



Impulse Streaming Kit

HDMI Video Encoding for RTMP Internet Broadcasts

User Manual



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About Sencore

Sencore is an engineering leader in the development of high-quality signal transmission solutions for the broadcast, cable, satellite, IPTV, telecommunications, and professional audio/video markets. The company's world-class portfolio includes video delivery products, system monitoring and analysis solutions, and test and measurement equipment, all designed to support system interoperability and backed by best-in-class customer support. Sencore meets the rapidly changing needs of modern media by ensuring the efficient delivery of high-quality video from the source to the home. For more information, visit www.sencore.com.

Revision History

Date	Version	Description	Author
05/29/2020	1.0	Initial Release	WAV
06/30/2020	1.1	US Market Review / Updates	JDF

Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
- The mains plug of the power supply cord shall remain readily operable.
- **Damage Requiring Service:** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power-supply cord or plug is damaged.
 - If liquid has been spilled, or objects have fallen into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of the controls may result in

damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

- If the product has been dropped or damaged in any way.
- The product exhibits a distinct change in performance.

Battery instructions

- Only use the specific type of battery.
- The depleted battery must be charged as soon as possible with a direct charge or charging stand.
- Remove the battery from the machine if you intend not to use it for a long time.
- The waste batteries must be disposed in accordance with local regulations.
- **Warning:** Improper use of the battery may cause leakage and contamination of the surroundings, it may also cause an explosion or a risk of fire and personal injury. The following precautions must be strictly observed:
 - Do not disassemble the battery or short circuit it.
 - Do not put the battery in a high temperature environment or in a fire.
 - Do not mix the using of old and new battery.
 - Do not mix different types of batteries.
 - Do not charge the non-rechargeable battery.
 - Make sure that the orientation of the battery is correct when loading.

SAFETY PRECAUTIONS

There is always a danger present when using electronic equipment.

Unexpected high voltages can be present at unusual locations in defective equipment and signal distribution systems. Become familiar with the equipment that you are working with and observe the following safety precautions.

- Every precaution has been taken in the design of your Impulse 200E to ensure that it is as safe as possible. However, safe operation depends on you the operator.
- Always be sure your equipment is in good working order. Ensure that all points of connection are secure to the chassis and that protective covers are in place and secured with fasteners.
- Never work alone when working in hazardous conditions. Always have another person close by in case of an accident.
- Always refer to the manual for safe operation. If you have a question about the application or operation, email ProCare@Sencore.com.
- **WARNING** – To reduce the risk of fire or electrical shock, never allow your equipment to be exposed to water, rain or high moisture environments. If it is exposed to a liquid, remove power safely (at the breaker) and send your equipment to be serviced by a qualified technician.
- To reduce the risk of shock, the Impulse 200E must be connected to a mains socket outlet with a protective earthing connection.
- For the Impulse 200E, the mains plug is the main disconnect and should remain readily accessible and operable at all times.

⚠ Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Package Contents

The following is a list of the items that are contained in the Impulse Streaming Kit:

1. Quick Start Guide
2. Impulse 200E
3. AC Power Supply
4. Mini-HDMI to HDMI video cable
5. Sencore Impulse C10 Camcorder
6. C10 Camcorder battery
7. C10 Camcorder charging cable
8. Remote control
9. Tripod
10. Shelf
11. Wide Angle and Macro Lens
12. SD Card
13. Bluetooth wireless microphone, transceiver, and cables





Optional Accessories (must be purchased in addition to Impulse Streaming Kit)

- 14. “Shotgun” style Microphone (Optional)
- 15. LED photography Light (Optional)
- 16. Holder (Optional)

Note: Optional accessories purchased with streaming kits will be included in the kit box when it ships.

If any of these items were omitted from the packaging of the Impulse Streaming Kit, please call 1-800-SENCORE to obtain a replacement. Manuals for Sencore products can be downloaded at www.sencore.com

Content

Section 1 Overview.....	12
1.1 Product Introduction.....	13
1.2 Impulse Camcorder Overview.....	13
1.2.1 Impulse Camcorder Panel Overview.....	13
1.3 Impulse 200E Overview.....	14
1.3.1 Impulse 200E Front Panel Overview.....	14
1.3.2 Rear Panel Overview.....	15
Section 2 Installation.....	16
2.1 Installation Preparation.....	17
2.1.1 Camcorder Preparation.....	17
2.1.2 Installation Details.....	18
2.2 Equipment Wiring and Connection.....	19
2.3 Maintenance.....	19
2.4 Impulse 200E-Network Setup via Front Panel.....	20
2.4.1 Static IP Address/Subnet Mask/Gateway.....	20
Section 3 Impulse Streaming Kit Applications.....	23
3.1 Impulse Streaming Kit Function Overview.....	24
3.1.1 Applications.....	24
3.1.2 Stream.....	24
Section 4 Impulse Camcorder Function Instructions.....	26
4.1 Impulse Camcorder-Buttons Overview.....	27
4.2 Impulse Camcorder-Power on/off.....	28
4.2.1 Power on.....	28
4.2.2 Power off.....	28
4.3 Recording to C10 SD memory card directly.....	28
4.3.1 Auto white balance.....	29
4.3.2 Color.....	30
4.3.3 Exposure.....	30
4.3.4 Metering.....	31
4.4 Camera-Taking Photos.....	31
4.4.1 Resolution.....	32
4.4.2 Self-Timer.....	32
4.4.3 Face Priority.....	32
4.4.4 Auto white balance.....	32
4.4.5 Color.....	33
4.4.6 Burst.....	33
4.4.7 Exposure.....	33
4.5 Playback Mode.....	33
4.5.1 Deleting.....	33
4.5.2 Protecting.....	34
4.5.3 MOV File Operations.....	34
4.6 Setup.....	34
4.6.1 Language.....	35
4.6.2 Silent Mode.....	35
4.6.3 Auto Off.....	36
4.6.4 Frequency.....	36
4.6.5 Date.....	37
4.6.6 Format.....	38

4.6.7 Default.....	39
4.7 Connect the Impulse Camcorder to the computer.....	39
4.8 Using Hot Shoe.....	40
Section 5 Bluetooth Microphone Operating Instructions.....	41
5.1 About Bluetooth Microphone.....	42
5.2 UHF Bluetooth Microphone operation instructions.....	42
5.2.1 Transmitter operation.....	42
5.2.2 Receiver operation.....	42
5.2.3 Exit pairing.....	43
5.3 One-to-two Bluetooth Microphone operation method.....	43
5.3.1 Transmitter operation.....	43
5.3.2 Operation at the receiving end.....	43
5.4 Key diagram of transmitter and receiver.....	44
5.5 Attention to charging.....	44
Section 6 Impulse 200E-Operating the Front Panel.....	45
6.1 Impulse 200E Front Panel Overview.....	46
Section 7 Impulse 200E-Operating the Web Interface.....	48
7.1 Impulse 200E Web Interface Overview.....	49
7.1.1 Logging in to the Impulse 200E Web Interface.....	49
7.1.2 Status Page.....	50
7.1.3 Menu Navigation Tab.....	51
7.2 Live Service/Streaming Settings Menu.....	52
7.2.1 Basic Settings Tab.....	53
7.2.2 Advanced Settings Tab.....	57
7.3 Record Settings Menu.....	59
7.3.1 Basic Settings Tab.....	61
7.4 Playback Settings Menu.....	64
7.4.1 Playlist Settings.....	65
7.4.2 Output Settings.....	66
7.5 Overlay Settings Menu.....	69
7.5.1 Text Overlay.....	69
7.5.2 Picture Overlay.....	71
7.6 System Settings Menu.....	73
Section 8 Appendices.....	75
Appendix A – Acronyms and Glossary.....	76
Appendix B – Using Automatic YouTube Streaming.....	79
Appendix C – Using Automatic Facebook Streaming.....	84
Appendix D – Using Manual RTMP Streaming.....	89
Appendix E – Using Manual RTMPS Streaming.....	95
Appendix F – Impulse Camcorder Technical Parameters.....	100
Appendix G – Impulse Camcorder Troubleshooting.....	102
Appendix H – Bluetooth Microphone Parameters Specification.....	103

Section 1 Overview



Introduction

This section includes the following topics:

1.1 Product Introduction.....	13
1.2 Impulse Camcorder Overview.....	13
1.2.1 Impulse Camcorder Panel Overview.....	13
1.3 Impulse 200E Overview.....	14
1.3.1 Impulse 200E Front Panel Overview.....	14
1.3.2 Rear Panel Overview.....	15

1.1 Product Introduction

All components have been carefully selected and for compatibility and maximum value to deliver 1080P, 720P, and SD video across the internet. The Impulse Streaming Kit is pre-configured for MPEG-4 “H.264” HD output at 4.5Mbps bandwidth. This default should accommodate most internet service speeds out of the box while maintaining high quality video. Use any online speed test to confirm the upload bandwidth for your location, the faster the internet the higher the quality available.

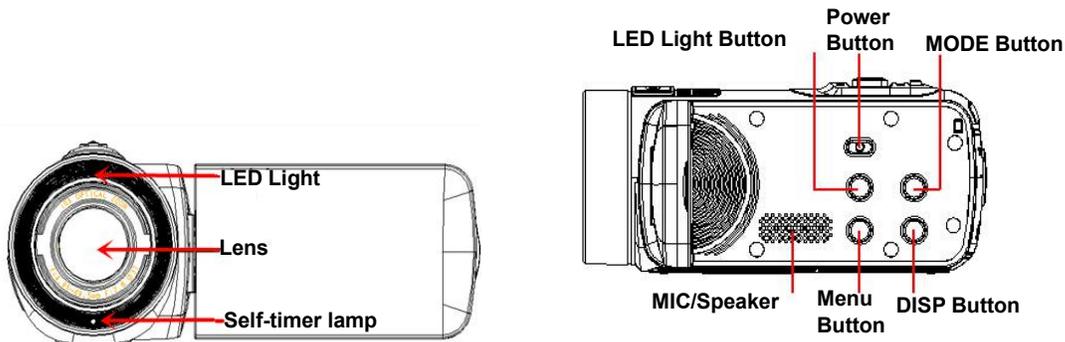
1.2 Impulse Camcorder Overview

The included Impulse C10 amcorder sends live HDMI video signal into the 200E encoder. By default the camera will automatically send 1080p30 when powered on and the HDMI cable connected from the back of the camera to the encoder HDMI input. Press the display (DISP) button to turn off the on-screen icons.



Figure 1: Impulse Camcorder Overview

1.2.1 Impulse Camcorder Panel Overview



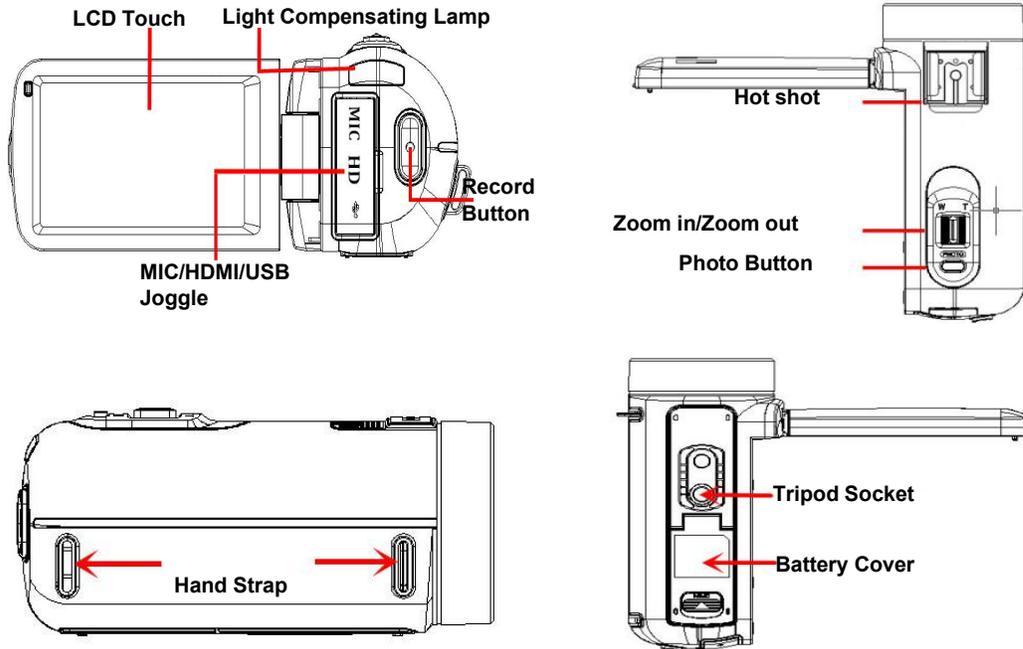


Figure 2: Impulse Camcorder Panel Overview

1.3 Impulse 200E Overview

Impulse 200E is a cost-effective single-channel encoder and streamer for audio and video processing and transport. It supports professional encoding and IP streaming for live encoding, uploading, and playback.

1.3.1 Impulse 200E Front Panel Overview

The Impulse 200E can be controlled from the front panel with the LCD screen and buttons that are shown below in Figure 3. A detailed description of using the front panel can be found in Section 3.



Figure 3: Impulse 200E Unit Front Panel

1. Reset Button: pressing this will reboot the Impulse 200E.
2. LCD Screen: shows menus for user status and unit control

3. Up, Down, Left, Right, OK and Menu Buttons: provides navigation and entry within LCD screen menus
4. Status Indicator: light indicates input signal presence (green) or absence (red)
5. Error Indicator: light indicates red when the unit is in alarmed condition
6. Up, Down, Left, Right buttons: provides navigation/entry within LCD screen menus
7. USB Port: purposed for storage while using the record and playback features.
Note: *the Impulse 200E is only compatible with the FAT32 USB/SD format.*

1.3.2 Rear Panel Overview

The Impulse 200E comes standard with all of the hardware back panel features shown. Refer to the Figure 4.



Figure 4: Impulse 200E Unit Back Panel

1. DC Input: power input (12V – 2A)
2. RJ45: management and UDP output port (10/100 RJ45 Ethernet port)
3. Digital Video Output Connector (HDMI): HDMI pass-through port
4. RS232 Port: future use
5. **SD Card Slot: purposed for storage while using the record and playback features**
Note:
 6. *the Impulse 200E is only compatible with the FAT32 SD Card format*
 7. *The Impulse Streaming Kit ships with 64GB SD memory card formatted and installed (ready for use)*
8. 3.5mm Audio Input: for use with external “headphone cable” audio source
9. Digital Video Input Connector (HDMI)
10. CVBS/CCIN: closed caption input

Section 2 Installation



Introduction

This section includes the following topics:

2.1 Installation Preparation.....	17
2.1.1 Camcorder Preparation.....	17
2.1.2 Installation Details.....	18
2.2 Equipment Wiring and Connection.....	19
2.3 Maintenance.....	19
2.4 Impulse 200E-Network Setup via Front Panel.....	20
2.4.1 Static IP Address/Subnet Mask/Gateway.....	20

2.1 Installation Preparation

This chapter includes information for the technicians installing the equipment.

Before starting, confirm the device is in good condition and the necessary cabling is present to complete the installation.

When unpacking the unit, inspect it for shipping damage. If any damage is found, contact Sencore customer service.

The batteries for the C10 camcorder, Bluetooth Microphone, and Bluetooth Transciever will need to be fully charged before first use. USB adapter cables are included to power and charge these devices.

2.1.1 Camcorder Preparation

Installing the Battery

A Li-ion battery shall be installed to your camcorder:

1. Open the battery compartment on the side of the camcorder.
2. Insert the battery with the correct polarity as indicated.
3. Replace the battery compartment cover.
4. Press the power button to turn on the camcorder. The battery status icon will display at the right bottom corner of the LCD screen.
5.  Full battery charge  Medium-level battery charge  Low battery.

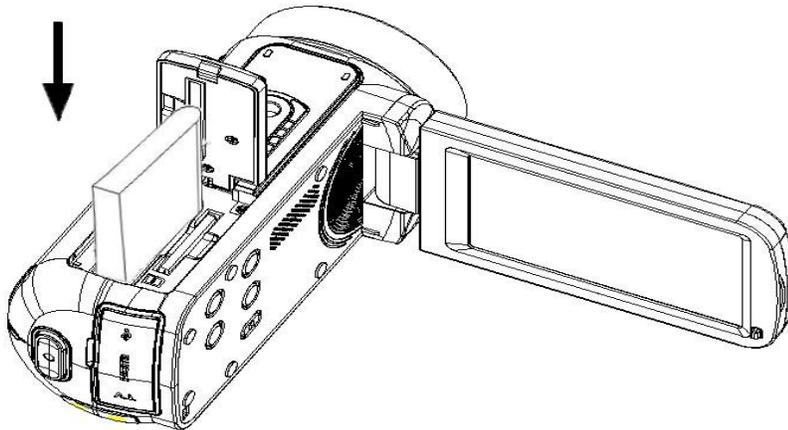


Figure 5: Impulse Camcorder-Installing the Battery

Battery Status Indication

1. Connect the camcorder to the Impulse 200E with the USB cable to charge your camcorder. The charge indicator lights up, indicating that your camcorder is being charged. The indicator will turn off automatically after the charging is complete.
2. If the battery charge is low, a message "Low Battery" displays on the screen. A few seconds later, the camcorder will be powered off automatically.

Note:

- When the Impulse Camcorder is powered off or the battery is removed, the photos and videos saved in the internal memory will be lost.
- To extend the service life of the Impulse Camcorder, if it will not be used for a long term, remove the battery from it.

2.1.2 Installation Details



Figure 6: Impulse Streaming Kit Installation

1. Take out the equipment after unpacking. First take the **tripod** out of the bag and set it perpendicular to the ground.
2. Prop out the three **legs of the tripod**, making sure the legs are fully extended and in a firm position.
3. Open the **buckles** on the legs of the tripod and adjust them to the desired height, then fasten the buckles tightly.
4. Turn on the **knob next to the handle**, adjust the handle to the proper position, and then fix the knob.
5. Adjust the level and adjust **the air bubble** on the level to the middle position.

6. Unscrew the **knob of the cradle head** and then turn the **safety switch** to the right to conveniently remove the upper **quick shoe**. There are screw holes on the bottom of the **camcorder**, which can be aligned and tightened.
7. The **adjustment handle** is to adjust the level and direction of the camcorder. Just fix it and screw it tight.
8. If necessary, users can open the lid of **wide angle lens** and install on the camcorder, use super micro according to actual use.
9. Install the **shelf** to desired position, it can be installed under the **cradle head** or on the **central shaft**, and tighten the screw.
10. Place **Impulse 200E** on the **shelf**.

2.2 Equipment Wiring and Connection

Take Impulse 200E as the center: Connect the camcorder to the Impulse 200E with the USB cable to charge the camcorder. Connect HDMI, CC/MIC and Ethernet cable from network to Impulse-200E. Insert SD card for recording & playback. At last, connect the power adaptor, only use the supplied power connector or a 12V, 2A equivalent. Access the Impulse 200E management interface with a PC on the same network or directly connected to the Impulse. Refer to the Figure 7.

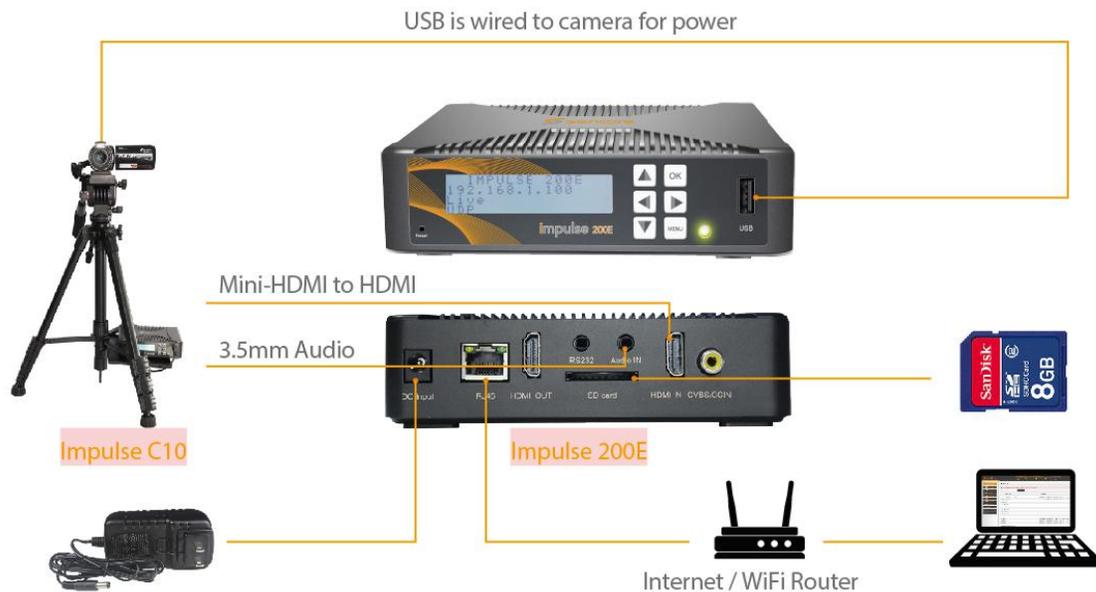


Figure 7: Impulse Streaming Kit Wiring and Connection

2.3 Maintenance

The Impulse Streaming Kit is a maintenance-free piece of equipment. There are no user serviceable parts on the inside of the unit. Firmware updates for the device can be uploaded using the web-interface, email ProCare@Sencore.com to request latest update file if desired.

2.4 Impulse 200E-Network Setup via Front Panel



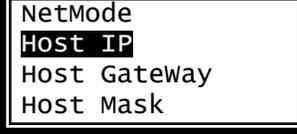
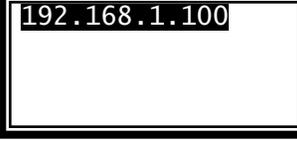
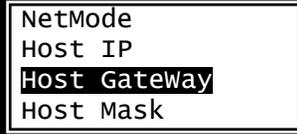
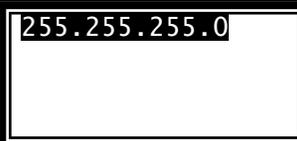
Figure 8: Impulse 200E Unit Front Panel

The Impulse 200E can be accessed on a network connection to allow remote management. For these features to work, the network settings for the Impulse 200E must first be configured properly for the network it is connected to.

