

Eco Capture Family Driver User Manual

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Safety Information

Electrical Safety

- When devices are installed, make sure that the computer is turned off before the signal cables are connected. If possible, disconnect all power cables from the computer before adding a device.
- Make sure that your power supply is set to the correct voltage for the supply in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation Safety

- Before installing devices on your motherboard, carefully read all the manuals that come with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and extreme temperature. Do not place or use the product in any area where it may be exposed.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

Hardware Installation

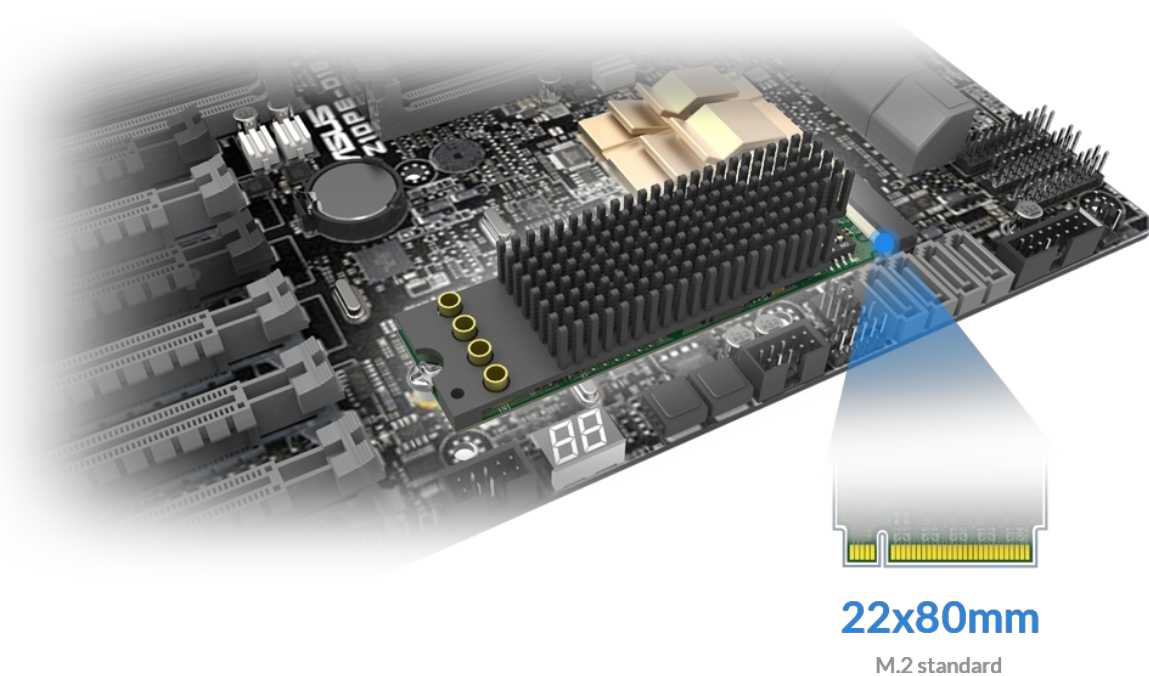


Figure1. Motherboard inside the chassis with capture cards installed

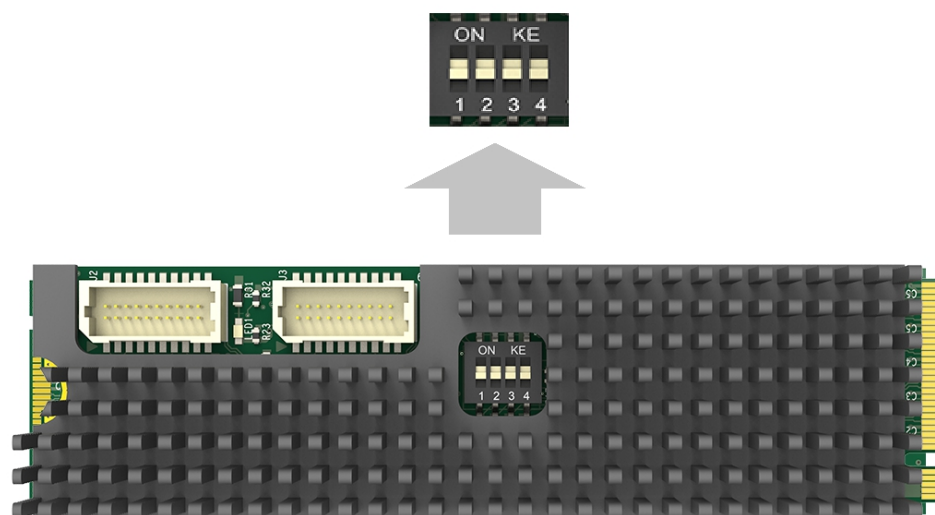


Figure2. DIP switch

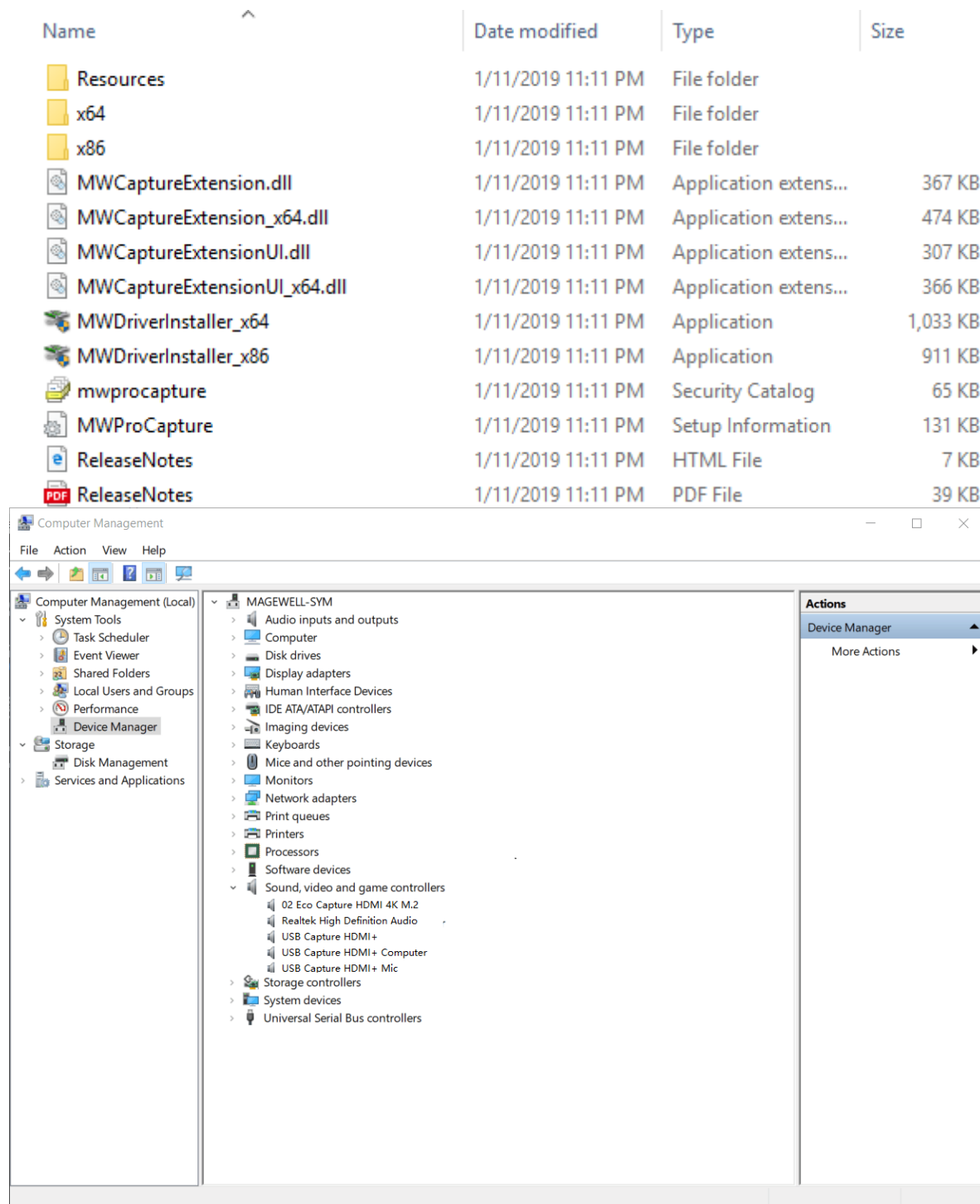
Procedure

1. Turn off the computer power and unplug the power cables.
2. Remove the chassis cover and locate the M.2 2280 Type M slot(s), as shown in Figure1.
3. Plug the video capture card into the slot and make sure it is firmly seated.
4. Screw the card onto the rear panel of the chassis.
5. If multiple cards are to be installed, we suggest that you set card number of each card before installation. There is a DIP switch on each card marked in binary from 0 to 1111 which enables you to set specific number for each card according to their needs, as shown in Figure2. After the ID numbers are set, users can install the cards according to steps 3-4.
6. Restore the chassis cover.
7. For others with analogue inputs, use the included breakout cable to connect the video source and the video capture card.
8. Reconnect all the power cables.

Driver Installation

System requirement

- Minimum requirements: CPU - Intel Core 2 Duo E7200; RAM - 1GB; integrated graphics card; integrated sound card.
- Recommended: CPU - Intel Core i7-6800K @ 3.40GHz; RAM - 8GB; Graphics Card - NVIDIA Quadro M4000.
- Supported Operating Systems:
 - Windows 7 x64/x86
 - Windows 8 x64/x86
 - Windows 8.1 x64/x86
 - Windows 10 x64/x86
 - Windows Server 2008 x64/x86
 - Windows Server 2008 R2
 - Windows Server 2012
 - Windows Server 2012 R2
 - Windows Server 2016



