

# HDC-5016 ... 5064

# IP to 16, 32, 48 or 64 QAM Modulator



# **EDGE-QAM User Manual**

Software Version: 09.02.34 Build 272.00 Jul 10 2022 Hardware Version: 02.41.04 Web Version: 1.51

Note: All data in this manual are subject to change w/o any notification



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### **CONTACT:**

Max. Levels/Min. Levels for Antenna Sockets accord. DIN EN50083-7

# **Application Example**

### **Master- Slave System:**



55 55

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# KOM

### 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 quidelines 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 d atique 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' a che ha una conoscenza di base della tecnologia di ricezione, di rete e delle apparecchiature. Il rispetto di tutti i regolamenti e le linee quida 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.







# **Chapter 1 Product Overview**

# 1.1 Outline

The BLANKOM HDC-5016---5064 IP to QAM Modulator is the 5th generation Mux-scramblingmodulating all-in-one device. With 16 multiplexing channels, 16 scrambling channels and 16 QAM (DVB-C) modulator channels, it supports a maximum of 1024 IP input streams through the GbE ports and output 16-64 non-adjacent DVB-C QAM channels (50MHz...960MHz) through the combined RF output. The device is also characterized with high integration level, high performance and a reasonable price.

# **1.2 Key Features**

- 2+1 GE input, RJ45
- Input up to 512 (1024\*) channels TS over UDP/RTP multicast (RTSP-Unicast), IGMP v2/v3 selectable
- Max. 840 Mbps for each of the 2 GbE inputs (the front DATA-port\* can handle only 120Mb/s)
- Accurate PCR adjusting
- CA & PID filtering, remapping and PSI/SI editing
- Up to 180 PIDS remapping per channel
- DVB CA scrambling system (ETR289), simulcrypt standards ETSI 101 197 and ETSI 103 197
- Max. 16-64\* multiplexed or scrambled TS over UDP/RTP output in parallel
- 16-64\* non-adjacent QAM carriers' output, compliant to DVB-C (EN 300 429) & ITU-T J.83 A/B
- Web-based Network management

# 1.3 Block Diagram (for the 16 QAM channel version)





# 1.4 Agile Channel Setting Example







### HDC-5048 comes with 2 RF outputs:









# **1.5 Specifications**

Function	IP to QAM Modulator with up to $2x^*$ 512 IPTV input, 1664 DVB-C and 1664 IPTV MPTS output
INPUT	
IP input	2x 512* from 3 IP input: 3 Gigabit Ethernet Port (Max 840 Mbps for each GigE input)
Transport protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3
MULTIPLEXING	NIT generation, PID passing,, CA filter, PID remapping
Input IP streams	In Total 2x 512 (DATA1+2 +128 max DATA Front) depending on Model
Output channel quantity	1664*, agile
Max PIDs	180 per channel
Functions	PID remapping (auto/manually optional), PCR accurate adjusting, PSI/SI table automatically generating
Scrambling parameters	Max simulcrypt CA: 6, Standard: ETR289, ETSI 101 197, ETSI 103 197, Local/remote connection
MODULATION	DVB-C Annex A/C and US-Norm Annex-B selectable
QAM channels	1664* non-adjacent carriers,
Modulation Standard	EN300 429/ITU-T J.83A/B (DVB-C Annex A/C and US-B)
Symbol Rate	5.07.0Msps, 1ksps stepping
Constellation	16, 32, 64, 128, 256QAM
FEC	RS (204, 188)
RF OUTPUT	<b>1 F type</b> output port for 16-64* carriers (int. Comb.), 75 $\Omega$ impedance
RF Range	50960MHz, 1kHz stepping
Output Level	-20dBm+10dBm (87117dBµV), 0.1dB stepping
MER	≥ 40dB, ACLR: -60 dBc
TS OUTPUT	1664 IP output over UDP/RTP/RTSP multicast, 2 GigE Ethernet Ports (DATA 1+2)
SYSTEM	
Control	Network management (WEB-IF), English menu, Ethernet software upgrade
GENERAL	
Dimensions, Weight	420mm × 440mm × 44.5mm (WxLxH) , 19" 1U, 3 kg depending on Model
Power	AC 110V ±10%, 50/60Hz or AC 220V ±10%, 50/60Hz, Consumption: appr. 15.4 W
Temperature	045°C (operation), -2080°C (storage)



# **Chapter 2: Connection Description**

# 2.1 Front & Rear panel





Front:	NMS/CAS: Network management port and CAS data port + separate DATA-IN-Port
Rear left	Grounding
	Power switch, Fuse
	AC IEC Power Socket
	RF output port
	Link/Act Indicators in RJ45 connectors
Rear right	DATA 1/2 GbE Input/Output

# **Chapter 3 Installation Guide**

# **3.1 Acquisition Check**

When you open the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- HDC-5016...64 IP QAM Modulator
- User's Manual (online download from www.blankom.de)
- Power Cord and grounding wire (depending on country) •

# **3.2 Installation Preparation**

When you install the device, please follow the steps below. The details of installation will be described after this chapter. Users can also refer to the rear panel chart during the installation.

The main steps of the installation include:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing the IP Mux-Scrambling QAM Modulator
- Connecting signal cables
- Connecting communication port for WEB-IF



# **3.2.1 Environmental Conditions**

ltem	Requirement
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: 1x10 <sup>7</sup> 1x10 <sup>10Ω</sup> , Grounding current limiting resistance: 1m (Floor bearing should be greater than 450kg/m <sup>2</sup> )
Environment Temperature	540°C (sustainable), 045°C (short time) installing air-conditioning is recommended
Relative Humidity	20%80% sustainable 10%90% short time
Pressure	86105kpa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 220V ±10% 50/60Hz or 110V ±10% 50/60Hz. Please carefully check before running.

### 3.2.2 Grounding Requirement

- All function modules' good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Coaxial cables' outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device's frame should be no less than 25mm<sup>2</sup>.

# 3.2.3 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm<sup>2</sup>.

# **3.2.4 Device Grounding**

Connecting the device's grounding rod to frame's grounding pole with copper wire.

# **3.3 Wire Connections**

# 3.3.1 Power cord connection

The power socket is located on the right of rear panel, and the power switch is on the left of front panel. User can plug one end of the power cord to the socket and insert the other end to AC power. When the device

# **BLANKOM**<sup>®</sup>

solely connects to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than  $1\Omega$ .

**Caution:** Before connecting power cord to the IP QAM Modulator, user should set the power switch to "OFF".

# 3.3.2 Signal and Network Management (NMS) Cable Connection

The signal connections include the connection of input signal cable and the connection of output signal cable. Please use at least CAT 6 STP RJ45 LAN Cable for the management port and CAT 6 DSTP for the streaming data ports to avoid electromagnetic influences. For RF cable we recommend double shielded Coax.

# **Chapter 4: Web NMS Management**

This device does not support an LCD operation, and the modification can only be operated with Web NMS by using a standard web-browser. We recommend to use Firefox – latest version.

# 4.1 Login

The factory default IP address is **192.168.0.136** and users can connect the device and web NMS through this IP address.

Connect the PC (Personal Computer) and the device with a network cable, and use ping command to confirm they are on the same network segment. For instance, the PC IP address is 192.168.99.252, we then change the device IP to 192.168.0.xxx (xxx can be 0 to 254 except 136 to avoid IP conflict).

Launch the web browser an input the device IP address in the browser's address bar and press Enter. *We recommend to use the latest Mozilla Firefox browser.* 

It will display the Login interface. Input the Username and Password (Both the default Username and Password are "admin"). And then click "Login" to start the device setting.

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	Benutzername admin					
Kennwort	•••••					
		6				
	Anmelden	Abbrechen				

# 4.2 Operation

Remark: The user should be familiar with DVB-MPEG and PSI/SI information and its PID and Table construction and norms. Many tables are cross referencing to other tables (example: EIT and SDT, PMT, ...). Information can be grabbed from: https://www.dvb.org/standards



# 4.2.1 Summary

When the login has been confirmed, it displays the summary status as in Figure-2:

$\leftarrow$ $\rightarrow$ C $\textcircled{a}$	③ 10.0.0.103							
BLANKOM HD	C-5016							
welcome to use W								
		MATION						
Status Monitor Input Status Output Status	G	BL	ANKOM					
Parameters	Syste	em Information						
► TS Config		Software Version:	09 60 17 Build 271 00 Nov 21 2017					
Modulator		Hardware Version	00.00.10					
▶ IP Stream	You can select any	Web Version:	1.51					
System	· · · · · · · · ·	System Version:	1.20.1.62					
Network	item here to enter	Product ID:	0d031600-00000010-00000000-00000000					
▶ Password	the corresponding	Serial Number:						
Configuration	interface to check	Manufacturing Date:						
► Date   Time ► Log	information or set	Uptime:	0 Day-03:42:11					
•	the parameters.							

# 4.2.1.1 Setting Date | Time

The device supports setting of Date and Time by a) browser you are using to the web-IF – so your computer. But for the correct Time and Date it is almost better to configure time zone + NTP servers:

Example for European NTP-Server addresses... But first set the time zone please:

	1970-01-01 00:53:23
Timezone:	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, 5 $\sim$
NTP Server 1:	194.25.134.196
NTP Server 2:	
NTP Server 3:	
NTP Server 4:	
NTP Server 5:	
	Set Tracone

Please first set time zone than config NTP-Server!



	1970-01-01 02:00:33
Timezone:	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, 5 ~
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

And you are done – but your Device need a connection to these NTP addresses. -> Local Gateway settings should fit as well to asure the connection to external NTP servers.

# 4.2.2 Parameters "TS Config" - Menu

### • Stream Select Basics

From the menu on up side of the webpage, clicking "Stream Select", it displays the interface where users can choose the programs to Mux out:

	TS CONFIG	
► Status Monitor	Output TS 1- Stream Select General PID PASSTHRU	
Input Status Output Status AC Checked	→ / × m wlose → Locked → Overflow	10 4/50 70
Parameters       ► TS Config       ► Scrambler       ► Modulator       ► IP Stream       System       ► Network       ► Password       ► Configuration       ► Introve       ► Date   Time       ► Log	Image: Model and Look with Loop (prog: 0)       [3,3/3,3/3,0]       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       [0,0/0,0/4]       CA Filter       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       [0,0/0,0/4]       CA Filter       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       [0,0/0,0/4]       CA Filter       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)         Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Image: Model and Loop (prog: 0)       Ima	[2.4/50.7M]
	Parse program Output Area	

Configure 'Input Area' and 'Output Area' with buttons in 'Operation Area'. Instructions are as below:

CA Filter : Enable/disable the CA Filter function. Clicking this box, you can filter out the input CA-PIDs to avoid disturbing with the device scrambling function.

<sup>IV</sup> PID Remap: To enable/disable the PID remapping (disabled recommended for pass through)

Refresh Input To refresh the input program information

Refresh Output To refresh the output program information

Select one input program first and click this button to transfer the selected program to the right box to be processed to the output.

Similarly, you can remove TV Services from the multiplex in the right box.

All Input To select all the input programs

All Output To select all the output programs

Parse program To parse programs time out: 60 seconds time limitation of parsing input programs from TS

This **PARSING** is almost important to read the content from the input streams....



# Program Modification:

The multiplexed program information can be modified by selecting the program in the 'output' area. For example, when clicking on a service, it opens a popup as dialog box (Figure 6) where you can change or insert new data or even rename the service.

Program Information		[close]
Program Information Program From Input: Service Name: Major Channel Number: Minor Channel Number: Source Id: Short Name: Program Number: Logic Channel Number: Service Type: Service Provider:	CH2_Data1_239.1.1.112:10102 [0]  rbb Brandenburg  1  2  prog2  1002  2  0x01  ARD	[close] Normal → Overflow ⇒Output TS 1 (prog: 6) #1: Live1 <=CH1_Data1_238.0.0.1:1235 [1] #2: □rbb Brandenburg <=CH2_Data1_239.1.1.112:10102 [0] #3: □rbb Berlin <=CH2_Data1_239.1.1.112:10102 [0] #4: □ ARD-TEST-1 <=CH2_Data1_239.1.1.112:10102 [0] #6: □ NDR FS MV <=CH2_Data1_239.1.1.112:10102 [0] #6: □ NDR FS HH <=CH2_Data1_239.1.1.112:10102 [0]
PMT Descriptor Tag: PMT Descriptor Data: PMT PID: PCR PID: MPEG-2 Video PID: MPEG-1 Audio PID:	□ 0×00 (Hex) 0×0020 0×0021 2 0×0021 2 0×0022	
MPEG-1 Audio PID: Private PES PID: Private Sections PID:	<ul> <li>✓ 0x0023</li> <li>✓ 0x0024</li> <li>✓ 0x0025</li> <li>Apply</li> </ul>	✓ Close

# General

From the menu-bar on the upper side of the web-frame, selecting "General", displays the interface where you can set parameters for each selected output channel (TS1...TSn).

