

Blustream-PLAXXCS Installation and Usage Guide



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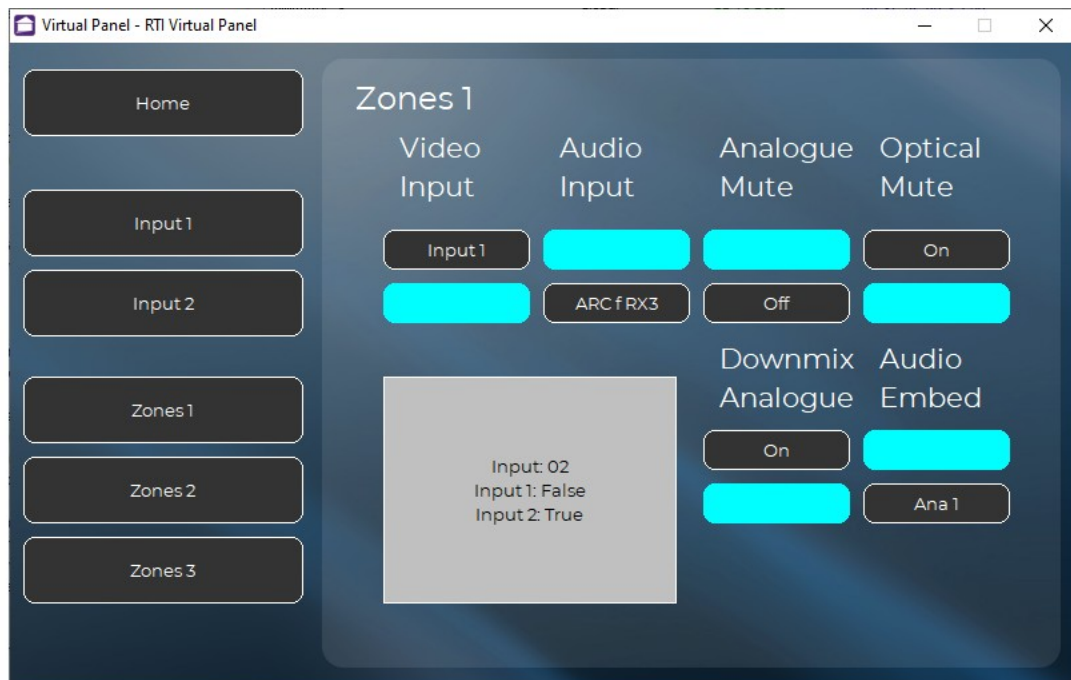
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Overview

The Blustream PLAXXCS RTI module gives you control of your Blustream Matrix device, supporting the PLA88CS and PLA66CS. The module is built using tags to support auto programming in Integration Designer Apex.

- Advanced HDBaseT™ technology offering distribution of video and audio over a single CAT cable
- Advanced Colour Space Conversion (CSC) supports HDMI 2.0 18Gbps specification including HDR*
- Features 8 x HDMI inputs which can be independently routed to 8 x HDBaseT™ outputs
- Output 1 features simultaneous HDMI and HDBaseT™ output
- Video down-conversion on HDBaseT™ outputs allowing a display only capable of supporting lower video resolutions (4K 60Hz 4:2:0, or 1080p) to receive 4K 60Hz 4:4:4 video content, while still showing maximum original 4K UHD resolution on remaining video outputs
- Supports 4K 60Hz 4:4:4 UHD video up to 40m, and 1080p video up to 70m
- 26x8 Audio Matrix independently controllable from video. Audio source inputs include:
 - 8 x audio breakout from HDMI source inputs
 - 8 x audio breakout from zone outputs
 - 8 x ARC from zone outputs (only with RX70CS)
 - 1 x Optical and 1 x Analog audio input
- Supports all known HDMI audio formats including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission
- Web interface module for control and configuration of Matrix
- Supports bi-directional IR and RS-232 on all HDBaseT™ outputs
- Control via front panel, IR, iOS / Android App, RS-232 and TCP/IP
- Supports PoC (Power over Cable) to power compatible HDBaseT™ receivers
- Supplied with Blustream IR receivers and emitters
- Advanced EDID management and HDCP 2.2 compliant

The module also provides a selection of events that you can use to trigger custom automation if the receiver changes state, regardless of whether it was triggered by RTI, or on the Blustream device.