Driver Installation and Uninstallation

Driver Installation Procedure

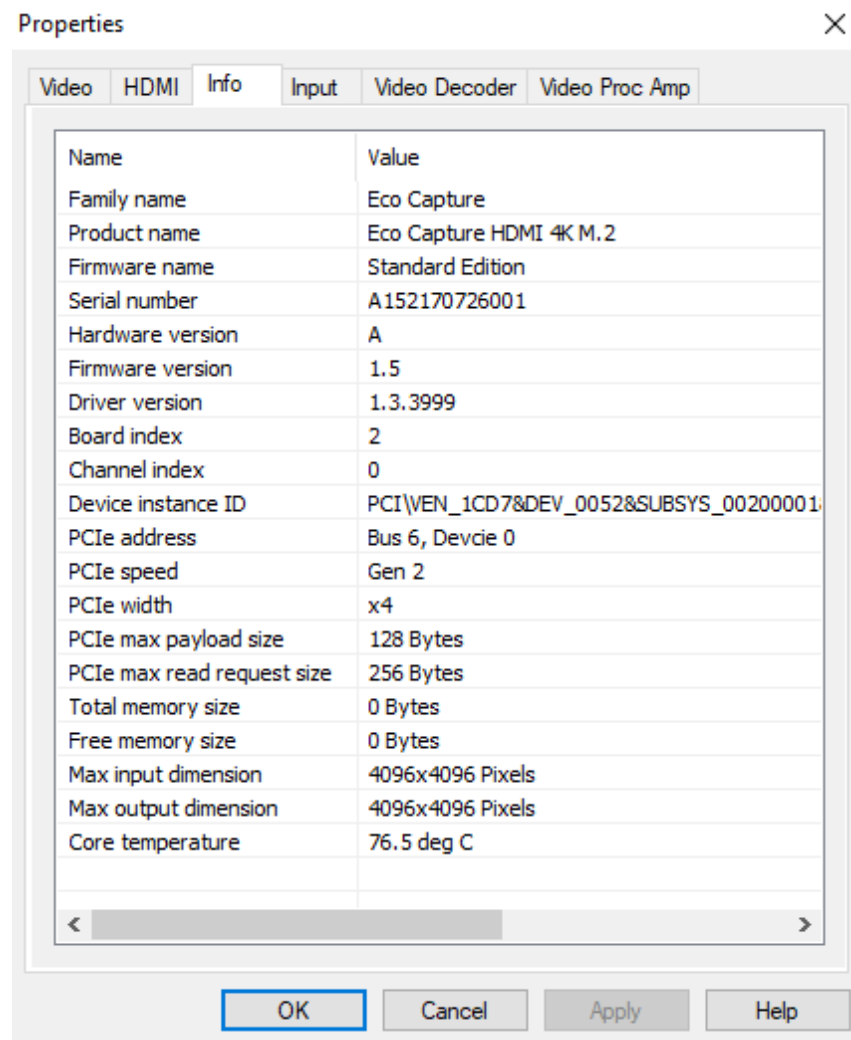
1. Choose MWDriverInstaller according to your OS to install the driver.
2. To confirm whether the installation is successful.
 - i. Open **Device Manager > Sound, video and game controllers**, and then check if your capture card model(s) are shown in the list of installed devices.
In the device list, you can see all the capture cards that are installed in this computer. The number before the Eco Capture card name is the ID (E.g. 00 or 04 in the example), which is set via the rotary switch on the card. For multi-channel cards, the channel number will be added after the ID number. (E.g. 04-0, 04-1, 04-2, 04-3 for a Quad card)
 - i. Choose a capture device and right click **Properties > Driver**. Check the version of the current driver. If it is the same as the installed driver version, the installation has been successful.

Driver Uninstallation Procedure

1. Open **Device Manager > Sound, video and game controllers**.
2. Search **magewell**, and then uninstall Eco Capture driver.
3. To confirm whether the uninstallation was successful.
 - i. Open **Device Manager > Sound, video and game controllers**.
 - ii. Check that your capture card model(s) are removed from the list of installed devices.

Settings

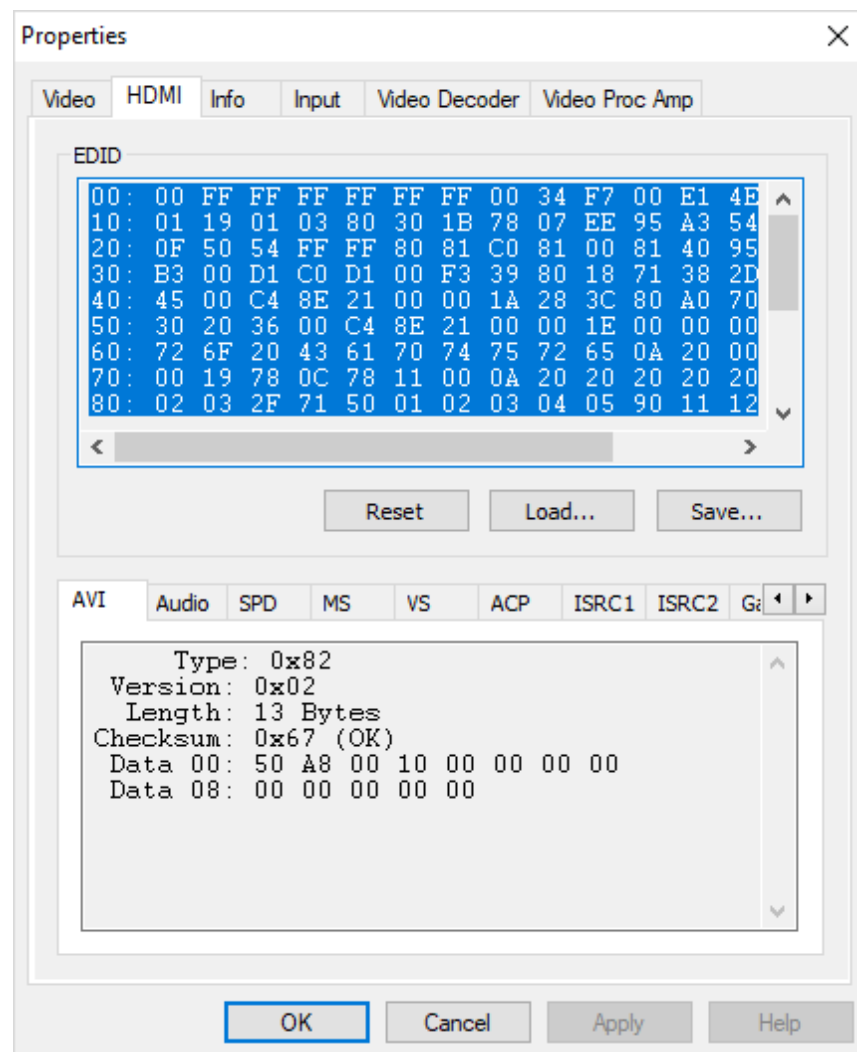
The attributes of the Eco Capture Card can be modified in the card driver control panel. You can access the driver control panel via a third-party video capture software, e.g. AMCap or OBS. The parameters are as follows.



