User Manual

IQGBX40

12G/3G/HD/SD UHD-4KGearbox, Up, Down and Cross Converter

Information and Notices

Copyright and Disclaimer

Contact Details

Customer Support

For details of our **Regional Customer Support Offices** please visit the Grass Valley website.

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
RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVERS
NO USER SERVICEABLE PARTS
REFER SERVICING TO QUALIFIED PERSONNEL ONLY

Servicing instructions where given, are for use by qualified service 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.

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
RISQUE DE CHOC ELECTRIQUE
NE PAS RETIRER LE COUVERCLE
NE PAS INTERVENIR SANS L'AGREMENT DU SERVICE QUALIFIE

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 changr 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.

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

ACHTUNG
Gefahr von Elektroschocks.
Abdeckungen nicht entfernen
Keine vom Benutzer zu wartende Teile
Wenden Sie sich ausschließlich
an qualifiziertes Personal

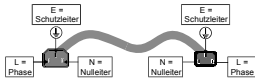
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation. 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 = Nulleiter
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.

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

ADVERTENCIA
RIESGO DE CHOQUE ELECTRICO
NO QUITAR LAS PROTECCIONNES
ELEMENTOS NO ACCESIBLES AL USUARIO.
SERVICIO SOLAMENTE A PERSONAL CUALIFICADO

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: (I)

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:

ATTENZIONE
RISCHIO DI SHOCK ELETTRICO NON CERCARE DI SMONTARE L'UNITÀ PER QUALSIASI TIPO DI INTERVENTO RIVOLGERSI AL PERSONALE QUALIFICATO

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.

Forklaring på sikkerhedssymboler (DK)

Dette symbol gør brugeren opmærksom på vigtig information i den medfølgende manual.

Dette symbol indikerer farlig spænding inden i apparatet. Ingen bruger servicerbare dele i apparatet på brugerniveau.
Dette apparat må kun serviceres af faglærte personer..

Sikkerhedsadvarsler

FORSIGTIG
RISIKO FOR ELEKTRISK STØD DÆKPLADER MÅ IKKE FJERNES INGEN BRUGER SERVICERBARE DELE SERVICE MÅ KUN UDFØRES AF FAGLÆRTE PERSONER

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 jordet.**
- **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 lystnetudgange fra den samme fase.

Förklaring av Säkerhetssymboler (S)

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 få endast repareras av utbildad personal.

Säkerhetsvarningar

CAUTION
RISK OF ELECTRIC SHOCK DO NOT REMOVE COVERS NO USER SERVICEABLE PARTS REFER SERVICING TO QUALIFIED PERSONNEL ONLY

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 försörjd från ett strömsystem som är försedd med jordadanslutning ⏚ samt ha en neutral anslutning som lätt identifierbar.**
- **Vägguttaget som strömförsörjer apparaten bör finnas i närheten samt vara lätttillgänglig.**

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.

Turvamerkkien selitys (FI)

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

VAROITUS
SÄHKÖISKUN VAARA ÄLÄ AVAA LAITTEEN KANSIA EI SISÄLLÄ KÄYTTÄJÄLLE HUOLLETTAVIA OSIA HUOLTO AINOASTAAN AMMATTILAISEN SUORITTAMANA

Huolto-ohjeet on tarkoitettu ainoastaan alan ammattilaisille. Älä suorita laitteelle muita toimenpiteitä, kuin mitä käyttöohjeissa on neuvottu, ellet 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 nollaliitännän 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 nollajohdin N-napaan
RUSKEA vaihejohdin L-napaan

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

Símbolos de Segurança

P

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:

Condutor VERDE/AMARELO ligado a E (Terra)
Condutor AZUL ligado a N (Neutro)
Condutor CASTANHO ligado a L (Vivo).

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 επισκευάσιμα 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.**

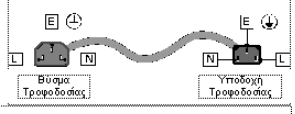
Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

Ο εξοπλισμός συνοδευέται 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:

ΠΡΑΣΙΝΟ/ΚΙΤΡΙΝΟ καλώδιο συνδέεται στο E (Προστατευτικός Αγωγός Γείωσης)

ΜΠΛΕ καλώδιο συνδέεται στο N (Ουδέτερο Αγωγό)

ΚΑΦΕ καλώδιο συνδέεται στο L (Αγωγό Φάσης)



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 E193966

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

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.

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.

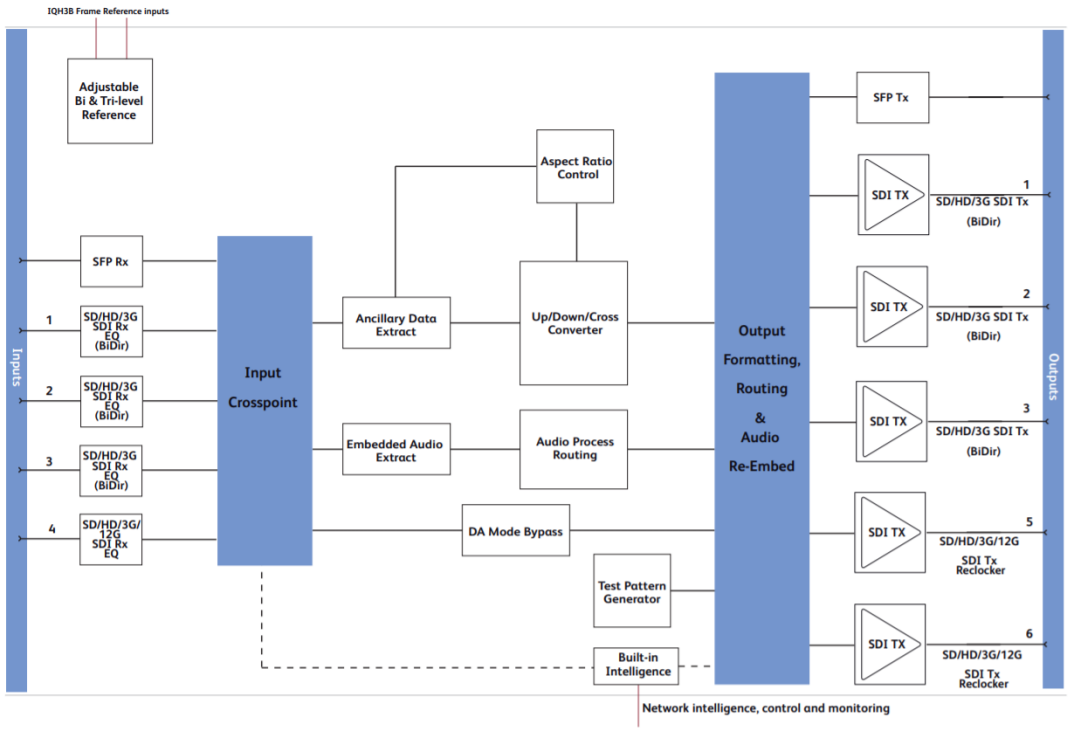
Contents

1 Introduction

1.1 Description

The IQGBX40 provides format conversion between SD or HD SDI signals and UHD-1 4K in either quad-link 3G or single link 12G standards. High quality conversion technology is used, allowing SD or HD signals to be upconverted and reassembled seamlessly for broadcast applications. Handling both quad-link and 12G I/O means that the IQGBX40 can also gearbox quad-link UHD signals to or from a single link transport, thereby saving on cabling overhead and avoiding potential timing issues.

1.2 Block Diagram



1.3 Feature Summary

- Interfacing between quad-link and 12G single link UHD-1 4K signals, with two dedicated 12G outputs available.
- Selectable up, down and cross conversion for UHD-4K (single or quad link SQ or 2SI modes)/HD/SD-SDI inputs with clean transition between standards and input format detection.
- SDI input and output crosspoint routing for link swapping in quad link applications.
- Integrated Fiber I/O support via SFP module to ST297M 2015, data rates up to 12Gbps supported.
- Frame synchronizer, with minimum delay mode and Y/C timing adjustment.
- HD Tri-sync/SD Bi-Level Reference Input via IQ frame connection.
- User-variable static aspect ratio conversion with 40 programmable display memories.
- Fixed selection (9 presets), including pan, tilt and zoom functions with pixel-accurate control.
- Aspect ratio control using SMPTE 2016 AFD signaling (read and write).
- Color space conversion - auto, ITU 601, ITU 709 (SMPTE-274).
- 16-channel embedded audio with SDI link selection, synchronizing and processing for PCM audio signals (gain and invert) and channel-level audio routing.
- Tracking audio delay which seamlessly tracks the video delay of external RollTrack inputs.
- Input Loss Detection - Cut to Black, Pattern or Freeze.
- Test pattern generator selectable between 100% bars and black, caption generator with up to 19 user definable characters, including adjustable X, Y sizing and caption position.
- Remote Status Monitoring - Input standard, Reference Status and CRC/EDH error checking.
- 16 user memories.
- Rollcall control and monitoring compatible, with standard logging and reporting features.

