

# SoC Encoder & IPTV Streamer with HD-SDI Input

HD VIDEO ENCODER



### h.265 and h.264 compatible encoder & IP streamer as boxed or 19" 1RU

- HD-SDI or SD-SDI input for encoding
- Stereo Audio embedded or external Input (3.5mm stereo) •
- HD Resolution input 1080p, 1080i, 720p, out: progressive (p)
- IP output: RTSP, RTMPs, UDP/RTP, HTTP, HLS, FLV, SRT, MJPG
- Distribution of Video Camera HD-SDI and other sources content • over LAN, WAN or internet.
- 2 or max. 4 simultaneous and independent Live stream broadcast encoder engines to multiple destinations
- Video-over IP applications (Studio signal distribution)
- IPTV/OTT applications
- Video conferencing, Camera streaming •
- IPTV on LAN applications, Corporate IPTV for Broadcasters
- HD and SD video encoding (incl. 1080p)

### **Complementary products:**

- HSD-340 HDMI to SDI converter
- HDD-275 Decoder IP to 4K/HDMI/HD-SDI/VGA/CVBS outputs
- IPTV Set Top Box 6800+
- HDC-5004: IP UDP/RTP to 4 muxed adj. RF DVB-C Modulator
- HDC-5016: 512 IP to 16 DVB-C channels

BLANKOM SDE-(1)265 encoder serves the distribution of SD and HD TV/video content through IP networks in digital quality. The live video can be received by Internet media server by TV sets with IPTV Set-Top Boxes, on PC has and tablets with VLC Player.

**BLANKOM SDE-265 & SDE-1265** 

**IPTV encoder is designed for TV** signal distribution in excellent quality over LAN and INTERNET.

The h.265 (HEVC) compatible compression technology features low-latency and low bit rates for IPTV/OTT systems. The high-efficient encoding chips saves bandwidth cost through all its resolution range.

**Distribution of SD and HD TV** channels through the IPTV/OTT network using state-of-art IP technology from almost any kind of video input.

**Excellent video and audio** quality. High reliability. No regular service and maintenance need during operation. Remark: SDE-264 is not available any more

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INPUT	3G HD-SDI/SD-SDI (BNC type) input and loop through output, SDI level A+B autodetect*
Resolution	1080p, 1080i, 720p and below
Video encoder	h.265 (HEVC) or h.264 (AVC) or MJPEG compatible
Audio encoder	AAC, AAC++, MP3, MPEG1Layer2, AC-3 stereo compatible
Audio Bit-rate:	Bit-rate: 32k/48k/96k/128k/160k/192k, Data-rate: 64 kbps-384 kbps
Data interface GbE	RJ45, 1000BaseT Ethernet interface, management by web browser
Protocol	HTTP, RTSP, RTMPs, UDP/RTP, FLV, HLS ; unicast/multicast, SRT P2P
Streaming	DVB-conform IP streams w/ Tables and selectable adding Zero-PID function
Data Rate	32 kbps – 32 Mbps
Encoding bitrate process	CBR or VBR (CBR setting enables zero-packet insertion for the TS)
SMPTE 425	Support Level A & B
GOP Structure	IBBP
ONVIF 2.x	Supported by RTSP: G711A
Picture adjust	De-interlacing, Noise reduction, Sharpening
OSD	4 Logo and Text Insertion as transparent overlays possible
Power supply	12V DC, 1A
Dimensions	165x85x24mm
Weight	0.5 kg
Consumption	510W



#### Anmerkung:

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

#### **Remark:**

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

#### Annotation:

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

### Annotazione:

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

### Anotación:

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

### Anotação:

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

# View the new add-ons and features: They are written as add-on pages to the last *manual-page (just before the addendums)*

\*) example: SDI-Auto-detection of Level -A or -B implemented since Firmware Version 5.17











### Quickstart Variant with SDI Inputs: SDE-265 (no 264 version available any more)

### Hardware and Software versions from the past and until now:

The old and new (temporary) design varies a little:



Produced until November 2020:

The Firmware Version ends with 6.51E (HDMI) and 6.51S (SDI Input). We were forced to redesign the hardware SoC's because of not available chipsets (Worldwide Chip-situation). We were forced to source from 2 different PCB and housing suppliers because of being able to serve our customers in time avoiding delivery times of 3 month and more...

The next Version in **Black** housing -but same lookalike- got Firmware versions with 5.xx and ended with 5.20 for HDE-265L and SDE-265 as a common firmware in both models: Can be detected on Status-page when entering





hardware design:

which also is the same Version in this temporary



Temporary just until August 2022, FW 5.20

The new Firmware Versions HDMI=SDI has started with 2.\*\* and begun from 2.13A; where 'A' indicates the new modern chipset from Ambarella (SDI HDMI VGA - same firmware) which is available in 2 different housings.







Obvious: The 3 dimensions of the variants are all different...

#### The new Chipset has some advantages and improvements like a direct preview Window as embedded Video:



#### **GOP** settings:

Video changing selections:

GOP:	30	[5-300]
Bitrate Control:	VBR 🗸	
Bitrate Stable:	1(Most Stable) 🗸 🗸	
Video Input		
Video Rota	te: 0° v	
Flip And Mirro	or: Disable 🗸	
Input Video Clippin	ng: Disable 🗸	
Video Clipping(Lef	ft): 0	[0~1920]
Video Clipping(Top	p): 0	[0~1080]
Video Clipping(Widtl	h): 0	[0~1920]
Video Clipping(Heigh	t): 0	[0~1080]
Monochrom	ne: Disable v	
	Apply	ß



PAR:	Disable	$(DAR = SAR \times PAR)$		
Deblocking Enable:	Disable			
	3:4(16:9->4:3)			
Deblocking Alpha:	4:3(4:3->16:9)	[-6~6]	[	
Deblocking Beta	16:15(720:576->4:3)	[_6~6]	TS/RTSP Password Enable:	Disable 🗸
Deblocking beta.	64:45(720:576->16:9)	[-00]	HTTP No Personal	Disable as
	8:9(720:480->4:3)		HTTP No Password:	Disable V
	32:27(720:480->16:9)		Telnet Service:	Enable 🗸
	9:16(16:9->1:1)			
СР	3:4(4:3->1:1)		RTSP Default Stream:	Main Stream V

All SDI-Versions have a loop through to cascade the Input to other SDI-devices... do not mess up with them...



# **ATTENTION:**

Please do not feed the SDI BNC Input with remote powering like some Cameras doing with 12V DC. This will destroy the SDI Input circuit. In addition, <u>before</u> connecting the 12V DC Power source, connect the Ethernet and SDI-BNC cables first. A hot plug of SDI BNC is not recommended because of non-grounded DC potential differences (over a long coax cable) might destroy the input circuit.

Sticker with default settings (MAC may be different)

### Notes and Hints:

### The Gigabit-Ethernet-port does not support PoE.

We recommend using an IGMP-V2/3 protocol, capable GBE- Switch to avoid flooding your network with unmanaged multicast streams. In addition, some consumer Internet routers do not like Multicasts (UDP/RTP) and might reboot periodically.

An Internet-connection is not necessary as long as you need to use NTP and does not have an own NTP server in your network.

Please assure that your HDMI –Output you like to encode is set to max. HD with 1080p60 or lower. Higher values will not work.

The embedded Linux system takes some seconds to fully boot. After the System-LED is on, you can connect your browser to it. We recommend Chrome, Opera, and Mozilla. For a preview Popup in the browser, a flash-player add-on need to been installed for the browser.

