

Device: AJA FS HDR



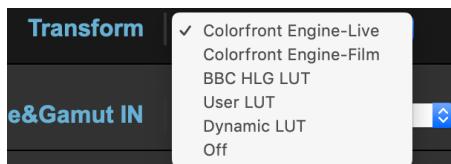
Introduction

A number of parameters on the AJA FS HDR frame synchronizer can be controlled from a SKAARHOJ control panel. The complete feature set is not implemented but a large variety of actions can be found. This document gives you an overview of possible control parameters.

The implementation have been done on a FS4 with Software Version 3.0.0.48

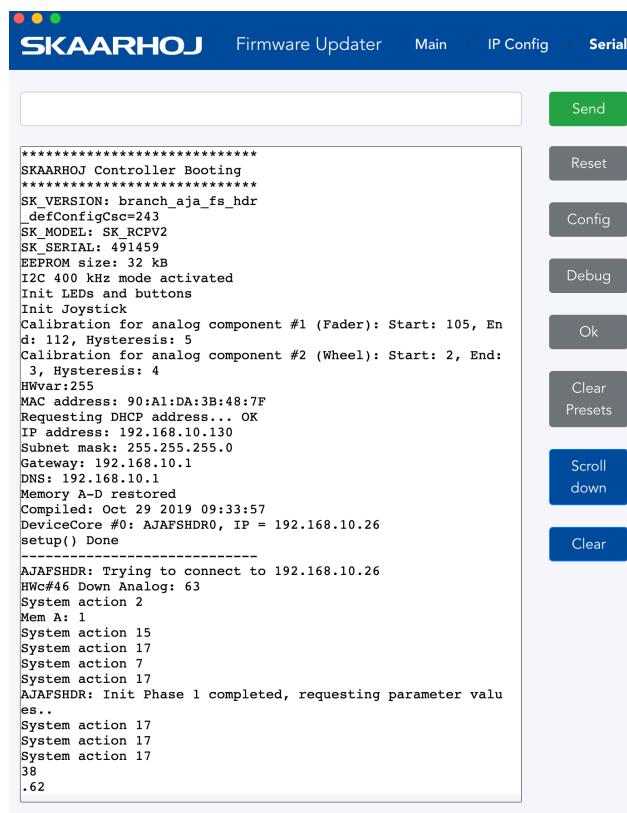
Colorfront Engine Control

Please notice the Colorfront Engine changes functionality depending on which Transform type the HDR is set too. Our integration have focused on implementing Colorfront Engine control for the "**Colorfront Engine-Live**" transform type and **not** the Colorfront Engine-Film.



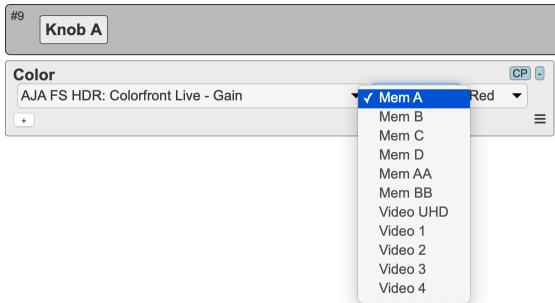
Connection

Connection status to the FS HDR is shown in the serial monitor.



Mapping of Channels

From the same panel it is possible to control the 4 different 2K/HD/SD channels and switch between these on the fly. Alternatively if the HDR is in 4K/UltraHD mode just 1 channel is possible to control. When relevant the channel for Actions on the FS4 Device Core can be set to Mem A-D, Mem AA-BB or Video 0-4. In the default configurations you will often find this set to Mem A so the different channels can be controlled on the fly by changing the Memory Parameter A to values between 0 to 4 elsewhere on the panel. The mapping between the Memory A and channels are shown below.



