

USER MANUAL



Recorder & Encoder with HDMI & SDI input

AV-REC200

DISCLAIMER, CONTACT AND MARKINGS

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Markings

The Product has a CE Marking. The CE labels are placed at the bottom of the Product and on the packaging. See the respective figures below:



Figure 1: Markings (Product)

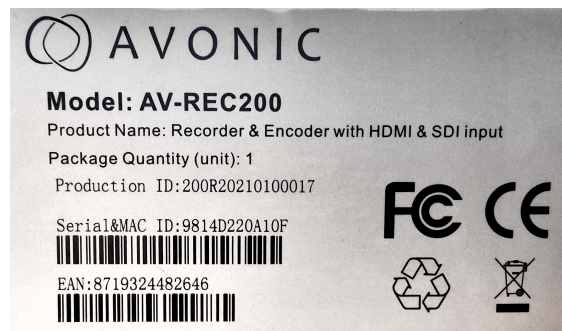



Figure 2: Markings (Packaging)

CE DECLARATION OF CONFORMITY

Table 1: CE Declaration of Conformity

	
CE DECLARATION OF CONFORMITY	
1. Models No:	AV-REC200
2. Brand Name:	Avonic
3. Product Name:	Recorder & Encoder with HDMI & SDI input (pre-order)
4. Manufacturer:	Avonic Exportweg 11a 2645ED Delfgauw Netherlands
3. This declaration of conformity is issued under the sole responsibility of the manufacturer	
4. The object of the declaration described in point 1 is in conformity with the EMC2014/30/EU	
5. Standards:	EN 55032: 2015 EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 55035: 2017
6. Signed for and on behalf of Avonic:	
Delfgauw, 25th of April, 2019	
	
Martijn van Bodegom, Product Manager	

IMPORTANT INFORMATION

Liability

Avonic will NOT be held responsible for any damage or injury caused by unqualified persons carrying out these tasks, or by not following the instructions in this Manual.

Intended Use and Non-Intended Use

Installation



The following applies to the **installation** of the camera:

- The installation activities in this Manual should ONLY be executed by experienced technicians.
- The installation activities should NOT be executed by minors, mentally disabled persons or other persons not qualified to perform these tasks.





Operation







The following applies to the **operation** of the camera:




- The operational activities described in this Manual should ONLY be executed by people with enough technical knowledge to perform the activities in a safe manner.
- This Product is specifically developed for video conferencing / streaming via internet by companies, institutes and universities. It is NOT meant for private use in the residential area.
- This Product should ONLY be used indoors.
- This Product is NOT a medical device and should NOT be used as a substitute for professional medical judgment. It is NOT designed or intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of any condition or disease. Please consult your healthcare provider prior to making any decisions related to your health.

Important Precautions

	This Product is NOT intended for use where failure of the device could lead to death, personal injury, or severe environmental damage.
	Be sure that you have COMPLETELY READ and UNDERSTOOD ALL information in this Manual before unpacking, installing and using this Product. Keep the Manual safe for future reference or download it from www.avonic.com .
	Failure to follow the SAFETY NOTES as described in this chapter could result in fire, electric shock, injury, or damage to this Product or other property.
	Power this Product ONLY with the included cable and power adapter. Other adapters may not meet applicable safety standards, and could pose a risk of death or injury when connected.

Symbols Used in This Manual

Symbol	Meaning	Description
	Danger	Not following the instructions associated with this symbol may lead to personal injury and / or serious damage to the Product.
	Electrical Shock	Not following the instructions associated with this symbol may lead to life-threatening situations and / or serious damage to the Product.
	Listed	Not following this information or instructions may lead to injury and/or damage to the product. Read the instructions in the user manual first before you use the product!
	Important	The information associated with this symbol requires special attention.

Symbol	Meaning	Description
	Information	The information associated with symbol refers to a general remark or a reference to other documentation.
	Instruction	This symbol refers to one or more user instructions that must be followed as is documented in the user manual.
	Recycling	Specific parts of the Product can be re-used.

Acronyms

The following acronyms are used in this Manual:

DHCP	Dynamic Host Configuration Protocol	DHCP is a network protocol used to automatically assign IP addresses and network configuration settings to devices on a network. DHCP eliminates the need for manual IP address configuration, making network management more efficient.
FTP	File Transfer Protocol	FTP is a standard network protocol used to transfer files between a client and a server over a computer network, typically the internet. It provides a simple and reliable method for sharing files between computers with different operating systems.
HD	High Definition	High (video) resolution of 1920 x 1080 pixels.
HDMI	High-Definition Multimedia Interface	Digital audio and video interface used to transmit high-quality audio and video signals between devices, such as computers, monitors, cameras and more.
RTMP	Real-Time Messaging Protocol	Protocol used for streaming audio, video, and data over the internet in real-time.
RTSP	Real-Time Streaming Protocol	Protocol used for controlling the streaming of multimedia data, such as audio and video, over IP networks. RTSP enables the delivery of real-time media content from a server to clients, allowing users to access and interact with live or recorded multimedia streams.
SDI	Serial Digital Interface	Video transmission standard used in the broadcast and professional video production industry to transmit high-quality, uncompressed digital video and audio signals over coaxial cables.
SKU	Stock Keeping Unit	Stock keeping unit used by Avonic. The Product has an unique SKU with AV-REC (Avonic Recorder).
SRT	Secure Reliable Transport	Open-source streaming protocol designed for transmitting high-quality video, audio, and data over unreliable or unpredictable networks, such as the internet.
TCP	Transmission Control Protocol	Communication protocol in computer networks and the internet. TCP provides a reliable, connection-oriented, and stream-oriented communication between two devices, typically computers or servers.
UDP	User Datagram Protocol	Connectionless communication protocol used in computer networks and the internet. Unlike TCP, UDP does not establish a dedicated connection between two devices before data transmission.

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INTRODUCTION

Purpose of This Manual

The Avonic AV-REC200 manual provides instructions on the safety measures for unpacking, installation, operation, maintenance, and disposal of the camera.



In this Manual, the Avonic AV-REC200 is referred to as the 'Product'.

Target Audience

This Manual is developed for installation technicians who install the Product at client sites, and for IT professionals who are responsible for operating the Product.

Document Structure

The Manual is subdivided into the following **Chapters**:

1. Introduction
2. Safety
3. Product Overview
4. Unpacking
5. Mounting and Installation
6. Operation
7. Maintenance
8. Transport and Storage
9. Disposal and Recycling
10. Troubleshooting





Additionally, it contains the following

- Appendix A - API Data
- Appendix B - Input Resolutions
- Appendix B - Input Resolutions

SAFETY

This chapter contains important safety information regarding the unpacking, installation and use of the camera.

Important Precautions

	This Product is NOT intended for use where failure of the device could lead to death, personal injury, or severe environmental damage.
	Be sure that you have COMPLETELY READ and UNDERSTOOD ALL information in this Manual before unpacking, installing and using this Product. Keep the Manual safe for future reference or download it from www.avonic.com .
	Failure to follow the SAFETY NOTES as described in this chapter could result in fire, electric shock, injury, or damage to this Product or other property.
	Power this Product ONLY with the included cable and power adapter. Other adapters may not meet applicable safety standards, and could pose a risk of death or injury when connected.

Intended Use



This Product is intended to record video. See also section [Intended Use and Non-Intended Use](#) on page iv for details.

Handling



- To prevent the risk of injury, take the following precautions when handling this Product:
- Handle the Product with care. It is made of metal, glass, and plastic and has sensitive electronic components inside.
 - The Product can be damaged if dropped, burned, punctured or crushed, or if it comes into contact with liquid.
 - Do not pick up and move the Product unit while a tripod is attached. The fitting may break under the weight of the tripod, which may result in injury.
 - If you suspect any damage to the Product, discontinue its use, as it may cause overheating or injury.

Installation



- To prevent the Product from falling down which may cause injuries:
- Set up this Product on a hard, stable surface.
 - Ensure the construction is capable of supporting four times the weight of the Product. (See 'General Specifications > Weight product' in the Product Datasheet for the exact weight.)
 - Use a safety loop or drop protection that prevents the Product from falling if the construction fails.
 - During installation, NEVER install a Product above a person.
 - Check the installation at least once a year. An improper construction could cause the unit to fall off, resulting in personal injury.

Ventilation



- To prevent the risk of life-threatening injury or damage to the Product or other property, caused by electric shock or fire hazard due to overheating:
- Maintain adequate ventilation by NOT installing or placing the Product unit in a bookcase, built-in cabinet or any other confined space.
 - Ensure that curtains or any other material does NOT obstruct the ventilation.

Repair



Take the following precautions if the Product should be repaired:

- Don't open this Product and don't attempt to repair it yourself. Disassembling the Product may damage it or may cause injury to you.
- If this Product is damaged, malfunctioning, or if it comes into contact with liquid, contact Avonic or an Avonic Authorized Service Provider.
- Repairs by service providers other than Avonic or an Avonic Authorized Service Provider may not involve the use of Avonic genuine parts and may affect the safety and functionality of the device. You can find more information about repairs and service at www.avonic.com.

Power and Adapter



To prevent the risk of life-threatening injury or damage to the Product or other property, caused by electric shock or fire hazard:

- Power this Product ONLY with the included cable and power adapter. Other adapters may not meet the applicable safety standards. They could pose a risk of death or injury when connected.
- Do NOT use damaged cables.
- Do NOT power the Product in a moist / wet environment.
- Before you power the Product, ensure the cable is fully inserted into the power adapter.
- Plug the power adapter directly into a power outlet.
- Do NOT use the power adapter at a moist / wet location.
- Do NOT connector disconnect the power adapter with wet hands.
- Keep the Product, cable, and power adapter in a dry and well-ventilated area when in use.
- Stop using the power adapter and any cables if any of the following conditions exist:
 - The power adapter plug or prongs are damaged.
 - The cable becomes frayed or otherwise damaged.
 - The power adapter is exposed to excessive moisture, or liquid is spilled into it.
 - The power adapter has been dropped, and its enclosure is damaged.

Atmospheric Conditions



To prevent the risk of injury or damage to the Product or other property caused by a potentially explosive atmosphere:

- Do NOT use this Product in an area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapors, or particles (such as grain, dust, or metal powders), may be hazardous.
- Exposing this Product to environments having high concentrations of industrial chemicals, including near evaporating liquified gasses such as helium, may damage or impair this Product functionality.
- Obey all signs and instructions.

PRODUCT OVERVIEW

Description

The Avonic REC200 is the ideal standalone USB/ SD Card recorder and web/streaming device. Users can simply connect an HDMI or SD/HD-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 REC200 enables corporate streaming, live streaming to various platforms and live high bitrate full HD 1080P60 recording. A simple to use web interface and IP control enable ease of use and full integration with 3rd party control systems.



Features

The Avonic REC200 has the following features:

Resolutions

High Definition input resolutions up to 1080p60.

Streaming

Live streaming to various platforms including Facebook Live and YouTube.

Coding and encoding

H.264, H.265 coding and encoding.

Screen

Front panel screen with status, setup and control capabilities.

Input

3G-SDI (level A only) and HDMI inputs.

Output

HDMI Out, USB storage, SD-card storage, RTSP via RJ45.

Broadcasts

Live Meeting Broadcasts

Overlay

Logo overlay

Web interface

Full IP control via web interface

FTP upload

Autonomous FTP uploading of finished recordings (only available through web interface)

UNPACKING

This provides the contents of a complete Product package, and instructions for safe unpacking and (if necessary) Product return.

It is subdivided into the following sections:

1. Package Contents
2. Unpacking the Camera
3. Return Procedure

Package Contents

The following tables contains an overview of the package contents of the Product.

No.	Quantity	Description	Avonic SKU
1	1 pc	Device	AV-REC200
2	1 pc	* Power Supply	AV-PSU200

Each item is visualized below and referenced by the associated number in the table above:



Figure 3: Package Contents

Power Adapter Usage



* Use only the Power Adapter "Switching Power Supply" of Xelite in combination with the REC200. Using another Power Adapter may lead to injury and/or damage to the product. See the picture of the Power Adapter label below:



Figure 4: Power Adapter label

Unpacking the Recorder

 Execute the following steps to unpack the REC200 and associated components:

1. Open the box.
2. Verify that the contents of the box exactly matches the items as provided in [Package Contents](#) on page 12. If this is NOT the case, contact Avonic and stop here.

The REC200 should be in its protective plastic as follows:



Figure 5: REC200 in Foam

3. Verify that the REC200 is in its protective plastic. If this is NOT the case, contact Avonic and stop here.
4. Take the REC200 out of the protective plastic and the box.
5. Install the REC200 following the steps as described in the chapter [MOUNTING AND INSTALLATION](#) on page 14

Return Procedure

 If, for any reason, you have to return the REC200 to Avonic, execute the following steps:

1. Place the REC200 back in its protective foam.
2. Place the REC200 with **all** of its components in the box.
3. Verify that the contents of the box **exactly** matches the items as described in [Package Contents](#).
4. Contact [Avonic](#) for the Return Procedure.

