

# 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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# Safety Information

## Explanation of Safety Symbols

**(GB)**

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

## Safety Warnings



"CAUTION: These servicing instructions are for use by qualified personnel only. To reduce risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified personnel."

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

### Power connection in countries other than the USA

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

The colour code for the lead is as follows:

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



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

## Légende :

**(F)**

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

## Précaution d'emploi :



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

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

### Câble secteur de pays autres que les Etats-Unis

L'équipement est livré avec un câble secteur au standard IEC, moulé mâle/femelle.

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

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



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

## Erklärung der Sicherheitssymbole

**(D)**

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

## Sicherheits-Warnhinweise



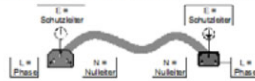
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch beschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation.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

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

### Netzanschluss in anderen Ländern als der USA

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

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



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

## Explicación de los Símbolos de Seguridad

**(ESP)**

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

## Advertencias de Seguridad



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

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

### Conexión de alimentación en otros países que no sean USA.

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

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



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

**Simboli di sicurezza:**



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

**Attenzione:**



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

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

**Connessione elettrica nei paesi diversi dagli Stati Uniti**

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

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



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

**Forklaring på sikkerhedssymboler**



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

**Sikkerhedsadvarsler**



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

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

**Nettilslutning i andre lande end USA**

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

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



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

**Förklaring av Säkerhetssymboler**



- 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 försörd från ett strömssystem som är försedd med jordanslutning (⊕) samt ha en neutral anslutning som lätt identifierbar.
- Vägguttaget som strömförsörjer apparaten bör finnas i närheten samt vara lättillgänglig.

**Strömkontakter i länder utanför USA**

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

- GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)



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

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

**Turvamerkkien selitys**



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

**Turvaohjeita**



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

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

**Sähkökytkentä**

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

- KELTA-VIHREÄ suojamaajohdin E-napaan
- SININEN nolllajohdin 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 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 removê-la e eliminá-la imediatamente de maneira segura. O código de cor para os condutores é o seguinte:

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



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

## Επεξήγηση των Συμβόλων Ασφαλείας



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



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

## Προειδοποίηση Ασφαλείας



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

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

### Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

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

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

ΜΠΛΕ καλώδιο συνδέεται στο N (Ουδέτερο Αγωγό)

ΚΑΦΕ καλώδιο συνδέεται στο L (Αγωγός Φάσης)



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

### 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 <math><15\text{mW}</math>) 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.

# Contents

- Information and Notices** ..... 2
- Safety Information** ..... 3
  
- 1. Introduction** ..... 12
  - 1.1 Description ..... 12
  - 1.2 Block Diagrams ..... 12
    - 1.2.1 IQSYN33 ..... 12
    - 1.2.2 IQMUX33 ..... 13
    - 1.2.3 IQDMX33 ..... 13
  - 1.3 Order Codes ..... 14
    - 1.3.1 IQSYN33 ..... 14
    - 1.3.2 IQMUX33 ..... 14
    - 1.3.3 IQDMX33 ..... 14
    - 1.3.4 Hardware and Software Options ..... 14
  - 1.4 Enclosures ..... 15
    - 1.4.1 B-style Enclosure ..... 15
    - 1.4.2 A-style Enclosures ..... 15
  
- 2. Technical Specification** ..... 16
  - 2.1 IQSYN33 ..... 16
  - 2.2 IQMUX33 ..... 20
  - 2.3 IQDMX33 ..... 25
  
- 3. Connections** ..... 30
  - 3.1 IQSYN33 Rear Panel View ..... 30
  - 3.2 Input Connections ..... 30
  - 3.3 Output Connections ..... 30
  - 3.4 Control Connections ..... 30
  - 3.5 IQMUX33 Rear Panel View ..... 31
    - 3.5.1 Input Connections ..... 31
    - 3.5.2 Output Connections ..... 31
    - 3.5.3 Control Connections ..... 31
  - 3.6 IQDMX33 Rear Panel View ..... 32
    - 3.6.1 Input Connections ..... 32
    - 3.6.2 Output Connections ..... 32
    - 3.6.3 Control Connections ..... 32
  
- 4. Card Edge LEDs** ..... 33
  
- 5. Operation Using the RollCall Control Panel** ..... 34
  - 5.1 Template pages ..... 34
  - 5.2 Information Window ..... 34
    - 5.2.1 Video Status ..... 35
    - 5.2.2 Audio Input Status ..... 35
    - 5.2.3 Reference Status ..... 36
    - 5.2.4 Card Edge LEDs ..... 36
    - 5.2.5 Dolby Status ..... 36
    - 5.2.6 AFD Status ..... 37
  - 5.3 Config-Summary ..... 38
    - 5.3.1 Video Input ..... 38
    - 5.3.2 Video Output ..... 38
    - 5.3.3 Audio Bulk Delay ..... 38
    - 5.3.4 Genlock Timing ..... 39
    - 5.3.5 Audio Outputs ..... 39
  - 5.4 Video-In ..... 40
    - 5.4.1 Input ..... 40
    - 5.4.2 ProcAmp ..... 41
    - 5.4.3 YC Timing ..... 41
    - 5.4.4 CRC/EDH Errors ..... 41



5.5 Video-Backup . . . . .	42
5.5.1 Priority/Reversion . . . . .	42
5.5.2 Input Error Qualification . . . . .	43
5.5.3 Backup State Select . . . . .	43
5.5.4 Master State Select . . . . .	43
5.5.5 Input Select . . . . .	43
5.5.6 Backup (Inp 2) Select . . . . .	43
5.5.7 Master (Inp 1) Select . . . . .	43
5.6 Video-Out . . . . .	44
5.6.1 Standard . . . . .	44
5.6.2 Output Standard Mode . . . . .	44
5.6.3 Output Standard . . . . .	44
5.6.4 Default Output . . . . .	44
5.6.5 Output Mode . . . . .	45
5.6.6 Pattern Type . . . . .	45
5.6.7 User Caption . . . . .	45
5.6.8 Output Routing . . . . .	45
5.6.9 Creating Caption Text . . . . .	45
5.7 Video-Picture . . . . .	46
5.7.1 Luma Clipper . . . . .	46
5.7.2 RGB Legalizer . . . . .	46
5.7.3 Advanced H Enhance . . . . .	46
5.7.4 Color Correction (Option) . . . . .	47
5.8 Delay-Genlock . . . . .	48
5.8.1 Reference Status . . . . .	48
5.8.2 Genlock . . . . .	48
5.8.3 Delay Timing . . . . .	49
5.8.4 Output Standard . . . . .	49
5.8.5 Current Video Delay . . . . .	49
5.8.6 Dolby E Auto Line . . . . .	49
5.9 Video-VBI . . . . .	52
5.9.1 VBI for Standard . . . . .	52
5.9.2 Blank Lines . . . . .	52
5.10 Video-Widescreen . . . . .	53
5.10.1 AFD Display Mapping . . . . .	53
5.10.2 Global Preset . . . . .	53
5.10.3 Input . . . . .	54
5.10.4 Output . . . . .	54
5.10.5 Read/Write Mapping . . . . .	55
5.10.6 4:3 Aspect Ratio and 16:9 Aspect Ratio . . . . .	55
5.11 Aud-In-Disembed . . . . .	56
5.11.1 Disembed 1–8 . . . . .	56
5.12 Aud-In-AES1-4/8 . . . . .	57
5.12.1 AES Inputs 1–4 . . . . .	57
5.13 Aud-In-Analog . . . . .	58
5.13.1 Analog Inputs 1 & 2 . . . . .	58
5.14 Dolby-Decoder (Option) . . . . .	59
5.14.1 Decoder Source . . . . .	59
5.14.2 Detect Mode . . . . .	59
5.14.3 AES Channel Select . . . . .	59
5.14.4 PCM Latency . . . . .	60
5.14.5 Dolby D Listening Mode . . . . .	60
5.14.6 Dynamic Range . . . . .	60
5.14.7 Downmix Channel (ML/MR) . . . . .	60
5.14.8 Metadata Prog . . . . .	61
5.14.9 Program Descriptor . . . . .	61
5.14.10 Output Channel Assignment . . . . .	61
5.14.11 Decoder Status . . . . .	61
5.14.12 Metadata Status . . . . .	61
5.14.13 CRC Error Counts . . . . .	61
5.15 Dolby-Decoder-Out . . . . .	62

5.15.1 MasterGain . . . . .	62
5.15.2 Dolby Dec Controls . . . . .	62
5.16 Aud-Routing-In . . . . .	63
5.16.1 Available Sources . . . . .	63
5.16.2 Input Routing . . . . .	63
5.16.3 Routed Pairs . . . . .	63
5.17 Aud-Setup . . . . .	64
5.17.1 Audio Bus Delays - Relative to Video Delay . . . . .	64
5.17.2 PCM Output Monitoring . . . . .	65
5.17.3 Test Tones . . . . .	65
5.18 Aud-Routing-Out-Embed . . . . .	66
5.18.1 Available Sources . . . . .	66
5.18.2 Output Routing . . . . .	66
5.18.3 Embedded Output . . . . .	67
5.18.4 Embedded Default Routing . . . . .	67
5.19 Audio-Routing-Out-AES1-4/8 . . . . .	68
5.19.1 Available Sources . . . . .	68
5.19.2 Output Routing . . . . .	68
5.19.3 AES Outputs 1-4 and 5-8 . . . . .	69
5.20 Audio-Routing-Out-Analog . . . . .	70
5.20.1 Available Sources . . . . .	70
5.20.2 Output Routing . . . . .	71
5.20.3 Analog Outputs . . . . .	71
5.20.4 Analog Default Routing . . . . .	71
5.21 Loud Monitoring . . . . .	72
5.21.1 RollCall Updates . . . . .	73
5.21.2 Display Mode . . . . .	73
5.21.3 Monitor 1 and 2 . . . . .	73
5.21.4 Available Sources . . . . .	73
5.22 Loud EBU R128 . . . . .	74
5.22.1 Loudness Metering 1 - 2 . . . . .	75
5.22.2 Loudness History . . . . .	75
5.22.3 Graph Settings . . . . .	76
5.23 Aud-Mixer . . . . .	78
5.23.1 Mixer Select . . . . .	78
5.23.2 Available Sources . . . . .	78
5.24 Aud-Loudness-Upmix (Option) . . . . .	79
5.24.1 Algorithm Type . . . . .	80
5.24.2 Master Level . . . . .	80
5.24.3 Preset . . . . .	80
5.24.4 Bypass . . . . .	80
5.24.5 Mode . . . . .	80
5.24.6 CrossFade to Bypass and CrossFade to Upmix . . . . .	80
5.24.7 Status . . . . .	81
5.24.8 Detection Threshold . . . . .	81
5.24.9 Center Width . . . . .	81
5.24.10 Surround Depth . . . . .	82
5.24.11 Available Sources . . . . .	82
5.25 Aud-Loudness-Custom-1 and 2 (Option) . . . . .	83
5.25.1 Name . . . . .	83
5.25.2 Recall Preset . . . . .	83
5.25.3 Copy/Recall . . . . .	84
5.25.4 Input AGC (Automatic Gain Control) . . . . .	84
5.25.5 Parametric EQ 1–3 . . . . .	84
5.25.6 Multiband AGC . . . . .	84
5.25.7 Output . . . . .	85
5.26 Aud-Out-Embed . . . . .	86
5.26.1 Embed 1-8 . . . . .	86
5.26.2 Status . . . . .	86
5.26.3 Group Embed 1–4 . . . . .	86
5.26.4 Input Chan Source . . . . .	86

5.27 Dolby-Encoder-In (Option) . . . . .	87
5.27.1 A1–D8 . . . . .	87
5.27.2 Available Sources . . . . .	87
5.27.3 Input Routing . . . . .	87
5.28 Dolby (D)-Encoder-In (Option) . . . . .	88
5.28.1 A1–C6 . . . . .	88
5.28.2 Available Sources . . . . .	88
5.28.3 Input Routing . . . . .	88
5.29 Dolby-D Encoder-Ctrl (Option) . . . . .	89
5.29.1 Ext Prog Config . . . . .	89
5.29.2 Metadata Source . . . . .	89
5.29.3 Meta Revert . . . . .	90
5.29.4 Bit Depth . . . . .	90
5.29.5 Program Descriptor . . . . .	90
5.29.6 Input Channel Assignment . . . . .	90
5.29.7 Internal Metadata . . . . .	90
5.30 Dolby-D Encoder-Status (Option) . . . . .	92
5.30.1 Encoder . . . . .	92
5.30.2 External Metadata . . . . .	92
5.30.3 Metadata Source . . . . .	92
5.30.4 Program Descriptor . . . . .	92
5.30.5 Input Channel Assignment . . . . .	93
5.30.6 Output Metadata Status . . . . .	93
5.31 Dolby Metadata . . . . .	94
5.31.1 Input Metadata Source . . . . .	94
5.31.2 RS485 Port . . . . .	94
5.31.3 SMPTE2020 Embedder . . . . .	94
5.32 Logging . . . . .	95
5.32.1 Logging-Misc . . . . .	95
5.32.2 Logging-Video-In . . . . .	96
5.32.3 Logging-Video-Out . . . . .	97
5.32.4 Logging-Aud-Embed . . . . .	98
5.32.5 Logging-Aud-AES1-4/8 . . . . .	99
5.32.6 Logging-Aud-Analog . . . . .	100
5.32.7 Logging-Aud-Emb-Dolby . . . . .	100
5.32.8 VBI/ANC Logging . . . . .	101
5.32.9 Widescreen Logging . . . . .	102
5.32.10 Log Field Descriptions . . . . .	103
5.33 System Memories . . . . .	116
5.33.1 Saving MemorySettings . . . . .	116
5.33.2 Changing a Memory Name . . . . .	116
5.33.3 Recalling a Memory . . . . .	116
5.34 System GPIO . . . . .	117
5.34.1 GPIO 1 & 2 . . . . .	117
5.34.2 Status . . . . .	117
5.35 System-RollTracks . . . . .	118
5.35.1 Disable All . . . . .	118
5.35.2 Index . . . . .	118
5.35.3 Source . . . . .	118
5.35.4 Address . . . . .	118
5.35.5 Command . . . . .	119
5.35.6 RollTrack Sending . . . . .	119
5.35.7 RollTrack Status . . . . .	119
5.35.8 Enabling or Disabling RollTrack Functions . . . . .	119
5.35.9 Configuring a RollTrack Action . . . . .	119
5.35.10 Viewing RollTrack information . . . . .	119
5.36 System-Setup . . . . .	120
5.36.1 Product Information . . . . .	120
5.36.2 FPGA . . . . .	121

# 1. Introduction

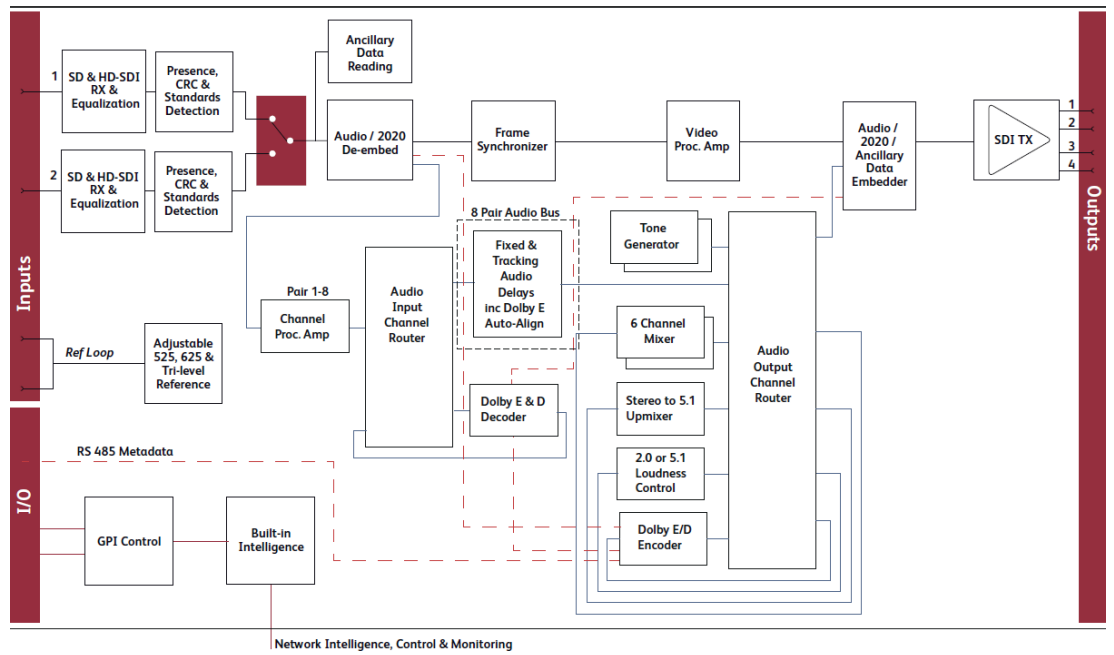
## 1.1 Description

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.

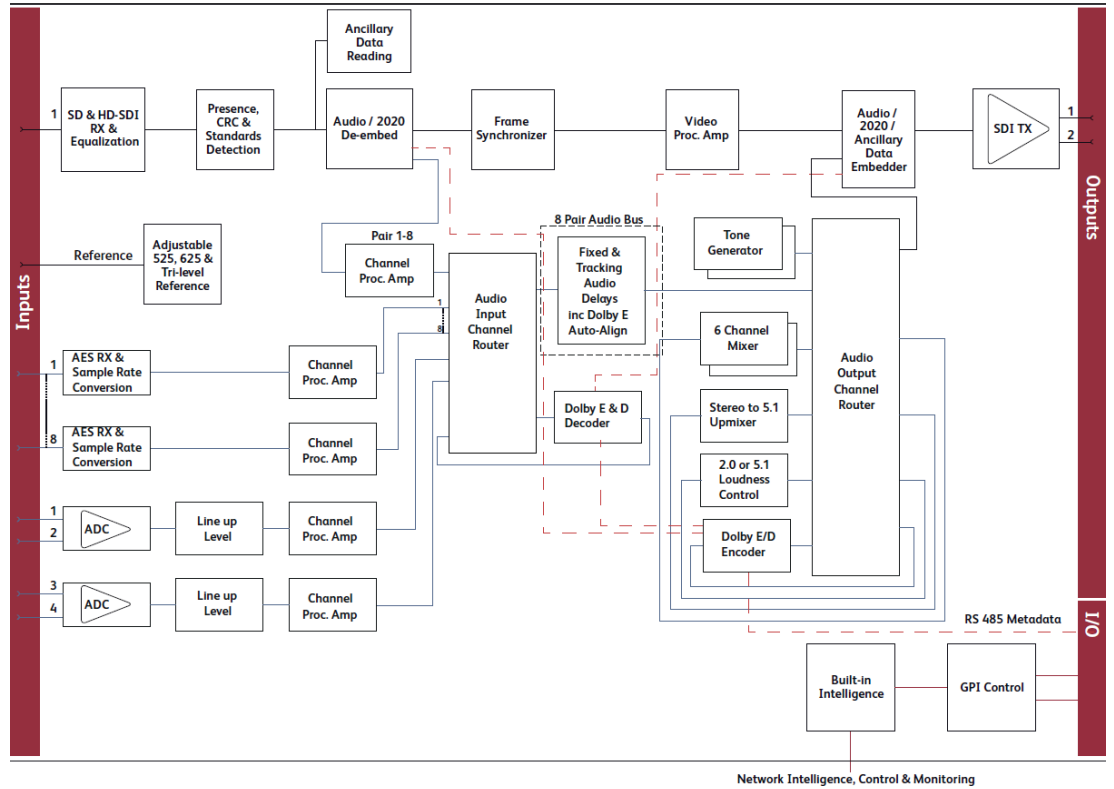
In addition, the modules can be tailored to provide color correction for video, and advanced audio processing such as Dolby E/D encoding or decoding, stereo to 5.1 upmixing, and loudness processing.

## 1.2 Block Diagrams

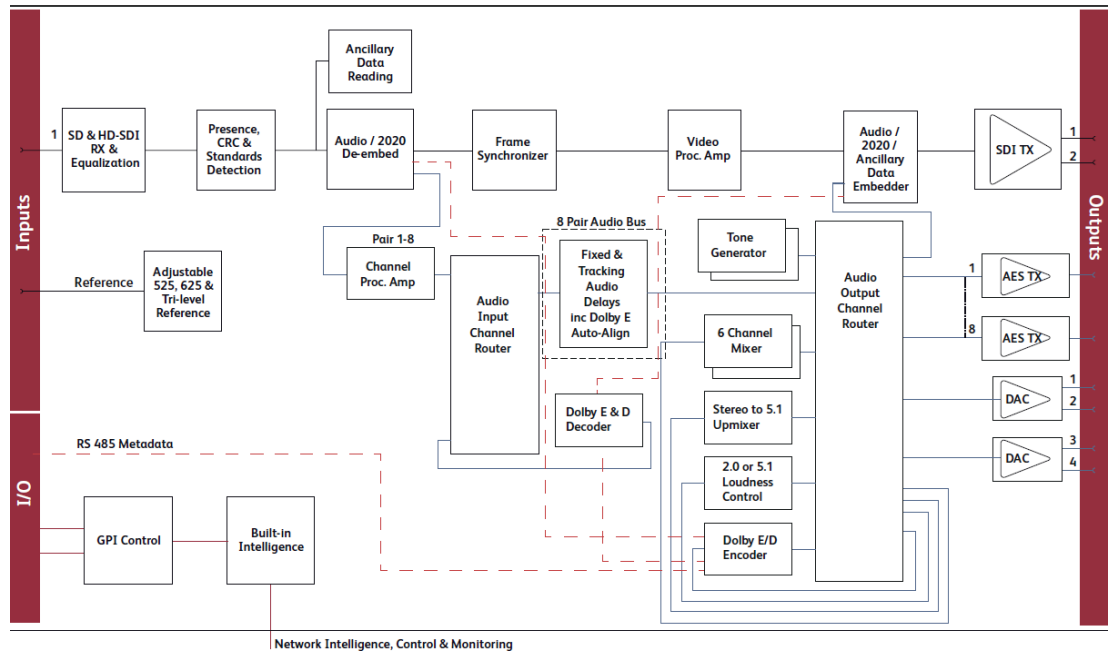
### 1.2.1 IQSYN33



### 1.2.2 IQMUX33



### 1.2.3 IQDMX33



## 1.3 Order Codes

**Note:**

Modules with “A” order codes (for example, IQSYN3354-2**A**3) can be fitted into either A- or B-style enclosures. Modules with “B” order codes (for example, IQSYN3354-2**B**3) 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	3G/HD/SD-SDI frame synchronizer with advanced audio processing.
IQSYN3300-2B3	2 SDI inputs, reference loop, 4 SDI outputs, relay bypass, 2 GPI/Os.