Mem A = 0 = Video UHD (this is used in 4K/UltraHD mode)

Mem A = 1 = Video 1 = Channel Video 1

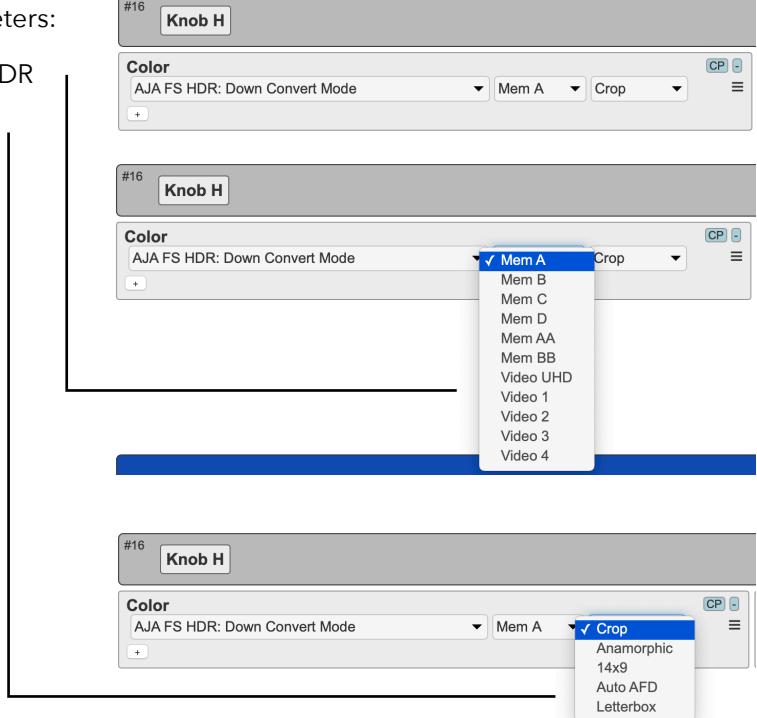
Mem A = 2 = Video 2 = Channel Video 2

Mem A = 3 = Video 3 = Channel Video 3

Mem A = 4 = Video 4 = Channel Video 4

A action is typically build up of two parameters:

- Selection of the Video Channel on the HDR
- Selection of a specific value if it exists



SKAARHOJ DEVICE CORES

This is a overview of the actions implemented in the Device Core

AJA FS HDR: Input
AJA FS HDR: Loss of input
AJA FS HDR: Output Format
AJA FS HDR: SD Aspect Ratio
AJA FS HDR: Up Convert Mode
✓ AJA FS HDR: Down Convert Mode
AJA FS HDR: Custom Size/Pos
AJA FS HDR: Custom Size
AJA FS HDR: Custom Aspect
AJA FS HDR: Custom Position
AJA FS HDR: Region of Interest
AJA FS HDR: ROI
AJA FS HDR: Test Pattern Gen
AJA FS HDR: Test Pattern Type
AJA FS HDR: ProcAmp Enable
AJA FS HDR: ProcAmp Settings
AJA FS HDR: Transform
AJA FS HDR: Colorfront Live - Dyn Range&Garmut IN
AJA FS HDR: Colorfront Live - Dyn Range&Garmut OUT
AJA FS HDR: Colorfront Live - SDR Preview
AJA FS HDR: Colorfront Live - Colorfront Engine
AJA FS HDR: Colorfront Live - HDR Amount
AJA FS HDR: Colorfront Live - Amb Light Comp
AJA FS HDR: Colorfront Live - HDR Log Look
AJA FS HDR: Colorfront Live - SDR Softness
AJA FS HDR: Colorfront Live - Lift
AJA FS HDR: Colorfront Live - Gamma
AJA FS HDR: Colorfront Live - Gain
AJA FS HDR: Colorfront Live - Saturation
AJA FS HDR: Colorfront Live - Exposure
AJA FS HDR: Colorfront Live - Color Temp
AJA FS HDR: Colorfront Live - Tint
AJA FS HDR: Colorfront Live - BT.2408 Mode
AJA FS HDR: Colorfront Live - Colorfront Reset
AJA FS HDR: BBC HLG LUT
AJA FS HDR: User LUT
AJA FS HDR: Dynamic LUT - In Colorspace
AJA FS HDR: Dynamic LUT - Out Colorspace
AJA FS HDR: Dynamic LUT - In Scale
AJA FS HDR: Dynamic LUT - Out Scale
AJA FS HDR: Dynamic LUT - Transfer Characteristic
AJA FS HDR: Video Legalizer
AJA FS HDR: Video Legalizer Settings
AJA FS HDR: Freeze Output
AJA FS HDR: Fan Speed
AJA FS HDR: Output Frame Rate
AJA FS HDR: Genlock Source
AJA FS HDR: Mon 2K Crop
AJA FS HDR: HDMI RGB Range
AJA FS HDR: Monitor Map
AJA FS HDR: Preset
AJA FS HDR: Audio Embed Map
AJA FS HDR: Audio Out

The Actions are divided by using the control categories from the Frame Sync.