Sometimes it is helpful to reload the browser – page to get the changed settings and values because of different browser behaviours...

The RESET button will erase all your settings and the unit will been forced to start with factory defaults. Use a thin wire to pass the small hole and press the inside button by it for at least 5-10 seconds until the System LED will go off. The encoder would perform a restart than after releasing the button. The Web-Interface lookalike may vary between different Versions but it is self-explaining.

The SDI versions supporting the first embedded Stereo-Audio-Pair to be encoded.

PLEASE check grounding voltage potential differences between the grounding of SDI-Coax, Network Cable and Power-Supply-Ground at the metal chassis. If necessary, you should ground all.



### **Example with the Dartfish – Setup:**





Please assure that the Ethernet port of the HDE-/SDE265 Encoder (Converter) does not get the Power over Ethernet (PoE) from the OmniTik Antenna. We recommend to first configuring the Antenna ports and avoid PoE forwarding on all other ports. Than connect the BLANKOM SDI-Streamer - Converter with all connectors before powering on the whole system. Do not mess-up with the power supplies: The Antenna uses 28Volt DC which would kill the SDI-Encoder by too high Voltage.





As mentioned above, we have done 2 **Hardware improvement**s of the SDI-Encoder-Version so it comes with a new Firmware as well. (Same for HDE-265, the new is named HDE-265L). Differences:

- Old Hardware & firmware ends with V6.56S produced until February/April 2021
- Version 5.xx Hardware 2022 with 4 encoder sub-parts looks slightly different:

ubstream3					
Encode Type:H. 264					
Encoding Type:640x36003	30				
Bitrate(kbit):3200					
TS URL:Disable					
HLS URL:Disable					
FLV URL:Disable					
RTSP URL:Disable					
RTMP URL: Disable					
RTMP(S) PUSH URL: Disab	ble				
Multicast URL: Disable					
SRT URL:Disable					
SRT PUSH URL:Disable					
Preview(HTML5)					
Network	Main stream	Substream1	Substream2	Substream3	Audio and Video

- Now more encoding parts 1x Main and 3x Secondary are active but depend from each
- Next Firmware starts at V.5.xy or actually is:
  - 5.20:

BLANKOM H.26 Evc	HD Encoder System Platform Version: 5.20		
Input status			
Running Time: 0000-	00-00 00:00:00		
Device Time: 2022-08-18 11:23:13 (Sync Time To Device)			
Device Name: Encoder_61382			
CPU Usage: 4% (If CPU usage always more than 85%, please close some stream.)			
Memory Usage: 30.3M/247.1M			
Input Size: 1920x1080	)p@60 ₩		
Collected Video Frames: 98415			
Lost Video Frames: 3			
Audio Samplerate: 48000			
Net Packet Sent: 65	Net Packet Sent: 65		
Net Packet Dropped:	0		

- From Version 5.11, the web-player preview can be chosen also for h.265 encodings:



### Main stream

Encode Type: H.264 Improved for better lookalike Encoding Type: 1920x1080@30 and visibility Bitrate(kbit): 3200 avoiding serifs TS URL: http://192.168.1.168/0.ts http://192.168.1.168:8086/0.ts HLS URL: Disable FLV URL: http://192.168.1.168/0.flv http://192.168.1.168:8086/0.flv RTSP URL: rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0 RTMP URL: Disable RTMP(S) PUSH URL: Disable Multicast URL: Disable SRT URL: Disable SRT PUSH URL: Disable Preview(HTML5) even with HEVC/h.265

FONTs

CPU Usage: 4% (If CPU usage always more than 85%, please close some stream Memory Usage: 3 **FLV Preview** Input Size: 1920x1 Audio Samplerate Net Packet Sent: 6 Net Packet Dropp  $\mathbf{\Sigma}$ Encode Type: H.26 Encoding Type: 19 Bitrate(kbit): 3200 TS URL: http://192 11 0:03 / • • 53 HLS URL: Disable

LV URL: http://192.168.1.168/0.flv http://192.168.1.168.8086/0.flv

### But no Play/stop/ffwd/rwd available Like in h.264 encoding mode:







- **A hint:** Sometimes it helps to reboot the unit in the SYSTEM Menu when you have changed essential streaming values like UDP -> RTP... But usually, no need

Actual Ambarella Chipset Firmware is 2.38A / 2.42A (A= Ambarella) and should not uploaded to a Version like shown in the STATUS window top with either a6 or a 5 in front or to a version with a 'W' at the end.

BLANKOM H.265	HD Encoder System Platform Version: 2.36A			
Input status	6			
Running Time: 0000	0-00-00 00:06:48			
Device Time: 1970-	01-01 03:09:07 (Sync Time To Device)			
Device Name: Enco	der30071			
CPU Usage: 5%	CPU Usage: 5%			
Memory Usage: 212.1M/512.0M				
Codec Usage:43%				
Input Size: 1920x10	80i@50			
Video Status: Norm	al			
Collected Video Frames: 20854				
Audio Samplerate:	48000			
Audio Status: Norm	al			
Collected Audio Fra	mes: 18904			
Net Packet Sent: 14				
Net Packet Droppe	<b>d:</b> 0			
Preview(Low Delay				

# New features in 2.36A:

HTTPS, mDNS and Hostname settings:

HTTPS		
HTTPS: HTTPS Port: HTTPS Private Pass: Select File:	Disable  B443 Durchsuchen) Keine Datei ausgewählt. different people at the same time,don't Upload Delete Certs Apply	[1-65500] (If the private key does not have a password, it is empty) (File name is 'private.key' or 'public.crt'.Please don't upload by power off during upload.)
HOSTNAME		
HOSTNAME:	Encoder30071	
mDNS:	Enable Y	
mDNS URL:	Encoder30071.local	
	apply	



Image Quality Range: Bitrate(kbit): TS URL: HLS TS URL: HLS MP4 URL:	Better -> Best Best Better -> Best Lower -> Best Lowest -> Be	st est
HLS MP4 UKL:	/0_mp4.m3u8	Quality changing
TS Serv	ice Name:	Live
TS Provider Name:		Encoder
Conform to System B (DVB): TS Null Packet:		Disable Disable Enable
	TS TDT:	Disable V

\_\_\_\_\_ Table system can be set to

DVB-C Annex B compatibility -> USA / Korea cableTV norms = not for EU and the rest of the world if you use an IP to QAM Modulator behind the IP encoder streamer.

Private Multicast modus (proprietary) – to reduce latency in multicasts:

Advanced settings / System Menu:

vinix compatible.	
TS Over RTSP:	ES 🗸
Multicast Type:	
Enable SAP:	UDP V PTL
SLICE Number:	1
Address to enter is then:	

SRT PUSH URL:Disable				
Status	Network	Main stream	Substream1	Substream

The PTL mode works only between our devices: Encoder (Boxed) and Decoder units (HDD...)





HTTP No Password:	Disable Y
Telnet Service:	Enable 🗸
RTSP Default Stream:	Main Stream
Vmix Compatible:	Disable 63
TC O DTCD	Main Stream
15 Over KTSP:	Substream1 Substream2
Multicast Type:	Substream3
5 11 010	

### A Restart by Video or Audio loss:

No Video Auto Restart:	Disable v
No Audio Auto Restart:	Disable 6
Deblocking Enable:	Enable v

Direct Browser Video address (only h.264 encodings) as MJPG:

Substream1
Encode Type: H.264
Encoding Type: 1280x720@25
Bitrate(kbit): 3200
TS URL: Disable
HLS TS URL: Disable
HLS MP4 URL: Disable
MP4 URL: http://192.168.1.168/1.mp4 http://192.168.1.168:8086/1.mp4
FLV URL: http://192.168.1.168



More news – at the end...



