Operating instructions

V 505 and X-QAM 621

DVB-S2 / QAM Twin Transmodulator

Pictograms and safety instructions

Pictograms are visual symbols with specific meanings. You will encounter the following pictograms in this installation and operating manual:

Warning about life-endangering situations due to dangerous electrical voltage or non-adherence to this manual.

Warning about various dangers to health, the environment and material.

Recycling: All of our packaging material (cardboard boxes, inserts, plastic film and bags) is completely recyclable.

Used batteries must be disposed of at approved recycling points. Batteries must be completely discharged before being disposed of.

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 27 January 2003, on waste electrical and electronic equipment – must be properly disposed of. When they are no longer of use, please bring these devices for disposal to one of the public collection points for this purpose.

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Figure: X-QAM 621

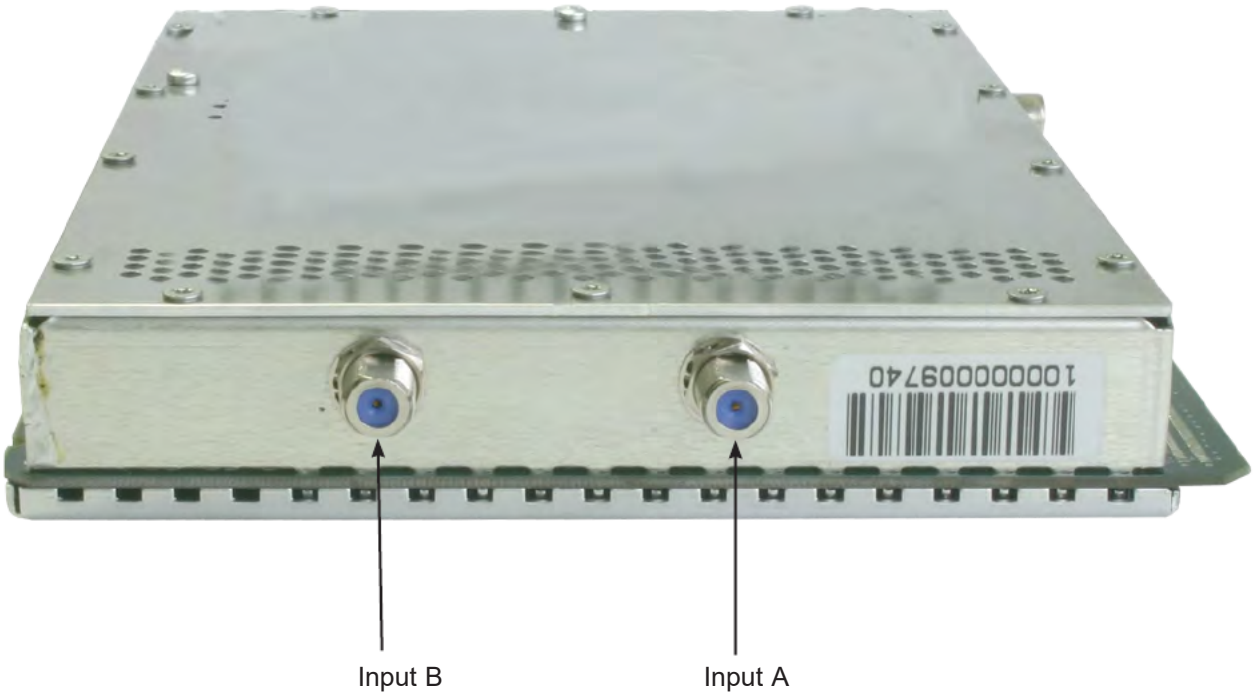
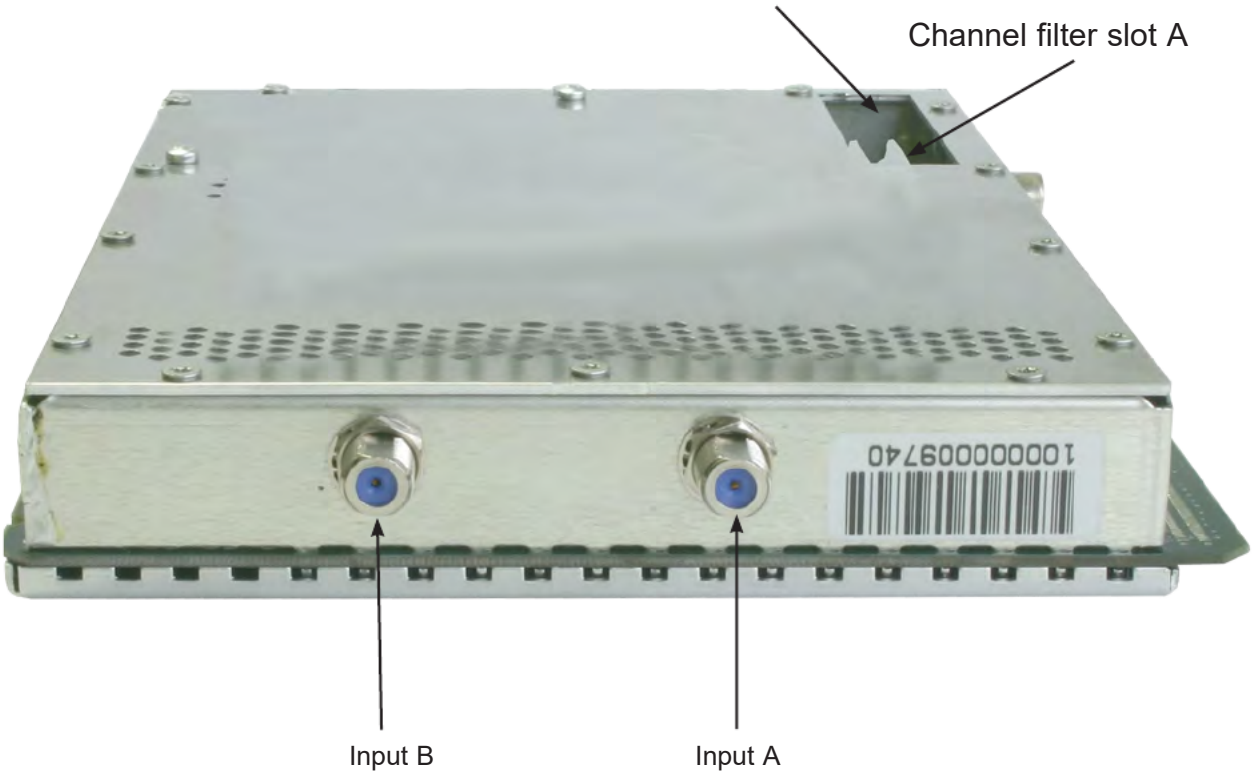


