



Recorder & Encoder with HDMI & SDI input

AV-REC200

User Manual

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Introduction

Congratulations

Thank you for your Avonic purchase. Before beginning to operate this device, please read the manual in order to make sure the best performance is obtained. Save this manual for future reference.

Contact

For any questions or suggestions, contact your reseller or the local distributor of Avonic. Find the local distributor on the website of Avonic. For the most recent version of the manual or datasheet, look at the Avonic website: www.avonic.eu

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Safety Notes

- Installation and servicing should only be done by Qualified Service Personnel and conform to all local codes.
- This unit is designed for indoor use only and it must not be installed where exposed to water or other liquids and moisture.
- Before powering on the device, check the input power voltage carefully.
- Avoid shock and vibration when transporting and installing the device.
- Electronic devices produce heat. Do not block the ventilation slots of the device and make sure the installation environment is well ventilated to avoid overheating.
- Before cleaning, unplug the power cable. Use a soft, damp cloth to clean the device, do not use strong or abrasive detergent to clean that will damage the device.
- If you wish to dispose this product, please contact Avonic to obtain info about the disposal procedure.

Package contents and Accessories

Contents

Quantity	Description	Avonic SKU
1 pc	Device	AV-REC200
1 pc	Power Supply	AV-PSU200

Product Overview

The Avonic AV-REC200 is the ideal standalone USB/SD Card recorder and web streaming device. Users can simply connect an HDMI or SD/HD/3G-SDI input and in a few simple steps, they will be streaming and/or recording. With support for UDP/HLS/RTMP/RTSP live output and USB/SD card recording the AV-REC200 enables corporate streaming, live streaming to various platforms and live high bitrate full HD 1080P60 recording. A simple to use webinterface and IP control enable ease of use and full integration with 3rd party control systems.

Features

- Live simultaneous recording and streaming
- works with popular platforms like youtube and facebook live
- recording on usb or SD
- support for full hd 1080p60 H.264 and H.265
- 3G-SDI and HDMI inputs
- Analogue line input through 3.5mm jack
- HDMI loop through output

Installation

Back side: Connections

Image 1



1. Power Supply Input
2. RJ45 network connector for streaming and management purposes
3. HDMI loop output
4. RS 232 input (future use)
5. Audio IN
6. HDMI IN
7. Close Caption Input
8. 3G-SDI IN
9. SD card slot

Front side: Button and Display layout

Image 2



1. Display screen, shows management IP address, operational mode, input stream standard, output protocol, running status etc.
2. Navigation Buttons. for navigating through front panel display.
3. Ok button
4. Menu button
5. Power and status indicator, changes color on basis of operational status of the REC-200.
6. USB storage input for use with playback and/ or recording features

Operating Instructions

1. Powering up and Initialization of the AV-REC200

Connect the supplied power transformer to the unit and wait until it is booted up. This process takes approximately 35 seconds to 1 minute to complete. All of the features of the AV-REC200 can be accessed through the webinterface, in the now following part of this manual we will explain how to use it.

2.1 Operating the webinterface

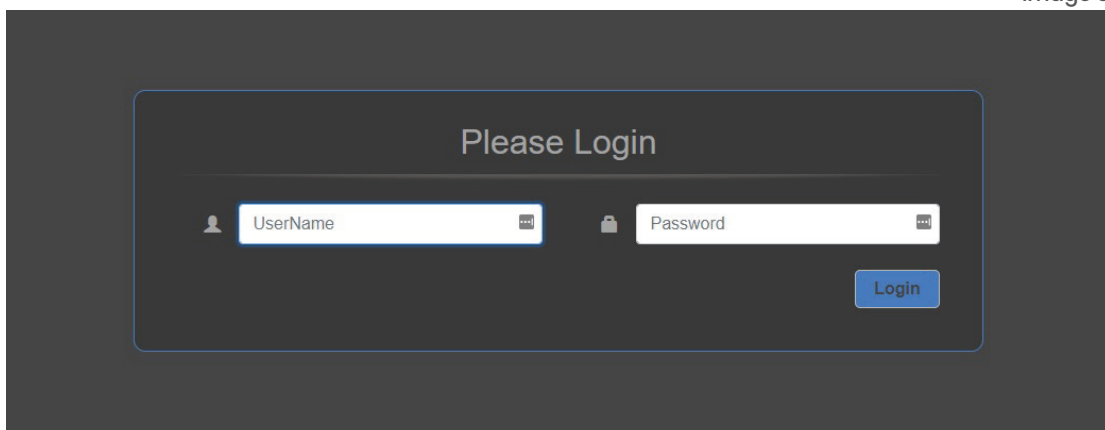
All of the features of the AV-REC200 can be accessed through the webinterface

Default IP address : 192.168.1.100

Default Username and Password : admin/admin

1. Connect the AV-REC200 directly to a pc or to a networkswitch.
2. The default ip address on which the AV-REC200 can be found is 192.168.1.100. Make sure that the ip address of your computer has been put in the same subnet range of the AV-REC200 to be able to connect to it.
3. Open a webbrowser and enter the ip address of the AV-REC200 - the browser will connect to the unit. Once the connection has been established, a login page will appear. The default user name and password are admin/admin.

Image 3



- After logging in, you will be directed to the status page of the AV-REC200, with a live preview of the incoming video signal on top and information about the incoming signal, recording status and streaming status:

Image 4

The screenshot shows the AV-REC200 status page. At the top left, it says 'AV-REC200' and 'Status'. At the top right, there is the AVONIC logo and a user profile for 'admin'. The main content area is divided into three sections: Live Streaming, Record, and Play Back. Each section has a table of configuration parameters.

Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	udp://227.40.50.60:1234
Input Resolution:	1080p	Output Resolution:	1080p
Audio Bit Rate(kbps):	278	Video Bit Rate(kbps):	3836
Audio Sampling Rate:	44.1 kHz	Encryption:	Unencrypted

Record			
Input Status:	Good	Output Status:	Bad
Input:	HDMI	Output File:	record
Input Resolution:	1080p	Output Resolution:	1080p
Audio Bit Rate(kbps):	278	Video Bit Rate(kbps):	3836
Audio Sampling Rate:	44.1 kHz	Encryption:	Unencrypted
Record Time:	00:00:00		
Record Size:	0 kbyte		

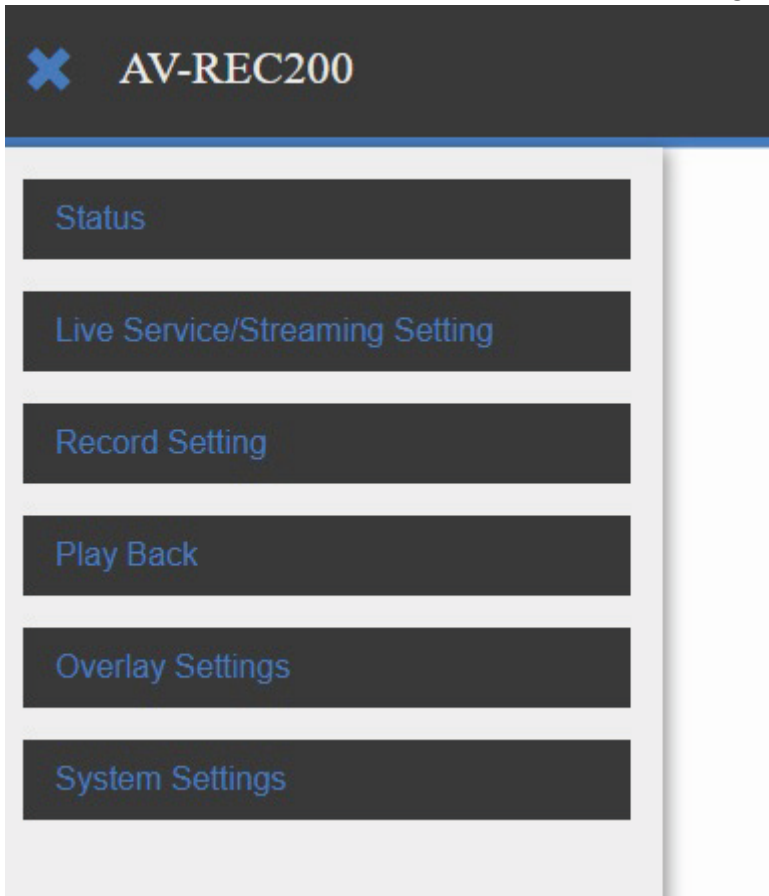
Play Back			
Play Status:	Ready	Output Status:	Bad
List Name:	Default list	Output:	rtmp://a.rtmp.youtube.co...
File Name:	program.ts	Video Resolution:	1920x1080
Audio Type:	aac	Video Type:	h264
Audio Sampling Rate:	48 k	Video Bit Rate:	4096

2.2 Live Service/ Streaming Setting

To access the Live Service and Streaming Setting configuration page, click on the menu button on the top left of the webpage, the main menu will slide out from the left, see image 3 below, and choose Live Service/ Streaming Setting.



Image 5

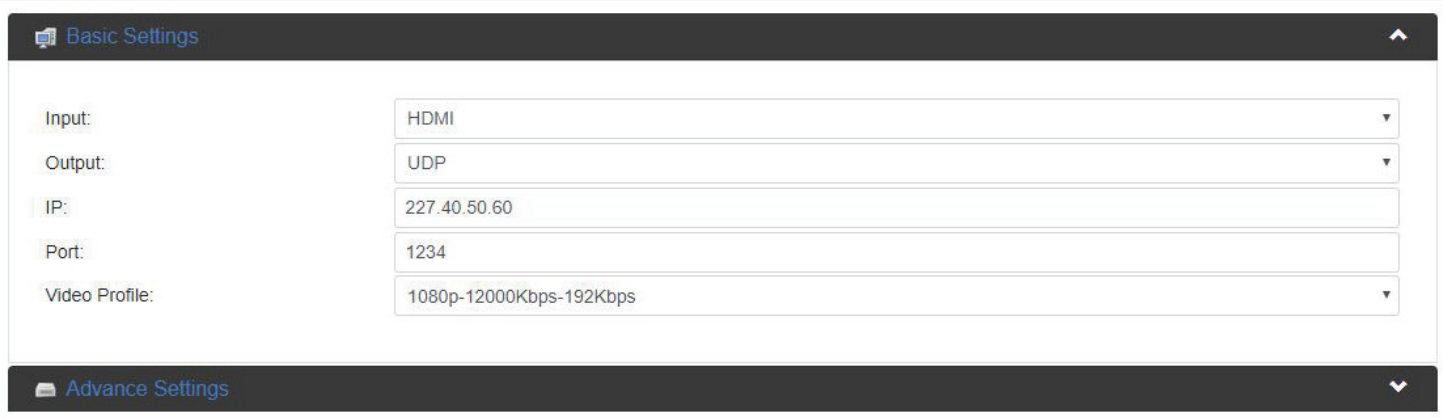


2.2.1. Live Service / Streaming Setting Basic options

The Live Service/ Streaming Setting page will look like the screenshot below, with the basic options for the input and output settings.

1. Input HDMI, SDI
2. Output UDP, RTMP*, RTMPS*, HLS, RTSP
3. IP/URL IP address or URL on which the streamed content can be found
4. Port Portnumber of the IP or URL
5. Video Profile user defined
12mbps 1080p video/ 192kbps audio
8mbps 1080p video/ 192kbps audio
6mbps 1080p video/ 128kbps audio
4mbps 1080p video/ 128kbps audio
8mbps 720p video/ 192kbps audio
6mbps 720p video/ 128kbps audio
4mbps 720p video/ 128kbps audio
4mbps 576p video/ 128kbps audio
2mbps 576p video/ 96kbps audio
4mbps 480p video/ 128kbps audio
2mbps 480p video/ 96kbps audio

Image 6



The screenshot shows a 'Basic Settings' interface with the following fields:

Input:	HDMI
Output:	UDP
IP:	227.40.50.60
Port:	1234
Video Profile:	1080p-12000Kbps-192Kbps

At the bottom of the settings panel, there are two buttons: 'Apply' and 'Start Streaming'.