### 1.3.2 IQMUX33

IQMUX3352-2A3	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.
IQMUX3352-2B3	
IQMUX3363-2A3	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.
IQMUX3363-2B3	

### 1.3.3 IQDMX33

IQDMX3352-2A3	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.
IQDMX3352-2B3	
IQDMX3363-2A3	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.
IQDMX3363-2B3	

### 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



**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.

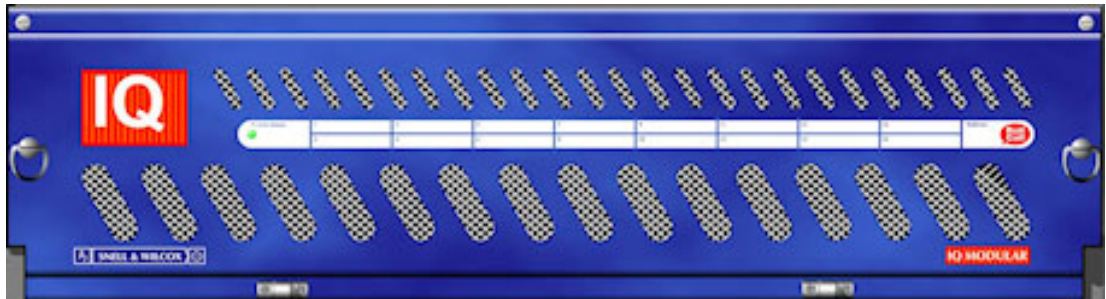
#### 1.4.2 A-style Enclosures



**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	
<b>Video Signal Inputs</b>	
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
<b>Video Signal Outputs</b>	
SDI Outputs	x 4
<b>Control Interface</b>	
GPI	2 x Closing contact I/O interface (ST)
<b>Controls</b>	
<b>Genlock and Video Delay</b>	
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
	<b>Note:</b> 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
<b>Video Controls</b>	
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
<b>Audio Controls</b>	
<b>Audio In - Embedded</b>	
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
<b>Audio Out - Embedded</b>	
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
<b>Audio Routing</b>	
	<i>* indicates an optional feature</i>
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*
<b>Audio Setup Controls - BUS 1–8</b>	
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
<b>Dolby Decoder</b>	
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
<b>Dolby Encoder</b> <i>* indicates an optional feature</i>	
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)
<b>Audio Mixers</b>	
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
<b>Other Controls</b>	
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 70 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, 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

<b>Inputs and Outputs</b>	
<b>Video Signal Inputs</b>	
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
<b>Video Signal Outputs</b>	
SDI Outputs	x 2
<b>Audio Signal Inputs</b>	
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))
<b>Controls</b>	
<b>Genlock and Video Delay</b>	
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
<b>Video Controls</b>	
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
<b>Audio Controls</b>	
<b>Audio In - Embedded</b>	
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
<b>Audio Out - Embedded</b>	
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
<b>Audio In - AES</b>	
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
<b>Audio In - Analog</b>	
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
<b>Audio Routing</b>	
	<i>* indicates an optional feature</i>
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*
<b>Audio Setup Controls - BUS 1–8</b>	
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)
<b>Dolby Decoder</b>	
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
<b>Dolby Encoder</b>	<i>* indicates an optional feature</i>
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)
<b>Audio Mixers</b>	
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
<b>Other Controls</b>	
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
<b>Specifications</b>	
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 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
<b>Digital Audio Input (Unbalanced)</b>	
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
<b>Digital Audio Input (Balanced)</b>	
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

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**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	23 W (A Frame)
Consumption	21.5 LU (B Frame)

**Note:** *Dolby option adds 2.5 W (PR)*

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## 2.3 IQDMX33

<b>Inputs and Outputs</b>	
<b>Video Signal Inputs</b>	
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
<b>Video Signal Outputs</b>	
SDI Outputs	x 2
<b>Audio Signal Outputs</b>	
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))
<b>Controls</b>	
<b>Genlock and Video Delay</b>	
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
<b>Video Controls</b>	
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
<b>Audio Controls</b>	
<b>Audio In - Embedded</b>	
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
<b>Audio Out - Embedded</b>	
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
<b>Audio Out - AES</b>	
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
<b>Audio Out - Analog</b>	
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
<b>Audio Routing</b>	
	<i>* indicates optional feature</i>
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*
<b>Audio Setup Controls - BUS 1–8</b>	
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)
<b>Dolby Decoder</b>	
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
<b>Dolby Encoder</b> <i>* indicates an optional feature</i>	
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)
<b>Audio Mixers</b>	
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
<b>Other Controls</b>	
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
<b>Specifications</b>	
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 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
<b>Digital Audio Output (Unbalanced)</b>	
Connector/Format	BNC
Level	1 V p-p typical into 75 Ohms
Standard	AES3-1992, SMPTE 272M-A-1994, SMPTE 299M
<b>Digital Audio Output (Balanced)</b>	
Connector/Format	25 W D
Level	3 V p-p typical into 110 Ohms
Standard	AES3, SMPTE 272M-A-1994, SMPTE 299M
<b>Analog Audio Outputs</b>	
Output Level	Adjustable +12 dBu to +24 dBu

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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

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**Power Consumption**

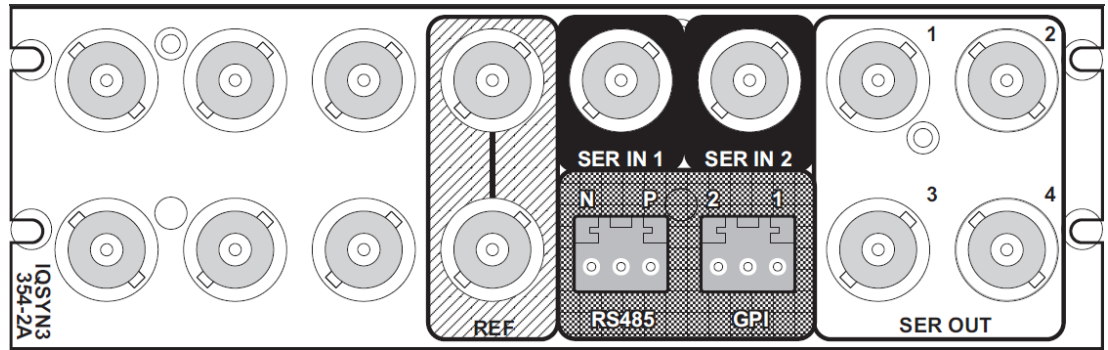
Module Power	23 W (A Frame)
Consumption	21.5 LU (B Frame)

**Note:** *Dolby option adds 2.5 W (PR)*

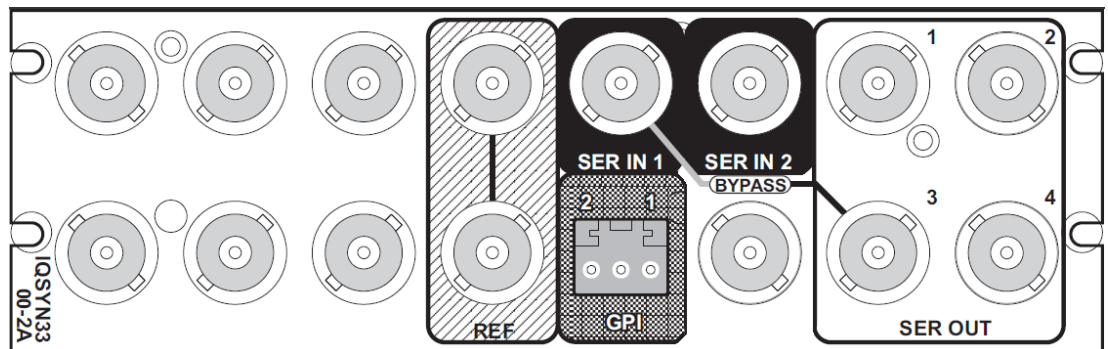
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### 3. Connections

#### 3.1 IQSYN33 Rear Panel View

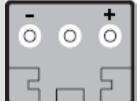


**IQSYN3354-2A(B)3**



**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.



#### 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

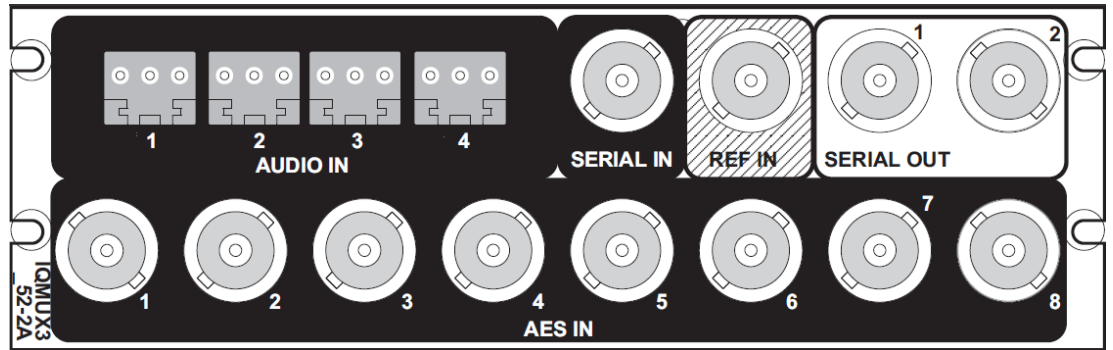
#### 3.3 Output Connections

Label	Description	Connector
SER OUT	SDI outputs	4 x BNC

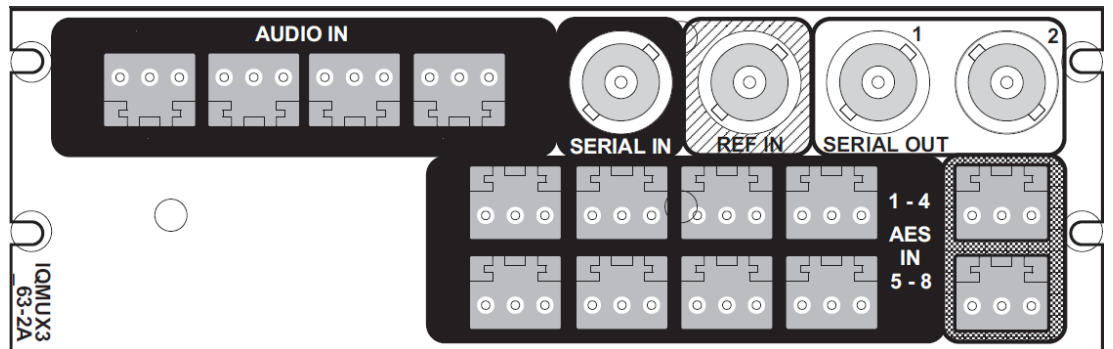
#### 3.4 Control Connections

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

### 3.5 IQMUX33 Rear Panel View

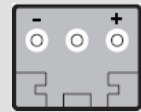


**IQMUX3352-2A(B)3**



**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.



#### 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)

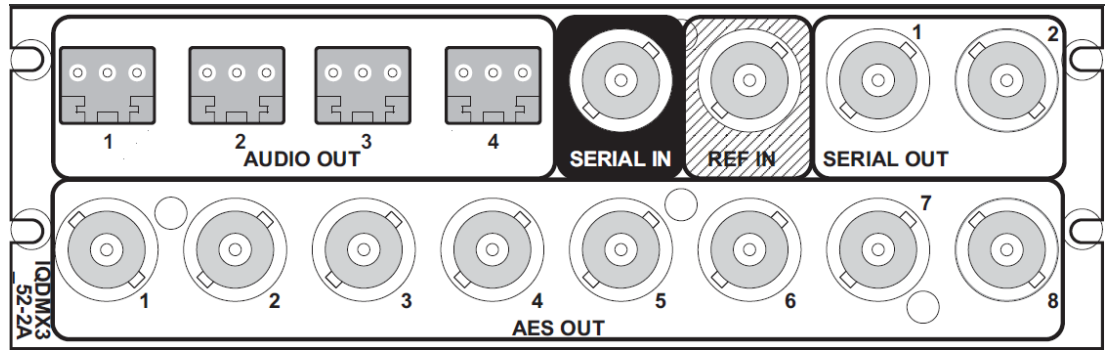
#### 3.5.2 Output Connections

Label	Description	Connector
SERIAL OUT	SDI outputs	2 x BNC

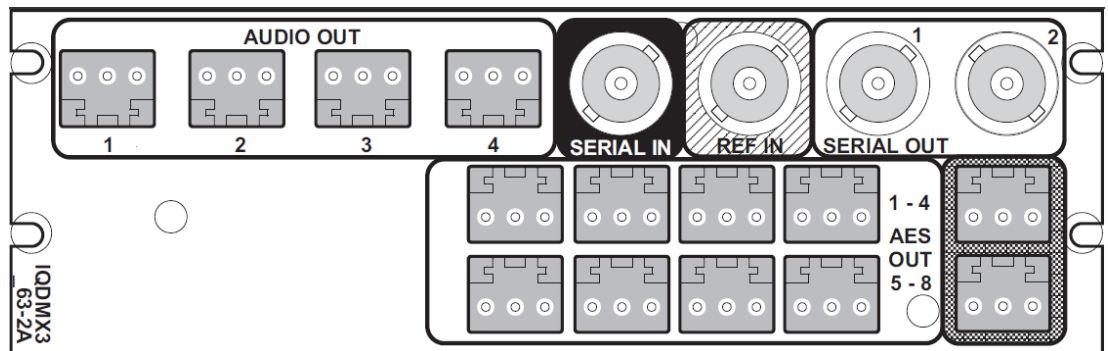
#### 3.5.3 Control Connections

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

### 3.6 IQDMX33 Rear Panel View

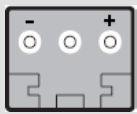


**IQDMX3352-2A(B)3**



**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.



#### 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)

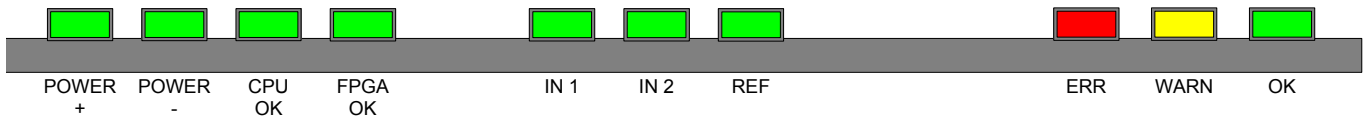
#### 3.6.3 Control Connections

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



## 4. Card Edge LEDs

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



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.
		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.
		Flashing	An incorrect frame rate reference is present.
ERR	Red	Illuminated	Board fault conditions. LED is illuminated in the event of: <ul style="list-style-type: none"> <li>• Primary input fail</li> <li>• License error</li> <li>• FPGA comms failure</li> <li>• FPGA upgrading</li> <li>• FPGA overheat</li> <li>• FPGA demo reboot reminder 5 mins, 3 mins, 60 secs</li> </ul>
WARN	Yellow	Illuminated	Board warning conditions. LED is illuminated in the event of: <ul style="list-style-type: none"> <li>• CRC errors</li> <li>• License minor faults</li> <li>• Video pattern, freeze, black or caption</li> <li>• Audio routing mismatch (data/PCM mixed)</li> <li>• Configured reference not valid</li> <li>• FPGA overheat warning</li> </ul>
OK	Green	Illuminated	The module is operating correctly.

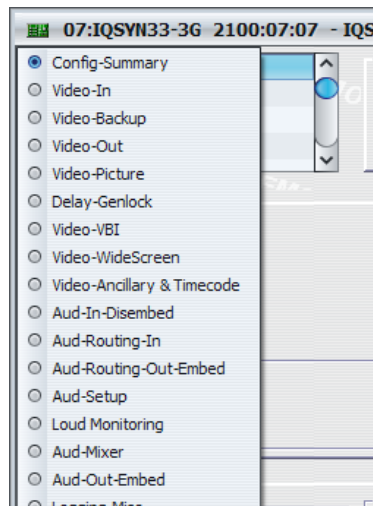
## 5. Operation Using the RollCall Control Panel

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.

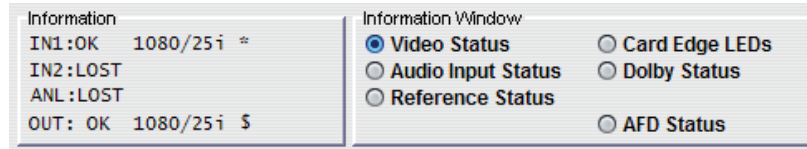
To select a template, choose one from the list. Alternatively, right-click anywhere on-screen in an opened template and choose one from the list.

### 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.

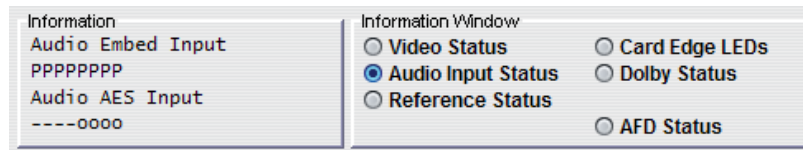
### 5.2.1 Video Status



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

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

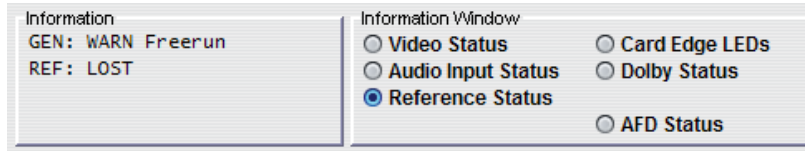
### 5.2.2 Audio Input Status



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

Information	Status	Description
Audio Embed Input	P	The channel is a PCM audio input.
Audio AES 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.

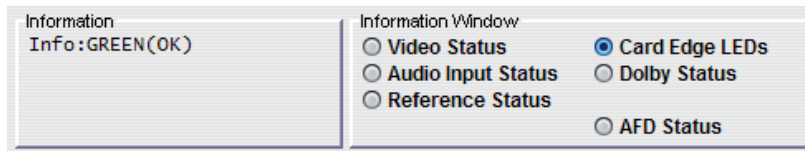
### 5.2.3 Reference Status



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	

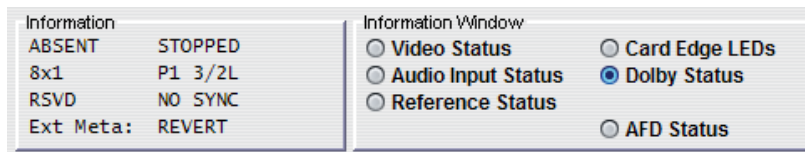
### 5.2.4 Card Edge LEDs



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

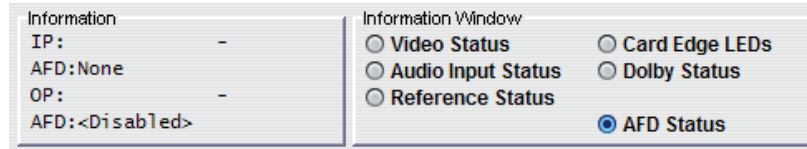


With **Dolby Status** selected, the Information Window displays the following information:

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.

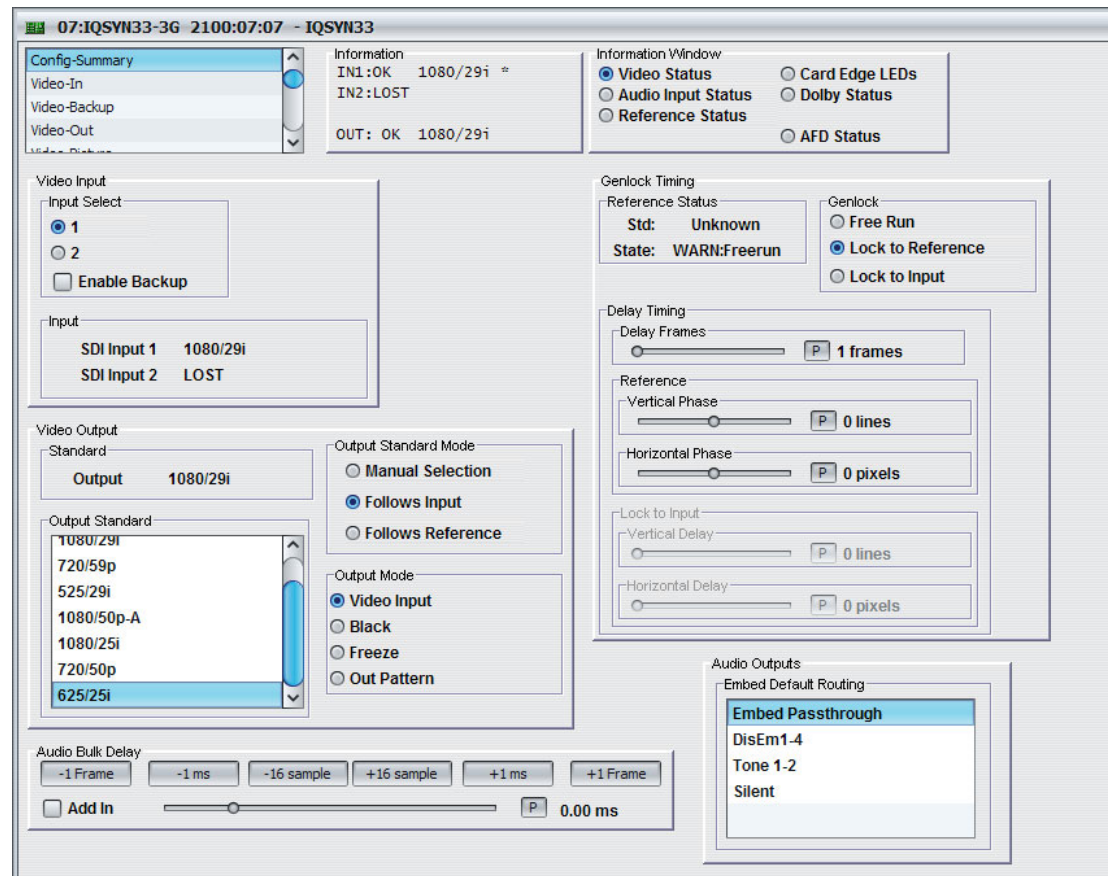
### 5.2.6 AFD Status



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.



### 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:** Adjusts the video delay. The adjustment range is standards dependent. See Video Delay Frames on page 16.
  - **Vertical Phase:** Adjusts the video delay  $\pm 1$  line when locked to reference.
  - **Horizontal Phase:** Adjusts the video delay  $\pm$ Max pixels when locked to reference.
  - **Vertical Delay:** Adjusts the video delay  $\pm$ Max lines when locked to input.
  - **Horizontal Delay:** Adjusts the video delay  $\pm$ Max lines when locked to input.