# Setting up your PC/Laptop before connecting:

If you use a Windows based PC, you should assign its Ethernet adapter into the same range like the encoder: Use a static IP like follows:

1st: Open your network settings in System Menu:

Problembehandlung	Netzwerkeinstellungen ändern
Netzwerk- und Interneteinstellungen öffnen	Adapteroptionen ändern Zeigt Netzwerkkarten in und ändert Verbindungseinstellungen.
02.12.2019 3	<b>_ _</b>
→ Organisieren ▼	Eigenschaften von Ethernet
Ethernet IRENIS Realtek PCIe GBE Family Cont	Netzwerk Freigabe Verbindung herstellen über:
Status von Ethernet	
Allgemein	Konfigurieren Diese Verbindung verwendet folgende Elemente:
IPv4-Konnektivität: Internet IPv6-Konnektivität: Internet Medienstatus: Aktiviert Dauer: 01:52:23 Übertragungsrate: 1,0 GBit/s Details Aktivität Gesendet — Empfangen Bytes: 100.003.547   30.198.750 €Eigenschaften ©Deaktivieren Diagnose Schließen Schließen	Npcap Packet Driver (NPF) (Wi-Fi) Npcap Packet Driver (NPCAP) (Wi-Fi) QoS-Paketplaner Intel(R) Technology Access Filter Driver Internetp tokoll, Version 4 (TCP/IPv4) Microsoft-Multiplexorprotokoll für Netzwerkadapter Microsoft-LLDP-Treiber Installieren Deinstallieren Eigenschaften Beschreibung TCP/IP, das Standardprotokoll für WAN-Netzwerke, das den Datenaustausch über verschiedene, miteinander verbundene Netzwerke ermöglicht. ange IPv4 settings:
Eigenschaften von Internetprotokoll, Version 4 (TCP/IPv4)       X         Allgemein       IP-Einstellungen können automatisch zugewiesen werden, wenn das Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerkadministrator, um die geeigneten IP-Einstellungen zu beziehen.         IP-Adresse automatisch beziehen       IP-Adresse verwenden:         IP-Adresse:       192.168.1.103         Subnetzmaske:       255.255.255.0         Standardgateway:       192.168.1.1         ONS-Serveradresse automatisch beziehen       IP-Adresse         @ Folgende DNS-Server:       9.9.9.9         Bevorzugter DNS-Server:       9.9.9.9         Einstellungen beim Beenden überprüfen       Imweitert	And confirm please. Linux users should know how to change the ethernet or WIFI settings. Than open your browser and enter the http- Address of the box 192.168.1.168 (w/o https) Depending on browser, you will get a log-in-screen window:

Page - 13 - All technical data are subject to change w/o further notice .... © Irenis GmbH 2025



	0 🔏 19	2.168.1.168
Der Server "192.168.1.168" fordert Ihrer Kennwort an.	n Benutzernamen und Ihr	Bitte melden Sie sich an
Der Server meldet: "pbox".		http://192.168.1.168
admin		Die Verbindung zu dieser Website ist nicht sicher
••••••		Benutzername:
Anmeldedaten speichern	G	Passwort:
ОК	Abbrechen	Anmelden Abbrechen

Enter the default username = **admin**, default password = **admin** .... and here we go:



BLANKOM H.265

HD Encoder System Platform Version: 5.12

#### Input status

Running Time: 0000-00-00 00:11:51

Device Time: 2018-03-22 22:34:13 (Sync Time To Device)

Device Name: Encoder\_20583

CPU Usage: 10% (If CPU usage always more than 85%, please close some stream.)

Memory Usage: 29.2M/247.1M

Input Size: 1920x1080p@0

Collected Video Frames: 184

Lost Video Frames: 3

Audio Samplerate: 48000

Net Packet Sent: 49

Net Packet Dropped: 0

### Main stream

Encode Type: H.264						
Encoding Type: 1920x1080@50						
Bitrate(kbit): 3200						
TS URL: http://192.168.1.168/0.ts http://192.168.1.168:8086/0.ts						
HLS URL: Disable						
FLV URL: http://192.168.1.168/0.flv http://192.168.1.168:8086/0.flv						
RTSP URL: rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0						
RTMP URL: Disable						
RTMP(S) PUSH URL: Disable						
Multicast URL: Disable						
SRT URL: Disable						
Status         Network         Main stream         Substream1         Substream2         Substream3         Audio & Video         System						
HD ENCODER CONFIGURATION PLATFORM						

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If you loose the IP address of this unit you can reset it to default by pressing the **RESET** button with a kind of needle through the hole in the housing for several seconds until the LED(s) at the netwiork port and or the other status leds will turn partly to off. See explanation above.



# Main stream

Encode Type: H.264

Encoding Type: 1920x1080@30

Bitrate(kbit): 3200

TS URL: http://192.168.1.168/0.ts http://192.168.1.168:8086/0.ts

HLS URL: Disable

FLV URL: http://192.168.1.168/0.flv http://192.168.1.168:8086/0.flv

2

RTSP URL: rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0

RTMP URL: Disable

RTMP(S) PUSH URL: Disable

Multicast URL: Disable

SRT URL: Disable

SRT PUSH URL: Disable

Preview(HTML5)

# Substream1

Encode Type: H.264
Encoding Type: 1280x720@30
Bitrate(kbit): 3200
TS URL: Disable
HLS URL: Disable
FLV URL: http://192.168.1.168/1.flv http://192.168.1.168:8086/1.flv
RTSP URL: Disable
RTMP URL: Disable
RTMP(S) PUSH URL: Disable
Multicast URL: Disable
SRT URL: Disable
SRT PUSH URL: Disable
Preview(HTML5)

The Delay depends on codecs/resolutions in use



The **STATUS page** shows your Setup encodings for the entire MAIN and the Substream(s).

Parallel and different streaming can be used for all encoder parts as long as the capacity of the system is not claiming it: You will get a message if the encoding capacity will be reached and one or more Substream would be disabled... The B-Models support only one streaming Method enabled in Main and sec. Stream (= max. 2 outputs)

In some Sub-Streams Info-sections (model depending) you can check the Picture/Sound directly in the browser by this button:



However, you need to enable the FLV or HLS stream before using that – and your browser needs **Flash-Player support:** 

### Enabling it in the related Sub-Stream settings

MP4 URL:	/0.mp4	Enable 🗸
FLV URL:	/0.flv	Enable Y
RTSP URL:	/0	Stable

-> Applying it by Set Up!



TS URL:	/1.ts	
HLS URL:	/1.m3u8	Set successfully, please restart your device!
FLV URL:	/1.flv	
RTSP URL:	/1	ок
RTMP URL:	/1	Disable 🔽
RTMP/RTSP PUSH URL:	rtmp://192.168.1.50/live/1	Disable 🔽
Multicast IP:	238.0.0.1	Disable 🔽
Multicast prot:	1235	[1-65535]
	Set up	

This does not mean to restart the encoder but to restart your Stream-receiver-Decoder like VLC or IPTV Decoder / SetTopBox to re-sync it to the new codec values. This message will pop up every time you change the encoder parameters. Receivers are stupid and might not react to the changed values by themselves. A reboot is only needed after changing IP settings of the system.

