

# Operating instructions

## V 912 ASI



**2-fold**

**ASI / COFDM Transmodulator  
with Service Filter**

## 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, accompanying papers, 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/EG 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.

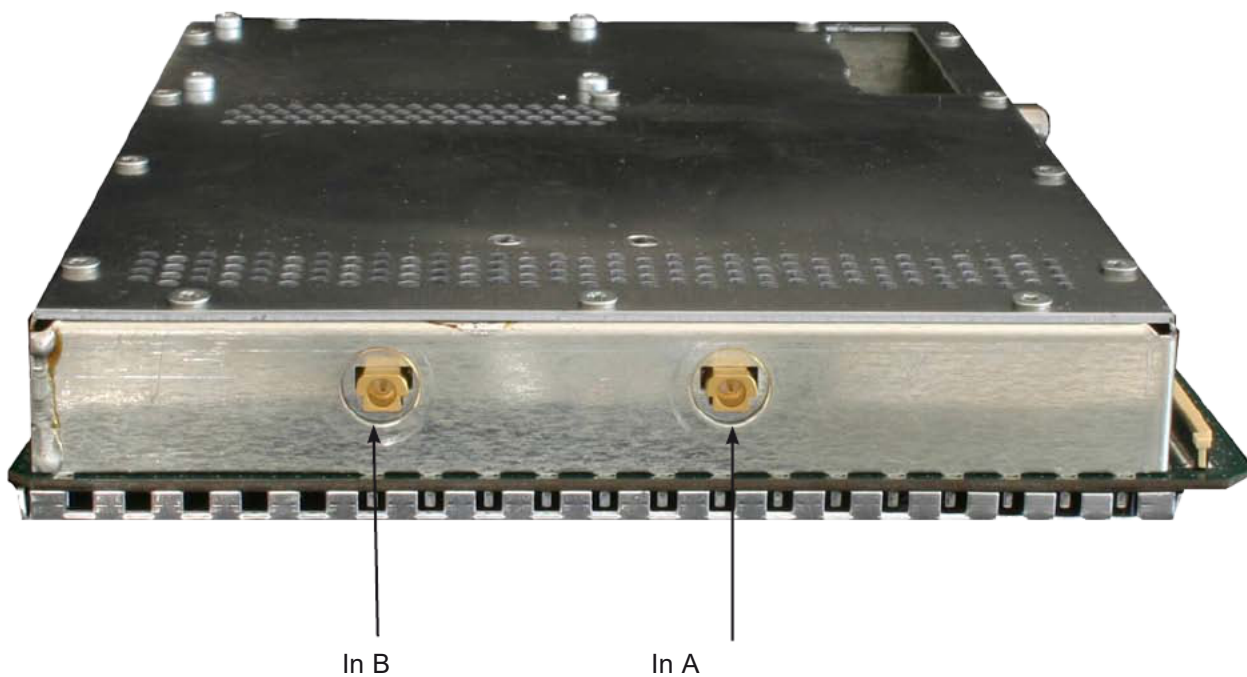
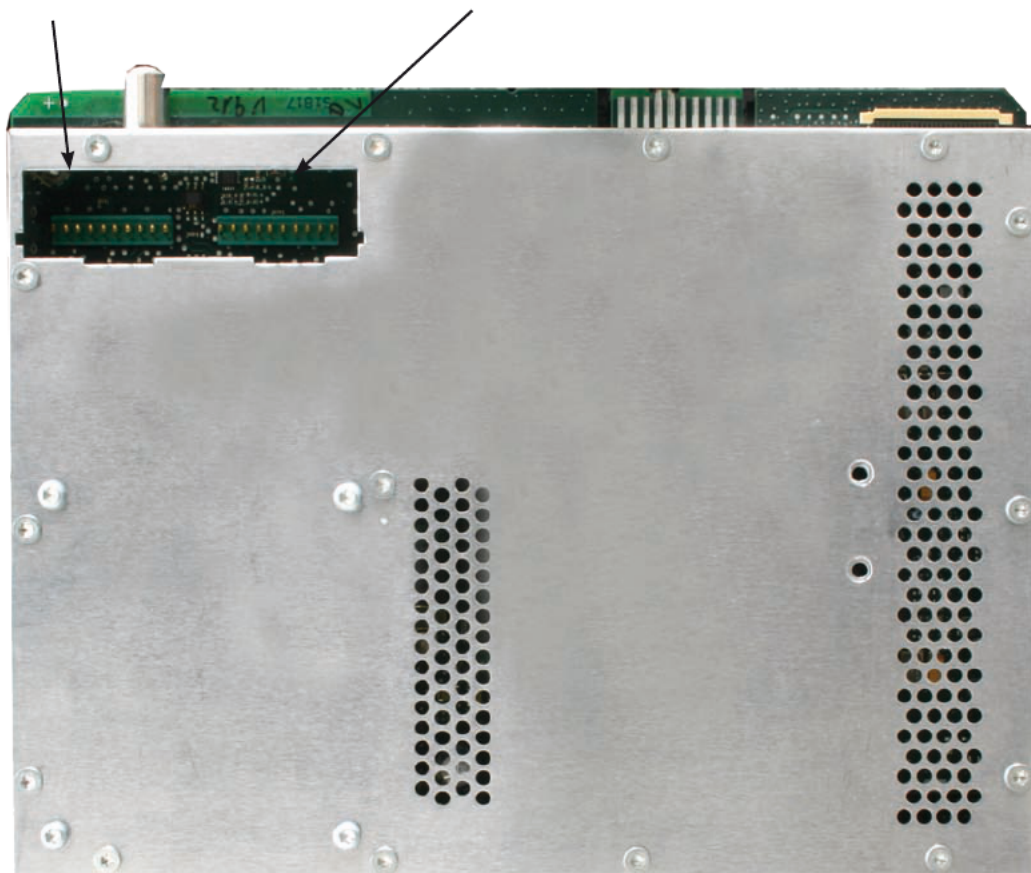
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# Illustrations:

