Snell Advanced Media

User Instruction Manual

IQOSY30

3G/HD/SD-SDI Frame Synchronizer with Fiber Interfacing

Information and Notices

Copyright and Disclaimer

Contact Details

Customer Support

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

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

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

Safety Information

Explanation of Safety Symbols (GB)

This symbol refers the user to important information contained in the accompanying literature. Refer to manual.

This symbol indicates that hazardous voltages are present inside.
No user serviceable parts inside.
This unit should only be serviced by trained personnel.

Safety Warnings

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

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 service personnel.

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

Power connection in countries other than the USA

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

The colour code for the lead is as follows:

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

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

Légende : (F)

Ce symbole indique qu'il faut prêter attention et se référer au manuel.

Ce symbole indique qu'il peut y avoir des tensions électriques à l'intérieur de l'appareil. Ne pas intervenir sans l'agrément du service qualifié.

Précaution d'emploi :

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

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

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

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

Erklärung der Sicherheitssymbole (D)

Dieses Symbol weist den Benutzer auf wichtige Informationen hin, die in der begleitenden Dokumentation enthalten sind.

Dieses Symbol zeigt an, dass gefährliche Spannung vorhanden ist.
Es befinden sich keine vom Benutzer zu wartenden Teile im Geräteinneren.
Dieses Gerät sollte nur von geschultem Personal gewartet werden

Sicherheits-Warnhinweise

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

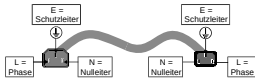
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation.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

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

Netzanschluss in anderen Ländern als der USA

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

GRÜN GELB E = Schutzleiter ⏚
BLAU N = Nulleiter
BRAUN L = P = Phase



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

Explicación de los Símbolos de Seguridad (ESP)

Éste símbolo refiere al usuario información importante contenida en la literatura incluida. Referirse al manual.

Éste símbolo indica que voltajes peligrosos están presentes en el interior.
No hay elementos accesibles al usuario dentro.
Esta unidad sólo debería ser tratada por personal cualificado.

Advertencias de Seguridad

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

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

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

Conexión de alimentación en otros países que no sean USA

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

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

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

Simboli di sicurezza: (I)

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

Questo simbolo indica che all'interno dell'apparato sono presenti tensioni pericolose. Non cercare di smontare l'unità.
Per qualsiasi tipo di intervento rivolgersi al personale qualificato.

Attenzione:

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

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

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

Connessione elettrica nei paesi diversi dagli Stati Uniti

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

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

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

Forklaring på sikkerhedssymboler (DK)

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

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

Sikkerhedsadvarsler

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

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

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

Nettilslutning i andre lande end USA

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

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

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

Förklaring av Säkerhetssymboler (S)

Denna symbol hänvisar användaren till viktig information som återfinns i litteraturen som medföljer. Se manualen.

Denna symbol indikerar att livsfarlig spänning finns på insidan.
Det finns inga servicevänliga delar inne i apparaten.
Denna apparat få endast repareras av utbildad personal.

Säkerhetsvarningar

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

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

- **För att reducera risken för elektrisk stöt, utsätt inte apparaten för regn eller fukt.**
- **Se alltid till att apparaten är ordentligt jordad samt att strömtillförseln är korrekt utförd.**
- **Denna apparat måste bli försörjd från ett strömsystem som är försedd med jordadanslutning ⏚ samt ha en neutral anslutning som lätt identifierbar.**
- **Vägguttaget som strömförsörjer apparaten bör finnas i närheten samt vara lätttillgänglig.**

Strömkontakter i länder utanför USA

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

GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)

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

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

Turvamerkkien selitys (FI)

Tämä merkki tarkoittaa, että laitteen mukana toimitettu kirjallinen materiaali sisältää tärkeitä tietoja. Lue käyttöohje.

Tämä merkki ilmoittaa, että laitteen sisällä on vaarallisen voimakas jännite. Sisäpuolella ei ole mitään osia, joita käyttäjä voisi itse huoltaa. Huollon saa suorittaa vain alan ammattilainen.

Turvaohjeita

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

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

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

Sähkökytkentä

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

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

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

Símbolos de Segurança

P

O símbolo triangular adverte para a necessidade de consultar o manual antes de utilizar o equipamento ou efectuar qualquer ajuste.

Este símbolo indica a presença de voltagens perigosas no interior do equipamento. As peças ou partes existentes no interior do equipamento não necessitam de intervenção, manutenção ou manuseamento por parte do utilizador. Reparações ou outras intervenções devem ser efectuadas apenas por técnicos devidamente habilitados.

Avisos de Segurança

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

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

Ligação da alimentação noutros países que não os EUA

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

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

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

Επεξήγηση των Συμβόλων Ασφαλείας

G

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

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

Προειδοποίηση Ασφαλείας

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

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

Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

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

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

ΜΠΛΕ καλώδιο συνδέεται στο N (Ουδέτερο Αγωγό)

ΚΑΦΕ καλώδιο συνδέεται στο L (Αγωγό Φάσης)

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

Laser Safety

This product operates with Class 1 laser products.

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

Ventilation

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

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

Safety Standards

This equipment conforms to the following standards:

EN60950-1 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (3rd Edition) - UL File E193966

Standard for Safety – Professional Video and Audio equipment.

EMC Standards

This equipment conforms to the following standards:

EN 55032:2012 (Class A)
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements.

EN 61000-3-2:2014 (Class A)
Limits for Harmonic Current Emissions.

EN 61000-3-3:2013
Limitation of Voltage Changes, Voltage Fluctuations and Flicker in Public Low-Voltage Supply Systems.

FCC/CFR 47:Part 15, Class A
Federal Communications Commission Rules Part 15, Subpart B, Class A.

EMC Environment

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

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

EMC Performance of Cables and Connectors

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 pageed cables terminated in connectors having a metal shell. The cable page 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-pageed coaxial cables such as Belden 1694 or BBC type PSF1/2M.

D-type Connectors

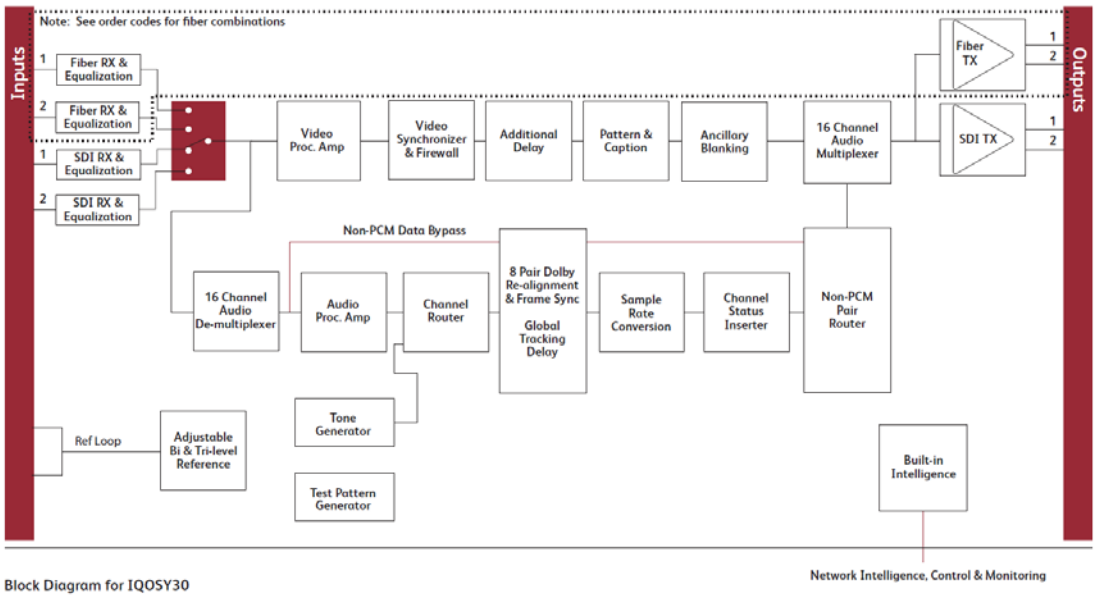
D-type connectors shall have metal shells making good RF contact with the cable page. Connectors having indents which improve contact between the plug and socket shells are recommended.

Contents

1 Introduction

1.1 Module Description

The IQOSY30 provides frame synchronization for HD-SDI at 3 Gbit/s or 1.5 Gbit/s, or SD-SDI 270 Mbit/s with 16-channel embedded audio processing. Including two SDI inputs, and using a combination of fiber optic input and output Small Form-factor Pluggable (SFP) units, the IQOSY30 enables increased connectivity distances for HD and 3 Gbit/s SDI signals. A selection of electrical SFP units is also available providing up to four inputs and three outputs or two inputs and five outputs, plus an HDMI output version (including adapter cable) to provide a built-in local monitoring output. A video proc amp provides complete control over video levels, and audio processing features include audio delay, gain, invert, and channel level routing.



Block Diagram for IQOSY30

1.2 Order Codes

Note: Modules with “A” order codes (for example, IQSY30TR-1**A**) can be fitted into either A- or B-style enclosures. Modules with “B” order codes (for example, IQSY30TR-1**B**) can only be fitted into B-style enclosures. See page 14.

The following product order codes are covered by this manual:

1.2.1 Rear Panel with 2 SDI Outputs

IQOSY3099-1A3 **IQOSY3099-1B3**	3G/HD/SD-SDI Synchronizer with 2 empty SFP cages, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. **Note**: SFPs are not supplied with these rear panels. See the IQOSY30 product data sheet for SFP order codes.
IQOSY30TR-1A **IQOSY30TR-1B**	HD/SD-SDI Synchronizer with single fiber transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY301T-1A **IQOSY301T-1B**	HD/SD-SDI Synchronizer with single fiber transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY302T-1A **IQOSY302T-1B**	HD/SD-SDI Synchronizer with dual fiber transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY301R-1A **IQOSY301R-1B**	HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY302R-1A **IQOSY302R-1B**	HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30DR-1A **IQOSY30DR-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30DT-1A **IQOSY30DT-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30DTR-1A **IQOSY30DTR-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30HR-1A **IQOSY30HR-1B**	HD/SD-SDI Synchronizer with HD-BNC SFP dual receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30HT-1A **IQOSY30HT-1B**	HD/SD-SDI Synchronizer with HD-BNC dual transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30HTR-1A **IQOSY30HTR-1B**	HD/SD-SDI Synchronizer with HD-BNC SFP transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through.
IQOSY30-3G	Upgrade for IQOSY30 HD/SD-SDI Synchronizer to operate with 3 Gbit/s SDI signals.

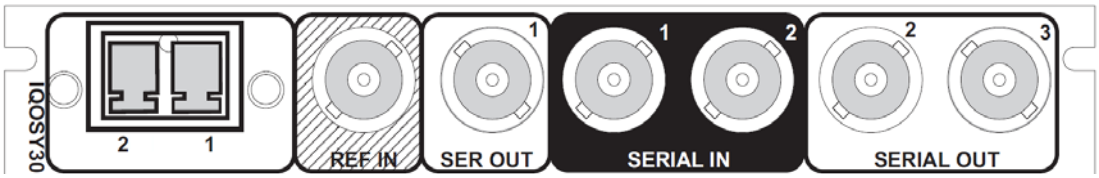
1.2.1.1 Rear Panels No Longer Supplied with New Systems

The following table lists the rear panels that were supplied with earlier IQOSY30s. These rear panels are no longer supplied but are listed here for customers that have them fitted.

SFP rear panels are now supplied without any SFPs fitted and the SFPs are ordered separately. See section 1.2.1 for details.

IQOSY30TR-1A3 **IQOSY30TR-1B3**	3G/HD/SD-SDI Synchronizer with single fiber transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY301T-1A3 **IQOSY301T-1B3**	3G/HD/SD-SDI Synchronizer with single fiber transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY302T-1A3 **IQOSY302T-1B3**	3G/HD/SD-SDI Synchronizer with dual fiber transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY301R-1A3 **IQOSY301R-1B3**	3G/HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY302R-1A3 **IQOSY302R-1B3**	3G/HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30DR-1A3 **IQOSY30DR-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30DT-1A3 **IQOSY30DT-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30DTR-1A3 **IQOSY30DTR-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30HR-1A3 **IQOSY30HR-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC SFP dual receiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30HT-1A3 **IQOSY30HT-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC dual transmitter, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.
IQOSY30HTR-1A3 **IQOSY30HTR-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC SFP transceiver, 2 SDI inputs, 2 SDI outputs, 1 reference loop-through. No longer supplied.

1.2.2 Rear Panel with 3 SDI Outputs



IQOSY3098-1A3 **IQOSY3098-1B3**	3G/HD/SD-SDI Synchronizer with 2 empty SFP cages, 2 SDI inputs, 3 SDI outputs, 1 reference input. **Note**: SFPs are not supplied with these rear panels. See the IQOSY30 product data sheet for SFP order codes.
IQOSY3000-1A **IQOSY3000-1B**	HD/SD-SDI Synchronizer with single fiber transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3001-1A **IQOSY3001-1B**	HD/SD-SDI Synchronizer with single fiber transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3002-1A **IQOSY3002-1B**	HD/SD-SDI Synchronizer with dual fiber transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3003-1A **IQOSY3003-1B**	HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3004-1A **IQOSY3004-1B**	HD/SD-SDI Synchronizer with dual fiber receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3005-1A **IQOSY3005-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3006-1A **IQOSY3006-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3007-1A **IQOSY3007-1B**	HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3008-1A **IQOSY3008-1B**	HD/SD-SDI Synchronizer with HD-BNC SFP transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3009-1A **IQOSY3009-1B**	HD/SD-SDI Synchronizer with HD-BNC SFP dual transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY3010-1A **IQOSY3010-1B**	HD/SD-SDI Synchronizer with HD-BNC SFP dual receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input.
IQOSY30-3G	Upgrade for IQOSY30 HD/SD-SDI Synchronizer to operate with 3 Gbit/s SDI signals.