AJA FS HDR: Input
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AJA FS HDR: ROI
AJA FS HDR: Test Pattern Gen
AJA FS HDR: Test Pattern Type
AJA FS HDR: ProcAmp Enable
AJA FS HDR: ProcAmp Settings
AJA FS HDR: Transform
AJA FS HDR: Colorfront Live - Dyn Range&Garmut IN
AJA FS HDR: Colorfront Live - Dyn Range&Garmut OUT
AJA FS HDR: Colorfront Live - SDR Preview
AJA FS HDR: Colorfront Live - Colorfront Engine
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AJA FS HDR: Colorfront Live - Amb Light Comp
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AJA FS HDR: Dynamic LUT - Out Scale
AJA FS HDR: Dynamic LUT - Transfer Characteristic
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AJA FS HDR: Preset
AJA FS HDR: Audio Embed Map
AJA FS HDR: Audio Out

Channels - Input

Channels - Format

Channels - Scale

Channels - Test Gen

Channels - Color

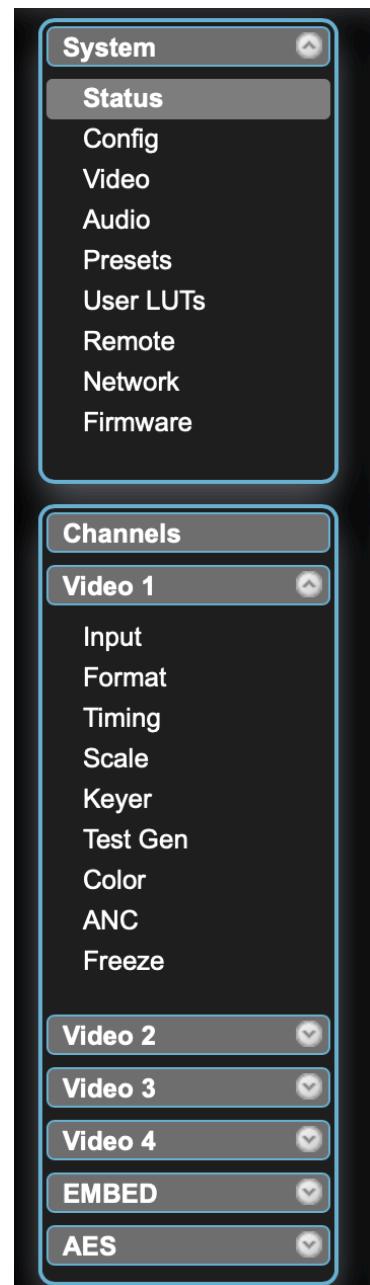
Channels - Freeze

Status - Config

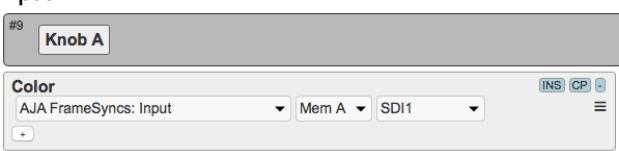
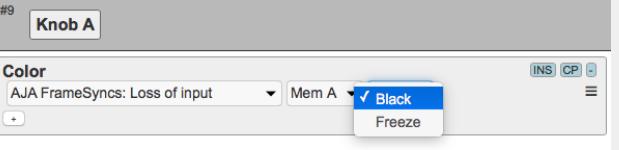
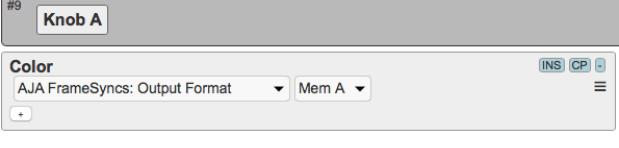
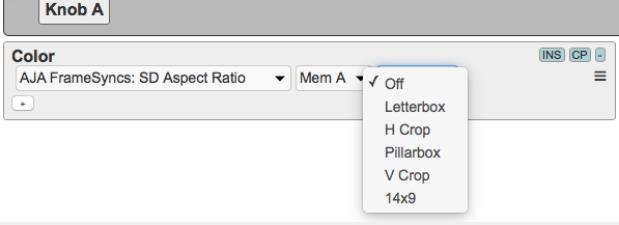
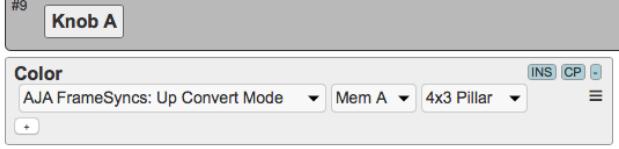
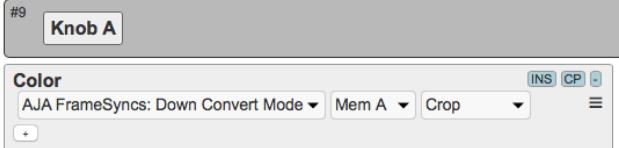
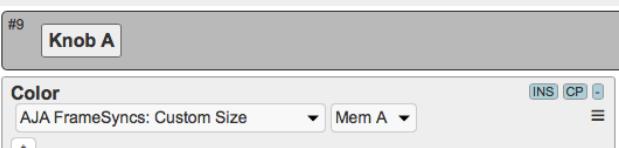
Status - Video

