



SE2017 SDI/HDMI ENCODER & RECORDER

USING THE UNIT SAFELY

Before using this unit, please read below warning and precautions which provide important information concerning the proper operation of the unit. Besides, to assure that you have gained a good grasp of every feature of your new unit, read below manual. This manual should be saved and kept on hand for further convenient reference.



Warning and Cautions

※ To avoid falling or damage, please do not place this unit on an unstable cart, stand, or table.

% Operate unit only on the specified supply voltage.

% Disconnect power cord by connector only. Do not pull on cable portion.

※ Do not place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.

X Ensure unit is always properly grounded to prevent electrical shock hazard.

% Do not operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.

※ Do not use this unit in or near water.

% Do not allow liquids, metal pieces, or other foreign materials to enter the unit.

※ Handle with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials, or alternate adequate packing.

% Do not remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.

% Turn off the unit if an abnormality or malfunction occurs. Disconnect everything before moving the unit.

Note: due to constant effort to improve products and product features, specifications may change without notice.

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1. BRIEF INTRODUCTION

1.1. Overview

SE2017 is a high-definition audio and video encoder that can compress and encode SDI and HDMI video and audio sources into IP streams. These streams can then be transmitted to a streaming media server via a network IP address for live broadcasting on platforms such as Facebook, YouTube, Ustream, Twitch, and Wowza. It also supports USB and SD card recording feature, and it provides SDI and HDMI video source loop-out for easy monitoring on another monitor.



1.2. Main Features

- Record, stream and capture multi-function three-in-one
- HDMI and SDI inputs and loopout
- Line audio input embedded
- Encoding bit rate up to 32Mbps
- USB/SD card recording, MP4 and TS file format, up to 1080P60
- Multiple streaming protocols: RTSP, RTMP(S), SRT(LAN), HTTP-FLV, Unicast, Multicast

- USB-C capture, supports up to 1080P60
- Supports PoE and DC power

1.3.Interfaces



1	SDI In
2	SDI Loop Out
3	HDMI In
4	HDMI Loop Out
5	Audio In
6	DC 12V In
7	SD Card (for recording)
8	USB REC (for recording)
9	USB-C Out (for capturing)
10	LAN (for streaming)

1.4. Button Operation

1		Reset:
	U	Insert the pin and hold it for 3 seconds until restarted to restore the factory
		settings.
2		Menu:
		Short press to access the menu.
		Long press to lock the menu.
3		Back/REC:
		Short press to go back.
		Long press (5 seconds) to start recording.
4		Next/Stream:
		Short press to go forward.
		Long press (5 seconds) to start streaming.
5		Return:
		Return to previous page.

2. SPECIFICATIONS

CONNECTIONS	
Video Input	HDMI Type A ×1, SDI ×1
Video Loop Out	HDMI Type A ×1, SDI ×1
Analog Audio In	3.5mm (line in)×1
Network	RJ-45×1 (100/1000Mbps self-adaptive Ethernet)
RECORD	
REC SD Card Format	FAT32/ exFAT/ NTFS
REC U Disk Format	FAT32/ exFAT/ NTFS
REC File Segment	1/5/10/20/30/60/90/120mins
Recording Storage	SD Card/USB Disk
STANDARDS	
HDMI In Format Support	1080p 60/59.94/50/30/29.97/25/24/23.98 1080i 50/59.94/60, 720p 60/59.94/50/30/29.97/25/24/23.98, 576i 50, 576p 50, 480p 59.94/60, 480i 59.94/60
SDI In Format Support	1080p 60/59.94/50/30/29.97/25/24/23.98 1080i 50/59.94/60, 720p 60/59.94/50/30/29.97/25/24/23.98, 525i59.94, 625i50
USB capture out	Up to 1080p 60Hz
Video Bitrate	Up to 32Mbps
Audio Coding	ACC
Audio Encoding Bitrate	64/128/256/320kbps
Encoding Resolution	Main Stream: 1920×1080, 1280×720, 720×480 Sub Stream: 1280×720, 720×480
Encoding Frame Rate	24/25/30/50/60fps
SYSTEMS	
Network Protocols	RTSP, RTMP(S), SRT(LAN), HTTP-FLV, Unicast, Multicast
Configuration Management	Web configuration, Remote upgrade
OTHERS	
Power	DC 12V 0.38A, 4.5W
PoE	Support PoE(IEEE802.3 af), PoE+(IEEE802.3 at), PoE++(IEEE802.3 bt)
Temperature	Working : -20℃~60℃, Storage : -30℃~70℃
Dimension (LWD)	104×125.5×24.5mm
Weight	Net weight: 550g, Gross weight: 905g
Accessories	12V 2A power supply

3. NETWORK CONFIGURATION AND LOGIN

Connect the encoder to network via a network cable. The encoder can auto obtain a new IP address when it is using DHCP on the network.

