



grass valley

A **BELDEN** BRAND

IQSYN51

3G/HD/SD-SDI FRAME SYNCHRONIZER WITH ADVANCED AUDIO
PROCESSING

User Manual

Issue 1 Revision 1

2019-03-05

www.grassvalley.com

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Title	IQSYN51 User Manual
Part Number	Issue 1 Revision 1
Revision	2019-03-05, 15:51

Important Safety Information

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

Symbols and Their Meanings



Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



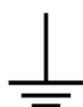
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.



Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.



Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.



Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.



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The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.



The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings



A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for the rated mains voltage is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions



A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- This equipment is meant to be installed in a restricted access location.
- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.

- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment. Servicing should be done in a static-free environment.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Electrostatic Discharge (ESD) Protection



Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Battery Handling



This product may include a backup battery. There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please review the *Disposal and Recycling Information* at:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Cautions for LCD and TFT Displays



Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage.

If the LCD or TFT glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Recycling/Disposal

European (CE) WEEE directive.



This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

Safety and EMC Standards

This equipment complies with the following standards:



Information Technology Equipment - Safety Part 1

EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (4th Edition)

Standard for Safety – Professional Video and Audio equipment (UL file number E193966)

EMC Standards

This unit conforms to the following standards:

EN55032:2015 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN61000-3-2:2014 (Class A)

Electromagnetic Compatibility - Limits for harmonic current emissions

EN61000-3-3:2013

Electromagnetic Compatibility - Limits of voltage changes, voltage fluctuations and flicker

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

Signal/Data Ports

For unconnected signal/data ports on the unit, fit shielding covers. For example, fit EMI blanking covers to SFP+ type ports; and fit 75 Ω RF terminators to BNC type ports

Coaxial Cables

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-Type Connectors

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having indents which improve the contact between the plug and socket shells are recommended.

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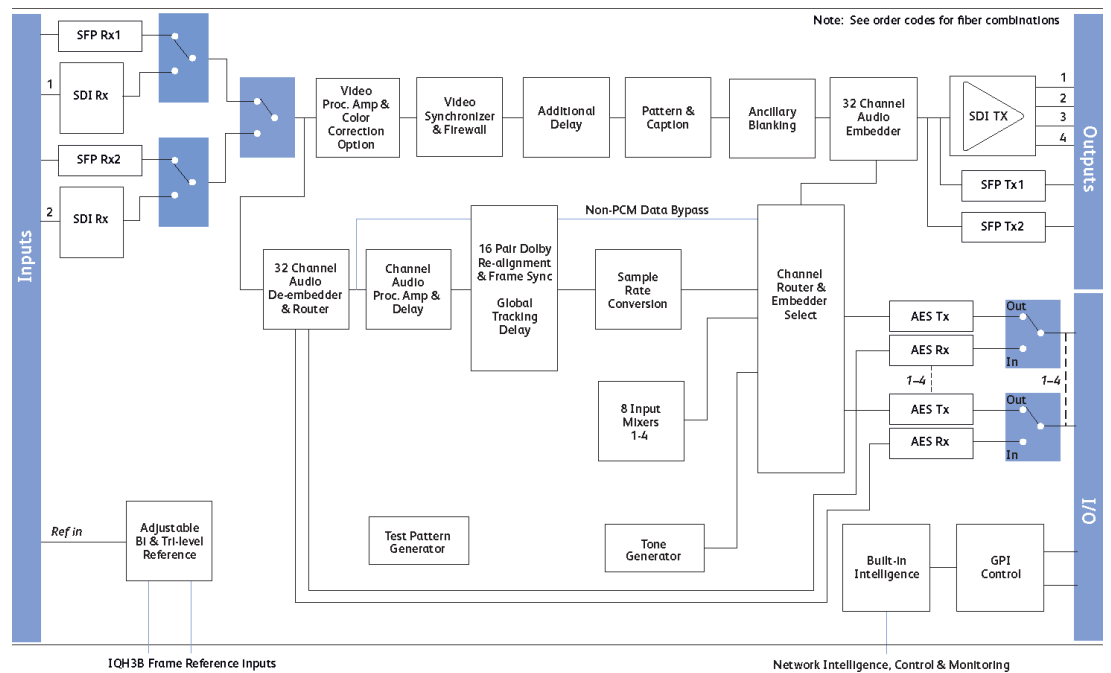
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1 Introduction

Description

The IQSYN51 provides frame synchronization for HD-SDI at 3Gbit/s or 1.5 Gbit/s, or SD-SDI 270 Mbit/s with 32-channel embedded audio processing. Including 2 SDI inputs with clean-switching functionality, agile synchronization and flexible audio processing features, the IQSYN51 is ideal for general incoming line applications. A video proc. amp provides complete control over the video levels and RGB gamut legalization, along with audio processing features including AES embedding and de-embedding, Dolby E auto-alignment, audio delay, gain, invert, channel level routing and mixing.

Block Diagram



Block Diagram - IQSYN51 Range

Order Codes

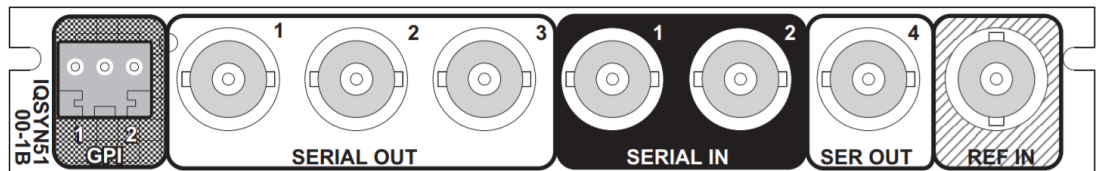
Enclosure and IP Interface Options

The following product order codes are covered by this manual:

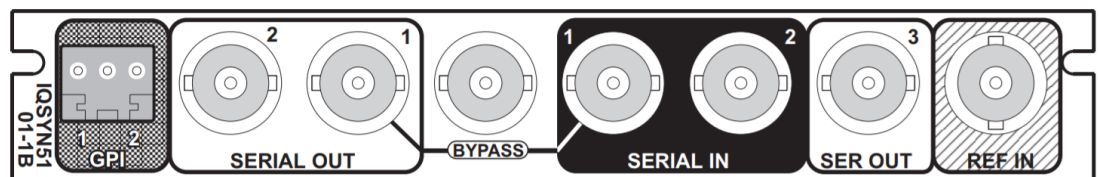
- IQSYN5100-1B3** HD/SD-SDI Frame synchronizer with advanced audio processing. 2 SDI inputs, reference input, 4 SDI outputs, 2 GPI/Os.
- IQSYN5101-1B3** HD/SD-SDI Frame synchronizer with advanced audio processing. 2 SDI inputs, reference input, 3 SDI outputs, 2 GPI/Os, relay input bypass.
- IQSYN5103-2B3** HD/SD-SDI Frame synchronizer with advanced audio processing. 2 SDI inputs, reference input, 4 SDI outputs, 8 GPI/Os, fiber SFP, Ethernet.
- IQSYN5104-1B3** 3G/HD/SD-SDI Frame synchronizer with advanced audio processing and 4 AES re-embedder. 2 SDI inputs, frame reference inputs, 2 SDI outputs, 4 unbalanced AES inputs/outputs.
- IQSYN5105-1B3** 3G/HD/SD-SDI Frame synchronizer with advanced audio processing and 4 AES re-embedder. 2 SDI inputs, frame reference inputs, 2 SDI outputs, 4 balanced AES inputs/outputs.
- IQSYN5106-2B3** 3G/HD/SD-SDI Frame synchronizer with advanced audio processing and 4 AES re-embedder. 2 SDI inputs, frame reference inputs, 2 SDI outputs, 4 balanced AES inputs/outputs, 8 GPI/Os, fiber SFP, Ethernet.

Rear Panel View

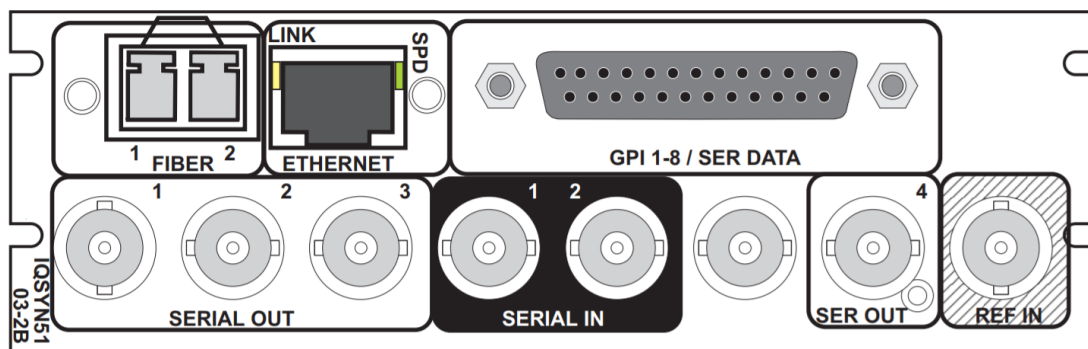
The following rear panel types are available:



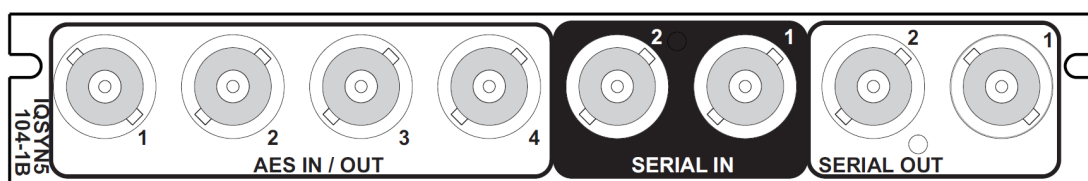
IQSYN5100-1B3



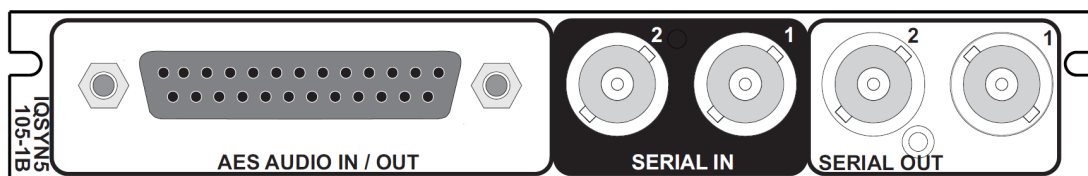
IQSYN5101-1B3



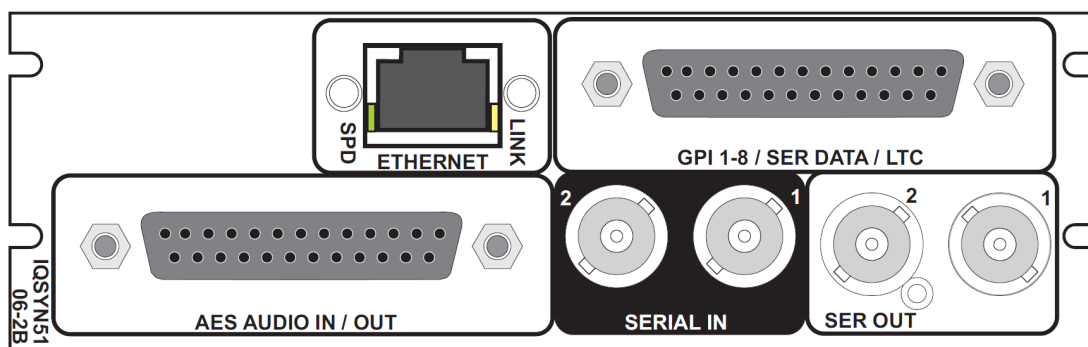
IQSYN5103-2B3



IQSYN5104-1B3



IQSYN5105-1B3



IQSYN5106-2B3

Feature Summary

- 3G/HD/SD-SDI synchronizer with firewall for video and processed PCM audio to provide a continuous uninterrupted output, and additional video delay up to 30 frames at 1080, 60 frames at 720 and 120 frames at 625.
- Agile, router switching-tolerant synchronizer ensuring disturbance free picture output, with precision genlock adjustment allowing you to time any SDI signal to pixel accuracy with greater tolerance to mis-timed upstream SDI switching (up to +/- 10 lines adjustable).

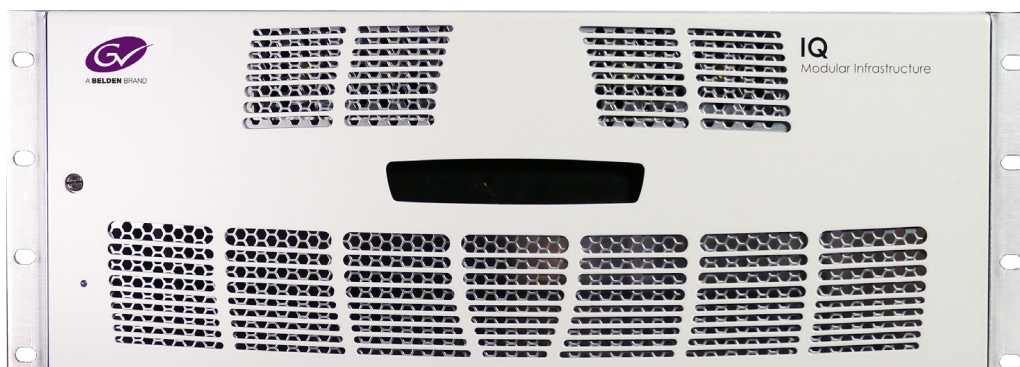
- Dual SDI inputs with auto switching on pre-defined input errors, and embedded audio source selection from input 1 or 2.
- Reference input capable of detecting and referencing to a bi-level or tri-level signal and selection from either external input directly or from internal IQH3B chassis reference bus.
- Standards supported:
 - 3G-SDI to SMPTE 424M/425M level A & B compatible
 - HD-SDI to SMPTE 292M/274M/296M
 - SD-SDI to SMPTE 259M-C
 - Fiber to SMPTE 297-2006C
- Able to pass all ancillary data with independent HANC and VANC blanking control (VANC blanking is input line selectable).
- Input loss detection – default output of black/pattern/freeze/mute, and input SDI CRC, EDH and ANC data checking and reporting.
- Video proc amp controls including video gain, offset, hue, RGB gamut legalization and Y/C picture position adjustment.
- Processing for 32 channels of embedded audio present on the incoming SDI stream including synchronizer tracking delay (with no disturbance during video synchronizer frame wraps or drops).
- Audio proc amp features including channel level (Sub-frame) routing, channel adjustable delay up to 4.5s, independent gain, invert and mute control with audio V Fade on input loss, and 4 x 8 input audio mixers.
- Any group of embedded audio may be passed unchanged, processed or blanked.
- Embedded Dolby E support – pair routing and Dolby E header alignment.
- In-built test pattern generator, 3 x 16 character caption generator and audio tone generator.
- 16 x user memories, save/recall/rename, and up to 8 GPI/O ports.
- Full RollCall and SNMP compatibility, with up to 70 RollTrack destinations and triggers available for detected module states, including: PCM/non-PCM audio, input loss/freeze and reference loss.

Options

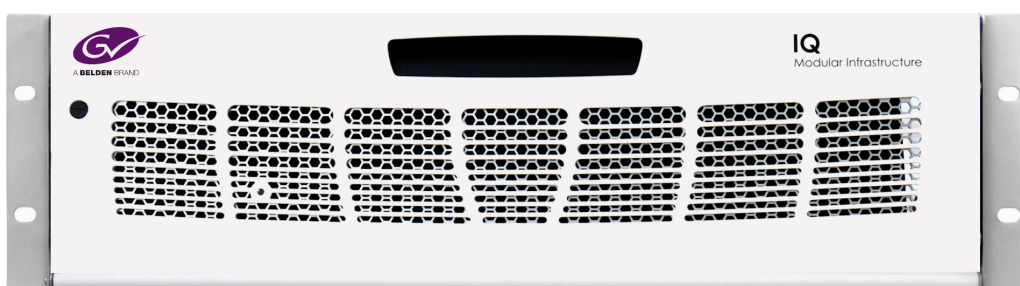
- Up to 8 channel 3G/HD/SD-SDI re-embedder capable of embedding or de-embedding up to 4 AES signals (rear option).
- Single mode fiber optic transmitter and receiver options - including an SFP HDMI output version to provide a built-in local monitoring output.
- Color corrector software option (order code IQOPTS5-CC).

Enclosures

The IQSYN51 can be fitted to the enclosures shown below.



IQH4B-S-P



IQH3B-S-0, IQH3B-S-P

Note: The IQH3B and IQH4B enclosures provide two internal analog reference inputs. These inputs are applicable to modules with B order codes only.

Power Ratings

About Power Ratings

Grass Valley IQ modules are assigned a *Power Rating* (PR). This figure represents the relative power consumption of a module.

Grass Valley modular enclosures are also assigned PR values. This figure represents the maximum power available from the enclosure.

The combined total of all modules' PR values must not exceed the enclosure's PR value.

Note: If a module's PR value is not known, use the module's power consumption figure in watts as the PR value.