**NOTE:** (Model release dependent) Please do not use the DATA-RJ45 Port at the front, it is only a spare port for the IP-streams but the rear-ports are the ones to be preferred.



TS COM	IFIG								
		Output TS 1+	Stream Select	General	PID PAS	SSTHRU			
	Stream								
	Output Mode:		Mux out		×)	I	PAT Insert:		
		SDT Insert:				1	BAT Insert:		
		Share BAT:	Disable	~			CAT Insert:		
		PMT Insert:				1	Fixed Table Version:		
		TS ID:	1				ON ID:	1	]
		PCR Correct				1	PCR Mode	(1 v	)
		Update Program Type	Update by index	~)			Character Encoding	NORMAL ~	)
	NIT								
	NIT Insert:		From Web	~			Share NIT:	Disable v	)
	Private Data:		🗹 0x0000000			1	Network ID:	1	]
		Network Name:	network-1			,	Version Mode:	Automatic v	)
		LCN Mode:	European	~			Version Number:	1	(0-31)
		Index TS ID	ON ID	Freque	ency	Constellati	on Symbol Rate	• 🕇 🛍	)
	TDT/	гот							
		TDT/TOT Insert:				1	TOT Descriptor Insert:	(disable v	)
	VCT								
		VCT Insert:	0			,	VCT Mode:	TVCT V	)
		Modulation Mode:	4				Carrier Frequency:	500.000	(30-1000MHz)
	IPTV Sync(SPTS)								
		IPTV Sync:					Sync Period:	60	Sec
	TS S	ync							
		TS Sync:							
									Apply

Several parameters can be modified and added in this GENERAL settings menu. Examples will follow later. VCT is for American DVB-C/ATSC norms only and can be skipped in normal DVB-C Annex A/C -rest-of-the-world-modes.

# > PID Bypass

From the menu on up side of the web frame, selecting "PID Bypass", opens the menu to add the PIDs which need to pass through. An example will be explained later. Here EIT is PID12hex:

TS CO	NFIG								
		Outp	out TS 1+	Stream Select	General	PID Bypass			
							_		
		Index	Input Cha	nnel Input PID(0x)	Output Pll	D(0x)			
		I	I	0x0012	0x0012				
								Set	Del-All



### Example: Injection from an MPTS into its DVB-C output:

We are passing just 4 TV Services from the Input DVB-S2 MPTS to the Output in QAM:

		0000.40	07 15-0
		2022-12-	-07 15:20
	TS CONFIG		_
► Status	Output TS 1+ Stream Select Genera	al PID PASSTHRU	
Monitor			
►Input Status			
Output Status	+ / × 📋		
AC Checked	⇒Lose ⇒ Locked	⇒Normal → Overflow	
	□ →CH1_Data1_224.2.1.1:2001 (prog: 4/9)	[45.2/45.2M] ▲	
arameters	1: 🗹 [21100] ANIXE HD	CA Filter #1: ANIXE HD <=CH1_Data1_224.2.1.1:2001	[21100]
►TS Config	🔍 2: 🗹 [21103] QVC HD	□ PID Reman == 2: □ QVC HD <= CH1_Data1_224.2.1.1:2001 [2	21103]
▶ Scrambler	🕮 3: 🗹 [21104] HSE HD		21104]
▶ Modulator	🕮 4: 🗹 [21107] ShopLC HD	Refresh Input  4: ShopLC HD <=CH1_Data1_224.2.1.1:2001	1 [2110
▶IP Stream	👾 5: 🗆 [21108] WELT HD	Refresh Output	
	🕮 6: 🗆 [21112] Nicer Dicer TV		
system	`⊕'7: □ [21113] Genius Plus		
▶ Network	1 8: [21118] WELT HD	<===	
▶ Password			
Configuration	G → CH2 Data1 224.2.1.2:2002 (prog: 0/9)	[47.1/47.1M]	
Firmware	CH3_Data1_224.2.1.3:2003 (prog: 0/26)	[42.2/42.2M]	
Date   Time	⊕ ⇒CH4_Data1_224.2.1.4:2004 (prog: 0/3)	[11.8/11.8M] All Input	
► Log	←→CH5_Data1_224.2.1.5:2005 (prog: 0)	[41.4/41.4M] All Output	
	CH6_Data1_224.2.1.6:2006 (prog: 0)	[29.4/29.4W]	
	CH8 Data1 224 2 1 8:2008 (prog. 0)	[41.0/41.0/4] [19.3/19.3M]	
	→CH9_Data1_224.2.1.9:2009 (prog: 0)	[33.9/33.9M]	
		133 9/33 9M1 Y	

We add the PID 12hex (= EIT table for EPG) to the output. REMARK: Please do not perform a PID remap- just to be sure  $\bigcirc$  nothing will mismatch later. TS1 (CH1) is the Input-stream:

So, we need to say Input Channel 1 under Index 1:

TS CC	ONFIG								
		Outp	out TS 1+	Stream Select	General	PID Bypass			
		Index	Input Cha	nnel Input PID(0x)		D(0x)			
		1	1	0x0012	0x0012				
								Set	Del-All

The EIT is PID 18dec or 12hex (we operate in Hexadecimal here) so entering a 12 is fair enough, the machine does 0x0012 from it. No, there is no AI inside <sup>(1)</sup>. Then set and here we go:



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# Parameters $\rightarrow$ TS Config:

Select "TS Config", to display the menu where you can configure the output and also the IP-Input parameters in this interface. (Figure-3):

Summary       Status       Output Ts 1-       Stream Select       General       PID Bypass
▶ Output Istaus       Output IS 2         Parameters       Output TS 3         © Utput TS 4       Output TS 4         © Output TS 5       Output TS 6         © Output TS 6       Output TS 7         © Network       Output TS 9         © Network       Output TS 10         © Configuration       Output TS 12         © Date   Time       Output TS 13         © Long       Output TS 15         Output TS 15       Output TS 15         Output TS 18       All Output

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If you know, that your input streams are NOT using the same PID-numbers in their SPTS/MPTS streams Tables (DVB-PSI/SI) you can uncheck PID-remapping which is for avoiding conflicts.

(Like as you are using different devices in a network with same IP addresses = Conflict)

If you know you are not having/passing CA-PIDs in your input streams, you can check CA-Filter.

But if you want to save bitrates and have unnecessary EMM/ECM-PIDs in your source streams, you can filter them out.

### Add Input by pressing the '+':

TS CONFIG					
		Output TS 1-	Stream Select	General	PID By
<b>.</b> ⇒£	add in	Lockod put channel			

Input IP Stream Config.		[ Cl	ose	3 Inputs to select: DATA front,
Data Interface: Unicast: IP Address: Step IP: IP Address End: Port: Step: End Port: IGMP Snooping: Protocol:	Data1       ▼         □       □         224.2.2.2       □         □       1         224.2.2.255       □         1001       □         □       1         1032       ▼         V2       ▼         UDP       ▼	5		DATA1/2. Unicast: Within here means for UDP/RTP inputs only, no "TCP" based input: If your source is UDP unicast transmitting to DATA1 (192.168.1.136), then the Source output address should be like this format: udp://192.168.1.136:xxxx (192.168.1.136 is DATA1 interface IP, xxxx is the port number).
		Add Clo	se	add it and after a few sec.

### IGMP V3 'snooping' (is not equal full IGMP support like in a L3 Switch) has a lot of more options:

IGMP Snooping:	V3 ~	Record Type:	CHANGE TO INCL
Record Type:	CHANGE_TO_INCL V	Source IP Address1:	
Source IP Address1:	0.0.0.0	Source IP Address2:	MODE_IS_EXCLUDE
Source IP Address2:	0.0.0.0	Source IP Address3:	CHANGE_TO_INCLUDE_MODE
Source IP Address3:	0.0.0.0	Source IP Address4:	CHANGE_TO_EXCLUDE_MODE
Source IP Address4:	0.0.0.0	Protocol:	ALLOW_NEW_SOURCE
Protocol:	UDP 3 V		BLOCK_OLD_SOURCE

# However, that's for experts S



	Output TS 1-	Stream Select	General	PID By	/pass	
+ 🖊	× 💼					
⇒Lose =	Locked					→Normal →
-→CH1_	Data1_239.1.1.121	1:10012 (prog: 0)	[41.4	4/42.6M]		<sup>:</sup> ⇒Output 1
					CA Filter	
					PID Remap	
					Refresh Input	
					Refresh Output	
					===>	
					<	
					All Input	
					All Output	
Parse prog	time out:	60 seconds				

And **PARSE** the content to see the Services containing in that stream:



Supar 13 14 Stream Select	General FID by	ypass		
+ 🖍 🗙 💼				
⇒Lose → Locked			→Normal → Overflow	
∃ ⇒CH1_Data1_239.1.1.121:10012 (prog: 0/3)	[41.4/42.6M]		→Output TS 1 (prog: 0)	[0.0/50.]
<sup>□</sup> 1: □ [10375] tagesschau24 HD		CA Filter		
Program Number: 10375 Service Type: 0x19		PID Remap		
Service Provider: ARD		Refresh Input		
		Refresh Output		
B ≥ Elements		===>		
MPEG-4 Video PID: 0x1519				
MPEG-1 Audio PID: 0x151a				
Private PES PID: 0x151c				
AC3 Audio PID: 0x151e				
User defined PID: 0x00b0		All Input		
User defined PID: 0x087b		All Output		
<sup>■</sup> 2: □ [10376] ONE HD				
🗄 3: 🗌 [10378] SR Fernsehen HD				

Uncheck PID remap and CA filter to keep the original stream for pass through mode.



Output TS 1- Stream Sele	t General PID E	Sypass		
	3) [41.4/42.6M	CA Filter CA Filter PID Remap Refresh Input Refresh Output	→Normal → Overflow □→Output TS 1 (prog: 0)	[0.0/50.7M]

Remark: The Output max Data rate depends on the modulator output settings of this QAM channel: 256QAM, SR=7000 = > 51Mb/s.

These settings can be well prepared before you configure the Input-TS in the Modulator section to avoid TS overflows because the modulator outputs were set to low values like 64QAM and low SR.

BLANKOM	MODUL	ATOR							
Summary									
► Status		Center Freque	ncy: 414.000 MHz	Standa	rd: J.83A(DVB-C)				
Monitor		Level(All Carrie	ers): -20.0 dBm	Channe	el Info.(Alarm/Active/Tota	I): 0/16/16			
Input Status     Output Status		#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	2
Parameters		1	354.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	41.5/50.7 M	1
TS Config		2	362.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	21.0/50.7 M	1
Scrambler     Modulator		3	370.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	34.8/50.7 M	1
► IP Stream		4	378.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	27.2/50.7 M	1

After we have configured an Input STREAM, change to GENERAL first to stream the complete TS to the first output if you simply want to pass it w/o any modification to the TS-QAM output:

	Output TS 1-	Stream Select	General	PID Bypass	
Ctroom					
Stream					
0	utput Mode:	Mux out	~	PAT Insert:	$\checkmark$
SI	OT Insert:	Mux out		BAT Insert:	$\checkmark$
Sł	nare BAT:	CH1_Data1_239.1.1	.121:10012	CAT Insert:	$\checkmark$
PI	MT Insert:	$\checkmark$		TS ID:	1
O	N ID:	1		PCR Correct	
PC	CR Speed BW	1	$\sim$	PCR State BW	1 ~
PC	CR Compensate	0	$\sim$		



	Output TS 1+	Stream Select	General	PID	Bypass		
Stream							
0	utput Mode:	CH1_Data1_239.1.1	.121:10012 ~	,	PAT Insert:	$\checkmark$	
SI	DT Insert:	$\checkmark$			BAT Insert:	$\checkmark$	
SI	hare BAT:				CAT Insert:	$\checkmark$	
PI	MT Insert:	$\checkmark$			TS ID:	1	
0	N ID:	1			PCR Correct	$\checkmark$	
P	CR Speed BW	1	$\sim$		PCR State BW	1 ~	r
P	CR Compensate	0	$\sim$	3			
NIT							
N	IT Insert:	Disable	$\sim$		Share NIT:		
N	etwork Name:	network-1			Version Mode:	Automatic ~	,
LC	CN Mode:	European	$\sim$		Version Number:	1	(0-31)

This would pass the whole content to the output (QAM + IP MPTS out). TSID and ONID should be already well preprepared and set according to your needs in the Master-Headend-Streamer device.

