



**Snell
Advanced
Media**

User Manual

IQSDA41

Single/Dual-Channel 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier with RollCall

IQSDA42

Multi-Channel 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier with RollCall

Information and Notices

Copyright and Disclaimer

Copyright protection claimed includes all forms and matters of copyrightable material and information now allowed by statutory or judicial law or hereinafter granted, including without limitation, material generated from the software programs which are displayed on the screen such as icons, screen display looks etc.

Information in this manual and software are subject to change without notice and does not represent a commitment on the part of SAM. The software described in this manual is furnished under a license agreement and can not be reproduced or copied in any manner without prior agreement with SAM or their authorized agents.

Reproduction or disassembly of embedded computer programs or algorithms prohibited.

No part of this publication can be transmitted or reproduced in any form or by any means, electronic or mechanical, including photocopy, recording or any information storage and retrieval system, without permission being granted, in writing, by the publishers or their authorized agents.

SAM operates a policy of continuous improvement and development. SAM reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Contact Details

Customer Support

For details of our **Regional Customer Support Offices** please visit the SAM website and navigate to Support/24/7-Support.

www.s-a-m.com/support/247-support/

Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

Safety Information

Explanation of Safety Symbols

GB

- This symbol refers the user to important information contained in the accompanying literature. Refer to manual.
- This symbol indicates that hazardous voltages are present inside. No user serviceable parts inside. This unit should only be serviced by trained personnel.

Safety Warnings



"CAUTION: These servicing instructions are for use by qualified personnel only. To reduce 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 personnel."

- To reduce the risk of electric shock, do not expose this appliance to rain or moisture.
- Always ensure that the unit is properly earthed and power connections correctly made.
- This equipment must be supplied from a power system providing a **PROTECTIVE EARTH** (⊕) connection and having a neutral connection which can be reliably identified.
- The power outlet supplying power to the unit should be close to the unit and easily accessible

Power connection in countries other than the USA

The equipment is normally shipped with a power cable with a standard IEC moulded free socket on one end and a standard IEC moulded plug on the other. If you are required to remove the moulded mains supply plug, dispose of the plug immediately in a safe manner.

The colour code for the lead is as follows:

- GREEN/YELLOW lead connected to E (Protective Earth Conductor)
- BLUE lead connected to N (Neutral Conductor)
- BROWN lead connected to L (Live Conductor)



- Caution if the unit has two mains supply inputs ensure that both power cords are plugged into mains outlets operating from the same phase.

Erklärung der Sicherheitssymbole

D

- Dieses Symbol weist den Benutzer auf wichtige Informationen hin, die in der begleitenden Dokumentation enthalten sind.
- Dieses Symbol zeigt an, dass gefährliche Spannung vorhanden ist. Es befinden sich keine vom Benutzer zu wartenden Teile im Geräteinneren. Dieses Gerät sollte nur von geschultem Personal gewartet werden

Sicherheits-Warnhinweise



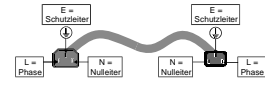
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation. Wenden Sie sich in allen Service-Fragen an qualifiziertes Personal.

- Um das Risiko eines Elektroschocks zu reduzieren, setzen Sie das Gerät weder Regen noch Feuchtigkeit aus.
- Stellen Sie immer sicher, dass das Gerät ordnungsgemäß geerdet und verkabelt ist.
- Dieses Equipment muss an eine Netzsteckdose mit Schutzleiter angeschlossen werden und einen zuverlässig identifizierbaren Nullleiter haben.
- Die Netzsteckdose sollte nahe beim Gerät und einfach zugänglich sein.

Netzanschluss in anderen Ländern als der USA

Das Equipment wird im Normalfall mit einem Netzkabel mit Standard IEC Anschlussbuchse und einem Standard IEC Anschlussstecker geliefert. Sollten Sie den angeschweißten Stecker auswechseln müssen, entsorgen Sie diesen bitte umgehend. Die farbliche Belegung des Netzkabels ist wie folgt:

- GRÜN GELB E = Schutzleiter (⊕)
- BLAU N = Nullleiter
- BRAUN L = P = Phase



- Achtung: Wenn das Gerät zwei Anschlussbuchsen hat, stellen Sie bitte sicher, dass beide Netzkabel mit der selben Phase in die Netzsteckdose gesteckt werden.

Légende :

F

- Ce symbole indique qu'il faut prêter attention et se référer au manuel.
- Ce symbole indique qu'il peut y avoir des tensions électriques à l'intérieur de l'appareil. Ne pas intervenir sans l'agrément du service qualifié.

Précaution d'emploi :



"ATTENTION: Les procédures de maintenance ne concernent que le service agréé. Afin de réduire le risque de choc électrique, il est recommandé de se limiter aux procédures d'utilisation, à moins d'en être qualifié. Pour toute maintenance, contacter le service compétent."

- Pour réduire le risque de choc électrique, ne pas exposer l'appareil dans un milieu humide.
- Toujours s'assurer que l'unité est correctement alimentée, en particuliers à la liaison à la terre.
- La source électrique de cet équipement doit posséder une connexion à la terre (⊕), ainsi qu'une liaison « neutre » identifiable.
- La prise électrique qui alimente l'appareil doit être proche de celle-ci et accessible.

Câble secteur de pays autres que les Etats-Unis

L'équipement est livré avec un câble secteur au standard IEC, moulé mâle/femelle. Si vous souhaitez changer la prise mâle de votre cordon, voici les codes couleurs des fils :

- Le fil VERT/JAUNE est connecté à T (Terre)
- Le fil BLEU est connecté à N (Neutre)
- Le fil MARRON est connecté à P (Phase)



- Attention si l'appareil a 2 alimentations, s'assurer que les cordons soient branchés sur la même phase.

Explicación de los Símbolos de Seguridad

ESP

- Éste símbolo refiere al usuario información importante contenida en la literatura incluida. Referirse al manual.
- Éste símbolo indica que voltajes peligrosos están presentes en el interior. No hay elementos accesibles al usuario dentro. Esta unidad sólo debería ser tratada por personal cualificado.

Advertencias de Seguridad



Las instrucciones de servicio cuando sean dadas, son sólo para uso de personal cualificado. Para reducir el riesgo de choque eléctrico no llevar a cabo ninguna operación de servicio aparte de las contenidas en las instrucciones de operación, a menos que se esté cualificado para realizarlas. Referir todo el trabajo de servicio a personal cualificado.

- Para reducir el riesgo de choque eléctrico, no exponer este equipo a la lluvia o humedad.
- Siempre asegurarse de que la unidad está propiamente conectada a tierra y que las conexiones de alimentación están hechas correctamente.
- Este equipo debe ser alimentado desde un sistema de alimentación con conexión a TIERRA (⊕) y teniendo una conexión neutra fácilmente identificable.
- La toma de alimentación para la unidad debe ser cercana y fácilmente accesible.

Conexión de alimentación en otros países que no sean USA

El equipo es normalmente entregado con un cable de alimentación con un enchufe hembra estándar IEC en un extremo y con una clavija estándar IEC en el otro. Si se requiere eliminar la clavija para sustituirla por otra, disponer dicha clavija de una forma segura. El código de color a emplear es como sigue:

- VERDE/ AMARILLO conectado a E (Conductor de protección a Tierra -Earth en el original-)
- AZUL conectado a N (Conductor Neutro -Neutral en el original-)
- MARRÓN conectado a L (Conductor Fase -Live en el original-)



- Advertencia Si la unidad tuviera dos tomas de alimentación, asegurarse de que ambos cables de alimentación están conectados a la misma fase.

Simboli di sicurezza:

- Questo simbolo indica l'informazione importante contenuta nei manuali appartenenti all'apparecchiatura. Consultare il manuale.
- Questo simbolo indica che all'interno dell'apparato sono presenti tensioni pericolose. Non cercare di smontare l'unità. Per qualsiasi tipo di intervento rivolgersi al personale qualificato.

Attenzione:

Le istruzioni relative alla manutenzione sono ad uso esclusivo del personale qualificato. E' proibito all'utente eseguire qualsiasi operazione non esplicitamente consentita nelle istruzioni. Per qualsiasi informazione rivolgersi al personale qualificato.

