

## Encoder-Modulator



Top: Front-panel, bottom = Rear-Panel view

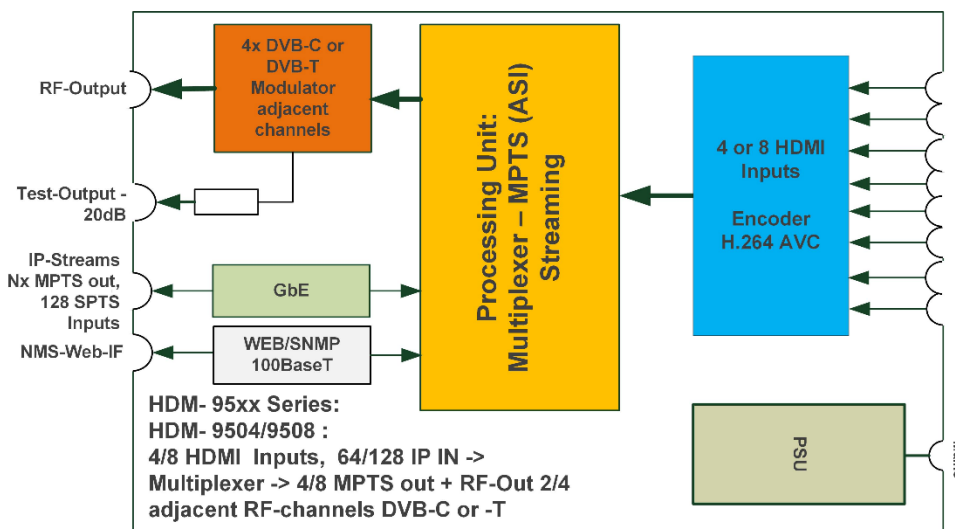
HDM-9504, HDM9508 with C/T, 4 / 8 HDMI Inputs with 2/4 DVB-C or –T output

- MPEG4 AVC/H.264 HD/SD encoding
- 4 or 8 HDMI inputs with AVC/H.264 Encoding
- MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass through
- RF Out: 4(T/C) or 2(T/C) Channels /Bouquets multiplexing DVB-C or –T modulating RF outputs – adjacent
- -20dB Test-Output port
- IP 64/128 SPTS Inputs to select and mux into the output channels
- Nx MPTS IP parallel output over UDP, RTP/RTSP
- PID remapping/ accurate PCR adjusting/PSI/SI editing and inserting
- 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 Overlay insertions

### 6th Generation BLANKOM® IPTV Headend Technology

Broadcast grade, high performance MPEG4 HD Encoder Modulator (4 or 8 HDMI to RF output). The HDM-95xy 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-95xy C/T HD encoder modulator is a professional high integration device which includes encoding, multiplexing and modulating. It supports 4 or 8 HDMI inputs, ASI and maximum 64 or 128 IP input through the GBE port. It modulates DVB-C RF out with 2/4 adjacent carriers. The modulator type can be chosen from factory by ordering C or T version (Or A = ATSC or I = ISDB-T upon request)



**Ordering Info's:** C= DVB-C, T = DVB-T output, I=ISDB-Tb and A=ATSC optional upon request. E.g.: HDM-9504C= 4x HDMI IN + DVB-C OUT, HDM-9508T = 8x HDMI IN + DVB-T OUT

TECHNICAL SPECIFICATIONS

<b>Input</b>	4/8 HDMI inputs; 64/128 IP inputs			
<b>Video</b>	Encoding	MPEG-4 AVC/H.264		
	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,	
	Bit-rate	1Mbps...13Mbps each channel		
	Rate Control	CBR/VBR		
<b>Audio</b>	Encoding	MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass-Through		
	Sampling rate	48KHz		
	Resolution	24bit		
	Audio Gain	0...255 Adjustable		
	MPEG-1 Layer 2 bitrate	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		
<b>Multiplexing</b>	Maximum PID Remapping	180 inputs per channel		
	Function	PID remapping (automatic or manually) Generating of PSI/ SI tables automatically		
<b>Modulation</b>	DVB-C	RF out	2/4 x RF DVB-C out (2/4 carriers on combined IN -> Output)	
		Standard	EN300429/ITU-TJ.83A/B: DVB-C Annex A/B	
		MER	≥40dB	
		RF frequency	50...960MHz, 1KHz step	
		RF output level	-25...-1dBm (82...105 dBμV), 0.1dBm	
		Symbol Rate	5.0Msps...7.0Msps, 1ksps stepping	
			J.83A	J.83B (US)
	Constellation	16/32/64/128/256QAM	64/256 QAM	
		Bandwidth	8MHz	6M
	DVB-T	Standard	EN300744	
		FFT mode	2K	
		Bandwidth	6MHz, 7MHz, 8MHz	
		Constellation	QPSK, 16QAM, 64QAM	
		Guard Interval	1/4, 1/8, 1/16, 1/32	
		FEC	1/2, 2/3, 3/4, 5/6, 7/8	
MER		≥42 dB		
RF frequency		50...960 MHz, 1KHz steps		
RF out level	2/4xRF COFDM DVB-T out (2/4 carriers combined output)			
	-28... -3 dBm (77...97 dBμV), 0.1dB step			
Output	RF output	(F male) 75 Ohm		
	Stream output	2/4 IP MPTS outputs over UDP/RTP/RTSP, 1x1000M Base-T Ethernet interface		
System	English	Network management (WEB-GUI), Software upgrade via Ethernet		
Misc	Dimensions	(W×L×H) 482mm×328mm×44mm		
	Environment	0...45°C(working) ; -20...80°C (Storage)		
	Power	AC 110V± 10%, 50/60Hz, AC 220 ±10%,50/60Hz		

**QUICKSTART**

**INHALT/ TOC**

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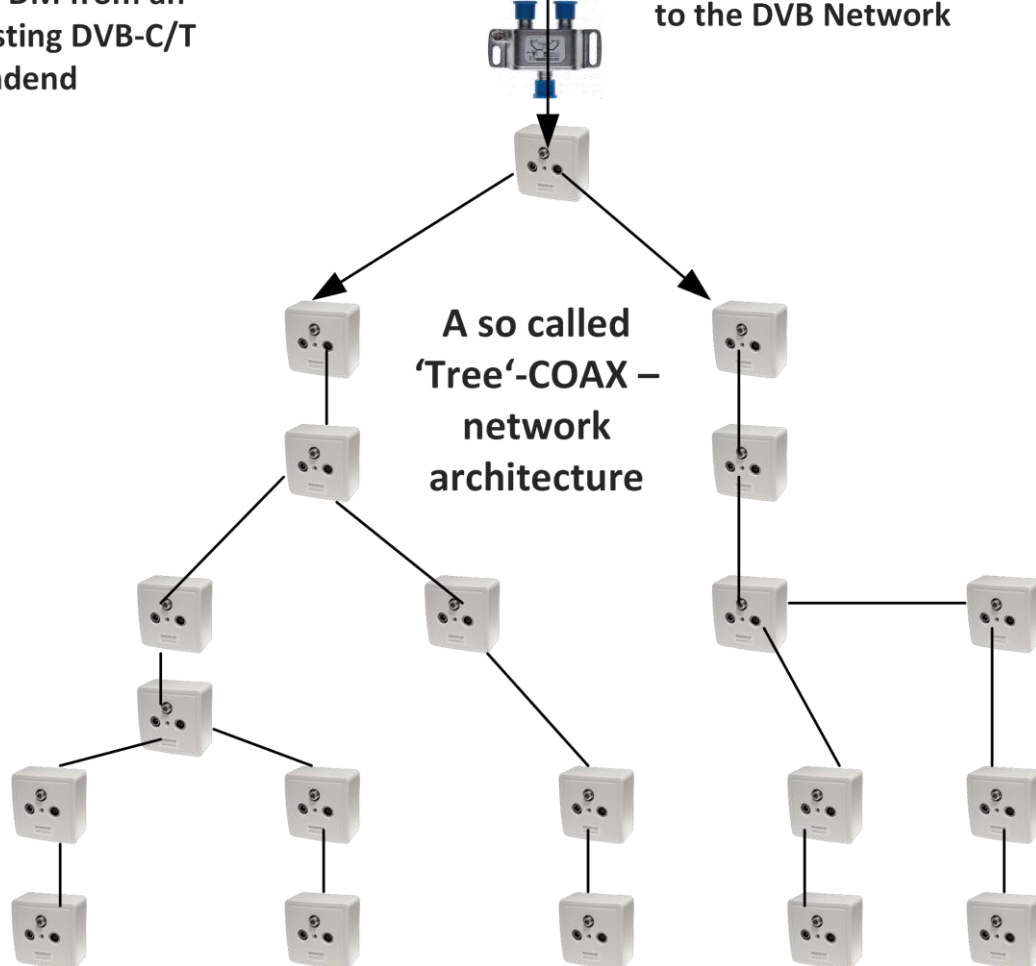
**APPLICATION EXAMPLE:**

**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



## 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, the fuses may only be replaced by identical fuses with the same electrical specifications which are designed for the corresponding fuse positions.

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### **This Product is manufactured in PRC (CN), 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 informática 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.

### 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 e.g. the SATellite RF-input port carries DC Voltage (13V /18V, max. 400 mA).

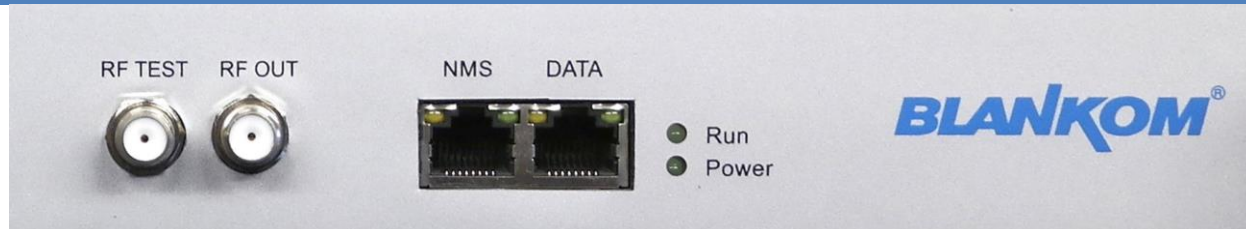
By connecting a mains cable, the device can become functional without any auxiliary appliances. The power supply units are designed for the wide range of 100-230V AC; a manual adjustment of the voltage is not necessary.