Info

Item	Item Description
Family name	Shows the name of the product family (Eco Capture).
Product name	Shows the name of this specific product.
Firmware name	Shows the name of the firmware.
Serial number	Shows the serial number.
Hardware version	Shows the hardware version of this product.
Firmware version	Shows the firmware version currently installed.
Driver version	Shows the driver version currently in use.
Board index	Shows the board ID number, a hexadecimal value from 0 to F. Set via a rotary switch on the card. It will be 0 for a mini card.
Channel index	Shows the zero-based channel number. It will be 0 for a single channel card; 0/1 for a dual channel card; 0/1/2/3 for a quad channel card.

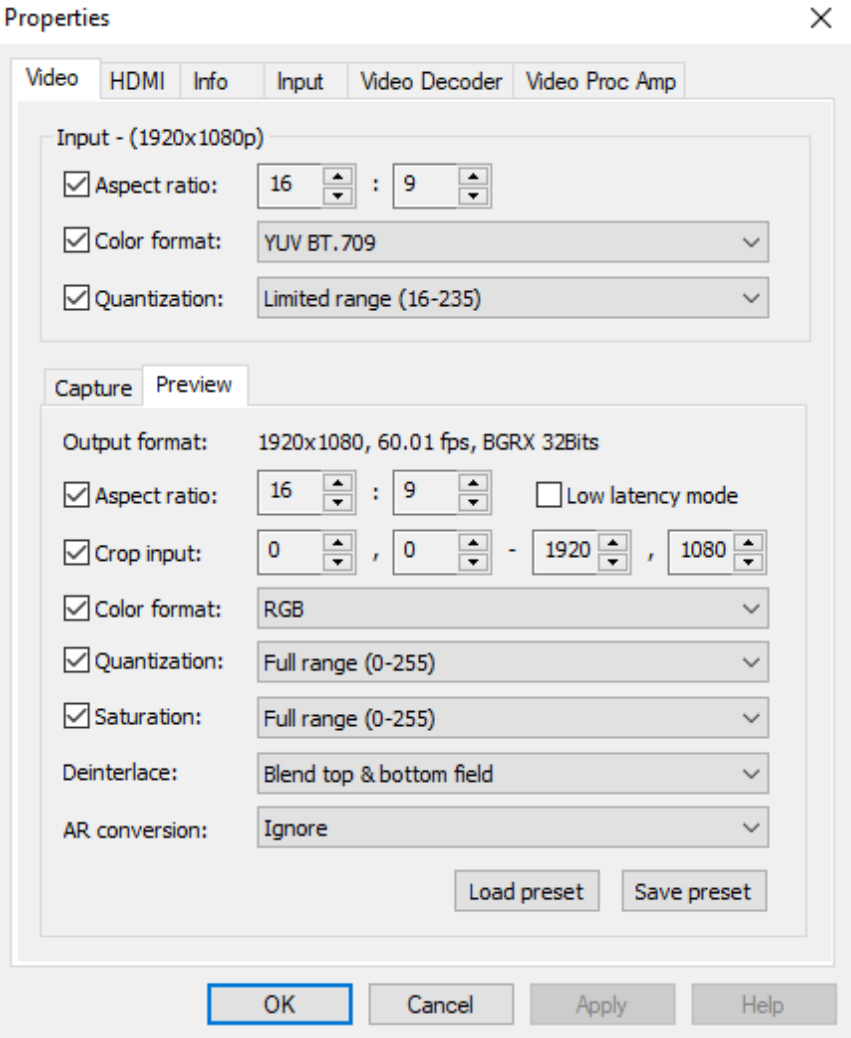
Item	Item Description
Device instance ID	The key value can be found in the registry at: Registry\Computer\HKEY_LOCAL_MACHINE \SYSTEM\CurrentControlSet\Services\EcoCapture.
PCIe address	Shows the PCIe bus number and device number.
PCIe speed	Shows the PCIe bus speed (e.g. Gen1, Gen 2).
PCIe width	Shows the PCIe bus bandwidth (options are x1, x2, x4).
PCIe max payload size	Shows the max length of valid PCIe bus data.
PCIe max read request size	Shows the max size of PCIe bus read request.
Total memory size	Shows the current onboard memory size. Note that Eco Capture card is not equipped with a memory.
Free memory size	Shows the currently unused memory size. Note that Eco Capture card is not equipped with a memory.
Max input dimension	Shows the max video input resolution.
Max output dimension	Shows the max video output resolution.
Core temperature	Shows the current temperature of FPGA chip core.