MOUNTING AND INSTALLATION

This chapter provides the steps you have to perform to mount and install the Product in a correct and safe manner.

These steps are subdivided into the following groups, each of which is described in a separate section:

1. Mounting construction
2. Connecting the Components to the Recorder



Take the following precautions to prevent the Product from falling down which may cause injuries:

- Set up this Product on a hard, stable surface, or mount it to a wall or ceiling.
- ONLY use an Avonic mount for mounting to a wall or ceiling.
- Ensure the mounting construction is capable of supporting four times the weight of the Product. (See 'General Specifications > Weight product' in the Product Datasheet for the exact weight.)
- Use a safety loop or drop protection that prevents the Product from falling if the mounting construction fails.
- During mounting and installation, NEVER install a Product above a person.
- Check the installation at least once a year. An improper mounting could cause the unit to fall off, resulting in personal injury.

Mounting construction



If you decide to place the REC200 on a mounted construction, make sure that the REC200 is prevented from falling by placing it on a hard stable surface that can carry its weight. See also [Installation](#) under Safety in this manual.

Connecting the Components to the Recorder



Execute the following steps to connect the components to the REC200:

1. Connect all provided components (see [Package Contents](#)) to the ports at the back of the REC200. The figure below shows the applicable ports.
2. Connect an Ethernet cable to the RJ45 port (2) (not provided in the package).
3. Connect a camera via a HDMI IN (6) or SDI cable (8) (not provided in the package) to the REC200.



Figure 6: REC200 Back

1. Power Supply Input
2. RJ45 network connector for streaming and management purposes
3. HDMI loop output (connection to a monitor)
4. RS 232 input (future use)
5. Audio IN
6. HDMI IN
7. Close Caption over CVBS Input (NOT ACTIVE)
8. 3G-SDI IN (level A only)
9. SD card slot

4. Wait until the REC200 is booted up. This process takes approximately 35 seconds to 1 minute to complete. After that, follow instructions in the [Operation](#) chapter in this manual.

Audio Connection

It is possible to connect an audio device to the REC200 to use audio for live streaming and recording. This can be done in two ways:

1. Connect a cable with a jack male plug to the REC200 and the other side to a **line-level** audio (input) device such as an audio transmitter with a connection to a microphone.
2. Connect a camera with audio input over HDMI or SDI to the REC200.



Enable audio over HDMI/ SDI, or Audio line IN in the [WebGUI](#) or using the [Front Panel](#).



OPERATION

This chapter provides the ways in which you can set up and operate the Product. The descriptions are subdivided into the following sections:

1. [WebGUI](#)
2. [Front Panel Operation \(LCD screen on the REC200\)](#)

WebGUI

All of the features of the AV-REC200 can be accessed through the WebGUI. Since the WebGUI is much easier to use than the front buttons and the LCD screen, it is recommend to use the WebGUI to control the REC200.

Login

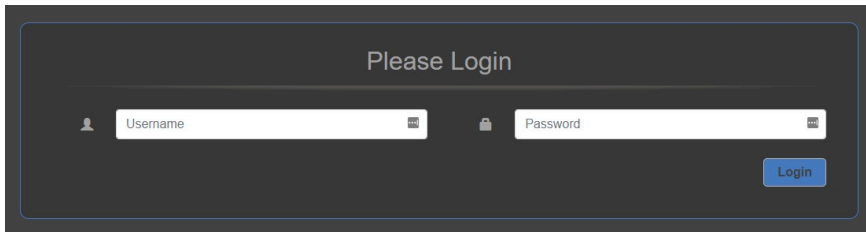


Figure 7: WebGUI > Login



Execute the following steps to log on to the WebGUI:

1. Open a webbrowser and enter the default IP address of the REC200 (see below). The browser will connect to the unit.
2. A login page will appear. Fill in the default Username and Password:

Default IP address	192.168.1.100
Default Username and Password	admin/ admin



Make sure that the IP address of your computer has been put in the same subnet range of the REC200. Otherwise the REC200 is not able to connect to your local network or computer.

After a successful logon, the WebGUI is displayed. Here, you can select various tabs that are provided below.

Start

After you have successfully logged in to the WebGUI, you will see the start page with a preview of the video output on top.



1. Click on the **Menu** icon next to AV-REC200 in the left upper corner of the screen.

The icon changes in a cross and the page will slide out from the left. Here you can see the menu of the WebGUI consisting of the following tabs:

1. Status
2. Live Service/ Streaming Setting
3. Record FTP Upload Setting
4. Play Back
5. Overlay Settings
6. System Settings

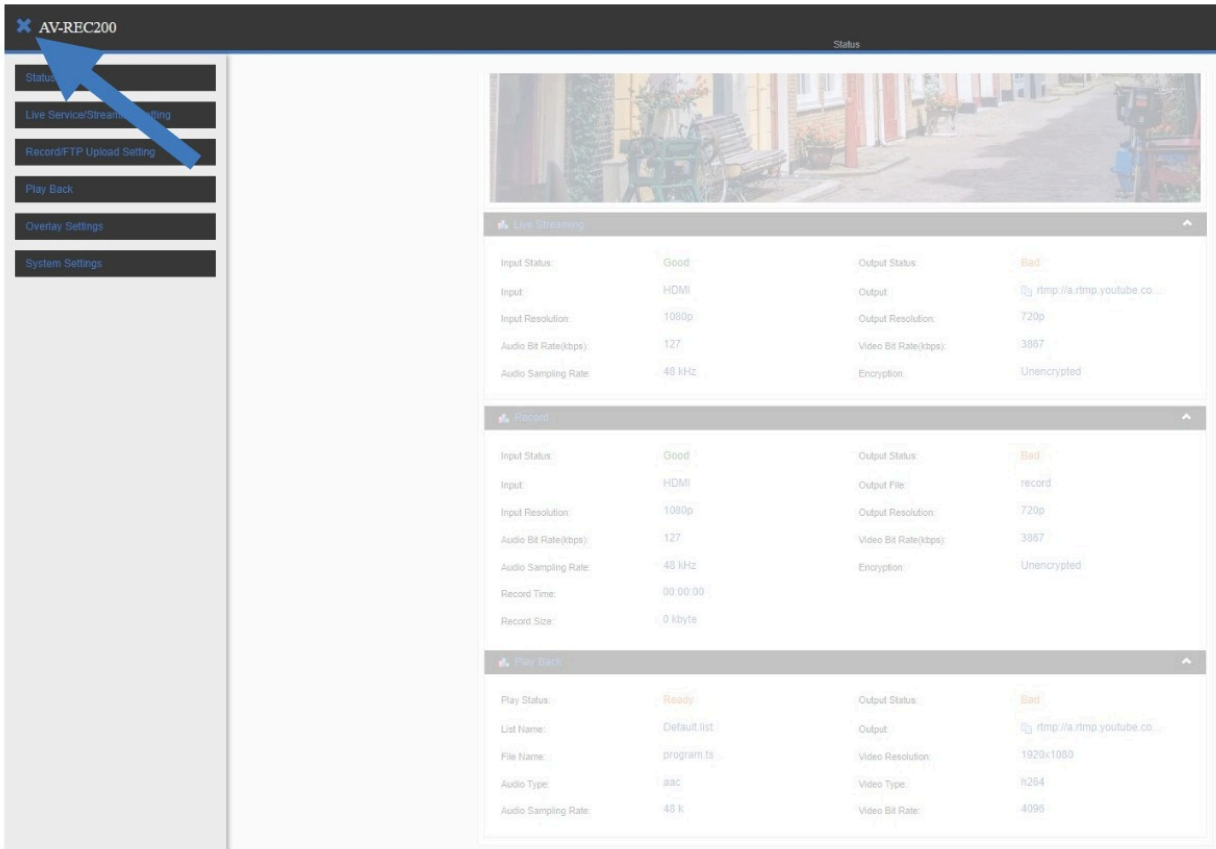


Figure 8: WebGUI > Menu Icon

In the now following pages the Start page (Status page) and the settings from the main menu will be explained.

Status Page

In this tab, you can see a preview of the camera's video output that is connected with the REC200.

Below you can see that the Status Page of the REC200 is divided into three tabs:

- Live Streaming Status
- Record Status
- Playback Status

Here you can see the basic input and output settings for live streaming, recording and playback status. These settings can be configured in the different settings pages in the main menu.



If you have inserted a USB or SD device, you will see also how much space is used on the disk. **Record > Record Time**



Check regularly the incoming video signal during streaming or recording. Streaming and/ or recording will be interrupted if there is no active input signal! **Streaming > Input Status and Record > Input Status**

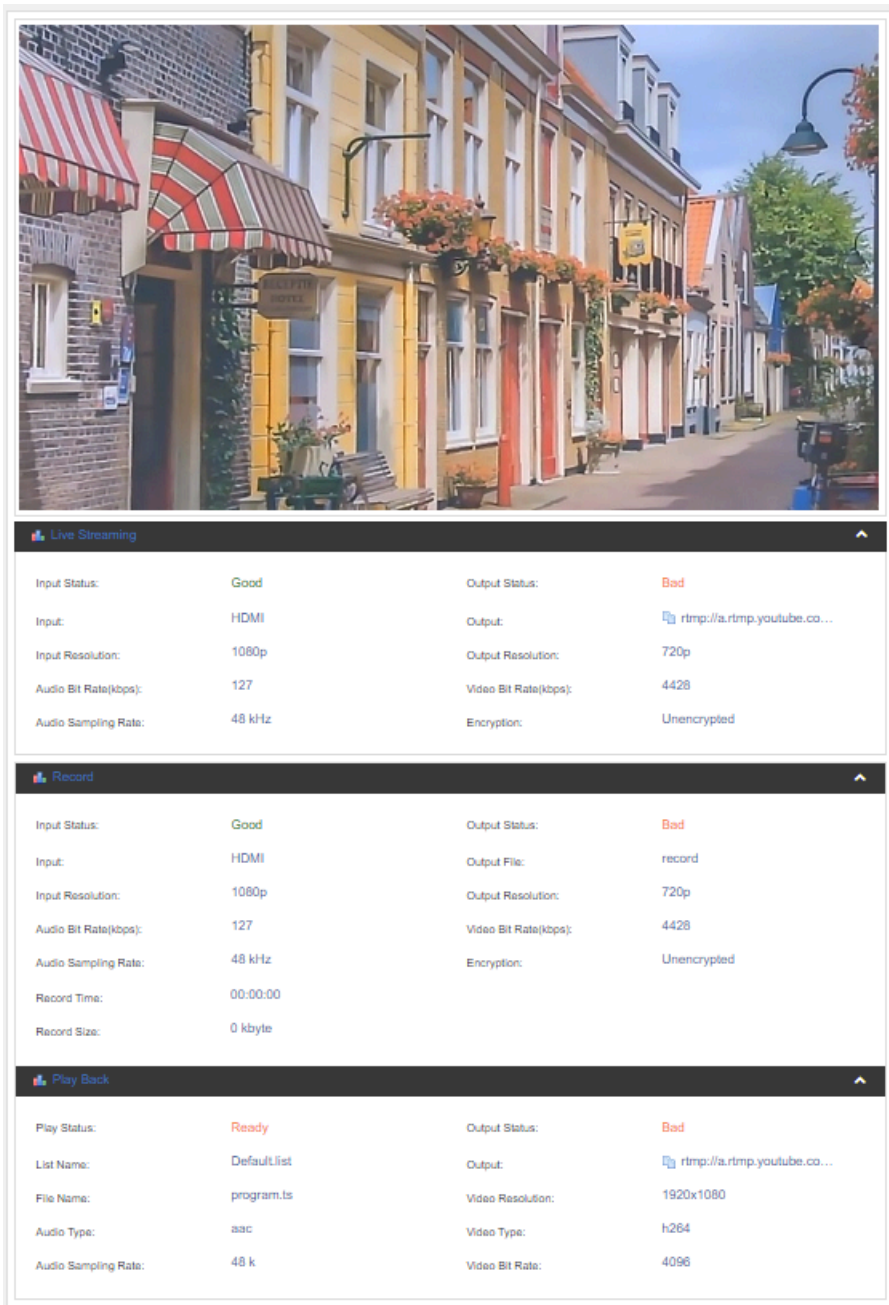


Figure 9: WebGUI > Preview

Live Service/ Streaming Setting

Here you can access the "Live Service / Streaming Setting" page.



1. Click the **AV-REC200** menu button on the top left of the webpage. The main menu will slide out.
2. Click **Live Service/ Streaming Setting**.