Power Ratings

Product	PR
IQSYN5100-1B3, IQSYN5103-2B3	15 PR Max
IQSYN5101-1B3	15.5 PR Max
IQSYN5104-1B3, IQSYN5105-2B3, IQSYN5106-2B3	16 PR Max

Technical Specification



Inputs/Outputs	
Video Standards Supported	1125(1080)/50p (A & B), 1125(1080)/59p (A & B), 1125(1080)/60p (A & B), 1125(1080)/25p, 1125(1080)/24p, 750(720)/50p, 750(720)/59p, 750(720)/60p, 750(720)/30p, 750(720)/23p, 750(720)/24p, 750(720)/25p, 750(720)/29p, (1035)/29i, (1035)/30i, 1125(1080)/25i, 1125(1080)/29i, 1125(1080)/23p, 1125(1080)/23sF, 1125(1080)/24sF, 625(576)/25i, 525(480)/29i
Signal Inputs	
SDI Inputs	2
Input 1 Cable Length	Up to 70m Belden 1694A @ 3 Gbit/s Up to 160m Belden 1694A @ 1.5 Gbit/s > 350m Belden 1694A @ 270 Mbit/s
Input 2 Cable Length	Up to 60m Belden 1694A @ 3 Gbit/s Up to 100m Belden 1694A @ 1.5 Gbit/s Up to 100m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A HD Tri-level – SMPTE 240M, 274M, 296M
Unbalanced Digital Audio	4 x AES/EBU, AC3, Dolby E (BNC)
Balanced Digital Audio	4 x AES/EBU, AC3, Dolby E (25-Way D-Type)
Fiber Signal Inputs	
Inputs	Up to 2: 3 GBit/s Optical HD-SDI 1.485 GBit/s HD-SDI, or 270 MBit/s SD-SDI
Connector/Format	LC Single Mode
Standard	SMPTE 297-2006
Signal Outputs	
SDI Outputs	4
Unbalanced Digital Audio	4 x AES/EBU, AC3, Dolby E (BNC)
Balanced Digital Audio	4 x AES/EBU, AC3, Dolby E (25-Way D-Type)
Fiber Signal Outputs	
Outputs	Up to 2: 3 GBit/s Optical HD-SDI 1.485 GBit/s HD-SDI, or 270 MBit/s SD-SDI

Connector/Format	LC Singlemode
Standard	SMPTE 297-2006
Control Interface	
GPIO	8 x closing contact via D-type/screw terminal
Controls	
Indicators	
Power	OK - Green
CPU Running	OK - Green flashing
FPGA Running	OK - Green flashing
Status	OK - Green Warning - Yellow Error - Red
Input 1	OK - Green Fail - Red
Input 2	OK - Green Fail - Red
Rx 1	OK - Green Fail - Red
Rx 2	OK - Green Fail - Red
Genlock & Video Delay	
Genlock Mode	Free-run Lock to Reference Lock to input
Genlock H-Phase	$\pm 1 L$ in pixel clock steps
Genlock V-Phase	$\pm 1 F$ in 1 line steps
Video H-Delay	0 – 1 Line in pixel clock steps
Video V-Delay	0 – 1 Frame in 1 line steps
Video Delay Frames	0 – 14 frames @ 1080 50/59p level B 0 – 30 frames @ 1080 50/59p level A 0 – 30 frames @ 1080 23/24/25/29/30p 0 – 30 frames @ 1080 25/29/30i 0 – 60 frames @ 720 50/59/60p 0 – 30 frames @ 720 23/24/25/29/30p 0 – 120 frames @ 525 29i 0 – 120 frames @ 625 25i
Dolby E Auto Line Select	Std User select
Dolby E Auto Align	On/Off. Total latency input - output = ~22 lines
Video Controls	
Default Video Output Type	Input Mute TPG (Pattern, Captions, Tone) Black
Default Video Output Standard	Last Known Good, 1125(1080)/50P, 1125(1080)/59P, 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i, Mute, Pattern

Change-over Parameters	No SDI Lock CRC (EDH) Error
Switch Delay	Video 0s to 600s (Reversion) and 0fr to 16384fr (Trigger Condition)
GPIO Program	TALLY any input state or warning or set as trigger
Pattern Select	Color Bars Black
Edit Caption	19 characters available, size and position adjustment
Reporting & Logging	Input Loss Input Line Standard EDH error Audio & data presence Change over status Main video output
Audio Controls	
Video Input Select	Input 1 Input 2 Follow video
Audio In - De-embed	Pairs 1-16
Channel 1 – 32 Mute	On/Off
Channel 1 – 32 Polarity Invert	On/Off
Group 1 -8 Embed Enable	On/Off
Channel 1 – 32 Gain	+12 dB to -80 dB in 0.1 dB steps
Pair 1 – 16 Stereo	Link channel pairs
Delay Add-In Bulk, RollTrack, current video	On/Off
Bulk Manual Delay	0ms to +1.75s in 1ms steps
Fine Manual Delay	0ms to +250ms in 0.1ms steps
Tone Frequency 1-8	100Hz to 10kHz in 100Hz steps
Channel Ident	On/Off
Other Controls	
GPI input High/Low Select	Input 1-8 Black Freeze Pattern User Memories 1-16
GPI Level Invert	High/Low
GPI Output Source	Current input OK Input 1-2 OK Input 1-2 Selected Black Freeze Pattern No user memories selected User memories 1-16
User Memories	Save/Recall/Rename
Memory Naming	User-configurable naming of Memories 1-16

Information Window	Video input status Video output status Audio input status Rules status Reference status Network status AES Input
EDH/CRC Reset	Resets all EDH/CRC counts
RollTrack Index	Allows up to 70 destinations
RollTrack Sources	Unused GPIO (high/low) Rules input (1-2) Input present (1-2) Input loss (1-2) Output std Input valid (1-2) Output pattern on Output pattern off Output caption on Output caption off
Factory Default	Resets all module settings, other than Ethernet settings, to factory-specified default values and clears user memories
Default Settings	Resets all module settings, other than Ethernet settings, to factory-specified defaults but does not clear user memories
Restart	Software reset of module
Module Information	Reports: Product name Software version Serial number Build number KOS version PCB version Licensed options
Input Names	19-Character editable name
Specifications	
Electrical	3Gbit/s SDI SMPTE 424M 1.5Gbit/s HD-SDI SMPTE 292M 270 Mbit/s SDI SMPTE 259M-C
Connector/Format	BNC/75R panel jack on standard IQ connector panel
Return loss	>-15dB (270Mbit/s, 1.5Gbit/s) >-10dB (3Gbit/s)
Output Jitter	SD-SDI 0.2 UI (10Hz)/0.2 UI (1KHz) 3G/HD-SDI 1.0 UI (10Hz)/0.2 UI (100KHz)
GPI I/O (x8) Characteristics	Closing Contact Type with Internal Source Input Threshold Voltage 1V typical

Module Power Consumption

IQSYN5100-1B3, 15 PR Max
IQSYN5103-2B3

IQSYN5101-1B3 15.5 PR Max

IQSYN5104-1B3, 16 PR Max
IQSYN5105-2B3,
IQSYN5106-2B3

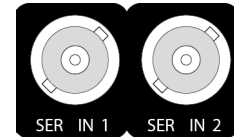
Setup Versions, Edit Input Names, Reset Defaults, Restart

3 Connections

This section describes the physical input and output connections available from the IQSYN51.

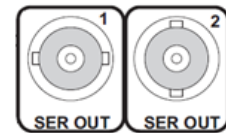
SDI Input

Serial digital input is made to the unit via two BNC connectors, which terminate in 75 Ohms.



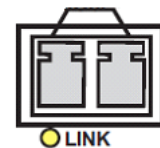
SDI Outputs

Serial digital outputs from the unit are made via up to four BNC connectors, which terminate in 75 Ohms.



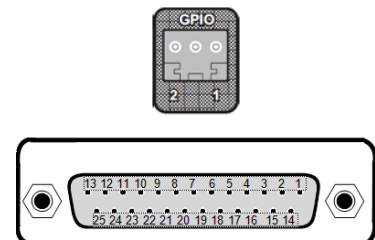
SFP

An SFP cage provides a range of connectivity options.



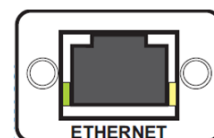
External Input/Output

Up to eight GPIO connectors are available. IQSYN5100-1B3 and IQSYN5101-1B3 rears provide standard screw terminal connectors, and IQSYN5103-2B3, IQSYN5105-1B3 and IQSYN5106-2B3 provide connections via a 25-way D-Type.



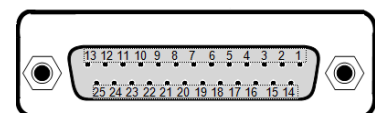
Ethernet IP Interface

An RJ45 10/100/1G Ethernet connection is available on the IQSYN5103-2B3 and IQSYN5106-2B3 rears. This is used primarily for biometric signature transport, but can also be used for RollCall communication directly with the card.



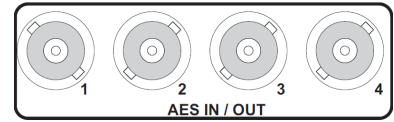
AES Inputs/Outputs - Balanced

Balanced AES I/O is available on the IQSYN5105-1B3 and IQSYN5106-2B3 rears. Connection is via a 25-way D-Type connector.

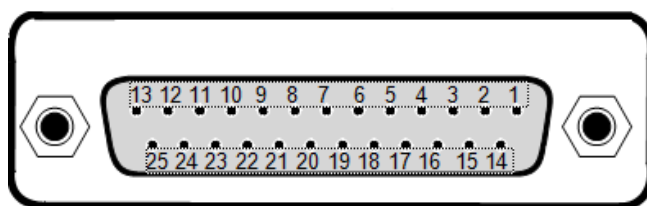


AES Inputs/Outputs - Unbalanced

Unbalanced AES I/O is available on the IQSYN5104-1B3 rear. Connection is via 4 BNC connectors, which terminate in 75 Ohms.

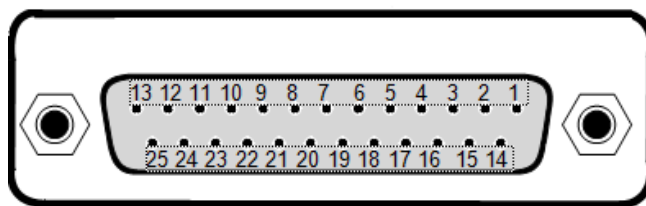


25-Way D-Type Connection - Pin-out for GPIOs (For Double-Width Rear)



Pin No	Pin No	Name	Description
1		GPIO_4	General Purpose Interface 4
	14	GPIO_0	General Purpose Interface 0
2		GPIO_5	General Purpose Interface 5
	15	GPIO_1	General Purpose Interface 1
3		GPIO_6	General Purpose Interface 6
	16	GPIO_2	General Purpose Interface 2
4		GND	Ground
	17	GND	Ground
5		GPIO_7	General Purpose Interface 7
	18	GPIO_3	General Purpose Interface 3
6		N/A	Not Used
	19	N/A	Not Used
7		GND	Ground
	20	GND	Ground
8		N/A	Not Used
	21	N/A	Not Used
9		N/A	Not Used
	22	N/A	Not Used
10		GND	Ground
	23	GND	Ground
11		META_p	Not Used
	24	META_n	Not Used
12		LTC_p	Not Used
	25	LTC_n	Not Used
13		GND	Ground

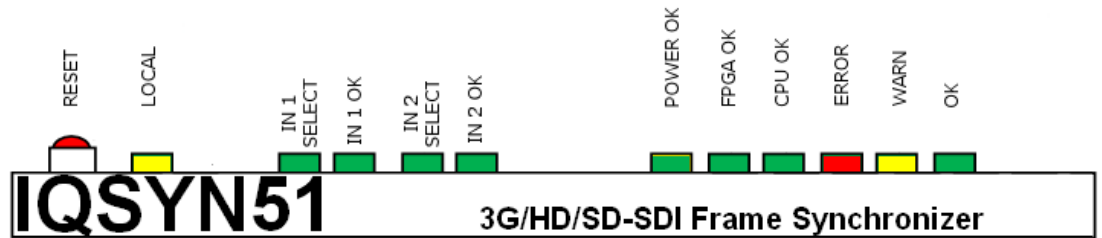
25-Way D-Type Balanced Connection - Pin-out for AES (For Double-Width Rear)



Pin No	Pin No	Name	Description
1		N/A	Not Used
	14	N/A	Not Used
2		N/A	Not Used
	15	N/A	Not Used
3		N/A	Not Used
	16	N/A	Not Used
4		GND	Ground
	17	GND	Ground
5		N/A	Not Used
	18	N/A	Not Used
6		N/A	Not Used
	19	N/A	Not Used
7		GND	Ground
	20	GND	Ground
8		AES4-P	AES 4+
	21	AES4-N	AES 4-
9		AES3-P	AES 3+
	22	AES3-N	AES 3-
10		GND	Ground
	23	GND	Ground
11		AES2-P	AES 2+
	24	AES2-N	AES 2-
12		AES1-P	AES 1+
	25	AES1-N	AES 1-
13		GND	Ground

4 Card Edge LEDs


The LEDs on the edge of the module indicate its operating status.



LED	Color	State	Description
Input 1-2	Green	Illuminated	Input has been selected and a valid input is present.
Power	Green	Illuminated	Good power supply is present.
FPGA OK	Green	Illuminated	FPGA has been correctly programmed.
CPU OK	Green	Flashing	CPU is running.
ERROR	Red	Illuminated	Board fault condition. LED is illuminated if the module is down or is restarting.
WARN	Yellow	Illuminated	Board warning condition. LED is illuminated if one or more services are down.
OK	Green	Illuminated	Module is operating correctly.

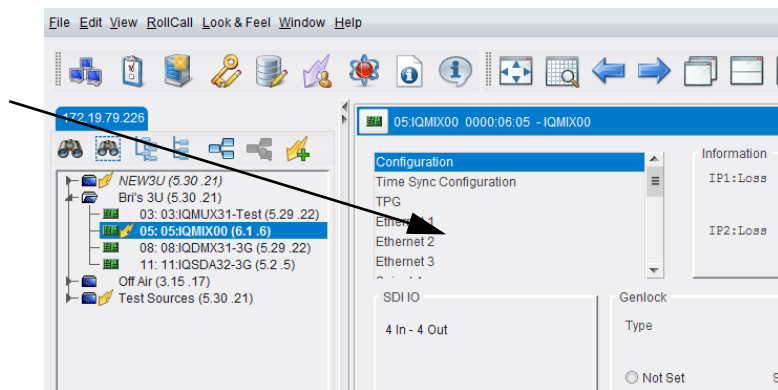
5 RollCall Control Panel

This section contains information on using the IQSYN51 with RollCall.

For help with general use of the RollCall application, open the user manual by clicking the  button on the main RollCall toolbar.

Navigating Pages in the RollCall Template

The RollCall template has a number of pages, each of which can be selected from the list at the top left of the display area. Right-clicking anywhere on the pages will also open a page view list, allowing quick access to any of the pages.



Template Pages

Template Pages

The following pages are available:

- **Summary** - see [page 35](#).
- **Input n Valid** - see [page 38](#).
- **Audio n ProcAmp** - see [page 40](#).
- **Audio n Routing** - see [page 41](#).
- **Audio n Delay** - see [page 45](#).
- **Audio n Mixer** - see [page 45](#).
- **Video n ProcAmp** - see [page 46](#).
- **Genlock & Delay** - see [page 47](#).
- **Output 1** - see [page 51](#).
- **VBI Blanking** - see [page 55](#).
- **TPG and Caption** - see [page 56](#).
- **Dolby Alignment** - see [page 57](#).
- **AES Audio Inputs** - see [page 58](#).
- **AES Audio Outputs** - see [page 59](#).
- **Signatures** - see [page 61](#).

- **Signature Stats** - see [page 61](#).
- **Ethernet n** - see [page 62](#).
- **Setup** - see [page 64](#).
- **Memory 1-16** - see [page 65](#).
- **GPIOs** - see [page 67](#).
- **RollTrack** - see [page 68](#).
- **Logging** - see [page 71](#).
 - **Logging - Misc** - see [page 71](#).
 - **Logging - Input** - see [page 73](#).
 - **Logging - Output** - see [page 75](#).
 - **Logging - Audio Input 1 + 2** - see [page 77](#).
 - **Logging - Changeover** - see [page 78](#).
 - **Logging - AESInput** - see [page 79](#).
 - **Logging - AESOutput** - see [page 80](#).
 - **Logging - Media** - see [page 81](#).
 - **Logging - Reference** - see [page 82](#).

Setting Values

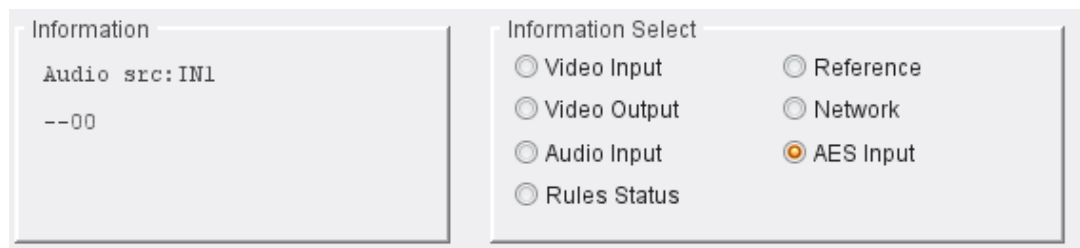
Many of the settings within the templates have values, either alpha or numeric.

When setting a value in a field, the value, whether text or a number, must be set by pressing the ENTER key, or clicking the **S Save Value** button.

Clicking an associated **P Preset Value** button returns the value to the factory default setting.

Information Display

The **Information** display pane appears at the top of each page, and shows basic information on the input, standard and status of the module. The information to be displayed is selected on the **Information Select** pane to the right of the **Information** display.



Information and Selection Panes

Selecting the Information to Display

Select the required information source from the **Information Select** pane. The selected information will be displayed on the **Information** pane.

Status Flags

The **Information** pane displays status flags for each input/output. These are presented as a single string.

Values are:

- -: No audio present.
- **P**: PCM audio present.
- **D**: Data input audio type.
- **E**: Dolby E input audio type.
- **O**: Configured as output.

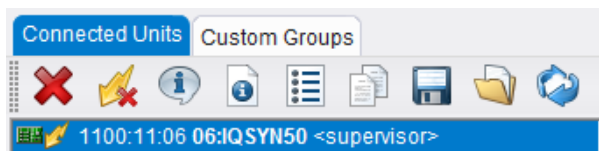
Savesets


Savesets allow the user to save RollControl settings to file, which can then be used to either transfer the settings to another card, or used as a backup of the settings for that card.

