USER MANUAL

VIO 4K

Ref. V701

ANALOG WAY®

Pioneer in Analog, Leader in Digital

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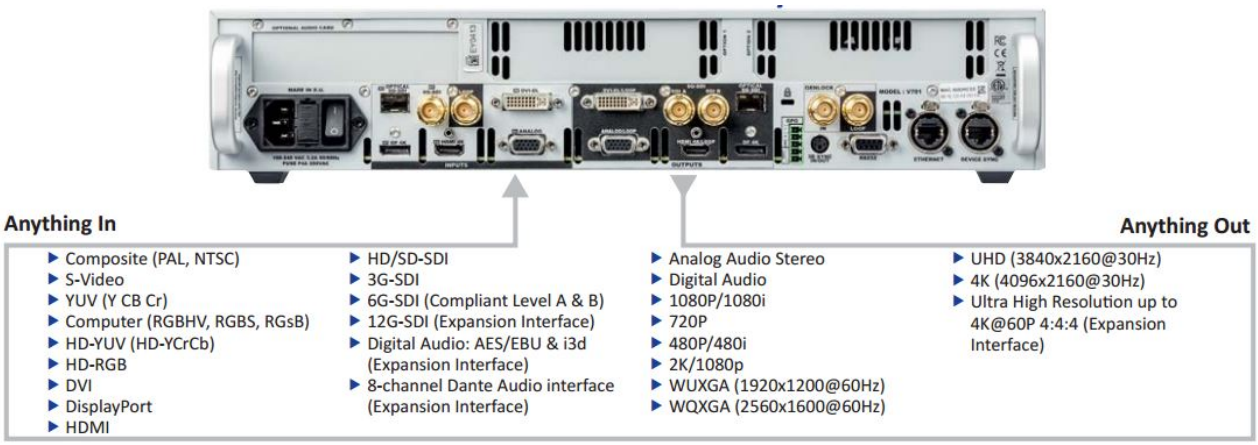
1 Introduction

1.1 Why use the VIO 4K?

The **VIO 4K** has been designed to convert any content (AV content like a live video, a Power Point presentation, a DVD) from one format to another.



With the **VIO 4K**, you can fully control and operate the conversion environment in a world of multiple possibilities. You may for example set up your outputs before plugging-in your sources, or add additional cards to obtain a full 4K resolution display.

1.2 VIO 4K at a glance

- The "all in one" solution for any conversion
- User-friendly and intuitive graphic interface
- Diverse selection of option cards for video and audio system expansion
- Flexible Audio/Stereo switching capability following the video input
- High performance scaling and video processing
- Advanced LED Wall functionalities
- 10-bit processing 4:4:4

1.3 Key features

- Up to 9 inputs and 3 independent outputs (7/1 of which native, +2 with the expansion interfaces)
- 2 slots for video option card system expansion
- 1 slot for audio option card system expansion
- The source can be positioned anywhere on the screen, and up to 100% outside the screen in any direction
- Easy Area Of Interest (AOI) management and pixel pitch management
- Genlock: Analog HD Black and Black Burst (Loopthrough)
- All Genlock timings meet broadcast ITU/SMPTE standards
- Output rotation: 90°, 180° and 270° per output
- Unlimited layer sizing and scaling
- Live monitoring of sources and outputs on the 3.5'' Color TFT LCD Display
- Output and screen patterns: Crosshatch, moving, scalable, output ID and other dynamic patterns
- New audio management: 8 channels up to 96kHz (Digital audio, AES)
- Audio Delay compensation up to 400ms
- Memory space for 2 uncompressed frames in 4K
- USB Host: mass storage
- USB Device link
- Import/export device configuration
- DVI, HDMI & HD15 output plugs available as video loop-through

1.4 Inputs

7 inputs + 1 audio line in:

- DisplayPort up to 4K@30Hz
- HMDI up to 4K@30Hz
- SDI (3G Level A & B)
- Universal Analog
- DVI Dual-Link up to 2560x1600@60Hz
- Video Optical SFP Module cage
- HDMI up to 2k 1080p (Front panel - Input #7)
- 3.5mm jack for stereo audio in (front panel)

1.5 Outputs

1 standard output with 6 output plugs + 1 headphone output:

- DisplayPort up to 4K@30Hz
- HMDI up to 4K@30Hz
- SDI (6G Level A & B)
- Universal Analog
- DVI Dual-Link up to 2560x1600@60Hz
- Video Optical SFP Module cage

- 6.35mm stereo jack for Headphone
- DVI, HDMI & HD15 output plugs available as video loop-through

1.6 Frames

- Up to 50 frame memories – Fully resizable
- Download/upload via Web RCS
- Capture from live inputs/outputs

1.7 Control

- Web RCS: On-board intuitive web based user interface
- TCP protocol and AMX/Crestron drivers

1.8 Universal system for format conversion

- Upscale conversion (Scaler)
- Downscale conversion (Scan converter)
- Transcoder
- Coder
- Aspect ratios
- Multi-format Analog Genlock
- Dynamic test patterns
- Pan & Zoom functions
- Freeze Frame
- Aperture correction
- Advanced LED Wall functionalities
- Audio and Video monitoring directly from the Front Panel
- Output rotation
- Custom formats
- EDID Management
- Genlock/Framelock
- Gamma correction and color temperature settings

1.9 Technical specifications

Dimensions (in Rack Units - RU)
- 2RU

Dimensions (without rack ears and rear rack mount)
- W 17.28'' x H 3.46'' x D 14.82''
- L 439 mm x H 88 mm x P 381 mm

Dimensions (with handles)
- W 19'' x H 3.46'' x D 15.81''
- L 482.1 mm x H 88 mm x P 406 mm

Weight without accessories
- 6.2 kg / 13.66 lbs.

Shipping weight accessories included
- 8.7 kg / 19.18 lbs.

Noise (@1,6m height @25°C)
- Front: 39 DBa@1m
- Rear: 39 DBa@1m

Thermal dissipation
- 154 BTU/hr.

Operating altitude
- 3000 m / 9842 ft.

Warranty
- 3-year warranty on parts and labor back to factory

Power Supply
- 100-240 VAC 50/60Hz 3.2A
- Fuse cartridge F4AH 250VAC 5x20mm
- Max consumption: 45 W@100VAC without any option card

Supplied with
- 1 x Power supply cord
- 1 x Pair of front handles + screws
- 1 x Rackmount kit
- 1 x Ethernet cross cable (for device control)
- 1 x MCO 5 pin connector
- 1 x Quick Start Guide including safety instructions*

(*) All technical specifications and videos are available on analogway.com

NOTE: Specifications subject to change without prior notice.

1.10 Environmental specification

General:
- Cooling air flows from front to rear
- Storage temperature: -25°C to +70°C (-13°F to +158°F)
- Operating temperature: 0°C to +40°C (+32°F to +104°F)
- Storage humidity: 10% to 80% non-condensing
- Operating humidity: 10% to 80% non-condensing
- Operating altitude: max 3000m / 9842ft

Environment:
- RoHS 2: EN50581 (2012)

Electrical security:
- IEC 60950-1:2005 (ED.2); A1:2009; A2:2013
- EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013
- UL 60950-1, 2nd Edition 2014
- CSA C22.2#60950-1 (2007/03/27), A1:2011; A2:2014
- ETL LISTED (CANADA & US)

Electromagnetic compatibility:
- IEC 61000-3-2 (2014)
- IEC 61000-3-3 (2013)
- EN55022 (2010)
- EN55022 (2010)
- EN55024 (2010)
- FCC Part15 of 2012
- IECS-003 of August 2012

2 Safety instructions

2.1 English

For optimal use of this device, read all safety and operating instructions before use. Keep the safety and operating instructions for future reference. Please follow all of the warnings on this product and its operating instructions.

• **WARNING:** To prevent the risk of electric shock and fire, do not expose this device to rain, humidity or intense heat sources (such as heaters and direct sunlight). Slots and openings in the device are provided for ventilation and to avoid overheating. Make sure the device is never placed near a textile surface that could block the openings. Also keep away from excessive dust, vibrations and shocks.

• **POWER:** Only use the power supply indicated on the device of the power source. The device must be connected to a power network overvoltage category 2 (Transient). The device is intended to be connected to a distribution system network: TT, TN and IT (230V for Norway). In no way should this grounding be modified, avoided or suppressed. Connection of equipment to main supply must be after branch circuit breaker of the building installation.

• **POWER CORD:** The device is equipped with a detachable power cord. To remove mains, switch off the device and disconnect the power cord at appliance coupler.

Caution: The power cord constitutes the only mean to completely disconnect the equipment from the main power.

Apply the following guidelines:

- The equipment connected to the network must have a release system easily accessible and located outside the unit.

- Unplug the power cord; do not pull on the power cord but always on the plug itself.

- The outlet should always be near the device and easily accessible.

- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.

If the power supply cord is damaged, unplug the device. Using the device with a damaged power supply cord may expose your device to electric shocks or other hazards. Verify the condition of the power supply cords once in a while. Contact your dealer or service center for replacement if damaged.

• **CONNECTIONS:** All inputs and outputs (except for the power input) are Safety Extra Low Voltage (SELV) circuits as defined in UL/IEC 60950-1.

• **SERVICING:** Do not attempt to service this product yourself by opening or removing covers and screws since it may expose your device to electric shocks or other hazards. Refer all problems to qualified service personnel.

• **OPENINGS:** Never push objects of any kind into this product through the openings. If liquids have been spilled or objects have fallen into the device, unplug it immediately and have it checked by a qualified technician.

2.2 French

Pour une utilisation optimale de cet appareil, nous vous conseillons de bien lire toutes les consignes de sécurité et de fonctionnement avant utilisation. Conservez les instructions de sécurité et de fonctionnement afin de pouvoir les consulter ultérieurement. Respectez toutes les consignes marquées dans la documentation, sur le produit et sur ce document.

• **ATTENTION :** Afin de prévenir tout risque de choc électrique et d'incendie, ne pas exposer cet appareil à la pluie, à l'humidité ou à des sources de chaleur intense.

• **INSTALLATION :** Veillez à assurer une circulation d'air suffisante pour éviter toute surchauffe à l'intérieur de l'appareil. Ne placez pas l'appareil sur ou à proximité d'une surface textile susceptible d'obstruer les orifices de ventilation. N'installez pas l'appareil à proximité de sources de chaleur comme un radiateur ou une poche d'air chaud, ni dans un endroit exposé au rayonnement solaire direct, à des poussières excessives, à des vibrations ou à des chocs mécaniques. Ceci pourrait provoquer un mauvais fonctionnement et un accident.

• **ALIMENTATION :** Ne faire fonctionner l'appareil qu'avec la source d'alimentation indiquée sur l'appareil. L'appareil doit être branché sur un réseau électrique de catégorie de surtension II (transitoire). L'appareil est prévu pour connecter à un système de réseau de distribution : TT, TN et IT (230V pour la Norvège). En aucun cas cette liaison de terre ne devra être modifiée, contournée ou supprimée. Le raccordement des équipements à l'alimentation principale doit être postérieur au disjoncteur de branchement de l'installation électrique du bâtiment.

• **CORDON D'ALIMENTATION :** Les appareils sont équipés d'un cordon d'alimentation détachable. La mise hors tension se fait sur appareil éteint en débranchant ce cordon de l'appareil.

Attention : Le cordon d'alimentation constitue le seul moyen de débrancher l'appareil totalement de l'alimentation secteur. Pour être certain que l'appareil n'est plus alimenté, ce cordon doit être débranché de la prise murale.

Appliquer les consignes suivantes :

- Le matériel relié à demeure au réseau, doit avoir un dispositif de sectionnement facilement accessible qui doit être incorporé à l'extérieur de l'appareil.

- Débrancher le cordon d'alimentation de la prise murale si vous prévoyez de ne pas utiliser l'appareil pendant quelques jours ou plus.

- Pour débrancher le cordon, tirez-le par la fiche. Ne tirez jamais sur le cordon proprement dit.

- La prise d'alimentation doit se trouver à proximité de l'appareil et être aisément accessible.

- Ne laissez pas tomber le cordon d'alimentation et ne posez pas d'objets lourds dessus.

Si le cordon d'alimentation est endommagé, débranchez-le immédiatement de la prise murale. Il est dangereux de faire fonctionner un appareil avec un cordon endommagé ; un câble abîmé peut provoquer un risque d'incendie ou un choc électrique. Vérifiez le câble d'alimentation de temps en temps. Contactez votre revendeur ou le service après-vente pour un remplacement.

• **CONNEXIONS :** Toutes les entrées et sorties (exceptée l'entrée d'alimentation) sont des circuits de très basse tension de sécurité (TBTS) tels que définis dans UL / IEC 60950-1.

• **RÉPARATION ET MAINTENANCE :** L'utilisateur ne doit en aucun cas essayer de procéder aux opérations de dépannage. L'ouverture des appareils par retrait des capots ou de toutes autres pièces constituant les boîtiers ainsi que le dévissage des vis apparentes à l'extérieur, risquent d'exposer l'utilisateur à des chocs électriques ou autres dangers. Contactez le service après-vente, votre revendeur ou adressez-vous à un personnel qualifié uniquement.

• **OUVERTURES ET ORIFICES :** Les appareils peuvent comporter des ouvertures (aération, fentes, etc.), veuillez ne jamais y introduire d'objets et ne jamais obstruer ses ouvertures. Si un liquide ou un objet pénètre à l'intérieur de l'appareil, débranchez immédiatement l'appareil et faites-le contrôler par un personnel qualifié avant de le remettre en service.

2.3 Italian

Per un utilizzo ottimale dell'apparecchio, leggere tutte le istruzioni di sicurezza e di utilizzo prima dell'uso. Conservare le istruzioni di sicurezza e di funzionamento al fine di poterle consultare ulteriormente. Seguire tutti i consigli indicati su questo manuale e sull'apparecchiatura.

• **ATTENZIONE:** Al fine di prevenire qualsiasi rischio di shock elettrico e d'incendio, non esporre l'apparecchiatura a pioggia, umidità e a sorgenti di eccessivo calore.

• **INSTALLAZIONE:** Assicuratevi che vi sia una sufficiente circolazione d'aria per evitare qualsiasi surriscaldamento all'interno dell'apparecchiatura. Non collocare l'apparecchiatura in prossimità o su superfici tessili suscettibili di ostruire il funzionamento della ventilazione. Non installate l'apparecchiatura in prossimità di sorgenti di calore come un radiatore o una fuoruscita d'aria calda, né in un posto esposto direttamente ai raggi del sole, a polvere eccessiva, a vibrazioni o a shock meccanici. Ció potrebbe provocare un erroneo funzionamento e un incidente.

• **ALIMENTAZIONE:** Far funzionare l'apparecchiatura solo con la sorgente d'alimentazione indicata sull'apparecchiatura. Il dispositivo deve essere collegato a una categoria di sovratensione di rete di alimentazione 2 (Transient). Il dispositivo è destinato ad essere collegato ad una rete di sistema di distribuzione : TT , TN e IT (230V per la Norvegia). In nessun caso questo collegamento potrà essere modificato, sostituito o eliminato. Connessione delle apparecchiature alla rete elettrica deve essere successiva interruttore di circuito dell'impianto dell'edificio

• **CAVO DI ALIMENTAZIONE:** Questo apparecchio e' equipaggiato con un cavo di alimentazione . Per rimuoverlo, spegnete l'apparecchio e disconnettere il cavo di alimentazione dalla presa di corrente.

Attenzione: il cavo di alimentazione è il solo modo di disconnettere l'apparecchio dell'alimentazione. Per assicurarsi che totalemente l'apparecchio non è più collegato, il cavo deve essere disconesso della presa murale.

Seguire le instruzioni seguenti:

- Il materiale collegato a residenza alla rete, deve avere un dispositivo di sezionamento facile da raggiongere eche deve essere inserito all'esterno del apparecchio.

- Disconnettere l'apparecchiatura dalla presa murale se si prevede di non utilizzarla per qualche giorno.

- Per disconnettere il cavo tirare facendo forza sul connettore.

- La presa d'alimentazione deve trovarsi in prossimità dell'apparecchiatura ed essere facilmente accessibile.

- Non far cadere il cavo di alimentazione né appoggiarci sopra degli oggetti pesanti. Se il cavo di alimentazione é danneggiato, spegnere immediatamente l'apparecchiatura.

E' pericoloso far funzionare questa apparecchiatura con un cavo di alimentazione danneggiato, un cavo graffiato puó provocare un rischio di incendio o uno shock elettrico. Verificare il cavo di alimentazione spesso. Contattare il vostro rivenditore o il servizio assistenza per una sostituzione.

• **CONNESSIONE:** Tutti gli ingressi e le uscite (tranne che per la potenza in ingresso) sono bassissima tensione di sicurezza (SELV) circuiti definiti UL / IEC 60950-1.

• **RIPARAZIONI E ASSISTENZA:** L'utilizzatore non deve in nessun caso cercare di riparare l'apparecchiatura, poiché con l'apertura del coperchio metallico o di qualsiasi altro pezzo costituente la scatola metallica, nonché svitare le viti che appaiono esteriormente, poiché ció puó provocare all'utilizzatore un rischio di shock elettrico o altri rischi.

• **APERTURE DI VENTILAZIONE:** Le apparecchiature possono comportare delle aperture di ventilazione, si prega di non introdurre mai oggetti o ostruire le sue fessure. Se un liquido o un oggetto penetra all'interno dell'apparecchiatura, disconnetterla e farla controllare da personale qualificato prima di rimetterla in servizio.

2.4 German

Zum optimalen Gebrauch dieses Gerätes lesen Sie bitte vorher alle Sicherheits- und Bedienhinweise. Diese Sicherheits- und Betriebsanweisungen für einen späteren Gebrauch sicher aufbewahren. Alle in den Unterlagen, an dem Gerät und hier angegebenen Sicherheitsanweisungen einhalten.

• **ACHTUNG:** um jegliches Risiko eines Stromschlags oder Feuers zu vermeiden, das Gerät nicht Regen, Feuchtigkeit oder intensiven Wärmequellen aussetzen.

• **EINBAU:** Eine ausreichende Luftzufuhr sicherstellen, um jegliche Überhitzung im Gerät zu vermeiden. Das Gerät muss an eine Stromnetzüberspannungskategorie2 (Transient) angeschlossen werden. Die Vorrichtung soll sich auf ein Verteilungssystem -Netzwerk angeschlossen werden: TT, TN und IT (230V für Norwegen). Das Gerät nicht in Nähe von Wärmequellen, wie z.B. Heizkörper oder Warmluftkappe, aufstellen und es nicht dem direkten Sonnenlicht, übermäßigem Staub, Vibrationen oder mechanischen Stößen aussetzen. Dies kann zu Betriebsstörungen und Unfällen führen.

• **STROMVERSORGUNG:** Das Gerät nur mit der auf dem Gerät bezeichnete Stromquelle betreiben. Gerät mit geerdeter Hauptstromversorgung muss an eine Stromquelle mit effizienter Erdung angeschlossen werden. Diese Erdung darf auf keinen Fall geändert, umgangen oder entfernt werden. Anschluss von Geräten ans Stromnetz muss nach Abzweigschalter des Gebäudes Installation

• **NETZKABEL:** Das Gerät ist mit einem entfernbaren Netzkabel ausgestattet. Um das Gerät vollständig vom Netz zu trennen, schalten Sie es aus und ziehen Sie das Netzkabel ab.

Achtung: Das Netzkabel stellt die einzige Möglichkeit dar, das Gerät vollständig vom Netzanschluss zu trennen. Um sicherzustellen, dass das Gerät nicht mehr versorgt wird, muss dieses Kabel aus der Netzsteckdose ausgesteckt werden.

Bitte beachten Sie die folgenden Hinweise:

- Wenn Geräte dauerhaft am Netz bleiben, müssen sie über eine leicht zugängliche Trennvorrichtung verfügen, die außen am Gerät angebracht sei muss.

- Das Kabel mittels dem Stecker herausziehen. Niemals am Stromkabel selbst ziehen.

- Die Steckdose muß sich in der Nähe des Geräts befinden und leicht zugänglich sein.

- Das Stromkabel nicht fallen lassen und keine schweren Gegenstände auf es stellen.

Wenn das Stromkabel beschädigt ist, das Gerät sofort abschalten. Es ist gefährlich das Gerät mit einem beschädigten Stromkabel zu betreiben; ein abgenutztes Kabel kann zu einem Feuer oder Stromschlag führen. Das Stromkabel regelmäßig untersuchen. Für den Ersatz, wenden Sie sich an Ihren Verkäufer oder Kundendienststelle.

• **ANSCHLÜSSE:** Alle Eingänge und Ausgänge (mit Ausnahme der Stromversorgung) sind Safety Extra Low Voltage (SELV) Schaltungen wie in UL / IEC 60950-1 definiert.

• **REPARATUR UND WARTUNG:** Der Benutzer darf keinesfalls versuchen das Gerät selbst zu reparieren, die Öffnung des Geräts durch Abnahme der Abdeckhaube oder jeglichen anderen Teils des Gehäusessowie die Entfernung von außen sichtbaren Schrauben zu Stromschlägen oder anderen Gefahren für den Benutzer führen kann. Wenden Sie sich an Ihren Verkäufer, Ihre Kundendienststelle oder an qualifizierte Fachkräfte.

• **ÖFFNUNGEN UND MUNDUNGEN:** Die Geräte können über Öffnungen verfügen (Belüftung, Schlitze, usw.). Niemals Gegenstände in die Öffnungen einführen oder die Öffnungen verschließen. Wenn eine Flüssigkeit oder ein Gegenstand in das Gerät gelangt, den Stecker herausziehen und es vor einer neuen Inbetriebnahme von qualifiziertem Fachpersonal überprüfen lassen.

2.5 Spanish

Para un uso óptimo de este equipo, lea las instrucciones de seguridad y operación antes de utilizarlo. Conserve las instrucciones de seguridad y de funcionamiento para que pueda consultarlas posteriormente. Respete todas las consignas indicadas en la documentación, relacionadas con el producto y este documento.

• **CUIDADO:** Para prevenir cualquier riesgo de choque eléctrico y de incendio, no exponga este aparato a la lluvia, a la humedad ni a fuentes de calor intensas.

• **INSTALACIÓN:** Cerciórese de que haya una circulación de aire suficiente para evitar cualquier sobrecalentamiento al interior del aparato. No coloque el aparato cerca ni sobre una superficie textil que pudiera obstruir los orificios de ventilación. No instale el aparato cerca de fuentes de calor como radiador o boca de aire caliente, ni en un lugar expuesto a los rayos solares directos o al polvo excesivo, a las vibraciones o a los choques mecánicos. Esto podría provocar su mal funcionamiento o un accidente.

• **ALIMENTACIÓN:** Ponga a funcionar el aparato únicamente con la fuente de alimentación que se indica en el aparato. El dispositivo debe estar conectado a una categoría de sobretensión red eléctrica 2 (transitoria). El dispositivo está diseñado para ser conectado a una red de sistema de distribución: TT, TN e IT (230V para Noruega). Por ningún motivo este enlace de tierra deberá ser modificado, cambiado o suprimido. Conexión del equipo a la red eléctrica debe ser posterior del interruptor de circuitos derivados de la instalación del edificio

• **CABLE DE CORRIENTE:** El equipo se suministra con un cable de alimentación desmontable. Para desconectar de la red eléctrica, apague primero el equipo y después, desconecte el cable de alimentación de la red eléctrica.

Atención: El cable de alimentación constituye el único medio de desconectar el aparato totalmente de la red eléctrica. Para estar seguro de que el aparato no está más alimentado, este cable debe de ser desconectado de la toma de corriente.

Aplicar las siguientes consignas:

- El material conectado a residencia a la red informática, debe de tener un dispositivo de seccionamiento fácilmente accesible que debe de ser incorporado al exterior del aparato.

- Desconectar el aparato del enchufe mural si no piensa utilizarlo durante varios días.

- Para desconectar el cable, tire de la clavija. No tire nunca del cable propiamente dicho.

- El enchufe de alimentación debe estar cerca del aparato y ser de fácil acceso.

- No deje caer el cable de alimentación ni coloque objetos pesados encima de él.

Si el cable de alimentación sufriera algún daño, ponga el aparato inmediatamente fuera de tensión. Es peligroso hacer funcionar este aparato con un cable averiado, ya que un cable dañado puede provocar un incendio o un choque eléctrico. Verifique el estado del cable de alimentación de vez en cuando. Póngase en contacto con su distribuidor o con el servicio de posventa si necesita cambiarlo.

• **CONEXIONES:** Todas las entradas y salidas (a excepción de la entrada de alimentación) son de tensión extra baja de seguridad (SELV) circuitos definidos en UL / IEC 60950-1.

• **REPARACIÓN Y MANTENIMIENTO:** Por ningún motivo, el usuario deberá tratar de efectuar operaciones de reparación, ya que si abre los aparatos retirando el capó o cualquier otra pieza que forma parte de las cajas o si destornilla los tornillos aparentes exteriores, existe el riesgo de producirse una explosión, choques eléctricos o cualquier otro incidente. Contacte el servicio de posventa, a su distribuidor o dirigirse con personal cualificado únicamente.

• **ABERTURAS Y ORIFICIOS:** Los aparatos pueden contener aberturas (aireación, ranuras, etc.). No introduzca allí ningún objeto ni obstruya nunca estas aberturas. Si un líquido o un objeto penetra al interior del aparato, desconéctelo y hágalo revisar por personal cualificado antes de ponerlo nuevamente en servicio.

3 Physical description

3.1 Front panel

Input selection:
#1 to #9: Select the input to display on the output
Black/Color: Output to black (display no input)

Shortcut:
Freeze: Freeze/unfreeze the output
Quick Frame: Activate the Quick Frame function

Scroll knob:
Navigate the menu tree (menus, settings and status pages)

Functions:
Pan Zoom: Display the view settings menu
Audio: Display the audio settings menu
Test Pattern: Display the test pattern menu
Monitor: Access the front panel monitoring menu

Standby:
Set the device to standby (or wake up the device when in standby mode by holding the button for several seconds)

Line In:
Audio input plug

Headphone:
Prelisten to audio inputs and outputs

LCD display:
Navigate the menu tree and monitor input sources and outputs

Control:
Exit/Menu: Return to previous menu or exit without saving
Enter: Validate a menu or confirm the new settings

USB:
Host: USB host interface (USB key)
Device: USB device interface (other USB)

Input 7/HDMI:
HDMI input up to 4K@30Hz 4:4:4

3.2 Rear panel

Slot for optional audio card*:
XLR audio expansion interface

Slot for optional video card 1*:
Input and output formats up to 4K@60Hz 4:4:4

Slot for optional video card 2*:
Input and output formats up to 4K@60Hz 4:4:4

Power supply:
Internal, universal, automatic, 100-240 VAC 3,2A 50/60Hz; 120W (UL, CSA, GS, CE), AC Main switch with Fuse (cartridge 5x20 4A Fast 250VAC)

Inputs:
- DisplayPort up to 4K@30Hz
- HDMI up to 4K@30Hz
- Universal Analog
- Video Optical SFP Module cage
- 6G-SDI and loop through
- DVI Dual-Link up to 2560x1600@60Hz

Outputs:
- DisplayPort up to 4K@30Hz
- HMDI up to 4K@30Hz
- Universal Analog
- Video Optical SFP Module cage
- 6G-SDI (Compliant Level A & B)
- DVI Dual-Link up to 2560x1600@60Hz

Tally:
- 2 x GPO
- 1 x ON/OFF

Genlock:
Genlock input connector

RS232 port:
Serial interface connector for 3rd party controllers

Connectivity:
Ethernet: LAN interface connector
Device sync: Dual device synchronization

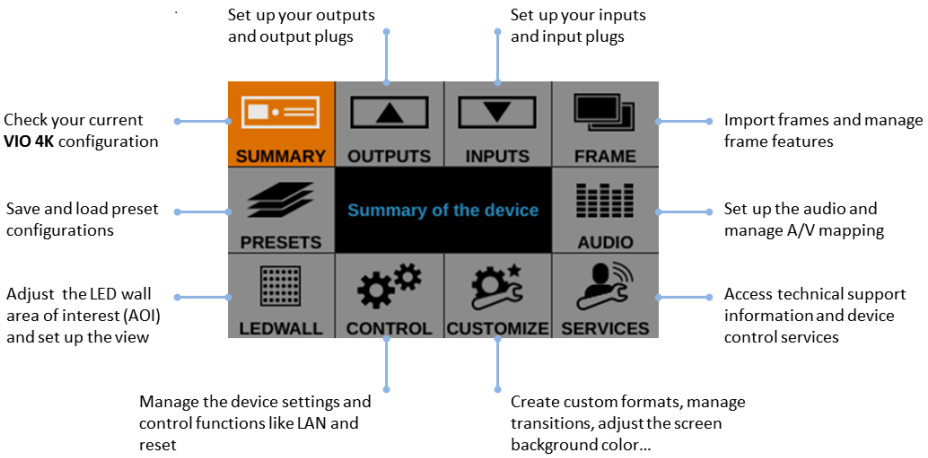
CAUTION:
Avoid disconnecting the power source (AC input) until the unit is in standby mode. Failure to do so could result in memory data corruption.

4 Quick setup & operation

4.1 Front panel control

You can quickly control and configure your **VIO 4K** unit from the **VIO 4K** unit itself, via the front panel buttons and menu tree.

You simply need to switch on the unit to access the front panel menu tree:



Front panel menus on LCD display

4.1.1 Navigating the menus

You can use the front panel **control knob** and the **ENTER** and **EXIT/MENU** buttons to navigate through the menus and adjust your setup:

- Rotate the **control knob** clockwise or anti-clockwise to navigate through menus, scroll a list, increase or decrease a value ...
- Press the **ENTER** button to validate a selection, enter a menu, choose an item from a list, edit a setting, save and apply a new setting value, enable or disable an option ...
- Press the **EXIT/MENU** button to go back one menu, or exit a setting without saving the new value.

4.1.2 Operating from the front panel

OUTPUT MENU

Enter the **OUTPUTS** menu and select **STANDARD OUTPUT** to set up the output.

Output format and rate:

- Choose the format and rate generation mode and then adjust the format settings accordingly.
- Go to the **CUSTOMIZE** menu and create your own custom format when the required format is not available in the list of predefined output formats.

> **TIP:** Try to use native resolution of your screens/projectors to avoid additional scaling.

Area of interest:

Adjust the active area of your display in the output format.

Image corrections:

- Adjust the gamma correction of your output image (especially useful if setting up a **LED Wall**).
- Use the advanced color adjustments like color temperature, brightness and contrast to truly fine-tune your output image.

INPUT MENU

- Enter the **INPUTS** menu to have an overview of all your inputs and their status.
- Select **AUTOSET ALL** to launch the automatic detection of all plugs of all inputs.

Input settings:

- Select an input to set up the input individually.
- Enter the **Plug Settings** menu to select the type of input signal by plug, enable or disable HDCP support on the sources connected to the input plug, and manage the plug's EDID format.
- Select the **Image Settings** menu to optimize the input image signal and correct for the image aspect ratio and size.

> **TIP:** Crop the image and use a predefined display aspect ratio to correct for the image aspect ratio after crop.

AUDIO MANAGEMENT

Audio in & out settings:

Set up the audio independently of the video content:

- Manage up to 4 embedded channel pairs per input/output.
- Configure the auxiliary audio for each audio pair.
- Set up an audio prelist and pre-listen to your content on the headphone output.

A/V mapping:

Select an A/V mapping mode to map an audio stream to the output (embedded audio by A/V mapping):

- **Follow mapping mode:** use the audio of the input selected at runtime (A/V mapping by video source selection);
- **Direct routing mode:** use a specifically set audio source (A/V mapping by audio embedded in video source selection).

> **TIP:** Use the **Follow mapping mode** to also map audio streams to input sources.

VIEW SETTINGS

Control how each input appears in the screen by setting up the input's **"view"**:

- Use **Pan** and **Zoom** to size and position the input in the screen.
- Apply a color **Effect** or enable a **Flip** movement on the live input.
- **Save** the input view settings and recall them later on any input via the **View Bank**.
- Create Presets of your input and view settings and load them readily at runtime.

> **TIP:** Double-click on an input selection button to access the input setup and view settings menu.

SOURCE CONTROL

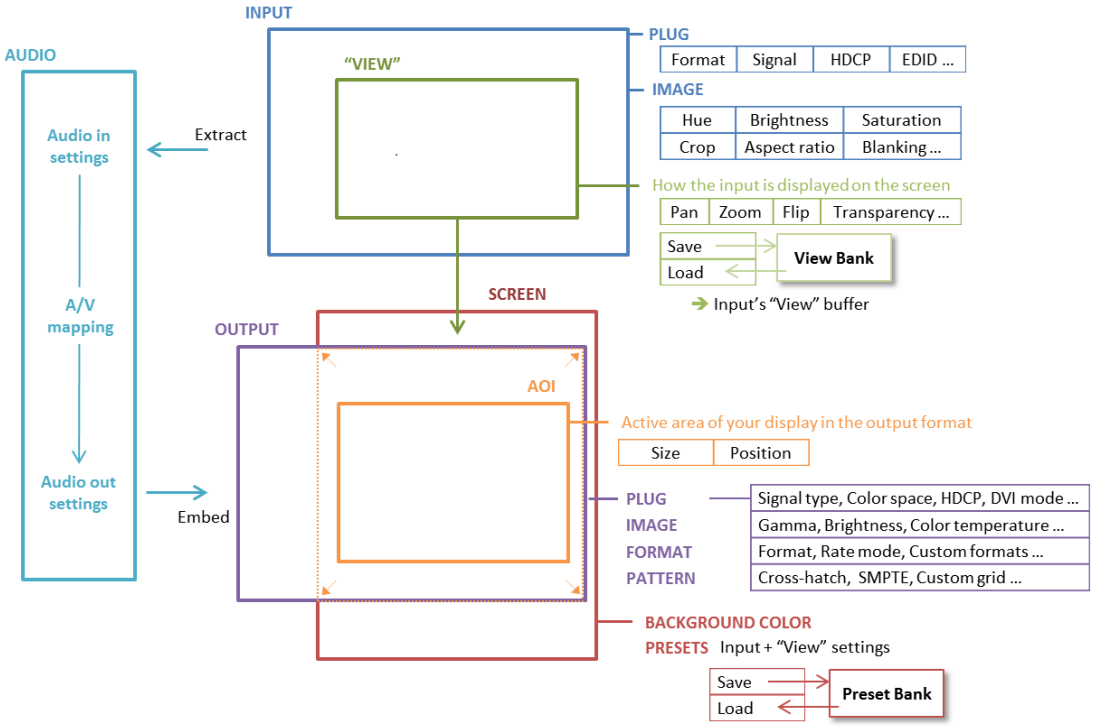
- **Freeze** the output and **Monitor** inputs and outputs on the front panel LCD display.
- Customize the **Transition Type** and the **Transition Duration** to smoothly transition between sources.
- Use **Frames** to transition through frame or activate the **Quick Frame** function to quickly display a foreground frame on the output.
- Select the input to display on the output by choosing the corresponding **INPUT SELECTION** button.

> **TIP:** Enable the **Safe Input Select** control function (**CONTROL > Front Panel**) to disable the selection of inputs without signal.

BUTTON COLOR USAGE

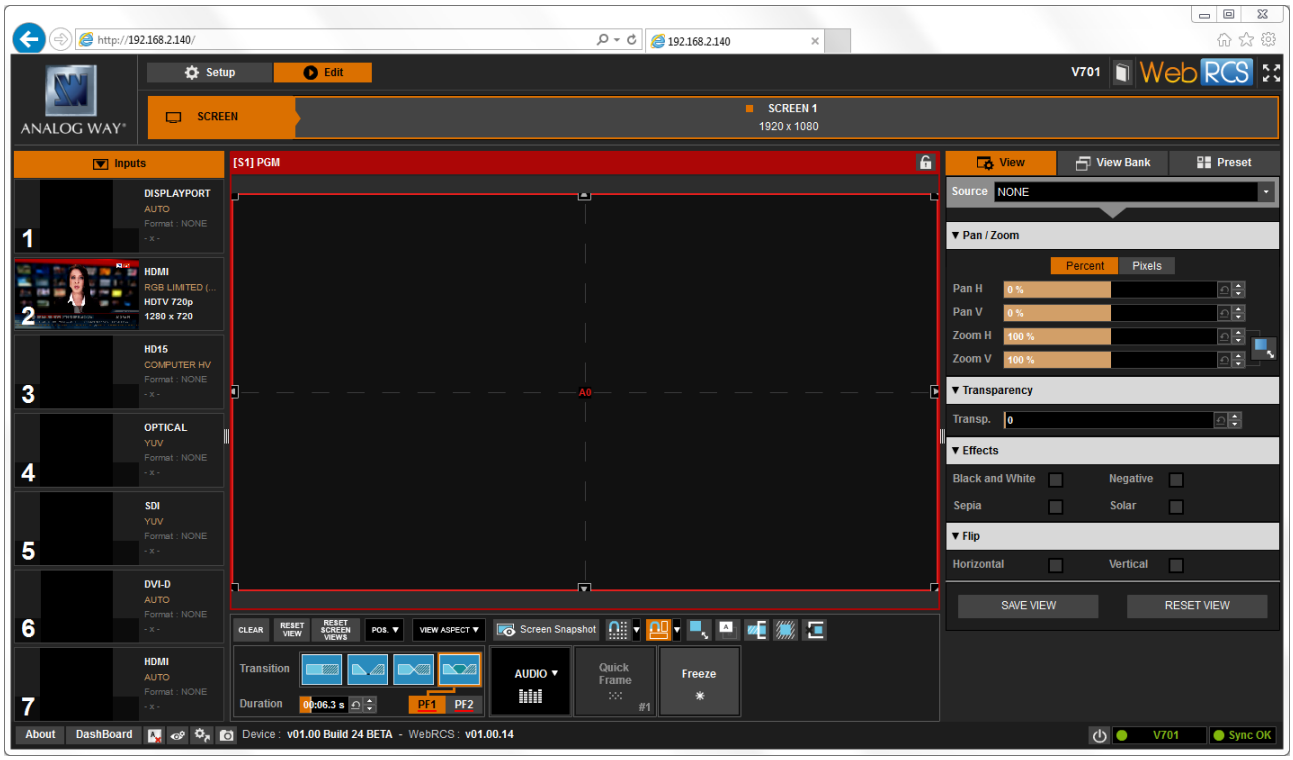
- **RED:** Active input, function or shortcut.
- **GREEN:** Available input, function or shortcut.
- **BLINKING:** Device initializing.
- **OFF:** Not available input, function or shortcut.

> **TIP:** Check out the front panel physical description and visit the VIO 4K - Menu Tree for a complete description of all available buttons and menus.
>
> The following graph also provides a quick overview of the **VIO 4K** operational environment:


INPUT
AUDIO
"VIEW"
PLUG
Format
Signal
HDCP
EDID ...
IMAGE
Hue
Brightness
Saturation
Crop
Aspect ratio
Blanking ...
How the input is displayed on the screen
Pan
Zoom
Flip
Transparency ...
Save
Load
View Bank
Input's "View" buffer
Audio in settings
Extract
A/V mapping
Audio out settings
Embed
SCREEN
OUTPUT
AOI
Active area of your display in the output format
Size
Position
PLUG
Signal type, Color space, HDCP, DVI mode ...
IMAGE
Gamma, Brightness, Color temperature ...
FORMAT
Format, Rate mode, Custom formats ...
PATTERN
Cross-hatch, SMPTE, Custom grid ...
BACKGROUND COLOR
PRESETS Input + "View" settings
Save
Load
Preset Bank

4.2 Web RCS interface

The **Web RCS** is a web-based remote control software that allows you to control and configure a **VIO 4K** unit from a PC or tablet via LAN and/or USB.



The **Web RCS** comes embedded in your **VIO 4K** and you simply need **AW Browser** and a standard LAN network (or an Ethernet over USB connection) to connect.

4.2.1 Connecting to the Web RCS (LAN)

You can easily connect to the **Web RCS** client of your **VIO 4K** unit using a standard LAN network.

AUTOMATIC LAN SETUP

- Download **AW Browser** on www.analogway.com to use the Web RCS.

To connect to the Web RCS of your VIO 4K using a standard LAN network:

1. Connect your computer to the **VIO 4K** using the provided Ethernet cable.
2. Open **AW Browser** and enter the IP address of your **VIO 4K** (displayed in the front panel LCD screen).

The Web RCS connection should start.

> **NOTE:** The **VIO 4K** unit must be **ON** and operating (i.e. not in standby mode) to be able to connect to the **Web RCS** client embedded in the device.

MANUAL LAN SETUP

If your computer is not set to **DHCP** (automatic IP detection) mode, you need to setup LAN manually to be able to connect:

(1) Set up your VIO 4K unit:

1. Go to **Control > Connection > LAN Setup** on the front panel menu tree.
2. Disable the **Obtain IP via DHCP** functionality.
3. Enter a **Device IP** address for your **VIO 4K** unit, for example:
    - **IP address:** 192.168.2.140
    - **Netmask:** 255.255.255.0
4. Select **Apply** to save and apply the new settings.

(2) Set up the LAN adaptor of your PC:

1. Open your LAN adaptor settings.
2. Assign an IP address to your computer on the same network and subnet as your **VIO 4K**, for example:
    - **IP address:** 192.168.2.16
    - **Netmask:** 255.255.255.0
3. Confirm the new settings.

You should be able to connect now: open **AW Browser** and type-in the unit IP address (displayed in the front panel LCD screen) to connect.

CONNECTION ESTABLISHED

Once the connection has been established, the **Web RCS** interface will load into **AW Browser**. The 2 icons at the bottom right corner of the **Web RCS** interface indicate that the **Web RCS** software is ready to be used:

- **V701:** Turns green when connected.
- **Sync OK:** Turns green when the Web RCS has finished synchronizing.

If you have trouble synchronizing, clear the cache and refresh the web-page (CTRL+F5 shortcut on most browsers).

Caution:
Some computers use an energy saving mode that turns off the network adaptor during periods of inactivity. To avoid the inconvenience of reconnecting the software during use, please make sure your network adaptor remains active by disabling the energy saving mode.

TROUBLESHOOTING

- Check that you are using the correct network cable (crossover or straight cable as required) and that it is free from defects.
- Check the IP address of your control computer: the IP address of the computer must be unique on the same network as your **VIO 4K** unit.
- Temporarily disable any other networks on the computer, such as turning off the Wi-Fi connection.
- Refresh your **Web RCS**.
- Restart **AW Browser**.

/!\ MINIMUM REQUIREMENTS

Recommended requirements:

- 1Gb Ram
- 200Mb of free space
- 100Mb Network adaptor or above
- 1920x1080 optimized screen resolution
- 1366x768 as the minimum screen resolution

Operating system:

- Windows XP SP3 or above
- Mac OS v10.7 or above
- Ubuntu v10 or above
- Linux OS 11 or above

Web-browser support:

- **AW Browser** (available on www.analogway.com)

NOTE: Starting 31-DEC-2020, AW Browser is the only recommended web browser to use the Web RCS.

4.2.2 Connecting to the Web RCS (USB)

You can connect to the **Web RCS** client of your **VIO 4K** unit using an Ethernet over USB connection.

NOTE (Windows users only): You need to install the Ethernet over USB device driver before plugging in the USB cable.

MAC & LINUX USERS

(1) Connect your computer to the VIO 4K:

1. Plug-in the USB type B connector to the front panel USB device port.
2. Plug-in the USB type A connector to your computer USB port.

(2) Enable the Ethernet over USB device connection:

1. Go to the **CONTROL > USB Device** menu on the front panel interface.
2. Select **Connection Mode > ETHERNET** to enabled the Ethernet over USB connection.

(3) Connect to the Web RCS:

1. Open **AW Browser** and type in the **VIO 4K** virtual IP address (available from the **CONTROL > USB Device** menu).

The **Web RCS** interface should load into **AW Browser**.

WINDOWS XP USERS

(1) Enable the mass storage USB device connection:

1. Go to the **CONTROL > USB Device** menu on the front panel interface.
2. Select **Connection Mode > MASS STORAGE** to enable the mass storage device mode connection.

(2) Connect your computer to the VIO 4K:

1. Plug-in the USB type B connector to the front panel USB device port.
2. Plug-in the USB type A connector to your computer USB port.

(3) Copy the Ethernet over USB driver to your computer:

1. Open the **VIO 4K_USB** driver.
2. Go to the **Drivers/Windows** folder and select **XP.**
3. Copy the file **AW_VIO4K_EtherOverUsb.inf** to your computer.

(4) Enable the Ethernet over USB device connection:

1. Go to the **CONTROL > USB Device** menu on the front panel interface.
2. Select **Connection Mode > ETHERNET** to enabled the Ethernet over USB connection.

The **Add New Hardware** assistant should pop up.

(5) Add the new hardware:

The **Add new hardware** assistant automatically pops up when enabling the Ethernet over USB device connection with the **VIO 4K** unit connected to your Windows computer:

1. Uncheck the **Use Windows Update** box and click next.
2. Select **Install from folder** and browse for the **AW_VIO4K_EtherOverUsb.inf** file.

> **NOTE:** The driver will work even if not certified for Windows XP.

(6) Connect to the Web RCS:

1. Open **AW Browser** and type in the **VIO 4K** virtual IP address (available from the **CONTROL > USB Device** menu).

The **Web RCS** interface should load into **AW Browser**.

W7/W8/W8.1/W10 USERS

(1) Enable the mass storage USB device connection:

1. Go to the **CONTROL > USB Device** menu on the front panel interface.
2. Select **Connection Mode > MASS STORAGE** to enable the mass storage device mode connection.

(2) Connect your computer to the VIO 4K:

1. Plug-in the USB type B connector to the front panel USB device port.
2. Plug-in the USB type A connector to your computer USB port.

(3) Install the driver:

1. Open the **VIO 4K_USB** driver.
2. Go to the **Drivers/Windows** folder and select your platform.
3. Double-click on **AW_VIO4K_Driver_EtherOverUSB.exe** to start the driver installation.
4. Accept to install a **Network Card** type driver if asked during the installation.

(4) Enable the Ethernet over USB device connection:

1. Go to the **CONTROL > USB Device** menu on the front panel interface.
2. Select **Connection Mode > ETHERNET** to enabled the Ethernet over USB connection.

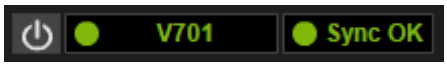
(5) Connect to the Web RCS:

1. Open **AW Browser** type in the **VIO 4K** virtual IP address (available from the **CONTROL > USB Device** menu).

The **Web RCS** interface should load into **AW Browser**.

CONNECTION ESTABLISHED

Once the connection has been established, the **Web RCS** interface will load into **AW Browser**. The 2 icons at the bottom right corner of the **Web RCS** interface indicate that the **Web RCS** software is ready to be used:



- **V701:** Turns green when connected.
- **Sync OK:** Turns green when the Web RCS has finished synchronizing.

If you have trouble synchronizing, clear the cache and refresh the web-page (CTRL+F5 shortcut on most browsers).

TROUBLESHOOTING

(1) The VIO 4K unit is detected as a COM (RS232) port (W10 users):

If you plugged in the USB cable before installing the driver, you need to force the **VIO 4K** USB device driver on the COM port that has been assigned to the **VIO 4K** unit (COM1, COM2, or COMX):

1. Open the **Device Manager** from the Windows control panel.
2. Unfold the **Ports(COM & LPT)** section.
3. Right-click on the COM port number associated with the VIO 4K unit and select **Update Driver**.
4. Choose **Browse my computer for driver software (Locate and install driver software manually)**.
5. Choose **Let me pick from a list of device drivers on my computer**.

6. By default, the **Show compatible hardware** option is enabled and allows you to select two drivers:
   - USB serial peripheral
   - VIO4K USB Ethernet/RNDIS Gadget
7. Select the **VIO4K USB Ethernet/RNDIS Gadget** driver and click **Next**.

> **NOTE:** You will need to install the driver if the **VIO4K USB Ethernet/RNDIS gadget** is not available.

The driver is now associated to your **VIO 4K** unit and the **VIO 4K** will always be recognized as a USB device from now on.

/!\ MINIMUM REQUIREMENTS

Recommended requirements:

- 1Gb Ram
- 200Mb of free space
- 100Mb Network adaptor or above
- 1920x1080 optimized screen resolution
- 1366x768 as the minimum screen resolution

Operating system:

- Windows XP SP3 or above
- Mac OS v10.7 or above
- Ubuntu v10 or above
- Linux OS 11 or above

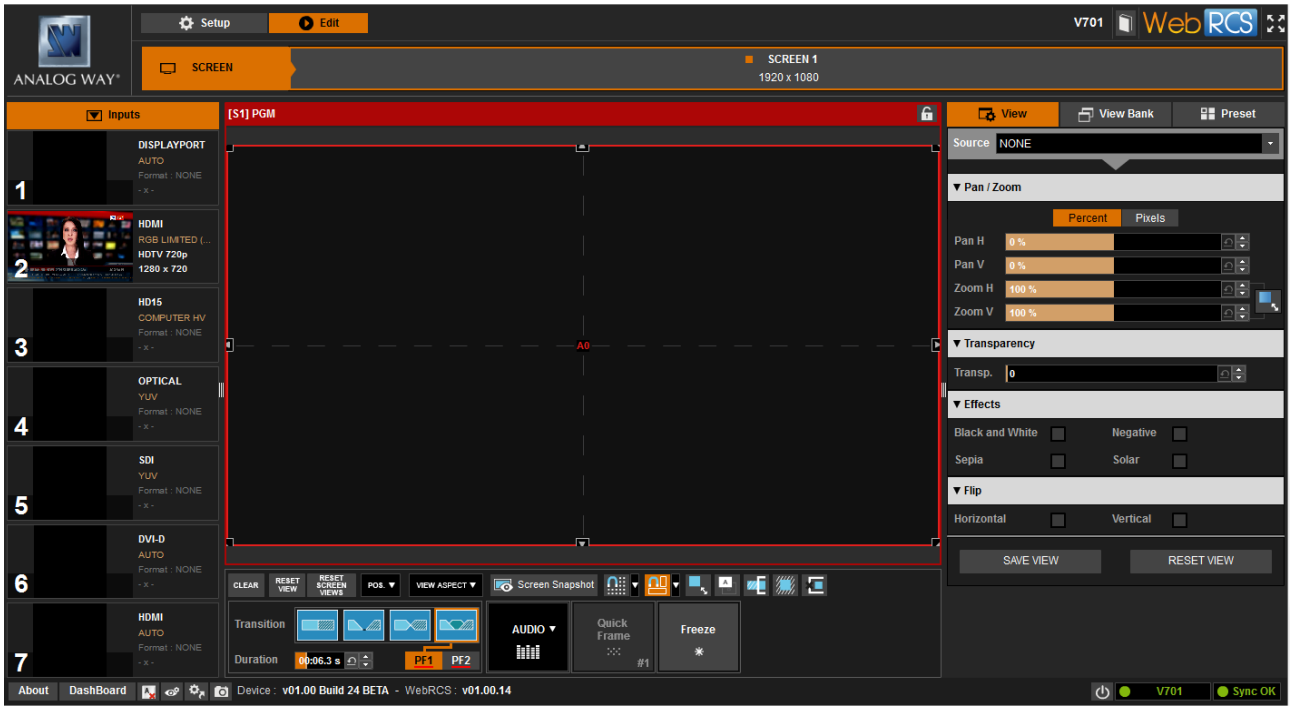
Web-browser support:

- **AW Browser** (available on www.analogway.com)

> **NOTE:** Starting 31-DEC-2020, AW Browser is the only recommended web browser to use the Web RCS.

4.2.3 Operating from the Web RCS interface

Once the connection to the **Web RCS** client of your **VIO 4K** unit has been established (see Connecting to the Web RCS (LAN) or Connecting to the Web RCS (USB) for instructions on how to connect to the **Web RCS** via LAN or via USB, respectively), you can open **AW Browser** and type in the IP address of your **VIO 4K** unit (displayed in the front panel LCD screen) to access the **Web RCS** interface:

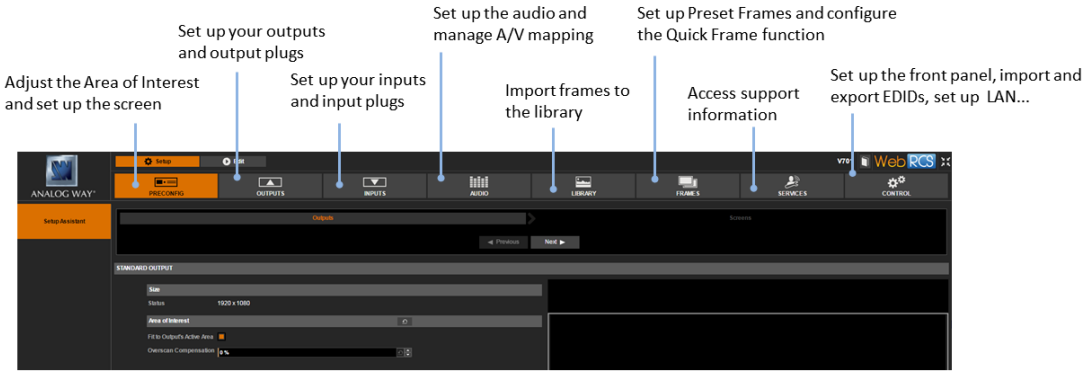


With the **Web RCS** interface loaded into **AW Browser**, you can start operating your **VIO 4K** unit from a PC or tablet via LAN or via USB.

SETUP MENU

Click on the **Setup** tab to start setting up your device:

- Adjust the active area of your display in the output format (AOI) and the screen background color.
- Set up your inputs and input plugs.
- Set up your outputs and output plugs.
- Set up the audio and manage A/V mapping.
- Import frames to the library.
- Set up preset frames and configure the Quick Frame function.
- Access technical support information and device control services.
- Set up the front panel, import and export EDIDs, set up LAN...

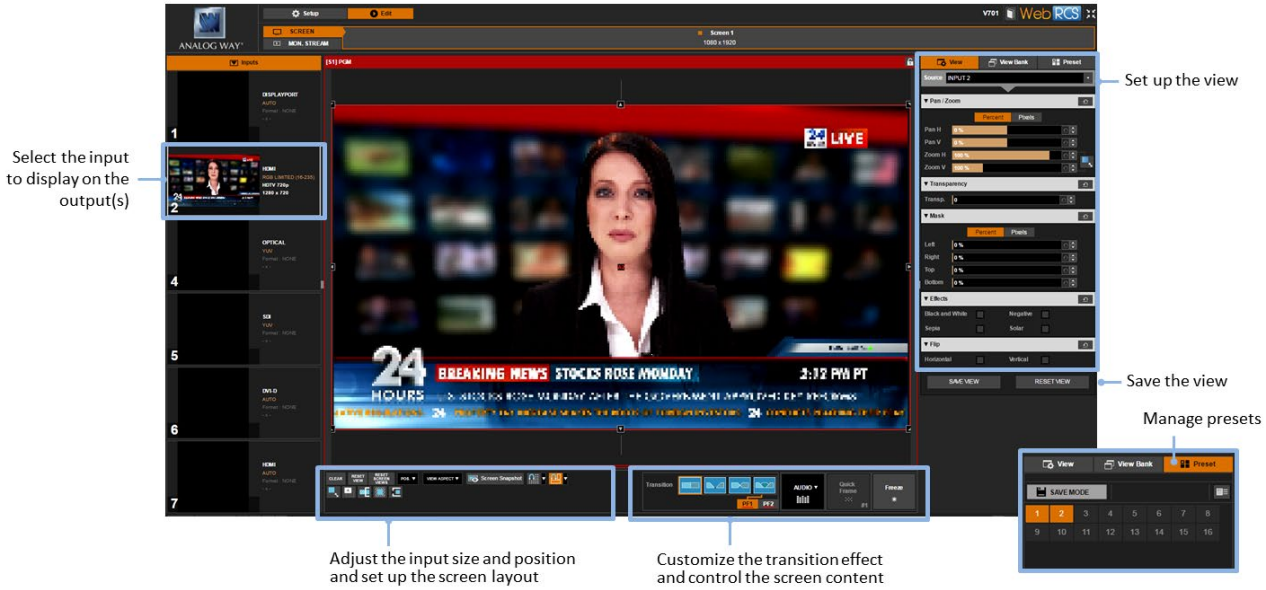


TIP: Use the **PRECONFIG > Setup Assistant** to get started with your setup.

EDIT MENU

Once your setup is complete, click on the **Edit** tab to start putting it all together in the screen:

- Select the input to display on the output
- Set up the **View** for each input
- Create **Presets** of your input and view settings
- Freeze and control the output
- Customize the transition effect when switching sources
- Manage the screen layout ...



TIP: Use **Presets** to save all your screen configurations and quickly recall them at runtime.

TIP: Carry on reading this documentation to find out more about all and the many possibilities available on your **VIO 4K** unit.

5 Device management

5.1 Powering-up

The **VIO 4K** is equipped with a power AC Main switch with Fuse (cartridge 5x20 4A Fast 250VAC) that allows you to easily connect and disconnect the unit from the mains.

To power-up your device:

1. Plug-in the power supply cord to the **VIO 4K** (SEE: Rear panel physical description).
2. Switch on the **VIO 4K** power supply button located on the rear panel.

> **NOTE:** The **VIO 4K** will start up in standby mode if you shut down the device in standby mode with the back to standby power loss function enabled (SEE: **Back to standby function** for details). If required, press the front panel **ON/OFF** button for about 3 seconds to wake up the device.

5.2 Sending the device to standby

The **VIO 4K** is equipped with a low power consumption standby mode that you can quickly activate and deactivate using the Front Panel **ON/OFF** button.

