

User Instruction Manual

IQSYN33

3G/HD/SD-SDI Frame Synchronizer with Advanced Audio Processing

IQMUX33

3G/HD/SD-SDI Multiplexer and Frame Synchronizer with AES/EBU and Analog Audio Inputs

IQDMX33

3G/HD/SD-SDI Demultiplexer and Frame Synchronizer with AES/EBU and Analog Audio Outputs

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F

Safety Information

Explanation of Safety Symbols

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 personnef.

- 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:

BROWN lead connected to L (Live Conductor)



D

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

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 = 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.

Légende :

GB

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 $({\bf F})$, 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

Si vous souhaitez changr la prise mâle de votre cordon, voici les codes couleurs des fils :





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.

Esta unidad solo deberia ser tratada por personal cua

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 tlerra 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 estàndar IEC en un extremo y con una clavija estàndar 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:



(Conductor de proteccion à l'ierrà Clivija -Earth en el original-) Actes l'ische 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.

E * Schutzle

N =

Enchule

DK

Simboli di sicurezza:

Questo simbolo indica l'informazione importante contenuta nei manuali appartenenti all'apparecchiatura. Consultare il man Inla

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.

Т

- 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, e spina standard neo, ren caso dena finitzzone dena contra contra gettaria via immediatamente osservando tutte le precauzioni del caso. La leggenda dei cavi è la seguente:

VERDE/GIALLO cavo connesso E (E (1) ad "E" (terra) **11**----BLU cavo connesso ad "N" (neutro) MARRONE cavo connesso ad "L" (fase)

Attenzione! Nel caso in cui l'apparecchio abbia due prese di corrente, \triangle 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 få 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 försörjd från ett strömsystem som är försedd med jordadanslutning (1) 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 hankontkaten, avyttra denna kontakt omedelbart på ett säkert sätt. Färgkoden för ledningen är följande:

GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)		
DLÅ ledning applyton till N (Neutral Jadara)	Edite on the billing	Construction a

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 medfølge nde 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



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) BLA leder forbundet til 0 BRUN leder forbundet til F(Fase)



FI



s

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

Turvamerkkien selitvs

- Tämä merkki tarkoittaa, että laitteen mukana toimitettu kiriallinen 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-ohieet on tarkoitettu ainoastaan alan ammattilaisille. Älä suorita laitteelle muita toimenpiteitä, kuin mitä käyttöohieissa 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 nollallitännän on oltava luotettavasti tunnistettavissa
- Sähköpistorasian tulee olla laitteen lähellä ja helposti tavoitettavissa.

Sähkökytkentä

Laitteen vakiovarusteena on sähköiohto, 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 E 🕀 (I) I SININEN nollaiohdin 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

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 1 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) 🖡 🕀	E (#)
Condutor AZUL ligado a N (Neutro)	IT-E -IT	m-D-m
Condutor CAS IANHO ligado a L (Vivo).	Roha Livre	Tomada Livre

Atenção: Se a unidade tem duas fontes de alimentação assegurar que os Atenção: Se a unicade tem que anno su anno su

Επεξήγηση των Συμβόλων Ασφαλείας



Ρ

πό το σύμβολο υποδεκνύει ότι στο εσωιτερικό υφίστεντει επικίνδυνες ηλακτρικές τώσεις. Στο ωτερικό δεν υπόρχουν αποτουάσμα μέρη. Αυτή η μονάδα πρέπα να επισκουάζεται μόνο ήο οδικά επιταιδουμένο προσωπικό.

Προειδοποίηση Ασφαλείας



Οσηγίες επισκευής, όπου παρέχονται, αναφέρονται αποκλεστικά και μόνο τε εξειδικειμένο προσιωτικό. Για να μειωθεί ο κίνδυνος ηλατεροπληξίας, μην οτελείτε επισκευίς παρέ μόνο τις συμπεριλαμβανόμενες στο εγχειρίδιο των δηγιών, ακτές και αν έχειτε τα αποραίτητα τη προστάντα για να το κάνετε. Όλες οι επισκευές να οκτελούνται από ειδικά ακπαιδαυμένο προσωπικό.

- Για να μειώσετε τον κίνδυνο ηλεκτροπληξίας μην εκθέτετε τη συσκευή σε βροχή ή υνρασία.
- Πάντα να εξασφαλίζετε τη σωστή γείωση της συσκευής και τη σωστή σύνδεση των συνδέσμων
- Ο εξο πλισμός 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

Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

D εξαπλισμός συνοδευείται συνήθως από ένα καλώδια τροφοδοσίας με ένα σταθερό βύσμα τροφοδοσίας δούματος τύπου πυραμίδας στη μια άκρη του και μια σταθερή υποδοχή τροφοδοσίας ρούματος τύπου πυραμίδας στην άλλη άκρη του. Εάν χρειαιστέ να αφαράλεται το σταθερό βύσμα τροφοδοσίας μοι το παναφηρημοισταιείτε, θεωρείται άχρηστο. Ο χρωματικός οδηγιός για το καλώδιο τροφοδοσίας είναι ο ταναχρησιμ αρακάτω :

ΙΡΑΣΙΝΟ.ΚΙΤΡΙΝΟ καλώδιο συνδέεται στο Ε Προστατευτικός Αγωγός Γείωσης)	e	E (i)
/ΠΛΕ καλώδιο συνδέεται στο Ν Ουδέτερο Αγωγό)		
(ΑΦΕ καλώδιο συνδέεται στο L (Αγωγό Φάσης)	Βύσμα Τροφοδοσίας	Υποδοχή Τροφοδοσίας

ΠΡΟΣΟΧΗ Αν η μονάδα έχει δύο τροφοδοπικά βεβαιωθείτε ότι και τα δύο καλώδια τροφοδοσίας είναι πυνδεδεμένα σε εξόδους τροφοδοσίας που βρίσκονται στην ίδια φέση.

Mains Power Supplies

This equipment has two 3-pin IEC power sockets, one for the main power supply unit and one for the redundant power supply unit.

The power supply is auto switching for input voltages in the ranges of 100 V to 240 V nominal. No voltage adjustment procedure is required.



- This equipment has more than one power supply. To reduce the risk of electric shock, plug each power supply into separate branch circuits employing separate service grounds.
- Before performing any servicing or maintenance, disconnect and isolate the unit from the mains input and from any product outputs.
- Do not operate this unit without an earth connection.

Laser Safety EN60825-1 (2001) Safety of Laser Products





- Caution: use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Viewing the laser diode with the optical fiber removed and with the aid of optical magnifiers may be hazardous.
- This product is a Class 1 laser product (output power <15mW) at 1270 nm to 1610 nm with a beam divergence >30 mrad.

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.

Compliance 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 55103-1: 1996 (Environment E4)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1. Emission.

EN 55103-2: 1996 (Environment E2)

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

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.

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 "dimples" which improve the contact between the plug and socket shells are recommended.

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1. Introduction

1.1 Description

The IQSYN33, IQMUX33, and IQDMX33 are highly integrated modular packages designed to satisfy a range of video and audio signal processing requirements. The modules provide frame synchronization for SD, HD and 3 Gbit/s digital video signals.

In addition, the modules can be tailored to provide color correction for video, and advanced audio processing such as Dolby E/D encoding or decoding, stereo to 5.1 upmixing, and loudness processing.

1.2 Block Diagrams

1.2.1 IQSYN33



1.2.2 IQMUX33



1.2.3 IQDMX33



1.3 Order Codes

Note: Modules with "A" order codes (for example, IQSYN3354-2A3) can be fitted into either A- or B-style enclosures. Modules with "B" order codes (for example, IQSYN3354-2B3) can only be fitted into B-style enclosures. See page 15.

1.3.1 IQSYN33

IQSYN3354-2A3	3G/HD/SD-SDI frame synchronizer with advanced audio processing.
IQSYN3354-2B3	2 SDI inputs, reference loop, 4 SDI outputs, 2 GPI/Os.
IQSYN3300-2A3 IQSYN3300-2B3	3G/HD/SD-SDI frame synchronizer with advanced audio processing. 2 SDI inputs, reference loop, 4 SDI outputs, relay bypass, 2 GPI/Os.

1.3.2 IQMUX33

IQMUX3352-2A3 IQMUX3352-2B3	3G/HD/SD-SDI 16-channel AES and analog audio multiplexer with synchronizer. 1 SDI input, 1 reference input, 8 unbalanced AES inputs, 4 analog audio inputs, 2 SDI outputs.
IQMUX3363-2A3 IQMUX3363-2B3	3G/HD/SD-SDI 16-channel AES and analog audio multiplexer with synchronizer. 1 SDI input, 1 reference input, 8 balanced AES inputs, 4 analog audio inputs, 2 SDI outputs.

1.3.3 IQDMX33

IQDMX3352-2A3 IQDMX3352-2B3	3G/HD/SD-SDI 16-channel AES and analog audio demultiplexer with synchronizer. 1 SDI input, 1 reference input, 8 unbalanced AES inputs, 4 analog audio inputs, 2 SDI outputs.
IQDMX3363-2A3 IQDMX3363-2B3	3G/HD/SD-SDI 16-channel AES and analog audio demultiplexer with synchronizer. 1 SDI input, 1 reference input, 8 balanced AES inputs, 4 analog audio inputs, 2 SDI outputs.

1.3.4 Hardware and Software Options

The following codes are applicable to all modules:

IQOPTA-DBD	Hardware option to add a single Dolby E/D decoder.
IQOPTA-DBE-D	Hardware option to add a single Dolby D encoder.
IQOPTA-DBE-E	Hardware option to add a single Dolby E encoder.
IQOPTA-LOUD51	Software option to add Linear Acoustic AeroMax 5.1 loudness processing.
IQOPTA-LOUDA2	Software option to add first channel of Linear Acoustic AeroMax 2.0 loudness processing.
IQOPTA-LOUDB2	Software option to add second channel of Linear Acoustic AeroMax 2.0 loudness processing.
IQOPTA-UPMIX	Software option to add Linear Acoustic UPMAX stereo to 5.1 upmixing.
IQOPTA-CC	Software option to add color correction.

1.4 Enclosures

The modules can be fitted into the enclosure types shown.

Important: Although IQ modules are interchangeable between enclosures, their rear panels are enclosure specific. An IQH3B enclosure accepts modules with either "A" or "B" order codes. An IQH3A or IQH1A enclosure accepts modules with "A" order codes only. See page 14.

1.4.1 B-style Enclosure

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•			-

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.

1.4.2 A-style Enclosures



Enclosure order code: IQH1A-S-P



Enclosure order codes: IQH3A-S-0, IQH3A-S-P



Enclosure order codes: IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P



Enclosure order code: IQH1A-S-P

2. Technical Specification

2.1 IQSYN33

Inputs and Outputs	
Video Signal Inputs	
SDI Inputs	x 2
Input Cable Length	Up to 80m Belden 1694A @ 3 Gbit/s Up to 180m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference with passive loop-through Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level - RS170A HD Tri-level - SMPTE 240M, 274M and 296M
Video Signal Outputs	
SDI Outputs	x 4
Control Interface	
GPI	2 x Closing contact I/O interface (ST)
Controls	
Genlock and Video Delay	
Genlock Mode	Free-run, Lock to Reference, Lock to Input
Genlock H-Phase	±1 H in pixel clock steps
Genlock V-Phase	±1 F in 1 line steps
Video H-Delay	0–1 Line in pixel clock steps
Video V-Delay	0–1 frame in 1 line steps
Video Delay Frames	0–26 frames @ 1080 59p 0–21 frames @ 1080 50p 0–26 frames @ 1080 29i 0–21 frames @ 1080 25i 0–54 frames @ 720 59p 0–44 frames @ 720 50p 0–147 frames @ 525 29i 0–122 frames @ 625 25i
	Note : In order to ensure a clean switch, the delay value must be set to at least 1. Picture disruption may occur if this is not done.
Dolby E auto line select	Std, user select
Dolby E auto align	On/Off
Video Controls	
Input Select	Input 1, Input 2
Input Backup Enable	On/Off
Priority	None, Master (input 1), Backup (input 2)
Changeover Parameters	Carrier Loss, Standard mismatch, CRC and ANC Error, Embedded audio loss
Changeover Time Delay	0s to 10s
Reversion Delay	0s to 100s
Default Video Output Type	Input, Pattern, Freeze, Black

Pattern Select	100% Color Bars, 75% Color Bars, SMPTE Bars, Tartan Bars, Black, Pluge, Ramp, H Sweep, Pulse & Bar, Multi-burst
Output Mode	Input, Black, Freeze, Pattern
H Enhance Frequency	Off, Low, Medium, High
H Enhance Presets	Low, Medium, High, Super, Custom
RGB Legalizer	700 mV, 721 mV, 735 mV, 746 mV
Black Level	±200 mV in steps 1 mV steps
Hue Adjust	±180° in steps of 1
Master Video Gain	+6 to -120 dB
Y-Gain	+6 to -120 dB
Cb/Cr Gain	+6 to -120 dB
Caption Enable	On/Off
Edit Caption	16 characters
Caption Adjust	X-Y Size & Position
Audio Controls	
Audio In - Embedded	
Audio In-Disembed	Pairs 1–8
Channel 1–16 Mute	On/Off
Channel 1–16 Polarity Inv	On/Off
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps
Pair 1–8 Stereo	Link channel pairs
Audio Out - Embedded	
Group 1–4 Enable	On/Off
Audio Out-embed	Pairs 1–8
Channel 1–16 Mute	On/Off
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps
Pair 1–8 Stereo	Link channel pairs
Audio Routing	* indicates an optional feature
Input Routing Bus 1–8	Disembed 1–8, Dolby Decoder 1–5*
Output Routing embed 1–8	Bus 1–8, Mixers 1–4, Downmixer 1–2, silence, Tones 1–8, Upmix*/Loudness*, Dolby Encoder 1–5*
Audio Setup Controls - BL	IS 1–8
Delay Add-In Bulk, RollTrack, current video	On/Off
Bulk Manual Delay	-520ms to +2s in 0.17ms steps
Coarse Manual Pair Delay	±1.995s in 1ms steps
Fine Manual Delay	±5ms in 0.02ms steps
Fast or smooth delay limit	5ms to 80ms
Silence Detect	-2 dBFS to -128 dBFS in steps of 1 dB
Signal Overload Detect	-1 dBFS to -127 dBFS in steps of 1 dB
Warning Timer	1 to 20 seconds in steps of 1 second

Tone Frequency 1–8	100 Hz to 16 kHz in 100 Hz steps
Dolby Decoder	
Decoder Source	Disembed 1–8
Detection Mode	Auto, Dolby E, Dolby D, Mute
AES Channel Select	Channel 1, 2
PCM Latency	Single Frame, Minimum
Dolby D Listening Mode	Full, EX, 3 Stereo, Phantom, Stereo, Mono
Dolby D Dynamic Range	Line, RF, Bypass
Metadata Program	Dependent on Dolby source: 1–8 with Dolby E 8x1
Input Metadata	RS-485, SMPTE 2020
Dolby Encoder	* indicates an optional feature
Encoder Source	Bus 1–8, Upmix*/Loudness*, Silence
Metadata Source	Prog 1–8, Internal
Internal Metadata control	Program Descriptor, Dialog Norm, Audio Production information, Extended BSI1, BSI2, Internal Config, Bitstream Mode, RF Mode, Line Mode, Surround Mode, Mix Level (Surround, Centre, LtRt, LoRo), Internal Config setting (for example, 5.1+2)
Mode	Encode, Pass through
Bit Depth	Dolby D 32-bit, 16-bit Dolby E 20-bit, 16-bit
SRC	Enable, Disable
Stream Number	0–6 (Dolby D only)
Audio Mixers	
Mixer Select	1–4, Downmix 1–2
Mixer Select Source Select	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8
Mixer Select Source Select Source Gain	1-4, Downmix 1-2Bus 1-8, Silence, Tones 1-812 dB to -80 dB in 0.1 dB steps
Mixer Select Source Select Source Gain Mixer 1–4 invert	1-4, Downmix 1-2Bus 1-8, Silence, Tones 1-812 dB to -80 dB in 0.1 dB stepsOn/Off
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source	1-4, Downmix 1-2 Bus 1-8, Silence, Tones 1-8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1-2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port SMPTE 2020 embedder	1-4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input Dolby Decoder, RS-485 port, SMPTE 2020 Disembed
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port SMPTE 2020 embedder User Memories	1-4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input Dolby Decoder, RS-485 port, SMPTE 2020 Disembed Save/Recall/Rename
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port SMPTE 2020 embedder User Memories Memory Naming	1-4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input Dolby Decoder, RS-485 port, SMPTE 2020 Disembed Save/Recall/Rename User-configurable naming of Memories 1–16
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port SMPTE 2020 embedder User Memories Memory Naming Information Window	1–4, Downmix 1–2 Bus 1–8, Silence, Tones 1–8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1–2, Black, Freeze, Pattern, User Memories 1–16 High/Low Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input Dolby Decoder, RS-485 port, SMPTE 2020 Disembed Save/Recall/Rename User-configurable naming of Memories 1–16 Video Status, Audio Status, Reference Status, Card Edge LEDs, Dolby Status, AFD Status
Mixer Select Source Select Source Gain Mixer 1–4 invert Mixer 1–4, Downmix 1–2 Mute Downmix Configuration Other Controls GPI Input High/Low Select GPI Level Invert GPI Output Source RS-485 port SMPTE 2020 embedder User Memories Memory Naming Information Window EDH/CRC Reset	1-4, Downmix 1-2 Bus 1-8, Silence, Tones 1-8 12 dB to -80 dB in 0.1 dB steps On/Off On/Off LoRo, 4 level selections Input 1-2, Black, Freeze, Pattern, User Memories 1-16 High/Low Current input OK, Input 1-2 OK, Input 1-2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1-16 Output Dolby Decoder, Output SMPTE 2020 Disembed, Input Dolby Decoder, RS-485 port, SMPTE 2020 Disembed Save/Recall/Rename User-configurable naming of Memories 1-16 Video Status, Audio Status, Reference Status, Card Edge LEDs, Dolby Status, AFD Status Resets all EDH/CRC counts

RollTrack Sources	Unused, Video Delay, Audio Delay, Input Present (1–2), Input Loss (1–2), Output Std, Input selected (1–2), Output Black, Freeze or Pattern on, Output Black, Freeze or Pattern off, Output Caption on, Output Caption off, Embedded Audio (Pairs 1–8) PCM, Embedded Audio (Pairs 1–8) Non-PCM, Embedded Audio (Pairs 1–8) Loss, Reference OK & Loss, Dolby Decoder Input Type, Encoder active/pass-through, Dolby Metadata valid/missing
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 user memories
Restart	Software reset of module
Module Information	Reports: Product Name, Software Version, Serial Number, Build Number, KOS Version, PCB Version, Licensed Options
Input Names	19-character editable name
Specifications	
Electrical	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	BNC/75ohm panel jack on standard IQ connector panel
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)
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 Tri-level - SMPTE 240M, 274M and 296M
Connector/Format	BNC/75 ohm panel jack on standard IQ connector panel
Analog Reference Return Loss	SD bi-level > 40 dB to 5.5 MHz HD tri-level > 35 dB to 30 MHz
Video Standards	1125(1080)/50p, 1125(1080)/59p, 750(720)/50p, 750(720)/59p, 1125(1080)/25i, 1125(1080)/29i, 625(576)/25i, 525(480)/29i
Embedded audio handling	HD – 24-bit synchronous 48 kHz to SMPTE 299M SD – 20-bit synchronous 48 kHz to SMPTE 272M-A
Power Consumption	
Module Power Consumption	19 W (A Frame) 18 PR (B Frame)

Note: Dolby option adds 2.5 W (PR)

2.2 IQMUX33

Inputs and Outputs	
Video Signal Inputs	
SDI Inputs	x 1
Input Cable Length	Up to 80m Belden 1694A @ 3 Gbit/s Up to 180m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference input Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD Bi-level - RS170A HD Tri-level - SMPTE 240M, 274M and 296M
Video Signal Outputs	
SDI Outputs	x 2
Audio Signal Inputs	
AES/EBU, AC3, Dolby E Audio	8 Unbalanced (BNC) or 8 Balanced (Screw terminal connectors (ST))
Balanced analog audio inputs	4 channels (Screw terminal connectors (ST))
Controls	
Genlock and Video Delay	
Genlock Mode	Free-run, Lock to Reference, Lock to Input
Genlock H-Phase	±1 H in pixel clock steps
Genlock V-Phase	±1 F in 1 line steps
Video H-Delay	0–1 Line in pixel clock steps
Video V-Delay	0–1 frame in 1 line steps
Video Delay Frames	0–26 frames @ 1080 59p 0–21 frames @ 1080 50p 0–26 frames @ 1080 29i 0–21 frames @ 1080 25i 0–54 frames @ 720 59p 0–44 frames @ 720 50p 0–147 frames @ 525 29i 0–122 frames @ 625 25i
Dolby E auto line select	Std, user select
Dolby E auto align	On/Off
Video Controls	
Default Video Output Type	Pattern, Freeze, Black
Pattern Select	100% Color Bars, 75% Color Bars, SMPTE Bars, Tartan Bars, Black, Pluge, Ramp, H Sweep, Pulse & Bar, Multi-burst
Output Mode	Input, Black, Freeze, Pattern
Black Level	±200 mV in 1 mV steps
Hue Adjust	±180° in steps of 1
Master Video Gain	+6 to -120 dB
Y-Gain	+6 to -120 dB
Cb/Cr Gain	+6 to -120 dB

Caption Enable	On/Off	
Edit Caption	16 characters	
Caption Adjust	X-Y Size & Position	
Audio Controls		
Audio In - Embedded		
Audio In-Disembed	Pairs 1–8	
Channel 1–16 Mute	On/Off	
Channel 1–16 Polarity Inv	On/Off	
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps	
Pair 1–8 Stereo	Link channel pairs	
Audio Out - Embedded		
Group 1–4 Enable	On/Off	
Audio Out-embed	Pairs 1–8	
Channel 1–16 Mute	On/Off	
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps	
Pair 1–8 Stereo	Link channel pairs	
Audio In - AES		
Channel 1–16 Mute	On/Off	
Channel 1–16 Polarity Inv	On/Off (Input only)	
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps	
AES 1–8 Stereo	Link channel pairs	
Audio In - Analog		
Channel 1–4 Mute	On/Off	
Channel 1–4 Polarity Inv	On/Off (Input only)	
Channel 1–4 Gain	+12 dB to -80 dB in 0.1 dB steps	
Analog 1–2 Stereo	Link channel pairs	
Audio Routing	* indicates an optional feature	
Input Routing Bus 1–8	Disembed 1–8, AES Input 1–8, Dolby Decoder 1–5*	
Output Routing embed 1–8	Bus 1–8, Mixers 1–4, Downmixer 1–2, silence, Tones 1–8, Upmix*/Loudness*, Dolby Encoder 1–5*	
Audio Setup Controls - BUS 1–8		
Delay Add-In Bulk, RollTrack, current video	On/Off	
Bulk Manual Delay	-535ms to +2s in 0.17ms steps	
Coarse Manual Pair Delay	±1.995s in 1ms steps	
Fine Manual Delay	±5ms in 0.02ms steps	
Fast or smooth delay limit	5ms to 80ms	
Silence Detect	-2 dBFS to -100 dBFS in steps of 1 dB	
Signal Overload Detect	-1 dBFS to -99 dBFS in steps of 1 dB	
Warning Timer	1 to 20 seconds in 1 second steps	
Tone Frequency 1–8	100 Hz to 16 kHz in 100 Hz steps	

Analog Input Headroom	4 dB to 24 dB in 1 dB steps
Analog Line-up Level	-20 dBU to 20 dBU in 1 dB steps (with 4 dB Headroom setting)
Dolby Decoder	
Decoder Source	Disembed 1–8
Detection Mode	Auto, Dolby E, Dolby D, Mute
AES Channel Select	Channel 1, 2
PCM Latency	Single Frame, Minimum
Dolby D Listening Mode	Full, EX, 3 Stereo, Phantom, Stereo, Mono
Dolby D Dynamic Range	Line, RF, Bypass
Metadata Program	Dependent on Dolby source: 1–8 with Dolby E 8x1
Input Metadata	RS-485, SMPTE 2020
Dolby Encoder	* indicates an optional feature
Encoder Source	Bus 1–8, Upmix*/Loudness*, Silence
Metadata Source	Prog 1–8, Internal, External
Internal Metadata control	Program Descriptor, Dialog Norm, Audio Production information, Extended BSI1, BSI2, Internal Config, Bitstream Mode, RF Mode, Line Mode, Surround Mode, Mix Level (Surround, Centre, LtRt, LoRo), Internal Config setting (for example, 5.1+2)
Mode	Encode, Pass through
Bit Depth	Dolby D 32-bit, 16-bit
	Dolby E 20-bit, 16-bit
SRC	Enable, Disable
Stream Number	0–6 (Dolby D only)
Audio Mixers	
Mixer Select	1–4, Downmix 1–2
Source Select	Bus 1–8, Silence, Tones 1–8
Source Gain	12 dB to -80 dB in 0.1 dB steps
Mixer 1–4 invert	On/Off
Mixer 1–4, Downmix 1–2 Mute	On/Off
Downmix Configuration	LoRo, 4 level selections
Other Controls	
GPI input High/Low Select	Input 1–2, Black, Freeze, Pattern, User Memories 1–16
GPI Level Invert	High/Low
GPI Output Source	Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16
RS-485 port	Output Dolby Decoder, Output SMPTE 2020 Disembed, Input
SMPTE 2020 embedder	Dolby Decoder, RS-485 port, SMPTE 2020 Disembed
User Memories	Save/Recall/Rename
Memory Naming	User-configurable naming of Memories 1–16
Information Window	Video Status, Audio Status, Reference Status, Card Edge LEDs, Dolby Status, AFD Status