- Per prevenire il pericolo di scosse elettriche è necessario non esporre mai l'apparecchiatura alla pioggia o a qualsiasi tipo di umidità.
- Assicurarsi sempre, che l'unità sia propriamente messa a terra e che le connessioni elettriche siano eseguite correttamente.
- Questo dispositivo deve essere collegato ad un impianto elettrico dotato di un sistema di messa a terra efficace.
- La presa di corrente deve essere vicina all'apparecchio e facilmente accessibile.

Connessione elettrica nei paesi diversi dagli Stati Uniti

L'apparecchiatura normalmente è spedita con cavo pressofuso con la presa e spina standard IEC. Nel caso della rimozione della spina elettrica, gettarla via immediatamente osservando tutte le precauzioni del caso. La leggenda dei cavi è la seguente:

VERDE/GIALLO cavo connesso ad "E" (terra)
BLU cavo connesso ad "N" (neutro)
MARRONE cavo connesso ad "L" (fase)



- Attenzione! Nel caso in cui l'apparecchio abbia due prese di corrente, assicurarsi che i cavi non siano collegati a fasi diverse della rete elettrica.

Förklaring av Säkerhetssymboler

- Denna symbol hänvisar användaren till viktig information som återfinns i litteraturen som medföljer. Se manualen.
- Denna symbol indikerar att livsfarlig spänning finns på insidan. Det finns inga servicevänliga delar inne i apparaten. Denna apparat får endast repareras av utbildad personal.

Säkerhetsvarningar

Serviceinstruktioner som anges avser endast kvalificerad och utbildad servicepersonal. För att minska risken för elektrisk stöt, utför ingen annan service än den som återfinns i medföljande driftinstruktionerna, om du ej är behörig. Överlåt all service till kvalificerad personal.

- För att reducera risken för elektrisk stöt, utsätt inte apparaten för regn eller fukt.
- Se alltid till att apparaten är ordentligt jordad samt att strömtillförseln är korrekt utförd.
- Denna apparat måste bli försörd från ett strömsystem som är försedd med jordanslutning (⊕) samt ha en neutral anslutning som lätt identifieras.
- Vägguttaget som strömförsörjer apparaten bör finnas i närheten samt vara lättillgänglig.

Strömkontakter i länder utanför USA

Apparaten utrustas normalt med en strömkabel med standard IEC gjuten honkontakt på ena änden samt en standard IEC gjuten hankontakt på den andra änden. Om man måste avlägsna den gjutna hankontakten, avyttra denna kontakt omedelbart på ett säkert sätt. Färgkoden för ledningen är följande:

GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)

BLÅ ledning ansluten till N (Neutral ledare)
BRUN ledning ansluten till L (Fas ledare)



- Varning! Om enheten har två huvudsakliga elförsörjningar, säkerställ att båda strömkablarna som är inkopplade i enheten arbetar från samma fas.

Forklaring på sikkerhedssymboler

- Dette symbol gør brugeren opmærksom på vigtig information i den medfølgende manual.
- Dette symbol indikerer farlig spænding inden i apparatet. Ingen bruger servicebare dele i apparatet på brugerniveau. Dette apparat må kun serviceres af faglærte personer..

Sikkerhedsadvarsler

Serviceinstruktioner er kun til brug for faglærte servicefolk. For at reducere risikoen for elektrisk stød må bruger kun udføre anvisninger i betjeningsmanualen. Al service skal udføres af faglærte personer.

- For at reducere risikoen for elektrisk stød må apparatet ikke udsættes for regn eller fugt.
- Sørg altid for at apparatet er korrekt tilsluttet og jordat.
- Dette apparat skal forbindes til en nettilslutning, der yder BESKYTTENDE JORD (⊕) og 0 forbindelse skal være tydeligt markeret.
- Stikkontakten, som forsyner apparatet, skal være tæt på apparatet og let tilgængelig.

Nettilslutning i andre lande end USA

Udstyret leveres normalt med et strømkabel med et standard IEC støbt løst hunstik i den ene ende og et standard IEC støbt hanstik i den anden ende. Hvis et af de støbte stik på strømkablet er defekt, skal det straks kasseres på forsvarlig vis. Farvekoden for lederen er som følger:

GRØN/GUL leder forbundet til J (Jord)
BLÅ leder forbundet til 0
BRUN leder forbundet til F (Fase)



- Forsigtig! Hvis enheden har to lysnetindgange, skal der sørges for at begge ledninger tilsluttes lysnetudgange fra den samme fase.

Turvamerkkien selitys

- Tämä merkki tarkoittaa, että laitteen mukana toimitettu kirjallinen materiaali sisältää tärkeitä tietoja. Lue käyttöohje.
- Tämä merkki ilmoittaa, että laitteen sisällä on vaarallisen voimakas jännite. Sisäpuolella ei ole mitään osia, joita käyttäjä voisi itse huoltaa. Huollon saa suorittaa vain alan ammattilainen.

Turvaohjeita

Huolto-ohjeet on tarkoitettu ainoastaan alan ammattilaisille. Älä suorita laitteelle muita toimenpiteitä, kuin mitä käyttöohjeissa on neuvottu, ellei ole asiantuntija. Voit saada sähköiskun. Jätä kaikki huoltotoimet ammattilaiselle.

- Sähköiskujen välttämiseksi suojaa laite sateelta ja kosteudelta.
- Varmistu, että laite on asianmukaisesti maadoitettu ja että sähkökytkennät on tehty oikein.
- Laitteelle tehoa syöttävässä järjestelmässä tulee olla SUOJAMAALIITÄNTÄ (⊕) ja nolaliitännän on oltava luotettavasti tunnistettavissa.
- Sähköpistorasian tulee olla laitteen lähellä ja helposti tavoitettavissa.

Sähkökytkentä

Laitteen vakiovarusteena on sähköjohto, jonka toisessa päässä on muottiin valettu, IEC-standardin mukainen liitäntärasia ja toisessa päässä muottiin valettu, IEC-standardin mukainen pistoliitin. Jos pistoliitin tarvitsee poistaa, se tulee hävittää heti turvallisella tavalla. Johtimet kytketään seuraavasti:

KELTA-VIHREÄ suojamaajohdin E-napaan
SININEN nolajohdin N-napaan
RUSKEA vaihejohdin L-napaan



- Huom! Jos laitteessa on kaksi verkkojännitteen tuloliitäntää, niiden johdot on liitettävä verkkopistorasioihin, joissa on sama vaiheistus.

Σύμβολο de Segurança



- O símbolo triangular adverte para a necessidade de consultar o manual antes de utilizar o equipamento ou efectuar qualquer ajuste.
- Este símbolo indica a presença de voltagens perigosas no interior do equipamento. As peças ou partes existentes no interior do equipamento não necessitam de intervenção, manutenção ou manuseamento por parte do utilizador. Reparações ou outras intervenções devem ser efectuadas apenas por técnicos devidamente habilitados.

Avisos de Segurança

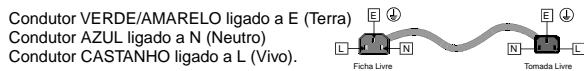


As instruções de manutenção fornecidas são para utilização de técnicos qualificados. Para reduzir o risco de choque eléctrico, não devem ser realizadas intervenções no equipamento não especificadas no manual de instalações a menos que seja efectuadas por técnicos habilitados.

- Para reduzir o risco de choque eléctrico, não expor este equipamento à chuva ou humidade.
- Assegurar que a unidade está sempre devidamente ligada à terra e que as ligações à alimentação estão correctas.
- O sistema de alimentação do equipamento deve, por razões de segurança, possuir ligação a terra de protecção (⊥) e ligação ao NEUTRO devidamente identificada.
- A tomada de energia à qual a unidade está ligada deve situar-se na sua proximidade e facilmente acessível.

Ligação da alimentação noutros países que não os EUA

O equipamento é, normalmente, enviado com cabo de alimentação com ficha IEC fêmea standard num extremo e uma ficha IEC macho standard no extremo oposto. Se for necessário substituir ou alterar alguma destas fichas, deverá remove-la e elimina-la imediatamente de maneira segura. O código de cor para os condutores é o seguinte:



- Atenção: Se a unidade tem duas fontes de alimentação assegurar que os dois cabos de alimentação estão ligados a tomadas pertencentes à mesma fase.