Basic Settings

Two options are available for broadcasting the stream of REC200 through websites such as Youtube, Facebook or using protocols like RTMP/RTMPS, UDP, HLS and RTSP:

- **Manual connection** (via RTMP/RTMPS, UDP, HLS, RTSP)
- **Automatic connection** (for a direct connection with youtube or facebook)

Automatic Connection

To make an automatic connection with Youtube, follow instructions below:

Basic Settings



1. Select **HDMI**, Select Youtube/ Facebook
2. Select the desired video-profile
3. Click the **APPLY** button to save the settings
4. Click on **AUTHORIZE YOUR DEVICE** button

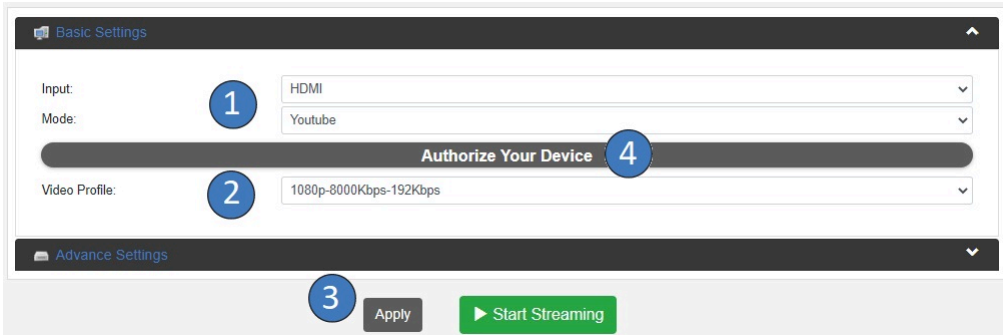


Figure 10: WebGUI > Basic Settings

Live Authorization Youtube



1. Follow instructions on the pictures below and click on **CONTINUE**.
2. When the Authorization was successful, a green text **Successfully Authenticated** appears. Click **CONTINUE** again to return to the Basic Settings page.

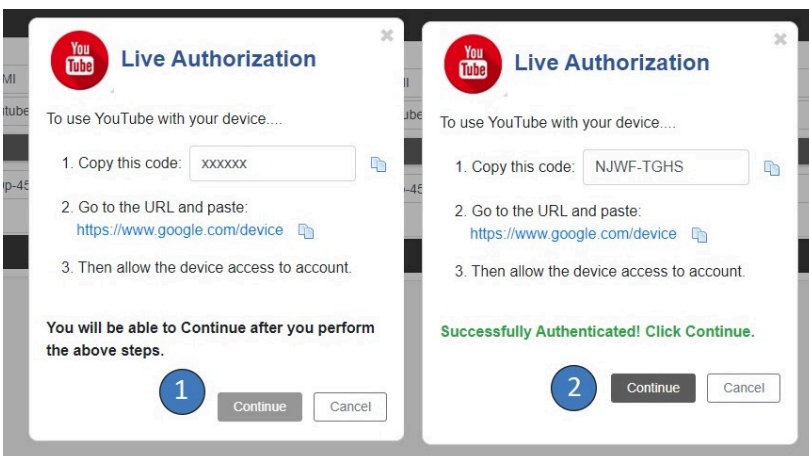


Figure 11: Live Authorization

Streaming Connection



1. Click the green **START STREAMING** button. See [Basic Settings](#) on page 19. It will 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.
2. Change the Privacy status from **PRIVATE** to **PUBLIC** and click **APPLY**.



Check regularly **Live Status**. If this little antenna symbol turns red, streaming will be interrupted!



For setting up a correct stream to Youtube or Facebook we recommend to read carefully the article [Choose Live Encoder Settings](#) on Youtube and the [Video format guidelines for live streaming](#) on Facebook.

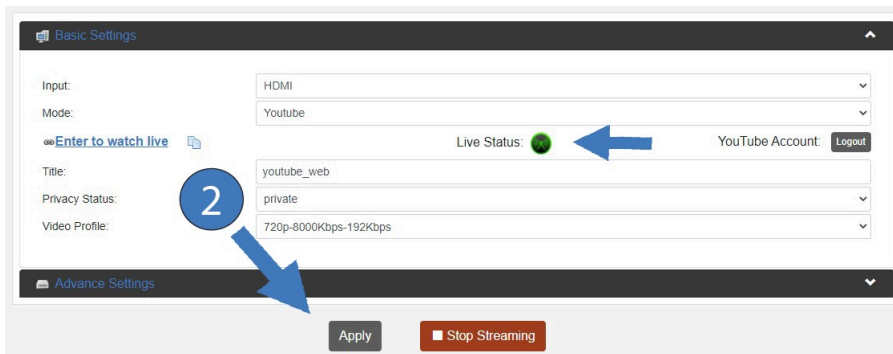


Figure 12: Basic Settings > Live Status

Manual Connection



1. Open the **Basic Settings** tab. You will see the following options:

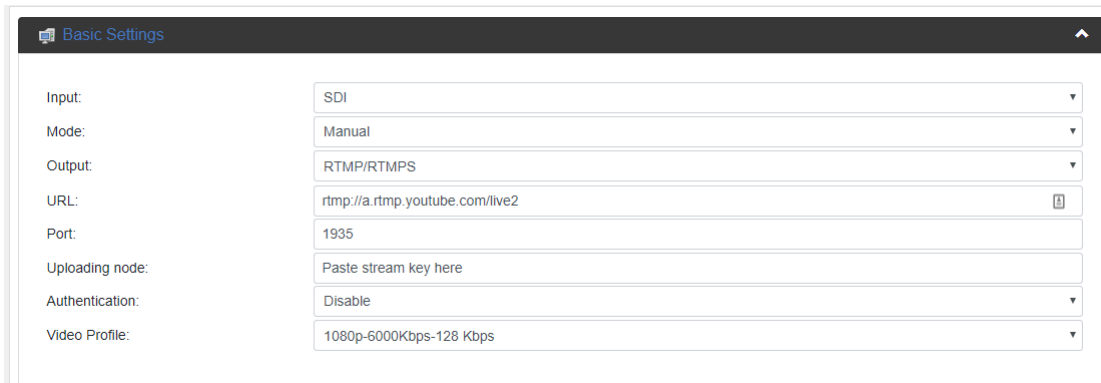


Figure 13: WebGUI > Basic Settings Manual

1.	Input	HDMI, SDI		
2.	Mode	Manual, Youtube, Facebook		
3.	Output	UDP, RTMP*, RTMPS*, HLS, RTSP		
4.	IP/URL	IP or URL on which the streamed content can be found		
5.	Port	Portnumber of the IP or URL		
6.	Streamkey	The streamkey code for accessing your youtube or facebook page		
7.	Authentication	When enabled fill in your username and password of your IP address of the REC200		
8.	Video Profile	12mbps 1080p video/ 192kbps audio	8mbps 720p video/ 192kbps audio	2mbps 576p video/ 96kbps audio
		8mbps 1080p video/ 192kbps audio	6mbps 720p video/ 128kbps audio	4mbps 480p video/ 128kbps audio
		6mbps 1080p video/ 128kbps audio	4mbps 720p video/ 128kbps audio	2mbps 480p video/ 96kbps audio
		4mbps 1080p video/ 128kbps audio	4mbps 576p video/ 128kbps audio	user defined



See also Appendix B - Input Resolutions

Manual connection using RTSP, HLS, UDP

Video streaming (or playback) from the REC200 can also be done via RTSP, HLS and UDP protocols, but requires a software application capable of streaming video using these protocols. To provide an example, a description of instructions is given for setting up a live stream in VLC Media Player.



For a connection over UDP, HLS, or RTSP you need to fill in **Port number**, **Stream name** and **URL** or one of these. See the pictures and instructions below and the description of the settings [above](#).

Follow instructions below to connect the REC200 using **RTSP/ HLS**:

1. Open VLC Media Player
2. Open **Media > Open Network Stream**
3. In the WebGUI of the REC200 select **output: RTSP** under **Basic Settings**
4. Copy the **RTSP url** or **HLS url** and paste it in the field **network url** in VLC. See the picture below.
5. Click **Apply** and then on **Start Streaming** in the WebGUI. If you are using only the REC200, select **live/setting** (or **playback/setting** to play back a video) and press **[OK]** to start streaming.
6. Click on **Play** in VLC

It will take some time to see the preview from the REC200 in VLC.

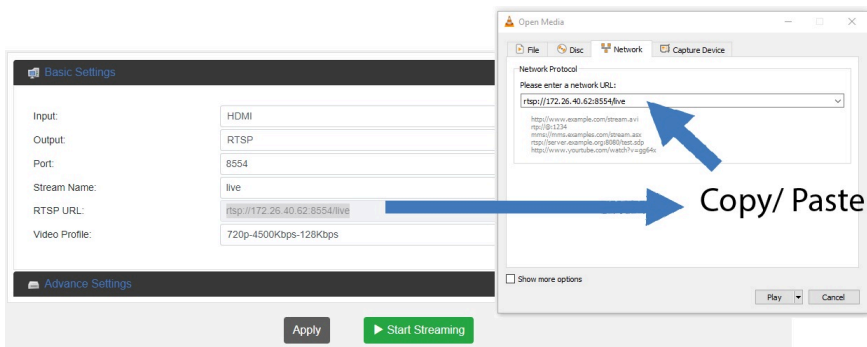


Figure 14: Network Url

Follow instructions below to connect the REC200 using **UDP**:

1. In VLC select **Tools > Preferences**
2. Select **All** under **Show Settings**
3. Select **Demuxers > RTP/RTSP**
4. Select **Use RTP over RTSP (TCP)**. See the picture below.
5. Follow now instructions above under **RTSP/ HLS** and fill in the **IP address** under **Network url** in VLC.
6. Click **Apply** and **Start Streaming** in the WebGUI and **Play** in VLC. If you are using only the REC200, select **live/setting** (or **playback/setting** to play back a video) and press **[OK]** to start streaming.

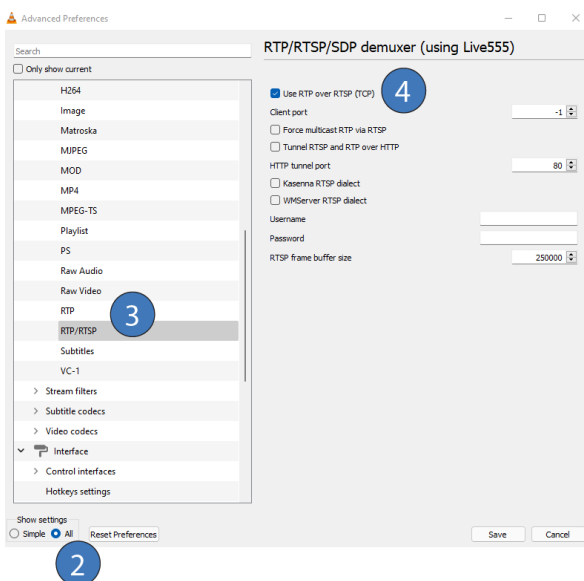


Figure 15: Advanced Preferences > demuxer

Manual Connection to Youtube (or Facebook) via RTMP

It is possible to set up manually a stream to Youtube. This procedure can be used in some cases where Google security will prevent the automatic authorization to take place.



Follow the steps below for a connection with Youtube. This will also work for a connection with Facebook.

1. Login to your Youtube or Facebook account and click the **Go Live** button



Figure 16: Youtube > Go Live

2. Click **right now** or set up a stream for later. Click **Streaming software**.

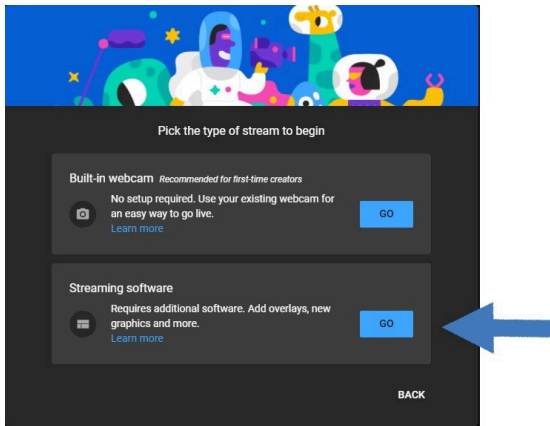


Figure 17: Youtube > Streaming software

3. After setting this up, you will find yourself on the Stream settings page (figure 10).
4. Copy the Stream URL and Stream Key.
5. Navigate to your REC200 and login to the WebGUI. See the next page of this manual.