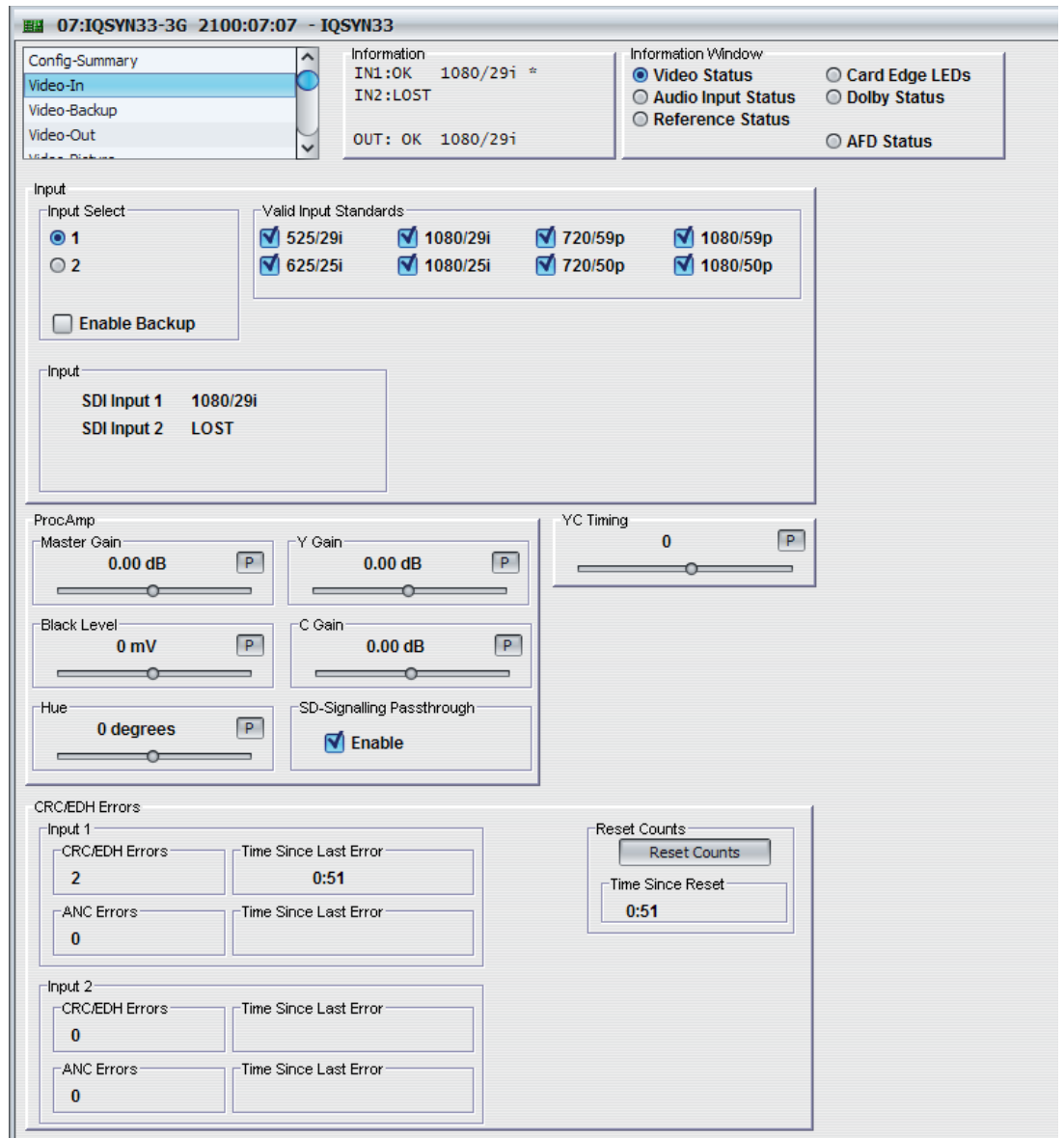
*Note: Delay frames, horizontal, and vertical settings are stored and restored per output standard. You can only configure settings for each standard when outputting that actual standard.*

### 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.



### 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  $\pm 200$  mV in steps of 1 mV. The preset value is 0 mV.
- **Hue:** Adjusts the hue  $\pm 180$  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/EDH 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.

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.

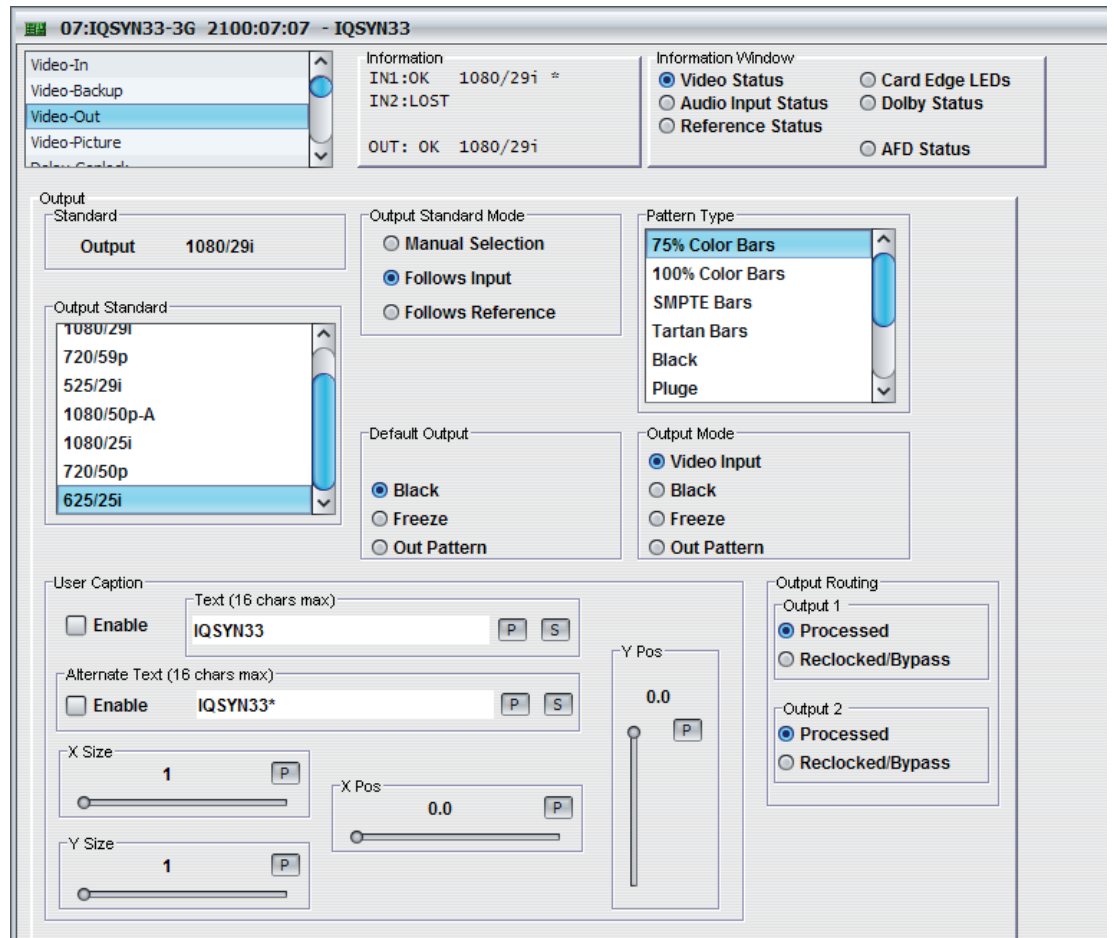
- **Master (Inp 1) Carrier Detect Fail:** Switches to input 2 if input 1 detects no signal, after the time set on the Delay slider.
- **Master (Inp 1) Invalid Standard:** Switches to input 2 if input 1 detects an invalid signal, after the time set on the Delay slider.
- **Master (Inp 1) Error:** Switches 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.



### 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.

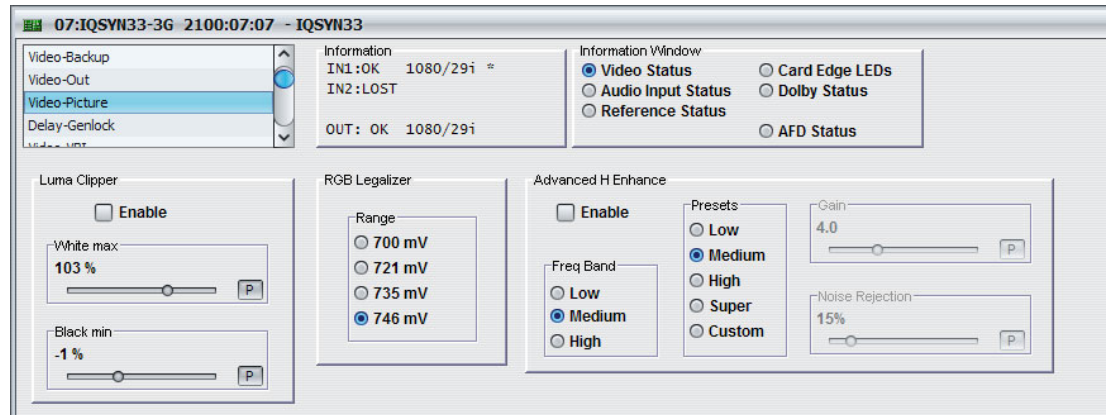
### 5.6.9 Creating Caption Text

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.



### 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)

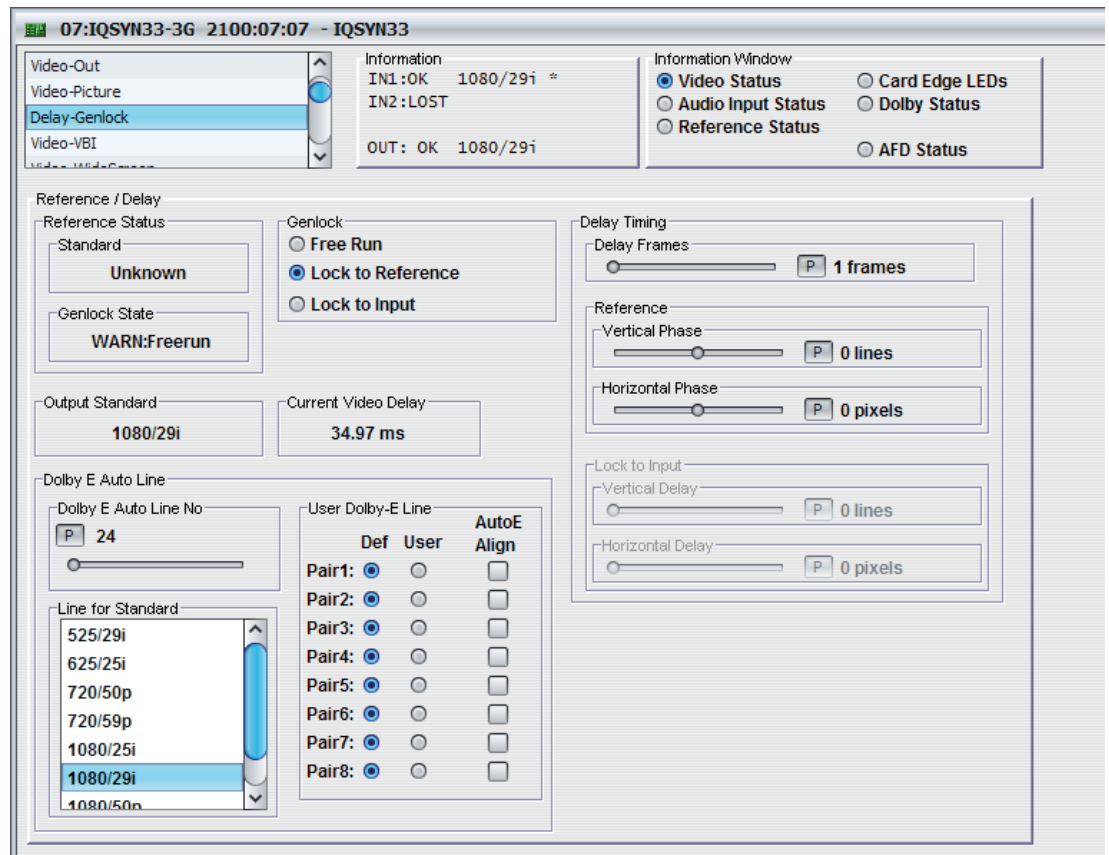
The Color Correction controls enable you to add color correction to the individual RGB channels.

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.



### 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:**

**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  $\pm 1$  line when locked to reference.
- **Horizontal Phase:** Adjusts the video delay  $\pm$ Max pixels when locked to reference.
- **Vertical Delay:** Adjusts the video delay  $\pm$ Max lines when locked to input.
- **Horizontal Delay:** Adjusts the video delay  $\pm$ 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  $\pm 0.5$  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.

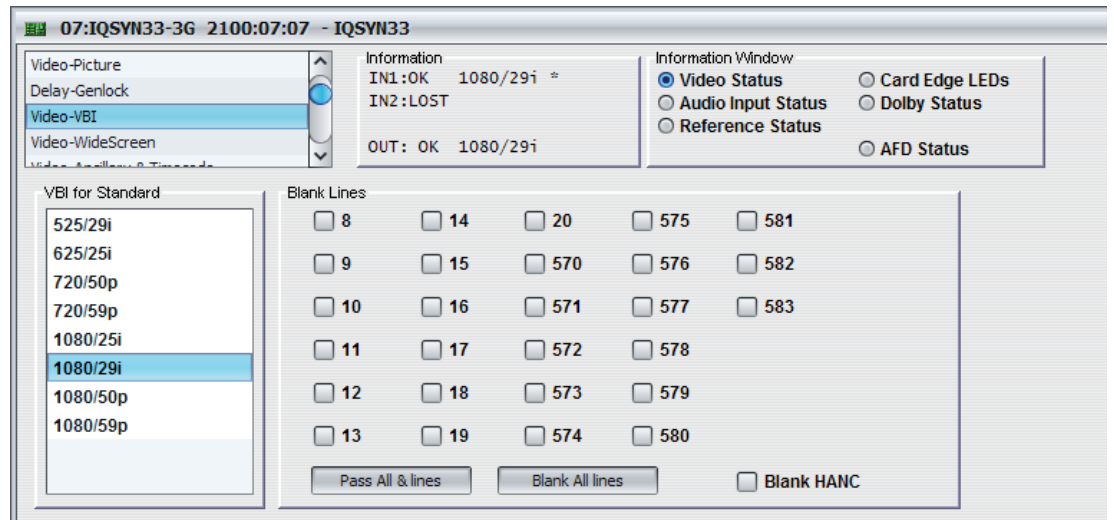
- **User Dolby E Line:** Enables automatic Dolby E alignment and specifies whether the uses the defined Dolby E line or the user-defined Dolby E line.

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.



### 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

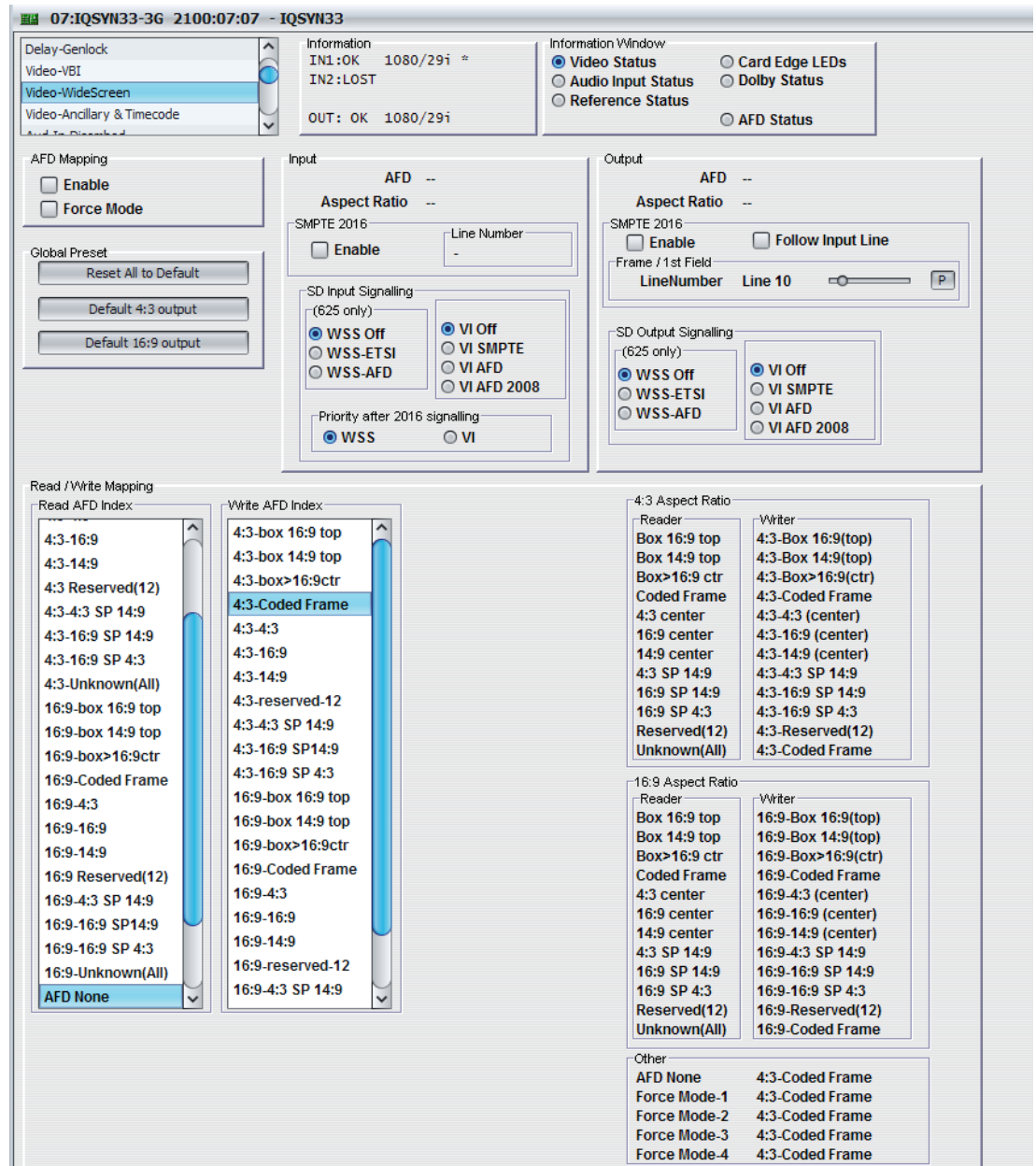
- **Pass All Lines:** Passes all displayed vertical interval lines to the output signal.
- **Blank All Lines:** Prevents all displayed vertical interval lines from being passed to the output.
- **Blank HANC:** Blanks horizontal ancillary data.

*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 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:

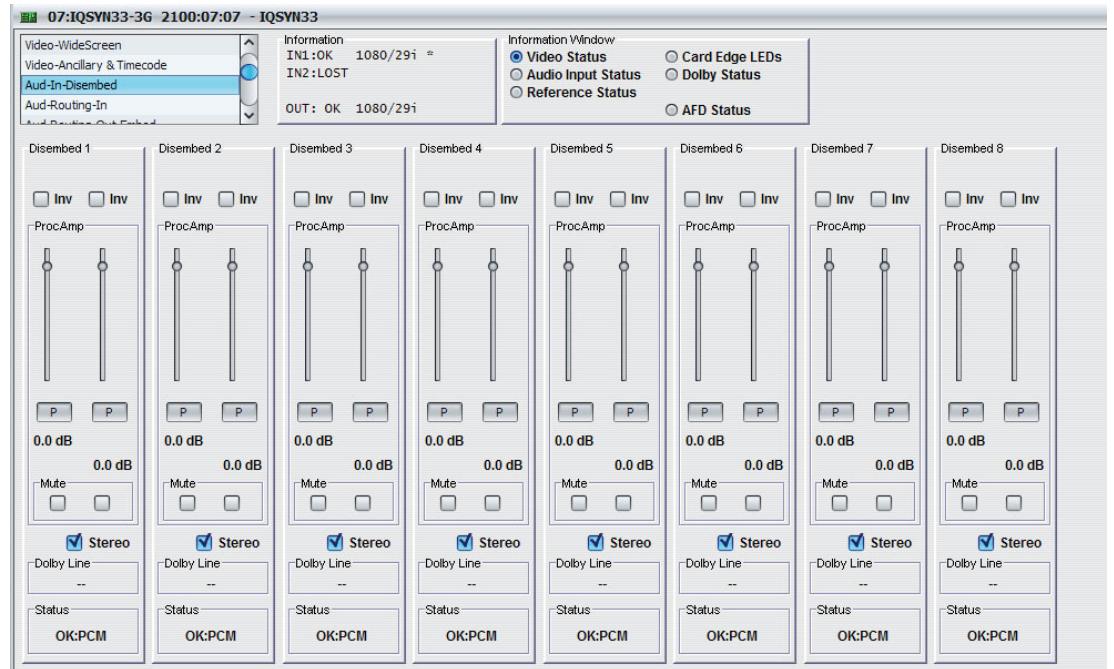
Select an option from the Read AFD Index and then from the Write AFD Index.

