INOGENI SHARE2U

Dual USB 2.0 Video Mixer to USB 3.0 Converter
User Guide v1.12

Thank you!

You have just acquired the finest and easiest to use tool for simultaneous capture of two streams of uncompressed video with audio for your computer.

Easy, No Drivers, No Setup !
Versatile !
Compatible with all Apps !

SHARE2U CONVERTER
P/N SHARE2U

PRODUCT HIGHLIGHTS

- EASY ! No drivers required.
- Capture from MJPEG and H264 USB 2.0 cameras, which are UVC-compliant.
- Capture HDMI feeds.
- Predefined Picture in Picture (PIP) views.
- Ideal for Video streaming and Videoconferencing.
- Compatible to all motherboards and chipsets.
- Powered via external power supply.
- Scaler and Colorspace Conversion.
- Supports Windows, macOS and Linux.
- Audio mixing capability.
- DirectShow, AVFoundation and V4L2 Compatible.
- Professional grade full-metal enclosure.

OVERVIEW

The **INOGENI SHARE2U Converter** is the most easy and reliable tool for simultaneous capture and mix of two video sources into one single USB stream with audio for your PC for recording, videoconferencing, lecture capture and streaming applications. No driver installation is necessary and it will work on all motherboards and USB 3.0 chipsets. It features two USB inputs, one HDMI input, a line level stereo analog input, a line level stereo analog output, an internal USB 3.0 hub with 2x USB 3.0 ports for expansion purposes and USB 3.0 connector for the host. It supports SD and HDTV video formats, up to 1080p60, and most computer graphic formats. Compact in size and rugged, the converter is a practical and an easy-to-use USB 3.0 capture solution. It is compatible with Windows, OSX and Linux operating systems, and is UVC-compliant, so it will work with all DirectShow/V4L2 and AVFoundation compatible software.

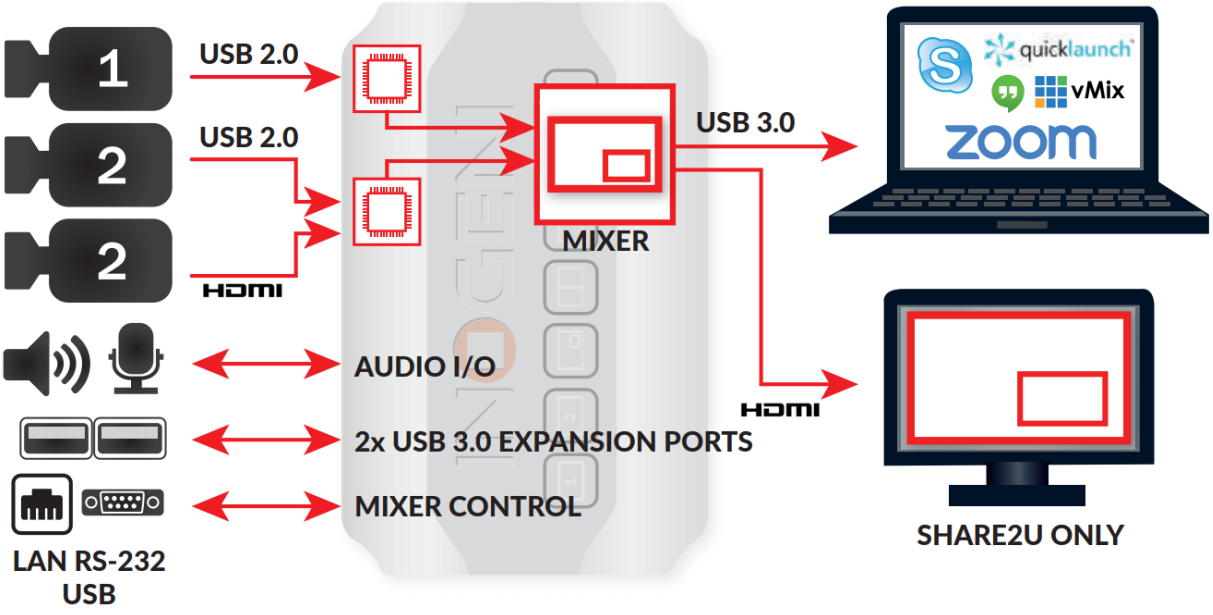
The converter supports 1080p resolutions up to 30 fps for USB and HDMI inputs. The line level stereo analog audio input and output are two-channel LPCM.

SHARE2U comes with a USB 3.0 cable and its power supply.

- Line level stereo audio support.
- Predefined Picture in Picture (PIP) views.
- Digital Fluid technology - Internal frame buffers maximize frame rate with any PC.
- Hardware-based color space and sampling conversion.
- Automatic scaling and frame rate conversion.
- Customizable video processing functions.
- Supports multiple devices on the same PC.
- Compatible with Windows, macOS and Linux.