To send the device to standby:

1. Press the **VIO 4K** front panel **ON/OFF** button.
2. When asked for confirmation, select **YES** to send the device to standby or **NO** to cancel the action.

> **NOTE:** The **VIO 4K** will start up in standby mode if you shut down the device with the back to standby power loss function enabled (SEE: **Alternative method** below for more details).

Alternative method (Front Panel):

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **Functions** to access the device functions menu.
3. Select **Standby Settings** to access the device standby settings menu.
4. Select the **Standby power loss behavior** option if required to choose the behavior of the standby function in case of power loss while in standby:
   - **REMAIN ON STDBY** will keep the device in standby mode.
   - **REBOOT** will start up the device in wake up mode.
5. Finally, select **Standby request** to send the device to standby.
6. When asked for confirmation, select **YES** to send the device to standby or **NO** to cancel the action.

To wake up the device:

Press the **ON/OFF** button for about 3 seconds.

5.3 Adjusting the front panel

The front panel allows you to control and configure the **VIO 4K** framework directly from the **VIO 4K** unit itself, via the front panel buttons and the menu tree on the LCD display.

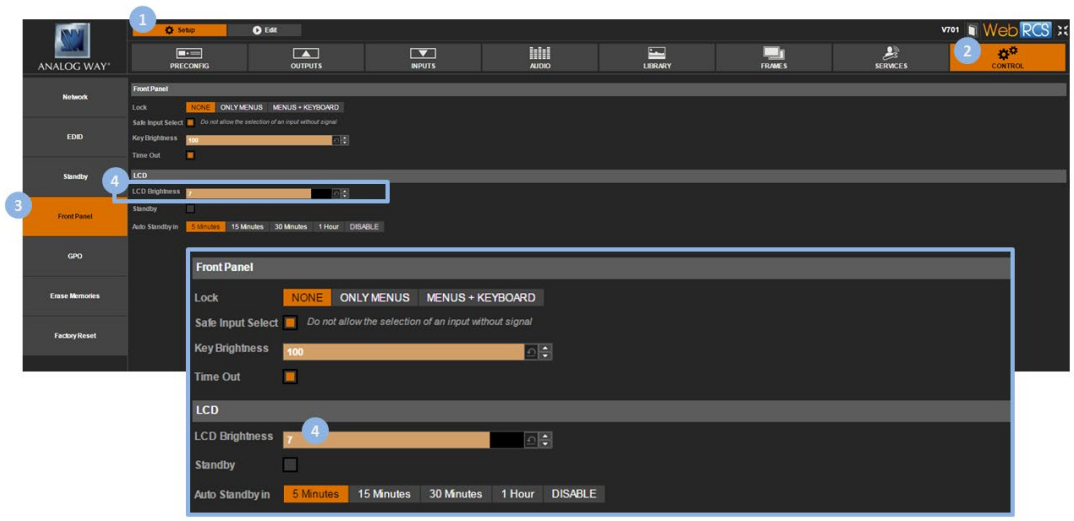
To adjust the LCD display brightness:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Select **LCD Brightness** and rotate the control knob left or right to adjust the brightness of the front panel LCD display:
   - Select **ENTER** to save the new value.
   - Select **EXIT-MENU** to restore the last saved value.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Under **LCD Brightness**, click and drag the LCD brightness control bar right or left to adjust the brightness of the front panel LCD display.



To select the LCD timeout before standby:

Caution:
Disabling the LCD Standby may shorten the LCD backlight lifespan.

Front Panel

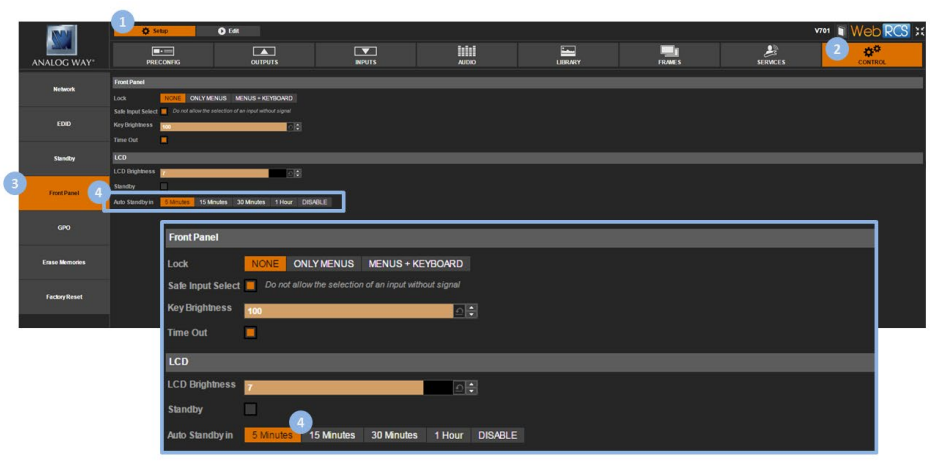
1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Select **LCD Standby** and select the front panel LCD display timeout before standby.
   List of possible front panel LCD timeouts:

5 Minutes	Standby after 5 minutes of inactivity
15 Minutes	Standby after 15 minutes of inactivity
30 Minutes	Standby after 30 minutes of inactivity
1 Hour	Standby after 1 hour of inactivity
DISABLE	No standby

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Under **Auto Standby In**, select the front panel LCD display timeout before standby.
   List of possible front panel LCD timeouts:

5 Minutes	Standby after 5 minutes of inactivity
15 Minutes	Standby after 15 minutes of inactivity
30 Minutes	Standby after 30 minutes of inactivity
1 Hour	Standby after 1 hour of inactivity
DISABLE	No standby



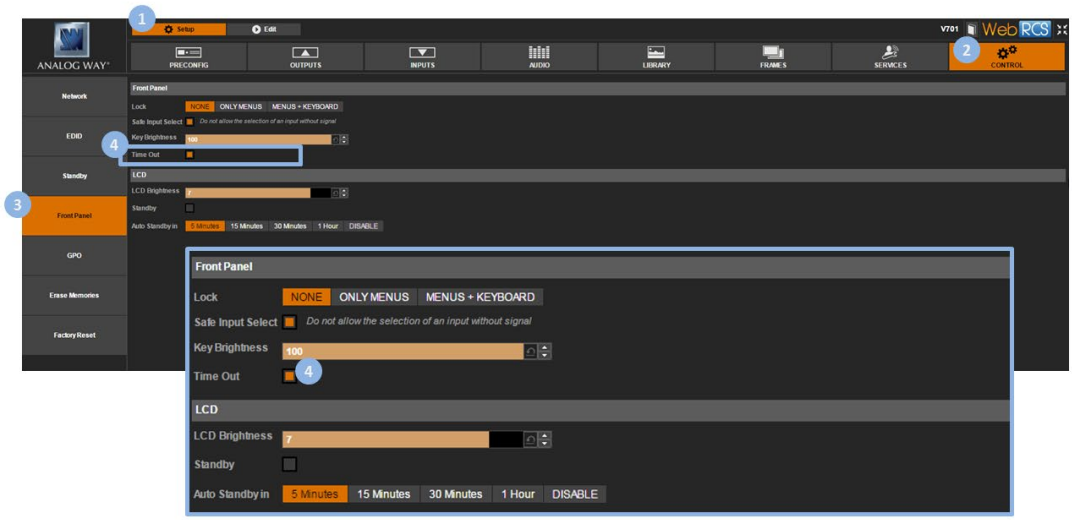
To disable the menu page timeout:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Uncheck the **Enable Menu Page Timeout** check-box to stay on the current menu page whatever the timeout.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Uncheck the **Timeout** check-box to stay on the current menu page whatever the timeout.



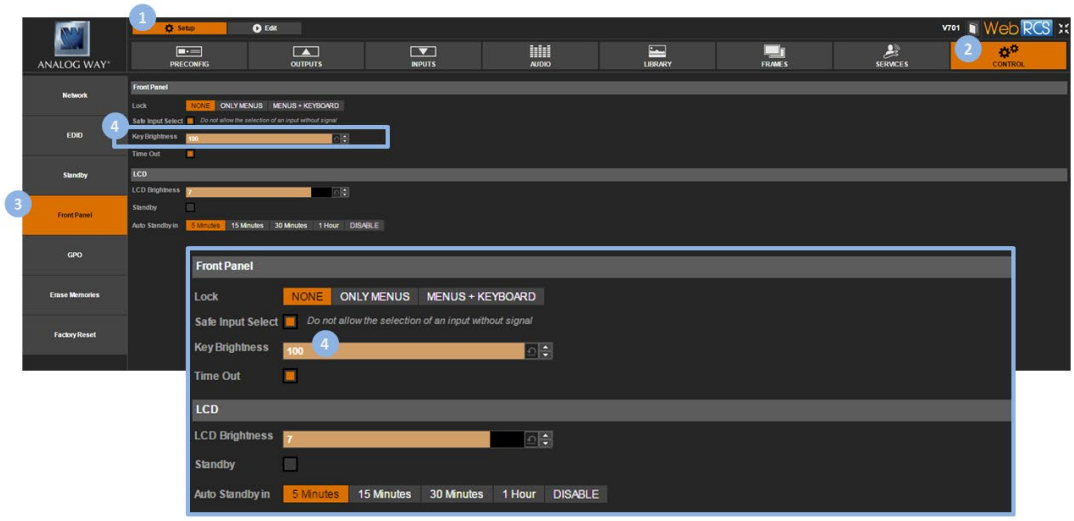
To adjust the key buttons brightness:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Select **Key Brightness** and rotate the control knob left or right to adjust the brightness of the front panel key buttons:
   - Select **ENTER** to save the new value.
   - Select **EXIT-MENU** to restore the last saved value.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Under **Key Brightness**, click and drag the key brightness control bar right or left to adjust the brightness of the front panel key buttons.



To lock the front panel key buttons:

Front Panel

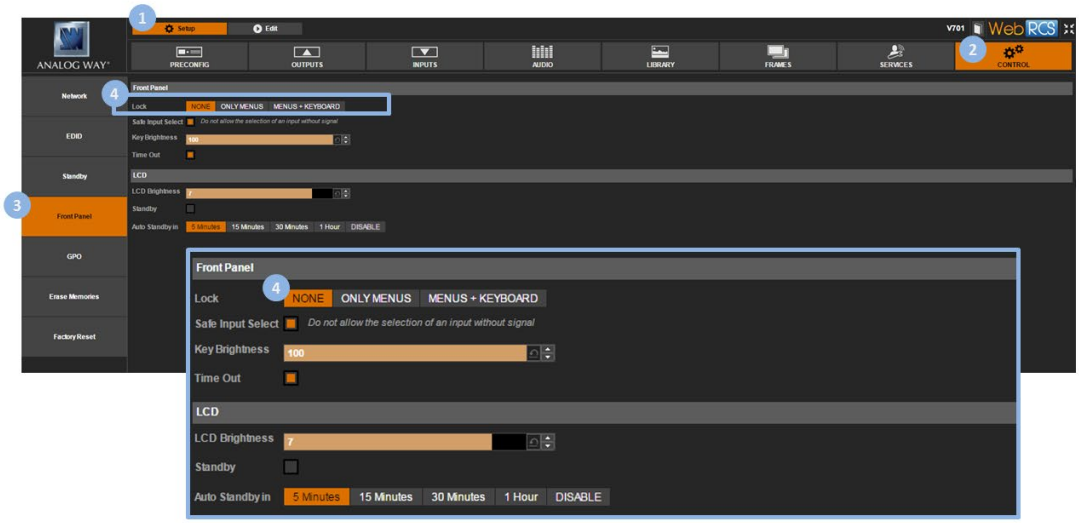
1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Select **Front panel locking** to change the front panel key locking mode.
   List of possible front panel key locking modes:

NONE	Lock no front panel button (all enabled front panel key buttons will be available)
ONLY MENUS	Lock the front panel navigation buttons only (INPUT SELECTION buttons and SHORTCUT buttons will remain available)
MENUS + KEYBOARD	Lock all the front panel buttons (no key button will be available)

> **TIP:** In the front panel settings menu, check the **Safe Input Select** check-box to disable the selection of inputs for which no valid signal has been detected.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Under **Lock**, select a front panel key locking mode.



TIP: Check the **Safe Input Select** check-box to disable the selection of inputs for which no valid signal has been detected.

To disable the selection of inputs without signal:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Front Panel** to access the front panel settings menu.
3. Check the **Safe Input Select** check-box to disable the selection of inputs without signal (uncheck to enable).

NOTE:

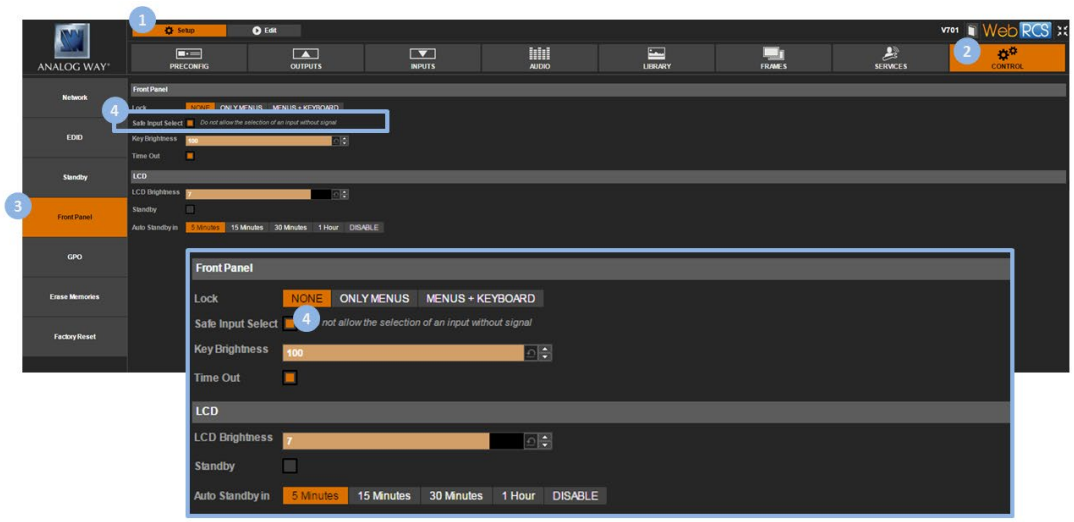
- Only the front panel **INPUT SELECTION** buttons of those inputs for which no valid signal has been detected will be disabled.
- Inputs without signal will still be available for selection via the Web RCS interface, and all input settings will remain available from both the **Front Panel** and the **Web RCS** interfaces.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Front Panel** to access the front panel settings page.
4. Check the **Safe Input Select** check-box to disable the selection of inputs without signal (uncheck to enable).

NOTE:

- Only the front panel **INPUT SELECTION** buttons of those inputs for which no valid signal has been detected will be disabled.
- Inputs without signal will still be available for selection via the **Web RCS** interface, and all input settings will remain available from both the **Front Panel** and the **Web RCS** interfaces.



The LAN connection is used by the **Web RCS** interface to connect to the **VIO 4K** unit from a PC or tablet via

5.4 Setting up the LAN connection

LAN (SEE: Connecting to the Web RCS (LAN) for more information).

By default, the LAN connection is set up automatically using **DHCP**. However, if your computer is not set to **DHCP** (automatic IP detection) mode, you will need to setup LAN manually to be able to connect.

To set up LAN automatically (using DHCP):

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **Connection** and then **LAN Setup** to access the device LAN interface settings menu.
3. Check the **Obtain IP via DHCP** check-box to enable DHCP (automatic IP detection mode).
4. Select **Apply** to save and apply the new settings (upon prompt, select **YES** to confirm or **NO** to cancel and restore the last saved settings).

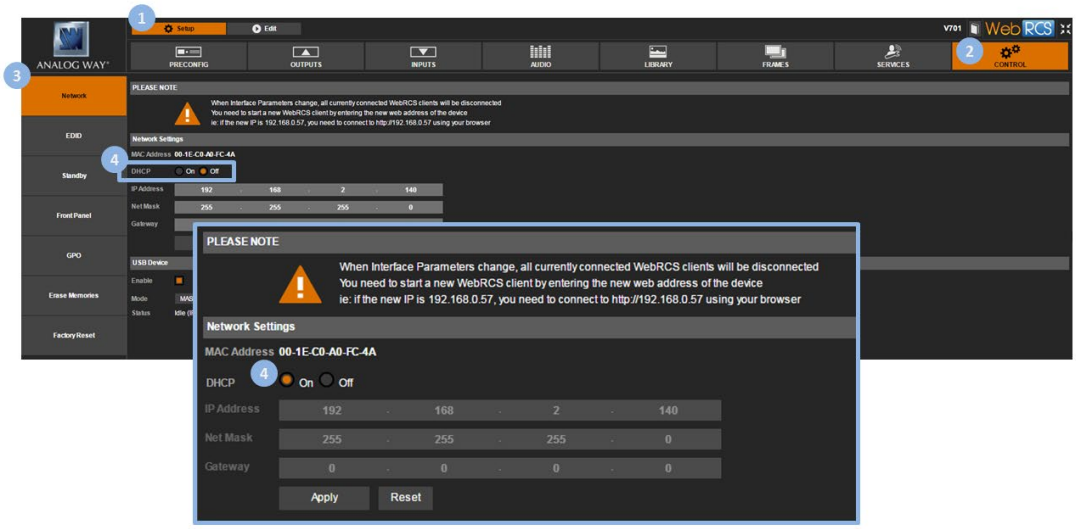
> **TIP:** Select **Restore to Default Setup** whenever required to restore the LAN settings default values.

Web RCS

> **Not recommended:** All currently connected Web RCS clients will be disconnected.

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Network** to access the device network settings page.
4. Under **DHCP**, select **ON** to enable DHCP (automatic IP detection mode).
5. Click on **Apply** to save and apply the new settings (click again to confirm or click elsewhere to restore the last saved settings).

> **TIP:** Use the **Reset** button whenever required to restore the LAN settings default values.



To set up LAN manually (entering an IP address):

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **Connection** and then **LAN Setup** to access the device LAN interface settings menu.
3. Uncheck the **Obtain IP via DHCP** check-box to disable DHCP (check again to enable).
4. Select **Device IP** to set up the device IP address.
5. Use the **ENTER** button to navigate from one IP address field to the next.
6. Use the **EXIT-MENU** button to exit without saving and go back to the LAN interface settings page.
7. If required, edit the **Netmask** and **Gateway** address fields.
8. Select **Apply** to save and apply the new settings (upon prompt, select **YES** to confirm or **NO** to cancel and restore the last saved settings).

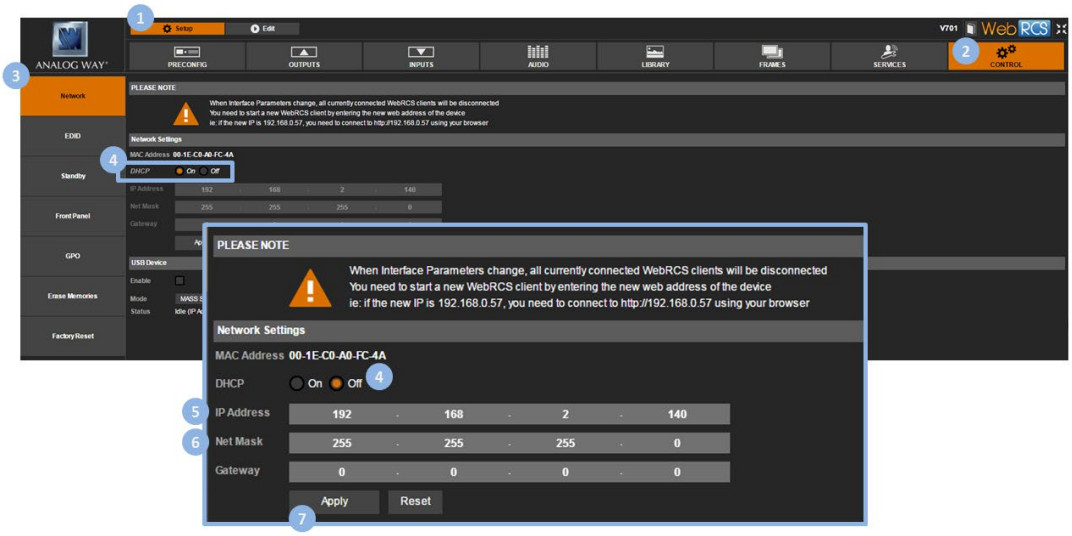
> **TIP:** Select **Restore to Default Setup** whenever required to restore the LAN settings default values.

Web RCS

> **Not recommended:** All currently connected Web RCS clients will be disconnected.

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Network** to access the device LAN interface settings page.
4. Under **DHCP**, select **OFF** to disable DHCP (automatic IP detection mode).
5. Under **IP address**, click on a required IP address field and use your keyboard to enter an IP value (repeat for each required address field).
6. If required, edit the **Net Mask** and **Gateway** address fields.
7. Click on **Apply** to save and apply the new settings (requires confirmation: click again to confirm or click elsewhere to restore the last saved settings).

> **TIP:** Use the **Reset** button whenever required to restore the LAN settings default values.



Related topics:

- Connecting to the Web RCS (LAN)
- Connecting to the Web RCS (USB)

5.5 Enabling the USB device connection

The USB device connection is used by the **Web RCS** interface to connect to the **VIO 4K** unit from a PC or tablet via USB (SEE: Connecting to the Web RCS (USB) for more information).

By default, the USB device connection is disabled on the **VIO 4K**. You can enable it to control your **VIO 4K** unit from a PC or tablet via USB.

To enable the mass storage USB device connection:

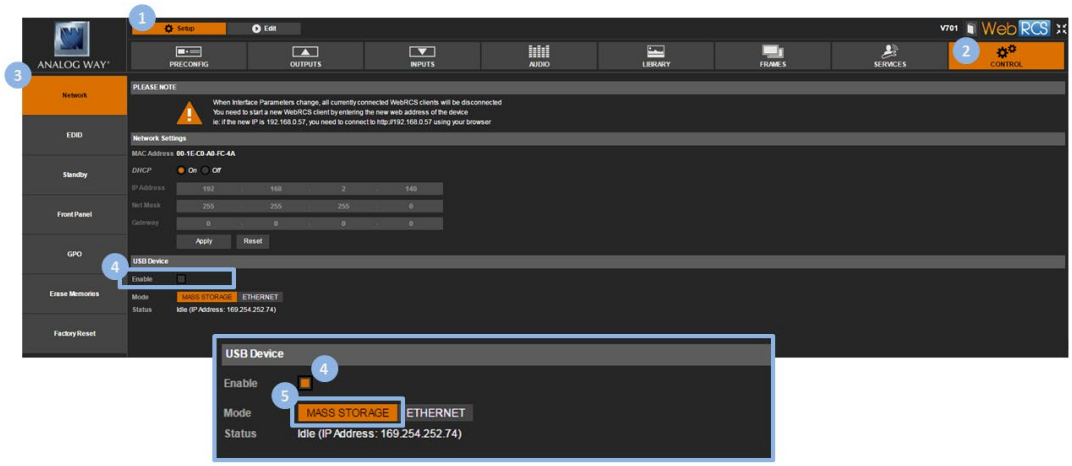
> **Information:**
> It is strongly recommended to read the section Connecting to the Web RCS (USB) before you start.

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **USB Device**.
3. Uncheck the **Disable Interface** check-box to enable the USB device interface connection.
4. Select **Connection Mode >MASS STORAGE** to connect to the unit as a mass storage device.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Network** to access the device network settings page.
4. Under **USB Device**, check the **Enable** check-box to enable the USB device interface connection.
5. Click on **MASS STORAGE** to connect to the unit as a mass storage device.



To enable the Ethernet over USB device connection:

> **Information:**
> It is strongly recommended to read the section Connecting to the Web RCS (USB) before you start.

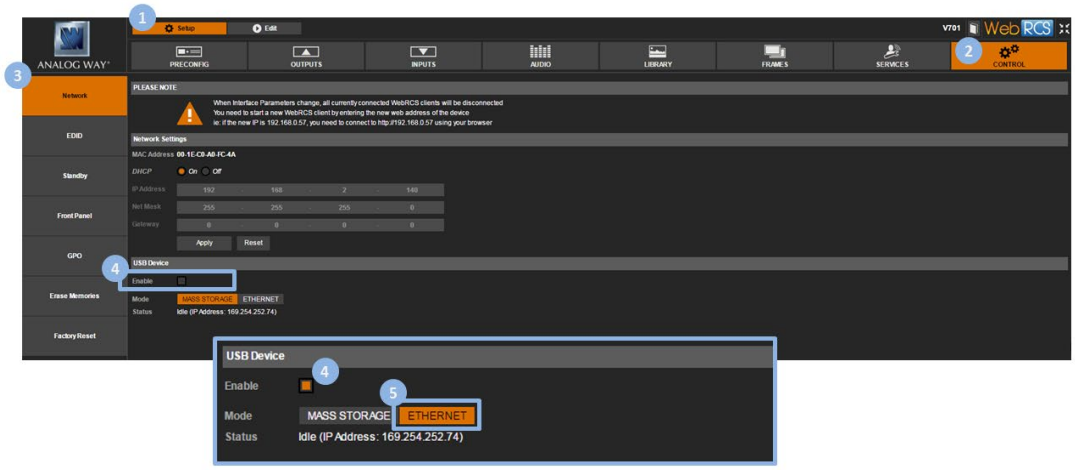
Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **USB Device**.
3. Uncheck the **Disable Interface** check-box to enable the USB device interface connection.
4. Select **Connection Mode >ETHERNET** to connect via Ethernet over USB.

> **NOTE:** The **Status > IP Address** field provides information on the virtual IP address used to connect to the unit via Ethernet over USB.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Network** to access the device network settings page.
4. Under **USB Device**, check the **Enable** check-box to enable the USB device interface connection.
5. Click on **ETHERNET** to connect via Ethernet over USB.



> **NOTE:** The **Status > IP Address** field provides information on the virtual IP address used to connect to the unit via Ethernet over USB.

To check the virtual IP address used for the USB connection:

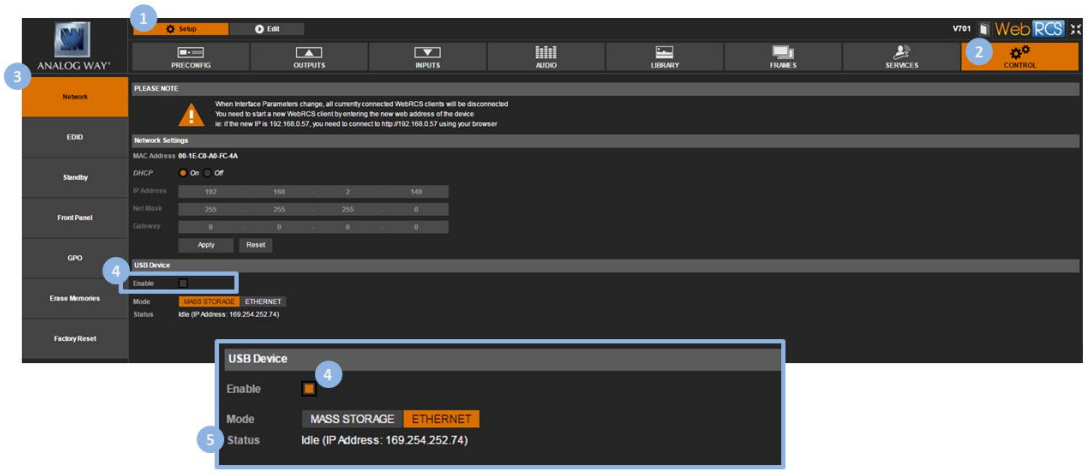
> **Information:**
> It is strongly recommended to read the section Connecting to the Web RCS (USB) before you start.

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **USB Device**.
3. Uncheck the **Disable Interface** check-box to enable the USB device interface connection.
4. Select **Connection Mode > ETHERNET** to check the Ethernet over USB connection:
   - **Connection status:** Ethernet over USB connection status.
   - **IP address status:** virtual IP address used to connect to the unit via Ethernet over USB.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Network** to access the device network settings page.
4. Under **USB Device**, check the **Enable** check-box to enable the USB device interface connection.
5. Under **Status**, check the virtual IP address used to connect to the unit via Ethernet over USB.



Related topics:

- Connecting to the Web RCS (LAN)
- Connecting to the Web RCS (USB)

5.6 Using the GPO connection

5.6.1 What are GPOs?

GPOs are a set of outputs that can be used to control a **VIO 4K** unit from external devices (automation).

5.6.2 ON/OFF pins description

Pins 1 and 2 are dedicated to turn on and off the device when a switch is placed in-between.

This switch works like the front panel switch:

- When the device is on, closing the switch requests the device to power down.
  If the switch remains closed more than 5 seconds, a forced power down is performed.
- When the device is off, closing the switch turns on the device.

NOTE:

- Only a wire with a simple switch can be connected.
- No voltage should be applied on on/off pins.

5.6.3 GPO pins description

GPO pins are optically isolated MOSFET working as mechanical relays.

They all have a common pin (used as GPO return).

The polarity of each GPO needs to be configured as normally opened or normally closed (SEE: GPO Modes).

5.6.4 GPO modes

The mode of the GPO can be set manually or automatically:

Manual mode

The open/closed state of the GPO is specified manually by user action, either through the **Web RCS** or the **Front Panel** interface, or from an external controller.

Automatic mode

The open/closed state of the GPO is automatically generated right before or right after an input is selected or a take action is performed (right before the transition, at the beginning of the transition effect, or after the transition, when the effect is finished).

When the mode is set automatically, one or more inputs can be selected for the screen. Then, whenever the input is used on the screen, the GPO level change occurs.

To choose the mode for a GPO:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select **GPO Settings** to access the GPOs settings menu.
3. Select **GPO 1** (or **GPO 2**) to edit the GPO 1 (or 2) parameters.
4. Select **Mode** and rotate the control knob left or right to choose the mode for GPO 1 (or 2):
   - Press the **ENTER** key to validate your selection.
   - Press the **EXIT-MENU** key to exit without saving.

   List of possible GPO modes:

FORCE OPEN STATE	Open by user action
FORCE CLOSED STATE	Closed by user action
CLOSED IF INPUT IS DISPLAYED	Closed when the user-specified input is displayed (*)
CLOSED IF NO INPUT IS DISPLAYED	Closed when no input is displayed
CLOSED IF INPUT SIGNAL IS VALID	Closed when the user-specified input is valid (*)
OPEN IF INPUT IS DISPLAYED	Open when the user-specified input is displayed
OPEN IF NO INPUT IS DISPLAYED	Open when no input is displayed
OPEN IF INPUT SIGNAL IS VALID	Open when the user-specified input is valid (*)

(*) Requires input selection (see below)

5. If required, specify the **Input** used for the GPO 1 (or 2) mode (/!\ available for automatic with input-dependency modes only).

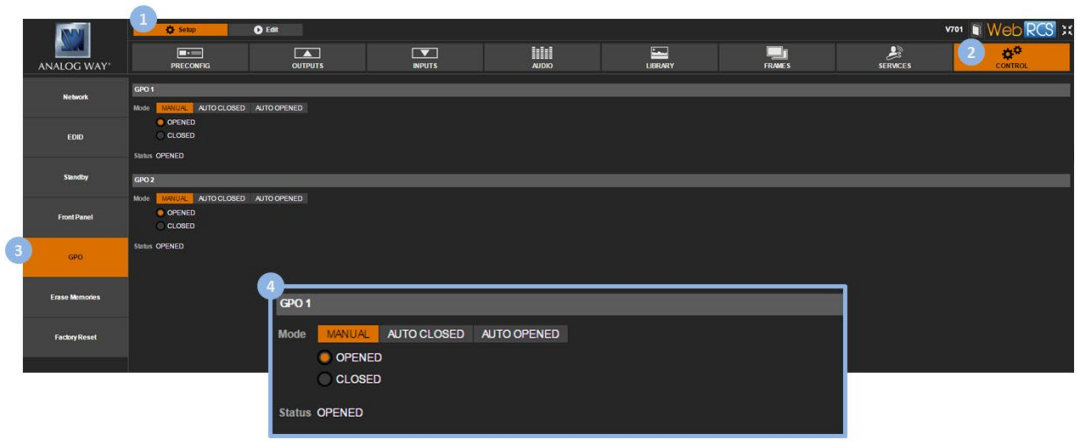
Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **GPO** to access the GPOs settings page.
4. Under **GPO 1** (or **GPO 2**), choose the mode for GPO 1 (or 2).
   List of possible GPO modes:

FORCE OPEN STATE	Open by user action
FORCE CLOSED STATE	Closed by user action
CLOSED IF INPUT IS DISPLAYED	Closed when the user-specified input is displayed (*)
CLOSED IF NO INPUT IS DISPLAYED	Closed when no input is displayed
CLOSED IF INPUT SIGNAL IS VALID	Closed when the user-specified input is valid (*)
OPEN IF INPUT IS DISPLAYED	Open when the user-specified input is displayed
OPEN IF NO INPUT IS DISPLAYED	Open when no input is displayed
OPEN IF INPUT SIGNAL IS VALID	Open when the user-specified input is valid (*)

(*) Requires input selection (see below)

5. If required, specify the **input** used for the GPO 1 (or 2) mode (/!\ available for automatic with input-dependency modes only).



5.7 Resetting the unit

If you are using the **VIO 4K** for the first time, you can reset the device to factory settings (as-is out of the box) to start enjoying the unit as a brand new device.

You can also simply reset the unit to its configuration default values to keep the **Frame Library** and the current configuration of your **Network**, **Web RCS** and **Link** settings.

To reset to configuration default values:

> **NOTE:**
> - Network, Web RCS and Link parameters will remain unchanged.
> - Library frames and logos will not be erased.

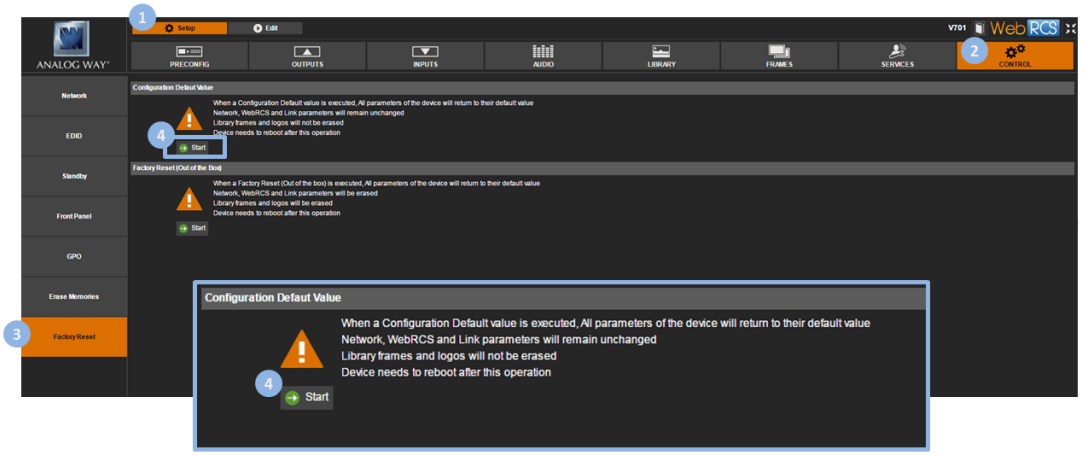
Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset to default values** to start the default values reset:
   - Select **YES** to confirm the reset (/!\ this action is irreversible).
   - Select **NO** to cancel the action.

> **NOTE:** The unit will reboot itself once the reset is complete.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Factory Reset** to access the resets page.
4. Under **Configuration Default Value**, click on the **Start** button:
   - Click again to confirm the reset (**/!\ this action is irreversible**).
   - Click *elsewhere* to cancel the action.



> **NOTE:** The unit will reboot itself once the reset is complete.

To reset to factory settings (as-is out of the box):

> **NOTE:**
> - Network, Web RCS and Link parameters will remain unchanged.
> - Library frames and logos will not be erased.

Front Panel

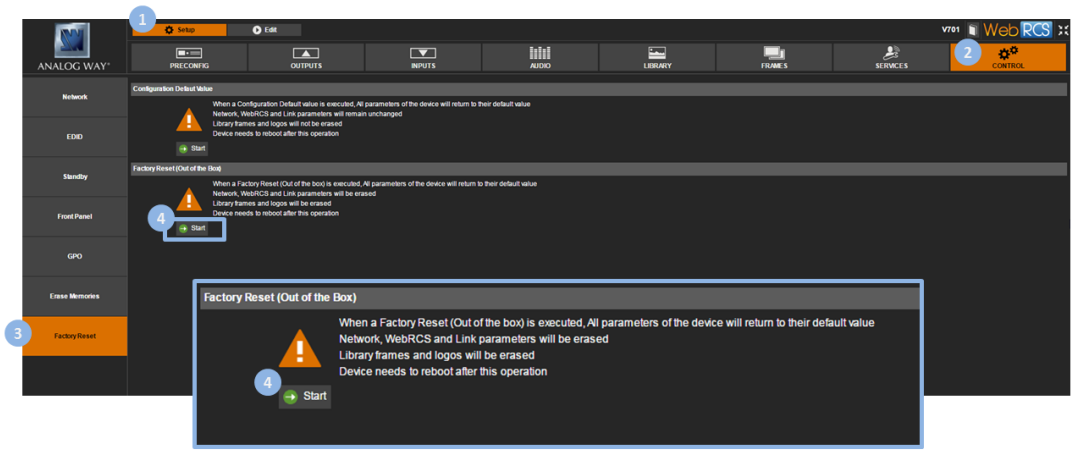
1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Factory Reset (out of the box)** to start the factory reset:
   - Select **YES** to confirm the reset (/!\ this action is irreversible).
   - Select **NO** to cancel the action.

> **NOTE:** The unit will reboot itself once the reset is complete.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Factory Reset** to access the resets page.
4. Under **Factory Reset (Out of the Box)**, click on the **Start** button:
   - Select again to confirm the reset (/!\ this action is irreversible).
   - Select *elsewhere* to cancel the action.

> **NOTE:** The unit will reboot itself once the reset is complete.



5.8 Creating backups

The **VIO 4K** allows you to save and export your device configurations, for example to create backup copies of your settings, or to import these settings into other **VIO 4K** units in order to quickly have a new unit up and running.

To save a configuration:

> **NOTE:** The configuration of your device will persist through reboot, no action required.

Front Panel

1. Enter the **SERVICES** menu on the Front Panel interface.
2. Select **Device Config** to access the device configuration menu.
3. Select **Device Storage** to manage the device storage.
4. Select **Save** to select the categories to be saved.
   Available save categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
Frames library	All the frame library
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

5. Scroll down and select **Save** to start saving the current configuration of your device to the device storage.

> **NOTE:** The device storage can only store one configuration at a time. If a configuration has already been saved to the device storage, saving again will overwrite the stored configuration file. Export the stored configuration file first before saving again if required (**SEE: Exporting a configuration**).

> **TIP:** Go back to the **Device Storage** menu to load, review or erase the configuration stored in the device storage.

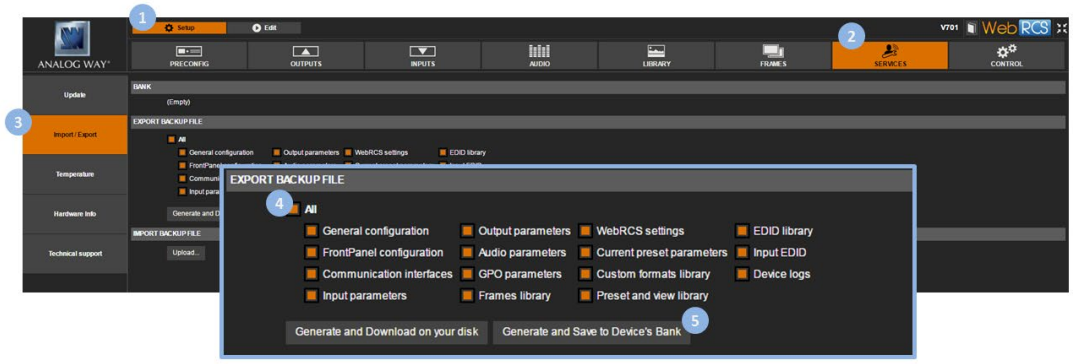
Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **SERVICES** tab to access services available on the device.
3. In the left side toolbar, select **Import/Export** to access the device configuration page.
4. Under the **EXPORT BACKUP FILE** section, select the categories to export.
   Available export categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
Frames library	All the frame library
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

5. Click on **Generate backup and save it to device storage** to save your current device configuration to the device storage.

> **NOTE:** The device storage can only store one configuration at a time. If a configuration has already been saved to the device storage, saving again will overwrite the stored configuration file. Export the stored configuration file first before saving again if required (**SEE: Exporting a configuration**).



> **TIP:** Go to the **DEVICE STORAGE** section to review or erase the configuration stored in the device storage.

To export a configuration:

Front Panel

1. Enter the **SERVICES** menu on the Front Panel interface.
2. Select **Device Config** to access the device configuration menu.
3. Select **Export** and choose the export type.
   Available export types include:

FROM DEVICE	Export the current device configuration
FROM DEVICE STORAGE	Export the configuration that is currently stored in the device storage (SEE: Saving a configuration to the device storage)

4. Select the categories to export if required.

   Available export categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
Frames library	All the frame library
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

> **NOTE:** The selection of categories to export is not available when exporting the configuration that is currently stored in the device storage.

5. Scroll down and select **Select Path** to access the USB device browser.

> **TIP:** Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

6. Finally, select **EXPORT TO THIS FOLDER** to export the selected folder.
7. Select **Confirm** to start the export or **Cancel** to cancel the action.

Web RCS

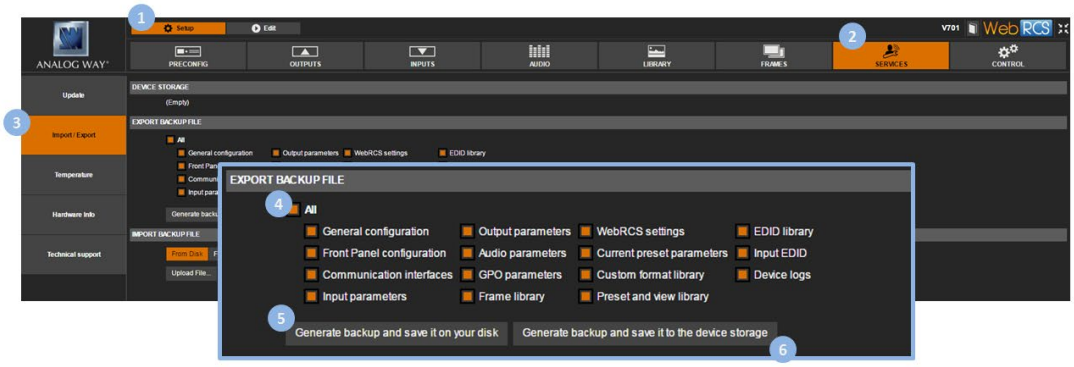
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **SERVICES** tab to access services available on the device.
3. In the left side toolbar, select **Import/Export** to access the device configuration page.
4. Under the **EXPORT BACKUP FILE** section, select the categories to export.
   Available export categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
Frames library	All the frame library
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

5. Click on the **Generate backup and save it on your disk** button to export and save your current device configuration to your disk.

> **NOTE:** You will need to click on the **Download** button to choose the save location and complete the save process.

6. Alternatively, you can click on the **Generate backup and save to device storage** button to save the current device configuration to the device storage. SEE: Saving a configuration to the device storage.



To import a configuration:

Information: Your device will automatically reboot once the import is complete.

Front Panel

NOTE: You will need a USB key to import a configuration via the front panel.

Before you start:

- Plug-in a USB key into the **USB HOST** port (located in the front panel).
- Wait until the device is properly recognized and then proceed to import your configuration as described below.

1. Enter the **SERVICES** menu on the Front Panel interface.
2. Select **Device Config** to access the device configuration menu.
3. Select **Import** and choose the import type.
   Available import types include:

TO DEVICE	Import a configuration and load it on the device
TO DEVICE STORAGE	Import a configuration and save it to the device storage (SEE also: Saving a configuration to the device storage)

4. Use the USB device browser to select the configuration to import.

TIP: Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

5. Select the categories to import if required and then select **Import Config**.
   Available import categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

6. Select **Confirm** to start the import.

NOTE:

- When importing **to the device**, this action will restore your device with the selected categories.
- The selection of categories to import is not available when importing a configuration **to the device storage**.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **SERVICES** tab to access services available on the device.
3. In the left side toolbar, select **Import/Export** to access the device configuration page.
4. Under the **IMPORT BACKUP FILE** section, select **From disk** and then click on the **Upload File...** button to access the **Upload configuration file** window.

> **NOTE:** You can also select **From device storage** to extract the configuration stored in the device storage. **SEE: Saving a configuration to the device storage**.

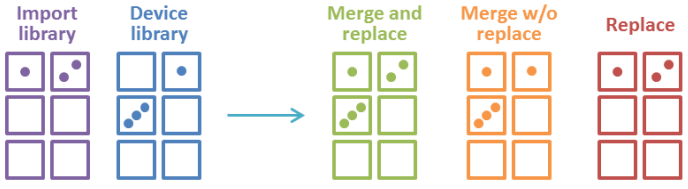
5. In the **Upload configuration file** window, click on the "**...**" button to access your OS device browser.
6. In your OS device browser, select the configuration file to import and click on **OK/Open**.
7. In the **Upload configuration file** window, click on the **Upload** button to start the upload process.
8. Once the upload is complete, select the categories to import.
   Available import categories include:

General configuration	General configuration
Front Panel configuration	Front Panel configuration
Communication interfaces	Communication interfaces
Input parameters	Input parameters
Output parameters	Output parameters
Audio parameters	Audio parameters
GPO parameters	GPO parameters
WebRCS settings	WebRCS settings
Current preset parameters	Current preset parameters
Custom formats library	Custom format library
Preset and view library	Preset and view library
EDID library	EDID library
Input EDID	Input EDID
Device logs	Device logs
All	All categories

9. Select the **Import Frames Method**.

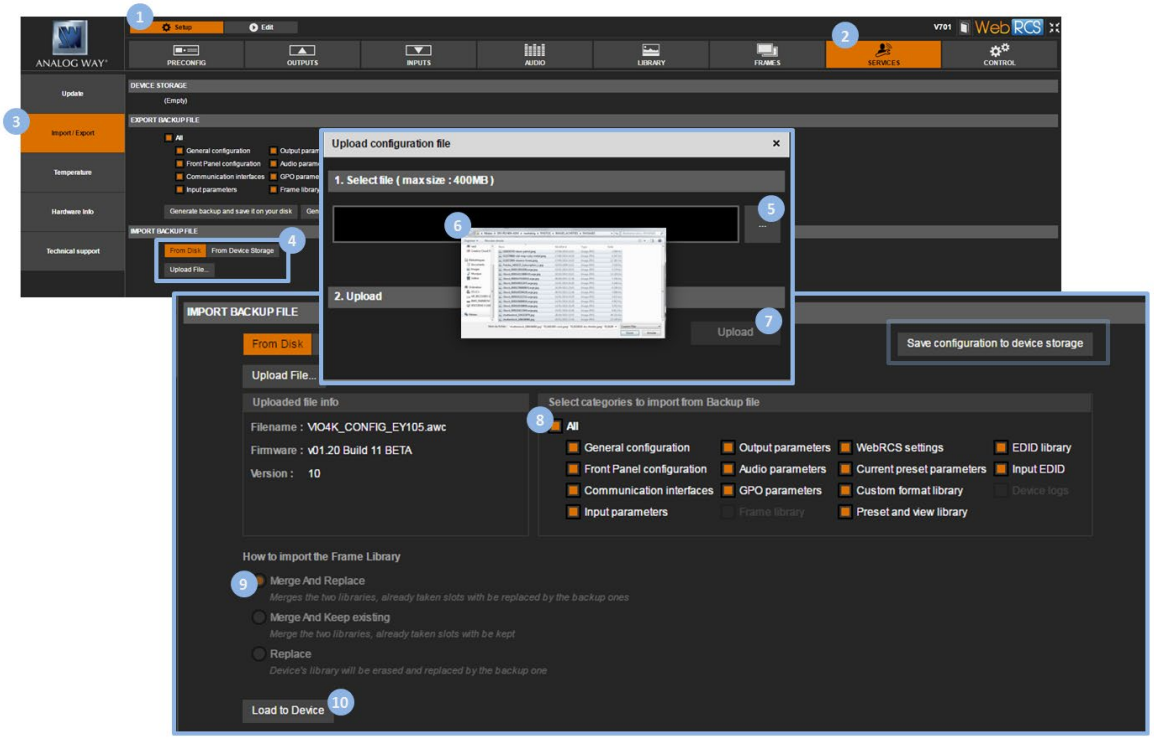
   Available import frames methods include:

MERGE AND REPLACE	Merge import and device libraries, and replace frames in non-empty slots
MERGE LIBRARY WITHOUT REPLACE	Merge import and device libraries, but keep frames in non-empty slots
REPLACE	Replace the entire device library with the import library



10. Select **Load to Device** to load the imported configuration on the device.

> **NOTE:** This action will restore your device with the selected categories. Alternatively, you can select **Save configuration to device storage** to save the imported configuration to the device storage without loading it on the device. **SEE also: Saving a configuration to the device storage**.



5.9 Erasing the device memories

The device memories are settings that have been saved to the device either automatically (like input settings memories) or by user action (like frames and user EDIDs, or preset, view and custom format memories).

To erase all input settings memories:

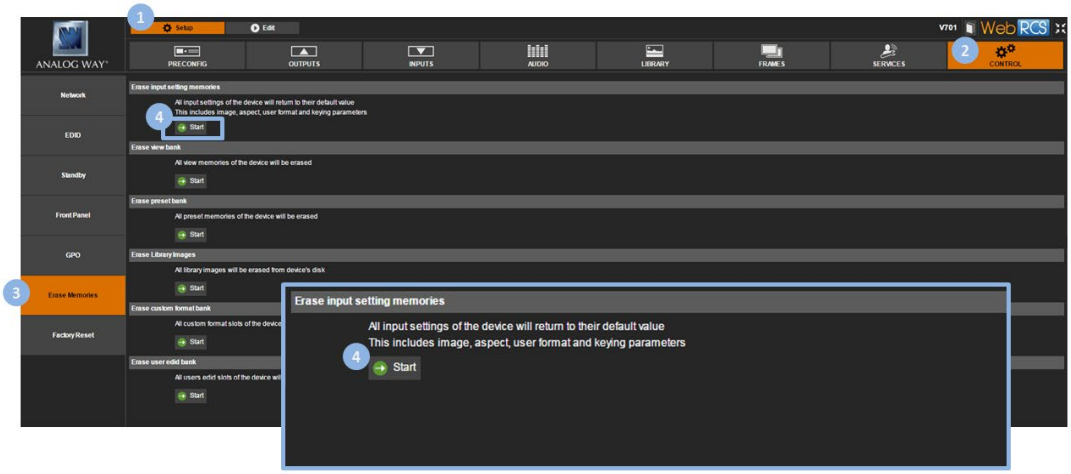
Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Reset Input Settings Memories** to start clearing up input settings memories:
   - Select **YES** to confirm (/!\ this action is irreversible).
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.

2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase Input Settings Memories**, click on the **Start** button:
   - Click again to confirm (/!\ this action is irreversible).
   - Click *elsewhere* to cancel the action.



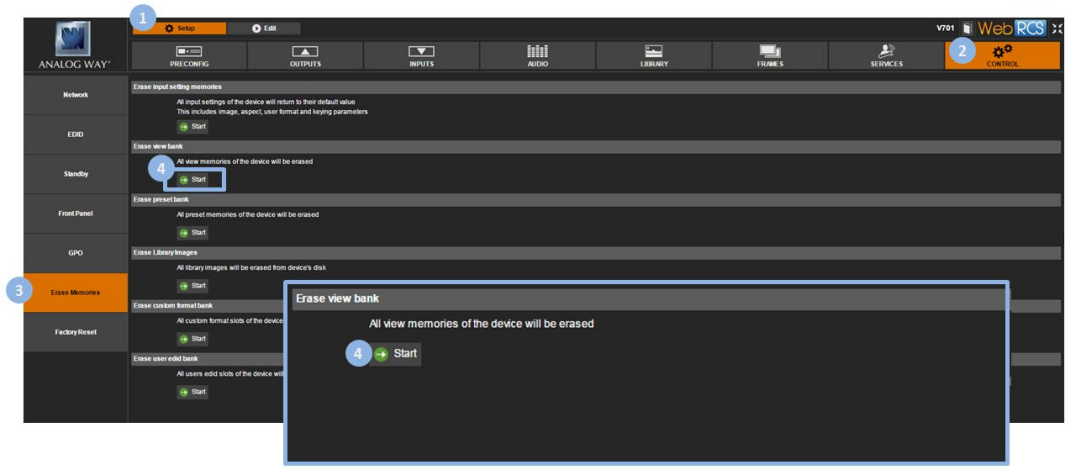
To erase all view memories:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Reset View Memories** to start clearing up the view bank:
   - Select **YES** to confirm (/!\ this action is irreversible).
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase View Bank**, click on the **Start** button:
   - Click again to confirm (/!\ this action is irreversible).
   - Click *elsewhere* to cancel the action.



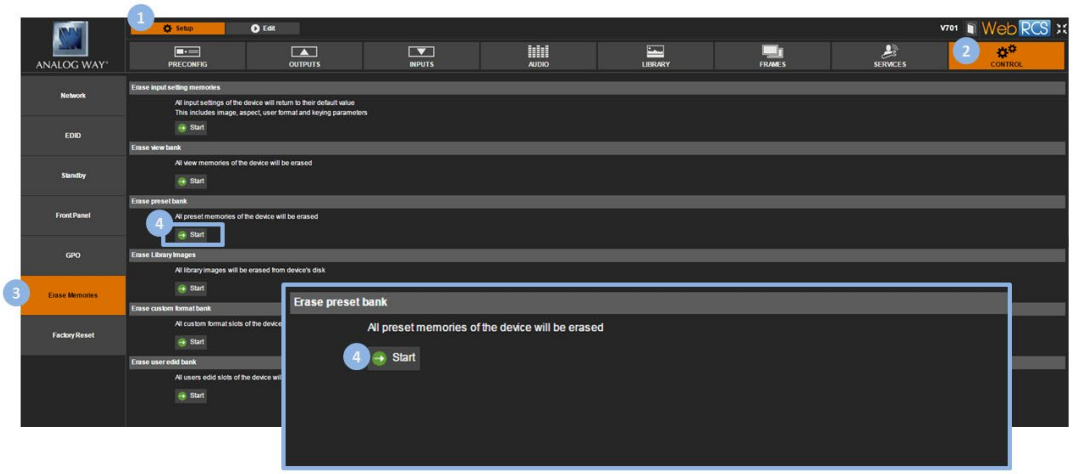
To erase all preset memories:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Reset Preset Memories** to start clearing up the preset bank:
   - Select **YES** to confirm (/!\ this action is irreversible.
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase Preset Bank**, click on the **Start** button:
   - Click again to confirm (/!\ this action is irreversible).
   - Click *elsewhere* to cancel the action.



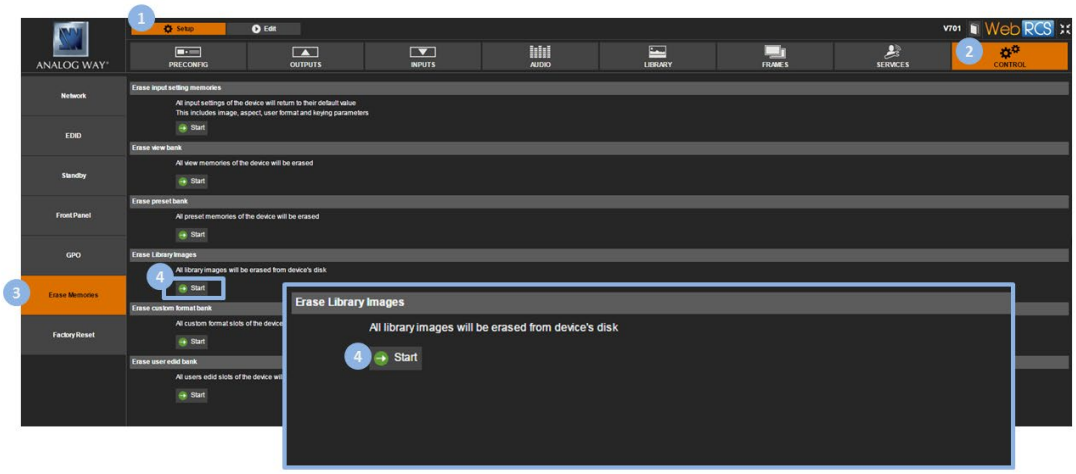
To erase all frames in the library:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Erase Frame Library** to start clearing up the library:
   - Select **YES** to confirm (/!\ this action is irreversible).
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase Library Images**, click on the **Start** button:
   - Click again to confirm (/!\ this action is irreversible).
   - Click *elsewhere* to cancel the action.



