

Supervisor LH

LED Display Processor

Operation & Installation Manual

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www.snellwilcox.com

Snell & Wilcox Ltd., Southleigh Park House, Eastleigh Road, Havant, Hants, PO9 2PE, United Kingdom.

For technical assistance contact:

Tel: +44 (0)23 9248 9000

Fax: +44 (0)23 9245 1411

For general and sales assistance contact:

Tel: +44 (0)20 8917 4300

Fax: +44 (0)20 8607 9466

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



Servicing instructions where given, are for use by qualified service personnel only. To reduce risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified personnel.

To reduce the risk of electric shock, do not expose this appliance to rain or moisture.

Always ensure that the unit is properly earthed and power connections correctly made.

This equipment must be supplied from a power system providing a PROTECTIVE EARTH (⏏) connection and having a neutral connection which can be reliably identified.

The power outlet supplying power to the unit should be close to the unit and easily accessible

Power connection in countries other than the USA

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

The colour code for the lead is as follows:

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



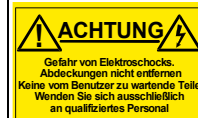
- !** Caution If the unit has two mains supply inputs ensure that both power cords are plugged into mains outlets operating from the same phase.

Erklärung der Sicherheitssymbole

(D)

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

Sicherheits-Warnhinweise



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

Um das Risiko eines Elektroschocks zu reduzieren, setzen Sie das Gerät weder Regen noch Feuchtigkeit aus.

Stellen Sie immer sicher, dass das Gerät ordnungsgemäß geerdet und verkabelt ist.

Dieses Equipment muss an eine Netzsteckdose mit ⏏ Schutzleiter angeschlossen werden und einen zuverlässig identifizierbaren Nullleiter haben.

Die Netzsteckdose sollte nahe beim Gerät und einfach zugänglich sein.

Netzanschluss in anderen Ländern als der USA

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



- !** 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 :



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 en el original-)
AZUL conectado a N (Conductor Neutro -Neutral en el original-)
MARRÓN conectado a L (Conductor Fase -Live en el original-)



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

Simboli di sicurezza:

I



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



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

Attenzione:

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

Per prevenire il pericolo di scosse elettriche è necessario non esporre mai l'apparecchiatura alla pioggia o a qualsiasi tipo di umidità.

Assicurarsi sempre, che l'unità sia propriamente messa a terra e che le connessioni elettriche siano eseguite correttamente.

Questo dispositivo deve essere collegato ad un impianto elettrico dotato di un sistema di messa a terra efficace.

La presa di corrente deve essere vicina all'apparecchio e facilmente accessibile.

Connessione elettrica nei paesi diversi dagli Stati Uniti

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

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



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

Forklaring på sikkerhedssymboler

DK



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



Dette symbol indikerer farlig spænding inden i apparatet. Ingen bruger 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 jordnet.

Dette apparat skal forbindes til en nettilslutning, der yder BESKYTTENDE JORD (⏚) og 0 forbindelse skal være tydeligt markeret.

Stikkontakten, som forsyner apparatet, skal være tæt på apparatet og let tilgængelig.

Nettilslutning i andre lande end USA

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

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



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

Förklaring av Säkerhetssymboler

S



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



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

Säkerhetsvarningar

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

För att reducera risken för elektrisk stöt, utsätt inte apparaten för regn eller fukt.

Se alltid till att apparaten är ordentligt jordad samt att strömtillförseln är korrekt utförd.

Denna apparat måste bli försörjd från ett strömsystem som är försedd med 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

FI



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



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

Turvaohjeita

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

Sähköiskujen välttämiseksi suojaa laite sateelta ja kosteudelta.

Varmistu, että laite on asianmukaisesti maadoitettu ja että sähkökytkennät on tehty oikein.

Laitteelle tehoa syöttävässä järjestelmässä tulee olla SUOJAMAALIITÄNTÄ (⏚) ja nolliiitännän on oltava luotettavasti tunnistettavissa.

Sähköpistorasian tulee olla laitteen lähellä ja helposti tavoitettavissa.

Sähkökytkentä

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

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



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

Símbolos de Segurança

P

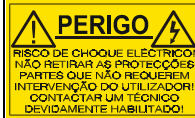


O símbolo triangular adverte para a necessidade de consultar o manual antes de utilizar o equipamento ou efectuar qualquer ajuste.



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

Avisos de Segurança



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

Para reduzir o risco de choque eléctrico, não expor este equipamento à chuva ou humidade.

Assegurar que a unidade está sempre devidamente ligada à terra e que as ligações à alimentação estão correctas.

O sistema de alimentação do equipamento deve, por razões de segurança, possuir ligação a terra de protecção (⏏) e ligação ao NEUTRO devidamente identificada.

A tomada de energia à qual a unidade está ligada deve situar-se na sua proximidade e facilmente acessível.

Ligação da alimentação noutros países que não os EUA

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

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



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

Επεξήγηση των Συμβόλων Ασφαλείας

G



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



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

Προειδοποίηση Ασφαλείας



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

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

Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

Ο εξοπλισμός 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.

Safety Standard

US

Designed to meet the requirements of UL1419.

Europe

This unit has been tested to BS EN60950:2000
Specification for safety of technology equipment, including electrical business equipment.



EMC Standards

This unit conforms to the following standards:

US

Federal Communications Commission Rules Part 15, Class A :1998 [design target is class B].

Europe

BS EN 55103-1 : 1997 Environment E2.

BS EN 55103-2 : 1997 Environment E5

EMC Performance Information

Inrush current: Supervisor LH Display Processor 11.75 A at Ø°

Note: this unit is not rated for operation in corrosive environments.

EMC Performance of Cables and Connectors

Snell & Wilcox 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 8281 or BBC type PSF1/2M. For HD-SDI low loss cable such as Belden 1694A

D-TYPE CONNECTORS

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

SERIAL COMMUNICATIONS CABLES (RS-232, RS422 & RS-485)

These should feature 5 twisted pairs where appropriate, and be braided and foil screened with metal shell connectors and should be EMC approved (see above) or conform to equivalent U.S. standards.

VGA CABLE

This should feature 5 individual coaxial cables (internal) for the video signals and at least 3 un-screened cables. This group of cables must be screened overall and where possible a ferrite tube type 43 material (such as Fair-Rite™ type 2643665702) should be fitted to the cable adjacent to the connector.

DVI CABLES

These should feature at least 4 twisted pairs with an overall screen, with metal shell connectors and should be EMC approved (see above) or conform to equivalent U.S. standards.

Manufacturers Notices

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Important Notice

No responsibility is taken by the manufacturer or supplier for any non-compliance to EMC standards due to incorrect installation.

About this Manual

This manual contains information for the operation and installation of the SuperVisor LH.

Update/revision sheets should replace existing pages when supplied by the agent or Snell & Wilcox Ltd.

Note that the date at the bottom of the page is the release date of the current revision.

Packing List

The unit is supplied in a dedicated packing carton provided by the manufacturer and should not be accepted if delivered in inferior or unauthorized materials. Carefully unpack the carton and check for any shipping damage or shortages. Any shortages or damage should be reported to the supplier immediately.

Enclosures:

- Supervisor LH Unit
- Power cable
- Fuses T2A H 250 V 2 pieces (integral)
- This Operation & Installation Manual
- Operation & Installation Manual CD

WARRANTY

Snell & Wilcox warrants to Lighthouse that the Product will be free from defects in material and workmanship for twelve (12) calendar months from the date of shipment/invoice by Lighthouse to their customers, that date been no later than eighteen (18) calendar months from Snell & Wilcox invoice date to Lighthouse, subject to the exclusions set out below. Snell & Wilcox's exclusive obligation (and Lighthouse's only remedy) for any defect shall be to repair or replace at Snell & Wilcox option, at no charge to Lighthouse except for shipping charges to be paid by the customer, any equipment or parts returned prepaid to an approved Snell & Wilcox service centre, provided Lighthouse notifies Snell & Wilcox within 14 days of the alleged defect being notified in writing to Lighthouse by its customer. Snell & Wilcox shall be responsible only for the return shipping charges of any equipment or parts to the customer.

If, on examination by Snell & Wilcox, a part is found to be defective, Snell & Wilcox may either repair such defect or forward a new part to the purchaser, invoice for the part and credit such invoice upon receipt of the defective part returned, freight prepaid. Snell & Wilcox reserves the right to inspect or repair equipment on Lighthouse's premises.

Snell & Wilcox specifically excludes the following from warranty coverage, and assumes no responsibility for repair or replacement thereto: a) Product which has been modified, repaired or altered by procedures other than those published or authorised in writing by Snell & Wilcox, which has been subjected to misuse, misapplication, improper maintenance, negligence, acts beyond the purchasers control (including failure of or excessive electrical power or failure of environmental control equipment); b) used equipment; c) fuses, lamps and batteries; and d) equipment which has had its serial number altered, defaced or removed.

No repair or replacement shall extend the warranty period.

Snell & Wilcox gives no other warranties in relation to the Product, other than those set out above and disclaims all other warranties and conditions express or implied. In particular Snell & Wilcox gives no warranties nor makes any representations that the Product is of satisfactory quality or suitable or sufficient for Lighthouse's purposes. The foregoing states the entire liability of Snell & Wilcox, whether in contract or tort for any defects in the Product.

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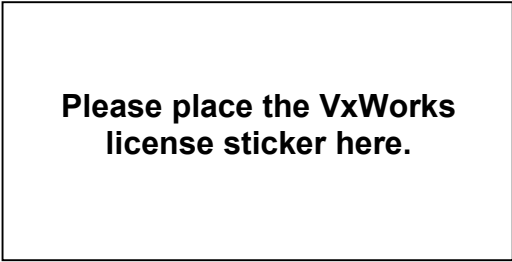
Manual Revision Record

[illegible]

Supervisor LH – Runtime License

The Supervisor LH uses the VxWorks® software platform developed by Wind River Systems.