HDMI

When the capture card has one or more HDMI interface(s), the **HDMI** tab will be available in the control panel.

Item Name	Item Description
EDID	Standard data in VESA format. It shows the supplier's information, max resolution, color settings, manufacturer's preset, frequency range, name of monitor and string of serial number.
Reset	Resets the current EDID to the default one.
Load	Loads a local EDID file.
Save	Saves the current EDID.
AVI	Shows type, version and verify bit of the video stream and the verification result.
Audio	Shows the type, version and verify bit of the audio stream and the verification result.
SPD, MS, VS, ACP, ISRC1, ISRC2, Gamut, VBI, HDR	Show information of the HDMI InfoFrame.



Video

By default, **Input** shows the input information extracted from the signal. If a non-standard signal is incorrectly recognized by the capture device, users can manually adjust the parameters.

Item Name	Item Description
Input	Shows the resolution of the current input. When the resolution of the input video stream is changed, this display will also change
Aspect ratio	Shows the aspect ratio of the current input. If the box is ticked (The shortcut key is the Space key), users can adjust the aspect ratio by clicking on the arrows (Shortcuts are up and down arrow keys). Eco Capture does not support this function.
Color format	Shows the color space of the current input. If the box is ticked, other color spaces can be chosen from the drop-down list (The shortcut key is the Enter key).
Quantization	If the box is ticked, the quantization values of Full range and Limited range can be chosen.

Preview/Capture

Item Name	Item Description
Output format	Shows the current resolution, frame rate and color space of the previewed video. When the settings of this stream are changed, the data here will be changed accordingly.
Aspect ratio	Shows the aspect ratio of the current output. Eco Capture does not support this function.
Low latency mode	The latency will be reduced when low latency mode is chosen. It can be very useful and the benefit is obvious in video conferencing. Low latency function is enabled on the Eco Capture cards and can not be disabled.
Crop input	Adjusts the captured pixel area from the input video by cropping the edges, using X/Y pixel values for top/left and bottom/right. Eco Capture does not support this function.
Color format	Shows the color space for capturing. If the box is ticked, other color spaces can be chosen.
Quantization	Users can choose Full range or Limited range .
Saturation	Shows the grades of saturation of the input signal. Options are Full range , Limited range and Extended GAMUT range .
Deinterlace	The range of values: ▪ Weave: Combines the top field and bottom field into a frame without any other process. Usually used to capture the original data. ▪ Blend top & bottom field: Merges two fields together and deinterlaces via FPGA to ensure a CPU-free video processing. ▪ Top field only: Copy the top field data in vertical direction as a full frame. ▪ Bottom field only: Copy the bottom field data in vertical direction as a full frame. Deinterlacing is a process of converting interlaced video into a non-interlaced form, and half size the frames after processing. For example, the input signal is a 60 field/s interlace signal, the device delivers a 30 FPS progressive signal after processing.
AR conversion	Aspect Ratio conversion mode options include: ▪ Ignore: Ignore the original aspect ratio and stretch to full-screen. ▪ Cropping: Expand to full-screen and remove parts of the image when necessary to keep the original aspect ratio. ▪ Padding: Fit to screen and add black borders to keep the original aspect ratio. Eco Capture does not support this function.
Load preset	Loads the saved presets.
Save preset	Saves the current settings as presets.

Properties

Video HDMI Info Input Video Decoder Video Proc Amp

Video input: HDMI input 0 ☒ Auto scan
Audio input: HDMI input 0 ☒ Link with video

Video signal status Audio signal status Input specific status

Name	Value
Signal status	Locked
Resolution	1920x1080p, 60.01 Hz
Aspect ratio	16:9
Total scan size	2200x1125 Pixels
Active area offset	X: 192, Y: 41
Color format	YUV BT.709
Quantization range	Limited range (16-235)
Saturation range	Limited range (16-235)

