



Snell  
Advanced  
Media

---

# User Manual

## IQLDK30

3G/HD/SD-SDI Logo Inserter and Keyer

## Information and Notices

### Copyright and Disclaimer

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

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

Reproduction or disassembly of embedded computer programs or algorithms prohibited.

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

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

### Contact Details

#### Customer Support

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

[www.s-a-m.com/support/247-support/](http://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 Notices

## 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 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.

## 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 wartende Teile im Geräteinneren. Dieses Gerät sollte nur von geschultem Personal gewartet werden

## Sicherheits-Warnhinweise



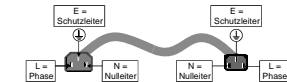
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation.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

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

## Netzanschluss in anderen Ländern als der USA

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

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



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

## Légende :

**F**

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

## Précaution d'emploi :



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

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

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

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

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



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

## Explicación de los Símbolos de Seguridad

**ESP**

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

## Advertencias de Seguridad



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

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

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

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

- VERDE/ AMARILLO conectado a E (Conductor de protección a Tierra -Earth in the original-)
- AZUL conectado a N (Conductor Neutro -Neutral in the original-)
- MARRÓN conectado a L (Conductor Fase -Live in the 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 ledningen 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 lysnetdngange, 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 försörjd från ett strömssystem som är försett 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 SUOJAMAALIIÄNTÄ (⊕) ja nolaliitännän on oltava luotettavasti tunnistettavissa.
- Sähköpistorasian tulee olla laitteen lähellä ja helposti tavoitettavissa.

### Sähkökytkentä

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

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



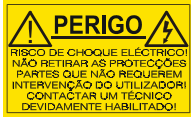
- Huom! Jos laitteessa on kaksi verkkojännitteen tuloliitäntää, niiden johdot on liitettävä verkkopistorasioihin, joissa on sama vaiheistus.

### 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 remove-la e elimina-la imediatamente de maneira segura. O código de cor para os condutores é o seguinte:

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



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

### Επεξήγηση των Συμβόλων Ασφαλείας



- Αυτό το σύμβολο παραπέμπει το χρήστη σε σημαντικές πληροφορίες που συμπεριλαμβάνονται στο συνοδευτικό εγχειρίδιο.
- Αυτό το σύμβολο υποδεικνύει ότι στο εσωτερικό υφίστανται επικίνδυνες ηλεκτρικές τάσεις. Στο εσωτερικό δεν υπάρχουν επισκευάσιμα μέρη. Αυτή η μονάδα πρέπει να επισκευάζεται μόνο από ειδικά εκπαιδευμένο προσωπικό.

### Προειδοποίηση Ασφαλείας



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

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

### Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

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

- 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.

## Products Employing Lithium Batteries



This equipment may contain a lithium battery. **There is a danger of explosion if this is replaced incorrectly.** Replace only with the same or equivalent type. Dispose of used batteries according to the instructions of the manufacturer. Batteries should only be replaced by trained service technicians.

## Power Cable Supplied for the USA

The equipment is shipped with a power cord with a standard IEC molded free socket on one end and a standard 3-pin plug on the other. If you are required to remove the molded mains supply plug, dispose of the plug immediately in a safe manner.

The color code for the cord is as follows:

- GREEN lead connected to E (Protective Earth Conductor)
- BLACK lead connected to L (Live Conductor)
- WHITE lead connected to N (Neutral Conductor)



## For Products With More Than One Power Supply Inlet



- **CAUTION!** This equipment has more than one power supply cord. To reduce the risk of electric shock, disconnect two power supply cords before servicing.



- To reduce the risk of electric shock, plug each power supply into separate branch circuits employing separate service grounds.
- Do not operate this unit without an earth connection.

## Rack Mounting the Enclosure



This product must not be rack mounted using only the front rack ears.

When rack-mounting the product, one of the following methods of installation must be used:

- Place the unit on a suitably specified and installed rack shelf and secure the product to the rack via the front rack ears or,
- Fit the unit using the rear rack mount kit FGACK RACK-MNT-KIT, available from SAM.

## Replacing the Gateway Card

If the Gateway Card IQRCIF is replaced, ensure that part number RCIF3U2F is used in order to maintain full functionality.

## Compliance Standards

This equipment conforms to the following standards:

### EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

### UL1419 (4th 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

Snell products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

### Coaxial Cables

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

### D-type Connectors

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



# Contents

- Information and Notices** ..... 2
- Safety Notices** ..... 3
  
- 1. Introduction** ..... 10
  - 1.1 Description ..... 10
  - 1.2 Feature Summary ..... 10
    - 1.2.1 General ..... 10
    - 1.2.2 Keyer ..... 10
    - 1.2.3 logo Inserter ..... 10
  - 1.3 Application Notes .....11
    - 1.3.1 About Power Ratings .....11
    - 1.3.2 Power Ratings and Card Widths .....11
  - 1.4 Block Diagram .....11
  - 1.5 Order Codes ..... 12
  - 1.6 Software Options ..... 12
  - 1.7 Rear Panel View ..... 12
  
- 2. Technical Specification** ..... 13
  
- 3. Connections** ..... 19
  - 3.1 Ethernet Input ..... 19
  - 3.2 SDI I/O ..... 19
  - 3.3 GPIO ..... 19
  
- 4. Card Edge LEDs** ..... 20
  
- 5. RollCall Control Panel** ..... 21
  - 5.1 Navigating Pages in the RollCall Template ..... 21
    - 5.1.1 Template Pages ..... 21
    - 5.1.2 Setting Values ..... 21
  - 5.2 Input Status ..... 22
  - 5.3 Managing Logos ..... 23
    - 5.3.1 Uploading via Ethernet ..... 23
    - 5.3.2 Making Logos Available for Selection ..... 24
    - 5.3.3 Deleting Logos ..... 25
  - 5.4 Managing Crawl Text ..... 26
    - 5.4.1 Uploading Crawl Text Source Files ..... 26
    - 5.4.2 Creating Crawl Text Manually ..... 26
    - 5.4.3 Replacing the User Data SD Card ..... 26
  - 5.5 Source & Standard ..... 28
  - 5.6 Output ..... 31
  - 5.7 DSK ..... 33
  - 5.8 DSK Setup ..... 36
  - 5.9 Layer Control ..... 38
    - 5.9.1 Clock and Crawl Objects ..... 38
  - 5.10 Logo 1-6 Setup ..... 41
  - 5.11 Crawl 1-2 ..... 43
  - 5.12 Clock ..... 46
  - 5.13 Genlock ..... 48
  - 5.14 Memory ..... 50
  - 5.15 GPIO ..... 53
    - 5.15.1 Usage ..... 55
  - 5.16 Utility ..... 56
  - 5.17 Logging & RollTrack ..... 59
    - 5.17.1 Logging ..... 60
    - 5.17.2 RollTrack ..... 61



---

<b>Appendix A: Input Timing and Genlock</b> .....	63
A.1 Genlock .....	63
A.2 Input Timing .....	64
A.2.1 Timings .....	64
<b>Appendix B: Logo File Format</b> .....	65
B.1 Static Logos .....	65
B.2 Animated Logos .....	65

# 1. Introduction

## 1.1 Description

The IQLDK30 provides simple and straightforward linear or luma keying along with logo, clock and text crawl insertion for 3G/HD/SD-SDI signals. The unit is capable of adding any combination of up to six animated or static 10-bit color logos into the SDI stream at any point within 4:2:2 boundaries of the active picture. Keyer and Logo control is via RollCall, GPI, RollTrack triggers or SNMP, allowing the IQLDK30 to easily interface with external systems. Logos can be efficiently downloaded over TCP/IP network via a standard web-browser interface onto dedicated 32Gb microSD storage. This provides the ability to have up to 64 logos loaded in non-volatile memory ready for immediate keying.

The unit provides a dedicated program output along with selectable preview/program outputs which include a clean feed option. Being transparent to ancillary data allows the IQLDK30 to pass any embedded audio or metadata and this combined with a short signal delay makes the module suitable for all operational environments.

## 1.2 Feature Summary

### 1.2.1 General

- 32 x user memories and 32 x display memories e.g Logo position and Keyer settings.
- Ancillary data can be passed from the Background inputs, Fill inputs or blanked.
- Local Ethernet port for direct control and Logo upload via standard web-browser including RollCall and SNMP for remote C&M.
- 8 x GPIO ports configured for control or Tally output (logo & key on/off), with keyer and logo control (Cut In/Out, smooth Fade Up/Down and memories (user & display actions)) via GPIO interface.

### 1.2.2 Keyer

- Linear and Luma keyer with full level of opacity and mix controls.
- 2 x Background, Fill, and Key Inputs.
- Dedicated Program output, and two independently selectable Auxiliary outputs, showing preview, program, program pre-fade, Background 1&2 (clean feed), Fill, Key, Processed Key, and pattern signals (black, color bars).
- Cut to Black, Cut to Program and Fade to Black or on Program Output controls available with adjustable duration.
- Self-key capability using fill input to provide key signal.
- Key opacity control (0-50%).
- Optional digital clock with NTP or internal timing, and two independent crawl layers with local text insertion or file upload. LTC timecode is also supported via a double-width rear version.

### 1.2.3 logo Inserter

- 6 internal key layers for static or animated logos providing start, stop, pause and loop actions.
- Each layer offers independent transition timers and mix, fade, take and combined fade/take options with smooth control of transparency, fade in/out time. Including controls for background color and object position on per-layer basis.
- 32GB onboard logo storage support, with dedicated large 500MB active video memory for long animated sequences.
- User defined logos can be loaded over TCP/IP networks, with direct support for PNG format files.
- Video and alpha-channel processing at 10 bits to 4:2:2:4 resolution.

### 1.3 Application Notes

#### 1.3.1 About Power Ratings

SAM IQ modules are assigned a *Power Rating* (PR). This figure represents the relative power consumption of a module.

SAM modular enclosures are also assigned PR values. This figure represents the maximum power available from the enclosure.

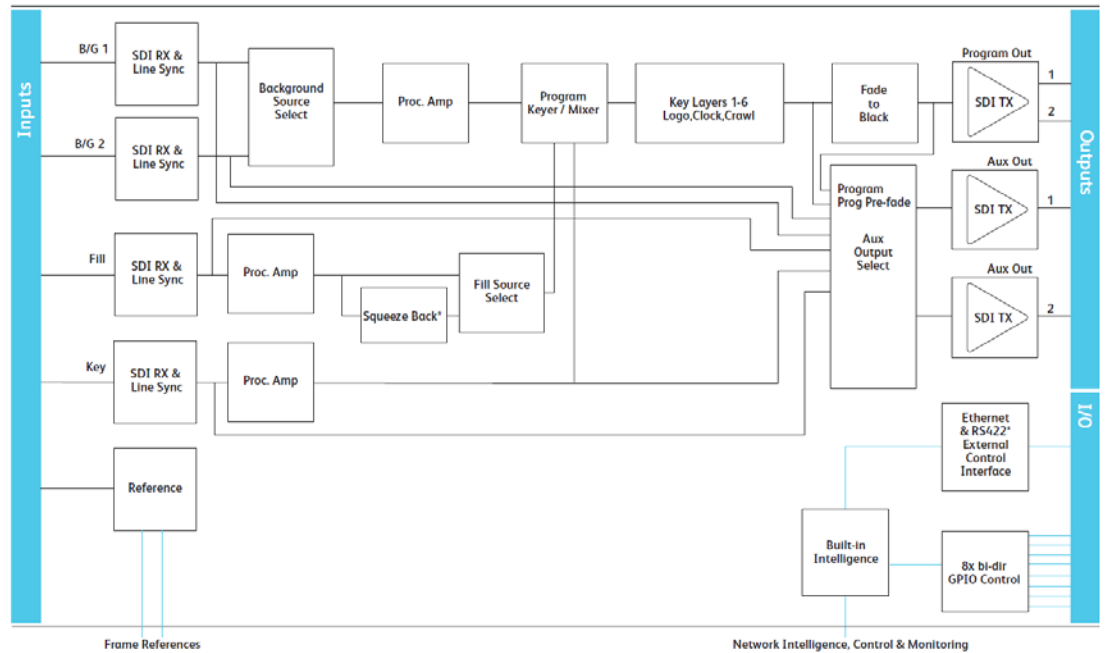
The combined total of all modules' PR values must not exceed the enclosure's PR value.

**Note:** If a module's PR value is not known, use the module's power consumption figure in watts as the PR value.

#### 1.3.2 Power Ratings and Card Widths

Product	PR
IQLDK3000-1B3	7.5 W Max (A Frames) & 7.5 PR (B Frames)
IQLDK3003-2B3	7.5 W Max (A Frames) & 7.5 PR (B Frames)
IQLDK3002-2B3 Relay Bypass Version	8.0 W Max (A Frames) & 7.5 PR (B Frames)

### 1.4 Block Diagram



### 1.5 Order Codes

The following product order codes are covered by this manual:

- IQLDK3000-1B3** 3G/HD/SD-SDI logo inserter and keyer. 2 x Background, 1 x Fill and 1 x Key inputs, 1 x Program and 1 x Auxiliary output and Ethernet to card.
- IQLDK3002-2B3** 3G/HD/SD-SDI logo inserter and keyer. 2 x Background, 1 x Fill and 1 x Key inputs, 2 x Program and 1 x Auxiliary outputs, relay bypass for Background 1 input to Program output 1, 8 x GPIO and Ethernet to card.
- IQLDK3003-2B3** 3G/HD/SD-SDI logo inserter and keyer. 2 x Background, 1 x Fill and 1 x Key inputs, 2 x Program and 2 x Auxiliary outputs, 8 x GPIO and Ethernet to card.

### 1.6 Software Options

- IQOPTL-CLK** Digital Clock support on IQLDK30.
- IQOPTL-CWL1** Text crawl inserter on IQLDK30.
- IQOPTL-CWL2** Second text crawl inserter on IQLDK30.

### 1.7 Rear Panel View

The following rear panel types are available:

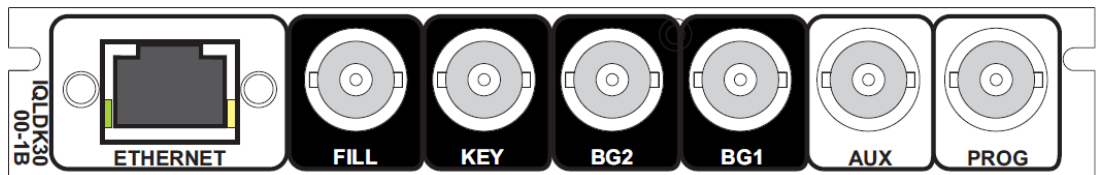


Figure 1 IQLDK3000-1B3

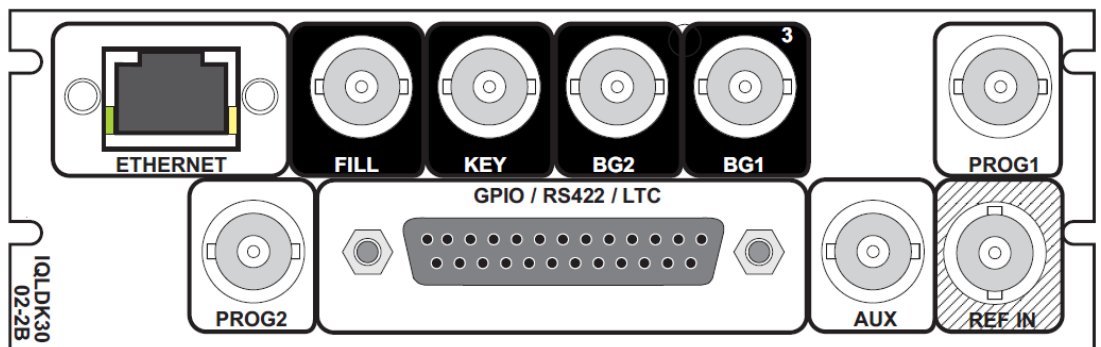


Figure 2 IQLDK3002-2B3

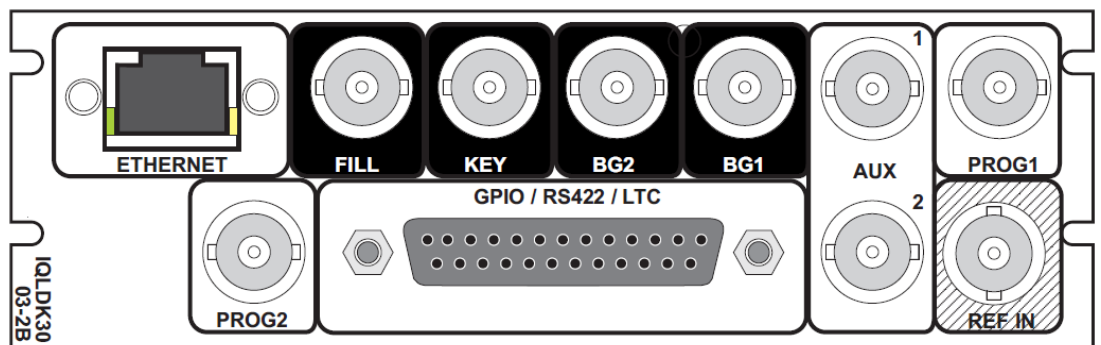


Figure 3 IQLDK3003-2B3

## 2. Technical Specification

<b>Inputs and Outputs</b>	
<b>Signal Inputs</b>	
Serial Digital Inputs	4 x 3G/HD/SD Serial Digital.
Background (1)	1 x BNC, terminated in 75 Ohms.
Background (2)	1 x BNC, terminated in 75 Ohms.
Key	1 x BNC, terminated in 75 Ohms.
Fill	1 x BNC, terminated in 75 Ohms.
Electrical	3Gbit/s SDI, SMPTE 424M 1.5Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C.
Connector/Format	BNC/75 ohm panel jack on standard SAM connector panel.
Input Cable Length	Input 1 (BG1) - SD: 325m Belden 8281 Input 1 (BG1) - HD: 140m Belden 1694A Input 1 (BG1) - 3G: 90m Belden 1694A Input 2 (BG2) - SD: 350m Belden 8281 Input 2 (BG2) - HD: 110m Belden 1694A Input 2 (BG2) - 3G: 100m Belden 1694A Input 3 (KEY) - SD: 350m Belden 8281 Input 3 (KEY) - HD: 150m Belden 1694A Input 3 (KEY) - 3G: 100m Belden 1694A Input 4 (FILL) - SD: 375m Belden 8281 Input 4 (FILL) - HD: 150m Belden 1694A Input 4 (FILL) - 3G: 120m Belden 1694A.
<b>Analog Reference</b>	1 x BNC, terminated in 75 Ohms. 2 x Enclosure Reference Distribution: Frame ref A, Frame ref B
Standards	HD Tri-sync, SD Bi-sync, SMPTE 274M, RS170A.
<b>Signal Outputs</b>	
Serial Digital Outputs	4 x 3G/HD/SD Serial Digital.
Program 1, 2	2 x SDI program.
Auxiliary 1, 2	2 x SDI Monitoring (independently selectable) preview, program, program pre-fade, Background 1 & 2 (clean feed), Fill, Key, Processed Key, pattern signals (black, color bars).
Electrical	3Gbit/s SDI, SMPTE 424M (425M-level A) 1.5 Gbit/s HD-SDI, SMPTE 292M/296M 270 Mbit/s SDI, SMPTE 259M-C.
Connector/Format	BNC/75 ohm panel jack on standard SAM connector panel.
Return Loss	>-15 dB to 3GHz.
Output Timing Jitter	(SD): <0.2UI (HD): < 1UI.
Alignment Jitter	<0.2UI.
Level	800mV +10%.

<b>Video Delay</b>	
Minimum Processing Delay Locked to Ref:	
SD	8.5µs
HD	2.2µs
3G-A	1.2µs
3G-B	37µs
Input to Output Delay Locked to Background Input:	
SD	12µs
HD	2.8µs
3G-A	1.8µs
3G-B	38µs
<b>Note:</b> Synchronizer OK Timing Window =1H-0.6µs for all standards and 1H-7µs for SD standards.	

<b>Control Interface</b>	
GPIO	8 x bi-directional GPIO Format: TTL, Open drain ports Connector: 25 way D-Type connector.
Ethernet	1 x Ethernet Interface Format: 10/100Mbit/s Connector: RJ45 Ethernet jack on standard SAM connector panel  <b>Note:</b> in order to support the IQLDK30 module and provide the ability to download logos, it is essential to have an Ethernet connection to the unit.

**Card Edge and RollCall Controls**

<b>Indicators</b>	
Power +	OK (Green), No Power (Off).
Power -	OK (Green), No Power (Off).
CPU OK	OK (Flashing Green), No Power (Off).
Input OK	OK (Green), Timing or Standard Error (Flashing Green), No Input (Off).
Ref OK	OK (Green), Standard Error (Flashing Green), No Input (Off).
Status ERROR	Active (Red), BG Input Loss or Standard Error.
Status WARN	Active (Yellow), BG Input Timing Error.
Status OK	Active (Green), Unit Operating Correctly.

<b>Video Controls</b>	
Input Select	Background 1/Background 2.
Input Status	Reports the input standard and timing status for each input. Field reports input standard or <b>Loss</b> .

Input Timing	When field reports: <b>OK:</b> Input is safely within the synchronizer window. <b>Warning:</b> Input is close to moving out of the synchronizer window, at which point there will be a shift up or down by 1 line. <b>Error:</b> "-" shown against the non-selected Background input, any absent input or any input of incorrect standard.
Input standards list	1080 50p-A/59p-A/60p-A/50p-B/59p-B/60p-B 1080 50i/59i 1080 23p/24p/25p/29p/30p 1080 23psf/24psf/25psf/29psf/30psf 720 50p/59p/23p/24p/25p/29p/30p 525 59i 625 50i.
<b>Output Controls</b>	
Output Standard	Manual Select, Follows Input.
Output Standards List	1080 50p-A/59p-A/60p-A/50p-B/59p-B/60p-B 1080 50i/59i/60i 1080 23p/24p/25p/29p/30p 1080 23psf/24psf/25psf/29psf/30psf 720 50p/59p/60p/23p/24p/25p/29p/30p 525 59i/625 50i.
Default Video Output	Black, Color Bars, Display Memory.
Program ANC Source	Selected Background, Fill, None.
Program Fade	Fade to Black, Fade to Program, Cut to Black, Cut to Program (default).
Fade Frames	Range 1 (cut) to 2047 frames. Fade Time is reported in seconds.
Test Pattern	Off, Color Bars.
Auxiliary Out 1&2	Preview (default), Program, Program Pre-Fade, Background 1, Background 2, Fill, Key, Processed Key, Black, Color Bars.  <b>Note:</b> If the standard of the selected source differs from the operating standard, the output will be black.
Key Enable-Object	DSK: Keyer, Mixer. Object assignment to Layer 1-6 of Program /Preview Output.
<b>DSK Controls</b>	
Key Enable	Program/Preview Outputs.
DSK Operation	Keyer, Mixer.
BGD ProcAmp Controls	Proc Amp Enable.
BGD Luma Gain Range	-6dB to +6dB in 0.2dB steps.
BGD Black Level Range	-100mV to +100mV in 0.8mV steps.
BGD Chroma Gain Range	-6dB to +6dB in 0.2dB steps.
Fill ProcAmp Controls	Proc Amp Enable.
Fill Luma Gain Range	-6dB to +6dB in 0.2dB steps.
Fill Black Level Range	-100mV to +100mV in 0.8mV steps.



Fill Chroma Gain Range	-6dB to +6dB in 0.2dB steps.
Key ProcAmp Controls	Proc Amp Enable, Key Invert, Key Range Video.
Key Gain Range	0 (off) to 13.7 applied after Key Lift.
Key Lift Range	-10% to 110% in 0.1% steps.
Key Invert Range	-6dB to +6dB in 0.2dB steps.
<b>Keyer Controls</b>	
Fill Source	Fill
Key Source	Key, Fill
Key Mode	Luma, Liner (pre-shaped)
Key Control	Key On, Key Off, Transition On, Transition Off
Transition Frames	Range 1 (cut) to 2047 fields/frames. Transition Time reported is in seconds. Only active for linear key mode.
Opacity	Range 100% to 50% in 1% steps.
<b>Mixer Controls</b>	
Control	Cut to Background, Cut to Fill, Transition to Background, Transition to Fill, Manual Mix.
Transition Type	Mix, Fade-Fade, Fade-Cut, Cut-Fade.
Transition Frames	Range 1 (cut) to 2047 fields/frames. Transition Time reported is in seconds; Mixer transition time is doubled for Fade/Fade.
Manual Mix	Range 0% (Selected Background) to 100% (Fill) in 1% steps.
<b>Logo Control</b>	
Layer [n]	Key Enable: Program/Preview Output.
Active Object	Logo Name and File.
Key Action	Cut to On, Cut to Off, Transition to On, Transition to Off.
Transition Frames	Range 1 (cut) to 2047 fields/frames. Transition Time reported is in seconds.
Animation	Start, Stop, Pause.
Logo Opacity	Range 100% to 50% in 1% steps.
Logo Top Position	Range 0% (top of logo aligned with top video line) to 100% (bottom of logo aligned with last video line) in 1% steps.
Logo Left Position	Range 0% (aligned left) to 100% (aligned right) in 1% steps.
Logo List	Logo File Selected, None.
Key Mode	Auto, Luma, Linear (pre-shaped).
<b>Logo Download</b>	
Note: The logo download software supports PNG (with embedded key) only.	
Logo Limits	Maximum logo file storage capacity on microSD card is 64GB.
<b>RollCall Controls</b>	
<b>Genlock</b>	Operating Standard.

Genlock Status	Free Run, Force Input Lock, Genlock.
Lock Source	Frame Ref A, Frame Ref B, External, Background (input).
Input Timing Status	Background, Fill, Key (OK, Warning, Error).
Ref Phase	H Phase, V Phase.
H Phase Range	-2640 to +2640* output standard pixels in steps of 1 pixel (3G-B, 2 pixels).
V Phase Range	563 to +562* output standard lines in steps of 1 line (3G-B, 2 lines).
<b>Memory</b>	
Display Memory	Save, Clear, Recall, Name locations 1-32, Last Recalled.
Config Memory	Save, Clear, Recall, Name locations 1-32, Last Recalled.
<b>GPIO</b>	
GPI 1-8 configuration	Unused, Input, Output.
GPI 1-8 trigger	State Change Event.
GPI 1-8 input	Unused, Black, Fade to Black, Fade to Program, DSK PGM Key Enable, DSK PGM Key Disable, SelectBg1-2, Layer 1-6 PGM Transition to On, Layer 1-6 PGM Transition to Off, Display Memory 1-32, Config Memory 1-32 (internal pull-up resistors, 5V open voltage).
GPI 1-8 output	Black, Pattern, In Background 1 OK, In Background 2 OK, Input OK, DSK PGM Key Enabled, Layer 1 Key Enabled, Layer 2 Key Enabled, Layer 3 Key Enabled, Layer 4 Key Enabled, Layer 5 Key Enabled, Layer 6 Key Enabled (30mA max sink current, 5V max voltage).
<b>Other Controls</b>	
<b>RollCall Logging</b>	
Video Input Logging	Input Name, Status, Standard, Errors.
Output Logging	Standard.
Layer Object Logging	Layer Object 1-6 State/Name.
Misc Logging	Serial No, Version.
<b>RollTrack</b>	
RollTrack Controls	Source, Address, Command, Status, Sending
RollTrack Sources (Internal or detected device states that trigger the sending of RollTracks)	Unused, BG1 Loss, BG1 OK, BG2 Loss, BG2 OK, Input Loss, Input OK, Fill Loss, Fill OK, Key Loss, Key OK, PGM Fade, PGM UnFade, Layer 1-6 Key ON/OFF. Timing State: Input Error, Input No Error, Fill Error, Fill No Error, Key Error, Key No Error.
<b>Utility</b>	
	Product, Software Version, Serial No, Rear ID, Micro SD Card Available Space, Video Memory Free. Clear Display Data: Clear All Logos, Clear All Text, Factory Reset, Default All.

---

<b>Ethernet</b>	Selection: Fixed Address, DHCP. Entry Fields for: IP Address, IP Gateway, IP Netmask. Current IP Config Display Fields: Current IP Address, Current IP Gateway, Current IP Netmask.
-----------------	---

---

**Module Power Consumption**

---

IQLDK3000-1B3	7.5 W Max (A Frames) & 7.5 PR (B Frames)
IQLDK3003-2B3	7.5 W Max (A Frames) & 7.5 PR (B Frames)
IQLDK3002-2B3 Relay Bypass Version	8.0 W Max (A Frames) & 7.5 PR (B Frames)

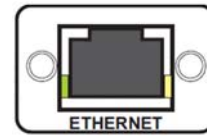
---

## 3. Connections

This section describes the physical input and output connections provided by the IQLDK30 module.

### 3.1 Ethernet Input

RJ45 connector supporting 10/100Mbit/s Ethernet.



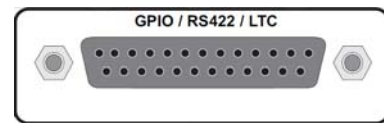
### 3.2 SDI I/O

8 x 3G/HD/SD-SDI interfaces provided with HD-BNC.



### 3.3 GPIO

8 x GPIO ports configured for control or Tally output via GPIO interface.



## 4. Card Edge LEDs

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

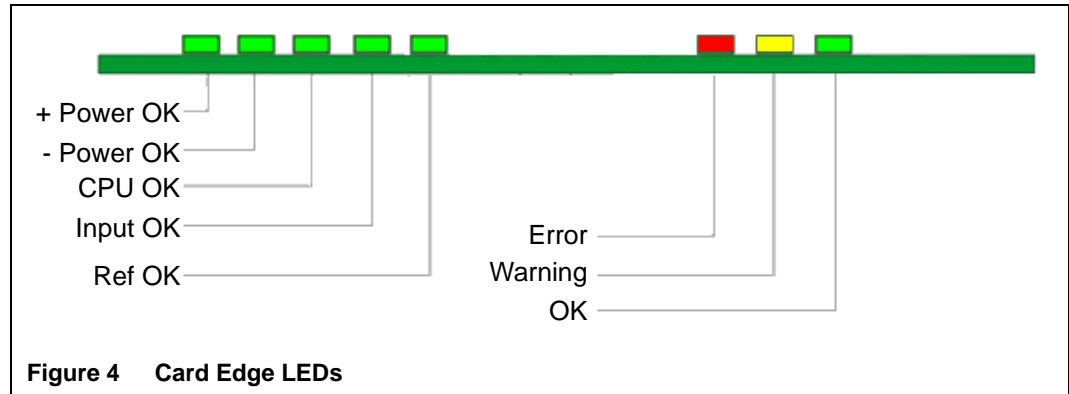



Figure 4 Card Edge LEDs

LED	Color	Description
<b>Power OK (+/-)</b>	2 x Green	Both on = OK.
<b>CPU OK</b>	Green flashing	CPU OK.
<b>Input OK</b>	Green	On = selected background present. Flashing = input is in ERROR or WARNING state, or input standard does not match operating standard. Off = no input detected on selected background input.
<b>Ref OK</b>	Green	On = selected reference input is present and valid. Flashing = Reference standard cannot be used for frame lock. In this case Clock Lock mode will be active. Off = No detected input on selected reference.
<b>Status ERROR</b>	Red	On = selected background input is missing or does not match the operating standard.
<b>Status WARN</b>	Yellow	On = selected background input has invalid timing.  This will not illuminate if either Fill or Key is missing, as the unit can still operate normally with just a background input. ERROR has priority.
<b>Status OK</b>	Green	On = Unit operating correctly with a valid background input present.

## 5. RollCall Control Panel

This section contains information on using the IQLDK30 with RollCall.

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

### 5.1 Navigating Pages in the RollCall Template

The RollCall template has a number of pages, each of which can be selected from the list at the top left of the display area. Right-clicking anywhere on the pages will also open a page view list, allowing quick access to any of the pages.