EDH/CRC Reset	Resets all EDH/CRC counts
RollTrack Index	Allows up to 32 destinations
RollTrack Sources	Unused, Video Delay, Audio Delay, Input Present (1–2), Input Loss (1–2), Output Std, Input selected (1–2), Output Black, Freeze or Pattern on, Output Black, Freeze or Pattern off, Output Caption on, Output Caption off, Embedded Audio (Pairs 1–8) PCM, Embedded Audio (Pairs 1–8) Non-PCM, Embedded Audio (Pairs 1–8) Loss, AES Audio (Pairs 1–8), Dolby Decoder Input Type, Encoder active/pass-through, Dolby Metadata valid/missing
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 user memories
Restart	Software reset of module
Module Information	Reports: Product Name, Software Version, Serial Number, Build Number, KOS Version, PCB Version, Licensed Options
Input Names	19-character editable name
Specifications	
Electrical	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	BNC/75ohm panel jack on standard IQ connector panel
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 (10Hz)/0.2 UI (100 KHz)
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 Tri-level - SMPTE 240M, 274M and 296M
Connector/Format	BNC/75 ohm panel jack on standard IQ connector panel
Analog Reference Return	SD bi-level > 40 dB to 5.5 MHz
Loss	HD tri-level > 35 dB to 30 MHz
Video Standards	1125(1080)/50p, 1125(1080)/59p, 750(720)/50p, 750(720)/59p, 1125(1080)/25i, 1125(1080)/29i, 625(576)/25i, 525(480)/29i
Embedded audio handling	HD – 24-bit synchronous 48 kHz to SMPTE 299M SD – 20-bit synchronous 48 kHz to SMPTE 272M-A
Digital Audio Input (Unbal	anced)
Connector/Format	BNC
Sample Frequency	25–96 kHz (48 kHz for Reference)
Input Cable Length	>500 m of RG59 cable
Impedence	75 Ohms
Output Sampling	48 kHz frame locked to 48 kHz AES/EBU Reference in AES lock mode
Digital Audio Input (Balan	ced)
Connector/Format	BNC
Sample Frequency	25–96 kHz (48 kHz for Reference)
Input Cable Length	>150 m of AES3 cable
Impedence	110 Ohms
Output Sampling	48 kHz frame locked to 48 kHz AES/EBU Reference in AES lock mode

Analog Audio Input (Balanced)	
Analog Input Impedence	10 k ohms
Frequency Response	20 Hz to 20 kHz (0.1 dB)
Distortion (THD+N)	Better than -90 dB, 1 kHz @ -1 dBFS
Dynamic Range	>106 dB
Audio Delay	Equal to video delay + adjustable offset
Power Consumption	
Module Power Consumption	23 W (A Frame) 21.5 LU (B Frame)
	Note: Dolby option adds 2.5 W (PR)

2.3 IQDMX33

Inputs and Outputs	
Video Signal Inputs	
SDI Inputs	x 1
Input Cable Length	Up to 80m Belden 1694A @ 3 Gbit/s Up to 180m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference input Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD Bi-level - RS170A HD Tri-level - SMPTE 240M, 274M and 296M
Video Signal Outputs	
SDI Outputs	x 2
Audio Signal Outputs	
AES/EBU, AC3, Dolby E Audio	8 Unbalanced (BNC) or 8 Balanced (Screw terminal connectors (ST))
Balanced analog audio outputs	4 channels (Screw terminal connectors (ST))
Controls	
Genlock and Video Delay	
Genlock Mode	Free-run, Lock to Reference, Lock to Input
Genlock H-Phase	±1 H in pixel clock steps
Genlock V-Phase	±1 F in 1 line steps
Video H-Delay	0–1 Line in pixel clock steps
Video V-Delay	0–1 frame in 1 line steps
Video Delay Frames	0–26 frames @ 1080 59p 0–21 frames @ 1080 50p 0–26 frames @ 1080 29i 0–21 frames @ 1080 25i 0–54 frames @ 720 59p 0–44 frames @ 720 50p 0–147 frames @ 525 29i 0–122 frames @ 625 25i
Dolby E auto line select	Std, user select
Dolby E auto align	On/Off
Video Controls	
Default Video Output Type	Pattern, Freeze, Black
Pattern Select	100% Color Bars, 75% Color Bars, SMPTE Bars, Tartan Bars, Black, Pluge, Ramp, H Sweep, Pulse & Bar, Multi-burst
Output Mode	Input, Black, Freeze, Pattern
Black Level	±200 mV in 1 mV steps
Hue Adjust	±180° in steps of 1
Master Video Gain	+6 to -120 dB
Y-Gain	+6 to -120 dB
Cb/Cr Gain	+6 to -120 dB

Caption Enable	On/Off
Edit Caption	16 characters
Caption Adjust	X-Y Size & Position
Audio Controls	
Audio In - Embedded	
Audio In-Disembed	Pairs 1–8
Channel 1–16 Mute	On/Off
Channel 1–16 Polarity Inv	On/Off
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps
Pair 1–8 Stereo	Link channel pairs
Audio Out - Embedded	
Group 1–4 Enable	On/Off
Audio Out-embed	Pairs 1–8
Channel 1–16 Mute	On/Off
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps
Pair 1–8 Stereo	Link channel pairs
Audio Out - AES	
Channel 1–16 Mute	On/Off
Channel 1–16 Gain	+12 dB to -80 dB in 0.1 dB steps
AES 1–8 Stereo	Link channel pairs
Audio Out - Analog	
Channel 1–4 Mute	On/Off
Channel 1–4 Gain	+12 dB to -80 dB in 0.1 dB steps
Analog 1–2 Stereo	Link channel pairs
Audio Routing	* indicates optional feature
Input Routing Bus 1–8	Disembed 1–8, Dolby Decoder 1–5*
Output Routing embed 1–8	Bus 1–8, Mixers 1–4, Downmixer 1–2, silence, Tones 1–8, Upmix*/Loudness*, Dolby Encoder 1–5*
Output routing AES 1–8	Bus 1–8, Mixers 1–4, Downmixer 1–2, silence, Tones 1–8, Upmix*/Loudness*, Dolby Encoder 1–5*
Output routing Analog 1–2	Bus 1–8, Mixers 1–4, Downmixer 1–2, silence, Tones 1–8, Upmix*/Loudness*, Dolby Encoder 1–5*
Audio Setup Controls - BL	JS 1–8
Delay Add-In Bulk, RollTrack, current video	On/Off
Bulk Manual Delay	-535ms to +2s in 0.17ms steps
Coarse Manual Pair Delay	±1.995s in 1ms steps
Fine Manual Delay	±5ms in 0.02ms steps
Fast or smooth delay limit	5ms to 80ms
Silence Detect	-2 dBFS to -100 dBFS in steps of 1 dB
Signal Overload Detect	-1 dBFS to -99 dBFS in steps of 1 dB

Warning Timer	1 to 20 seconds in 1 second steps
Tone Frequency 1–8	100 Hz to 16 kHz in 100 Hz steps
Analog Input Headroom	4 dB to 24 dB in 1 dB steps
Analog Line-up Level	-20 dBU to 20 dBU in 1 dB steps (with 4 dB Headroom setting)
Dolby Decoder	
Decoder Source	Disembed 1–8
Detection Mode	Auto, Dolby E, Dolby D, Mute
AES Channel Select	Channel 1, 2
PCM Latency	Single Frame, Minimum
Dolby D Listening Mode	Full, EX, 3 Stereo, Phantom, Stereo, Mono
Dolby D Dynamic Range	Line, RF, Bypass
Metadata Program	Dependent on Dolby source: 1–8 with Dolby E 8x1
Input Metadata	RS-485, SMPTE 2020
Dolby Encoder	* indicates an optional feature
Encoder Source	Bus 1–8, Upmix*/Loudness*, Silence
Metadata Source	Prog 1–8, Internal, External
Internal Metadata control	Program Descriptor, Dialog Norm, Audio Production information, Extended BSI1, BSI2, Internal Config, Bitstream Mode, RF Mode, Line Mode, Surround Mode, Mix Level (Surround, Centre, LtRt, LoRo), Internal Config setting (for example, 5.1+2)
Mode	Encode, Pass through
Bit Depth	Dolby D 32-bit, 16-bit
	Dolby E 20-bit, 16-bit
SRC	Enable, Disable
Stream Number	0–6 (Dolby D only)
Audio Mixers	
Mixer Select	1–4, Downmix 1–2
Source Select	Bus 1–8, Silence, Tones 1–8
Source Gain	12 dB to -80 dB in 0.1 dB steps
Mixer 1–4 invert	On/Off
Mixer 1–4, Downmix 1–2 Mute	On/Off
Downmix Configuration	LoRo, 4 level selections
Other Controls	
GPI input High/Low Select	Input 1–2, Black, Freeze, Pattern, User Memories 1–16
GPI Level Invert	High/Low
GPI Output Source	Current input OK, Input 1–2 OK, Input 1–2 Selected, Black, Freeze, Pattern, No User Memories Selected, User Memories 1–16
RS-485 port	Output Dolby Decoder, Output SMPTE 2020 Disembed, Input
SMPTE 2020 embedder	Dolby Decoder, RS-485 port, SMPTE 2020 Disembed
User Memories	Save/Recall/Rename
Memory Naming	User-configurable naming of Memories 1–16

Information Window	Video Status, Audio Status, Reference Status, Card Edge LEDs, Dolby Status, AFD Status
EDH/CRC Reset	Resets all EDH/CRC counts
RollTrack Index	Allows up to 32 destinations
RollTrack Sources	Unused, Video Delay, Audio Delay, Input Present (1–2), Input Loss (1–2,), Output Std, Input selected (1–2), Output Black, Freeze or Pattern on, Output Black, Freeze or Pattern off, Output Caption on, Output Caption off, Embedded Audio (Pairs 1–8) PCM, Embedded Audio (Pairs 1–8) Non-PCM, Embedded Audio (Pairs 1–8) Loss, AES Audio (Pairs 1–8) PCM, Data, Dolby E, Loss, Reference OK & Loss, Dolby Decoder Input Type, Encoder active/pass-through, Dolby Metadata valid/missing
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 user memories
Restart	Software reset of module
Module Information	Reports: Product Name, Software Version, Serial Number, Build Number, KOS Version, PCB Version, Licensed Options
Input Names	19-character editable name
Specifications	
Electrical	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	BNC/75ohm panel jack on standard IQ connector panel
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 (10Hz)/0.2 UI (100 KHz)
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 Tri-level - SMPTE 240M, 274M and 296M
Connector/Format	BNC/75 ohm panel jack on standard IQ connector panel
Analog Reference Return	SD bi-level > 40 dB to 5.5 MHz
	HD tri-level > 35 dB to 30 MHz
Video Standards	1125(1080)/50p, 1125(1080)/59p, 750(720)/50p, 750(720)/59p, 1125(1080)/25i, 1125(1080)/29i, 625(576)/25i, 525(480)/29i
Embedded audio handling	HD – 24-bit synchronous 48 kHz to SMPTE 299M SD – 20-bit synchronous 48 kHz to SMPTE 272M-A
Digital Audio Output (Unb	alanced)
Connector/Format	BNC
Level	1 V p-p typical into 75 Ohms
Standard	AES3-1992, SMPTE 272M-A-1994, SMPTE 299M
Digital Audio Output (Bala	nced)
Connector/Format	25 W D
Level	3 V p-p typical into 110 Ohms
Standard	AES3, SMPTE 272M-A-1994, SMPTE 299M
Analog Audio Outputs	
Output Level	Adjustable +12 dBu to +24 dBu

Output Impedence	~25 Ohms
THD+N	-97 dB at 18 dBu, typical at 1 kHz
Conversion	32-bit sampling @ 48 kHz to 107 dB dynamic range typical
Power Consumption	
Module Power Consumption	23 W (A Frame) 21.5 LU (B Frame)
	Note: Dolby option adds 2.5 W (PR)

3. Connections

3.1 IQSYN33 Rear Panel View





IQSYN3300-2A(B)3

Note: The polarity of the balanced analog audio screw terminal connectors is shown opposite. All other screw terminal connectors are labeled.

ō	0	•
3		2

3.2 Input Connections

Label	Description	Connector
SER IN	SDI inputs	2 x BNC
REF	Analogue reference input with passive loop-through	2 x BNC

3.3 Output Connections

Label	Description	Connector
SER OUT	SDI outputs	4 x BNC

3.4 Control Connections

Label	Description	Connector
GPI	General Purpose Input	1 x screw terminal
RS485	Not used	1 x screw terminal

3.5 IQMUX33 Rear Panel View





IQMUX3363-2A(B)3

Note: The polarity of the balanced analog audio screw terminal connectors is shown opposite. All other screw terminal connectors are labeled.

ō	0	0+	
5		2	

3.5.1 Input Connections

Label	Description	Connector
SERIAL IN	SDI inputs	1 x BNC
AUDIO IN	Analogue audio inputs	4 x screw terminal
REF IN	Analogue reference input	1 x BNC
AES IN	AES audio inputs	8 x unbalanced BNC (IQMUX3352)
		8 x balanced screw terminal (IQMUX3363)

3.5.2 Output Connections

Label	Description	Connector
SERIAL OUT	SDI outputs	2 x BNC

3.5.3 Control Connections

Label	Description	Connector
GPI	General Purpose Input	1 x screw terminal
RS485	Not used	1 x screw terminal

3.6 IQDMX33 Rear Panel View



IQDMX3352-2A(B)3



IQDMX3363-2A(B)3

Note: The polarity of the balanced analog audio screw terminal connectors is shown opposite. All other screw terminal connectors are labeled.

ō	0	+ 0	
3		5	

3.6.1 Input Connections

Label	Description	Connector
SERIAL IN	SDI inputs	1 x BNC
REF IN	Analogue reference input	1 x BNC

3.6.2 Output Connections

Label	Description	Connector
SERIAL OUT	SDI outputs	2 x BNC
AUDIO OUT	Analogue audio outputs	4 x screw terminal
AES OUT	AES audio outputs	8 x unbalanced BNC (IQDMX3352)
		8 x balanced screw terminal (IQDMX3363)

3.6.3 Control Connections

Label	Description	Connector
GPI	General Purpose Input	1 x screw terminal
RS485	Not used	1 x screw terminal

POWER

+

4. Card Edge LEDs

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

POWER -	CPU FPGA OK OK		IN 1 IN 2 RE	EF ERR WARN OK
	LED	Color	State	Indication
	POWER +	Green	Illuminated	A positive power supply is present.
	POWER -	Green	Illuminated	A negative power supply is present.
	CPU OK	Green	Flashing	The CPU is running.
	FPGA OK	Green	Illuminated	The unit is booting. LED stays illuminated until the SDI is enabled.
		Green	Flashing	The FPGA is running.
	IN 1 & IN 2	Green	Illuminated	A valid input is present.
	REF	Green	Illuminated	A valid reference signal is present.
		Green	Flashing	An incorrect frame rate reference is present.
	ERR	Red	Illuminated	Board fault conditions. LED is illuminated in the event of:
				Primary input fail
				License error
				FPGA comms failure
				FPGA upgrading
				FPGA overheat
				 FPGA demo reboot reminder 5 mins, 3 mins, 60 secs
	WARN	Yellow	Illuminated	Board warning conditions. LED is Illuminated in the event of:
				CRC errors
				License minor faults
				 Video pattern, freeze, black or caption
				Audio routing mismatch (data/PCM mixed)
				Configured reference not valid
				FPGA overheat warning
	ОК	Green	Illuminated	The module is operating correctly.

5. Operation Using the RollCall Control Panel

The RollCall Control Panel enables you to control the IQ modules through various different pages.

See the *RollCall Control Panel Installation & Operator's Manual* for information about installation and setup of the RollCall Control Panel.

Note: The content and order of the pages shown in this section are for guidance and reference only, and may be slightly different to what you see on your module. The look and functions may also differ slightly from the other modules in the range.

5.1 Template Pages



The list at the top-left of each page shows each template available for the module in use.

To select a template, choose one from the list. Alternatively, right-click anywhere on-screen in an opened template and choose one from the list.

5.2 Information Window

The Information Window at the top of each page displays information about the audio and video status of the unit. You can select from the following, where applicable:

- Video Status: Shows video input status information.
- · Audio Input Status: Shows audio input status information.
- Reference Status: Shows genlock and reference status information.
- **Card Edge LEDs:** Shows status information of the LEDs on the edge of the card. For information about the LED functions, see "Card Edge LEDs" on page 33.
- **Dolby Status:** Shows Dolby status information. The status will vary depending on whether the modules is configured as a Dolby decoder or a Dolby encoder.
- **AFD Status:** Shows status information of the input and output processed and transmitted widescreen signaling values and aspect ratios.

5.2.1 Video Status

Information	Information Window	
IN1:0K 1080/25i *	Video Status	Card Edge LEDs
IN2:LOST	Audio Input Status	O Dolby Status
ANL:LOST	Reference Status	
OUT: OK 1080/25i \$		AFD Status

With Video Status selected, the Information Window displays the following information:

Information	Status	Description	
IN1:	OK	Signal received OK	Shows the detected video
IN2: ANL:	FAIL	Signal failed	input standard, for example, 1080/25i (blank if input is
	LOST	No signal received	lost).
			A * symbol indicates that the input is selected.
OUT:	OK	Signal OK	Shows the selected video
	BLK	Output signal is black	output standard, for example, 1080/25i.
	FRZ	Output signal is frozen	A \$ symbol indicates that the
	PAT	Output is a pattern	caption is enabled (blank if disabled).

5.2.2 Audio Input Status

Information Audio Embed Input PPPPPPP Audio AES Input	Information Window Video Status Audio Input Status	○ Card Edge LEDs ○ Dolby Status
0000	0.000.000	O AFD Status

With Audio Input Status selected, the Information Window displays the following information:

Information	Status	Description
Audio Embed Input Audio AES Input	Р	The channel is a PCM audio input.
	_	No audio input is detected.
	D	The Signal is data, such as non-PCM or DolbyDigital.
	E	The signal is Dolby E.
	0	The channel is an AES output.

5.2.3 Reference Status

Information GEN: WARN Freerun REF: LOST	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status
		AFD Status

With Reference Status selected, the information Window displays the following information:

Information	Status	Description
GEN:	WARN Freerun	Shows the current genlock state.
	OK Reference	
	OK Input	
REF:	OK (Standard)	Shows the current reference input state.
	FAIL LOST	
	FAIL	

5.2.4 Card Edge LEDs

Information Info:GREEN(OK)	Information Window Video Status Audio Input Status Reference Status	Card Edge LEDs Dolby Status
		AFD Status

With Card Edge LEDs selected, the Information Window displays the following information:

Information	Status	Description
Info:	GREEN (OK)	Shows the module's current operating status.
	YELLOW (WARNING)	_
	RED (ERROR)	_

5.2.5 Dolby Status

Information		Information Window	1
ABSENT	STOPPED	Video Status	Card Edge LEDs
8x1	P1 3/2L	Audio Input Status	Dolby Status
RSVD	NO SYNC	Reference Status	
Ext Meta:	REVERT		O AFD Status

With **Dolby Status** selected, the Information Window displays the following information:

Information	(Example Status)	Description
Line 1, field 1	ABSENT	Shows the input state.
Line 1, field 2	STOPPED	Shows the Dolby status.
Line 2, field 1	8x1	Shows the Dolby configuration.
Line 2, field 2	P1	Shows the Dolby metadata source.
Line 2, field 3	3/2L	Shows the Dolby program.
Line 3 field 1	RSVD	Shows the frame rate and data rate.
Information	(Example Status)	Description
--------------------	------------------	---
Line 3 field 2	NO SYNC	Shows the field sync or digital bit rate.
Line 4 (Ext Meta:)	REVERT	Shows auxiliary information.

5.2.6 AFD Status

Information		Information Window	
IP:	-	Video Status	Card Edge LEDs
AFD:None		Audio Input Status	Obly Status
OP:	-	Reference Status	
AFD: <disabled></disabled>			AFD Status

The window displays status information of the input and output processed and transmitted widescreen signaling values and aspect ratios.

5.3 Config-Summary

The Config-Summary page provides quick access to some of the unit's more commonly used configuration settings. The controls are also available in more detail on their individual configuration pages.

eo-In eo-Backup eo-Out	Information IN1:OK 1080/29i * IN2:LOST OUT: OK 1080/29i	Information Window Video Status Audio Input Status Reference Status A	Card Edge LEDs Dolby Status NFD Status
deo Input		Genlock Timing Reference Status Std: Unknown State: WARN:Freerun	Genlock Free Run Lock to Reference Lock to Input
Input SDI Input 1 1080/29i SDI Input 2 LOST deo Output Standard Output 1080/29i Output 1080/29i Output Standard 1080/29i 720/59p 525/29i 1080/50p-A	Output Standard Mode Manual Selection Follows Input Follows Reference Output Mode Video Input Black	Delay Timing Delay Frames Reference Vertical Phase Horizontal Phase Lock to Input Vertical Delay Horizontal Delay O	 P 1 frames P 0 lines P 0 pixels P 0 lines P 0 pixels
1080/25i 720/50p 625/25i	Freeze Out Pattern	Audio Outputs Embed Defau	It Routing

5.3.1 Video Input

• Input Select: Selects the video input.

The unit can automatically switch inputs if an error occurs. To enable this option, select **Enable Backup**.

The backup options are configured on the Video-Backup page. See page 42.

• **Input:** Shows the current input and detected standard.

5.3.2 Video Output

- Standard: Shows the current output standard.
- Output Standard Mode: Inserts the same output standard as specified for the input.
- **Output Standard:** Specifies the output standard of the conversion you want to make.
- **Output Mode:** Specifies the current output mode.

5.3.3 Audio Bulk Delay

The Audio bulk Delay buttons add a delay to all of the audio buses simultaneously. The buttons add a corresponding delay each time you click them. You can also use the slider to fine tune the delay.

To add the selected delay to the module's output, select Add In.

5.3.4 Genlock Timing

- **Reference Status:** Shows the current reference standard and genlock state.
- **Genlock:** Specifies the genlock mode.
 - Free Run: In this mode the unit's output is not locked to any input signal or reference source. Instead, the unit runs at the correct frame rate and synchronizes the video to it.

You can make frame delay adjustments in this mode but not horizontal or vertical timing adjustments.

• Lock to Reference: Locks to an external black (burst) reference signal, either bi-level SD or tri-level HD.

You can make horizontal or vertical timing adjustments in this mode for correctly phasing to match other sources, and step up the delay in frame increments, up to 12 additional frames.

This reference should be clean of noise and jitter to give the best possible results. A bi-level reference and tri-level reference of the correct frame rate are always acceptable.

- Lock to Input: Locks the output to the input.
- **Delay Timing:** Specifies the video delay. The minimum delay is 0 frames, 3 lines.
 - **Delay Frames: Delay Frames:** Adjusts the video delay. The adjustment range is standards dependent. See Video Delay Frames on page 16.
 - Vertical Phase: Adjusts the video delay ±1 line when locked to reference.
 - Horizontal Phase: Adjusts the video delay ±Max pixels when locked to reference.
 - Vertical Delay: Adjusts the video delay ±Max lines when locked to input.
 - Horizontal Delay: Adjusts the video delay ±Max lines when locked to input.

Note: Delay frames, horizontal, and vertical settings are stored and restored per output standard. You can only configure settings for each standard when outputting that actual standard.

5.3.5 Audio Outputs

Embed Default Routing: Sets embedded, AES, and Analog routing. Choose from pre-defined options.

5.4 Video-In

The Video-In page enables you to specify the input standards that the unit will accept as valid. Video-In also displays information about the current input and CRC/EDH and ANC errors.

B 07:IQSYN33-3G 2100:07	7:07 - IQSYN33			
Config-Summary Video-In Video-Backup Video-Out	Information IN1:0K 1080/2 IN2:LOST OUT: 0K 1080/2	9i * 9i	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status AFD Status
Input Input Select	Valid Input Standards	 ✓ 720/59p ✓ 720/50p 	o	
ProcAmp Master Gain 0.00 dB Black Level 0 mV Hue 0 degrees	Y Gain 0.00 dB C Gain 0.00 dB 0.00	P	g 0 P	
CRC/EDH Errors	e Since Last Error 0:51 e Since Last Error	Res	et Counts Reset Counts ime Since Reset 0:51	
Input 2 CRC/EDH Errors 0 ANC Errors 0 Tim	e Since Last Error			

5.4.1 Input

• Input Select: Selects the video input.

The unit can automatically switch inputs if an error occurs. To enable this option, select **Enable Backup**.

You can configure the Backup Switch options on the Video-Backup page. See page 42.

• Valid Input Standards: Specifies the input standards that the unit considers valid.

Note: Some standards are applicable to conversion products only.

• Input: Shows the current input and detected standard.

5.4.2 ProcAmp

- Master Gain: Adjusts the overall gain (Y and Cb/Cr) from 6 dB to -120 dB, in 2000 (non-linear) steps. The preset value is 0 dB.
- Note: You can adjust the Y and C Gain independently of the Master Gain.
- Note: Y Gain: Adjusts the Y (luminance) gain from 6 dB to -120 dB, in 2000 (non-linear) steps. The preset value is 0 dB.
 - **C Gain:** Adjusts the Cb/Cr (color difference) gain from 6 dB to -120 dB, in 2000 (non-linear) steps. The preset value is 0 dB.

Note: The total range of both Master + Y and Master + C controls is +6 dB to -10 dB.

- Black Level: Adjusts the black level by ±200 mV in steps of 1 mV. The preset value is 0 mV.
- **Hue:** Adjusts the hue ±180 degrees. The preset value is 0 degrees.
- **SD Signaling Passthrough:** Passes SD signaling through the unit unchanged.

5.4.3 YC Timing

The YC Timing slider adjusts the luma/chroma timing. The range of adjustment is -8 pixels to +7 pixels. The preset value is 0 pixels.

5.4.4 CRC/EDH Errors

The CRC/HDH Errors area provides information about the Cyclic Redundancy Checksum errors and Error Detection Handling.

- CRC/EDH Errors: Shows the total CRC error count or EDH errors since the last reset.
- **Time Since Last (CRC/EDH) Error:** Shows the time in five second intervals up to one minute, then in minute intervals, since the last error was detected.
- ANC Errors: Shows the total number of ANC errors since the last reset.
- **Time Since Last (ANC) Error:** Shows the time in five second intervals up to one minute, then in minute intervals, since the last error was detected.
- Reset Counts: Resets the error counters to zero.
- **Time Since Last Reset:** Shows the time since the counters were last reset.

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

5.5 Video-Backup

Note: IQSYN33 only.

The Video-Backup page enables you to configure input switching.

formation N1:0K 1080 N2:LOST UUT: 0K 1080 Backup (Inp 2) Se Master (Inp 1) C ▼ Enable Master (Inp 1) Ir ■ Enable	/29i ≈ /29i lect Carrier Detect Fail Status FALSE rvalid Standard r Status	Information Window Video Status Audio Input Status Reference Status Delay 0.1 s	Card Edge LEDs Dolby Status AFD Status
Backup (Inp 2) Se Master (Inp 1) C Master (Inp 1) I Master (Inp 1) Ir Master (Inp 1) Ir	lect Carrier Detect Fail Status FALSE walid Standard ∽Status	0.1 s	P
Enable		Delay	
Master (Inp 1) E	FALSE rror Status FALSE	Delay 5 s	
-Master (Inp 1) E	The second state of the se	Delay 1.0 s oup/Pairs On Input 1 2 Grp 3 Grp 4 1 2	P Sel All Sel None
Master (Inp 1) Sel Backup (Inp 2) C Enable	ect Carrier Detect Fail Status TRUE	Delay 0.1 s C=	Lock Grp
Backup (Inp 2) I	nvalid Standard Status FALSE Error	Delay 0	
	Backup (Inp 2) (Enable Backup (Inp 2) (Enable Backup (Inp 2) (Backup (Inp 2) (Enable Backup (Inp 2) (Enable)	Backup (Inp 2) Carrier Detect Fail Status TRUE Backup (Inp 2) Invalid Standard Status FALSE Backup (Inp 2) Error Status FALSE FALSE	Backup (Inp 2) Carrier Detect Fail Status TRUE Delay Delay TRUE Backup (Inp 2) Error Status FALSE Delay FALSE Delay Ss Colored Status Status Ss Colored Status Status Ss Colored Status

Backup logic enables you to select an input depending on input state and the Priority/Reversion settings.