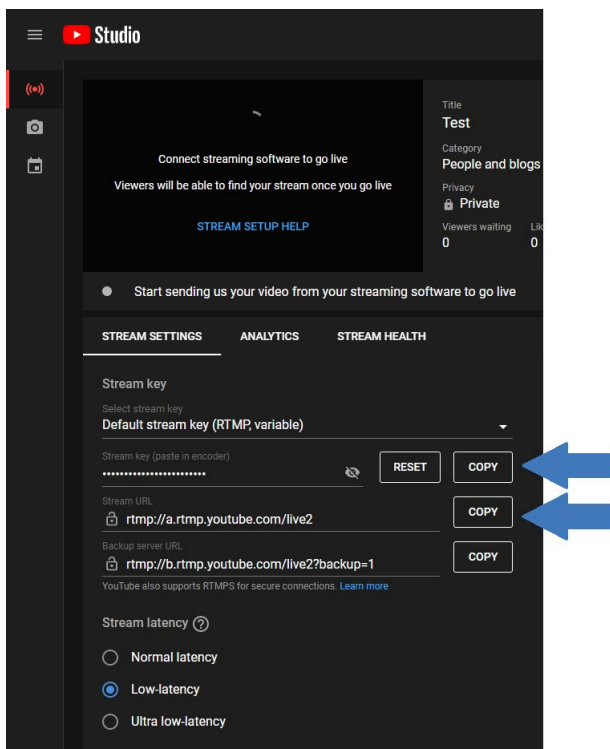


Figure 18: Youtube > Stream Key and Url



Follow instructions below to connect manually to your Youtube or Facebook page:

1. Go to the Basic Setting page as is described under [Live Service/ Streaming Setting](#) on page 18
2. Select the correct input
3. Select Mode **Manual**
4. Select output: **RTMP/RTMPS**. Copy the RTMP link from your **Youtube studio** page and paste it in the field after **URL**
5. Paste the Youtube or Facebook Stream key in the **Uploading Node** field of the REC200.
6. Video Profile 1080p-6000Kbps is the preferred setting for Youtube. You can also set up these settings manual according to your preferences.
7. **Apply** these settings and start streaming to Youtube or Facebook. Youtube or Facebook will now give you a preview of your stream.



For setting up a correct stream to Youtube or Facebook we recommend to read carefully the article [Choose Live Encoder Settings](#) on Youtube and the [Video format guidelines for live streaming](#) on Facebook.

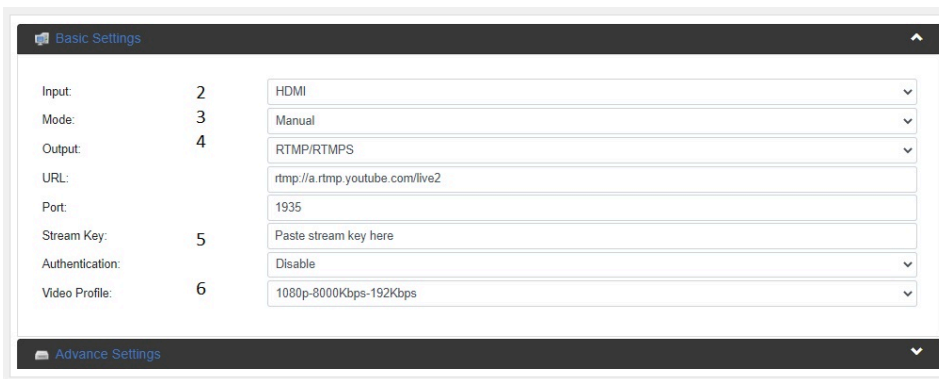


Figure 19: WebGUI > Basic Settings RTMP/RTMPS

Advanced Settings

The advanced tab opens an expanded range of options for recording and streaming.

INPUT:

Audio Source	"HDMI/SDI Audio", or enable "audio line IN" to embed audio on stream and/ or recording. You need a camera with audio input when you want to use the HDMI/SDI audio. For the Audio line IN an audio device with a jack connection is required.
HDCP Test Mode	Enable/ disable, for testing and development purposes only!

VIDEO:

Video Type	H.264
Video Aspect Ratio	automatic, 16:9 (SD), 4:3 (SD)
Profile	High, Main, Baseline
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 (Appendix B - Input Resolutions)
GOP (Group of Pictures) Size	1~61
(Video) Frame Rate (FPS)	12~60
Video Bit Rate (kbps)	600~20000
Video Mode	Constant Bitrate (CBR), Variable Bitrate (VBR).
Buffer	Enable/Disable

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



Press **Apply** and after that the green "Start streaming" button to start broadcasting your stream.

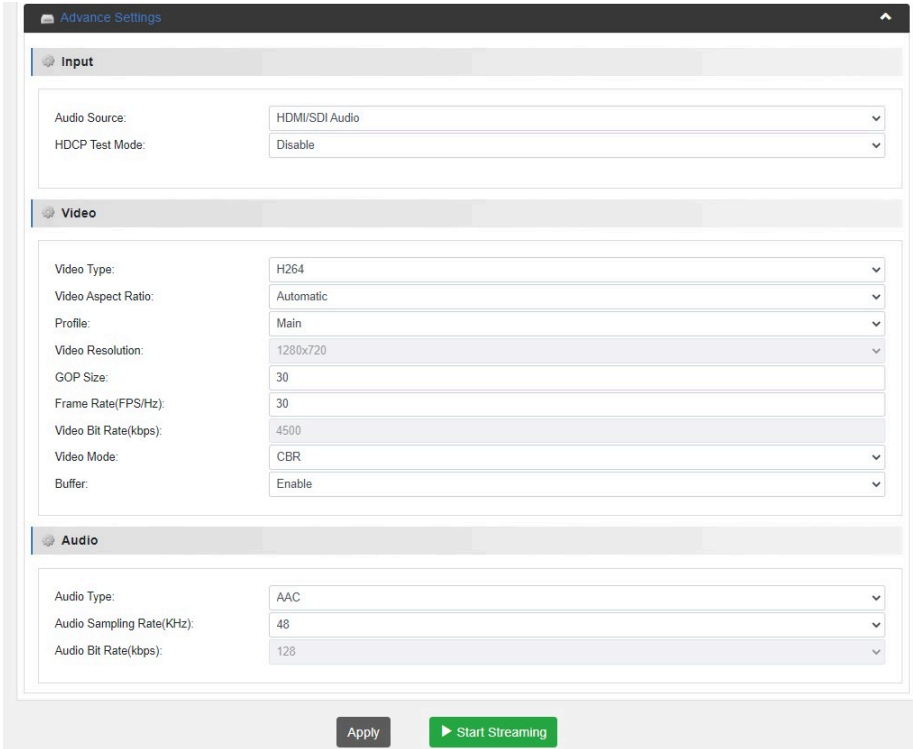


Figure 20: WebGUI > Advanced Settings



If you want to change the video resolution and Bitrate, you need to set the **Basic Settings > Video Profile** to **User-Defined**.



Read carefully the article [Choose Live Encoder Settings](#) on Youtube and the [Video format guidelines for live streaming](#) on Facebook to set up a correct stream.

Record Page / FTP Upload Settings

Record Settings

The Record Settings page is shown in the pictures 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 of the file (kilobytes)
8. Loop enable/ disable loop recording when recording device is full
9. Apply click to save the settings if you changed them
10. Start Recording click on the green button



- **MAKE SURE TO SAFELY REMOVE THE USB/SD BEFORE TAKING IT OUT OF THE REC200, IF YOU DO NOT, IT MAY CORRUPT THE LAST RECORDING!**
- YOU CAN ONLY USE FAT32 USB/SD DRRIVES, WITH A MAX OF 32 GB AND RECORD A MAX OF 4 GB FILE SIZE. AFTER THAT THE REC200 WILL RECORD A NEW FILE WITH A GAP OF 1 OR 2 SECONDS BETWEEN THE TWO FILES.



See also [Appendix B - Input Resolutions](#) for an optimal quality of the recording.

WebGUI > Record Settings > record modes



Take note of the following before reading further:

- You can see how much space is left on the USB/ SD device at the green bar that is slowly turning full.
- Click **always** on **apply** when you change some settings! This will save the settings.
- You can start recording (green button) **after** you clicked on **apply**.

Time record mode

The screenshot shows the 'Record Settings' web interface. At the top, there is a yellow warning box: 'Be sure to wait for the recording to finish and remove it safely before unplugging USB or SD.' Below this, the interface displays storage status for USB (62.69 MB / 1.87 GB, 3.27%) and SD (60.05 MB / 239.20 MB, 20.93%), each with a 'Safely Remove' button. The configuration options are: USB File System: FAT32, SD File System: FAT32, Storage Device: USB, Record File Format: *.mp4, Record Name: record, Record Mode: Time (highlighted), Record Time (S): 00:01:00, and Loop: Disable. At the bottom, there are 'Apply' and 'Start Recording' buttons.

Here you can select a specific time how long the recording should take.



Note the following:

- You can select a specific time, but you should know that the REC200 can record a file of max 4 GB. Check always [Recording time](#) table below before you start to record!
- The REC200 starts to continuously recording a file when the loop option is **enabled**. See for more information [loop record mode](#).

Loop record mode

The screenshot shows the 'Record Settings' web interface with the 'Record Mode' set to 'Loop'. The storage status and other settings are identical to the previous screenshot. The 'Record Mode' dropdown is highlighted, showing 'Loop' selected. The 'Apply' and 'Start Recording' buttons are at the bottom.

The loop record mode enables the possibility to enable continuously recording a file with a max of 4GB.



Take note of the following:

- The REC200 will start a new file with a gap of 1 or 2 seconds when the (old) file become 4G.
- When the USB and/or SD card is full, the recorder will start to **overwrite** the old files!

Size record mode

Record Settings

Be sure to wait for the recording to finish and remove it safely before unplugging USB or SD.

USB: 62.69 MB / 1.87 GB 3.27% Safely Remove

SD: 60.05 MB / 239.20 MB 20.93% Safely Remove

USB File System: FAT32

SD File System: FAT32

Storage Device: USB

Record File Format: *.mp4

Record Name: record

Record Mode: Size

Record Size (KB): 10240

Loop: Disable

Apply ▶ Start Recording

The size record mode option enables the possibility to set a specific file size for the record file. The max is always 4 GB. See the note under [Loop record mode](#). See also the tables below to estimate the time you can record a file. The table below shows how long you can record for different file formats. The times mentioned in the table are a rough estimation and can possibly deviate a few minutes.

Table 2: Recording Time (max.)

File Format	Video Profile	File Size	Hour	Minutes
.ts	1080p - 720p, 6000 kbps	4 Gb	1	44
.MP4	1080p - 720p, 6000 kbps	4 Gb	1	48
.MOV	1080p - 720p, 6000 kbps	4 Gb	1	48

Table 3: Upload/ Download Time

Speed (bitrate)	File Size	Hour	Minutes
1.5 Mbps	4 Gb	6	21
5 Mbps	4 Gb	1	54
6 Mbps	4 Gb	1	35
8 Mbps	4 Gb	1	14
10 Mbps	4 Gb	0	57

FTP Upload

The Avonic REC200 has been equipped with an FTP client to upload recordings to a FTP server. This feature is **only** available by using the WebGUI.



The now following steps will outline how to install and use this functionality:

1. Fill in the **Upload Path**. For example: FTP://192.168.178.64/ on port 21 (standard FTP port).
2. Fill in the **FTP Username** and **Password**

3. Choose if you want to enable:
 - a. Anonymous Login
 - b. Upload Recording file to FTP automatically
 - c. Delete the local recording file after successful uploading to FTP automatically
4. Click **Apply** and then on **Start Uploading**



If you prefer to use another port use the following format: **FTP://<IP-Address:PORT/**

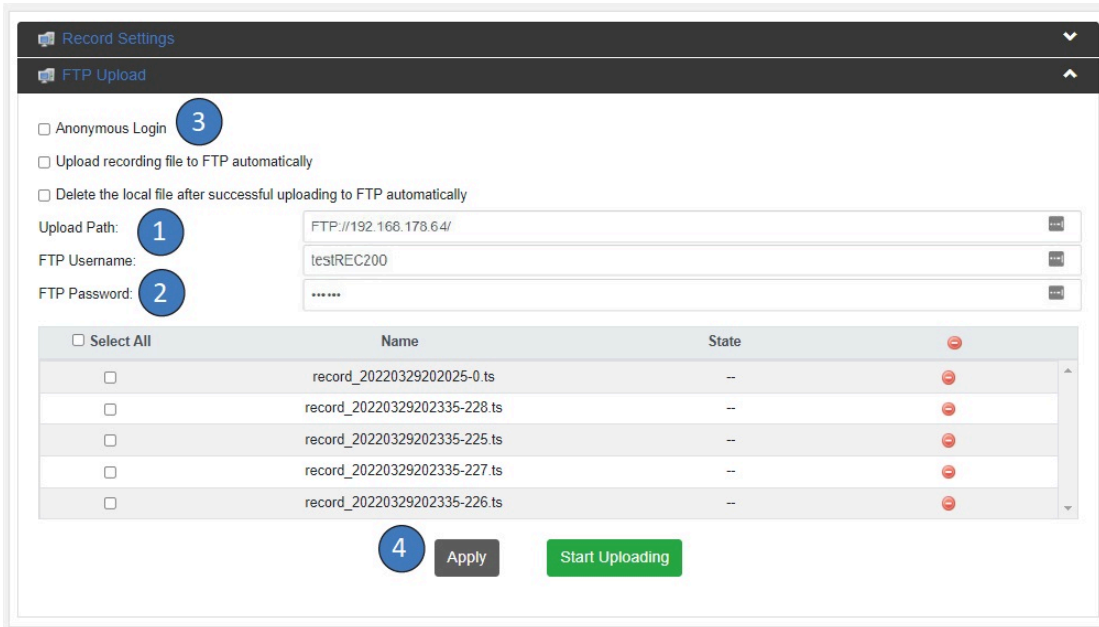


Figure 21: WebGUI > FTP Upload

Anonymous Login

If you have set up an user 'anonymous' without a password in your FTP server, you can use this option in the REC200 to upload its files without authentication.