Figure V 505:



1 Description

The V 505 / X-QAM 621 plug-in card is used to convert four self-contained DVB-S(2) into 1 x 2 self-contained and DVB-compliant QAM output channels.
Both plug-in cards can process HDTV signals and SDTV signals.

In contrast to the X-QAM 621, the V 505 plug-in card features additional output filter slots.

When starting up the device, care should be taken to ensure that all channels have the same output level and have been adapted to existing units, when applicable.

The delivery scope includes 2 cables for connecting the SAT tuners.

Important: The V 505 plug-in card can only be used in the V 16 base unit.

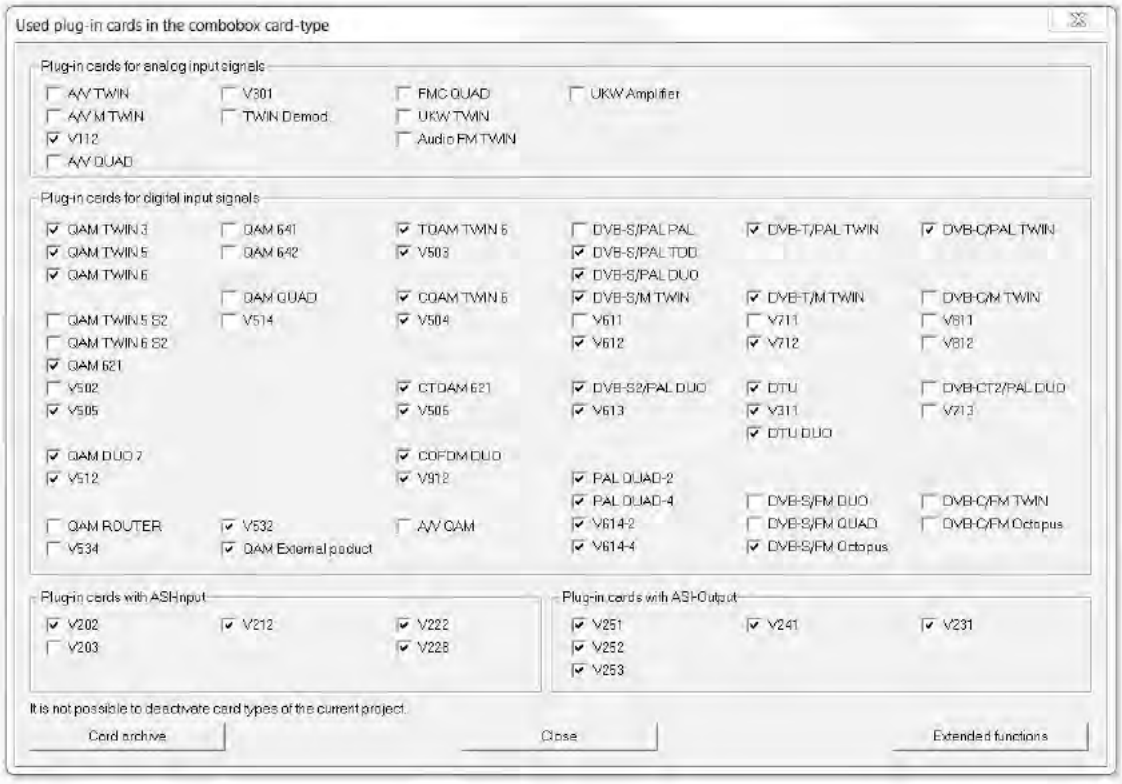
Please observe the following:

Exchange or replacement of the modules may only be carried out by technical personnel tested and authorised by CCI (certified specialist). The danger and safety warnings listed in the operating instructions for the V16 base units, together with the relevant safety guidelines described in the regulation DIN VDE 0701, Part 1 and 200, must be observed during module exchange or replacement.

2 Preferred card types

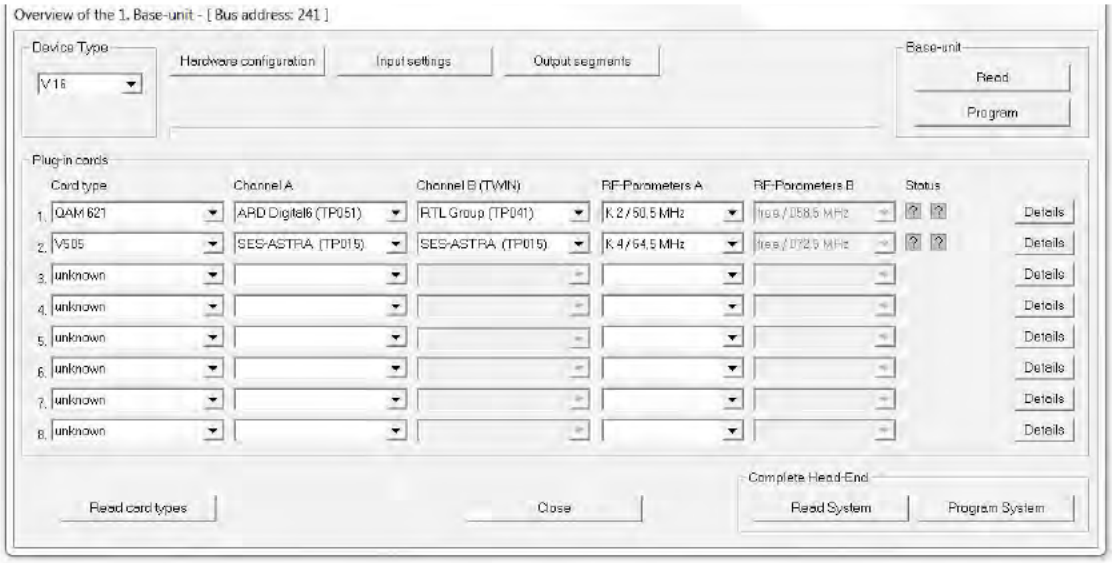
The V 505 / X-QAM 621 can be programmed using the HE programming software following installation in the base unit. If it is not possible to select the card in the HE programming software, select the menu item “Preferred card types” under “Options” and check the settings here. The card must be activated by ticking the corresponding box, after which it appears in the selection in the planning screen of the base unit. Once the base unit has been read out, the corresponding base unit appears on the slot used in the planning window for the base unit.

