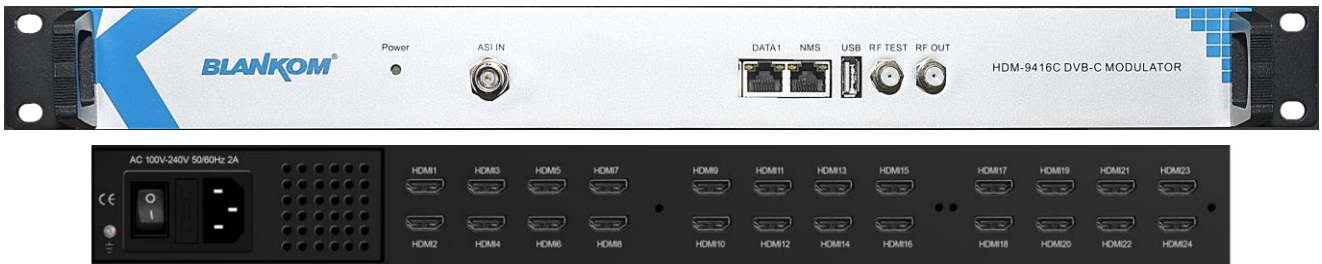


ENCODER-MODULATOR

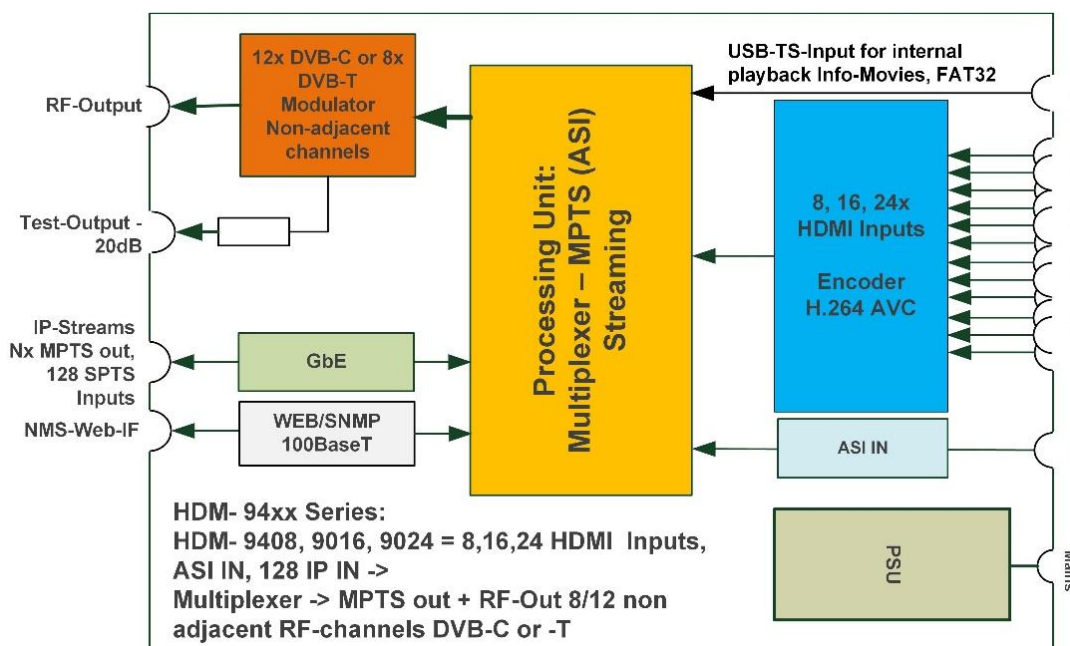


Pictures are preliminary and subject to change

- **HDM-9400 C or T oo = 08, 16, 24 x HDMI with DVB-C or T output**
(Consider for orders: T = DVB-T output, I=ISDB-Tb and A=ATSC optional upon request)
- MPEG4 AVC/H.264 HD/SD encoding
- 8, 16 or 24 HDMI inputs with AVC/H.264 Encoding
- MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass through
- 8(T) or 12(C) Channels /Bouquets multiplexing DVB-C or –T modulating RF outputs – non adjacent = agile
- -20dB Test-Output port
- 1 ASI IN and 128 SPTS Inputs to select and mux into the output channels
- Nx MPTS IP output over UDP, RTP/RTSP
- PID remapping/ accurate PCR adjusting/PSI/SI editing and inserting
- USB FAT32 – TS player to mux an INFO channel
- DVB-C/DVB-T/ATSC-T/ISDB-T RF out selectable (from factory) -> So always use proper character when ordering: C/T/I/A
- Web based management, LOGO / Text insertion

6th Generation BLANKOM® IPTV Headend Technology

Broadcast grade, high performance MPEG4 HD Encoder Modulator (8...24 HDMI to RF output). The HDM-94xy C/T series products are BLANKOM's new breakthrough all-in-one device, which integrate encoding (SD/HD MPEG-4/AVC H.264) and modulating to convert HDMI signals into DVB-C/DVB-T/ATSC-T/ISDB-Tb RF output. The HDM-94xyC/T HD encoder modulator is a professional high integration device which includes encoding, multiplexing and modulating. It supports 8...24 HDMI inputs, ASI and maximum 128 IP input through the GBE port. It modulates DVB-C RF out with 8 (T) or 12(C) non-adjacent carriers. The modulator type can be chosen from factory by ordering C or T version (Or even A = ATSC or I = ISDB-T)



TECHNICAL SPECIFICATIONS

Input	8/16/24 HDMI inputs and option 1 ASI in for re-mux 1 USB Player input for re-mux an own Info-Channel to the DVB-C/T network 128 IP input over UDP and RTP, GE port, RJ45—DVB-C RF out 128 IP input over UDP and RTP, GE port, RJ45—DVB-T/ATSC RF out 128 IP input over UDP and RTP, GE port, RJ45—ISDB-T(b) RF out			
Video	Resolution	Input	1920×1080p60, 1920×1080i60, 1920×1080p50, 1920×1080i50, 1280×720p60, 1280×720p50, 720×576i50, 720×480i60,	
		Output	1920×1080p30, 1920×1080p25, 1280×720p30, 1280×720p25, 720×576p25, 720×480p30	
	Encoding	MPEG-4 AVC/H.264		
	Bit-rate	1Mbps...13Mbps every channel		
	Rate Control	CBR/VBR		
	GOP Structure	IP...P (P Frame adjustment, without B Frame)		
	Audio	Encoding	MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass through	
Sampling rate		48KHz		
Resolution		24bit		
Audio Gain		0-255 Adjustable		
MPEG-1Layer2 Bit-rate		48/56/64/80/96/112/128/160/192/224/256/320/384 kbps		
LC-AAC Bit-rate		48/56/64/80/96/112/128/160/192/224/256/320/384 kbps		
HE-AAC Bit-rate		48/56/64/80/96/112/128 kbps		
Multiplexing	Maximum PID Remapping	255 input per channel		
	Function	PID remapping (automatically or manually)		
		Automatic PCR adjusting		
Modulation	DVB-C	QAM Channel	12 non-adjacent carriers output (maximum bandwidth 192MHz)	
		Standard	EN300 429/ITU-T J.83A/B	
		MER	≥40dB	
		RF frequency	50...960MHz, 1KHz step	
		RF output level	-20...+3dBm, 0.1dB step	
		Symbol Rate	5.0MSps...7.0MSps, 1kSps stepping	
			J.83A	J.83B
		Constellation	16/32/64/128/256 QAM	64/256 QAM
		Bandwidth	8 MHz	6 MHz
		DVB-T	Standard	EN300744
	FFT mode		2K, 4K, 8K	

Ordering Info: HDM – 9408 / 9416 / 9424 according to the amount of Inputs, than followed by a C or T for the Output modulator mode. E.g.: HDM-9416C = 16x HDMI Inputs with Output RF = DVB-C

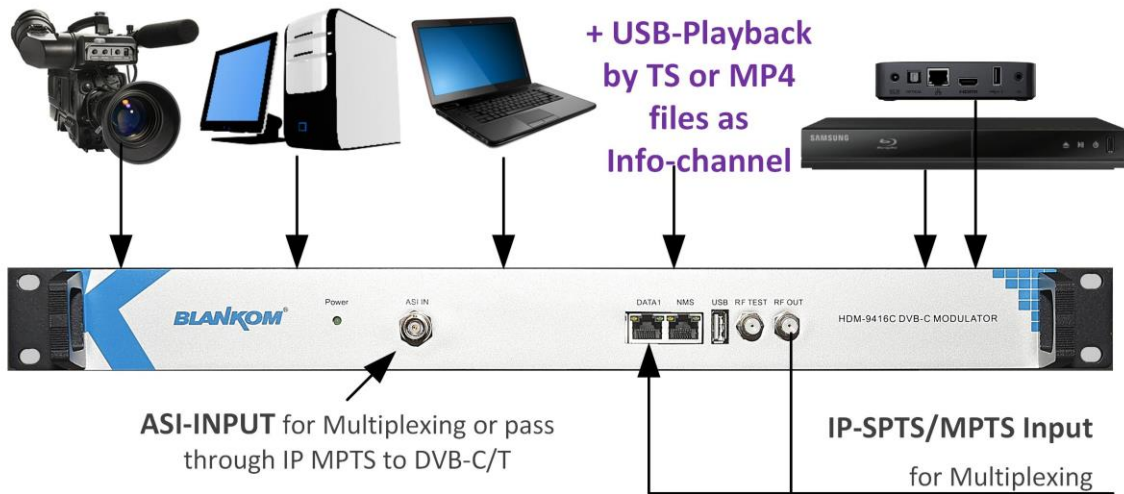
QUICKSTART

INHALT

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APPLICATION EXAMPLE:

HDMI-Sources like: Cameras, PC's, Laptops, Media-Players

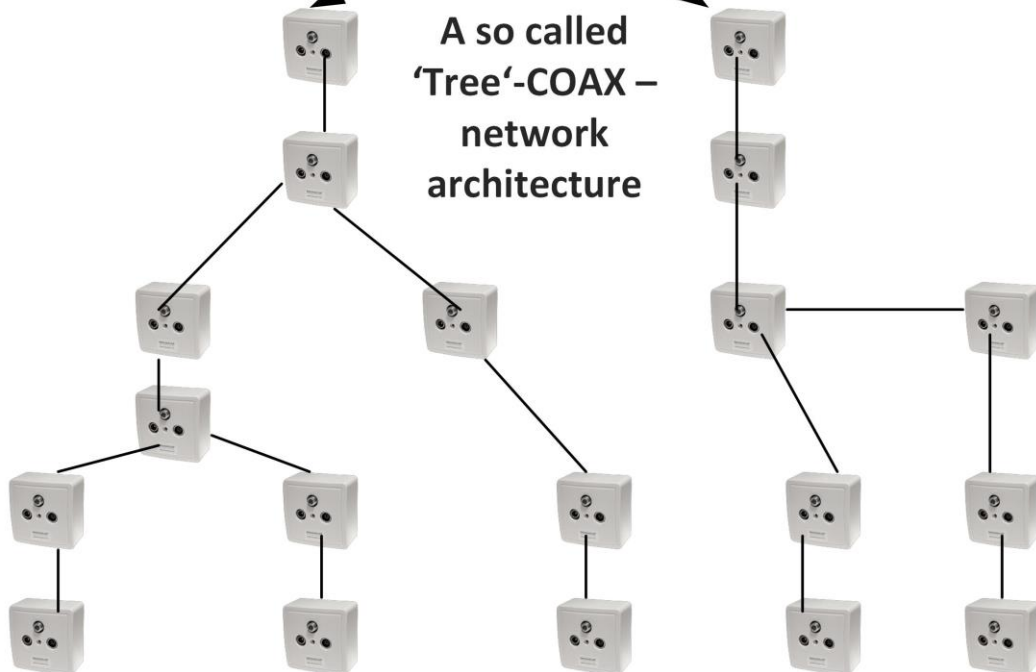


Channels in QAM or COFDM from an existing DVB-C/T headend

Adding own Channels/Content to the DVB Network



A so called 'Tree'-COAX-network architecture



SAFETY AND OTHER RECOMMENDATIONS:

Assure climatic environment rules for electronic machines like this, Grounding rules as well. An installation should always be made by a certified electrician.

⚠ Caution:

Before connecting power cord to Tuner to IP Gateway, you should set the power switch to "OFF". Do not connect the RF-cable (F-plugs) when the unit is running.

IMPORTANT NOTES!

This manual is for use by qualified personnel only. Handling this device or system requires special electronic technical knowledge. To reduce the risk of electrical shock or damage to the equipment, do not perform any servicing other than the installation and operating instructions contained in this manual unless you are qualified to do so. This device operates in the given voltage and frequency range without requiring manual adjustment.

Do not open the top case w/o unplugged power source because serious injury or death may be the result! Inside are components under risk from electrostatic discharge. To avoid equipment damages do not touch these components or, observe the respective handling rules!

For continued protection against fire, identical fuses with the same electrical specifications, which are designed for the corresponding fuse positions, may only replace the fuses.

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IRENIS GmbH reserves the right to revise this publication and make changes in its content from time to time, whereby it shall not be obligatory for IRENIS GmbH to provide notification of such revision or change.

IRENIS GmbH provides this manual without warranty of any kind, neither implied nor expressed; this includes also any warranties regarding the merchantability and fitness for a particular purpose. IRENIS GmbH may improve this manual or make changes in the products described herein at any point of time.

This Product is manufactured in PRC (China), HS-Code: 85176200

Anmerkung:



Alle von uns veröffentlichten Betriebsanleitungen richten sich an den Antennen- und IT-Fachmann, der über grundlegende Kenntnisse der Empfangs-, Netzwerk- und Anlagentechnik verfügt. Die Einhaltung aller relevanten Vorschriften und Richtlinien für den Aufbau und Betrieb von solchen Anlagen obliegt dem Installateur und/oder dem Betreiber. Insbesondere sind die in den jeweiligen Ländern geltenden Vorschriften und Richtlinien für die Inbetriebnahme speziell für den Stromanschluß und alle mit den Produkten in Zusammenhang stehenden und geltenden Normen und Gesetze einzuhalten.

Remark:



All operating instructions published by us are intended for the antenna and IT specialist who has basic knowledge of reception, network and system technology. Compliance with all relevant regulations and guidelines for the installation and operation of such systems is the responsibility of the installer and/or the operator. In particular, the regulations and guidelines applicable in the respective countries for commissioning, especially for the power connection, and all standards and laws related to the products must be complied with.

Annotation :



Tous les modes d'emploi que nous publions sont destinés aux professionnels de l'antenne et de l'informatique qui ont des connaissances de base en matière de réception, de mise en réseau et de technologie des équipements. Le respect de toutes les réglementations et directives pertinentes pour l'installation et l'exploitation de ces systèmes relève de la responsabilité de l'installateur et/ou de l'exploitant. En particulier, il convient de respecter les réglementations et directives applicables dans les pays respectifs pour la mise en service, notamment pour le raccordement électrique, ainsi que toutes les normes et lois relatives aux produits.

Annotazione:



Tutte le istruzioni per l'uso da noi pubblicate sono destinate al professionista dell'antenna e dell'informatica che ha una conoscenza di base della tecnologia di ricezione, di rete e delle apparecchiature. Il rispetto di tutti i regolamenti e le linee guida pertinenti per l'installazione e il funzionamento di tali sistemi è responsabilità dell'installatore e/o dell'operatore. In particolare, devono essere rispettati i regolamenti e le linee guida applicabili nei rispettivi paesi per la messa in funzione, soprattutto per il collegamento alla rete elettrica e tutte le norme e le leggi relative ai prodotti.

Anotación:

Todas las instrucciones de uso publicadas por nosotros se dirigen al profesional de la antena y de la información que tiene conocimientos básicos de recepción, de redes y de tecnología de equipos. El cumplimiento de todos los reglamentos y directrices pertinentes para la instalación y el funcionamiento de dichos sistemas es responsabilidad del instalador y/o del operador. En particular, deben cumplirse los reglamentos y directrices aplicables en los respectivos países para la puesta en marcha, especialmente para la conexión de la energía y todas las normas y leyes relacionadas con los productos.

Anotação:

Todas as instruções de operação publicadas por nós são destinadas ao profissional de antena e TI que possui conhecimentos básicos de recepção, rede e tecnologia de equipamentos. O cumprimento de todos os regulamentos e diretrizes relevantes para a instalação e operação de tais sistemas é de responsabilidade do instalador e/ou do operador. Em particular, os regulamentos e diretrizes aplicáveis nos respectivos países para comissionamento, especialmente para a conexão de energia e todas as normas e leis relacionadas aos produtos devem ser obedecidas.

We assume that the user is familiar with IP settings and already knows his own system to connect the unit to. If you use the **Output Streaming** feature: **We recommend using two separate Switches!** At least a 100BaseT for the Management NMS RJ45 port and a second one with Gigabit Ethernet 10/100/1000BaseT with at least Layer 2+ with IGMP V2 features. Otherwise you might flood your IP-Streaming network with unnecessary Data, which might overload connected IPTV STB's because they almost have only 100BaseT capacity (Never ones use 1GbE ports) but too many inputs into a STB can result in side effects. If you need to select a Switch, we recommend ARUBA HP Procurve 2530 24G or 48G which are cost effective, easy to configure, can be trunked and supporting IGMP V2. If the switch needs routing functions, the bigger brother of this series might be the right choice.

Because to not accidentally put DATA and NMS port in the same sub-network the data – port setting does not allow this by default. Usually the DATA GbE Port needs an IP address- otherwise the Switch or the receivers (i.e. IPTV STB's) cannot locate the source of the streams.

INSTALLATION NOTES

All types of the IRENIS-BLANKOM family are 19" devices with 1 RU height designed for installation in 19" racks. In addition to the front panel screws, an internal module support is required at the rack.

Depending on the Frontend used and the operating adjustments, the RF-input port carries DC Voltage (13V /18V, max. 400 mA) – Sat-Tuner devices.

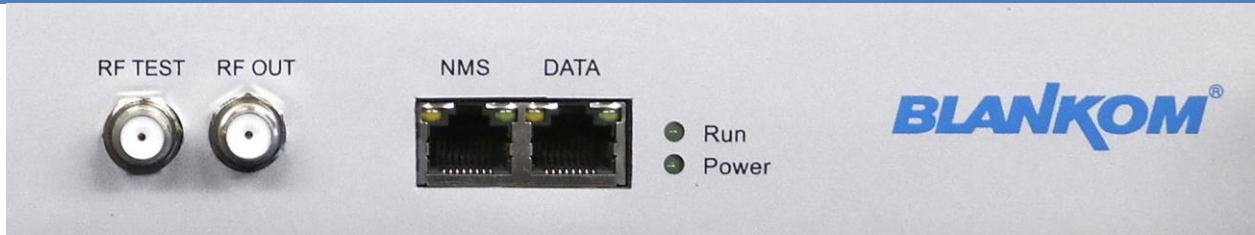
By connecting a mains cable, the device can become functional without any auxiliary appliances. The power supply units are almost (! Please check rear) designed for the wide range of 100-230V AC, 50/60Hz; a manual adjustment of the voltage is not necessary.

For some models, the second power connector is feeding another independent power supply for internal redundancy. For a maximum of redundancy, both power supplies should use different circuits.

All the outputs are decoupled from one another. Thus, the circuit does not have any effect on the functioning of the device. Connections that are not required need not to be terminated.

Suggestion: CAT 6E Ethernet cable for Gigabit-Ethernet

FRONT-CONNECTORS:



RF-Testport – 20dB / RF –Output / Management Ethernet-RJ45 / Streaming – Port GbE / LED's
Rem.: HDM-94xy series has an additional ASI Port @ the front.

REAR-SIDE:



Ground – ON/OFF-Switch / **Fuse** / IEC-Male Power / 4 or more HDMI-Inputs
The right 2 empty slots are for model types with more HDMI-Inputs.

Please always use different physical networks for Streaming and Management to avoid flooding management ports with unnecessary streaming data or at least separate them into different VLANs. Because of Multicasts it is highly recommended to connect the streamer port (DATA) to a Layer 2+ /3 IGMP-Switch (not IGMP-Snooping only because this is just snoop and pass not the needed 'IGMP-Filtering': Query and Answer = Join and Leave streams at the ports).

WEB INTERFACE:

The factory default IP address for the management connection (RJ45 Fast- or Gigabit Ethernet NMS) is:

192.168.0.136 user/password = admin/admin as defaults

Please set your PC IP address into the same range but avoiding conflicts. Then enter it:
(We recommend using Mozilla latest version and disabling the popup-blocker = allow them)

Melden Sie sich an, um auf diese Website zuzugreifen.

