

Aquilon User Manual (v6.2)

References:

AQL-RS-ALPHA, AQL-RS1, AQL-RS2,
AQL-RS3, AQL-RS4, AQL-RS5, AQL-RS6,
AQL-Cmini, AQL-C, AQL-C+, AQL-Cmax



ANALOG WAY®

Date – 15/07/2026

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Table of contents

1. Disclaimer	14
1.1. Copyrights	14
1.2. Warranty	14
1.3. Liability	14
1.4. Force Majeure	14
2. Hardware Specifications	15
2.1. General safety instructions	15
2.1.1. English	15
2.1.2. French	16
2.1.3. Italian	18
2.1.4. German	20
2.1.5. Spanish	22
2.1.6. Finnish	24
2.1.7. Swedish	25
2.1.8. Norwegian	27
2.1.9. Symbols on product identification and warning labels	28
2.1.10. Environmental specifications for all Aquilon models	30
2.1.11. UPS compatibility	32
2.2. Package Contents	32
2.3. Rack mount information	32
3. Introducing Aquilon	33
3.1. Modular architecture	33
3.2. Supported formats and rates	34
3.3. Front panel	34
3.4. Rear panels	35
3.5. Input / Output cards	36
3.5.1. Available cards	36
3.5.2. Change an input / output card	38
3.6. Fixed parts	39
3.6.1. Optional control card with DisplayPort Multiviewer outputs	40
3.6.2. USB and sync ports	40
3.6.3. Optional Sync SFP card	41
3.6.4. Framelock	41
3.6.5. GPIO	41
3.6.6. Dante audio connectors	41
3.6.7. Power supply units (PSU)	41
3.6.7.1. Power supply compatibility	42
3.6.7.2. Power supply noise on standby	42
3.6.7.3. Power supply noise on start up	42
3.7. Accessories	42

3.7.1. HDMI™ 2.0 over fiber extenders – Transmitter and Receiver	43
3.7.2. Rack-mountable power tray for optical extenders	43
3.8. Precautions when mounting an Aquilon unit	44
3.9. Powering on and off	44
3.9.1. Start the Aquilon unit	44
3.9.2. Power off the Aquilon unit	44
3.9.3. Forced shutdown	45
3.10. Firmware update	45
4. Using the Web RCS	46
4.1. Run the Web RCS	46
4.1.1. Web RCS requirements	46
4.1.2. Default network settings	47
4.1.3. Connection	48
4.1.4. Login page	48
4.1.5. Simulator	49
4.2. General tips	49
4.2.1. Web browser features	49
4.2.2. Mobile version	49
4.2.3. Section buttons (copy, paste and reset)	50
4.2.4. Setting a number value	50
4.2.5. Search bar	50
4.2.6. Alarms and notifications	51
4.2.7. Standby / Restart	51
4.2.8. Back panel shortcuts	52
4.3. Device overview – system settings	52
4.3.1. Device	53
4.3.2. Firmware	53
4.3.2.1. Update	53
4.3.2.2. Reinstall current Firmware	54
4.3.3. Network	54
4.3.4. Power	54
4.3.5. Hardware	55
4.3.6. Cooling	55
4.3.7. Remote Access	55
4.3.7.1. Default Web RCS password	55
4.3.7.2. Enable Web RCS password protection	55
4.3.7.3. Lock an opened Web RCS session	56
4.3.7.4. Change Web RCS password	56
4.3.7.5. Reset Web RCS password from the front panel	56
4.3.7.6. Enable / Disable HTTP and HTTPS on the Web RCS	56
4.3.7.7. Import custom HTTPS certificate	57
4.3.7.8. Reset HTTP and HTTPS settings	57
4.3.8. Remote Control	57

4.4. Save / Reset / Load Configuration	57
4.4.1. Save the current Configuration	58
4.4.2. Reset a Configuration	58
4.4.3. Load a Configuration	59
4.5. Device control synchronization	59
4.5.1. Web RCS synchronization	60
4.5.2. RC400T synchronization	60
5. Aquilon concepts	61
5.1. Capacity	61
5.1.1. Standard formats capacity	61
5.1.2. Elements using capacity	62
5.1.3. Content and layer compatibility	62
5.2. Screen layers	63
5.2.1. Screen sources	63
5.2.2. Mixer layers	64
5.2.3. Split layers	64
5.3. Aux Screens and Aux layers	64
5.3.1. Aux layers quantity and capacity	64
5.3.2. Aux layers limitations	65
5.4. Screen / Aux Screen comparison	66
5.5. Aquilon Processing	66
5.5.1. VPU's and Scaling engines	66
5.5.2. Self-rearrangement	67
5.5.3. VPU capacities support	67
5.5.4. Scaling engine boundary	68
5.5.5. Combined VPU's	68
5.5.6. Optimized mode	69
5.5.7. Cut & Fill resources	70
5.5.8. How many VPU's per model?	70
5.5.9. IPU's	71
5.6. HDR conversion	72
5.7. Aquilon latency	73
6. Preconfig Menu	74
6.1. Preconfig > System	75
6.1.1. Vertical rate	75
6.1.1.1. Set defined rate	75
6.1.1.2. Set relative rate	75
6.1.2. Audio rate	75
6.1.3. Framelock input settings	75
6.1.4. Framelock output settings	76
6.1.5. Color processing	76
6.1.6. Quick HDCP	76
6.2. Preconfig > Multiviewers	77

6.2.1. Multiviewer	77
6.2.2. Multiviewers quantity	77
6.2.3. Set a DPH104 for a Multiviewer DP output	77
6.3. Preconfig > Outputs	78
6.3.1. Output capacity – The 4-4 rule	79
6.3.2. Output group	79
6.3.3. Set an output group for a Screen	80
6.3.4. Set a DPH104 output for a Screen	81
6.3.5. Set an output for an Aux Screen	81
6.3.6. Output cloning and Aux output duplicate	81
6.3.6.1. Output cloning	82
6.3.6.2. Aux output duplication	82
6.3.7. Creating Screens	83
6.3.7.1. Screen regions	83
6.3.7.2. Create a Screen	84
6.3.7.3. Create a Screen with no layers	85
6.3.8. Create an Aux Screen	86
6.3.9. Rename a Screen	86
6.4. Preconfig > Canvas	86
6.4.1. Set output rotation	88
6.4.2. Patterns	90
6.4.2.1. Screen pattern	91
6.4.2.2. Output pattern	91
6.4.3. Grid canvas	91
6.4.3.1. Create a Grid canvas	92
6.4.3.2. Create a covering in Grid canvas (blending)	92
6.4.3.3. Create a gap in Grid canvas (bezel)	92
6.4.4. Free canvas	93
6.4.4.1. Bottom bar buttons – Output position	93
6.4.4.2. Create a canvas in Auto mode	93
6.4.4.3. Create a canvas in Custom mode	94
6.4.4.4. Create a covering in Free canvas (blending)	94
6.4.4.5. Preview regions and layers in Canvas	95
6.4.5. Advanced output settings (in Preconfig > Canvas)	95
6.4.5.1. Canvas settings for DPH104	95
6.4.5.2. Create an area of interest (AOI)	96
6.4.5.3. Pitch compensation	96
6.5. Preconfig > Inputs	96
6.5.1. Input group	96
6.5.2. Set an input group	97
6.5.3. Set four 3G-SDI inputs for 2SI format	98
6.5.4. Set an NDI input	98
6.5.5. Set an input visibility	99

6.6. Preconfig > Images	99
6.6.1. Image slots	99
6.6.2. Set images preset capacity	100
6.6.3. Set images visibility	100
6.7. Preconfig > Backgrounds	100
6.7.1. Background sets	100
6.7.2. Background set for a Screen with one output group	101
6.7.3. Background set for a Screen with multiple output groups	101
6.7.4. Reset a background set	102
6.7.5. Remove a source from all background sets	102
6.7.6. Background set backup	102
6.8. Preconfig > AVoIP	103
6.8.1. IP/SDI	103
6.8.1.1. Define IP/SDI card network	104
6.8.1.2. Find NDI sources	104
6.8.1.3. Assign a source to an input	104
6.8.2. ST 2110	105
6.8.2.1. Define network interface	105
6.8.2.2. Assign a video stream to input	106
6.8.2.3. Assign a video stream to output	106
6.8.2.4. Assign an audio stream to input/output	107
6.8.3. SDVoE	107
6.8.4. Dante	107
7. Multiviewers	108
7.1. Multiviewers settings	108
7.2. Multiviewers format	108
7.3. Multiviewers signal	109
7.4. Multiviewers adjustment (image correction)	109
7.5. Multiviewers pattern	110
8. Outputs	111
8.1. Outputs main screen	111
8.2. Output settings	112
8.2.1. Output format	112
8.2.2. Output signal	113
8.2.3. Output adjustment (manual image correction)	114
8.2.4. Output adjustment using Correction LUT	114
8.2.5. Output pattern	115
9. Inputs	116
9.1. Inputs main screen	116
9.2. Input settings	117
9.2.1. Input signal	117
9.2.2. Input aspect	119
9.2.2.1. Set input aspect ratio	119

9.2.2.2. Set input crop	119
9.2.3. Input keying	120
9.2.3.1. Set Chroma Keying	120
9.2.3.2. Set Luma Keying	121
9.2.3.3. Keying using a CremaTTe 3D LUT from the Library	121
9.2.3.4. Set Cut & Fill	122
9.2.4. Input adjustment (manual image correction)	122
9.2.5. Input adjustment using LUT Correction	122
9.2.6. Input pattern	123
9.2.7. Input NDI source	123
9.3. Input backup	123
10. Images and Library	126
10.1. Library	126
10.1.1. Image formats	127
10.1.2. Image specifications	127
10.1.3. Transfer images from the computer to the unit	127
10.1.4. Capture a video signal into an image file	127
10.1.5. Download an image file from the unit	128
10.1.6. Upload an image file to the unit	128
10.1.7. Delete an image file from the unit	128
10.1.8. Manage Image Library from the front panel	128
10.2. Images	129
10.2.1. Images main screen	129
10.2.2. Image slots settings	129
10.2.3. Downscale to capacity	130
10.2.4. Assign an imported image to an image slot	130
10.2.5. Assign a timer to an image slot	130
10.2.6. Image signal	131
10.2.7. Image aspect	131
10.2.7.1. Set image aspect ratio	131
10.2.7.2. Set image crop	132
11. Formats and EDID	133
11.1. Formats	133
11.1.1. Create a custom format	133
11.1.2. Edit a custom format	134
11.1.3. Delete a custom format	134
11.2. EDID	134
11.2.1. EDID bank	135
11.2.2. Save an EDID from inputs and outputs	135
11.2.3. Replace an Input EDID with an EDID from the bank	135
11.2.4. Set a template format for an EDID	135
11.2.5. Set a custom format for an EDID	135
11.2.6. Export an EDID to computer	136

11.2.7. Import an EDID from computer	136
11.2.8. Delete a custom EDID	136
11.2.9. AW EDID Editor	137
12. LUT Libraries	138
12.1. Creating a CremaTTe 3D LUT using an Aquilon live input	138
12.2. Importing a LUT	139
12.3. Using a LUT	139
12.4. Export a LUT to computer	139
12.5. Delete a LUT	139
13. Audio, Timers and GPIO	140
13.1. Timers	140
13.1.1. Create a timer	140
13.1.2. Control counter timers in Live menus	140
13.1.3. Use timers in Screens and Aux. Screens	141
13.2. GPIO	142
13.2.1. Pins table and GPIO connection	142
13.2.2. On/Off switch pins	143
13.2.3. Set GPIO in the Web RCS	143
14. Screens / Aux.	145
14.1. Screens menu interface	145
14.1.1. Program and Preview	146
14.1.2. Views	146
14.1.2.1. View filters – Top bar buttons	146
14.1.2.2. Resize and reorder Screen windows	146
14.1.2.3. Save a view memory	146
14.1.2.4. Load / edit a view memory	147
14.1.2.5. Rename, hide or delete a view memory	147
14.1.3. Sources - Left panel	147
14.1.4. Quick Backup set	148
14.1.5. Layer selection	148
14.1.6. Screen layout editor	150
14.1.7. PGM and PRW buttons – Screen controls	150
14.1.8. Bottom bar buttons	151
14.1.9. Transitions - Right panel	152
14.2. Layer properties	153
14.2.1. Layer selection and tools	153
14.2.2. Layer position and size	154
14.2.2.1. Set layer position with the layout editor	154
14.2.2.2. Set layer position and size manually	154
14.2.3. Layer source	155
14.2.3.1. Assign content to a layer	155
14.2.3.2. Select NDI source for a layer	155
14.2.3.3. Set a colored layer	156

14.2.3.4. Assign content to a Screen backgrounds	156
14.2.3.5. Set a colored background	156
14.2.3.6. Remove a content from a layer	156
14.2.4. Layer keying	157
14.2.5. Cut & Fill effect	157
14.2.5.1. Resource used by Cut & Fill	158
14.2.5.2. Set Cut & Fill in layer	158
14.2.6. Set layer opacity	159
14.2.7. Set layer aspect and crop	159
14.2.8. Set layer mask	159
14.2.9. Set layer border	160
14.2.10. Set layer smooth border	160
14.2.11. Set layer shadow	160
14.2.12. Set layer color filter	161
14.2.13. Set layer Horizontal and Vertical flip	161
14.2.14. Set the strobe effect	161
14.3. Layer transition	161
14.3.1. Set layer transition effect	162
14.3.2. Set layer transition timing	162
14.3.3. Set layer transition speed	162
14.4. Aux Screens	163
15. Memories	164
15.1. Memories tab	164
15.2. Master Memories	165
15.2.1. Save a Master Memory from current Screens	165
15.2.2. Save a Master Memory from existing Screen Memories	166
15.2.3. Load a Master Memory	167
15.2.4. Load a Master Memory at startup	168
15.2.5. Edit a Master Memory	168
15.3. Screen Memories	168
15.3.1. Save a Screen Memory	168
15.3.2. Load a Screen Memory	169
15.3.3. Edit a Screen Memory	170
15.3.4. Quick overwrite or revert	170
15.4. Layer Memories	170
15.4.1. Save a Layer Memory	170
15.4.2. Load a Layer Memory	171
15.4.3. Edit a Layer Memory	171
15.5. Rename a Memory	172
15.6. Change the color of a Memory slot	172
15.7. Reorder Memories	172
15.8. Delete a Memory	173
16. Multiviewers	174

16.1.	Tips and recommendations	174
16.2.	Multiviewers menu interface	174
16.2.1.	Sources - Left panel	175
16.2.1.1.	Control counter timers in Multiviewers	175
16.2.1.2.	Set Preview mode for Preview Screen widgets	176
16.2.2.	Widget selection	177
16.2.3.	Multiviewer layout editor	177
16.2.4.	Bottom bar buttons	178
16.3.	Widget properties	179
16.3.1.	Widget position and size	179
16.3.1.1.	Set widget position with the layout editor	179
16.3.1.2.	Set widget position and size manually	179
16.3.1.3.	2x2 Slicer mode with DPH104	180
16.3.2.	Widget source - Assign content to a widget	180
16.4.	Multiviewers memories	181
16.4.1.	Save a Multiviewer memory	181
16.4.2.	Load a Multiviewer memory	181
16.4.3.	Load a Multiviewer memory at startup	181
16.4.4.	Edit a Multiviewer memory	182
16.4.5.	Rename a Memory	182
16.4.6.	Change the color of a Memory slot	182
16.4.7.	Reorder memories	182
17.	User Maintenance and Troubleshooting	184
17.1.	User Maintenance – Air filter	184
17.2.	Troubleshooting	184
18.	Appendix: RC400T	186
18.1.	Installation	186
18.2.	Controller description	187
18.3.	Getting started	189
18.3.1.	Start the RC400T	189
18.3.2.	Turn the RC400T off	189
18.3.3.	Configure the RC400T network	189
18.3.4.	Control multiple units with the RC400T	189
18.3.5.	Firmware upgrade	190
18.3.6.	Reset to default values	190
18.3.7.	Enable / Disable the T-bar	190
18.4.	Aquilon control with RC400T	190
18.4.1.	Lock / Unlock the screen	190
18.4.2.	Select a row mode	191
18.4.3.	Layer selection	191
18.4.4.	Assign a source to a layer	192
18.4.5.	Remove a source from a layer	192
18.4.6.	Set a layer position and size	193

18.4.7. Set a layer crop	193
18.4.8. Set an input crop	194
18.4.9. Load a Layer memory	194
18.4.10. Load a Screen memory	194
18.4.11. Load a Master memory	195
18.4.12. Screen selection for Transitions	195
18.4.13. Load a Multiviewer memory	195
18.4.14. Save a Master Memory	195
18.4.15. Save a Screen Memory	196
18.4.16. Save a Layer Memory	196
18.4.17. Delete a memory	196
18.4.18. Button color guide	196
18.5. Virtual RC400T	198
18.5.1. RC400T customization	198
18.5.2. Button color guide	199
18.5.3. Saving custom layouts	199
18.5.4. Recalling custom layouts	200
18.5.4.1. Virtual RC400T	200
18.5.4.2. Physical RC400T	200
19. Appendix: Other Aquilon control options	201
19.1. Use the Shot Box ² and Control Box ³ with Aquilon	201
19.2. Use the Stream deck with Aquilon	202
20. Appendix: Management of stereoscopic 3D contents	203
20.1. System configuration	203
20.2. Screens configuration	203
20.3. Inputs configuration	204
21. Appendix: LINK	205
21.1. Link setup	205
21.1.1. Installation	206
21.1.2. Configuration	208
21.2. Share setup	209
21.2.1. Shared sources setup	209
21.2.2. Global Multiviewer setup	210
21.2.3. Multi-chassis Screen setup	210
21.2.4. Settings	211
21.3. Linked system settings	212
21.3.1. Framelock	212
21.3.2. Firmware update	212
21.3.3. Configuration import / export	212
21.3.4. Reset modes	212
21.3.5. Power on and off	212
21.3.6. Front panel	213
21.4. Navigation	213

21.4.1. Screens display	213
21.4.2. Sources display	214
21.5. Controllers	214
21.6. Link troubleshooting	215
22. Appendix: Stream Deck Companion	216
22.1. Connection to Aquilon device	216
22.2. Stream Deck buttons presets	217
22.3. Stream Deck buttons customization	217
23. Contact information	219
Glossary	220

1. Disclaimer

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1.1. Copyrights

The software installed in the Aquilon remains the sole property of Analog Way unless stated otherwise in a separate licensing agreement. Any attempt to copy or alter the software is prohibited and will render any warranties void.

1.2. Warranty

The Aquilon has been tested in various applications and is deemed to be suitable for uses described in this manual. This product is provided “as is”, including all or any ‘perceived’ or possible faults. The Licensor grants no warranty regarding the utility or contents of the software. Analog Way will warrant the hardware for three years from the date of purchase on parts and labor. Broken connectors are not covered by warranty. The method of warranty is Return to Base (transport costs from and to us are the owner’s responsibility). In case of hardware fault please contact your local distributor or us (www.analogway.com). While not an exhaustive list, the following are provided for guidance. Warranty claims will be invalidated in these circumstances:

- A hardware failure is caused by inappropriate handling of hardware such as dropping the image processor, using the image processor without proper ventilation, exposing the unit to water, other liquids or dust.
- The software has been loaded or there has been an attempt to load software onto the unit in any way other than described in the manual or recommended by Analog Way.
- The hardware has been modified by someone other than a certified Analog Way dealer.

1.3. Liability

Analog Way shall not be liable for any loss or damage, be it direct or indirect in regard to the utility or contents of the software or hardware, except to the extent provided by law. Notwithstanding the above, liability for indirect, special, incidental or consequential loss or damage that may arise in respect of the software or hardware, is expressly excluded.

1.4. Force Majeure

Liability of Analog Way is excluded in all cases that constitute Force Majeure circumstances, namely, circumstances beyond the control of Analog Way.

2. Hardware Specifications

2.1. General safety instructions

2.1.1. English

All of the safety and operating instructions should be read before the product is operated and should be maintained for further reference. Please follow all of the warnings on this product and its operating instructions.

- **WARNING:** Not suitable for children. 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). This equipment is not suitable for use in locations where children are likely to be present.
- **INSTALLATION:** 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. Devices equipped with a grounding plug should only be used with a grounding type outlet. 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.



For equipment identified with the symbols above, only an instructed person is allowed to connect and disconnect mains cable from the unit. Grounding is mandatory before plug connection.

Use a grounding cable to connect a screw on the unit chassis to ground.

- **POWER CORD:** The device is equipped with one or multiple detachable power cords.



A device identified with the symbol above indicates that the equipment has multiple power cords. To remove mains, an instructed person shall disconnect all power cords at appliance power inlet.

Caution

The power cords constitute the only mean to completely disconnect the equipment from the main power.

For equipment equipped with multiple power cords: To remove power from product, always disconnect each power cord at appliance inlet. It is not allowed to connect them to intermediate terminal between product and plug in the wall that could be used to disconnect several power supplies giving access to live parts at a point where mains was disconnected.

Use the following guidelines:

- The equipment connected to the network must have a release system easily accessible and located outside the unit.
- Unplug the power from mains if the device is not used for a few days or more.
- To unplug the power cords; do not pull on the power cords 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 one of the power supply cords 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 periodically. Contact your dealer or service center for replacement if damaged.

• **CONNECTIONS:** All inputs and outputs (except for the power input) are Electrical energy source class 1 (ES1) as defined in IEC/UL 62368-1.

ES1 limits: 60Vdc or 30V rms/ 42.4V peak.

• **SERVICING:** Disconnect all power supply cords from main before servicing.

According to IEC 62368-1 standard, an instructed person is authorized to:

- Open the front panel cabinet and clean the air filter (depending on the model)
- Change a removable power supply (depending on the model)

The fuse(s) present in the unit have not been designed to be replaceable.

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. The internal Lithium cell battery is not replaceable. In case of a problem, contact your supplier or Analog Way.

• **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.

• **Laser module:** We inform our customers that any purchase of laser modules intended for installation in equipment marketed in the United States entails an obligation to comply with US regulation 21 CFR 1040, as applied by the FDA CDRH. It is the responsibility of the organization using one or more laser modules to submit all required documentation, including the product report, and to comply with all reporting and record-keeping requirements imposed by the FDA prior to any resale or marketing of the equipment in the United States.

2.1.2. French

Afin de mieux comprendre le fonctionnement 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 :** Ne convient pas aux enfants. 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. Cet équipement ne convient pas pour une utilisation dans des endroits où des enfants sont susceptibles d'être présents.

• **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. Les appareils doivent être obligatoirement connectés sur une source équipée d'une mise à la terre efficace. En aucun cas cette liaison de terre ne devra être modifiée, contournée ou supprimée. Raccordement des équipements à l'alimentation principale doit être postérieur au disjoncteur de branchement de l'installation électrique du bâtiment.



Pour les équipements identifiés avec les symboles ci-dessus, seule une personne avertie est autorisée à brancher ou débrancher l'appareil. Une mise à la terre est obligatoire avant branchement. Utiliser un câble de terre pour relier une vis du châssis de l'appareil à la terre.

• **CORDON D'ALIMENTATION** : L'appareil est équipé d'un ou plusieurs cordons d'alimentation détachables.



Un appareil identifié avec le symbole ci-dessus indique que l'équipement possède plusieurs cordons secteurs. La mise hors tension doit être effectuée par une personne avertie en débranchant tous les cordons de l'appareil.

Attention

Les cordons d'alimentation constituent le seul moyen de débrancher l'appareil totalement de l'alimentation secteur.

Pour les équipements munis de plusieurs cordons secteur : Pour débrancher l'appareil, toujours déconnecter chaque cordon au niveau du connecteur d'alimentation. Il est interdit d'utiliser une multiprise pour relier les cordons entre l'équipement et une prise murale car la déconnexion de plusieurs alimentations en même temps peut rendre accessible une tension dangereuse au niveau du connecteur qui a été 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 les cordons d'alimentation de la prise murale si vous prévoyez de ne pas utiliser l'appareil pendant quelques jours ou plus.
- Pour débrancher les cordons, tirez-les par la fiche. Ne tirez jamais sur les cordons 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 un des cordons 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 les câbles 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 sources d'énergie électrique de classe 1 (ES1) tel que défini dans IEC/UL 62368-1.

Limites de ES1 : 60Vdc ou 30V rms/ 42.4V pic.

• **RÉPARATION ET MAINTENANCE** : Débrancher les cordons d'alimentation avant toute maintenance.

Selon la norme IEC 62368-1, une personne avertie est autorisée à :

- Ouvrir la face avant pour nettoyer le filtre à air (dépend du modèle)
- Changer un bloc d'alimentation accessible de l'extérieur (dépend du modèle)

Le ou les fusibles présents dans l'appareil n'ont pas été conçus pour être remplaçables.

L'utilisateur ne doit en aucun cas essayer de procéder aux opérations de dépannage, car 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.

La pile bouton au Lithium présente à l'intérieur de la machine n'est pas remplaçable. En cas de problème, 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.

• **Module Laser** : Nous informons nos clients que tout achat de modules laser destinés à être installés dans des équipements commercialisés aux États-Unis implique une obligation de conformité avec la réglementation américaine 21 CFR 1040, telle qu'appliquée par la FDA CDRH. À ce titre, il incombe à l'organisation utilisant un ou plusieurs module(s) laser de soumettre l'ensemble de la documentation requise, y compris le product report, et de respecter toutes les exigences de déclaration et de tenue de registres imposées par la FDA avant toute revente ou mise sur le marché de l'équipement aux États-Unis.

2.1.3. Italian

Allo scopo di capire meglio il funzionamento di questa apparecchiatura vi consigliamo di leggere bene tutti i consigli di sicurezza e di funzionamento prima dell'utilizzo. 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**: Questo apparecchio non è adatto all'utilizzo da parte di bambini. 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. Questo apparato non è adatto all'utilizzo in luoghi dove ci siano presenti bambini.

• **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. Ciò potrebbe provocare un erroneo funzionamento e un incidente.

• **ALIMENTAZIONE**: Far funzionare l'apparecchiatura solo con la sorgente d'alimentazione indicata sull'apparecchiatura. Le apparecchiature queste devono essere obbligatoriamente collegate su una sorgente

fornita di una efficiente messa a terra. 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.



Per apparecchiature identificate con i simboli sopra, solo una persona abilitata è autorizzata a collegare o scollegare i cavi. Collegare la terra prima di collegarla all'alimentazione. Utilizzare un cavo di terra per mettere a terra la vite del telaio dell'unità.

• **CAVO DI ALIMENTAZIONE:** Il dispositivo è dotato di uno o più cavi di alimentazione removibile.



Un dispositivo identificato con il simbolo sopra indica che l'apparecchiatura dispone di più cavi di alimentazione. Per rimuovere le alimentazioni, una persona abilitata dovrà scollegare i cavi dalla presa di corrente.

Attenzione

i cavi di alimentazione sono l'unico di disconnettere l'apparecchio all'alimentazione.

Per dispositivo dotato di più cavi di alimentazione: per scollegare il prodotto staccare sempre ogni cavo di alimentazione dalla presa di corrente. Non è consentito utilizzare una ciabatta tra l'apparecchio e la presa a muro, poiché la disconnessione di più alimentatori allo stesso tempo potrebbe rendere accessibile una tensione pericolosa al connettore che è stato scollegato dalla presa a muro.

Seguire le istruzioni istruzioni seguenti:

- Il materiale collegato a residenza alla rete, deve avere un dispositivo di sezionamento facile da raggiungere e che deve essere inserito all'esterno del apparecchio.
- Scollegare l'apparecchiatura dalla presa a muro se si prevede di non utilizzarla per qualche giorno.
- Per disconnettere i cavi, tirare facendo forza sul connettore.
- La prese d'alimentazione deve trovarsi a prossimità dell'apparecchiatura ed essere facilmente accessibile.
- Non far cadere il cavo di alimentazione né appoggiarci sopra degli oggetti pesanti.

Se uno dei cavi di alimentazione é danneggiato, spegnere immediatamente l'apparecchiatura. E' pericoloso far funzionare questa apparecchiatura con un cavo di alimentazione danneggiati, un cavo graffiato può provocare un rischio di incendio o uno shock elettrico. Verificare i cavi di alimentazione spesso. Contattare il vostro rivenditore o il servizio assistenza per una sostituzione.

• **CONNESSIONE:** Tutti gli ingressi e le uscite (ad eccezione per l'ingresso di alimentazione) sono sorgenti di energia in classe 1 (ES1) come definito nelle normative IEC/UL 62368-1. Limiti ES1: 60Vdc or 30V rms/ 42.4V di picco.

• **RIPARAZIONI E ASSISTENZA:** Scollegare tutti i cavi di alimentazione dalle prese prima di fare manutenzione. In accordo alle normative IEC 62368-1, una persona abilitata è autorizzata a effettuare le seguenti operazioni :

- Aprire il pannello frontale e effettuare la pulizia dei filtri (dipende dal modello)

- Sostituire un alimentatore rimovibile (dipende dal modello)

I fusibili presenti nel dispositivo non sono stati progettati per essere sostituibili.

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 ciò può provocare all'utilizzatore un rischio di shock elettrico o altri rischi. La batteria al litio all'interno dell'apparato non è sostituibile. In caso di problemi contattare il fornitore o Analog Way.

• **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.

• **Modulo laser:** Informiamo i nostri clienti che qualsiasi acquisto di moduli laser destinati all'installazione in apparecchiature commercializzate negli Stati Uniti comporta l'obbligo di conformarsi alla normativa statunitense 21 CFR 1040, applicata dalla FDA CDRH. È responsabilità dell'organizzazione che utilizza uno o più moduli laser presentare tutta la documentazione richiesta, compresa la relazione sul prodotto, e rispettare tutti i requisiti di segnalazione e conservazione dei dati imposti dalla FDA prima di qualsiasi rivendita o commercializzazione delle apparecchiature negli Stati Uniti.

2.1.4. German

Um den Betrieb dieses Geräts zu verstehen, raten wir Ihnen vor der Inbetriebnahme alle Sicherheits- und Betriebsanweisungen genau zu lesen. Diese Sicherheits- und Betriebsanweisungen für einen späteren Gebrauch sicher aufbewahren. Alle in den Unterlagen, an dem Gerät und hier angegebenen Sicherheitsanweisungen einhalten.

• **ACHTUNG:** Nicht für Kinder geeignet. Um jegliches Risiko eines Stromschlags oder Feuers zu vermeiden, das Gerät nicht Regen, Feuchtigkeit oder intensiven Wärmequellen aussetzen. Dieses Gerät ist nicht geeignet, um in der Nähe von Kindern betrieben zu werden. Lassen Sie Kinder in der Nähe des Geräts nicht unbeaufsichtigt.

• **EINBAU:** Eine ausreichende Luftzufuhr sicherstellen, um jegliche Überhitzung im Gerät zu vermeiden. Das Gerät nicht auf und in Nähe von Textiloberflächen, die Belüftungsöffnungen verschließen können, aufstellen. 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.



Für Geräte, die mit den obigen Symbolen gekennzeichnet sind, darf nur eine unterwiesene Person das Gerät mit dem Stromnetz verbinden oder vom Stromnetz trennen. Zuerst das Gerät erden bevor die Spannungsversorgung hergestellt wird. Verwenden Sie Erdungskabel und eine Schraube auf der Rückseite des Gehäuses, um das Gerät zu erden.

NETZKABEL: Das Gerät ist mit ein oder mehrere lösbaren Netzkabel ausgestattet.



Ein mit dem obigen Symbol gekennzeichnetes Gerät weist darauf hin, dass das Gerät über mehrere Netzkabel verfügt. Um das Gerät vom Stromnetz zu trennen, muss eine unterwiesene Person alle Netzkabel am Geräteeingang abziehen.

Achtung

Die Netzkabel stellt die einzige Möglichkeit dar, das Gerät vollständig vom Netzanschluss zu trennen.

Bei Geräten mit mehreren Netzkabeln: Um das Gerät vom Stromnetz zu trennen, muss jedes Netzkabel am Geräteeingang abgezogen werden. Es ist nicht erlaubt, sie an einen Zwischenstecker oder Mehrfachsteckdose zwischen dem Produkt und der Steckdose in der Wand anzuschließen, die dazu verwendet werden könnten, mehrere Stromversorgungen zu trennen, was den Zugang zu stromführenden Teilen an der Stelle ermöglichen würde, an der die Stromversorgung unterbrochen wurde.

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 sein muss.
- Trennen Sie das Gerät vom Stromnetz, wenn es einige Tage oder länger nicht benutzt wird.
- Die Kabel mittels des Steckers 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 darauf stellen.

Wenn eines der Netzkabel 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. Die Stromkabel regelmäßig untersuchen. Für Ersatz wenden Sie sich an Ihren Verkäufer oder eine Kundendienststelle.

• **ANSCHLÜSSE:** Alle Eingänge und Ausgänge (ausgenommen der Stromversorgung) entsprechen der der ES1 Klassifizierung entsprechend der IEC/UL 62368-1. ES1 max. Auslegung: 60Vdc oder 20V rms / 42,4V Spitze.

• **REPARATUR UND WARTUNG:** Trennen sie alle Netzkabel vom Strom, bevor Sie eine Wartung oder andere Arbeiten am Gerät durchführen.

Gemäß der IEC 62368-1 Norm ist ein gewöhnlicher Nutzer autorisiert, einer unterwiesenen Person ist es erlaubt:

- die Gehäusefront zu öffnen und den Luftfilter zu reinigen (je nach Modell)
- Austauschen der herausnehmbaren Netzteile (hängt vom Modell ab)

Die im Gerät vorhandene(n) Sicherung(en) ist/sind nicht dafür ausgelegt, austauschbar zu sein.

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. Die im Gerät eingebaute Lithium Batterie ist nicht austauschbar. Im Falle eines Problems nehmen Sie Kontakt mit Ihrem Lieferanten auf oder an Analog Way.

• **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.

• **Lasermodul:** Wir weisen unsere Kunden darauf hin, dass jeder Kauf von Lasermodulen, die für den Einbau in in den Vereinigten Staaten vertriebene Geräte bestimmt sind, mit der Verpflichtung verbunden ist, die US-Vorschrift 21 CFR 1040 einzuhalten, wie sie von der FDA CDRH angewendet wird. Es liegt in der Verantwortung des Unternehmens, das ein oder mehrere Lasermodule verwendet, alle erforderlichen Unterlagen, einschließlich des Produktberichts, einzureichen und alle von der FDA auferlegten Melde- und Aufzeichnungspflichten zu erfüllen, bevor die Geräte in den Vereinigten Staaten weiterverkauft oder vermarktet werden.

2.1.5. Spanish

Para comprender mejor el funcionamiento de este aparato, le recomendamos que le acudadosamente todas las consignas de seguridad y de funcionamiento del aparato antes de usarlo. 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.

• **CAUIDADO:** No recomendado para niños. 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. Este equipo no es adecuado para su utilización en lugares donde haya niños.

• **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. Los aparatos deben estar conectados obligatoriamente a una fuente equipada con una puesta a tierra eficaz. 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.



Para equipos identificados con los símbolos anteriores, sólo una persona calificada está autorizada a conectar o desconectar el equipo. Conecte la toma de tierra antes de conectar el equipo al suministro eléctrico. Utilice un cable para conecta cualquier tornillo del chasis, con la toma de tierra de la instalación.

• **CABLE DE ALIMENTACION:** El equipo se suministra con uno o más cables de alimentación.



Un dispositivo identificado con el símbolo anterior indica que el equipo tiene más de un cable de alimentación. El apagado debe ser realizado por una persona cualificada desconectando todos los cables del dispositivo.

Atención

Los cables de alimentación constituyen el único medio de desconectar el aparato totalmente de la red eléctrica.

For equipment equipped with multiple power cords: To remove power from product, always disconnect each power cord at appliance inlet. It is not allowed to connect them to intermediate terminal between product and plug in the wall that could be used to disconnect several power supplies giving access to live parts at a point where mains was disconnected.

Para unidades con más de un cable de alimentación: para desconectar el equipo, siempre desconecte cada cable del conector de alimentación. No utilice una regleta para conectar cables entre el equipo y un enchufe, ya que desconectar varias fuentes de alimentación al mismo tiempo puede hacer accesible una tensión peligrosa en el conector que se ha desconectado del enchufe mismo.

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 los cables, tire de la clavija. No tire nunca de los cables propiamente dichos.
- El enchufes 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 ellos.

Si uno de cables 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 los cables 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 (excepto la entrada de corriente) son de nivel eléctrico clase 1 (ES1) tal como se define en la norma IEC / UL 62368-1. Límites de ES1 60 VCC ó 30 V rms / 42,4 V de pico.
- **REPARACIÓN Y MANTENIMIENTO:** Desconecte todos los cables de alimentación de la red eléctrica antes de realizar el mantenimiento.

De acuerdo con la norma IEC 62368-1, solo una persona cualificada está autorizada a realizar esta operación:

- Abrir la parte frontal del aparato y limpiar el filtro del aire (depende del modelo)
- Cambiar la fuente de alimentación extraíble (depende del modelo)

Los fusibles presentes en el dispositivo no han sido diseñados para ser reemplazables.

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. La batería interna de litio no es reemplazable. En caso de problema, contacte con su proveedor o Analog Way.

- **ABERTURAS Y ORIFICIOS:** Los aparatos pueden contener aberturas (aireación, ranuras, etc.).

No introduzcaNo 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.

• **Módulo láser:** Informamos a nuestros clientes que cualquier compra de módulos láser destinados a su instalación en equipos comercializados en los Estados Unidos implica la obligación de cumplir con la normativa estadounidense 21 CFR 1040, tal y como la aplica la FDA CDRH. Es responsabilidad de la organización que utilice uno o más módulos láser presentar toda la documentación requerida, incluido el informe del producto, y cumplir con todos los requisitos de notificación y mantenimiento de registros impuestos por la FDA antes de cualquier reventa o comercialización del equipo en los Estados Unidos.

2.1.6. Finnish

Kaikki turvallisuus- ja käyttöohjeet on luettava ennen tuotteen käyttöä, ja ne on säilytettävä lisätarvetta varten. Noudata kaikkia tämän tuotteen varoituksia ja sen käyttöohjeita.

- **VAROITUS:** Ei sovellu lapsille. Sähköiskun ja tulipalon vaaran estämiseksi älä altista tätä laitetta sateelle, kosteudelle tai voimakkaille lämmönlähteille (kuten lämmittimille ja suoralle auringonvalolle). Tämä laite ei sovellu käytettäväksi paikoissa, joissa on todennäköisesti lapsia.
- **ASENNUS:** Laitteen kotelon aukot on suunniteltu ilmanvaihtoa varten ja ylikuumenemisen välttämiseksi. Varmista, että ilmavirta aukoista ei ole estynyt. Varmista, että laitetta ei koskaan sijoiteta lähelle tekstiilipintaa, joka voi tukkia aukot. Pidä myös poissa liiallisesta pölystä, tärinästä ja iskuista.
- **VIRRANSYÖTTÖ:** Käytä vain virtalähteen ilmoittamaa virransyöttöä. Maadoituspistokkeella varustettuja laitteita tulee käyttää vain maadoitustyyppisen pistorasian kanssa. Tätä maadoitusta ei saa millään tavalla muuttaa, välttää tai tukahduttaa. Laitteiden kytkemisen pääsyöttöön on tapahduttava rakennuksen sulakkeen jälkeen.



Yllä olevilla symboleilla tunnistetuissa laitteissa vain opastettu henkilö saa kytkeä ja irrottaa verkkojohdon laitteesta. Maadoitus on pakollinen ennen pistokeliitäntää.

Liitä maadoituskaapelilla yksikön rungon ruuvi maahan.

- **VIRTAJOHTO:** Laitteen mukana toimitetaan yksi tai useampi irrotettava virtajohto.



Yllä olevalla symbolilla tunnistettu laite osoittaa, että laitteessa on useita virtajohtoja. Verkkovirran irrottamiseksi opastetun henkilön on irrotettava kaikki virtajohdot laitteen virtalähteestä.

Varoitus

Virtajohdot ovat ainoa tapa irrottaa laite kokonaan päävirrasta.

Laitteet, joissa on useita virtajohtoja: Jos haluat katkaista virran tuotteesta, irrota aina jokainen virtajohto laitteesta. Virtajohtoja ei saa kytkeä tuotteen ja seinässä olevan pistokkeen väliseen väliliittimeen, jota voidaan käyttää useiden virtalähteiden irrottamiseen, jotka antavat pääsyn jännitteisiin osiin kohdassa, jossa verkkovirta on irrotettu.

Käytä seuraavia ohjeita:

- Verkkoon liitetyissä laitteissa on oltava irroitusjärjestelmä, johon pääsee helposti käsiksi ja joka sijaitsee yksikön ulkopuolella.
 - Irrota virta verkkovirrasta, jos laite on poissa käytöstä useamman päivän.
 - Irrota virtajohdot; Älä vedä virtajohdoista, vaan aina pistokkeesta.
 - Pistorasian tulee aina olla laitteen lähellä ja helposti saatavilla.
 - Virtajohdot on reititettävä siten, että niiden päälle tai niitä vasten asetetut esineet eivät purista niitä.
- Jos jokin virtajohdoista on vaurioitunut, irrota laite pistorasiasta. Laitteen käyttäminen vaurioituneen virtajohdon kanssa voi altistaa laitteen sähköiskuille tai muille vaaroille. Tarkista virtajohtojen kunto säännöllisesti. Ota yhteyttä jälleenmyyjään tai huoltokeskukseen saadaksesi vaihdon, jos virtajohto on vaurioitunut.

• **LIITÄNNÄT:** Kaikki tulot ja lähdöt (paitsi tehonsyöttö) kuuluvat IEC/UL 62368-1:ssä määriteltyyn sähköenergiälähdeluokkaan 1 (ES1).

ES1-rajat: 60Vdc tai 30V rms / 42.4V huippu.

• **HUOLTO:** Irrota kaikki virtajohdot pistorasiasta ennen huoltoa.

IEC 62368-1 -standardin mukaan opastetulla henkilöllä on valtuudet:

- Avaa etupaneelin kaappi ja puhdista ilmansuodatin (mallista riippuen)
- Vaihda irrotettava virtalähde (mallista riippuen)

Laitteessa olevia sulakkeita ei ole suunniteltu vaihdettaviksi.

Älä yritä huoltaa tätä tuotetta itse avaamalla tai irrottamalla suojuksia ja ruuveja, koska se voi altistaa laitteen sähköiskuille tai muille vaaroille. Sisäistä litiumkennoakkua ei voi vaihtaa. Jos sinulla on ongelmia, ota yhteyttä tavaran toimittajaan tai Analog Way tuotetukeen.

• **AUKOT:** Älä koskaan työnnä minkäänlaisia esineitä tähän tuotteeseen aukkojen läpi. Jos nesteitä on roiskunut tai esineitä on pudonnut laitteeseen, irrota se välittömästi pistorasiasta ja anna pätevän teknikon tarkastaa se.

• **Lasermoduuli:** Tiedoksi asiakkaillemme, että kaikki laserkomponenttien ostot, jotka on tarkoitettu asennettaviksi Yhdysvalloissa myytäviin laitteisiin, edellyttävät FDA CDRH:n soveltaman Yhdysvaltain säännöksen 21 CFR 1040 noudattamista. Yhtä tai useampaa lasermoduulia käyttävän organisaation vastuulla on toimittaa kaikki vaaditut asiakirjat, mukaan lukien tuoteraportti, ja noudattaa kaikkia FDA:n asettamia raportointi- ja kirjanpito vaatimuksia ennen laitteiden jälleenmyyntiä tai markkinointia Yhdysvalloissa.

2.1.7. Swedish

Alla säkerhets- och driftsinstruktioner bör läsas innan produkten används och bör underhållas för vidare referens. Följ alla varningar på denna produkt och dess bruksanvisning.

• **VARNING:** Ej lämplig för barn. För att förhindra risken för elektriska stötar och brand, utsätt inte enheten för regn, fukt eller intensiva värmekällor (som värmare och direkt solljus). Denna utrustning är inte lämplig för användning på platser där barn sannolikt kommer att vara närvarande.

• **INSTALLATION:** Slitsar och öppningar i enheten är avsedda för ventilation och för att undvika överhettning. Se till att enheten aldrig placeras nära en textilyta som kan blockera öppningarna. Håll dig också borta från mycket damm, vibrationer och stötar.

• **POWER:** Använd endast den strömförsörjning som anges på enheten för strömkällan. Enheter utrustade med en jordad kontakt bör endast användas med ett jordat uttag. Denna jordning får inte på något sätt modifieras, undvikas eller undertryckas. Anslutning av utrustning till huvudförsörjningen måste ske efter grenbrytare i byggnadsinstallationen.



För utrustning som identifieras med symbolerna ovan får endast en instruerad person ansluta och koppla bort nätkabeln från enheten. Jordning är obligatorisk innan stickpropp ansluts.

Använd en jordkabel för att ansluta en skruv på enhetens chassi till jord.

• **STRÖMKABEL:** Enheten är utrustad med en eller flera löstagbara nätsladdar.



En enhet som identifieras med symbolen ovan indikerar att utrustningen har flera nätsladdar. För att ta bort strömmen ska en instruerad person koppla bort alla nätsladdar vid apparatens strömintag.

Försiktighet

Nätsladdarna utgör det enda sättet att helt koppla bort utrustningen från huvudströmmen.

För utrustning utrustad med flera nätsladdar: För att ta bort strömmen från produkten, koppla alltid ur varje nätsladd vid apparatens inlopp. Det är inte tillåtet att ansluta dem till en mellanterminal mellan produkten och kontakten i väggen, som kan användas för att koppla bort flera nätaggregat som ger tillgång till spänningsförande delar vid en punkt där elnätet var fränkopplat.