Plug-in slot for channel filter chan-  
nel B

Plug-in slot for channel filter chan-  
nel A



# 1 Description

The V 912 ASI plug-in board is used for converting two ASI input signals into two independent & DVB-conformant COFDM output channels. It can process both HDTV signals as well as SDTV signals.

The plug-in board is capable of eliminating services from the transport stream of the bearer channel (by editing the DVB tables) in compliance with standards. The V 912 also features two channel output filters for improving the performance of the output signal.

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 package contains 2 cables for connecting the ASI tuners.

Note:

The V 912 ASI must only be used in the V16 base unit!



Please observe the following:

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



## 2 Preferred card types

The only difference between programming the plug-in card V 912 ASI and the V 912 is in terms of the hardware configuration. The card V 912 must therefore be activated by ticking it in the “Preferred card type” screen (see below) to ensure it is visible in the selection in the planning window for the basic unit. After selecting the basic unit, the V 912 ASI board appears in the planning screen for the basic unit on the plug-in slot that was used. How to configure the hardware for the V 912 ASI card is described in chapter 5 “Hardware configuration”.

Please observe the following:

Recommended software version

V16: xx.29

Programming software: 5.70

Used plug-in cards in the combobox card-type

Plug-in cards for analog input signals					
<input type="checkbox"/> analog TWIN	<input type="checkbox"/> AV TWIN	<input type="checkbox"/> ADR TWIN	<input type="checkbox"/> Ter. Umset. 860	<input type="checkbox"/> VHF-Plus	<input type="checkbox"/> UHF-Plus 600
<input checked="" type="checkbox"/> analog S TWIN	<input checked="" type="checkbox"/> AV M TWIN	<input type="checkbox"/> UKW TWIN	<input type="checkbox"/> Ter. Umsetzer	<input type="checkbox"/> VHF-Mono	<input type="checkbox"/> UHF-Plus 800
<input type="checkbox"/> V401	<input checked="" type="checkbox"/> V112	<input type="checkbox"/> Audio FM TWIN	<input checked="" type="checkbox"/> V301	<input type="checkbox"/> AV UHF-Plus 600	<input type="checkbox"/> UHF-Mono
	<input type="checkbox"/> AV QUAD	<input type="checkbox"/> UKW Amplifier	<input type="checkbox"/> TWIN Demod.	<input type="checkbox"/> AV UHF-Mono	