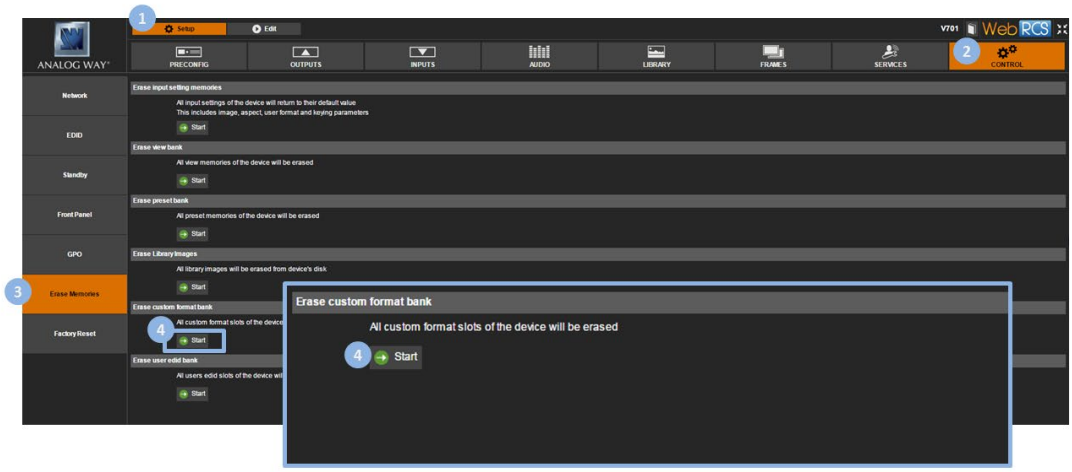
To erase all custom format memories:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Reset Custom Format Memories** to start clearing up the custom format bank:
   - Select **YES** to confirm (/!\ this action is irreversible).
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase Custom Format Bank**, click on the **Start** button:
   - Click again to confirm the reset (/!\ this action is irreversible).
   - Click *elsewhere* to cancel the action.



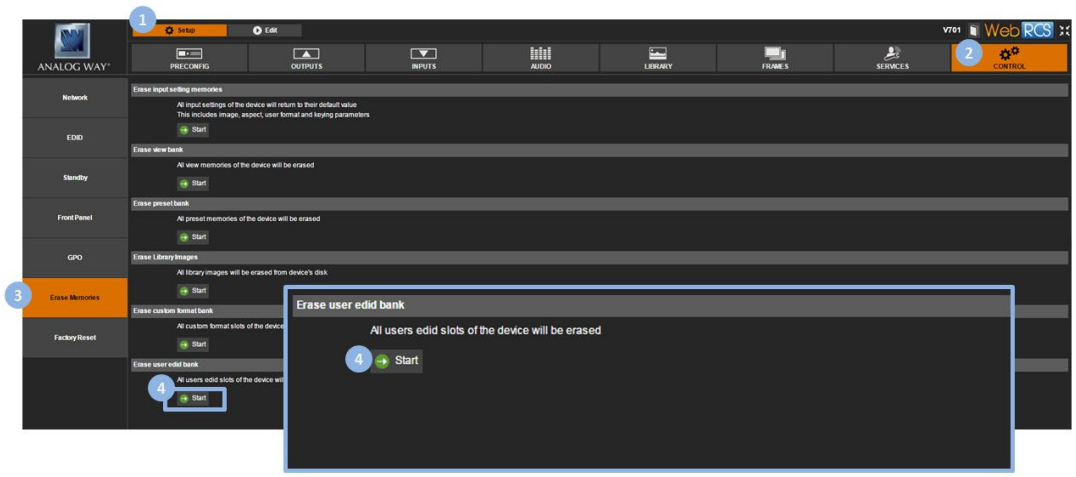
To erase all user EDIDs:

Front Panel

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Scroll down and select **Reset/Erase** to access the reset and erase menu.
3. Select **Erase EDID Library** to start clearing up the user EDID bank:
   - Select **YES** to confirm (/!\ this action is irreversible).
   - Select **NO** to cancel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **Erase Memories** to access the erase memories page.
4. Under **Erase User EDID Bank**, click on the **Start** button:
   - Click again to confirm (/!\ this action is irreversible).
   - Click elsewhere to cancel the action.



5.10 Updating the device

You can update your **VIO 4K** unit to enjoy the latest firmware on the device.

The updater release information includes:

- Updater version;
- Executable file name;
- Creation date;
- Version and Checksums of the different programmable components;
- List of the implemented functional evolutions (evolution ID and title in English);
- List of the corrected bugs (bug ID and bug title, in English).

To update your device:

Caution:
Do not switch off the unit during the update. The **VIO 4K** unit will reboot itself once the update is complete.

Front Panel

NOTE: Before you start:

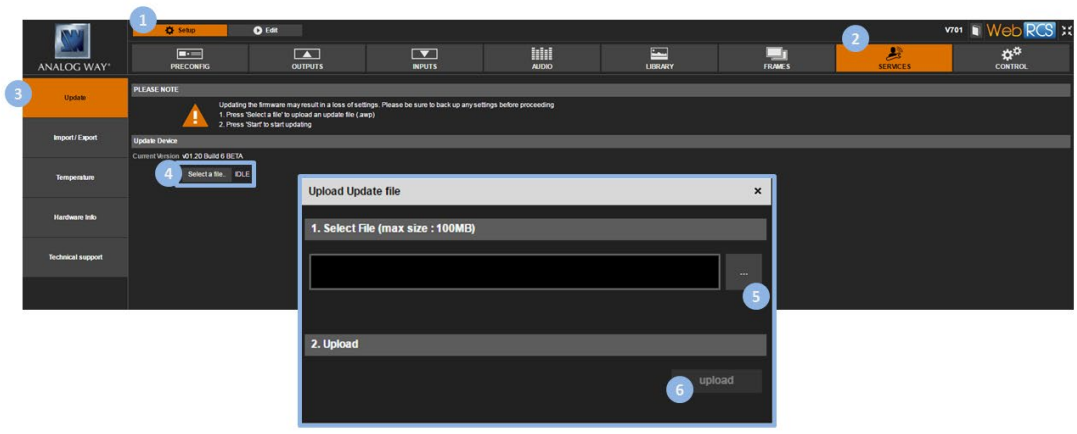
- Back up your settings if necessary.
- Download the latest firmware from ***http://www.analogway.com/***
- Copy the downloaded **AW Firmware Updater (AWP)** file into a USB key (root folder).
- Plug-in the USB key into the unit USB HOST port (located on the front panel).
- Wait until the device is properly recognized and proceed as explained below.

1. Enter the **CONTROL** menu on the Front Panel interface.
2. Select USB Host.
3. Select Scan For Updater.
4. Select **Confirm** to start the update.

Web RCS

NOTE: Back up your settings and download the latest firmware from ***http://www.analogway.com/*** before you start.

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **SERVICES** tab to access services available on the device.
3. In the left side toolbar, select **Update** to access the device update page.
4. Click on **Select a file...** to open the **Upload Update File** window.
5. In the **Upload Update File** window, click on the "**...**" button and browse for the downloaded **AW Firmware Updater (AWP)** file.
6. Click on the **Upload** button to load the firmware on the device.
7. Click on **Start** and confirm to start the update.

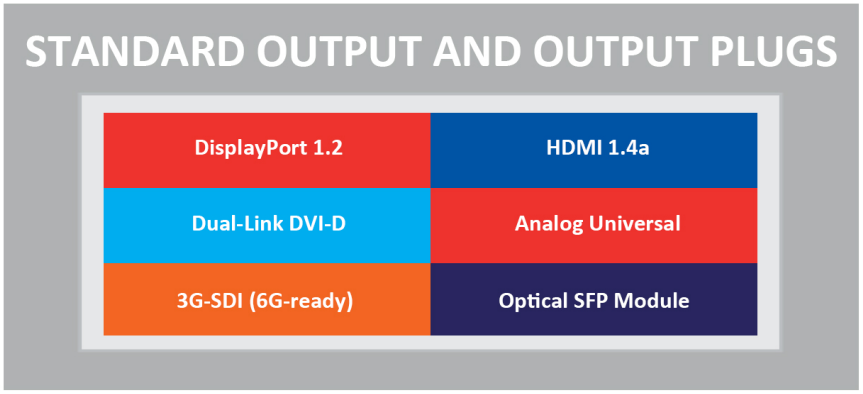


6 Output management

6.1 What is an output?

An **output** is a group of plugs that deliver the same video content under various signal types.

By default, each **VIO 4K** unit is equipped with one **standard output** that contains the following **plugs**:



6.2 Supported outputs (formats and signals)

The following table provides information on the list of supported output formats and signals:

Plug type	Formats	Signals
Universal Analog (HD15)	SDTV	YCbCr ITU-R BT.601
	EDTV	YCbCr ITU-R BT.601
	HDTV	YCbCr ITU-R BT.709
	Computer	RGBHV
		RGBs
		RGsB
DVI-D Dual-Link	EDTV	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	HDTV	YCbCr ITU-R BT.709
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	Computer	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)

Plug type	Formats	Signals
HDMI 1.4a	SDTV	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	EDTV	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	HDTV	YCbCr ITU-R BT.709
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	UHDTV/4K (up to 30Hz)	YCbCr ITU-R BT.709
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	Computer	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
DisplayPort 1.2	SDTV	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	EDTV	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	HDTV	YCbCr ITU-R BT.709
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	UHDTV/4K (up to 30Hz)	YCbCr ITU-R BT.709
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
	Computer	YCbCr ITU-R BT.601
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
3G-SDI	SDTV	SMPTE 259M-C (YCbCr ITU-R BT.601 4:2:2)
	HDTV	SMPTE ST296 (720p YCbCr ITU-R BT.709 4:2:2)
		SMPTE 274M (1080i/1080p YCbCr ITU-R BT.709 4:2:2)
		SMPTE ST2048 (2K YCbCr ITU-R BT.709 4:2:2)
6G-SDI	UHDTV/4K (up to 30Hz)	SMPTE ST2036 (2K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
		SMPTE ST2048 (4K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
OPTICAL SFP Slot (NMSA)	SDTV	SMPTE 259M-C (YCbCr ITU-R BT.601 4:2:2)
	HDTV	SMPTE ST296 (720p YCbCr ITU-R BT.709 4:2:2)
		SMPTE 274M (1080i/1080p YCbCr ITU-R BT.709 4:2:2)
		SMPTE ST2048 (2K YCbCr ITU-R BT.709 4:2:2)
	UHDTV/4K (up to 30Hz)	SMPTE ST2036 (2K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
		SMPTE ST2048 (4K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)

SEE also: Custom Formats

6.2.1 Additional outputs supported with video expansion interfaces

Plug type	Formats	Signals
HDMI 2.0	UHDTV/4K (up to 60Hz)	YCbCr ITU-R BT.601, ITU-R BT.709, ITU-R BT.2020
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
DisplayPort 1.2	UHDTV/4K (up to 60Hz)	YCbCr ITU-R BT.601, ITU-R BT.709, ITU-R BT.2020
		RGB Full scale (0-255)
		RGB Limited scale (16-235)
12G-SDI	UHDTV/4K (up to 60Hz)	SMPTE ST2036 (2K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
		SMPTE ST2048 (4K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
OPTICAL SFP Slot (NMSA)	UHDTV/4K (up to 60Hz)	SMPTE ST2036 (2K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)
		SMPTE ST2048 (4K YCbCr ITU-R BT.709, ITU-R BT.2020 4:2:2)

Related topics:

- Expansion interfaces

6.3 Checking the output status

The output status provides information on the current output configuration.

Available output status information includes:

- **Format Mode:** Current mode used to set up the format.
  Possible output format modes include:

INTERNAL REF.	Internal reference format mode
AUTO EDID FORMAT	Automatic format mode based on EDID
FRAMELOCK	Framelock format mode
GENLOCK	Genlock format mode

- **Format:** Currently applied format.
- **Rotation:** Current output rotation.
- **AOI:** Current active area of your display in the output format.
  - **Size:** AOI horizontal x vertical dimensions (in pixels).
  - **Position:** AOI horizontal, vertical start offset (in pixels).
- **Plug Status:** Output plug status.
  List of possible status for each plug include:

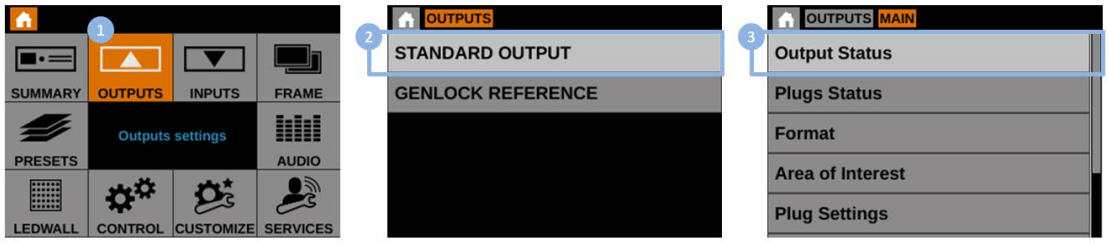
NOT AVAILABLE	Plug is not available for this output
ACTIVE	Plug is active for this output
ACTIVE (WARNING EDID INVALID)	Plug is active but monitor EDID is invalid
DISABLED FOR HDCP REASON	Plug is disabled for this output because it does not have the HDCP capability

FORMAT NOT SUPPORTED	Plug disabled for this output because the format is not supported
NO DISPLAY DETECTED	Plug is disabled because there is no display detected
CONNECTION FAILED (CHECK CABLE)	Plug disabled because connection has failed
REFERENCE SIGNAL INCOMPATIBLE	Plug disabled because reference used is not compatible with plug standard
FORMAT NOT SUPPORTED BY DISPLAY	Plug is disabled because the display is not compatible with the format parameters

To check the status of your outputs:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Output Status** to check the output status information.



Alternative method:

1. Enter the **SUMMARY** menu on the Front Panel interface.
2. Under **STANDARD OUTPUT**, check the standard output status information.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Check the output status information next to the output preview window.

Alternative method:

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **General** to access the general outputs setup page.
4. Check the output status information next to the output preview window.

6.4 Setting up the output

You can truly control your output format conversion environment by setting up the output format and plug.

You can also adjust the active area of your display in the output format (i.e. the output Area of Interest), correct the output image, or use patterns to control the final rendering of the output in the screen.

6.4.1 Checking the plug status

The output plug status provides information on the current configuration of your output plugs.

Available plug status information includes:

- **Status:** Output plug status.
  List of possible status for each plug include:

NOT AVAILABLE	Plug is not available for this output
ACTIVE	Plug is active for this output
ACTIVE (WARNING EDID INVALID)	Plug is active but monitor EDID is invalid
DISABLED FOR HDCP REASON	Plug is disabled for this output because it does not have the HDCP capability
FORMAT NOT SUPPORTED	Plug disabled for this output because the format is not supported
NO DISPLAY DETECTED	Plug is disabled because there is no display detected
CONNECTION FAILED (CHECK CABLE)	Plug disabled because connection has failed
REFERENCE SIGNAL INCOMPATIBLE	Plug disabled because reference used is not compatible with plug standard

FORMAT NOT SUPPORTED BY DISPLAY	Plug is disabled because the display is not compatible with the format parameters

- **Signal Type:** Currently applied signal type (analog plugs).
  List of possible output signal types (analog plugs):

YUV	YUV signal 0-700mV
RGsB	RGB signal with synchro on green (SOG)
RGBs	RGB signal with a TTL composite synchro
RGBHV	RGB signal with separate TTL H/V synchro

- **Color Space:** Currently applied color space (digital plugs).
  List of possible output color spaces (digital plugs):

AUTO	Automatic color space selection
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)
YCbCr 4:4:4	YCbCr 4:4:4 (ITU-R BT.601 or ITU-R BT.709)
YCbCr 4:2:2	YCbCr 4:2:2 (ITU-R BT.601 or ITU-R BT.709)

- **Color Depth:** Current color depth status.
  List of possible signal color depths:

18 BITS (6 bpc)	18 bits for a pixel, 6 bits for each color
24 BITS (8 bpc)	24 bits for a pixel, 8 bits for each color
30 BITS (10 bpc)	30 bits for a pixel, 10 bits for each color

- **HDCP Status:** Current HDCP status for the plug.
- **Monitor:** Current monitor name (if detected on the plug).
- **HDMI Mode:** Current HDMI mode status (/!\ in DVI mode no audio can be transmitted).
- **Audio Mode:** (SDI and Optical plugs only) Current audio mode selected for the output plug.
- **Module Detected:** SFP module detection status.
- **ID:** SFP module identifier.
- **Bitrate:** SFP module nominal bitrate.
- **Vendor Name:** SFP module vendor name.
- **Part Number:** SFP module part number.
- **Module Status:** SFP module support status.
- **Standard:** SDI standard/transport used to output the signal.

To check the status of an output plug:

Front Panel

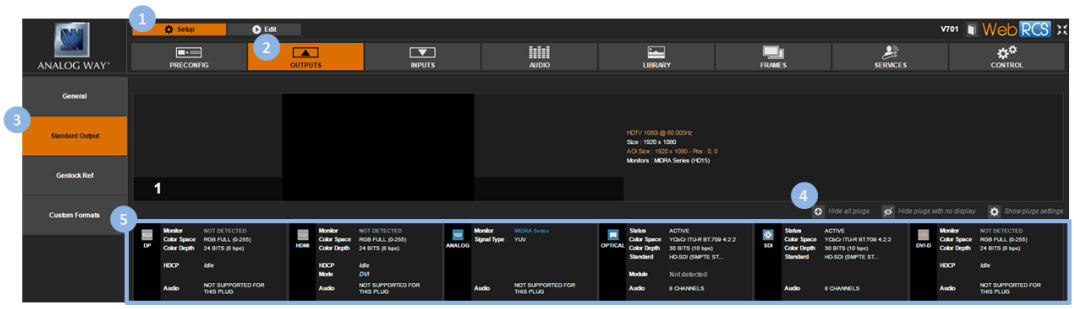
1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Status**.
4. Check the plug status information for each output plug.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show output plugs.

> **TIP:** Enable the **Hide plugs with no display** button to show active plugs only.

5. Check the plug status information right below each output plug.



6.4.2 Setting up the plug

You can optimize the output by setting up each output plug.

You can select the signal type on a plug for example, enable/disable HDCP detection on the plug, force the DVI mode of HDMI plugs, choose the audio mode of SDI/optical plugs, enable the loop mode of HDMI, DVI and analog plugs, etc.

6.4.2.1 Selecting the signal type

Both the signal type and the color space depend on the plug type:

- On analog plugs, the color space is implicit to the signal type and you may simply select the signal type for the plug.
- On digital plugs, the signal type is always digital and you may simply select the color space for the plug.

To select the signal type for an analog plug:

Front Panel

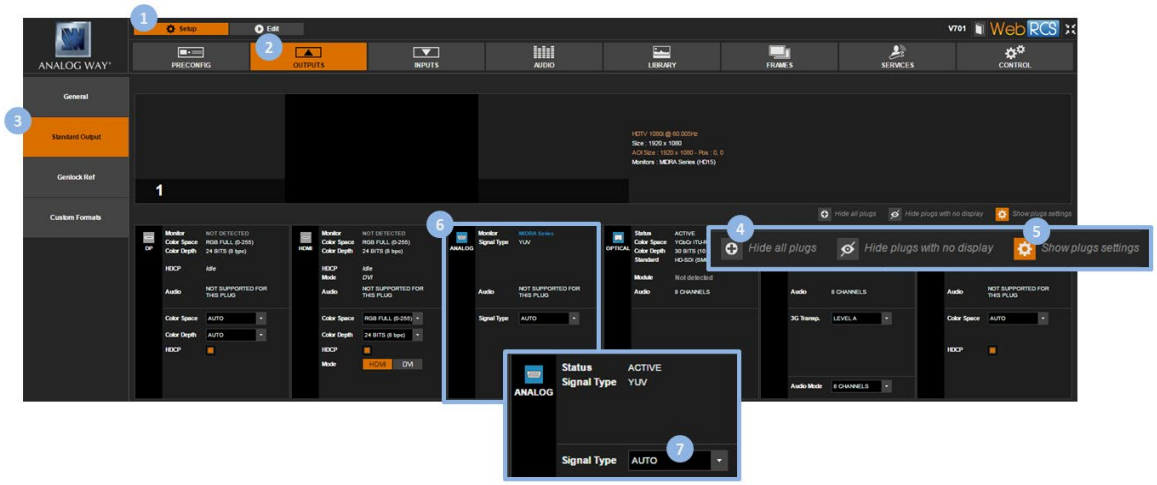
1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. Select **Signal Type** and choose the signal type for the plug (analog plugs only).
   Available signal types include:

YUV	YUV signal 0-700mV
RGsB	RGB signal with synchro on green (SOG)
RGBs	RGB signal with a TTL composite synchro
RGBHV	RGB signal with separate TTL H/V synchro

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Under **Signal Type**, select the signal type for the plug (analog plugs only).
   Available signal types include:

YUV	YUV signal 0-700mV
RGsB	RGB signal with synchro on green (SOG)
RGBs	RGB signal with a TTL composite synchro
RGBHV	RGB signal with separate TTL H/V synchro



To select the color space for a digital plug:

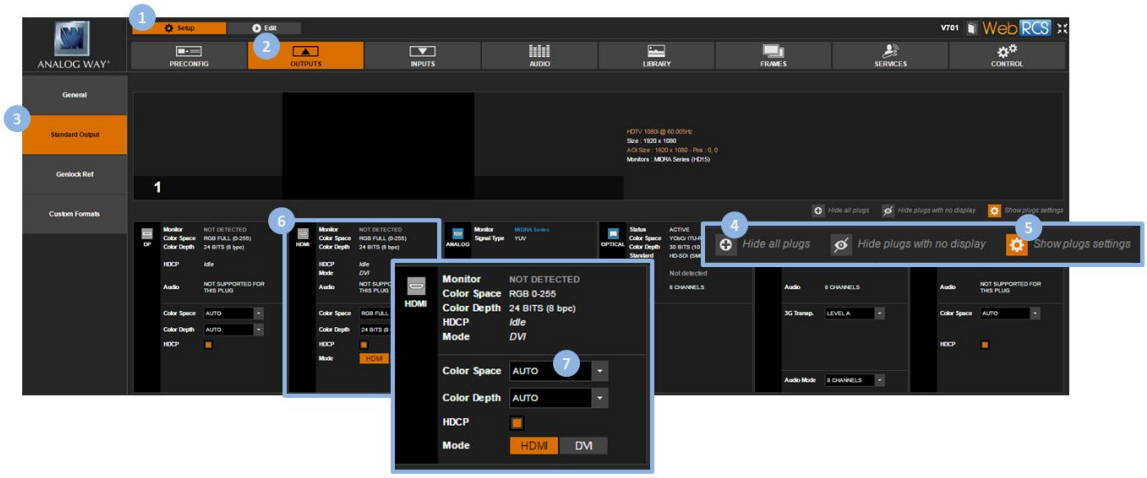
Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. Select **Color Space** and choose the color space for the plug (digital plugs only).
   Available color spaces include:

AUTO	Automatic color space selection
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)
YCbCr 4:4:4	YCbCr 4:4:4 (ITU-R BT.601 or ITU-R BT.709)
YCbCr 4:2:2	YCbCr 4:2:2 (ITU-R BT.601 or ITU-R BT.709)

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Under **Color Space**, select the color space for the plug (digital plugs only).



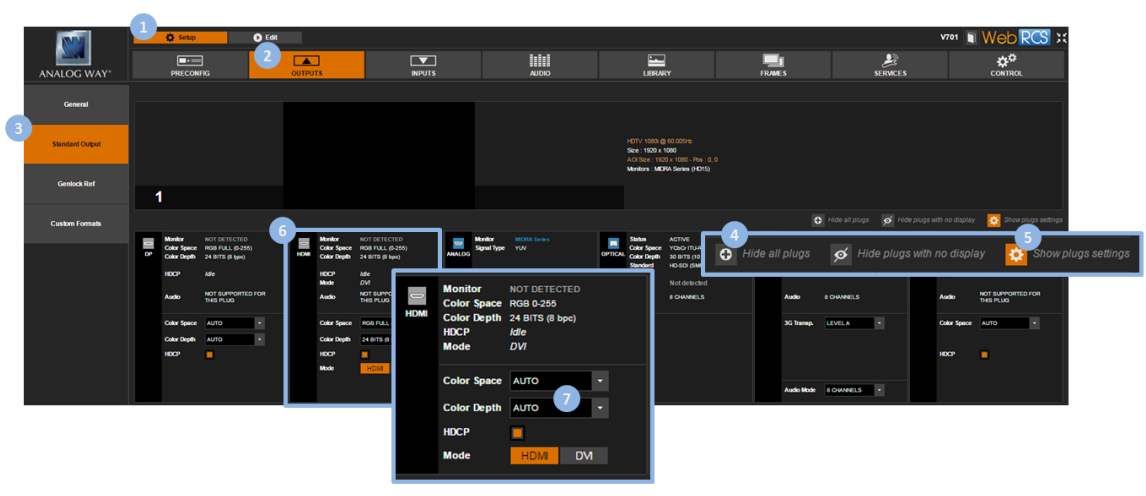
To select the color depth for a digital plug:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. Select **Color Depth** and choose the color space for the plug (digital plugs only).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Under **Color Depth**, select the color depth for the plug (digital plugs only).



6.4.2.2 Choosing the HDMI/DVI mode (HDMI plugs)

HDMI plugs are compatible with the DVI standard. In some cases, the HDMI plug may even need to work as DVI in order for the source connected to the plug to work properly.

The **VIO 4K** allows you to force the DVI mode on HDMI plugs.

To force the DVI mode on an HDMI plug:

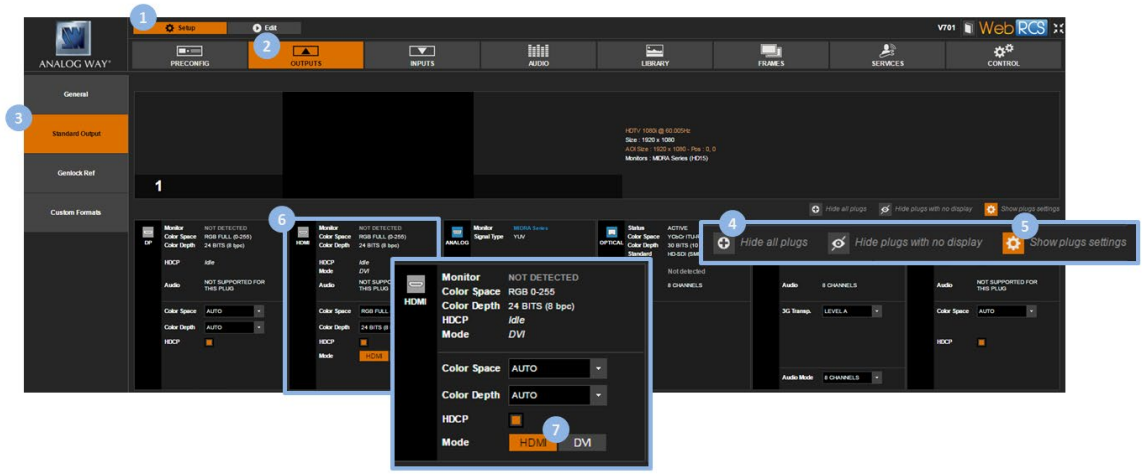
> **Information:**
> No audio will be transmitted.

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select an HDMI plug to access the HDMI plug setup menu.
5. Check the **Force DVI Mode** check-box to force the DVI mode on the plug (/!\ no audio will be transmitted).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the HDMI plug to set up.
7. Select **Mode > DVI** to force the DVI mode on the plug (/!\ no audio will be transmitted).



6.4.2.3 Choosing the 3G transport mode (SDI and Optical plugs)

SDI/Optical plugs can work in 2 levels:

- **Level A:** 1 channel + 1 complete image.
- **Level B:** 1 image in 2 parts (= 2 signals).

By choosing the SDI level of the plug (SDI and Optical plugs only), you can specify the standard used to transport 3G formats.

To select the SDI level of an SDI/Optical plug:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select the **SDI/OPTICAL** plug to access the SDI/OPTICAL plug setup menu.
5. Select **3G Transport Mode** and choose the SDI level (SDI/Optical plugs only).
   Available SDI levels include:

LEVEL A	Transport in 1 x 3G Level A coax
LEVEL B	Transport in 1 x 3G Level B coax

6. If required, select the SDI audio output mode (SEE also: Audio management: SDI audio).

> **NOTE:** The chosen 3G transport and audio modes affect both SDI and OPTICAL plugs.

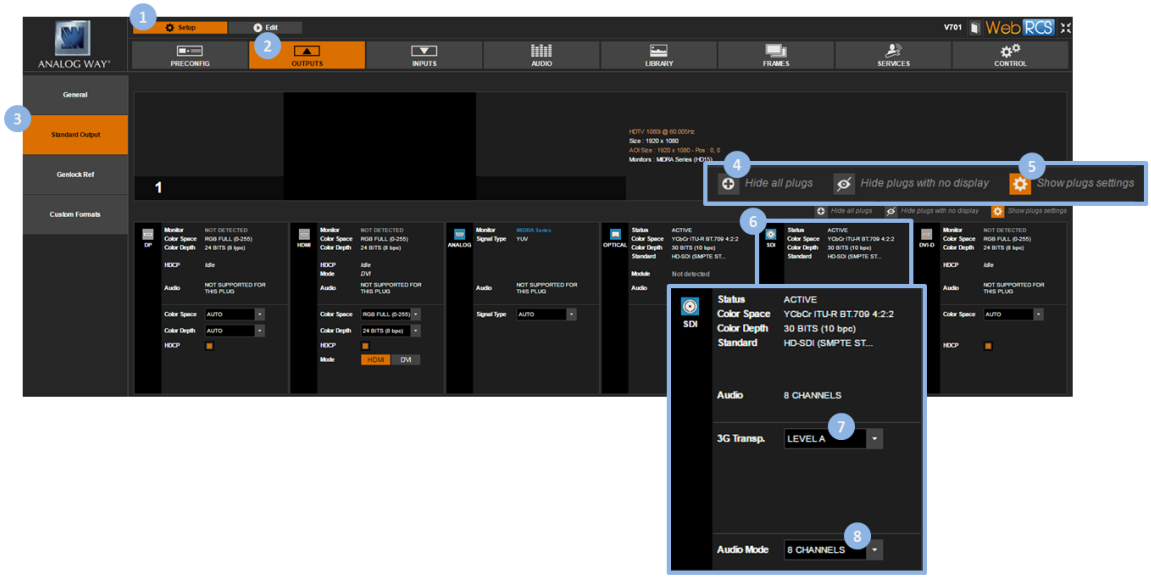
Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the **SDI/OPTICAL** plug to set up.
7. Under **3G Transp.**, choose the SDI level (SDI/Optical plugs only).
   Available SDI levels include:

LEVEL A	Transport in 1 x 3G Level A coax
LEVEL B	Transport in 1 x 3G Level B coax

8. If required, select the SDI audio output mode (SEE also: Audio management: SDI audio).

> **NOTE:** The chosen 3G transport and audio modes affect both SDI and OPTICAL plugs.



6.4.2.4 Managing the HDCP detection

The **VIO 4K** is compliant with the HDCP specification for DVI, HDMI and DisplayPort inputs.

If an input source is HDCP-encrypted, the output availability is then negotiated according to the following criteria:

	HDCP source(*)	Non-HDCP source
HDCP output peripheral	Output content is available only if HDCP is enabled on both the input and output plugs.	Output content is available, whichever the status on the output plug.
Non-HDCP output peripheral	Output is blackened even if HDCP is enabled on the output plug.	

(*) Only on video plugs standard that support HDCP (HDMI, DisplayPort, DVI).

By enabling and disabling HDCP, you can thus relatively control the whole HDCP stream:

Input control

- With HDCP enabled (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
- With HDCP disabled, none of the HDCP sources can be displayed (the sources will see the VIO 4K inputs as non-HDCP compliant).

Output control

- With HDCP enabled (default), the HDCP encryption is maintained whether the screen is compliant or not.
- With HDCP disabled, all screens are seen as non-HDCP compliant.

TIP: Disable HDCP as much as possible, especially if not using HDCP-encrypted sources.

To enable/disable HDCP on an output plug:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. Check the **HDCP Detection** check-box to enable the HDCP negotiation on the output plug (uncheck to disable).

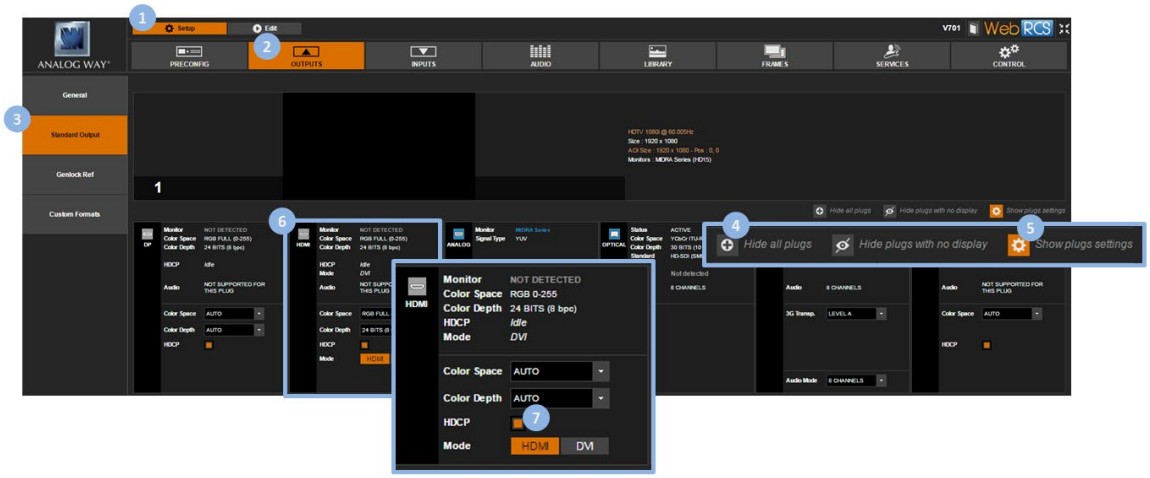
> NOTE:
> - With HDCP **enabled** (default), the HDCP encryption is maintained whether the screen is compliant or not.
> - With HDCP **disabled**, all screens are seen as non-HDCP compliant.

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all output plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Check the **HDCP** check-box to enable the HDCP negotiation on the output plug (uncheck to disable).

> NOTE:
> - With HDCP **enabled** (default), the HDCP encryption is maintained whether the screen is compliant or not.
> - With HDCP **disabled**, all screens are seen as non-HDCP compliant.



> **TIP:** Use the Quick Setup button (located at the bottom of the Web RCS interface) to manage HDCP on all output plugs.

SEE also: Enabling/disabling HDCP support on an input plug

6.4.3 Setting up the format

The output format determines the final resolution and rate of the output.

On the **VIO 4K**, you can set up the format using one of the following format and rate generation modes:

Internal reference mode (default)

The internal reference mode allows you to choose the required output format from a list of compatible formats (including predefined formats and custom formats), and then choose the rate from a list of compatible rates (system clock).

Auto EDID format mode

The Auto EDID format mode selects an output plug and applies the preferred format read in its EDID to the output format.

If the plug EDID is not available or corrupted, the applied output format is the one determined in the format and rate menus.

Framelock mode

The Framelock/video mode allows you to choose a 0.5x, 1x or 2x rate mode while using the output or one of its inputs as a video reference and a rate multiplier to set up the format.

You can also fine-tune the pixel and line offsets.

Genlock mode

The Genlock mode allows you to set up the format using a Genlock reference.

You can also fine-tune the pixel and line offsets.

NOTE: The output format and rate must be supported by the signal. Available formats will thus depend on the chosen format setup mode. SEE: Supported outputs for more information.

TIP: Use the auto EDID format mode to auto-set the format.

To use the internal (clock) reference (default):

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **Standard Output** to access the standard output setup menu.
3. Select **Format** to access the standard output format setup menu.
4. Select **INTERNAL REF.** to use the system clock as a reference to set up the format.
5. Select a **Format** from the list of formats compatible with the chosen format mode.
   Available output formats include:

SDTV PAL 4:3	SDTV PAL 16:9
SDTV NTSC 4:3	SDTV NTSC 16:9
CEA-861 480i 4:3	CEA-861 480i 16:9
EDTV 480p 4:3	EDTV 480p 16:9
EDTV 576p 4:3	EDTV 576p 16:9
HDTV 720p	HDTV 1035i
HDTV 1080i	HDTV 1080sF
HDTV 1080p	DCDM 2K (2048x1080)
UHDTV 2160p (3840x2160)	DCDM 4K (4096x2160)
DMT 640x480 (4:3 VGA)	800x480 (15:9 WVGA)
DMT 800x600 (4:3 SVGA)	DMT 848x480 (16:9 WVGA)
DMT 1024x768 (4:3 XGA)	1088x817 (4:3)
DMT 1152x864 (4:3)	DMT 1280x720 (16:9 720p)
DMT 1280x768 (15:9 WXGA)	DMT 1280x800 (16:9 WXGA2)
DMT 1280x960 (4:3)	DMT 1280x1024 (5:4 SXGA)
DMT 1360x768 (16:9)	DILA 1360x1024 (4:3)
DMT 1366x768 (16:9 WXGA)	1366x800 (15:9 WXGA)
DMT 1400x1050 (4:3 SXGAP)	DMT 1440x900 (16:10 900p)
DMT 1440x1080 (4:3)	DMT 1600x900 (16:9)
DMT 1600x1200 (4:3 UXGA)	DMT 1680x1050 (16:10 WSXGA+)
DMT 1792x1344 (4:3)	DMT 1856x1392 (4:3)
DMT 1920x1080 (16:9 FHD)	DMT 1920x1200 (16:10 WUXGA)
DMT 1920x1440 (4:3)	1920x2160 (UHD Side/Side)
2048x1080 (2K)	DMT 2048x1152 (16:9)
DILA 2048x1536 (4:3 QXGA)	2048x2160 (4K Side/Side)
CEA-861 2560x1080 (21:9)	CVT 2560x1440 (16:9 QHD)
DMT 2560x1600 (16:10 WQXGA)	CVT 2560x2048 (4:3 QSXGA)
CVT 3440x1440 (21:9)	3840x1080 (UHD Top/Bottom)
4096x1080 (4K Top/Bottom)	COMPUTER CUSTOM 1 … 64

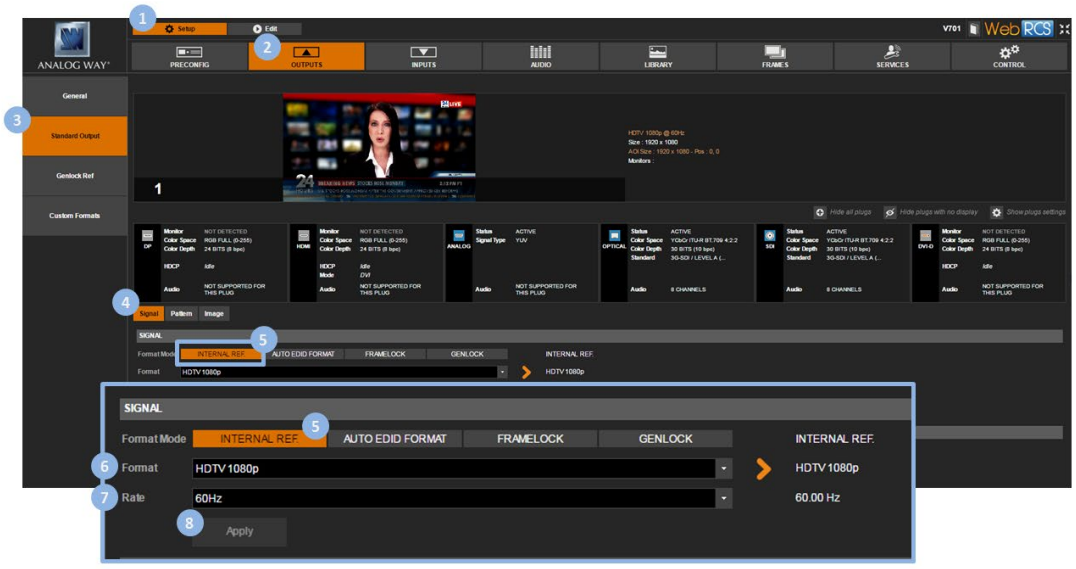
6. Select a **Rate** from a list of rates compatible with the chosen format mode.
7. Wait for the **Format generation in progress** screen to check the new format settings.
8. Once the setup is complete, press the **EXIT-MENU** button to return to the output setup menu.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **Standard Output** to access the standard output setup page.
4. Click on the **Signal** tab to access the output format setup page.
5. Under **SIGNAL > Format Mode**, select **INTERNAL REF.** to use the system clock as a reference to set up the format.
6. Select a **Format** from the list of formats compatible with the internal reference mode. Available output formats include:

SDTV PAL 4:3	SDTV PAL 16:9
SDTV NTSC 4:3	SDTV NTSC 16:9
CEA-861 480i 4:3	CEA-861 480i 16:9
EDTV 480p 4:3	EDTV 480p 16:9
EDTV 576p 4:3	EDTV 576p 16:9
HDTV 720p	HDTV 1035i
HDTV 1080i	HDTV 1080sF
HDTV 1080p	DCDM 2K (2048x1080)
UHDTV 2160p (3840x2160)	DCDM 4K (4096x2160)
DMT 640x480 (4:3 VGA)	800x480 (15:9 WVGA)
DMT 800x600 (4:3 SVGA)	DMT 848x480 (16:9 WVGA)
DMT 1024x768 (4:3 XGA)	1088x817 (4:3)
DMT 1152x864 (4:3)	DMT 1280x720 (16:9 720p)
DMT 1280x768 (15:9 WXGA)	DMT 1280x800 (16:9 WXGA2)
DMT 1280x960 (4:3)	DMT 1280x1024 (5:4 SXGA)
DMT 1360x768 (16:9)	DILA 1360x1024 (4:3)
DMT 1366x768 (16:9 WXGA)	1366x800 (15:9 WXGA)
DMT 1400x1050 (4:3 SXGAP)	DMT 1440x900 (16:10 900p)
DMT 1440x1080 (4:3)	DMT 1600x900 (16:9)
DMT 1600x1200 (4:3 UXGA)	DMT 1680x1050 (16:10 WSXGA+)
DMT 1792x1344 (4:3)	DMT 1856x1392 (4:3)
DMT 1920x1080 (16:9 FHD)	DMT 1920x1200 (16:10 WUXGA)
DMT 1920x1440 (4:3)	1920x2160 (UHD Side/Side)
2048x1080 (2K)	DMT 2048x1152 (16:9)
DILA 2048x1536 (4:3 QXGA)	2048x2160 (4K Side/Side)
CEA-861 2560x1080 (21:9)	CVT 2560x1440 (16:9 QHD)
DMT 2560x1600 (16:10 WQXGA)	CVT 2560x2048 (4:3 QSXGA)
CVT 3440x1440 (21:9)	3840x1080 (UHD Top/Bottom)
4096x1080 (4K Top/Bottom)	COMPUTER CUSTOM 1 ... 64

7. Select a **Rate** from a list of rates compatible with the chosen format.
8. Select **APPLY** to save and apply the new settings.



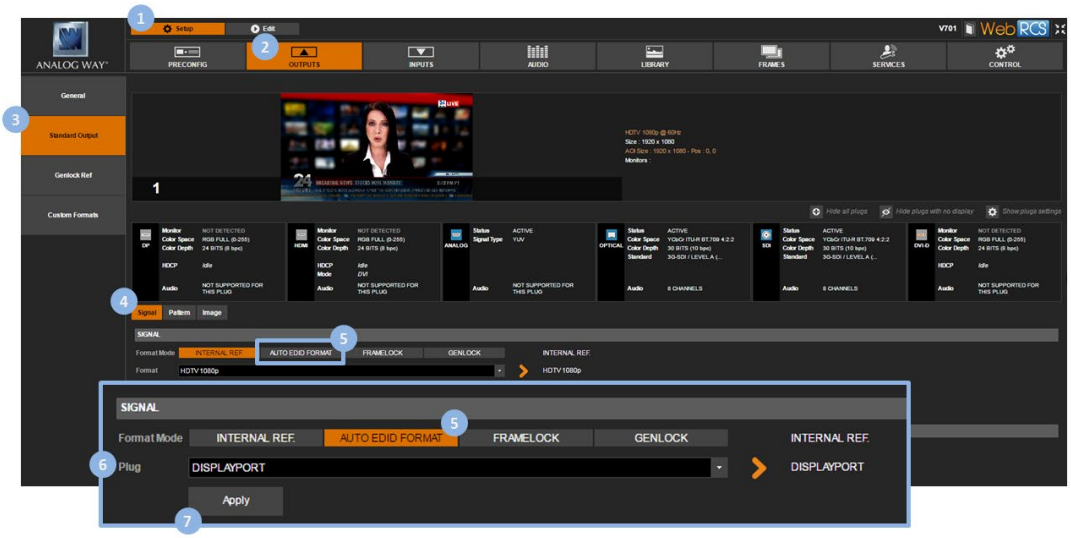
To auto-set the format using EDIDs:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Format** to access the standard output format setup menu.
4. Select **AUTO EDID FORMAT** to auto-set the format using a plug's EDID preferred format.
5. Select the plug used for auto EDID and wait for the **Format generation in progress** screen.
6. Once the setup is complete, press the **EXIT-MENU** button to return to the output setup menu.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Signal** tab to access the output format setup page.
5. Under **SIGNAL > Format Mode**, select **AUTO EDID FORMAT.** to auto-set the format using a plug's EDID preferred format.
6. Click on **Plug** to select the plug used for auto EDID.
7. Select **APPLY** to save and apply the new settings.



To framelock to a video reference:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Format** to access the standard output format setup menu.
4. Select **FRAMELOCK** to use a Framelock/video reference to set up the format.
5. Select a **Format** from the list of formats compatible with the Framelock/video mode.
6. Select a rate **Mode** for the Framelock/video mode.
   Available rate modes for framelock include:

MODE x0.5	The reference rate is the reference signal rate divide by 2 (two times slower)
MODE x1	The reference rate is the reference signal rate
MODE x2	The reference rate is the reference signal rate multiply by 2 (two times faster)

> **Rate mode restrictions:** The product "Input Reference Rate x Rate Factor" must be ≥ 23.97 Hz and ≤ 120 Hz.

7. Select the Framelock/video **Reference**.

> **NOTE:** All inputs can be used as Framelock reference.

Available input references for framelock include:

INPUT 1	Framelock on DisplayPort input
INPUT 2	Framelock on HDMI input on back panel
INPUT 3	Framelock on HD15 input
INPUT 4	Framelock on Optical input
INPUT 5	Framelock on SDI input
INPUT 6	Framelock on DVI-D input
INPUT 7	Framelock on HDMI input on front panel
INPUT OPT 1*	Framelock on input on option card 1
INPUT OPT 2*	Framelock on input on option card 2
INPUT GENLOCK	Framelock on genlock input

8. Wait for the **Format generation in progress** screen to check the new format settings.
9. Once the setup is complete, press the **EXIT-MENU** button to return to the output setup menu.

> **TIP:** Go to the output setup menu and select **Framelock Tune** to adjust the vertical and horizontal offsets to apply to the output signal.
> - **Offset H:** Offset in pixels (ratio of 1 line) to apply to the output signal.
> - **Offset V:** Offset in lines (ratio of 1 frame) to apply to the output signal.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Signal** tab to access the output format setup page.
5. Under **SIGNAL > Format Mode**, select **FRAMELOCK** to use a Framelock/video reference to set up the format.
6. Click on **Format** and select a format from the list of formats compatible with the Framelock/video mode.
7. Click on **Reference** and select the Framelock/video reference.

> **NOTE:** All inputs can be used as Framelock reference.

Available input references for framelock include:

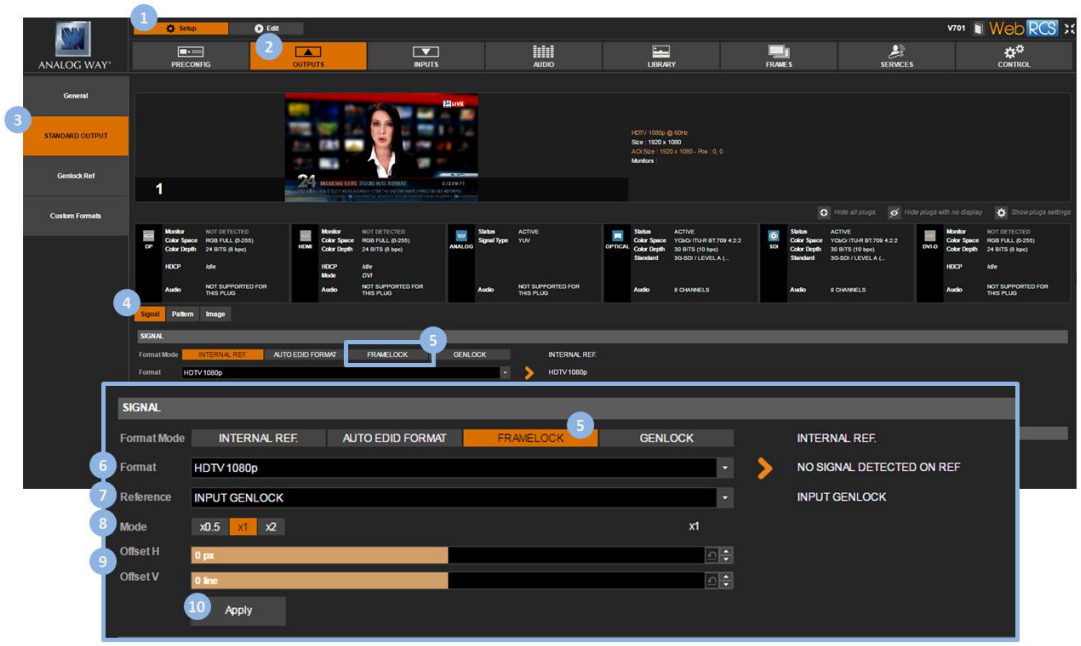
INPUT 1	Framelock on DisplayPort input
INPUT 2	Framelock on HDMI input on back panel
INPUT 3	Framelock on HD15 input
INPUT 4	Framelock on Optical input
INPUT 5	Framelock on SDI input
INPUT 6	Framelock on DVI-D input
INPUT 7	Framelock on HDMI input on front panel
INPUT OPT 1	Framelock on input on option card 1
INPUT OPT 2	Framelock on input on option card 2
INPUT GENLOCK	Framelock on genlock input

8. Under **Mode**, select the rate mode multiplier.
   Available rate modes for framelock include:

MODE x0.5	The reference rate is the reference signal rate divide by 2 (two times slower)
MODE x1	The reference rate is the reference signal rate
MODE x2	The reference rate is the reference signal rate multiply by 2 (two times faster)

> **Rate mode restrictions:** The product "Input Reference Rate x Rate Factor" must be ≥ 23.97 Hz and ≤ 120 Hz.

9. If required, adjust the vertical and horizontal offsets to apply to the output signal:
   - **Offset H:** Offset in pixels (ratio of 1 line) to apply to the output signal.
   - **Offset V:** Offset in lines (ratio of 1 frame) to apply to the output signal.
10. Select **APPLY** to save and apply the new settings.



To Genlock to the dedicated input:

> **NOTE:** All Genlock timings meet broadcast ITU/SMPTE standards.

Front Panel

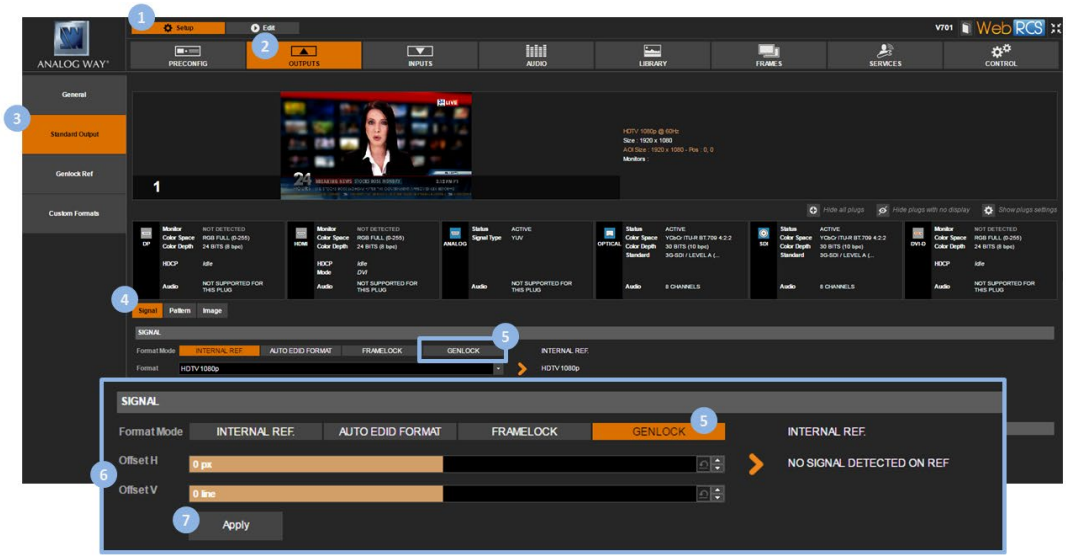
1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Format** to access the standard output format setup menu.
4. Select **GENLOCK** to use the Genlock input as a reference to set up the format.
5. Select **Confirm** to save and apply the new settings.
6. Wait for the **Format generation in progress** screen to check the new format settings.
7. Once the setup is complete, press the **EXIT-MENU** button to return to the output setup menu.

> **TIP:** Go to the output setup menu and select **Genlock Tune** to adjust the vertical and horizontal offsets to apply to the output signal:
>
> - **Offset H:** Offset in pixels (ratio of 1 line) to apply to the output signal.
> - **Offset V:** Offset in lines (ratio of 1 frame) to apply to the output signal.
>
> **TIP:** Go to the **OUTPUTS** menu and select **GENLOCK REFERENCE > Overload Detected Format** to specify the format to use on the Genlock reference input **(SEE: Using the Genlock reference).**

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Signal** tab to access the output format setup page.

5. Under **SIGNAL > Format Mode**, select **GENLOCK** to use the Genlock input as a reference to set up the format.
6. If required, adjust the vertical and horizontal offsets to apply to the output signal:
   - **Offset H:** Offset in pixels (ratio of 1 line) to apply to the output signal.
   - **Offset V:** Offset in lines (ratio of 1 frame) to apply to the output signal.
7. Select **APPLY** to save and apply the new settings.



TIP: Select **Genlock Ref** In the left side toolbar and click on **Overload Detected Format** to specify the format to use on the Genlock reference input **(SEE: Using the Genlock reference).**

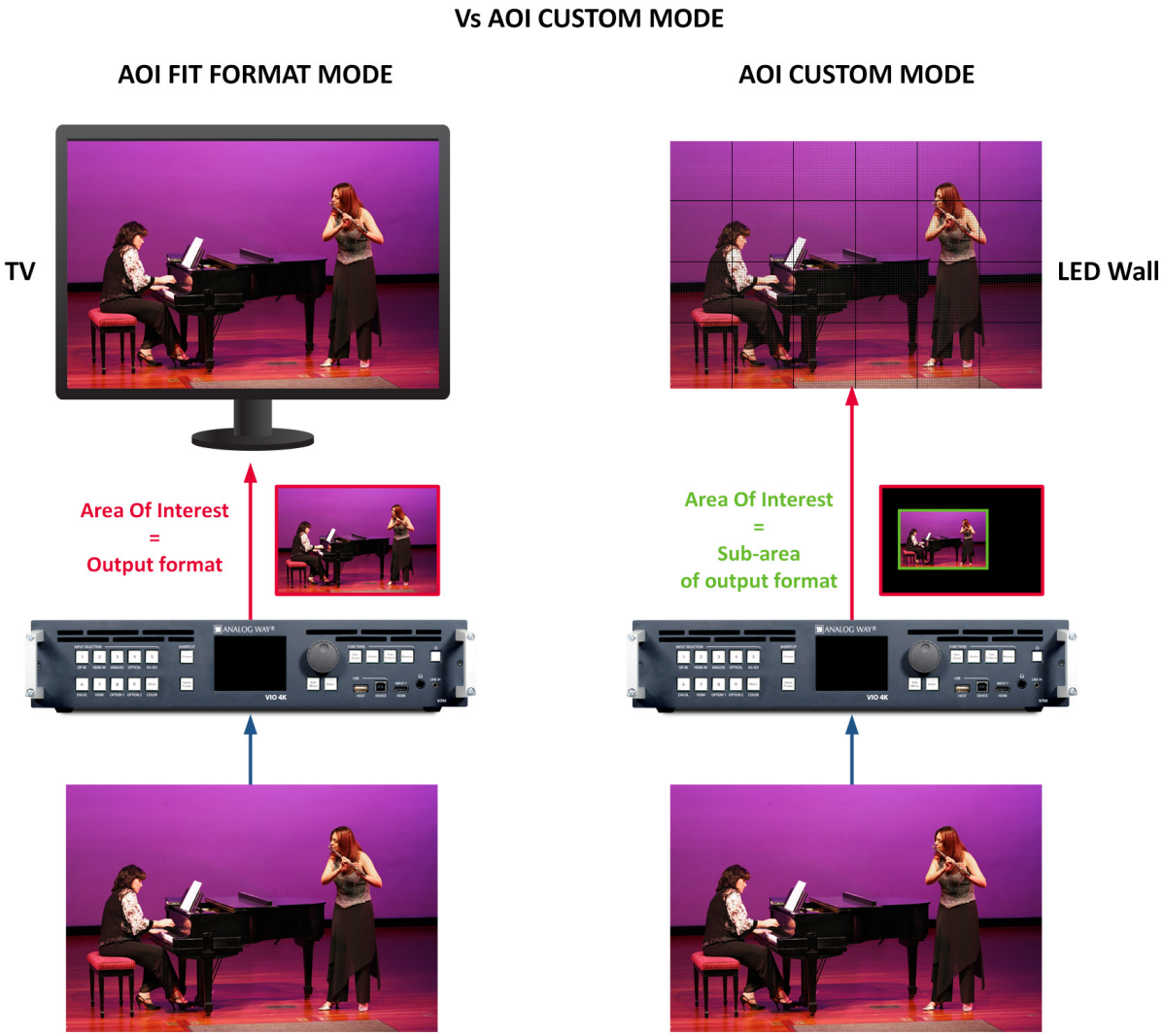
Related topics:

- Using the Genlock reference

6.4.4 Adjusting the AOI (Area of Interest)

The **Area of Interest (AOI)** defines the active area of your display in the output format.