2.4.1 Static IP Address/Subnet Mask/Gateway

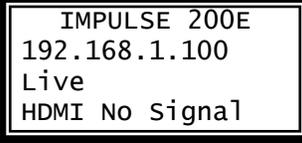
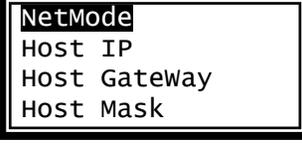
To set up the Impulse 200E with a static IP address, follow these steps:

<p>1. The native screen on the Impulse 200E is the “Status” page. This will report the name of the unit, its current IP as well as the status of the input (used in tandem with the red/green LED light on the front panel).</p>	
<p>2. Press the MENU button to enter the page where settings can be viewed and configured.</p>	
<p>3. Use the ▲ and ▼ buttons to move the cursor to “System”, and then press the OK button to enter the system menu.</p>	
<p>4. Use the ▲ and ▼ buttons to move the cursor to “Network”, then press the OK button to enter the network menu.</p>	
<p>5. Use the ▲ and ▼ buttons to move the cursor to “NetMode”, then press the OK button.</p>	

<p>6. Confirm that the unit is currently set to “DHCP: Disable”. If it is, press the MENU button to return to the network menu. If it is not, press the OK button to disable DHCP and repeat Step 1~4.</p>	
<p>7. Use the ▲ and ▼ buttons to move the cursor to “Host IP”, then press the OK button to enter the menu where Host IP can be viewed and configured.</p>	
<p>8. Press the OK button to initiate changing the IP. Use the ▲ and ▼ buttons to change the value of the digit and the ◀ and ▶ buttons to change the location. Press OK to finish and apply, and then repeat Step 1~4 to return to the network menu.</p>	
<p>9. Use the ▲ and ▼ buttons to move the cursor to “Host Gateway”, then press the OK button to enter the menu where Host GateWay can be viewed and configured.</p>	
<p>10. Press the OK button to initiate changing the GateWay. Use the ▲ and ▼ buttons to change the value of the digit and the ◀ and ▶ buttons to change the location. Press OK when finished to apply, and then repeat steps 1~4 to return to the network menu.</p>	
<p>11. Use the ▲ and ▼ buttons to move the cursor to “Host Mask”, then press the OK button to enter the menu where Host Mask can be viewed and configured.</p>	
<p>12. Press the OK button to initiate changing the Mask. Use the ▲ and ▼ buttons to change the value of the digit and the ◀ and ▶ buttons to change the location.</p>	
<p>13. Press OK to finish and apply. The IP will now be accessible on the network it was configured to!</p>	

How to enable DHCP on the 200E using front-panel operation

The Impulse 200E can be configured to use DHCP to obtain an IP address/Subnet Mask/Gateway.

<p>1. The native screen on the Impulse 200E is the “Status” page. This will report the name of the unit, its current IP as well as the status of the input (used in tandem with the red/green LED light on the front panel).</p>	
<p>2. Press the MENU button to enter the page where settings can be viewed and configured.</p>	
<p>3. Use the ▲ and ▼ buttons to move the cursor to “System”, and then press the OK button to enter the system menu.</p>	
<p>4. Use the ▲ and ▼ buttons to move the cursor to “Network”, then press the OK button to enter the network menu.</p>	
<p>5. Use the ▲ and ▼ buttons to move the cursor to “NetMode”, then press the OK button.</p>	
<p>6. If the DHCP setting is currently set to “Disable”, press the OK button to enable DHCP.</p>	

Note: Ensure ethernet cable is wired to network with automatic IP assignments. If this is not connected on boot the 200E wasn't getting an IP – had to power cycle to get it to come up. And it may take up to a minute for the Impulse 200E to obtain an IP address.

Section 3 Impulse Streaming Kit Applications



Introduction

This section includes the following topics:

3.1 Impulse Streaming Kit Function Overview.....	24
3.1.1 Applications.....	24
3.1.2 Stream.....	24

3.1 Impulse Streaming Kit Function Overview

The included Impulse Camcorder supports up to 1080p video and sends a live HDMI signal into the Impulse 200E.

The Impulse 200E converts the live HDMI into an industry standard RTMP(S) signal suitable for transmission over the internet. Everything you need to get started including the tripod, memory cards, and cables are all included.

All you need at the camera location is a standard 120V/AC power outlet, social media account and wired ethernet cable connection. Use any computer or mobile phone browser to configure settings over the local network or use the 200E encoders built in front pane.

The Impulse Streaming Kit is the easiest way to simultaneously record and stream live video over services like Youtube, Facebook Live, Twitch, Ustream, and more. Once the live streaming session is over, remove the included 64GB SD memory card for traditional video editing of a .MP4, .MOV, or .TS style copy.

3.1.1 Applications

- Broadcast any live event in HD for free (Youtube, Facebook Live, Twitch, Ustream, Wowza, and more!).
- Stream Online and simultaneously record a copy to SD memory for traditional video editing later.
- Playback previously recorded video from SD memory to any RTMP service or over the local network.
- Move SD memory from Impulse 200E to C10 Camcorder for traditional battery-operated use.
- Connect HDMI output of PC graphics card right into encoder for a dedicated RTMP uplink.
- Use Streaming Kit with PC running Powerpoint.
- Stream live House-Channels or looped advertising content.
- Use Streaming Kit with popular software over the local area network (UDP/Multicast H.264/HEVC).
- Compatible with OBS Studio (free streaming software for PC/Mac).
- Combine Impulse Streaming Kit with software and PC for incredible green-screen effects.

3.1.2 Stream

1. Power on the Impulse-200E and turn on the Camcorder. The Camcorder sends high definition HDMI signal to 200E Encoder.
2. Open a web browser (IE 7 or above, Firefox 3.5 or above, or Chrome) and type :
`http://<192.168.1.100>` Default account and password are admin to login Impulse

200E web-interface. Enter Live Service/Streaming Setting menu and click Start Streaming. Impulse 200E converts and sends RTMP video to the Internet. Refer to the Figure 9.

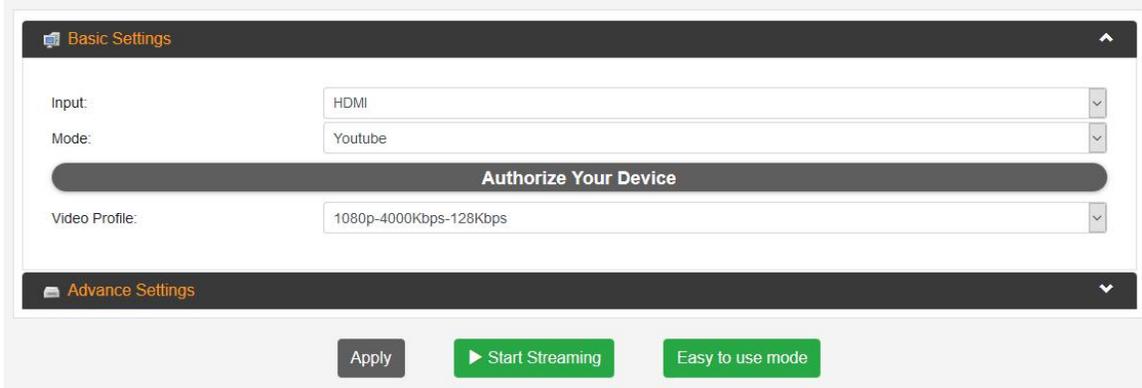


Figure 9: Impulse 200E web-interface (Youtube Mode)

* if users need streaming to Youtube/facebook or other video platforms, please refer to Section 7 for specific operating steps.

3. UDP output mode>click Start Streaming: Use VLC on the PC to receive UDP multicast (the default UDP output multicast address and port is 227.40.50.60:1234) to watch the live video. Refer to the Figure 10&11.

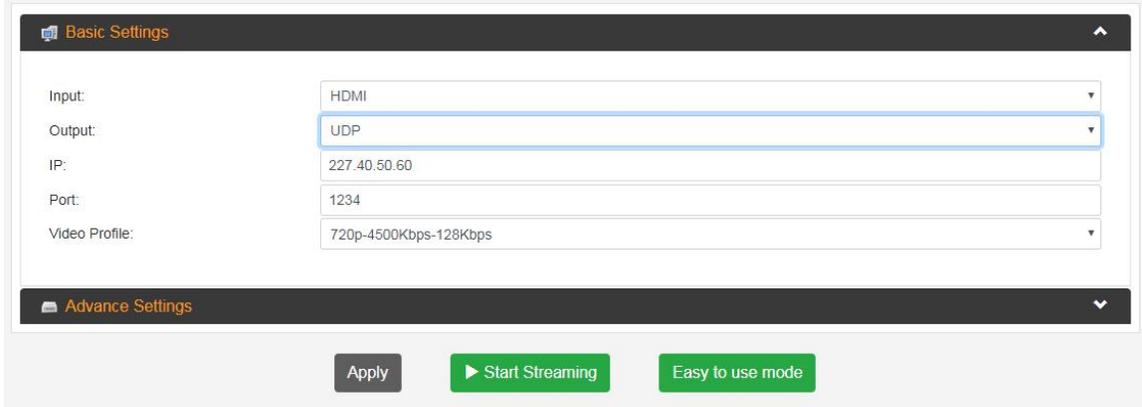


Figure 10: UDP Output Mode

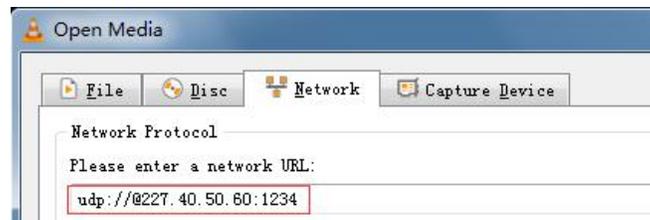


Figure 11: VLC setting

Section 4 Impulse Camcorder Function Instructions



Introduction

This section includes the following topics:

4.1 Impulse Camcorder-Buttons Overview.....	27
4.2 Impulse Camcorder-Power on/off.....	28
4.3 Recording to C10 SD memory card directly.....	28
4.4 Camera-Taking Photos.....	31
4.5 Playback Mode.....	33
4.6 Setup.....	34
4.7 Connect the Impulse Camcorder to the computer.....	39
4.8 Using Hot Shoe.....	40

4.1 Impulse Camcorder-Buttons Overview



Figure 12: Buttons of Impulse Camcorder

The Impulse Camcorder can be controlled from the panel with the LCD screen and buttons. The buttons are shown in Figure 12.

Power button: power on/off.

LIGHT button: LED light on/off.

MODE button: provide mode option, please refer to the Figure 13.

MENU button, please refer to the Figure 14.

DISP button: turns on and off the LCD display and on-screen icons

Note: HDMI output of C10 camcorder will always match what is shown on the flip out LCD display.

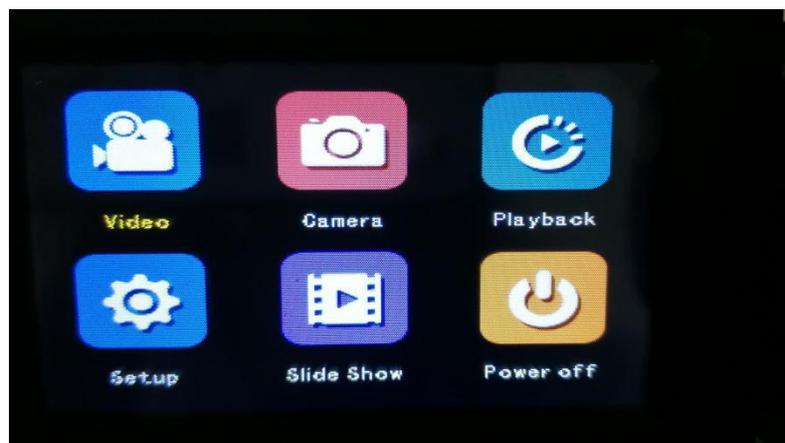


Figure 13: Interface of Mode button

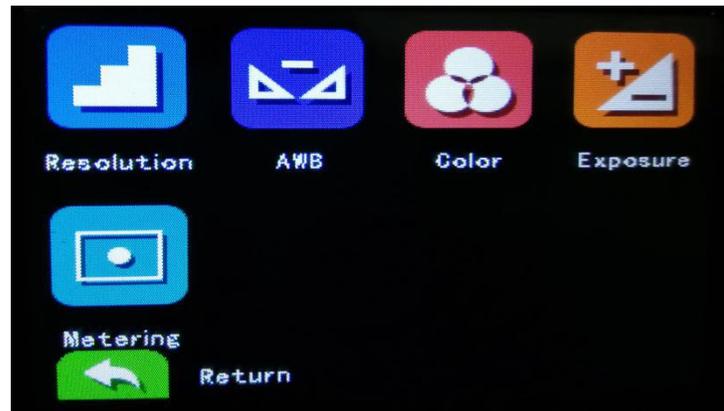


Figure 14: Interface of Menu button

4.2 Impulse Camcorder-Power on/off

To turn on the Impulse Camcorder, users need to unfold the LCD screen and then press the power button located on the inside of the Impulse Camcorder.

4.2.1 Power on

1. Press the **Power** button or unfold the LCD screen to start the Impulse Camcorder.
2. The LCD screen will light up, indicating that the Impulse Camcorder is ready for use.

4.2.2 Power off

1. Press the **Power** button to turn off the Impulse Camcorder.
2. Set the auto power off time of 3 minutes, 5 minutes or 10 minutes, the machine will turn off automatically if no operation performed after 3 minutes, 5 minutes or 10 minutes.
3. If the battery charge is low, a message "Low Battery" displays on the screen. A few seconds later, the Impulse Camcorder will be powered off automatically.

4.3 Recording to C10 SD memory card directly

Press the **Power** button to turn on the Impulse Camcorder and insert SD memory card. This feature is for traditional hand-held wireless camcorder use and not online streaming.

To record a copy of the live stream to use the 200E encoder SD memory slot and web-browser to control device.

1. Then the icon  will display at the left upper corner of the LCD screen.
2. Press the **Rec** button to start shooting.
3. The  icon will display and start to flash, and the shooting time will display at the right upper corner of the LCD screen.
4. Press the **Rec** button again to stop shooting.
5. The recorded video will be saved as an MOV file.

Note:

- During shooting, users can adjust the focal length of the Impulse Camcorder to focus on the object you want to shoot.
- Users can check the MOV file in the Replay mode.
- Users can check the videos via video players on the computer after the files being exported.
- If the internal memory is full, a message "Memory is full" will display on the LCD screen when you attempt to shoot a video, Insert an SD card with available spaces to shoot more videos.

4.3.1 Auto white balance

This function is used to adjust the color of the video based on the light.

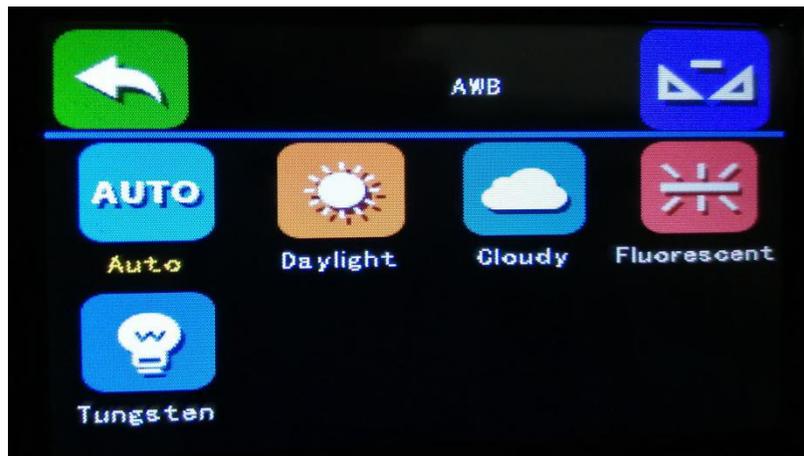


Figure 15: AWB Settings

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **AWB** icon.
3. Touch the screen and select **Auto**, **Daylight**, **Cloudy**, **Fluorescent** or **Tungsten**. Refer to the Figure 15.

4.3.2 Color

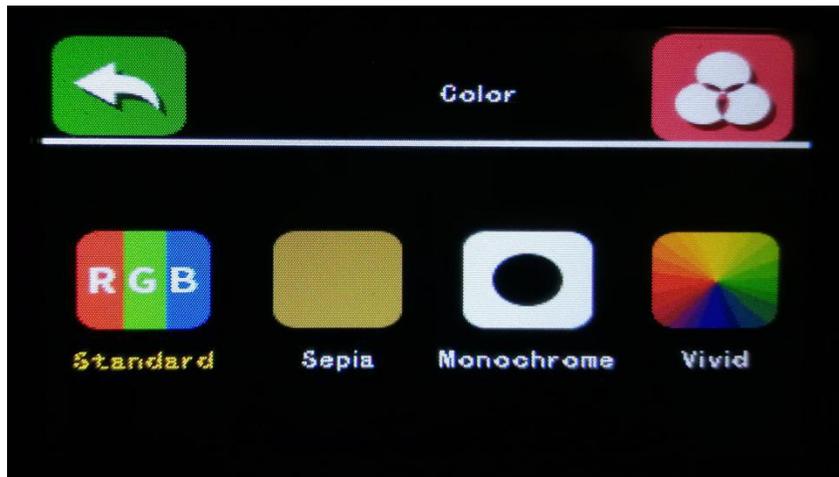


Figure 16: Color Settings

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Color** icon.
3. Touch the screen and select **Standard**, **Sepia**, **Monochrome** or **Vivid**. Refer to the Figure 16.

4.3.3 Exposure

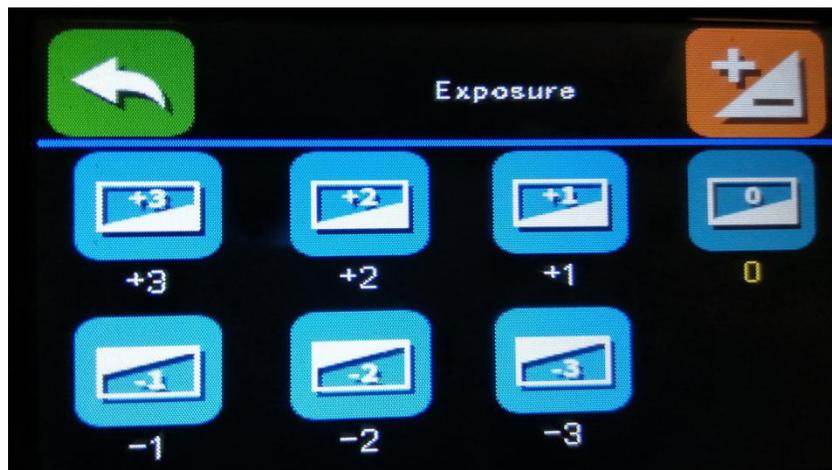


Figure 17: UDP Output Mode

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Exposure** icon.
3. Touch the screen and select an exposure compensation value (from +3 to -3) from the displayed menu. Refer to the Figure 17.

4.3.4 Metering

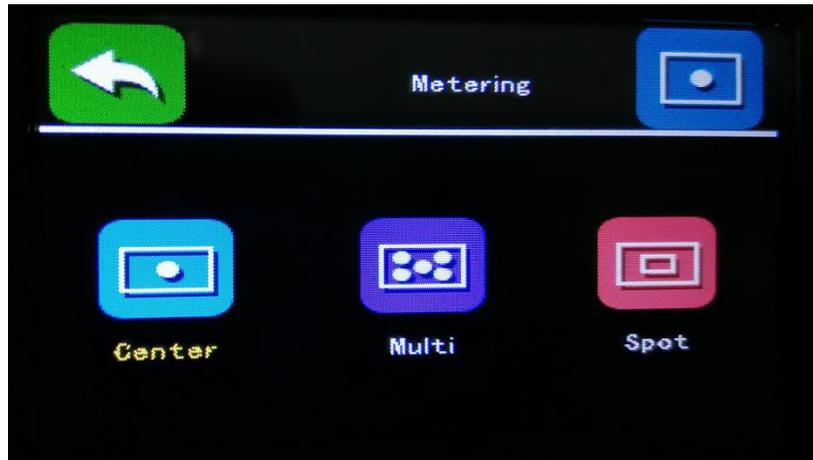


Figure 18: UDP Output Mode

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Metering** mode icon.
3. Touch the screen and select **Center**, **Multi** or **Spot**. Refer to the Figure 18.

4.4 Camera-Taking Photos

Turn on the Impulse Camcorder and insert a 64GB SD card to ensure normal operation.

Capture the image on the LCD screen to structure your target.

1. Hold the Impulse Camcorder firmly and press the shutter button near the zoom in/out buttons on the top of the Impulse Camcorder.
2. The photo you take is now saved to the memory.
3. The number of photos of the selected resolution you can take will display at the left upper corner of the LCD screen.
4. The number decreases as you take photos.
5. If the internal memory is full, a message "Memory is full" will display on the LCD screen when you attempt to take a photo. Export the photos to your computer or delete them to take more photos.
6. The total number of photos you can take depends not only on the capacity of the installed SD card but also on the selected definition. The higher the resolution, the better the photo quality, though better-quality photos require larger memory.

Users can set the following parameters to capture photos of better quality.

4.4.1 Resolution

The size and quality settings of the photo decide the memory a photo requires and the total number of photos you can take. The better the quality, the larger memory it will need. The size and quality of a photo also affects the maximum size of the printed photo.

Setting the Resolution

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Resolution** icon. 5600 x 4200 (24M), 5200x3900(20M),4640 x 3480 (16M), 4000 x 3000 (12M), 3648 x 2736 (10M), 3648 x 2048 (7MHD), 2592 x 1944 (5M), 2048 x 1536 (3M), 1920 x 1080 (2MHD) and 640 x 480 (VGA).

Note: The selected **Resolution** icon will display at the left upper corner of the LCD screen.

4.4.2 Self-Timer

Users can set this function to prolong the time difference between pressing the shutter and actually taking the photo, so that users will have enough time to make movements and take photos of themselves.

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the self-timer icon.
3. Touch the screen and select off, 2 seconds, 5 seconds or 10 seconds.
4. The Impulse Camcorder will start to count down after users press the shutter button for 2, 5 or 10 seconds until it takes and saves the photo.

Note: The corresponding self-timer icon will display at the upper corner of the LCD screen.

4.4.3 Face Priority

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the face-priority icon.
3. Touch the screen and select on or off.

Note: The face detection icon will display on the upper corner of the LCD screen.

4.4.4 Auto white balance

This function is used to adjust the color of the video based on the light.

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **AWB** icon.

4. Touch the screen and select **Auto, Daylight, Cloudy, Fluorescent** or **Tungsten**. Refer to the Figure 15.

4.4.5 Color

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Color** icon.
3. Touch the screen and select **Standard, Sepia, Monochrome** or **Vivid**. Refer to the Figure 16.

4.4.6 Burst

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the burst icon.
3. Touch the screen and select on or off.

Note: If "on" is selected, the  icon at the left upper corner of the LCD screen will turn to the  icon.

4.4.7 Exposure

1. Press the **Menu** button or touch the **MENU** icon on the screen to access the menu.
2. Touch the screen and select the **Exposure** icon.
3. Touch the screen and select an exposure compensation value (from +3 to -3) from the displayed menu. Refer to the Figure 17.

4.5 Playback Mode

1. Press the **Mode** button to access the menu.
2. Touch the screen and select **Playback** mode, and the  icon will display at the left upper corner of the LCD screen.
3. Users can replay the photos, audio files or videos on the Impulse Camcorder.
4. Swipe the screen or press the zoom in/out buttons to turn to the previous or next file. In replay mode, users can delete and protect the videos.

Note: If no media file is saved in the memory, a message "No file" will display on the LCD screen.

4.5.1 Deleting

Users can delete unwanted photos to spare the memory. Users can delete a photo at a time or all the unprotected photos saved on the SD card at once.

1. In **Playback** mode, press the **Menu** button or touch the **MENU** icon on the screen.

2. Touch the screen and select the **delete** icon.
3. Touch the screen and select this photo (the currently selected) or all (all the unprotected).
4. Then a confirmation message “Delete this photo?” will display on the screen. Select "Yes" to delete the file or select "No" to cancel.

4.5.2 Protecting

Users can set this function to protect your photos from being deleted by mis-operation.

1. In **Playback** mode, press the **Menu** button or touch the **MENU** icon on the screen.
2. Touch the screen and select the **protect** icon.
3. Touch the screen and select protect the current, unprotect the current, protect all or unprotect all.