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 to use Mozilla latest version and disable 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

But EDGE-browser works as well... ;-)

You are entering the **status page**:

**HDM-9508C**

**BLANKKOM**

Status

**System Information**

Software Version:	03.01.21 O-02 Build 153.00 Aug 18 2021-17:28:43
Hardware Version:	20.02.05
Web Version:	30.01.01
System Version:	2.02.2.06
Product ID:	00352800-00000010-00000000-00000000
Uptime:	0 Day-00:10:55
Temperature:	67.92 °C
VccInt:	1001.22 mV
VccAux:	1800.29 mV
VccBRam:	1001.95 mV

Getting basic information ...

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

**BLANKKOM**

Configuration

Save Restore Factory Set Backup Load

Please save your configuration so that it persists after a reboot. Otherwise all changes will be lost.

Save config

**BASICS:**

**DATE/TIME SETTINGS:**

You can set the date&time of the machine either by NTP or by your browser time, but note: The internal Real time clock (RTC) will drift over the dates/weeks slightly.

Below are 2 IP addresses as examples for German NTP servers you can use:

Daylight saving time like

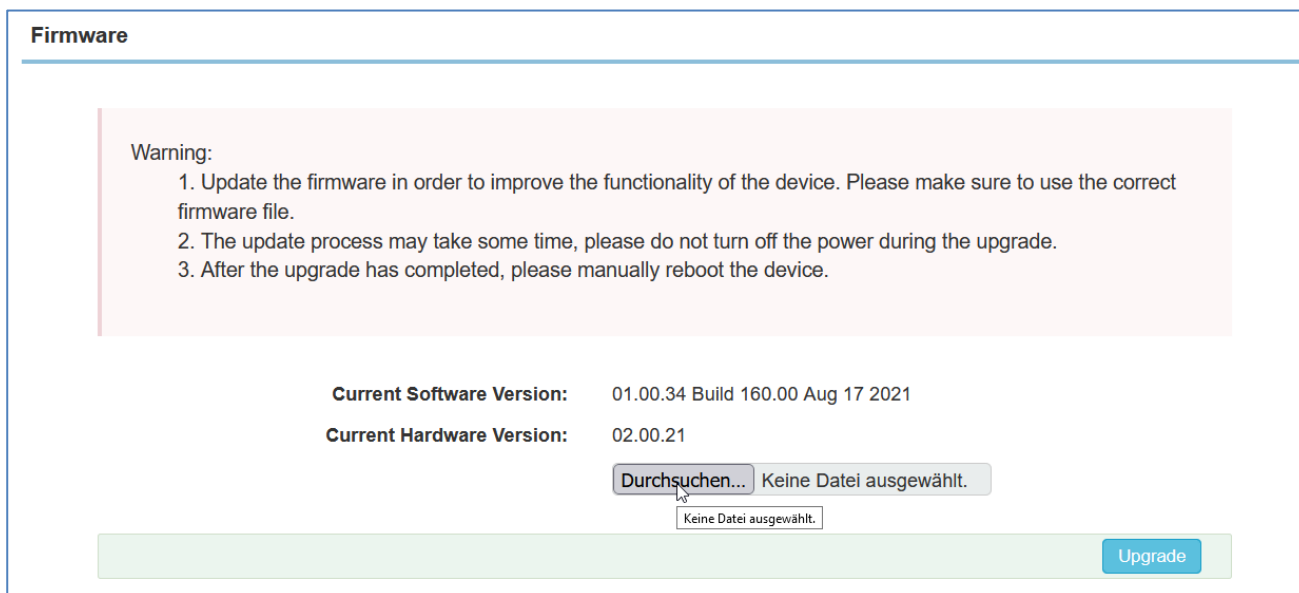
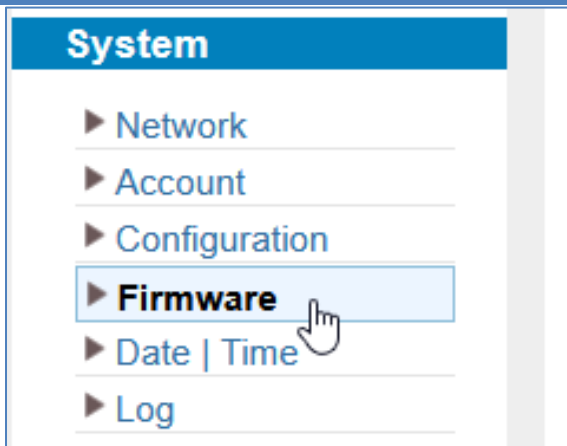
Summer-/Wintertime switching is not supported.

Please use CTRL+V (STRG+V) for pasting if you copy that from somewhere because some browser fileds do not be able to use the right mouse button and 'Insert' from memory.

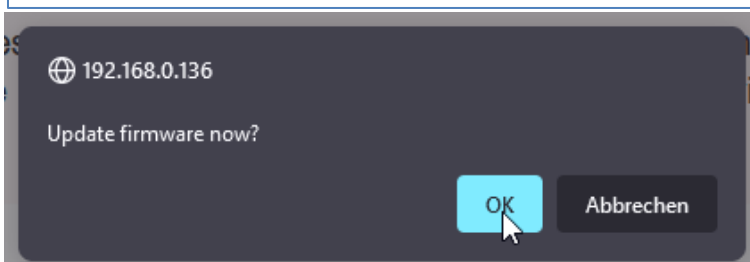
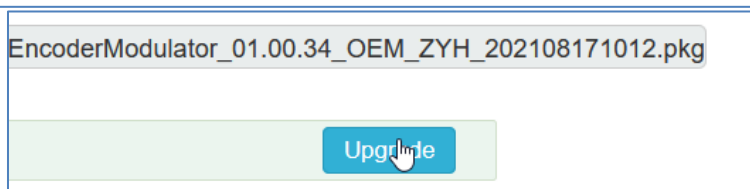
**Reloading the webpage** sometimes helps to get the actual data:



**UPDATING FIRMWARE:**



	Änderungsdatum	Typ	Größe
EncoderModulator_01.00.34_OEM_ZYH_202108171012.pkg	17.08.2021 10:12	PKG-Datei	2.938 KB



Please hard-reboot the device by the OFF/ON Switch at the rear after the upgrade has finished

Durchsuchen... Keine Datei ausgewählt.

**upgrade success, please manual reboot the device.**

Upgrade

**START WITH THE ENCODINGS:**

Note the APPLY Button bottom right!!!

The right side upper menu selects the encoder input and its sub-menu's:

Everyone can be configured independently in:

CBR means Constant bitrate oriented encoding process, VBR = Variable, so guess which is better Quality? And which has lower latency?

NOTE: The BITRATE needs to be entered with the US notification as a '.' Instead of a ',':

Bitrate:  (1 ~ 13 Mbps)  
 Gop Size:  (25-50)

That is also important for

some other values!!! -> See Modulator part.

**Video**

Rate Mode:

H.264 Profile:

Out Resolution:

**Audio**

Profile selection of the CODEC h.264

Downscaling can be chosen if needed:

**Video**

Rate Mode:

H.264 Profile:

Out Resolution:

**Audio**

Format:

Audio Gain:

Audio Delay Mode:

Staying at AUTO is always a good choice.

**AUDIO:**

**Audio**

Format:

Audio Gain:  (0 ~ 255)

Audio Delay Mode:

Bitrate:

Audio Samplerate:

**Program**

Share PCR PID:

CODECS and sampling rates etc... can be adjusted to your needs.

**IN GENERAL THESE STEPS ARE RECOMMENDED:**

- 1) Connect your HDMI ports and configure your codecs and resolutions
- 2) Configure your OUTPUT DVB-C/T QAM/COFDM Channels to your needed Data rates
- 3) Configure your Multiplexers Transport streams

Video	
Rate Mode:	<input type="text" value="CBR"/> (1 ~ 13 Mbps)
H.264 Profile:	<input type="text" value="Baseline Profile"/> (25-50)
Out Resolution:	<input type="text" value="Auto"/>

Audio	
Format:	<input type="text" value="MPEG1 Layer2"/>
Audio Gain:	<input type="text" value="128"/> (0 ~ 255)
Audio Delay Mode:	<input type="text" value="Mode 1"/>
Bitrate:	<input type="text" value="192 Kbps"/>
Audio Samplerate:	<input type="text" value="Auto"/>

Program	
Share PCR PID:	<input checked="" type="checkbox"/>

Status	
Encoder Chip Version:	11.07.12
Input Lock:	<input checked="" type="checkbox"/>
Input Information:	1920x1080 50I
Bitrate:	<input type="text" value="7.191 Mbps"/>

Bitrate: 6.454Mbps

Bitrate and values will be shown as graphics and numbers. 50I = interlaced with 50fps ;-)

Example: Switched from CBR to VBR encoding mode with high profile:

**Video**

Rate Mode: VBR      Bitrate: 6.50 (1 ~ 13 Mbps)  
H.264 Profile: High Profile      Gop Size: 50 (25-50)  
Out Resolution: Auto

**Audio**

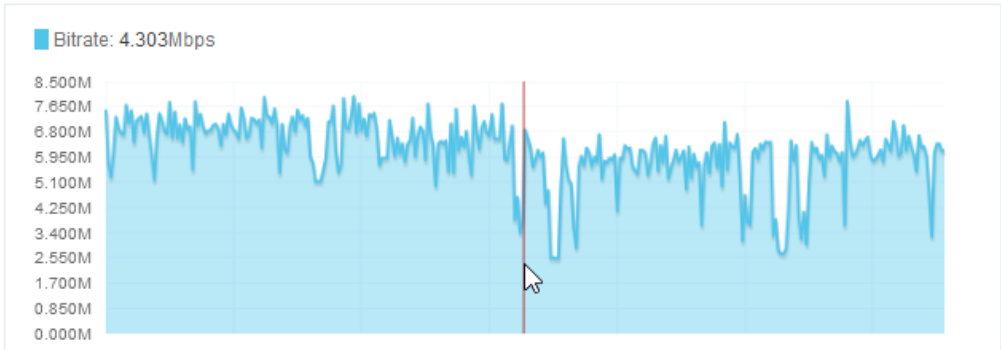
Format: MPEG1 Layer2      Bitrate: 192 Kbps  
Audio Gain: 128 (0 ~ 255)      Audio Samplerate: Auto  
Audio Delay Mode: Mode 1

**Program**

Share PCR PID:

**Status**

Encoder Chip Version: 11.07.12      Input Lock: ●  
Input Information: 1920x1080 50i      Bitrate: 6.190 Mbps



The graph shows a fluctuating blue line representing the bitrate over time. The y-axis ranges from 0.000M to 8.500M. A vertical red line is positioned at approximately 4.303M, with a mouse cursor pointing to it. The text 'Bitrate: 4.303Mbps' is displayed above the graph.

As you can see: The Stream is fluctuating more than with CBR.