Använd följande riktlinjer:

- Utrustningen som är ansluten till nätverket måste ha ett frigöringssystem som är lättillgängligt och placerat utanför enheten.
- Koppla bort strömmen från elnätet om enheten inte används på några dagar eller mer.
- För att dra ur nätsladdarna; Dra inte i nätsladdarna utan alltid i själva kontakten.
- Uttaget ska alltid vara nära enheten och lättillgängligt.
- Nätsladdar ska dras så att de inte kan trampas på eller klämmas av föremål som placeras på eller mot dem.

Om en av nätsladdarna är skadad, koppla ur enheten. Om du använder enheten med en skadad nätsladd kan enheten utsättas för elektriska stötar eller andra faror. Kontrollera skicket på nätsladdarna med jämna mellanrum. Kontakta din återförsäljare eller servicecenter för utbyte om den är skadad.

• **ANSLUTNINGAR:** Alla in- och utgångar (förutom strömingången) är elektrisk energikälla klass 1 (ES1) enligt definitionen i IEC/UL 62368-1.

ES1-gränser: 60Vdc eller 30V rms/ 42.4V topp.

• **SERVICE:** Koppla bort alla nätkablar från elnätet före service.

Enligt IEC 62368-1-standarden är en instruerad person behörig att:

- Öppna skåpet på frontpanelen och rengör luftfiltret (beroende på modell)
- Byt en löstagbar strömkälla (beroende på modell)

Säkringen/säkringarna som finns i enheten har inte utformats för att vara utbytbara.

Försök inte serva denna produkt själv genom att öppna eller ta bort lock och skruvar eftersom det kan utsätta din enhet för elektriska stötar eller andra faror. Det interna litiumcells batteriet är inte utbytbar. Vid problem, kontakta din leverantör eller Analog Way.

• **ÖPPNINGAR:** Skjut aldrig in föremål av något slag i denna produkt genom öppningarna. Om vätskor har spillts eller föremål har fallit in i enheten, koppla ur den omedelbart och låt en kvalificerad tekniker kontrollera den.

• **Lasermodul:** Vi informerar våra kunder om att alla inköp av lasermoduler avsedda för installation i utrustning som marknadsförs i USA medför en skyldighet att följa den amerikanska förordningen 21 CFR 1040, som tillämpas av FDA CDRH. Det är organisationens ansvar som använder en eller flera lasermoduler att lämna in all nödvändig dokumentation, inklusive produktrapporten, och att följa alla rapporterings- och dokumentationskrav som FDA ställer innan utrustningen säljs vidare eller marknadsförs i USA.

2.1.8. Norwegian

Alle sikkerhets- og bruksanvisninger bør leses før produktet tas i bruk og bør vedlikeholdes for videre referanse. Vennligst følg alle advarslene på dette produktet og bruksanvisningen.

- **ADVARSEL:** Ikke egnet for barn. For å unngå fare for elektrisk støt og brann, må du ikke utsette denne enheten for regn, fuktighet eller intense varmekilder (som varmeovner og direkte sollys). Dette utstyret er ikke egnet for bruk på steder der det er sannsynlig at barn er til stede.
- **INSTALLASJON:** Spor og åpninger i enheten er gitt for ventilasjon og for å unngå overoppheting. Pass på at enheten aldri plasseres i nærheten av en tekstiloverflate som kan blokkere åpningene. Hold deg også unna mye støv, vibrasjoner og støt.
- **STRØM:** Bruk kun strømforsyningen som er angitt på enheten til strømkilden. Enheter utstyrt med jordingsplugg skal kun brukes med en jordet stikkontakt. Denne jordingen skal på ingen måte endres, unngås. Tilkobling av utstyr til hovedforsyning må skje etter grenbryteren til bygningsinstallasjonen.



For utstyr identifisert med symbolene ovenfor, er det kun en instruert person som har lov til å koble til og fra strømkabelen fra enheten. Jording er obligatorisk før pluggtilkobling.

Bruk en jordingskabel for å koble en skrue på enhetens chassis til jord.

- **STRØMLEDNING:** Enheten er utstyrt med en eller flere uttrekkbare strømledninger.



En enhet identifisert med symbolet ovenfor indikerer at utstyret har flere strømledninger. For å fjerne strømnettet, skal en instruert person koble fra alle strømledninger ved apparatets strøminntak.

Forsiktig

Strømledningene utgjør den eneste måten å koble utstyret helt fra hovedstrømmen.

For utstyr utstyrt med flere strømledninger: For å fjerne strømmen fra produktet, koble alltid fra hver strømledning ved apparatets inntak. Det er ikke tillatt å koble dem til mellomterminalen mellom produktet og pluggen i veggen, som kan brukes til å koble fra flere strømforsyninger som gir tilgang til strømførende deler på et punkt der strømnettet var frakoblet.

Bruk følgende retningslinjer:

- Utstyret som er koblet til nettverket må ha et utlørsystem som er lett tilgjengelig og plassert utenfor enheten.
- Koble strømmen fra strømnettet hvis enheten ikke brukes på noen dager eller mer.
- For å koble fra strømledningene; Ikke trekk i strømledningene, men alltid i selve støpselet.
- Stikkkontakten skal alltid være i nærheten av enheten og lett tilgjengelig.
- Strømledninger bør legges slik at de ikke kan bli tråkket på eller klemmt av gjenstander plassert på eller mot dem.

Hvis en av strømledningene er skadet, kobler du fra enheten. Bruk av enheten med en skadet strømledning kan utsette enheten for elektrisk støt eller andre farer. Kontroller tilstanden til strømledningene med jevne mellomrom. Kontakt din forhandler eller servicesenter for utskifting hvis den er skadet.

• **TILKOBLINGER:** Alle innganger og utganger (unntatt strøminngangen) er elektrisk energikilde klasse 1 (ES1) som definert i IEC/UL 62368-1.

ES1-grenser: 60Vdc eller 30V rms / 42.4V topp.

• **SERVICE:** Koble alle strømledninger fra strømnettet før service.

I henhold til IEC 62368-1-standard er en instruert person autorisert til å:

- Åpne frontpanelskapet og rengjør luftfilteret (avhengig av modell)
- Bytt en avtakbar strømforsyning (avhengig av modell)

Sikringen(e) i enheten er ikke designet for å kunne byttes ut.

Ikke forsøk å utføre service på dette produktet selv ved å åpne eller fjerne deksler og skruer, siden det kan utsette enheten for elektrisk støt eller andre farer. Det interne litiumcellebatteriet kan ikke byttes ut. Hvis det oppstår et problem, kontakt din leverandør eller Analog Way.

• **ÅPNINGER:** Skyv aldri gjenstander av noe slag inn i dette produktet gjennom åpningene. Hvis det har blitt sølt væske eller gjenstander har falt inn i enheten, må du umiddelbart koble den fra og få den kontrollert av en kvalifisert tekniker.

• **Lasermodul:** Vi informerer våre kunder om at ethvert kjøp av lasermoduler beregnet for installasjon i utstyr som markedsføres i USA medfører en forpliktelse til å overholde amerikansk forskrift 21 CFR 1040, som anvendes av FDA CDRH. Det er ansvaret til organisasjonen som bruker en eller flere lasermoduler å sende inn all nødvendig dokumentasjon, inkludert produktrapporten, og å overholde alle rapporterings- og dokumentasjonskrav som er pålagt av FDA før videresalg eller markedsføring av utstyret i USA.

2.1.9. Symbols on product identification and warning labels



 ATTENZIONE RISCHIO DI SCOSSE ELETTRICHE DOVUTE ALL'ENERGIA IMMAGAZZINATA NEI CONDENSATORI. ATTENDERE 2 MINUTI DOPO LA DISCONNESSIONE DELLE SPINE.  ATTENZIONE: ALTA CORRENTE DI CONTATTO. COLLEGARE LA TERRA PRIMA DI COLLEGARLA ALL'ALIMENTAZIONE.	 CUIDADO RIESGO DE DESCARGA ELÉCTRICA POR CORRIENTE ALMACENADA EN LOS CONDENSADORES. ESPERE 2 MINUTOS DESPUES DE HABER DESCONECTADO EL EQUIPO DE LA CORRIENTE ELÉCTRICA.  CUIDADO: POSIBLE CORRIENTE POR DERIBACIÓN. CONECTE LA TOMA DE TIERRA ANTES DE CONECTAR EL EQUIPO AL SUMINISTRO ELÉCTRICO.
 VAROITUS SÄHKÖISKUN VAARA KONDENSAATTORIEIHIN VARASTOIDUSTA ENERGIASTA. ODOTA 2 MINUUTTIA PISTOKKEIDEN IRROTTAMISEN JÄLKEEN.  VAROITUS: LIITÄ MAADOITUS ENNEN LIITTÄMISTÄ VIRTALÄHTEESEEN.	 VARNING RISK FÖR ELEKTRISKA STÖTAR PÅ GRUND AV ENERGI SOM LAGRAS I KONDENSATORER. VÄNTA I 2 MINUTER EFTER ATT PLUGGARNÄ KOPPLATS BORT.  FÖRSIKTIGHET: ANSLUT JORD INNAN DU ANSLUTER TILL MATNINGEN
 ADVARSEL FARE FOR ELEKTRISK STØT FRA ENERGI LAGRET I KONDENSATORER. VENT I 2 MINUTTER ETTER AT PLUGGENE ER KOBLET FRA.  FORSIKTIGHET: KOBLE TIL JORD FØR DU KOBLER TIL STRØMFORSYNINGEN.	
CAUTION ATTENTION  ELECTRICAL SHOCK HAZARD. DISCONNECT ALL POWER SOURCES TO REMOVE POWER FROM EQUIPMENT  RISQUE DE CHOC ELECTRIQUE. DEBRANCHER TOUS LES CORDONS POUR COUPER L'ALIMENTATION	VORSICHT  GEFAHR DURCH ELEKTRISCHEN SCHLAG. TRENNEN SIE ALLE NETZKABEL, UM DIE SPANNUNGSVERSORGUNG VOLLSTÄNDIG ZU UNTERBRECHEN. 
ATTENZIONE  RISCHIO DI SCOSSE ELETTRICHE. SCOLLEGARE TUTTE LE FONTI DI ALIMENTAZIONE PER RIMUOVERE L'ALIMENTAZIONE DALL'APPARECCHIATURA. 	CUIDADO  PELIGRO DE DESCARGA ELÉCTRICA: DESCONECTE TODOS LOS CABLES DE ALIMENTACIÓN DE LOS EQUIPOS, PARA EVITAR POSIBLES DESCARGAS ELÉCTRICAS. 
VAROITUS  SÄHKÖISKUN VAARA. IRROTA KAIKKI VIRTALÄHTEET VIRRRAN POISTAMISEKSI LAITTEESTA. 	FÖRSIKTIGHET  FARE FOR ELEKTRISK STØT. KOBLE FRA ALLE STRØMKILDER FOR Å FJERNE STRØMMEN FRA UTSTYRET. 
FÖRSIKTIGHET  RISK FÖR ELEKTRISKA STÖTAR. KOPPLA BORT ALLA STRÖMKÄLLOR FÖR ATT TA BORT STRÖMMEN FRÅN UTRUSTNINGEN. 	



Caution, risk of electric shock



Caution, risk of electric shock



Protective earth



Disconnection, all power plugs



Alternating current

All power sources shall be disconnected before servicing to avoid shock hazard.

The protective conductor (PE) should be connected first to main protective earthing terminal before connecting the line and neutral.

Connect an earth terminal to the ground.

All power sources shall be disconnected before servicing to avoid shock hazard.

The equipment is suitable for alternating current only.



Caution



Caution, moving fan blades

The current situation needs operator awareness or operator action in order to avoid undesirable consequences.

Keep away from moving fan blades.

Waste Electrical and Electronic Equipment (WEEE) Directive



In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

Directive sur la mise au rebut des appareils électriques et électroniques (Waste Electrical and Electronic Equipment - WEEE)



Dans l'Union européenne, cette étiquette indique que ce produit ne doit pas être jeté avec les déchets ménagers. Il doit être déposé à un site de récupération et de recyclage.

Richtlinie über Elektro- und Elektronik-Altgeräte (WEEE)



In der Europäischen Union wird mit diesem Etikett darauf hingewiesen, dass dieses Produkt nicht mit dem Hausmüll entsorgt werden darf. Es muss bei einer entsprechenden Einrichtung zum Recycling abgegeben werden.

Direttiva Rifiuti di apparecchiature elettriche ed elettroniche (RAEE)



Nell'Unione Europea, questa etichetta indica che il presente prodotto non deve essere smaltito insieme ai rifiuti domestici. Deve essere depositato in un impianto adeguato per consentirne il recupero e il riciclaggio.

Waste Electrical and Electronic Equipment Directive (Directiva sobre Residuos de aparatos eléctricos y electrónicos - WEEE)



En la Unión Europea, esta etiqueta indica que la eliminación de este producto no se puede hacer junto con el desecho doméstico. Debe depositarse en instalaciones adecuadas para permitir la recuperación y el reciclaje.

Sähkö- ja elektroniikkalaiteromudirektiivi (Waste Electrical and Electronic Equipment - WEEE)



Euroopan unionissa tämä merkintä osoittaa, että tätä tuotetta ei saa hävittää kotitalousjätteen mukana. Se tulee sijoittaa asianmukaiseen laitokseen hyödyntämistä ja kierrätystä varten.

Direktivet om avfall från elektrisk och elektronisk utrustning (Waste Electrical and Electronic Equipment - WEEE)



I Europeiska unionen indikerar denna etikett att denna produkt inte ska slängas med hushållsavfallet. Den bör deponeras på en lämplig anläggning för att möjliggöra återvinning och återanvändning.

Direktivet om avfall fra elektrisk og elektronisk utstyr (Waste Electrical and Electronic Equipment - WEEE)



I EU indikerer denne etiketten at dette produktet ikke skal kastes sammen med husholdningsavfallet. Den bør deponeres på et egnet anlegg for å muliggjøre gjenvinning og resirkulering.

2.1.10. Environmental specifications for all Aquilon models

Cmini

- Dimensions without rack mount and handles: W 439.8 x H 133 x D 700 mm
- Dimensions with rack mount and handles: W 482.4 x H 133 x D 701 mm
- Product Weight (fully loaded): 26.4kg
- Max consumption (fully loaded): 610W

RS alpha, RS1, RS2 and C

- Dimensions without rack mount and handles: W 439.8 x H 177 x D 700 mm
- Dimensions with rack mount and handles: W 482.4 x H 177 x D 701 mm
- Product Weight: **RS alpha**: 23.8kg – **RS1**: 26.1kg – **RS2**: 28.2kg - **C** (fully loaded): 31.5kg
- Max consumption: **RS alpha**: 400W – **RS1**: 540W – **RS2**: 700W - **C** (fully loaded): 740W

RS3, RS4 and C+

- Dimensions without rack mount and handles: W 439.8 x H 221.2 x D 700 mm
- Dimensions with rack mount and handles: W 482.4 x H 221.2 x D 701 mm
- Product Weight: **RS3**: 35.3kg – **RS4**: 37.3kg – **C+** (fully loaded): 38.9kg
- Max consumption: **RS3**: 850W – **RS4**: 1010W – **C+** (fully loaded): 1050W

RS5, RS6 and Cmax

- Dimensions without rack mount and handles: W 439.8 x H 264 x D 700 mm
- Dimensions with rack mount and handles: W 482.4 x H 264 x D 701 mm
- Product Weight: **RS5**: 42kg – **RS6**: 43.8kg – **Cmax** (fully loaded): 45kg
- Max consumption: **RS5**: 1050W – **RS6**: 1300W – **Cmax** (fully loaded): 1500W

General

- Cooling air flows from front side to rear
- Operating temperature: 0 to +40°C / +32°F to +104°F
- Operating humidity: 10 to 80% (non-condensing)
- Storage temperature: -10 to +60°C / +14°F to +140°F
- Storage humidity: 0 to 95% RH (non-condensing)
- Input voltage range: 100-240 VAC autosensing, 50/60 Hz 12-5A

Safety standard

- IEC/EN/UL 62368-1
- CSA C22.2#62368-1

Electromagnetic compatibility

- EN55032
- EN55035
- EN61000
- FCC Part 15
- ICES

Environment

- RoHS
- WEEE

 Caution

Should the unit lose power unexpectedly; unsaved settings may be lost.

2.1.11. UPS compatibility

Aquilon units are only compatible with online (or double conversion) Uninterruptible Power Supply systems (UPS) with no switching delay. Offline and Inline UPS are not supported.

2.2. Package Contents

The Aquilon sales package includes:

- One Aquilon unit
- Two or Three power cords depending on the Aquilon model
- One Rackmount kit
- One Ethernet cable
- One Quick start guide



For the latest versions of the User manual and Quick start guide

See www.analogway.com [http://www.analogway.com/].

2.3. Rack mount information

All Aquilon units are equipped with 4 handy anti-slip rubber feet and can be used directly on a table.



Anti-theft system

All units are equipped with a standard Kensington® security slot (7x3 mm).



For rack mount installation guide

See document *LivePremier – Rack mount* attached to this manual or check on www.analogway.com [http://www.analogway.com/].

3. Introducing Aqilon

Good to know

Aqilon can process up to 160 Megapixels throughput at 10 bits 4:4:4 @60Hz without any limitation of pixel canvas size.

3.1. Modular architecture

Aqilon is designed to be modular. Input and Output cards can be configured to match source and display requirements.

The Aqilon product range includes seven fixed (preconfigured) models and four customizable models:

Aqilon family

Aqilon Models	4K60p inputs ¹	4K60p outputs	Max 4K60p PGM outputs	Max 4K60p mixer layers ²	Simultaneous 4K image channels	Rack units
RS alpha	8	4	4	4	12	4RU
RS1	16	8	4 + 4 Aux	4	12	4RU
RS2	16	12	8 + 4 Aux	8	12	4RU
RS3	24	12	8 + 4 Aux	8	24	5RU
RS4	24	16	12 + 4 Aux	12	24	5RU
RS5	32	16	12 + 4 Aux	12	24	6RU
RS6	32	20	16 + 4 Aux	16	24	6RU
Cmini	0 to 8	0 to 12	4 + 8 Aux	up to 4	up to 12	3RU
C	0 to 16	0 to 16	8 + 8 Aux	up to 8	up to 12	4RU
C+	4 to 24	4 to 20	12 + 8 Aux	up to 12	up to 24	5RU
Cmax	4 to 32	4 to 24	16 + 8 Aux	up to 16	up to 24	6RU

¹ doubled for 2K/DL with 8-plug input card

² doubled for 2K/DL

Custom Unit

A fixed unit that has been modified becomes a Custom unit. For more information on input / output cards see  Input / Output cards. ^[p.36]

5K & 8K

- All Aquilon products support a resolution of 5120 x 2880 allowing 2 x 5K mixer layers (or 2 pairs of 5K split layers) spread over 2 x 5K outputs par VPU and 6 x 5K images par IPU). For more information see [📖How many VPUs per model?](#) ^[p.70]
- The DP connectors support up to 8K@30Hz, allowing use of ultra-wide formats with Reduced Blanking. For more information see [📖Aquilon concepts](#) ^[p.61]

Tip

Use Link to combine up to 4 devices of any type and size, multiplying the number of inputs and outputs but managing it as a single system. See [📖Appendix: LINK](#) ^[p.205].



TAA Compliance: This product is manufactured in France, a TAA-designated country, and is fully compliant with the Trade Agreements Act (17 U.S.C. & 2501-2581).

3.2. Supported formats and rates

Aquilon supports a wide range of formats and rates including custom formats which can be created directly in the user interface.

- Max horizontal timings: 16384 pixels
- Max vertical timings: 8192 lines
- Max frequency/rate: 144Hz for Inputs, Outputs and Internal rate.

More information on custom formats

See [📖Formats and EDID](#) ^[p.133].

Note

- Format with rates above 60Hz may not be supported by devices and accessories other than Aquilon devices (ex: DPH104, HDMI™ over fiber extenders, etc.).
- Maximal timings are only supported with DP 1.4 bandwidth.

3.3. Front panel

It is composed of one OLED display, two USB ports, three buttons (Power, Enter and Exit) and a coder.

The front panel can be used for admin features or information:

- Firmware update
- Network settings
- Import/Export configuration
- Factory Reset and Status check.

Front Panels



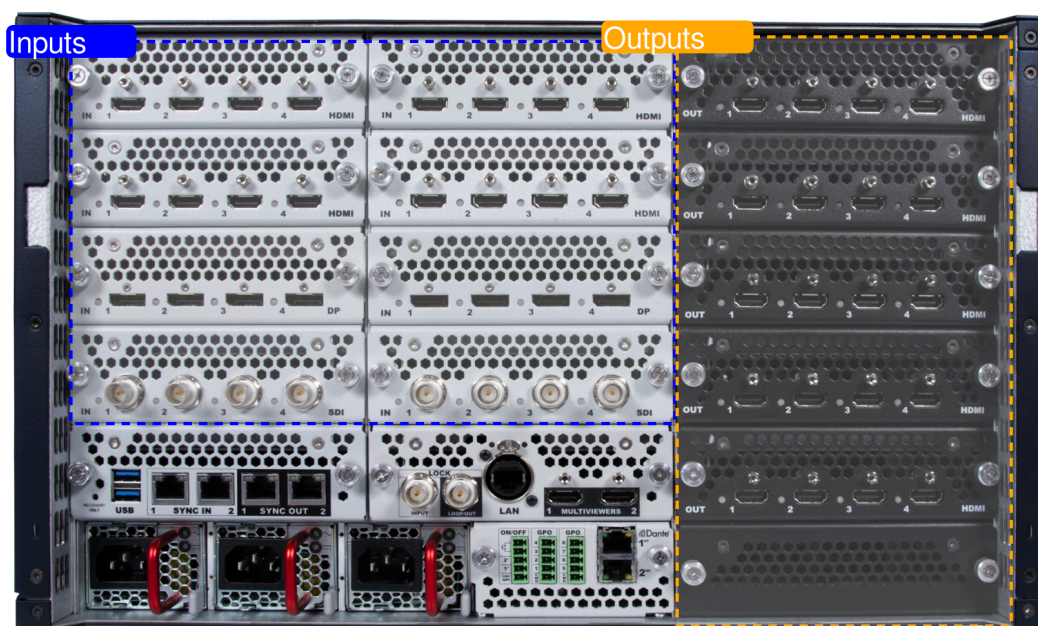
The front panel displays information such as device IP address, firmware version, or CPU and GPU status.

- Turn the coder to wake the display and select Status to show device information.
- Turn again to cycle through the following pages.

The display automatically goes off after 3 minutes of inactivity.

3.4. Rear panels

Aquila rear panel (Cmax):





Virtual panel with Input / Output numbers (Aqilon RS4)

3.5. Input / Output cards

Input and output cards have different sizes and colors:

- silver for inputs
- black for outputs

They can be replaced on field, using dedicated slots (see [Rear panels](#) ^[p.35]).

3.5.1. Available cards

Input / output cards

- Four connectors cards

One connector represents one input / output, supporting formats:

- up to 4K@60Hz 4:4:4
- or
- 2560x1600@144Hz

- ST 2110 cards

Two modules card with 2x 25GbE SFP network connectors each (primary and secondary for redundancy), supporting ST 2110 streams 4:2:2 10bit:

- input formats:
 - up to 4x UHD@60
 - or
 - 8 FullHD@60 streams (or a combination of 2x UHD@60 + 4x FullHD@60)
- output format: up to 4x UHD@60 streams
- up to 4 audio channels per stream

Additional input cards

- IP/SDI card

Integrates two types of connectors allowing:

- up to four NDI streams on one RJ45 connector, supporting formats up to UHD@60Hz 4:2:2 with alpha channel or
- any (up to four) combination of NDI streams and 12G-SDI inputs (one per connector)

- 8-plug HDMI™

- 8 video signals in parallel, supporting formats: up to 4K@30Hz or up to 2560x1600@60Hz, with two deinterlacers (inputs 1 and 5)
- 4 audio channels per input
- Requires firmware version 4.0

- 8-plug SDI

- 8 video signals in parallel, supporting full HD format @60Hz or 4x UHD@60 signals on bottom connectors or mixed formats such as 2x UHD@60 and 4x Full HD@60
- Up to 4 audio channels per input
- Requires firmware version 6.1

Other cards

- Link Connector

Can interconnect up to 4 devices and manage them as a single unit, making possible to share up to 8 x 4K@60Hz inputs or 16 x DL@60Hz inputs between the units

Aquilon optional input and output cards

Option	Description
Input and output cards	
Four connectors	4 x DisplayPort 1.2 ¹
	4 x HDMI™ 2.0
	4 x HDMI™ 2.0 over optical fiber
	4 x 12G-SDI ²
	4 x 12G-SFP non MSA ³
	4 x SDVoE (AV over IP)
ST 2110	2x 25GbE SFP ⁴
	2x 25GbE SFP ⁴
Additional input cards	
IP/SDI	1 x 2.5GbE RJ45 ⁵
	4 x 12G-SDI

8-plug HDMI™	8 x HDMI™ 1.4 ⁶
8-plug SDI	4 x 12G-SDI (odd numbered connectors) 4 x 3G-SDI
Others	
Link Connector	6 x 40G QSFP+ modules ⁷
Filler	Filler input card or Filler output card

Aquilon optional input and output cards

¹ Supports DP 1.4 bandwidth formats without DSC (Display Stream Compression) on plug 1 and 3.

² 12G-SDI is fully compatible with 3G-SDI and 6G-SDI.

³ 12G-SFP input and output cards can receive SFP modules either for SDI over Fiber or for SDI over IP / SMPTE.

⁴ Compatible with NMOS and PTP network synchronization

⁵ Compatible with 1GbE.

⁶ Supports SDR input signals only (convertible internally to HDR10 or HLG).

⁷ Works with DAC cables.

Audio rate

Default audio rate of Aquilon is 48 kHz. It is possible to set input and output channels at 96 kHz via external Dante controller.

12G SDI, 12G SFP and ST 2110 cards are not compatible with 96kHz audio rate.

For more information, visit [our website \[https://www.analogway.com\]](https://www.analogway.com) or contact Analog Way support.

3.5.2. Change an input / output card

Installation rules:

- Cards must be installed from top to bottom.
(Inputs and outputs are numbered in rows from left to right and from top to bottom (see  Rear Panel [p.35]).
- Aquilon units must have 2, 4 or 6 input cards (no odd numbers).
- Empty input / output card slots must be protected by Filler input / output cards to avoid long-term damage.

Tools required:

One cross-head screwdriver

 Warning

- Do not remove cards other than input, output or control cards.
- Do not replace input cards with output cards and vice versa.
- Do not force cards elsewhere than their dedicated slots.

Prerequisite

The unit must be turned off and disconnected from power.

Input / output cards are NOT hot-swappable.

Procedure

1. Turn off the Aquilon unit and disconnect all power supply.
2. Locate the card to change.
3. Loosen the screws on both sides of the card, use the screwdriver if needed.
4. Carefully place the card in the provided slot.
5. Put the new card in place, keep a straight axis and pay attention to the rails.
6. Push the new card until mechanical stop to ensure the connection is correct.
7. Tighten the screws on both sides of the card, use the screwdriver.
8. Reconnect the power supplies and turn on the Aquilon unit.
9. Open the Web RCS to check the new card is correctly installed.
10. Update the Aquilon unit if needed.

Comments

- Link Connector card must be installed in the last output slot at the bottom of the chassis.
- Installing or replacing an 8-plug HDMI[™] or an 8-plug SDI card requires changing the inputs numbering and rebooting the system.

3.6. Fixed parts

The following parts are fixed and available on all Aquilon units (except the second Power supply unit on 4RU units).

Warning

All parts other than input, output and control cards are fixed and should not be removed.



Fixed parts on all Aquilon units

3.6.1. Optional control card with DisplayPort Multiviewer outputs

Warning

- Changing the control card also changes the device configuration. If needed, export a configuration to recover it after the update (see [☑ Save / Reset / Load Configuration](#) ^[p.57]).
- The control card is NOT hot swappable. The unit must be turned off and disconnected from power.
- Do not force cards in places other than slots specified in [☑ Aquilon rear panel \(Cmax\)](#) ^[p.35].

The control card with DisplayPort Multiviewer outputs is available as an option or an accessory. An Aquilon device can be equipped with two DisplayPort 1.2 Multiviewer outputs instead of the HDMI™ 2.0 plugs. These DisplayPort plugs support the DPH104 and can feed up to eight Full HD displays.

To change the control card, follow the same procedure as [☑ Change an input / output card](#) ^[p.38].

More information about setting DPH104 on a Multiviewer output

See [☑ Set a DPH104 for a Multiviewer DP output](#) ^[p.77].

3.6.2. USB and sync ports

All Aquilon units are equipped with four USB ports (two on the front panel, two on the rear panel). The sync ports can be used to synchronize Aquilon units with other devices.

Note

All sync ports are independent and can be used equally.

3.6.3. Optional Sync SFP card

Equipped with two SFP cages, it is designed to host 1Gb SFP modules for long-distance multi-unit synchronization (up to 2 km / 1,2 mile) or RJ45 copper cable for distance up to 100 m / 328 feet.

An RJ45 port can be used to provide network remote control redundancy (LAN 2).

One USB 3.0 port.

3.6.4. Framelock

A Framelock is used to synchronize the frame rate of multiple devices with a physical connection.

- The Framelock input is used to synchronize the Aquila unit with an external reference.
- The Framelock loop out connector is then used to forward the sync signal to other devices.
- The Framelock loop out connector can also be used alone (as a sync signal generator for other devices).

3.6.5. GPIO

All Aquila units are equipped with 3x MCO 5 pin connectors:

- 1x On/Off
- 2x GPI
- 8x GPO



More information on GPIO settings

See GPIO [p.142].

3.6.6. Dante audio connectors

All Aquila units are equipped with two dedicated Dante connectors to support up to 64 (8x8) audio input channels and 64 (8x8) audio output channels at 48 kHz (default rate) or 32 input and 32 output channels at 96 kHz (rate set via external Dante controller).

Dante audio can only be controlled from the Dante ports used as primary & secondary connections.

The Dante network is a network dedicated to audio and separated from the Aquila network.



More information on Audio settings

See Audio.

3.6.7. Power supply units (PSU)



Recommendation

Use all powers supply units to optimize performance and redundancy.

Aquilon units are equipped with:

- 2 PSUs for 3RU and 4RU units.
- 3 PSUs for 5RU units and 6RU units.

In nominal use there is power load balancing between the PSUs for optimized performance.

One PSU can fail without impacting performance (redundancy 1+1 or 2+1).

A 5RU and a 6RU Aquilon units cannot function with only one PSU working.

3.6.7.1. Power supply compatibility

Caution

- Use only power supplies provided or recommended by Analog Way.
- Ensure that all power supplies present on the unit are of the same type (type 1 or type 2). Contact technical support in case of a doubt.
- Do not use different types of power supplies in the same unit as it may damage the unit.

Because the Aquilon is modular, the power supplies can be removed and swapped between units.

However, the Aquilon product line uses two different models for the power supplies (type 1 and type 2).

Please note that they are not compatible with each other.

3.6.7.2. Power supply noise on standby

When an Aquilon unit is connected to power, some power supply fans will start running to cool down. Please note that this noise is normal even if the unit is on standby.

3.6.7.3. Power supply noise on start up

When starting the Aquilon, some power supplies might be noisy depending on the reference. Please note that this noise is normal though it should not exceed 20 seconds. If needed, Power supplies status can be checked in the Web RCS.

More information

See  Power ^[p.54].

3.7. Accessories

For more information visit <https://www.analogway.com> or contact Analog Way support.

3.7.1. HDMI™ 2.0 over fiber extenders – Transmitter and Receiver



HDMI™ 2.0 over fiber extender

The extenders are designed to transfer HDMI™ 2.0 signal with embedded audio over one multimode fiber cable. One extender cable supports resolutions up to 4K@60Hz or custom formats such as 8192x1080@60Hz.

Max distance: 1200m / 3900ft. for Full HD - 600m / 2000ft. for 4K@60Hz.

3.7.2. Rack-mountable power tray for optical extenders



Power tray for optical extenders (ex: Neutrik OpticalCON Duo)

There are three types of power trays with different connectors:

- 4x Neutrik opticalCON Duo + 8 slots for HDMI™ 2.0 over fiber extenders
- 4x Neutrik opticalCON Quad + 16 slots for HDMI™ 2.0 over fiber extenders
- 8x SC Duplex + 16 slots for HDMI™ 2.0 over fiber extenders

The power tray is a 1RU size housing accessory which can enclose up to 8 or 16 extenders, also providing power source for every installed device. The optical fibers are connected to the Neutrik opticalCON Duo, Neutrik opticalCON Quad, or SC Duplex connectors each carrying signal fibers from the extenders. The HDMI™ tail cables of the extenders are accessible directly at the back of the power tray.

3.8. Precautions when mounting an Aquilon unit

Warning

- For safety reasons, it is recommended to earth the unit. Use an earth cable (not provided) to earth a screw of the unit's chassis.
- Follow these precautions to avoid risks for products and users.
- Do not put a magnetic plate in contact with the upper part of the unit as it may block the fans of the unit.

When mounting the Aquilon unit, ensure proper air flow and consider the following points on safe use:

- Always use the handles built on the sides of the chassis for easy mounting into any standard rack or flight case.
- Remove the front and back panels of the flight case during operation to provide enough air flow through the unit and prevent overheating.
- Place the unit preferably in a cool and dry environment.
- The fans inside the unit draw in the air through the front panel and expel the heat through the rear panel. Therefore, it is crucial that both the front and the rear are always unobstructed. A minimum of 50 cm (20 in.) of clear space at the front and rear of the unit is recommended.
- Do not block the ventilation.
- Do not attach any stickers on the rear panel.
- Do not place any fluid above or near the unit.
- Do not place any magnetic equipment on or near the unit.
- Do not apply any pressure against the chassis or the connectors.

3.9. Powering on and off

3.9.1. Start the Aquilon unit

To safely start the Aquilon unit:

1. Connect all inputs and outputs.
2. Connect the power cables to the unit and then plug them into a mains socket.
3. Press the Power button on the front panel.

3.9.2. Power off the Aquilon unit

Tip

Saving the configuration before powering off is not necessary. The unit saves the current configuration in real time.

The following procedure is the recommended method to safely turn off the Aquilon unit:

- Press the Power button then press the Enter button to confirm.

3.9.3. Forced shutdown

Caution

Use forced shutdown only if the unit has crashed. Using forced shutdown regularly is not recommended.

If the Aquilon unit crashed, turn off the power by Forced shutdown:

- Press and hold the Power button on the front panel until shutdown.

3.10. Firmware update

It is possible to update the firmware from the front panel using a USB drive.

1. Load the updater file on a USB drive (root).
2. Connect the USB drive to the front panel.

The Aquilon unit automatically detects updater files on the USB drive.

If the updater file is not detected, go to **Control > Scan USB** device using the front panel buttons.

3. Select **OK** to continue.
4. The available updater files are displayed, select a file.
The updater files are extracted and verified.
5. Select **Update**.

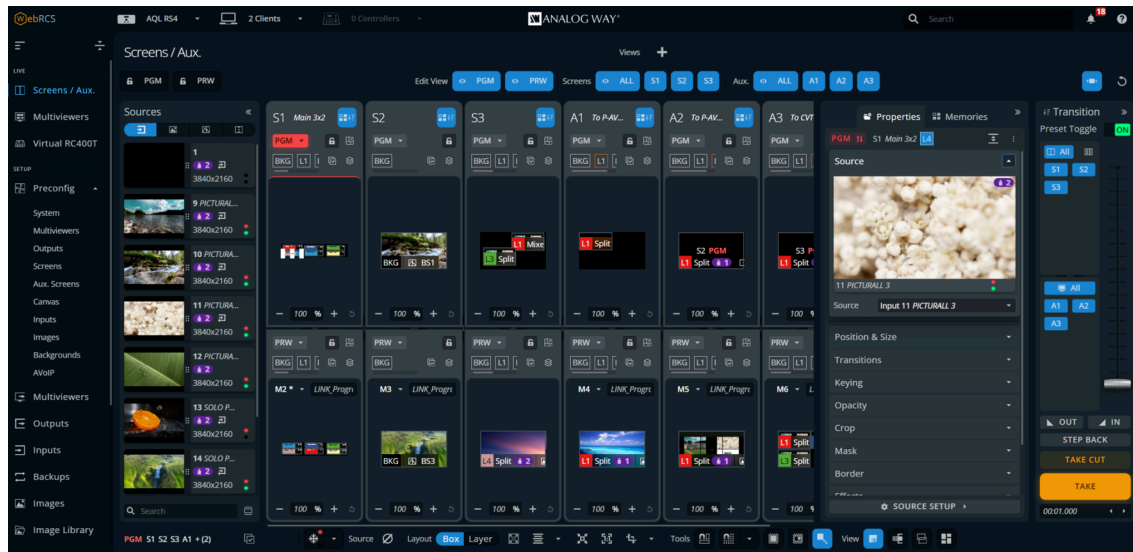
After the installation, the Aquilon unit reboots.

6. If needed, import saved Configuration.

Recommendation

Perform a default reset after a firmware update.

4. Using the Web RCS



Web RCS Interface

The **Web RCS** is the main controller for the Aquilon. It is embedded in all units and compatible with all operating systems. Aquilon can be operated from any computer via wired network connection without installing any software.

The Web RCS supports both HTTP and HTTPS protocols.

Other controllers

- Aquilon units can also be controlled from their dedicated controller: the RC400T. For more information, see [Appendix: RC400T](#) [p.186].
- Control can also be integrated into automation and control systems, for more information, contact your local technical support.

4.1. Run the Web RCS

4.1.1. Web RCS requirements

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

Web browser

- Chrome (Recommended)
- Firefox
- Edge

- Opera
- Safari



Recommendation

Use the latest version of the web browser and keep it up to date.

In FHD screens, adjust the view using a zoom feature of the explorer to avoid interface overlaps.

The **Web RCS** is based on HTML5 and does not require Flash. It is optimized for Chrome web browser in full screen mode.

4.1.2. Default network settings



Tip

All connections should be done before starting the Aquilon unit.

LAN1

Default network settings

IP Address: 192.168.2.140

Subnet Mask: 255.255.255.0

Port: 80



Ports to open

Make sure that ports 80, 443, 10591, 10606, 10691, 10692 and 10693 are available on your network and/or not blocked by firewall.

To connect to this address, a computer needs to be configured to use a unique IP address on the same network. If this setup is part of a larger network with other devices, please check with your network administrator before plugging these devices into the network to avoid any IP address conflicts.



Example of static IP address on one computer

Computer IP address: 192.168.2.50

Computer Subnet Mask: 255.255.255.0

LAN2 (with optional Sync SFP card)

Enable the connection.

Default network settings

IP Address: 192.168.3.140

Subnet Mask: 255.255.255.0

Port: 80

Note

If Aquilon devices link is done over a LAN, all network devices (routers, switches, etc.) must be a part of the Aquilon VLAN architecture and configured as follows:

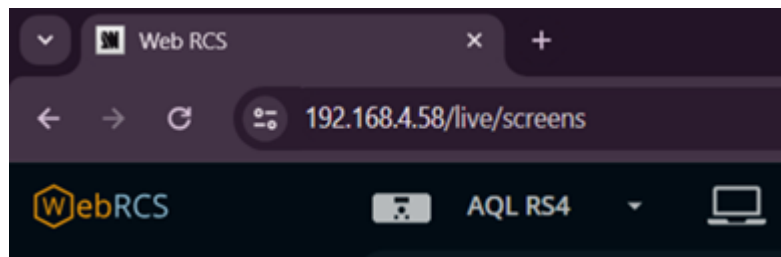
1. VLAN ID is 10.
2. For all ports connected to SYNC_SFP (or trunk ports):
 - PVID is set to 10
 - Traffic is marked as 'Tagged' with VLAN_ID 10

Wake-on-LAN

Wake-on-LAN is only available on LAN 1.

4.1.3. Connection

To access the **Web RCS**, launch a web browser and enter the Aquilon IP address in the address bar. It is possible to connect up to 5 computers to the same Aquilon unit for real-time collaboration.



Web RCS connection

Default IP address of all devices

192.168.2.140

Tip

Computers using energy saving mode may turn off the network adaptor during periods of inactivity. Disable the energy saving mode to ensure the connection remains active.

4.1.4. Login page

If conditional access is needed, the Web RCS can be protected by a password.

More information

See [Remote Access](#) ^[p.55].

4.1.5. Simulator

The software Simulator is available on www.analogway.com [http://www.analogway.com/].

Using the simulator, it is possible to simulate any Aquilon series multi-screen live presentation system on PC or Mac, and then launch the integrated Web RCS. It is the perfect tool to practice or rehearse when using a real unit is not possible. It is also a free opportunity to discover the Web RCS for the first time and learn the Aquilon concepts.

Tip

Configurations created in the simulator can be exported / imported to a real unit, including the image library.

More information about using Simulator

See the Quick Start Guide available on www.analogway.com [http://www.analogway.com/].

4.2. General tips

4.2.1. Web browser features

The Web RCS is fully browser integrated and behaves like any web site.

It manages browser features such as:

- Previous page / Next page
- Multi-selection of items using the Ctrl or Shift keys
- Open in new tab / Open in new page
- Enter direct URL
- Bookmark any page
- Supports browser-based language translators

4.2.2. Mobile version

Prerequisite

To access the Aquilon with a mobile device, a wi-fi router must be connected on the same network as the Aquilon unit.

A lighter version Web RCS is also available on iOS and Android mobile devices without any installation needed.

To access the Web RCS from a mobile device, launch a web browser and enter the Aquilon IP address in the address bar.

This mobile version is simplified and has less features (no Preconfig or setup):

- Check device status
- Check rear panel connection status

- Check input video signals
- Load Master memories, Screen memories and Multiviewer memories
- Trigger transitions

Tip

For an optimized interface, do not display the mobile browser in Desktop mode.

4.2.3. Section buttons (copy, paste and reset)

On multiple pages of the Web RCS, the following buttons appear on hover:



These buttons are associated to a specific section. Use these buttons to quickly copy, paste or reset the settings of one section. Paste works when similar settings are currently copied (i.e. layer position copied to a different layer in a different screen).

4.2.4. Setting a number value

In the Web RCS, the fields for number values can be set and adjusted in different ways:

- Click and enter a number value.
- Click the field and hold then move the mouse left or right.
- Click and use the scroll wheel for small adjustments (mouse must remain in the field).
- Click the *Right* and *Left* arrows at the end of the field for single unit adjustment.

Tip

To avoid manual calculation, basic computation (addition, subtraction, multiplication and division) can be entered in the fields containing number values. They can be preceded by the following abbreviations:

- **c**: current value
- **d.w** and **d.h**: destination (Screen, Aux, or Multiviewer) width and height
- **ox.w** and **ox.h**: object (Layer or Widget with its number) width and height.

In multi-layer multi-screen selections, these abbreviations refer to the screen of the first selected layer.

4.2.5. Search bar

In the top bar, use the search bar to simply access a feature or setting.

1. Click the search bar.
2. Enter a keyword to search (ex: Input, Pattern, Keying).

The search results are displayed.

3. Click a result to open the corresponding page.

4.2.6. Alarms and notifications

In the top bar, alarms and notifications display when the following events occur:

- A component is missing or not detected
- A component is not compatible with the current firmware version
- A high temperature has been detected (card, fan, or device alarm)
- Pending changes are waiting to be applied or not valid

Open the history log to check the history of alarms and notifications.

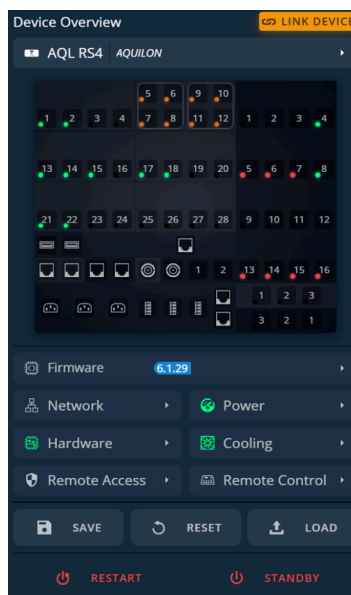
It is possible to mark notifications as read or clear them all.

Tip

On the device front panel, the buttons **Enter** and **Exit** blink when an alarm is triggered. The blinking stops when the alarm stops (ex: temperature becomes normal again).

4.2.7. Standby / Restart

In the top bar, click  then **Standby** or **Restart** and confirm.



Settings access panel

Link settings access panel

The settings access panel for a **linked system** provides an access to a Device overview for each connected device individually and to a Dashboard providing a view of an entire linked system.

More information on Link

See  Appendix: LINK ^[p.205].

4.2.8. Back panel shortcuts

In the top bar, click  to show the virtual Back panel.

Click the connectors to access their settings directly.

Tip

Click **Renumber All** to update the I/O numbering if a number of available connectors was modified by replacing a card (e.g. Filler card, 8-plug SDI or 8-plug HDMI™ card). Renumbering will restart the system and may affect the memories and other previous settings like inputs or backgrounds.