Note: If protect the current is selected, the lock icon will display on the LCD screen above the currently selected photo. Select unprotect the current to unprotect this file as described in Step 3.

4.5.3 MOV File Operations

Users can replay the MOV files saved on the Impulse Camcorder.

1. Switch to **Playback** mode.
2. Swipe the screen or press the zoom in/out buttons to select the MOV file you want to play.
3. Touch the screen to  play the file.
4. Touch the screen again to  pause the replay. Press the shutter button to stop the replay.

4.6 Setup

In this mode, users can set the **language**, **Silent Mode**, **Auto off**, **Frequency**, **Date**, **Format** and **Default**.

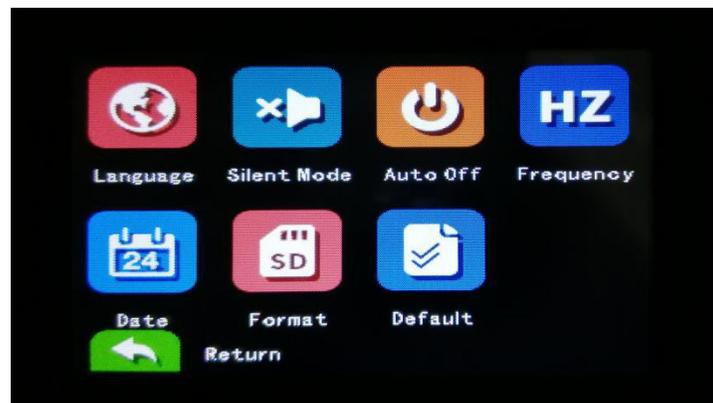


Figure 19: Setup Mode

4.6.1 Language

The Impulse Camcorder supports 13 languages, including English, German, French, Spanish, Italian, Turkish, Russian, Portuguese, Dutch, Simplified Chinese, Traditional Chinese, Japanese and Polish.

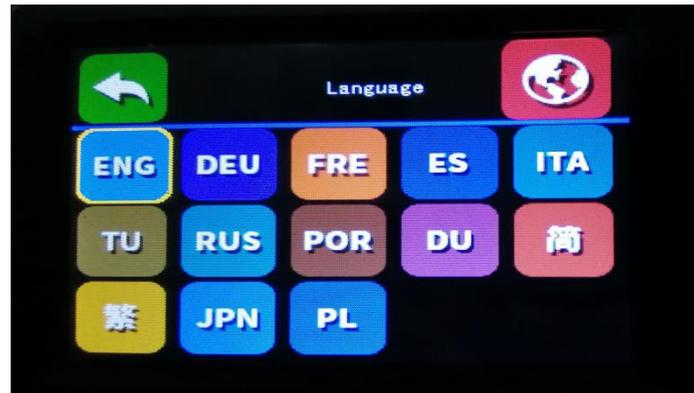


Figure 20: Language Settings

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Language**.
4. Touch the screen and select English, German, French, Spanish, Italian, Turkish, Russian, Portuguese, Dutch, Simplified Chinese, Traditional Chinese, Japanese or Polish. Refer to the Figure 20.

4.6.2 Silent Mode

The Impulse Camcorder beeps or gives other sounds as users press any buttons.

The sound is on by default, and users can use this function to turn it off.

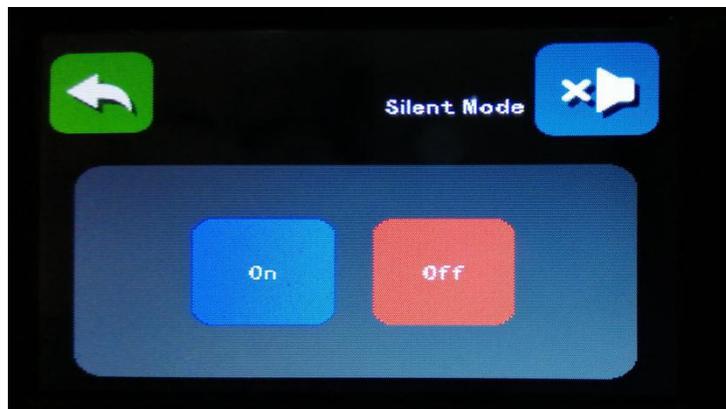


Figure 21: Mute Settings

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Silent Mode**.
4. Touch the screen and select on or off. Refer to the Figure 21.

4.6.3 Auto Off

Users can set the auto power off time to save battery charges. After setting, the Impulse Camcorder will turn off automatically if no operation is performed at the set time.

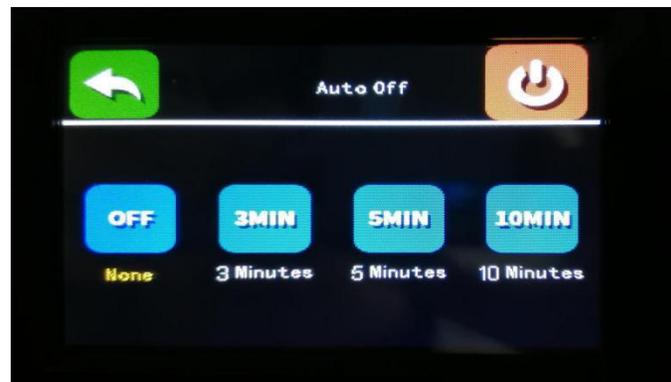


Figure 22: Auto Off Settings

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Auto Off**.
4. Touch the screen and select Off, 3 minute, 5 minutes or 10 minutes. Refer to the Figure 22.

Note: If off is selected, the Impulse Camcorder will not power off automatically unless the battery is out of power.

If the Impulse Camcorder is kept on for an extended period, the battery will run out.

4.6.4 Frequency

Generally, 60HZ is for the U.S.A and other countries around, while 50 HZ is for European countries and Japan and so on. The default is 50HZ.

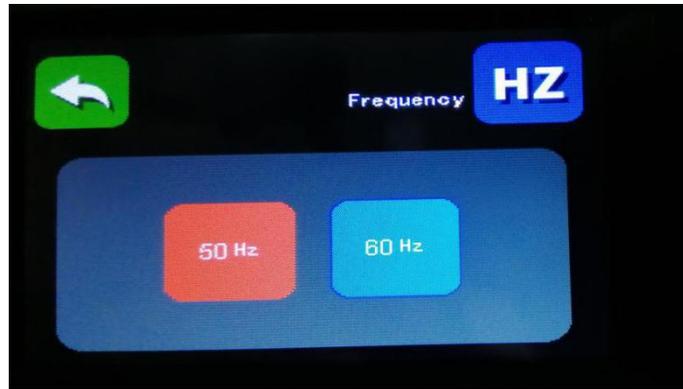


Figure 23: Frequency Settings

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Frequency** ^{Hz}.
4. Touch the screen and select 50 HZ or 60 HZ. Refer to the Figure 23.

4.6.5 Date

This function is used to set the correct date and time.

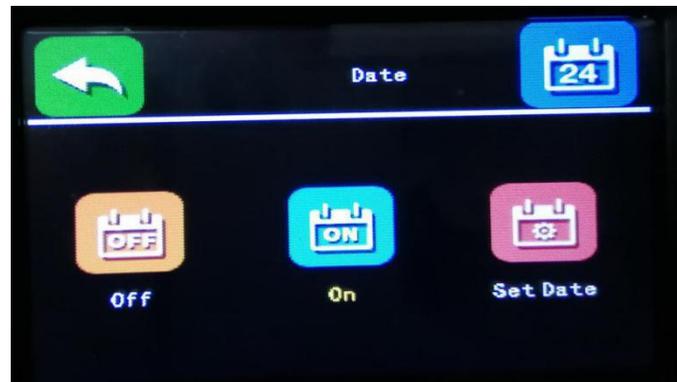


Figure 24: Date Settings

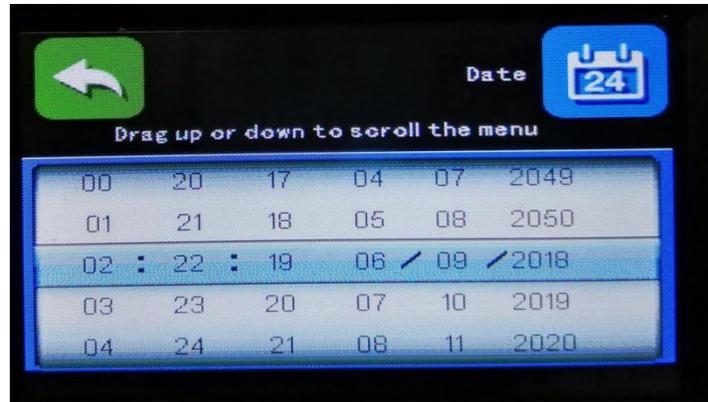


Figure 25: Set Date option interface

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Date**.
4. Touch the corresponding icon on the screen and use the up and down arrows to set the date and time. Refer to the Figure 24 & 25.

Note: If on is selected, the date and time will display on the photo. If off is selected, they will not display.

4.6.6 Format

Users can use this function to delete all the files saved in the internal memory or the external SD card.

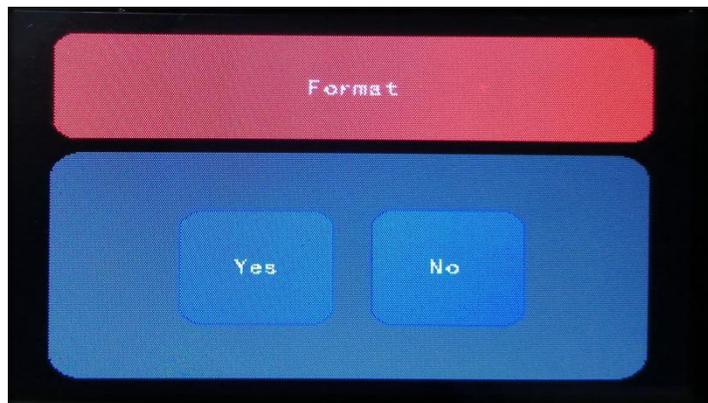


Figure 26: Format Settings

Note: Make sure all the files have been exported to the computer before formatting. The files will be deleted permanently and the process is irreversible.

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Format**.
4. Touch the screen and select Yes or No. Refer to the Figure 26.

4.6.7 Default

If the Impulse Camcorder is in abnormal mode, users can set this function to restore all the settings to the factory default.

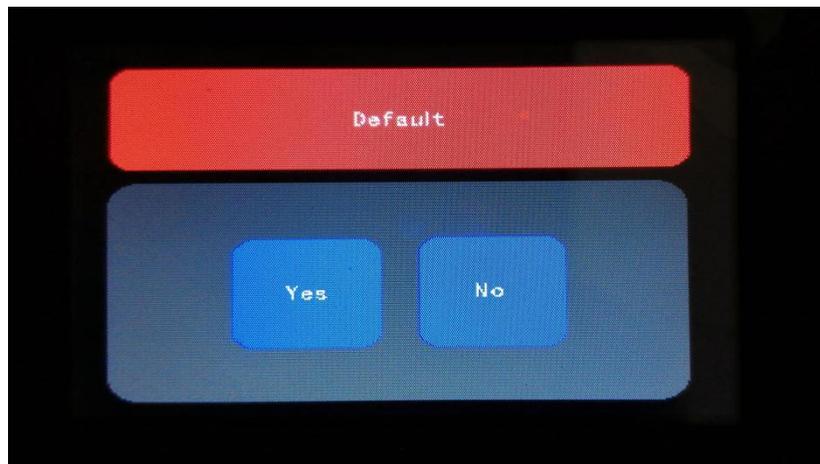


Figure 27: Default Settings

1. Press the **Mode** button to access the menu.
2. Touch the screen and select the **Setup** icon. Refer to the Figure 19.
3. Touch the screen and select **Default**.
4. Touch the screen and select yes or No. Refer to the Figure 27.

4.7 Connect the Impulse Camcorder to the computer

Prepare a USB cable

1. Turn on the Impulse Camcorder and enter the standby mode.
2. Plug the USB cable to the computer, and plug the cable to the USB of the Impulse Camcorder.
3. You will see two icons “Connect to the computer” and “Camera”.
4. Choose between two icons by using the “**ZOOM**” button.
5. Confirm your selection by pressing the “**Photo**” button.

Note: We suggest users to connect the USB cable to the back of your computer, after you choose to connect the computer, a movable disk symbols will be displayed on the computer.

4.8 Using Hot Shoe

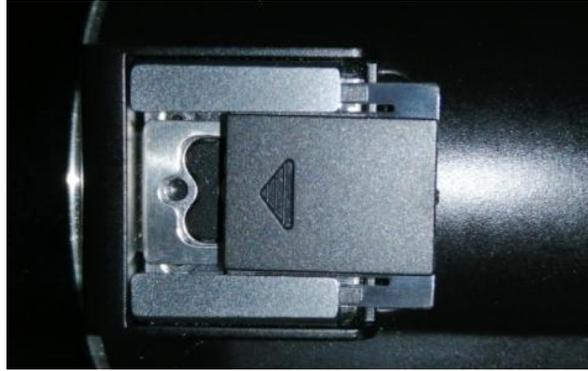
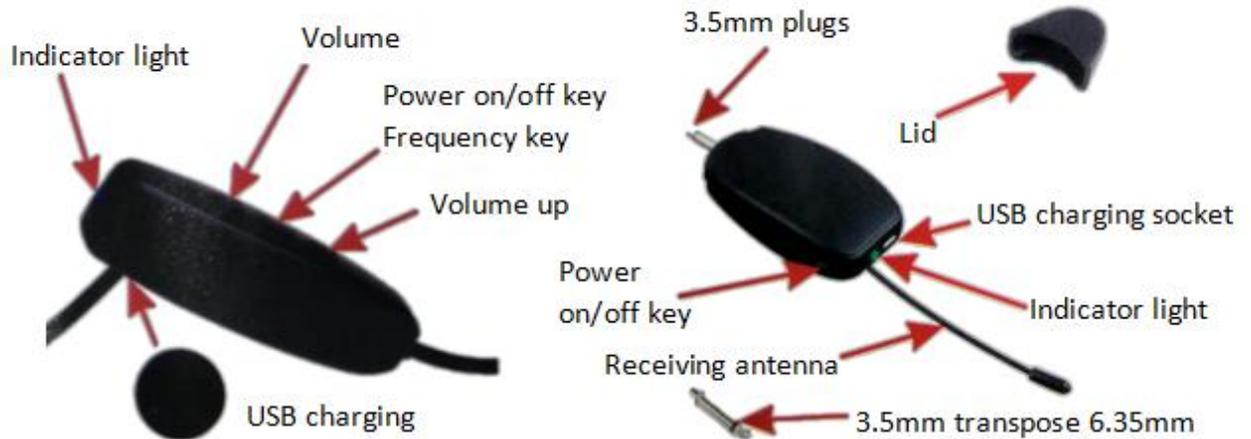


Figure 28: Hot Shoe Interface

1. Connect the external MIC to the hot shoe interface of the Impulse Camcorder, after you connect the cable to the Audio in interface of the Impulse 200E and turn on the Impulse 200E, the Impulse 200E will receive sound via the external MIC while recording.
2. Connect the external LED light to the hot shoe interface of the Impulse Camcorder, the LED will flash when taking photo.

Section 5 Bluetooth Microphone Operating Instructions



5.1 About Bluetooth Microphone.....	42
5.2 UHF Bluetooth Microphone operation instructions.....	42
5.2.1 Transmitter operation.....	42
5.2.2 Receiver operation.....	42
5.2.3 Exit pairing.....	43
5.3 One-to-two Bluetooth Microphone operation method.....	43
5.3.1 Transmitter operation.....	43
5.3.2 Operation at the receiving end.....	43
5.4 Key diagram of transmitter and receiver.....	44
5.5 Attention to charging.....	44

5.1 About Bluetooth Microphone

In order to make users' use of this product simple and convenient, this Bluetooth Microphone product can be used before the factory unified the correct frequency band, do not need to rematch. If users need to change frequency, please refer to the following instructions. The Bluetooth Microphone receiver will provide audio signal to the Impulse 200E.

5.2 UHF Bluetooth Microphone operation instructions

Start-up: Press button on transceiver for 3 seconds and release; the LED light should glow green indicating the unit has power. Press the power button the lapel microphone for 3 seconds and release, the LED indicate light should glow blue indicating it has power. When the device is paired correctly the green LED on the transceiver will flash red while talking into the microphone. Press the + volume key 10 times to maximize output of the microphone.

Shutdown: Press the power key and the receiver power key for 3 seconds and release. The LED should turn off indicating the device is powered down.

This product has been paired by default when it leaves the factory. It can be used on boot. If multiple machines use serial frequency at the same time, just press the boot button of transmitter to change frequency.

One transmitter of this product can be used in pairs with up to 10 receivers at the same time.

In the case of replacement of transmitting or receiving equipment, it is necessary to re-pair. The operation instructions are as follows.

5.2.1 Transmitter operation

Press the boot button for 5 seconds, where the power indicator flashes once, then press the transmitter boot button once quickly, and when users see the power indicator flashing, enter the matching mode.

5.2.2 Receiver operation

After the transmitter enters the matching mode, turn on the receiver, wait 2 seconds and press the transmitter boot button once to complete the frequency matching. At this time, users can speak to the microphone to test the voice. If the matching is successful, the receiver will flash red light when speaking.

5.2.3 Exit pairing

The frequency can be automatically locked and matched by pressing the startup key of the transmitter.

5.3 One-to-two Bluetooth Microphone operation method

Power on: Short press the power button on the middle of the transmitter and the power button on receiver.

Shutdown: Press and hold the transmitter' s middle power button and receiver' s power button for 3 seconds.

This product has been paired by default when shipped from the factory, and can be used after being turned on.

In the case of replacing the transmitter or receiver device, you need to re-pair, the pairing operation instructions are as follow.

5.3.1 Transmitter operation

Press and hold the power button of the transmitter for 5 seconds in the shutdown state. When the power indicator lights up and let go, then quickly press the power button of the transmitter once, and see the power indicator flashes to enter the pairing mode.

5.3.2 Operation at the receiving end

After the transmitter enters the pairing mode, turn on the receiver, wait for 2 seconds, and then press the transmitter power button once to complete the frequency matching. At this time, if the receiver is always on red or green, it means the frequency is successful. The receiver lights red or green when they are all on, and they are all normal receiving signal lights.

5.4 Key diagram of transmitter and receiver

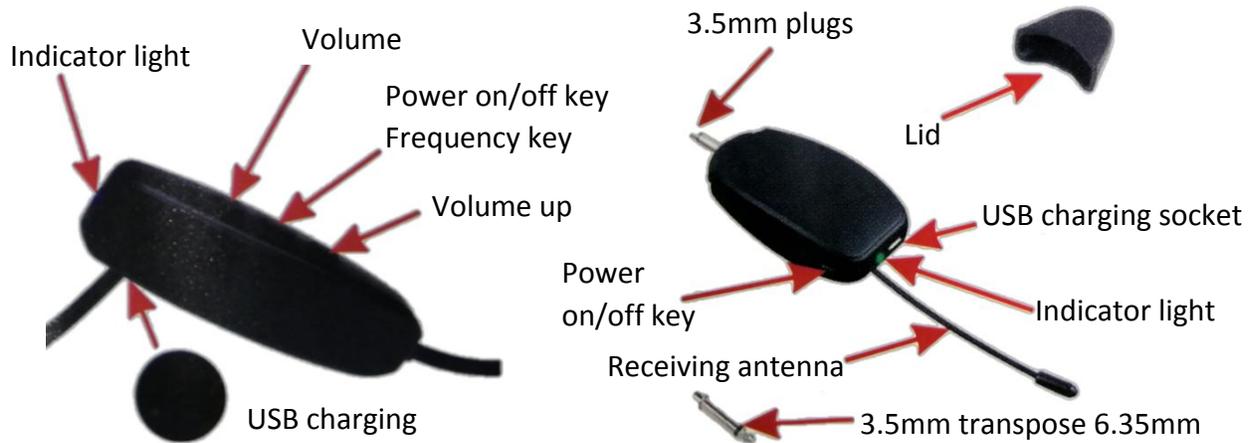


Figure 29: Key diagram of transmitter and receiver

5.5 Attention to charging

1. Connect the computer USB interface for charging, or use the mobile phone charger for charging. During charging, the indicating light will turn on the red light. The charging time will be about 2 hours. The red indicator will be filled with batteries. The battery can last up to 4 hours in full power.
2. When the electricity appears low voltage, the sound may be distorted. Please charge it in time. If you do not use it for a long time, please store it in a dry place. You need to charge the transmitter and receiver at least once a month to protect the battery and extend the battery life.. Avoid charging in high or low temperatures. Please pay attention to electrical safety when charging.

Section 6 Impulse 200E-Operating the Front Panel



Introduction

This section includes the following topics:

6.1 Impulse 200E Front Panel Overview.....	46
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6.1 Impulse 200E Front Panel Overview

The Impulse 200E front panel allows the user to configure all settings that are present in the web interface using the buttons indicated in Figure 30.



Figure 30: Front Panel Navigation Keys

The screen below is the idle screen of the Impulse 200E. This idle screen shown in Figure 31 displays the management IP address of the unit as well as the status of the input/output.

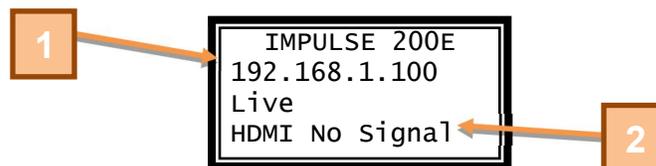


Figure 31: Idle LCD Screen

1. IP address of.RJ45 port
2. Status of input/output

Press the button **MENU** in order to view and change additional configuration or exit from additional menus. Use the arrow keys to cycle through the options and **OK** to enter additional menus and toggle settings. Figure 32 on the next page shows the first front panel menu after the idle screen.

The highlighted line indicates the cursor, which can be moved with the ▲ and ▼ arrow keys. The button **OK** will select the highlighted line and proceed to the next menu. Pressing the **MENU** will go back to the previous menu, in this case returning to the idle screen.

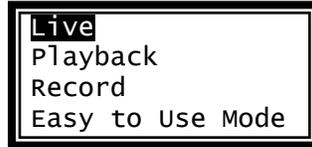


Figure 32: Menu Selection Screen

Section 7 Impulse 200E-Operating the Web Interface



Introduction

This section includes the following topics:

7.1 Impulse 200E Web Interface Overview.....	49
7.1.1 Logging in to the Impulse 200E Web Interface.....	49
7.1.2 Status Page.....	50
7.1.3 Menu Navigation Tab.....	51
7.2 Live Service/Streaming Settings Menu.....	52
7.2.1 Basic Settings Tab.....	53
7.2.2 Advanced Settings Tab.....	57
7.3 Record Settings Menu.....	59
7.3.1 Basic Settings Tab.....	61
7.4 Playback Settings Menu.....	64
7.4.1 Playlist Settings.....	65
7.4.2 Output Settings.....	66
7.5 Overlay Settings Menu.....	69
7.5.1 Text Overlay.....	69
7.5.2 Picture Overlay.....	71
7.6 System Settings Menu.....	73

7.1 Impulse 200E Web Interface Overview

7.1.1 Logging in to the Impulse 200E Web Interface

To open the Impulse 200E web interface, use one of the following supported browsers and navigate to the unit's IP address:

- Firefox 3.5 & above
- Google Chrome

The user will need to log in to the web interface. The default login credentials (username/password): admin/admin. After entering “admin” into both fields shown in Figure 33, click the login button or press the enter key.