### 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.



### 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.

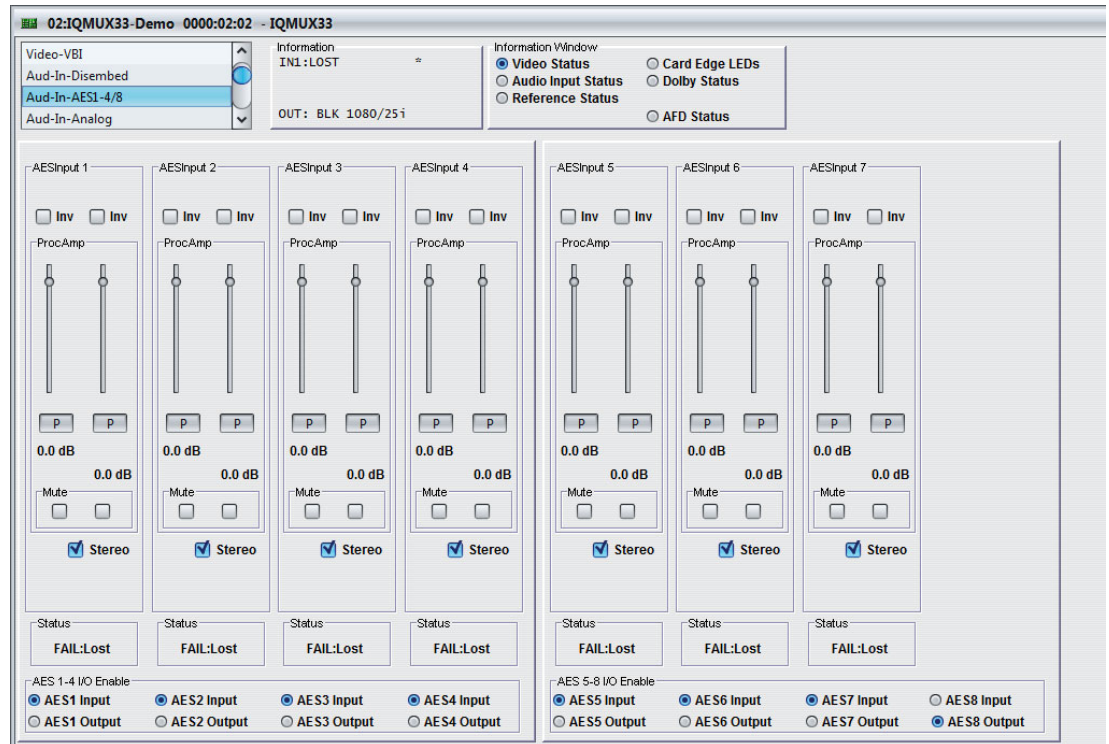
You can use the left and right controls separately by deselecting the **Stereo** check box.

- **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.



### 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.

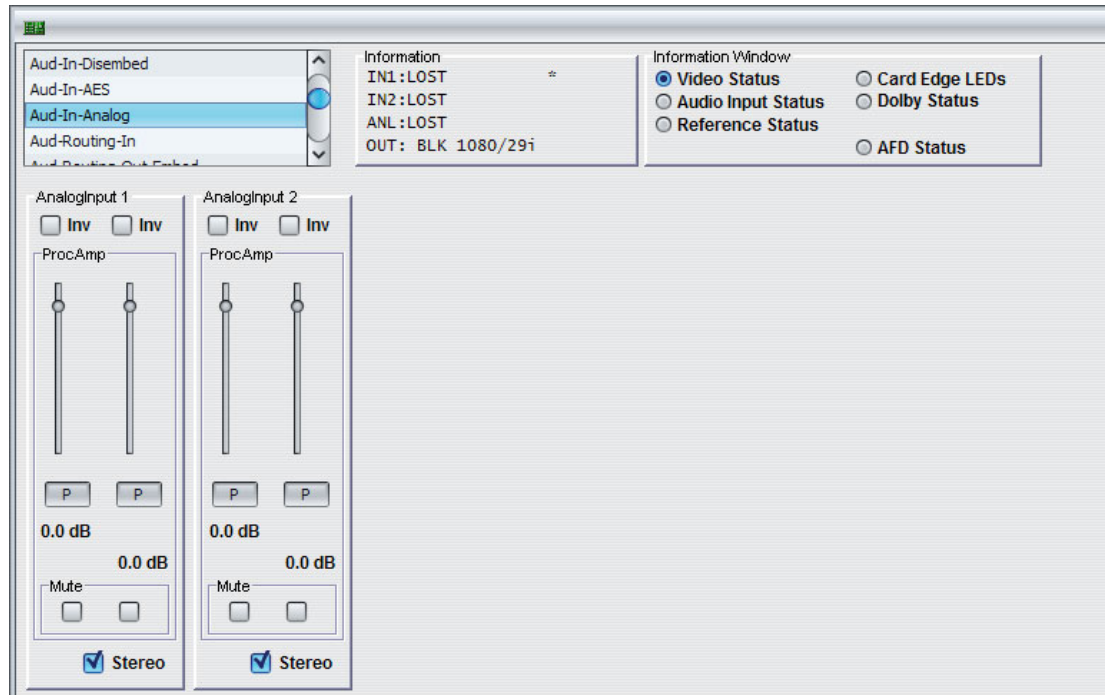
**Note:** If an AES *n* is configured as an output, the gain controls are hidden.



## 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.



### 5.13.1 Analog Inputs 1 & 2

You can make adjustments for each analog input pair.

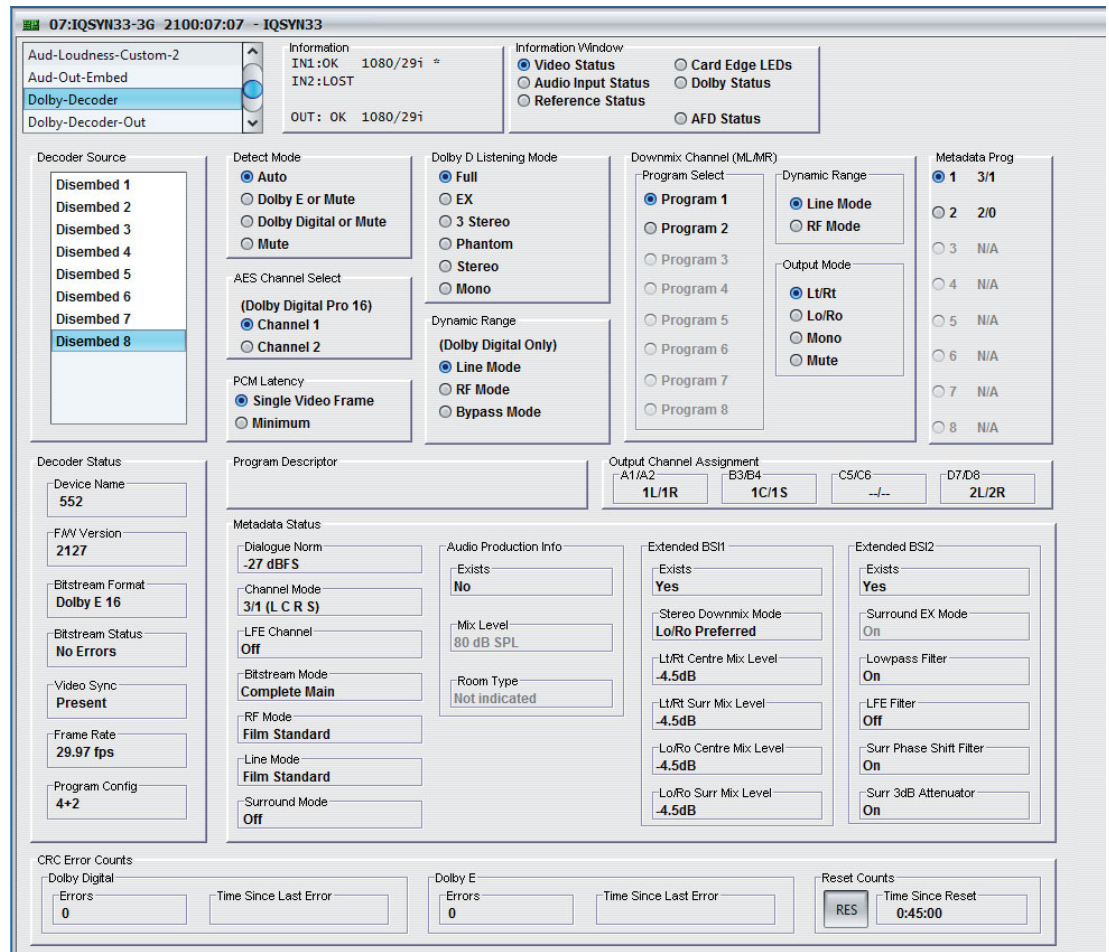
- **Inv:** Inverts the signal polarity.
- **ProcAmp:** Adjusts the gain of the channel. The preset is 0 dB.

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.



### 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.

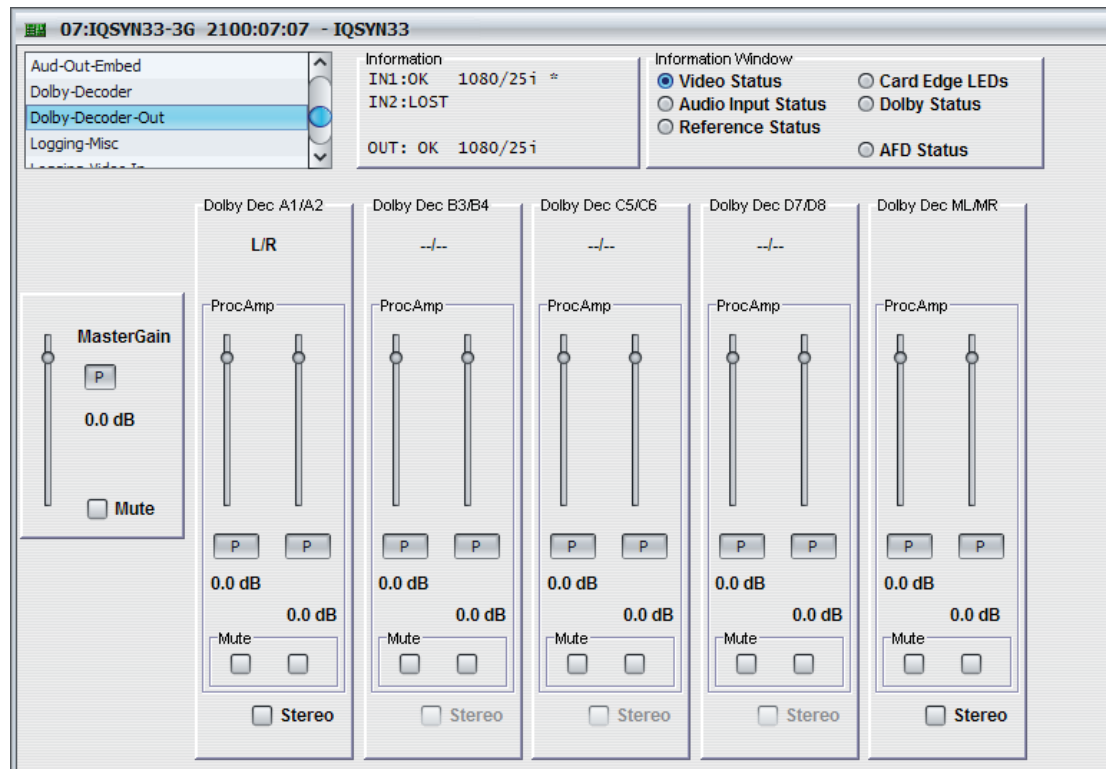
#### 5.14.13 CRC Error Counts

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.

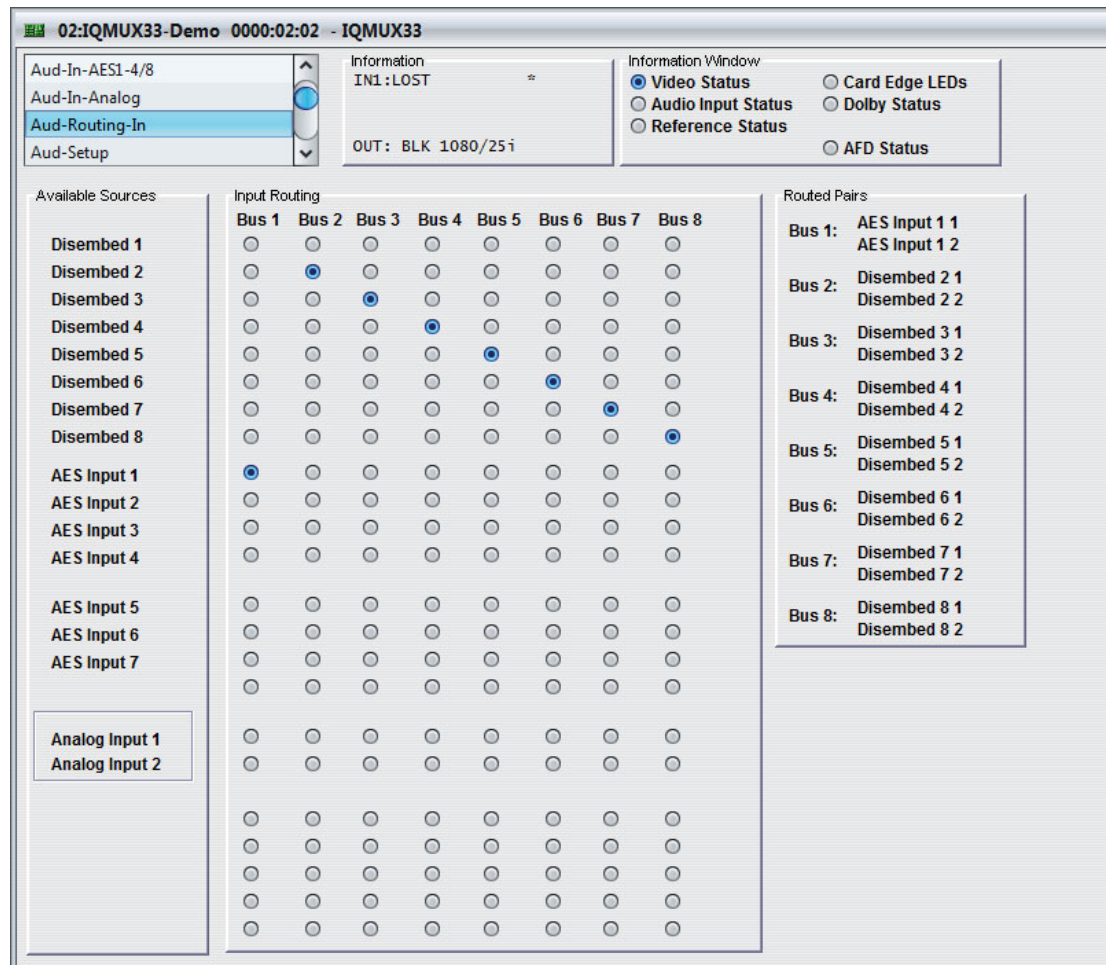
You can mute the output by selecting the **Mute** check box.

#### 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.



#### 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

### 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.

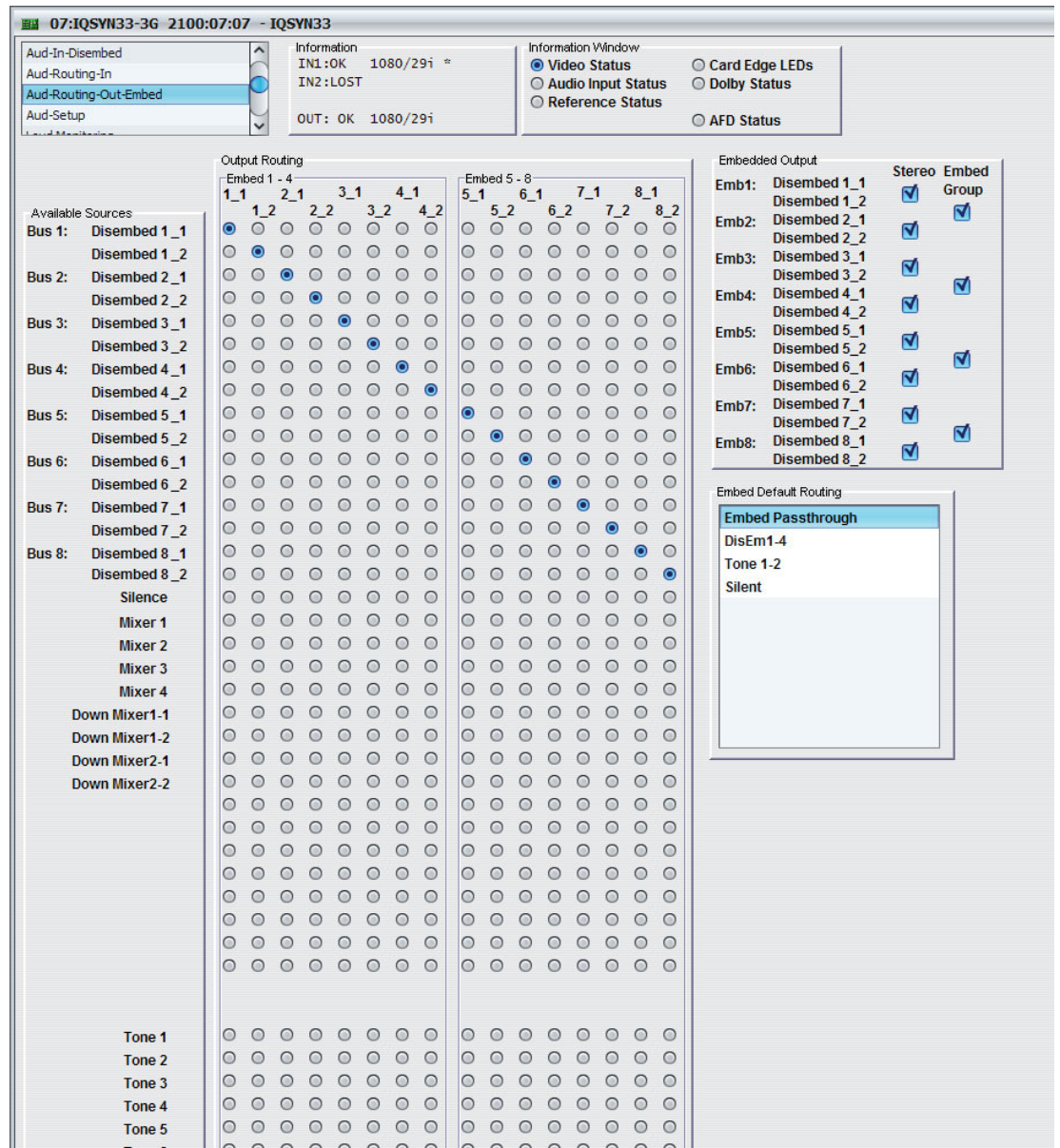
### 5.17.3 Test Tones

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.



### 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.

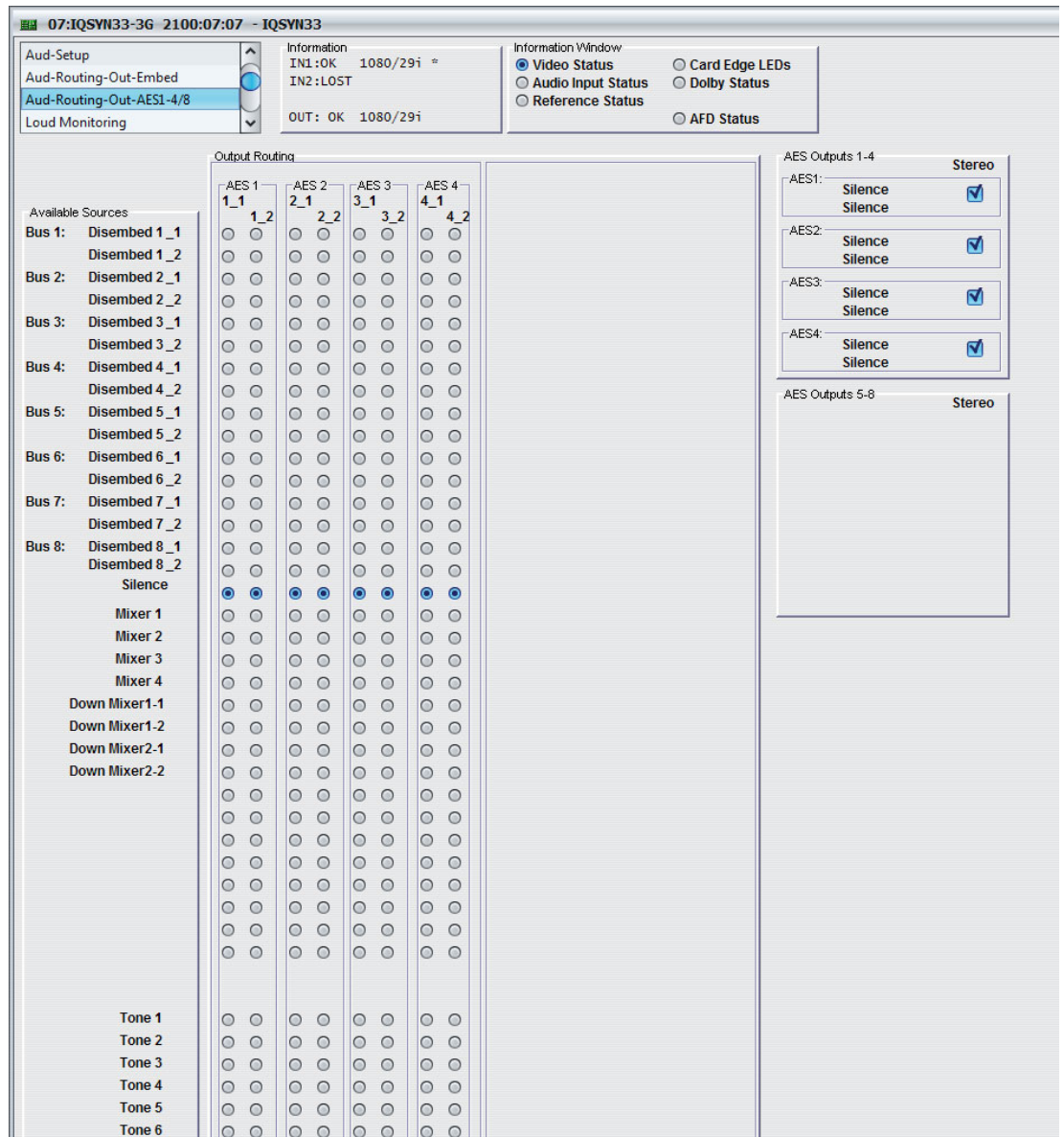
You can link each output pair together as a stereo pair by selecting the **Stereo** check box. When selected, any change you make to either channel of an analog output pair is reflected by the other channel.

