



USER MANUAL

Our HDE-275Q 4 channel HDMI Video Encoder

is a cost effective boxed HDMI compatible encoder/streamer which supports 4 channel Inputs h.265/h.264 audio & video encoding compatible. It transfer's the IP- TS streams over IP networks to Media-Server (Wowza, Xstream codes, nginx, etc...) or usable as an online live broadcast platform device, such as YouTube, Facebook, Ustream, Twitter, etc. or simply to IPTV SetTopBoxes or TV sets with embedded IPTV clients. The HDMI maximal input resolution is 2160p@30fps, and the output stream resolution can be up to 2x UHD and 2x Full HD 1080p60.

Works with HTTP / HLS / FLV / RTSP / UDP / RTP / RTMPs / MJPG Streaming Protocols and ONVIF support.

New: 03-2020: SRT streaming support -> See end of the document as add-on

Attention: 2 Hardware versions to separate: SW is not compatible: Old: 4.89, New: 5.19

Please ask us before trying to update.

PREFACE

About This Manual

This manual is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the Product described herein and in particular the knowledge and skills of Linux OS (Ubuntu 16.0x Server) must be available as for Layer 3 Network switches.

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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FEATURES:

- **Embedded HiLinux System, stable and effective**
- **4x HDMI input and encoding parallel at the same time**
- **Supports 1x main stream & 3 substream outputs per channel**
- **Output Streaming bitrate adjustable**
- **Supports Analogue Audio Line-in mixed with HDMI Audio**
- **Compatible with h.265 Main Profile & h.264 AVC High profile/Main Profile/Baseline Profile**
- **VBR / CBR encoding process selectable**
- **Still-Test-picture streaming if no signal input**
- **Firmware upgrade by WEB**

APPLICATIONS:

- **IPTV (Wowza, Xstream Codes Media Server, etc.)**
- **Online Live Broadcast (YouTube, Ustream, Twitter, etc.)**
- **NVR (Net Video Recorder)**
- **Teaching / Campus Broadcast**
- **Hotel IPTV system and Info-channels**
- **Video Conference**
- **Digital Signage**
- **Recording System for Cameras**

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FRONT- AND REAR- PANEL LEDS AND CONNECTORS

4 blue LEDs are showing the HDMI connecting status,
Red LED for P=Power and
Green LED=E Ethernet is connected



From left to right:

RST= Reset switch, restores the unit into factory default settings

2x Stereo Audio Jack 3.5mm external inputs for mixing 2 HDMI Video pictures with external stereo sources.

HDMI Inputs 1...4

Ethernet Gigabit RJ45 I/O with green and yellow LEDs for connection status view

DC-Jack 12V 5.1, middle = +12V



The default factory values can be found at the sticker on the bottom:



Available as 4x4 in a 1RU 19" chassis with integrated PSU: HDE-4275Q



Front



Rear

TECHNICAL SPECIFICATIONS:

Input	4x HDMI compatible inputs, 2x analogue stereo Audio Line-IN to add own Audio sounds		
Video	Input	HDMI 1 & 2 Max supports 3840x2160@30fps, HDMI 3 & 4 Max @1080p 60fps	
	Encoding	Encoding	h.265/h.264/AVC BP/MP/HP (High / Main / Baseline Profile) compatible and MJPG support
		Resolution	Max. 2 channel 4k@30fps plus 2 channel 1080p@60fps or 4 channel 1920x1080P@60fps
		FPS	5-60
		Bitrate	0.1...32Mbps (Each Channel)
		Bitrate Control	VBR / CBR
Audio	Encoding	AAC / AAC+ /AAC++ / MP2 / MP3 / G.711, etc. compatible	
	Sample Rates	44.1kHz / 48.0kHz	
	Bitrate	12Kbps ... 320Kbps adjustable	
System	1000BaseT Ethernet RJ45 interface , max 4x4 Stream outputs (4x Main, 12x secondary streams), supported streaming formats: Unicast: RTSP/HTTP/RTMPs/FLV/HLS , SRT Multicast: RTP/UDP		
	Web based management		
	English network management Web- interface		
	Firmware upgrade by file-web-upload		
Others	Dimension	Standalone: 17cm x11cm x3 cm	
	Weight	1kg (incl. PSU and accessory)	
	Power adapter	1000...230VAC -> DC 12V 2A external PSU, Euro plug	
	Operating temperature	-20 ...80 °C	
	Storage temperature	-40 ... 90 °C	
	Relative Humidity environment 5% ... 90% non-condensing		

Corresponding products:

- HDD-275 HEVC/h.264 compatible UHD-Decoder with multiple outputs:
VGA, CVBS, HDMI, HD SDI (depending on availability of SDI decoder chipsets)
- IPTV SetTopBox 6800+ (UHD)
- Any PC with VLC Media player, any IPTV TV flatscreen (e.g. Samsung hospitality series)
- HDC-5016 16 Channel IP to DVB-C QAM modulator (available as 32 channel)
- HDC-5004 4 Channel IP to DVB-C QAM modulator

Anmerkung:

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

**Remark:**

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

Annotation:

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

**Annotazione:**

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

**Anotación:**

Todas las instrucciones de uso publicadas por nosotros se dirigen al profesional de la antena y de la informática, 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.



Hint: HDMI-Cable are usually limited to 10m length.

BEFORE YOU CONNECT IT

Please make sure, your Laptop/PC is equipped with a modern Web-Browser like Mozilla Firefox.

In some cases it might be applicable to have the popup blocker disabled and adobe flash support has been installed (Browser Preview-Window support with FLV/HLS). Connect all cables first than plug in the power cable. The operation by/through an advanced Level 2+ or Level 3 GbEthernet – Network-Switch is recommended supporting IGMP V2/3 protocol securing your network against flooding with too many multicast streams. The Gigabit-Ethernet-port does not support PoE.

Adjust your computer network card/interface to the same range like the factory default settings: Example: IP Address: 192.168.1.100, NM 255.255.255.0, Gateway: 192.1.68.1.1 or other, DNS address is not that important.

NOTE: If you have more than 1 Network-Card installed (like GbEthernet + WIFI) please make sure – for later checking the output streams by i.e. VLC (Video LAN Client –freeware tool from Internet)- that VLC does not recognize through which network connection it should receive the streams. So better to disable WIFI or adjust different METRIC values to the interfaces like

GbE: Metric = 10, WIFI = 100 (lower value = higher priority)

NOTE: Regarding UDP/Multicast address ranges see at the end of this document.

Now that this has been done we start with the web-Interface access: (usually 192.168.1.168)

(Note, the address here in use has been changed by us to 192.168.1.73):

Enter the IP address in the browser:



A Login Window will appear...

Please enter username **admin** and password **admin**

A screenshot of a login window titled 'Anmelden'. It shows the URL 'http://192.168.1.73' and a warning 'Die Verbindung zu dieser Website ist nicht sicher'. There are two input fields: 'Nutzername' with the value 'admin' and 'Passwort' with masked characters '.....'. At the bottom, there are two buttons: 'Anmelden' (highlighted with a mouse cursor) and 'Abbrechen'.

Then confirm by enter button or mouse click

Jumps you to the **status** page:

HD Encoder System Platform 5.19

	Status	Input1	Input2	Input3	Input4	System
System ▾ ◆ Input1 Status ◆ Input2 Status ◆ Input3 Status ◆ Input4 Status	◆ Status Running Time:0055-04-11 09:03:06 Device Time: 2025-05-12 10:03:16(Sync Time To Device) Device Name:Encoder_65474 CPU Usage:1% CPU Junction Temperature:35°C Memory Usage:85.8M/483.2M					
	◆ Input1 ● Input status Input Size:1920x1080p@50 Collected Video Frames:6635 Lost Video Frames:2 Audio Samplerate:48000 ● Main Stream Encoding Type:H.264 Encoding Size:1920x1080@30 Bitrate(kbit):8000 TS URL:http://192.168.1.168/0.ts HLS URL:Disable FLV URL:http://192.168.1.168/0.flv RTSP URL:rtsp://192.168.1.168/0 RTMP URL:Disable RTMP PUSH URL:Disable Multicast URL:Disable SRT URL:srt://192.168.1.168:9000 SRT PUSH URL:Disable Preview(Delay 2000ms) ● Substream1 Encoding Type:H.264 Encoding Size:1920x1080@30 Bitrate(kbit):3200 TS URL:Disable HLS URL:Disable					

Immediately you are getting the Input status of every HDMI connection and the configured stream modes and addresses which have been setup.

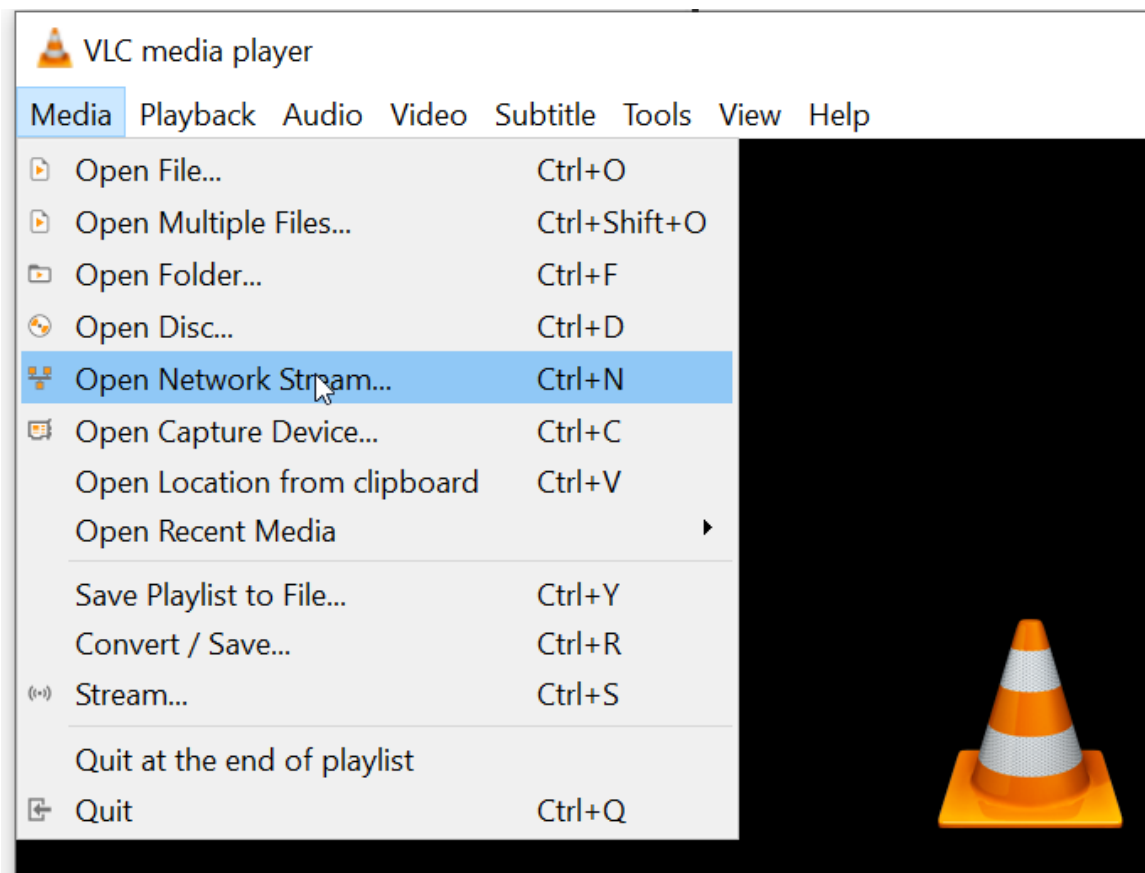
It's almost convenient if you want to check a stream:

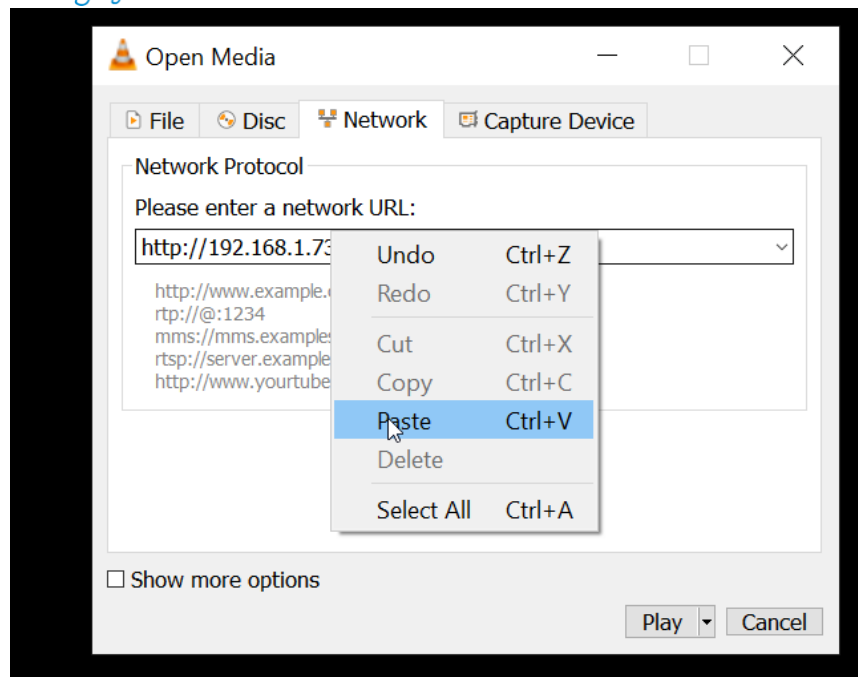
Simply mark the stream address with mouse and copy that by using the right mouse button:

HDMI Input1

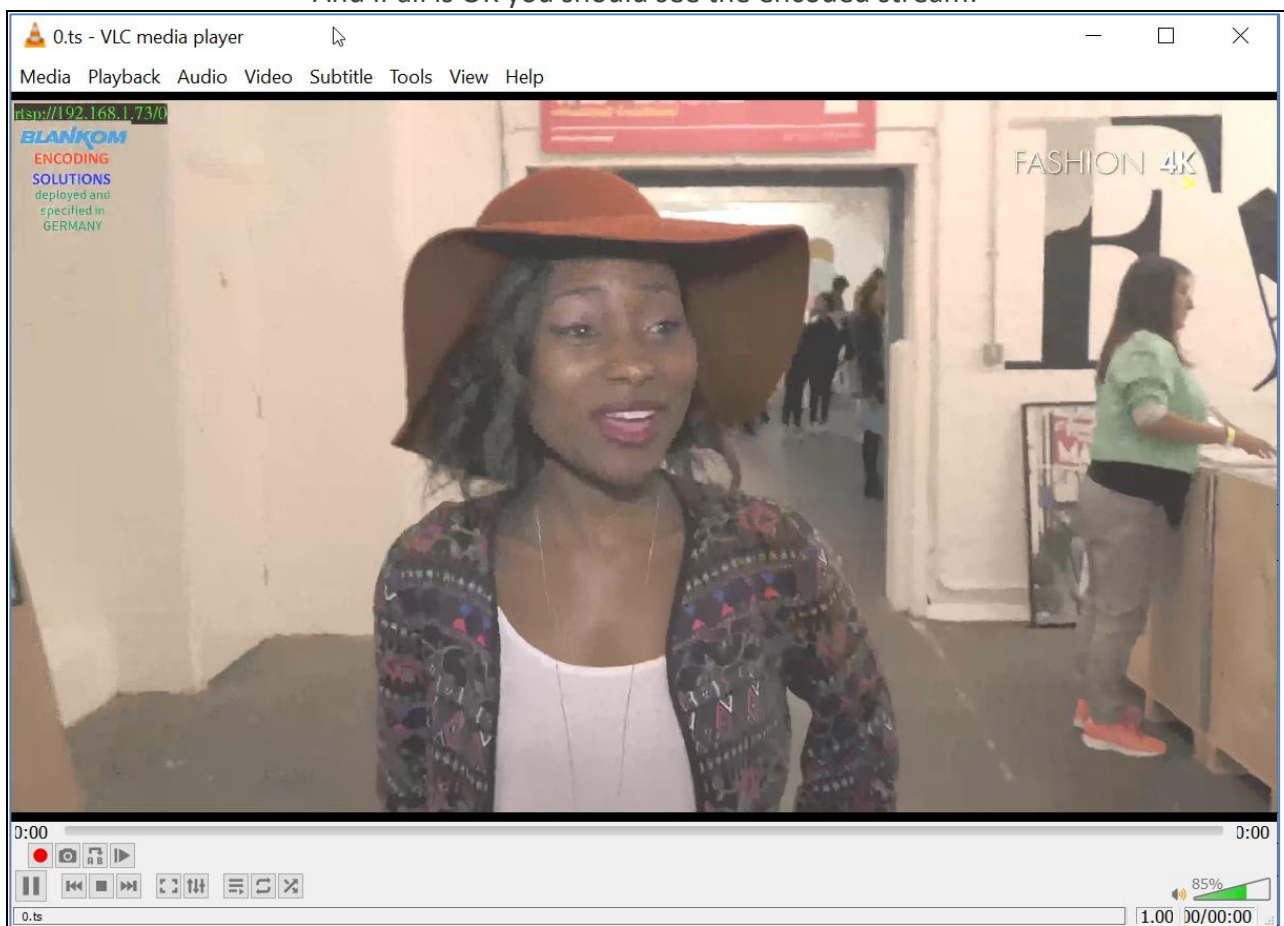
- Input status
 - Input Size:3840x2160p@25
 - Collected Video Frames:111328
 - Lost Video Frames:3
 - Audio Samplerate:48000
- Main Stream
 - Encoding Type:H.265
 - Encoding Size:3840x2160@25
 - Bitrate(kbit):2500
 - TS URL:<http://192.168.1.73/0.ts>
 - HLS URL:Disable
 - FLV URL:http://192.168.1.73/0.flv
 - RTSP URL:rtsp://192.168.1.73/0
 - RTMP URL:Disable
 - RTMP PUSH URL:Disable
 - Multicast URL:udp://@238.1.73.11:12341

Open VLC and paste it:





And if all is OK you should see the encoded stream:



(This example has OSD messages inserted ... but we are explaining this later. ;-))

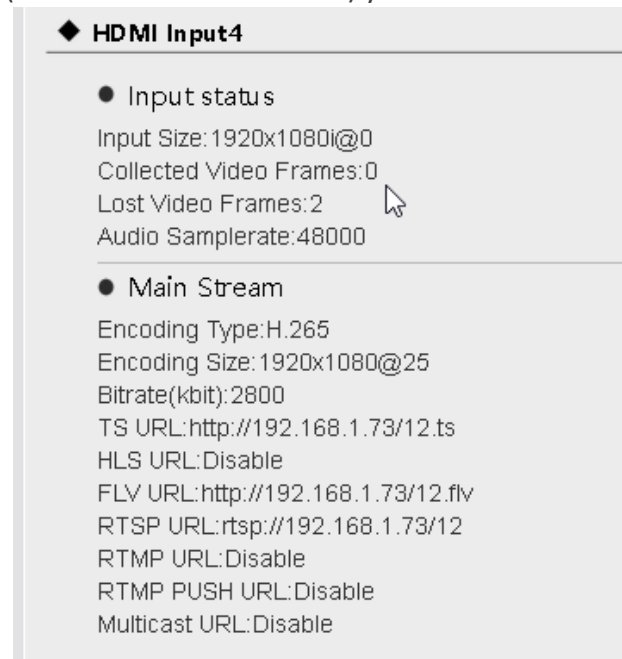
Please note: The Encoder status window gives you VLC conform UDP and RTP addresses with the added '@' in the address URI: _

Multicast URL:udp://@238.1.73.11:12341

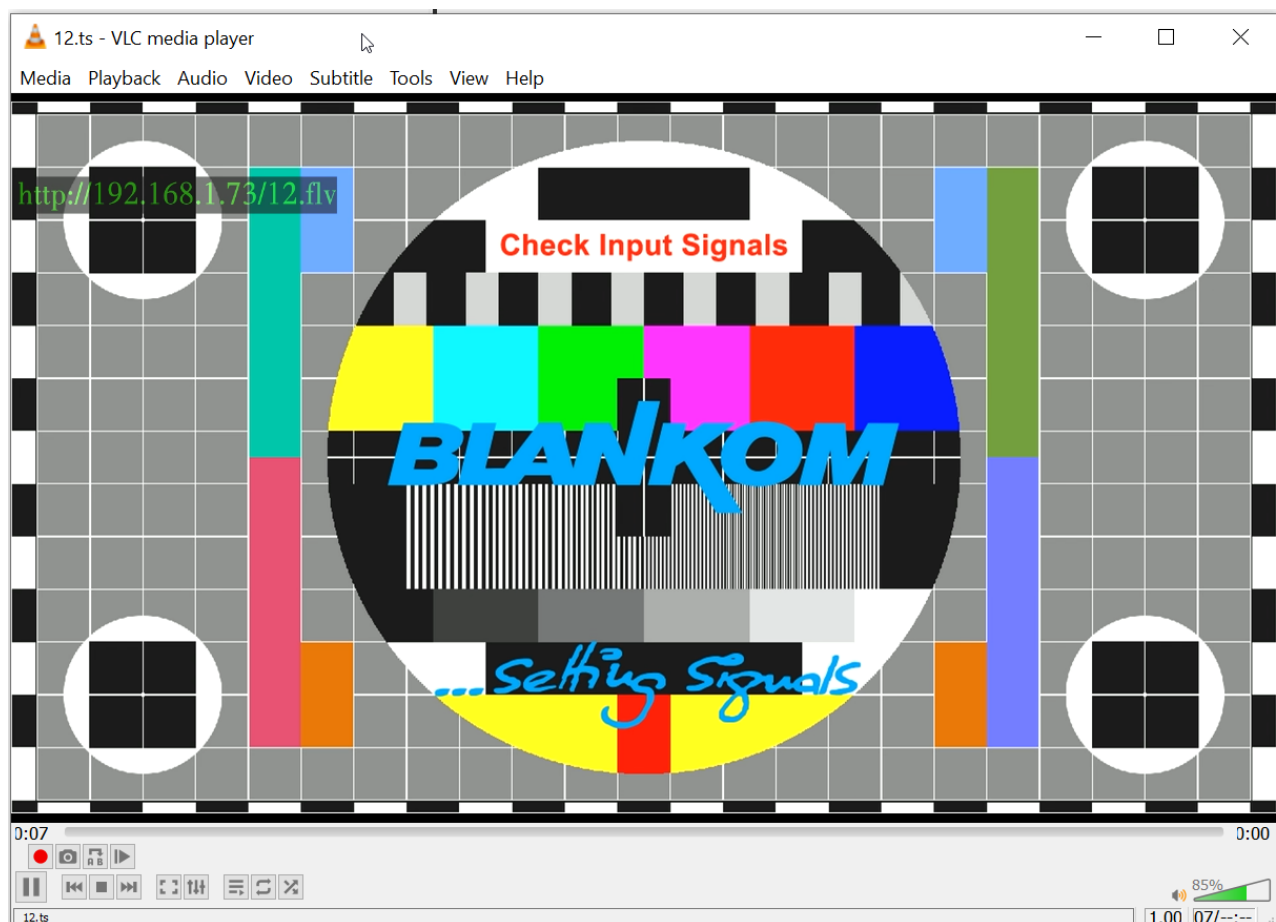
So easy copy and paste is possible for the laziest ;-)) to use VLC

But for other IP receivers that might be not applicable so please use the udp-address than w/o the '@'.

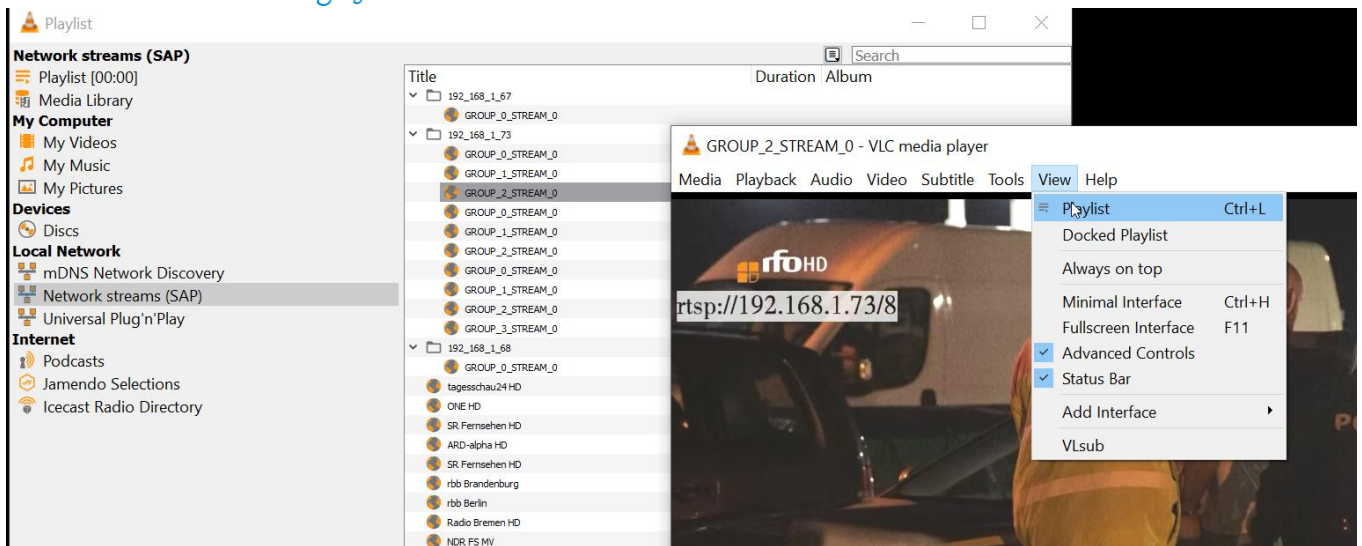
If an Input is lost or out of specification (UHD with frame rate > 30) you'll see it in the status window:



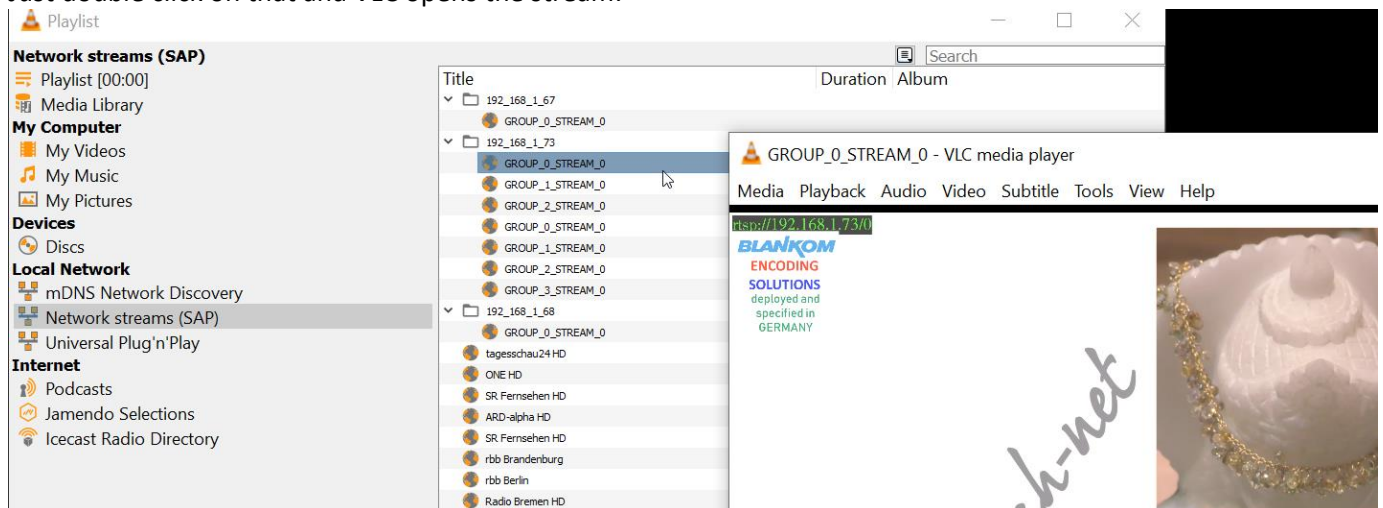
Or at least in the stream which outputs the Test-picture:



Another Tip: If open VLC Playlist you can use the SAP gathering to receive a network info:



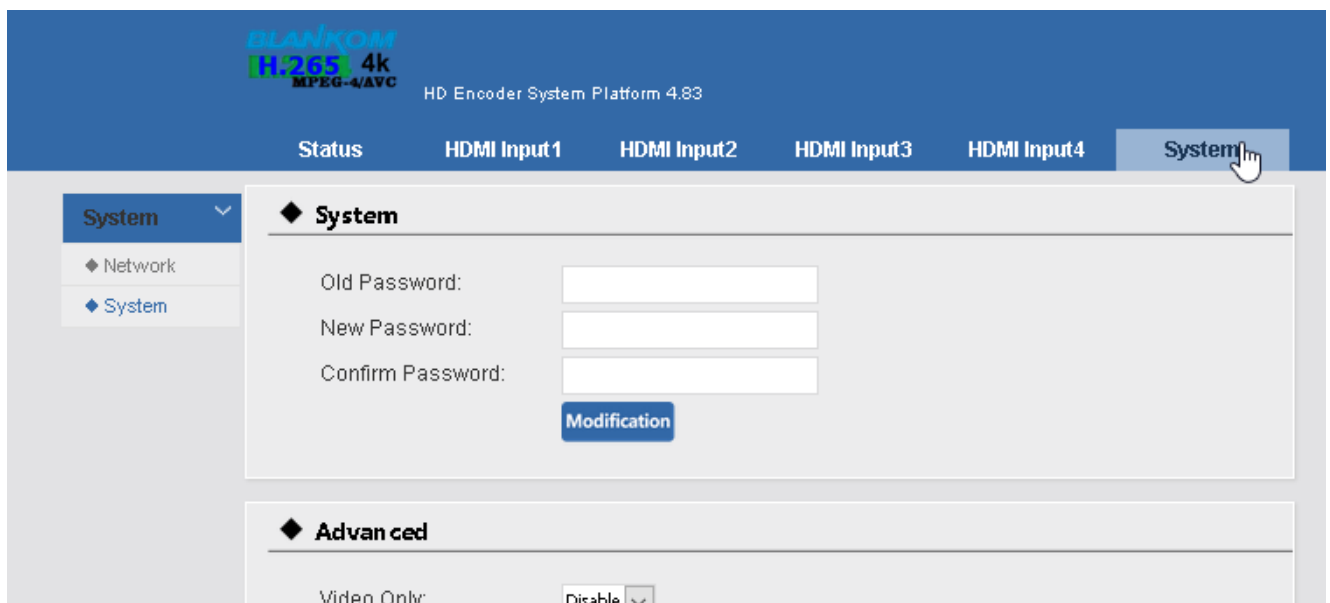
Just double click on that and VLC opens the stream:



SAP is a **Session Announcement Protocol** that announce on a particular reserved multicast address+port the streaming info's...

But now we should start with the global settings:

SYSTEM-SETTINGS



The Password can be changed of course to secure your login.
Network – Settings can be changed as follows:

In general, the Ports for HTTP and RTSP can be kept as they are:

The screenshot shows the web interface of the BLANKOM H.265 4k HD Encoder System Platform. The top navigation bar includes tabs for Status, Input1, Input2, Input3, Input4, and System. The System tab is active, and the left sidebar shows a dropdown menu with options for System, Network, and System. The main content area is titled 'Internet Access' and contains three sections: DHCP, DNS, and Port. The DHCP section has fields for IP (192.168.1.168), Netmask (255.255.255.0), Gateway (192.168.1.1), and MAC (48:D7:FF:05:00:1B). The DNS section has fields for DNS1 (8.8.8.8) and DNS2 (192.168.1.1). The Port section has fields for HTTP Port (8086) and RTSP Port (8554), both with a range indicator [1-65500]. A 'Set up' button is located at the bottom of the Port section.

The MAC address might differ from the sticker at the bottom but would be re-loaded like here when RST (**RESET-BUTTON AT THE FRONT**) has been pressed for approximately 10 seconds by using a thin metal stick which fits through the hole. You can set and change this values as you like but shouldn't conflict with other devices in your network.

If you decide to use DHCP, you must check the units IP address from your router or Ping it by a network tool like:

Advanced IP Scanner

Datei Nur Ansicht Einstellungen Hilfe

Beenden	IP	C	
192.168.1.1-254	Suchen		
Ergebnisliste	Favoriten		
Status	Name	IP	Hersteller
>	Blankom-RR1	192.168.1.101	QUANTA COMPUTER INC.
	192.168.1.67	192.168.1.67	BLANKOM Antennentechnik GmbH
	192.168.1.77	192.168.1.77	BLANKOM Antennentechnik GmbH
	192.168.1.68	192.168.1.68	BLANKOM Antennentechnik GmbH
	192.168.1.80	192.168.1.80	BLANKOM Antennentechnik GmbH
	192.168.1.73	192.168.1.73	BLANKOM Antennentechnik GmbH

So better to keep it static ;-).

Back to system settings:

Status	Input1	Input2	Input3	Input4	System
System Network System					
Advanced Device Name: Encoder_65474 EDID: 0.Default(4K30+1080P60) 0.Default(4K30+1080P60) 1.1920x1080@60_ITE 2.1920x1080@60_DELL_U2414H 3.1920x1200@60_DV1200 Video Only: Audio Only: AV Sync Strategy: Hls Splitter Time(s): 10 [3-20] Hls Number: 5 [3-20] SRT Latency(ms): 150 [1-10000] TS Muxer: Compatible with FFMPEG Net Drop Threshold: 5000 [50-50000] Ts Once Pack: 7 [3-128] Ts_transport_stream_id: 101 [1-65535] Ts_pmt_start_pid: 480 [16-7936] Ts_start_pid: 481 [32-3840] Ts_tables_version: 6 [0-31] Ts_service_name: Live Ts_service_provider: Encoder TS Empty Packet: No Insert TS Password Enable: Disable Vmix Compatible: Disable TS OVER RTSP: ES Multicast Type: UDP UDP TTL: 64 [1-254] UDP SOCKET_BUF_SIZE: 20971520 [0-20971520]					

Here you do the general settings like Video and/or Audio encoding can be disabled or enabled, EDID (TV emulator-code) and many more settings can be configured to your needs. Of course you should know about Transport-Streams and its tables.

For the Apple HLS stream setting of encoding values.

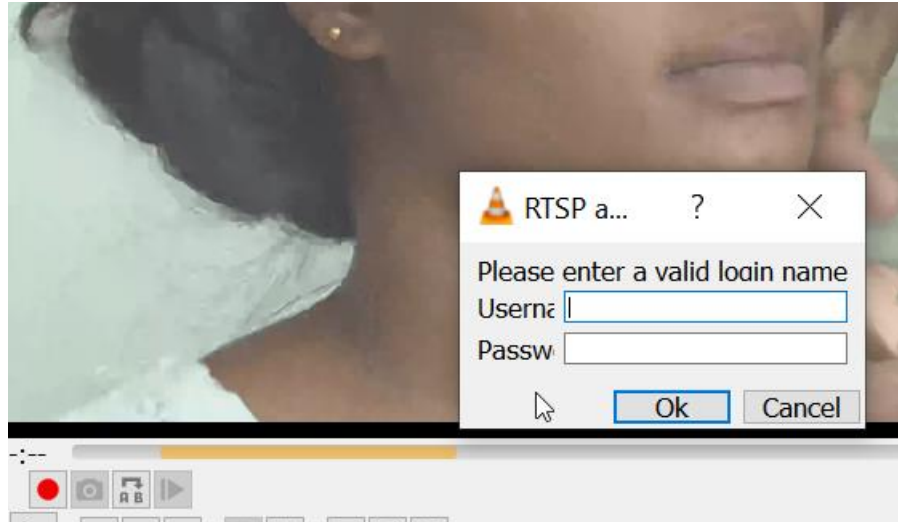
The TS muxer can be set as compatible to VLC or FFMPEG:

TS Muxer:	Compatible with FFMPEG
Net Drop Threshold:	Compatible with VLC
	Compatible with FFMPEG

NetDropThreshold and TS once pack should be kept as the default settings and can be increased if much traffic is on the connected network (most GbE Switch) – try&error...,

TS values for the DVB over IP tables can be adjusted (the PIDs are counting from these start values stream by stream (Main + secondary's 4x4), TS service name/provider which will appear in the tables and you can add zero packets to the Stream to fill it nearly as a constant bitrate stream being compatible with some IP to DVB modulators which might need that PID 8191dec in the TransportStream (TS).

The TS Stream can be secured by a password which would be asked by VLC if you open that stream:



The username and PW are the same like your login data: admin/admin
Vmix compatibility ... actually I do not know for what kind this settings are:

Vmix Compatible:	Disable	
TS OVER RTSP:	Disable	
	Enable	
Multicast Type:	UDP	
UDP TTL:	128	[1-254]
UDP	20971520	(0-20971520)
SOCKET_BUF_SIZE:		
Slice Split Enable:	Disable	

The Multicast Type must be selected for all of the encoder parts in general: UDP or RTP.

An explanation about the RTP default specifications can be reviewed at the end of this document. Hint:

RTP used a parallel stream and your default port number like rtp://225.1.1.1:5004

Should be an even number and greater than 5000. Because the CRC parallel stream will be sent via Even-port-No. +1 (here in this example: 5005) The Receiver will take care about the content, time stamps and correction try using the parallel RTP packet info stream.

The RTPS can be sent as 'Elementary' or simple TS format:

TS OVER RTSP:	TS
Multicast Type:	ES
	TS

UDP TTL (Time to Live) can be adjusted to your needs.

UDP TTL:	128	[1-254]
UDP	20971520	(0-20971520)
SOCKET_BUF_SIZE:		

This Buffer size should be kept as it is....

Additionally these settings can be used for picture improvements:

Slice Size:	1024	[128-65535]
MIN_QP:	5	[1-35]
MAX_QP:	42	(MIN_QP-50]
Contrast Improve:	8	[0-63]
Image Enhance:	0	[0-16]
Y Space Filter:	0	[0-255]
Y Time Filter:	0	[0-63]
C Space Filter:	0	[0-255]
C Time Filter:	0	[0-32]
Set up		

If you finally press the



Button this message appears and mean: **Your IPTV receiver need to re-join** the stream because of the changed modifications of your new setup:

Auf 192.168.1.73 wird Folgendes angezeigt:

Set successfully, please restart your device!