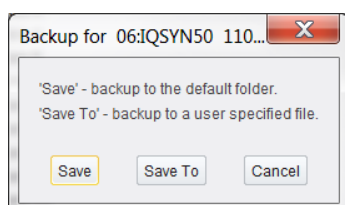
The Saveset feature is available via the RollCall Control Panel client.

Saving a Saveset

This is performed from the RollCall Control Panel **Connected Units** pane:



- 1 Click  to display the **Backup** dialog:




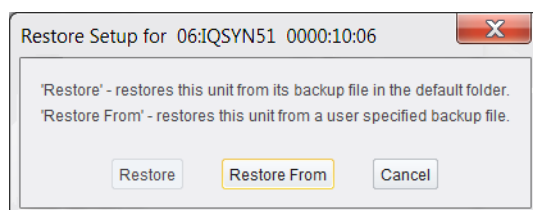
- 2 Click **Save** to save to the default folder, or **Save To** to save to a specified folder.

Restoring a Saveset

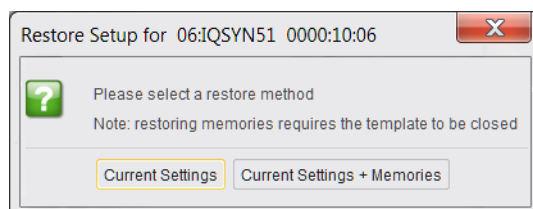
When restoring a saveset, you can choose to either restore any user memories (see [page 65](#)) or to exclude them.

To include user memories when restoring:

- 1 From the **Connected Units** pane, select the  icon; the **Restore** dialog is displayed:



- 2 Click **Restore** to restore from the default folder, or **Restore From** to restore from a specified folder. The **Restore Setup** dialog is displayed:



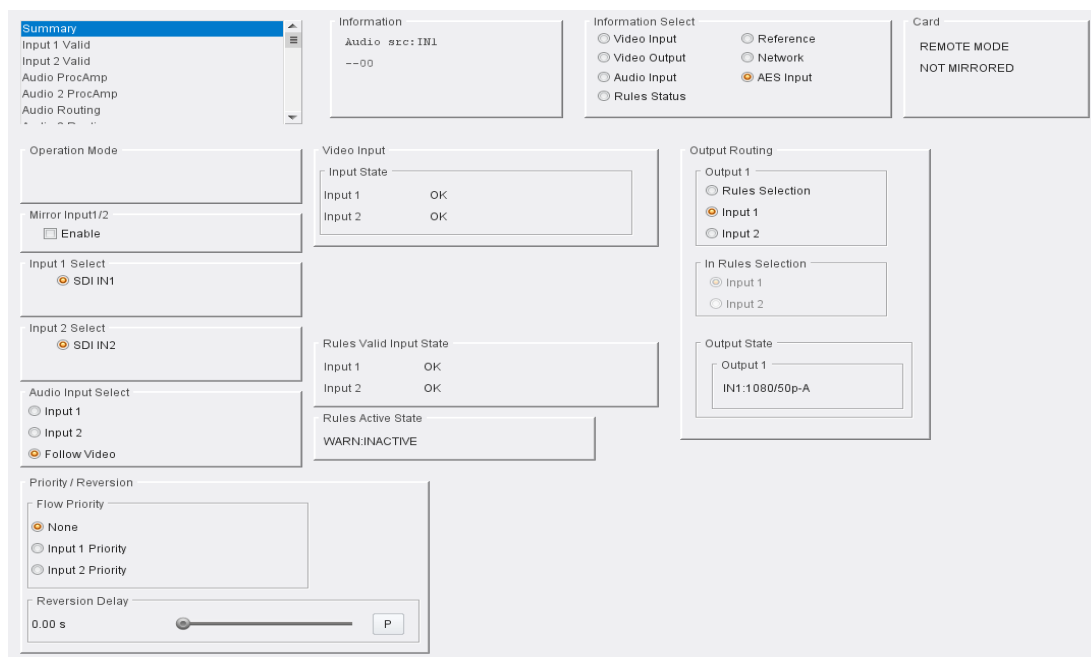
- 3 Click **Current Settings + Memories**; the template is closed and the restoration is performed.
- 4 When complete, re-open the template.

To exclude user memories when restoring:

- 1 Follow steps 1 and 2, above.
- 2 When the **Restore Setup** dialog is displayed, click **Current Settings**; the template is closed and the restoration is performed.
- 3 When complete, re-open the template.

Summary

The Summary page provides a general overview of the module.



The following options are available:

Operation Mode

Not currently used.

Mirror Input 1/2

When checked, the input controls are locked together and mirror one another. Enable as required.

Input Select

Select whether the input is via SDI or SFP. Note this is displayed only when the module is equipped with an SFP connector.

Audio Input Select

Allows the audio source to be defined. Specify a particular input, or select **Follow Video** to always use audio from the video source. Options are:

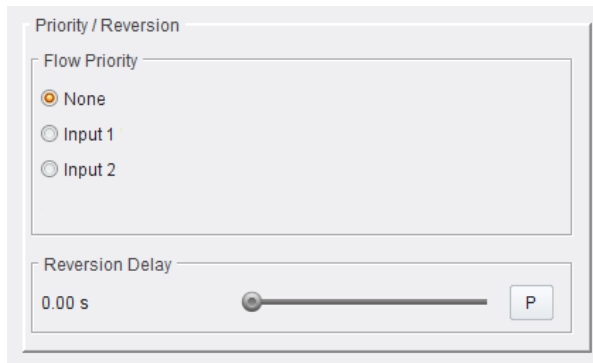
- **Input 1**
- **Input 2**
- **Follow video**

The setting made here is reflected on the **Information** display - see [page 32](#).

Priority/Reversion

Flow Priority

Provides controls to set the way in which the module will behave if an input fails.



The following options are available:

- **None** - Neither Input 1 nor Input 2 has priority. If a signal is lost, causing the module to switch to the other input, the module will not revert to the original input when the signal is regained.
- **Input 1 Primary Priority** - Input 1 has priority. Normally, the module will use the Input 1 signal. If the signal on Input 1 is lost, the module will switch to Input 2. If the signal on Input 1 is subsequently recovered, the module will revert to using Input 1 after the time specified as the Reversion Delay has elapsed.
- **Input 2 Secondary Priority** - Input 2 has priority. Normally, the module will use the Input 2 signal. If the signal on Input 2 is lost, the module will switch to Input 1. If the signal on Input 2 is subsequently recovered, the module will revert to using Input 2 after the time specified as the Reversion Delay has elapsed.
- **Reversion Delay** - Use the slider bar to specify the time that must elapse before the priority input will revert to a restored signal. The range of adjustment is 0 – 100 sec and the preset value is 0 sec.

Note: If the signal fails on both Input 1 and Input 2, the unit will switch to the priority input.

Video Input

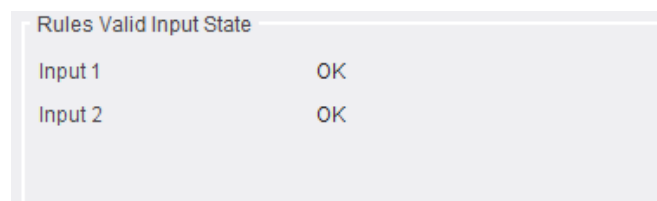
Input State

Displays state of the video inputs.

Rules Valid Input State

This displays the current input state as set by the user.

Note: See [page 38](#) on for information on configuring the rules engine.



Rules Active State

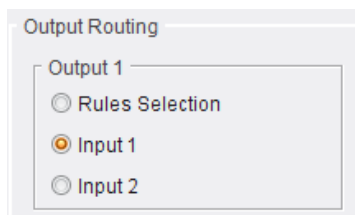
The **Rules Active State** pane reports the status of the rules engine. Possible values are:

- **WARN:INACTIVE**
- **RULESACTIVE:[INPUT]**

Output Routing

The **Output 1** pane allows the user to select which input is presented to the output. This can be either a rules-based decision (enable **Rules Selection**) or a manual selection (enable **Input 1/ Input 2**). The setting made here is reflected on the **Rules Active State** pane - see above.

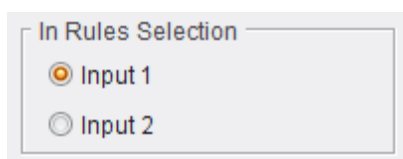
Select as required.



In Rules Selection

This allows selection of the primary input to be used. The other input will be switched to if errors are detected on the primary.

Note this pane is active only if **Rules Selection** has been selected on the **Output 1** pane (see above).

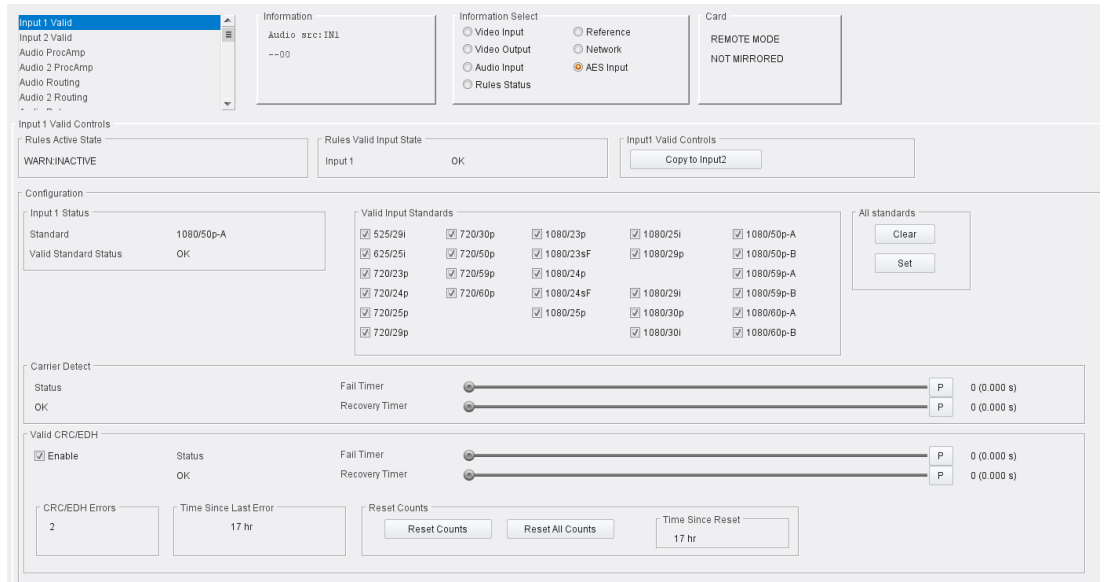


Output State

Displays the current output state.

Input n Valid

There is an Input Valid page for each for input. These enable the criteria used by the rules engine to be defined; if input signals do not conform to what is set here, an error will be reported and the module will automatically switch to the alternative input if configured to do so.

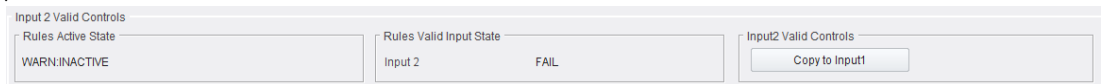


The following options are available:

Input n Valid Controls

The current rules state is reported for each of the inputs.

One input's settings can be copied to the other by clicking **Copy to Input n**.



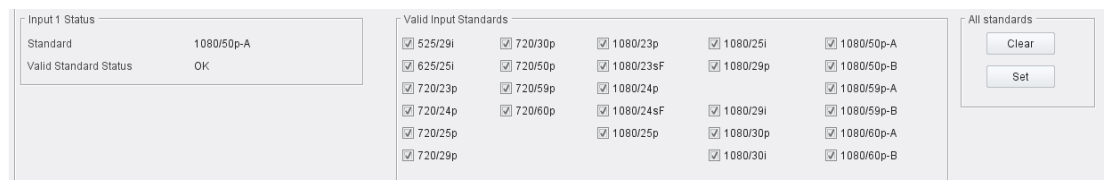
Configuration

Input Status

Reports the standard in use on the input, and its current status.

Valid Input Standards

The **Valid Input Standards** check boxes allow the user to select the standards to be used for validity checking. Any standard not specified here will cause an error if presented to the rules engine.



Carrier Detect

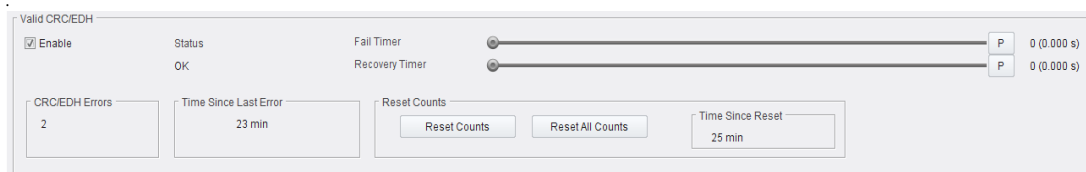
If an SDI carrier is not detected for the period of time defined by the **Fail Timer**, a fail is reported. The error condition will be canceled when an SDI carrier has been detected for the period defined by the **Recovery Timer**.



The Carrier Detect control panel shows a status of 'OK'. It features two sliders for 'Fail Timer' and 'Recovery Timer', both set to 0 (0.000 s). There are 'P' buttons next to each timer value.

Valid CRC/EDH

This provides information on CRC and EDH errors. CRC errors relate to HD signals, and EDH errors relate to SD signals.



The Valid CRC/EDH control panel includes an 'Enable' checkbox (checked), a status of 'OK', and sliders for 'Fail Timer' and 'Recovery Timer' (both at 0 (0.000 s)). It displays 'CRC/EDH Errors' as 2, 'Time Since Last Error' as 23 min, and 'Time Since Reset' as 25 min. There are 'Reset Counts' and 'Reset All Counts' buttons.

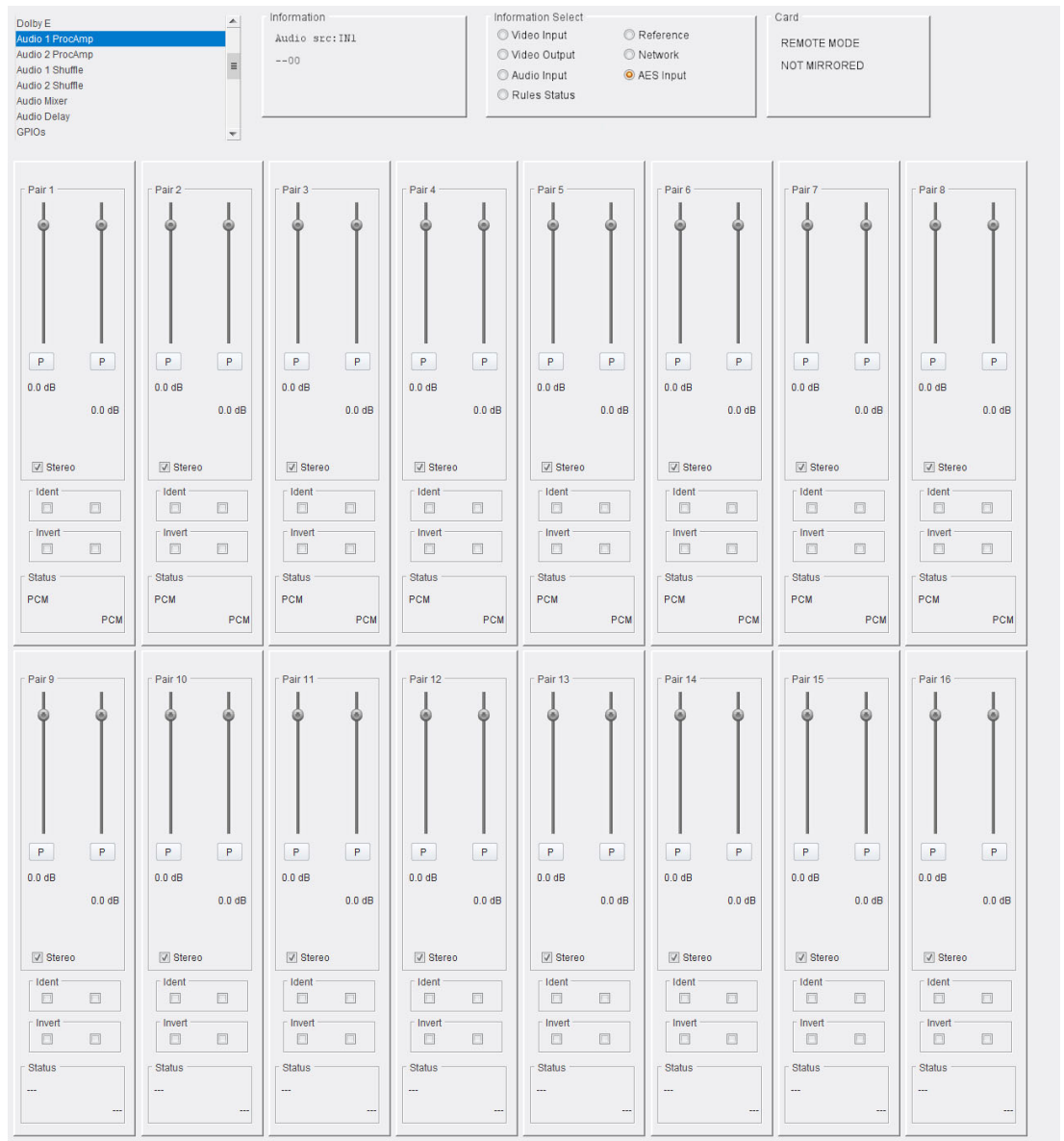
The following data is available:

- **CRC/EDH Errors** - Displays the total number of CRC and EDH errors since the last reset.
- **Time Since Last Error** - Displays time since the last error was detected. Time is shown in intervals of 5 seconds until 1 minute has passed, then in intervals of one minute.
- **Reset Counts/Reset All Counts** - Resets error counter for the current input to zero, or resets the error count for all inputs to zero, respectively.
- **Time Since Reset** - Displays time since the counters were last reset. Time is shown in intervals of 5 seconds until 1 minute has passed, then in intervals of one minute.