Autorisierung angefordert von http://192.168.0.136
Ihre Verbindung mit dieser Website ist nicht sicher.

Benutzername

Kennwort

However, EDGE-browser works as well... ;-)

You are entering the **status page**:

The screenshot shows the BLANKOM HDM-9408C web interface. The browser address bar shows 192.168.0.136. The page title is HDM-9408C. The main content area is titled "Device Information" and features the BLANKOM logo. Below the logo is a "System Information" section with the following data:

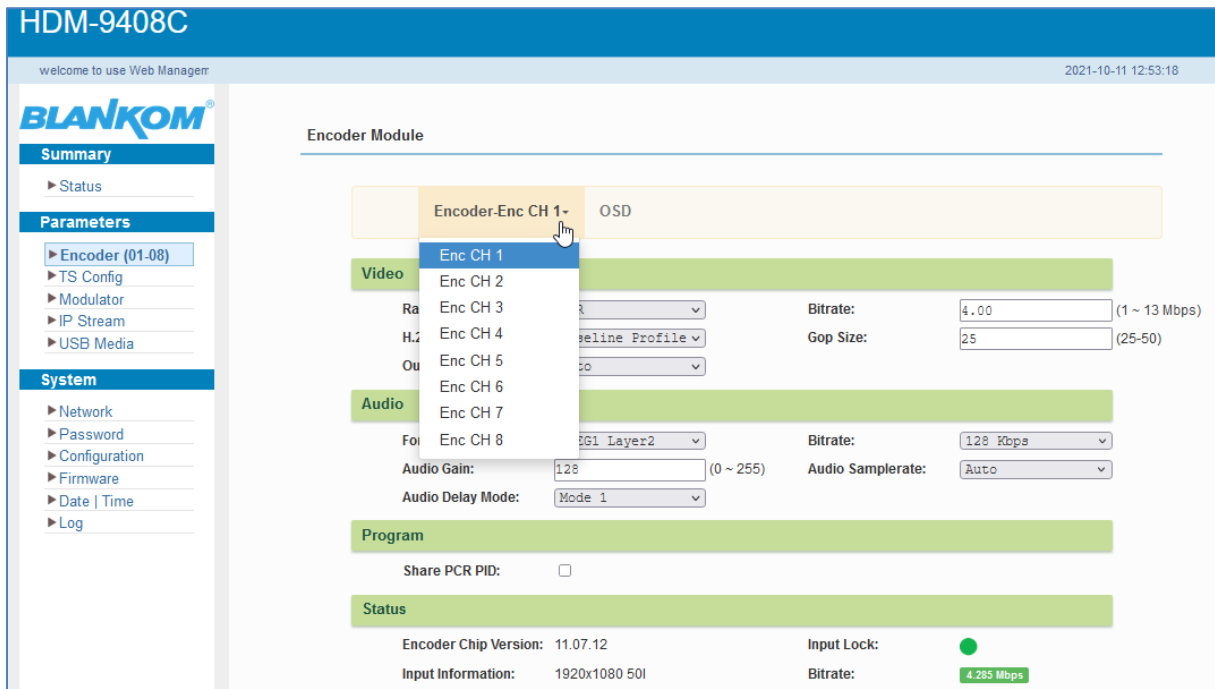
Software Version:	01.00.34 Build 160.00 Aug 17 2021
Hardware Version:	02.00.21
Web Version:	1.05
System Version:	1.35.36.03
Product ID:	00353600-00000010-00000000-00000000
Uptime:	0 Day-00:51:11
Temperature:	40.85 Degree Celsius
VccInt:	1036.38 mV
VccAux:	1803.22 mV
VccBRam:	1036.38 mV

GETTING BASIC INFORMATION ...

BTW: It is always a good Idea to SAVE your configuration periodically permanently:

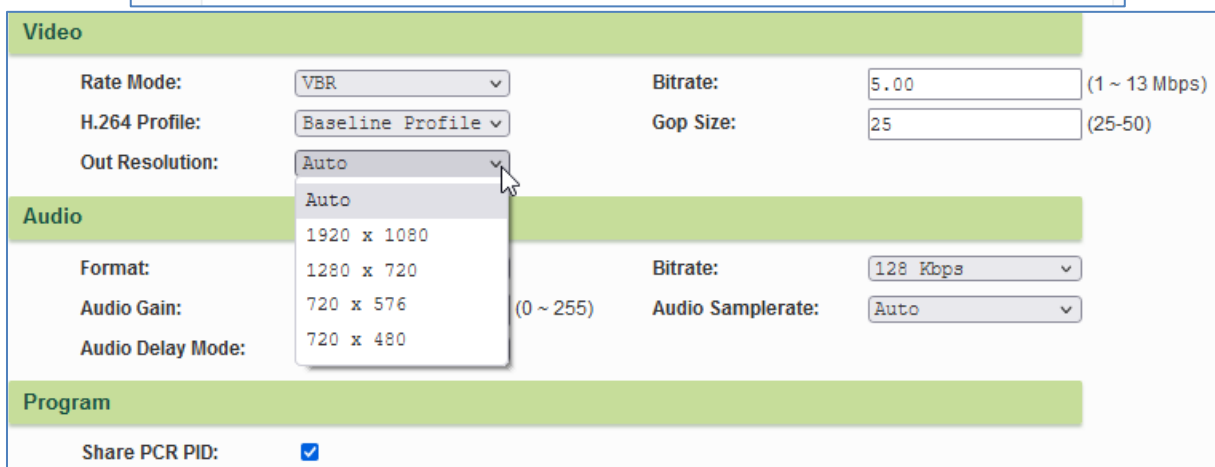
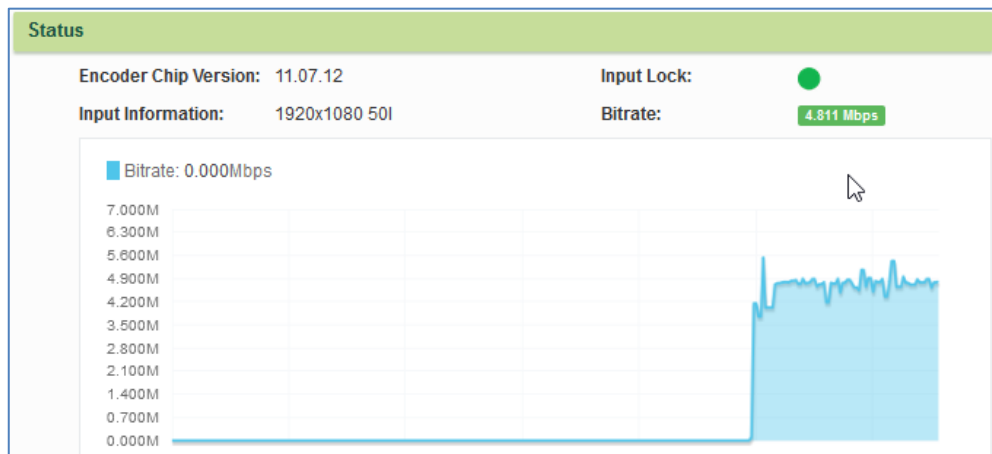
The screenshot shows the BLANKOM Configuration web interface. The main content area is titled "Configuration" and features a navigation bar with buttons: Save, Restore, Factory Set, Backup, and Load. Below the navigation bar is a warning message: "When you change the parameter, you should save configuration, otherwise the new configuration will be lost after reboot." At the bottom right of the configuration area is a "Save config" button.

If you do not do so and switch off the unit before saving, all configuration will be lost.



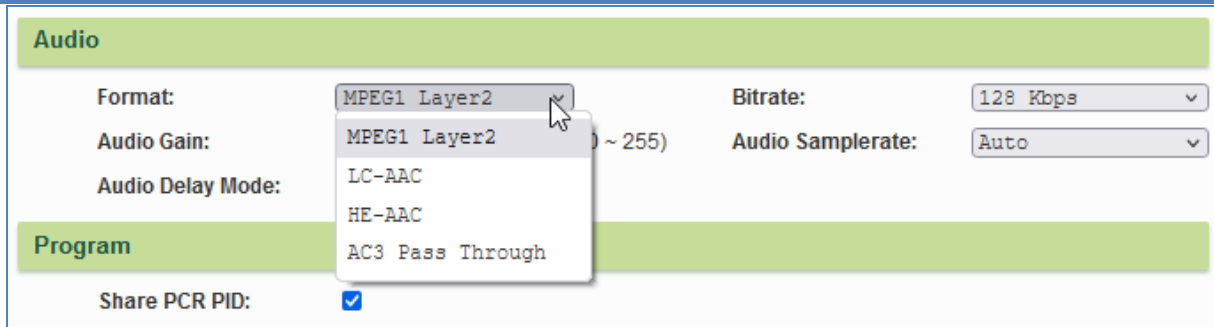
Selecting the input HDMI port as named Encoder channel 1-8

The Input is shown:



Selectable: Rate Mode is VBR or CBR (better quality, more stable bitrate, more latency)
 Profile basic,main,high h.264 | Bitrate to be adjusted to your needs: Lower bitrate = less picture quality
 | Resolution: can be downscaled if needed
 GOP=Group of Picture ... please check Google if you do not know.

AUDIO ENCODINGS:



You can choose the format of the audio codec: MP1L2, AAC-LC or –HE or if AC3 is transported via HDMI Input it can be passed through.

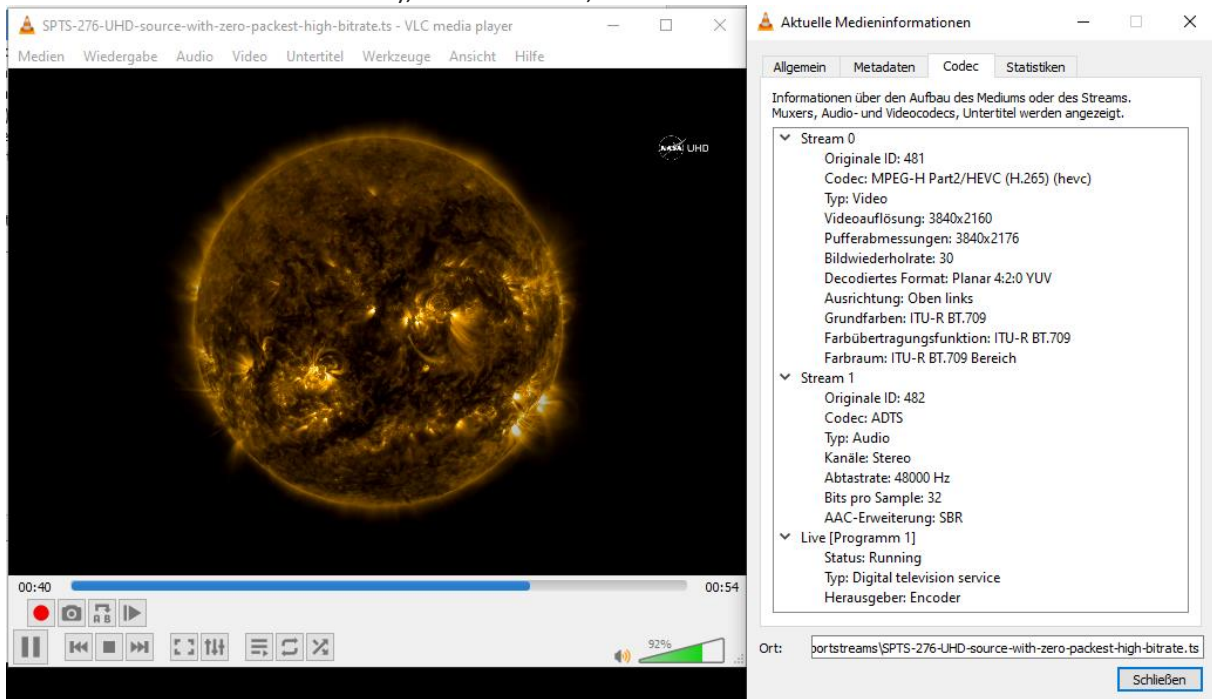
The PCR-PID sharing is useful for stability of the Transport-Stream (DVB-TS) of the A/V streams/PIDs of that program if existing from the input somehow. CHECK:

USB-PLAYBACK:

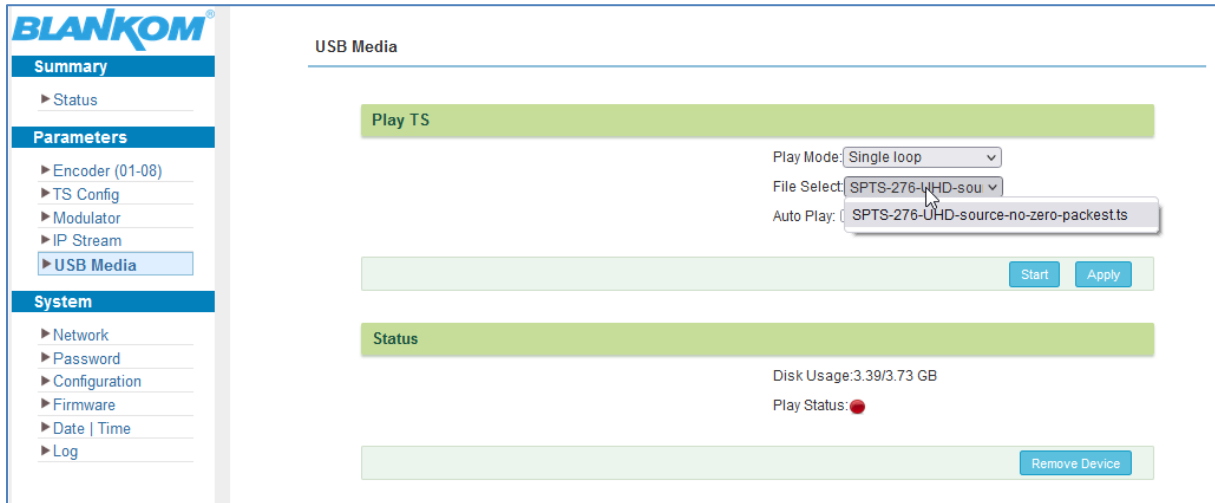
This Encoder/Modulator can insert former recorded or well prepared Movies as TS files into the output Transport-streams (DVB-C out and/or IP stream MPTS-outputs – which are a mirror of the QAM Channel output as TS1-TS12 in this machine).

Use a TS (like Movie.ts) recorded File and insert the FAT32 formatted drive into the front USB port.

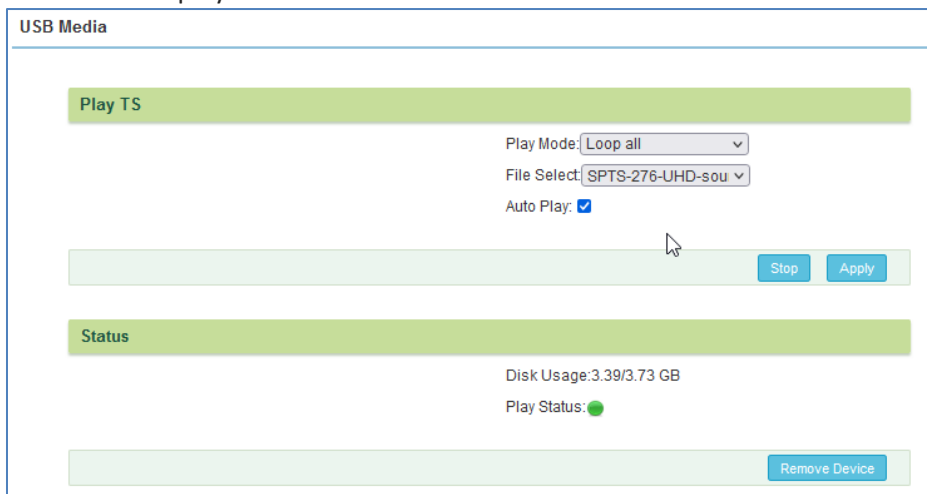
Such TS files can be created by recording via our HDMI-UHD boxed-encoders (HDE-series can do directly record TS files to a USB-Pendrive), Dektec device, or VLC or a PC based Video-editor



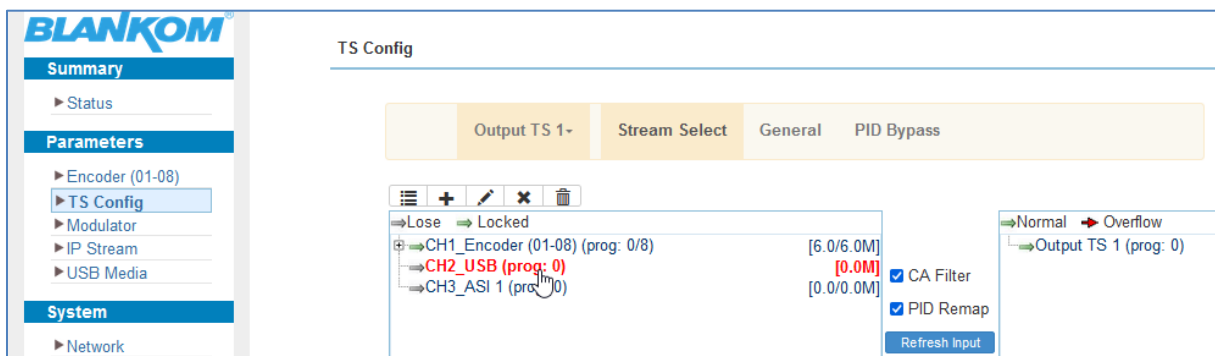
Then parse the content:



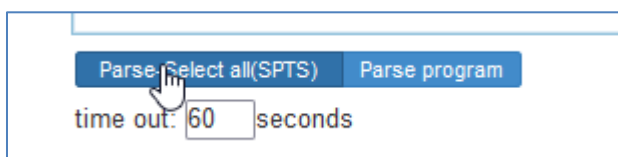
Select file and play mode than start it:

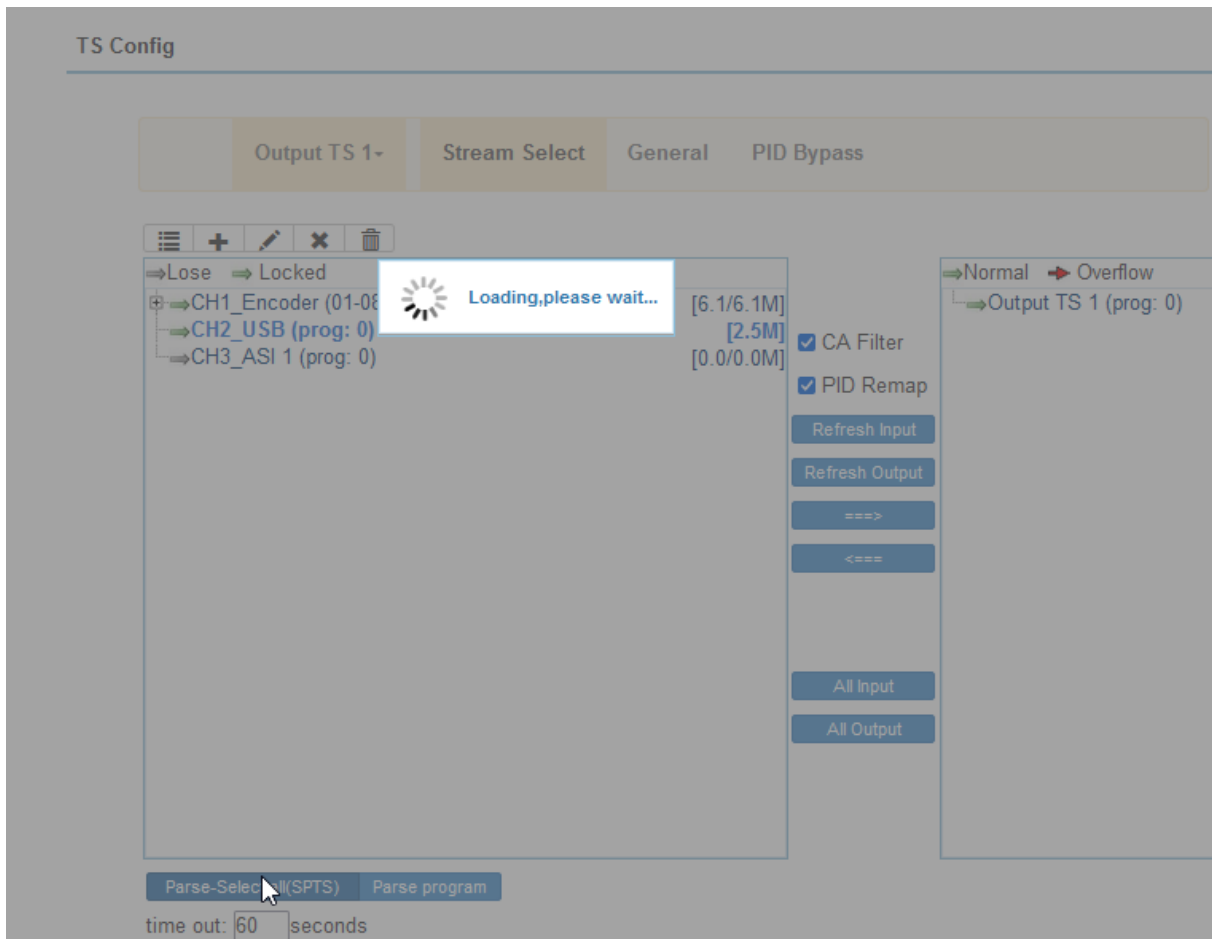


Change to the TS Menu:

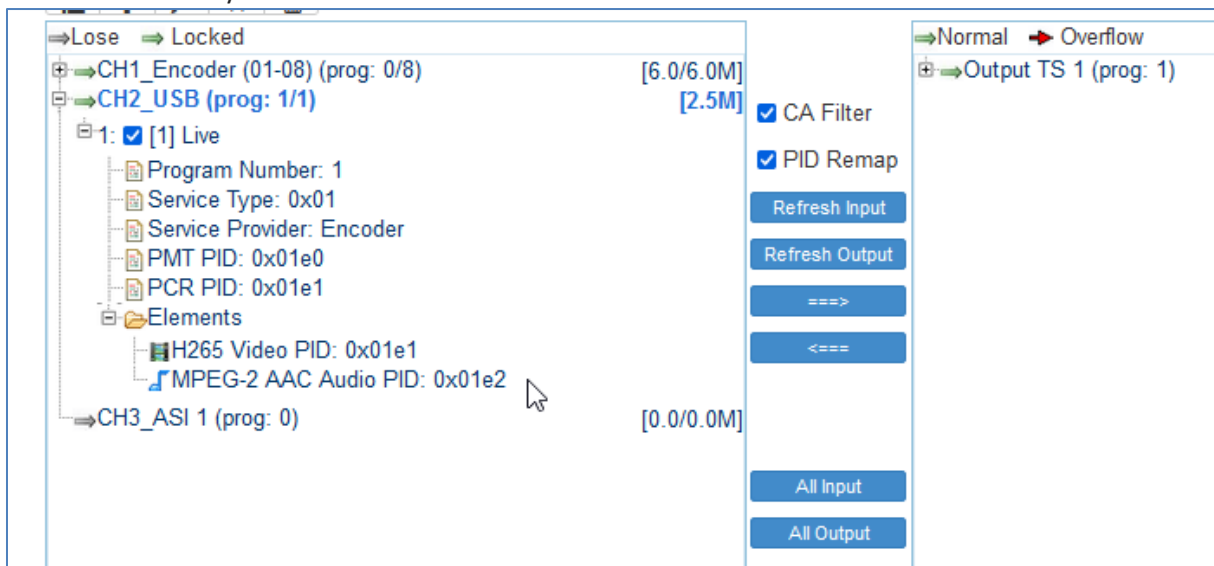


Parse the content:





Finally, the content is shown and you can insert it to the right to your first Multiplex or to all 12 TS - / DVB-C Channels if you like:



BTW: If there is no Input TSW with encrypted or decrypted PIDs like EMM's/ECM's, you can uncheck CA-Filter (which would not pass these to the outputs saving datarates).

If you do not have double PID number from your inputs to pass from left to your Multiplex-DVB-C Channel TS Muxes to the right side, than you also can keep them by uncheck the PID remapping box:

DVB-C MODULATOR SETTINGS FIRST:

But, first of all you should adjust your output QAM-Channels to your Coax network:

HDM-9408C

Modulator

Center Frequency: 350.000 MHz Standard: J.83A(DVB-C)
Level(All Carriers): 0.0 dBm Channel Info.(Alarm/Active/Total): 0/12/12

#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	
1	306.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	Quickly Config.
2	314.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
3	322.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
4	330.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
5	338.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
6	346.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
7	354.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
8	362.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
9	370.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
10	378.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
11	386.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎
12	394.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M	✎

It is per default on 64QAM which has a lower bitrate capacity than 256QAM and we should select the start frequency (according to CENELEC or modern networks with 8MHz distances (DVB-C Annex B - ITU83B is US Norm and has only 6MHz bandwidth)):

Here I swapped to 306 as the first center frequency. Do not mess up with the over-all center frequency which is for the 12x8MHz channels = 350MHz.

Adjusting the QAM values to the 265 gives you > 50 Mbit/s content capacity per TS-mux (but reserve 10-15% at least for Peaks):

Center Frequency: 350.000 MHz Standard: J.83A(DVB-C)
Level(All Carriers): 0.0 dBm Channel Info.(Alarm/Active/Total): 0/12/12

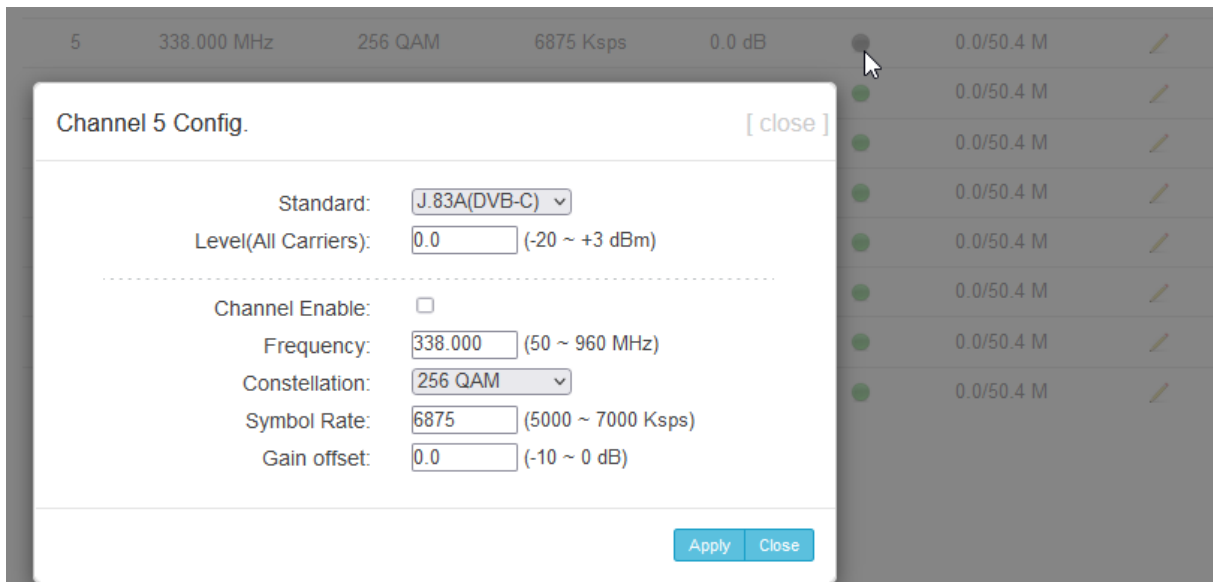
Quickly Config. [close]

Standard: J.83A(DVB-C) ▾
Level(All Carriers): 0.0 (-20 ~ +3 dBm)

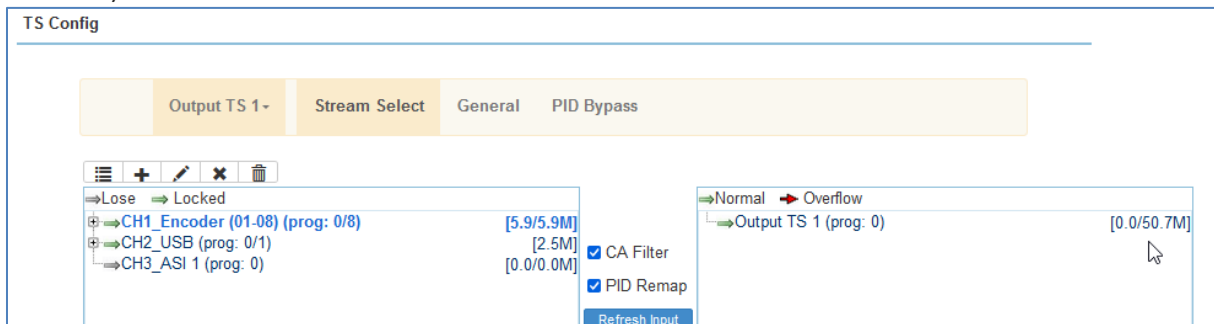
Channel Enable:
Start Frequency: 306.000 (50 ~ 960 MHz)
Bandwidth: 8.000 MHz
Constellation: 256 QAM ▾
Symbol Rate: 6875 (5000 ~ 7000 Ksps)

Apply Close

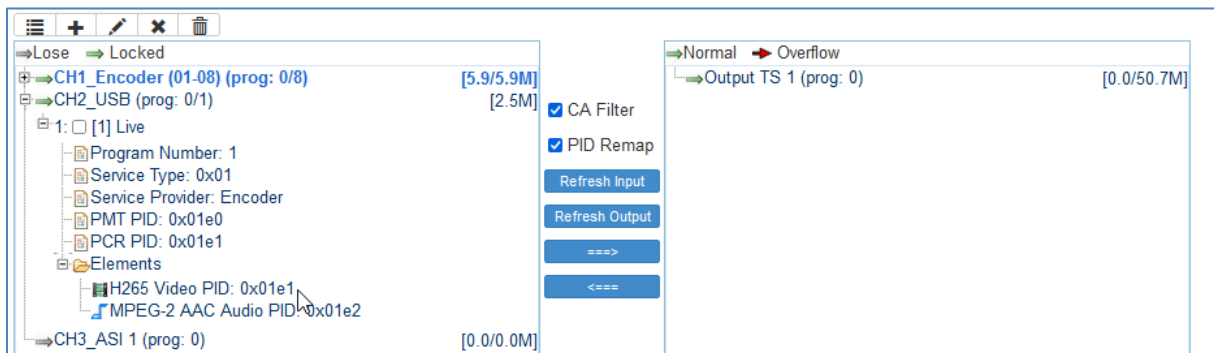
You can switch off every single channel if you need this space for another channel or there is an existing one...



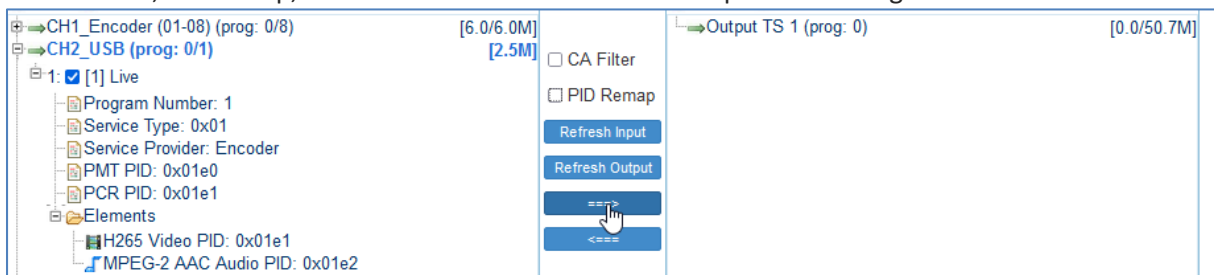
Going back to TS config you see the increased Data content capacity 50,7Mbit/s (for the SR 6875, QAM256)



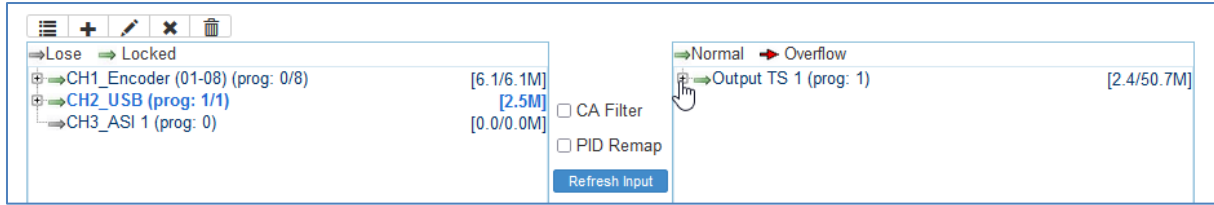
Now we insert the USB loop-player (here it is a HEVC coded UHD record – yes that works in DVB-C if you have an UHD TV...



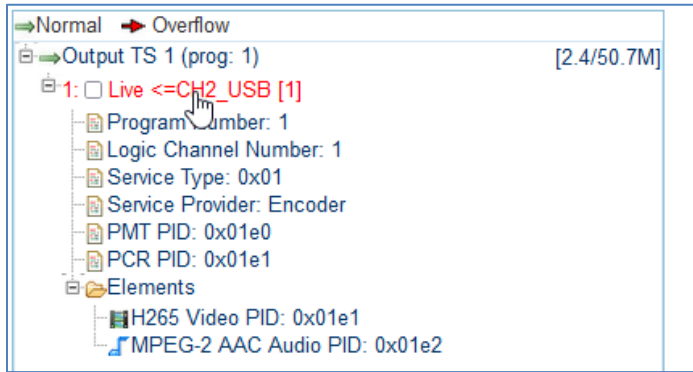
Uncheck CA , PID remap, than check the USB TV Service and put it to the right:



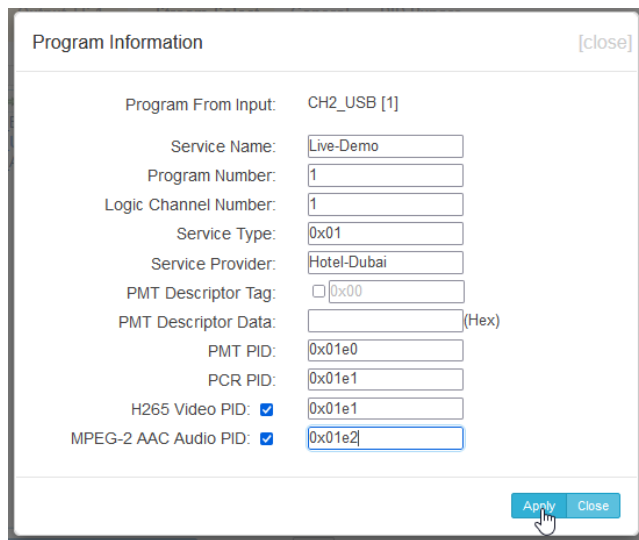
Open the right side:



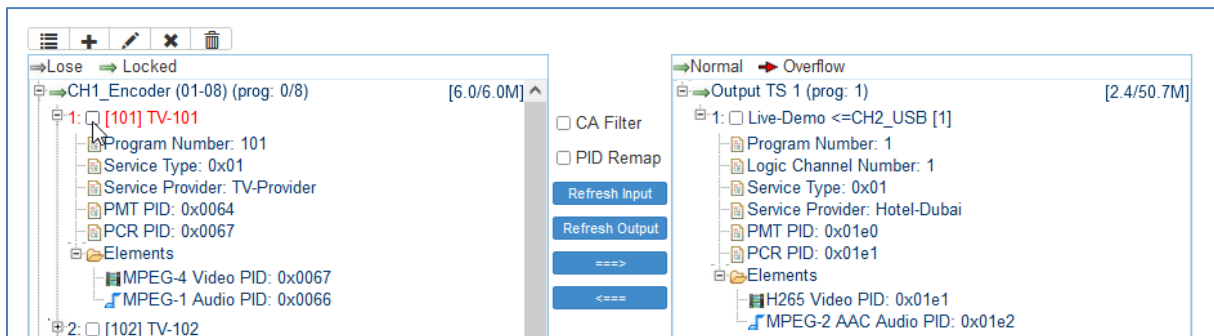
So you see : No PID remap... click on the service name Live (as default



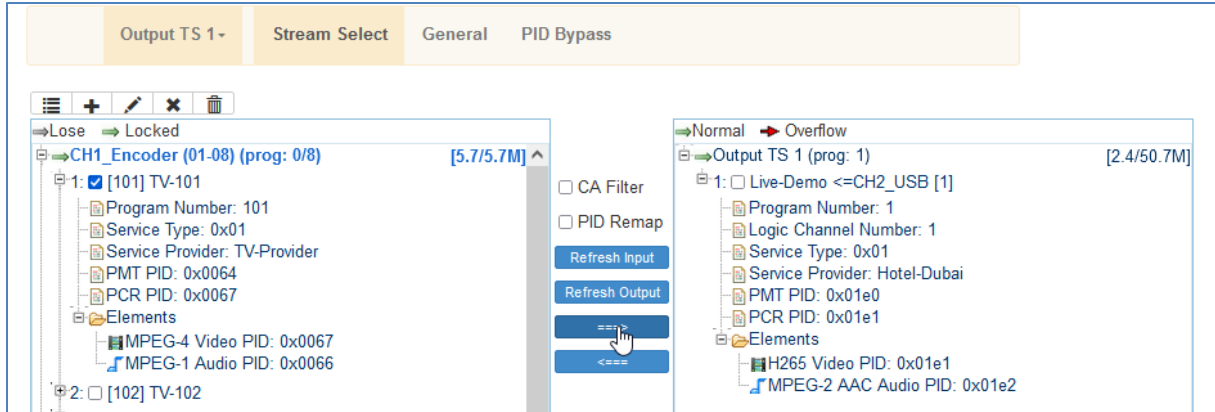
) and you can manipulate every single part:



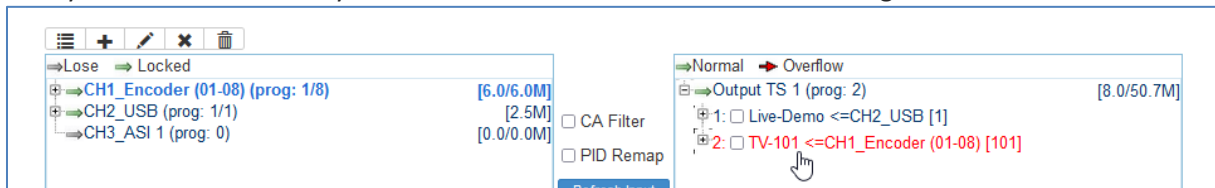
The same procedure can be used to insert your encoded channels from your source to the DVB-Channels:



Passing it:

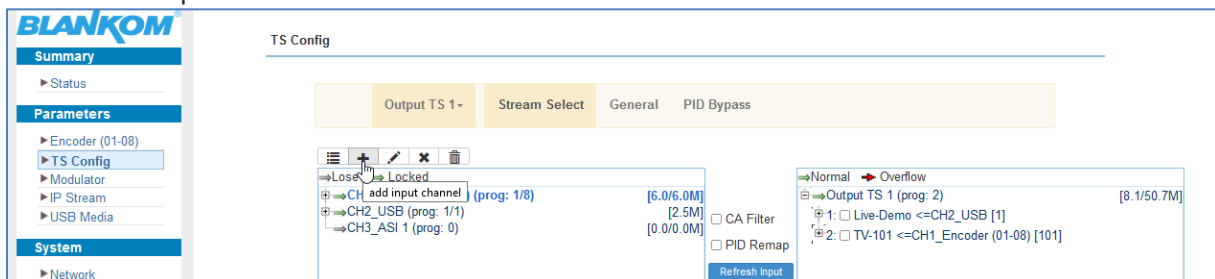


Now you have 2 Services in your first DVB-C Channel and more than enough for the next ones:

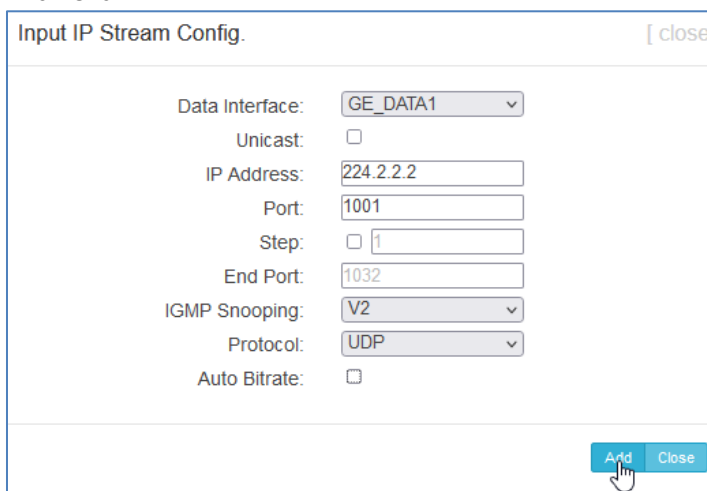


So you can increase your encoded HDMI channel quality or multiplex new sources into it like from ASI-Input or IP Input streams:

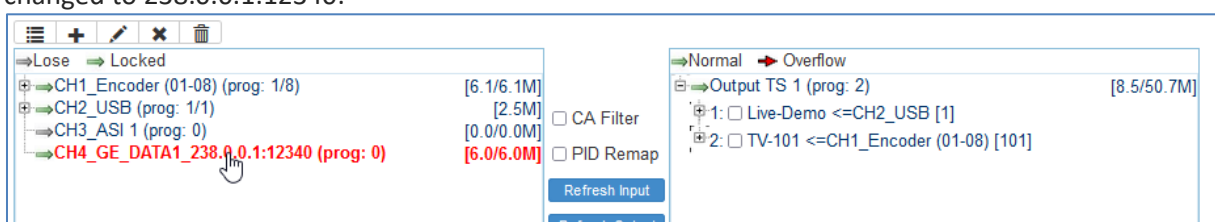
To add an IP Input stream: Press the '+' icon:



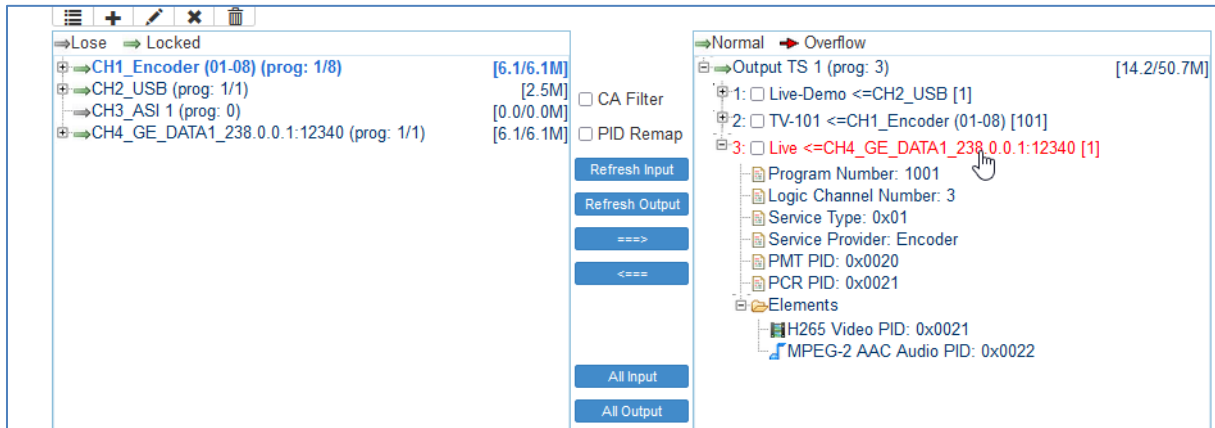
And voila:



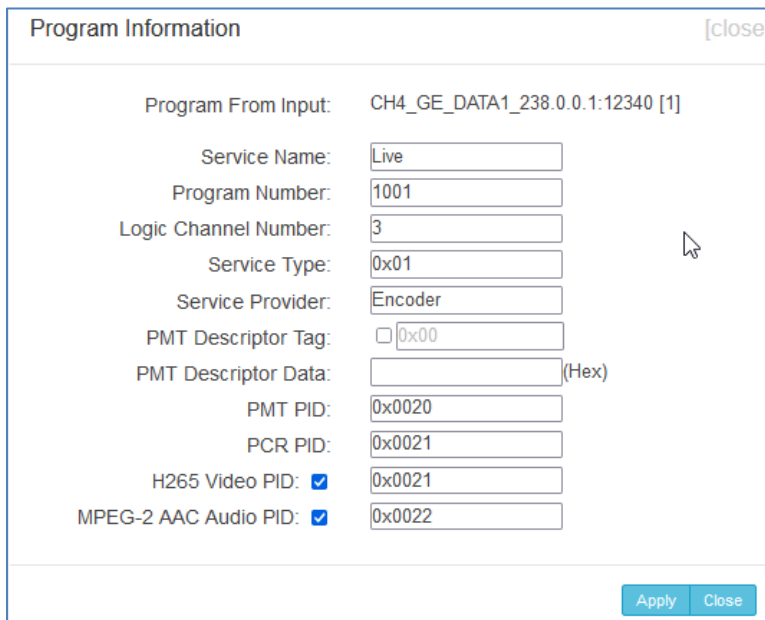
changed to 238.0.0.1:12340:



First, parse it than push it to the right:



Change single outputs values if you like:



Do not forget to APPLY.

NOW WE ARE READY FOR THE TABLEWORK OF THE PSI/SI:

If you never have heard about that single abbreviations, please call a skilled DVB technician please ;-):
 PMT and SDT is must have as well as PAT.
 BAT you probably almost not need so uncheck it please.
 Currently not sure about the Output mode:

But if you want a DVB-C Channel muxed out, than this is the right choice.

To Provide a Network Information Table to the TV sets or STB's for fast tuning the Coax channels:

NIT

NIT Insert:	<input type="text" value="Web insert"/>	Share NIT:	<input type="text" value="Disable"/>
Private Data:	<input type="text" value="Not insert"/>	Network ID:	<input type="text" value="1"/>
Network Name:	<input type="text" value="Web insert"/>	Version Mode:	<input type="text" value="Automatic"/>
Version Number:	<input type="text" value="PSI insert"/> (0-31)	LCN Mode:	<input type="text" value="European"/>

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
						+

Simply press +:

NIT Descriptor [close]

TS ID:	<input type="text" value="1"/>	ON ID:	<input type="text" value="1"/>
Frequency:	<input type="text" value="450.000"/> MHz	Constellation:	<input type="text" value="256 QAM"/>
Symbol Rate:	<input type="text" value="6875"/> Ksps	FEC Inner:	<input type="text" value="1/2 conv."/>
FEC Outer:	<input type="text" value="not outer FEC"/>		

add an existing or your own channel to the

encoder output Muxes-NIT :

NIT Descriptor [close]

TS ID:	<input type="text" value="1"/>	ON ID:	<input type="text" value="1"/>
Frequency:	<input type="text" value="306"/> MHz	Constellation:	<input type="text" value="256 QAM"/>
Symbol Rate:	<input type="text" value="6875"/> Ksps	FEC Inner:	<input type="text" value="No conv."/>
FEC Outer:	<input type="text" value="not outer FEC"/>		

You can later on change or add newer ones:

NIT

NIT Insert:	<input type="text" value="Web insert"/>	Share NIT:	<input type="text" value="Disable"/>
Private Data:	<input checked="" type="checkbox"/> 0x00000000	Network ID:	<input type="text" value="1"/>
Network Name:	<input type="text" value="network-1"/>	Version Mode:	<input type="text" value="Automatic"/>
Version Number:	<input type="text" value="2"/> (0-31)	LCN Mode:	<input type="text" value="European"/>

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
1	1	1	306.000 MHz	256 QAM	6875 Ksps	<input type="button" value="+"/>

TDT/TOT

You should prepare a complete NIT for all your network channels – even the already existing ones. It is a good idea to place your encoder DVB-Channels to the beginning of your network frequencies, because TV sets starting tuning and extracting the NIT for the further fast tuning from the lower channels/frequencies. If you do not, your TV sets need often to be tuned manually to your new encoder channels you are providing as new ones into your DVB-network.

SOME MORE TO ADD:

TDT/TOT

TDT/TOT Insert:

Country Code:

Time Offset Polarity: positive

Time Of Change:

TOT Descriptor Insert: enable

Country Region ID: (0-63)

Local Time Offset: hh:mm

Next Time Offset: hh:mm

IPTV Sync(SPTS)

IPTV Sync:

Sync Period: Sec

Apply

IPTV sync for the input streams (or output?)

TDT/TOT are the time date and offset table settings, which can be inserted into the Multiplexed TS as well.

You should know your country values (see DVB-Specs):

NIT

NIT Insert: Web insert

Private Data:

Network Name:

Version Number: (0-31)

Share NIT:

Network ID:

Version Mode:

LCN Mode:

Index	TS ID	ON ID	Frequency	Constellation
1	1	1	306.000 MHz	256 QAM

TDT/TOT

TDT/TOT Insert:

Country Code:

Time Offset Polarity: positive

Time Of Change:

TOT Descriptor Insert:

Country Region ID:

Local Time Offset: hh:mm

Next Time Offset: hh:mm

time to choose

Hour	Minute	Second
12	09	00
13	10	01
14	11	02
15	12	03
16	13	04
17	14	05
18	15	06
19	16	07

15 : 12 : 00
Clear
Set

Summertime?

PID-BYPASS:

If you have an incoming TS to your Multiplex 1.e. from the ASI or IP Input, you can pass particular PID#s (in HEXadecimal values) from the input to your selected TS outputs:

TS Config

Output TS 1 ▾
Stream Select
General
PID Bypass

Index	Input Channel	Input PID(0x)	Output PID(0x)	
1	1	0x0012	0x0012	+

Set
Del-All

Example from an IP Input EIT/EPG data = PID 12hex (PID18dec):

Index	Input Channel	Input PID(0x)	Output PID(0x)	
1	1	0x0012	0x0012	+ -

Set
Del-All

IP-STREAMS TO MPTS OUTPUTS:

You can stream every or even only selected multicasts of your muxes (identical with every QAM-DVB-C Channel you enabled and configured) to your Ethernet:

IP Stream(GE_DATA1)

Channel Info.(Alarm/Active/Total): 0/0/12

#	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)	
1	224.2.2.2	2001	UDP	7	<input type="checkbox"/>	●	13.7/50.7 M	channel config.
2	224.2.2.2	2002	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
3	224.2.2.2	2003	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
4	224.2.2.2	2004	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
5	224.2.2.2	2005	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
6	224.2.2.2	2006	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
7	224.2.2.2	2007	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
8	224.2.2.2	2008	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
9	224.2.2.2	2009	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
10	224.2.2.2	2010	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
11	224.2.2.2	2011	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	
12	224.2.2.2	2012	UDP	7	<input type="checkbox"/>	●	0.0/50.7 M	

ASI OUT(OPTION)

ASI Out:

Or just use it for checking:

Channel 1 Config. [close]

Enable:

IP Address:

Port:

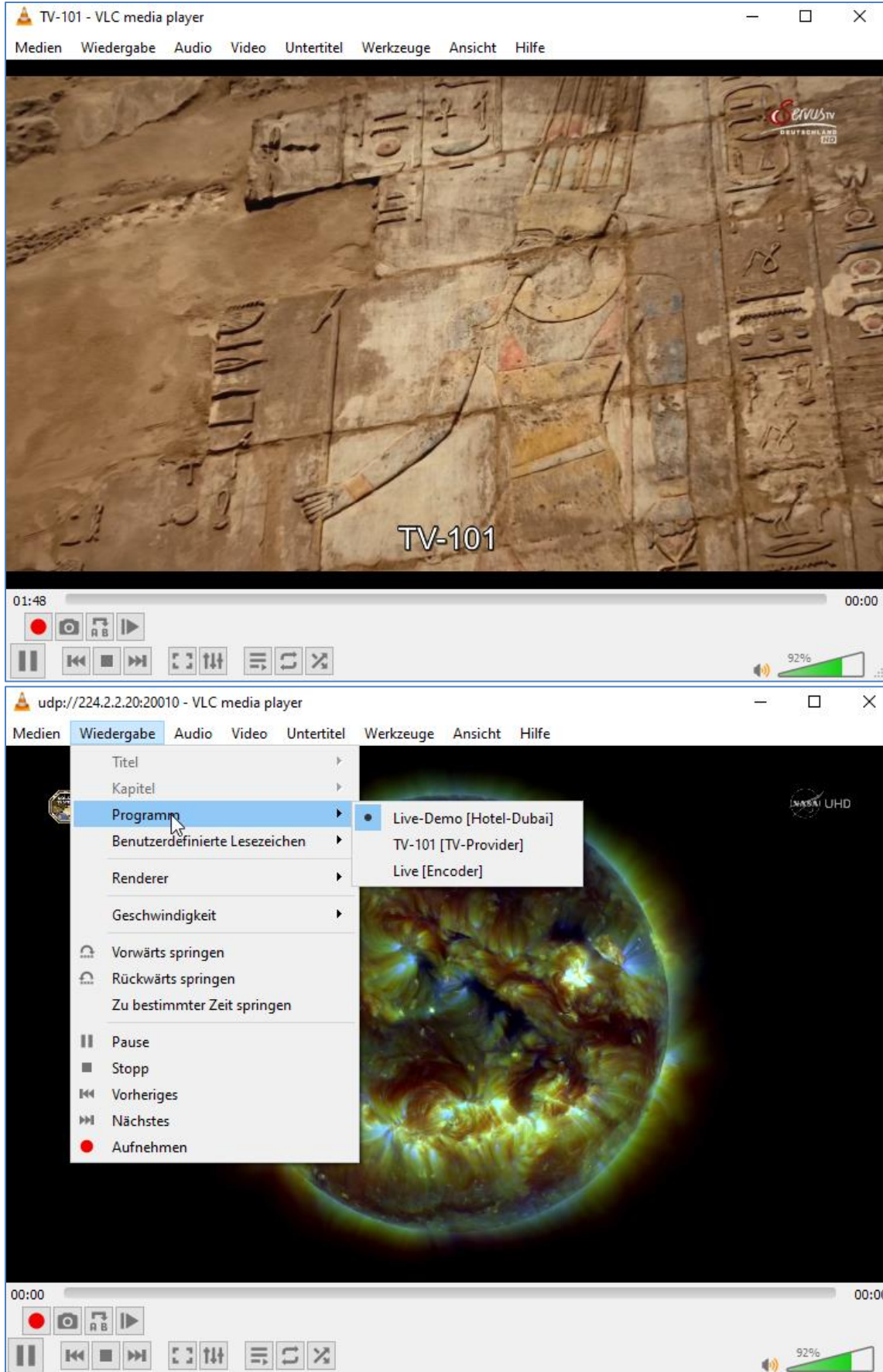
Protocol:

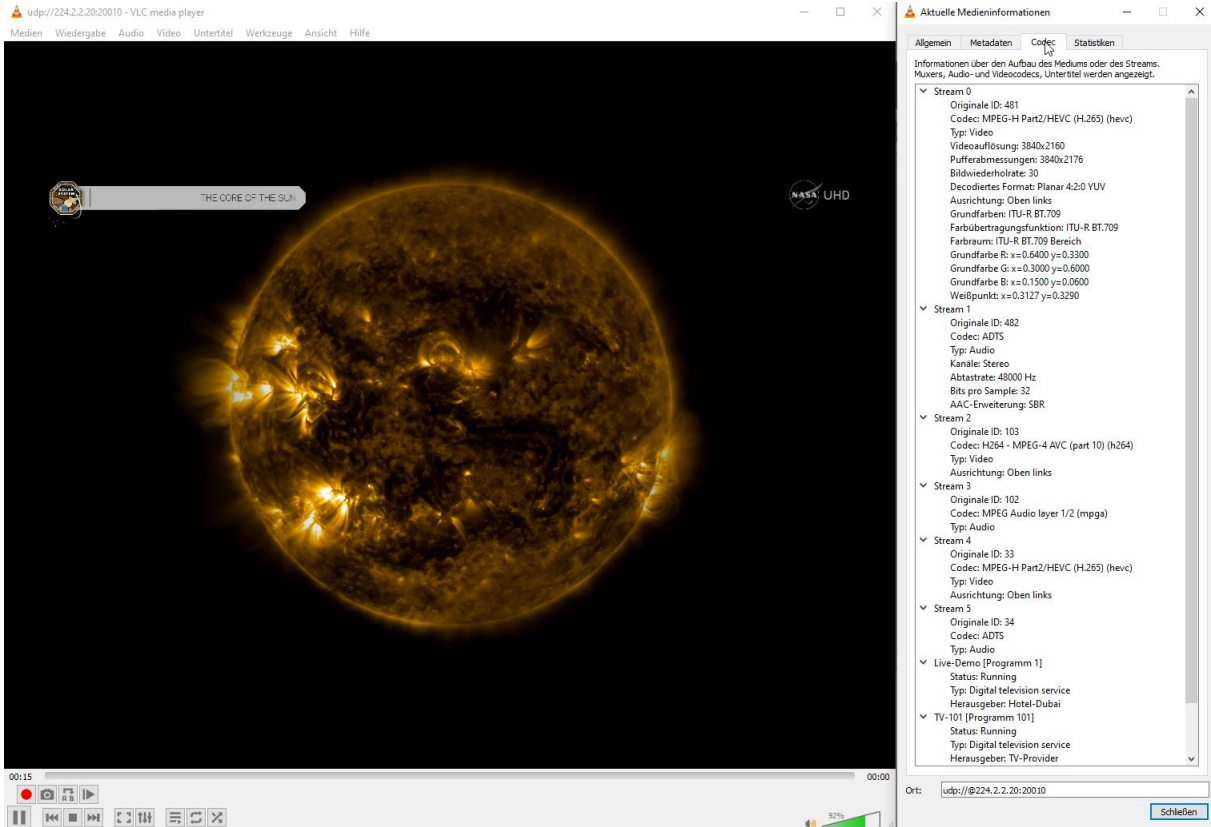
Pkt Length:

Null PKT Filter:

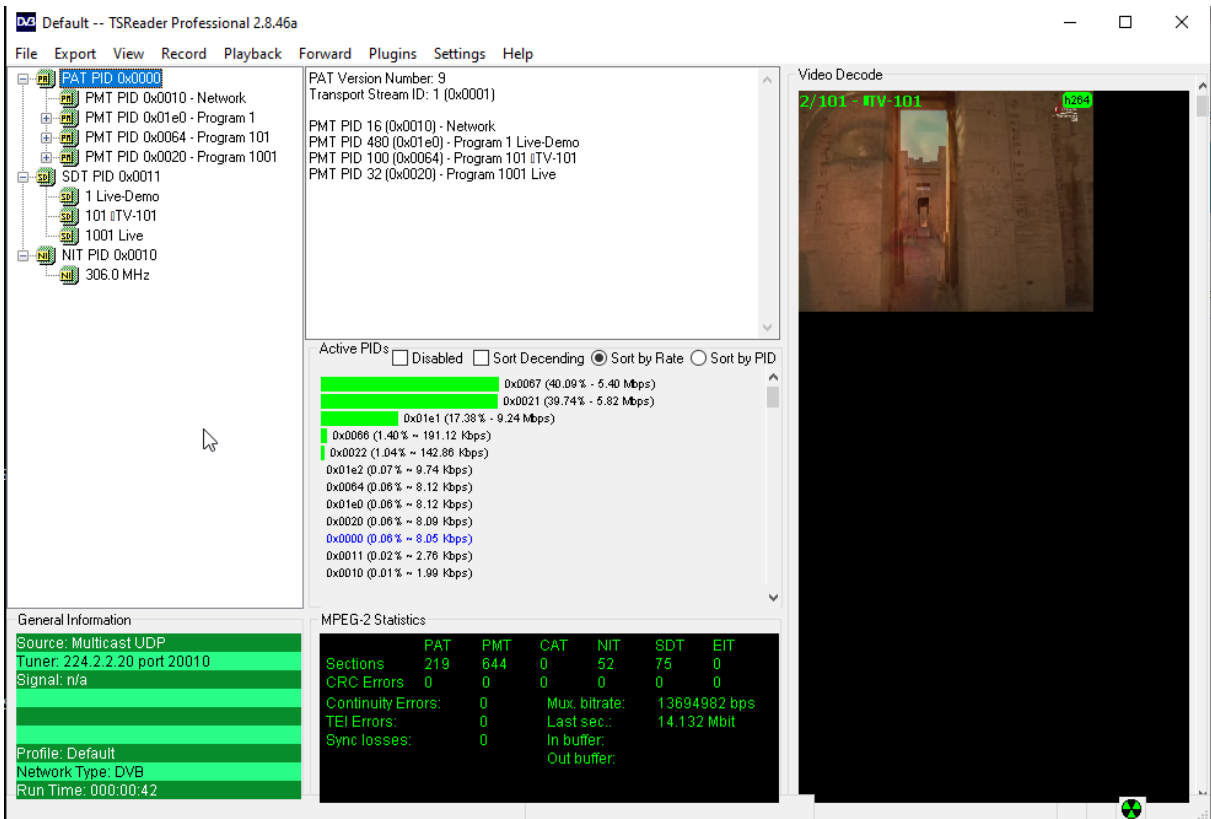
enabling, select IP address multicast, port, protocol, and if you want safe data rates- check the Null-packet filter (a DVB-C Channel fills up the mux to the max data rates on PID8191dec with Zeros to stream a Constant Bitrate (CBR – not to mess-up with the encoding mode CBR/VBR !!!) So w/o zeros it's a VBR.