### 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.



#### 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 *n* is set as an input, the Output Routing box is hidden.

**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

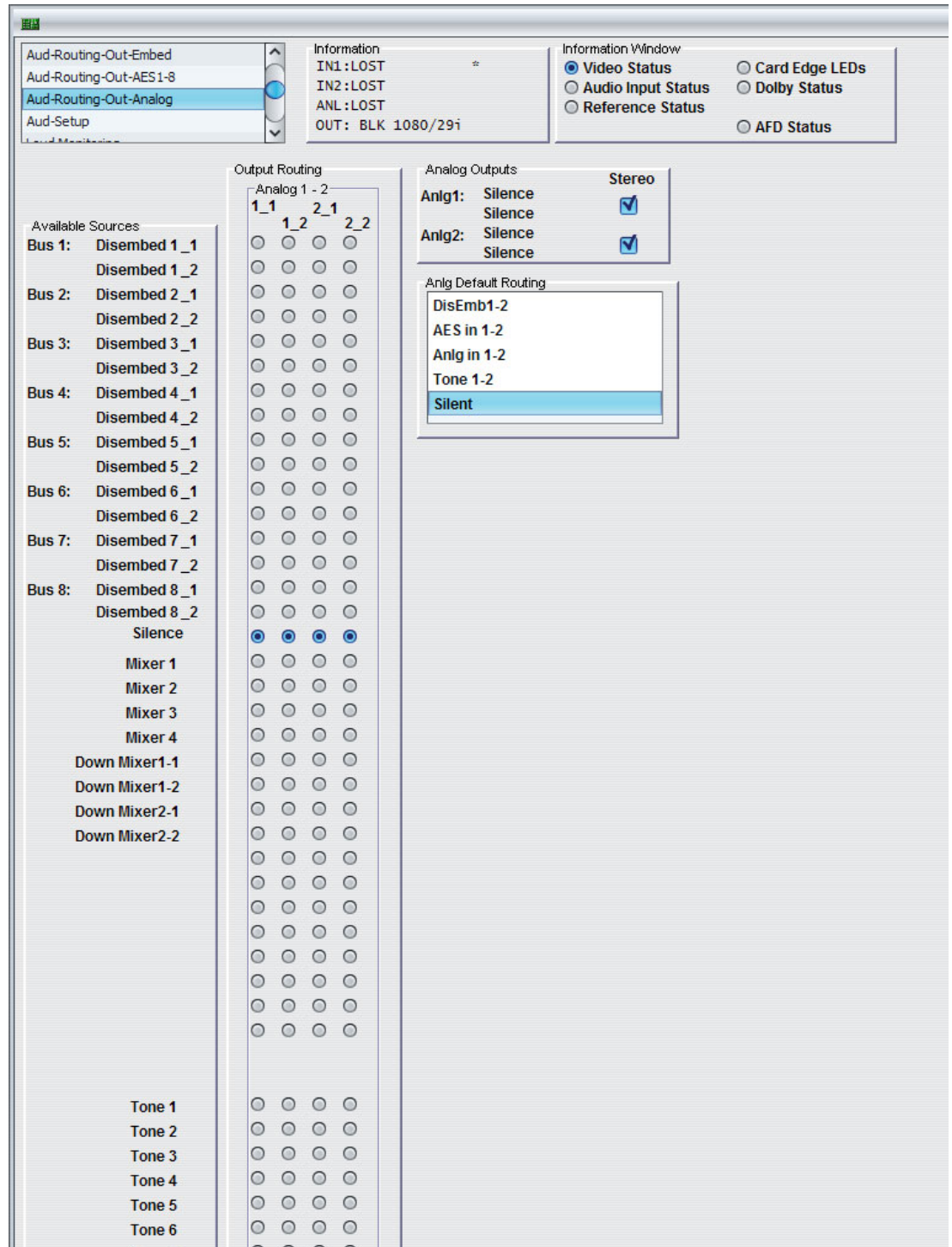
For each AES output pair, the output routing specified in the Output Routing section is displayed.

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.



#### 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.

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

### 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.

## 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.

**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  $\pm 23$  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

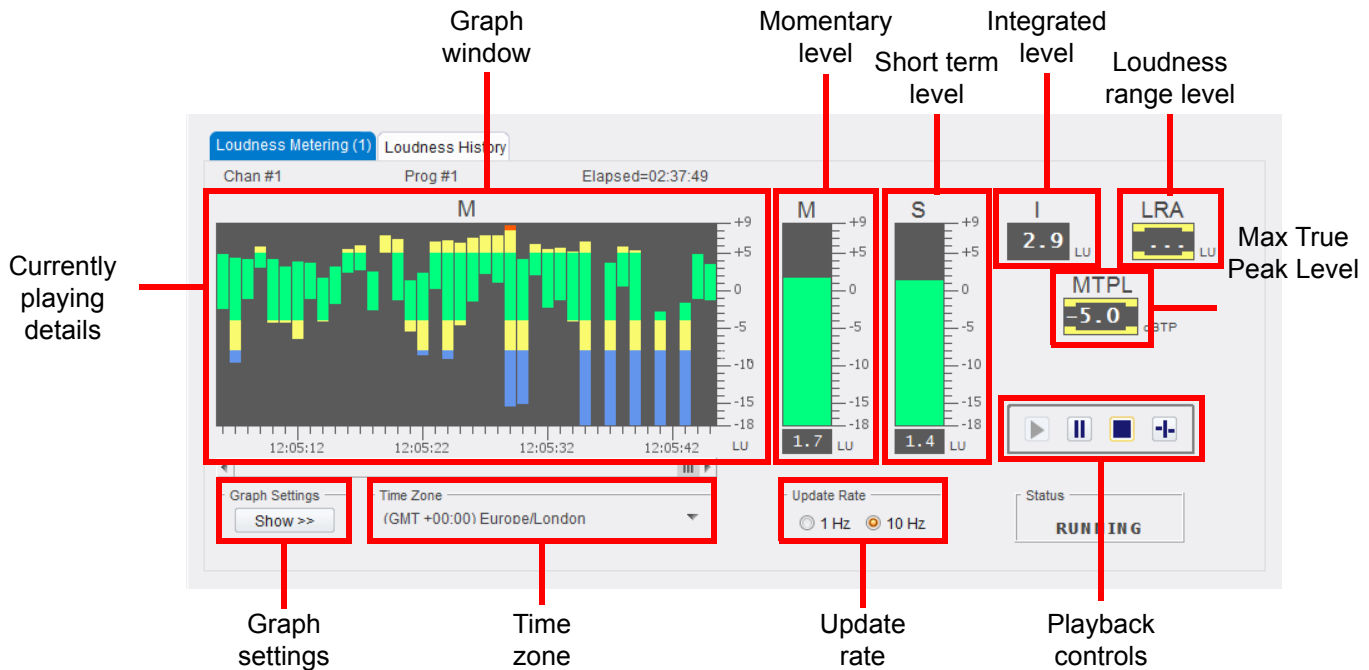
The Loud EBU R128 page provides an EBU Mode loudness meter, compliant with EBU R128. This allows program loudness to be measured in order to confirm compliance with the standard.

**Note:** See section 5.21 for more information on EBU R128.

The screenshot displays two identical instances of the Loudness Metering interface. At the top, a blue header bar shows 'Channel 5 0000:03:04 - IQSYN33'. Below this, a control panel includes 'Aud-Mixer', 'Aud-Out-Embed', 'Logging-Misc', and 'Logging-Video In' options. It also shows 'IN1: LOST', 'IN2: LOST', and 'OUT: BLK 625/25i' status. On the right, there are radio buttons for 'Video Status', 'Audio Input Status', 'Reference Status', 'Card Edge LEDs', and 'AFD Status'. The main interface is divided into two tabs: 'Loudness Metering (1)' and 'Loudness History'. The 'Loudness Metering' section contains a large 'M' graph with a scale from -18 to +9 LU. To its right are two vertical meters for 'M' and 'S', also with scales from -18 to +9 LU. Further right are 'I' and 'LRA' meters with 'LU' labels. Below these is an 'MTPL dBTP' meter. A control bar at the bottom of the metering section includes a 'Show >>' button, a 'Time Zone' dropdown set to '(GMT +00:00) Europe/London', an 'Update Rate' selector with '1 Hz' selected and '10 Hz' unselected, and a 'Status' box displaying 'STOPPED'. The second instance of the interface is identical and positioned below the first.

### 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  $\pm 23$  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.

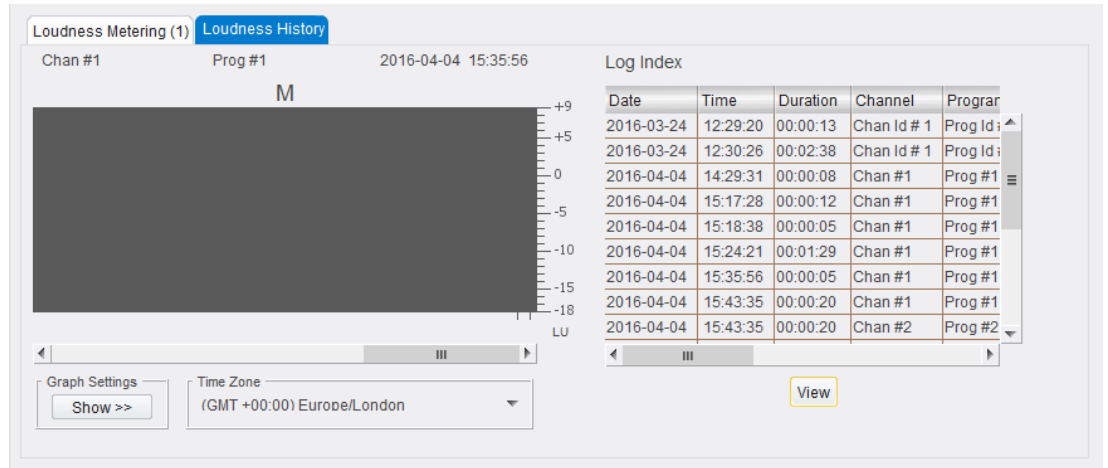
**Note:** MTPL level updates only if the monitored channels are also routed to the Embedded, AES or Analog audio outputs.

- **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.

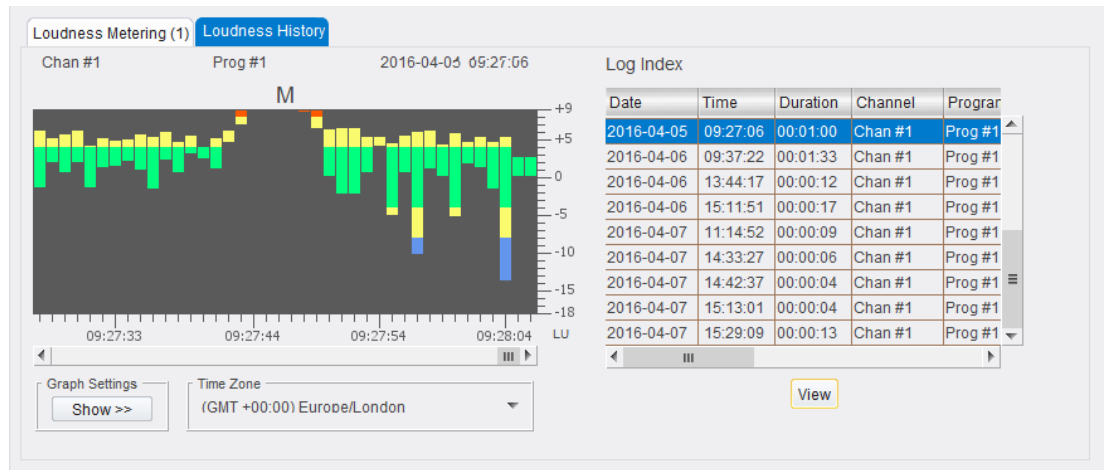
### 5.22.2 Loudness History

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:



- 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:

<b>Data</b> <input checked="" type="radio"/> M <input type="radio"/> S <input type="radio"/> I <input type="radio"/> M + I <input type="radio"/> S + I <input type="radio"/> LRA <input type="radio"/> MTPL	<b>Samples</b> <input checked="" type="radio"/> x 1 <input type="radio"/> x 2.5 <input type="radio"/> x 5  <b>Units</b> <input checked="" type="radio"/> LU <input type="radio"/> LUFS	<b>Time</b> <input checked="" type="radio"/> Local <input type="radio"/> UTC <input type="radio"/> Source  <b>EBU Scale</b> <input checked="" type="radio"/> +9 <input type="radio"/> +18	<b>M/S/I Bands (LU)</b> Err High: 8 Warn High: 5 Warn Low: -4 Err Low: -8	<b>LRA Bands (LU)</b> Err High: 20 Warn High: 10  <b>MTPL Bands (dBTP)</b> Err High: -2 Warn High: -5
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### 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** - 2½ 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

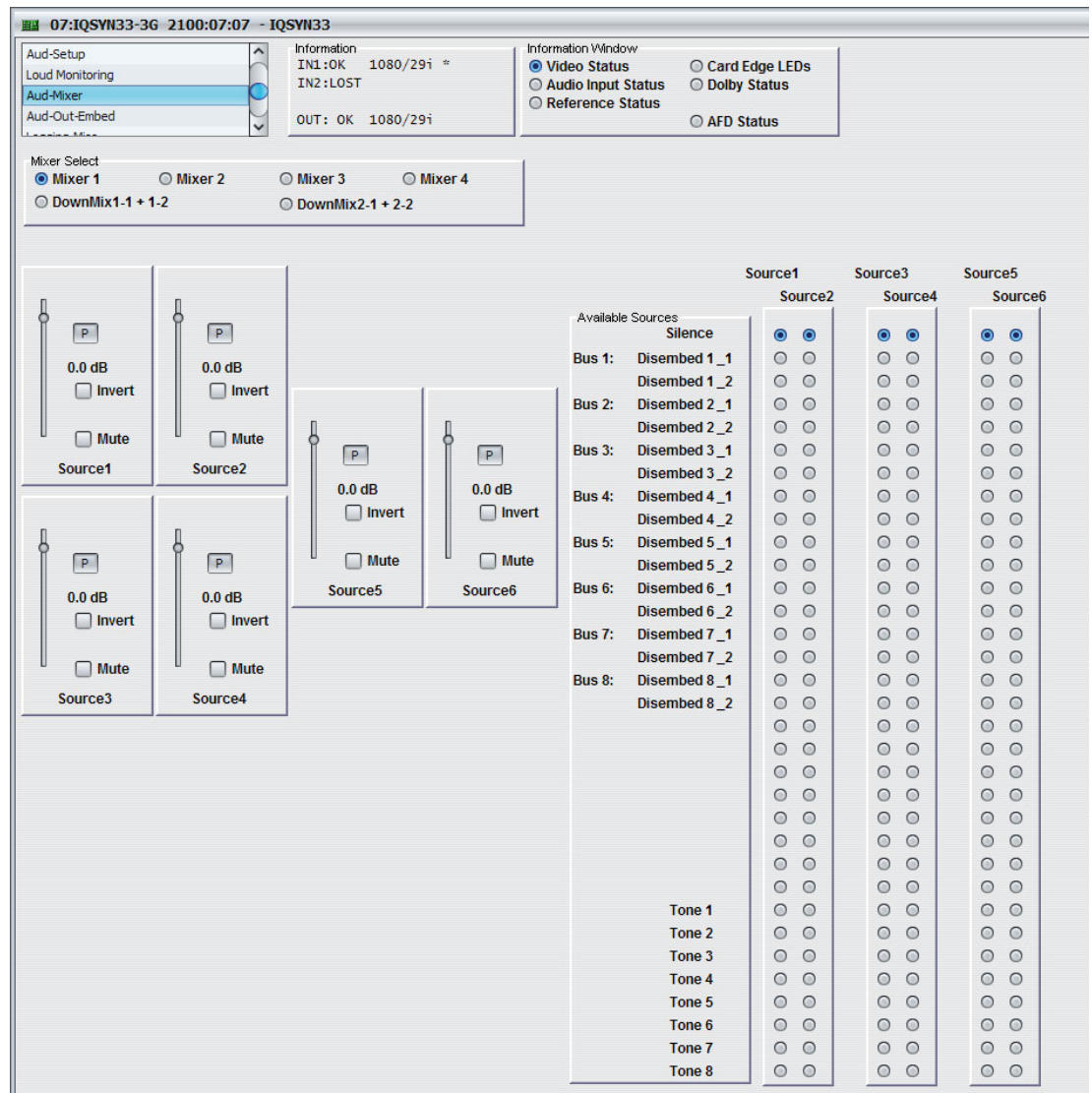
- Use the Up/Down spinner arrows to set a **Warn High** value at which warnings will be generated.
- Use the Up/Down spinner arrows to set an **Error High** value at which a full error will be generated.

#### 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.



#### 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.

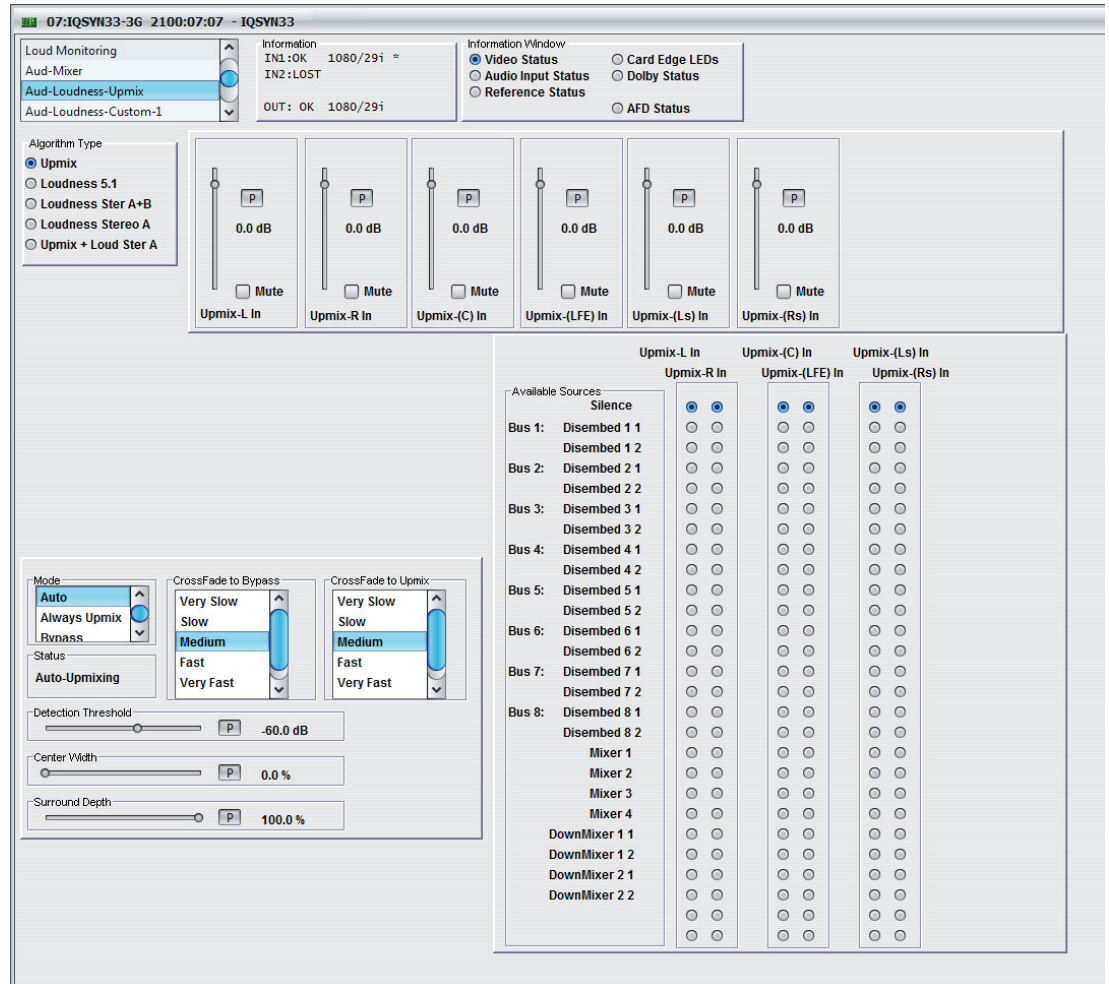
Each of the four mixers has four inputs with individual gain controls. You can adjust the mixing levels for each of the input signals. The adjustment range is +12 dB to -80 dB in 0.1 dB steps. The preset is 0 dB.

### 5.24 Aud-Loudness-Upmix (Option)

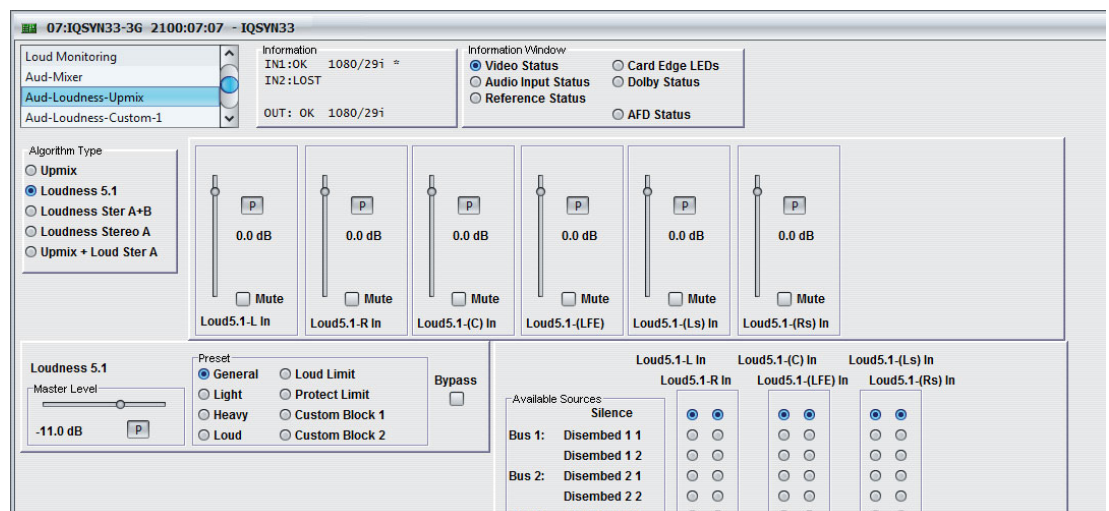
The Aud-Loudness-Upmix page enables you to define audio characteristics from a range of preset options. The controls also define how the unit upmixes from a PCM stereo pair to provide the following 5.1 channels: Left (L), Right (R), Center (C), Low Frequency Effects (LFE), Left Surround (Ls), and Right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



With **Loudness 5.1** selected:



### 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 channels with the new 5.1 upmix.
- **Upmixing:** The upmixer is manually enabled and is currently overwriting the selected channels 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.