Ok

If problems happen with a moving camera picture or fast movements:

Advanced

Video Only:	Disable ▼
Audio Only:	Disable ▼
HLs Splitter Time(s):	
HLs Number:	
TS muxer:	Compatible with VLC ▼
Deinterlaced:	Bottom Only ▼ Both Bottom Only Field To Frame
Net Drop Threshold:	
TS once pack:	
ts_transport_stream_id:	

This depends on the Version you've got.

Please check the Deinterlacing mode and change accordingly to this 'Bottom only' usage if existing

These settings are nearly self-explaining:

◆ Schedule Restart

Restart Enable:

Disable ▾

Restart Time:

03:00

Set up

◆ NTP

NTP Enable:

Enable ▾

NTP Server:

time.windows.com

Time Zone:

UTC+2 ▾

Set up

◆ Upgrade Settings

Upgrade:

Datei auswählen

Kein...hlt

(Upgrade file name is up.rar.Please don't upload by different people at the same time,don't power off or refresh the page during upload.)

Upload

◆ System Settings

Reboot

Reset

Of course for a scheduled 'Overnight' reboot action you should have NTP enabled...

The Update-file will – in case of new fixes and features are released by the developers, not published in our web-pages, so if you are facing problems we recommend to contact us giving information which version is already running in the devices like screenshots:

HD Encoder System Platform 4.83

Status

HDMI Input1

HDMI Input2

HDMI Input3

HDMI Input4

System

System ▾

◆ HDMI1 Status

◆ HDMI2 Status

◆ HDMI3 Status

◆ HDMI4 Status

◆ Status

Running Time:0000-00-00 03:33:27
Device Time: 2018-03-23 01:55:49(Sync Time To Device)
CPU Usage:38%
CPU Junction Temperature:79°C
Memory Usage:106.8M/628.1M

Which will help our support team to recommend new firmware or not.

ADJUSTING THE ENCODERS

HD Encoder System Platform 4.83

Status

HDMI Input1

HDMI Input2

HDMI Input3

HDMI Input4

System

Encoder ▾

◆ Main Stream

◆ Substream1

◆ Substream2

◆ Substream3

OSD >

Video >

Audio >

◆ Main Stream

Encoding Type: H.265 ▾

FPS: 30 [5-60]

GOP: 50 [5-300]

Bitrate(kbit): 2500 [32-32000]

Encoded Size: same as the input ▾

Bitrate Control: vbr ▾

TS URL: /0.ts Enable ▾

HLS URL: /0.m3u8 Disable ▾

FLV URL: /0.flv Disable ▾

RTSP URL: /0 Enable ▾

RTMP URL: /0 Disable ▾

RTMP/RTSP PUSH URL: rtmp://192.168.1.50/live/0 Disable ▾

Multicast IP: 238.1.73.11 Enable ▾

Multicast Port: 12341 [1-65535]

Set up

The New Version supports SRT:



HD Encoder System Platform 5.19

Status	Input1	Input2	Input3	Input4	System
Encoder ▾ ◆ Main Stream ◆ Substream1 ◆ Substream2 ◆ Substream3 OSD > Video > Audio >	◆ Main Stream Encoding Type: H.265 ▾ FPS: 50 [5-60] GOP: 25 [5-300] Bitrate(kbit): 1000 [32-32000] Image Quality Range: Best ▾ Encoded Size: same as the input ▾ Bitrate Control: vbr ▾ TS URL: /0.ts Enable ▾ HLS URL: /0.m3u8 Disable ▾ FLV URL: /0.flv Enable ▾ RTSP URL: /0 Enable ▾ RTMP URL: /0 Disable ▾ RTMP(S)/RTSP PUSH URL: rtmp://192.168.1.169/live/ Disable ▾ Multicast IP: 238.0.0.1 Disable ▾ Multicast Port: 1234 [1-65535] SRT URL Port: 9000 Enable ▾ [1-65535] SRT PUSH URL: srt://192.168.1.169:9000 Disable ▾ SRT Encryption Password: 0123456789 Disable ▾ Set up				

In these menus you can set the different values according to your preferred output streamings: h.264 or hevc/h.265 compatible codec usage.

Note: h.265 / HEVC safes in average 35% bandwidth by having the same picture quality as h.264

But HEVC needs more computing power in older receivers like PC's and VLC because they decode in software not using the CPU hardware decoders inbuilt. Nowadays the HEVC codec is implemented in hardware decoders in many devices and if you use a SetTopBox as receiver you need to check whether it can decode HEVC.

Please always have an eye on the status information when you enable more and more streams:

Status	HDMI Input1	HDMI Input2	HDMI Input3
System ▾ ◆ HDMI1 Status ◆ HDMI2 Status ◆ HDMI3 Status ◆ HDMI4 Status	◆ Status Running Time:0001-06-28 18:03:33 Device Time: 2019-10-18 16:25:55(Sync Time To Device) CPU Usage:38% CPU Junction Temperature:78°C Memory Usage:106.8M/628.1M		

to monitor the CPU capacity and BTW:

The NTP time can be adjusted here by clicking on the link.

Encoding Type:	H.265	
FPS:	30	[5-60]
GOP:	50	[5-300]
Bitrate(kbit):	2500	[32-32000]
Encoded Size:	same as the input	
Bitrate Control:	same as the input 1920x1080 1680x1056 1280x720 1024x768 1024x576 850x480 720x576 720x540 720x480 720x404 704x576 640x480 640x360 608x448 544x480 480x480 480x384 480x360 480x320 1280x720	
TS URL:		Enable
HLS URL:		Disable
FLV URL:		Disable
RTSP URL:		Enable
RTMP URL:		Disable
RTMP/RTSP PUSH URL:	50/live/0	Disable
Multicast IP:		Enable
Multicast Port:		[1-65535]

Set up

Many downscaling formats can be chosen.

The encoding process CBR (Constant) will consume more CPU power than the variable (VBR) processing:

Bitrate Control:	vbr vbr cbr 70.15
TS URL:	

but outputs a better quality.

Hint: To have nearly same quality like the Input:

If the source is coming in as:

HDMI Input1

- Input status
 - Input Size:3840x2160p@25
 - Collected Video Frames:47670
 - Lost Video Frames:3
 - Audio Samplerate:48000

You should adjust the encoding also to a multiple of the framerate like here 25 fps.
Or 50 ;-).

Status	HDMI Input1	HDMI Input2	HDMI Input3
◆ Main Stream			
Encoding Type:	H.265 ▼		
FPS:	30	[5-60]	
GOP:	50	[5-300]	
Bitrate(kbit):	2500	[32-32000]	

25 would be better.

Substream settings can be adjusted accordingly:

Encoder ▼	◆ Substream1		
◆ Main Stream	Encoding Type:	H.264 ▼	
◆ Substream1	FPS:	30	[5-60]
◆ Substream2	GOP:	30	[5-300]
◆ Substream3	Bitrate(kbit):	1800	[32-32000]
OSD >	Encoded Size:	same as the input ▼	
Video >	H.264 Level:	high profile	
Audio >	Bitrate Control:	baseline profile	
		main profile	
		high profile	
	TS URL:	/1.ts	Disable ▼
	HLS URL:	/1.m3u8	Disable ▼

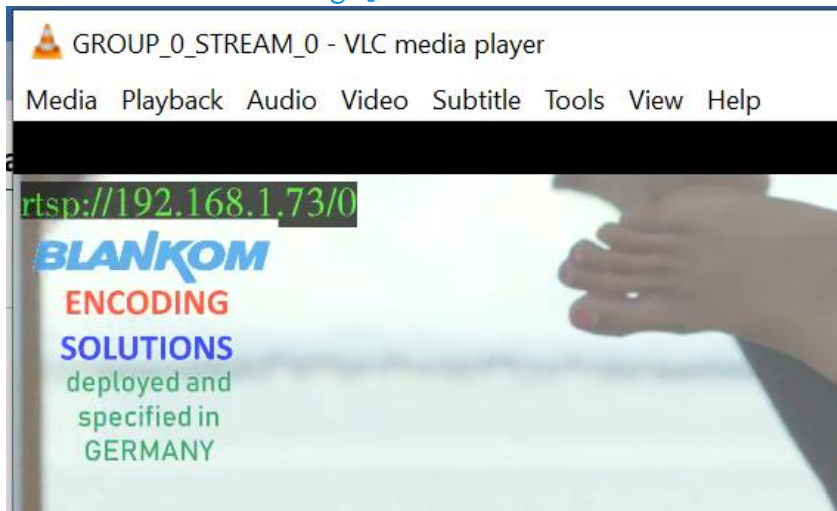
And of course you can change the Codec profile to your needs.

Coming to the Advertisement feature:

ON SCREEN OVERLAY INSERTION, VIDEO AND AUDIO SETUP

Status	HDMI Input1	HDMI Input2	HDMI Input3	HDMI Input4
Encoder >	◆ Main Stream			
OSD ▾	Alpha: 100 [0-128] Zone 1 Zone: Enable Type: txt X: 10 [0-1920] Y: 10 [0-1080] Text: rtsp://192.168.1.73/0 Font Size: 42 [8-72] Background Color: black Color: <input type="color" value="#00FF00"/> select color Zone 2 Zone: Enable Type: logo X: 10 [0-1920] Y: 62 [0-1080] Logo: logo1 Zone 3 Zone: Disable Zone 4 Zone: Disable Set up			

Logos should be uploaded by web and simple text can be inserted like in this above example – results in:



Experiment with the X-Y settings ...

The max 16 logos must follow this graphical rules:

Encoder >
OSD >
Main Stream
Substream1
Substream2
Substream3
Logo Upload
Video >
Audio >

◆ LOGO

LOGO: [Kein...hlt](#)

Please upload PNG or 24-bit BMP(0xF1F1F1 is transparent) pictures less than 500 kByte,
The file name is logo1.bmp/logo2.bmp~logo16.bmp or logo1.png/logo2.png~logo16.png.

And can be uploaded into the flash for permanent storage in the device.

Every Video can be manipulated as following:

Encoder >
OSD >
Video >
Video
Audio >

◆ Video

Flip And Mirror:

Video Clipping:

Video Clipping(Left): [0,3840]

Video Clipping(Right): [0,2160]

Video Clipping(Width): [0,3840]

Video Clipping(Height): [0,2160]

Encoder >
OSD >
Video >
◆ Video
Audio >

◆ Video

Flip And Mirror: Disable ▾

Video Clipping: Enable ▾

Video Clipping(Left): [0,3840]

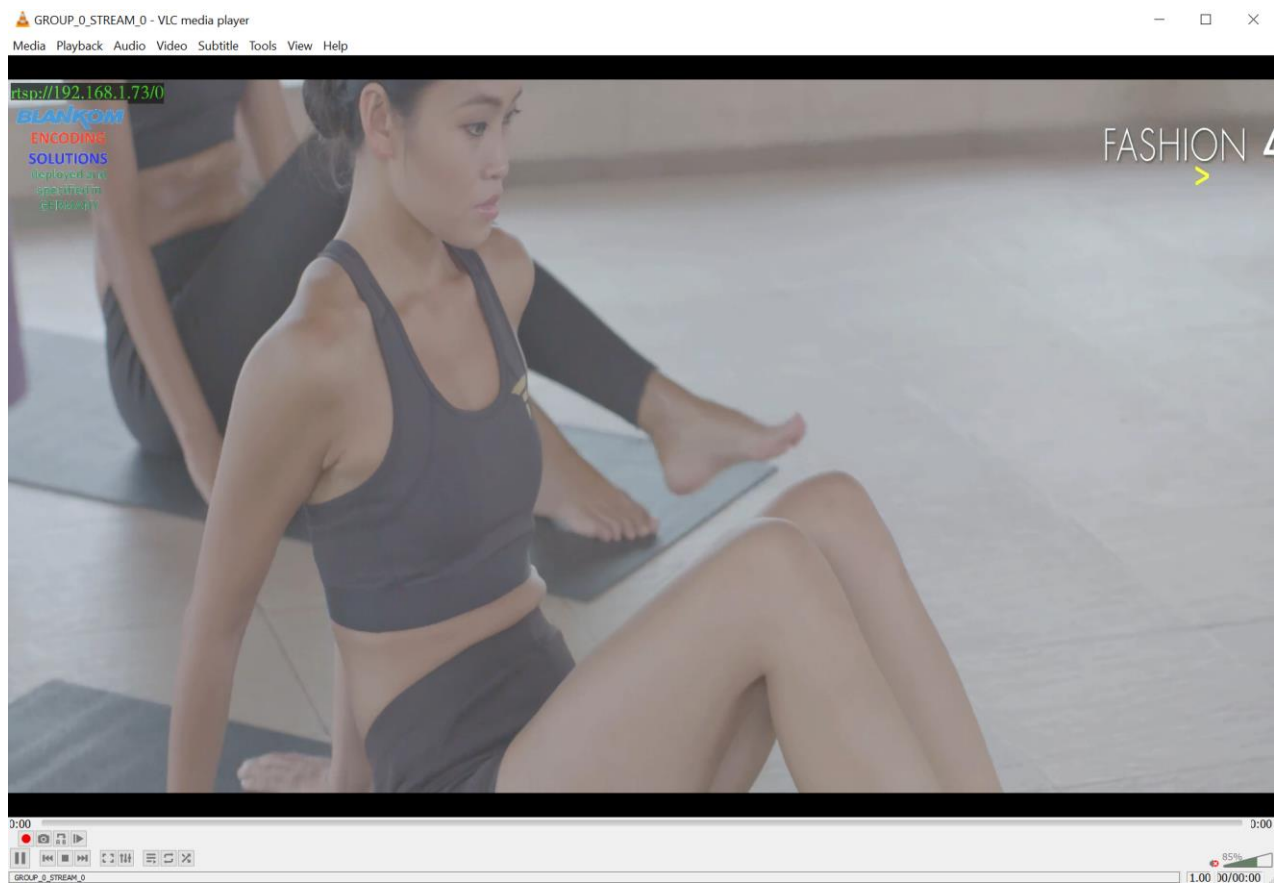
Video Clipping(Right): [0,2160]