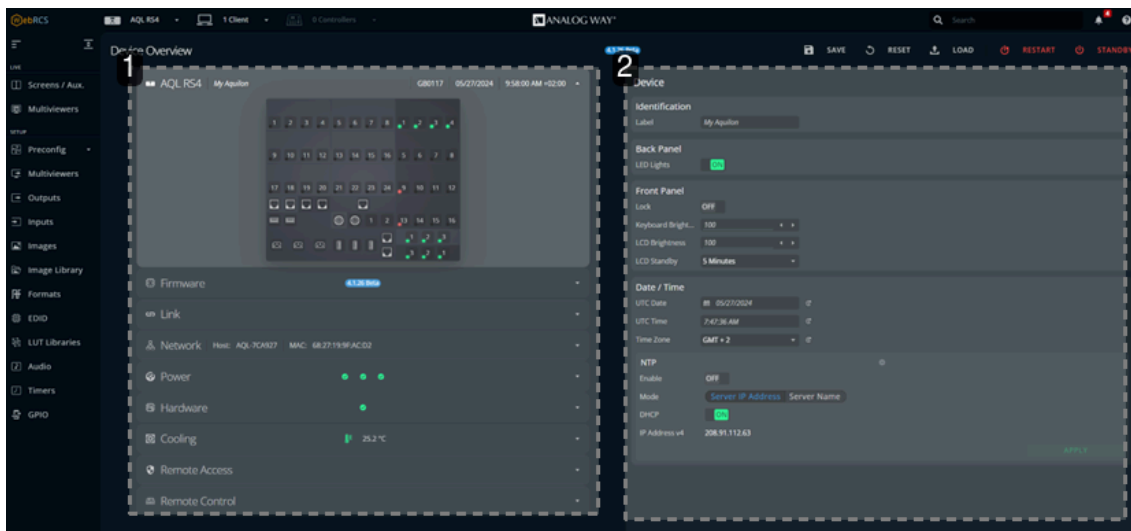
4.3. Device overview – system settings

Check a device status and modify network settings directly from the main page.

In the top bar, click  then:

- a device name for a Device Overview
- any item under the Back panel to access its settings directly.

In Device Overview



1. Left panel

Click on any item to open the corresponding settings on the right panel.

2. Right panel

Adjust the settings.

4.3.1. Device

Procedure

1. In **Identification**, enter a name for the device.
2. In **Back Panel**, toggle the LED lights button to enable / disable the LEDs on the unit back panel.
3. In **Front Panel**,
 - Toggle the **Lock** button to lock the front panel keys.
 - Set the Keys buttons Brightness.
 - Set LCD screen Brightness.
 - Set the LCD screen timeout before standby.



Caution

Disabling the LCD Standby may shorten the LCD backlight lifespan.

4. In **Date / Time**,
 - Set the device UTC Date and UTC Time. Click  to use local computer date or time.
 - If needed, set the Time Zone.
 - If using Network Time Protocol (**NTP**), toggle the enable button.
 - Select **Server IP Address** and enter an IPv4 address or use DHCP, then apply
OR select **Server Name** and enter a name, then **Apply**.



NTP protocol

The first connection can last a few minutes. If the connection fails, the settings are not applied.

4.3.2. Firmware

4.3.2.1. Update

Prerequisite

Download the latest Aquilon updater from www.analogway.com [http://www.analogway.com/].



Caution

Disconnect all HDMI™ over fiber cables from optical input plugs before a firmware update.



Note

In some cases, updating the Aquilon unit may reset the Configuration (check the Release notes).



Advice

Export a configuration to recover it after the update (see  Save / Reset / Load Configuration ^[p.57]).

Procedure

1. Go to **Firmware**.

2. Load the updater file in the Web RCS using the file explorer or drag and drop.

3. Click **Install**.

The updater files are uploaded and extracted before the installation. During the Upload and Extraction steps, it is still possible to cancel the update if needed. After the installation, the Aquilon unit reboots.

4. If needed, import saved Configuration.



Recommendation

Perform a default reset after a firmware update.

4.3.2.2. Reinstall current Firmware

When a firmware is installed, the Aquilon unit saves the installer of the current firmware in its memory. It is possible to reinstall the current firmware if needed (ex: update an input / output connector card).

1. Go to **Firmware**.

2. Click **Reinstall**.

The updater files are uploaded and extracted before the installation. During the Upload and Extraction steps, it is still possible to cancel the update if needed.

After the installation, the Aquilon unit reboots.

3. If needed, import saved Configuration.



Recommendation

Perform a default reset after a firmware update.

4.3.3. Network

1. In **Network** set Host name.

Option: With SYNC SFP card, select LAN 1 or LAN 2 and enable it if needed.

2. In **Adapter > IPv4**, manage DHCP, set IP address, Netmask, Gateway and DNS.

3. Click **Apply**.

4. If needed, enable and set **IPv6** and click **Apply**.

4.3.4. Power



Caution

Always use same model of power supply units. If a new one is needed, ensure to use the same model.

1. Go to **Power**.

2. In **Mode**, set **Device switch ON** or **Device stay OFF** when connected to power or after a power failure.

3. Enable / disable Wake on LAN.

4.3.5. Hardware

Check the hardware configuration status. If an error occurs, check the status of all items in the right panel to identify the issue. If needed, download the configuration file for system check or technical support.

4.3.6. Cooling

Caution

If the device temperatures are too high, the device will automatically shutdown to prevent damages.

Check the Intake and Device Temperature. If any temperature is too high, two levels of alarms can appear: “abnormally high” and “dangerous”.

Recommendation

- In case of alarms, check that nothing is covering the unit and that the air flow is not blocked.
- Clean the air filter regularly to prevent dust from blocking the air flow. For more information, see  User Maintenance and Troubleshooting ^[p.184].

4.3.7. Remote Access

In **Remote Access**, enable / disable password protection for the Web RCS and enable HTTPS Server.

4.3.7.1. Default Web RCS password

By default, the password to access the Web RCS is the Aquilon unit MAC address.

The MAC address is displayed on the front panel of the unit and in the Web RCS in **Device Overview > Network**.

Simulator

The default password for Aquilon Simulator is 11:22:33:44:55:66.

4.3.7.2. Enable Web RCS password protection

Note

Enabling password protection will disconnect all Web RCS pages currently opened.

1. Go to **Remote Access > Basic Authentication**.
2. Toggle the enable button.
3. Click **Apply**.

All opened Web RCS sessions are locked and return to a login page.

4.3.7.3. Lock an opened Web RCS session

To lock a session after logging in, close all instances of the web browser and the web browser.

Or

Click on  if the password protection was enabled, to lock all instances at once.



Tip

Reopen the web browser and try to access the Web RCS to make sure the session is locked.

4.3.7.4. Change Web RCS password

1. Go to **Remote Access > Change password**.
2. Enter the new password.
3. Enter the same password to confirm.
4. Click **Apply**.

4.3.7.5. Reset Web RCS password from the front panel

If the password is lost or forgotten, it can be reset from the front panel of the Aquilon unit.

1. On the front panel, go to **Control**.
2. Go to **Reset Settings**.
3. Go to **Reset Auth. Password**.
4. **Apply**.

The Web RCS password is reset to default value (device MAC address).

4.3.7.6. Enable / Disable HTTP and HTTPS on the Web RCS

The Aquilon supports HTTPS protocol. It is possible to enable / disable HTTP and HTTPS.



Port

Make sure port 443 is available on your network and/or not blocked by firewall to use HTTPS.



Tip

If the Web RCS is not accessible, use the front panel to re-enable the HTTP Server, see  **Reset HTTP and HTTPS settings** ^[p.57].

1. Go to **Dashboard > Remote Access**.
2. In **HTTP Server**, toggle the enable button for HTTP.
3. In **HTTPS Server**, toggle the enable button for HTTPS.
4. Click **Apply**.

If HTTP has been disabled, the current page will be disconnected from the Web RCS.

Use **https://** before the device IP address to access the Web RCS in HTTPS (**https://192.168.2.140** by default).

4.3.7.7. Import custom HTTPS certificate

It is possible to import a private certificate and key to secure the connection to the device.

Port

Make sure port 443 is available on your network and/or not blocked by firewall.

1. Go to the Dashboard > **Remote Access**.
2. In **Current Certificate & Key**, load the certificate and private key files in the Web RCS using the file explorer or drag and drop.
3. Click **Upload**.
4. Click **Apply**.

4.3.7.8. Reset HTTP and HTTPS settings

The HTTP and HTTPS settings can only be reset from the front panel.

1. On the front panel, go to **Control**.
2. Go to **Reset Settings**.
3. Go to **Reset HTTP/HTTPS Servers**.
4. **Apply**.

The Web RCS HTTP and HTTPS settings are reset to default value (HTTP On and HTTPS Off).

4.3.8. Remote Control

In **Remote Control**, enable / disable Web RCS control via RC400T, external USB controllers or APIs.

1. Go to **Remote Control**.
2. In **RC400T Controllers**, enable / disable RC400T connection to the Aqilon unit.
3. In **External USB Controllers**, enable / disable Controllers connection to the Aqilon unit.
4. In **Application Programming Interfaces**, enable / disable Aqilon control via AWJ Protocol or REST API.

Note

- The network ports used for RC400T and AWJ are displayed on the Remote Control card.
For more information about RC400T, see  Appendix: RC400T ^[p.186].
- AWJ is a JSON based protocol developed by Analog Way for Aqilon. AWJ is a bidirectional TCP API, it grants full control on an Aqilon device and receives real-time status updates from the Aqilon device. For more information, visit www.analogway.com ^[http://www.analogway.com/].

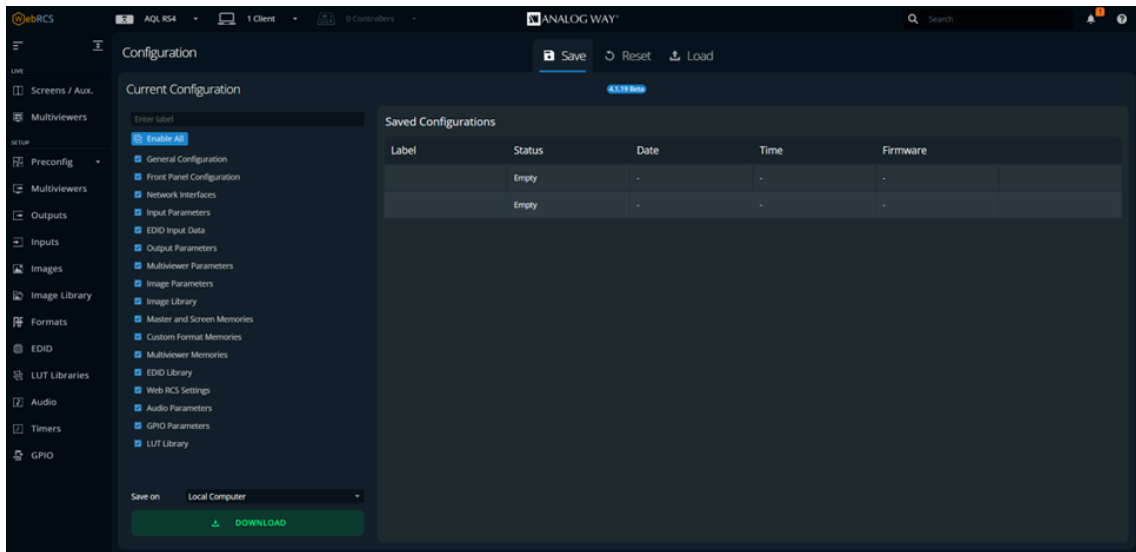
4.4. Save / Reset / Load Configuration

Tip

Saving the configuration before powering off is not necessary. The unit saves the current configuration in real time.

The Aquilon units can export and import device configurations.

In addition to these features, the Aquilon units also have two embedded memory slots for saving and loading configurations internally.



Save / Reset / Load Configuration

Library size

The size of the image library cannot exceed 950MB to be imported / exported.

4.4.1. Save the current Configuration

1. In the top bar, click , then **Save**.
2. Enter a label for the Configuration to save.
3. In the filters, select the settings to save.
4. Select the destination and click **Download** or **Save**.

The configuration is downloaded on the local computer or saved in the selected memory slot.

4.4.2. Reset a Configuration

1. In the top bar, click , then **Reset**.
2. Select the reset mode:
 - **Default Reset**: Select the settings to be reset to default value.
 - **Out of the box**: Factory reset. All settings are reset to default value.
3. Click **Reset**.

The Aquilon unit resets.

Recommendation

Perform a default reset after a firmware update.

4.4.3. Load a Configuration

- 1. In the top bar, click , then **Load**.
- 2. In the **Load** panel, select the slot to load.

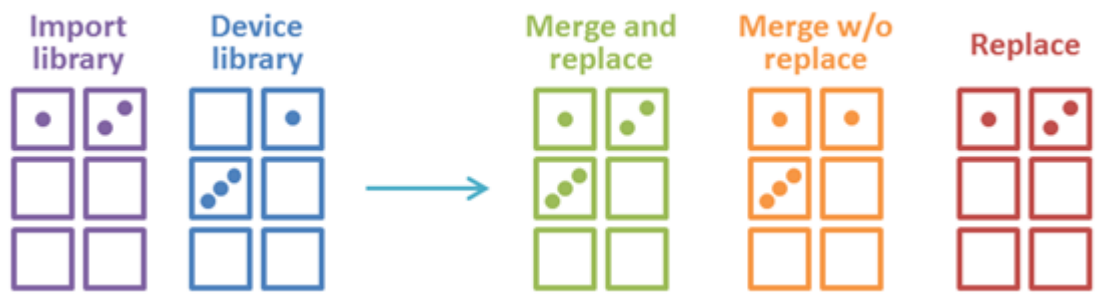
Or

Drag and drop the configuration file from the computer file explorer to the upload area.

The configuration is extracted and conflicting settings are grayed out in the filters (version incompatibility, obsolete information, device logs, etc.).

- 3. In the filters, select the settings to load.
- 4. Select how to merge the images in the Library.

Merge and replace	Merge and replace images in non-empty slots
Merge without replacing	Merge but keep images in non-empty slots
Replace current Image Library	Replace the entire device library with the import library



- 5. Click **Apply Device**.

The configuration is loaded to the Web RCS and applied to the current configuration.

4.5. Device control synchronization

An Aquilon device can be connected to up to 5 control instances (multiple Web RCS pages, RC400T, etc.). It is possible to enable / disable the synchronization of each control instance with the server from the Web RCS.

When a control instance is synchronized with the server, the layer selection and the selection of Screens affected by transitions are applied to all other synchronized control instances (Web RCS page, RC400T, etc.).

 **Tip**

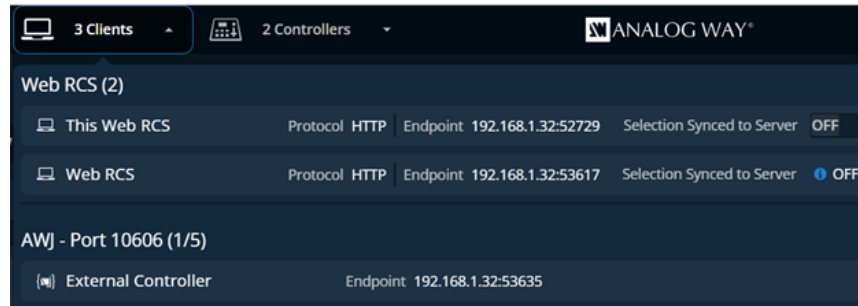
By default, synchronization to server is disabled on all instances to work without other instances changing the layer selection or the selection of Screens affected by transitions.

4.5.1. Web RCS synchronization

1. In the top bar, click .

The sync status of the current Web RCS page is displayed as well as the number of currently opened Web RCS pages.

2. Toggle **Selection Synced to Server** to enable / disable synchronization to other control instances.



Web RCS synchronization

4.5.2. RC400T synchronization

1. In the top bar, click  or select the Virtual RC400T in the Live menu.

The sync statuses of the connected RC400T controllers are displayed.

2. Toggle **Selection Synced to Server** to enable / disable their synchronization to other control instances.



RC400T synchronization

Note

Program and Preview Screens that are protected by lock in the Web RCS cannot be modified by the RC400T when synchronized with server. Layers cannot be modified; Memories cannot be loaded but transition can be triggered.

For more information on Screen lock

See  View filters – Top bar buttons ^[p.146].

5. Aquilon concepts

5.1. Capacity

Capacity

A capacity is the maximum bandwidth allocated to an item. Allocating a max capacity for every item ensures the interoperability between all the internal elements of an Aquilon unit. Capacities are automatically assigned when setting a format.

The range of the capacity is from **1** to **8**. The minimum capacity (**1**) refers to dual-link bandwidth.

Each following capacity adds the resource equal to dual-link bandwidth.

The maximum capacity (**8**) refers to 8K bandwidth.

5.1.1. Standard formats capacity

Commonly used formats and their corresponding capacity

Capacity	Internal rate at 30Hz	Internal rate at 60Hz	Internal rate at 120Hz
1	4096 x 2160	1920 x 1080 2560 x 1600	1920 x 1080
2	5120 x 2880	3840 x 2160	2560 x 1600
4	7680 x 4320	5120 x 2880	4096 x 2160
4*	16384 x 1080 8192 x 2160 12000 x 1200 8640 x 1600 7680 x 1792 7200 x 1920		

*up to 60Hz with Reduced Blanking as specified in CVT 2.0



How it works

- Capacity depends on the device internal processing rate. The higher the internal rate, the more processing capacity will be required.
- Some video formats and image resolutions are not supported when the internal rate is higher than 60Hz.



More information

See Vertical rate ^[p.75].

5.1.2. Elements using capacity

Capacities are automatically assigned when setting a format for:

Inputs groups	Image slots	Layers	Screen output groups
Capacity 1	Capacity 1	Capacity 1	Capacity 1
Capacity 2	Capacity 2*	Capacity 2	Capacity 2
Capacity 4	Capacity 4*	Capacity 4	Capacity 4

+ Image slots

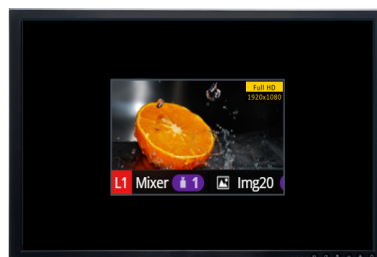
- * Setting an image slot to capacity 2 disables the next image slot.
- * Setting an image slot to capacity 4 disables the next 3 image slots.

5.1.3. Content and layer compatibility

An input or image with capacity 1 can be used in a layer with capacity 1 or 2:



*Content with capacity 1:
1920x1080*



In layer with capacity 1: 1920x1080



In layer with capacity 2: 3840x2160

Result

The content is displayed correctly in both layers but the resources are not optimized.

An input or image with capacity 2 can only be used in a layer with capacity 2:



*Content with capacity 2:
3840x2160*



In layer with capacity 1: 1920x1080



In layer with capacity 2: 3840x2160

Result

The content cannot be displayed in layer with capacity 1 due to insufficient layer capacity.

Note

If a 1920x1080 content is set to capacity 2, it will be displayed in a layer with capacity 2.

5.2. Screen layers

Layers are assigned to Screens and Aux Screens in the **Preconfig** menu of the Web RCS.

Aqilon features two layers modes exclusively for Screens:

- Mixer layers
- Split layers.

Mixer layers and Split layers can be used in the same screen simultaneously.

5.2.1. Screen sources

Screen and Aux Screen layers can display the following types of content:



Inputs



Images (including timers)



Backgrounds



Screens

 Note

- Screens can only be used as content for Aux Screens and Screens with Split layers.
- Backgrounds can only be used in Screen Background layers.

 NDI stream

It is possible to use an NDI stream as an input. For more information on how to set up an NDI input see

 IP/SDI ^[p.103].

5.2.2. Mixer layers

This is the default layer mode for Aquilon units as well as most Analog Way products.

Mixer layers support cross transitions with both contents visible at the same time during the transition (seamless transition).

 Note

A mixer layer cannot display a Screen.

5.2.3. Split layers

This layer mode consumes half the processing resources compared to mixer layers and doubles the number of layers available on Screen.

 In split layers mode:

- A **Program Screen** can be displayed in a layer (may use resources of following split layers and preempt them).
- Seamless transitions are not possible, one content will disappear before the new one is visible.
- When using a Multiviewer to view the Preview of a Screen using split layers, only layer wireframes are displayed.

5.3. Aux Screens and Aux layers

Aux Screens do not consume processing resources. They are a great help to display more content when the Aquilon unit has available outputs while processing resources are fully used by Screens.

5.3.1. Aux layers quantity and capacity

Outputs used in Aux Screens can display up to 8 layers with capacity 1.

The Aux layer quantity follows two rules:

- Enabling more than 2 layers disables the next output plugs on the card as it uses their resources.
- Aux layers are dynamic. After the Aux Screen is created, assigning a content with a capacity higher than 1 will preempt the next Aux layer(s). Each additional capacity = one layer preempted.

 Example

An Aux Screen is set with 6 layers.

- Assigning a 7860x2160 Program Screen (capacity 4) to layer 1 will preempt layer 2, 3 and 4.
- Layer 5 and 6 remain available.

Aux output layer quantity	Max source capacity if displaying only one layer
2 layers capacity 1	Capacity 2 (can display a 4K Screen)
4 layers capacity 1 (disables the next output slot)	Capacity 4 (can display a 2x 4K Screen)
6 layers capacity 1 (disables the next two output slots)	Capacity 6 (can display a 3x 4K Screen)
8 layers capacity 1 (disables the next three output slots)	Capacity 8 (can display a 4x 4K Screen)

 Tip

- Only outputs 1, 5, 9, 13 and 17 can be set as Aux Screens with 8 layers as this uses the resources of the next three outputs of the card. Connect outputs according to these limitations.
- An Aux with 8 layers has enough bandwidth to display an 8K Program, but the output plug format is still limited to 4K@60Hz.

5.3.2. Aux layers limitations

Aux layers support most of the same features as Screen split layers:

- input
- image/timer
- screen program as source
- size, position, crop, timings, etc.

 Aux layers do not support:

- Seamless transitions, one content will disappear before the new one is visible.
- Alpha channels, transparent content is displayed in the same color as the background layer.
- Border settings.
- Cut & Fill effect.
- Layers freeze.

 Aux background

The Aux background layer can only support one monochrome color as a source.

The Aux background layer do not support:

- input
- image
- background set.

5.4. Screen / Aux Screen comparison

Screen / Aux Screen comparison

Feature supported	Screen with layers	Screen without layers	Aux Screen
Multiple outputs	Yes	Yes	No
DPH104 output	Yes	Yes	No
Multiple layers	Yes	No	Yes
Consume zero processing resources	No	Yes	Yes
Background layer (with eight Background Sets using inputs or images)	Yes	Yes	No. Monochrome color only.
Display a Screen Program	Yes	No	Yes
Layer border settings	Yes	No	No
Alpha channels	Yes	Yes. With custom monochrome color.	No
Cut & Fill effect	Yes	No	No
Seamless transitions	Yes	Yes	No

5.5. Aquilon Processing

5.5.1. VPUs and Scaling engines

Understanding VPU concept is the key for optimized performance.

Video Processing Units

$\approx$ VPU

VPUs are the main processing components of Aquilon. They create the layers and allocate them to one or multiple outputs.



Important

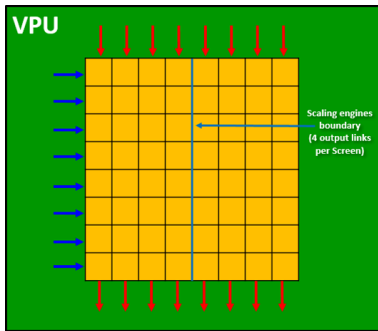
Each VPU contains 8 source links and 8 outputs links.

Capacity 1 uses one link and capacity 2 uses two links, etc.

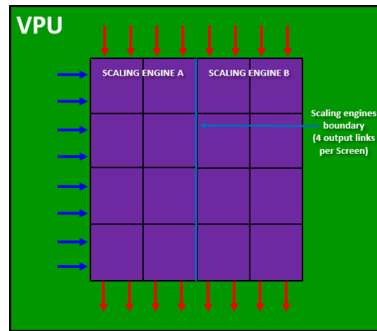
Each VPU supports:

- 8 mixer layers (or 8 pairs of split layers) spread over 8 outputs, in capacity 1.
- 4 mixer layers (or 4 pairs of split layers) spread over 4 outputs, in capacity 2.
- 2 mixer layers (or 2 pairs of split layers) spread over 2 outputs, in capacity 4.

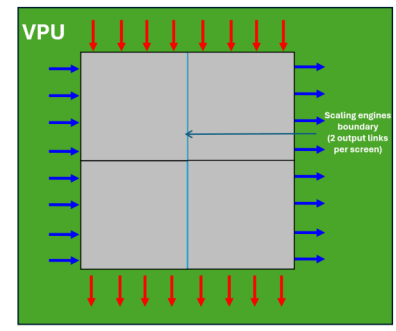
Representations of a VPU



VPU with full capacity 1



VPU with full capacity 2



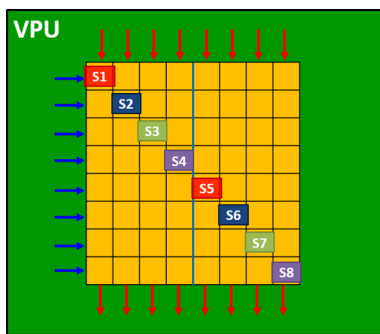
VPU with full capacity 4

5.5.2. Self-rearrangement

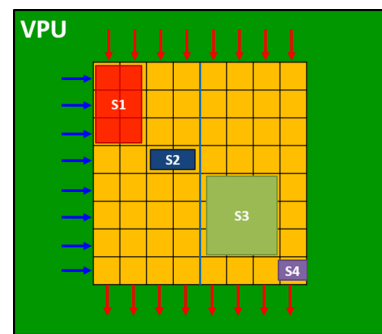
A VPU has a modular architecture and rearranges its links depending on the Screen configuration:

- Number of outputs in the Screen
- Number of layers in the Screen
- Capacity of the links between layers and outputs

VPU configuration examples



One VPU can manage up to 8 Screens, each Screen using 1 output and 1 mixer layer



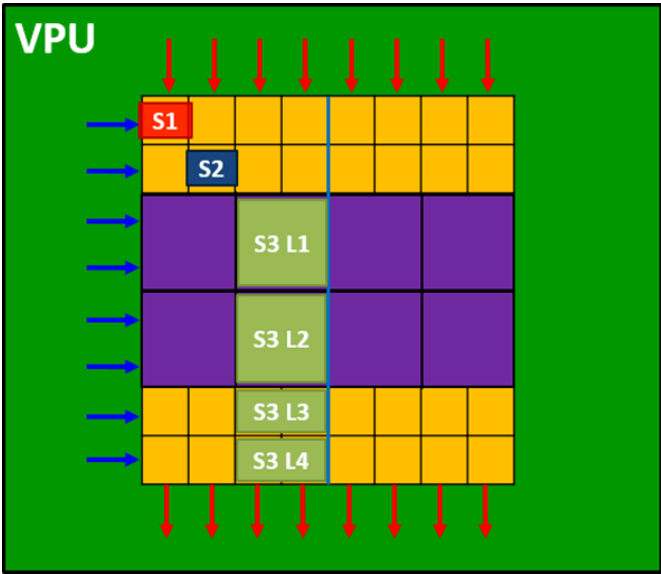
One VPU can manage various combinations within the 8x8 links limits

5.5.3. VPU capacities support

Important

A VPU can support all capacities at the same time.

VPUs and Screens can support layers of capacity 1 , 2 and 4 at the same time, in any order.



+ In detail

Screen 1:

- 1 output
- 1 mixer layer capacity 1

Screen 2:

- 1 output
- 1 mixer layer capacity 1

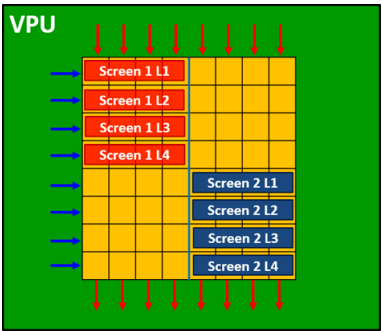
Screen 3:

- 2 outputs
- 2 mixer layers capacity 2
- 2 mixer layer capacity 1

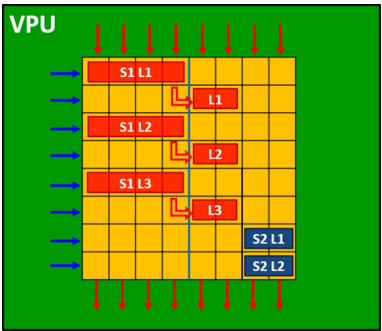
5.5.4. Scaling engine boundary

Important

A VPU is optimized to spread layers over up to 4 output links.
A layer spread over more than 4 output links uses another layer link.



Two Screens of 4 outputs with 4 mixer layers each



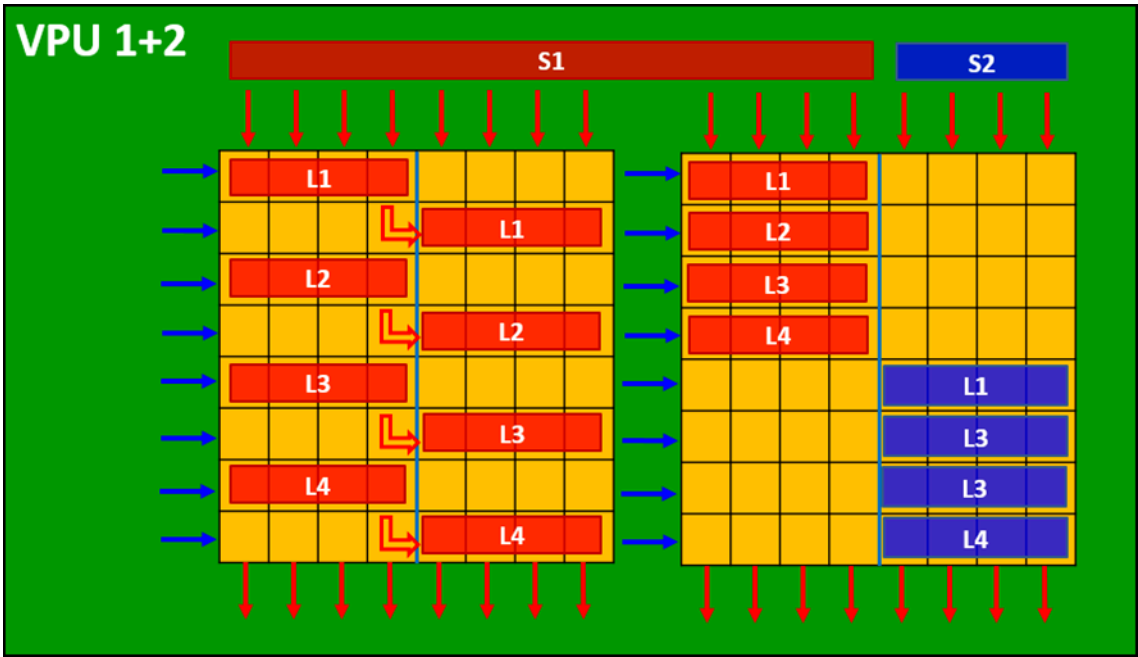
*Screen 1 (6 outputs and 3 mixer layers)
Screen 2 (2 outputs and 2 mixer layers)*

5.5.5. Combined VPUs

A Screen using more than 8 outputs uses another VPU.

 Example

Each mixer layer of Screen 1 uses 3 layer links:



 In detail

- | | |
|---|--|
| Screen 1: | Screen 2: |
| <ul style="list-style-type: none">• 12 outputs• 4 mixer layers | <ul style="list-style-type: none">• 4 outputs• 4 mixer layers |

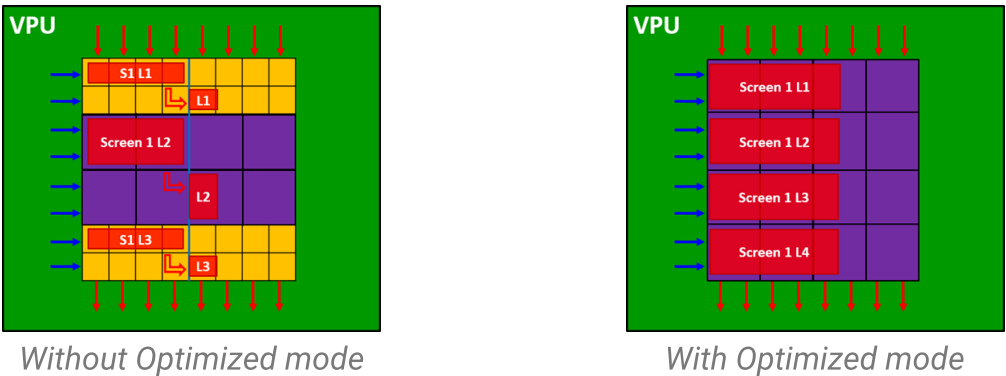
5.5.6. Optimized mode

An Optimized mode is enabled for the whole VPU when one Screen uses at least 5 outputs links and at least one layer of capacity 2.

The Optimized mode removes the 4 links boundary and configures the links to bring the best performance for layers of capacity 2.

 Recommendation

When Optimized mode is enabled in one Screen, use only layers of capacity 2.



+ In detail

Screen 1:

- 5 outputs
- 2 mixer layers capacity 1
- 1 mixer layer capacity 2

Screen 1:

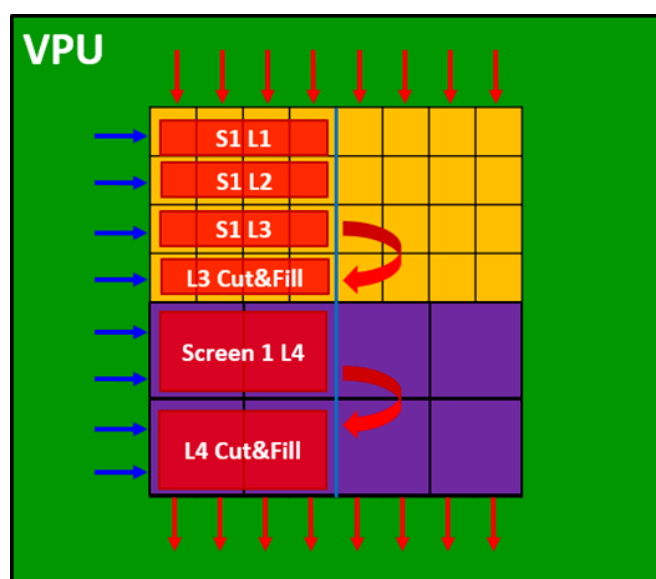
- 5 outputs
- 4 mixer layers capacity 2

5.5.7. Cut & Fill resources

The Cut & Fill effect enabled for a layer doubles the resources needed for that layer.

Note

The Cut & Fill is not available in a mixer layer capacity 4.

**+ In detail**

Screen 1:

- 4 outputs
- 2 mixer layer capacity 1
- 1 mixer layer capacity 1 with Cut & Fill
- 1 mixer layer capacity 2 with Cut & Fill

5.5.8. How many VPUs per model?

Tip

Aquilon units are equipped with up to 4 VPUs.

Aquilon Models	VPU	Output connectors	Max 5K60p PGM outputs (cap 4)	Max 4K60p PGM outputs (cap 2)	Max 5K60p mixer layers (cap 4)	Max 4K60p mixer layers (cap 2)	Max 2K60p split layers (cap 1)
RS alpha	1	4	1 Scr + 0 Aux	4 Scr + 0 Aux	2	4	16
RS1	1	8	1 Scr + 1 Aux	4 Scr + 4 Aux	2	4	16
RS2	2	12	4 Scr + 2 Aux	8 Scr + 4 Aux	4	8	32
RS3	2	12	4 Scr + 2 Aux	8 Scr + 4 Aux	4	8	32
RS4	3	16	6 Scr + 2 Aux	12 Scr + 4 Aux	6	12	48
RS5	3	16	6 Scr + 2 Aux	12 Scr + 4 Aux	6	12	48
RS6	4	20	8 Scr + 2 Aux	16 Scr + 4 Aux	8	16	64
Cmini	up to 1	up to 12	2 Scr + 4 Aux	4 Scr + 8 Aux	up to 2	up to 4	up to 16
C	up to 2	up to 16	4 Scr + 4 Aux	8 Scr + 8 Aux	up to 4	up to 8	up to 32
C+	up to 3	up to 20	6 Scr + 4 Aux	12 Scr + 8 Aux	up to 6	up to 12	up to 48
Cmax	up to 4	up to 24	8 Scr + 2 Aux	16 Scr + 4 Aux	up to 8	up to 16	up to 64

**Note**

VPU's are automatically joined together just like scaling engines depending on the Screen configuration.

5.5.9. IPU's

Image Processing Units

$\approx$ IPU

IPU components create the image content.

**Important**

One IPU supports:

- up to 24 simultaneous images of capacity **1** displayed on Program
- up to 12 simultaneous images of capacity **2** displayed on Program
- up to 6 simultaneous images of capacity **4** displayed on Program.

**Image capacities**

- Images of capacity **1** , **2** and **4** can be displayed at the same time.
- When an image slot is set to capacity **2**, it uses the resources of the next preset and preempts it.
- An image capacity **4** preempts the following 3 slots.

Aquilon Models	IPU	Simult. 4K image channels	Simult. 5K image channels
RS alpha	1	12	6
RS1	1	12	6
RS2	1	12	6
RS3	2	24	12
RS4	2	24	12
RS5	2	24	12
RS6	2	24	12
Cmini	0 or 1	0 or 12	0 or 6
C	0 or 1	0 or 12	0 or 6
C+	Up to 2	Up to 24	Up to 12
C max	Up to 2	Up to 24	Up to 12

5.6. HDR conversion



Important

HDR conversion adds no latency.

Aquilon can manage inputs and outputs with different frame rates. In the same way, Aquilon can also manage inputs and outputs with different dynamic range profiles, including Standard Dynamic Range (SDR) and High Dynamic Range (HDR).

HDR conversion manages:

- SDR ⇔ HDR10
- SDR ⇔ HLG
- HDR10 ⇔ HLG

The Aquilon processing engine supports HDR10 and HLG standards. SDR to HLG conversion is based on professional 3D lookup tables (LUTs) by BBC.

The user can define an internal HDR profile and all inputs will be automatically converted for optimized processing and display. HDR conversion can also be manually set for each image slot, input and output. It is also possible to import custom LUTs to use for dynamic range conversion at the input or output level.



Note

HDR conversion means all content can be converted to be mixed and displayed perfectly. This does not mean SDR content will look better when converted to HDR.



More information on dynamic range settings

See *LivePremier LUT Architecture* application note available on

www.analogway.com [<http://www.analogway.com/>].

5.7. Aquilon latency

The Aquilon series has been optimized to offer extremely low latency, in most cases between 1 and 2 frames.



More information

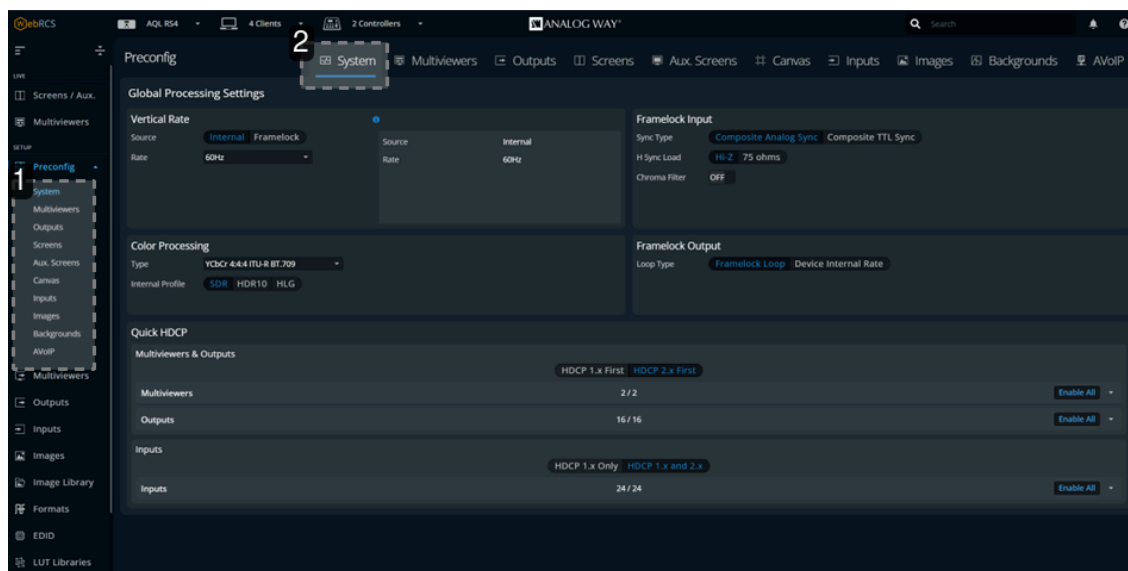
See the White paper (Training & Support) explaining Aquilon latency available on

www.analogway.com [<http://www.analogway.com/>].

6. Preconfig Menu

Preconfig submenus

Click  Preconfig to display the submenus.



1. Preconfig submenus



System



Multiviewers



Outputs



Screens



Aux. Screens



Canvas



Inputs



Images



Backgrounds



AVoIP

2. Current submenu : System

6.1. Preconfig > System

Set internal rate, framelock, color space and quick HDCP.

6.1.1. Vertical rate

Vertical rate

Sets the overall internal operating frame rate of the unit, which defines the frame rate of all Program outputs.

Vertical rate can be set manually, or by following a Genlock or Framelock as a reference.

Caution

If the Internal rate is set strictly above 60Hz, some output formats and image resolutions may not be supported.

6.1.1.1. Set defined rate

1. In **Vertical Rate > Source**, click Internal.
2. In **Rate**, select the refresh rate.

6.1.1.2. Set relative rate

Caution

Make sure the reference input is a reliable source.

Any disruptions in the reference signal may cause visible glitches on the output, even if the selected framelock reference input is not being displayed.

1. In **Vertical Rate > Source**, click Framelock.
2. In **Reference**, select Framelock or the Input to be the refresh rate reference.
3. In **Factor**, select **x0.5**; **x1** or **x2**.

The “reference rate x rate factor” must be between 22Hz and 120Hz.

6.1.2. Audio rate

Indicates the Aquilon audio rate (48kHz by default) or the rate set via an external Dante controller.

6.1.3. Framelock input settings

Tip

These settings are applied when Framelock is set as Vertical rate.

Set the framelock sync settings according to your video sync setup.

Setting name	Description / Setting selection
Sync Type	Composite Analog Sync or Composite TTL Sync
H sync Load	Hi-Z or 75 ohms
Chroma Filter	On/Off toggle Filters the chroma for better synchronization when using a composite video signal as framelock input

6.1.4. Framelock output settings

Set the Framelock output to:

- Loop the Framelock
or
- Output the internal rate of the unit.

6.1.5. Color processing

Set the general color space and dynamic range used for processing.



Tip

BT.709 is recommended for HD and BT.2020 is recommended for 4K / UHD.

Setting name	Description / Setting selection
Type	Select the general color space used for processing: • YCbCr 4:4:4 ITU-R BT.709, or BT.709 Limited range • YCbCr 4:4:4 ITU-R BT.2020, or BT.2020 Limited range
Internal Profile	Select the Dynamic range used for processing : • SDR, HDR10 or HLG
Luminance	In HDR10, select the nit level used for processing



Output color space

The output color space is set per output in the Output menu. For more information, see [Outputs](#) ^[p.111].

6.1.6. Quick HDCP

Quickly enable / disable HDCP for all inputs and outputs.



Note

Disabling HDCP reduces potential problems when the content is not fully HDCP compliant.
When output HDCP is disabled, HDCP inputs will not be displayed anymore.

1. Set the mode to **HDCP 1.x First** or **HDCP2.x First** for **Multiviewers &Outputs** and **Inputs**.
 2. Toggle the enable button.
- Or
- Open the list of connectors and select manually connectors to enable / disable HDCP.

Result

The connectors highlighted in **Blue** are currently enabled.

6.2. Preconfig > Multiviewers

6.2.1. Multiviewer

A Multiviewer is a dedicated output displaying a user customizable selection of Widgets as display resources to monitor content. One Multiviewer can display up to 64 Widgets.

A **Widget** is a Multiviewer layer containing a program, preview, input, image or timer.

6.2.2. Multiviewers quantity

An Aquilon unit can use One Multiviewer (64 Widgets in total) or Two Multiviewers (128 Widgets in total). By default, Two Multiviewers are enabled.

1. Click on first Multiviewer and choose the format:

Two Multiviewers	◦ Max output resolution per Multiviewer is 2560x1600@60 or 4K@30 ◦ Up to 128 widgets
One Multiviewer	◦ Max output resolution is 4K@60 ◦ Up to 64 widgets ◦ Can be duplicated on the second Multiviewer plug

2. Click **Apply** to save the new configuration.

Duplication

In case of duplication, *Format* and *Adjustment* settings change on one Output is also applied to the other output.

6.2.3. Set a DPH104 for a Multiviewer DP output

An Aquilon device can be equipped with two DisplayPort 1.2 Multiviewers outputs instead of HDMI™ 2.0.



Preconfig > Multiviewers

1. Choose one Multiviewer or two Multiviewers.
2. In **DPH104 Slicer**, toggle on to enable the Slicer for the corresponding Multiviewer output.
3. Set the format applied to every output of the DPH104.



