



KUDOS PRO IP

STANDARDS CONVERTERS WITH IP INTERFACE

Kudos Pro-IP-LC

Kudos Pro-IP-MC

Kudos Pro-IP-SV

User Manual IP Interface Supplement

Issue 2 Revision 1

1/1/,01,12

www.grassvalley.com

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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Title	Kudos Pro IP User Manual IP Interface Supplement
Part Number	Issue 2 Revision 1
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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.



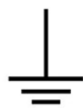
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



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.



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.



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/Canada.



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 mains voltage at either 120 V AC or 240 V AC.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for 120 V AC or 240 V AC 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. Servicing should be done in a static-free environment.
- 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.

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.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

Signification des symboles utilisés



Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.



Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.



Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.



Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.



Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.



Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.



Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.



La marque UL certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.



Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements



Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.
- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyeurs liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde



Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.

- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.
- Pour réduire le risque de choc électrique, branchez chaque cordon d'alimentation dans des circuits de dérivation distincts utilisant des zones de service distinctes.

Protection contre les décharges électrostatiques (DES)



Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Manipulation de la pile



Ce produit peut inclure une pile de sauvegarde. Il y a un risque d'explosion si la pile est remplacée de manière incorrecte. Remplacez la pile uniquement par un modèle identique ou équivalent recommandé par le fabricant. Disposez des piles usagées conformément aux instructions du fabricant. Avant de vous séparer de votre équipement Grass Valley, veuillez consulter les *informations de mise au rebut et de recyclage* à :

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

Précautions pour les écrans LCD et TFT



Regarder l'écran pendant une trop longue période de temps peut nuire à votre vision. Prenez une pause de 10 minutes, après 30 minutes d'utilisation.

Si l'écran LCD ou TFT est brisé, manipulez les fragments de verre avec précaution au moment de vous en débarrasser. veillez à ce que le cristal liquide n'entre pas en contact avec la peau ou la bouche. En cas de contact avec la peau ou les vêtements, laver immédiatement à l'eau savonneuse. Ne jamais ingérer le liquide. La toxicité est extrêmement faible, mais la prudence demeure de mise en tout temps.

Environmental Information

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.

Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy since it is based on data received from sources outside our company. All specifications are subject to change without notice.

If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Lithium Batteries

Battery Warning

CAUTION

This equipment contains a lithium battery.
There is a danger of explosion if this is replaced incorrectly.
Replace only with the same or equivalent type.
Dispose of used batteries according to the manufacturer's
instructions.
Batteries **shall only** be replaced by trained service technicians.

Your Grass Valley equipment usually comes with at least one button battery located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Battery Disposal

Before disposing of your Grass Valley equipment, please remove the battery as follows:

- 1 Make sure the AC adapter/power Cord is unplugged from the power outlet.
- 2 Remove the protective cover from your equipment.
- 3 Gently remove the battery from its holder using a blunt instrument for leverage such as a screwdriver if necessary. In some cases the battery will need to be desoldered from the PCB.
- 4 Dispose of the battery and equipment according to your local environmental laws and guidelines.

WARNING

- Be careful not to short-circuit the battery by adhering to the appropriate safe handling practices.
- Do not dispose of batteries in a fire as they may explode.
- Batteries may explode if damaged or overheated.
- Do not dismantle, open or shred batteries.
- In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes.
- Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

Laser Safety - Fiber Output SFP and QSFP Modules Warning

LASER SAFETY



The average optical output power does not exceed 0 dBm (1mW) under normal operating conditions. Unused optical outputs should be covered to prevent direct exposure to the laser beam.

Even though the power of these lasers is low, the beam should be treated with caution and common sense because it is intense and concentrated. Laser radiation can cause irreversible and permanent damage of eyesight. Please read the following guidelines carefully:

- Make sure that a fiber is connected to the board's fiber outputs before power is applied. If a fiber cable (e.g. patchcord) is already connected to an output, make sure that the cable's other end is connected, too, before powering up the board.
- **Do not** look in the end of a fiber to see if light is coming out. The laser wavelengths being used are totally invisible to the human eye and can cause permanent damage. Always use optical instrumentation, such as an optical power meter, to verify light output.

Safety and EMC Standards

This equipment complies with the following standards:

Safety 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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1 Introduction

Kudos Pro MC2000, LC4000 and SV4000 standards converters are available with a factory-fitted IQMIX10KP IP interface card on board, allowing for easy deployment in IP or SDI/IP environments.

This supplement details the capabilities, setup and use of the IP interface, and should be used in conjunction with the user manual supplied with the converter.

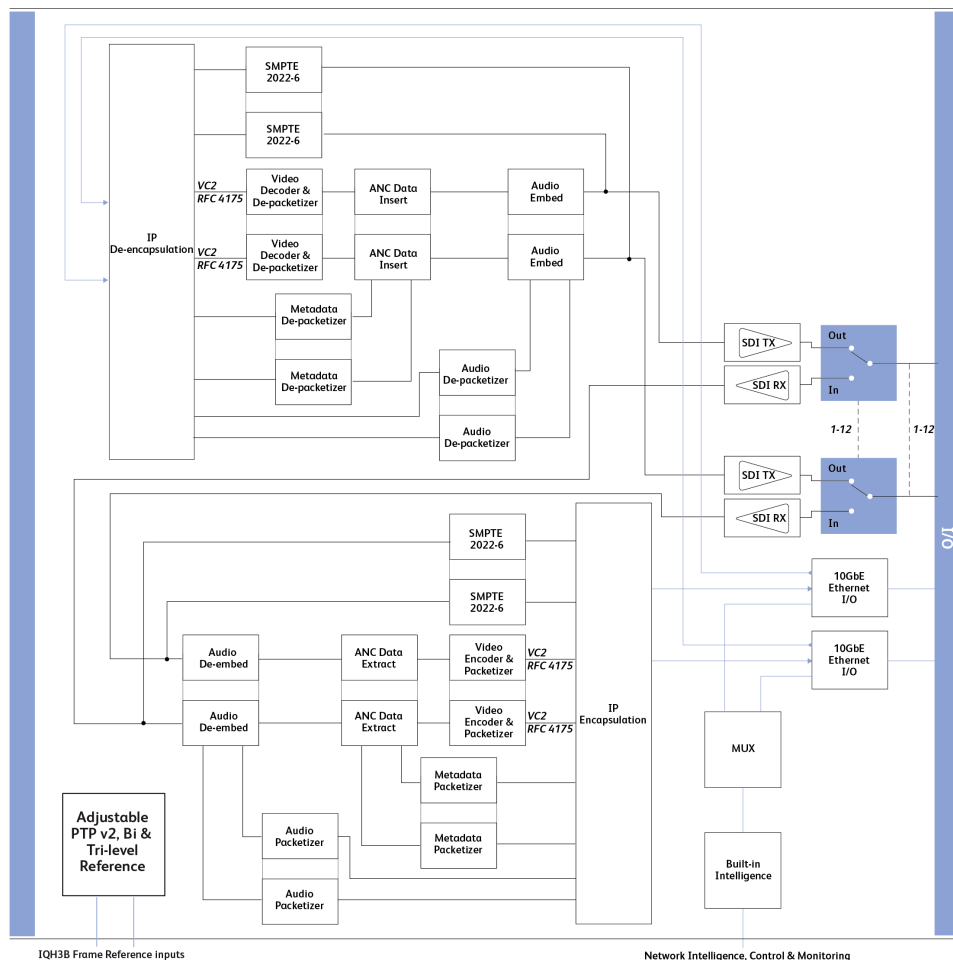
Interface Card Description

The IQMIX10KP is a multi-channel, video-over-IP transceiver module developed for use within low latency, high bandwidth Ethernet IP networks, capable of encoding/decoding multiple SDI signals. It provides both compressed and uncompressed modes of operation.

Encapsulation of signals in a SMPTE 2022-6 transport stream can also be handled to provide compatibility with other video over IP solutions.

RFC417 provides for uncompressed video transport, and supports ST2110-20, ST2110-30, ST2110-40, RFC3190 for Audio and the RTP Payload for SMPTE ST 291 Ancillary Data standard.

Block Diagram

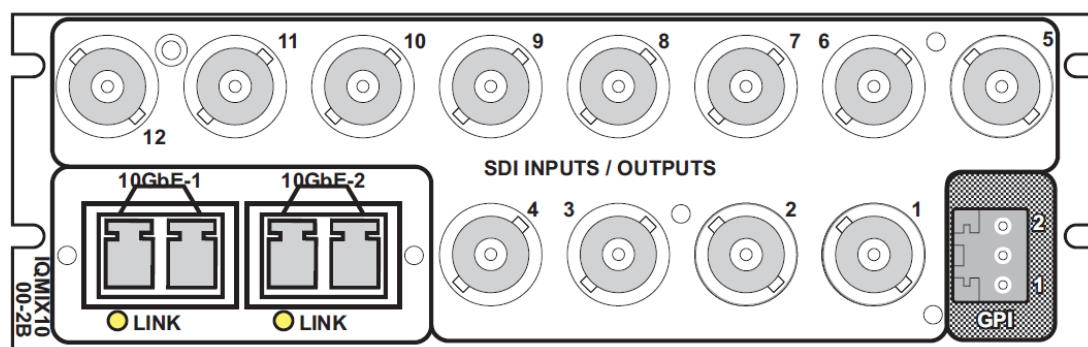


Order Codes

The following product order codes are covered by this manual:

Kudos Pro-IP-LC	Quad-channel Linear Motion Adaptive Standards Converter with IP Interfacing.
Kudos Pro-IP-MC	Dual-channel Motion Compensated Standards Converter with IP Interfacing.
Kudos Pro-IP-SV	Quad-channel Linear Motion Adaptive Format Converter and Synchronizer with IP Interfacing.

Interface Card Rear Panel View



IQMIX10KP

Feature Summary

- Handles up to 12 SDI signals over dual 10GbE IP links (dependent on SDI signal format and compressed/uncompressed transport mode).
- Supports configuration of Ethernet links for maximum signal transport using both SFPs, or for dual link mode to provide link redundancy as per SMPTE 2022-7.
- Multiple transport types available for each SDI input, including:
 - Compressed IP transport using SMPTE-2042 (VC2) low latency high quality encoding profile.
 - Uncompressed video transport using either VSF TR-03 and TR-04 RTP (upgradeable to SMPTE 2110), or SMPTE-2022-6 encapsulation.
 - PCM audio using TR-03 & AES67.
 - SMPTE-291M metadata support via IETF standard *RTP Payload for Ancillary Data*.
- Supports frame synchronized SDI outputs referenced to IEEE-1588v2 (PTP) network timing (compliant with SMPTE-2059-2) for black burst/tri-level syncs.
- Low delay mode and Independent H & V offset available for each channel along with up to 2 frames of video delay, and up to 255ms of audio delay.
- Supports uni-cast as well as IGMPv3 source specific multi-cast, allowing point to point operation or transmission in multi-cast groups.
- Standards supported:
 - 3G-SDI to SMPTE 424M/425M level A compatible.
 - HD-SDI to SMPTE292M/274M/296M.
 - SD-SDI to SMPTE259M-C.
 - 10G Ethernet to IEEE 802.3.
- RollCall control and monitoring compatible, with standard logging and reporting features.

Technical Specifications



Inputs/Outputs	
Signal Inputs	
Inputs	Up to 12 (0/4/8/12)
Connector/Format	HD-BNC/75R panel jack on standard connector panel
Conforms to	3G-SDI to SMPTE 424M/425M level A compatible HD-SDI to SMPTE292M/274M/296M SD-SDI to SMPTE259M-C
Input cable length	Belden 1694A @ 3 Gbit/s - 80m Belden 1694A @ 1.5 Gbit/s - 140m Belden 1694A @ 270 Mbit/s - 350m
Signal Outputs	
Outputs	Up to 12 (0/4/8/12)
Connector/Format	HD-BNC/75R
Conforms to	3G-SDI to SMPTE 424M/425M level A compatible HD-SDI to SMPTE292M/274M/296M SD-SDI to SMPTE259M-C
Ethernet	
Connector/Format	10GbE = SFP+
Conforms to	IEEE 802.3by - 10 Gigabit Ethernet over fiber IEEE 802.3 - 10 Gigabit Ethernet over twinaxial cables ST2110-10/20/30 SMPTE-291M/IETF RTP Payload for Ancillary Data VC-2 AES'67 IEEE-1588v2/SMPTE-2059-2
Video Standards	1125 (1080)/50p (A), 1125 (1080)/59p (A), 750 (720)/50p, 750 (720)/59p, 1125 (1080)/25i, 1125 (1080)/29i, 625 (576)/25i, 525 (480)/29i
Latency	IP Sender: < 1 line (ignoring compression codec latency) IP Receiver: N->(N+1) frames* *This is dependent on the setting N, currently 0/1/2/3, for the number of frames of delay applied in the packet store buffer. With N=0, the minimum delay is approximately 32 lines by default. VC2 codec latency is approx. 6 lines for both encode and decode.

RollCall Features	
Status	Input and Output status
User memories	None
Communication	
RollCall/RollCall+	Via gateway or directly via rear SFP
Indicators	Front Panel and Card Edge
Power	OK (Green)
CPU	OK (Green flashing)
1-12 Input standard detection LEDs	UHD (Green) 3G (Green) HD (Green) SD (Yellow) None (Red)
SFP LEDs	Red = Fault - rear assembly 3V3 regulator failure. Green = 10G
Logging	Input Status Input Alarms Output Alarms Output Status Misc
RollTrack controls	On/off, Index, Source, Address, Command, Status, Sending
Setup	Versions, reset defaults, restart
Specifications	
Connector/Format	HD-BNC
Power Consumption	
Complete unit inc IQ module	120VA max

3 Connections

This section describes the physical input and output connections provided by the IQMIX10KP.

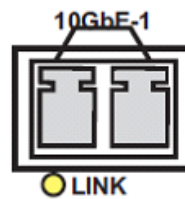
SDI BNC Input/Outputs

10 x 3G/HD/SD-SDI interfaces provided with HD-BNC.



10G Ethernet SFP

SFP+ supporting 10G Ethernet.



SFP Link LED Indicators

SFP/QSFP LEDs indicate the following:

- Red = Fault - 3V3 regulator failure.
- Green = OK (10G).

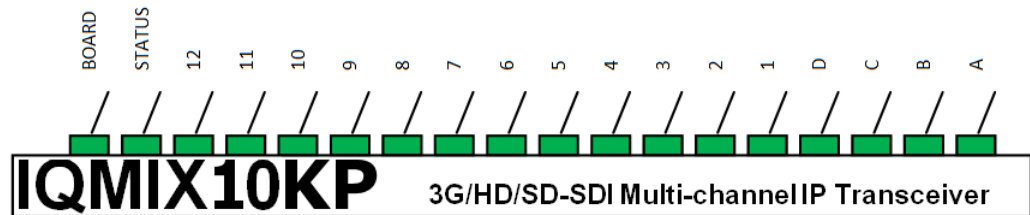
If the LED is flashing, the link is down.