DEVICE CONNECTORS

CONNECTION DIAGRAM



SPECIFICATIONS

Video Input 1	
Connector	1x USB 2.0 camera (MJPEG or H264).
Video Resolutions	Depends on the camera specifications.
Video Input 2	
Connector	1x USB 2.0 camera (MJPEG or H264).
Video Resolutions	Depends on the camera specifications.
Connector	1x HDMI
Video Resolutions	1080p, 720p and 640x480
Frame Rates	Up to 30 Hz, all formats.
Analog input	Analog stereo, line level, 3.5mm jack.
Analog output	Analog stereo, line level, 3.5mm jack.
HDCP Copy protection	The device will not decrypt BD/DVD movies, satellite/cable receivers or other encrypted sources.
Mixer Control	The Mixer feature can be controlled by the following interfaces: HID RS-232 Keypad INOGENI REMOTE LAN *** Click 2 times on “2” button of the keypad in order to switch between USB and HDMI inputs. Same behavior with all the other control interfaces.
IP Interface	DHCP not supported Static IP address configuration through our Control App

Output	
Connectors	1x USB 3.0 to host. 1x HDMI output. Same video content over USB 3.0 and HDMI outputs.
Color Space	YCbCr (YUY2) 4:2:2 8-bit.
Video Scaler	Automatic hardware based.
Color Space Conversion	Automatic hardware based.
Sampling Conversion	Automatic hardware based.
Frame Rate Conversion	Automatic hardware based.
USB expansion	2x USB 3.0 ports for expansion purposes. The devices connected will appear to the host.

Audio	
Audio input	2-channel LPCM 48kHz audio from Line input or embedded in HDMI
Audio output	2-channel LPCM 48kHz audio Line level

Compatibility	
Operating System	NO driver installation necessary. Windows 7 and above (32/64-bit) macOS 10.10 and above Linux (kernel v2.6.38 and above) Android
Host Requirements	USB 3.0 port Minimum 4GB RAM Intel Core i5 Graphic card with its own memory for on-screen rendering applications.
Motherboard	Compatible with all motherboards: Intel, Renesas, ASMedia, and Fresco Logic.
Cameras Supported	UVC-compliant cameras for USB inputs. HDMI sources up to 1080p30.
Software Compatibility	UVC-compliant. Runs with all software compatible to DirectShow, V4L2, QuickTime and AVFoundation.

Dimensions [W x L x H, cm]	18.5 x 11 x 3
Weight [g]	540
Power	12V, 700mA (adapter included)
UPC Code	040232633843
Origin	Canada
Harmonized Code	8517.62.000.900

TOP USER BUTTONS

These buttons have the same function as presented in the INOGENI Control App software.

Input 1 to full screen.

Input 2 to full screen.
Click a second time on the button to switch between USB2 and HDMI if both sources are present.

Picture in picture. Each press on this button changes the small window position at each corner.

Side by side.

Big and small.

Swap input 1 and input 2 for buttons: picture in picture, side by side and big and small. Each press on this button swap input 1 with input 2. To lock/unlock the keypad, press and hold this button for a minimum of 5 seconds.

Not used, reserved for customization.
Function can be set using appropriate firmware and our Control App.

SERIAL COMMUNICATION PROTOCOL

Here are the serial communication settings:
Baud rate: 9600 **// Data bits:** 8 **// Stop bits:** 1 **// Parity:** None **// Flow control:** None

Terminal block pinout

As written on the back of the device, here is the pinout of the terminal block.

Pin 1: Receive
Pin 2: GND
Pin 3: Transmit
Pin 4: 5V supply (for INOGENI Remote)

Commands

If the commands are recognized, the "**ACK**" string will be sent.

If the commands are NOT recognized, the "**NACK**" string will be sent.

Input 1 is the **USB input 1.**
Input 2 is the **USB input 2 OR HDMI input**.

Commands sent to the serial interface must have the '<' character at the beginning and '>' character at the end.

COMMAND	Command description
<S1>	Source 1, which comes from the USB input 1 connector
<S2>	Source 2, which comes from the USB input 2 or HDMI connector
<SS>	Side by Side View
<TB>	Top Bottom View
<BS>	Big and Small View
<PPTR>	Picture in Picture at top right corner
<PPTL>	Picture in Picture at top left corner
<PPBR>	Picture in Picture at bottom right corner
<PPBL>	Picture in Picture at bottom left corner
<SW>	Swap View
<SS1>	Side by Side View where Input 1 is at the left side
<SS2>	Side by Side View where Input 2 is at the left side
<TB1>	Top Bottom View where Input 1 is at the top
<TB2>	Top Bottom View where Input 2 is at the top
<BS1>	Big and Small View where Input 1 is at the left side
<BS2>	Big and Small View where Input 2 is at the left side
<PPTR1>	Picture in Picture at top right corner where Input 1 is the background
<PPTR2>	Picture in Picture at top right corner where Input 2 is the background
<PPTL1>	Picture in Picture at top left corner where Input 1 is the background
<PPTL2>	Picture in Picture at top left corner where Input 2 is the background
<PPBR1>	Picture in Picture at bottom right corner where Input 1 is the background
<PPBR2>	Picture in Picture at bottom right corner where Input 2 is the background
<PPBL1>	Picture in Picture at bottom left corner where Input 1 is the background
<PPBL2>	Picture in Picture at bottom left corner where Input 2 is the background