Features

- IP Control
- The driver has a comprehensive set of tags for easy programming in Integration Designer Apex
- Volume control in percentage.
- Volume has Up / Down controls in addition to the sliders
- Add the number of inputs and their names for easy macro programming
- Naming of audio outputs for easy macro programming
- An example project is included which contains all of the drivers functions

Installation

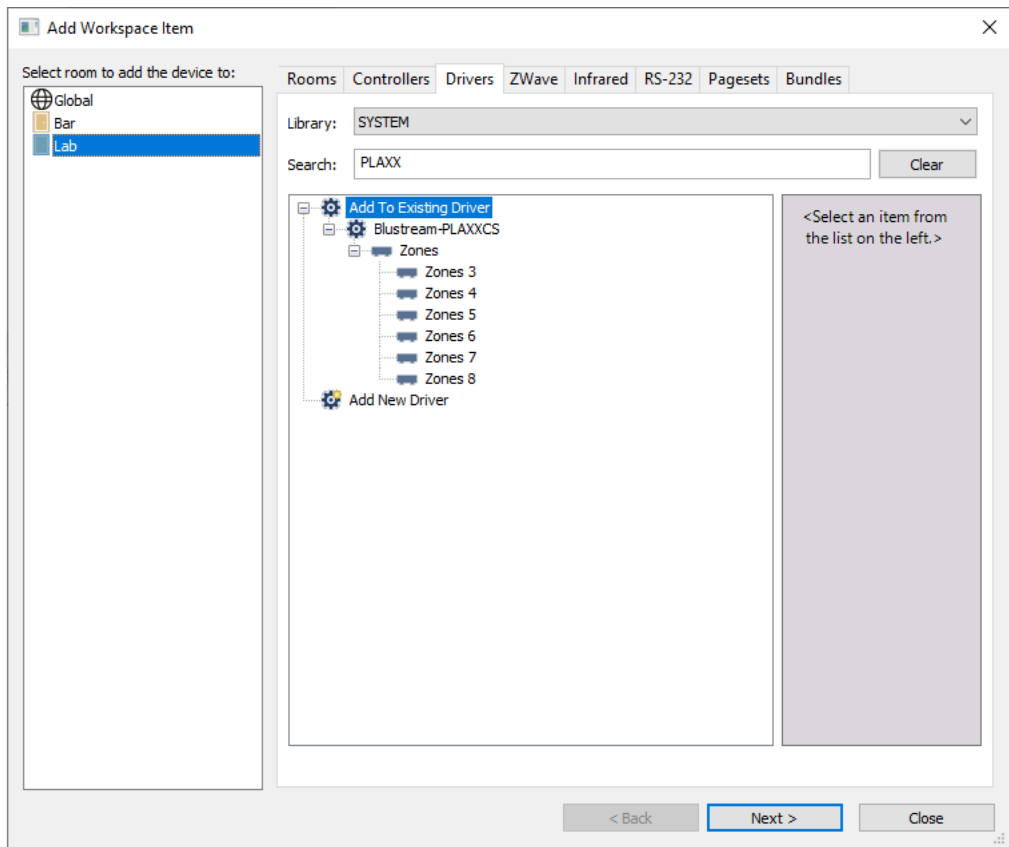
The zip file that included this documentation has the rtidriver file you will need to add. The first step is to download and extract the driver from the zip file. The default location is Documents\Integration Designer\Control Drivers

Set your project up by adding Rooms and controllers to suit your setup.

Add the driver

Click on to the Drivers tab at the top of the Add Workspace Item window. Select the appropriate room to install the driver into and click Next. If required change the driver name and when your done click Add Device. If you have more than one driver to add repeat the process.

The driver is now ready to configure or use.



Configuration

The driver only requires several items to be configured before it is ready to use.