### **MONITOR:**

The Input STATUS will show the overview about the incoming streams:

BLANKOM										
Summary										
► Status	CC Errors Clea	r								
Monitor	_									
▶ Input Status	Data1	Data2								
Output Status										
AC Checked										
Parameters	Channel Info.	(Alarm/Active/Total):	0/1/2	То	otal IP Bitrate	: 3.7/3.7 Mbps		Tota	al Data Bitrate: 8.	2 Mbps
TS Config										
Scrambler	Channel	IR Address	Port	Protocol	IGMP	Multicast	Statue	Rit(Act/Max)	CC Errors	
Modulator	Ghaillei	IF Address	Fort	FIGLOCOT	IGIVIE	municast	Jacus	BritActiviax)	CC EITOIS	
► IP Stream	1	238.0.0.1	1235	UDP	V2	1	۲	3.7/3.7 Mbps	0	Details
System	2	239.1.1.112	10102	UDP	V2	<b>V</b>	۲	0.0/0.0 Mbps	0	Details
<ul> <li>Machine also</li> </ul>										

You can clear the CC errors from the input – which is a quality sign...

Bit(Act/Max)	CC Errors	
3.4/3.4 Mbps	0	10 <u>Details</u>

Details will show you content information's:



INPUT S	INPUT STATUS										
	• Back										
		84-4	810	00 5							
	Class	Status	PID	CC Errors							
	▼Live1	Normal	-	0							
	PMT	Normal	0x1ea	0							
	PCR	Normal	0x1eb	0							
	Video	Normal	0x1eb	0							
	Audio	Normal	0x1ec	0							
	▼ other PID	Normal	-	0							
	Other	Normal	0	0							
	Other	Normal	0x11	0							
1											

### While the output status shows the 2 different ones: Modulator and IP (as copy of the TS 1-16\* Multiplexes)

-						•	• •			
		OUTPUT ST	ATUS							
▶ Status			MODULA	TOR IP						
lonitor			Jm							
Input Status			Channel Info (/	Alarm/Active/Tot	aD: 0/16/16					
Output Status			Circumer more	Autorio						
AC Checked			Channel	Frequ	ency	Constellation	Symbo	ol Rate	Status	Bit(Act/Max
rameters			1	650 N	1Hz	256 QAM	6875	Ksps	•	3.1/50.7 Mbp
TS Config Scrambler			2	658 N	ſHz	256 QAM	6875	Ksps	•	0.0/50.7 Mbps
Modulator			3	666 N	ſHz	256 QAM	6875	Ksps	•	0.0/50.7 Mbps
IP Stream			4	674 N	1Hz	256 QAM	6875	Ksps	•	0.0/50.7 Mbps
stem										
STREAM										
Channel Info.(/	Alarm/Active/Total):	0/1/16								
#	IP Address	Port	Protocol	Pkt Length	Null PKT Filte	r Data1	Data2	Status	Bit(Act/Max)	1
1	224.2.2.224	20010	UDP	7			<b>~</b>	•	2.9/50.7 M	_
2	224.2.2.2	2002	UDP	7	₽ □			•	0.0/50.7 M	1
3	224.2.2.2	2003	UDP	7				•	0.0/50.7 M	
4	224.2.2.2	2004	UDP	7					0.0/50.7 M	1
5	224.2.2.2	2005	UDP	7				۲	0.0/50.7 M	1
6	224.2.2.2	2006	UDP	7					0.0/50.7 M	/

2006 The advantage of pass-through mode is simple to understand:

- The EPG information will be kept in the TS. The TDT/TOT and other tables will be passed as well.
- -The NIT will be passed as well (if containing) but: It might be a wrong one from a SAT-frequency which is of course not valid for a cable TV network.
  - "Other" Tables might also not been valid anymore because the stream does not harmonize with the original source PMT/PAT/SDT/... The BAT might not be a good idea to pass

This can and should be controlled by an analyser like we are selling as well: DekTec DTU 245 or similar...: and next...

### EIT is missing.

We can add it manually see also description below...

We compare IN- and OUTput streams as an example now:



Home Decoding TR 101 290 Recording View	
DVB *    Freeze PID Service ID Bitrate short-term *	Address udp://239.1.1.121:10012
GRefresh Dec Dec Gate 1s	5.0.108)
X Reset V Hex Hex Time Slice 100ms	Info
Settings Bitrate profile	Input Adapter
PID info (34)	A Transport stream 1039
Ox0000 PAT (20 kbps / 0.05%)	E- Services (3)
$\square 0x0001 \text{ CAT} (5.9 \text{ kbps} / 0.01\%)$	tagesschau24 HD (14.5 Mbps / 34.0%)
<b>0x0010 NIT-actual NIT-other</b> (2.9 kbps / 0.01%)	⊕ <b>ONE HD</b> (15.3 Mbps / 36.0%)
<b>0x0011 SDT-actual, SDT-other, BAT</b> (5.8 kbps / 0.01%)	
Ox0012 EITpf, EITs (635 kbps / 1.5%)	E Tables
<b>0x0014 TDT, TOT</b> (3.0 kbps / 0.01%)	PAT
••••••••••••••••••••••••••••••••••••••	
• <b>/ 0x00B0 13818-6 type C</b> (10.3 kbps / 0.02%)	🖶 🖬 PMT
<b>0x010E AIT</b> (10.3 kbps / 0.02%)	🗈 🖬 NIT-actual
<b>0x0114 13818-6 type C</b> (10.3 kbps / 0.02%)	In Initiation Initiation Initiation
⊕ - 🗢 0x087B 13818-6 type B (150 kbps / 0.4%)	🗄 🖬 BAT
• • Ox0B9A AIT (10.3 kbps / 0.02%)	🗊 🗔 SDT-actual
🖶 – 🗲 0x0BA0 13818-6 type C (10.3 kbps / 0.02%)	B SDT-other
Ox1518 PMT (5.9 kbps / 0.01%)	EIT-actual
••••••••••••••••••••••••••••••••••••••	EIT-other
⊕ <b>J<sup>1</sup> 0x151A MPEG-1 Audio</b> (203 kbps / 0.5%)	
ロー コ 0x151B MPEG-1 Audio (203 kbps / 0.5%)	
Ox151C Teletext Data (265 kbps / 0.6%)	
⊕ <b>J</b> 0x151E AC-3 Audio (470 kbps / 1.1%)	
• • • • • • • • • • • • • • • • • • •	N
D 0x1524 MPEG-1 Audio (203 kbps / 0.5%)	14 H
Ox1525 MPEG-1 Audio (203 kbps / 0.5%)	
100/1527 FES FRIVATE DATA 1 (13.3 KDps / 0.03%)	
D 0v1526 AC-3 AUGIO (409 KDps / 1.1%)	
• • • • • • • • • • • • • • • • • • •	
D 0x1538 MPEG-1 Audio (203 kbps / 0.5%)	
D 0x1539 MPEG-1 Audio (203 kbps / 0.5%)	
• • • • • • • • • • • • • • • • • • •	v
TS Grid	TTS Grid TV PCR TR 101 290

### OUT:

DVB * 📕 Freeze PID Service ID	Bitrate short-term 🔻	Address udp://226.2.2.220001						
😋 Refresh 📄 Dec 📄 Dec	Gate 1s 🔹							
🗙 Reset 🛛 🔽 Hex	Time Slice 100ms 🔹	Info						
Settings	Bitrate profile	Input Adapter						
PID info (34)		↑ Transport stream 1039						
• Ox0000 PAT (19.1 kbps / 0.04%	)	E- B Services (3)						
<b>0x0001 CAT</b> (7.4 kbps / 0.01%)		Tagesschau24 HD (13.0 Mbps / 25.6%)						
Ox0010 NIT-actual, NIT-other	(4.4 kbps / 0.01%)	ONE HD (14.5 Mbps / 28.5%)						
Ox0011 SDT-actual, SDT-other,	BAT (5.8 kbps / 0.01%)	<b>SR Fernsehen HD</b> (13.6 Mbps / 26.9%)						
Ox0012 EITpf, EITs (636 kbps /	1.3%)	🖨 🔁 Tables						
<b>0x0014 TDT, TOT</b> (2.9 kbps / 0.	.01%)	🖶 🖽 PAT						
• • • • • • • • • • • • • • • • • • •	)	E CAT						
🖶 👉 0x00B0 13818-6 type C (10.2 k	(bps / 0.02%)	🖶 🖽 PMT						
• • • • • • • • • • • • • • • • • • •		🖨 📼 NIT-actual						
🖶 👉 🗘 0x0114 13818-6 type C (10.2 k	:bps / 0.02%)	• Network ID: 1						
🖶 🗢 Ox087B 13818-6 type B (149 k	.bps / 0.3%)	📄 🛄 NIT-other						
• • • • • • • • • • • • • • • • • • •		Network ID: 3						
• • • • • • • • • • • • • • • • • • •	kbps / 0.02%)	BAT						
• • • • • • • • • • • • • • • • • • •		🕀 📼 SDT-actual						
• • • • • • • • • • • • • • • • • • •	7 Mbps / 23.0%)	🕀 📼 SDT-other						
Dx151A MPEG-1 Audio (203 kt	ops / 0.4%)	EIT-actual						
Ox151B MPEG-1 Audio (203 kb	ops / 0.4%)	EIT-other						
Ox151C Teletext Data (260 kbp	vs / 0.5%)	🗄 🖽 EIT-other p/f						
• 0x151E AC-3 Audio (469 kbps)	/ 0.9%)	⊕  □ TDT						
Ox1522 PMT (5.8 kbps / 0.01%)		🕀 🛅 ТОТ						
• • • • • • • • • • • • • • • • • • •	1 Mbps / 25.9%)	🗄 🕀 AIT						
mm. J 0x1524 MPEG-1 Audio (203 kb	vps / 0.4%)							

We partly must <u>filter out</u> the invalid NIT but this is not possible when full pass through is selected.

Also, EIT 'others' should be erased as well as the invalid BAT and CAT...

Even trying to manually insert an own designed WEB-NIT:



	Output Mode:		CH1_Data1_239.1.1.12	1:10012 🖂	PAT Insert:	$\checkmark$	
	SDT Insert:		$\checkmark$		BAT Insert:		
	Share BAT:				CAT Insert:	$\checkmark$	
	PMT Insert:		$\checkmark$		TS ID:	1	
	ON ID:		1		PCR Correct		
	PCR Speed BW		1	/	PCR State BW	1	~
	PCR Compensa	te	0	/			
AUT							
	NIT Insert:		From Web	/	Share NIT:	$\checkmark$	
	Private Data:		☑ 0x0000000		Network ID:	1	
	Network Name:		network-1	7	Version Mode:	Automatic	$\sim$
	LCN Mode:		European	/	Version Number:	1	(0-31)
	- In days		01115	<b>F</b>	0	A maked Date	
	Index	18.00		Frequency	Constellation	Symbol Rate	
	шасх	1010	ONID			-,	
	1	1	1	450.000 MHz	256 QAM	6875 Ksps	<u>/ ×</u>
	1	1	1	450.000 MHz	256 QAM	6875 Ksps	Z ×
TDT/	1	1	1	450.000 MHz	256 QAM	6875 Ksps	<u> </u>
TDT/	TOT	1		450.000 MHz	256 QAM TOT Descriptor Insert:	6875 Ksps enable	∠ ×
TDT/	TOT TDT/TOT Insert Country Code:	1	1 deu	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID:	6875 Ksps enable	∠ ×
TDT/	1 TOT TDT/TOT Insert Country Code: Time Offset Pol	1 1	1 deu	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset:	6875 Ksps enable 0 0:0	✓ ×
TDT/	1 TOT TDT/TOT Insert Country Code: Time Offset Pol. Time Of Change	1 t: arity:	1 deu positive 0/0/0-0:0:0	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset: Next Time Offset:	6875 Ksps	✓ ×
TDT/	TOT TDT/TOT Insert Country Code: Time OffSet Pol. Time Of Change	1 arity:	1 1 deu positive 0/0/0-0:0:0	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset: Next Time Offset:	6875 Ksps enable 0 0:0 0:0	✓ × hh:mm
TDT/	TOT TDT/TOT Insert Country Code: Time Offset Pol Time Of Change	1 arity:	1 deu positive 0/0/0-0:0:0	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset: Next Time Offset:	6875 Ksps enable 0 0:0 0:0	✓ hh:mm hh:mm
TDT/	TOT TDT/TOT Insert Country Code: Time Offset Pol. Time Of Change	1 arity:	1 1 deu positive 0/0/0-0:0:0	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset: Next Time Offset: Modulation Mode:	6875 Ksps enable 0 0:0 0:0 4	✓ hh:mm
TDT/	1 TOT TDT/TOT Insert Country Code: Time Offset Pol. Time Of Change	1 arity:	1 1 deu positive 0/0/0-0:0:0	450.000 MHz	256 QAM TOT Descriptor Insert: Country Region ID: Local Time Offset: Next Time Offset: Modulation Mode:	6875 Ksps enable 0 0:0 0:0 4	h:mm

Doesn't do anything when we operate in the pass through mode.