Output resolutions supported by the DPH104

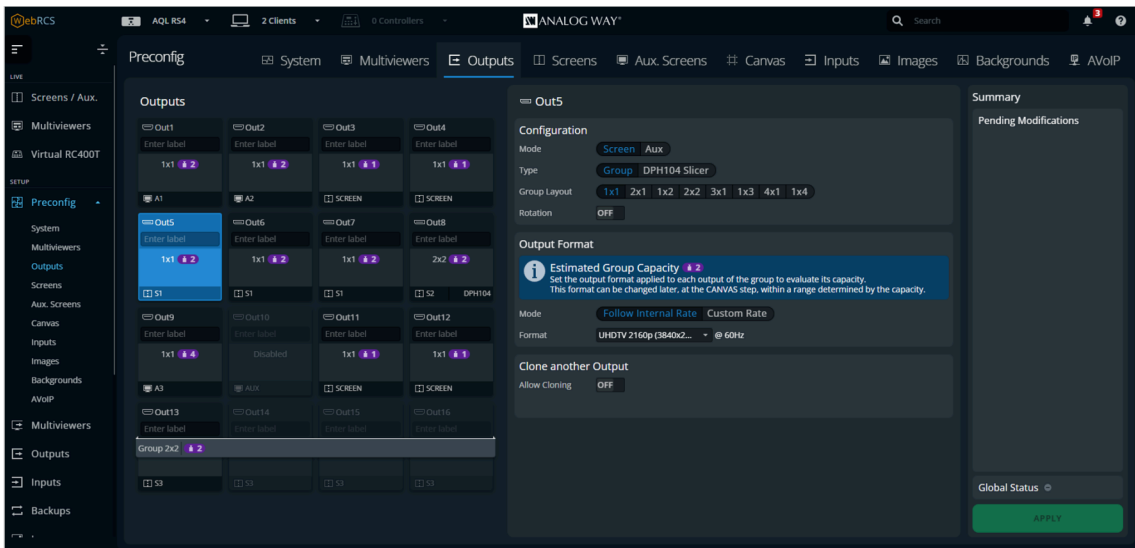
- 4x 1600x1200
- 4x HD1080p
- 4x 1920x1200 DMT



Additional settings

Can be further adjusted in  Multiviewers.

6.3. Preconfig > Outputs



Preconfig – Outputs

Set:

- output groups, output rotation and output group format
- a DisplayPort output as using a DPH104
- output clone and aux duplication.



Note

Output rotation is enabled in  Preconfig > Outputs and then set in  Preconfig > Canvas.

The Cut & Fill effect is set for a layer (or pair of split layers) during the layer allocation as it requires VPU resources.

6.3.1. Output capacity – The 4-4 rule

An Aquilon unit is equipped with one, two, three or four Video Processing cards (VPU). For detailed information, see [📖 How many VPUs per model? ^{\[p.70\]}](#).

Output resources are impacted by format (resolution and rate). Aquilon units have a limited number of Program outputs depending on the capacity set for these outputs.

One VPU supports:

- 4x capacity 2 program outputs
AND

- 4x capacity 2 mixer layers

OR

- 2x capacity 4 program outputs
AND

- 2x capacity 4 mixer layers

Tip

The remaining outputs that are not used as Program can be used as Aux.

6.3.2. Output group

Output group

Grouping outputs optimizes the processing resources of the VPU for Screens with multiple outputs. It allows the use of more outputs in the same VPU (ex. one VPU can manage up to 16 outputs in four 2x2 Screens).

How it works

- An output can only be grouped with the following output in the same output card.
- It is possible to group up to four outputs together.
- The group leader is always the output with the lowest number:
For example if output 7 and 8 are grouped together, then output 7 is the leader and output 8 is set as *Grouped*.

Note

When grouped together, every output must have the same format and the group bandwidth is limited to capacity 4 (total pixel space is limited to 5120x2880@60HZ).

Output group examples:

- one output at 5120x2880
- two outputs at 3840x2160
- two outputs at 4096x1080
- four outputs at 1920x1080

Background content optimization

It is possible to set a 4K image or live input as background content for an output group composed of four HDTV outputs.

The content used in background does not need to be divided beforehand as this is performed by the Aqilon unit.

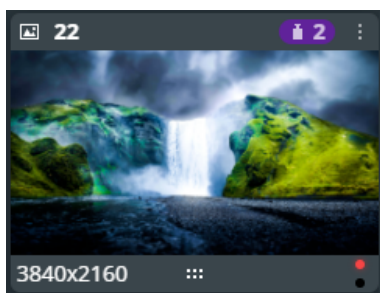
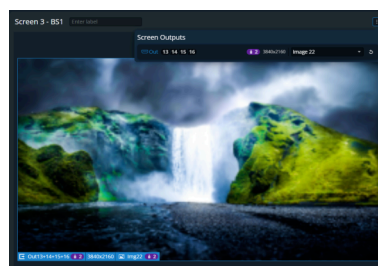


Image 4k (3840x2160)



BS of 4K screen composed of 4 HD screens

Note

- By default, all outputs are set in a 1x1 group.
- Rotation is possible for the output group but not for independent outputs inside groups.
- Individual output settings are still available in the Output menu (color space, patterns, HDCP, audio channels, etc.).
- Using a group of two or more outputs adds a one frame latency.

6.3.3. Set an output group for a Screen



Preconfig > Outputs

1. In **Configuration**, select **Screen** mode and **Group** type.
2. Select the output group layout (**1x1** by default).
Selecting a higher group layout automatically groups the following output(s).
3. If needed, enable rotation for the output group.
4. In **Output Format**, set the format applied to every output of the group.
Capacities are automatically assigned when setting a format.

Latency and rotation

- Using a group of two or more outputs adds a one frame latency.
- Enabling output rotation adds a one frame latency.
- Using both rotation and multi-output group at the same time only adds one frame latency.
- Enabling output rotation for a 1x1 output with capacity 2 disables the next output plug.

For more information on output rotation

See  Set output rotation ^[p.88].

6.3.4. Set a DPH104 output for a Screen

Good to know

If the internal rate is set to 30Hz or less, an output with a DPH104 is set to capacity 1.

This means an Aquilon Cmax with 24 DPH104 can feed up to 96 1920x1080@30 displays.



Preconfig > Outputs

1. In **Configuration**, select **Screen** mode and **DPH104 Slicer** type.
2. Select the Layout (**4x1**; **2x2** or **1x4**).
3. If needed, enable rotation for every output of the DPH104.
4. In **DPH104 Format**, set the format applied to every output of the DPH104.

Output resolutions supported by the DPH104

- 4x 1600x1200
- 4x HD1080p
- 4x 1920x1200 DMT

6.3.5. Set an output for an Aux Screen



Preconfig > Outputs

1. Click an output.
2. In **Configuration**, select **Aux** mode.
3. Select the Layer quantity (2 by default).
Selecting a higher layer quantity automatically preempts the following output(s).
4. In **Output Format**, set the format applied to the output.

6.3.6. Output cloning and Aux output duplicate

All outputs can reuse the content from other outputs to send an identical signal while saving processing resources.

6.3.6.1. Output cloning

An output clone will send the same signal as another output without consuming processing resources.

Output cloning limitations

An Output clone cannot:

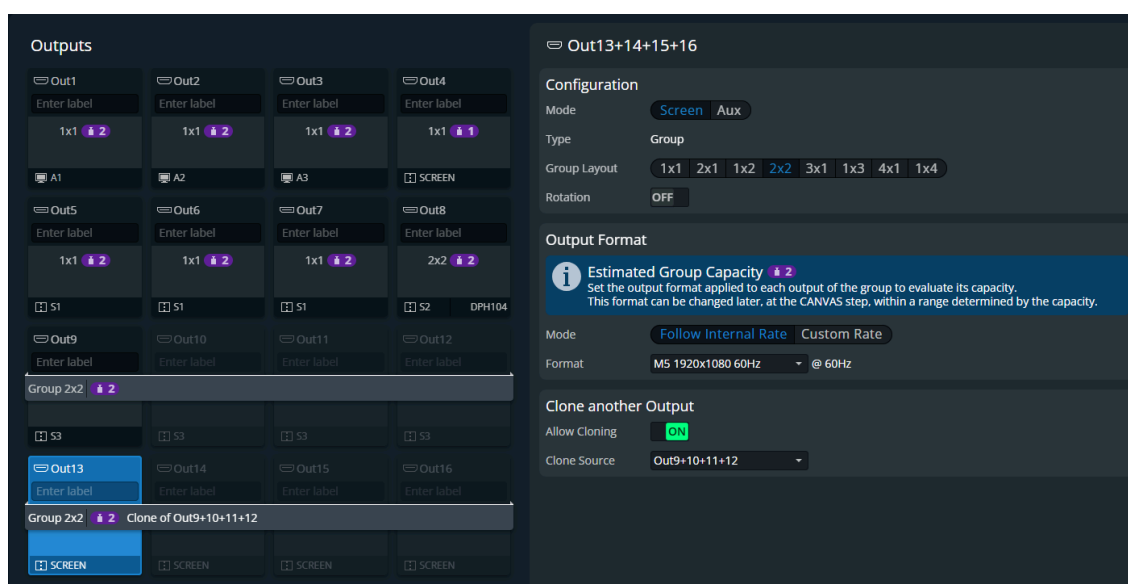
- be affected to any Screen or Aux Screen
- clone a Screen, only another output group of the same type or size
- clone a signal that it cannot support (insufficient bandwidth, audio, HDCP, 4:4:4, etc.)
- clone an output used as Aux (use Aux output duplication).



Preconfig > Outputs

1. Select an output and set it just like the clone source.
2. In Clone, toggle **Allow Cloning** to enable the duplication.
3. Select the Clone source output group.

The same content will be sent through the output source and the output clone.



Output clone (ex: group Out13-16 is a clone of group Out9-12 used in Screen 3)

6.3.6.2. Aux output duplication

When an output is set to Aux mode with 4 or more layers, the following output(s) are preempted. These outputs become disabled by default, but they can be set to duplicate the content of the preempting Aux output.

Note

In case of duplication, *Format* and *Adjustment* settings change on one Output is also applied to the other output.



Preconfig > Outputs

1. Set an output to **Aux** mode with 4 or more layers.

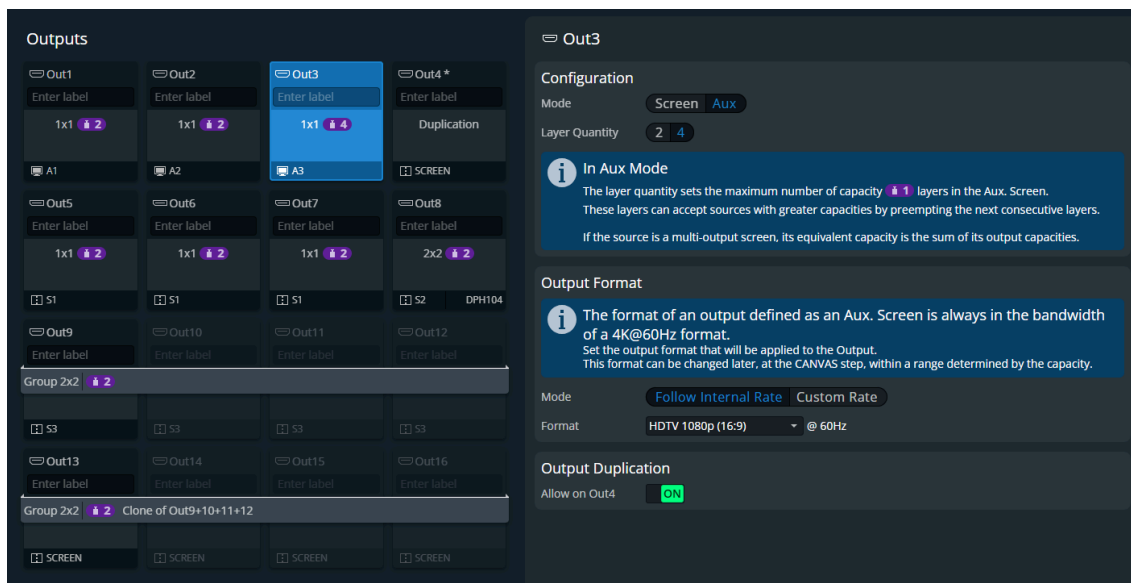
The next output(s) are disabled.

2. In Output Duplication, toggle **Allow on Output X** to enable the duplication.

The same content will be sent through the main Aux output and the output with duplication enabled.

Option

It is also possible to enable / disable the duplication when selecting the target output.



Aux output duplication, the same signal is sent on Out4

6.3.7. Creating Screens

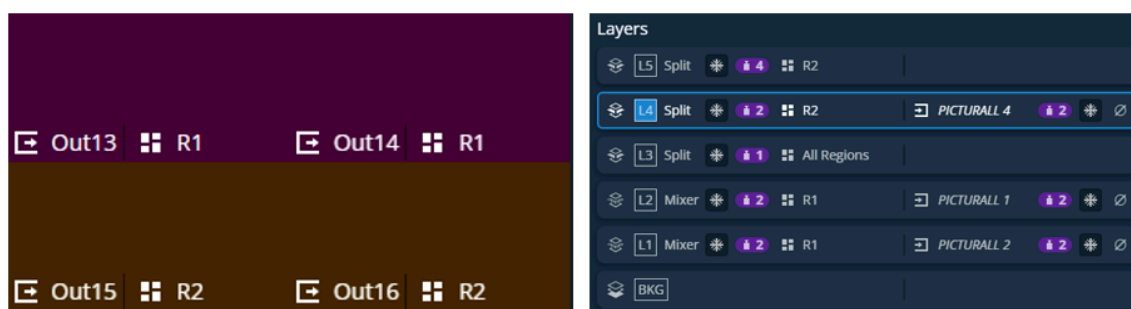
6.3.7.1. Screen regions

By default, all layers can be displayed on every output of a Screen.

Set Screen regions to optimize layer resources by limiting layers to specific outputs of a Screen.

Note

One output can be assigned to only one region and one layer can be assigned to one or more regions.



Out13+14 are in R1 and Out15+16 are in R2; L1 and L4 are limited to R1 and R2

6.3.7.2. Create a Screen

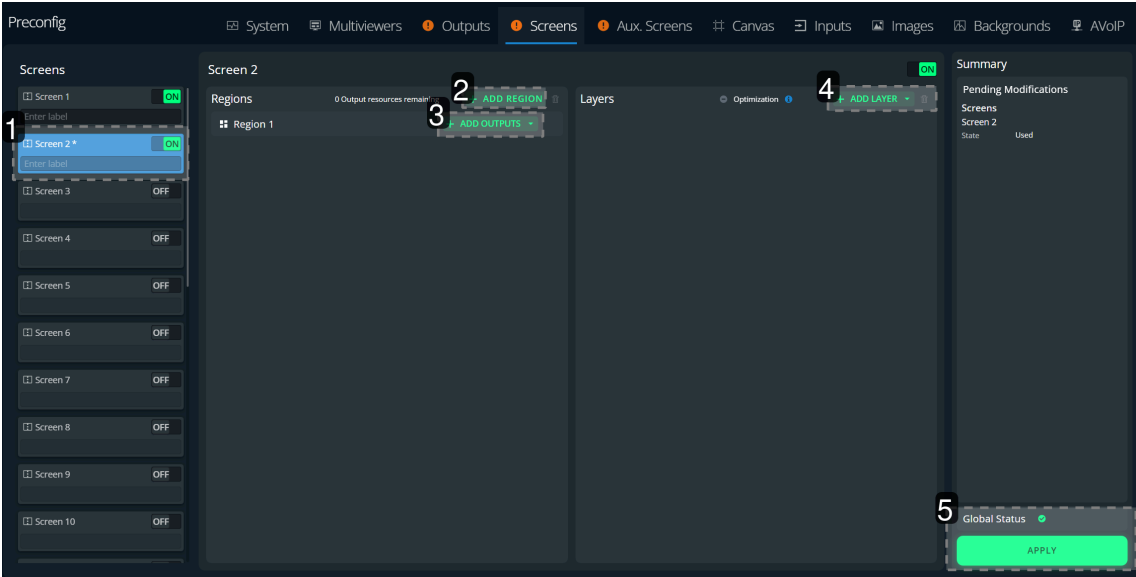


Preconfig > Screens

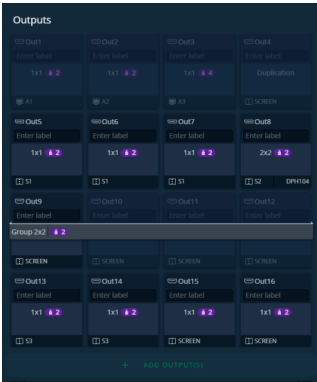
Prerequisite

An output group must be set to **Screen** mode in Preconfig > Outputs to be assigned in a Screen.

Procedure



- 1. Enable the Screen and, if needed, enter the label.
- 2. OPTIONAL: Add regions.
- 3. Click on Add Outputs to select the outputs for Region1 (by default).



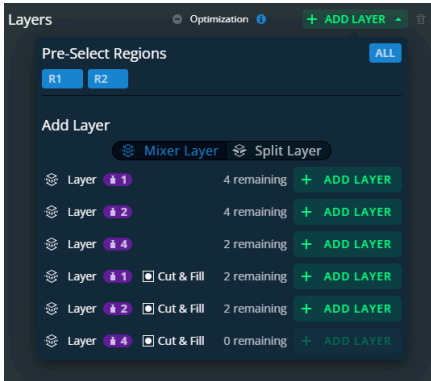
Click on **Add Outputs** to confirm the selection and repeat the step for other regions if needed.

 **To remove outputs**

Click on .

4. Add Layers.

Select the Layer mode (Mixer or Split), assign it to regions if needed and add it to the Screen.
If needed modify its capacity by selecting a value in the drop-down menu and click Apply.



 Layers quantity

The number of remaining layers is indicated.
It depends on layers capacity and the use of Cut & Fill .

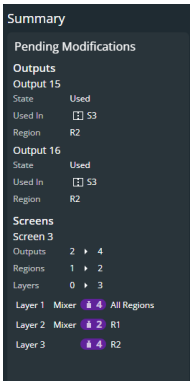
For more information about using Cut & Fill, see  Cut & Fill effect ^[p.157].

 Optimization

Hover over optimization for advice on the best layer allocation.
For more information see  Optimized mode ^[p.69].

 Extra

All pending changes are identified with a * and listed in the Summary. If needed, click  to cancel pending changes.



5. Click **Apply** to save new configuration.

A new screen is created and can be further adjusted in Canvas.

6.3.7.3. Create a Screen with no layers

It is possible to create a Screen with no layer (only an unscalable background layer) and display one live input over one or multiple outputs via background sets.

Detailed comparison between Screens with or without layers

See  Screen / Aux Screen comparison ^[p.66].

6.3.8. Create an Aux Screen

Prerequisite

An output must be set to **Aux** mode to be assigned to an Aux Screen.

The Layer quantity is also set in Outputs.



Preconfig > Aux Screens

1. Select an Aux Screen and click Add Output.
2. Select an Aux Output and click Add Output.
3. Click **Apply** to save the new configuration.
4. OPTIONAL: Click on  to remove an Output.

Number of Aux layers

The number of Aux layers depends on the output capacity and the bandwidth of the content used in the layers. For more information, see  Aux Screens and Aux layers ^[p.64].

Extra

All pending changes are identified with a * and listed in the Summary. If needed, click  (on hover) to cancel pending changes.

6.3.9. Rename a Screen

By default, all Screens are named S1, S2, or A1, A2 and so on.



Preconfig > Screens OR Aux Screens

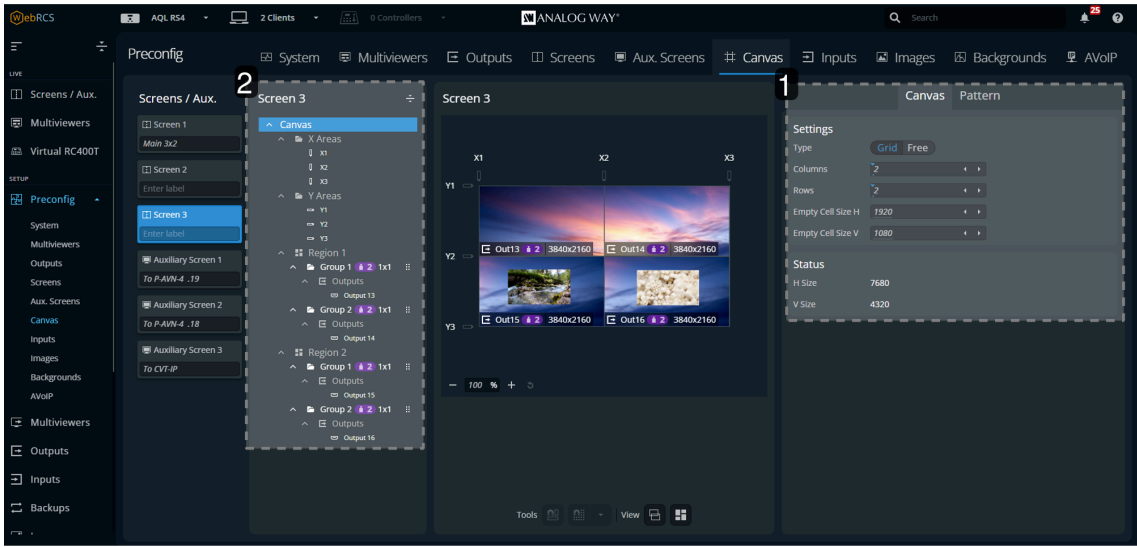
1. Click a Screen or Aux Screen on **Enter Label**.
2. Enter a screen name.

6.4. Preconfig > Canvas

Set:

- pixel space
- outputs settings for each screen (custom rate, position, rotation, AOI, pitch size, blending, etc.).

By default, all output groups are stacked and the screen size is the same as the assigned output group with the highest resolution.



1. Canvas settings

Two types of Screen canvas settings:

Grid type	Recommended for standard shows (a single output screen, a screen with identical displays aligned horizontally or vertically, 2x2, etc.). Covering and gap are simplified in Grid with the X and Y areas.
Free type	Default setting. Recommended for more specific shows that require manual adjustments for each output. Covering is set manually for each output.

 **Note**

Canvas settings are applied to the selected Screen or Group.
Grid and Free type have their own settings and switching between types does not keep the current configuration.

2. Tree view

Select one element to change the corresponding settings in panel (1).

X and Y areas	(Only displayed if the Screen is in Grid type) Create covering or gap between the grid cells Set blending and black areas for covering areas
Groups and DPH104s	Set the position of the output groups (or DPH104) in the Screen canvas Set the format set a format every output in the group (or DPH104) Group Pattern, display patterns to identify the outputs
Outputs	Set the position of the output in the output group Set an AOI for the output

 Note

Outputs are placed in groups. And groups are placed in Screens.

An output group fits in one Screen Grid cell. A 2x2 output group fits in a 1x1 Screen Grid.

 Tip

In Grid mode, click on  to drag and drop groups and outputs in the cells of the canvas.



: identifies groups which have rotation enabled. The rotation is set in panel (1).

6.4.1. Set output rotation

Output rotation is enabled in Preconfig > Outputs and set in Preconfig > Canvas.

1. In Preconfig > Outputs, select an output group.
2. In Configuration, enable the output **Rotation**, then assign the output to a Screen.
3. In Canvas, select the Screen.
4. In the tree view, select the output group (identified with .
5. The output group settings are displayed in the right panel.
6. In Rotation, set the rotation angle (**None**, **90°**, **180°** or **270°** counterclockwise).

Output rotation is set for the output group.

 Tip

If the physical displays are rotated at 90° clockwise, set the output group rotation at 90°.

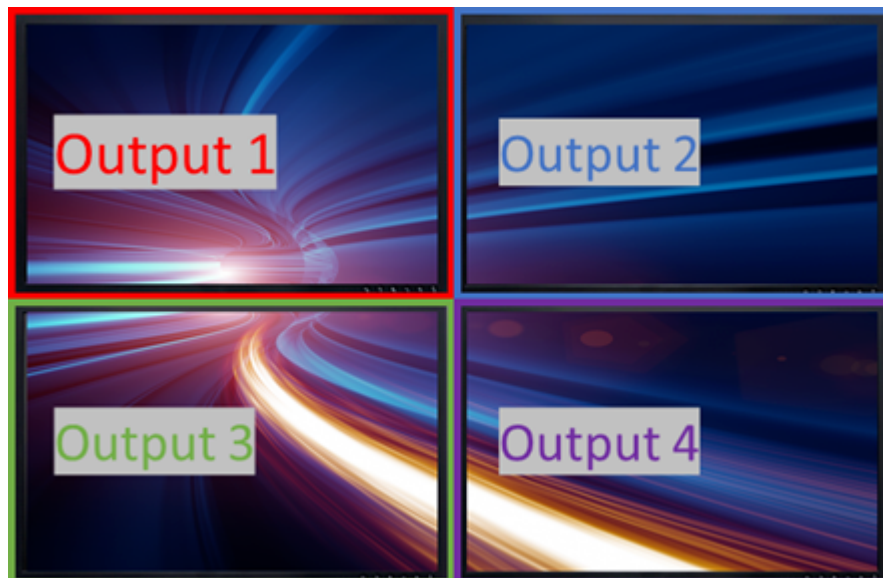
It is possible to reassign an output to another cell in the virtual canvas.

 Note

- Enabling output rotation in Preconfig > Outputs adds a one frame latency.
- Enabling output rotation for a 1x1 output with capacity 2 disables the next output plug.
- When using output rotation on a group, rotation is set individually with each output staying in its position.

 2x2 Screen

Display result



No rotation or 180° rotation

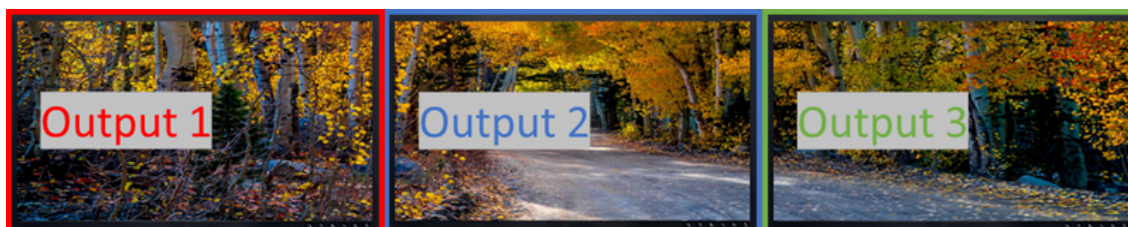


90° rotation CCW or 270° rotation CCW



3x1 Screen

Display result

*No rotation or 180°**90° or 270°*

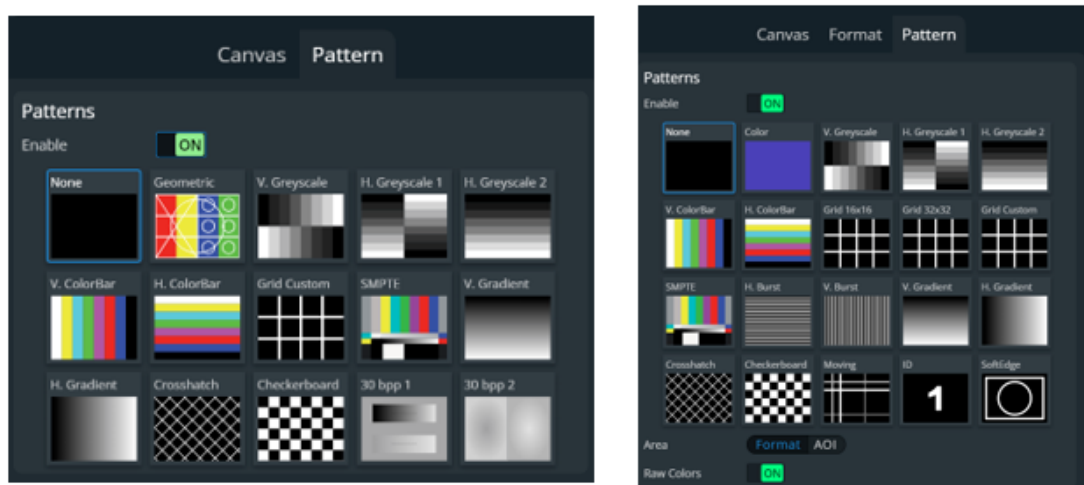
6.4.2. Patterns

Display patterns are used during the Screen configuration phase to test and control how outputs are displayed in Screens. Use patterns to identify and check if the displays are set correctly (color, position, resolution, etc.).

Screen patterns and Output patterns

It is possible to use Screen patterns and Output patterns.

Screen patterns are displayed on top of Output patterns.

*Screen patterns / Output patterns*

**Note**

Enabling a pattern overrides any content displayed in the output.
Make sure to keep all patterns disabled when they are not needed.

6.4.2.1. Screen pattern

Use Screen patterns to apply one pattern on the entire screen.

1. Toggle the enable button to display the pattern in the Screen.
Remember to disable the pattern when not needed.
2. Select the pattern to display.

**Customizable patterns**

Geometric is fully customizable to adapt to any screen.
Grid Custom, *Crosshatch* and *Checkerboard* are customizable patterns with units in pixels.

6.4.2.2. Output pattern

Use Output patterns to test and control how outputs are displayed in Screens.

1. Toggle the enable button to display the pattern in the Screen.
Remember to enable and disable patterns on all outputs.
2. Select the pattern to display.
3. OPTIONAL:
 - In Area: Set the pattern to fit the format used or the AOI.
 - Enable raw colors to disable all **Adjustments** settings (ex: Colorimetry, User Gain, etc.).

**Raster Box**

Click **Format** to enable raster box on whole format.
Click **AOI** to enable raster box on AOI.

**Customizable patterns**

Grid Custom, *Crosshatch* and *Checkerboard* are customizable patterns with units in pixels.

6.4.3. Grid canvas

In Grid type, create a grid and assign output groups to corresponding cells to create the Screen canvas.

**Tip**

An output group fits in one Screen Grid cell. A 2x2 output group fits in a 1x1 Screen Grid.

6.4.3.1. Create a Grid canvas



Preconfig > Canvas

1. Select a Screen.
2. Select the **Grid** canvas type.
3. Enter the number of columns and rows for the Screen Grid.
4. If needed, enter the size for the empty cells of the grid (in pixels).
The canvas is updated with the corresponding values and the total Screen size is indicated.
5. In the Tree view, click an output group and use drag and drop to assign it to a grid cell in the canvas.

OR

- Go to **Group Canvas** in the right panel and set its position using the Column and Row settings.
6. In **Group Format**, set a format for every output in the group.
7. In **Group Pattern**, display patterns to identify the outputs.
8. Repeat steps 5 to 7 for all outputs / output groups.

6.4.3.2. Create a covering in Grid canvas (blending)

Edge blending is a feature that gradually fades out the overlapping area from both projectors to create a seamless projection. For an effective blending, align the projected images so they are square with each other.

In Grid type, use X and Y areas to create coverings between outputs.

Note

In Grid type, coverings are equal for all outputs of the same row / column.



Preconfig > Canvas

1. Select a Screen with Grid canvas type.
2. Select the X or Y area where the covering will be created.
3. In **Configuration**, select Covering and enter the size in pixels.
The canvas is updated with the corresponding values.
4. If needed, in **Blending Curve**, enable the blending and set the Gamma or Bezier curve.
5. If needed, set the black area and black levels.

6.4.3.3. Create a gap in Grid canvas (bezel)

In Grid type, use X and Y areas to create gaps between outputs.

Note

In Grid type, gaps are equal for all outputs of the same row / column.



Preconfig > Canvas

1. Select a Screen with Grid canvas type.
2. Select the X or Y area where the gap will be created.
3. In **Configuration**, select Gap and enter the size in pixels.

The canvas is updated with the corresponding values.

6.4.4. Free canvas

Free type is separated in two modes:

- Auto mode to set the position of each output or group freely.
The canvas size is automatically computed and optimized for the created Screen.
- Custom mode to set the Screen size then position each output or group inside the created Screen.

6.4.4.1. Bottom bar buttons – Output position

In Free type, it is possible to use drag and drop in the virtual canvas to position the outputs.

Use the bottom buttons to help positioning outputs in the virtual canvas.

All bottom bar buttons are On/Off Toggle buttons.



Snap to Screen border and other outputs borders



Snap to grid cells. Click the arrow to set the grid (columns and rows).



Hide content to display only layers wireframe



Show Screen regions and layers

6.4.4.2. Create a canvas in Auto mode

Auto mode is recommended for complex shows with unknown canvas size.

In Auto mode, select outputs and enter their H position and V position or use drag and drop to create the Screen canvas.



Preconfig > Canvas

1. Select a Screen.
2. Select the **Free** canvas type and **Auto** size mode.
3. In the tree view, select an output group.
4. Use drag and drop in the canvas to place the output group.

Or

Go to **Group Canvas** in the right panel and enter H and V position for the output group (in pixels).

5. In **Group Format**, set a format for every output in the group.

The canvas is updated with the resolution and position settings.

6. In **Group Pattern**, display patterns to identify the outputs.

7. Repeat steps 3 to 5 for all outputs / output groups.

Tip

Use the tools in the bottom bar to snap to a custom grid and/or other outputs.

6.4.4.3. Create a canvas in Custom mode

Custom mode is recommended for complex shows where the canvas size is known.

In Custom mode, enter a H and V size to create the custom Screen canvas. Then enter position or use drag and drop to position each output inside the canvas.



Preconfig > Canvas

1. Select a Screen.

2. Select the **Free** canvas type and **Custom** size mode.

3. Click **H Size** and **V Size** to enter canvas size.

The canvas size in the virtual screen is updated to match the settings.

4. In the tree view, select an output group.

5. Use drag and drop in the canvas to place the output group.

Or

Go to **Group Canvas** in the right panel and enter H and V position for the output group (in pixels).

6. In **Group Format**, set a format for every output in the group.

The canvas is updated with the resolution and position settings.

7. In **Group Pattern**, display patterns to identify the outputs.

8. Repeat steps 4 to 6 for all outputs / output groups.

Tip

Use the tools in the bottom bar to snap to a custom grid and/or other outputs.

6.4.4.4. Create a covering in Free canvas (blending)

Edge blending is a feature that gradually fades out the overlapping area from both projectors to create a seamless projection. For an effective blending, align the projected images so they are square with each other.

Recommendation

Use manual blending in Free canvas for complex shows only.

For a standard show (ex: 2x2 or 3x1 Screen configuration), use Grid canvas.



Preconfig > Canvas

1. Select a Screen with **Free** canvas type.

2. Select an output where the covering will be created.

3. Go to **Areas** in the right panel and select a side of the output to apply covering.
4. In **Configuration**, enter the covering size in pixels.
The canvas is updated with the corresponding values.
5. If needed, in **Blending Curve**, enable the blending and set the Gamma or Bezier curve.
6. If needed, set the black area and black levels.
7. Repeat steps 2 to 6 for the side(s) of other the output(s).

6.4.4.5. Preview regions and layers in Canvas

After creating the canvas it is possible to show regions and layers to check if the configuration meets the requirements of the show.

Example

See example in  Preconfig - Canvas ^[p.86].



Preconfig > Canvas

1. Select a Screen with multiple regions.
2. In the bottom bar, click  to show the regions and layers.
3. Hover over a layer letter to see the regions where it can be displayed.
4. If needed, return to *Preconfig > Screens* to adjust regions or layer association.

6.4.5. Advanced output settings (in Preconfig > Canvas)

These settings are applied to the selected output(s) and can be used in all canvas types.

6.4.5.1. Canvas settings for DPH104

All DPH104 outputs are limited to a grid created according to the Layout selected in *Preconfig > Screens* (4x1; 2x2 or 1x4).



Preconfig > Canvas

1. Select a Screen.
2. Select a Screen type and place the output groups in the Screen canvas.
3. If needed, set rotation for all the outputs of the DPH104.
4. If needed, change/swap the positions of the DPH104 outputs.

Note

When connecting the DPH104 outputs to multiple video projectors, the Aquilon Web RCS can set outputs overlap. However, blending adjustments must be set using the projectors.

6.4.5.2. Create an area of interest (AOI)

The AOI is a cropped area of the display in the output format. Use AOI to remove unseen or useless display areas and operate exclusively on the output area actually displayed.

The AOI can be set to fit the Output format (with Overscan) or Custom size.



Preconfig > Canvas

1. Select a Screen.
2. Select an output.
3. In AOI, click **Fit Output Format** and set the overscan if needed.

Or

Click **Custom** and set the size and position of the AOI.



Tip

Use arrows for fine adjustment.

6.4.5.3. Pitch compensation

Some Screens using multiple outputs can have outputs with different pitches, especially LED video walls.

Using pitch compensation corrects the outputs with different pitches for a screen with homogeneous scaling.



Preconfig > Canvas

1. Select a Screen.
2. Select an output group to set a different pitch.
The reference output group should use a 1:1 pitch.
3. In Pitch, set the H and V ratio of the output group compared to the reference output group.

6.5. Preconfig > Inputs

Set:

- input group
- input format
- input visibility.

6.5.1. Input group

Input group

Grouping inputs optimizes the processing resources of the VPU and saves layers in Screens. It allows more inputs in the same VPU.

How it works

- An input can only be grouped with the following input in the same input card.
- It is possible to group up to four live inputs (ex. four 1920x1080 inputs can be used as one 3840x2160 source for a 4K output).
- The group leader is always the input with the lowest number (ex: If input 7 and 8 are grouped together, then input 7 is the leader and input 8 is set as *Grouped*).
- Input settings available in the input menu are common for all inputs in the group (color space, patterns, crop, keying, etc.).

Note

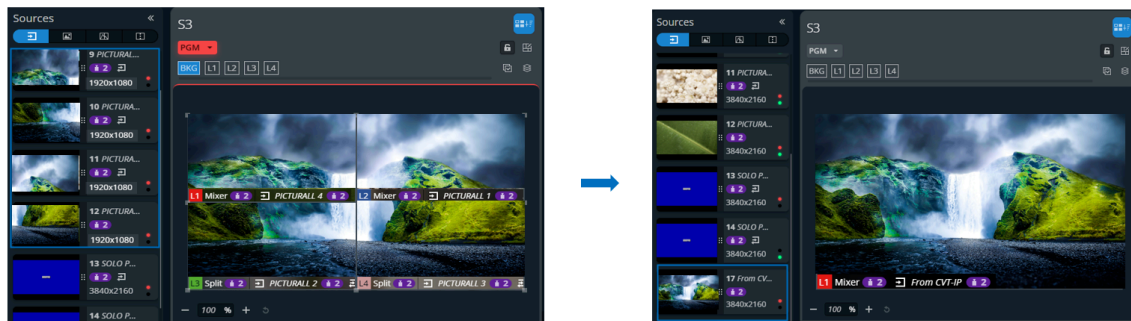
- When grouped together, every input must have the same format and the group bandwidth is limited to capacity 4 (5120x2880@60Hz).
- The maximum input group configuration for 4096x2160@60Hz is 1x2 or 2x1.
- 8-plug SDI input card allows to group capacity 1 inputs only.
- Input group is not supported for NDI inputs.

Input group examples

Group four live inputs (in 1x4, 2x2 or 4x1) and use them as one source in one layer.

Or

Set a quad HDTV live input as background content for a 4K output group.



Four HD inputs used as one 4K input source

6.5.2. Set an input group



Preconfig > Inputs

1. Select one or more inputs.
2. In **Configuration**, select the input group layout (1x1 by default).
Selecting a higher group layout automatically groups the following input(s).
3. In **Expected Signal**, set the format applied to every input of the group.

Or

Click  to automatically fit to the detected signal.

The capacity is indicated for this input group.

Capacities

- An input group with capacity 2 can only be displayed in a layer with capacity 2.
- An input group with capacity 2 uses 2 Aux layers (one layer will be preempted).

6.5.3. Set four 3G-SDI inputs for 2SI format

Tip

It is possible to connect four 3G-SDI inputs in any order as long as they are connected to the same input card and the SDI signal is encoded in 2SI format.

1. Connect the four 3G-SDI on the same input connector card on the rear panel.
2. In **Preconfig > Inputs**, select the first SDI input of the group.
3. In **Configuration**, set the group layout to **2x2**.
4. In **Expected Signal**, set the format applied to every input of the group.

The content is automatically recomposed by the Aquilon device and the content is ready to be used as a single 4K source.

6.5.4. Set an NDI input

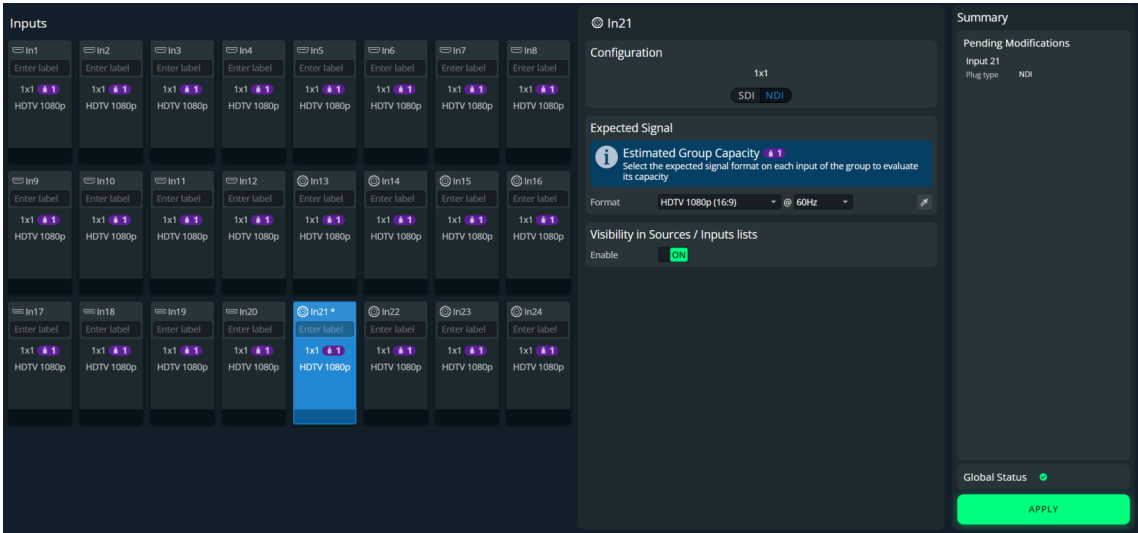
The IP/SDI input card can accommodate up to 4 full bandwidth NDI streams in parallel, or 4 12G-SDI sources, or any combination of the two.

Note

The NDI inputs cannot be grouped. The only possible configuration is 1x1.

1. Connect an RJ45 cable and, if needed, a required number of 12G-SDI sources on the same input connector card on the rear panel.
2. In **Preconfig > Inputs**, select an IP/SDI input.
3. In **Configuration**, select an NDI plug (or SDI for 12G-SDI).
4. In **Expected Signal**, set the format applied to every input.
5. Click **Apply**.

The input connector is modified according to the selected plug type.



NDI and SDI inputs on IP/SDI card

6.5.5. Set an input visibility



Preconfig > Inputs

1. Select one or more inputs.
2. In **Configuration**, enable / disable the input(s) visibility in Sources and Inputs lists.

6.6. Preconfig > Images

Set:

- the expected image resolution for image slots
- image visibility.

6.6.1. Image slots

The number of available image slots displayed at the same time depends on the number of IPU of the unit and the image slots capacity.

Number of IPU's	Image slots available
1	24 image slots at capacity 1
	12 image slots at capacity 2
	6 image slots at capacity 4
2	48 image slots at capacity 1
	24 image slots at capacity 2
	12 image slots at capacity 4

Image slots capacities

Image slots of all capacities can be displayed at the same time.

An image slot with capacity 2 uses the resources of the next slot and preempts it, no matter the real image resolution.

An image slot with capacity 4 will preempt all the remaining slots.

An image slot capacity should match a layer capacity for optimal display.

An image slot with capacity higher than 1 will preempt the next Aux layer (each additional capacity = one layer preempted).

More information on IPU

See  IPUs ^[p.71].

6.6.2. Set images preset capacity



Preconfig > Images

1. Select one or more image slots.
2. In the right panel, set the expected image resolution for the image slot(s).
The capacity is indicated for this image slot.
The slot capacity stays the same when changing the image in the slot.

Note

If the Internal rate is set above 60Hz, some image resolutions may not be supported.

6.6.3. Set images visibility



Preconfig > Images

1. Select one or more image slots.
2. In the right panel, enable / disable the image(s) visibility in Sources and Images lists.

6.7. Preconfig > Backgrounds

Create background sets for each Screen.

Up to eight Background sets can be saved per screen.

6.7.1. Background sets

Each Screen is composed of one or more output groups. Assign inputs and images to these output groups to create background sets.

Background sets can only be used in Screens.

 Note

- One input can be set as a background source for multiple output groups if they have the same format (resolution, rate and blanking).
- Aux Screens use a custom monochrome color as background (set in the layer properties in Live – Screens / Aux Screens).

6.7.2. Background set for a Screen with one output group

 Important

The content and output capacities must match.

Otherwise, it is not possible to assign it to the background set.

The procedure is the same for one output and for one output group with multiple outputs.

 Example

Screen 1 is a single output screen using Output 1.

1. Select **BS1** in **Screen 1**.
2. Click a source icon to open the Inputs or Images sources.
3. Click  in the top right corner of background canvas to display the Output capacity and resolution and add content from the dropdown list.

Or

Drag a content and drop it directly in the virtual canvas.

Background set 1 is set and saved.

Repeat the procedure with BS2, BS3, etc. to create more Background Sets for Screen 1.

6.7.3. Background set for a Screen with multiple output groups

 Important

The content and output capacities must match.

Otherwise, it is not possible to assign it to the background set.

 Example

Screen 2 is a 4x1 screen using Outputs 3, 4, 5 and 6, each output is a 1x1 output group.

1. Select **BS1** in **Screen 2**.
2. Click a source icon to open the Inputs or Images sources.
3. Click  in the top right corner of background canvas to display all the Screen Outputs, their capacity and resolution and add content from the dropdown list.

Or

Drag a content and drop it directly in the virtual canvas of Output 3.

4. Repeat for other outputs.

Background set 1 is set and saved.

Repeat the procedure with BS2, BS3, etc. to create more Background Sets for Screen 2.

6.7.4. Reset a background set



Preconfig > Backgrounds

1. Select a Background Set.
2. Hover over the top right corner of the virtual canvas and click  to clear the background set.