Please observe the following:	Recommended software version for
V16:	xx.34
X-8:	xx.34
Programming software:	6.20



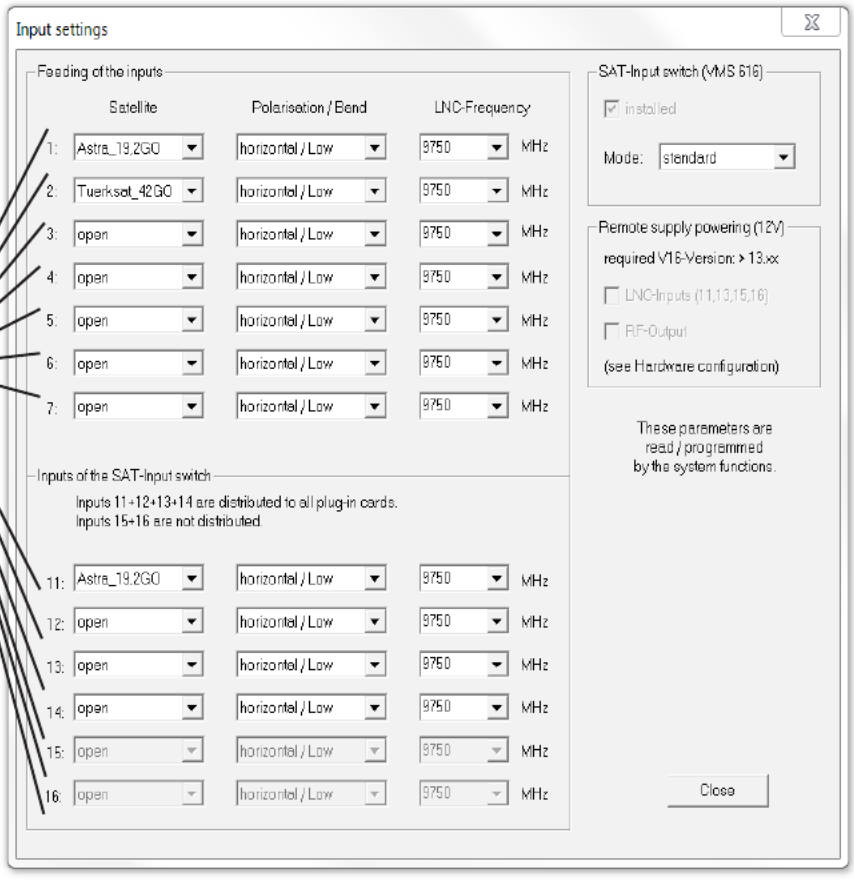
3 Base unit planning screen

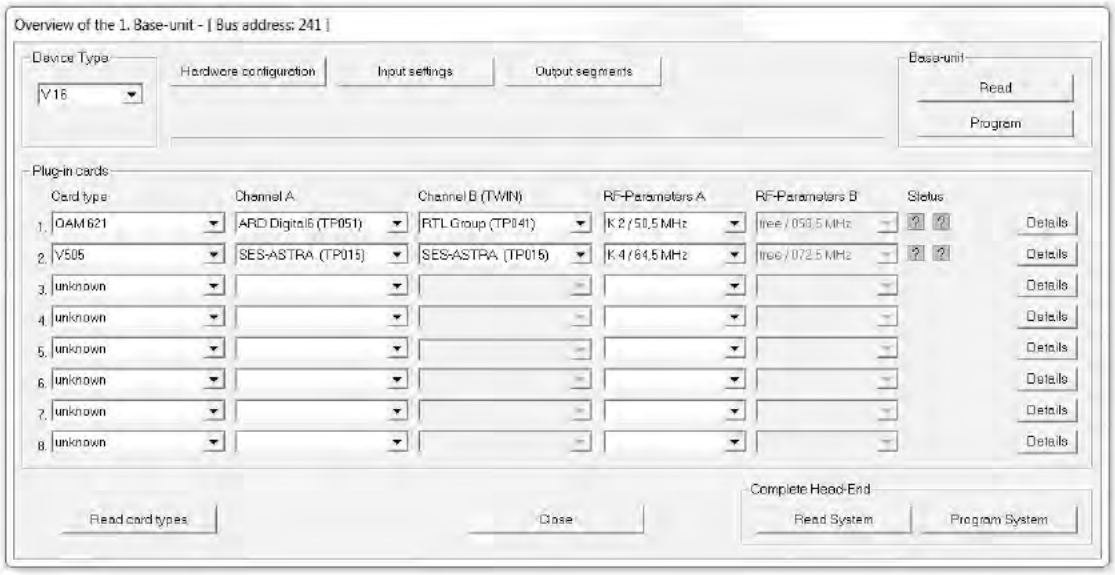
After reading out the base unit, the V 505 / X-QAM 621 appears in the planning screen for the base unit.



To select the transponders for reception, the satellite levels connected must be defined in the base unit