<SAVE>	Save the current configuration onboard for future use
<RSTR>	Erase the current configuration onboard and return to default values
<BLK>	Black video
<SHW>	Show video
<RST>	Reset the device
<SWUSB>	Select USB source as input 2.
<SWHDMI>	Select HDMI source as input 2.
<POLL>	Returns the current view of the device. In case PPTL1 mode is active, you will receive: >> <POLL> VIEW => S1 BLACK => disabled ACK
<GET>	Return the firmware versions and video. Here is an example. >> <GET> StreamerApp => 1.10.5 DeviceID => 0 FX3 => N/A FPGA => N/A EDID => 1 KEYPAD => 0.0 Input 1 => Unlocked Input 2 => Unlocked Input 3 => 1280x720 Audio Jack => Not Detected VIEW => S1 BLACK => disabled IP => 192.168.0.84 MAC => f8:dc:7a:4a:4c:35 AIN1 => 0 AIN2 => 0 AIN3 => 0 AIN4 => 0 AOUT1 => 0 AOUT2 => 0 AOUT3 => 0 AOUT4 => 0 ACFG => 0 INV1 => 0 INV2 => 0 INV3 => 0 INV4 => 0 MUTEIN => 0 SBTN => 0 ACK
<PAN X Y>	Moves PTZ camera horizontally. This is a relative control.[1] X = 1, for USB1 = 2, for USB2

[1] The function works for specific cameras:

- Logitech® Rally, MeetUp and PTZ Pro.
- AVer® CAM520 cameras.

	Y = -1, counterclockwise = 0, stop = 1, clockwise
<TILT X Y>	Moves PTZ camera vertically. This is a relative control. [1] X = 1, for USB1 = 2, for USB2 Y = 1, camera goes up = 0, stop = -1, camera goes down
<ZOOM X Y>	Sets zoom of camera. This is a relative control. [1] X = 1, for USB1 = 2, for USB2 Y = 100 to 500
<PRESET X Y>	Tells PTZ camera to go to a saved preset position. [1] X = 1, for USB1 = 2, for USB2 Y = 1 to 3, for preset 1, 2 and 3
<SAVEPRESET X Y>	Saves current position to camera preset memory. [1] X = 1, for USB1 = 2, for USB2 Y = 1 to 3, for preset 1, 2 and 3
<INV X Y>	Video source flip. X = 1, for USB1 = 2, for USB2 = 3, for HDMI Y = 0, no flip = 1, vertical flip = 2, horizontal flip
<AIN1 X>	Adjust audio input level over USB1. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AIN2 X>	Adjust audio input level over USB2. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AIN3 X>	Adjust audio input level over HDMI. Parameter is 2-complement. X = 166 or 0 (2 values possible) For example, X = 0 means no audio modification. X = 166 is MUTE value.
<AIN4 X>	Adjust audio input level over analog input. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AOUT1 X>	Adjust audio output level over analog output. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain.

	X = 166 is MUTE value.
<AOUT2 X>	Adjust audio output level over USB1. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AOUT3 X>	Adjust audio output level over USB2. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AOUT4 X>	Adjust audio output level over HDMI output. Parameter is 2-complement. X = 166 to 6 For example, X = 0 means no audio modification. X = 255 means -1 dB audio gain. X = 166 is MUTE value.
<AOUTHDMI X>	Set HDMI audio output source to mixer (X=255) or PC-Speaker (X=0).
<AOUTANALOG X>	Set analog audio output source to mixer (X=255) or PC-Speaker (X=0).
<AOUTUSB1 X>	Set USB1 audio output source to mixer (X=255) or PC-Speaker (X=0).
<AOUTUSB2 X>	Set USB2 audio output source to mixer (X=255) or PC-Speaker (X=0).

INOGENI REMOTE

The INOGENI Remote needs to be connected to the terminal block port in order to operate. Apply wiring accordingly. This remote is sending serial commands to the SHARE2U device. Make sure to set the **DIP SW6** below the SHARE2U to ON in order to apply power to the remote before going further. See “DIP SWITCHES” section of this document for more details. Check the user manual of the INOGENI REMOTE for more details.

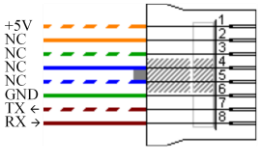
For SHARE2U and CAM series – You need to wire up a RJ45 cable to a terminal block plug.

Do not plug a RJ45 cable between the INOGENI device and the REMOTE.

INOGENI device side

Pin 1: Receive
Pin 2: GND
Pin 3: Transmit
Pin 4: 5V supply

REMOTE side



LAN INTERFACE

The default IP address of the device is **192.168.0.81**. Use our Control App in order to change it.