Status - Presets

Channels - EMBED + AES



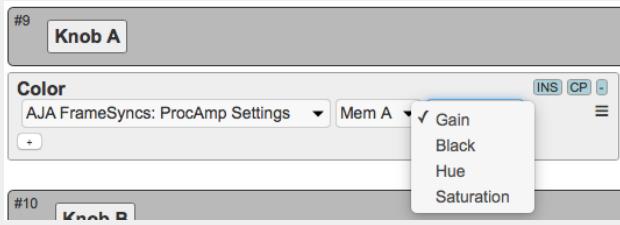
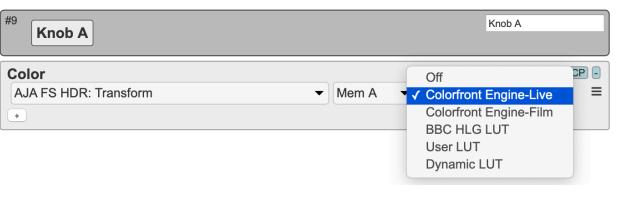
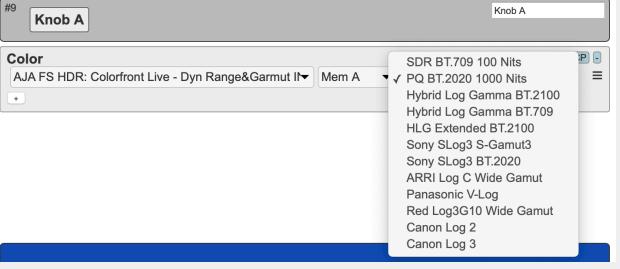
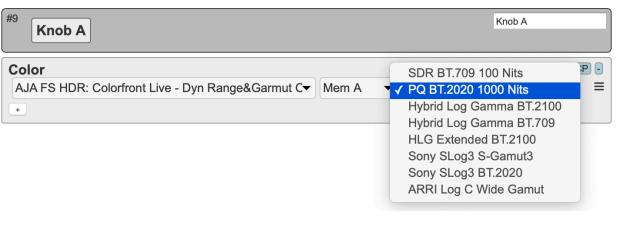
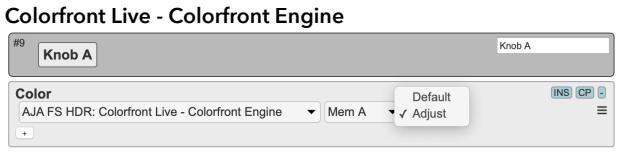
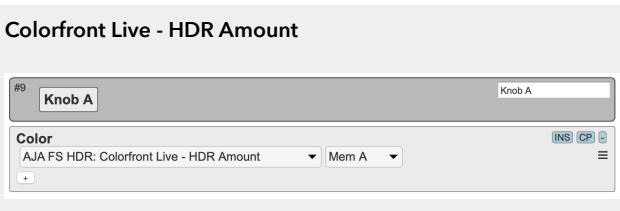
This is a table of actions for AJA FS HDR Device Core