Cabling

Cables should be run between the IQMIX10KP and the Kudos Pro converter in the same way as they would if the card was mounted conventionally, in an enclosure. No special arrangements are required.

4 Card Edge LEDs


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



Card Edge LEDs

Front Edge		Description
● STATUS	PB=IDENT	STATUS Green = PTP-LOCK OK Off = PTP-LOCK Fail
● BOARD	● CPU	BOARD Green flashing= PTP-SYNC OK Off = PTP-SYNC Fail
● PTP	● REF	REF Green flashing = Watchdog timer OK
● 8	● 16	1 - 16 = Input flow status Green = UHD Green = 3G Green = HD Yellow = SD Off = Not connected
● 7	● 15	
● 6	● 14	
● 5	● 13	
● 4	● 12	For 12G quad-link: Green = Active input flow Red = Inactive input flow Yellow = TPG is active
● 3	● 11	
● 2	● 10	
● 1	● 9	
● SFP 2		SFP 1 - 2 = Status/lane. Red = Fault (3V3 regulator failure) Green = 10G SFP OK If flashing, link is down.
● SFP 1		
PB=RESET		

5 RollCall Control Panel

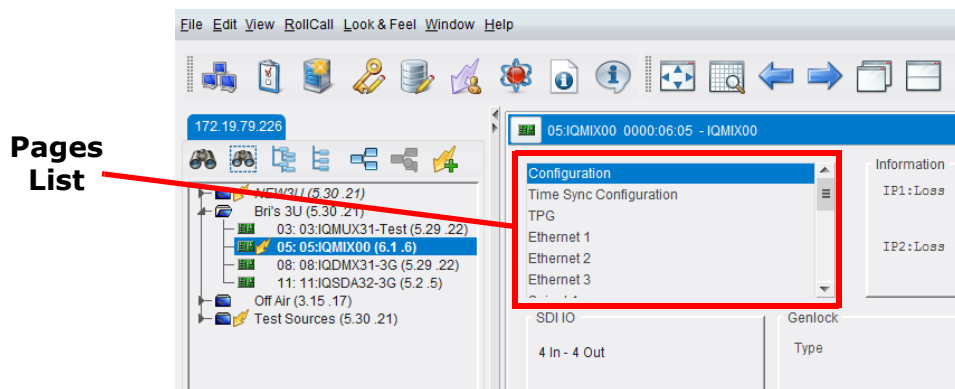
This section contains information on using the IQMIX10KP IP interface module with RollCall. For help with general use of the RollCall application, open the user manual by clicking the  button on the main RollCall toolbar.

Terminology

Term	Description
Essence	A general term used to describe an SDI component; Video, Audio and Data are all essences.
Spigot	Generic term for a Source or Destination.
Flow	Sequence of RTP packets of a single essence.
Source	Originator of one or more flows, i.e. a set of one or more sender spigots.
Destination	Receiver of one or more flows, i.e. a set of one or more receiver spigots.

Navigating Pages in the RollCall Template

The RollCall template has a number of pages, each of which can be selected from the drop-down 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:

- **Configuration** - see [page 28](#).
- **Time Sync Configuration** - see [page 30](#).
- **Sender TPG (Test Pattern Generator)** - see [page 35](#).
- **Receiver TPG (Test Pattern Generator)** - see [page 36](#).
- **Counters** - see [page 37](#).

- **NMOS** - see [page 38](#).
- **Ethernet Pages 1 and 2** - see [page 40](#).
- **Ethernet 1 and 2 RTP Sender** - see [page 41](#).
- **Ethernet 1 and 2 RTP Receiver** - see [page 42](#).
- **Ethernet RTP Receiver Video Stats** - see [page 43](#).
- **Ethernet RTP Receiver Audio Stats** - see [page 44](#).
- **Ethernet RTP Receiver Meta Stats** - see [page 45](#).
- **Link Control** - see [page 46](#).
- **HDR Control** - see [page 47](#).
- **Destination Timing** - see [page 49](#).
- **Audio V Fade** - see [page 50](#).
- **Audio Type Control** - see [page 51](#).
- **Input Loss Control** - see [page 52](#).
- **Spigot 1-n** - see [page 53](#).
- **Logging - SDI Info** - see [page 59](#).
- **Logging - System** - see [page 60](#).
- **Logging - Network** - see [page 64](#).
- **Logging - SFP** - see [page 67](#).
- **Logging - FPGA** - see [page 70](#).
- **Logging Spigot -1-n** - see [page 71](#).
- **Logging - NMOS** - see [page 73](#).
- **Logging - Card Diagnostics** - see [page 74](#).
- **RollTrack** - see [page 75](#).
- **Loopback Router** - see [page 77](#).
- **Setup** - see [page 78](#).
- **Ethernet Gb** - see [page 79](#).
- **Ethernet Arcnet** - see [page 80](#).
- **Interop** - see [page 81](#).

Setting Values

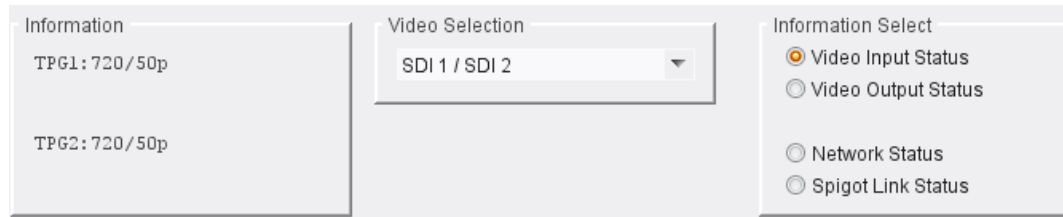
Many of the settings within the templates have values, either alpha or numeric.

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 defined on the **SDI Selection** and **Information Select** panes to the right of the **Information** display.



Information and Selection Panes

Selecting the Information to Display

- Select the inputs to display data for from the **SDI Selection** drop-down list.
- Select **Video Input Status**, **Video Output Status**, **Network Status** or **Spigot Link Status** from the **Information Select** pane as required.

The selected information will be displayed on the **Information** display pane.

Configuration

The **Configuration** page allows basic module parameters to be set.

Configuration page

The following facilities are available from this page:

Option	Description
SDI IO	Displays how input and output spigots are currently configured. See <i>Card Firmware/Software Version</i> , below, for information on how to change this.
Where Am I	Causes the front-edge LEDs to flash, allowing the module to be easily identified.
Genlock	Select Genlock type: <ul style="list-style-type: none"> • Network - click to select PTP. • Chassis Reference A/B - click to select an on-chassis reference. • Freerun - click to allow free running.
GUID	Displays the absolute unique identifier associated with the module.

Option	Description
Domain	RollCall+ uses domains to partition a network; only nodes on the same domain can communicate with one another. A domain is uniquely identified with a number and a friendly name/alias. Set an ID as required, then press Take to confirm the change.
Interface Configuration	Displays the IP address for each Ethernet interface.
Card Firmware/Software Version	Each software version contains multiple firmware images. These allow different spigot input/output and flow standard combinations to be selected. See Setting Spigot Configuration , below, for more information.

Setting Spigot Configuration

IMPORTANT!

Existing details must be cleared down before establishing a new configuration. Failure to do this may result in unexpected behavior from the module.

To set a new spigot configuration, follow these steps:

- 1 Open the **Setup** page, and click **Default Settings**. See [Defaults](#) on page 79 for more information.
- 2 From the **Configuration** page, select the required software from the **Software Version** pane, then select the firmware which provides the required combination of inputs, outputs and flow standards from the list displayed on the **Firmware** pane.
Note that **Restore** and **Restart** buttons are displayed only when an item not currently installed is selected.
- 3 Click **Take** to restart the module and implement any changes made.

Time Sync Configuration

The **Time Sync Configuration** page allows selection of the source to be used for synchronizing flows, and configuration of any properties associated with the relevant source.

Time Sync Configuration page

The following facilities are available from this page:

Option	Description
Time Sync Mode	<p>Click a radio button to select the required mode. PTP options require a grandmaster clock to be present in the system.</p> <p>Note: Mixing modes within a system is not advisable. For example, PTP uses atomic time (TAI), whereas NTP is UTC, which is leap-second corrected. So, the two systems will not give identical results.</p> <p>Options are:</p> <ul style="list-style-type: none"> • PTP Multicast - this uses multicast for both sync and follow-up messages. • PTP Unicast - this uses multicast for the sync messages and unicast for the follow-up messages. • NTP - uses NTP for local clock correction. NTP can usually maintain time to an accuracy of around 1-10ms, but this value could rise to something on the order of >100ms, depending on network congestion, asymmetry, etc. This potentially means that 1-5 frames of misalignment of the local device clocks may be seen across the network. • Freerun - the local device clock is left to free run, that is it is not corrected with respect to the world clock. This will drift over time. <p>Select as required.</p>
NTP Configuration	To add an NTP server, enter the server's IP address in to the New field.
PTP Network Interface	Click check boxes to select the network interfaces to be used. If an interface fails, the next interface on the list will be switched to automatically. Select the interface to be used as a default from the Preference list; this will be used unless it has been disabled or has failed.

Option	Description
PTP Configuration	Select values from the PTP Domain and PTP Delay Request Frequency drop-down lists, as required. Type the appropriate IP number into the PTP Multicast address field.
PTP Status	Displays PTP status information. Enable the Details check box to display detailed interface status information, reset counters, show details for other PTP interfaces etc. See PTP Status Details below for more information.
Save Settings	Displayed only if settings on this page are changed. Clicking Restore will discard the changes, while clicking Restart will implement the changes and reboot the module.

PTP Status Details

When the **PTP Status Details** check box is enabled, the following information is displayed:

Interface Status

Displays which port is being used for local clock correction. Click Next Interface to move between available PTP Network interfaces.

Interface Status				
Network Interface	Ethernet 2 (BACKUP)			
PTP Grandmaster				
Clock Identity	Free-Running	Average Delay	+0.0uS	Std Dev +0.0uS
Clock Status	NO LOCK	Average Error	+0.0uS	+0.0uS
Last Lock		Sync Interval	1s	
Lost Lock		Request Interval	1s	
1 Step Syncs	0	Clock Loaded	0	
2 Step Syncs	0	Synchronisations	0	
Follow Ups	0	Time taken to lock		
Delay Requests	0	Message Timeouts	0	
Delay Responses	0	Clock Back Steps	0	
Announcement	0	Clock Blips	0	
Signalling	0	Delay Blips	0	
Management	0	Correction Blips	0	
Version Errs	0	FollowUp OoS Errs	0	
Unknown Msgs	0	FollowUp Id Errs	0	
Length Errs	0	Response OoS Errs	0	
Unexpected 2 Step	0	Response Id Errs	0	
RX Timestamp Errs	0			
TX Timestamp Errs	0			
		Reset Counters		Next Interface

Interface Status pane

Interface Status Details

Item	Description
Last Lock	Time when PTP last locked.
Lost Lock	Time when PTP last lost lock.
1 Step syncs	Increments on reception of Sync message that has the twoStepFlag=false.
2 Step Syncs	Increments on reception of Sync message that has the twoStepFlag=true.
Follow Ups	Increments on reception of every follow_up message.
Delay Requests	Increments on reception of every delay_req message.
Delay Responses	Increments on reception of every delay_resp message.
Announcement Messages	Increments on reception of every announce message.
Signaling	Increments on reception of each PTP Signaling message.
Management	Increments on reception of each PTP Management message.
Version Errs	The IQUCP25/50 supports PTPv2 only. If a PTPv1 message is received, it is discarded, and this counter incremented. This would be an indication that the grandmaster clock is not configured correctly.
Unknown Msgs	If the product receives messages on the PTP multicast address port 319 or 320 that are not messages defined as PTP ones this counter is incremented.
Length Errs	PTP messages with an invalid length cause this counter to increment.
Unexpected 2 Steps	Increments on the reception of a follow_up message but the sync message is indicating 1 step.
RX Timestamp Errs	Increments for every PTP message where the sequence number is as expected but its timestamp is not valid.
TX Timestamp Errs	Increments for every delay_resp message where its sequence number is as expected but its timestamp is not valid.
Av Delay	This is the average network delay time from the grandmaster to the UCP. This should be stable and in the order of 10-20µs.
Av Error	The average error is the difference between the grandmaster and the UCP local clock. If locked, this number will be small.
Sync Interval	From IEEE1588 7.7.2.1: "For each of the message types Announce, Sync, Delay_Req and Pdelay_Req, the mean time interval between successive messages shall be represented as the logarithm to the base 2 of this time interval measured in seconds on the local clock of the device sending the message. The values of these logarithmic attributes shall be selected from integers in the range 128 to 127 subject to further limits established in an applicable PTP profile. The interpretation of the logMessageInterval depends on the message type; see 13.3.2.11. Except for Delay_Req messages (see 9.5.11.2), a node shall, with 90% confidence, issue messages with intervals within ±30% of the stated value of this attribute."

Item	Description
Request Interval	Return actual minimum interval between delay request messages. This is as set in the PTP Delay Request Frequency control. See Configuration on page 28. Values are, {256/s, 128/s, 64/s, 32/s, 16/s, 8/s, 4/s, 2/s, 1s, 2s, 4s, 8s, 16s}.
Clock Loaded	Increments if the interface was live and the PTP was forced to update (crash lock).
Synchronizations	Increments every time a PTP lock is achieved.
Time Taken to Lock	Length of time it has taken to lock the interface.
Message Timeouts	Increments if none of the following are received within any 2-second period: <ul style="list-style-type: none"> • follow_up • delay_resp • sync • announce
Clock Steps Back	If the IQUCP25/50 receives a time earlier than the last, this counter is incremented. This could be because of a fault with the grandmaster, or because there are multiple grandmasters in the system.
Clock Blips	This increments if the local clock offset is >300ns, <-300ns.
Delay Blips	This increments if the network delay is >120%, or <80% of the previous value.
Correction Blips	Uses the <code>correctionField</code> in the header of <code>delay_resp</code> message from the grandmaster. From IEEE1588 13.3.2.7: "The <code>correctionField</code> is the value of the correction measured in nanoseconds and multiplied by 65536. For example, 2.5 ns is represented as 0x28000. Increments if the <code>correctionField</code> is > 40000 (0.61ns).
FollowUp OoS Errs	Increments for every <code>follow_up</code> message that is out of sequence.
FollowUp ID Errs	Increments for every <code>follow_up</code> message that is not from the expected clock.
Response OoS Errs	Increments for every <code>delay_response</code> message that is out of sequence.
Response ID Errs	See Histogram , below.

Histogram

The Histogram provides a graphical representation of the distribution of differences between the card's clock and the PTP grandmaster clock. Every time the clock difference is recalculated, the relevant bar is incremented. A correctly functioning system will show a distinct peak around the 0ns level.