1.2.2.1 Rear Panels No Longer Supplied with New Systems

The following table lists the rear panels that were supplied with earlier IQOSY30s. These rear panels are no longer supplied but are listed here for customers that have them fitted.

SFP rear panels are now supplied without any SFPs fitted and the SFPs are ordered separately, see section 1.2.2 for details.

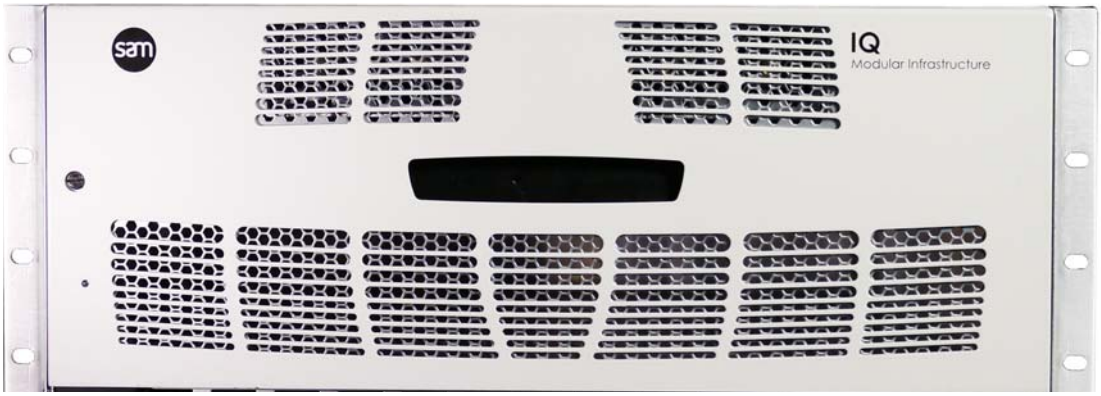
IQOSY3000-1A3 **IQOSY3000-1B3**	3G/HD/SD-SDI Synchronizer with single fiber transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3001-1A3 **IQOSY3001-1B3**	3G/HD/SD-SDI Synchronizer with single fiber transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3002-1A3 **IQOSY3002-1B3**	3G/HD/SD-SDI Synchronizer with dual fiber transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3003-1A3 **IQOSY3003-1B3**	3G/HD/SD-SDI Synchronizer with single fiber receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3004-1A3 **IQOSY3004-1B3**	3G/HD/SD-SDI Synchronizer with dual fiber receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3005-1A3 **IQOSY3005-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3006-1A3 **IQOSY3006-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3007-1A3 **IQOSY3007-1B3**	3G/HD/SD-SDI Synchronizer with DIN1.0/2.3 SFP dual receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3008-1A3 **IQOSY3008-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC SFP transceiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3009-1A3 **IQOSY3009-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC SFP dual transmitter, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.
IQOSY3010-1A3 **IQOSY3010-1B3**	3G/HD/SD-SDI Synchronizer with HD-BNC SFP dual receiver, 2 SDI inputs, 3 SDI outputs, 1 reference input. No longer supplied.

1.3 Enclosures

The module 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 10.

1.3.1 B-style Enclosures



Enclosure order code: IQH4B-S-P

Note: IQOSY30 modules **must be fitted in slots 1 - 16** of the IQH4B enclosure. They will not operate correctly in any others.

This restriction does not apply to any other SAM enclosures.

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

1.3.2 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

1.4 Feature Summary

The IQOSY30 provides the following features:

- 3G/HD/SD-SDI synchronizer with up to 9 frames of video delay.
- Handles 16 channels of embedded audio present on the incoming SDI stream with no disturbance during video synchronizer frame wraps or drops.
- Standards supported:
  - 3G-SDI to SMPTE 424M/425M level A and B compatible
  - HD-SDI to SMPTE 292M/274M/296M
  - SD-SDI to SMPTE 259M-C
  - Fiber to SMPTE 297-2006C
- Loop-through reference capable of referencing to a bi-level or tri-level signal with auto detect functionality.
- Single mode fiber optic transmitter and receiver options at a 1310 nm wavelength.
- Agile, router switching tolerant synchronizer operation with precision genlock adjustment allowing you to time any SDI signal to pixel accuracy.
- Firewall for video and processed PCM audio to provide a continuous uninterrupted output.
- Channel level (Sub-frame) routing.
- Audio Proc. Amp features including independent gain, invert and mute control.
- Adjustable delay for selected audio channels.
- Any group of embedded audio may be passed unchanged, processed or blanked.
- Fully Dolby E compatible with embedded Dolby E support – pair routing and Dolby E reframing – Re-align Dolby E guard band with video frame boundary prior to synchronization.
- Independent HANC and VANC blanking control.
- Input loss detection – default output of black/pattern/freeze.
- Video controls including video gain, offset and hue, picture position and Y/C.
- In-built test pattern and audio tone generators.
- Input SDI, CRC, EDH and ANC data checking and reporting.
- 16x user memories, save/recall/rename.
- RollCall control and monitoring compatible with standard RollTrack, logging and reporting features.

2 Technical Specification

Inputs and Outputs	
Signal Inputs	
SDI Inputs	2
Input 1 Cable Length	Up to 70 m Belden 1694A @ 3 Gbit/s Up to 160 m Belden 1694A @ 1.5 Gbit/s >350 m Belden 1694A @ 270 Mbit/s
Input 2 Cable Length	Up to 60 m Belden 1694A @ 3 Gbit/s Up to 100 m Belden 1694A @ 1.5 Gbit/s Up to 100 m 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.
Fiber Signal Input	
Input	Up to 2
Optical	3 Gbit/s HD-SDI, 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
Connector/Format	LC single mode
Standard	SMPTE 297-2006
Signal Outputs	
SDI Outputs	4x
Fiber Signal Output	
Outputs	Up to 2
Optical	3 Gbit/s HD-SDI, 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
Connector/Format	LC single mode
Standard	SMPTE 297-2006
Controls	
Indicators	
Power	OK (Green)
CPU running	OK (Green flashing)
FPGA running	OK (Green flashing)
Status	OK (Green), Warning (Yellow), Error (Red)
Input 1	OK (Green), Loss (Off)
Input 2	OK (Green), Loss (Off)
Rx 1	OK (Green), Loss (Off)
Rx 2	OK (Green), Loss (Off)
Reference Lock	OK or Cross-locking (Green), Loss (Off), Std error (Flashing)
Genlock and Video Delay	
Genlock Mode	Free-run, Lock to Reference, Lock to input

Genlock H-Phase	±0.5H in pixel clock steps.
Genlock V-Phase	± 0.5F 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	0-9 Frames
Video Controls	
Input Standard	1125(1080)/50P (A & B), 1125(1080)/59P (A & B), 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i
Default Video Output Type	Pattern, Freeze, Black
Default Video Output Standard	Last Known Good, 1125(1080)/50P (A & B), 1125(1080)/59P (A & B), 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i
Input Select	Input 1, Input 2, Option 1, Option 2
Manual Freeze	On/Off
Freeze	Field/Frame
VANC Data	Blank VANC
SD VANC Data	Line blanking (23/336 in 625, 21, 22, 283, 284 in 525)
HANC Data	Blank HANC (Removes all HANC data. Note audio removed when embedders disabled)
ProcAmp Enable	On/Off
Black Level	±100 mV in steps of 0.8 mV
Hue Adjust	±180° in steps of 1°
Master Video Gain	±6 dB in steps of 0.1 dB
Y-Gain	±6 dB in steps of 0.1 dB
Cb/Cr Gain	±6 dB in steps of 0.1 dB
Y/C Timing	± 8 pixels in 2 pixel steps SD ± 16 pixels in 2 pixel steps HD
Picture Position	± 8 pixels in 2 pixel steps SD ± 16 pixels in 2 pixel steps HD
Pattern On	On/Off
Pattern Select	75% color bars, black
Caption On	On/Off
Caption Animation	Slow/Medium/Fast
Edit Caption	19 characters available
Audio Controls	
Embedder Assignment	
Group 1 to 4 Enable	On/Off

Pair 1 to 8 Source L/Non-PCM	De-embed 1-16, Tone, Silence
Pair 1 to 8 Source R	De-embed 1-16, Tone, Silence
Pair 1 to 8 Stereo	Link channel pairs
Pair 1 to 8 Polarity L/R	On/Off
Pair 1 to 8 Gain L/R	+12 dB to -72 dB in 0.1 dB steps.
Pair 1 to 8 Non-PCM	On/Off.
Processed Audio Delay Control	
Coarse Manual Delay	Up to 1.75 s in 5 ms steps
Fine Manual Delay	+/- 0.25 s in 0.5 ms steps
Variable Audio Delay Control Source	Internal, Manual
Dolby-E	
Dolby-E Auto Alignment	On/Off
User Dolby E Line	On/Off
Tone	
Frequency L/R	100 Hz to 10 kHz in 100 Hz steps
Channel Ident	On/Off
HANC Data	Blank HANC (Removes all HANC data. Audio removed when embedders disabled)
Audio Monitoring	
Silence Detect	0 to -80 dB in steps of 1 dB
Signal Overload Level	0 to -80 dB in steps of 1 dB
Warning Timer	1 to 20 seconds in steps of 1 second
Other Controls	
User Memories	16x Save, Recall, Rename
Memory Naming	User configurable naming of memories 1-16
RollTrack Index	Up to 70 RollTRack destinations
Optical Logging*	Tx Laser Bias High Warning Tx Power Low Warning Tx Power High Warning
Laser Wavelength	Input 1 (2) Rx Power High Warning Input 1 (2) Rx Power Low Warning Input 1 (2) Rx Power Measurement

Roll Track Sources	Unused, Input Present, Input Loss, Output Rate/Std, Embedded Audio (Pairs 1-8) PCM, Embedded Audio (Pairs 1-8) Non-PCM, Embedded Audio (Pairs 1-8) Loss, Tx Laser Bias High Warning*, Input 1 Rx Power High Warning*, Input 2 Rx Power High Warning*, Input 1 Rx Power Low Warning*, Input 2 Rx Power Low Warning*, Audio Delay, Video Delay, Input 1/2 Select & Option 1/2 Select, Output Unfreeze & Freeze, Output Pattern off & On, Output Black Off/On, Output Caption Off/On, Reference Loss/OK.
Information Window	Input Status, Video Status, Audio Input Status, Reference Status
Factory Default	Resets all module settings to factory specified defaults but does not clear memories.
Restart	Software restart of the module
Module Information	Reports following module information: Software version, Serial number, Build number, KOS version, Firmware version, PCB version.
Specifications	
Electrical	3 Gbit/s SDI to SMPTE 424M 1.5 Gbit/s HD-SDI to SMPTE 292M 270 Mbit/s SDI to SMPTE 259M-C / DVB-ASI
Connector/Format	BNC/ 75 Ohm 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 Electrical	External - HD tri-level / SD bi-level / Input video syncs 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
Analog Reference Return Loss	SD bi-level > 40 dB to 5.5 MHz HD tri-level > 35 dB to 30 MHz
Optical 1310 nm Tx	
Wavelength	1310 nm
Spectral Width (FWHM)	>1.5 nm (typical)
Output Power	0 to -5 dBm (-2 dBm typical)
Extinction Ratio	>7.5:1 (typical)
Optical Rx	
Input Wavelength Range	1260 nm (min.), 1620 nm (max.)
Optical Power Input Range	>0 dBm, <-20 dBm
Link Distance	Up to 30 km
Video Standards	
Standards	1125(1080)/50P (A & B), 1125(1080)/59P (A & B), 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i

Minimum Delay (Reference Lock or Free Run)	SD: 67 µs HD: 28 µs 3G-A: 15 µs 3G-B: 25 µs
Typical Delay (Input Lock)	Typical delay (input lock with Dolby E alignment off): 2 lines Typical delay (input lock with Dolby E alignment on): 1 frame
Synchronizer Hysteresis Window	5 µs
Embedded Audio Handling	HD - 24-bit synchronous 48 kHz to SMPTE 299M SD - 20-bit synchronous 48 Hz to SMPTE 272M-A
Embedded Audio Delay	Minimum (PCM) 2 ms Maximum (Non-PCM) SD: 67 µs HD: 28 µs 3G-A: 15 µs 3G-B: 25 µs
Power Consumption	
Module Power Consumption	9.5 W Max (A Frames) 9.5 PR (B Frames)

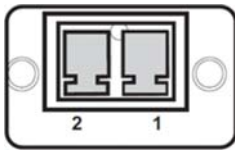
3. Connections

This section describes the physical input and output connections provided by the IQOSY30.