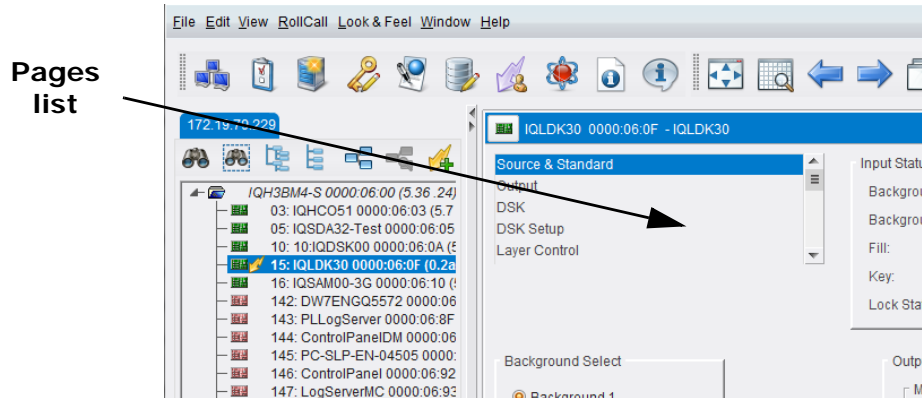


Figure 5 Template Pages


#### 5.1.1 Template Pages


The following pages are available:

- **Source & Standard** - see section 5.5
- **Output** - see section 5.6.
- **DSK** - see section 5.7.
- **DSK Setup** - see section 5.8.
- **Layer Control** - see section 5.9.
- **Logo Setup 1-6** - see section 5.10.
- **Crawl 1-2** - see section 5.11.
- **Clock** - see section 5.12.
- **Genlock** - see section 5.13.
- **Memory** - see section 5.14.
- **GPIO** - see section 5.15.
- **Utility** - see section 5.16.
- **Logging & RollTrack** - see section 5.17.

#### 5.1.2 Setting Values

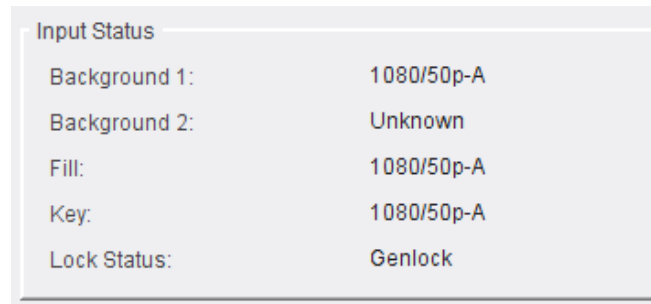
Many of the settings within the templates have values, either alpha or numeric.

When setting a value in a field, the value, whether text or a number, must be set by pressing the ENTER key, or clicking the  **Save Value** button.

Clicking an associated  **Preset Value** button returns the value to the factory default setting.

## 5.2 Input Status

The **Input Status** pane appears at the top of each page, and shows module input status information.



Input Status	
Background 1:	1080/50p-A
Background 2:	Unknown
Fill:	1080/50p-A
Key:	1080/50p-A
Lock Status:	Genlock

**Figure 6** Information Pane



### 5.3 Managing Logos

Logo files are uploaded to the on-board User Data SD card over Ethernet, via the supplied web application. Logos are then made available for use by transferring them to video memory.

Logo files must be in PNG format.

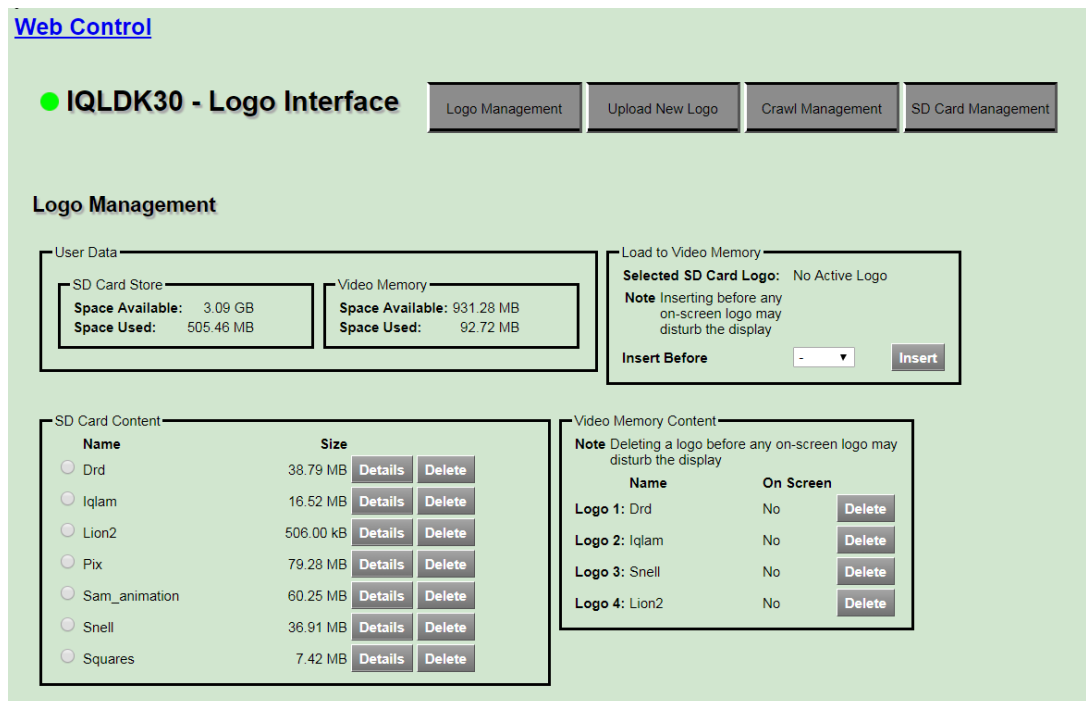
**Note:** See also *Appendix B: Logo File Format* for more information.

#### 5.3.1 Uploading via Ethernet

This is performed with the web-based **Logo Management** application. Follow the instructions below to upload files.

1. Open a browser window, enter the LDK30's current IP address into the address field and press ENTER. The current IP address can be found in the **Ethernet** section of the **Utility** page (see section 5.16).

The **Logo Management** web page is displayed:



**Figure 7 Logo Management Web Page**

The **Logo Management** web page lists all the logos stored on the User Data SD card and in the video memory. Logos must be transferred to the video memory in order for them to be available for selection via the **Layer 1-6 Setup** pages in RollCall. Up to 64 logos can be stored in the video memory.

2. Click **Upload New Logo**; the **Logo Upload** web page is displayed:

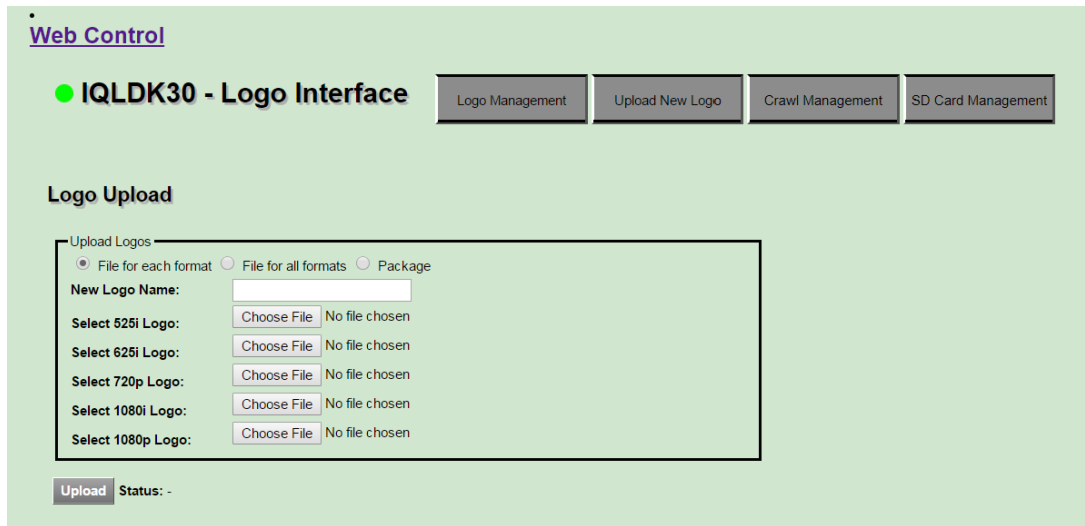


Figure 8 Logo Upload Web Page

3. Select an **Upload Logos** radio button as required. Options are:
  - **File for each format** - Select a separate file for 525i, 625i, 720p, 1080i, 1080p.

**Note:** Logos are rendered in the current operating format. A logo designed for SD rendering can be inserted on an HD image but will appear proportionately smaller. To ensure common logos such as channel branding are rendered at a consistent size, separate versions will be needed for each standard.

- **File for all formats** - Select a single file to be used for all formats.

**Note:** If a common logo is uploaded in 525i and 720p versions but the current operating standard is 1080p, the most appropriate logo, in this example 720p, will be displayed.

- **Package** - Select if the file to be uploaded is a zip file containing a sequence of logos to be used in an animation.

**Note:** The file names contained within animated logo zip files must be in a particular format. See *Appendix B:: Logo File Format* for more information.

4. Enter a **New Logo Name**. This is the name which will be displayed for selection. If the name entered is the same as an existing file, that file will be overwritten.
5. Use the **Choose File** buttons to select the files to be uploaded. Click **Upload** to begin the process.

### 5.3.2 Making Logos Available for Selection

In order for logos to be displayed for selection on the **Layer 1-6 Setup** pages, they must first be copied to video memory. Follow the instructions below to do this.

From the **Logo Management** page:

1. In the **SD Card Content** section, click the radio button next to the item to be copied.
2. Decide where the item should appear on the **Video Memory Content** list.

**Note:** Copying logos to the highest empty location in the video memory will not cause a disturbance in the operation of the keyer. However, copying to a location *below* one containing an active logo will cause a momentary loss of the active logo.

3. Use the **Insert Before** drop-down in the **Load to Video Memory** section to select where on the list the item should be placed.

Click **Insert** to perform the copy. An error message will be displayed if the maximum 64 logos are already present in the memory.

### 5.3.3 Deleting Logos

Logos can be deleted from both the User Data SD card and the video memory.

Click **Delete** next to the item to be removed.

**Note:** Deleting logos from the video memory may cause a momentary loss of any keyed logos, from both the program and preview outputs. This will happen if any active logo is in a higher location than the logo being deleted.

### 5.4 Managing Crawl Text

Similarly to logo files, crawl source text files are uploaded to the on-board User Data SD card over Ethernet, via the supplied web application. The crawl text is then available for selection via the **Crawl 1-2** pages. The files must be in UTF-8 .txt format.

Crawl text can also be entered manually if required; see section 5.4.2.

#### 5.4.1 Uploading Crawl Text Source Files

1. From the **Logo Management** web page (see section 5.3.1), click **Crawl Management**; the **Crawl Management** page is displayed:

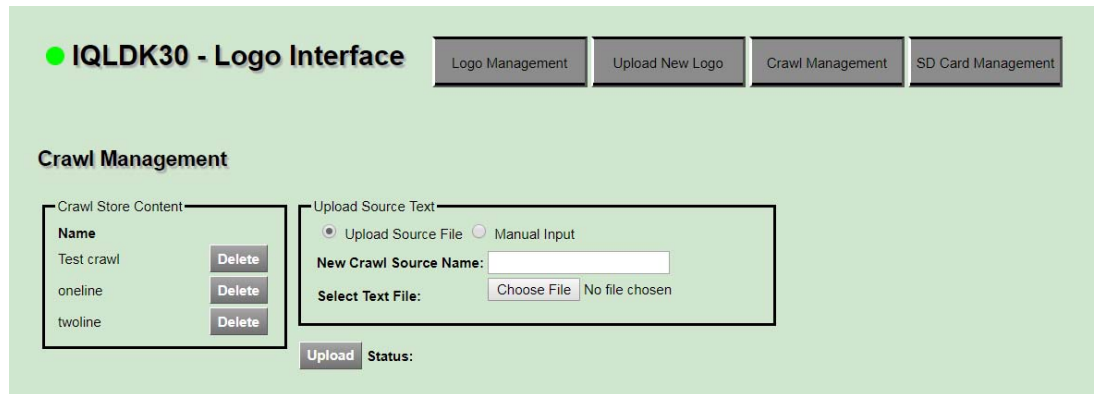


Figure 9 Crawl Management Page

All the text files stored on the User Data SD card are listed in the **Crawl Store Content** section.

2. Click **Upload Source File**, and enter a name for the crawl in the **New Crawl Source Name** field. Click **Choose File** to open a Windows Browse dialog, then navigate to and select the file to upload.
3. Click **Upload**; the file is copied to the SD card, and is available for use. See section 5.11 for information on using crawl text files.

#### 5.4.2 Creating Crawl Text Manually

**Note:** This describes how to manually set crawl text via the web application. See section 5.11 for information on manual text entry via RollCall.

1. Follow Step 1 described above, then click **Manual Input**.
2. Enter a name for the crawl in the **New Crawl Source Name** field. Type the text for the new crawl in the **New Crawl Source Text** field.
3. When complete, click **Upload**; the file is copied to the SD card, and is available for use. See section 5.11 for information on using crawl text files.

#### 5.4.3 Replacing the User Data SD Card

Should the User Data SD card require replacement, follow these instructions:

1. From any page, click **SD Card Management**; the **SD Card Management** page is displayed:



**Figure 10 SD Card Management Page**

2. Click **Unmount**. This will allow the SD card to be safely removed from the module.
3. Remove the old SD card from the **User Data** slot. There is no need to power down the unit.
4. Fit a suitable replacement SD card. Restart the module and open the web application.

**Note:**

SD cards of up to 64GB capacity have been tested with the IQLDK30. Higher capacity cards have not been tested.

5. Navigate to the **SD Card Management** page, and click **Prepare SD Card**.  
This will format the SD card and prepare the directory structure so it can work with the module. The process is complete when the **Valid Filesystem** display shows **Yes**.
6. When the SD card is ready, click **Mount**; when the **Valid Mount** display shows **Yes**, the new card is ready and the module can be used.

### 5.5 Source & Standard

The **Source & Standard** page allows the user to select the background source input to be used alongside the Program ANC source, and to set the default output standard configuration.

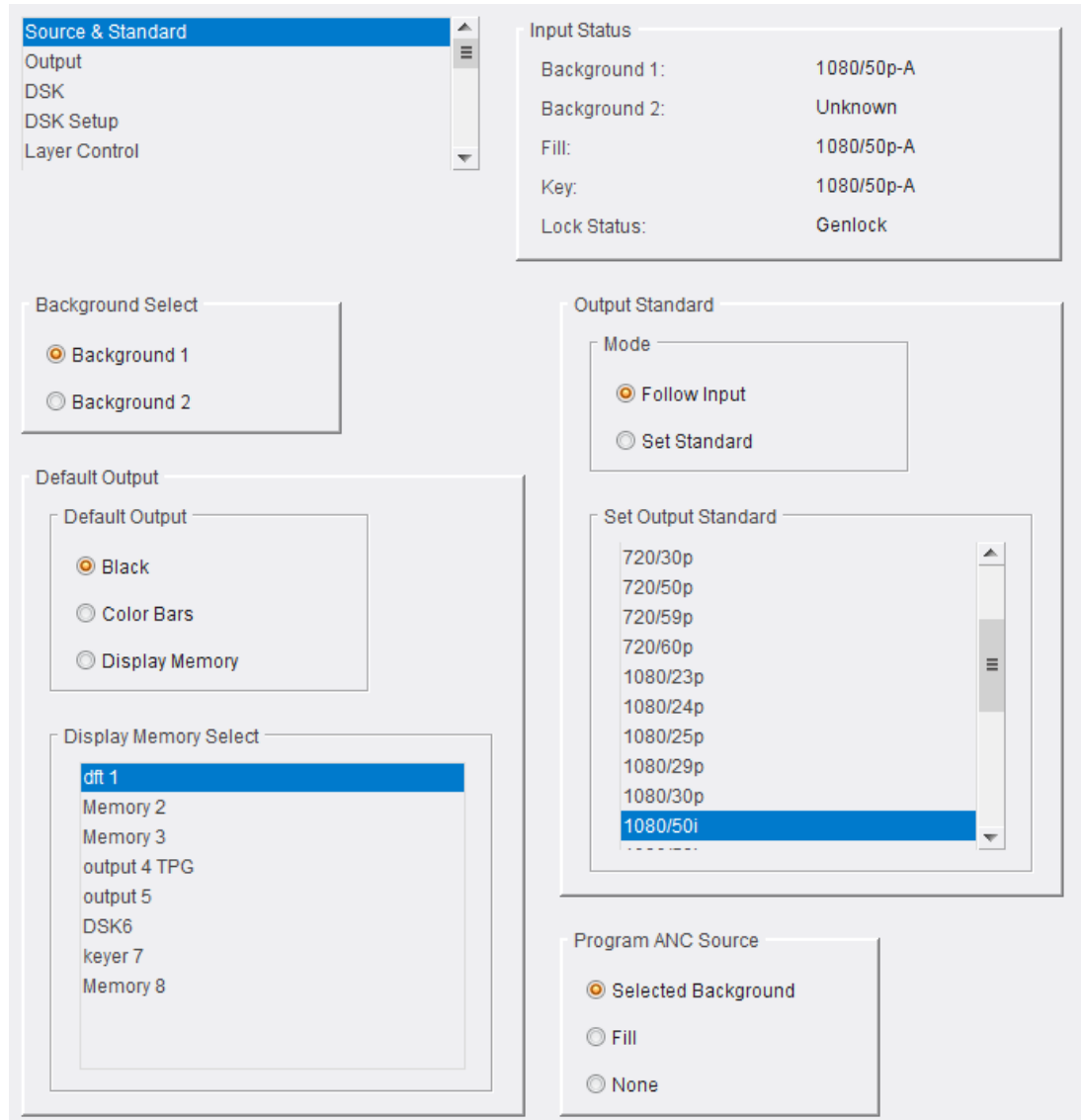


Figure 11 Source and Standard Page

The following facilities are available from this page:

