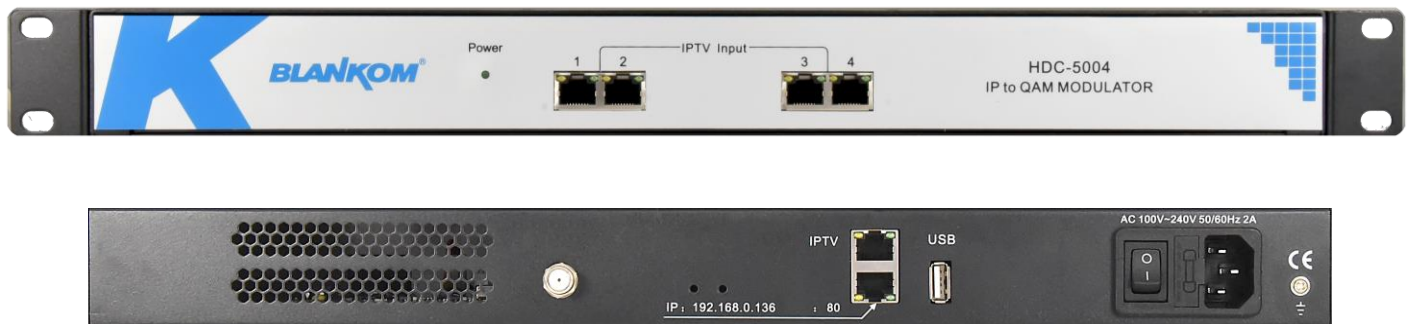




HDC 5004

IP to 4 QAM Modulator



EDGE-QAM User Manual

Software Version: 1.12 Build 100 Dec 10 2019

Hardware Version: 5.40

Web Version: 1.03

OS Version: 01.01.02.06

Updated:

Software Version:

01.08.17 Build 160.00 Jun 24 2022

Hardware Version:

01.04.02

Web Version:

1.05

System Version:

1.20.1.70

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Chapter 1 Product Overview

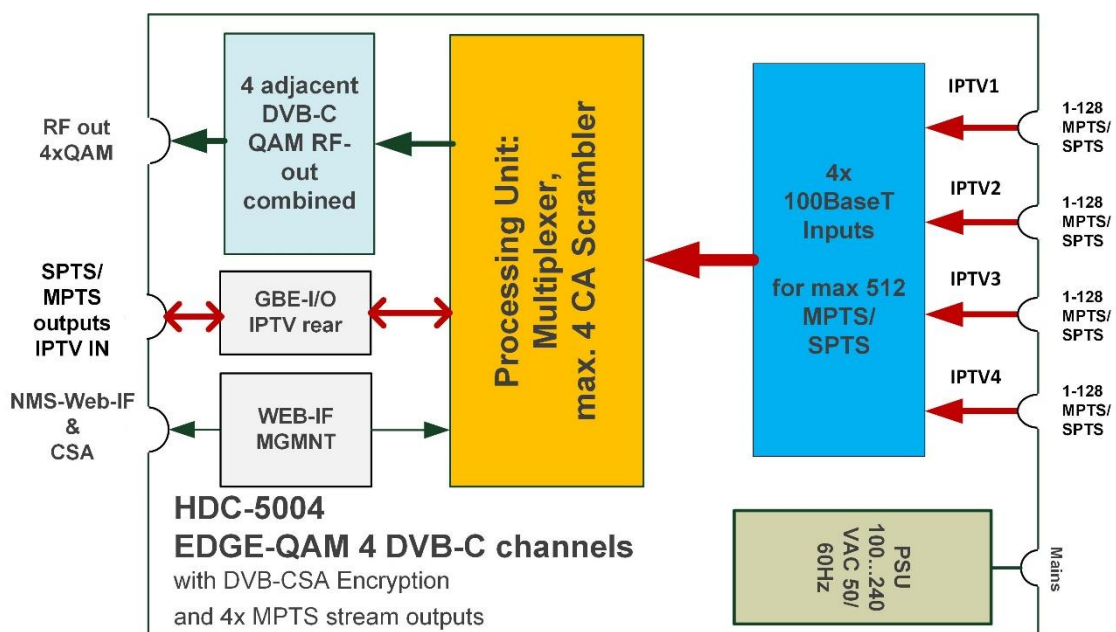
1.1 Outline

This HDM-5004 IP to QAM modulator is an all-in-one device integrated with multiplexing, scrambling and modulation in 1RU. It has 512 IP (SPTS/MPTS) input over UDP/RTP with 4 (5) Ethernet ports. After multiplexing, scrambling and modulating process, it gives 4 DVB-C adjacent carriers (30MHz...1000MHz) output through the RF output. To meet various requirements, this device is also equipped with 1 Data-Out port for 4x IP (SPTS/MPTS) output over UDP protocol. With the features of low cost and high performance, HDM-5004 is very adaptable to IPTV systems.

1.2 Key Features

- 4 Ethernet IP input ports (IPTV 1,2,3,4) 1 IP 4x MPTS outputs (DATA=REAR panel)
- 512 IP (SPTS/MPTS) input over UDP/RTP protocol
- Support up to 748 PID's remapping per channel
- PCR adjusting/PSI/SI editing and inserting /PID Remapping/PID pass
- Excellent RF output performance index, MER≥40db
- 4 multiplexed or scrambled TS over UDP output
- 4 adjacent QAM carriers' output, compliant to DVB-C (EN 300 429) and ITU-T J.83 A/B/C
- USB for upgrading CPU/FPGA
- IPTV Synchronization & NTP -> TDT
- Web-based Network management

1.3 Block Diagram



BLANKOM®
an IRENIS brand ...Setting Signals

[illegible]