Input	 <p>Routes input to the selected Channel <i>Binary triggers:</i> Sets the selected input to the selected channel. <i>Pulse inputs:</i> Will cycle through the Inputs for the selected channel. <i>Displays:</i> "Input/Input x"</p>
Loss of input	 <p>Selects option for Loss of input <i>Binary triggers:</i> Sets the selected mode for loss of input. <i>Pulse inputs:</i> Will cycle through options for loss of input <i>Displays:</i> "In Loss mode"</p>
Output Format	 <p>Selects Output Format <i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will cycle through options for Output Format <i>Displays:</i> "Output/Format"</p>
SD Aspect Ratio	 <p>Selects SD Aspect Ratio <i>Binary triggers:</i> Sets the selected SD Aspect Ratio <i>Pulse inputs:</i> Will cycle through options for Aspect Ratio <i>Displays:</i> "SD Aspect/mode"</p>
Up Convert Mode	 <p>Selects Up Convert Mode <i>Binary triggers:</i> Sets the selected Up Convert Mode <i>Pulse inputs:</i> Will cycle through options for Convert Mode <i>Displays:</i> "Up Conv/mode"</p>
Down Convert Mode	 <p>Selects Down Convert Mode <i>Binary triggers:</i> Sets the selected Down Convert Mode <i>Pulse inputs:</i> Will cycle through options for Convert Mode <i>Displays:</i> "Dn Conv/mode"</p>
Custom Size/Pos	 <p>Turn off/on Custom Size/Position <i>Binary triggers:</i> Sets Custom Size/Postion to on/off <i>Pulse inputs:</i> Will cycle through on/off for Custom Size/Pos <i>Displays:</i> "Cust S/P/mode"</p>
Custom Size	 <p>Sets the Custom Size <i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will set the custom size <i>Displays:</i> "Cust Size/%"</p>

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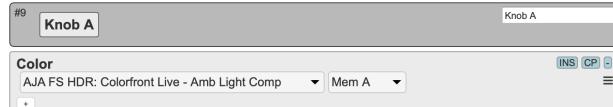
Custom Aspect	Sets the Custom Aspect <i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will set the custom aspect <i>Displays:</i> "Cust Asp/%"
Custom Postion	Sets the Custom Position for either H or V <i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will set the custom position for H or V <i>Displays:</i> "CustPos H/%" or "CustPos V/%"
Region of Interest	Sets the Region of Interest <i>Binary triggers:</i> Sets Region of Interest. If Toggle is selected it will toggle between "Off" and the selected option. <i>Pulse inputs:</i> Will cycle through options for Region of Interest <i>Displays:</i> "ROI Mode/mode"
ROI	Sets the ROI parameters <i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will cycle through the selected ROI parameter <i>Displays:</i> "ROI Left/%", "ROI Right/%", "ROI Top/%", "ROI Bottom/%"
Test Pattern Gen	Controls the Test Pattern Generator <i>Binary triggers:</i> Sets the generator to on or off <i>Pulse inputs:</i> Will cycle through on/off <i>Displays:</i> "Test Gen/mode"
Test Pattern Type	Controls the Test Pattern Type <i>Binary triggers:</i> Sets the type to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "Test Ptnr/mode"
ProcAmp Enable	Sets ProcAmp to on or off <i>Binary triggers:</i> Sets ProcAmp to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "ProcAmp/mode"

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ProcAmp Settings 	<p>Controls the 4 ProcAmp values</p> <p>Binary triggers: Not implemented</p> <p>Pulse inputs: Will cycle the selected ProcAmp parameter</p> <p>Displays: "Gain/value", "Black/value", "Hue/value", "Sat/value"</p> <p>For "Gain" + "Black" Analog inputs - Gain: Set the value between 0-1.5 Analog inputs - Black: Set the value between -20 - +20</p>
Transform 	<p>Sets the Transform type</p> <p>Binary triggers: Sets ProcAmp to the chosen mode</p> <p>Pulse inputs: Will cycle through the modes</p> <p>Displays: "Transform mode"</p>
Colorfront Live - Dyn Range&Gamut In 	<p>Sets the Dyn Range&Gamut IN</p> <p>Only for Transform = Colorfront Engine-Live</p> <p>Binary triggers: Sets Dyn Range&Gamut IN to the chosen mode</p> <p>Pulse inputs: Will cycle through the modes</p> <p>Displays: "Dyn R&G IN/mode"</p>
Colorfront Live - Dyn Range&Gamut Out 	<p>Sets the Dyn Range&Gamut OUT</p> <p>Only for Transform = Colorfront Engine-Live</p> <p>Binary triggers: Sets Dyn Range&Gamut OUT to the chosen mode</p> <p>Pulse inputs: Will cycle through the modes</p> <p>Displays: "Dyn R&G OUT/mode"</p>
Colorfront Live - SDR Preview 	<p>Controls SDR Preview</p> <p>Only for Transform = Colorfront Engine-Live</p> <p>Binary triggers: Sets SDR Preview to on or off</p> <p>Pulse inputs: Will cycle through on/off</p> <p>Displays: "SDR Prev./mode"</p>
Colorfront Live - Colorfront Engine 	<p>Controls Colorfront Engine</p> <p>Only for Transform = Colorfront Engine-Live</p> <p>Binary triggers: Sets Colorfront Engine to Default or Adjust</p> <p>Pulse inputs: Will cycle through Default/Adjust</p> <p>Displays: "Cfr Engine/mode"</p>
Colorfront Live - HDR Amount 	<p>Adjust HDR Amount</p> <p>Only for Transform = Colorfront Engine-Live</p> <p>Binary triggers: Not implemented</p> <p>Pulse inputs: Will cycle the HDR Amount value</p> <p>Displays: "HDR Amount/value"</p>