Note: If the selected input changes, the CRC/EDH counts will be automatically reset once the software has confirmed that the input is correctly locked.

Audio ProcAmp

The Audio 1/2 ProcAmp pages allow each audio pair on the input to be adjusted. Set as required.



Controls available are:

Gain

Use the sliders to adjust the gain for each input. Click **P** to use the preset default values.

Stereo

Disable to use mono only on the input. Default = **On**.

Ident

Enable check boxes to add an ident tone to one or both channels.

Invert

Enable check boxes to invert the input on one or both channels.

Audio Delay

The Audio Delay page provides controls allowing a delay to be applied to incoming audio. This can be applied manually, or via a RollTrack. See the RollTrack documentation for more information on using RollTrack.

The screenshot displays the Audio Delay configuration page. At the top left is a sidebar menu. The main area is divided into several sections:

- Manual Delay:** Features two sliders for 'Coarse Adjustment' and 'Fine Adjustment', with a 'P' button and a '0.00 mS' display. To the right, 'Audio Source Pairs from:' is set to 'IN1'.
- Base Delays (relative to video):** A table showing 'Possible Delays' and 'Actual Delays' for various sources.
- Channel Delays:** A table with 16 channels (CH01-CH16), each with coarse and fine adjustment sliders, 'P' buttons, and delay values. 'Stereo Pairs' are listed on the right.
- Channel Delays AES:** A table with 8 pairs (Pair1_1-4), each with coarse and fine adjustment sliders, 'P' buttons, and delay values. 'Stereo Pairs' are listed on the right.

Source	Possible Delays	Actual Delays
<input checked="" type="checkbox"/> Internal	6.45 mS	0.00 mS
<input checked="" type="checkbox"/> Manual	0.00 mS	0.00 mS
<input type="checkbox"/> RollTrack 14	0.00 mS	0.00 mS
<input type="checkbox"/> RollTrack 15	0.00 mS	0.00 mS
<input type="checkbox"/> RollTrack 16	0.00 mS	0.00 mS
<input type="checkbox"/> RollTrack 17	0.00 mS	0.00 mS
Base Total	6.45 mS	

Channel	Coarse Adjustment	Fine Adjustment	Channel Delay	Channel Delay + Base Total	Stereo Pairs
CH01			0.00 mS	6.45 mS	<input type="checkbox"/>
CH02			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 01-02
CH03			0.00 mS	6.45 mS	<input type="checkbox"/>
CH04			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 03-04
CH05			0.00 mS	6.45 mS	<input type="checkbox"/>
CH06			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 05-06
CH07			0.00 mS	6.45 mS	<input type="checkbox"/>
CH08			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 07-08
CH09			0.00 mS	6.45 mS	<input type="checkbox"/>
CH10			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 09-10
CH11			0.00 mS	6.45 mS	<input type="checkbox"/>
CH12			0.00 mS	6.45 mS	<input checked="" type="checkbox"/> 11-12
CH13			0.00 mS	6.45 mS	<input type="checkbox"/>
CH14			0.00 mS	8.52 mS	<input checked="" type="checkbox"/> 13-14
CH15			0.00 mS	8.52 mS	<input type="checkbox"/>
CH16			0.00 mS	8.52 mS	<input checked="" type="checkbox"/> 15-16

Pair	Coarse Adjustment	Fine Adjustment	Channel Delay	Channel Delay + Base Total	Stereo Pairs
Pair1_1			0.00 mS	8.52 mS	<input type="checkbox"/>
Pair1_2			0.00 mS	8.52 mS	<input type="checkbox"/> Pair 1
Pair2_1			0.00 mS	8.52 mS	<input type="checkbox"/>
Pair2_2			0.00 mS	8.52 mS	<input type="checkbox"/> Pair 2
Pair3_1			0.00 mS	8.52 mS	<input type="checkbox"/>
Pair3_2			0.00 mS	8.52 mS	<input type="checkbox"/> Pair 3
Pair4_1			0.00 mS	8.52 mS	<input type="checkbox"/>
Pair4_2			0.00 mS	8.52 mS	<input type="checkbox"/> Pair 4

Setting Delays

Audio delays can be set using the sliders on this page.

The top two sliders apply a delay globally to all channels on this input. The left slider is a coarse control, and the right slider a fine control. The global delay and audio input source are displayed to the right of the fine slider.

The remaining sliders control individual channels. As with the global delay, the left slider is a coarse control, and the right slider is a fine control. The channel delay is displayed to the right of the fine slider; the first column shows the delay set by the channel delay sliders, and the second column shows the channel delay plus any global delay. Stereo pairs are switched on/off by enabling/disabling the **Stereo Pairs** check boxes.



For all sliders, click **P** to return the control to zero.

Base Delays

Three types of audio delay are available - **Internal**, **Manual** and **RollTrack**.

- **Internal:** Adds a factory-defined delay designed to compensate for the module latency.
- **Manual:** Allows the Internal delay to be adjusted via **Coarse** and **Fine** sliders. The combination of **Internal** and **Manual** values form the total delay.
 - **Coarse:** Adjusts the delay in 1 ms steps.
 - **Fine:** Adjusts the delay in 0.2 ms steps.
- **RollTrack 14 - 17** - The delay is set via external RollTracks, performed by RollTracks 14 - 17. See the RollTrack documentation for more information.

The total **Actual Delays**, as set by all controls, is displayed to the right of the page.

Audio Routing

The Audio Routing page allows dis-embedded audio to be embedded on to an output signal.

The screenshot shows the Audio Routing configuration interface. At the top, there are tabs for Summary, Information, Information Select, and Card. The Summary tab is active, showing a list of menu items with 'Audio Routing' selected. The Information section displays 'IN1: 1080/251 *' and 'IN2: 1080/251'. The Information Select section has radio buttons for Video Input (selected), Video Output, Audio Output, and Rules Status. The Card section shows 'REMOTE MODE' and 'MIRRORED'. Below these are sections for Default Input Routing (Mute, Tone, Passthrough, Custom), Embedded Groups (Group 1-4), and Stereo (checkboxes for channel pairs 01-02 to 31-32). The main Input Routing section features a grid of 'Available Sources' (Pair 1-8 Ch 1/2, Mute, Tone 1-8, AES 2-4 Ch 1/2, Mixer 1-4) and 'Dest Embed Pairs' (1-4 and 5-8). The bottom section contains 'Tone Frequencies' sliders for 8 tones, all set to 1.0 KHz.

The following options are available:

Default Input Routing

This allows a default to be applied to all audio channels available on the input. Options are:

- **Mute** - select to mute all audio channels.
- **Tone** - select to add a tone to all audio channels. A selection of tones are available, which can be adjusted if required. See section .
- **Passthrough** - select to apply 1:1 routing to all audio channels, i.e. route Pair 1 Ch 1 to Embed Pair 1 Ch 1, Pair 1 Ch 2 to Embed Pair 1 Ch 2, etc.
- **Custom** - select when routing other than **Mute**, **Tone** or **Passthrough** is used.

Embedded Groups

When **Group** check boxes are enabled, embedded audio on the pairs in that group will be dis-embedded, have any delay or other processing added, then re-embedded.

If the check boxes are not enabled, embedded audio will be passed through without any changes.

See *SMPTE 299M-2004, Television - 24-Bit Digital Audio Format for HDTV Bit-Serial Interface* and *SMPTE 272M-2004, Television - Formatting AES/EBU Audio and Auxiliary Data into Digital Video Ancillary Data Space* for information on groups.

Stereo

Each output pair can be linked together as a stereo pair by enabling the appropriate **Stereo** check box. When selected, any change made to either channel of an AES output pair is reflected by the other channel.

Audio Source Pairs

Displays the current input source.

Input Routing

Select radio buttons to route **Available Sources** to the required **Dest Embed Pair**.

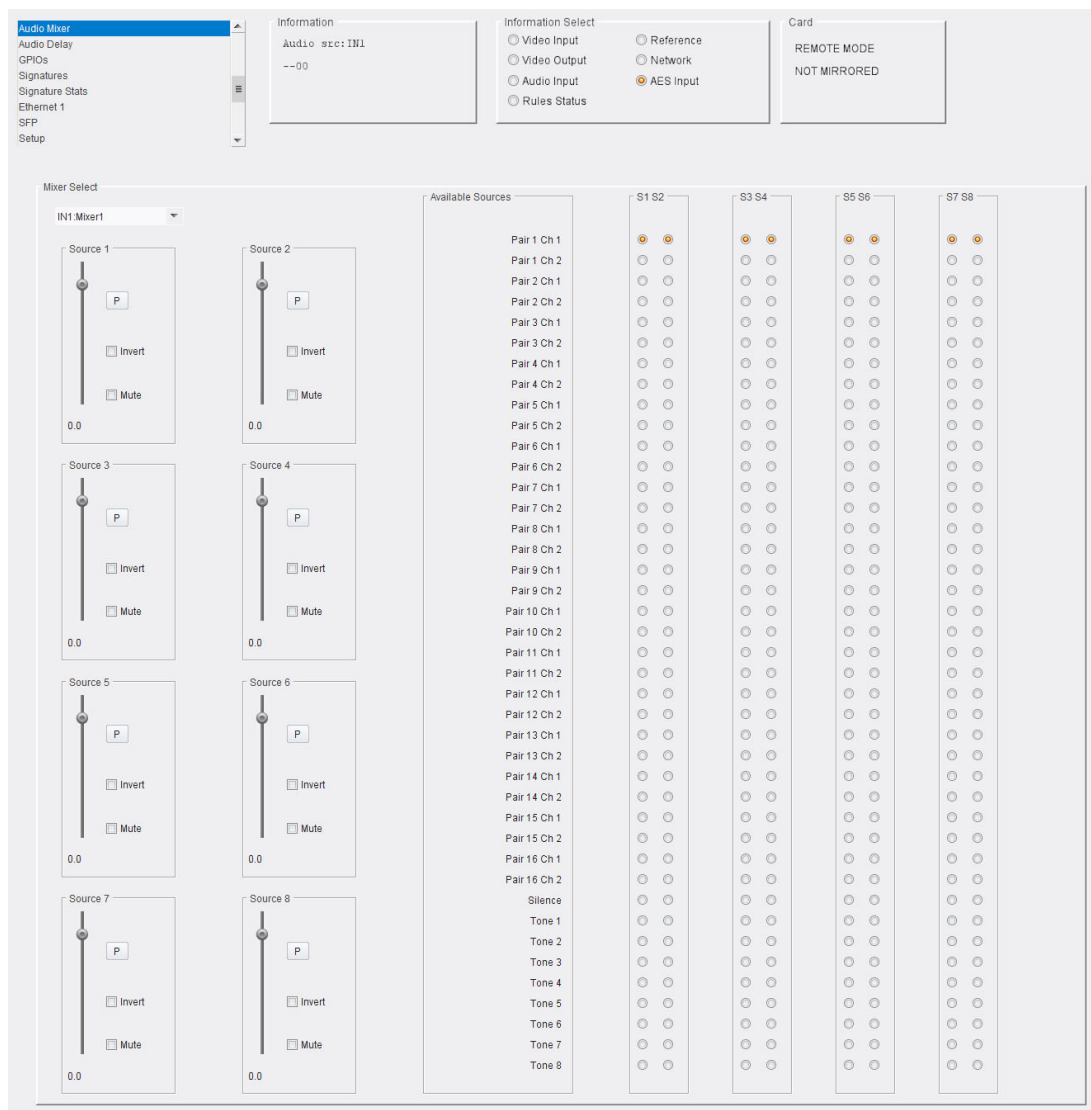
Mute or a tone may be applied, and the audio sent to a mixer, if required. Select the appropriate radio buttons at the bottom of the matrix. See [page 45](#) for information on using the audio mixer.

Tone Frequencies

The frequency of each tone can be adjusted. Use the sliders to set as required. Click **P** to reset to the preset default frequency.

Audio Mixer

The Audio Mixer page allows new, mixed audio feeds to be created from the incoming channels.

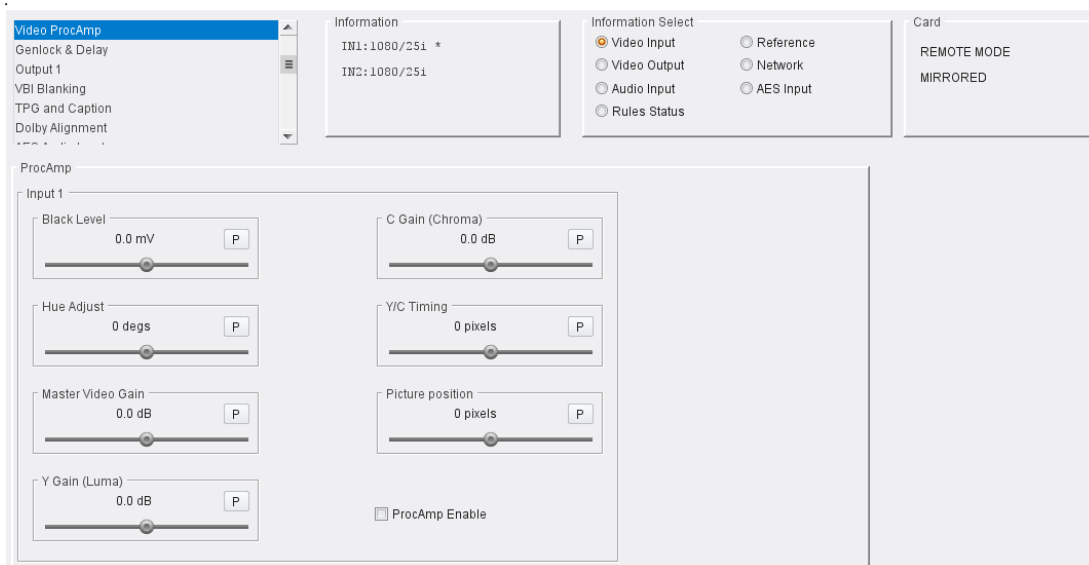


To use this page:

- 1 Select the mixer to provide the source audio from the **Mixer Select** menu.
- 2 Use the buttons in the **S1 - S8** columns to map the incoming audio to the channel pairs listed in the **Available Sources** column, as required.
- 3 Use the **Source** sliders to adjust gain for the incoming audio; clicking **P** will reset the control to zero. The source can also be inverted or muted by enabling the check boxes provided.
- 4 Repeat as required.

Video ProcAmp

Select the **ProcAmp Enable** checkbox to enable the ProcAmp functions. Clear the check box to disable and bypass the ProcAmp.

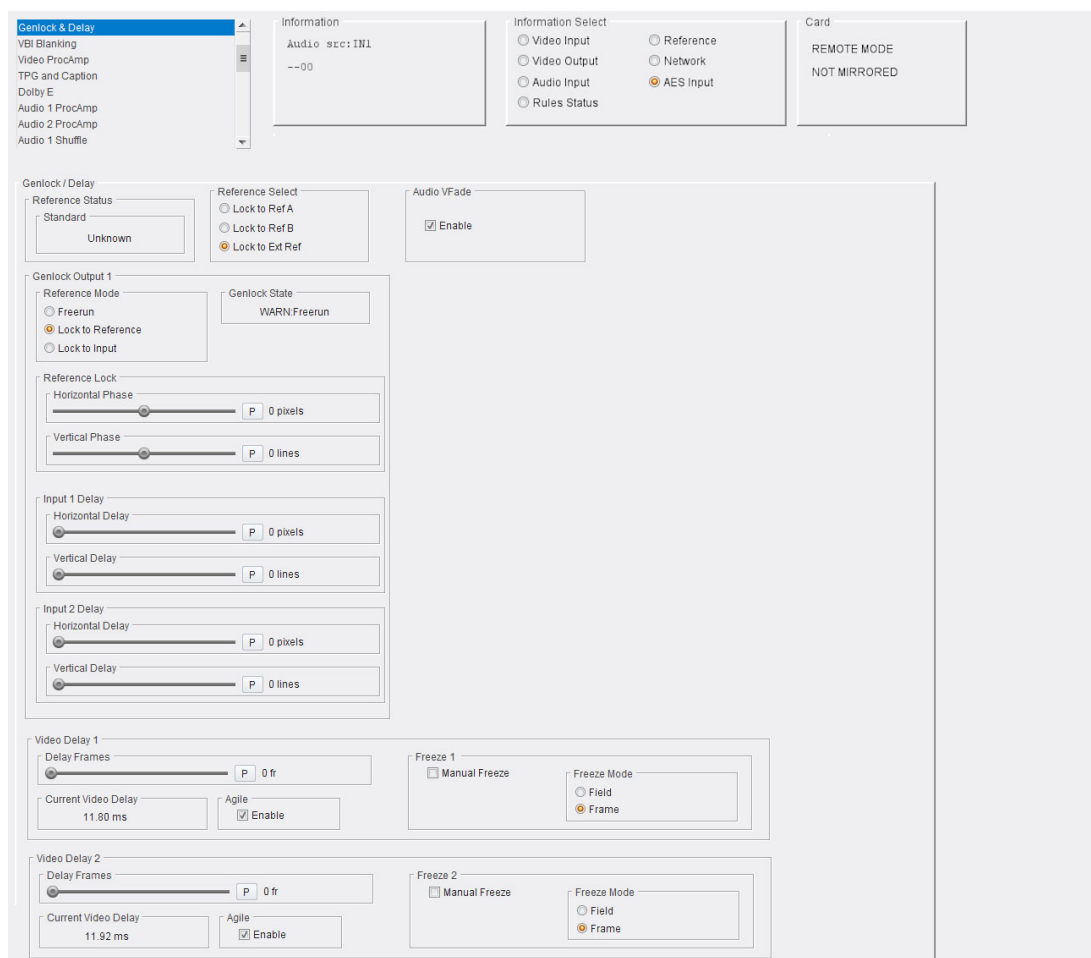


The ProcAmp offers the following adjustments:

- **Black Level:** The Black Level control allows the channel's black level to be adjusted over a range of ± 100 mV in steps of 0.8 mV. The preset value is 0.
- **Hue Adjust:** The Hue control allows the channel's hue to be adjusted over a range of $\pm 180^\circ$ in steps of 1° . The preset value is 0.
- **Master Video Gain:** The Mater Video Gain control allows the video gain to be adjusted over a range of ± 6 dB in steps of 0.1 dB. The preset value is 0.
- **Y Gain Luma:** The Y Gain control allows the luma to be adjusted over a range of ± 6 dB in steps of 0.1 dB. The preset is 0.
- **Cb/Cr Gain (Chroma):** The Cb/Cr Gain control allows the chrominance to be adjusted over a range of ± 6 dB in steps of 0.1 dB. The preset value is 0.
- **Y/C Timing:** The Y/C Timing control allows the luma/chroma timing to be adjusted over a range of:
 - ± 8 pixels in 2 pixel steps in SD;
 - ± 16 pixels in 2 pixel steps in HD/3G.The preset value is 0.
- **Picture Position:** The Picture Position control allows the picture position to be adjusted over a range of:
 - ± 8 pixels in 2 pixel steps SD;
 - ± 16 pixels in 2 pixel steps HD/3G.The preset value is 0.
- **Group Control:** When enabled, this causes adjustments made to one input to be mirrored on the other.