Επεξήγηση των Συμβόλων Ασφαλείας



Αυτό το σύμβολο παραπέμπει το χρήστη σε σημαντικές πληροφορίες που συμπεριλαμβάνονται στο συνοδευτικό εγχειρίδιο.



Αυτό το σύμβολο υποδεικνύει ότι στο εσωτερικό υφίστανται επικίνδυνες ηλεκτρικές τάσεις. Στο εσωτερικό δεν υπάρχουν επικινδύνως μέρη. Αυτή η μονάδα πρέπει να επισκευάζεται μόνο από ειδικά εκπαιδευμένο προσωπικό.

Προειδοποίηση Ασφαλείας

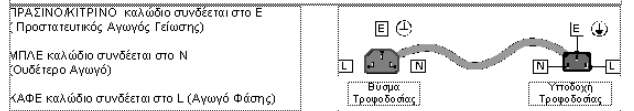


Οδηγίες επισκευής, όπου παρέχονται, αναφέρονται αποκλειστικά και μόνο σε εξειδικευμένο προσωπικό. Για να μειωθεί ο κίνδυνος ηλεκτροπληξίας, μην εκτελείτε επισκευές παρά μόνο τις συμπεριλαμβανόμενες στο εγχειρίδιο των οδηγιών, εκτός και αν έχετε τα απαραίτητα προσόντα για να το κάνετε. Όλες οι επισκευές να εκτελούνται από ειδικά εκπαιδευμένο προσωπικό.

- Για να μειώσετε τον κίνδυνο ηλεκτροπληξίας μην εκθέτετε τη συσκευή σε βροχή ή υγρασία.
- Πάντα να εξασφαλίζετε τη σωστή γείωση της συσκευής και τη σωστή σύνδεση των συνδέσμων τροφοδοσίας.
- Ο εξοπλισμός πρέπει να τροφοδοτείται από ένα σύστημα τροφοδοσίας που να εξασφαλίζει ΠΡΟΣΤΑΤΕΥΤΙΚΗ ΓΕΙΩΣΗ (⊥) και να έχει καθορισμένες θέσεις ουδέτερου και φάσης.
- Ο εξοπλισμός που τροφοδοτεί τη συσκευή θα πρέπει να βρίσκεται κοντά στη συσκευή και να είναι εύκολα προσβάσιμος.

Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

Ο εξοπλισμός συνοδεύεται συνήθως από ένα καλώδιο τροφοδοσίας με ένα σταθερό βύσμα τροφοδοσίας ρεύματος τύπου πυραμίδας στη μια άκρη του και μια σταθερή υποδοχή τροφοδοσίας ρεύματος τύπου πυραμίδας στην άλλη άκρη του. Εάν χρειαστεί να αφαιρέσετε το σταθερό βύσμα τροφοδοσίας μην το επαναχρησιμοποιείτε, θεωρείται άχρηστο. Ο χρωματικός οδηγός για το καλώδιο τροφοδοσίας είναι ο παρακάτω:



- ΠΡΟΣΟΧΗ! Αν η μονάδα έχει δύο τροφοδοτικά βεβαιωθείτε ότι και τα δύο καλώδια τροφοδοσίας είναι συνδεδεμένα σε εξόδους τροφοδοσίας που βρίσκονται στην ίδια φάση.

Laser Safety

This product operates with Class 1 laser products.



Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Ventilation

Although the unit is constructed to meet normal environmental requirements, ensure that there is a free flow of air at the front, rear, and sides of the unit to dissipate the heat produced during operation. Installations should be designed to allow for this.



Do not obstruct the ventilation holes on the right-side of the unit. Damage to the equipment may result.

Safety Standards

This equipment conforms to the following standards:

EN60950-1 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (3rd Edition) - UL File E19396

Standard for Safety – Professional Video and Audio equipment.



EMC Standards

This equipment conforms to the following standards:

EN 55032:2012 (Class A)

Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements.

EN 61000-3-2:2014 (Class A)

Limits for Harmonic Current Emissions.

EN 61000-3-3:2013

Limitation of Voltage Changes, Voltage Fluctuations and Flicker in Public Low-Voltage Supply Systems.

FCC/CFR 47:Part 15, Class A

Federal Communications Commission Rules Part 15, Subpart B, Class A.

EMC Environment

The product(s) described in this manual conform to the EMC requirements for, and are intended for use in, the controlled EMC environment (for example, purpose-built broadcasting or recording studios), and the rural outdoor environment (far away from railways, transmitters, overhead power lines, etc.) E4.



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

EMC Performance of Cables and Connectors

SAM 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.

Coaxial Cables

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

D-type Connectors

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

Contents

- Information and Notices** 2
- Safety Information** 3
- 1 Introduction** 8
 - 1.1 Description 8
 - 1.1.1 IQSDA41 8
 - 1.1.2 IQSDA42 9
 - 1.2 Order Codes 10
 - 1.3 Enclosures 11
 - 1.3.1 B-style Enclosures 11
- 2 Technical Specification** 12
- 3 Connections** 14
 - 3.1 SDI Input/Output 14
 - 3.1.1 Bi-directional Connectors 14
- 4 Rear Panel LEDs** 15
- 5 Operation Using the RollCall Control Panel** 16
 - 5.1 Navigating Pages in the RollCall Template 16
 - 5.1.1 Setting Values 16
 - 5.1.2 Template Pages 16
 - 5.2 Information Window 17
 - 5.3 Input Output Page 18
 - 5.3.1 Configuration 18
 - 5.3.2 Inputs 18
 - 5.3.3 Outputs 18
 - 5.4 Setup 19
 - 5.4.1 Default Settings 19
 - 5.4.2 Factory Defaults 19
 - 5.4.3 Restart 19
 - 5.4.4 Input Name 20
 - 5.5 Logging - Misc 21
 - 5.6 Logging - Input 22
 - 5.7 Logging - Output 1-n 23
 - 5.8 RollTrack 24
 - 5.8.1 Disable All 24
 - 5.8.2 Index 24
 - 5.8.3 Source 24
 - 5.8.4 Address 25
 - 5.8.5 Command 25
 - 5.8.6 RollTrack Sending 25
 - 5.8.7 RollTrack Status 25
 - 5.9 Memory 1-16 27
 - 5.9.1 Recall Memory 27
 - 5.9.2 Save Memory 27
 - 5.9.3 Last Recalled Memory 28
 - 5.9.4 Save Memory Name 28