The label below represents the VxWorks® run time license for the Supervisor LH.



**Please place the VxWorks
license sticker here.**

Please keep this page in a safe place for future reference.

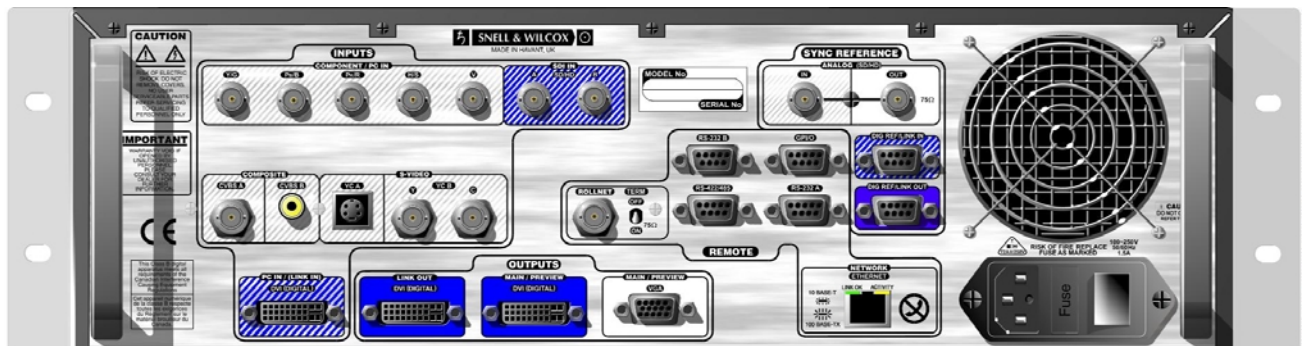
Description

Supervisor LH is a new display optimizer platform, designed with the latest technology and implementing world beating scaling and conversion algorithms.

Its function is to accept a wide range of video and PC Inputs and convert them with specialist processing into a suitable form for the display technology chosen.

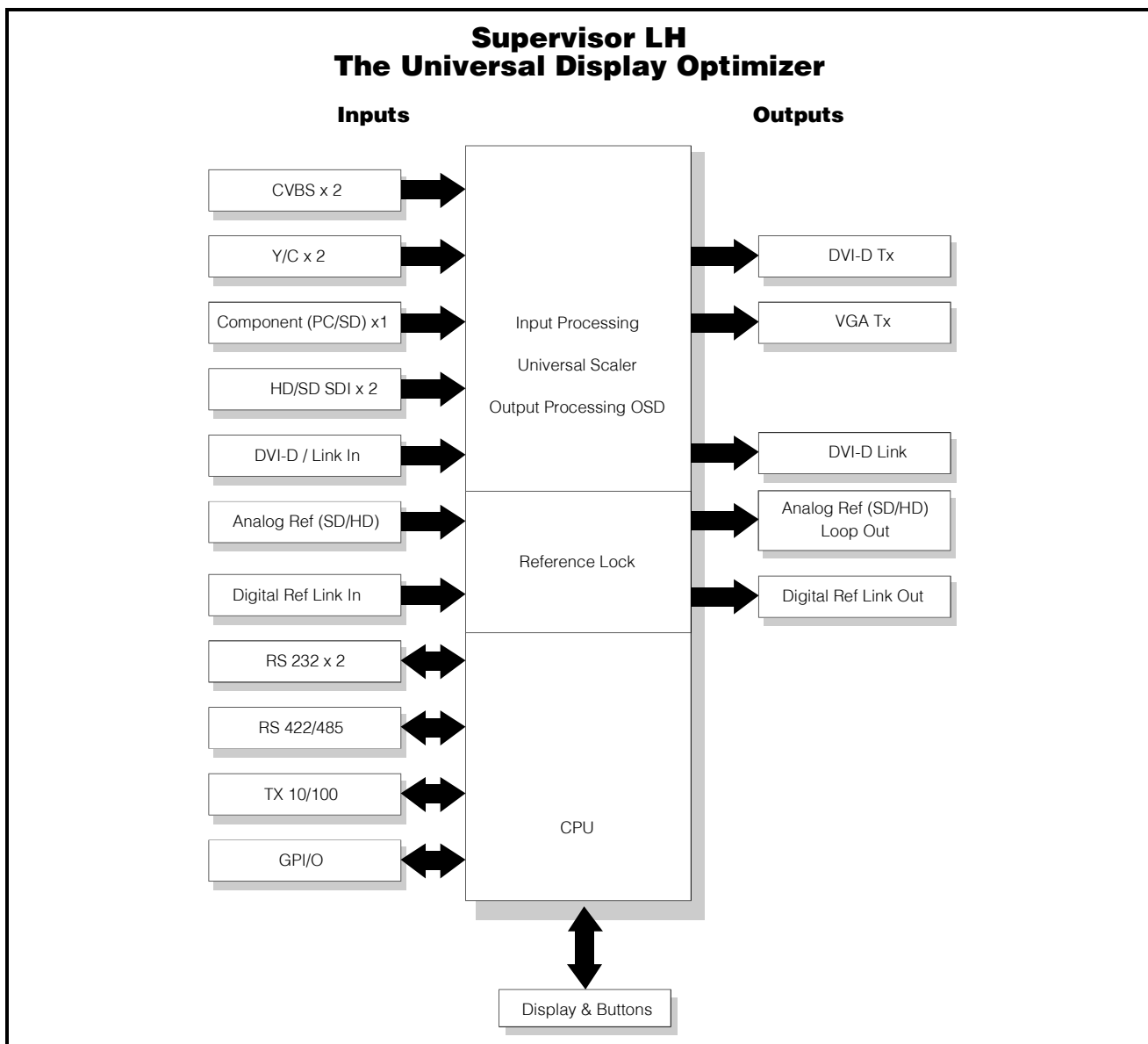
The feature set is based on a combination of the world-class Supervisor and Interpolator products that went before.

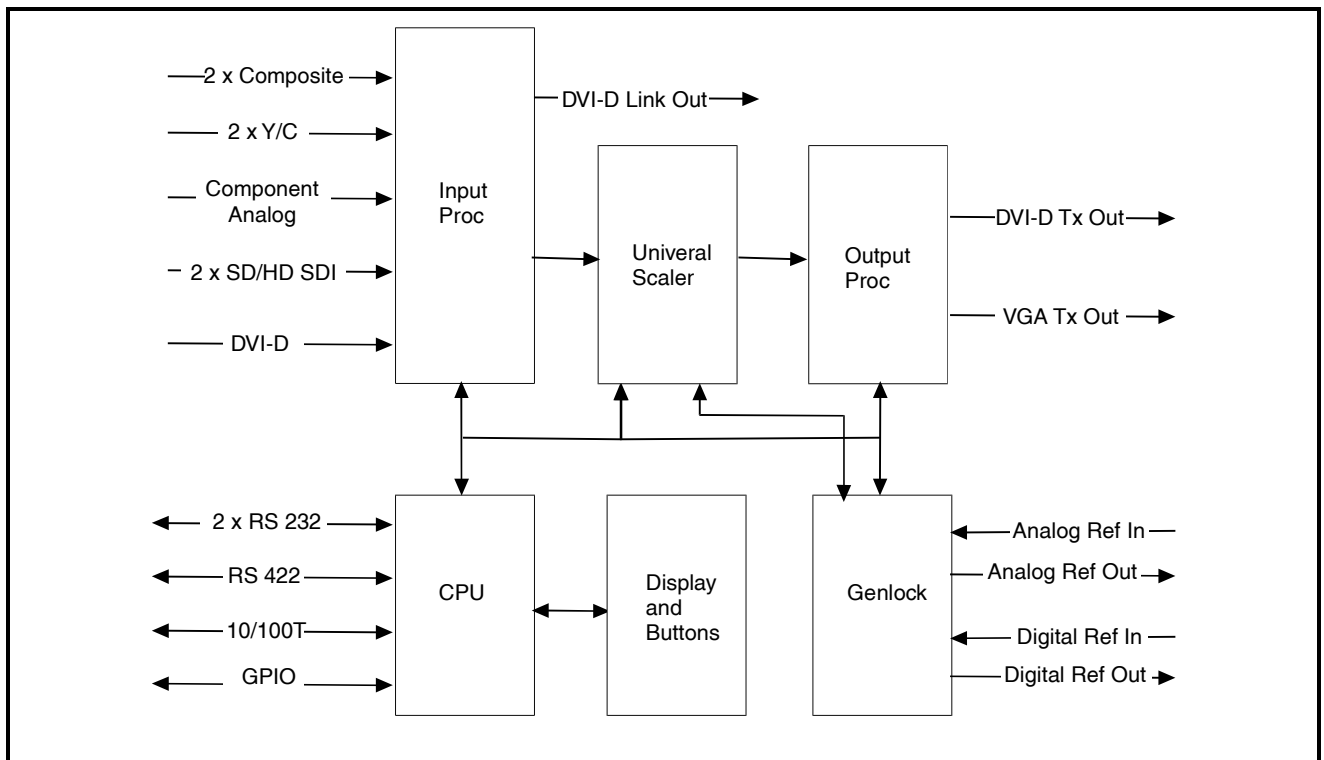
The processing algorithms come from the world-beating Snell & Wilcox professional conversion products used within the broadcast and feature film industry..