Option	Operation
Background Select	Select the background to use: <ul style="list-style-type: none"> <li>• <b>Background 1</b></li> <li>• <b>Background 2</b></li> </ul> <p><b>Note:</b> If <b>Genlock</b> is set to <b>Background Lock</b> (see section 5.13), switching between Background 1 and Background 2 will give an output sync disturbance, even with closely timed sources.</p> <p>Only use this switch live when reference locked.</p>

Option	Operation
Input Status	<p>Displays the input standard and timing status for each input.</p> <ul style="list-style-type: none"> <li>• <b>Standard:</b> Displays input standard. Possible values are:                             <ul style="list-style-type: none"> <li>• <b>[Input standard]</b></li> <li>• <b>Loss</b></li> </ul> </li> <li>• <b>Timing:</b> Displays timing status. Possible values are:                             <ul style="list-style-type: none"> <li>• <b>OK</b> - Input is safely within the synchronizer window.</li> <li>• <b>Loss</b> - Input is close to moving out of the synchronizer window. When this occurs, there will be a shift up or down by 1 line.</li> <li>• <b>Error</b></li> <li>• <b>"-"</b> - Indicates any absent input or any input of incorrect standard. Shown against the currently non-selected Background input.</li> </ul> </li> </ul> <p><b>Note:</b> Timing status is also reported on the <b>Genlock</b> page. See section 5.13 for more information.</p>
Output Standard	<p>Allows selection of the output standard and mode. Options are:</p> <p><b>Mode:</b></p> <ul style="list-style-type: none"> <li>• <b>Follow Input</b> - The output standard follows the selected background input. If no input is present at power up, with this mode selected the output standard will be the one last used.  3G input level: The output level will match the input level, i.e. if the input is level A, the output will also be level A. It is not possible to convert between levels.</li> <li>• <b>Set Standard</b> - Allows the output standard to be selected manually. Enable the option and then select the required standard from the <b>Set Output Standard</b> list.</li> </ul> <p><b>Note:</b> If the forced operating standard does not match the selected background input, then the output set in the <b>Default Output</b> section (below) will be used.</p>
Default Output	<p>Sets the output mode to be used if a lost or invalid signal is encountered on the selected background input. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Black</b></li> <li>• <b>Color Bars</b></li> <li>• <b>Display Memory</b> - Loads a specified display memory, an emergency logo for example. When the input is restored, the logo defined for that input will be re-displayed. See section 5.14 for more information on display memories.</li> </ul> <p><b>Note:</b> If settings are altered while the input is absent, those changes will be lost when the input is restored.</p>



---

<b>Option</b>	<b>Operation</b>
Display Memory Select	Sets the display memory to be used as the default output. <b>Note:</b> When default memory is active, the DSK is disabled and preview settings are unchanged.
Program ANC Source	Sets the source for ANC (VANC and HANC data). Options are: <ul style="list-style-type: none"><li data-bbox="798 414 1133 448">• <b>Selected Background</b></li><li data-bbox="798 459 893 492">• <b>Fill</b></li><li data-bbox="798 504 925 537">• <b>None</b></li></ul>

---

## 5.6 Output

The **Output** page allows the user to assign the DSK/Mixer and the six key layers to the Program and Preview paths, and control the Program Out transitions and the source routing for the two available Auxiliary outputs.

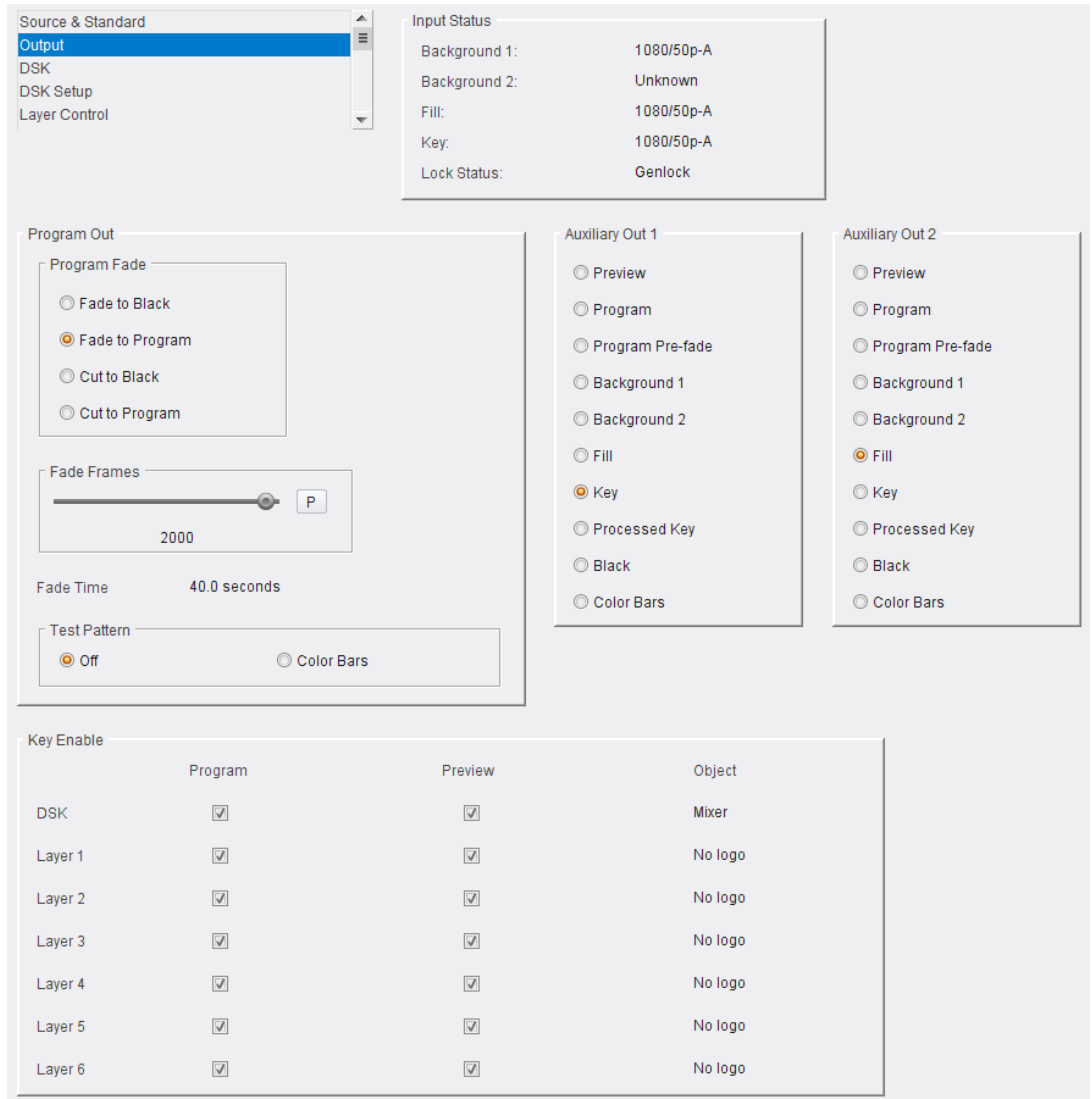


Figure 12 Output Page

The following facilities are available from this page:

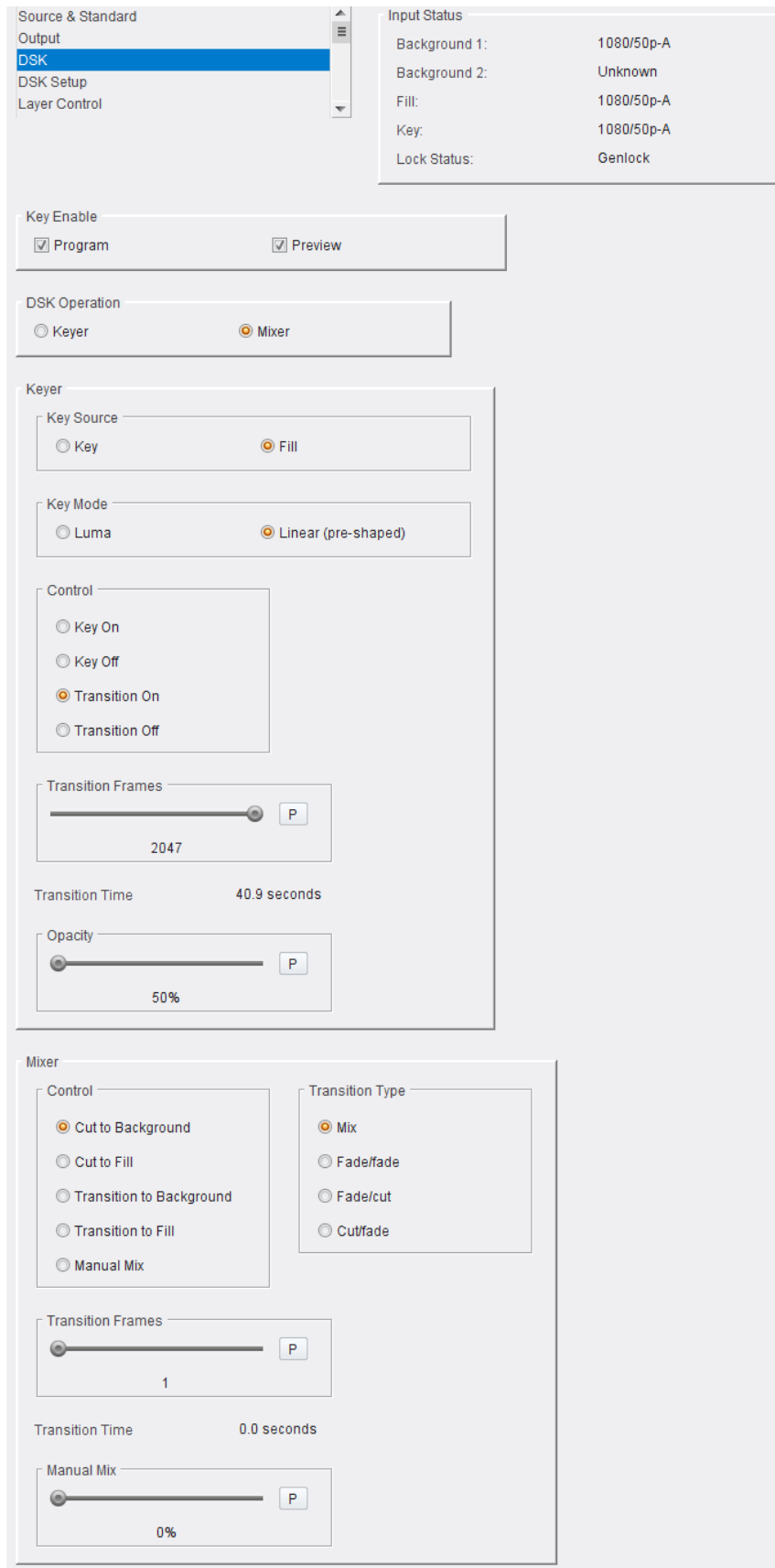
Option	Operation
Program Out	Sets how the program output is to fade to and from black. Options are: <b>Program Fade:</b> <ul style="list-style-type: none"> <li>Fade to Black</li> <li>Fade to Program</li> <li>Cut to Black</li> <li>Cut to Program</li> </ul>
Fade Frames	Controls the number of frames over which the fade is to be performed, from 1 (cut) to 2047. Adjust the slider to select, or click <b>P</b> to use the default.
Fade Time	Displays the duration of the fade in seconds.

Option	Operation
Test Pattern	<p>Enable to output color bars. Pattern is applied to the output and is not affected by any other setting, such as fade. HANC/VANC data is blanked when the test pattern is active.</p> <p>Default = <b>OFF</b>.</p>
Auxiliary Out 1/2	<p>Controls what is displayed on the preview outputs. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Preview</b> - Displays the picture that will be displayed when <b>Key On</b> (see section 5.7) is selected. Note that the effects of opacity adjustment are not shown, and the key mode on the preview output will be Luma, even if Linear is selected. In this case, the <b>Key</b> mode will change to <b>Linear</b> when <b>Key</b> is selected.</li> <li>• <b>Program</b> - Displays the default program output.</li> <li>• <b>Program Pre-Fade</b> - If the program output has been faded to black, this option causes the unfaded picture to be displayed.</li> <li>• <b>Background 1/2</b> - Displays the background input.</li> <li>• <b>Fill</b> - Displays the fill input.</li> <li>• <b>Key</b> - Displays the key input.</li> <li>• <b>Processed Key</b> - Displays the signal output from the key proc amp to be used for keying.</li> <li>• <b>Black</b> - Displays a black picture.</li> <li>• <b>Color Bars</b> - Displays a color bar signal.</li> </ul> <p><b>Note:</b> If the standard of selected source differs from the operating standard, the output will be black.</p>
Key Enable	<p>Enables key on program and/or preview channels. Select check boxes as required to enable.</p> <p><b>Note:</b> These check boxes are duplicated on the <b>DSK, Layer Control, Layer 1-6 Setup, Crawl 1-2</b> and <b>Clock</b> pages.</p> <p>Default = all <b>OFF</b>.</p> <p><b>Key Enable Object</b> - Displays current mode. Valid values are:</p> <ul style="list-style-type: none"> <li>• <b>DSK</b> - <ul style="list-style-type: none"> <li>• <b>Keyer</b></li> <li>• <b>Mixer</b></li> </ul> </li> <li>• <b>Layer 1-6</b> - <ul style="list-style-type: none"> <li>• <b>L:[logo name]</b> = Logo file</li> <li>• <b>T:[text file name]</b> = Text file</li> <li>• <b>Caption</b></li> <li>• <b>Clock</b></li> <li>• <b>"-"</b> - No object defined. Enabling key will have no effect on the program or preview output.</li> </ul> </li> </ul>

**Note:** **Key Enable** is the primary control for DSK and logos. **Key Enable** controls are repeated on all relevant pages, with all keys controllable from the **Output** page. Keys may be enabled independently for the preview and program output.

### 5.7 DSK

The **DSK** page allows control over main key and mix operations. Set as required.



