V 506
X-QAM 621 CT2

2 x DVB-C/T/T2 to QAM converter

Direct Digital DD by ASTRO

DVB C CABLE

DVB T TERRESTRIAL

DVB T2 TERRESTRIAL

Operating manual

Version 10-2014A

Device description

The delivery consists of the following parts:

- ☐ V 506 and X-QAM 621 CT2 plug-in cards
- ☐ 2 connection cables with F connectors, 450 mm & F socket-F socket adapter
- ☐ Operating manual

[1] Tuner A
[2] Tuner B
[3] Slot for output channel filter (V 506 only)

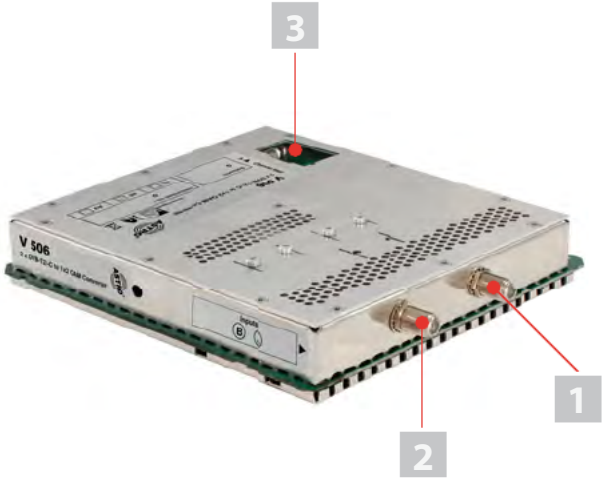


Figure 1: V 506 plug-in card

CE

The V 506 and X-QAM 621 CT2 plug-in cards feature a CE marking. This confirms that the product conforms to the relevant EG 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 506 and X-QAM 621 CT2 plug-in cards are used for processing 2 digital TV programmes (DVB-C, DVB-T or DVB-T2) from 2 independent input signal sources into 2 independent QAM output channels in the 47 - 862 MHz frequency range. The corresponding input signal can be connected to a DVB-C, DVB-T or DVB-T2 tuner using the HE programming software.The plug-in cards are only designed for processing signals in the following ASTRO base units:

- ☐ V 16 using software version x.34 or higher (V 506 and X-QAM 621 CT2)
- ☐ X-8 twin using software version x.34 or higher (X-QAM 621 CT2 only)

The plug-in cards are supported by the HE programming software, version 6.5 and higher.

The V 506 and X-QAM 621 CT2 plug-in cards feature the following performance characteristics:

- ☐ Any transport current multiplex can be used between the 2 SAT inputs and the output channels
- ☐ The V 506 plug-in card also features a slot for an output channel filter
- ☐ The output level of the output channels is adjusted using the HE programming software

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 this 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.

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

V 506 only: Inserting the output channel filter

[3] Channel filter slot

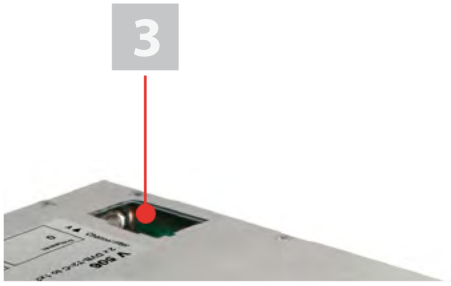


Figure 4: CI module

The V 506 plug-in card features a slot to allow optional installation of selected output channel filters of type V-KF to maintain the outstanding output parameters. They are available as an accessory.

AUFGABE

1. Insert the channel filter into the slot provided for this purpose (see figure 4). The filter can be activated using the HE programming software (see section “Programming using the HE programming software”).

ERGEBNIS:

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

Connecting the plug-in card

[1] Tuner A
[2] Tuner B

Connect both tuners A and B with the DVB-T/T2/C signal

Figure 5: Connecting tuner with DVB-T/T2/C signal

AUFGABE

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

ERGEBNIS:

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 506 and X-QAM 621 CT2 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).

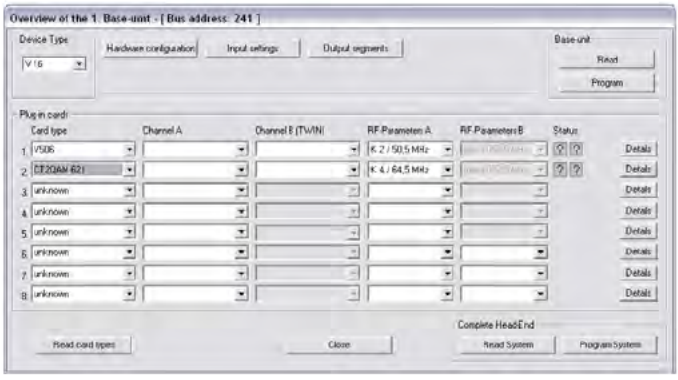


Figure 6: Planning screen for the basic unit

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.