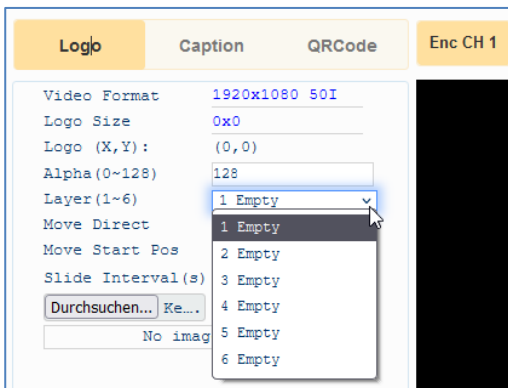
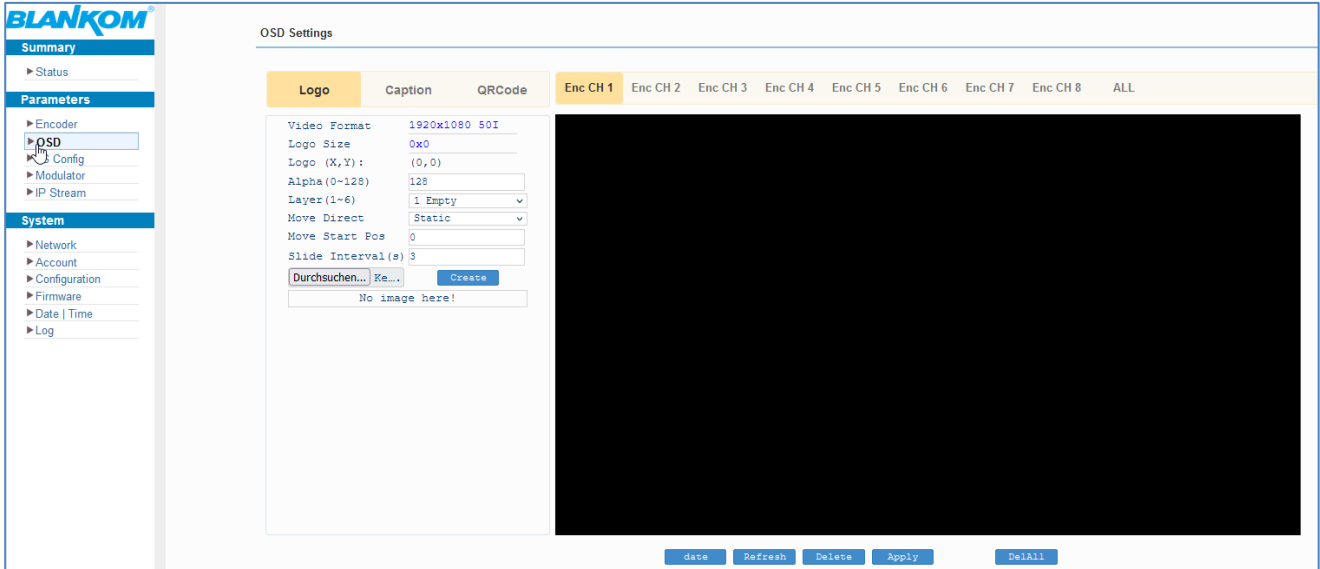
**Program**

Share PCR PID:

This should be enabled when a DVB-Modulator will be used to sync in the Multiplexer.

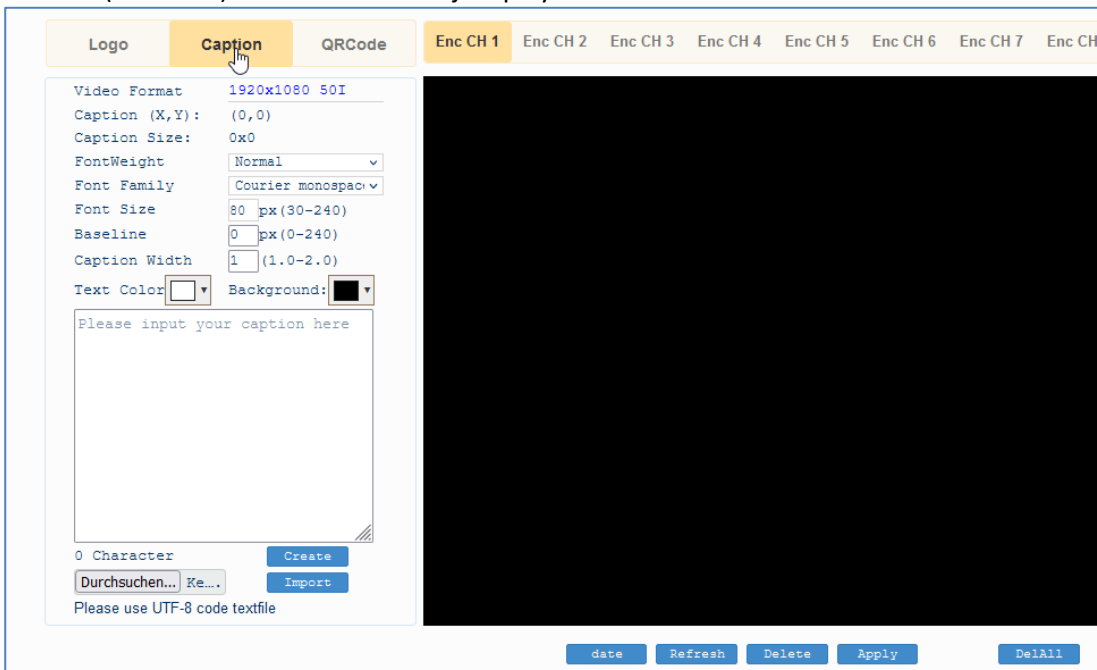
**OSD (ON SCREEN DISPLAY):**

EVERY ENCODER CAN ADD TEXT OR LOGO-PICTURES TO THE OUTPUT VIDEOS:

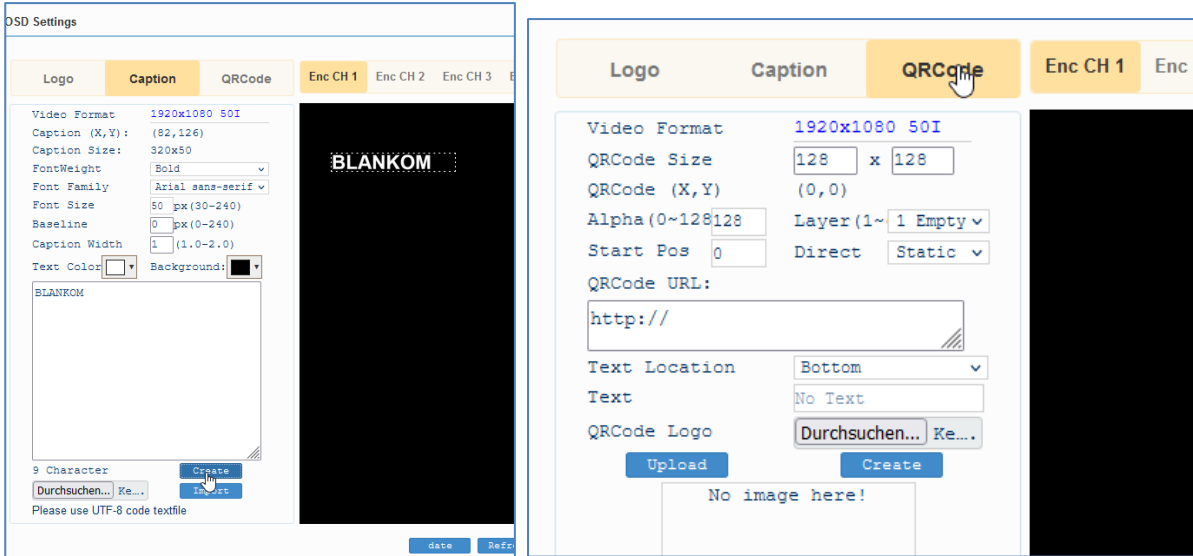


Up to 6 different Layers per Video possible.

Or TEXT (CAPTION) can be inserted ... just play with it:

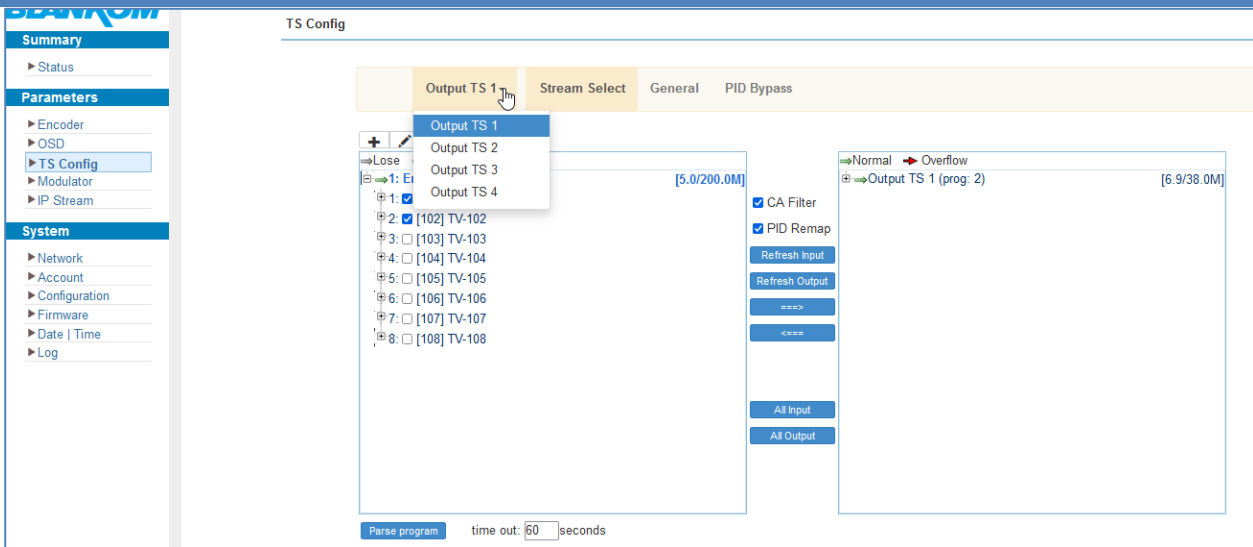






Or create a QR-code for inserting as Overlay

**TRANSPORT-STREAM (TS) CONFIG: MULTIPLEXING**



For every QAM Output channel the TS can be configured separately and independently. But first the QAM-DVB-C output Values are the values which reflects to the max-datarates in the TS:

Modulator							
Center Frequency: 662.000 MHz				Standard: J.83A(DVB-C)			
Level[All Carriers]: 5.0 dBm				Channel Info.(Alarm/Active/Total): 0/4/4			
#	Frequency	Constellation	Symbol Rate	Channel Level	Status	Bit(Act/Max)	
1	650.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	3.4/38.0 M	Quickly Config.
2	658.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	
3	666.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	
4	674.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	

You should be familiar with DVB-C!!!: Frequency should fit into your existing cable TV if so. Single Carriers of the 4 adjacent channels can be switched OFF, Center frequency, Bandwidth (8 MHz in DVB-C Europe (not US )):

Modulator							
Center Frequency: 662.000 MHz				Standard: J.83A(DVB-C)			
Level[All Carriers]: 5.0 dBm				Channel Info.(Alarm/Active/Total): 0/4/4			
#	Frequency	Constellation	Symbol Rate	Channel Level	Status	Bit(Act/Max)	
1	650.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	6.2/38.0 M	Quickly Config.
2	658.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	
3	666.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	
4	674.000 MHz	64 QAM	6875 Ksps	-1.0 dB	●	0.1/38.0 M	

QAM: 64 or better 265 if you need more capacity: Stay at J.83A please (B=US Norm).