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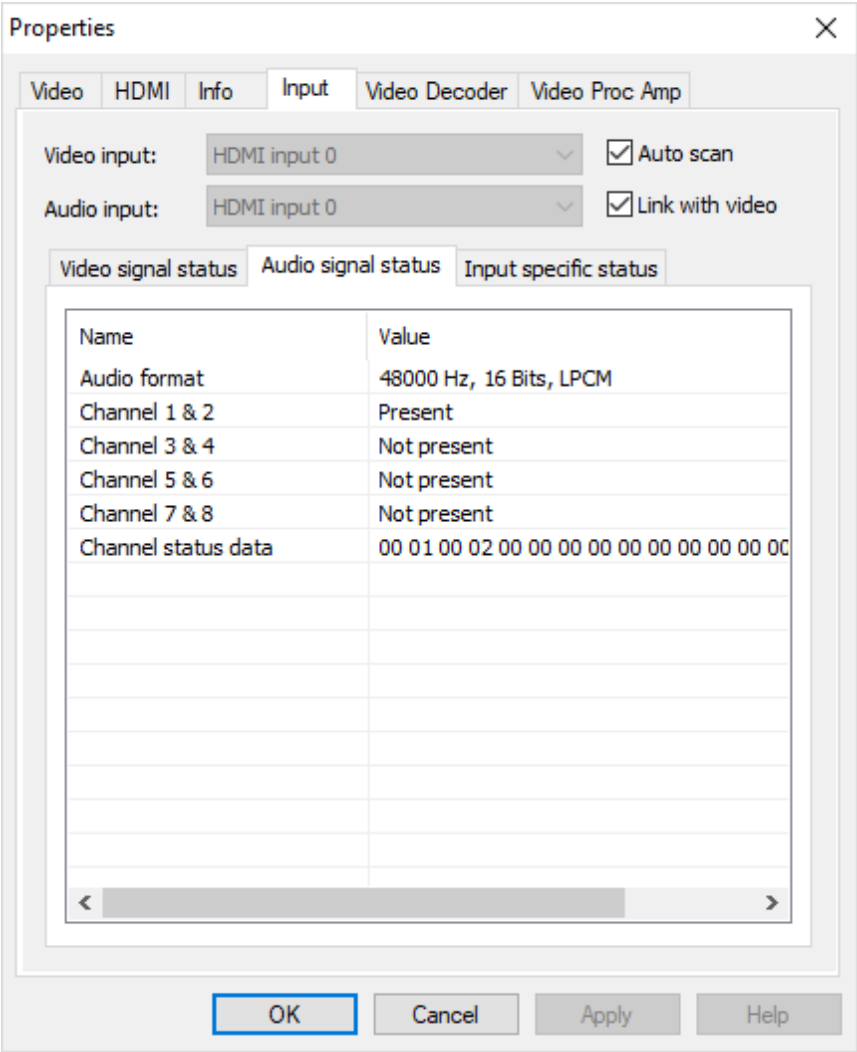
OK Cancel Apply Help

Input

Item Name	Item Description
Auto scan	Automatically scans the input signals by default. If the box is unticked, users can manually select the input signal.
Link with video	Automatically scans for an audio signal embedded in the video signal by default. If the video signal is changed, the audio signal will automatically be changed to try to match the video signal. If the box is unticked, users can manually select the audio signal.

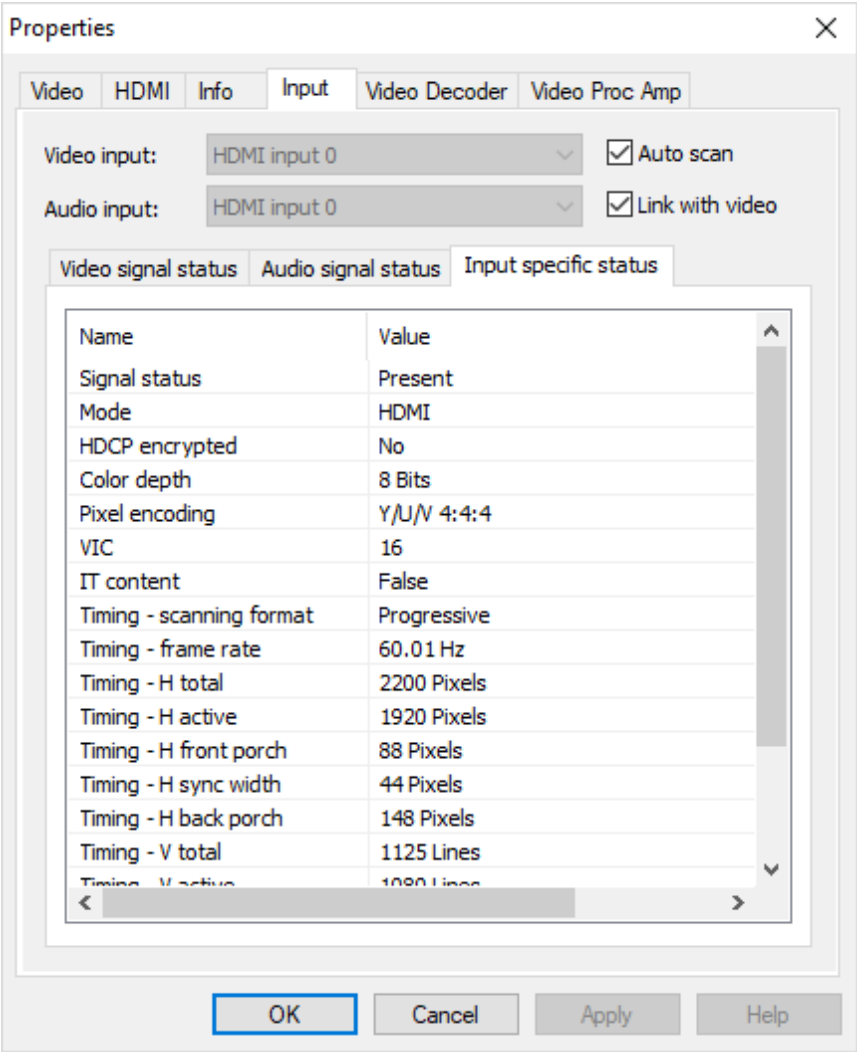
Video signal status

Item Name	Item Description
Signal status	Shows the video input signal information parsed by the device, shown as Locked, Unsupported, Not Present .
Resolution	Shows resolution and frame rate of the input video. If the input signal changes, this display will be changed accordingly.
Aspect ratio	Shows the aspect ratio of input video source.
Total scan size	Shows the total scanned pixel area.
Active area offset	Shows the current horizontal and vertical offset of the active signal within the total area scanned.
Color format	Shows the chosen color space of the video signal.
Quantization range	Shows the luminance quantization range Options: Full range (e.g. 0-255) or Limited range (e.g. 16-235 - for 8-bit inputs).
Saturation range	Shows the saturation of the input signal. Options are Full range, Limited range or Extended GAMUT range .