Visit encoder's IP address through an Internet browser to login the WEB page for setting up. The default Username is **admin**, and password is **admin**.

4. MANAGEMENT WEB PAGE

4.1. Language Settings

There are languages of Chinese ($\psi \chi$) and English for option on the top-right corner of the encoder management web page.

nglish 🗸	
English	
简体中文	
	nglish >> English 简体中文

4.2. Device Status

The status of the network speed, recording status, streaming status, and hardware status can be checked on the web page. And users also can have a preview on the streaming video from the preview video.

Preview: On this page, you can monitor the streaming images.

Network Speed(Mb/s): Easily check the current network speed at any time.

Stream status: Learn more detailed information about each stream, including its status, time, protocol, and name.

Hardware Status: Monitor the device's RAM, CPU usage, and temperature in real-time to ensure smooth operation.

Record Status : Conveniently check the recording status and time on SD card and USB disk, providing timely insights into the device's recording activities.

SDI/HDMI ENCODER & RECORDER

AVMATRIX®	HDMI/SDI ENCODER					English 🗸 🛛 Logout
② Device Status						
Encode Settings				Network Speed(Mb/s)		
Stream Settings						
Record Settings	ß	VMATRIX				
🖾 Layer Overlay						
System Settings						
	Preview		Play Snapshot			0.038 Mb/r
						0.030 MD/3
	Stream Status			Hardware Status		
	00:00:00	00:00:00	00:00:00		-	
	Stream	RI MPRemote1 Stream	RI MPRemote2 Stream	8 11%	4%	33°C
	00:00:00	00:00:00	00:00:00	0.1170	1,0	
	RTMPRemote3 Stream	RTMPRemote4 Stream	RTMPRemote5 Stream	RAM	CPU	TEMP.
	Parand Status					
	Record status			Video Input	Output Mode A	Audio Input Runtime
	00:00:00		0:00:00	N/A	1920*1080P60 2	00:02:56 4Bits/48kHz
	SD: No Disk		SB: No Disk			

4.3. Encode Settings

The encoding settings can be set on the encoder management web page.

4.3.1. Encode Output

The encoder has a two-way function, select LAN Stream or USB capture method for encoding output, and the machine will restart when switching.

Oevice Status	
圓 Encode Settings	Encode Output
Stream Settings	LAN Stream USB Capture

4.3.2. Video Encode

Set the parameters of main stream and sub-stream for video encoding. Select SDI/HDMI video source. The resolution supports 1920*1080, 1280*720, 720*480. The bitrate mode supports VBR, CBR. These settings can also be operated via the buttons on the panel.

Video Encode			Save
Stream Type On O Stream Switch	Video Source	Resolution	FPS
Main Stream V	SDI v	1920*1080	60 V
Coding Format	I Frame Interval	Bitrate Mode	Max Bitrate
H.264 High Profile	30	VBR	8192Kbps V

4.3.3. Audio Encode

The encoder supports audio embedding from an external analog input. Therefore, the audio can be from

SDI/HDMI ENCODER & RECORDER

SDI/ HDMI embedded audio or analog Line in audio. Audio Encode Mode supports ACC.

Audio Encode					Save
Audio Source	Coding Format		Sampling Rate	Bit Width	
SDI	AAC		48KHz	24bit	
Sound Channel	Bitrate		Volume		100
L+R	256Kbps	~			0

4.4. Stream Settings

4.4.1. Main Stream Settings

The main stream can be set in the encode settings. After turning on the main stream switch and setting the corresponding parameters, you can start streaming by entering the streaming address in the first three RTMPs. The main stream supports simultaneous streaming to three platforms.

Please note that only one of HTTP/ RTSP/ UNICAST/ MULTICAST can be enable at same time.

4.4.2. Sub-Stream Settings

The sub-stream can be set in the encode settings. After turning on the sub-stream switch and setting the corresponding parameters, you can start streaming by entering the streaming address in the last three RTMPs. The sub-stream supports simultaneous streaming to three platforms.

Please note that only one of HTTP/ RTSP/ UNICAST/ MULTICAST can be enable at same time.