1.4 Order Codes

The following product order codes are covered by this manual:

IQGBX4000-2B4 UHD-4K/3G/HD/SD Gearbox, Up, Down & Cross Converter

1.5 Rear Panel View

The following rear panel type is available.:

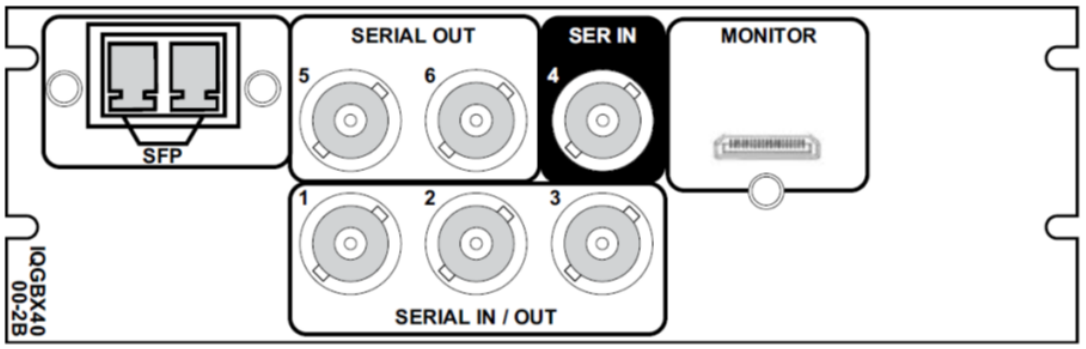


Figure 1 IQGBX4000-2B4

1.6 Enclosures

The module can be fitted into the enclosure types shown.

1.6.1 B-style Enclosure

Enclosure order codes: IQH3B-S-0, IQH3B-S-P

Note: The IQH3B enclosure provides two internal analog reference inputs. These inputs are applicable to modules with “B” order codes only.

2 Technical Specification

Inputs/Outputs	
Video Signal Inputs/Outputs	
SDI Input	1 (12G/3G/1.5G/270M)
SDI Bi-directional Inputs/Outputs	3 (3G/1.5G/270M)
Input Cable Length	Up to 40m Belden 1694A @ 12 Gbit/s Up to 80m Belden 1694A @ 3 Gbit/s Up to 180m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Input Standard (auto detect)	SD - 525, 625, HD - 720 50/59.94/60p, HD - 1080 25/29/30i, 3G - 1080/2160 (quad) 50/59.94/60p (A & B) 12G - 2160 50/59.94/60p (2SI) BNC 4 only
Analog Reference	1 x Analog Reference Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) selectable from IQH3B frame reference connections
Fiber Signal Input	
Input	1
Optical	12GBit/s UHD-SDI, 3 GBit/s HD-SDI, 1.485 GBit/s HD-SDI or 270 Mbit/s SD-SDI
Connector/Format	LC single mode
Standard	SMPTE 297-2006
Video Signal Outputs	
SDI Outputs	5 (3 x 3G/1.5G/270M, 2 x 12G/3G/1.5G/270M)
Output Standard	SD - 525, 625 HD - 720 50/59.94/60p, 1080 25/29/30i, 3G - 1080/2160 (quad) 50/59.94/60p (A & B) 12G - 2160 50/59.94/60p (2SI) - BNC 5 & 6 only
Fiber Signal Output	
Output	1
Optical	12GBit/s UHD-SDI, 3 GBit/s HD-SDI, 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
Connector/Format	LC single mode
Conforms to	SMPTE 297-2006

Controls	
Conversion Functions	
Quad Link Type	SQ Div, 2SI
Modes	Distribution Amp - 1 in, 2 out Quad-link to 12G UHD gearbox Up, down, and cross conversion Test pattern generator
I/O Port Mapping	Input 1 - 4 selectable to link 1 - 4
Output Standard Select	525, 625, 720 50/59.94/60p, 1080 25/29/30i, 1080/2160 (quad) 50/59.94/60p (A & B), 2160 50/59.94/60p (2SI)
Signaling Type	WSS (ETSI or AFD), VI (SMPTE or AFD), SMPTE 2016
Preset Selections	Full Frame, Box 16:9 top > 16:9, 4:3 box 14:9 top > 16:9, Box 16:9 > 16:9, Box 4:3 > 4:3, 4:3 > box 16:9, 16:9 > box 4:3, 4:3 box 14:9 > 16:9, 16:9 box 14:9 > 4:3
Manual ARC Control	Size, Aspect, Pan, Tilt
Crop and Scale	Left, Right, Top and Bottom
32 Display Memories	Save, Recall, Rename
Audio Functions	
Embedded audio	16-channel embedded audio passed with delay to match the video processing
Audio Source	Link 1-4
Group/Channel Active	Group 1-4
Embed audio	On/Off
Other Controls	
Genlock	Link 1-4, Frame ref A/B, Free run
User Memories	16 x Save, Recall, Rename
Memory Naming	User-configurable naming of memories 1 – 16
Pattern	Off, Black, 100% Bars
Video Logging	Type, State, Standard
Audio Logging	Link 1-4 pair 1-8 state
Information Window	Link Input Status, Video Output status, Input status
Factory Default	Resets all module settings to factory specified default values and clears memories.
Default Settings	Resets all module settings to factory specified defaults but does not clear memories
Module Information	Reports following module information: software version & build, serial number

Specifications	
Electrical	12Gbit/s SDI, SMPTE 2082M, 3Gbit/s SDI, SMPTE 425M 1.5Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C
Connector Format	BNC 75Ω panel jack on standard IQ connector panel
Reference Source	External – HD Tri-Level/SD Bi-level/Input Video syncs
Electrical	Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A HD Tr-level – SMPTE 240M and 274M
Connector/Format	BNC 75 Ω panel jack on standard IQ connector panel
Power Consumption	
Module Power Consumption	27PR (B frames)

2.1 Features

Communication	
RollNet	Via BNC connector
Indicators	
Power rails	Green, +3V3, +5V, -5V
PSUERROR	Red, Overload. To reset PSU, power cycle the card
RollCall TX	Green Activity LED
RollCall RX	Yellow Activity LED
RollCall Error	Red Warning LED

3 Connections

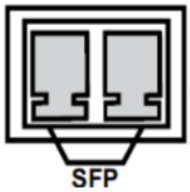
This section describes the physical input and output connections provided by the IQGBX40.

3.1 IQGBX4000-2B4

3.1.1 SDI BNC Input/Outputs

12G/3G/HD/SD-SDI interfaces provided with HD-BNC.	
SDI 1 = Input/Output	3G/HD/SD-SDI
SDI 2= Input/Output	3G/HD/SD-SDI
SDI 3 = Input/Output	3G/HD/SD-SDI
SDI 4 = Input	12G/3G/HD/SD-SDI
SDI 5 = Output	12G/3G/HD/SD-SDI
SDI 6 = Output	12G/3G/HD/SD-SDI

3.1.2 SFPs

SFP support 12G/3G/HD/SD-SDI.	

3.1.2.1 Using MSA/Non MSA-Compliant SFPs - Jumper Settings

Both MSA and non MSA-compliant SFPs may be used with the IQGBX40. From the factory, the module is configured to use non MSA-compliant units, but this can be changed to allow the use of compliant ones. This is accomplished by setting on-card jumpers as described below.

MSA-Compliant SFPs

Short pins as shown:

- J4 - short pins
- **J5** - short pins
- J6 - short pins
- J7 - short pins
- J9 - short pins

Non MSA-Compliant SFPs (Default)

- J4 - short pins 1-2
- **J5** - no jumper
- J6 - short pins 1-2 and 3-4
- J7 - short pins 1-2
- J9 - short pins 2-3

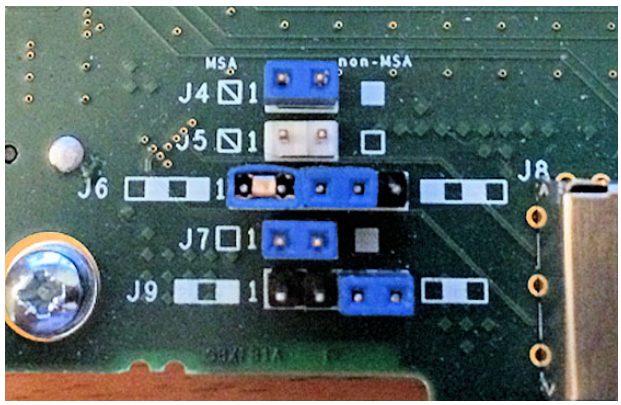
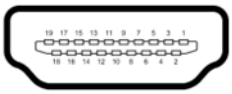


Figure 2 Jumper Settings - Non MSA-Compliant

3.1.3 HDMI (Not yet implemented)

HDMI support 3G/HD/SD-SDI.