Histogram pane

Visible Clocks

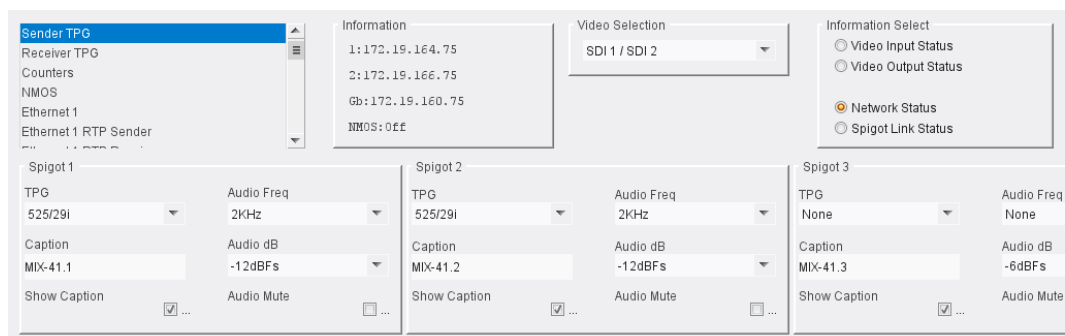
Displays the GrandMaster clocks present on the network.

Clock	Domain	Priority1	Quality	Priority2	Steps
00:00:00-00:00:00:00:00	00	00	00-00-0000	00	00

Visible Clocks pane

Sender TPG (Test Pattern Generator)

The **Sender TPG** page allows test patterns to be applied to senders on a spigot-by-spigot basis.



Sender TPG page

The following options are available for each spigot:

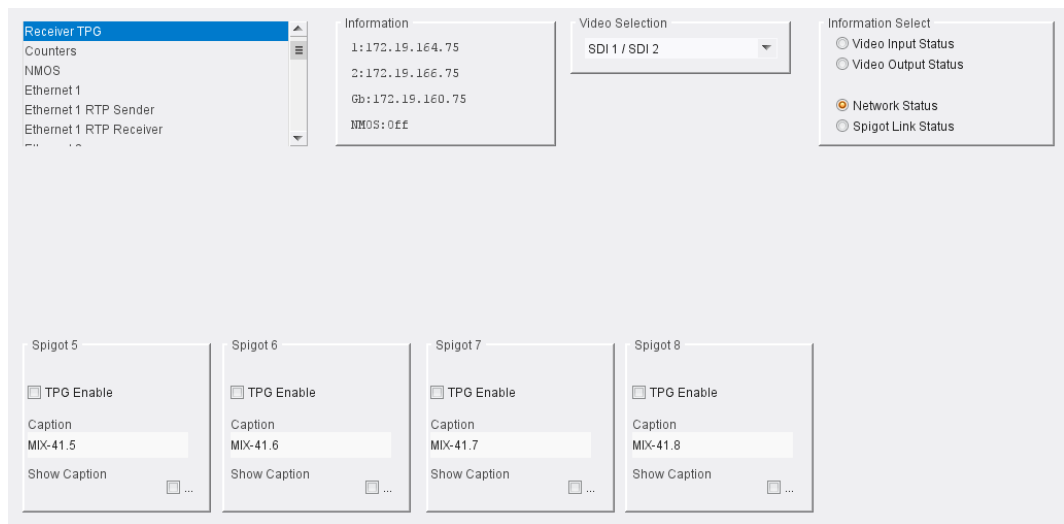
Option	Operation
TPG	Select the test pattern to apply to the spigot from the drop-down list.
Audio Freq	Select the audio frequency to apply to the spigot from the drop-down list.
Caption	Type a caption (max 19 characters) to optionally be displayed with the test pattern.
Audio dB	Select the dB level to apply to the spigot from the drop-down list.
Show Caption	Enable the checkbox to display the caption with the test pattern.
Audio Mute	Enable the checkbox to mute the audio tone.

If a test pattern is applied, either a pattern or a tone, the spigot cannot be used for streaming any other essence.

Click **Show Caption** to overlay a caption on the video essence.

Receiver TPG (Test Pattern Generator)

The **Receiver TPG** page allows test patterns to be applied to receivers on a spigot-by-spigot basis.



Receiver TPG page

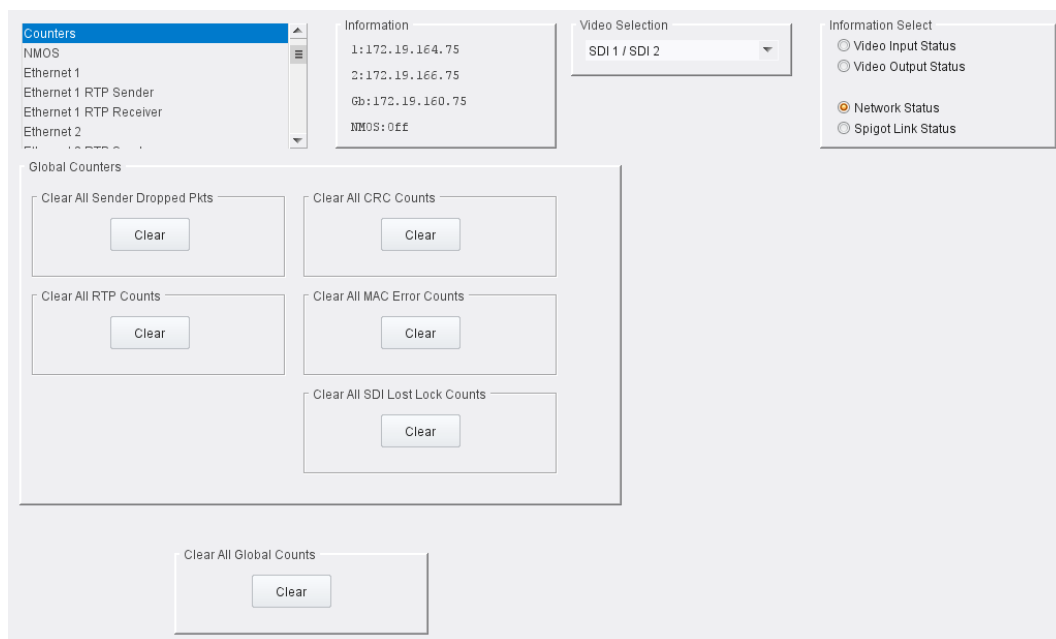
The following options are available for each spigot:

Option	Operation
TPG Enable	Click to enable TPG on this spigot.
Caption	Enter a caption for the spigot (optional).
Show Caption	Click to overlay the caption on the video essence.

If a test pattern is applied, either a pattern or a tone, the spigot cannot be used for streaming any other essence.

Counters

The **Counters** page allows the various counters provided to be cleared down.

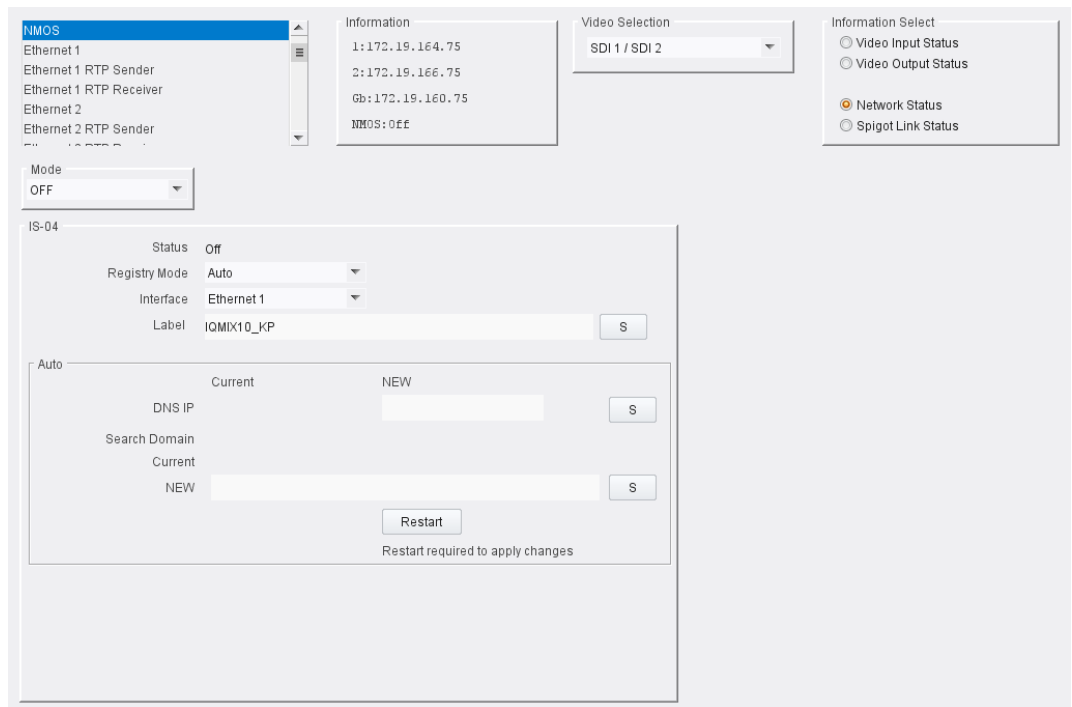


Counters page

Click **Clear** buttons as required.

NMOS

The **NMOS** page allows NMOS functionality to be configured.



NMOS page

Overview

Networked Media Open Specifications, collectively known as *NMOS*, have been developed to provide interoperability between a wide range of products from various manufacturers. NMOS effectively provides a control and management layer in addition to the transport layer provided by SMPTE ST2110. See www.amwa.tv/nmos for further information.

The following facilities are available from this page:

Option	Description
Mode	<p>Allows Discovery and Connection Management to be disabled. This can be useful if troubleshooting an issue. Options are:</p> <ul style="list-style-type: none"> • Off - IS-04 and IS-05 are both disabled. • IS-04 - IS-05 is disabled. • IS-04 and IS-05 - IS-04 and IS-05 are both active.

Option	Description
IS-04	<p>Controls how the module is to find and use network resources. Set as required.</p> <ul style="list-style-type: none"> • Status - displays registration status of the module. Valid values are: <ul style="list-style-type: none"> • Not Registered • Registering • Registered • Registry Mode - options are: <ul style="list-style-type: none"> • Auto - the module will discover the network and set the IP address of the NMOS registry automatically. • Static - allows IP address details for the NMOS registry to be set manually. • Interface - select the Ethernet interface to be used for NMOS control. • Label - specify a label for the module, and click S to save. This is the identifier by which the module will be known in the NMOS registry.
Auto	<p>Displayed if Registry Mode (see above) is set to Auto.</p> <ul style="list-style-type: none"> • DNS IP - displays the current DNS IP address, and allows a new one to be defined. If required, enter a new address in the NEW field, and click S to save. • Search Domain - displays the current search domain, and allows a new one to be defined. If required, enter a new domain in the NEW field, and click S to save.
Static	<p>Displayed if Registry Mode (see above) is set to Static.</p> <ul style="list-style-type: none"> • IP Address - displays the current NMOS registry IP address, and allows a new one to be defined. If required, enter a new address in the NEW field, and click S to save. • Registration Port - displays the port currently used for Registration traffic, and allows a new one to be defined. If required, enter a new port number in the NEW field, and click S to save or P to return to the previous value. • Query Port - displays the port currently used for Query traffic, and allows a new one to be defined. If required, enter a new port number in the NEW field, and click S to save or P to return to the previous value.
Restart	<p>Click to restart the module and apply changes. Initial registration of the module may take a few minutes. Note that restarting the module will result in the loss of any signals currently being processed.</p>

Ethernet Pages 1 and 2

Note: **Ethernet** pages 1 & 2 refer to the rear-panel Ethernet connectors only. See [Ethernet Gb](#) on page 79 for information on [managing the on-module Ethernet connector](#).

The **Ethernet** pages show details and status for each network interface. The Kudos Pro IP defaults to use of DHCP, but this can be overridden and a static IP address defined if required.

The screenshot displays the Ethernet configuration interface. At the top left, a list of network interfaces is shown, with 'Ethernet 1' selected. The main configuration area is divided into several sections:

- Ethernet Configuration:** Shows settings for 'Rear - SFP 1'. It includes fields for 'Current' and 'New Static' IP addresses, default gateways, and subnet masks. The mode is set to 'STATIC'. The link status is 'UP', and the SFP status is 'FAIL:RX: PWR'. There are 'S' (Save) buttons and a 'Restart' button.
- Switch LLDP Info:** Displays information received from the switch, including Name (Arista7504R), ID (00:1C:73:D6:18:26), Port ID (Ethernet3/8/3), and Port VLAN (164).
- All Traffic:** A table showing traffic statistics. The 'Enable Stats' checkbox is checked. The table has columns for Capacity, Gb/s, Actual (Mb/s), Used %, Free %, and Enable Stats.
- CPU Traffic:** A table showing CPU traffic statistics. It has columns for Sent and Received, and rows for Total Unicast Packets, Total Broadcast Packets, Total Multicast Packets, Total Bytes, and Bytes / sec.

Ethernet 1 page

The Ethernet Pane

The **Ethernet** pane displays details of the currently selected network interface, and allows a static IP address to be defined. Enter information as required, then click **S** to save. New settings are applied when **Restart** is clicked.

Where am I? Check box

When enabled, the **Where Am I** function causes the SFP/QSFP LEDs for the relevant Ethernet connector to flash.

Clear Link Change Count

If the state of the Ethernet link changes, the **Link Change Count** and **Link Change Time** fields are updated. Click **Clear Link Change Count** to reset the **Link Change Count** to zero.

Switch LLDP Info

Displays LLDP information received from the switch that the Kudos Pro IP is connected to.

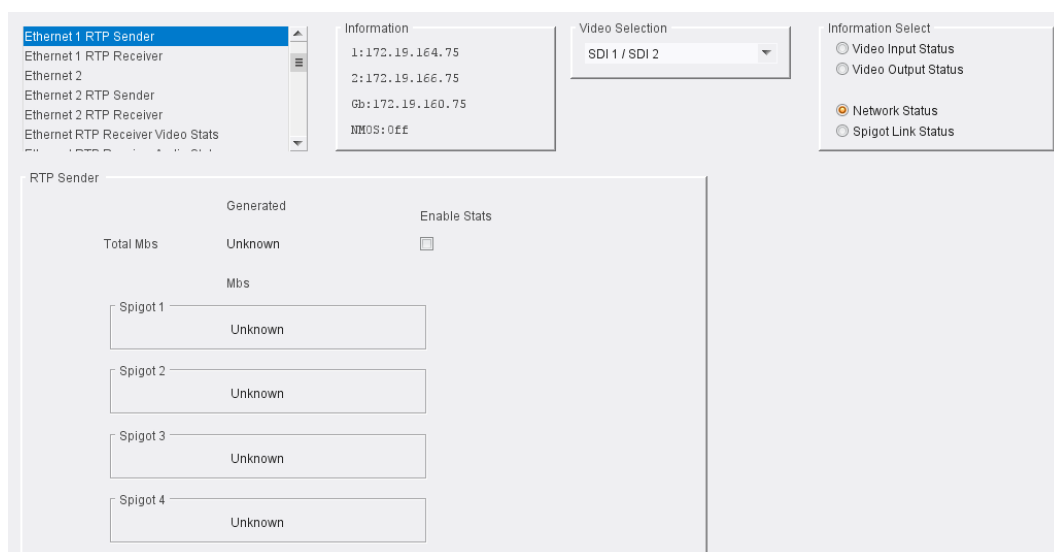
The All Traffic/CPU Traffic Panes

Click the **Enable Stats** check box to display information on traffic through the module.