Features

- SD video, HD video and computer graphics scaling for displays
- Flexible digital and analog input capability
- Serial SD and HD digital video inputs, auto standards detection
- Universal analog composite decoder, Macrovision™ tolerant, auto standards detection
- Dual standard analog component input, Macrovision tolerant, auto standards detection
- Computer graphics input rates from 640 x 480 60Hz through to 1200 x 1024 x 75Hz
- PC output rates from 640 x 480 50Hz through to 1280 x 1024 x 60Hz PC DVI-D inputs and outputs
- Digital color space conversion
- Analog VGA output
- Static zoom, aspect ratio and picture position controls
- Auto adaptive film and video processing
- Synchronizer with HD/SD master/slave genlock
- Digital proc-amp and gamma controls 8 user memories
- Local and remote control capability (PC Remote)
- Source + display test pattern generator and color wash generator
- Intuitive front panel operation
- Separate vertical and horizontal aperture correction
- OSD available on both outputs

I/O Diagram

Block Diagram

Specifications & Technical Profile

Signal Input connectors

Analog Composite	1 x BNC into 75R, isolated. 1 x Phono into 75R, isolated.
Analog Y/C	2 x BNC into 75R, isolated. 1 x S-VHS 4 pin mini DIN into 75R, isolated.
Analog Component	3 x BNC into 75R, 2 x BNC into 1k1R, isolated.
Serial Digital SD/HD Digital Computer	2 x BNC into 75R 1 x DVI-D, female
Locking Reference	1 x BNC passive loop in, isolated. 1 x 9 way D female digital input

Signal Output connectors

Input Loop Out	1 x DVI-D, female
Up-converted Output	1 x HD 15way D type, female 1 x DVI-D, female
Locking Reference	1 x BNC passive loop out, captive 75R terminator, isolated. 1 x 9 way D digital output

Control

RS422/485	1 x 9 way D type, female
RS232	2 x 9 way D type, female
Ethernet	RJ45
GPIO	1 x 9 way D type, female

Video and Computer Graphics Signal Rates and Formats**Video**

Analog	Composite and Y/C: CCIR rep 264-4 1990, SMPTE 170M-1999: VHS and Stable video modes
	Component: EBU N10-1989, Betacam Y,Pb,Pr or Gs,B,R or G,B,R,S
Digital	SMPTE 259M-1997 @ 270Mbit/s Standard Definition Y,Cb,Cr
	SMPTE 292M-1998 @ 1.48Gbit/s High Definition Y,Cb,Cr

Computer

Analog	RGBHV or RGBS or RGsB
Digital	DVI 1.0 - 1999
	DVI-D single DVI TMDS link RGB+Clock

Output Formats

Analog	RGBHV
Digital	DVI 1.0 - 1999
	DVI-D single DVI TMDS link, RGB+Clock

Locking Reference

Analog SD	SMPTE 318M -1999 Black and burst. Monochrome Lock
Analog HD	HD Tri-syncs
Digital	TTL level H and V drive, polarity independent

Control

RS422/485	EIA RS-422A, RS-485
RS232	EIA RS-232C 1969
Ethernet	IEEE 802.3 - 2000 100BASE-TX/10BASE-T
GPIO	4 GPIO pairs opto-isolated.

Signal Standards**Input Standards (video):****Analog:**

Composite	CCIR rep 264-4 1990, SMPTE 170M-1999 PAL-I, NTSC-M, SECAM, PAL-M, PAL-N, N4.43
Component	EBU N10-1989 625 line 50Hz 2:1 Betacam 525 line 59.94Hz 2:1

Digital:

Standard Definition	ITU BT.601-5 525 line 59.94Hz 2:1 625 line 50Hz 2:1
High Definition	SMPTE 274M-1998 1920 x 1080 x 60Hz 2:1 1920 x 1080 x 59.94Hz 2:1 1920 x 1080 x 50Hz 2:1 SMPTE 296M-2001 1280 x 720 x 59.94Hz 1:1 SMPTE 260M-1999/240M-1999 1920 x 1035 x 60Hz 2:1 1920 x 1035 x 59.94Hz 2:1 SMPTE RP211-2000 1920 x 1080 x 30Hz sF 1920 x 1080 x 29.97Hz sF 1920 x 1080 x 25Hz sF 1920 x 1080 x 24Hz sF 1920 x 1080 x 23.98Hz sF

Input Standards (computer):

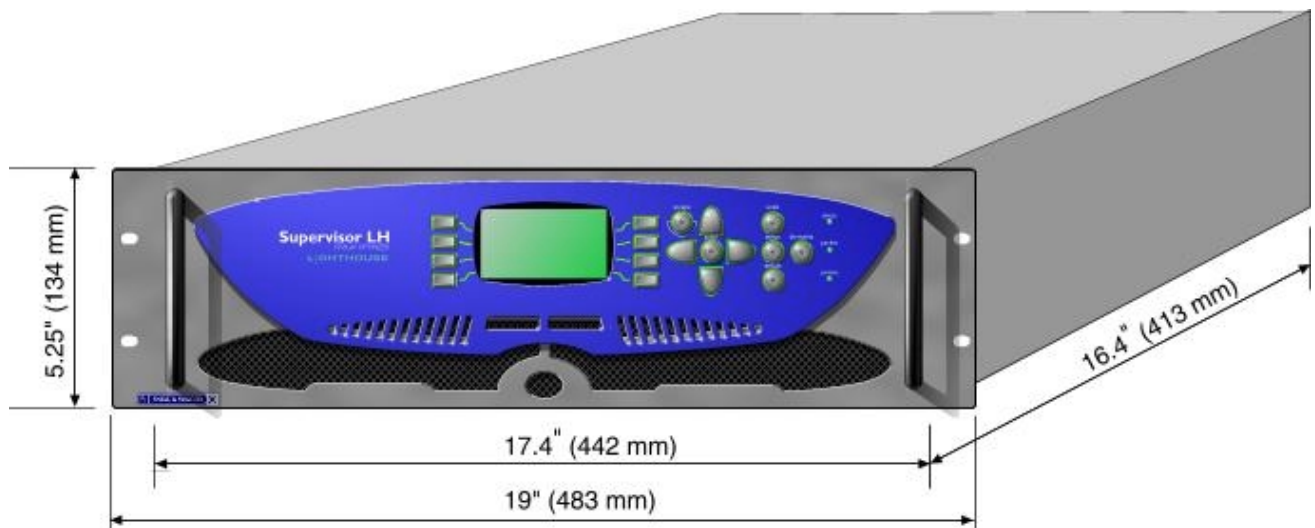
Analog	VESA Generalized Timing Formula V1.0-1996 CRT Timing VGA [640 x 480] SVGA [800 x 600] XGA [1024 x 768] SXGA [1152 x 864] SXGA [1280 x 1024] Line frequency from 31.5KHz to 80KHz Clock frequency from 25.175MHz to 140MHz
Digital	As per analog inputs

Locking Reference:

Analog Standard Definition	CCIR rep 264-4 1990, SMPTE 170M-1999 525 line 59.94Hz 2:1 625 line 50Hz 2:1
Analog High Definition	SMPTE 296M-2001 1280 x 720 x 59.94Hz 1:1 SMPTE 240M-1999 1920 x 1035 x 59.94Hz 2:1 SMPTE RP211-2000 [Table 6] 1920 x 1080 x 59.94Hz 2:1 1920 x 1080 x 50Hz 2:1 1920 x 1080 x 29.97Hz sF 1920 x 1080 x 25Hz sF 1920 x 1080 x 23.98Hz sF
Digital	S&W proprietary digital locking reference standard.

Output Standards:

Analog program	Pseudo VESA, video locked, computer graphics rates. 640 x 480 @ 50 or 59.94 Hz 800 x 600 @ 50 or 59.94 Hz 1024 x 768 @ 50 or 59.94 Hz 1280 x 1024 @ 50 or 59.94 Hz Supervisor LX emulation: LX VGA LX SVGA LX XGA
Digital program	as per analog outputs
Digital Loop out	S&W proprietary digital loop out of selected source

Mechanical**Chassis**

Temp Range	0 to 40°C Operating. Humidity 5-85% non-condensing. -20 to +70 degrees C storage
Case Type	3U rack mounting with carrying handles on front of unit
Dimensions	483mm x 413mm [+ 40mm protectors] x 134mm (w,d,h)
Weight	Approximately 8 kg.
Cooling	Integral 80mm fan, airflow is from front to back. Fan assembly is internal to unit
Connectors	All BNC connectors shall mate in a non-destructive manner with the 50R BNC connector specified in IEC 60169-8 appendix A (1993) [SMPTE 170M-1999] The Phono and S-VHS DIN connector's are PCB mounted. All other connectors are chassis bulkhead mounted. Connectors are 'finger accessible' for rapid cabling.

Power

Published Voltage Range	100V to 250V 50/60Hz
Current Rating	1.5 A
Power Consumption	100W max; 1 x 150W power supply integral to unit
Input connector	IEC320 Male, Fused 2A (T)
Power switch	Non illuminated rocker switch on rear of unit.
Boot up time	Approximately 14 seconds

Approvals**Safety**

US Designed to meet the requirements of UL1419

Europe EN60950:2000

EMC

US FCC Part 15, Class A 1998

Europe EN55103-1:1997 Environment E2
EN55103-2:1997 Environment E5

Note: this unit is not rated for operation in corrosive environments

Installation

UNPACKING THE SUPERVISOR LH

The unit is packed in a single cardboard box. The contents of the box are as follows:

- 1 Supervisor LH unit
- 1 Power cable
- Fuses T2A H 250 V 2 pieces (integral)
- 1 Operating and Installation Manual
- 1 Operating and Installation Manual CD

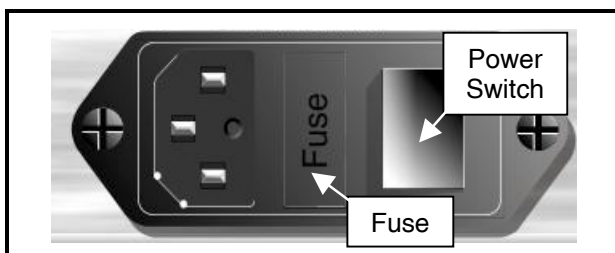
Unpack the box carefully and check for any shortages or shipping damage. Immediately report any shortages or damage to the sender, either Lighthouse Technologies, or Snell and Wilcox Limited.

CONNECTING POWER TO SUPERVISOR LH

Note: before connecting power to the unit please refer to the safety warnings in Section 0.