Option

Select each output and press the **Del** key to remove the assigned content one by one.

6.7.5. Remove a source from all background sets



Preconfig > Backgrounds

1. Click  in the top right corner of a source content.
2. Click **Remove from all BKG Sets**.

6.7.6. Background set backup

In  Backups, add backups for background sets and define mode of their application. Up to two backups can be defined for each background set to ensure the continuity of display if a prime background set becomes unavailable.

Note

A background set can only have another background set as backup. Background set composed of inputs with their own backups, will become invalid and turn black if one of the primary input signal fails. A backup must be created for the background set to replace it.

1. Click on Add Background Set Backup and in Primary, select the background set for which you want to create a backup.
2. In Backup 1 select a background set to replace the selected primary background set.
3. In Backup 2 select a background set to replace Backup 1.
4. Click on Add new backup set.

The created backup appears on the current backups list on the last position (following the default *Creation date* filter).

Optional: Click on  on the top of the list to change the filter to Ascending order.

5. Define the backup mode:

- Manual (default mode) – requires a manual selection of one of the backups in case of a Primary background set loss
- Auto – when enabled, it will automatically switch to a backup (1, and then 2 if needed) as soon as one of the sources composing the background set (i.e. input or image) is impacted by content loss.

6. In Auto mode, click on in the top right corner to define the triggering delay for all backups (inputs and background sets):

- At startup - to ensure that all primary sources are available and avoid automatic switch to backup
- After the loss of a valid signal.

Backup activation is indicated on the background layer by the following icon  with a backup number and it appears on the notifications list in the top bar.

 Tip

- To modify the existing background set backup configuration, select a new background set from the drop-down list or define a new configuration and replace the backup set.
- The return to Primary background set, if restored, must be enabled manually.
- If the device was restarted, the background set display will depend on the previously selected backup mode:
 - in Manual mode: the last selection
 - in Auto mode: the primary background set.
- To instantly switch several sources (inputs and background sets) to their backups, select the required items from the list of backups and click on  to group them (name the group if needed). It is then possible to switch all of them to Backup 1 or 2 at the same time manually or automatically. In Auto mode, the entire group will switch to backup if even one signal becomes invalid.

6.8. Preconfig > AVoIP

- Click on an input / output connector to display status information of a corresponding AV over IP device (IP/SDI, ST2110, SDVoE or Dante).
- Modify selected settings.

6.8.1. IP/SDI

IP/SDI input card can accommodate up to four NDI full bandwidth streams.

Any unused NDI input may be changed to an SDI input by modifying a plug type in Preconfig > Inputs.

 Recommendation

- Use TCP protocol for NDI encoder for optimum performance.
- Limit UDP protocol use to multicast only.

How it works

Click on an IP/SDI card connector to display the corresponding NDI properties and:

- Define the IP/SDI card network.
- Find NDI sources.
- Assign a source to a selected input and set a video buffer size.

6.8.1.1. Define IP/SDI card network

1. Enter the **Host Name** in the **NDI** menu.
2. In **Network** tab below, enable DHCP to automatically define the IP address of the IP/SDI input card or manually enter the network information and click **Apply**.

6.8.1.2. Find NDI sources

The mDNS service is enabled by default and allows to automatically find the available streams.

In **NDI Sources** tab in the right panel, click on  under **Detected Sources** to display a list of streams.

To display more sources:

- Enable Discovery Server (if present) and enter its IP address. Click on  to update the list of detected sources.
- Enable Static IP list and enter the IP address of a streaming device. Click on  to update the list of detected sources.

IP addresses

- Click on **Add Server IP** to enter up to 100 static IP addresses per IP/DSI input card.
- Use **On/Off** button to activate them as need or  to remove them.

6.8.1.3. Assign a source to an input

If an NDI source is currently assigned to an input, a colored LED in front of an input on the interactive rear panel indicates the stream status:

-  Stream correctly decoded in progress
-  Decoding speed degradation
-  Decoding error

Tip

Open the **Input** tab in the **NDI** menu to see the details of decoding error.

To assign a source to input:

1. Select an input on the interactive rear panel.
The selected input is highlighted.
2. In the **Input** tab on the right panel, select a source from a drop-down list.

3. In the **NDI** menu above, check the real time load indications of the IP/SDI card (CPU, Network; GPU, FPGA) to determine the size of the buffer necessary to maintain a proper audio/video synchronization.
4. Enter the buffer size.



Load indicator

- A load indicator at 100 % indicates an overload. Please check the ACC-AQL-IN-IP-SDI Datasheet for the recommended NDI decoding performance.
- If the NDI stream does not include audio channels, the buffer can be set to 0. Increasing the buffer size may be necessary in case of unstable network connection to prevent audio pops or audio/video desynchronization problems.

6.8.2. ST 2110



Prerequisite

ST 2110 network including a Level 3 switch with 25G ports, a PTP master clock (2-step clock) and NMOS nodes with ST 2110 endpoints (following AMWA specifications) must be set-up before WebRCS configuration. For more information, see the corresponding application note on <https://www.analogway.com>.

All signals within the same module (2 modules per card) must use the same bit rate type (Integer or Fractional). For example, it is not possible use 59.94Hz and 60Hz signals simultaneously on the same module. But it is possible to use 50Hz and 60Hz signals simultaneously.

ST 2110 audio / video stream routing can be set via an external NMOS controller.

The video stream can also be set via:

- SDP file
- manually.

PTP synchronization applies to each module individually.

The Input Clock mode can be set for each module by selecting one of the following modes: Auto / Integer / Fractional.



Note

The routing of ST 2110 audio / video streams to the Aquilon device inputs must be done through the interface of a selected NMOS controller after AVoIP preconfiguration.

6.8.2.1. Define network interface

The following steps apply to input and output cards. Click on *Apply* to confirm each setting.

1. Click on an ST 2110 card connector (input or output) to display the corresponding module's properties.

Default settings:

- FEC (Forward Error Correction) RS1080 is enabled.
If required, select *Disable* from the dropdown list.
- VLAN is set to 0 (disabled).
Enter a required VLAN value if needed.

2. Enable DHCP for primary / secondary access or enter the network information manually.
3. Select PTP mode, DSCP and domain for clock synchronization.

The source appears as *Locked* when correctly synchronized.

4. If using an NMOS controller, enter NMOS settings:
 - Enable mDNS or enter DNS server information for device discovery.
 - Select Auto Registry mode or enter Registry IP Address and port.

Colored LED in front of each connector on the interactive rear panel indicates its status:

LED	Primary	Secondary
 blinking	Port identification	Port identification
 Off	No ethernet link (even with module in port)	No ethernet link (even with module in port)
	Ethernet link but module not connected to an NMOS server	Ethernet link but module not connected to an NMOS server
 blinking	Connected to NMOS, no video stream	Connected to NMOS, no video stream
	At least one video stream is present	At least one video stream is present
	At least one video stream is present Redundancy is enabled	At least one video stream is present Redundancy is enabled
	Stream error (in input only)	Stream error (in input only)

6.8.2.2. Assign a video stream to input

Up to 4x 4K60 input streams are available per module.

To assign a video stream to input if NMOS is not configured:

- Import the SDP file if available.

Or

- Define primary / secondary stream access (for destination and source) and enter source information (format, pixel encoding, color space, and dynamic range).

6.8.2.3. Assign a video stream to output

Up to 2x 4K60 output streams are available per module.

To assign a video stream to output:

- Define primary / secondary stream access (for destination and source).

6.8.2.4. Assign an audio stream to input/output

Up to 4 audio channels @48 kHz are available per 4K60 stream.

To assign an audio stream to input/ output if NMOS is not configured:

- Define primary/ secondary stream access (for destination and source).

6.8.3. SDVoE

Click on an SDVoE input / output card connector to display the SDVoE properties and check the card status and network.

6.8.4. Dante

Aquilon can manage Dante routing for up to 64 input channels and 64 output channels at 48 kHz (default rate) or 32 input and 32 output channels at 96 kHz (rate set via external Dante controller).

Click on Dante connector to display the status of the card (serial number, module, version, etc.) and:

- Click Reboot to restart the Dante card.
- Click Factory Reset to reset the firmware of the Dante card.
- Click on the tabs below to display network information and the current routing (Channels Receivers and Channels Transmitters).



Dante update

The update of the Dante card is integrated in the firmware update of the Aquilon unit. A pre-requisite is to install AW Dante Firmware v3.7.0.X (available on Analog Way's website) using the Dante Firmware Update Manager tool before updating the Aquilon firmware.

7. Multiviewers

In  Multiviewers, set:

- Label
- Format
- Signal parameters
- Image correction
- Patterns.

More options

- Go to Preconfig > Multiviewers to enable One Multiviewer or Two Multiviewers screens.
- Go to Live > Multiviewers to set the Multiviewers layout and Widgets.

7.1. Multiviewers settings

Click a Multiviewer output to open its settings. The selected output is highlighted in the interactive rear panel.

Options

- Enter the label to rename the Multiviewer.
- On the interactive rear panel, hover over an output connector to display information about this output.
- On the interactive rear panel, click an output to open its settings.
- Click  to capture the video signal into an image file.

7.2. Multiviewers format

In  Multiviewers, select an output and adjust the settings:

Setting name	Description / Setting selection
Mode	Set to follow internal rate or select a custom rate in the list
Format	Set the format for the Multiviewer display

7.3. Multiviewers signal

In  **Multiviewers**, select one Multiviewer.

In **Signal**, adjust the following settings:

Setting name	Description / Setting selection
Pixel Encoding	Auto or RGB Full (8 or 10 bits), RGB Limited (8 or 10 bits), YCbCr 4:4:4 (8 or 10 bits), YcbCr 4:2:2 (12 bits), or YcbCr 4:2:0 (8 or 10 bits)
Color Space	Auto, ITU-R BT.709, or ITU-R BT.2020
DVI mode	Enable to change HDMI™ signal into DVI signal if using a DVI connector on the Multiviewer display
DDC Bus Speed	Slow, Medium or Fast (HDMI™ I only)
HDCP	Disable*; Auto; HDCP 1.x; or HDCP 2.x
HDMI™ /DP Interface	Reset the Multiviewer interface to restore the connection

* Disabling HDCP reduces potential problems when the content is not fully HDCP compliant. When output HDCP is disabled, HDCP-protected inputs are not displayed.



Recommendation

Always use high quality cables to prevent connection and bandwidth errors when using HDCP.



Good to know

- The actual Pixel encoding and Color space used can be different from the one set in the output format. It is indicated in the details of the signal status in the table.
- DDC Bus Speed is set to **Fast** by default. Using **Slow** or **Medium** speed can be needed to resolve compatibility issues when using HDMI™ over fiber extenders.

7.4. Multiviewers adjustment (image correction)

In  **Multiviewers**, select one Multiviewer.

In **Adjustments**, change the following settings:

Setting name	Description / Setting selection
Brightness	Adjust Global, Red, Green and Blue for Brightness (Global and RGB are cumulative)
Contrast	Adjust Global, Red, Green and Blue for Contrast (Global and RGB are cumulative)
Colorimetry	Adjust Saturation and Hue
Temperature	Adjust Temperature
Gamma	Adjust Gamma level

7.5. Multiviewers pattern

In  Multiviewers, select one Multiviewer.

In **Pattern**, change the following settings:

Setting name	Description / Setting selection
Patterns	
Enable	On/Off toggle. Display the pattern in Multiviewer
Patterns	Select the pattern to display
Area	Set the pattern to fit the format used or the AOI
Raw Colors	On/Off toggle. Using raw colors disables all Adjustments settings (ex: Colorimetry, User Gain, etc.)
Raster Box	
Format	Click to enable raster box on whole format
AOI	Click to enable raster box on AOI

 **More information on pattern types**

See  Patterns ^[p.90].

8. Outputs

In  **Outputs**, set for each output group:

- Label
- Format
- Signal parameters
- Image correction
- Patterns.

Output preview

The thumbnail preview is only possible for outputs used in Screens.
Outputs used in Aux. Screens have a black thumbnail.

More options

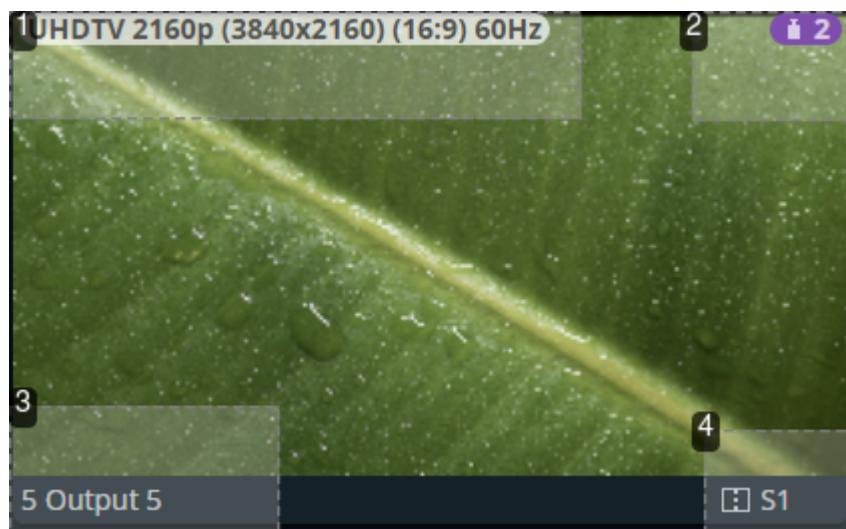
Go to Preconfig > Outputs to set output resources.

8.1. Outputs main screen

Go to  **Outputs**

The outputs main screen displays all outputs in a Grid view.

The following information are displayed per output:



1. Format, rate and resolution
2. Output capacity
3. Output number and label
4. Screen number using that output

8.2. Output settings

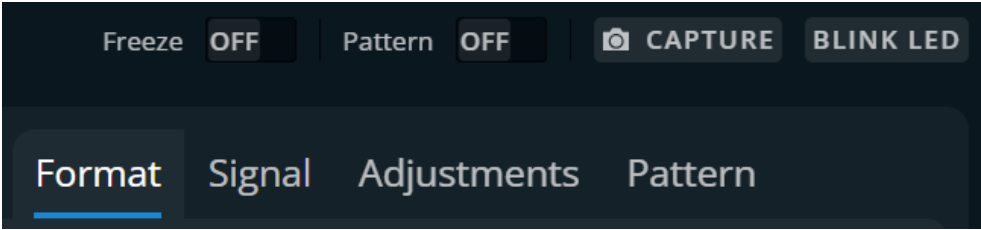
In  **Outputs**, click an output to open its settings.

The selected output is highlighted in the interactive rear panel and all output information is listed next to the Output preview.

Options

- Click **All** to return to the outputs Grid.
- Enter the label to rename the selected output.
- On the interactive rear panel, hover over an output connector to display information about this output.
- On the interactive rear panel, click an output to open its settings.

Settings panel



Output settings

- Toggle **Freeze** to pause the content of this output group.
- Toggle **Pattern** to replace the content with a pattern (see  Output pattern^[p.115]).
- Click  to capture the Program output video signal into an image file.
- Click **Blink LED** to identify the selected output connector on the physical rear panel of the unit.

8.2.1. Output format

In  **Outputs**, select an ouput and adjust the settings.

Output format settings are identical for all outputs of the same group.

Setting name	Description / Setting selection
Mode	Set to follow internal rate or select a custom rate in the list
Format	Set the format for each output of the group
Configuration (only with DPH104)	OSD ON/Off toggle: Display / hide On Screen Display DPH104 information Audio: • Select Mirror to send all 8 audio channels on all outputs • Select Split to send audio channels 1&2 to DPH104 Output 1, audio channels 3&4 to DPH104 Output 2, and so on
Phase Shift	Set Horizontal and Vertical offsets for each output of the group  indicates that an output group has a phase shift set.

8.2.2. Output signal

In  **Outputs**, select an output.

In **Signal**, depending on Internal Profile, adjust the following settings:

Setting name	Description / Setting selection
Settings	
Pixel Encoding	Auto or RGB Full (8 or 10 bits), RGB Limited (8 or 10 bits), YcbCr 4:4:4 (8 or 10 bits), YcbCr 4:2:2 (12 bits), or YcbCr 4:2:0 (8 or 10 bits)
Color Space	Auto, ITU-R BT.709, or ITU-R BT.2020
Dynamic Range	Auto, SDR, HDR10 or HLG
Luminance	Select the nit level used for this output
SDI Mapping	Auto, Quad Link Four Quadrants or Quad Link 2SI (SDI 2x2 group only)
SDI 3G Standard	Level A or Level B (SDI output only)
HDCP	Disable*, Auto, HDCP 1.x, or HDCP 2.x
DVI mode	Enable to change signal into DVI signal if using a DVI connector on the display
DDC Bus Speed	Slow, Medium or Fast (HDMI™ only)
HDMI™/DP/SDI Interface	Reset the output interface to restore the connection

* Disabling HDCP reduces potential problems when the content is not fully HDCP compliant. When output HDCP is disabled, HDCP-protected inputs are not displayed. Please note that for SDVoE connectors, the HDCP status must be specified on the network, using the external SDVoE controller.



More information on dynamic range settings

See LivePremier LUT Architecture application note available on www.analogway.com [http://www.analogway.com/].



Recommendation

Always use high quality cables to prevent connection and bandwidth errors when using HDCP.



Good to know

- The actual Pixel encoding and Color space used can be different from the one set in the output format. It is indicated in the details of the signal status in the table.
- DDC Bus Speed is set to **Fast** by default. Using **Slow** or **Medium** speed can be needed to resolve compatibility issues when using HDMI™ over fiber extenders.

Setting name	Description / Setting selection
Conversion Mode	
Mode	Auto or LUT
Conversion LUT	In LUT Conversion mode, select a LUT from the Conversion LUT library
Mapping	For SDR with HLG as internal profile only • Inverse Tone Mapping: use if if internal processing and main input are using Limited Range color space • Direct Mapping
Reference	For HLG ↔ SS DR conversion only • Scene Referred: for camera content • Display Referred: for computer content
OETF	For Scene Referred only: Square Root or Strict

Importing a LUT in the library

See  Importing a LUT [p.139].

8.2.3. Output adjustment (manual image correction)

In  Outputs, select an output.

In Adjustments, in **Manual** correction mode, change the following settings:

Setting name	Description / Setting selection
Brightness	Adjust Global, Red, Green and Blue for Brightness (Global and RGB are cumulative)
Contrast	Adjust Global, Red, Green and Blue for Contrast (Global and RGB are cumulative)
Colorimetry	Adjust Saturation and Hue
Temperature	Adjust Temperature
Gamma	Adjust Gamma level

8.2.4. Output adjustment using Correction LUT

In  Outputs, select an output.

1. In Adjustments, select LUT correction mode.
2. In **Correction LUT**, select a LUT from the Correction LUT library.
The Correction LUT is applied to the corresponding output group.

 **Importing a LUT in the library**

See  [Importing a LUT](#) ^[p.139].

8.2.5. Output pattern

In  **Outputs**, select an output.

In **Group Pattern**, change the following settings:

Setting name	Description / Setting selection
Patterns	
Enable	On/Off toggle. Display the pattern in all outputs of the group
Patterns	Select the pattern to display
Area	Set the pattern to fit the format used or the AOI
Raw Colors	On/Off toggle. Using raw colors disables all Adjustments settings (ex: Colorimetry, User Gain, etc.)
Raster Box	
Format	Click to enable raster box on whole format
AOI	Click to enable raster box on AOI

 **More information on pattern types**

See  [Patterns](#) ^[p.90].

9. Inputs

In  Inputs, set:

- Label
- Signal parameters
- Aspect
- Keying
- Image correction
- Patterns
- NDI source (for NDI plugs only).

Note

Input settings are identical for all inputs of the same group.

More options

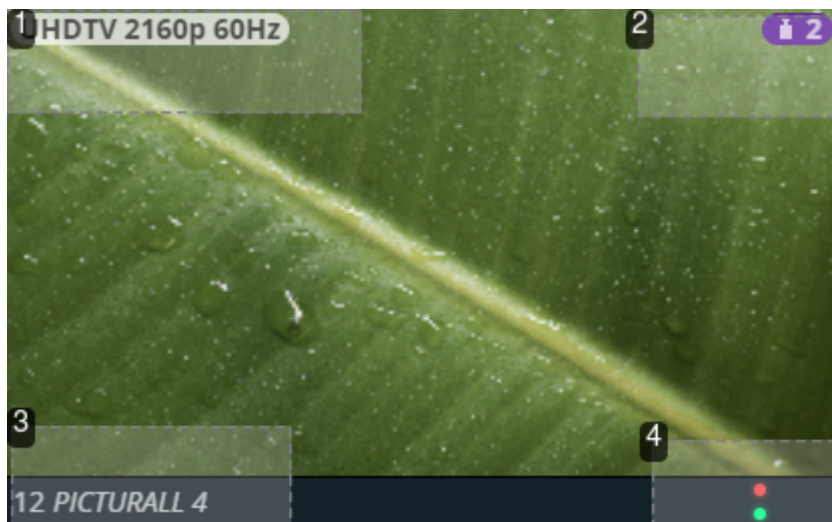
Go to Preconfig > Inputs to set Input resources.

9.1. Inputs main screen

Go to  Inputs

The inputs main screen displays all inputs in a Grid view.

The following information are displayed per input:



1. Format, rate and resolution
2. Input capacity
3. Input number and label

4. The tallies

The tallies turn red and green if the input is used in a ● **Program** and/or ● **Preview** Screen.

9.2. Input settings

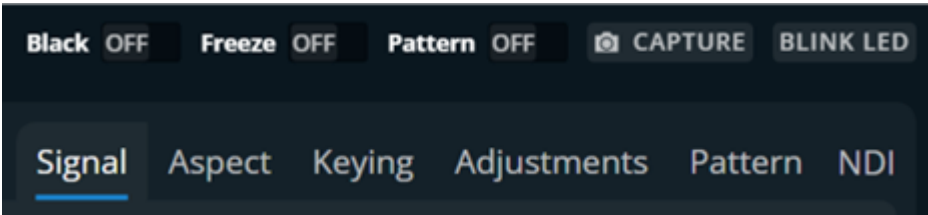
In  **Inputs**, click an input to open its settings.

The selected input is highlighted in the interactive rear panel and all input information is listed next to the Input preview.

 Options

- Click **All** to return to the Inputs Grid.
- Enter the label to rename the selected input.
- On the interactive rear panel, hover over an input connector to display information about this input.
- On the interactive rear panel, click an input to open its settings.

 Settings panel



Input settings

- Toggle **Black** to display a black image in all layers using this input.
- Toggle **Freeze** to pause the content in all layers using this input (this does not pause the playback of a media).
- Toggle **Pattern** to replace the content with a pattern (see  Input pattern ^[p.123]).
- Click  to capture the input video signal into an image file.
- Click **Blink LED** to identify the selected input connector on the physical rear panel of the unit.

9.2.1. Input signal

In  **Inputs**, select an input.

In **Signal**, depending on Internal Profile, adjust the following settings:

Setting name	Description / Setting selection
Settings	
Signal Type	Auto, YUV, RGB Full (0-255) or RGB Limited (16-235)
Dynamic Range	Auto, SDR, HDR10 or HLG

Link rate (for odd connectors on DP card)	HBR3 (8.1 Gbps), HBR2 (5.4 Gbps)
Luminance	Select the nit level used for this input
SDI Mapping	Auto, Quad Link Four Quadrants or Quad Link 2SI (SDI 2x2 group only)
HDCP	None*, Default, HDCP 1.x Only or HDCP 1.x and 2.x
HDMI™/DP/SDI Interface	Reset the output interface to restore the connection
Conversion Mode	
Mode	Auto or LUT
Conversion LUT	In LUT Conversion mode, select a LUT from the Conversion LUT library
Mapping	For SDR with HLG as internal profile only • Inverse Tone Mapping: use if if internal processing and main input are using Limited Range color space • Direct Mapping
Reference	For HLG ↔ SS DR conversion only • Scene Referred: for camera content • Display Referred: for computer content
OETF	Square Rootor Strict

* Disabling HDCP reduces potential problems when the content is not fully HDCP compliant. When input HDCP is disabled, HDCP-protected inputs are not displayed. Please note that for SDVoE connectors, the HDCP status must be specified on the network, using the external SDVoE controller.

More information on dynamic range settings

See *LivePremier LUT Architecture* application note available on www.analogway.com [http://www.analogway.com/].

Recommendation

Always use high quality cables to prevent connection and bandwidth errors when using HDCP.

Importing a LUT in the library

See  Importing a LUT [p.139].

9.2.2. Input aspect

In  Inputs, select an input.

In Aspect, set the Aspect ratio or set input crop.



Important

Aspect ratio and Crop replaces the input content and affects every layer using it. If needed, use crop at layer level in Live or duplicate the input with a splitter.

9.2.2.1. Set input aspect ratio

Change the input aspect ratio in all layers. Use these settings to correct the input aspect ratio if needed.

Setting name	Description / Setting selection
Aspect Ratio	
Content ratio	Force an aspect ratio for the input if it needs correction (non-square pixels) Native; 5:4; 4:3; 16:10; 15:9; 16:9; 21:9 or 64:27
Transform to	Set the final aspect ratio for the input. This is the aspect ratio used for the Layer fill option. Native; 5:4; 4:3; 16:10; 15:9; 16:9; 21:9 or 64:27
Layer fill option	1:1; Centered; Fullscreen or Cropped



Option

To keep the input unchanged, modify aspect ratio at layer level.

9.2.2.2. Set input crop

Crop input (ex: black bars) and keep only wanted area in layers.

Setting name	Description / Setting selection
Crop	
Finder	On/Off toggle. Display cropping area in output, use during setup and disable Finder to show the crop result output.
Top, Bottom, Left, Right	Enter cropping values (in pixels)



Note

Input crop affects the whole group. Input crop is not possible for individual inputs inside a group.

9.2.3. Input keying

In  Inputs, select an input.

In **Keying**, key the content using Chroma Keying, Luma Keying, CremaTTe 3D LUT or Cut & Fill.

Input keying applies to all inputs in the same input group.

Options

- Use Chroma Keying to key a color (or hue).
- Use Luma Keying to key a Luma level (or brightness).
- Use CremaTTe 3D LUTs for advanced keying with dedicated AW tool (*Not available for 8-plug HDMI™ input card*).
- Use Cut & Fill to key an input without losing extra layers.

Free AW tool

AW CremaTTe 3D is a free tool used to create a keying LUT using the inputs of an Aquilon. It is available on www.analogway.com [http://www.analogway.com/].

Keying profiles

Chroma and Luma keying settings can be saved in a keyer bank to be later used as keying profiles at the Layer level. Once the profile is saved, make sure to disable keying on the input if not needed.

9.2.3.1. Set Chroma Keying

In  Inputs, select an input.

1. Click Keying and **Chroma** mode.
2. Enable Freeze on the content.
3. In Value, select the Hue to Key (color).
4. Or use the assistant to pick directly from the content:
 - a. Enable the assistant.
 - b. Select the area to pick in the preview.
 - c. Click **Pick** to get the Hue value from the content.
 - d. Disable the assistant.
5. Enable the **Color** mask.
The content becomes blue, gray and red.
6. In Tolerance, adjust the settings until the Keying is correct:
 - The preserved content is displayed **blue**.
 - The keyed content is displayed **red**.
7. In Colorimetry, adjust the Color Correction to fade the selected hue.
8. Enable / Disable Freeze and Color mask to view the keying result and adjust settings until satisfied.

- Optional: To save it as a keying profile, click on *Scroll to Keyer Bank* and select a memory slot. If needed, select a color and label the profile. Click *Save*.

When saved, make sure to disable keying on the input if not needed.

Option

The **Black and White** mask is similar with the preserved content displayed in white and the keyed content in black.

9.2.3.2. Set Luma Keying

In  **Inputs**, select an input.

- Click Keying and **Luma** mode.
- Enable Freeze on the content.
- In Value, select the Luma to Key (Brightness level).
- Or use the assistant to pick directly from the content:
 - Enable the assistant.
 - Select the area to pick in the preview.
 - Click **Pick** to get the Luma value from the content.
 - Disable the assistant.
- Enable the **Color** mask.
The content becomes blue, gray and red.
- In Tolerance, adjust the settings until the Keying is correct:
 - The preserved content is displayed **blue**.
 - The keyed content is displayed **red**.
- Enable / Disable Freeze and Color mask to view the keying result and adjust settings until satisfied
- Optional: To save it as a keying profile, click on *Scroll to Keyer Bank* and select a memory slot. If needed, select a color and label the profile. Click *Save*.

When saved, make sure to disable keying on the input if not needed.

Option

The **Black and White** mask is similar with the preserved content displayed in white and the keyed content in black.

9.2.3.3. Keying using a CremaTTe 3D LUT from the Library

In  **Inputs**, select an input.

- Click Keying and **CremaTTe 3D** mode.
The input's color space must be the same as the color space set for processing in system pre-configuration.
- Enable Freeze on the content.
- In CremaTTe 3D LUT, select a LUT from the CremaTTe 3D LUT library.

The LUT is used for the keying of the input group.

4. Enable / Disable Freeze and Color mask to view the keying result.

Importing a LUT in the library

See  Importing a LUT ^[p.139].

9.2.3.4. Set Cut & Fill

In  Inputs, select an input.

1. Click Keying and **Cut & Fill** mode.
2. Select the cut content from the dropdown list.

The cut content must have the same format and capacity as the fill input and come from the same input card.

3. If needed, use the Curve setting to adjust the transparency level of the Cut & Fill.
4. If needed, enable the Black and White or the Color mask to ease the setting operations.

9.2.4. Input adjustment (manual image correction)

In  Inputs, select an input.

In **Adjustments**, in Manual mode, modify the following settings:

Setting name	Description / Setting selection
Brightness	Adjust Global, Red, Green and Blue for Brightness (Global and RGB are cumulative)
Contrast	Adjust Global, Red, Green and Blue for Contrast (Global and RGB are cumulative)
Colorimetry	Adjust Saturation and Hue
Sharpness	Low, Medium or High

9.2.5. Input adjustment using LUT Correction

Not available for 8-plug HDMI™ input card.

In  Inputs, select an input.

1. In **Adjustments**, select LUT correction mode.
2. In **Correction LUT**, select a LUT from the Correction LUT library.

The Correction LUT is applied to the corresponding input group.

Importing a LUT in the library

See  Importing a LUT ^[p.139].

9.2.6. Input pattern

When enabled, a pattern overrides any input signal. Most patterns offer adjustment to isolate a particular color for easier troubleshooting and calibration.

 **Important**

A pattern applies to all inputs in the same input group.

In  **Inputs, select an input.**

In **Pattern**, change the following settings:

Setting name	Description / Setting selection
Patterns	
Enable	On/Off toggle. Display the pattern in input.
Patterns	Select the pattern to display.

 **More information on pattern types**

See  Patterns ^[p.90].

9.2.7. Input NDI source

In  **Inputs, select an input.**

1. Click on **NDI** tab in right panel.
2. Click on  to update the list of detected sources.
3. Select a source from a drop-down list.
4. Enter or modify the existing buffer according to the real time NDI status (CPU, GPU, FPGA and network load).

 **Tip**

NDI sources cannot be changed automatically by a preset call. To quickly change an NDI source, click on  in any NDI input thumbnail to update the list of NDI sources, select a new stream and if necessary, adjust the buffer size.

9.3. Input backup

In  **Backups**, add backups for inputs in layers and define mode and delay of their application. Up to two backups can be defined for each input to ensure the continuity of display if a prime input becomes unavailable.

Note

- One source (input or image) can be used as a backup for multiple inputs and act as a standard input or image at the same time.
- An input already defined as backup can have its own backup source when it acts as a standard input.
- A backup for grouped inputs must have the same capacity as the entire group.
- In Link mode, shared inputs can only use shared inputs as backup.

1. In Primary, select the input for which you want to create a backup.
2. In Backup 1 select an input or an image with the same (or lower) capacity as Primary to replace the selected primary input.
3. In Backup 2 select an input or an image with the same (or lower) capacity as Primary to replace Backup 1.
4. Click on Add new backup set.

The created backup appears on the current backups list on the last position (following the default *Creation date* filter).

Optional:

Click on  on the top of the list to change the filter to Ascending order.

Click on  at the end of the line, to drag and drop the set to any position on the list.

5. Define the backup mode:
 - Manual (default mode) – requires a manual selection of one of the backups in case of a Primary input loss
 - Auto – when enabled, it will automatically switch to a backup (1 and then 2 if needed) based on a pre-defined time threshold.
6. In Auto mode, click on  in the top right corner to define the triggering delay for all backups (inputs and background sets):
 - At startup - to ensure that all primary sources are available and avoid automatic switch to backup
 - After the loss of a valid signal.

Backup activation is indicated on the input thumbnail or a corresponding layer by the following icon



with backup number.

Tip

- To modify the existing input backup configuration, select new inputs from the drop-down list or define a new configuration and replace the backup set.
- The return to Primary input, if restored, must be enabled manually.
- If the device was restarted, the input display will depend on the previously selected backup mode:
 - in Manual mode: the last selection
 - in Auto mode: the Primary input.

- To instantly switch several sources (inputs and background sets) to their backups, select the required items from the list of backups and click on  to group them (name the group if needed). It is then possible to switch all of them to Backup 1 or 2 at the same time manually or automatically. In Auto mode, the entire group will switch to backup if even one signal becomes invalid.

10. Images and Library

Image management is separated in two menus:



Image Library: to transfer images to the Aquilon unit.



Images: to assign uploaded images to image slots to be used in layers.

10.1. Library

Aquilon units can store up to 200 images, within 950 MB limit.

Image Library

54.34 MB / 950.00 MB

Go to  **Image Library.**

All imported images are displayed in a Grid view.

The following information are displayed per image:



1. Image number (in Library) and Image file name

2. Image recommended capacity

3. Options available on hover:



Download to PC



Upload from PC



Delete from library

4. Resolution

10.1.1. Image formats

Aquilon units support the following image formats:

BMP GIF* JPG PNG TIF SVG

* not animated

Animated images (ex: animated GIF) are not supported

10.1.2. Image specifications

- Maximum width: 16 384 pixels
- Maximum height: 8 192 pixels
- Maximum width x height : 35 389 440 pixels (= 8192 x 4320)
- Maximum file size: 100 MB

Note

Images cannot be resized or renamed in the Library. If needed, download the image, modify it and then re-upload it.

10.1.3. Transfer images from the computer to the unit

1. Select one or multiple image files (or a folder) on the computer file browser.

Only one folder can be imported at a time.

2. Drag and drop the selection in the **Drop images or folder of images** block in Image Library .

Or

Click the **Drop images or folder of images** block in Image Library  to open the file explorer and select image file(s) to transfer.

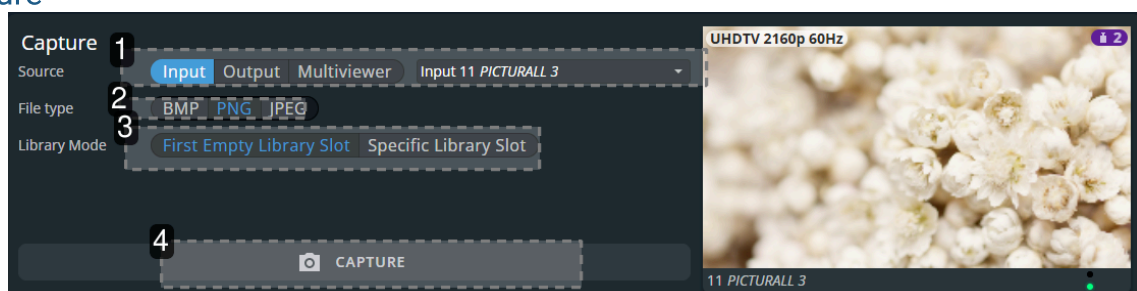
3. Click **Upload Images**

The selected images are imported into the Library and can be loaded into image slots in Images .

10.1.4. Capture a video signal into an image file

In  **Image Library:**

Procedure



1. Select the source to capture.
2. Select the image format for the capture.
3. Select a slot to save the capture.
4. Click to capture the video signal into an image file.

The image is created in the Library and can be loaded into image slots in Images .

Option

Image capture is also possible directly from the *Live*, *Multiviewers*, *Outputs* and *Inputs* pages.

Procedure

1. Click on  **Capture**.

The image is created in the Library and can be loaded into image slots.

10.1.5. Download an image file from the unit

In  **Image Library**

- Hover over an image then click .

The selected image is downloaded to the computer.

10.1.6. Upload an image file to the unit

In  **Image Library**

- Hover over a slot then click .

Or

- Drag and drop an image directly to a slot.

The selected image is uploaded to the unit

10.1.7. Delete an image file from the unit

In  **Image Library**

- Hover over an image then click .

The selected image is deleted from the Library.

10.1.8. Manage Image Library from the front panel

It is also possible to manage Library images from the front panel in the **Export** menu:

- Download images from a USB drive to the Library (one at a time).
- Download images from the Library to a USB drive (one at a time).
- Delete one or all images from the Library.

Option

Export and Import the entire Library by exporting the Device configuration and filtering only Images.

10.2. Images

Aquilon units can have up to 48 image slots.

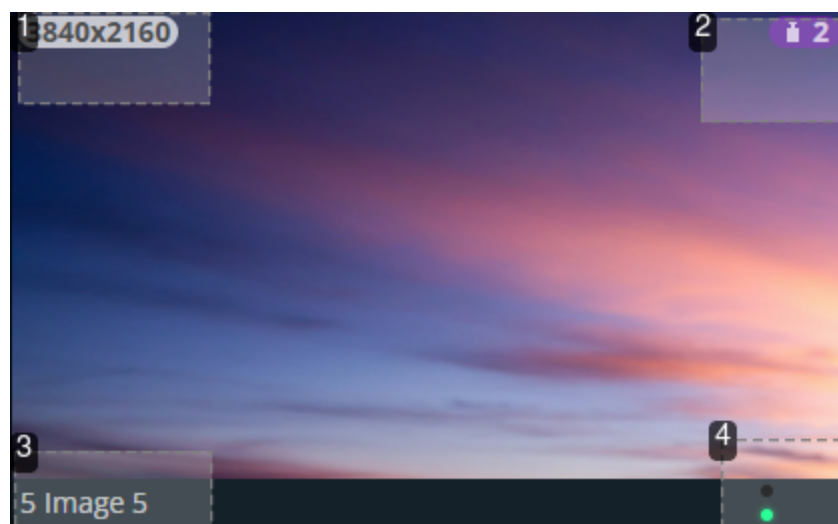
Up to 48 images can be displayed simultaneously in layers.

10.2.1. Images main screen

Go to  **Images**

All images presets are displayed in a Grid view.

The following information is displayed per image slot:



1. Resolution
2. Image slot capacity
3. Image slot number and image slot label
4. The tallies

The tallies turn red and green if the input is used in a  **Program** and/or  **Preview Screen**.

More options

Image slots capacities are set in Preconfig > Images.

10.2.2. Image slots settings

In  **Images**, click an image slot to open its settings.

The selected image slot is highlighted in the interactive slot grid and all image slot information is listed next to the image slot preview.

Options

- Click **All** to return to the image slot Grid.
- In the header, rename the selected image slot.
- On the interactive slot grid, hover over an image slot to display the image slot preview.
- On the interactive slot grid, click an image slot to open its settings.

10.2.3. Downscale to capacity

When an image resolution is higher than the image slot capacity, the unit can either resize the image to fit the capacity or display nothing.

This option named **Allow downscale** is available for each image slot.

10.2.4. Assign an imported image to an image slot

In  **Images**, click an image slot to open its settings.

Use the arrows to browse through the image slots.

1. In Identification > Label, enter a label to rename the Image slot.
2. In Option, enable **Allow downscale** to resize the image when the image slot capacity is too low for the image resolution.
3. In Display, select an image from the Library to be used in this image slot.

The selected image is now loaded to an image slot and is ready to be displayed in layers.

Tip

Hover over an image slot and click on  to delete the assigned content.

10.2.5. Assign a timer to an image slot

Timers can be assigned to image slots. They can then be used in layers just like regular images.

Tip

Timers can be displayed in Multiviewers without being assigned to image slots.

In  **Images**, click an image slot to open its settings.

1. In Identification > Label, enter a label to rename the Image slot.
2. In Option, enable **Allow downscale** to resize the image when the image slot capacity is too low for the image resolution.
3. In Display, select a timer to be used in this image slot.

The selected timer is now loaded to an image slot and is ready to be displayed in layers.

10.2.6. Image signal

In  **Images**, select an image slot.

In **Signal**, adjust the following settings:

Setting name	Description / Setting selection
Settings	
Dynamic range	Select the Dynamic range used for this image slot (Auto , SDR)
Luminance	Select the nit level used for this image slot
Conversion Mode	
Mapping	For SDR with HLG as internal profile only • Inverse Tone Mapping: use if internal processing and main input are using Limited Range color space • Direct Mapping
Reference	For HLG ↔ SSDR conversion only • Scene Referred: for camera content • Display Referred: for computer content
OETF	Square Root or Strict

10.2.7. Image aspect



Important

- Aspect ratio and Crop replace the image slot content and affect every layer using it. If needed, use crop at layer level in Live.
- Aspect ratio and Crop set for an image slot remain when changing the image source.

In  **Images**, select an image slot.

In **Aspect**, set the Aspect ratio or set image crop.

10.2.7.1. Set image aspect ratio

Change the image aspect ratio in all layers. Use these settings to correct the image aspect ratio if needed.

Setting name	Description / Setting selection
Aspect Ratio	
Transform to	Set the final aspect ratio for the image. This is the aspect ratio used for the Layer fill option. Native; 5:4; 4:3; 16:10; 15:9; 16:9; 21:9 or 64:27
Layer fill option	1:1; Centered; Fullscreen or Cropped

 Option

To keep the image unchanged, modify aspect ratio at layer level.

10.2.7.2. Set image crop

Crop input (ex: black bars) and keep only wanted area in layers.

Setting name	Description / Setting selection
Crop	
Finder	On/Off toggle. Display cropping area in output, use during setup and disable Finder to show the crop result output.
Top, Bottom, Left, Right	Enter cropping values (in pixels)

11. Formats and EDID

11.1. Formats

Create and manage up to 16 custom formats for:

- LED wall applications
- non-standard display applications (ex: pixel frequency over 165MHz or Dual-link outputs with single link formats 2400x700@60Hz)
- creating custom EDIDs (to reset or request the preferred EDID of connected inputs).

How it works

Custom format creation is based on existing templates and features two modes:

- In **CVT mode**, set the width, height and rate of the format and indicate if the format has reduced blanking intervals. The system computes the remaining format parameters according to the selected standard: CVT 1.1 or CVT 2.0 .
- In **FULL mode**, set all the parameters of the format (H&V front porch, H&V sync, H&V back porch, width, height, sync polarity, ...).

Reminder

- Max active width: 16384 pixels
- Max vertical timings: 8192 lines
- Max frequency/rate: 144Hz

11.1.1. Create a custom format

In Formats

1. Select a Template format to prefill the settings.
2. Enter a label for the new custom format.
3. Select CVT or Full mode.
4. Enter the format settings (use the help in the right panel).
5. Click **Check** to verify if the custom format is valid and can be processed by the unit.
The format validity and format capacity are returned.
6. If format is valid, click **Save as** then select a memory slot.
7. Click **Save**.

The custom format is added to the formats library and can be used as a format preset.

11.1.2. Edit a custom format

In  **Formats**

1. Select the Custom format memory slot to edit as Template.
2. Edit the format settings.
3. Click **Check** to verify if the custom format is valid and can be processed by the unit.
4. If format is valid, click **Save as** then select the same memory slot.
5. Click **Overwrite**.

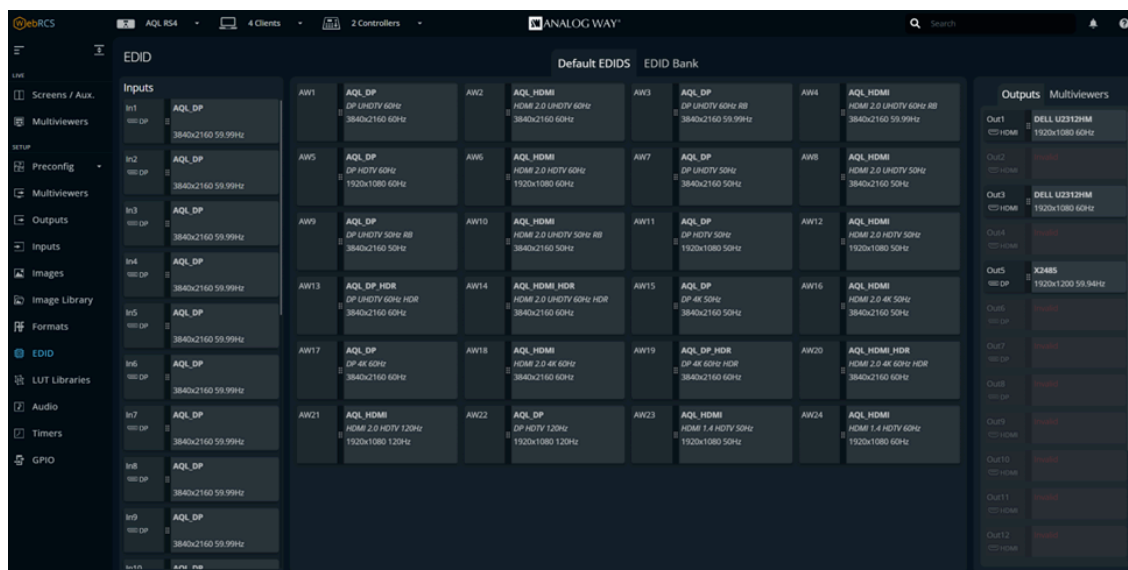
11.1.3. Delete a custom format

In  **Formats**

- Hover over Custom format then click .