So we check it simply with VLC at the same network:





For deeper analysis, we recommend a tool like TSReader or DekTec Stream-Expert.



The screenshot shows the StreamXpert interface with the following data:

- PID info (31):**
 - 0 PAT (7.4 kbps / 0.03%)
 - 16 NIT-actual (1.49 kbps / 0.01%)
 - 17 SDT-actual (3.0 kbps / 0.01%)
 - 18 EITpt, EITs (1.96 Mbps / 7.3%)
 - 32 PMT (7.4 kbps / 0.03%)
 - 33 HEVC/H.265 Video (5.3 Mbps / 19.7%)
 - 34 AAC Audio (141 kbps / 0.5%)
 - 100 PMT (7.4 kbps / 0.03%)
 - 102 MPEG-1 Audio (188 kbps / 0.7%)
 - 103 AVC/H.264 Video (5.4 Mbps / 19.9%)
 - 300 PMT (7.4 kbps / 0.03%)
 - 480 PMT (7.4 kbps / 0.03%)
 - 481 HEVC/H.265 Video (2.3 Mbps / 8.5%)
 - 482 AAC Audio (11.6 kbps / 0.04%)
 - 501 MPEG-2 Video (5.3 Mbps / 19.7%)
 - 502 MPEG-1 Audio (198 kbps / 0.7%)
 - 503 MPEG-1 Audio (198 kbps / 0.7%)
 - 504 Teletext Data (259 kbps / 1.0%)
 - 505 PES Private Data 1 (48 kbps / 0.2%)
 - 2171 13818-6 type B (148 kbps / 0.6%)
 - 2370 AIT (10.3 kbps / 0.04%)
 - 2371 AIT (10.3 kbps / 0.04%)
 - 2376 13818-6 type C (10.3 kbps / 0.04%)
 - 2377 13818-6 type B (393 kbps / 1.5%)
 - 5500 PMT (8.8 kbps / 0.03%)
 - 5501 AVC/H.264 Video (3.9 Mbps / 14.5%)
 - 5502 MPEG-1 Audio (198 kbps / 0.7%)
 - 5503 MPEG-1 Audio (200 kbps / 0.7%)
 - 5504 Teletext Data (257 kbps / 1.0%)
 - 5505 PES Private Data 1 (95 kbps / 0.4%)
 - 5506 AC-3 Audio (462 kbps / 1.7%)
- Transport stream 1:**
 - Services (5): Live-Demo (2.3 Mbps / 8.6%), TV-101 (5.6 Mbps / 20.6%), Live (5.5 Mbps / 20.2%), WDR Bielefeld (6.2 Mbps / 23.0%), alt_WDR HD Köln (5.7 Mbps / 21.1%)
 - Tables: PAT, PMT
 - Network ID: 1
 - Table ID: 64
 - Network Name Descriptor: network-1
 - Private Data Specifier Descriptor: Transport-Stream ID: 1
 - Cable Delivery System Descriptor: Frequency: 306.0000 MHz, Outer FEC: 1 (No outer FEC coding), Modulation: 5 (256-QAM), Symbol rate: 6.8750 MSymbol/s, Inner FEC: 15 (no conv. coding)
 - Service List Descriptor
 - Logical Channel Descriptor
 - SDT-actual, EIT-actual, AIT, PID 2370, PID 2371, EIT-actual, EIT-other

And table PIDs in HEXadecimal:

The screenshot shows the StreamXpert interface with the following data:

- PID info (31):**
 - 0x0000 PAT (8.7 kbps / 0.03%)
 - 0x0010 NIT-actual (1.49 kbps / 0.01%)
 - 0x0011 SDT-actual (2.8 kbps / 0.01%)
 - 0x0012 EITpt, EITs (1.96 Mbps / 6.9%)
 - 0x0020 PMT (8.7 kbps / 0.03%)
 - 0x0021 HEVC/H.265 Video (5.4 Mbps / 18.9%)
 - 0x0022 AAC Audio (137 kbps / 0.5%)
 - 0x0064 PMT (8.7 kbps / 0.03%)
 - 0x0066 MPEG-1 Audio (177 kbps / 0.6%)
 - 0x0067 AVC/H.264 Video (5.3 Mbps / 18.7%)
 - 0x012C PMT (8.7 kbps / 0.03%)
 - 0x01E0 PMT (8.7 kbps / 0.03%)
 - 0x01E1 HEVC/H.265 Video (2.3 Mbps / 8.1%)
 - 0x01E2 AAC Audio (11.2 kbps / 0.04%)
 - 0x01F5 MPEG-2 Video (4.9 Mbps / 17.4%)
 - 0x01F6 MPEG-1 Audio (202 kbps / 0.7%)
 - 0x01F7 MPEG-1 Audio (201 kbps / 0.7%)
 - 0x01F8 Teletext Data (258 kbps / 0.9%)
 - 0x01F9 PES Private Data 1 (47 kbps / 0.2%)
 - 0x087B 13818-6 type B (148 kbps / 0.5%)
 - 0x0942 AIT (10.0 kbps / 0.04%)
 - 0x0943 AIT (8.6 kbps / 0.03%)
 - 0x0948 13818-6 type C (10.0 kbps / 0.04%)
 - 0x0949 13818-6 type B (392 kbps / 1.4%)
 - 0x157C PMT (7.3 kbps / 0.03%)
 - 0x157D AVC/H.264 Video (5.1 Mbps / 18.1%)
 - 0x157E MPEG-1 Audio (200 kbps / 0.7%)
 - 0x157F MPEG-1 Audio (200 kbps / 0.7%)
 - 0x1580 Teletext Data (258 kbps / 0.9%)
 - 0x1581 PES Private Data 1 (95 kbps / 0.3%)
 - 0x1582 AC-3 Audio (461 kbps / 1.6%)
- Transport stream 1:**
 - Services (5): Live-Demo (2.3 Mbps / 8.2%), TV-101 (5.5 Mbps / 19.3%), Live (5.5 Mbps / 19.4%), WDR Bielefeld (5.8 Mbps / 20.5%), alt_WDR HD Köln (6.9 Mbps / 24.4%)
 - Tables: PAT
 - Table ID: 0
 - Transport stream ID: 1
 - Original Network ID: 1
 - Program: 0 (Defines Network PID)
 - Program: 1 (Live-Demo)
 - Program: 101 (TV-101)
 - Program: 1001 (Live)
 - Program: 28306 (WDR Bielefeld)
 - Program: 28325 (alt_WDR HD Köln)
 - PMT: Program: 1 (Live-Demo), Program: 101 (TV-101), Program: 1001 (Live), Program: 28306 (WDR Bielefeld), Program: 28325 (alt_WDR HD Köln)
 - NIT-actual
 - SDT-actual: Transport-Stream ID: 1 (onw=1)
 - Table ID: 66
 - Transport-Stream ID: 1
 - Original Network ID: 1
 - Service: 1 (Live-Demo)
 - Service: 101 (TV-101)
 - Service: 1001 (Live)
 - Service: 28306 (WDR Bielefeld)
 - Service: 28325 (alt_WDR HD Köln)
 - EIT-actual, AIT, PID 2370, PID 2371, EIT-actual, EIT-other

So EIT has been passed twice from WDR-MPTS (ASI Input) – that is one reason we recommend to check with professional tools like DekTec (can be bought from us).

HELPFUL FOR TDT/TOT IS THE OWN SYNCHRONISING WITH AN EXTERNAL NTP SERVER:

BLANKOM
Summary
Parameters
System

Date | Time

1970-01-01 06:25:12

Timezone: (GMT+01:00) Amsterdam, Berlin, Bern, Rome ▾

NTP Server 1: 194.25.134.196

NTP Server 2:

NTP Server 3:

NTP Server 4:

NTP Server 5:

Set Timezone Set NTP Update from browser

Update from browser will help the immediate changings:

Date | Time

2021-10-12 16:43:37

Timezone: (GMT+01:00) Amsterdam, Berlin, Bern, Rome ▾

NTP Server 1: 194.25.134.196

NTP Server 2: 192.53.103.104

NTP Server 3:

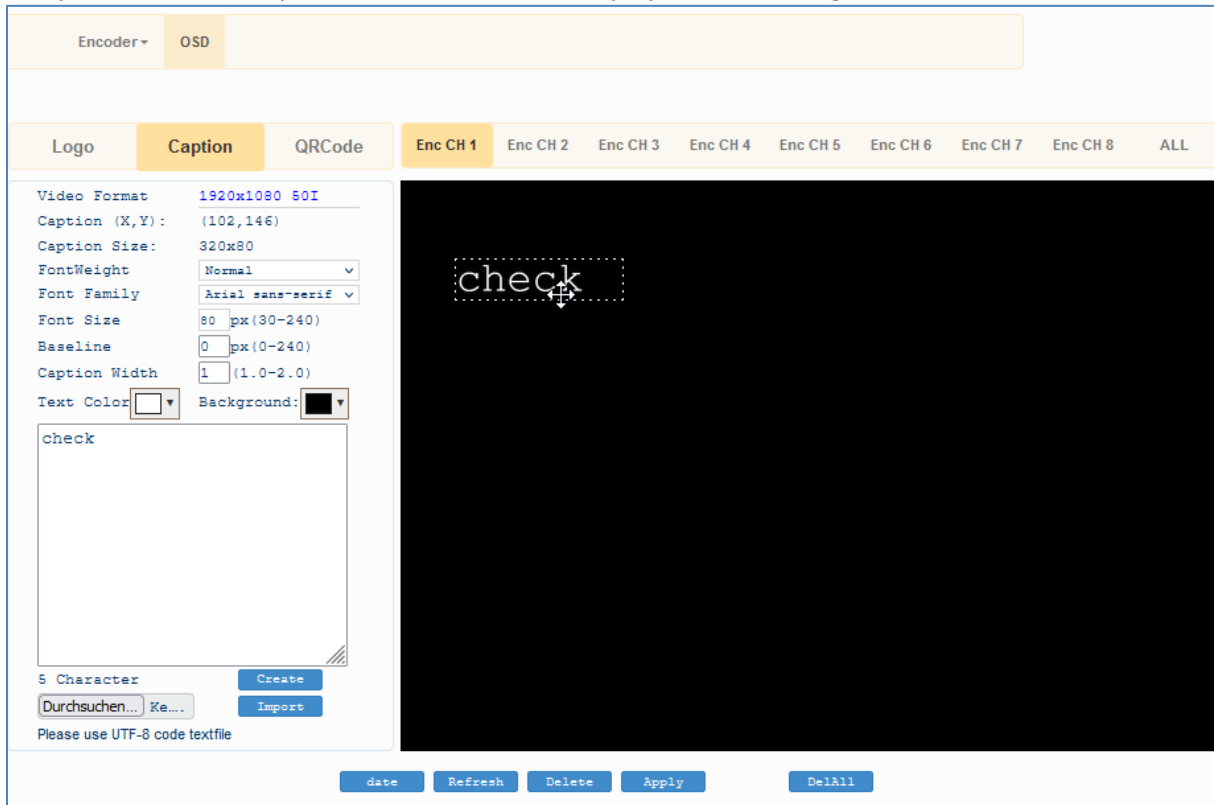
NTP Server 4:

NTP Server 5:

Set Timezone Set NTP Update from browser

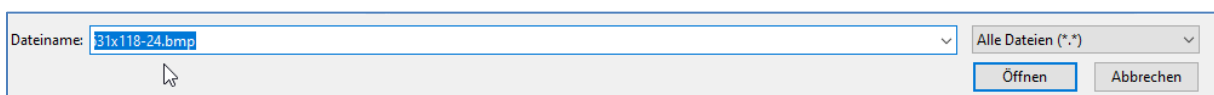
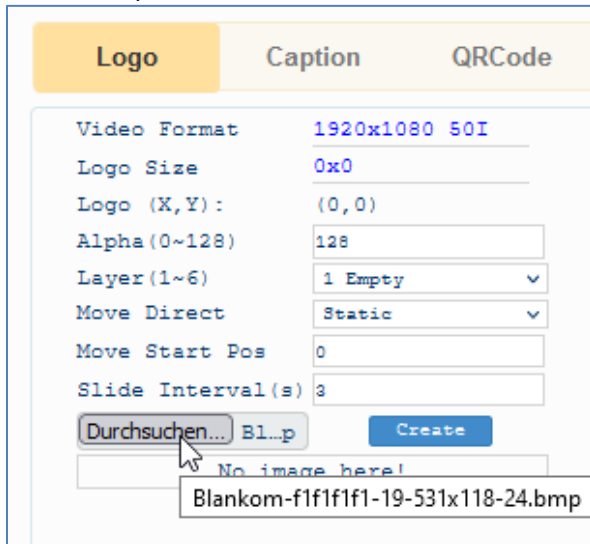
LOGO OR TEXT INSERTIONS TO YOUR CONTENT:

Every encoder module part can insert OnScreenDisplay Content as Logos or Text:

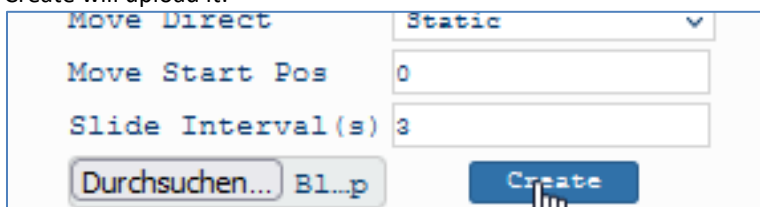


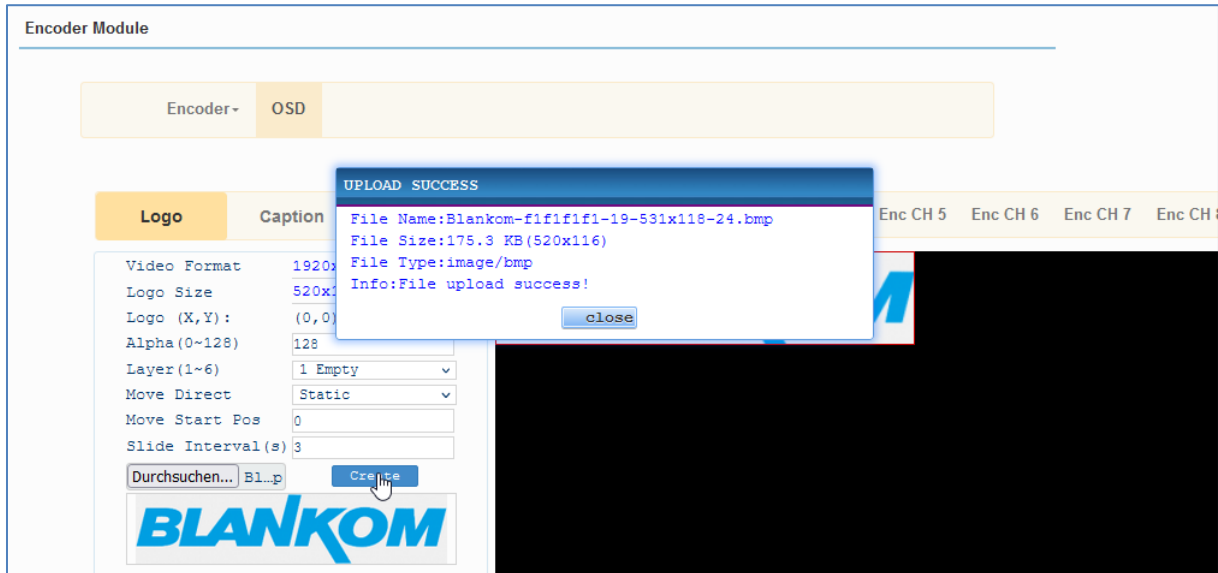
Uploading a Logo:

Select from your PC:

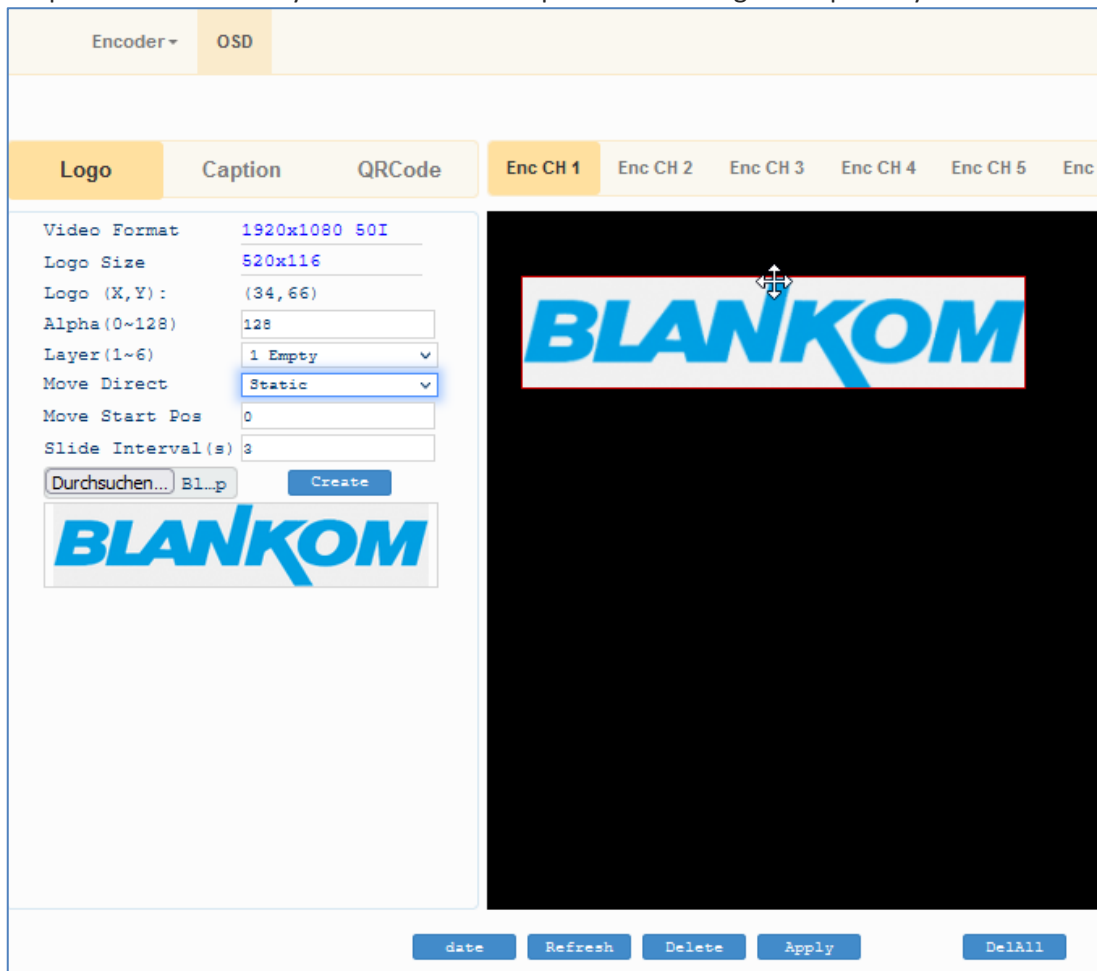


Create will upload it:





You get a preview and can easily move it to another position or change transparency ...