Power Inlet

Mains power is supplied to the unit via a filtered IEC connector with integral power switch and fuse.



The mains power fuse rating is T2 A H 250 V.

The mains current rating is 1.5 A maximum from 100V - 240V a.c.

The power supply ON/OFF switch is located on the rear panel and is an integral part of the mains inlet assembly.

CAUTION:



Note that the fan ventilation holes on the rear panel must not be obscured.

Supply Voltage

The power supplies are auto switching for input voltages in the ranges of 100-240 V 60/50 Hz nominal. No voltage adjustment procedure is required.



Environment

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

Caution! The ventilation holes on the front and rear of the unit must not be obscured or damage to the equipment may result.

INPUT CONNECTIONS**COMPOSITE**

The unit has two selectable composite inputs.

CVBS A

This BNC connector will accept a standard composite signal and is terminated in 75 ohms.

CVBS B

This yellow coded Phono connector will accept a standard composite signal and is terminated in 75 ohms.

**S-VIDEO**

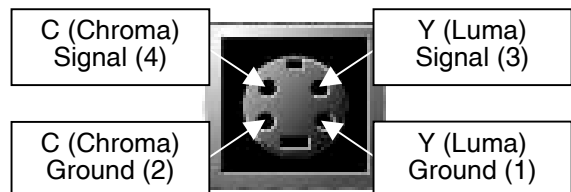
The unit has two selectable Y/C inputs.

YC A

This 4-way mini-DIN connector will accept a standard S-VHS, Hi-8 or similar separated Y/C signal, and is terminated in 75 ohms.

YC B

A separated Y/C signal may be connected to the unit via these two BNC connectors that terminate in 75 ohms.

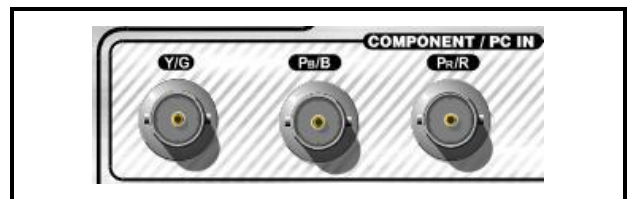


Pin connections for a Y/C 4-pin mini-DIN connector viewed from the rear of the unit.

COMPONENT / PC IN

The unit will accept a component signal in YPbPr, 'YUV' or GBR format from standard video sources or a PC.

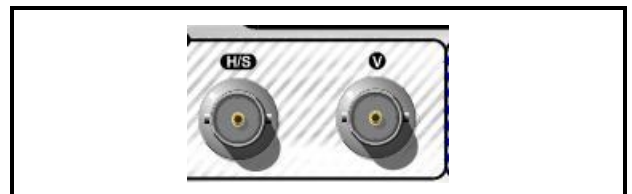
The YPbPr, 'YUV' or GBR signals at standard levels should be connected to the appropriate BNC connector. Signals labeled 'YUV' may be attached, with 'U' connected to the Pb terminal, and 'V' connected to the Pr terminal. Each BNC connector terminates in 75 ohms.

**H/S**

If the component signal has a separate Horizontal drive signal or a mixed Sync signal it should be connected to this BNC connector that terminates in 75 ohms.

V

If the component signal has a separate Vertical drive signal it should be connected to this BNC connector that terminates in 75 ohms.



SDI IN

The unit has two selectable SDI inputs.

SDI IN A, B (SD/HD)

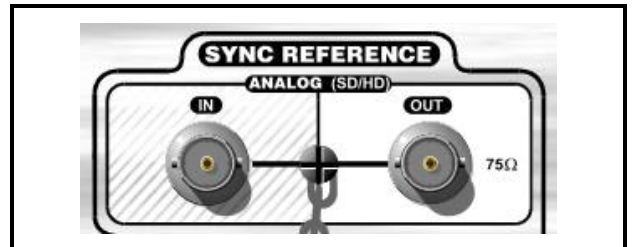
A serial digital SD or HD signal may be connected to either of these BNC connectors that terminate in 75 ohms.



SYNC REFERENCE

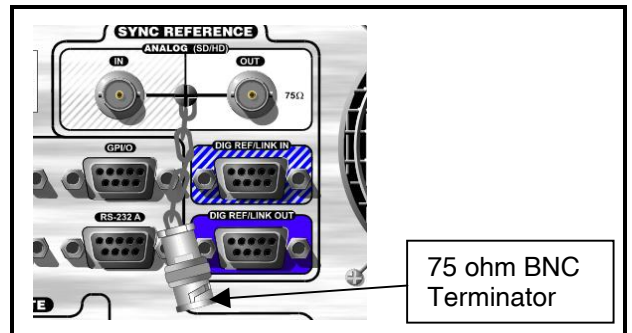
IN

An analog reference signal (SD or HD) may be connected to this loop-through BNC connector.



OUT

This BNC connector provides a passive loop output of the signal connected to the IN connector. If this unit is the final destination of the reference signal it should be terminated in 75 ohms by fitting the BNC terminator provided, to the output. If the loop through connection is used to feed another unit, the signal should be terminated at the final destination in 75 ohms.



PC IN / (LINK IN)

DVI (DIGITAL)

A standard DVI signal may be connected to this multi-way connector.

Note: All DVI interfaces on this unit support DVI-D (digital only), though DVI-I connectors have been employed, allowing either DVI-D or DVI-I cables to be used.



(DVI - Digital Visual Interface, a digital interface standard created by the Digital Display Working Group (DDWG) to support digital signals and monitors.)

LINK OUT

DVI (DIGITAL)

This multi-way connector will provide a digital output of the signal selected by the user as the active input, and is intended to link a number of Supervisor LH units together.



DIG REF/LINK IN and DIG REF/LINK OUT

The Unit and its output signals may be reference locked to an external digital source.

There is a dedicated Digital Reference Input and Output connector, which allows a series of units to be slaved to a master unit. The Digital reference output connector provides H and V drive at all times.

The 9 pin 'D' Female connector has the following pin configurations:

Pin No	FUNCTION
1	SIG GND
2	[No connection]
3	[No connection]
4	V Sync
5	H Sync
6	[No connection]
7	[No connection]
8	[No connection]
9	[No connection]

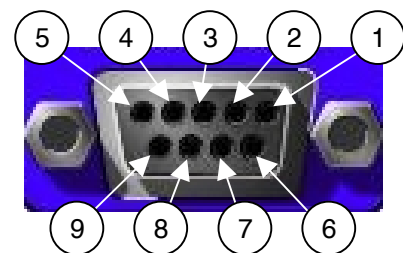


DIG REF/LINK IN

A digital reference signal from an 'upstream' Supervisor LH may be connected to the unit via this 9-way D connector.

DIG REF/LINK OUT

This 9-way D connector will provide a digital reference output to a 'downstream' Supervisor LH. via its DIG REF/LINK IN connector.



Pin numbers viewed from the rear of the unit.

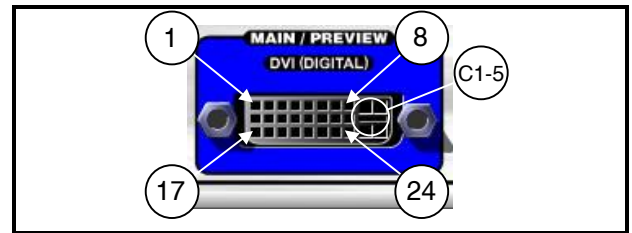
OUTPUT CONNECTIONS

MAIN / PREVIEW

DVI (DIGITAL)

A DVI output signal is available from this multi-way connector for connection to a compatible device.

Either the main output or the preview bus output may be selected.



DVI-D Connections

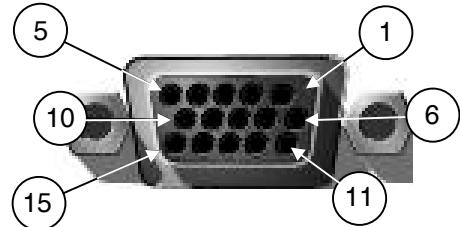
Pin No	FUNCTION
1	TMDS Data 2 -
2	TMDS Data 2 +
3	Shield 2 / 4
4, 5, 8, 12, 13, 20, 21	-
6	DVIC DDC Clock
7	DVIC DDC Data
9	TMDS Data 1 -
10	TMDS Data 1 +
11	Shield 1 / 3
12	N/C (TMDS Data 3 -)
13	N/C (TMDS Data 3 +)
14	+5V Power (DDC)
15	GND
16	Hot Plug Detect
17	TMDS Data 0 -
18	TMDS Data 0 +
19	Shield 0 / 5
22	Clock Shield
23	TMDS Clock +
24	TMDS Clock -
25 (C1)	-
26 (C2)	-
27 (C3)	-
28 (C4)	-
29 (C5)	-

Note: All DVI interfaces on this unit support DVI-D (digital only), though DVI-I connectors have been employed, allowing either DVI-D or DVI-I cables to be used.

MAIN / PREVIEW**VGA (Analog)**

This 15-way high density D connector provides a VGA format output signal.

Either the main output or the preview bus output may be selected.

**'VGA' Connections**

Pin No	FUNCTION
1	Red
2	Green
3	Blue
4	-
5	GND
6	GND
7	GND
8	GND
9	+5V (DDC)
10	GND
11	-
12	EDID Data
13	H Sync
14	V Sync
15	EDID Clock

COMMUNICATIONS CONNECTIONS

ROLLNET

Please note that this BNC connector is currently not enabled, and should not be used.



NETWORK

ETHERNET

This RJ45 connector socket allows the unit to be connected to a LAN using the 10BASE-T or 100 BASE TX standards.



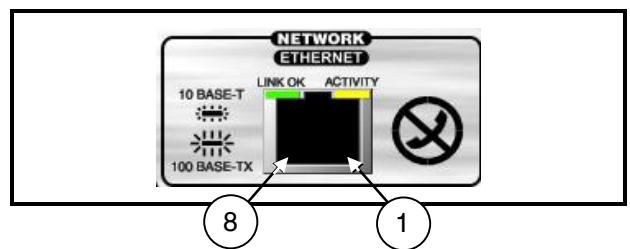
Warning This connector is not intended for direct connection to a telecommunications network.