• To enable backup logic, select the Enable Backup Input Switch check box.

5.5.1 Priority/Reversion

The Priority/Reversion controls specify which of the two inputs should be used if both are receiving a valid signal (or if both are invalid).

If an error occurs on the master input, the unit switches to the back-up input. When the error condition no longer exists, the unit switches back to the priority input after the time set on the Reversion Delay slider.

Note: The control is set to None when Master Audio detection is used.

- **None:** Makes neither input a priority. If a switch takes place, the input to which the switch was made stays in use until you make a manual switch. This happens even after the error condition has cleared.
- **Master (Inp 1) Priority:** Makes input 1 the primary input and take priority over Input 2. Input 1 is used if no error condition exists or if both inputs have failed.

- Backup (Inp 2) Priority: Makes input 2 the primary input and take priority over Input
 1. Input 2 is used if no error condition exists or if both inputs have failed.
- **Reversion Delay:** Adjusts the time for which an error-free signal must exist on the priority input before the unit switches back to the priority input.

5.5.2 Input Error Qualification

Input Error Qualification uses CRC/ANC error to qualify input.

5.5.3 Backup State Select

Backup State Select shows whether conditions to switch to the backup input (Inp2) are valid. This can show NONE, FALSE or TRUE.

5.5.4 Master State Select

Master State Select shows whether conditions to switch to the master input (Inp1) are valid. This can show NONE, FALSE or TRUE.

5.5.5 Input Select

The Input Select radio buttons enable you to select the input to be used. This control is also available on the Video-In page.

5.5.6 Backup (Inp 2) Select

The Backup (Inp 2) controls define the conditions on Master (Inp 1) that must exist to trigger a switch to backup. Each condition has a status box showing TRUE or FALSE when you select the **Enable** check box.

- **Master (Inp 1) Carrier Detect Fail:** Switches to input 2 if input 1 detects no signal, after the time set on the Delay slider.
- **Master (Inp 1) Invalid Standard:** Switches to input 2 if input 1 detects an invalid signal, after the time set on the Delay slider.
- **Master (Inp 1) Error:** Switches to input 2 if input 1 detects a signal error, after the time set on the Delay slider.
- Master (Inp 1) Invalid Embedded Audio Fail: Switches to input 2 if input 1 detects and embedded audio fail, after the time set on the Delay slider. To specify the required audio channels, select the relevant boxes:
 - Sel All: Selects all the embedded audio channels.
 - Sel Lck: Clears all the embedded audio channels.
 - Lock Grp: Locks each channel pair within the embedded audio groups together. For example, selecting the right channel automatically selects the left channel and vice versa
 - **Required Emb Group/Pairs On Input 1:** Audio groups/pairs required for the input to be considered acceptable. If any selected audio group/pair fails for more than the time specified on the Delay slider, the input switches to Backup (Inp 2). If audio fails on a group/pair that is not marked as required, the input is considered acceptable and no switch takes place.

5.5.7 Master (Inp 1) Select

The Master (Inp 1) Select controls define the conditions that must exist to trigger a switch from input 2 to input 1. You can select any or all of these options, which function in the same way as the Backup (Inp 2) Select controls.

5.6 Video-Out

The Video-Out page enables you to apply various settings and adjustments to the video output signal.

-In -Backup -Out	ô	Information IN1:0K 1080/29i * IN2:LOST	Information V Video S Audio Ir Referen	Mindow tatus iput Status ince Status	 Card Dolby 	Edge LEDs / Status
o-Picture	~	OUT: OK 1080/29i			O AFD	Status
ins at						
itandard		Output Standard Mode	Pattern Type			
Output 1080/29i		Manual Selection	75% Color E	Bars	^	
		Follows Input	100% Color	Bars		
output Standard		Follows Reference	SMPTE Bar	S		
1080/291	^		Tartan Bar	S		
720/59p			Black			
525/29i			Pluge		*	
1080/50p-A		Defeut Outrust	Orden de Manda			
1080/25i		Default Output	Output Mode	t		
720/50p		Plack	Rlack	Jui		
625/25i	~		C Ereeze			
		Out Pattern	Out Patte	ern		
leen Centier		0 out ration	- o our un	- 0.4		
Text (16 chars	max)				ung	
Enable IQSYN33		P S		Proce	ssed	
			-Y Pos	O Reclo	cked/Byp	ass
Alternate lext (16 chars max)			0.0			
Enable IQSYN33*		PS		Output 2		
X Size	_			Proce Proce	ssed	
1 P	-X F	208		O Kecio	скеа/вур	ass
0		0.0 P				
Y Size	C					
1 P						
-			U			

5.6.1 Standard

The Standard box shows the current output standard.

5.6.2 Output Standard Mode

- **Manual Selection:** Use to manually select an output standard.
- Follows Input: Inserts the same output standard as specified for the input.
- Follows Reference: Inserts the same output standard as specified for the reference.

5.6.3 Output Standard

From the list, you can choose a specific output standard.

5.6.4 Default Output

The Default Output radio buttons control the unit's response to a loss of input signal.

- Black: The output picture will cut to black on loss of input signal.
- Freeze: The output picture will freeze on loss of input signal.
- **Out Pattern:** The output picture displays the pattern from the Pattern Type function, on loss of input signal.

5.6.5 Output Mode

The Output Mode radio buttons enable you to specify the current output mode.

- Video Input: The input signal is used.
- **Black:** The output picture cuts to black.
- **Freeze:** The output picture freezes.
- **Out Pattern:** The output picture displays the pattern from the Pattern Type function.

5.6.6 Pattern Type

The Pattern Type list enables you to select a pattern type for the selected output. You can choose from: 75% Color Bars, 100% Color Bars, SMPTE Bars, Tartan Bars, Black, Pluge, Ramp, Sweep, Pulse & Bar, and Burst.

5.6.7 User Caption

The User Caption controls enable you to display a caption on video output.

- **Text:** Use to create text for your caption. See See section 5.6.9.
- Alternate Text: Displays text every two seconds with the main caption text.
- **X Pos/Y Pos:** Adjusts the position of the caption from the top-left corner of the screen. The adjustment range is 0 to 100 in 0.1 steps, providing a relative percentage position from origin.
- X Size/Y Size: Adjusts the height and width of the caption.

5.6.8 Output Routing

The Output Routing radio buttons specify the output sent to Output 1 and Output 2.

- **Processed:** Sends a processed signal to Output 1 and Output 2.
- **Reclocked/Bypass:** Reclocks the signal, which remains otherwise unchanged.

5.6.9 Creating Caption Text

- 1. In the text field, enter your required text and click **S**.
- 2. Select **Enable** to display the caption. To return to the default text (captions on), click **P**.

5.7 Video-Picture

Note: IQSYN33 only.

The Video-Picture page enables you to apply various settings and adjustments to the output picture.

Video-Backup Video-Out	Information IN1:0K 1080/29i	* Information V • Video S • Audio Image: Second S	Information Window O Card Edge LEDs				
Video-Picture Delay-Genlock	OUT: OK 1080/29i	OK 1080/29i		Status Obiby Status Status O AFD Status			
Luma Clipper	RGB Legalizer	Advanced H Enhanc	e				
Unite max	Range 700 mV	Enable	Presets O Low Medium	Gain 4.0	P]		
Black min	 ○ 735 mV ● 746 mV 	 Low Medium High 	 High Super Custom 	Noise Rejection	- P		

5.7.1 Luma Clipper

When luminance levels are too high or too low, devices such as encoders and displays can experience problems. The luma clipper limits signals above and below predefined limits.

- Enable: Enables the Luma Clipper.
- White Max: Adjusts the upper limit of the clipper. The adjustment range is 90% (825 digital 10 bit value) to 109% (1019) in 1% steps. The preset value is 103%.
- Black Min: Adjusts the lower limit of the clipper. The adjustment range is -7% (4) to 10% (152) in 1% steps. The preset value is -1% (55).

5.7.2 RGB Legalizer

RGB gamut legalization ensures that both the HD and SD outputs of the unit meet specified color limits. The ranges you can specify are as follows:

- 700 mV: RGB Lo 0 mV, RGB Hi 700 mV.
- 721 mV: RGB Lo -21 mV, RGB Hi 721 mV.
- 735 mV: RGB Lo -35 mV, RGB Hi 735 mV.
- 746 mV: The default setting.

Note: The 735mV selection should be used in conjunction with the Luma Clipper (set to defaults) to generate images that adhere to EBU R103-200 specification.

5.7.3 Advanced H Enhance

The Advanced Horizontal Enhancer applies selective enhancement to the low, medium, or high frequency band. Four presets are available as well as custom gain and noise rejection.

- Enable: Enables Advanced Horizontal Enhancement.
- Freq Band: Selects the frequency band to which enhancement is applied.
- **Presets:** Frequency band presets:
 - Low: Sets Gain to 2.0 and Noise Rejection to 15% for the selected frequency band.
 - Medium: Sets Gain to 4.0 and Noise Rejection to 15% for the selected frequency band.
 - **High:** Sets Gain to 6.0 and Noise Rejection to 15% for the selected frequency band.

- **Super:** Sets Gain to 8.0 and Noise Rejection to 15% for the selected frequency band.
- **Custom:** Enables you to manually adjust Gain and Noise.
- **Gain:** Adjusts the Gain on the selected frequency band when the Custom preset is selected.
- **Noise Reduction:** Adjusts the Noise Rejection on the selected frequency band when the Custom preset is selected.

5.7.4 Color Correction (Option)

The Color Correction controls enable you to add color correction to the individual RGB channels.

You can lock the controls together by selecting the **Gang** check box.

- **Offset:** Adjusts the offset percentage of the RGB channels. The adjustment range is 0 to 200% on 0.1% steps. The preset value is 100%.
- **Gain:** Adjusts the gain percentage of the RGB channels. The adjustment range is 0 to 200% in 0.1% steps. The preset value is 100%.
- **Gamma:** Adjusts the gamma curve of the RGB channels. The adjustment range is 0.125 to 8.000 in one-thousandths steps. The preset value is 1.000.

5.8 Delay-Genlock

The Delay-Genlock page enables you select the genlocking and delay functions.

o-Out o-Picture	Information IN1:0K 1080/29i	Information Window O Video Status O Card Edge LEDs O Audio Issuet Status O Delhu Status
ay-Genlock	- 1N2.2031	Audio input status Dolby status
deo-VBI	OUT: OK 1080/29i	O AFD Status
daa MidaCaaaa	•	
Reference / Delay		
Reference Status	Genlock	Delay Timing
Standard	O Free Run	Delay Frames
Unknown	Lock to Reference	O P 1 frames
Geplock State	O Lock to Input	Reference
WARNEroorun	L	Vertical Phase
WARNALTEETUIT		P 0 lines
		Horizontal Phase
Output Standard	Current Video Delay	P 0 pixels
1080/29i	34.97 ms	
		Lock to Input
Dolby E Auto Line		Vertical Delay
Dolby E Auto Line No	User Dolby-E Line	O P 0 lines
P 24	Def User Align	-Horizontal Delay-
0	Pair1: 💿 🔘 🗌	P 0 pixels
Line for Stendard	Pair2:	
525/20i	▲ Pair3: ● ○ □	
625/25	Pair4:	
720/20		
720/50p		
720/59p		
1080/25i		
1080/29i	Pair8: • O	
	V	

5.8.1 Reference Status

Reference Status shows the current reference status and genlock state.

5.8.2 Genlock

The Genlock controls enable you to select the genlock mode.

 Free Run: In this mode the unit's output is not locked to any input signal or reference source. Instead, the unit runs at the correct frame rate and synchronizes the video to it.

You can make frame delay adjustments in this mode but not horizontal or vertical timing adjustments.

• Lock to Reference: Locks to an external black (burst) reference signal, either bi-level SD or tri-level HD.

You can make horizontal or vertical timing adjustments in this mode for correctly phasing to match other sources, and you can step up the delay in frame increments, up to 12 additional frames.

Note: The adjustment range of the delay frames is standards dependent. See Video Delay Frames on page 16.

This reference should be clean of noise and jitter to give the best possible results. A bi-level reference and tri-level reference of the correct frame rate are always acceptable.

5.8.3 Delay Timing

The Delay Timing controls specify the unit's video delay. The minimum delay is 0 frames, 3 lines.

• **Delay Frames:** Adjusts the video delay. The adjustment range is standards dependent. See Video Delay Frames on page 16.

Note: In order to ensure a clean switch, the delay value must be set to at least 1. Picture disruption may occur if this is not done.

- Vertical Phase: Adjusts the video delay ±1 line when locked to reference.
- Horizontal Phase: Adjusts the video delay ±Max pixels when locked to reference.
- Vertical Delay: Adjusts the video delay ±Max lines when locked to input.
- Horizontal Delay: Adjusts the video delay ±Max lines when locked to input.
- Note: Delay frames, horizontal and vertical settings are stored and restored per output standard. You can configure settings for each standard only when outputting that actual standard.

Setting the **Delay Frames** value to <1 may cause picture disruption. A value of 1 or above is required in order to guarantee clean switching.

5.8.4 Output Standard

Output Standard shows the current output standard.

5.8.5 Current Video Delay

Current Video Delay shows the unit's total current video delay.

5.8.6 Dolby E Auto Line

The Dolby E Auto Line controls enable you to specify a video line for Dolby E header alignment.

For any pair with Auto DE enabled, the audio delay attempts to align the output audio guard band on this video line, while keeping the delay within ± 0.5 frame of nominal. Each video standard may have its own line specified, so that a change of standard automatically calls up the appropriate line for alignment to.

 Dolby E Auto Line No/Line for Standard: Enables access for defining and viewing the table of user-specified lines for Dolby E auto alignment, status reporting and logging.

The defaults for each standard are the published 525/29i and 625/25i positions mapped onto the supported standards, such as assuming the encoders or decoders are referenced to SD.

Standard	Default Dolby E Line
525/29i	14
625/25i	12
720/50p	28
720/59p	32
1080/25i	21
1080/29i	24
1080/50p	42
1080/59p	47

From the Line for Standard list, select the input video standard to automatically adjust the Dolby E Auto Line No, or manually adjust using the slider.

• **User Dolby E Line:** Enables automatic Dolby E alignment and specifies whether the uses the defined Dolby E line or the user-defined Dolby E line.

Select Auto E Align to enable automatic Dolby E alignment for each required pair.

For each Dolby E enabled pair select either **Def**, which uses the system-defined line number, or **User**, which uses the user-defined line number.

5.9 Video-VBI

The Video-VBI (Vertical Blanking Interval) page enables you to select the blanking standards passed through the module.

₩ 07:IQSYN33-3G 2100:07:07 - IQSYN33										
Vi De Vi Vi	deo-Picture elay-Genlock deo-VBI deo-WideScreen		mation :OK 108(:LOST :OK 108(0/29i * 0/29i	Informati Vide Audi Refe	on Window o Status o Input Status rence Status	 Card Edge Dolby Statu AFD Status 	LEDS IS		
	VBI for Standard 525/29i 625/25i	Blank Lines	14	20	575	581				
	720/50p 720/59p 1080/25i	10	15 16	570	577	582				
	1080/29i 1080/50p 1080/50p	☐ 11 ☐ 12	17	572	578					
	1000/34	Pass All	19 & lines	Blank All lin	580 es	Blank HAN	ic			

5.9.1 VBI for Standard

From the list, you can select the standard for which the blanking properties defined in the Blank Lines area are to be applied.

5.9.2 Blank Lines

- Pass All Lines: Passes all displayed vertical interval lines to the output signal.
- Blank All Lines: Prevents all displayed vertical interval lines from being passed to the output.
- Blank HANC: Blanks horizontal ancillary data.

Note: Audio embed passthrough is possible if all embed groups are disabled and the Blank HANC option is disabled.

5.10 Video-Widescreen

Note: IQSYN33 only.

The Video-Widescreen controls enable you to set up widescreen signaling and picture aspect conversions.



5.10.1 AFD Display Mapping

- Enable: Enables AFD display mapping.
- Force Mode: Uses the Input Mode specified by the Video-Widescreen controls.

Four settings are available which enable binding of an ARC display with an AFD Index. You can recall these by using user memories or GPI inputs. If output signaling is not required, you can disable it and recall ARC mappings manually.

5.10.2 Global Preset

The Global Preset buttons reset the AFD mapping to its default values.

5.10.3 Input

- **AFD:** Shows where a 4:3, 14:9, or 16:9 image is within the coded frame, for example, the size and position of a letterbox signal.
- Aspect Ratio: Shows the input aspect ratio.
- **SMPTE 2016:** Select the **Enable** check box to enable the unit to insert SMPTE 2016 widescreen signaling information.

You do not have to specify the expected input line, but it is shown here for information under Line Number.

• **SD Input Signalling:** Determines how the module reacts to incoming VI or WSS signaling in the input stream.

Note: The appropriate VBI lines must be selected for VI/WSS on the Video-Ancillary & Timecode page. See page 55.

- WSS ETSI: Widescreen signaling to ETS 101154 (line 23). 625/50 only.
- WSS AFD: Widescreen 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 after 2016 Signalling
 - **WSS/VI:** Selects which interface the system uses when both are present, in order to avoid any possible conflicts.

5.10.4 Output

- **AFD:** Shows where a 4:3, 14:9, or 16:9 image is within the coded frame. Shows where a 4:3, 14:9, or 16:9 image is within the coded frame, for example, the size and position of a letterbox signal.
- Aspect Ratio: Shows the output aspect ratio.
- **SMPTE 2016:** Select the **Enable** check box to enable the unit to insert SMPTE 2016 widescreen signaling information.

You must specify the output line. To do this select **Follow Input Line** or use the slider to specify the lines.

- Frame/1st Field & 2nd Field: Adjusts the output lines.
- **SD Output Signalling:** Determines how the module inserts VI or WSS signaling (or both) in the output stream.

To enable insertion, select the **VI/WSS** output coding check boxes. You can insert both simultaneously.

Note: The appropriate VBI lines must be selected for VI/WSS on the Ancillary Data Screen (see page 55). The lines are automatically enabled/disabled depending on usage. Take care to avoid line clashes with other ancillary data types.

- 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).

5.10.5 Read/Write Mapping

•

Read AFD Index: Detects the input AFD index.

Each read index has a Write AFD Index and a Display Memory associated with it. When you change the Read AFD Index, either by a a change in the input signal or by manually selecting a new index, the Write AFD Index and Display Memory change to the settings associated with the new Read AFD Index.

• Write AFD Index: Determines the AFD index to be included in the output.

Each Write AFD Index is associated with a Read AFD index. To change this association:

Select an option from the Read AFD Index and then from the Write AFD Index.

5.10.6 4:3 Aspect Ratio and 16:9 Aspect Ratio

The aspect ratio area provides an overview of the current relationships between the Read AFD Indexes, Write AFD Indexes and the Display Memories.

5.11 Aud-In-Disembed

The Aud-In-Disembed page enables you to adjust the gain and polarity of the eight disembedded audio pairs.

/ideo-WideScreen	^	Information	a: a	Information Window		1	
/ideo-Ancillary & Time	code	IN1:0K 1080/2 IN2:105T	91 -	VIDeo Status Audio Input Status	Card Edge LEDs Dolby Status		
Aud-In-Disembed				Reference Status	Cobby Status		
Aud-Routing-In		OUT: OK 1080/2	9i		O AFD Status		
und Damitica Out Carb	الثا ا						
Disembed 1	Disembed 2	Disembed 3	Disembed 4	Disembed 5	Disembed 6	Disembed 7	Disembed 8
🗆 inv 🔲 inv		🗆 inv 🔲 inv				🗆 inv 🗔 inv	
ProcAmn	-Proc Amn	- Proc Amn	-Proc Amn	ProcAmn	ProcAmp	-Proc Amn	ProcAmn
	Trocking a	n nocemp			1100Amp		
5 5		5 5				5 5	
P P	P P	P P	PF	P P	P P	P P	P P
0.0 dB	0.0 dB	0.0 dB	0.0 dB	0.0 dB	0.0 dB	0.0 dB	0.0 dB
0.0 dB	0.0 dB	0.0 dB	0.0	dB 0.0 dB	0.0 dB	0.0 dB	0.0 dB
Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute
			-				
Stereo	Stereo	Stereo	Ster	reo 🛛 Stereo	Stereo	Stereo	Stereo
Dolby Line	Dolby Line	Dolby Line	Dolby Line	Dolby Line	Dolby Line	Dolby Line	Dolby Line
			-				
Status	Status	Status	Status	Status	Status	Status	Status
OK:PCM	OK:PCM	OK:PCM	OK:PCM	OK:PCM	OK:PCM	OK:PCM	OK:PCM

5.11.1 Disembed 1–8

You can make adjustments for each disembedded audio pair.

- Inv: Inverts the signal polarity.
- **ProcAmp:** Adjusts the gain of the channel. The preset is 0 dB.

You can use the left and right controls separately by deselecting the **Stereo** check box.

- **Mute:** Mutes the channel.
- Stereo: Locks the left and right channels together as a stereo pair. Any adjustment you make on one channel is automatically applied to both channels, allowing rapid harmonious adjustment when audio pairs are carrying stereo signals.
- **Dolby Line:** Shows the line number of the guard band if the pair is Dolby E.
- Status: Shows the status of the pair.

5.12 Aud-In-AES1-4/8

Note: IQMUX33 only.

The Aud-In-AES1-4/8 page enables you to adjust the gain and polarity of the eight AES audio pairs, and configure the AES pairs as either inputs or outputs.

Video-VBI Aud-In-Disembed	Ô	Information Inform		ormation Window Video Status Audio Input Status C D	Card Edge LEDs Dolby Status		
Aud-In-Analog	~	OUT: BLK 1080/25	ii	© A	AFD Status		
AESInput 1	AESInput 2	AESInput 3	AESInput 4	AESInput 5	AESInput 6	AESInput 7	1
ProcAmp	ProcAmp	ProcAmp	ProcAmp	ProcAmp	ProcAmp	ProcAmp	
P P	РР	РР	P P	P P	РР	P P	
0.0 dB 0.0 dB	0.0 dB 0.0 dB	0.0 dB 0.0 dB	0.0 dB 0.0 dB	0.0 dB 3 0.0 dB	0.0 dB 0.0 dB	0.0 dB 0.0 dB	
Mute		Mute	Mute				
🗹 Stereo	Stereo	Stereo	Stereo	Stereo	Stereo	Stereo	
Status	Status	Status	Status	Status	Status	Status	
FAIL:Lost	FAIL:Lost	FAIL:Lost	FAIL:Lost	FAIL:Lost	FAIL:Lost	FAIL:Lost	
AES 1-4 I/O Enable	0 45 02 locut	AF 62 land	0.4504 land	AES 5-8 I/O Enable	0 45 00 land	A 6 7 1	0 45 60 1-2-1
AES1 Input AES1 Output	AES2 Input	AES3 Input AES3 Output	AES4 Input AES4 Output	AES5 Input AES5 Output	AES6 Input	AES7 Input AES7 Output	AES8 Input AES8 Output

5.12.1 AES Inputs 1–4

You can make adjustments for each AES audio input pair.

- Inv: Inverts the signal polarity.
- ProcAmp: Adjusts the gain of the channel. The preset is 0 dB.

You can use the left and right controls separately by deselecting the **Stereo** check box.

- **Mute:** Mutes the channel.
- **Stereo:** Locks the left and right channels together as a stereo pair. Any adjustment you make on one channel is automatically applied to both channels.
- Status: Shows the status of the pair.
- **AES I/O Enable:** Configures unbalanced AES rears as an input or input. This control is grayed out when using balanced rears.

Note: If an AES *n* is configured as an output, the gain controls are hidden.

5.13 Aud-In-Analog

Note: IQMUX33 only.

The Aud-In-Analog page enables you to adjust the gain and polarity of the two analog input pairs.

Aud-In-Disembed Aud-In-AES Aud-In-Analog Aud-Routing-In		Information IN1:LOST IN2:LOST ANL:LOST OUT: BLK 1080/29i	*	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status AFD Status 	
AnalogInput 1	Analoginput 2					
PPP 0.0 dB 0.0 dB Mute Stereo	P P 0.0 dB 0.0 dB Mute □ ✓ Stereo					

5.13.1 Analog Inputs 1 & 2

You can make adjustments for each analog input pair.

- Inv: Inverts the signal polarity.
- **ProcAmp:** Adjusts the gain of the channel. The preset is 0 dB.

You can use the left and right controls separately by deselecting the **Stereo** check box.

- **Mute:** Mutes the channel.
- **Stereo:** Locks the left and right channels together as a stereo pair. Any adjustment you make on one channel is automatically applied to both channels.