**Figure 13 DSK Page**

The following facilities are available from this page:

Option	Operation
Key Enable	<p>Enables key on program and/or preview channels. Select check boxes as required to enable.</p> <p><b>Note:</b> These check boxes are duplicated on the <b>Output</b> page.</p>
DSK Operation	<p>Controls DSK operation mode. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Keyer</b> - Keys the fill onto the selected background.</li> <li>• <b>Mixer</b> - Allows cross-fade between the selected background and fill. The <b>Key</b> channel is not used.</li> </ul> <p><b>Note:</b> <b>Key Enable</b> is the primary control for DSK and logos. <b>Key Enable</b> controls are repeated on all relevant pages, with all keys controllable from the <b>Output</b> page.</p> <p>Keys may be enabled independently for the preview and program output.</p>
Keyer	<p>Controls how the Keyer is to work. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Key Source:</b> <ul style="list-style-type: none"> <li>• <b>Key</b> - Uses the Key input, after processing (see <b>DSK Setup</b>, section 5.8)</li> <li>• <b>Fill</b> - For self-key, select the fill as the Key source.</li> </ul> </li> <li>• <b>Key Mode:</b> <ul style="list-style-type: none"> <li>• <b>Luma</b> - Output = (Background * (1 - Key)) + (Fill * Key).</li> <li>• <b>Linear</b> (pre-shaped) - Output = (Background * (1 - Key)) + Fill. <p><b>Note:</b> This mode must be used only where the fill has already been shaped by the key. Transitions are inoperative.</p> </li> </ul> </li> <li>• <b>Control:</b> Select whether Key/Transition are on or off. Default = <b>Key On</b>.</li> <li>• <b>Transition Frames</b> - Controls the number of frames over which the transition is to be performed, from 1 (cut) to 2047. Adjust the slider to select, or click <b>P</b> to use the default. Note this facility is active only for <b>Linear</b> key mode.</li> <li>• <b>Transition Time</b> - Displays duration of the transition in seconds.</li> <li>• <b>Opacity</b> - Sets the overall opacity of the fill by modification of the key. Actual opacity = [Opacity control] * [input Key value]. Range = 100% to 50% in 1% steps.</li> </ul>
Mixer	<ul style="list-style-type: none"> <li>• <b>Control:</b> Select as required. Default = <b>Cut to Background</b>.</li> </ul>

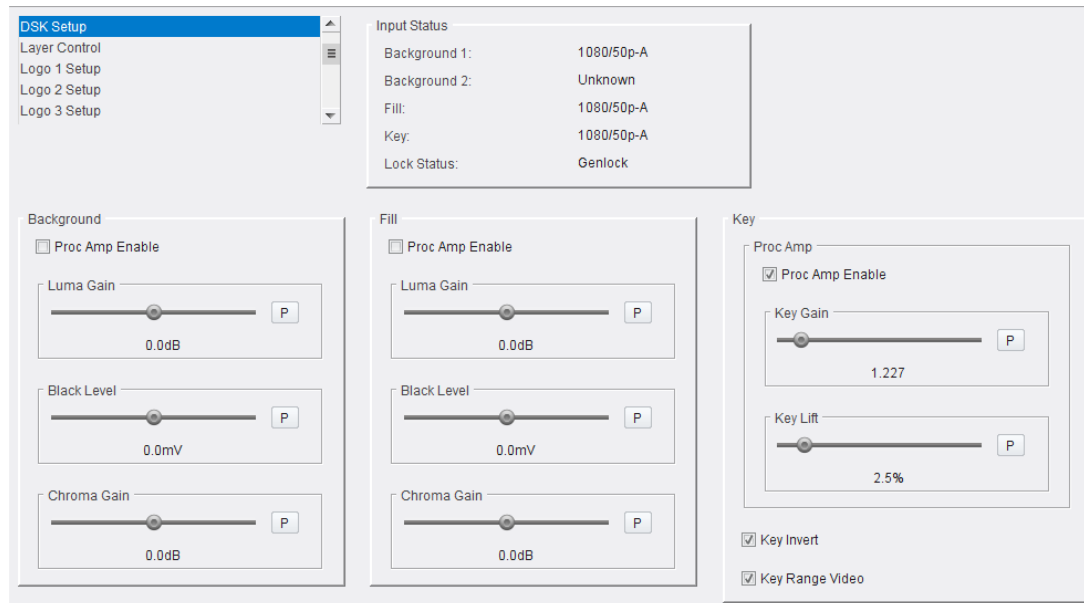
---

Transition Type	Select the required transition type. Options are: <ul style="list-style-type: none"><li>• <b>Mix</b> - Linear cross-fade between selected background and fill.</li><li>• <b>Fade/Fade</b> - Fade out current source to black then fade up other source.</li><li>• <b>Fade/Cut</b> - Fade out current source to black then cut to other source.</li><li>• <b>Cut/Fade</b> - Cut to black then fade up other source.</li></ul>
Transition Frames	Controls the number of frames over which the transition is to be performed, from 1 (cut) to 2047. Adjust the slider to select, or click <b>P</b> to use the default. Note this facility is active only for <b>Linear</b> key mode.
Transition Time	Displays duration of the transition in seconds. Note that the transition time is doubled for fade/fade.
Manual Mix	Allows mix to be configured manually. Range is 0% (selected background) to 100% (fill) in 1% steps.

---

## 5.8 DSK Setup

The **DSK Setup** page allows Background, Fill and Key parameters to be defined. Set as required.



**Figure 14 DSK Setup Page**

The following options are available:

Option	Operation
Background	<p>Allows the background signal to be adjusted. Available options are:</p> <ul style="list-style-type: none"> <li>• <b>Proc Amp</b> - Enable check box to activate the controls below. If not activated, the controls will use their default preset values.</li> <li>• <b>Luma Gain</b> - Adjusts luminance gain on the background. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 6</math> dB in steps of 0.2 dB. The factory default value is 0.0 dB.</li> <li>• <b>Black Level</b> - Adjusts the black level on the background. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 100</math> mV in steps of 0.8 mV. The default value is 0.0 mV.</li> <li>• <b>Chroma Gain</b> - Adjusts the chrominance gain on the background. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 6</math> dB in steps of 0.2 dB. The default value is 0.0 dB.</li> </ul>
Fill	<p>Allows the fill to be adjusted. Available options are:</p> <ul style="list-style-type: none"> <li>• <b>Proc Amp Enable</b> - Enable check box to activate the controls below. If not activated, the controls will use their default preset values.</li> <li>• <b>Luma Gain</b> - Adjusts luminance gain on the fill. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 6</math> dB in steps of 0.2 dB. The factory default value is 0.0 dB.</li> </ul>

Option	Operation
	<ul style="list-style-type: none"> <li>• <b>Black Level</b> - Adjusts the black level on the fill. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 100</math> mV in steps of 0.8 mV. The default value is 0.0 mV.</li> <li>• <b>Chroma Gain</b> - Adjusts the chrominance gain on the fill. Adjust the slider to select, or click <b>P</b> to use the default. Range is <math>\pm 6</math> dB in steps of 0.2 dB. The default value is 0.0 dB.</li> </ul>
Key	<p>Allows the key to be adjusted. Available options are:</p> <ul style="list-style-type: none"> <li>• <b>Proc Amp Enable</b> - Enable check box to activate the controls below. If not activated, the controls will use their default preset values.</li> <li>• <b>Key Gain</b> - Causes the key input signal to be multiplied by the gain about the key lift point. Adjust the slider to select, or click <b>P</b> to use the default. Range is 0 (off) to 13.7, applied after <b>Key Lift</b>. The factory default value is 1.0.</li> <li>• <b>Key Lift</b> - Adjusts the level of the key input signal that gives no keying action; the gain then works about this point. Adjust the slider to select, or click <b>P</b> to use the default. Range is -10% to 110%, in 0.1% steps. <b>Key Lift</b> is applied after <b>Key Gain</b>. Setting <b>Key Lift</b> to 110% forces the key to fully on, irrespective of the applied key waveform. Default = 0%.</li> <li>• <b>Key Invert</b> - Enable to invert the processed key. Applied after Gain and Lift. The default value is <b>OFF</b>.</li> <li>• <b>Key Range Video</b> - When selected, 100% key signal is at a gain of 1.000. If there is a discrepancy between 100% key and a gain of 1.000, select or deselect <b>Key Range Video</b>. <b>Key Gain</b>, <b>Key Lift</b> and <b>Key Invert</b> are applied to the processed key. Default = <b>OFF</b>.</li> </ul>



## 5.9 Layer Control

The **Layer Control** pages provide tools to change the behavior and position of a logo, and to assign Clock and Crawl objects to a layer.

### 5.9.1 Clock and Crawl Objects

Any layers not used for Clock or Crawl objects are available for keying logos. Selecting and positioning logos is achieved via the **Logo Setup** pages (see section 5.10). For more information on Clock and Crawl objects, see section 5.11 and section 5.12.

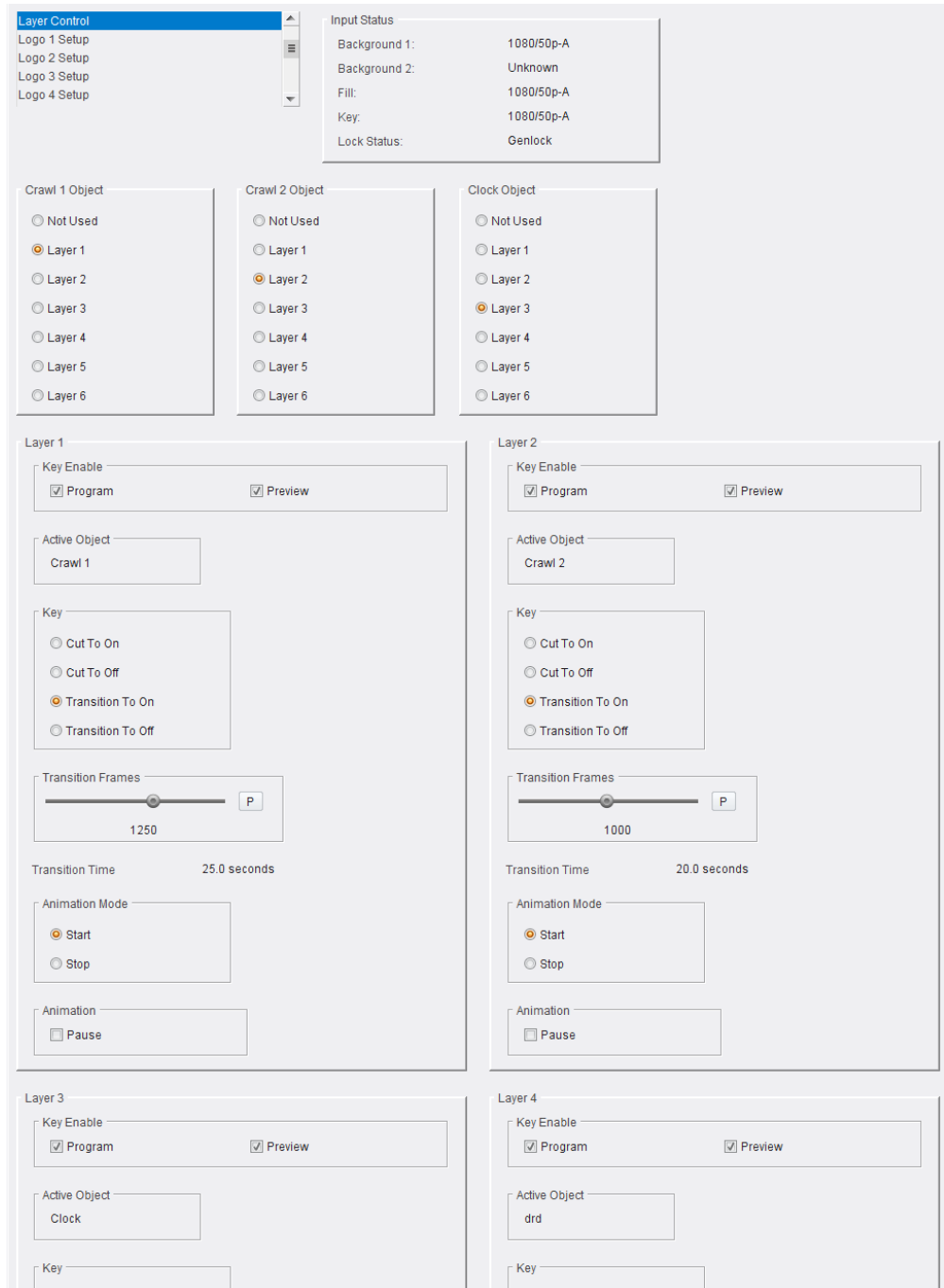


Figure 15 Layer Control Page

The following options are available:

Option	Operation
Crawl 1 Object	<p>Sets the layer on which Crawl 1, defined on the <b>Crawl 1</b> page (see section 5.11), will be displayed.</p> <p>Default = <b>Not Used</b>.</p>
Crawl 2 Object	<p>Sets the layer on which Crawl 2, defined on the <b>Crawl 2</b> page (see section 5.11), will be displayed.</p> <p>Default = <b>Not Used</b>.</p>
Clock Object	<p>Sets the layer on which the <b>Clock</b> feature defined on the <b>Clock</b> page (see section 5.12) will be displayed.</p> <p>Default = <b>Not Used</b>.</p>
Layer 1 - 6	<p>Allows Layer behavior to be set. The following options are available:</p> <ul style="list-style-type: none"> <li>• <b>Key Enable</b> - Enables key on Program and/or Preview channels. Select check boxes as required to enable.</li> </ul> <p><b>Note:</b> These options are duplicated on the <b>Output, DSK, Logo 1-6 Setup, Crawl 1-2</b> and <b>Clock</b> pages.</p> <p>Default = <b>Not Used</b>.</p> <ul style="list-style-type: none"> <li>• <b>Active Object</b> - Displays object status. Valid values are: <ul style="list-style-type: none"> <li>• <b>L:[logo name]</b> = Logo file</li> <li>• <b>T:[text file name]</b> = Text file (crawl)</li> <li>• <b>Caption</b></li> <li>• <b>Clock</b></li> <li>• <b>"-"</b> - No object defined. Enabling <b>Key</b> will have no effect on the program or preview output.</li> </ul> </li> </ul> <p><b>Note:</b> This field is duplicated on the <b>Output</b> and <b>Layer 1-6</b> pages.</p> <ul style="list-style-type: none"> <li>• <b>Key</b> - Controls key action. Default = <b>Cut to On</b>.</li> <li>• <b>Transition Frames</b> - Controls the number of frames over which the transition is to be performed, from 1 (cut) to 2047. Adjust the slider to select, or click <b>P</b> to use the default. Note this facility is active only for <b>Linear</b> key mode (see section 5.6).</li> <li>• <b>Transition Time</b> - Displays duration of the transition in seconds.</li> <li>• <b>Animation Mode</b> - Controls animated logos, clocks, crawls and captions. The following options are available: <ul style="list-style-type: none"> <li>• <b>Start</b> - Starts Logo, Caption or Crawl playout at the beginning of the sequence. Starts clock generator at the entry point.</li> <li>• <b>Stop</b> - Stops Logo, Caption or Crawl playout at the next sequence start point. Reloads generator entry point for count up or down, ready for the next start.</li> </ul> </li> </ul>

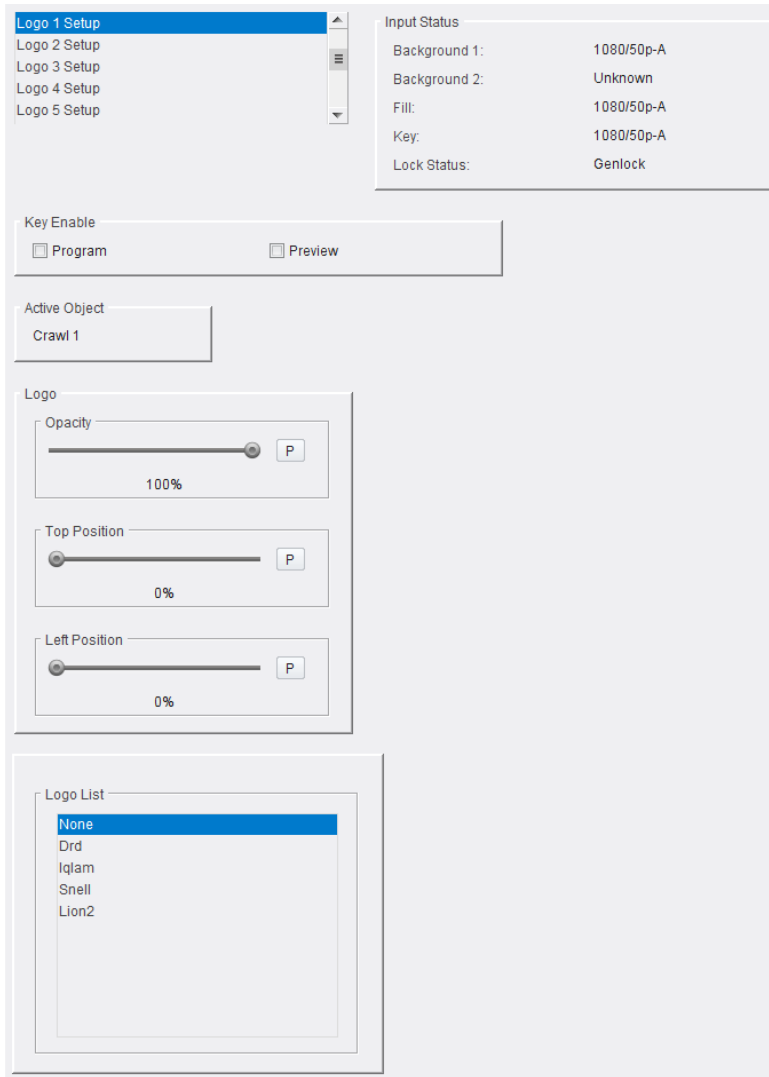
---

Option	Operation
	<p><b>Note:</b> If <b>Stop</b> is selected while paused, the playout will jump to the sequence start but not begin animation until <b>Pause</b> is disabled.</p> <ul style="list-style-type: none"><li>• <b>Animation</b> - Enable check boxes as required to pause the current animation.</li><li>• <b>Pause</b> - Pauses Logo, Caption or Crawl playout. Current clock generator time is held and will continue when <b>Pause</b> is disabled. For other clock sources, the current time is held and will be updated to the latest time when <b>Pause</b> is disabled.</li></ul> <p>Default = <b>OFF</b>.</p>

---

### 5.10 Logo 1-6 Setup

The **Logo 1-6 Setup** pages control logo selection and positioning.