Genlock & Delay

The **Genlock & Delay** page allows the module's generator lock (synchronizer) settings to be specified, and reports the status of the selected reference.



The following options are available:

Genlock/Delay

The **Reference Status** and **Reference Select** panes provide control and monitoring of the reference source.

Reference Status

Displays the standard of the detected reference source, or **Unknown**.

Reference Select

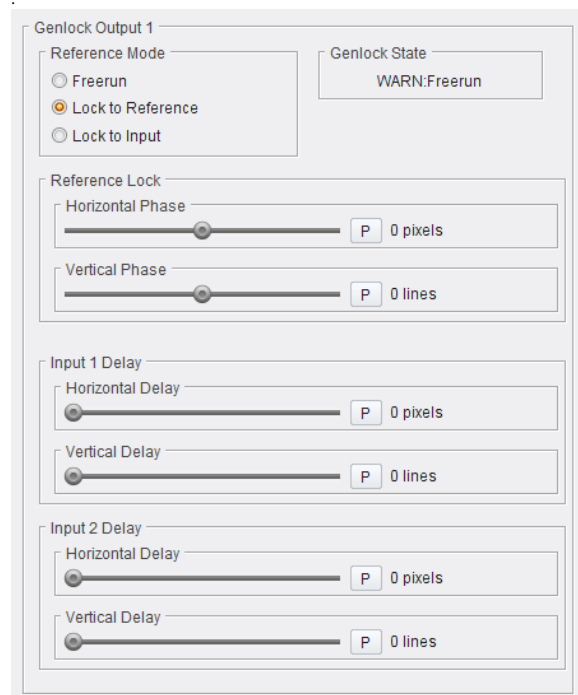
Enables the module to work with Reference A and Reference B on 3B frames, or to utilize the on-board reference connected to the module's rear panel BNC connector.

Audio VFade

This control offers audio fade down on input loss and an audio V fade (down/up) during input switching, in order to minimize noticeable audio disruption. Default is **Enabled**.

Genlock Output

The **Genlock Output** controls allow the module's generator lock (synchronizer) settings to be specified and reports the status of the selected reference.



The following controls are available from this pane:

Reference Mode

Allows selection of the mode the reference is to run in. Options are:

- **Free Run:** When selected, the module's output will not be locked to any input signal. Instead, it will run nominally at the correct frame rate and synchronize input video to this.
- **Lock to Reference:** This is the default reference mode. When selected, the module will lock to an external tri-level/bi-level reference source. If the reference source is lost, the module will switch to **Freerun** mode. On return of the reference signal, the module will return to **Lock to Reference** mode. Note the module will clock-lock to signals of different frame rates.
- **Lock to Input:** When selected, the module locks to the selected input. If input is lost, the reference mode will switch to **Freerun**. In this mode, the delay can be adjusted by changing the horizontal and vertical timing.

Set as required.

Genlock State

Displays current Genlock status.

Reference Lock

This allows the module to lock to the input reference.

Controls available are:

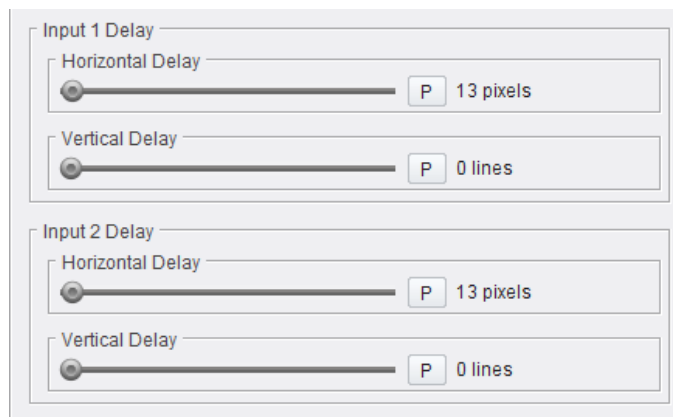
- **Horizontal Phase:** If the module is referenced locked, use the slider to adjust the horizontal genlock phase, relative to reference, over a range of ± 1 H in 1-pixel steps. The preset value is 0.

- **Vertical Phase:** If the module is referenced locked, use the slider to adjust the vertical genlock phase, relative to reference, over a range of $\pm 1 F$ in 1-line steps. The preset value is 0.

Adjust as required.

Input Delay

When **Lock to Input** is selected, these controls allow the delay to be adjusted by modifying the vertical and horizontal timing.

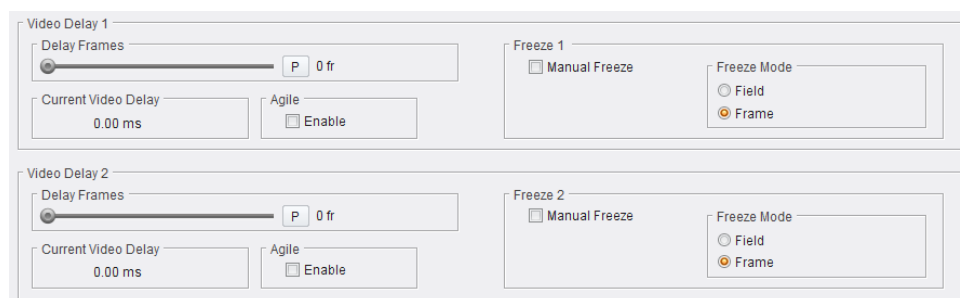


Controls available are:

- **Horizontal Delay:** Adjusts the video delay \pm Max lines when locked to input.
- **Vertical Delay:** Adjusts the video delay \pm Max lines when locked to input.

Video Delay

This allows a video delay to be set.



Controls available are:

Delay Frames

Up to 120 additional frames of delay may be set using the **Delay Frames** slider, depending on the standard in use; see table below. This delay can be added in all reference modes, including freerun.

Standard	Max Frame Delay
625i25	120
525i29	120
720p50/59/60	60
720p23/24/25/29/30	30

Standard	Max Frame Delay
1080i25/29/30	30
1080psf23/24	30
1080p23/24/25/29/30	30
1080p50/59/60 Lev A	30
1080p50/59/60 Lev B	14

Controls available are:

- **Delay Frames** - Adjusts the video delay. The adjustment range is standards-dependent.
- **Current Video Delay** - Displays current video delay in milliseconds.
- **Agile** - Enable if Agile V-Lock is to be used. This permits correct reception of upstream switched misaligned 625/25i and 525/29i sources without picture disturbance.

In HD standards, a mechanism is in place to re-synchronize after a switch, which makes this mode unnecessary. A tolerance of +/- 10 lines misalignment between sources is permissible which is wider than the 5s allowance specified in SMPTE RP-168, and it is assumed that the correct switch point with respect to the source is used.

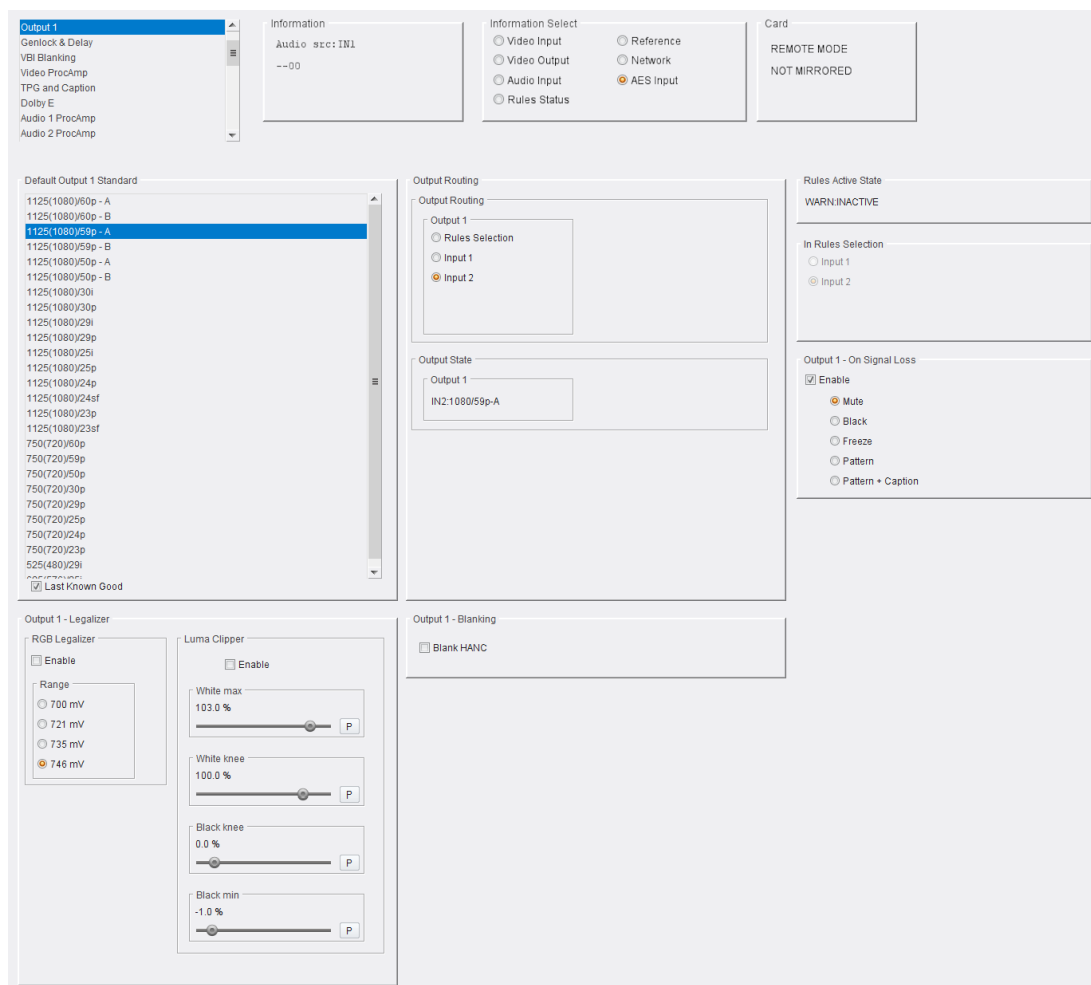
Note: Due to the time required to recognize a change in picture framing in standard definition (SD) there must be a minimum delay of 4 lines so that no displaced picture is seen at the output during a misaligned switch. This may be assured in a synchronizing mode (external reference or free-run) by setting the Frames Delay value to at least 1. Application areas that require agility over delay will suit this function better. Poor and unstable signals may benefit from having this function disabled.

Note: Correct operation of agile V-lock requires a correct vertical reference point. On some legacy equipment from before 1995, the end of vertical blanking was on the permissible lines 10-19 as well as on the current line 20. This practice is no longer permitted, and will prevent correct vertical alignment of non-compliant legacy 525/59i sources. If this is the case, then disable Agile V-Lock.

- **Freeze**: Allows the video to be frozen, either at a field or a frame level. Enable the **Manual Freeze** checkbox to activate the function, then select the required **Freeze Mode**.

Output *n*

The Output pages allow outputs to be configured. A page is provided for each output.



The following options are available:

Default Output Standard

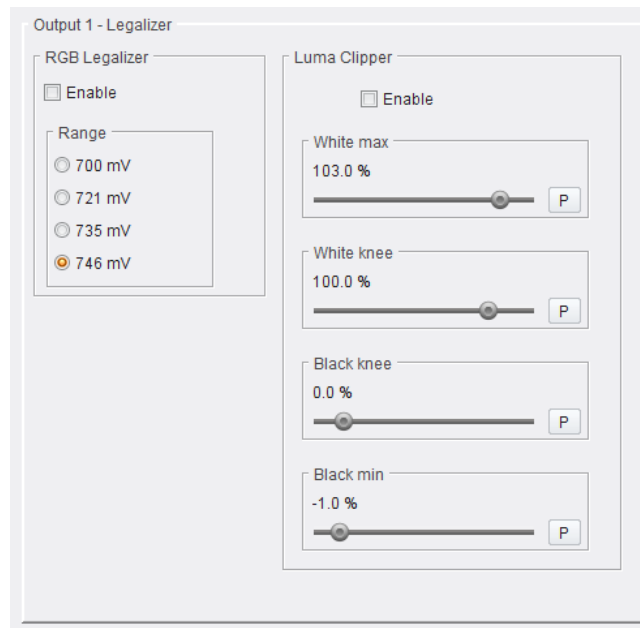
Select the standard to set as the output default.

Last Known Good

If an error with an incoming signal causes the input to be switched, enabling **Last Known Good** will cause the input's standard to be set to the default specified here. Otherwise, the standard on the new input will be used.

Output Legalizer

Outputs are legalized for both RGB and Luma.



RGB Legalizer

Illegal colors are represented by values of RGB that are outside a nominal range, typically 0 - 700mV, when converted to analog values. Illegal RGB colors are easily generated in YCbCr space because of the differences in the valid color space between RGB and YCbCr.

Upon detection of illegal RGB colors, there are a variety of techniques to bring them back into legal color space. Most legalizers will simply de-saturate the chrominance, leaving the luminance unaltered. The legalizer used by Grass Valley is more advanced, and is able to preserve the original saturation to a much greater extent by modifying the luminance and chrominance signals simultaneously, giving the best visually subjective results.

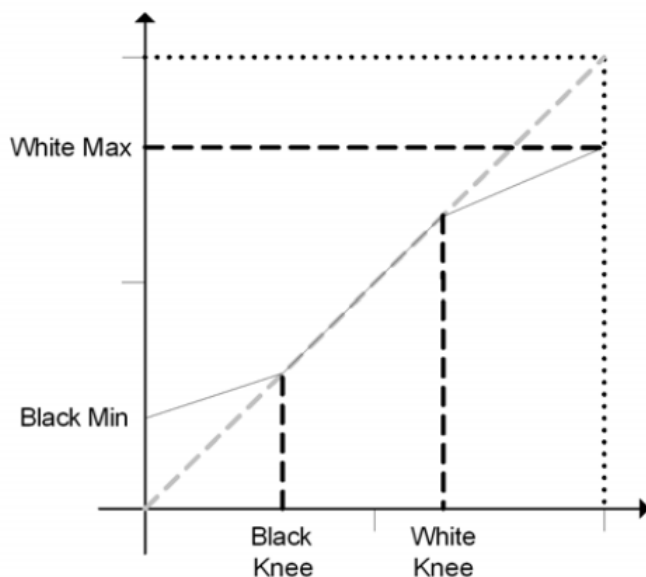
- **Off**
- **700mV: 0mV to 700mV**
- **721mV: -21mV to 721mV**
- **735mV: -35mV to 735mV**
- **746mV: -46mV to 746mV**

Luma Clipper

These controls can be used to limit the luminance of the signal at the output. Advanced **White Knee** and **Black Knee** controls are available to soften the clipper, giving a gradual transition to the limit. By default the clipper is disabled. When **Input Format** is set to 4:4:4 RGB, clipping is applied to R, G and B channels.

- **White Max:** This sets up the upper limit (hard clip point) of the clipper. The range is minimum 60% (590 digital 10-bit value) to maximum 109% (1019) with increments of 1%. The default is 103% (966).
- **White Knee:** This sets up the knee for the maximum white limit of the clipper. This can be set up to give a "soft clip" from this knee point to the hard white clip point. The range is minimum 60% (590) to maximum 109% (1019) with increments of 1%. The default is 100% (940).

- **Black Knee:** This sets up the knee for the minimum black limit of the clipper. This can be set up to give a "soft clip" from this knee point to the hard black clip point. The range is minimum -7% (4) to maximum 60% (590) with increments of 1%. The default is 0% (64).
- **Black Min:** This sets up the lower limit (hard clip point) of the clipper. The range is minimum -7% (4) to maximum 60% (590) with increments of 1%. The default is -1% (55).

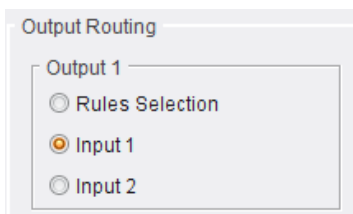


To achieve a hard white clip, set **White Max** and **White Knee** to the same value. Similarly, to achieve a hard black clip set **Black Min** and **Black Knee** to the same value.