5.14 Dolby-Decoder (Option)

The Dolby-Decoder page enables you to specify how the module handles encoded Dolby source material.

coder Source Detect Mode Auto Disembed 1 Dolby D Listening Mode Full Disembed 2 Dolby Digital or Mute S Stereo Disembed 3 Dolby Digital or Mute S Stereo Disembed 4 Mute Program Select Program 2 Disembed 5 Program 1 Outpy Listening Mode Program 3 Disembed 6 Disembed 6 Disembed 7 Othy Digital Pro 16) Disembed 8 Channel 1 Dolby Digital Only) Program 4 Output Mode Ochoby Digital Pro 16) Channel 1 Doloby Digital Only) It lift Mode Program 5 Disembed 8 Channel 1 Doloby Digital Only) It lift Mode Program 6 Mono PCM Latency RF Mode RF Mode Program 8 Mute Status Device Name Single Video Frame Audio Production Info Extended BSI Extended BSI Fixers Format Dolby P Channel Metadata Status Mitx Level Status Device Name Status Program 10 Status Status Device Name Status Program 2 Status	-Loudness-Custom-2 -Out-Embed ny-Decoder ny-Decoder-Out	Information IN1:0K 1080/2 IN2:LOST OUT: 0K 1080/2	9i * 0 9i	oformation Window Video Status Audio Input Stat Reference Stat	Card Edg Dolby Sta S	e LEDs tus IS			
Disembed 2 Dispy Digital or Mute O EX Program 1 O Line Mode Disembed 3 Obity Digital or Mute 3 Stereo Program 2 RF Mode Disembed 5 Mute Stereo Program 3 Output Mode Output Mode Disembed 6 (Dolby Digital Pro 16) One Program 3 Output Mode Output Mode Disembed 7 Ochannel 1 Dynamic Range Program 6 O Mono Mono Disembed 8 Ochannel 2 Program 6 O Mono Output Mode O Mono Disembed 8 Ochannel 2 Program 7 Program 6 Mono O Mono Disembed 8 Orgram Descriptor Output Channel Assignment O Mono Output Channel Assignment Stereo Stereo Minimum Audio Production Info Extended BSI Extended BSI Program 7 Program 8 Output Channel Assignment Extended BSI Extended BSI Stereo Status Program 10 Metadata Status Mute Node Stereo Stereo FW Version 2127 Program Config Metadata Status Stereo Dowmink Mode Stereo Downnik Mode<	coder Source Disembed 1	Detect Mode O Auto D Auto	Dolby D Listening	Mode	Downmix Channel (ML Program Select	.MR) Dynamic R	ange	Metadata Prog 1 3/1	
Disembed 4 Disembed 5 Disembed 5 Disembed 6 Disembed 7 Disembed 8 O Channel 1 O Channel 2 PCM Latency Single Video Frame O Minimum Device Name 552 FW Version 2127 Dialogue Norm Dialogue Norm -27 dBF S Channel Mode Orty Crass Dialogue Norm -27 dBF S Channel Mode Off Video Sync Present Frame Rate 29.97 fps Film Standard Film Standard Surround Mode Off Program Config 4+2	Disembed 2 Disembed 3	 Dolby E or Mute Dolby Digital or Mute Mute 	O EX O 3 Stereo		Program 1 Program 2	 Line Mode RF Mode 		© 2 2/0	
Disembed 7 Dotby Digital Pro 16) Ornamic Range Ornamic Range Disembed 8 O Channel 1 Dynamic Range O Program 5 O Roo Disembed 8 O Channel 2 Dolby Digital Only) Ime Mode Program 6 Mute PCM Latency Ime Mode RF Mode Program 7 Program 7 Mute Device Name Minimum Program Descriptor Output Channel Assignment C5/C6 FAW Version 2127 B3/84 C5/C6 -/ Status Dialogue Norm Dialogue Norm Extended BS11 Extended BS12 Channel Mode Channel Mode Mix Level Sint (L C R S) Exists Bitstream Format Dialogue Norm Mix Level Dialogue Norm Conde Exists No Errors Channel Mode Mix Level Confor Preferred Sint (L C R S) Bitstream Mode RF Mode Film Standard Program Config Line Mode Line Mode Sint Phase SF Yes Une Mode Goff Gon Confo Contre Mix Level Sint Phase SF Off Une Mode Goff Gon Sint	Disembed 5	AES Channel Select	Stereo		 Program 3 Program 4 	Output Moo	le	0 4 N/A	
Distributed of Channel 2 (Doiny Logital Only) PCM Latency Single Video Frame Image: Single Video Frame Image: Single Video Frame Image: Single Video Fr	Disembed 7	(Dolby Digital Pro 16) Channel 1	Dynamic Range		O Program 5	O Lo/Ro		○ 5 N/A	
Image video ratifie Image video ratifie Image video ratifie Image video ratifie Image video ratifie Image video ratifie Image video ratifie Image video ratifie Image video ratifie Device Name Device Name Image video ratifie Image video ratifie <t< td=""><td>Disembed 8</td><td>Channel 2 PCM Latency Single Video Frame</td><td>Dolby Digital O Line Mode O RF Mode</td><td>Uniy)</td><td> Program 6 Program 7 </td><td>○ Mute</td><td></td><td>0 6 N/A 0 7 N/A</td></t<>	Disembed 8	Channel 2 PCM Latency Single Video Frame	Dolby Digital O Line Mode O RF Mode	Uniy)	 Program 6 Program 7 	○ Mute		0 6 N/A 0 7 N/A	
ecoder Status Program Descriptor Output Channel Assignment Delvice Name 552 552 1L/1R 1C/1S F/W Version 2127 Polaogue Norm 2.27 dBF S Extended BSI Extended BSI Stereo Downnix Mode On Off Mix Level Bitstream Mode Room Type Not indicated LorRo Centre Mix Level A:5dB LorRo Centre Mix Level On Surr Phase St Surr Phase St On		Minimum	O Bypass Mo	ide _	O Program 8			© 8 N/A	
Device Name 1L/1R 1C/1S -/- 552 FW Version 2127 Extended BS14 Extended BS14 FW Version 22 dBF S Fxists Fxists Fxists Dialogue Norm 27 dBF S Fxists Fxists Fxists Dialogue Norm 27 dBF S Fxists Fxists Fxists Dolby E 16 Channel Mode Mix Level Fxists Fxists Off Mix Level Bitstream Mode Fxists Fxists Off Film Standard Fxists Fxists Fxists Video Sync Frame Rate Film Standard Fxists Fxists Program Config Line Mode Film Standard Fxists Film Standard Friggram Config Surround Mode Film Standard Fxists Film Standard Film Standard Film Standard Fxists Fxists Film Standard	coder Status	Program Descriptor		Outr	ut Channel Assignme	nt 34	C5/C6	D7/D8	
FAW Version Metadada Status 2127 Dialogue Norm 2137 Dialogue Norm Bitstream Format Channel Mode Dolby E 16 3/1 (L C R S) Bitstream Status Channel Mode No Errors Off Video Sync Present Present Film Standard Film Standard Lufk Contre Mix Level Surround Mode Off Surround Mode Off	552				1L/1R	1C/1S	!	2L/2R	
2127 Piologue Norm Audio Production Info Extended BSI1 Extended BSI1 27 Zd BFS Charnel Mode Extended BSI1 Extended BSI1 Extended BSI1 27 Zd BFS Charnel Mode Mix Level Extended BSI1 Extended BSI1 20 Zd BFS Charnel Mode Mix Level Extended BSI1 Extended BSI1 20 Zd BFS Charnel Mode Mix Level Feinsts Yes 20 Zd BFS Distream Mode Mix Level LofRo Preferred On Video Sync Drifteram Mode Complete Main LofRo Preferred On Program Config Film Standard LofRo Centre Mix Level Off Program Config Surround Mode Off Surr 3dB Atter Off Surr 3dB Atter On Surr 3dB Atter	FAV Version	Metadata Status							
Bitsteam Format No Yes Dolby E 16 3/1 (L C R S) Mix Level Bitstream Status LFE Channel Mode Mix Level No Errors Off Bitstream Mode LGRo Preferred On Video Sync Domplete Main Room Type LLfR Centre Mix Level LofRo Preferred On Video Sync Present Rf Mode LLfR Centre Mix Level LLfR Centre Mix Level LLFE Filter Program Config Film Standard LlofRo Centre Mix Level Surr Phase SF Film Standard LofRo Surr Mix Level Surr Mix Level Surr Mix Level Surround Mode Off Surr 3dB Atter On	2127	-27 dBFS	Audio Product	ion Info	Extended BSI1		Extended E	3SI2	
Bitstream Status LFE Channel Off No Errors Off 80 dB SPL Video Sync Edistream Mode Complete Main Present Rr Mode Lifkt Centre Mix Level Frame Rate Line Mode 29.97 fps Line Mode Film Standard Lorko Centre Mix Level Surround Mode On Off Surr Video Sync	Bitstream Format Dolby E 16	Channel Mode 3/1 (L C R S)	No		Yes	Mode	Yes -Surround	I EX Mode	
Video Sync Complete Main Room Type 4.5dB On Present Complete Main Not indicated LfRt Surr Mix Level LFE Filter Frame Rate Film Standard Line Mode A.5dB Off Program Config Line Mode Line Mode Surr Phase St Film Standard LoRo Centre Mix Level Surr Phase St Off Surr Mix Level Surr Mix Level 4+2 Off Surr 3dB Atter	Bitstream Status No Errors	LFE Channel Off	80 dB SPL		Lo/Ro Preferre	d Level	On -Lowpas:	s Filter	
Frame Rate 4.5dB Off 29.97 fps Line Mode Line Mode Surr Phase St Program Config Film Standard Lo/Ro Centre Mix Level Surr Phase St 4+2 Surround Mode Lo/Ro Surr Mix Level -Surr 3dB Atter	Video Sync	Bitstream Mode Complete Main	Room Type Not indicate	ed	-4.5dB		On		
29.97 rps Line Mode 4.5dB On -Program Config 4.5dB On Surround Mode 4+2 Off 0n	Frame Rate	RF Mode Film Standard		17 12 17 20 17 20	-4.5dB	l evel	Off	se Shiff Filter	
4+2 Surround Mode Surr ads Atte	29.97 Tps Program Config	Line Mode Film Standard			-4.5dB		On		
	4+2	Surround Mode Off			-4.5dB	evel	On	Attenuator	
RC Error Counts	C Error Counts		-Dolby E			. Per	vet Courto		
Douy Digital Course Cou	Join y Digital		DOIDY E	2.0	Cinera Land France	Res	er counts	Dinan Danah	

5.14.1 Decoder Source

The Decoder Source list specifies which encoded Dolby source passes to the Dolby Decoder (from Embedded Dolby E in the SDI video – Disembedded 1 to Disembedded 8).

5.14.2 Detect Mode

The Detect Mode radio buttons specify the type of Dolby to be decoded.

- **Auto:** The module automatically detects and decodes any Dolby E or Dolby D bitstream. Any other bitstream passes as a PCM signal.
- **Dolby E or Mute:** Only decodes Dolby E input. Non-Dolby E input mutes the Dolby Decoder's output.
- **Dolby Digital or Mute:** Only decodes Dolby D input. Non-Dolby D input mutes the Dolby Decoder's output.
- **Mute:** Mutes the Dolby Decoder's output.

5.14.3 AES Channel Select

(Dolby Digital Pro 16)

AES Channel Select determines which AES3 channel to use as the source for the Dolby Digital data bitstream, if the Dolby Digital data is configured as professional 16-bit format.

5.14.4 PCM Latency

The PCM Latency radio buttons specify the latency applied when PCM data passes to the Dolby Decoder.

- **Single Video Frame:** When selected, PCM data is present to the decoder. If the decoder recognizes the frame rate, it delays the PCM by one frame. If not, the decoder applies the minimum delay possible (approximately 10 ms).
- **Minimum:** PCM data passes through the decoder with the minimum delay possible (approximately 10 ms).

5.14.5 Dolby D Listening Mode

When decoding Dolby Digital, you can select the following listening modes:

- EX
- Full
- 3 Stereo
- Phantom
- Stereo
- Mono

5.14.6 Dynamic Range

(Dolby Digital Only)

The Dynamic Range radio buttons specify the dynamic range mode used when the unit is decoding Dolby Digital.

- **Line Mode:** Applies dynamic range control to the decoded PCM suitable for line mode (dialog normalization and dynrng compression).
- **RF Mode:** Applies dynamic range control to the decoded PCM suitable for RF mode (dialog normalization and compr compression).
- **Bypass Mode:** No dynamic range control is applied to the decoded PCM.

Note: If the Dynamic Range control is selected and applied to the decoded PCM, the metadata remains unchanged.

5.14.7 Downmix Channel (ML/MR)

- **Program Select:** Select from Program 1–8.
- **Dynamic Range:** Specifies the type of dynamic range control applied to the auxiliary channel output.
 - Line Mode: Applies dynamic range control to the decoded PCM suitable for line mode (dialog normalization and dynrng compression).
 - **RF Mode:** Applies dynamic range control to the decoded PCM suitable for line mode (dialog normalization and dynrng compression).

• **Output Mode:** Specifies the output mode sent to the auxiliary output channel. Depending on the Dolby program type, these options change dynamically.

Dolby E 5.1-ch mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby E 4-ch mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby E 2-ch mode	L/R, L+R/L+R, mute
Dolby E 1-ch mode	L/R, L+R/L+R, mute
Dolby D 3/2 mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby D 2/2 mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby D 3/1 mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby D 2/1 mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby D 3/0 mode	Lt/Rt, Lo/Ro, Lo+Ro/Lo+Ro, mute
Dolby D 2/0 mode	L/R, L+R/L+R, mute
Dolby D 1/0 mode	Center/Center, mute
Dolby D 1+1 mode	L/R, L+R/L+R, mute

5.14.8 Metadata Prog

The Metadata Prog radio buttons enable you to select Dolby E program when external metadata is being used.

5.14.9 Program Descriptor

Program Descriptor shows a description of the current program configuration.

5.14.10 Output Channel Assignment

The Output Channel Assignment area shows the status of the output channels for the four Dolby decoder pairs.

5.14.11 Decoder Status

The Decoder Status area shows current decoder status information such as bitstream format and frame rate.

5.14.12 Metadata Status

The Metadata Status area shows status information and lists metadata parameters for all available programs within the current Dolby configuration.

5.14.13 CRC Error Counts

The CRC Error Counts area provides information about the Cyclic Redundancy Checksum errors.

- **Errors:** Shows the total CRC error count since the last reset.
- **Time Since Last Error:** Shows the time in five second intervals up to one minute, then in minute intervals, since the last error was detected.
- Reset Counts: Resets the error counters to zero.
- Time Since Last Reset: Shows the time since the counters were last reset.

5.15 Dolby-Decoder-Out

The Dolby-Decoder-Out page enables you to apply gain adjustments to each output channel.



5.15.1 MasterGain

The MasterGain slider adjusts the output level of the Dolby Decoder. You can mute the output by selecting the **Mute** check box.

5.15.2 Dolby Dec Controls

ProcAmp: Adjusts the gain of the channel. The preset is 0 dB.

You can use left and right controls separately by deselecting the **Stereo** check box.

- **Mute:** Mutes the channel.
- **Stereo:** Locks the left and right channels together as a stereo pair. Any adjustment you make on one channel is automatically applied to both channels.

5.16 Aud-Routing-In

The Aud-Routing-In page enables you to route the input sources to the eight audio buses.

III 02:IQMUX33-Dem	o 0000:02	2:02 -	IQMUX	33							
Aud-In-AES1-4/8		^	Informati	ion				nformation Windo	w		
Aud-In-Analog		6	INI:LC	151				Video Status Audio Input 9	Status O	Card Edge LEDS	
Aud-Routing-In								Reference S	tatus	boiby status	
Aud-Setup		~	OUT: E	3LK 108	0/25i				0.	AFD Status	
Available Sources	Input Ro	uting							Routed Pa	airs (
	Bus 1	Bus 2	Bus 3	Bus 4	Bus 5	Bus 6	Bus	7 Bus 8	Bus 1	AES Input 1 1	
Disembed 1	0	0	\odot	0	0	0	0	0	Dus I.	AES Input 1 2	
Disembed 2	0	۲	0	0	0	0	0	0	Due 2	Disembed 2 1	
Disembed 3	0	0	۲	0	0	0	0	0	Dus 2.	Disembed 2 2	
Disembed 4	0	0	0	۲	0	0	0	0	Due 2	Disembed 3 1	
Disembed 5	0	0	\odot	0	۲	0	0	0	Bus 3:	Disembed 3 2	
Disembed 6	0	0	0	0	0	۲	0	0		Disembed 4 1	
Disembed 7	0	0	0	0	0	0	۲	0	Bus 4:	Disembed 4 2	
Disembed 8	0	0	0	0	0	0	0	۲		Disembed 5 1	
150 1-014		0	0	0	0	0	0	0	Bus 5:	Disembed 5 2	
AES Input 1		0	0	0	0	0	0	0	1 100 10	Disembed 6 1	
AES Input 2		0	0	0	0	0	0	0	Bus 6:	Disembed 6 2	
AES Input 3	0	0	0	0	0	0	0	0		Disambad 7.4	
AES Input 4	0	0	0	0	0	0	0	0	Bus 7:	Disembed 7 2	
AES Input 5	0	0	0	0	0	0	0	0		Disembed 8 1	
AES Input 6	0	0	0	0	0	0	0	0	Bus 8:	Disembed 8 2	
AFS Input 7	0	0	0	0	0	0	0	0			
rico input i	0	0	0	0	0	0	0	0			
Analog Input 1	0	0	0	0	0	0	0	0			
Analog Input 2	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0			
	0	0	0	0	0	0	0	0			
				-	-	-					

5.16.1 Available Sources

The Available Sources column lists the input sources available to be routed.

5.16.2 Input Routing

The Input Routing column enables you to route the available input sources to the eight audio buses.

5.16.3 Routed Pairs

The Routed Pairs list shows a summary of the input routing.

5.17 Aud-Setup

The Aud-Setup page enables you to:

- Adjust the audio delay settings (of the eight audio buses)
- Configure the PCM output monitoring levels
- · Specify the eight test tones

III 07:IQSYN33-3G 2100:07:07 - IQ	SYN33				
Aud-Routing-In Aud-Routing-Out-Embed Aud-Setup Loud Monitoring	Information IN1:0K 1080/29i * IN2:LOST OUT: OK 1080/29i	Nindeo Window Video Status Audio Input Status Reference Status AFD State	ge LEDs latus tus		
Audio Bus Delays - Relative to Video Delay Bulk Delay -1 Frame -1 ms -16 sar Add in - Remote RollTrack Sources RollTrack 14 Add in 0.00 ms RollTrack 15 Add in 0.00 ms RollTrack 17 Add in 0.00 ms RollTrack 17 Add in 0.00 ms	m +16 sam +1 ms Pair Delay (Coarse) +	+1 Frame Current Video Delay 80.00 ms Min: 1.334 ms Min: 1.334 ms Remove Total pr Total pr P 0.00 ms P 0.00 ms	Smooth Delay Linit 80.00 ms air delay relative to Vid Delay Ru 0.00 ms 2. 0.00 ms 3. 0.00 ms 4. 0.00 ms 5. 0.00 ms 6. 0.00 ms 7. 0.00 ms 8.	eo leo Disembed 11 Disembed 12 Disembed 21 Disembed 22 Disembed 31 Disembed 32 Disembed 31 Disembed 32 Disembed 41 Disembed 42 Disembed 51 Disembed 62 Disembed 61 Disembed 62 Disembed 81 Disembed 82	DolbyE Align
PCM Output Monitoring Silent Level -70 dBFS	Overload Level	-Warning Timer 10 Secs	P		
Test Tones	P 400 Hz	5 P	600 Hz		
Tone 3	P 800 Hz Tone	7 7 0 8	1200 Hz 2400 Hz		
	P 3200 Hz	• P	4800 Hz		

5.17.1 Audio Bus Delays - Relative to Video Delay

The controls in this section enable you to specify the delay added to audio buses as a whole or individually.

- **Bulk Delay:** Adds a delay to all of the audio buses simultaneously. The buttons add a corresponding delay each time you click them. You can also use the slider to fine tune the delay. To add the selected delay to the module's output, select **Add In**.
- Current Video Delay: Shows the unit's current video delay.
 - Min: Shows the lowest audio delay possible through the product.
 - **Remove:** Removes the current delay from the calculation for the audio bus delay.
- **Smooth Delay Limit:** Adjusts the speed at which the audio changes to a new delay value. For example, if you change the delay value with either RollTracks or Bulk Delay, the Smooth Delay Limit determines how quickly the audio jumps to the new value. If the new value is greater than the limit specified, the audio changes quickly. If the new value is less than the limit specified, the audio changes more slowly.

Note: If the delay value is outside the delay limit, you may hear pops or clicks on the audio when it changes to the new value.

- **Remote RollTrack Sources:** RollTracks are signals sent between pieces of equipment so that they can work together. For example, two modules can exchange delay values through the RollTrack system. The delay used for the audio passing through this remultiplexer module could be set for example, by the delay through a video synchronizer. You can apply delay values in RollTracks 14, 15, 16, and 17. The current value of each RollTrack Delay source is displayed next to it.
- **Pair Delay:** Adjusts the delay for each of the eight routed audio pairs. The delay is added to the bulk audio bus delay.

You can adjust the delay with the **Coarse** and **Fine** sliders, which combine to achieve the total delay for the routed pair.

- **Coarse:** Adjusts the delay of the corresponding routed pair in 1 ms steps.
- **Fine:** Adjusts the delay of the corresponding routed pair in 0.2 ms steps (one audio sample).
- **Delay:** Shows the total delay relative to the video. The value is the sum of the Pair Delay and the Bulk Delay.
- Routed Pairs: Shows the input sources routed to the audio buses.
- Auto E Align: Enables Dolby E Alignment.

5.17.2 PCM Output Monitoring

PCM Output Monitoring specifies the levels at which the module detects either audio silence or audio overload, as well as the period for which these levels must be maintained to trigger a warning.

• **Silent Levels:** Adjusts the audio level that the system considers "silence". If this level persists for the time specified by the Warning Timer control, a warning is triggered.

Note: This value cannot be higher than the overload level.

• **Overload Level:** Adjusts the audio level that the system considers "overload". If this level persists for the time specified by the Warning Timer control, a warning is triggered.

Note: This value cannot be lower than the silence level.

• **Warning Timer:** Adjusts the time period for which a silent or overload audio level must persist before triggering a warning. If the level returns to the normal range (above the silence level and below the overload level) the warning is cleared.

5.17.3 Test Tones

The Test Tones sliders adjust the frequencies of the test tones. The adjustment range is 100 Hz to 16 kHz in 100 Hz steps.

5.18 Aud-Routing-Out-Embed

The Aud-Routing-Out-Embed page enables you to route the output sources to the eight embedded output pairs.

A	and a d		6	h	nform	ation						i In	forma	tion \	Vindo	w					
Aud Devi	isembed		0		IN1:	ок	10	80/2	9i	*		0	Vid	eo S	tatu	S		O Card Ed	lge LEDs		
Aud-Rout	ting-Out-Embed		0		IN2:	LOST	Г					0	Au	lio Ir	put	State	us	O Dolby S	tatus		
Aud-Setu	p		2		ошт•	OK	10	80/3	91			0) Ref	erer	ice S	statu	S		tue		
			~			UN	10	00/2										O AFD Sta	lus		
		Out	put R	outing	3													Embed	ded Output	C	Freebook
		En	bed 1	1 - 4	-	3 .		4 1		En	bed :	5-8-	-	7 .		0	1	Emb1:	Disembed 1_1	Stereo	Group
Available	Sources	, ¹ -	1:	2 2-	2 2	2	3 2	2 *-	4 2	°_c	5	2 2	6 2	· -	7 :	2°-	82	Contractory of the second	Disembed 1_2		N
Bus 1:	Disembed 1_1		0	0	0	0	0	0	ō	0	0	0	0	0	0	0	ō	Emb2:	Disembed 2_1		0
	Disembed 1_2	0	۲	\bigcirc	\bigcirc	0	\bigcirc	0	0	0	0	0	\bigcirc	\bigcirc	0	\bigcirc	0	Emb3:	Disembed 3 1	-	
Bus 2:	Disembed 2_1	0	0	۲	0	0	0	0	0	0	0	0	0	0	0	0	0		Disembed 3_2		1
	Disembed 2_2	0	0	0	۲	0	0	0	0	0	0	0	0	\odot	0	0	0	Emb4:	Disembed 4_1		
Bus 3:	Disembed 3_1	0	0	0	0	۲	0	0	0	0	0	0	0	0	0	0	0	Embfa	Disembed 4_2 Disembed 5_1		
	Disembed 3_2	0	0	0	0	0	۲	0	0	0	0	0	0	\bigcirc	0	0	0	EIIID5:	Disembed 5_2		-
Bus 4:	Disembed 4_1	0	0	0	0	0	0	۲	0	0	0	0	0	0	0	0	0	Emb6:	Disembed 6_1		
	Disembed 4_2	0	0	0	0	0	0	0	۲	0	0	0	0	\bigcirc	0	0	0		Disembed 6_2		
Bus 5:	Disembed 5_1	0	0	0	0	0	0	0	0	۲	0	0	0	0	0	0	0	Emb7:	Disembed 7_1		
	Disembed 5_2	0	0	0	0	0	0	0	0	0	۲	0	0	0	0	0	0	Emb8:	Disembed 8_1	-	
Bus 6:	Disembed 6_1	0	0	0	0	0	0	0	0	0	0	۲	0	0	0	0	0		Disembed 8_2		
	Disembed 6_2	0	0	0	0	0	0	0	0	0	0	0	۲	0	0	0	0	Embed	Default Routing		
Bus 7:	Disembed 7_1	0	0	0	0	0	0	0	0	0	0	0	0	۲	0	0	0	Embe	d Dassthrough	_	
	Disembed 7_2	0	0	0	0	0	0	0	0	0	0	0	0	0	۲	0	0	DisEr	n1.4		
Bus 8:	Disembed 8_1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	۲	0	Tone	1.2		
	Disembed 8_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	۲	Silent	1-2		
	Silence	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Juch			
	Mixer 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Mixer 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Mixer 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Mixer 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
C	own Mixer1-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
[own Mixer1-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
C	own Mixer2-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				_
C)own Mixer2-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
						-	-	_	_		_	_	_	_	_						
	Tone 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Tone 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Tone 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Tone 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	Tone 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

5.18.1 Available Sources

The Available Sources column lists the sources you can route to the outputs.

5.18.2 Output Routing

The Output Routing column enables you to route the available output sources.

The audio type of the input source is taken into account during configuration. If an input is currently PCM, channel routing or stereo routing is available. If the source is Data/DolbyE, routing automatically routes as a pair.

Note: Any changes you make to the audio input type may break audio output assignments if PCM and Data are mixed on an output pair.

5.18.3 Embedded Output

For each of the four embedder groups (Emb1/Emb2, Emb3/Emb4, Emb5/Emb6, and Emb7/Emb8), you can specify whether the group is embedded by selecting the corresponding **Embed Group** check box.

You can link each output pair together as a stereo pair by selecting the **Stereo** check box. When selected, any change you make to either channel of an analog output pair is reflected by the other channel.

5.18.4 Embedded Default Routing

The Embedded Default routing list enables you to select default routing from a list of common routing options. When you select a default routing option, the Output Routing radio buttons reflect the change. If you then make changes to the Output Routing using the radio buttons, a Custom setting is added to the Embed Default Routing list.

5.19 Audio-Routing-Out-AES1-4/8

Note:

IQMUX33 (unbalanced rear) and IQDMX33 only.