Ethernet 1 and 2 RTP Sender

The **RTP Sender** page displays the amount of data transmitted, on a spigot-by-spigot basis. Units are megabits per second.

Click **Enable Stats** to display values.



Ethernet 1 & 2 RTP Sender page

Ethernet 1 and 2 RTP Receiver

The **RTP Receiver** pages display the amount of data received, plus details of packet loss, on a spigot-by-spigot basis. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear RTP Count** or **Clear Error Count** to zero RTP Sequence Discontinuity or Error counters.

The screenshot shows the 'Ethernet 1 RTP Receiver' page. At the top left is a navigation menu with options like 'Ethernet 1 RTP Receiver', 'Ethernet 2', 'Ethernet 2 RTP Sender', etc. The main area is divided into several sections:

- Information:** Displays IP addresses (1: 172.19.164.75, 2: 172.19.166.75, Gb: 172.19.160.75) and IMOS: OFF.
- Video Selection:** A dropdown menu set to 'SDI 1 / SDI 2'.
- Information Select:** Radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (selected), and 'Spigot Link Status'.
- RTP Receiver:** A table showing statistics:

Total Received RTP Rate (Mbs)	Unknown	Enable Stats
Total Received RTP Pkt Rate	Unknown	<input type="checkbox"/>
RTP Sequence Discontinuity Count	Unknown	Clear RTP Count
Mac Error Count	Unknown	Clear Error Count
- Unwanted Multicast Traffic:**
 - Multicast Drop Rate (Mbs): Unknown
 - Multicast Drop Pkt Rate: Unknown
 - Last Few Dropped Packets:** A table with columns: Source IP, Source Port, Destination IP, Destination Port, Packet Type. All values are 'Unknown'.

Ethernet 1 & 2 RTP Receiver page

Ethernet RTP Receiver Video Stats

The **Ethernet RTP Receiver Video Stats** page displays information on the data received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

Ethernet RTP Receiver Video Stats page

About Flow IDs

In order to maximize media port bandwidth utilization, if spigot addresses match across multiple interfaces then they are allocated to the same Flow ID.

This means that if multiple spigots are assigned to the same Flow ID and the IP addresses are only partially complete, the module will use the shared flow. For example, if two spigots share the same flow, but one of the spigots is missing from the IP addresses for the secondary interface, the module will use all of the information available to it and populate information for the partially completed spigot as if it had a complete flow.

Ethernet RTP Receiver Audio Stats

The **Ethernet RTP Receiver Audio Stats** page displays information on the data received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

The screenshot displays the 'Ethernet RTP Receiver Audio Stats' interface. At the top left is a navigation menu with 'Ethernet RTP Receiver Audio Stats' selected. To the right is an 'Information' panel showing IP addresses (1: 172.19.164.75, 2: 172.19.166.75, Gb: 172.19.160.75) and IMOS: 0xFF. A 'Video Selection' dropdown is set to 'SDI 1 / SDI 2'. An 'Information Select' panel has radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (selected), and 'Spigot Link Status'. The main 'Audio Stats' section has an 'Enable Stats' checkbox. Below are three data tables: 'Spigots', 'Ethernet 1', and 'Ethernet 2'. Each table has columns for 'Byte Rate (Mbs)' and 'RTP Discontinuity Count'. The 'Spigots' table lists Flow IDs 5, 6, 7, and 8, all marked as 'Unknown'. The 'Ethernet 1' and 'Ethernet 2' tables show 'Unknown' values for both metrics. 'Clear All RTP Counts' buttons are located at the bottom of the Ethernet 1 and Ethernet 2 sections.

Ethernet RTP Receiver Audio Stats page

About Flow IDs

In order to maximize media port bandwidth utilization, if spigot addresses match across multiple interfaces then they are allocated to the same Flow ID.

This means that if multiple spigots are assigned to the same Flow ID and the IP addresses are only partially complete, the module will use the shared flow. For example, if two spigots share the same flow, but one of the spigots is missing from the IP addresses for the secondary interface, the module will use all of the information available to it and populate information for the partially completed spigot as if it had a complete flow.

Ethernet RTP Receiver Meta Stats

The **Ethernet RTP Receiver Meta Stats** page displays information on the metadata received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

The screenshot shows the 'Ethernet RTP Receiver Meta Stats' interface. At the top left is a navigation menu with items like 'Link Control', 'HDRControl', 'Destination Timing', 'Audio V Fade', and 'Audio Type Control'. The main content area is divided into several sections:

- Information:** Displays IP addresses (1: 172.19.164.75, 2: 172.19.166.75, Gb: 172.19.160.75) and 'NTPS: Off'.
- Video Selection:** A dropdown menu currently set to 'SDI 1 / SDI 2'.
- Information Select:** Radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (which is selected), and 'Spigot Link Status'.
- Meta Stats:** The main data area, featuring an 'Enable Stats' button at the top right.
- Spigots Table:**

Spigots	Flow ID
5	Unknown
6	Unknown
7	Unknown
8	Unknown
- Ethernet 1 Table:**

Byte Rate (Mbs)	RTP Discontinuity Count
Unknown	Unknown
Unknown	Unknown
Unknown	Unknown
Unknown	Unknown
- Ethernet 2 Table:**

Byte Rate (Mbs)	RTP Discontinuity Count
Unknown	Unknown
Unknown	Unknown
Unknown	Unknown
Unknown	Unknown

Ethernet RTP Receiver Meta Stats page

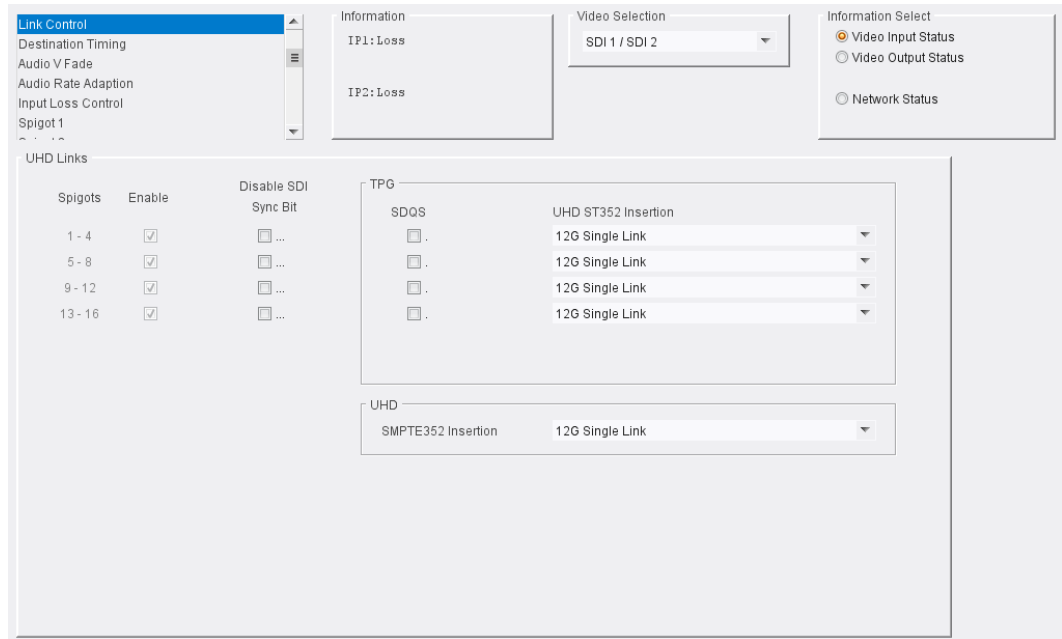
About Flow IDs

In order to maximize media port bandwidth utilization, if spigot addresses match across multiple interfaces then they are allocated to the same Flow ID.

This means that if multiple spigots are assigned to the same Flow ID and the IP addresses are only partially complete, the module will use the shared flow. For example, if two spigots share the same flow, but one of the spigots is missing from the IP addresses for the secondary interface, the module will use all of the information available to it and populate information for the partially completed spigot as if it had a complete flow.

Link Control

The **Link Control** page allows 4K spigots to be configured. Input/output can be via single or quad link. See [Configuration](#) on page 28 for information on selecting the required input/output configuration.



Link Control page

UHD Links

Enable the spigots to be used as required. Note that these controls are not available when using a single connector to carry 12G.

Disable SDI Sync Bit: some older SDI receiving equipment may not support sync bit insertion. When transmitting signals to these devices, sync bit insertion can be disabled by checking the boxes as required.

TPG

These controls are displayed only when using 12G output.

SDQS: If using Square Division signals, enable the **SDQS** check boxes as required. Otherwise, Two-sample Interleave will be used.

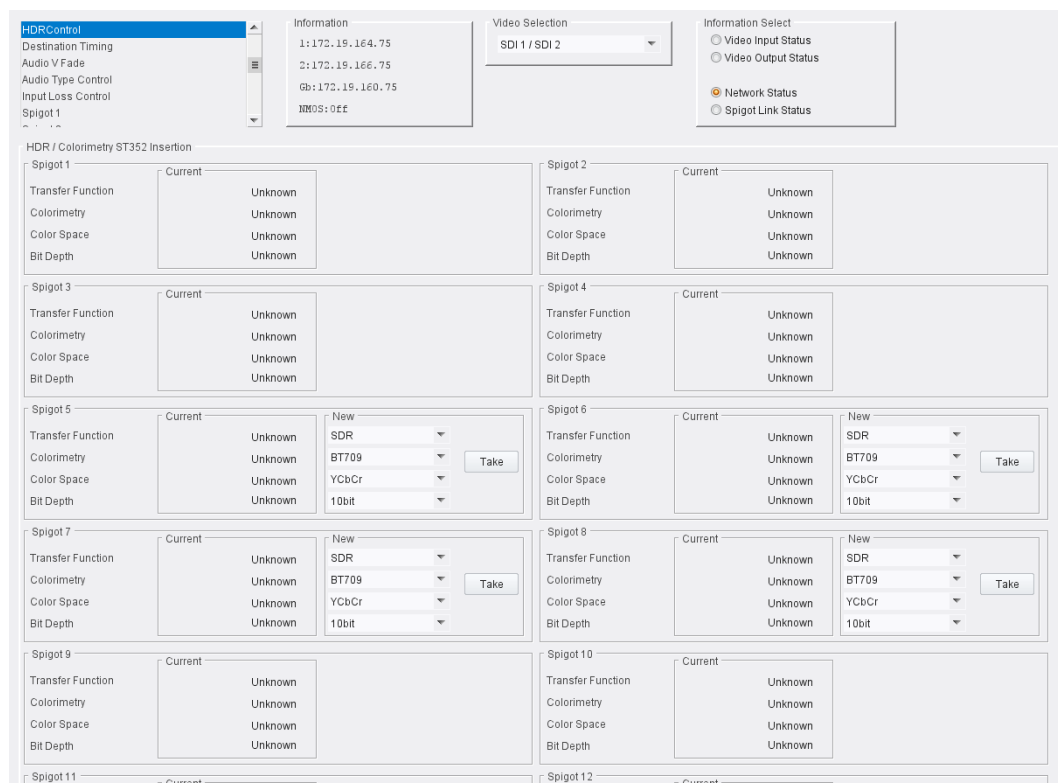
UHD ST352 Insertion: set the ST352 ancillary data type according to how the TPG data is to be output.

- For ST2082-10 output over a single link, select **12G Single Link** from the drop-down list.
- For ST425 output over quad links, select **12G Quad Link** from the drop-down list.

See *SMPTE 2082: 12G-SDI Bit-Serial Interfaces*, *SMPTE 425: Bit-Serial Interfaces at 3 Gb/s* and *SMPTE 352: Payload Identification Codes For Serial Digital Interfaces* for further information.

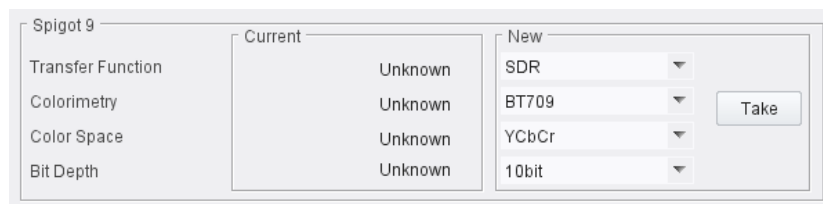
HDR Control

The **HDR Control** page allows outgoing SDI traffic to be modified to indicate that it contains HDR content.



HDR Control page

A **New** pane is displayed against output spigots. Select options from the drop-down menus for each spigot as required, then click **Take** to apply the changes.



The following options are available:

Option	Description
Transfer Function	Available values are: <ul style="list-style-type: none"> • SDR • HDR-HLG • HDR-PQ • Other
Colorimetry	Available values are: <ul style="list-style-type: none"> • BT709 • BT2020 • Other

Option	Description
Color Space	Available values are: <ul style="list-style-type: none">• YCbCr• ICtCp• Other
Bit Depth	Available values are: <ul style="list-style-type: none">• 10bit• 10bit Full range

Destination Timing

The **Destination Timing** page allows genlock timing on each spigot to be adjusted, in order to synchronize the IP signal with the house reference.

Destination Timing page

The following parameters can be modified:

Option	Description
Genlock Timing V Offset	Vertical timing offset in lines.
Genlock Timing H Offset	Horizontal timing offset in pixels.
Receiver Packet Buffer Frames Delay	The receiver packet buffer provides additional buffering for a received IP flow. Typically this is required where the IP flow is bursty in nature. However, increasing buffering can affect the time required to switch between IP flows at a spigot, owing to increased switching latency. Adjust as required.

Audio V Fade

This page allows audio fading to be applied on a spigot-by-spigot basis, in order to minimize audio disruption. When applied, the audio will fade down on input loss and perform an audio V fade (down then up) during input switching.