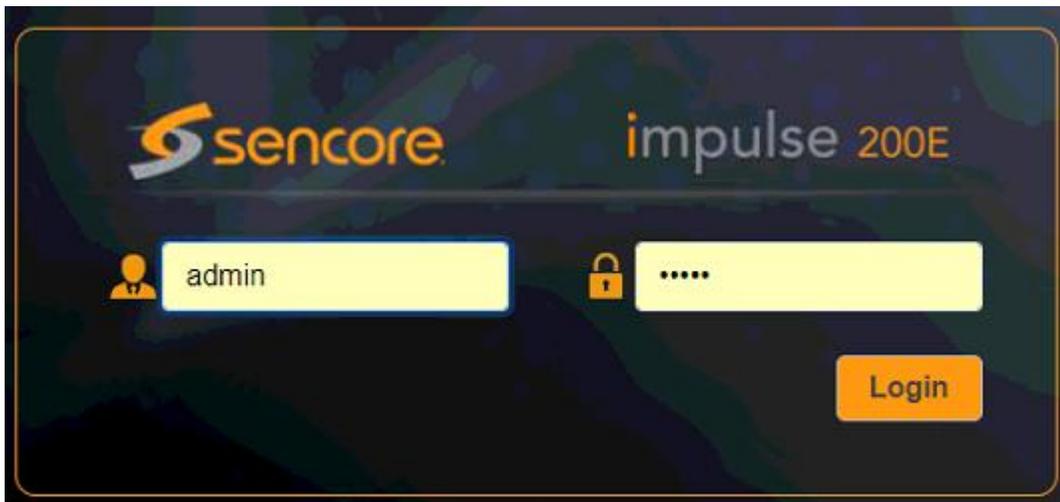


Figure 33: User Login Prompt

If this menu does not appear when navigating to the IP address on the front panel of the unit, confirm the PC is configured with an IP address in the same range.

7.1.2 Status Page

After logging in to the web interface of the Impulse 200E, the user will be taken to the Status page as seen in Figure 34 below. This screen can be used to view the information about the HDMI input, the current progress on a recording and also the status of the encoder or playback output.

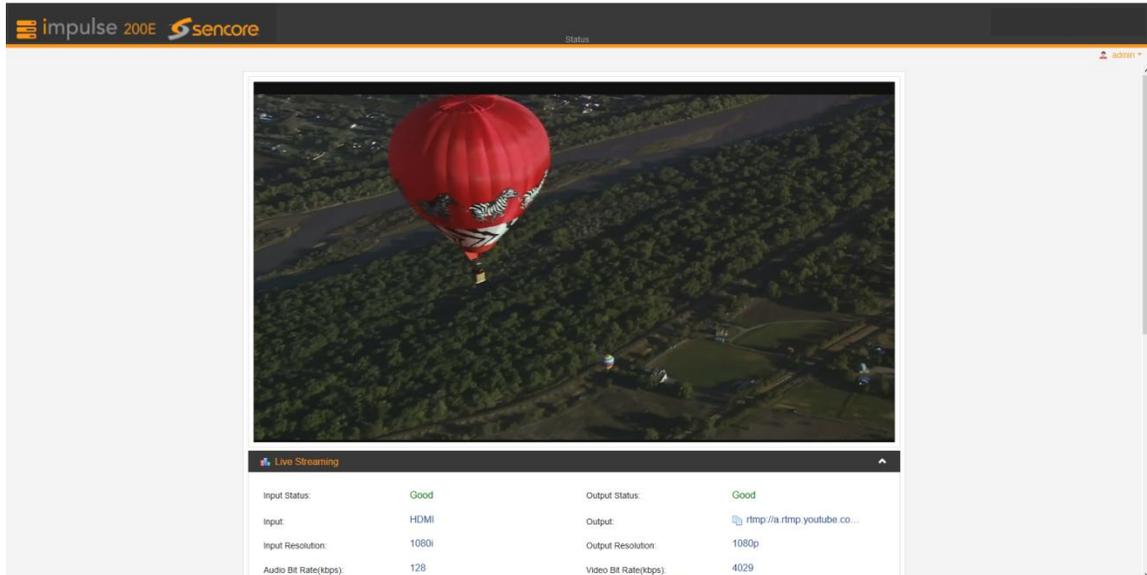


Figure 34: Status Page

The thumbnail shows a preview of what the user is viewing and will update every few seconds. This is not a real-time view of the incoming baseband source or the outgoing stream.

The input and output status will display **Good** or **Bad** to ensure the device is operating properly and quickly identifies issues with incoming and outgoing content.

7.1.3 Menu Navigation Tab

To access additional menus, click the icon  in the upper left corner. A dropdown menu will appear, displaying the menu options shown in Figure 35.

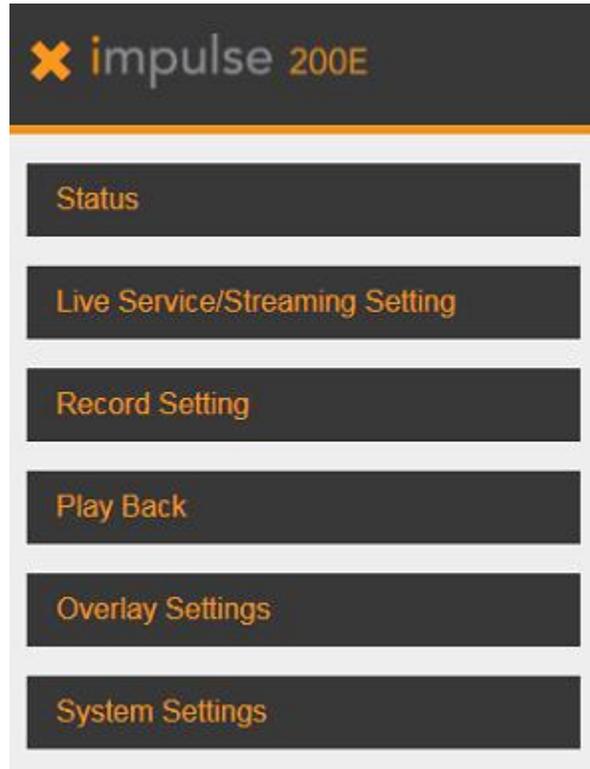


Figure 35: Menu Navigation Tab

Clicking any of these options will direct the user to different pages for viewing and changing configuration.

7.2 Live Service/Streaming Settings Menu

The Live Service/Streaming Setting page in Figure 36 is used to configure the encoding and streaming settings for the Impulse 200E. It is divided into two categories: Basic Settings and Advanced Settings. The Basic Settings are primarily used for quick setup using preset configuration, while the Advanced Settings are able to control low level encoder settings.

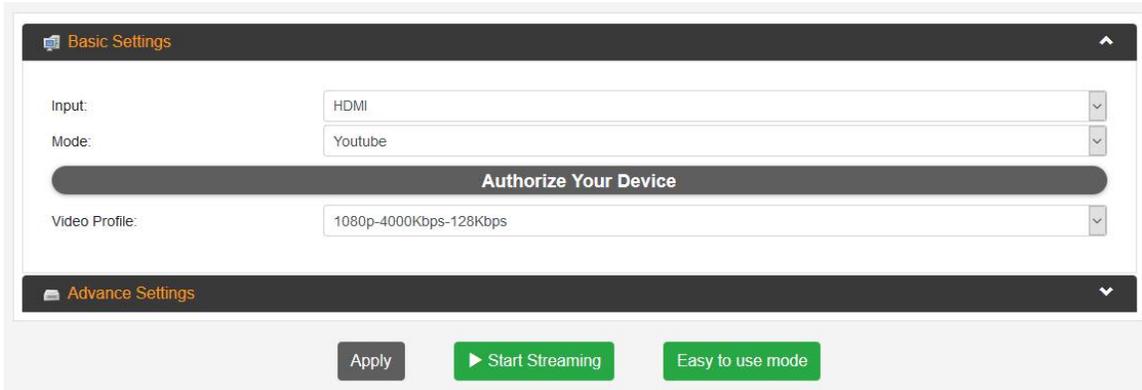


Figure 36: Live Service/Streaming Setting Page

Apply button and Start Streaming/Stop Streaming

Navigate through the dropdown tabs and change the values, and then click “Apply” to finalize the changes made to the Impulse 200E. After applying the settings, click “Start Streaming” to begin encoding and streaming through the selected output. Returning to the “Status” page (section 7.1.2) will show details about the input and output during the live streaming; refer to Figure 37 as an example.

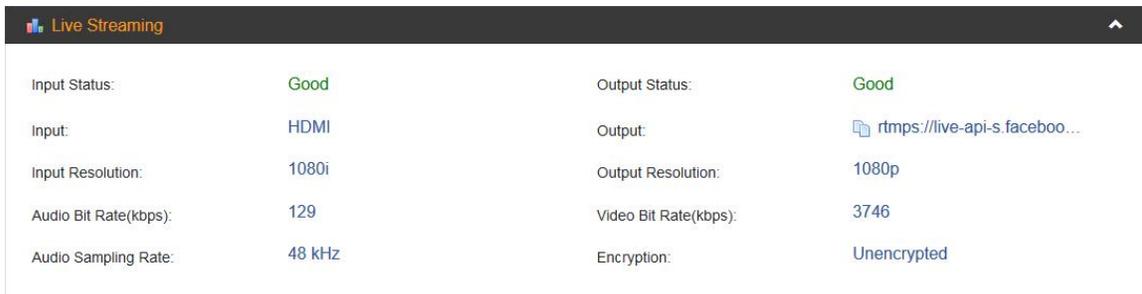


Figure 37: Status Page – Live Streaming

Before changing the settings again, it is recommended to “Stop Streaming” first.

Easy to Use Mode

The “Easy to use mode” button is used in junction with the front panel of the device. Enabling this will log the user out of the WebGUI and set the LCD on the front panel to match Figure 38 on the next page. This makes it so the user can easily start and stop a pre-configured stream by pressing the button . “Easy to use mode” can be enabled

and disabled on both the Web GUI and the front panel at any time, allowing the user to log back in to the Impulse 200E.



Figure 38: Easy to use Mode LCD Display

7.2.1 Basic Settings Tab

The “Basic Settings” tab in Figure 39 (described in Figure 40) below contains settings for the input, output type/mode as well as preset video profiles. By default, the Impulse 200E is set to output RTMP(S) in automatic YouTube streaming mode. For more information on how to set up manual and automatic RTMP(S) streaming, refer to the Appendices.

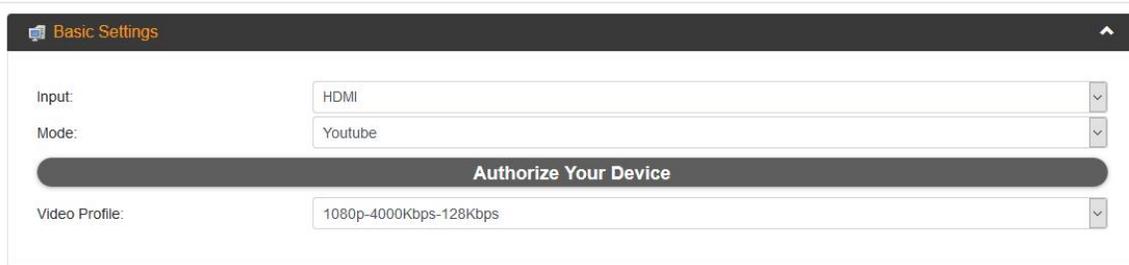


Figure 39: Basic Settings Tab – Automatic RTMP(S)

Setting	Range	Description
Input	HDMI	Used to specify which baseband output is to be encoded
Mode	Manual YouTube Facebook	Which type of RTMP(S) streaming to perform. Selecting Manual will add more settings to the Basic Settings tab.
Video Profile	Video Resolution: 1080p, 720p, 576p and 480p Video Bitrate: 2000Kbps, 4000Kbps, 6000Kbps, 8000Kbps and 12000Kbps Audio Bitrate: 192Kbps, 128Kbps and 92Kbps	This option will choose a preset video resolution, video bitrate and audio bitrate. *User Defined: for more options, refer to the Advanced Settings tab in section 4.2.2.

Figure 40: Basic Settings – Automatic RTMP(S)

When “Mode” is set to “Manual”, the options under Basic Settings will change in likeness to Figure 41 at the top of the next page (description in Figure 42).

Setting	Value
Input:	HDMI
Mode:	Manual
Output:	RTMP/RTMPS
URL:	rtmp://a.rtmp.youtube.com/live2
Port:	1935
Uploading node:	jz41-tds3-85ge-4vre
Authentication:	Disable
Video Profile:	1080p-4000Kbps-128Kbps

Figure 41: Basic Settings Tab – Manual RTMP(S)

Setting	Range	Description
Input	HDMI	Used to specify which baseband output is to be encoded
Output	UDP RTMP/RTMPS HLS RTSP	Determines what streaming type the Impulse 200E will output
URL	N/A	The destination URL for the RTMP(S) Stream. Refer to Appendices D & E for details.
Port	1935 for RTMP streaming (YouTube) 443 for RTMPS streaming (Facebook)	Configures the network port to send the RTMP(S) stream through
Stream Key	N/A	The Stream Key for the RTMP(S) stream. Refer to Appendices D & E for details.
Authentication	Enable/Disable	For use with encrypted websites
Video Profile	Video Resolution: 1080p, 720p, 576p and 480p Video Bitrate: 2000Kbps, 4000Kbps, 6000Kbps, 8000Kbps and 12000Kbps Audio Bitrate: 192Kbps, 128Kbps and 92Kbps	This option will choose a preset video resolution, video bitrate and audio bitrate. *User Defined: for more options, refer to the Advanced Settings tab in section 4.2.2.

Figure 42: Basic Settings – Manual RTMP(S)

When the “Output” option is set away from RTMP/RTMP(S), the options under Basic Settings will change. Figure 43 on the next page shows the options available under the Basic Settings tab when “Output” is set to “UDP” (description in Figure 44).

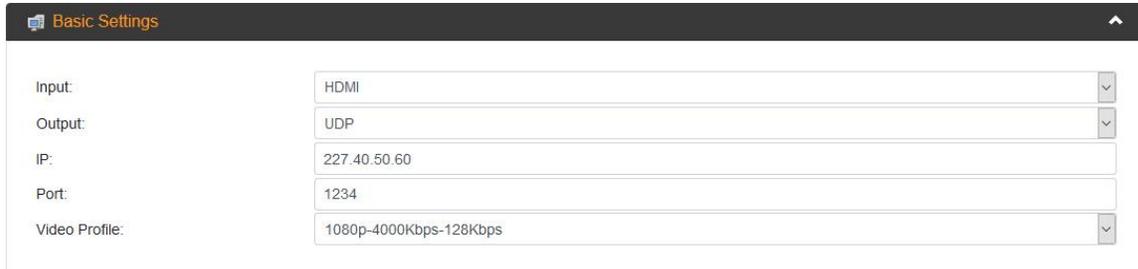


Figure 43: Basic Settings Tab – UDP

Setting	Range	Description
Input	HDMI	Used to specify which baseband output is to be encoded
Output	UDP RTMP/RTMPS HLS RTSP	Determines what streaming type the Impulse 200E will output
IP	xxx.xxx.xxx.xxx	Destination address of the multicast
Port	1 ~ 65535	Destination port of the multicast
Video Profile	Video Resolution: 1080p, 720p, 576p and 480p Video Bitrate: 12000Kbps, 8000Kbps, 6000Kbps, 4000Kbps and 2000Kbps Audio Bitrate: 192Kbps, 128Kbps and 92Kbps	This option will choose a preset video resolution, video bitrate and audio bitrate. *User Defined: for more options, refer to the Advanced Settings tab in section 4.2.2.

Figure 44: Basic Settings – UDP

When “Output” is set to “HLS”, the options under the Basic Settings tab will change to match Figure 45 as shown on the next page (description in Figure 46):



Figure 45: Basic Settings Tab – HLS

Setting	Range	Description
Input	HDMI	Used to specify which baseband output is to be encoded
Output	UDP RTMP/RTMPS HLS RTSP	Determines what streaming type the Impulse 200E will output
HLS URL	N/A	Destination address for the HLS output. Address will be influenced by management IP of the Impulse 200E.
Video Profile	Video Resolution: 1080p, 720p, 576p and 480p Video Bitrate: 12000Kbps, 8000Kbps, 6000Kbps, 4000Kbps and 2000Kbps Audio Bitrate: 192Kbps, 128Kbps and 92Kbps	This option will choose a preset video resolution, video bitrate and audio bitrate. *User Defined: for more options, refer to the Advanced Settings tab in section 4.2.2.

Figure 46: Basic Settings –HLS

When “Output” is set to “RTSP”, the options present in the Basic Settings tab will change as seen in Figure 47 below (description in Figure 48 on the next page):

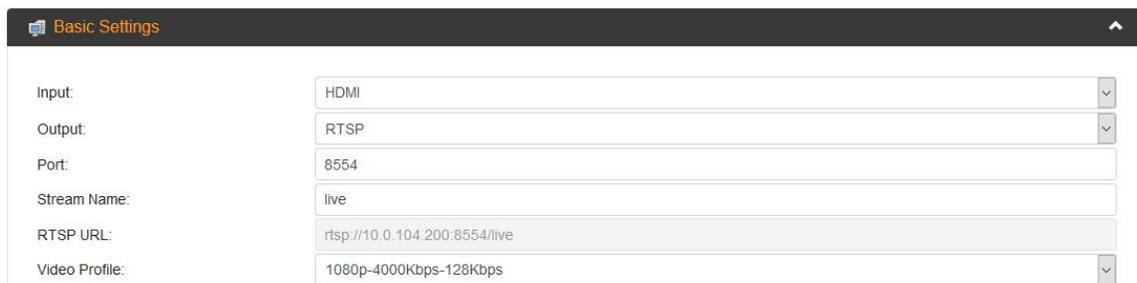


Figure 47: Basic Settings Tab – RTSP

Setting	Range	Description
Input	HDMI	Used to specify which baseband output is to be encoded
Output	UDP RTMP/RTMPS HLS RTSP	Determines what streaming type the Impulse 200E will output
Port	0~65535	Specifies which port the Impulse 200E will send the RTSP data over. 8554 is the recommended default.
Stream Name	N/A	User defined name for the stream
RTSP URL	N/A	Destination address for the RTSP output. Address will be influenced by management IP of the Impulse 200E and “Stream Name” (row above).
Video Profile	Video Resolution: 1080p, 720p, 576p and 480p Video Bitrate: 12000Kbps, 8000Kbps, 6000Kbps, 4000Kbps and 2000Kbps Audio Bitrate: 192Kbps, 128Kbps and 92Kbps	This option will choose a preset video resolution, video bitrate and audio bitrate. *User Defined: for more options, refer to the Advanced Settings tab in section 4.2.2.

Figure 48: Basic Settings –RTSP

7.2.2 Advanced Settings Tab

The “Advanced Settings” tab in Figure 49 below contains more granular settings that can influence options including the embedding, de-encryption and low-level A/V output options. Each setting is described in Figure 50 through to the next page.

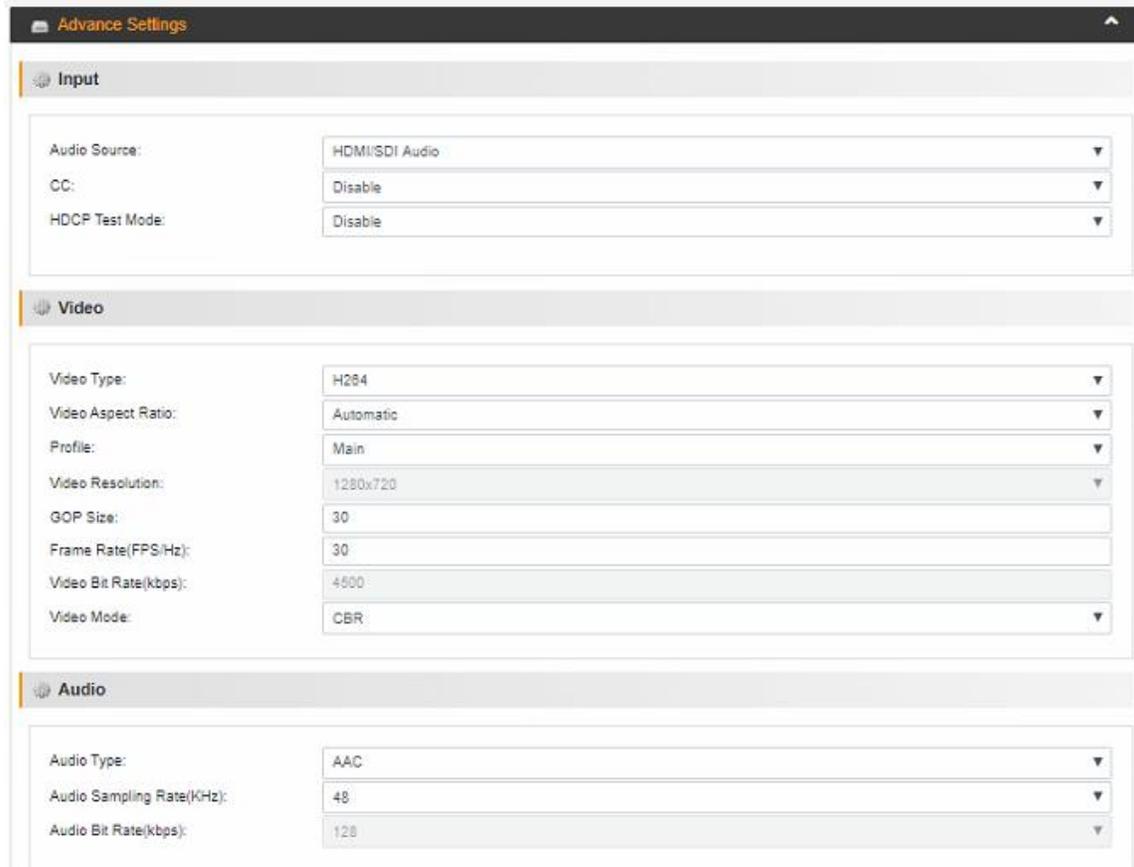


Figure 49: Advanced Settings Tab

Setting	Range	Description
Audio Source	HDMI Audio Audio IN	Choosing HDMI Audio will use the audio embedded in HDMI input. Choosing Audio IN will use an external audio source routed through the “Audio IN” port on the back panel (see section 1.3).
CC	Enable / Disable	Impulse 200E-00: enabling this will add Line 21 captions from an external composite source routed through the “CC IN” port on the back panel (see section 1.3).
HDCP Test Mode	Enable / Disable	Enabling this will de-encrypt incoming HDMI sources.
Video Type	H.264, H.265	Video CODEC the Impulse 200E will encode with.
Video Aspect Ratio	Automatic, 16x9, 4x3	Aspect Ratio the Impulse 200E will encode to. “Automatic” will match the incoming source. Specific to SD output.