4 Card Edge LEDs

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

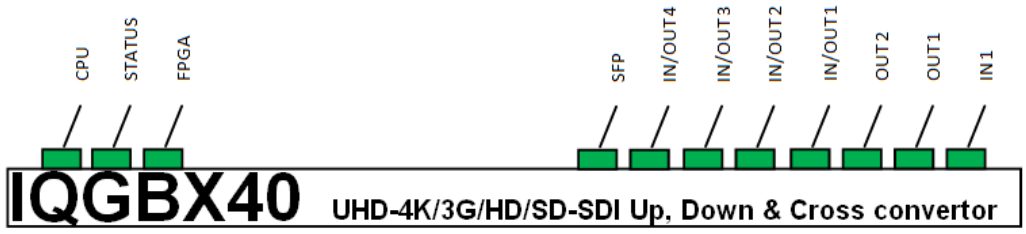


Figure 3 Card Edge LEDs

LED	Color	Description
CPU	Green Flashing	CPU OK
Status	Red Yellow Green	Error Warning Green
FPGA	Green Flashing	FPGA OK
SFP		For future development
IN/OUT 1-4		Input/Output Standard Detection LEDs:
	Red	UHD signal detected
	Blue	3G signal detected
	Green	HD signal detected
	Yellow	SD signal detected
	Red	No signal detected
OUT 1-2		Output Standard Detection LEDs:
	White	UHD signal detected
	Blue	3G signal detected
	Green	HD signal detected
	Yellow	SD signal detected
	Blue	No signal detected
IN 1		Input/Output Standard Detection LEDs:
	White	UHD signal detected
	Blue	3G signal detected
	Green	HD signal detected
	Yellow	SD signal detected
	Red	No signal detected

5 RollCall Control Panel

This section contains information on using IQGBX40 modules with RollCall.

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

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.

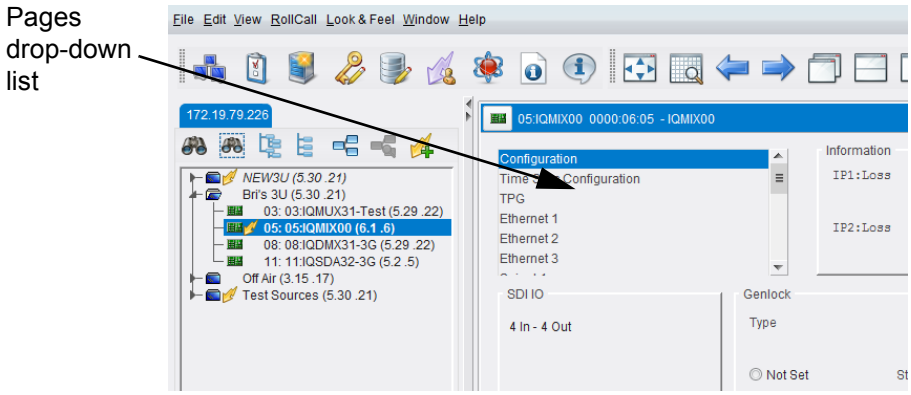


Figure 4 Template Pages

5.1.1 Template Pages

The following pages are available:

- **Video Input** - See section 5.3.
- **Video Output** - See section 5.4.
- **I/O Ports** - See section 5.5.
- **ARC Control** - See section 5.6.
- **Wide Screen Signaling** - See section 5.7.
- **Embed On/Off** - See section 5.8.
- **Genlock & Video Delay** - See section 5.9.
- **Memory** - See section 5.10.
- **Video Input Logging** - See section 5.11.1.
- **Video Link Logging** - See section 5.11.2.
- **Link 1-2 Aud State Logging** - See section 5.11.3.
- **Link 3-4 Aud State Logging** - See section 5.11.4.
- **Misc Logging** - See section 5.11.5.
- **Video Output Logging** - See section 5.11.6.
- **Reference Logging** - See section 5.11.7.
- **Output Aud State Logging** - See section 5.11.8.
- **Wide Screen Logging** - See section 5.11.9.
- **Setup** - See section 5.12.

5.1.2 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.

5.2 Unit Status

The **Unit Status** display pane appears at the top of each page, and shows basic status information for the module. The information to be displayed is selected from the **Information Window** pane to the right of the **Unit Status** display.

Figure 5 Unit Status and Information Window Panes

5.3 Video Input

The **Video Input** page provides control over the SDI inputs.

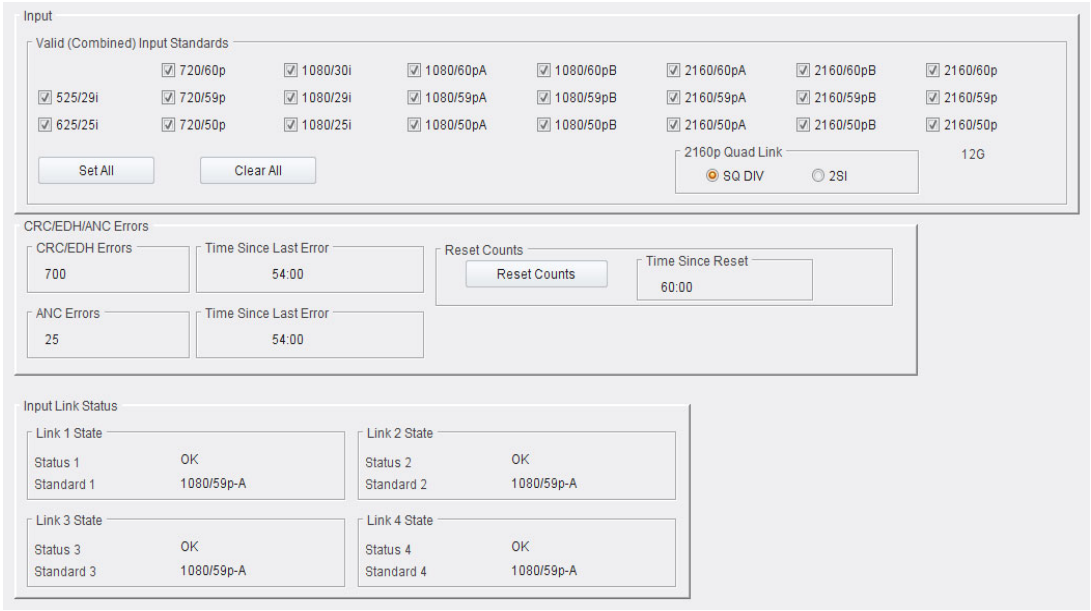


Figure 6 Video Input Page

5.3.1 Valid Input Standards

This allows valid input standards to be specified. If a standard other than those selected is presented to the unit, an error will be logged.

Select all input standards which are to be considered as being valid, and the appropriate 2160p transport format.

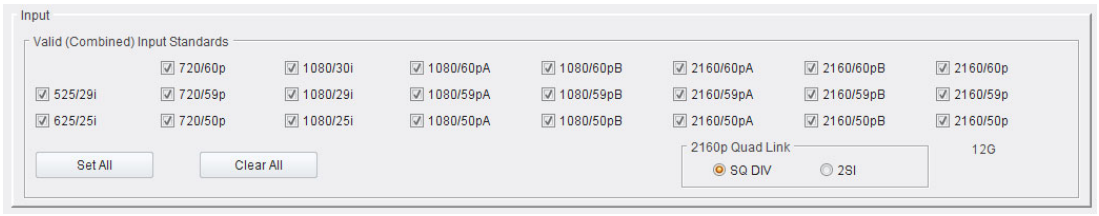


Figure 7 Valid Input Standards Pane

Note: When 2160/60p or 2160/50p input is selected, if 2160/59p output is also selected, the output will go to the default output and input logs will not be written.

The same occurs if 2160/59p input is applied when 2160/60p or 2160/50p outputs are selected.

5.3.2 CRC/EDH/ANC Errors

This pane shows the number errors received since the last reset, and the time since the counters were last reset.

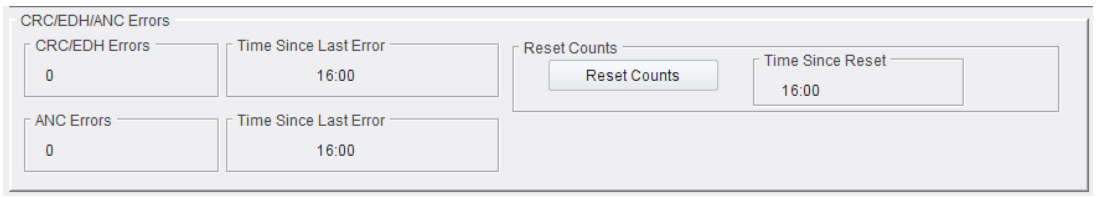


Figure 8 CRC/EDH/ANC Errors Pane

5.3.3 Input Link Status

The **Input Link Status** pane shows the link status for the four streams comprising the UHD input.

Figure 9 Input Link Status Pane

5.4 Video Output

The **Video Output** page provides controls that affect the mode of operation and the output standard.