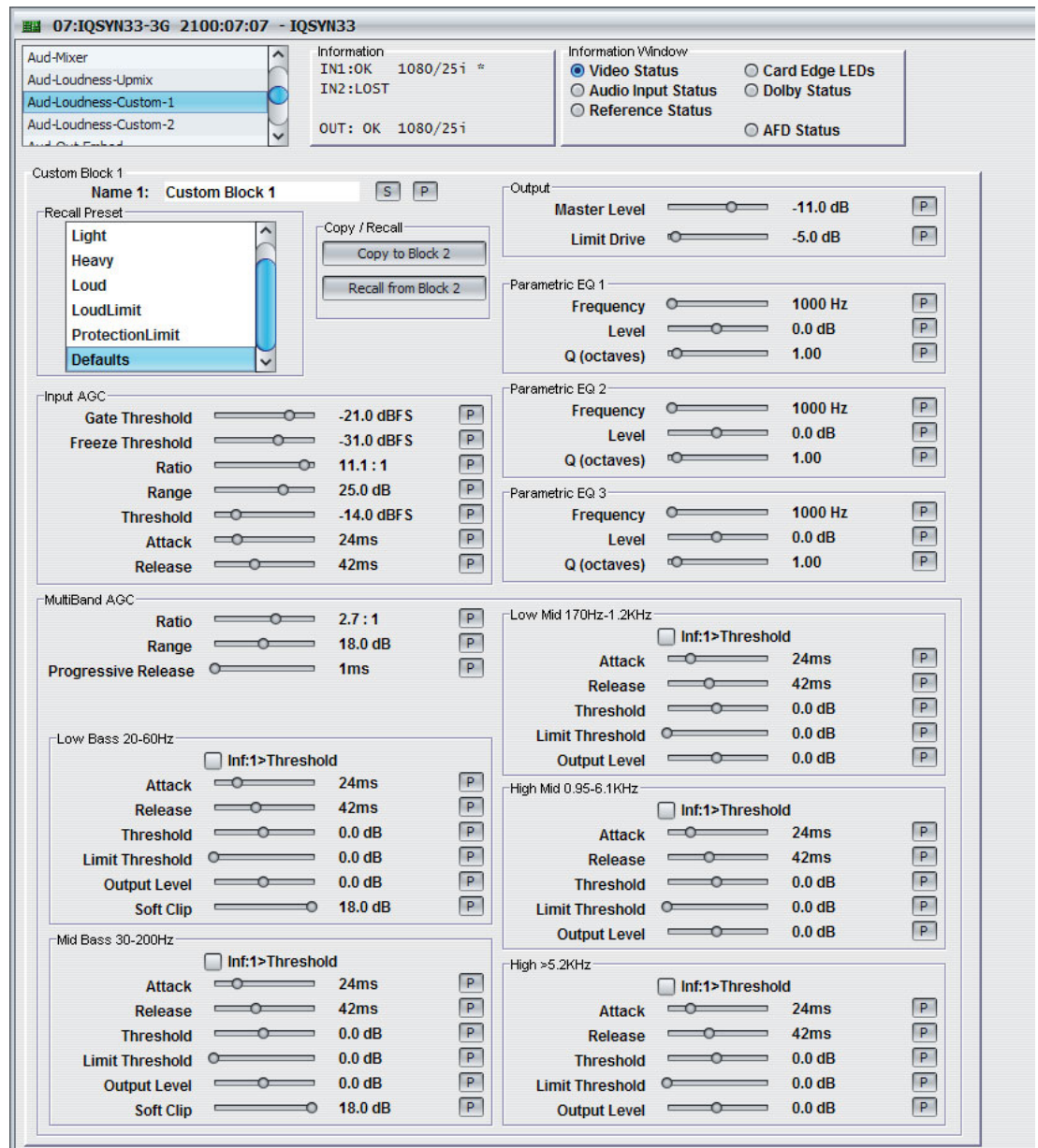
Individual Gain and Invert controls are available for each audio source.

## 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.



### 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  $\pm 12$  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.

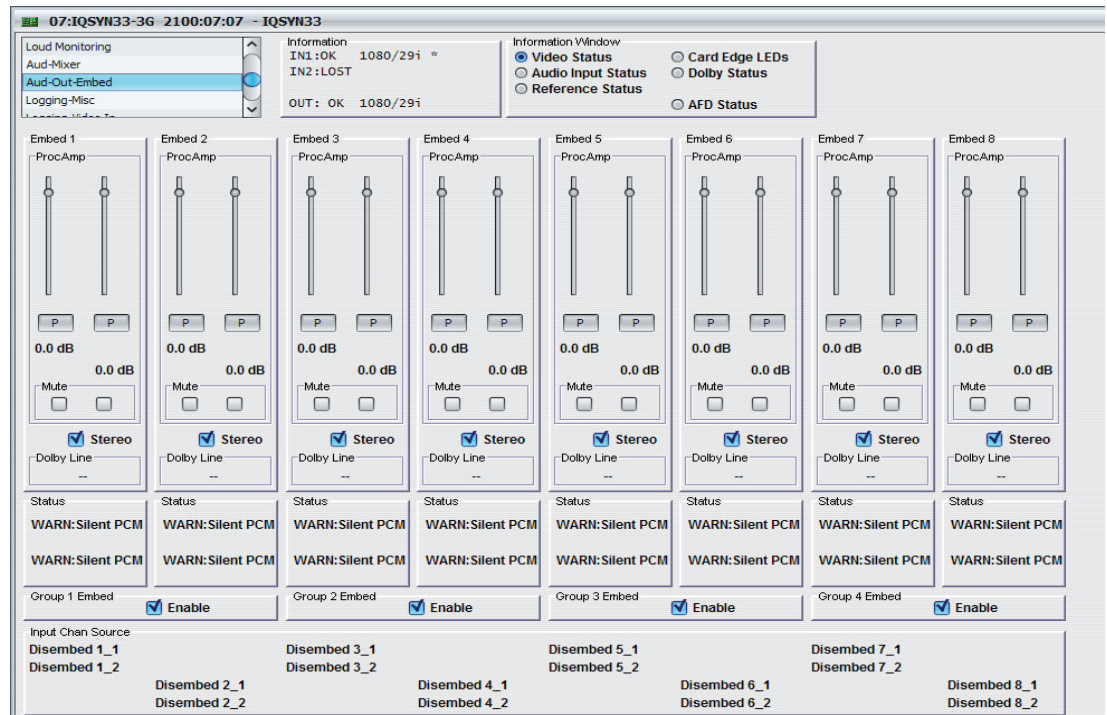
*Note: Different presets use different values for this control. The unit stores the last known master level used for each preset or custom block. If you change a preset in use, the corresponding level is recalled.*

- **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

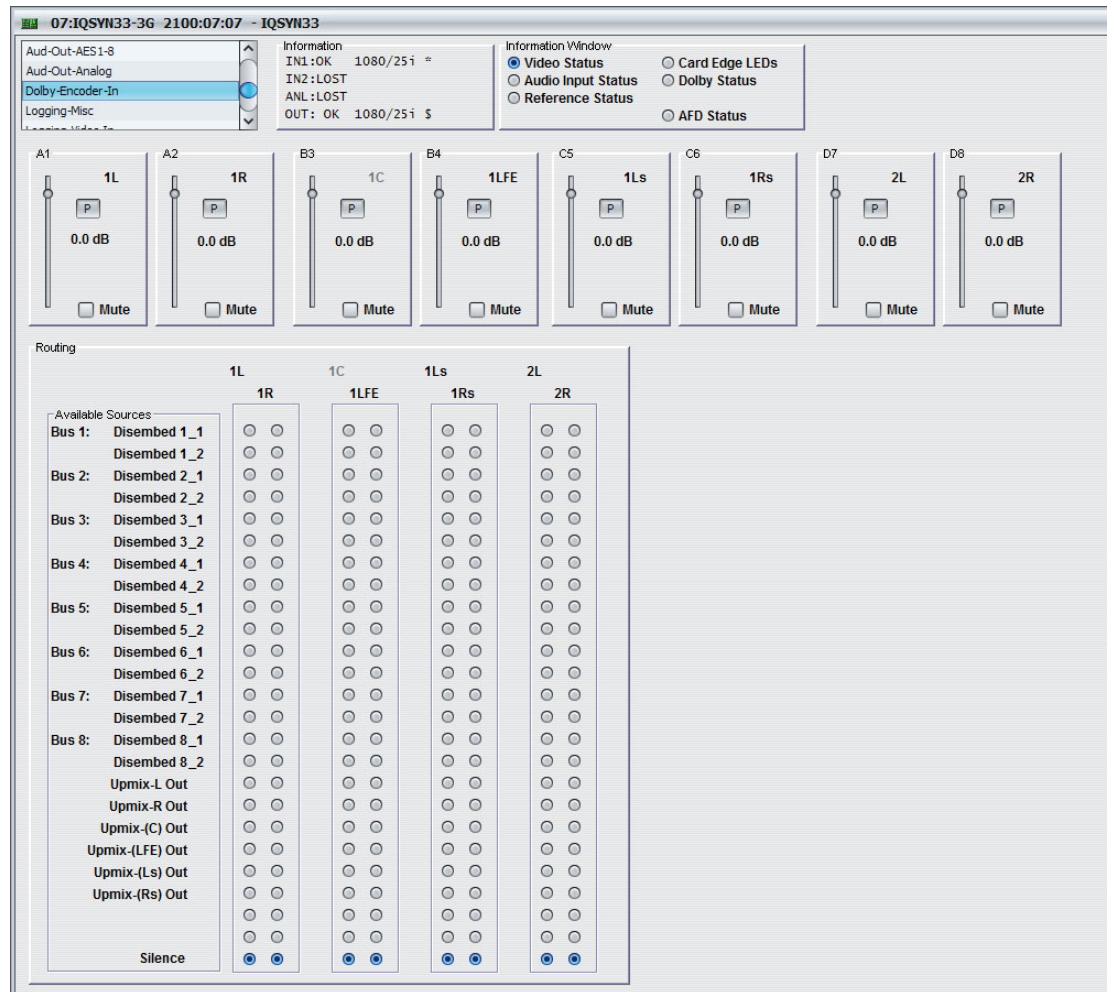
The Group Embed check box enables you to embed the corresponding embedded output groups.

### 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.



#### 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.

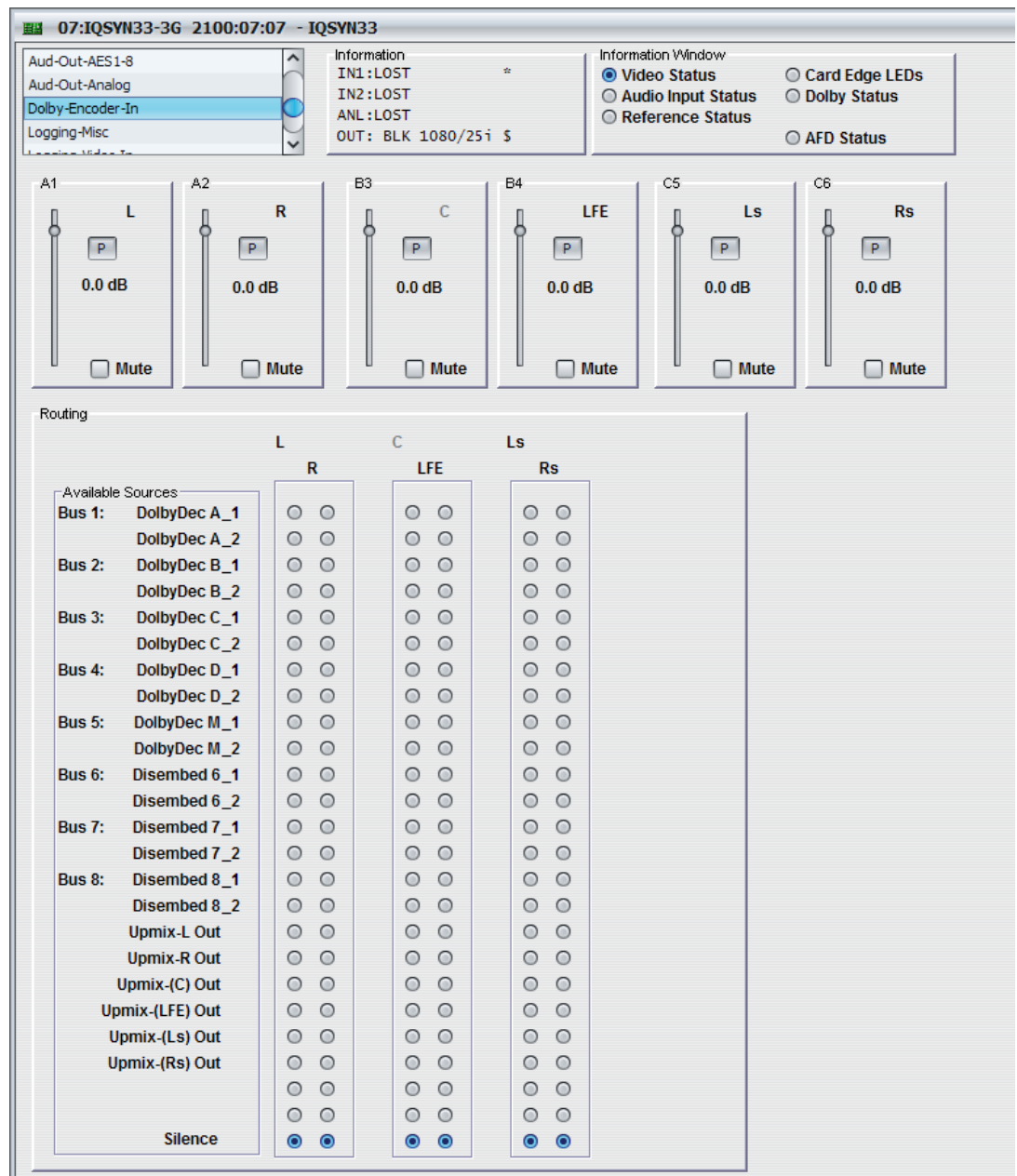
#### 5.27.3 Input Routing

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.



### 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.

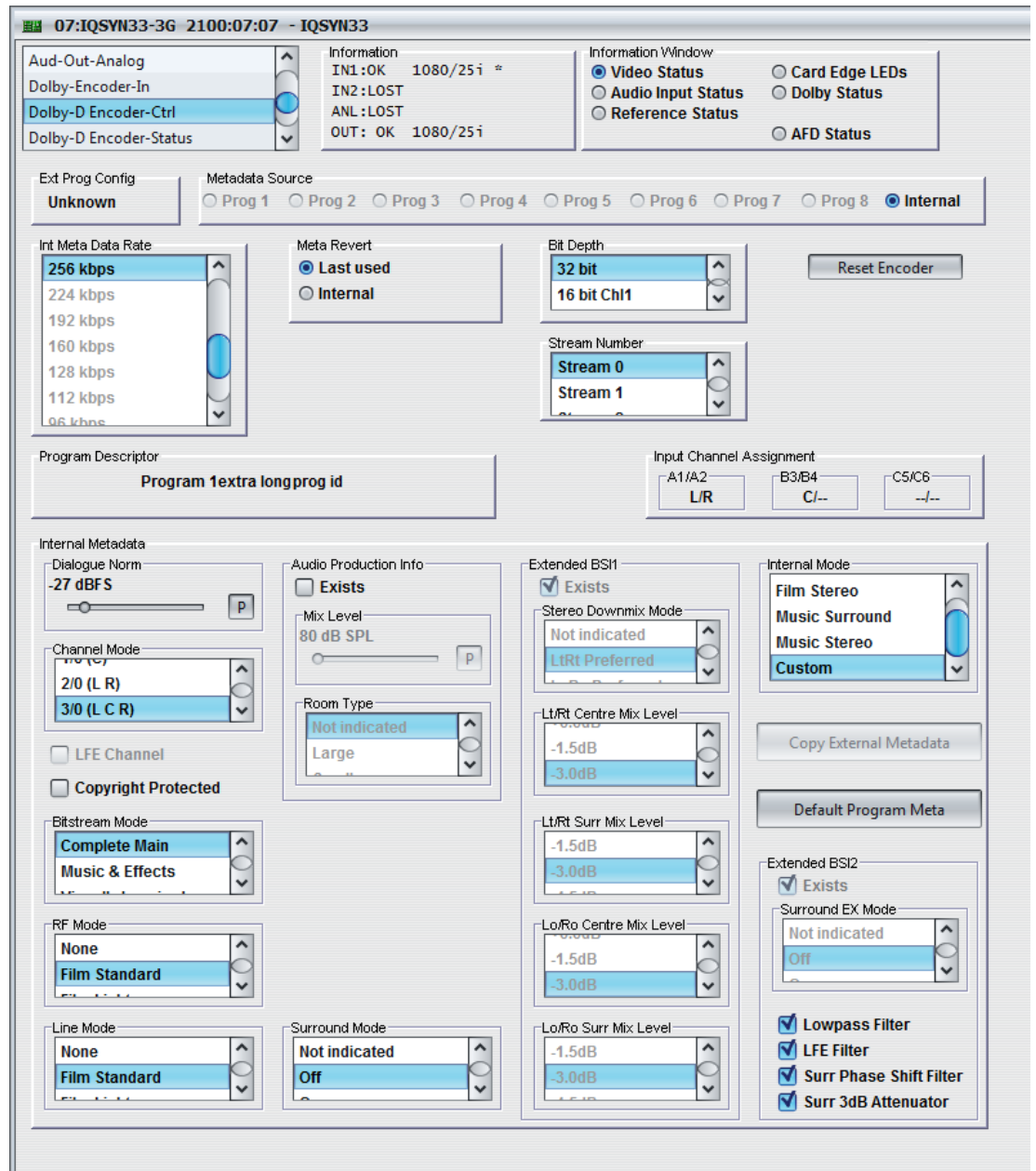
### 5.28.3 Input Routing

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.



### 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.

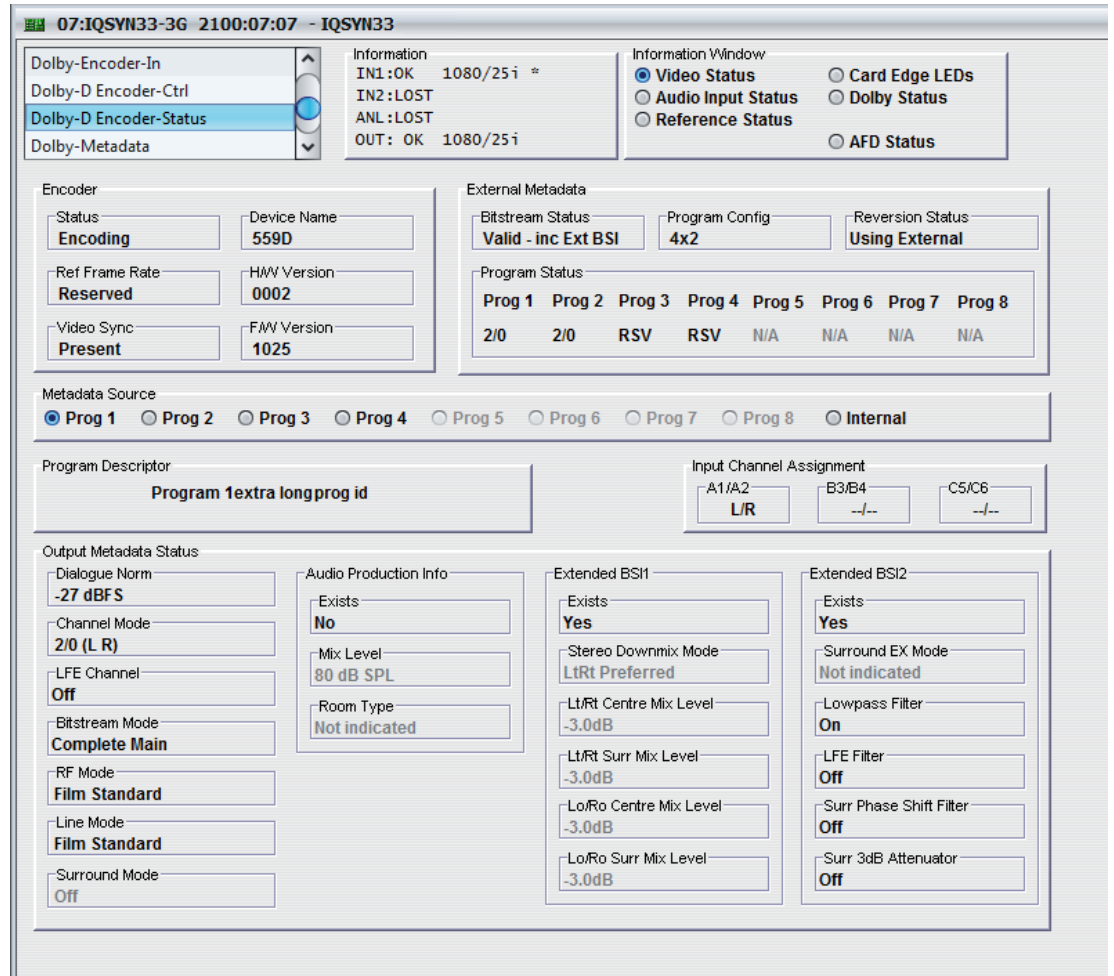
### 5.29.7 Internal Metadata

- **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.



#### 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.

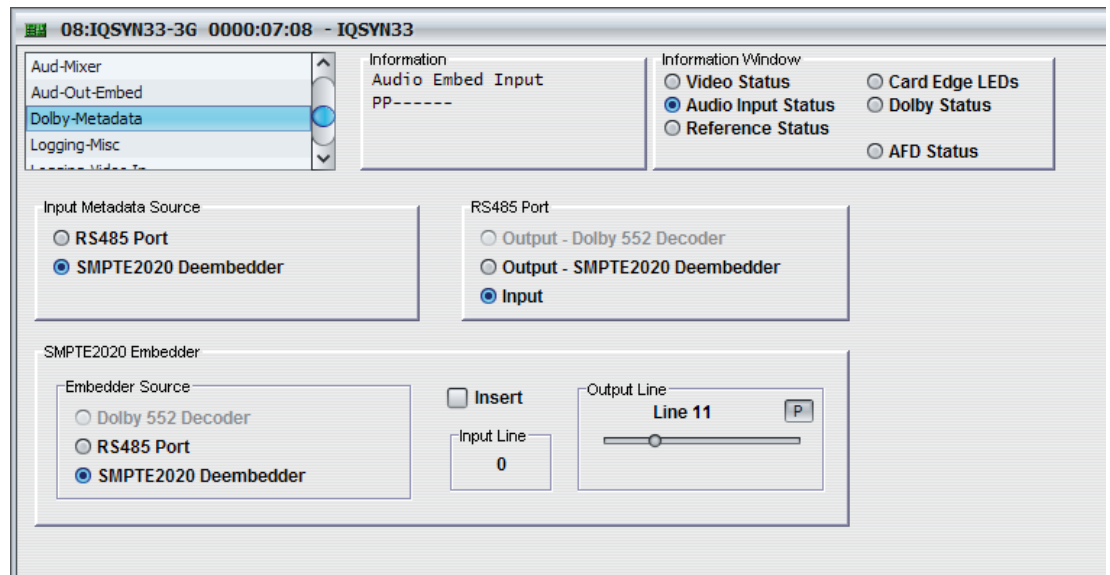
### **5.30.6 Output Metadata Status**

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 parameters, 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.