3.1 Rear Panel with 2 SDI Outputs

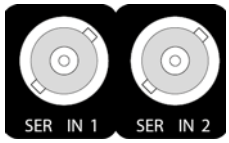
3.1.1 Fiber Inputs/Outputs

Two fiber optic LC single mode connectors provide either inputs or outputs, depending on the model.



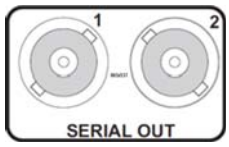
3.1.2 SDI Inputs

Serial digital input to the unit is via two BNC connectors, which terminate in 75 Ohms.



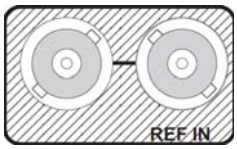
3.1.3 SDI Outputs

Serial digital output from the unit is via two BNC connectors, which terminate in 75 Ohms.



3.1.4 Analog Reference Input

The external sync input to the unit is made via the passive loop-through BNC connectors for 75 Ohms.



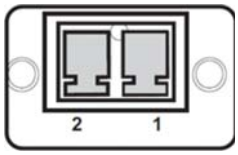
It should be noted that proper operation to the full specification can only be achieved with a correctly terminated, noise-free, stable, black sync reference input. Whilst lock may be achieved with an unsuitable sync source the increased jitter evident on the SDI output will affect locking and cable length performance at the receiving equipment.

Note: If the loop-through facility is not used, the unused BNC socket must be fitted with a 75 Ohm terminator.

3.2 Rear Panel with 3 SDI Outputs

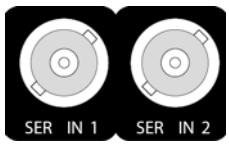
3.2.1 Fiber Inputs/Outputs

Two fiber optic LC single mode connectors provide either inputs or outputs, depending on the model.



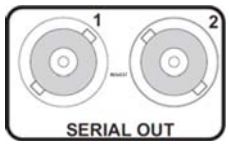
3.2.2 SDI Inputs

Serial digital input to the unit is via two BNC connectors, which terminate in 75 Ohms.



3.2.3 SDI Outputs

Serial digital output from the unit is made via BNC connectors, which terminate in 75 Ohms. Two or three connectors are provided, depending on the model.



3.2.4 Analog Reference Input

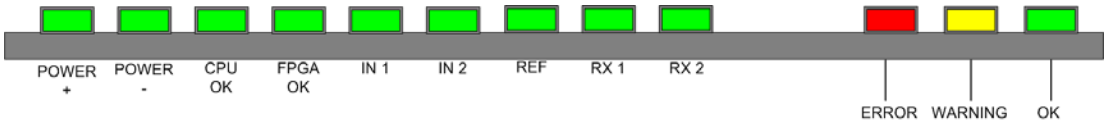
The external sync input to the unit is made via a BNC connector, which terminates in 75 Ohms.

It should be noted that proper operation to the full specification can only be achieved with a correctly terminated, noise-free, stable, black sync reference input. Whilst lock may be achieved with an unsuitable sync source the increased jitter evident on the SDI output will affect locking and cable length performance at the receiving equipment.

Note: The IQOSY30 has 75 R termination link for reference input located on the board.

4. Card Edge LEDs

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



LED	Color	Description
POWER +	Green	Indicates that a positive power supply is present.
POWER -	Green	Indicates that a negative power supply is present.
CPU OK	Green flashing	Indicates that the CPU is running.
FPGA OK	Green flashing	Flashes when the FPGA is running. Illuminated continuously during boot until the SDI is enabled.
IN 1, IN 2	Green	Illuminated when a valid SDI input is present.
REF	Green	Indicates that a reference signal is present on the selected reference input.
RX 1, RX 2	Green	Illuminated when a valid input is present on the fiber inputs.
ERROR	Red	Indicates board fault conditions. Illuminated during boot until the SDI is enabled, and during normal operation if the selected SDI input is lost.
WARNING	Yellow	Illuminated if the selected SDI input has CRC/EDH errors.
OK	Green	Indicates that the module is operating correctly.

5 RollCall Control Panel

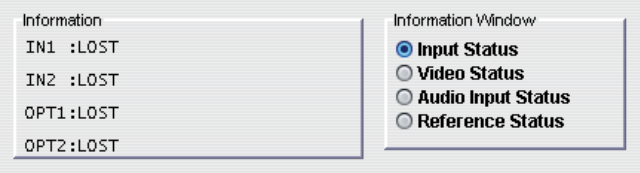
5.1 The Information Window

The information window is displayed in the upper-right corner of each page and displays basic information about the input status, video, audio and reference status of the module.

Select either **Input Status**, **Video Status**, **Audio Input Status** or **Reference Status** to display the corresponding information.

5.1.1 Input Status

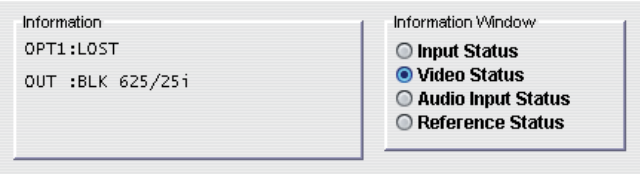
When **Input Status** is selected, the input status is displayed:



Name	Status	Description	Standard
IN1: IN2:	**OK** **FAIL** **LOST** **MISM**	SDI Input signal received SDI Input signal failed No signal received Mismatch format detected	Detected video input standard is displayed, e.g. **1080/29i** (Blank if input lost).
OPT1: OPT2:	**OK** **FAIL** **LOST** **MISM**	Fiber Input signal delivered Fiber Input delivered No signal received No signal received	Detected video input standard is displayed, e.g. **1080/29i** (Blank if input lost).

5.1.2 Video Status

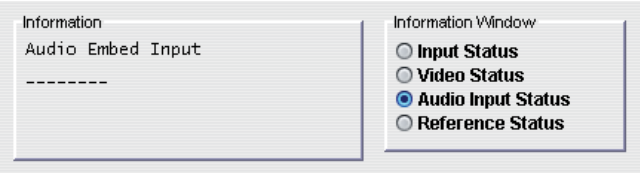
When **Video Status** is selected, the video status is displayed:



Name	Status	Description	Standard
IN1/2 OPT1/2:	**OK** **FAIL** **LOST** **MISM**	Selected signal received Selected signal failed No signal received Mismatch format detected	Detected video input standard is displayed, e.g. **1080/29i** (Blank if input lost).
OUT:	**OK** **BLK** **FRZ** **PAT**	Output signal delivered Black output delivered Frozen output delivered Pattern output delivered	Selected video output standard is displayed, e.g. **1080/29i**. A **$** symbol indicates that the caption is enabled. (Blank if disabled)

5.1.3 Audio Input Status

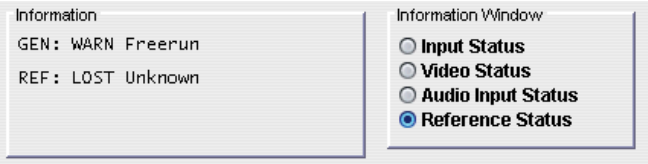
When **Audio Input Status** is selected, the status of the embedded audio input is displayed where:



Name	Status	Description
Audio Embed Input	**P**	Channel is a PCM audio input.
--------	**?**	No audio input is detected.
	D	Signal is data (non-PCM, Dolby, etc.).
	E	Signal is Dolby E.
	V	V bit is present on audio channel.

5.1.4 Reference Status

When **Reference Status** is selected, the following information is displayed:

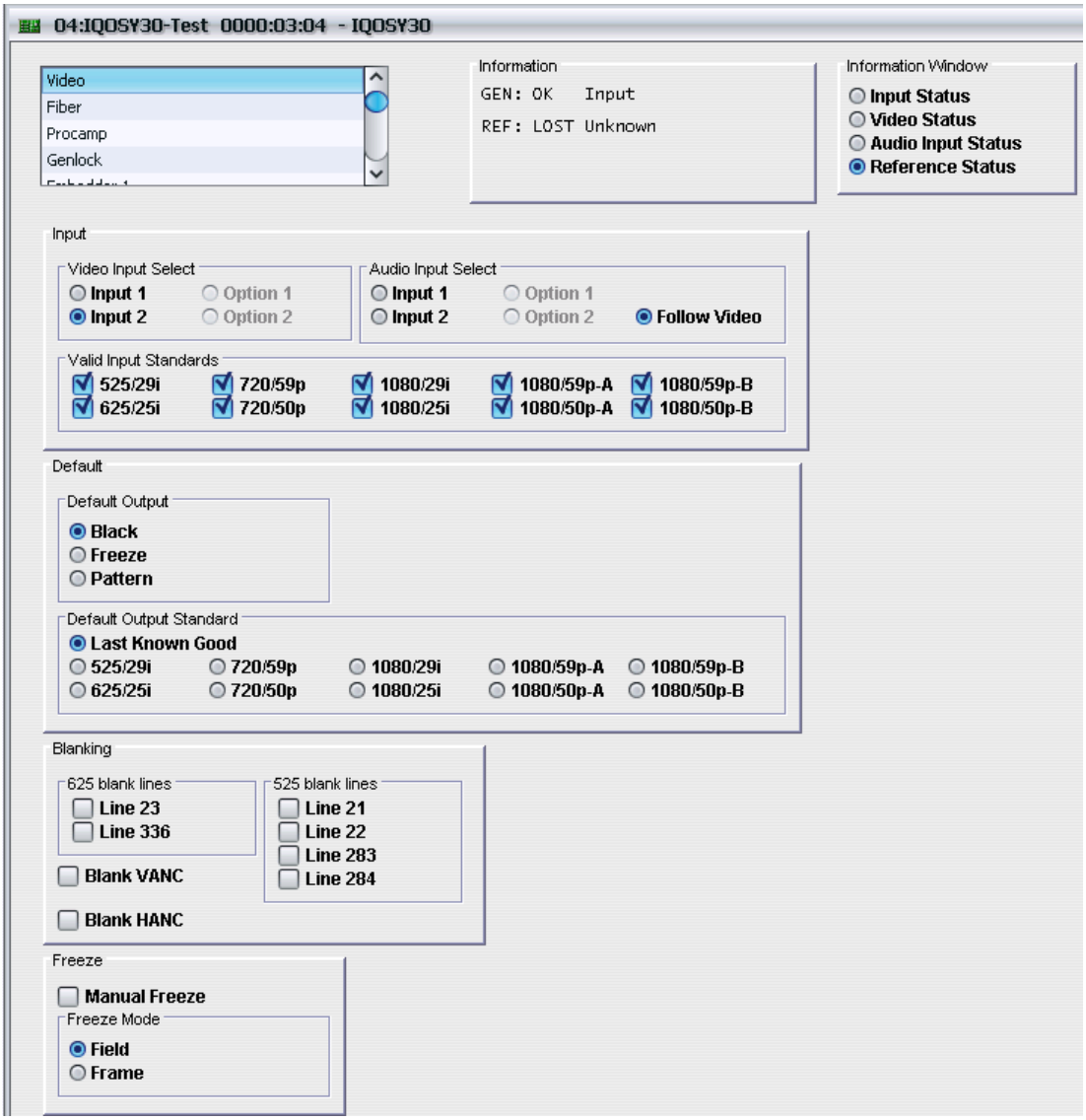


Name	Status	Description	Standard
GEN	**WARN** + Freerun		
	OK + Input	Locked	
	OK + Ref	Reference locked	
REF:	**FREE** + STD	Free running	Displays the Reference standard.
	LOCK + STD	Locked to reference	
	Cross + STD	Cross lock to reference	

5.2 Video

The **Video** page enables you to specify settings for the video inputs:

- Selection of SDI or Fiber Optic inputs
- Valid Input standards
- The default output standard
- Any required ancillary blanking
- Freeze options and apply a manual freeze to the output image
- The default output



5.2.1 Video Input Select

Enables the selection of either SDI Input 1, SDI Input 2, Fiber Optic Option 1, or Fiber Optic Option 2.

5.2.2 Audio Input Select

The **Audio Input Select** control selects audio from Input 1, Input 2, Option 1, Option 2 to be processed by the module. If **Follow Vide**o is selected, the audio input will automatically match the video input selected.

5.2.3 Valid Input Standards

The **Valid Input Formats** check boxes specify the video input standards that the module will accept. The module will automatically detect the standard of the received input and block any signal that does not comply with these selected video formats.

By default, all input standards are selected.

5.2.4 Default Output

The **Default Output** control specifies the module's output in the event of signal loss at the input. Options are:

- **Black:** video out is a black page.
- **Freeze:** video output is frozen/paused.
- **Pattern:** video output is a pre-determined test pattern or information page.

5.2.5 Default Output Standard

The **Default Output Standard** settings specify the output standard that the module will use if it cannot determine the correct output standard to use.

By default, the **Last Known Good** setting is selected, which uses the last valid output standard.

5.2.6 Blanking

The **Blanking** controls enable specific lines of VANC to be blanked.

- **625 blank lines:** Applied to 625 only, you can blank either or both of line 23 or line 336.
- **525 blank lines:** Applied to 525 only, you can blank any or all of lines 21, 22, 283, or 284.
- **Blank VANC:** Selecting this option blanks the following lines inclusively:

  525: 11 – 20, 274 – 282

  625: 7 – 22, 320 – 335

  720: 8 – 25

  1080i: 8 - 20, 570 – 583

  1080P: 8 – 41

  All VANC data from the end of the last active video line to the end of the RP168 switch line is always blanked, irrespective of this control.