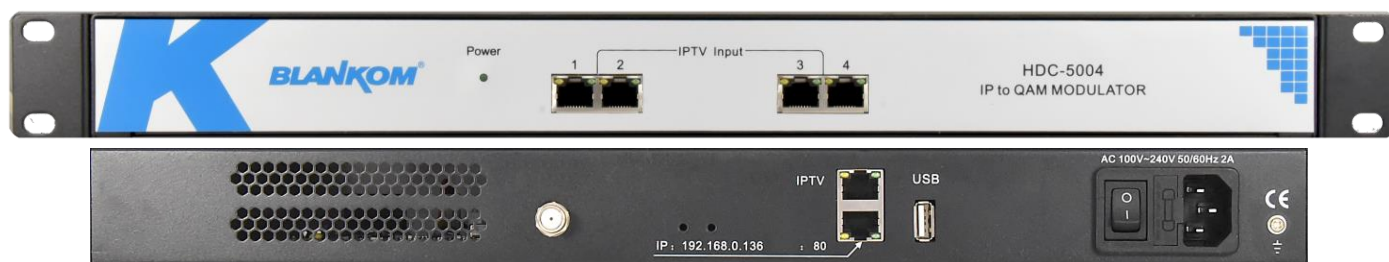
HDC-5004_manual_EN.docx

1.5 Specifications

Input	Input	512 from 4x IP inputs by 100Mb/s Ethernet Ports
	Transport Protocol	TS over UDP/RTP, unicast and multicast, IGMP V2/V3
	Transmission Rate	max 84Mbps for each IPTV-1...4 input
Mux	Remapping	Max. 780 PIDs per Channel
	Output Channel	4 adjacent -> 4x IP out as MPTS (from 4 MUX)
	Functions	PID remapping (auto / manually)
		PCR restamping
		PSI/SI table automatically generating NIT, LCN generation and inserting, auto or manual
Encryption Parameters	Max simulcrypt CA	4
	CA Standard	ETR289, ETSI 101 197, ETSI 103 197
	Connection	Local/remote connection to CAS
Modulation Parameters	QAM Channel	4 adjacent carrier
	Modulation Standard	DVB-C Annex A/C and B <i>EN300 429/ITU-T J.83A/B</i>
	Symbol Rate	5.0...9.0 Msps, 1 kSps steps, FEC
	Constellation	16, 32, 64, 128, 256QAM <i>dep. On A/C or B</i>
	FEC	RS (204, 188) inner/outer configurable
RF Output	Interface	1 F-type output port for 4 QAM channel, 75Ω impedance
	RF Range	30...1000 MHz, 1kHz steps
	Output Level	-10 dBm...+0 dBm (87...107 dBμV), 0.1dB steps
	MER	≥ 40dB
	ACLR	-60 dBc
TS output	4 MPTS IP output over UDP/RTP multicast by 1x100/1000M Gbit-Ethernet Port (@ Rear – IPTV –port)	
System	Network management software (NMS) support (Rear: 100BaseT) and USB port upgrade support	
General	Dimensions	19" 1U: 430mm×180mm×44mm (W×L×H)
	Weight	3kg
	Temperature	0...45°C (operation), -20...80°C (storage)
	Power Supply	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz
	Consumption	15.4W

Chapter 2: Connection Description

2.1 Front & Rear panel



Front:	Power LED, 4x IPTV 1...4 Input stream RJ45 ports
Rear left	RF output F-female 75 Ohm
...	IPTV GbE Input/Output (Output of the 4x MPTS from the QAM Muxes)
...	NMS/CAS: Network management port and CAS data port
	USB-Port for Firmware upgrade or TS-Player for INFO-Channels
...	Power switch, Fuse
...	AC IEC Power Socket
Rear right	Grounding

Chapter 3 Installation Guide

3.1 Acquisition Check

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

- HDC-5004 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

Item	Requirement
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: $1 \times 10^7 \dots 1 \times 10^{10} \Omega$, Grounding current limiting resistance: 1m (Floor bearing should be greater than 450kg/m^2)
Environment Temperature	5...40°C(sustainable), 0...45°C(short time) installing air-conditioning is recommended
Relative Humidity	20%...80% sustainable 10%...90% short time
Pressure	86...105kpa
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 $\pm 10\%$ 50/60Hz or 110V $\pm 10\%$ 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^2 .

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^2 .

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 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 1Ω.

⚠ 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 5 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. (No https)

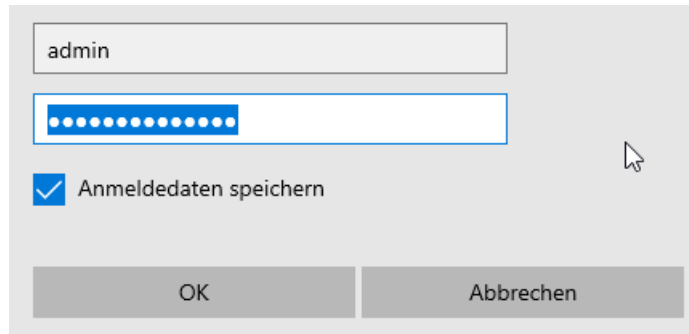
Connect the PC (Personal Computer) and the device with a network cable, and use ping command to confirm they are on the same network segment. For instance, the PC IP address is 192.168.99.252, we then change the device IP to 192.168.0.xxx (xxx can be 0 to 254 except 136 to avoid IP conflict).

Launch the web browser and 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 as Figure-1. Input the Username and Password (Both the default ***Username and Password are "admin"***).

And then click "Login" to start the device setting.



admin

.....

☒ Anmeldedaten speichern

OK Abbrechen

Figure-1

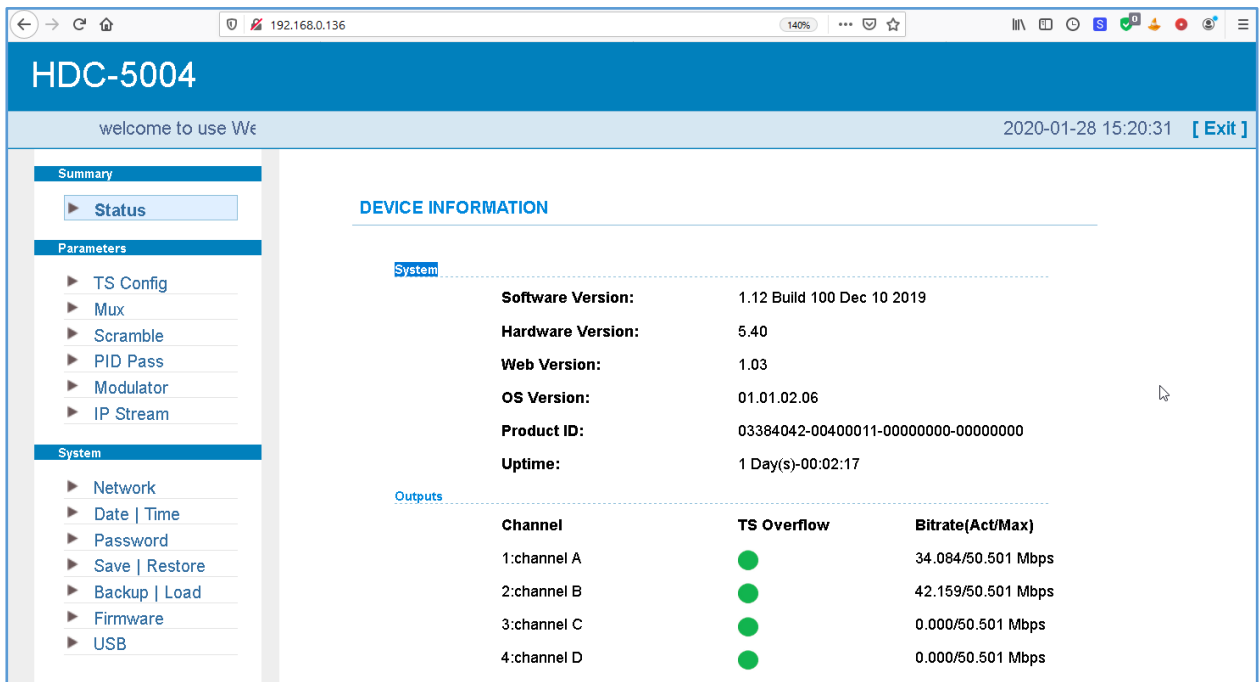
4.2 Operation

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:



HDC-5004

welcome to use We 2020-01-28 15:20:31 [Exit]

Summary

► Status

Parameters

- TS Config
- Mux
- Scramble
- PID Pass
- Modulator
- IP Stream

System

- Network
- Date | Time
- Password
- Save | Restore
- Backup | Load
- Firmware
- USB

DEVICE INFORMATION

System

Software Version: 1.12 Build 100 Dec 10 2019

Hardware Version: 5.40

Web Version: 1.03

OS Version: 01.01.02.06

Product ID: 03384042-00400011-00000000-00000000

Uptime: 1 Day(s)-00:02:17

Outputs

Channel	TS Overflow	Bitrate(Act/Max)
1:channel A	●	34.084/50.501 Mbps
2:channel B	●	42.159/50.501 Mbps
3:channel C	●	0.000/50.501 Mbps
4:channel D	●	0.000/50.501 Mbps

Figure-2

Or to show the latest Version:

HDC-5004

welcome to use Web Management

BLANKOM®

Summary

Status

Parameters

TS Config

Scrambler

Modulator

IP Stream

USB Media

System

Network

Password

Configuration

Firmware

Date | Time

Log

DEVICE INFORMATION

BLANKOM®

System Information

Software Version:

01.08.17 Build 160.00 Jun 24 2022

Hardware Version:

01.04.02

Web Version:

1.05

System Version:

1.20.1.70

Product ID:

00334400-00000010-00000000-00000000

Uptime:

0 Day-00:28:22

4.2.1.1 Setting Date and 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:

HDC-5004

welcome to use Web M

2020-01-28 15:00

Summary

Status

Parameters

TS Config

Mux

Scramble

PID Pass

Modulator

IP Stream

System

Network

Date | Time

Password

Save | Restore

Backup | Load

Firmware

USB

Date | Time

System Time:

2020-1-28 14:21:23

Timezone:

(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Warsaw, Zagreb

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

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

System Time:	2020-1-28 14:21:23
Timezone:	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, S...
NTP Server 1:	(GMT-04:00) Santiago
NTP Server 2:	(GMT-03:30) Newfoundland
NTP Server 3:	(GMT-03:00) Brasilia
NTP Server 4:	(GMT-03:00) Buenos Aires, Georgetown
NTP Server 5:	(GMT-03:00) Greenland
	(GMT-02:00) Mid-Atlantic
	(GMT-01:00) Azores
	(GMT-01:00) Cape Verde Is.
	(GMT) Casablanca, Monrovia
	(GMT) Greenwich Mean Time, Dublin, Edinburgh, Lisbon, London
	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
	(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
	(GMT+01:00) Brussels, Copenhagen, Madrid, Paris

Update from browser

first

set time zone than config NTP-Server!

System Time:	2020-1-28 14:21:23
Timezone:	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, S...
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 assure the connection to external NTP servers via Internet. The NTP or the correct time is needed for the TDT Injection to the output multiplexes. TOT offset table can be injected from an IP stream by PID forwarding iof necessary.

4.2.2 Parameters “TS Config” - Menu

- The TS Config Menu sets the basics for your 4 QAM channels

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.

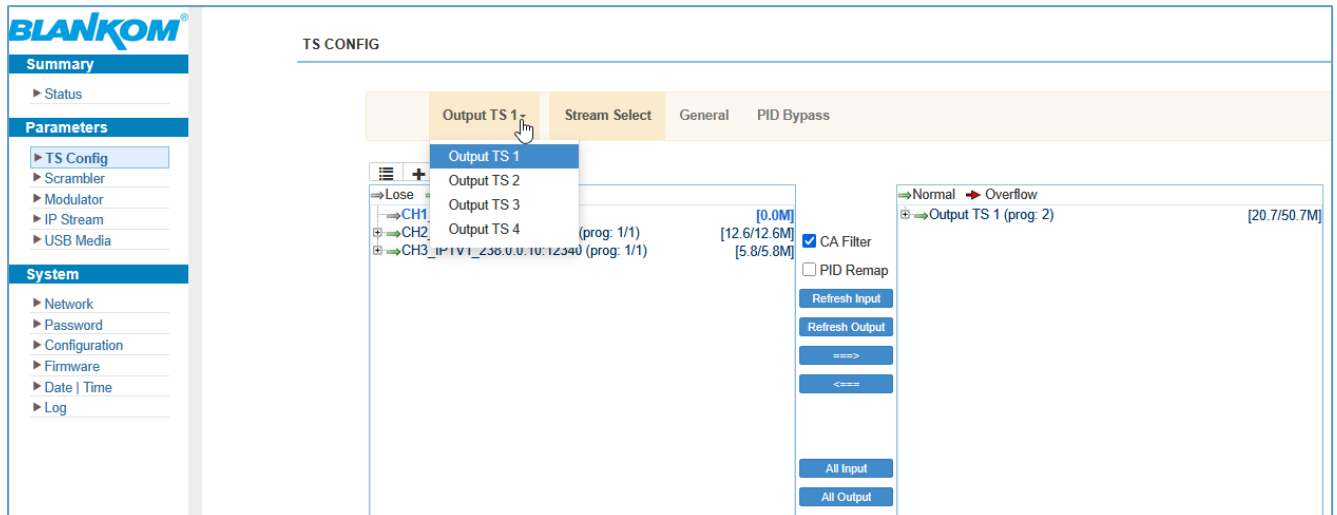
Summary		TS CONFIGURATION			
▶ Status					
Parameters ▶ TS Config ▶ Mux ▶ Scramble ▶ PID Pass ▶ Modulator ▶ IP Stream					
System ▶ Network ▶ Date Time ▶ Password ▶ Save Restore ▶ Backup Load ▶ Firmware ▶ USB					
		channel A channel B channel C channel D			
		Output IP Scramble: Off			
		Stream			
		TS ID: 1			
		ON ID: 1			
		Character Encoding: NORMAL			
		PCR Correct: ☒			
		PCR Speed BW: 1			
		PCR State BW: 1			
		NIT			
		Network ID: 1			
		Network Name: BLANKOM1			
		Version Mode: Automatic			
		Version Number: 2 (0-31)			
		LCN Mode: European			
		Country Code: 0			
		Channel List ID: 0			
		Channel List Name:			
		Private Data: 0x00000000			
		NIT Insert: Data From PSI Tool			

Corresponding with:

Summary		MODULATOR			
▶ Status					
Parameters ▶ TS Config ▶ Mux ▶ Scramble ▶ PID Pass ▶ Modulator ▶ IP Stream					
System ▶ Network ▶ Date Time ▶ Password ▶ Save Restore					
		channel A channel B channel C channel D			
		Standard: J.83A(DVBC)			
		Constellation: 256 QAM			
		Symbol Rate: 6.850 (5.0 - 9.0 Msps)			
		RF Frequency: 122.000 (30.0 - 1000.0 MHz)			
		RF Level: -10.0 (-10.0 - 0.0 dBm)			
		RF On: ☒			
		Bitrate(Val/Max): 35.726 Mbps/50.501 Mbps			
		Default Apply			