Upload recording file to FTP automatically

Select this option if the REC200 must automatically upload its recordings to the FTP server. Older recordings can be uploaded to the FTP server while the REC200 is still recording new ones.



Selecting this option will disable the ability to manually upload a recording!

Delete the local file after successful uploading to FTP automatically

When this option is selected, the recording will be deleted from the local storage after a successful transfer into the directory defined by the FTP server.

Playback Settings

On this page you can configure the settings in order to play back video as a stream. It works the same as streaming and recording, but in this case you can choose the files to be played back.

Playlist



1. Open the Playback page. You will see the picture below (figure 17).
2. Read "Playlist" and "Output Settings" below:

Playlist

- | | | |
|----|-------------------------|---|
| 1. | Current Playlist | Select default or your own playlist |
| 2. | Add Playlist | Add your own playlist |
| | Delete Playlist | Delete the Playlist if you want to do that |
| | Modifying Playlist | Add new recorded files or delete files |
| 3. | Delete Individual files | Delete Individual files if you want to do that |
| 4. | Add Files | Add individual recorded files |
| 5. | Font Color | The file will turn red if the file do not exist
The file will turn orange if the file contains an error or cannot be read. |

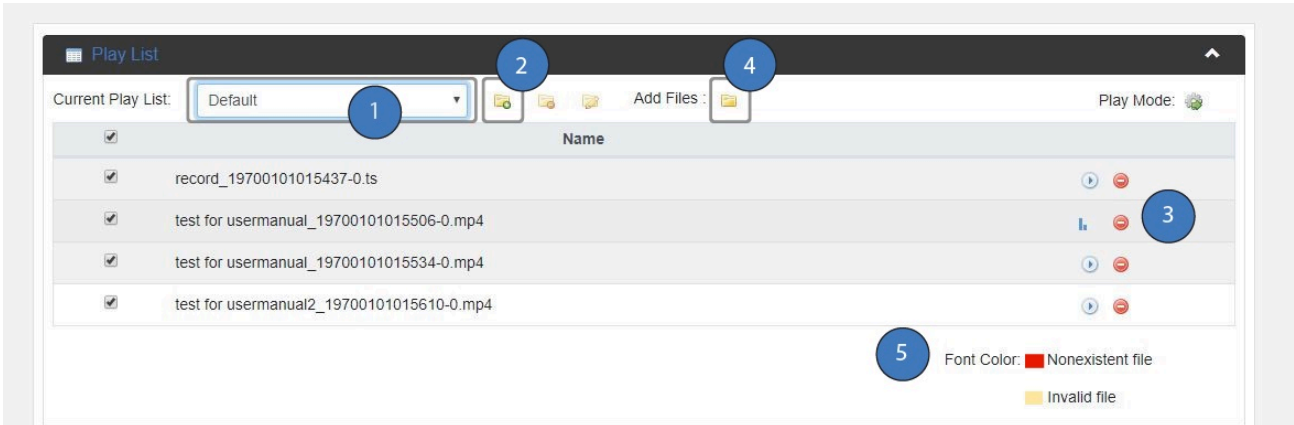


Figure 22: WebGUI > Playlist



Once you have all the files and/or a playlist to play back, go to the Output Settings page and Authorize your device according to the provided settings below and [Basic Settings](#) on page 18

Output Settings

- | | | |
|----|--------------------------|--|
| 6. | Mode | Youtube or manual |
| 7. | Authorize your device | See Basic Settings on page 18 |
| 8. | Privacy Status | Public or Private: Change it to public to play back the file to your audience |
| 9. | Apply and Start Playback | Click on apply to save the settings and make them effective.
After that click on Start Playback |

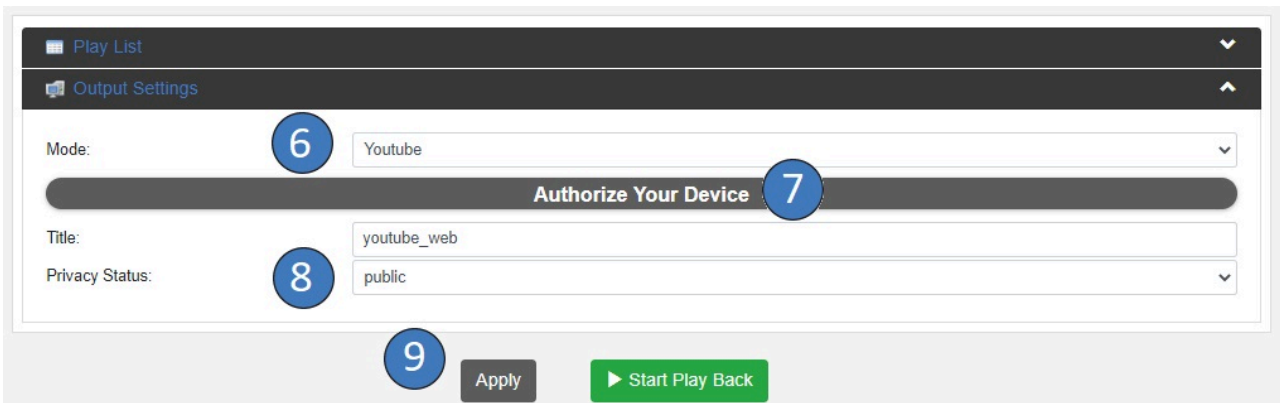


Figure 23: WebGUI > Output Settings

Overlay Settings

The REC200 has the possibility to put a text and/or picture on its output as an overlay over the video output.



- This option is only intended for setting this once **before** streaming and only with **one** picture! Otherwise this option will cause a hick-up in the stream (video and audio), because the REC200 will build up the stream again after a change to its settings.
- It is also not possible to place a running time on the overlay stream.



Follow instructions below to select a text and/or picture as an overlay:

1. Open the tabs **Text Overlay** and **Picture Overlay** and select title only and enable **Picture Switch**.
2. **Text overlay:** type in the field the text you want as overlay, choose the color, font size and location and click **Apply**.
3. **Picture overlay:** Click the **icon Pic1** and select the jpg, jpeg, or bitmap file you want as overlay and click **Apply**.
4. **Live stream** the video to see the text or picture as an overlay (note that you will see nothing in the preview on the status page of the REC200).



- Fill in the same size width and height as the picture for overlay for the best resolution.
- For a picture with transparent background read [How to create a transparent BMP](#)

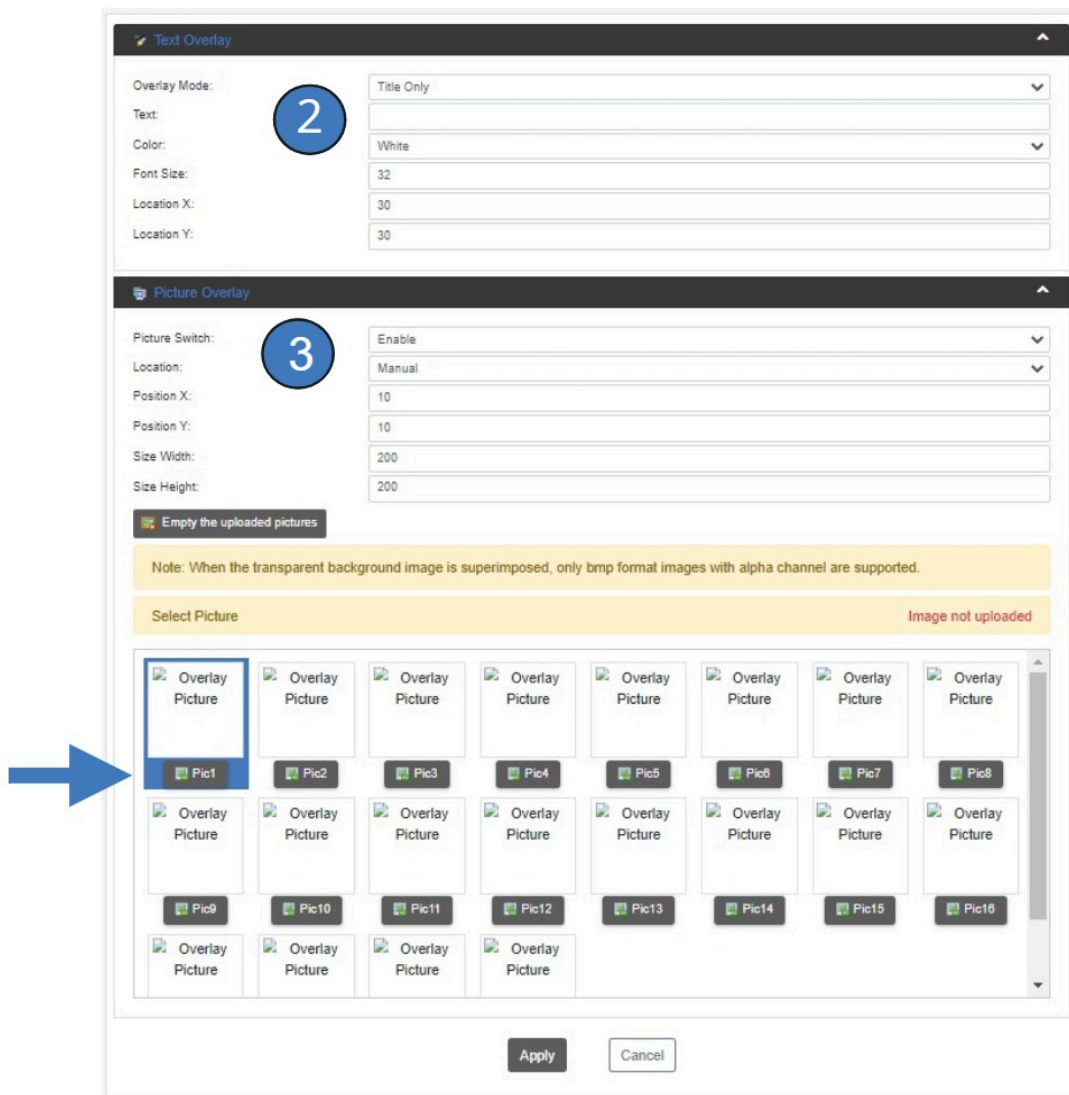


Figure 24: WebGUI > Picture Overlay

Text Settings

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

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

Picture Settings

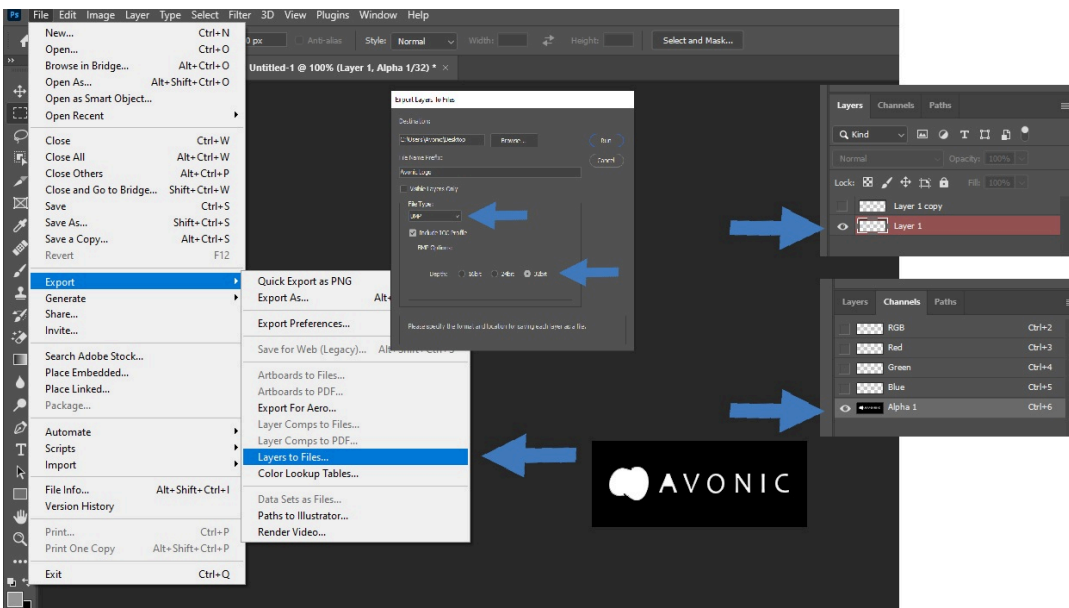
- | | |
|----------------------------|---|
| 1. Picture Switch | Enable, Disable |
| 2. Location | Manual, Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right |
| 3. Position X | Horizontal placement of overlay picture |
| 4. Position Y | 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 from the gallery below. |

How to create transparent BMP file for overlay



A short guide to create a usable BMP file as transparent overlay using Adobe Photoshop:

1. Create workspace according to the size width and height of the picture for overlay.
2. Select your imagefile with transparent background (use format **PNG** or delete the background).
3. Copy the layer or duplicate it.
4. Uncheck the copied layer and select only the original layer.
5. Select your imagefile in the original layer window holding the CTRL button.
6. Go to the channel window and save your selection as channel.
7. Uncheck the colors, leaving only the alpha channel selected.
8. Go to **File > Export > Layers to files**, select **BMP, 32 bit** and click **Run**.
9. Photoshop will make separated files. Delete the copied layer, use the original layer.