Changing the IP address of the device is done through our USB interface. Please connect the device to your computer using the provided USB cable and load our Control App.
The device is not DHCP compliant.

You can use any telnet application in order to communicate with the device using TCP. Make sure to use the right IP address and **port 50000**.

You can use the commands by sending HTTP or TCP requests. For example, you can send an HTTP request by sending it using any browser, for example, to 192.168.0.81:50000/COMMAND. If the command is recognized, you will receive the ACK string.

Commands sent to the LAN interface must have the '$' character at the beginning and '$' character at the end.

COMMAND	Command description
$S1$	Source 1, which comes from the USB input 1 connector
$S2$	Source 2, which comes from the USB input 2 or HDMI connector
SS	Side by Side View
TB	Top Bottom View
BS	Big and Small View
$PPTR$	Picture in Picture at top right corner
$PPTL$	Picture in Picture at top left corner
$PPBR$	Picture in Picture at bottom right corner
$PPBL$	Picture in Picture at bottom left corner
SW	Swap View
$SS1$	Side by Side View where Input 1 is at the left side
$SS2$	Side by Side View where Input 2 is at the left side
$TB1$	Top Bottom View where Input 1 is at the top
$TB2$	Top Bottom View where Input 2 is at the top
$BS1$	Big and Small View where Input 1 is at the left side
$BS2$	Big and Small View where Input 2 is at the left side
$PPTR1$	Picture in Picture at top right corner where Input 1 is the background
$PPTR2$	Picture in Picture at top right corner where Input 2 is the background
$PPTL1$	Picture in Picture at top left corner where Input 1 is the background
$PPTL2$	Picture in Picture at top left corner where Input 2 is the background

$PPBR1$	Picture in Picture at bottom right corner where Input 1 is the background
$PPBR2$	Picture in Picture at bottom right corner where Input 2 is the background
$PPBL1$	Picture in Picture at bottom left corner where Input 1 is the background
$PPBL2$	Picture in Picture at bottom left corner where Input 2 is the background
$SAVE$	Save the current configuration onboard for future use
$RSTR$	Erase the current configuration onboard and return to default values
BLK	Black video
SHW	Show video
RST	Reset the device
$SWUSB$	Select USB source as input 2.
$SWHDMI$	Select HDMI source as input 2.

$POLL$	Returns the current view of the device. In case PPTL1 mode is active, you will receive:
	`VIEW => S1`
	`BLACK => disabled`
	`ACK`

GET	Return the firmware versions and video resolutions of CAM and CONT inputs. Here is an example.
	`StreamerApp => 1.4.1`
	`DeviceID => 0`
	`FX3 => N/A`
	`FPGA => N/A`
	`EDID => N/A`
	`Input 1 => 1920x1080 MJPEG`
	`Input 2 => Unlocked`
	`Input 3 => Unlocked`
	`VIEW => S1`
	`BLACK => disabled`
	`IP => 192.168.0.29`
	`MAC => f8:dc:7a:5:76:8`
	`ACK`

PAN_X_Y	Moves PTZ camera horizontally. This is a relative control.[2]
	`X = 1, for USB1`
	`= 2, for USB2`
	`Y = -1, counterclockwise`
	`= 0, stop`
	`= 1, clockwise`

$TILT_X_Y$	Moves PTZ camera vertically. This is a relative control. [2]
	`X = 1, for USB1`
	`= 2, for USB2`
	`Y = 1, camera goes up`
	`= 0, stop`
	`= -1, camera goes down`

$ZOOM_X_Y$	Sets zoom of camera. This is a relative control. [2]
	`X = 1, for USB1`
	`= 2, for USB2`
	`Y = 100 to 500`

$PRESET_X_Y$	Tells PTZ camera to go to a saved preset position. [2]

[2] The function works for specific cameras:

- Logitech® Rally, MeetUp and PTZ Pro.
- AVer® CAM520 cameras.

	X = 1, for USB1 = 2, for USB2 Y = 1 to 3, for preset 1, 2 and 3
$SAVEPRESET_X_Y$	Saves current position to camera preset memory. [2] X = 1, for USB1 = 2, for USB2 Y = 1 to 3, for preset 1, 2 and 3
INV_X_Y	Video source flip. X = 1, for USB1 = 2, for USB2 = 3, for HDMI Y = 0, no flip = 1, vertical flip = 2, horizontal flip