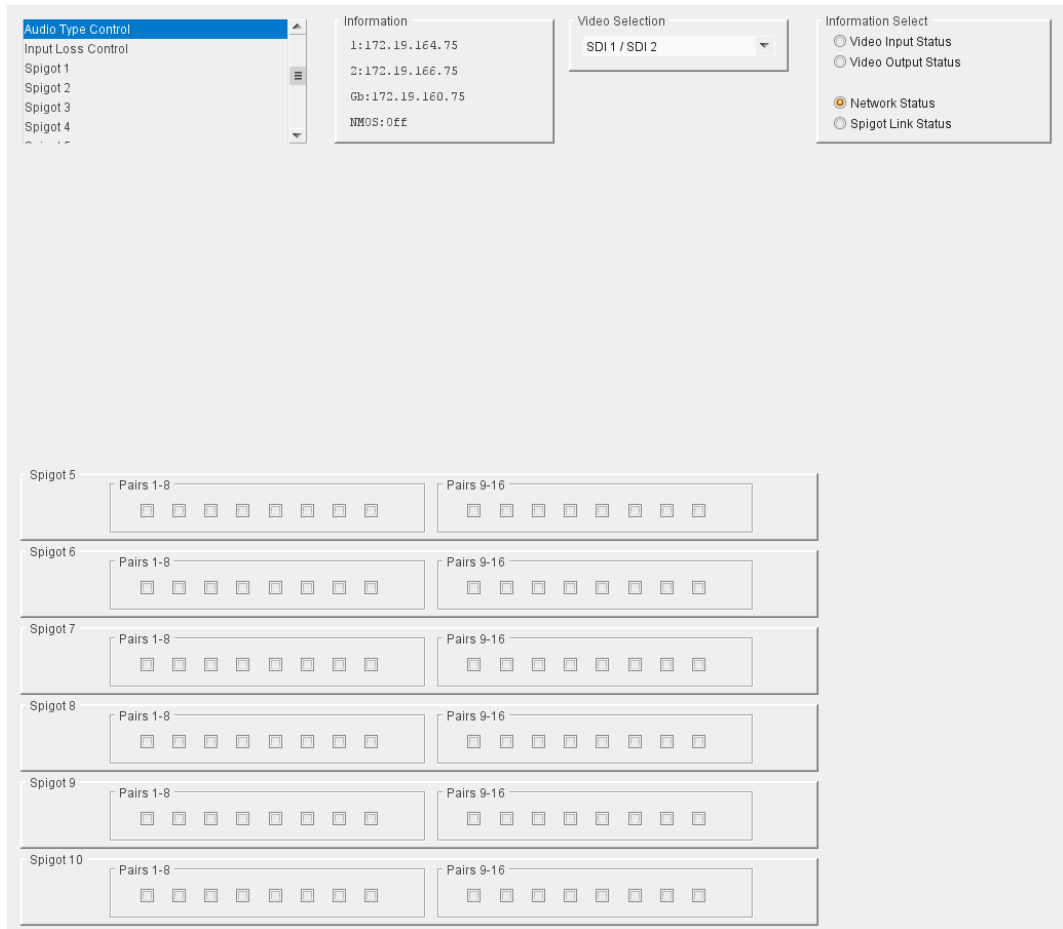
Configure as required.

The screenshot displays the 'Audio V Fade' configuration interface. On the left, a sidebar menu lists various control options, with 'Audio V Fade' currently selected. The main content area is organized into several functional blocks. At the top, there is an 'Information' section displaying network details: '1: 172.19.164.75', '2: 172.19.166.75', 'Gb: 172.19.160.75', and 'NMOS: Off'. To the right of this is a 'Video Selection' dropdown menu set to 'SDI 1 / SDI 2'. Further right is an 'Information Select' section with four radio button options: 'Video Input Status', 'Video Output Status', 'Network Status' (which is selected), and 'Spigot Link Status'. The central and largest portion of the page is a grid of 16 spigot controls, labeled 'Spigot 1' through 'Spigot 16'. Each spigot control consists of a header with the spigot number and a sub-section titled 'Audio V Fade Control' which contains a checked 'Enable' checkbox.

Audio V Fade page

Audio Type Control

The **Audio Type Control** page allows audio pairs to be marked as carrying PCM or non-PCM. Only pairs on IP receiver spigots are displayed.

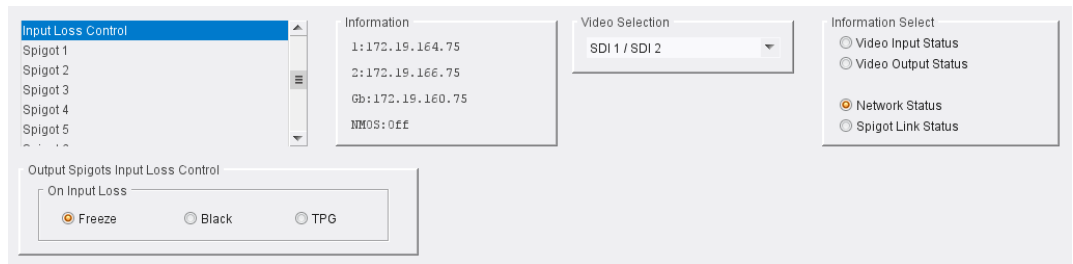


Audio Type Control page

Enable check boxes for pairs carrying PCM.

Input Loss Control

The **Input Loss Control** page allows control of the module's response to signal loss. Select as required.



Input Loss Control page

Options upon signal loss are:

Option	Operation
Freeze	Picture will freeze.
Black	Picture will cut to black.
TPG	Picture will be replaced by TPG output, as set on the Sender TPG page. See page 35 for more information.

Spigot Pages

A separate page is provided for each of the active spigots. These pages are dynamically configured by the product, based on the capabilities of the software version/firmware selected.

Note: The pages shown here may differ from those seen on your particular system, depending on the model and configuration of your IQUCP module.

Input Spigots

Input spigots are defined by selecting the appropriate firmware version on the **Configuration** page. See [Configuration](#) on page 28 for more information.

The screenshot displays the configuration interface for Spigot 1. At the top, there is a list of spigots (Spigot 1 to Spigot 6) on the left, and information fields for the selected spigot (Spigot 1) on the right, including IP addresses and IMOS: 0xF. Below this, there are sections for 'Video Selection' (SDI 1 / SDI 2) and 'Information Select' (Video Input Status, Video Output Status, Network Status, Spigot Link Status). The main configuration area is divided into 'Primary' and 'Secondary' channels. Each channel has a 'Video' section and an 'Audio' section. The 'Video' section includes fields for Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type, along with 'Packetizer Stats' (bits/s, packets/s, packet drop count). The 'Audio' section includes fields for Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type, along with 'Packetizer Stats'. A 'Take' button is located at the top center of the configuration area.

Typical Input Spigot page

The following facilities are available from this page:

Option	Operation
Spigot Pane	<p>Displays spigot direction, associated BNC connector, current module status, the last Take performed on the spigot and how it was made, e.g. via RollCall or an external agent such as VSM.</p> <p>The following controls are also available:</p> <ul style="list-style-type: none"> • Streaming - set the redundancy options for this spigot. This will also determine the bandwidth to be used. Options are: <ul style="list-style-type: none"> • Dual - full redundancy, both Primary and Secondary available. • Single - Primary only, but with all available bandwidth. • A - Primary only. • B - Secondary only. • Format - select the maximum expected bandwidth requirement for this spigot.
Sender Pane	<ul style="list-style-type: none"> • Ext Headers - Extended header operation can be adjusted for TR-03/TR-04 compatibility. Extended headers provide in-band metadata regarding the essence flow and its format, and are applicable to ST-2110 only. If third-party equipment is unable to support this, the functionality can be disabled, or set to On (Legacy), which ensures that the packet format complies with ST2110 but has no video content. • Options are: <ul style="list-style-type: none"> • Off - Extended headers are disabled. • On - Sends extended headers fully compliant with ST2110-20. • On (Legacy) - Sends extended headers that are compatible with releases earlier than V11.73D.76. • Num Audio Channels - select the number of audio channels present on this spigot. • Packet Time - select the amount of time required to complete the transmission of each packet. • SDI Input CRC Errors - enable the check box to display the number of CRC errors. Click Clear to reset the counter to zero.
	<ul style="list-style-type: none"> • Spigot Link - indicates the spigot link status for the selected spigot, as set on the Link Control page (see page 46). Control is displayed only if spigots are linked.
Take	Click to apply changes.

Option	Operation
Flow Panes (Primary, Secondary, Audio and Metadata)	<p data-bbox="762 248 1442 342">Displays Video, Audio and Metadata status, and allows multicast IP and port details to be defined for the selected spigot.</p> <p data-bbox="762 360 1198 389">To set multicast details for the spigot:</p> <ul data-bbox="788 405 1465 692" style="list-style-type: none"><li data-bbox="788 405 1230 434">• Enter IP and Port details as required.<li data-bbox="788 450 1465 544">• Enter the appropriate details in the Source IP and Source Port fields. Each spigot can support a variety of flows.<li data-bbox="788 560 1465 589">• Select the required flow type from the Flow Type menu.<li data-bbox="788 604 1270 633">• Click S to save the details for each item.<li data-bbox="788 649 1465 692">• Click Packetizer Stats to view network statistics for the flow, if required.

Output Spigots

Output spigots are defined by selecting the appropriate firmware version on the **Configuration** page. See [Configuration](#) on page 28 for more information.

The screenshot displays the configuration interface for Spigot 5. At the top, there are sections for 'Information' (IP addresses: 1:172.19.164.75, 2:172.19.166.75, 3:172.19.160.75, MD5:0EE) and 'Video Selection' (SDI 1 / SDI 2). Below these are 'Information Select' options: Video Input Status, Video Output Status, Network Status (selected), and Spigot Link Status.

The main 'Spigot' section includes:

- Direction: Output
- BNC: SDI 5
- Status: FAIL
- Last Spigot Take: RCStart
- Streaming: Dual
- Format: SDI/HD/3G
- Receiver: Video Std (Auto), Num Audio Chans (Auto), Audio Delay (0 ms), Make / Break Mode (Make before Break)

A 'Take' button is located below the Spigot section. The page is divided into two columns: Primary and Secondary. Each column contains:

- Status:** A table with columns for Mac, Video, Audio, and Meta. For Primary, all are 'None'. For Secondary, all are 'None'.
- Video:** A table with columns for Current and NEW. Fields include Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type (SMPTE2022).
- Audio:** A table with columns for Current and NEW. Fields include Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type (None).
- Metadata:** A table with columns for Current and NEW. Fields include Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type (None).

Typical Output Spigot page

Spigot Pane

The **Spigot** pane provides basic monitoring for the selected Spigot. Click **Take** to apply any changes made.

The screenshot displays the configuration interface for Spigot 9. At the top, there are sections for 'Spigot' (Direction: Output, BNC: SDI 9, Status: OK) and 'Receiver' (Video Std: Auto, Num Audio Chans: Auto, Audio Delay: 0 ms, Make / Break Mode: Make before Break).

The main 'Spigot' section includes:

- Last Spigot Take: IFCtrl
- Streaming: Dual
- Format: SDI/HD/3G

Output Spigot Pane

The **Spigot** pane details:

- Spigot direction;
- Associated BNC connector;
- Current status;
- The last **Take** performed on the spigot.

Streaming

Select the Ethernet connectors to use for this spigot. This will also determine the bandwidth to be used. Options are:

- **Dual** - use both Ethernet connectors, and so all available bandwidth.
- **Single** - use either Ethernet connector, and so half of the available bandwidth.
- **A or B** - use one particular Ethernet connector, and so half of the available bandwidth.

Format

Select the format to be used on this spigot. This will ensure that the appropriate level of bandwidth is allocated.

Video Standard

Select the standard for the incoming video, or set to **Auto** to detect the standard automatically.

Num Audio Channels

If the number of audio channels is known, select the number present on this spigot. Otherwise, set to **Auto**.

Note: It is important to use the **Auto** setting unless the actual number of audio channels in the stream is known definitively. Setting an inaccurate number of audio channels may result in unpredictable behavior.

Audio Delay

Move the slider to set an **Audio Delay** as required. Click **P** to return to the preset default value.

Make/Break Mode

Specifies how changes to an output's destination will be made. **Make before Break** causes the new destination to buffer data before connection to the previous destination is broken; this results in a smoother transition, but requires more bandwidth. **Break before Make** simply swaps the output's destination without buffering.

Select the required mode from the drop-down list.

Flow Panes (Primary and Secondary)

Displays Video, Audio and Metadata Status, and allows multicast IP and port details to be defined for the selected spigot.

The screenshot shows a control panel for a Primary Output Spigot. It is divided into two main sections: Status and Video.

Status Section:

	Video	Audio	Meta
Mac	1080/25i	16	None
Loopback	None	None	None

Video Section:

	Current	NEW	
Multicast IP	239.30.1.141	239.30.1.141	<input type="button" value="P"/> <input type="button" value="S"/>
Multicast Port	50100	50100	<input type="button" value="P"/> <input type="button" value="S"/>
Source IP	172.19.164.62	172.19.164.62	<input type="button" value="P"/> <input type="button" value="S"/>
Source Port	50100	50100	<input type="button" value="P"/> <input type="button" value="S"/>
Flow Type	RFC4175	RFC4175	▼

Output Spigot Flow Pane

Setting Multicast Details

To set multicast details:

- Select the required video standard from the drop-down list.
- Enter multicast IP and port details as required.
- Enter the appropriate details in the **Source IP** and **Source Port** fields. Each spigot can support a variety of flows.
- Select the required flow type from the **Flow Type** menu.
- Click **S** to save the details, or **P** to return to the preset default value.

Logging SDI Info

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** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

The information below describes the various parameters available for logging.

The screenshot shows the 'Logging - SDI Info' page. It features a left-hand navigation menu with options like 'Logging - System', 'Logging - Network', 'Logging - SFP', 'Logging - Fpga', and 'Logging - Spigot 1'. The main content area is divided into several sections:

- Information:** A box containing IP addresses: '1: 172.19.164.75', '2: 172.19.166.75', 'Gb: 172.19.160.75', and 'NMOS: Off'.
- Video Selection:** A dropdown menu currently set to 'SDI 1 / SDI 2'.
- Information Select:** A panel with radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (which is selected), and 'Spigot Link Status'.
- SDI Change time:** A table with columns for 'Log Enable', 'Log Field', and 'Log Value'.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Input 1 INPUT_1_CHANGE_TIME=	-
<input checked="" type="checkbox"/>	Input 2 INPUT_2_CHANGE_TIME=	-
<input checked="" type="checkbox"/>	Input 3 INPUT_3_CHANGE_TIME=	0
<input checked="" type="checkbox"/>	Input 4 INPUT_4_CHANGE_TIME=	2020-09-21T14:49:44
- SDI Change Counts:** A table with columns for 'Log Enable', 'Log Field', and 'Log Value'.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Input 1 INPUT_1_SDI_CHANGE_CNT=	1
<input checked="" type="checkbox"/>	Input 2 INPUT_2_SDI_CHANGE_CNT=	1
<input checked="" type="checkbox"/>	Input 3 INPUT_3_SDI_CHANGE_CNT=	0
<input checked="" type="checkbox"/>	Input 4 INPUT_4_SDI_CHANGE_CNT=	3442

Logging SDI Info page

The following facilities are available from this page:

Log Field	Description
INPUT_N_CHANGE_TIME= =	Logs time that the SDI input changed.
INPUT_N_SDI_CHANGE_CNT= CNT=	Logs number of times that the SDI input has changed.

Where N is the input number.