Audio signal status

Item Name	Item Description
Audio format	Shows the sampling frequency, bit depth and format of the current audio.
Channels 1&2 Channels 3&4 Channels 5&6 Channels 7&8	Shows the current audio stream status for each channel pair. Options are Present or Not present . NOTE: These values only indicate the presence of audio signal channels, and are in no way indicative of audio signal levels. An audio channel can be shown as Present even if no actual audio data is being received. The analogue line input will always be shown as Present even when no audio cable is connected.

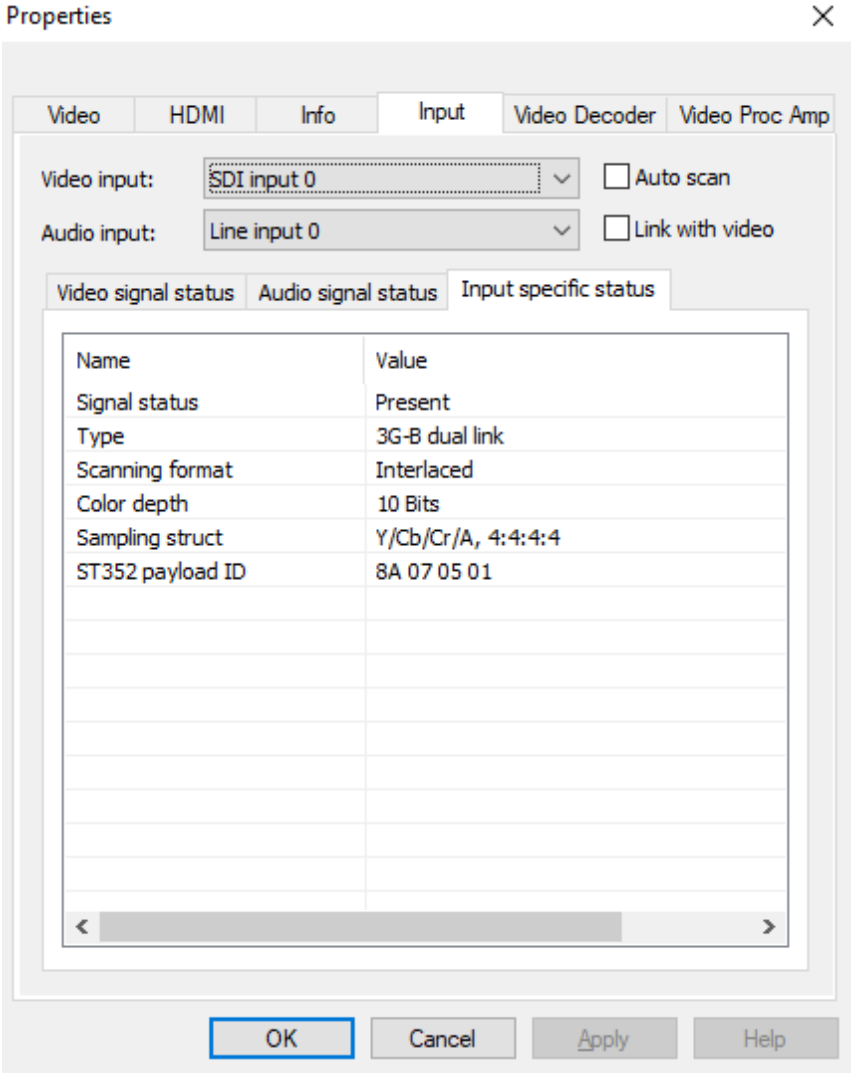


- When HDMI signal is connected, the **Input specific status** tab is as follows:

Item Name	Item Description
Signal status	Options are Present or Not present .
Mode	Shows input signal mode.
HDCP encrypted	Shows whether the signal is HDCP encrypted. Options are Yes or No .
Color depth	Shows the color depth of the current video. Common values are 8 bit , 10 bit and 12 bit .
Pixel encoding	Shows pixel encoding, e.g. R/G/B, Y/U/V, Y/Cb/Cr.
VIC	Standard video identification code.
IT content	If True, pictures are compressed according to common IT practice, or particular requirements derived from IT practice.
Timing-scanning format	Shows the scan format, e.g. Progressive , Interlaced .
Timing-frame rate	Shows the current frame rate.
Timing-H total	Shows total horizontal pixels captured.
Timing-H active	Shows active horizontal picture width.
Timing-H front porch	Shows pixel width between the end of the active horizontal picture and the start of the horizontal sync pulse.