Plug-in cards for digital input signals					
<input type="checkbox"/> QAM TWIN 1	<input type="checkbox"/> QAM TWIN 4 S2	<input type="checkbox"/> QAM QUAD	<input checked="" type="checkbox"/> DVB-S/PAL TWIN	<input type="checkbox"/> DVB-T/PAL	<input type="checkbox"/> DVB-C/PAL
<input type="checkbox"/> QAM TWIN 1 OP	<input checked="" type="checkbox"/> QAM TWIN 5 S2	<input checked="" type="checkbox"/> V514	<input checked="" type="checkbox"/> DVB-S/PAL DUO	<input checked="" type="checkbox"/> DVB-T/PAL TWIN	<input checked="" type="checkbox"/> DVB-C/PAL TWIN
<input type="checkbox"/> QAM TWIN 1 IP	<input checked="" type="checkbox"/> QAM TWIN 6 S2		<input checked="" type="checkbox"/> DVB-S/M TWIN		<input checked="" type="checkbox"/> V811
<input checked="" type="checkbox"/> QAM TWIN 3	<input checked="" type="checkbox"/> QAM DUO 7 S2		<input type="checkbox"/> V611	<input checked="" type="checkbox"/> DVB-T/M TWIN	<input type="checkbox"/> V812
<input type="checkbox"/> QAM TWIN 4.1	<input checked="" type="checkbox"/> V502	<input checked="" type="checkbox"/> COFDM DUO S2	<input checked="" type="checkbox"/> V612	<input checked="" type="checkbox"/> V711	
<input type="checkbox"/> QAM TWIN 4.2	<input checked="" type="checkbox"/> V512	<input checked="" type="checkbox"/> V912	<input type="checkbox"/> DVB-S/FM TWIN	<input checked="" type="checkbox"/> V712	<input checked="" type="checkbox"/> CQAM TWIN 5
<input checked="" type="checkbox"/> QAM TWIN 5	<input type="checkbox"/> V522		<input checked="" type="checkbox"/> DVB-S/FM Octopus	<input checked="" type="checkbox"/> TQAM TWIN 5	<input checked="" type="checkbox"/> CQAM TWIN 6
<input checked="" type="checkbox"/> QAM TWIN 6				<input checked="" type="checkbox"/> TQAM TWIN 6	<input checked="" type="checkbox"/> V504
<input type="checkbox"/> QAM TWIN 6 IP	<input type="checkbox"/> QAM ROUTER	<input type="checkbox"/> QAM 860	<input type="checkbox"/> QPSK-PAL	<input checked="" type="checkbox"/> V503	
<input checked="" type="checkbox"/> V501	<input type="checkbox"/> V534	<input type="checkbox"/> QAM 450 A	<input type="checkbox"/> DVB-S/PAL	<input checked="" type="checkbox"/> DTU	
<input type="checkbox"/> Scan TWIN 1	<input checked="" type="checkbox"/> V532	<input checked="" type="checkbox"/> QAM External Product	<input checked="" type="checkbox"/> V601	<input checked="" type="checkbox"/> V311	<input type="checkbox"/> DVB-C/FM TWIN
		<input checked="" type="checkbox"/> QAM 5 S2	<input type="checkbox"/> QPSK-UKW	<input checked="" type="checkbox"/> DTU DUO	

Plug-in cards with ASI-Input			Plug-in cards with ASI-Output		
<input checked="" type="checkbox"/> V202	<input checked="" type="checkbox"/> V212	<input checked="" type="checkbox"/> V222	<input checked="" type="checkbox"/> V251	<input checked="" type="checkbox"/> V241	<input checked="" type="checkbox"/> V231
		<input checked="" type="checkbox"/> V228	<input checked="" type="checkbox"/> V252		