Main stream resolution support 1920*1080, 1280*720, 720*480. FPS support 24/25/30/50/60. Bitrate support up to 32Mbps. Sub stream resolution support 1280*720, 720*480. FPS support 24/25/30/50/60. Bitrate support up to 32Mbps.

Device Status						
Encode Settings	Push Stream					Start Streaming
Stream Settings	Stream Media	Status	Custom Name	Address		Action
Record Settings	RTMP	Ston	RTMPRemote0	rtmp://192.168.1.6:1935/live/av		O OFF
🖾 Layer Overlay	Kim	Stop	Kini Kenoteo	100000000000000000000000000000000000000		
System Settings	RTMP	Stop	RTMPRemote1	rtmp://192.168.1.6:1935/live/av1	The Main Streaming	O off
	RTMP	Stop	RTMPRemote2	rtmp://192.168.1.6:1935/live/av2		O off
	RTMP	Stop	RTMPRemote3	rtmp://192.168.1.6:1935/live/av3		Off 🖉
	RTMP	Stop	RTMPRemote4	rtmp://192.168.1.6:1935/live/av4	The Sub Streaming	Off 4
	RTMP	Stop	RTMPRemote5	rtmp://192.168.1.6:1935/live/av5		O Off

How to configure the encoder for YouTube live streaming Step 1: Adjust Encode Settings

Users can adjust the Bitrate, Rate control, Encoding, Resolution, FPS of the live video in the Encode settings according to the actual situation. For example, if the network speed is slow, the Bitrate Control can be switched from CBR to VBR and adjust the Bitrate accordingly. These settings can also be adjusted from the panel.

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Video Encode			Save
Stream Type On Stream Swi	:h Video Source	Resolution	FPS
Main Stream	SDI v	1920*1080 v	60 V
Coding Format	I Frame Interval	Bitrate Mode	Max Bitrate
H.264 High Profile	30	VBR	8192Kbps V

Step 2: Obtain Stream URL and Streaming Key

Access the live streaming settings of the stream platform you are using and obtain and copy the Stream

URL and Streaming Key.

Stream key Select stream key Default stream key (RTM	1P, Variable)	•
Stream key (paste in encoder)	Streaming Key 👧	RESET
Stream URL	be.com/live2	Сору
Backup server URL	be.com/live2?backup=1	Сору
YouTube also supports RTMPS	for secure connections. Learn more	e

Step 3: Connect to Steam Platform

Access the encoder's web page and select "Stream settings" section, then paste the Stream URL and Streaming Key into the URL fields, connecting them with a "/". Enable the "Switch" option and click "Start Streaming" to initiate the live stream.

Protocol Type:	RTMP	
Custom Name:	MainRTMPRemote	
* URL:	rtmp://a.rtmp.youtube.com/live2/	

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	HDMI/SDI ENCOL	DER					English V Logout
III Encode Settings	Push Stream						Start Streaming
Stream Settings	Stream Media	Status	Custom Name	Address		Action	OPEN
Layer Overlay	RTMP	Stop	RTMPRemote0	rtmp://192.168.1.6:1935/live/av		Off	2
System Settings	RTMP	Stop	RTMPRemote1	rtmp://192.168.1.6:1935/live/av1		Off	2
	RTMP	Stop	RTMPRemote2	rtmp://192.168.1.6:1935/live/av2		OH	2
	RTMP	Stop	RTMPRemote3	rtmp://192.168.1.6:1935/live/av3		Off	L
	RTMP	Stop	RTMPRemote4	rtmp://192.168.1.6:1935/live/av4		Oon	2
	RTMP	Stop	RTMPRemote5	rtmp://192.168.1.6:1935/live/av5			2
					▲ 1 2 3 ♥		

4.4.3. Pull Streaming

Access the encoders web page and select "Stream settings" section, then obtain and copy the "Local Address URL" for pull streaming.

Open a video player app like OBS, PotPlayer or Vmix, and paste the local address URL into the designated field to initiate the local streaming.

tream Media	Status	Custom Name	Address	Action
TSP	Runing	RTSPLocal0	rtsp://192.168.111.132:5554/live/av	On 🌔
TSP	Stop	RTSPLocal1	rtsp://192.168.111.132:6554/live/av1	
тмр	Runing	RTMPLocal0	rtmp://192.168.111.132:1935/live/av	On O
TMP	Stop	RTMPLocal1	rtmp://192.168.111.132:1935/live/av1	

How to configure the encoder for pull stream using OBS

Step 1: Open OBS Studio. Click the "+" icon in the "Sources" section and select "Media Source" to add a new media source."