### 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.

The screenshot shows a software interface for '07:IQSYN33-3G 2100:07:07 - IQSYN33'. It features a sidebar menu with 'Logging-Misc' selected. The main area is divided into several sections:

- Information:** Displays 'IN1:OK 1080/29i' and 'IN2:LOST'.
- Information Window:** Contains radio buttons for 'Video Status' (selected), 'Audio Input Status', 'Reference Status', 'Card Edge LEDs', 'Dolby Status', and 'AFD Status'.
- Logging Control:** A table with three columns: 'Log Enable' (checkboxes), 'Log Field', and 'Log Value'. All checkboxes are checked.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/>	SN=	S50043096
<input checked="" type="checkbox"/>	OS_VERSION=	V115 Release
<input checked="" type="checkbox"/>	BUILD_NUMBER=	0004803644
<input checked="" type="checkbox"/>	HARDWARE_VERSION=	RGMP1B
<input checked="" type="checkbox"/>	FIRMWARE_VERSION=	0593005899
<input checked="" type="checkbox"/>	UPTIME=	000:00:59:00
<input checked="" type="checkbox"/>	LICENSED_OPTIONS=	SDHD;3G
<input checked="" type="checkbox"/>	LICENSED_OPTIONS_2=	OK:0 Option(s)
<input checked="" type="checkbox"/>	TEMP_1_STATE=	OK
<input checked="" type="checkbox"/>	TEMP_1_NAME=	Temperature FPGA
<input checked="" type="checkbox"/>	REAR_ID=	224
<input checked="" type="checkbox"/>	REAR_STATUS=	WARN:Type Mismatch
<input checked="" type="checkbox"/>	SLOT_WIDTH=	Unknown
<input checked="" type="checkbox"/>	SLOT_START=	Unknown
<input checked="" type="checkbox"/>	POWER_USAGE=	23.0W/21.5LU

### 5.32.2 Logging-Video-In

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

The screenshot shows a control panel window titled "07:IQSYN33-3G 2100:07:07 - IQSYN33". It features a sidebar menu with "Logging-Video In" selected. The main area is divided into several sections:

- Information:** Displays "IN1:OK 1080/29i \*", "IN2:LOST", and "OUT: OK 1080/29i".
- Information Window:** Contains radio buttons for "Video Status" (selected), "Audio Input Status", "Reference Status", "Card Edge LEDs", "Dolby Status", and "AFD Status".
- Logging Control:** A table with columns "Log Enable", "Log Field", and "Log Value".
 

Log Enable	Log Field	Log Value
<b>Video Input 1</b>		
<input checked="" type="checkbox"/> Input 1 Type	INPUT_1_TYPE	HD/SD/3G SDI
<input checked="" type="checkbox"/> Input 1 State	INPUT_1_STATE	OK
<input checked="" type="checkbox"/> Input 1 Standard	INPUT_1_STANDARD	1080/29i
<input checked="" type="checkbox"/> Input 1 Name	INPUT_1_NAME	INPUT 1 SERIAL IN
<input checked="" type="checkbox"/> Input 1 Ident	INPUT_1_IDENT	SER IN 1
<input checked="" type="checkbox"/> Input 1 SDI Errs	INPUT_1_SDI_ERRS	OK
<input checked="" type="checkbox"/> Input 1 SDI Err Sec	INPUT_1_SDI_ERRSEC	1
<input checked="" type="checkbox"/> Input 1 SDI ANC Errs	INPUT_1_SDI_ANC_ERRS	OK
<input checked="" type="checkbox"/> Input 1 SDI ANC Err Sec	INPUT_1_SDI_ANC_ERRSECS	0
<b>Video Input 2</b>		
<input checked="" type="checkbox"/> Input 2 Type	INPUT_2_TYPE	HD/SD/3G SDI
<input checked="" type="checkbox"/> Input 2 State	INPUT_2_STATE	FAIL:Lost
<input checked="" type="checkbox"/> Input 2 Standard	INPUT_2_STANDARD	Unknown
<input checked="" type="checkbox"/> Input 2 Name	INPUT_2_NAME	INPUT 2 SERIAL IN
<input checked="" type="checkbox"/> Input 2 Ident	INPUT_2_IDENT	SER IN 2
<input checked="" type="checkbox"/> Input 2 SDI Errs	INPUT_2_SDI_ERRS	OK
<input checked="" type="checkbox"/> Input 2 SDI Err Sec	INPUT_2_SDI_ERRSEC	0
<input checked="" type="checkbox"/> Input 2 SDI ANC Errs	INPUT_2_SDI_ANC_ERRS	OK
<input checked="" type="checkbox"/> Input 2 SDI ANC Err Sec	INPUT_2_SDI_ANC_ERRSECS	0
<b>Reference</b>		
<input checked="" type="checkbox"/> Genlock State	GENLOCK_1_STATE	WARN:Freerun
<input checked="" type="checkbox"/> Reference State	REFERENCE_1_STATE	FAIL:Lost
<input checked="" type="checkbox"/> Reference Standard	REFERENCE_1_STANDARD	Unknown
<input checked="" type="checkbox"/> 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.

07:IQSYN33-3G 2100:07:07 - IQSYN33

Logging-Misc  
 Logging-Video In  
**Logging-Video Out**  
 Logging-Aud-Embed

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

Log Enable	Log Field	Log Value
Video Output 1 / 2		
<input checked="" type="checkbox"/> Output 1 Type	OUTPUT_1_TYPE	HD/SD/3G SDI
<input checked="" type="checkbox"/> Output 1 State	OUTPUT_1_STATE	OK
<input checked="" type="checkbox"/> Output 1 Standard	OUTPUT_1_STANDARD	1080/29i
<input checked="" type="checkbox"/> Output 1	OUTPUT_1	INPUT 1 SERIAL IN
<input checked="" type="checkbox"/> Output 1 Caption	OUTPUT_1_CAPTION	OK:Off
<input checked="" type="checkbox"/> Output 2 Type	OUTPUT_2_TYPE	HD/SD/3G SDI
<input checked="" type="checkbox"/> Output 2 State	OUTPUT_2_STATE	OK
<input checked="" type="checkbox"/> Output 2 Standard	OUTPUT_2_STANDARD	1080/29i
<input checked="" type="checkbox"/> Output 2	OUTPUT_2	INPUT 1 SERIAL IN
<input checked="" type="checkbox"/> 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:IQSYN33-3G 2100:07:07 - IQSYN33

Logging-Video In  
 Logging-Video Out  
**Logging-Aud-Embed**  
 Logging-Aud-Emb-Dolby

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

Log Enable	Log Field	Log Value
-Input 1 Embed1-8-		
<input checked="" type="checkbox"/> Input1 Emb.Pair 1 State	INPUT_1_EMBEDDED_AUDIO_1_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 2 State	INPUT_1_EMBEDDED_AUDIO_2_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 3 State	INPUT_1_EMBEDDED_AUDIO_3_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 4 State	INPUT_1_EMBEDDED_AUDIO_4_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 5 State	INPUT_1_EMBEDDED_AUDIO_5_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 6 State	INPUT_1_EMBEDDED_AUDIO_6_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 7 State	INPUT_1_EMBEDDED_AUDIO_7_STATE	OK:PCM
<input checked="" type="checkbox"/> Input1 Emb.Pair 8 State	INPUT_1_EMBEDDED_AUDIO_8_STATE	OK:PCM
-Input 2 Embed1-8-		
<input checked="" type="checkbox"/> Input2 Emb.Pair 1 State	INPUT_2_EMBEDDED_AUDIO_1_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 2 State	INPUT_2_EMBEDDED_AUDIO_2_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 3 State	INPUT_2_EMBEDDED_AUDIO_3_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 4 State	INPUT_2_EMBEDDED_AUDIO_4_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 5 State	INPUT_2_EMBEDDED_AUDIO_5_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 6 State	INPUT_2_EMBEDDED_AUDIO_6_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 7 State	INPUT_2_EMBEDDED_AUDIO_7_STATE	WARN:Unknown
<input checked="" type="checkbox"/> Input2 Emb.Pair 8 State	INPUT_2_EMBEDDED_AUDIO_8_STATE	WARN:Unknown
-Output Embed1-8-		
<input checked="" type="checkbox"/> Output Emb.Pair 1_1 State	OUTPUT_1_EMBED_AUDIO_1_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 1_2 State	OUTPUT_1_EMBED_AUDIO_1_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 2_1 State	OUTPUT_1_EMBED_AUDIO_2_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 2_2 State	OUTPUT_1_EMBED_AUDIO_2_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 3_1 State	OUTPUT_1_EMBED_AUDIO_3_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 3_2 State	OUTPUT_1_EMBED_AUDIO_3_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 4_1 State	OUTPUT_1_EMBED_AUDIO_4_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 4_2 State	OUTPUT_1_EMBED_AUDIO_4_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 5_1 State	OUTPUT_1_EMBED_AUDIO_5_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 5_2 State	OUTPUT_1_EMBED_AUDIO_5_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 6_1 State	OUTPUT_1_EMBED_AUDIO_6_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 6_2 State	OUTPUT_1_EMBED_AUDIO_6_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 7_1 State	OUTPUT_1_EMBED_AUDIO_7_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 7_2 State	OUTPUT_1_EMBED_AUDIO_7_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 8_1 State	OUTPUT_1_EMBED_AUDIO_8_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output Emb.Pair 8_2 State	OUTPUT_1_EMBED_AUDIO_8_2_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

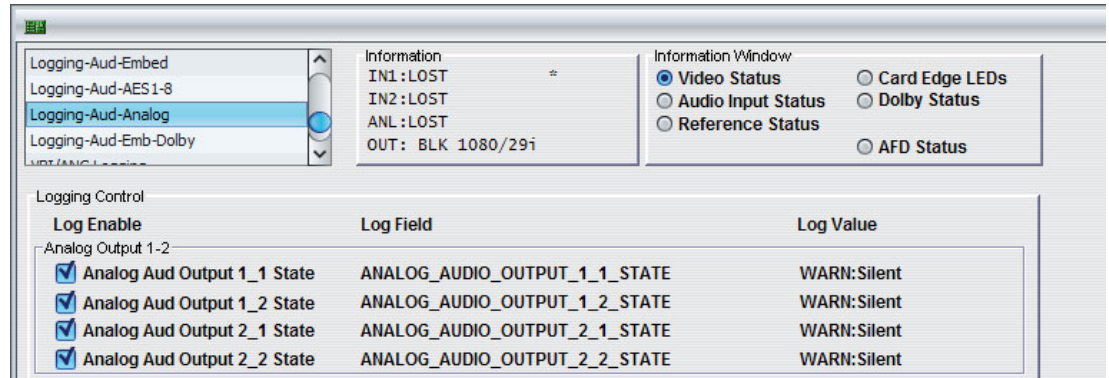
Information Window  
 Video Status     Card Edge LEDs  
 Audio Input Status     Dolby Status  
 Reference Status     Timecode Status  
 AFD Status

Log Enable	Log Field	Log Value
<b>Input AES1-8</b>		
<input checked="" type="checkbox"/> Input AES 1 State	AES_INPUT_1_STATE	WARN:Output
<input checked="" type="checkbox"/> Input AES 2 State	AES_INPUT_2_STATE	WARN:Output
<input checked="" type="checkbox"/> Input AES 3 State	AES_INPUT_3_STATE	WARN:Output
<input checked="" type="checkbox"/> Input AES 4 State	AES_INPUT_4_STATE	WARN:Output
<input checked="" type="checkbox"/> Input AES 5 State	AES_INPUT_5_STATE	FAIL:Lost
<input checked="" type="checkbox"/> Input AES 6 State	AES_INPUT_6_STATE	FAIL:Lost
<input checked="" type="checkbox"/> Input AES 7 State	AES_INPUT_7_STATE	FAIL:Lost
<input checked="" type="checkbox"/> Input AES 8 State	AES_INPUT_8_STATE	FAIL:Lost
<b>Output AES1-8</b>		
<input checked="" type="checkbox"/> Output AES 1_1 State	AES_OUTPUT_1_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 1_2 State	AES_OUTPUT_1_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 2_1 State	AES_OUTPUT_2_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 2_2 State	AES_OUTPUT_2_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 3_1 State	AES_OUTPUT_3_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 3_2 State	AES_OUTPUT_3_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 4_1 State	AES_OUTPUT_4_1_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 4_2 State	AES_OUTPUT_4_2_STATE	WARN:Silent PCM
<input checked="" type="checkbox"/> Output AES 5_1 State	AES_OUTPUT_5_1_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 5_2 State	AES_OUTPUT_5_2_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 6_1 State	AES_OUTPUT_6_1_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 6_2 State	AES_OUTPUT_6_2_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 7_1 State	AES_OUTPUT_7_1_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 7_2 State	AES_OUTPUT_7_2_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 8_1 State	AES_OUTPUT_8_1_STATE	WARN:Input
<input checked="" type="checkbox"/> Output AES 8_2 State	AES_OUTPUT_8_2_STATE	WARN:Input

### 5.32.6 Logging-Aud-Analog

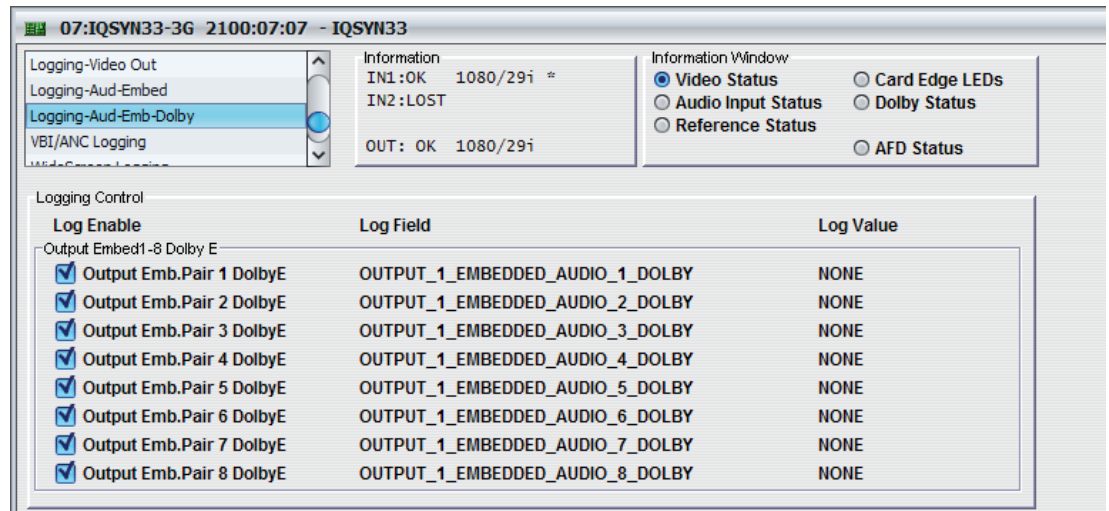
**Note:** IQDMX33 only.

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



### 5.32.7 Logging-Aud-Emb-Dolby

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



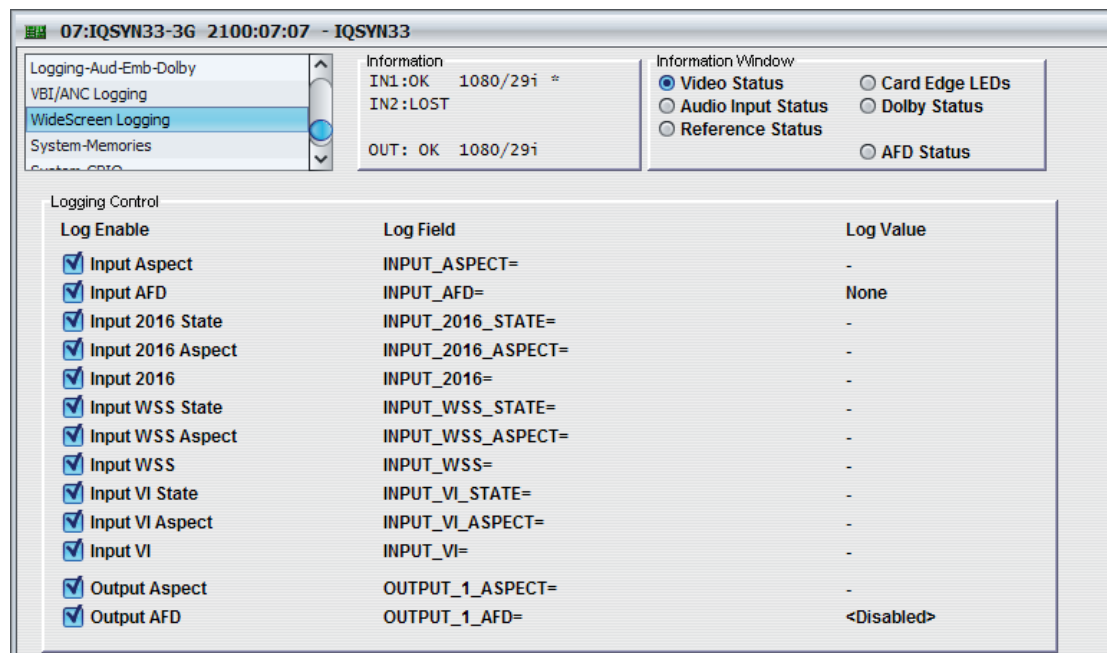
### 5.32.8 VBI/ANC Logging

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

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input Ref VITC	INPUT_REF_VITC=	LOST:REF-VITC
<input checked="" type="checkbox"/> Input VITC	INPUT_VITC=	-
<input checked="" type="checkbox"/> Input ANC Line 7	INPUT_ANC_LINE_7=	-
<input checked="" type="checkbox"/> Input ANC Line 8	INPUT_ANC_LINE_8=	-
<input checked="" type="checkbox"/> Input ANC Line 9	INPUT_ANC_LINE_9=	OK:ATC
<input checked="" type="checkbox"/> Input ANC Line 10	INPUT_ANC_LINE_10=	-
<input checked="" type="checkbox"/> Input ANC Line 11	INPUT_ANC_LINE_11=	-
<input checked="" type="checkbox"/> Input ANC Line 12	INPUT_ANC_LINE_12=	-
<input checked="" type="checkbox"/> Input ANC Line 13	INPUT_ANC_LINE_13=	-
<input checked="" type="checkbox"/> Input ANC Line 14	INPUT_ANC_LINE_14=	-
<input checked="" type="checkbox"/> Input ANC Line 15	INPUT_ANC_LINE_15=	-
<input checked="" type="checkbox"/> Input ANC Line 16	INPUT_ANC_LINE_16=	-
<input checked="" type="checkbox"/> Input ANC Line 17	INPUT_ANC_LINE_17=	-
<input checked="" type="checkbox"/> Input ANC Line 18	INPUT_ANC_LINE_18=	-
<input checked="" type="checkbox"/> Input ANC Line 19	INPUT_ANC_LINE_19=	-
<input checked="" type="checkbox"/> Input ANC Line 20	INPUT_ANC_LINE_20=	-
<input checked="" type="checkbox"/> Input ANC Line 21	INPUT_ANC_LINE_21=	-
<input checked="" type="checkbox"/> Input ANC Line 22	INPUT_ANC_LINE_22=	-
<input checked="" type="checkbox"/> Input ANC Line 23	INPUT_ANC_LINE_23=	-
<input checked="" type="checkbox"/> Output 1 Timecode	OUTPUT_1_TIMECODE=	01:02:06:27
<input checked="" type="checkbox"/> Output 1 ANC Line 7	OUTPUT_1_ANC_LINE_7=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 8	OUTPUT_1_ANC_LINE_8=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 9	OUTPUT_1_ANC_LINE_9=	OK:ATC
<input checked="" type="checkbox"/> Output 1 ANC Line 10	OUTPUT_1_ANC_LINE_10=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 11	OUTPUT_1_ANC_LINE_11=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 12	OUTPUT_1_ANC_LINE_12=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 13	OUTPUT_1_ANC_LINE_13=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 14	OUTPUT_1_ANC_LINE_14=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 15	OUTPUT_1_ANC_LINE_15=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 16	OUTPUT_1_ANC_LINE_16=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 17	OUTPUT_1_ANC_LINE_17=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 18	OUTPUT_1_ANC_LINE_18=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 19	OUTPUT_1_ANC_LINE_19=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 20	OUTPUT_1_ANC_LINE_20=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 21	OUTPUT_1_ANC_LINE_21=	-
<input checked="" type="checkbox"/> Output 1 ANC Line 22	OUTPUT_1_ANC_LINE_22=	-
<input checked="" type="checkbox"/> Output 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.



### 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=	<ul style="list-style-type: none"> <li>• SDHD</li> <li>• SDHD;3G</li> <li>• FAIL:Bad File</li> <li>• WARN:NONE</li> <li>• FAIL:No File</li> </ul>
LICENSED_OPTIONS_2=	<ul style="list-style-type: none"> <li>• OK:n Option(s)</li> <li>• FAIL:Invalid</li> <li>• WARN:Bad File</li> <li>• WARN:Type Mismatch</li> <li>• FAIL:Type Unknown</li> <li>• WARN:Type??</li> <li>• FAIL:Bad SerialNum</li> <li>• FAIL:No File</li> </ul>
TEMP_1_STATE=	<p>The onboard temperature state:</p> <ul style="list-style-type: none"> <li>• OK:</li> <li>• WARN:High</li> </ul>
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	<p>The type of input as specified by the module's configuration. Range 1–3.</p> <ul style="list-style-type: none"> <li>• 3G/HD/SD SDI</li> <li>• HD/SD SDI</li> <li>• HD/SD Analog</li> <li>• SD Analog</li> </ul>

Log Field	Description
INPUT_N_STATE	The current input state: <ul style="list-style-type: none"> <li>• OK</li> <li>• FAIL:Lost</li> </ul>
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: <ul style="list-style-type: none"> <li>• 525/29i</li> <li>• 625/25i</li> <li>• 720/50p</li> <li>• 720/59p</li> <li>• 1080/25i</li> <li>• 1080/29i</li> <li>• 1080/23sF (conversion products only)</li> <li>• 1080/25sF (conversion products only)</li> <li>• 1080/25p (conversion products only)</li> <li>• 1080/29p (conversion products only)</li> <li>• 1080/50p-A</li> <li>• 1080/59p-A</li> </ul>
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: <ul style="list-style-type: none"> <li>• Y/C:YPbPr:COMP In</li> <li>• COMP In</li> <li>• SERIAL IN</li> <li>• SERIAL IN 1</li> <li>• SERIAL IN 2</li> </ul>
INPUT_N_SDI_ERRS	The SDI errors that have occurred in a one-second period: <ul style="list-style-type: none"> <li>• OK</li> <li>• WARN</li> </ul>
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: <ul style="list-style-type: none"> <li>• OK</li> <li>• WARN</li> </ul>
INPUT_N_SDI_ANC_ERRSECS	The number of ANC errors that have occurred since last reset.