The selected Custom format is deleted from the formats library.

11.2. EDID



EDID menu

EDID is a metadata format used by displays to indicate, among other information, their preferred format. An Aquilon unit receives EDIDs from connected outputs destinations and sends EDIDs to input sources.

It is possible to store these EDIDs in a memory called EDID bank.

It is then possible to overwrite the preferred format of inputs.

More options

Extended EDID and DisplayID are also supported by Aquilon devices.

11.2.1. EDID bank

Aquilon units have, by default, 24 preinstalled EDIDs which correspond to standard formats for DisplayPort and HDMI™ outputs. In addition, the EDID bank can store up to 100 EDID memories saved from connected input / outputs, custom formats or EDIDs files imported from computer.

11.2.2. Save an EDID from inputs and outputs

To save EDIDs in the EDID bank:

- Drag and drop EDIDs from inputs and outputs to the EDID bank.

11.2.3. Replace an Input EDID with an EDID from the bank

To set a new preferred format on an Input:

- Drag and drop an EDID from the bank to the input slot.



Note

If an EDID in the bank was modified, drag and drop it to the input to update it.

To reset an input preferred format:

- Hover over the input and click the reset icon



11.2.4. Set a template format for an EDID

In  EDID

1. Hover over an input EDID or an EDID created in the bank and click  in the top right corner to show more settings.
2. Click **Template** and select the format to use as EDID.
3. Click **Apply to EDID**.

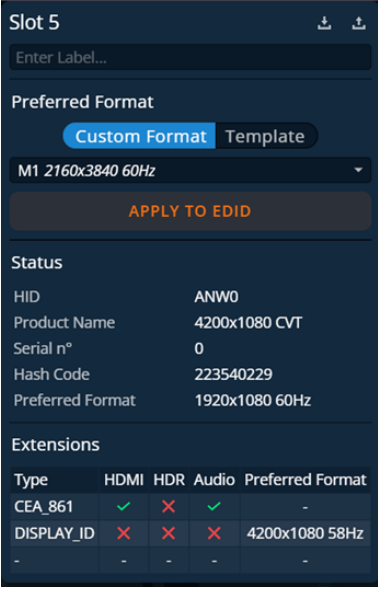
The EDID is now usable as an input preferred format.

11.2.5. Set a custom format for an EDID

It is possible to change the preferred format of an input EDID with the settings of a created Custom format.

In EDID

1. Hover over an input EDID or an EDID created in the bank and click  in the top right corner to show more settings.
 2. Click **Custom format** and select the memory to use as EDID.
 3. Click **Apply to EDID**.
- The EDID with custom format is now usable as an input preferred format.



Slot 5

Enter Label...

Preferred Format

Custom Format Template

M1 2160x3840 60Hz

APPLY TO EDID

Status

HID	ANW0
Product Name	4200x1080 CVT
Serial n°	0
Hash Code	223540229
Preferred Format	1920x1080 60Hz

Extensions

Type	HDMI	HDR	Audio	Preferred Format
CEA_861	✓	✗	✓	-
DISPLAY_ID	✗	✗	✗	4200x1080 58Hz
-	-	-	-	-

Tip

Clicking  also displays more EDID information such as extensions (CEA, and Display ID).

11.2.6. Export an EDID to computer

In EDID

1. Hover over an EDID and click  in the top right corner to show more settings.
2. Click  to download the EDID to the computer.

11.2.7. Import an EDID from computer

In EDID

1. Hover over an EDID and click  in the top right corner to show more settings.
2. Click  and select the EDID file to upload from the computer to the unit.

11.2.8. Delete a custom EDID

In EDID

- Hover over an EDID in the EDID bank then click .

The selected custom EDID is deleted from the EDID bank.

11.2.9. AW EDID Editor



Free AW tool

The AW EDID Editor is a free software available on www.analogway.com [http://www.analogway.com/].

AW EDID Editor is a software developed by Analog Way to create, edit and import/export EDID files. Import the EDID file in the Web RCS to change the preferred format of any input and solve compatibility issues. AW EDID Editor supports EDID, DisplayID and CEA-861-G extension.

12. LUT Libraries

Manage Lookup Tables (LUTs)

Aquilon uses 33x33x33 3D LUTs to instantly transform the colors of an Input or Output according to a mapping table.

The LUTs are separated in three types:

Conversion LUTs	Used to convert the signal of an input (ex: SDR to HDR)
Correction LUTs	Used to change the color tone of an input or output (ex: cooler or warmer colors, black and white, etc.)
CremaTTe 3D LUTs	Used to key an input according to a LUT created with AW CremaTTe 3D

12.1. Creating a CremaTTe 3D LUT using an Aquilon live input



Free AW tool

AW CremaTTe 3D is a free tool used to create a keying LUT using the inputs of an Aquilon device. It is available on www.analogway.com [http://www.analogway.com/].

1. Run AW CremaTTe 3D.
 - a. In the Connection Wizard STEP 1, enter the IP address of the Aquilon device and click **Connect**.
 - b. In STEP 2, select the input to key and a slot in the CremaTTe 3D LUT library.
The input's color space must be the same as the color space set for processing in system pre-configuration.
 - c. Click **Apply and go**.

When AW CremaTTe 3D is connected, the selected input is set to CremaTTe 3D Keying mode using the selected LUT slot.

In the AW CremaTTe 3D main window, a capture of the selected input is displayed in the preview.

2. If needed, **Freeze** the input in the Web RCS and click **Capture Again** in AW CremaTTe 3D.
3. On the image preview, click a pixel in the area to key.

The preview is updated with the CremaTTe 3D keying to show the background image.

The CremaTTe 3D LUT is automatically saved in the selected LUT library slot



Option

If needed, click Export.cube to export the LUT file or download it from the LUT library in the Web RCS.

12.2. Importing a LUT

Go to LUT Libraries

1. In the Conversion, Correction or CremaTTe 3D LUT library, click **Upload LUT File** on an empty slot to open the file explorer and select a custom LUT to transfer.

The Upload LUT form is displayed.

2. Enter LUT label and fill the parameters corresponding to this LUT.

Make sure to set the parameters correctly as they will be used for processing.

3. Click **Upload**.

The selected LUT is imported to the corresponding library.

12.3. Using a LUT

Conversion and Correction LUTs can be used in the  Inputs and  Outputs menus.

A CremaTTe 3D LUT can be used in the  Inputs > Group Keying menu.

12.4. Export a LUT to computer

In LUT Libraries

- Hover over an LUT slot and click  to download the LUT to the computer.

12.5. Delete a LUT

in LUT Libraries

- Hover over an LUT slot then click .

The selected LUT is deleted from the LUT library.

13. Audio, Timers and GPIO

13.1. Timers

Timers are time-based contents to be displayed in Screens, Aux Screens and Multiviewers.

Aquilon units can generate up to four timers in three different modes:

- Current time
- Count down
- Count up (Stopwatch)

13.1.1. Create a timer

In  **Timers**

1. Select a timer to use and enter a label if needed.
2. Select the timer type:
 - a. In **Current time** mode, select the display format and set timer offset if needed.
 - b. In **Count down** mode, select the display format and set the countdown duration.
 - c. In **Count up** mode, select the display format.
3. For Count down and Count up modes, use the buttons at the top to run, pause and stop the counters.
4. In **Color**, enter the hexadecimal color code or click the color preview to open the color setter to set a color and opacity for the content and the background.

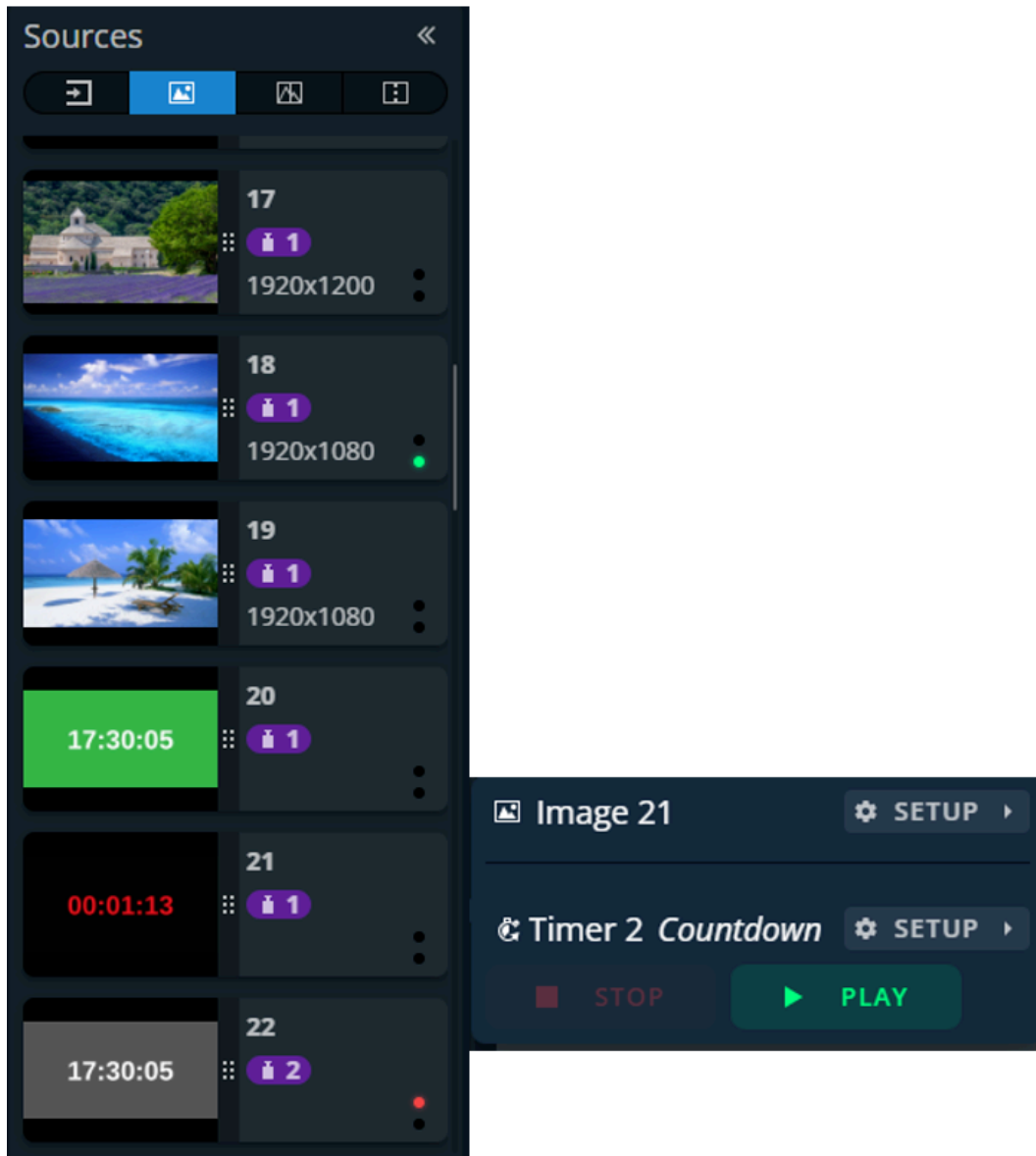
Note

Current time displays the device time set in Device > Device Overview.

13.1.2. Control counter timers in Live menus

It is possible to run, pause and stop the counters directly in the source panel in *Live > Screens* and *Live > Multiviewers*.

1. In  Screens or  Multiviewers, open the timers source panel.
2. Hover over a timer and click  to show control options.
3. Click Setup to enter timer settings.
Or
Use the buttons to run, pause and stop the counter.



Timer controls in Screens

13.1.3. Use timers in Screens and Aux. Screens

Timers can be assigned to image slots. They can then be used in layers just like regular images.

In Images

1. Click an image slot.
The image slot settings are displayed.
2. In Identification > Label, enter a label to rename the Image slot.
3. In Option, enable Allow downscale to resize the image when the image slot capacity is too low for the image resolution.
4. In Content, select a timer to be used in this image slot.
The selected timer is now loaded as an image slot and is ready to be displayed in layers.



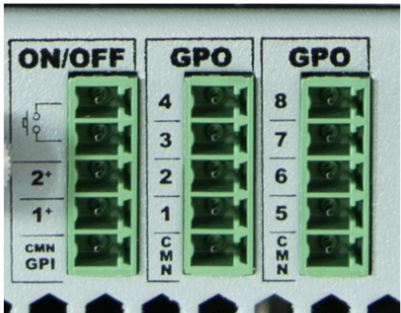
Tip

Timers can be displayed in Multiviewers without being assigned as image slots.

13.2. GPIO

The GPIO (or Tally) is a set of inputs / outputs to control the device externally and get a feedback from the device. Aquilon units are equipped with 2x GPI and 8x GPO.

13.2.1. Pins table and GPIO connection



ON/OFF 2	GPO 4	GPO 8
ON/OFF 1	GPO 3	GPO 7
GPI 2	GPO 2	GPO 6
GPI 1	GPO 1	GPO 5
GPI return (common)	GPO return (common)	GPO return (common)

GPIO pins table

GPIO are optically isolated MOSFET, working as mechanical relays.

- GPI 1 and 2 have a common pin.
- GPO 1, 2, 3 and 4 have a common pin.
- GPO 5, 6, 7 and 8 have a common pin.

Each GPI can sink a current between 10mA/3V to 45mA/48V.

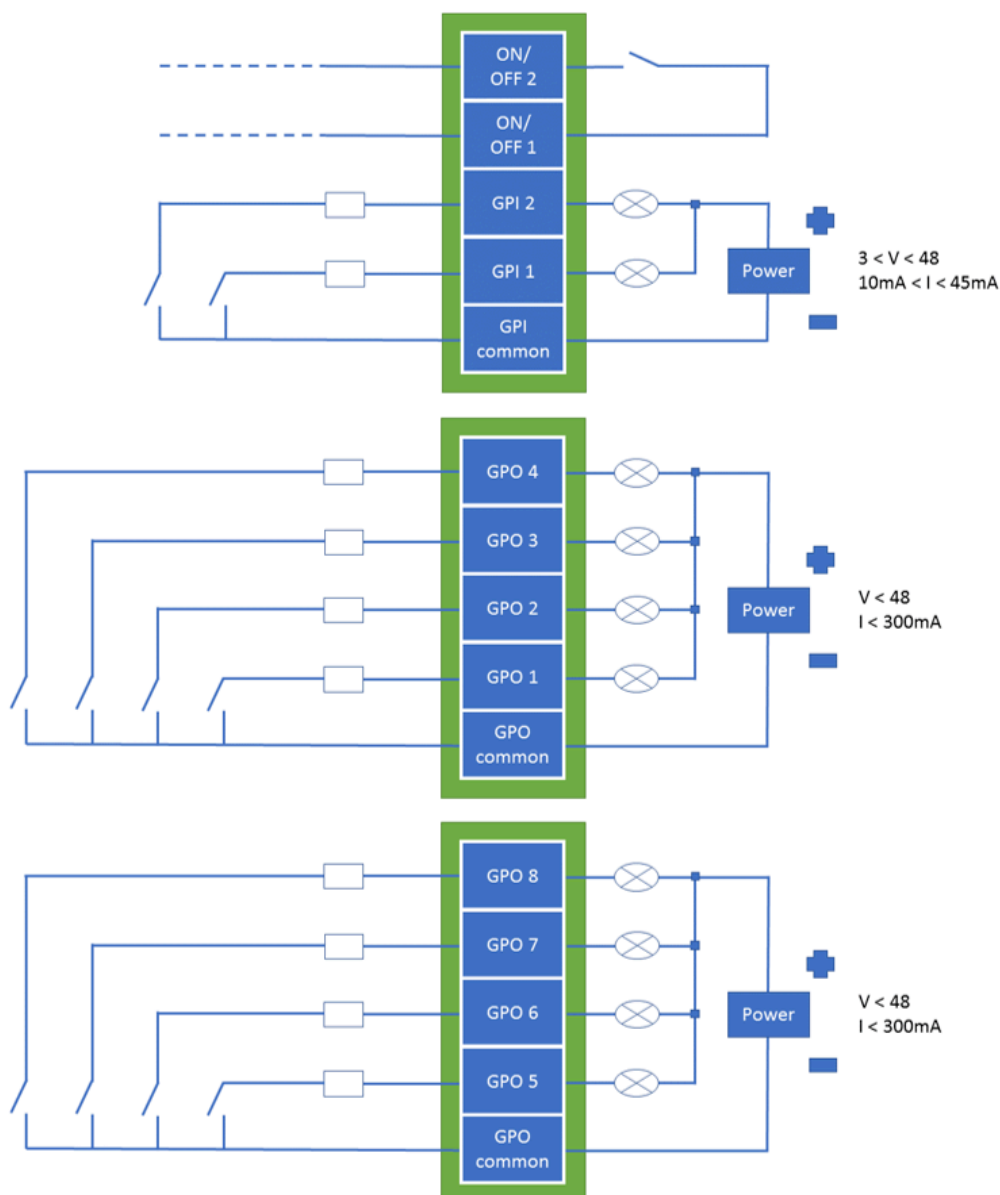
Each GPO can sink a current of up to 300mA maximum in the closed state and can accept up to 48V in the opened state.

The courant leakage is less than 1µA when opened and the resistance is less than 2 ohms when closed.



More information

See  GPIO Phoenix connection ^[p.143].

*GPIO Phoenix connection example*

13.2.2. On/Off switch pins

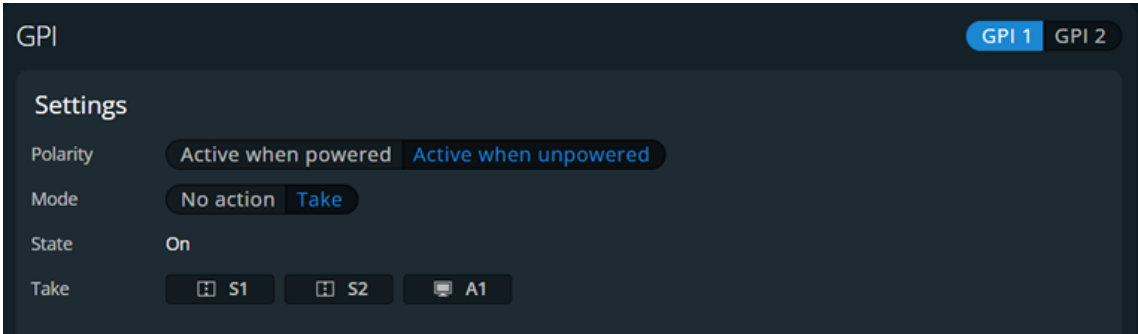
A switch can be placed between the On/Off pins to turn the Aquilon unit on and off. It will work as the front panel switch: when the device is on, closing the switch will request the device to power down. If the switch remains closed for more than four seconds, a forced power down is performed. When the device is off, closing the switch will turn on the device.

13.2.3. Set GPIO in the Web RCS

In  GPIO

- Set the GPI and GPO actions.

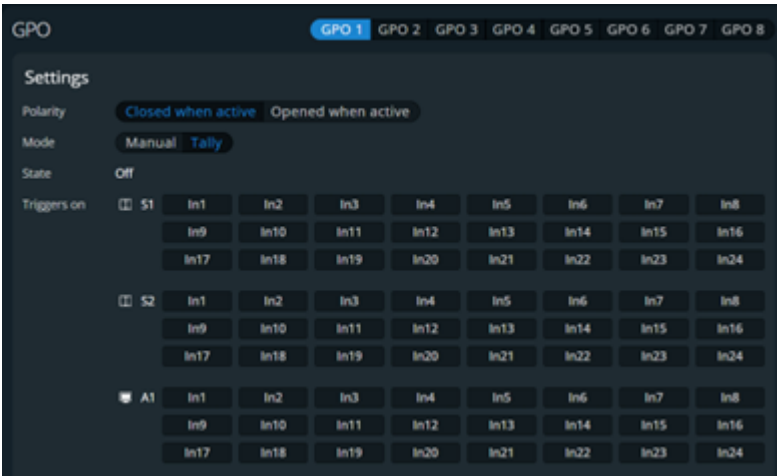
GPI actions



GPI

Setting name	Description / Setting selection
Polarity	Set when the GPI connector is active (when powered or when unpowered)
Mode	Select No action to disable triggers from this GPI Select Take and associate a Screen to trigger the transition when using the GPI
Take	In Take mode, select the Screen to take when triggering the GPI
State	Check if the GPI is currently On or Off

GPO actions



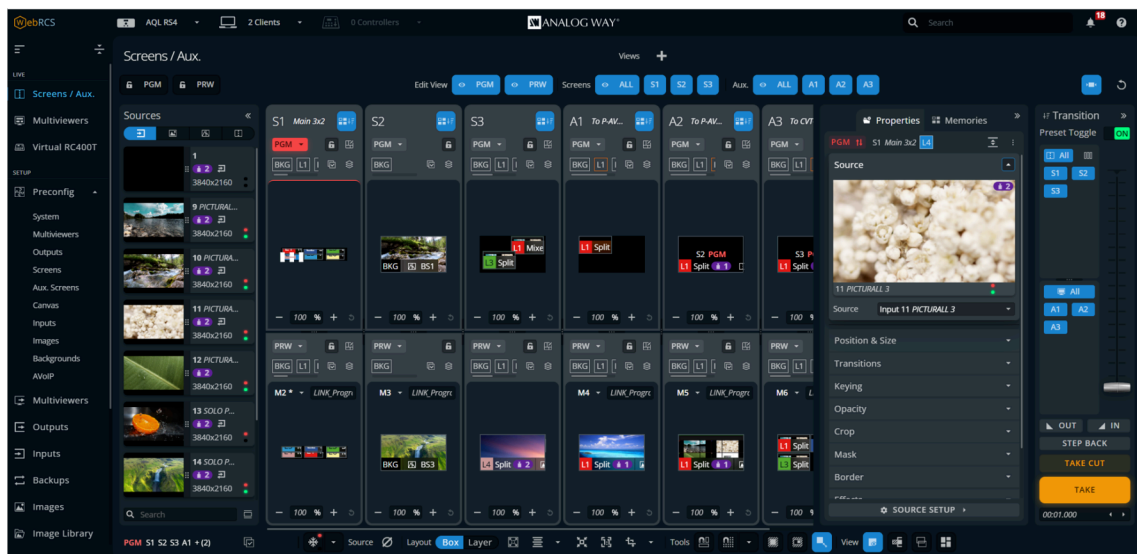
GPO

Setting name	Description / Setting selection
Polarity	Set the GPO connector status when active (Closed or Opened)
Mode	In Manual mode, the state can be defined by a user action through the Web RCS or by an automation controller In Tally mode, the tally level will change when a defined input is used in a Screen
Screen X (one line per enabled Screen in Tally mode)	Set the association of Input-Screen for Tally mode Select one input per Screen to return in the tally
State	In Manual mode, set if the GPO is currently On or Off In Tally mode, check if the GPO is currently On or Off

14. Screens / Aux.

Screens / Aux. is the main page for controlling a show after all pre-configurations are set:

- Display content in layers in Screens and Aux Screens
- Create dynamic layer transitions
- Freeze inputs and Screen layers
- Add an input backup
- Transition Preview to Program
- Save and Load Screen memories and Master memories



Live – Screens / Aux. menu

14.1. Screens menu interface

Easily adjust various working areas with the following tools:

- Click on  to reduce the side menus and display more screen space.
- Slide the horizontal scroll bars to display any hidden items (e.g. Screens, layers).
- Click on  /  (or use Ctrl key and the mouse wheel) for a closer view of a selected screen area.

Tip

Hold down the **Alt** key and change the position of the screen within the Screen area with the mouse and press the mouse wheel to zoom in / out.

Hold **Shift** while resizing the objects (Layers and Widgets) to maintain the aspect ratio. For symmetrical resizing, press and hold the **Ctrl** key.

Use the keyboard arrow keys to move the objects (layers and widgets):

- Press once to move the selected object(s) by one pixel.
- Press and hold to continue moving until the object(s) reaches the required position.

- Hold Shift and press the arrow key to move the object(s) by ten pixels.

14.1.1. Program and Preview

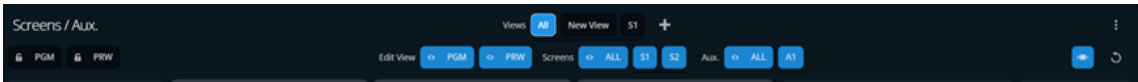


Screens / Aux. is composed of **Program** (PGM) and **Preview** (PRW) windows for each screen, as well as access to sources, layer properties, memories and transition panel. Program windows are always displayed on top of Preview windows and are locked by default.

14.1.2. Views

The Live menu offers a customizable view of the workspace for Screens and Aux Screens.

14.1.2.1. View filters – Top bar buttons



View filters

Setting name	Description / Setting selection
PGM / PRW	Toggle to lock / unlock all the Screens and Aux Screens Prevent edits during Live, or lock Program to only edit in Preview Layers cannot be modified; Memories cannot be loaded but transition can be triggered
PGM / PRW / ALL	Toggle to show/hide all Program, Preview, Screens and/or Aux. Screens Use the scroller when displaying more than five Screens.
	Reset to default view (Screens visibility, size and order)
	Toggle to adjust the view to your screen size.



Note

Hiding and locking Screens do not affect the Transition. To exclude a Screen from transition, see [Transitions - Right panel](#) ^[p.152].

14.1.2.2. Resize and reorder Screen windows

In addition to showing and hiding Screens, it is also possible to resize and reorder the Screens in the interface.

- Use drag and drop on a border to resize the Screen width or height.
- Use drag and drop on a Screen name to move it and change the Screens order.

14.1.2.3. Save a view memory

The user can save custom views in memories.

 Note

Screen locks are excluded from view memories.

In Screens / Aux.

1. Edit the workspace.
2. In Edit View, select the Screens and Aux. Screens to show/hide.
3. Resize and reorder the Screens.
4. In Views, click  to create a view memory with the current view.
5. Enter a name for the View memory

14.1.2.4. Load / edit a view memory**In Screens / Aux.**

1. Click a view memory.
The selected view memory is loaded to the workspace.
If changes are made to the view, a * appears in the view memory.
2. Click the view memory to show more options.
3. Click **Save** to overwrite the view memory with the new settings.
Or
Click **Revert** to reload the view memory.

14.1.2.5. Rename, hide or delete a view memory**In Screens / Aux, click in Views to open a detailed view of all view memories.**

- Click the label to rename a view memory.
- Click  to hide a view from the bar.
- Click  to delete a view memory.

14.1.3. Sources – Left panel

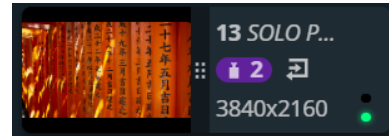
The Sources are located in the left panel. Click the icons to show the corresponding sources:

 **Note**

- Program Screens can only be used as content for Aux Screens and Split layers.
- Backgrounds can only be used in Background layers.

The following information are displayed per source content:

- Source number and label
- Source capacity
- Source backup
- Resolution
- The tallies turn red and green if the content is used in a



● Program and/or ● Preview Screen.

Options

On hover, click  in the top-right corner of a source thumbnail to open options (ex: Freeze an input, access the setup menu for the selected source, set backup or select an NDI source, if available).

Tip

- Use the search bar at the bottom of the Sources panel to find a source or to display a batch of sources with the same char in the label.
- Click on the icon next to the search bar to downsize or expand the sources snapshots.

14.1.4. Quick Backup set

In case of a primary input failure it is possible to quickly replace the content by setting an input backup directly from the input thumbnail:

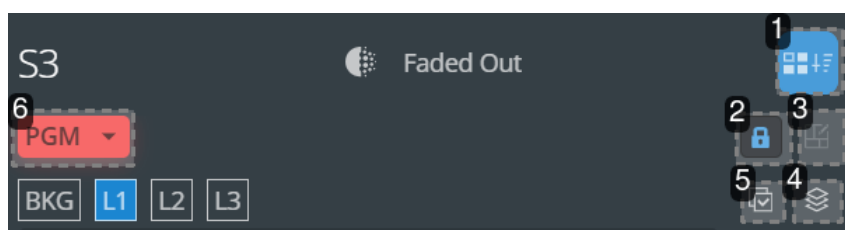
1. On hover, click  in the top-right corner of a source thumbnail.
2. In Backup 1, in drop-down list, select a source to replace the primary input.
3. Toggle Backup 1 button to immediately switch to a selected source.
4. Optional: Repeat step 2 and 3 for Backup 2 and switch to auto for an automatic switch in case of an input failure.

Tip

- Click on Backup Set up to access a detailed Input Mapping page.
- Return to primary input, if restored, must be done manually.

14.1.5. Layer selection

This bar shows tools and all available layers for the corresponding Screen



1. Transition selection

Toggle to include / exclude the Screen or Aux from transition selection.

2. Lock

Toggle to lock / unlock the selected PGM or PRW Screen.

When locked, layers cannot be modified; Memories cannot be loaded but transition can be triggered.

3. Layout editor

Open the layout editor.

For more information, see  Screen layout editor ^[p.150].

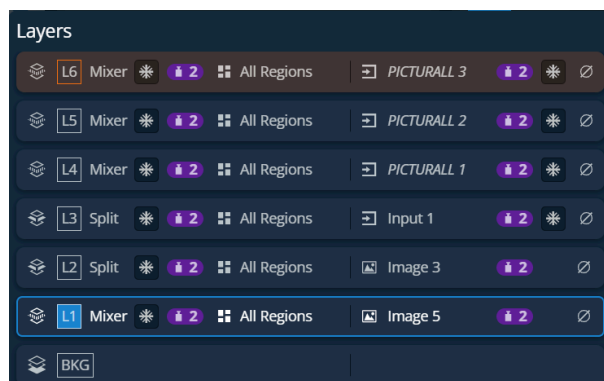
4. Detailed view of all layers

Open a detailed view of all layers in the selected Screen (layer capacity, associated regions, source label and source capacity).

- Click  to empty the layer content and keep other properties.

- Click  to freeze layer* / input.

** only current layer content is frozen; layer properties can still be modified*

**5.** Select all layers

 Select all layers in this Screen.

 Deselect all layers in this Screen.

6. PGM or PRW Screen options

Open the Screen options.

For more information, see  PGM and PRW buttons – Screen controls ^[p.150].

 Tip

- Hold **Ctrl** or **Shift** to select multiple layers.
- Scroll the slide bar under the Layer letters to access the layers that are not displayed.
-  in the Screen header indicates the **Fade out** mode activation.

14.1.6. Screen layout editor

Click  to open the layout editor, a smart tool to place layers in the Screen easily.

Layout editor view	Setting	Description / Setting selection
	Mode	Mosaic places layers in custom grid. Mosaic layout automatically arranges the layers in rows. The last slot is empty if the number of layers is odd. Cascade places all layers in cascade except Layer 1 in Fullscreen.
	Columns & Rows	Create a custom grid for the Mosaic mode
	Margin	Reduce the area of this layout (ex: Top: 50% will ignore the top half of the Screen
	Spacing	In Mosaic mode, set gaps between columns and/or rows
	Autofill	Select the source content to put in layers
	Layers	Select layers to include/exclude from this layout

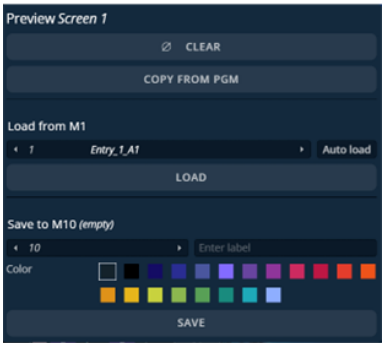


Note

The layout editor is only available for Screens with layers.

14.1.7. PGM and PRW buttons – Screen controls

Click the PGM or PRW button in any Screen to open options.

Screen controls view	Setting	Description / Setting selection
	Clear	Empty the layers content and keep other properties for this PGM or PRW Screen
	Copy from PGM	Copy layers settings from the corresponding PGM Screen (PRW only)
	Load from	Load the Layer settings from a selected Screen Memory Enable auto load to display on Screen directly when selecting the Screen memory
	Save to	Save the current Layer settings for this PGM or PRW Screen in a selected Screen memory
	Label	Enter a label for the Master Memory. Select a color for the memory slot

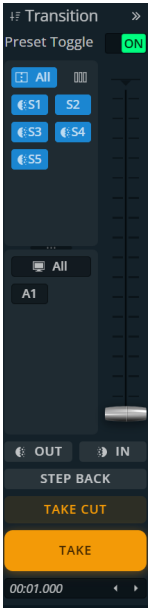
14.1.8. Bottom bar buttons

In addition to the layout editor, use the buttons in the bottom bar to help setting the layers in Screens.

Button	Button description
Action buttons	
	Screen selection for transition (same as the Screen transition filter in the right panel)
	Select all layers in the Screens selected for transition (indicated on the left side)
	Deselect all layers
	Freeze current layer selection (PGM or PRW) Freeze current layer selection simultaneously on PRW & PGM
	Empty the layers content and keep other properties for the selected layers
Mode	Box mode: the selected layers are handled as one block. A change is applied to an entire block (ex: Middle center position puts the block in the center of the Screen while maintaining the layers layout within the Screen) Layer mode: a change is applied individually to each selected layer (ex: Middle center position puts each layer in the center of the Screen, overlapping)
	Scale the layer selection to full screen
	Align the layer selection (Top, Bottom, Left, Right, Corner, Center, Horizontal or Vertical)
	Set layer size to source ratio (reduce size to cancel empty area of the layer)
	Set layer size to content size (5:4, 4:3, 16:10, 15:9, 16:9, 21:9 or source size)
	Set layer size to an aspect ratio
Assist buttons (On/Off toggle buttons)	
	Snap to Screen border and other layer borders
	Snap to grid cells Click the arrow to set the grid (columns & rows)
	Force layers outside of Screen to snap to Screen borders
	Force layers to stay inside of Screen borders
	Keep aspect ratio
Interface buttons (On/Off toggle buttons)	

	Hide empty and preempted items (layers and sources)
	Hide content outside of Screen borders
	Hide content to display only layers wireframe
	Show Screen regions and outputs

14.1.9. Transitions – Right panel

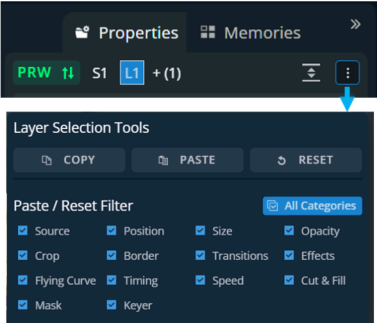
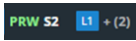
Transitions panel view	Setting	Description / Setting selection
	Preset Toggle	Copy Program to Preview after the transition If Preset Toggle is enabled for a Screen, the layers in PGM replace the layers in PRW during a Take or Take Cut (“swap” effect). If Preset Toggle is disabled, the layers in PRW are copied to PGM and remain in PRW Screens during a Take or Take Cut.
	Panel size	Adjust the size of the Screens/ Aux selection panels and change number of columns by clicking on 
	Screen transition filter	Select the Screens and Aux affected by transition (by default, all Screens and all Aux are selected). Also indicated in the bottom bar.
	Fade Out	Fade the selected screens to black
	Fade In	Fade the selected screens to return from black
	T-Bar	Transition the selection manually
	Step Back	Revert the last change in layer settings. Does not work with a deletion.
	Take Cut	Instant transition. Replace PGM layers with the PRW layers for the selected Screens with an immediate cut effect. The Global transition duration and the layers settings for Transitions, Speed and Timing are Not applied.
	Take	Replace the PGM layers with the PRW layers for the selected Screens. Set the Global transition duration under the Take button (minutes:seconds.milliseconds). The layers settings for Transitions, Speed and Timing are applied to the Take.

14.2. Layer properties

When a layer is selected, the following layer settings are available in the Properties tab:

Setting	Description / Setting selection
Source	Select a content for this layer
Position & Size	Select the anchor point for adjustments of layer's position and size Set layer Vertical and Horizontal position in pixels Set layer Height and Width in pixels
Transitions	Set Opening and Closing transition during Take
Keying	Apply a pre-set Chroma or Luma keying profile to layers' source.
Cut & Fill	Set Cut & Fill. Displayed if enabled at layer level in Preconfig For more information, see  Cut & Fill effect ^[p.157] .
Opacity	Set layer transparency
Aspect & Crop	Set layer cropping (zoom effect with content resized) in percentage or pixels (top, bottom, left and right) and layer aspect (None; 1:1; Centered; Fullscreen; Cropped)
Mask	Set layer masking (content not resized) in percentage or pixels (top, bottom, left and right)
Border	Set a layer border and layer shadow
Effects	Set color filters (Black and white; Negative; Sepia; Solar), Horizontal or Vertical flip and Strobe for slow motion effect
Speed	Set the acceleration curve for the transition during Take
Timing	Set the timings for delayed layer transition during Take

14.2.1. Layer selection and tools

Layer selection view	Setting	Description / Setting selection
		Keep the layer selection and toggle to Program or Preview
		Current layer selection. The layer indicated is the Reference layer. The following layers will have the same settings applied if possible.
	Copy / Paste / Reset	Click  to open the selection menu. Copy, paste or reset multiple layer properties. By default, all layer properties are selected.
		Expand to open all layer properties details
		Collapse all layer properties

14.2.2. Layer position and size

Note

A layer with an orange frame indicates a content visibility issue due to a layer position - the layer is partially unprocessed. Toggle Regions visibility for a better overview of the issue and adjust the layer position.

14.2.2.1. Set layer position with the layout editor

Layouts are predefined templates arranging layers automatically in one Screen.

In  **Screens / Aux.**

1. Click  in the selected Screen to open the layout editor.
2. Create a custom layout in Mosaic or Cascade mode.
3. Auto-fill the layers with a type of source.
4. Select layers to include/exclude from the layout.
5. Apply the layout on Screen.

All the Screen layers are arranged automatically.

More information

See  Screen layout editor ^[p.150].

14.2.2.2. Set layer position and size manually

In  **Screens / Aux.**

1. Select a layer.
The selected layer is highlighted.
2. Use drag and drop on the layer to move it in the Screen.
3. Use drag and drop on a layer border point to change its size.

Option

It is also possible to use the Properties panel:

1. Go to Properties, click **Position** and **Size** to show the corresponding settings.
2. Set the Position and Size by entering values or using drag and drop.

Note

It is possible to change the layer's anchor point to focus the modification of layer's position and size around this point.

 Tip

- In the **Size** property, click  to keep the aspect ratio when changing the size values.
- Use bottom bar buttons (Keep aspect ratio, snap to items) to have layers of equal size or alignment. When enabling snap to item, layer borders are automatically attracted to other objects (Screen border, layer border, grid snap point) to match their position or size.

14.2.3. Layer source

14.2.3.1. Assign content to a layer

In  **Screens / Aux.**

1. Click a source icon in the left panel.
2. Select a Layer or make sure it is available for drag and drop.
3. Drag a content and drop it in the layer.

The content thumbnail is displayed in the layer with the source label and capacity at the bottom.

 Other ways to assign a content:

- Drag and drop the selected content into the layer letter icon on the top of each screen.
- Select a Layer then go to Properties > Source and select the content in the drop-down list.

14.2.3.2. Select NDI source for a layer

 Note

You must have at least one NDI input to select an NDI source for a layer.

NDI inputs are set in Preconfig > Inputs. For more information, see  Set an NDI input ^[p.98].

In  **Screens / Aux.**

1. Select **Inputs** in sources panel.
2. Click  in the bottom-right corner of an NDI input thumbnail.
3. Click on  to update the list of detected sources.
4. Select a source from the drop-down list.
5. Enter or modify the existing buffer.

Real-time status indicates CPU, GPU, FPGA and network load.

Adjust a buffer size accordingly to maintain a quality of audio/video in case of network deficiency.

6. Drag a content and drop it in the layer.

14.2.3.3. Set a colored layer

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Source** to show the corresponding settings.
3. In the Source drop-down list, select **Color**.
4. In Color, enter the hexadecimal color code or click the color preview to open the color picker.

14.2.3.4. Assign content to a Screen backgrounds

In  **Screens / Aux.**

1. Click the Backgrounds icon  in the left panel.
2. Drag a Background set to a Screen background layer or BKG icon.
The Background set content is displayed in the Screen background.

More information on Background sets

See  Preconfig > Backgrounds ^[p.100].

14.2.3.5. Set a colored background

In addition to the eight background sets, each Screen can display a color in the background layer.

In  **Screens / Aux.**

1. Select a background layer (BKG).
2. In **Properties**, click **Source** to show the corresponding settings.
3. In the Source drop-down list, select **None**.
4. In Color, enter the hexadecimal color code or click the color preview to open the color picker.

Note

- The background color is always present and can be displayed during a background set Crossfade.
- By default, all Screens display a background with black color (#000000).

14.2.3.6. Remove a content from a layer

In  **Screens / Aux.**

1. Select one or multiple layers.
2. Press the **Del** key to remove all layer's content (this cannot be reversed).
The selected layers are empty but other properties are kept.

Other ways to remove content:

- Use the PGM or PRW buttons to clear the entire Screen.
- Click  next to the layer letter icons then click  to clear the corresponding layer.
- Go to Properties > Source, then click  or select None in the source drop-down list.

14.2.4. Layer keying

Prerequisite

The keying profiles specifying the keying settings, must be defined in Inputs first, see  Input keying.

Tip

Click on the Source Setup at the bottom of the Layer Properties panel to quickly access the source and its settings.

Procedure

1. Select a Layer where you want to apply keying.
2. Enable Keying in Properties > Keying.
3. Select a Keying profile from the drop-down menu or click on Keying bank edition to set the keying profile if needed.

Result

The selected profile's keying settings are applied to the layer's source at the layer level.

The same source can be displayed simultaneously in its native format in another layer.

Tip

It is possible to include the Keying filter in Memories to automatically apply the keying settings on the layer content when recalling a preset.

14.2.5. Cut & Fill effect

Cut & Fill keys the content of a layer using an input or an image as the alpha channel. Usually, the Cut content (or mask), is a grey level content: the darker the grey level, the more transparent the Fill content.

Note

If a colored content is used as Cut, the Luma level of the content is used to key the Fill content.

*Layer with Fill content**Cut content**Layer with Cut & Fill* 

14.2.5.1. Resource used by Cut & Fill

Prerequisite

The Cut & Fill feature must be enabled in the Preconfig as it uses the resources of two layers of same capacity.

Go to **Preconfig > Screens** to add the Cut & Fill feature  to the corresponding layer. Only this layer will be able to use Cut & Fill.

Note

The Cut & Fill is not available in a mixer layer capacity 4.

More information on layer creation in Preconfig

See  Create a Screen ^[p.84].

14.2.5.2. Set Cut & Fill in layer

In  **Screens / Aux.**

1. Select a layer with Cut & Fill .
2. Assign a content in the layer.
3. In **Properties**, click **Cut&Fill** to show the corresponding settings.
4. Toggle the enable button.
5. In **Source**, click the drop-down list and select the Cut content.
The Cut & Fill effect is set.

Optional

- Use the Curve setting to adjust the transparency level of the Cut & Fill.
- Enable the Negative filter to invert the cutting levels (bright content becomes transparent).
- Set flipping or cropping for the Cut content.

14.2.6. Set layer opacity

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Opacity** to show the corresponding setting.
3. Set the transparency level with a value from 0 to 256.

14.2.7. Set layer aspect and crop

Layer crop is set for a layer and only affects the content used in this layer without changing the native content.

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Aspect & Crop** to show the corresponding settings.
3. In **Aspect**, set how the content is filling the layer (**1:1**; **Centered**; **Fullscreen**, **Cropped** or **None**).
4. Set the cropping per side in percentage or pixels.

Note

- The aspect set at layer level overrides the aspect set at content level (input or image).
- When multiple layers are selected, the crop is set on the following layers in percentage so the ratio stays the same even with content with different resolutions.

14.2.8. Set layer mask

Layer mask looks like an erasing effect and the content is not resized. It is set for a layer and only affects the content used in this layer without changing the native content.

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Mask** to show the corresponding settings.
3. Set the masking per side in percentage or pixels.

Note

When multiple layers are selected, the crop is set on the following layers in percentage so the ratio stays the same even with content with different resolutions.

14.2.9. Set layer border

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Border** to show the corresponding settings.
3. Toggle **Edge** to apply layer border settings.
4. Toggle **Smooth** to create a fading effect on the borders.
5. In **Edge / Smooth**, enter the hexadecimal color code or click the color preview to open the color picker.
6. Set the H size, V size and Opacity.
7. If needed, toggle **Round** to apply round corners settings and set the round corner radius.

14.2.10. Set layer smooth border

Setting a smooth border without enabling **Edge** creates a smooth effect around the content.

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Border** to show the corresponding settings.
3. Keep the **Edge** toggle disabled.
4. Toggle **Smooth** to create a fading effect around the content.
5. In **Edge / Smooth**, set the H size, V size and Opacity.
Click  to keep the aspect ratio when changing the values.
6. If needed, toggle **Round** to apply round corners settings and set the round corner radius.

14.2.11. Set layer shadow

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Border** to show the corresponding settings.
3. Toggle **Shadow** to apply layer shadow settings.
4. Set the shadow Opacity level.
5. Set the X and Y positions for the shadow direction.
Click  to keep the aspect ratio when changing the values.
6. If needed, toggle **Round** to apply round corners settings and set the round corner radius.

14.2.12. Set layer color filter

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Effects** to show the corresponding settings.
3. In **Filter**, toggle the On/Off buttons to enable the corresponding effects (**Black and White**; **Negative**; **Sepia**; **Solar**).