first. This is done under “Feeding of the inputs”. The figure below shows which signals are available at the respective inputs.

IN 1 or IN 2





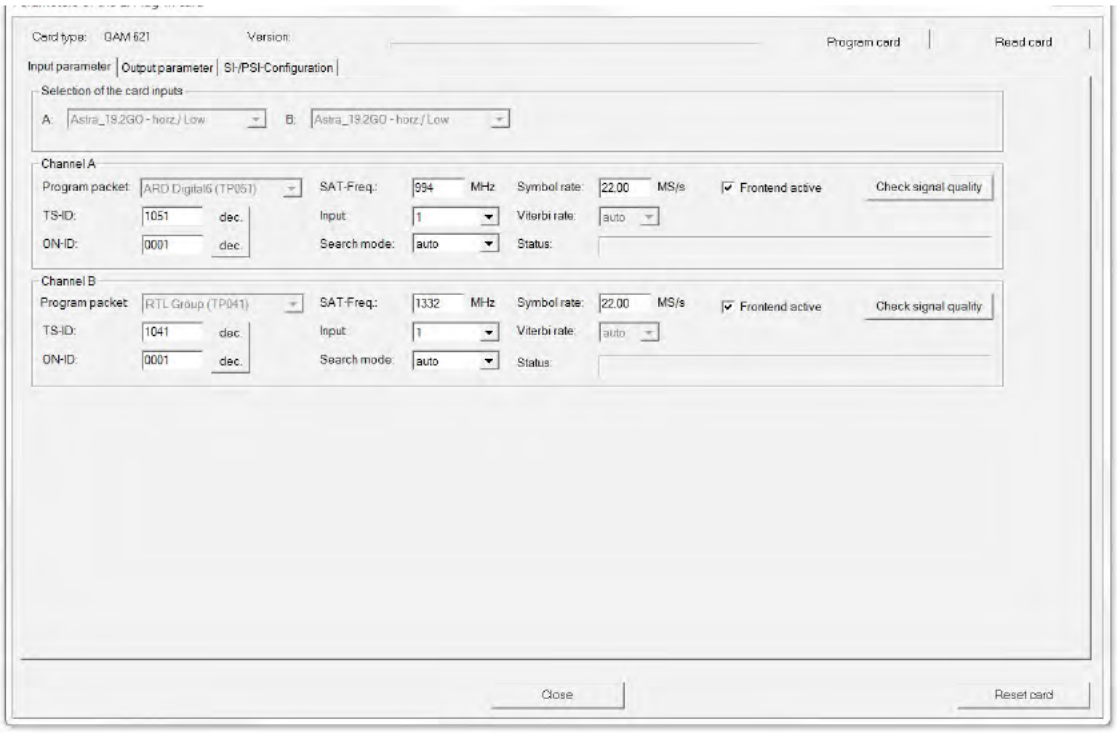
The output channels for the V 505 / X-QAM 621 card are selected under “HF parameter A” and “HF parameter B” in the planning screen of the base unit, these being the channels in which the QAM channels combined from the DVB-S(2) are fed into the cable.