		Informati	on		 Information Window 		1		
Aud-Setup	-	IN1:0	1080/29	h *	Video Status	Card Edge LE	Ds		
Aud-Routing-Out-Embed		IN2:LO	ST		O Audio Input Status	O Dolby Status			
Aud-Routing-Out-AES1-4/8			K 1080/20	ii.	Reference Status	AED Status			
Loud Monitoring	~		1000/25			O AFD Status			
	Output Rou	ting					AES Out	puts 1-4	Stereo
	EAES 1	AES 2-	AES 3	AES 4			AES1:	Silence	
Available Sources	1_1	2_1	3_1	4_1				Silence	
Bus 1: Disembed 1_1	0 0	0 0		0 0			AES2:	Cilance	
Disembed 1_2	0 0	0 0	0 0	0 0				Silence	
Bus 2: Disembed 2_1	0 0	0 0	0 0	00			AES3:		
Disembed 2_2	00	0 0	00	00				Silence	
Bus 3: Disembed 3_1	0 0	0 0	00	00			- 0 55.4	Silence	
Disembed 3_2	0 0	0 0	00	00			AES4:	Silence	
Bus 4: Disembed 4_1	0 0	0 0	00	00				Silence	
Disembed 4_2	0 0	0 0	0 0	00			AES Out	puts 5-8	Stores
Bus 5: Disembed 5_1	0 0	0 0	0 0	0 0					Stereo
Disembed 5_2	0 0	0 0	0 0	00					
Bus 6: Disembed 6_1	0 0	0 0	0 0	0 0					
Disembed 6_2	0 0	0 0	0 0	0 0					
Bus 7: Disembed 7_1	0 0	0 0	00	0 0					
Disembed 7_2	0 0	0 0	00	0 0					
Disembed 8 1	0 0	0 0	0 0	0 0					
Silence	00	00	00	0 0					
Mixer 1	• •	• •		• •					
Mixer 2	00	000	00	0 0					
Mixer 3	00	000	00	0 0					
Mixer 4	00	00	00	0 0					
Down Mixer1-1	00	0 0	0 0	0 0					
Down Mixer1-2	0 0	0 0	0 0	0 0					
Down Mixer2-1	0 0	0 0	0 0	0 0					
Down Mixer2-2	0 0	0 0	0 0	0 0					
	0 0	00	0 0	00					
	0 0	0 0	00	00					
	0 0	0 0	00	00					
	0 0	0 0	00	00					
	0 0	0 0	00	0 0					
	0 0	0 0	0 0	0 0					
	0 0	0 0	00	0 0					
	0 0	0 0	0 0	0 0					
Tone 1	0 0	0 0	0 0	0 0					
Tone 2	0 0	0 0	0 0	0 0					
Tone 3	0 0	0 0	0 0	0 0					
Tone 4	0 0	0 0	0 0	0 0					
Tone 5	0 0	00	00	0 0					
Tone 6	00	0 0	00	00					

5.19.1 Available Sources

The Available Sources column lists the sources you can route to the outputs.

5.19.2 Output Routing

The Output Routing column enables you to route the available output sources.

The audio type of the input source is taken into account during configuration. If an input is currently PCM, channel routing or stereo routing is available. If the source is Data/DolbyE, routing automatically routes as a pair.

Note:	If an AES <i>n</i> is set as an input, the Output Routing box is hidden.
TIOLO.	

Note: Any changes you make to the audio input type may break audio output assignments if PCM and Data are mixed on an output pair.

5.19.3 AES Outputs 1-4 and 5-8

For each AES output pair, the output routing specified in the Output Routing section is displayed.

You can link each output pair together as a stereo pair by selecting the **Stereo** check box. When selected, any change you make to either channel of an AES output pair is reflected by the other channel.

5.20 Audio-Routing-Out-Analog

Note: IQDMX33 only.

The Aud-Routing-Out-Analog page enables you to specify the output routing to the analog output pairs.

H				
And Deuters Out 5-1-1	Information		Information Window	1
Aud-Routing-Out-Embed	IN1:LOST	*	Video Status	O Card Edge LEDs
Aud-Routing-Out-AES1-8	IN2:LOST		O Audio Input Status	O Dolby Status
Aud-Routing-Out-Analog	ANL:LOST		O Reference Status	
Aud-Setup	OUT: BLK	1080/29i		AFD Status
La			·	
	Output Routing	Analog Outputs	Storeo	
	Analog 1 - 2	Anla1: Silence	Stereo	
	1_1 2_1	Silence		
Available Sources		Anlg2: Silence	A	
Bus 1: Disembed 1_1	0 0 0 0	Silence		
Disembed 1_2	0000	Anla Default Routing	1	
Bus 2: Disembed 2_1	0000	DisEmb1-2		
Disembed 2_2	0000	AFS in 1.2		
Bus 3: Disembed 3_1	0 0 0 0	Acla in 4.2		
Disembed 3 2	0000	Anig in 1-2		
Bus 4: Disembed 4 1	0000	Tone 1-2		
Disembed 4 2	0 0 0 0	Silent		
Pue & Dicembed & 4	0 0 0 0			
Dus 5. Disembed 5_1	0 0 0 0			
Disembed 5_2				
Bus 6: Disembed 6_1	0000			
Disembed 6_2	0000			
Bus 7: Disembed 7_1	0 0 0 0			
Disembed 7_2	0000			
Bus 8: Disembed 8 1	0000			
Disembed 8 2	0000			
Silence				
Mixer 1	0000			
Mixer 2	0000			
Mixer 3	0000			
Mixer 4	0 0 0 0			
Down Mixer1-1	0 0 0 0			
Down Mixer1-2	0000			
Down Mixer2-1	0000			
Down Mixer2 2	0000			
Down Mixer2-2	0 0 0 0			
	0 0 0 0			
	0000			
	0000			
	0000			
	0 0 0 0			
	0000			
	0000			
	0000			
	0 0 0 0			
Tone 1	0000			
Tone 2	0 0 0 0			
Tone 3	0000			
Tone 4	0000			
Tone 5	0 0 0 0			
Tone C	0 0 0 0			
Lone 6				

5.20.1 Available Sources

The Available Sources column lists the sources you can route to the outputs.

5.20.2 Output Routing

The Output Routing column enables you to route the available output sources.

The audio type of the input source is taken into account during configuration. If an input is currently PCM, channel routing or stereo routing is available. If the source is Data/DolbyE, routing automatically routes as a pair.

5.20.3 Analog Outputs

For each analog output, the output routing specified in the Output Routing section is displayed.

You can link each output pair together as a stereo pair by selecting the **Stereo** check box. When selected, any change you make to either channel of an analog output pair is reflected by the other channel.

5.20.4 Analog Default Routing

The Analog Default Routing list enables you to select default routing from a list of common options. When you select a default routing option, the Output Routing radio buttons reflect the change. If you then make changes to the Output Routing using the radio buttons, a Custom setting is added to the Analog Default Routing list.

Note: Due to a maximum of 16 channels routed through the product, selecting a default may affect embedded outputs and analog outputs.

Note: Only PCM can be routed to analog outputs. Inputs that change to data will cause the analog output to mute.

5.21 Loud Monitoring

The Loud Monitoring page provides two independent monitoring blocks which enable you to monitor mono, stereo, or up to five PCM channels. Loudness monitoring uses the ITU1770-2/EBU R128 standard, created to counter issues with content having varying loudness levels. This standard gives an industry-recognized measure of loudness of any audio material. Units are shown as either Loudness Unit Full Scale (LUFS) or Loudness Unit (LU).

You can select any audio source from the internal bus or outputs of the output router. You can also route signals from the loudness control output if required. Measurements are valid when one or more channels are routed.

III 07:IQSYN33-3G 2100:	07:07 - IQS	SYN33			
Aud-Routing-Out-Analog	^	Information		Information Window	-
Aud-Setup		IN1:LOST	*	Video Status	Card Edge LEDs
Loud Monitoring		ANL:LOST		Audio Input Status Reference Status	Dolby Status
Aud-Mixer		OUT: BLK S	525/29i	Unterence status	AFD Status
	*				
Rollcall Updates	Loudness M	onitor 1		Loudness Monitor 2	1
Enable	Intograte	d Lovol	10.0 11155	Integrated Loval	
Display Mode	Short Te		-10.0 LUF 5	Chart Tarra (2a)	
Absolute:LUFS	Momente		-10.1 LUFS	Short rerm(SS)	
Relative (LU)	Bang	19(0.45) 10 I BA	-41.0 LUF3	Bango LDA	
Absolute (LUES)	Low		10.0 dPTD	Kange - LKA	
Absolute (LOI 3)	Leve		-10.0 UDTP	LevermineL	
	Elapse	d Time: 0:05	:30	Elapsed Time: 0:00:0	0
		Status: Run	ning	Status: Stopp	ed
	ProgID P	rog ld # 1	SP	ProgID Prog Id # 2	SP
	ChanID CI	han ld # 1	SP	ChanID Chan Id # 2	SP
	Run/	Start O	Reset	○ Run/Start ○ R	eset
	O Paus	se O	Stop	O Pause	top
	LR	С	Ls Rs	LRC	Ls Rs
Available Sources	0.0				
Silence			• •		
Bus 1: Dolby Dec A1	• •		0 0		
Dolby Dec A2	0		0 0		
Bus 2: Dolby Dec B3	00		0 0		
Dolby Dec B4	00		0 0		
Bus 3: Dolby Dec C5	00		0 0		
Dolby Dec C6			0 0		
Bus 4: Disembed 4 1			0 0		
Disembed 4 2			0 0		
Bus 5: Disembed 5 1			0 0		
Disembed 5 2	00		0 0		
Bus 6: Disembed 6 1	00		0 0		
Disembed 6 2	00		0 0		
Bus 7: Disembed 71	00		0 0		
Disembed 7 2	00		0 0		
Bus 8: Disembed 8 1	00		0 0		
Disembed 8 2	00		0 0		
Upmix-L Out	00		0 0		
Upmix-R Out	0.0		0 0		
Upmix-(C) Out	000		000		
Upmix-(LFE) Out	000		000		
Upmix-(Ls) Out	000		0 0		
Upmix-(Rs) Out	000		0 0		
	000		0 0		
	000		0 0		
Mixer 1	00				
Mixer 2	00				
Mixer 3	00		0 0		
			00		

Note:

Loudness monitoring is a subjective measurement.

5.21.1 RollCall Updates

RollCall Updates enables you to monitor per-second updates of Integrated, Short Term, Momentary, LRA, and MTPL values and the elapsed time.

• To enable RollCall Updates, select the **Enable** check box.

5.21.2 Display Mode

Display Mode shows either Absolute (LUFS) or Relative (LU) depending on which is selected in the Display Mode box. 0 LU = -23 LUFS.

5.21.3 Monitor 1 and 2

Each Loudness Monitor block can monitor mono, stereo, or up to five PCM channels.

- Integrated Level: Shows the average loudness since session restart. This a gated value where all values below -70 LUFS are ignored. The value is updated at a 1 Hz rate. A typical value for this setting is ± 23 LUFS.
- Short Term(3s): Shows the average loudness over the last 3 seconds, in LUFS or LU units. The loudness is averaged from 0.1 second samples.
- **Momentary(0.4s):** Shows the average loudness over the last 0.4 seconds, in LUFS or LU units. The loudness is averaged from 0.1 second samples
- **Range LRA:** Shows the loudness range since session restart. This a gated value where all values below -70 LUFS are ignored. The value is updated at a 1 Hz rate. Although there is no typical value for this setting, > 20 LU is deemed excessive.
- Level MTPL: Shows the maximum true peak level and is updated every second. The range is -127 to 0 dBTP.

Note: Level MTPL updates only if the monitored channels are also routed to the Embedded, AES or analog audio outputs.

- **Elapsed Time:** Shows the elapsed time since reset of the loudness monitoring on the selected loudness block.
- Status: Shows the status of the loudness monitoring. This can show "Running", "Paused", or "Stopped".
- ProgID: Customizable program ID. To change the program ID:

In the name field, type the name of your custom setting and click **S**. To return the name to its default value, click **P**.

• ChanID: Customizable channel ID. To change the channel ID:

In the name field, type the name of your custom setting and click **S**. To return the name to its default value, click **P**.

- Run/Start: Starts loudness monitoring on the selected loudness block.
- Pause: Pauses loudness monitoring on the selected loudness block.
- **Reset:** Resets loudness monitoring on the selected loudness block.
- **Stop:** A one-off action that both stops and resets loudness monitoring on the selected loudness block.

5.21.4 Available Sources

The Available Sources column lists the input sources available for monitoring.
5.22 Loud EBU R128

The Loud EBU R128 page provides an EBU Mode loudness meter, compliant with EBU R128. This allows program loudness to be measured in order to confirm compliance with the standard.

Note:

See section 5.21 for more information on EBU R128.

Id-Mixer Id-Out-Embed Igging-Misc Igging-Video In .oudness Metering (1) Lou	Idness History	INI:LUSI * IN2:LOST OUT: BLK 625/251		 ♥ Video Status ○ Audio Input S ○ Reference S 	© Card Edge LEDs Status tatus ◎ AFD Status
Graph Settings Show >>	Zone TT +00:00) Europe/Lon	49 +5 0 -5 -10 -15 -18 U don	M +9 +5 0 -5 -10 -15 -18 Update Rate - @ 1 Hz ()	S +9 -5 5 10 15 18 LU	LU LU MTPL dBTP
oudness Metering (2) Lou	idness History M	+9 +5 0 5 10 15 18	M +9 +5 0 5 10 15 18 LU	S +9 +5 -5 5 10 15 18 LU	

5.22.1 Loudness Metering 1 - 2

Two Loudness Monitoring graphs are provided; both work in the same way.



- **Currently playing details**: channel and program currently being monitored; time current source has been running.
- **Graph window**: displays data as selected with the Graph Settings control (See section 5.22.3). Hover the cursor over the window to display basic values in a pop-up.
- **Momentary level meter**: displays average loudness over the last 0.4 seconds, in LUFS or LU units.
- Short Term level meter: displays the average loudness over the last 3 seconds, in LUFS or LU units.
- Integrated level value: displays the average loudness since session restart. This a
 gated value where all values below -70 LUFS are ignored. A typical value for this
 setting is ± 23 LUFS.
- Loudness Range level value: displays loudness range since session restart. This a
 gated value where all values below -70 LUFS are ignored. Although there is no typical
 value for this setting, > 20 LU is deemed excessive.
- MTPL level value: Shows the maximum true peak level. The range is -127 to 0 dBTP.

Note: MTPL level updates only if the monitored channels are also routed to the Embedded, AES or Analog audio outputs.

- **Graph Settings**: specifies the data to be displayed on the graph window and allows alarm thresholds to be defined (See section 5.22.3).
- **Time Zone**: shows the currently selected time zone. To change, click and select from the drop-down list.

5.22.2 Loudness History

Content played on either of the Loudness Metering graphs is automatically logged for later review. Follow the instructions below to select and review data.

1. Click a Loudness History tab; the page switches to History mode:

Chan #1	Prog #1	2016-04-04 15:35:56	Log Index					
	Μ		Date	Time	Duration	Channel	Program	
			2016-03-24	12:29:20	00:00:13	Chan Id # 1	Prog Id a	*
		E	2016-03-24	12:30:26	00:02:38	Chan Id # 1	Prog Id a	
		<u> </u>	2016-04-04	14:29:31	80:00:00	Chan #1	Prog #1	=
		Ē	2016-04-04	15:17:28	00:00:12	Chan #1	Prog #1	
		E	2016-04-04	15:18:38	00:00:05	Chan #1	Prog #1	
		-10	2016-04-04	15:24:21	00:01:29	Chan #1	Prog #1	
		E .c	2016-04-04	15:35:56	00:00:05	Chan #1	Prog #1	
		-18	2016-04-04	15:43:35	00:00:20	Chan #1	Prog #1	
		LU	2016-04-04	15:43:35	00:00:20	Chan #2	Prog #2	Ŧ
		III 🖡	∢ iii		1	1	•	
Graph Settings – Show >>	GMT +00:00) Europe/L	ondon 👻			View			

2. Select an item to review from the Log Index window, and click **View**; the item is displayed on the graph:



5.22.3 Graph Settings

The data displayed on the graph, and the way it is displayed, can be tailored to suit the user's needs. Click the Graph Settings **Show** button to display the settings panel:

Data	Samples	Time	M/S/I Bands (LU)	LRA Bands (LU)
<u>о</u> м	. ◎ x 1	Ocal	Err High 8	Err High 20 🖨
© S	© x 2.5	© UTC	Wara High 5	Warn High 10
01	🔘 x 5	Source		Wanningin 10 w
© M + I		EPIL Coolo	Warn Low -4 🌩	
© S+I	Onits	CDU Scale	Frr Low -8	MTPL Bands (dBTP)
© LRA		○ +9		Err High -2 🌲
O MTPL	O LUFS	◎ +18		
				warn High -5

5.22.3.1 Data Display

Data: select the data to be displayed on the graph window.

- **M** = Momentary level
- **S** = Short Term level
- I = Integrated level
- **M+I** = Momentary and Integrated levels
- **S+I** = Short Term and Integrated levels
- LRA = Loudness Range level
- MTPL = Maximum True Peak Level

Samples: select the number of samples to simultaneously display on the Graph window. Options are:

- x 1 (default)
- **x 2.5** 2¹/₂ times the default number of samples
- **x 5** 5 times the default number of samples

Units: specify the units to be used, either Loudness Unit (LU) or Loudness Unit Full Scale (LUFS). 0 LU = -23 LUFS.

Time: click a radio button to select the appropriate time ref source.

EBU Scale: select a scale for the graph.

5.22.3.2 Alarms

Alarms can be set to report when certain values are reached.

To Set Alarms for M, S or I Values

- Use the Up/Down spinner arrows to set **Warn High** or **Warn Low** values at which warnings will be generated.
- Use the Up/Down spinner arrows to set **Error High** or **Error Low** values at which full errors will be generated.

To Set Alarms for LRA Values

- Use the Up/Down spinner arrows to set a **Warn High** value at which warnings will be generated.
- Use the Up/Down spinner arrows to set an **Error High** value at which a full error will be generated.

To Set Alarms for MTPL Values

- Use the Up/Down spinner arrows to set a **Warn High** value at which warnings will be generated.
- Use the Up/Down spinner arrows to set an **Error High** value at which a full error will be generated.

5.23 Aud-Mixer

The Aud-Mixer page enables you to combine up to six input sources into a single output.

B 07:IQSYN33-30	G 2100:07:07 - IQ	SYN33						
Aud-Setup	^	Information		Information Windo	w			
Loud Monitoring		IN1:0K 1080/29 IN2:LOST	91 · · ·	Video Status	Status O Dolby	dge LEDs Status		
Aud-Mixer				Reference S	tatus	status		
Aud-Out-Embed	~	OUT: OK 1080/29	9i		O AFD St	atus		
Mixer Select				1				
Mixer 1	O Mixer 2 C) Mixer 3 O I	Mixer 4					
O DownMix1-1 + 1	-2 0	DownMix2-1 + 2-2						
					9	Source1	Source3	Source5
n	n					Source2	Source4	Source6
	Î			Available	Sources			
				Due 1	Disombod 1 1			
0.0 dB	0.0 dB			DUS 1.	Disembed 1 2	00	0 0	00
🗌 Invert	Invert			Bus 2	Disembed 2 1	00	0 0	0 0
		п	п		Disembed 2 2	0 0	0 0	0 0
" 🗌 Mute	" 🗌 Mute	Îm		Bus 3:	Disembed 3 1	00	0 0	0 0
Source1	Source2				Disembed 3 2	00	0 0	0 0
		0.0 dB	0.0 dB	Bus 4:	Disembed 4 1	00	0 0	0 0
		Invert	Inv	ert	Disembed 4_2	00	00	00
1	L			Bus 5:	Disembed 5_1	00	00	00
P	P	U 🗌 Mute	U 🗌 Mu	te	Disembed 5_2	00	00	00
gb 0.0	0.0 dB	Source5	Source6	Bus 6:	Disembed 6_1	00	00	00
)		Disembed 6_2	00	00	00
invert invert				Bus 7:	Disembed 7_1	00	00	00
					Disembed 7_2	00	00	0 0
Mute	U Mute			Bus 8:	Disembed 8_1	00	00	0 0
Source3	Source4				Disembed 8_2	00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
						00	0 0	0 0
					Tone 1	00	0 0	0 0
					Tone 2	00	000	
					Tone 3	00	000	000
					Tone 4	00	000	000
					Tone 6	0 0	0 0	0 0
					Tone 7	0 0	0 0	0 0
					Tone 8	0 0	0 0	0 0
					TONE O	00	00	00

5.23.1 Mixer Select

• **Mixer 1–4/Downmix 1-1 + 1-2/Downmix 2-1 + 2-2:** Configures Dolby-compatible mixes with Left/Left Surround, Right/Right Surround, and Center channels.

5.23.2 Available Sources

The Available Sources column lists the eight audio buses and their associated input sources, and lists options for silence and the eight audio tones available.

You can use the radio buttons to specify the sources used to create the audio mix.

Each of the four mixers has four inputs with individual gain controls. You can adjust the mixing levels for each of the input signals. The adjustment range is +12 dB to -80 dB in 0.1 dB steps. The preset is 0 dB.

5.24 Aud-Loudness-Upmix (Option)

The Aud-Loudness-Upmix page enables you to define audio characteristics from a range of preset options. The controls also define how the unit upmixes from a PCM stereo pair to provide the following 5.1 channels: Left (L), Right (R), Center (C), Low Frequency Effects (LFE), Left Surround (Ls), and Right Surround (Rs).

The controls available will vary on depending on the algorithm type selected. This section shows an example with **Upmix** selected, and an example with **Loudness 5.1** selected.

With **Upmix** selected:





Loud Monitoring	Informa	tion K 1080/29i ≉	Infor	nation Window	O Card	Edgo I B	De	1				
Aud-Mixer	IN2:L	OST		udio Input Stat	us O Dolb	/ Status	.03					
Aud-Loudness-Upmix	ud-Loudness-Upmix					O Reference Status						
Aud-Loudness-Custom-1	✓ OUT:	OK 1080/29i			○ AFD	Status						
Algorithm Type		[1				_		_			
) Upmix			-									
Loudness 5.1			8					8	3			
O Loudness Ster A+B	P	P	P		P	Ρ		P				
O Loudness Stereo A	Sh 0.0	gh 0.0	AP 0.0		ap	0.0.45	,	0.0	dD			
O Upmix + Loud Ster A	0.0 05	0.0 05	0.0 05	0.0		0.0 uL	'	0.0	ub			
						—						
	- Mute	- U Mute	- U Mut	e - 📋	Mute -	U MI	ite	- 01	wute			
	Loud5.1-L In	Loud5.1-R In	Loud5.1-(C) li	Loud5.1-	(LFE) Lou	d5.1-(Ls) In	Loud5.1-(Rs) In			
	Preset				Lou	d5 1 1 1		Loud5 1 (C) In	Louds	1 (is) in	
Loudness 5.1	General O	oud Limit	Bynace		LUL	Louds	1 P In	Loud5	(1 66) 6		1-(L3) III	
Master Level	│	Protect Limit		- Available Sou	irces	Louus.	1-IX III	Louus.			103.1-(1(3) 11	
	O Heavy O	Custom Block 1	0		Silence		۲	۲	•	۲		
-11.0 dB	O Loud	Custom Block 2		Bus 1: Di	sembed 1 1	0	0	0	0	0	0	
				Di	sembed 1 2	0	0	0	0	0	0	
				Bus 2: Di	sembed 2 1	0	0	0	0	0	0	
				Di	sembed 2 2	0	0	0	0	0	0	
					A CONTRACTOR OF		-	-		-	10.500	

5.24.1 Algorithm Type

The Algorithm Type radio buttons enable you to select an algorithm type depending on the licenses installed.

5.24.2 Master Level

The Master Level slider adjusts the output level of the preset in use.

Note: Different presets use different values for this control. The unit stores the last known master level used for each preset or custom block. If you change a preset in use, the corresponding level is recalled.

5.24.3 Preset

The Preset radio buttons enable you to choose audio characteristics from a standard preset and two custom blocks. For more information about Custom settings, see "Dolby-Encoder-In (Option)" on page 86.

• **General:** Gives a medium level of dynamic range processing, good for all content and the most commonly used.

Using this preset gives an average dialog level of -27.

- **Light:** Similar to General but with multiband compression reduced to 2:1 (from 3:1). Using this setting reduces the loudness processing and gives more variability in loudness levels.
- **Heavy:** Similar to General but with increased multiband compression to give a more dense and less dynamic sound.
- Loud: Similar to Heavy but with a louder, punchier sound.
- LoudLimit: Specially tuned input AGC, multiband limiter, and final limiter.
- **ProtectionLimit:** Bypasses all processing, except the final output limiter, to prevent overload.

5.24.4 Bypass

The Bypass check box turns off all loudness processing.

5.24.5 Mode

- Auto: Automatically enables or bypasses 5.1 upmixing as follows:
 - If the detected signal level on all four of the selected C, LFE, Ls, and Rs channels is *below* the threshold level (set on the Detection Threshold slider), the upmixer overwrites all selected channels with new 5.1 content.
 - If the detected signal level on any one of the four C, LFE, Ls, and Rs channels is *above* the threshold level (set on the Detection Threshold slider), the upmixer is bypassed and all the original channels pass unaffected.
- **Always Upmix:** Enables the upmixer and overwrites content on all channels with new 5.1 content, regardless of the original signal level or content.
- **Bypass:** Bypasses the upmixer. When bypassed, the embedded audio channels pass unaffected.

5.24.6 CrossFade to Bypass and CrossFade to Upmix

The CrossFade lists enable you to select the relative crossfade transition speed between CrossFade to Bypass (going to inactive, from 5.1 to 2.0) and CrossFade to Upmix (going to active, from 2.0 to 5.1 when Mode is set to Auto and Detection Threshold is crossed in either direction.

Slower settings provide a gradual transition between modes, but with a longer interval before levels stabilize. Faster settings provide a more abrupt transition, but with a smaller interval before levels stabilize.

5.24.7 Status

The status box shows the status of upmixer processing.

- **Auto-Upmixing:** The selected channels designated as C, LFE, Ls and Rs are clear for use (see Auto on page 79). The upmixer is currently overwriting the selected channel s with the with the new 5.1 upmix.
- **Upmixing:** The upmixer is manually enabled and is currently overwriting the selected channels with the with the new 5.1 upmix.
- **Manual-Bypassed:** The upmixer is manually bypassed (disabled) and is passing the selected channels unaffected.

5.24.8 Detection Threshold

The Detection Threshold slider adjusts the threshold at which selected channels designated as C, LFE, Ls, and Rs are considered to have viable content, or at which signal levels are considered insignificant when Mode is set to Auto.

