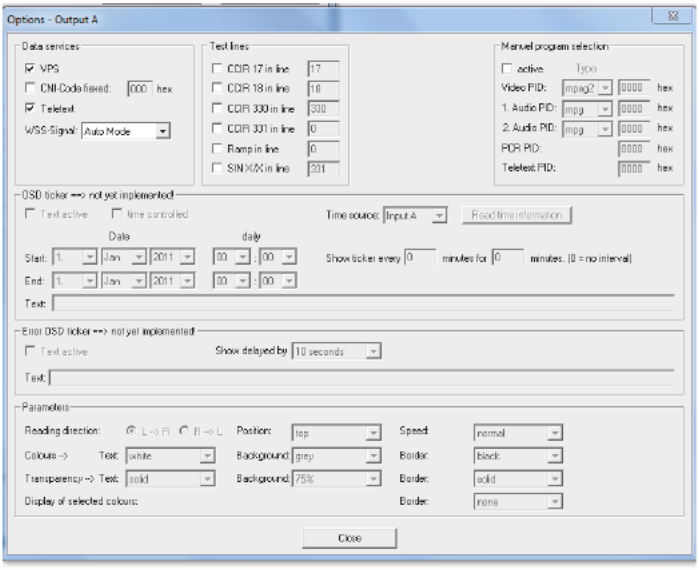
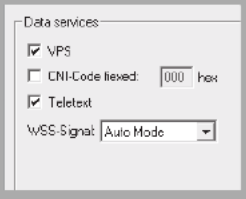


Figure 12: Setting options

The options which can be programmed onto the card for data services, test lines, manual PID selection (optional), OSD ticker, error OSD ticker and OSD settings, are displayed.



The **data services** include VPS, definition of a CNI (cable network identifier), teletext and evaluation of the WSS (wide screen signalling). Depending on the signal feed, there are different options available for the WSS. You can also configure the OSD status messages in this section.

If an invalid line is entered, an error message is displayed (see figure 13, below).

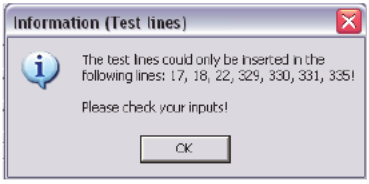


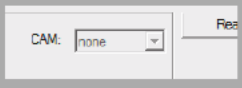
Figure 13: Error message when test line is invalid

NOTE: *If teletext and test lines are keyed into the same line, then the test line has priority and the video text will not be fed.*
If teletext and data line (VPS) are keyed into line 16, then the data line also has priority. In this case, only the data line is keyed in, and there is no teletext feed.
If you activate manual programme selection and set invalid PIDs, then an error message will not appear in the HE programming software. However, a message appears in the OSD if this has been activated (see page 16).
The manual programme selection should therefore always be tested using a measuring device in the headend output.

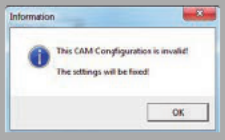
IMPORTANT: *Changes to the option settings are only activated after the card has been programmed ("PROGRAMME CARD" button in the "DETAIL SETTINGS" screen) and has been backed up against loss in the event of a power failure!*

If you ticked the checkbox in the Manual program selection area, you can set the following parameters manually using the corresponding input fields (see figure at left):

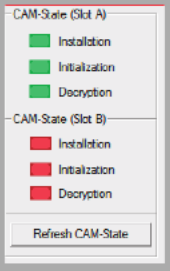
- ☐ Video PID
- ☐ 1. Audio PID
- ☐ 2. Audio PID
- ☐ PCR PID
- ☐ Teletext PID



There is a drop-down menu under the `Programme selection` tab, which you can use to activate or deactivate processing by the CAM module by selecting one of the options “CAM slot A” or “CAM slot B” (see left).



NOTE: Only one input signal can be assigned to the respective CAM slot (A or B). Assigning both input signals, e.g. to slot A, is not permitted. If you enter a configuration like this, an error message will appear (see figure at left).



Click on the `Refresh CAM state` button to have the current status of both CAM modules displayed. Each of the following individual processes is indicated by a green (OK) or red (error) display:

- ☐ Installation
- ☐ Initialisation
- ☐ Decryption

Troubleshooting

If the device is not functioning correctly, please perform the following checks:

- ☐ Check whether the plug contacts of the card are connected to the connectors in the base unit as described in the section “Installing the plug-in card”.
- ☐ Check whether the coaxial cables are connected correctly, and that there are no breaks or short circuits in the connectors.

If the problem cannot be resolved, please contact the ASTRO customer service.

Maintenance and repair

If all the instructions in this manual have been followed, and if the device is being operated correctly, no special maintenance is required.

NOTE: *In the event of repairs,* DIN VDE regulations 0701 - 0702*, where applicable, must be adhered to, and these are secondary to the relevant data specifications in DIN EN 60065.* You must disconnect the power plug before opening the basic device!

Technical data

Type		V 613 CI	X- DVB-S2/PAL duo CI
Order number		380 615	330 685
EAN-Code		4026187170530	4026187170523
DVB-S demodulator			
DVB-S modulation		QPSK; 8PSK	
Input frequency range	[MHz]	950 - 2150	
Input level	[dBµV]	40 - 80	
SAT-IF input	[Ω]	75, F-jack	
Reflection loss	[dB]	≥ 10	
Input symbol rate	[MS/s]	max. 45,0	
DVB-S Roll-off-factors		0,20;0,25;0,35	
DVB-S LDPC		1/2; 1/3; ¼; 2/3; 2/5; 3/5; 4/5; 5/6; 8/9; 9/10	
Viterbi decoding (according DVB standard)		1/2; 2/3; 3/4; 5/6; 7/8; automatically / manually	
CI interfaces		☑	
RF modulators			
Connectors	[Ω]	75, IEC-jack	
Output frequency	[MHz]	47 - 862 (K2 - K69)	
Output channels		K2 - K69 (C2 - C69)	
Output level	[dBµV]	95 - 100	
Intermodulation distance	[dB]	typ. 60	
Reflection loss	[dB]	> 10	
Spurious frequency distance	[dB]	typ. 60	
TV standard		PAL, A2/NICAM; (others on request)	
Intercarrier signal to noise ratio	[dB]	typ. 58	
Residual carrier accuracy	[%]	1	
Video signal to noise ratio	[dB]	typ. 58	
Channel filters		optionally available	-
Common data			
Power consumption	[W]	14,9, without CI modules	
Ambient temperature	[°C]	0...+45	

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