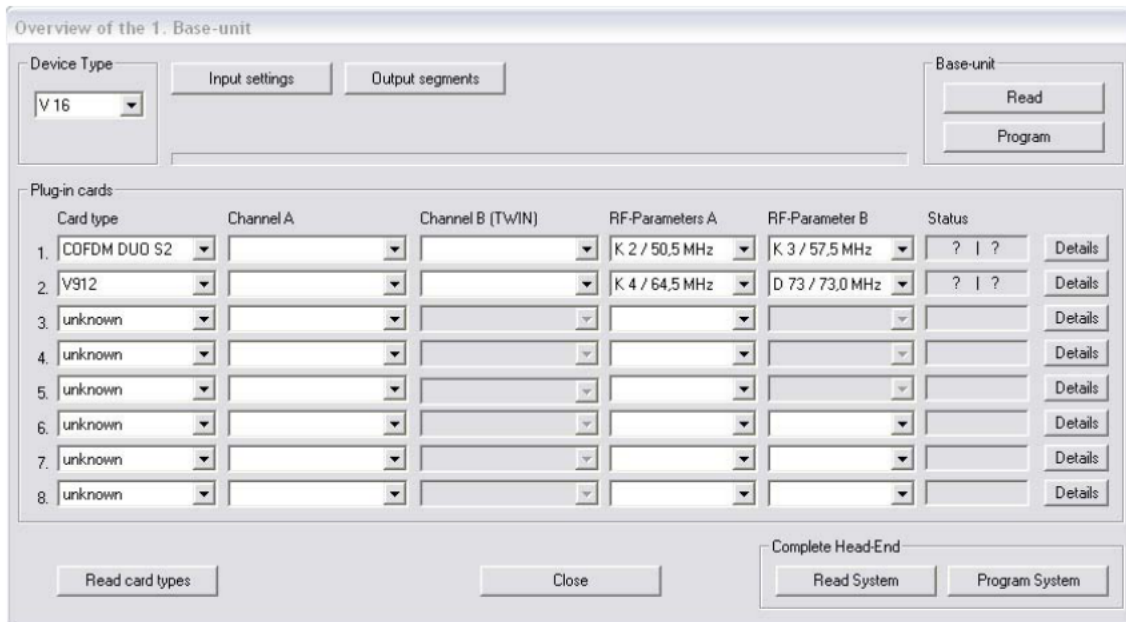
It is not possible to deactivate card types of the current project.

Close Extended functions



### 3 Basic unit planning screen

The plug-in card V 912 ASI is identified as V 912, and is displayed on the planning screen of the basic unit after selection. The V 912 ASI hardware must then be configured in the detail settings (see Chapter 5 “Hardware configuration”).



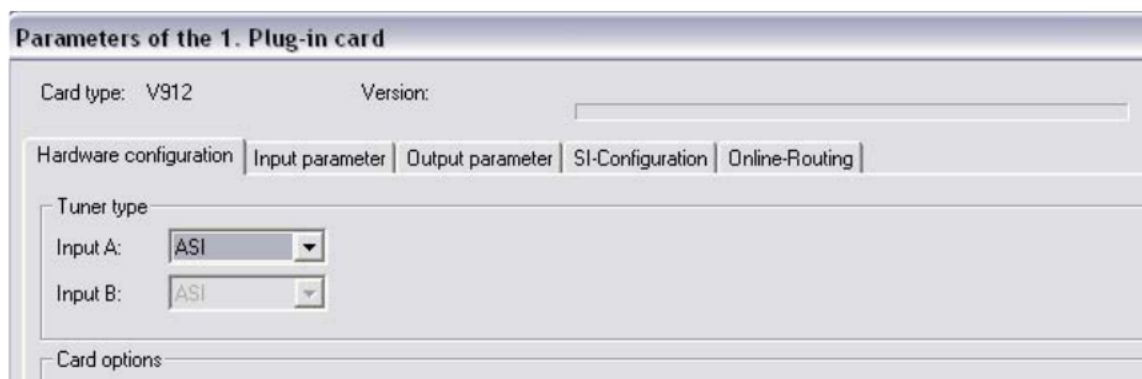
Card type	Channel A	Channel B (TwIN)	RF-Parameters A	RF-Parameter B	Status	Details
1. COFDM DUO S2			K 2 / 50,5 MHz	K 3 / 57,5 MHz	?   ?	Details
2. V912			K 4 / 64,5 MHz	D 73 / 73,0 MHz	?   ?	Details
3. unknown						Details
4. unknown						Details
5. unknown						Details
6. unknown						Details
7. unknown						Details
8. unknown						Details

The output channels for the V 912 ASI card are selected under "HF parameter A" and "HF parameter B" in the planning screen of the basic unit; that is, the channels in which the COFDM channels assembled from the ASI bouquets are to be fed into the cable.

If the user now clicks the "Details" button, the screen with the board details will open. All relevant settings for operation of the device are made here.

## 4 Configuring the hardware

Click the “Details” button on the planning screen to access the “Detailed settings” screen. Select the “Hardware configuration” tab here. The option “ASI” must be set in the tuner selection list. An incorrect tuner selection will result in an error message after programming.