- If the detected signal level on all four of the selected C, LFE, Ls, and Rs channels is *below* the threshold level (set on the Detection Threshold slider), the upmixer overwrites all selected channels with new 5.1 content.
- If the detected signal level on any one of the selected C, LFE, Ls, and Rs channels is *above* the threshold level (set on the Detection Threshold slider), the upmixer is bypassed and all the original channels pass unaffected.

The adjustment range is -150 dB to 0 dB in 0.1 dB steps.

Note: The optimum setting is dependent on the program materials. For material such as dialog adhering to SMPTE -20 dBFS alignment level, a -60 dB setting is recommended.

5.24.9 Center Width

The Center Width slider adjusts the center channel content applied to left and right channels. For example:

- The minimum setting keeps all left and right mono content confined to the center channel, with any center channel content removed from the left and right channels.
- A higher setting progressively blends left and right mono content back into left and right channels.
- The maximum setting sets the center channel to zero, and the left and right channels become normal left and right channels containing some mono content.

The adjustment range is 0 to 100% 0.1% steps. The default is 100%.

5.24.10 Surround Depth

The Surround Depth slider adjusts surround channel content applied to left and right channels. For example:

- A lower setting reduces surround channel levels. At 0% there is no left and right level or content
- The maximum setting produces the highest surround channel levels.

5.24.11 Available Sources

The Available Sources column lists the eight audio buses and their associated upmix sources, and lists options for silence, mixers, and the eight audio tones available.

Individual Gain and Invert controls are available for each audio source.

5.25 Aud-Loudness-Custom-1 and 2 (Option)

The Aud-Loudness-Custom page enables you to define custom audio characteristics from a range of options.

Important:

We recommend that you use standard presets before using custom ones. If you want to do any further modification to a preset, start with the original preset values from the Recall Preset list. See section 5.25.2.

ud-Miver	Information		Information W	indow		1
	IN1:0K 1080	/25i *	Video Sta	atus	Card Edge LEDs	
Aud-Loudness-Custom-1	IN2:LOST		O Audio Inp	ut Status	O Dolby Status	
Aud-Loudness-Custom-2	U 0UT 0K 1080	/251	Reference	e Status		
und Out Emband	V 0011 0K 1000	/231			O AFD Status	
Custom Block 1						
Name 1: Custom Block	1 S P] [utput			
Recall Preset	-Conu / Rocoll		Master Level		-11.0 dB	P
Light	Copy / Recail		Limit Drive	0	-5.0 dB	P
Heavy		<u>K Z</u>				
Loud	Recall from Blo	ock 2	arametric EQ 1	•	4000.00	
LoudLimit			Frequency	0	= 1000 HZ	
ProtectionLimit			Level		= 0.0 dB	
Defaults	~		Q (octaves)	0	— 1 .00	P
			arametric EQ 2			
Gate Threshold	-21.0 dBFS	P	Frequency	0		P
Freeze Threshold	-31.0 dBFS	P	Level			P
Ratio		P	Q (octaves)	·0	1.00	P
Rango	25.0 dB		exemptric EO 2			
	14.0 dBES	P	Frequency	0		P
Attack	-14.0 dbi 5		Lovel		= 0.0 dB	P
	24ms			· · · · ·	- 100	P
Release	421115		Q (Octaves)	~	1.00	
MultiBand AGC						
Ratio	2.7:1		ow Mid 170Hz-1.2KHz		reshold	
Range Contraction	>=== 18.0 dB	P	Attack		24ms	P
Progressive Release		P	AlldCk		42ms	
			Threehold		- 42113	
			Threshold			
Low Bass 20-60Hz	Thursday		Limit Inreshold			
	nresnold		Output Level		0.0 UB	
	241115		igh Mid 0.95-6.1KHz —			
Release	42111S				eshold	
	0.0 dB		Attack		24ms	
Limit Threshold	0.0 dB		Release		= 42ms	
Output Level	0.0 dB		Threshold		0.0 dB	
Soft Clip	18.0 dB	P	Limit Threshold	0	0.0 dB	
Mid Bass 30-200Hz			Output Level	0	0.0 dB	P
🗌 Inf:1>	Threshold		igh >5.2KHz	-205		
Attack	24ms	P		Inf:1>Thr	reshold	_
Release	42ms	Р	Attack		24ms	P
Threshold	0.0 dB	P	Release			P
Limit Threshold	0.0 dB	P	Threshold			P
Output Level	0.0 dB	P	Limit Threshold	0		P
Soft Clin	0 18.0 dB	P	Output Loval		Bb 0.0	P

5.25.1 Name

Use the name box to name your custom setting:

• In the Name field, type the name of your custom setting and click **S**. To return the name to its default value, click **P**.

5.25.2 Recall Preset

The Recall preset list enables you to choose a standard audio preset. For information about presets, see "Preset" on page 79.

5.25.3 Copy/Recall

The Copy/Recall buttons enable you to copy or recall a preset from one Custom Block to the other.

5.25.4 Input AGC (Automatic Gain Control)

Input AGC is a slow-acting gain control with a 36 dB range, which ensures that the audio processing stages are fed with audio at the correct level.

Input AGC is a wideband control and is not meant to perform fast operations. Two stages of gating prevent periods of silence from getting louder.

- **Gate Threshold:** The point at which the AGC release becomes very slow. This prevents increasing background noise.
- **Freeze Threshold:** Stops all gain changes. Remains frozen at the current gain value until the threshold is exceeded.
- **Range:** Sets how much gain above unity is performed. For example, if you set the range at 25 dB, this allows 25 dB expansion and 11 dB compression (from a 36 dB range).
- **Threshold:** Adjusts the reference point for the Attack and Release parameters. The adjustment range is 18 to 0 dBFS.
- **Attack:** Adjusts how fast the input signal is processed when it crosses the threshold. The adjustment range is 0 to 150.
- **Release:** Adjusts how fast the input signal recovers from a gain change when the signal falls below the set threshold. The adjustment range is 0 to 150.

5.25.5 Parametric EQ 1–3

The Parametric EQ 1–3 sliders enable fine tuning. No presets use this feature but you can use it to create notch filters or other effects.

- Frequency: Adjusts the frequency level. The adjustment range is 20 Hz to 20 kHz.
- Level: Adjusts the amount of gain applied. The adjustment range is ±12 dB. When the level is 0 dB, the EQ is switched off.
- **Q** (octaves): Adjusts the range of operation (octaves).

5.25.6 Multiband AGC

The Multiband AGC sliders are second order Linkwitz Reilly filters set to the following frequency bands:

- Low bass 20 Hz to 60 Hz
- Mid bass 30 Hz to 200 Hz
- Low mid 170 Hz to 1.15 kHz
- High mid 950 Hz to 6.1 kHz
- High >5.3 kHz
 - **Ratio:** 1.0:1 to infinity:1.
 - Range: Adjusts how much gain expansion above unity is allowed.
 - **Progressive Release:** Adjusts the speed at which the release time is increased at very low gain values. This enables quick recovery from a dramatic gain reduction.
 - Inf:1>Threshold: AGC automatically increases ratio to infinity:1 once a signal exceeds the threshold (set per band), allowing for expansion below threshold and limiting above it. This is useful for bass frequency control.

- **Attack:** Adjusts how fast the input signal is processed when it crosses the threshold. The adjustment range is 0 to 100.
- **Release:** Adjusts how fast the input signal recovers from a gain change when the signal falls below the set threshold. The adjustment range is 0 to 100.
- **Threshold:** Adjusts the reference point for the Attack and Release parameters.
- Limit Threshold: Adjusts the point at which limiting takes place at infinity:1 ratio.
- Output Level: Adjusts the gain at the input of each compressor band.
- **Soft Clip:** Applies to bands 1 and 2. Adjusts the point above the band where it is very quickly limited. This acts like a clipper without the artifacts, useful for a tight bass sound.

5.25.7 Output

Master Level: Adjusts the output level of the preset in use.

Note: Different presets use different values for this control. The unit stores the last known master level used for each preset or custom block. If you change a preset in use, the corresponding level is recalled.

• Limit Drive: Adjusts the level at which the sum of all bands is fed to final limiter.

5.26 Aud-Out-Embed

The Audio-Out-Embed page enables you to:

- Apply gain adjustments to each channel of the eight embedded output pairs
- · Apply a mute to each channel of the eight embedded output pairs
- · Designate each embedded output pair as a stereo pair
- Specify which of the four embedded output groups are enabled



5.26.1 Embed 1-8

• ProcAmp: Adjusts the gain of the channel. The preset is 0 dB.

You can use left and right controls separately by deselecting the **Stereo** check box.

- **Mute:** Mutes the channel.
- **Stereo:** Locks the left and right channels together as a stereo pair. Any adjustment you make on one channel is automatically applied to both channels.
- **Dolby Line:** Shows the current Dolby line.

5.26.2 Status

The status box shows the status of each embedded output channel.

5.26.3 Group Embed 1–4

The Group Embed check box enables you to embed the corresponding embedded output groups.

5.26.4 Input Chan Source

Input Chan Source shows the input channel source for each of the embedded outputs.

5.27 Dolby-Encoder-In (Option)

The Dolby-Encoder-In page provides source routing and gain controls for the eight input channels supported in Dolby E.

07:IQSY	N33-3G 2100:0	7:07 -	IQSY	N33			-								_	_	_	_	
d-Out-AES1- d-Out-Analog lby-Encoder- gging-Misc	8 9 In	< O>>	In I A O	formation N1:OK N2:LOST NL:LOST UT: OK	1080/2	25i = 25i \$			Inform Vie Vie Au Re	ation Wi leo Sta dio Inp ferenc	ndow tus ut Statu e Status	IS S	 Card Ed Dolby St AFD Sta 	ge LEDs atus tus					
1 P 0.0 dB		1R D dB		В3	1C P 0 dB	B		1LI P).0 dB	FE	C5	1 P 0.0 dE	ILs }		1Rs P .0 dB	D7	2 P 0.0 dB	el	D8	2R P 0.0 dB
	lute] Mute			Mute			- Mi	ute			lute		Mute		M	ute	l	Mute
Routing												1							
		1L		10		1L	S		21										
e Jabla (1	IR		1LFE	ю	18	s		2R	-								
Available S	Sources Disembed 1 1	0	0		0 0		0	0		0 0									
545 1.	Disembed 1 2	0	0		0 0		0	0		0 0									
Bus 2:	Disembed 2 1	0	0		0 0		0	0		0 0									
	Disembed 2 2	0	0		0 0		0	0		0 0									
Bus 3:	Disembed 3 1	0	0		0 0		0	0		0 0									
	Disembed 3 2	0	0		0 0		0	0		0 0									
Bus 4:	Disembed 4_1	0	0		0 0		0	0		0 0									
	Disembed 4_2	0	0		0 0		0	0		0 0									
Bus 5:	Disembed 5_1	0	0		0 0		0	0		0 0									
	Disembed 5_2	0	0		0 0		0	0		0 0									
Bus 6:	Disembed 6_1	0	0		0 0		0	0		0 0									
	Disembed 6_2	0	0		0 0		0	0		0 0									
Bus 7:	Disembed 7_1	0	0		0 0		0	0		0 0									
	Disembed 7_2	0	0		0 0		0	0		0 0									
Bus 8:	Disembed 8_1	0	0		0 0		0	0		0 0									
	Disembed 8_2	0	0		0 0		0	0		0 0									
	Upmix-L Out	0	0		0 0		0	0		0 0									
	Upmix-R Out	0	0		0 0		0	0		0 0									
U	pmix-(C) Out	0	0		0 0		0	0		0 0									
Upr	nix-(LFE) Out	0	0		0 0		0	0		0 0									
Up	omix-(Ls) Out	0	0		0 0		0	0		0 0									
Up	mix-(Rs) Out	0	0		0 0		0	0		0 0									
		0	0		0 0		0	0		0 0									
		0	0	1	00		0	0		0 0									
	Silence		۲		• •		۲	•		• •									

5.27.1 A1–D8

The sliders enable you to adjust the gain or mute the corresponding encoder input. The adjustment range is -80 dB to +20 dB on 0.1 dB steps. The preset value is 0 dB.

5.27.2 Available Sources

The Available Sources column lists the input sources available to be routed.

5.27.3 Input Routing

The Routing columns enable you to route the available input sources to the Dolby encoder input channels.

Note: Upmix routes generated upmixed channels to the Dolby encoder input channels. This is only available with the Audio-Loudness-Upmix option installed. See page 86.

5.28 Dolby (D)-Encoder-In (Option)

The Dolby (D)-Encoder-In page provides source routing and gain controls for the six input channels supported in 5.1 encoding, and the stereo channels supported in 2.0 encoding.

III 07:IQSYN33-3G 2100:07:07	- IQSYN33		
Aud-Out-AES1-8	 Information 	Information Window	1
Aud-Out-Analog	IN1:LOST *	Video Status Card Edge LEDs Audia landid Status Deallar Status	
Dolby-Encoder-In	ANL:LOST	Audio Input Status Dolby Status Reference Status	
Logging-Misc	OUT: BLK 1080/25i \$	O AFD Status	
Lancine Mides Te	•		
A1 A2	B3 B4	C5 C6	1
		LFE LS RS	
0.0 dB 0.0 dB	0.0 dB	0.0 dB 0.0 dB 0.0 dB	
Mute Mute	ute U D Mute U	Mute Mute Mute	
Pouting			
	C 1.		
L) D-	
- Available Sources	K LFE	KS	
Bus 1: DolbyDec A 1	00 00	0 0	
DolbyDec A_2	00 00	0 0	
Bus 2: DolbyDec B_1	00 00	0 0	
DolbyDec B_2	00 00	0 0	
Bus 3: DolbyDec C_1	00 00	0 0	
DolbyDec C_2	00 00	0 0	
Bus 4: DolbyDec D_1	00 00	0 0	
DolbyDec D_2	00 00	0 0	
Bus 5: DolbyDec M_1	00 00	0 0	
DolbyDec M_2	00 00	0 0	
Bus 6: Disembed 6_1	00 00	0 0	
Disembed 6_2	00 00	0 0	
Bus 7: Disembed 7_1	00 00	0 0	
Disembed 7_2	0 0 0 0 0	0 0	
Bus 8: Disembed 8_1	00 00	0 0	
Disembed 8_2	00 00	0 0	
Upmix-L Out	00 00	0 0	
Upmix-R Out	0 0 0 0 0	0 0	
Upmix-(C) Out	0 0 0 0 0	0 0	
Upmix-(LFE) Out			
Upmix-(Ls) Out			
Upmix-(Rs) Out			
Silanca			
Silcito			

5.28.1 A1-C6

The sliders enable you to adjust the gain or mute the corresponding encoder input. The adjustment range is -80 dB to +20 dB on 0.1 dB steps. The preset value is 0 dB.

5.28.2 Available Sources

The Available Sources column lists the input sources available to be routed.

5.28.3 Input Routing

The Routing columns enable you to route the available input sources to the Dolby D encoder input channels.

Note: Upmix routes the generated upmixed channels to the Dolby D encoder input channels. This is only available with the Audio-Loudness-Upmix option installed. See page 86.

5.29 Dolby-D Encoder-Ctrl (Option)

The Dolby-D Encoder-Ctrl page enables you to set up the metadata parameters for generating the Dolby D metadata stream.

07:IQSYN33-3G 2100:07	7:07 - IQSYN33		
ud-Out-Analog	Information IN1:0K 1080/25i *	Information Window	Card Edge LEDs
olby-Encoder-In	IN2:LOST	O Audio Input Status	Dolby Status
olby-D Encoder-Ctrl	ANL:LOST	Reference Status	
olby-D Encoder-Status	✓ OUT: OK 1080/251		O AFD Status
Ext Prog Config Metada Unknown O Pro	ata Source g 1	4 O Prog 5 O Prog 6 O Pro	og 7 🔿 Prog 8 💿 Internal
nt Meta Data Rate	Meta Revert	Bit Depth	
256 kbps ^	Last used	32 bit ^	Reset Encoder
224 kbps	Internal	16 bit Chl1 🗸	
192 kbps			
160 kbps		Stream Number	
128 kbps		Stream 0	
112 kbps		Stream 1	
06 khns			
Program Descriptor		Innut Channel A	ssianment
Program 1extr	a long prog id	A1/A2	B3/B4 C5/C6
r rogram roxu	alongprogia	L/R	C//
Channel Mode	Mix Level 80 dB SPL C P Room Type	Stereo Downmix Mode Not indicated	Music Surround Music Stereo Custom
LFE Channel Convright Protected	Not indicated	-1.5dB	Copy External Metadata
- Bistroom Mode		-1+/Pt Crow Mix Laural	Default Program Meta
Complete Main	1		
Music & Effects		-3.0dB	Extended BSI2
×		V CON	V Exists
RE Mode		-LoiRo Ceptre Mix Level	Surround EX Mode
None			Not indicated
		-1.5dB	Off
Film Standard	1		
Film Standard		-3.0dB	
Film Standard	Surround Mode		V Lowpass Filter
Film Standard	Surround Mode	Lo/Ro Surr Mix Level	 ✓ Lowpass Filter ✓ LFE Filter
Film Standard	Surround Mode	Lo/Ro Surr Mix Level	 ✓ Lowpass Filter ✓ LFE Filter ✓ Surr Phase Shift Filter
Line Mode None Film Standard	Surround Mode	Lo/Ro Surr Mix Level	✓ Lowpass Filter ✓ LFE Filter ✓ Surr Phase Shift Filter ✓ Surr 3dB Attenuator

5.29.1 Ext Prog Config

Ext Prog Config shows the external program configuration currently in use.

5.29.2 Metadata Source

In the Metadata Source box you can choose which metadata source to use. You can select an external source from program 1–8 or an internal source which assigns internally generated metadata values.

Note: You can modify the internal metadata settings in the Internal Metadata area. See "Internal Metadata" on page 89.

5.29.3 Meta Revert

Meta Revert enables you to select which metadata the module reverts to.

- Last used: Reverts to the last used external settings. When Last used is selected, the module continues encoding using the last external source values that were set.
- Internal: Reverts to the last used internal settings.

5.29.4 Bit Depth

The module supports both 16 and 32-bit Dolby D bitstreams.

Note: 16-bit mode is only available when using no more than six channels in the program configuration.

5.29.5 Program Descriptor

Program Descriptor shows a description of the current program configuration.

5.29.6 Input Channel Assignment

The Input Channel Assignment area shows the status of the input channels for the six Dolby encoder pairs.

5.29.7 Internal Metadata

- **Dialog Norm:** The dialog normalization.
- **Channel Mode:** Selects the active channels within the encoded bitstream. Channel Mode tells the encoder which inputs to use for a program set-up and tells the decoder which channels are present.
- **LFE Channel:** Selects whether an LFE channel is present within a bitstream.

Note: You can only add an LFE channel when three or more channels are present.

- Copyright Protected: When selected, indicates if the Dolby D bitstream is copyright protected.
- **Bitstream Mode:** The type of audio contained within the Dolby D bitstream.
 - **Complete Main:** The bitstream is the main audio service for the program with all elements present. Complete Main in is the most common setting.
 - **Music & Effects:** The bitstream is the main audio service for the program, minus a dialogue channel.
 - **Visual Imp:** A single-channel program that provides a narrative description of the picture content to be decoded together with the main audio service.
 - **Dialogue:** A single-channel program that provides a dialogue channel for a Music & Effects service.
 - **Commentary:** A single-channel program which adds additional commentary that can be optionally decoded along with the main audio service. The Commentary setting has an optional dialogue channel.
 - Emergency: A single-channel service that is given priority in reproduction.
 - Voice Over: A single-channel service that is decoded and mixed to the Center channel.
 - **Karaoke:** A setting for karaoke playback. The Left and Right channels contain music, the Center channel a guide melody, and the Left and Right Surround channels contain optional backing vocals.
- **RF Mode:** Applies dynamic range control to the decoded PCM suitable for RF mode (dialog normalization and compr compression).

- Line Mode: Applies dynamic range control to the decoded PCM suitable for line mode (dialog normalization and dynrng compression).
- Audio Production Info: Selects whether the Mix Level and Room Type settings are valid. To enable Audio Production Info, select the **Exists** check box.
 - **Mix Level:** The peak sound pressure level (SPL) used during the final mixing session. Mix Level operates in addition to Dialog Norm and is typically the "final volume" setting.
 - **Room Type:** Selects the size and calibration of the room used during the final mixing session.
- **Surround Mode:** Selects whether the two-channel bitstream contains Dolby Surround. When turned on, the setting indicates that Pro Logic decoding is required.
 - Not Indicated: No indication.
 - **On:** The bitstream has information encoded in Dolby Surround.
 - **Off:** The bitstream has no information encoded in Dolby Surround.
- **Extended BSI1/BSI2:** Selects the Extended Bitstream Information parameters. To enable the parameters, select the **Exists** check box.
 - **Stereo Downmix Mode:** Selects the downmix preference for stereo outputs. This setting is useful with music material.
 - Lt/Rt Centre Mix Level: Selects the level of shift applied to the Center channel when downmixing to an Lt/Rt output.
 - Lt/Rt Surr Mix Level: Selects the level of shift applied to the Surround channels when downmixing to an Lt/Rt output.
 - **Lo/Ro Centre Mix Level:** Selects the level of shift applied to the Center channel when downmixing to a Lo/Ro output.
 - **Lo/Ro Surr Mix Level:** Selects the level of shift applied to the Surround channels when downmixing to a Lo/Ro output.
- **Internal Mode:** Applies dynamic range control to the internal metadata. If you make changes after selecting an Internal Mode setting, a Custom setting is added to the list.
- Copy External Metadata: Copies external metadata for use with internal metadata.
- Default Program Meta: Selects a default metadata setting.
- **Lowpass Filter:** Applies a lowpass filter to the main input channels before encoding starts. The filter removes high-frequency signals.
- LFE Filter: Applies an 120 Hz lowpass filter to the LFE channel input before encoding starts.
- Surr Phase Shift Filter: Applies a 90-degree phase shift to the surround channels. This enables the decoder to easily create a Lt/Rt downmix. This setting is enabled by default.
- **Surr 3dB Attenuator:** Applies 3 dB attenuation to the Surround channels before encoding.

5.30 Dolby-D Encoder-Status (Option)

The Dolby-D Encoder-Status page provides a useful overview of the Dolby D metadata settings currently in use.

olby-Encoder-In olby-D Encoder-Ctrl olby-D Encoder-Status olby-Metadata	Information IN1:0K IN2:LOST ANL:LOST OUT: OK	1080/25i * 1080/25i	Infor V A R	mation Window ideo Status udio Input St eference Sta	atus atus	 Care Dolt AFD 	d Edge Ll by Status Status	EDs
Encoder Status De Encoding 55 Ref Frame Rate HW	vice Name 19 D V Version	External Ma Bitstream Valid - i ⊡Program	tadata Status nc Ext BSI Status	Program Confi 4x2	g	Rev Usir	ersion Sta 1 g Extern	tus I al
Reserved 00 Video Sync F/V Present 10	02 V Version 125	Prog 1 2/0	Prog 2 Prog 3 2/0 RSV	B Prog 4 P RSV N	rog 5 //A	Prog 6 N/A	Prog 7 N/A	Prog 8 N/A
• Prog 1	a longprog id	Prog 5	ining of the	Input Chan A1/A2- L/R	nel As:	signment B3/B4 /		C5/C6
Prog 1 Prog 2 Program Descriptor Program 1extra	a longprog id		Educated BC#	Input Char A1/A2 L/R	nel As:	B3/B4		C5/C6
Prog 1 Prog 2 Program Descriptor Program 1extra Dutput Metadata Status Dialogue Norm -27 dBF S Channel Mode 2/0 (L R)	Audio Production Info		Extended BSI1- Exists Yes Stereo Downm	Input Chan A1/A2- L/R		Extended B Extended B Exists	3SI2	C5/C6 /
Prog 1 Prog 2 Program Descriptor Program 1extra Output Metadata Status Dialogue Norm 27 dBF S Channel Mode 2/0 (L R) LFE Channel Off Bistream Mode Consolidate Main	Audio Production Info Exists No Mix Level 80 dB SPL Not indicated		Extended BSI1- Exists Yes Stereo Downm LtRt Preferre Lt/Rt Centre Mi -3.0dB	Input Char A1/A2- L/R iix Mode d x Level		Signment B3/B4 Extended f Exists Yes Surroun Not india Lovypas On	d EX Mode cated s Filter	C5/C6
Prog 1 Prog 2 Program Descriptor Program 1extra Output Metadata Status Dialogue Norm _27 dBF S Channel Mode 2/0 (L R) LFE Channel Off Bitstream Mode Complete Main RF Mode Film Standard	Audio Production Info Exists No Mix Level 80 dB SPL Room Type Not indicated		Extended BSI1- Exists Yes Stereo Downm LtRt Preferre Lt/Rt Centre Mi -3.0dB Lt/Rt Surr Mix I -3.0dB	Input Char A1/A2- L/R ix Mode d x Level	nel As:	Surround Surround Surround Surround Surround Not india Company On	d EX Mode cated s Filter	C5/C6
Prog 1 Prog 2 Program Descriptor Program 1extra Output Metadata Status Dialogue Norm _27 dBF S Channel Mode 2/0 (L R) LFE Channel Off Bitstream Mode Complete Main RF Mode Film Standard Line Mode Film Standard	Audio Production Info Exists No Mix Level 80 dB SPL Room Type Not indicated		Extended BSI1- Exists Yes Stereo Downm LtRt Preferre Lt/Rt Centre Mi -3.0dB Lt/Rt Surr Mix I -3.0dB Lo/Ro Centre Mi -3.0dB	Input Char A1/A2- L/R ix Mode d x Level		Surround Surround Surround Surround Not india LOW pas On LEF Fite Off	d EX Mode cated s Filter r	C5/C6

5.30.1 Encoder

Encoder shows current encoder status information such as device name and frame rate.

5.30.2 External Metadata

The External Metadata Source area provides useful information such as the Bitstream Status and Reversion Status currently in use.

5.30.3 Metadata Source

In the Metadata Source box you can choose which metadata source to use. You can select an external source from program 1–8 or an internal source which assigns internally generated metadata values.

Note: You can modify the internal metadata settings in the Internal Metadata area. See "Internal Metadata" on page 89.

5.30.4 Program Descriptor

Program Descriptor shows a description of the current program configuration.

5.30.5 Input Channel Assignment

The Input Channel Assignment area shows the status of the output channels for the six Dolby encoder pairs.

5.30.6 Output Metadata Status

The Output Metadata Status area shows status information and lists metadata parameters for all available programs within the current Dolby configuration.

For more information about the metadata paremeters, see "Internal Metadata" on page 89.