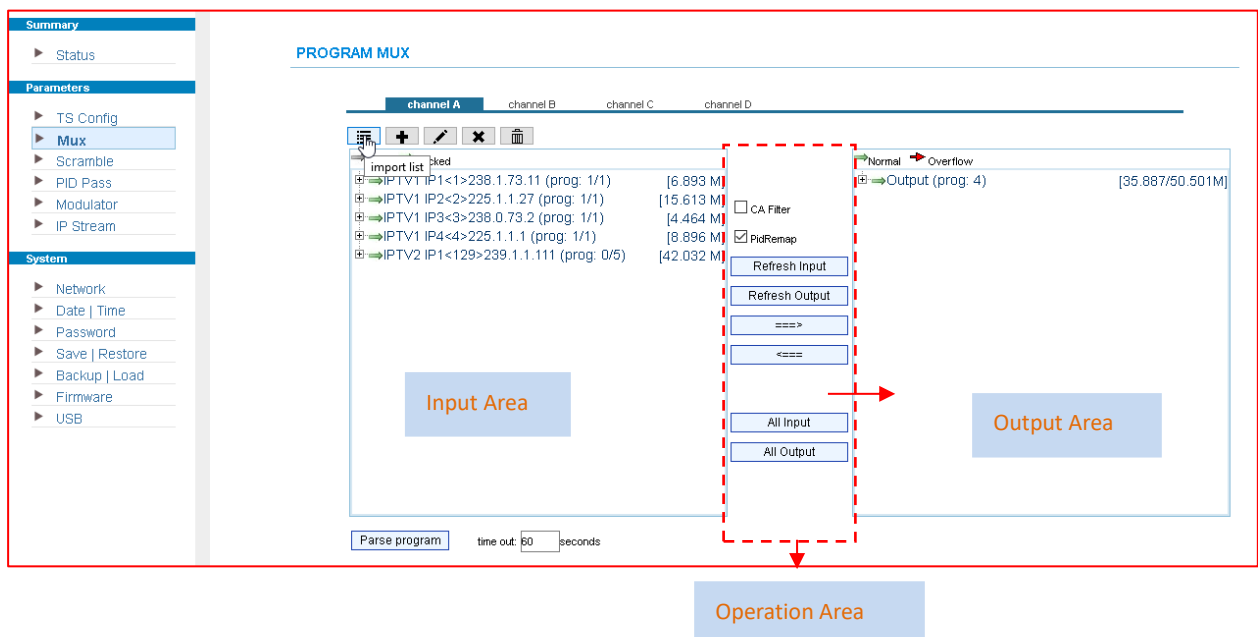
Please do not use ITU –DVB for Europe, because that’s related to US and Korea... EU= J83A

The redesigned new menu looks like:



So we have done some improvements – but as you know: Technical changes w/o further notice...

The MUX Menu:



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.

☒ **PID Remap**: To enable/disable the PID remapping (disabled recommended for pass through and also PID forwarding). If similar PIDs are in the Input streams, please remap them avoiding conflicts

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.

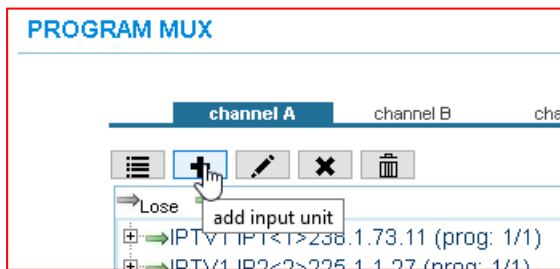
<=== Similarly, you can remove TV Services from the multiplex in the right box.

All Input To select all the input programs

All Output To select all the output programs

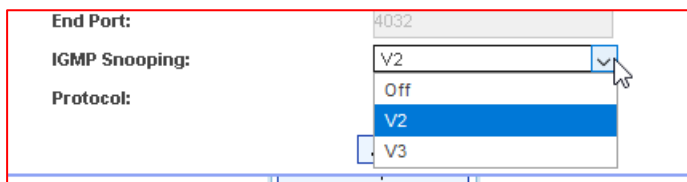
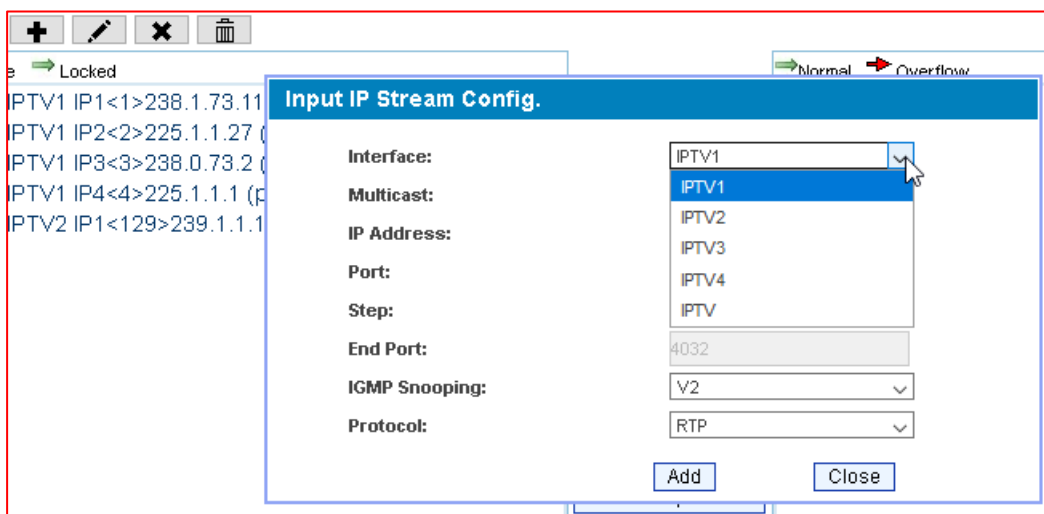
Parse program To parse programs time out: 60 seconds time limitation of parsing input programs from TS

This must be used for every Input stream to read its content after setting up the IP addresses:

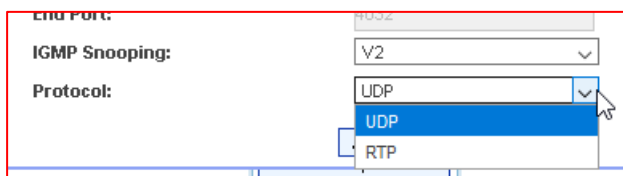


Window opens....

Select the input RJ45 port: 'IPTV 1...4' or Rear-Side 'IPTV = DATA'



Select IGMP Version or OFF (not useful)



Select Input protocol of the stream UDP/RTP

You can address 1 or many IPTV streams:

Interface:	IPTV1
Multicast:	Enable
IP Address:	224.2.2.2
Port:	4001
Step:	☒ 1
End Port:	4032
IGMP Snooping:	V2
Protocol:	UDP
Add Close	

Finally Add and Close this window.