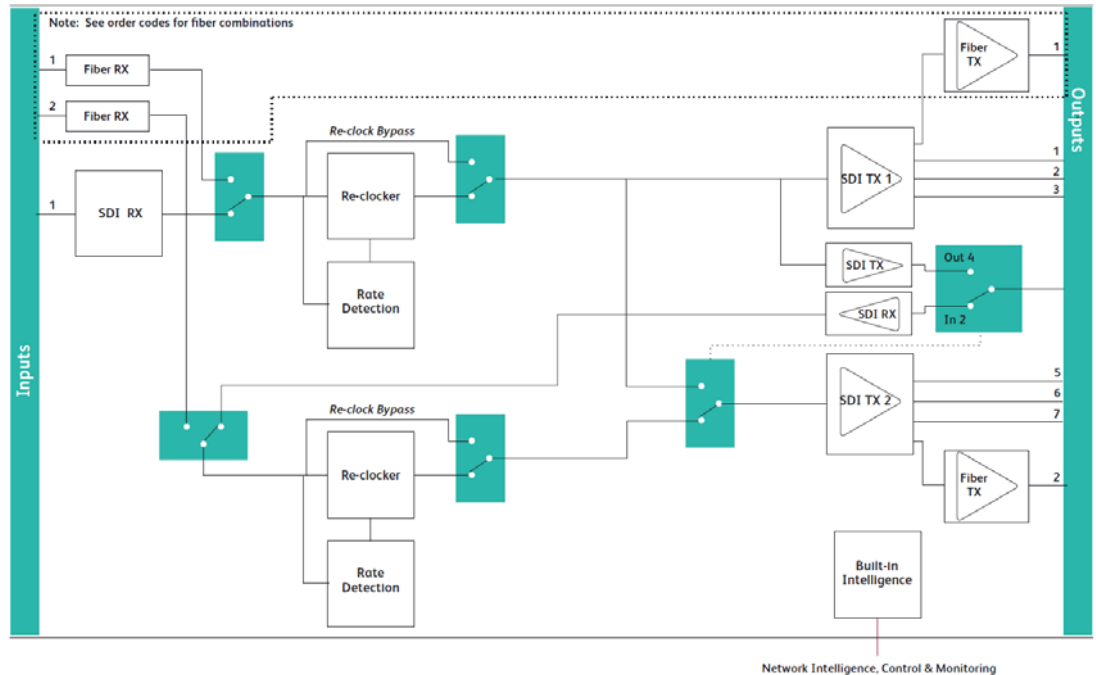
1 Introduction

1.1 Description

1.1.1 IQSDA41

The IQSDA41 is a single- or dual- channel SDI distribution amplifier for UHD-1 12 Gbit/s, HD 3 Gbit/s, 1.5 Gbit/s or SD 270 Mbit/s signals, providing up to 9 equalized and reclocked outputs in a single-width package. Its 60m 12G, 80m 3G, 180m HD input equalization performance and non-reclocking distribution of wide-band signals make it ideal for all distribution applications.

1.1.1.1 Block Diagram



1.1.1.2 Feature Summary

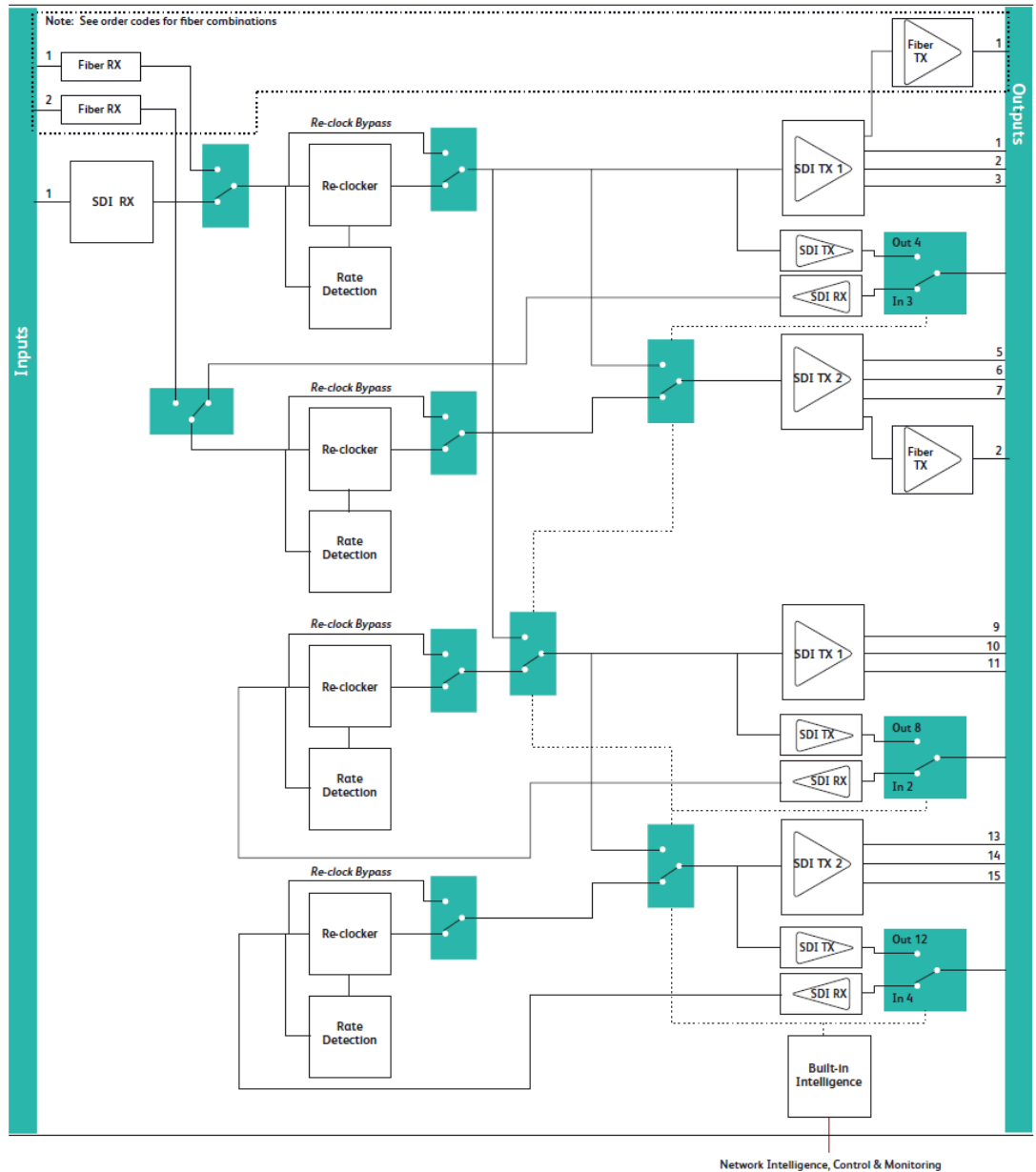
The IQSDA41 provides the following features:

- Intelligent UHD-1 12 Gbit/s, HD 3 Gbit/s or 1.5 Gbit/s and SD-SDI re-clocking distribution amplifier.
- Configurable as 1 input to 9 outputs, or 2 inputs with 4 outputs per input, or 4 inputs with 4 outputs per input.
- Equalizes up to 60m at 12 Gbit/s, 80m at 3 Gbit/s, 180m at 1.5 Gbit/s, and more than 350m at 270 Mbit/s when using Belden 1694A cable.
- Standards supported:
 - 3G-HD to SMPTE 424M
 - HD-SDI to SMPTE 292M
 - SD-SDI to SMPTE 259M-C
 - DVB-ASI
- 1310nm, 1550nm, and CWDM output wavelengths available.
- RollCall monitoring allows all signal paths to be managed.

1.1.2 IQSDA42

The IQSDA42 is a configurable single, dual or quad-channel SDI distribution amplifier for UHD-1 12 Gbit/s, HD 3 Gbit/s, 1.5 Gbit/s or SD 270 Mbit/s signals, providing up to 19 equalized and re-clocked outputs of the input in a single width-package. Its 60m 12G, 80m 3G, 180m HD input equalization performance coupled with excellent packing density make it ideal for signal-dense distribution applications.

1.1.2.1 Block Diagram



1.1.2.2 Feature Summary

The IQSDA42 provides the following features:

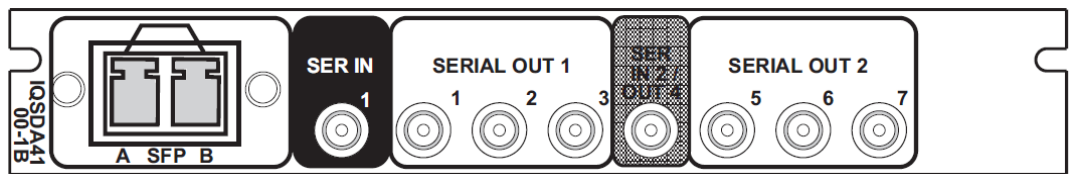
- Intelligent UHD-1 12 Gbit/s, HD 3 Gbit/s or 1.5 Gbit/s and SD-SDI re-clocking distribution amplifier.
- Configurable as 1 input to 19 outputs, or 2 inputs with 9 outputs per input, or 4 inputs with 4 outputs per input.
- Equalizes up to 60m at 12 Gbit/s, 80m at 3 Gbit/s, 180m at 1.5 Gbit/s and more than 350m at 270 Mbit/s when using Belden 1694A cable.

- Standards supported:
 - 12G UHD-1 to SMPTE 2082
 - 3G-HD to SMPTE424M
 - HD-SDI to SMPTE292M
 - SD-SDI to SMPTE259M-C
 - DVB-ASI
- RollCall monitoring allows all signal paths to be managed.