Link OK

When this green LED is illuminated the Ethernet network link is operating correctly. When it is off there is a problem with the cable or unit at the other end. When brightly lit, the operating speed is 100Mbit/s; when dimly lit, the speed is 10Mbit/s.

Activity

This yellow-orange LED will flash to indicate activity on the Ethernet network.



Ethernet Connections

Pin No	FUNCTION
1	Tx +
2	Tx -
3	Rx +
4, 5	-
6	Rx -
7, 8	-

RS-422/485 (RS-422 Slave)

This 9 pin 'D' connector on the rear panel allows the unit to be connected to the RollCall 485 network communications system. For more details please refer to Section 6 Appendix 2.

The default settings for the RS-422/485 port are as follows:

Baud rate.....38400
 Data Bits.....8
 Stop Bits.....1
 Parity None

Note: RS485 power connections should only be used when connecting an un-powered device (e.g. an active front panel), to a power source such as a RollCall Gateway. [Pin 5 V+ is non-preferred, as this is RS232 signal ground].

When connecting two powered devices, then the power connections should not be used.

Note that RS485 interconnections should be pin to pin and only be used for Snell & Wilcox RollNet applications.

RS-232A

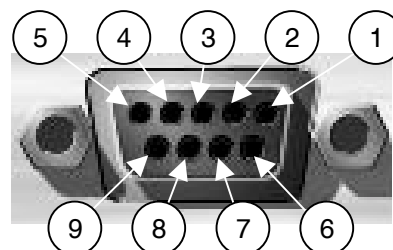
This port is a debug/maintenance port and should only be used by authorized maintenance personnel.

DCE with built in twist: (use a 9 way male to female 1 to 1 cable 'straight' cable to connect to a PC)

Note: On RS-232 DCE ports, the "Transmit Data" signal is an input, and the "Receive Data" signal is an output.

The default settings for the RS232A port are as follows:

Baud rate.....115,000
 Data Bits.....8
 Stop Bits.....1
 Parity None
 Handshake None

**RS485/RS422 Connections**

Pin No	Function RS-485	Function RS-422
1	Frame Ground	Frame Ground
2	DATA A [+]	Transmit A (Tx-)
3	V+ [see note]	Receive B (Rx+)
4	DATA Common	Receive Common
5	V+ [see note]	[No connection]
6	DATA Common	Transmit Common
7	DATA B [-]	Transmit B (Tx+)
8	V+ [see note]	Receive A (Rx-)
9	Frame Ground	Frame Ground

**RS-232A Connections**

Pin No	FUNCTION
1	[No connection]
2	"Transmit Data" (Input!)
3	"Receive Data" (Output!)
4	[No connection]
5	Signal Ground
6	[No connection]
7	[No connection]
8	[No connection]
9	[No connection]

RS-232B

This 9 pin 'D' connector on the rear panel allows the unit to be connected to the RollCall RS232 network communications system. For more details please refer to Section 6 Appendix 2.

DCE with built in twist: (use a 9 way male to female 1 to 1 cable 'straight' cable to connect to a PC)

Note: On RS-232 DCE ports, the "Transmit Data" signal is an input, and the "Receive Data" signal is an output.

The default settings for the RS232B port are as follows:

Baud rate.....38,400
Data Bits.....8
Stop Bits.....1
Parity None
Handshake None

**RS-232B Connections**

Pin No	FUNCTION
1	[No connection]
2	"Transmit Data" (Input!)
3	"Receive Data" (Output!)
4	[No connection]
5	Signal Ground
6	[No connection]
7	[No connection]
8	[No connection]
9	[No connection]

GPI/O

The GPI/Os are general-purpose contact closure pairs that can be used in several ways.

As a general purpose input, the port will recognize either a single-ended or differential voltage. Additionally the pair will respond to a simple contact closure. This contact closure is truly differential, and either leg may be at earth or can be floating.

When configured as a general-purpose output, the port acts as a solid state relay. In this configuration the ports are polarity-independent.

For more details please refer to Section 5 Appendix 1.

GPI/O Maximum levels

Acceptable voltage range with respect to GND..... $\pm 24.0V$
Absolute maximum $\pm 26.0V$

Acceptable differential voltage range..... $\pm 24.0V$
Absolute max differential voltage range... $\pm 26.0V$

Absolute maximum current limited to..... 150mA
at maximum operating temperature

Fuse protected, thermally resettable

GPI Receiver Levels

Applied Differential Voltage Detection:

Logic Low >-24.0 to $<+1.6 V$

Logic High $>+3.5$ to $<+24.0 V$

Applied Differential 'Switch Contact' Detection:

Logic Low (Contacts Closed) <10 ohms

Logic High (Contacts Open) $>100k$ ohms

GPO Driver Levels

Relay contacts when open:

Differential Voltage Range 0 - 24.0 V

GPO solid state relay OFF resistance... $>1M$ Ohms

Relay contacts when closed:

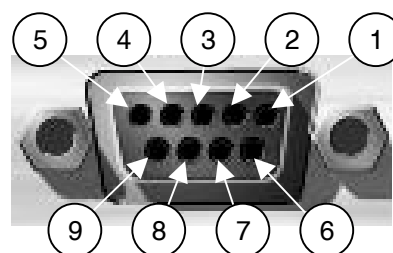
Current rating 0 - 150 mA

Max Common Mode Voltage $\pm 24.0 V$

GPO solid state relay ON resistance <1 Ohms

**GPI/O Connections**

Pin No	FUNCTION
1	[No connection]
2	GPIO 1+
3	GPIO 2+
4	GPIO 3+
5	GPIO 4+
6	GPIO 1-
7	GPIO 2-
8	GPIO 3-
9	GPIO 4-



Pin numbers viewed from the rear of the unit (The numbering applies to all 9-way connectors on the unit).

Operation

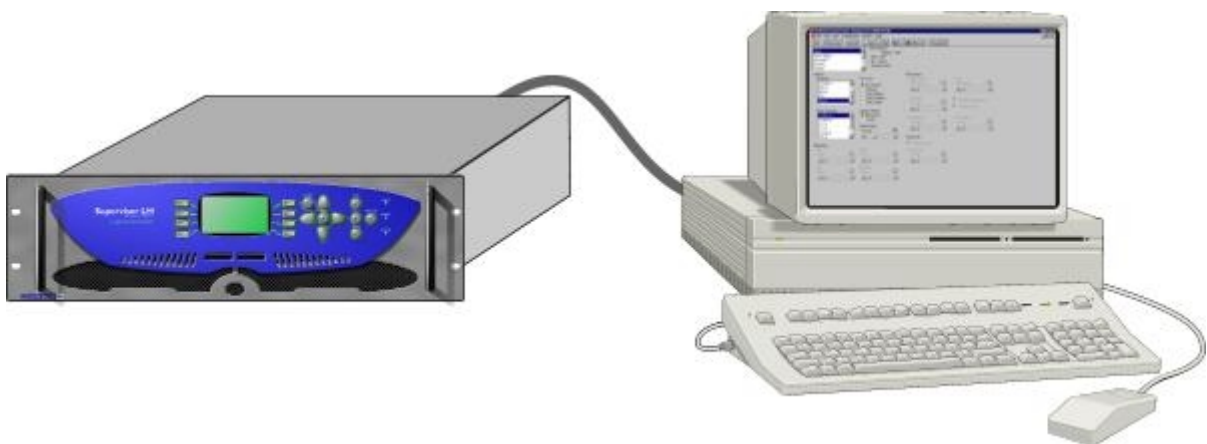
GENERAL OPERATING PRINCIPLES

The Supervisor LH may be operated by two methods:

1. Using the front panel controls (see page 2 for details)



2. Via RollCall PC Control Panel Screens (see page 21 for details)



Recommended Basic System Alignment Procedure

1. Setup the display device using the display's internal test patterns if available.
2. Enable the Supervisor output test patterns and (if necessary) adjust the Supervisor Output Procamps so that the patterns look the same as the display's internal test patterns.
3. Check that the Supervisor Input Test Patterns look correct on the display. If the resolution of the display device means that the whole of the full screen Output Test Patterns cannot be seen, the Input Test Patterns can be used as a good alternative.
4. Select the external source to be displayed, and if available, enable the source's test patterns. Check that these look the same as the Supervisor's input test patterns - if not, adjustments can be made to the Input Procamps to 'normalise' the input.
5. Repeat for any other external sources to be displayed. This normalization procedure can be used to minimize the visible difference when switching between inputs.

Operation via the Front Panel



Front Panel LED Boot Sequence

1. At power up the front panel back-lighting color will be red.
2. All button and status LEDs should glow red and then change to green.
3. The front panel back-lighting color changes from red to orange.
4. The status LED flashes red twice.
5. The display is activated with the countdown clock graphic.
6. All LEDs are switched off, apart from the status LED that will glow green.

Operating Levels

There are 3 levels of complexity of operation and depend on the access level. These are User, Engineering & Supervisor levels.

User Level

This is a very simple level of operation and all non-user controls will be hidden from view but will retain the values set at Engineering or Supervisor levels.

Engineering Level

This is an intermediate level of operation and all non-user/engineering controls will be hidden from view but will retain the values set at Supervisor level.

Supervisor Level

Full access to all controls is provided.

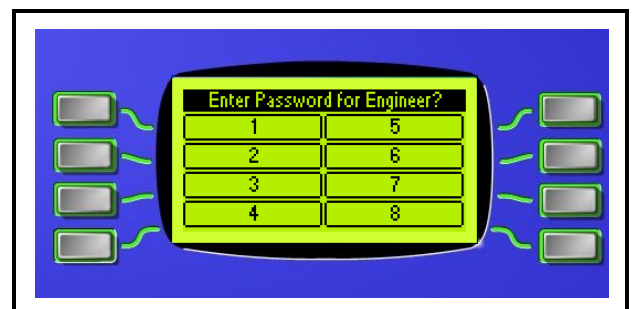
*Note that recalling the **Factory** memory item only resets currently available controls to their default settings but leaving higher level control settings unchanged.*

Changing the operating levels

The unit will be supplied set to the User level.