Your streams shown in the left window will cover all of them. Do not forget to PARSE them to get the content.

The screenshot shows the main interface with four tabs: channel A, channel B, channel C, and channel D. Channel A is selected, showing a list of IPTV streams. Channel D is also visible, showing an output configuration. The interface includes a 'Parse program' button and a 'time out: 60 seconds' setting.

Channel A Configuration:

- 1: ☒ Live
 - Program Number: 1
 - Service Type: 0x01
 - Service Provider: BLANKOM
 - PMT PID: 0x01e0
 - PCR PID: 0x01e1
 - Elements
 - H.265 Video PID: 0x01e1
 - AC3 Audio PID: 0x01e2
- 2: IPTV1 IP1<1>238.1.73.11 (prog: 1/1) [5.622 M]
- 3: IPTV1 IP2<2>225.1.1.27 (prog: 1/1) [15.697 M]
- 4: IPTV1 IP3<3>238.0.73.2 (prog: 1/1) [3.595 M]
- 5: IPTV1 IP4<4>225.1.1.1 (prog: 1/1) [8.956 M]
- 6: IPTV2 IP1<129>239.1.1.111 (prog: 0/5) [41.999 M]

Channel D Configuration:

- 1: ☐ Nasa TV UHD
- 2: ☐ Live4
- 3: ☐ BBC World News Europe HD
- 4: ☐ Live
 - Program Number: 32
 - Service Type: 0x01
 - Service Provider: BLANKOM
 - PMT PID: 0x0020
 - PCR PID: 0x0021
 - Elements
 - H.265 Video PID: 0x0021
 - AC3 Audio PID: 0x0022

Example with PID-remapping.

The screenshot shows the main interface with four tabs: channel A, channel B, channel C, and channel D. Channel B is selected, showing a list of IPTV streams. Channel D is also visible, showing an output configuration. The interface includes a 'Parse program' button and a 'time out: 60 seconds' setting.

Channel B Configuration:

- 1: ☒ tagesschau24 HD
 - Program Number: 10375
 - Service Type: 0x19
 - Service Provider: ARD
 - PMT PID: 0x1518
 - PCR PID: 0x1519
 - Elements
 - ONE HD
 - ARD-alpha HD
 - SR Fernsehen HD
 - Radio Bremen HD
- 2: IPTV1 IP1<1>238.1.73.11 (prog: 0/1) [6.879 M]
- 3: IPTV1 IP2<2>225.1.1.27 (prog: 0/1) [15.624 M]
- 4: IPTV1 IP3<3>238.0.73.2 (prog: 0/1) [4.661 M]
- 5: IPTV1 IP4<4>225.1.1.1 (prog: 0/1) [8.919 M]
- 6: IPTV2 IP1<129>239.1.1.111 (prog: 5/5) [42.062 M]

Channel D Configuration:

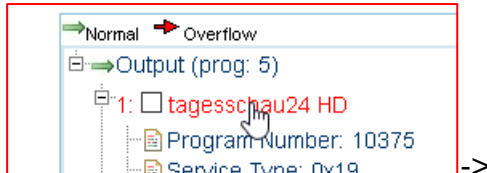
- 1: ☐ tagesschau24 HD
 - Program Number: 10375
 - Service Type: 0x19
 - Service Provider: ARD
 - PMT PID: 0x1518
 - PCR PID: 0x1519
 - Elements
 - ONE HD
 - ARD-alpha HD
 - SR Fernsehen HD
 - Radio Bremen HD
- 2: ☐ ONE HD
- 3: ☐ ARD-alpha HD
- 4: ☐ SR Fernsehen HD
- 5: ☐ Radio Bremen HD

And w/o -> MPTS Input to DVB-C Channel 2 output

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.

Press:

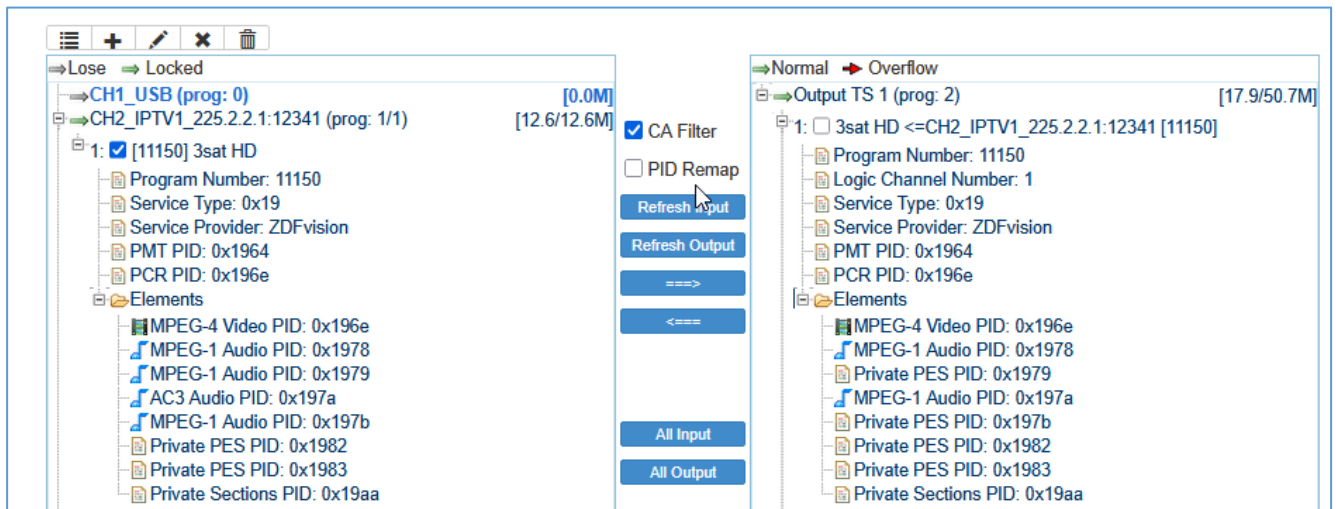


Program Information	
Program Name:	tagesschau24 HD
LCN:	1
Major Channel Number:	1
Minor Channel Number:	1
Source ID:	0
Short Name:	prg001
Program Number:	10375
Service Type:	0x19
Service Provider:	ARD
PMT PID:	0x1518
PCR PID:	0x1519
MPEG-4 Video PID:	0x1519
MPEG-1 Audio PID:	0x151a
MPEG-1 Audio PID:	0x151b
Private PES PID:	0x151c
AC3 Audio PID:	0x151e
Private Sections PID:	0x00aa
User defined PID:	0x00b0
User defined PID:	0x087b
Save Close	