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Colorfront Live - Amb Light Comp



Adjust Amb Light Comp
Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the Amb Light Comp value

Displays: "Amb L. Com/value"

Adjust HDR Log Look
Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the HDR Log Look value

Displays: "HDR L. Loo/value"

Adjust SDR Softness
Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the SDR Softness value

Displays: "SDR Soft./value"

Controls the Colorfront Engine Lift RGB + Master Values
Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the selected RGB + Master Lift value

Displays: "Lift R/value", "Lift G/value", "Lift B/value", "Lift M/value"

Controls the Colorfront Engine Gamma RGB + Master Values

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the selected RGB + Master Gain value

Displays: "Gamma R/value", "Gamma G/value", "Gamma B/value", "Gamma M/value"

Controls the Colorfront Engine Gain RGB + Master Values

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the selected RGB + Master Gain value

Displays: "Gain R/value", "Gain G/value", "Gain B/value", "Gain M/value"

Adjust Saturation

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the Saturation value

Displays: "Saturation/value"

Adjust Exposure

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the Exposure value

Displays: "Exposure/value"

Adjust Color Temp

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the Color Temperature value

Displays: "Color Temp/value"

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Colorfront Live - Tint



Adjust Color Temp

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the Tint value

Displays: "Tint/value"

Adjust BT.2408 Mode Value

Only for Transform = Colorfront Engine-Live

Binary triggers: Not implemented

Pulse inputs: Will cycle the BT.2408 value

Displays: "BT.2408 M./value"

Reset the Colorfront values

Only for Transform = Colorfront Engine-Live

Binary triggers: Resets Colorfront values but *only* with a long press

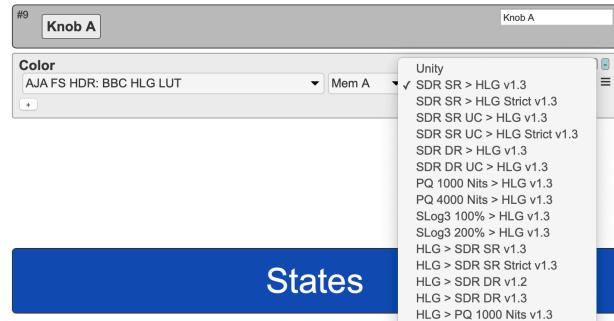
Pulse inputs: Not implemented

Displays: "CFE-Live/Reset"

Colorfront Live - Colorfront Reset



BBC HLG LUT



Sets the BBC HLG Lut mode

Only for Transform = BBC HLG LUT

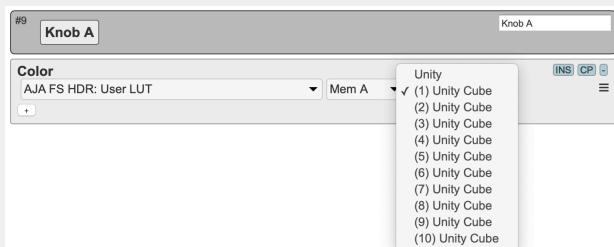
Binary triggers: Sets BBC HLG Lut to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "BBC LUT/mode"

States

User LUT



Sets the User LUT mode

Only for Transform = User LUT

Binary triggers: Sets User LUT to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "User LUT/mode"

Dynamic LUT - In Colorspace



Sets the In Colorspace option for Dynamic LUT

Only for Transform = Dynamic LUT

Binary triggers: Sets In Colorspace to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "In Col.Sp/mode"