The luma clipper can be used in combination with the 735mV legalizer selection to generate images which adhere to the EBU R103-200 specification.

Output Routing

The **Output 1** pane allows the user to select which input is presented to the output. This can be either a rules-based decision or a manual selection. Select as required.

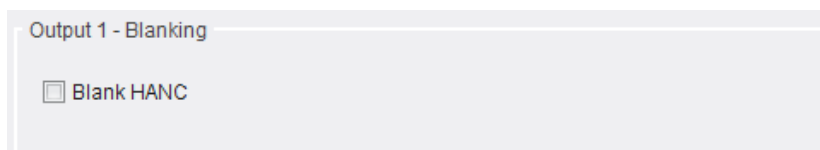


Output State

Displays the current output state.

Output *n* - Blanking

Data is passed but can be blanked for H independently for each output.



Enable check box to activate blanking.

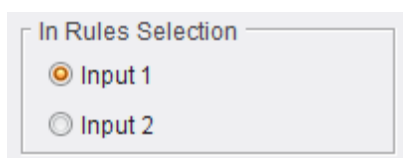
Rules Active State

The **Rules Active State** pane reports the status of the rules engine. Possible values are:

- **WARN:INACTIVE**
- **RULESACTIVE:[INPUT]**

In Rules Selection

Note this pane is active only if **Rules Selection** has been selected on the **Output 1** pane (see above).



This allows selection of the primary input to be used. The other input will be switched to if errors are detected on the primary.

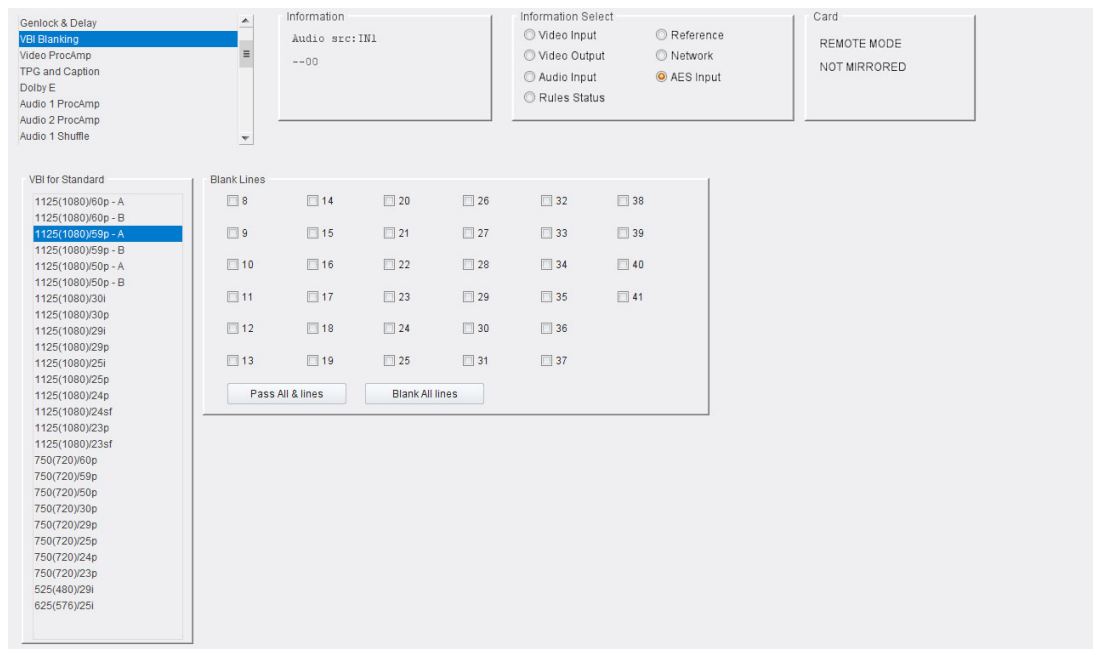
Output - On Signal Loss

When enabled, allows selection of what should be displayed if the output loses signal. Select as required.



VBI Blanking

The **VBI** page allows the Vertical Interval data (all or specific lines) contained in the input signal to be blanked or passed through the module. It allows selection of the vertical interval lines to pass through to the output and the lines to blank. Different standards will display different VBI lines.



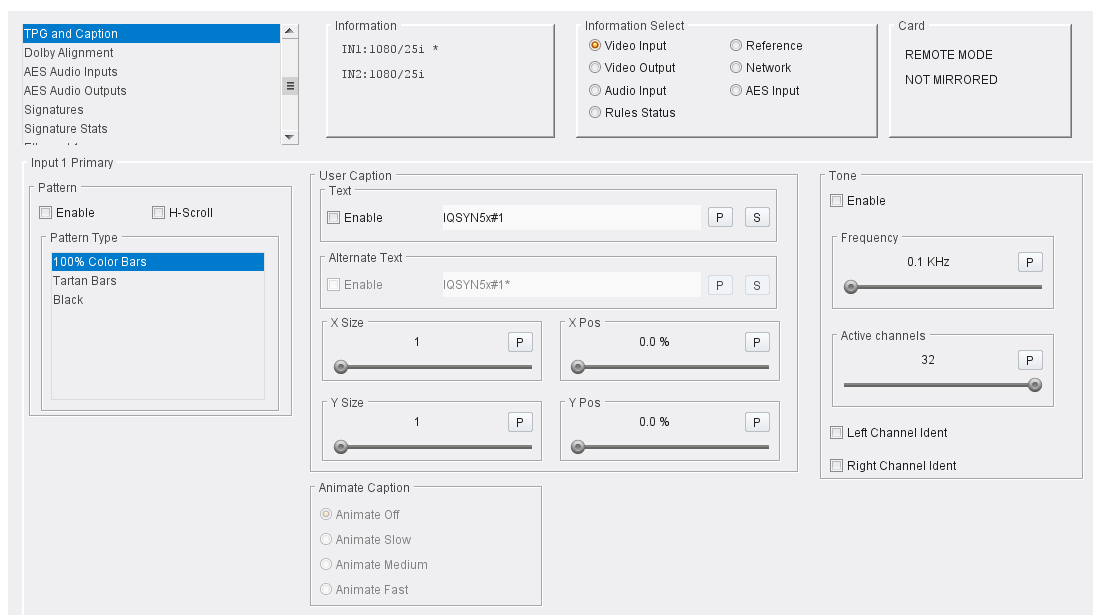
Blank Lines

Select the standard to set line blanking for, then enable the appropriate check boxes:

- To prevent specific lines from being passed to the output signal, select the lines from the **Blank Lines** section.
- To allow all displayed vertical interval lines to be passed to the output signal, click **Pass All Lines**.
- To prevent all displayed vertical interval lines from being passed to the output signal, click **Blank All Lines**.

TPG and Caption

The output and each of the inputs have their own test pattern and caption generator.

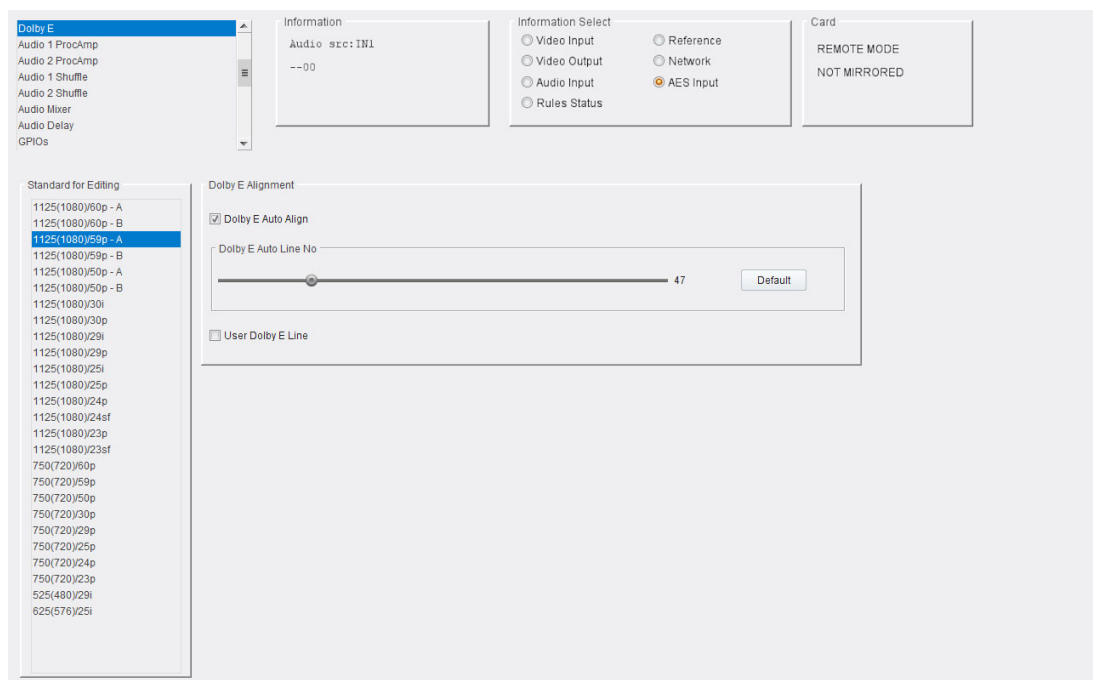


Each have the following controls:

- **Pattern Enable, Pattern Type** - To enable a test pattern, select an item from the **Pattern Type** list and then check the **Enable** check box.
- **H-Scroll** - Enable **H-Scroll** to scroll the pattern horizontally.
- **User Caption** - These controls allow caption text, alternate text, its size and position to be adjusted.
- **Animate Caption** - Not currently used.
- **Tone** - These controls allow a tone and its frequency to be enabled and adjusted, and the number of audio channels the tone should be applied to set. Left/Right channel idents can also be set; enable the check boxes as required.

Dolby Alignment

The Dolby Alignment page allows Dolby E to be configured.



The following options are available:

- **Dolby E Auto Align:** This option enables Dolby E automatic (i.e. Dolby recommended) alignment. When enabled, the Dolby E header is automatically aligned with the video frame boundary to ensure error-free video switching. The slider displays the relevant line number used for alignment.

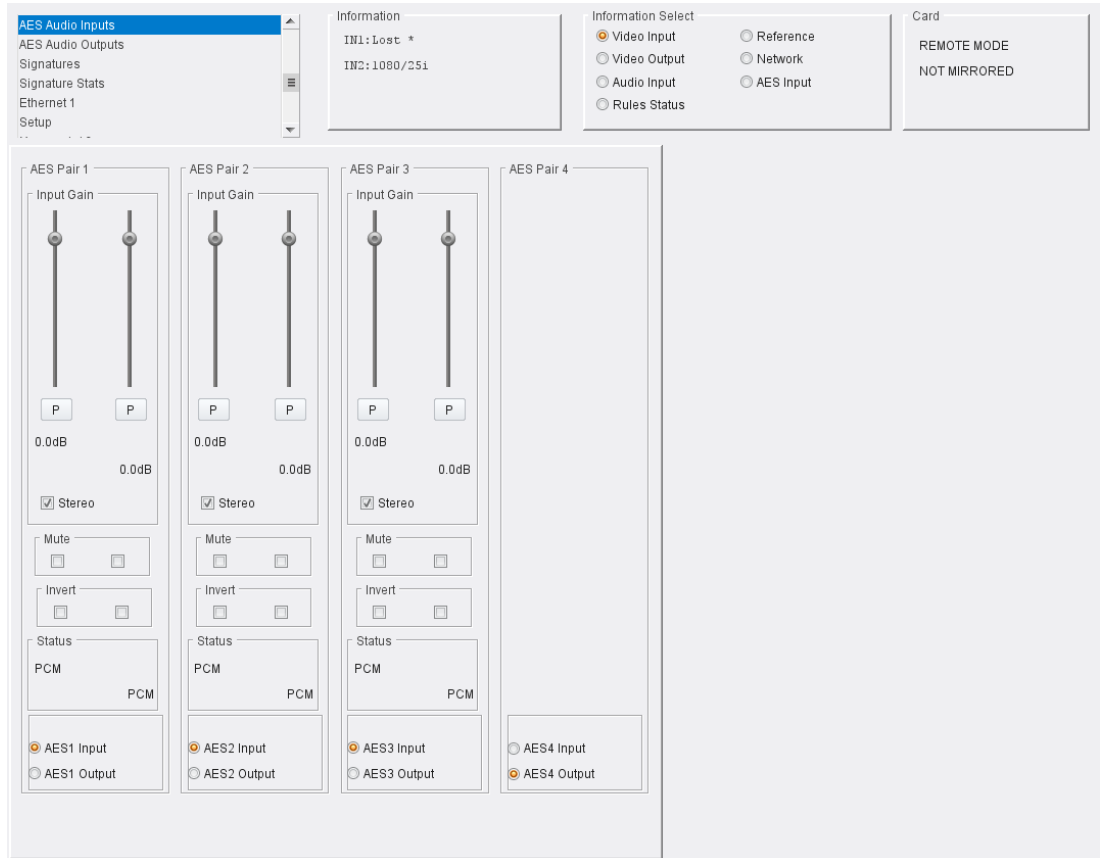
Note: If the Dolby E guard-band is out of spec, then Dolby E is re-aligned as specified by Dolby.

- **User Dolby E Line:** This option enables manual selection of the Dolby E line. Drag the slider to change the line number to be used for alignment. Click **P** to return the line number to the preset (automatic) value.
- **Standard for Editing** - By default, the current video line standard is selected. A different line standard may be selected by clicking the relevant item. The associated line number for the chosen line standard will be displayed by the slider control.

AES Audio Inputs

Note: This page is displayed only if the appropriate licenses and rear panel versions have been purchased.

The AES Inputs page allows AES Inputs to be configured.



AES Pair 1-4

Click **AES n Input/AES n Output** to configure a pair as AES input or output. When set as an AES input, the following options are available:

- **Input Gain:** Use the sliders to adjust the gain for each channel making up the pair. Click **P** to return to the default value (0dB).
- **Stereo:** Enable to configure the L/R channels as a stereo pair.
- **Mute:** Enable to mute one or both channels.
- **Invert:** Enable to invert the signal on one or both channels.
- **Status:** Displays the format of the incoming audio for each channel.

AES Audio Outputs

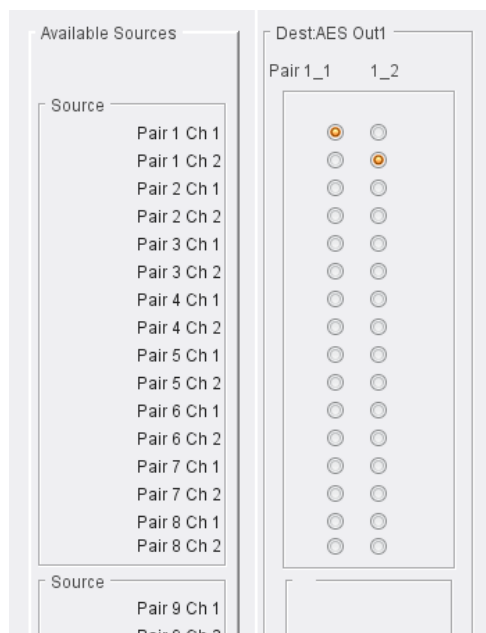
Note: This page is displayed only if the appropriate licenses and rear panel versions have been purchased.

The AES Outputs page allows AES outputs to be configured.

The screenshot displays the AES Audio Outputs configuration interface. At the top left, a sidebar lists navigation options: AES Audio Outputs (selected), Signatures, Signature Stats, Ethernet 1, Setup, and Memory 1-16. The top right contains an 'Information' box with 'INI: Lost *' and 'INI2: 1080/251', an 'Information Select' box with radio buttons for Video Input, Video Output, Audio Input, Rules Status, Reference, Network, and AES Input, and a 'Card' box with 'REMOTE MODE' and 'NOT MIRRORED'. The main configuration area is titled 'AES 1-4' and features four columns for 'AES Pair1' through 'AES Pair4'. Each pair has radio buttons for 'AES Input' and 'AES Output', and a 'Stereo' checkbox. Below this are 'DestAES Out1' and 'DestAES Out2' sections with two columns of channel selection buttons (Pair 1_1, 1_2 and Pair 2_1, 2_2). On the left, there are 'Available Sources' sections for 'Source', 'Mute', 'Tone 1-8', and 'Mixer 1-4', each with a list of source names and corresponding channel selection buttons.

AES Pair 1-4

Click **AES n Input/AES n Output** to configure a pair as AES input or output. When the pair is set as an AES output, a **DestAES Out n** matrix for the pair is displayed next to the **Available Sources** pane:



Direct sources to outputs by selecting radio buttons as appropriate. If the output is to be stereo, enable the **AESOutput n** check box.

Signatures

The Signatures page is used to configure the sources which will generate biometric signatures for use by the IQSYN51.

Controls provided are:

- **Enable** - Tick the check box to allow the output to be configured to transmit a biometric signature.
- **Source** - Enter a friendly name for the source output channel so it can be easily recognized on the network.
- **Flow** - Displays the Flow ID.
- **Signature Multicast IP Address** - Enter the **Multicast IP Address** and **Port** number that the signature data is to be broadcast on.
- **Closed Caption** - Tick the check box to enable signatures for closed captions.

Signature Stats

The Signature Stats page displays information on biometric signatures.

Stats	(Audio/Video/Processed)
In sequence signatures/second:	0.0
Out of sequence signatures/second:	0.0
Stats	(Audio/Video)
Total packets written:	0.0
Packets written/second:	0.0

Click the **Enable** check box to display the information.

Ethernet

The Ethernet page provides controls for the network interface.

The following options are available:

Ethernet

The Ethernet pane allows the setting of static IP properties or DHCP. New settings are applied only once **Take** is pressed.

The MAC address is read-only.

Domain

RollCall+ uses Domains to partition a network. Only those nodes on the same domain can communicate with one another. A domain is uniquely identified with number and a friendly name/alias.