Finally APPLY when ready:

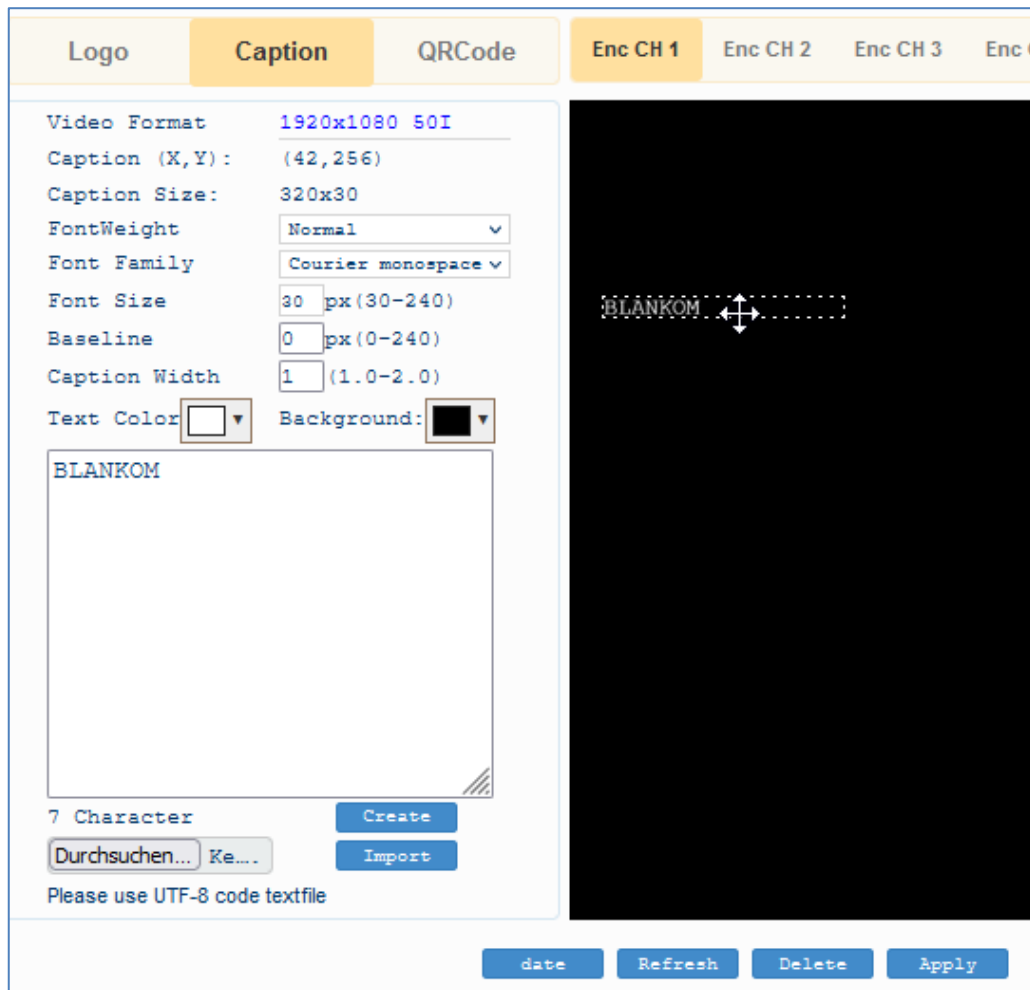


Additional you can do it with a QR-Code creation:

Enter a URL and your QR code can be OSD to your Encoder channel or to all channels of this famous encoder-modulator:

Logo	Caption	QRCode	Enc CH 1	Enc CH 2	Enc CH 3	Enc CH 4	Enc CH 5	En
<p>Video Format: 1920x1080 50I</p> <p>QRCode Size: 128 x 128</p> <p>QRCode (X,Y): (0,0)</p> <p>Alpha (0~128): 128 Layer (1~4): 1 Empty</p> <p>Start Pos: 0 Direct: Static</p> <p>QRCode URL: <input type="text" value="https://www.blankom.de"/></p> <p>Text Location: Bottom</p> <p>Text: go to Blankom</p> <p>QRCode Logo: <input type="text" value="Durchsuchen... Ke..."/></p> <p><input type="button" value="Upload"/> <input type="button" value="Create"/></p> 								
			<p><input type="button" value="date"/> <input type="button" value="Refresh"/> <input type="button" value="Delete"/> <input type="button" value="Apply"/> <input type="button" value="DelAll"/></p>					

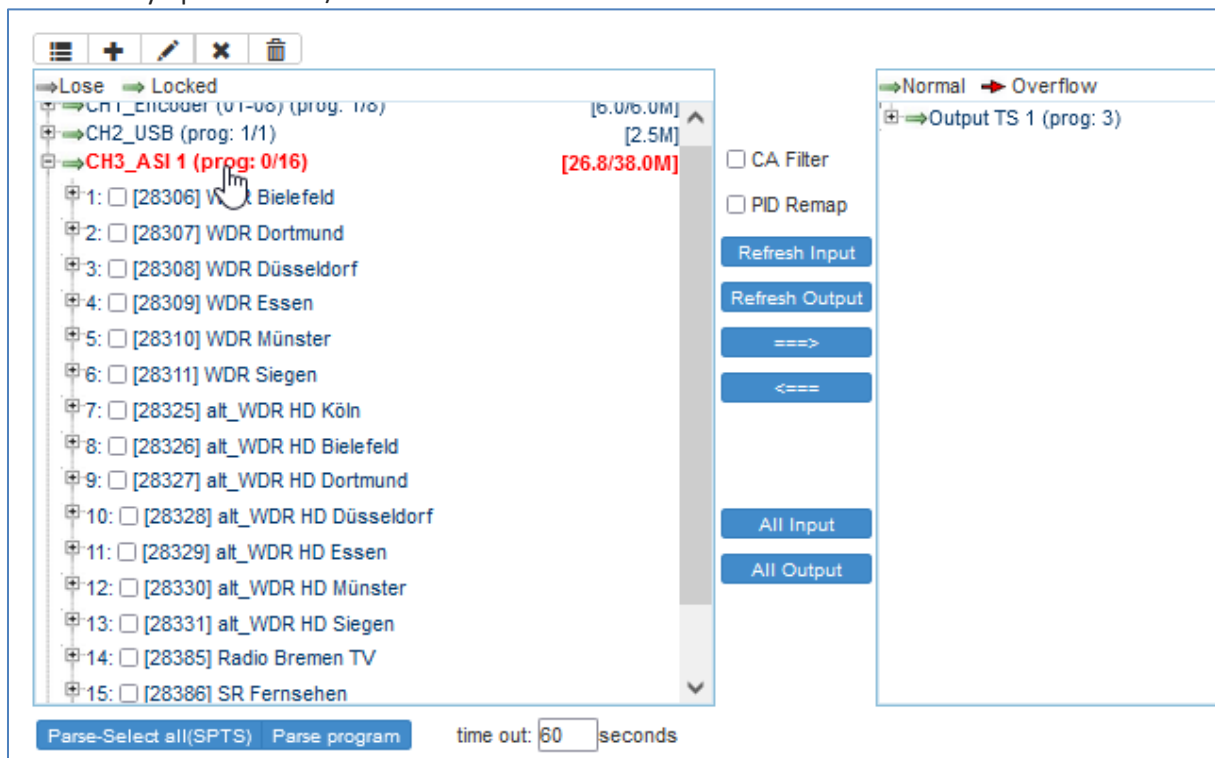
Same for Text only: CAPTION chapter:



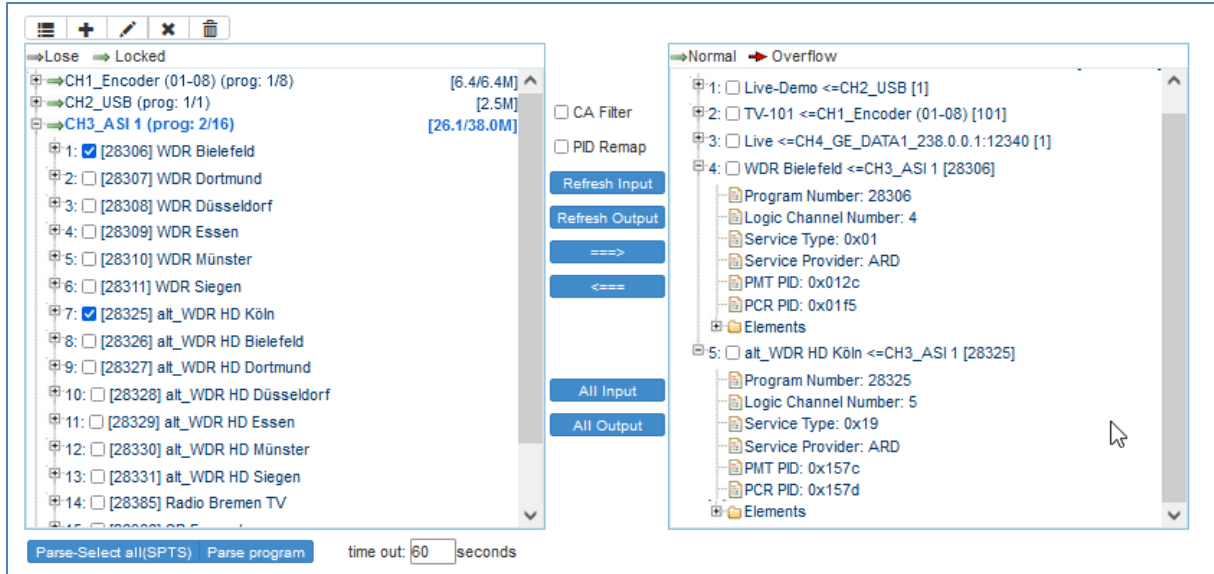
All these can be created and combined as well as used in 6 different layers.

Adding ASI Input content:

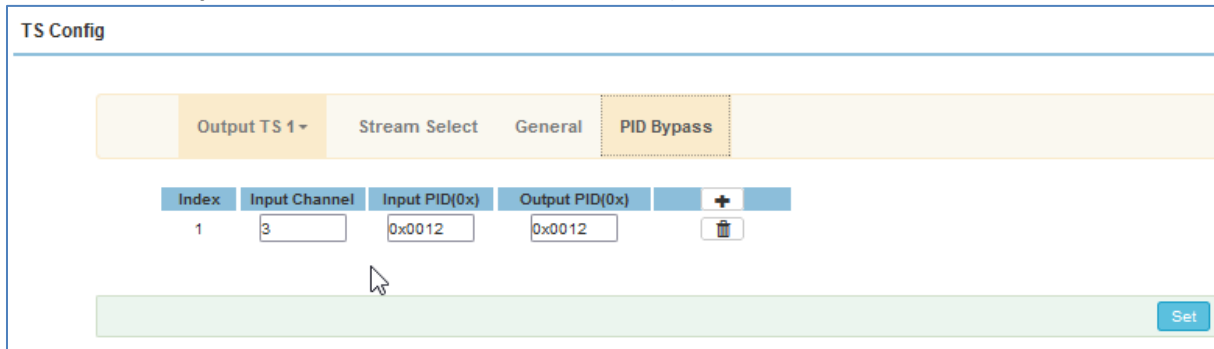
ASI can carry up to 213 Mb/s data...



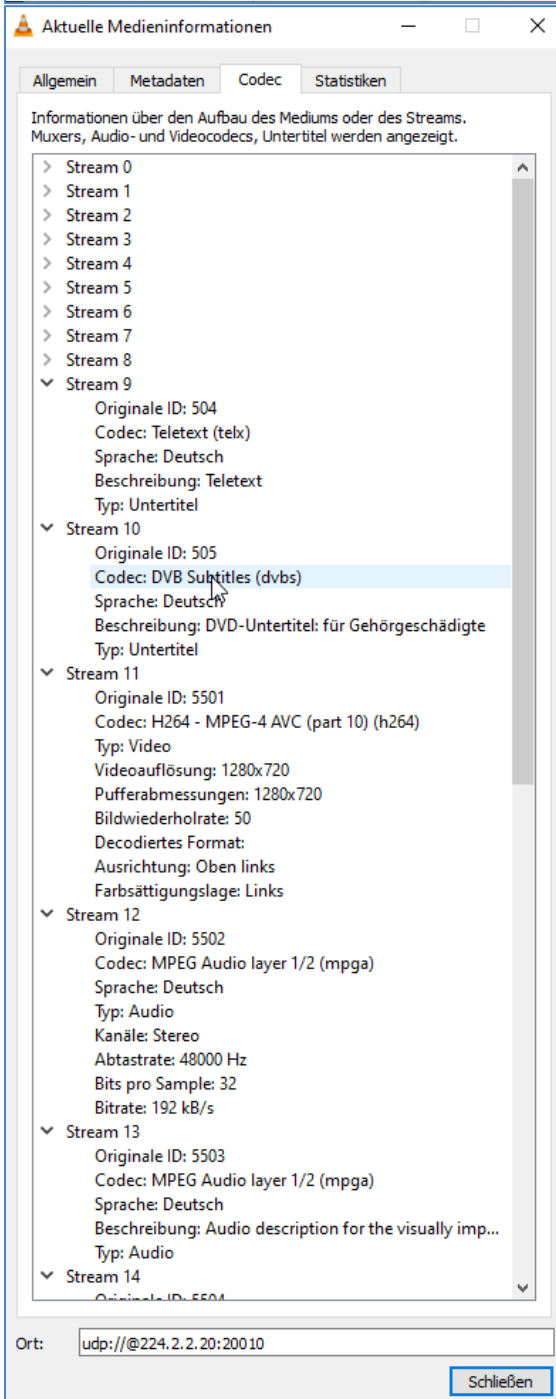
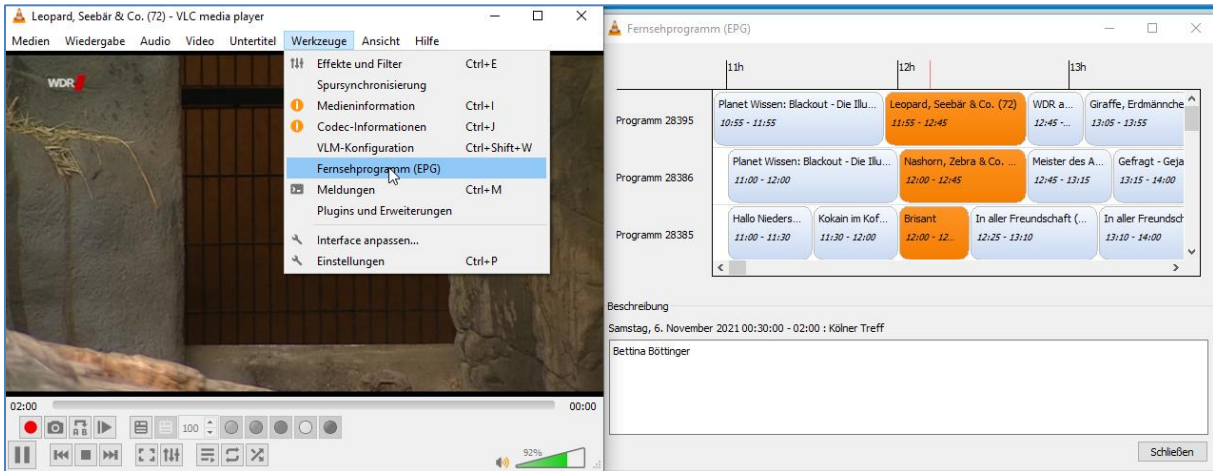
Parsing the content first... than selecting and passing to the right side:



Because Channel3 (ASI IN) carries full DVB-Tables, and we have not done a PID-remapping, we can include as example the EIT (PID0x0012hex = 18decimal) information into the MPTS out now:



YOU CAN CHECK THAT WITH VLC... and there are much more services like Audio descriptor (for the disabled), 2nd Audios...AC3...



But you should know what you do with the TS... knowledge of DVB/MPEG PSI/SI is mandatory.
Finally control the RF –Output.
Remember, we switched one RF-8MHz to off:

SOME USEFUL REMARKS:

The relevant values for ATSC / DVB-C AnnexB (ITU J.83B) (USA, Korea) in the modulator settings are shown: (The rest of the World is using DVB-C Annex A or C (J.83A))

Channel 1 Config.

Standard:	J.83A(DVB-C) v
Level(All Carriers):	J.83A(DVB-C) +3 dBm
	J.83B
Channel Enable:	<input checked="" type="checkbox"/>
Frequency:	650.000 (50 ~ 960 MHz)
Constellation:	256 QAM v
Symbol Rate:	6875 (5000 ~ 7000 Ksps)
Gain offset:	0.0 (-10 ~ 0 dB)

So do not wonder, why Mayor Channel

Number and other values are shown here in TS out Menu:

Normal → Overflow

Output TS 1 (prog: 2)

- 1: Camera1 <=CH1_Encoder (01-08) [101]
 - Major Channel Number: 1
 - Minor Channel Number: 1
 - Source Id: 1
 - Short Name: prog1
 - Program Number: 1001
 - Logic Channel Number: 1
 - Service Type: 0x01
 - Service Provider: TV-Provider
 - PMT PID: 0x0020
 - PCR PID: 0x0021
 - Elements
- 2: STB1 <=CH1_Encoder (01-08) [102]

These will simply be ignored if you push DVB-C – A out. But Logical Channel Number (LCN) belongs to DVB-C-A:

- You can set the Channel sorting order from 1....somehundreds... so the TV set (most modern support that with CATV Inputs) so first Channel which should be 1st in TV program/channel list should get LCN=1, 2nd; LCN=2...

or change them:

Program Information [close]

Program From Input: CH1_Encoder (01-08) [101]

Service Name:	Camera1
Major Channel Number:	1
Minor Channel Number:	1
Source Id:	1
Short Name:	prog1
Program Number:	1001
Logic Channel Number:	1
Service Type:	0x01
Service Provider:	TV-Provider
PMT Descriptor Tag:	<input type="checkbox"/> 0x00
PMT Descriptor Data:	(Hex)
PMT PID:	0x0020
PCR PID:	0x0021
MPEG-4 Video PID:	<input checked="" type="checkbox"/> 0x0021
MPEG-1 Audio PID:	<input checked="" type="checkbox"/> 0x0022

Apply Close

In General Settings this belongs to ATSC / DVB-C Annex B US norms as well:

VCT

VCT Insert: VCT Mode: TVCT

Modulation Mode: 4 Carrier Frequency: 500.000 (30-1000MHz)

So, you can ignore that if you are using the 'normal' DVB-C Modulation as well as the ratings in TS – config:

Output TS 1 - Stream Select General PID Bypass Event **Rating Region**

Index	Dimension Name	Graduated Scale	Rating Num		
1	EntireAudience	1	6		
2	Dialogue	0	2		
3	Language	0	2		
4	Sex	0	2		
5	Violence	0	2		
6	Children	1	3		
7	FantasyViolence	0	2		
8	MPAA	1	9		

If you use the Stream-out, The IP addresses should be changed and been different:

HDM-9424C

Web Management 2024

BLANKOM

Summary

- ▶ Status
- Parameters**
- ▶ Encoder (01-08)
- ▶ Encoder (09-16)
- ▶ Encoder (17-24)
- ▶ TS Config
- ▶ Modulator
- ▶ IP Stream**
- ▶ USB Media
- System**
- ▶ Network
- ▶ Cloud Platform
- ▶ Password

IP Stream(GE_DATA1)

Channel Info.(Alarm/Active/Total): 0/1/12

#	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)	
1	229.2.2.1	20011	UDP	7	<input checked="" type="checkbox"/>	●	8.4/50.7 M	
2	224.2.2.2	2002	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	
3	224.2.2.2	2003	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	
4	224.2.2.2	2004	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	
5	224.2.2.2	2005	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	
6	224.2.2.2	2006	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	
7	224.2.2.2	2007	UDP	7	<input type="checkbox"/>	●	0.0/38.0 M	

If not, the connected GbE Switch cannot separate them as IGMP function works on Ip Addresses of the multicasts to separate them.

Play USB-Media files: Recommended: USB-PEN formatted as FAT32, (restrictions apply because of 4GB filesystem), Movie file in MP4 h.264 and TS format is the best choice.

USB Media

Play TS

Play Mode: Loop all

File Select: UHD-SPTS-encoder.ts

Auto Play: UHD-SPTS-encoder.ts tag24.ts

Start Apply

Status

Disk Usage: 0.26/3.75 GB

Play Status: ●

Remove Device

Parse input stream then

But HEVC would work as well:

BUT: For a smooth Video playing and inserting, we recommend to always use the same resolution and codec's for the Loop playing.