Dynamic LUT - Out Colorspace



Sets the Out Colorspace option for Dynamic LUT

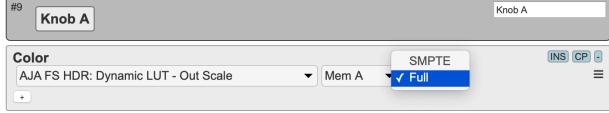
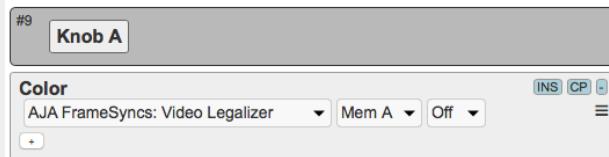
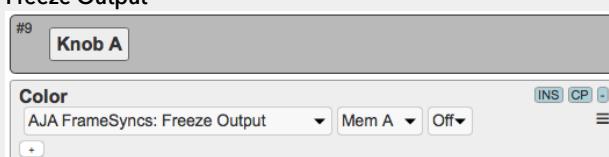
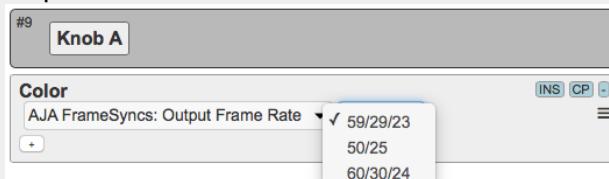
Only for Transform = Dynamic LUT

Binary triggers: Sets Out Colorspace to the chosen mode

Pulse inputs: Will cycle through the modes

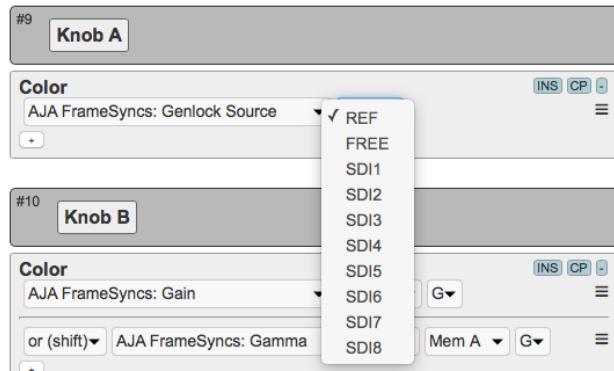
Displays: "Out Col.Sp/mode"

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Dynamic LUT - In Scale	 <p>Sets the In Scale option for Dynamic LUT <i>Only for Transform = Dynamic LUT</i></p> <p><i>Binary triggers:</i> Sets In Scale to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "In Scale/mode"</p>
Dynamic LUT - In Scale	 <p>Sets the Out Scale option for Dynamic LUT <i>Only for Transform = Dynamic LUT</i></p> <p><i>Binary triggers:</i> Sets Out Scale to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "Out Scale/mode"</p>
Dynamic LUT - Transfer Characteristic	 <p>Sets the Transfer Characteristic for Dynamic LUT <i>Only for Transform = Dynamic LUT</i></p> <p><i>Binary triggers:</i> Sets Transfer Characteristic to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "Tra. Char/mode"</p>
Video Legalizer	 <p>Sets the Video Legalizer to on or off</p> <p><i>Binary triggers:</i> Sets the Video Legalizer to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "Legalizer/mode"</p>
Video Legalizer Settings	 <p>Controls the Video Legalizer Settings</p> <p><i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will cycle through the selected values <i>Displays:</i> "LegWhite/value", "LegBlack/value", "LegChroma/value"</p>
Freeze Output	 <p>Controls the mode for Freeze Output</p> <p><i>Binary triggers:</i> Sets the Freeze Output to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "Freeze/mode"</p>
Fan Speed	 <p>Controls the Fan Speed</p> <p><i>Binary triggers:</i> Not implemented <i>Pulse inputs:</i> Will cycle Fan Speeds <i>Displays:</i> "Fan Speed/value"</p>
Output Frame Rate	 <p>Controls the global Output Frame Rate</p> <p><i>Binary triggers:</i> Sets the Output Frame Rate to the chosen mode <i>Pulse inputs:</i> Will cycle through the modes <i>Displays:</i> "FrameRate/mode"</p>