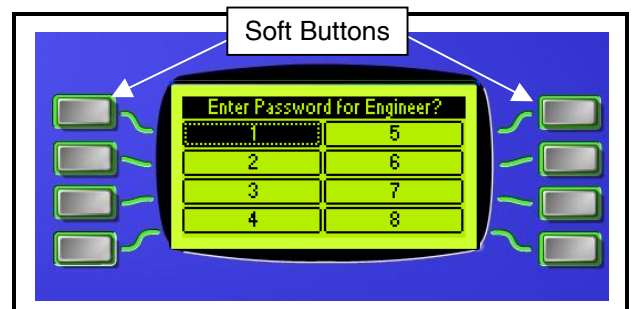
To access Engineer and Supervisor levels, press the **escape**, **status** and **bk-marks** buttons at the same time.

The display shown below will appear asking for the password to change to the selected level (in this example Engineer)



The appropriate password may then be entered using the soft buttons which will highlight the number.

Supervisor	81818
Engineer	1414
User	NO PASSWORD



Note that the password must be entered within 12 seconds otherwise the function will time out.

Operation

All operational parameters and selections may be made by selecting items from a system of menus displayed in the window.

The Display Window

All menus and sub menus will appear in this window.

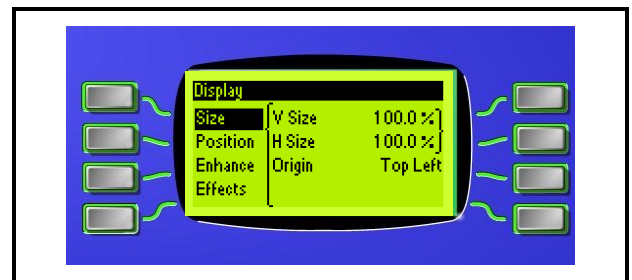
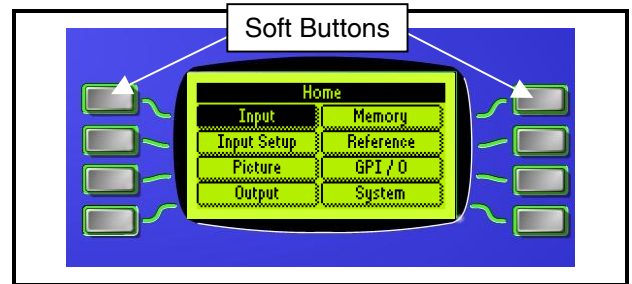
Soft Buttons

Pressing the soft button adjacent to the function will reveal the sub menu associated with that function.

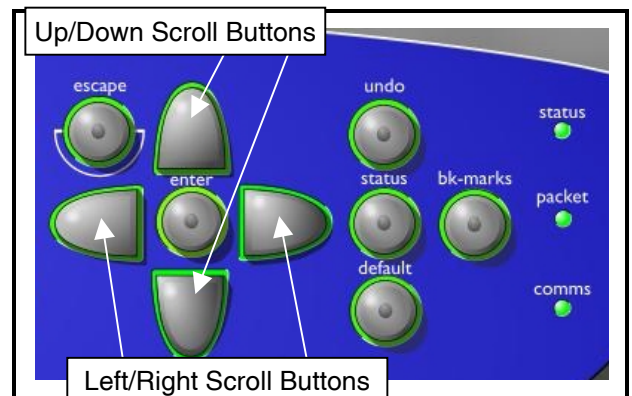
Note that the function does not need to be highlighted.

In the example opposite the Display soft button has been pressed and this has revealed the Display sub menu.

*Note that in this example if the escape button is used to return to the previous menu the **Display** item will be highlighted indicating that this was the last item to be accessed.*

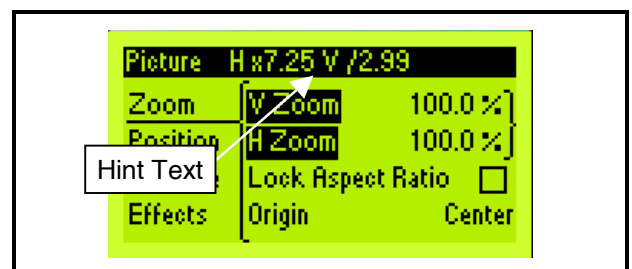


Using the Up/Down and Left/Right scroll buttons to highlight the item in the home display and then pressing the **Enter** button will also reveal the same sub menu.



Hint Text

For some functions hint text showing the value of the parameter will appear at the top of the display.

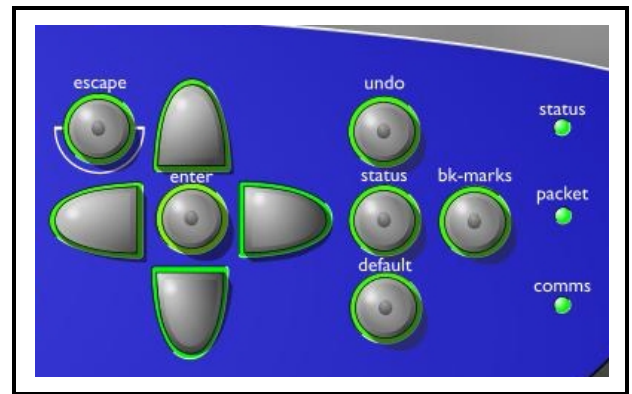


Basic Button Functions

Escape

Pressing this button will return to the previous menu level eventually returning to the Home display. Holding the button down will return directly to the Home display.

The Up/Down and Left/Right scroll buttons allow row and column navigation within the display window.



Enter

If an adjustment has been made e.g. Input/ProcAmps/Contrast from 0.0 dB to 1.0 dB, this value may be saved by pressing this **Enter** button.

Undo

If an adjustment has been made e.g. Input/ProcAmps/Contrast from 0.0 dB to 1.0 dB this change may be undone and returned to 0.0 dB by pressing this **Undo** button.

Note that this action will only work when the actual function is active.

i.e. Input/ProcAmps/Contrast is selected.

Default

Pressing this button will return the changed setting back to the default value.

Note that this action will only work when the actual function is active.

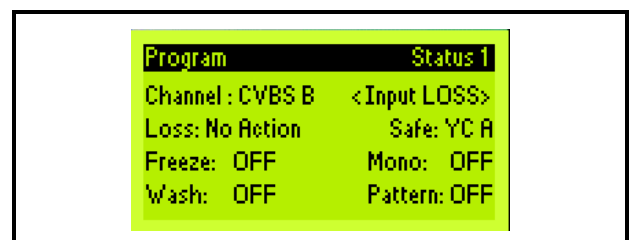
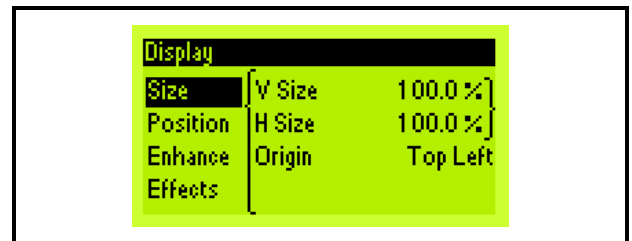
i.e. Input/ProcAmps/Contrast is selected.

Status

This button will reveal the first of the Status displays. These screens provide basic information about the current setup of the unit.

Four status screens may be selected using the Up/Down or Left/Right scroll buttons.

Note that only status information applicable to the current access level (User/Engineering/Supervisor) will be displayed.



Bk-marks (Bookmarks)

This function allows the user to quickly navigate to a particular item anywhere in the menu structure. Up to eight bookmarks may be programmed.

As supplied, the default bookmarks will appear when the **Bk-marks** button is pressed. (see opposite)

Bookmark Functions

Hold down the **escape** button to return to the Home Display.

Press the **Bk-marks** button (the button will become illuminated) and the current bookmarks will be shown.

Press the default button and the **Default Bookmarks** display will appear. The soft buttons allow the following selections:

Cancel

This will return to the previous display.

Clear All

This will delete all current the bookmarks.

Load Defaults

This will return the bookmarks to their default settings. In this example input signals types have been setup as bookmarks and may then be selected using the soft buttons.

Bookmarks	
CVBS A	CVBS B
YCA	YCB
SDI A	SDI B
Comp'nt	DVI

Home	
Input	Memory
Input Setup	Reference
Picture	GPI / O
Output	System

Bookmarks	
CVBS A	CVBS B
YCA	YCB
SDI A	SDI B
Comp'nt	DVI

Bookmarks	
CVBS A	CVBS B
YCA	YCB
SDI A	SDI B
Comp'nt	DVI

Bookmarks	

Bookmarks	
CVBS A	CVBS B
YCA	YCB
SDI A	SDI B
Comp'nt	DVI

Programming New Bookmarks

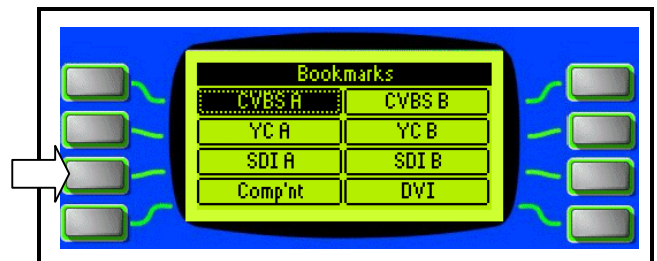
Navigate the menu structure to the menu item that is required to be bookmarked. In the example opposite this is **INPUT/Procamps**.