Step 2: Cancel the local file setting, paste the "local address URL" into the "Input" field, and click "OK" to complete the local streaming setup.

□ Local File ✓ Restart playback when source becomes active Network Buffering Input rtsp://192.168.123.28:554/live/av0	2	MB 🗘
Reconnect Delay	ОК	10 S 🗘 Cancel

How to Play the RTSP Stream Using VLC Player:

Step 1: Open VLC Player, and click the "Media" section and select "Open Network Stream".



Step 2: Enter the RTSP address of the stream in the "Network" section of the pop-up window. (av0 means main stream; av1 means sub stream)



4.5. Record Settings

The encoder offers two recording methods: via USB disk or SD card.

4.5.1. Disk Management

After inserting the USB disk or SD card into the device, the web page displays the reading and capacity of the USB disk and SD card along with their format types. Users can manually refresh to check the current storage remaining. Additionally, formatting can be performed through the web page if necessary. The default formatted file system is exFAT. Keep in mind that formatting will permanently erase all data on the disk, so please back up important data beforehand.



4.5.2. Storage Settings

In the storage settings section, users can configure the record storage device, record format, Split Recording File, and overwrite mode.

Record Storage Device: Choose between the USB disk and SD card as the desired storage device for recordings.

Record Format: Select the recording format from the available options of MP4 and TS.

Split Recording File: Recorded videos can be automatically split into segments based on the chosen interval: 1 minute, 5 minutes, 10 minutes, 20 minutes, 30 minutes, 60 minutes, 90 minutes, or 120 minutes. Alternatively, recordings can be stored without interruption.

Overwrite Mode: When the SD card or USB disk memory is full, the overwrite function automatically deletes and overwrites previously recorded content with the new recording. The default is to end storage when it is full. Users can enable or disable the overwrite function via the web page or menu button. Click "Save" to complete the setup.

Overwrite Mode			Save
Record Format		Split Recording File	
TS	×	60 mins	\vee

4.6. Layer Overlay

The encoder allows users to simultaneously embed logos and text into both the Main Stream and Sub Stream videos. Supported logo file formats is BMP, with a resolution limit of 512x320 and a file size under 500KB. You can customize the logo's position and size directly on the web page. Additionally, you can enable channel name and date/time overlay on the images. The text's size, color, and position can also be adjusted on the web page. Click "Save" to complete the setup.

AVMATRIX®	HDMI/SDI ENCODER				English ¥ Logout
Device Status					
Encode Settings					
Stream Settings					
Record Settings					
🖾 Layer Overlay					
System Settings					
				Camera 01	
	Picture Mark	On 🔵	OSD Setting		Save
			On Channel Name Overlay Enabled	On DateTime Overlay Enabled	🔀 🔵 Display Week
	The image file siz	re must be less than 500K, the resolution	Channel Name	Date Style	Time Style
	must be less than !	512x320, and the file format must be BMP.	Camera 01	CHR-YYYY-MM-DD	V 24hour V
	X Position	Y Position	Text 1 Overlay	Off OSD Color Mode	OSD Font
	16	388		customize	✓ 32*32
	Picture Width	Picture Height	Text 2 Overlay	Customize Color	OSD Alignment
	160	80 Save			Customize V

4.7. System Settings

In system settings section, users can view device information, upgrade firmware, configure network settings, set time, and set password. The firmware version information can be checked the web page as below.

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4.7.1. Device Information

View device information, including model number, serial number, and firmware version.

		SDI/HDMI
ENCODER	&	RECORDER

AVMATRIX [®]	HDMI/SDI ENCODER			English 🗸 Logout
Ø Device Status	Device Info. System Maintenance Network Set	tings Time Settings Password Settings		
Encode Settings				
	Device Name	Device No.	Mac Address	IP Address
Record Settings				132-100.111132
四 Layer Overlay	V1.1	V1.0.3.7	V1.0.5	Authorized
System Settings				

4.7.2. Firmware Upgrade

Upgrade the encoder's firmware to the latest version.

- 1. Download the latest firmware file from offical website to your computer.
- 2. Open the web page and navigate to the firmware upgrade section.
- 3. Click the "Browse" button and select the firmware file.
- 4. Click the "Upgrade" button and wait 2-5 minutes.
- 5. Do not turn off the power or refresh the web page during the upgrade process.