The **AOI** can be thought of as your screen: anything positioned outside the AOI will be ignored in the processing, and only the AOI content will be displayed to the spectator.



To automatically fit the AOI to the output format:

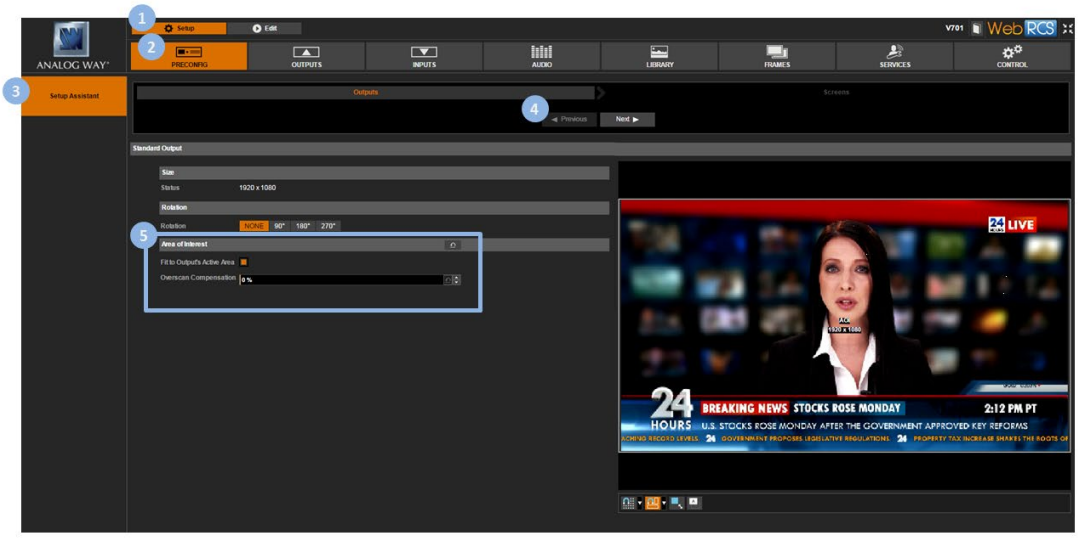
Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Area of Interest** to access the AOI setup menu.
4. Check the **Fit Format Resolution** check-box to automatically fit the AOI to the output format.
5. If required, adjust the **Overscan Compensation** (as percentage of the output format size).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **PRECONFIG** tab to access the setup assistant.
3. If the **Screens** page is active, click on the **Previous** button to access the area of interest setup page.
4. Check the **Fit to Output's Active Area** check-box to automatically fit the AOI to the output format.

5. If required, adjust the **Overscan Compensation** (as percentage of the output format size).



To manually adjust the AOI size and position:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Area of Interest** to access the AOI setup menu.
4. Uncheck the **Fit Format Resolution** check-box to access the AOI size and position adjustments.

> **NOTE:** Enabling/disabling the automatic fit format option will not erase the manual AOI size and position settings.

5. Adjust the following parameters:
   - **H Position:** AOI vertical start offset compared to the output format (in pixels).
   - **H Size:** AOI horizontal size (in pixels).
   - **V Position:** AOI vertical start offset compared to the output format (in pixels).
   - **V Size:** AOI vertical size (in pixels).

> **TIP:** Use the **Reset** command if required to reset the AOI size and position to its default values.

Web RCS

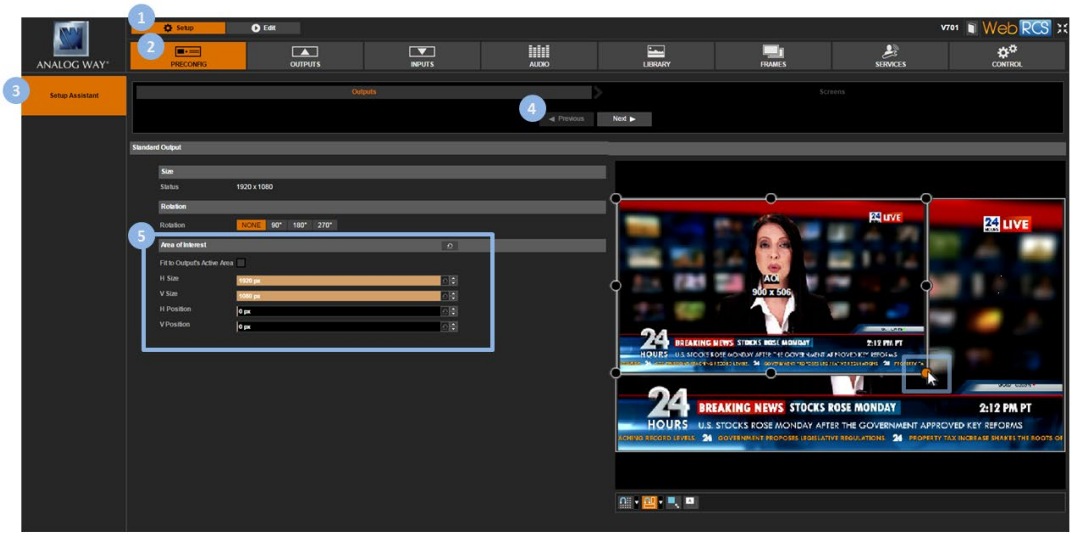
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **PRECONFIG** tab to access the setup assistant.
3. If the **Screens** page is active, click on the **Previous** button to access the area of interest setup page.
4. Uncheck the **Fit to Output's Active Area** check-box to access the AOI size and position adjustments.

> **NOTE:** Enabling/disabling the automatic fit format option will not erase the manual AOI size and position settings (use the **Reset** button instead if required).

5. Adjust the following parameters:
   - **H Position:** AOI vertical start offset compared to the output format (in pixels).
   - **H Size:** AOI horizontal size (in pixels).

- **V Position:** AOI vertical start offset compared to the output format (in pixels).
- **V Size:** AOI vertical size (in pixels).

> **TIP:** Click on the **AOI finder** and drag the handles to adjust the AOI size and position.



Related topics:

- AOI status

6.4.5 Rotating the output

You can rotate the output content by an angle of ±90°.

Rotating the output content can be very useful to adapt to a landscape display installed with a portrait orientation for example.

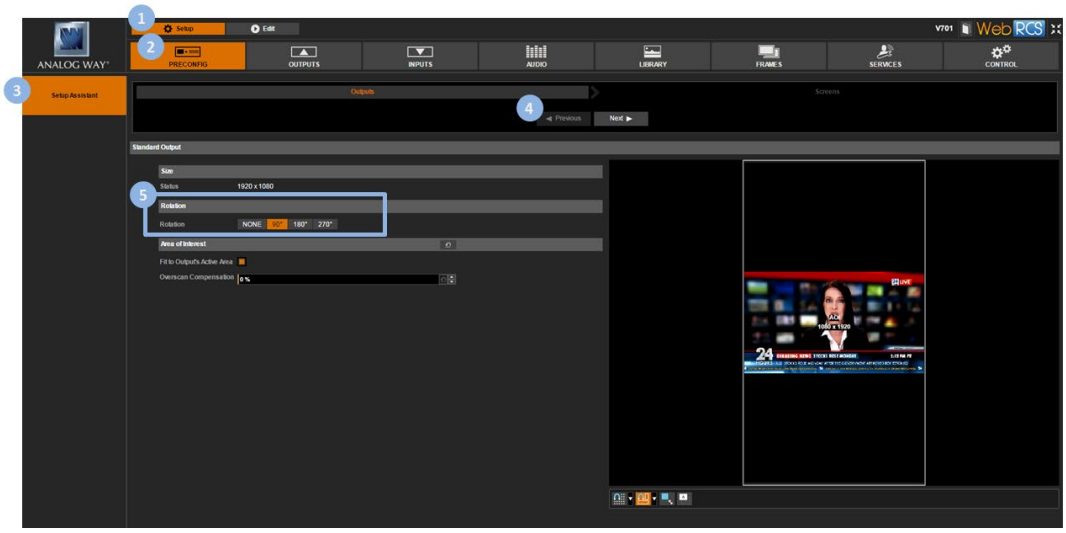
To rotate the output content:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Rotation** to select the ±90° rotation of the output content.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **PRECONFIG** tab to access the setup assistant.
3. If the **Screens** page is active, click on the **Previous** button to access the output preconfig setup page.
4. Under **Rotation**, select the ±90° rotation of the output content.



6.4.6 Correcting the image

You can truly control the final rendering of the output in the screen with the following colorimetry adjustments:

- Gamma,
- Flicker filter,
- Brightness,
- Contrast,
- Hue,
- Saturation,
- User gain (red, green and blue),
- Color temperature.

To adjust the output colorimetry:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Image Correction** to access the output image colorimetry adjustments menu.
4. Select a colorimetry adjustment to adjust the output image.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Image** tab to access the output image colorimetry adjustments page.
5. Click and drag a colorimetry adjustment to adjust the output image.

TIPs:

- Use the up and down arrows to control the adjustment.
- Use the **Reset** button to restore a specific image adjustment.
- Use the **Reset** All button to reset all image adjustments.

To reset all colorimetry adjustments:

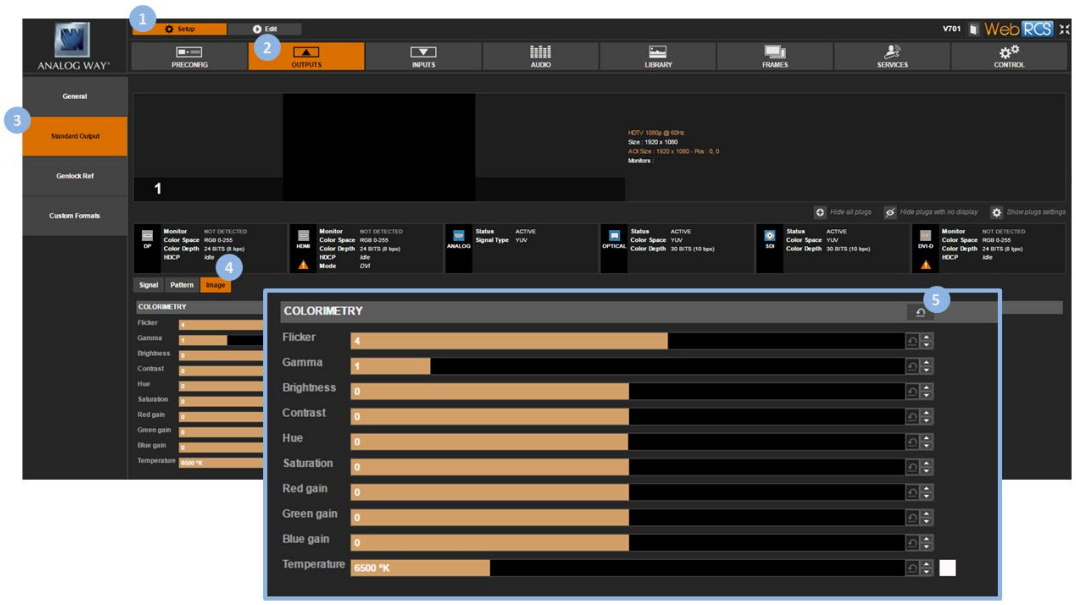
Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Image Correction** to access the output image colorimetry adjustments menu.
4. Select **Reset** to reset all colorimetry adjustments.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Image** tab to access the output image colorimetry adjustments page.
5. Click on the **Reset all** button to reset all colorimetry adjustments.

6.4.



You can use patterns to test and control how your output appears in the screen.

Available patterns include:

COLOR	Color pattern
VERTICAL GRAY SCALE	Vertical gray scale
HORIZONTAL GRAY SCALE	Horizontal gray scale
VERTICAL COLOR BAR	Vertical color bar
HORIZONTAL COLOR BAR	Horizontal color bar
GRID 16x16	Grid composed of 16 rectangles in height and width
GRID 32x32	Grid composed of 32 rectangles in height and width
GRID CUSTOM	Grid composed of user custom rectangle size
SMPTE	SMPTE
HORIZONTAL BURST	Horizontal burst
VERTICAL BURST	Vertical burst
VERTICAL GRADIENT	Vertical gradient
HORIZONTAL GRADIENT	Horizontal gradient
CROSSHATCH	Crosshatch
CHECKERBOARD	Checkerboard

The custom grid pattern for example can be very useful to adjust in real time the tiling area of a LED Wall configuration, by displaying an ID inside the grid to identify each LED Wall tile.

To configure a pattern:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Pattern** to access the output pattern setup menu.

> **NOTE:** You can also use the front panel Test Pattern key button to access the output pattern setup menu directly.

4. Uncheck the **Inhibit Output Pattern** check-box to enable pattern display on the output.

> **NOTE:** You can enable and disable pattern display whenever required by checking/unchecking the **Inhibit Output Pattern** check-box. All pattern adjustments will be remembered when enabling/disabling pattern display.

5. Select **Pattern** and choose the pattern to display on the output.
6. If required, adjust the pattern settings.
   Available pattern settings include:
   - **Inhibit Colorimetry:** Check to disable the output colorimetry adjustments on the pattern (uncheck to enable).
   - **Motion:** Check to enable a live movement on the pattern.
   - **Pattern Area:** Area where the pattern applies.
     Possible pattern areas include:

FORMAT	Fit pattern in all format resolution
AOI	Fit pattern in all AOI

   - **Format Raster Box:** Check to display a dotted line all around the format.
   - **AOI Raster Box:** Check to display a dotted line all around the AOI area.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Patterns** tab to access the output pattern settings page.
5. Uncheck the **Hide** check-box to enable pattern display on the output.

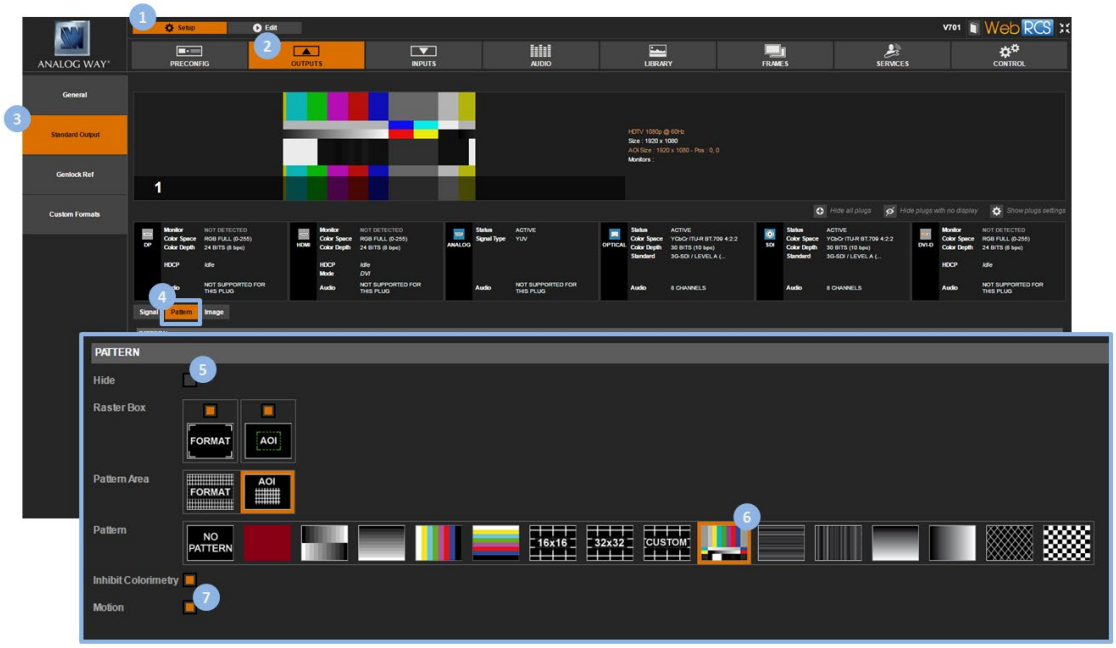
> **NOTE:** You can enable and disable pattern display whenever required by checking/unchecking the **Hide** check-box. All pattern adjustments will be remembered when enabling/disabling pattern display.

6. Under **Pattern**, select the pattern to display on the output.
7. If required, adjust the pattern settings.
   Available pattern settings include:
   - **Inhibit Colorimetry:** Check to disable the output colorimetry adjustments on the pattern (uncheck to enable).
   - **Motion:** Check to enable a live movement on the pattern.

- **Pattern Area:** Area where the pattern applies.
  Possible pattern areas include:

FORMAT	Fit pattern in all format resolution
AOI	Fit pattern in all AOI

- **Format Raster Box:** Check to display a dotted line all around the format.
- **AOI Raster Box:** Check to display a dotted line all around the AOI area.



To hide the pattern:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Pattern** to access the output pattern setup menu.

> **NOTE:** You can also use the front panel **Test Pattern** key to access the output pattern setup menu directly.

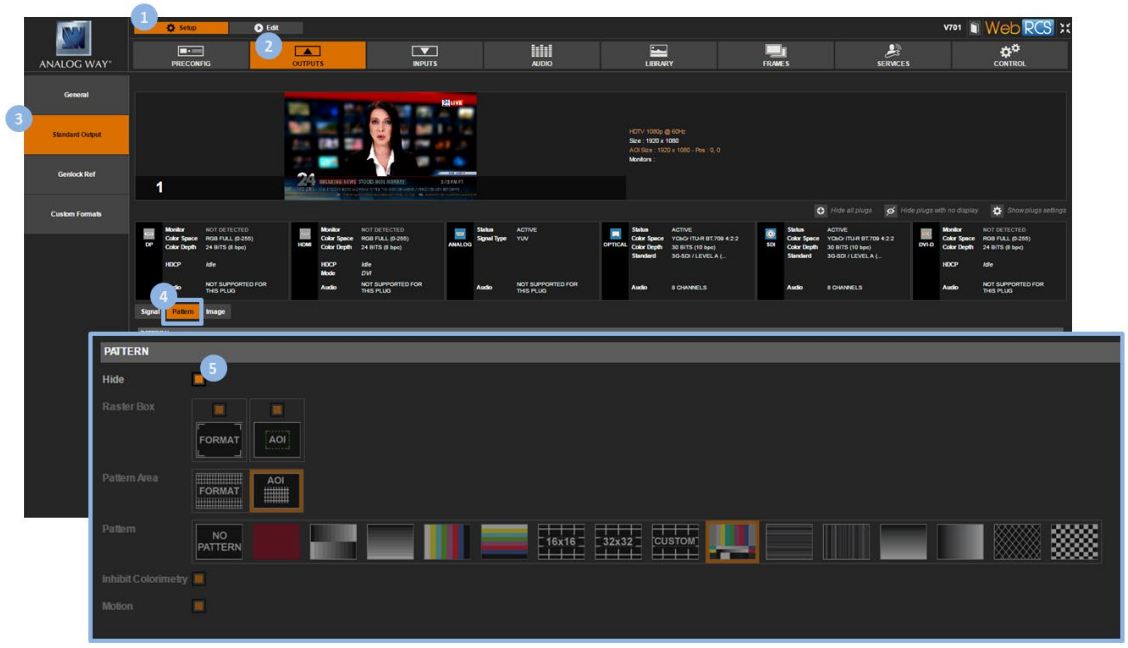
4. Check the **Inhibit Output Pattern** check-box to hide the pattern.

> **NOTE:** You can disable pattern display whenever required by checking the **Inhibit Output Pattern** check-box. All pattern adjustments will be remembered when enabling/disabling pattern display.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Click on the **Patterns** tab to access the output pattern settings page.
5. Check the **Hide** check-box to hide the pattern.

NOTE: You can enable and disable pattern display whenever required by checking/unchecking the **Hide** check-box. All pattern adjustments will be remembered when enabling/disabling pattern display.



Related topics:

- Checking the output status
- Creating custom formats
- Using the Genlock reference

6.5 Monitoring the output

You can monitor the output both from the **Front Panel** and the **Web RCS** interfaces.

Monitoring the output will allow you to check your output adjustments before the connection setup is complete for example.

To monitor the output:

Front Panel

1. Press the **Monitor** button in the Front Panel interface.
2. Scroll down and select **STANDARD OUTPUT** to enable output monitoring on the front panel LCD screen (press the **EXIT-MENU** button to exit monitoring).

Alternative method:

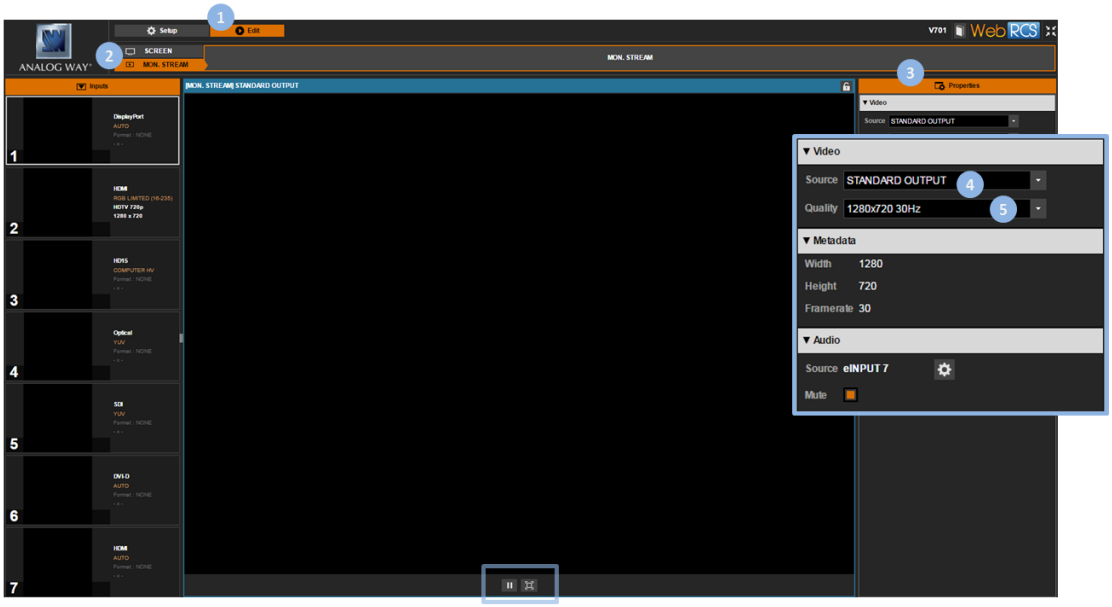
1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Scroll down the output setup menu and select **Monitor on LCD** to enable output monitoring on the front panel LCD screen (press the **EXIT-MENU** button to exit monitoring).

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **MON. STREAM** tab to access the monitoring page.
3. Go to the **Properties** toolbar on right-hand side.
4. Under **Setup > Source**, scroll down and select **STANDARD OUTPUT**.
5. If required, select the **Quality** of the monitoring stream.

> **TIP:** Use the **Play** and **Fullscreen** buttons at the bottom of the monitoring screen to control the monitoring stream playback and display size.

> **NOTE:** You can also disable the **Audio > Mute** button to monitor the headphone output directly from your PC or tablet (**SEE: Prelistening to audio content** for more information).



6.6 Freezing the output

You can freeze the live content of your output to make some adjustments on the currently selected input while hiding them to the spectator, for example.

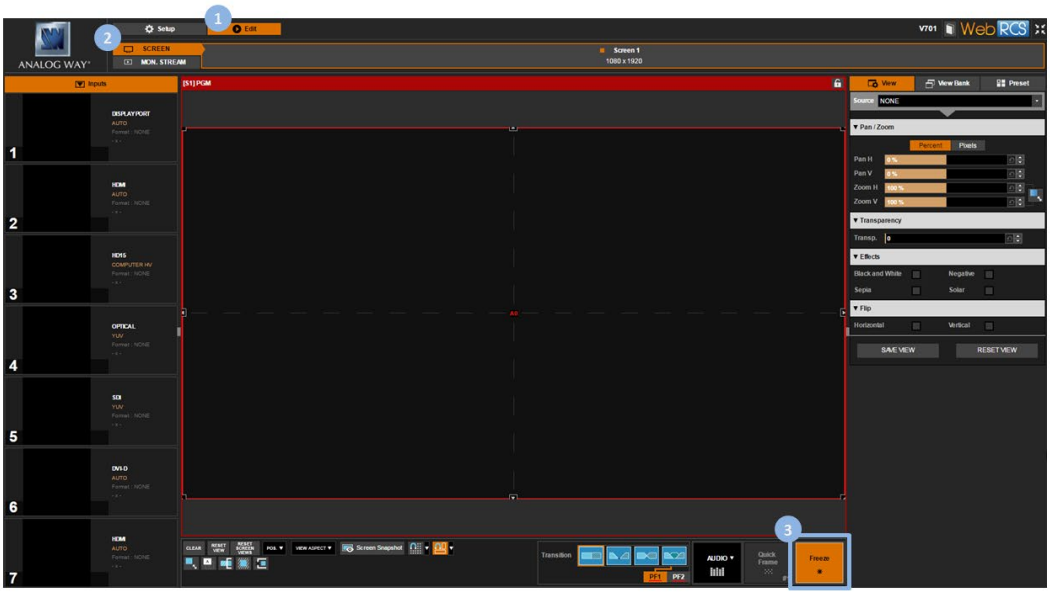
To freeze the output:

Front Panel

Press the **Freeze SHORTCUT** button to freeze the output (click again or select another input to unfreeze).

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Click on the **Freeze** button at the bottom of the screen to freeze the output (click again or select another input to unfreeze).



6.7 Capturing the output

SEE: Creating frame captures

6.8 Using the Genlock reference

The Genlock input can be used as a reference and a rate multiplier to set up the output format (SEE: Setting up the format).

If the Genlock input allows it, you can further specify the format to use on the Genlock reference input by choosing from the list of formats detected on the Genlock input.

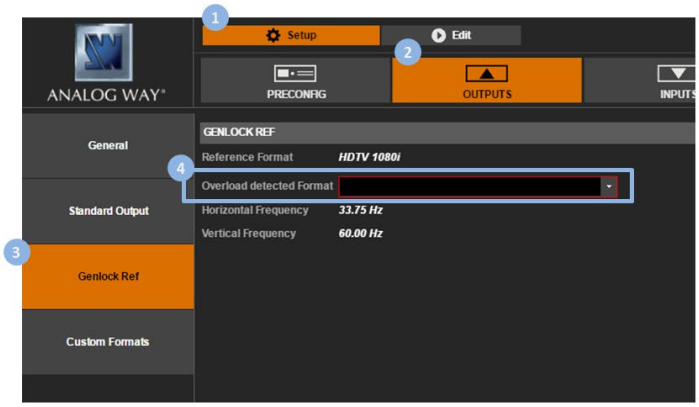
To specify the format to use on the Genlock reference input:

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **GENLOCK REFERENCE** to access the Genlock input setup menu.
3. Select **OVERLOAD DETECTED FORMAT**.
4. Scroll down the list of formats detected on the Genlock input and select the format to use on the Genlock reference input.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **Genlock Ref** to access the Genlock input settings page.
4. Under **Overload Detected Format**, select the format to use on the Genlock reference input.



To set up the format using the Genlock reference input:

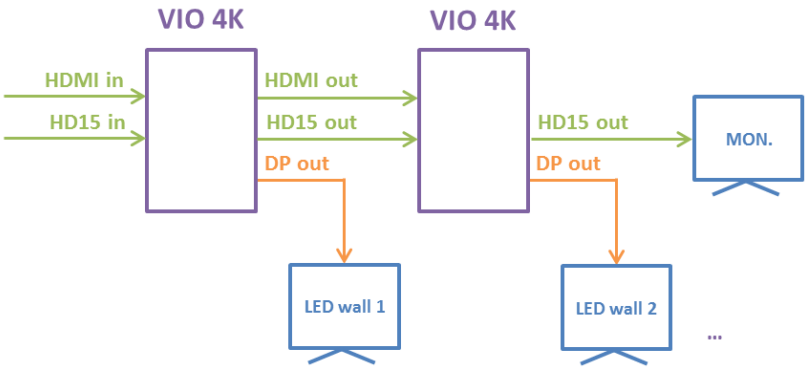
SEE: Genlock to the dedicated input

Related topics:

- Output format
- Screens
- Audio management
- Custom formats
- Configuration backup

6.9 Enabling loop mode

The **VIO 4K** allows you to enable the loop mode of an output plug to loop-through your inputs, for example to connect an additional device or for local monitoring.



The following table illustrates the **VIO 4K** loop-through capabilities of each plug:

Output plug	Looped input plug
HDMI, DVI or both	HDMI or DVI
Analog (HD15)	HD15
Other	None

NOTE:

- When loop mode is **enabled**, the video signal is automatically passed from the input to the output plug without scaling or additional processing. The corresponding output plug thus becomes an unscaled loop of the selected input and it is no longer available as a standard scaled output.
- **HDMI** and **DVI** loops share the same hardware resources. This means both the HDMI and DVI output plugs will be affected when enabling loop mode and will display the same looped input signal.
- On **SDI** plugs, the loop capability is directly implemented in the hardware (SEE: Rear panel description).

To enable loop mode on an output plug:

Information:
No audio will be transmitted.

Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. On **Analog (HD15) plugs**, check the **Enable Loop of Input 3 (HD15)** box to loop HD15 input plug through HD15 output plug (uncheck to disable).

On **HDMI/DVI plugs**, select **Loop Mode Selection** and select the input plug to loop through:

INPUT 2 (HDMI)	Loop HDMI input plug through HDMI and/or DVI output plug
INPUT 6 (DVI)	Loop DVI input plug through HDMI and/or DVI output plug
NONE	Disable loop mode

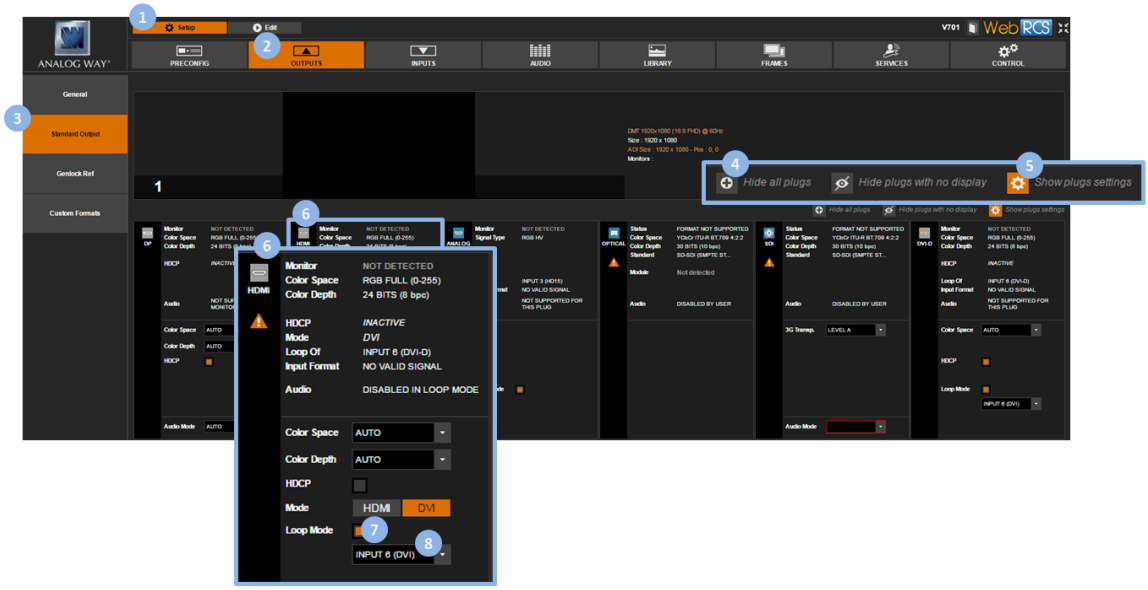
NOTE: The selected looped input plug affects both HDMI and DVI output plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Check/uncheck the **Loop Mode** box to enable/disable loop mode on the plug.
8. On HDMI/DVI plugs, select also the **Input (plug)** to loop through:

INPUT 2 (HDMI)	Loop HDMI input plug through HDMI and/or DVI output plug
INPUT 6 (DVI)	Loop DVI input plug through HDMI and/or DVI output plug

NOTE: The selected looped input plug affects both HDMI and DVI output plugs.



Related topics:

- HDCP support
- Checking the plug status

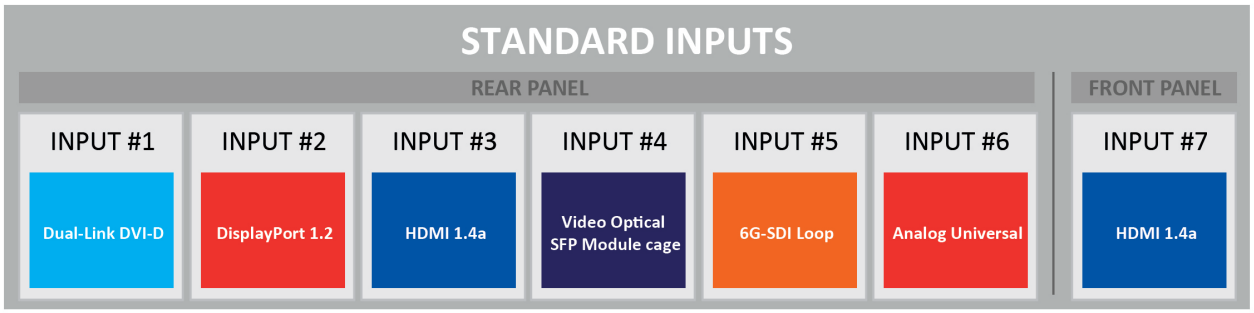
7 Input management

7.1 What is an input?

An **input** is a group of plugs that receive video content under various signal types.

On the **VIO 4K**, each input is equipped with one plug and each device can offer up to 8 inputs:

- 6 inputs directly available on the standard unit;
- 2 additional inputs with the expansion interfaces (one input per expansion interface).



NOTE:

- The input plug is the physical interface that receives the signal (electric, optical…).
- On the **VIO 4K**, each plug receives only one type of signal at a time, and each input has only one active plug whose content can be displayed on the output.

SEE also: Audio inputs

7.2 Supported inputs (formats and signals)

The following table provides information on the list of supported input formats and signals for each plug:

Standard	Size	DisplayPort 1.2	HDMI 1.4	3G-SDI	3G-SDI SFP Slot	Dual-Link DVI-D	HD-15
480i	525/480i	Yes	Yes	Yes	Yes	No	Yes: NTSC
576i	625/576i	Yes	Yes	Yes	Yes	No	Yes: PAL, SECAM
480p	525/480p	Yes	Yes	No	No	Yes	Yes
576p	625/576p	Yes	Yes	No	No	Yes	Yes
720p	1280x720	Yes	Yes	Yes	Yes	Yes	Yes
1035i	1920x1035	Yes	Yes	Yes	Yes	Yes	Yes
1080i	1920x1080	Yes	Yes	Yes	Yes	Yes	Yes
1080p	1920x1080	Yes	Yes	Yes	Yes	Yes	Yes

1080sF	1920x1080	Yes	Yes	Yes	Yes	Yes	Yes
1080p	1920x1080	Yes	Yes	Yes	Yes	Yes	Yes
2160p	3840x2160	Yes	Yes	Yes	Yes	Yes	Yes
DCDM	2048x1080	Yes	Yes	Yes	Yes	Yes	Yes
UHDTV	3840x2160	Yes	Yes	No	No	Yes	No
DCI 4K	4096x2160	Yes	Yes	No	No	Yes	No
VGA	640x480	Yes	Yes	No	No	Yes	Yes
800x480	800x480	Yes	Yes	No	No	Yes	Yes
SVGA	800x600	Yes	Yes	No	No	Yes	Yes
WVGA	848x480	Yes	Yes	No	No	Yes	Yes
XGA	1024x768	Yes	Yes	No	No	Yes	Yes
1152x864	1152x864	Yes	Yes	No	No	Yes	Yes
1280x600	1280x600	Yes	Yes	No	No	Yes	Yes
720p RGB	1280x720	Yes	Yes	No	No	Yes	Yes
800p RGB	1280x800	Yes	Yes	No	No	Yes	Yes
WXGA	1280x768	Yes	Yes	No	No	Yes	Yes
960p RGB	1280x960	Yes	Yes	No	No	Yes	Yes
SXGA	1280x1024	Yes	Yes	No	No	Yes	Yes
SWXGA	1360x768	Yes	Yes	No	No	Yes	Yes
1366x768	1366x768	Yes	Yes	No	No	Yes	Yes
SWXGA+	1366x800	Yes	Yes	No	No	Yes	Yes
1360x1024	1360x1024	Yes	Yes	No	No	Yes	Yes
DILA4/3	1364x1024	Yes	Yes	No	No	Yes	Yes
SXGA+	1400x1050	Yes	Yes	No	No	Yes	Yes
900p RGB	1440x900	Yes	Yes	No	No	Yes	Yes
1600x900	1600x900	Yes	Yes	No	No	Yes	Yes
UXGA	1600x1200	Yes	Yes	No	No	Yes	Yes
WSXGA+	1680x1050	Yes	Yes	No	No	Yes	Yes
	1792x1344	Yes	Yes	No	No	Yes	Bad quality (2)
	1856x1392	Yes	Yes	No	No	Yes	Bad quality (2)
DMT 1080p	1920x1080	Yes	Yes	No	No	Yes	Yes(1)
WUXGA	1920x1200	Yes	Yes	No	No	Yes	Yes (1)
1920x1440	1920x1440	Yes	Yes	No	No	Yes	Bad quality(2)
QXGA	2048x1536	Yes	Yes	No	No	Yes	No
WQHD	2560x1440	Yes	Yes	No	No	Yes	No
WQXGA	2560x1600	Yes	Yes	No	No	Yes	No

(1) Reduced blanking

(2) The signal is under-sampled: the image cannot be reproduced on 1:1 scaling (i.e. a 1920x1440 signal is under-sampled and then stretched horizontally to fit on a 1920x1440 PiP. The quality is worse than it should be with a properly sampled 1920x1440 signal)

7.3 Checking your inputs status

The input status provides information on the current input configuration.

Available status information includes:

- **Active Plug:** Current active plug.
- **Type:** Type of input signal by plug.
- **Format:** Detected input format/standard.
  List of possible detected input formats/standards:

NONE	NONE
INVALID	INVALID
SDTV NTSC	SDTV NTSC
SDTV PAL	SDTV PAL
SDTV SECAM	SDTV SECAM
SDTV 480i	SDTV 480i
SDTV 576i	SDTV 576i
EDTV 480p	EDTV 480p
EDTV 576p	EDTV 576p
HDTV 720p	HDTV 720p
HDTV 1035i	HDTV 1035i
HDTV 1080i	HDTV 1080i
HDTV 1080p	HDTV 1080p
PROJECTOR 1200p	Projector specific 1200p
CINEMA 2K	CINEMA 2048x1080
UHDTV 2160p	UHDTV 3840x2160
CINEMA 4K	CINEMA 4096x2160
CEA-861 240p	CEA861 720x240p
CEA-861 288p	CEA861 720x288p
COMPUTER 640x350	CPU 640x350
COMPUTER 640x400	CPU 640x400
COMPUTER 720x400	CPU 720x400
COMPUTER 640x480	CPU VGA
COMPUTER 800x480	CPU WVGA 5/3
COMPUTER 848x480	CPU WVGA
COMPUTER 800x600	CPU SVGA
COMPUTER 1280x600	CPU 1280x600
COMPUTER 1280x720	CPU 720p RGB
COMPUTER 1680x720	CPU 1680x720
COMPUTER 1024x768	CPU XGA
COMPUTER 1280x768	CPU WXGA
COMPUTER 1360x768	CPU SWXGA
COMPUTER 1366x768	CPU 1366x768

COMPUTER 1280x800	CPU 800p RGB
COMPUTER 1366x800	CPU SWXGA+
COMPUTER 1088x817	CPU 1088x817
COMPUTER 1152x864	CPU 1152x864
COMPUTER 1440x900	CPU 900p RGB
COMPUTER 1600x900	CPU 1600x900
COMPUTER 1280x960	CPU 960p RGB
COMPUTER 1280x1024	CPU SXGA
COMPUTER 1360x1024	CPU SXGA3
COMPUTER 1400x1050	CPU SXGA+
COMPUTER 1680x1050	CPU WSXGA+
COMPUTER 1440x1080	CPU 1440x1080
COMPUTER 1920x1080	CPU 1080p RGB
COMPUTER 2048x1080	CPU 2K
COMPUTER 2560x1080	CPU 2560x1080
COMPUTER 3840x1080	CPU 3840x1080
COMPUTER 4096x1080	CPU 4096x1080
COMPUTER 2048x1152	CPU QWXGA
COMPUTER 1600x1200	CPU UXGA
COMPUTER 1920x1200	CPU WUXGA
COMPUTER 1792x1344	CPU 1792x1344
COMPUTER 1856x1392	CPU 1856x1392
COMPUTER 1920x1440	CPU 1920x1440
COMPUTER 2560x1440	CPU WQHD
COMPUTER 3440x1440	CPU 3440x1440
COMPUTER 2048x1536	CPU QXGA
COMPUTER 2560x1600	CPU WQXGA
COMPUTER 2560x2048	CPU 2560x2048
COMPUTER 1920x2160	CPU 1920x2160
COMPUTER 2048x2160	CPU 2048x2160
COMPUTER 4096x2160	CPU 4096x2160
COMPUTER CVT	CPU CVT Timing
COMPUTER GTF 5:4	CPU GTF Timing with 5/4 aspect ratio
COMPUTER GTF 4:3	CPU GTF Timing with 4/3 aspect ratio
COMPUTER GTF 16:10	CPU GTF Timing with 16/10 aspect ratio
COMPUTER GTF 15:9	CPU GTF Timing with 15/9 aspect ratio
COMPUTER GTF 16:9	CPU GTF Timing with 16/9 aspect ratio

- **HDCP:** (DisplayPort, HDMI and DVI-D plugs only) HDCP compliance status for the input and plug.
- **Audio:** Embedded audio detected in the digital video signal.
- **Module Detected:** Indicates if a module is detected.

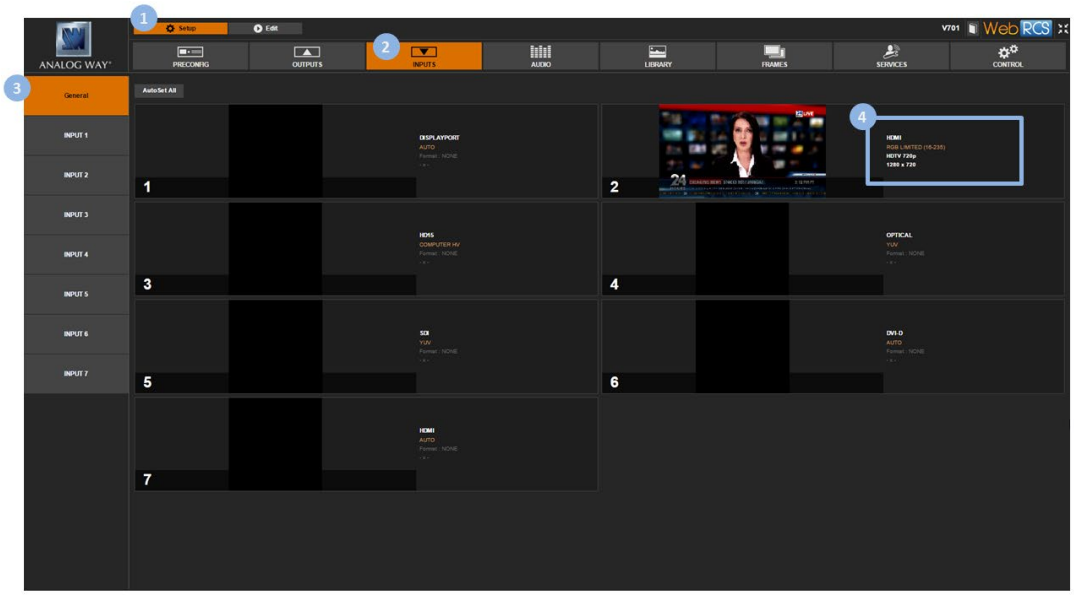
To check the status of your inputs:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Select **INPUTS STATUS** to access the inputs status menu.
3. Check the input status right below each input status menu.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select **General** to access the general inputs setup page.
4. Check the input status next to each input preview window.



7.4 Auto-setting all inputs

You can request the automatic setup of all inputs.

The automatic request will scan all inputs and plugs, and automatically select the active plugs for each input.

> **NOTE:** You can also individually request the automatic setup of just one input. SEE: Auto-setting the input.

To request the automatic setup of all inputs and plugs:

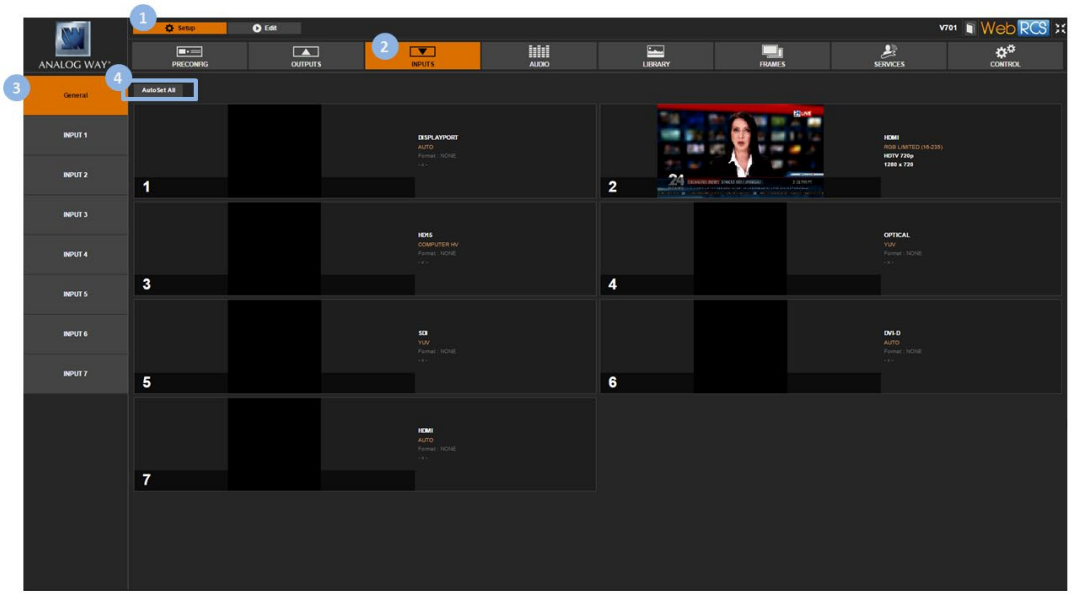
> **Information:**
> - Displayed inputs may flicker.
> - Input plugs may change temporarily.

Front panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Select **AUTOSET ALL INPUTS** to request the automatic setup of all plugs of all inputs.
   - Select **YES** to confirm (**/!** displayed inputs may flicker and input plugs may change temporarily).
   - Select **NO** to cancel the request.

Web RCS

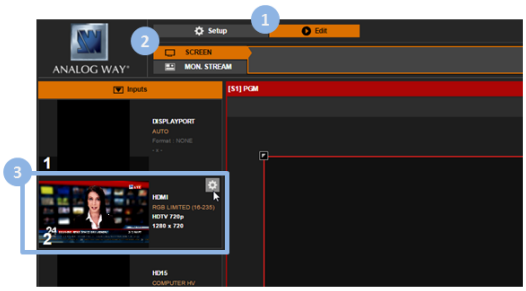
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select **General** to access the general inputs setup page.
4. Click on the **Autoset All** button to request the automatic setup of all plugs of all inputs.



7.5 Setting up an input

TIP:

- On the **Front Panel** interface, double-click on an input selection key button to access the input setup menu.
  NOTE: this action will also select the input.
- On the **Web RCS** interface, hover over an input preview and click on the **Setup** button to access the input setup menu.



7.5.1 Auto-setting the input

You can request the automatic setup of just one input (SEE also: **Auto-setting all inputs**).

The automatic request will scan all input plugs and automatically select the active plug.

To request the automatic setup of an input and plugs:

> **NOTE:**
> - If displayed, the input may flicker.
> - Input plugs may change temporarily.

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   > **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Autoset Input** to request the automatic setup of the input plug.
   - Select **YES** to confirm (**/!** if displayed, the input may flicker and the plug may change temporarily).
   - Select **NO** to cancel the request.

Web RCS

SEE: Auto-detecting the signal type

7.5.2 Setting up the plug

You can control the sources connected to a plug by setting up the input plug.

7.5.2.1 Checking the plug status

The input plug status provides information on the current input plug configuration.

Available plug status information includes:

CONFIGURATION:

- **Type:** Current input signal type/color space.
  List of possible input signal types (analog plugs):

SDTV COMPOSITE	Composite signal 0-700mV
SDTV YC	Y/C signal 0-700mV
VIDEO RGBS	RGBs signal with a TTL composite synchro (only video format)
VIDEO RGSB	RGB signal with synchro on green (SOG) (only video format)
VIDEO YUV	YUV signal 0-700mV
COMPUTER SOG	RGB signal with synchro on green (SOG)
COMPUTER BW	Only Green signal with synchro (SOG) converted to grey level
COMPUTER HV	RGB signal with separate TTL H/V synchro
COMPUTER TTL COMPOSITE	RGB signal with a TTL composite synchro
COMPUTER ANA COMPOSITE	RGB signal with an analog composite synchro

  List of possible input color spaces (digital plugs):

AUTO	Automatic color space selection
YUV	YUV (YCbCr ITU-R BT.601 or YCbCr BT.709)
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)

- **HDCP Detection:** (DisplayPort, HDMI and DVI-D plugs only) HDCP compliance enabled/disabled.
- **Plug:** Plug selection enabled/disabled.

STATUS:

- **Format:** Detected input format/standard.
- **HDCP:** HDCP compatibility status for the input plug.
- **Audio:** Embedded audio detected in the digital video signal.
- **Audio Type:** Type of audio signal (/!\ only PCM is supported).
- **Audio Sampling Rate:** Audio sampling frequency (in kHz).
- **Audio Copyright:** Copyright status of the audio stream.
- **Module Detected:** Indicates if a module is detected.

FORMAT:

(All plugs):

- **Image Size:** Current image size (width x height) (/!\ signal aspect ratio and predefined crop settings are taken into account). Width - in pixels; Height - in lines.
- **Format Size:** Useful signal format size (width x height). Width - in pixels; Height - in lines.
- **Field Frequency:** Frame frequency (in Hz).
- **Line Frequency:** Line frequency (in Hz).
- **Sync Polarities:** Positive H sync and V sync polarities.
- **Scan Type:** Interleaving type.
  List of possible interleaving types:

PROGRESSIVE	Progressive
INTERLACED TOP FIELD FIRST	Interlaced, Top field first
INTERLACED BOTTOM FIELD FIRST	Interlaced, Bottom field first
SEGMENTED FRAME	Segmented frame

- **Settings Memory Slot:** Memory slot used for the input settings (0 means that no slot is used or that default settings are used).

(HDMI/DVI plugs):

- **HDMI mode:** HDMI mode status (in DVI mode no audio can be transmitted).

(All except HD15):

- **Repeat Coefficient:** (DVI and HDMI signals only) Repetition coefficient for pixel.
- **Color Space:** Color space of the signal.
  List of possible input color spaces (digital plugs):

AUTO	Automatic color space selection
YUV	YUV (YCbCr ITU-R BT.601 or YCbCr BT.709)
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)

- **Color Depth:** Color depth of the signal.
  List of possible signal color depths:

18 BITS (6 bpc)	18 bits for a pixel, 6 bits for each color
24 BITS (8 bpc)	24 bits for a pixel, 8 bits for each color
30 BITS (10 bpc)	30 bits for a pixel, 10 bits for each color
36 BITS (12 bpc)	36 bits for a pixel, 12 bits for each color

- **Lane:** (DisplayPort plug only) Number of lanes.
  List of possible DisplayPort lanes:

1 LANE	1 lane
2 LANES	2 lanes
4 LANES	4 lanes

- **Link Rate:** (DisplayPort plug only) Link rate.
  List of possible DisplayPort link rates:

RBR	RBR (1.62Gbps)
HBR	HBR (2.7Gbps)
HBR2	HBR2 (5.4Gbps)

- **Module Detected:** Indicates if a module is detected.
- **ID:** ID of SFP module.
- **Bitrate:** SFP module nominal bitrate.
- **Vendor Name:** SFP module vendor name.
- **Module Status:** SFP module support status.
- **Standard:** (Optical and SDI plugs only) Detected SDI standard.
  List of possible SDI standards:

SD-SDI	SD SDI standard
HD-SDI	HD SDI standard
3G-SDI LEVEL A	3G SDI Level A standard
3G-SDI LEVEL B	3G SDI Level B standard
6G UHD-SDI*	6G SDI standard
12G UHD-SD*	12G SDI standard

(*) Available with the optional video card

To check the status of an input plug:

Front Panel

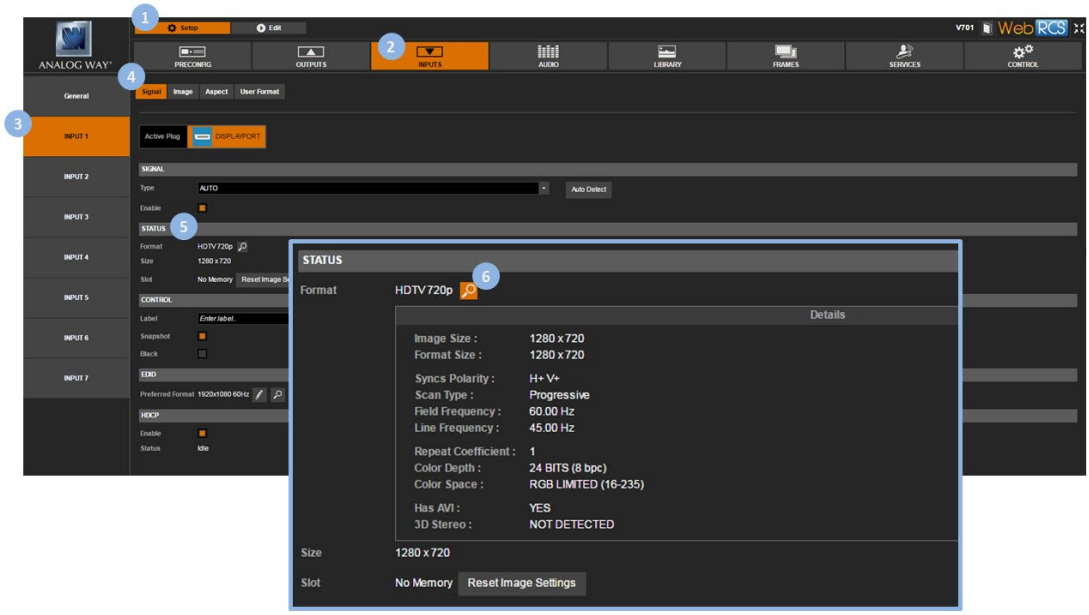
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Select **Status** to check the input plug status.
5. If required, rotate the **control knob** clockwise to scroll the page and see further status information.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **STATUS**, check the status of the input and plug.
6. If required, click on the **Show details** button to access further status information.



7.5.2.2 *Selecting the signal type*

The easiest way to select the signal type for a plug is to auto-detect the signal type on the sources connected to the plug. If the auto-detected signal type does not seem right, you can always force the signal type to use on the plug.

To auto-detect the signal type on a plug:

> **NOTE:**
> - If displayed, the input may flicker.
> - The input plug may change temporarily.

Front Panel

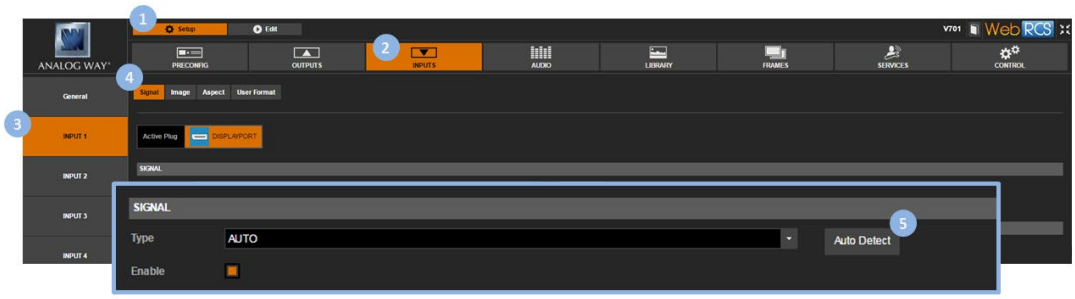
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Plug Settings** to access the plug settings menu for the selected input.
4. Select **Autoset** to start the signal auto-detection process:
   - Select **YES** to confirm.
   - Select **NO** to cancel the action.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Auto Detect** button to start the signal auto-detection process.