5.31 Dolby Metadata

The Dolby Metadata page enables you to source Dolby E metadata. Incoming data can be routed from either the RS485 port/embedded s2020 or internally from a Dolby 552 decoder to output embedded s2020 and/or RS485 port.

BH 08:IQSYN33-3G 0000:07:08	- IQSYN33		
Aud-Mixer Aud-Out-Embed Dolby-Metadata Logging-Misc	Audio Embed Input PP	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status AFD Status
Input Metadata Source O RS485 Port SMPTE2020 Deembedder	RS485 Port O Output - Dolby 55 O Output - SMPTE2 Input	2 Decoder 020 Deembedder	
SMPTE2020 Embedder Embedder Source O Dolby 552 Decoder O RS485 Port SMPTE2020 Deembedder	input Line 0	ine Line 11 P	

5.31.1 Input Metadata Source

Input Metadata Source enables you to choose the input source of the Dolby metadata.

- **RS485 Port:** Sources the input metadata from the reference RS485 port on the rear panel.
- SMPTE2020 Deembedder: Sources the input metadata from an ancillary input.

5.31.2 RS485 Port

The RS485 on the rear panel can source input or output metadata. When set for input, the port can embed incoming metadata onto embedded ancillary s2020, or optionally as a metadata source for an E or digital encoder. When set for output, the port can route metadata from incoming ancillary s2020, or optionally from a decoded Dolby E data stream.

5.31.3 SMPTE2020 Embedder

- Embedder Source: Selects the embedder source for SMPTE 2020 information.
- Insert: Select the check box to insert SMPTE 2020 information.
- **Input Line:** Shows the input line on which the module detects incoming SMPTE 2020 data.
- **Output Line:** Specifies on which output line SMPTE 2020 data is inserted.

5.32 Logging

Logging enables you to make information about several parameters available to a logging device connected to the RollCall network.

Each logging page has three columns:

- Log Enable: Use the check boxes to select the parameters for which log information should be collected.
- Log Field: Shows the name of the logging field.
- Log Value: Shows the current log value.

5.32.1 Logging-Misc

•

Logging-Misc shows the current log information for the unit's basic parameters.

Aud-Mixer Information Information	III 07:IQSYN33-3G 2100:07:07 - IQSYN33			
Logging Control Log Field Log Value SN= S50043096 Image: SN= S1040303644 Image: SN= S004803644 Image: SN= S0043096 Image: SN= S004803644 Image: SN= S01000 Image: SN= S004300 Image: SN= S0005899 Image: SN= S0000000 Image: SN= S00000000 Image: SN= S0000000000 Image: SN= S00000000000000000 Image: SN= S000000000000000000000000000000000000	Aud-Mixer Aud-Out-Embed Logging-Misc Logging-Video In	Information INI:OK 1080/29i * IN2:LOST OUT: OK 1080/29i	Information Window Video Status Audio Input Status Reference Status	 ○ Card Edge LEDs ○ Dolby Status ○ AED Status
Log EnableLog FieldLog ValueSN=S50043096SV OS VersionOS_VERSION=V115 ReleaseBuild No.BUILD_NUMBER=0004803644Hardware Ver.HARDWARE_VERSION=RGMPP1BFirmware Ver.FIRMWARE_VERSION=0593005899Up TimeUPTIME=000:00:59:00Licensed OptionsLICENSED_OPTIONS=SDHD;3GLicensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)Temp 1 StateTEMP_1_STATE=OKRear IDREAR_ID=224Rear StatusREAR_STATUS=WARN:Type MismatchSlot WidthSLOT_WIDTH=UnknownSlot StartSLOT_START=UnknownPower UsagePOWER_USAGE=23.0W/21.5LU	Logging Control		J	
SN=S50043096Image: OS VersionOS_VERSION=V115 ReleaseImage: OS VersionOS_VERSION=V115 ReleaseImage: OS VersionBUILD_NUMBER=0004803644Image: OM Hardware Ver.HARDWARE_VERSION=RGMPP1BImage: Om Ver.FIRMWARE_VERSION=0593005899Image: Om Ver.FIRMWARE_VERSION=000:00:59:00Image: Om Ver.UP TIME=000:00:59:00Image: Om Ver.LICENSED_OPTIONS=SDHD;3GImage: Om Ver.LICENSED_OPTIONS_2=OK:0 Option(s)Image: Om Ver.TEMP_1_STATE=OKImage: Om Ver.REAR_ID=224Image: Rear IDREAR_ID=224Image: Rear StatusREAR_STATUS=WARN:Type MismatchImage: StatusSLOT_WIDTH=UnknownImage: StatusSLOT_START=UnknownImage: Om Ver.POWER_USAGE=23.0W/21.5LU	Log Enable	Log Field	Log V	alue
♥ OS VersionOS_VERSION=V115 Release♥ Build No.BUILD_NUMBER=0004803644♥ Hardware Ver.HARDWARE_VERSION=RGMPP1B♥ Firmware Ver.FIRMWARE_VERSION=0593005899♥ Up TimeUPTIME=000:00:59:00♥ Licensed OptionsLICENSED_OPTIONS=SDHD;3G♥ Licensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)♥ Temp 1 StateTEMP_1_STATE=OK♥ Temp 1 NameTEMP_1_NAME=Temperature FPGA♥ Rear IDREAR_ID=224♥ Rear StatusREAR_STATUS=WARN:Type Mismatch♥ Slot WidthSLOT_WIDTH=Unknown♥ Slot StartSLOT_START=Unknown♥ Power UsagePOWER_USAGE=23.0W/21.5LU		SN=	\$500 ⁴	43096
♥ Build No.BUILD_NUMBER=0004803644♥ Hardware Ver.HARDWARE_VERSION=RGMPP1B♥ Firmware Ver.FIRMWARE_VERSION=0593005899♥ Up TimeUPTIME=000:00:59:00♥ Licensed OptionsLICENSED_OPTIONS=SDHD;3G♥ Licensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)♥ Temp 1 StateTEMP_1_STATE=OK♥ Temp 1 NameTEMP_1_NAME=Temperature FPGA♥ Rear IDREAR_ID=224♥ Rear StatusREAR_STATUS=WARN:Type Mismatch♥ Slot WidthSLOT_WIDTH=Unknown♥ Slot StartSLOT_START=Unknown♥ Power UsagePOWER_USAGE=23.0W/21.5LU	🗹 OS Version	OS_VERSION=	V115	Release
♥ Hardware Ver.HARDWARE_VERSION=RGMPP1B♥ Firmware Ver.FIRMWARE_VERSION=0593005899♥ Up TimeUPTIME=000:00:59:00♥ Licensed OptionsLICENSED_OPTIONS=SDHD;3G♥ Licensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)♥ Temp 1 StateTEMP_1_STATE=OK♥ Temp 1 NameTEMP_1_NAME=Temperature FPGA♥ Rear IDREAR_ID=224♥ Rear StatusREAR_STATUS=WARN:Type Mismatch♥ Slot WidthSLOT_WIDTH=Unknown♥ Slot StartSLOT_START=Unknown♥ Power UsagePOWER_USAGE=23.0W/21.5LU	🗹 Build No.	BUILD_NUMBER=	00048	303644
♥Firmware Ver.FIRMWARE_VERSION=0593005899♥Up TimeUPTIME=000:00:59:00♥Licensed OptionsLICENSED_OPTIONS=SDHD;3G♥Licensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)♥Temp 1 StateTEMP_1_STATE=OK♥Temp 1 NameTEMP_1_NAME=Temperature FPGA♥Rear IDREAR_ID=224♥Rear StatusREAR_STATUS=WARN:Type Mismatch♥Slot WidthSLOT_WIDTH=Unknown♥Slot StartSLOT_START=Unknown♥Power UsagePOWER_USAGE=23.0W/21.5LU	🗹 Hardware Ver.	HARDWARE_VERSION=	RGMF	PP1B
✔ Up TimeUPTIME=000:00:59:00✔ Licensed OptionsLICENSED_OPTIONS=SDHD;3G✔ Licensed Options 2LICENSED_OPTIONS_2=OK:0 Option(s)✔ Temp 1 StateTEMP_1_STATE=OK✔ Temp 1 NameTEMP_1_NAME=Temperature FPGA✔ Rear IDREAR_ID=224✔ Rear StatusREAR_STATUS=WARN:Type Mismatch✔ Slot WidthSLOT_WIDTH=Unknown✔ Slot StartSLOT_START=Unknown✔ Power UsagePOWER_USAGE=23.0W/21.5LU	🗹 Firmware Ver.	FIRMWARE_VERSION=	05930	005899
✓ Licensed Options LICENSED_OPTIONS= SDHD;3G ✓ Licensed Options 2 LICENSED_OPTIONS_2= OK:0 Option(s) ✓ Temp 1 State TEMP_1_STATE= OK ✓ Temp 1 Name TEMP_1_NAME= Temperature FPGA ✓ Rear ID REAR_ID= 224 ✓ Rear Status REAR_STATUS= WARN:Type Mismatch ✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	🗹 Up Time	UPTIME=	000:0	0:59:00
✓ Licensed Options 2 LICENSED_OPTIONS_2= OK:0 Option(s) ✓ Temp 1 State TEMP_1_STATE= OK ✓ Temp 1 Name TEMP_1_NAME= Temperature FPGA ✓ Rear ID REAR_ID= 224 ✓ Rear Status REAR_STATUS= WARN:Type Mismatch ✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Licensed Options	LICENSED_OPTIONS=	SDHD	;3G
✓ Temp 1 State TEMP_1_STATE= OK ✓ Temp 1 Name TEMP_1_NAME= Temperature FPGA ✓ Rear ID REAR_ID= 224 ✓ Rear Status REAR_STATUS= WARN:Type Mismatch ✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Licensed Options 2	Licensed Options 2 LICENSED_OPTIONS_2= OK:0 Option(s)		Option(s)
✓ Temp 1 Name TEMP_1_NAME= Temperature FPGA ✓ Rear ID REAR_ID= 224 ✓ Rear Status REAR_STATUS= WARN:Type Mismatch ✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Temp 1 State	TEMP_1_STATE=	OK	
✓ Rear ID REAR_ID= 224 ✓ Rear Status REAR_STATUS= WARN:Type Mismatch ✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Temp 1 Name	TEMP_1_NAME=	Temp	erature FPGA
Image: Wark status REAR_STATUS= WARN:Type Mismatch Image: Wark status SLOT_WIDTH= Unknown Image: Wark status SLOT_START= Unknown Image: Wark status POWER_USAGE= 23.0W/21.5LU	🗹 Rear ID	REAR_ID=	224	
✓ Slot Width SLOT_WIDTH= Unknown ✓ Slot Start SLOT_START= Unknown ✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Rear Status	REAR_STATUS=	WAR	N:Type Mismatch
Slot Start SLOT_START= Unknown Power Usage POWER_USAGE= 23.0W/21.5LU	Slot Width	SLOT_WIDTH=	Unkn	own
✓ Power Usage POWER_USAGE= 23.0W/21.5LU	Slot Start	SLOT_START=	Unkn	own
	🗹 Power Usage	POWER_USAGE=	23.0V	V/21.5LU

5.32.2 Logging-Video-In

The Logging-Video-In page displays the current log information for video input and reference.

07:IQSYN33-3G 2100:07:07	- IQSYN33	
ud-Out-Embed	Information	Information Window
ogging-Misc	IN1:0K 1080/291 *	Video Status Card Edge LEDs Audio Input Statuo Dolbu Statuo
ogging-Video In		Reference Status Dolby Status
igging-Video Out	✓ OUT: OK 1080/29i	O AFD Status
ogging Control		
Log Enable	Log Field	Log Value
Video Input 1		-
🗹 Input 1 Type	INPUT_1_TYPE	HD/SD/3G SDI
🗹 Input 1 State	INPUT_1_STATE	ОК
🗹 Input 1 Standard	INPUT_1_STANDARD	1080/29i
🗹 Input 1 Name	INPUT_1_NAME	INPUT 1 SERIAL IN
🗹 Input 1 Ident	INPUT_1_IDENT	SER IN 1
🗹 Input 1 SDI Errs	INPUT_1_SDI_ERRS	ОК
🗹 Input 1 SDI Err Sec	INPUT_1_SDI_ERRSEC	1
🗹 Input 1 SDI ANC Errs	INPUT_1_SDI_ANC_ERRS	ОК
🗹 Input 1 SDI ANC Err Sec	INPUT_1_SDI_ANC_ERRSECS	0
Video Input 2		
🗹 Input 2 Type	INPUT_2_TYPE	HD/SD/3G SDI
M Input 2 State	INPUT_2_STATE	FAIL:Lost
🗹 Input 2 Standard	INPUT_2_STANDARD	Unknown
🗹 Input 2 Name	INPUT_2_NAME	INPUT 2 SERIAL IN
🗹 Input 2 Ident	INPUT_2_IDENT	SER IN 2
🗹 Input 2 SDI Errs	INPUT_2_SDI_ERRS	ОК
🗹 Input 2 SDI Err Sec	INPUT_2_SDI_ERRSEC	0
MIND 2 SDI ANC Errs	INPUT_2_SDI_ANC_ERRS	ОК
MINDUT 2 SDI ANC Err Sec	INPUT_2_SDI_ANC_ERRSECS	0
Reference		
🗹 Genlock State	GENLOCK_1_STATE	WARN:Freerun
✓ Reference State	REFERENCE_1_STATE	FAIL:Lost
🗹 Reference Standard	REFERENCE_1_STANDARD	Unknown
Reference Type	REFERENCE_1_TYPE	WARN:Unknown

5.32.3 Logging-Video-Out

The Logging-Video-Out page displays the current log information for the video output.

III 07:IQSYN33-3G 2100:07:0	07 - IQSYN33	
Logging-Misc Logging-Video In Logging-Video Out Logging-Aud-Embed	Information IN1:0K 1080/29i * IN2:LOST OUT: 0K 1080/29i	Information Window Video Status Audio Input Status Reference Status AFD Status
Logging Control		
Log Enable Video Output 1 / 2	Log Field	Log Value
🗹 Output 1 Type	OUTPUT_1_TYPE	HD/SD/3G SDI
🗹 Output 1 State	OUTPUT_1_STATE	ОК
🗹 Output 1 Standard	OUTPUT_1_STANDARD	1080/29i
🗹 Output 1	OUTPUT_1	INPUT 1 SERIAL IN
Moutput 1 Caption	OUTPUT_1_CAPTION	OK:Off
🗹 Output 2 Type	OUTPUT_2_TYPE	HD/SD/3G SDI
Voltput 2 State	OUTPUT_2_STATE	ОК
Moutput 2 Standard	OUTPUT_2_STANDARD	1080/29i
🗹 Output 2	OUTPUT_2	INPUT 1 SERIAL IN
Output 2 Caption	OUTPUT_2_CAPTION	OK:Off

5.32.4 Logging-Aud-Embed

The Logging-Aud-Embed page displays the current log information for the embedded audio input and output.

07:IQSYN33-36 2100:07:07 -	IQSYN33	
.oaaina-Video In	Information	Information Window
.ogging-Video Out	IN1:0K 1080/29i *	Video Status Card Edge LEDs
.ogging-Aud-Embed	IN2:LOST	O Audio Input Status O Dolby Status
.ogging-Aud-Emb-Dolby	OUT: OK 1080/29i	○ Reference status ○ ΔED Status
	· ·	
Logging Control		
Log Enable	Log Field	Log Value
Input 1 Embed1-8		
Input1 Emb.Pair 1 State	INPUT_1_EMBEDDED_AUDIO_1_S	TATE OK:PCM
Input1 Emb.Pair 2 State	INPUT_1_EMBEDDED_AUDIO_2_S	TATE OK:PCM
Input1 Emb.Pair 3 State	INPUT_1_EMBEDDED_AUDIO_3_S	TATE OK:PCM
Input1 Emb.Pair 4 State	INPUT_1_EMBEDDED_AUDIO_4_S	TATE OK:PCM
Input1 Emb.Pair 5 State	INPUT_1_EMBEDDED_AUDIO_5_S	TATE OK:PCM
Input1 Emb.Pair 6 State	INPUT_1_EMBEDDED_AUDIO_6_S	TATE OK:PCM
Input1 Emb.Pair 7 State	INPUT_1_EMBEDDED_AUDIO_7_S	TATE OK:PCM
M Input1 Emb.Pair 8 State	INPUT_1_EMBEDDED_AUDIO_8_S	TATE OK:PCM
Input 2 Embed1-8		
Minput2 Emb.Pair 1 State	INPUT_2_EMBEDDED_AUDIO_1_S	TATE WARN:Unknown
🗹 Input2 Emb.Pair 2 State	INPUT_2_EMBEDDED_AUDIO_2_S	TATE WARN:Unknown
V Input2 Emb.Pair 3 State	INPUT_2_EMBEDDED_AUDIO_3_S	TATE WARN:Unknown
Input2 Emb.Pair 4 State	INPUT_2_EMBEDDED_AUDIO_4_S	TATE WARN:Unknown
Input2 Emb.Pair 5 State	INPUT 2 EMBEDDED AUDIO 5 S	TATE WARN:Unknown
Input2 Emb.Pair 6 State	INPUT 2 EMBEDDED AUDIO 6 S	TATE WARN:Unknown
Input2 Emb.Pair 7 State	INPUT 2 EMBEDDED AUDIO 7 S	TATE WARN:Unknown
Input2 Emb.Pair 8 State	INPUT 2 EMBEDDED AUDIO 8 S	TATE WARN:Unknown
Output Embed1-8		STATE WARNISilont DCM
Output Emb.Pair 1_1 State		STATE WARN.Silent PCM
Output Emb.Pair 1_2 State		STATE WARN.Silent PCM
Output Emb.Pair 2_1 State		STATE WARN: Silent PCM
Output Emb.Pair 3_1 State		STATE WARN: Silent PCM
Output Emb.Pair 3_1 State		STATE WARN-Silent PCM
Output Emb.Pair 4_1 State		STATE WARN.Silent PCM
Output Emb.Pair 4_1 State		STATE WARN.Silent PCM
Output Emb.Pair 4_2 State		STATE WARN.Silent PCM
Output Emb.Pair 5_1 State		STATE WARN. Slient PCM
Output Emb Dair 6 4 State		STATE WARN. Silent PCM
Output Emb.Pair 6_1 State		STATE WARN: Silent PCM
Output Emb.Pair 6_2 State		STATE WARN: Silent PCM
Output Emb.Pair 7_1 State		STATE WARN: Silent PCM
Uutput Emb.Pair 7_2 State	OUTPUT_1_EMBED_AUDIO_7_2_	STATE WARN: Silent PCM
Uutput Emb.Pair 8_1 State	OUTPUT_1_EMBED_AUDIO_8_1_	STATE WARN: Silent PCM
Output Emb.Pair 8_2 State	OUTPUT_1_EMBED_AUDIO_8_2_S	STATE WARN: Silent PCM

5.32.5 Logging-Aud-AES1-4/8

Note:

IQMUX33 only.

🖽 02:IQMUX33-Demo 0000:02	:02 - IQMUX33	
Logging-Video Out Logging-Aud-Embed Logging-Aud-AES1-4/8 Logging-Aud-Emb-Dolby	Information IN1:LOST * IN2:LOST ANL:LOST OUT: BLK 1080/29i	Information Window Video Status Audio Input Status Reference Status Attribute Attribute Audio Input Status Attribute Audio Input Status Attribute Attribu
Logging Control		
Log Enable	Log Field	Log Value
Input AES1-8	AFS INDUT 1 STATE	WARN:Output
Input AES 2 State	AES_INPUT 2 STATE	WARN:Output
Input AES 3 State	AES INPUT 3 STATE	WARN:Output
Input AES 4 State	AES INPUT 4 STATE	WARN:Output
Input AES 5 State	AES_INPUT_5_STATE	FAIL:Lost
Minput AES 6 State	AES_INPUT_6_STATE	FAIL:Lost
Manual Apple S 7 State	AES_INPUT_7_STATE	FAIL:Lost
🗹 Input AES 8 State	AES_INPUT_8_STATE	FAIL:Lost
0.4		
Output AES1-8	AES_OUTPUT_1_1_STATE	WARN: Silent PCM
Output AES 1 2 State	AES_OUTPUT_1_2_STATE	WARN: Silent PCM
Output AES 2_1 State	AES_OUTPUT_2_1_STATE	WARN: Silent PCM
🗹 Output AES 2_2 State	AES_OUTPUT_2_2_STATE	WARN: Silent PCM
🗹 Output AES 3_1 State	AES_OUTPUT_3_1_STATE	WARN: Silent PCM
🗹 Output AES 3_2 State	AES_OUTPUT_3_2_STATE	WARN: Silent PCM
🗹 Output AES 4_1 State	AES_OUTPUT_4_1_STATE	WARN: Silent PCM
Voutput AES 4_2 State	AES_OUTPUT_4_2_STATE	WARN: Silent PCM
Voltput AES 5_1 State	AES_OUTPUT_5_1_STATE	WARN:Input
Voutput AES 5_2 State	AES_OUTPUT_5_2_STATE	WARN:Input
Voutput AES 6_1 State	AES_OUTPUT_6_1_STATE	WARN:Input
Output AES 6_2 State	AES_OUTPUT_6_2_STATE	WARN:Input
Output AES 7_1 State	AES_OUTPUT_7_1_STATE	WARN:Input
Output AES 7_2 State	AES_OUTPUT_7_2_STATE	WARN:Input
V Output AES 8_1 State	AES_OUTPUT_8_1_STATE	WARN:Input
V Output AES 8_2 State	AES_OUTPUT_8_2_STATE	WARN:Input

5.32.6 Logging-Aud-Analog

Note: IQDMX33 only.

The Logging-Aud-Analog page displays the current log information for the analog audio outputs.

H				
Logging-Aud-Embed Logging-Aud-AES1-8 Logging-Aud-Analog		Information IN1:LOST * IN2:LOST	Information Window Video Status Audio Input Status Deference Status	 ○ Card Edge LEDs ○ Dolby Status
Logging-Aud-Emb-Dolby	~	OUT: BLK 1080/29i		O AFD Status
Logging Control				1
Log Enable		Log Field	Log	/alue
Analog Aud Output 1_1	State	ANALOG_AUDIO_OUTPUT_1_1_5	STATE WAR	RN:Silent
Analog Aud Output 1_2	State	ANALOG_AUDIO_OUTPUT_1_2_S	STATE WAR	RN:Silent
Malog Aud Output 2_1	State	ANALOG_AUDIO_OUTPUT_2_1_5	STATE WAR	RN:Silent
Analog Aud Output 2_2	State	ANALOG_AUDIO_OUTPUT_2_2_5	STATE WAR	RN:Silent

5.32.7 Logging-Aud-Emb-Dolby

The Logging-Emb-Dolby page displays the current log information for the Dolby E outputs.

🖽 07:IQSYN33-3G 2100:07:07 - IQSYN33				
Logging-Video Out Logging-Aud-Embed Logging-Aud-Emb-Dolby VBI/ANC Logging	Information IN1:OK 1080/29i ≄ IN2:LOST OUT: OK 1080/29i	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status AFD Status 	
Logging Control			1	
Log Enable	Log Field	Lo	g Value	
Output Embed1-8 Dolby E				
🗹 Output Emb.Pair 1 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_1_	DOLBY NO	DNE	
🗹 Output Emb.Pair 2 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_2_	DOLBY NO	DNE	
🗹 Output Emb.Pair 3 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_3_	DOLBY NO	DNE	
V Output Emb.Pair 4 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_4_	DOLBY NO	DNE	
V Output Emb.Pair 5 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_5	DOLBY NO	DNE	
V Output Emb.Pair 6 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_6_	DOLBY NO	DNE	
V Output Emb.Pair 7 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_7_	DOLBY NO	DNE	
Output Emb.Pair 8 DolbyE	OUTPUT_1_EMBEDDED_AUDIO_8_	DOLBY NO	DNE	

5.32.8 VBI/ANC Logging

The VBI/ANC Logging page logs the presence of VBI or VANC data packets and the associated line.

₩ 07:IQSYN33-3G 2100:07:07 - IQSYN33				
Logging-Aud-Embed	Information	Information Window	_	
Logging-Aud-Emb-Dolby	IN1:0K 1080/291 **	Video Status Audio Input Statuo	Card Edge LEDs	
VBI/ANC Logging	112.2031	Reference Status	U DOIDY Status	
WideScreen Logging	OUT: OK 1080/29i	-	AFD Status	
Custom Memories				
Logging Control	Log Field		og Valuo	
Input Ref VITC	INPLIT REF VITC=			
		-	O STINEI - VITO	
Input ANC Line 7	INPUT ANC LINE 7=			
	INPUT ANC LINE 8=			
Input ANC Line 9	INPUT ANC LINE 9=	0	K:ATC	
Input ANC Line 10	INPUT ANC LINE 10=			
Input ANC Line 11	INPUT ANC LINE 11=			
M Input ANC Line 12	INPUT ANC LINE 12=			
Input ANC Line 13	INPUT ANC LINE 13=			
M Input ANC Line 14	INPUT ANC LINE 14=			
Input ANC Line 15	INPUT ANC LINE 15=			
M Input ANC Line 16	INPUT ANC LINE 16=			
Input ANC Line 17	INPUT ANC LINE 17=			
M Input ANC Line 18	INPUT ANC LINE 18=			
M Input ANC Line 19	INPUT ANC LINE 19=			
M Input ANC Line 20	INPUT ANC LINE 20=			
M Input ANC Line 21	INPUT ANC LINE 21=			
Input ANC Line 22	INPUT ANC LINE 22=			
Input ANC Line 23	INPUT ANC LINE 23=			
Output 1 Timecode	OUTPUT 1 TIMECODE=	0	1:02:06:27	
V Output 1 ANC Line 7	OUTPUT 1 ANC LINE 7=			
V Output 1 ANC Line 8	OUTPUT 1 ANC LINE 8=			
V Output 1 ANC Line 9	OUTPUT_1_ANC_LINE_9=	0	K:ATC	
V Output 1 ANC Line 10	OUTPUT_1_ANC_LINE_10=			
V Output 1 ANC Line 11	OUTPUT_1_ANC_LINE_11=			
V Output 1 ANC Line 12	OUTPUT_1_ANC_LINE_12=			
V Output 1 ANC Line 13	OUTPUT_1_ANC_LINE_13=			
V Output 1 ANC Line 14	OUTPUT_1_ANC_LINE_14=			
🗹 Output 1 ANC Line 15	OUTPUT_1_ANC_LINE_15=			
🗹 Output 1 ANC Line 16	OUTPUT_1_ANC_LINE_16=			
🗹 Output 1 ANC Line 17	OUTPUT_1_ANC_LINE_17=	-		
🗹 Output 1 ANC Line 18	OUTPUT_1_ANC_LINE_18=	-		
🗹 Output 1 ANC Line 19	OUTPUT_1_ANC_LINE_19=	-		
🗹 Output 1 ANC Line 20	OUTPUT_1_ANC_LINE_20=	-		
🗹 Output 1 ANC Line 21	OUTPUT_1_ANC_LINE_21=	-		
Output 1 ANC Line 22	OUTPUT_1_ANC_LINE_22=	-		
Voltput 1 ANC Line 23	OUTPUT_1_ANC_LINE_23=	-		

5.32.9 Widescreen Logging

The Widescreen Logging page logs the widescreen parameters of the inputs and outputs.