- **Blank HANC:** Selecting this option removes all horizontal ancillary data including audio when the embedders are disabled and the audio is unprocessed.

5.2.7 Freeze

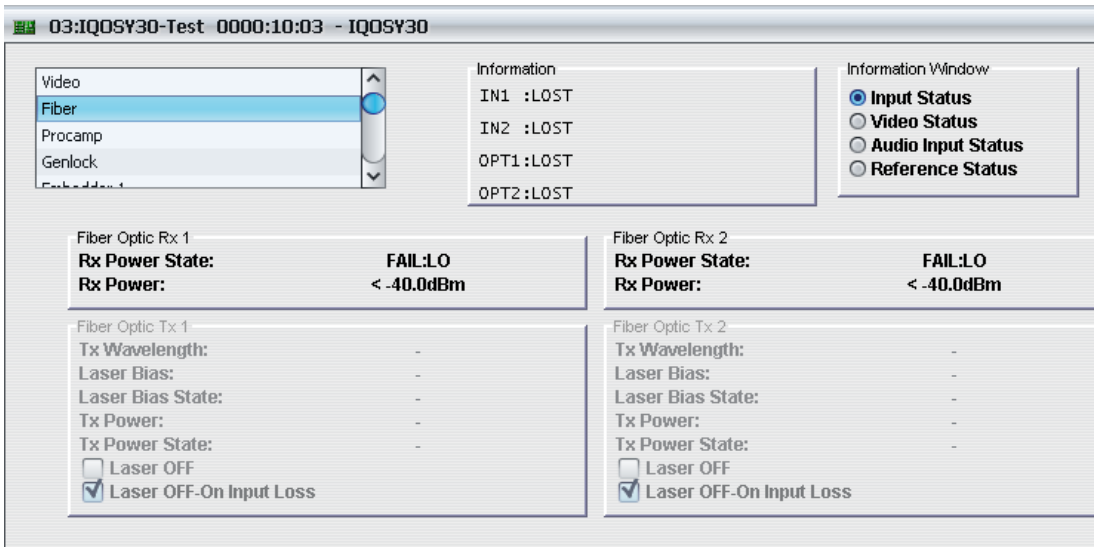
The **Manual Freeze** control freezes/pauses the output. Freeze type can be specified as either **Field** or **Frame**.

Note: This function is disabled on a power cycle of the module.

5.3 Fiber

The **Fiber** page displays information about each of the Fiber Optic Receivers (Rx) and Transmitters (Tx).

The controls are duplicated for the Fiber Optic Receiver Options 1 and 2.



5.3.1 Fiber Optic Rx 1/2

The following receiver parameters are displayed:

- **Rx Power State:** Displays the state of the received signal (options include OK, WARN:HI, WARN:LO, FAIL:LO and FAIL:HI).
- **Rx Power:** Displays the signal level received at the input (in dBm).

5.3.2 Fiber Optic Tx 1/2

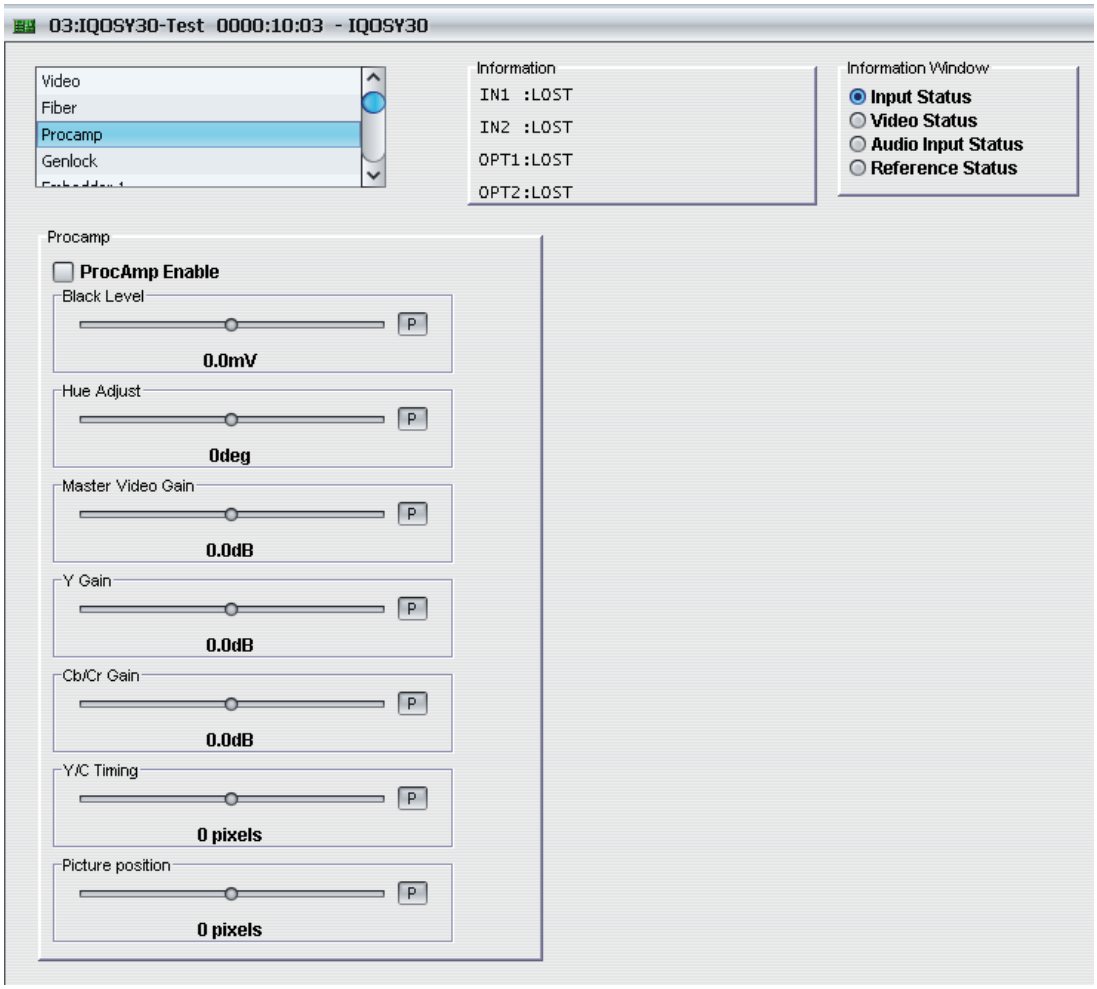
The following transmitter parameters are displayed:

- **Tx Wavelength**: Displays the wavelength of the transmitted output signal (either 1310 nm or 1550 nm).
- **Laser Bias**: Displays the bias level (in mA).
- **Laser Bias State**: Displays the bias state (options include **OK**, **WARN:HI**, **WARN:LO**, **FAIL:LO** and **FAIL:HI**).
- **Tx Power**: Displays the signal level of the transmitted output signal (in dBm)
- **Tx Power State**: Displays the state of the transmitted output signal (options include **OK**, **WARN:HI**, **WARN:LO**, **FAIL:LO** and **FAIL:HI**).
- **Laser OFF**: Enables the laser for the fiber optic output to be turned off manually.
- **Laser OFF-On Input Loss**: When selected, enables the laser for the fiber optic output to be turned off automatically when the signal is lost at the associated fiber optic receiver input. This option is enabled by default. If a default output (Firewall feature) via the Fiber Optic Tx on input loss, is required, this option must be un-ticked.

5.4 Procamps

The **Procamp** page enables the processing amplifier settings to be adjusted:

- **Black Level**
- **Hue Adjust**
- **Master Video Gain**
- **Y Gain (Luma)**
- **Cb/Cr Gain (Chroma)**
- **Y/C Timing**
- **Picture Position**



5.4.1 Procamp Enable

The **Procamp Enable** check box enables the video processing amplifier functions for the relevant channel. Clear the check box to disable the Procamp functions.

5.4.2 Black Level

The **Black Level** control allows the channel's black level to be adjusted over a range of ±100 mV in steps of 0.8 mV. The preset value is 0.

5.4.3 Hue Adjust

The **Hue** control allows the channel's hue to be adjusted over a range of ±180° in steps of 1°. The preset value is 0.

5.4.4 Master Video Gain

The **Master Video Gain** control allows the video gain to be adjusted over a range of ±6 dB in steps of 0.1 dB. The preset value is 0.

5.4.5 Y Gain

The **Y Gain** control allows the luma to be adjusted over a range of ±6 dB in steps of 0.1 dB. The preset is 0.

5.4.6 Cb/Cr Gain

The **Cb/Cr Gain** control allows the chrominance to be adjusted over a range of ±6 dB in steps of 0.1 dB. The preset value is 0.

5.4.7 Y/C Timing

The **Y/C Timing** control allows the luma/chroma timing to be adjusted over a range of:

- **± 8 pixels in 2 pixel steps in SD**
- **± 16 pixels in 2 pixel steps in HD**

The preset value is 0.

5.4.8 Picture Position

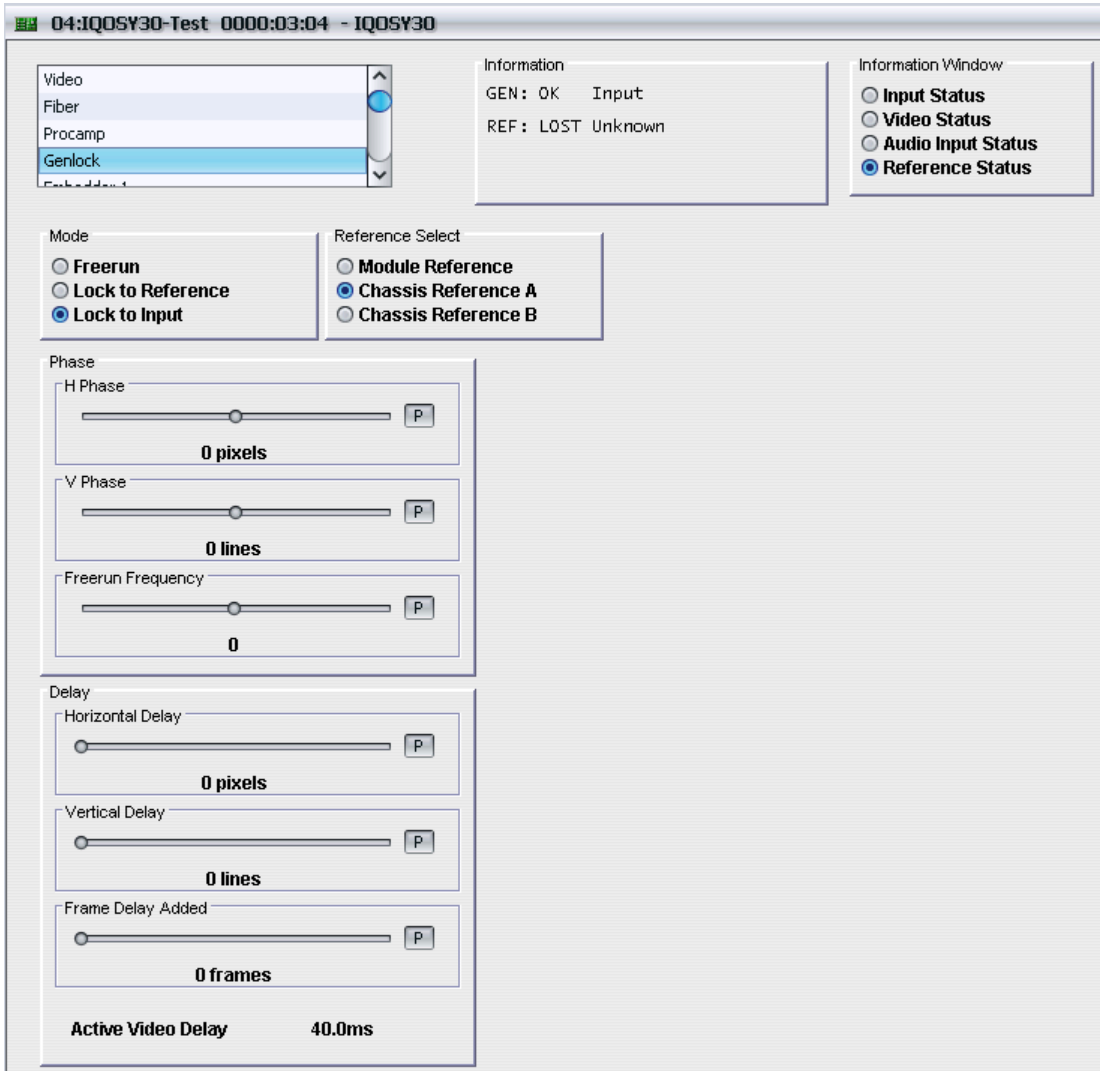
The **Picture Position** control allows the picture position to be adjusted over a range of:

- **± 8 pixels in 2 pixel steps SD**
- **± 16 pixels in 2 pixel steps HD**

The preset value is 0.

5.5 Genlock

The **Genlock** page enables the module's generator lock (synchronizer) settings to be specified.



5.5.1 Mode

There are three main genlock modes:

- **Freerun:** When selected, the unit's output will not be locked to any input signal. Instead, it will run nominally at the correct frame rate and synchronize input video to this.
- **Lock to Reference:** This is the default reference mode. When selected, the unit will lock to an external tri-level/bi-level reference source. If the reference source is lost, the unit will switch to **Freerun** mode. On return of the reference signal, the unit will return to **Lock to Reference** mode.