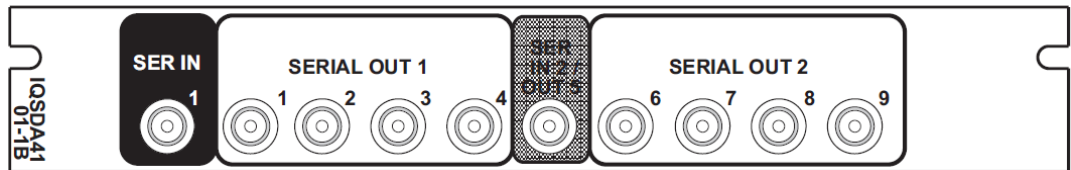
1.2 Order Codes

The following module order codes are covered by this manual:

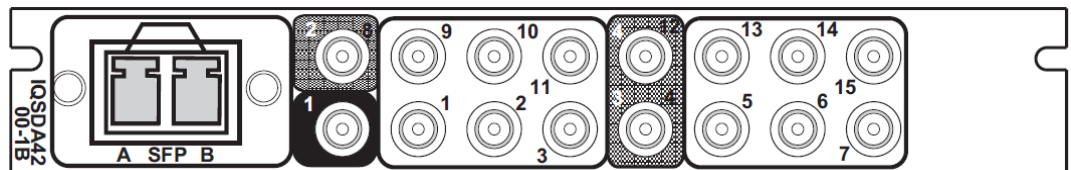
IQSDA4100-1B4 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier. 1 input, 7 outputs or 2 inputs 3 outputs per input, 2 optical inputs or 2 optical outputs.



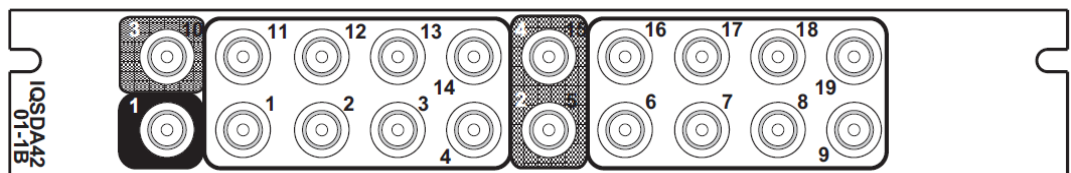
IQSDA4101-1B4 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier. 1 input, 9 outputs or 2 inputs 4 outputs per input.



IQSDA4200-1B4 Multi-channel 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier. 1 input, 15 outputs, 2 inputs 7 outputs per input or 4 inputs 3 outputs per input. 1 optical input and 1 optical output.



IQSDA4201-1B4 Multi-channel 12G/3G/HD/SD-SDI Re-clocking Distribution Amplifier. 1 input, 19 outputs, 2 inputs 9 outputs per input or 4 inputs 4 outputs per input.



The following SFP modules are available for the IQSDA range:

FC1-13TR-12G Fiber transceiver, 1 x 12G Rx, 1 x 12G Tx (1310nm).

FC1-13T2-12G Fiber transceiver 2 x 12G Tx (1310nm).

FC1-13R2-12G Fiber transceiver 2 x 12G Rx.

1.3 Enclosures

The IQSDA4x modules can be fitted into the enclosure types below.

Important: Although IQ modules are interchangeable between enclosures, their rear panels are enclosure-specific. IQH3B and IQH4B enclosures accept modules with either **A** or **B** order codes. IQH3A or IQH1A enclosures accept modules with **A** order codes only.

1.3.1 B-style Enclosures

1.3.1.1 IQH3B-S-0, IQH3B-S-P



1.3.1.2 IQH4B-S-P



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

2 Technical Specification

Inputs and Outputs	
Signal Inputs	
SDI Inputs	1 or 2 (configurable) x 12G/3G/HD/SD-SD (IQSDA41) 1, 2 or 4 (configurable) x 12G/3G/HD/SD-SD (IQSDA42)
Connector/Format	HD-BNC/75 Ohm panel jack on standard SAM connector panel
Input Cable Length	Up to 60 m Belden 1694A @ 12 Gbit/s Up to 80 m Belden 1694A @ 3 Gbit/s Up to 180 m Belden 1694A @ 1.5 Gbit/s 350+ m Belden 1694A @ 270 Mbit/s
Note: When using mixed HD and SD inputs, it is recommended that cable lengths do not exceed the HD specification of 180 m.	
Signal Outputs	
SDI Outputs	Up to 19, group selectable
Connector / Format	HD-BNC/75 Ohm panel jack on standard SAM connector panel
Conforms to video standards	SMPTE 297-2006 SMPTE 424M (HD level A/B) SMPTE 292M (HD) SMPTE 259M-C (SD)
Control Interface	
Electrical	TTL compatible, active low driven
Connector/Format	HD-BNC/75 Ohm panel jack on standard SAM connector panel
Controls	
Indicators:	
Power	OK (Green)
CPU	OK (Green flashing)
Input 1	OK (Green), Bypass (Orange), Loss (Red)
Input 2	OK (Green), Bypass (Orange), Loss (Red)
SFP A	OK (Green), Bypass (Orange), Loss (Red)
SFP B	OK (Green), Bypass (Orange), Loss (Red)
Other Controls	
User Memories	Name, save, and recall 16 user memories
Memory Naming	User configurable naming of memories 1–16
Information Window	Unit Status, SFP Status
Logging	Input 1(2) Type Input 1 (2) Data Rate Input 1 (2) Present Input 1 (2) Error Input 1 (2) Loss
Optical Logging	Tx Laser Bias High Warning Tx Power Low Warning Tx Power High Warning
Laser Wavelength	Input 1 (2) Rx Power High Warning Input 1 (2) Rx Power Low Warning Input 1 (2) Rx Power Measurement
RollTrack Index	Up to 16 RollTrack destinations
RollTrack Controls	On/Off, Index, Source, Address, Command, Status, Sending

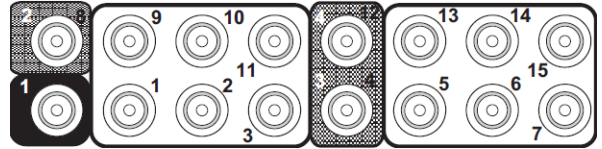
Roll Track Sources	Unused, Input Present (1 & 2, Fiber 1 & 2), Input Loss (1 & 2, Fiber 1 & 2), Output Rate/Std (1 & 2), Out 1 Selects (In 1 & 2 & Rx 1 & Rx 2), Fiber Rx Power OK (1 & 2), Fiber Rx Power Fail (1 & 2), Fiber Tx Bias OK (1 & 2), Fiber Tx Bias High (1 & 2), Fiber Tx Bias Low (1 & 2) (Note: fiber connections are not supported in this release).
Factory Default	Resets all module settings to factory specified default values and clears memories
Default Settings	Resets all module settings to factory specified default values but does not clear memories
Restart	Software restart of the module
Module Information	Reports the following module information: Software Version, Serial Number, Build Number, KOS Version, Firmware Version, PCB Version
Specifications	
Electrical	3 Gbit/s SDI, SMPTE 424M 1.5 Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI
Connector/Format	HD-BNC 75 Ohm
Return Loss	>-15 dB (270 Mbit/s, 1.5 Gbit/s) >-10 dB (3 Gbit/s)
Output Jitter	SD-SDI 0.2 UI (10 Hz) / 0.2 UI (1 kHz) 3G/HD-SDI 1.0 UI (10 Hz) / 0.2 UI (100 kHz)
Power Consumption	
Module Power Consumption	5PR IQSDA41 8PR IQSDA42

3 Connections

This section describes the physical input and output connections provided by the IQSDA41/42.

3.1 SDI Input/Output

Serial digital inputs and outputs are via HD-BNC connectors which terminate in 75 Ohms. The number of connectors varies according to the actual module variant in use.