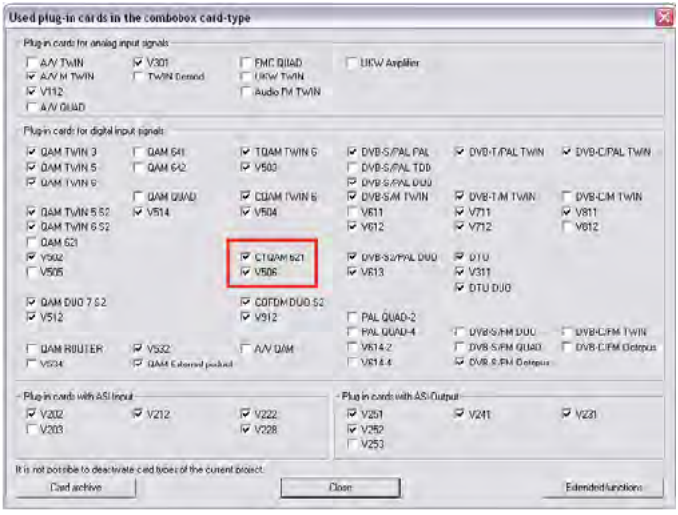
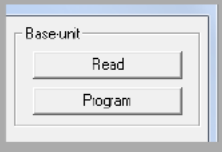


Figure 7: Activating the plug-in card on the "Card types used" screen.

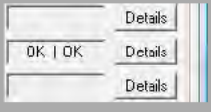
The checkbox assigned to the card must be marked with a tick (see above). If this is not the case, click on the checkbox to activate the card.



ERGEBNIS:

The plug-in card is now activated. When you click on the `Read` button in the planning screen (see left), the V 506 or X-QAM 621 CT2 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. To activate input A or B, click on the corresponding `Frontend active` checkbox.

In the left area of the `Input Parameter` tab, you can enter a name for the program packet in the `Program packet` input field. Under this, the transport stream and ON IDs are displayed for the receiving transponder.

You can connect the two signal inputs of the plug-in card to a DVB-C, DVB-T or DVB-T2 tuner. Select the desired tuner from the `Tuner Mode` drop-down menu. The remaining input parameters change depending on the selection you make here.

Configuring the DVB-C tuner

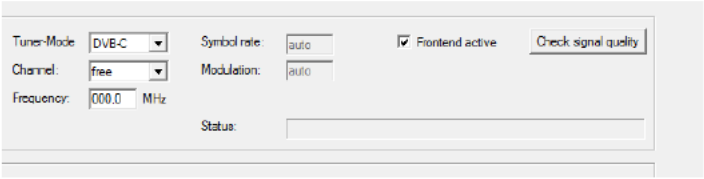


Figure 9: Input parameters for the DVB-C tuner

AUFGABE

1. Select the “DVB-C” entry from the `Tuner Mode` drop-down menu.
2. Select the desired channel or the special channel from the `Channel` drop-down menu.
3. Alternatively, you can freely select the channel by entering the desired frequency in the `Frequency` input field.
4. The symbol rate and the modulation are set automatically.

ERGEBNIS:

The input parameters are now defined and you can check the signal quality (see following section “Checking the input signal quality”).

Configuring the DVB-T tuner

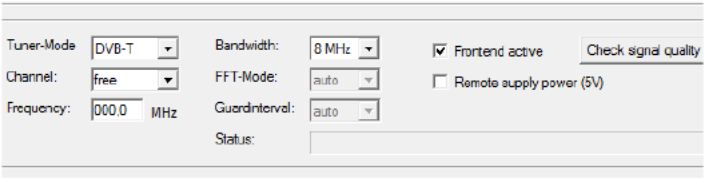


Figure 10: Input parameters for the DVB-T tuner

AUFGABE

1. Select the “DVB-T” entry from the `Tuner Mode` drop-down menu.
2. Select the desired channel or the special channel from the `Channel` drop-down menu.
3. Enter the desired frequency in the `Frequency` input field.
4. Select the desired bandwidth (6, 7 or 8 MHz) from the `Bandwidth` drop-down menu.
5. The FFT mode and the guard interval are set automatically.
6. You can optionally activate a 5 V remote power supply for a connected DVB-T antenna by clicking on the `Remote supply power (5 V)` checkbox.