So the pass through is only worth for Master- Slave HE-designs like shown on page 2 : To be used in SUB Headends.

Even manually add the services does not change anything:

Output TS 1- Stream Select General	PID Bypass		
	42.6M CA Filter PID Remap Refresh Input Refresh Output	<ul> <li>→Normal → Overflow</li> <li>→Output TS 1 (prog: 3)</li> <li>1: □ tagesschau24 HD &lt;=CH1_Data1_239.1.1.121:1</li> <li>2: □ ONE HD &lt;=CH1_Data1_239.1.1.121:10012 [10: 3: □ SR Fernsehen HD &lt;=CH1_Data1_239.1.1.121:1 [10378]</li> </ul>	[41.4/50.7M] 0012 [10375] 376] 10012



# **Multiplex-Mode**

So, we really **need to go for MUX**: multiplex, and add relevant PIDs:

OutputTS1-     Stream Select     General     PID PASSTHRU       Stream     Output Mode:     Mux out     PAT Insert:     BAT Insert:       SDT Insert:     Mux out     PAT Insert:     BAT Insert:     BAT Insert:       SDT Insert:     Mux out     PAT Insert:     BAT Insert:     BAT Insert:       SDT Insert:     OH2_Oats1_239.1.1.112.10102     PAT Insert:     CAT Insert:     CAT Insert:       TDI:     OH2_Oats1_239.1.1.1102.20198     Fixed Table Version:     OH ID       PCR Correct     Image: Contract Processing NORMAL     Image: Contract Processing NORMAL       Update Program Type     Update by index v     Share NIT:     Ditable Version:       NT     Norest:     Image: Contract Processing NORMAL     Version Mode:       LCH Mode:     Image: Processing     Version Mode:     Automatic       LCH Mode:     Image: Processing     Version Mode:     Image: Processing       TDI/TOT Insert:     Image: Processing     Version Number:     Image: Processing       VCT     VCT Inde:     Image: Processing     Version Social Processing       IPTV Sync:     Image: Processing     Sync Period:     Image: Processing       IPTV Sync:     Image: Processing     Sync Period:     Image: Processing       IPTV Sync:     Image: Processing     Sync Period:	NFIG						
Stream         Output Mode:       Mux out         SDT insert:       Mux out         SDT insert:       Mux out         Share BAR:       CH2_Data1_238.0.0.1:1235         CH2_Data1_238.0.1.11201002       Fixed Table Version:         CH3_DATA/Module_238.1.1.100.28198       Fixed Table Version:         FID:       CH3_DATA/Module_238.1.1.100.28198         PCR Correct       Image: CH3_DATA/Module_224.2.2.2:001         PCR Correct       Image: CH3_DATA/Module_224.2.2:001         PCR Correct       Image: CH3_DATA/Module_224.2.2:001         PCR Correct       Image: CH3_DATA/Module_224.2.2:001         PCR Mode       1         PCR Correct       Image: CH3_DATA/Module_224.2.2:001         PCR Mode       1         VDT       Character Encoding         NIT       Image: CH3_DATA/Module_224.2.2:001         NUTOT       Image: CH3_DATA/Module_224.2.2:001         VCT       Image: CH3_DATA/Module_224.2.2:001         VCT	Output	Stream Select	General P	PID PASSTHRU			
Output Mode::       Mux out         SDT Insert:       Mux out         Share BAF:       CH1_Data1_238.0.0.11235         CAT_MModule_238.1.11002       CAT Insert:         PMT Insert:       CH2_Data1_238.0.011235         CH2_Data1_238.0.011235       CAT Insert:         CAT_MModule_238.1.1100.28138       Fixed Table Version:         PCR Correct       Image: CH4_DATA/Module_224.2.2.21001         PCR Correct       Image: CH4_DATA/Module_224.2.2.21001         PCR Correct       Image: CH4_DATA/Module_224.2.2.21001         PCR Correct       Image: CH4_DATA/Module_224.2.2.21001         PCR Mode       1         Variate Program Type       Update by index v         NTT       Image: CH4_DATA/Module_224.2.2.21001         PCR Mode       1       V         Intert:       Disable       Character Encoding         NTT       Image: CH4_DATA/Module_224.2.2.1001       VCRMode:         Modulation Mode:       Persion       Version Mode:       Automatic         LCN Mode:       European       Version Number:       1       (0.31)         TDT/TOT       Image: CH4_DATA/Module_224.2.2.1001       VCT Mode:       Image: CH4_DATA/Module_224.2.2.1001         VCT       VCT       Image: CH4_DATA/Module_224.2.2.1001	Stream						
SDT Insert:       Mux out       baseling         Share BAT:       CH1_Data1_238.0.1:1225       CAT Insert:       CAT Insert:         PNT Insert:       CH2_Data1_238.0.1:1002       Fixed Table Version:       -         PNT Insert:       CH2_Data1_228.0.1:1002       Fixed Table Version:       -         PCR Correct       Image: CH2_Data1_0dute_224.2.2.2:1001       PCR Mode       1       -         PCR Mode       Image: CH2_Data1_0dute_224.2.2.2:1001       PCR Mode       1       -         NT       Image: CH2_Data1_0dute_224.2.2.2:1001       PCR Mode       1       -         NT       Image: CH2_Data1_0dute_224.2.2:1001       PCR Mode       1       -         NT       Image: CH2_Data1_0dute_224.2.2:1001       Version Mode:       1       -         ICN Mode:       European v       Version Mode:       Automatic       -         TDT/TOT       Image: CH2_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_Data1_	Output Mode:	(Mux out		m.	PAT Insert:		
Share BAI: CH1_Data1_238.0.0.1:1235   PMT Insert: CH2_Data1_239.1.1.112:10102   PMT Insert: CH3_DATA/Module_239.1.1.100:28198   TS ID: CH4_DATA/Module_239.1.1.100:28198   DH ID: 1   PCR Correct Image: Character Encoding   Update Program Type Update by index Image: Character Encoding   NIT NIT   NIT Image: Character Encoding   ICN Mode: Image: Character Encoding   IDT/TOT Image: Character Encoding   VCT Image: Character Encoding   IPTV Sync: Image: Character Encoding   IPTV Sync: Image: Character Encoding   IPTV Sync: Imag	SDT Insert:	Mux out		3	BAT Insert:		
PMT Insert:       CH2_Data1_239.11.112:10102         GH3_DATA/Module_239.11.100.28198       GM ID:         TS ID:       CH4_DATA/Module_224.2.2.1001         PCR Correct       Image: CH4_DATA/Module_224.2.2.1001         PCR Mode       1         PCR Correct       Character Encoding         NIT       NIT         NIT       Image: CH4_DATA/Module_224.2.2.1001         NIT       Image: CH4_DATA/Module_224.2.2.1001         NIT       Image: CH4_DATA/Module_224.2.2.1001         NIT       Image: CH4_DATA/Module_224.2.2.1001         NIT       Image: CH4_DATA/Module_244.2.2.1001         NIT       Image: CH4_DATA/Module_244.2.2.1001         NIT       Image: CH4_DATA/Module_244.2.2.1001         ICN Mode:       European *         VCT       Image: CH4_DATA/Module_244.2.2.2.1001         VCT       Image: CH4_DATA/Module_244.2.2.2.1001         VC	Share BAT:	CH1_Data1_238.0	.0.1:1235		CAT Insert:		
TS ID: CH4_DATA/Module_224.2.2:1001 ON ID: 1 PCR Correct  Update Program Type Update by index  V PCR Mode 1  Version Mode: Automatic  Version Mode: Automatic  Version Number: 1 0:31)  TDT/TOT  TDT/TOT  VCT VCT Insert:  VCT  VCT Insert:  VCT  VCT Insert:  VCT  VCT Mode:  TVCT  VCT Mode:  TVCT  VCT Sync:  Sync Period:  80 Sec  TS Sync  TS Sync	PMT Insert:	CH2_Data1_239.1	.1.112:10102		Fixed Table Version:		
PCR Correct       □ <t< td=""><td>TS ID:</td><td>CH4_DATA/Modul</td><td>e 224.2.2.2:1001</td><td>50</td><td>ON ID:</td><td>1</td><td></td></t<>	TS ID:	CH4_DATA/Modul	e 224.2.2.2:1001	50	ON ID:	1	
Update Program Type Update by index   NT   NIT   NIT   NIT   NIT   NEtwork Name:   retwork-1   Version Mode:   Automatio   Version Number:   t   TDT/TOT   TDT/TOT Insert:   O   VCT   VCT   VCT Insert:   Modulation Mode:   4   O   IPTV Sync:   Sync   TS Sync:      Character Encoding   NORMAL    Version Number:   Disable    Version Number:   t   DI/TOT Insert:   IPTV Sync:   IPTV Sync:    Sync Period:   80	PCR Correct	-	-		PCR Mode	(1	~
NIT       Nit Insert:       Disable       Share NIT:       Disable       Image: Constraint of the state of the	Update Progra	m Type Update by index	~		Character Encoding	NORMAL	~
NIT Insert: Disable   Network Name: network-1   Network Name: network-1   LCN Mode: European   Ucrision Number: 1   1 (0.31)     TDT/TOT   TDT/TOT Insert: Image: Comparison of the second of the secon	NIT						
Network Name: retwork-1   LCN Mode: European   TDT/TOT   TDT/TOT Insert:   IDT/TOT Insert:   VCT   VCT   VCT Insert:   Modulation Mode:   4   Carrier Frequency:   500.000   (30-1000)   IPTV Sync:   IPTV Sync:   IS Sync   TS Sync:	NIT Insert:	Disable	~		Share NIT:	Disable	~
LCN Mode: European   TDT/TOT   TDT/TOT Insert:   TDT/TOT Insert:   TOT Descriptor Insert:   disable   VCT   VCT Insert:   Modulation Mode:   4   Carrier Frequency:   500.000   (30-1000)   IPTV Sync:   IPTV Sync:   TS Sync:	Network Name	e: network-1			Version Mode:	Automatic	~
TDT/TOT       TOT Insert:       ITOT Descriptor Insert:       Itot Descripto	LCN Mode:	European	~		Version Number:	1	(0-31)
TDT/TOT       TDT/TOT Insert:       ITOT Descriptor Insert:       Image: Comparison of the compar							
TDT/TOT Insert:       □       TOT Descriptor Insert:       □         VCT       VCT Insert:       □       VCT Mode:       TVCT        ∨         Modulation Mode:       4       □       Carrier Frequency:       500.000       (30-1000)         IPTV Sync(SPTS)       IPTV Sync:       □       Sync Period:       80       Sec         TS Sync:       □       □       IPTV	TDT/TOT						
VCT         VCT Insert:         Image: VCT Insert:         VCT Mode:         TVCT         Image: VCT Insert:         Image: VCT Insert:         Image: VCT Insert:         Image: VCT Image: VC	TDT/TOT Inser	: 🗹			TOT Descriptor Insert:	disable	~
VCT Insert:       IVCT Mode:       TVCT v         Modulation Mode:       4       Carrier Frequency:       500.000       (30-1000)         IPTV Sync(SPTS)       IPTV Sync:       Sync Period:       80       Sec         TS Sync:       TS Sync:       IPT       IPT       IPT       IPT	VCT						
Modulation Mode:       4       Carrier Frequency:       500.000       (30-1000)         IPTV Sync(SPTS)       IPTV Sync:       Sync Period:       80       Sec         TS Sync       TS Sync:       IPTO       IPTO       IPTO       IPTO	VCT Insert:				VCT Mode:	TVCT	~
IPTV Sync(SPTS)         IPTV Sync:       ☑         Sync Period:       80         Sync         TS Sync:	Modulation M	ode: 4			Carrier Frequency:	500.000	(30-1000M
IPTV Sync:     ☑     Sync Period:     80     Sec       TS Sync:     □	IPTV Sync(SPTS)						
TS Sync:	IPTV Sync:				Sync Period:	60	Sec
TS Sync:	TS Sync						
	TS Sync:	0					