If the “Details” button is now clicked, the window with the card details will open. All settings relevant for operation of the device are made here.

4 Checking input parameters/signal quality

Click on the “Details” button to open the “Detailed settings” screen, and select the “Input parameter” tab. This screen is used to set the transponders for reception by the card under “Channel A” and “Channel B”.

When the satellite transponder to be processed is selected in the planning screen of the base unit, then all relevant input parameters such as SAT IF, symbol rate, TS-ID and ON-ID are copied from the SAT database. The satellite transponders selected are displayed on the “Input parameter” tab in the “Detailed settings” window, under “Card inputs” (A and B).



4.1 Manual transponder selection

When the transponder is selected manually, the SAT IF, the symbol rate, the TS-ID and the ON-ID must be input manually. Please make sure the input is correct, otherwise the signals cannot be processed.

4.2 (De-)activating the front end

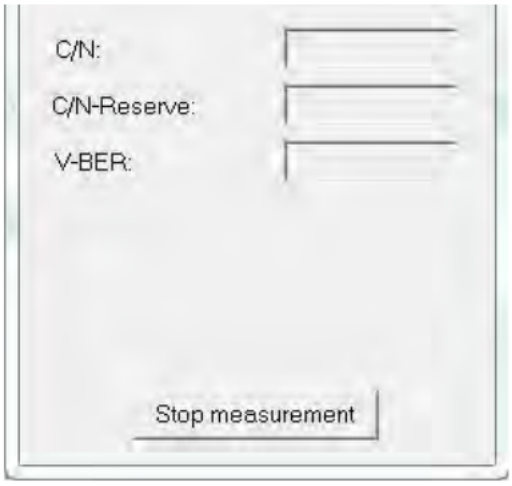
Clicking on the “Front end active” selection box allows the front end of the respective input to be activated or deactivated.

4.3 Lock on TS-ID/ON-ID

In order to prevent the tuner logging in to an undesired transponder, the “Lock on TS-ID/ON-ID” function can be activated. When this check-box is activated, the tuner is only logged into the transponder IDs entered, and any accidentally or incorrectly created input signals are not processed.