Connectors are color-coded for easy identification:

Black shading indicates an input;

Gray shading indicates a bi-directional connector (see below);

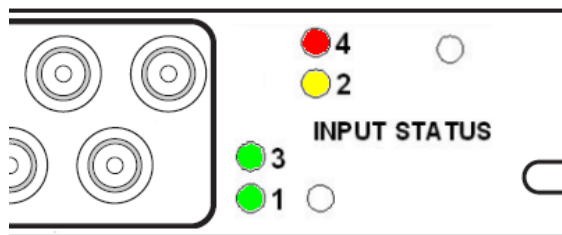
No shading indicates an output.

3.1.1 Bi-directional Connectors

Bi-directional connectors can be used as either an input or an output. They can be identified by the gray shading and the twin ID numbers; the number in white is the input number, and the number in black is the output number.

4 Rear Panel LEDs

The LEDs on the rear panel of the module indicate input status. There is one LED per input.



- **When Green:** Input enabled, signal valid.
- **When Yellow:** Input disabled or Reclocker Bypass active.
- **When Red:** No signal on input or signal not valid.

See section 5.3 for information on enabling/disabling inputs.

5 Operation Using the RollCall Control Panel

This section contains information on using IQSDA41/42 modules with RollCall.

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



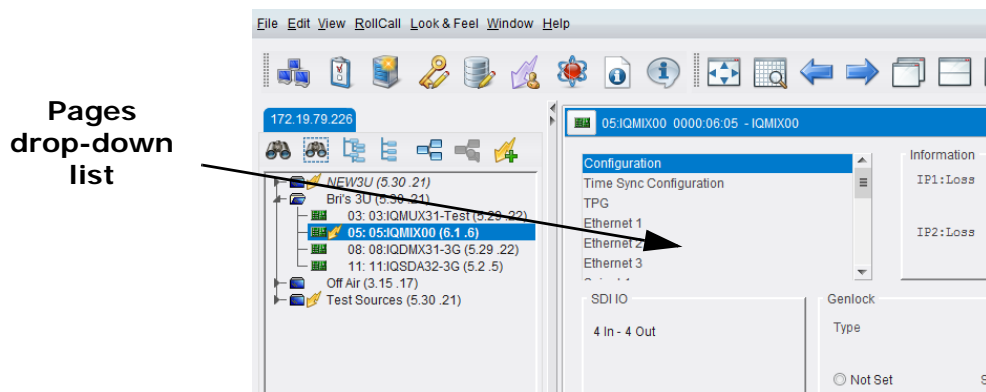
Note:

The IQSDA4x will dynamically configure itself depending on rear and SFP options. The RollCall control panel will change to reflect the current product configuration.

The pages shown in this section are for guidance and reference only, and may be slightly different to those on your module.

5.1 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.



5.1.1 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 saved 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.

5.1.2 Template Pages

The following pages are available:

- **Input Output** - See section 5.3.
- **Setup** - See section 5.4.
- **Logging - Misc** - See section 5.5.
- **Logging - Input** - See section 5.6.
- **Logging - Output 1-n** - See section 5.7.
- **RollTrack** - See section 5.8.
- **Memory 1-16** - See section 5.9.

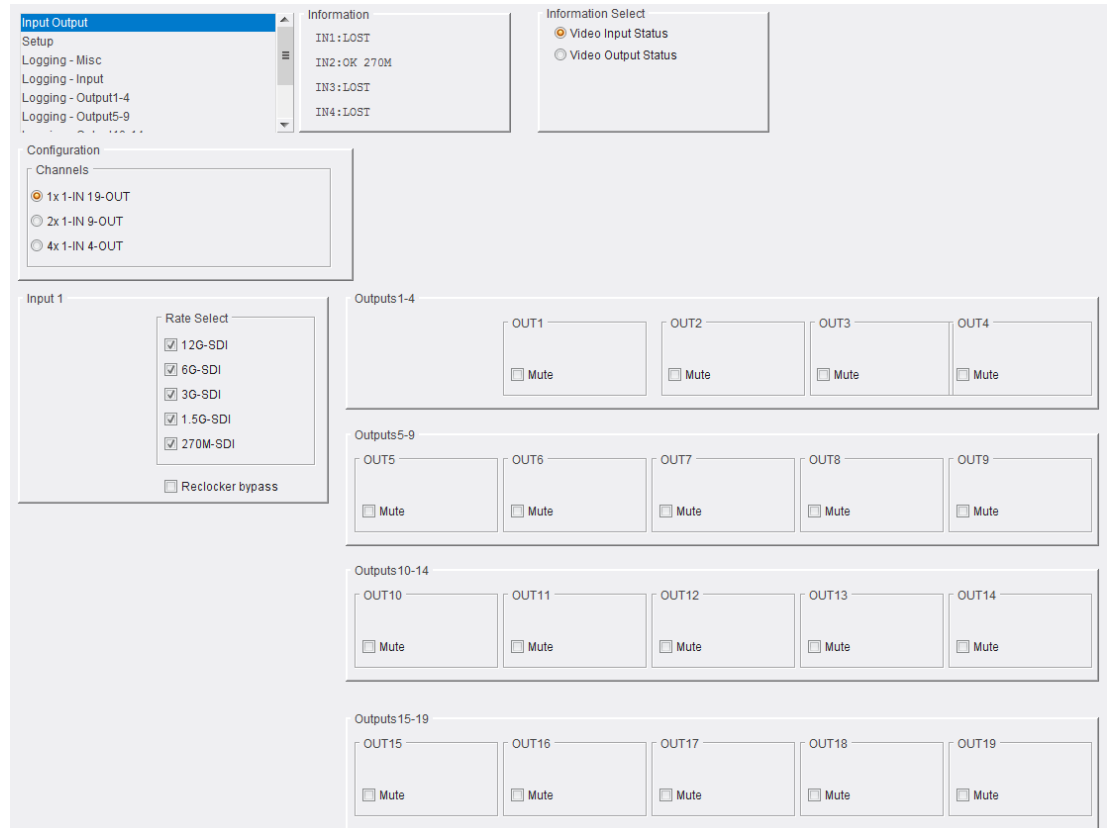
5.2 Information Window

The Information window is displayed at the top of each page, next to the pages list. It can display basic information about the input and output status of the module; select a radio button as required.

Information	Information Select
IN1:LOST	<input checked="" type="radio"/> Video Input Status
IN2:OK 270M	<input type="radio"/> Video Output Status
IN3:LOST	
IN4:LOST	

5.3 Input Output Page

The **Input Output** page enables inputs and outputs to be configured, and determines how the module behaves in the event of an input error.



5.3.1 Configuration

Use the radio buttons to select the input/output configuration. The options available are dependant on the particular module hardware configuration in use; the other controls on the page will also vary depending on the option selected.

5.3.2 Inputs

These controls are used to configure inputs; select the input rate(s) to be re-clocked. Re-clocking can be disabled on an output-by-output basis if required (see section 5.3.3), or globally by enabling **Reclocker Bypass**.

- **Rate Select:** Enable check boxes to specify the rate(s) to which an input will be re-clocked. If check boxes are disabled, input signals at those rates will be muted.
- **Reclocker Bypass:** Enable to prevent re-clocking on all input signals.

Note: If an incoming signal contains errors or is otherwise invalid, it will be automatically muted.

5.3.3 Outputs

Each output can be muted individually; select **Mute** to manually apply mute as required.

5.4 Setup

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

- **Product:** Name of the module.
- **Software Version:** Currently installed software version number.
- **Serial No:** Module serial number.
- **Build:** Factory build number. This number identifies all parameters of the module.
- **OS:** Operating system version number.
- **PCB:** Printed Circuit Board revision number.
- **PCB Mods:** PCB modification level.

5.4.1 Default Settings

The **Default Settings** button enables module settings to be reset to their factory defaults, leaving user memories intact.

5.4.2 Factory Defaults

The **Factory Defaults** button enables the module settings to be reset to their factory defaults.

Note: Resetting the module to its factory defaults also clears all the saved memory settings.

5.4.3 Restart

Click **Restart** to power cycle the module.