Quickly Config. [ close ]

Standard: J.83A(DVB-C) v

Channel Level: J.83A(DVB-C) -1 dBm

Channel Enable:

Start Frequency: 650.000 (50 ~ 960 MHz)

Bandwidth: 8.000 MHz

Constellation: 64 QAM v

Symbol Rate: 6875 (5000 ~ 7000 Ksps)

Apply Close

And Symbol Rate - usually 6800, 6850 or 6900 are OK:

Quickly Config. [ close ]

Standard: J.83A(DVB-C) v

Channel Level: -1.0 (-25 ~ -1 dBm)

Channel Enable:

Start Frequency: 650.000 (50 ~ 960 MHz)

Bandwidth: 8.000 MHz

Constellation: 256 QAM v

Symbol Rate: ~ 7000 Ksps

Apply Close

SR = 6750 or up to 6900:

Quickly Config. [ close ]

Standard: J.83A(DVB-C) v

Channel Level: -1.0 (-25 ~ -1 dBm)

Channel Enable:

Start Frequency: 650.000 (50 ~ 960 MHz)

Bandwidth: 8.000 MHz

Constellation: 256 QAM v

Symbol Rate: 6900 (5000 ~ 7000 Ksps)

Apply Close

check Bandwidth now:

Center Frequency: 662.000 MHz      Standard: J.83A(DVB-C)

Level(All Carriers): 5.0 dBm      Channel Info.(Alarm/Active/Total): 0/4/4

#	Frequency	Constellation	Symbol Rate	Channel Level	Status	Bit(Act/Max)	
1	650.000 MHz	256 QAM	6900 Ksps	-1.0 dB	●	3.5/50.9 M	✎
2	658.000 MHz	256 QAM	6900 Ksps	-1.0 dB	●	0.1/50.9 M	✎
3	666.000 MHz	256 QAM	6900 Ksps	-1.0 dB	●	0.1/50.9 M	✎
4	674.000 MHz	256 QAM	6900 Ksps	-1.0 dB	●	0.1/50.9 M	✎

Much more Data can be pushed into this TS – now 50.9 Mb/s ;-)

These 4 Multiplexed TS can be sent out as Multicast MPTS (or RTSP on a particular port number) to the DATA-Port (GbEthernet) to feed other modulators in your network:

#	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)
MPTS 1	224.2.2.2	2000	UDP	7	<input type="checkbox"/>	●	4.9/50.9 M
MPTS 2	224.2.2.2	2002	UDP	7	<input type="checkbox"/>	●	0.1/50.9 M
MPTS 3	224.2.2.2	2004	UDP	7	<input type="checkbox"/>	●	0.1/50.9 M
MPTS 4	224.2.2.2	2006	UDP	7	<input type="checkbox"/>	●	0.1/50.9 M

ASI OUT(OPTION)  
ASI Out:

The ASI out is only for those model's which does have it !!!

NullPKT Filter means: Per default the MPTS will be sent our as a CBR stream including the zero-filling PID 8191dec to reach the Constant BitRate (CBR) = 50.9Mb/s (here = Modulator max data rate set). If you like to send it to your network as VBR (variable) than check the Filter=ON.

**BACK TO THE TS CONFIG:**

Output TS 1 | Stream Select | General | PID Bypass

Output TS 1  
Output TS 2  
Output TS 3  
Output TS 4

[9.0/200.0M]

CA Filter  
 PID Remap

Every TS 1-4 can be separately selected to be configured. TS1 goes to DVB-C Channel 1 and so on.

CA-Filter and PID Remap is not necessary for the encoder inputs. Only might be necessary for external Inputs (IP Input) for multiplexing (mixing) with the encoders.

Recommendation:

Output TS 2- | Stream Select | General | PID Bypass

1: Encoder (prog: 2/8) [8.9/200.0M]

- 1:  [101] TV-101
- 2:  [102] TV-102
- 3:  [103] TV-103
- 4:  [104] TV-104
- 5:  [105] TV-105
- 6:  [106] TV-106
- 7:  [107] TV-107
- 8:  [108] TV-108

CA Filter  
 PID Remap

Refresh Input  
Refresh Output  
===>  
<===

All Input  
All Output

Normal -> Overflow

Output TS 2 (prog: 2) [0.1/50.9M]

- 1:  TV-103 <=CH1\_Encoder [103]
- 2:  TV-104 <=CH1\_Encoder [104]

Parse program time out: 60 seconds

Multiplex HDMI-Input 1+2 into TS1, HDMI 3+4 into TS2 like above example. Later on add IP stream inputs as well if there are some like from additional encoders i.e. our famous boxed encoder SDE-265 HD SDI source to IP output...

Select them, than PARSE PROGRAMS to update the multiplexer TS Input values:

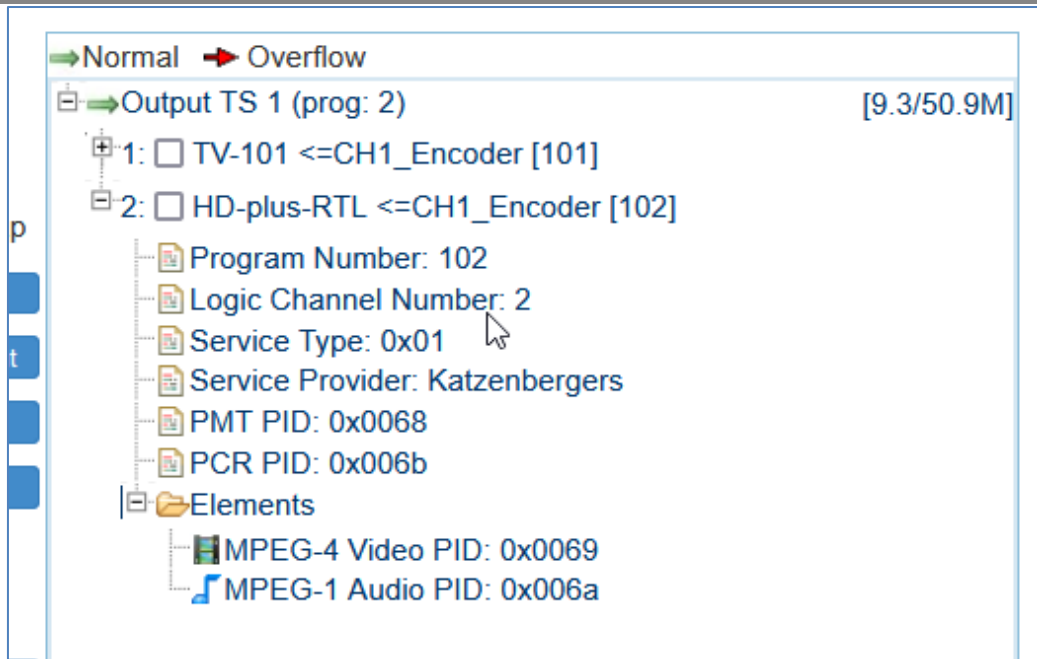
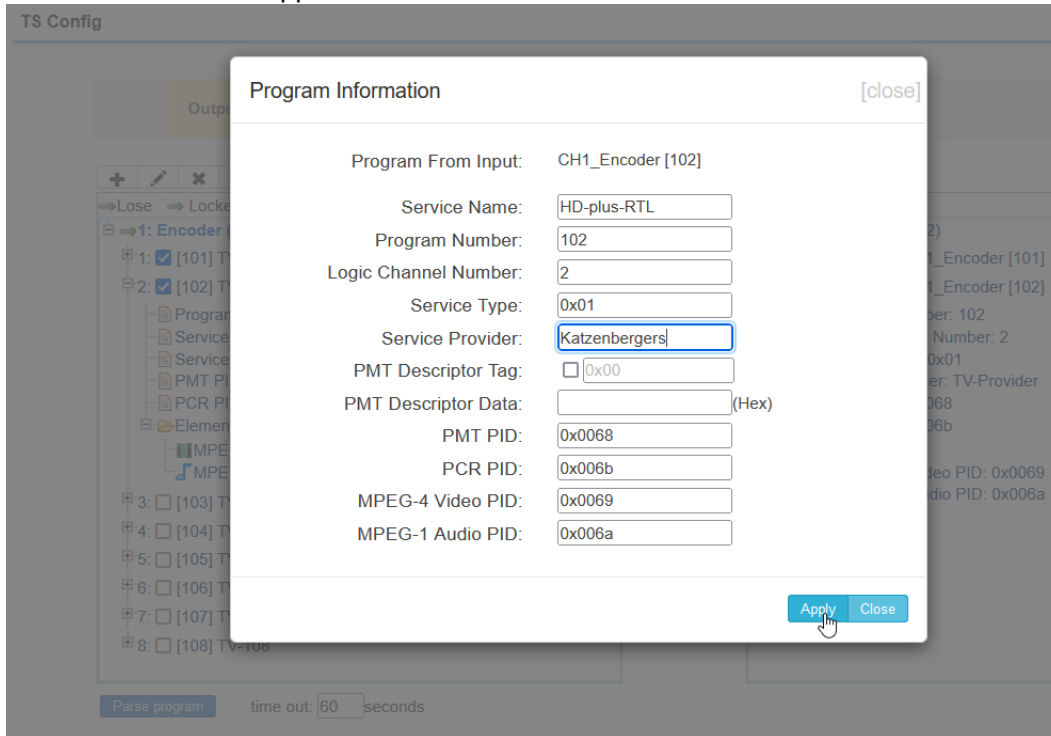
The screenshot shows the initial configuration of the multiplexer. On the left, under 'Encoder (prog: 1/8)', two programs are selected: [101] TV-101 and [102] TV-102. The right panel shows 'Output TS 1 (prog: 1)' with 'CA Filter' and 'PID Remap' checked. A 'Parse program' button is highlighted at the bottom left.