Video Clipping(Width): [0,3840]

Video Clipping(Height): [0,2160]

Set up

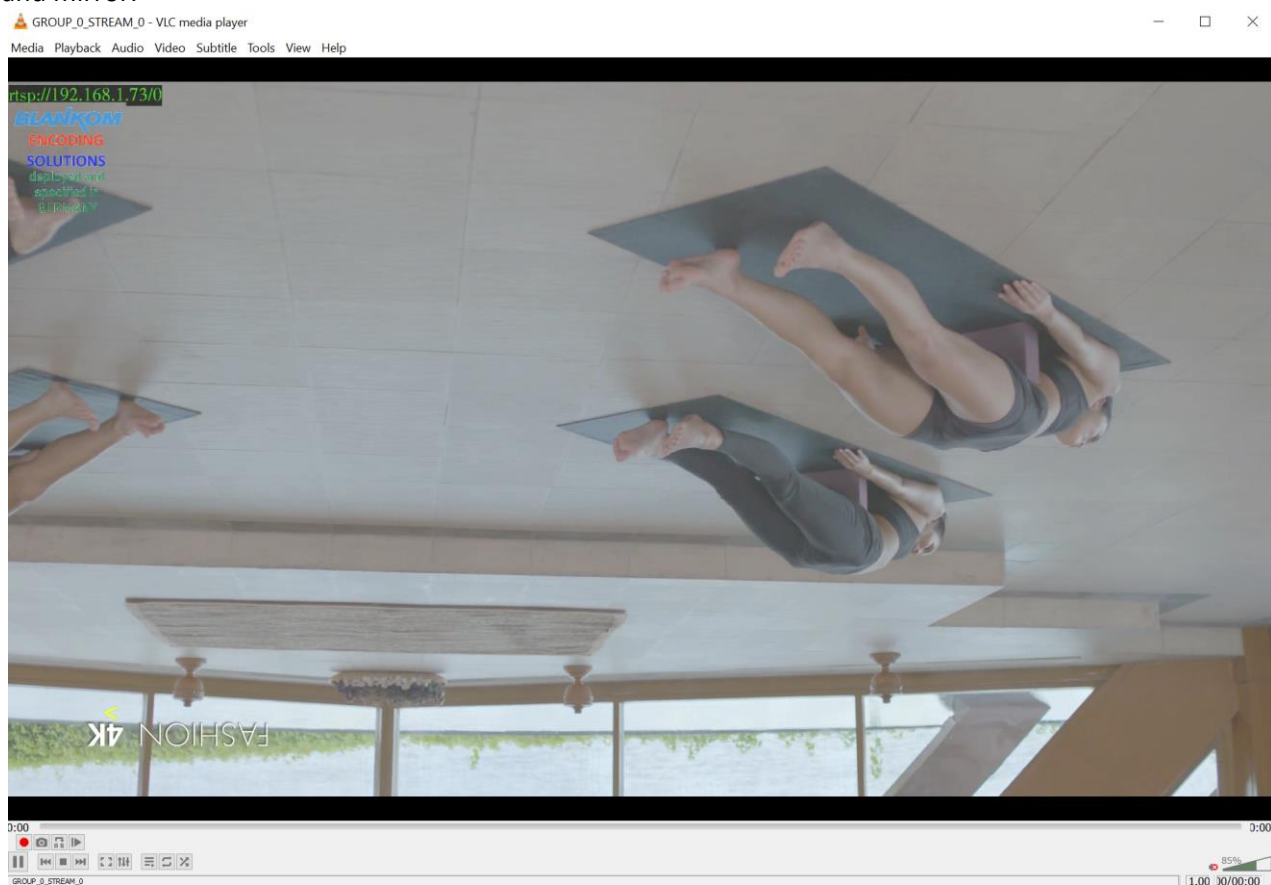
That config would clip it to:



Mirroring it:



Flip and mirror:



Audio encoding setup:

Status	HDMI Input1	HDMI Input2	HDMI Input3	HDMI Input4
Encoder > OSD > Video > Audio > ◆ Audio	Audio Audio Input: DIGIT ▼ Samplerate: 48000 ▼ Encoder: AC3 ▼ Bitrate: 128000 [40000~640000] Digital Volume: 0 [-50~50] ONVIF Audio G711A Over RTSP: Enable ▼ Set up			

Chose:

Audio

Audio Input: DIGIT ▼
 Samplerate: 48000 ▼
 Encoder: AC3 ▼
 Bitrate: 128000 [40000~640000]
 Digital Volume: 0 [-50~50]

Digit = HDMI carried audio

Analog = the stereo jack input

Mix: means it can be mixed somehow...

ONVIF support can be chosen:

ONVIF Audio

G711A Over RTSP: Enable ▼
 Disable
 Enable
 enable and resample with 8k

NOTE: If you have a case with ONVIF like monitoring Cameras encodings, RTSP is the correct way and once one RTSP stream has been enabled, this ONVIF value stays at 'enabled' because of the sound support....

Following compatible codes can be chosen:

◆

Audio

Audio Input:

DIGIT ▼

Samplerate:

48000 ▼

Encoder:

AC3

AAC

AAC+

AAC++

MP3

MP2

AC3

Bitrate:

[40000~640000]

Digital Volume:

[-50~50]

◆

ONVIF Audio

G711A Over RTSP:

Enable ▼

Set up

But: Have an eye on the different codecs and their Sampling values will change to the allowed and you should set that accordingly:

Audio Input:

DIGIT ▼

Samplerate:

48000 ▼

Encoder:

AAC++ ▼

Bitrate:

128000

[12000~32000]

Digital Volume:

0

[-50~50]

See the differences?

HOW THE STREAMS LOOK LIKE (DECTEK ANALYSER)

StreamXpert - EVALUATION (2020.06.13) - 1service-CBR-SPTS.ts

Home Decoding TR 101 290 Recording View Teletext

DVB ☐ Freeze ☒ Refresh ☒ Reset ☐ PID ☐ Dec ☐ Dec ☒ Hex ☒ Hex ☐ Service ID ☐ Dec ☐ Dec ☒ Hex ☒ Hex ☐ Bitrate ☐ short-term ☐ Gate ☐ 1s ☐ Time Slice ☐ 100ms ☐ Bitrate profile

2: IP (Local IP: 192.168.0.103) Address: Input Adapter

PID info (0)

- 0x0000 PAT** (40 kbps / 2.1%)
 - Bitrate: 40.805 bps / 2.1%
 - PCR: No
 - Scrambled: No
 - CC Errors: 0
 - Type: PAT
- 0x0011 SDT-actual** (7.7 kbps / 0.4%)
 - Bitrate: 7.742 bps / 0.4%
 - PCR: No
 - Scrambled: No
 - CC Errors: 0
 - Type: SDT-actual
- 0x0014 Unknown** (1.32 kbps / 0.07%)
 - Bitrate: 1.321 bps / 0.07%
 - PCR: No
 - Scrambled: No
 - CC Errors: 0
 - Type: Unknown
- 0x01E0 PMT** (40 kbps / 2.1%)
 - Bitrate: 40.805 bps / 2.1%
 - PCR: No
 - Scrambled: No
 - CC Errors: 0
 - Type: PMT
- 0x01E1 HEVC/H.265 Video** (1.50 Mbps / 75.6%)
 - Bitrate: 1.499.827 bps / 75.6%
 - ES Info
 - Resolution (WxH): 3840x2160p
 - SAR (Storage Aspect Ratio): 16:9
 - Chrominance: 4:2:0
 - Bit Depth: 8-bit
 - Frame Rate: 25.00
 - Stream ID: 224
- 0x01E2 User private** (133 kbps / 6.7%)
 - Bitrate: 133.101 bps / 6.7%
 - ES Info
 - Resolution (WxH): 3840x2160p
 - SAR (Storage Aspect Ratio): 16:9
 - Chrominance: 4:2:0
 - Bit Depth: 8-bit
 - Frame Rate: 25.00
 - Stream ID: 189

Transport stream 101

Services (1)

- TV Live** (1.63 Mbps / 82.3%)
 - 0x01E1 HEVC/H.265 Video** (1.50 Mbps / 75.6%)
 - PID: 0x01E1
 - Bitrate: 1.499.827 bps / 75.6%
 - Peak Max: 2.710.680 bps
 - Max: 2.437.760 bps
 - Min: 997.649 bps
 - Peak Min: 0 bps
 - ES Info
 - Resolution (WxH): 3840x2160p
 - SAR (Storage Aspect Ratio): 16:9
 - Chrominance: 4:2:0
 - Bit Depth: 8-bit
 - Frame Rate: 25.00
 - Stream ID: 224
 - 0x01E2 User private** (133 kbps / 6.7%)
 - Program: 0x0001
 - PMT PID: 0x01E0
 - PCR PID: 0x01E1
 - Interval: 50.9 ms (19.6 PCR/s)
 - PCR_AC Error: 210.6 ms
 - PCR_FO Error: +72051.72 ppm
 - Provider: BLANKOM

Tables

- PAT**
 - Table ID: 0
 - Table PID: 0
 - Table version: 6
 - Repetition rate: 31.3Hz
 - Table interval: 0.03s
 - Number of sections: 1
 - Section length: 16 bytes
 - Transport Stream ID: 101
 - Program: 1 (Live)
 - PMT PID: 480
- PMT**
 - Program: 1 (Live)
 - Table ID: 2
 - PCR PID: 481
 - No program-info descriptors
 - PID: 481
 - Stream type: 36 (HEVC/H.265 Video)
 - PID: 482
 - Stream type: 129 (User private)
- SDT-actual**
 - Transport-Stream ID: 101 (onw=65281)
 - Table ID: 66
 - Table PID: 17
 - Table version: 6
 - Repetition rate: 4.8Hz
 - Table interval: 0.21s
 - Number of sections: 1
 - Section length: 36 bytes
 - Transport-Stream ID: 101
 - Original Network ID: 65281
 - Service: 1 (Live)
 - EIT schedule: 0
 - EIT present/following: 0
 - Running status: 4 (Running)

Ready 188 Byte TsRate: 1.985.192bps

Here with Zero packets inserted:

StreamXpert - EVALUATION (2020.06.13) - 1service-CBR-SPTS.ts

Home Decoding TR 101 290 Recording View Teletext

DVB Freeze PID Service ID Bitrate short-term
Refresh Dec Dec Gate 1s
Reset Hex Hex Time Slice 100ms

Settings Bitrate profile Input Adapter

2: IP (Local IP: 192.168.0.103) Address <udp://238.0.73.2:12342>

Info

PID info (7)

- 0x0000 PAT** (14.1 kbps / 0.3%)
 - Bitrate: 14.101 bps / 0.3%
 - PCR: No
 - Scrambled: No
 - CC Errors: 2
 - Type: PAT
- 0x0011 SDT-actual** (2.5 kbps / 0.05%)
 - Bitrate: 2.506 bps / 0.05%
 - PCR: No
 - Scrambled: No
 - CC Errors: 0
 - Type: SDT-actual
- 0x0014 Unknown** (1.26 kbps / 0.03%)
 - Bitrate: 1.264 bps / 0.03%
 - PCR: No
 - Scrambled: No
 - CC Errors: 1
 - Type: Unknown
- 0x01E0 PMT** (14.1 kbps / 0.3%)
 - Bitrate: 14.101 bps / 0.3%
 - PCR: No
 - Scrambled: No
 - CC Errors: 2
 - Type: PMT
- 0x01E1 HEVC/H.265 Video** (3.5 Mbps / 69.5%)
 - Bitrate: 3.452.606 bps / 69.5%
 - ES Info
 - Resolution (WxH): 3840x2160p
 - SAR (Storage Aspect Ratio): 16:9
 - Chrominance: 4:2:0
 - Bit Depth: 8-bit
 - Frame Rate: 30.00
 - PCR: Yes
 - Interval: 916.1 us (1091.6 PCR/s)
 - PCR_AC Error: 9 ns
 - PCR_FO Error: +8438.23 ppm
 - Scrambled: No
 - CC Errors: 3
 - Type: HEVC/H.265 Video
 - Stream ID: 224
- 0x01E2 AAC Audio** (133 kbps / 2.7%)
 - Bitrate: 133.657 bps / 2.7%
 - Peak Max: 672.653 bps
 - Max: 158.307 bps
 - Min: 111.736 bps
 - Peak Min: 0 bps
 - ES Info
 - Mode: Left, Right
 - Object Type: AAC LC
 - Sample Rate: 44.1 kHz
 - Original: No
 - PCR: No
 - Scrambled: No
 - CC Errors: 1
 - Type: AAC Audio
 - Stream ID: 192
- 0x1FFF Null packets** (1.35 Mbps / 27.1%)
 - Bitrate: 1.346.430 bps / 27.1%
 - Type: Null packets