*RTMP/ RTMPS: when one of these options is selected you need to authorize the device for the chosen service Facebook or Youtube, see pictures on the next page. Follow the steps indicated on the page of the platform. On page 13 there are a couple of screenshots how the screen of the REC-200 looks when you have successfully authorised your REC-200 with your account. After the account is registered with Youtube in the example on the following page (image 7-10) and you click on 'Start Streaming' it can take one or two minutes before the little antenna symbol in the center of the screen turns green, indicating that the REC200 is live and streaming to the platform.

Image 7 authorization

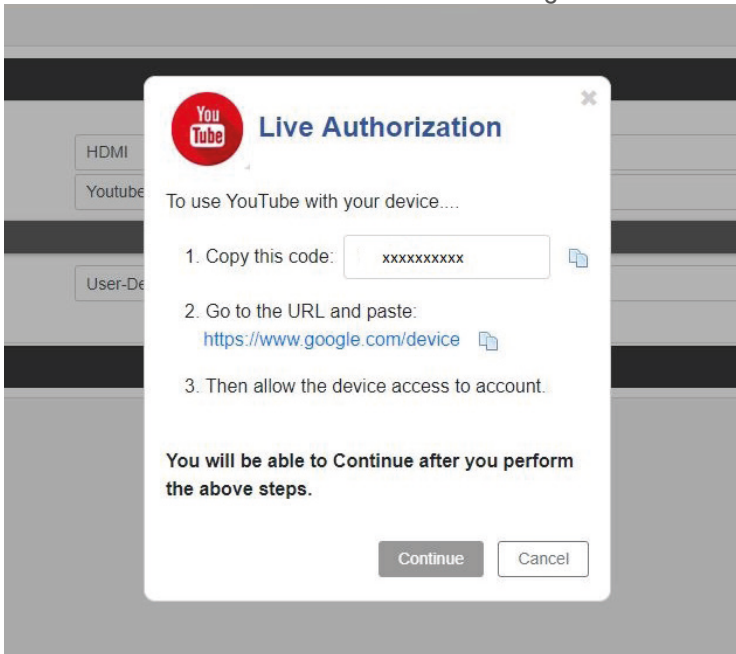


Image 8 authorization success

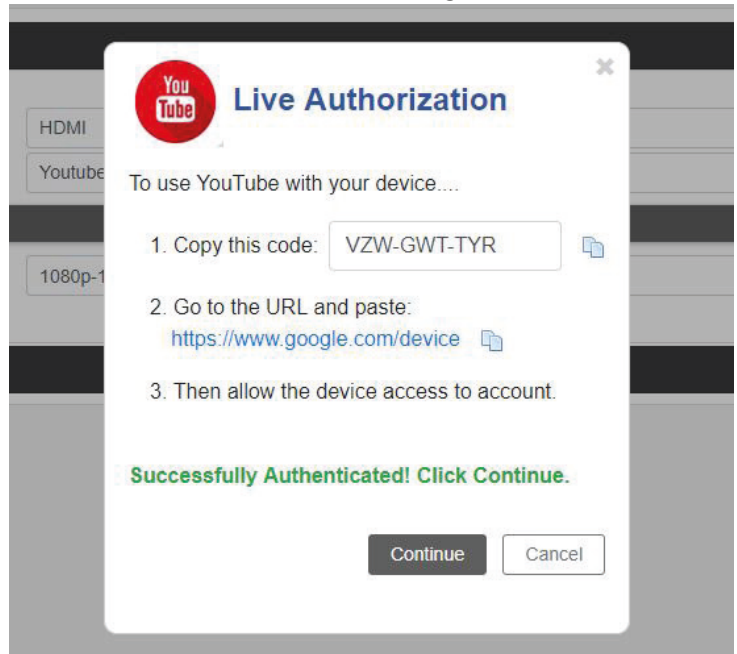


Image 9 authorized and streaming

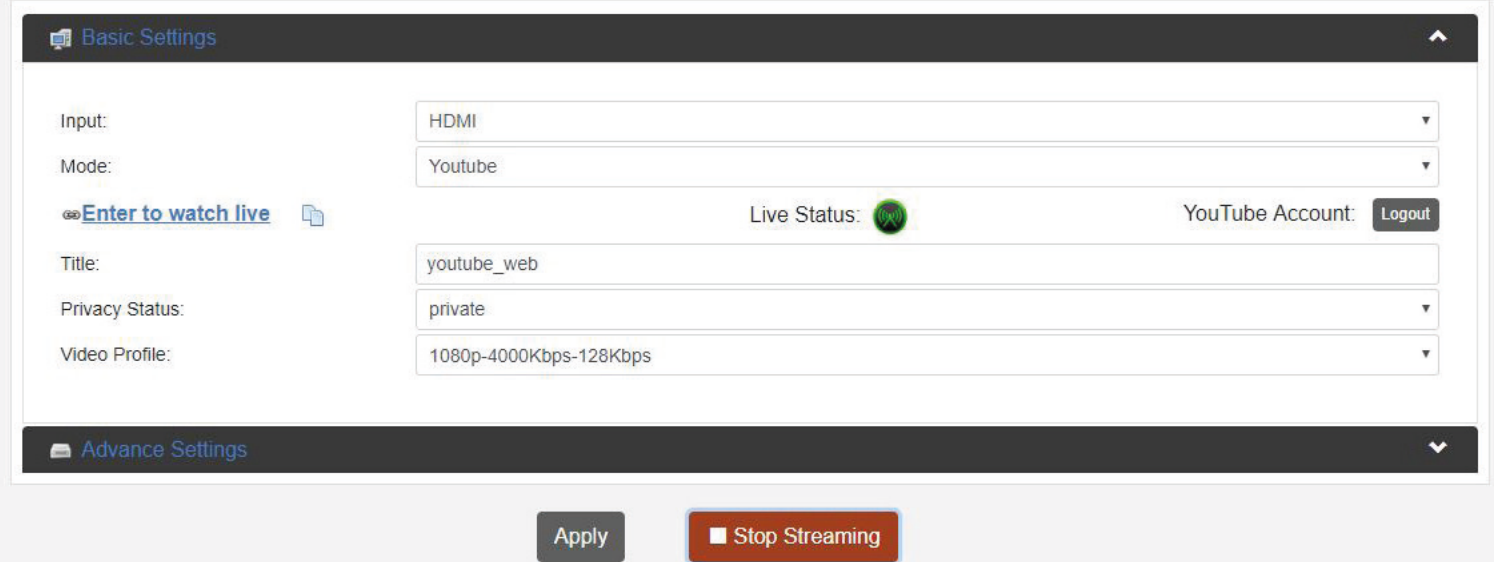
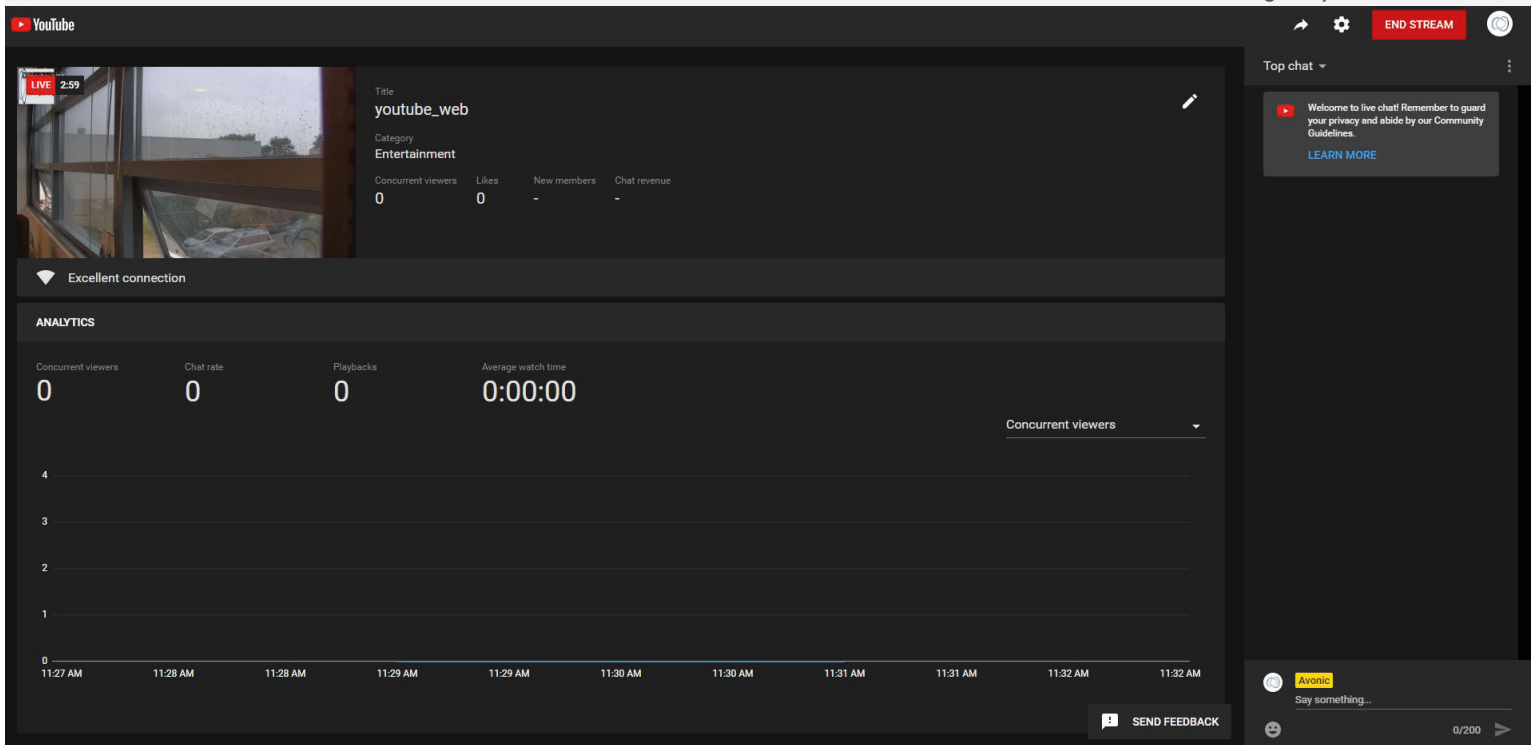


Image 10 youtube dashboard



2.2.2. Live Service / Streaming Setting Advanced options

By clicking on the advanced tab, the dropdown menu will present an expanded range of options for recording and streaming:

INPUT:

MIC	Enable or Disable the audio line input
CC	Enable or Disable Closed Caption input
HDCP Test Mode	Enable or Disable, for testing and development purposes only!

VIDEO:

Video Type	H.264, H.265
Video Aspect Ratio	automatic (on H.265 only option), 16:9, 4:3
Profile	H.264 Main, Baseline, High/ H.265 Main
Video Resolution	1920x1080, 1680x1200, 1600x900, 1440x1050, 1440x900, 1360x768, 1280x1024, 1280x720, 1280x800, 1280x768, 1024x768, 1024x576, 960x540, 850x480, 800x600, 720x576, 720x540, 720x480, 720x404, 704x576, 640x480, 640x360, 480x270, Automatic
Group of Pictures Size	1~61
Video Frame Bitrate (FPS)	20~60
Video Bit Rate (kbps)	600~20000
Video Mode	Constant Bitrate (CBR), Variable Bitrate (VBR).