III 07:IQSYN33-3G 2100:07:07 - IQSYN33			
Logging-Aud-Emb-Dolby	Information	Information Window	
VBI/ANC Logging	IN1:0K 1080/291 *	Video Status Card Edge LEDs Audia laset Status Dallas Status	
WideScreen Logging	1N2:L051	Audio Input Status Dolby Status Reference Status	
System-Memories	OUT: OK 1080/29i	AFD Status	
Custom CDIO			
Logging Control			
Log Enable	Log Field	Log Value	
🗹 Input Aspect	INPUT_ASPECT=		
M Input AFD	INPUT_AFD=	None	
🗹 Input 2016 State	V Input 2016 State INPUT_2016_STATE=		
✓ Input 2016 Aspect INPUT_2016_ASPECT= -			
🗹 Input 2016	INPUT_2016= -		
🗹 Input WSS State	Input WSS State INPUT_WSS_STATE=		
🗹 Input WSS Aspect	INPUT_WSS_ASPECT=		
🗹 Input WSS	INPUT_WSS=		
🗹 Input VI State	INPUT_VI_STATE=		
▼ Input VI Aspect INPUT_VI_ASPECT=			
✓ Input VI INPUT_VI=			
V Output Aspect	OUTPUT_1_ASPECT=		
Output AFD	OUTPUT_1_AFD=	<disabled></disabled>	

5.32.10 Log Field Descriptions

Log Field	Description	
SN=	The module's unique serial number.	
OS_VERSION=	The operating system version.	
BUILD_NUMBER=	The software build number.	
HARDWARE_VERSION	The hardware build version.	
FIRMWARE_VERSION	The FPGA version.	
UPTIME=	Shows the time since the last restart (format ddd:hh:mm:ss).	
LICENSED_OPTIONS=	• SDHD	
	• SDHD;3G	
	FAIL:Bad File	
	WARN:NONE	
	FAIL:No File	
LICENSED_OPTIONS_2=	OK:n Option(s)	
	FAIL:Invalid	
	WARN:Bad File	
	WARN:Type Mismatch	
	FAIL:Type Unknown	
	WARN:Type??	
	FAIL:Bad SerialNum	
	FAIL:No File	
TEMP_1_STATE=	The onboard temperature state:	
	• OK:	
	• WARN:High	
TEMP_1_NAME=	The device name. For example, Temperature FPGA.	
REAR_ID=	A 1, 2, or 3-digit number that identifies the rear interface PCB type. For example, 168.	
SLOT_WIDTH=	The number of slots used by rear and module 1,2, or 3.	
SLOT_START=	The first slot number the rear occupies. Use in conjunction with SLOT_WIDTH to determine the slots that the unit occupies. Range 1–16.	
POWER_USAGE=	The module's maximum power usage. This shows the usage for both the A and B frames. For example, 33.0W/30.5LU.	
INPUT_N_TYPE	The type of input as specified by the module's configuration. Range 1–3.	
	3G/HD/SD SDI	
	HD/SD SDI	
	HD/SD Analog	
	SD Analog	

Log Field	Description
INPUT_N_STATE	The current input state:
	• OK
	• FAIL:Lost
INPUT_N_STANDARD	The current input standard. If no signal is present, the field displays Unknown. If the input standard is not recognized or supported, the field displays WARN:Unknown.
	Valid examples are:
	• 525/29i
	• 625/25i
	• 720/50p
	• 720/59p
	• 1080/25i
	 1080/29i
	1080/23sF (conversion products only)
	 1080/25sF (conversion products only)
	1080/25p (conversion products only)
	1080/29p (conversion products only)
	• 1080/50p-A
	• 1080/59p-A
INPUT_N_NAME	The input name. This is an editable field on the System-Setup page.
INPUT_N_IDENT	The identifier string on the rear interface:
	Y/C:YPbPr:COMP In
	COMP In
	SERIAL IN
	SERIAL IN 1
	SERIAL IN 2
INPUT_N_SDI_ERRS	The SDI errors that have occurred in a one-second period:
	• OK
	• WARN
INPUT_N_SDI_ERRSECS	The number of SDI errors that have occurred since last reset.
INPUT_N_SDI_ANC_ERRS	The ANC errors that have occurred in a one-second period:
	• OK
	• WARN
INPUT_N_SDI_ANC_ERRSECS	The number of ANC errors that have occurred since last reset.

Log Field	Description
GENLOCK_1_STATE	The genlock system state:
	WARN:Freerun
	OK:Reference
	OK:Input
REFERENCE_1_STATE	The reference input state:
	• OK
	WARN:Mismatch
	• FAIL:Lost
REFERENCE_1_STANDARD	The current reference standard.
	If no signal is present, the field displays Unknown. If the input standard is not recognized or supported, the field displays WARN:Unknown.
	Valid examples are:
	• 525/29i
	• 625/25i
	• 720/50p
	• 720/59p
	• 1080/25i
	• 1080/29i
	Unknown
REFERENCE_1_TYPE	The reference input type:
	OK:Tri-Level
	OK:Bi-Level
	WARN:Unknown
OUTPUT_N_TYPE	The output type:
	• 3G/HD/SD SDI
	HD/SD Analog
OUTPUT_N_STATE	The output state:
	• OK
	WARN:Black
	WARN:Freeze
	WARN:Pattern
	WARN:Reclocked
	WARN:Input
	WARN:Disabled

Log Field	Description
OUTPUT_N_STANDARD	The current output standard:
	• 525/29i
	• 625/25i
	• 720/50p
	• 720/59p
	• 1080/25i
	• 1080/29i
	• 1080/50p-A
	• 1080/59p-A
OUTPUT_N	The source of the output. For example, INPUT_1.
OUTPUT_N_CAPTION	Text caption information:
	OK:None
	WARN:"caption text"
INPUT_1_EMBEDDED_AUDIO_1_STATE	The embedded audio input state:
to INPUT 1 EMBEDDED AUDIO 8 STATE	• OK:PCM
	• OK:Data
	OK:DolbyE
to	WARN:No Input
INPUT_2_EMBEDDED_AUDIO_8_STATE	• FAIL:Lost
OUTPUT_1_EMBEDDED_AUDIO_1_1_ST	The embedded audio output state:
ATE	• OK:PCM
OUTPUT_1_EMBEDDED_AUDIO_8_2_ST	• OK:Data
ATE	OK:DolbyE
	WARN:No Input
	FAIL:Lost
	WARN:Silent PCM
	WARN: Overload PCM
	FAIL:Input Lost
	Fail:Mixed
AES_INPUT_1_STATE	The AES audio input state:
to AFS INPLIT 8 STATE	• OK:PCM
	OK:Data
	OK:DolbyE
	WARN:No Input
	FAIL:Lost
	WARN:Silent PCM
	WARN: Overload PCM
	FAIL:Input Lost
	Fail:Mixed
	OK:Output

Log Field	Description
AES_OUTPUT_1_1_STATE	The AES audio output state:
to AES_OUTPUT_8_2_STATE	• OK:PCM
	OK:Data
	OK:DolbyE
	WARN:No Input
	• FAIL:Lost
	WARN:Silent PCM
	WARN: Overload PCM
	FAIL:Input Lost
	Fail:Mixed
	OK:Input
ANALOG_AUDIO_OUTPUT_1_1_STATE	The Analog audio output state:
to ANALOG AUDIO OUTPUT 2 2 STATE	• OK:PCM
	WARN:No Input
	• FAIL:Lost
	WARN:Silent PCM
	WARN: Overload PCM
	Fail:Mixed
OUTPUT_1_EMBEDDED_AUDIO_1_DOLB	The Dolby output line state:
Y to	• NONE
OUTPUT_1_EMBEDDED_AUDIO_8_DOLB	• OK
Y	WARN:Early
	WARN:Late
	• FAIL:Early
	FAIL:Late
DOLBY_DECODE_INPUT_BITSTREAM_F	Dolby D 32
ORMAT	Dolby D 16 Ch1
	Dolby D 16 Ch2
	• Dolby D 16 Ch1/2
	• Dolby E 24
	• Dolby E 20
	Dolby E 16
	• PCM
	ERR:Unknown

Log Field	Description
DOLBY_DECODE_INPUT_BITSTREAM_S TATUS	No Errors
	ERR:D Frame Error
	ERR:D CRC Error
	ERR:D Decode Error
	ERR:E CRC Error
	ERR:E Decode Error
	ERR:E Metadata Error
	ERR:E AC-3 Meta Error
	ERR:Unsupp E F Rate
	ERR:Unsupp E Config
	ERR:Unknown
DOLBY_FRAME_SYNC	Present
	ERR:Incorrect
	ERR:Absent/Invalid
	• -
DOLBY_FRAME_RATE	ERR:Reserved
	• 23.98 fps
	• 24 fps
	• 25 fps
	• 29.97 fps
	• 30 fps
	• 50 fps
	• 59.94 fps
	• 60 fps
	ERR:Unknown
	ERR:Not present
	• -

Log Field	Description
DOLBY_PROGRAM_CONFIG	• 5.1+2
	• 5.1+2x1
	• 4+4
	• 4+2x2
	• 4+2+2x1
	• 4+4x1
	• 4x2
	• 3x2+2x1
	• 2x2+4x1
	• 2+6x1
	• 8x1
	• 5.1
	• 4+2
	• 4+2x1
	• 3x2
	• 2x2+2x1
	• 2+4x1
	• 6x1
	• 4
	• 2+2
	• 2+2x1
	• 4x1
	• 7.1
	7.1 Screen
	ERR:Unknown
DOLBY_DECODE_D_INPUT_ERROR_ COUNT	The number of D errors that have occurred since last reset.
DOLBY_DECODE_E_INPUT_ERROR_ COUNT	The number of E errors that have occurred since last reset.
DOLBY_PROGRAM_SELECT	The currently selected Dolby E program. 1–8.
DOLBY_PROG_DESC_TEXT	The program test of selected program.
DOLBY_PROG_CHAN_MODE	ERR:Reserved
	• 1/0 (C)
	• 2/0 (L R)
	• 3/0 (L C R)
	• 2/1 (L R S)
	• 3/1 (L C R S)
	• 2/2 (L R SL SR)
	• 3/2 (L C R SL SR)
	ERR:Unknown
	• -
Log Field	Description
---	--
DOLBY_PROG_LFE_CHAN	• OFF
	• ON
	Unknown
DOLBY_PROG_DIALNORM	The dialog norm of selected program:
	• -
	Err:Invalid
	• -1 to -31
DOLBY_ENC_STATUS	Encoding
	ERR:Stopped
	WARN:Pass Through
	ERR:Unknown
DOLBY_ENC_EXT_METADATA_STATUS	ERR:Absent
	ERR:Invalid
	WARN:Valid - no AC-3
	Valid - no Ext BSI
	Valid - inc Ext BSI
	ERR:Unknown
DOLBY_ENC_REVERSION_STATUS	Using Internal
INPUT_ANC_LINE_7= to INPUT_ANC_LINE_23=	The status of incoming ancillary/VBI line ranging from line 7 to 23. Lines above 23 are not reported for 1080p50/59. This information may be concatenated if multiple types are present on a line. If a type is expected on any line and is not present this is shown as LOST.
	Valid examples are:
	• OK:WSS
	• OK:WST
	• LOST:608
	• OK:708
	• LOST:2016/VI
	• OK:OP47
	OK:ATC/LTC

Log Field	Description
OUTPUT_1_ANC_LINE_7= to OUTPUT_1_ANC_LINE_23=	The status of outgoing ancillary/VBI line ranging from line 7 to 23. Lines above 23 are not reported for 1080p50/59. This information may be concatenated if multiple types are present on a line. If a type is expected on any line and is not present this is shown as LOST.
	Valid examples are:
	• OK:WSS
	• OK:WST
	• LOST:608
	• OK:708
	• LOST:2016/VI
	• OK:OP47
	OK:ATC/LTC
INPUT_ASPECT=	4/3 (coded aspect ratio)
	16/9 (coded aspect ratio)
	• _
INPUT_AFD	Coded Frame (active format)
	• 4:3 (center) (4:3 center active format)
	16:9 (center) (16:9 center active format)
	14:9 (center) (14:9 center active format)
	 4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format)
	16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format)
	 16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format)
	Box 16:9(top) (active format)
	Box 14:9(top (active format)
	 Box >16:9(ctr) (center active format)
	Unknown (unknown active format)
	• -
	• None
INPUT_2016_STATE=	The SMPTE 2016 signaling data state:
	 - (not configured)
	 INFO:OK (detected but not configured)
	• FAIL:NO 2016
	• OK
INPUT_2016_ASPECT=	 4/3 (coded aspect ratio)
	16/9 (coded aspect ratio)
	• -

Log Field	Description
INPUT_2016=	The relevant input source for the SMPTE 2016 signaling data:
	Coded Frame (active format)
	• 4:3 (center) (4:3 center active format)
	16:9 (center) (16:9 center active format)
	• 14:9 (center) (14:9 center active format)
	 4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format)
	16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format)
	 16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format)
	Box 16:9(top) (active format)
	Box 14:9(top (active format)
	 Box >16:9(ctr) (center active format)
	Unknown (unknown active format)
	• -
	• None
INPUT_WSS_STATE=	The WSS signaling data state:
	• -
	• OK:ETSI
	OK:AFD
	 INFO:OK:ETSI (detected but not configured)
	 INFO:OK:AFD (detected but not configured)
	FAIL:NO WSS
INPUT_WSS_ASPECT=	4/3 (coded aspect ratio)
	16/9 (coded aspect ratio)
	• -

Log Field	Description			
INPUT_WSS=	The relevant WSS signaling data.			
_	ETSI codes [.]			
	• -			
	Parity Error			
	• Box 14.9 C			
	FAIL : Lost			
	• OK			
	• FAIL:Error			
	• Box 14:9 Top			
	• Box 16:9 Top			
	• FF 16:9 Ana			
	• FF 4:3			
	• Box 16:9 C			
	• Box > 16:9 C			
	• FF4:3 SP 14:9C			
	AFD codes:			
	Coded Frame			
	• 4:3			
	• 16:9			
	• 14:9			
	• (AFD=4)			
	• 4:3 SP 14:9 C			
	• 16:9 SP 14:9 C			
	• 16:9 SP 4:3			
INPUT-VI_STATE=	The VI signaling data state:			
	• -			
	OK:SMPTE			
	• OK:AFD			
	• OK:AFD 2008			
	INFO:OK:SMPTE (detected but not configured)			
	 INFO:OK:AFD (detected but not configured) 			
	 INFO:OK:AFD 2008 (detected but not configured) 			
	FAIL:NO VI			
INPUT_VI_ASPECT=	4/3 (coded aspect ratio)			
	16/9 (coded aspect ratio)			
	• -			

Log Field	Description			
INPUT_VI=	The relevant VI data.			
	AFD codes:			
	Coded Frame			
	• 4:3			
	• 16:9			
	• 14:9			
	• (AFD=4)			
	• 4:3 SP 14:9 C			
	• 16:9 SP 14:9 C			
	• 16:9 SP 4:3			
	AFD 2008:			
	Coded Frame (active format)			
	• 4:3 (center) (4:3 center active format)			
	• 16:9 (center) (16:9 enter active format)			
	• 14:9 (center) (14:9 center active format)			
	 4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format) 			
	 16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format) 			
	 16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format) 			
	Box 16:9(top) (active format)			
	Box 14:9(top) (active format)			
	Box>16:9(ctr) (center active format)			
	Unknown (unknown active format)			
	• -			
	None			
	SMPTE:			
	No Information			
	• 525/4:3			
	• 625/4:3			
	• N/A			
	• 525/16:9			
	• 625/16:9			
OUTPUT_1_ASPECT=	4/3 (coded aspect ratio)			
	16/9 (coded aspect ratio)			

Log Field	Descri	ption
OUTPUT_1_AFD=	•	Coded Frame (active format)
	•	4:3 (center) (4:3 center active format)
	•	16:9 (center) (16:9 center active format)
	•	14:9 (center) (14:9 center active format)
	•	4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format)
	•	16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format)
	•	16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format)
	•	Box 16:9(top) (active format)
	•	Box 14:9(top (active format)
	•	Box >16:9(ctr) (center active format)
	•	-
	•	None

5.33 System Memories

The System-Memories page enables you to save up to 16 memory configurations and recall them when you need to.

You can change the default memory names to more relevant ones if required.

Note: You can store and recall all control in a user memory except for the following sections: Log Enable, RollTrack, GPIO, Memories, ARC memories.

BI/ANC Logging VideScreen Logging	Information IN1:0K 1080/29i *	Information Window O Video Status Audio Insut Status	Card Edge LEDs
ystem-Memories	11/2.1031	Audio Input Status Audio Englishi Status	Douby status
ystem-GPIO	OUT: OK 1080/29i		O AFD Status
Memories		1	
Recall Memory	Save Memory		
None Selected	User Memory 1	^	
	User Memory 2		
	User Memory 3		
	User Memory 4		
	User Memory 5		
	User Memory 6		
	User Memory 7		
	User Memory 8		
	User Memory 9		
	User Memory 10		
	User Memory 11		
	User Memory 12		
	User Memory 13	*	
	Save	ear	
Last Recalled Memory	Save Memory Name		
	P S User Memory 1		

5.33.1 Saving MemorySettings

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

5.33.2 Changing a Memory Name

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

5.33.3 Recalling a Memory

The Recall Memory list recalls the settings saved in a memory location. The Last Recalled Memory box shows the most recently recalled memory. If you change a control after recalling a memory, Last Recalled Memory displays * behind the memory name.

To recall a memory:

 In the Recall Memory column, select the memory you want to recall. The recalled settings are applied and the memory name appears under Last Recalled Memory.

Note:

Memories do not recall log field states, such as whether a log value is enabled or disabled.

5.34 System GPIO

The System-GPIO page enables you to configure GPI functions.

U7:IQSYN33-36 210 WideScreen Logging System-Memories System-GPIO System-RollTracks GPIO	0:07:07 - IQSYN33	080/29i * 080/29i	Information Window
GPIO 1 O Unused Input (GPI1) O Output (GPO1)	Status 1 Not In Use	GPIO 2 Unused Input (GPI2) Output (GPO2)	Not in Use
-GPI 1 (Input High) Vinused Select Input 1 Select Input 2 Black Freeze	GPO 1 (Output) Unused Input OK Input 1 OK Input 2 OK Input 1 Selected	GPI 2 (Input High) Unused Select Input 1 Select Input 2 Black Freeze	GPO 2 (Output) Unused Input OK Input 1 OK Input 2 OK Input 1 Selected
-GPI 1 (Input Low) Unused Select Input 1 Select Input 2 Black Freeze		GPI 2 (Input Low) Unused Select Input 1 Select Input 2 Black Freeze	

5.34.1 GPIO 1 & 2

- Unused: When selected, GPI is inactive.
- **Input:** Configures GPI as an input. This enables you to choose what action occurs when the GPI input is grounded or, if the **Invert** function is selected, becomes open.

You can also configure the GPI to call separate actions for High and Low GPI events. For example, if you require only one action on Input Low:

Under GPI n (Input Low), set to **Select Input 1** and under GPI n (Input High), set to **Unused**.

Alternatively, if you require two distinct actions on high and low transitions, configure both boxes for the required action. For example:

Under GPI1 (Input High), set to **Select Input 1**, and under GPI1 (Input Low), set to **Select Input 2**.

You can use GPI inputs to trigger Input Select, Black, Pattern, Freeze, Memory *n* recall, any ARC Map an so on.

 Output: Configures GPI as an output. This enables you to choose what action occurs to produce an output signal at the GPI connector when the GPI output is driven to ground or, if the Invert function is selected, becomes open.

Note: The GPI outputs have one configuration box. If you select **Unused**, the GPI output is inactive.

5.34.2 Status

The Status box shows whether the GPI inputs or outputs are in use.

5.35 System-RollTracks

The System-RollTracks page allows information to be sent through the RollCall Network to compatible units on the same network.

You can use the RollTrack settings to:

- Enable or disable the RollTrack functions
- Configure up to 32 RollTrack outputs
- Specify the conditions that trigger RollTrack data transmission
- Set RollTrack destinations
- Specify the RollTrack commands to be sent

BI 07:IQSYN33-3G 2100:07:07	- IQSYN33			
System-Memories System-GPIO System-RollTracks System-Setup	Information IN1:OK 1080/291 IN2:LOST OUT: OK 1080/291	*	Information Window Video Status Audio Input Status Reference Status	 Card Edge LEDs Dolby Status AFD Status
RollTrack Output Disable All Index P	Source Unused Video Delay Input Present Input 1 Present Input 2 Present Input Loss Input 1 Loss		ddress 000:00:00*0 P ommand :0 P ollTrack Sending 0 ollTrack Status nknown	5

5.35.1 Disable All

The Disable All check box disables all RollTrack Functions.

5.35.2 Index

The Index slider identifies the RollTrack action being configured. You can create up to 16 RollTrack actions.

5.35.3 Source

The Source list specifies the source of the information that triggers the data transmission.

5.35.4 Address

The full RollTrack address has four sets of numbers, for example, 0000:10:01*99.

- The first set, 0000 in the example, is the network segment code number.
- The second set, 10 in the example, identifies the enclosure/mainframe unit.
- The third set, 01 in the example, identifies the slot number in the unit.
- The fourth set, 99 in the example, is a user-configured number that identifies the destination unit in a multi-unit system. This ensures that only the correct unit responds to commands. If left at 00, an incorrectly fitted unit may respond unexpectedly.

Rolltracks can be internally looped back using address FFFF:00:00.

5.35.5 Command

Each RollTrack command comprises two sets of numbers, for example, 33039:3.

- The first set, 33039 in the example, is the RollTrack command number, which identifies the command.
- The second set, 3 in the example, is the value sent with the command.

5.35.6 RollTrack Sending

Rolltrack Sending shows information when the unit is sending a RollTrack command.

- String: A string value is being sent
- Number: A number value is being sent
- No: The command is not being sent
- Yes: The command is being sent
- Internal Type Error: Inconsistent behavior. Contact your local SAM agent.

5.35.7 RollTrack Status

RollTrack Status shows information about the status of the selected RollTrack Index.

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

5.35.8 Enabling or Disabling RollTrack Functions

• Select or deselect **Disable All**.

5.35.9 Configuring a RollTrack Action

- 1. Select the Index number. This identifies the RollTrack action being configured. (You can create up to 16 RollTrack actions.)
- 2. From the Source list, select the source that will trigger RollTrack transmission.
- 3. In the Address field, enter the RollTrack address and click **S**. To return the value to its default, click **P**.
- 4. In the Command field, enter the RollTrack command and click **S**. To return the value to its default, click **P**.

5.35.10 Viewing RollTrack information

See section 5.35.6 and See section 5.35.7.

5.36 System-Setup

The System-Setup page displays basic information about the unit. You can restore unit settings, restart the unit, and change the default input name.

iystem-Memories iystem-GPIO iystem-RollTracks	Information IN1:0K IN2:LOST	1080/29i *	Information Window Video Status Audio Input Sta Reference State	 ○ Card Edge LEDs atus ○ Dolby Status 	
ystem-Setup	V 001: 0K	1080/291		AFD Status	
Product					
Product IQSYN33-3G	Software Version 5.7 .12		PCB RGMPP1B	Licensed Options SDHD;3G	
Serial No. 550043096	Build 0004803644	KOS V115 Release		Licensed Options 2 OK:0 Option(s)	
Defaults				-Dolby Options	
Default Settings		NT 181		Dolby F/D Decoder	
	INPUT T SERIA	AL IN		Dolby Digital Encoder	
Factory Defaults	Input 2 Name			Dolby E Encoder	
Soft Restart		INPUT 2 SERIAL IN		Software Options	
	, 1			Audio UpMixer	
Hard Restart	J			5.1 Loudness	
Hard Restart (Non-demo)	1	-Time Limited Onti	000	1x2.0 Loudness	
-Remaining Demo Time-		24 Hour Dom	ons.	2x2.0 Loudness	
30[D]:00[H]:00[M]		24 Hour Dem	0	Color Corrector	
-Time before payt restart				1	
01[D]:00[H]:00[M]					
e (felicefuliceful					
FPGA				1	
Software Version 5930	Serial No. 317718		OK		
FPGA Version	Dolby Module	Туре	Protocol Version		
5899	Not Preser	nt	37		
Hardware Build 1507	Program CRC 0xf65aaf10	1	Board Type		
Uptime					

5.36.1 Product Information

- **Product:** The the name of the module.
- Software Version: The software version currently installed.
- **PCB:** The PCB revision number.
- Serial No: The unique serial number.
- **Build:** The factory build number. This number identifies all parameters of the module.
- **KOS:** The operating system version number.
- Licensed Options: The current licensed options.
- Dolby Options: The Dolby encoding and decoding options currently licensed.
- **Software Options:** The software options currently licensed.
- **Default Settings:** Returns all of the module's settings to their preset values, leaving user memories intact.
- **Factory Defaults:** Returns all of the module's settings to their factory preset values. This option clears all user memories.
- Soft Restart: Restarts the module software.
- Hard Restart: Forces a complete power-down and power-up cycle.
- **Hard Restart (Non-demo):** Forces a complete power-down and power-up cycle, restarting the module without any time-limited demo options.

- **Time Limited Options:** The module may be given a time limited license, which enables any or all of the module's licensable options. When you first start the module it will start in demo mode all of the options allowed by the demo license are enabled.
- **Remaining Demo Time:** The time remaining on a demo license. When this reaches zero, the unit only runs the features for which it is officially licensed.
- Time before next restart: The time before the module next restarts.

When the module is running on a demo license it will automatically shut down and restart every 24 hours. The time remaining before the next restart cycle is displayed in the Time before next restart field.

To restart the module without the demo license features enabled, running only the officially licensed options, click **Hard Restart (Non-demo)**.

5.36.2 FPGA

The FPGA section displays information about the FPGA including:

- Software Version
- Serial Number
- Temperature
- FPGA Version
- Dolby Module Type
- Protocol Version
- Hardware Build
- Program CRC
- Board Type
- Uptime