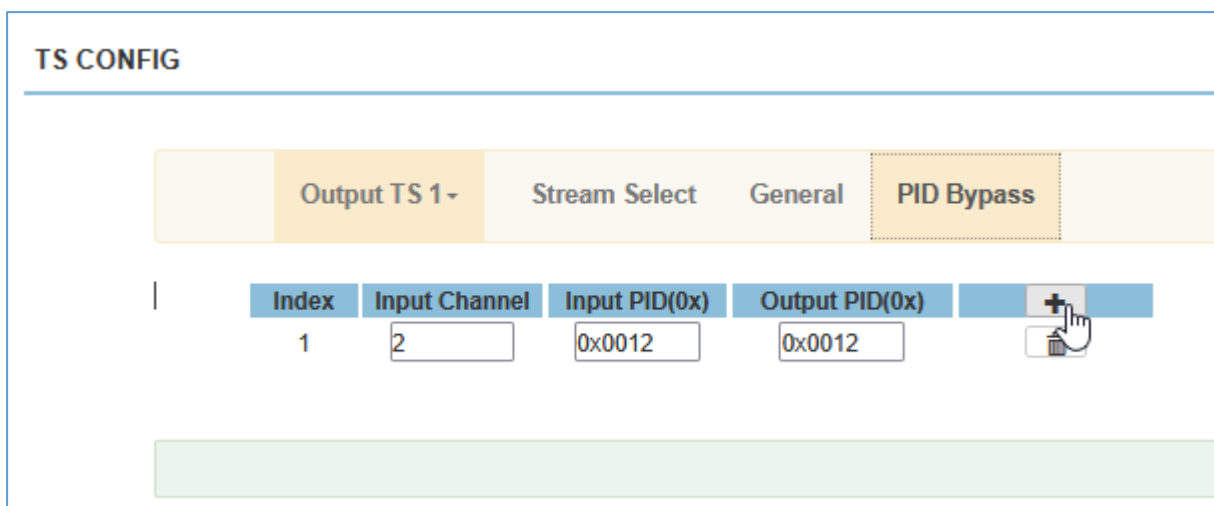
Figure 6

Passing EPG:

If 1 or more inputs are carrying the EIT table and you want to pass it to the Modulator output, you should consider: 1st: Do not use the PID-remapping:

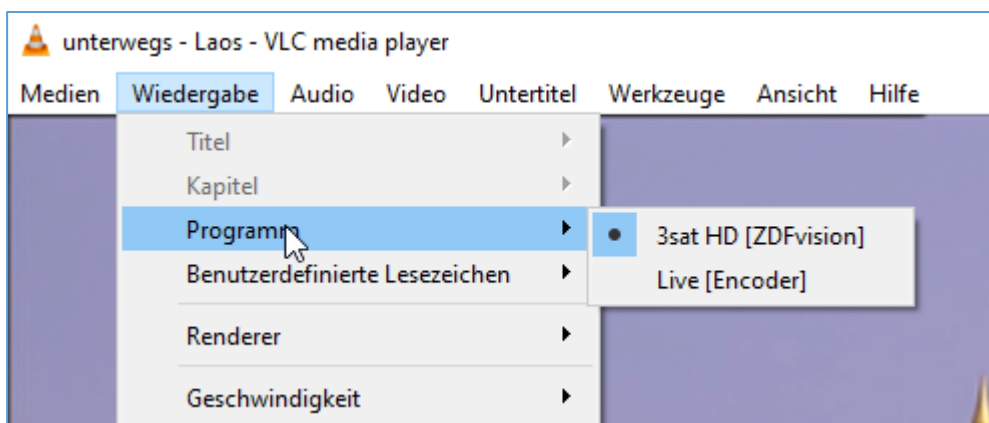


Then enter into

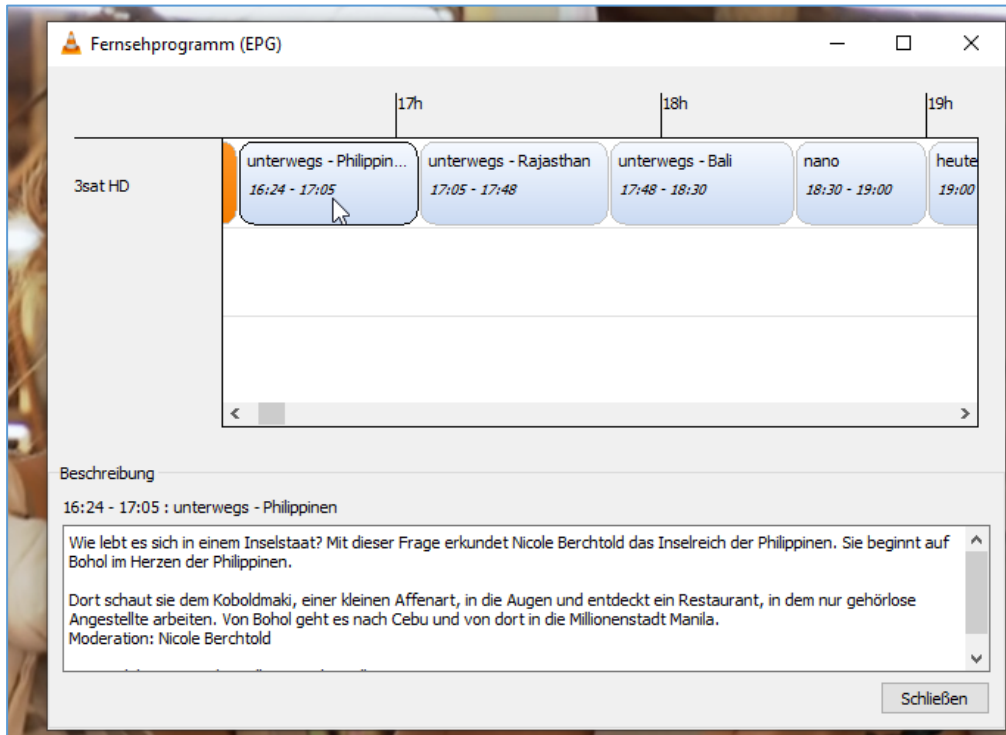


Select the right Channel input you have an SPTS (or MPTS) with EIT on PID12hex, add 12 pass to 12 out and you are good:

Check with VLC: (MPTS output on DATA-port at the rear-panel):



-> Werkzeuge -> EPG:



Attention: The Unit does NOT remultiplex the EIT-PID Database from different sources!!!

RF-Output settings:

4 adjacent channels- first channel sets up the start frequency (middle), all need same QAM mode 16...256 and symbol rates, independent output level attenuation....:

MODULATOR			
channel A	channel B	channel C	channel D
Standard:	J.83A(DVBC) ▼		
Constellation:	256 QAM ▼		
Symbol Rate:	6.850 (5.0 - 9.0 Msps)		
RF Frequency:	122.000 (30.0 - 1000.0 MHz)		
RF Level:	-10.0 (-10.0 - 0.0 dBm)		
RF On:	☒		
Bitrate(Val/Max):	33.981 Mbps/50.503 Mbps		

For the output level, see Annex – conversion table dBm -> dBμV.