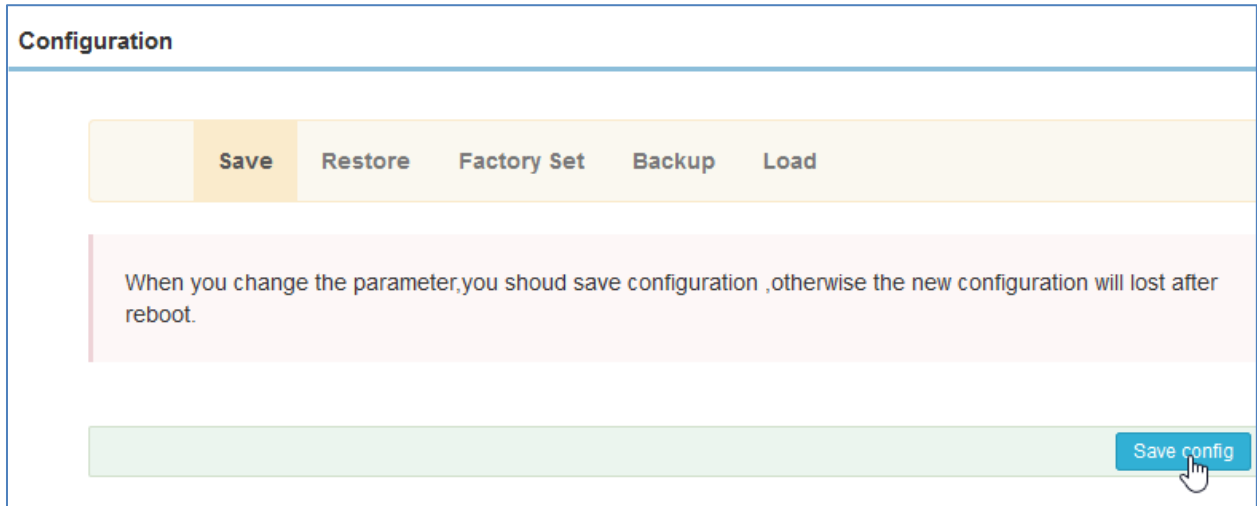
The CLOUD feature is only for special cases where a Cloud access is given:

If you want to use that feature, please ask us...

Change IP address and you can enter the Web-Interface by the GbE DATA Port as well:

DO NOT Forget to SAVE your settings in Configuration Menu.

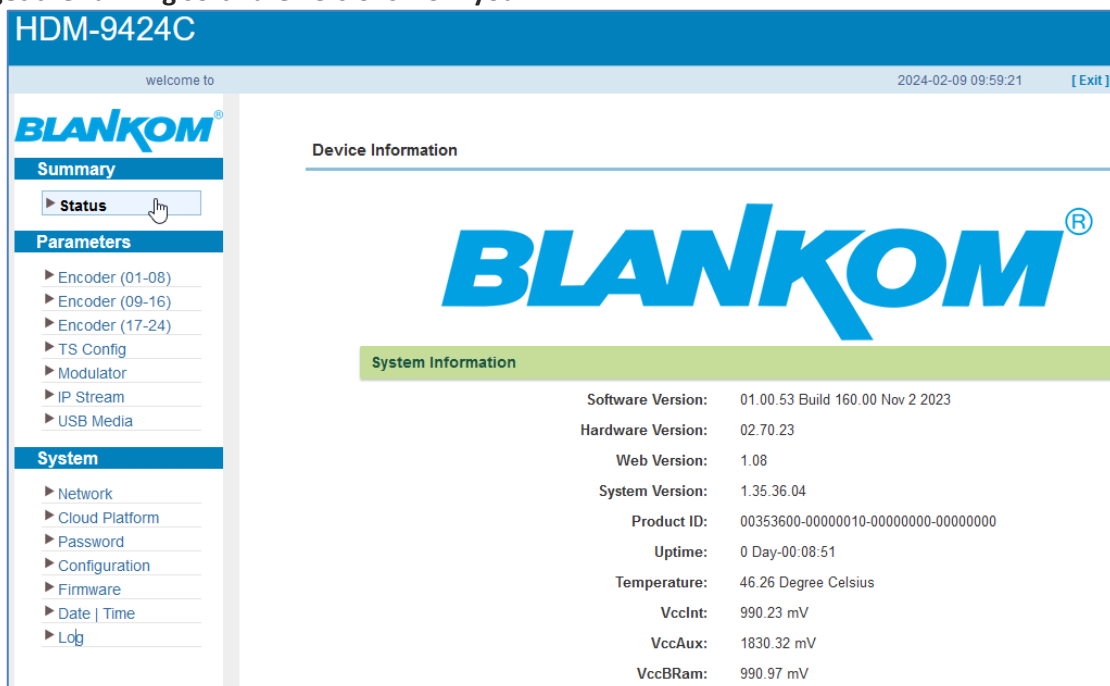
#	IP Address	Subnet Mask	Gateway	MAC Address	
GE_DATA1	192.168.1.137	255.255.255.0	192.168.1.1	24:20:22:4a:00:51	<input type="checkbox"/>



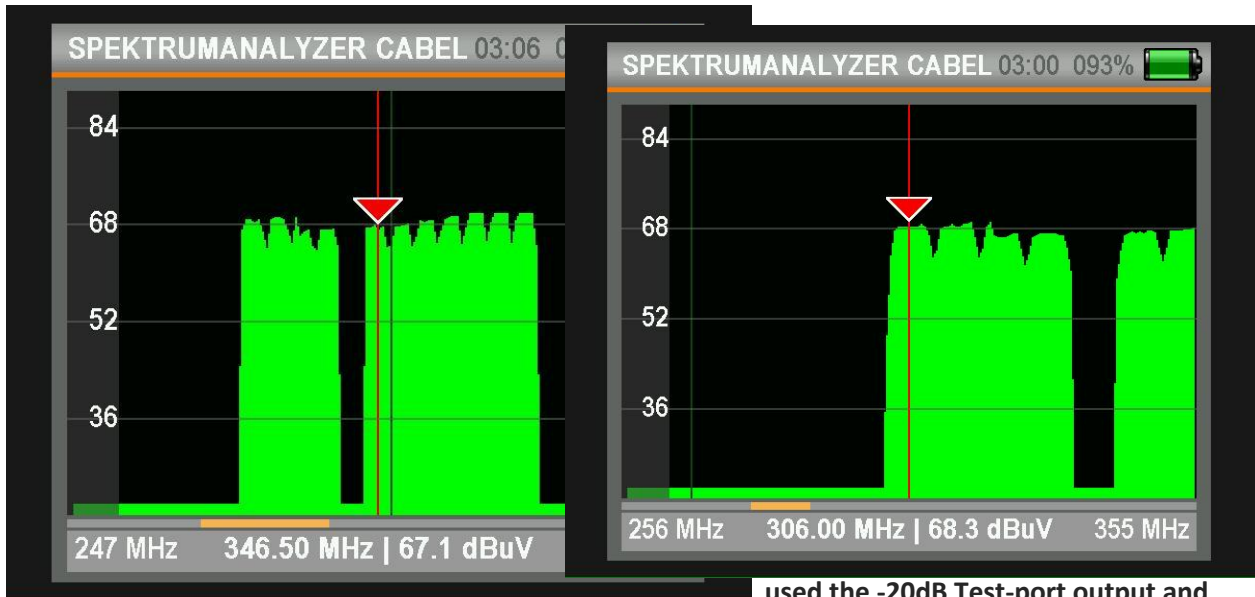
The manual can be downloaded from our web: /Downloads:



If you find a problem, please send us an email starting with the screenshot of the STATUS Page so we will get the running software versions from you:



Some examples measurements of RF out:



used the -20dB Test-port output and 2x9dB attenuators: = 38dB attenuation in total. Means: the output level is 68+38= 106dBµV w/o internal attenuation of the GAIN:

Modulator

Center Frequency: 350.000 MHz Standard: J.83A(DVB-C)
 Level(All Carriers): 0.0 dBm Channel Info.(Alarm/Active/Total): 0/11/12

#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)
1	306.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	31.5/50.7 M
2	314.000 MHz	256 QAM	6875 Ksps	0.0 dB	●	0.0/50.7 M

RF-CHANNEL OUTPUTS (HERE DVB-C (SAME RANGE DVB-T MODULATOR IS USING):

You should adjust the QAM Channels according to the ITU Cenelec Channel line up's, so that TV sets can easier tune by using the default channel lists:

Example starting with

				Superband ^{[1][2]}			
Analog Kanal	Analog-frequenz in MHz (7 MHz-Raster)	Digital Kanal	Digital-frequenz in MHz (8 MHz-Raster)	Analog Kanal	Analog-frequenz in MHz (7 MHz-Raster)	Digital Kanal	Digital-frequenz in MHz (8 MHz-Raster)
S04	105,25			S11	231,25	(D234)	(234±4)
S02	112,25	D114	114±4	S12	238,25		
S03	119,25	D122	122±4	S13	245,25	(D242)	(242±4)
S04	126,25	D130	130±4	S14	252,25	(D250)	(250±4)
S05	133,25			S15	259,25	(D258)	(258±4)
S06	140,25	D138	138±4	S16	266,25	(D266)	(266±4)
S07	147,25	D146	146±4	S17	273,25	(D274)	(274±4)
S08	154,25	D154	154±4	S18	280,25	(D282)	(282±4)
S09	161,25	D162	162±4	S19	287,25	(D290)	(290±4)
S10	168,25	D170	170±4	S20	294,25	(D298)	(298±4)

That's enough for 16 channels.

Please note:

Remultiplexing would destroy EPG data from the original source. This cost effective Receiver / multiplexer / scrambler / modulator does not support EIT remultiplexing.

Level (dBµV) / Voltages (mV)

Level (dBµV)	0	1	2	3	4	5	6	7	8	9
40	0,10	0,11	0,13	0,14	0,16	0,18	0,20	0,22	0,25	0,28
50	0,32	0,36	0,40	0,45	0,50	0,56	0,63	0,71	0,79	0,89
60	1	1,1	1,3	1,4	1,6	1,8	2	2,2	2,5	2,8
70	3,2	3,6	4	4,5	5	5,6	6	7	8	9
80	10	11	13	14	16	18	20	22	25	28
90	32	36	40	45	50	56	63	71	79	89
100	100	112	126	141	158	178	200	224	251	281
110	316	355	398	447	501	562	631	708	794	891
120	1000	1122	1259	1413	1585	1778	2000	2239	2512	2818

DVB/MPEG-SOURCES:

http://www.etsi.org/deliver/etsi_en/300400_300499/300468/01.15.01_60/en_300468v011501p.pdf
<https://www.dvb.org/standards>

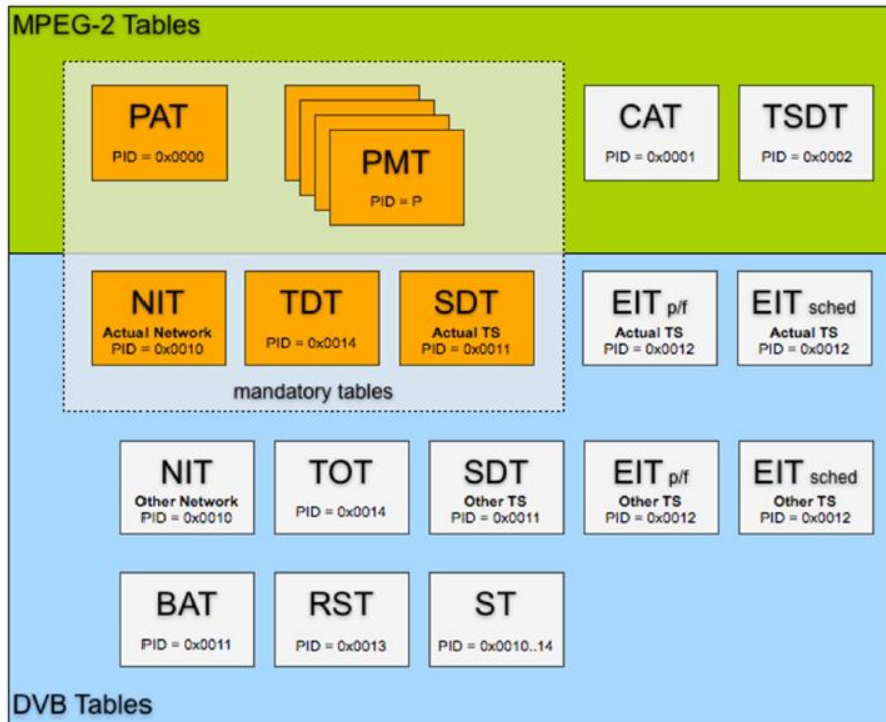
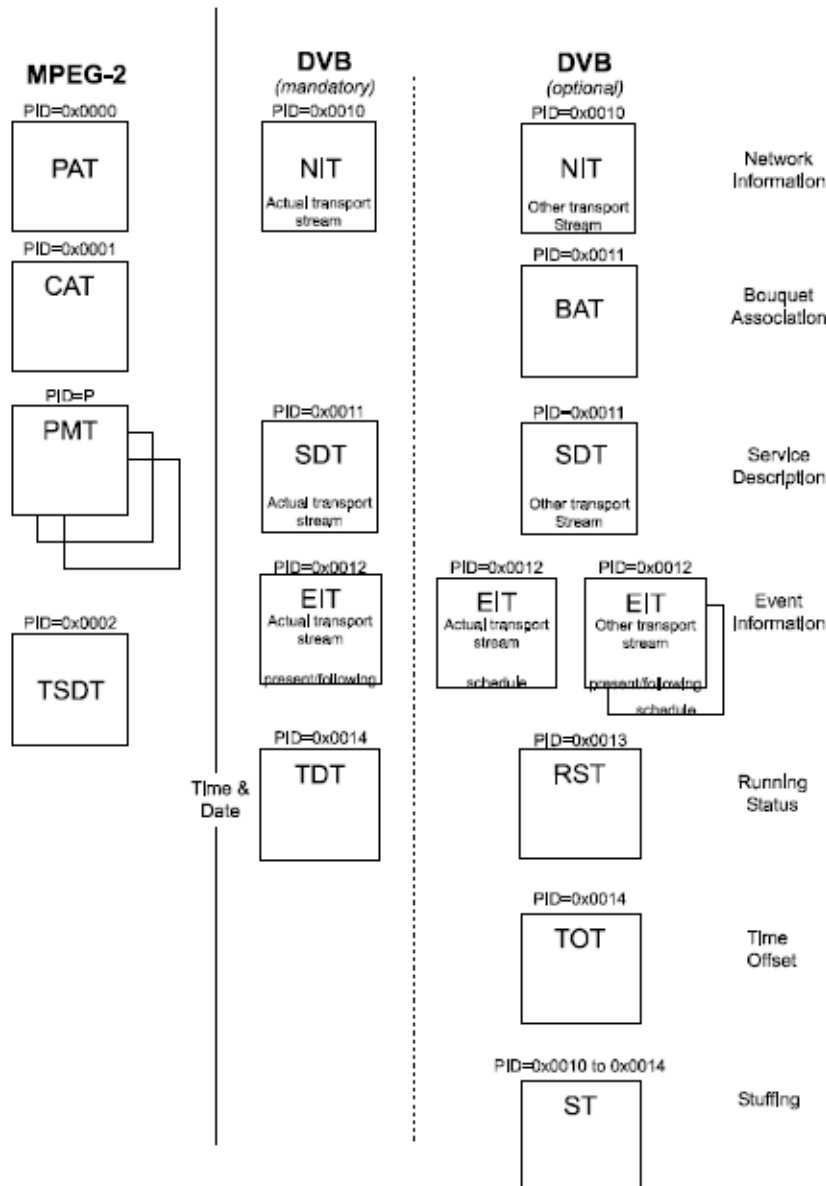


Table 1: PID allocation for SI

Table	PID value
PAT	0x0000
CAT	0x0001
TSDT	0x0002
reserved	0x0003 to 0x000F
NIT, ST	0x0010
SDT, BAT, ST	0x0011
EIT, ST, CIT (ETSI TS 102 323 [13])	0x0012
RST, ST	0x0013
TDT, TOT, ST	0x0014
network synchronization	0x0015
RNT (ETSI TS 102 323 [13])	0x0016
reserved for future use	0x0017 to 0x001B
link-local inband signalling	0x001C
measurement	0x001D
DIT	0x001E
SIT	0x001F

We assume that the user is familiar with all abbreviations mentioned in this manual...



ABBREVIATIONS FROM EN 300 468 V1.3.1 (1998-02)

For the purposes of the present document, the following abbreviations apply:

- BAT Bouquet Association Table
- BCD Binary Coded Decimal
- bslbf bit string, left bit first
- CA Conditional Access
- CAT Conditional Access Table
- CLUT Colour Look-Up Table
- CRC Cyclic Redundancy Check
- DIT Discontinuity Information Table
- DVB Digital Video Broadcasting
- EBU European Broadcasting Union
- EIT Event Information Table
- EMM Entitlement Management Message
- EPG Electronic Programme Guide
- ETS European Telecommunication Standard
- FEC Forward Error Correction
- IEC International Electrotechnical Commission
- IRD Integrated Receiver Decoder
- ISO International Organization for Standardization
- LSB Least Significant Bit
- MJD Modified Julian Date

- MPEG Moving Pictures Expert Group
- NIT Network Information Table
- NVOD Near Video On Demand
- PAT Program Association Table
- PID Packet Identifier
- PMT Program Map Table
- PSI Program Specific Information
- PSTN Public Switched Telephone Network
- QAM Quadrature Amplitude Modulation
- QPSK Quaternary Phase Shift Keying
- rpchof remainder polynomial coefficients, highest order first
- RS Reed - Solomon
- RST Running Status Table
- SDT Service Description Table
- SI Service Information
- SIT Selection Information Table
- SMI Storage Media Interoperability
- ST Stuffing Table
- TDT Time and Date Table
- TOT Time Offset Table
- TS Transport Stream
- uimsbf unsigned integer most significant bit first
- UTC Universal Time, Co-ordinated
- ...

ANNEX CHANNEL PLAN CATV CHANNEL PLAN:

Bereich Bands	Kanal Channel	Kanal-frequenzen Channel frequency (MHz)	Mitten-frequenz Middle frequency (MHz)	Bild-träger Picture carrier (MHz)	Ton-träger Sound carrier (MHz)	Bereich Bands	Kanal Channel	Kanal-frequenzen Channel frequency (MHz)	Mitten-frequenz Middle frequency (MHz)	Bild-träger Picture carrier (MHz)	Ton-träger Sound carrier (MHz)
B I	2	47...54	50,50	48,25	53,75	B IV	21	470...478	474,00	471,25	476,75
	3	54...61	57,50	55,25	60,75		22	478...486	482,00	479,25	484,75
	4	61...68	64,50	62,25	67,75		23	486...494	490,00	487,25	492,75
USB Unterer Sonderkanal-bereich Midband channels	S 02	111...118	114,50	112,25	117,75	24	494...502	498,00	495,25	500,75	
	S 03	118...125	121,50	119,25	124,75	25	502...510	506,00	503,25	508,75	
	S 04	125...132	128,50	126,25	131,75	26	510...518	514,00	511,25	516,75	
	S 05	132...139	135,50	133,25	138,75	27	518...526	522,00	519,25	524,75	
	S 06	139...146	142,50	140,25	145,75	28	526...534	530,00	527,25	532,75	
	S 07	146...153	149,50	147,25	152,75	29	534...542	538,00	535,25	540,75	
	S 08	153...160	156,50	154,25	159,75	30	542...550	546,00	543,25	548,75	
	S 09	160...167	163,50	161,25	166,75	31	550...558	554,00	551,25	556,75	
	S 10	167...174	170,50	168,25	173,75	32	558...566	562,00	559,25	564,75	
	B III	5	174...181	177,50	175,25	180,75	32	566...574	570,00	567,25	572,75
6		181...188	184,50	182,25	187,75	33	574...582	578,00	575,25	580,75	
7		188...195	191,50	189,25	194,75	34	582...590	586,00	583,25	588,75	
8		195...202	198,50	196,25	201,75	35	590...598	594,00	591,25	596,75	
9		202...209	205,50	203,25	208,75	36	598...606	602,00	599,25	604,75	
10		209...216	212,50	210,25	215,75	B V	37	606...614	610,00	607,25	612,75
11		216...223	218,50	217,25	222,75	38	614...622	618,00	615,25	620,75	
12		223...230	226,50	224,25	229,75	39	622...630	626,00	623,25	628,75	
S 11		230...237	233,50	231,25	236,75	40	630...638	634,00	631,25	636,75	
S 12		237...244	240,50	238,25	243,75	41	638...646	642,00	639,25	644,75	
S 13		244...251	247,50	245,25	250,75	42	646...654	650,00	647,25	652,75	
OSB Oberer Sonderkanal-bereich Superband channels		S 14	251...258	254,50	252,25	257,75	43	654...662	658,00	655,25	660,75
	S 15	258...265	261,50	259,25	264,75	44	662...670	666,00	663,25	668,75	
	S 16	265...272	268,50	266,25	271,75	45	670...678	674,00	671,26	676,75	
	S 17	272...279	275,50	273,25	278,75	46	678...686	682,00	679,25	684,75	
	S 18	279...286	282,50	280,25	285,75	47	686...694	690,00	687,25	692,75	
	S 19	286...293	289,50	287,25	292,75	48	694...702	698,00	695,25	700,75	
	S 20	293...300	296,50	294,25	299,75	49	702...710	706,00	703,25	708,75	
	S 21	302...310	306,00	303,25	308,75	50	710...718	714,00	711,25	716,75	
ESB Erweiterter Sonderkanal-bereich Hyperband channels	S 22	310...318	314,00	311,25	316,75	51	718...726	722,00	719,25	724,75	
	S 23	318...326	322,00	319,25	324,75	52	726...734	730,00	727,25	732,75	
	S 24	326...334	330,00	327,25	332,75	53	734...742	738,00	735,25	740,75	
	S 25	334...342	338,00	335,25	340,75	54	742...750	746,00	743,25	748,75	
	S 26	342...350	346,00	343,25	348,75	55	750...758	754,00	751,25	756,75	
	S 27	350...358	354,00	351,25	356,75	56	758...766	762,00	759,25	764,75	
	S 28	358...366	362,00	359,25	364,75	57	766...774	770,00	767,25	772,75	
	S 29	366...374	370,00	367,25	372,75	58	774...782	778,00	775,25	780,75	
	S 30	374...382	378,00	375,25	380,75	59	782...790	786,00	783,25	788,75	
	S 31	382...390	386,00	383,25	388,75	60	790...798	794,00	791,25	796,75	
	S 32	390...398	394,00	391,25	396,75	61	798...806	802,00	799,25	804,75	
	S 33	398...406	402,00	399,25	404,75	62	806...814	810,00	807,25	812,75	
	S 34	406...414	410,00	407,25	412,75	63	814...822	818,00	815,25	820,75	
	S 35	414...422	418,00	415,25	420,75	64	822...830	826,00	823,25	828,75	
	S 36	422...430	426,00	423,25	428,75	65	830...838	834,00	831,25	836,75	
	S 37	430...438	434,00	431,25	436,75	66	838...846	842,00	839,25	844,75	
	S 38	438...446	442,00	439,25	444,75	67	846...854	850,00	847,25	852,75	
	S 39	446...454	450,00	447,25	452,75	68	854...862	858,00	855,25	860,75	
	S 40	454...462	458,00	455,25	460,75						
	S 41	462...470	466,00	463,25	468,75						