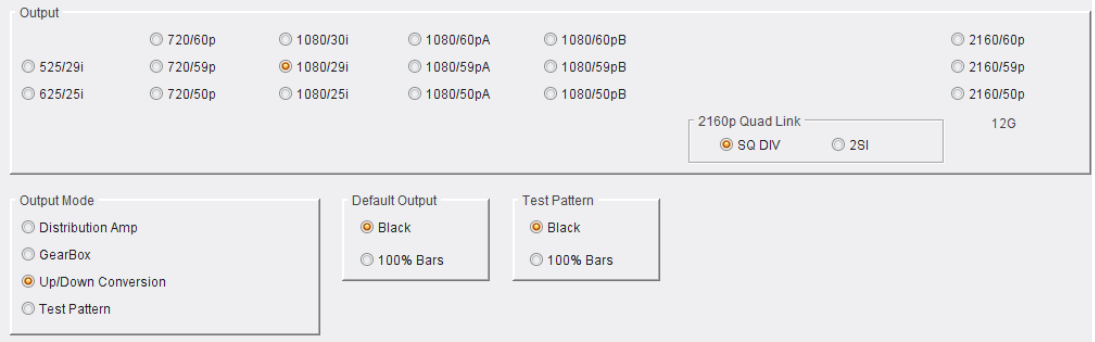


Figure 10 Video Output Page

Make settings as required.

Note: When 2160/60p or 2160/50p input is selected, if 2160/59p output is also selected, the output will go to the default output and input logs will not be written.

The same occurs if 2160/59p input is applied when 2160/60p or 2160/50p outputs are selected.

5.4.1 Output Mode

The IQGBX40 has the following modes of operation:

- **Distribution Amp**: The input is passed though the product to the output unchanged.
- **Gearbox**: The IQGBX converts between UHD standards.
- **Up/Down Conversion**: The input is converted to the desired output standard.
- **Test pattern**: A test pattern is output.

5.4.2 Default Output

Defines a default output to be used in the absence of an input.

5.4.3 Test Pattern

Select the test pattern to be output.

5.5 I/O Ports

The **I/O Ports** page allows signal routing to be configured.

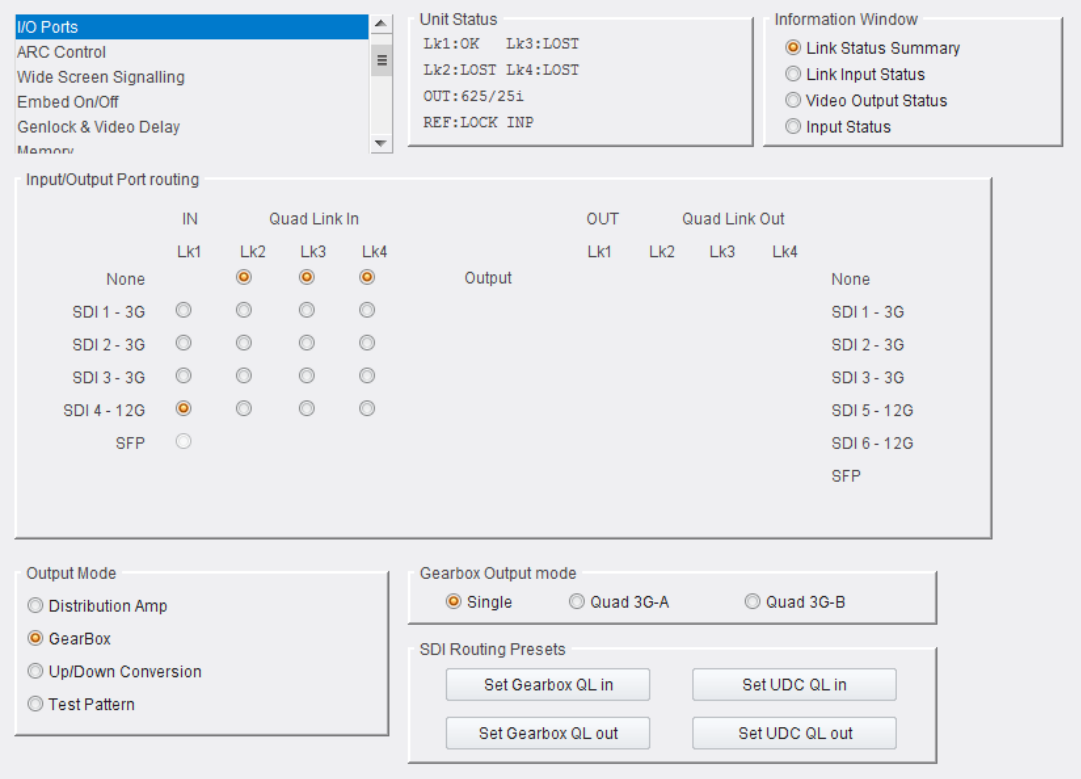


Figure 11 I/O Ports Page

5.5.1 Input/Output Port Routing

The routing table is split into two: **Input**(s) and **Output**(s).

- SDI 1, 2 and 3 can be configured as either inputs or outputs; enable the **Output** check boxes as required. The setting is mirrored in the appropriate routing table.
- SDI 4 is always an input capable of supporting up to 12G-SDI.
- SDI 5 and 6 are always outputs, both being capable of supporting up to 12G-SDI.
- By selecting the appropriate combination of inputs and outputs, the module can be configured to support single-link 12G-SDI or quad-link 3G-SDI, on either the input or output side. Link association/order for the quad-link interface is also controlled from here. See also section 5.5.4 for information on presets.

5.5.2 Output Mode

The IQGBX40 has the following modes of operation:

- **Distribution Amp**: The input is passed though the product to the output unchanged.
- **Gearbox**: The IQGBX converts between UHD standards.
- **Up/Down Conversion**: The input is converted to the desired output standard.
- **Test Pattern**: A test pattern is output.

Select as required.

5.5.3 Gearbox Output Mode

Select the required output mode:

- **Single** - output via single link.
- **Quad 3G-A** - output via quad link level A.
- **Quad 3G-B** - output via quad link level B.

See *SMPTE 425M: 3 GB/s Signal/Data Serial Interface — Source Image Format Mapping* for information on quad link levels.

5.5.4 SDI Routing Presets

The IQGBX40 provides four routing presets. Selecting one of these automatically sets the routing table to the appropriate configuration for the mode chosen.

- **Set Gearbox QL In** - quad link input.
- **Set Gearbox QL Out** - quad link output.
- **Set UDC QL In** - Up/down conversion quad link input.
- **Set UDC QL Out** - Up/down conversion quad link output.

Select as required.

5.6 ARC Control

The **ARC Control** page allows the aspect ratio conversion to be controlled manually, including picture size and position adjustments.

All parameters on this page are saved in global Display Memories.

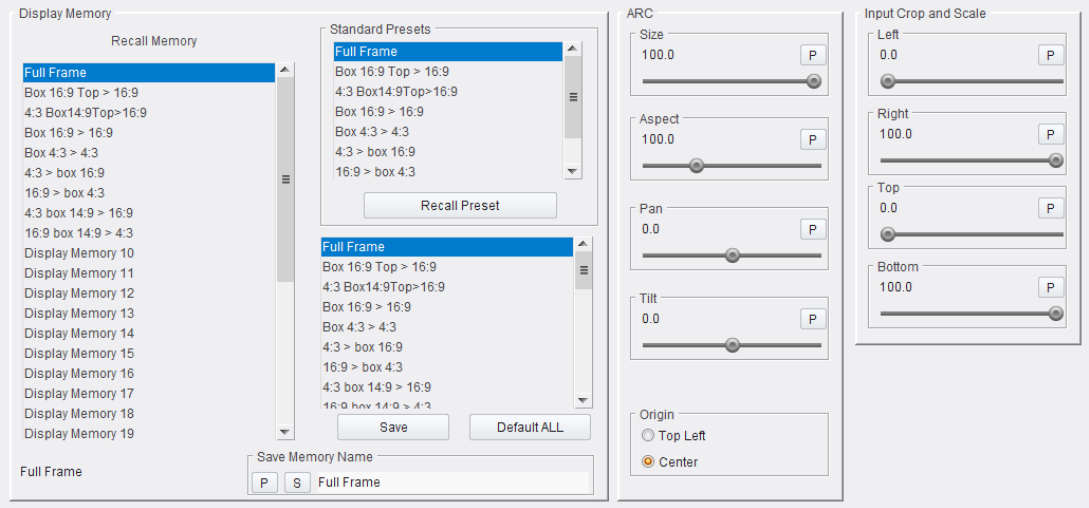


Figure 12 ARC Control Page

5.6.1 Display Memory

These are user-programmable memories which are used in conjunction with automatic aspect ratio conversion (under Wide Screen Signaling control - see section 5.7) and any manual aspect conversion selections. By default they have the first nine loaded with the scaling values used for aspect mapping, but any can be modified or overwritten for customization. In particular, use of the input crop may be desirable to hide WSS (line 23) or 608 (line 21) signaling.

5.6.2 Recall Memory

This also allows copying of individual aspect conversions back into original or new Display Memories.

To recall a setup from memory, select a name from the list and the new settings will be applied.

Adjustments may be made using the ARC controls (Size, Aspect, Pan and Tilt), and then the configuration saved to a display memory location selected from the list. To save the configuration, select the location and click **Save**. The name of the memory location may be changed using the **Save Memory Name** button; see section 5.6.4.

Note: If any changes are made to the ARC controls, the text highlighting will disappear and an asterisk will be shown below the Recall Memory list. The current conversion would normally be shown here.

5.6.3 Standard Presets

To recall a configuration from the list of standard presets, select a name from the list and click **Recall Preset**; the new settings will be applied immediately.