Depending on Model: Preview in Browser is possible from within the status page as a link:

-> SDI or HDMI Input stream- Preview: The Ambarella-chip Preview is working w/o FLV set to ON:





### Back to the STATUS page:

Like the hint above, sometimes it's helpful to reload the Status page i.e. if you see @0:



to gather the actual values like Input values:

Input status					
Running Time: 0000-00-00 00:00:02					
Device Time: 2024-06-10 11:04:36 (Sync Time To Device)					
Device Name: Encoder30071					
CPU Usage: 10%					
Memory Usage: 215.4M/512.0M					
Codec Usage:43%					
Input Size: 1920x1080i@50					
Video Status: Normal					
Collected Video Frames: 46					
Audio Samplerate: 48000					
Audio Status: Normal					
Collected Audio Frames: 22					
Net Packet Sent: 30433					
Net Packet Dropped: 1079					

The device time can be adjusted by the Network-setup-part NTP-Server which you need to tell the NTP server URI and UTC-time difference. UK = '0', Germany normal is UTC+1...

If you press (Sync Time to Device) it will be updated.

To also check your encoding streams, you can copy the URI from the STATUS page:



# Main stream

Encode Type: H.265	
Encoding Type: 1920x1080@25	
Bitrate(kbit): 3200	
TS URL: http://192.168.1.168/0.ts http://192.16	58 1 169-8086/0+c
HLS TS URL: Disable	È Lin <u>k</u> öffnen
HLS MP4 URL: Disable	Link in neuem <u>T</u> ab öffnen
MP4 URL: http://192.168.1.168/0.mp4 http://	Link in neuem <u>F</u> enster öffnen
FLV URL: Disable	Link in neuem privaten Fenster öffnen
RTSP URL: rtsp://192.168.1.168/0 rtsp://192.1	
RTMP URL: Disable	Lesezeichen für Link hinzufügen
RTMP(S) PUSH URL: Disable	Ziel speichern unter
Multicast URL: Disable	<u>K</u> opieren

SDE-(1)265

### Copy and paste in VLC:

### Mark it by the mouse and COPY it - Than insert into VLC:

🛓 VLC media player		
Media Playback Audio Video	Subtitle Tools	View
🕑 Open File	Ctrl+O	
Open Multiple Files	Ctrl+Shift+O	
Dpen Folder	Ctrl+F	
😔 🛛 Open Disc	Ctrl+D	
🚏 Open Network Stream	Ctrl+N	
탱 Open Capture Device	Ctrl+C	
Open Location from clipboard	Ctrl+V	
Open Recent Media	•	
Save Playlist to File	Ctrl+Y	
Convert / Save	Ctrl+R	
(•)) Stream	Ctrl+S	
Quit at the end of playlist		
- Quit	Ctrl+Q	



📥 Open Media		—		×
🕑 File 🔗 Disc 🚏 Network 🖾 Capture Device				
Network Protocol				
Please enter a network URL:				
http://192.168.1.168/0.ts				~
http://www.example.com/stream.avi rtp://@:1234 mms://mms.examples.com/stream.asx rtsp://server.example.org:8080/test.sdp http://www.yourtube.com/watch?v=gg64x				
Show more options	Pla	y -	Ca	incel

**Note:** If you more than one Network-Card in operation (like WIFI and GbE) in your receiving machine, VLC often does not recognize where to catch it from. Manually settings of METRIC Values for both can solve this issue:

Ctatus von Ethamat	Eigenschaften von Internetprotokol	l, Version 4 (TCP/IPv4)	Y	
Eigenschaften von Ethernet X	Allgemein			
Netzwerk Freigabe	IP-Einstellungen können automatisch	n zugewiesen werden, wenn das		
Verbindung herstellen über:	Netzwerk diese Funktion unterstützt	. Wenden Sie sich andernfalls an der	n	
Intel(R) Ethernet Connection I219-V	c Netzwerkadministrator, um die geeig	neten 19-Einstellungen zu beziehen.		
Konfigurieren	<ul> <li>IP-Adresse automatisch bezieh</li> </ul>	en		
Diese Verbindung verwendet folgende Elemente:	Folgende IP-Adresse verwende	en:		
Gient für Microsoft-Netzwerke	IP-Adresse:	192.168.0.121		
Jule and Dickeneigabe to Microsoft Networking     Intra Box NDIS6 Bridged Networking Driver	Subnetzmaske:	255.255.255.0		
<sup>1</sup> <sup></sup>	Standardgateway:	192.168.0.1	Erweiterte TCP/IP-Einstellungen	
🗹 🖳 Brückentreiber	O DNS-Serveradresse automatisr	h heziehen	IP-Finstellungen DNC WINC	
Internetprotokoll, Version 4 (TCP/IPv4)			In Emisteriangen DNS WINS	
	Polgende DNS-Serveradressen	verwenden:	IP-Adressen	
Installieren Deinstallieren Eigenschaften	Bevorzugter DNS-Server:	192.168.0.1		1
Beschreibung	Alternativer DNS-Server:		IP-Adresse	Subnetzmaske
TCP/IP, das Standardprotokoll für WAN-Netzwerke, das den			192, 168, 0, 121	255.255.255.0
Netzwerke emöglicht.	Einstellungen beim Beenden üt	perprüfen	192.168.1.121	255.255.255.0
		Erweitert		
OK Abbrechen			Hinzufügen	Bearbeiten Entfernen
	<u> </u>	OK Abbrech	Standardeatewayer	
			Stanuar uga teways:	
			Gateway	Metrik
			192.168.0.1	Automatisch
				-
			Hinzufügen	Bearbeiten Entfernen
			Automatiacha Matrik	
			Schnittstellenmetrik: 10	
			J.	





# **Multicasts:**

Note: UDP/RTP-Address will be taken by VLC with an @ and we have made it easy for you:

Multicast IP:	238.0.0.1	Enable 🗸
Multicast Port:	1234	[1-65535]
Multicast SAP Name:		
	Status-Window:	
RTMP URL: Disab	le	
RTMP(S) PUSH U	IRL: Disable	
Multicast URL: u	dp://@238.0.0.1:1234	
SRT URL: Disable	2	
		copy and paste to VLC

RTP can be chosen in the system settings once for all Multicasts from Main and substreams.

Tipp: You probably know that Multicasts are flooding your network except you are using a Layer3 Switch with IGMP-filtering support – See also: https://www.blankom.de/assets/downloads/TCP-IP-Unicast-IGMP-Dialog\_und\_snooping.pdf



A Open Media			_	
🖻 File 🛛 😚 Disc	🚏 Network	🖽 Capture Device		
Network Protocol				
Please enter a netwo	ork URL:			
udp://@238.0.0.1:	12340			~
http://www.example	e.com/stream.avi			
mms://mms.example	es.com/stream.asx			
rtsp://server.example	e.org:8080/test.sdp e.com/watch?v=qq6	4~		
http://www.yourdo	eleonin wateri: v = ggo			
Show more options				
			Nav	Cancel
			12,1	Cancer

Tipp: VLC wants the @ in the URL also with RTP.





### **Network:** Here you can change the encoders IP-address and mode:

If you change it to DHCP – after a reboot it will catch it from your router. Disadvantage: You need to check the encoder given IP Address by your router in its own menu or use an IP-Scanner-tool.

	Network Settings
Internet access	
•	
DHCP:	Disable Y
IP:	192.168.1.168
Netmask:	255.255.255.0
Gateway:	192.168.1.1
MAC:	48:D7:FF:01:82:39



DNS		
	DNS1:	192.168.1.1
	DNS2:	9.9.9.9

We assume that you are familiar with the basic settings of a network.