Logging - System

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Serial Number	XXXXXXXXXX
<input checked="" type="checkbox"/>	OS Version	QNX 6.6.0
<input checked="" type="checkbox"/>	Build No.	0.24.73
<input checked="" type="checkbox"/>	Hardware Ver.	RM11C
<input checked="" type="checkbox"/>	Hardware Mod.	0
<input checked="" type="checkbox"/>	Hardware Build.	0
<input checked="" type="checkbox"/>	Featureboard Ver.	MITDB1A
<input checked="" type="checkbox"/>	Featureboard Mod.	0
<input checked="" type="checkbox"/>	Featureboard Build.	DB1
<input checked="" type="checkbox"/>	Firmware Version	56261AE6
<input checked="" type="checkbox"/>	Up Time	138:04:59:00
<input checked="" type="checkbox"/>	RollCall Up Time	138:04:58:00
<input checked="" type="checkbox"/>	RollTracks	Disabled
<input checked="" type="checkbox"/>	Rear ID	15
<input checked="" type="checkbox"/>	Rear Status	OK
<input checked="" type="checkbox"/>	Slot Width	2
<input checked="" type="checkbox"/>	Slot Start	9
<input checked="" type="checkbox"/>	Power Usage	26.5W/26.5LU
<input checked="" type="checkbox"/>	Temperature	42C
<input checked="" type="checkbox"/>	Temperature Sensor	CPU
<input checked="" type="checkbox"/>	Reference Source	Frame Ref A
<input checked="" type="checkbox"/>	Reference State	OK:625/251
<input checked="" type="checkbox"/>	Time Sync Mode	PTP Unicast
<input checked="" type="checkbox"/>	Time Sync Network Interface	Ethernet 2
<input checked="" type="checkbox"/>	Time Sync Clock Identity	08:00:11-FF:FE:21:F6:B2
<input checked="" type="checkbox"/>	Time Sync Clock State	OK:LOCKED
<input checked="" type="checkbox"/>	Time Sync Average Delay	+16.2uS
<input checked="" type="checkbox"/>	Time Sync Std Dev Delay	+0.0uS
<input checked="" type="checkbox"/>	Time Sync Average Error	+0.0uS
<input checked="" type="checkbox"/>	Time Sync Std Dev Error	+0.0uS
<input checked="" type="checkbox"/>	Time Sync Grandmaster	08:00:11-FF:FE:21:F6:B2 Steps 0
<input checked="" type="checkbox"/>	Time Sync Last Lock	2020-09-14 16:44:15.513365291
<input checked="" type="checkbox"/>	Time Sync Synchronisations	5
<input checked="" type="checkbox"/>	Time Sync State Ethernet 0	OK
<input checked="" type="checkbox"/>	Time Sync State Ethernet 1	OK
<input checked="" type="checkbox"/>	Time Sync State Ethernet 2	FAIL
<input checked="" type="checkbox"/>	Time Sync Clock Address	172.19.190.3
<input checked="" type="checkbox"/>	Time Sync Request Interval	1s
<input checked="" type="checkbox"/>	Time Sync Network Preference	None

Logging - System page

The following logging options are available. Enable check boxes to activate log fields as required.

Log Field	Description
SN=	Reports the module serial number, which consists of an S followed by eight digits. Note: this cannot be deselected.
OS_VERSION=	Reports the operating system name and version.
BUILD_NUMBER=	Reports the build number.
HARDWARE_VERSION=	Reports the hardware version number.
HARDWARE_MOD=	Reports the hardware modification number.
HARDWARE_BUILD=	Reports the hardware build number.
FEATUREBOARD_VERSION=	Reports the rear module daughter board version number.
FEATUREBOARD_MOD=	Reports the rear module daughter board modification number.
FEATUREBOARD_BUILD=	Reports the rear module daughter board build number. Valid values are: <ul style="list-style-type: none"> • FB1 • FB2
FIRMWARE_VERSION=	Reports the firmware version number.
UPTIME=	Reports the time since the last restart in the format <i>ddd:hh:mm:ss</i> .
RC_UPTIME=	Reports time RollCall has been up in the format <i>ddd:hh:mm:ss</i> .
ROL_STATES=	Reports the RollCall status. Valid values are: <ul style="list-style-type: none"> • OK • FAIL:n where <i>n</i> is the RollTrack index or indexes which are failing • Disabled
REAR_ID=	Reports the code number of the rear fitted.
REAR_STATUS=	Reports the status of the rear where it can be determined.
SLOT_WIDTH=	Reports the slot width. IQUCP25 modules are available in single and triple width.
SLOT_START=	Reports the slot in the rack where the module is located.
POWER_USAGE=	Reports the power usage in PR Units (for IQH4B-type frames). Note: this cannot be deselected.
TEMP_N_CELSIUS=	Reports the temperature status of the FPGA. Note: this cannot be deselected.
TEMP_N_NAME=	Temperature measurement name.
REFERENCE_N_SOURCE=	Reports time reference source.
REFERENCE_N_STATE=	Valid values are: <ul style="list-style-type: none"> • OK:Locked • OK:Input • WARN:Freerun • WARN:CrossLock

Log Field	Description
TIMESYNC_N_MODE=	Valid values are: <ul style="list-style-type: none"> • Free running: Module is using its own clock with no reference to any other source. • PTP Multicast: Card is synchronizing to a PTP grandmaster clock using multicast network messages. • PTP Unicast: As PTP Multicast but using the delay request. Reply messages are unicast to minimize network traffic. • NTP: Module clock is synchronized to an NTP clock. Generally less precise than PTP.
TIMESYNC_N_NETWORK=	Network port currently being used for synchronization for Kudos Pro IP modules, dependent on the choice of interfaces made on the Time Sync Configuration page. If PTP and multiple interfaces are enabled, the PTP synchronization will switch ports if it doesn't see regular sync messages on the port.
TIMESYNC_N_CLOCK_ID=	Identification number of PTP clock being used for synchronization. This is not necessarily the grandmaster clock identity, as there can be intermediate clocks between the grandmaster and the card, depending on network configuration.
TIMESYNC_N_CLOCK_STATE=	Valid values are: <ul style="list-style-type: none"> • Free running: Card is not being synchronized. • No Lock: PTP being used but clocks haven't synchronized within +/- 1mS. • Locked: PTP being used and clocks are within the accepted range. • NTP: Module using NTP to synchronize.
TIMESYNC_N_AVG_DELAY=	The current network delay time between the card and the clock sending the synchronization messages. This should be relatively constant and is dependent on network configuration.
TIMESYNC_N_STDV_DELAY=	The current standard deviation in the network delay time between the card and the clock sending the synchronization messages. Should be a low number as the network delay is expected to be constant.
TIMESYNC_N_AVG_ERROR=	The current difference between the cards time and the grandmaster time. Should be close to zero once card has synchronized.
TIMESYNC_N_STDV_ERROR=	The standard deviation in the average error.
TIMESYNC_N_GRANDMASTER=	Identity of network clock acting as PTP grandmaster. This is the source of the PTP synchronization messages used by all PTP slave clocks on the network. If there are multiple grandmasters, they should negotiate between themselves to identify the most accurate and then silence the others.

Log Field	Description
TIMESYNC_N_LAST_LOCK=	Time when the module last changed from not locked to locked. Ideally this will be a few seconds after the module has powered up. This allows the user to confirm which clock the module has synchronized to.
TIMESYNC_N_SYNCHRONISATIONS=	Logs the number of times the card has synchronized since it was powered up. Ideally this will be a low number, as cards are expected to synchronize and stay synchronized. Large numbers indicate possible problems with the network or grandmaster clock.
TIMESYNC_N_STATE=	Logs whether PTP is locked. Valid values are: <ul style="list-style-type: none">• OK:LOCKED• FAIL:NO LOCK
TIMESYNC_N_CLOCK_ADDRESS=	Logs IP address of the currently-selected Grand Master.
TIMESYNC_N_REQUEST_INTERVAL=	Logs the PTP Delay Request Frequency setting, as set on the Time Sync Configuration page. See page 30 .
TIMESYNC_N_PREFERENCE=	Logs the PTP Network Interface Preference setting, as set on the Time Sync Configuration page. See page 30 .

Where N is the input number.

Logging - Network

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

The screenshot displays the 'Logging - Network' configuration page. At the top, there are three main sections: a left sidebar with a tree view, an 'Information' box showing IP addresses and MAC addresses, a 'Video Selection' dropdown set to 'SDI 1 / SDI 2', and an 'Information Select' section with radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (selected), and 'Spigot Link Status'.

The main content area is a table with three columns: 'Log Enable', 'Log Field', and 'Log Value'. The table lists parameters for Ethernet 1 and Ethernet 2. All 'Log Enable' checkboxes are checked. The 'Log Field' column shows the parameter name (e.g., LAN_PORT_1_NAME=), and the 'Log Value' column shows the current value (e.g., Ethernet 1).

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	LAN_PORT_1_NAME=	Ethernet 1
<input checked="" type="checkbox"/>	LAN_PORT_1_SPEED=	10Gb/s
<input checked="" type="checkbox"/>	LAN_PORT_1_IPADDRESS=	172.19.164.75
<input checked="" type="checkbox"/>	LAN_PORT_1_GATEWAY=	172.19.164.1
<input checked="" type="checkbox"/>	LAN_PORT_1_SUBNET_MASK=	255.255.254.0
<input checked="" type="checkbox"/>	LAN_PORT_1_MACADDRESS=	00:23:70:00:22:6B
<input checked="" type="checkbox"/>	LAN_PORT_1_STATE=	WARN:Inactive
<input checked="" type="checkbox"/>	LAN_PORT_1_TRAFFIC_IN=	0.3 Mb/s
<input checked="" type="checkbox"/>	LAN_PORT_1_TRAFFIC_OUT=	0.0 Mb/s
<input checked="" type="checkbox"/>	LAN_PORT_1_CPU_TRAF_IN_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_1_CPU_TRAF_OUT_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_1_RTP_DIS_RATE=	0
<input checked="" type="checkbox"/>	LAN_PORT_1_LINK_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_1_MAC_LINK_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_1_SWITCH_NAME=	Arista7504R
<input checked="" type="checkbox"/>	LAN_PORT_1_SWITCH_CHASSIS_ID=	00:1C:73:D6:18:26
<input checked="" type="checkbox"/>	LAN_PORT_1_SWITCH_PORT_ID=	Ethernet3/8/3
<input checked="" type="checkbox"/>	LAN_PORT_1_SWITCH_PORT_VLAN=	164
<input checked="" type="checkbox"/>	LAN_PORT_2_NAME=	Ethernet 2
<input checked="" type="checkbox"/>	LAN_PORT_2_SPEED=	10Gb/s
<input checked="" type="checkbox"/>	LAN_PORT_2_IPADDRESS=	172.19.166.75
<input checked="" type="checkbox"/>	LAN_PORT_2_GATEWAY=	172.19.166.1
<input checked="" type="checkbox"/>	LAN_PORT_2_SUBNET_MASK=	255.255.254.0
<input checked="" type="checkbox"/>	LAN_PORT_2_MACADDRESS=	00:23:70:00:22:6C
<input checked="" type="checkbox"/>	LAN_PORT_2_STATE=	WARN:Inactive
<input checked="" type="checkbox"/>	LAN_PORT_2_TRAFFIC_IN=	0.1 Mb/s
<input checked="" type="checkbox"/>	LAN_PORT_2_TRAFFIC_OUT=	0.0 Mb/s
<input checked="" type="checkbox"/>	LAN_PORT_2_CPU_TRAF_IN_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_2_CPU_TRAF_OUT_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_2_RTP_DIS_RATE=	0
<input checked="" type="checkbox"/>	LAN_PORT_2_LINK_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_2_MAC_LINK_STATE=	OK
<input checked="" type="checkbox"/>	LAN_PORT_2_SWITCH_NAME=	Juniper
<input checked="" type="checkbox"/>	LAN_PORT_2_SWITCH_CHASSIS_ID=	08:B2:58:38:33:07
<input checked="" type="checkbox"/>	LAN_PORT_2_SWITCH_PORT_ID=	xe-0/0/28:2
<input checked="" type="checkbox"/>	LAN_PORT_2_SWITCH_PORT_VLAN=	166

Logging - Network page

The following logging options are available. Enable check boxes to activate log fields as required.

Log Field	Description
LAN_PORT_N_NAME=	Logs the Ethernet port name.
LAN_PORT_N_SPEED=	Logs the Ethernet connection speed. Valid 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 • 25 Gbit/s • No Link
LAN_PORT_N_IPADDRESS=	Logs the Ethernet port IP address.
LAN_PORT_N_GATEWAY=	Logs the gateway address set for the management of media interfaces.
LAN_PORT_N_SUBNET_MASK=	Logs the subnet mask address set for the management of media interfaces.
LAN_PORT_N_MACADDRESS=	Logs the Ethernet port MAC address.
LAN_PORT_N_STATE=	Logs the Ethernet connection state. Valid values are: <ul style="list-style-type: none"> • Active • WARN:Inactive
LAN_PORT_N_TRAFFIC_IN=	Logs speed of traffic received by the Ethernet port. Values are reported in kbps, Mbps or Gbps, as appropriate.
LAN_PORT_N_TRAFFIC_OUT=	Logs speed of traffic transmitted by the Ethernet port. Values are reported in Kbps, Mbps or Gbps, as appropriate.
LAN_PORT_N_CPU_TRAF_IN_STATE=	Shows whether the flow of data into the CPU is satisfactory. Valid values are: <ul style="list-style-type: none"> • OK • WARN:LOW DATA • FAIL
LAN_PORT_N_CPU_TRAF_OUT_STATE=	Shows whether the flow of data out of the CPU is satisfactory. Valid values are: <ul style="list-style-type: none"> • OK • WARN:LOW DATA • FAIL
LAN_PORT_N_RTP_DIS_RATE=	Logs RTP discontinuity rate for the Ethernet port.
LAN_PORT_N_LINK_STATE=	Logs the Ethernet link state. Valid values are: <ul style="list-style-type: none"> • OK • WARN:DOWN
LAN_PORT_N_MAC_LINK_STATE=	Logs state of the module's FPGA Ethernet link. Valid values are: <ul style="list-style-type: none"> • UP • DOWN

Log Field	Description
LAN_PORT_N_SWITCH_NAME=	Logs name of the network switch that the module is connected to.
LAN_PORT_N_SWITCH_CHASSIS_ID=	Logs the MAC address of the switch port to which the module's media port is connected.
LAN_PORT_N_SWITCH_PORT_ID=	Logs Port ID of the network switch the module is connected to.
LAN_PORT_N_SWITCH_PORT_VLAN=	Logs name of the VLAN that the module is connected to.

Where N is the input number.

Logging - SFP

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

The screenshot shows the 'Logging - SFP' configuration page. At the top, there are sections for 'Information' (IP addresses: 1:172.15.164.75, 2:172.15.166.75, 0b:172.15.160.75, 0x03:0ff), 'Video Selection' (SDI 1 / SDI 2), and 'Information Select' (Video Input Status, Video Output Status, Network Status, Sfpot Link Status). Below this is the 'Logging SFP' section, which contains two tables for SFP 1 and SFP 2. Each table has three columns: Log Enable (with checkboxes), Log Field, and Log Value.