5.6.3.1 Default All

Selecting this item will return all 40 display memory settings and their names to their default factory values.

5.6.4 Save Memory Name

The display memory name may be changed with this function. This name will then appear in the Display Memory/Recall Memory list and on the Wide Screen Signaling screen Display Memory lists.

Clicking **P** will return the text to the default name.

5.6.5 ARC

This allows the size and position of the picture to be adjusted.

- Size: Adjusts the size of the whole image. Both vertical and horizontal size change together while maintaining the aspect ratio of the image. The range of control is from 60% to 200% in 0.1% steps. Preset value is 100%.
- Aspect: Adjusts the horizontal size of the image, allowing the shape (aspect ratio) of the output image to be changed. Increasing the value will increase the width of the picture. The range of control is from 60% to 200% in 0.1% steps. Preset value is 100%.
- Pan: Adjusts the horizontal position of the output image. The range of control is ±75% in 0.1% steps. Preset value is 0.0%. Increasing values will move the picture to the right.
- Tilt: Adjusts the vertical position of the output image. The range of control is ±75% in 0.1% steps. Preset value is 0.0%. Increasing values will move the picture down.
- Origin: Defines the fixed position of the picture within the raster.
    - **Top Left**: The picture will be positioned at the top left hand corner of the raster. This allows easier support of a few picture formats where the active picture format is a partial screen contained in a larger resolution "carrier".
    - **Center**: The picture will be positioned in the center of the raster.

5.6.6 Input Crop and Scale

This function allows the adjustment of input blanking, and is used where the source video has pixels/lines at the edge of the picture that are not required to be displayed. When set, the unit blanks any output data generated by the input data, regardless of the display control settings.

- Left: This adjusts the left-hand edge of blanking. A setting of 0 (default) indicates that no input pixels are blanked, 3 cause the first 3 input pixels to be blanked, etc.
- Right: This adjusts the right-hand edge of blanking. A setting of 0 (default) indicates that no input pixels are blanked, 2 cause the last 2 input pixels to be blanked, etc., e.g. pixels 1920 and 1919 from a 1080i picture.
- Top: This adjusts the top edge of blanking. A setting of 0 indicates that no input lines that are normally visible should be blanked, 4 cause the first 4 input lines to be blanked, etc.
- Bottom: This adjusts the bottom edge of blanking. A setting of 0 indicates that no input lines that are normally visible should be blanked, 1 causes the last input line to be blanked, etc., e.g. line 720 from a 720p picture.

Note: Blanking should be measured as offsets from the extreme. For example, a value of 4 would be 4 pixels from the highest legal pixel for any video mode. An example would be where the highest legal pixel is 1920, in which case blanking would apply at 1916. Pixels are counted with 1 as the first.

5.7 Wide Screen Signaling

The **Wide Screen Signaling** page allows wide screen signaling and picture aspect conversions to be configured.

Automatic aspect ratio control from input signaling can be achieved using mapping tables for aspect conversions (Display Memory recalls), and signaling to downstream devices. Use of Display Memories allows non-standard transformations & overscan preferences to be applied.

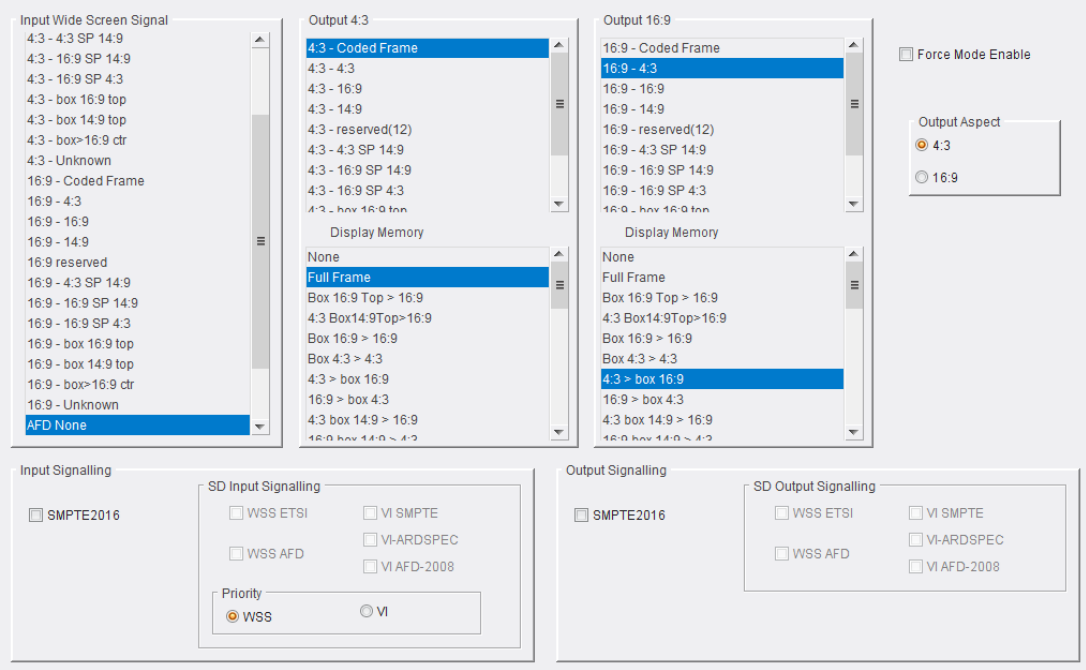


Figure 13 Wide Screen Signaling Page

Note: Other than enabling the required input and output interfaces and output aspect ratio, there should be no need to modify this area, since the mapping is designed to produce expected conversions from the consistent format descriptions.

5.7.1 Input Wide Screen Signal

This allows input signal choice for configuration of mapping tables, and forcing for previewing mappings. When all input signaling enables have been disabled, i.e. WSS/VI/2016, or when any is enabled but no signaling is present, the AFD Input value will be **AFD None**.

5.7.2 Output 4:3/Output 16:9

The four list boxes in the **Output 4:3** and **Output 16:9** columns constitute the mapping tables, and may be modified at any time. They may be returned to the original state by clicking **Factory Defaults**.

A memory selection of **None** inhibits a load of a memory, so the last aspect conversion is held.

Input active formats may include **Unknown** (e.g. for Video Index RP186), and a mapping to Coded Frame (i.e. full screen) is assumed, although this is may be modified if required.

An output selection of **Delete** is used to remove output wide screen signaling for any input AFD. This will force any enabled signaling to **OFF** whilst this setting is in operation.

5.7.3 Input Signaling

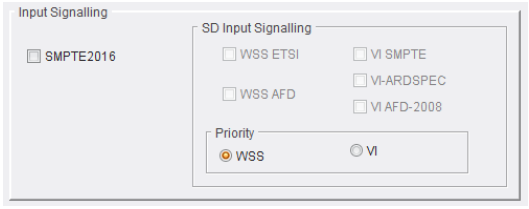


Figure 14 Input Signaling Pane

The IQGBX40 can be set to react to incoming SMPTE2016 wide screen signaling information; click the **SMPTE2016** check box to enable. Note it is not necessary to specify the expected input line as this is automatically detected.

Enable the **SD Input Signaling** controls as required:

- **WSS ETSI**: Wide screen signaling to ETS 101154 (line 23). 625/50 only.
- **WSS AFD**: Wide screen signaling including Active Format based on ARD Spec 1 (UK). 625/50 only.
- **VI SMPTE**: Video Index to SMPTE RP186 line 11/324 (625), line 14/276 (525).
- **VI AFD**: Video Index including Active Format based on ARD Spec 1 (UK).
- **VI AFD-2008**: Video Index including Active Format based on RP168A (AFD 2008).
- **Priority**: WSS/VI allows the appropriate input interface to be selected when both are present, in order to avoid any possible conflicts.

5.7.4 Output Signaling

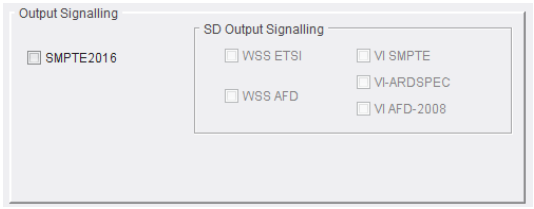


Figure 15 Output Signaling Pane

The IQGBX40 can be set to insert VI and/or WSS signaling into the output stream. Select the **SMPTE2016** check box to enable insertion, then select the **SD Output Signaling** check boxes as required. WSS and VI can be inserted simultaneously.

- **WSS ETSI**: Wide screen signaling to ETS 101154 (line 23). 625/50 only.
- **WSS AFD**: Wide screen signaling including Active Format based on ARD Spec 1 (UK). 625/50 only.
- **VI SMPTE**: Video Index to SMPTE RP186 line 11/324 (625), line 14/276 (525).
- **VI ARDSPEC**: Video Index including Active Format based on ARD Spec 1 (UK).
- **VI AFD-2008**: Video Index including Active Format based on RP168A (AFD 2008).

5.7.5 Force Input Mode

When active, this allows previewing of the conversion mappings by forcing an equivalent input wide screen signal.

Up to four manual settings are available when the **Force Mode Enable** check box is enabled. AFD/ARC combinations can be assigned for different force modes. Select the one required using the **Input Wide Screen Signal** list box.