PORT		
HTTP Port:	8080	[1-65500]
RTSP Port:	8554	[1-65500]
	Set up	

These are the basic ports for HTTP and RTSP-Streaming use. You can modify that but we recommend to keep them as they are because RTSP – receivers might are fixed to that port while HTTP is not. The bottom of the every of the menu-pages contain the 'Set up' buttons to take and enable your changes.



The MAIN and SUB-Stream adjustments are nearly all similar (pics from old HW-FW):

		Mainstream	encodin	g settings -
Main stream				
Encoding type:	H.264	~		
FPS:	50		[5-60]	
GOP:	30		[5-300]	
Bitrate(kbit):	1800		[32-32000]	
Encoded size:	same a	is the input 🗸		
H.264 Level:	high pi	rofile 🗸		
Bitrate control:	vbr	~		
TS URL:	/0.ts		Enable 🗸	
HLS URL:	/0.m3u	8	Disable 🗸	5
FLV URL:	:	/0.flv		Enable 🗸
RTSP URL:	:	/0		Enable 🗸
RTMP URL:	RTMP URL: /O			Disable 🗸
RTMP/RTSP PUSH URL:	RTMP/RTSP PUSH URL: rtmp://192.168.1.50/live/0			Disable 🗸
Multicast IP:	lticast IP: 238.0.0.1			Disable 🗸
Multicast port:	:	12340		[1-65535]
		Set up		



### **Some Encoding Hints:**

FullHD encoding Bitrates best performance is at around 5000-6000 Kb/s:

HD Encode Version: 2.	r System Platform 42A	
Main stream		
Encoding Type:	H.264 v	
Encoded Size:	Same as input \vee	
FPS:	Auto ~	
GOP:	50	[5-300] Group of Pictures, keyframe interval = GOP / FPS
H.264 Level:	Main Profile 🗸	
Bitrate Control:	CBR ×	
Bitrate Stable:	1(Most Stable)	
Bitrate(Kbit):	6000	[32-32000]
TS URL:	/0.ts	Enable v

If you want to stream a 'still-Picture' like a Digital Signage Presentation which only shows non-moving pictures, we recommend to chose the Encoding mode to **CBR and chose a proper Bitrate stability value** – see picture above.

# Some addons implemented in Encoder FW 2.42A:

Advanced		
Device Name:	0.0.6.1/40	2017(2)
EDID: Video Only:	Disable V	Encode the video only.
Audio Only:	Disable 🗸	Encode the audio only.
No Signal Pic Only:	Disable 🗸	Only show the preset no signal picture even with video input.
No Signal:	End Stream	<ul> <li>Display Picture - show the preset no signal picture.</li> </ul>

# Added some explanations in the Web-IF:

No Signal PIC only: Shows the Testpicture animated (3 pics in a loop) and streams (here with CBR and 6Mb/s):





#### Re-setting it back:

No Signal Pic Only: No Signal:	Disable  Only show the pre Display Picture Display Picture	set no signal picture even with video input. re - show the preset no signal picture.
HLS Segment Duration(s):	5	GROUP0_STREAM0 - VLC media player
HLS Segment Quantity:	3	Weden Wiedergabe Audio Video Ontertitei Werkz
TS Muxer:	Compatible with FFMPEG V	
Net Drop Threshold:	5000	
TS Once Pack:	7	11:46
TS/RTSP Password Enable:	Disable 🗸	
HTTP No Password:	Disable 🗸	
Telnet Service:	Enable 🗸	
RTSP Default Stream:	Main Stream 💙	

#### Streams again.

The Stream will be switched off if no SDI/HDMI Input (otherwise testpicture = NoSignal- animation):

No Signal Pic Only:	Disable 🗸	Only	show the preset no signal picture even with video input.
No Signal:	Display Picture	~	Display Picture - show the preset no signal picture.
Sogmont Duration(c):	r	3	[3 20]





### Stream-Switchoff if no Input: VLC shows the last picture, but the complete streaming IP is OFF now:



### VLC restart: Nothing







#### Switch ON: Testpicture w/o Input:

No Signal Pic Only:	Disable v Only	show the preset no signal picture even with video input.
No Signal:	Display Picture V	Display Picture - show the preset no signal picture.

#### Input Returns, stream also:



If you have the need to customize the NoSignal Pictures (3x BMP/PNG) please send an email and we do that for you. But after updating, it will be again the standard version...



**On Screen Display** Menu: You can 'Overlay' a Text or Logo over the encoded Picture in 4 Zones:

# OSD

For deeper detailed explanations about the OSD feature, refer to the full – Manual please. Also, for the ONVIF settings with RTSP.

Alpha:	100	[0-128]
Zone 1		
Zone:	Enable 🗸	
Type:	Text	
х:	Graphic Scroll Text	[0-1920]
Y:	Time	[0-1080]
Text:		
Font size:	36	[8-72]
Background color:	white	
Color:		select color
Zone 2		
Zone: Disable 🗸		
Zone 3 Zone: Disable v		
Хоце 4		
Zone: Disable v		
LOGO		
LOGO: Durchsuchen	Keine Datgewählt.	\$
Please uplo	ad PNG or 24-bit BMP(0xF1F1F1=transparent) pictures less than 500	kByte. s\logo2.png\logo3.png\logo4.png
Upload	and the set and the for only (10800, only (10802, only, 01 10801, b).	9 (22909) bug (10800, bug (10803, bug
Set u	p	





It supports BMP with a special background colour if you like to be that transparent – or simply use already transparent PNG files. Names and limitations of size are shown in the web.

Substream1		
Encoding Type:	H.264 v	
Encoded Size:	1280x720 v	
FPS:	Auto v	
GOP:	30	[5-300] Group of Pictures, keyframe interval = GOP / FPS
H.264 Level:	High Profile 🗸	
Bitrate Control:	VBR v	
Image Quality:	Lower -> Best v	
Bitrate(Kbit):	3200	[32-32000]
TS URL:	/1.ts	Disable v
HLS TS URL:	/1.m3u8	Disable v
HLS MP4 URL:	/1_mp4.m3u8	Disable v
MP4 URL:	/1.mp4	Enable v
FLV URL:	/1.flv	Enable v
RTSP URL:	/1	Disable v
RTMP URL:	/1	Disable v
RTMP(S)/RTSP PUSH URL:	rtmp://192.168.1.169/live/1	Disable v
Multicast IP:	238.0.0.1	Disable 🗸
Multicast Port:	1235	[1-65535]
Multicast SAP Name:	GROUP0_STREAM1	
SRT (Listener) Port:	9001	Disable 🗸
SRT (Caller) URL:	srt://192.168.1.169:9001	Disable 🗸
SRT Passphrase:	0123456789	Disable 🗸
HLS PUSH URL:	https://a.upload.youtube.com/http_upload_hls?cid=	Disable 🗸
	Apply	
Status Network	Main stream Substream1 S	Substream2 Substream3 Audio & Video Sy:

Same as Main-stream but should be all disabled if not used.



# Audio settings are common for both stream encoder parts:

Add-on: Some models have OPUS support....