Parameters of the 1. Plug-in card

Card type: V912      Version:

Hardware configuration | Input parameter | Output parameter | SI-Configuration | Online-Routing

Tuner type

Input A:

Input B:

Card options



## 5 Testing input parameters / signal quality

Parameters of the 2. Plug-in card

Card type: VS12 Version:  Program card Read card

Hardware configuration Input parameter Output parameter SI-Configuration Online-Routing

Input A

Program packet: ZDF Vision (TP77) SAT-Frequency: 1354 MHz Symbol rate: 27,50 MS/s ☒ Frontend active Check signal quality

TS-ID: 1079 dec. Input: 11 Viterbi rate: auto ☐ Lock on TS-/ ON-ID

ON-ID: 0001 dec. Search mode: DVB-S Status:

Input B

Program packet: ZDF Vision (TP77) SAT-Frequency: 1354 MHz Symbol rate: 27,50 MS/s ☒ Frontend active Check signal quality

TS-ID: 1079 dec. Input: 11 Viterbi rate: auto ☐ Lock on TS-/ ON-ID

ON-ID: 0001 dec. Search mode: DVB-S Status:

Close Reset card

### 5.1 Manual transponder selection

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

## 5.2 (De-)activating the front end

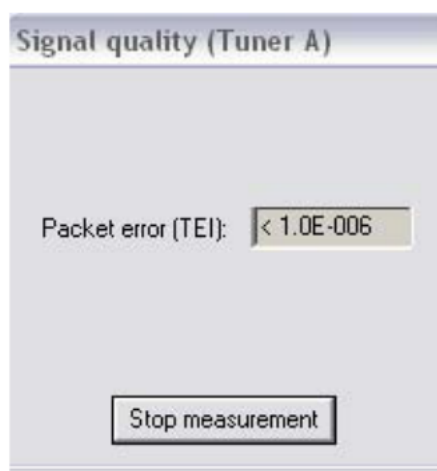
By clicking on the "Front end active" selection box, the front end of the respective input can be either activated or deactivated.

## 5.3 Lock on TS-/ON-ID

To prevent the tuner from logging in to an unwanted ASI stream, the "Lock on TS-/ON-ID" function can be activated. By activating this check-box, the tuner will only log into the transponder IDs entered, accidentally or incorrectly-applied input signals will not be processed. The TS-/ON-ID must be entered manually.

## 5.4 Testing signal quality

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

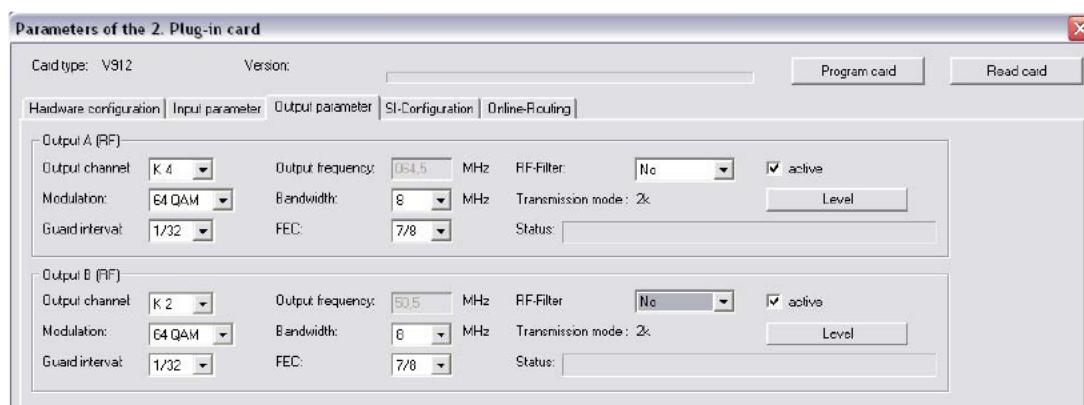


## 6 Output parameters / level adjustment

### 6.1 Output parameters

All relevant parameters for the output signal are configured in the output parameters field. The output channel is specified, activated or deactivated, the bandwidth adapted and the coding type specified.

The respective output channel filter can be activated or deactivated in the view for output A and output B. A channel filter which has not been plugged but has been activated in the software will result in an error message.



