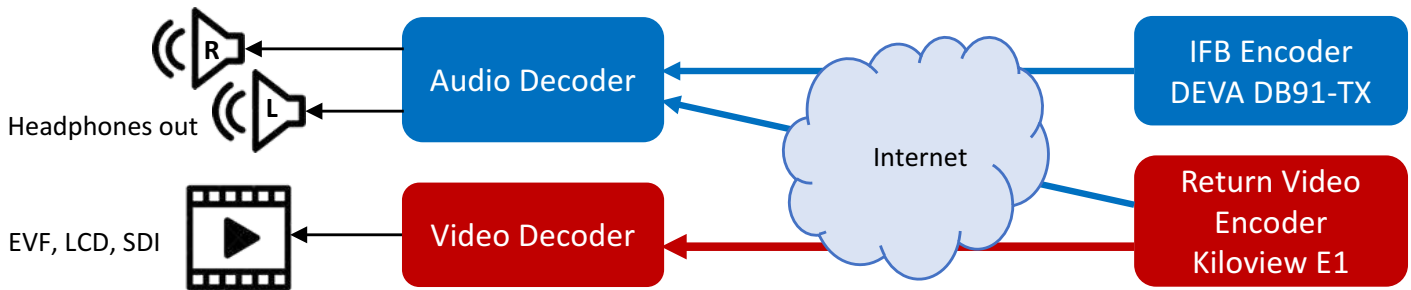
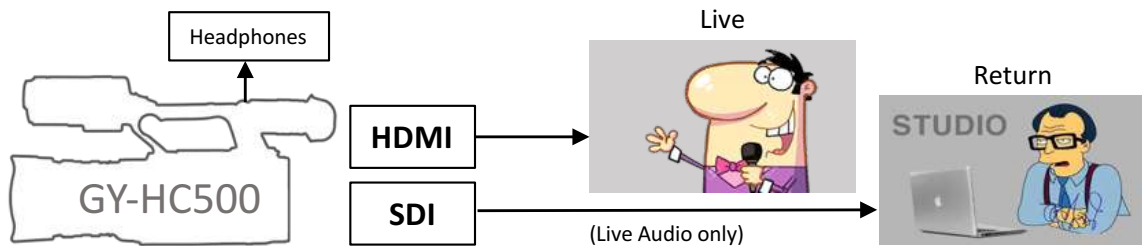


The GY-HC500/550/900 IFB and Return Video over the Internet

The Connected CAM series camcorders feature built-in IFB and Return Video decoders capable of receiving the H.264 stream over the Internet via RTSP "Pull" protocol (Return Video) and Icecast streams for the IFB. Multiple cameras (up to 10) can "pull" the RTSP/Icecast streams from a single Return Video/IFB encoder. The camera can receive either IFB or Return Video, not both simultaneously. Return Video channel also includes two channels of audio (stereo), and Return Video audio channel(s) can be used for the IFB as well.

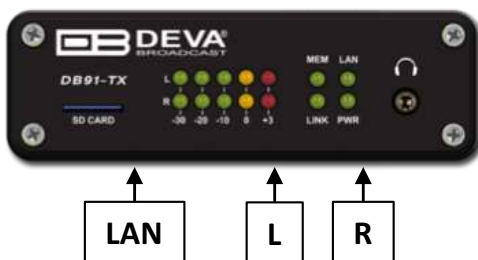


Return Video is displayed in the EVF/LCD and output via SDI when the pre-assigned button "Return Video" is pressed once. The second press would return the LCD/EVF/SDI to the live video output. The HDMI output does not switch to Return Video and outputs live video all the time. This allows using two monitors for simultaneous live and return video display.

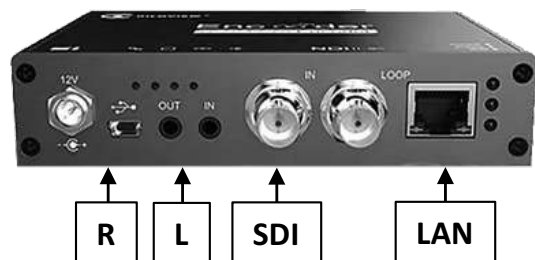


For Return Video we recommend the **Kiloview E1 H.264 encoder** and for the IFB - **DEVA DB91-TX** IP audio encoder. The camera can memorize up to 4 Return/IFB servers to allow quick switching between sources in the field via the camera menu.