BLANKOM H.265C HD Encode Version: 2	er System Platform <mark>36A</mark>
Audio encoder	
Audio Input: Sampling Rate: Encoder: Audio Channel: Bitrate: Digital Volume Gain(dB): Denoise: Denoise(dB): G711A Over PTE:	Digital V 48000 V AAC AAC AAC+ AAC++ MP3 MP2 AC3 Opus 15 [1~100] Disable V

Self-explaining:

HD Encoder System Platform Version: 2.36A						
Change passwor	rd					
Old	Old password:					
Nev	v password:					
Confirm	n password:					
	Apply	ß				

# But USER admin will stay – also for the password protected streams if selected:



Г



TS/RTSP Password Enable:	Disable
HTTP No Password:	Disable
Telnet Service:	Enable

The default settings are usually Ok for most use-cases:

Advanced		
Advanced		
Device Name:	Encoder30071	
Video Only:	Disable 🗸	
Audio Only:	Disable 🗸	
No Signal Pic Only:	Disable 🗸	
Hls Splitter Time(s):	5	[3-20]
Hls Number:	3	[3-20]
TS Muxer:	Compatible with FFMPEG V	
Net Drop Threshold:	5000	[50-50000]
TS Once Pack:	7	[3-128]

Increase the **Net drop threshold** value, if you have a lot of traffic at the Ethernet... to secure streamings when facing pixilation's in the stream-receiver / decoder.



# You can change the Picture size/form factor:

SLICE Number:	1	[1-255]
CBR MIN QP:	5	[1-35]
CBR MAX QP:	42	(MIN_QP-50]
MTU Size:	1500	[500-1500]
Ethernet Speed:	1000M ¥	
UDP TTL:	64	[1-254]
UDP SOCKET_BUF_SIZE:	20971520	(0-20971520]
PAR:	Disable (DAR = SAR x	PAR)
No Video Auto Restart:	Disable	
No Audio Auto Restart:	4:3(4:3->16:9)	
Deblocking Enable:	16:15(720:576->4:3) 64:45(720:576->16:9)	
Deblocking Alpha:	8:9(720:480->4:3)	[-6~6]
Deblocking Beta:	32:27(720:480->16:9) 9:16(16:9->1:1)	[-6~6]
	3:4(4:3->1:1)	
	( pp)	

Playing with 'DE-interlaced settings' (only older Firmware versions) helps sometimes fixing moving picture artefacts. **BOTTOM only** can solve right-left-camera moving sticking problems (Old Versions).

MTU Size:	1500			[500-1500]
Ethernet Speed:	1000M ~	2		
UDP TTL:	64	-		[1-254]
UDP SOCKET_BUF_SIZE:	20971520			(0-20971520]
PAR:	Disable	~	(DAR = SAR x	PAR)
No Video Auto Restart:	Disable 👻			
No Audio Auto Restart:	Disable 👻			
Deblocking Enable:	Enable 🗵			
Deblocking Alpha:	0			[-6~6]
Deblocking Beta:	0			[-6~6]
	Apply			

Ethernet settings should be considered by the professional networkers if needed...

Some picture enhancements can be adjusted by Deblocking ...

For more info... contact us... www.blankom.de





A schedule 'restart' can be programmed (NTP-Time = ON recommended) and supporting **Rserial** function if needed (Linux like – check Internet about that)

Serial to TCP		
Mode: Baud Rate: Server Address: Server Port:	<ul> <li>✓</li> <li>9600 ✓</li> <li>192.168.1.169</li> <li>5150</li> <li>Apply</li> </ul>	[1-65535]
Schedule restart		
Restart enable: Restart time:	Disable v 03:00 Apply	

The settings as well as the Firmware can be back-upped and re-uploaded.

Upload firmware and configuration					
Select File:	Durchsuchen) Keine Datei ausgewählt. (File name has to be 'up.rar' or 'box.ini'. Please don't upload by different people at the same time and don't power off during upload.)				
	Upload				

The config-settings file is a Linux based text file named box.ini. Do not modify / store upload that by a windows editor except you will use notepad++ (freeware – please google...)

Finally, i.e. after firmware update has been uploaded, the unit can be remotely reset to factory defaults or rebooted:



Backup firmware and configuration				
	Backup up.rar	Backup box.ini		
System settings		▶		
	Reboot	Reset		

We recommend to make yourself familiar with 'What is Multicast and Unicast' and the corresponding IP-Ranges.

### Another hint:

Using VLC SAP-Gathering will show a simple click'n start entry:

🛓 VLC	media play	er								
Media	Playback	Audio	Video	Subtitle	Tools	View	/ H	lelp		
						₽,	Play	list	Ctrl+L	
							Doc	ked Playlist		
Local Ne	etwork									
💾 n	DNS Netw	vork Dise	covery							
1 N	letwork str	eams (S	AP)							
<b>₩</b> υ	niversal Pl	ug'n'Pla	<mark>λ</mark> 2							
🛓 Playlist	:								_	I
Network st	reams (SAP)							E Search		
📑 Playlis	t [00:00]							Title		
寶 Media	Library							✓ ☐ 192_168_1_6	В	
My Comput	er							SROUP_	STREAM_0	
- Playlist	[00:00]							Title		_
Media	Library							> 🛅 192_168_1_	68	
ly Compute	er							✓ □ 192_168_1_	168	
My Vie	deos							GROUP_	0_STREAM_0	
> Will red	ceive the st	ream. Th	is works	only with	Multica	st UD	P / R	TP !		

Addon from FW 6.39 (03-2020- very old hardware model) on:



### **SRT support:** (Only supported by our encoders with h.265 compatibility because of processing power)

ſ	Vainstream er	ncoding setting
Main stream		
Encoding type:	H.264 ¥	
FPS:	30	[5-60]
GOP :	30	[5-300]
Bitrate(kbit):	4500	[32-32000]
Encoded size:	same as the input ▼	
H.264 Level:	high profile •	
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(S)/RTSP PUSH URL:	rtmp://41.85.	Enable 🔻
Multicast IP:	238.0.0.1	Disable 🔻
Multicast port:	1234	[1-65535]
SRT URL Port:	9000	Enable  [1-65535]
SRT PUSH URL:	srt://192.168.1.41:9000	Enable 🔻
SRT Encryption Password:	0123456789	Enable 🔻
	Set up	

### Improved to:

SRT (Listener) Port:	9000	Enable 🗸
SRT (Caller) URL:	srt://192.168.1.169:9000	Disable 🗸
SRT Passphrase:	0123456789	Disable 🗸
HLS PUSH URL:	https://a.upload.youtube.com/http_upload_hls?cid=	Disable 👻



More details:

### https://www.srtalliance.org

### What is an SRT?

Secure Reliable Transport (SRT) is an Open-source software protocol and technology stack designed for live video streaming over the public internet.

SRT provides connection and control, reliable transmission similar to TCP, however, it does so at the application layer, using UDP protocol as an underlying transport layer. It supports packet recovery while maintaining low latency (default: 120 ms). SRT also supports encryption using AES.

Source: https://en.wikipedia.org/wiki/Secure\_Reliable\_Transport

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

Video Encoders are widely used in video transmission field, and SRT supported by our video encoder & decoder. Our Encoder & Decoder work perfectly for Haivision Play, Larix Broadcaster, etc.

# SRT-live-server (SLS)-for our Video Encoder

### Our Video Encoder supports SLS for SRT.

Introduction

srt-live-server (SLS) is an open source live streaming server for low latency based on Secure Reliable Transport (SRT). Normally, the latency of transport by SLS is less than 1 second via the internet.

### Requirements

Please install the SRT first, refer to SRT (https://github.com/Haivision/srt) for system environment basics. SLS can only run on OS based on linux, such as mac, centos or ubuntu etc.

Source: https://github.com/Edward-Wu/srt-live-server

Put the following url to send to your docker container: srt://your.server.ip:1935?streamid=input/live/yourstreamname

RTMP(S)/RTSP PUSH URL:	rtmp://192.168.1.169/live/0	Disable 🗸	
Multicast IP:	238.0.0.1	Enable 🗸	
Multicast port:	2222	[1-65535]	
SRT URL Port:	9000	Disable 🗸	[1-65535]
SRT PUSH URL:	srt://your.server.ip:1935?streamid=input/	Enable 🗸	
SRT Encryption Password:	0123456789	Disable 🗸	
	Set up		

For P2P, select SRT PUSH (Caller) and enter the destination IP Address and Port. E.g. the IP:port of the Decoder units (DS-case) HDD-275 or other or VLC... Potplayer....