The screenshot shows the 'Stream Select' tab. The encoder now lists eight programs, with [101] TV-101 and [102] TV-102 selected. The output TS 'Output TS 1 (prog: 1)' now shows a single entry: 'TV-101 <=CH1\_Encoder [101]' with its associated PMT, PCR, and Element (MPEG-4 Video and MPEG-1 Audio) details.

Than push it to the right side into the mux TSx:

The screenshot shows the final configuration. The encoder now lists eight programs, with [101] TV-101 and [102] TV-102 selected. The output TS 'Output TS 1 (prog: 2)' now shows two entries: 'TV-101 <=CH1\_Encoder [101]' and 'TV-102 <=CH1\_Encoder [102]', both with their respective PMT, PCR, and Element details.

You can adjust every PIDs and parts of the TV Service by using your MOUSE button on the red highlighted Service: A POPUP appears:



The Logical Channel Number (LCN) is a part of the NIT (Network Information Table) which you can use to pre-select the TV set Channel Order (if supported). These Values should not be 2 same in one NIT.

**THE NIT CAN BE CONFIGURED IN 'GENERAL':**

**TS Config**

Output TS 1- | Stream Select | **General** | PID Bypass

**Stream**

PAT Insert:  SDT Insert:   
 CAT Insert:  PMT Insert:   
 TS ID:  ON ID:   
 PCR Correct:  PCR Speed BW:   
 Character Encoding:  IGMP Interval:  (5s-120s)

**NIT**

NIT Insert:  Private Data:    
 Network Name:  Network ID:   
 LCN Mode:  Version Mode:   
 Version Number:  (0-31)

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
						+   -

**TDT/TOT**

TDT/TOT Insert:  TOT Descriptor Insert:

Apply

You should repeat this for every T-stream/QAM/COFDM channel.  
 Even existing DVB-Channels can be added here:

**NIT**

NIT Insert:  Private Data:    
 Network Name:  Network ID:   
 LCN Mode:  Version Mode:   
 Version Number:  (0-31)

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
						+   -   add description

**NIT Descriptor** [ close ]

TS ID:   
 ON ID:   
 Frequency:  MHz  
 Constellation:   
 Symbol Rate:  Ksps  
 FEC Inner:   
 FEC Outer:

Add | Close

See:

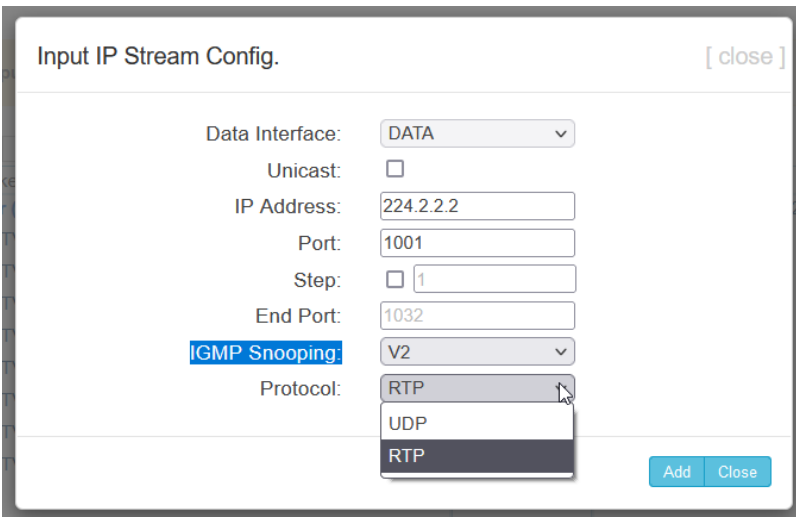
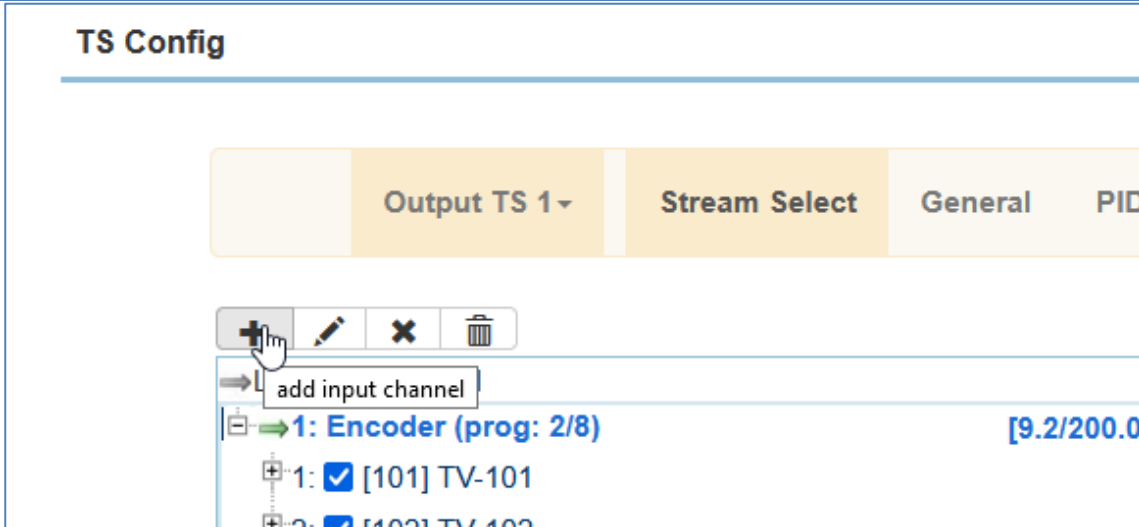
LCN Mode:  Version Number:  (0-31)

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
1	1	1	450.000 MHz	128 QAM	6875 Ksps	✎ ✖

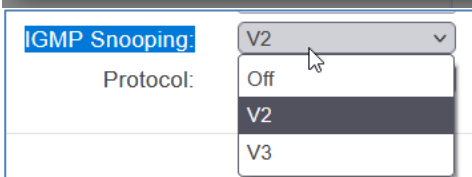


If you do not know about the NIT, please google DVB NIT.

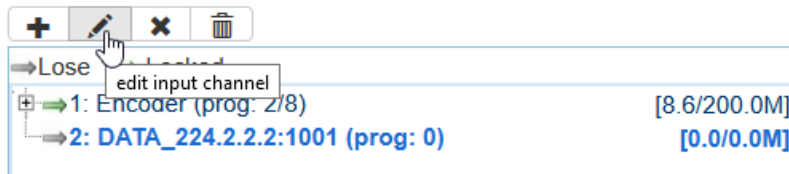
**ADD AN INPUT CHANNEL:**



Here only DATA-IN GbE IP streams can be chosen:  
 -Multicast by default (needs IGMP settings for the Layer 3 Switch)  
 -Unicast can be also used.  
 -UDP or RTP  
 - IGMP snooping means check the GbE Switch as a forwarder for the Multicasts to be received  
 V2 and V3 can be selected  
 - STEP: Multiple Addresses can be chosen, to add many in one shot.



Please make yourselves familiar with Unicast receptions  
 (Source sends i.e. RTSP from its IP/Port to the DATA-GbE-IP address and Port number chosen here)



adding, editing, deleting is self-

explaining ;-)

If you have an MPTS coming in by IP, you can forward single PIDs from it (like EIT=EPG):

Output TS 1 ▾ Stream Select General PID Bypass

➕ ✎ ✕ 🗑️

➡ Lose ➡ Locked

➡ 1: Encoder (prog: 2/8) [8.1/200.0M]

- 1:  [101] TV-101
- 2:  [102] TV-102
- 3:  [103] TV-103
- 4:  [104] TV-104
- 5:  [105] TV-105
- 6:  [106] TV-106
- 7:  [107] TV-107
- 8:  [108] TV-108

➡ 2: DATA\_224.2.2.2:1001 (prog: 0) [0.0/0.0M]

CA Filter  
 PID Remap

Refresh Input  
Refresh Output  
====>  
<====

➡ Normal ➡ Overflow  
➡ Output TS 1 (prog: 2)

Just by

TS Config

Output TS 1 ▾ Stream Select General PID Bypass

Index	Input Channel	Input PID(0x)	Output PID(0x)	
1	2	0x0012	0x0012	✎ ✕

Set Del-All

BTW: in HEXADECIMAL please – e.g.: EIT = PID 12hex and will be forwarded to TS1 Output here.

### ADDONS:

**NETWORK:** Not much to say about this except: NMS and DATA cannot be used in the same subnet! To be safe!!! not to flood the network of the Management port NMS **which always** should be used **separately** from the streaming network.

BLANKOM

Summary

- ▶ Status

Parameters

- ▶ Encoder
- ▶ OSD
- ▶ TS Config
- ▶ Modulator
- ▶ IP Stream

System

- ▶ Network
- ▶ Account
- ▶ Configuration
- ▶ Firmware
- ▶ Date | Time
- ▶ Log

Network

**NMS**

IP Address: 192.168.0.136  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.0.1  
Web Management Port: 80  
MAC Address: 2a:60:32:1a:07:11

Apply

**DATA**

IP Address: 192.168.2.136  
Subnet Mask: 255.255.255.0  
Gateway: 192.168.2.1  
MAC Address: 2a:70:32:1a:07:11

Apply

**Account:** here you can change your user/password setting, please write it down near the unit just in case another person needs to enter the encoder-modulator in the future. **DOCUMENTATION is important.**

Firmware update and Log can be used for their purposes. Log can be helpful for service and support actions.