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

Shows the software and hardware version of the REC200.

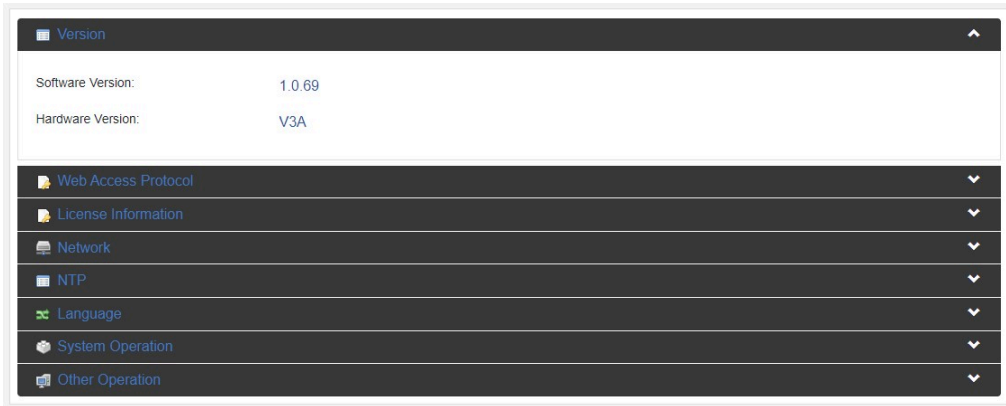


Figure 25: WebGUI > Version

2. Web Access Protocol

The Web Access Protocol is for communication security between computersystems in a network, or via internetsites that are used to stream video's made with the REC200.

Only HTTP, Only HTTPS, or HTTP and HTTPS	Select one of these options
TLS (Transport Layer Security) Protocol	TLS version
Allowed SSL ciphers	Enable/ Disable
Cipher List	Recommendation1, Recommendation2
Certificate, Private Key, Certificate chain	Upload possibility



Click now on **“Apply”** to save the settings.

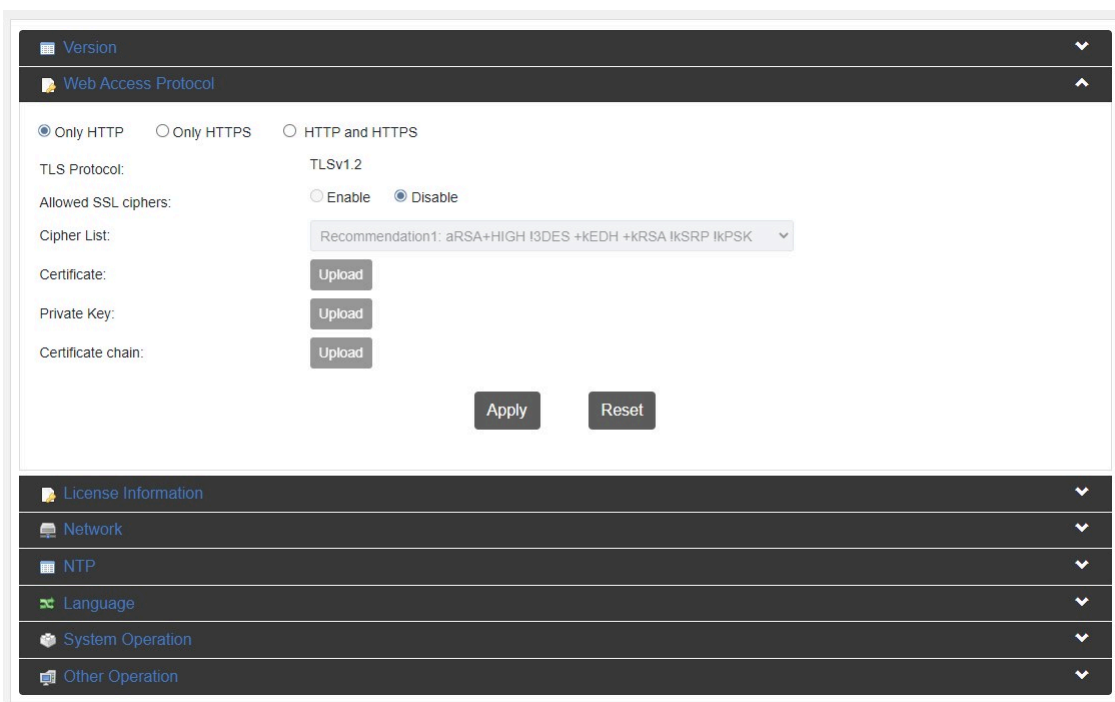


Figure 26: WebGUI > Web Access Protocol

3. License information

Here you can see if you have access (authorized) to H265, CC, SDI and AC3.

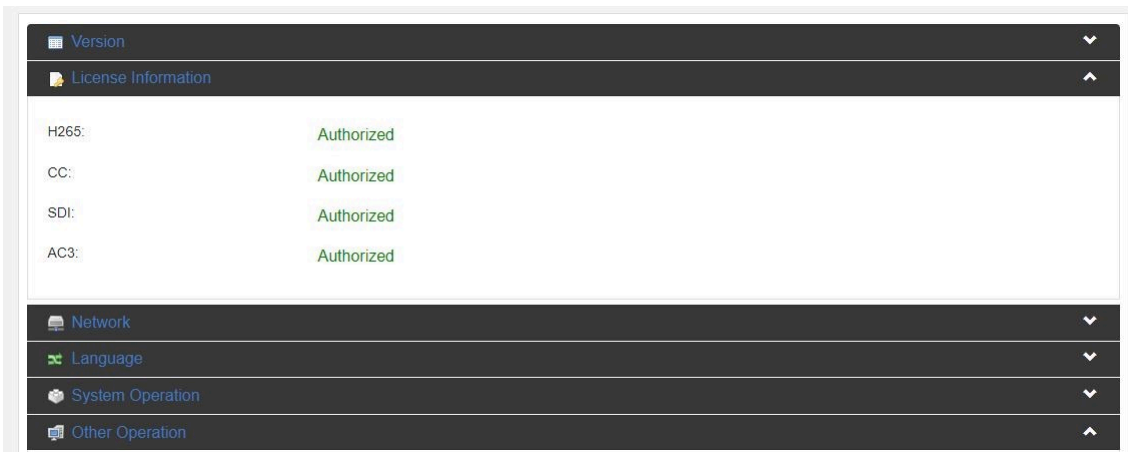


Figure 27: WebGUI > License Information

4. Network Settings

For connection with a DHCP server. In absence of a DHCP server you can manually set IP Address, Subnet Mask, Default Gateway etc. Select "Static" under "network mode" to do that.

Network mode	Static, or DHCP
IP Address	Fill in IP Address
Subnet Mask	Fill in Subnet Mask
Default Gateway	Fill in Default Gateway
Dynamic DNS	Disable/ Enable
Primary DNS	Fill in Primary DNS
Secondary DNS	Fill in Secondary DNS

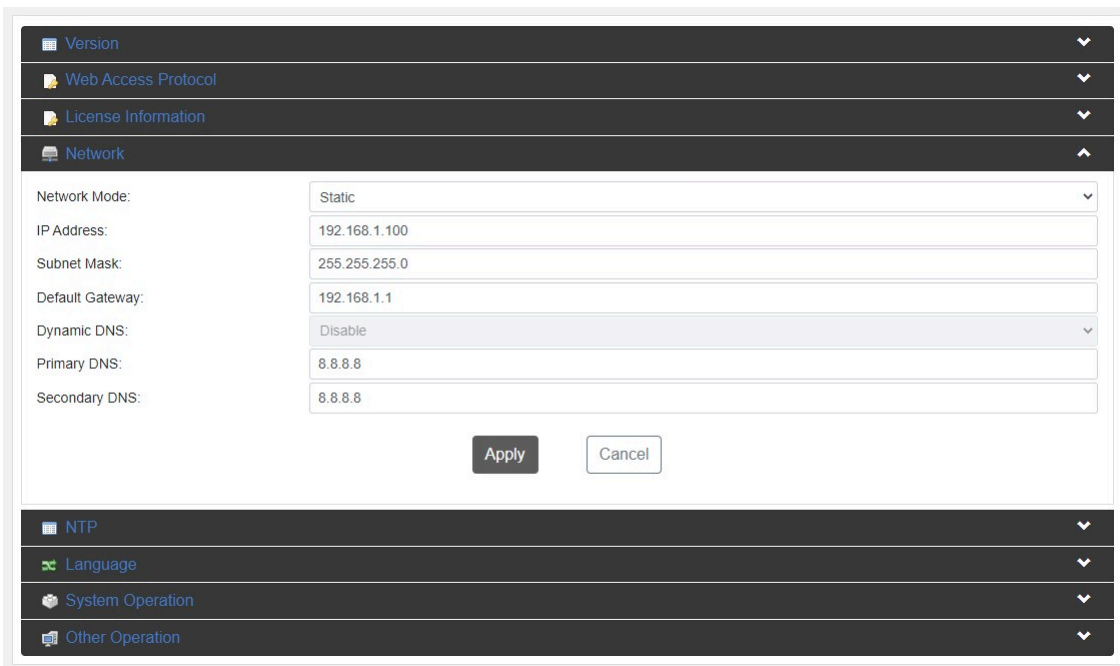


Figure 28: WebGUI > Network

5. NTP (Network Time Protocol)

The Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems to synchronize their internal clocks with each other.

System Time	Shows day, date and time
Time Zone	Choose the time zone you want
NTP Server	Fill in the name of the NTP server
Auto Sync	Choose if you want or not to synchronize automatically the time. Select enable or disable.
Sync Frequency(min)	When Auto Sync is enabled, you can set the Sync Frequency.

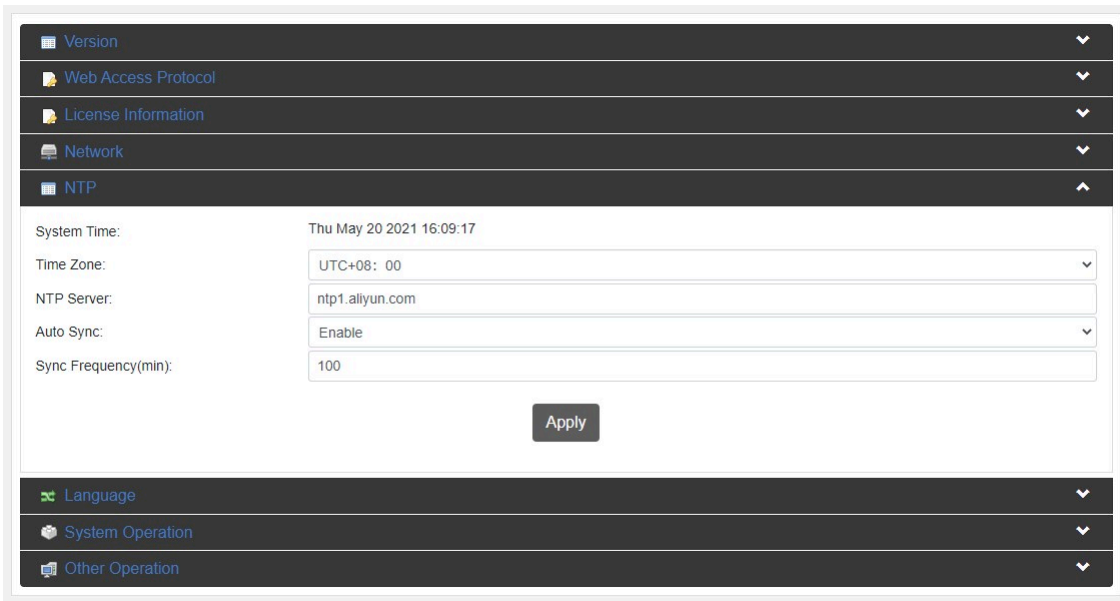


Figure 29: WebGUI > NTP

6. Language



Select the language (English, or Chinese). Click **APPLY** for the changes to take effect.