To select a specific signal type on a plug:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Select **Type** to select the signal type/color space for the plug.
   List of possible input signal types (analog plugs):

SDTV COMPOSITE	Composite signal 0-700mV
SDTV YC	Y/C signal 0-700mV
VIDEO RGBS	RGBs signal with a TTL composite synchro (only video format)
VIDEO RGSB	RGB signal with synchro on green (SOG) (only video format)
VIDEO YUV	YUV signal 0-700mV
COMPUTER SOG	RGB signal with synchro on green (SOG)
COMPUTER BW	Only Green signal with synchro (SOG) converted to grey level
COMPUTER HV	RGB signal with separate TTL H/V synchro
COMPUTER TTL COMPOSITE	RGB signal with a TTL composite synchro
COMPUTER ANA COMPOSITE	RGB signal with an analog composite synchro

   List of possible input color spaces (digital plugs):

AUTO	Automatic color space selection
YUV	YUV (YCbCr ITU-R BT.601 or YCbCr BT.709)
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)

TIP: Use **AUTO** to automatically select the signal type

Web RCS

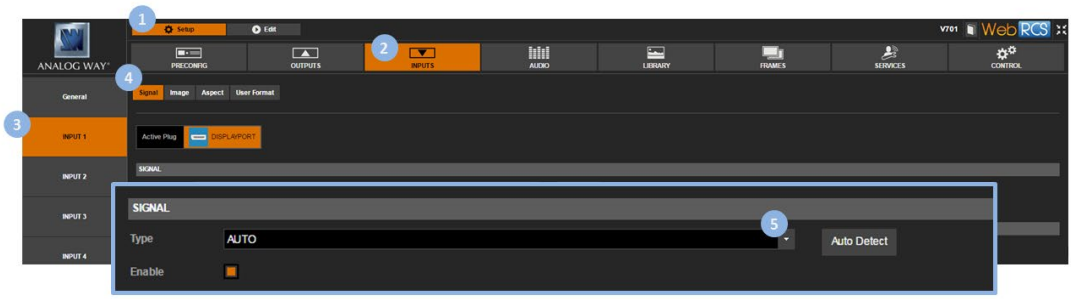
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **SIGNAL > Type**, select the input signal type/color space for the plug.
   List of possible input signal types (analog plugs):

SDTV COMPOSITE	Composite signal 0-700mV
SDTV YC	Y/C signal 0-700mV
VIDEO RGBS	RGBs signal with a TTL composite synchro (only video format)
VIDEO RGSB	RGB signal with synchro on green (SOG) (only video format)
VIDEO YUV	YUV signal 0-700mV
COMPUTER SOG	RGB signal with synchro on green (SOG)
COMPUTER BW	Only Green signal with synchro (SOG) converted to grey level
COMPUTER HV	RGB signal with separate TTL H/V synchro
COMPUTER TTL COMPOSITE	RGB signal with a TTL composite synchro
COMPUTER ANA COMPOSITE	RGB signal with an analog composite synchro

List of possible input color spaces (digital plugs):

AUTO	Automatic color space selection
YUV	YUV (YCbCr ITU-R BT.601 or YCbCr BT.709)
RGB FULL (0-255)	RGB Full scale (0-255)
RGB LIMITED (16-235)	RGB Limited scale (16-235)

TIP: Use **AUTO** to automatically select the signal type



Related topics:

- Plug status

7.5.2.3 Enabling the plug

All input plugs, together with the sources connected to each input plug, are enabled by default on the device. If a plug is not used however, you can manually disable the plug to hide the unused sources connected to the plug.

To disable a plug:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

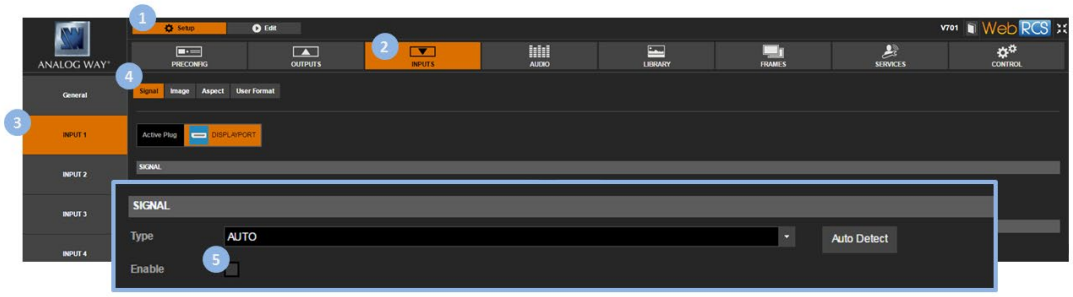
3. Select the plug settings to access the input plug settings menu.
4. Uncheck the **Enabled** check-box to disable the plug (check to enable).

> **NOTE:** Disabling the plug will also disable the sources connected to the plug, and the input itself will no longer be available for selection.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **SIGNAL**, uncheck the **Enable** check-box to disable the plug (check to enable).

> **NOTE:** Disabling the plug will also disable the sources connected to the plug, and the input itself will no longer be available for selection.



7.5.2.4 *Blacking sources (source control)*

You can force an input to output to black by forcing the input plug to black.

To force a plug to black:

Front Panel

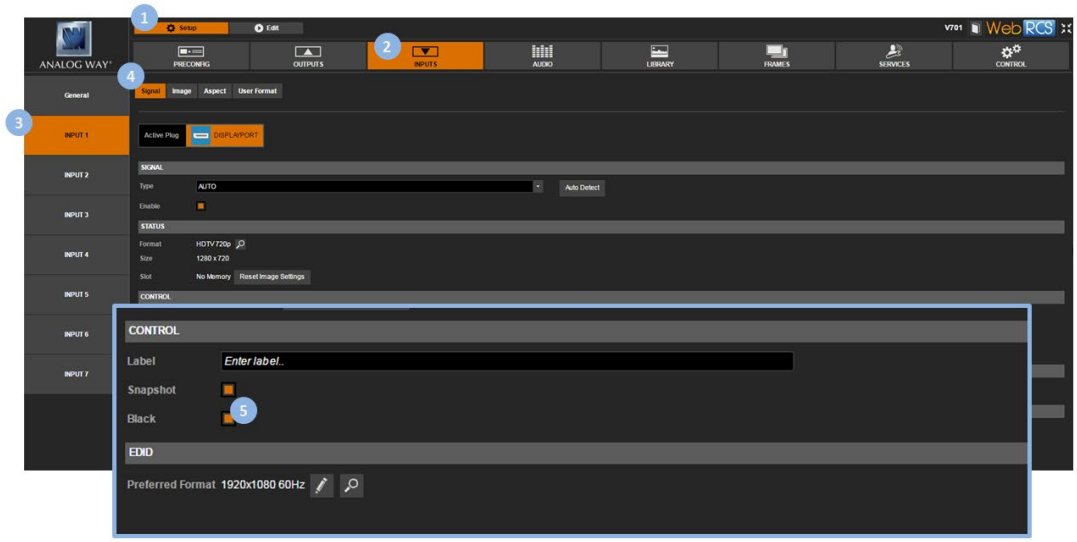
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Check the **Force Black** check-box to force the input sources connected to the plug to output to black (uncheck to output normally).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **CONTROL**, check the **Black** check-box to force the input sources connected to the plug to output to black (uncheck to output normally).



7.5.2.5 *Managing the EDID preferred format*

The **VIO 4K** automatically detects and assigns the plug's EDID preferred format to the input plug. You may however specify the format to use on the plug by changing the EDID preferred format used on the plug.

Available preferred formats for EDID include:

640x350 85Hz	640x400 85Hz
720x400 85Hz	640x480 59.94Hz
640x480 72Hz	640x480 75Hz
640x480 85Hz	720x480 59.94Hz
800x480 60Hz	720x576 50Hz
800x600 50Hz	800x600 56Hz
800x600 60Hz	800x600 72Hz
800x600 75Hz	800x600 85Hz
800x600 120Hz REDUCED BLANKING	848x480 50Hz
848x480 60Hz	1024x768 50Hz
1024x768 60Hz	1024x768 70Hz
1024x768 75Hz	1024x768 85Hz
1024x768 120Hz REDUCED BLANKING	1088x817 50Hz
1088x817 60Hz	1152x864 50Hz
1152x864 60Hz	1152x864 75Hz
1280x600 50Hz	1280x600 60Hz
1280x720 23.976Hz	1280x720 24Hz
1280x720 25Hz	1280x720 29.97Hz
1280x720 30Hz	1280x720 50Hz
1280x720 59.94Hz	1280x720 60Hz
1280x720 100Hz	1280x720 119.88Hz
1280x720 120Hz	1280x768 50Hz
1280x768 60Hz REDUCED BLANKING	1280x768 60Hz
1280x768 75Hz	1280x768 85Hz
1280x768 120Hz REDUCED BLANKING	1280x800 50Hz
1280x800 60Hz REDUCED BLANKING	1280x800 60Hz
1280x800 75Hz	1280x800 85Hz
1280x800 120Hz REDUCED BLANKING	1280x960 50Hz
1280x960 60Hz	1280x960 85Hz
1280x960 120Hz REDUCED BLANKING	1280x1024 50Hz
1280x1024 60Hz	1280x1024 75Hz
1280x1024 85Hz	1280x1024 120Hz REDUCED BLANKING
1360x768 50Hz	1360x768 60Hz
1360x768 120Hz REDUCED BLANKING	1360x1024 50Hz
1360x1024 60Hz	1360x1024 72Hz

1360x1024 75Hz	1366x768 50Hz
1366x768 60Hz REDUCED BLANKING	1366x768 60Hz
1366x800 50Hz	1366x800 60Hz
1400x1050 50Hz	1400x1050 60Hz REDUCED BLANKING
1400x1050 60Hz	1400x1050 75Hz
1400x1050 85Hz	1400x1050 120Hz REDUCED BLANKING
1440x900 50Hz	1440x900 60Hz REDUCED BLANKING
1440x900 60Hz	1440x900 75Hz
1440x900 85Hz	1440x900 120Hz REDUCED BLANKING
1440x1080 50Hz	1440x1080 60Hz
1600x900 50Hz	1600x900 60Hz REDUCED BLANKING
1600x1200 50Hz	1600x1200 60Hz
1600x1200 65Hz	1600x1200 70Hz
1600x1200 75Hz	1600x1200 85Hz
1600x1200 120Hz REDUCED BLANKING	1680x720 23.976Hz
1680x720 24Hz	1680x720 25Hz
1680x720 29.97Hz	1680x720 30Hz
1680x720 50Hz	1680x720 59.94Hz
1680x720 60Hz	1680x720 100Hz
1680x720 119.88Hz	1680x720 120Hz
1680x1050 50Hz	1680x1050 60Hz REDUCED BLANKING
1680x1050 60Hz	1680x1050 75Hz
1680x1050 85Hz	1680x1050 120Hz REDUCED BLANKING
1792x1344 50Hz	1792x1344 60Hz
1856x1392 50Hz	1856x1392 60Hz
1920x1080 23.976Hz	1920x1080 24Hz
1920x1080 25Hz	1920x1080 29.97Hz
1920x1080 30Hz	1920x1080 47.95Hz
1920x1080 48Hz	1920x1080 50Hz
1920x1080 59.94Hz	1920x1080 60Hz
1920x1080 100Hz	1920x1080 119.88Hz
1920x1080 120Hz	1920x1200 50Hz
1920x1200 60Hz REDUCED BLANKING	1920x1440 50Hz
1920x1440 60Hz	1920x2160 23.976Hz
1920x2160 24Hz	1920x2160 25Hz
1920x2160 29.97Hz	1920x2160 30Hz
1920x2160 47.95Hz	1920x2160 48Hz
1920x2160 50Hz	1920x2160 59.94Hz
1920x2160 60Hz	2048x1080 23.976Hz
2048x1080 24Hz	2048x1080 25Hz
2048x1080 29.97Hz	2048x1080 30Hz
2048x1080 47.95Hz	2048x1080 48Hz

2048x1080 50Hz	2048x1080 59.94Hz
2048x1080 60Hz	2048x1152 50Hz
2048x1152 60Hz REDUCED BLANKING	2048x1536 50Hz
2048x1536 60Hz REDUCED BLANKING	2048x1536 60Hz
2048x2160 23.976Hz	2048x2160 24Hz
2048x2160 25Hz	2048x2160 29.97Hz
2048x2160 30Hz	2048x2160 47.95Hz
2048x2160 48Hz	2048x2160 50Hz
2048x2160 59.94Hz	2048x2160 60Hz
2560x1080 23.976Hz	2560x1080 24Hz
2560x1080 25Hz	2560x1080 29.97Hz
2560x1080 30Hz	2560x1080 50Hz
2560x1080 59.94Hz	2560x1080 60Hz
2560x1080 100Hz	2560x1080 119.88Hz
2560x1080 120Hz	2560x1440 50Hz
2560x1440 60Hz REDUCED BLANKING	2560x1600 50Hz
2560x1600 60Hz REDUCED BLANKING	2560x2048 50Hz
2560x2048 60Hz REDUCED BLANKING	3440x1440 50Hz
3440x1440 60Hz REDUCED BLANKING	3840x2160 23.976Hz
3840x2160 24Hz	3840x2160 25Hz
3840x2160 29.97Hz	3840x2160 30Hz
3840x2160 50Hz	3840x2160 59.94Hz
3840x2160 60Hz	CUSTOM 1 ... 64

To change a plug's EDID preferred format:

> **Caution:**
> Be careful when modifying the plug's EDID preferred format.

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Scroll down and select **EDID** to manage the plug's EDID.

> **NOTE:** Not available for Optical and SDI plugs.

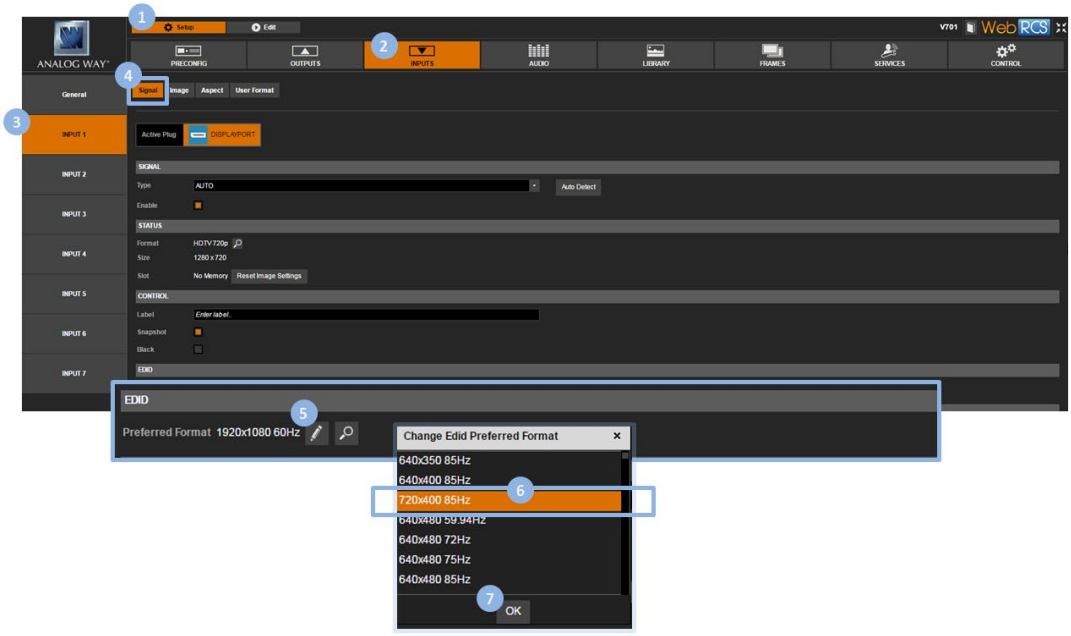
5. Select **Change Format** to access the list of EDID formats for the plug.
6. Select the EDID preferred format to use on the plug.
7. Press the **ENTER** key to validate the selection or use the **EXIT-MENU** key to exit without saving.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **EDID**, click on the **Change EDID preferred format** button to access the list of EDID formats for the plug.

> **NOTE:** Not available for Optical and SDI plugs.

6. In the **Change EDID preferred format** window, select the EDID format to use on the plug. Available preferred formats for EDID include:
7. Click **OK** to validate the selection (or close the **Change EDID preferred format** window to exit without saving).



To check a plug's EDID status:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

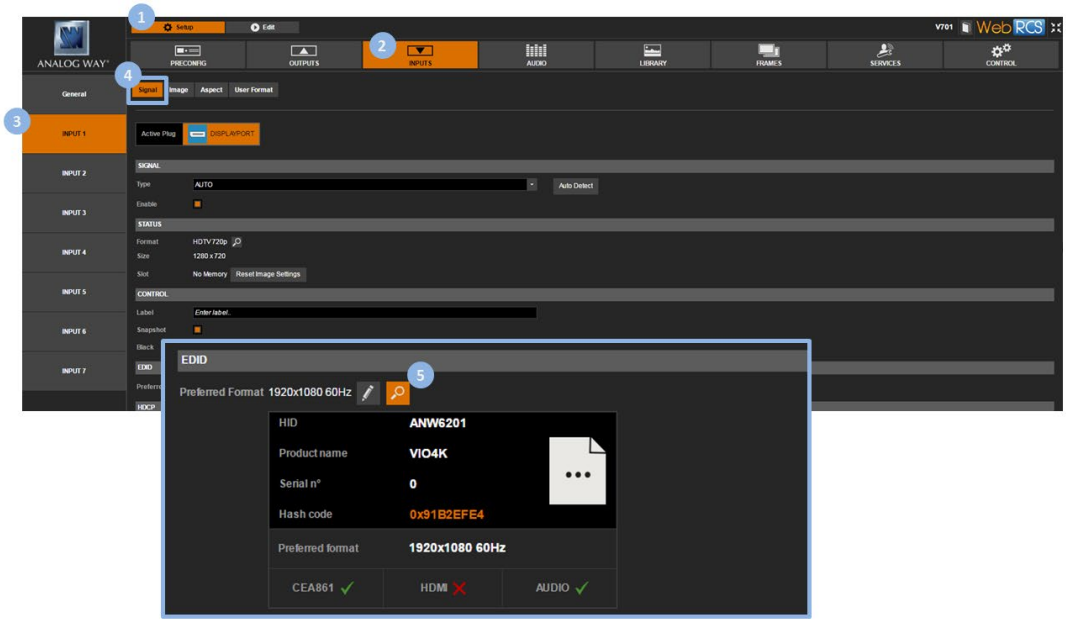
3. Select the plug settings to access the input plug settings menu.
4. Scroll down and select **EDID** to manage the plug's EDIDs.
5. Select **Current EDID Status** to review the status of the current EDID used for the plug.

Available EDID status information includes:

- **Product Name:** Current EDID product name.
- **Hash Code:** Hash code of the current data in physical EDID memory.
- **Preferred Format:** EDID preferred format.
- **CEA-861 Extension:** CEA861 extension presence status.
- **HDMI Compatible:** EDID HDMI compatibility status.
- **Audio Compatible:** EDID audio compatibility status.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **EDID**, click on the **Current EDID status** button to review the status of the current EDID used for the plug.
   Available EDID status information includes:
   - **Product Name:** Current EDID product name.
   - **Hash Code:** Hash code of the current data in physical EDID memory.
   - **Preferred Format:** EDID preferred format.
   - **CEA-861 Extension:** CEA861 extension presence status.
   - **HDMI Compatible:** EDID HDMI compatibility status.
   - **Audio Compatible:** EDID audio compatibility status.



Related topics:

- EDID management

7.5.2.6 Managing the HDCP support

The **VIO 4K** is compliant with the HDCP specification for DVI, HDMI and DisplayPort inputs.

If an input source is HDCP-encrypted, the output availability is then negotiated according to the following criteria:

	HDCP source(*)	Non-HDCP source
HDCP output peripheral	Output content is available only if HDCP is enabled on both the input and output plugs.	Output content is available, whichever the status on the output plug.
Non-HDCP output peripheral	Output is blackened even if HDCP is enabled on the output plug.	

(*) Only on video plugs standard that support HDCP (HDMI, DisplayPort, DVI).

By enabling and disabling HDCP, you can thus relatively control the whole HDCP stream:

Input control:

- With HDCP enabled (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
- With HDCP disabled, none of the HDCP sources can be displayed (the sources will see the VIO 4K inputs as non-HDCP compliant).

Output control:

- With HDCP enabled (default), the HDCP encryption is maintained whether the screen is compliant or not.
- With HDCP disabled, all screens are seen as non-HDCP compliant.

TIP: Disable HDCP as much as possible, especially if not using HDCP-encrypted sources.

To enable/disable HDCP on an input plug:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Scroll down and uncheck the **HDCP** check-box to disable HDCP on the input plug (check to enable).

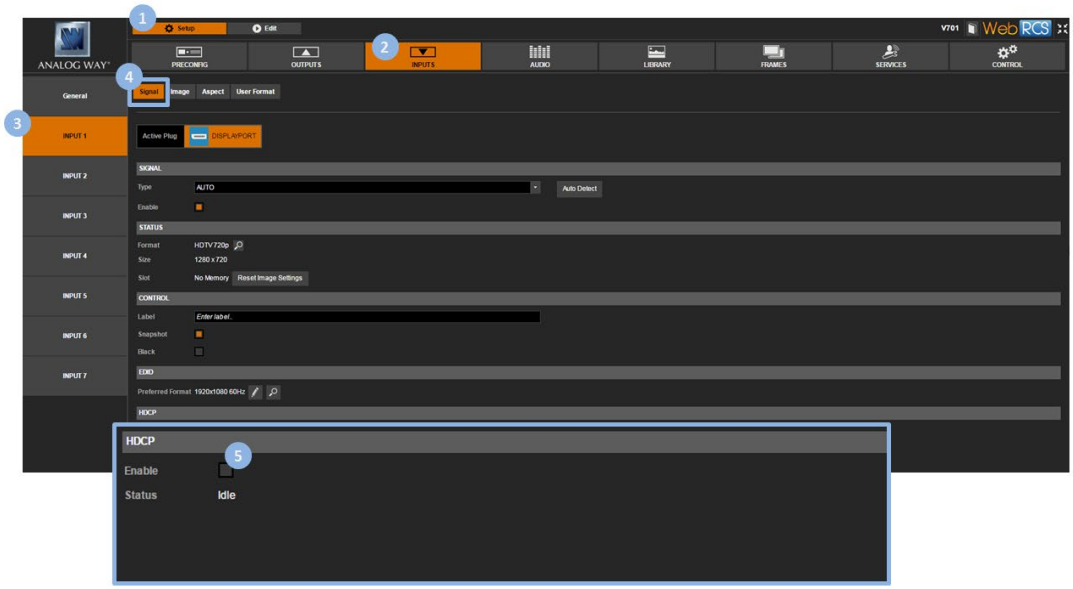
   NOTE:
   - With HDCP **enabled** (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
   - With HDCP **disabled**, none of the HDCP sources can be displayed.

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all input plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **HDCP**, uncheck the **Enable** check-box to disable HDCP on the input plug (check to enable).

> NOTE:
> - With HDCP **enabled** (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
> - With HDCP **disabled**, none of the HDCP sources can be displayed.



> **TIP:** Use the **Quick Setup** button (located at the bottom of the Web RCS interface) to manage HDCP on all input plugs.

To check the HDCP status of an input plug:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

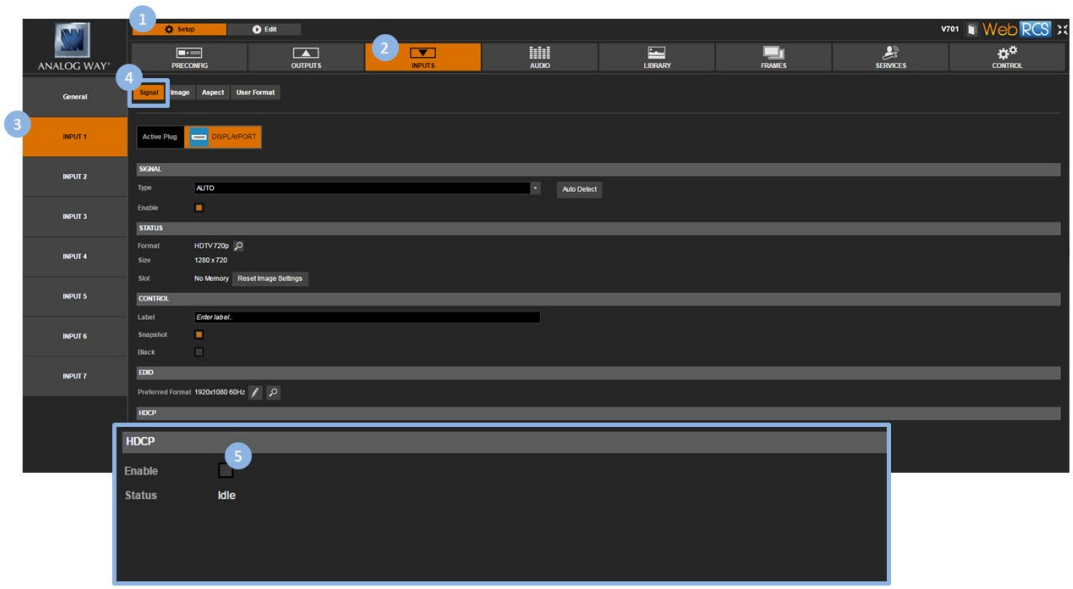
> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Select **Status** to check the input plug status.
5. Under **Format > HDCP**, check the HDCP status of the input plug.

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all input plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **HDCP**, check the HDCP status of the input plug.



> **TIP:** Use the **Quick Setup** button (located at the bottom of the Web RCS interface) to manage HDCP on all input plugs.

Related topics:

- HDCP support
- Plug status

7.5.2.7 Selecting the SD stability (HD15 plug only)

The SD stability specifies the stability of an SDTV signal, sometimes required to configure the hardware accordingly.

On the HD15 input (SDTV signals only), you can specify the stability mode to use for the input signal.

Available input source stability modes include:

STABLE	Stable source (DVD)
VCR	VCR Source

To enable the VCR mode:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Check the **VCR Mode** check-box to enable the VCR stability mode (uncheck to disable).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.

7.5.2.8 Enabling the SD comb filter

The SD comb filter allows you to reduce the cross-color effect on analog signals (SDTV composite only), by applying a delayed version of the signal to itself.

To enable the SD comb filter:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

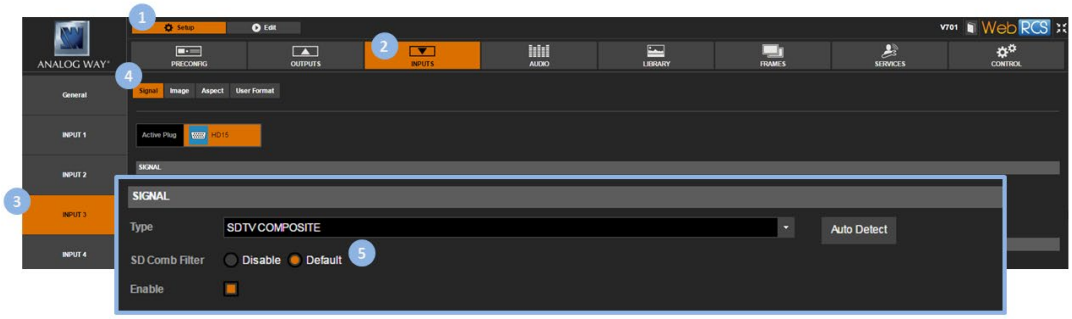
3. Select the plug settings to access the input plug settings menu.
4. Select **3D Comb Filter** and choose a 3D comb filter mode (/!\ available only if the signal type is SDTV composite).
   Available 3D comb filter modes include:

DISABLE	Filter is disabled.
DEFAULT	Filter is enabled when possible with default parameters.
LOW FILTERING	Filter is enabled when possible with very sensitive motion detection parameters (less effective but very few possibilities to introduce motion error).
HIGH FILTERING	Filter is enabled when possible with not much sensitive motion detection parameters (very effective but significative possibilities to introduce motion error).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.

2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **SIGNAL > SD Comb Filter**, check the **Default** check-box to enable the SD comb filter (check **Disable** to disable).



Related topics:

- Plug status

7.5.2.9 DisplayPort compatibility (expansion interfaces only)

When using the expansion video cards OPT-4K60P-VIO4K or OPT-4K60P-SDI-VIO4K, the DisplayPort uses 1.2 standard by default. Change the setting to 1.1 for compatibility with 1.1 standard DisplayPort sources.

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an optional input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Enter the **DisplayPort Settings** menu.
4. Enter the **DisplayPort Standard** menu.
5. Select the standard to use:

DEFAULT	DisplayPort 1.2 standard
1.1	DisplayPort 1.1 standard

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an optional input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **DisplayPort**, select the standard to use:

DEFAULT	DisplayPort 1.2 standard
1.1	DisplayPort 1.1 standard

Related topics:

- Expansion interfaces

7.5.3 Adjusting the image

You can truly optimize the input by adjusting the colorimetry and sharpness detected in the image signal.

You can also use crop to crop the image before applying the display aspect ratio after crop (very useful to correct for formats with non-square pixels, for example).

7.5.3.1 Adjusting colorimetry

The **VIO 4K** allows you to control the input image with the following colorimetry adjustments:

- Brightness,
- Contrast,
- Hue,
- Saturation.

To adjust the colorimetry of the input image:

Front Panel

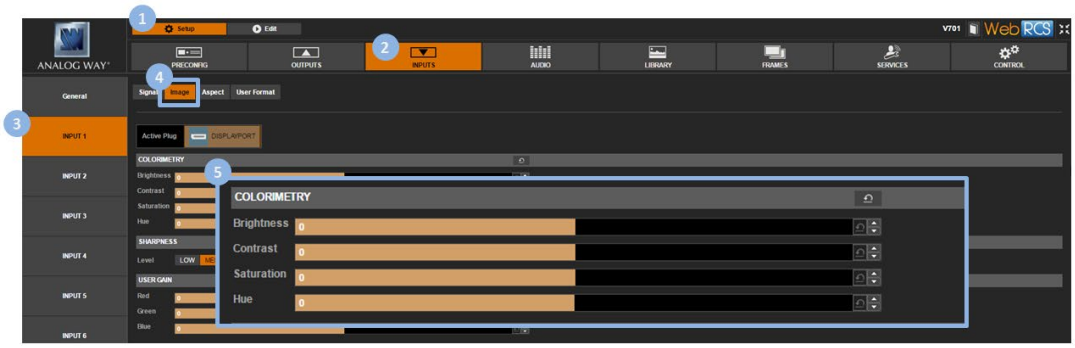
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Color Adjustments** to access the image colorimetry adjustments.
5. Select a colorimetry setting and rotate the control knob left or right to adjust the input image colorimetry setting:
   - Select **ENTER** to save the new value.
   - Select **EXIT-MENU** to restore the last saved value.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Image** tab to access the input image settings page.
5. Under **COLORIMETRY**, click and drag a colorimetry setting control bar to adjust the input image colorimetry.



SEE also: User gain

To reset colorimetry:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

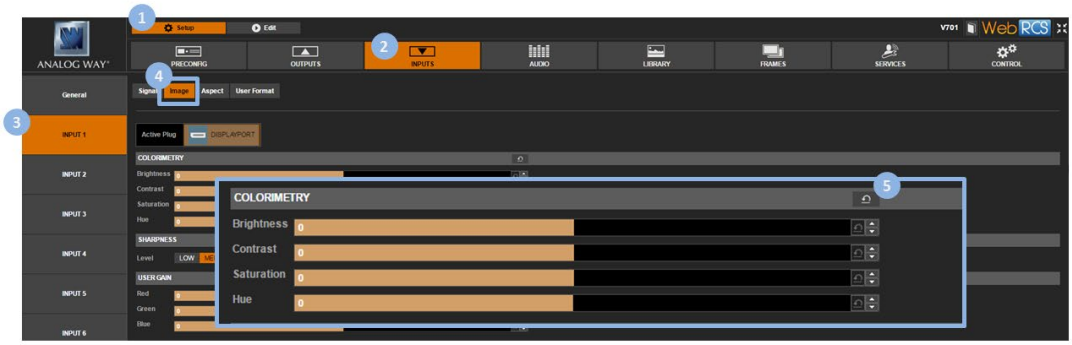
> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Color Adjustments** to access the image colorimetry adjustments.
5. Scroll down and select **Reset** to reset all colorimetry adjustments:
   - Select **Confirm** to confirm the reset.
   - Select **Cancel** to cancel the reset and keep your adjustments.

> **NOTE:** Both the colorimetry and the user gain adjustments will be reset.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Image** tab to access the input image settings page.
5. Click on the reset button next to **COLORIMETRY** to reset all colorimetry adjustments.



Related topics:

- Sharpness level
- User gain

7.5.3.2 *Adjusting the user gain*

To adjust the user gain:

Front Panel

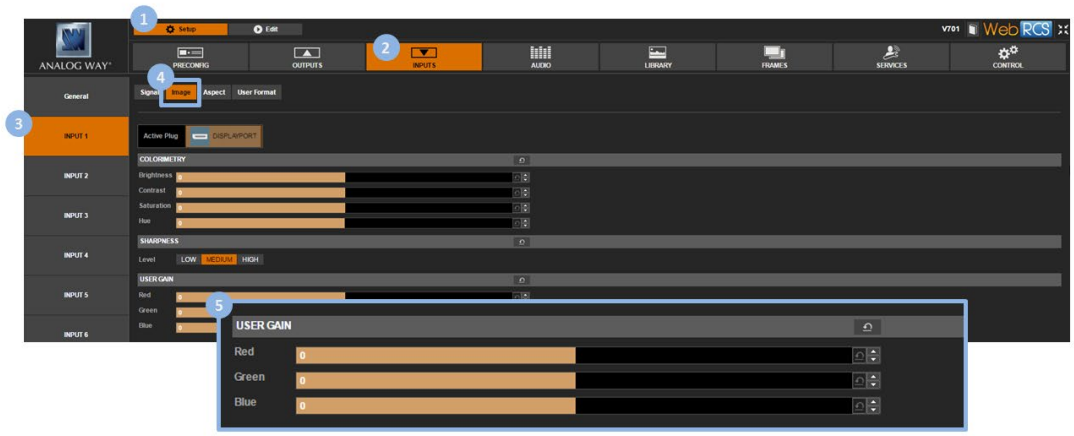
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Color Adjustments** to access the image colorimetry adjustments.
5. Select a **R Gain**, **G Gain** or **B Gain** to adjust the red, green and blue gain, respectively.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Image** tab to access the input image settings page.
5. Under **USER GAIN**, click and drag the **Red**, **Green** or **Blue** control bar to adjust the red, green and blue gain, respectively.



SEE also: Colorimetry

Related topics:

- Colorimetry adjustments

- Sharpness level

7.5.3.3 Selecting the sharpness level

To select the sharpness level:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

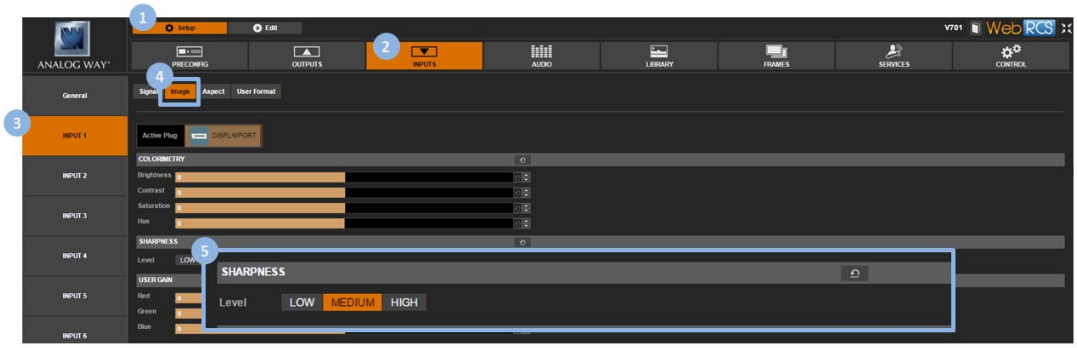
3. Select **Image Settings** to access the input image settings menu.
4. Select **Sharpness** to choose the image sharpness level.
   List of possible sharpness levels:

LOW	Low sharpness
MEDIUM	Medium sharpness
HIGH	High sharpness

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Image** tab to access the input image settings page.
5. Under **SHARPNESS**, select the image sharpness level.
   List of possible sharpness levels:

LOW	Low sharpness
MEDIUM	Medium sharpness
HIGH	High sharpness



> **TIP:** Click on the **Reset All** button to reset your adjustment (click again to confirm).

Related topics:

- Colorimetry adjustments
- User gain

7.5.3.4 Adjusting the image aspect ratio and size

Adjusting the image aspect ratio and size can be very useful to correct formats with non-square pixels, for example.

With the **VIO 4K**, you can correct the aspect ratio detected in the image **signal**, and then use **crop** to crop the image before applying the wanted **display** aspect ratio after crop.

To correct the signal aspect ratio:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Signal Aspect Ratio** to force the aspect ratio of the input image signal.
   Available signal aspect ratios include:

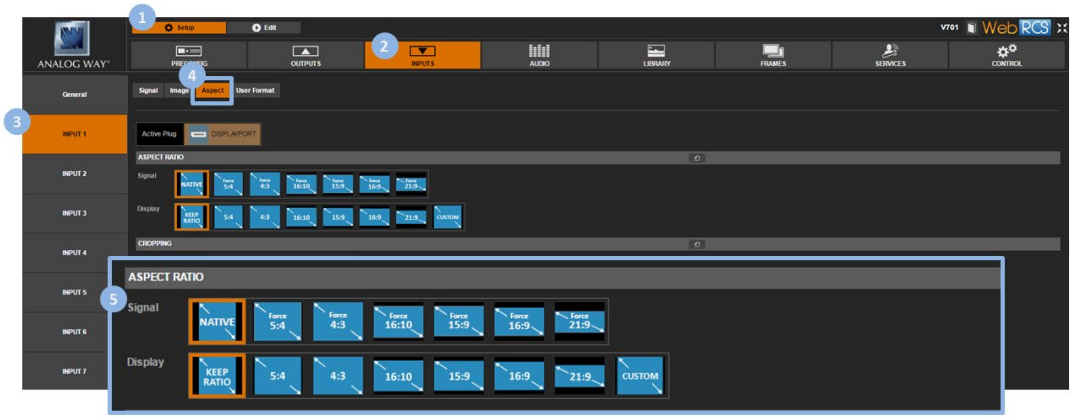
NATIVE	Detected aspect ratio
5:4	5/4 (1.25 : 1) aspect ratio
4:3	4/3 (1.33 : 1) aspect ratio
16:10	16/10 (1.6 : 1) aspect ratio
15:9	15/9 (1.66 : 1) aspect ratio
16:9	16/9 (1.77 : 1) aspect ratio
21:9	21/9 (2.33 : 1) aspect ratio

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Aspect** tab to access the input image aspect and size settings page.
5. Under **ASPECT RATIO**, select a **Signal** aspect ratio to force the aspect ratio of the input image signal.
   Available signal aspect ratios include:

NATIVE	Detected aspect ratio
5:4	5/4 (1.25 : 1) aspect ratio

4:3	4/3 (1.33 : 1) aspect ratio
16:10	16/10 (1.6 : 1) aspect ratio
15:9	15/9 (1.66 : 1) aspect ratio
16:9	16/9 (1.77 : 1) aspect ratio
21:9	21/9 (2.33 : 1) aspect ratio



To crop the image:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

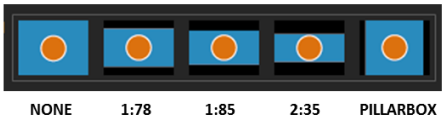
3. Select **Image Settings** to access the input image settings menu.
4. Select **Cropping** to access the image cropping menu.
5. Use the different cropping adjustments to crop the image:
   - **Crop Top:** Crop the image on the top.
   - **Crop Bottom:** Crop the image on the bottom.
   - **Crop Left:** Crop the image on the left.
   - **Crop Right:** Crop the image on the right.

> **TIP:** Use a **Predefined crop** to apply a predefined cropping to the input image.

Available predefined croppings include:

NONE	No predefined cropping
LETTERBOX 1:78	Letterbox 1.78: 1 means that a 16/9 content has been inserted in a narrow aspect ratio video

LETTERBOX 1:85	Letterbox 1.85: 1 means that a cinema 1.85 : 1 content has been inserted in a narrow aspect ratio video
LETTERBOX 2:35	Letterbox 2.35: 1 means that a cinema 2.35 : 1 content has been inserted in a narrow aspect ratio video
PILLARBOX 1:33	Pillarbox 1.33: 1 means that a 4/3 content has been inserted in a wider aspect ratio video



TIP: Use the **Reset** command to reset all cropping adjustments.

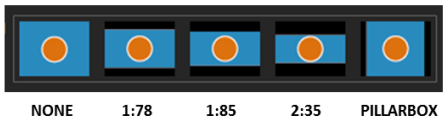
Web RCS

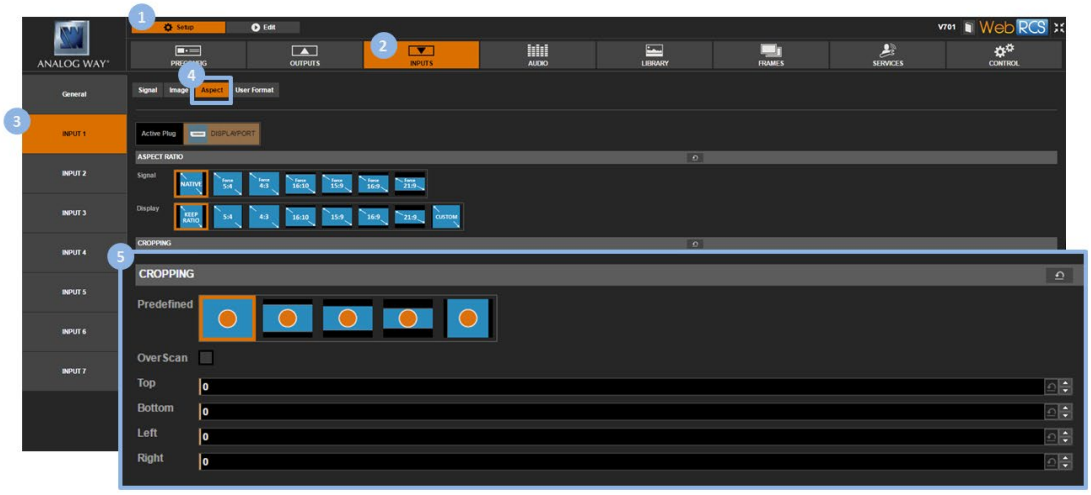
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Aspect** tab to access the input image aspect ratio and size settings page.
5. Under **CROPPING**, use the different cropping adjustments to crop the image:
   - **Crop Top:** Crop the image on the top.
   - **Crop Bottom:** Crop the image on the bottom.
   - **Crop Left:** Crop the image on the left.
   - **Crop Right:** Crop the image on the right.

TIP: Select a **Predefined** cropping to apply a predefined cropping to the input image.

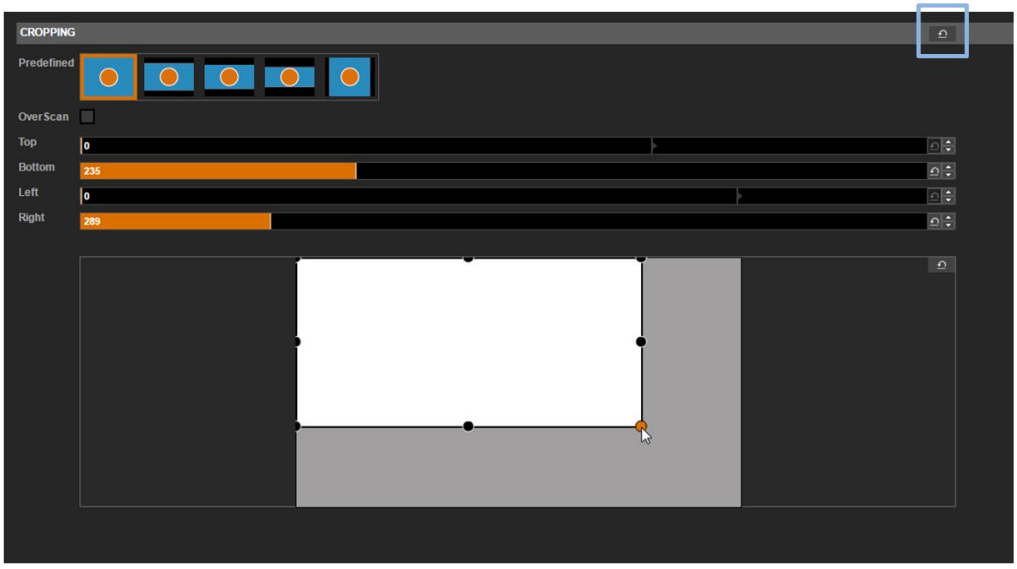
Available predefined croppings include:

NONE	No predefined cropping
LETTERBOX 1:78	Letterbox 1.78: 1 means that a 16/9 content has been inserted in a narrow aspect ratio video
LETTERBOX 1:85	Letterbox 1.85: 1 means that a cinema 1.85 : 1 content has been inserted in a narrow aspect ratio video
LETTERBOX 2:35	Letterbox 2.35: 1 means that a cinema 2.35 : 1 content has been inserted in a narrow aspect ratio video
PILLARBOX 1:33	Pillarbox 1.33: 1 means that a 4/3 content has been inserted in a wider aspect ratio video





TIP: Use the **Crop Finder** to easily crop the image. At any time, you can click on the **Reset** button to reset all cropping adjustments.



To correct the image aspect ratio after crop:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Display Aspect Ratio** to correct for the image aspect ratio after crop.
   Available display aspect ratios include:

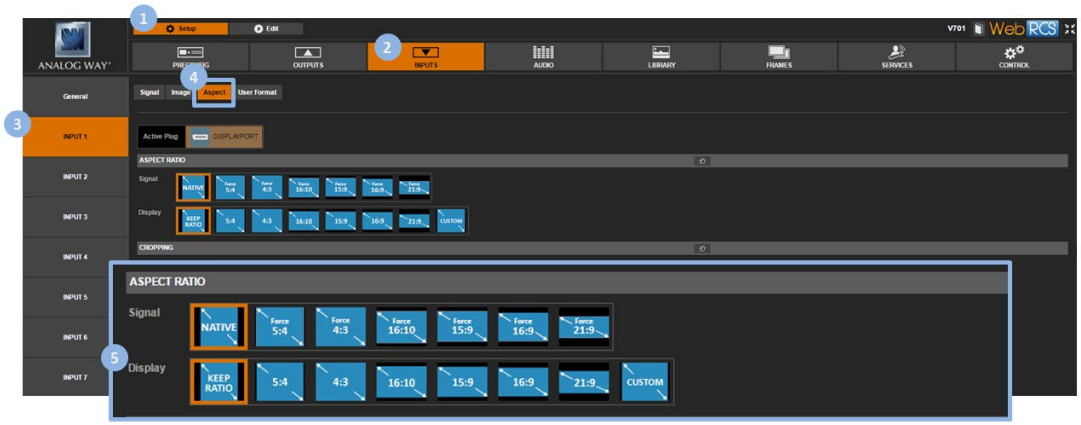
KEEP SIGNAL ASPECT RATIO	Keep ratio of the signal
5:4	5/4 (1.25 : 1) aspect ratio

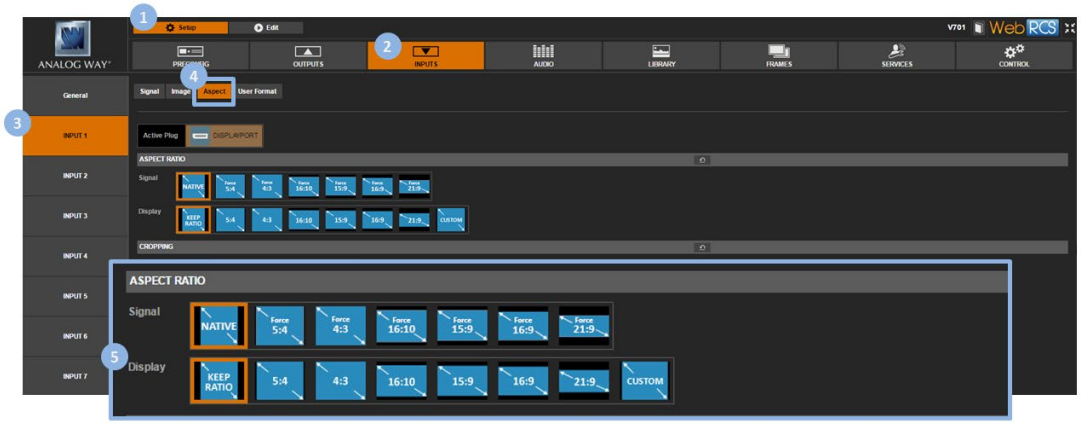
4:3	4/3 (1.33 : 1) aspect ratio
16:10	16/10 (1.6 : 1) aspect ratio
15:9	15/9 (1.66 : 1) aspect ratio
16:9	16/9 (1.77 : 1) aspect ratio
21:9	21/9 (2.33 : 1) aspect ratio
CUSTOM	Custom ratio

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Aspect** tab to access the input image aspect ratio and size settings page.
5. Under **ASPECT RATIO**, select a **Display** aspect ratio to correct for the image aspect ratio after crop. Available display aspect ratios include:

KEEP SIGNAL ASPECT RATIO	Keep ratio of the signal
5:4	5/4 (1.25 : 1) aspect ratio
4:3	4/3 (1.33 : 1) aspect ratio
16:10	16/10 (1.6 : 1) aspect ratio
15:9	15/9 (1.66 : 1) aspect ratio
16:9	16/9 (1.77 : 1) aspect ratio
21:9	21/9 (2.33 : 1) aspect ratio
CUSTOM	Custom ratio





Related topics:

- Overscan compensation
- Image optimize (analog signals)

7.5.3.5 *Enabling the overscan compensation*

You can overscan the input signal to automatically hide the faulty area reserved for over-framed images on old CRT screens.

> **NOTE:**
> - On SDTV signals, the overscanned image will be cropped by 11% horizontally and vertically.
> - On HDTV signals, the overscanned image will be cropped by 5% horizontally and vertically.

To overscan the image:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Under/Overscan > Overscan** to enable the overscan compensation on the input signal (select **Underscan** to disable).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Aspect** tab to access the input image aspect ratio and size settings page.
5. Under **CROPPING**, check the **Overscan** check-box to enable the overscan compensation on the input signal (uncheck to disable).

Related topics:

- Aspect ratio and size
- Image optimize (analog signals)

7.5.3.6 Optimizing the image (analog signals)

On analog signals, you can optimize the image by defining the pixel frequency (total number of pixels per line) and the phase.

You can also request an **auto-centering** procedure to automatically manage the pixel frequency, the phase and/or the blankings:

- Automatic clock frequency recognition (total number of pixels per line);
- Automatic phase recognition;
- Automatic edge detection (find the blanking that best suits the signal).

NOTE: The auto-centering procedure is expected to last about 10 seconds and can be performed on different inputs separately (simultaneously or not).

TIP:

- Once the auto-centering procedure is complete, go the **Image Setting** menu and select **Analog Blanking Adjustments** to correct for small centering problems.
- Use a format raster-box pattern on the input when possible to help you adjust the pixel frequency, the phase and/or the blankings.

To request auto-centering:

Information: The auto-centering procedure is not 100% reliable and results may depend on the signal quality and the image contrast.

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

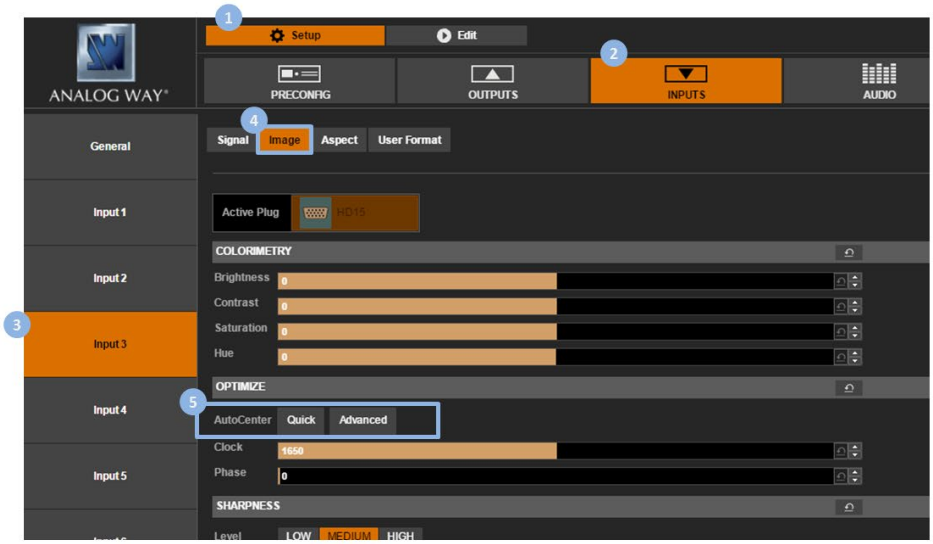
3. Select **Image Settings** to access the input image settings menu
4. Select **Autocentering** and choose an auto-centering request
   Available autocentering requests include:

QUICK	Automatic management of the phase and the blankings (but not the pixel frequency).
ADVANCED	Automatic management of the pixel frequency, the phase and the blankings.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Image** tab to access the input image settings page.
5. Under **OPTIMIZE**, select an **AutoCenter** request.
   Available auto centering requests include:

QUICK	Automatic management of the phase and the blankings (but not the pixel frequency).
ADVANCED	Automatic management of the pixel frequency, the phase and the blankings.



To adjust the clock frequency (number of pixels per line):

Front Panel

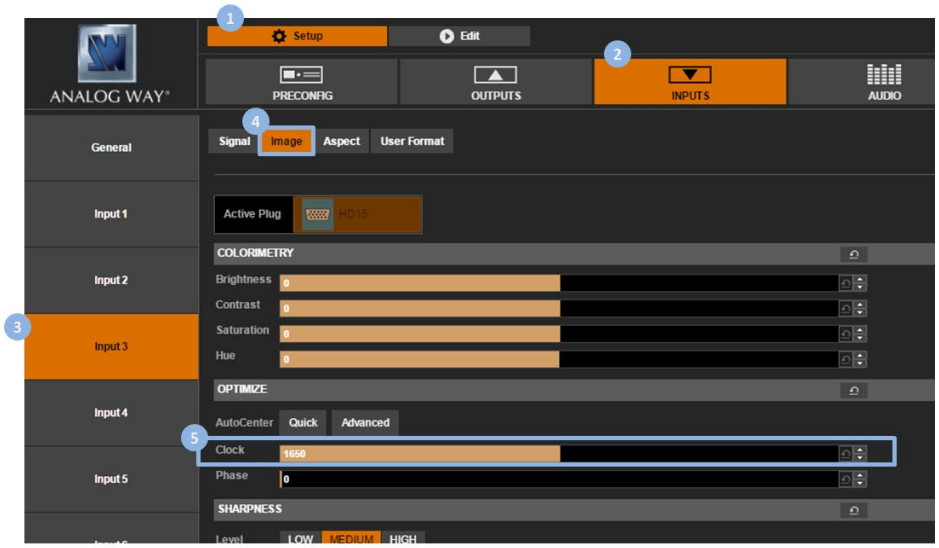
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Analog Optimize** to access the analog optimize menu.
5. Select **H Total** to adjust the clock frequency (input signal offset of total pixel per line).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Image** tab to access the input image settings page.
5. Under **OPTIMIZE**, click and drag the **Clock** control bar to adjust the clock frequency (number of pixels per line).



To adjust the phase:

Front Panel

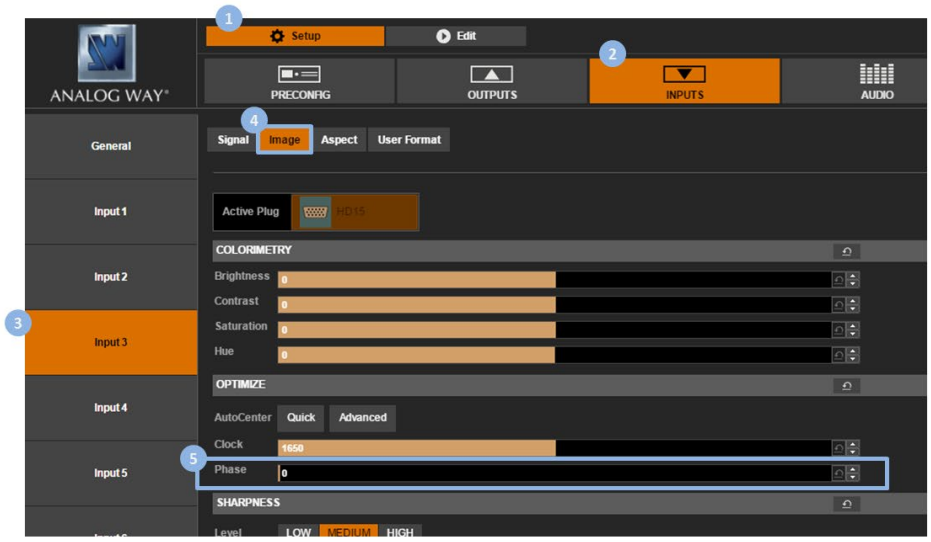
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Analog Optimize** to access the analog optimize menu.
5. Select **Phase** to specify the input signal phase.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Image** tab to access the input image settings page.
5. Under **OPTIMIZE**, click and drag the **Phase** control bar to specify the signal phase.