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Genlock Source



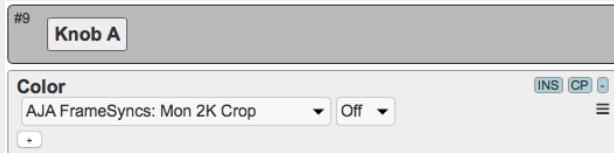
Controls the global Genlock Source

Binary triggers: Sets the Genlock Source to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "GenLokSrc/mode"

Mon 2K Crop



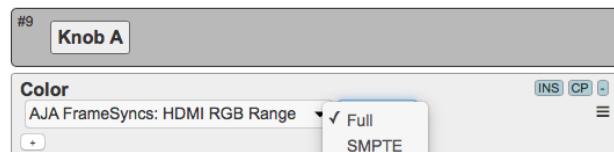
Controls the Mon 2K Crop

Binary triggers: Sets the Mon 2K Crop to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "Mon2KCrop/mode"

HDMI RGB Range



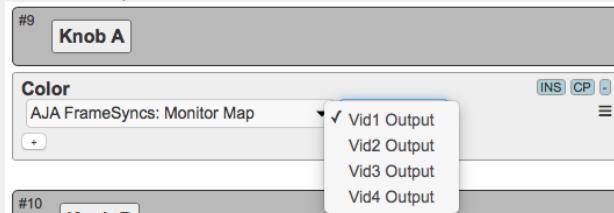
Controls the HDMI RGB Range

Binary triggers: Sets the HDMI RGB Range to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "HDMIRGBRA/mode"

Monitor Map



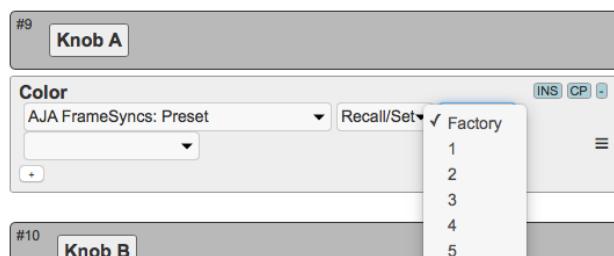
Controls the mapping of the Monitor Output

Binary triggers: Sets the Monitor Map Routing to the chosen mode

Pulse inputs: Will cycle through the modes

Displays: "Mon Map/mode"

Presets



Controls the Presets on the FS. Select between 40 Presets and the Factory Default

Binary triggers: If "Recall/Set" - press and hold will perform a Preset Set
A single press will recall the preset

If "Set" a single press will save the preset

If "Recall" a single press will recall the preset

Pulse inputs: Not implemented

Displays:

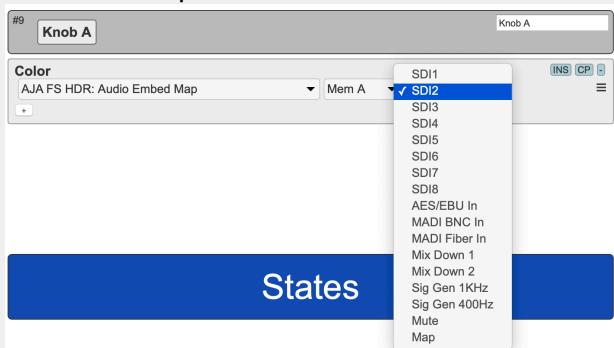
If "Recall/Set" "Preset/no"

If "Set" "Set/no"

If "Recall" "Recall/no"

Controls the Audio Embedding Mapping

Audio Embed Map



Binary triggers: Sets the Audio Embedding Mapping to the chosen mode

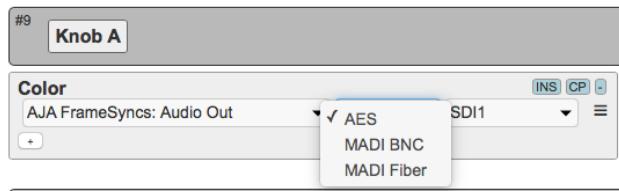
Pulse inputs: Will cycle through the modes

Displays: "Aud.Embed/mode"

States

SKAARHOJ DEVICE CORES

Audio Out



Controls the Audio Out for AES, MADI BND or MADI Fiber

Binary triggers: Sets the Audio Rout to the chosen channel

Pulse inputs: Will cycle through the channels for the chosen mode

Displays: "Audio Out/channel"