DEVA DB91-TX IFB encoder



Kiloview E1 Return Video encoder

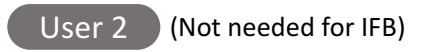


It is recommended to assign any two *User Buttons* for Return Video or IFB operation.

User 1 – to start/stop Return Video/IFB stream over the Internet.



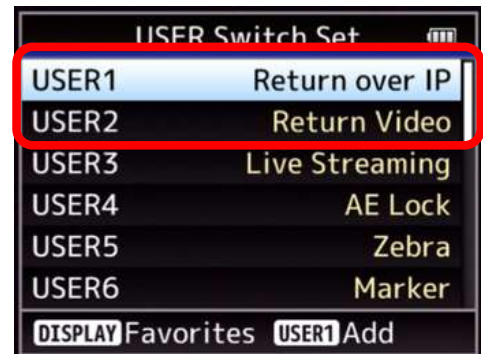
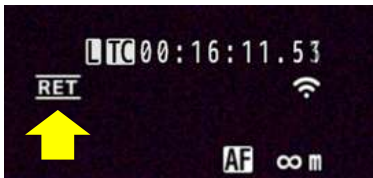
User 2 – to view Return Video in the EVF, LCD, and the SDI output.



Menu → Camera Function → USER Switch Set →

Pressing **User 1** starts the Return/IFB stream.

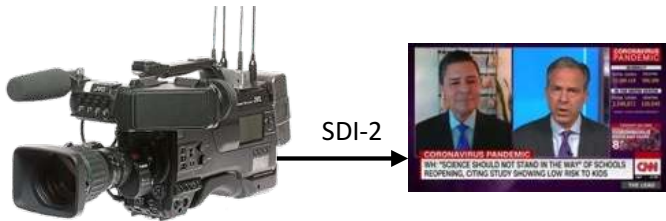
Symbol “RET” or “IFB” indicates that Return/IFB is available.



The headphones output can be set separately for L/R channels to play the mix of live audio and return (Auto), Return only, or no audio for return (Off).

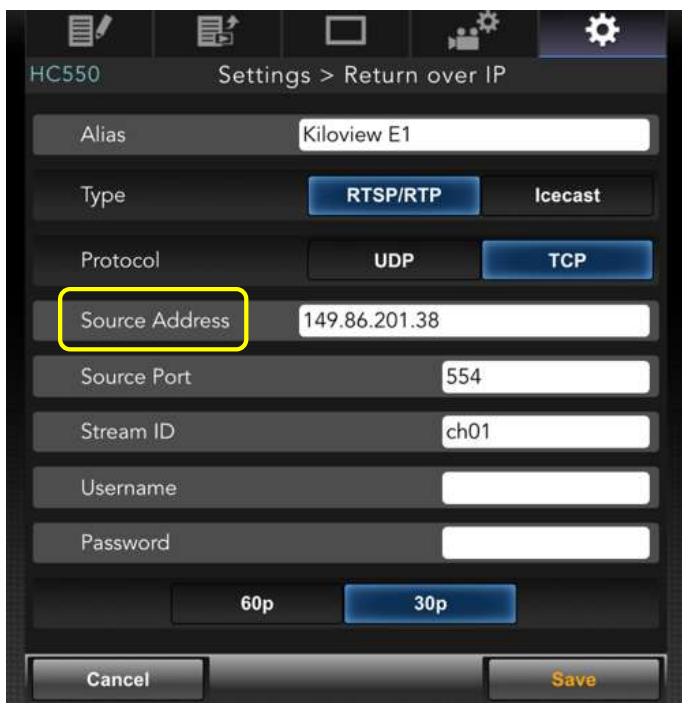
Menu → A/V Set → Audio Set → IFB/RET Monitor →

The GY-HC900 supports continuous (non switched) return video output via SDI-2 connector.

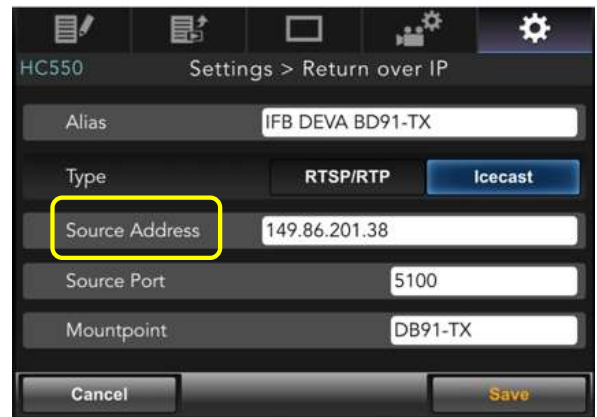


Camera setup:

Return Video



IFB



The **Source Address** is the "public" IP address of the encoder. The encoder installed at the studio must have fixed IP for cameras to "pull" the stream from. (Ports forwarding may be needed as well)

The Kiloview E1 encoder setup:

The GY-HC500/550/900 cameras return video decoder supports **1280x720 30/60p** H.264 stream up to **3 Mbps** with AAC audio over **RTSP** protocol.