Transport stream 101

Services (1)

- TV Live** (3.6 Mbps / 72.2%)
 - 0x01E1 HEVC/H.265 Video** (3.5 Mbps / 69.5%)
 - PID: 0x01E1
 - Bitrate: 3.452.606 bps / 69.5%
 - Peak Max: 6.733.935 bps
 - Max: 4.415.479 bps
 - Min: 3.161.750 bps
 - Peak Min: 0 bps
 - ES Info
 - Resolution (WxH): 3840x2160p
 - SAR (Storage Aspect Ratio): 16:9
 - Chrominance: 4:2:0
 - Bit Depth: 8-bit
 - Frame Rate: 30.00
 - Stream ID: 224
 - 0x01E2 AAC Audio** (133 kbps / 2.7%)
 - Program: 0x0001
 - PMT PID: 0x01E0
 - PCR PID: 0x01E1
 - Interval: 916.1 us (1091.6 PCR/s)
 - PCR_AC Error: 9 ns
 - PCR_FO Error: +8438.23 ppm
 - Provider: BLANKOM

Tables

PAT

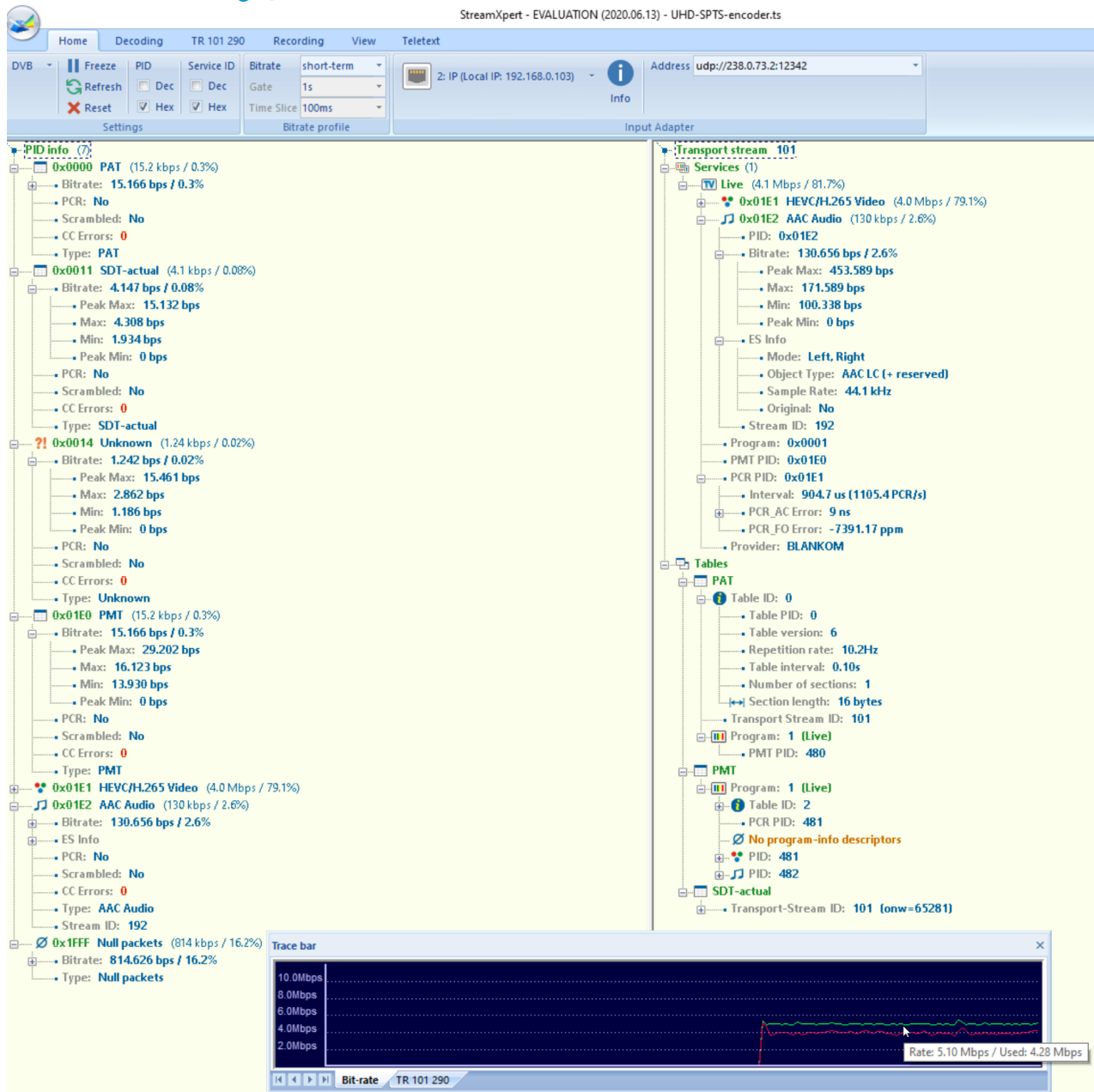
- Table ID: 0**
 - Table PID: 0
 - Table version: 6
 - Repetition rate: 10.1Hz
 - Table interval: 0.10s
 - Number of sections: 1
 - Section length: 16 bytes
 - Transport Stream ID: 101
 - Program: 1 (Live)
 - PMT PID: 480

PMT

- Program: 1 (Live)**
 - Table ID: 2**
 - PCR PID: 481
 - No program-info descriptors
 - PID: 481
 - Stream type: 36 (HEVC/H.265 Video)
 - PID: 482
 - Stream type: 15 (AAC Audio)

SDT-actual

- Transport-Stream ID: 101 (onw=65281)**
 - Table ID: 66**
 - Table PID: 17
 - Table version: 6
 - Repetition rate: 2.0Hz
 - Table interval: 0.50s
 - Number of sections: 1
 - Section length: 36 bytes
 - Transport-Stream ID: 101
 - Original Network ID: 65281
 - Service: 1 (Live)**



So for a deeper analysing of your streams – if any problems occur- such a tool is recommended to be used.

SRT-SUPPORT:

◆ Main Stream

Encoding Type:	H.265 ▾	
FPS:	50	[5-60]
GOP:	25	[5-300]
Bitrate(kbit):	1000	[32-32000]
Image Quality Range:	Best ▾	
Encoded Size:	same as the input ▾	
Bitrate Control:	vbr ▾	
TS URL:	/0.ts	Enable ▾
HLS URL:	/0.m3u8	Disable ▾
FLV URL:	/0.flv	Enable ▾
RTSP URL:	/0	Enable ▾
RTMP URL:	/0	Disable ▾
RTMP(S)/RTSP PUSH URL:	rtmp://192.168.1.169/live/	Disable ▾
Multicast IP:	238.0.0.1	Disable ▾
Multicast Port:	1234	[1-65535]
SRT URL Port:	9000	Enable ▾ [1-65535]
SRT PUSH URL:	srt://192.168.1.169:9000	Disable ▾
SRT Encryption Password:	0123456789	Disable ▾

Set up

See also:

<https://www.srtalliance.org>

Note: SRT works only in pairs: The stream receiver must support SRT reception.

Basic **Listener-Mode** is the IP-Address of the encoder + configured Port-number:

See STATUS-Page:

RTMP PUSH URL:Disable
Multicast URL:Disable
SRT URL:srt://192.168.1.168:9000
SRT PUSH URL:Disable

The Receiver must be in 'Caller-Mode'

and call the Stream from the box: srt://192.168.1.168:9000.

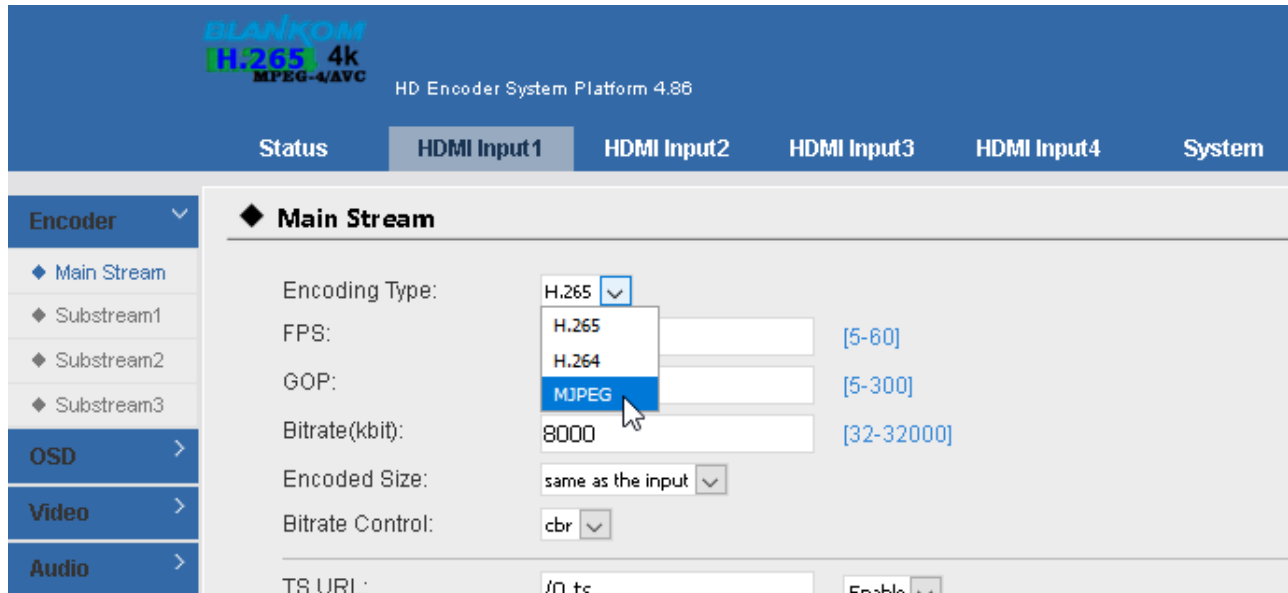
Do not use same ports for (SRT Push = Caller) and the listener-mode! In the HDD-decoder manual you can find an example how to Push-> receive it...

ADDON: MJPEG SUPPORT

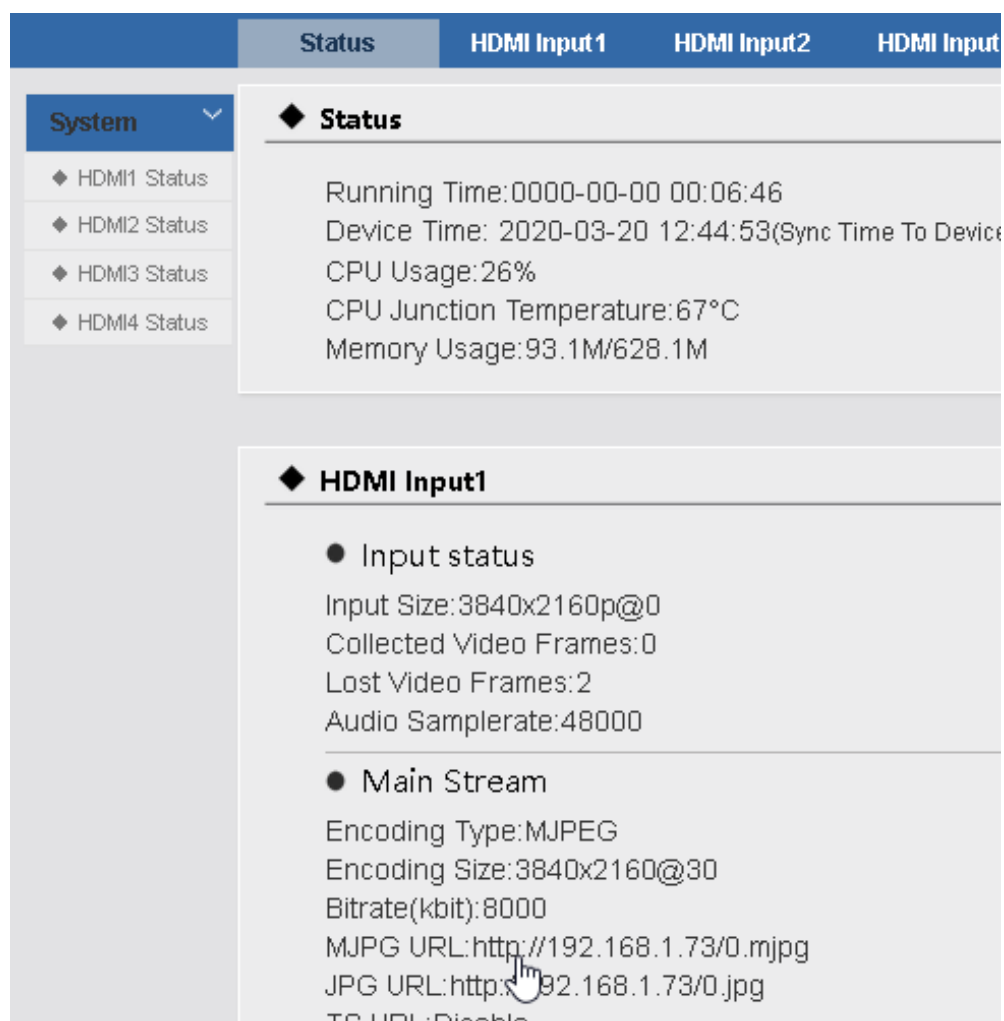
Addon from FW (03-2020) on:

MJPEG Support:

Setting the encoder main or secondary processor to



Enables at the Status-Page the direct Links for Motion JPEG transmission direct into your browser (if that supports it):



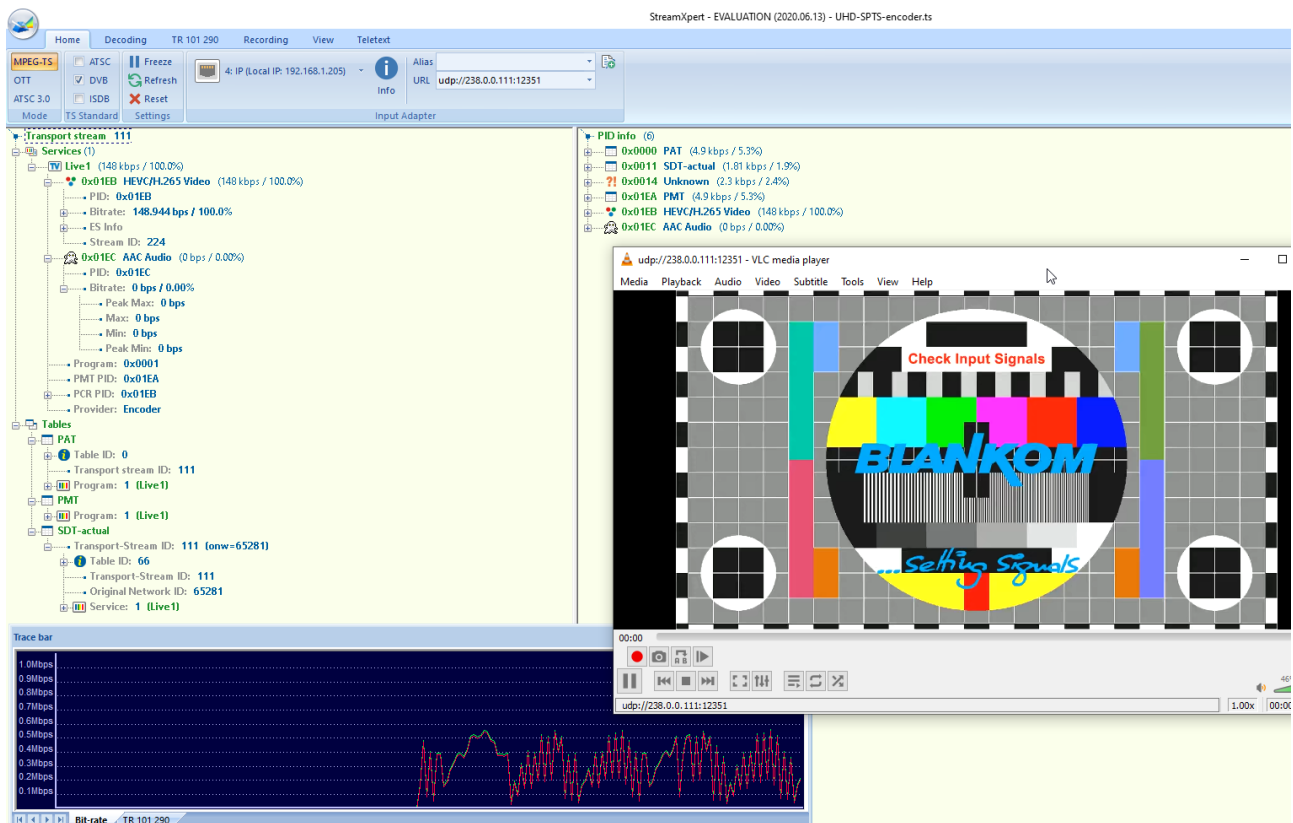
Just click: (here w/o input signal, so you get our test-picture ;-):



The /0.jpg (or in secondary stream the /1.jpg

Will do a screen-snapshot to your browser – so no motion – just like a screenshot.

BTW: If no signal is detected at the Input connector, The Test-picture will appear and the Stream output may 'pump' because the encoder check the input signal periodically – and in this periodes, the output stream might fluctuate like:



EXAMPLE FOR STREAMING TO VIMEO LIVE BY RTMP BY OUR TINY BOXED ENCODERS:

Main stream

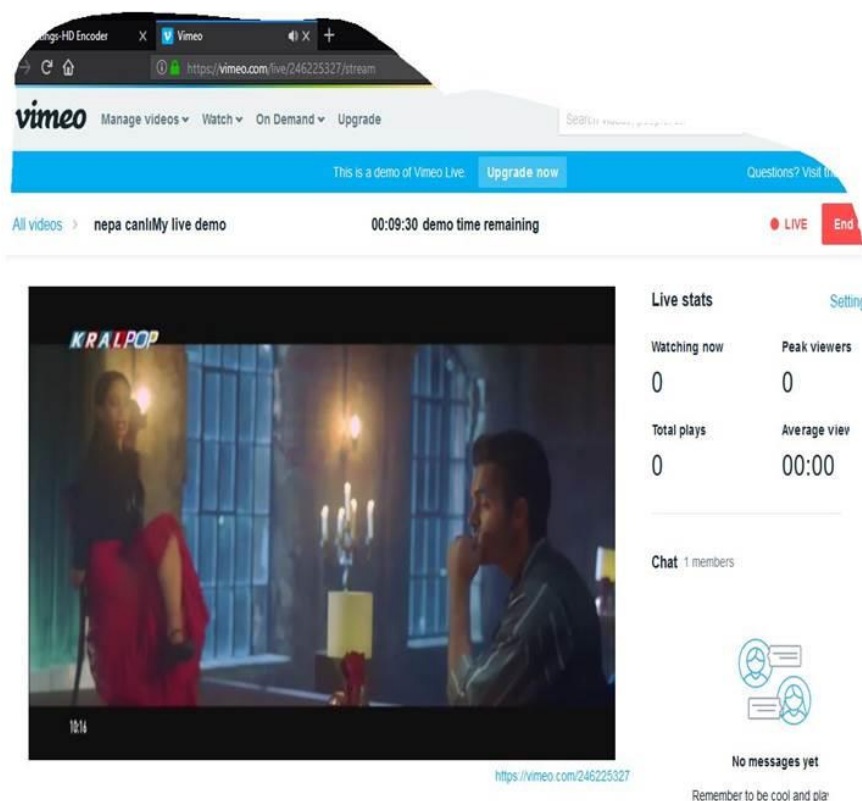
```
Encoding Type:1920x1080@25
Bitrate(kbit):1800
TS URL: http://192.168.2.168/0.ts    http://192.168.2.168:8080/0.ts
HLS URL:Disable
FLV URL:Disable
RTSP URL:Disable
RTMP PUBLISH URL(Connected):rtmp://rtmp.cloud.vimeo.com/live?token=45dfd48b-9e8b-49bf-8539-90aa29aaf7a2/dcfe39e7-5912-4388-8507-347daac833f8
Multicast URL:Disable
```

VIMEO gives the user an RTMP –address with a live token at the end. No username/password is necessary because they handover individual stream-keys which simply needs to be inserted as

rtmp://rtmp.cloud.vimeo.com/live?token=***/streamkey**

BTW: Youtube is using RTMPs meanwhile and is supported by our encoders.

Than you can control it by checking the vimeo live portal of your stream:



As a **MULTICAST CAPABLE SWITCH** we recommend is the HP (ARUVA) 2530 24G or 48G.

IGMP should be set to ON in the port configs. The latest HP Firmware might not be the best choice. Better to test IGMP functions before installation into a HOT running System and eventually do a downgrade of the Firmware. This one works:

Unit Information		Change ?
Product Name:	HP 2530-24G Switch (J9776A)	
IP Address:	192.168.0.30	
Base MAC Address:	a0 1d 48 45 26 40	
Serial Number:	CN41FP70DF	
Mgmt Server:	http://h17007.www1.hpe.com/device_help	
Version:	YA.15.18.0013, ROM YA.15.19	

GENERAL NOTES ABOUT STREAMS:

MULTICAST STREAMS:

Multicast Address Ranges:

We recommend, that the addressing of your Multicast streams should be in conjunction with this listings to avoid conflicts with other network equipment or protocols.

<https://www.iana.org/assignments/multicast-addresses/multicast-addresses.xhtml>

One small part from this:

IPv4 Multicast Address Space Registry

Last Updated

2018-01-05

Expert(s)

Stig Venaas

Note

Host Extensions for IP Multicasting [[RFC1112](#)] specifies the extensions required of a host implementation of the Internet Protocol (IP) to support multicasting. The multicast addresses are in the range 224.0.0.0 through 239.255.255.255. Address assignments are listed below.

The range of addresses between 224.0.0.0 and 224.0.0.255, inclusive, is reserved for the use of routing protocols and other low-level topology discovery or maintenance protocols, such as gateway discovery and group membership reporting. Multicast routers should not forward any multicast datagram with destination addresses in this range, regardless of its TTL.

Available Formats  [XML](#)  [HTML](#)  [Plain text](#)

Registries included below

- [Local Network Control Block \(224.0.0.0 - 224.0.0.255 \(224.0.0/24\)\)](#)
- [Internetwork Control Block \(224.0.1.0 - 224.0.1.255 \(224.0.1/24\)\)](#)
- [AD-HOC Block I \(224.0.2.0 - 224.0.255.255\)](#)
- [RESERVED \(224.1.0.0-224.1.255.255 \(224.1/16\)\)](#)
- [SDP/SAP Block \(224.2.0.0-224.2.255.255 \(224.2/16\)\)](#)
- [AD-HOC Block II \(224.3.0.0-224.4.255.255 \(224.3/16, 224.4/16\)\)](#)
- [RESERVED \(224.5.0.0-224.251.255.255 \(251 /16s\)\)](#)
- [DIS Transient Groups 224.252.0.0-224.255.255.255 \(224.252/14\)\)](#)
- [RESERVED \(225.0.0.0-231.255.255.255 \(7 /8s\)\)](#)
- [Source-Specific Multicast Block \(232.0.0.0-232.255.255.255 \(232/8\)\)](#)
- [GLOP Block](#)
- [AD-HOC Block III \(233.252.0.0-233.255.255.255 \(233.252/14\)\)](#)
- [Unicast-Prefix-based IPv4 Multicast Addresses](#)
- [Scoped Multicast Ranges](#)

- [Relative Addresses used with Scoped Multicast Addresses](#)

Multicast (as opposed to unicast) is used to send UDP packets from 1 source to multiple destination servers. This is useful for example for streaming from a satellite/DVB-T receiver to multiple receiving PCs for playback. Multicast can also be used on the output of an encoder to feed multiple streaming servers. Multicast only works with UDP and is not possible with TCP due to the 2 way nature of TCP, most commonly multicast is used with RTP and MPEG2-TS.

A multicast IP address must be chosen according to IANA information, we recommend using an address in the range **239.0.0.0 to 239.255.255.255** as this is reserved for private use. Using multicast addresses in the 224.0.0.0 range may clash with existing services and cause your stream to fail. For more details see <http://www.iana.org/assignments/multicast-addresses/multicast-addresses.xml>

Choosing a UDP port number for multicast streams is also important. Even if you use a different multicast IP for each of your streams, we strongly recommend using different UDP port numbers as well. This is because a server and all software running on the server receives ALL multicast traffic on an open port and extra processing is required to filter out the required traffic. If the each stream arrives on a different port, the server can safely ignore any traffic on ports that are not open. Port numbers **MUST** be chosen so that don't clash with any existing services or ephemeral ranges. The ephemeral range for Windows Vista, 7, 2008 is 49152 to 65535, for older Windows it is 1025 to 5000 and for Linux it is 32768 to 61000. For more information on Windows see <http://support.microsoft.com/kb/929851> Care should also be taken to avoid system ports 0 to 1024. See <http://www.iana.org/assignments/service-names-port-numbers/service-names-port-numbers.xml> Generally one of the unassigned User Ports (**1024-49151**) should be used, you can run the **netstat -abn** (as admin under windows) command to see which ports are currently in use.