4.4 Checking signal quality

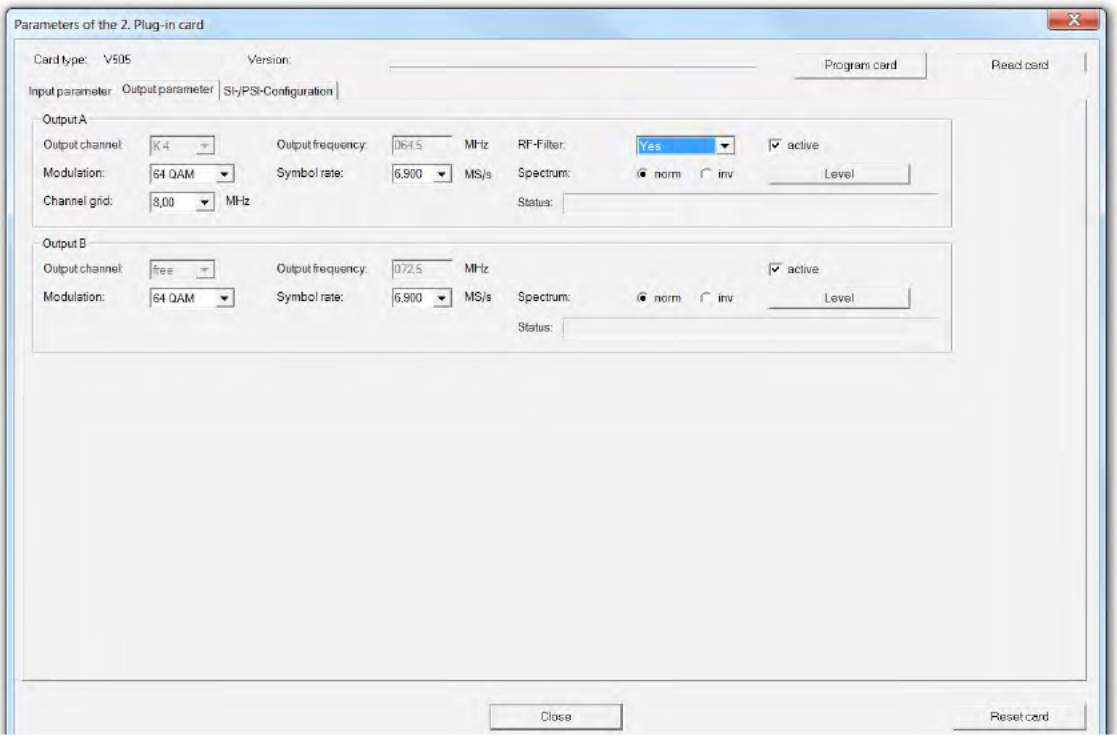
The “Check signal quality” button is used to open the screen with the current signal parameters. The values displayed will differ according to the input signal:



5 Output parameters/level adjustment

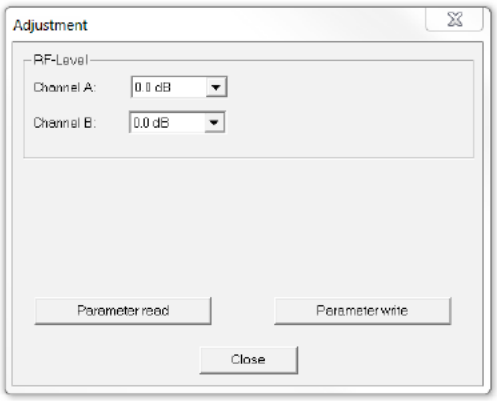
5.1 Output parameters

All parameters relevant to the output signal are configured in the output parameters screen. The output channel is specified, activated or deactivated, the spectrum inverted, the symbol rate adjusted and the modulation type specified in this screen.
The respective output channel filter can be activated or deactivated in the screen showing output A and output B (plug-in card V 505 only). A channel filter which has not been plugged in, but which has been activated in the software, will result in an error message.