  When selecting **Lock to Reference**, three reference options are available: **Module Reference**, **Chassis Reference A** or **Chassis Reference B**.

Note: The unit will clock lock to signals of different frame rates.

- **Lock to Input:** When selected, the unit locks to Input 1. If Input 1 is lost, the reference mode will switch to **Freerun**. In this mode, the delay can be adjusted by changing the horizontal and vertical timing.

5.5.2 Phase

Three phase controls are provided:

- **H Phase:** If the module is referenced locked, use the slider bar to adjust the horizontal genlock phase over a range of ± 0.5 H in 1 pixel steps. The preset value is 0.
- **V Phase:** If the module is referenced locked, use the slider bar to adjust the vertical genlock phase over a range of ± 0.5 F in 1 line steps. The preset value is 0.
- **Freerun Frequency:** The slider bar may be used to adjust the module's freerun frequency.

5.5.3 Delay

- **Horizontal Delay:** The slider bar may be used to adjust the horizontal delay over a range of 0 to 1 line in 1 pixel steps. The preset value is 0. Note that when the module is input locked, if the delay is set to lower than the latency, the delay will stop at the latency but this will not be indicated. Additionally, if the vertical delay is set to 0, the lowest horizontal delay will equal the latency of the module rather than the delay specified by this control.
- **Vertical Delay:** The slider bar may be used to add up to 1 frame of vertical delay in steps of 1 line. The preset value is 0.

5.5.4 Frame Delay Added

You can specify up to 9 additional frames of delay using this slider bar. This delay can be added in all reference modes, including freerun.

The delay of non-PCM audio, or 'pass-through' audio is also set by this control.

The delay, in ms, is displayed below this control.

5.5.5 Active Video Delay

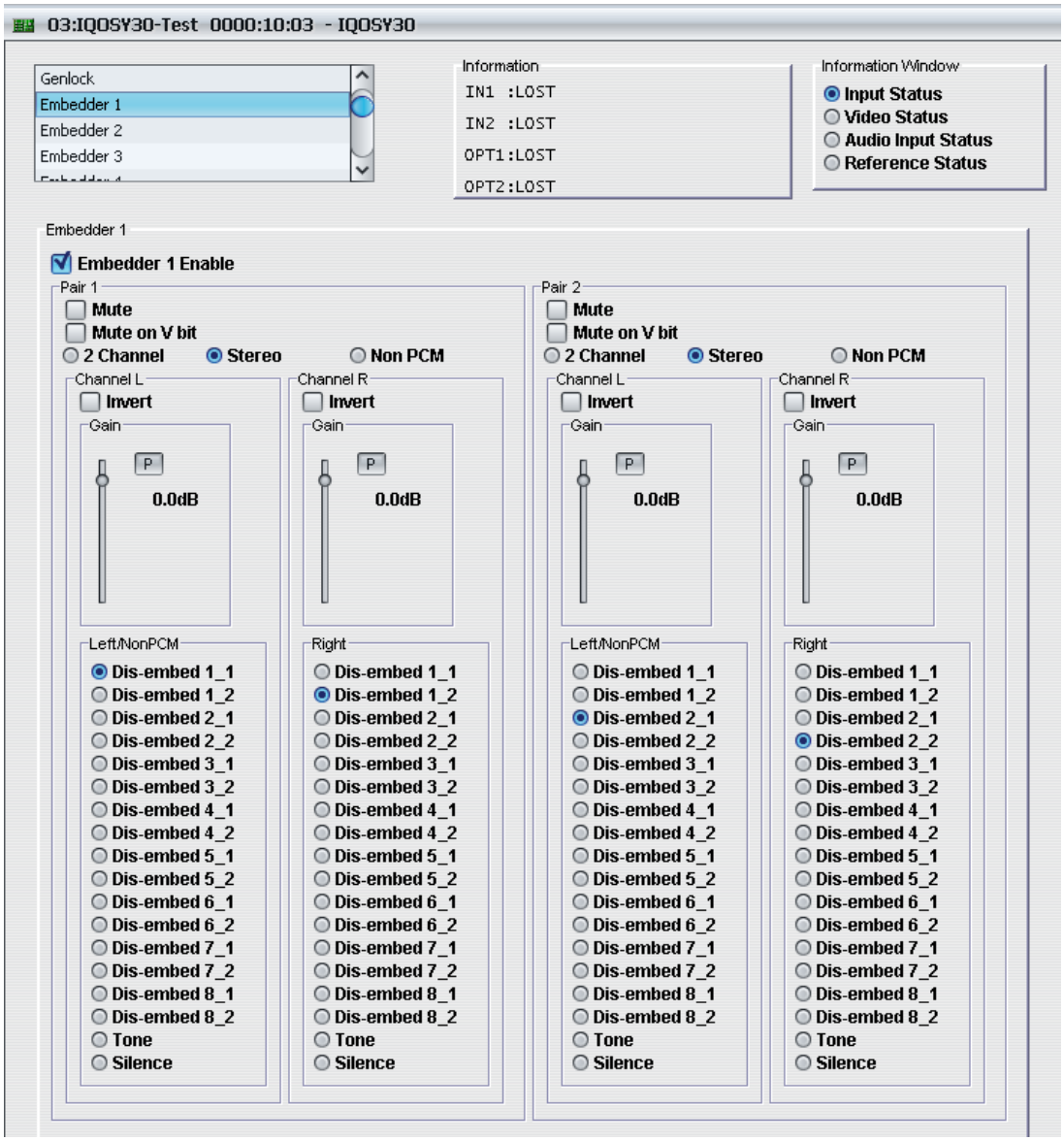
The total active video delay (in ms) is displayed at the bottom of this page.

5.6 Embedder 1 to Embedder 4

Four embedder groups are provided. Each embedder group comprises two stereo audio pairs, each of which has a left and right channel. The settings on these pages enable you to:

- Enable or disable the embedder group.
- Apply a mute to a pair within the group.
- Configure each pair as either 2 Channel, Stereo, or Non PCM.
- Configure each channel within the pair.
- Specify the route for each channel.

With the exception of the **Embedder Enable** control, each control is duplicated for Pair 1 and Pair 2.



Note: The control templates for Embedder 1 to Embedder 4 comprise the same controls. To avoid repetition, in this manual, the controls are only described once.

5.6.1 Embedder *N* Enable

This option, when checked, enables the embedder group.

5.6.2 Pair 1 and Pair 2 Controls

These controls configure the audio pair and specify the output route.

- **Mute**: When selected, applies a mute to the audio output pair.
- **Mute on V bit**: When selected, applies a mute to the audio output pair when the validity bit (time slot 28 in the audio 32-time slot subframe) is not set to zero, i.e. when defective samples are detected.
- **2 Channel**: When selected, configures the pair as separate L/R channels.
- **Stereo**: When selected, configures the L/R channels as a stereo pair.
- **Non PCM**: Enables routing of non-PCM data with the Source L / Non-PCM selection.

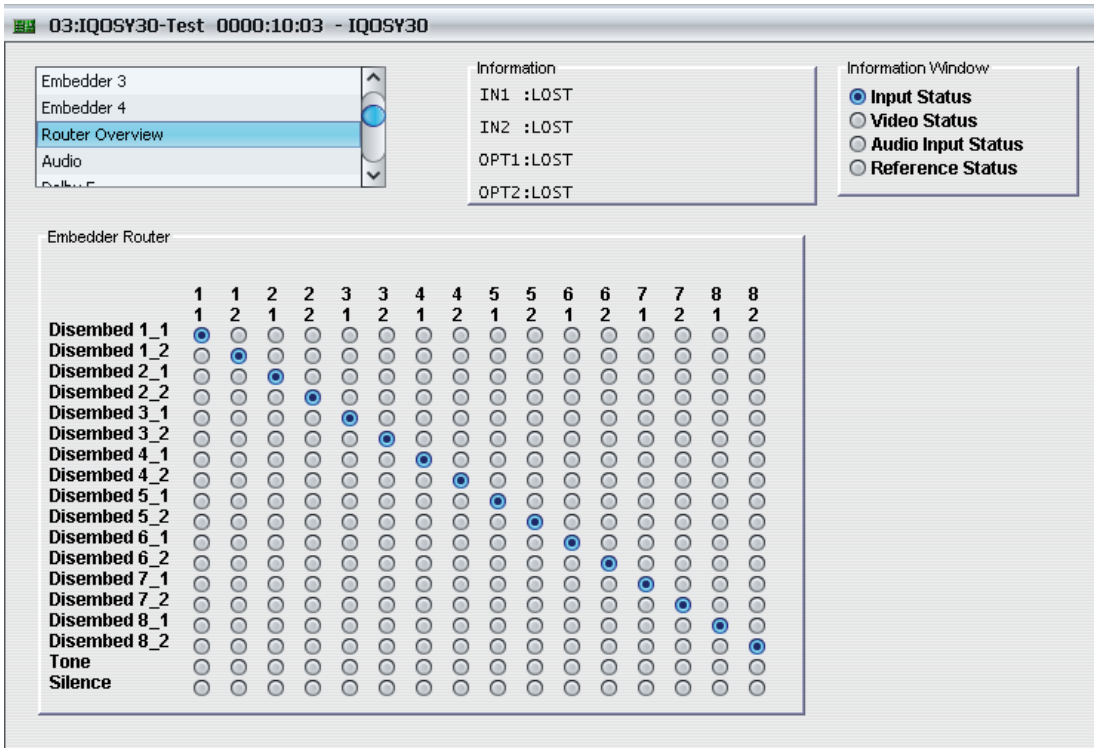
  If in Non-PCM mode and a PCM source is selected, it will bypass the sample rate converters and be routed to the output but the Procamp and Audio Delay controls will have no effect.

  If set to PCM mode and a NonPCM source is selected, silence will be embedded.
- **Invert L/Invert R**: Inverts the signal (PCM sources only).
- **Gain L/Gain R**: The slider bar may be used to independently adjust the channel audio gain over a range of +12 dB to -72 dB in 0.1 dB steps (PCM only). The preset value is 0.
- **Left/NonPCM**: Routes the Left (PCM) or Non-PCM channel data to the option selected in the window. Options for the channel include a dis-embed path, a tone or silence.
- **Right**: Routes the Right (PCM) channel to the option selected in the window. Options for the channel include a dis-embed path, a tone or silence.

5.7 Router Overview

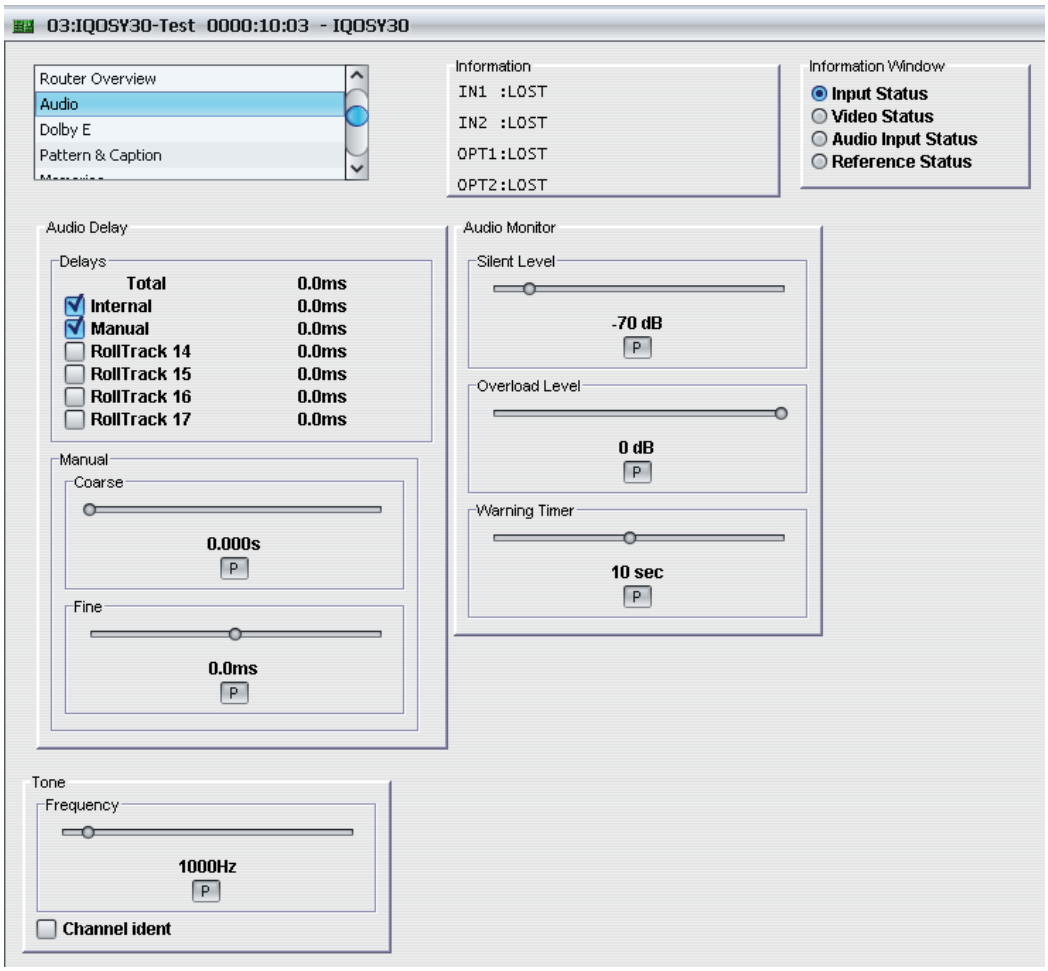
The **Router Overview** page provides a summary of the embedder routing specified of the Embedder 1 to Embedder 4 pages. Changes that you make to the embedder routes on this page are applied to the Embedder 1 to Embedder 4 pages (and vice versa). To apply more than simple routing, e.g. to use the gain or inversion controls, you must use the Embedder specific pages.