AUDIO:

Audio Type	MPEG1_Layer2 (MP2), AAC, AC3, EAC3
Audio Sampling Rate (KHz)	48
Audio Bit Rate (kbps)	32, 48, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384

Advance Settings

Input

MIC: Disable

CC: Disable

HDCP Test Mode: Disable

Video

Video Type: H264

Video Aspect Ratio: Automatic

Profile: Main

Video Resolution: 1920x1080

GOP Size: 30

Video Frame Bitrate(FPS): 60

Video Bit Rate(kbps): 12000

Video Mode: CBR

Audio

Audio Type: AAC

Audio Sampling Rate(KHZ): 48

Audio Bit Rate(kbps): 128

Apply Start Streaming

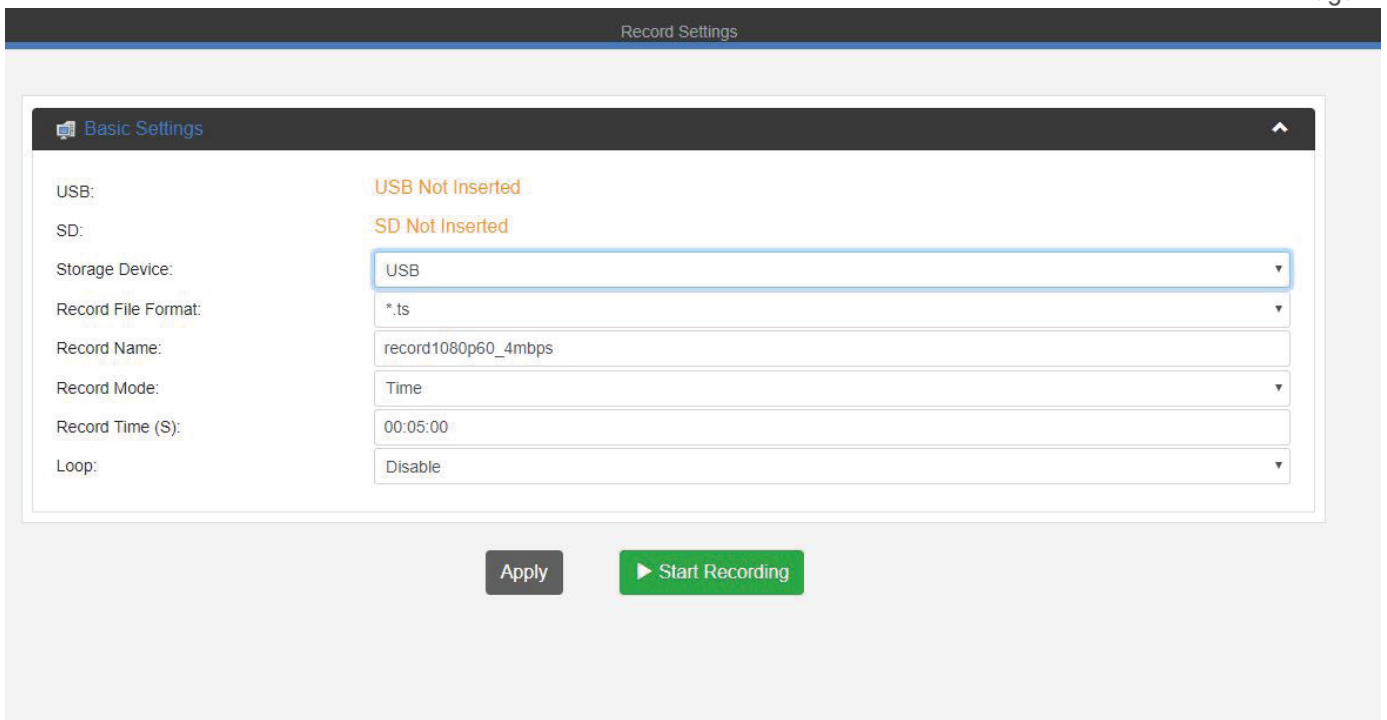
The last step on this page is to press Apply and after that the green Start streaming button to start broadcasting your stream.

2.2.3. Record Settings

The Record Settings page is shown in the picture below. Here you can select which way and where a stream is recorded.

1. USB states whether or not a USB device is inserted
2. SD states whether or not a SD card is inserted
3. Storage Device Select either USB or SD to record
4. Record File Format *.ts, *.mp4, *.mov
5. Record Name name the recorded file
6. Record Mode Loop, Size, Time
7. Record Time/ Size Determine maximum recording Time or Size
8. Loop enable/ disable loop recording when recording device is full
9. Start recording click on green button

Image 12



The screenshot shows the 'Record Settings' page with a 'Basic Settings' panel. The panel contains the following settings:

USB:	USB Not Inserted
SD:	SD Not Inserted
Storage Device:	USB
Record File Format:	*.ts
Record Name:	record1080p60_4mbps
Record Mode:	Time
Record Time (S):	00:05:00
Loop:	Disable

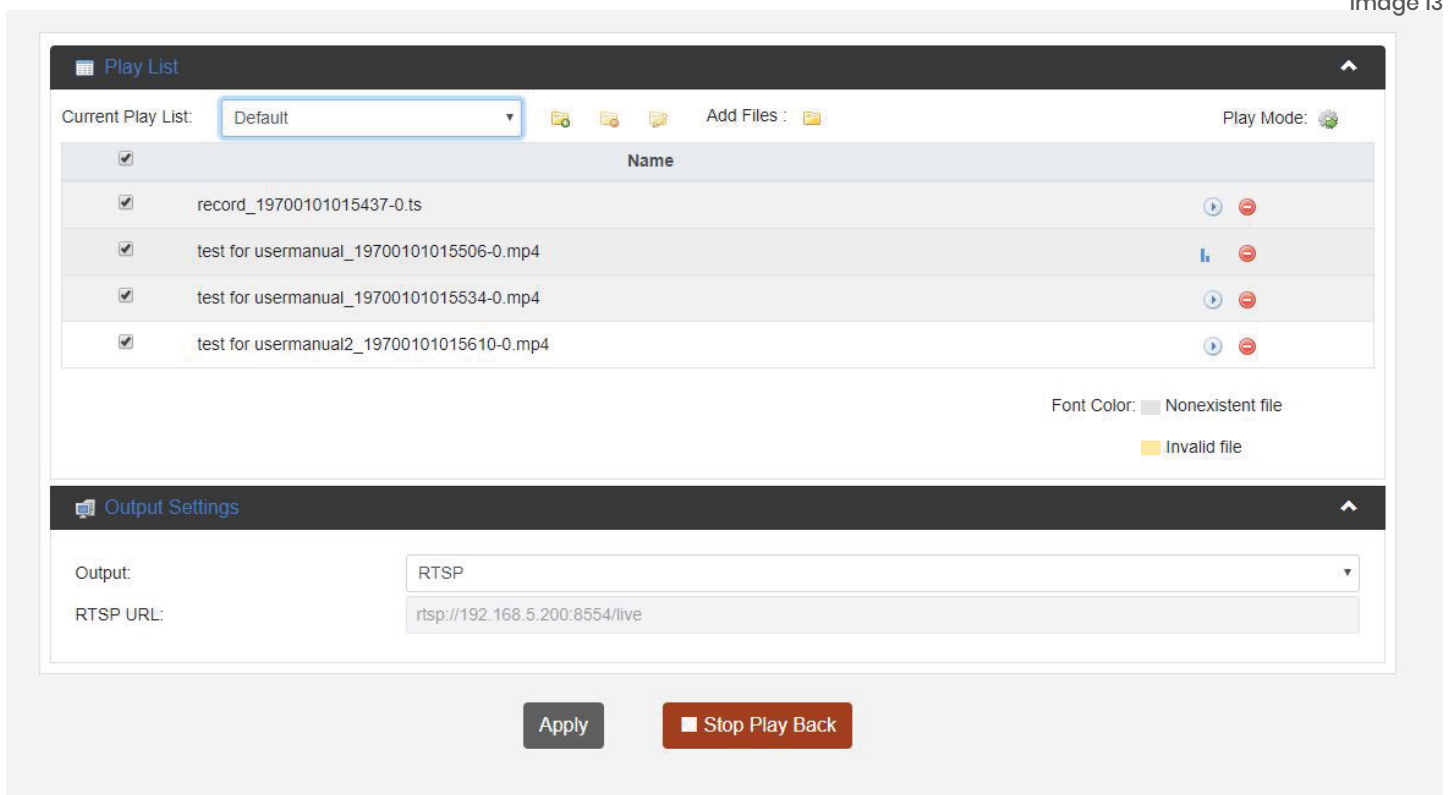
At the bottom of the panel, there are two buttons: 'Apply' and 'Start Recording'.