The screenshot shows the 'Blustream-PLAXXCS' configuration window. On the left is a sidebar with a tree view containing 'Driver Configuration' (expanded), 'Driver Utilities...', 'Driver Properties', 'Driver Events', and 'Driver Info'. The main area displays the 'System Settings' section, which is further divided into 'General Settings', 'Input Settings', 'Audio Settings', and 'Debug Settings'. The 'General Settings' section includes 'Connection Type' (set to IP), 'IP Address' (172.16.16.106), and 'Port' (23). The 'Input Settings' section includes 'Total HDMI Inputs' (4) and four individual input fields: 'Input 1' (DVD), 'Input 2' (PS5), 'Input 3' (PC1), and 'Input 4' (PC2). The 'Audio Settings' section includes 'Total Audio Outputs' (3) and three individual output fields: 'Audio 1' (Bar), 'Audio 2' (Lab), and 'Audio 3' (Out). The 'Debug Settings' section includes 'Enable Trace' (checked) and 'Enable Cloud Logging' (unchecked).

System Settings	
General Settings	
Connection Type	IP
IP Address	172.16.16.106
Port	23
Input Settings	
Total HDMI Inputs	4
Input 1	DVD
Input 2	PS5
Input 3	PC1
Input 4	PC2
Audio Settings	
Total Audio Outputs	3
Audio 1	Bar
Audio 2	Lab
Audio 3	Out
Debug Settings	
Enable Trace	<input checked="" type="checkbox"/>
Enable Cloud Logging	<input type="checkbox"/>

Driver Settings

Connection Type

The connection type needs to be selected from the drop down and can be either IP or RS-232. Each option requires different config so they are covered separately below.

IP

If you choose the IP connection type you will need to provide an IP address and a port. The default port is 23.

RS-232

If you choose RS-232 you will need to select a serial port from the drop down list.

Input Settings

Total Inputs

The device can have up to 8 inputs configured and you need to set this field with the number of inputs you have configured. You will also need to name the inputs, with the Input fields that will appear once you have set the total.

Input[x]

When you have set the total inputs section above a matching number of input fields will appear allowing you to set the names of the inputs you have configured. These names are used throughout with the Functions, Variables and Events.

Audio Settings

Output [x]

For each zone this driver is added to in the project a matching number of audio output fields will appear allowing you to set the names of the outputs you have configured. These names are used throughout with the Functions, Variables and Events.

Driver Commands

System Commands

Device Power On [TAG: Power On]

The Device Power On command can be used to power on the device from low power standby mode.

Device Power Off [TAG: Power Off]

The Device Power Off command can be used to power down the device to a low power state.

Device Power Toggle [TAG: Power]

The Device Power Toggle command can be used to toggle the power mode for the device between operational and low power.

Preset [x] Save [TAG: Program]

The Preset [x] Save command saves the current Input[x] to Zone[x] and Power for all zones. There are up to 9 presets that can be set. Note: This will not save Audio[x], Volume, PoC or mute settings.

Preset [x] Clear [TAG: Clear]

The Preset [x] Clear command removes the saved preset configuration from the selected preset.

Preset [x] Apply [TAG: Preset]

The Preset [x] Apply command applies the saved Input[x] to Zone[x] configuration from the selected preset. Note: This will not alter Audio[x], Volume, PoC or mute settings.

Local Matrix IR Out [TAG: MXIR]

The Local Matrix IR Out command can be used to send IR commands to the local IR matrix.

Index	Mode
1-8	Local IR Out 1-8

Index	Mode
0	All Remote Rx IR In
1-8	Remote Rx IR In 1-8
9-10	Remote Tx 1-2 IR In

IR Out Follow Video [TAG: IRFV:STATE]

The IR Out Follow Video command can be used to enable or disable the IR out follow video function.

Remote Rx RS232 [TAG: MXRS232OUT]

The Remote Rx RS232 command can be used to send RS232 commands to the remote receiver.