To specify a route on this page, simply select it from the matrix.



5.8 Audio

The **Audio** page enables the unit's audio settings to be configured.



5.8.1 Delays

These settings enable you to specify the amount of audio delay applied. The delay mechanisms are not exclusive of each other, the user is free to select any or all of the delay types, which will be added to create the unit's total delay.

- **Internal:** The added delay is equal to the unit's current video delay as set in the Genlock menu.
- **Manual:** Selecting this option applies a delay equal the value specified by the Manual Coarse and Manual Fine delays, which are described below.
- **RollTrack 14 to RollTrack 17:** RollTracks are signals sent between pieces of equipment so that they can work together in concert. For example two modules can exchange delay values through the RollTrack system. The delay used for the audio passing through this module could be set for example, by the delay through a video synchronizer. Delay values may be applied via RollTracks 14, 15, 16 and 17.

5.8.2 Manual Coarse and Manual Fine Delay Controls

The Manual Coarse and Manual Fine delay controls are added together to add a manual delay to the audio signal.

- **Manual Coarse:** This slider may be used to specify a delay of up to 1.75 s in 5 ms steps. The preset value for this control is 0.
- **Manual Fine:** This slider may be used to specify a delay of ±0.25 s in 0.5 ms steps. The preset value for this control is 0.

5.8.3 Tone

- **Frequency:** This slider may be used to adjust the tone frequency for both L & R over a range of 100 Hz to 10 kHz in 100 Hz steps. The preset value for this control is 1 kHz.
- **Channel Ident:** When selected, this will identify the right channel by causing the tone to fluctuate (0.5s interruption every 2s).

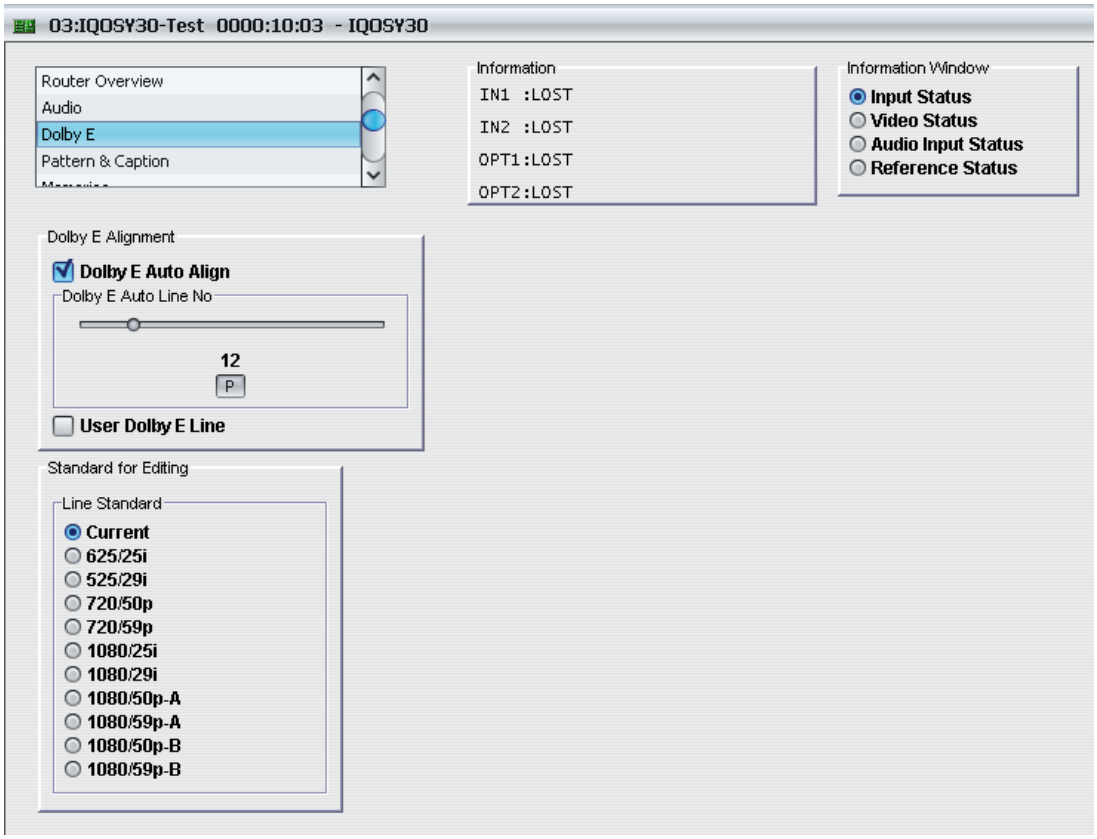
5.8.4 Audio Monitor

The Audio Monitor settings allow you to specify the level at which the audio signal is considered to have dropped to silence and the level at which the audio signal is considered to have risen to an overload condition.

- **Silent Level:** Use the slider bar to specify the level at which the signal is considered to have dropped to silence. The range of this control is 0 to -80 dB in steps of 1 dB and the preset value is -70 dB. The level set by this control must exist continuously for the time specified by the Warning Timer control for the signal to be considered silent.
- **Overload Level:** Use the slider bar to specify the level at which the signal is considered to have risen to an overload condition. The range of this control is 0 to -80 dB in steps of 1 dB and the preset value is 0 dB. The level set by this control must exist continuously for the time specified by the Warning Timer control for the signal to be considered overloaded.
- **Warning Timer:** Use the slider bar to specify the time that either of the above conditions must exist before considered to be true. The range of this control is 1 to 600 seconds in steps of 1 second. The preset value is 10 seconds.

5.9 Dolby E

The **Dolby E** page enables the configuration of Dolby E settings.



5.9.1 Dolby E Alignment

- **Dolby E Auto Align:** This option enables Dolby E automatic (i.e. Dolby recommended) alignment. When enabled, the Dolby E header is automatically aligned with the video frame boundary to ensure error-free video switching. The slider displays the relevant line number used for alignment. Realigned Dolby audio can be routed to any audio pair by means of the L/Non-PCM controls on the Audio Embedder pages if the embedded pair in set to Non-PCM. Note that 'pass-through' Dolby E, where neither embedder in a group is enabled, will not be re-aligned.

Note: If Dolby E guard-band is out of spec, then Dolby E is re-aligned to that specified by Dolby.

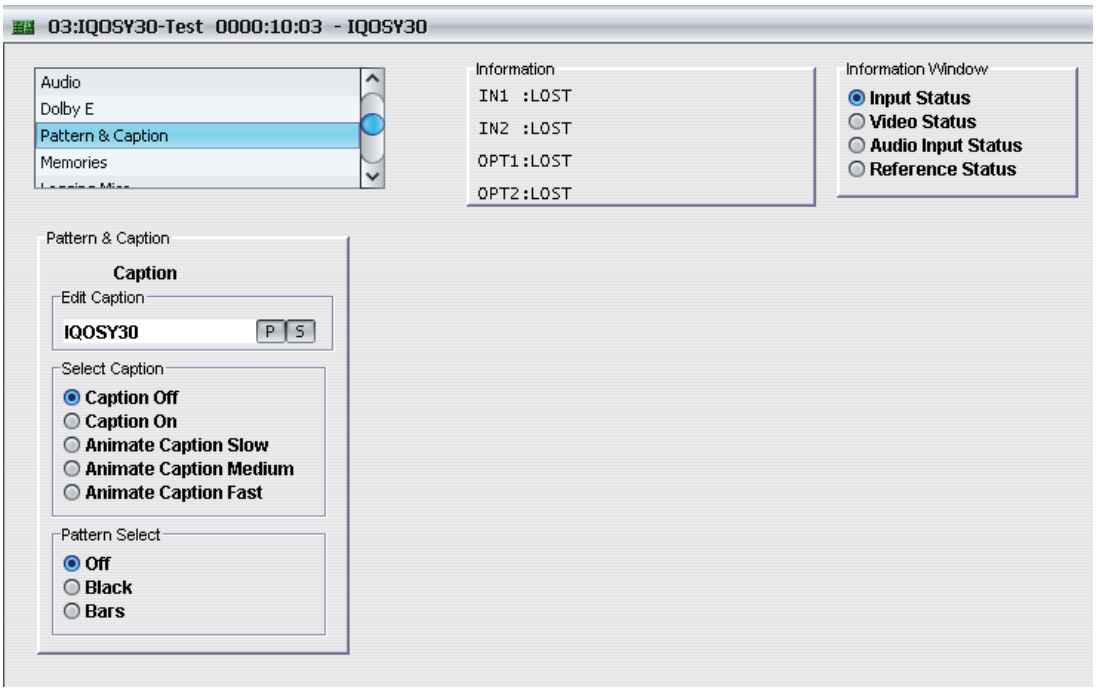
- **User Dolby E Line:** This option enables manual selection of Dolby E line. The slider displays the relevant line number used for alignment, which may be changed manually by dragging the slider. Clicking the P button returns the line number to the preset (automatic) value.

5.9.2 Line Standard

By default the **Current** video line standard is always selected. A different line standard may be selected by clicking the relevant radio button. The associated line number for the chosen line standard will be displayed by the above slider control.

5.10 Pattern & Caption

The **Pattern & Caption** page settings enables a caption to be specified, turned on and off and pattern generation to be enabled.



5.10.1 Edit Caption

In the **Edit Caption** text field, a caption of up to 19 characters may be entered to be displayed when the caption function is enabled.

Clicking the **S** button saves the caption as entered.

Clicking the **P** button returns the caption to the default preset value.

5.10.2 Select Caption

When enabled, a caption will appear as white text on a black background in the lower portion of the picture. Basic animation may also be selected, which enables a scrolling effect from right to left, also known as a ‘ticker-tape’ effect.

The options are:

- **Captions Off**
- **Captions On**
- **Animate Captions Slow**
- **Animate Captions Medium**
- **Animate Captions Fast**

5.10.3 Pattern Select

The radio buttons enable / disable pattern generation.

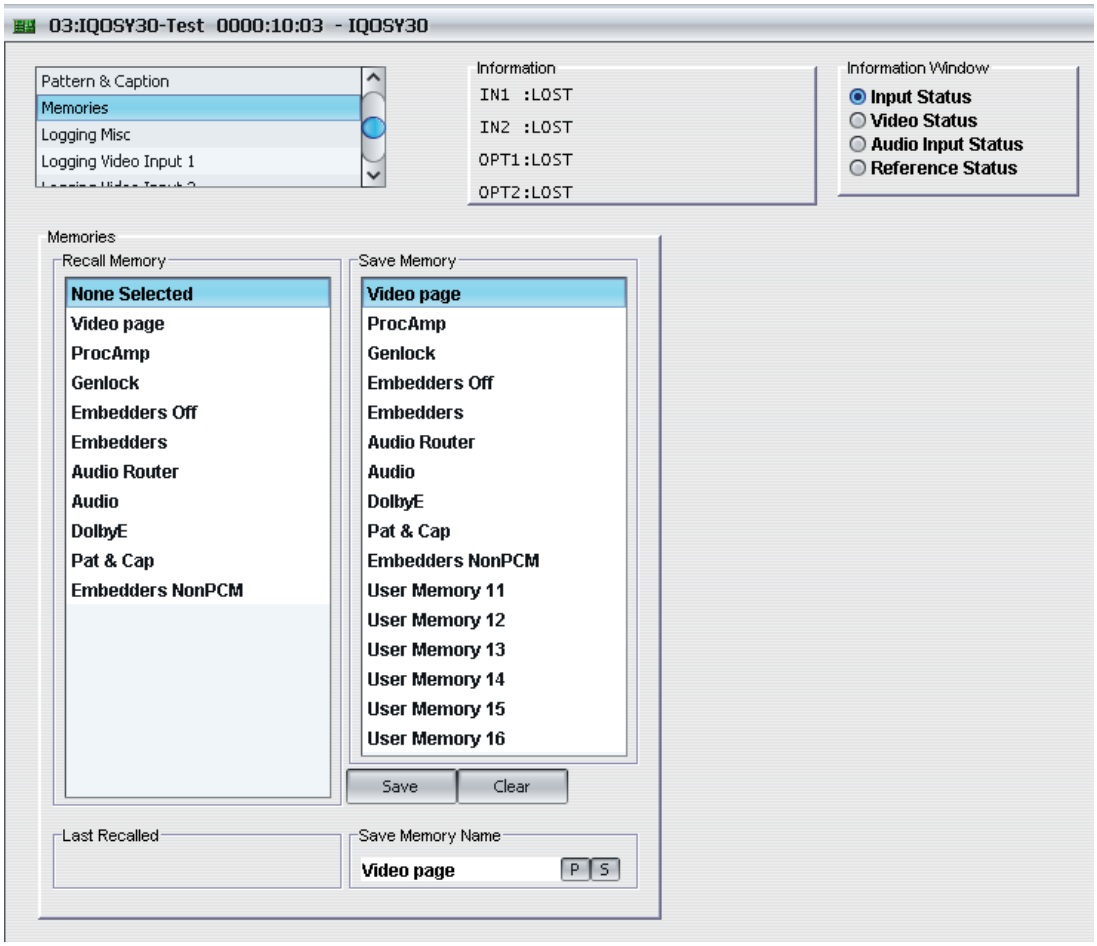
The options are:

- **Off**
- **Black**
- **Bars**

5.11 Memories

The **Memories** page enables up to 16 setups to be saved and recalled later.