**Figure 16 Logo 1-6 Setup Pages**

The following options are available:

Option	Operation
Key Enable	<p><b>Key Enable</b> - Enables key on program and/or preview channels. Select check boxes as required to enable.</p> <p><b>Note:</b> These options are duplicated on the <b>Output, Layer 1-6</b> and <b>Setup Crawl 1-2</b> pages.</p> <p>Default = <b>Unchecked</b>.</p>
Active Object	<p>Repeat of object status reported on the <b>Output</b> page:</p> <ul style="list-style-type: none"> <li>• L:[Logo name] (<b>L:</b> indicates logo file)</li> <li>• T:[Text file name] (<b>T:</b> indicates crawl text file)</li> <li>• Caption</li> <li>• Clock</li> </ul> <p><b>Note:</b> When the active object is not a logo, the controls below have no effect.</p>

Option	Operation
Opacity	Sets the overall opacity of the logo. Range is 100% to 50% in 1% steps.
Top Position	Range is 0% (top of logo aligned with top video line) to 100% (bottom of logo aligned with last video line) in 1% steps.
Left Position	Range is 0% (aligned left) to 100% (aligned right) in 1% steps.  <b>Note:</b> When the layer object is a crawl or a clock, the positioning and opacity controls here will be inactive, as both Crawl (see section 5.11) and Clock (see section 5.12) can be independently positioned using controls on their respective pages.
Logo List	Displays available logos. Select as required.

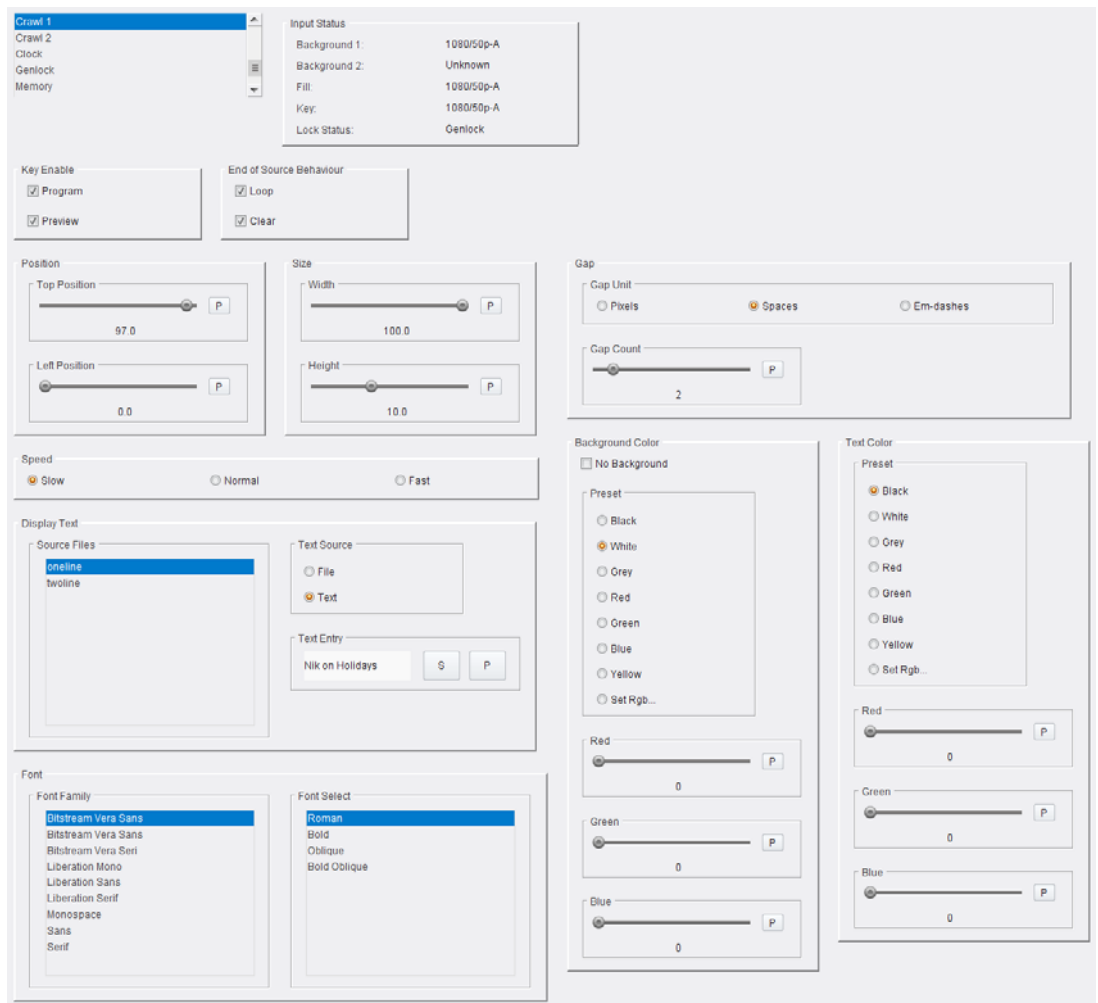
**Note:**

**Key Enable** is the primary control for DSK and logos. **Key Enable** controls are repeated on all relevant pages, with all keys controllable from the **Output** page.

Keys may be enabled independently for the preview and program output.

### 5.11 Crawl 1-2

The **Crawl 1-2** pages allow text crawls to be configured.



**Figure 17 Crawl 1-2 Pages**

The following options are available:

Option	Operation
Key Enable	<p>Enables key on program and/or preview channels. Select check boxes as required to enable.</p> <p>This is a duplicate of the <b>Key Enable</b> control on the <b>Output</b> and <b>Layer Setup</b> pages for which the crawl has been assigned.</p> <p>For example, if Crawl 1 has been selected as a Layer 3 object on the <b>Layer Control</b> page, then the <b>Key Enable</b> control on the Crawl 1 page will enable the key on Layer 3.</p> <p>Default = <b>Unchecked</b>.</p>

Option	Operation
End of Source Behavior	<p>Specifies how the crawl should behave when the end of the source text is reached. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Loop</b> - When selected, the crawl will replay from the beginning. Otherwise, the crawl will play once and then stop.</li> <li>• <b>Clear</b> - This determines how the crawl will behave at the end of the source text when <b>Loop</b> is enabled. If set to <b>Clear</b>, the text will not repeat until the end of the last play through has completely left the screen. Otherwise, the interval between repeats is controlled with the <b>Gap</b> settings (see below).</li> </ul> <p>Enable check boxes as required.</p>
Position	<ul style="list-style-type: none"> <li>• <b>Top Position</b> - Sets the vertical position of the crawl. Range is 0% (top of object aligned with top video line) to 100% (bottom of object aligned with last video line), in 0.1% steps.</li> <li>• <b>Left Position</b> - Sets the horizontal position of the crawl. Range is 0% (aligned left) to 100% (aligned right), in 0.1% steps.</li> </ul>
Size	<ul style="list-style-type: none"> <li>• <b>Width</b> - Sets the portion of the screen occupied by the crawl. Range is 100% of screen width to 50%, in 0.1% steps.</li> <li>• <b>Height</b> - Sets the height of the crawl. Range is 1% to 25% of the screen height, in 0.1% steps.</li> </ul>
Speed	<p>Sets the speed at which the crawl will move across the screen. Three settings, <b>Slow</b>, <b>Normal</b> and <b>Fast</b>, are available. Actual speed will vary with frame rate.</p> <p>Default = <b>Normal</b>.</p>
Display Text	<p>Specify the crawl text to use. Select from:</p> <ul style="list-style-type: none"> <li>• <b>Source Files</b> - Crawl text source files uploaded to the User Data SD card (see section 5.4) are displayed here. Select as required, ensuring that <b>Text Source</b> is set to <b>File</b>.</li> <li>• <b>Text Source</b> - Select whether the text to be used is contained within a file, or specified in the <b>Text Entry</b> field.</li> <li>• <b>Text Entry</b> - Enter the text to be used on the crawl (max 19 characters).</li> </ul>
Font	<p>Sets the font and size to be used for the crawl. Select as required.</p>
Gap	<p>When <b>End of Source Behavior</b> is set to <b>Loop</b> (see above), this control sets the amount of space that should be inserted between the end of one play through and the beginning of the next. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Gap Unit</b> - Select the unit to measure the gap in.</li> <li>• <b>Gap Count</b> - Set the number of units to insert between each play through.</li> </ul>

---

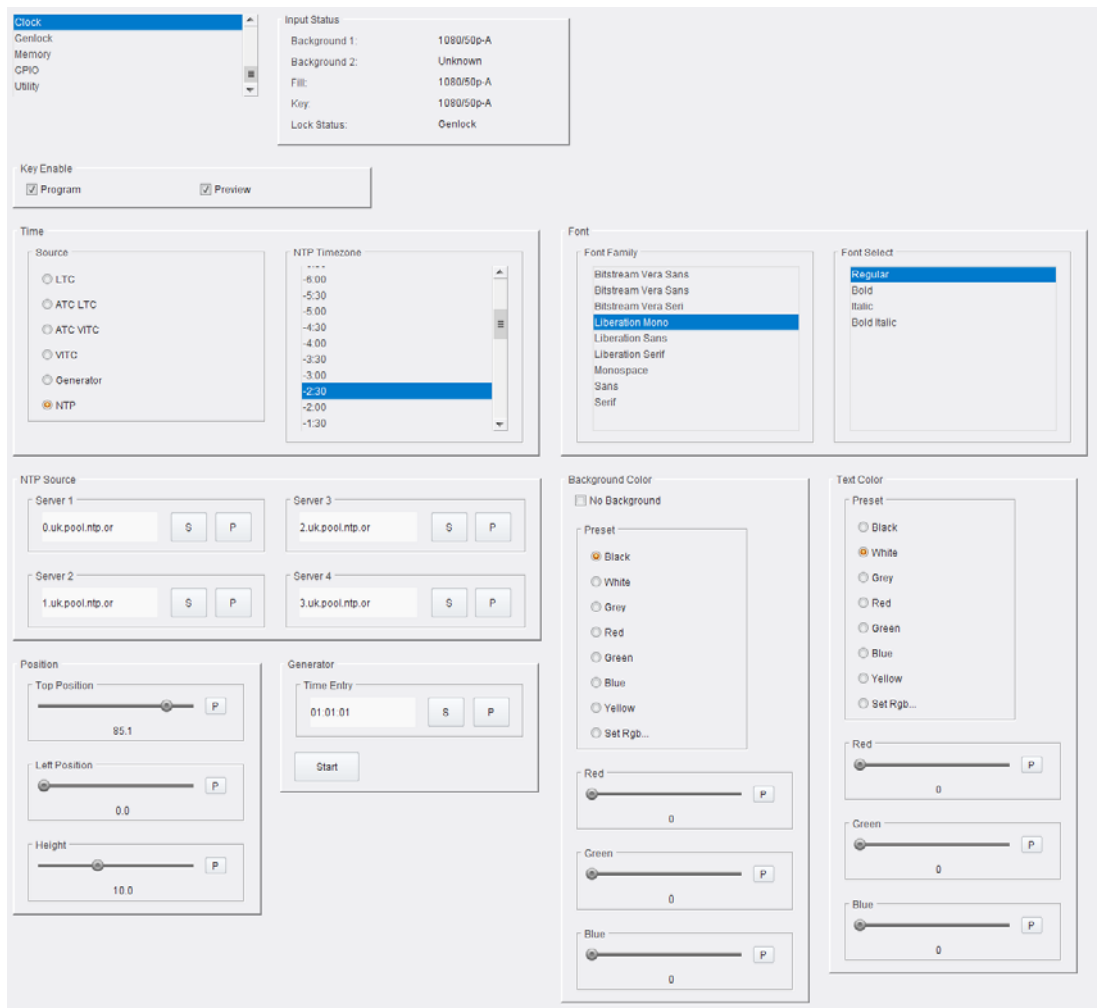
Option	Operation
Background Color	Sets the color to be used for the crawl background. Select from: <ul style="list-style-type: none"><li data-bbox="801 286 1056 320">• <b>No Background</b></li><li data-bbox="801 331 1471 398">• <b>Preset</b> - Select a preset color, or select <b>Set RGB</b> to define a custom color using the RGB sliders.</li></ul>
Text Color	Sets the color to be used for the crawl text. Select from: <ul style="list-style-type: none"><li data-bbox="801 461 1471 519">• <b>Preset</b> - Select a preset color, or select <b>Set RGB</b> to define a custom color using the RGB sliders.</li></ul>

---



## 5.12 Clock

The **Clock** page allows an on-screen digital clock to be configured and displayed.



**Figure 18** Clock Page

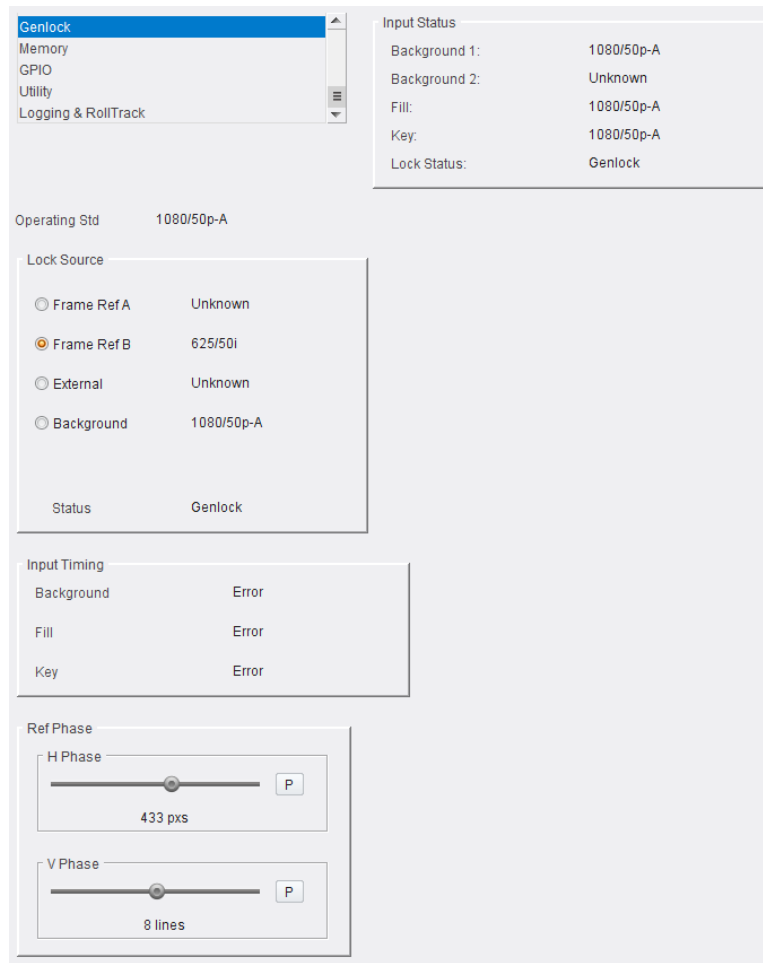
The following options are available:

Option	Operation
Key Enable	<p>Enables key on program and/or preview channels. Select check boxes as required to enable.</p> <p>This is a duplicate of the <b>Key Enable</b> control on the <b>Output</b> and <b>Layer Setup</b> pages for which the Clock has been assigned.</p> <p>For example, if Clock as been selected as a Layer 4 object on the <b>Layer Control</b> page, then the <b>Key Enable</b> control on the Clock page will enable the key on Layer 4.</p> <p>Default = <b>Unchecked</b>.</p>

Option	Operation
Time	<p><b>Source</b> - Sets the time source for the displayed clock. Available options are:</p> <ul style="list-style-type: none"> <li>• <b>LTC</b> - Analogue linear timecode (option - requires specific rear).</li> <li>• <b>ATC LTC</b> - Embedded LTC.</li> <li>• <b>ATC VITC</b> - Embedded VTC.</li> <li>• <b>VITC</b> - Vertical interval timecode (SD only).</li> <li>• <b>Generator</b> - Internal clock is used.</li> <li>• <b>NTP</b> - Network clock is used.</li> </ul> <p>If the time source selected is unavailable, the internal clock generator will be used. If the time source is interrupted, the clock will free run from the last received time.</p> <p><b>NTP Timezone</b> - Allows the appropriate time zone to be set. Times are + or - GMT. Select as required.</p>
NTP Source	<p>Allows NTP servers to be specified. Enter addresses as required. Up to four servers can be specified.</p>
Position	<p>Sets where the clock should be positioned on the screen. Set as required. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Top Position</b> - Sets the vertical position of the clock. Range is 0% (top of object aligned with top video line) to 100% (bottom of object aligned with last video line), in 1% steps.</li> <li>• <b>Left Position</b> - Sets the horizontal position of the clock. Range is 0% (aligned left) to 100% (aligned right), in 1% steps.</li> <li>• <b>Height</b> - Sets the height of the clock. Range is 1% to 25% of the screen height, in 0.1% steps. Default is 10.</li> </ul>
Generator	<p><b>Time Entry</b> - Sets the time at which the internal clock should start. Enter the appropriate time in <i>hh:mm:ss</i> 24-hour format, and click <b>Start</b> to activate.</p>
Font	<p>Sets the font and style to be used for the clock. Select as required.</p>
Background Color	<p>Sets the color to be used for the clock background. Select from:</p> <ul style="list-style-type: none"> <li>• <b>No Background</b> (transparent)</li> <li>• <b>Preset</b> - Select a preset color, or select <b>Set RGB</b> to define a custom color using the RGB sliders.</li> </ul>
Text Color	<p>Sets the color to be used for the clock text. Select from:</p> <ul style="list-style-type: none"> <li>• <b>Preset</b> - Select a preset color, or select <b>Set RGB</b> to define a custom color using the RGB sliders.</li> </ul>

### 5.13 Genlock

The **Genlock** page allows users to select the genlock source and perform timing adjustments.



**Figure 19 Genlock Page**

The following options are available:

Option	Operation
Operating Std	Displays the current standard.
Lock Source	<p>Allows selection of a genlock source. Options are:</p> <ul style="list-style-type: none"> <li>• <b>Frame Ref A</b> - Chassis reference input A.</li> <li>• <b>Frame Ref B</b> - Chassis reference input B.</li> <li>• <b>External</b> (option - requires specific rear) - Reference BNC module on rear.</li> <li>• <b>Background</b> - The selected background input is used as the genlock source and the delay though the unit is set to minimum. In this mode, the H Phase and V Phase controls are inoperative.</li> </ul> <p><b>Note:</b> Selecting the other background input (<b>Background Select</b> on the <b>Source &amp; Standard</b> page - see section 5.5), will cause a sync disturbance on the output SDI.</p> <p><b>Note:</b> The current input standard is displayed for each lock source. If no input is present, <b>Loss</b> is shown.</p>

Option	Operation
Input Timing	<p>Reports for each active input:</p> <ul style="list-style-type: none"> <li>• <b>OK</b> - Input is safely within the synchronizer window.</li> <li>• <b>Warning</b> - Input is close to moving out of the synchronizer window, at which point there will be a shift up or down by 1 line.</li> <li>• <b>Error</b> - Indicates that the timing offset, relative to the lock source, is greater than the synchronizer window. In such cases the affected input (active picture + HANC + VANC) will be shifted up or down by one or more lines.</li> </ul> <p>For reference lock, the <b>Ref Phase</b> controls can be adjusted to bring all inputs within the synchronizer window.</p> <p>For background lock, background timing will always be <b>OK</b>, but if <b>Fill</b> or <b>Key</b> report an error it will be necessary to alter the source timings.</p>
Ref Phase	<p>Allows incoming sources to be aligned with the reference signal. Adjust as required.</p> <ul style="list-style-type: none"> <li>• <b>H Phase</b> - Range is -2640 to +2640* output standard pixels in steps of 1 pixel (3G-B, 2 pixels) This is inoperative when <b>Lock Source</b> is <b>Background</b>. When set to zero, the output is approximately horizontally co-timed with the lock reference. Control range will clip at the number of pixels in one line of the current operating standard. Default = <b>0</b>.</li> <li>• <b>V Phase</b> - Range -563 to +562* output standard lines in steps of 1 line (3G-B, 2 lines) This is inoperative when <b>Lock Source</b> is <b>Background</b>. When set to zero, the output is approximately vertically co-timed with the lock reference. Control range will clip at the number of lines in one frame of the current operating standard. Default <b>0</b>.</li> </ul>

### 5.14 Memory

The **Memory** page allows different logos and their associated settings to be named and saved for easy selection.

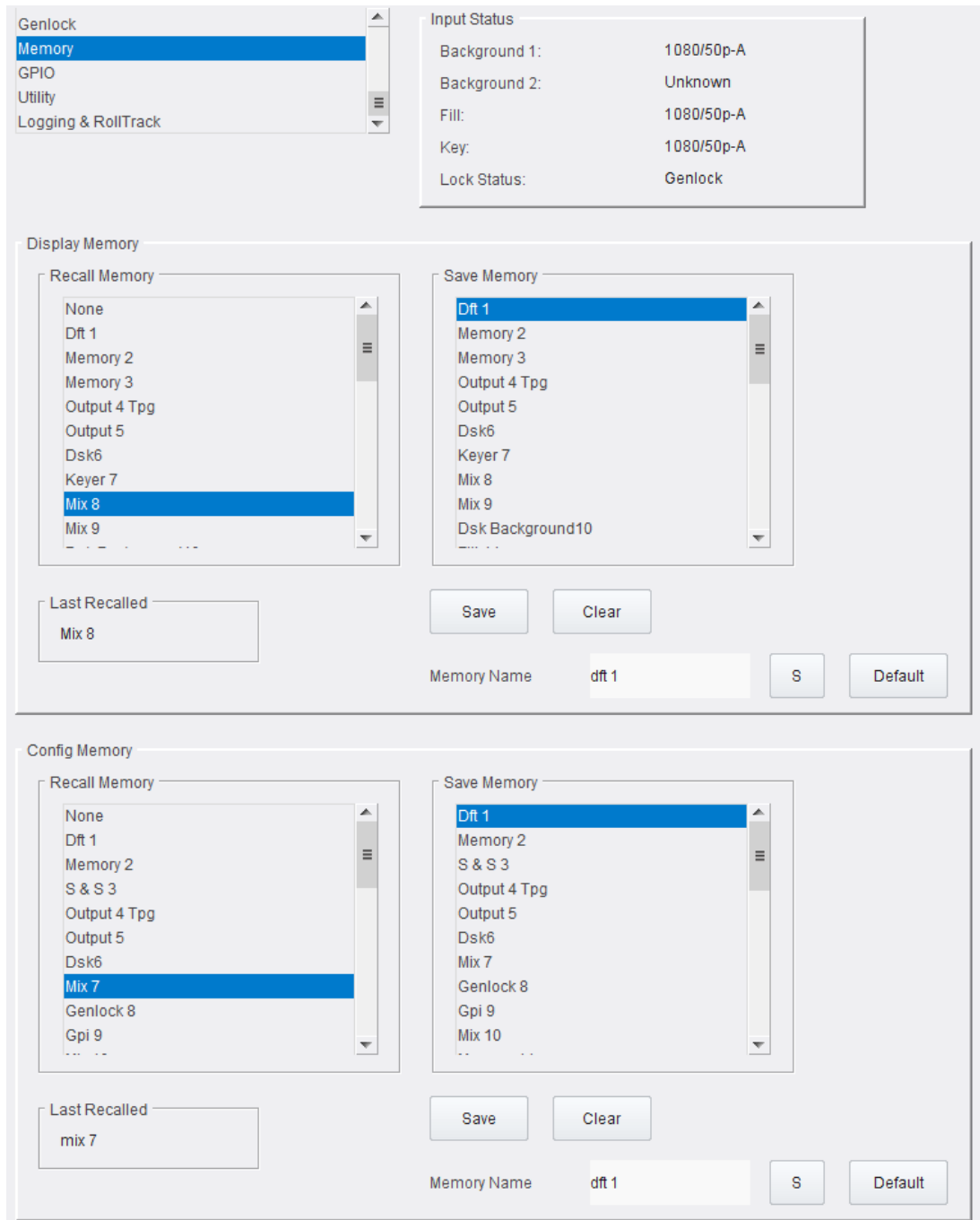


Figure 20 Memory Page

The following options are available:

Option	Operation
Display Memory	<p>Click <b>Save</b> to save a logo and its associated settings to the <b>Display Memory</b> list. The settings on the following pages are saved:</p> <ul style="list-style-type: none"> <li>• <b>Output</b> (transition controls, key enables)</li> <li>• <b>DSK</b></li> <li>• <b>DSK Setup</b></li> <li>• <b>Layer Control</b></li> <li>• <b>Layer 1-6 Setup</b></li> <li>• <b>Crawl 1-2</b></li> <li>• <b>Clock</b></li> </ul> <p><b>Notes:</b> Any caption text is stored in memory.</p> <p>Clock time of day (generator &amp; time mode) is not stored, but count up/down values, if entered and selected as the generator mode, are stored.</p> <ul style="list-style-type: none"> <li>• <b>Recall Memory</b> - Shows saved memories available for recall. The last one to be loaded is displayed in the <b>Last Recalled</b> field.</li> </ul> <p>When a memory is loaded, all transitions in progress are interrupted and the new state applied, which may be a reverse transition or cut.</p> <ul style="list-style-type: none"> <li>• <b>Save Memory</b> - To save the current settings as listed above, select the memory slot to be used from the <b>Save Memory</b> list and click <b>Save</b>. The memory will be displayed on the <b>Recall Memory</b> list.</li> </ul> <p>To delete a memory, select it from the <b>Save Memory</b> list and click <b>Clear</b>. The memory will be removed from the <b>Recall Memory</b> list.</p> <ul style="list-style-type: none"> <li>• <b>Memory Name</b> - Allows a memory to be renamed. Select the memory from the <b>Save Memory</b> list to display it in the <b>Memory Name</b> field. Overwrite it with the required name and click <b>S</b>. Click <b>Default</b> to return to the default name.</li> </ul>
Config Memory	<p>Saves state of controls on pages:</p> <ul style="list-style-type: none"> <li>• <b>Output</b> (aux out, test pattern)</li> <li>• <b>Source &amp; Standard</b></li> <li>• <b>Genlock</b></li> <li>• <b>Logging and RollTrack</b></li> </ul> <p><b>Note:</b> GPO settings are stored, but not GPI; these can cause circular memory recalls.</p> <ul style="list-style-type: none"> <li>• <b>Recall Memory</b> - Shows saved memories available for recall. The last one to be loaded is displayed in the <b>Last Recalled</b> field.</li> <li>• When a memory is loaded, all transitions in progress are interrupted and the new state applied, which may be a reverse transition or cut.</li> </ul>

---

Option	Operation
	<ul style="list-style-type: none"><li data-bbox="801 206 1471 439">• <b>Save Memory</b> - To save the current settings as listed above, select the memory slot to be used from the <b>Save Memory</b> list and click <b>Save</b>. The memory will be displayed on the <b>Recall Memory</b> list. To delete a memory, select it from the <b>Save Memory</b> list and click <b>Clear</b>. The memory will be removed from the <b>Recall Memory</b> list.</li><li data-bbox="801 456 1471 609">• <b>Memory Name</b> - Allows a memory to be renamed. Select the memory from the <b>Save Memory</b> list to display it in the <b>Memory Name</b> field. Overwrite it with the required name and click <b>S</b>. Click <b>Default</b> to return to the default name.</li></ul>

---

### 5.15 GPIO

The **GPIO** page allows configuration of the actions to be taken in response to incoming GPI events. Each GPIO port is defined separately as either an input or an output, and the action to be taken in response to incoming events set.

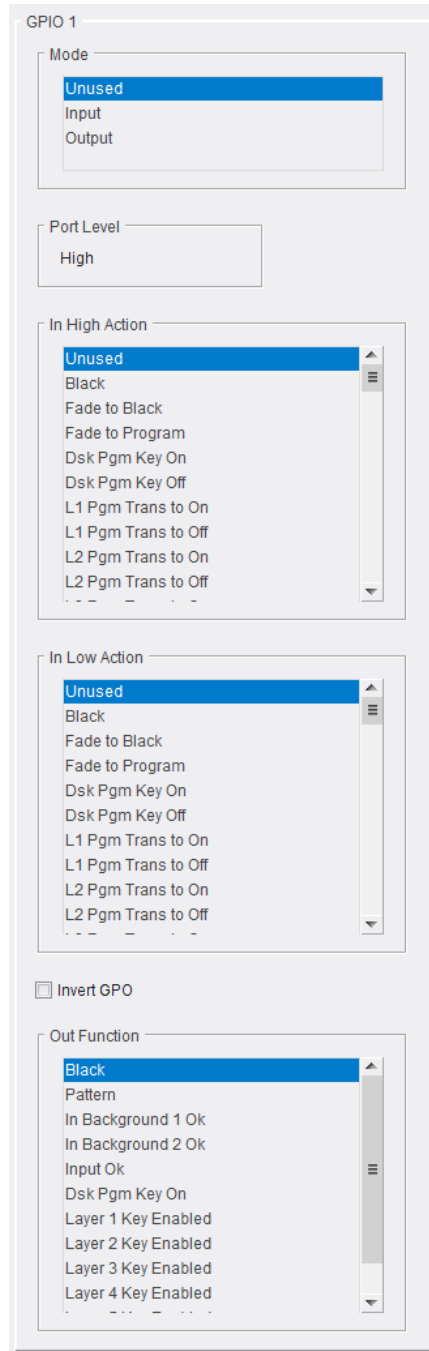


Figure 21 Typical GPIO Pane

The following options are available for each GPIO port:

Option	Operation
Mode	Sets how the port should behave. Valid values are: <ul style="list-style-type: none"> <li>• <b>Unused</b></li> <li>• <b>Input</b></li> <li>• <b>Output</b></li> </ul>