ERGEBNIS:

The input parameters are now defined and you can check the signal quality (see following section “Checking the input signal quality”).

Configuring the DVB-T2 tuner

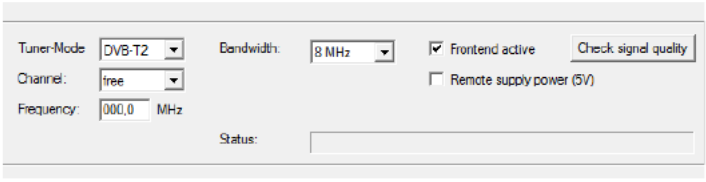


Figure 9: Input parameters for the DVB-T2 tuner

AUFGABE

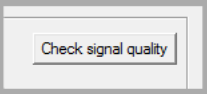
1. Select the “DVB-T” entry from the `Tuner Mode` drop-down menu.
2. Select the desired channel or the special channel from the `Channel` drop-down menu.
3. Enter the desired frequency in the `Frequency` input field.
4. Select the desired bandwidth (6, 7 or 8 MHz) from the `Bandwidth` drop-down menu.
5. You can optionally activate a 5 V remote power supply for a connected DVB-T antenna by clicking on the `Remote supply power (5 V)` checkbox.

ERGEBNIS:

The input parameters are now defined and you can check the signal quality (see following section “Checking the input signal quality”).

Checking the input signal quality

The V 506 and X-QAM 621 CT2 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. Click on `Stop measurement` to complete the test.

ERGEBNIS:

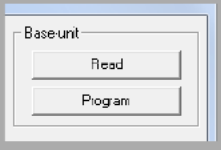
The signal quality has now been checked.

Defining the output parameters

You define the output channels for the V 506 and X-QAM 621 CT2 in the planning screen; these are the channels which are used to supply the cable with the programmes sourced from the DVB-S2 bouquet (see left).

Figure 9: Output parameters

Click on the `Details` button in the planning screen to open the `Detailed settings` screen. Here you can define the parameters for the two channels, A and B, using the `Output parameters` tab.



AUFGABE

1. You can activate or deactivate the channel selected using the `Output parameters` tab by clicking or un-clicking the respective `active` checkbox.
2. The `Output channel` and the `Output frequency` are set automatically.
3. Select one of the settings `QPSK, 16 QAM, 32 QAM, 64 QAM, 128 QAM, 256 QAM` from the `Modulation` drop-down menu.
4. Select the desired value from the `Channel grid` drop-down menu. The options available are `2 MHz, 4 MHz, 6 MHz, 8 MHz.`
5. Select a suitable value from the `Symbol rate` drop-down menu. The options available are `1.725 Ms/s, 3.45 Ms/s, 5.175 Ms/s, 6.9 Ms/s.`
6. For the `Spectrum` parameter, you can select either the `norm` (normal) or `inv` (inverted) checkbox.
7. When the V 506 plug-in card is used, there is an additional option of activating an output channel filter for output channel A1, if this has been connected to the card. Activate the channel filter by selecting the option `Yes` from the `Channel filter` drop-down menu.
8. You can copy the changes to the configuration onto the plug-in card by clicking on the `Program card` button at the top right of the `Detailed settings` screen (see left).

ERGEBNIS:

The output parameters have now been set.

Setting the output level

In order to set the output level, you must start by clicking on the `Level` button in the `Output parameters` area of the `Detailed settings` screen.

The Adjustment screen now appears (see figure 10).

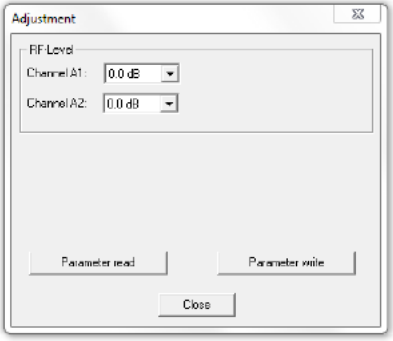
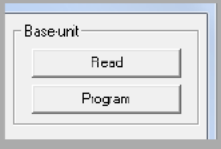


Figure 10: Setting the output level

This is how you set the output level for channels A and B:

AUFGABE

1. Select the desired output from the drop-down menus for output channels A and B. You can enter values between 0 dB and 15.5 dB.
2. You now click on the Parameter write button to save the values entered.
3. You can copy the changes to the configuration onto the plug-in card by clicking on the Program card button at the top right of the Detailed settings screen (see left).