2.2.4. Playback Settings

Another function of the REC-200, next to streaming and recording, is playback of files as a stream. It works the same as streaming and recording, but in this case you get the page below where the files to be played can be chosen. By default the Default play list is active, but you can choose to create more playlists by using the folder icon with the green '+' sign in it. The next step is to add files using the 'add files' button upon which a window will be opened to select the files for the playlist.

The way these files are played back is by using an identical set of settings as described under chapter 2.2.1.

Image 13



2.2.5. Overlay Settings

The Avonic REC-200 has the possibility to put a text and/or picture on its output as an overlay over the picture* (bottom of page 16) . After clicking on the menu settings Overlay tab, the page looks like this:

Image 14

Text Overlay

Overlay Mode: Title Only

Text: Test for UM

Color: White

Font Size: 32

Location X: 30

Location Y: 30

Picture Overlay

Picture Switch: Enable

Location: Manual

Position X: 10

Position Y: 10

Size Width: 200

Size Height: 200

Empty the uploaded pictures

Note: When the transparent background image is superimposed, only bmp format images with alpha channel are supported.

Select Picture Selected: Pic1

Pic1 Pic2 Pic3 Pic4 Pic5 Pic6 Pic7 Pic8

Pic9 Pic10 Pic11 Pic12 Pic13 Pic14 Pic15 Pic16

Apply Cancel

Overlay Settings continued

From top to bottom the settings for the text and picture overlay are as follows:

Text Settings:

- | | | |
|----|---------------|--|
| 1. | Overlay Mode | Text only, off |
| 2. | Overlay Text | Fill in the overlay text to be displayed |
| 3. | Overlay Color | White, Yellow, Green |
| 4. | Font Size | Size of the text shown |
| 5. | Location X | Horizontal location |
| 6. | Location Y | Vertical location |

Picture Settings:

- | | | |
|----|-------------------------|---|
| 1. | Picture Switch | Enable, Disable |
| 2. | Location | Manual, Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right |
| 3. | Position X | Horizontal placement of overlay picture |
| 4. | Position Y | Vertical placement of overlay picture |
| 5. | Size Width | Horizontal size of overlay picture |
| 6. | Size Height | Vertical size of overlay picture |
| 7. | Empty uploaded pictures | Delete all uploaded pictures fomr the gallery below. |

* A short guide to create a usable BMP file as transparant overlay using Adobe Photshop:

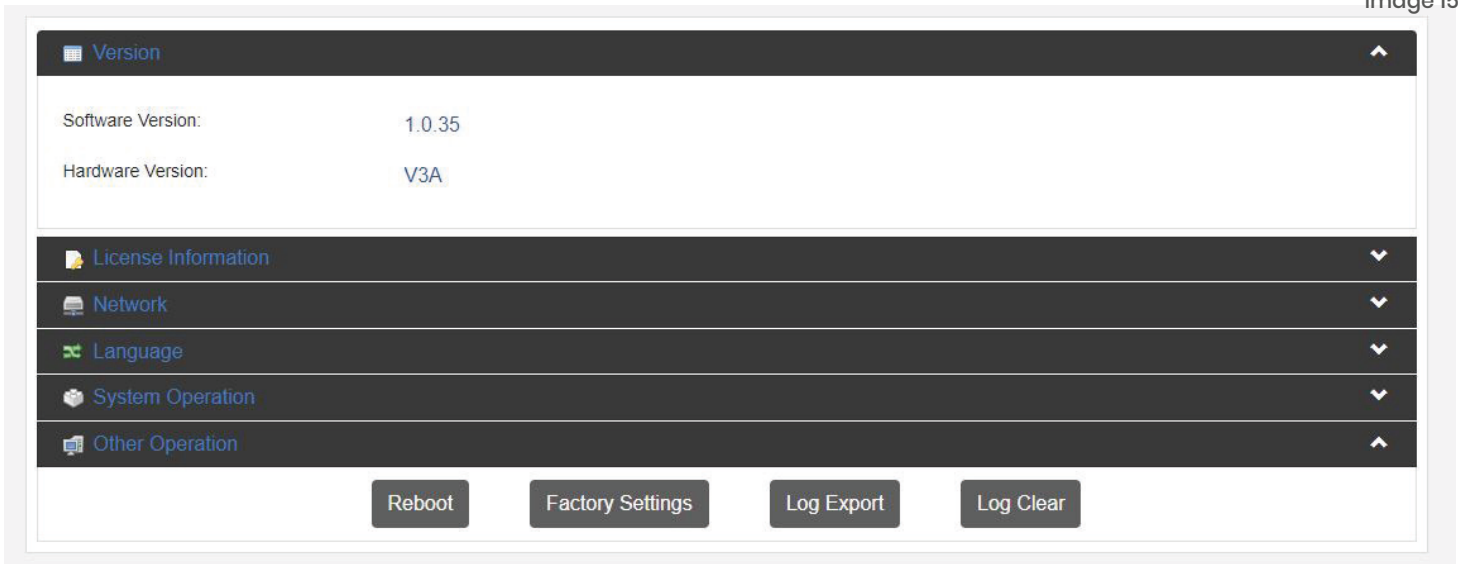
1. Create workspace roughly 200x200
2. Select your imagefile with transparent background
3. Select your imagefile in the layers windows holding the CTRL button
4. go to the channel window and save your selection as channel
5. uncheck the colors, leaving only the alpha channel selected
6. save the file as 32 bit Bitmap with alpha channel