Default memory names can be changed to provide more meaningful descriptions.



5.11.1 Recall Memory

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

To recall the settings saved in a memory:

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

Note: User memories do not recall log field states. I.e., whether a log value has been enabled or disabled.

5.11.2 Save Memory

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

To save settings:

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

5.11.3 Last Recalled

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

5.11.4 Save Memory Name

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

To change a memory name:

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

5.12 Logging

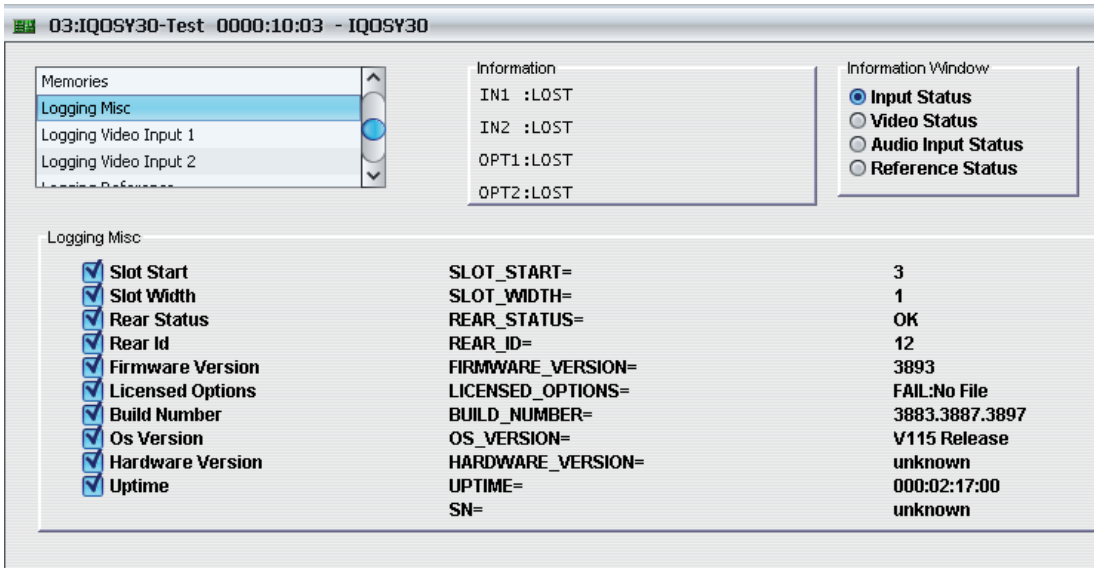
Information about several parameters can be made available to a logging device that is connected to the RollCall network.

Each logging page comprises three columns:

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

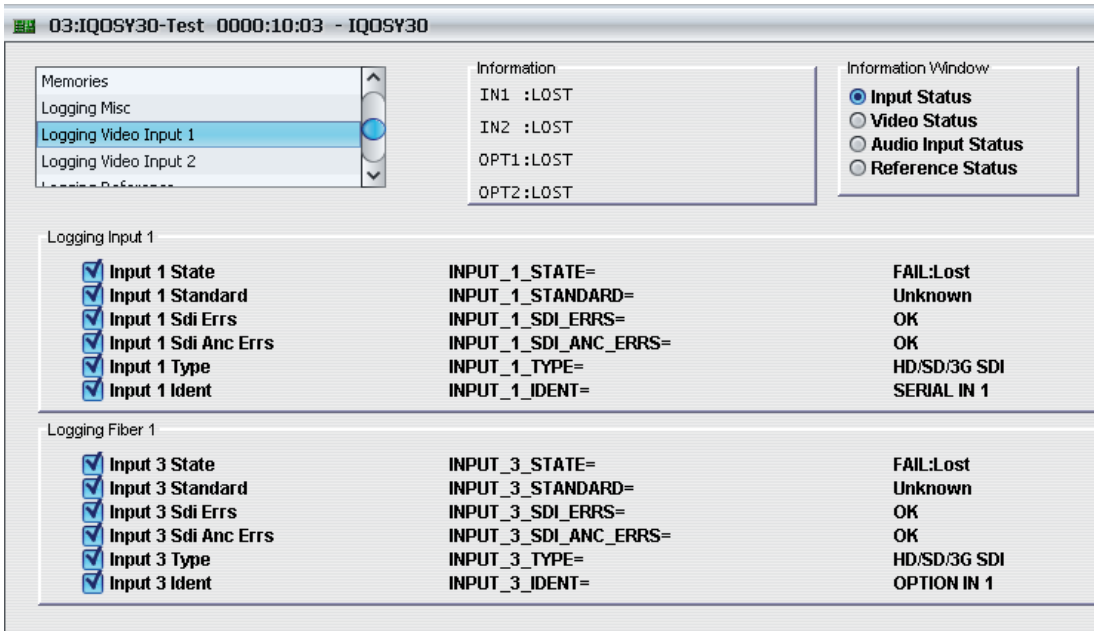
5.12.1 Logging Misc

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



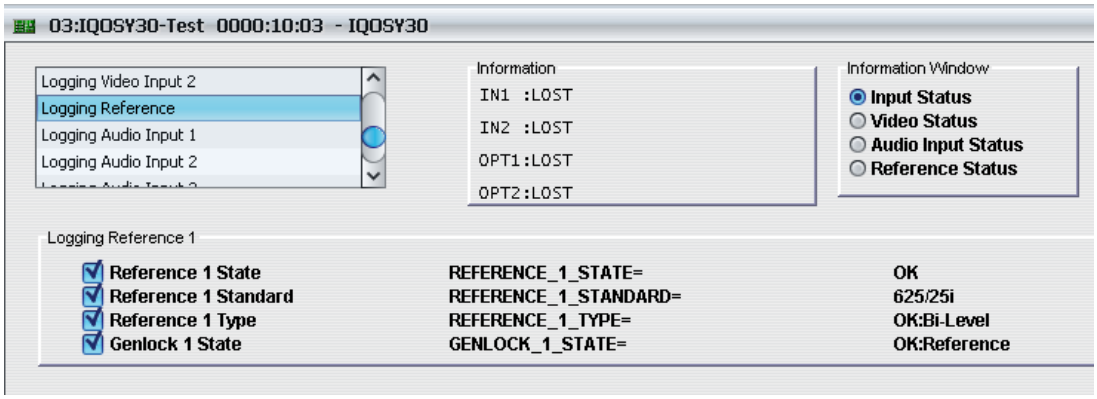
5.12.2 Logging Video Input 1/2

The **Logging Video Input 1/2** page displays the current log information for for the relevant video inputs.



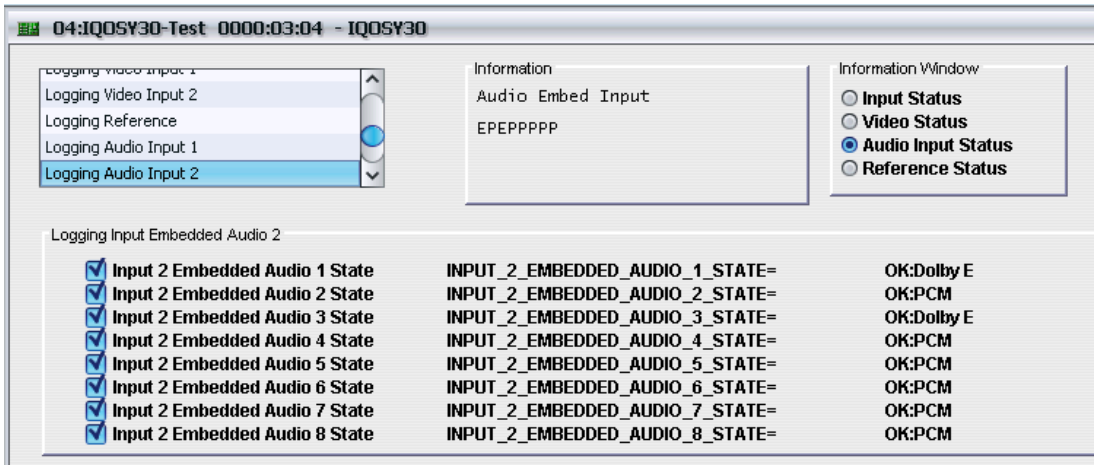
5.12.3 Logging Reference

The **Logging Reference** page displays the current log information for the reference input.



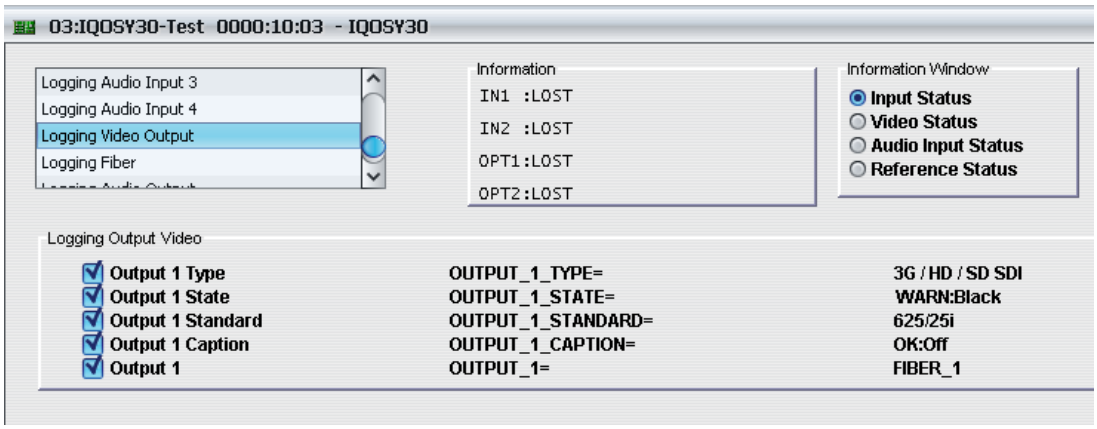
5.12.4 Logging Audio Input 1 to 4

The **Logging Audio Input 1 to 4** pages display the current log values for the eight audio pairs on the relevant audio inputs.



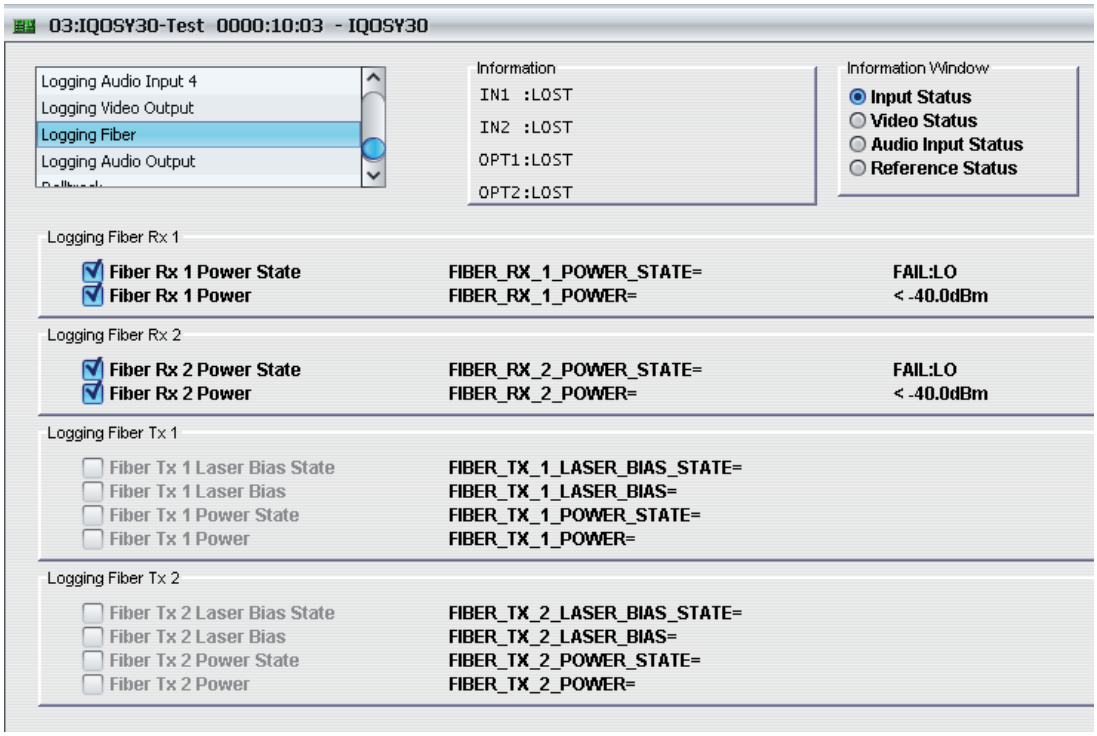
5.12.5 Logging Video Output

The **Logging Video Output** page displays the current log information for the video output.