The NIT should be filtered out to the QAMs by default, because if the source is a Stream TS from original might be a Satellite Transponder, the NIT is not valid for a CATV Network. You need to create your new NIT:

m PSI Editor V
able
m Web
m PSI Editor
m CH1_Data1_224.2.1.1:2001
m CH2_Data1_224.2.1.2:2002
m CH3_Data1_224.2.1.3:2003
m CH4_Data1_224.2.1.4:2004
m CH5_Data1_224.2.1.5:2005
m CH6_Data1_224.2.1.6:2006
m CH7_Data1_224.2.1.7:2007
m CH8_Data1_224.2.1.8:2008
m CH9_Data1_224.2.1.9:2009
m CH10_Data1_224.2.1.10:2010
m CH11_Data1_224.2.1.11:2011
m CH12_Data1_224.2.1.12:2012

Either do not insert any NIT, use this Web-IF to create a new or pass from the Input streams (not recommended).

Also the external PSI editor ... needs a file and than insert from external... we do not support that ...



		Decounty	IK IUI 2	.50 Kec	ording view	
DVB 🔹	Freeze	PID	Service ID	Bitrate	short-term 🔹	Address udp://226.2.2.220001
	G Refresh	🔲 Dec	Dec	Gate	1s -	2. IF (LOCALIF, 152, 106,0, 106)
	🗙 Reset	V Hex	V Hex	Time Slice	100ms -	Info
Settings Bitrate profile						Input Adapter
PID	info (32)					∧ Transport stream 1
₫ 🗖 (	0x0000 PA	T (14.5 kb	ops / 0.03%)	)		Bervices (3)
÷ 🔲 (	0x0010 NIT	-actual (	(1.43 kbps /	0.00%)		tagesschau24 HD (10.2 Mbps / 20.2%)
÷ 🔲 (	0x0011 SD	<b>F-actual</b>	(2.9 kbps /	0.01%)		• • • • • • • • • • • • • • • • • • •
III (	0x0014 TD	<b>т, тот</b> (0	) bps / 0.009	%)		SR Fernsehen HD (15.6 Mbps / 30.8%)
÷ 🔲 (	0x00AA AI	r (10.2 kt	ops / 0.02%)	)		E-E Tables
÷ 4	0x00B0 13	818-6 typ	e C (10.2 k	bps / 0.029	%)	🕀 🏧 PAT
÷ 🔲 (	0x010E AIT	(10.2 kb	ps / 0.02%)			🖶 🖬 PMT
÷ 4 (	0x0114 138	818-6 typ	eC (10.2 k	bps / 0.029	%)	🖶 🖬 NIT-actual
<u>⊨</u> ⇔ (	0x087B 13	818-6 typ	<b>e B</b> (149 k	bps / 0.3%	)	Network ID: 1
÷ 🗖 (	0x0B9A Al	r (8.8 kbp	os / 0.02%)			🕀 🚯 Table ID: 64
± 4 (	0x0BA0 13	818-6 typ	<b>e C</b> (10.2 )	dbps / 0.02	%)	Network ID: 1
÷ 🗖 (	0x1518 PM	T (14.5 k	bps / 0.03%	)		🖃 🖾 Network Name Descriptor
÷	0x1519 AV	C/H.264 \	<b>Video</b> (8.9	Mbps / 17.	6%)	Descriptor tag: 0x40
<b>ل</b> ر	0x151A MF	EG-1 Aud	<b>dio</b> (203 kb	ops / 0.4%)		Network name: network-1
<b>ل</b> ر	0x151B MP	EG-1 Aud	<b>dio</b> (203 kb	ps / 0.4%)		🖨 💷 Private Data Specifier Descriptor
1010 (	0x151C Tel	etext Dat	a (264 kbp	s / 0.5%)		Descriptor tag: 0x5F
<b>ا در</b>	0x151E AC	3 Audio	(469 kbps /	( 0.9%)		Private data specifier: 0x0000000
÷ 💷 (	0x1522 PM	<b>T</b> (14.5 k	bps / 0.03%	)		⊞ → Transport-Stream ID: 1
÷	0x1523 AV	C/H.264 \	Video (13.9	9 Mbps / 2	7.4%)	🖶 🖶 SDT-actual 😡
<b>ا د</b>	0x1524 MP	EG-1 Aud	<b>lio</b> (203 kb	ps / 0.4%)		🖨 🗇 🖽 TDT
<b>ر</b>	0x1525 MP	EG-1 Aud	lio (203 kb	ps / 0.4%)		🕀 🚺 Table ID: 112
0110 (	0x1526 Tel	etext Dat	a (262 kbp	s / 0.5%)		UTC time: 2017/12/27 17:01:39
±	0x1527 PES	Private I	<b>Data</b> (2.9 k	bps / 0.019	%)	🖶 🔲 ТОТ
₿···· <b>Л</b> (	0x1528 AC	-3 Audio	(471 kbps ,	/ 0.9%)		🕀 🕕 Table ID: 115
÷ 🗆 (	0x1536 PM	<b>T</b> (14.5 k	bps / 0.03%	)		UTC time: 2017/12/27 17:01:54
÷	0x1537 AV	C/H.264 \	Video (14.3	3 Mbps / 2	8.2%)	🗄 🖘 Local Time Offset Descriptor
<b>ا ر</b>	0x1538 MP	EG-1 Aud	lio (203 kb	ps / 0.4%)		B-⊕ AIT
i در	0x1539 MP	EG-1 Aud	lio (203 kb	ps / 0.4%)		

We see, the empty NIT has been added from our settings as well as TDT/TOT.

But it needs to be filled with the local DATA of each QAM-Frequency you are pushing out.

NIT							
	NIT Insert: Private Data: Network Nam LCN Mode:	From © 0x0 networ Europ	Web         V           00000000			Share NIT: Network ID: Version Mode: Version Number:	Disable v 1 Automatic v 8 (0-31
	Index	TS ID	ON ID F	requency	Constellat	ion Symbol F	Rate
							add description
NIT De	escriptor				[ clos	e] <u>1</u> (1	
		TS ID:	1			NORMAL	
		ON ID:	1				
		Frequency:	450.000	MHz		Disable	
		Constellation:	16 QAM	~		1	
		Symbol Rate:	6875	Ksps		Automatic	
		FEC Inner:	No conv.	~		8	
		FEC Outer:	not outer FEC	<b>v</b>		ate 📩	
					Add Close		Of course, it's work
ndex	TS ID	ON ID	Frequenc	y Const	tellation	Symbol Rate	+ (m =
1	1	1	450.000 MH	lz 25	6 QAM	6875 Ksps	add description



### Example if you pass the SAT-NIT from the input CH1 which is wrong (because from SAT):



so better don't do that and create an own (See above).

### Maybe worth to mention:

The Logical channel numbers for each TV/Radio Channel for the STB's or TV sets as DVB-C receivers in the CATV network to sort their Channel list – order as a pre-setup from the TS is done in the OUT-TS muxer:

	Program Information		[close]
H1_1 H2_L H3_L H4_L H6_L H1_L H1_L H1_L H1_L H1_L H1_L H1_L H1	Program Information Program From Input: Service Name: Major Channel Number: Minor Channel Number: Source Id: Short Name: Program Number: Logic Channel Number: Service Type: Service Provider: PMT Descriptor Tag: PMT Descriptor Tag: PMT Descriptor Tag: PMT Descriptor Tag: PMT Descriptor Data: PMT PID: PCR PID: MPEG-4 Video PID: AC3 Audio PID: Private Sections PID:	CH1_Data1_224.2.1.1:2001 [21100] ANIXE HD 1 1 1 1 1 1 1 1 21100 1 21100 1 1 0x19 BetaDigital 0x00 (Hex) 0x0060 0x00ff 0x0	[Close] →Normal → Overflow B→Output TS 1 (prog: 4) +1: ANNRI +D <=CH1_Data1_224.2.1.1:2001 [21100] +2: QVC HD <=CH1_Data1_224.2.1.1:2001 [21103] +3: HSE HD <=CH1_Data1_224.2.1.1:2001 [21107] +4: ShopLC HD <=CH1_Data1_224.2.1.1:2001 [21107]
	Liser defined PID	Iven1107	Close

Which is related to the ATSC US standard maybe. So we might need to change the software.



# So, we should be careful adding the real channels into the NIT: From here:

BLANKOM	MODULATOR							
Status Monitor	Center Freque	ency: 774.000 MHz	:	Standard: J.83A(DVB-)	C) Active/Totall: 0/32/2	32		
►Input Status ►Output Status	#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	2
AC Checked	1	650.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	38.5/50.7 M	1
Parameters	2	658.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1
► TS Config ► Scrambler	3	666.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1
Modulator	4	674.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1
Svetom	5	682.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1

To:

NIT							
	NIT Insert:		From Web	~	Share	NIT:	Disable v
	Private Data:		🗹 0x0000000		Netwo	ork ID:	1
	Network Nam	ie:	network-1		Versio	on Mode:	Automatic 🗸
	LCN Mode:		European	~	Versio	on Number:	13 <b>(0-31)</b>
	Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	<b>•</b>
	1	1	1	650.000 MHz	256 QAM	6875 Ksps	
	2	1	1	658.000 MHz	256 QAM	6875 Ksps	add description

### After APPLY button:





It's always a good Idea to SAFE your config...

Back to EIT:

Outp	out TS 1+	Stream Select	General	PID Bypass
Index 1	Input Char 1	nnel Input PID(0x)	Output PI	D(0x)
		$\searrow$		

And the EIT is here BUT if not processed... also, the EIT **Other** table which probably will not be conform with our **other** channel's which we are creating here and do not take from SAT or from the IP.

Anyway, the SID's of our 3 TV Services hasn't changed, so the EIT actual p/f and schedule should be valid.