5.7.6 Output Aspect

This allows the output aspect ratio to be chosen, either 4:3 or 16:9. This will be the target aspect ratio choice for conversion to, and for indication as the current output. As such it will direct the mapping choices.

The **Output Aspect** setting is stored for each input wide screen signal selection.

5.8 Embed On/Off

Not currently used.

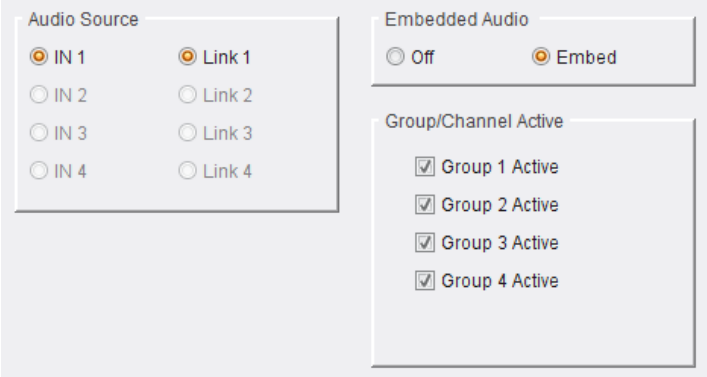


Figure 16 Embed On/off

5.9 Genlock & Video Delay

Not currently used.

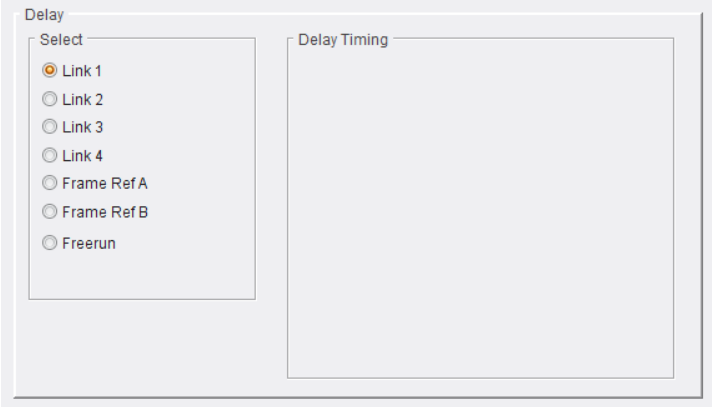


Figure 17 Genlock & Video Delay

5.10 Memory

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

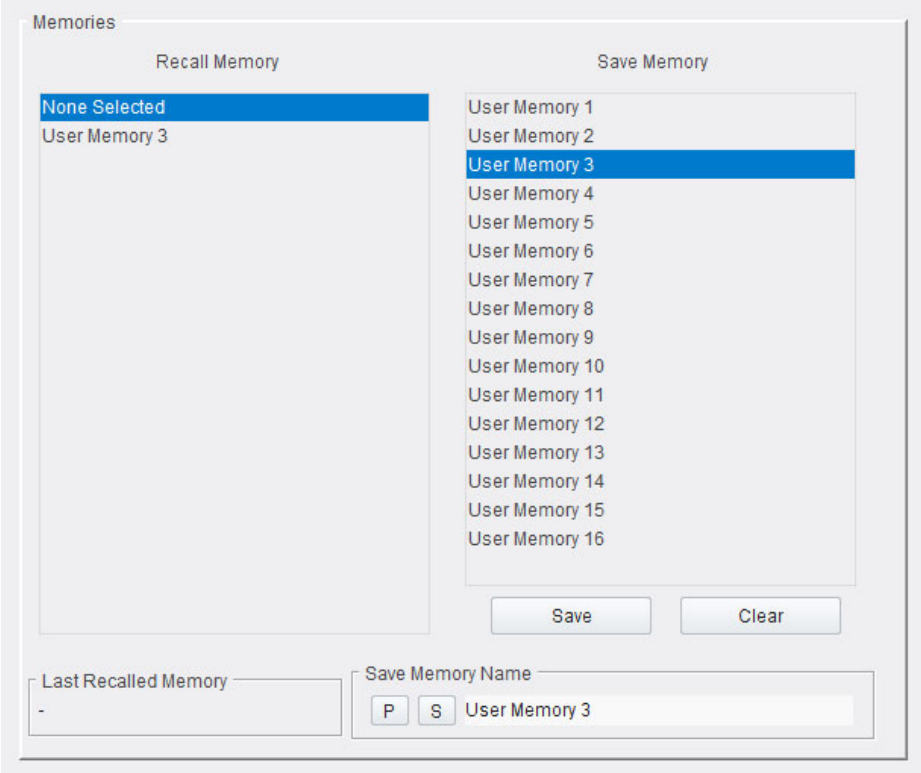


Figure 18 Memory Page

Enter the memory name in the **Save Memory Name** field as required, then click **S** to save it or **P** to return to the preset default value.

5.10.1 Savesets

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

5.10.1.1 Saving a Saveset

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

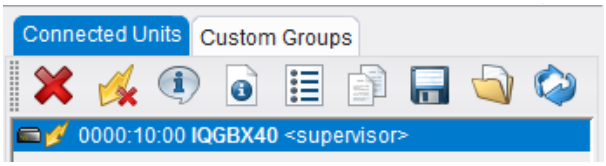


Figure 19 Connected Units Pane

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

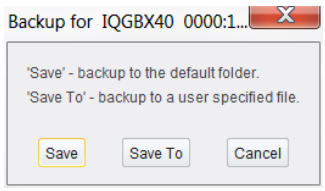


Figure 20 Backup Dialog

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

5.10.2 Restoring a Saveset

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

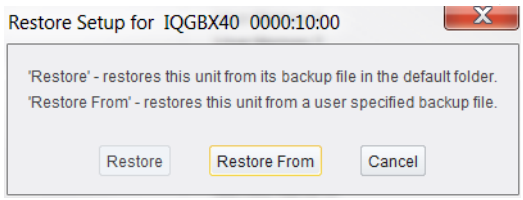


Figure 21 Restore Dialog

2. Click **Restore** to restore from the default folder, or **Restore From** to restore from a specified folder.

5.11 Logging

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

Log Field: Displays the name of the logging field.

Log Value: Displays the current log value.

5.11.1 Video Input Logging

The **Video Input Logging** page shows the fields to be logged for each input.

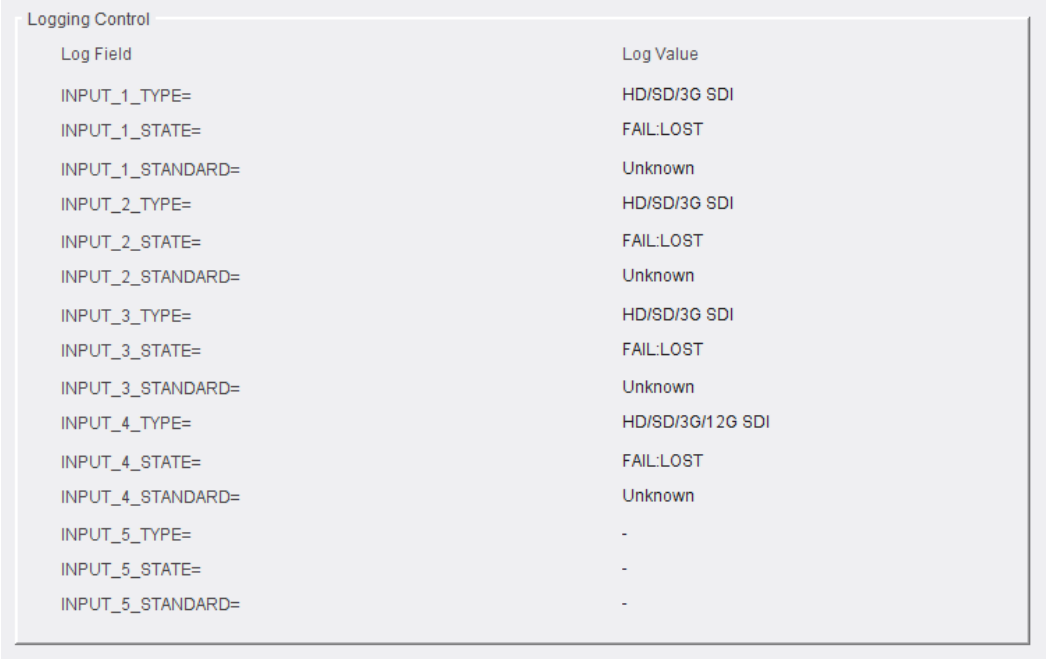


Figure 22 Video Input Logging Page

Log Field	Description
INPUT_N_TYPE=	Reports the input type (4K/HD/SD/3G SDI).
INPUT_N_STATE=	**OK**: input signal good. **FAIL**: input signal not detected. **WARN**: input present but does not match reference standard or selected standard.
INPUT_N_STANDARD=	• Unknown • PAL, NTSC, 625 Mono, 525 Mono • SDI input standard in the format: **<Lines>(<Active>)/<Rate><i/p/sf>** Where: • **Lines** = Total lines • **Active** = Active lines • **Rate** = Frame rate

Log Field	Description
	• **I** = Interlaced • **P** = Progressive • **SF** = Segmented Frame **For example**: 1080/50p or 1125(1080)/25i • **SDTI** • **MP1V** • **MP2V** • **MP4V** • **VC-2**

Where N is the input number

5.11.2 Video Link Logging

The **Video Link Logging** page shows the fields to be logged for each video link input.