**SRT network-Latency can be adjusted in SYSTEM** *Firmware Version depending...* :

Advanced		
Video Only:	Disable 🗸	
Audio Only:	Disable 🗸	
Hls Splitter Time(s):	10	[3-20]
Hls Number:	5	[3-20]
SRT Latency(ms):	150	[1-10000]

It is a faster transport protocol for lower latency over public networks...

### Check the Status page:

Main Stream	
Video Codec: H.264	
Video Resolution: 1920x1080@25	
Bitrate(Kbit): 6000	
<b>TS URL:</b> http://192.168.1.168/0.ts_http://192.168.1.168:8086/0.ts	
HIS TS URL: Disable	
HLS MP4 URL: Disable	
MP4 URL: http://192.168.1.168/0.mp4. http://192.168.1.168:8086/0.mp4	
<b>FLV URL:</b> http://192.168.1.168/0.flv_http://192.168.1.168:8086/0.flv	
<b>RTSP URL:</b> rtsp://192.168.1.168/0_rtsp://192.168.1.168:8554/0	
RTMP(S) PUSH URL: Disable	
Multicast URL: udp://@238.0.0.10:12340	
SRT Listener Mode: srt://192.168.1.168.9000	
SRT Caller Mode: Disable	
TRTC Room: Disable	
Preview(HTML5)	



## You can check the receiving it by a PC and VLC: (please note, **the** *@* in the URI is not necessary like in



Some more useful links regarding SRT:

A Media server to handle SRT and more: The Open Broadcaster Software

Remark: There are WHIP plugins for OBS available (v3.x and above) so the OBS can process WebRTC streams.

https://obsproject.com/ https://obsproject.com/wiki/Streaming-With-SRT-Protocol:





# **Streaming With SRT Protocol**

This feature requires OBS Studio 25.0 or newer.

### Table of Contents:

- General Overview
- Can SRT be used with Twitch or my favorite service?
  - Services
  - Encoders
  - Servers
  - Players
- How to set up OBS Studio
  - Option 1: Stream SRT using the Streaming output

k

- Option 2: Stream SRT using the Custom FFmpeg Record output
- Examples of setups
- Relay server to Twitch

https://github.com/obsproject/obs-studio https://github.com/haivision/srt

# **MJPG Support:**

Setting the encoder main or secondary processor to

Main stream		
	Encoding type:	H.265 🗸
		H.264
	FPS:	H.265
		MJPEG
	GOP:	30

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



# Main stream



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



### Or with content:





### 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 has been detected at the Input connector, the Test-picture (3bmp animated) will appear and the Stream output may 'pump' because the encoder check the input signal periodically – and in this periods', the output stream might fluctuate like:





For a more stable stream with a test-Picture or also still-pictures see above:

Use the CBR encoding method and around 6Mb/s bitrate with most stable picture settings:

BLANKOM H.2GEEVC HD Encode Version: 2	er System Platform .42A	
Main stream		
Encoding Type:	H.264 v	
Encoded Size:	Same as input \vee	
FPS:	Auto 🗸	
GOP:	50	[5-300] Group of Pictures, keyframe interval = GOP / FPS
H.264 Level:	Main Profile 🖌	
Bitrate Control:	CBR Y	
Bitrate Stable:	1(Most Stable) 🗸 🗸	
Bitrate(Kbit):	6000	[32-32000]
TS URL:	/0.ts	Enable v





### New feature added from Version 5.11 (old HW) onwards:

- HEVC h.265 Preview with inbuilt player (w/o pause/stop rew/fwd):

Main stream			
	Encoding type:	H.265 ¥	
	FPS:	50	[5-60]
	GOP :	25	[5-300]
	Bitrate(kbit):	3200	[32-32000]

# Main stream

Encode Type: H. 265
Encoding Type: 1920x1080@50
Bitrate(kbit):3200
TS URL: http://192.168.1.168/0.ts http://192.168.1.168:8086/0.ts
HLS URL:Disable
FLV URL: http://192.168.1.168/0.flv http://192.168.1.168:8086/0.flv
RTSP_URL:rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0
RTMP URL: Disable
RTMP(S) PUSH URL: Disable
Multicast URL:Disable
SRT URL:Disable
SRT PUSH URL:Disable
Preview (HTML5)





It can take several seconds until the preview starts but it highly depends on the receiving web-browser-PC hardware capabilities to decode that HEVC-PiP. So please be patient and wait a little...

Changing possibility of the Transport Stream-PID-ID-values to distinguish several encoders in a common network to finally use a multiplexer w/o PID-Remapping:

This is from System-settings

TS TDT:	Disable	
ts_transport_stream_id:	Disable C Enable	[1-65535]
ts_pmt_start_pid:	480	[16-7936]
ts_start_pid:	481	[32-3840]
ts_tables_version:	6	[0-31]
ts_service_id:	1	[1-65535]
ts_service_name:	Live	
ts_service_provider:	Encoder	
TS Empty Packet:	No Insert 🗸	
TS password enable:	Disable 🗸	

#### TS Tables Version is related to the PAT (See MPEG-DVB):



# SDE-(1)265

ISReader 2.8.46b			
File       Export       View       Record       Playback       Plugins       S         PAT PID 0x0000       PMT PID 0x01e0 - Program 1       PAT Versic       This sport S       PAT Versic       This sport S         PMT PID 0x01e0 - Program 1       SDT: Live       PMT PID 0x01e1       PMT PID 0x01e1       PMT PID 0x01e1         PCR PID 0x01e1       FDT PID 0x01e1       PCR PID 0x01e1       PMT PID 0x01e1       PMT PID 0x01e1         PUT D10 0x0014       2018/03/22 22:23:31       SDT PID 0x0011 <1>       PMT PID 0x0011 <1>       PMT PID 0x0011 <1>	ettings Help n Number: 18 Stream ID: 101 (0x0065) 80 (0x01e0) - Program 1 Live	Video Decode	
System settings-HD Encoder × +	•		V
$\leftarrow$ $\rightarrow$ C $\triangle$ A Not secure   19	2.168.1.168/SystemE.html		12 🛧 🦁
Net Drop Threshold	5000	[50-50000]	
TS muxer:	Compatible with FFMPEG V		
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:	18	[0-31]	
ts_service_name:	Live		
ts_service_provider:	Encoder		

	In	com	bin	atior	າ with
--	----	-----	-----	-------	--------

Main stream		
Encoding type:	H.265 ¥	
FPS:	50	[5-60]
GOP :	25	[5-300]
Bitrate(kbit):	3200	[32-32000]
Image Quality:	Low Y	
Encoded size:	same as the input 🗸	
Bitrate control:	vbr v	
TS Video PID:	100	[16-8190]
TS Audio PID:	200	[16-8190]

Please do not use PID's (here in Decimal instead of HEXadecimal in use) which are reserved in DVB, 0-18 are for special tables like PID 18= EIT. 8191dec is for Zero-fillings to a CBR TS. Please check DVB-Norms if you are unsure.