**Parameters of the 2. Plug-in card**

Card type: V912 Version:  Program card Read card

Hardware configuration Input parameter **Output parameter** SI-Configuration Online-Routing

**Output A (RF)**

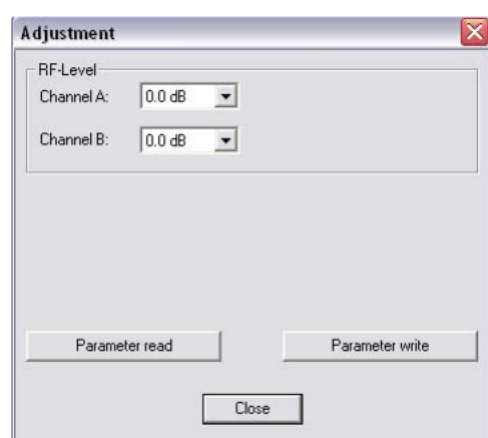
Output channel: K 4 Output frequency: 054.5 MHz RF-Filter: No ☒ active  
 Modulation: 64 QAM Bandwidth: 8 MHz Transmission mode: 2k Level  
 Guard interval: 1/32 FEC: 7/8 Status:

**Output B (RF)**

Output channel: K 2 Output frequency: 50.5 MHz RF-Filter: No ☒ active  
 Modulation: 64 QAM Bandwidth: 6 MHz Transmission mode: 2k Level  
 Guard interval: 1/32 FEC: 7/8 Status:

### 6.2 Level adjustment

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



**Adjustment**

RF-Level

Channel A: 0.0 dB

Channel B: 0.0 dB

Parameter read Parameter write

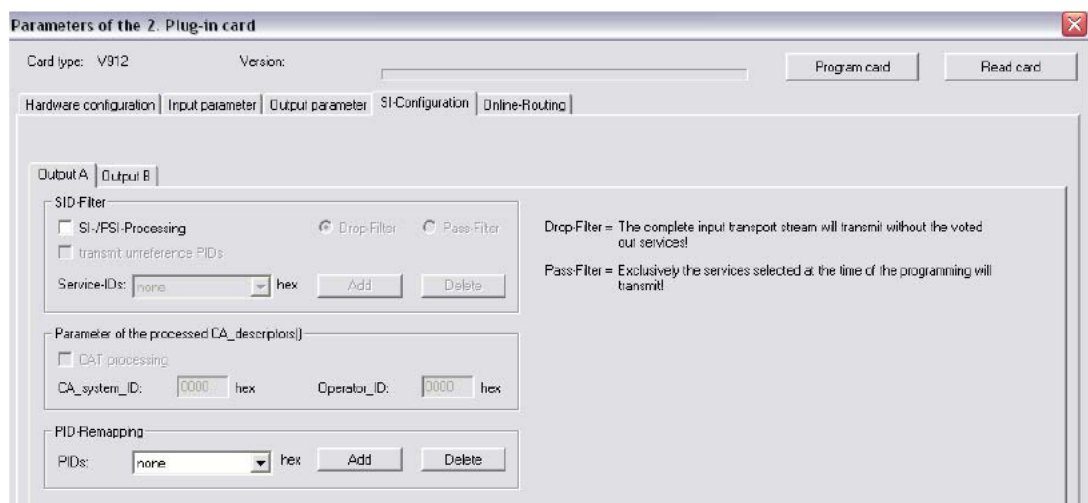
Close

The values currently stored are read from the board first when the “Read parameters” button is clicked. Any modifications made will only be written onto the board and activated when the "Write parameters" button is clicked.

## 7 SI-PSI configuration

The service filter configuration field is the same for both outputs A and B. This configuration is therefore explained using output A:

In order to activate the option to eliminate individual services from the data stream, the function "SI-/PSI processing" must be activated. Without this setting, the board functions as a standard transmodulator, which allows all services present in the input data stream to pass through unfiltered.



### 7.1 Drop filter or pass filter

The V 912 ASI supports two different service filter modes:

**Drop filter:**

In this case, the input data stream is transferred completely, only the selected service IDs are actively removed. This means all services, including any that may also be transferred at a later time, are allowed through and can be found in the output data stream.

**Pass filter:**

In this case, only the services selected at the time of programming are transferred, or any services that are added later, if applicable.

## 7.2 Transmitting unreferenced PIDs

The V 912 ASI uses this function to decide whether unreferenced PIDs, i.e. those not belonging to a service, are transferred or blocked. As these PIDs could be used to control any special functions present, e.g. for set-top boxes, blocking them can, in some cases, have adverse effects.