To adjust the blanking:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface
2. Scroll down and select an input to access the selected input setup menu

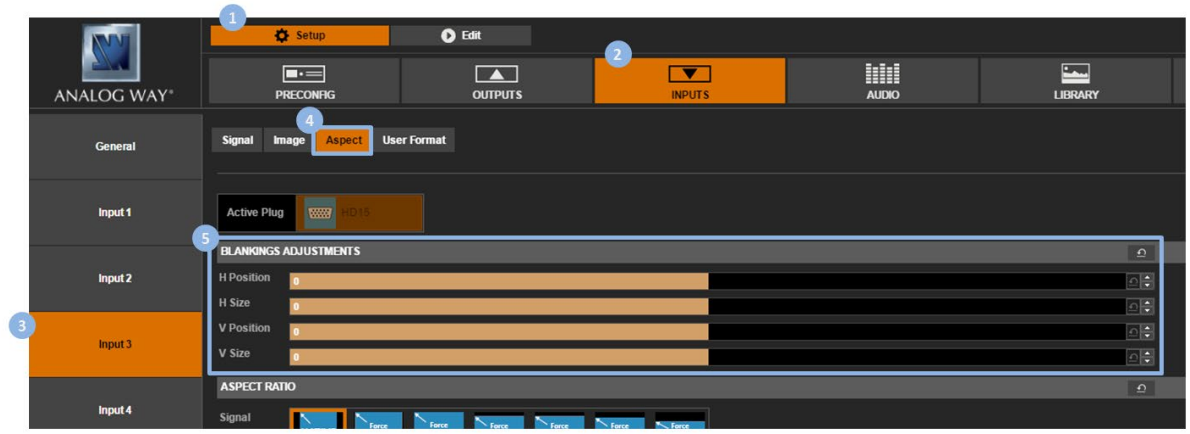
   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Analog Blanking Adjustments** to access the blanking adjustments menu.
   Adjust the following parameters:
   - **H Start:** Adjust the input signal horizontal position.
   - **V Start:** Adjust the input signal vertical position.
   - **H Size:** Adjust the input signal horizontal size.
   - **V Size:** Adjust the input signal vertical size.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Aspect** tab to access the input image aspect and size settings page.

5. Under **BLANKING ADJUSTEMENTS**, adjust the following parameters:
   - **H Position:** Adjust the input signal horizontal position.
   - **H Size:** Adjust the input signal horizontal size.
   - **V Position:** Adjust the input signal vertical position.
   - **V Size:** Adjust the input signal vertical size.



Related topics:

- Overscan compensation
- Aspect ratio and size

7.5.3.7 *Adjusting the deinterlacer options (interfaced sources)*

By default, the deinterlacing process used for interlaced input signals does not add any extra frame delay.

You can however disable low latency to improve the image quality, and enable or disable 2:2 and 3:2 pull-down to optimize the progressive image reconstruction process.

To adjust the deinterlacer options:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Deinterlacer** to access the deinterlacer options.
5. Uncheck **Low Latency** to disable low latency.

   NOTE: Disabling low latency will add an extra frame latency.

6. If required, uncheck the **2:2 Pulldown/3:2 Pulldown** check-boxes to optimize the progressive image reconstruction process:
   - Uncheck **2:2 Pulldown** to disable the detection of 2:2 sequences for 50Hz interlaced formats.

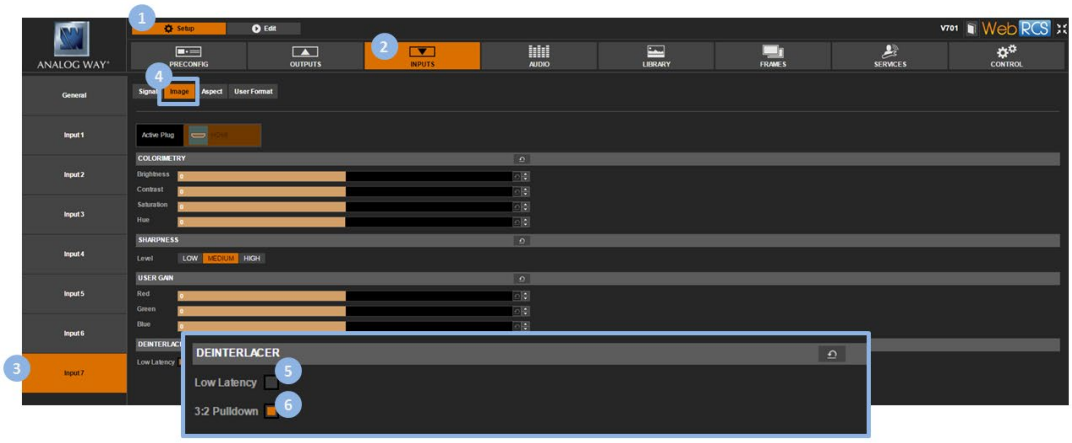
- Uncheck **3:2 Pulldown** to disable the detection of 3:2 sequences for 59.94Hz/60Hz interlaced formats.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Image** tab to access the input image settings page.
5. Under **DEINTERLACER**, uncheck **Low Latency** to disable low latency.

> **NOTE:** Disabling low latency will add an extra frame latency.

6. If required, uncheck the **2:2 Pulldown/3:2 Pulldown** check-boxes to optimize the progressive image reconstruction process:
   - Uncheck **2:2 Pulldown** to disable the detection of 2:2 sequences for 50Hz interlaced formats.
   - Uncheck **3:2 Pulldown** to disable the detection of 3:2 sequences for 59.94Hz/60Hz interlaced formats.



7.5.3.8 Resetting the image

The image settings of an input are automatically recalled via the input settings memory when the input meets all the following characteristics:

- Source number (either input number or matrix source number);
- Line and line sync widths;
- Frame and frame sync widths;
- H and V sync polarities.

You can however reset all image settings without erasing the input settings memory.

To reset all image settings:

Front Panel

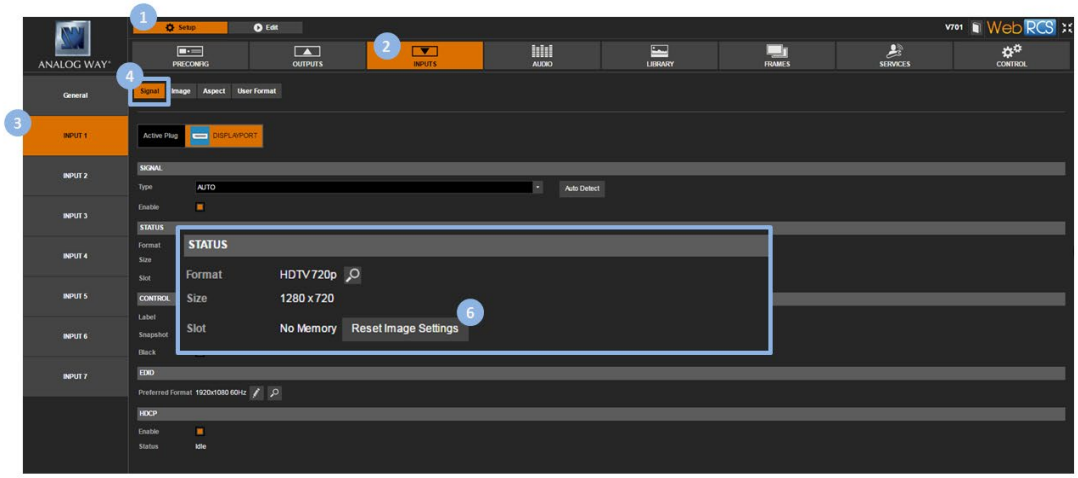
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Image Settings** to access the input image settings menu.
4. Select **Reset Settings** to reset the input image without erasing the input settings memory.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Click on the **Signal** tab.
5. Under **STATUS**, click on the **Reset Image Settings** button to reset the input image without erasing the input settings memory.



Related topics:

- Resetting the device

7.5.4 Adjusting the view

The view of an input allows you to control how the input is displayed in the screen.

You can for example use pan and zoom to adjust the size and position of the input in the screen, create a mask to display only a section of the input in the screen, or use the view alpha value to control the transparency of the input in the screen.

To pan / zoom the view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Units** to choose the units used to pan and zoom the view:
   - Select **PERCENT** to set up the view using relative (percent) units
   - Select **PIXELS** to set up the view using absolute (pixel) units

> **NOTE:** These units will also be used to mask the view.

5. Scroll down and edit the **Pan H** and **Pan V** parameters to position the input in the screen (from the center of the screen).
6. Scroll down and edit the **Zoom H** and **Zoom V** parameters to resize the input in the screen.

> **TIP:**
> - Select **Zoom H/V** to zoom the view while keeping the current aspect ratio.
> - Select **Pan/Zoom Template** to automatically adjust the view size and position to the screen (SEE: Screen fill templates for more information).
> - At any time, you can select **Reset Pan/Zoom** to reset all pan and zoom settings.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select the **View** tab to access the input's view settings.
5. Under **Pan/Zoom**, select the units used to pan and zoom the view:
   - Select **PERCENT** to set up the view using relative (percent) units.
   - Select **PIXELS** to set up the view using absolute (pixel) units.
6. Edit the **Pan H** and **Pan V** parameters to position the input in the screen (from the center of the screen).
7. Edit the **Zoom H** and **Zoom V** parameters to resize the input in the screen.

> **TIP:** Use the **Keep aspect ratio** button to zoom the view while keeping the current aspect ratio.

TIP:

- Use the **POS.** button (located at the bottom of the Web RCS interface) to automatically position the view to the screen
- Use the **VIEW ASPECT** button (located at the bottom of the Web RCS interface) to automatically adjust the view to the screen (SEE: Screen fill templates for more information).

To flip the view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

   TIP: Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Flip** and select the flip movement to apply to the live input.
   Available flip movements include:

NONE	No flip
HORIZONTAL	Horizontal flip
VERTICAL	Vertical flip
BOTH	Both

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select **View** to access the input's View settings.

5. Under **Flip**, check the **Horizontal** and/or **Vertical** check-boxes to flip the view horizontally and/or vertically.

To mask a portion of the view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Units** to choose the units used to mask the view:
   - Select **PERCENT** to set up the view using relative (percent) units.
   - Select **PIXELS** to set up the view using absolute (pixel) units.

> **NOTE:** These units will also be used to mask the view.

5. Scroll down and edit the following parameters:
   - **Mask Left:** Mask area on the left of the input content.
   - **Mask Right:** Mask area on the right of the input content.
   - **Mask Top:** Mask area at the top of the input content.
   - **Mask Bottom:** Mask area at the bottom of the input content.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select the **View** tab to access the input's view settings.

5. Under **Mask**, select the units used to mask the view:
   - Select **PERCENT** to set up the view using relative (percent) units.
   - Select **PIXELS** to set up the view using absolute (pixel) units.
6. Edit the following parameters:
   - **Mask Left:** Mask area on the left of the input content.
   - **Mask Right:** Mask area on the right of the input content.
   - **Mask Top:** Mask area at the top of the input content.
   - **Mask Bottom:** Mask area at the bottom of the input content.

> **TIP:** Use the **Reset** button if required to reset the mask (no mask).

To control the transparency:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "View" Settings to access the input's view settings menu.
4. Select Alpha to adjust the transparency of the input in the screen (use max alpha for min transparency).

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select the **INPUT** to display on the output.
4. In the right side toolbar, select the **View** tab to access the input's view settings.

5. Under **Transparency**, adjust the alpha transparency of the input in the screen (use max transparency for min alpha).

To apply a color effect:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Effect** to access the color effects menu.
5. Check the appropriate check-box to enable a color effect on the live input (uncheck to disable). Available color effects include:

NONE	No effect
BLACK AND WHITE	Black and White
NEGATIVE	Negative
SEPIA	Sepia
SOLAR	Solar
ALL	All (when possible)

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select the **View** tab to access the input's view settings.

5. Under **Effects**, check the appropriate check-box to enable a color effect on the live input (uncheck to disable).
   Available color effects include:

NONE	No effect
BLACK AND WHITE	Black and White
NEGATIVE	Negative
SEPIA	Sepia
SOLAR	Solar
ALL	All (when possible)

To save the view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Save View** and select a view bank slot to save the view to the view bank.

> **NOTE:** Non-empty bank slots appear highlighted in **blue**. Saving to a non-empty bank slot will override the memory.

> **TIP:** See also Recalling a view.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select the **INPUT** to display on the output.

4. In the right side toolbar, select the **View** tab to access the input's View settings.
5. Click on the **SAVE VIEW** button to switch to the view bank save mode (click again to confirm).
6. On the **View Bank** tab, select a view bank slot to save the view to the view bank (or click on the blinking **SAVE MODE** button to cancel and exit save mode).

> NOTE:
> - Non-empty bank slots appear highlighted in **blue**. Saving to a non-empty bank slot will override the memory.
> - The first available (non-empty) bank slot is highlighted by a white rectangle.
> - Saving to a non-empty bank slot will override the memory.

> **TIP:** See also Recalling a view.

To recall a view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Recall View** and select a view bank slot to recall the view bank memory on the selected input.

> **TIP:** SEE also Saving a view

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.

3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select the **View Bank** tab to access the view bank.
5. Click on a view bank slot to recall the view bank memory on the selected input.

> **TIP:** SEE also Saving a view

To reset the view:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Flip > NONE** to reset flip.
5. Select **Alpha** and adjust the alpha value at 255.
6. Select **Effect > Reset > Confirm** to disable all color effects.
7. Select **Reset Pan/Zoom > Confirm** to reset all pan and zoom settings.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the right side toolbar, select the **View** tab to access the input's view settings.
5. Click on the **RESET VIEW** button to reset all view settings (click again to confirm the reset).

SEE also: Screen management

Related topics:

- Presets

7.6 Monitoring input sources

You can monitor input sources from both the **Front Panel** and the **Web RCS** interfaces.

On the **Web RCS** interface, you can further obtain a live feedback of each input source enabled on the device.

To monitor a source:

Front Panel

1. On the Front Panel interface, press the **Monitor** key button to access the monitoring menu.
2. Scroll down and select an input to monitor the input on the front panel LCD display (use the **EXIT-MENU** button to exit monitoring).

> **NOTE:** You can also select **STANDARD OUTPUT** to monitor the output.

Alternative method:

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select **Monitor on LCD** to monitor the input on the front panel LCD screen.
4. Use the **EXIT-MENU** button to exit monitoring and go back to the last visited menu.

Web RCS

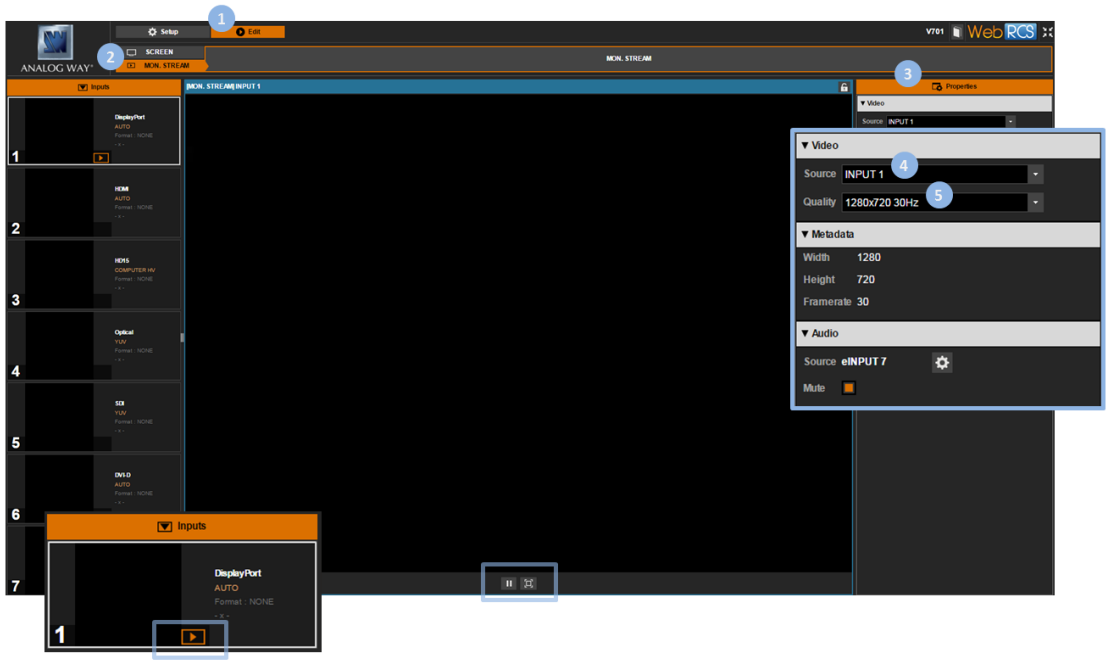
1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **MON. STREAM** tab to access the monitoring page.
3. Go to the **Properties** toolbar on right-hand side.
4. Under **Setup > Source**, select the input to monitor.

> **NOTE:** You can also select the input from the Inputs tab on the left-hand toolbar.

5. If required, select the **Quality** of the monitoring stream.
   Available monitoring qualities include:

320x240@30Hz
640x480@30Hz
1280x720@30Hz

> **TIP:** Use the **Play** and **Fullscreen** buttons at the bottom of the monitoring screen to control the monitoring stream playback and display size.



To enable/disable the live feedback:

Front Panel

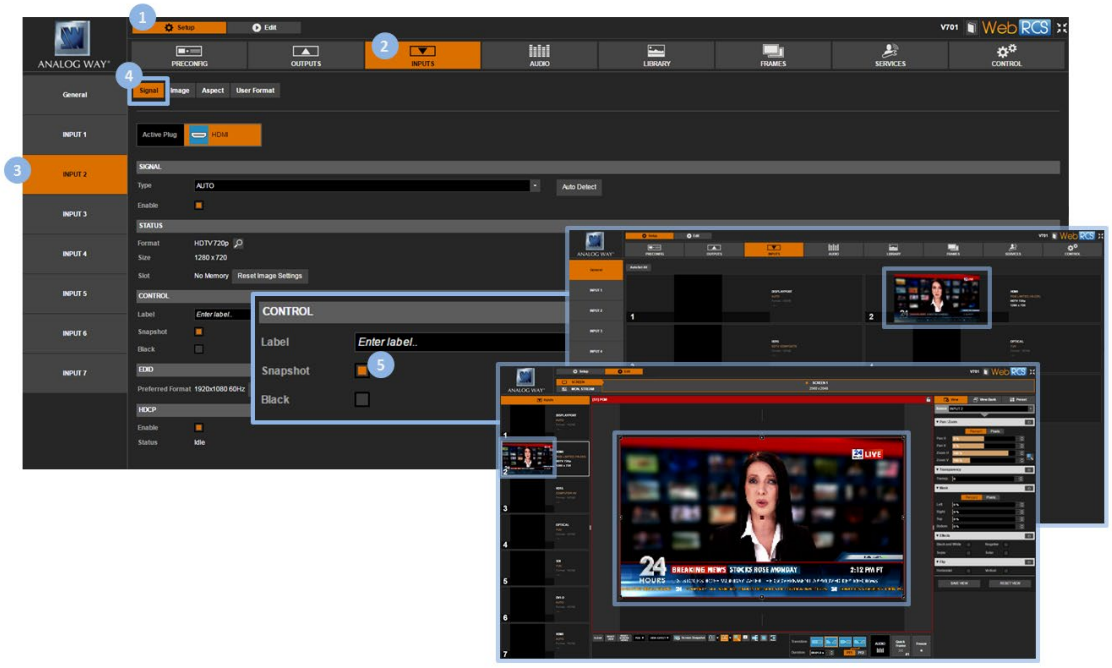
> **NOTE:** This function is not available via the front panel.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.

3. In the left side toolbar, select an input to access the selected input setup page.
4. Select **Signal** to access the input plug settings page.
5. Under **CONTROL**, check the **Spanshot** check-box to enable a live feedback of the input sources connected to the input plug (uncheck to disable).

> **TIP:** Use the **Label** field to provide a name for the source.



7.7 Capturing the input

SEE: Creating frame captures

7.8 Looping-through inputs

SEE: Enabling loop mode (output plug)

Related topics:

- Presets
- Audio management
- Configuration backup

8 Frame management

8.1 What is a frame?

A Frame is a 24-bit RGB still picture whose maximum pixel size is 8192x4320 pixels.

You can use frames to:

- Capture the active input or the output (capture video);
- Display a foreground frame (quick-frame function);
- Create a nice transition effect (frame transitions);
- Display a background when no input source is selected (black frame).

8.2 Supported frame formats

The currently supported frame formats are:

- BMP,
- JPEG,
- PNG.

8.3 Importing and exporting frames

You can import and export frames to and from the device via the **Frame Library**:

- Importing frames will allow you to use frames directly available on the device;
- Exporting frames will allow you to transfer frames to other devices.

You can also create frame captures from your video inputs and outputs (SEE: Creating frame captures).

To import a frame to the library:

Front Panel

> **NOTE:** You will need to a USB key to import frames via the front panel.
>
> Before you start:
>
> - Prepare a USB key with the frames you wish to import.
> - Plug-in the USB key into the USB HOST port (located on the front panel).
> - Wait until the device is properly recognized and then proceed to import frames as described below.

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **IMPORT** to access USB device browser.
3. In the USB device browser, browse for the file to import.

> **TIP:** Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

4. Select the file to import and press the **ENTER** key to import the file to the library.

> **NOTE:** You can also use the EXIT-MENU key to go back to the USB device browser without importing the file.

> **TIP:** Select a slot range to import to a specific frame library slot.

Web RCS

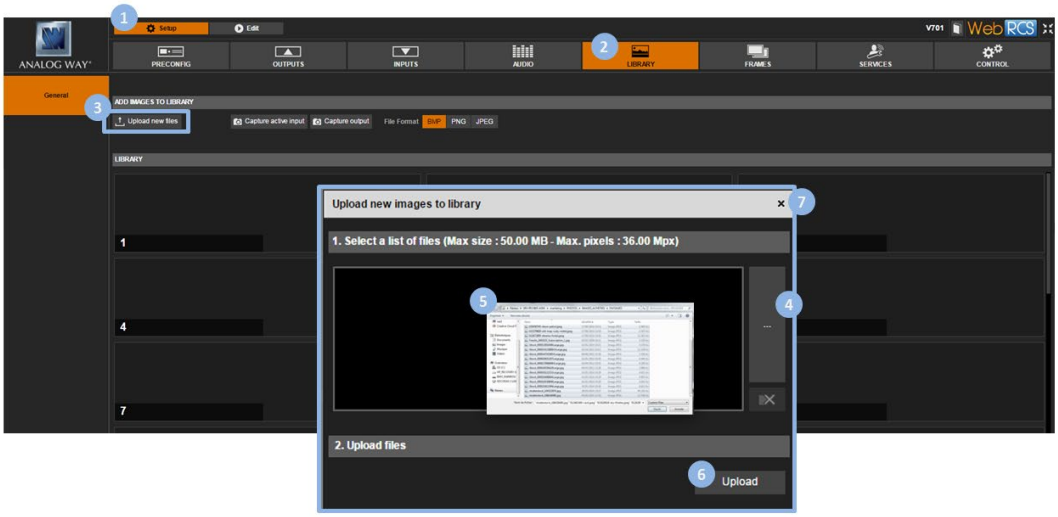
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **LIBRARY** tab to access the frame library management page.
3. Click on the **Upload new files** button to access the **Upload new images to library** window.
4. In the **Upload new images to library** window, click on the "**...**" button to access your OS device browser.
5. In your OS device browser, select the file(s) to import and click **OK/Open** to load them into the **Upload new image to library** window.

> **TIP:** Select more than one file to import several files at once.

6. In the **Upload new image to library** window, click on the **Upload** button to start importing the selected file(s) to the device.

> **TIP:** Before you import your file(s), you can select a file(s) and click on the **Remove selected files** button to cancel the import of the selected file(s).

7. Wait for the import files process to be complete and click on the "X" button to close the Upload new image **to library** window.



To export a frame from the library:

Front Panel

> **NOTE:** You will need to a USB key to export frames via the front panel.
>
> Before you start:
>
> - Plug-in a USB key into the USB HOST port (located on the front panel).
> - Wait until the device is properly recognized and then proceed to export frames as described below.

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **LIBRARY** to access the frame library management menu.
3. Select the frame to export and press the **ENTER** key to access the frame detail menu.
4. Scroll down and select **Export to...** to access the USB device browser.
5. In the USB device browser, browse for the folder to export to.

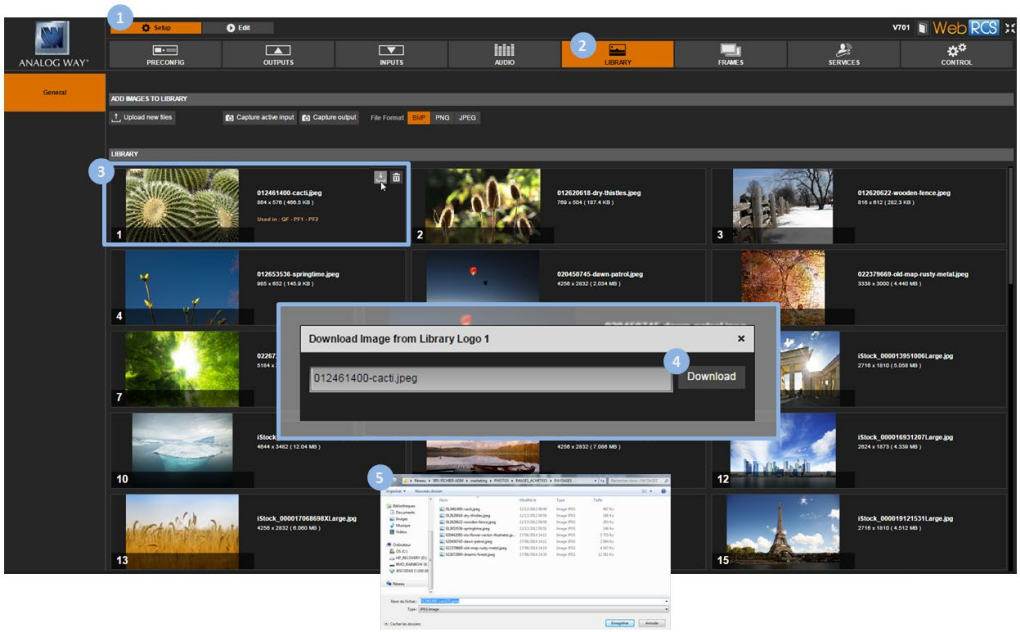
> **TIP:** Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

6. Finally, select **EXPORT TO THIS FOLDER** to export the frame to the selected folder.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **LIBRARY** tab to access the frame library management page.
3. Hover over the frame to export and click on the **Download file on your computer** button.
4. In the **Download image from library** window, click on the **Download** button to access your OS device browser.
5. In your OS device browser, browse for the folder to export to and click on **OK/Open** button to export the frame to the selected folder.

> **NOTE:** Your OS device browser will not pop up if the Web RCS interface is in full screen mode.



To delete a frame from the library:

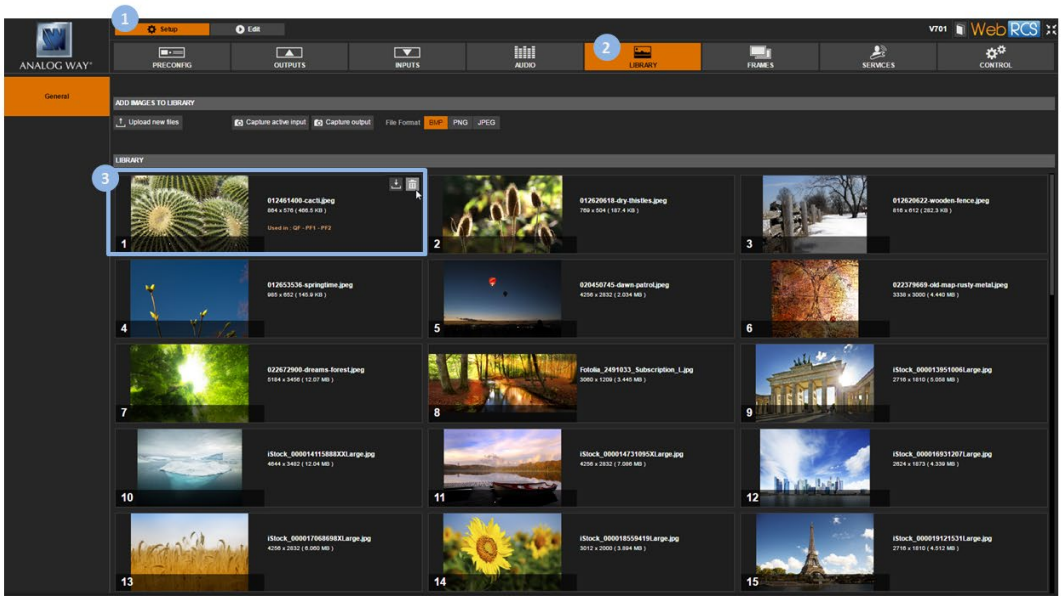
Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **LIBRARY** to access the frame library management menu.
3. Select the frame to delete and press the **ENTER** key to access the frame detail menu.
4. Scroll down and select **Delete Frame** to permanently delete the frame from the device.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **LIBRARY** tab to access the frame library management page.
3. Hover over the frame to delete and click on the **Erase** button to permanently delete the frame from the device.

> **Information:** No confirmation is required.



To delete all frames in the library:

SEE: Erasing the library

8.4 Creating frame captures

You can create a frame capture from a live stream (video input or output) directly into the **Frame Library** (library slot) or into an external USB drive (file directory).

To create a frame capture in the library:

Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **Capture** to access the create frame capture menu.
3. Select **Destination type > LIBRARY** to create the new frame capture directly into the frame library.
4. Select **Select library slot** to change the default slot if required.

> **NOTE:** By default, new frame captures are saved to the first library slot.

5. Select **File format** to change the new frame capture file format if required.
6. Select **Capture from** to choose the video source for the capture.

> **NOTE:** You can choose to capture the active input or the output.

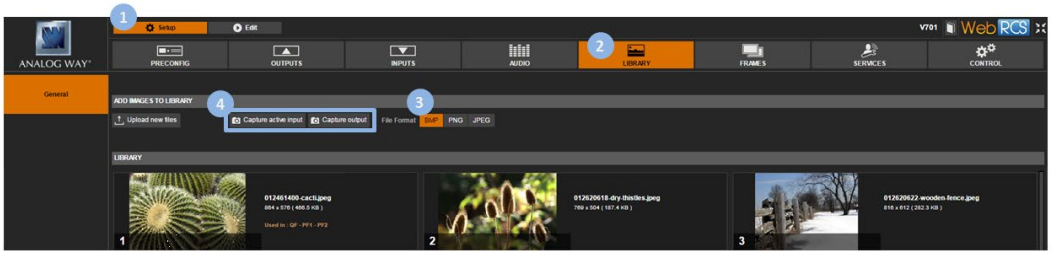
7. Select **Start the capture** when ready to create a new frame capture directly into the frame library.

> **NOTE:** The new frame capture will be available in the selected library slot.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **LIBRARY** tab to access the frame library management page.
3. Select a **File Format** for the new frame capture file.
4. Click on the **Capture active input** or **Capture output** button to create a new frame capture from the active input or the output, respectively.

> **NOTE:** The new frame capture will be saved to the first available library slot.



To create a frame capture in an external USB drive:

Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **Capture** to access the create frame capture menu.
3. Select **Destination type > FILE** to create the new frame capture as an external USB drive file.
4. Select **Select directory** to browse folders in the USB drive if required.
5. Select **File format** to change the new frame capture file format if required.
6. Select **File creation mode** to change the file creation mode if required.
   Available file creation modes include:

INCREMENTAL	Increase the file number when capturing the same stream
OVERWRITE	Overwrite the file

7. Select **Capture from** to choose the video source for the capture.

   NOTE: You can choose to capture the active input or the output.

8. Select **Start the capture** when ready to create a new frame capture as an external USB drive file.

Web RCS

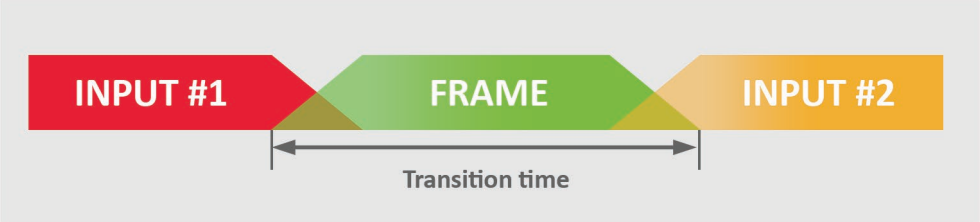
1. Follow the steps described in Creating a frame capture in the library.
2. Export the new capture to a USB drive as described in Exporting frames from the library.

8.5 Using frames as transitions

Frames can be used to transition through frame when switching sources.

The transition through frame is then performed in 3 steps of equal duration:

1. Fade transition from the initial source to the chosen frame;
2. Frame display;
3. Fade transition from the frame to the new source.



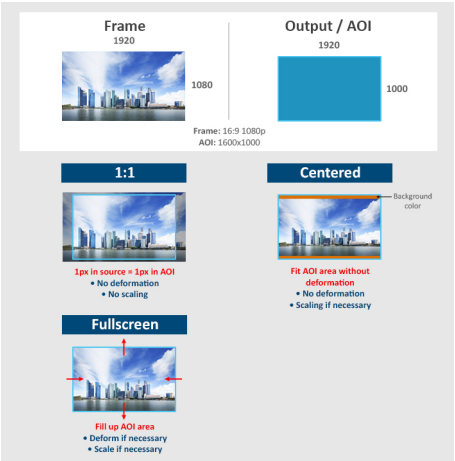
The **VIO 4K** allows you to preset two frames to transition through frame in the screen, and quickly select either preset frame to transition through frame when switching sources.

To preset the transition frames for the screen:

Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **PRESET FRAMES** to access the screen transition frames menu.
3. Select **PRESET FRAME 1** (or **PRESET FRAME 2**) to preset a transition frame for the screen.
4. Select **Display Mode** to set up the display aspect ratio for preset frame 1 (or 2).
   Available display modes for frames include:

CENTERED	Set frame aspect to centered
FULLSCREEN	Set frame aspect to fullscreen
1:1	Set frame aspect to 1:1

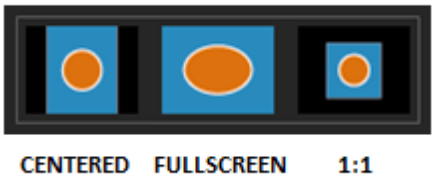


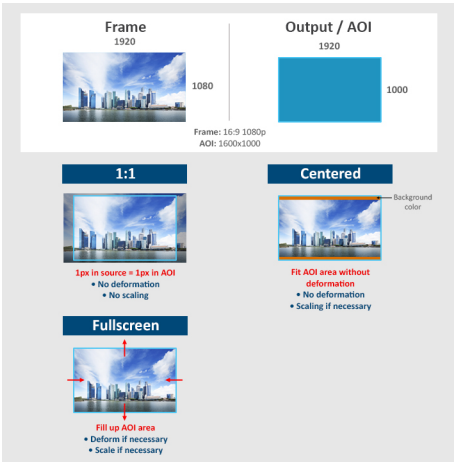
5. Select a ±90°**Rotation Mode** if required.
6. Finally, select **Select Frame from Library** to navigate the frame library and select the frame to use as preset frame 1 (or 2).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **FRAMES** tab to access the frame features page.
3. In the left side toolbar, select the **SCREEN 1** tab to access the screen transition frames page.
4. Select the **PRESET FRAME 1** tab (or the **PRESET FRAME 2** tab) to preset a transition frame for the screen.
5. Under **ASPECT > Display Mode**, select the display aspect ratio for preset frame 1 (or 2).
   Available display modes for frames include:

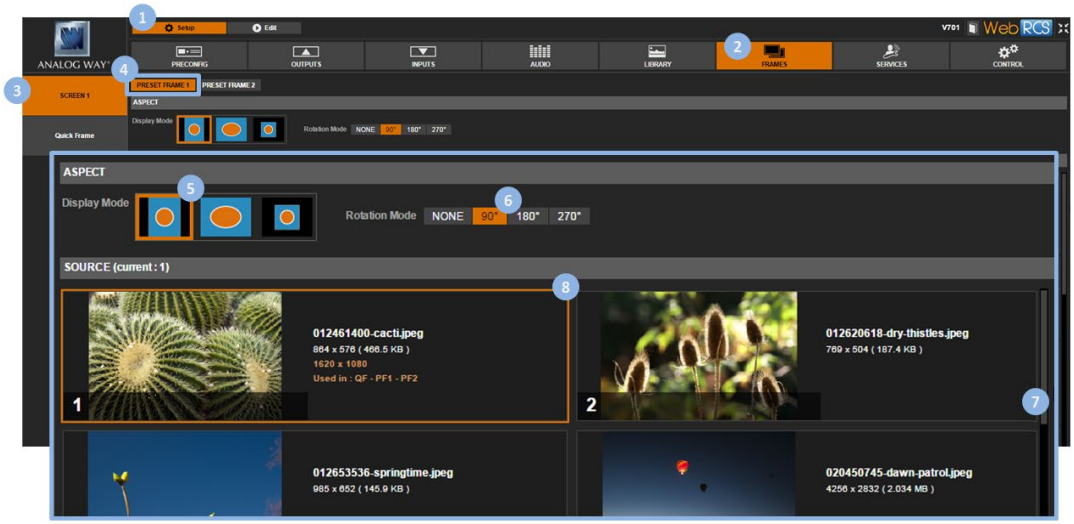
CENTERED	Set frame aspect to centered
FULLSCREEN	Set frame aspect to fullscreen
1:1	Set frame aspect to 1:1





6. Select a ±90°**Rotation Mode** if required.
7. If required, scroll the **SOURCE** window to navigate the frame library and locate the frame to use as preset frame 1 (or 2).
8. Finally, select the frame to use as preset frame 1 (or 2).

> **NOTE:** The **SOURCE (current: #)** number indicates the location of the selected frame in the library.



To use a preset frame to transition through frame:

Front Panel

1. Enter the **CUSTOMIZE** menu on the Front Panel interface.
2. Select **Transition Effect** to access the transition effect setup menu.
3. Select **Type > FADE THROUGH FRAME** to select the fade through frame transition type.
4. Select **Preset Frame 1** or **Preset Frame 2** to transition through preset frame 1 or 2, respectively.
5. If required, select **Duration** to adjust the transition effect duration.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. On the screen control toolbar (located at the bottom of the screen), select **Transition > FADE THROUGH FRAME**.
4. Select **PF1** or **PF2** to transition through frame using preset frame 1 or 2, respectively.
5. If required, click and drag the **Duration** control bar to adjust the transition effect duration.

SEE also: Screen management

8.6 Using frames as quick frames

The **Quick Frame** function allows you to quickly display a frame in the screen foreground, for example to cover underneath layers in case of emergency.

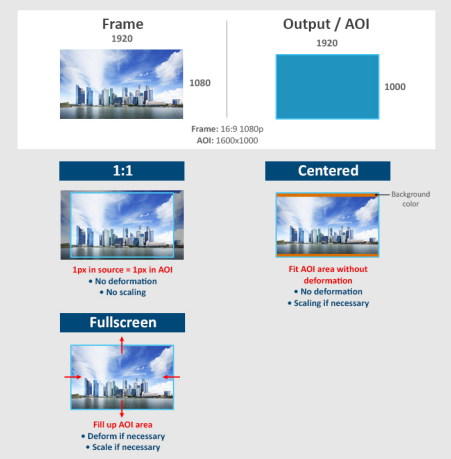
You can manage your Quick Frame function by setting up the quick frame (i.e. the frame to display whenever the Quick Frame function is active), and then enable or disable the Quick Frame function whenever required.

To set up the quick frame function:

Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **QUICK FRAME** to access the quick frame function management menu.
3. Select **Display Mode** to select the aspect ratio used to display the quick frame.
   Available display modes for frames include:

CENTERED	Set frame aspect to centered
FULLSCREEN	Set frame aspect to fullscreen
1:1	Set frame aspect to 1:1



4. Select the **Transition Type** used to display the quick frame.
   Available transition types for frames include:

CUT	Cut transition
FADE	Fade transition

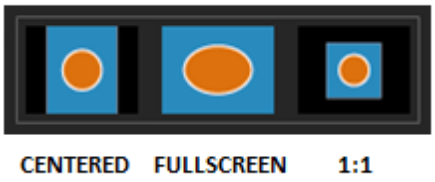
5. Adjust the transition duration if required for the fade type transition.
6. Select **Select Frame from Library** to navigate the frame library and select the frame to use as quick frame.

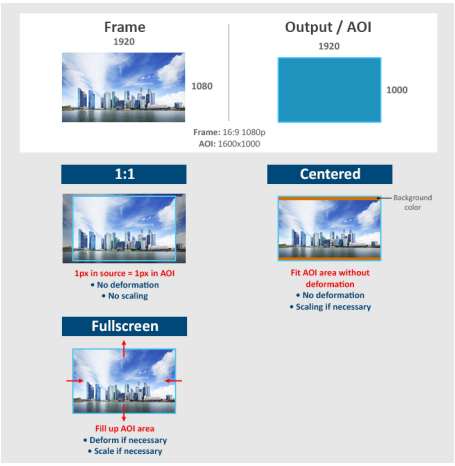
> **NOTE:** The selected quick frame will be displayed as long as the Quick Frame function is active (***SEE: Activating the Quick Frame function***).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **FRAMES** tab to access the frame features page.
3. In the left side toolbar, select the **QUICK FRAME** tab to access the quick frame function management page.
4. Under **ASPECT > Display Mode**, select the aspect ratio used to display the quick frame.
   Available display modes for frames include:

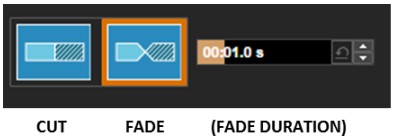
CENTERED	Set frame aspect to centered
FULLSCREEN	Set frame aspect to fullscreen
1:1	Set frame aspect to 1:1





5. Select also the **Transition** type used to display the quick frame
   Available transition types for frames include:

CUT	Cut transition
FADE	Fade transition



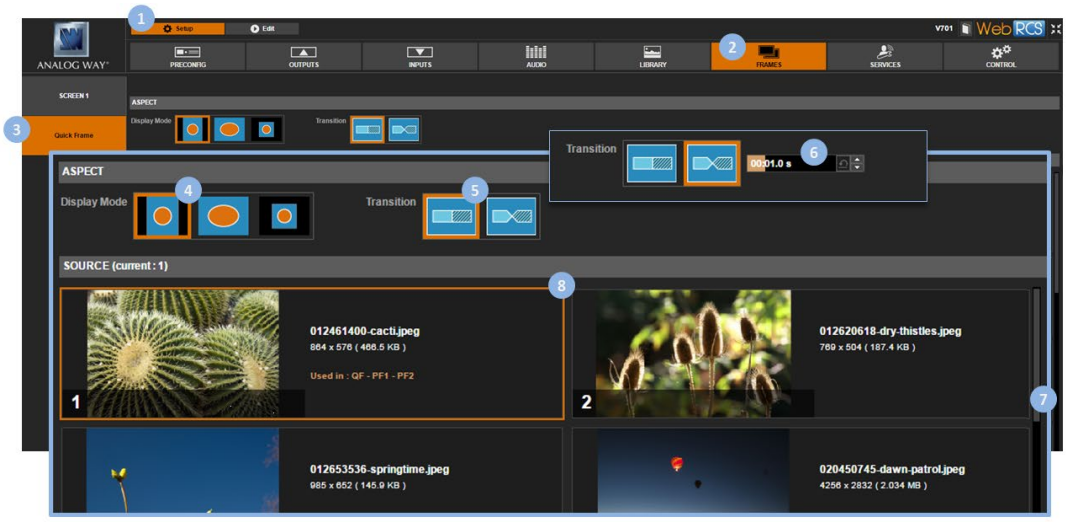
> **NOTE:** For the fade type transition, adjust the transition duration if required.

6. If required, scroll the **SOURCE** window to navigate the frame library and locate the frame to use as preset frame 1 (or 2).

> **NOTE:** The **SOURCE (current: #)** number indicates the location of the selected frame in the library.

7. Finally, select the frame to use as quick frame.

> **NOTE:** The quick frame is displayed whenever the **Quick Frame** function is active (***SEE: Activating the Quick Frame function***).



To activate the quick frame function:

Front Panel

1. Enter the **FRAME** menu on the Front Panel interface.
2. Select **QUICK FRAME** to access the quick frame function management menu.

> **TIP:** Select **Status** to check the current quick frame status information (location of the frame in the library, display mode, size...).

3. Select **Display Frame** to activate the quick frame function (display the quick frame).

> **TIP:** Check the **Enable Front Panel Shortcut** check-box to enable the activation of the Quick Frame function via the front panel **QUICK FRAME** button (uncheck to disable).

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. On the screen control toolbar (located at the bottom of the screen), click on the **Quick Frame** button to activate the Quick Frame function (display the quick frame).

> **NOTE:**
> - The number next to **Quick Frame #** indicates the location of the frame in the library.
> - The **Quick Frame** button will blink orange if the Quick Frame function is active.

SEE also: Screen management

9 Screen management

9.1 What is a screen?

A screen is the video content that will be displayed to the spectator.

You can manage the screen content by selecting the input to display on the output, loading a preset, displaying a Quick Frame, or freezing the output.

The **VIO 4K** also allows you to control how each input appears in the screen by adjusting the input's "view", and you can further customize the screen background color and the transition effect used when switching sources.

9.2 Adjusting the view

The **VIO 4K** allows you to control how an input is displayed in the screen by adjusting the input's "view" (SEE: Adjusting the view).

You can also use the predefined screen layouts and fill templates that come embedded in your **VIO 4K** to automatically adjust the view size and position in the screen.

To automatically adjust the view in the screen:

Front Panel

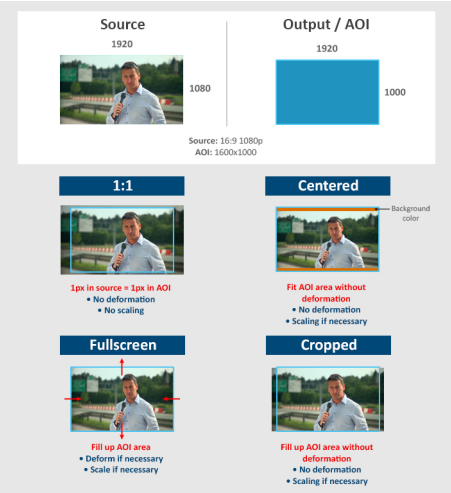
1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an **INPUT** to access the input setup menu.

> **TIP:** Double-click on the **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select "**View" Settings** to access the input's view settings menu.
4. Select **Pan/Zoom template** to access the screen fill templates.
5. Select a screen fill template to automatically adjust the view size and position in the screen.
   Available screen fill templates include:

1:1	Set the view aspect to 1:1
CENTERED	Set the view aspect to centered
FULLSCREEN	Set the view aspect to fullscreen
CROPPED	Set the view aspect to cropped

> **NOTE:** When using fill templates, the view aspect is forced to adapt to the screen, and scaling and/or deformation of the view may be necessary.

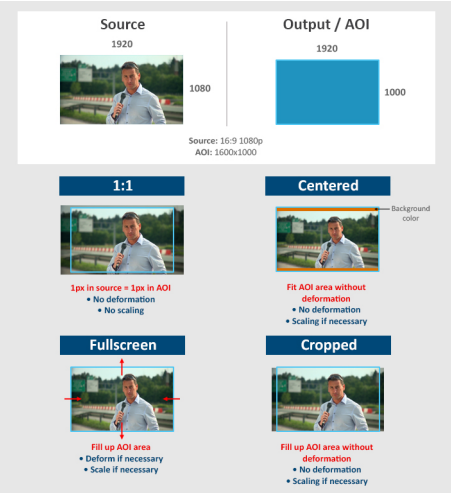


Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.
4. In the screen toolbar (located at the bottom of the Web RCS interface), select **VIEW ASPECT** to access the screen fill templates.
5. Select a screen fill template to automatically adjust the view size and position in the screen. Available screen fill templates include:

1:1	Set the view aspect to 1:1
CENTERED	Set the view aspect to centered
FULLSCREEN	Set the view aspect to fullscreen
CROPPED	Set the view aspect to cropped

> **NOTE:** When using fill templates, the view aspect is forced to adapt to the screen, and scaling and/or deformation of the view may be necessary.



To quickly position the view in the screen:

Front Panel

> **NOTE:** This function is not available via the front panel.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select an **INPUT** to load the input view settings.

4. In the screen toolbar (located at the bottom of the Web RCS interface), select **POS.** to access the screen layout templates.
5. Select a screen layout to quickly position the view in the screen.

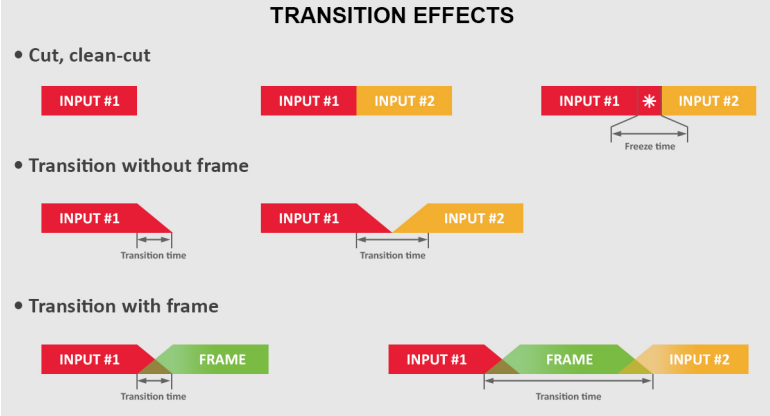
SEE also: Adjusting the view

Related topics:

- Presets

9.3 Customizing the transition effect

On the **VIO 4K**, a transition effect is automatically started when a new input is selected or a preset is loaded.



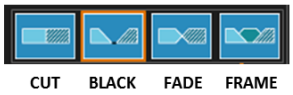
You may customize the transition type used when switching sources, together with the transition duration, and the frame used to transition through frame.

To customize the transition effect:

Front Panel

1. Enter the **CUSTOMIZE** menu on the Front Panel interface.
2. Select **Transition Effect** to customize the transition effect used when switching sources.
3. Select **Type** to choose the transition type.
   Available transitions types include:

CLEANCUT	Clean cut transition
FADE THROUGH BLACK	Sequenced fade transition
CLEAN FADE	Clean fade transition
FADE THROUGH FRAME	Clean fade transition using a frame

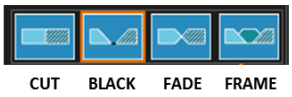


4. Select **Frame** to select a preset frame for the fade through frame transition if required (SEE: Using frames as transitions).
5. Select **Duration** to adjust the transition duration if required (fade type transitions).

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the screen toolbar (located at the bottom of the Web RCS interface), select the **Transition** type used when switching sources.
   Available transitions types include:

CLEANCUT	Clean cut transition
FADE THROUGH BLACK	Sequenced fade transition
CLEAN FADE	Clean fade transition
FADE THROUGH FRAME	Clean fade transition using a frame



4. Select a **Preset Frame** if required for the fade through frame transition (SEE: Using frames as transitions).
5. Click and drag the **Duration** control bar to adjust the transition duration if required (fade type transitions).

SEE also: Using frames as transitions

9.4 Controlling the screen

You can select the input to display on the output and then adjust the input view settings accordingly, or you can use **Presets** to quickly recall on the screen the input and its view configuration.

The **VIO 4K** also allows you to freeze the output to make some adjustments on an input while hiding them to the spectator, or display a Quick Frame to cover underneath layers in case of emergency.

To select the input to display on the output:

Front Panel

Click on the **INPUT SELECTION** button corresponding to the input to display on the output.

> **NOTE:** All input settings (including plug, image and view settings) will be loaded when selecting the input.

> **TIP:**
> - Click twice on an **INPUT SELECTION** button to access the input setup menu.
> - Use the **BLACK** button to output to the screen background color.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. Under the **INPUTS** tab (the left side toolbar), select an input to display on the output.

TIP: Use the **CLEAR** button (located at the bottom of the screen toolbar) to clear the selection (display no input and output to the screen background color).

To load a preset:

Front Panel

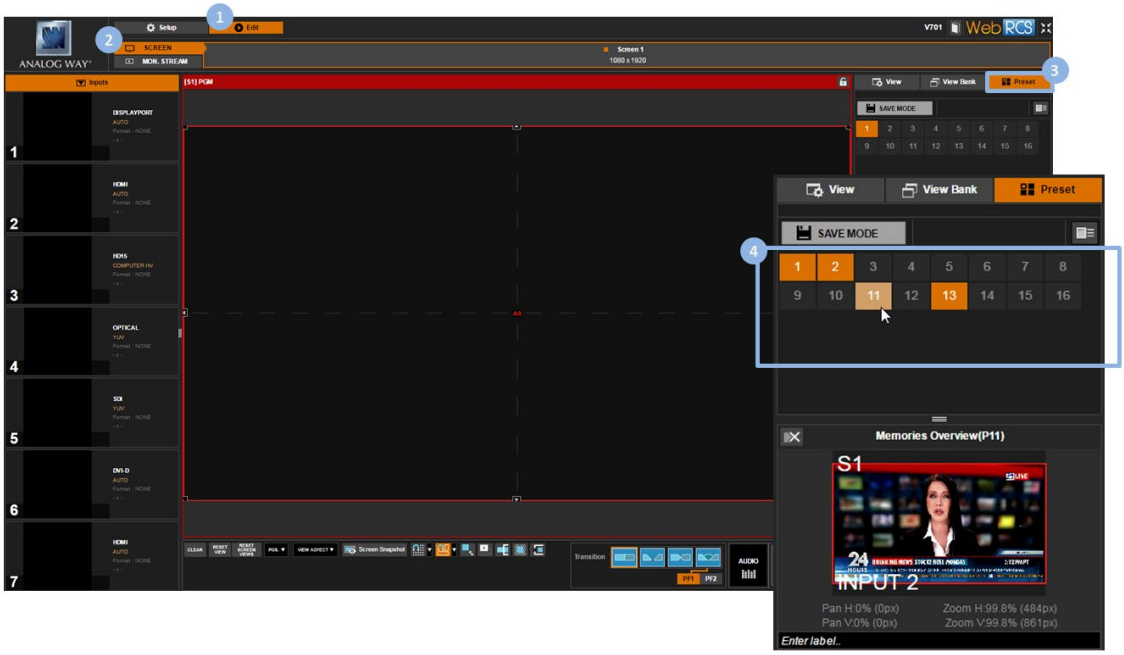
1. Enter the **PRESETS** menu on the Front Panel interface.
2. Select **Load Preset** to access the preset memories bank.
3. Select a bank slot to recall the preset memory contained in the selected slot.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the right side toolbar, select **Preset** to access the preset memories bank.
4. Click on a bank slot to recall the preset memory contained in the selected slot.

TIP:

- Hover over a slot to have an overview of the preset memory contained in the slot.
- SHIFT+click on a slot to freeze the preset **Memories Overview** box and label the preset memory contained in the slot.
- Use the **Show memories label** button to show preset labels directly on the view bank slots.



SEE also: Presets

To freeze the output:

SEE: Freezing the output

To display a quick frame:

SEE: Using frames as quick frames

To control the audio:

Front Panel

1. Click on the **AUDIO** button to access the output level meter.
2. Rotate the control knob and select an output channel pair to adjust the channel pair.

> **TIP:** Select **Listen on the Headphone** to prelisten to the channel pair on the headphone output.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the screen toolbar, click on the **Audio** button to access the **Quick Audio** control window.
4. In the **Quick Audio** window, adjust the output audio (master volume/mute).

> **TIP:** Select a headphone mode to prelisten to your inputs and outputs.

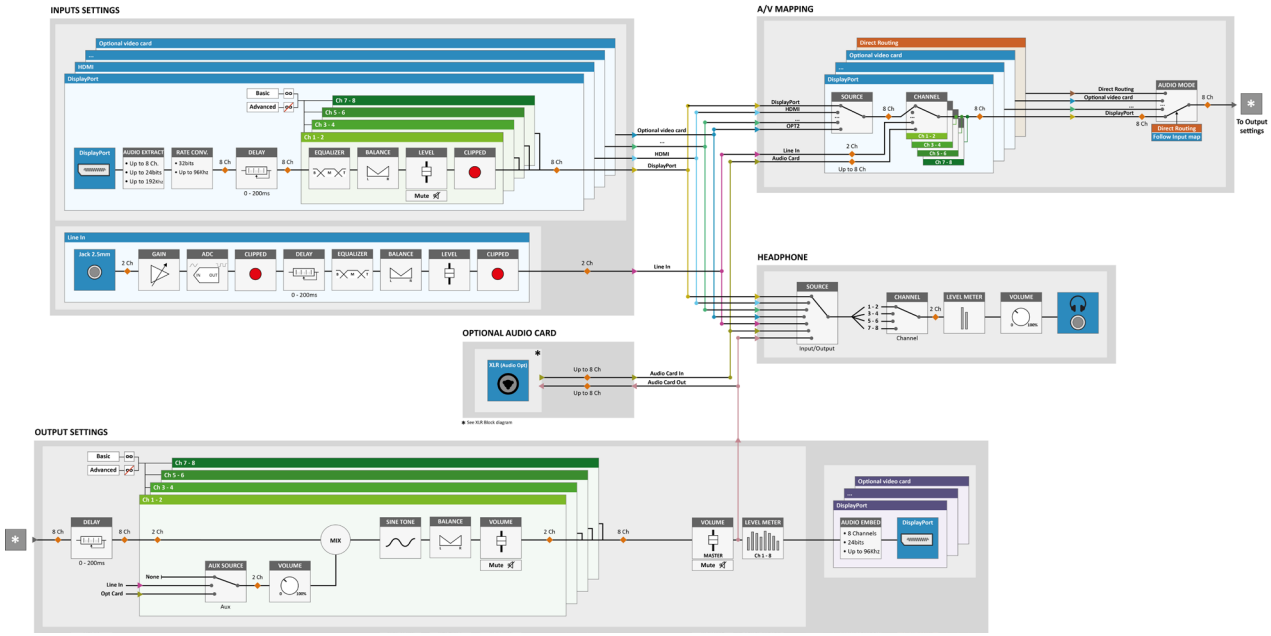
SEE also: Audio management

10 Audio management

10.1 Audio inputs and outputs

With its enhanced audio capabilities, the **VIO 4K** allows you to manage up to 8 mono audio channels (4 stereo pairs) per input/output independently of the video content.