Log Field	Description
GENLOCK_1_STATE	<p>The genlock system state:</p> <ul style="list-style-type: none"> <li>• WARN:Freerun</li> <li>• OK:Reference</li> <li>• OK:Input</li> </ul>
REFERENCE_1_STATE	<p>The reference input state:</p> <ul style="list-style-type: none"> <li>• OK</li> <li>• WARN:Mismatch</li> <li>• FAIL:Lost</li> </ul>
REFERENCE_1_STANDARD	<p>The current reference standard.</p> <p>If no signal is present, the field displays Unknown. If the input standard is not recognized or supported, the field displays WARN:Unknown.</p> <p>Valid examples are:</p> <ul style="list-style-type: none"> <li>• 525/29i</li> <li>• 625/25i</li> <li>• 720/50p</li> <li>• 720/59p</li> <li>• 1080/25i</li> <li>• 1080/29i</li> <li>• Unknown</li> </ul>
REFERENCE_1_TYPE	<p>The reference input type:</p> <ul style="list-style-type: none"> <li>• OK:Tri-Level</li> <li>• OK:Bi-Level</li> <li>• WARN:Unknown</li> </ul>
OUTPUT_N_TYPE	<p>The output type:</p> <ul style="list-style-type: none"> <li>• 3G/HD/SD SDI</li> <li>• HD/SD Analog</li> </ul>
OUTPUT_N_STATE	<p>The output state:</p> <ul style="list-style-type: none"> <li>• OK</li> <li>• WARN:Black</li> <li>• WARN:Freeze</li> <li>• WARN:Pattern</li> <li>• WARN:Reclocked</li> <li>• WARN:Input</li> <li>• WARN:Disabled</li> </ul>



Log Field	Description
OUTPUT_N_STANDARD	The current output standard: <ul style="list-style-type: none"> <li>• 525/29i</li> <li>• 625/25i</li> <li>• 720/50p</li> <li>• 720/59p</li> <li>• 1080/25i</li> <li>• 1080/29i</li> <li>• 1080/50p-A</li> <li>• 1080/59p-A</li> </ul>
OUTPUT_N	The source of the output. For example, INPUT_1.
OUTPUT_N_CAPTION	Text caption information: <ul style="list-style-type: none"> <li>• OK:None</li> <li>• WARN:"caption text"</li> </ul>
INPUT_1_EMBEDDED_AUDIO_1_STATE to INPUT_1_EMBEDDED_AUDIO_8_STATE  INPUT_2_EMBEDDED_AUDIO_1_STATE to INPUT_2_EMBEDDED_AUDIO_8_STATE	The embedded audio input state: <ul style="list-style-type: none"> <li>• OK:PCM</li> <li>• OK:Data</li> <li>• OK:DolbyE</li> <li>• WARN:No Input</li> <li>• FAIL:Lost</li> </ul>
OUTPUT_1_EMBEDDED_AUDIO_1_1_ST ATE to OUTPUT_1_EMBEDDED_AUDIO_8_2_ST ATE	The embedded audio output state: <ul style="list-style-type: none"> <li>• OK:PCM</li> <li>• OK:Data</li> <li>• OK:DolbyE</li> <li>• WARN:No Input</li> <li>• FAIL:Lost</li> <li>• WARN:Silent PCM</li> <li>• WARN: Overload PCM</li> <li>• FAIL:Input Lost</li> <li>• Fail:Mixed</li> </ul>
AES_INPUT_1_STATE to AES_INPUT_8_STATE	The AES audio input state: <ul style="list-style-type: none"> <li>• OK:PCM</li> <li>• OK:Data</li> <li>• OK:DolbyE</li> <li>• WARN:No Input</li> <li>• FAIL:Lost</li> <li>• WARN:Silent PCM</li> <li>• WARN: Overload PCM</li> <li>• FAIL:Input Lost</li> <li>• Fail:Mixed</li> <li>• OK:Output</li> </ul>

Log Field	Description
AES_OUTPUT_1_1_STATE to AES_OUTPUT_8_2_STATE	The AES audio output state: <ul style="list-style-type: none"> <li>• OK:PCM</li> <li>• OK:Data</li> <li>• OK:DolbyE</li> <li>• WARN:No Input</li> <li>• FAIL:Lost</li> <li>• WARN:Silent PCM</li> <li>• WARN: Overload PCM</li> <li>• FAIL:Input Lost</li> <li>• Fail:Mixed</li> <li>• OK:Input</li> </ul>
ANALOG_AUDIO_OUTPUT_1_1_STATE to ANALOG_AUDIO_OUTPUT_2_2_STATE	The Analog audio output state: <ul style="list-style-type: none"> <li>• OK:PCM</li> <li>• WARN:No Input</li> <li>• FAIL:Lost</li> <li>• WARN:Silent PCM</li> <li>• WARN: Overload PCM</li> <li>• Fail:Mixed</li> </ul>
OUTPUT_1_EMBEDDED_AUDIO_1_DOLBY Y to OUTPUT_1_EMBEDDED_AUDIO_8_DOLBY Y	The Dolby output line state: <ul style="list-style-type: none"> <li>• NONE</li> <li>• OK</li> <li>• WARN:Early</li> <li>• WARN:Late</li> <li>• FAIL:Early</li> <li>• FAIL:Late</li> </ul>
DOLBY_DECODE_INPUT_BITSTREAM_FORMAT	<ul style="list-style-type: none"> <li>• Dolby D 32</li> <li>• Dolby D 16 Ch1</li> <li>• Dolby D 16 Ch2</li> <li>• Dolby D 16 Ch1/2</li> <li>• Dolby E 24</li> <li>• Dolby E 20</li> <li>• Dolby E 16</li> <li>• PCM</li> <li>• ERR:Unknown</li> </ul>

Log Field	Description
DOLBY_DECODE_INPUT_BITSTREAM_STATUS	<ul style="list-style-type: none"> <li>• No Errors</li> <li>• ERR:D Frame Error</li> <li>• ERR:D CRC Error</li> <li>• ERR:D Decode Error</li> <li>• ERR:E CRC Error</li> <li>• ERR:E Decode Error</li> <li>• ERR:E Metadata Error</li> <li>• ERR:E AC-3 Meta Error</li> <li>• ERR:Unsupp E F Rate</li> <li>• ERR:Unsupp E Config</li> <li>• ERR:Unknown</li> </ul>
DOLBY_FRAME_SYNC	<ul style="list-style-type: none"> <li>• Present</li> <li>• ERR:Incorrect</li> <li>• ERR:Absent/Invalid</li> <li>• -</li> </ul>
DOLBY_FRAME_RATE	<ul style="list-style-type: none"> <li>• ERR:Reserved</li> <li>• 23.98 fps</li> <li>• 24 fps</li> <li>• 25 fps</li> <li>• 29.97 fps</li> <li>• 30 fps</li> <li>• 50 fps</li> <li>• 59.94 fps</li> <li>• 60 fps</li> <li>• ERR:Unknown</li> <li>• ERR:Not present</li> <li>• -</li> </ul>

Log Field	Description
DOLBY_PROGRAM_CONFIG	<ul style="list-style-type: none"> <li>• 5.1+2</li> <li>• 5.1+2x1</li> <li>• 4+4</li> <li>• 4+2x2</li> <li>• 4+2+2x1</li> <li>• 4+4x1</li> <li>• 4x2</li> <li>• 3x2+2x1</li> <li>• 2x2+4x1</li> <li>• 2+6x1</li> <li>• 8x1</li> <li>• 5.1</li> <li>• 4+2</li> <li>• 4+2x1</li> <li>• 3x2</li> <li>• 2x2+2x1</li> <li>• 2+4x1</li> <li>• 6x1</li> <li>• 4</li> <li>• 2+2</li> <li>• 2+2x1</li> <li>• 4x1</li> <li>• 7.1</li> <li>• 7.1 Screen</li> <li>• ERR:Unknown</li> </ul>
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	<ul style="list-style-type: none"> <li>• ERR:Reserved</li> <li>• 1/0 (C)</li> <li>• 2/0 (L R)</li> <li>• 3/0 (L C R)</li> <li>• 2/1 (L R S)</li> <li>• 3/1 (L C R S)</li> <li>• 2/2 (L R SL SR)</li> <li>• 3/2 (L C R SL SR)</li> <li>• ERR:Unknown</li> <li>• -</li> </ul>

Log Field	Description
DOLBY_PROG_LFE_CHAN	<ul style="list-style-type: none"> <li>• OFF</li> <li>• ON</li> <li>• Unknown</li> </ul>
DOLBY_PROG_DIALNORM	<p>The dialog norm of selected program:</p> <ul style="list-style-type: none"> <li>• -</li> <li>• Err:Invalid</li> <li>• -1 to -31</li> </ul>
DOLBY_ENC_STATUS	<ul style="list-style-type: none"> <li>• Encoding</li> <li>• ERR:Stopped</li> <li>• WARN:Pass Through</li> <li>• ERR:Unknown</li> </ul>
DOLBY_ENC_EXT_METADATA_STATUS	<ul style="list-style-type: none"> <li>• ERR:Absent</li> <li>• ERR:Invalid</li> <li>• WARN:Valid - no AC-3</li> <li>• Valid - no Ext BSI</li> <li>• Valid - inc Ext BSI</li> <li>• ERR:Unknown</li> </ul>
DOLBY_ENC_REVERSION_STATUS	<ul style="list-style-type: none"> <li>• Using Internal</li> </ul>
INPUT Ancillary Line 7= to INPUT Ancillary Line 23=	<p>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.</p> <p>Valid examples are:</p> <ul style="list-style-type: none"> <li>• OK:WSS</li> <li>• OK:WST</li> <li>• LOST:608</li> <li>• OK:708</li> <li>• LOST:2016/VI</li> <li>• OK:OP47</li> <li>• OK:ATC/LTC</li> </ul>

Log Field	Description
OUTPUT_1 Ancillary Line 7= to OUTPUT_1 Ancillary Line 23=	<p>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.</p> <p>Valid examples are:</p> <ul style="list-style-type: none"> <li>• OK:WSS</li> <li>• OK:WST</li> <li>• LOST:608</li> <li>• OK:708</li> <li>• LOST:2016/VI</li> <li>• OK:OP47</li> <li>• OK:ATC/LTC</li> </ul>
INPUT_ASPECT=	<ul style="list-style-type: none"> <li>• 4/3 (coded aspect ratio)</li> <li>• 16/9 (coded aspect ratio)</li> <li>• -</li> </ul>
INPUT_AFD	<ul style="list-style-type: none"> <li>• Coded Frame (active format)</li> <li>• 4:3 (center) (4:3 center active format)</li> <li>• 16:9 (center) (16:9 center active format)</li> <li>• 14:9 (center) (14:9 center active format)</li> <li>• 4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format)</li> <li>• 16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format)</li> <li>• 16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format)</li> <li>• Box 16:9(top) (active format)</li> <li>• Box 14:9(top) (active format)</li> <li>• Box &gt;16:9(ctr) (center active format)</li> <li>• Unknown (unknown active format)</li> <li>• -</li> <li>• None</li> </ul>
INPUT_2016_STATE=	<p>The SMPTE 2016 signaling data state:</p> <ul style="list-style-type: none"> <li>• - (not configured)</li> <li>• INFO:OK (detected but not configured)</li> <li>• FAIL:NO 2016</li> <li>• OK</li> </ul>
INPUT_2016_ASPECT=	<ul style="list-style-type: none"> <li>• 4/3 (coded aspect ratio)</li> <li>• 16/9 (coded aspect ratio)</li> <li>• -</li> </ul>

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

Log Field	Description
INPUT_WSS=	<p>The relevant WSS signaling data.</p> <p>ETSI codes:</p> <ul style="list-style-type: none"> <li>• -</li> <li>• Parity Error</li> <li>• Box 14:9 C</li> <li>• FAIL:Lost</li> <li>• OK</li> <li>• FAIL:Error</li> <li>• Box 14:9 Top</li> <li>• Box 16:9 Top</li> <li>• FF 16:9 Ana</li> <li>• FF 4:3</li> <li>• Box 16:9 C</li> <li>• Box &gt; 16:9 C</li> <li>• FF4:3 SP 14:9C</li> </ul> <p>AFD codes:</p> <ul style="list-style-type: none"> <li>• Coded Frame</li> <li>• 4:3</li> <li>• 16:9</li> <li>• 14:9</li> <li>• (AFD=4)</li> <li>• 4:3 SP 14:9 C</li> <li>• 16:9 SP 14:9 C</li> <li>• 16:9 SP 4:3</li> </ul>
INPUT-VI_STATE=	<p>The VI signaling data state:</p> <ul style="list-style-type: none"> <li>• -</li> <li>• OK:SMPTE</li> <li>• OK:AFD</li> <li>• OK:AFD 2008</li> <li>• INFO:OK:SMPTE (detected but not configured)</li> <li>• INFO:OK:AFD (detected but not configured)</li> <li>• INFO:OK:AFD 2008 (detected but not configured)</li> <li>• FAIL:NO VI</li> </ul>
INPUT_VI_ASPECT=	<ul style="list-style-type: none"> <li>• 4/3 (coded aspect ratio)</li> <li>• 16/9 (coded aspect ratio)</li> <li>• -</li> </ul>



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

---

Log Field	Description
OUTPUT_1_AFD=	<ul style="list-style-type: none"><li>• Coded Frame (active format)</li><li>• 4:3 (center) (4:3 center active format)</li><li>• 16:9 (center) (16:9 center active format)</li><li>• 14:9 (center) (14:9 center active format)</li><li>• 4:3 SP 14:9 (4:3 shoot-and-protect 14:9 active format)</li><li>• 16:9 SP 14:9 (16:9 shoot-and-protect 14:9 active format)</li><li>• 16:9 SP 4:3 (16:9 shoot-and-protect 4:3 active format)</li><li>• Box 16:9(top) (active format)</li><li>• Box 14:9(top) (active format)</li><li>• Box &gt;16:9(ctr) (center active format)</li><li>• -</li><li>• None</li></ul>

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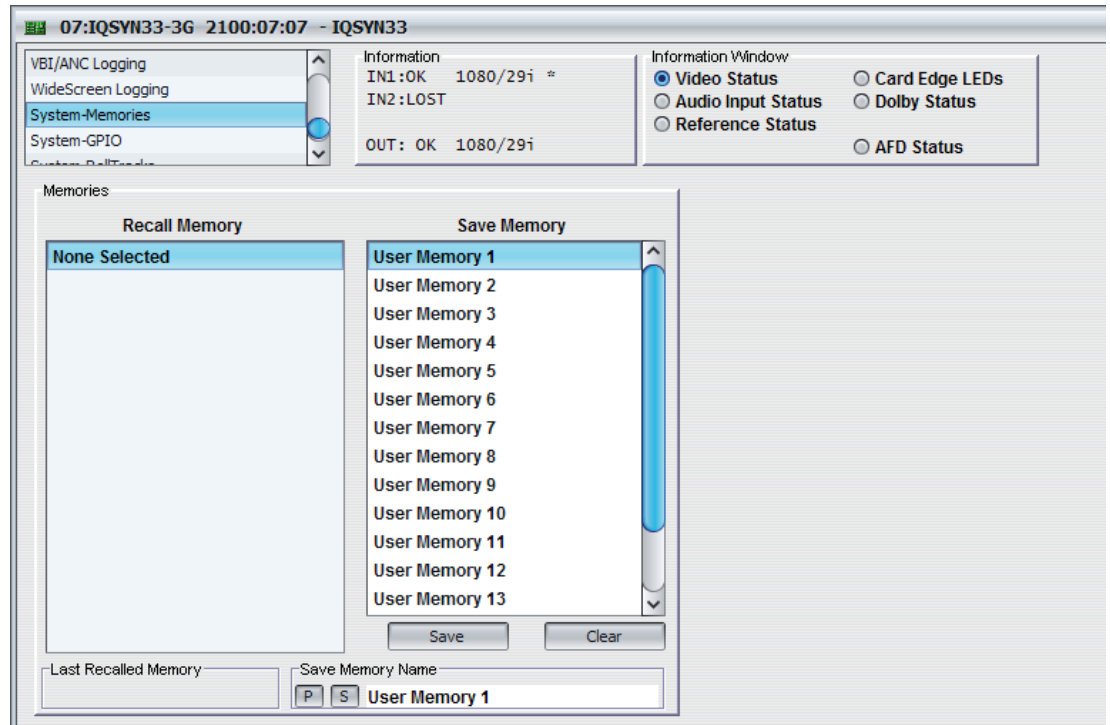
### 5.33 System Memories

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.



#### 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:

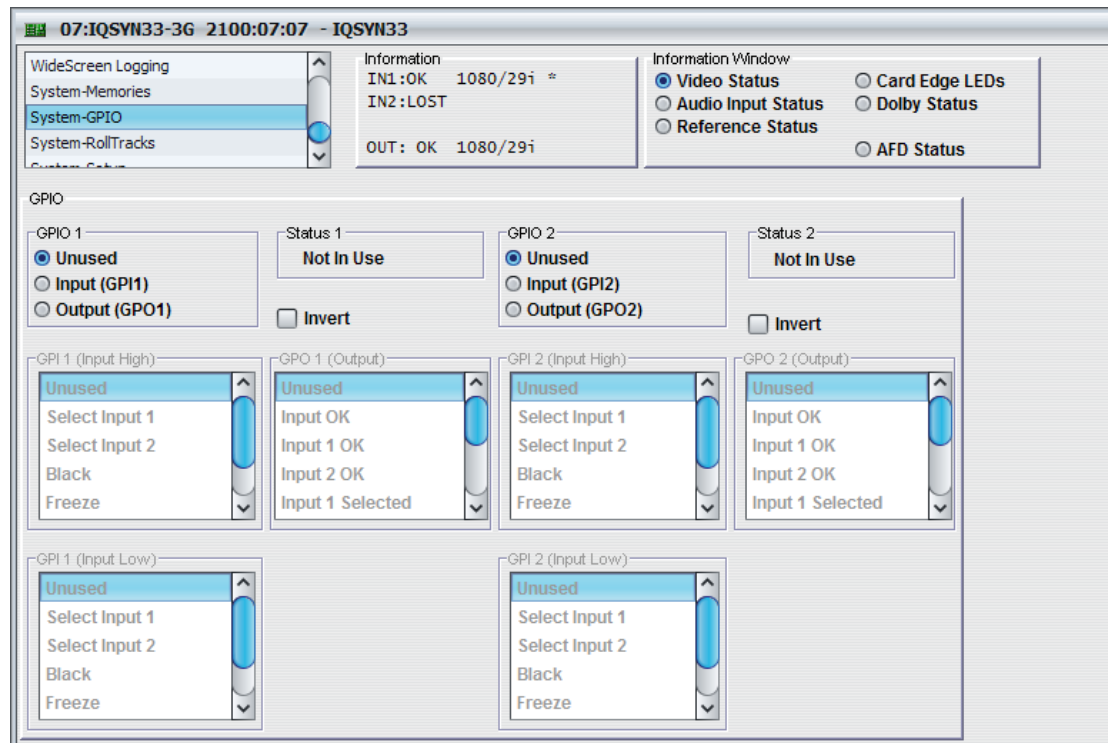
- In the Recall Memory column, select the memory you want to recall. The recalled settings are applied and the memory name appears under Last Recalled Memory.

**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.



### 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 and 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

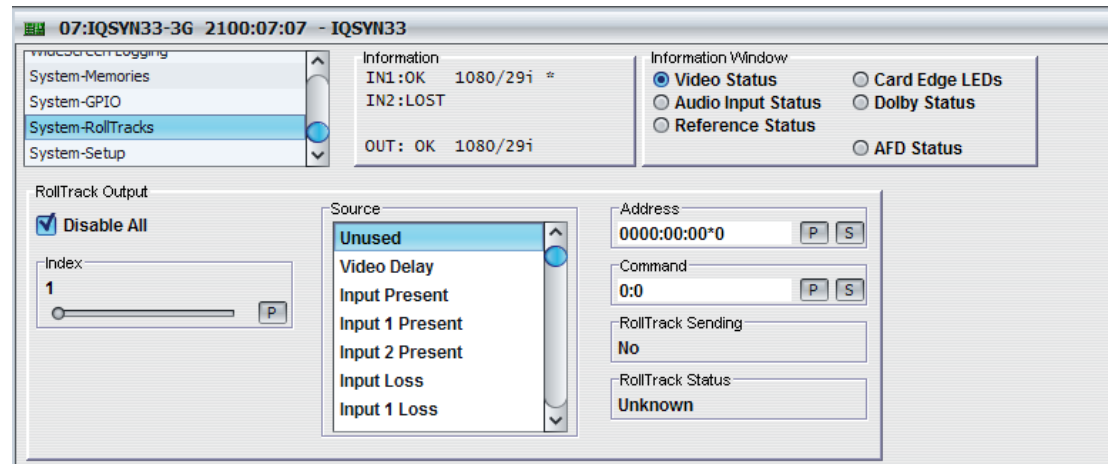
The Status box shows whether the GPI inputs or outputs are in use.

## 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



### 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.

**07:IQSYN33-3G 2100:07:07 - IQSYN33**

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

System-Memories  
System-GPIO  
System-RollTracks  
System-Setup

Product

Product: IQSYN33-3G  
Software Version: 5.7.12  
PCB: RGMPP1B  
Licensed Options: SDHD;3G  
Serial No.: S50043096  
Build: 0004803644  
KOS: V115 Release  
Licensed Options 2: OK:0 Option(s)

Defaults  
Default Settings  
Factory Defaults

Input 1 Name: INPUT 1 SERIAL IN  
Input 2 Name: INPUT 2 SERIAL IN

Soft Restart  
Hard Restart  
Hard Restart (Non-demo)

Time Limited Options: 24 Hour Demo

Remaining Demo Time: 30[D]:00[H]:00[M]  
Time before next restart: 01[D]:00[H]:00[M]

Dolby Options  
Dolby E/D Decoder  
Dolby Digital Encoder  
Dolby E Encoder

Software Options  
Audio UpMixer  
5.1 Loudness  
1x2.0 Loudness  
2x2.0 Loudness  
Color Corrector

FPGA  
Software Version: 5930  
Serial No.: 317718  
Temperature: OK  
FPGA Version: 5899  
Dolby Module Type: Not Present  
Protocol Version: 37  
Hardware Build: 1507  
Program CRC: 0xf65aaf1d  
Board Type: IQSYN33  
Uptime: 1:04

### 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