Index	Mode
0	All Remote Rx RS232

1-8	Remote Rx 1-8 RS232
-----	---------------------

Index	Mode
1-8	Local Matrix RS232 1-8

9-10	Remote Tx RS232 1-2
------	---------------------

Remote Tx RS232 [TAG: MXRS232IN]

The Remote Tx RS232 command can be used to send RS232 commands to the remote transmitter.

Index	Mode
0	All Remote Rx RS232

1-2	Remote Tx 1-2 RS232
-----	---------------------

Index	Mode
1-8	Local Matrix RS232 1-8

Remote Rx IR [TAG: MXIRRX]

The Remote Rx IR command can be used to send IR commands to the remote receiver.

Index	Mode
0	All Remote Rx IR Out

1-8	Remote Rx 1-8 IR Out
-----	----------------------

Index	Mode
0	Remote Rx IR Out Off

1-8	Local Matrix IR In 1-8
-----	------------------------

9-10	Remote Tx RS232 1-2
------	---------------------

Index	Mode
-------	------

Remote Tx IR Out [TAG: MXIRTX]

The Remote Tx IR Out command can be used to send IR commands to the remote transmitter.

Index	Mode
-------	------

0	All Remote Tx IR Out
---	----------------------

1-8	Remote Rx IR 1-8
-----	------------------

Index	Mode
-------	------

0	Remote Tx IR Out Off
---	----------------------

1-8	Local Matrix IR In 1-8
-----	------------------------

9-10	Remote Tx 1-2 IR In
------	---------------------

Input Commands (1 to 8)

PoC Off [TAG: Input 1 PoC Off]

The PoC Off command can be used to deactivate Power over Cable for the selected input.

PoC On [TAG: Input 1 PoC On]

The PoC On command can be used to activate Power over Cable for the selected input.

PoC Toggle [TAG: Input 1 PoC]

The PoC toggle command can be used to toggle the current state of Power over Cable for the selected input. If the PoC is currently active, it will be deactivated. Similarly if the PoC is inactive, it will then be activated.

HDMI/HDBT Switch Mode [TAG: Input (1 to 2) Switch Mode:MODE]

The HDMI/HDBT Switch Mode command can be used to set the HDMI/HDBT switch mode for the selected input. The available modes are:

Index	Mode
-------	------

0	Force HDMI Mode
---	-----------------

1	Force HDBT Mode
---	-----------------

2	5v Detect Mode, Auto Switch HDMI Priority
---	---

3	5v Detect Mode, Auto Switch HDBT Priority
4	5v Detect Mode, Auto Switch No Priority
5	TMDS Detect Mode, Auto Switch HDMI Priority
6	TMDS Detect Mode, Auto Switch HDBT Priority
7	TMDS Detect Mode, Auto Switch No Priority

Output Commands General (1 to 8) - Zone[x]

The following commands relate to the selected zone number.

Power On [TAG: Power On]

The Power On command can be used to power on the selected zone.

Power Off [TAG: Power Off]

The Power On command can be used to power off the selected zone.

Power Toggle [TAG: Power]

The Power Toggle command can be used to toggle the power for the selected zone. If the power is currently off, it will turn on. Similarly if the power is on, it will then turn off.

Audio Power On [TAG: Audio On]

The Audio Power On command can be used to enable the selected audio zone.

Audio Power Off [TAG: Audio Off]

The Audio Power On command can be used to disable the selected audio zone.

Audio Power Toggle [TAG: Audio]

The Power Toggle command can be used to toggle the audio for the selected zone. If the audio is currently off, it will turn on. Similarly if the power is on, it will then turn off.

Volume Up [TAG: Volume Up]

The Volume Up command will raise the volume by 1%. If you use this command you should configure the receiver to show the current volume in percentage.

Volume Down [TAG: Volume Down]

The Volume Down command will lower the volume by 1%. If you use this command you should configure the receiver to show the current volume in percentage.

Volume Level [TAG: Volume]

The Volume Level command will set the volume percentage to the level you specify. You can connect this up to a slider for direct volume control. If you use this command you should configure the receiver to show the current volume in percentage.

Analog Mute On [TAG: Mute On]

The Mute On command can be used to activate the volume mute.