**OUTPUT DVB-T MODULATOR:**

If the HDM-95xx is equipped with a COFDM Modular instead of DVB-C the configuration is nearly similar because they are using the same Frequencies / Bandwidth:

Modulator

Center Frequency: 678.000 MHz      Standard: DVBT  
 Level(All Carriers): 0.0 dBm      Channel Info.(Alarm/Active/Total): 0/6/8  
 Guard Interval: 1/32      Constellation: 64QAM

**Quickly Config.** [ close ]

Level(All Carriers): 0.0 (-20 ~ +3 dBm)

Channel Enable:

Start Frequency: 650.000 (50 ~ 960 MHz)

Bandwidth: 8.000 MHz

Apply Close

#	Frequency	Channel Level	(Act/Max)
1	678.000 MHz	0.0 dB	0.0/31.7 M
2	679.000 MHz	0.0 dB	0.0/31.7 M
3	680.000 MHz	0.0 dB	0.0/31.7 M
4	681.000 MHz	0.0 dB	0.0/31.7 M
5	682.000 MHz	0.0 dB	0.0/31.7 M
6	690.000 MHz	0.0 dB	0.0/31.7 M
7	698.000 MHz	0.0 dB	0.0/31.7 M
8	706.000 MHz	0.0 dB	0.0/31.7 M

The difference is the Multicarrier COFDM modulation with following values to be set for maximum Datarate of 31.7Mb/s in the TS: (64QAM, FFT2k,Guard 1/32, 8MHz per channel, FEC7/8):

**Modulator**

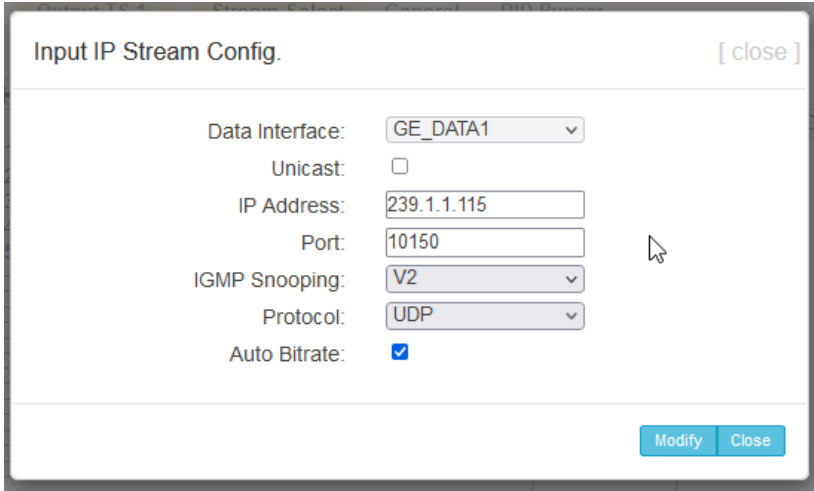
Center Frequency: 336.000 MHz      Standard: DVBT  
 Level(All Carriers): 0.0 dBm      Channel Info.(Alarm/Active/Total): 0/8/8  
 Guard Interval: 1/32      Constellation: 64QAM  
 BandWidth: 8M      FFT Mode: 2K  
 Code Rate: 7/8

Apply

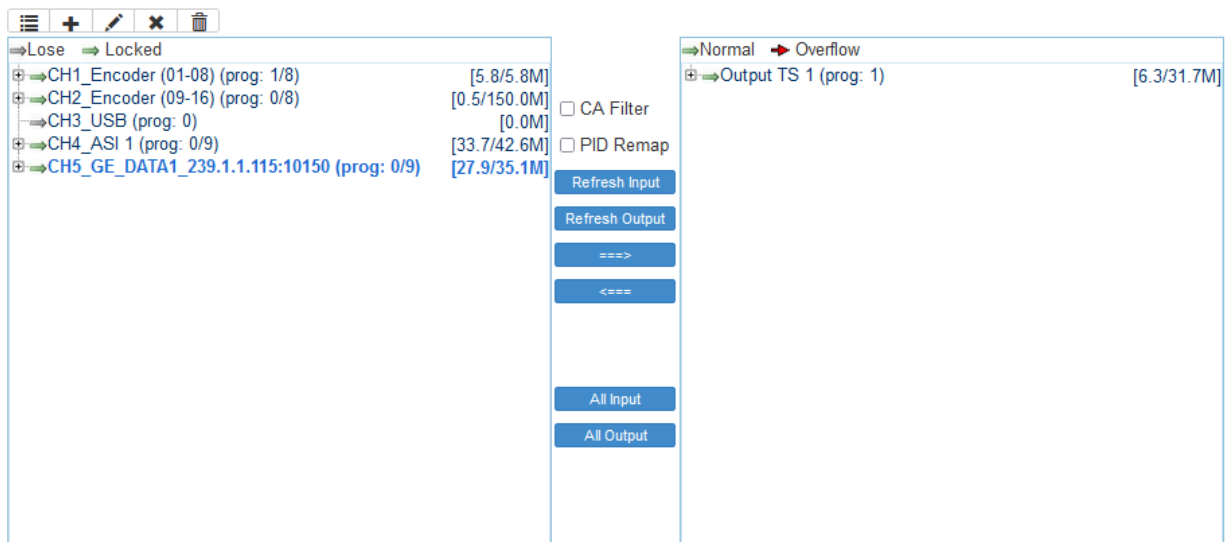
#	Frequency	Channel Level	(Act/Max)

Remark: This screenshots are from the HDM-9416 Menu but Modulator part is nearly similar, so do not wonder, why herein ASI Input and USB player are on the left Input side.

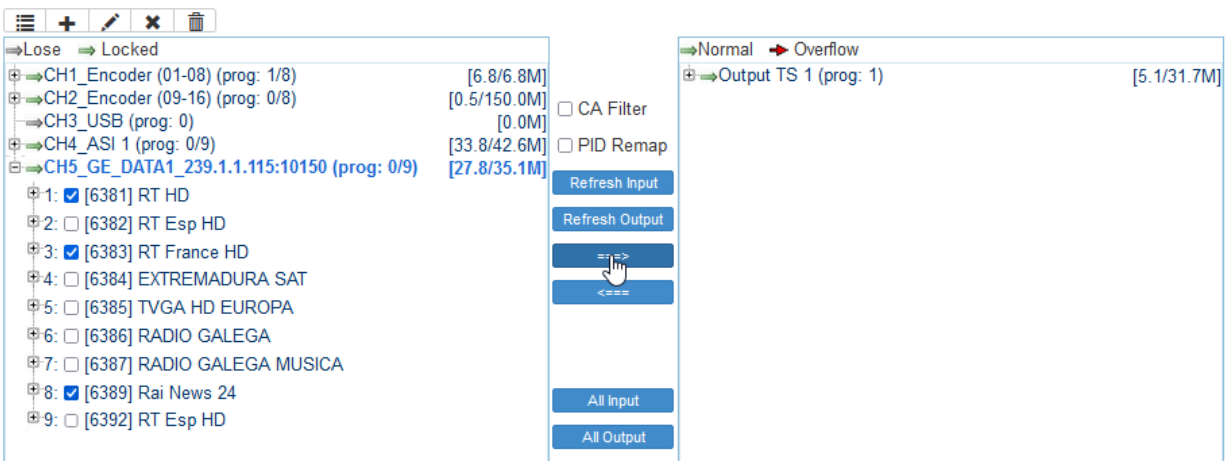
**EXAMPLE FOR ADDING AN IP MPTS TO THE INPUT FOR FINAL REMULTIPLEXING:**

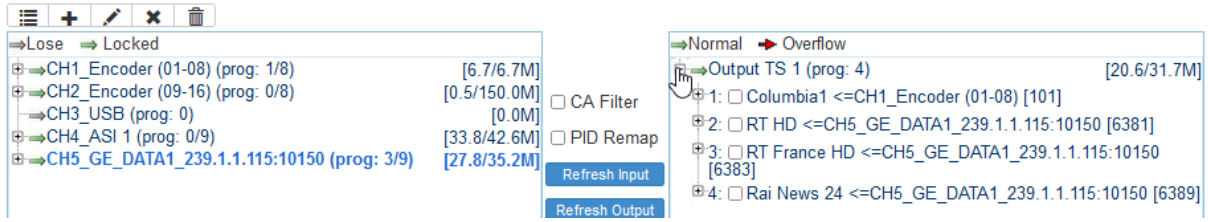


check and parse the input:

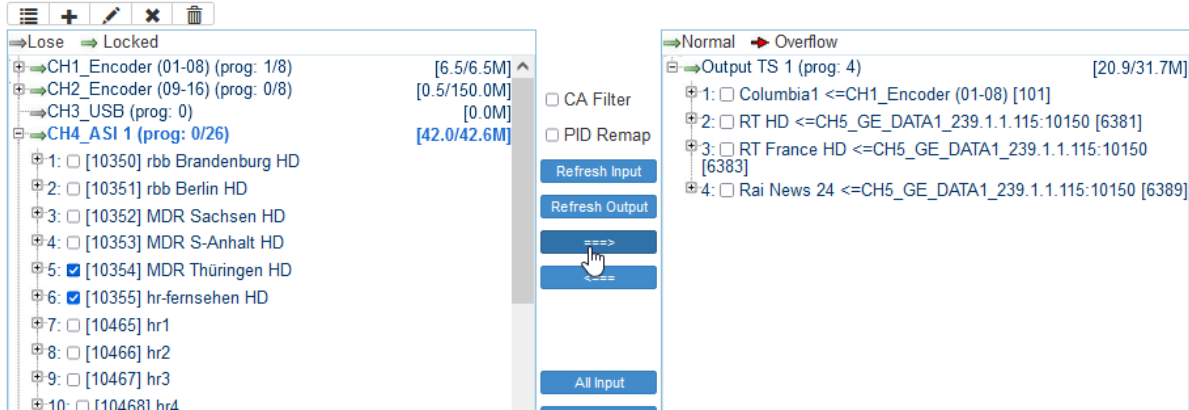


Parse-Select all(SPTS) Parse program  
time out: 60 seconds



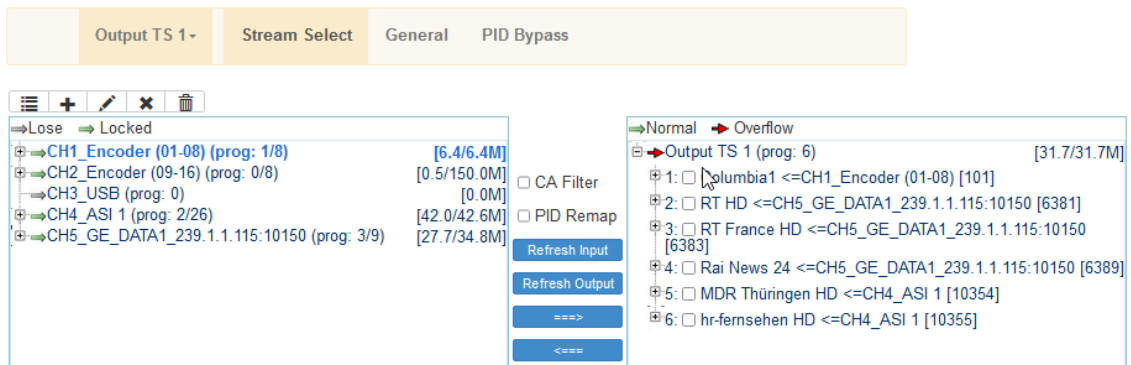


Please always consider less datarate's to multiplex because if there will be peaks in the TV services they might disturb your complete TS which you push out to DVB-T. A good Idea is to reserve 10-15%.