Set QAM Mode (Annex A/C = Normal DVB, Annex B = US Norm), mode 16...256 QAM and other values. This setup configures adjacent channel from a start frequency.

To individually configure the 4 channels set them accordingly in every single config mode.

DVB-tables:

TS CONFIG

Output TS 1

Stream Select

General

PID Bypass

Stream

Output Mode: Mux out

SDT Insert: ☒

Share BAT: ☐

PMT Insert: ☒

TOT Insert: ☒

TS ID: 1

PCR Correct: ☐

PCR State BW: 1

Character Encoding: NORMAL

PAT Insert: ☒

BAT Insert: ☒

CAT Insert: ☒

TDT Insert: ☒

Fixed Table Version: ☐

ON ID: 1

PCR Speed BW: 1

PCR Compensate: 0

IGMP Interval: 5 (5s~120s)

NIT

NIT Insert: Not insert

Share NIT: ☐

VCT

VCT Insert: ☐

Modulation Mode: 4

IPTV Sync(SPTS)

IPTV Sync: ☒

Sync Period: 300 Sec

IPTV Anti-shake(SPTS)

IPTV Anti-shake: ☒

Apply

You can add the NIT by adding manually all frequencies (and also from the rest of the cable-network):

PCR State BW: 1

PCR Compensate: 0

Character Encoding: NORMAL

IGMP Interval: 5 (5s~120s)

NIT

NIT Insert: Web insert

Share NIT: ☐

Private Data: ☐ 0x00000000

Network ID: 1

Network Name: network-1

Version Mode: Automatic

Version Number: 1 (0-31)

LCN Mode: European

Index	TS ID	ON ID	Frequency	Constellation	Symbol Rate	
						add description delete

VCT

Remark: BAT is almost not necessary, TDT/TOT might work if you set the internal clock date correctly by using an NTP server address.

The NIT should contain its own values:

MODULATOR							
Center Frequency: 662.000 MHz				Standard: J.83A(DVB-C)			
Level(All Carriers): 5.0 dBm				Channel Info.(Alarm/Active/Total): 0/4/4			
#	Frequency	Constellation	Symbol Rate	Channel Level	Status	Bit(Act/Max)	
1	650.000 MHz	256 QAM	6875 Ksps	-1.0 dB	●	19.2/50.7 M	
2	658.000 MHz	256 QAM	6875 Ksps	-1.0 dB	●	0.0/50.7 M	 channel config.
3	666.000 MHz	256 QAM	6875 Ksps	-1.0 dB	●	0.0/50.7 M	
4	674.000 MHz	256 QAM	6875 Ksps	-1.0 dB	●	0.0/50.7 M	

Output TS 1-

Stream Select

General

PID Bypass

Stream

Output Mod

SDT Insert:

Share BAT:

PMT Insert:

TOT Insert:

TS ID:

PCR Corre

PCR State B

Character E

NIT Descriptor

[close]

TS ID:

1

ON ID:

1

Frequency:

650.000

MHz

Constellation:

256 QAM

Symbol Rate:

6875

Ksps

FEC Inner:

1/2 conv.

FEC Outer:

not outer FEC

Add

Close

NIT

NIT Insert:

Web insert

Share NIT:

☒

Private Data:

☐ 0x00000000

Network ID:

1

Network Name:

network-1

Version Mode:

Automatic

Version Number:

1

(0-31)

LCN Mode:

European

Index

TS ID

ON ID

Frequency

Constellation

Symbol Rate

+

-

1

1

1

650.000 MHz

256 QAM

6875 Ksps





See:

NIT

NIT Insert:

Web insert

Share NIT:

☒

Private Data:

☐ 0x00000000

Network ID:

1

Network Name:

network-1

Version Mode:

Automatic

Version Number:

2

(0-31)

LCN Mode:

European

Index

TS ID

ON ID

Frequency

Constellation

Symbol Rate

+

-

1

1

1

650.000 MHz

256 QAM

6875 Ksps





Enter the next....

In the single stream menu by doubleclick:

Program Information [close]

Program From Input: CH2_IPTV1_225.2.2.1:12341 [11150]

Service Name: 3sat HD

Major Channel Number: 1

Minor Channel Number: 1

Source Id: 1

Short Name: prog1

Program Number: 11150

Logic Channel Number: 1

Service Type: 0x19

Service Provider: ZDFvision

PMT Descriptor Tag: ☐ 0x00

PMT Descriptor Data: (Hex)

PMT PID: 0x1964

PCR PID: 0x196e

MPEG-4 Video PID: ☒ 0x196e

MPEG-1 Audio PID: ☒ 0x1978

Private PES PID: ☒ 0x1979

MPEG-1 Audio PID: ☒ 0x197a

Private PES PID: ☒ 0x197b

Apply Close

You can assign the LCN to the service.

Please do not give double values to the different services: always different ones please.

For DVB-C except in USA and Korea, you can ignore these settings because they are belonging to ATSC/ITU-J83 Annex B = US norm with 6 MHz :

Program Information [close]

Program From Input: CH2_IPTV1_225.2.2.1:12341 [11150]

Service Name: 3sat HD

Major Channel Number: 1

Minor Channel Number: 1

Source Id: 1

Short Name: prog1

Program Number: 11150

and

VCT

VCT Insert: ☐

Modulation Mode: 4

IPTV Sync(SPTS)