Profile	High, Main, Baseline	Profile the Impulse 200E will encode to.
Video Resolution	Automatic, 1080x768, 1680x1200, 1024x576, 1600x900, 960x540, 1440x1050, 850x480, 1440x900, 800x600, 1360x768, 720x576, 1280x1024, 720x540, 1280x720, 720x480, 1280x800, 720x404, 1280x768,	*Note: in order to use, “Video Profile” in the Basic settings tab must be set to “User-Defined” (see section 4.2.1). Resolution the Impulse 200E will encode to. “Automatic” will match the incoming source.
GOP Size	1~61	Number of frames between I-Frames the Impulse 200E will encode.
Video Frame Bitrate	20~60 (FPS)	Framerate of encoded video.
Video Bit Rate	600~20000 (kbps)	*Note: in order to use, “Video Profile” in the Basic settings tab must be set to “User-Defined” (see section 4.2.1). Specifies outgoing video bitrate for the Impulse 200E.
Video Mode	CBR, VBR	Specifies whether the Impulse 200E will output constant or variable bitrate.
Audio Type	MPEG1_Layer2, AAC, AC3, EAC	Audio CODEC the Impulse 200E will encode with. *Note: RTMP(S) output only supports the AAC CODEC.
Audio Sampling Rate	Automatic, 48, 44.1, 32 (kHz)	Specifies audio sampling rate the Impulse 200E will encode to.
Audio Bit Rate	384, 320, 256, 224, 192, 160, 128, 112, 96, 80, 64, 48, 32 (kbps)	*Note: in order to use, “Video Profile” in the Basic settings tab must be set to “User-Defined” (see section 4.2.1). Specifies outgoing audio bitrate for the Impulse 200E.

Figure 50: Advanced Settings

7.3 Record Settings Menu

This Record Setting page in Figure 51 is used to configure the recording settings for the Impulse 200E. Here the user can specify options such as the storage device to hold the recording as well as the size, name and format of the file.

*Note: The Impulse 200E only supports FAT32 file systems for USB and SD cards. For exFAT and other file systems that cannot be reformatted through conventional means, use the AOMEI executable found at this link: <https://www.diskpart.com/articles/format-128gb-usb-fat32-0310.html>

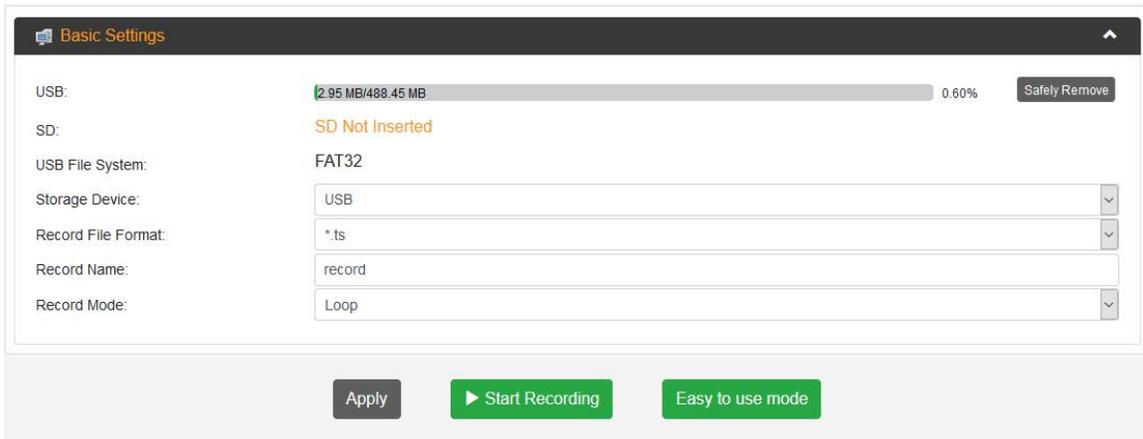


Figure 51: Record Settings Page

Apply button and Start Streaming/Stop Streaming

Navigate through the dropdown tabs and change the values, and then click “Apply” to finalize the changes made to the Impulse 200E. After applying the settings, click “Start Recording” to begin encoding using the settings specified in section 4.2 and recording to a file to be stored on either a USB or SD card. Returning to the “Status” page (section 7.1.2) will show details about the input and output during the recording; refer to Figure 52 as an example.

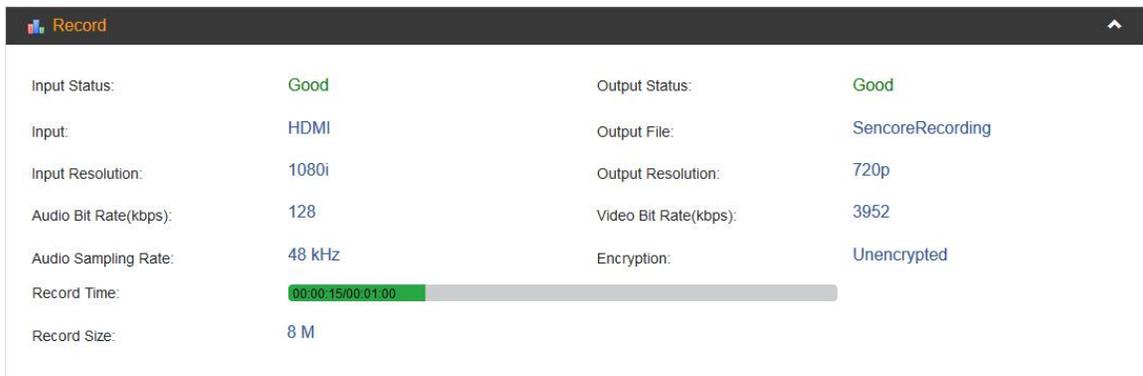


Figure 52: Record Status (Status Page)

Before changing the settings again, it is recommended to “Stop Recording” first.

Easy to Use Mode

The “Easy to use mode” button is used in junction with the front panel of the device. Enabling this will log the user out of the WebGUI and set the LCD on the front panel to match Figure 53 below. This makes it so the user can easily start and stop recording with pre-configured settings by pressing the button . “Easy to use mode” can be enabled and disabled on both the Web GUI and the front panel at any time, allowing the user to log back in to the Impulse 200E.

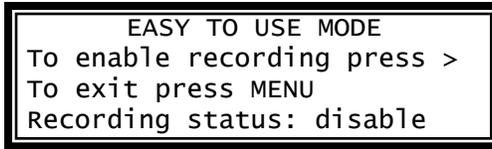


Figure 53: Easy to use Mode LCD Display

7.3.1 Basic Settings Tab

The “Basic Settings” tab, as shown in Figure 54, is where to choose configurations for recording. By default, the Impulse 200E is set to record in “Loop” mode, which creates a series of 2~3 minute recordings until reaching the maximum USB or SD storage space. The table in Figure 55 describes the dropdown options available with these settings.

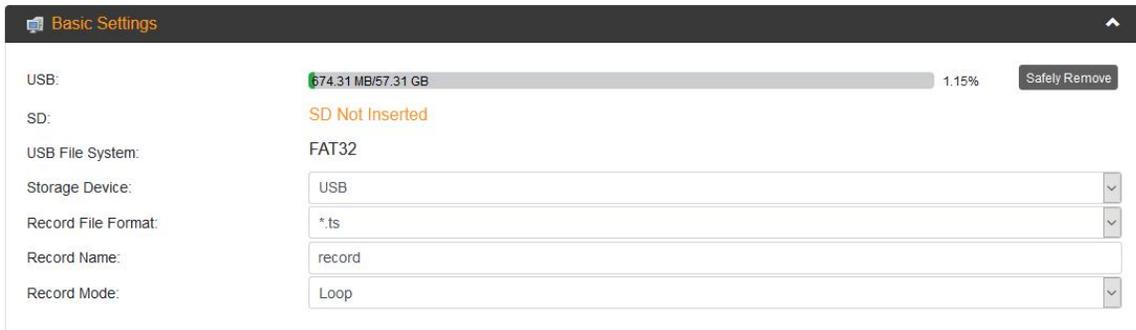


Figure 54: Basic Settings Tab - Loop

Setting	Range	Description
USB	N/A	Reports presence and status of USB storage device.
SD	N/A	Reports presence and status of SD card storage device.
USB File System	N/A	Reports current file system of the storage device.
Storage Device	USB, SD	Specifies which storage device the Impulse 200E will save the recording to.
Record File Format	*.ts, *.mp4, *.mov	Assigns a file format to the destination file.
Record Name	N/A	Assigns a name to the destination file.
Record Mode	Loop, Size, Time	Loop will create a series of two to three minute captures until the storage device is full. Size will specify a stop point for recording based on size of the file. Time will specify a stop point for recording based on length of time.

Figure 55: Record Settings - Loop

For “Record Mode”, choosing “Size” will add new dropdown options, “Record Size” and “Loop”, as seen in Figure 56 below. A description of each new option can be found in Figure 57.



Figure 56: Record Settings Page - Size

Setting	Range	Description
Record Size (kb)	0~2097152	Size of the destination file
Loop	Enable / Disable	Enabling “Loop” here will create a series of files of the size specified in the “Record Size” option above.

Figure 57: Record Settings - Size

In the “Record Mode” option, choosing “Time” will add new dropdown options for “Record Time” and “Loop” as seen in Figure 58 on the next page. Figure 59 describes the new options.



Figure 58: Record Settings Page - Time

Setting	Range	Description
---------	-------	-------------

Record Time (s)	00:00:00~23:59:59	Length of time of the destination file
Loop	Enable / Disable	Enabling “Loop” here will create a series of files of the time specified in the “Record Time” option above.

Figure 59: Record Settings – Time

7.4 Playback Settings Menu

The Playback Settings menu, in Figure 60 below, is for configuring settings to stream captures recorded by the Impulse 200E (see section 4.3) from a USB or SD storage device over RTMP, UDP, RTSP and HLS. There are two sub-menus: “Playlist” for choosing files to playback and “Output Settings” for choosing the output mode and destination.

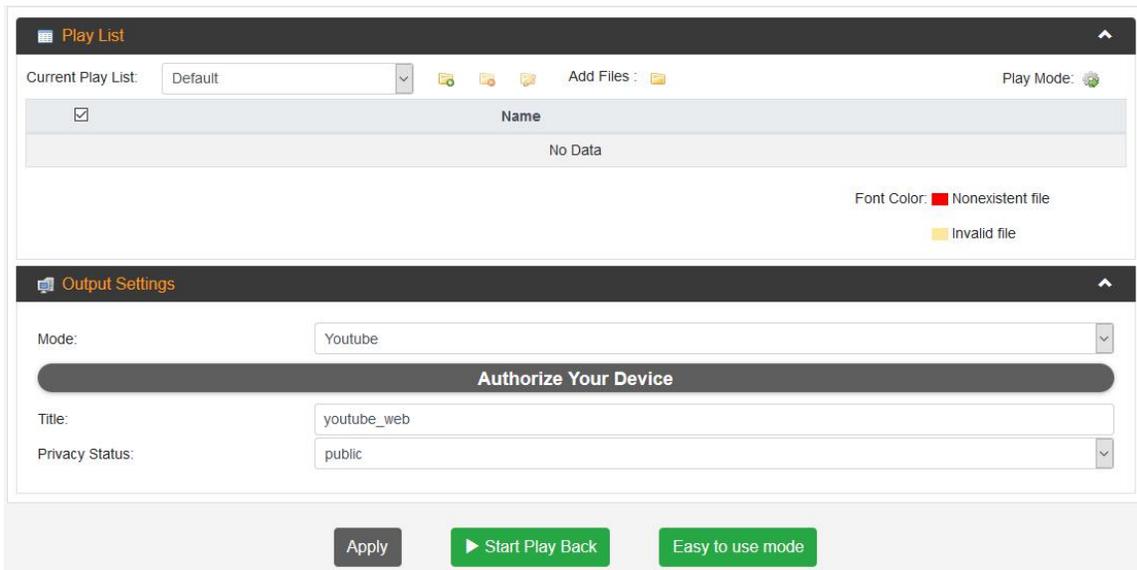


Figure 60: Playback Settings Page

Apply button and Start Streaming/Stop Streaming

Navigate through the dropdown tabs and change the values, and then click “Apply” to finalize the changes made to the Impulse 200E. After applying the settings, click “Start Streaming” to begin streaming through the selected output. Returning to the “Status” page (section 7.1.2) will show details about the input and output during the playback, with Figure 61 as an example.



Figure 61: Status Page – Playback

Before changing the settings again, it is recommended to “Stop Streaming” first.

Easy to Use Mode

The “Easy to use mode” button is used in junction with the front panel of the device. Enabling this will log the user out of the WebGUI and set the LCD on the front panel to match Figure 62 below. This makes it so the user can easily start and stop a pre-configured playlist by pressing the button . “Easy to use mode” can be enabled and disabled on both the Web GUI and the front panel at any time, allowing the user to log back in to the Impulse 200E.

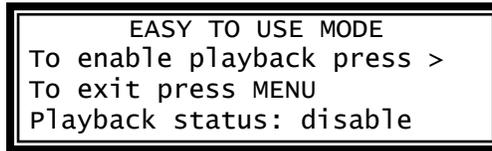


Figure 62: Easy to use Mode LCD Display

7.4.1 Playlist Settings

The “Playlist” Settings tab, shown in Figure 63, is used to select which files will be played. Multiple files can be played consecutively, and a play list can be created with different combinations of files.

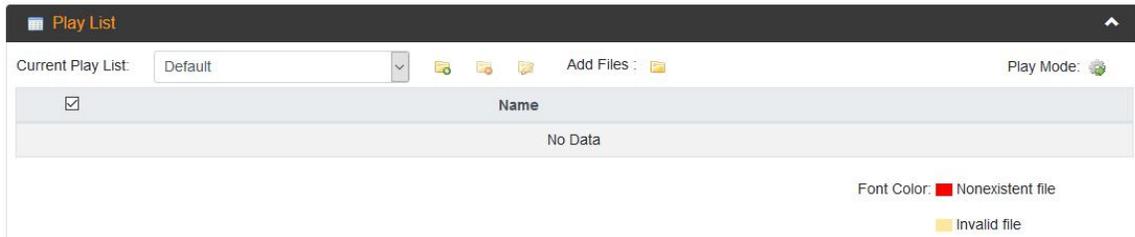


Figure 63: Easy to use Mode LCD Display

To create a new playlist, click the icon . Enter a name for the playlist into the prompt and then click “OK”. The newly created playlist can then be selected with the “Current Play List” dropdown tab. When the newly created playlist is selected, the icon  is used to delete it, and the icon  can change the playlist name.

To add files to a playlist, click the icon  next to “Add Files:”. This will prompt with a list of captures saved on the USB or SD storage device; selecting a capture and clicking “OK” will add it to the playlist.

Figure 64 on the next page is an example of a newly created playlist, named “Sencore” with a file named “SencoreRecording”,

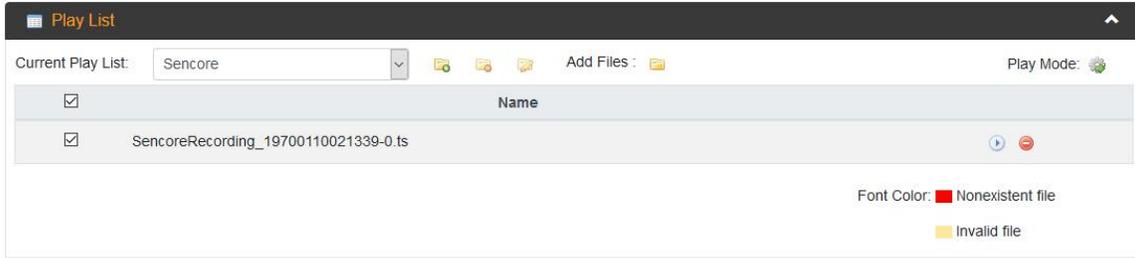


Figure 64: Playlist Settings Tab

Clicking the icon  will begin playback of the file, and clicking the icon  will remove the file from the playlist.

7.4.2 Output Settings

The Output Settings tab as seen in Figure 65 is used to configure the streaming type and destination for the recorded file. By default, the Impulse 200E is configured for Automatic RTMP streaming through YouTube. The table in Figure 66 describes these settings.



Figure 65: Output Settings - YouTube

Setting	Range	Description
Mode	Manual / YouTube	YouTube is for Automatic RTMP streaming to YouTube (see Appendix B). Manual is for configuring the stream to an alternative RTMP receiver (see Appendix D).
Title	N/A	The name of the YouTube stream
Privacy Status	Public, private, unlisted	Privacy settings for the stream

Figure 66: Output Settings –Automatic RTMP (YouTube)

Changing “Mode” from “YouTube” to “Manual” will change the list of dropdown options available in the Output settings. Figure 67 at the top of the next page shows the dropdown tabs when “Mode” is set to “Manual” and “Output” is set to “RTMP”. A description of each new option is present in Figure 68.

The screenshot shows the 'Output Settings' tab with the following configuration:

- Mode: Manual
- Output: RTMP
- URL: rtmp://a.rtmp.youtube.com/live2
- Port: 1935
- Uploading node: kawp-fda6-b13k-74sc
- Authentication: Disabled

Figure 67: Output Settings Tab – Manual RTMP

Setting	Range	Description
Mode	Manual / YouTube	YouTube is for Automatic RTMP streaming to YouTube (see Appendix B). Manual is for configuring the stream to an alternative RTMP receiver (see Appendix D).
Output	UDP RTMP HLS RTSP	Determines what streaming type the Impulse 200E will output.
URL	N/A	The destination URL for the RTMP Stream. Refer to Appendix D for details.
Port	1935 for RTMP streaming (YouTube)	Configures the network port to send the RTMP(S) stream through.
Stream Key	N/A	The Stream Key for the RTMP(S) stream. Refer to Appendix D for details.
Authentication	Enabled / Disabled	For use with encrypted websites.

Figure 68: Output Settings Description – Manual RTMP

Modifying the “Output” option will change the dropdown options under “Output Settings”. Figure 69 below shows the options that appear when “Output” is set to “UDP”. A description of the new options can be found in Figure 70 on the next page.

The screenshot shows the 'Output Settings' tab with the following configuration:

- Output: UDP
- IP: 227.40.50.60
- Port: 1234

Figure 69: Output Settings Tab – UDP

Setting	Range	Description
Output	UDP RTMP HLS RTSP	Determines what streaming type the Impulse 200E will output
IP	xxx.xxx.xxx.xxx	Destination address of the multicast
Port	1 ~ 65535	Destination port of the multicast

Figure 70: Output Settings Description – UDP

Figure 71 below shows which dropdown options change under “Output Settings” when “Output” is set to “HLS”, and Figure 72 describes the new options.

The screenshot shows the 'Output Settings' interface. The 'Output' dropdown menu is set to 'HLS'. Below it, the 'HLS URL' field contains the text 'http://10.0.104.200/hls/index.m3u8'.

Figure 71: Output Settings Tab – HLS

Setting	Range	Description
Output	UDP RTMP HLS RTSP	Determines what streaming type the Impulse 200E will output.
HLS URL	N/A	Destination address for the HLS output. Address will be influenced by management IP of the Impulse 200E.

Figure 72: Output Settings Description – HLS

When the output settings are changed to RTSP, the dropdown options will change to match Figure 73. A description of the new options can be viewed in Figure 74 on the next page.

The screenshot shows the 'Output Settings' interface with 'Output' set to 'RTSP'. The 'Port' field is '8554', 'Stream Name' is 'live', and the 'RTSP URL' field is 'rtsp://10.0.104.200:8554/live'.

Figure 73: Output Settings Tab – RTSP

Setting	Range	Description
Output	UDP RTMP HLS RTSP	Determines what streaming type the Impulse 200E will output.
Port	0~65535	Specifies which port the Impulse 200E will send the RTSP data over. 8554 is the recommended default.
Stream Name	N/A	User defined name for the stream
RTSP URL	N/A	Destination address for the RTSP output. Address will be influenced by management IP of the Impulse 200E and “Stream Name” (row above).

Figure 74: Output Settings Description – RTSP

7.5 Overlay Settings Menu

The “Overlay Settings” page, seen in Figure 75, is where settings for burnt-in overlays can be configured. This menu is divided into two categories: “Text Overlay”, for adding a line of text over the stream, and “Picture Overlay”, which will add an uploaded logo or picture over the top of the stream output.

The screenshot shows the 'Overlay Settings' page. It has two main sections: 'Text Overlay' and 'Picture Overlay'. Under 'Text Overlay', there is a label 'Overlay Mode:' followed by a dropdown menu currently showing 'off'. Under 'Picture Overlay', there is a label 'Picture Switch:' followed by a dropdown menu currently showing 'Disable'. At the bottom of the page, there are two buttons: 'Apply' and 'Cancel'.

Figure 75: Overlay Settings Page

Enabling either of the options will prompt with new fields to configure. After adding intended settings, click “Apply”, and the stream will append the settings to the output.

7.5.1 Text Overlay

The “Text Overlay” is used to configure and superimpose a line of text over the stream output. Changing the “Overlay Mode” from “off” to “Title Only” will change the fields available under “Text Overlay” to match Figure 76 on the next page. A description of each item can be found in Figure 77.

Text Overlay

Overlay Mode: Title Only

Text: Sencore Testing

Color: White

Font Size: 32

Location X: 30

Location Y: 30

Figure 76: Text Overlay Tab

Setting	Range	Description
Overlay Mode	Off Title Only	Enables the text overlay feature
Text	N/A	User defined text to superimpose on the output
Color	White, Yellow, Green	Color of the text
Font Size	20~100	Size of the text
Location X	20~100	X-coordinate of the text
Location Y	20~100	Y-coordinate of the text

Figure 77: Text Overlay Descriptions

The text overlay settings applied from Figure 76 will appear on the output shown in Figure 78.



Figure 78: Text Overlay Example

7.5.2 Picture Overlay

The “Picture Overlay” is used to configure and superimpose a saved picture over the stream output, most commonly used for logos. Changing the “Picture Switch” field from “Disable” to “Enable” will add necessary fields for configuring the picture overlay as seen in Figure 79. A description of each item can be found in Figure 80.