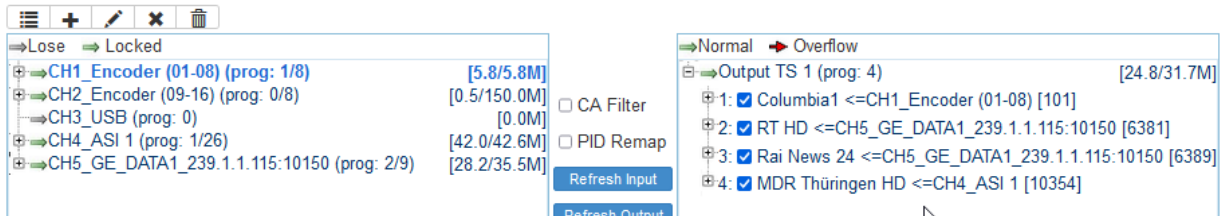
**NEGATIVE EXAMPLE, OVERFLOW WILL APPEAR:**

TS Config



Of course the modulator Data rate is on its limit: 31,7 Mb/s and does not show more...

Deleting some in the mux let us good to go again:



Please be a bit patient with the settings and reactions... takes some time...

Single channels can be switched OFF just in case there are occupied frequencies in your range.

**BLANKOM**

**Summary**

- ▶ Status

**Parameters**

- ▶ Encoder (01-08)
- ▶ Encoder (09-16)
- ▶ TS Config
- ▶ **Modulator**
- ▶ IP Stream
- ▶ USB Media

**System**

- ▶ Network
- ▶ Password
- ▶ Configuration
- ▶ Firmware
- ▶ Date | Time
- ▶ Log

**Modulator**

Center Frequency: 332.000 MHz

Level(All Carriers): 0.0 dBm

Guard Interval:

BandWidth:

Code Rate:

Standard: DVBT

Channel Info.(Alarm/Active/Total): 0/6/8

Constellation:

FFT Mode:

#	Frequency	Channel Level	Status	Bit(Act/Max)	
1	308.000 MHz	0.0 dB	●	26.2/31.7 M	✎
2	316.000 MHz	0.0 dB	●	0.0/31.7 M	✎
3	324.000 MHz	0.0 dB	●	0.0/31.7 M	✎
4	332.000 MHz	0.0 dB	●	0.0/31.7 M	✎
5	340.000 MHz	0.0 dB	●	0.0/31.7 M	✎
6	348.000 MHz	0.0 dB	●	0.0/31.7 M	✎
7	356.000 MHz	0.0 dB	●	0.0/31.7 M	✎
8	364.000 MHz	0.0 dB	●	0.0/31.7 M	✎

**Changed frequencies:**

Center Frequency: 509.000 MHz

Level(All Carriers): -10.0 dBm

Guard Interval:

BandWidth:

Code Rate:

Standard: DVBT

Channel Info.(Alarm/Active/Total): 0/6/8

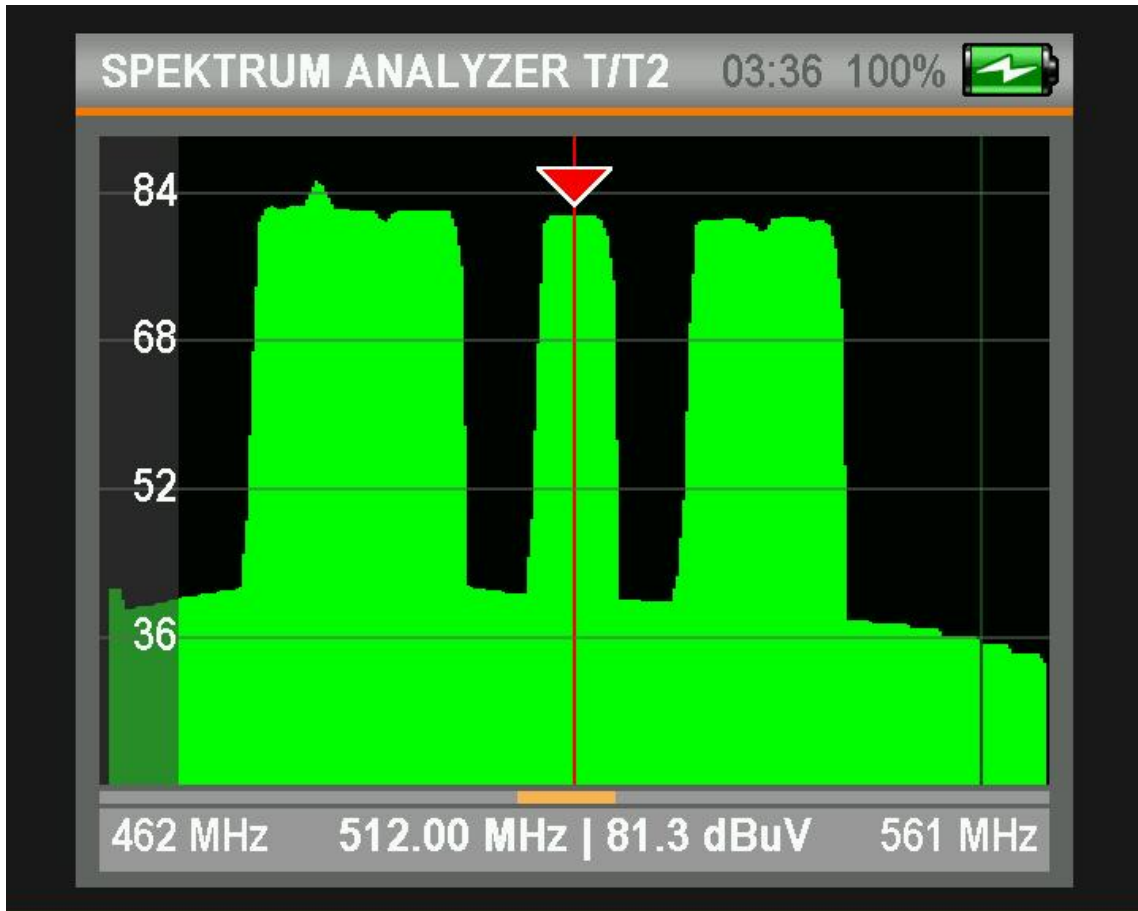
Constellation:

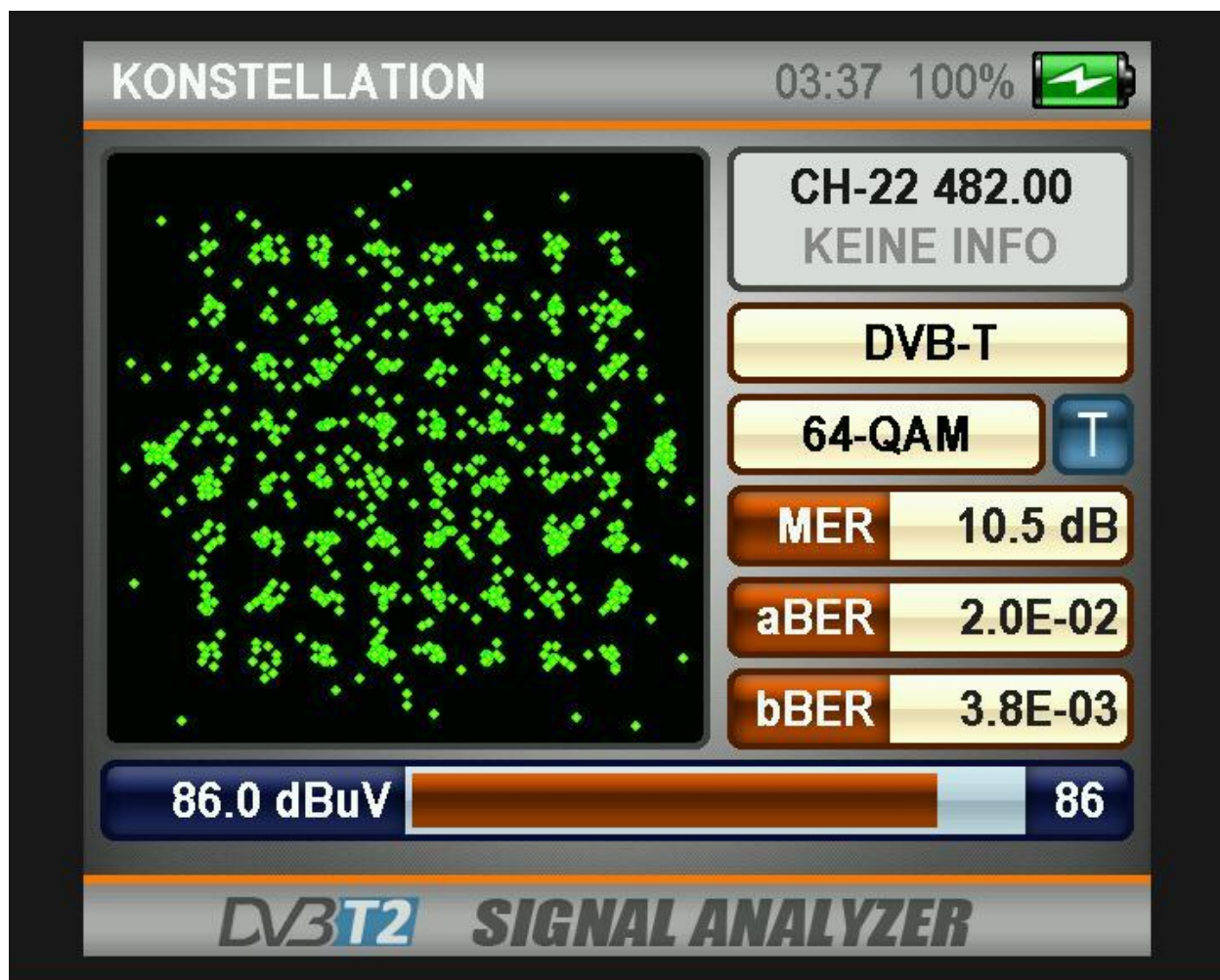
FFT Mode:

#	Frequency	Channel Level	Status	Bit(Act/Max)	
1	482.000 MHz	0.0 dB	●	27.4/31.7 M	✎
2	488.000 MHz	0.0 dB	●	0.0/31.7 M	✎
3	496.000 MHz	0.0 dB	●	0.0/31.7 M	✎
4	504.000 MHz	0.0 dB	●	0.0/31.7 M	✎
5	512.000 MHz	0.0 dB	●	0.0/31.7 M	✎
6	520.000 MHz	0.0 dB	●	0.0/31.7 M	✎
7	528.000 MHz	0.0 dB	●	0.0/31.7 M	✎
8	536.000 MHz	0.0 dB	●	0.0/31.7 M	✎

Measurements on -20dB output and level set -10dB before:







**INSTALLATION NOTES**

Almost 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 SAT-RF-input ports carrying DC Voltage (13V /18V, max. 400 mA).