Analog Mute Off [TAG: Mute Off]

The Mute Off command can be used to deactivate the volume mute.

Analog Mute Toggle [TAG: Mute]

The Mute toggle command can be used to toggle the current state of the volume mute. If the mute is currently active, it will be deactivated. Similarly if the mute is inactive, it will then be activated.

Optical Mute On [TAG: Optical Mute On]

The Mute On command can be used to activate the optical mute.

Optical Mute Off [TAG: Optical Mute Off]

The Mute Off command can be used to deactivate the optical mute.

Optical Mute Toggle [TAG: Optical Mute]

The Mute toggle command can be used to toggle the current state of the optical mute. If the mute is currently active, it will be deactivated. Similarly if the mute is inactive, it will then be activated.

PoC On [TAG: PoC On]

The PoC On command can be used to activate Power over Cable.

PoC Off [TAG: PoC Off]

The PoC Off command can be used to deactivate Power over Cable.

PoC Toggle [TAG: PoC]

The PoC toggle command can be used to toggle the current state of Power over Cable. If the PoC is currently active, it will be deactivated. Similarly if the PoC is inactive, it will then be activated.

Downmix Analogue On [TAG: Downmix Analogue On]

The Downmix Analogue On command can be used to enable the downmix analogue function.

Downmix Analogue Off [TAG: Downmix Analogue Off]

The Downmix Analogue Off command can be used to disable the downmix analogue function.

Downmix Analogue Toggle [TAG: Downmix Analogue]

The Downmix Analogue toggle command can be used to toggle the current state of the downmix analogue function. If the downmix analogue is currently active, it will be deactivated. Similarly if the downmix analogue is inactive, it will then be activated.

Downmix Optical On [TAG: Downmix Optical On]

The Downmix Optical On command can be used to enable the downmix optical function.

Downmix Optical Off [TAG: Downmix Optical Off]

The Downmix Optical Off command can be used to disable the downmix optical function.

Downmix Optical Toggle [TAG: Downmix Optical]

The Downmix Optical toggle command can be used to toggle the current state of the downmix optical function. If the downmix optical is currently active, it will be deactivated. Similarly if the downmix optical is inactive, it will then be activated.

Audio Delay [TAG: Delay:DELAY]

The Audio Delay command can be used to set the audio delay for the selected zone. The available delay range is 0 to 1000ms.

ARC From Optical [TAG: ARC From Optical]

The ARC From Optical command can be used to set the ARC from optical audio.

ARC From HDMI [TAG: ARC From HDMI]

The ARC From HDMI command can be used to set the ARC from HDMI audio.

Scaling On [TAG: Scaling On]

The Scaling On command can be used to enable the scaling function.

Scaling Off [TAG: Scaling Off]

The Scaling Off command can be used to disable the scaling function.

Send Pronto Hex Code [TAG: IRHEXSEND]

The Send Pronto Hex Code command can be used to send a Pronto Hex code to the selected zone. The Pronto Hex code needs to be entered in the command field.

Output Commands Video Input (1 to 8) - Zone[x]

Input [TAG: Input]

The Input command can be used to set the input. The inputs need to be configured in the System Configuration and only the ones configured will be available from the drop down for this function. The actual inputs need to be configured in the receiver itself.

Index	Mode
1-8	HDMI Input 1-8

Output Commands Audio Input (1 to 8)

Audio [TAG: Audio]

The audio command can be used to set the audio outputs. The outputs need to be configured in the System Configuration and only the ones configured will be available from the drop down for this function. The actual outputs need to be configured in the receiver itself.

Index	Mode
1-8	From Input 1-8
9-16	From Output 1-8
17-24	HDMI ARC from Rx 1-8
25-26	Optical Input 1-2
33-34	Analog Input 1-2

Output Commands Audio Embed (1 to 8)

Audio Embed On [TAG: Embed:MODE]

The Audio Embed On command can be used to enable the audio embed function. The available modes are:

Index	Mode
0	Off
9	Follow Output
1-8	Audio from Input (1-8)
17-24	Audio from ARC (1-8)
49-56	DSP Analog Audio (1-8)
25-26	Optical Input (1-2)
33-34	Analog Input (1-2)

Output Commands Local Matrix (1 to 8)

Local Matrix IR Out [TAG: MXIR:INPUT]

The Local Matrix IR Out command can be used to send IR commands to the local IR matrix. The available inputs are:

Index	Mode
0	All Remote Rx IR In
1-8	Local IR Out (1-8)
9-10	Remote Tx (1-2)

Driver Variables

System Variables

Power On [boolean]

The Power On variable will be active when the device is in a normal operation mode.