ERGEBNIS:

The output levels have now been set.

SI/PSI configuration

Click on the Details button in the planning screen to open the Detailed settings screen. Here on the SI/PSI Configuration tab you can define the parameters for the two channels, A and B (see figure 11 below).

The display for the `Channel A` and `Channel B` tabs is identical.

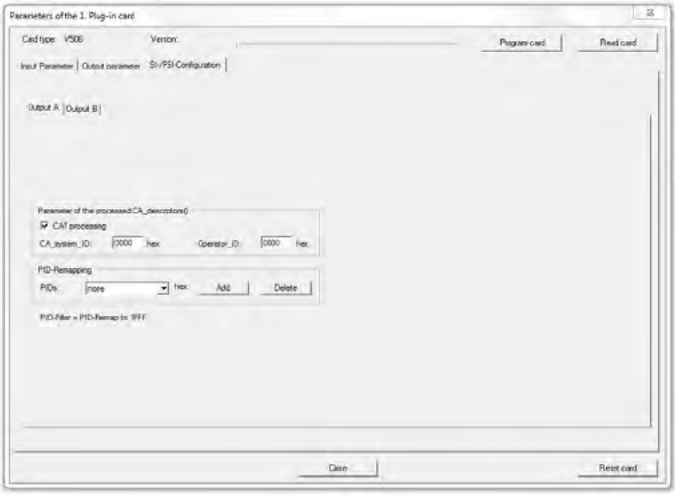
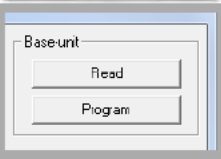


Figure 11: SI/PSI configuration

This is how you define the SI/PSI parameters:

AUFGABE

1. Activate the `CAT processing` checkbox if you want to process an operator ID. Now enter a hexadecimal value in the `CA_system_ID` and `Operator_ID` input fields.
2. You can set up to four PID Remapping filters. Click on the `Add` button to open the input screen for a PID (see left) and enter a hexadecimal value in the input field. Afterwards, click on the `OK` button. If you want to delete a value previously entered, click on the `Delete` button.
3. You can copy the changes to the configuration onto the plug-in card by clicking on the `Program card` button at the top right of the `Detailed settings` screen (see left).



ERGEBNIS:

The SI/PSI configuration is now complete.

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.

HINWEIS: *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 506	X- CT2 QAM 621
Order number		380 516	330 603
EAN-Code		4026187161415	40261871003524
DVB-C demodulator			
Input data rate	[Mbaud]	0,5 - 7	
Modulation modes (accord. DVB-standard)		QPSK, QAM16, QAM32, QAM64, QAM128, QAM256	
DVB-T and DVB-T2 demodulator			
Modulation		DVB-T: 4-, 16-, 64-QAM	DVB-T2: 4-, 16-, 64-QAM, 256-QAM
Guardinterval		DVB-T: 1/4; 1/8; 1/16; 1/32	DVB-T2: 1/4; 5/32; 1/8; 5/64; 1/16; 1/32; 1/64; 1/128
FEC		DVB-T: 1/2; 2/3; 3/4; 5/6; 7/8	DVB-T2: 1/2; 3/5; 2/3, 3/4; 4/5; 5/6
FFT-Mode		DVB-T: 2k, 8k	DVB-T2: 1k, 2k, 4k, 8k, 16k, 32k
Bandwidth	[MHz]	DVB-T: 6; 7; 8	DVB-T2: 5; 6; 7; 8
Remote voltage supply		5, typ. 100 mA, schaltbar	
TS editing			
Data rate adjustment		☑	
PCR-correction		☑	
NIT-handling		☑	
PID-remapping		☑	
Operator-ID		☑	
RF output			
Channel selective output filters pluggable		-	☑
Connectors	[Ω]	IEC-jack, 75	
Channel assignment		1 x 2	
MER (Equalizer, 64 QAM)	[dB]	typ. ≥ 44	
Frequency range	[MHz]	47 - 862 (K2 - K69) adjustable in 0,1-MHz-steps	
Output level	[dBµV]	84…96, adjustable	
Channel filter		-	optionally available
Common data			
Power consumption	[W]	8,3	
Ambient temperature	[°C]	0...+45	

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Due care was taken to ensure the accuracy of all the information contained in this documentation.

The ASTRO company cannot be made liable for any damage that occurs in connection with the use of this manual.