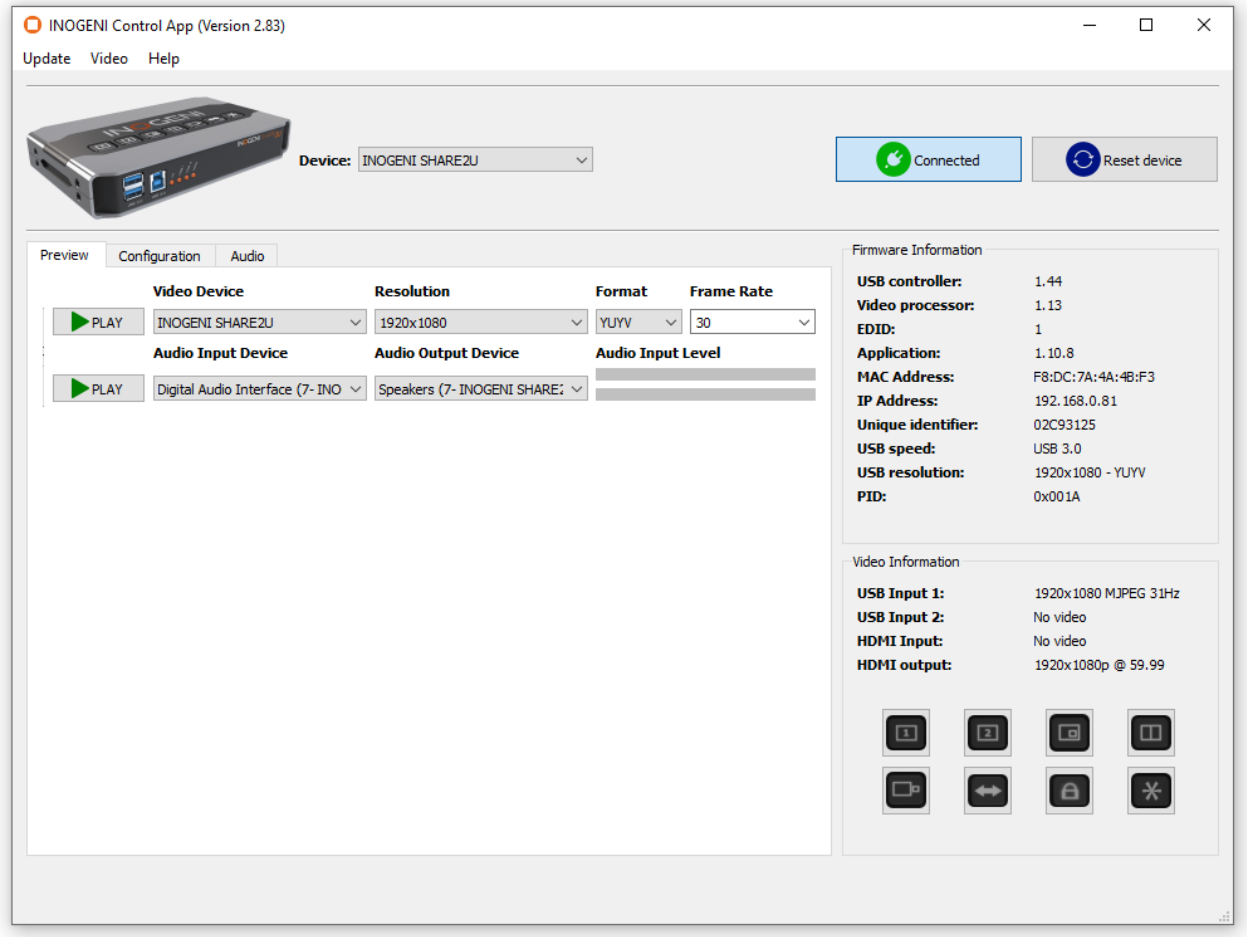
DIP SWITCHES

The device has DIP switches below the device in order to force settings. Here are the functions of the DIP switches.

SW1	**OFF**	USB resolution is 1080p only. This will force application to take high quality video. (default)
	ON	Multiple USB resolutions available.
SW2		For future use
SW3	**OFF**	Frame buffer frequency is set to 60Hz. (default)
	ON	Frame buffer frequency is set to 50Hz.
SW4		Reserved
SW5		Reserved
SW6	**OFF**	Disable 5V on terminal block. (default)
	ON	Enable 5V on terminal block. This switch must be set in order to power up the connected remote.

INOGENI CONTROL APP

The INOGENI Control App allows you to control and monitor video sources.



The device has its own application in order to control the device using the USB HID interface.