14.2.13. Set layer Horizontal and Vertical flip

In  **Screens / Aux.**

1. Select a layer.
2. In **Properties**, click **Effects** to show the corresponding settings.
3. In **Transform**, toggle the On/Off buttons to enable the corresponding effects (**H flip** and **V flip**).

14.2.14. Set the strobe effect

In  **Screens / Aux.**

1. Select a layer.
 2. In **Properties**, click **Effects** to show the corresponding settings.
 3. In **Strobe**, toggle the On/Off button to enable the effect and select the number of frames per minute (FPM).
- OR
- In **Hold**, select the content retention delay (number of frames) before displaying the following content.

The following icon appears on a layer with strobe effect: 

14.3. Layer transition

The transition is the animations of the layers during **Take**. Each layer can be defined by an opening and a closing transition. The opening effect is triggered when the layer switches from one source to another or when the layer appears on Screen. The closing effect is triggered if the layer is not used in the new screen. The global transition Timing is set under the **Take** button.

Note

- Transition effect, timing and speed are not applied when using the **Take Cut** button.
- When the output rate is set to 120Hz or higher, the transitions refresh every other frame.

14.3.1. Set layer transition effect

In  **Screens / Aux.**

- 1. Select a layer.
- 2. In **Properties**, click **Transitions** to show the corresponding settings.
- 3. In **Opening**, select a transition type and transition direction.
- 4. In **Closing**, select a transition type and transition direction.
- 5. If needed, enable Cross effect and Cross depth.

Cross Effect	Seamless effect between two contents (ex: Crossfade). When disabled, the first content disappears before the next one appears.
Cross Depth	Same content changing Layer (ex: L1 to L4). The layer moves in depth to reach new z-position. When disabled, the transition is done inside the Layers. The content closes inside one layer and opens in the new layer.

 **Note**

Cross effect and Cross depth are seamless features that only apply to mixer layers.

14.3.2. Set layer transition timing

In  **Screens / Aux.**

- 1. Select a layer.
 - 2. Set the global transition timing under the **Take** button.
 - 3. In **Properties**, click **Timing** to show the corresponding settings.

The Opening and Closing graphs display the timings for all the layers in the selected Screen.
 - 4. In **Opening**, enter a starting time and an ending time for the selected layer.
 - 5. In **Closing**, enter a starting time and an ending time for the selected layer.
- It is also possible to use drag and drop directly on the graphs.

14.3.3. Set layer transition speed

In  **Screens / Aux.**

- 1. Select a layer.
- 2. In **Properties**, click **Speed** to show the corresponding settings.
- 3. Toggle **Linear** to use a linear speed and hide the other settings.

If Linear is Off, the Speed curve is displayed.
- 4. Set the starting and ending speed to create a custom speed.

14.4. Aux Screens

Outputs used in Aux Screens can display up to 8 layers with capacity **1**.

Aux layers are dynamic, assigning a content with a capacity higher than **1** will preempt the next Aux layer(s).
One capacity needed = one layer preempted.

Example

An Aux Screen is set with 6 layers. Assigning a 7860x2160 Program Screen (capacity **4**) to layer 1 will preempt layer 2, 3 and 4. Layer 5 and 6 remain available.

Aux layers limitations

Aux layers support most of the same features as Screen split layers (input, image/timer, and screen program as source; size, position, crop, timings, etc.).

The Aux background layer can only support one monochrome color as a source (no input, image or background set).

Aux layers do not support:

- Seamless transitions, one content will disappear before the new one is visible.
- Alpha channels, transparent content is displayed in the same color as the background layer.
- Border settings.
- Cut & Fill effect.
- Layer freeze.

15. Memories

 Memories are used to save layers settings.

Master memory	Saves / loads multiple Screen memories at once (one per screen)*
Screen memory	Saves / loads the layers settings for one Screen or Aux Screen
Layer memory	Saves / loads the settings for one layer

More info on Master memory*

Master Memories are not loaded to Program if one of the Program Screens is locked.

The Aquilon can save up to 500 Master memories, 1000 Screen memories and 50 Layer memories.
Memories can be saved from and loaded to Program or Preview Screens.

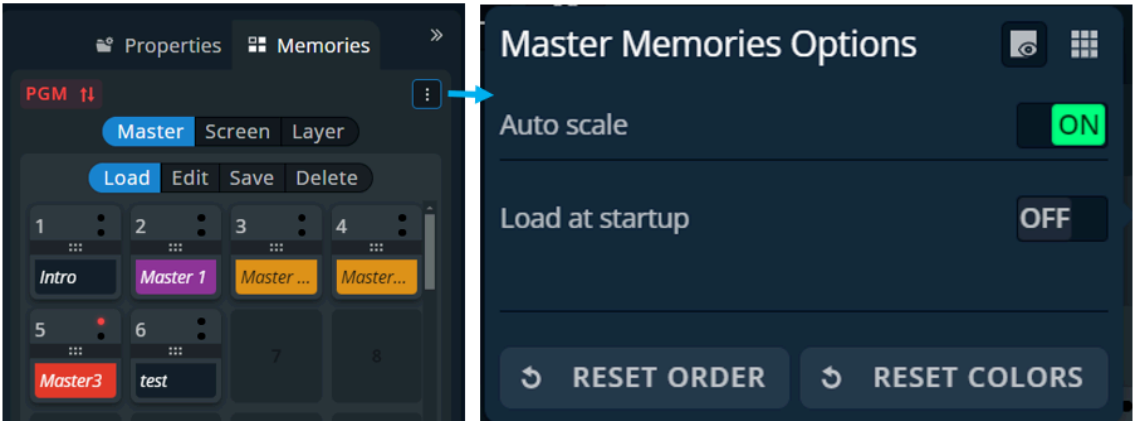
Note

Using Link Connector or 8-plug HDMI™ input card can modify the inputs mapping affecting previously saved Memories.

15.1. Memories tab

In  Screens / Aux.

 Memories tab is located in the right panel, next to the Properties tab.



Memories tab

Button / Setting	Description / Setting selection
	Show / hide empty Memory slots
	Toggle the number of Memory slot per column (1; 2 or 4 per column)

Auto Scale	Toggle to rescale the layers to fit the Screen(s) on load or keep the parameters as saved in the Memory
Load At Startup	(Master Memories only) Enable and select a Master memory slot to be loaded in Preview and Program Screens when starting the Aquilon unit
Reset order	Toggle to replace the memory slots in default order
Reset colors	Toggle to remove colors previously assigned to each memory
 	The tallies turn red and green if the content is used in a  Program and/or  Preview Screen

15.2. Master Memories

Master Memory is the default saving mode. Master Memory is made from Screen Memories. It is possible to create a Master Memory :

- by saving the selected Screens in the current settings
- by using existing Screen Memories.

The last selected saving mode remains in effect for the entire working session.

15.2.1. Save a Master Memory from current Screens

This mode saves the selected Screens in the current settings.

Using Filters, select which Screens, Aux, Layers and Layer settings to save in the Master Memory.

By default, all Layers and all Layer settings are selected.

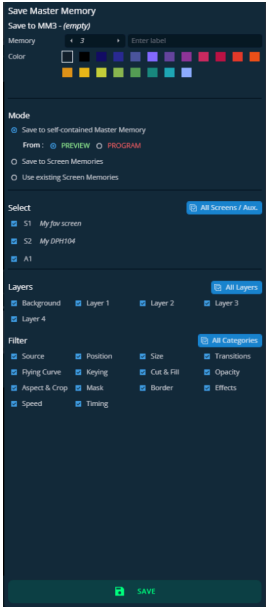
A Master Memory is made of multiple Screen Memories. Saving a Master Memory saves one Screen Memory per Screen. These Screen Memories can be accessed in **Screen** mode.

 **Note**

When a Master memory is loaded to Preview, only the Screens included in the memory are selected for Transition.

In Screens / Aux.

- 1. Click the  **Memories** tab in the right panel.
- 2. Select **Master** mode and click **Save** to open the Save Master Memory window:

Save Master Memory view	Setting	Description / Setting selection
	Save to	Select the Master Memory slot to use Enter a label for the Master Memory Select a color for the memory slot
	Mode	Select to save the current layers settings from Program or Preview Screens with or without creating Screen/Aux Memories (self-contained mode)
	Select	Select the Screens and Aux to include/exclude from the Master Memory Select the Screen Memory slots to use in the corresponding Screens Click Auto select... to reset the choice using the first empty slots
	Filter	Select the layer to include/exclude from the Master Memory Select the layer settings to include/exclude from the Master Memory

- 3. Select the settings to save in the Master memory Memory using the table above.
- 4. Click **Save**.

 Note

- Selecting existing Screen Memories and Master Memories slot will overwrite them.
- Changing (and deleting) a Screen Memory also affects a Master Memory using it. If needed, create a duplicate of the Screen Memory before making changes.

 Tip

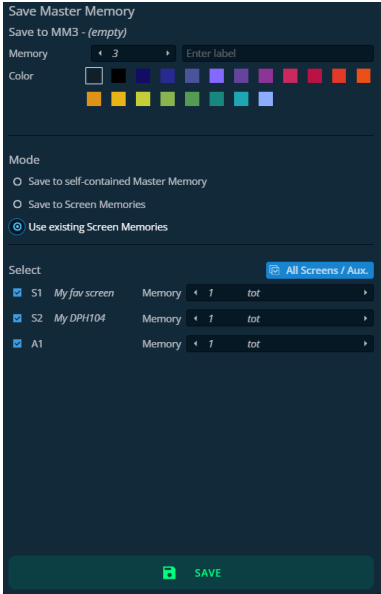
Use the horizontal scroll bar to display all settings of a Save Memory window.

15.2.2. Save a Master Memory from existing Screen Memories

This mode allows to create a Master Memory by using existing Screen Memories.

In **Screens / Aux.**

- 1. Click the  **Memories** tab in the right panel.
- 2. Select **Master** mode and click **Save** to open the Save Master Memory window:

Save Master Memory view	Setting	Description / Setting selection
	Save to	Select the Master Memory slot to use Enter a label for the Master Memory Select a color for the memory slot
	Mode	Select Use existing Screen Memories
	Select	Select the Screens and Aux Screens to include/exclude from the Master Memory Select the Screen Memory slots to use in the corresponding Screens

- 3. Select the settings to save in the Master memory Memory using the table above.
- 4. Click **Save**.

 **Note**

Changing (and deleting) a Screen Memory also affects a Master Memory using it.
If needed, create a duplicate of the Screen Memory before making changes.

15.2.3. Load a Master Memory

In **Screens / Aux.**

- 1. Click the  **Memories** tab in the right panel.
- 2. Select **Master** mode, and click **Load** and click on a memory slot to load.
- 3. If needed, enable **Auto Scale** to adapt the loaded memories to fit the Screens.
- 4. Click a layer in Program or Preview.
- 5. Click a Master Memory slot.

The Master Memory is loaded to Program or Preview in the Screens selected in the Master Memory.
The Screens selected in the Master Memory are enabled for transition in the Screen selection filter.

 **Option**

It is also possible to drag a memory slot to a Program or Preview Screen.

15.2.4. Load a Master Memory at startup

Load a user defined Master Memory on Program and Preview when turning the Aquilon device on.

Note

Master Memory load at startup does not support Auto-scale. Use Screen Memories that match the Screen size in the Master Memory to load at startup.

In Screens / Aux.

1. Click the  **Memories** tab in the right panel and click .
2. Enable **Load At Startup** and select **Last known state** or a Master Memory slot to load at startup.
3. Toggle **Load At Startup** to disable the feature.

15.2.5. Edit a Master Memory

1. Load a Master Memory.
2. Click **Save** to open the Master Memory saving window.
3. Select the settings to save.
4. Select the existing Master Memory slot to edit.
5. Click **Save** to overwrite the previous Master Memory.

15.3. Screen Memories

15.3.1. Save a Screen Memory

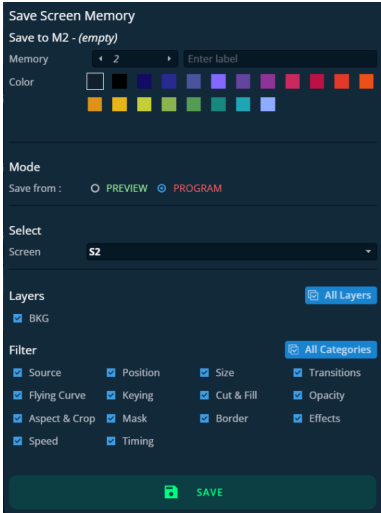
A Screen Memory saves the selected Screen in the current settings.

Using Filters, select which Layers and Layer settings to save in the Screen Memory. By default, all Layers and all Layer settings are selected.

In Screens / Aux.

1. Click the  **Memories** tab in the right panel.
2. Select **Screen** mode.

3. Click **Save** to open the Save Screen Memory window:

Save Screen Memory view	Setting	Description / Setting selection
	Save to	Select the Screen Memory slot to use Enter a label for the Screen Memory Select a color for the memory slot
	Mode	Select to save the current layers settings from Program or Preview Screen
	Select	Select the Screen to save
	Filter	Select the layer to include/exclude from the Screen Memory Select the layer settings to include/exclude from the Screen Memory

4. Select the settings to save in the Screen Memory using the table above.

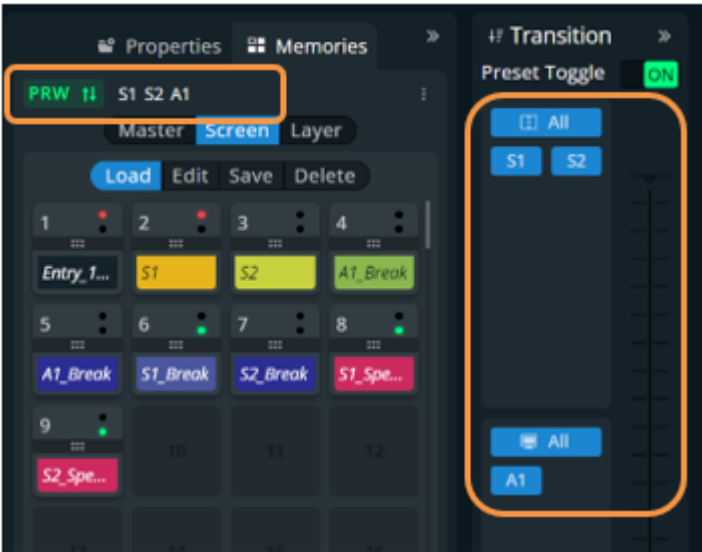
5. Click **Save**.

15.3.2. Load a Screen Memory

In  **Screens / Aux.**

1. Click the  **Memories** tab in the right panel.
2. Select **Screen** mode, click **Load** and click on a memory slot to load click **Load**.
3. If needed, enable **Auto Scale** to adapt the loaded memory to fit the Screen.
4. Use the  buttons or Screen transition filter to select the Screen(s).

The Screens selected for Screen Memory loading are also indicated under the  **Memories** tab:



5. Click a Screen Memory slot.

The Screen Memory is loaded to all Screens selected for transition in Program or Preview.

Tip

To affect a Screen Memory to only one Screen, it is also possible to drag a memory slot to a Program or Preview Screen.

15.3.3. Edit a Screen Memory

1. Load a Screen Memory.
2. Click **Save** to open the Screen Memory saving window.
3. Select the settings to save.
4. Select the existing Screen Memory slot to edit.
5. Click **Save** to overwrite the previous Screen Memory.

15.3.4. Quick overwrite or revert

When a Screen Memory is loaded in a Screen, a button with the memory slot number appears.

If changes are made to the Screen, a * appears next to the memory slot number.

1. Click the memory button to show more options.
2. Click **Save** to overwrite the Screen Memory with the new layer settings.

Or

Click **Revert** to reload the Screen Memory.

15.4. Layer Memories

15.4.1. Save a Layer Memory

A Layer Memory saves the selected Layer in the current settings.

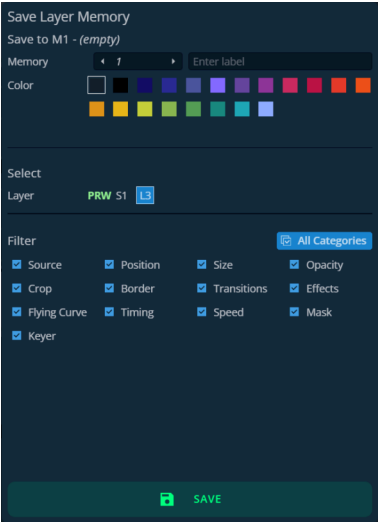
Using Filters, select which Layer settings to save in the Layer Memory. By default, all Layer settings are selected.

Note

- If multiple layers are selected, the memory saves the layer settings of the Reference Layer. The Reference Layer is the first layer selected; it is indicated in the Properties tab.
- Master memories and Screen memories cannot point to Layer memories.

In **Screens / Aux.**

- 1. Click the  **Memories** tab in the right panel.
- 2. Select **Layer** mode and click **Save** to open the Save Layer Memory window:

Save LayerMemory view	Setting	Description / Setting selection
	Save to	Select the Layer Memory slot to use Enter a label for the Layer Memory Select a color for the memory slot
	Select	Shows the selected layer
	Filter	Select the layer settings to include/exclude from the Layer Memory

- 3. Select the settings to save in the Layer Memory using the table above.
- 4. Click **Save**.

15.4.2. Load a Layer Memory

In **Screens / Aux.**

- 1. Click the  **Memories** tab in the right panel.
- 2. Select **Layer** mode, click **Load** and click on a memory slot to load.
- 3. If needed, enable **Auto Scale** to adapt the loaded memory to fit the Screen.
- 4. Click a layer in Program or Preview.
- 5. Click a Layer Memory slot.

The Layer Memory is loaded to the selected Layer in Program or Preview.

 Option

It is also possible to drag a memory slot to a Program or Preview Layer.

15.4.3. Edit a Layer Memory

- 1. Load a Layer Memory.
- 2. Click **Save** to open the Layer Memory saving window.
- 3. Select the settings to save.
- 4. Select the existing Layer Memory slot to edit.
- 5. Click **Save** to overwrite the previous Layer Memory.

15.5. Rename a Memory

In  **Screens / Aux.**

1. Click the  **Memories** tab in the right panel.
2. Select **Master**, **Screen** or **Layer** mode.
3. Click **Edit**.
4. Click  in the top right corner of the memory slot to open the **Label** and **Color** fields.
5. Enter a new name for the memory slot.

15.6. Change the color of a Memory slot

In  **Screens / Aux.**

1. Click the  **Memories** tab in the right panel.
2. Click **Edit**.
3. Click  in the top right corner of the memory slot to open the **Label** and **Color** fields.
4. Select a color for the memory slot.

Tip

To reset all memory slots to default colors, click  on top of the memory slots and click **Reset colors**.

15.7. Reorder Memories

In  **Screens / Aux.**

1. Click the  **Memories** tab in the right panel.
2. Select **Master**, **Screen** or **Layer** mode.
3. Click **Edit**.
4. Drag a memory slot to a new place to organize the memory slots in a custom order.

Note

- Reordering memory slots does not change the memory slot number and does not impact external controllers and RC400T.
- Reordering Screen Memories does not impact Master Memories.

Tip

To reset to default order, click  on top of the memory slots and click **Reset order**.

15.8. Delete a Memory

In  **Screens / Aux.**

1. Click the  **Memories** tab in the right panel.
2. Select **Master**, **Screen** or **Layer** mode.
3. Click **Delete**.
4. Select one or multiple memory slots to delete.
5. Click **Delete** at the bottom of the slots.

16. Multiviewers

Prerequisite

Go to  **Multiviewers** after all pre-configurations are set.

This menu displays one or two Multiviewers screens, depending on what is set in Preconfig > Multiviewers.

Set:

- Multiviewers layout
- Widgets.

A Multiviewer is an output displaying a user customizable selection of Widgets as display resources.

A Widget works like a layer and can display a program, preview, input, image or timer. One Multiviewer can display up to 64 Widgets.

One of the widgets can be set to display a VU meter to monitor the input's audio signal.

More options

Go to Setup  **Multiviewers** to set the Label, Signal parameters, Patterns and Image correction.

16.1. Tips and recommendations

- Widgets cannot be placed on top of each other (overlap error).
- The same source cannot be used in more than one widget per Multiviewer.
- Two widgets using the same source in both Multiviewers are displayed at the same resolution (smallest widget).

16.2. Multiviewers menu interface

The menu  **Multiviewers** behaves much like the menu  **Screens**:

- Sources on the left panel: Inputs, Images, Timers and Screens.
- Widget letter icons and Bottom bar icons.
- Widget properties and Memories on the right panel.
- Collapsible side menus and screen area zoom.

Note

- There are no transition or Program/Preview features in Multiviewers.
- Orange FX (Effect) sign at the bottom of a widget indicates **Take** in progress.

16.2.1. Sources – Left panel

The Sources are located in the left panel. Click the icons to show the corresponding sources:

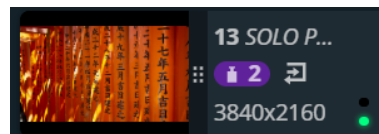


Note

Widgets can display Program and Preview for Screens and Program only for Aux Screens.

The following information are displayed per source content:

- Source number and label
- Source capacity
- Source backup
- Resolution
- The tallies turn red and green if the content is used in a



● **Program** and/or ● **Preview** Screen.

Options

On hover, click  in the bottom-right corner of a source thumbnail to open options (ex: Freeze an input, access the setup menu and backup for the selected source or select an NDI source, if available).

Tip

- Use the search bar at the bottom of the Sources panel to find a source or to display a batch of sources with the same char in the label.
- Click on the icon next to the search bar to downsize or expand the sources snapshots.

16.2.1.1. Control counter timers in Multiviewers

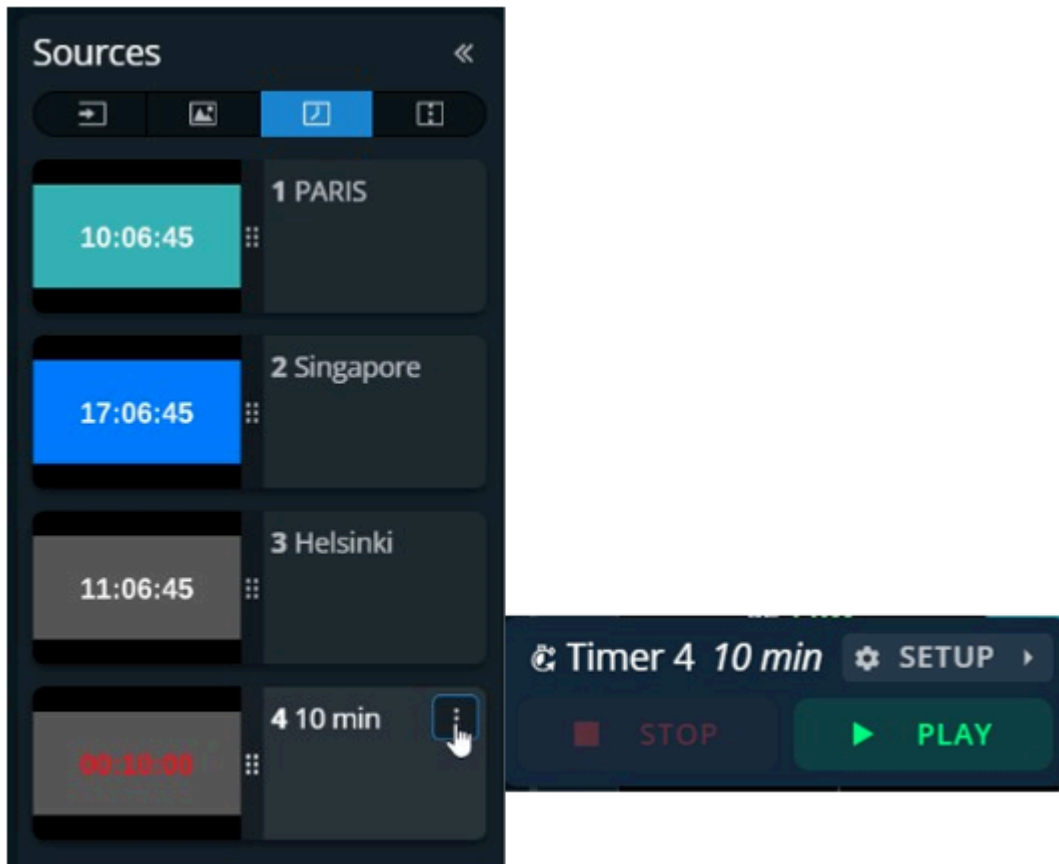
It is possible to run, pause and stop the counters directly in the source panel in Live > Multiviewers.

In Multiviewers

1. Click  Timers in the source panel.
2. Hover over a timer and click  to show control options.
3. Click Setup to enter timer settings.

Or

Use the buttons to run, pause and stop the counter.

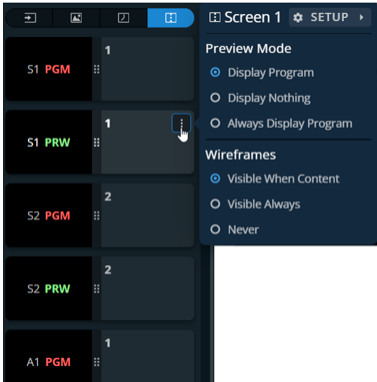


Timer controls in Multiviewer

16.2.1.2. Set Preview mode for Preview Screen widgets

In  Multiviewers

1. Click  Screens in the source panel.
2. Hover a Preview Screen and click  to show preview options:

Preview Screen	Setting	Description / Setting selection
	Preview Mode	Select what is displayed in the Preview widget: - Display Program during transitions - Display Nothing during transitions - Always Display Program content in the Preview widget
	Wireframes	Select the visibility of the wireframes of the Preview Screen layers: - Layers wireframes displayed when content - Layers wireframes are always displayed - Layers wireframes are never displayed

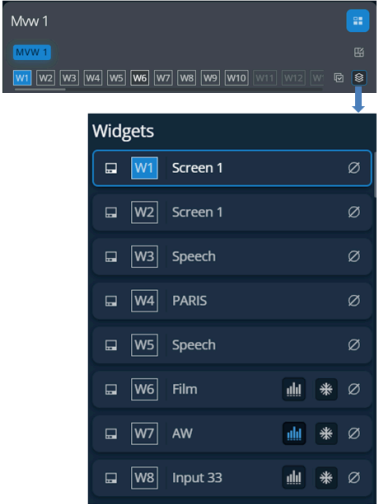


Tip

It is possible to monitor both Program and Preview of a Screen in one Widget by using Always Display Program content and display Preview layers wireframe.

16.2.2. Widget selection

This bar shows tools and all available layers for the corresponding Screen.

Widget selection	Setting	Description / Setting selection
		Select the Multiviewer for Memory load or <i>Select all widgets</i> button in bottom bar
		Open the layout editor, see  Multiviewer layout editor ^[p.177]
		Open a detailed view of all widgets in the selected Multiviewer (source number) - Click  to empty the widget content and keep other properties - Click  to freeze input - Click on  to enable/ disable a VU meter on a selected widget containing audio input
		Select all widgets in this Multiviewer
		Deselect all widgets in this Multiviewer



Tip

- Hold **Ctrl** or **Shift** to select multiple widgets.
- Scroll the slide bar under the Widget letters to access the widgets that are not displayed.

16.2.3. Multiviewer layout editor

Click  to open the layout editor, a smart tool to place widget in the Multiviewers easily.

Layout editor	Setting	Description / Setting selection
	Columns & Rows	Create a custom grid
	Margin	Reduce the area of this layout (ex: Top: 50% will ignore the top half of the Multiviewer)
	Spacing	Set gaps between columns and/or rows
	Autofill	Select the source content to put in layers
	Widgets	Select widgets to include/exclude from this layout

16.2.4. Bottom bar buttons

Button	Button description
Action buttons	
	Select all widgets in the selected Multiviewers (indicated on the left side)
	Deselect all widgets
	Empty the widgets content and keep other properties for the selected widgets
Assist buttons (On/Off toggle buttons)	
	Snap to Multiviewer border and other widgets borders
	Snap to grid cells Click the arrow to set the grid (columns and rows)
	Keep aspect ratio
Interface buttons (On/Off toggle buttons)	
	Hide empty and preempted items (layers and sources)
	Hide content to display only widgets wireframe

16.3. Widget properties

When a widget is selected, the following widget settings are available in the Properties tab:

Setting	Description / Setting selection
Current widget selection	The widget indicated is the Reference widget. The following widgets will have the same settings applied if possible. Select a widget with a VU meter enabled to monitor the audio: • Audio on:  • Audio off: 
View	Enable: Toggle to show/hide the widget OSD (On Screen Display): - Off: Hide OSD information - Basic: Only show the title of the source in widget OSD - Detailed: Show full OSD information on the widget
Source	Select a content for this widget
Position/Size	Set widget Vertical and Horizontal position in pixels Set widget Height and Width in pixels

16.3.1. Widget position and size

16.3.1.1. Set widget position with the layout editor

Layouts are predefined templates arranging widgets automatically in one Multiviewer.

In  **Multiviewers**

1. Click  in the selected Multiviewer to open the layout editor.
2. Create a custom layout in Mosaic or Cascade mode.
3. Auto-fill the widgets with a type of source.
4. Select widgets to include/exclude from the layout.
5. Apply the layout on Multiviewer.

All the Multiviewer widgets are arranged automatically.

More information

See  Multiviewer layout editor^[p.177].

16.3.1.2. Set widget position and size manually

The maximum display size for sources in Multiviewers is their 1:1 format. They can be resized to fit smaller widgets.

In Multiviewers

1. Select a widget.
The selected widget is highlighted.
2. Use drag and drop on the widget to move it in the Screen.
3. Use drag and drop on a widget border point to change its size.

OPTION

It is also possible to use the Properties panel:

1. Go to Properties, click **Position** and **Size** to show the corresponding settings.
2. Set the Position and Size by entering values or using drag and drop.

Tip

- In the **Size** property, click  to keep the aspect ratio when changing the size values.
- Use bottom bar buttons (Keep aspect ratio, snap to items) to have widgets of equal size or alignment. When enabling snap to item, widgets borders are automatically attracted to other objects (Multiviewer border, widget border, grid snap point) to match their position or size.

16.3.1.3. 2x2 Slicer mode with DPH104

When using a Multiviewer output in 2x2 Slicer mode with a DPH104, the signal is automatically divided in 2x2 following the selected format.

Tip

Use the layout editor to make sure the widgets are placed in their corresponding $\frac{1}{4}$ of the Screen.

16.3.2. Widget source – Assign content to a widget

In Multiviewers

1. Click a source icon in the left panel.
To change NDI stream, click on  in any NDI input thumbnail to update the list of NDI sources, select a stream and adjust the buffer size.
2. Select a widget or make sure it is available for drag and drop.
3. Drag a content to the widget.
The content thumbnail is displayed in the widget with the source label at the bottom.

Other ways to assign a content

- Drag and drop the selected content into the widget letter icon on the top of each Multiviewer.
- Select a widget then go to Properties > Source and select the content in the drop-down list.

16.4. Multiviewers memories

A Multiviewer memory saves the selected Multiviewer in the current settings. All widgets' settings are saved/loaded. The Aquilon can save up to 50 Multiviewer memories.

16.4.1. Save a Multiviewer memory

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel.
2. Click **Save** to open the Save Multiviewer Memory window.
3. Select the Multiviewer to save.
4. Select the memory slot and enter a label.
5. Select a color for the memory slot.
6. Click **Save**.

16.4.2. Load a Multiviewer memory

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel.
2. Click **Load**.
3. If needed, click on  to enable **Auto Scale** to adapt the loaded memory to fit the Multiviewer.
4. Click on a Multiviewer(s) to select one (or both).
5. Click a Multiviewer memory slot.

The Multiviewer memory is loaded to the selected Multiviewer.

Option

It is also possible to drag a memory slot to a Multiviewer.

16.4.3. Load a Multiviewer memory at startup

Load a user defined Multiviewer memory when turning the Aquilon device on.

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel and click .
2. Enable **Load At Startup** and select a Multiviewer memory slot to load at startup for each Multiviewer output.
3. Toggle **Load At Startup** to disable the feature.

16.4.4. Edit a Multiviewer memory

1. Load a Multiviewer memory.
2. Click **Save** to open the memory saving window.
3. Select the Multiviewer to save.
4. Select the existing Multiviewer memory slot to edit.
5. Click **Save** to overwrite the previous Multiviewer memory.

16.4.5. Rename a Memory

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel.
2. Click **Edit**.
3. Click  in the top right corner of the memory slot to open the **Label** and **Color** fields.
4. Enter a new name for the memory slot.

16.4.6. Change the color of a Memory slot

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel.
2. Click **Edit**.
3. Click  in the top right corner of the memory slot to open the **Label** and **Color** fields.
4. Select a color for the memory slot.

Tip

To reset all memory slots to default colors, click  on top of the memory slots and click **Reset colors**.

16.4.7. Reorder memories

In  **Multiviewers**

1. Click the  **Memories** tab in the right panel.
2. Click **Edit**.
3. Drag a memory slot to a new place to organize the memory slots in a custom order.

Note

Reordering memory slots does not change the memory slot number and does not impact external controllers and RC400T.



To reset to default order, click  on top of the memory slots and click **Reset order**.

17. User Maintenance and Troubleshooting

17.1. User Maintenance – Air filter

The Aquilon unit is equipped with a removable air filter at the front of the unit.

Tip

For optimal performance, this air filter must be cleaned by the user regularly (once a year).

Tools

- Torx T20 screwdriver
- duster or vacuum

1. Turn the unit off and unplug the mains.
2. Remove the four screws on the front panel.
3. Using both hands, gently pull the front panel on a straight axis.
4. Gently tilt it down until mechanical stop.
The front panel is in a safe still position.
5. Pull the air filter and take it out from the unit.
6. Carefully clean the air filter with a duster or vacuum.
7. When the air filter is clean, gently put it back in place.
8. Gently tilt up the front panel until it is aligned.
9. Gently push the front panel back in place on a straight axis.
10. Set the screws back in place.

The unit is now ready for use

17.2. Troubleshooting

The Web browser cannot access the Web RCS

- Make sure to use correct network cables and that they are free from defects.
- Check the IP address of the control computer. It must have a unique IP address on the same network as the Aquilon unit.
- Temporarily disable any other networks on the computer, such as turning off the Wi-Fi connection.
- Refresh the browser.
- Close and restart the browser.

Error: timeout of 20000ms exceeded

- Check that the anti-virus is not blocking the connection. Open your anti-virus program and add the IP address of your units as trusted connection.

Modifications triggered from RC400T do not work when synchronized

- Check that the target Preview and Program Screens are not protected by lock.

Hardware issue displayed on the Front panel

- Unplug the device and ship it to AW support for repair.

18. Appendix: RC400T

The RC400T event controller has been designed to instantly access the crucial functionalities of the Aquilaon image processor such as screens, layers, sources and memories. The RC400T offers 56 user programmable buttons, a high-resolution T-bar and a three-axis joystick for easy and fast programming (assign source in layers, load memories, etc.). The RC400T can work with the Web RCS at the same time as both selections are synchronized.

Option

It is possible to display and operate an RC400T directly from Web RCS (Live menu), see  Virtual RC400T.

Caution

The fuse(s) present in the unit have not been designed to be replaceable. In case of problem, contact Analog Way support.

18.1. Installation

The RC400T has been designed to be used directly on a table. It is equipped with a wrist rest and four anti-slip rubber feet. The wrist rest can be removed for a recessed installation of the RC400T.

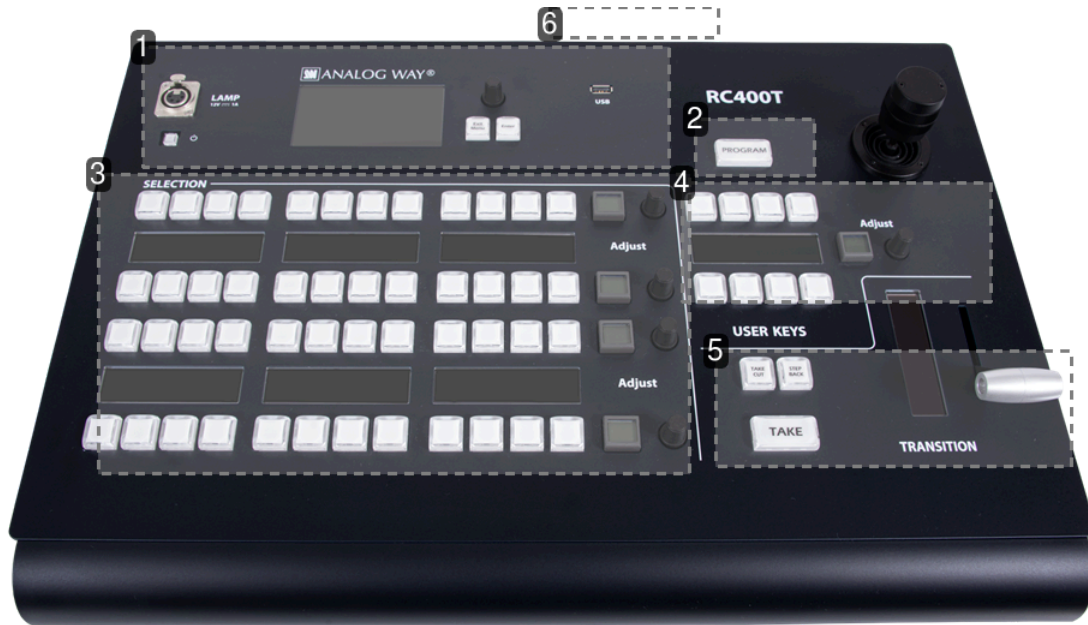
Recessed installation – Remove the wrist rest

1. Turn the rear panel power switch off and disconnect the power supply.
2. Remove the screws of the wrist rest on both sides of the RC400T using a T10 Torx screwdriver.
3. Safely remove the wrist rest.

The RC400T is ready for recess installation. Before embedding the RC400T, connect all cables and turn the rear panel power switch on or make sure they can be accessed.

RC400T dimensions: L 570 mm x H 122.5 mm x P 382 mm (W 22.44" x H 4.82" x D 15.04").

18.2. Controller description



1. Top area

This area is used mainly for configuring the RC400T (status, network, upgrade, factory reset, etc.). It is composed of:

- a Power button
- an LCD display
- a rotary encoder
- two LED keys (**Confirm** and **Cancel**).

Tip

Use the rotary encoder to move the selection and use the buttons to Confirm / Cancel the choices.

XLR lamp (optional)

The XLR lamp is used to light the RC400T if needed.

To turn the lamp on, go to **front panel settings** and enable **Power on light**.

For more information on the XLR lamp for RC400T visit our website <https://www.analogway.com>.

2. Program/Preview key

Press the Program/Preview key to toggle between Program and Preview modes.

- **Program** mode is enabled when the key is on with a **red light**.
- **Preview** mode is enabled when the key is off.

Note

The **Program/Preview** key affects the entire Selection area.

3. Selection area - Multi-purpose area

The Selection area is used for Screen composition. Select Screens, Aux Screens, Layers, and assign Sources or reload Memories. The Selection area is composed of 4 identical rows of keys. Each row is composed of 12 LED keys with labels in OLED displays, one LCD key and one rotary encoder. Each row can display a predefined group of items depending on the mode selected by the user.

4. User keys area and Joystick

The User keys area is composed of 8 LED keys, one OLED display, one LCD key and one rotary encoder. This area has been designed to be evolutive and user customizable. The user keys are predefined slots for features or actions set by the user (lock/unlock a screen, remove a source content, set transition time, disable the T-bar, etc.).

The Joystick is used to adjust the crop, size and position of one layer. It is used together with the user keys.

5. Transition area

The Transition area is composed of one T-bar and 3 LED keys: **Take Cut**, **Step Back** and **TAKE**:

- **Take Cut** triggers an immediate transition from Preview to Program without effects or duration.
- **Step Back** reloads the former Program to the Preview.
- **TAKE** triggers the transition from Preview to Program with effects, duration, etc.

The T-bar is a manual Take triggered by the user for a smooth transition.

Note

The transition applies only to Screens selected in the Selection area.

6. RC400T rear panel



RC400T - rear panel

The rear panel is composed of:

- One power plug with a switch button
- One Ethernet plug for network connection
- One USB plug.

18.3. Getting started



Note

- In the Web RCS, in Dashboard > Remote Control, make sure the connection with RC400T is enabled.
- Make sure that ports 80, 443, 10591, 10606, 10691, 10692 and 10693 are available on your network and/or not blocked by firewall

18.3.1. Start the RC400T

The RC400T controls Aquilon devices using standard Ethernet LAN networking.

1. Connect the power supply cord on the rear panel.
2. Connect the RC400T to the same network as the Aquilon unit.
3. Turn the RC400T on (rear and front On/Off buttons).

18.3.2. Turn the RC400T off

Press the On/Off button on the front panel and confirm to turn the RC400T off.

18.3.3. Configure the RC400T network

1. On the front panel, go to **Remote Device Network > Remote device LAN settings**.
2. Select a device slot, set the IP address of the Aquilon unit and Apply (192.168.2.140 by default).
3. If needed, repeat in the other device slots to add more connected units.
4. If needed, go to **Console Network**, set the IP address of the RC400T and Apply (192.168.2.130 by default).

The connection status is displayed on screen.



If the connection is not starting:

- Check that both IP addresses are on the same network and subnet.
- Check that no device has the same IP address (prevent IP conflicts).
- Check that all network configurations have been applied.
- Check that the Aquilon unit and RC400T have the latest firmware version installed.
- Check the network cables for the RC400T and a hub or switch (if involved).

18.3.4. Control multiple units with the RC400T

When multiple Aquilon units are enabled for remote control, the **RC400T** displays a new home page to select the device to use (by default, the active unit is the one configured in the first device slot).

- Press the **Exit/Menu** button on the Setting page to display the device selection page.

 Note

- An RC400T can be connected to up to four Aquilon units (only one at a time is enabled).
- An Aquilon unit can be connected to up to three RC400T controllers.

18.3.5. Firmware upgrade

 Prerequisite

Download the RC400T updater on www.analogway.com [<http://www.analogway.com/>].

1. Put the updater file on a USB drive.
2. Connect the USB drive on the front panel.
3. The updater file is automatically detected. Otherwise, go to **Console Control > Update from USB**.
4. Extract the updater file.
5. Install the new firmware.

 Recommendation

Update the Aquilon unit with the latest firmware.

18.3.6. Reset to default values

1. On the front panel, go to **Console Control > Reset to default values**.
2. Confirm to reset the device to default values.

18.3.7. Enable / Disable the T-bar

The T-bar status is displayed in the corresponding display. The T-bar can be disabled if needed.

- On the **User keys area**, press the **T-bar Enable** key to enable / disable the T-bar.

18.4. Aquilon control with RC400T

18.4.1. Lock / Unlock the screen

To apply any modifications to the program screen it must be unlocked first.

- On the **User keys area**, press the **Lock / Unlock** key to apply the action to the current (PGM or PRW) selection.

18.4.2. Select a row mode

1. On the **Selection area**, press the LCD key of a row. The row is on Mode selection and the available modes are displayed in the OLED screens.
2. Select a mode using the corresponding LED key. The row is now in the selected mode.
3. Use the rotary encoder to change the page if needed.

Note

The same mode can be selected in different rows.

Examples of configurations

Loading Master memories (default view):

- Row 1: Screens / Aux Screens
- Row 2: Master memories 1 to 12 (page 1)
- Row 3: Master memories 13 to 24 (page 2)
- Row 4: Master memories 25 to 36 (page 3)

Assigning inputs to layers:

- Row 1: Screens / Aux Screens
- Row 2: Layers or Scr./Aux. Layers
- Row 3: Inputs 1 to 12 (page 1)
- Row 4: Inputs 13 to 24 (page 2)

18.4.3. Layer selection

The RC400T has two modes for selecting layers.

Layers	Shows all available live layers in the selected Screens as BKG Layer, Layer 1, Layer 2 , etc. This mode allows quick selection of the same layer in multiple screens. It is recommended when programming shows with lots of Screens and Layers.
Scr./Aux. Layers	Shows all available live layers in the selected Screens as S1.BKG, S1.L1, S1.L2 , etc. This mode allows selecting a single layer when multiple Screens are selected. It is recommended when programming shows with less than 36 layers in total.

Note

It is only possible to select a layer when the corresponding Screen or Aux is selected, even when using Scr./Aux. Layers mode.

Select one or multiple layer

Some of the following procedures will require one or multiple layers to be selected.

1. On the **Selection area**, press the LCD key of a row. The row is on Mode selection.
2. Select the **Screens & Aux.** mode using the corresponding LED key. The row is in Screen mode.

3. Select the Screen using the corresponding LED key.
4. On another row, press the LCD key and select the **Layers** mode.
5. Select one or multiple layers. Use the rotary encoder to change the page if needed.

OR

1. On the **Selection area**, press the LCD key of a row. The row is on Mode selection.
2. Select the **Scr./Aux. Layers** mode using the corresponding LED key.
3. Select one or multiple layers. Use the rotary encoder to change the page if needed.

18.4.4. Assign a source to a layer

1. Select the Program or Preview mode.
2. Select one or multiple layers.
3. On another row, press the LCD key and select a source (BKG sets, Inputs or Images).
4. Select a source. Use the rotary encoder to change the page if needed.

The source is now assigned to the selected layers in the selected Screen.

Tip

- When Background and Live layers are selected at the same time, a new source is affected only if the layer is compatible (ex: BG set to BKG layer), otherwise the source stays the same.
- When multiple live layers are selected:
 - If they use the same source content, the key of the source in use is On with a solid orange color



- If they use different contents, the key(s) of the source(s) in use is On with a solid yellow color



More information

See  Button color guide ^[p.196].