SFP 1			SFP 2		
Log Enable	Log Field	Log Value	Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Fitted	SFP_1_FITTED=	<input checked="" type="checkbox"/>	Fitted	SFP_2_FITTED=
<input checked="" type="checkbox"/>	Status	SFP_1_STATUS=	<input checked="" type="checkbox"/>	Status	SFP_2_STATUS=
<input checked="" type="checkbox"/>	Type	SFP_1_TYPE=	<input checked="" type="checkbox"/>	Type	SFP_2_TYPE=
<input checked="" type="checkbox"/>	Manufacturer	SFP_1_VENDOR=	<input checked="" type="checkbox"/>	Manufacturer	SFP_2_VENDOR=
<input checked="" type="checkbox"/>	Model	SFP_1_VENDOR_PN=	<input checked="" type="checkbox"/>	Model	SFP_2_VENDOR_PN=
<input checked="" type="checkbox"/>	Serial Number	SFP_1_SERIAL_NR=	<input checked="" type="checkbox"/>	Serial Number	SFP_2_SERIAL_NR=
<input checked="" type="checkbox"/>	Revision	SFP_1_REVISION=	<input checked="" type="checkbox"/>	Revision	SFP_2_REVISION=
<input checked="" type="checkbox"/>	Connector	SFP_1_CONNECTOR=	<input checked="" type="checkbox"/>	Connector	SFP_2_CONNECTOR=
<input checked="" type="checkbox"/>	Temperature Sensor	TEMP_2_NAME=	<input checked="" type="checkbox"/>	Temperature Sensor	TEMP_3_NAME=
<input checked="" type="checkbox"/>	Temperature	TEMP_2_CELSIUS=	<input checked="" type="checkbox"/>	Temperature	TEMP_3_CELSIUS=
<input checked="" type="checkbox"/>	Temperature State	TEMP_2_STATE=	<input checked="" type="checkbox"/>	Temperature State	TEMP_3_STATE=
<input checked="" type="checkbox"/>	Voltage Sensor	VOLTAGE_4_NAME=	<input checked="" type="checkbox"/>	Voltage Sensor	VOLTAGE_5_NAME=
<input checked="" type="checkbox"/>	Voltage	VOLTAGE_4_VALUE=	<input checked="" type="checkbox"/>	Voltage	VOLTAGE_5_VALUE=
<input checked="" type="checkbox"/>	Voltage State	VOLTAGE_4_STATE=	<input checked="" type="checkbox"/>	Voltage State	VOLTAGE_5_STATE=
<input checked="" type="checkbox"/>	Tx Wavelength	SFP_1_WAVELENGTH=	<input checked="" type="checkbox"/>	Tx Wavelength	SFP_2_WAVELENGTH=
<input checked="" type="checkbox"/>	Tx Bias 1	SFP_1_1_LASER_BIAS=	<input checked="" type="checkbox"/>	Tx Bias 1	SFP_2_1_LASER_BIAS=
<input checked="" type="checkbox"/>	Tx Bias 2	SFP_1_2_LASER_BIAS=	<input checked="" type="checkbox"/>	Tx Bias 2	SFP_2_2_LASER_BIAS=
<input checked="" type="checkbox"/>	Tx Bias 3	SFP_1_3_LASER_BIAS=	<input checked="" type="checkbox"/>	Tx Bias 3	SFP_2_3_LASER_BIAS=
<input checked="" type="checkbox"/>	Tx Bias 4	SFP_1_4_LASER_BIAS=	<input checked="" type="checkbox"/>	Tx Bias 4	SFP_2_4_LASER_BIAS=
<input checked="" type="checkbox"/>	Tx Power 1	SFP_1_1_TX_POWER=	<input checked="" type="checkbox"/>	Tx Power 1	SFP_2_1_TX_POWER=
<input checked="" type="checkbox"/>	Tx Power 2	SFP_1_2_TX_POWER=	<input checked="" type="checkbox"/>	Tx Power 2	SFP_2_2_TX_POWER=
<input checked="" type="checkbox"/>	Tx Power 3	SFP_1_3_TX_POWER=	<input checked="" type="checkbox"/>	Tx Power 3	SFP_2_3_TX_POWER=
<input checked="" type="checkbox"/>	Tx Power 4	SFP_1_4_TX_POWER=	<input checked="" type="checkbox"/>	Tx Power 4	SFP_2_4_TX_POWER=
<input checked="" type="checkbox"/>	Tx Power State 1	SFP_1_1_TX_POWER_STATE=	<input checked="" type="checkbox"/>	Tx Power State 1	SFP_2_1_TX_POWER_STATE=
<input checked="" type="checkbox"/>	Tx Power State 2	SFP_1_2_TX_POWER_STATE=	<input checked="" type="checkbox"/>	Tx Power State 2	SFP_2_2_TX_POWER_STATE=
<input checked="" type="checkbox"/>	Tx Power State 3	SFP_1_3_TX_POWER_STATE=	<input checked="" type="checkbox"/>	Tx Power State 3	SFP_2_3_TX_POWER_STATE=
<input checked="" type="checkbox"/>	Tx Power State 4	SFP_1_4_TX_POWER_STATE=	<input checked="" type="checkbox"/>	Tx Power State 4	SFP_2_4_TX_POWER_STATE=
<input checked="" type="checkbox"/>	Rx Power 1	SFP_1_1_RX_POWER=	<input checked="" type="checkbox"/>	Rx Power 1	SFP_2_1_RX_POWER=
<input checked="" type="checkbox"/>	Rx Power 2	SFP_1_2_RX_POWER=	<input checked="" type="checkbox"/>	Rx Power 2	SFP_2_2_RX_POWER=
<input checked="" type="checkbox"/>	Rx Power 3	SFP_1_3_RX_POWER=	<input checked="" type="checkbox"/>	Rx Power 3	SFP_2_3_RX_POWER=
<input checked="" type="checkbox"/>	Rx Power 4	SFP_1_4_RX_POWER=	<input checked="" type="checkbox"/>	Rx Power 4	SFP_2_4_RX_POWER=
<input checked="" type="checkbox"/>	Rx Power State 1	SFP_1_1_RX_POWER_STATE=	<input checked="" type="checkbox"/>	Rx Power State 1	SFP_2_1_RX_POWER_STATE=
<input checked="" type="checkbox"/>	Rx Power State 2	SFP_1_2_RX_POWER_STATE=	<input checked="" type="checkbox"/>	Rx Power State 2	SFP_2_2_RX_POWER_STATE=
<input checked="" type="checkbox"/>	Rx Power State 3	SFP_1_3_RX_POWER_STATE=	<input checked="" type="checkbox"/>	Rx Power State 3	SFP_2_3_RX_POWER_STATE=
<input checked="" type="checkbox"/>	Rx Power State 4	SFP_1_4_RX_POWER_STATE=	<input checked="" type="checkbox"/>	Rx Power State 4	SFP_2_4_RX_POWER_STATE=

Logging - SFP page

The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
SFP_N_FITTED=	Logs presence of (Q)SFP. Valid values are: <ul style="list-style-type: none"> • OK • Missing
SFP_N_STATUS=	Logs status reported by the (Q)SFP. Valid values are: <u>SFPs</u> <ul style="list-style-type: none"> • OK • WARN:Temp • WARN:VCC • WARN:TX BIAS • WARN:RX BIAS • WARN:Laser • WARN:TEC Curr • FAIL:SFP Not Ready • FAIL:RX LOS - RX Failure • FAIL:TX Fault - TX Failure • FAIL:RX LOL - RX Loss of Lock • FAIL:TX LOL - TX Loss of Lock <u>QSFPs</u> <ul style="list-style-type: none"> • OK • WARN:Temp • WARN:VCC • WARN:RX PWR LO • WARN:RX PWR HI • WARN:TX PWR LO • WARN:TX PWR HI • FAIL:SFP Not Ready • FAIL:RX LOS - RX Failure • FAIL:TX LOS - TX Failure • FAIL:EQ Fault - EQ Failure • FAIL:RX LOL - RX Loss of Lock • FAIL:TX LOL - TX Loss of Lock • FAIL:Temp • FAIL:VCC
	<u>QSFPs (cont)</u> <ul style="list-style-type: none"> • FAIL:RX PWR LO • FAIL:RX PWR HI • FAIL:TX BIAS LO • FAIL:TX BIAS HI • TX PWR LO • TX PWR HI
SFP_N_TYPE=	Logs (Q)SFP identifier from device.
SFP_N_VENDOR=	Logs (Q)SFP manufacturer from device.
SFP_N_VENDOR_PN=	Logs (Q)SFP model number from device.

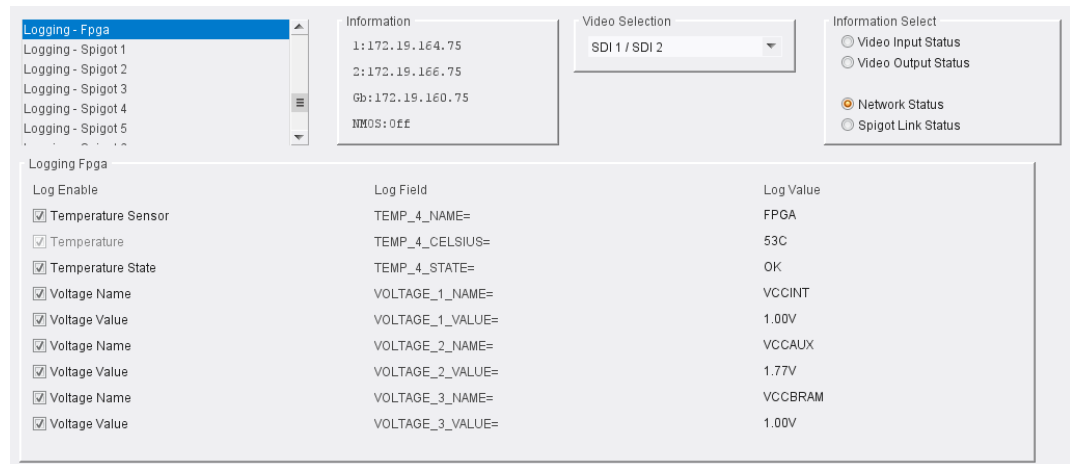
Log Field	Description
SFP_N_SERIAL_NR=	Logs the module serial number, which consists of an S followed by eight digits.
SFP_N_REVISION=	Logs manufacturer revision number.
SFP_N_CONNECTOR=	Logs connector type.
TEMP_N_NAME=	Logs temperature sensor name.
TEMP_N_CELSIUS=	Logs current temperature sensor reading.
TEMP_N_STATE=	Logs temperature sensor state. Valid values are: <ul style="list-style-type: none"> • WARN:Disabled - Temperature sensor disabled. • 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.
VOLTAGE_N_NAME=	Logs voltage sensor name.
VOLTAGE_N_VALUE=	Logs current voltage reading.
VOLTAGE_N_STATE=	Logs temperature sensor state. Valid values are: <ul style="list-style-type: none"> • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance.
SFP_N_WAVELENGTH=	Logs transmit wavelength in nm.
SFP_N_X_LASER_BIAS=	Logs bias level in mA.
SFP_N_X_TX_POWER=	Logs transmit power level in dBm.
SFP_N_X_TX_POWER_STATE=	Logs transmit power level. Valid values are: <ul style="list-style-type: none"> • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance.
SFP_N_X_RX_POWER=	Logs receive power level in dBm.
SFP_N_X_RX_POWER_STATE=	Logs receive power level. Valid values are: <ul style="list-style-type: none"> • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance.

Where N is the input/(Q)SFP number and X is the lane.

Logging - FPGA

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.



Logging - FPGA page

The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
TEMP_N_NAME=	Reports temperature sensor name.
TEMP_N_CELSIUS=	Reports current temperature sensor reading.
TEMP_N_STATE=	Reports current temperature state. Valid values are: <ul style="list-style-type: none"> • WARN:Low - temperature is low, but in tolerance. • WARN: High - temperature is high, but in tolerance. • OK • FAIL:Low - temperature is low and out of tolerance. • FAIL:High - temperature is high and out of tolerance. • WARN:Disabled - temperature sensor is disabled.
VOLTAGE_N_NAME=	Voltage sensor name.
VOLTAGE_N_VALUE=	Reports current voltage reading.

Where N is the input number.

Logging - Spigot

The **Logging - Spigot** pages are used to select the fields to be enabled for each available spigot. Depending on whether the spigot is an input or an output, the appropriate log fields are shown.

An additional field is provided for the user to optionally specify a name for the input/output.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Input Ident	INPUT_1_IDENT= 1
<input checked="" type="checkbox"/>	Input Name	INPUT_1_NAME= INPUT_1_NAME
<input checked="" type="checkbox"/>	Input State	INPUT_1_STATE= WARN: TPG
<input checked="" type="checkbox"/>	Input Type	INPUT_1_TYPE= HD / SD / 3G SDI
<input checked="" type="checkbox"/>	Input Standard	INPUT_1_STANDARD= 525/29i
<input checked="" type="checkbox"/>	Input Stream	INPUT_1_STREAM= DUAL

Input Spigot Logging page

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	Output Ident	OUTPUT_5_IDENT= 5
<input checked="" type="checkbox"/>	Output Name	OUTPUT_5_NAME= OUTPUT_5_NAME
<input checked="" type="checkbox"/>	Output State	OUTPUT_5_STATE= FAIL
<input checked="" type="checkbox"/>	Output Type	OUTPUT_5_TYPE= HD / SD / 3G SDI
<input checked="" type="checkbox"/>	Output Standard	OUTPUT_5_STANDARD= Unknown
<input checked="" type="checkbox"/>	Output Make Break	OUTPUT_5_MAKE_BREAK= MBB

Output Spigot Logging page

The following options are available. Enable check boxes to activate log fields as required.

Option	Description
INPUT_N_IDENT=	System-defined identifier for the input, based on the rear ID.
INPUT_N_NAME=	Name of the input, as defined on the Setup page. See page 78 .

Option	Description
INPUT_N_STATE=	Valid values are: <ul style="list-style-type: none"> • OK: input signal good. • FAIL: input signal not detected.
INPUT_N_TYPE=	HD/SD/3G SDI
INPUT_N_STANDARD=	PAL/NTSC/625 Mono/525 Mono
INPUT_N_STREAM=	Displays whether an IP sender uses SDI on Primary, Secondary or both. Valid values are: <ul style="list-style-type: none"> • Dual - both used. • A - only Primary used. • B - only Secondary used.
OUTPUT_N_IDENT=	Name of the output as shown on the rear panel.
OUTPUT_N_NAME=	Name of the output as defined by the user.
OUTPUT_N_STATE=	Current state of the output. Valid values are: <ul style="list-style-type: none"> • OK: output signal good. • FAIL: output signal not detected. • WARN:Freeze • WARN:Pattern • WARN:Black
OUTPUT_N_TYPE=	Type of output. Valid values are: <ul style="list-style-type: none"> • SD SDI • HD SDI • HD/SD/3G SDI
OUTPUT_N_STANDARD=	Reports video standard on the output. 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 Frame For example: 1080/50p or 1125(1080)/25i .
OUTPUT_N_MAKE_BREAK=	Reports Make-before-Break or Break-before-Make setting for the spigot.

Where N is the input/output number.