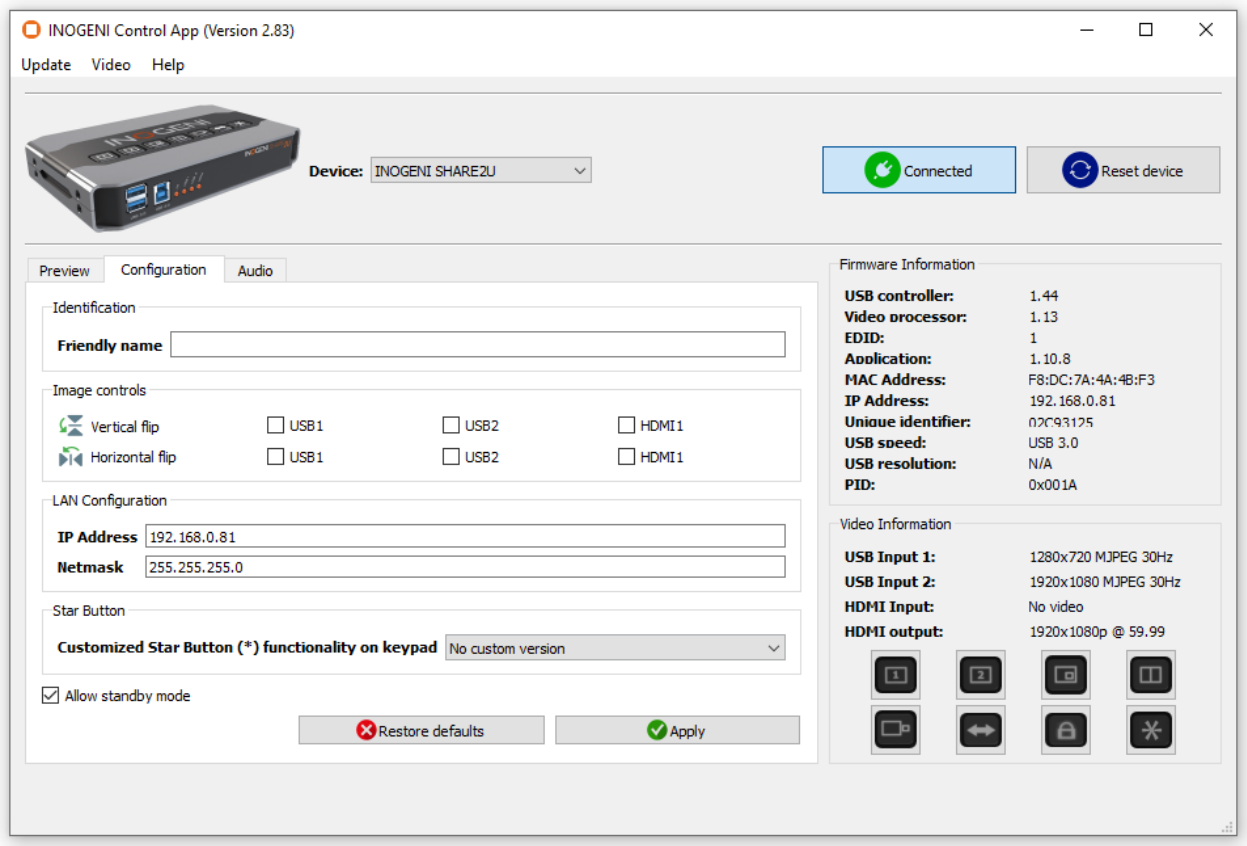
You can also monitor the firmware versions installed on the device and the status of the USB and HDMI inputs.

You can update your device to the latest firmware using the Update menu. The C++ source code of this application is available on demand.

Visit the Software Update web page under Support -> Software Tools for more details.

CONFIGURATION

The INOGENI Control App allows you to configure some internal settings like shown here.



Identification: You can set the device name. This is the name that will appear on your computer. For Windows users, after you set the name, you will need to delete the INOGENI composite device inside the device manager in order to update the name. If you plug the device to another computer, new name will be taken into account.

Image Controls: You can do a verical / horizontal flip of each video inputs if it is necessary.

LAN Configuration: You can set the IP and subnet mask of the device.

Star Button: This setting allow you to give a feature to the star button on the keypad. This setting will work with specific firmware. If you want to attribute a specifc function, please contact us.

Allow standby mode: Allows you to disable video capture from the cameras if the INOGENI device is not in use. If the HDMI output of the device is active, this setting is overriden.

For all of these settings, you need to apply them in order to save them onboard. You can restore settings by clicking on the "**Restore defaults"** button.

AUDIO CONTROL

The device embeds an audio mixer. You have complete control over USB 2.0 and HDMI inputs and output. You can also mute and adjust gain on I/Os. You can click “Apply” button in order to keep configuration at each bootup. You can also restore default configuration by clicking “Restore defaults” button.

There are two modes for the audio mixer:

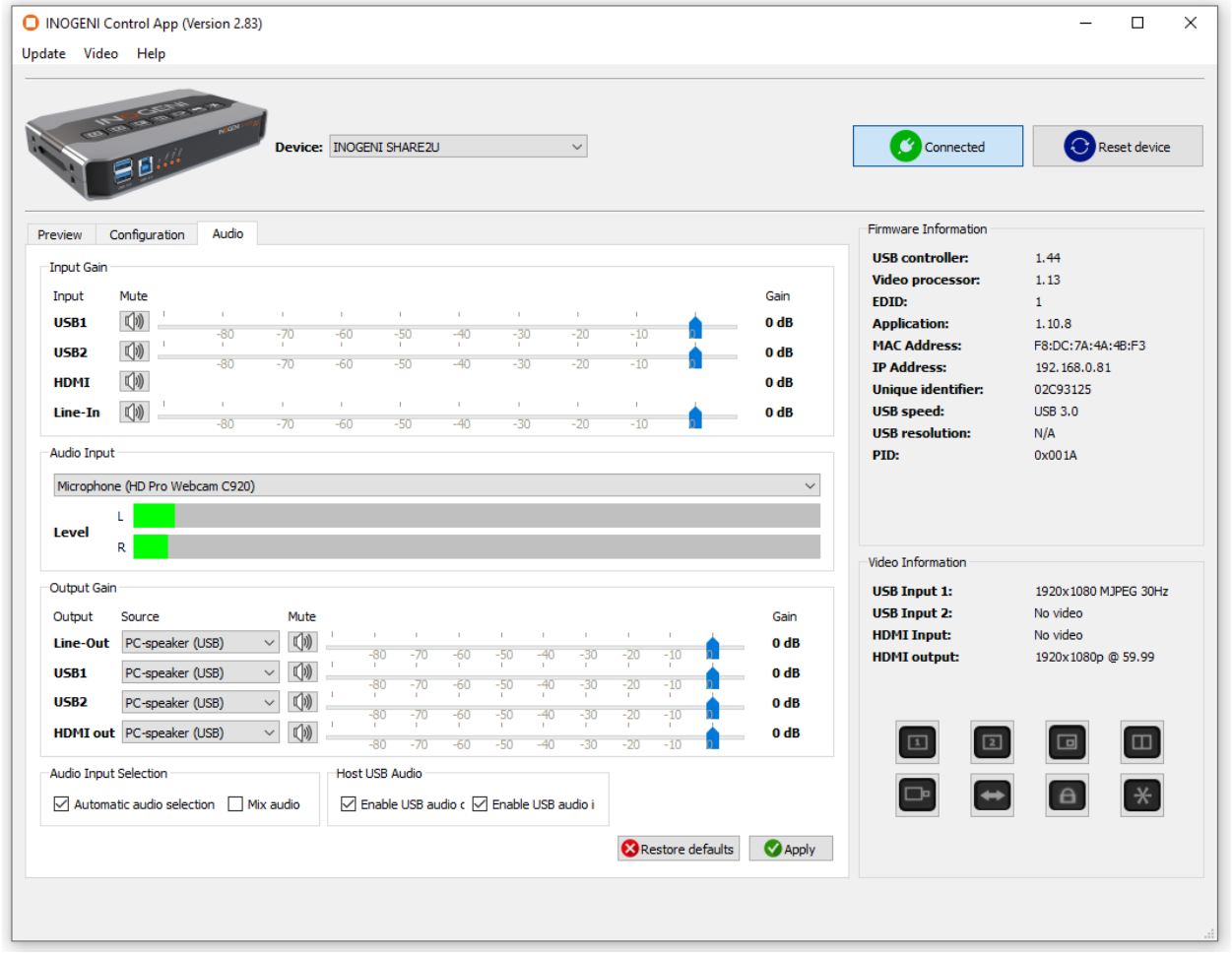
Automatic audio selection:
This mode gives priority on the analog input. Otherwise, USB inputs are sent over USB.
HDMI input audio is always mixed with the USB 2.0 and/or analog inputs. You can mute HDMI audio by clicking on MUTE button.

Mix audio:
This mode mixes audio from all USB 2.0 and analog inputs.
HDMI input audio is always mixed with the USB 2.0 and/or analog inputs. You can mute HDMI audio by clicking on MUTE button.