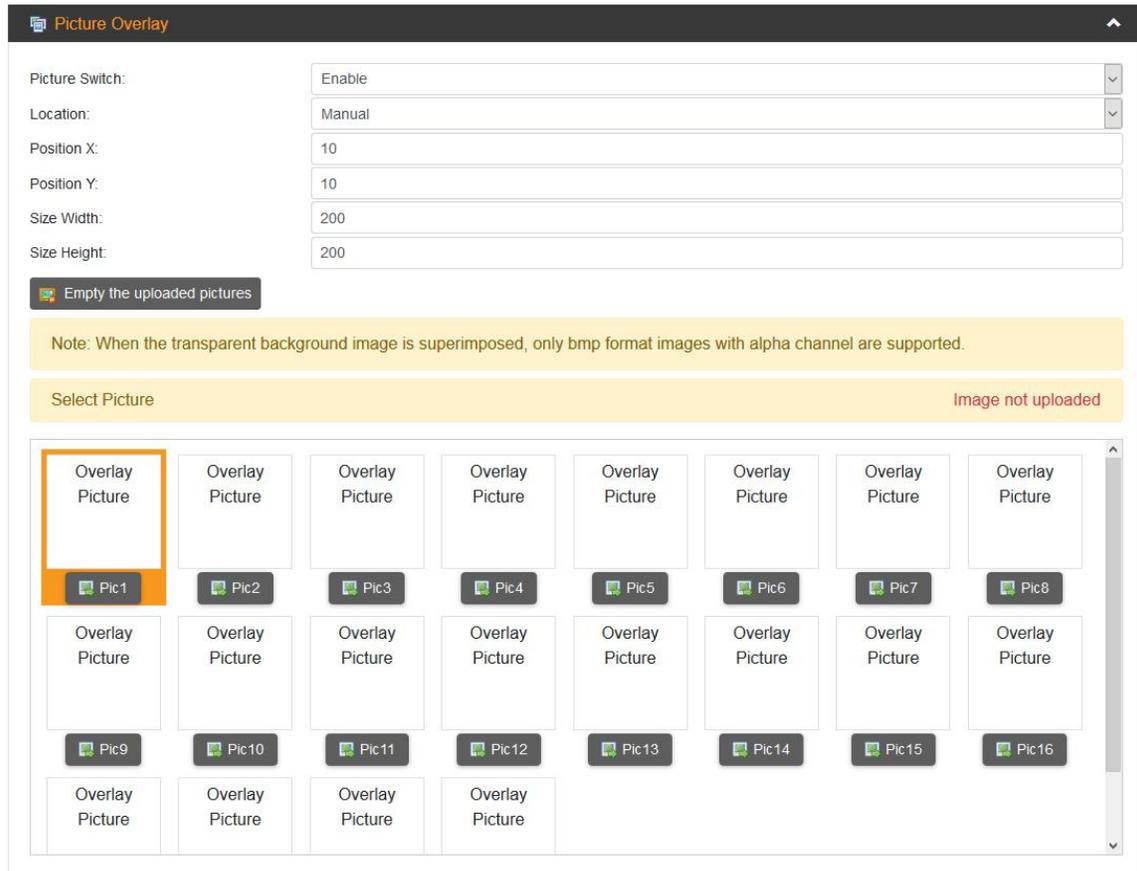
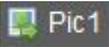


Figure 79: Picture Overlay Tab

Setting	Range	Description
Picture Switch	Enable / Disable	Enables the picture overlay feature.
Location	Manual Top/Middle/Bottom Left/Right/Center	User defined text to superimpose on the output
Position X	10~110	Only present when location is set to “Manual”. X-coordinate of the picture.
Position Y	10~110	Only present when location is set to “Manual”. Y-coordinate of the picture.
Size Width	10~200	Scaled width of the picture

Size Height 10~200 Scaled height of the picture

Figure 80: Text Overlay Descriptions

Click the icon  and then upload the image to use. Figures 81 and 82 show an example of an uploaded Sencore logo.

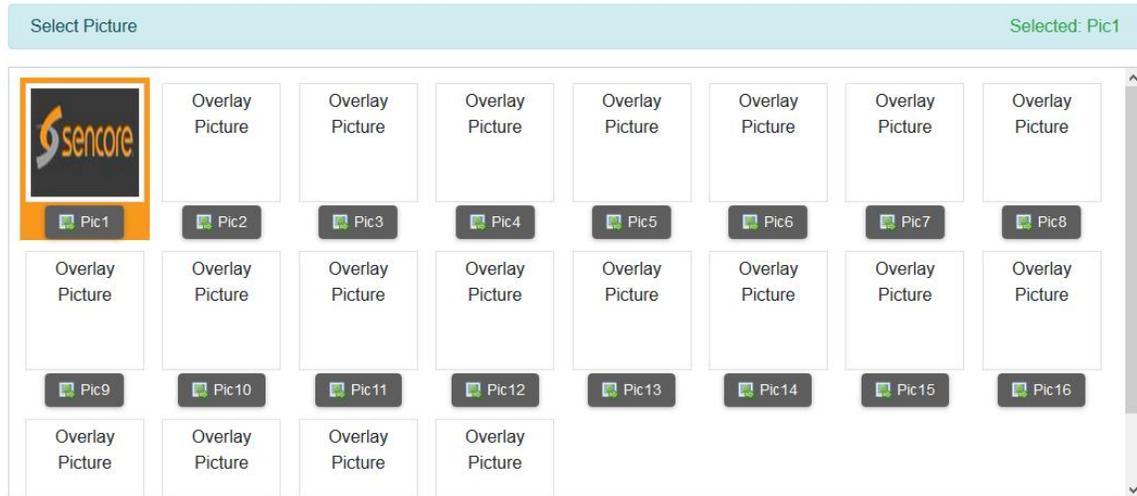


Figure 81: Uploaded Image

Select the uploaded picture, then click “Apply”, and the uploaded image will overlay the stream output as seen in Figure 82 below. This example uses the settings from Figure 81.



Figure 82: Picture Overlay Example

7.6 System Settings Menu

The system settings page, as seen in Figure 83, contains information and operations regarding the Impulse 200E’s base system. On this page, the software version and licensing can be viewed and upgraded, network settings can be configured and the Impulse 200E can be defaulted or rebooted remotely. The language can also be changed between English and Chinese.

The screenshot displays the 'System Settings Overview' page with four main sections:

- Version:** Shows 'Software Version: 1.0.43' and 'Hardware Version: V2A'.
- License Information:** Lists 'H265: Authorized', 'CC: Authorized', 'SDI: Authorized', and 'AC3: Authorized'.
- Network:** Includes fields for 'Network Mode' (Static), 'IP Address' (10.0.104.200), 'Subnet Mask' (255.255.0.0), 'Default Gateway' (10.0.1.3), 'Dynamic DNS' (Disable), 'Primary DNS' (8.8.8.8), and 'Secondary DNS' (8.8.8.8). It features 'Apply' and 'Cancel' buttons.
- Language:** Shows 'Language : English' with an 'Apply' button.

Figure 83: System Settings Overview

Scrolling down this page reveals the Impulse 200E’s “System Operation” menus, shown in Figure 84 at the top of the next page. In these tabs, the software and licenses can be upgraded, and preset configurations can be saved and applied. The unit can also be rebooted or reset to factory settings. In addition, logs of the Impulse 200E’s activities can be exported for troubleshooting and viewing of overall performance.

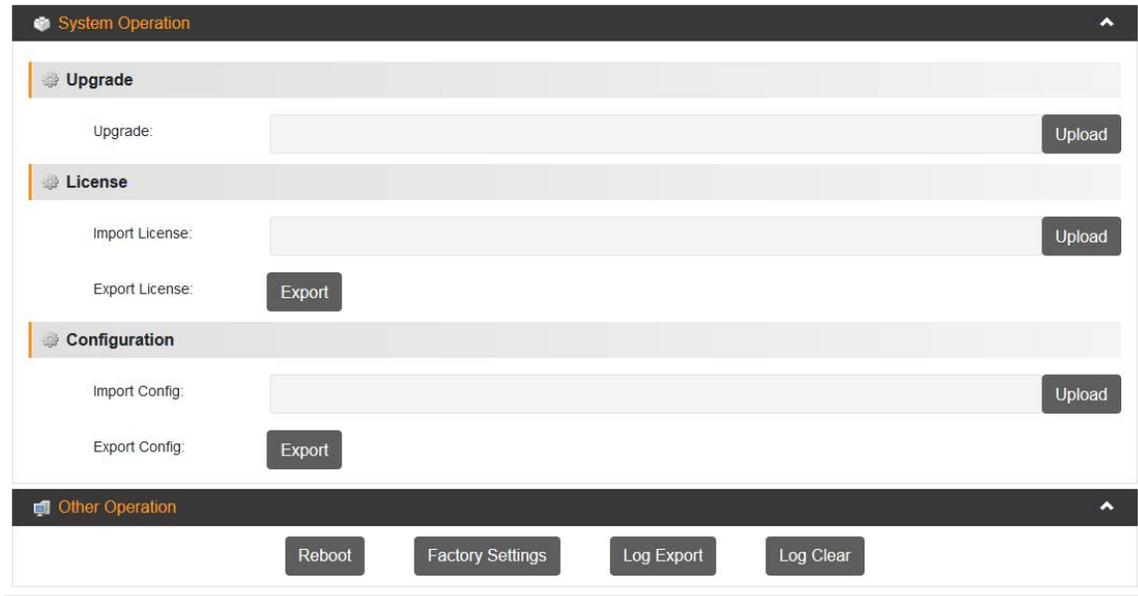


Figure 84: System Operations

Section 8 Appendices



Introduction

This section includes the following appendices:

Appendix A – Acronyms and Glossary.....	76
Appendix B – Using Automatic YouTube Streaming.....	79
Appendix C – Using Automatic Facebook Streaming.....	84
Appendix D – Using Manual RTMP Streaming.....	89
Appendix E – Using Manual RTMPS Streaming.....	95
Appendix F – Impulse Camcorder Technical Parameters.....	100
Appendix G – Impulse Camcorder Troubleshooting.....	102
Appendix H – Bluetooth Microphone Parameters Specification.....	103

Appendix A – Acronyms and Glossary

AAC: Advanced Audio Coding

AC-3: Also known as Dolby Digital

AV: Audio Video

Bit Rate: The rate at which the compressed bit stream is delivered from the channel to the input of a decoder

BNC: British Naval Connector

BPS: Bits per second

CC: Closed Caption

DHCP: Dynamic Host Configuration Protocol

Frame: A frame contains lines of spatial information of a video signal. For progressive video, these lines contain samples starting from one time instant and continuing through successive lines to the bottom of the frame. For interlaced video a frame consists of two fields, a top field and a bottom field. One of these fields will commence one field later than the other.

GOP: Group of Pictures, a collection of I, P and B frames in a coded video stream

GUI: Graphical User Interface

HD: High Definition

High level: A range of allowed picture parameters defined by the MPEG-2 video coding specification which corresponds to high definition television

HLS: HTTP Live Streaming

I/O: Input / Output

IP: Internet Protocol

Kbps: 1000 bit per second

LED: Light Emitting Diode

Main level: A range of allowed picture parameters defined by the MPEG-2 video coding specification with maximum resolution equivalent to ITU-R Recommendation 601

Main profile: A subset of the syntax of the MPEG-2 video coding specification that is expected to be supported over a large range of applications

Mbps: 1,000,000 bits per second

MPEG: Refers to standards developed by the ISO/IEC JTC1/SC29 WG11, *Moving Picture Experts Group*. MPEG may also refer to the Group.

MPEG-2: Refers to ISO/IEC standards 13818-1 (Systems), 13818-2 (Video), 13818-3 (Audio), 13818-4

NTSC: National Television System Committee

PCR: Program Clock Reference

PID: Packet Identifier. A unique integer value used to associate elementary streams of a program in a single or multi-program transport stream.

Profile: A defined subset of the syntax specified in the MPEG-2 video coding specification.

RS-232: Recommended Standard. A standard for serial binary data interconnection.

RTMP(S): Real-Time Messaging Protocol (Secure)

RTSP: Real-Time Streaming Protocol

RW: Read/Write

SD: Standard Definition

SMPTE: Society of Motion Pictures and Television Engineers

SPTS: Single Program Transport Stream

TS: Transport Stream

UDP: User Datagram Protocol

Appendix B – Using Automatic YouTube Streaming

The Impulse 200E can interface with YouTube and set up an RTMP stream automatically, creating a new stream instance with YouTube and bypassing the need for manual entry of the URL or Stream Key on the Impulse 200E. It is necessary to authorize the device with YouTube before streaming (note: the “Automatic YouTube” setup for “Playback Streaming” [section 4.4] is nearly identical to these steps).

- 1) Confirm the Impulse 200E is connected to the public internet
- 2) Connect a baseband source (HDMI), and then confirm that the Impulse 200E detects the input using the “Status” page in the WebGUI (refer to section 7.1.2)
- 3) Navigate to the “Live Service/Streaming Settings” menu (Figure 85 below, see section 4.2 for more information)

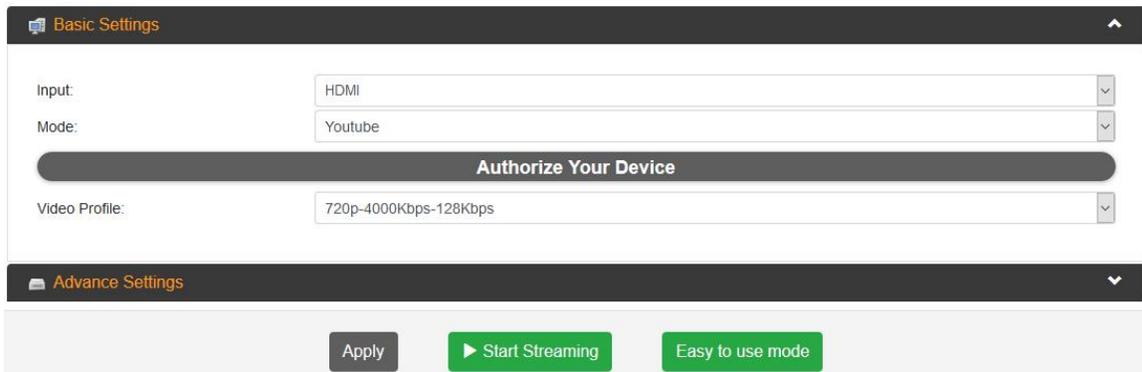


Figure 85: Live Service/Streaming Settings Page

- 4) Confirm that the “Mode” option is set to “YouTube” (may need to set “Output” option to “RTMP/RTMPS” first).
- 5) Click the “Authorize Your Device” icon, as seen in Figure 85 above. This initiates an authorization process, starting with the prompt shown below in Figure 86.

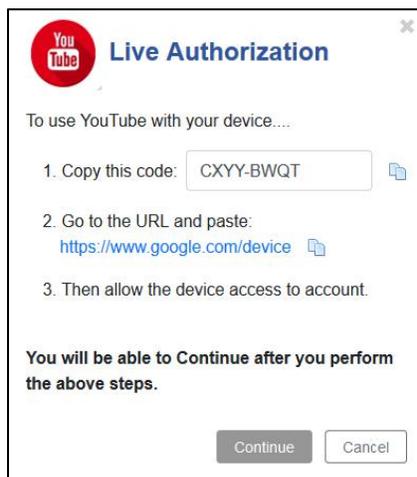


Figure 86: Authorization Prompt

- 6) Copy the randomly generated code from Figure 86 on the previous page (the code shown in this manual is only an example and should not be used).
- 7) Click on the URL shown in Step 2 in Figure 86, and paste the randomly generated code in resemblance to Figure 87 below.

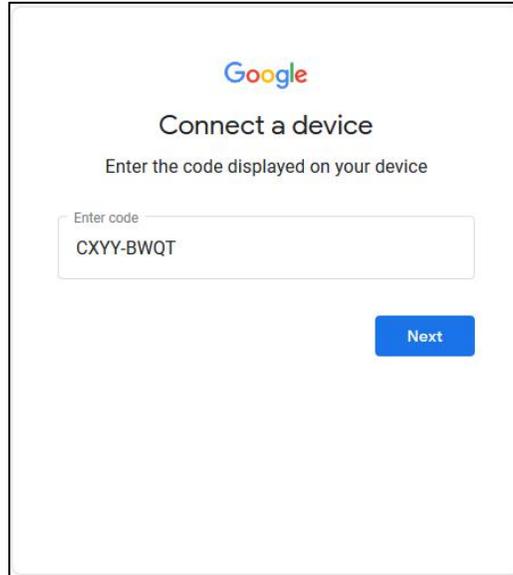


Figure 87: Device Connection Prompt

- 8) Click “Next”, and then choose an account from the prompt as seen in Figure 88 below (if no accounts are present, create or add an account to continue).

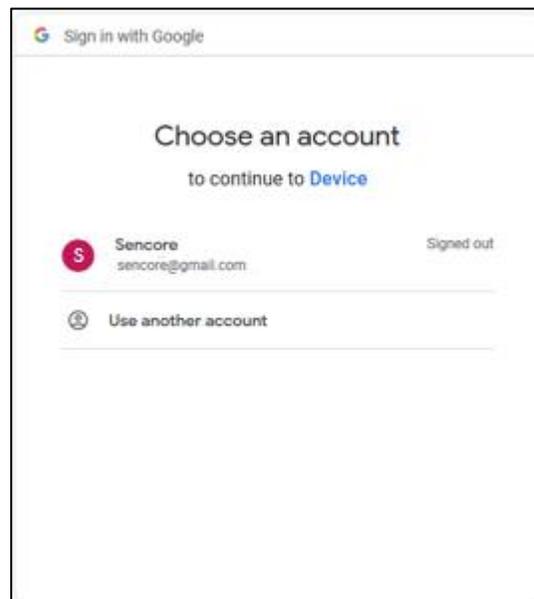


Figure 88: Account Selection Prompt

- 9) If a disclaimer with an icon  appears and the app is not verified after Step 7, follow these steps to finish verifying the device.
 - a. Click “Advanced” on the page with the disclaimer.
 - b. Click “Go to Device (unsafe)”.
 - c. A prompt will display stating that a device wants to access the Google account. Click “Allow”.
- 10) The confirmation shown in Figure 89 will appear, stating that the device is connected. This tab is no longer needed and can be closed.

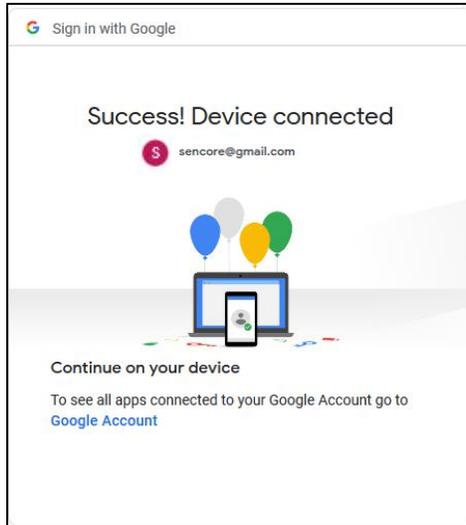


Figure 89: Successful Device Connection

- 11) Return to the Impulse 200E “Live Service/Streaming Settings” page, and confirmation of authentication will display as seen in Figure 90.

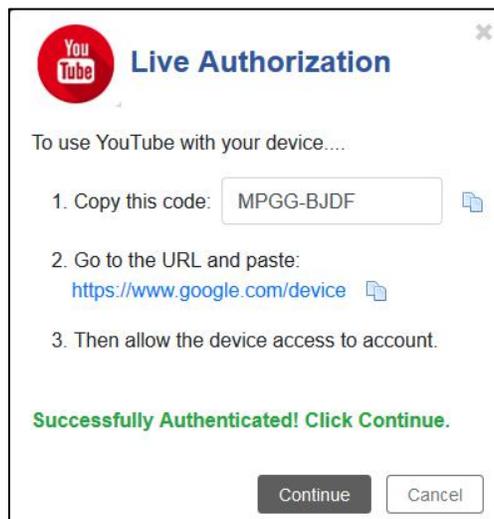


Figure 90: Successful Authentication

- 12) Click “Continue” on the prompt from Figure 90; the newly authorized Impulse 200E will display information about the status of the stream as well as new options for stream configuration (Figure 91 below, see section 4.2.1 for details on the new options).

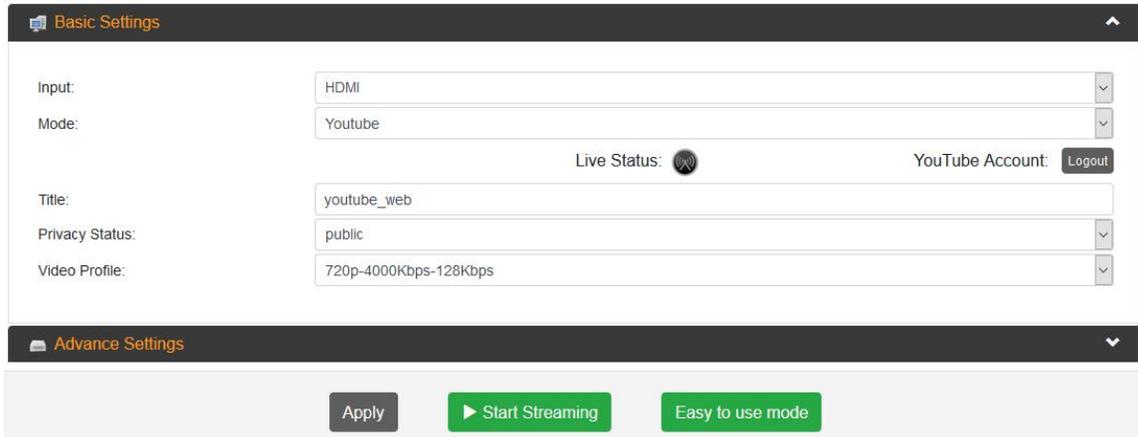


Figure 91: Impulse 200E After Authorization

- 13) Click “Start Streaming”. The “Live Status” icon will indicate progress:

- a. Grey: the device is not streaming 
- b. Red: the device is preparing stream 
- c. Green: the device is streaming 

*Note: the device may take up to five minutes to finish preparing stream. When it finishes, it will resemble Figure 92 below.

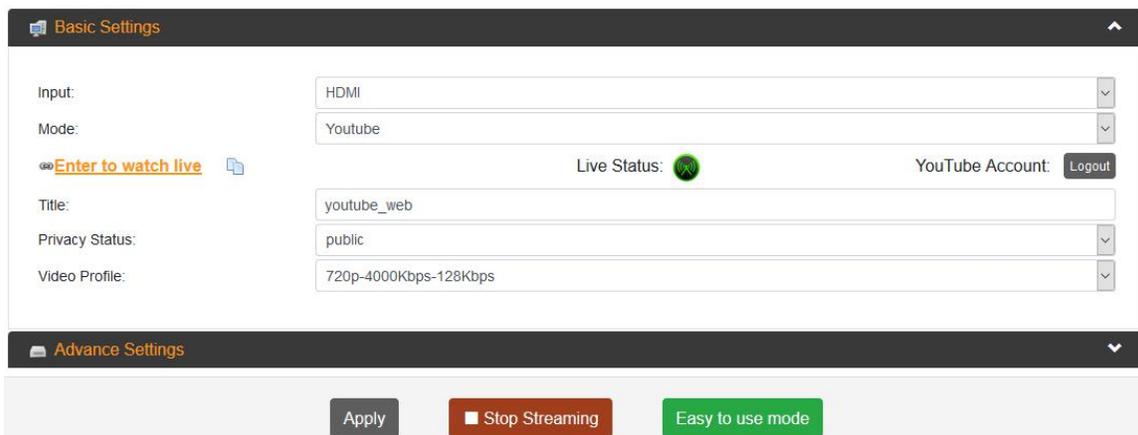
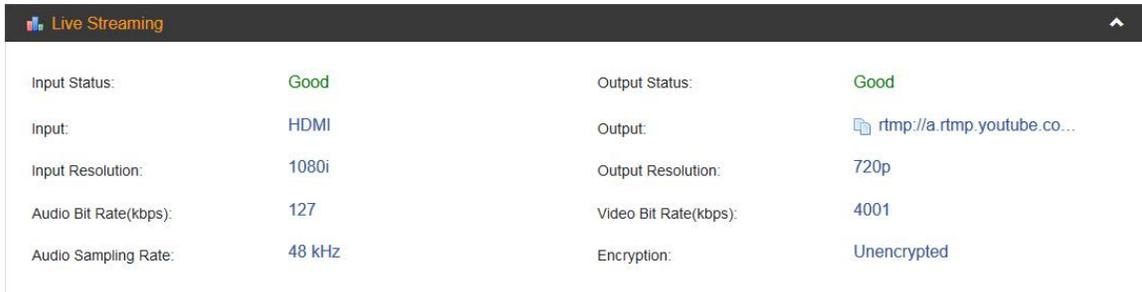


Figure 92: Impulse 200E Streaming to YouTube

14) The Impulse 200E is now streaming to YouTube. Clicking the  [Enter to watch live](#) icon from Figure 92 on the previous page will navigate to the newly created RTMP stream on YouTube.



Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	 rtmp://a.rtmp.youtube.co...
Input Resolution:	1080i	Output Resolution:	720p
Audio Bit Rate(kbps):	127	Video Bit Rate(kbps):	4001
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

Figure 93: Output Status

15) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” as seen above in Figure 93.