Domain			
	Current	NEW	
ID	-	-	<input type="button" value="P"/> <input type="button" value="S"/>
Name			
		--	
		-	<input type="button" value="P"/> <input type="button" value="S"/>

Status

The status pane provides information about the network status such as packets sent, dropped.

Status			
	Sent	Received	
Packets	-	-	
Bytes	-	-	
	Packets		
Dropped	-		
Bad	-		
	Total	Used	Free
Capacity	-	-	-

Setup

The Setup page displays basic details of the module. You may be asked for these if you contact Grass Valley technical support.

The following options are available:

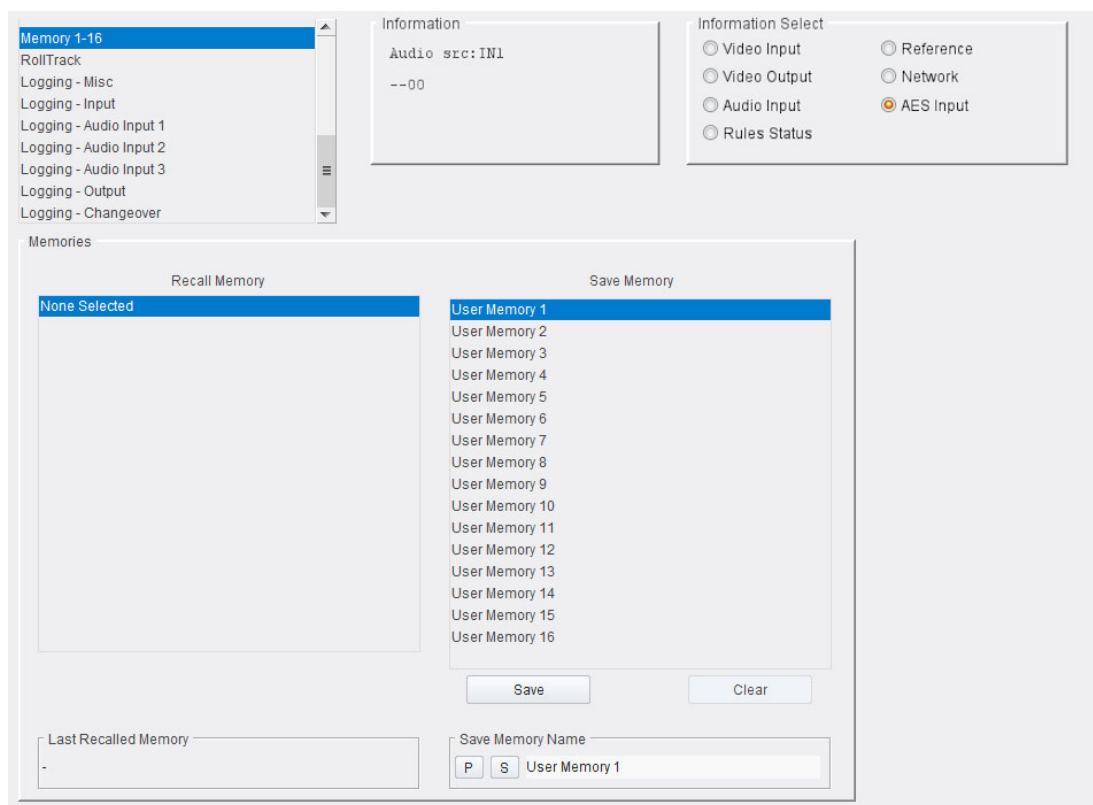
Restart

Power-cycles the module, and allows the module to be reset to default settings.

Option	Operation
Default Settings	All controls are reset to their default values, except for network configuration and IP addresses.
Factory Defaults	All controls are reset to their default values, including network configuration and IP addresses.

Memory 1-16

The Memory 1-16 page enables up to 16 configurations to be saved and recalled later. Default memory names can be changed to provide more meaningful descriptions.



The following options are available:

Recall Memory

This column lists the settings that have been previously saved. If no settings have been saved, **None Selected** is displayed.

To recall the settings saved in a memory:

- In the **Recall Memory** column, select the memory to recall by clicking on it. The recalled settings will be applied and the memory name will appear in the **Last Recalled Memory** section.

Note: User memories do not recall log field "states" – that is, whether a log value has been enabled or disabled.

Save Memory

This column lists the 16 pre-set memory names that are available for use.

To save settings:

- In the **Save Memory** column, select a memory location, and then click **Save**. The current settings are saved and the memory appears in the **Recall Memory** column.

To clear a memory location:

- In the **Save Memory** column, select a memory location, and then click **Clear**. The current settings stored for that memory are cleared. After you clear a memory location, it disappears from the **Recall Memory** list.

Last Recalled Memory

The **Last Recalled Memory** pane displays the most recently recalled memory. If any of the settings have been changed since it was recalled, an asterisk will be displayed after the memory name.

Save Memory Name

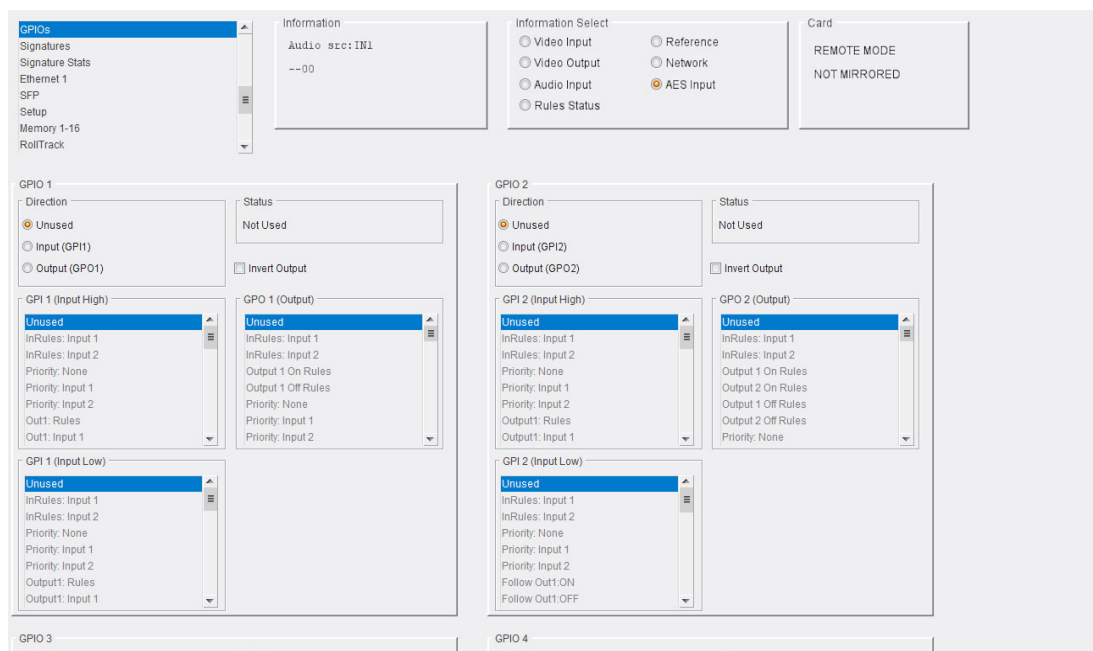
This option enables the pre-set memory names to be changed to something more memorable or meaningful, if required.

To change a memory name:

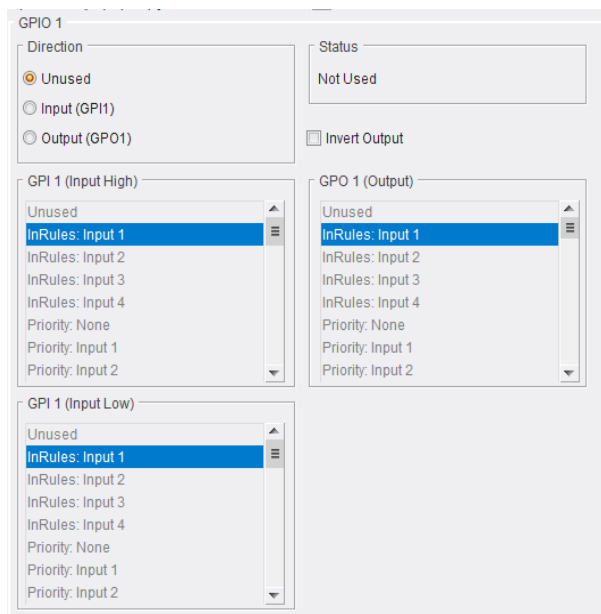
- In the **Save Memory Name** field, type the new memory name, and then click the **S** button. To return the memory to its default preset value, click **P** button.

GPIOs

This page provides configuration and action control for the General Purpose IO.



Up to 8 IO ports can be supported. Each port has an associated GPIO pane:

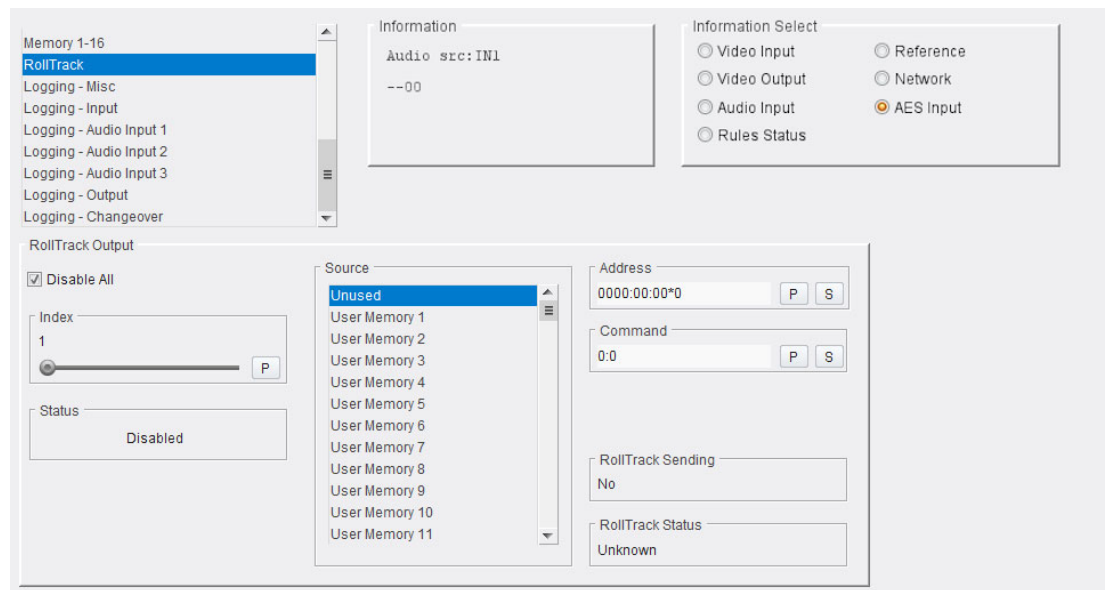


Controls provided are:

- **Direction:** Allows the interface to be configured as an input or an output. Select one, and then select behaviors as required:
 - **GPI input high behavior:** Select a behavior to use if the interface has been configured as an input and is transitioning low to high.
 - **GPI input low behavior:** Select a behavior to use if the interface has been configured as an input and is transitioning high to low.
 - **GPO output trigger:** If configured as an output, the selected event causes the output to be asserted.
- **Invert Output:** Enable the check box to invert the output, if required.

RollTrack

The RollTrack page allows information to be sent via the RollCall network to other compatible units connected on the same network.



The following options are available:

Disable All

When checked, all RollTrack items are disabled.

Index

This slider enables up to 16 RollTrack outputs to be set up. Dragging the slider selects the RollTrack Index number, displayed above the slider. Clicking **P** selects the default preset value.

Source

Select the source of information to trigger the transmission of data. Clicking **P** selects the default preset value. When no source is selected, **Unused** is displayed.

Address

This is where the address of the selected destination unit is set. Type a destination into the text area, then click **S** to save the selection. Clicking **P** will return to the default preset destination

A RollTrack address consists of four sets of numbers; for example, **0000:10:01*99**:

- The first set (**0000**) is the network segment code number.
- The second set (**10**) is the number identifying the (enclosure/mainframe) unit.
- The third set (**01**) is the slot number in the unit.
- The fourth set (**99**) is a user-definable number that is a unique ID for the destination unit in a multi-unit system. This ensures that only the correct unit will respond to the command. If left at 00, an incorrectly fitted unit may respond inappropriately.

Command

This enables a command to be sent to the selected destination unit.

The command may be changed by typing a code in the text area and then selecting **S** to save the selection. Clicking **P** returns to the default preset command.

The RollTrack command consists of two sets of numbers, for example: **84:156**:

- The first number (**84**) is the actual RollTrack command.
- The second number (**156**) is the value sent with the RollTrack command.

RollTrack Sending

A message is displayed here when the unit is actively sending a RollTrack command. Possible messages are:

Message	Description
Yes	RollTrack message is currently being sent.
No	No RollTrack message is currently being sent.

RollTrack Status

A message is displayed here to indicate the status of the currently selected RollTrack index. Possible RollTrack Status messages are:

Message	Description
OK	RollTrack message sent and received OK.
Unknown	RollTrack message has been sent but it has not yet completed.
Timeout	RollTrack message sent but acknowledgment not received. This could be because the destination unit is not at the location specified.
Bad	RollTrack message has not been correctly acknowledged at the destination unit. This could be because the destination unit is not of the type specified.
Disabled	RollTrack sending is disabled.

SFP

The SFP page allows SFPs to be configured, and various parameters to be monitored.

Note: This page is displayed only if an SFP connector is fitted.

SFP

Setup
Memory 1-16
RollTrack
Logging - Misc
Logging - Input
Logging - Output
Logging - Audio Input 1

Information
Audio src: IN1
--00

Information Select
 Video Input
 Video Output
 Audio Input
 Rules Status
 Reference
 Network
 AES Input

Card
REMOTE MODE
NOT MIRRORRED

SFP Details
Status: NOT PRESENT
Vendor:
Part Num:
Serial Num:
Identifier:
Media type:
TxRx Type:
Connector:

Configure Types
TxRx Type
 Auto
 Tx/Tx
 Rx/Rx
 --Tx
 Rx--
 Rx/Tx
MediaType
 Auto
 Fiber
 Coaxial
 HDMI

SFP Output A
 Output OFF
 Output OFF On Input Error
Tx Power State:
Tx Power:
Laser Bias State:
Laser Bias:
Tx Wavelength:

SFP Output B
 Output OFF
 Output OFF On Input Error
Tx Power State:
Tx Power:
Laser Bias State:
Laser Bias:
Tx Wavelength:

SFP Input A
Power State:
Power:

SFP Input B
Power State:
Power:

Restart
NOTE: Changing SFP Type may require the module to be restarted to become active
Restart WARNING: This will affect all Outputs !

The following options are available:

SFP Details

Displays basic SFP details.

Configure Types

Allows Transmit/Receive and Connection Media types to be specified. Select a radio button for each type as required.

SFP Inputs/Outputs

Displays various parameters, and allows output from SFPs to be switched off. Also allows output to be switched off automatically if an input error is detected. Select check boxes as required.

Logging

Information on various parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Enable the check box for each parameter to be logged.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging pages available are:

Logging - Misc

The Logging - Misc page allows information on the module's basic parameters to be logged. Enable check boxes as required.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Serial Number	SN=	s56111297
<input checked="" type="checkbox"/> OS Version	OS_VERSION=	QNX 6.6
<input checked="" type="checkbox"/> Build No.	BUILD_NUMBER=	204
<input checked="" type="checkbox"/> Hardware Ver.	HARDWARE_VERSION=	RLCR1C
<input checked="" type="checkbox"/> Hardware Mod.	HARDWARE_MOD=	7
<input checked="" type="checkbox"/> Firmware Version	FIRMWARE_VERSION=	4 74
<input checked="" type="checkbox"/> Temperature State	TEMP_1_STATE=	OK
<input checked="" type="checkbox"/> Temperature Name	TEMP_1_NAME=	FPGA Temperature
<input checked="" type="checkbox"/> Temperature Celsius	TEMP_1_CELSIUS=	58C
<input checked="" type="checkbox"/> RollTracks	ROL_STATES=	Disabled
<input checked="" type="checkbox"/> Last Recalled Memory	LAST_RECALLED_MEMORY=	-
<input checked="" type="checkbox"/> Rear ID	REAR_ID=	69
<input checked="" type="checkbox"/> Rear Status	REAR_STATUS=	OK
<input checked="" type="checkbox"/> Slot Width	SLOT_WIDTH=	2
<input checked="" type="checkbox"/> Slot Start	SLOT_START=	2
<input checked="" type="checkbox"/> Power Usage	POWER_USAGE=	15W/15LU
<input checked="" type="checkbox"/> Licence	LICENSED_OPTIONS=	INFO: No File
<input checked="" type="checkbox"/> Up Time	UPTIME=	000:05:54:00
<input checked="" type="checkbox"/> RC Up Time	RC_UPTIME=	000:02:32:00

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Lan Port 1 Name	LAN_PORT_1_NAME=	dm0
<input checked="" type="checkbox"/> Lan Port 1 Speed	LAN_PORT_1_SPEED=	-
<input checked="" type="checkbox"/> Lan Port 1 State	LAN_PORT_1_STATE=	DOWN
<input checked="" type="checkbox"/> IP Address	IPADDRESS=	172.19.81.200

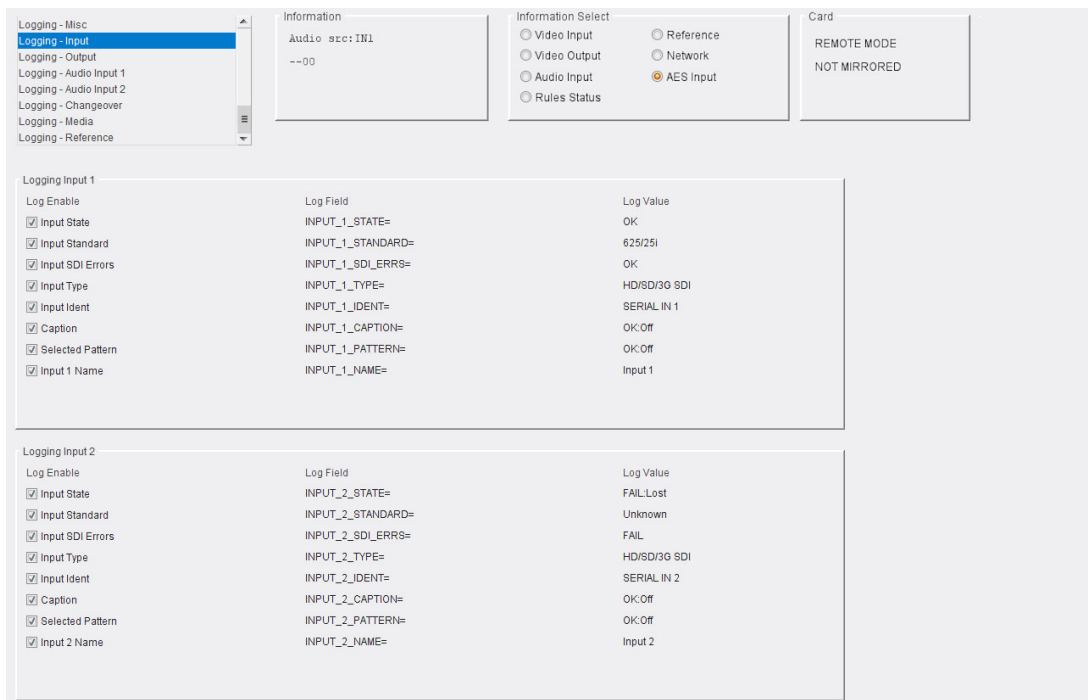
Log Field	Description
SN=	Logs the module serial number, which consists of an S followed by eight digits. Note: this item cannot be deselected.
OS_VERSION=	Logs operating system name and version. For example, KOS V115.
BUILD_NUMBER=	Logs build number.
HARDWARE_VERSION=	Logs hardware version number.
HARDWARE_MOD=	Logs hardware modification level.
FIRMWARE_VERSION=	Logs ASI controller firmware version.