Power Off [boolean]

The Power Off variable will be active when the device is in low power mode.

While in this state the device will only accept a Power On or Status command.

Preset [x] Active [boolean]

The Preset [x] Active variable will be set to active based on the last preset that was activated. Further individual zone setting changes can still be made after selecting a preset.

Input Variables

Input PoC On [boolean]

The Input PoC On variable will be active when the PoC state changes to on for the selected input.

Input PoC Off [boolean]

The Input PoC Off variable will be active when the PoC state changes to off for the selected input.

HDMI/HDBT Switch Mode [integer]

The HDMI/HDBT Switch Mode variable contains the current switch mode for the selected input.

Output Variables General - Zone[x]

Power On [boolean]

The Power On variable will be active when the selected zone is powered on.

Power Off [boolean]

The Power Off variable will be active when the selected zone is powered off.

Audio Power On [boolean]

The Audio Power On variable will be active when the audio for the selected zone is on.

Audio Power Off [boolean]

The Audio Power Off variable will be active when the audio for the selected zone is off.

Volume [integer]

The Volume variable contains the current volume level as a percentage.

Analog Mute On [boolean]

The Mute On variable will be active when the selected zone analog mute is active.

Analog Mute Off [boolean]

The Mute Off variable will be active when the selected zone analog mute is inactive.

Optical Mute On [boolean]

The Mute On variable will be active when the selected zone optical mute is active.

Optical Mute Off [boolean]

The Mute Off variable will be active when the selected zone optical mute is inactive.

PoC On [boolean]

The Power On variable will be active when the main zone is powered on.

PoC Off [boolean]

The Power Off variable will be active when the main zone is powered off.

Downmix Analogue On [boolean]

The Downmix Analogue On variable will be active when the selected zone is set to downmix analogue audio.

Downmix Analogue Off [boolean]

The Downmix Analogue Off variable will be active when the selected zone is set to not downmix analogue audio.

Downmix Optical On [boolean]

The Downmix Optical On variable will be active when the selected zone is set to downmix optical audio.

Downmix Optical Off [boolean]

The Downmix Optical Off variable will be active when the selected zone is set to not downmix optical audio.

Audio Delay **[integer]**

The Audio Delay variable contains the current audio delay in milliseconds.

Scaling On **[boolean]**

The Scaling On variable will be active when the selected zone is set to scale the input.

Scaling Off **[boolean]**

The Scaling Off variable will be active when the selected zone is set to not scale the input.

Output Variables Video Input - Zone[x]

Input **[integer]**

The Input variable contains the number of the currently selected input.

Input[x] Active **[boolean]**

Each input you have configured in the System Config will have a matching Input Active variable. This will be active when the matching input is selected.

Output Variables Audio Input - Zone[x]

Audio **[integer]**

The Audio variable contains the number of the currently selected audio input.

Audio from input[x] Active **[boolean]**

Each input you have configured in the System Config will have a matching Input Active variable. This will be active when the matching audio input is selected.

Index	Mode
1-8	FromInput 1-8
9-16	Return fromOutput 1-8
17-24	HDMI ARC from RX 1-8
25-26	Optical Input 1-2
33-34	Analog Input 1-2

Output Variables Audio Embed - Zone[x]

Embed **[integer]**

The Embed variable contains the number of the currently selected audio embed input.

Embed Audio from input[x] Active **[boolean]**

Each input you have configured in the System Config will have a matching Embed Active variable. This will be active when the matching audio embed is selected.