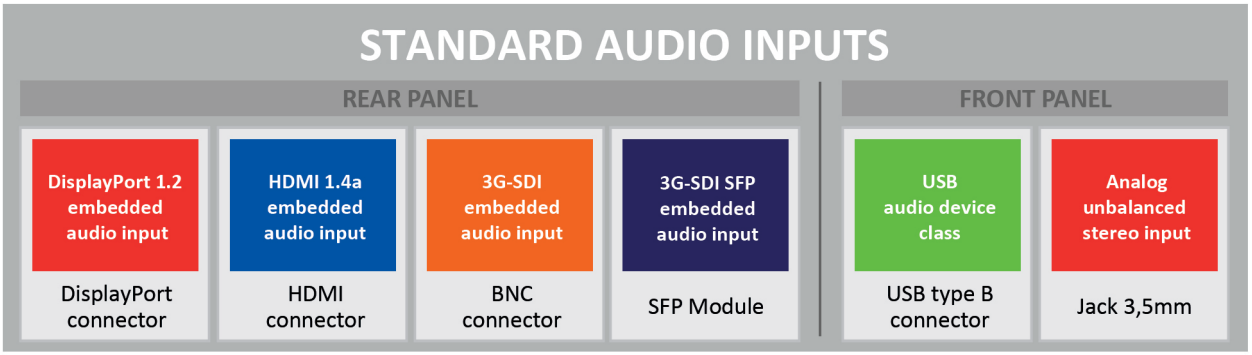
The following diagram provides a quick overview of all the audio capabilities that come with your **VIO 4K:**



10.2 Supported audio

EMBEDDED AUDIO

The **VIO 4K** supports embedded audio for all **HDMI**, **DP** and **SDI** inputs, and two additional audio inputs are available on the front panel:



HDMI & DP PLUGS

- HDMI and DisplayPort inputs support eight 24bit channels at 96 kHz.
- HDMI and DisplayPort outputs support eight 24bit channels at 96 kHz.
- DVI inputs working as HDMI support the same capabilities as HDMI.

SDI PLUGS

- The SDI norm specifies that up to sixteen 24bit channels at 48 kHz can be embedded in a 3G-SDI stream.
- These channels are split into 4 groups (A, B, C and D) of 4 channels.

The **VIO 4K** can extract and embed up to 2 complete groups.

AUDIO SYSTEM EXPANSION

An optional audio system expansion card can be installed to support:

- Balanced analog stereo audio inputs and outputs;
- S/PDIF & AES3 audio inputs and outputs.

10.3 A/V mapping inputs and outputs

The **VIO 4K** automatically detects the audio embedded in each digital video signal (SEE: Supported audio).

The detected audio can then be extracted and (re)embedded in the output using one of the following A/V mapping modes (audio embedded in video streams mapping mode):

- **Follow mapping mode:** the output follows the A/V mapping of the input selected at runtime (A/V mapping by video source selection).
- **Direct routing mode:** the output uses a specifically set audio source (A/V mapping by audio embedded in video source selection).

With **Follow mapping mode**, you can further map audio streams (audio embedded in video streams) to input sources (video sources). This way, you can truly control the audio used by your inputs and outputs, independently of the video content.

TIP: Check the VIO 4K Audio Block Diagram for a full overview of all **VIO 4K** audio capabilities.

To choose the output A/V mapping mode:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Scroll down and select **A/V Mapping** to access the A/V mapping menu.
3. Select **Mode** and choose the output A/V mapping mode:
   - Select **DIRECT ROUTING** to use a specifically set audio source (A/V mapping by audio source selection);
   - Select **FOLLOW MAPPING** to follow the A/V mapping of the input selected at runtime (A/V mapping by video source selection).

> **Remark:** In follow mapping mode, the audio may change when selecting inputs.

> **TIP:**
> - In **Follow mapping mode**, scroll down and select an input to edit the input A/V mapping (SEE: A/V mapping inputs).
> - In **Direct routing mode**, select **Video Src. (eAUDIO)** to select the output A/V mapping source (audio embedded in video stream source selection).

Available audio stream sources include:

NONE	No audio
INPUT 1	Embedded audio in input DisplayPort
INPUT 2	Embedded audio in input HDMI on Back panel
INPUT 4	Embedded audio in input Optical
INPUT 5	Embedded audio in input SDI
INPUT 6	Embedded audio in input DVI-D
INPUT 7	Embedded audio in input HDMI on front panel

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.
4. Under **Audio Outputs** (middle window), choose the output A/V mapping mode:
   - Select **DIRECT ROUTING** to use a specifically set audio source (A/V mapping by audio source selection);
   - Select **FOLLOW MAPPING** to follow the A/V mapping of the input selected at runtime (A/V mapping by video source selection).

> **Remark:** In follow mapping mode, the audio may change when selecting inputs.

> **TIP:**
> - In **Follow mapping mode**, scroll down and select an input to edit the input A/V mapping (SEE: A/V mapping inputs).
> - In **Direct routing mode**, select **Video Src. (eAUDIO)** to select the output A/V mapping source (audio embedded in video stream source selection).

Available audio stream sources include:

NONE	No audio
INPUT 1	Embedded audio in input DisplayPort
INPUT 2	Embedded audio in input HDMI on Back panel
INPUT 4	Embedded audio in input Optical
INPUT 5	Embedded audio in input SDI
INPUT 6	Embedded audio in input DVI-D
INPUT 7	Embedded audio in input HDMI on front panel

To A/V map an input (follow mapping mode):

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Scroll down and select **A/V Mapping** to access the A/V mapping menu.
3. Select **Mode > FOLLOW MAPPING** to enable the follow mapping mode.
4. Scroll down and select an input to start editing the A/V mapping for that input.

> **Remark:** In **Follow Mapping** mode, the output follows the A/V mapping of the input selected at runtime (output A/V mapping by video source selection). Consequently, the output A/V mapping will change when editing the A/V mapping of the currently selected input.

5. Select **Video Src. (eAUDIO)** to set the input A/V mapping source (audio embedded in video stream source selection).
   Available audio stream sources include:

NONE	No audio
INPUT 1	Embedded audio in input DisplayPort
INPUT 2	Embedded audio in input HDMI on Back panel
INPUT 4	Embedded audio in input Optical
INPUT 5	Embedded audio in input SDI
INPUT 6	Embedded audio in input DVI-D
INPUT 7	Embedded audio in input HDMI on front panel

> **NOTE:** The input will be mapped to the audio stream source selected here, and the audio detected in the input signal (if any) will not be used.

TIP: Select **NONE** to use no audio for the input in **Follow mapping** mode.

6. Uncheck the **Direct Channel Mapping** check-box if required to change the audio source for a channel pair.
   Available channel pair audio sources include:

NONE	No audio
INPUT CH 1&2	Embedded pair 1 and 2
INPUT CH 3&4	Embedded pair 3 4
INPUT CH 5&6	Embedded pair 5 6
INPUT CH 7&8	Embedded pair 7 8
LINE IN	Audio Jack on front panel
AUDIO OPT CH 1&2 (*)	Audio card option pair 1 2 (*)
AUDIO OPT CH 3&4 (*)	Audio card option pair 3 4 (*)
AUDIO OPT CH 5&6 (*)	Audio card option pair 5 6 (*)
AUDIO OPT CH 7&8 (*)	Audio card option pair 7 8 (*)

(*) Available with the optional audio card

TIP: Use the **Reset** command to (re)map the input with the audio detected in the input signal.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **A/V Mapping** to access the input and output A/V mapping page.
4. Check the **Follow Mapping** check-box in the right side window if required to enable follow mapping mode.

Remark: In **Follow Mapping** mode, the output follows the A/V mapping of the input selected at runtime (output A/V mapping by video source selection). Consequently, the output A/V mapping will change when editing the A/V mapping of the currently selected input.

5. Click on an input's **Audio Source** column to set the A/V mapping source (audio embedded in video stream source selection).
   Available audio stream sources include:

NONE	No audio
INPUT 1	Embedded audio in input DisplayPort
INPUT 2	Embedded audio in input HDMI on Back panel
INPUT 4	Embedded audio in input Optical
INPUT 5	Embedded audio in input SDI
INPUT 6	Embedded audio in input DVI-D
INPUT 7	Embedded audio in input HDMI on front panel

NOTE: The input will be mapped to the audio stream source selected here, and the audio detected in the input signal (if any) will not be used.

TIP: Select **NONE** to use no audio for the input in **Follow mapping** mode.

6. Disable the **ByPass** button if required to change the audio source for a channel pair

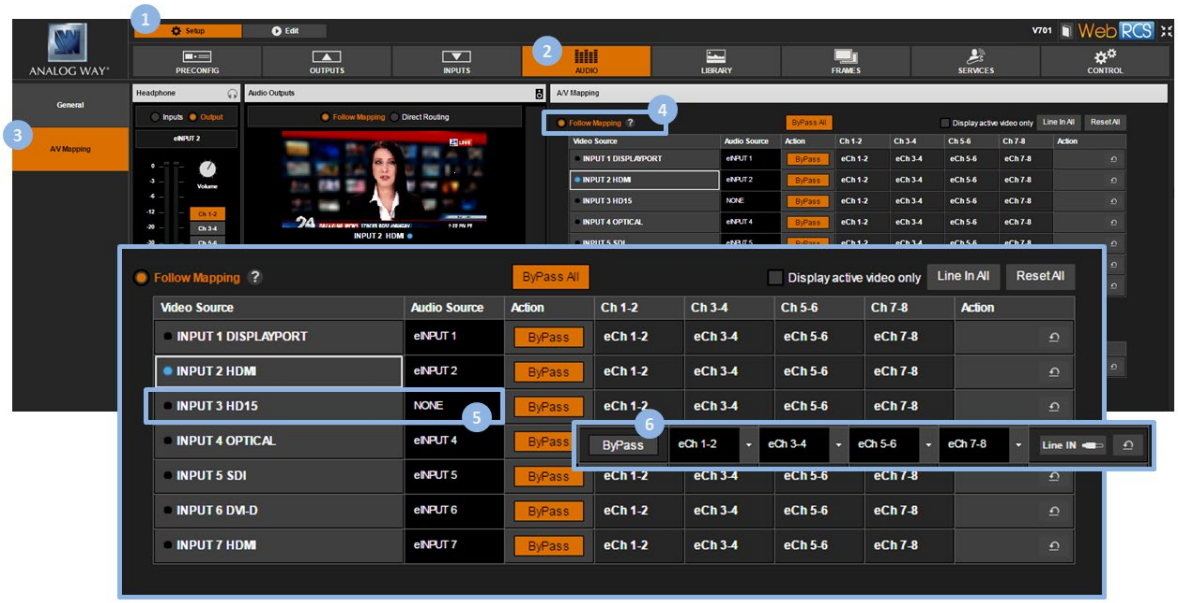
Available channel pair audio sources include:

NONE	No audio
INPUT CH 1&2	Embedded pair 1 and 2
INPUT CH 3&4	Embedded pair 3 4
INPUT CH 5&6	Embedded pair 5 6
INPUT CH 7&8	Embedded pair 7 8
LINE IN	Audio Jack on front panel
AUDIO OPT CH 1&2 (*)	Audio card option pair 1 2 (*)
AUDIO OPT CH 3&4 (*)	Audio card option pair 3 4 (*)
AUDIO OPT CH 5&6 (*)	Audio card option pair 5 6 (*)
AUDIO OPT CH 7&8 (*)	Audio card option pair 7 8 (*)

(*) Available with the optional audio card

TIP:

- Click on the **Line In** button to automatically map the line in stream to the first channel pair only.
- Use the **Set to Default** button to (re)map the input with the audio detected in the input signal.



10.4 Selecting the sampling rate

The **VIO 4K** allows you to choose the output/processing sampling rate used to process the audio (both for inputs and outputs).

The selected output/processing sampling rate will then be used throughout the whole audio processing, from input extract to output embed (SEE also: VIO 4K Audio Block Diagram).

To select the output/processing sampling rate:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Select **Sampling Frequency** to select the output/processing sampling frequency.
   Possible sampling frequencies include:

32 kHz
44.1 kHz
48 kHz
96 kHz

4. Press the **ENTER** key to save and apply the new settings or use the **EXIT-MENU** button to go back to the audio output setup menu without saving

Web RCS

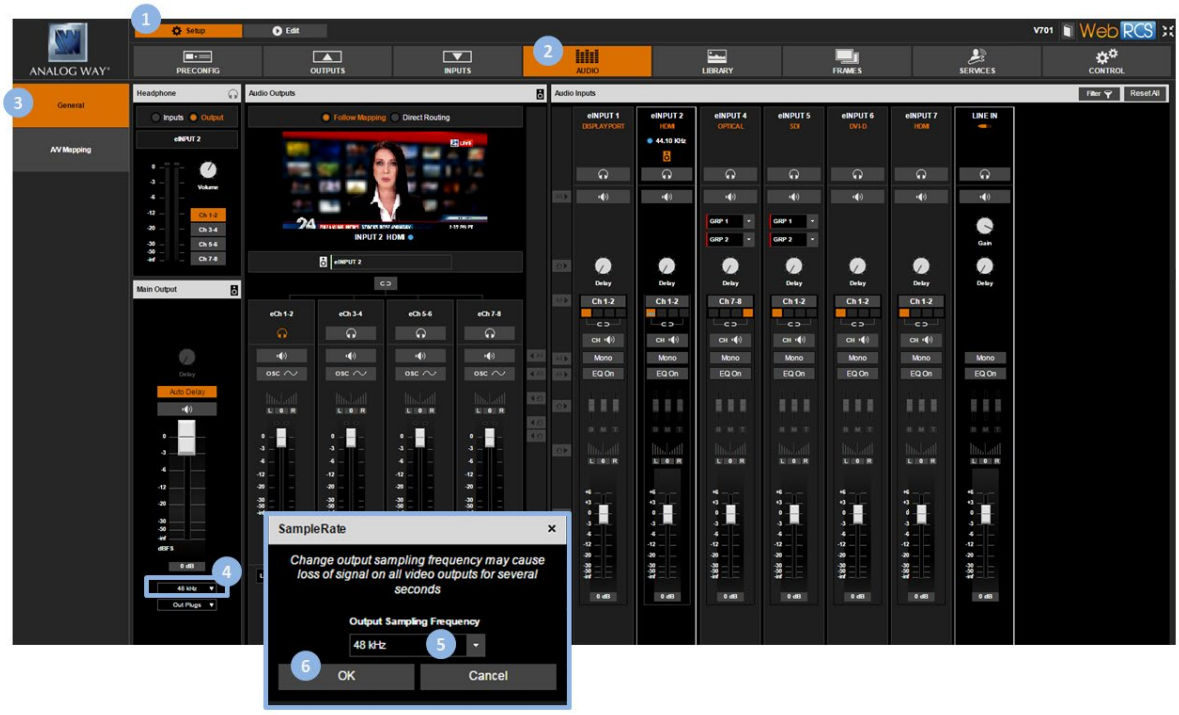
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Main Audio** (bottom left side window), click on the current sampling frequency to access the **Sample Rate** window.
5. In the **Sample Rate** window, click on the current sampling frequency and select the output/processing sampling frequency.
   Possible sampling frequencies include:

32 kHz
44.1 kHz
48 kHz
96 kHz

6. Click on **OK** to save and apply the new settings.



TIP: Check the VIO 4K Audio Block Diagram for a full overview of all VIO 4K audio capabilities.

10.5 Adjusting the input audio

The **VIO 4K** allows you to adjust up to 8 audio mono channels (4 stereo pairs) per input independently of the video content.

You can for example add a delay to the audio to synchronize with the video, or enable the equalizer on a channel pair to adjust the treble, mid and bass gains.

TIP: Link channel pairs to use the first channel pair settings for all pairs.

To link channel pairs:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs;
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Inputs** (right side window), click on an input **Ch 1-2/Ch linked** button to link/unlink channel pairs:
   - Click the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs;
   - Click the **Ch linked** button to unlink channel pairs and set up channel pairs individually.
5. **TIP:** Use the **All** shortcut button to apply this setting to all inputs and channel pairs at once.

To mute a channel pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs;
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the Line In input, there is only one single channel pair and the Settings Mode option is not available.

4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

5. Check the **Mute** check-box to mute the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping tab.**

4. Under **Audio Inputs** (right side window), locate the input to adjust and click on the **Ch 1-2/Ch linked** button if required to link/unlink channel pairs:
   - Click on the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs;
   - Click on the **Ch linked** button to unlink channel pairs and set up channel pairs individually.

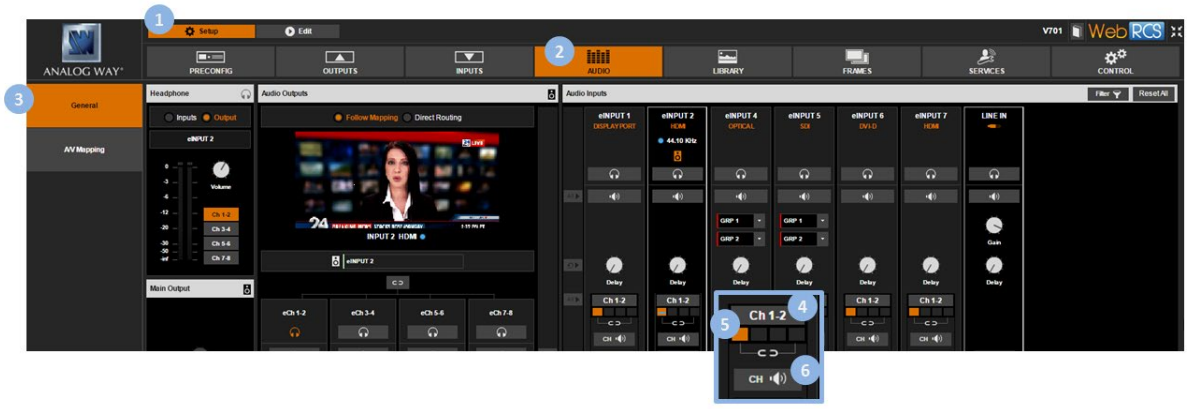
> **NOTE:** On the **Line In** input, there is only one single channel pair and the link option is not available.

5. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - When channel pairs are **linked**, only the first channel pair settings are available and there is no need to select a channel pair.
> - When channel pairs are **not linked**, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

6. Click on the **CH Volume/Mute** button to mute the audio pair (click again to unmute).

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.



To choose the mono/stereo mode of a channel pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs;
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In** input, there is only one single channel pair and the **Settings Mode** option is not available.

4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

5. Check the **Stereo** check-box to force the stereo mode of the audio pair (uncheck to force the **Mono** mode).

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping tab.**

4. Under **Audio Inputs** (right side window), locate the input to adjust and click on the **Ch 1-2/Ch linked** button if required to link/unlink channel pairs:
   - Click on the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs;
   - Click on the **Ch linked** button to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In** input, there is only one single channel pair and the link option is not available.

5. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - When channel pairs are **linked**, only the first channel pair settings are available and there is no need to select a channel pair.
> - When channel pairs are **not linked**, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

6. Click on the **Mono** button to force the mono mode of the audio pair (click again to disable mono mode and enable stereo mode).

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Use the **All** shortcut button to apply this setting to all inputs and channel pairs at once.

> **TIP:** Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To adjust the balance of a channel pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs;
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In input,** there is only one single channel pair and the Settings Mode option is not available.

4. Select a channel pair if required to set up the channel pairs.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

5. Select **Balance** to adjust the balance of the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping tab.**

4. Under **Audio Inputs** (right side window), locate the input to adjust and click on the **Ch 1-2/Ch linked** button if required to link/unlink channel pairs:
   - Click on the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs;
   - Click on the **Ch linked** button to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In** input, there is only one single channel pair and the link option is not available.

5. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - When channel pairs are **linked**, only the first channel pair settings are available and there is no need to select a channel pair.
> - When channel pairs are **not linked**, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

6. Click and drag the **Balance** control bar to adjust the balance of the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.
>
> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

7. **TIP:** Use the **Reset All** shortcut button to reset all inputs and channel pairs at once.

> **TIP:** Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To adjust the level of a channel pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs;
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In** input, there is only one single channel pair and the **Settings Mode** option is not available.

4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

5. Select **Level** to adjust the gain of the audio pair (after digitalization for analog signals).

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping tab.**

4. Under **Audio Inputs** (right side window), locate the input to adjust and click on the **Ch 1-2/Ch linked** button if required to link/unlink channel pairs.
   - Click on the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs;
   - Click on the **Ch linked** button to unlink channel pairs and set up channel pairs individually.

> **NOTE:** On the **Line In** input, there is only one single channel pair and the link option is not available.

5. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - When channel pairs are **linked**, only the first channel pair settings are available and there is no need to select a channel pair.
> - When channel pairs are **not linked**, you can select a channel pair to access the channel pair settings.
> - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

6. Click and drag the **Level** control bar to adjust the gain of the audio pair (after digitalization for analog signals).

Remember: Use the **Reset All** shortcut button to reset all inputs and channel pairs at once.

TIP: Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To enable the equalizer:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs.
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

   NOTE: On the **Line In** input, there is only one single channel pair and the **Settings Mode** option is not available.
4. Select a channel pair if required to set up the channel pair:

   NOTE:
   - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
   - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.
   - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.
5. Select **Equalizer** and check the **Enable** check-box to enable the equalizer on the audio pair (uncheck to disable).
6. Select **TREBLE**, **MID** or **BASS** to adjust the treble, mid or bass gain, respectively.

Remember: If channel pairs are linked, the first channel pair setting will be used for all pairs.

TIP: Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

   NOTE: You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Inputs** (right side window), locate the input to adjust and click on the **Ch 1-2/Ch linked** button if required to link/unlink channel pairs:
   - Click on the **Ch 1-2** button to link channel pairs and use the first channel pair settings for all pairs
   - Click on the **Ch linked** button to unlink channel pairs and set up channel pairs individually

   NOTE: On the **Line In input,** there is only one single channel pair and the link option is not available.

5. Select a channel pair if required to set up the channel pair.

   NOTE:
   - When channel pairs are **linked**, only the first channel pair settings are available and there is no need to select a channel pair.
   - When channel pairs are **not linked**, you can select a channel pair to access the channel pair settings.
   - On the **Line In** input, there is only one single channel pair and there is no need to select a channel pair either to access the channel pair settings.

6. Click on the **Eq On** button to enable the equalizer on the audio pair (click again to disable).

   TIP: Use the **All** shortcut button to enable the equalizer on all inputs and channel pairs at once.

7. Drag the **T**, **M** and **B** control bars to adjust the treble, mid and bass gains, respectively.

   Remember: If channel pairs are linked, the first channel pair setting will be used for all pairs.

TIP: Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To add a delay to the audio:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Input Settings** and select an input to set up the audio input.
3. Select **Delay** to add a delay to the audio input.

> **NOTE:** This setting applies to all channel pairs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Inputs** (right side window), locate the input to adjust and click and drag the **Delay** control knob to add a delay to the audio input.

> **NOTE:** This setting applies to all channel pairs.

Related topics:

- VIO 4K Audio Block Diagram
- Prelistening to audio content

10.6 Adjusting the output audio

The **VIO 4K** allows you to adjust up to 8 audio mono channels (4 stereo pairs) per output independently of the video content.

You can for example add a delay to the audio to synchronize with the video, or apply a sine tone oscillator to a channel pair test the channel pair.

> **TIP:** Link channel pairs to use the first channel pair settings for all pairs.

To link channel pairs:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs.
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

   > **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.

To adjust the volume of an audio pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Scroll down and select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs.
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.
4. Select a channel pair if required to set up the channel pair.

> NOTE:
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.

> **TIP:** Press the **AUDIO** button and select a channel pair to access the channel pair settings directly.

5. Select **Volume** to adjust the channel pair volume.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button if required to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.
5. Locate the channel pair to adjust if required.

> **NOTE:** If channel pairs are **linked**, only the first channel pair settings are available.

6. Click and drag the **Volume** control bar to adjust the volume of the channel pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To mute a channel pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Scroll down and select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually
4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.

> **TIP:** Press the **AUDIO** button and select a channel pair to access the channel pair settings directly.

5. Check the **Mute** check-box to mute the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button if required to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.
5. Locate the channel pair to adjust if required.

> **NOTE:** If channel pairs are **linked,** only the first channel pair settings are available.

6. Click on the **Volume/Mute** button to mute the audio pair (click again to unmute).

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Use the **Mute All** button to mute all channel pairs at once.

To adjust the balance of an audio pair:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Scroll down and select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs.
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.
4. Select a channel pair if required to set up the channel pair.

> NOTE:
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.

> **TIP:** Press the **AUDIO** button and select a channel pair to access the channel pair settings directly.

5. Select **Balance** to adjust the balance of the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button if required to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.
5. Locate the channel pair to adjust if required.

> **NOTE:** If channel pairs are **linked**, only the first channel pair settings are available.

6. Click and drag the **Balance** control bar to adjust the balance of the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

> **TIP:** Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To apply a test sine tone oscillator:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Scroll down and select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs.
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually.
4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.

> **TIP:** Press the **AUDIO** button and select a channel pair to access the channel pair settings directly. .

5. Check the **Test Sine Tone** check-box to apply a test sine tone oscillator to the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.
> **TIP:** Toggle the **Listen on the Headphone** box if required to prelisten to the audio pair on the headphone output.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button if required to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.
5. Locate the channel pair to adjust if required.

> **NOTE:** If channel pairs are linked, only the first channel pair settings are available.

6. Click on the **OSC** button to apply a test sine tone oscillator to the audio pair.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.
> **TIP:** Use the **OSC ALL** button to apply a sine tone oscillator to all channel pairs at once.

> **TIP:** Click on the **Headphone** button if required (located under the input) to prelisten to the selected audio pair on the headphone output.

To set up an auxiliary audio:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Scroll down and select a **Settings Mode** to set up the audio:
   - Select **BASIC** to link channel pairs and use the first channel pair settings for all pairs
   - Select **ADVANCED** to unlink channel pairs and set up channel pairs individually
4. Select a channel pair if required to set up the channel pair.

> **NOTE:**
> - In **BASIC** settings mode, only the first channel pair settings are available and there is no need to select a channel pair.
> - In **ADVANCED** settings mode, you can select a channel pair to access the channel pair settings.

> **TIP:** Press the **AUDIO** button and select a channel pair to access the channel pair settings directly.

5. Select **Auxiliary Settings** to enter the auxiliary audio setup menu.

6. Select **Aux. Source** to choose the auxiliary audio source.
   Available auxiliary audio sources include:

NONE	None
LINE IN	Audio Jack on front panel
AUDIO OPT CH 1&2 (*)	Audio card option pair 1 2 (*)
AUDIO OPT CH 3&4 (*)	Audio card option pair 3 4 (*)
AUDIO OPT CH 5&6 (*)	Audio card option pair 5 6 (*)
AUDIO OPT CH 7&8 (*)	Audio card option pair 7 8 (*)

(*) Available with the optional audio card

7. If required, select **Aux. Volume** to adjust the volume of the auxiliary audio.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Audio Outputs** (middle window), enable/disable the **Link** button if required to link/unlink channel pairs:
   - **Enable Link** to link channel pairs and use the first channel pair settings for all pairs.
   - **Disable Link** to unlink channel pairs and set up channel pairs individually.
5. Locate the channel pair to adjust if required.

> **NOTE:** If channel pairs are **linked**, only the first channel pair settings are available.

6. Click on the current **Aux source** to choose the auxiliary audio source for the audio pair.
   Available auxiliary audio sources include:

NONE	None
LINE IN	Audio Jack on front panel
AUDIO OPT CH 1&2 (*)	Audio card option pair 1 2 (*)
AUDIO OPT CH 3&4 (*)	Audio card option pair 3 4 (*)
AUDIO OPT CH 5&6 (*)	Audio card option pair 5 6 (*)
AUDIO OPT CH 7&8 (*)	Audio card option pair 7 8 (*)

(*) Available with the optional audio card

7. If required, click and drag the **Aux. Level** control knob to adjust the volume of the auxiliary audio.

> **Remember:** If channel pairs are linked, the first channel pair setting will be used for all pairs.

To add a delay to the audio:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. If required, uncheck the **Auto Delay** check-box to disable the automatic computation of the audio delay.
4. Select **Delay** to adjust the audio delay.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Main Audio** (bottom left side window), click on the **Auto Delay** button if required to disable the automatic computation of the audio delay.
5. Click and drag the **Delay** control knob to manually adjust the audio delay.

To control the volume (master volume):

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Select **Master Volume** to adjust the volume of the output audio.

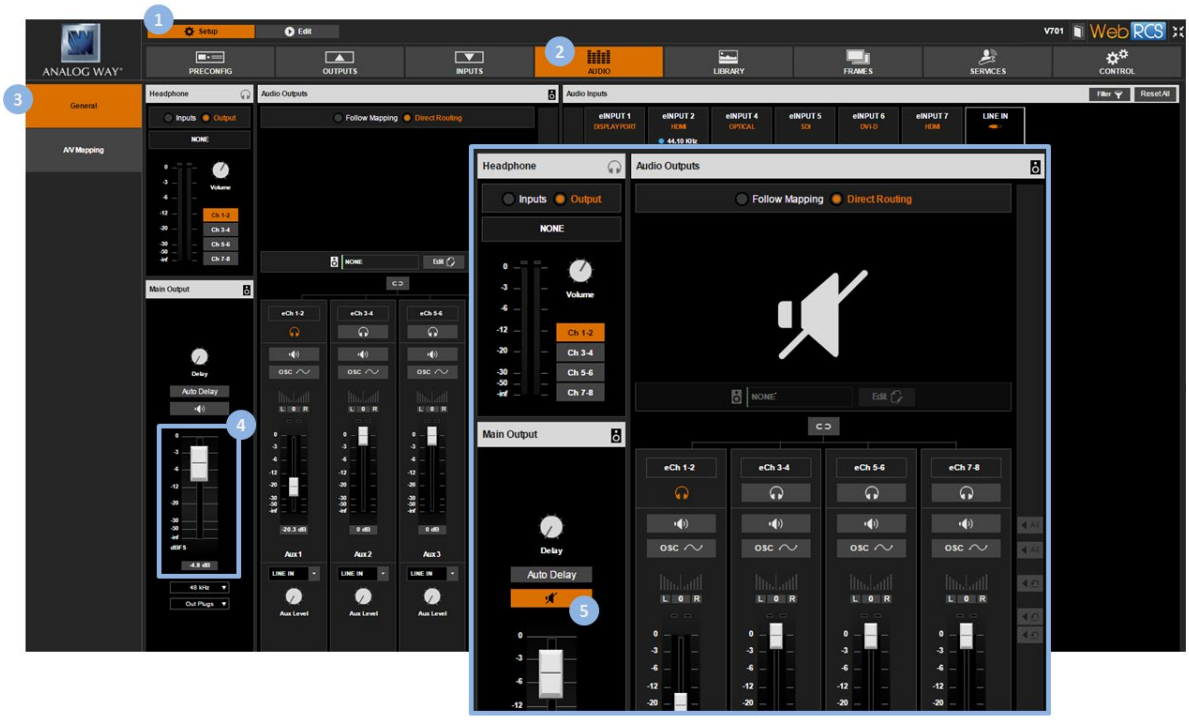
Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Main Audio** (bottom left side window), click and drag the **Volume** control bar to adjust the master volume.

> **TIP:** Enable/disable the **Master Mute** button to mute/unmute the output audio (all channel pairs at once).



> **TIP:** When editing the screen, click on the **Audio** button (located in the screen toolbar) to access the **Quick Audio** window and adjust the output audio (master volume/mute) (**SEE: Controlling the audio**).

To mute the audio (master mute):

Front Panel

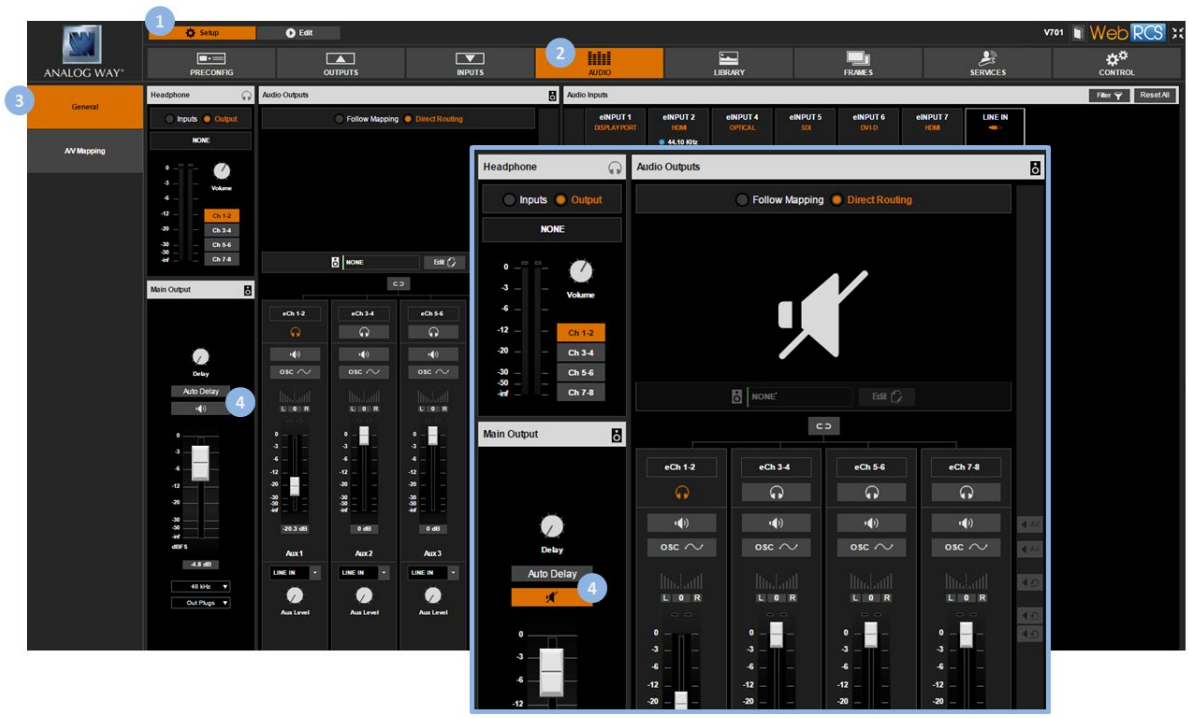
1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Output Settings** to set up the audio output.
3. Check the **Master Mute** check box to mute the output audio (all channel pairs at once).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. Under **Main Audio** (bottom left side window), enable the **Mute** button to mute the output audio (all channel pairs at once).



TIP: When editing the screen, click on the **Audio** button (located in the screen toolbar) to access the **Quick Audio** window and adjust the output audio (master volume/mute) (SEE: Controlling the audio).

Related topics:

- VIO 4K Audio Block Diagram
- Prelistening to audio content
- Selecting the SDI audio output mode

10.7 Adjusting the XLR audio

The **VIO 4K** allows you to add an **optional XLR audio system interface expansion card** to create new S/PDIF and AES3 audio inputs. This way you can take the most of XLR audio systems directly available on your **VIO 4K** unit.

To adjust the XLR audio input settings:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select the **Option Card Settings** meu.
3. Select the **XLR In Mode** for the optional XLR card.

Available XLR input modes include:

NONE	No input
2x DIGITAL	Digital double stereo (2 pairs)
2x ANALOG XLR	Analog XLR balanced (1 pair)
2x ANALOG JACK MONO	Analog stereo split on two mono jacks (1 pair)
2x MICRO. - MODE1	Analog double mono microphone on XLR (2 pair)
2x MICRO. - MODE2	Analog microphone stereo split on two XLR (1 pair)
1x JACK STEREO & 1x DIG	Analog stereo on jack 1 and Digital on XLR 2 (2 pair)
1x MICRO. & 1x DIG	Analog mono mic on XLR 1 and Digital on XLR 2 (2 pair)

4. If required, select also the **Digital Input Mode**.
   Available digital input modes include:

AES3	Digital mode AES
S/PDIF	Digital mode SPDIF

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select the **XLR Card** tab to access the XLR audio inputs and outputs setup page.
4. Under the **XLR Card** section (right-side window), select the **XLR Input Mode**.
   Available XLR input modes include:

NONE	No input
2x DIGITAL	Digital double stereo (2 pairs)
2x ANALOG XLR	Analog XLR balanced (1 pair)
2x ANALOG JACK MONO	Analog stereo split on two mono jacks (1 pair)
2x MICRO. - MODE1	Analog double mono microphone on XLR (2 pair)
2x MICRO. - MODE2	Analog microphone stereo split on two XLR (1 pair)
1x JACK STEREO & 1x DIG	Analog stereo on jack 1 and Digital on XLR 2 (2 pair)
1x MICRO. & 1x DIG	Analog mono mic on XLR 1 and Digital on XLR 2 (2 pair)

5. If required, select also the **Digital Input Mode**.

Available digital input modes include:

AES3	Digital mode AES
S/PDIF	Digital mode SPDIF

To adjust the XLR audio output settings:

NOTE: AES3 is the only supported Digital output.

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Scroll down and select **Option Card Settings** to access the audio optional card settings.
3. Select **XLR Out Mode** to choose the XLR card output mode.
   Available XLR output modes include:

NONE	No output
DIGITAL	Digital double AES
ANALOG BALANCED	Analog stereo balanced

4. If required, select the **XLR Output Pair 1**.
5. If required, select the **XLR Output Pair 2**.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select the **XLR Card** tab to access the XLR audio inputs and outputs setup page.
4. Under the **XLR card** section (right-side window), select the **XLR Output Mode**.
   Available XLR output modes include:

NONE	No output
DIGITAL	Digital double AES
ANALOG BALANCED	Analog stereo balanced

5. If required, select the **XLR Output Pair 1**.
6. If required, select the **XLR Output Pair 2**.

Related topics:

- Expansion interfaces

10.8 Prelistening to audio content

The **VIO 4K** allows you to select a channel pair (input or output) to prelisten to your audio content on the headphone output.

You can then use the headphone volume to independently adjust the volume of the selected prelist channel pair.

To prelisten to an input or output:

Front Panel

1. Enter the **AUDIO** menu on the Front Panel interface.
2. Select **Headphone Settings** to access the audio headphone setup menu.
3. Select **Audio Source** to choose the input (or output) prelist source.
4. Select **Pair** to choose the input or output prelist channel pair.
5. If required, adjust the **Volume** of the headphone output.

> **TIP:** In the headphone setup menu, select **Shortcut to Source Settings** to quickly access the prelist channel pair settings.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **AUDIO** tab to access the audio management page.
3. In the left side toolbar, select **General** to access the audio inputs and outputs setup page.

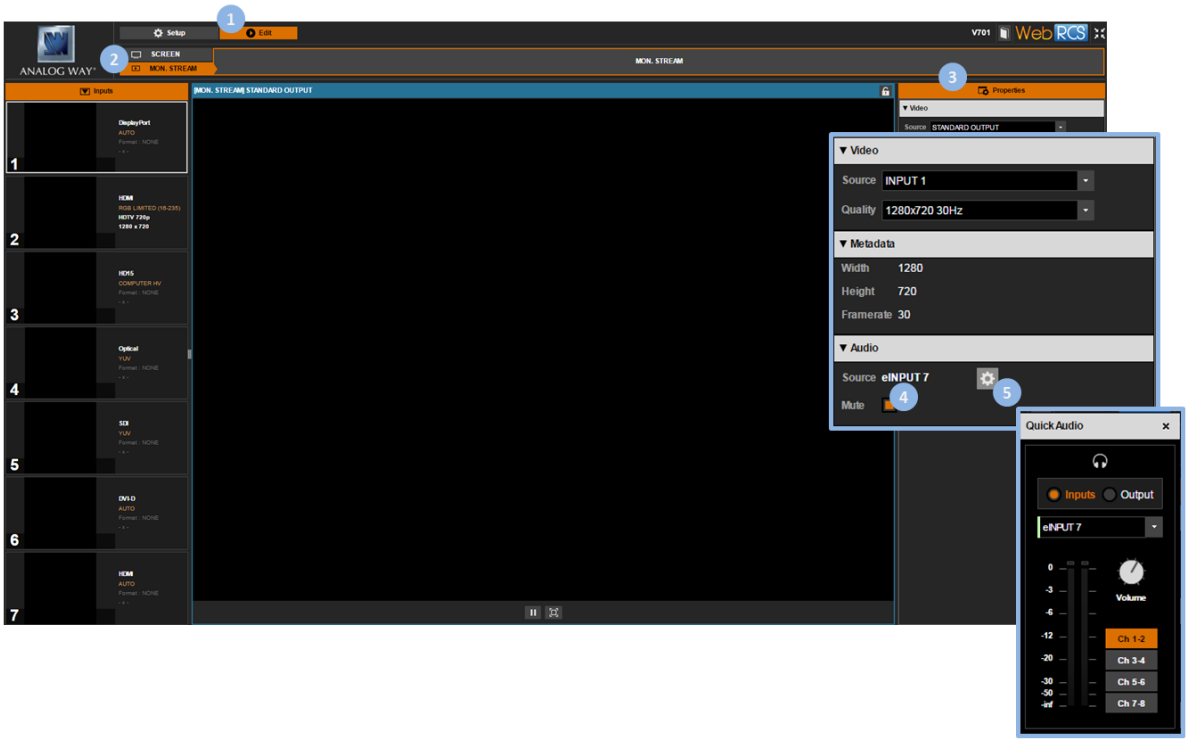
> **NOTE:** You can also access the audio outputs setup page via the **A/V Mapping** tab.

4. In the **Headphone** window (top left window), select the prelist source (input or output).
5. Select a channel pair to prelisten to the selected input or output channel pair.

> **TIP:** Click on an input (or output) **Headphone** button to quickly send the currently selected input (or output) channel pair to the headphone output.

6. If required, adjust the **Volume** of the headphone output.

TIP: Use the **MON. STREAM** tab (**Edit** menu) to prelisten to your headphone output directly from your PC or tablet.



11 Custom formats

11.1 What are custom formats?

Custom Formats are computer formats that you can define by yourself to support any required non-standard output format.

The custom formats capability thus adds a layer of format compatibility to the **CVT** (version 1.1) and **DMT** (version 1.0) format standards supported by default by the **VIO 4K,** by allowing you to define your own custom computer formats whenever required and keep them directly on the device.

11.2 Creating custom formats

The **VIO 4K** provides a list of predefined output formats that you can freely use to set up your outputs.

If the required output format is not available however, you can still build up the list of available formats by creating your own custom computer format.

To create a custom computer format:

Front Panel

1. Enter the **CUSTOMIZE** menu on the Front Panel interface.
2. Select **CUSTOM FORMATS > Create New Format** to access the custom format edit menu.
3. Select a **Mode** to edit the custom format:
   - Select **CVT** to set the width, height and rate of the format, and indicate whether the format has reduced blanking intervals or not. The remaining custom format parameters will be computed by the system according to the CVT 1.1 standard.
   - Select **Full** to set all the parameters of the format: H&V front porch, H&V sync, H&V back porch, width, height, sync polarity...
4. Edit the custom format parameters in the selected edit mode
   Depending on the selected mode, the custom format parameters may include:
   - **Frame Rate:** Select the frame frequency (in Hz).
   - **H Active:** Select the number of pixel in a line (in pixels).
   - **H Front Porch:** Set the horizontal front porch (in pixels).
   - **H Back Porch:** Set the horizontal back porch (in pixels).
   - **H Sync:** Set the synchro H size (in pixels).
   - **H Positive Polarity:** Enable the synchro horizontal polarity.
   - **V Active:** Select the number of lines (frame 0) (in pixels).
   - **V Front Porch:** Set the vertical front porch (frame 0) (in pixels).

- **V Back Porch:** Set the vertical back porch (frame 0) (in pixels).
- **V Sync:** Set the synchro vertical size (in pixels).
- **V Positive Polarity:** Enable the synchro vertical polarity.

> **TIP:**
> - Select **Load from Template** to load the parameter values of a predefined output format.
> - Select **Load from Custom Format Bank** to load the parameter values of an already created custom format.
> - Use **Reset** to reset all custom format parameters to their default (edit mode) value.

5. Once you have finished editing the custom format parameters, select **Check** to check that the new custom format settings are valid.
   Check result information may include:
   - **(ERROR STATUS):** (Only if format is not valid) Format error status.
     List of possible format error status:

PIXEL FREQUENCY TOO HIGH	The custom format is invalid because its pixel frequency is too high
PIXEL FREQUENCY TOO LOW	The custom format is invalid because its pixel frequency is too low
LINE FREQUENCY TOO HIGH	The custom format is invalid because its line frequency is too high
TOTAL PIXEL PER LINE IS TOO LOW	The custom format is invalid because the number of pixels per line is too low

   - **H Total:** Number of pixel in a line (in pixels).
   - **V Total:** Number of lines in a frame (in pixels).
   - **Pixel Frequency:** Signal pixel frequency (in Hz).
   - **Line Frequency:** Signal line frequency (in kHz).
6. If the custom format is valid, select **Save as** to save the new custom format settings

> **NOTE:** You will be asked to select a custom format bank slot to save your custom format:
> - Available (empty) bank slots will appear in **black**.
> - Not available (occupied) bank slots will appear in **blue**.

7. Select a bank slot to contain the format and press the **ENTER** key to confirm (or use the **EXIT-MENU** key to go back to edit mode without saving the format)

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **Custom Formats** to access the custom formats page.
4. In the **SLOT #1-64** window, select a custom format bank slot to contain your format.

> **TIP:**
> - Select an empty bank slot to create a new custom format.
> - Select a non-empty bank slot to edit the custom format contained in the selected slot.

5. In the right side window, click on the **Edit** button to access the custom format parameters in edit mode.
6. Select a **Mode** to edit the custom format parameters:

- Select **CVT** to set the width, height and rate of the format, and indicate whether the format has reduced blanking intervals or not. The remaining custom format parameters will be computed by the system according to the CVT 1.1 standard.
- Select **Full** to set all the parameters of the format: H&V front porch, H&V sync, H&V back porch, width, height, sync polarity...

7. Edit the custom format parameters in the selected edit mode.
   Depending on the selected mode, the custom format parameters may include:
   - **Frame Rate:** Select the frame frequency (in Hz).
   - **H Active:** Select the number of pixel in a line (in pixels).
   - **H Front Porch:** Set the horizontal front porch (in pixels).
   - **H Back Porch:** Set the horizontal back porch (in pixels).
   - **H Sync:** Set the synchro H size (in pixels).
   - **H Positive Polarity:** Enable the synchro horizontal polarity.
   - **V Active:** Select the number of line (frame 0) (in pixels).
   - **V Front Porch:** Set the vertical front porch (frame 0) (in pixels).
   - **V Back Porch:** Set the vertical back porch (frame 0) (in pixels).
   - **V Sync:** Set the synchro vertical size (in pixels).
   - **V Positive Polarity:** Enable the synchro vertical polarity.

   TIP:
   - Click on the **Load from predefined format** button to load the parameter values of a predefined output format.
   - Click on the **Load from custom format** button to load the parameter values of an already created custom format.
   - Use the **Reset** button to reset all custom format parameters to their default (edit mode) value.

8. Once you have finished editing the custom format parameters, click on the **Check** button to check that the new custom format settings are valid.
   Check result information may include:
   - **(ERROR STATUS):** (Only if format is not valid) Format error status.
     List of possible format error status:

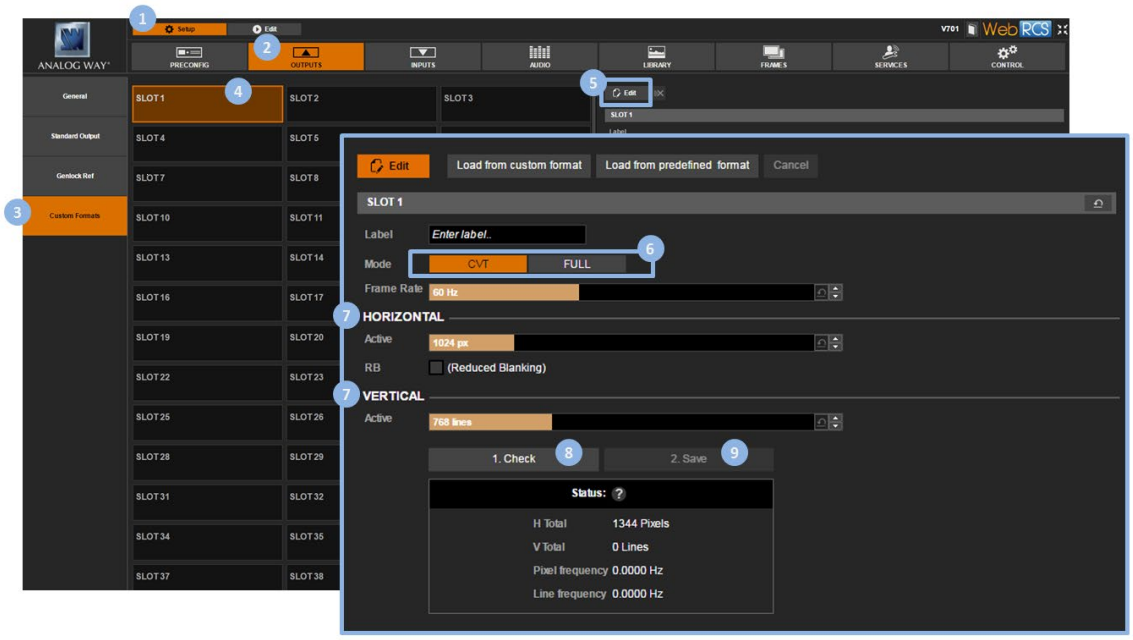
PIXEL FREQUENCY TOO HIGH	The custom format is invalid because its pixel frequency is too high
PIXEL FREQUENCY TOO LOW	The custom format is invalid because its pixel frequency is too low
LINE FREQUENCY TOO HIGH	The custom format is invalid because its line frequency is too high
TOTAL PIXEL PER LINE IS TOO LOW	The custom format is invalid because the number of pixels per line is too low

   - **H Total:** Number of pixel in a line (in pixels).
   - **V Total:** Number of lines in a frame (in pixels).
   - **Pixel Frequency:** Signal pixel frequency (in Hz).
   - **Line Frequency:** Signal line frequency (in kHz).

9. If the custom format is valid, click on the Save button to save the new custom format settings to the selected custom format bank slot.

   TIP: Click elsewhere or disable **Edit** mode to exit without saving.

   Information: The new custom format settings will not be saved if you exit without saving.



To delete a custom computer format:

Front Panel

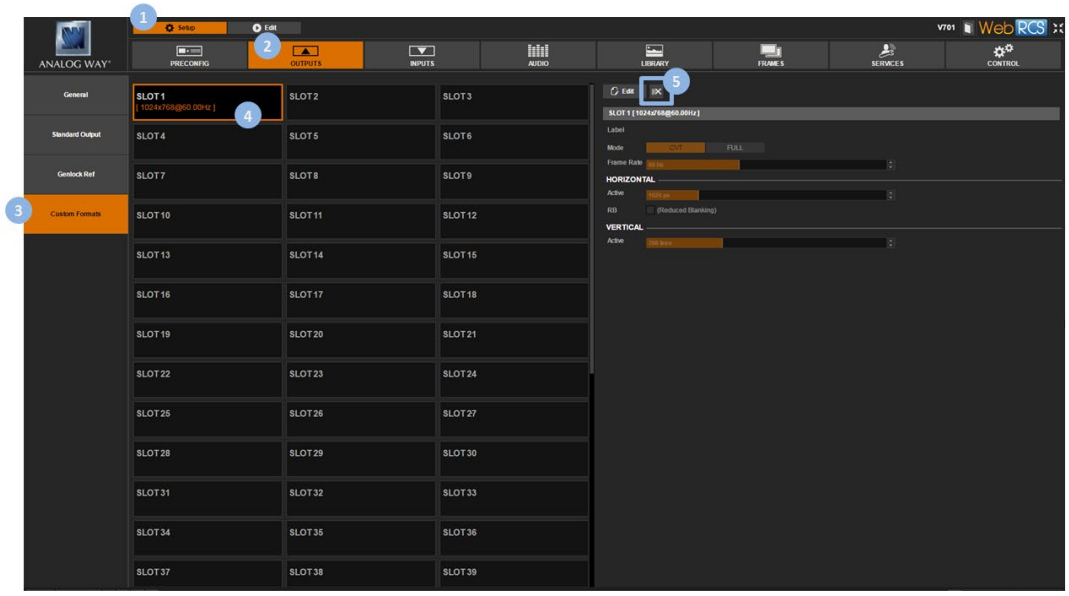
1. Enter the **CUSTOMIZE** menu on the Front Panel interface.
2. Select **CUSTOM FORMATS > Delete Custom Format** to access the list of already created custom formats (custom format bank).
3. Select the custom format to delete and press the **ENTER** key to confirm.

> **Information:** This action is irreversible.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **Custom Formats** to access the custom formats page.
4. In the **SLOT #1-64** window, select the custom format bank slot containing the custom format to delete.
5. In the right side window, click on the **Delete** button to delete the format contained in the selected bank slot.

> **Information:** This action is irreversible.



To delete all custom formats:

SEE: Erasing custom formats

11.3 Using custom formats

SEE: Setting up the format

Related topics:

- Setting up the format
- Supported formats

12 Presets

12.1 What is a preset?

A **Preset** is the memory of an input and its view.

You can use presets to quickly recall on the screen the input to display on the output together with how the input should be displayed in the screen.

This way, you can readily select and display sources by recalling presets at runtime.

12.2 Creating presets

Presets allow you to save and recall the input to display on the output together with how the input should be displayed in the screen.

You can thus create a preset of an input and its view and then load the preset at runtime to readily select and display the input.

This way, you can simply switch sources by loading presets at runtime.

To create a preset of an input and its view:

Front Panel

1. Enter the **PRESETS** menu on the Front Panel interface.
2. Select **Save as Preset** to access the preset bank.
3. Select a preset bank slot and press the **ENTER** key to create a preset memory of the currently selected input and its view.

> NOTE:
> - Available (empty) bank slots appear in **black**.
> - Not available (occupied) bank slots appear in **blue**.

> **TIP:** Press the **EXIT-MENU** key to go back one page and exit without creating the preset memory.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the left side toolbar, select the input to display on the output.
4. In the right side toolbar, click on the **View** tab if required to edit the input view settings (SEE also: Setting up the view).
5. Once you have finished editing the view settings, select the **Preset** tab to access the preset bank.
6. Click on the **SAVE MODE** button to activate the preset bank save mode.

> **TIP:** Double-click on the **SAVE MODE** button to lock save mode when creating several presets (click again to exit save mode).

7. Finally, select a slot to create a preset memory of the current input and its view.

> **NOTE:** Non-empty bank slots are highlighted in **orange**. Saving to a non-empty bank slot will override the memory contained in the selected bank slot.

To recall a preset:

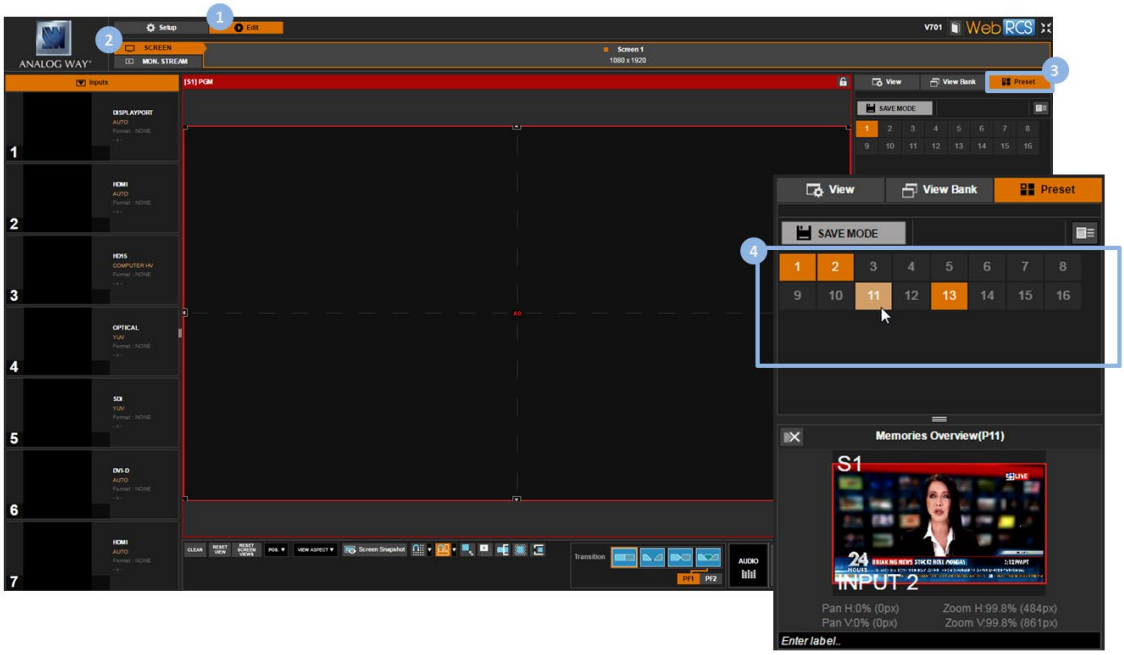
Front Panel

1. Enter the **PRESETS** menu on the Front Panel interface.
2. Select **Load Preset** to access the preset bank.
3. Select a preset bank slot to recall the preset memory contained in the selected bank slot.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the right side toolbar, select **Preset** to access the preset bank.
4. Click on a preset bank slot to recall the preset memory contained in the selected bank slot.