18.4.5. Remove a source from a layer

1. Select the Program or Preview mode.
2. Select one or multiple layers.
3. On the **User keys area**, press the **Source None** key.

The selected layers are cleared from any source.

18.4.6. Set a layer position and size

Note

This is only applicable to one layer. If multiple layers are selected, changes will only be applied to the layer leader (first selected).

1. Select the Program or Preview mode.
2. Select one layer.
3. On the **User keys area**, press the **Layer Pos/Size** key.

The selected layer is indicated on the display.

- Rotate the joystick clockwise or counterclockwise to resize the layer while keeping the aspect ratio.
 - For fine adjustment, press a key to select a setting (**Pos X**, **Pos Y**, **Width** or **Height**), then use the rotary encoder.
 - Push the joystick to move the layer.
4. Use the **Back** key to quit the Layer Pos/Size menu.

Tip

To change the default anchor point for position and size adjustments, select **Params > Layer Pos/Size > Anchor** and choose the corresponding value(s).

18.4.7. Set a layer crop

Note

This is only applicable to one layer. If multiple layers are selected, changes will only be applied to the layer leader (first selected).

1. Select the Program or Preview mode.
2. Select one layer.
3. On the **User keys area**, press the **Layer Crop** key.

The selected layer is indicated on the display.

- Rotate the joystick clockwise or counterclockwise to crop the layer equally on all sides.
 - For fine adjustment, press a key to select a side (**Top**, **Left**, **Bottom** or **Right**), then use the rotary encoder.
 - Push the joystick to move the crop area.
4. If needed, use the **Reset Crop** key to reset the layer crop.
 5. Use the **Back** key to quit the Layer Crop menu.

18.4.8. Set an input crop

Note

Input crop replaces the input content and affects every layer using it. If needed, use layer crop or duplicate the input with a splitter.

1. On the **Selection area**, press the LCD key of a row. The row is on Mode selection.
2. Select one layer.
3. Assign an input to this layer.
4. On the **User keys area**, press the **Input Crop** key.

The selected layer is indicated on the display.

- Rotate the joystick clockwise or counterclockwise to crop the input equally on all sides.
 - For fine adjustment, press a key to select a side (**Top**, **Left**, **Bottom** or **Right**), then use the rotary encoder.
 - Push the joystick to move the crop area.
5. If needed, use the **Reset Crop** key to reset the input crop.
 6. Use the **Back** key to quit the Input Crop menu.

18.4.9. Load a Layer memory

1. Select the Program or Preview mode.
2. Select one or multiple layers.
3. On another row, press the LCD key and select a **Layer Memories**.
4. Select a memory. Use the rotary encoder to change the page if needed.

The Layer memory is now loaded to the selected Screen.

18.4.10. Load a Screen memory

1. Select the Program or Preview mode.
2. On the **Selection area**, press the LCD key of a row. The row is on Mode selection.
3. Select the **Screens & Aux.** mode using the corresponding LED key. The row is on Screen mode.
4. Select the Screen using the corresponding LED key.
5. On another row, select the **Screen Memories** mode.
6. Select a memory. Use the rotary encoder to change the page if needed.

The Screen memory is now loaded to the selected Screen.

18.4.11. Load a Master memory

1. Select the Program or Preview mode.
 2. On the **Selection area**, select the **Master Memories** mode.
 3. Select a memory. Use the rotary encoder to change the page if needed.
- The Master memory is now loaded to Screens as set in the Master memory.

18.4.12. Screen selection for Transitions

After loading a memory in Preview, select / deselect the Screens to transition.

1. On the **Selection area**, select the **Screens & Aux.** mode.
 2. Select the Screens to transition.
*To select all Screens, press the **Select Scrs&Auxs** key on the User keys area.*
 3. On the **User keys area**, press the **Take duration** key and use the rotary encoder to set the transition time.
 4. On the **Transition area**, trigger the transition.
- The selected Preview Screens are sent to Program.

18.4.13. Load a Multiviewer memory

1. On the **Selection area**, press the LCD key of a row. The row is on Mode selection.
 2. Select the **Multiviewers** mode using the corresponding LED key. The row is on Multiviewers mode.
 3. Select the Multiviewer output using the corresponding LED key.
 4. On another row, select the **Mvw Memories** mode.
 5. Select a memory. Use the rotary encoder to change the page if needed.
- The Multiviewer memory is now loaded to the selected Multiviewer.

18.4.14. Save a Master Memory

Note

Saving Master Memories from the RC400T will always include all Screens, all layers and all layer properties.

1. Select the Program or Preview mode to save the corresponding Screens.
2. On the **User keys area**, press the **Memories** key.
3. Press the **Master Memories** key.
4. Use the rotary encoder to select a memory slot.
5. Press **Save**.

The Master Memory is now saved.

18.4.15. Save a Screen Memory

Note

Saving Screen Memories from the RC400T will always include all layers and all layer properties.

1. Select the Program or Preview mode to save the corresponding selection.
2. On the **Selection area**, select one Screen to save.
3. On the **User keys area**, press the **Memories** key.
4. Press the **Screen Memories** key.
5. Use the rotary encoder to select a memory slot.
6. Press **Save**.

The Screen Memory is now saved.

18.4.16. Save a Layer Memory

Note

Saving Layer Memories from the RC400T will always include all layer properties.

1. Select the Program or Preview mode to save the corresponding selection.
2. On the **Selection area**, select one Layer to save.
3. On the **User keys area**, press the **Memories** key.
4. Press the **Layer Memories** key.
5. Use the rotary encoder to select a memory slot.
6. Press **Save**.

The Layer Memory is now saved.

18.4.17. Delete a memory

1. On the **User keys area**, press the **Memories** key.
2. Press the **Master, Screen or Layer Memories** key.
3. Use the rotary encoder to select a memory slot.
4. Press the **Delete** key to delete a memory.

18.4.18. Button color guide

Button color	Description
SELECTION	
 Solid green	• Item available and not selected

 Solid orange	• Screen, Aux or Multiviewer element is selected for edition and for transition • Master Memory is currently loaded • Screen Memory is loaded in all selected Screens • Layer Memory is loaded in all selected Layers • Layer is selected in all the selected Screens • Source is currently used in all the selected Layers • BKG set is currently used in the all the selected Screens
 Solid yellow	• Screen Memory is loaded in some of the selected Screens • Layer Memory is loaded in some of the selected Layers • Layer is selected in some of the selected Screens • Source element is currently used in some of the selected Layers • BKG set is currently used in some of the selected Screens • Some of the selected screens are locked
 Blinking yellow	• Row waiting for Mode Selection • Set transition duration
 Button Off	• Item not available
USER KEYS	
 Solid green	• Function available and not selected
 Solid orange	• Function enabled or ready for edition
 Solid red	• Program mode is active
 Button Off	• Preview mode is active • No function or submenu
TRANSITION	
 Solid green	• Step back is available
 Solid red	• Take is available
 Blinking red	• Take in progress

18.5. Virtual RC400T

The Aquilon Virtual RC400T behaves like a physical console.

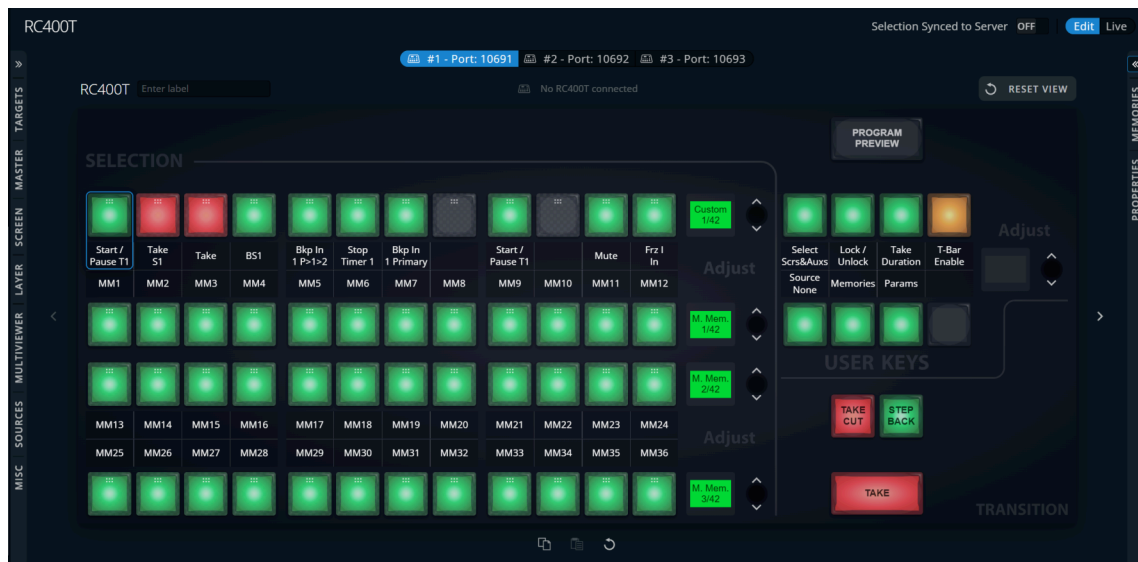
It can be used independently or mirror up to three connected RC400T.

- To mirror the connected RC400T, select the port number corresponding to a physical console.



Tip

Use arrow keys instead of rotary decoder to move pages or change values.



Virtual RC400T

18.5.1. RC400T customization

The RC400T customization feature makes possible to personalize the buttons of your virtual and physical RC400T controller(s). You can assign specific features or actions to each button in a row and customize the rows in multiple pages. The customization is done through WebRCS and can be saved as panel/ row layouts for use on physical controllers.

1. In Edit mode, click the LCD button at the end of a row in the Selection area.

The row is on Mode selection and the available modes are displayed for each button.

2. Click on Custom button to enable the customization mode.

The custom row is now available. If needed, use the arrow keys to display additional pages to customize.

3. Drag and drop any feature from the left-hand side panel to a button on the custom row.

Or

Select a button in a Custom row and add a feature from the dropdown list in Properties panel on the right-hand side.

4. Define the application area by selecting the corresponding options in the Properties panel.
5. Repeat steps 3 and 4 for all the buttons to be customized.



Bypass Preset Lock

It is possible to enable a Bypass Preset Lock for sources to apply them to Program Screen even if it is locked.



Tip

To delete the assigned action or feature, select the corresponding button and click .
OR
Select the button and select **Empty** from the Button dropdown list in Properties.



Option

Use copy and paste at the bottom of a screen to assign previously defined buttons to a new position or simply drag and drop the button to a new position.

18.5.2. Button color guide

Button color	Description
	Available and not selected Counter Timer stopped Backup: Primary
	Function enabled Counter Timer paused Backup: 1
	Take is available (blinking - in progress) Counter Timer Running Backup: 2

18.5.3. Saving custom layouts

When the customization is completed, Memories panel allows to save the created layouts to recall them on other controllers.

Panel memory	Saves / loads the customized buttons of a currently displayed panel of rows
Row memory	Saves / loads the customized buttons of a currently displayed row

The virtual RC400T can save up to 100 Panel memories and 1000 Row memories

1. In Edit mode, click the **Memories** tab in the right panel.
2. Select Panel or Row mode.
In Row mode: click on one of the buttons to select the row to save.
3. Click **Save** to open the Save Memory window.
4. Select the memory slot to use and enter the label for the memory.

5. Select a color for the memory slot and click Save.

18.5.4. Recalling custom layouts

18.5.4.1. Virtual RC400T

1. In Edit mode, click the  **Memories** tab in the right panel.
2. Select Row or Panel mode, click **Load** and click on a memory slot to load.
The Memory is loaded to the controller.

18.5.4.2. Physical RC400T

1. On the User keys area, press Custom mode key.
2. Select the panel you want to load.
The selected panel layout is applied to the selection area and the available features are displayed in the OLED screens.

19. Appendix: Other Aquilon control options

Aquilon units are also compatible with the Analog Way **Shot Box²** and **Control Box³** and also with **Companion** or **Universe** installed on a Stream deck.



Shot Box²



Control Box³



Stream deck + Companion or Universe

19.1. Use the Shot Box² and Control Box³ with Aquilon

Analog Way Shot Box² and Control Box³ can be used to recall Memories and trigger transitions.

 **Tip**

With the software **AW Shotbox Control**, Shot Box² and Control Box³ can also be used when connected to a computer on the same network as the Aquilon™ device.

 **Note**

- In the Web RCS, in Dashboard > Remote Control, make sure the connection with External USB Controllers is enabled.
- The Control Box³ (SB124T-3) has been designed specifically for the latest Analog Way product lines. The previous version, Control Box² (SB124T-2 designed for LiveCore products) is still compatible but some features are limited or not supported.

To use these controllers:

1. Connect the controller directly to the Aquilon unit via USB ports.
2. On the unit front panel, go to Control > Controller.
The reference of the controller is indicated.
The tallies indicate the connection status ( = OK;  = Connecting;  = No Connection)
3. Enable Identify to display ID on the controller (1 to 4).
4. Select the controller to open its settings:

Controller setting	Description
Enable	Enable or disable the controller
Backlight	Set the keyboard brightness (in %)

Mode*	Choose to recall Screen Memories or Master Memories
Screen*	Choose the Screen
Destination*	Choose to interact with Program or Preview
Autoscale	Enable to rescale Memory to applied Screen canvas size
Take on load	Enable to automatically trigger the transition when loading a Memory on Preview
Reset	Reset the controller configuration

* only available with the ShotBox²

5. Use the keys of the controller to recall Memories and trigger transitions.

19.2. Use the Stream deck with Aquilon

Companion and Universe are software that transform the Elgato Stream deck into a shot box that can be used with Aquilon devices.

More details

Please refer to Companion or Universe documentation or see  Appendix: Stream Deck Companion ^[p.216].

20. Appendix: Management of stereoscopic 3D contents

The Aquilon manages single-cable stereoscopic 3D content embedded in the video stream. It supports frame-sequential data formats for inputs and outputs DisplayPort connectors.

Available formats:

- FHD @100/120/144Hz (50/60/72Hz per eye)
- WQXGA (2560x1600) @100/120/144Hz (50/60/72Hz per eye)
- 4K @50/60/100/120Hz (25/30/50/60Hz per eye)
- custom formats (within the bandwidth limitation).

Note

- It is possible to mix 2D and 3D content in a multi-output screen.
- 3D sync signal can be output via the genlock loop-through connector to drive a sync emitter controlling 3D active shutter glasses. The 3D sync phase can be adjusted from 0° to 360°.

20.1. System configuration

1. Set the Vertical Internal Rate (VIR) to match the frequency of one eye (eg. 60Hz for 120Hz Input).
2. Use the 3D Downmix setting to select which eye's content will appear as a preview in the source thumbnails, layers or in Multiviewers.

Note

- The output and input rates must match the VIR rate.
- When using Framelock for synchronization with the incoming 3D signal, a x0.5 factor must be selected.

20.2. Screens configuration

The display of stereoscopic 3D content is possible in Screens only.

Prerequisite

Toggle 3D Mode for the DP outputs to be used 3D Screens.

Note

- Setting the output format to 4K will preempt the following output.
- Output rotation and output grouping are not supported.

1. Enable the Screen.
2. Toggle 3D Mode.
3. Click on Add Outputs.
4. Click on Add Layer, select the Layer mode and capacity and click on Add Layer.
5. Click on Apply to save the configuration.

Note

All output settings apply to both eyes.

The display for each eye can be inverted on each 3D output if needed in Outputs > Signal > 3D Sync.

20.3. Inputs configuration

1. In Preconfig > Inputs, enable the 3D Mode et set the input format, rate, etc.
2. In Inputs > Settings, set input signal, aspect, colometry etc.

Note

All input settings apply to both eyes.

The display for each eye can be inverted on each 3D input if needed in Inputs > Signal > 3D Sync.

21. Appendix: LINK

Link

The **Link feature** allows the creation of large setups, composed of up to 4 any Aquilon devices in a closed-circuit Leader and Followers configuration. All devices are managed as one unit from a single Web RCS of a Leader device.

The linked system can provide up to:

- 256 x 2K / Dual-resolution or 128 x 4K60p inputs
- 80 x 4K60p outputs
- 8 x 4K30p Multiviewers



Tip

When the Link feature is not needed, the dedicated slot can accommodate any standard output card, adding extra outputs to those already available on a device.

21.1. Link setup



Prerequisite

The **Link feature** requires an installation, in the last output slot, of:

- an embedded Link “host” card (performed by AW Service Center)
- an exchangeable Link connector card.

Cables required to connect a 1 Leader device with a 2 Follower device in standard configuration (up to 3 meters / 9,84 feet):

- two sets of 3, color-coded, DAC link cables with QSFP connectors
- one RJ45 cable (light blue on the diagram below).

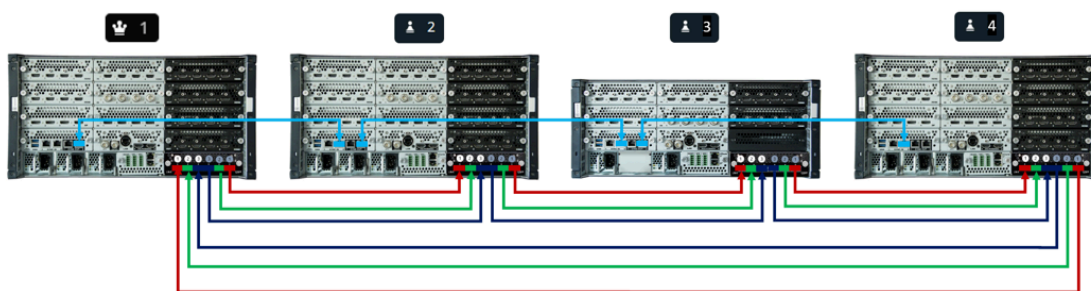
Each additional device requires a complementary set of 3 DAC link cables and an RJ45 cable.



Long distance set-ups

This option requires an installation of a Sync SFP card and allows to cover up to 500 meters / 1640 feet between devices.

Each device installed further then 3 meters / 9,84 feet from the rest of the set-up requires one set of 6 AW-certified link QSFP+ modules with duplex LC single mode fibers and one SFP module solution with copper or fiber cables (light blue on the diagram below).



Example of connection diagram for linking a Leader device with Followers

21.1.1. Installation



Recommendation

Set up all devices on the same LAN network for Wake on LAN and for an easier access in case of troubleshooting.

Prerequisite

All devices must be using the same firmware version (v4.0 or above for standard configuration and 6.1 or above for long distance configuration).

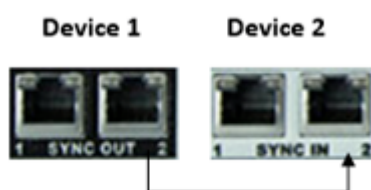


Caution

- The size of the Image Library cannot exceed 950MB.
- Do not use QSFP connectors other than Analog Way's.
- The device sync and QSFP connections do not require the device to be powered down, but disconnecting them when the device is running will result in disruption to the show and is to be avoided.

Procedure

1. Connect all units via an Ethernet cable linking an RJ45 **out connector 2** of one device to an RJ45 **in connector 2** of the following device (point to point).



Ethernet cable connection

The chain ends at the last device, without closing the loop.

When properly connected, an orange LED (indicating connection speed) should be on and a green LED (indicating network activity) should be blinking.

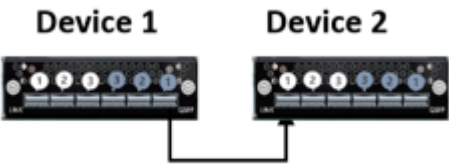
2. Connect the Link connector cards of all devices via the DAC link cables, in daisy-chain to create a closed ring.



Note

The first and the last device must be within 3 meters maximum of each other (max length of DAC cables).

3. Connect the first outgoing connector of a Leader unit to the corresponding incoming connector of a Follower unit (**out 1 to in 1**) using one of the DAC cables.



DAC cable connection

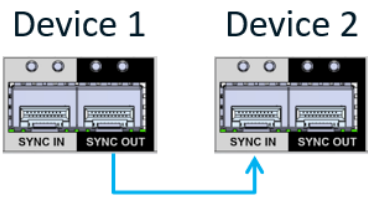
4. Repeat the operation with the other connectors: **out 2 to in 2** and **out 3 to in 3**.
5. Connect the following units in the same way up to the last device.
6. Connect the outgoing connectors of the last device to the corresponding incoming connectors of a Leader unit to close the loop: **out 1 to in 1**, **out 2 to in 2** and **out 3 to in 3**.

Alternative operating process

With optional Sync SFP card

Procedure

1. Connect the selected units point to point via a synch out SFP cage of one device to a synch in SFP cage of the following device using an SFP module solution.



SFP module connection

The chain ends at the last device, without closing the loop.

SFP cage LED indicators:

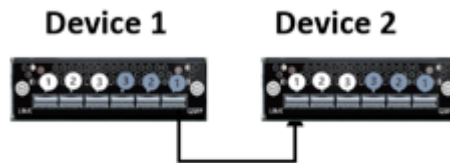
Color	LEFT LED	Color	RIGHT LED
	No SFP cage detected or hardware communication problem with the inserted cage		Default setting while waiting for green status on the left LED
	Incompatible software		Fiber communication problem (Tx or Rx)
	OK		Ready for network discovery and LINK

2. Connect the Link connector cards of the selected devices via the AW-certified link cables with QSFP+ module, in daisy-chain to create a closed ring.

Note

The first and the last device must be within 500 meters / 1640 feet maximum of each other.

3. Connect the first outgoing connector of a Leader unit to the corresponding incoming connector of a Follower unit (**out 1 to in 1**) using one of the AW-certified link cables.



Connection of AW-certified link cables with QSFP+ module

4. Repeat the operation with the other connectors: **out 2 to in 2** and **out 3 to in 3**.
5. Connect the following units in the same way up to the last device.
6. Connect the outgoing connectors of the last device to the corresponding incoming connectors of a Leader unit to close the loop: **out 1 to in 1**, **out 2 to in 2** and **out 3 to in 3**.

21.1.2. Configuration

The configuration is done using the WebRCS of a Leader device. The devices are identified by their serial numbers. They must be linked in the order corresponding to their actual placement in the Link chain.

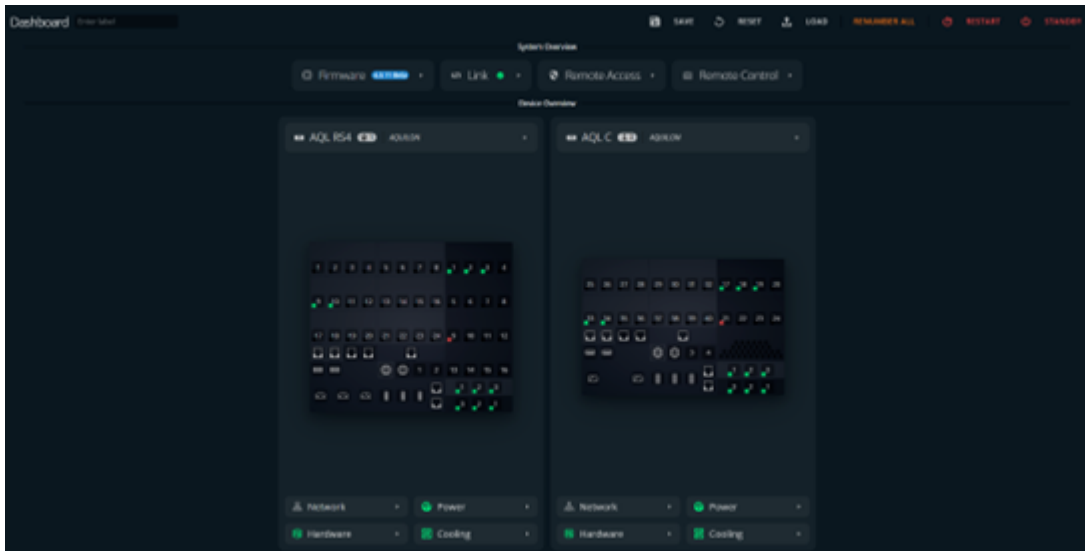
1. In the WebRCS of a Leader, click on  and **Link Device**.
2. Select the Follower units from the dropdown list, adding them in the order corresponding to their physical connection.
3. Click **Check System** to verify if all devices are properly cabled and reconnect the cables displayed in red.
4. Click on **LINK SYSTEM** and confirm the configuration.
All the linked devices restart automatically to complete the configuration.
No additional Follower can be added to a running network.

Tip

Click on  to instantly see all linked devices in Device Overview and display the selected device's back panel.

OR

Click on **Dashboard** to display all of them simultaneously and enter the label for the Link system.

*Link Dashboard*

21.2. Share setup

The **Link** feature offers two types of sources:

- **Shared:** shared between the devices and available for multi-chassis use:
 - Up to 16 x 2K / Dual resolution or 8 x 4K inputs can be used as shared sources
 - Up to 48 image slots can be defined as shared
- **Local:** processed only on a device receiving the source.



Synchronisation

All devices must be on the same Link network to exchange data in real time and to synchronize the sources on a global level.

21.2.1. Shared sources setup

The sources must be defined as shared.

1. Go to **Preconfig> Inputs** or **Preconfig> Images**.
2. Select any input or an image slot of a Leader and enable **Share**.
The source is marked as Shared  and appears in the Shared sources section.



Sharing images

- Defining an image slot as shared, configures the corresponding slot on each Follower as shared and displays the same image.
- Shared image slots on the Followers are displayed as disabled.
- The number of available shared images slots depends on the number of IPU's of the smallest unit.

21.2.2. Global Multiviewer setup

Global Multiviewers (up to 2), available on a Leader device, can display the sources of all the linked devices and the multi-chassis Screens.

1. Go to **Preconfig > Multiviewer**.
2. Select a Multiviewer and enable **Global**.

Global Multiviewers capacities

- Enabling Global on a Multiviewer uses the resources of the Followers, disabling the first Multiviewer output on each Follower device.
- Multiviewer with capacity 2 preempts all other Multiviewer outputs.
- Multiviewer with capacity 1 displays 2 Global Multiviewers with capacity 1 or one Global and a Local on each linked device.
- Multiviewer can be duplicated on the same device.

21.2.3. Multi-chassis Screen setup

A screen can be composed of outputs of multiple devices. All outputs are treated as of one device and are assigned to one region by default.

A layer belonging to a multi-chassis region must use shared sources to be displayed properly on every output of this region.

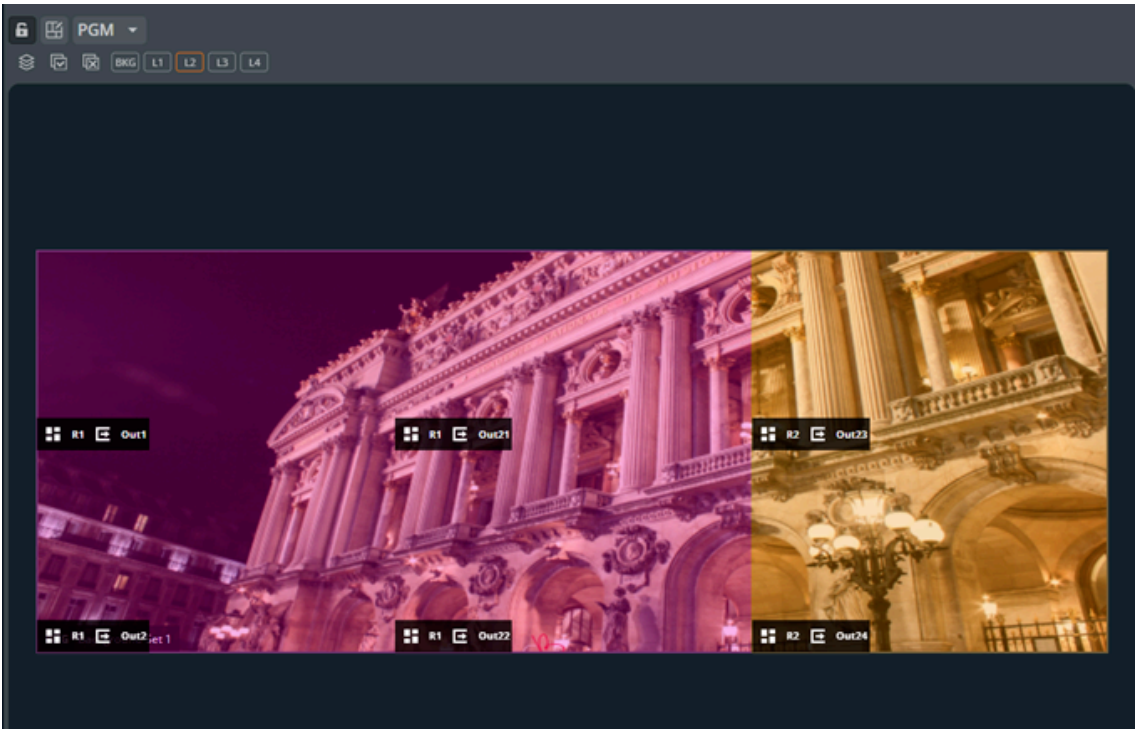
Multi-chassis Screen sources use

- Local sources are only visible on the outputs of the device on which they are located.
- A background output can only use a local source.
- Audio channels from shared sources must be de-embedded locally and made available to Dante network for use on another chassis.



Tip

Use regions for an easier visibility of shared / local setups and to optimize the use of sources.



Example of a multi-chassis Screen setup with multi-chassis Region 1 and local Region 2

21.2.4. Settings

Settings (format, signal, aspect, etc.) are modified on the device where the source is located.
The source location is indicated on the back panel.



Back panel of a Leader with three Followers

21.3. Linked system settings

21.3.1. Framelock

Only the SDI inputs from a Leader device can be used to synchronize the Aquilon system with an external reference.

 **Note**
Computer timings are not supported.

21.3.2. Firmware update

The updater file extracted on the Leader machine is automatically sent to all the Followers and runs on each device in parallel. The Leader machine restarts when the entire system is updated.

 **Note**
The Default reset can be launched from a Leader device for the entire system, breaking the link configuration.

21.3.3. Configuration import / export

Link configuration is saved on a Leader device. It includes the configuration of the Followers.

 **New set-up**
When a Leader device is used in a new set-up or in a single mode, it requires a reconfiguration of sources. A Follower device returns to its previous, single mode settings.

21.3.4. Reset modes

Default Reset	• Link is lost. • Leader configuration is reset. • IP addresses, libraries (Images, Formats, EDIDs, etc.) and selected configurations are maintained.
Out of the box	• Link is lost. • Factory reset of the Leader (all settings are reset to default value). • Followers return to their previous configuration.

21.3.5. Power on and off

ON

Each device must be turned on within a 2 minute time-frame to maintain the Link configuration.

Wake on LAN

The activation of Wake on LAN feature for the Followers requires an external waking device connected to a switch through an Ethernet port. A Magic packet must be sent to each device.

OFF

Switching off the Leader unit sends command to all linked devices through Link network.

Front panel

Front panel shutdown can be initiated either on a Leader or a Follower unit.

21.3.6. Front panel

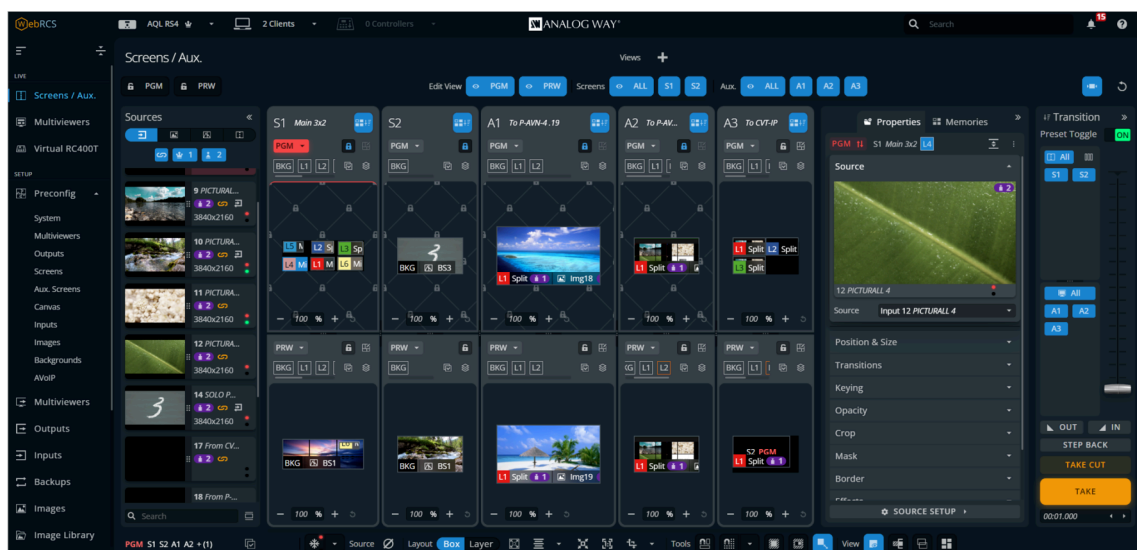
The front panel displays:

- the Link's status
- the device information (Firmware, label and serial number)

To unlink a device, go to Control menu / Unlink System.

21.4. Navigation

For optimal visibility of the Link setup, it is recommended to display the Web RCS on an UltraWide screen (e.g. 2560 x 1440 or 5120 x 1440) and / or adjust the view using a zoom feature of the explorer.



Live Screens / Aux. in Link setup

21.4.1. Screens display

The Link setup offers up to:

- 24 Screens
- 128 Mixer layers
- 80 Aux Screens

 Tip

Resize the screens and use the view filters (see  Views ^[p.146]) for more comfortable setting of your working space during setup.

21.4.2. Sources display

The Link setup offers up to:

- 256 inputs
- 192 still images

 Filter options

Filter the available sources using the following options:

Selection button	Description
	Shared sources
	Leader device sources
  	Followers sources
	Device not displayed in the list of sources
 	Show / Hide device sources

 Tip

Use the search bar at the bottom of the Sources panel to find a source or to display a batch of sources with the same char in the label.

21.5. Controllers

Analog Way controllers using USB port must be connected to the Leader device and activated on the WebRCS.

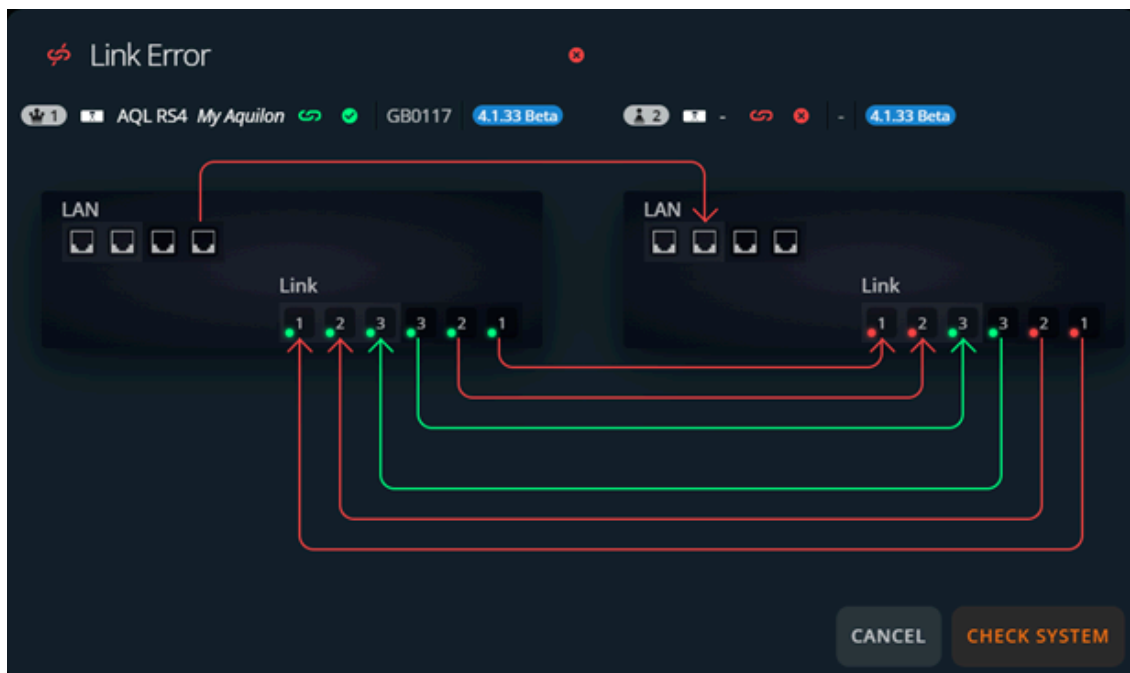
 Note

- Presets are available for the first two Multiviewers.
- First 120 inputs are available.

21.6. Link troubleshooting

1. Go to **Dashboard > Link** if an error was reported.

The connection issues are identified in Cable Overview window.



Cable Overview

2. Check the physical connection of the cable(s) in error and reconnect them properly.

The cable becomes orange in Cable overview.

3. Click **Check system** to verify if the communication between devices is valid.

Note

- Checking the connection of QSFP cables takes a few seconds and may result in the outputs blink.
- Checking the connection of Ethernet cables requires the resynchronization of devices and will restart the system.

22. Appendix: Stream Deck Companion

Aquilon can be controlled by Bitfocus Companion Stream Deck.



Recommendation

Always use the latest, stable version.

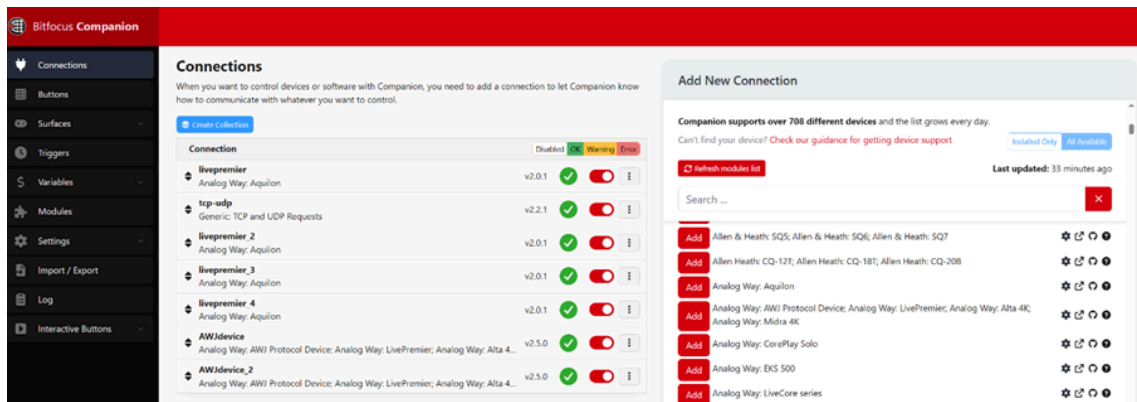
22.1. Connection to Aquilon device

Prerequisite

Download the Companion software from <https://bitfocus.io/companion> and connect the Stream Deck to the same PC using a USB cable.

Procedure

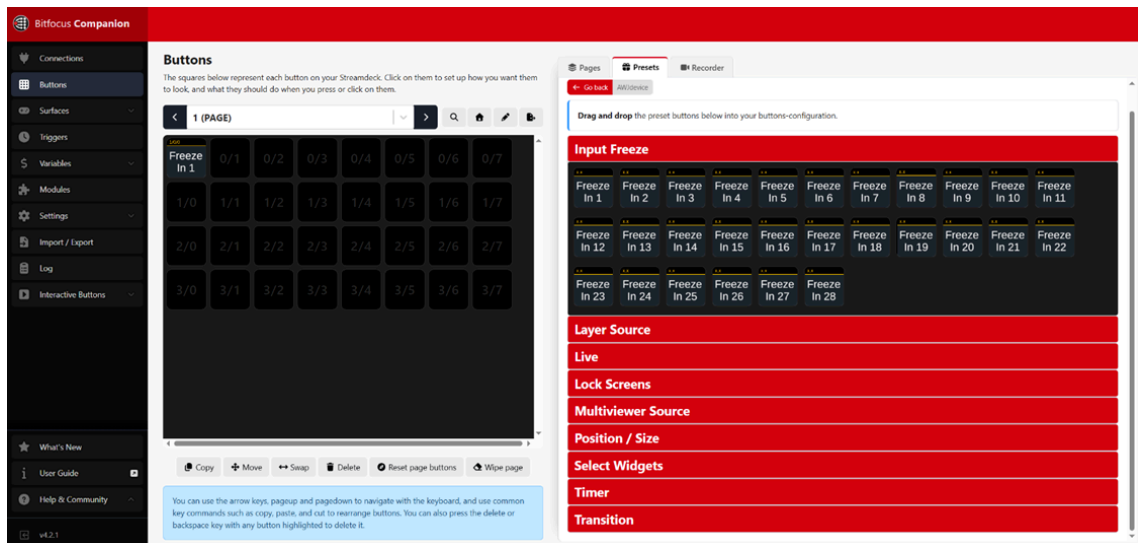
1. Open Companion software and click on *Launch GUI*.
2. In Connections > Add New Connection area, find and add the following:
 - **AWJdevice** to use predefined commands.
In Edit connection, enter a label, IP address and MAC address of your Aquilon device and click Save.
 - **Generic TCP and UDP Requests** to use customized commands.
In Edit connection, enter IP address and target port and click Save.



The device appears on the list of Connections. It can be enabled and disabled as needed.

22.2. Stream Deck buttons presets

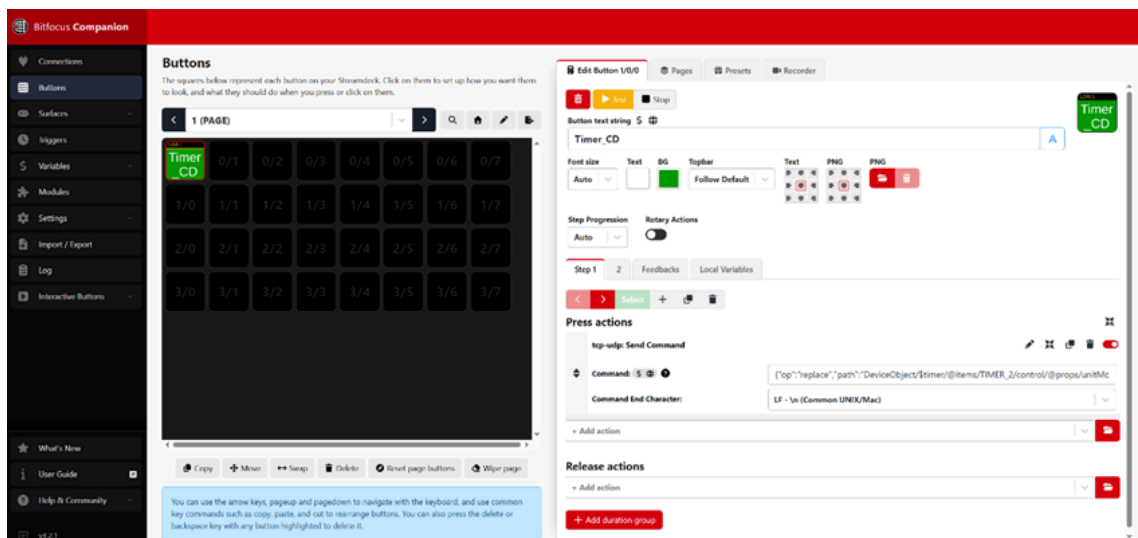
1. In Companion GUI, go to Buttons tab.
2. Click on *Preset*s and select the added device.
3. Click on the line of command you want to use to display the existing functions.



4. Drag and drop them to any button of the Stream Deck on the left hand side.
 5. Optional : click on the button to edit or test it through web.
- The selected function appears on the button on the connected Stream Deck.

22.3. Stream Deck buttons customization

1. In Companion GUI, go to Buttons tab.
2. Click on any button of the Stream Deck on the left hand side to open the Edit Button page and click *Create button*.
3. Enter the button's label under Button text string and adjust its format (font, color, image etc.).



4. In Actions, click on a folder at the end of the Press action line and select *Tcp-udp _ Send command*.
5. Add commands from *AWJ Protocol programmer's Guide* using %04 as syntax ending.

6. Optional: Click on *Test* to try out the button through web or use the connected Stream Deck.

Glossary

Capacity

A capacity is the maximum bandwidth allocated to an item. Allocating a max capacity for every item ensures the interoperability between all the internal elements of an Aquilon unit. Capacities are automatically assigned when setting a format.

Image Processing Units *≈ IPU*

IPU components create the image content.

Input group

Grouping inputs optimizes the processing resources of the VPU and saves layers in Screens. It allows more inputs in the same VPU.

Link

The **Link feature** allows the creation of large setups, composed of up to 4 any Aquilon devices in a closed-circuit Leader and Followers configuration. All devices are managed as one unit from a single Web RCS of a Leader device.

Mixer layers

This is the default layer mode for Aquilon units as well as most Analog Way products.

Mixer layers support cross transitions with both contents visible at the same time during the transition (seamless transition).

Multiviewer

A Multiviewer is a dedicated output displaying a user customizable selection of Widgets as display resources to monitor content. One Multiviewer can display up to 64 Widgets.

A **Widget** is a Multiviewer layer containing a program, preview, input, image or timer.

Output group

Grouping outputs optimizes the processing resources of the VPU for Screens with multiple outputs.

It allows the use of more outputs in the same VPU (ex. one VPU can manage up to 16 outputs in four 2x2 Screens).

Split layers

This layer mode consumes half the processing resources compared to mixer layers and doubles the number of layers available on Screen.

Vertical rate

Sets the overall internal operating frame rate of the unit, which defines the frame rate of all Program outputs.

Vertical rate can be set manually, or by following a Genlock or Framelock as a reference.

Video Processing Units <i>≈ VPU</i>	VPU are the main processing components of Aquilon. They create the layers and allocate them to one or multiple outputs.
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23. Contact information



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