2.2.6. System Settings

The last page on the menu is the System Settings page, where you can find all the settings regarding licenses, network settings firmware upgrades etc.

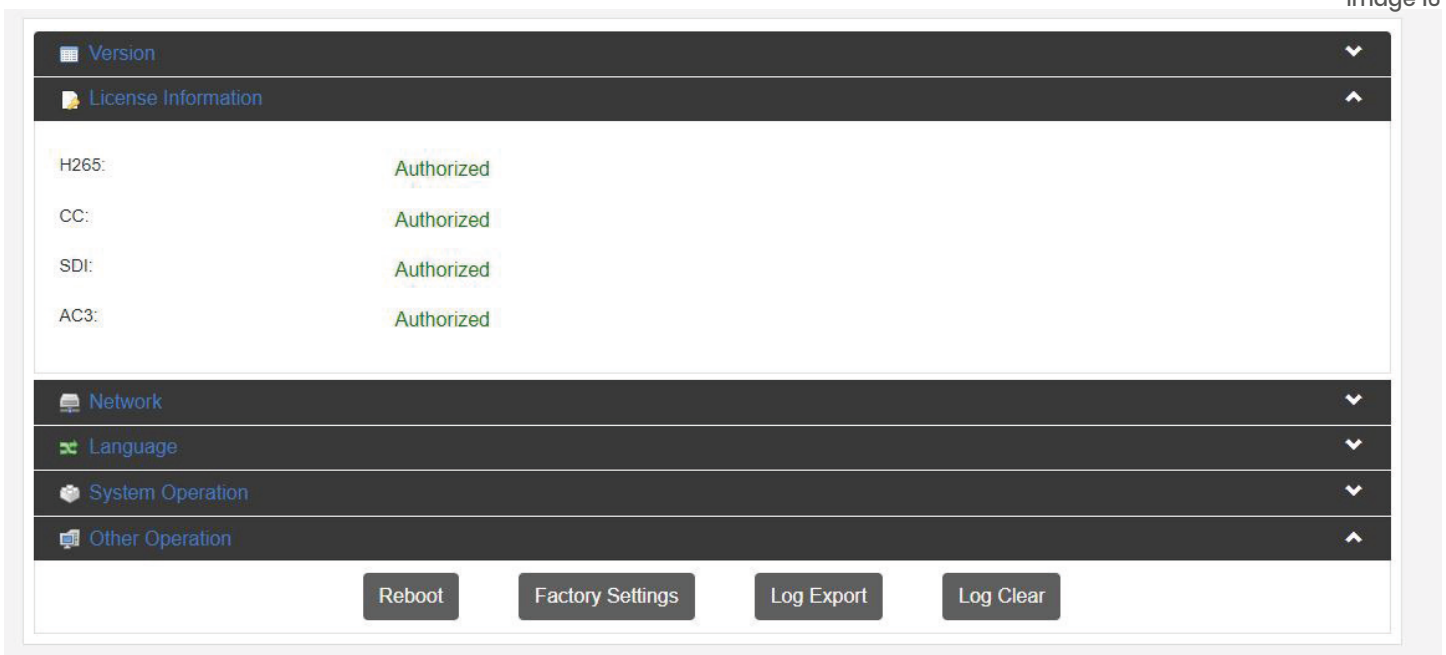
1. Version information

Image 15



2. License information

Image 16



3. Network Settings

Image 17

Version

License Information

Network

Language

System Operation

Other Operation

Network Mode: Static

IP Address: 192.168.5.200

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.5.1

Dynamic DNS: Disable

Primary DNS: 192.168.5.1

Secondary DNS: 8.8.8.8

Apply Cancel

Reboot Factory Settings Log Export Log Clear

4. System operation

Upgrade, import or export license if available. Import or export a configuration file