Appendix C – Using Automatic Facebook Streaming

The Impulse 200E can interface with Facebook and set up an RTMPS stream automatically, creating a new stream instance with Facebook and bypassing the need for manual entry of the URL or Stream Key on the Impulse 200E. It is necessary to authorize the device with Facebook before streaming.

- 1) Confirm the Impulse 200E is connected to the public internet.
- 2) Connect a baseband source (HDMI), and then confirm that the Impulse 200E detects the input using the “Status” page in the WebGUI (refer to section 7.1.2).
- 3) Navigate to the “Live Service/Streaming Settings” menu (Figure 94 below, see section 4.2 for more information).

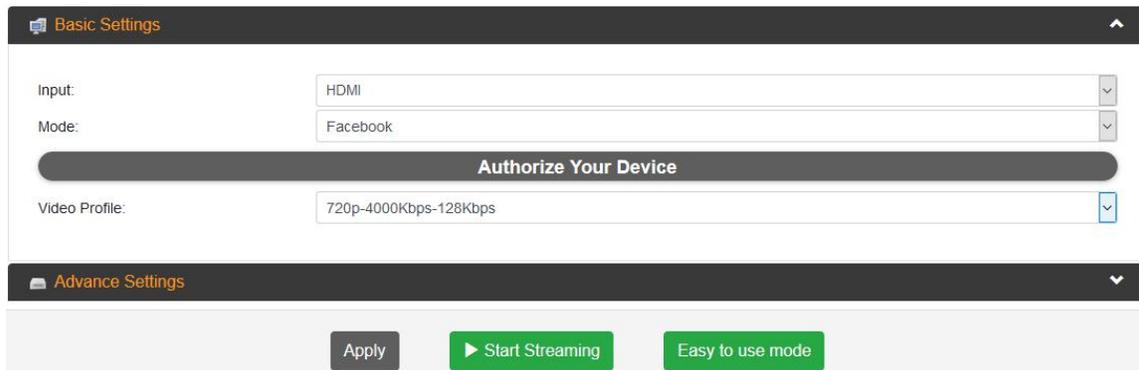


Figure 94: Live Service/Streaming Settings Page

- 4) Confirm that the “Mode” option is set to “Facebook” (may need to set “Output” to “RTMP/RTMPS” first).
- 5) Click the “Authorize Your Device” icon as seen in Figure 94 above. This initiates an authorization process, starting with the prompt shown below in Figure 95.

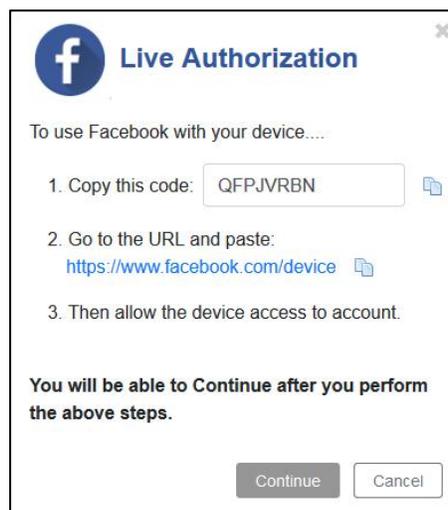


Figure 95: Authorization Prompt

- 6) Copy the randomly generated code from Figure 95 on the previous page.(the code shown in this manual is only an example and should not be used).
- 7) Click on the URL in Step 2 in Figure 95 and paste the randomly generated code similarly to Figure 96 below.

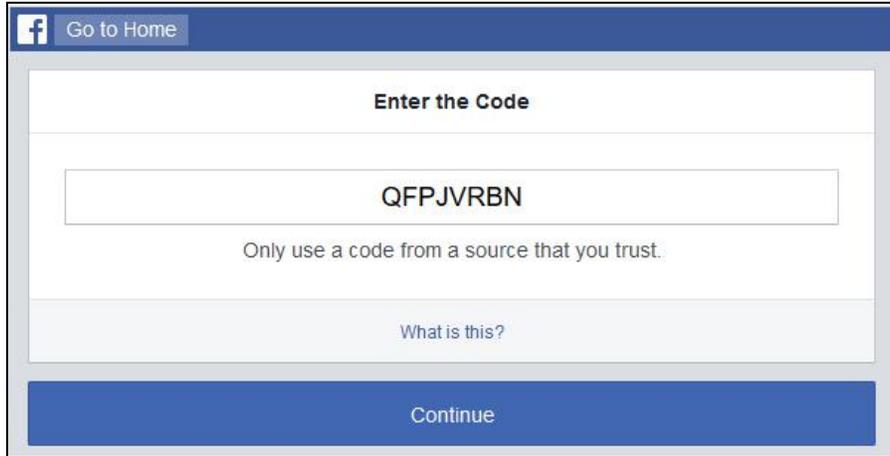


Figure 96: Device Connection Prompt

- 8) Click “Next”, and then log into Facebook through the prompt displayed in Figure 97 below.

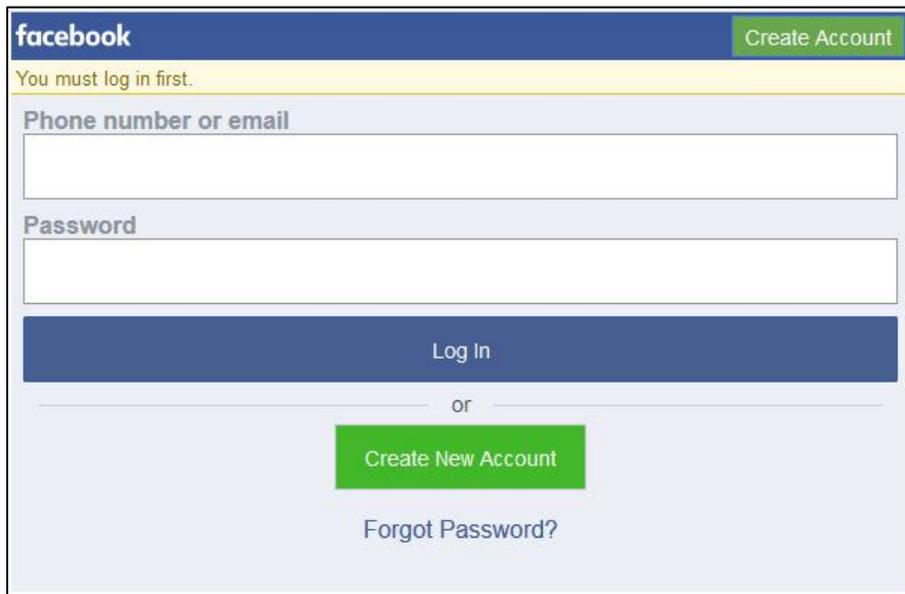


Figure 97: Account Selection Prompt

- 9) The confirmation shown in Figure 98 will follow, stating that the device is connected. This tab is no longer needed and can be closed.

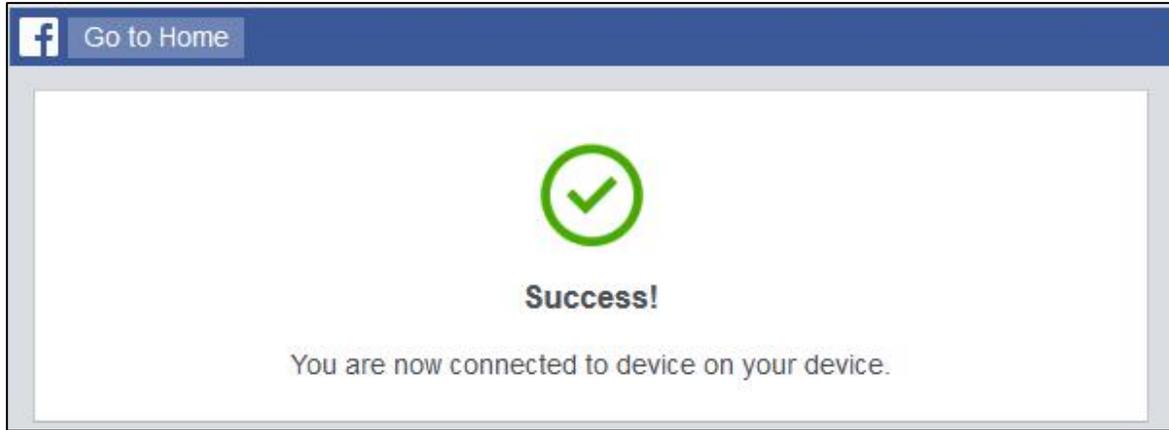


Figure 98: Successful Device Connection

10) Return to the Impulse 200E “Live Service/Streaming Settings” page and confirmation of authentication will display as seen in Figure 99.



Figure 99: Successful Authentication

11) Click “Continue” on the prompt from Figure 99; the newly authorized Impulse 200E will display information about the status of the stream as well as new options for stream configuration (Figure 100 on the next page, see section 4.2.1 for details on the new options).

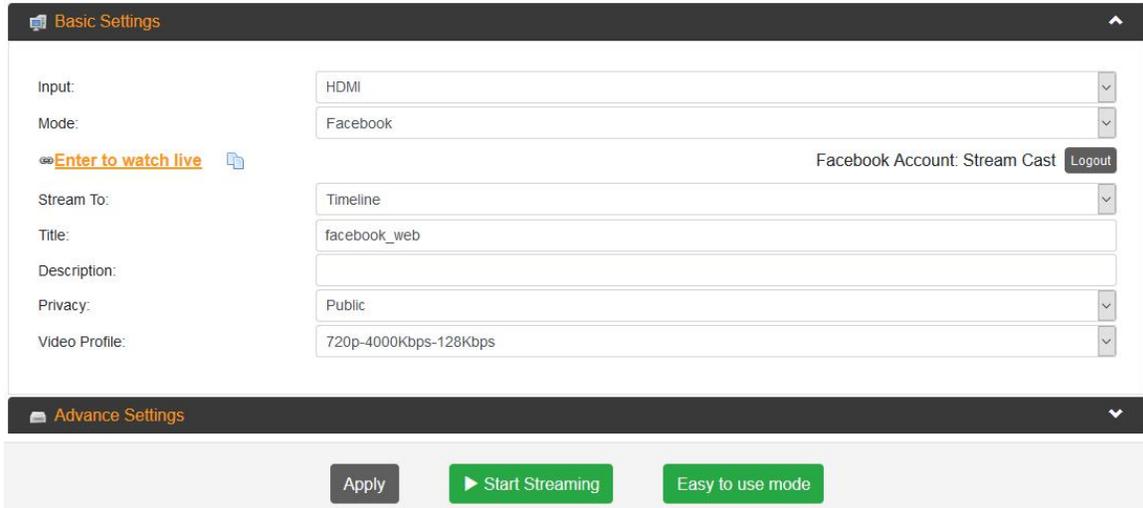


Figure 100: Impulse 200E After Authorization

12) Click “Start Streaming”. The stream may take up to five minutes to prepare. When finished, it will resemble Figure 101 below.

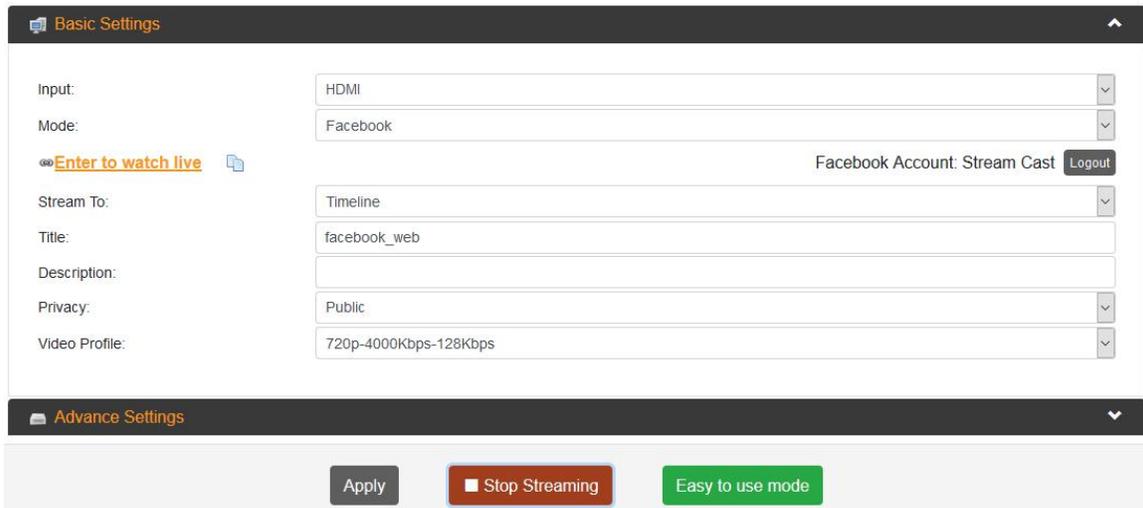
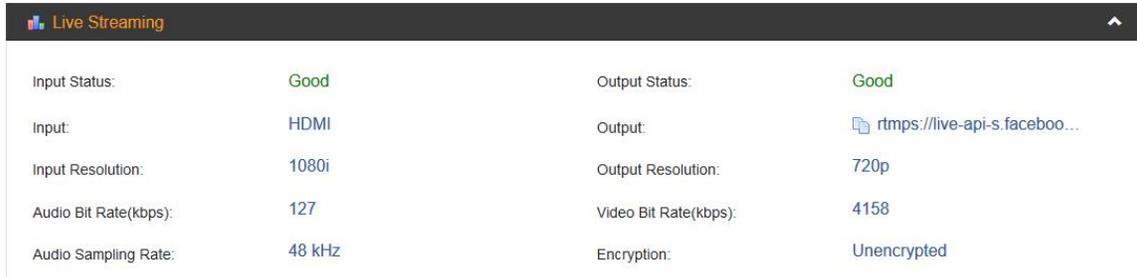


Figure 101: Impulse 200E Streaming to Facebook

13) The Impulse 200E is now streaming to Facebook. Clicking the icon [Enter to watch live](#) from Figure 101 above will navigate to the newly created RTMPS stream on Facebook.



The screenshot shows a 'Live Streaming' status page with two columns of information. The left column lists input-related details, and the right column lists output-related details. Both 'Input Status' and 'Output Status' are highlighted in green, indicating a 'Good' state.

Input		Output	
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	rtmps://live-api-s.faceboo...
Input Resolution:	1080i	Output Resolution:	720p
Audio Bit Rate(kbps):	127	Video Bit Rate(kbps):	4158
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

Figure 102: Output Status

14) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” as shown above in Figure 102.

Appendix D – Using Manual RTMP Streaming

The Impulse 200E can be configured for streaming to any website capable of receiving RTMP. It is necessary to create a new stream instance on the intended receiving platform and enter the corresponding URL and stream key on the Impulse 200E (note: the “Manual RTMP” setup for “Playback Streaming” [section 4.4] is nearly identical to these steps).

General RTMP Streaming

- 1) Confirm the Impulse 200E is connected to the public internet.
- 2) Connect a baseband source (HDMI), and then confirm that the Impulse 200E detects the input using the “Status” page in the WebGUI (refer to section 7.1.2).
- 3) Navigate to the “Live Service/Streaming Settings” menu (Figure 103 below, see section 4.2 for more information on the new options).

The screenshot shows the 'Basic Settings' section of the Live Service/Streaming Settings Page. The settings are as follows:

Input:	HDMI
Mode:	Manual
Output:	RTMP/RTMPS
URL:	
Port:	1935
Stream Key:	
Authentication:	Disable
Video Profile:	720p-4500Kbps-128Kbps

At the bottom of the settings area, there are three buttons: 'Apply', 'Start Streaming', and 'Easy to use mode'.

Figure 103: Live Service/Streaming Settings Page

- 4) Confirm that the “Output” option is set to “RTMP/RTMPS”.
- 5) Confirm that “Mode” is set to “Manual”.
- 6) Confirm that the “Port” is set to 1935.
- 7) Enter the URL from the receiving website into the “URL” field.
- 8) Enter the stream key from the receiving website into the “Stream Key” field.
- 9) Click “Start Streaming”. The Impulse 200E may take up to five minutes to prepare the stream.
- 10) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” as seen in Figure 104 at the top of the next page.

Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	rtmp://a.rtmp.youtube.co...
Input Resolution:	1080i	Output Resolution:	720p
Audio Bit Rate(kbps):	127	Video Bit Rate(kbps):	4001
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

Figure 104: Output Status

11) The Impulse 200E is now streaming to the receiving website and is ready for viewing.

Manual YouTube RTMP Streaming

This procedure outlines the steps from “General RTMP Streaming”, using YouTube as the receiving website with emphasis on collecting the “Stream Key” and “URL” fields for the Impulse 200E.

- 1) Perform Step 1~6 from the “General RTMP Streaming” procedure.
- 2) Navigate to www.youtube.com and log in.
- 3) Click on the “User Profile” icon in the top-right corner of the screen as indicated in Figure 105 below.



Figure 105: User Profile Icon

- 4) In the dropdown tab that appears under the “User Profile” icon, click “YouTube Studio”. The YouTube Studio Dashboard, seen in Figure 106 allows for creating and managing live content as well as the monitoring and analyzing streams.

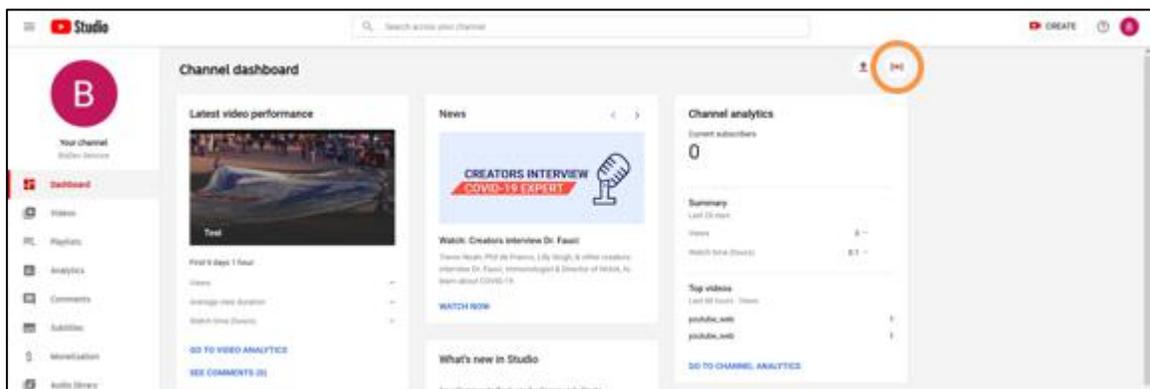


Figure 106: YouTube Studio Dashboard Overview

- 5) Click the “Go Live” icon  as indicated in Figure 106 above.

- 6) The YouTube Studio “Go Live” menu has options for managing all current streams as well as scheduling upcoming streams. Click the icon  in the upper-left corner as indicated in Figure 107 to expand the navigation pane.



Figure 107: Navigation Pane Icon

- 7) On the dropdown tab, confirm that “Stream” is selected (see Figure 108 below).

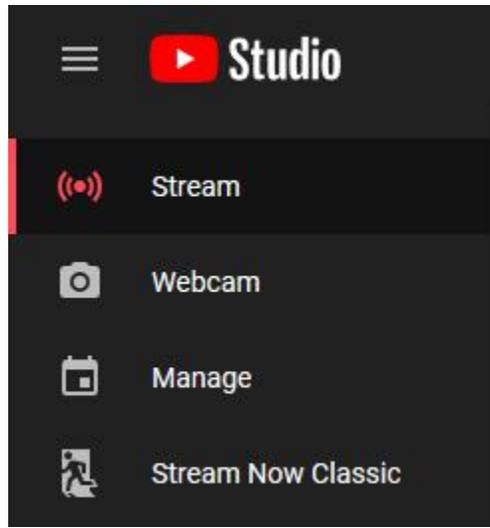


Figure 108: Stream Option

- 8) On the prompt that follows, displayed in Figure 109, click “New Stream”.

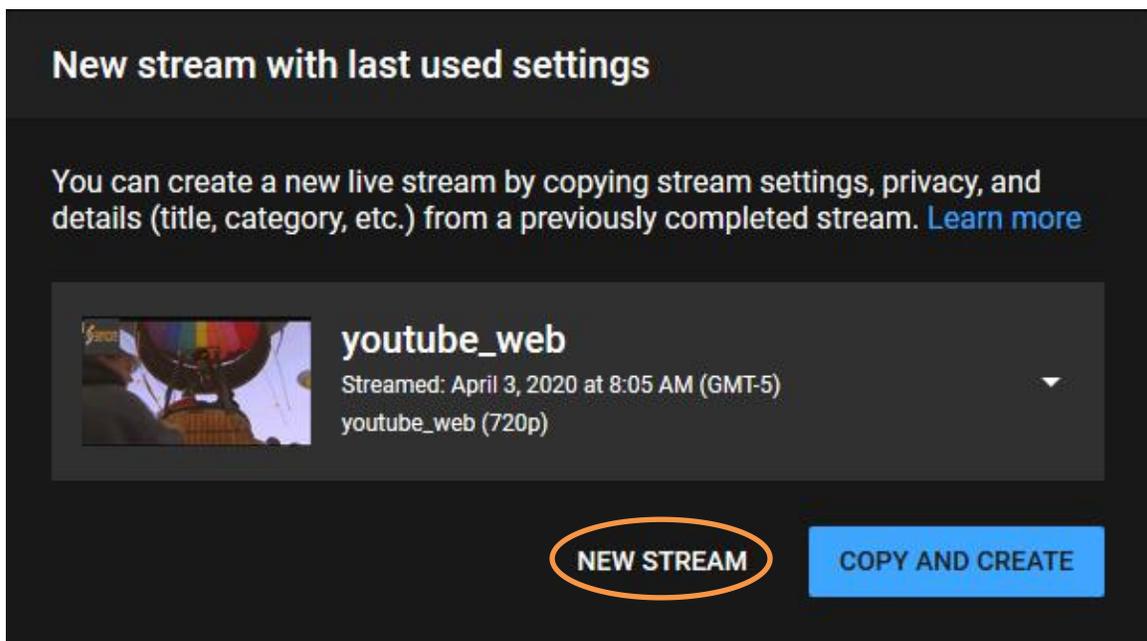


Figure 109: Stream Creation Prompt

- 9) Enter a title in the “Create a title” field and choose an “Audience” similarly to Figure 110, and then click “Create Stream”.

New stream

SencoreTesting

Public

Add a description

Entertainment

Schedule for later

↑ UPLOAD CUSTOM THUMBNAIL

Audience

Is this video made for kids? (required)

Regardless of your location, you're legally required to comply with the Children's Online Privacy Protection Act (COPPA) and/or other laws. You're required to tell us whether your videos are made for kids. [What's content made for kids?](#)

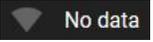
Yes, it's made for kids

No, it's not made for kids

Age restriction (advanced)

CREATE STREAM

Figure 110: New Stream Prompt

- 10) The “Stream Menu” that follows, displayed in Figure 111 on the next page, contains analytics about the incoming stream as well as necessary information to link the Impulse 200E encoder to the YouTube stream instance. Click to select the “Stream Settings” option, underneath the icon  to display the “Stream Key”.