Index	Mode
0	None
9	Follow Output Active
1-8	From Input 1-8
17-24	From ARC 1-8 Active
49-56	DSP Analogue 1-8 Active
25-26	Optical Input 1-2
33-34	Analog Input 1-2

Output Variables Local Matrix - Zone[x]

Local Matrix **[integer]**

The Local Matrix variable contains the number of the currently selected local matrix input.

Local Matrix from input[x] Active **[boolean]**

Each input you have configured in the System Config will have a matching Local Matrix Active variable. This will be active when the matching local matrix is selected.

Index	Mode
0	All Remote Rx IR In
1-8	Local IR Out 1-8 Active
9-10	Remote Tx 1-2 Active

Connection State

Connection State String [string]

The Connection State variable will be the text Connected if the driver has a connection to the receiver and be the text Disconnected if there is no connection to the receiver.

Connection State [integer]

The Connection State variable will be the value 1 if the driver has a connection to the receiver and be the value 0 if there is no connection to the receiver.

Connected [boolean]

The Connected variable will be active if the driver has a connection to the receiver.

Disconnected [boolean]

The Disconnected variable will be active if the driver loses the connection to the receiver.

Driver Events

System Events

Power On

The Power On event will trigger when the device comes out of low power mode into operational mode.

Power Off

The Power Off event will trigger when the device powers down to low power mode from its operation mode.

Preset [1-9] Active

The Preset X Active event will trigger when the selected preset is first activated.

Input Events

Input PoC On [x]

The Input PoC On event will trigger when the PoC state changes to on for the selected input.

Input PoC Off [x]

The Input PoC Off event will trigger when the PoC state changes to off for the selected input.

Switch Mode Changed [1-2]

The Switch Mode Changed event will trigger when the switch mode for the selected input is changed.

Output Events General - Zone[x]

Power On

The Power On event for the zone will trigger when the power state changes to on.

Power Off

The Power On event for the zone will trigger when the power state changes to off.

Audio Power On

The Audio Power On event for the zone will trigger when the power state changes to on.

Audio Power Off

The Audio Power On event for the zone will trigger when the power state changes to off.

Analog Mute On

The Analog Mute On event for the zone will trigger when Analog audio is muted.

Analog Mute Off

The Analog Mute Off event for the zone will trigger when Analog audio is unmuted or the volume is changed.

Optical Mute On

The Optical Mute On event for the zone will trigger when optical audio is muted.

Optical Mute Off

The Optical Mute Off event for the zone will trigger when optical audio is unmuted.

PoC On

The PoC On event for the zone will trigger when the PoC state changes to on.

PoC Off

The PoC Of event for the zone will trigger when the PoC state changes to off.

Downmix Analogue On

The Downmix Analogue On event will trigger when the downmix state changes to on.

Downmix Analogue Off

The Downmix Analogue Off event will trigger when the downmix state changes to off.

Downmix Optical On

The Downmix Optical On event will trigger when the downmix state changes to on.

Downmix Optical Off

The Downmix Optical Off event will trigger when the downmix state changes to off.

Scaling On Active

The Scaling On Active event will trigger when the scaling state changes to on.

Scaling Off Active

The Scaling Off Active event will trigger when the scaling state changes to off.

Output Events Video Input - Zone[x]

Input[x] Active

The Input[x] Active event will trigger when the input is changed for the zone.

There are 8 input options for each of the 8 output options

Output Events Audio Input - Zone[x]

Audio[x] Active

The Audio[x] Active event will trigger when the input is changed for the audio output.

There are 28 audio options for each of the 8 output options

Output Events Audio Embed - Zone[x]

The Audio Embed events will trigger when the audio embed state changes for the selected output. There are 30 audio embed options for each of the 8 output zones.

Output Events Local Matrix - Zone[x]

The Local Matrix events will trigger when the local matrix state changes for the selected output. There are 11 local matrix options for each of the 8 output zones.

Connection Events

Disconnected

The Disconnected event will trigger when the driver loses the connection to the receiver.

Connected

The Connected event will trigger if the driver gains a connection to the receiver.

CHANGELOG

Version 0.1

Initial release