Log Field	Description
TEMP_N_STATE=	Logs temperature warning status. Possible values are: <ul style="list-style-type: none"> • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • OK • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance. • WARN:DISABLED
TEMP_N_NAME=	Logs temperature sensor name.
TEMP_N_CELSIUS=	Logs temperature status of the FPGA.
ROL_STATES=	Logs RollTrack state. Possible values are: <ul style="list-style-type: none"> • OK • Disabled • FAIL
LAST_RECALLED_MEMORY=	Logs name of last-recalled memory.
REAR_ID=	Logs rear panel type number.
REAR_STATUS=	Logs status of the rear panel.
SLOT_WIDTH=	Logs slot width.
SLOT_START=	Logs slot start number.
POWER_USAGE=	Logs power rating for the module. Note this is not a live power reading, but rather a maximum rating.
LICENSED_OPTIONS=	Logs installed option licenses.
UPTIME=	Logs time since the last restart in the format ddd:hh:mm:ss.
LAN_PORT_N_NAME=	Displays Ethernet port name as defined by the OS.
LAN_PORT_N_SPEED=	Displays Ethernet connection speed. Possible values are: <ul style="list-style-type: none"> • 10 Mbit/s Full Duplex • 10 Mbit/s Half Duplex • 100 Mbit/s Full Duplex • 100 Mbit/s Half Duplex • 1 Gbit/s Full Duplex • No Link
LAN_PORT_N_STATE=	Displays Ethernet connection status. Possible values are: <ul style="list-style-type: none"> • Active • WARN:Inactive
IPADDRESS=	Displays the module IP address. Possible values are: <ul style="list-style-type: none"> • WARN:None • WARN:Invalid Address • <IP Address>

Where N is the input number

Logging - Input

The Logging - Input page is used to select the fields to be enabled for logging each of the inputs.



Log Field	Description
INPUT_N_STATE=	Logs state of the input. Possible values are: <ul style="list-style-type: none"> • OK: input signal good. • FAIL: input signal not detected.
INPUT_N_STANDARD=	Logs details of the input standard in this format: <Lines>(<Active>) / <Rate> <i/p/sf> Where: <ul style="list-style-type: none"> • Lines = Total lines. • Active = Active lines. • Rate = Frame rate. • I = Interlaced. • P = Progressive. • SF = Segmented field.
INPUT_N_SDI_ERRS=	Logs SDI errors that have occurred in a one-second period. Possible values are: <ul style="list-style-type: none"> • OK • WARN
INPUT_N_TYPE=	Logs type of input as specified by the module's configuration. Range 1–3. Possible values are: <ul style="list-style-type: none"> • 3G/HD/SD SDI • HD/SD SDI • HD/SD Analog • SD Analog

Log Field	Description
INPUT_N_IDENT=	Logs identifier string on the rear interface. Possible values are: <ul style="list-style-type: none">• Y/C:YPbPr:COMP In• COMP In• SERIAL IN• SERIAL IN 1• SERIAL IN 2
INPUT_N_CAPTION=	Logs caption state. Possible values are: <ul style="list-style-type: none">• OK• WARN
INPUT_N_PATTERN=	Logs the current test pattern for the input. Possible values are: <ul style="list-style-type: none">• 100% Color Bars• SMPTE Bars• Tartan Bars• Pluge• Ramp• Sweep• Pulse & Bar• Burst• Black
INPUT_N_NAME=	Logs input name as set on the Setup page. See section for more information.

Where N is the input number

Logging - Output

The Logging - Output page is used to select the fields to be enabled for logging outputs.

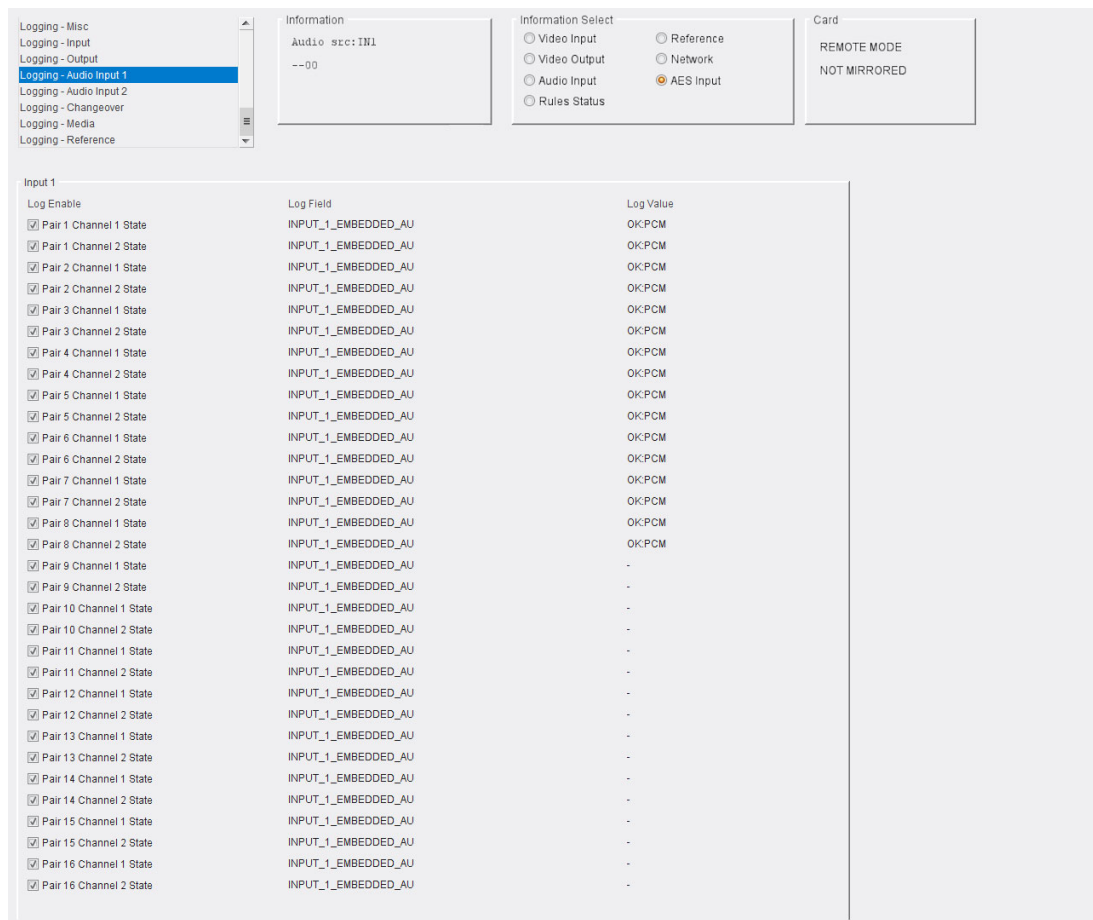
Log Field	Description
OUTPUT_N_TYPE=	Logs output type. Possible values are: <ul style="list-style-type: none"> • SD SDI • HD SDI • HD/SD/3G SDI
OUTPUT_N_STATE=	Logs state of the output. Possible values are: <ul style="list-style-type: none"> • OK • FAIL • WARN: Freeze • WARN: Pattern
OUTPUT_N_STANDARD=	Logs details of the output standard in this format: <Lines>(<Active>)/<Rate><i/p/sf> Where: <ul style="list-style-type: none"> • Lines = Total lines. • Active = Active lines. • Rate = Frame rate. • I = Interlaced. • P = Progressive. • SF = Segmented field.
OUTPUT_N=	Logs name of the input currently connected to this output.
OUTPUT_N_CAPTION=	Logs caption information. Possible values are: <ul style="list-style-type: none"> • OK - Off • WARN - On

Log Field	Description
OUTPUT_N_PATTERN=	Logs test pattern information. Possible values are: <ul style="list-style-type: none"><li data-bbox="722 293 954 322">• 100% Color bars<li data-bbox="722 333 895 362">• SMPTE bars<li data-bbox="722 374 890 403">• Tartan bars<li data-bbox="722 414 820 443">• Pluge<li data-bbox="722 454 820 483">• Ramp<li data-bbox="722 495 831 524">• Sweep<li data-bbox="722 535 887 564">• Pulse & bar<li data-bbox="722 575 815 604">• Burst<li data-bbox="722 616 815 645">• Black

Where N is the input number

Logging - Audio Input 1 + 2

The Logging Audio Input pages are used to select the fields to be enabled for logging audio inputs.



Log Field	Description
INPUT_N_EMBEDDED_AUDIO_X_STATE=	<p>Logs information on incoming embedded audio. Possible values are:</p> <ul style="list-style-type: none"> • OK:PCM - PCM present. • OK:Data - Non-PCM AES audio present. • OK:Dolby E - Dolby E audio present. • FAIL:LOST - Audio not present. • WARN:Unknown - Unselected SDI input with unknown embedded audio state.

Where N is the input number and X is the channel number

Logging - Changeover

The Logging - Changeover page allows errors or events which cause a failover to be logged.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input 1	PRIMARY_STATE=	OK
<input checked="" type="checkbox"/> Input 2	SECONDARY_STATE=	OK

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Rules State	RULES_STATE=	WARN:INACTIVE

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> GPIO 1 State	GPI_1_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 2 State	GPI_2_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 3 State	GPI_3_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 4 State	GPI_4_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 5 State	GPI_5_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 6 State	GPI_6_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 7 State	GPI_7_STATE=	Not Used
<input checked="" type="checkbox"/> GPIO 8 State	GPI_8_STATE=	Not Used

Log Field	Description
PRIMARY_STATE=	Logs the state of the primary input. Valid values are: <ul style="list-style-type: none"> • OK - input signal good • FAIL - input signal not detected
SECONDARY_STATE=	Logs the state of the secondary input. Valid values are: <ul style="list-style-type: none"> • OK - input signal good • FAIL - input signal not detected
RULES_STATE=	Logs the state of the rules engine. Valid values are: <ul style="list-style-type: none"> • OK:ACTIVE • WARN:INACTIVE
GPIO_N_STATE=	Logs the state of the GPIOs. Valid values are: <ul style="list-style-type: none"> • Not Used • INPUT HIGH • OUTPUT HIGH

Where N is the input number

Logging - AES Input

Note: This page is displayed only if the appropriate licenses have been purchased.

The Logging AES Input page is used to select the fields to be enabled for logging AES audio inputs.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> AES Input 1 State	AESINPUT_1_STATE=	FAIL:Inp Lost
<input checked="" type="checkbox"/> AES Input 2 State	AESINPUT_2_STATE=	FAIL:Lost
<input checked="" type="checkbox"/> AES Input 3 State	AESINPUT_3_STATE=	FAIL:Lost
<input checked="" type="checkbox"/> AES Input 4 State	AESINPUT_4_STATE=	FAIL:Lost

Log Field

Description

AESINPUT_ *N* _STATE= Logs information on AES audio input. Possible values are:

- **OK:PCM** - PCM audio is present.
- **OK:Data** - Non-PCM AES audio is present.
- **OK:Dolby E** - Dolby E-encoded audio is present.
- **FAIL:LOST** - No signal present.
- **WARN:Unknown** - Embedded audio state unknown.
- **INFO:<>** - For use with monitoring products.

Where *N* is the input number

Logging - AES Output

Note: This page is displayed only if the appropriate licenses have been purchased.

The Logging AES Output page is used to select the fields to be enabled for logging AES audio outputs.

Log Enable	Log Field	Log Value	
<input checked="" type="checkbox"/>	Output AES 1_1 State	AESOUTPUT_1_1_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 1_2 State	AESOUTPUT_1_2_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 2_1 State	AESOUTPUT_2_1_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 2_2 State	AESOUTPUT_2_2_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 3_1 State	AESOUTPUT_3_1_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 3_2 State	AESOUTPUT_3_2_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 4_1 State	AESOUTPUT_4_1_STATE	INFO:input
<input checked="" type="checkbox"/>	Output AES 4_2 State	AESOUTPUT_4_2_STATE	INFO:input

Log Field	Description
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AESOUTPUT_x_y_STATE= Logs information on incoming embedded audio. Possible values are:

- **OK:PCM** - PCM present.
- **OK:Data** - Non-PCM AES audio present.
- **OK:Dolby E** - Dolby E audio present.
- **WARN:Silent PCM** - PCM audio has dropped to silence.
- **WARN:Overload PCM** - PCM audio has reached an overload state.
- **FAIL:Input Lost** - Audio not present.
- **FAIL:Mixed** - Unselected SDI input with unknown embedded audio state.

Where N is the input number, x is the channel number and y is the pair number

Logging - Media

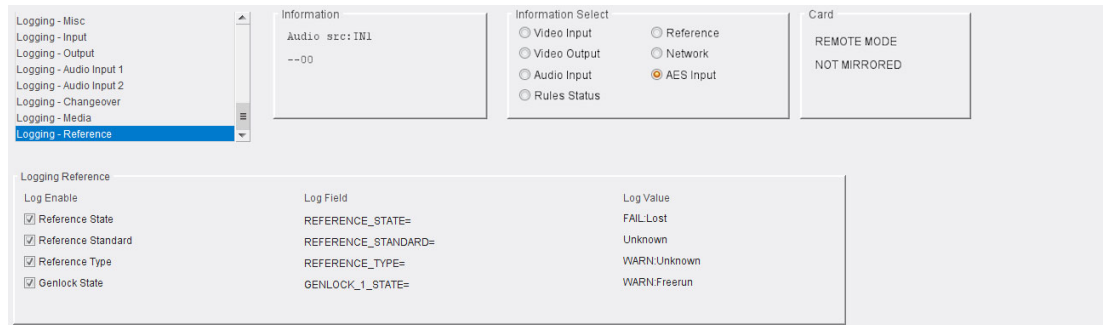
The Logging - Media page allows current media match information to be logged.

Log Field	Description
DOMAIN_ID=	Logs module domain ID.
DEVICE_NAME=	Logs module device name.
DEVICE_ID=	Logs module device ID.
SOURCE_N_NAME=	Logs input source name.
SOURCE_N_ID=	Logs input source ID.
FLOW_N_ID=	Logs input source flow ID.
SIGNATURE_MULTICAST_IPADDRESS_1=	Logs input signature multicast IP address.
SIGNATURE_MULTICAST_PORT_1=	Logs input signature multicast port number.
INPUT_N_CLOSED_CAPTION_STATE=	Logs state of closed captions. Possible values are: <ul style="list-style-type: none"> • OK • LOST • ERROR

Where N is the input number

Logging - Reference

The Logging - Reference page allows system reference information to be logged.



Log Field	Description
REFERENCE_STATE=	<p>Displays current state of the reference. Valid values are:</p> <ul style="list-style-type: none"> • OK:Reference • OK:Input • OK:Locked • WARN:Freerun • WARN:Not Set • FAIL:Lost
REFERENCE_STANDARD=	<p>Displays the reference standard in the format: <Lines>(<Active>)/<Rate><i/p/sf></p> <p>Where:</p> <ul style="list-style-type: none"> • Lines = Total lines • Active = Active lines • Rate = Frame rate • I = interlaced • P = Progressive • SF = Segmented Frame <p>For example: 1080/50p or 1125(1080)/25i</p>
REFERENCE_TYPE=	<p>Displays the reference type. Valid values are:</p> <ul style="list-style-type: none"> • OK:Bi-Level • OK:Tri-Level
GENLOCK_N_STATE=	<p>Displays current genlock state. Valid values are:</p> <ul style="list-style-type: none"> • OK:Reference • OK:Input • WARN:Freerun • WARN:CrossLock

Where N is the input number