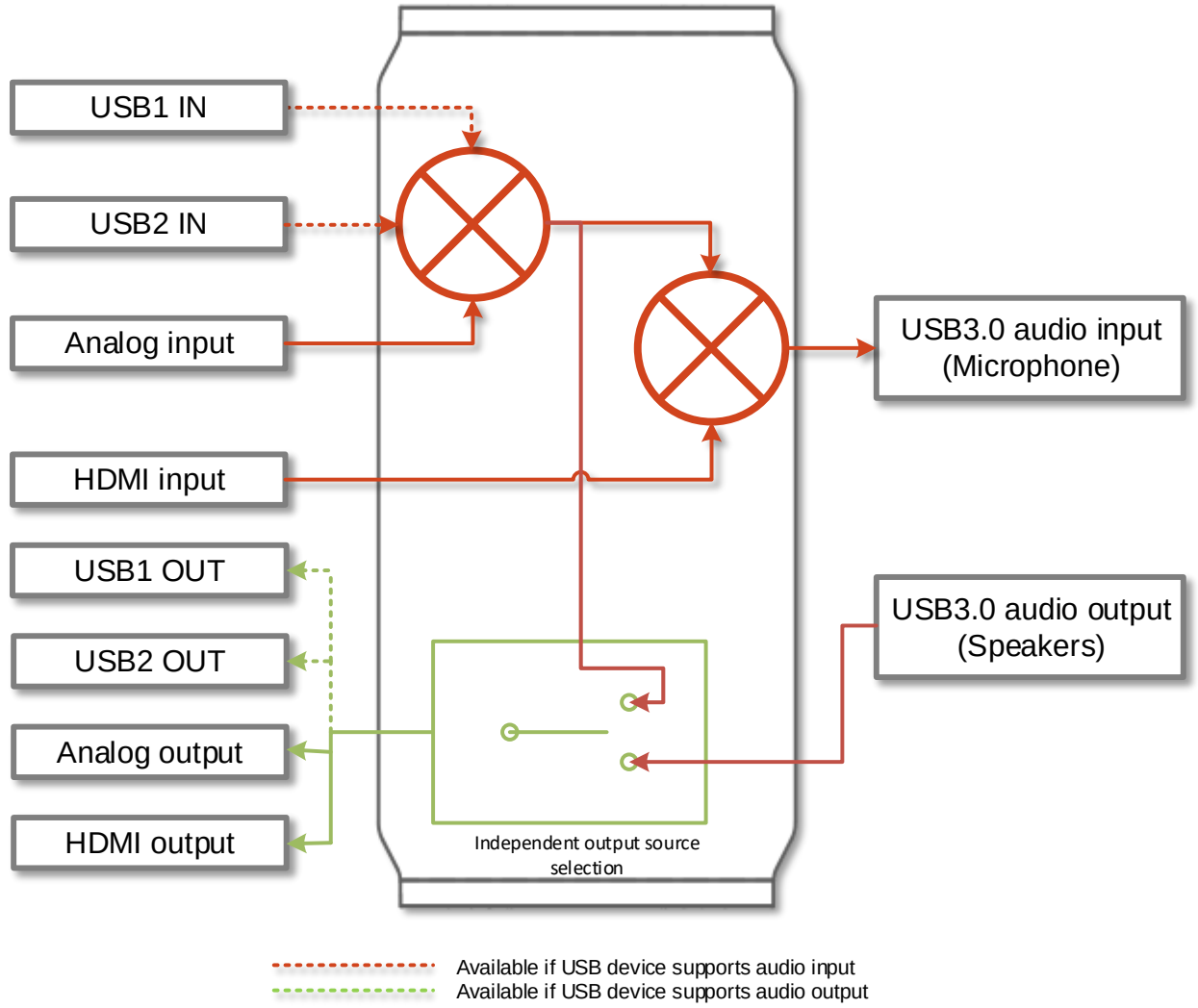
Here are also the features of the Host USB Audio section:

Enable USB audio output: This will enable speaker interface on your computer.

Enable USB audio input: This will enable microphone interface on your computer.

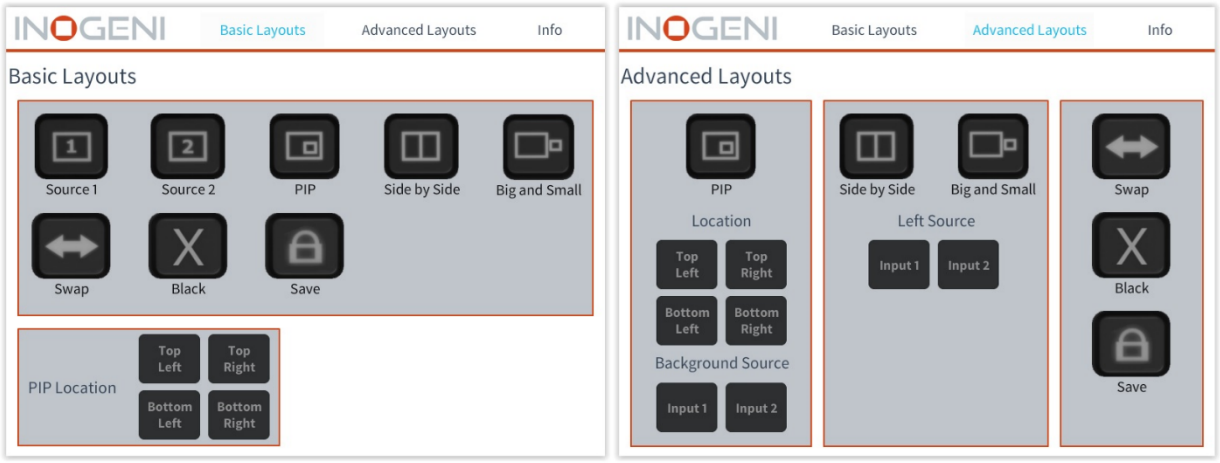


Here is a diagram of the audio mixer layout:



CRESTON MODULES

You can use the Crestron modules in order to control the INOGENI SHARE2U device using the serial or the IP connections. These modules are available on our website under the section Software Update. Refer to the Help file on how to use the modules.



SUPPORT

Engineered by video professionals, for video professionals, it is your most compatible USB 3.0 device. INOGENI expertise at your fingertips:

- **Expert Technical Support team** at support@inogeni.com for immediate help or if you have any technical question about our products.
- You can visit our list of compatible USB 2.0 cameras to see if this one fits the device.
- Extensive **Knowledge Base** to learn from other customers experiences.

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