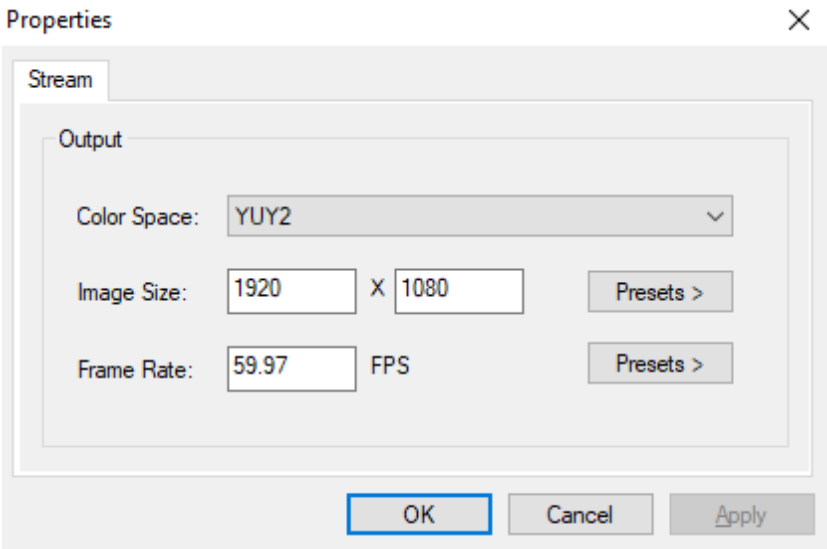
Item Name	Item Description
Timing-H sync width	Shows width of the horizontal sync pulse.
Timing-H back porch	Shows pixel width between the end of the horizontal sync pulse and the start of the next active horizontal picture line.
Timing-V total	Shows total vertical pixels (i.e. Picture lines) captured.
Timing-V active	Shows active vertical picture height.
Timing-V front porch	Shows number of lines between the last line of the active vertical picture area and the start of the vertical sync pulse.
Timing-V sync width	Shows width of the vertical sync pulse, in lines.
Timing-V back porch	Shows number of lines between the end of the vertical sync pulse and the start of the next active horizontal picture line.

NOTE: When the input video signal is in interlaced format, the table will include information for each field separately (Field-0 and Field-1) in the vertical direction.



- When SDI signal is connected, the **Input specific status** tab is as follows:

Item Name	Item Description
Signal status	Options are Present or Not present .
Type	Shows the current video signal type.
Scanning format	Options are Progressive , Interlaced , Segmented Frame .
Color depth	Shows the color depth of the current video, e.g. 10/12 bit.
Sampling structure	Shows signal type and sampling ratios.
ST352 payload ID	Shows the current video format of SDI, e.g. color format, aspect ratio.



Output

Item Name	Item Description
Color Space	Select from drop-down list manually to modify color space.
Image Size	Enter manually or click Presets > and select from those listed. The value shown in bold is the system-preferred value.
Frame Rate	Enter manually or click Presets > to select from those listed. The value shown in bold is the system-preferred value.

Support

Get the Latest Information

If you have any problems using Magewell products or need more technical information, please visit the following.

- Tutorial video: <https://www.magewell.com/tv>
- YouTube channel: [Magewell Video Capture Device](#)
- Knowledge base: <https://www.magewell.com/kb/eco-capture>
- Official website: <https://www.magewell.com/capture/eco-capture>

Technical Support

Contact the Magewell Technical Support Team at support@magewell.net.

Warranty

Limited Warranty

Except otherwise set between you and Magewell in advance in a written form, the free limited warranty service starts from the date on your proof of purchase. The proof can be: sales contract, formal sales receipt, invoice or delivery note. The earliest date of these proofs is the starting date of the free limited warranty.

The period of free limited warranty goes as below:

- Eco Capture: two (2) years;
- The breakout cables provided as accessories: one (1) year;

How to get the limited warranty

1. Please contact the Magewell support team by email (support@magewell.net) first, to determine whether your problem can only be solved by returning it to Magewell for repair. Magewell might ask you to take photos of the front and back of the defective products.
2. Magewell will issue an RMA letter to you if it is confirmed that you need to return the faulty product for further examination or repair. Please fill in the RMA with necessary information as required.
If it is regular repair, you will be responsible for the shipping cost, duties and insurance cost (if applicable); if the product is DOA, Magewell will be responsible for the shipping cost.
3. If some components need to be replaced, Magewell will decide to repair, renovate or replace the components by itself. Magewell may use new or repaired component to repair the product. The repaired product can be expected to work normally and the performance to remain the same. Repaired products can work in a good working condition and at least function the same as the original unit. The original replaced component will become the property of Magewell and components which are replaced for the client will become his/her property.
4. If the product is within warranty, Magewell will repair or replace the faulty units at its own discretion. In circumstances where the faulty unit is replaced by another one, Magewell may use new, repaired or renovated units. The faulty unit will then become the property of Magewell while the replacement unit will become the property of the purchaser.
5. If the warranty expires, Magewell will inform the purchaser whether the products can be repaired and the maintenance costs they need to pay. If purchasers decide to repair, Magewell will repair, renovate, or replace the components after receiving the maintenance costs. If purchasers give up repairing, Magewell will

dispose of the faulty unit if the purchaser chooses that option.

6. The repaired or replaced product assumes 1) the remaining term of the Warranty of the replaced unit or faulty unit; 2) ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. The extended warranty is only valid for repaired/replaced components.
7. The period of service depends on the client's location (country and area) and the product.

To view the complete warranty policy, please visit www.magewell.com/quality-assurance.