The screenshot displays the 'Main Stream Encoder parameters' configuration page. The left sidebar contains navigation options: Basic Settings, Video&Audio Settings, Encoding & Stream, Audio Encoding Engine, Encoding & Stream Settings, SIP Settings, Network Storage (NAS), Text & Image & Time Overlay, Network & Service Settings, Serial Port and PTZ, Quick Reset, Logs & Debug, and Reboot. The main content area includes the following settings:

- Scaling: 1280x720(16:9) (indicated by a red arrow)
- Color: Color
- H.264 profile: High profile
- Bitrate control: CBR - Constant bitrate
- QP min value: 18
- QP max value: 51
- Bitrate: 2.0M bps (indicated by a red arrow)
- Bitrate auto adjust: Disabled
- Frame Rate: Customized framerate
- Customized framerate: 30 fps (indicated by a red arrow)
- Dynamic Frame Rate: Disabled
- GOP Size: 30 - Produce one I frame per 30 frames
- Reference frames: One (Note: Using multiple reference frames should give a better encoding quality but this setting may not be compatible with some decoders)

Buttons for 'SAVE' and 'Return' are located at the bottom right of the configuration area.

The screenshot displays the 'Main Stream RTSP service parameters' configuration page. The left sidebar is identical to the previous screenshot. The main content area includes the following settings:

- Service Port: 554 (Note: For port changes to take effect, please reset or reboot the device)
- HTTP Tunnel Port: 0 (Note: If the port is 0, HTTP tunnel is disabled. Ensure the port value is not the same as the Web service or Onvif service ports. For port changes to take effect, please reset or reboot the device)
- Session ID: ch01
- For AAC(MPEG4) Audio: Drop the ADTS header (indicated by a red arrow)
- RTSP Authorization: Disable (with a 'Manage users...' link)
- RTSP Multicast: Disable

Buttons for 'SAVE' and 'Return' are located at the bottom right of the configuration area.

The Return Video latency is ~ 1 sec.

The DEVA DB91-TX IP audio encoder setup:

DB91-TX - Compact IP Audio Encoder Configuration **DEVA BROADCAST**

IN: Analog (Main Analog) 29 Sep 2020 01:11:33 Uptime: 0d 02:11:28 Session: 02:32 Logout

Inputs
Digital: [Bar graph] Analog: -12.4 -12.8 [Bar graphs]

Active connections
Table with columns: Type, Status, Remote Peer, Codec

General
Sample rate: 48 kHz (red arrow) Channels: Stereo

Encoder 1
Type: HE-AAC (red box) Quality: 3 Version: HE-AAC v.2

Encoder 2
Type: MP3 Quality: 6 Highest Stereo Mode: Stereo CRC: Off Emphasis: None

Navigation: Status, Input, Encoding, IP Audio, General, Network, Other

IN: Analog (Main Analog) 29 Sep 2020 01:12:24 Uptime: 0d 02:12:19 Session: 02:51 Logout

Inputs
Digital: [Bar graph] Analog: -10.3 -11.8 [Bar graphs]

Active connections
Table with columns: Type, Status, Remote Peer, Codec

IP Audio Server
Encoder: Encoder 1 Port: 5100 (red arrow) Pre-buffer: 0.5 s Max clients: 10

IP Audio Sender 1
Encoder: Encoder 1 Type: Not used

Navigation: Status, Input, Encoding, IP Audio, General, Network, Other

Security
admin User: admin Pass: **** user User: user Pass: ****

General
Alias: DB91-TX (red arrow)

WEB Log
Max age: Infinite

Date & Time
Date: [] Time: [] Time zone: UTC Copy Local Time

SNTP Internet Time
Enable: [x] Enabled [] Disabled Server: pool.ntp.org Server Port: 123

Navigation: Status, Input, Encoding, IP Audio, General, Network, Other

The IFB latency is ~ 0.7 sec