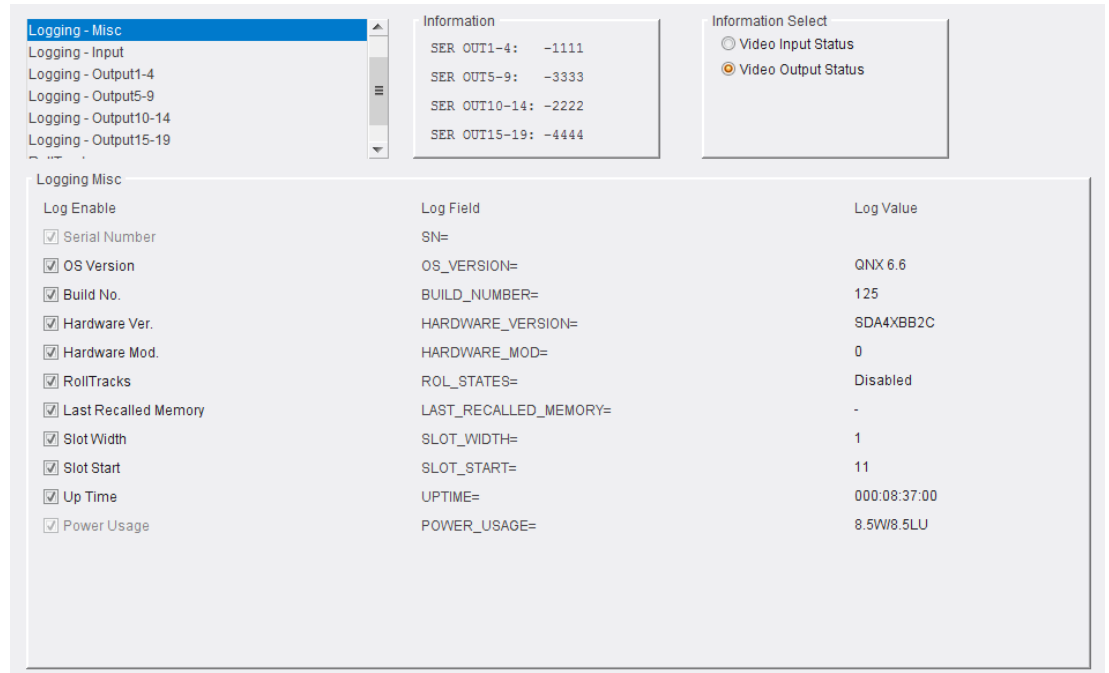
5.4.4 Input Name

These are the input names displayed in logs.

To change the name of Input 1 or Input 2, type the name in the text field and click **S**. To return the name to its factory default, click **P**.

5.5 Logging - Misc

The **Logging - Misc** page displays current log information regarding the unit's basic parameters.



The following options are available. Enable check boxes to activate logging.

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.
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 indices which are failing. • Disabled
LAST_RECALLED_MEMORY =	Reports the last memory to be recalled.
SLOT_WIDTH=	Reports the slot width.
SLOT_START=	Reports the slot start number.
UPTIME=	Reports the time since the last restart in the format <i>ddd:hh:mm:ss</i> .
POWER_USAGE=	Displays the power rating for the module. This is not a live power reading, but rather a maximum rating. Note: this cannot be deselected.

5.6 Logging - Input

The **Logging - Input** page displays current input logging information.

The screenshot shows the 'Logging - Input' page. On the left is a sidebar menu with options: Logging - Input (selected), Logging - Output1-4, Logging - Output5-9, Logging - Output10-14, Logging - Output15-19, RollTrack, and The main area contains three panels: 'Information' with SER OUT values (SER OUT1-4: -1111, SER OUT5-9: -3333, SER OUT10-14: -2222, SER OUT15-19: -4444), 'Information Select' with radio buttons for Video Input Status and Video Output Status (selected), and a table of logging fields for four inputs (Input 1 to Input 4). Each input section has a 'Log Enable' checkbox and a table of log fields with their values.

Log Field	Log Value
<input checked="" type="checkbox"/> Input State	INPUT_1_STATE FAIL: LOST
<input checked="" type="checkbox"/> Input Rate	INPUT_1_SDIRATE -
<input checked="" type="checkbox"/> Input Type	INPUT_1_TYPE HD/SD/3G/6G/12G SDI
<input checked="" type="checkbox"/> Input Ident	INPUT_1_IDENT SER IN1
<input checked="" type="checkbox"/> Input 1 Name	INPUT_1_NAME Input 1

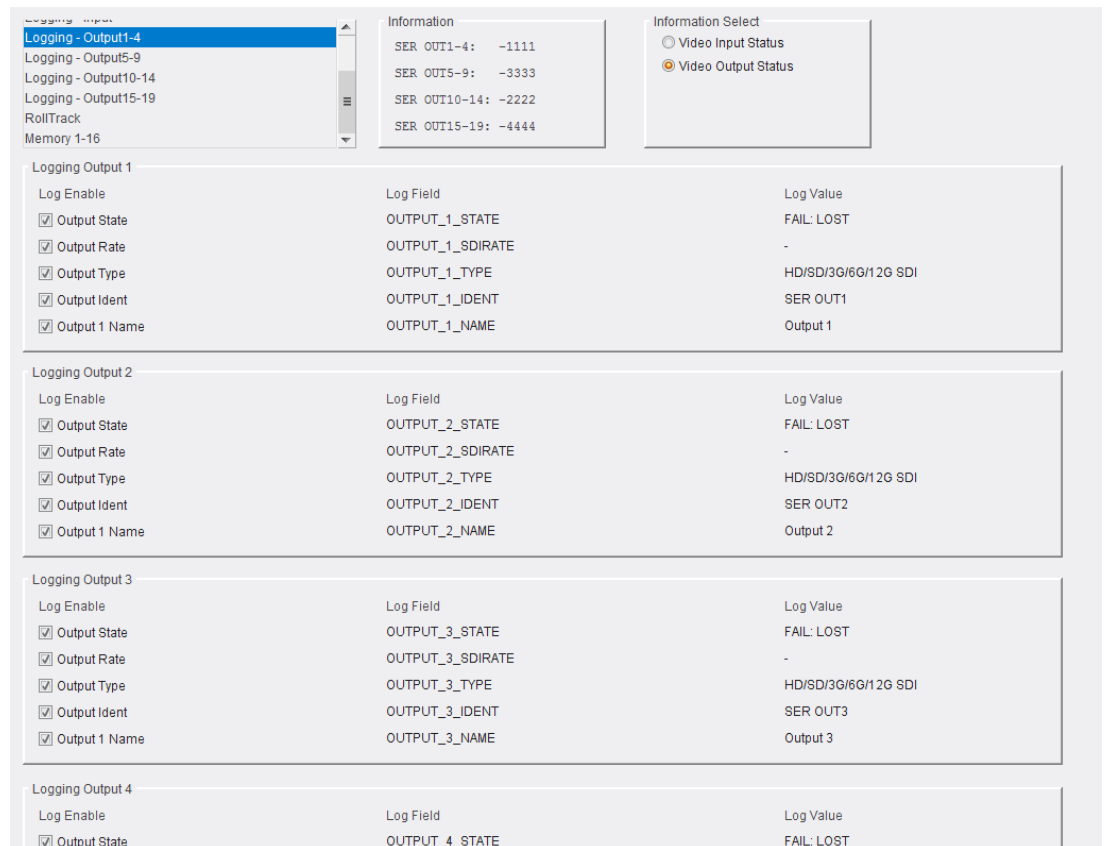
The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
INPUT_N_STATE=	Reports current state of the input signal. Valid values are: <ul style="list-style-type: none"> • OK: input signal good. • FAIL: input signal not detected.
INPUT_N_SDIRATE=	Reports current bit rate for the input.
INPUT_N_TYPE=	Reports current input type. Valid values are: <ul style="list-style-type: none"> • HD • SD • 3G • 6G • 12G • SDI
INPUT_N_IDENT=	Reports system-defined identifier for the input, based on the rear ID.
INPUT_N_NAME=	Reports name of the input, as defined on the Setup page; see section 5.4.

Where N is the input number

5.7 Logging - Output 1-n

The **Logging - Output 1-n** pages display current logging information for each output.