Image 18

Version

License Information

Network

Language

System Operation

Other Operation

Upgrade

Upgrade: Upload

License

Import License: Upload

Export License: Export

Configuration

Import Config: Upload

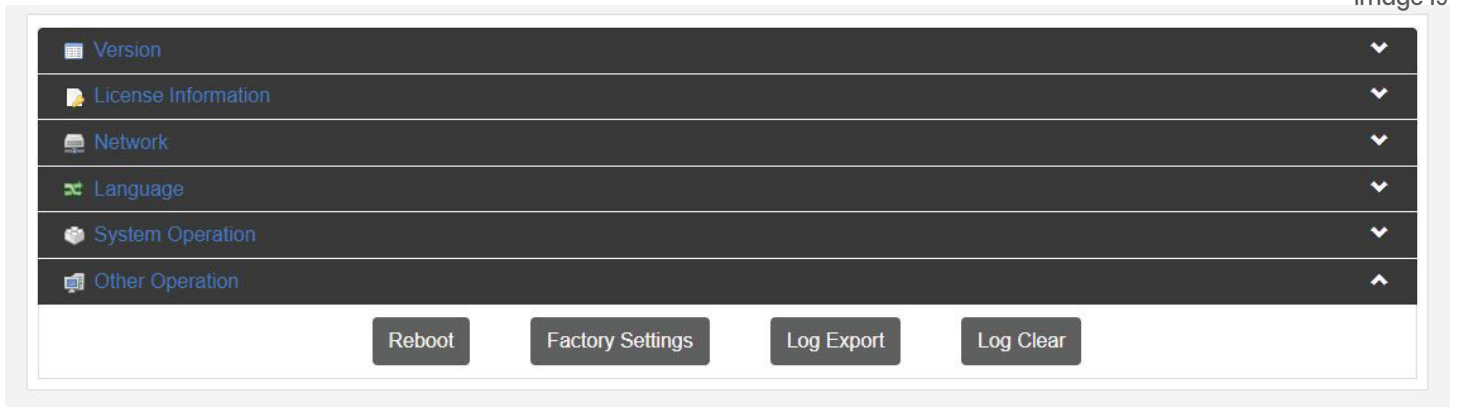
Export Config: Export

Reboot Factory Settings Log Export Log Clear

5. Other Operation

Reboot, Restore Factory Settings, Export logfile and Clear all logs.

Image 19



Maintenance

Maintenance

- If the recorder will not be used for a long time, please turn it off and disconnect the AC adaptor from the outlet.
- Use soft cloth or tissue to clean the display and housing.
- Please use a soft dry microfibre cloth to clean. If the recorder is very dirty, clean it with diluted neuter detergent. Do not use any type of solvents, which may damage the surface.

Unauthorized Use

- No operating close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

Troubleshooting

General advise

- Turn the recorder off and on again and check if the problem persists.
- Restore to Factory Default

Power Issues

- No display and no power LED
 - Check the net power
 - Check the power supply

WebGUI

- Cannot enter WebGUI
 - Check network cable
 - Check if PC is in the same subnet as the recorder
- Firmware update failed
 - Check firmware file integrity, download it again.

API data

Commands

Commands should be sent using TCP/IP. The default port for TCP is 55555. Each command is case sensitive. Do not change capitalization, spacing, or lettering. Each command is terminated with a carriage return. If the command fails or is incorrect the feedback should be "Error: unknown cmd" followed by the sent command.

Command	Description
InputSrc	Select HDMI or SDI as input source, and display input source status
AudioSw	Enable/disable audio, and display audio status
RecordSw	Enable/disable recording, and display recording status
RecordDev	Select USB or SD card as recording device, and display current recording device
RecordName	Set the name of record, and display record name
StreamSw	Enable/disable streaming, and display streaming status
OverlayPicSw	Enable/disable picture overlay, and display picture overlay status
OverlayTxtSw	Enable/disable text overlay, and display text overlay status
OverlayTxt	Set the content of overlay text, and display content of overlay text
Network	Display status of network
Reboot	Reboot the running system
System	Display system information of product

InputSrc	Select HDMI or SDI as input source, and display input source status	
Syntax	InputSrc X	
Parameter	Description	Range
X	Value	ON, OFF, sta
Example	Feedback	
InputSrc sta	InputSrc HDMI	

AudioSw	Enable/disable audio, and display audio status	
Syntax	AudioSw X	
Parameter	Description	Range
X	Value	ON, OFF, sta
Example	Feedback	
AudioSw ON	AudioSw ON	

RecordSw	Enable/disable recording, and display recording status.	
note:	Start record command with confirmation of status - If no disk is found the unit will report no USB or no SD found.	
Syntax	RecordSw X	
Parameter	Description	Range
X	Value	ON, OFF, sta
Example	Feedback	
RecordSw ON	RecordSw ON	

RecordDev	Select USB or SD card as recording device, and display current recording device	
Syntax	RecordDev X	
Parameter	Description	Range
X	Value	USB, SD, sta
Example	Feedback	
RecordDev USB	RecordDev USB	

RecordName	Set the name of record, and display record name	
Syntax	RecordName X	
Parameter	Description	Range
X	Name	String, sta
Example	Feedback	
RecordName record1	RecordName record1	

StreamSw	Enable/disable streaming, and display streaming status	
Syntax	StreamSw X	
Parameter	Description	Range
X	Value	ON, OFF, sta
Example	Feedback	
StreamSw ON	StreamSw ON	

OverlayPicSw	Enable/disable picture overlay, and display picture overlay status	
Syntax	OverlayPicSw X Y	
Parameter	Description	Range
X	Value	ON, OFF, sta
Y	Select which picture	1-20
Example	Feedback	
OverlayPicSw ON 2	OverlayPicSw ON 2	

OverlayTxtSw	Enable/disable text overlay, and display text overlay status	
Syntax	OverlayTxtSw X	
Parameter	Description	Range
X	Value	ON, OFF, sta
Example	Feedback	
OverlayTxtSw ON	OverlayTxtSw ON	

OverlayTxt	Set the content of overlay text and display content of overlay text	
Syntax	OverlayTxt X	
Parameter	Description	Range
X	Text content	String (<30Bytes), sta
Example	Feedback	
OverlayTxt Avonic	OverlayTxt Avonic	

Network	Display status of network	
Syntax	Network X	
Parameter	Description	Range
X	Status	sta
Example	Feedback	
Network sta	IP: 192.168.1.100 Gateway: 192.168.1.1 NetMask: 255.255.255.0 DNS1Addr: 8.8.8.8 DNS2Addr: 192.168.1.1 MACAddr: 98:14:xx:xx:xx:xx	

Reboot	Reboot the running system	
Syntax	Reboot X	
Parameter	Description	Range
X	Status	ON
Example	Feedback	
Reboot ON	Reboot ON	

System	Display system information of product	
Syntax	System X	
Parameter	Description	Range
X	Status	sta
Example	Feedback	
System sta	InputStatus: good OutputStatus: bad InputResource: HDMI VideoResolution: 1080i OutputProtocol: udp://... AudioBitRate: 127kbps AudioSample: 48k VideoBitRate: 5885kbps EncryptStream: Unencrypted RecordName: avonic RecordTime: 14 RecordSize: 10864KB SFVersion: 9.0.10 HWVersion: V2A	