So we add streams from the network for every TS like here and adding all services can be done by pressing

### ALL Input button:

	Output TS 3-	Stream Select	General PID B	ypass		
+ ✓ →Lose → CH1, 1: ✓ 2: ✓ 3: ✓ 4: ✓ 5: ✓ 6: ✓ 6: ✓ 9: ✓ 8: ✓ 9: ✓ 10: ⊑ 11: ⊑ 11: □	K      Data2_239.100.2.1     Data2_239.100.2.1     [28400] Bayern 1     [28401] Bayern 2     [28402] BAYERN 3     [28403] BR-KLASS     [28404] B5 aktuell     [28405] BAYERN p     [28406] PULS     [28406] PULS     [28407] BR Heimat     [28408] B5 plus     [28419] hr1     [28420] hr2	100:1234 (prog: 0/65) IK	[35.6/35.6M] ^	CA Filter PID Remap Refresh Input Refresh Output <	→Normal → Overflow □→Output TS 3 (prog: 0)	[0.0/50.7M]
<ul> <li>12: 0</li> <li>13: 0</li> <li>14: 0</li> <li>15: 0</li> </ul>	☑ [28421] hr3 ☑ [28422] hr4 ☑ [28423] YOU FM ☑ [28424] hr-iNFO		~	All Output		

Then transfer it to the output window right:



Output TS 3- Stream Select General	PID Bypass	
	35.6M] ^       → Normal → Overflow         35.6M] ^       □ CA Filter         □ PID Remap       □ 1: □ Bayern 1 <= CH1_Data2_239.100.2.100:1234 [28         □ 2: □ Bayern 2 <= CH1_Data2_239.100.2.100:1234 [28         □ 3: □ BAYERN 3 <= CH1_Data2_239.100.2.100:1234 [28         □ 3: □ BAYERN plus <= CH1_Data2_239.100.2.100:1234 [28405]         □ 7: □ PULS <= CH1_Data2_239.100.2.100:1234 [28406]         □ 8: □ BR Heimat <= CH1_Data2_239.100.2.100:1234 [28406]         □ 10: □ hr1 <= CH1_Data2_239.100.2.100:1234 [28420]         □ 11: □ hr2 <= CH1_Data2_239.100.2.100:1234 [28420]         □ 12: □ hr3 <= CH1_Data2_239.100.2.100:1234 [28420]         □ 11: □ hr4 <= CH1_Data2_239.100.2.100:1234 [28420]         □ 12: □ hr3 <= CH1_Da	3/50.7M] 100] 101] 8402] [28403] 404] , 1 8407] 18] 1423] 1423]

Single streams can be added to a TS like:

	Output TS 2-	Stream Select	General PID B	ypass		
	► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►	1:1234 (prog: 0/1) 124 KY CM PID: 0x1a19 CM PID: 0x1b19 CM PID: 0x1c19 2:1234 (prog: 0/1) eschichte	[16.7/16.7M] [11.9/11.9M]	CA Filter PID Remap Refresh Input Refresh Output	Normal → Overflow →Output TS 2 (prog: 0)	[0.0/50.7M]
Parse pro	ogram time out:	60 seconds				

### **REMARK:**

Single streams often do not contain EIT / EPG PID's -> So an EIT passing isn't possible anyway. For mux operation EIT cannot be processed but passed only from a selected Input stream.



	[14.0/14.0M] [14.4/14.4M]	CA Filter PID Remap Refresh Input Refresh Output <===> All Input All Output	Normal → Overflow     Output TS 2 (prog: 2)     Ch2_Data2_239.42.42.2:1234 [137]     Ch2_Data2_239.42.42.2:1234 [137]     Ch2_Data2_239.42.42.2:1234 [124]     Major Channel Number: 1     Minor Channel Number: 2     Source Id: 2     Porgram Number: 124     Cas Channel Number: 2     Service Type: 0x19     Service Provider: SKY     PMT PID: 0x0063     PCR PID: 0x03ff     CAS ID: 0x098c_ECM PID: 0x1a19     CAS ID: 0x098d_ECM PID: 0x1c19     Cas ID: 0x098d_ECM PID: 0x1c19	[21.1/50.7M
--	------------------------------	---	---	-------------

Mayor channel number and minor channel numbers are used in the ATSC DVB-C Annex B ITU-J standard and should be ignored by the 'normal DVB Annex A/C' receivers. Same for the 'General' item VCT:

VCT	
VCT Insert:	Modulation Mode: 4

LCN's in the NIT and other values should be set after all content and all muxes/QAM channels have been already configured.

After selecting and clicking on a service on the right side you can modify its single table parts:

Program Information       [close]         Program From Input:       CH2_Data2_239.42.42.2:1234 [137]         Service Name:       Spiegel Geschichte HD         Major Channel Number:       1         Minor Channel Number:       1         Source Id:       1	
Program From Input:       CH2_Data2_239.42.42.2:1234 [137]         Service Name:       Spiegel Geschichte HD         Major Channel Number:       1         Minor Channel Number:       1         Source Id:       1	
Service Name:     Spiegel Geschichte HD       Major Channel Number:     1       Minor Channel Number:     1       Source Id:     1	
Major Channel Number:     1       Minor Channel Number:     1       Source Id:     1	
Minor Channel Number:     1     Source Id:     1       Source Id:     1     4	[21 1/50 7M]
Source Id: 1	
Short Name: prog1	234 [124]
Program Number: 1 137 — Minor Channel Number: 2	
Logic Channel Number: 1 Source Id: 2	
Service Type: 0x19	
Service Provider: SKY	
PMT Descriptor Tag:	
PMT Descriptor Data: (Hex)	
MPEG 4 Video PID: Video PID: Video PID: 0x1b19	
AC3 Audio PID: 20001	1
ACS Addio PID. ► 0x0103	
Apply Close	



Program Information		[close]
Program From Input:	CH2_Data2_239.42.42.2:1234 [137]	^
Service Name:	SpiegelGeschichteHD	
Major Channel Number:	1	
Minor Channel Number:	1	
Source Id:	1	
Short Name:	SGHD	
Program Number:	137	
Logic Channel Number:	13	
Service Type:	0x19	
Service Provider:	МеТоо	
PMT Descriptor Tag:	0x00	
PMT Descriptor Data:	(Hex)	
PMT PID:	0x0060	
PCR PID:	0x00ff	
MPEG-4 Video PID:	☑ 0x00ff	
AC3 Audio PID:	☑ ☑x0103	
ECM PID[0x098c]:		
ECM PID[0x09c4]:	0x1b89	
ECM PID[0x098d]:	0x1c89	
- •	,	~
		Close

Minor & Mayor channel Numbers are an extension in the ATSC tables and not relevant for normal DVBoperating – so will be ignored. Service name and other values can be simply been edited and finally taken by pressing Apply; Unnecessary ECM-PID's can be unchecked here as well

Using the CA Filter will remove ECM PID's as well:



Yes:





# Parameters $\rightarrow$ Modulator:

From the menu on left side of the webpage, clicking 'Modulator', it will display the interface as Figure-11 where to set RF output parameters.

•	•							
LANKOM HDC-5016	3						Clic	k to set all
o use Web Management							chai	nnels RF
BLANKOM							OAN	A output
Summary	MODULATOR							
▶ Status	Center Frequency:	410.000 MHz	Standa	rd: J.83A(DVB-C)			para	ameters
Monitor	Level(All Carriers):	-20.0 dBm	Chann	el Info.(Alarm/Active/Tot	al): 0/16/16			
Input Status	#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	
	1	350.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	Quickly Config.
TS Config	2	358.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1
Scrambler	3	366.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	2
IP Stream	4	374.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	2
ystem	5	382.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	2
Network Password	6	390.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	2
Configuration	7	398.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	Z
Date   Time	8	406.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	Z 1
Log	9	414.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	2
	10	422.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	_ <u> </u>
	11	430.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	
	12	438.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	
	13	446.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	
	14	454.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	_1¦
	15	462.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	
	16	470.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	
ieldy Capfin			Quick	ly Config.				Click to se
ckiy Coning.								single cha
Standard	I. 183A(DVB-C) ×				Standard:	J.83A(DVB-	C) ~	REOAM
Level(All Carriers)	J.83A(DVB-C)	10 dBm)		Level(All	Carriers):	-20.0	(-20 ~ +10 dBm)	KF QAIVI C
	J.83B							paramete
Channel Enable				Chann	el Enable:			
Start Frequency	(50 ~ 96	0 MHz)		Start F	requency:	350.000	(50 ~ 960 MHz)	
Bandwidth	8.000 MHz			E	Bandwidth:	8.000	MHz	
Constellation	1: 256 QAM ~			Cor	stellation:	256 QAM		
Symbol Rate	e: 6875 (5000 ~ <sup>-</sup>	7000 Ksps)		Syr	nbol Rate:	16 QAM	~ 7000 Ksps)	
Gain offset	t: 0.0 (-10 ~ 0	dB)		G	ain offset:	32 QAM 64 OAM	0 dB)	
						128 OAM		
		Apply	Close			255 044		

Set QAM Mode (Annex A/C = Normal DVB, Annex B = US Norm), mode 16...256 QAM and other values. This Quick setup configures adjacent channel from a start frequency. To individually configure the other 63 channels set them accordingly in every single config mode.

### The CENELEC Channel-Plan would be very helpful.

See following hints.

Consider the center/middle frequencies for setup the QAM channels please.



Bereich Bands	Kanal Channel	Kanal frequenzen Channel frequency	Mitten frequenz Middle frequency	Bild träger Picture carrier	Ton träger Sound carrier	Bereich Bands	Kanal Channel	<b>Kanal</b> <b>frequenzen</b> Channel frequency	Mitten frequenz Middle frequency	Bild träger Picture carrier	Ton träger Sound carrier
		(MHz)	(MHz)	(MHz)	(MHz)			(MHz)	(MHz)	(MHz)	(MHz)
BI	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	S 02	111 118	114,50	112,25	117,75		24	494 502	498,00	495,25	500,75
Unterer	S 03	118 125	121,50	119,25	124,75		25	502 510	506,00	503,25	508,75
Sonder-	S 04	125 132	128,50	126,25	131,75		26	510 518	514,00	511,25	516,75
kanal-	S 05	132 139	135,50	133,25	138,75		27	518 526	522,00	519,25	524,75
bereich	S 06	139 146	142,50	140,25	145,75		28	526 534	530,00	527,25	532,75
Midband	S 07	146 153	149,50	147,25	152,75		29	534 542	538,00	535,25	540,75
channels	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	558,00	551,25	556,75
	S 10	167 174	170,50	168,25	173,75		32	558 566	562,00	559,25	564,75
BIII	5	174 181	177,50	175,25	180,75		33	566 574	570,00	567,25	572,75
	6	181 188	184,50	182,25	187,75		34	574 582	578,00	575,25	580,75
	7	188 195	191,50	189,25	194,75		35	582 590	586,00	583,25	588,75
	8	195 202	198,50	196,25	201,75		36	590 598	594,00	591,25	596,75
	9	202 209	205,50	203 25	208,75		37	598 606	602,00	599,25	604,75
	10	209 216	212,50	210,25	215,75	BV	38	606 614	610,00	607,25	612,75
	11	216 223	218,50	217,25	222,75		39	614 622	618,00	615,25	620,75
000	12	223 230	226,50	224,25	229,75		40	622630	626,00	623,25	628,75
OSB	511	230 237	233,50	231,25	236,75		41	630 638	634,00	631,25	030,75
Oberer	5 12	237 244	240,50	238,25	243,75		42	638 646	642,00	639,25	644,75
Sonder-	5 13	244 251	247,50	245,25	250,75		43	646 654	650,00	647,25	602,75
kanal-	5 14	251 258	254,50	252,25	257,75		44	654 662	658,00	655,25	660,75
Dereich	5 15	258 265	201,00	259,25	204,75		45	662 670	666,00	671.06	676 75
Superband	5 10	265 272	200,00	200,20	271,75		40	670 678	674,00	670.05	0/0,/0
channels	S 17	272 279	275,50	273,20	210,15		47	676 666	682,00	697.05	600.75
	S 10	279200	202,50	200,25	200,75		40	604 702	690,00	605.25	700 75
	S 20	200 293	209,50	207,25	292,75		49 50	702 710	706.00	702.25	700,75
ESR	S 21	293 300	306.00	203.25	308.75		51	702 710	700,00	711.25	716 75
Erweiterter	S 22	310 318	314.00	311 25	316 75		52	718 726	714,00	719.25	724 75
Sonder-	S 23	318 326	322.00	310.25	324.75		52	726 734	720,00	797.25	732 75
kanal-	S 24	326 334	330.00	327.25	332 75		54	734 742	738.00	735.25	740 75
bereich	S 25	334 342	338.00	335.25	340.75		55	742 750	746.00	743 25	748 75
Specialband	S 26	342 350	346.00	343 25	348.75		56	750 758	754.00	751.25	756 75
channels	S 27	350 358	354.00	351 25	356.75		57	758 766	762.00	759.25	764.75
	S 28	358 366	362.00	359.25	364.75		58	766 774	770.00	767.25	772.75
	S 29	366 374	370.00	367.25	372.75		59	774782	778.00	775.25	780.75
	S 30	374 382	378.00	375.25	380.75		60	782 790	786.00	783.25	788.75
	S 31	382 390	386.00	383.25	388.75		61	790 798	794.00	791.25	796.75
	S 32	390 398	394,00	391.25	396.75		62	798806	802.00	799,25	804,75
	S 33	398 406	402,00	399.25	404,75		63	806 814	810.00	807,25	812,75
	S 34	406 414	410,00	407,25	412,75		64	814 822	818.00	815,25	820,75
	S 35	414 422	418,00	415,25	420, 75		65	822 830	826.00	823,25	828,75
	S 36	422 430	426,00	423,25	428,75		66	830 838	834,00	831,25	836,75
	S 37	430 438	434,00	431,25	436,75		67	838 846	842,00	839,25	844,75
	S 38	438 446	442,00	439,25	444,75		68	846 854	850,00	847,25	852,75
	S 39	446 454	450,00	447,25	452,75		69	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						