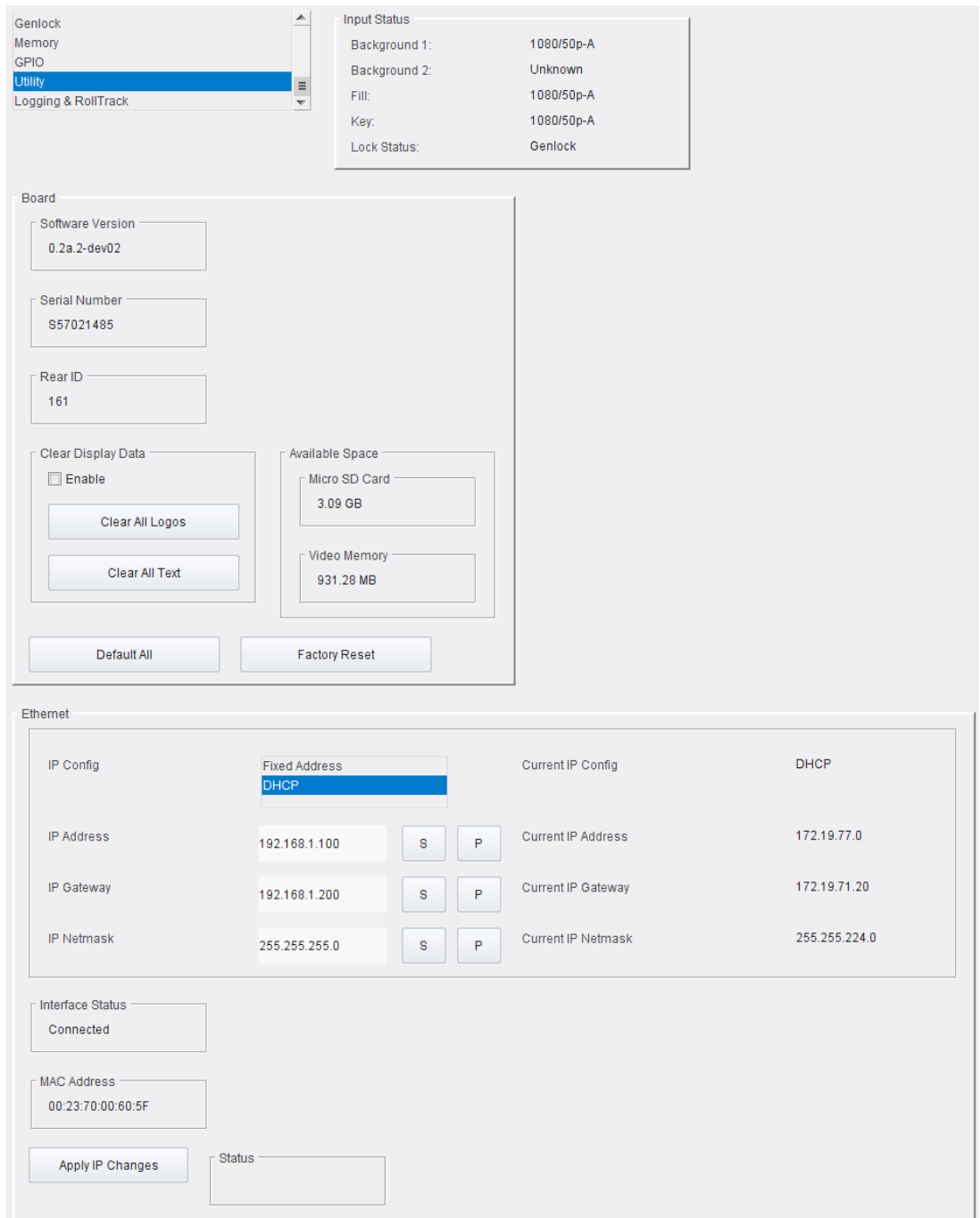
Option	Operation
Port Level	Reports whether port responds to High or Low events. Valid values are: <ul style="list-style-type: none"> <li>• <b>High</b></li> <li>• <b>Low</b></li> </ul>
In High Action	Sets the action to perform when a High state is present on the GPIO input. Options are: <ul style="list-style-type: none"> <li>• <b>Unused</b></li> <li>• <b>Black</b></li> <li>• <b>Fade to Black</b></li> <li>• <b>Fade to program</b></li> <li>• <b>DSK PGM key On</b></li> <li>• <b>DSK PGM key Off</b></li> <li>• <b>Select Bg1 - 2</b></li> <li>• <b>L1-6 PGM Trans to On</b></li> <li>• <b>L1-6 PGM Trans to Off</b></li> <li>• <b>Display Memory 1 - 32</b></li> <li>• <b>Config Memory 1 - 30</b></li> </ul>
In Low Action	Sets the action to perform when a Low state is present on the GPIO input. Options are: <ul style="list-style-type: none"> <li>• <b>Unused</b></li> <li>• <b>Black</b></li> <li>• <b>Fade to Black</b></li> <li>• <b>Fade to program</b></li> <li>• <b>DSK PGM key On</b></li> <li>• <b>DSK PGM key Off</b></li> <li>• <b>Select Bg1 - 2</b></li> <li>• <b>L1-6 PGM Trans to On</b></li> <li>• <b>L1-6 PGM Trans to Off</b></li> <li>• <b>Display Memory 1 - 32</b></li> <li>• <b>Config Memory 1 - 30</b></li> </ul>
Invert GPO	Causes the port level to be inverted, i.e. if the port is set to perform an action in response to a High event, when this enabled it will respond to a Low event instead.
Out Function	Forces a Low state on the on the GPIO signal for a selected system state. Options are: <ul style="list-style-type: none"> <li>• <b>Black</b></li> <li>• <b>Pattern</b></li> <li>• <b>In Background 1 - 2 OK</b></li> <li>• <b>Input OK</b></li> <li>• <b>DSK PGM key On</b></li> <li>• <b>Layer 1-6 key enabled</b></li> </ul>

### 5.15.1 Usage

1. Set **Mode** to configure the port as either an input or output. The **Port Level** field will show **High** for inputs and **Low** for outputs.
2. Select an action to be taken when an event is received. Select from the **In High Action** list if the port is configured as an input, or the **In Low Action** list if the port is configured as an output.
3. Enable to invert the port level, if required.
4. Select an output action to be taken when a Low event is received.

### 5.16 Utility

The **Utility** page displays basic unit information, and provides facilities to clear data and to configure Ethernet and RollCall settings.



**Figure 22 Utility Page**

The following options are available:

Option	Operation
Board	<p>Displays basic board information. You may be asked for these details if you need to contact SAM technical support. Data displayed is:</p> <ul style="list-style-type: none"> <li>• <b>Software version</b></li> <li>• <b>Serial number</b></li> <li>• <b>Rear ID</b></li> <li>• <b>Clear Display Data</b> - Allows files in the User Data flash and cache memories to be deleted. Check the <b>Enable</b> box to activate the feature, then click <b>Clear All Logos</b> and/or <b>Clear All Text</b> (crawl and caption data) to delete.</li> <li>• <b>Available space</b> - Space available for files (logos and text) on the user data MicroSD card, and number of bytes of free video memory. The MicroSD card is located near the front edge of the board.</li> <li>• <b>Default All</b> - Click to return all settings to default values.</li> <li>• <b>Factory Reset</b> - All settings are returned to default values and the <b>Display</b> and <b>Configuration</b> memories are cleared. Display data is not deleted.</li> </ul>
Ethernet	<p>These settings apply to the Ethernet port mounted on the card's rear panel. Make settings as required.</p> <ul style="list-style-type: none"> <li>• <b>IP Config</b> - Select whether to use a fixed IP address, or to have one allocated automatically via DHCP.</li> <li>• <b>IP Address</b> - If using a fixed IP address, enter it here and click <b>S</b> to save. Alternatively, click <b>P</b> to return to the default, 192.168.1.100.</li> <li>• <b>IP Gateway</b> - If using a fixed IP address, enter the Gateway's address here and click <b>S</b> to save. Alternatively, click <b>P</b> to return to the default, 192.168.1.200.</li> <li>• <b>IP Netmask</b> - If using a fixed IP address, enter the Netmask address here and click <b>S</b> to save. Alternatively, click <b>P</b> to return to the default, 255.255.255.0.</li> <li>• <b>Current IP Config</b> - Displays the current IP Config as set by the <b>IP Config</b> control. Valid values are: <ul style="list-style-type: none"> <li>• <b>Fixed Address</b></li> <li>• <b>DHCP</b></li> </ul> </li> <li>• <b>Current IP Address</b> - Displays the current IP address.</li> </ul>

---

Option	Operation
RollCall	<ul style="list-style-type: none"><li>• <b>Interface status</b> - Displays current interface status. Valid values are:<ul style="list-style-type: none"><li>• <b>Connected</b></li><li>• <b>Disconnected</b></li></ul></li><li>• <b>MAC Address</b> - Displays the card's MAC address.</li><li>• <b>Apply IP Changes</b> - Click to apply changes made above. Changes will take effect immediately.</li></ul> <p>- Indicates whether any changes are pending</p> <hr/> <p>Enter RollCall details as required. Click <b>S</b> to save. Alternatively, click <b>P</b> to return to the default.</p> <hr/>

### 5.17 Logging & RollTrack

The **Logging and RollTrack** page allows logging and RollTrack functions to be configured.



**Figure 23** Logging & RollTrack Page

### 5.17.1 Logging

Information on several parameters can be made available to a logging device connected to the same network as the IQLDK30.

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

Log Field	Description
INPUT_N_NAME=	Reports input name
INPUT_N_STATE=	Reports state of input <i>N</i> . Possible values are: <ul style="list-style-type: none"> <li>• <b>OK</b> - Input present and valid.</li> <li>• <b>FAIL:LOST</b> - No input present.</li> <li>• <b>WARN:ERROR</b> - Input present but does not match reference standard or selected standard.</li> </ul>
INPUT_N_STANDARD=	Reports current input standard on input <i>N</i> .
GENLOCK_N_STATE=	Reports genlock system state. Possible values are: <ul style="list-style-type: none"> <li>• <b>WARN:Freerun</b></li> <li>• <b>OK:Reference.</b></li> <li>• <b>OK:Input</b></li> </ul>
OUTPUT_N_STANDARD=	Reports the output standard in the format: <b>&lt;Lines&gt;(&lt;Active&gt;)/&lt;Rate&gt;&lt;i/p/sf&gt;</b> Where: <ul style="list-style-type: none"> <li>• <b>Lines</b> = Total lines</li> <li>• <b>Active</b> = Active lines</li> <li>• <b>Rate</b> = Frame rate</li> <li>• <b>I</b> = interlaced</li> <li>• <b>P</b> = Progressive</li> <li>• <b>SF</b> = Segmented Frame</li> </ul> For example: <b>1080/50p</b> or <b>1125(1080)/25i</b> .
LAYER_N_OBJECT=	Reports layer name.
HARDWARE_VERSION=	Reports the hardware version number.
OS_VERSION=	Reports the operating system name and version.
UPTIME=	Reports the time since the last restart in the format <i>ddd:hh:mm:ss</i> .
REAR_ID=	Reports the code number of the rear fitted.
REAR_STATUS=	Reports the status of the rear, where it can be determined.
SLOT_WIDTH=	Reports the slot width.
SLOT_START=	Reports the rack slot occupied by the module.
POWER_USAGE=	Reports the module's power usage in Watts (A-type rack) or PR Units (B-type rack).
LAST_RECALLED_MEMORY=	Reports name of the last memory to be recalled.

Where *N* is the input number.

## 5.17.2 RollTrack

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

The following options are available:

### 5.17.2.1 Disable All

When checked, all RollTrack items are disabled.

### 5.17.2.2 RollTrack Index

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

### 5.17.2.3 RollTrack Source

The source of information that triggers transmission of data is selected with this control. Dragging the slider selects the RollTrack source, displayed below the slider. Clicking **P** selects the default preset value. When no source is selected, **Unused** is displayed.

Available RollTrack sources are:

- **background\_loss\_1 - 2**
- **background\_ok\_1 - 2**
- **input\_loss**
- **input\_ok**
- **fill\_loss**
- **fill\_ok**
- **key\_loss**
- **key\_ok**
- **input\_error**
- **input\_no\_error**
- **fill\_error**
- **fill\_no\_error**
- **key\_error**
- **key\_no\_error**
- **prog\_fade**
- **prog\_unfade**
- **layer\_key\_on\_1 - 6**
- **layer\_key\_off\_1 - 6**

### 5.17.2.4 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 into the text field, then clicking **S** to save the selection. Clicking **P** 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 identifier 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.

**5.17.2.5 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 to the text field, and then selecting **S** to save the selection. Clicking **P** returns to the default preset command.

A 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.

**5.17.2.6 RollTrack Sending**

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

Message	Description
No	The message is not being sent.
Yes	The message is being sent.

**5.17.2.7 RollTrack Status**

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

RollTrack Source	Description
OK	RollTrack message was sent and received successfully.
Unknown	RollTrack message has been sent but transmission has not yet completed.
Timeout	RollTrack message has been sent but 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.

## Appendix A: Input Timing and Genlock

### A.1 Genlock

The LDK30 offers only line synchronization, and therefore requires an accurately-timed reference to operate correctly. The output cannot free run relative to the input.

When the timing offset between the reference and the input exceeds the line synchronizer window, the output image will be vertically shifted. Note that the HANC/VANC data will also be shifted, so in the case of 1080p 3G-B the PID will appear on the 'incorrect' line which may cause downstream devices to blank the video.

Any applied reference must always have the same frame rate as the current output standard. If a wrong frame rate (or no signal) is presented on the selected reference input, the LDK30 will automatically switch to locking to the selected background, but only if this matches the frame rate of the current operating standard. In this case the status report will show **Forced Background**. Switching to **Forced Background**, lock will typically be delayed by about 100ms after the reference becomes invalid. Lock will revert to the reference input as soon as a valid standard is detected.

The operating standard can be determined only by the selected background input standard, **Follow Input**, or the default setting, **Default Only**.

**Note:**

It must be stressed that the LDK30 should only be used in a single standard environment. It is acceptable to use, say, a 525i reference when the SDI inputs and operating mode are 1080 59i.

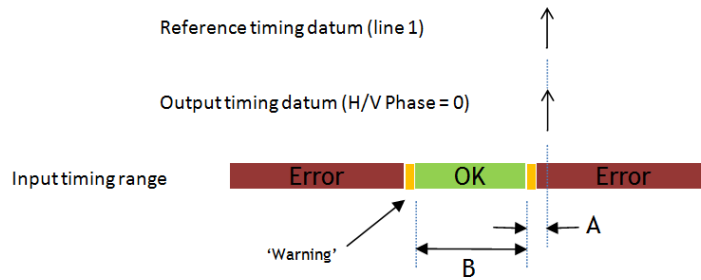
**H Phase/V Phase:** When both are set to zero, the output is approximately co-timed with the lock reference.

Note that if the input is also co-timed with the reference, the **Input Timing** status will report an error as there will be insufficient time available for processing. In this case, set the H Phase to a negative value or V Phase to -1 line.

## A.2 Input Timing

Due to the processing delay of the LDK30, all inputs must be timed ahead of the output. All input passes through a line synchronizer.

Reference lock example



Background (input) lock example

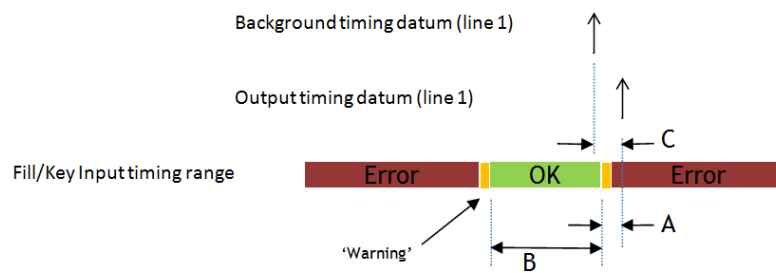


Figure 24 Reference Lock Example

### A.2.1 Timings

SDI Format	A - Minimum Processing Delay for OK	B - Synchronizer Timing Window for OK	C - Input to Output Delay with Background Lock
SD	8.5µs	1H-7µs	12µs
HD	2.2µs	1H-0.6µs	2.8µs
3G-A	1.2µs	1H-0.6µs	1.8µs
3G-B	37µs	1H(B)-0.6µs	38µs

In the case of background lock, the fill and key inputs must not be advanced in relation to the background by more than about 0.6µs.

Any input operating in the **Error** region will be subject to a vertical shift. The unit will operate normally in the **Warning** zones; however, the user is advised that a small change in timing may cause a vertical shift.

The **OK + Warning** zones = 1H.

## Appendix B: Logo File Format

In order to be recognized for upload, logo and animation files must be in the correct format.

### B.1 Static Logos

Static logos must be in .png format. There is no restriction on file size.

### B.2 Animated Logos

Animated logos must be provided as a zip containing a series of png files. The files within the zip file must have sequential numbering, and, optionally, a standard as part of the name. For example:

**[name]\_[standard]\_[sequence].png**

A delimiter must separate the standard and sequence fields. An underscore has been used here.

#### Example A:

A zip file package containing a sequence of animation files:

```
[name]_525i_001.png
[name]_525i_002.png
...
[name]_525i_099.png
[name]_525i_100.png
[name]_1080p_001.png
[name]_1080p_002.png
...etc.
```

#### Example B:

A zip file package containing a sequence of animation files in a single format, to be used for all standards:

```
[name]_001.png
...
[name]_100.png
```

The standard field must be one of:

```
525i
625i
720p
1080i
1080p
```

The sequential number sequence must be continuous, and all files must have the same number of digits.

#### Example C:

[name]\_1.png (fails - wrong number of digits)

:

[name]\_10.png

[name]\_12.png (fails - missing file 11)

The maximum number of logo files allowed within the zip package is 9,999.