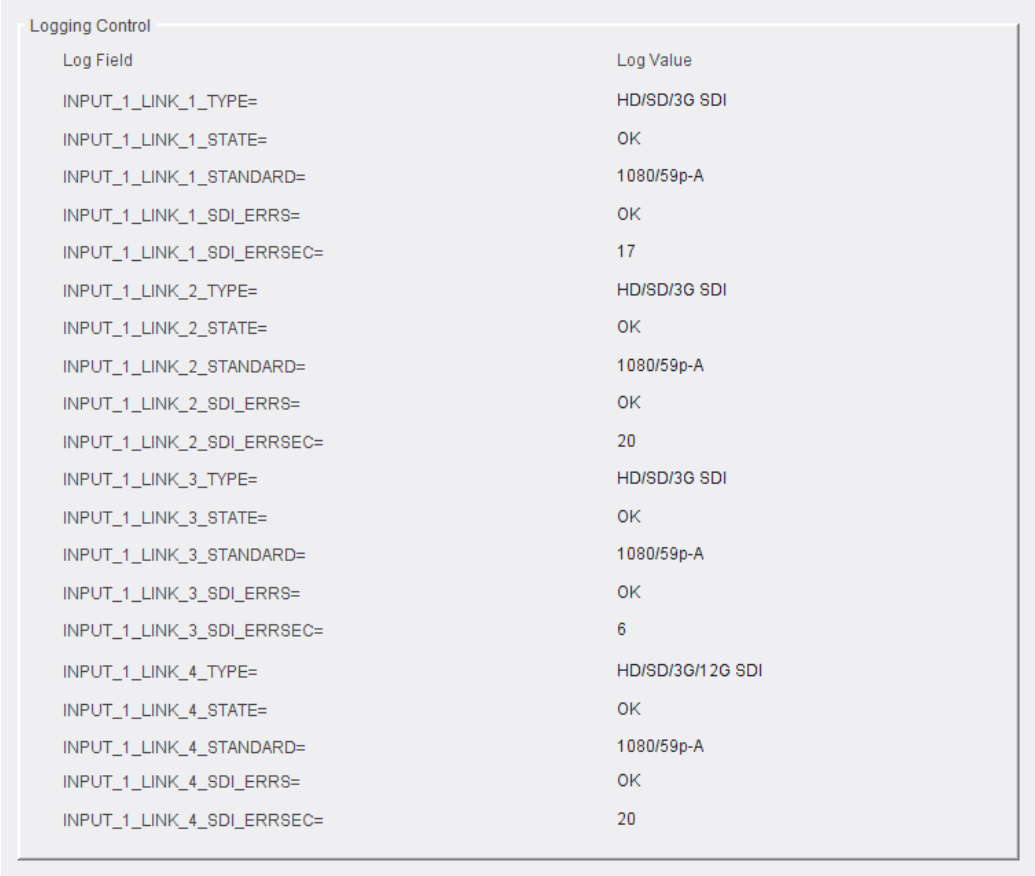


Figure 23 Video Link Logging Page

Log Field	Description
INPUT_N_LINK_X_TYPE=	Reports the input type for link X (4K/HD/SD/3G SDI).
INPUT_N_LINK_X_STATE=	**OK**: input signal for link X good. **FAIL**: input signal for link X not detected. **WARN**: input for link X present but does not match reference standard or selected standard.
INPUT_N_LINK_X_ STANDARD=	Reports the video standard detected on input N link X. Valid values are: • Unknown • PAL, NTSC, 625 Mono, 525 Mono • SDI input standard in the format: **<Lines>(<Active>)/<Rate><i/p/sf>** Where: • **Lines** = Total lines • **Active** = Active lines • **Rate** = Frame rate

Log Field	Description
	• **I** = Interlaced • **P** = Progressive • **SF** = Segmented Frame **For example**: 1080/50p or 1125(1080)/25i • **SDTI** • **MP1V** • **MP2V** • **MP4V** • **VC-2**
INPUT_N_LINK_X_SDI_ERRS=	SDI EDH/CRC status. Valid values are: • **NONE**: No EDH/CRC checksum. • **OK**: EDH/CRC checksum present and valid. • **WARN**: EDH/CRC checksum present but invalid.
INPUT_N_LINK_X_SDI_ERRSEC=	Reports number of seconds input N link X has been affected by EDH/CRC errors.

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

5.11.3 Link 1-2 Aud State Logging

The **Link 1-2 Audio State Logging** page shows the fields to be logged for links 1 and 2.

Figure 24 Link 1-2 Aud State Logging Page

Log Field	Description
INPUT_N_LINK_N_EMBEDDED_AUDIO_1_STATE=	Reports the type of audio content on input pair 1.
INPUT_N_LINK_N_EMBEDDED_AUDIO_2_STATE=	Reports the type of audio content on input pair 2.
INPUT_N_LINK_N_EMBEDDED_AUDIO_3_STATE=	Reports the type of audio content on input pair 3.
INPUT_N_LINK_N_EMBEDDED_AUDIO_4_STATE=	Reports the type of audio content on input pair 4.
INPUT_N_LINK_N_EMBEDDED_AUDIO_5_STATE=	Reports the type of audio content on input pair 5.
INPUT_N_LINK_N_EMBEDDED_AUDIO_6_STATE=	Reports the type of audio content on input pair 6.
INPUT_N_LINK_N_EMBEDDED_AUDIO_7_STATE=	Reports the type of audio content on input pair 7.
INPUT_N_LINK_N_EMBEDDED_AUDIO_8_STATE=	Reports the type of audio content on input pair 8.

Where N is the input number

5.11.4 Link 3-4 Aud State Logging

The **Link 3-4 Audio State Logging** page shows the fields to be logged for links 3 and 4.

Figure 25 Link 3-4 Aud State Logging Page

Log Field	Description
INPUT_N_LINK_N_EMBEDDED_AUDIO_1_STATE=	Reports the type of audio content on input pair 1.
INPUT_N_LINK_N_EMBEDDED_AUDIO_2_STATE=	Reports the type of audio content on input pair 2.
INPUT_N_LINK_N_EMBEDDED_AUDIO_3_STATE=	Reports the type of audio content on input pair 3.
INPUT_N_LINK_N_EMBEDDED_AUDIO_4_STATE=	Reports the type of audio content on input pair 4.
INPUT_N_LINK_N_EMBEDDED_AUDIO_5_STATE=	Reports the type of audio content on input pair 5.
INPUT_N_LINK_N_EMBEDDED_AUDIO_6_STATE=	Reports the type of audio content on input pair 6.
INPUT_N_LINK_N_EMBEDDED_AUDIO_7_STATE=	Reports the type of audio content on input pair 7.
INPUT_N_LINK_N_EMBEDDED_AUDIO_8_STATE=	Reports the type of audio content on input pair 8.

Where N is the input number

5.11.5 Misc Logging

The **Misc Logging** page reports various miscellaneous parameters.

Figure 26 Misc Logging Page

Log Field	Description
SN=	Reports the module's serial number.
OS_VERSION=	Reports operating system name and version.
BUILD_NUMBER=	Hardware build reference.
HARDWARE_VERSION=	Reports hardware version number.
REAR_HARDWARE1_VERSION=	Reports rear hardware version number.
REAR_HARDWARE2_VERSION=	Reports rear hardware version number.
FIRMWARE_VERSION=	Displays ASI controller firmware version.
UPTIME=	Displays time since the last restart in the format **ddd:hh:mm:ss**.
TEMP_1_NAME=	Temperature sensor name.
TEMP_1_STATE=	Displays temperature status: • **WARN LOW**: Low, but in tolerance. • **WARN HIGH**: High, but in tolerance. • **OK**: Within normal operating range. • **FAIL LOW**: Low and out of tolerance. • **FAIL HIGH**: High and out of tolerance. • **WARN DISABLED**: Shut down due to overheat.
TEMP_1_CELSIUS=	Reports current temperature in degrees Celsius.

Log Field	Description
SLOT_START=	Reports start slot in IQ chassis.
SLOT_WIDTH=	Reports IQ module width.
POWER_USAGE=	Reports power consumption in Watts and PR.

5.11.6 Video Output Logging

The **Video Output Logging** page shows the video output fields being logged.

Figure 27 Video Output Logging Page

Log Field	Description
OUTPUT_N_STATE=	Reports the reference type. Valid values are: • **OK**: output signal good. • **FAIL**: output signal not detected.
OUTPUT_N_TYPE=	Reports the video output type.
OUTPUT_N_STANDARD=	Reports the video standard on the output.
OUTPUT_N=	Reports the output source.

Where N is the output number

5.11.7 Reference Logging

The **Reference Logging** page shows the fields being logged, and the current values.