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 (MHz)	Mitten... frequenz Middle frequency (MHz)	Bild... träger Picture carrier (MHz)	Ton... träger Sound carrier (MHz)	Bereich Bands	Kanal Channel	Kanal... frequenzen Channel frequency (MHz)	Mitten... frequenz Middle frequency (MHz)	Bild... träger Picture carrier (MHz)	Ton... träger Sound carrier (MHz)
B I	2	47 ... 54	50,50	48,25	53,75	B IV	21	470 ... 478	474,00	471,25	476,75
	3	54 ... 61	57,50	55,25	60,75		22	478 ... 486	482,00	479,25	484,75
	4	61 ... 68	64,50	62,25	67,75		23	486 ... 494	490,00	487,25	492,75
USB Unterer Sonder- kanal- bereich Midband channels	S 02	111 ... 118	114,50	112,25	117,75		24	494 ... 502	498,00	495,25	500,75
	S 03	118 ... 125	121,50	119,25	124,75		25	502 ... 510	506,00	503,25	508,75
	S 04	125 ... 132	128,50	126,25	131,75		26	510 ... 518	514,00	511,25	516,75
	S 05	132 ... 139	135,50	133,25	138,75		27	518 ... 526	522,00	519,25	524,75
	S 06	139 ... 146	142,50	140,25	145,75		28	526 ... 534	530,00	527,25	532,75
	S 07	146 ... 153	149,50	147,25	152,75		29	534 ... 542	538,00	535,25	540,75
	S 08	153 ... 160	156,50	154,25	159,75		30	542 ... 550	546,00	543,25	548,75
	S 09	160 ... 167	163,50	161,25	166,75		31	550 ... 558	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
B III	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	B V	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
	12	223 ... 230	226,50	224,25	229,75		40	622 ... 630	626,00	623,25	628,75
OSB Oberer Sonder- kanal- bereich Superband channels	S 11	230 ... 237	233,50	231,25	236,75		41	630 ... 638	634,00	631,25	636,75
	S 12	237 ... 244	240,50	238,25	243,75		42	638 ... 646	642,00	639,25	644,75
	S 13	244 ... 251	247,50	245,25	250,75		43	646 ... 654	650,00	647,25	652,75
	S 14	251 ... 258	254,50	252,25	257,75		44	654 ... 662	658,00	655,25	660,75
	S 15	258 ... 265	261,50	259,25	264,75		45	662 ... 670	666,00	663,25	668,75
	S 16	265 ... 272	268,50	266,25	271,75		46	670 ... 678	674,00	671,25	676,75
	S 17	272 ... 279	275,50	273,25	278,75		47	678 ... 686	682,00	679,25	684,75
	S 18	279 ... 286	282,50	280,25	285,75		48	686 ... 694	690,00	687,25	692,75
	S 19	286 ... 293	289,50	287,25	292,75		49	694 ... 702	698,00	695,25	700,75
ESB Erweiterter Sonder- kanal- bereich Specialband channels	S 20	293 ... 300	296,50	294,25	299,75		50	702 ... 710	706,00	703,25	708,75
	S 21	302 ... 310	306,00	303,25	308,75		51	710 ... 718	714,00	711,25	716,75
	S 22	310 ... 318	314,00	311,25	316,75		52	718 ... 726	722,00	719,25	724,75
	S 23	318 ... 326	322,00	319,25	324,75		53	726 ... 734	730,00	727,25	732,75
	S 24	326 ... 334	330,00	327,25	332,75		54	734 ... 742	738,00	735,25	740,75
	S 25	334 ... 342	338,00	335,25	340,75		55	742 ... 750	746,00	743,25	748,75
	S 26	342 ... 350	346,00	343,25	348,75		56	750 ... 758	754,00	751,25	756,75
	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	774 ... 782	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	798 ... 806	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 – check local T2 frequencies please.

Chapter 5 Troubleshooting

Our ISO9001 quality assurance system has been approved by CQC organization. We guarantee the products' quality, reliability and stability. All of our products have been passed the testing and inspection before shipping out from factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by us. To prevent potential hazard, please strictly follow the operational conditions.

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 need to unplug 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

Chapter 6 Packing list

- | | |
|---|------|
| • HDC-5004 IP QAM Modulator | 1 pc |
| • User's Manual (check www.blankom.de -> Downloads) | 1 pc |
| • Power Cord, dep. on country | 1 pc |

Important Notes!

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

Do not open the top case w/o unplugged power source because serious injury or death may be the result! Inside are components under risk from electrostatic discharge. To avoid equipment damages do not touch these components or, observe the respective handling rules! For continued protection against fire, the fuses may only be replaced by identical fuses with the same electrical specifications which are designed for the corresponding fuse positions.

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transformation or adaptation) without the written permission from Blankom / IRENIS GmbH.

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

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>

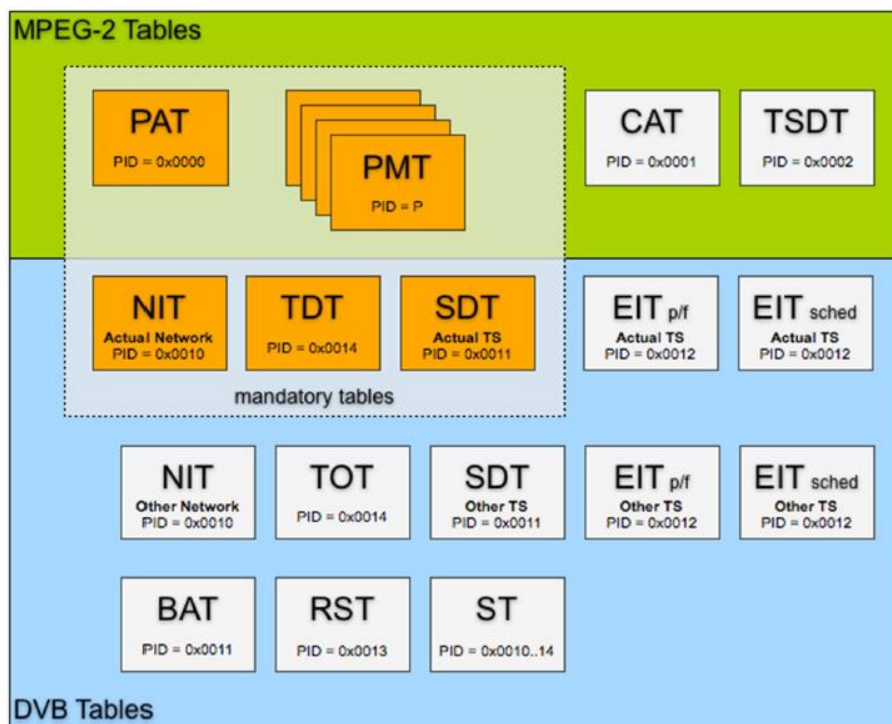

Table 1: PID allocation for SI

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

Appendix DB

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

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

dBmV	dBμV	dBm 75Ω	mV _{RMS}	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.

¡Advertencia!

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

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect

תאריך: 10/10/2019

10/10/2019

התאריך: 10/10/2019

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

عند التخلص النهائي من هذا المنتج يتعين التعامل معه وفقاً لجميع القوانين واللوائح الوطنية

경고!

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

Waarschuwing

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

Safety instructions

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

1. Installation

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

2. Operation

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

- **Warning:** Follow all instructions in the device-specific operating manual.

3. Maintenance

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



4. Repairs

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



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

5. Sale

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

6. Disposal

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



Sicherheitshinweise



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

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

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.

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.

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

Verkauf

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

Entsorgung

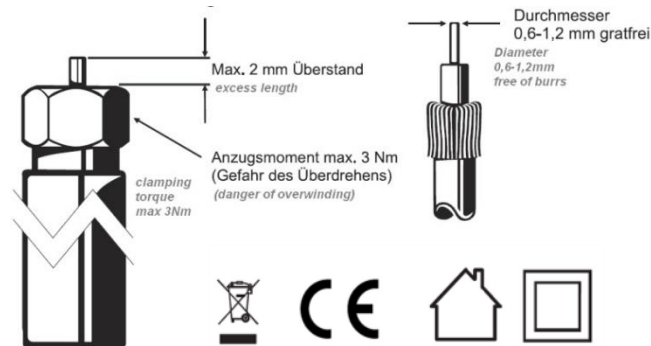
Vorsicht: Entsorgen Sie das Gerät entsprechend den geltenden umweltrechtlichen Bestimmungen. Elektrische und elektronische Geräte dürfen nicht in den Hausmüll!

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:



SAT: 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!

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...Setting Signals