> **TIP:**
> - Hover over a preset bank slot to have an overview of the preset memory contained in the slot.
> - SHIFT+click on a preset bank slot to freeze the preset **Memories Overview** box and label the preset memory if necessary.
> - Use the **Show memories label** button to show preset labels instead of bank slot numbers in the preset bank window.



To delete a preset:

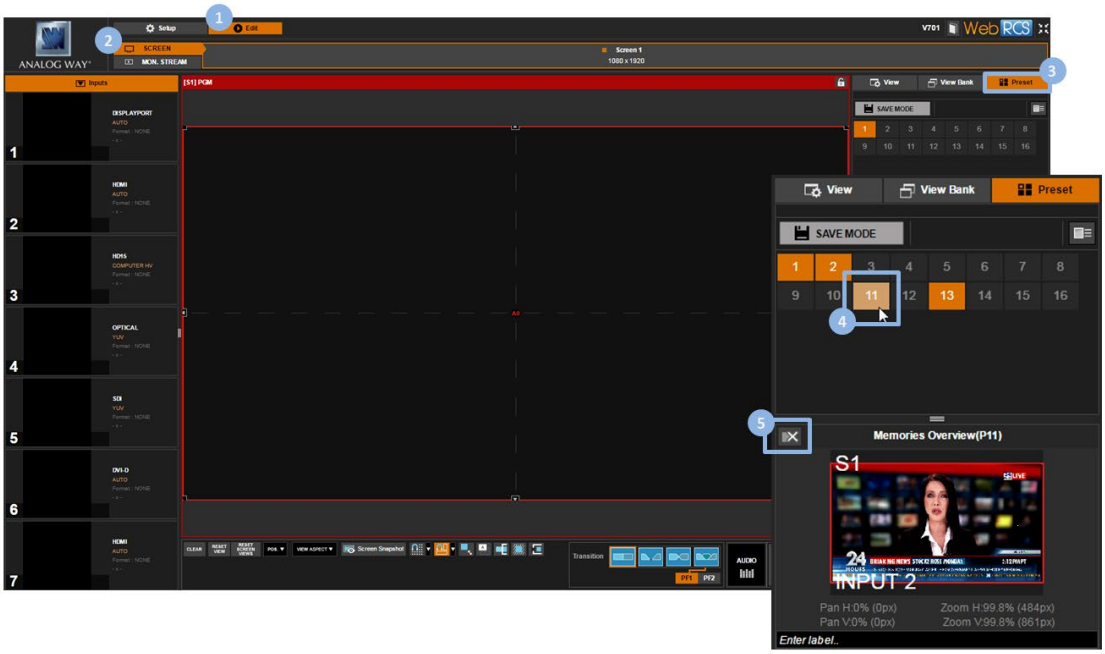
Front Panel

1. Enter the **PRESETS** menu on the Front Panel interface.
2. Select **Delete Preset** to access the preset bank.
3. Select a preset bank slot to delete the preset memory contained in the selected slot.

> **Information:** No confirmation is required. Press the **EXIT-MENU** button if required to go back one menu without deleting the preset memory.

Web RCS

1. Go to the **Edit** menu on the Web RCS interface.
2. Select the **SCREEN** tab to access the screen edit page.
3. In the right side toolbar, select **Preset** to access the preset memories bank.
4. Shift + click on a preset bank slot to access the preset **Memories Overview** box.
5. Click on the **Erase memory** button to delete the preset memory contained in the selected bank slot.



Related topics:

- Erasing the device memories

13 EDID support

13.1 What is an EDID

An **EDID (Extended Display Identification Data)** is a data structure containing the characteristics and capabilities of a digital display, such as its graphic card or set-top box.

The EDID of a display is provided by the display itself to the video source, so that the source can identify the kind of monitor it is connected to.

Different EDID versions exist, but the information contained in the EDID includes:

- Manufacturer name and serial number;
- Product type;
- Phosphor or filter type;
- Timings supported by the display;
- Display size;
- Luminance data and (for digital displays only);
- Pixel mapping data.

13.2 Supported EDIDs

The **VIO 4K** has been designed to be able to read the **EDID** version 1.3 and 1.4 from devices connected to the **VIO 4K** plugs that support EDID management.

These plugs include:

- DP plugs,
- HDMI plugs,
- Analog plugs,
- DVI-D plugs.

The **VIO 4K** can then extract the information contained in the read file, and store it in a 256-byte array that can be retrieved using the **Web RCS** and the **Front Panel** interfaces.

The extracted information includes the following data, and it can be used to match the output EDID to the input EDID:

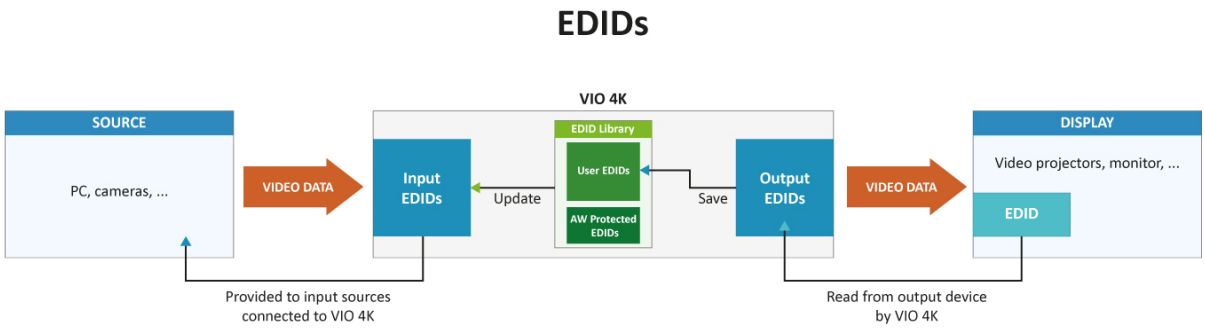
- Display product name
- Preferred format (used for format autoconfiguration).

SEE: Managing EDIDs for more information.

NOTE: You can also use the **AW EDID Editor** for EDID analysis and modification (SEE: AW EDID Editor for more information).

13.3 Managing EDIDs

You can use the **VIO 4K** read/write **EDID** capabilities to match input and output EDIDs:



- **Output EDIDs** are EDIDs read by the VIO 4K from output devices such as video projectors or monitors. They cannot be modified but they can be saved to the VIO 4K EDID Library (User EDID bank) to update input EDIDs.
- **Input EDIDs** are EDIDs provided by the VIO 4K to the input sources connected to the device. They are used by the VIO 4K inputs and they can be modified (updated) with EDIDs stored in the Library (User EDID bank or AW Predefined bank).
- **AW Predefined EDIDs** are read-only EDIDs used by default by the VIO 4K inputs. They are stored in the EDID Library (AW Predefined bank) and, although they cannot be modified, they can be exported (downloaded) from the device.
- **User EDIDs** are EDIDs that you can store in the VIO 4K Library (User EDID bank) to update the EDIDs used by the VIO 4K inputs. You can define them by saving input, output and AW predefined EDIDs to the User EDID bank, or by importing your own EDIDs into the device.

By saving, importing and updating EDIDs you can thus match input and output EDIDs, required in some cases to make the input and the output compliant to each other (when using a specific format for example).

TIP: To match an input EDID to the output EDID:

1. Save the required output EDID(s) to EDID Library (user EDID bank).
2. Update the required input EDID(s) with the user EDID(s) created in (1).

To import an EDID:

Front Panel

NOTE: You will need a USB key to import EDIDs via the front panel. Before you start:

- Plug-in the USB key into the unit **USB HOST** port (located on the front panel).
- Wait until the device is properly recognized and proceed as explained below .

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **IMPORT** to access the USB device browser.
4. In the USB device browser, browse for the EDID file to import.

> **TIP:** Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

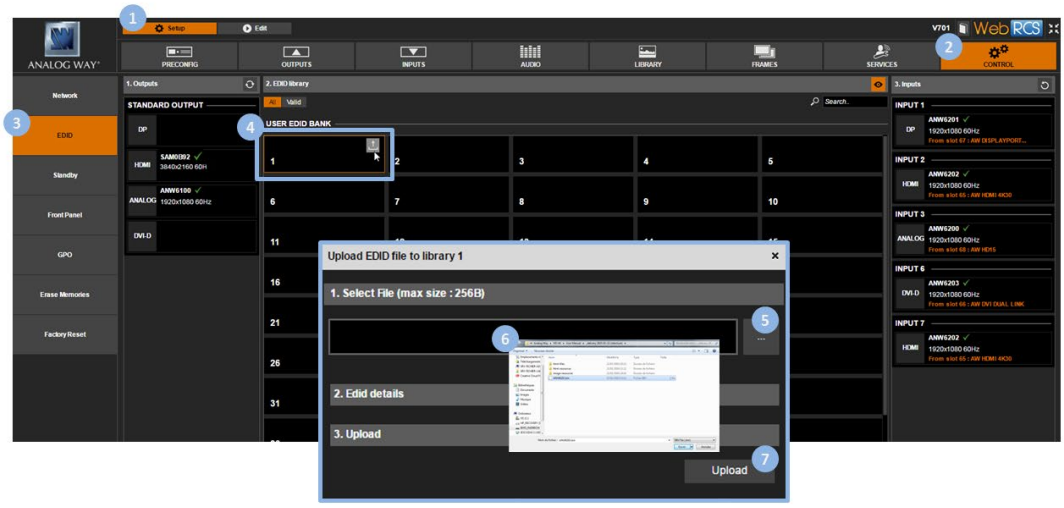
5. Select the EDID file to import and press the **ENTER** key to review the EDID information contained in the file.
6. Press the **ENTER** key again to save the selected EDID file to the library (user EDID bank).

> **NOTE:** You will be asked to select a user EDID bank slot to contain your EDID:
> - Available (empty) slots will appear in **black**.
> - Not available (occupied) slots will appear in **blue**.
> - Use the **EXIT-MENU** key if required to go back to the USB device browser without importing the file.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **EDID Library > USER EDID BANK** window, hover over a user EDID bank slot (**slots #1-64**) and click on the **Upload EDID file from your computer** button to open the **Upload EDID file to library** window.
5. In the **Upload EDID file to library** window, click on the **"..."** button to access your OS device browser.
6. In your OS device browser, select the EDID file to import (.bin extension) and click **OK/Open** to load it into the **Upload EDID file to library** window.
7. In the **Upload EDID to library** window, review the EDID information contained in the file to import and click on the **Upload** button to save the EDID file to the library (user EDID bank).

> **NOTE:**
> - The number in the **Upload EDID file to library #** window reminds you of the user EDID bank slot where the EDID will be stored once the import is complete.
> - Close the window before starting the import to exit without saving and select another user EDID bank slot if required.



To save the EDID of an output:

Front Panel

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **STANDARD OUTPUT** to access the VIO 4K output EDIDs.
4. Select an output and press the **ENTER** key to save the EDID of the selected output to the library (user EDID bank).

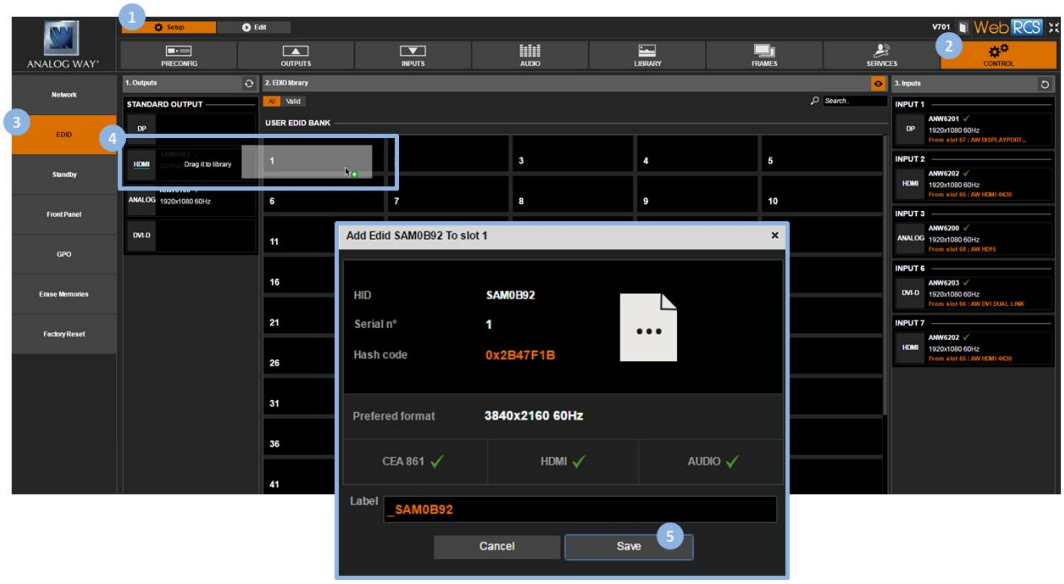
> **NOTE:** You will be asked to select a user EDID bank slot to contain your EDID:
> - Available (empty) slots will appear in **black**.
> - Not available (occupied) slots will appear in **blue**.
>
> Use the **EXIT-MENU** key if required to go back to the output EDIDs menu without saving the EDID.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **Outputs > STANDARD OUTPUT** window, select the output whose EDID is to be saved to the library and drag and drop it to the **EDID Library > USER EDID BANK** window.

> **TIP:** Use the **Outputs > Refresh/Refresh All** button before dragging to update the output EDID information before the EDID is saved.

> **NOTE:** You will need to select a user EDID bank slot for the drop (slots #1-64): select the slot where the output EDID is to be saved.



To update the EDID of an input:

> **Information /!\:**
> Be careful when updating the VIO 4K input EDIDs: input sources may not work as expected if the wrong EDID is used.

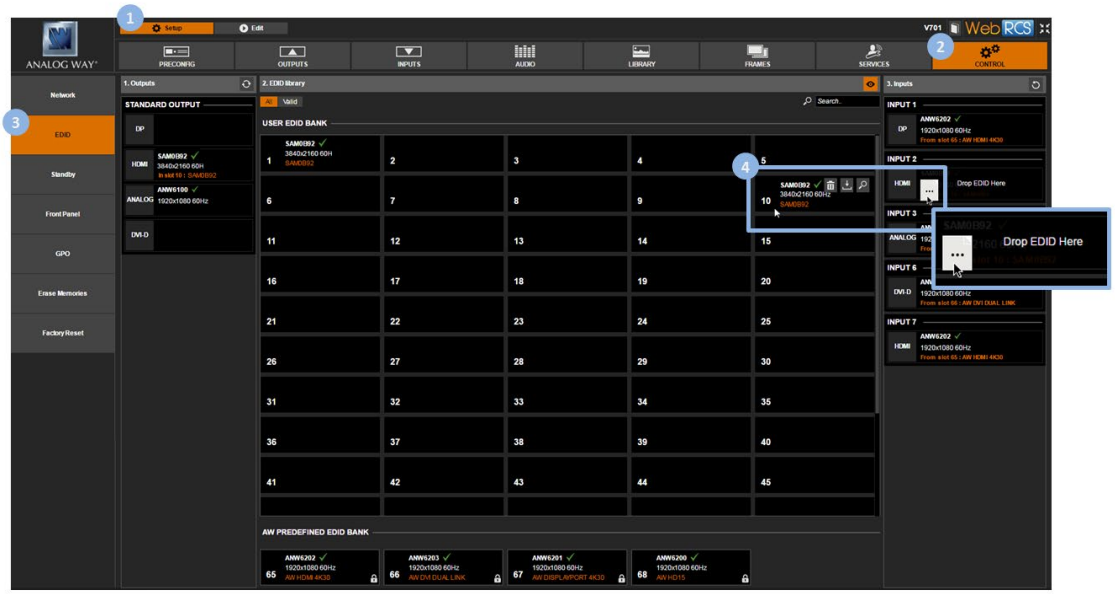
Front Panel

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **INPUTS** to access the VIO 4K input EDIDs.
4. Select an input and press the **ENTER** key to edit the EDID of the selected input.
5. Select **Load from library** to access the EDID library (user EDID bank and AW predefined bank).
6. Select an EDID in the library (user EDID or AW predefined EDID) and press the **ENTER** key to update the input with the selected library EDID.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **EDID Library** window, select an EDID in the library (**User Bank** or **AW Predefined Bank**) and drag and drop it to the input whose EDID is to be updated (**Inputs** window).

> **TIP:** Use the **All/Valid** buttons to show all or valid EDIDs only, respectively.



To reset the EDID of an input:

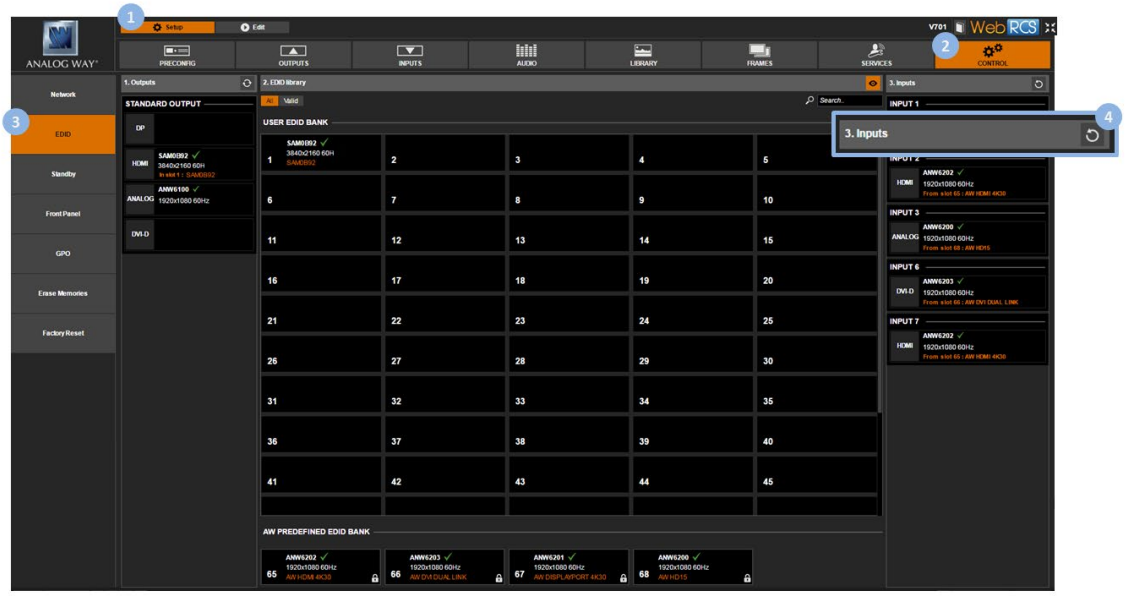
Front Panel

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **INPUTS** to access the VIO 4K input EDIDs.
4. Select an input and press the **ENTER** key to edit the EDID of the selected input.
5. Select **Reset to default EDID** to reset to default values the EDID of the selected input.

> **TIP:** Use the **INPUTS > Reset all inputs EDID to default EDID** command to reset all inputs EDIDs at once.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **Inputs** window, click on the **Set EDIDs to default values** button to reset all input EDIDs to default values.



To export an EDID:

Front Panel

> **NOTE:** You will need a USB key to export EDIDs via the front panel.
>
> Before you start:
>
> - Plug-in the USB key into the unit **USB HOST** port (located on the front panel)
> - Wait until the device is properly recognized and proceed as explained below

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **LIBRARY** to access the VIO 4K EDID library.
4. Select an EDID in the library and press the **ENTER** key to access the EDID details menu.
5. Select **Export to...** to access the USB device browser.
6. In the USB device browser, browse for the folder to export to.

> **TIP:** Use the **ENTER** and **EXIT-MENU** keys to navigate through folders.

7. Finally, select **EXPORT TO THIS FOLDER** to export the EDID to the selected folder.

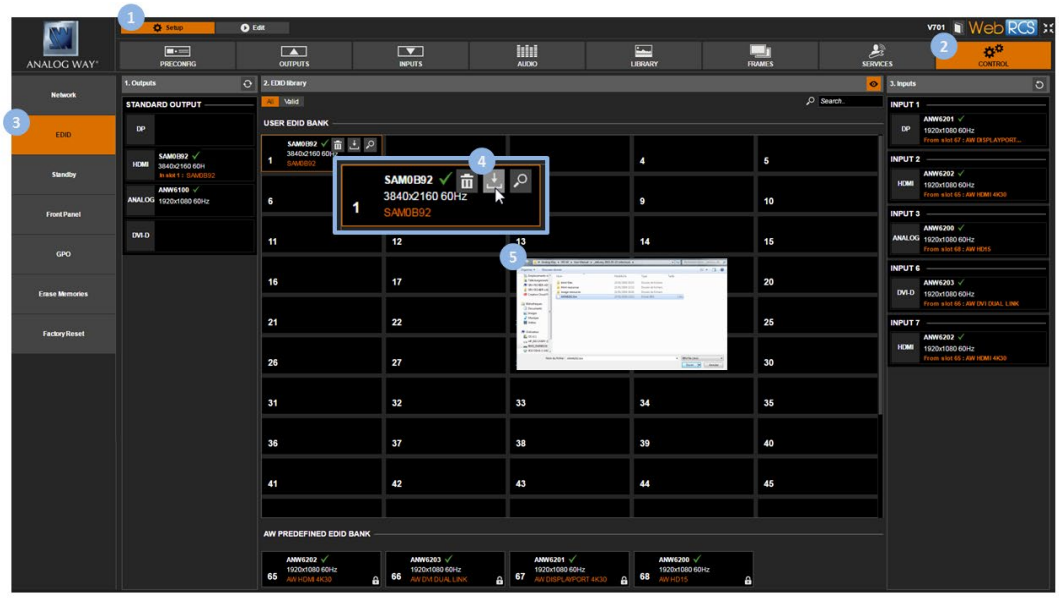
Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **EDID Library** window, hover over the EDID to export (user EDID or AW predefined EDID) and click on the **Download file to your computer** button to access your OS device browser.

> **TIP:** Use the **All/Valid** buttons to show all or valid EDIDs only, respectively.

5. In your OS device browser, browse for the folder to export to and click on **OK/Open** button to export the EDID to the selected folder.

> **NOTE:** Your OS device browser will not pop up if the **Web RCS** interface is in full screen mode.



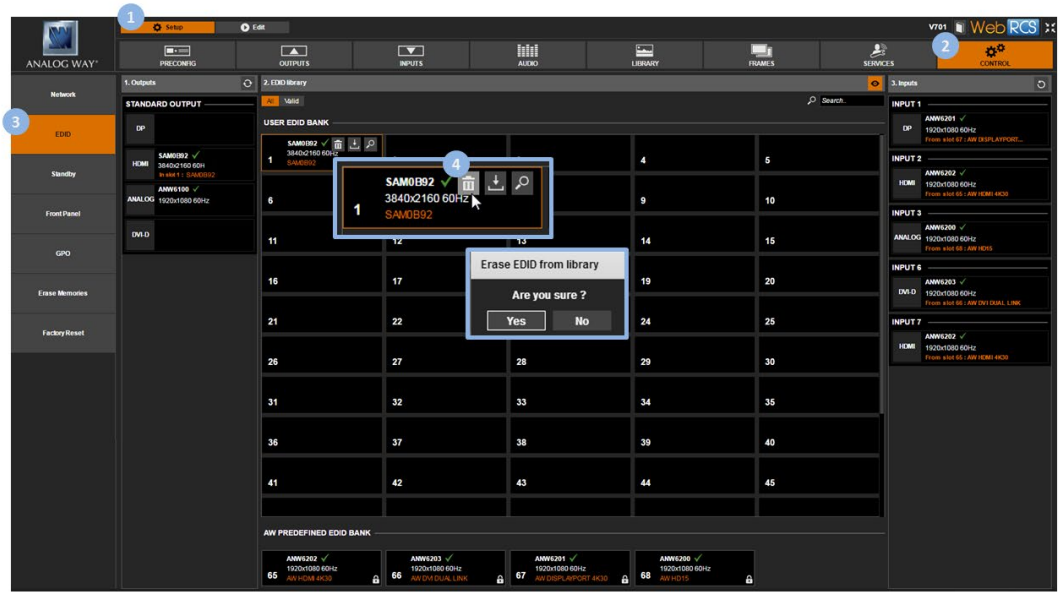
To delete an EDID:

Front Panel

1. Enter the **CUSTOMIZE** menu in the Front Panel interface.
2. Scroll down and select **EDID Manager** to access the EDID management menu.
3. Select **LIBRARY** to access the VIO 4K EDID library.
4. Select an EDID in the library (user EDIDs only) and press the **ENTER** key to access the EDID details menu.
5. Select **Delete EDID** to delete the EDID (/!\ requires confirmation: select **YES** to delete or **NO** to cancel the action).

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **CONTROL** tab to access the device settings and control functions.
3. In the left side toolbar, select **EDID** to access the EDID management page.
4. In the **EDID Library** window, hover over the EDID to delete (user EDIDs only) and click on the **Erase EDID from library** button to delete (/!\ requires confirmation: select **Yes** to delete or **No** to cancel the action).


1
2
3
4
Setup
Edit
V701
Web RCS
PRECONFIG
OUTPUTS
INPUTS
AUDIO
LIBRARY
FRAMES
SERVICES
CONTROL
Network
EDID
Standby
Front Panel
GPO
Erase Memories
Factory Reset
1. Outputs
2. EDID library
3. Inputs
STANDARD OUTPUT
DP
HDMI
ANALOG
DVI-D
USER EDID BANK
SAMDB92
3840x2160 60Hz
SAMDB92
Erase EDID from library
Are you sure ?
Yes
No
AW PREDEFINED EDID BANK
INPUT 1
INPUT 2
INPUT 3
INPUT 6
INPUT 7

14 HDCP support

14.1 HDCP detection

The **VIO 4K** is compliant with the HDCP specification for DVI, HDMI and DisplayPort input and output plugs.

INPUT DETECTION

On DVI, HDMI and DisplayPort input plugs, the HDCP detection is automatically managed by the input components.

OUTPUT DETECTION

On DVI-I (digital part only), HDMI and DisplayPort output plugs, the HDCP detection is automatically managed according to one of the following criteria:

- Hot plug
- 3-second period attempt

14.2 HDCP negotiation

By default, the HDCP detection is enabled on all input and output plugs that support the HDCP specification (SEE: HDCP detection).

If an input source is HDCP-encrypted, the output availability is then negotiated according to the following criteria:

	HDCP source(*)	Non-HDCP source
HDCP output peripheral	Output content is available only if HDCP is enabled on both the input and output plugs.	Output content is available, whichever the status on the output plug.
Non-HDCP output peripheral	Output is blackened even if HDCP is enabled on the output plug.	

(*) Only on video plugs standard that support HDCP (HDMI, DisplayPort, DVI).

By enabling and disabling HDCP, you can thus relatively control the whole HDCP stream:

Input control

- With HDCP enabled (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
- With HDCP disabled, none of the HDCP sources can be displayed (the sources will see the VIO 4K inputs as non-HDCP compliant).

Output control

- With HDCP enabled (default), the HDCP encryption is maintained whether the screen is compliant or not.
- With HDCP disabled, all screens are seen as non-HDCP compliant.

> **TIP:** Disable HDCP as much as possible, especially if not using HDCP-encrypted sources.

14.3 Managing HDCP

To check the HDCP status of an input plug:

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

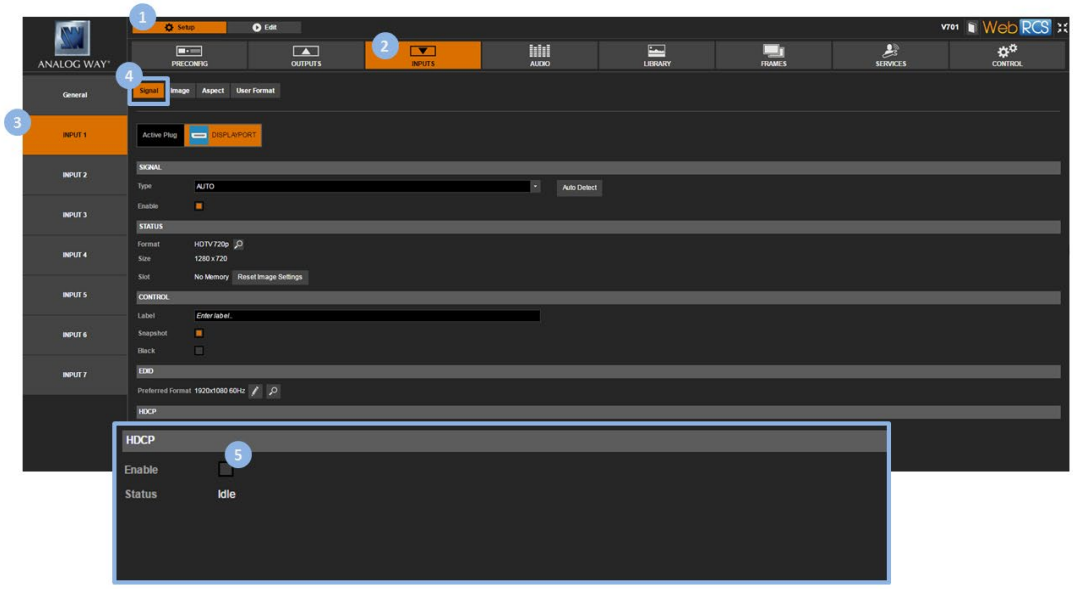
> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Select **Status** to check the input plug status.
5. Under **Format > HDCP**, check the HDCP status of the input plug.

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all input plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **HDCP**, check the HDCP status of the input plug.



> **TIP:** Use the **Quick Setup** button (located at the bottom of the Web RCS interface) to manage HDCP on all input plugs.

To enable/disable HDCP on an input plug:

> NOTE:
> - With HDCP **enabled** (default), the HDCP negotiation is maintained even if the DVI, HDMI or DisplayPort plug is not the current plug (active input).
> - With HDCP **disabled**, none of the HDCP sources can be displayed.

Front Panel

1. Enter the **INPUTS** menu on the Front Panel interface.
2. Scroll down and select an input to access the selected input setup menu.

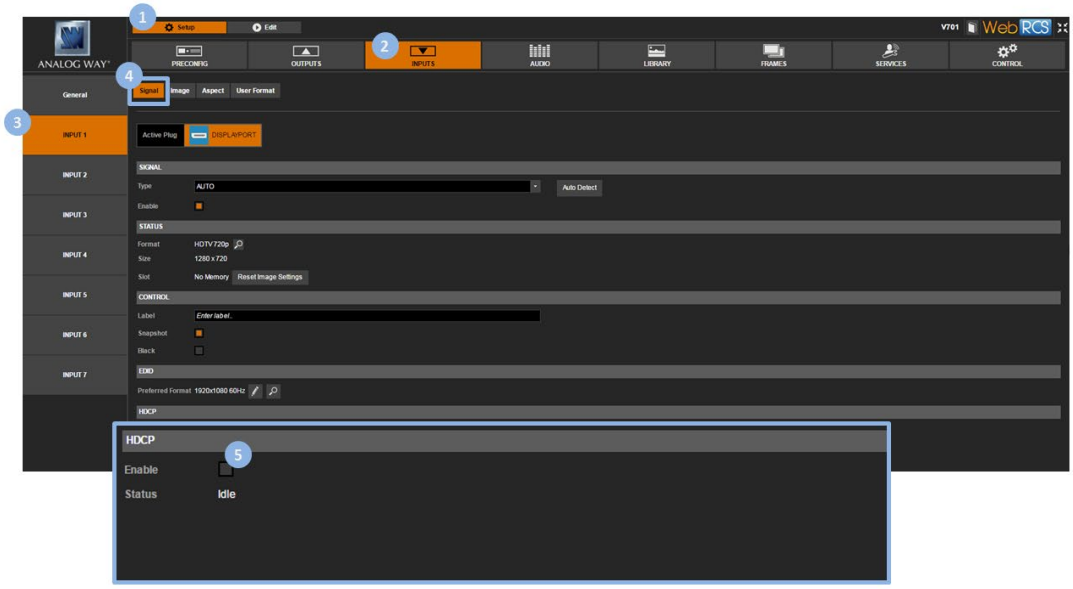
> **TIP:** Double-click on an **INPUT SELECTION** button to shortcut to the input setup menu directly.

3. Select the plug settings to access the input plug settings menu.
4. Scroll down and uncheck the **HDCP** check-box to disable HDCP on the input plug (check to enable).

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all input plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **INPUTS** tab to access the inputs setup page.
3. In the left side toolbar, select an input to access the selected input setup page.
4. Select the **Signal** tab to access the plug settings page.
5. Under **HDCP**, uncheck the **Enable** check-box to disable HDCP on the input plug (check to enable).



> **TIP:** Use the **Quick Setup** button (located at the bottom of the Web RCS interface) to manage HDCP on all input plugs.

To enable/disable HDCP on an output plug:

> **NOTE:**
> - With HDCP enabled (default), the HDCP encryption is maintained whether the screen is compliant or not.
> - With HDCP disabled, all screens are seen as non-HDCP compliant.

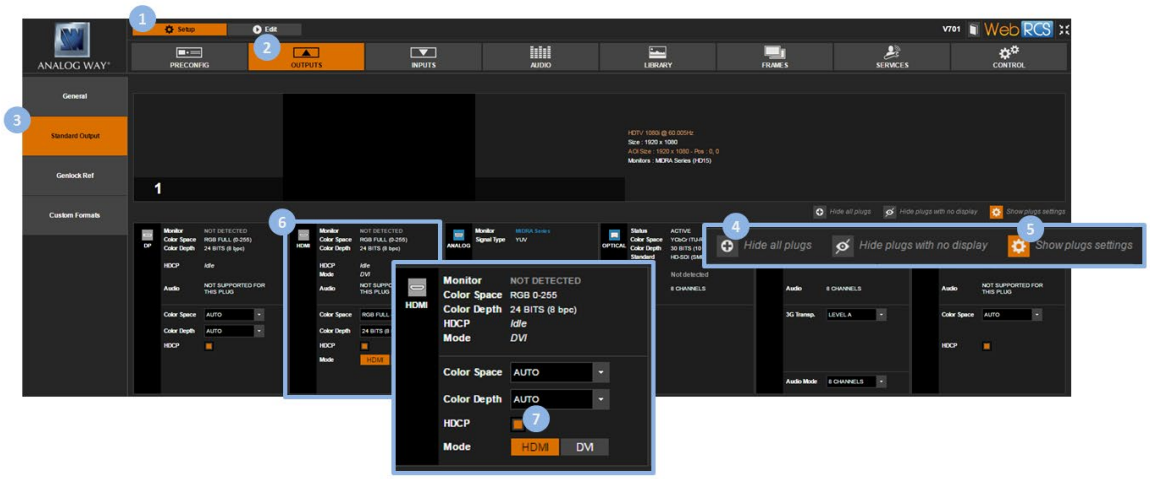
Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **STANDARD OUTPUT** to access the standard output setup menu.
3. Select **Plug Settings** to access the plug setup menu for the output.
4. Select a plug to access the selected plug setup menu.
5. Check the **HDCP Detection** check-box to enable the HDCP negotiation on the output plug (uncheck to disable).

> **TIP:** Go to the **CUSTOMIZE** menu and select **HDCP Manager** to manage HDCP on all input plugs.

Web RCS

1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **OUTPUTS** tab to access the outputs setup page.
3. In the left side toolbar, select **STANDARD OUTPUT** to access the standard output setup page.
4. Disable the **Hide all plugs** button if required to show the output plugs.
5. Click on the **Show plugs settings** button to access the plug settings for each output plug.
6. Locate the plug to set up.
7. Check the **HDCP** check-box to enable the HDCP negotiation on the output plug (uncheck to disable).



TIP: Use the **Quick Setup** button (located at the bottom of the Web RCS interface) to manage HDCP on all output plugs.

15 Expansion interfaces

The **VIO 4K** can be upgraded with optional expansion cards. Five cards are currently supported, but only up to three optional expansion cards can be installed (one audio card and two video cards).

15.1 Audio expansion interfaces

You can add one expansion audio card on the **VIO 4K**, two different audio cards are supported.

15.1.1 Dante™ audio expansion interface

Ref. **OPT-AUDIODANTE-VIO4K**

The Dante audio expansion interface can instantly Dante-enable your **VIO 4K** multi-format converter. It provides 8 bidirectional audio channels and full Dante network audio redundancy over Gigabit Ethernet. The Dante audio expansion interface supports the sample frequencies of 44.1 KHz, 48 KHz and 96 KHz.

15.1.2 XLR audio expansion interface

Ref. **OPT-AUDIOXLR-VIO4K**

The XLR audio expansion interface adds S/PDIF and AES3 inputs to your **VIO 4K** (4 channels – 2 stereo pairs). It supports AES/EBU & i3D Digital Audio (XLR) as well as Analog Stereo Balanced audio (XLR).

SEE: Adjusting the XLR audio

15.2 Video cards

You can add up to two expansion video cards on the **VIO 4K**, three different video cards are supported. Expansion video cards allows extra inputs or outputs.

The **VIO 4K** can only process one input at a time, and therefore even when equipped with additional expansion interfaces, the device can only output three independent scaling of the same source, and cannot output three different sources.

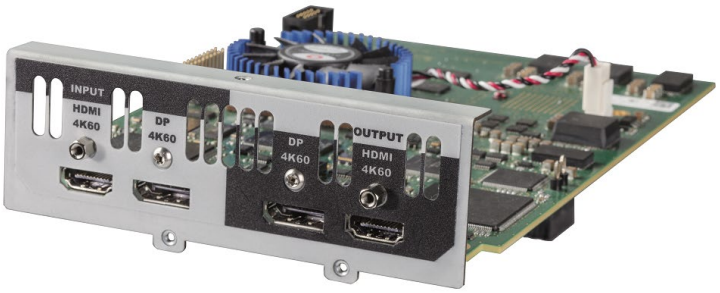
15.2.1 Extra output expansion interface

Ref. **OPT-OUT-VIO4K**

The OPT-OUT-VIO4K expansion card is an output only video interface for the **VIO 4K** able to support formats up to **4K@30 4:4:4 10 bits**, featuring **Dual-Link DVI**, **DisplayPort**, **HDMI**, **Optical, component** and **6G-SDI** connectivity.

15.2.2 4K@60P expansion interface

Ref. **OPT-4K60P-VIO4K**



The OPT-4K60P-VIO4K expansion card is a high-performance I/O video interface for the **VIO 4K** able to support formats up to **UHD/4K60Hz 4:4:4** and featuring **DisplayPort 1.2** and **HDMI 2.0** connectivity.

HDMI 2.0 supports up to 18Gbps of bandwidth allowing resolutions up to UHD/4K@60 4:4:4 8 bits, 2560x1440@60 4:4:4 10 bits or 2560x1440@120 4:4:4 8 bits. HDMI 2.0 is compliant with HDCP 1.4 and HDCP 2.2 and supports RGB444, YCbCr ITU-R BT.601, ITU-R BT.709 and ITU-R BT.2020 color spaces.

DisplayPort 1.2 supports up to 21.6Gbps of bandwidth allowing resolutions up to UHD/4K@60 4:4:4 10 bits. DP 1.2 is compliant with HDCP 1.3 and supports RGB444, YCbCr ITU-R BT.601 and ITU-R BT.709.

15.2.3 4K@60P + SDI expansion interface

Ref. **OPT-4K60P-SDI-VIO4K**

The OPT-4K60P-SDI-VIO4K expansion card is a high-performance I/O video interface for the VIO 4K able to support formats up to **UHD/4K60Hz 4:4:4** and featuring **DisplayPort 1.2**, **HDMI 2.0**, **12G-SDI, 12G-SFP** and **Quad-Link 3G-SDI** connectivity.

HDMI 2.0 supports up to 18Gbps of bandwidth allowing resolutions up to UHD/4K@60 4:4:4 8 bits, 2560x1440@60 4:4:4 10 bits or 2560x1440@120 4:4:4 8 bits. HDMI 2.0 is compliant with HDCP 1.4 and HDCP 2.2 and supports RGB444, YCbCr ITU-R BT.601, ITU-R BT.709 and ITU-R BT.2020 color spaces.

DisplayPort 1.2 supports up to 21.6Gbps of bandwidth allowing resolutions up to UHD/4K@60 4:4:4 10 bits. DP 1.2 is compliant with HDCP 1.3 and supports RGB444, YCbCr ITU-R BT.601 and ITU-R BT.709.

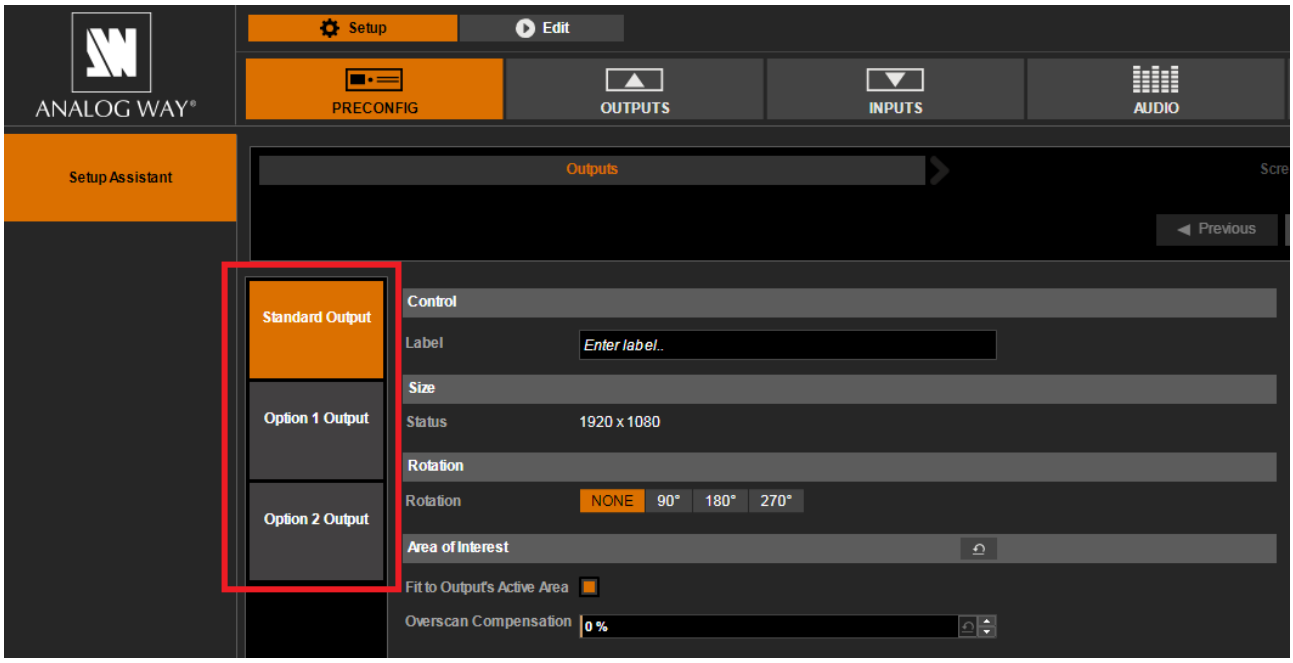
Quad 3G-SDI connections (four quadrants or SMPTE 425-5) can be used either as an input or as an output and support resolutions up to 2160p60 (4:2:2 10 bits).

12G-SDI and **12G-SFP** connections can be used either as an input or as an output and support resolutions up to 2160p60 (4:2:2 10 bits).

TIP: When equipped with one of the 4K60P expansion video card, the **VIO 4K** may deliver or receive UHDTV formats using the YCbCr ITU-R BT.2020 color space instead of the YCbCr ITU-R BT.709 color space used for HDTV formats. Choose the internal processing color standard to optimize the color space gamut and limit useless color space conversions.

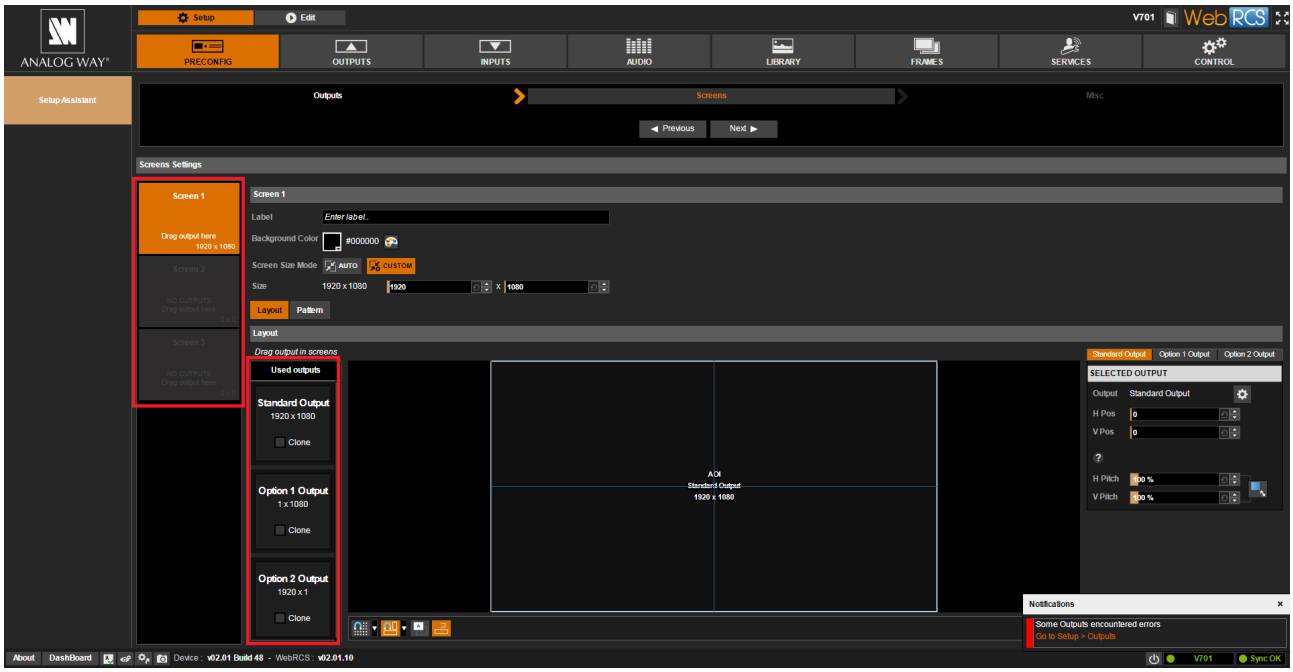
15.3 Multi-Outputs support

Each time a video expansion card is installed, a new output is available. The Area of Interest (AOI) and the rotation of each output are totally independent from those set for the other outputs.



15.3.1 Extra screen

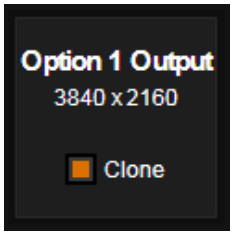
Each time a video expansion card is installed, a new screen is available. If two video cards are installed then three screens and three output resources are available.



Each screen is enabled as soon as it has at least one output resource assigned.

You can drag and drop an output to assign it from one screen to another one. You can also assign all the output resources to the same screen, disabling all the other screens.

Once an output is assigned to a screen, enable the **Clone** checkbox to display the entire screen scaled to the output resolution.



The screen size can be determined according to two modes:

- **Auto**: the screen is automatically computed according to the max area required to display all the AOI (the horizontal and vertical positions of the AOI are used for screen size computation).
- **Custom**: manually set the size of the screen in pixels.

In both modes, the AOI of an output can be moved everywhere inside the screen but not outside the screen. The position can be adjusted using the horizontal and vertical position settings (in pixels) of the AOI.

A screen pattern is available to help the positioning of several outputs in the screen. This pattern contains various settings such as crosshatch lines, circles, tiles border, IDs, etc.

15.3.2 Pitch compensation

For LED wall applications mixing several tile pitches inside the same screen, a pitch compensation system is available for each output. This system is based on a reference screen pitch equals to 100%. The differing pitches are percentages of this reference screen pitch.

To enable pitch compensation:

Example with a 8000x2000 LED wall and a **VIO 4K** with two side by side outputs with different resolutions:

- Standard Output 4000x2000
- Option 1 Output 3000x1500

In this example, the reference pitch is the pitch of the standard output and the compensation ratio is 133.3% for the Option 1 output.

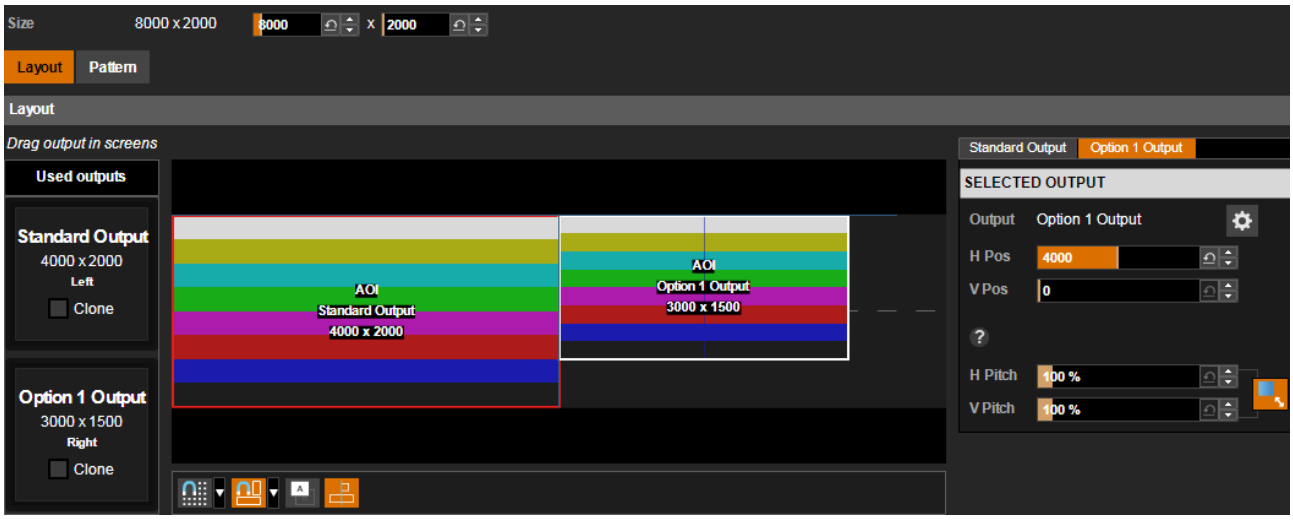
Front Panel

1. Enter the **OUTPUTS** menu on the Front Panel interface.
2. Select **Screen Management**.
3. Select **Output Assignment** and assign **Option 1 Output** to **Screen 1**.
4. Go back to **Screen Management** and select **Screen 1 Settings**.
5. Select **Size Mode: CUSTOM** and set the **H Size** and **V Size** (i.e. 8000x2000).
6. Select **Option 1 Output Configuration** and set the **H Position** and **V Position**.

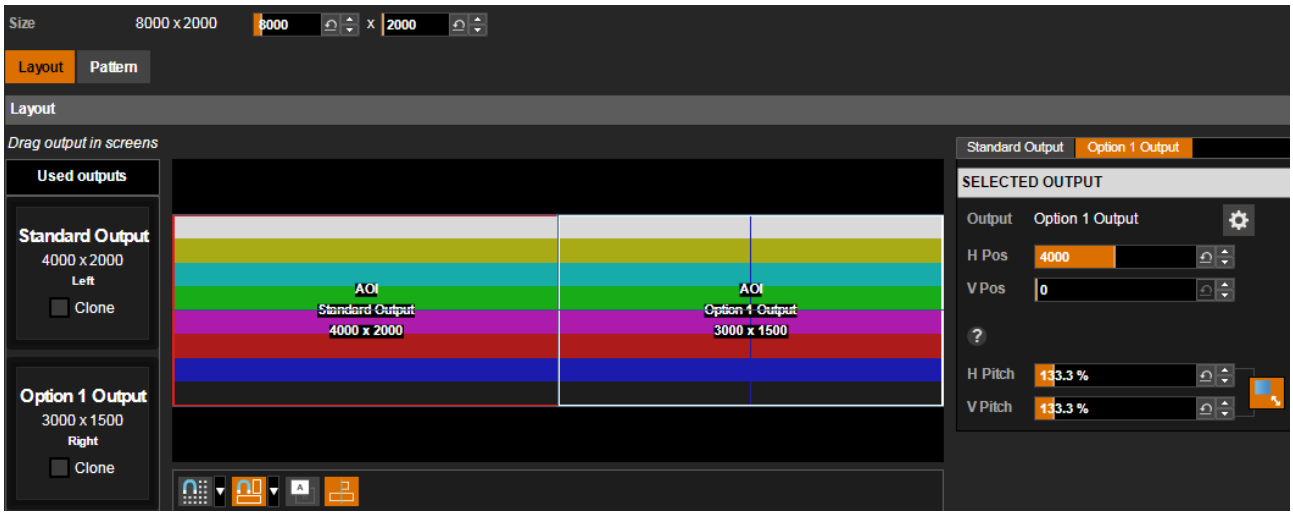
7. Set the **H Pitch Ratio** and **V Pitch Ratio** (i.e. 133,3%).

Web RCS

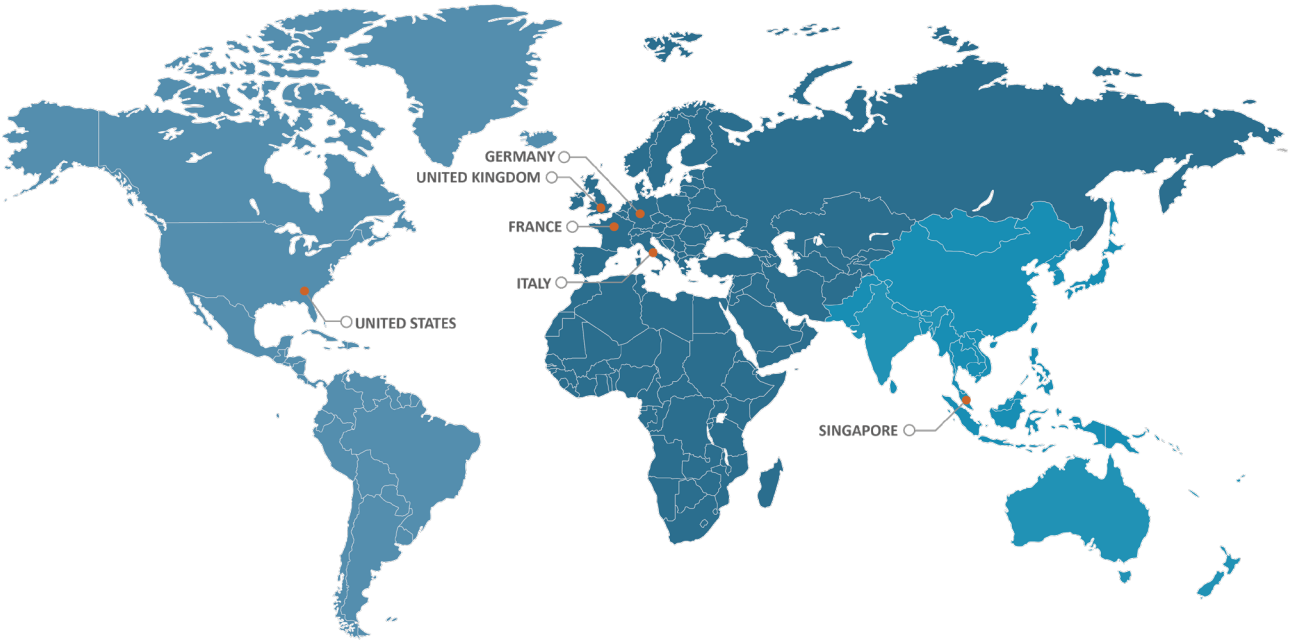
1. Go to the **Setup** menu on the Web RCS interface.
2. Click on the **PRECONFIG** tab to access the outputs setup page.
3. Go to **Screens** settings.
4. In **Screen Size Mode**, select **CUSTOM**.
5. In **Size**, enter the size of the screen (i.e. 8000x2000).
6. Drag and drop **Standard Output** and **Option 1 Output** to **Screen 1**.



7. Click on **Option 1 Output** and set its position.
8. Set the pitch percentage settings until the outputs match together (i.e. 133,3%)



CONTACT INFORMATION



The Americas Europe, Middle East & Africa Asia Pacific

Analog Way SAS - Headquarters
Tel.: +33 (0)1 81 89 08 60

2/4 rue Georges Besse
92160 Antony
FRANCE

Sales/General information:
saleseuro@analogway.com

Technical support:
techsupport@analogway.com
Tel.: +33 (0)1 81 89 08 76

Analog Way Germany
Tel.: +49 (0)160 90 624 624
Tel.: +49 (0)160 97 539 542
salesgermany@analogway.com

Analog Way Inc.
Tel.: +1 (678) 487 6644
Toll free: +1 855 353 4988
3047 Summer Oak Place
Buford, GA 30518
USA

Sales/General information:
salesusa@analogway.com

Technical support:
techsupport@analogwayusa.com

Analog Way Italy
Tel.: +39 02 39493943
salesitaly@analogway.com

Analog Way Pte Ltd
Tel.: +65 6292 5800

152 Beach Road
#15-03 Gateway East
SINGAPORE 189721

Sales/General information:
sales@analogwayasia.com

Technical support:
techsupport@analogwayasia.com

Analog Way UK
Tel.: +44 (0) 7774 143472
Tel.: +44 (0) 7946 303271
salesuk@analogway.com

Connect with us on