Figure 28 Reference Logging Page

Log Field	Description
REFERENCE_1_TYPE=	Reports the reference type. Valid values are: • **OK:Bi-Level** • **OK:Tri-Level** • **WARN:Unknown**
REFERENCE_1_STATE=	Reports the current reference state. Valid values are: • **OK:Reference** • **OK:Input** • **OK:LOCKED** • **WARN:Freerun** • **WARN:Unknown** • **WARN:Not Set** • **FAIL:Lost** • **FAIL:NO LOCK**
REFERENCE_1_STANDARD=	Reports reference standard in the format: **<Lines>(<Active>)/<Rate><i/p/sf>** Where: • **Lines** = Total lines • **Active** = Active lines • **Rate** = Frame rate • **I** = Interlaced • **P** = Progressive • **SF** = Segmented Frame **For example**: 1080/50p or 1125(1080)/25i
GENLOCK_1_STATE=	Reports Genlock state. Valid values are: • **OK:Reference** • **OK:Input** • **WARN:Freerun** • **WARN:CrossLock**

Log Field	Description
REFERENCE_1_SOURCE=	Reports the reference source. Valid values are: • **Lock to input** • **Ext Ref** • **PTP** • **NTP** • **Frame Ref A** • **Frame Ref B** • **WARN:Freerun** • **WARN:Unknown**

5.11.8 Output Audio State Logging

The **Output Audio State Logging** page shows the fields being logged, and the current values.

Figure 29 Output Audio State Logging Page

Log Field	Description
OUTPUT_N_EMBEDDED_AUDIO_1_STATE=	Reports the type of audio content on output pair 1.
OUTPUT_N_EMBEDDED_AUDIO_2_STATE=	Reports the type of audio content on output pair 2.
OUTPUT_N_EMBEDDED_AUDIO_3_STATE=	Reports the type of audio content on output pair 3.
OUTPUT_N_EMBEDDED_AUDIO_4_STATE=	Reports the type of audio content on output pair 4.
OUTPUT_N_EMBEDDED_AUDIO_5_STATE=	Reports the type of audio content on output pair 5.
OUTPUT_N_EMBEDDED_AUDIO_6_STATE=	Reports the type of audio content on output pair 6.

Log Field	Description
OUTPUT_N_EMBEDDED_AUDIO_7_STATE=	Reports the type of audio content on output pair 7.
OUTPUT_N_EMBEDDED_AUDIO_8_STATE=	Reports the type of audio content on output pair 8.

Where N is the output number

5.11.9 Wide Screen Logging

The **Wide Screen Logging** page is used to select the fields to be logged.

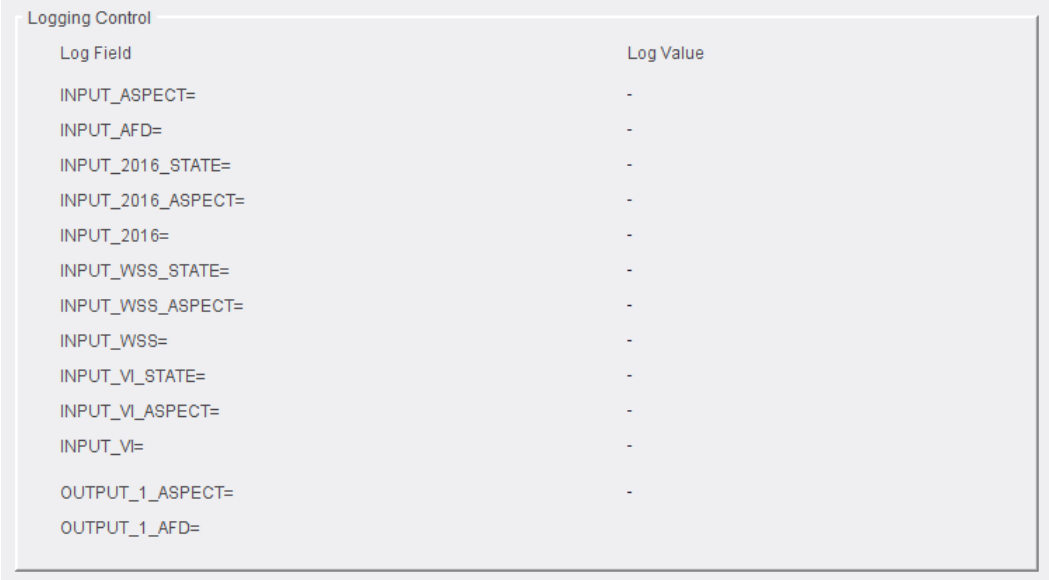


Figure 30 Wide Screen Logging Page

Log Field	Description
INPUT_ASPECT=	Input aspect ratio.
INPUT_AFD=	Input Active Format Description.
INPUT_2016_STATE=	Reports state of the SMPTE 2016 signaling data. Valid values are: • **FAIL:Lost** • **OK** • **FAIL:Error.**
INPUT_2016_ASPECT=	Reports aspect ratio of the SMPTE 2016 signaling data. Valid values are: • **4/3** (coded aspect ratio) • **16/9** (coded aspect ratio)
INPUT_2016=	Reports relevant input source for the SMPTE 2016 signaling data.
INPUT_WSS_STATE_=	Reports WSS state.
INPUT_WSS_ASPECT=	Reports WSS aspect ratio
INPUT_WSS=	WSS present.
INPUT_VI_STATE=	Reports VI state.

Log Field	Description
INPUT_VI_ASPECT=	Reports VI aspect ratio.
INPUT_VI=	Reports VI for input.
OUTPUT_1_ASPECT=	Output aspect ratio.
OUTPUT_1_AFD=	Output Active Format Description.

5.12 Setup

The **Setup** page display 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.

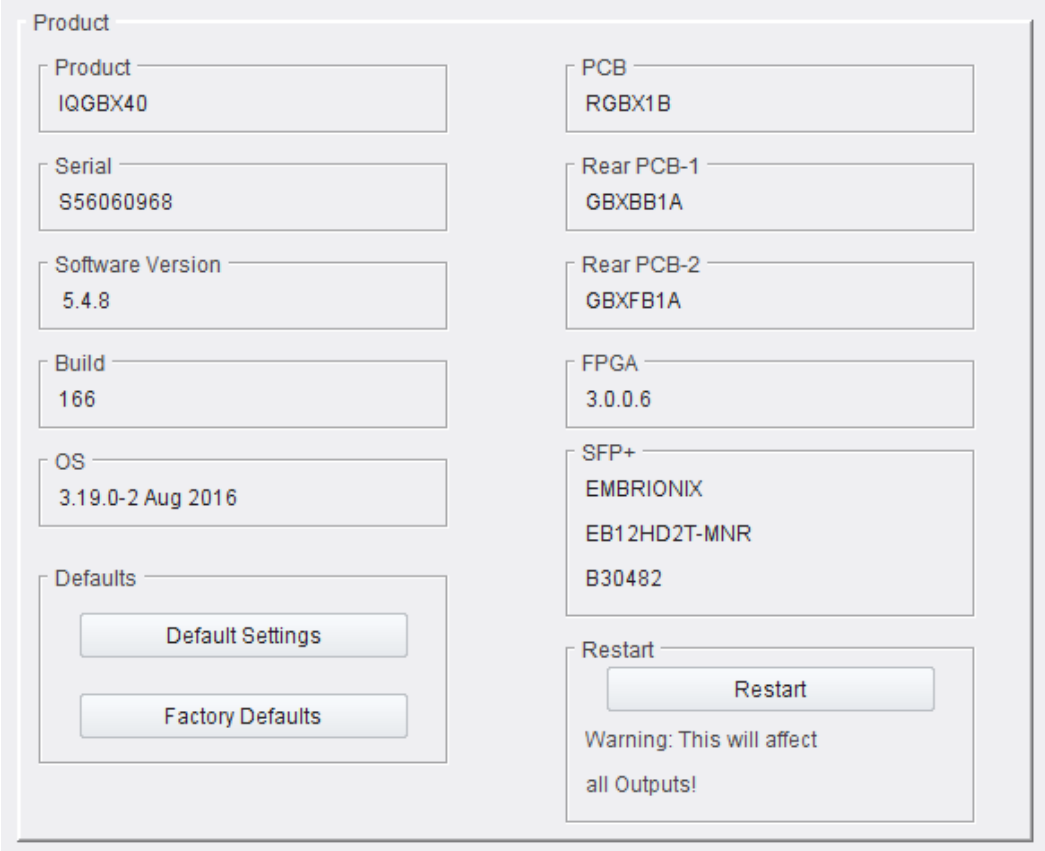


Figure 31 Setup Page

Item	Description
Product	Name of the module
Serial No	Module serial number
Software Version	Currently installed software version number
Build	Factory build number. This number identifies all parameters of the module
OS	Operating system version number
PCB	Printed Circuit Board revision number
Rear PCB-1	Active rear Printed Circuit Board revision number
Rear PCB-2	Active rear Printed Circuit Board revision number
FPGA	FPGA version
SFP+	SFP+ details

5.12.1 Defaults

Provides options to reset the module to its defaults.

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

5.12.2 Restart

The **Restart** button causes the module to be rebooted.