By connecting a mains cable, the device can become functional without any auxiliary appliances. The power supply units are designed for the wide range of 100-230V AC; 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 except the unused cascaded trunk ports of the SAT multiswitches.

**Suggestion:** For Ethernet cabling please use at least CAT 6E Ethernet cable for GigabitEthernet, DSTP (double shielded twisted pair) for the streaming ports.

**Note:**

IPv4 global scope sessions use multicast addresses in the range 224.2.128.0 - 224.2.255.255 with SAP Announcements being sent to 224.2.127.254 Port 9875 (note that 224.2.127.255 is used by the obsolete SAPv0 and MUST NOT be used).

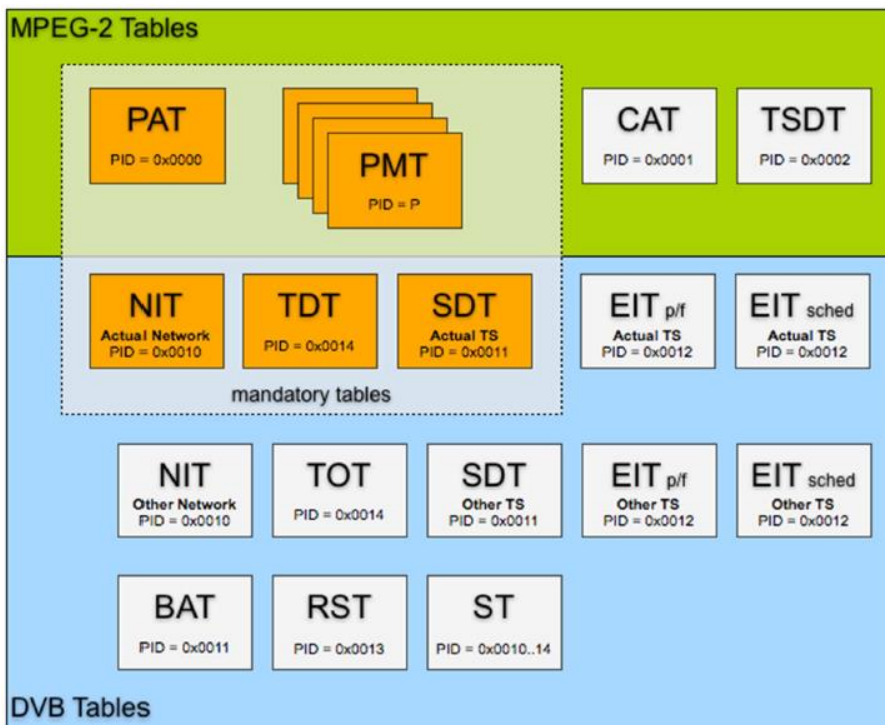
IPv4 administrative scope sessions using administratively scoped IP multicast. The multicast address to be used for announcements is the highest multicast address in the relevant administrative scope zone.

For example, if the scope range is 239.16.32.0 - 239.16.33.255, then 239.16.33.255 is used for SAP Announcements.

**SOURCES:**

[http://www.etsi.org/deliver/etsi\\_en/300400\\_300499/300468/01.15.01\\_60/en\\_300468v011501p.pdf](http://www.etsi.org/deliver/etsi_en/300400_300499/300468/01.15.01_60/en_300468v011501p.pdf)

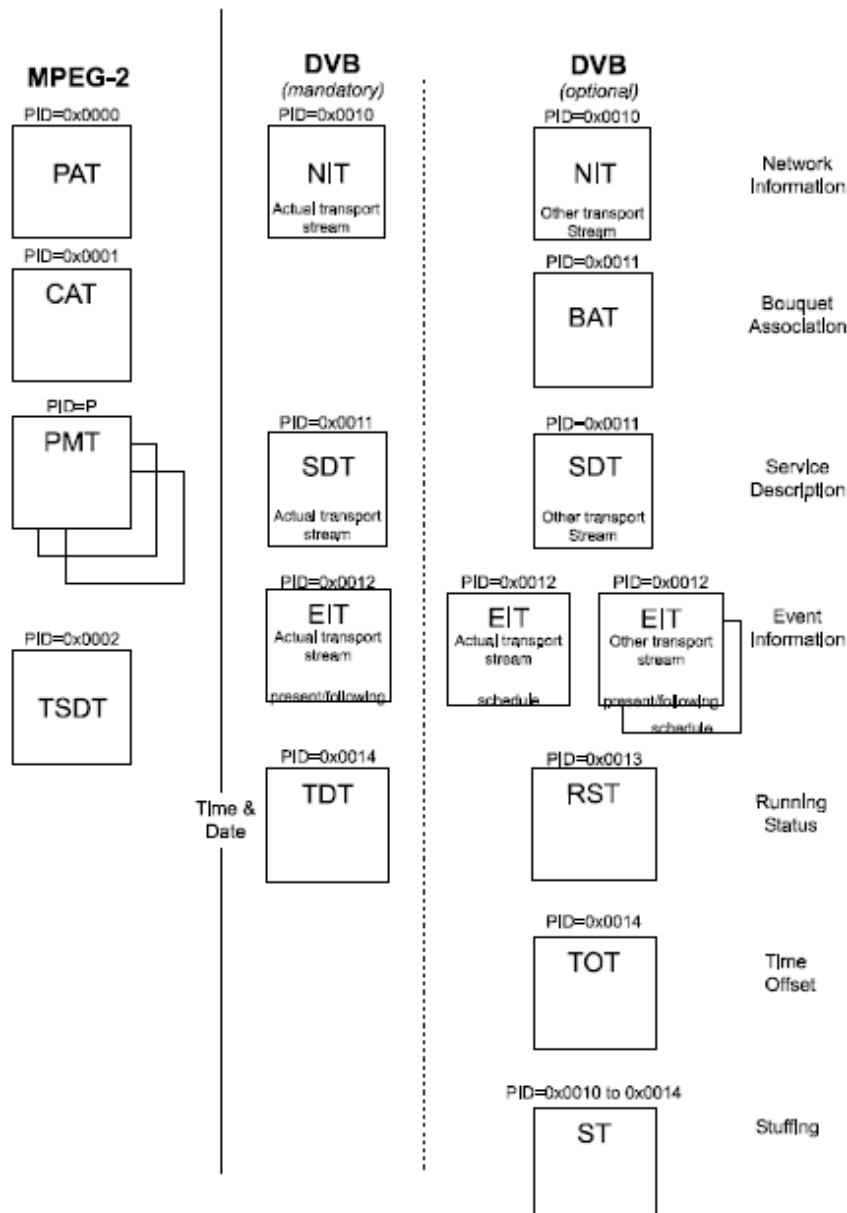
<https://www.dvb.org/standards>



**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  
rpchf 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  
uimbsf unsigned integer most significant bit first  
UTC Universal Time, Co-ordinated

**ANNEX CATV CHANNEL PLAN CENELEC CATV CHANNEL PLAN:**

Bereich Bands	Kanal Channel	Kanal- frequenzen Channel frequency  (MHz)	Mitten- frequenz CENTER frequency  (MHz)	Bild- träger Picture carrier  (MHz)	Ton- träger Sound carrier  (MHz)	Bereich Bands	Kanal Channel	Kanal- frequenzen Channel frequency  (MHz)	Mitten- frequenz CENTER 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 Sonder- kanal- 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 Sonder- kanal- 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 Sonder- kanal- 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 <sub>RMS</sub>	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

dBmV	dB $\mu$ V	dBm 75 $\Omega$	mV <sub>RMS</sub>	mW 75 $\Omega$
41	101	-7.75	112.20	0.168
42	102	-6.75	125.89	0.211
43	103	-5.75	141.25	0.266
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



## 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.

تعليمات التخلص

!تنبيه

يجب التخلص من هذا المنتج وفقًا لجميع القوانين واللوائح الوطنية

عند التخلص النهائي من هذا المنتج يتخذ التعامل معه وفقًا لجميع القوانين واللوائح الوطنية

### 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 equalization) 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](mailto:info@blankom.de), contact: [www.blankom.de](http://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](mailto:info@blankom.de), Kontakt: [www.blankom.de](http://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

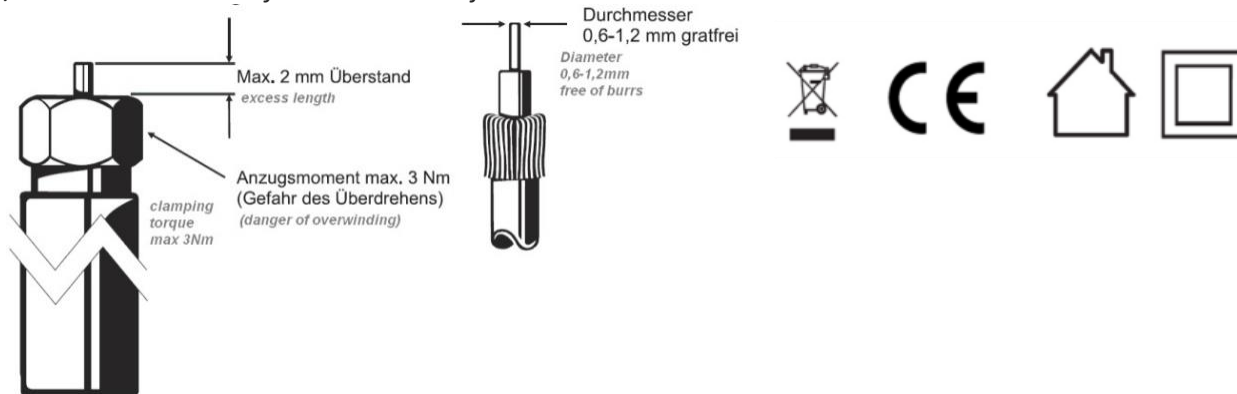
**Vorsicht:** Entsorgen Sie das Gerät entsprechend den geltenden umweltrechtlichen Bestimmungen. Elektrische und elektronische Geräte dürfen nicht in den Hausmüll!

**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:



**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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**Phone: +49 5069 4809781,**

**IRENIS technical hotline VoIP +49 5069 4399 -860 or -8601**

**Managing Director: Dipl.Ing. Murad ÖnoI, Commercial Register: HRB 206370 /**

**District Court Hildesheim Web: [www.blankom.de](http://www.blankom.de) E-Mail: [info@blankom.de](mailto:info@blankom.de)**