Logging - NMOS

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging NMOS	Log Field	Log Value
<input checked="" type="checkbox"/> NMOS Status	NMOS_STATUS=	OK:Off
<input checked="" type="checkbox"/> NMOS Registration	NMOS_REGISTRATION=	Auto
<input checked="" type="checkbox"/> NMOS Registry IP	NMOS_REGISTRY_IPADDRESS=	-
<input checked="" type="checkbox"/> NMOS Query Port	NMOS_QUERY_PORT=	-
<input checked="" type="checkbox"/> NMOS Registration Port	NMOS_REGISTRATION_PORT=	-

Logging - NMOS page

The following options are available. Enable check boxes to activate log fields as required.

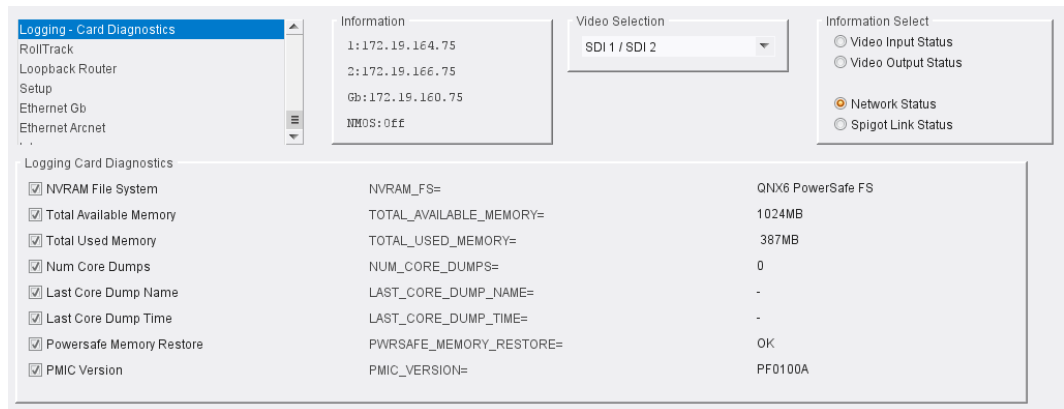
Option	Description
NMOS_STATUS=	Displays the current NMOS status. Valid values are: <ul style="list-style-type: none"> • OK:Off - NMOS functionality is disabled. • OK:Registered - the module has been successfully added to the NMOS registry. • WARN:Registering - the module is currently being registered. • FAIL:Unregistered - the registration process has failed.
NMOS_REGISTRATION=	Displays the method used to register the module. Valid values are: <ul style="list-style-type: none"> • Auto • Static See NMOS on page 38 for information on these settings.
NMOS_REGISTRY_IP_ADDRESS=	Displays the IP address of the NMOS registry.
NMOS_QUERY_PORT=	Displays the port currently used for NMOS query traffic.
NMOS_REGISTRATION_PORT=	Displays the port currently used for NMOS registration traffic.

Where N is the input/output number.

Logging - Card Diagnostics

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

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.



Logging - Card Diagnostics page

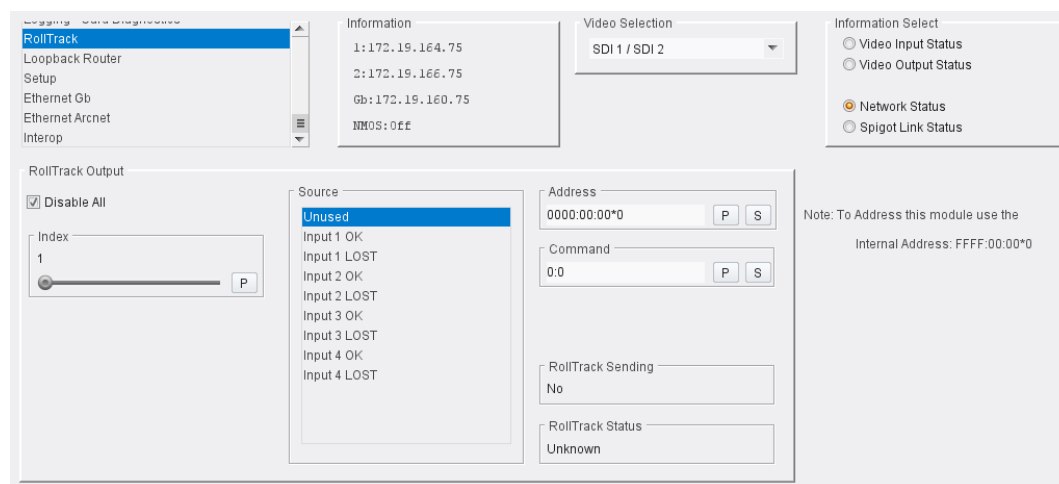
The following options are available. Enable check boxes to activate log fields as required.

Option	Description
NVRAM_FS=	Logs whether the installed file system is QNX6 PowerSafe or FAT32.
TOTAL_AVAILABLE_MEMORY=	Logs total amount of CPU memory available to the module, in bytes.
TOTAL_USED_MEMORY=	Logs amount of CPU memory used by the module, in bytes.
NUM_CORE_DUMPS=	Logs number of times a core dump has been performed as a result of an application crash.
LAST_CORE_DUMP_NAME=	Logs name of last application to crash.
LAST_CORE_DUMP_TIME=	Logs time of last core dump performed as a result of an application crash.
PWRSAFE_MEMORY_RESTORE=	Logs where system memory was restored from. Valid values are: <ul style="list-style-type: none"> • FAT32 - restored from FAT32. • OK - restored from QNX6 PowerSafe. • FAIL - memory restoration failed.
PMIC_VERSION=	Logs name of the on-board power management chip.

RollTrack

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

The **Source** window lists the RollTrack sources:



Source Pane

Disable All

When checked, all RollTrack items are disabled.

RollTrack Index

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

RollTrack Source

The source of information that triggers transmission of data is selected with this control. Dragging the slider selects the RollTrack source, displayed below the slider. Clicking **P** selects the default preset value. When no source is selected, **Unused** is displayed.

RollTrack Source	Description
Unused	No RollTracks sent.
Input <i>N</i> OK	Input <i>N</i> is good.
Input <i>N</i> LOST	Input <i>N</i> is bad.

Where *N* is the input number.

RollTrack Address

This item enables the address of the selected destination unit to be set.

The address may be changed by typing the new destination into the text field, then clicking **S** to save the selection. Clicking **P** returns to the default preset destination.

The 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 identifier for the destination unit in a multi-unit system. This ensures only the correct unit will respond to the command. If left at **00**, an incorrectly fitted unit may respond inappropriately.

RollTrack Command

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

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

A 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:

Log Field	Description
No	The message is not being sent.
Yes	The message is being sent.

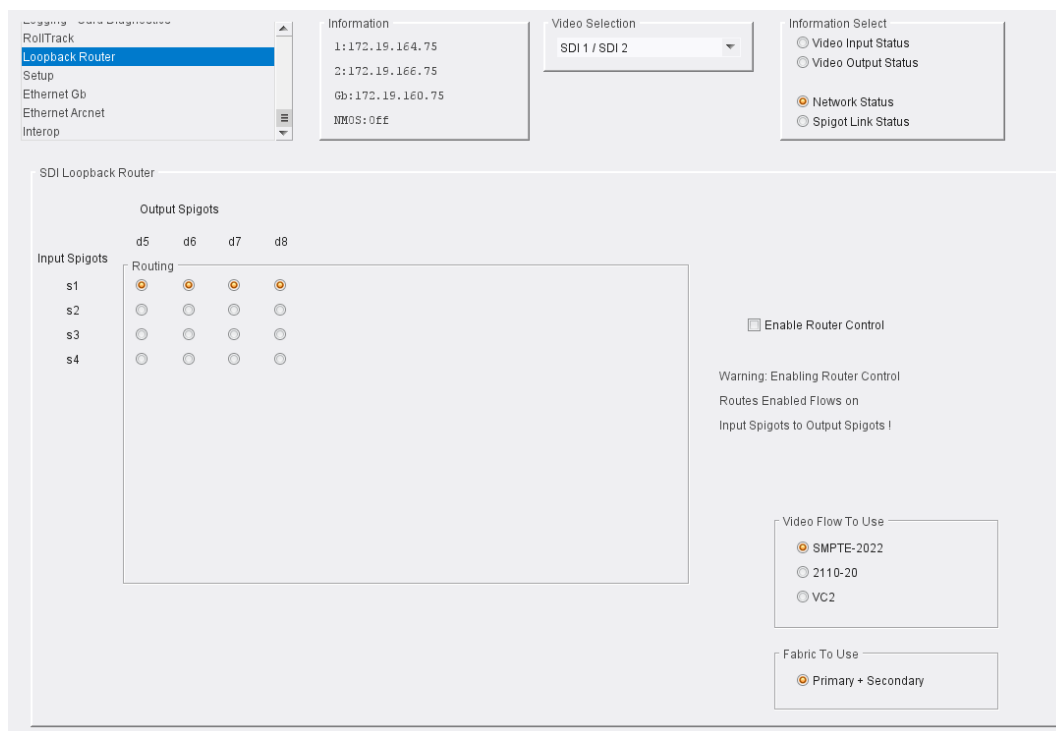
RollTrack Status

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

Log Field	Description
OK	RollTrack message was sent and received successfully.
Unknown	RollTrack message has been sent but transmission has not yet completed.
Timeout	RollTrack message has been 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.

Loopback Router

The **Loopback Router** page provides a basic SDI router as a redundant backup in case of Ethernet failure.



Loopback Router page

If an Ethernet failure is encountered:

- 1 Use the matrix radio buttons to specify which inputs should be routed to which outputs.
- 2 Select the **Video Flow to Use** - SMPTE-2022, RFC4175 or VC2.
- 3 When set as required, click the **Enable Router Control** check box to activate routing.

Setup

The **Setup** page displays basic information about the module, such as the serial number and software version. Use the functions on the page to restart the module or to return all settings to their factory or default settings.

Setup page

The **Product** pane displays technical information on the Kudos Pro IP. You may be asked for these details by Grass Valley support if you need technical assistance.

Item	Description
Product	Name of the module.
Software Version	Currently installed software version number.
Firmware Version	Currently installed firmware version number.
Serial No	Module serial number.
SW Build	Factory software build number. This number identifies all parameters of the module.
OS	Operating system version number.
Rear ID	Rear panel type.
Firmware Build Set	Firmware Build Set ID.
Main PCB	Printed Circuit Board version number.
Main Mod Level	Main PCB modification level.
Main HW Build	Factory main hardware build number.
Daughter PCB	Daughter board PCB revision number.

Item	Description
Daughter Mod Level	Daughter board PCB modification level.
Daughter HW Build	Factory daughter board hardware build number.

Restart

Power-cycles the module. This will produce disturbances on the output picture.

Note: Restarting the module will affect all outputs.

Defaults

Provides options to reset the module to its defaults.

Option	Description
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.

Ethernet Gb

The **Ethernet Gb** page shows details and status of the on-module Ethernet connector. The Kudos Pro IP defaults to use of DHCP, but this can be overridden and a static IP address specified if required.

Ethernet Gb page

The Ethernet Pane

The **Ethernet** pane displays details of the currently selected network interface, and allows a static IP address to be defined. Enter information as required, then click **S** to save. New settings are applied when **Restart** is clicked.

Ethernet Arcnet

Not currently used.

Logging RollTrack
Loopback Router
Setup
Ethernet Gb
Ethernet Arcnet
Interop

Information
1: 172.19.164.75
2: 172.19.166.75
Gb: 172.19.160.75
MMOS: Off

Video Selection
SDI 1 / SDI 2

Information Select
 Video Input Status
 Video Output Status
 Network Status
 Spigot Link Status

Ethernet	
Arcnet	Current
IP Address	Unknown
Default Gateway	Unknown
Subnet Mask	Unknown
MAC Address	Unknown
Mode	DHCP
Link Status	Unknown

New Static

S
S
S

Restart

New Mode
 DHCP
 Static

DHCP / Static IP Changes take effect on restart

Ethernet Arcnet page

Interop

The **Interop** page allows certain parameters to be changed in order to improve interoperability with third-party equipment.

The screenshot shows the 'Interop' configuration page. On the left, a sidebar lists navigation options: RollTrack, Loopback Router, Setup, Ethernet Gb, Ethernet Arcnet, and Interop (highlighted). The main content area is titled 'Stream Synchronisation Controls' and is divided into several sections:

- Information:** Displays IP addresses: 1: 172.19.164.75, 2: 172.19.166.75, Gb: 172.19.160.75, and IMOS: Off.
- Video Selection:** A dropdown menu currently set to 'SDI 1 / SDI 2'.
- Information Select:** Radio buttons for 'Video Input Status', 'Video Output Status', 'Network Status' (selected), and 'Spigot Link Status'.
- Stream Synchronisation Controls:**
 - Audio:** Checkboxes for 'Extended Headers' (checked), 'RTP To PTP' (unchecked), and 'Nominal Delay' (checked).
 - Meta:** Checkboxes for 'Extended Headers' (checked), 'RTP To PTP' (unchecked), 'Nominal Delay' (checked), and 'Rtp' (unchecked).
 - Meta Frame Delay:** Four sliders for 'Spigot 5', 'Spigot 6', 'Spigot 7', and 'Spigot 8', each with a 'P' button and a '0' value.
- RTP Payload Types:**
 - Payload Selection:** Radio buttons for 'Set 1' (unchecked) and 'Set 2' (selected).
 - Payload Format:** A table listing payload types and their values:

SMPTE2022	98
2110-20	96
VC-2	101
2110-30	97
2110-40	100
- Video:** A dropdown menu for 'VC2 Compression' set to '2:1'.

Interop page

The following facilities are available from the **Interop** page:

Option	Description
Stream Synchronization Controls	<p>Audio:</p> <ul style="list-style-type: none"> • Extended Headers - Enable to use extended headers in the RTP audio stream. • RTP to PTP - Enable to synchronize RTP to PTP. • Nominal Delay - Enable to set nominal delay at the spigot. <p>Meta:</p> <ul style="list-style-type: none"> • Extended Headers - Enable to use extended headers in the RTP metadata stream. • RTP to PTP - Enable to synchronize RTP to PTP. • Nominal Delay - Enable to set nominal delay at the spigot. • RTP - Enable to use RTP timestamps only to synchronize metadata to video.
Meta Frame Delay	Allows a frame delay for metadata received on the spigots shown to be set. Use the sliders to adjust as required. Click P to use the preset default value.
RTP Payload Types	<p>Payload Selection:</p> <ul style="list-style-type: none"> • Set 1/Set 2 - Select the appropriate set of standards to be used. The set contents are displayed on the Payload Format pane.
Video	<p>VC2 Compression:</p> <ul style="list-style-type: none"> • Select the compression ratio to be used from the drop-down list.



Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

Corporate Head Office

Grass Valley
3499 Douglas-B.-Floreani
St-Laurent, Quebec H4S 2C6
Canada
Telephone: +1 514 333 1772
Fax: +1 514 333 9828
www.grassvalley.com