## 7.3 Editing CAT

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

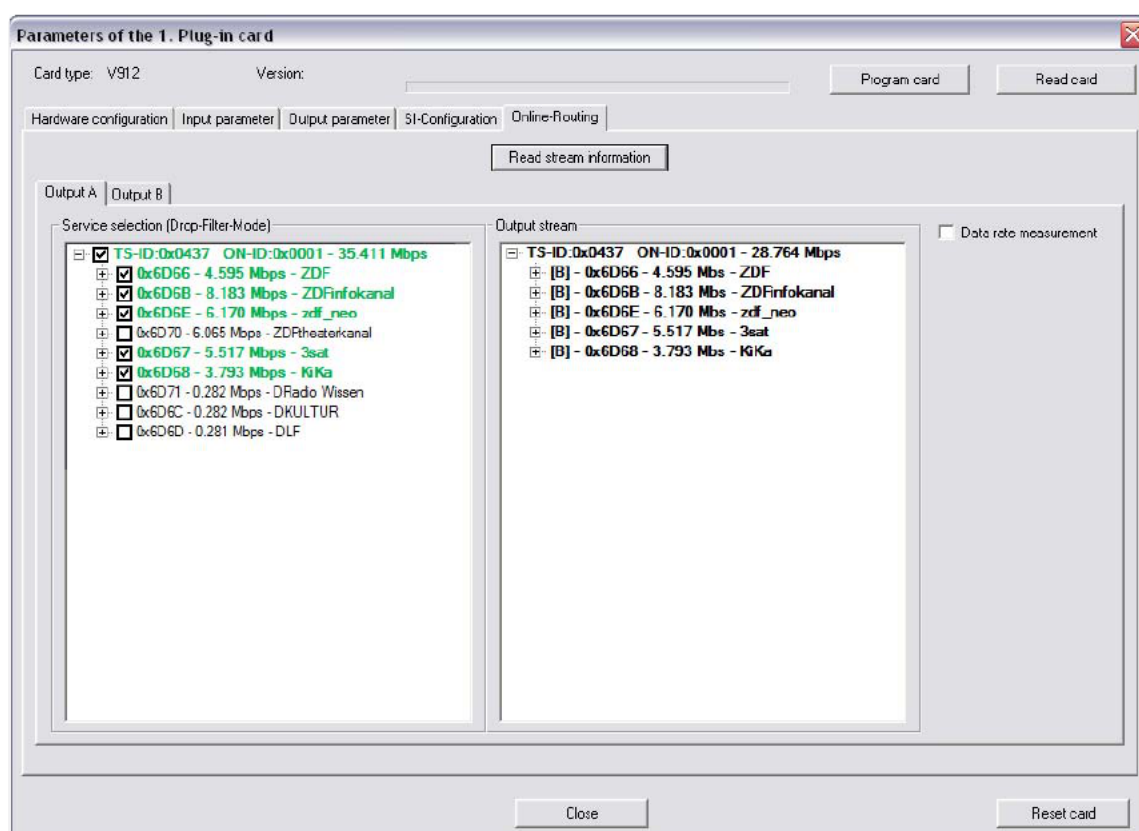
## 7.4 PID remapping

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

# 8 Online service filter

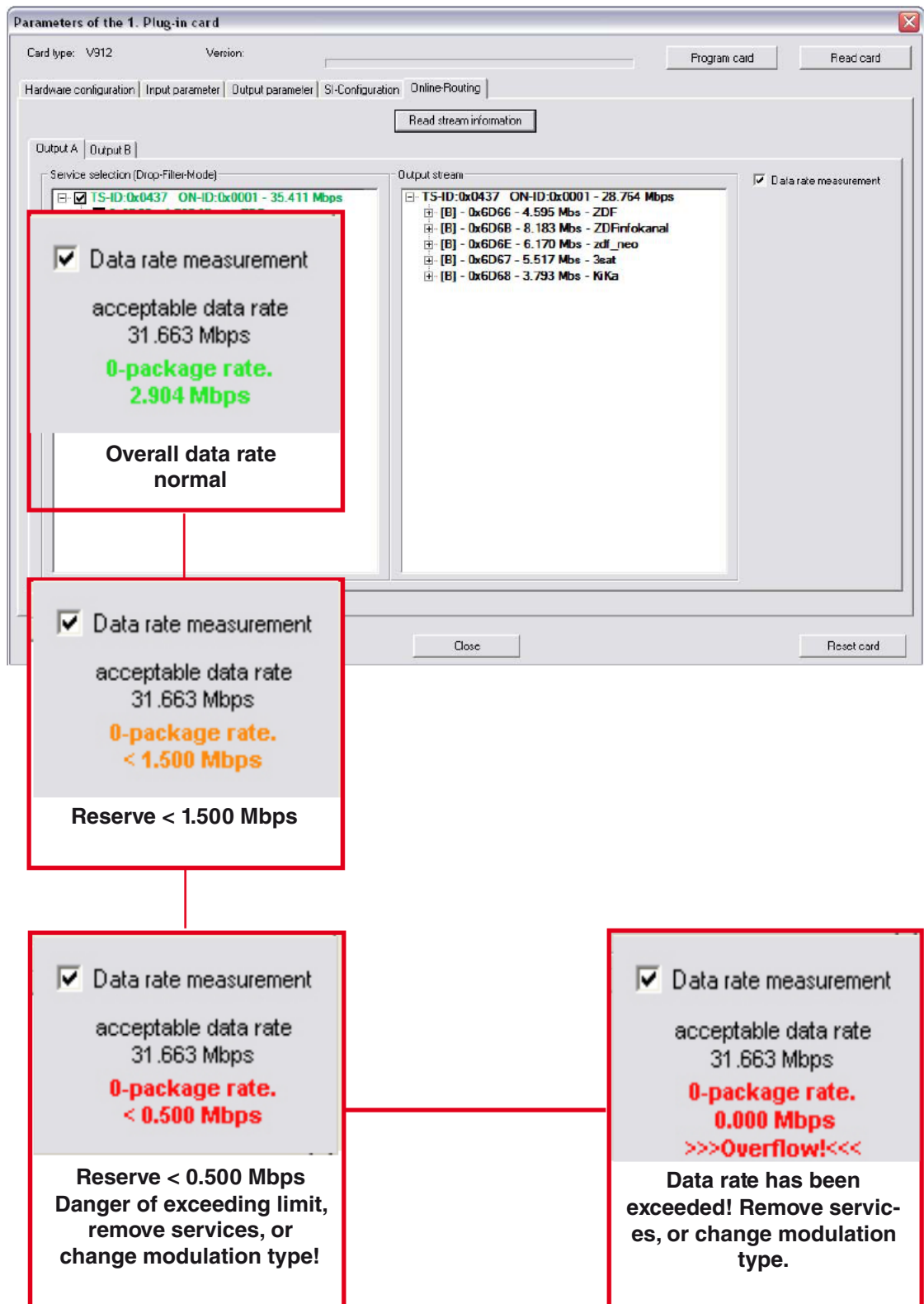
By selecting the preferred services (green) from the input data stream (left-hand side), the services present in the output data stream (right-hand side) are chosen.

The 'Program board' button is used to transfer all settings to the V 912 ASI memory.



## 9 Maximum output data rate

The maximum output data rate of the newly-created output stream is limited. If this limit is reached, or even exceeded, then either services must be removed from the output stream or the modulation type of the output channel changed. In online routing with an activated data rate measurement, the following displays appear when this limit is reached and exceeded.



## 10 Technical data

Type		V 912 ASI
Order number		380 923
<b>ASI input</b>		
Connectors		MCX jack, 75 $\Omega$
Data rate	[MBit/s]	270
Transmission modes		Packet burst / continuous
Packet length		188, 204
<b>COFDM modulator</b>		
Modulation		QPSK; 16 QAM; 64 QAM
Signal processing		according to DIN EN 300744
Transmission modes		2k (8k on demand)
Coding rates		1/2, 2/3, 3/4, 5/6, 6/7, 7/8
Bandwidth	[MHz]	6, 7 or 8
<b>TS editing</b>		
Data rate adjustment		<input checked="" type="checkbox"/>
PCR correction		<input checked="" type="checkbox"/>
NIT handling		<input checked="" type="checkbox"/>
PID filtering remapping		PID remapping
Service filtering		Pass filter / drop filter
<b>RF output</b>		
Connectors	[ $\Omega$ ]	IEC jack, 75
Frequency range	[MHz]	47 - 862 (K2 - K69), adjustable in steps of 0.1 MHz
Output level	[dB $\mu$ V]	80...96, adjustable
MER	[dB]	typ. 36
Spurious frequency distance 47 - 862 MHz	[dB]	> 60 discrete interferences / > 57 noise interferences
Channel filter		optional
<b>Common data</b>		
Power consumption	[W]	10.5
Ambient temperature	[°C]	0...+50





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