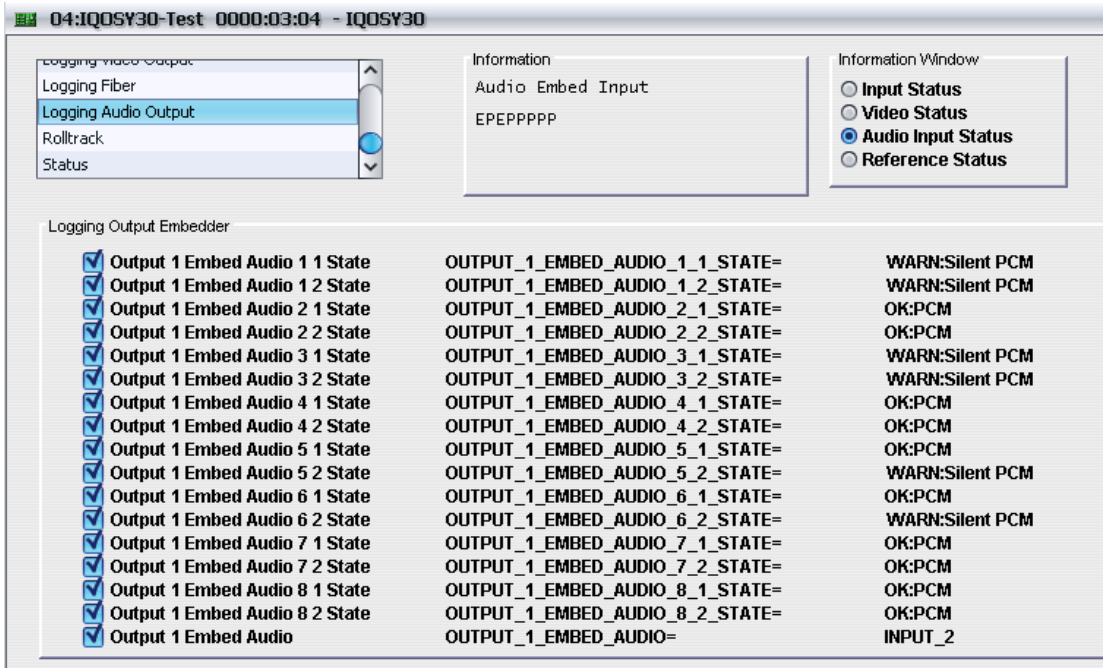
5.12.6 Logging Fiber

The **Logging Fiber** page displays the current log values for the fiber optic receivers and transmitters.



5.12.7 Logging Audio Output

The **Logging Audio Output** page displays the current log values for the embedded audio output pairs.



5.12.8 Log Field Descriptions

Log Field	Description
SLOT_START=	Displays the rear panel slot start (boot-up) number.
SLOT_WIDTH=	Displays the rear panel slot width. For example, 1 or 2.
REAR_STATUS=	Display the status of the rear panel. Valid values are: • **OK** • **FAIL:Lost**
REAR_ID=	Displays a rear panel identifier number.
FIRMWARE_VERSION=	Displays the FPGA version.
LICENSED_OPTIONS=	Displays any specially licensed options, if applicable.
BUILD_NUMBER=	Displays the build number.
OS_VERSION=	Displays the operating system name and version. For example, KOS V115.
HARDWARE_VERSION=	Displays the hardware version number.
UPTIME=	Displays the time since the last restart in the format ddd:hh:mm:ss.
SN=	Displays the module serial number, which consists of an S followed by eight digits.
INPUT_N_STATE=	Displays the current input state. Valid values are: • **OK** • **WARN:Mismatch** - indicates input and output standards are not the same. • **FAIL:Lost**
INPUT_N_STANDARD=	This displays the current input signal standard. For example, 1080/29i. If the input standard is not recognized or supported the field will display **WARN:Unknown**
INPUT_N_SDI_ERRS=	Displays SDI errors. Valid values are: • **OK** • **WARN**
INPUT_N_SDI_ANC_ERRS=	Displays ANC errors. Valid values are: • **OK** • **WARN**
INPUT_N_TYPE=	This displays the type of input as specified by the unit's configuration. Valid values are **3G** / **HD** /**SD SDI**.
INPUT_N_IDENT=	Display the input ID.
REFERENCE_1_STATE=	Displays the reference state. Valid values are: • **OK** • **FAIL:Lost**
REFERENCE_1_STANDARD=	Displays the current video standard of the reference signal. For example, 1080/59P

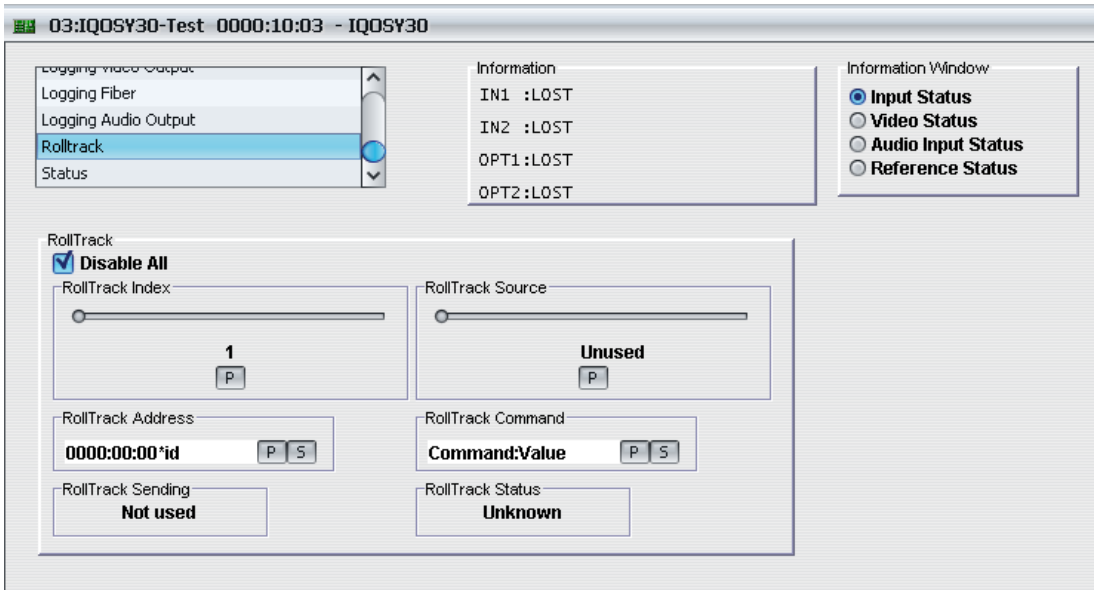
Log Field	Description
REFERENCE_1_TYPE=	Displays the reference type. Valid values are: • **OK:Tri-Level** • **OK:Bi-Level** • **WARN:Unknown**
GENLOCK_1_STATE=	Displays the Genlock state. Valid values are: • **OK:Reference** • **OK:Input** • **WARN:Freerun** • **WARN:CrossLock**
INPUT_1_EMBEDDED_AUDIO_1_STATE = to INPUT_1_EMBEDDED_AUDIO_8_STATE= ---------- INPUT_2_EMBEDDED_AUDIO_1_STATE= to INPUT_2_EMBEDDED_AUDIO_8_STATE=	These fields display the current embedded input audio state. Valid values are: • **OK:PCM** • **OK:Data** • **OK:DolbyE** • **WARN:No Input** • **FAIL:Lost**
OUTPUT_*N*_TYPE=	3G / HD / SD SDI
OUTPUT_*N*_STATE=	• **OK** • **WARN:Pattern** • **WARN:Black** • **WARN:Freeze**
OUTPUT_*N*_STANDARD=	Displays the current output video standard.
OUTPUT_*N*_CAPTION=	• **OK:Off** • **WARN:On**
OUTPUT_*N*=	Displays the relevant input source for the output video.
FIBER_Rx*N*_POWER_STATE=	These fields display the power status. Valid values are: • **OK** • **WARN:HI** • **WARN:LO** • **FAIL:LO** • **FAIL:HI**
FIBER_Rx*N*_POWER=	Displays the power level of the receiver input, in dBm.
FIBER_Tx*N*_LASER_BIAS_STATE=	These fields display the laser bias status. Valid values are: • **OK** • **WARN:HI** • **WARN:LO** • **FAIL:LO** • **FAIL:HI**

Log Field	Description
FIBER_Tx*N*_LASER_BIAS=	Displays the bias level, in mA.
FIBER_Tx*N*_POWER_STATE=	These fields display the power status. Valid values are: • **OK** • **WARN:HI** • **WARN:LO** • **FAIL:LO** • **FAIL:HI**
FIBER_Tx*N*_POWER=	Displays the power level of the transmitter output, in dBm.
OUTPUT_1_EMBED_AUDIO_1_1_STATE= to OUTPUT_1_EMBED_AUDIO_8_2_STATE=	These fields display the current embedded output audio state. Valid values are: • **OK:PCM** • **OK:Data** • **OK:DolbyE** • **WARN:Silent PCM** • **WARN:Overload PCM** • **FAIL:Input Lost**
OUTPUT_1_EMBED_AUDIO=	Displays which input is selected as the current embedded audio output.

Log Field	Description
REFERENCE_1_TYPE=	Reports the reference type. Valid values are: • **OK:Bi-Level** • **OK:Tri-Level** • **WARN:Unknown**

5.13 RollTrack

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



5.13.1 Disable All

When checked, all RollTrack items are disabled.

5.13.2 RollTrack Index

This slider enables up to 70 RollTrack outputs to be setup. Dragging the slider selects the RollTrack Index number, displayed below the slider. Clicking the **P** button selects the default preset value.

5.13.3 RollTrack Source

This slider enables the source of information that triggers the transmission of data to be selected. Dragging the slider selects the RollTrack source, displayed below the slider. Clicking the **P** button selects the default preset value. When no source is selected, **Unused** is displayed.

5.13.4 RollTrack Address

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

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

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

- The first set (**0000**) is the network segment code number.
- The second set (**10**) is the number identifying the (enclosure/mainframe) unit.
- The third set (**01**) is the slot number in the unit
- The fourth set (**99**) is a user-definable number that is a unique identification number for the destination unit in a multi-unit system. This ensures that only the correct unit will respond to the command. If left at **00**, an incorrectly fitted unit may respond inappropriately.

5.13.5 RollTrack Command

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

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

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

- The first number (**84**) is the actual RollTrack command.
- The second number (**156**) is the value sent with the RollTrack command.

5.13.6 RollTrack Sending

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

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

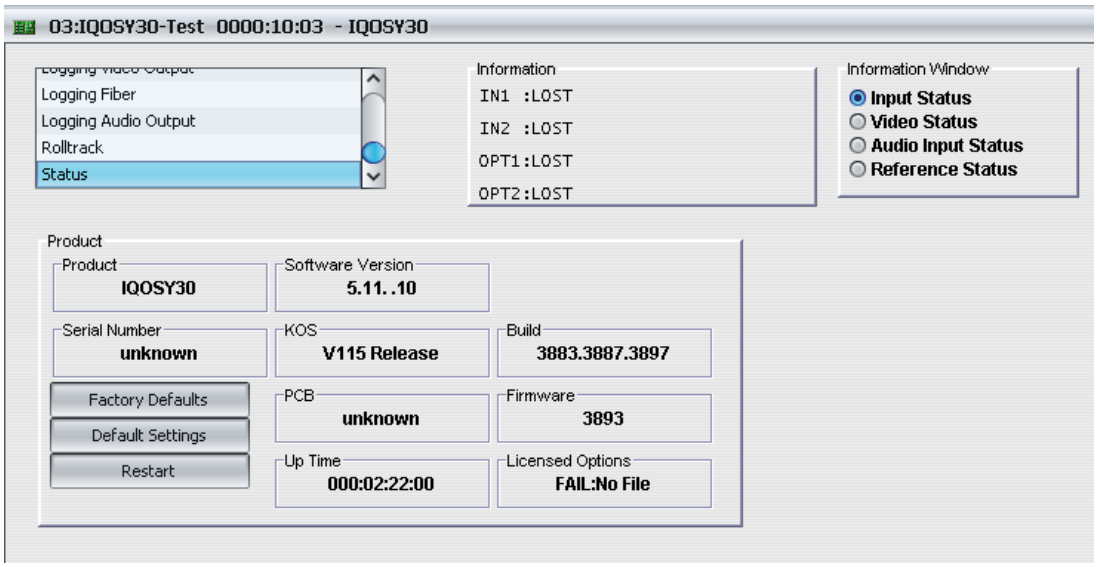
5.13.7 RollTrack Status

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

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

5.14 Status

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



- **Product**: The name of the module.
- **Software Version**: The currently installed software version number.
- **Serial No**: The module serial number.
- **Build**: The factory build number. This number identifies all parameters of the module.
- **KOS**: The operating system version number.
- **PCB**: The Printed Circuit Board revision number.
- **Firmware**: The module firmware revision number.
- **Up Time**: The time since the module was last started.
- **Licensed Options**: The currently installed licensed options associated with the module.

5.14.1 Factory Defaults

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

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

5.14.2 Default Settings

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

5.14.3 Restart

The **Restart** button enables the module to be rebooted, simulating a power-up/power-down cycle.