Input (Comp'nt)		
Select	Black Level	0.0 mV
Procamps	Contrast	0.0 dB
Blanking	Saturation	0.0 dB
Overscan	Hue	N/A

Press the **Bk-marks** button and the current bookmarks will be shown.

Bookmarks	
CVBS A	CVBS B
YCA	YCB
SDI A	SDI B
Comp'nt	DVI

Hold down the soft button adjacent to bookmark that is to be replaced. In this example the SDI A bookmark is to be replaced.



The **Program Bookmark** dialog box will then appear asking if the SDI A bookmark is to be overwritten with the new bookmark **Procamps**.

Cancel

This will abort the operation and return to the Bookmarks display.

OK

This will accept the new bookmark and return to the Bookmarks display that will now show the new **Procamps** bookmark.

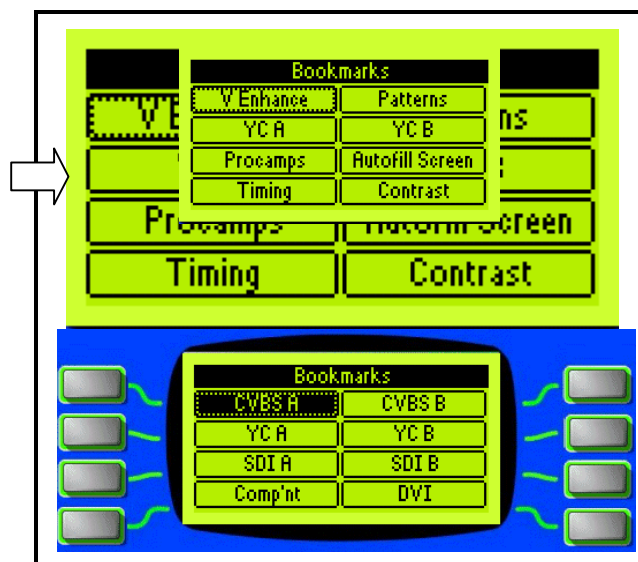
Program Bookmark	
Overwrite SDI A with Procamps?	
Cancel OK	

Bookmarks	
CVBS A	CVBS B
YCA	YCB
Procamps	SDI B
Comp'nt	DVI

Using a Bookmark

Press the **Bk-marks** button and the current bookmarks will be shown.

Pressing the soft button adjacent to the required bookmark (in this example **Procamps**) will reveal that display.



The example opposite has the following bookmarks:

V Enhance

This will reveal the Vertical Enhance function.

YC A

This will select YC A as the input signal.

Procamps

This will reveal the Procamps function.

Timing

This will reveal the Timing function.

Patterns

This will reveal the Patterns function.

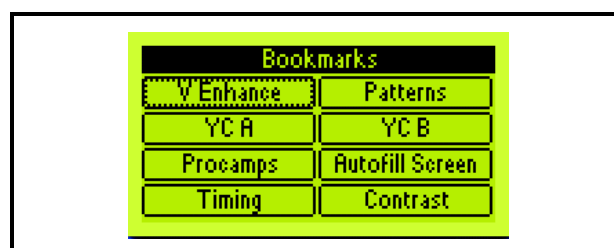
YC B

This will select YC B as the input signal.

AutoFill Screen

This will enable the AutoFill Screen function

*Note that some of these bookmarks will **reveal** a function (e.g. Procamps) and some will **enable** a function (YC A signal select).*



Front Panel Indicators

Status

During normal operation the status LED will glow green.

When a status alert is ready to be displayed the LED will glow orange.

Packet

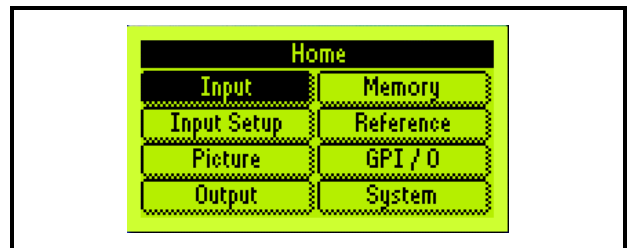
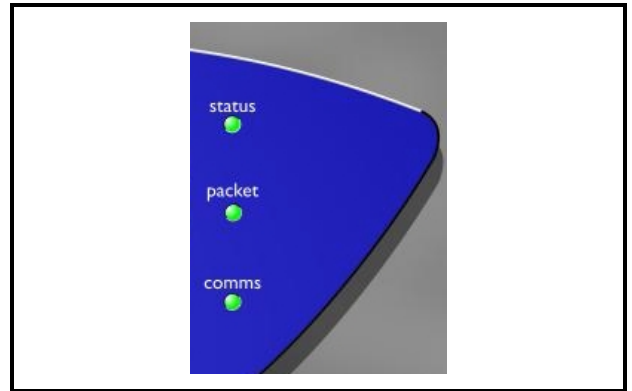
This LED displays all Ethernet activity related to the Supervisor LH.

The color of the LED is red for packets received and green for packets transmitted.

Note when the Supervisor LH unit is not being accessed this LED will flash green approximately every 15 seconds; this indicates that the Supervisor unit is declaring its presence on the RollCall network.

Comms

This LED displays all Ethernet communication.



Push Button LED's

undo

When modifying a menu item the undo button LED will glow GREEN; pushing the undo button will return the setting to its previous value. This will switch the undo button LED to red. Operating the button a second time will revert the menu items setting to the modified state and set the undo button LED back to green. Selecting another menu item switches off the undo button LED.

status

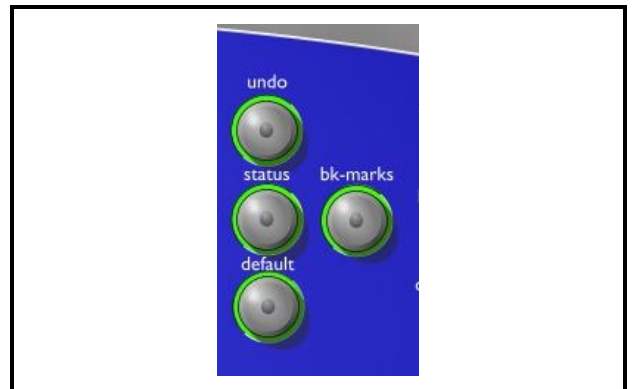
When the Status button has been pushed, the status page is displayed and the status button LED is set to green. Operating the button a second time removes the status page and switches off the status button LED.

It will flash green when an alert event has been given; when in this mode the Status LED will glow Orange.

default

When modifying a menu item, pushing the default button will return the setting to its default value. This will set the default button LED to green.

Modifying the menu setting or moving to another menu item will switch off the default button LED.



bk-marks

When the book mark page is displayed, the book mark button LED will glow green; operating the button a second time removes the bookmark page and switches off the bookmark button LED.

Changing Selections

The following example demonstrates the basic technique for selecting and changing various settings.

Input

Selecting this item reveals the input menu and allows changes to be made to the current settings for the input.

Select

Selecting this item with the soft button (or the **Enter** button) will show the current selections in the right hand columns.

To change these settings use the scroll right button (or the **Enter** button) to select the first of right hand columns.

Use the scroll right button (or the **Enter** button) to display the list of inputs available in the second right hand column.

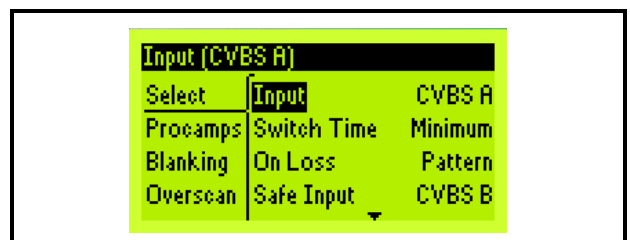
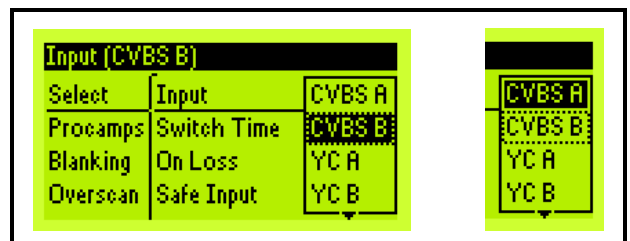
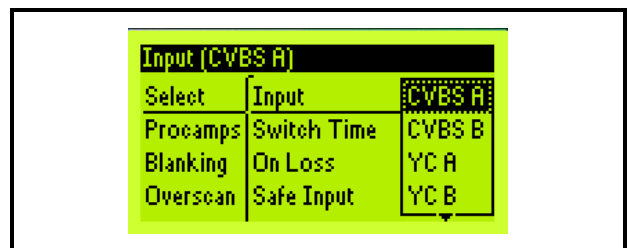
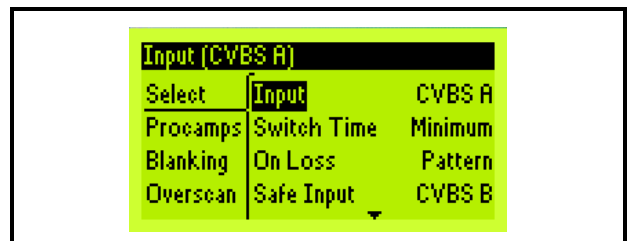
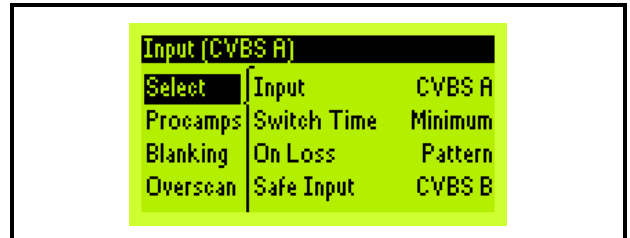
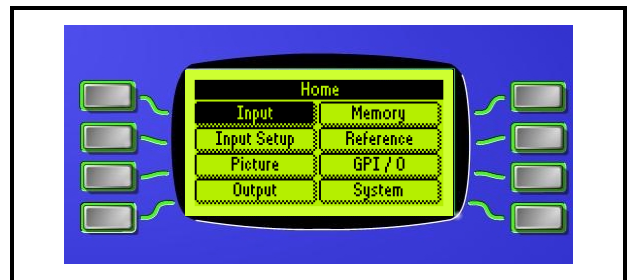
Use the soft button to directly select a new input (CVBS B in this example)

Or

Use the scroll down button to preselect the new input (the item will have a dashed line around the text) and press the **Enter** button.