APPENDIX DB

Conversions of Power @ 75Ω / Umrechnungstabelle dBμV <-> dBm

dBmV	dBμV	dBm 75Ω	mV _{RMS}	mW 75Ω
8	68	-40.75	2.51	8.4E-05
9	69	-39.75	2.82	1.1E-04
10	70	-38.75	3.16	1.3E-04
11	71	-37.75	3.55	1.7E-04
12	72	-36.75	3.98	2.1E-04
13	73	-35.75	4.47	2.7E-04
14	74	-34.75	5.01	3.3E-04
15	75	-33.75	5.62	4.2E-04
16	76	-32.75	6.31	5.3E-04
17	77	-31.75	7.08	6.7E-04
18	78	-30.75	7.94	8.4E-04
19	79	-29.75	8.91	1.1E-03
20	80	-28.75	10.00	1.3E-03
21	81	-27.75	11.22	1.7E-03
22	82	-26.75	12.59	2.1E-03
23	83	-25.75	14.13	2.7E-03
24	84	-24.75	15.85	3.3E-03
25	85	-23.75	17.78	4.2E-03
26	86	-22.75	19.95	5.3E-03
27	87	-21.75	22.39	6.7E-03
28	88	-20.75	25.12	8.4E-03
29	89	-19.75	28.18	0.011
30	90	-18.75	31.62	0.013
31	91	-17.75	35.48	0.017
32	92	-16.75	39.81	0.021
33	93	-15.75	44.67	0.027
34	94	-14.75	50.12	0.033
35	95	-13.75	56.23	0.042
36	96	-12.75	63.10	0.053
37	97	-11.75	70.79	0.067
38	98	-10.75	79.43	0.084
39	99	-9.75	89.13	0.106
40	100	-8.75	100.00	0.133
41	101	-7.75	112.20	0.168
42	102	-6.75	125.89	0.211
43	103	-5.75	141.25	0.266

dBmV	dB μ V	dBm 75 Ω	mV _{RMS}	mW 75 Ω
44	104	-4.75	158.49	0.335
45	105	-3.75	177.83	0.422
46	106	-2.75	199.53	0.531
47	107	-1.75	223.87	0.668
48	108	-0.75	251.19	0.841
49	109	0.25	281.84	1.059
50	110	1.25	316.23	1.333
51	111	2.25	354.81	1.679
52	112	3.25	398.11	2.113
53	113	4.25	446.68	2.660
54	114	5.25	501.19	3.349
55	115	6.25	562.34	4.216
56	116	7.25	630.96	5.308
57	117	8.25	707.95	6.683
58	118	9.25	794.33	8.413
59	119	10.25	891.25	10.591
60	120	11.25	1000.00	13.333
61	121	12.25	1122.02	16.786
62	122	13.25	1258.93	21.132
63	123	14.25	1412.54	26.604
64	124	15.25	1584.89	33.492
65	125	16.25	1778.28	42.164
66	126	17.25	1995.26	53.081
67	127	18.25	2238.72	66.825
68	128	19.25	2511.89	84.128

MAX. LEVELS/MIN. LEVELS FOR ANTENNA SOCKETS ACCORD. DIN EN50083-7

Range	Level	
	Min. dB μ V	max.
FM (Mono)	40	70
FM (Stereo)	50	70
B I, Midband, B III, Superband, Ext. Superband, B IV/V	60	80*)

*) 77 dB μ V for systems distributing more than 20 channels.



APPENDIX A PRODUCT DISPOSAL

Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

تذكرة

تنبيه

تذكرة

تنبيه

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.




Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.


SAFETY INSTRUCTIONS

Read the safety instructions carefully before assembling or commissioning the device and ensure that you comply with them


1. Installation

- **Danger:** The device may **only** be installed and started up by competent people (see EN 60065).
- **Danger:** The device and the peripheral distribution devices must be earthed properly (potential electric shock) in accordance with EN 60728-11 before 
Commissioning and remain earthed even when the device is dismantled.
- **Danger:** The device may not be installed on a flammable base (**risk of fire**).
- **Danger:** Only connect the device to a socket that is installed correctly and connected to devices that has an earth conductor (Depending on Model and Usage).
- **Danger:** Plan the assembly or installation location to ensure that children cannot play with the device and its connections. There is a risk of electric shock (**Danger of death**).
- **Danger:** Select an assembly or installation location in which fluids or objects cannot get into the device under any circumstances (e.g. condensation, water for watering plants, etc.).
- **Danger:** Ventilation slots and refrigeration units are important function elements on the devices. If devices have refrigeration units or ventilation slots, you must ensure that they are never covered or built over. Also ensure that there is sufficient air circulation around the device. This prevents possible damage to the device and the **risk of fire due** to overheating. Ensure a minimum of **clearance of 20cm** between the device and other objects.
- **Danger:** The assembly or installation location must allow all connected cables to be laid safely. Cables and power supply cables must not be damaged or crushed by any objects. Furthermore, ensure that cables are not laid in the immediate vicinity of sources of heat (e.g. radiators, other electrical devices, fireplaces, etc.) (**Risk of fire**), (**risk of electric shock danger of death**)
- **Danger:** In order to prevent damage to the device, as well as possible subsequent damage (**risk of fire**), devices intended for installation on the wall are only permitted to be installed on a level surface and not **above head height**.
- **Warning:** (Only for optical transmitters and their peripheral distribution devices) Never look directly or indirectly into the laser beam. Only connect the device to the power supply once all optical lines are connected securely. 
- **Warning:** The safety regulations in the relevant current standards EN 60728-11 and EN 60065 must be complied with.
- **Warning:** Comply with all applicable national safety regulations and standards.
- **Warning:** The device's mains plug must be easily accessible at all times. 
- **Warning:** Follow all instructions in the device-specific operating manual


2. Operation


- **Danger:** The device is only permitted to be operated in dry rooms in a non-tropical climate. In damp rooms or outdoors, there is the risk of short circuits (**risk of fire**) or electric shock (**danger of death**).
- **Danger:** Do not insert any objects through the ventilation slot. Risk of electric shock (**danger of death**).
- **Danger:** Do not put any containers filled with liquid (e.g. vases) on the device. There is a risk of electric shock (**danger of death**) or (**risk of fire**).
- **Danger:** No open sources of fire such as burning candles are permitted to be placed on the device (**risk of fire**).
- **Danger:** Ensure that there is a clearance of at least **20cm** around the device. The device ventilation is not permitted to be impaired by covering the
 - Ventilation openings with objects such as newspapers, tablecloths, curtains, etc. (**risk of fire**).
- **Warning:** Follow all instructions in the device-specific operating manual. 

3. Maintenance


- **Danger:** Maintenance tasks must always be carried out by competent people (see EN 60065).
- **Danger:** Do not carry out servicing work during thunderstorms. There is a risk of electric shock (**danger of death**).
- **Warning:** (Only for devices with batteries): **Risk of explosion if** the battery is replaced improperly. Only replace with the same type!
- **Warning:** Batteries must not be subjected to excessive heat such as sunlight, fire or similar (**risk of explosion**). 
- **Warning:** Only use the manufacturer's accessories or accessories with identical technical properties.
- **Warning:** (For optical transmitters and their peripheral distribution devices) unplug the mains plug before dismantling the device.

4. Repairs


- **Danger:** The device may only be opened by competent people (see EN 60065). Before opening the device, unplug the mains plug or disconnect the power supply; otherwise there is a danger of death! The device is only permitted to be connected to the power and operated when the mains adaptor cover is installed. This also applies when you clean the device or work on the connections.
- **Danger:** Repairs on the device may only be carried out by a specialist (see EN 60065) observing the applicable VDE (German Association for Electrical, Electronic & Information Technologies) guidelines. 
- **Danger:** Only use components of the same type and with identical technical properties for the repair. Otherwise, there is a risk of electric shock (**danger of death**) and **risk of fire**.
- **Warning:** (For optical transmitters and their peripheral distribution devices) unplug the mains plug before dismantling the device.

If you have any queries regarding repairs, please contact our company service: E-mail: info@blankom.de, contact: www.blankom.de 

5. Sale

- **Caution:** If the device is sold, these safety instructions and the operating manual for the relevant device must be handed over to the purchaser. 

6. Disposal

- **Caution:** Dispose of the device in accordance with the applicable environmental regulations. 
- **Caution:** Dispose of batteries (if present) in accordance with the applicable environmental regulations.
- Cartons and all pcs. of the packaging can be sent back to us for recycling for sustainable environment protection.

SICHERHEITSHINWEISE



Sicherheitshinweise bitte vor Montage bzw. Inbetriebnahme des Gerätes sorgfältig lesen und befolgen.

1. INSTALLATION

Gefahr: Das Gerät darf ausschließlich von sachverständigen Personen (siehe EN 60065), installiert und in Betrieb genommen werden.

Gefahr: Das Gerät und/oder die Verteilperipherie muß vor Inbetriebnahme gemäß EN 60728-11 vorschriftsmäßig geerdet sein (Potentialausgleich) und bleiben, auch wenn das Gerät ausgebaut wird.

Gefahr: Das Gerät darf nicht auf brennbarem Untergrund montiert werden (Brandgefahr).

Gefahr: Schließen Sie das Gerät nur an eine vorschriftsmäßig installierte Steckdose mit Schutzleiter an.

Gefahr: Planen Sie den Montage - bzw. Aufstellungsort so, daß Kinder nicht am Gerät und dessen Anschlüssen spielen können.

Es droht Gefahr durch elektrischen Schlag (Lebensgefahr).

Gefahr: Wählen Sie einen Montage - bzw. Aufstellungsort, an dem unter keinen Umständen Flüssigkeiten oder Gegenstände in das Gerät gelangen können (z.B.

Kondenswasser, Gießwasser etc.).

Gefahr: Lüftungsschlitze und Kühlkörper sind wichtige Funktionselemente an den Geräten. Bei Geräten, die Kühlkörper oder Lüftungsschlitze haben, muß daher unbedingt darauf geachtet werden, daß diese keinesfalls abgedeckt oder zugebaut werden. Sorgen Sie außerdem für eine großzügig bemessene Luftzirkulation um das Gerät. Damit verhindern Sie mögliche Schäden am Gerät sowie Brandgefahr durch Überhitzung. Gewährleisten Sie einen Mindestabstand von 20cm um das Gerät zu anderen Gegenständen.

Gefahr: Der Montage- bzw. Aufstellort muß eine sichere Verlegung aller angeschlossenen Kabel zulassen. Stromversorgungskabel sowie Zuführungskabel dürfen nicht durch irgendwelche Gegenstände beschädigt oder gequetscht werden. Es ist darüber hinaus unbedingt darauf zu achten, daß Kabel nicht in die direkte Nähe von Wärmequellen verlegt werden (z.B. Heizkörper, andere Elektrogeräte, Kamin etc.) (Brandgefahr), (Gefahr durch elektrischen Schlag).

Gefahr: Um sowohl Beschädigungen am Gerät als auch mögliche Folgeschäden (Brandgefahr) zu vermeiden, dürfen für Wandmontage vorgesehene Geräte nur auf einer ebenen Grundfläche montiert werden und nicht über Kopf.

Warnung: (Nur für optische Sender sowie deren Verteilperipherie) Blicken Sie auf keinen Fall direkt oder indirekt in den Laserstrahl. Schließen Sie das Gerät erst an die Stromversorgung an, wenn alle elektrischen und optischen Leitungen sicher verbunden sind.

Warnung: Die Sicherheitsbestimmungen der jeweils aktuellen Normen EN 60728-11 und EN 60065 sind zwingend einzuhalten.

Warnung: Befolgen Sie auch alle anwendbaren nationalen Sicherheitsvorschriften und Normen.

Warnung: Der Netzstecker des Gerätes muß jederzeit leicht erreichbar sein.

Warnung: Befolgen Sie alle Instruktionen in den gerätespezifischen Bedienungsanleitungen

2. BETRIEB

Gefahr: Das Gerät darf nur in trockenen Räumen bei nicht tropischem Klima betrieben werden. In feuchten Räumen oder im Freien besteht die Gefahr von

Kurzschluß (Brandgefahr) oder elektrischen Schlag (Lebensgefahr).

Gefahr: Stecken Sie keine Gegenstände durch die Lüftungsschlitze. Gefahr durch elektrischen Schlag (Lebensgefahr).

Gefahr: Stellen Sie keine mit Flüssigkeit gefüllten Gefäße (wie z. B. Vasen) auf das Gerät. Es droht Gefahr durch elektrischen Schlag (Lebensgefahr) oder (Brandgefahr).

Gefahr: Es dürfen keine offenen Brandquellen, wie z. B. brennende Kerzen, auf das Gerät gestellt werden (Brandgefahr).

Gefahr: Sorgen Sie für einen Freiraum von mindestens 20cm um das Gerät. Die Belüftung des Gerätes darf nicht durch Abdecken der Belüftungsöffnungen mit Gegenständen wie z. B. Zeitungen, Tischdecken, Gardinen usw. behindert werden (Brandgefahr).

Warnung: Befolgen Sie alle Instruktionen in der gerätespezifischen Bedienungsanleitung.

4. WARTUNG

Gefahr: Wartungsarbeiten sind stets von sachverständigen Personen (siehe EN 60065) vorzunehmen.

Gefahr: Keine Servicearbeiten bei Gewitter. Es droht Gefahr eines elektrischen Schlags (Lebensgefahr).

Warnung: (nur für Geräte mit Batterie): Explosionsgefahr bei unsachgemäßem Auswechseln der Batterie. Ersatz nur durch den gleichen Typ!

Warnung: Batterien dürfen nicht übermäßiger Wärme wie Sonnenschein, Feuer oder dergleichen ausgesetzt werden (Explosionsgefahr).

Warnung: Verwenden Sie nur das Zubehör des Herstellers oder Zubehör mit identischen technischen Eigenschaften.

Warnung: (Bei optischen Sendern sowie deren Verteilperipherie) ziehen Sie den Netzstecker bevor das Gerät ausgebaut wird.

5. REPARATUR

Gefahr: Das Gerät darf nur durch sachverständige Personen (siehe EN 60065) geöffnet werden. Vor Öffnen des Gerätes Netzstecker ziehen bzw. Stromzuführung entfernen, andernfalls besteht Lebensgefahr! Das Gerät darf nur mit montierter Netzteilabdeckung an Spannung angeschlossen und betrieben werden. Dies gilt auch, wenn Sie das Gerät reinigen oder an den Anschlüssen arbeiten.

Gefahr: Reparaturen am Gerät sind ausschließlich vom Fachmann (siehe EN 60065) unter Beachtung der geltenden VDE-Richtlinien durchzuführen.

Gefahr: Verwenden Sie nur Bauteile des gleichen Typs und mit identischen technischen Eigenschaften für die Reparatur, andernfalls droht Gefahr eines elektrischen Schlags (Lebensgefahr) und Brandgefahr.

Warnung: (Bei optischen Sendern sowie deren Verteilperipherie) ziehen Sie den Netzstecker bevor das Gerät ausgebaut wird.

Bei Fragen zur Reparatur wenden Sie sich an den IRENIS-Service:

E-Mail: info@blankom.de , Kontakt: www.blankom.de

6. VERKAUF

Vorsicht: Im Falle eines Verkaufs müssen diese Sicherheitshinweise und die Bedienungsanleitung des entsprechenden Geräts dem Käufer ausgehändigt werden.

7. ENTSORGUNG

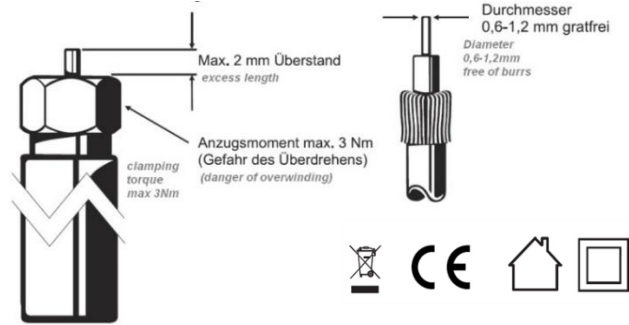
Vorsicht: Entsorgen Sie das Gerät entsprechend den geltenden umweltrechtlichen Bestimmungen. Elektrische und elektronische Geräte dürfen nicht in den Hausmüll!

Vorsicht: Entsorgen Sie Batterien (falls vorhanden), entsprechend den geltenden umweltrechtlichen Bestimmungen.

Verpackungen können an uns zurückgeschickt werden. Wir kümmern uns um Recycling und/oder fachgerechte Entsorgung.

INSTALLATION GUIDE FOR F-CONNECTORS:

/ Installationshinweis für den F-Anschluß:



Die LNB-Anschlüsse sind meist entsprechend gekennzeichnet
The LNC –connectors at Multiswitch are almost marked as:

HH= Horizontal High-Band
HL = Horizontal Low-Band = LH
VL = Vertical Low-Band = LV
VH= Vertical High-Band = HV

Elektronische Geräte gehören nicht in den Hausmüll, sondern müssen - gemäß Richtlinie 2002/96/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 27. Januar 2003 über Elektro- und Elektronik-Altgeräte fachgerecht entsorgt werden.

Bitte geben Sie dieses Gerät am Ende seiner Verwendung zur Entsorgung an den dafür vorgesehenen öffentlichen Sammelstellen ab.

Electronic equipment is not household waste - in accordance with directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 27th January 2003 on used electrical and electronic equipment, it must be disposed of properly.

At the end of its service life, take this unit for disposal to an appropriate official collection point

Zur Beachtung / Important notes:

- Auf das Netzgerät dürfen keine mit Flüssigkeit gefüllten Gegenstände gestellt werden.
- *No liquid-filled items may be placed on top of the power supply unit.*
- Das Netzgerät darf nicht Tropf- oder Spritzwasser ausgesetzt sein.
- *The power supply unit must not be exposed to dripping or splashing water.*
- Der Netzstecker muss ohne Schwierigkeiten zugänglich und benutzbar sein.
- *The mains plug must be easily accessible and operable.*
- Das Gerät kann nur durch Ziehen des Netzsteckers vom Netz getrennt werden.
- *The only reliable method of disconnecting the unit from the mains is to unplug it.*
- Bei größerem Durchmesser des Kabel- Innenleiters als 1,2 mm bzw. Grat können die Gerätebuchsen zerstört werden.
- *If the inner cable conductor diameter is greater than 1.2 mm or in case of burr, the device sockets may be destroyed.*

Bitte installieren Sie die Anschlüsse gemäß dem Aufdruck

Please install according to the sticker on the Multiswitch

Hinweis: Elektrische Installationen sollten nur durch geschultes Fachpersonal vorgenommen werden!

Note: Electrical installations should only be done by well-educated and skilled technicians!

CONTACT:

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