# Some more changelogs:

## SDE-265 and HDE-265L New Version 5.15...20 ADD ONs:

- New User Interface lookalike
- Inventing a Windows tool to search for your en- decoder if you lost IP Address: Find Your Encoder\_Decoder.exe -> If you need that- ask us at <u>info@blankom.de</u>
- Changing possibility of TS Video & Audio PID and TS\_service\_id
- added RTSP- multicast support
- Changing of multicast stream SAP name option -> See below
- Added a checkbox/switch for TS TDT System -> Advanced settings



# Version 5.17 (April 2022, June 2022)

**Step1:** fixing Preview Window when HDMI contained no Audio signal **Step2:** adds the SDI-Input detection of Level A and B automatically. Because of some SDI-devices are using Level A and the SDE-265 needed Level B. Example:

Version 5.23 (old hardware) has some improvements in GOP encoding processes.





# **Using HDMI-SDI converter:**

We added the automatic Level detection A and B for the SDI-Input. (Not available in the old Hardware with firmware versions 6.xx)

#### 🔟 Blackmagic Converters Setup

Setup	
Name:	BiDirectional SDI/HDMI 3G
Software:	Version 7.5.1
SDI Camera Control	
ATEM Camera ID:	1
SDI Output	
3G SDI Output:	C Level A
	O Level B
Reset	
	Factory Reset



### Old hardware Version 5.20: lip sync option added:

Advanced	
•	
Device Name:	Encoder_61432
EDID:	0.Default(1080P60) ~
Video Only:	Disable 🗸
Audio Only:	Disable v
AV Sync Strategy:	Auto 🗸
Hls Splitter Time(s):	Auto Resample
His Number:	5

# New Features added in Ambarella Chipset Version (the 'A' is important) 2.42A:

Advanced		
Device Name:	Encoder5641	
EDID:	0.Default(1080P60) v	
Video Only:	Disable v Encode the video only.	
Audio Only:	Disable v Encode the audio only.	
No Signal Pic Only:	Disable  V Only show the preset no s	ignal picture even with video input.
No Signal:	Display Picture - sho	w the preset no signal picture.
HLS Segment Duration(s):	5	[3-20]
HLS Segment Quantity:	3	[3-20]

Test-Picture inbuilt (pre-set) can be shown permanently regardless of the input signal.

If **No Signal** at the input : Stop streaming or show the Display Picture (No-Signal Test-pic).

Kick All When Input Changed:	Enable v Disconnect all players	when audio/video input changes.
No Video Auto Restart:	Enable v No video detected, aut	tomatic restart after 3 minutes.
No Audio Auto Restart:	Disable v No audio detected, au	tomatic restart after 3 minutes.
Deblocking Enable:	Disable v	$\searrow$
Deblocking Alpha:	0	[-6~6]
Deblocking Beta:	0	[-6~6]
	Apply	

Kicks All (?) if input changes... and Auto-resyncing to the input can be checked periodically : 3 Minutes ...



# **Ethernet can be configured:**

Ethernet Speed: UDP TTL: UDP SOCKET BUE SIZE: V2.42A: WebRTC support	1000M ~ 100M 1000M	[1-254]
		· · · · · · · ·
HLS PUSH URL:	https://a.upload.youtube.com/http_upload_hls?cid=	Disable Y
WHIP (WebKIC) Bearer Token:	webrtc://domain/AppName/StreamName?txSecret=	Enable V
WHID (WebPTC) Server	https://wahatasuch.dluguahatasuch.com/wahata/w2/	
white (webicic) server.	https://webrtcpush.uvewebrtcpush.com/webrtc/v2/	
TRTC Room:	8088	Enable 🗸
		-
TRTC User:	guest	-
TRTC UserSig:	emcvzHfjfEIe	
TRTC SDKAppID:	188166	
	Apply	

# Short Explanation's reg. WEBRTC:

# WebRTC Encoder - Relationship Between WebRTC and WHIP

# WebRTC Overview

WebRTC (Web Real-Time Communication) is a technology that enables real-time voice calls, video chat, and peer-to-peer file sharing in web browsers without requiring plugins. The WebRTC encoder handles efficient media compression, making it ideal for real-time applications.

# WHIP Protocol with WebRTC Encoder

WHIP (WebRTC-HTTP Ingestion Protocol) works seamlessly with WebRTC encoders to securely send real-time media streams from sources to servers. This combination simplifies the publishing process for WebRTC encoder outputs.

# Key Advantages for WebRTC Encoder Systems

# **Optimized Encoder Signalling:**



WHIP provides standardized signalling for WebRTC encoders, improving connection reliability.

# **Efficient Encoder Output Transport:**

The protocol handles WebRTC encoder streams via HTTP POST, supporting various media containers.

# Low-Latency Encoder Distribution:

WHIP maintains the low-latency benefits of WebRTC encoder outputs while enabling wider distribution.

# WebRTC Encoder Applications

### **Browser-Based Encoding:**

Modern WebRTC encoders in browsers can now stream directly via WHIP to media servers.

# **Cloud Encoding Workflows:**

WHIP enables WebRTC encoders to feed cloud transcoding pipelines with minimal latency.

### Conclusion

The WHIP protocol significantly enhances WebRTC encoder capabilities by providing standardized HTTP ingestion. This combination delivers the low-latency benefits of WebRTC encoding with the scalability of HTTP-based distribution.

So for the implementation of an own WebRTC service, there are free / open source tools available – Google is your friend. Or use the OBS with Whip...





# **Specials:**

# Released in 2022 an Intermediate hardware Model with very fast Chipset (not available in 19" Versions):





You can detect the Web-IF Firmware in the STATUS Page. This Hardware shows a Firmware Version with 2.xy and an 'A' which reflects to the Chipset.

### Some addons/changes in this Version: System settings:

TS/RTSP Password Enable:	Disable 🗸	-TS and RTSP streams can be used with the user/password
HTTP No Password:	Disable 🗸	option (same as web-IF-login)
Telnet Service:	Enable 🗸	
RTSP Default Stream:	Main Stream 🗸	-The web-login user/pw can be disabled
Vmix Compatible:	Disable 🗸	-Telnet access can be switched ON or OFF
TS Over RTSP:	ES v	-RTSP selection as a default stream from which encoder part
Multicast Type:	UDP Y	
Enable SAP:	Enable 🗸	- SAP enable/disable



# **Technical Specification SDE-16265:**

Function	h.265 (HEVC compatible) and h.264 (MPEG4 compatible) Encoder and IP Streamer
INPUT	HD-SDI / SD-SDI (BNC type) input and loop through output, Level detection = Auto V.5.17 on
Resolution	1080p, 1080i, 720p and below
Video encoder	h.265 (HEVC) or h.264 (AVC) or MJPEG
Audio encoder	AAC, AAC++, MP3, MPEG1Layer2, AC-3 stereo compatible
Audio Bit-rate:	Bit-rate: 32k/48k/96k/128k/160k/192k, Data-rate: 64 kbps-384 kbps
SYSTEM	
Data interface	RJ45, 1000BaseT Ethernet interface, management by web browser
Protocol	HTTP, RTSP, RTMPs, UDP/RTP, FLV, HLS ; unicast/multicast, SRT P2P
Data Rate	32 kbps – 32 Mbps
Encoding bitrate process	CBR or VBR
SMPTE 425	Support Level A & B
GOP Structure	IBBP
ONVIF 2.x	Supported by RTSP: G711A
Picture adjust	De-interlacing, Noise reduction, Sharpening
OSD	4 Logo and Text Insertion as transparent overlays possible
Power supply	2x redundant internal switching PSU's 110240VAC 47-64Hz to 12V DC
Dimensions	19" 3RU: 483 (L) x 300 (W) x133 (H) mm
Weight	6,5 kg
Consumption	90W