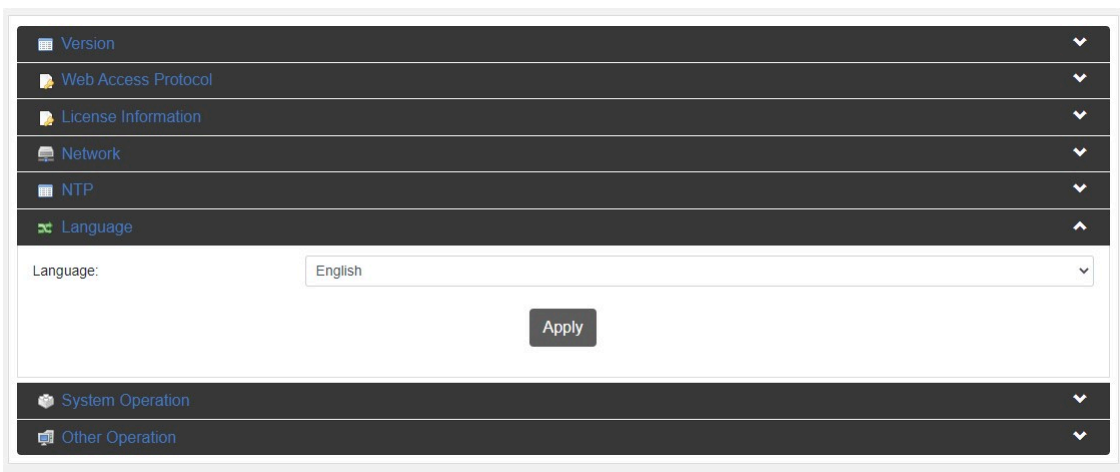


Figure 30: WebGUI > Language

7. System operation

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



Figure 31: WebGUI > System Operation

8. Other Operation

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

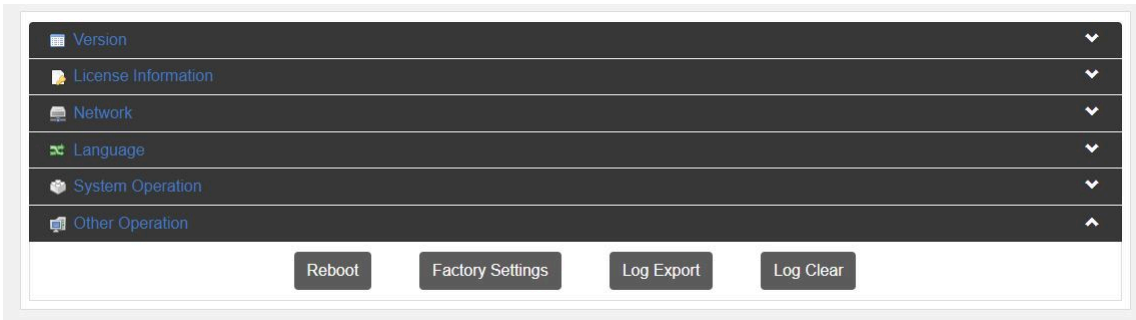


Figure 32: WebGUI > Other Operation

Front Panel Operation

The front panel can be accessed by pushing the **[MENU]** Button on the REC200.



1. Use the arrow buttons to move the cursor to the item to be set.
2. Press the **[OK]** button to enter the corresponding sub-menu, or save the configuration. Press **[Menu]** to go back.

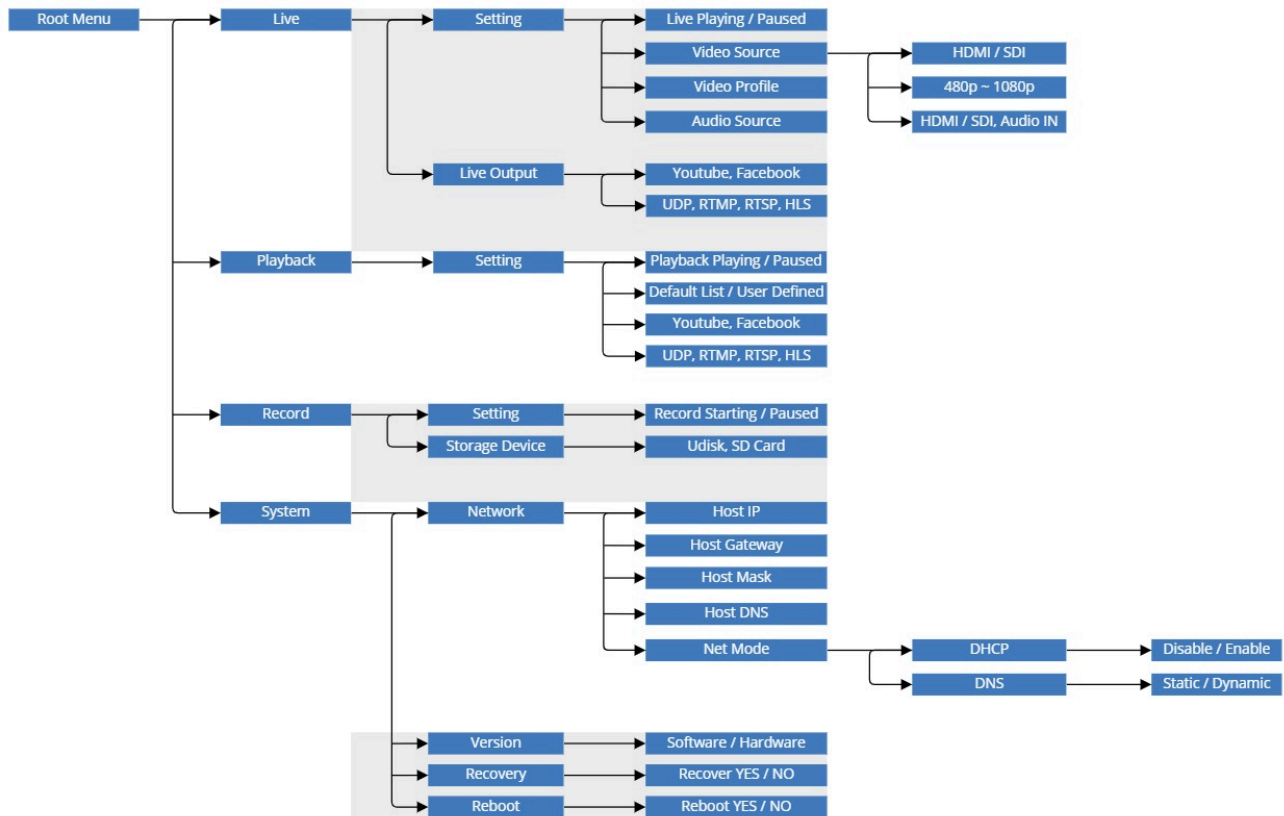
Front side: Button and Display layout



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 REC200.
6. USB (2.0) storage input to connect an USB stick for use with playback and/ or recording features

Front Panel Menu

If you have pushed the **[MENU]** button, you will open the **Root Menu** on the REC200. Its structure is displayed below:



In the now following parts, the **Root Menu** with all its features will be explained.

Live

Under **Live** you can live stream video. The screen **Live** is divided into:

1. Setting
2. Encoding
3. Live Output

Encoding and Live Output



Follow the instructions below to stream video live:

1. Select first **Encoding** and **Live Output** to configure the settings for streaming. See the picture and description below.



Without using the WebGUI you need:

- To know (exactly) the UDP, RTMP, RTSP or HLS link if you want to stream via these protocols!
- **VLC Media Player** or another Video streaming application to stream live. See [Manual Connection using RTSP, HLS, UDP](#)

▶	Live	Setting	Live Playing / Paused		
		Encoding	Video Source	HDMI / SDI	ON / OFF
			Video Profile	480p ~ 1080p	ON / OFF
			Audio Source	HDMI / SDI, Audio IN	ON / OFF
		Live Output	Youtube, Facebook, UDP, RTMP, RTSP, HLS		ON / OFF
▼▲	Select Item				
[OK]	Enter				
[Menu]	Exit				

1. Encoding/ Video Source Sets the source for streaming - Choose between HDMI and SDI.
2. Encoding/ Video Profile Sets the image size - Choose between different sizes from 480p to 1080p.
3. Encoding/ Audio Source Sets the audio source - Choose between HDMI/SDI or Audio IN.
4. Live Output/ Youtube, Facebook, Sets the stream output - Choose between Youtube, Facebook, UDP, RTMP, RTSP and HLS.
UDP, RTMP, RTSP, HLS

Live Setting



Follow instructions below to start streaming:

1. Press **[MENU]**
2. Select with the cursor buttons "Live".
3. Press **[OK]** to enter the menu.
4. Select "Setting" and press **[OK]** to enter.
5. Press **[OK]** to start live streaming
6. Press again **[OK]** to pause or stop streaming



- If you see the "live paused" screen, live streaming is paused. Press **[OK]** to start live playing.
- If you see "live playing" screen, the REC200 is live streaming. Press **[OK]** to pause/ stop the video.



Live Streaming is paused - > [OK] - > start live playing



REC200 is live streaming video - > [OK] - > pause streaming



Check regularly the Power LED next to the [MENU] button. If the light turns red, streaming will be interrupted!

Playback

Here you can playback recorded video's. **Playback** is divided into:

1. Setting
2. Playback List
3. Playback Output

Playback List and Output



Follow instructions below to play back a recorded a video:

1. Select Playback List and Playback Output to select a recording and where to play back the recorded video. See picture and description below.



- For playing back recorded video's by using UDP, RTMP, RTSP and HLS you need **VLC Media Player** or another video application. See [Manual Connection using RTSP, HLS, UDP](#) for connecting the REC200 using these protocols.
- If you are using these protocols you need to know (exactly) the UDP, RTMP, RTSP or HLS link!

▶	Playback	Setting	Playback Playing / Paused	
		Playback List	Default List / User Defined	
		Playback Output	Youtube, Facebook, UDP, RTMP, RTSP, HLS	ON / OFF
▼▲	Select Item			
[OK]	Enter			
[Menu]	Exit			

1. Playback List List of all the recorded video's available. Standard is a Default List. If you want to make your own see [Playback Settings](#) on page 27
2. Playback Output Choose where you want to playback your recorded video's: Youtube, Facebook, UDP etc.

Playback Setting



Follow instructions below to start playing back recorded video's:

1. Press **[MENU]** and select with the cursor buttons "Playback".
2. Press **[OK]** to enter the menu.
3. Select "Setting" and press **[OK]** to enter.
4. Select **[OK]** to start playing back.
5. Select again **[OK]** to pause or stop playing back.



- If you see the "playback paused" screen, playback is paused. Press **[OK]** to start playback the recorded video.
- If you see "playback playing" screen, the REC200 is playing back the recorded video. Press **[OK]** to pause/ stop playback.



Playback is paused - > **[OK]** - > start playing back



REC200 is playing back the recorded video - > **[OK]** - > pause playback

Record

The record menu is for recording video and is divided into:

1. Setting
2. Storage device

Storage Device



Select record > Storage Device to select a storage device to store the record. See the picture and description below.

▶	Record	Setting	Record Starting / Paused	
		Storage Device	Udisk / SD card	ON / OFF
▼▲	Select Item			
[OK]	Enter			
[Menu]	Exit			

1. Storage Device Select under "Storage Device" what storage device is used to store the recorded video: Udisk (USB drive), or SDcard.

Record Setting



Follow instructions below to record a video:

1. Press **[MENU]** and select with the cursor buttons "Record".
2. Press **[OK]** to enter the menu.
3. Select "Setting" and press **[OK]** to enter.
4. Select **[OK]** to start playing recording.
5. Select again **[OK]** to pause or stop the recording.



- If you see the "record paused" screen, the recording is paused. Press **[OK]** to start record video.
- If you see "record starting" screen, the REC200 is recording video. Press **[OK]** to pause/ stop recording.



The recording is paused -> **[OK]** -> start recording video



Record is running -> **[OK]** -> pause the recording



Record is ready. See [Playback Setting](#) on page 38 to playback the recorded video.

System

Under system it is possible to change network settings and recover or reboot to default settings.