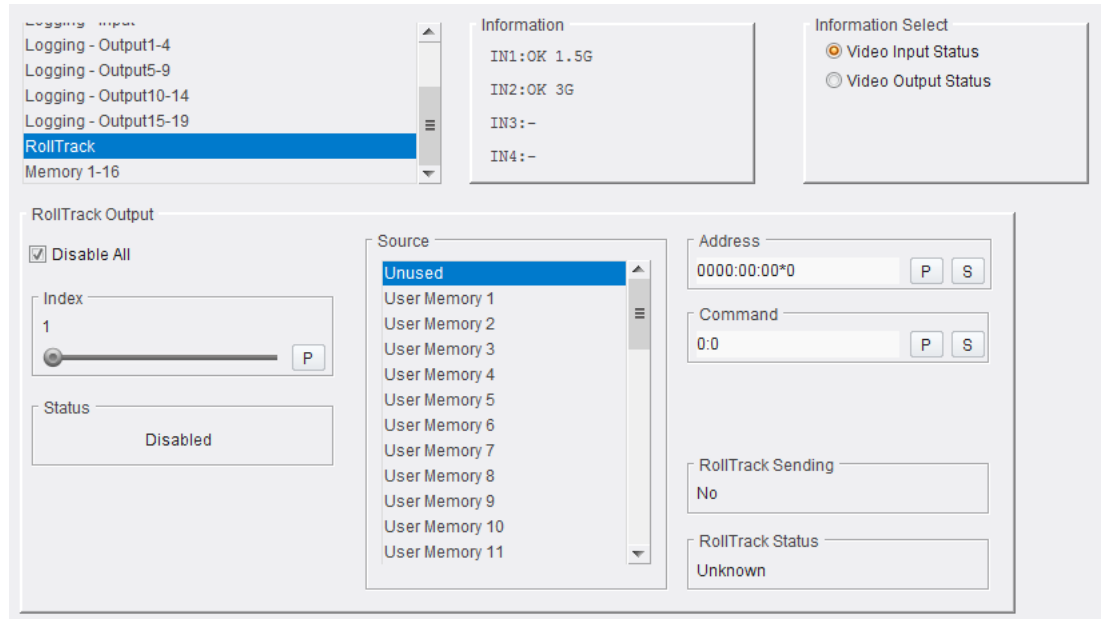
The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
OUTPUT_N_STATE=	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_SDIRATE=	Reports current bit rate for the output.
OUTPUT_N_TYPE=	Valid values are: <ul style="list-style-type: none"> • HD • SD • 3G • 6G • 12G • SDI
OUTPUT_N_IDENT=	Name of the output as shown on the rear panel.
OUTPUT_N_NAME=	Reports name of the output, as defined on the Setup page; see section 5.4.

Where N is the input number

5.8 RollTrack

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



5.8.1 Disable All

When checked, all RollTrack items are disabled.

5.8.2 Index

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

5.8.3 Source

This enables selection of the source of information which is to trigger the transmission of data. Clicking the **P** button selects the default preset value. When no source is selected, **Unused** is displayed.

RollTrack Source	Description
User Memory 1-16	User-defined.
Unused	No RollTracks sent.
Input N OK	Input N is good.
Input N LOST	Input N is bad.
Input N Bitrate 12G	Received bit rate is 12 Gbit/s.
Input N Bitrate 6G	Received bit rate is 6 Gbit/s.
Input N Bitrate 3G	Received bit rate is 3 Gbit/s.
Input N Bitrate 1.5	Received bit rate is 1.5 Gbit/s.
Input N Bitrate 270	Received bit rate is 270 Mbit/s.
Input N Bitrate Un.	Received bit rate is unknown.
TX N Bias OK	LASER Bias currently within limits.

RollTrack Source	Description
TX N Bias High	LASER Bias currently above limits.
TX N Bias Low	LASER Bias currently below limits.
RX N Power OK	Receive power is within limits.
RX N Power High	Receive power is above limits.
RX N Power Low	Receive power is below limits.

Where *N* is the input number

5.8.4 Address

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

The address may be changed by typing the new destination in the text area and then selecting the **S** button to save the selection. Clicking the **P** button 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-defined unique identification number for the destination unit in a multi-unit system. This ensures that only the correct unit will respond to the command. If left at 00 an incorrectly fitted unit may respond unexpectedly.

5.8.5 Command

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

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

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

- The first number (**84**) is the actual RollTrack command.

5.8.6 RollTrack Sending

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

Message	Description
String	A string value is always being sent.
Number	A number value is always being sent.
No	The message is not being sent.
Yes	The message is being sent.
Internal Type Error	Inconsistent behavior. Please contact your local SAM agent.

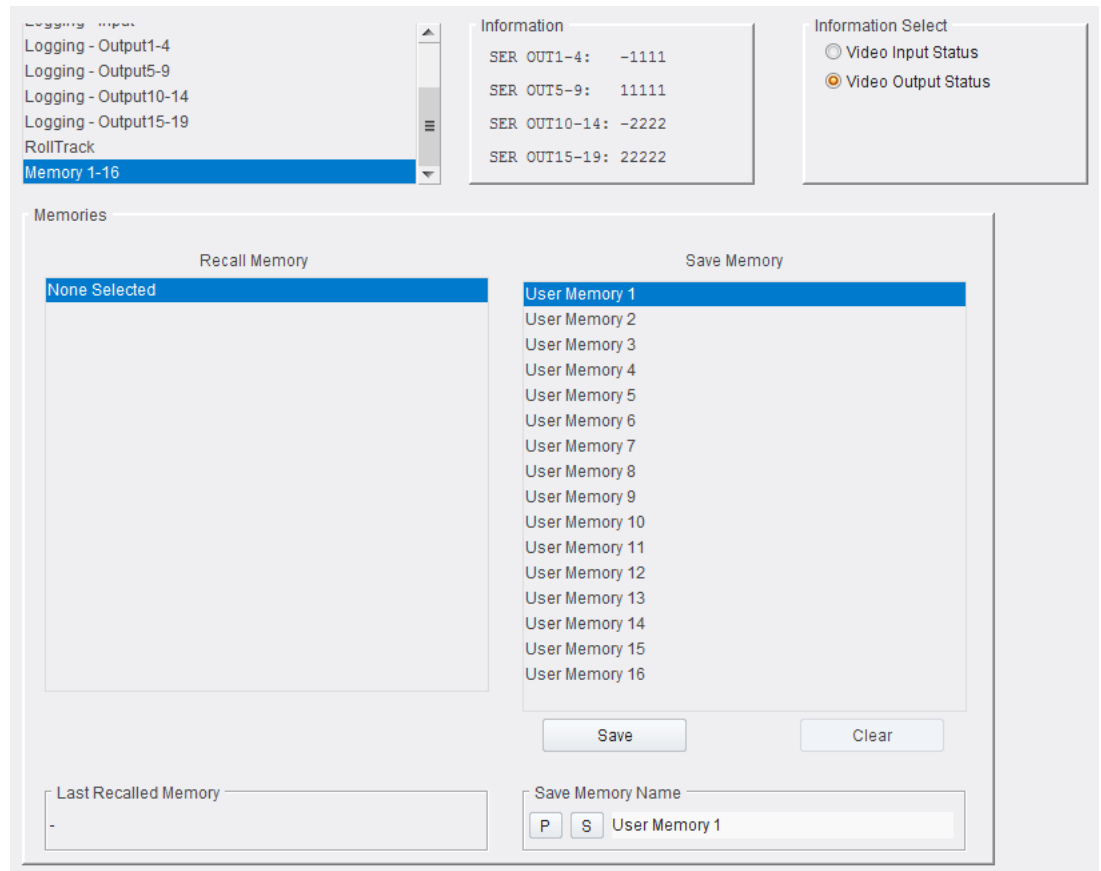
5.8.7 RollTrack Status

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

RollTrack Source	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 no acknowledgement 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.

5.9 Memory 1-16

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



5.9.1 Recall Memory

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

To recall the settings saved in a memory:

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

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

5.9.2 Save Memory

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

To save settings:

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

To clear a memory location:

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

5.9.3 Last Recalled Memory

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

5.9.4 Save Memory Name

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

To change a memory name:

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