DVB-T2 channels OTA would might interfere or we can integrate them into our network. So we should exactly skip these in our DVB-C channels: Example Region northern Germany:

ARD-Mux		ch23	490 MHz
ZDF-Mux		ch36	594 MHz
NDR-Mux		ch40	626 MHz
freenet TV	1	ch44	658 MHz
freenet TV	2	ch24	498 MHz
freenet TV	3	ch47	682 MHz
· ·			

So first we correct the quick start frequency to 354 MHz as centre frequency:



Quickly Config.	[ close	
Standard: Level(All Carriers):	J.83A(DVB-C) ~ -20.0 (-20 ~ +10 dBm)	
Channel Enable:		
Start Frequency:	354,000 (50 ~ 960 MHz)	
Bandwidth:	8.000 🖓 MHz	
Constellation:	256 QAM ~	
Symbol Rate:	6875 (5000 ~ 7000 Ksps)	
Gain offset:	0.0 (-10 ~ 0 dB)	
	Apply Close	And we are sur

### not interfere to DVB-T2:

Center Frequ	ency: 414.000 MHz	Standa	Standard: J.83A(DVB-C)								
Level(All Carr	riers): -20.0 dBm	Channe	el Info.(Alarm/Active/Tota	al): 0/16/16							
#	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	1				
1	354.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
2	362.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
3	370.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
4	378.000 MHz	256 QAM	6875 Ksps	0.0 dB	۲	0.0/50.7 M	1				
5	386.000 MHz	256 QAM	6875 Ksps	0.0 dB	۲	0.0/50.7 M	1				
6	394.000 MHz	256 QAM	6875 Ksps	0.0 dB	۲	0.0/50.7 M	1				
7	402.000 MHz	256 QAM	6875 Ksps	0.0 dB	۲	0.0/50.7 M	1				
8	410.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
9	418.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
10	426.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
11	434.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
12	442.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
13	450.000 MHz	256 QAM	6875 Ksps	0.0 dB	۲	0.0/50.7 M	1				
14	458.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
15	466.000 MHz	256 QAM	6875 Ksps	0.0 dB	٠	0.0/50.7 M	1				
16	474.000 MHz	256 QAM	6875 Ksps	0.0 dB	•	0.0/50.7 M	/				

### After all IN and Outputs have been configured, your LCN design should be configured:



-16			
Output T	Program Information		[close
	Program From Input:	CH1_Data1_239.1.1.121:10012	,
	Service Name:	ONE HD	
E →CH1 Data1 23	Major Channel Number:	1	
	Minor Channel Number:	2	
	Source Id:	2	
	Short Name:	prog2	
	Program Number:	10376	
	Logic Channel Number:	25	
	Service Type:	0x19	
	Service Provider:	ARD	
	PMT Descriptor Tag:		
	PMT Descriptor Data:	(Hex)	
	PMT PID:	0x1522	
	PCR PID:	0x1523	
	MPEG-4 Video PID:	V 0x1523	
	MPEG-1 Audio PID:	✓ 0x1524	
	MPEG-1 Audio PID:	✓ 0x1525	
Parse program t	Private PES PID:	✓ 0x1526	
	AC3 Audio PID		
		Apr	olv Close
		App	oly Close

The LCN's (Logical Channel Numbering) are processed and transferred along and within the NIT (Network Information Table), so this should be done before you create the NIT –

Which is the mayor Table for tuning your DVB-Receivers in a fast manner:

The Tuner will extract the NIT on the first channel it will find and can fast tune to the center frequencies which are stored here. Finally the Receiver can sort all received and stored channels in the network according to the LCN- values: No1 comes first, so we recommend i.e. to put the HD channels to front in order.

Finally, we recommend to use the Web-NIT generator for every TS to finally inject the NIT in every output:

Insert: ate Data:		From Web	$\sim$	Share NIT:	$\checkmark$			
ate Data:								
		└└─ 0×00000000		Network ID:	1			
work Name:		network-1		Version Mode:	Automatic	~		
Mode:		European	$\sim$	Version Number:	3	(0-31)		
idex T	S ID	ON ID	Frequency	Constellation	Symbol Rate			
1	1	1	354.000 MHz	256 QAM	6875 Ksps			
	vork Name: Mode: Idex T: 1	vork Name: Mode: Idex TS ID 1 1	vork Name:     network-1       Mode:     European       idex     TS ID     ON ID       1     1     1	vork Name:     network-1       Mode:     European       Idex     TS ID     ON ID       1     1     1	vork Name:     network-1     Version Mode:       Mode:     European     Version Number:       Idex     TS ID     ON ID     Frequency       1     1     1     354.000 MHz     256 QAM	vork Name:     network-1     Version Mode:     Automatic       Mode:     European     Version Number:     3       idex     TS ID     ON ID     Frequency     Constellation     Symbol Rate       1     1     1     354.000 MHz     256 QAM     6875 Ksps		

Add each channel step by step and you can also add channels of other QAM Modulators here (but not there LCN's) to have a complete Lineup for the Receivers.

Now after we have set the DVB-C Output channels, we can arrange all the MPTS outputs we want to send to Sub-head ends or simply use them to analyze the QAM outputs by a DekTec Stream analyzer (which we are selling as well):

### Parameters $\rightarrow$ IP Stream:

This device supports TS to output in IP (16\*MPTS) format through the DATA port(s). Selecting left the 'IP Stream', it will open this setting overview shown as Figure-12 to set/change the IP out parameters.



#	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Data1	Data2	Status	Bit(Act/Max)	
1	224.2.2.2	2001		7					2.6/50.7 M	
2	224.2.2.2	2002		7					0.0/50.7 M	
	224.2.2.2	2003		7					0.0/50.7 M	
4	224.2.2.2	2004		7					0.0/50.7 M	
5	114 1 1 1	2005	1100	7		-			0.0/50.7 M	
	Quickly Config.					[ close ]			0.0/50.7 M	
1	Data1	Source Se	lect: Scra	ambed TS V	2				0.0/50.7 M	
7 8	Data1 Data2	Source Se Source Se	lect: Scra lect: Scra	ambed TS v	2				0.0/50.7 M 0.0/50.7 M	
7 8 9	Data1 Data2	Source Se Source Se IP Addr	lect: Scra lect: Scra ess: 224.2	ambed TS v ambed TS v 2.2.2					0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	
2	Data1 Data2	Source Se Source Se IP Addr F	lect: Scra lect: Scra ess: 224.2 Port: 2001	ambed TS v ambed TS v 2.2.2					0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	
1	Data1 Data2	Source Se Source Se IP Addr F S Proto	lect: Scra lect: Scra ess: 224.2 Port: 2001 Step: 1 Docol: UDP	ambed TS v ambed TS v 2.2.2					0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	
1 1	Data1 Data2	Source Se Source Se IP Addr F S Proto Pkt Ler	lect: Scra lect: Scra Port: 2001 Step: 1 Docol: UDP ngth: 7	ambed TS v ambed TS v 2.2.2					0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	
7 5 7 7 7	Data1 Data2	Source Se Source Se IP Addr F S Proto Pkt Ler Null PKT F	lect: Scra lect: Scra ess: 224.2 Port: 2001 Step: 1 bcol: UDP ngth: 7 ilter: □	ambed TS v ambed TS v 2.2.2					0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	
	Data1 Data2	Source Se Source Se IP Addr F S Proto Pkt Ler Null PKT F TS Out	lect: Scra lect: Scra ess: 224.2 Port: 2001 Step: 1 Docol: UDP ngth: 7 ilter: □ tput: ♥ D	ambed TS v ambed TS v 2.2.2	<ul> <li>1</li> <li>1&lt;</li></ul>				0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M 0.0/50.7 M	

### Figure-12 config all and selected streams...

Channel 1 Config. [ close	Modify it to your needs:
Data1 Source Select: Not Scrambed TS v Data2 Source Select: Not Scrambed TS v IP Address: 224.2.2 Port: 2001 Protocol: UDP v Pkt Length: 7 v Null PKT Filter: TS Output: Data1 Data2	Quick setup also configs an automatic counting and increasing of +Port's. RTP is more reliable for longer distances. Pkt-Length should stay @ 7, Nullpacket filter can be used to send the streams as VBR instead of CBR (incl. PID 8192 = Zero-packets)

You can set both DATA ports as outputs if you like maybe for mirroring the MPTS streams to i.e. 2 different physical IP-Ring directions.

You should mix and balance them to both outputs to avoid accidently overloading of GbE devices/ Interfaces.

**NullPkt** Filter will make VBR-streams out of the CBR which contains the PID 8192dec to safe some IP bandwidth. Which might be not a good idea if you transfer this stream to a sub-headend where a more or less stupid IP2QAM Modulator is installed which expects a DVB conform MPTS as CBR.



# System $\rightarrow$ Network:

Selecting 'Network', will enter the menu as shown in following where you can set/change network parameters.

ETWORK			
NMS			
	NMS IP Address:	192.168.0.136	
	NMS Subnet Mask:	255.255.255.0	
	Web Manage Port:	80	
	Scrambler IP Address:	192.168.3.136	
	single scrambler IP:		
	Scrambler Subnet Mask:	255.255.255.0	
	Gateway:	192.168.3.1	
	MAC Address:	22:24:62:1a:01:78	3
Data1			
	IP Address:	192.168.1.136	
	Subnet Mask:	255.255.255.0	
	Gateway:	192.168.1.1	2
	MAC Address:	22:34:62:1a:01:79	
	Data1 Speed:	Auto 🗸	
)ata2			

IP Address:	192.168.2.146		
Subnet Mask:	255.255.255.0	Ĵ	
Gateway:	192.168.1.1	Ī	
MAC Address:	22:34:62:1a:01:7a		
Data2 Speed:	Auto	, C	~
		l	N



DATA/Module			
	IP Address:	192.168.2.156	
	Subnet Mask:	255.255.255.0	
	Gateway:	192.168.1.1	
	MAC Address:	22:34:62:1a:01:7b	
			3



Remark: The 2x RJ45 Data-Ports 1+2 (and DATA-front\*) almost share the same RJ45 chip and so the NM/Gateway IP addresses depending on HW/SW versions. A Scrambler connection can be set here as well which needs to correspond with the external CA-Server and its IP address as well: Remember the CAS settings menu:

PROGRAM SCRAMBLE								
Scr CH 1-	CAS 1	CAS 2	CAS 3	CAS 4	CAS 5	CAS 6		
Program select (1/7)			All	prg.	CAS Enable		ECMG 🜑	EMMG 🜑
⊖ →Output TS1 (prog: 6)								
🕒 1: 🗹 Live1				D	ECMG IP Add	dress:	192.168.3.	101
2: 🗌 rbb Brandenbu	rg			D	ECMG Port:		3001	
<sup>™</sup> 3: □ rbb Berlin				D	ECM CH ID:		1	
<sup>™</sup> 4: □ ARD-TEST-1				D	ECM AHEAD:	:	8000	ms
<sup>™</sup> 5: □ NDR FS MV				O	Stream Shar	e AC:		
<sup>⊞</sup> 6: □ NDR FS HH				D	EMM PID:		0x1ff1	
E →Output TS2 (prog: 1)					EMMG Port		2001	
□ 1: □ Live				©	Ennio Port.		2001	
THE MPEG-4 Vie	deo PID: 0x00	021			EMING MODE	9:	TCP	₿.
🚽 🖉 🔲 MPEG-1 Au	dio PID: 0x0	022			Super CAS II	D:	TCP	
					Protocol Ver	sion:	UDP	
							_	
					Cw Group:			
					Scrambler IF	Address:	192.168.3.	136
					Pmt Private:		0x0000000	00
					Cas Private:		0x0000000	00
					Crypto. Perio	od:	10	sec.(0~65535)
					Current Peri	od:	0	_
					Set Program	A	C Table	Set CAS



# Parameters $\rightarrow$ Scrambler:

Main menu:

BLANKOM	Program Scrar	nble							
Status Monitor		Scr CH 1 -	CAS 1	CAS 2	CAS 3	CAS4	CAS 5	CAS 6	
<ul> <li>Input Status</li> <li>Output Status</li> <li>AC Checked</li> <li>Parameters</li> <li>TS Config</li> <li>Scrambler</li> <li>Modulator</li> <li>IP Stream</li> <li>System</li> <li>Network</li> <li>Password</li> <li>Configuration</li> <li>Firmware</li> <li>Date   Time</li> <li>Log</li> </ul>	Program s	elect (1/4) but TS1 (prog: 4)			All pro	9. CA EC EC EC EC EC EC EC EC EC EC EC EC EC	AS Enable CMG IP Add CMG Port: CM CH ID: CM AHEAD ream Shan MM PID: MMG Port: MMG Mode uper CAS II rotocol Version totocol Version V Group: crambler IF	<ul> <li>✓</li> <li>dress:</li> <li>e AC:</li> <li>::</li> <li::< li=""> <li::< li=""> <li::< li=""> <li>::</li>     &lt;</li::<></li::<></li::<></ul>	ECMG EMMG
						Pn Ca Cr Cu	nt Private: as Private: ypto. Perio urrent Perio	od:	0x00000000 0x00000000 10 sec.(0~65535) 0
							Set Program	n (	AC Table Set CAS

From the menu on left side of the webpage, clicking "Scrambler", it displays the interface where users can choose the programs to scramble.