AVMATRIX®	HDMI/SDI ENCODER				English 🗠 🛛 Logout
O Device Status	Device Info, System Maintenance	Network Settings Time Setting	s Password Settings		
III Encode Settings	SUMPRICES .	Contraction -			
Stream Settings	Upgrade	Import Settings			
Record Settings				Export Settings	Reset
🖾 Layer Overlay	L Upload	Upgrade L Upload	Import	Export Log	Reboot
System Settings					

4.7.3. Network Settings

Configure the encoder's network settings, including IP address, subnet mask, and default gateway. Network mode: dynamic IP (DHCP Enable).

Using dynamic IP, the encoder will automatically obtain an IP address from the network's DHCP server. Click the "Save" button to apply the network settings.

AVMATRIX®	HDMI/SDI ENCODER			English 🗸 🛛 Logout
② Device Status 圖 Encode Settings	Device Info. System Maintenance Network Settings Time Setti	ngs Password Settings		
Stream Settings	On DHCP			
Record Settings	IP Address	Sub Mask	GateWay	
🖾 Layer Overlay				
System Settings	DNS 1	DNS 2		_
				Save
AVMATRIX®	HDMI/SDI ENCODER			English Y Logout
Ø Device Status	Device Info. System Maintenance Network Settings Time Setti	ngs Password Settings		
Encode Settings				
Stream Settings	OH DHCP			
Record Settings	IP Address	Sub Mask	GateWay	
🖾 Layer Overlay	192.168.111.132	255.255.255.0	192.168.111.1	
System Settings	DNS 1	DNS 2		_
	192.168.111.1			Save

4.7.4. Time Settings

Set the encoder's time manually or automatically.

1. Enter time zone, date, time to set the time manually.

2. Select the "Auto-sync Time" option and enter the time zone, NTP server address and synchronization interval. Select the custom time zone, click the "Save" button to set the time automatically. Users can choose the automatic calibration time interval according to their own needs.

AVMATRIX®	HDMI/SDI ENCODER			English ¥	Logout
 Device Status Encode Settings 	Device Info. System Maintenance	Network Settings	Password Settings		
Stream Settings	Off Summer Time	uto-sync Time Manual Settings			
Record Settings	Time Zone		Manual Setting		
🖾 Layer Overlay	(UTC+08:00) Beijing, Chongqing, Hong Kong, Urumqi 🗸 🗸		请选择日期 芭 Con Local Sync		
System Settings	NTP Server	Sync Interval(Min)	Devices Time		
	pool.ntp.org	60	2023-11-01 11:21:02 🖹 Save		

4.7.5. Password Settings

Set or change the encoder's password by enter the current password, the new password, and confirm the new password. The default password is "admin".

Click the "Save" button to apply the password settings.

AVMATRIX [®]		English ¥	Logout
ී Device Status	Device Info. System Maintenance Network Settings Time Settings Password Settings		
Encode Settings			
Stream Settings	Old Password		
Record Settings	ø		
🖾 Layer Overlay	New Password		
System Settings	Confirm Password		
	Ø Save		
	Note: Please enter 3-16 characters, supporting uppercase and lowercase letters, numbers, hyphens, and underscores.		

5. DEVICE MENU SETTINGS

The device also can be set through menu by buttons and an OLED screen on the device.

On the home status page of the device menu, you can easily view the IP address, streaming duration, recording duration, as well as CPU memory usage and the working temperature.

In the device menu, you can configure stream, record, video, audio, overlay, and system settings using the buttons:

• Stream settings

Accessing the streaming menu allows you to dynamically enable or disable streaming functionality and you can also choose to enable or disable three main streams and three sub-streams.

Record settings

Recording settings allow users to choose between MP4 and TS recording formats, save recordings to SD cards or USB flash drives, and enable or disable overwrite mode.

• Video settings

Video settings allow users to choose the video source (SDI or HDMI), the encoding bitrate (up to 32Mbps), the bitrate mode (VBR or CBR), the video code, the resolution (1080p, 720p, or 480p), the frame rate (24/25/30/50/60fps).

• Audio settings

Audio settings allow users to choose the audio source (SDI or HDMI), adjust the volume, select the sampling rate (48kHz), the bitrate (64kbps, 128kbps, 256kbps, or 320kbps).

• Overlay settings

In the overlay settings, you can toggle on or off image and text overlays. Overlays can be configured in the web interface.

• System settings

The system settings allow you to choose your preferred language, select USB-C or LAN mode, check the version number, format USB drives and SD cards, restart the device, and reset the device to factory defaults.