5.2 Level adjustment

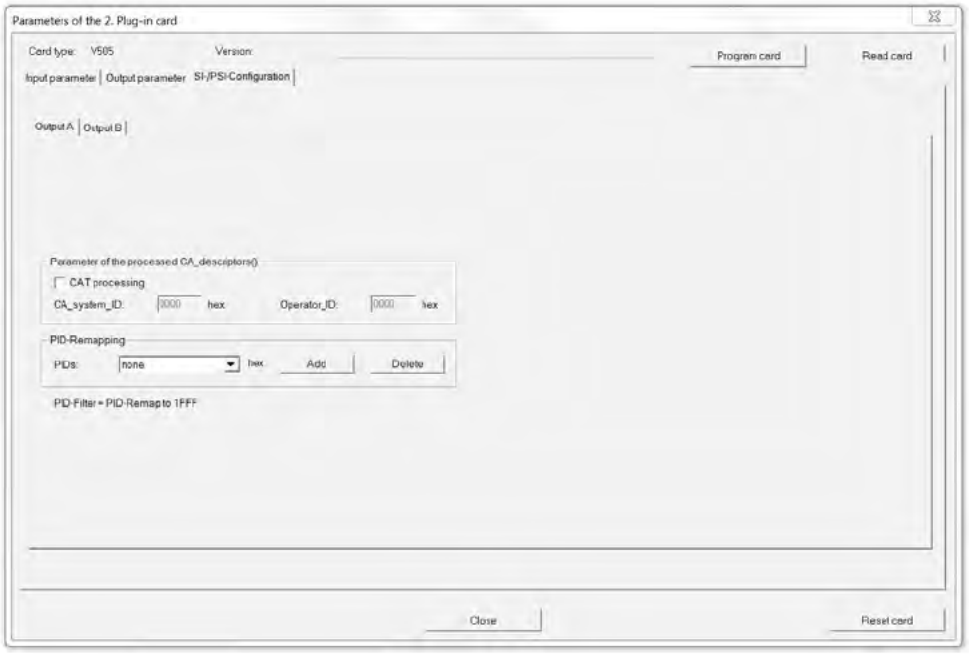
The output level for the individual output channels is adapted electronically using the HE programming software. Clicking on the “Level” button opens the following screen:



The values currently stored are first read from the card when the “Read parameters” button is clicked. Any modifications made will only be written to the card and activated when the “Parameter write” button is pressed.

6 SI-PSI configuration

The screen provided by the “SI/PSI configuration” tab is the same for channels A and B.



6.1 Editing CAT

This function is used in the event that an operator ID needs to be manipulated.

6.2 PID remapping

At this point, up to four PID remap filters can be set.

8 Technical data

Type		X-QAM 621	V 505
Order number		380 621	380 515
EAN code		4026187151003	4026187150990
DVB-S(2) demodulator			
Connectors	[Ω]	F-jack, 75	
Input frequency range	[MHz]	920 - 2150	
Input level	[dBµV]	50 - 80	
Input symbol rate	[MS/s]	DVB-S: 1 - 45; DVB-S2: 2 - 47 (QPSK), 2 - 31.5 (8PSK)	
DVB-S Viterbi		1/2, 2/3, 3/4; 5/6, 6/7, 7/8	
DVB-S2 LDPC		1/4; 1/3; 2/5; 1/2; 3/5; 2/3; 3/4; 4/5; 5/6; 8/9; 9/10	
DVB-S2 roll-off factors		0.20-; 0.25, 0.35	
DVB-S2 modulation		QPSK, 8PSK	
QAM modulator			
Modulation		16, 32, 64, 128, 256-QAM	
Signal processing		according to DVB standard	
Spectral shaping cos-roll-off	[%]	15	
FEC		Reed-Solomon (204, 188)	
Output symbol rate	[MS/s]	1 - 7.49	
Bandwidth	[MHz]	2 - 10	
Gross data rate	[MBit/s]	maximum 55.2	
TS editing			
Data rate adjustment		☑	
PCR correction		☑	
NID handling		☑	
PID remapping		☑	
Operator ID		☑	
RF output			
Channel selection output filter pluggable		-	☑
Connectors	[Ω]	IEC jack, 75	
Channel assignment		1 x 2	
MER (equalizer, 64 QAM)	[dB]	typ. ≥ 45	
Frequency range	[MHz]	47 - 862 (K2 - K69), adjustable in steps of 0.1 MHz	
Output level	[dBµV]	80 - 96, adjustable	
Spurious frequency distance 40 - 862 MHz > 950 MHz	[dB]	> 60 discrete interferences / > 57 noise interferences > 20 according to 100 dBµV system level and 90 dBµV operation level	
Common data			
Power consumption	[W]	8.2	
Ambient temperature	[°C]	0 - +50	

Specifications subject to errors and changes.

ASTRO Bit GmbH
Olefant 1–3, D-51427 Bergisch Gladbach (Bensberg)
Tel.: 02204/405-0, Fax: 02204/405-10
E-mail: kontakt@astro.kom.de, www.astro-kom.de

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