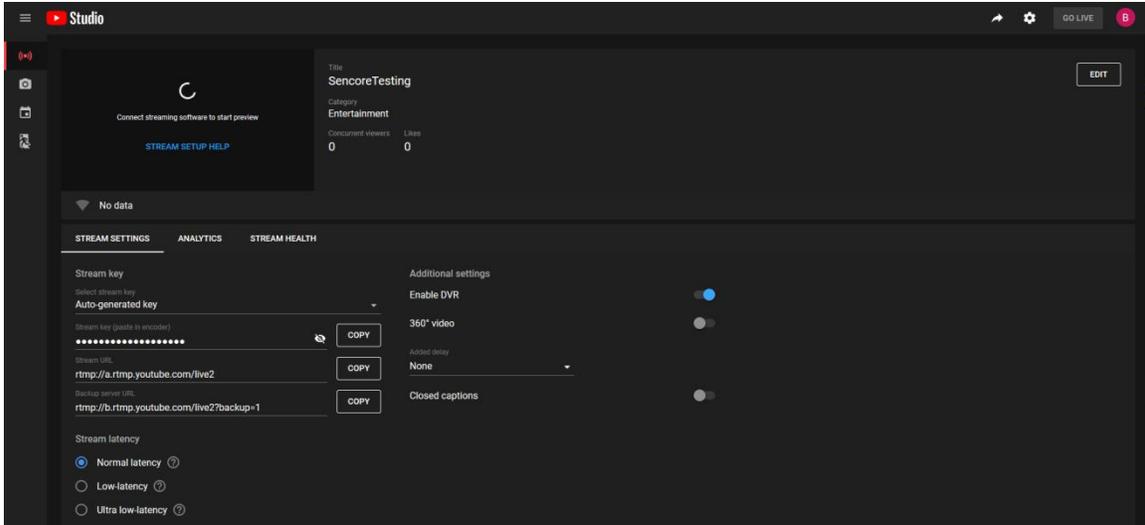


Figure 111: Stream Menu Overview

11) As shown in Figure 112, copy and paste the randomly generated “Stream key” from YouTube to the “Stream Key” on the Impulse 200E, then copy and paste the “Stream URL” from YouTube to the “URL” on the Impulse 200E. Click “Apply”.

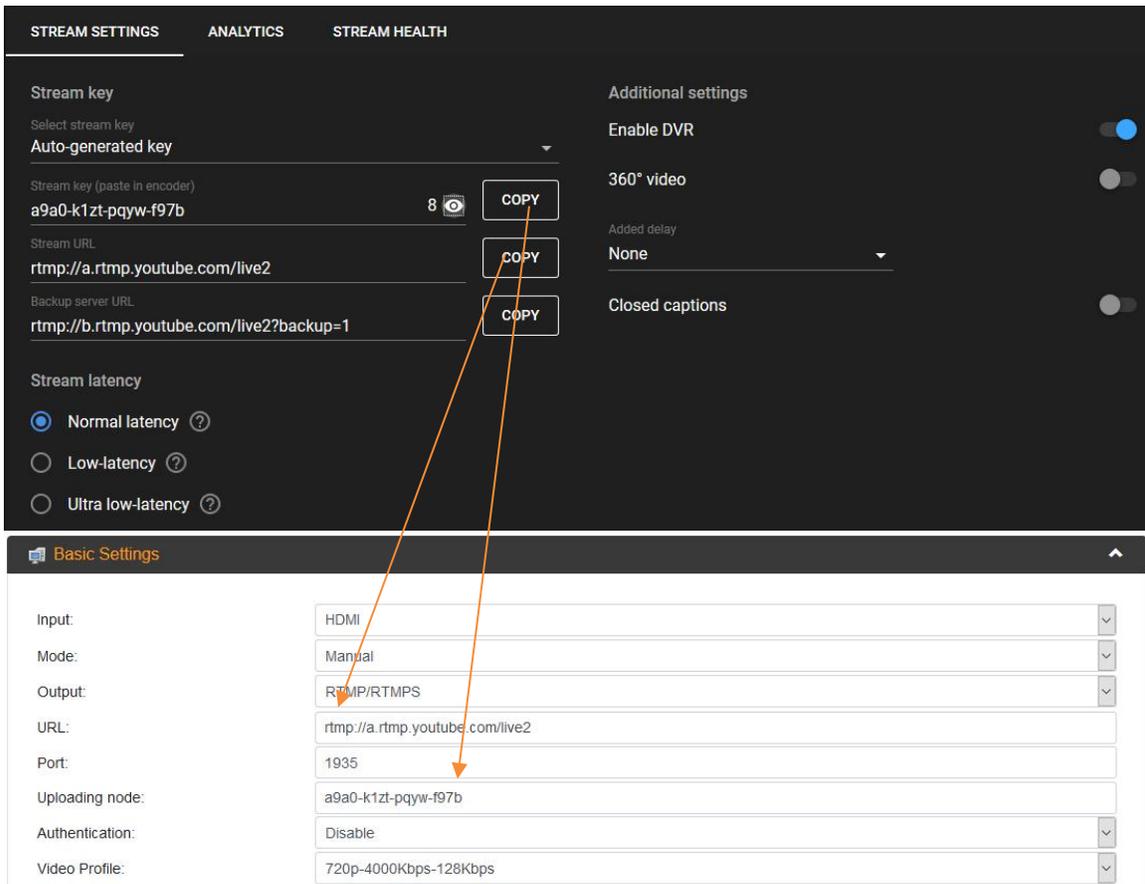


Figure 112: Stream Key and Stream URL Locations

- 12) On the Impulse 200E, click “Start Streaming”. The Impulse 200E may take up to five minutes to prepare the stream.
- 13) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” similarly to Figure 113.

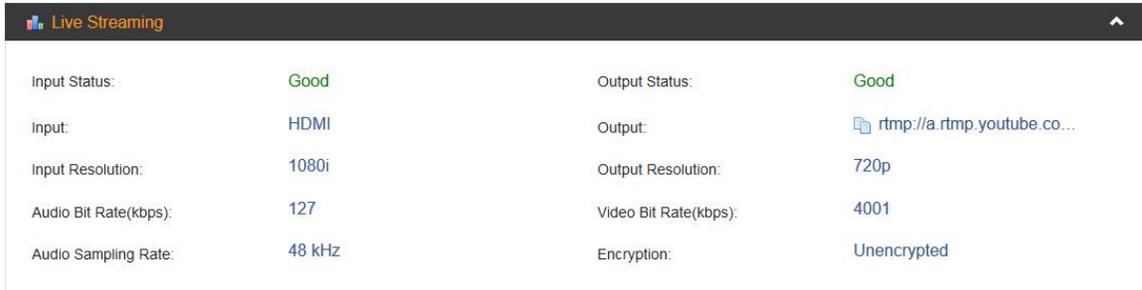


Figure 113: Output Status

- 14) Return to the “Stream Menu” on YouTube. With likeness to Figure 114 below, the connection status will indicate “Excellent Connection”, and a thumbnail of the stream will appear in the upper-left corner. Click “Go Live” in the top-right corner to begin streaming to YouTube.

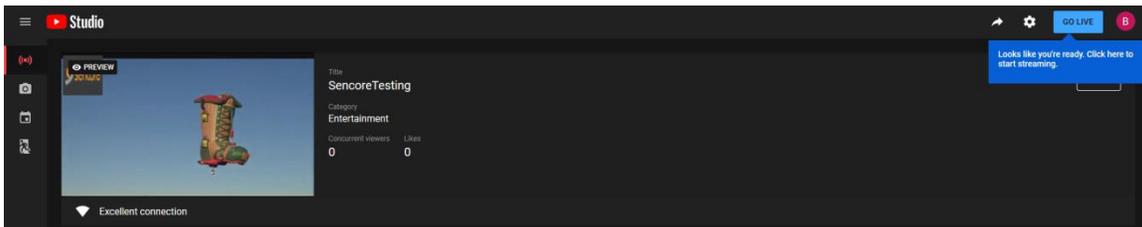


Figure 114: Stream Menu Receiving RTMP

Appendix E – Using Manual RTMPS Streaming

The Impulse 200E can be configured for streaming to any website capable of receiving RTMPS. It is necessary to create a new stream instance on the intended website and enter the corresponding URL and stream key on the Impulse 200E.

General RTMPS Streaming

- 1) Confirm the Impulse 200E is connected to the public internet.
- 2) Connect a baseband source (HDMI), and then confirm that the Impulse 200E detects the input using the “Status” page in the WebGUI (refer to section 7.1.2).
- 3) Navigate to the “Live Service/Streaming Settings” menu (Figure 115 below, see section 4.2 for more information on the new options).

The screenshot shows the 'Basic Settings' section of the Impulse 200E WebGUI. The settings are as follows:

Input:	HDMI
Mode:	Manual
Output:	RTMP/RTMPS
URL:	
Port:	443
Stream Key:	
Authentication:	Disable
Video Profile:	720p-4500Kbps-128Kbps

At the bottom of the settings area, there are three buttons: 'Apply', 'Start Streaming', and 'Easy to use mode'.

Figure 115: Live Service/Streaming Settings Page

- 4) Confirm that the “Output” option is set to “RTMP/RTMPS”.
- 5) Confirm that the “Mode” option is set to “Manual”.
- 6) Confirm that the “Port” is set to 443.
- 7) Enter the URL from the receiving website into the “URL” field.
- 8) Enter the stream key from the receiving website into the “Stream Key” field.
- 9) Click “Start Streaming”. The Impulse 200E may take up to five minutes to prepare the stream.
- 10) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” as seen in Figure 116.

Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	rtmps://live-api-s.faceboo...
Input Resolution:	1080i	Output Resolution:	720p
Audio Bit Rate(kbps):	127	Video Bit Rate(kbps):	4316
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

Figure 116: Output Status

11) The Impulse 200E is now streaming to the receiving website and is ready for viewing.

Manual Facebook RTMPS Streaming

This procedure outlines the steps from “General RTMPS Streaming”, using Facebook as the receiving website with emphasis on collecting the “Stream Key” and “URL” fields for the Impulse 200E.

- 1) Perform steps 1~6 from the “General RTMPS Streaming” procedure.
- 2) Navigate to www.facebook.com and log in.
- 3) Expand the additional option icon  circled in Figure 117 below.

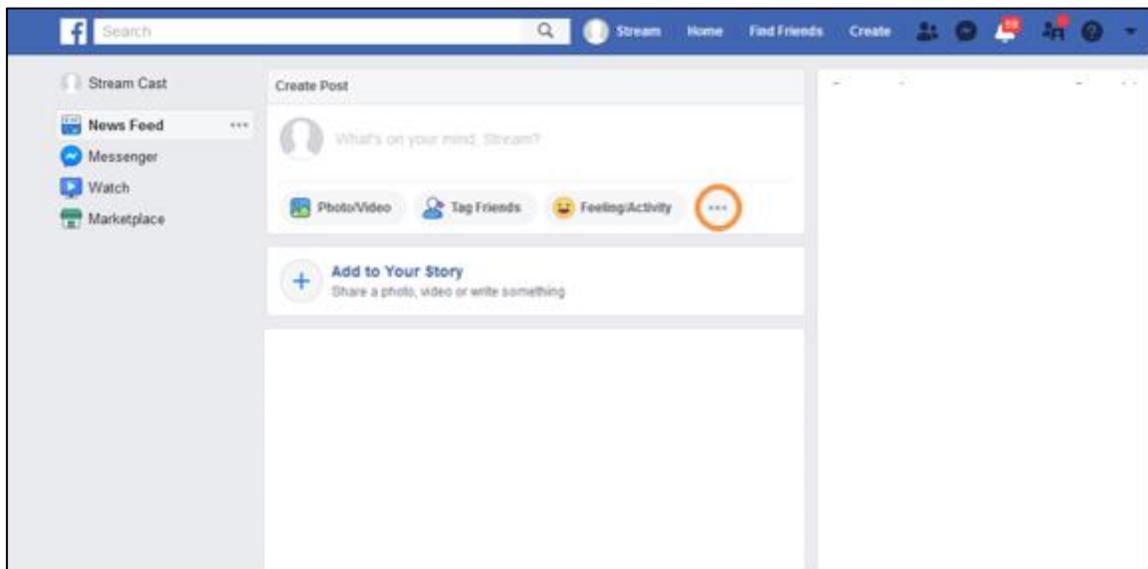
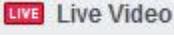


Figure 117: Additional Options Icon

- 4) In the resulting window, click the icon  as indicated in Figure 118 on the next page to navigate to the Stream Setup page.

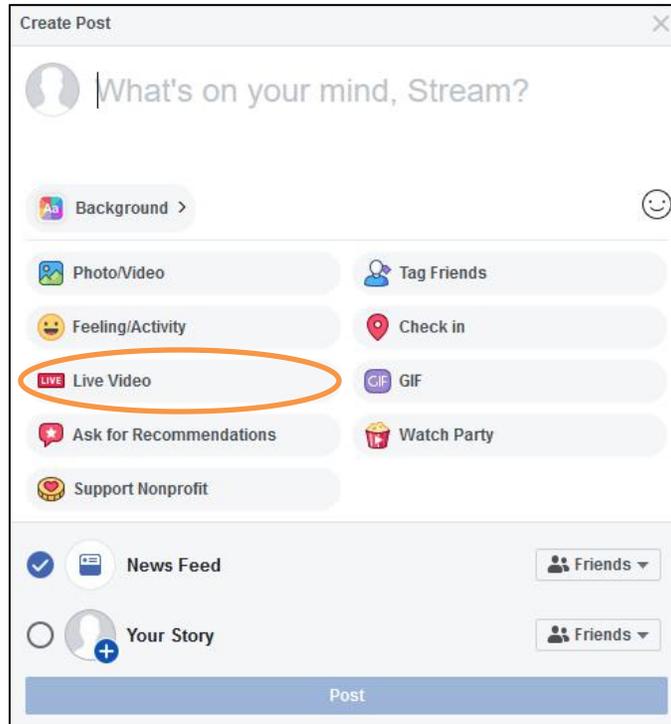


Figure 118: “Live Video” Icon

- 5) As circled on the Stream Setup page in Figure 119, click the “Use Stream Key” icon to configure Facebook for receiving RTMPS streaming from the Impulse 200E.

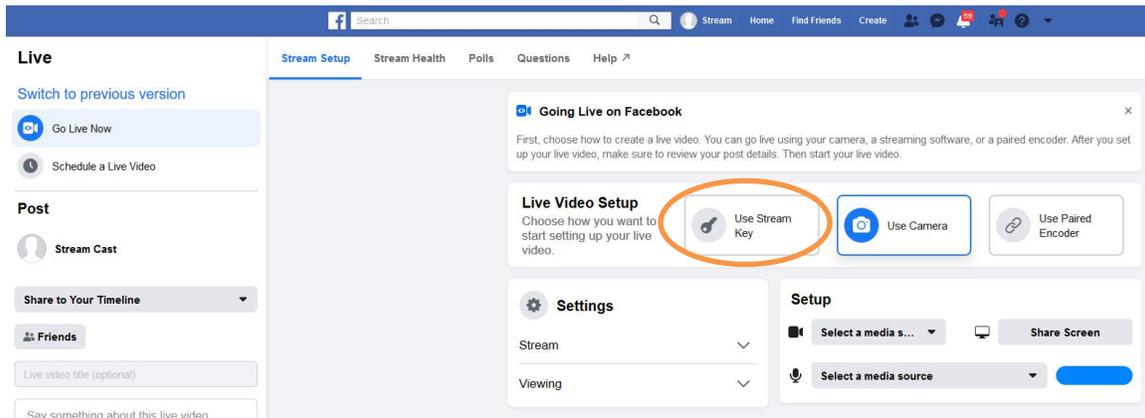


Figure 119: Stream Setup Page

- 6) Under “Live API”, the Server URL corresponds to the “URL” field on the Impulse 200E and the “Stream Key” corresponds to the “Stream Key”. Copy and paste the items from Facebook to the fields on the Impulse 200E as shown in Figure 120 below.

The screenshot shows two parts of the user interface. The top part is the Facebook 'Going Live on Facebook' setup page. It has three options: 'Use Stream Key' (selected), 'Use Camera', and 'Use Paired Encoder'. Under 'Live API', the 'Server URL' is 'rtmps://live-api-s.facebook.com:443/rtmp/' and the 'Stream Key' is '466367570982831?s_bl=1&s_ps=1&s_sw=0&'. The bottom part is the 'Basic Settings' page of the Impulse 200E. It has fields for 'Input' (HDMI), 'Mode' (Manual), 'Output' (RTMP/RTMPS), 'URL' (rtmps://live-api-s.facebook.com:443/rtmp/), 'Port' (443), 'Uploading node' (466367570982831?s_bl=1&s_ps=1&s_sw=0&s_vt=api-s&a=AbxDDs0dAfOM3FDb), 'Authentication' (Disable), and 'Video Profile' (720p-4000Kbps-128Kbps). Two orange arrows originate from the Facebook interface: one points from the 'Server URL' field to the 'URL' field, and the other points from the 'Stream Key' field to the 'Uploading node' field.

Figure 120: Server URL and Stream Key Locations

- 7) On the Impulse 200E, click “Start Streaming”. The Impulse 200E may take up to five minutes to prepare the stream.
- 8) Navigate to the “Status Page” (section 7.1.2) and confirm the “Output Status” is now “Good” as seen in Figure 121 at the top of the next page.

Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	HDMI	Output:	rtmps://live-api-s.faceboo...
Input Resolution:	1080i	Output Resolution:	720p
Audio Bit Rate(kbps):	127	Video Bit Rate(kbps):	4316
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

Figure 121: Output Status

- Return to the “Stream Setup Page” on Facebook. Similarly to Figure 122 below, a thumbnail of the stream appears on the bottom right to indicate good connection.

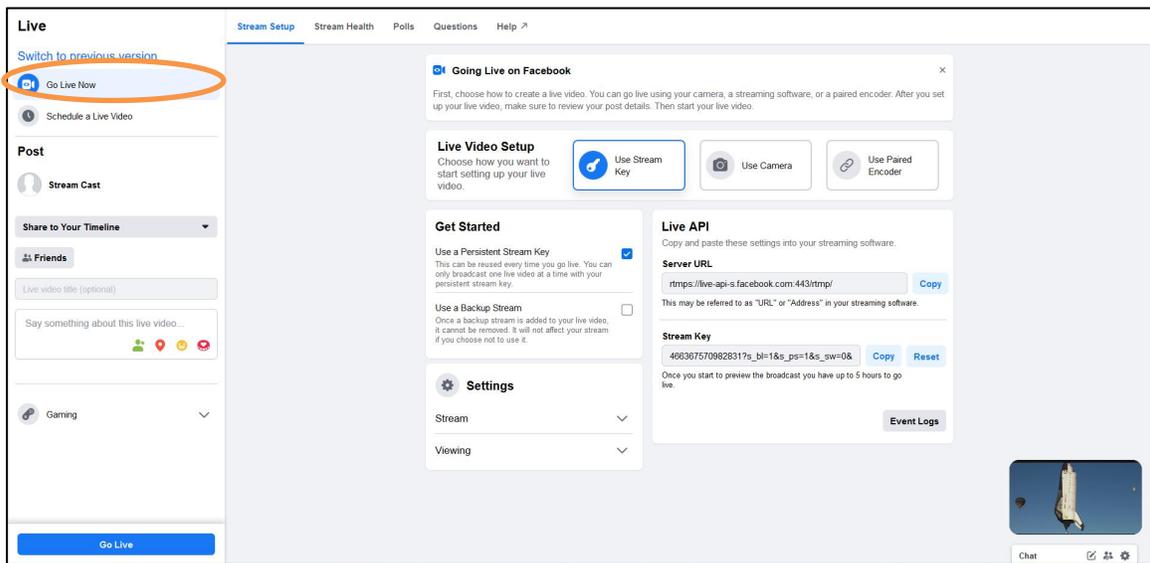


Figure 122: Stream Setup Page Receiving RTMPS

- As indicated in Figure 122 above, click the icon  to begin RTMPS streaming to Facebook.

Appendix F – Impulse Camcorder Technical Parameters

Setting	Range
Imaging sensor	5.0 mega-pixel CMOS sensor
Photo definition	5600 x 4200 (24M), 5200x3900(20M),4640 x 3480 (16M), 4000 x 3000 (12M), 3648 x 2736 (10M), 3648 x 2048 (7MHD), 2592 x 1944 (5M), 2048 x 1536 (3M), 1920 x 1080 (2MHD) and 640 x 480 (VGA)
Video Output Resolution	FULL HD: 1920 x 1080p @30fps HD: 1280 x 720p @ 30 or 60fps SD: 640 x 480 @ 30fps
LCD Display	3.0"touch TFT (16:9)
Internal memory	128MB DDR3 (Buffer memory)
HDMI output	Yes
Lens	f=4.95~49.5mm (0.19"~1.9") F.NO 2.8 Ø: 37mm (1.46")
Digital zoom	120X
Optical zoom	10X
Focus range	wide: 0.1m (0.33')~INF Tele: 1.5m (4.92')~INF Marco: wide 0.1m (0.33')~Tele 1m (3.28')
Self-Timer	2 s/5 s/10 s
File formats	JPEG (Still image)/MOV (Video)
Light-compensating lamp	2xLED
Exposure compensation	EV-3.0 ~ EV+3.0
Sensitivity	Auto
White Balance	Auto/Daylight/Sunlight/Cloudy/Fluorescent/Tungsten
Scene	Auto/Night/Portrait/Scenery/Sports/Party/Beach/High sensitivity
Image stabilizer	Yes
Burst	Yes
TV output	Yes
Microphone	Yes
Speaker	Yes

Remote control	Yes
Port	USB 2.0
System requirements	Windows XP/Windows Vista/Windows 7/Windows 8
Battery	NP-40B Lithium Battery (4.2V)
Operation Temperature	0°C~40°C (32°F~104°F)

Appendix G – Impulse Camcorder Troubleshooting

Related parts	Description	Cause and corrective actions
Shooting videos/taking photos	Failed to shoot videos or take photos after the shutter button is pressed	<p>The battery power is low. Please charge the battery.</p> <p>The Camcorder is not in the video/photo mode. Set the Camcorder to the correct mode.</p> <p>The Camcorder is powered off. Please restart it.</p> <p>The SD card is out of memory.</p> <p>Please delete unwanted files or replace it with another SD card.</p>
Power off	The Impulse Camcorder turns off automatically.	The battery is depleted.
Battery pack	The battery pack has low power.	<p>The temperature is low.</p> <p>The battery pack is depleted. Please charge the battery pack.</p>
Camcorder & battery	The Camcorder or battery is overheat.	The Camcorder has run for too long.
Photos	The photos are blur.	The exposure is insufficient.
Deleting	File cannot be deleted.	The file is protected.
SD card	The SD card cannot be inserted.	The direction might be wrong.
Export	The photo or video cannot be exported to a computer.	<p>The setting is improper. Refer to "How to enter computer mode".</p> <p>The correct driver has not been installed on the computer.</p> <p>Install the drive before exporting files.</p>

Appendix H – Bluetooth Microphone Parameters Specification

Setting	Range
Carrier frequency	500 Mhz-980 Mhz(optional)
Modulation mode	digital modulation
Signal to noise ratio	96dB
Frequency response	30Hz-18KHz
Distortion	0.1%
Delay	2.5ms
Frequency points	up to 48
Transmitter power	10mW
Receiver sensitivity	-96dB
Use time of transmitter	5 hours 3.7V 400mAh
Receiver service time	5 hours 3.7V 400mAh
Charging time	2 hours
Charging adapter	5V 800mA