Registered port

A **registered port** is a [network port](#) (a sub-address defined within the [Internet Protocol](#), in the range 1024–49151) assigned by the [Internet Assigned Numbers Authority](#) (IANA) (or by [Internet Corporation for Assigned Names and Numbers](#) (ICANN) before March 21, 2001,^[1] or by USC/ISI before 1998) for use with a certain protocol or application.

Ports with numbers 0–1023 are called *system or well-known ports*; ports with numbers 1024–49151 are called *user or registered ports*, and ports with numbers 49152–65535 are called *dynamic and/or private ports*.^[2] Both system and user ports are used by transport protocols (TCP, UDP, DCCP, SCTP) to indicate an application or service.

- **Ports 0–1023** – system or [well-known ports](#)
- **Ports 1024–49151** – user or registered ports
- **Ports >49151** – dynamic / private ports

https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers

Range for Ephemeral port

The [Internet Assigned Numbers Authority](#) (IANA) suggests the range 49152 to 65535 ($2^{15}+2^{14}$ to $2^{16}-1$) for dynamic or private ports.^[1]

Many [Linux kernels](#) use the port range 32768 to 61000. ^[note 2] [FreeBSD](#) has used the IANA port range since release 4.6. Previous versions, including the [Berkeley Software Distribution](#) (BSD), use ports 1024 to 5000 as ephemeral ports. ^{[2][3]}

[Microsoft Windows](#) operating systems through XP use the range 1025–5000 as ephemeral ports by default. ^[4] [Windows Vista](#), [Windows 7](#), and [Server 2008](#) use the IANA range by default. ^[5] [Windows Server 2003](#) uses the range 1025–5000 by default, until Microsoft security update MS08-037 from 2008 is installed, after which it uses the IANA range by default. ^[6] Windows Server 2008 with Exchange Server 2007 installed has a default port range of 1025–60000. ^[7] In addition to the default range, all versions of Windows since Windows 2000 have the option of specifying a custom range anywhere within 1025–65535. ^{[8][9]}

Packet structure

UDP Header																																	
Offsets	Octet	0				1				2				3																			
Octet	Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	Source port																Destination port															
4	32	Length																Checksum															

The UDP header consists of 4 fields, each of which is 2 bytes (16 bits). ^[4] The use of the fields "Checksum" and "Source port" is optional in IPv4 (pink background in table). In IPv6 only the source port is optional (see below).

Source port number

This field identifies the sender's port when meaningful and should be assumed to be the port to reply to if needed. If not used, then it should be zero. If the source host is the client, the port number is likely to be an ephemeral port number. If the source host is the server, the port number is likely to be a well-known port number. ^[4]

Destination port number

This field identifies the receiver's port and is required. Similar to source port number, if the client is the destination host then the port number will likely be an ephemeral port number and if the destination host is the server then the port number will likely be a well-known port number. ^[4]

Length

A field that specifies the length in bytes of the UDP header and UDP data. The minimum length is 8 bytes because that is the length of the header. The field size sets a theoretical limit of 65,535 bytes (8 byte header + 65,527 bytes of data) for a UDP datagram. However the actual limit for the data length, which is imposed by the underlying [IPv4](#) protocol, is 65,507 bytes (65,535 – 8 byte UDP header – 20 byte [IP header](#)). ^[4]

In IPv6 [jumbograms](#) it is possible to have UDP packets of size greater than 65,535 bytes. ^[5] [RFC 2675](#) specifies that the length field is set to zero if the length of the UDP header plus UDP data is greater than 65,535.

Checksum

The [checksum](#) field may be used for error-checking of the header and data. This field is optional in IPv4, and mandatory in IPv6. ^[6] The field carries all-zeros if unused. ^[7]

RTP:

a part from: <https://tools.ietf.org/html/rfc3550>

Chapter 11:

RTP relies on the underlying protocol(s) to provide demultiplexing of RTP data and RTCP control streams. For UDP and similar protocols, RTP SHOULD use an even destination port number and the corresponding RTCP stream SHOULD use the next higher (odd) destination port number. For applications that take a single port number as a parameter and derive the RTP and RTCP port pair from that number, if an odd number is supplied then the application SHOULD replace that number with the next lower (even) number to use as the base of the port pair. For applications in which the RTP and RTCP destination port numbers are specified via explicit, separate parameters (using a signaling protocol or other means), the application MAY disregard the restrictions that the port numbers be even/odd and consecutive although the use of an even/odd port pair is still encouraged. The RTP and RTCP port numbers MUST NOT be the same since RTP relies on the port numbers to demultiplex the RTP data and RTCP control streams.

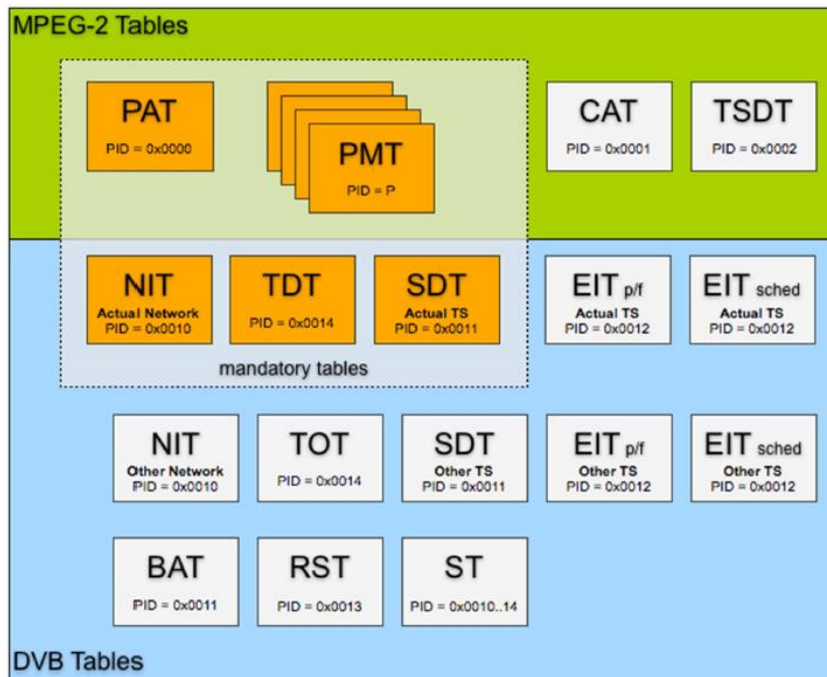
In a unicast session, both participants need to identify a port pair for receiving RTP and RTCP packets. Both participants MAY use the same port pair. A participant MUST NOT assume that the source port of the incoming RTP or RTCP packet can be used as the destination port for outgoing RTP or RTCP packets. When RTP data packets are being sent in both directions, each participant's RTCP SR packets MUST be sent to the port that the other participant has specified for reception of RTCP. The RTCP SR packets combine sender information for the outgoing data plus reception report information for the incoming data. If a side is not actively sending data (see [Section 6.4](#)), an RTCP RR packet is sent instead.

RTP (Real-Time Transport Protocol)				
Familie:	Netzwerkprotokoll			
Einsatzgebiet:	Transport von Medien-Streams			
Port:	beliebiger freier, gerader Port größer 1024			
RTP im TCP/IP-Protokollstapel:				
Anwendung	RTP			
Transport	UDP			
Internet	IP (IPv4, IPv6)			
Netzzugang	Ethernet	Token Bus	Token Ring	FDDI ...
Standard:	RFC 3550 (RTP: A Transport Protocol for Real-Time Applications, 2003)			

any port (even, not odd > 1024)

ANNEX MPEG

MPEG PSI/SI Information:



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

Table 1: PID allocation for SI

Table	PID value
PAT	0x0000
CAT	0x0001
TSMT	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 A

**Product Disposal**

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

תפוצת המידע

אזהרה!

הטיפול במוצר זה חייב להיות בהתאם לכל החוקים והנהלים הנוגעים לטיפול במוצר זה.

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين والقرارات المحلية

경고

이제품은 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.

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 AND SAFETY INSTRUCTIONS / MONTAGE UND SICHERHEITSHINWEISE

- Die beschriebenen Geräte dienen ausschließlich der Installation von Satelliten-Empfangsanlagen.
- *The equipment described is designed solely for the installation of satellite receiver systems.*
- Jegliche anderweitige Nutzung oder die Nichtbeachtung dieses Anwendungshinweises hat den Verlust der Gewährleistung bzw. Garantie zur Folge.
- *Any other use, or failure to comply with these instructions, will result in voiding of warranty cover.*
- Die Geräte dürfen nur in trockenen Innenräumen montiert werden. Nicht auf oder an leicht entzündlichen Materialien montieren.
- *The equipment may only be installed in dry indoor areas. Do not mount on or against highly combustible materials.*
- Die Geräte sind mit einer Potenzial-Ausgleichsleitung (Cu, mindestens 4 mm²) zu versehen.
- *The equipment must be provided with an earthing wire (Cu, at least 4 mm²).*
- Die Sicherheitsbestimmungen der jeweils aktuellen Normen EN 60728-11 und EN 60065 sind zu beachten.
- *The safety regulations set out in the current EN 60728-11 and EN 60065 standards must be complied with*
- Verbindungsstecker: HF-Stecker 75 Ohm (Serie F) nach EN 61169-24
- *Connector: HF plug 75 Ohm (series F) to EN 61169-24.*
- **Nicht benutzte Teilnehmerausgänge** sollten mit 75-Ohm Widerständen (z. B. EMK 03) abgeschlossen werden. (Verringerung der terrestrischen Signalwelligkeit)
- *Unused subscriber ports should be closed off by 75 Ohm resistors (e.g. EMK 03).*
- **Nicht benutzte Kaskadenausgänge** sind mit 75 Ohm Widerständen inkl. DC-Blocker abzuschließen. 75 Ohm Widerstände ohne Gleichspannungssperren können das Gerät beschädigen!
- *Unused trunk outputs must be terminated with 75 Ohm resistors including DC Blocker. Otherwise the device may be inoperable or damaged.*
- Bitte überprüfen Sie die Anlage vor Inbetriebnahme auf evtl. Kurzschlüsse der Koaxial-Kabel. Es ist darauf zu achten, dass die Eingangspegel der SAT-Ebenen möglichst gleich hoch sind. Power-LEDs zeigen den Betrieb an. Falls die nicht leuchten, bitte die Stromzufuhr kontrollieren.
- *Please check the installation against shortage in coax cables and connectors before switching on. The input levels should be adjusted accordingly. Power-LED's showing operational mode. If this is not illuminated, please check the power source.*
- **Stromführendes Gerät**
- **Current-carrying unit**
- Nicht öffnen oder am Gerät manipulieren!
- *Do not open or tamper with the unit!*
- Bei Arbeiten an der Anlage immer die Netzstecker aus der Steckdose ziehen!
- *When working on the system always unplug the mains plug from the wall socket!*
- Auf ausreichenden Abstand achten! Nach allen Seiten mind. 5 cm!
- *Ensure adequate clearance! Min. 5 cm to all sides!*
- Nicht über Kopf montieren.
- *Do not install overhead.*
- Für die Geräteentwärmung muß freie Luftzirkulation möglich sein. Überhitzungsgefahr!
- *Free circulation of air must be possible to discharge the heat emitted by the unit. Risk of overheating!*
- Zulässige Umgebungstemperatur i.d.R. -20 bis +50°C
- *Permissible ambient temperature approximately -20 to +50°C*

IMPORTANT NOTES: / ZUR BEACHTUNG

- 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.*

CONTACT:

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!

IRENIS GmbH

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Managing Director: Dipl.Ing. Murad ÖnoI

Commercial Register: HRB 206370 / District Court Hildesheim

Web: www.blankom.de **E-Mail:** info@blankom.de

BECAUSE ADOBE HAS STOPPED FLASH PLAYER

and the web browser developers are disabling flash systematically, we have arranged to get the preview by HTML5:

HD Encoder System Platform 5.05

	Status	Input1	Input2	Input3	Input4	System
System ▾ ◆ Input1 Status ◆ Input2 Status ◆ Input3 Status ◆ Input4 Status	◆ Status Running Time:0000-00-00 00:02:23 Device Time: 2021-01-29 13:02:40(Sync Time To Device) Device Name:encoder CPU Usage:17% CPU Junction Temperature:54°C Memory Usage:35.2M/628.1M ◆ Input1 ● Input status Input Size:3840x2160p@25 Collected Video Frames:4132 Lost Video Frames:5 Audio Samplerate:48000 ● Main Stream Encoding Type:H.264 Encoding Size:3840x2160@25 Bitrate(kbit):3200 TS URL:http://192.168.1.168/0.ts HLS URL:Disable FLV URL:http://192.168.1.168/0.flv RTSP URL:rtsp://192.168.1.168/0 RTMP URL:Disable RTMP PUSH URL:Disable Multicast URL:Disable SRT URL:Disable SRT PUSH URL:Disable Preview(Delay 2000ms)					



Full screen:



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