- Use the arrow buttons to change the numbers of the port settings and to go to the next number in the address of the port.
- Save the Address number by pressing **[OK]**

System > Network

- | | | | |
|----|--------------|-----------------------------|---------------------------------------|
| 1. | Host IP | Address of the host IP port | (Fill only if no DHCP server is used) |
| 2. | Host gateway | Address of the host Gateway | (Fill only if no DHCP server is used) |
| 3. | Host Mask | Address of the host Mask | (Fill only if no DHCP server is used) |
| 4. | Host DNS | Address of the host DNS | (Fill only if no DHCP server is used) |
| 5. | Net Mode | DHCP: Enable/ DNS: Dynamic | When a DHCP server is used |

▶	System				
		Network	Host IP,	192.168.1.100	
			Host Gateway	192.168.1.1	
			Host Mask,	255.255.255.0	
			Host DNS	192.168.1.1	
			Net Mode	DHCP	Disable / Enable
				DNS	Static / Dynamic
		Version	Software / Hardware Version		
		Recovery	Recover YES / NO		
		Reboot	Reboot YES / NO		
▼▲	Select Item				
[OK]	Enter				
[Menu]	Exit				

1. Version Displays software/hardware version
2. Recovery Recover to default settings
3. Reboot Reboot the REC200

MAINTENANCE

Maintenance



Take the following actions to maintain the REC200:

- If you will not be using the REC200 for a long time, turn off the power switch and disconnect the AC powercord of the AC adaptor to the outlet.
- Use a soft cloth or tissue to clean the REC200 cover.
- Please use the soft dry cloth to clean the lens. If the REC200 is very dirty, clean it with diluted neutral detergent.



Do not use any type of solvents, which may damage the surface.

Usage Precautions



Take the following precautions:

- Do not operate close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

TRANSPORT AND STORAGE

Specific guidelines apply for transportation and storage of the REC200. Follow the guidelines below:



Transport:

1. The REC200 needs protection against vibration and shock. Ensure that the REC200 cannot move inside its box and inside the transportation vehicle. Ensure also that the box is properly sealed.
2. Avonic's address and/or the address of the local distributor should be clearly visible on the package.
3. Keep the transportation vehicle dry and maintain the temperate and humidity when transporting the REC200. See '**Operating humidity**' and '**Storage temperature**' in the provided **Datasheet** for the applicable values.



Storage:

1. Maintain adequate ventilation in your storage room and ensure that any (other) materials does not obstruct the ventilation.
2. Do NOT store the REC200 in a storage room together with (highly) flammable materials or where the air contains such chemicals.
3. Ensure that the REC200 has protection against vibration and shock inside the storage room and cannot move or fall of.
4. Keep the storage room dry and maintain the temperate and humidity when storing the REC200. See '**Operating humidity**' and '**Storage temperature**' in the provided **Datasheet** for the applicable values.

DISPOSAL AND RECYCLING

In general, the term 'E-Waste' or 'Waste of Electrical and Electronic Equipment' applies to items of all types of electrical and electronic equipment and its parts that have been discarded by the owner as waste without the intention of re-use.



E-Waste, like the REC200 recorder and **ALL** of its accessories, needs to be disposed **separately** from normal waste! See the symbol below that can be found on the product and package label:



Avonic is NOT responsible for personal data left in the settings of the recorder as far as this is possible (like camera names, IP Addresses, user names, passwords etc.) **Delete** personal data **BEFORE** you send the recorder back to Avonic!



Send the recorder and all its accessories to [Avonic](#) or your **local distributor**. See [Package Contents](#) to see what you have to send back. Follow the instructions from the [Return Procedure](#).

Avonic outsources the disposal and recycling of its E-Waste materials to **Stichting Open**.




See <https://stichting-open.org/> for more information about the disposal and recycling.

TROUBLESHOOTING

General


- 
1. Turn the REC200 off and on again and check if the problem persists.
 2. If it does, restore to the factory default.

Power Issues


- 
- If the REC200 does NOT perform a self-test and / or if the power LED is OFF:
1. Check the net power.
 2. Check the power supply.
 3. Check the (HDMI/ SDI) connection between the REC200 and your camera.

WebGUI

Cannot enter WebGUI

- 
1. Check the network cable.
 2. Check if the computer is connected to the same subnet as the REC200.
 3. Use an **incognito** window in your browser, sometimes cache issues arise when using multiple cameras that have the same default IP address
 4. Restore to factory default by pressing [MENU] and then System > Recovery > Yes. See also [Front Panel operation > System](#).

Cannot stream, record or playback

- 
- Cannot stream, record or playback, or streaming, recording or playback is interrupted:
1. Check connections between the REC200 and your network
 2. Check connections between the REC200 and your camera
 3. Check Input and output status on the status page

Firmware update failed

- 
1. Check firmware file integrity, download it again.
 2. Make sure you are trying to flash the UVC file for the correct color camera (ARM is generic, UVC is color-dependent).

API Commands

The API can be used to control the REC200 using a TCP/IP connection. To make this work, you need a TCP/IP supported application like **Hercules Setup Utility** or **Packet Sender**.

How to use the API

The API has the functionality to send text commands to the REC200. The camera will in return send you its feedback. Using the REC200 in this way, you can easily enable/ disable audio, recording and streaming and read out its network and system settings for example.



Follow instructions below:

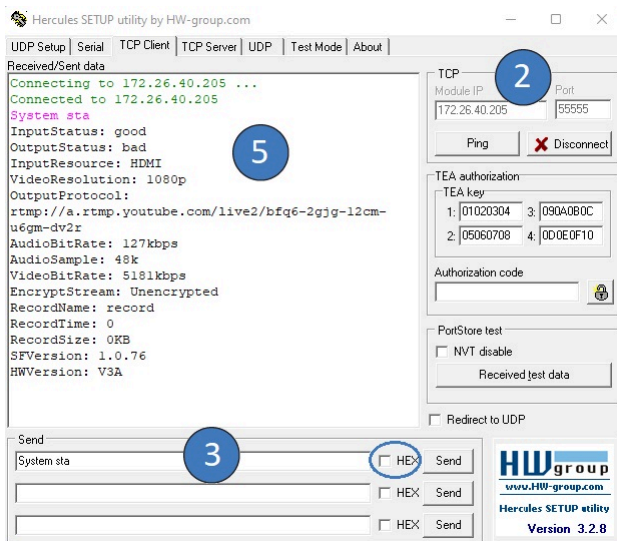
1. Open your TCP/IP supported application like **Hercules** or **Packet Sender**.
2. Fill in the REC200 IP address (see [WebGUI](#)) and the TCP/IP port number (default 55555). Click the button Connect.
3. Fill in the commands (from the API list below) to be sent to the REC200. Because you send commands in a text format, HEX should NOT be enabled.
4. Click on "send" and the camera will sent you:
 - The command sent (in pink)
 - The output received from the command sent (in black). This could be a status report (picture on the **right**), or the same command as confirmation (picture on the **left**).
 - An error in case that the command is incorrect (as in the picture on the **left**)
5. You double check this in the WebGUI of the REC200'.



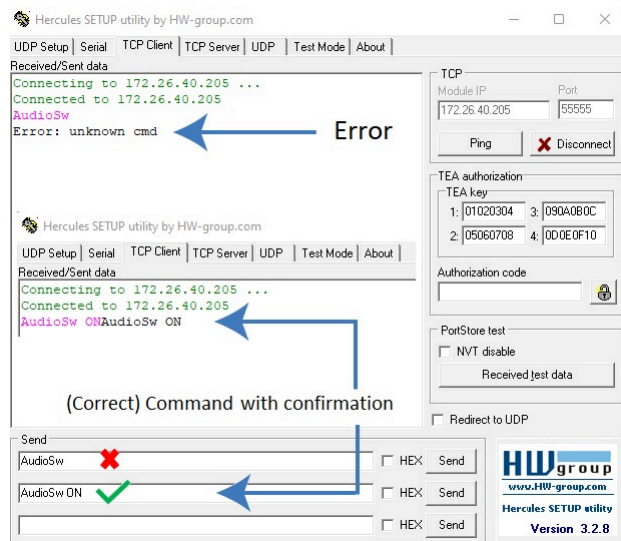
Commands should be sent using TCP/IP. The default port for TCP is **55555**.



- Do not change capitalization, spacing, or lettering!
- A Carriage Return <CR> at the end of the command may be needed depending on the software application used.
- If the command fails, or is incorrect the feedback should be **"Error: unknown cmd"**.



Command with returned feedback



Incorrect command (Error)/ (correct) command with confirmation

API Data

Command	Description
InputSrc	Select HDMI or SDI (level A) 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
sta	Displays setting status

Command (+ Syntax)	Value	Example	Confirmation
InputSrc X	X = ON, OFF, sta	InputSrc ON	InputSrc ON
AudioSw X	X = ON, OFF, sta	AudioSw ON	AudioSw ON
RecordSw X	X = ON, OFF, sta	RecordSw ON	RecordSw ON
RecordDev X	X = USB, SD, sta	RecordDev ON	RecordDev ON
RecordName X	X = Name, sta	RecordName Record1	RecordName Record1
StreamSw X	X = ON, OFF, sta	StreamSw ON	StreamSw ON
OverlayPicSw X Y	X = ON, OFF, sta Y = 1 ~ 20 (Select picture)	OverlayPicSw ON 2	OverlayPicSw ON 2
OverlayTxtSw X	X = ON, OFF, sta	OverlayTxtSw ON	OverlayTxtSw ON
OverlayTxt X	X = Text content, sta	OverlayTxt Avonic	OverlayTxt Avonic
Network X	X = sta	Network sta	Network sta
Reboot X	X = ON	Reboot ON	Reboot ON
System X	X = sta	System sta	System sta

Command	Feedback					
Network sta	IP:	192.168.1.100	DNS1Addr:	8.8.8.8		
	Gateway:	192.168.1.1	DNS2Addr:	192.168.1.1		
	NetMask:	255.255.255.0	MACAddr:	98:14:xxxx:xxxx		
System sta	InputStatus:	good	VideoBitRate:	5885kbps	AudioBitRate:	127kbps
	OutputStatus:	bad	RecordName:	avonic	AudioSample:	48k
	InputResource:	HDMI	RecordTime:	14	HWVersion:	V2A
	VideoResolution:	1080i	RecordSize:	10864KB		
	OutputProtocol:	udp://...	SFVersion:	9.0.10		

APPENDIX B - INPUT RESOLUTIONS

When recording and streaming video with the REC200, it is important to understand the input resolutions that it can support. Input resolutions refer to the resolutions that are sent from another device to the REC200 and are affected by factors such as camera usage, quality of the lighting conditions, optics, and sensor. Output resolutions, on the other hand, are the resolutions sent from the REC200 to another device like a monitor. To achieve optimal quality for streaming or recording with the REC200, the following input resolutions are supported for use with Avonic PTZ cameras:

Resolution	FPS
1920x1080	23.98 ~ 60
1680x1080	59.88
1280x960	60
1360x768	60
1280x800	59.91
1280x720	50 ~ 60
720x576	50
720x488	60

APPENDIX C - DATASHEET SPECIFICATIONS

SPECIFICATIONS

Product

Input	1x HDMI, 1x 3G-SDI level A (only), 1x 3.5MM Audio Jack (1x RCA CC/CVBS, Not Active)
Output	1X HDMI LOOP OUT
Output Formats	1920x1080, 1680x1200, 1600x900, 1440x1050, 1440x900, 1360x768, 1280x1024, 1280x720, 1280x800, 1280x768, 1024x768, 1024x576, 960x540, 850x480, 800x600, 720x576, 720x540, 720x480, 720x404, 704x576, 640x480, 640x360, 480x270, AUTOMATIC 20~60FPS
Input Formats	Up To 1080P60
Audio	MPEG-1 LAYER II, AAC, AC3, EAC3 (DOLBY DIGITAL PLUS)
Audio Input	<i>Impedance: 600Ω</i> <i>Input Level: 9DBU, SNR (SIGNAL TO NOISE RATIO): 78</i> <i>Amplitude - Frequency Characteristics: 0.2</i> <i>Total Harmonic Distortion: 0.03%</i> <i>Level Difference Between L/R Channel: 0.2</i> <i>Phase Difference Between L/R Channel: 1.0</i>
Video Bitrate	0.6 ~ 12 MBPS
Video Resolution	1080x1920
Video Frame Rate	Max 60FPS
Audio Bitrate	32~384 KBPS

Streaming output

Protocols	UDP, RTSP, RTMP, RTMPS, HLS
Platforms	Facebook Live, Youtube and other platforms supporting the protocols above
Video Coding Standard	H.264 BP/ MP/ HP - H.265 MP
Max. resolution stream	1920x1080P60

Back of the REC200



Recording Output

USB/SD file system	FAT32, Max 4GB Filesize
Video Coding Standard	H.264 BP/ MP/ HP - H.265 MP
Format	*.TS, *.MOV, *.MP4

General specifications

Input voltage	DC12V1A
Power consumption	9W
Power supply	12V1A
Power connector	EIAJ-3 - PHIMORE 275 PLUG
Operating temperature	10°C ~ 40°C
Storage temperature	-20°C ~ 60°C
Operating humidity	20% ~ 90% RH (NON-CONDENSATION)
Color	Black
Dimensions product	144 x 118 x 38MM
Weight product	0.300 KG
Dimensions box WxHxD (mm)	245MM x 175MM x 62MM
Weight box	0.750 KG
Included	AV-REC200, AV-PSU200

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Recorder & Encoder with HDMI & SDI input
AV-REC200

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