# A new CA function is the AC-mode\*:

BLANKOM <sup>®</sup> Summary	AC Checked									
▶ Status		Invalid AC								
Monitor										
Input Status		SCR Channel	Program Name	CAS1	CAS2	CAS3	CAS4	CAS5	CAS6	[refresh]
AC Checked		1	ANIXE HD	<ul><li>✓</li></ul>						

In combination with a Subscriber management System and the CAS you can create packages for Groups of PAYTV customers also time limited for hiring the content:

We will not explain here what a CAS is and how Conditional Access PAYTV is working, that would exceed this manual enormous and the user should be familiar with CA, Crypto-Words and exchange them as well as the Subscriber Management Systems behind them are almost different in their operations and handling.



	Scr CH 1 -	CAS 1	CAS 2		CAS 3	CAS4	CAS 5	CAS 6
	Scr CH 1							
Program s ⊡ ⇒Outo	Scr CH 2			All p	rg.	CAS Enab	le 🗌	ECMG PEMMG
₽1: ☑	Scr CH 3			•		ECMG IP	Address:	192.168.3.101
-6	Scr CH 4	000	7			ECMG Po	rt:	3001
-5	Scr CH 5	D: (	0x0068			ECM CH II	D:	1
₽2: ☑	Scr CH 6			Θ		ECM AHE	AD:	8000 ms
-	Scr CH 7	)02	21			Stream St	are AC:	
-5	Scr CH 8	)02	2			EMM PID:		0x1ff1
-5	MPEG-1 Audi	o PID: 0x002	3			EMMG Po	rt:	2001
-0	Private PES PID:	0x0024				EMMG M	vdo:	
-0	Private Sections	PID: 0x0025				Ewiwe Chi	c ID.	
	User defined PID	: 0x0027				Super CA	5 ID.	0x70020001
`₽-3: □	rbb Berlin			Ð		Protocol	ersion:	2
₽4: 🗆	ARD-TEST-1			o		CW Group	c	
<b>₽</b> 5: □	NDR FS MV			Θ		Scramble	r IP Address:	192.168.3.136
	NDR FS HH			•		Pmt Priva	te:	0x0000000
ie ⇒Outpi	It ISZ (prog: 1) Live			6	~	Cas Priva	te:	0×0000000
	2110					Crypto, Pe	riod:	10 sec (0~855)

The AC Table can be edited externally with the corresponding scramblers Subscriber Management System (SMS)

	ACTable		[close]					
ACTable	Index AC Index	AC Data(0x)	+ 1	ACTable				[clos
Index AC Index				Index	AC Index	AC Data(0x)	+	â
Index Ac Index					Öffnen von ac.bin		×	
					Sie möchten folgende Datei öffnen ac.bin Vom Typ: bin File (41 Bytes) Von: http://192.168.0.136 Wie soll Firefox mit dieser Datei Öffnen mit Durchsuchen. ©Datei speichern	verfahren?		
	AC Backup   Load	e Date soewählt	[close]			ОК	Abbrechen	
Index AC Index	Add	0x0000000	0	Index 1	AC Index	AC Data(0x)	Cancel Add	
AC Backup   Load	[C	close] d: [10 d: 0	sec.(0~65535)	AC Back	kup   Load			[clos
File: Durchsuchen Keine Dats	gewählt. Load AC	AC Table	Set CAS		File: Durchsuchen) Keine [	Datsgewählt.	Backur	

And backup as file as well as loaded from PC or copied from another QAM Modulator/scrambler.

Single PID's can be chosen for scrambling with up to 6 different CAS as simulcrypt usage. Of course, you'll need these CA-Servers and their connection to the device by the NMS-Ethernet port to exchange the common Control Word(s) and need all data from it to start the encryption process (Advanced experts will know...).



### AC table:

it's a table with AC data, for programs to selecting when editing programs on "Scrambler" page.

### AC Checked:

it's only not-exact info for telling maybe the AC data is wrong while ECMG connection has been failed.

Because AC data belong to CAS companies, we cannot judge it exactly to know if the used AC data is wrong or correct.

Please note that the example AC data (2bytes, 0001 or 00A0 etc.) is depending on the CAS in use.

For other CAS-types, you may need to use different bytes.

AC is a code for managing the charging of STBs (by working with CAS&SMS&STBs). -

To understand the relation of program & AC & product: This is an example of a 10 programs case:

Suppose you have 10x AC 0001 to 000A, inject them into product 1 (with 0001 to 0005) as 2 €/month, product 2 (with all AC 0001 to 000A) as 5 €/month.

If the PAYTV customer pays you  $2 \in$ , he can watch the programs with AC 0001 and 0005 for 1 month. If customer pays you  $5 \in$ , he can watch the all 10 programs with AC 0001 to 000A for 1 month.

**StreamShareAC:** tick this option, then you can put some programs to a virtual group, all of programs in this group will use same AC for encrypting. You need to configure them with same ECM PID value.



# System → Password:

From the left side menu of the webpage, selecting "Password", will display the screen where you are able to set/change the login account and password for the web access by the NMS-Port:

BLANKOM HDC-5016	
welcome to ι	
BLANKOM	PASSWORD
Summary	
Status Monitor Input Status	Modify the login name and password to make the device safely. If forget the name or password, you can reset it by keyboard. The default login name and password is "admin". Also please note the capital character and lowercase character.
Couput Status  Parameters  IS Config	Current UserName: admin Current Password:
Scrambler	New UserName:
Modulator	New Password:
▶ IP Stream	Confirm New Password:
System	
► Network	Appy Appy
▶ Password	
Configuration	
► Firmware	

# System → Configuration:

From the menu on left side of the webpage, clicking "Configuration", you will enter the screen as Figure-15 where to set your configurations for the device:

BLANKOM HDC-	-5016	
Web Management		
BLANKOM	CONFIGURATION	
Summary		
► Status	Save Restore Factory Set Backup Load	
▶ Input Status		
Output Status	When you change the parameter, you should save configuration ,otherwise the new configuration will lost after reboot.	
Parameters		
TS Config		
Scrambler		Save config
► IP Stream		$\odot$
System		
▶ Network		
Password		
Configuration		
Date   Time		
► Log		

# System → Firmware:

From the menu on left side of the webpage, selecting "Firmware", you'll enter the screen as in Figure-16 where to update firmware for the device:



BLANKOM <sup>®</sup> Summary	IRMWARE
	<ul> <li>Warning:</li> <li>1. Update firmware(software and hardware) to get new functions. Make sure to select the correct file or you may break the unit.</li> <li>2. Please wait unitil the update is complete. Do not turn off the power as this can break the unit.</li> <li>3. After the update is complete, power cycle the unit.</li> </ul>
Parameters  TS Config  Scrambler  Modulator  IP Stream	Current Software Version:       08.01.17 Build 272.00 Dec 8 2021         Current Hardware Version:       02.31.09         File:       Durchsuchen) Keine Datei ausgewählt.         Kaine Datei ausgewählt.       Keine Datei ausgewählt.
System  Network  Password  Configuration  Firmware	keine Uater ausgewant.

Please note, during the development of the HDC-5016 the HW/FPGA and Soft- and Firmware was necessary to change (Chipset availabilities etc....) so there might be incompatible Version's from one generation to the next and e.g. The config-files cannot be copied and uploaded from one older to the newer ones.

# System $\rightarrow$ Log:

From the menu on left side of the webpage, selecting "Log", will display the screen as in Figure-17 where to check the "Log" which is practically only helpful for developers for debugging

BLANKOM	LOG
Summary	
► Status	Log Type: Kernel Log Y Auto Refresh: 0   Export Citatrian
Monitor	[ 0.000000] Kernel Log al CPU 0x0
<ul> <li>Input Status</li> <li>Output Status</li> </ul>	[ 0.000000] System Log nx (root@localhost.localdomain) (gcc version 4.9.1 (Sourcery CodeBench Lite 2014.11-30)     [ 0.000000] CPU: ARMV7 Processor [413fc090] revision 0 (ARMv7), cr=18c5387d     [ 0.000000] CPU: PIPT / VIPT nonaliasing data cache. VIPT aliasing instruction cache
Parameters	0.000000] Machine model: xinx,zynq-7000 [ 0.000000] cma: Reserved 16 MiB at 0x0d800000
TS Config	[ 0.00000] Memory policy: Data cache writealloc
Scrambler	[ 0.000000] On node 0 totalpages: 65536
Modulator	0.000000] free_area_init_node: node 0, pgdat 40596180, node_mem_map 41df0000
▶ IP Stream	[ 0.00000] Normal zone: 0 pages used for memimap
System	[ 0.000000] Normal zone: 65536 pages LEPO batch:15
Notwork	[ 0.000000] PERCPU: Embedded 9 pages/cpu @4fdd4000 s8128 r8192 d20544 u36864
Pageword	[ 0.000000] pcpu-alloc: s8128 r8192 d20544 u36864 alloc=9*4096
Password	[ 0.000000] pcpu-alloc: [0] 0 [0] 1
	[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 65024
Firmware	<ul> <li>[ 0.000000] Kernel command line: console=ttyPS0,115200 root=/dev/ram rw earlyprintk</li> </ul>
Date   Time	[ 0.000000] log_buf_len individual max cpu contribution: 131072 bytes
► Log	[ 0.000000] log_buf_len total cpu_extra contributions: 131072 bytes



### Installation pre-conditions

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC voltage within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must greater than 10 seconds.

### Conditions where you need to unplug the power cord

- Power cord or socket damaged
- Any liquid flowed into device
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Long-time idle
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

### **Packing list**

•	HDC-501664 IP QAM Modulator	1 pc
•	User's Manual	1 pc
•	Power Cord, dep. on country	1 pc

# **Appendix 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 gualified 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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### 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 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.

Suggestion: CAT 6E Ethernet cable for GbEthernet, 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 https://www.dvb.org/standards





Table	PID value
PAT	0x0000
CAT	0x0001
TSDT	0x0002
reserved	0x0003 to 0x000F
NIT, ST	0x0010
SDT, BAT, ST	0x0011
EIT, ST, CIT	0x0012
(ETSI TS 102 323 [13])	
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

# Table 1: PID allocation for SI

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



# **Appendix DB**

Conversions of Power @ 75 $\Omega$  / 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



dBmV	dBμV	dBm 75Ω	mV <sub>RMS</sub>	mW 75Ω
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
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. iAdvertencia!

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

טילוק המוצר

# טילוק מופי של מרצר זה חייב להיות בהתאם להבורית הוויצי המיינה.

respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

# عند انخلس انهلى من هنا المتنج ينبغي انسامل ممه وقا لجميع انتراتين والرائح الرطنية

### 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 (ENG)

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 d • 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.c 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. 囫

### 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.





熤



**GEFAHR** 

# Sicherheitshinweise (GER)





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 Multiswitches 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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BLANKOM Web: www.blankom.de E-Mail: info@blankom.de

# **Conversion Table**

# 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

### Max. Levels/Min. Levels for Antenna Sockets accord. DIN EN50083-7

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

\*) 77 dBµV for systems distributing more than 20 channels.