The display will then return to the previous **Input** screen.

Note that the black line under text will show the path in the multi-level menu structure.



Changing Parameter Values

Parameter values may be changed in a similar way to selections.

This example demonstrates how to change the contrast value.

Use the soft button (or the scroll down button) to select **Procamps**.

Use the soft button (or the scroll right button) to select **Contrast**.

Use the soft button (or the scroll right button) to select the value.

Use the Scroll up button to increase the value or the scroll down button to reduce the value.

In this example the value has been changed to 0.5 dB; pressing the **Default** button will return the value to the default value (0.0 dB) *Note that this can only occur while the value is highlighted.*

Input (CVBS A)		
Select	Input	CVBS A
Procamps	Switch Time	Minimum
Blanking	On Loss	Pattern
Oversean	Safe Input	CVBS B

Input (CVBS B)		
Select	Black Level	0.0 mV
Procamps	Contrast	0.0 dB
Blanking	Saturation	0.0 dB
Oversean	Hue	0.0 deg

Input (CVBS B)		
Select	Black Level	0.0 mV
Procamps	Contrast	0.0 dB
Blanking	Saturation	0.0 dB
Oversean	Hue	0.0 deg

Input (CVBS B)		
Select	Black Level	0.0 mV
Procamps	Contrast	0.0 dB
Blanking	Saturation	0.0 dB
Oversean	Hue	0.0 deg

Input (CVBS B)		
Select	Black Level	0.0 mV
Procamps	Contrast	0.5 dB
Blanking	Saturation	0.0 dB
Oversean	Hue	0.0 deg

FRONT PANEL MENU OPERATION DETAILS

Home Display

At startup the home display will appear showing the top-level selections.

The active selection will appear with reversed text (light text against a black background).

Note that the availability of menu items will depend on the level (Supervisor, Engineering or User) of operation. In the descriptions below the following notation is used:

U = Item available at User, Engineering and Supervisor levels

E = Item available only at Engineering and Supervisor levels

S = Item available at Supervisor level only

Input (U)

The first column lists the input processing options.

- Select (U)
- Procamps (U)
- Blanking (E)
- Overscan (E)

Example shows **Select** selected

The second column lists the input signal options.

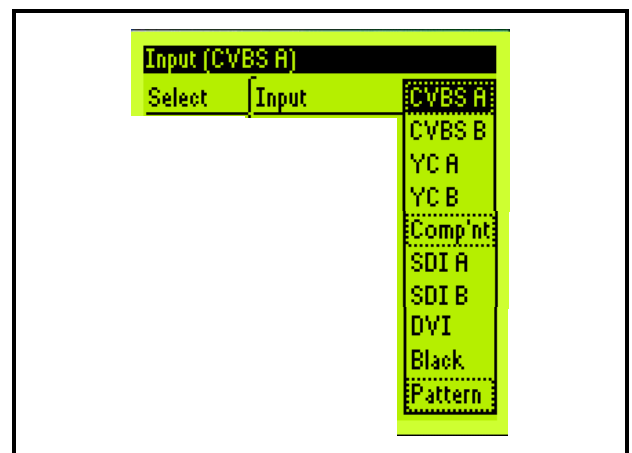
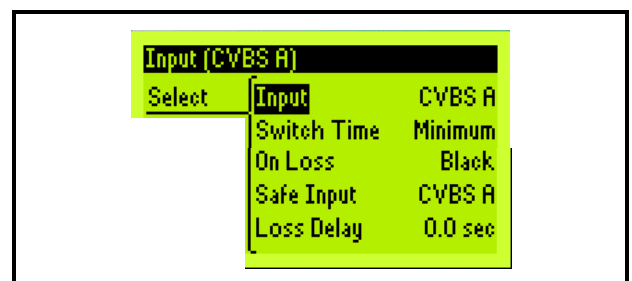
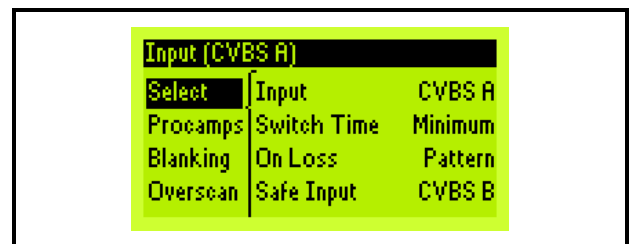
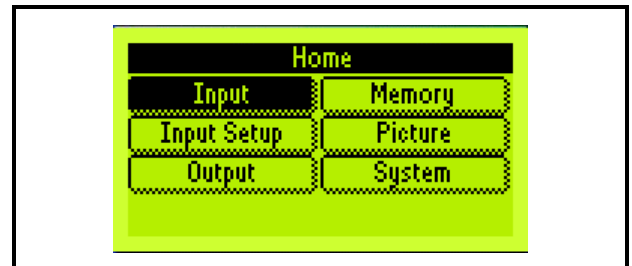
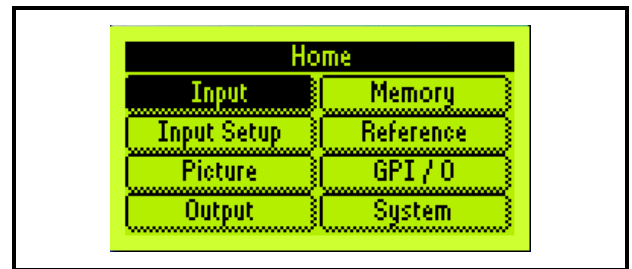
- Input (U)
- Switch Time (E)
- On Loss (E)
- Safe Input (E)
- Loss Delay (E)

Example shows **Select/Input** selected

The third column lists the input signal types.

- CVBS A Composite A
- CVBS B Composite B
- YC A Separated A
- YC B Separated B
- Comp'nt Component Y, Pb, Pr or GBR
- SDI A Serial Digital A SD or HD
- SDI B Serial Digital B SD or HD
- DVI Digital Video Interface
- Black Black picture
- Pattern A selected pattern

Example shows **Select/Input/CVBS A** selected



Switch Time (E)

The time taken to lock up to an input varies. Typically, analogue inputs are slower to lock than digital ones. Equal switch time introduces an artificial delay into the digital input switching so that switching time is constant across all inputs.

Note that switch time is always minimum when changing to a safe input as a result of input loss.

On Loss (E)

In the event of signal loss, one of the following actions may be taken.

The **Freeze** action will happen within one frame of a signal loss.

Black, **Pattern** and **Goto Safe** will happen after the specified Loss Delay. In the case of freeze, black and pattern, the picture will be restored if the input returns. In the case of Goto Safe, this does not happen because it changes the current input selection.

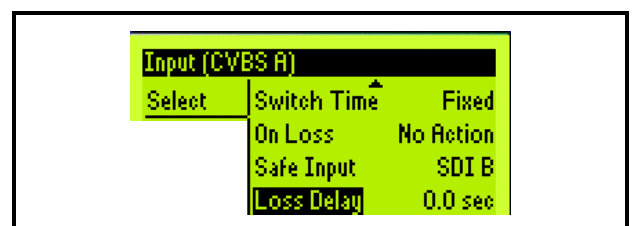
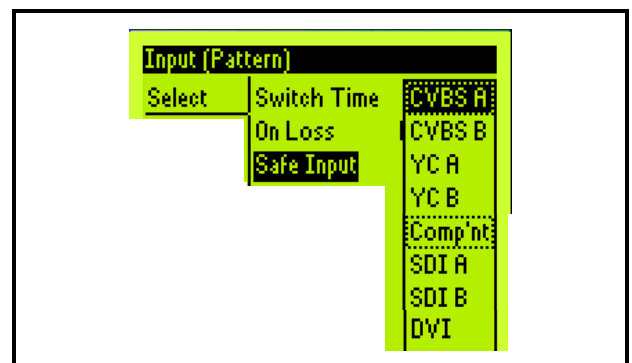
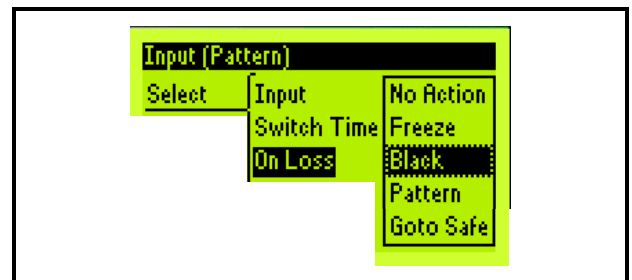
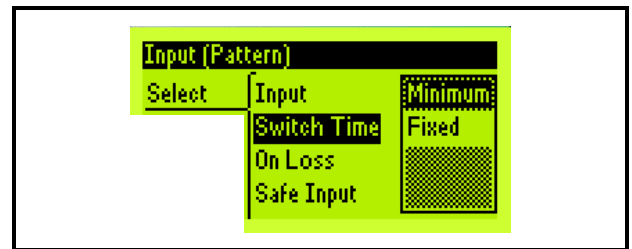
Safe Input (E)

This allows an input to be chosen as the signal that is used when the normal input is lost and the On Loss/Goto Safe item is selected.

Loss Delay (E)

This specifies the amount of time, after a signal loss, that the unit should wait before taking an on loss action. Note that this does not apply to freeze.

Time sec	0.5	10	3	0.5
units	min	max	default	steps



Procamps (U)

They are stored for each input source.

This provides various adjustments to allow the input signal to be normalized. These would normally only be adjusted after the display device settings, and Output Procamps have been adjusted. They are stored for each input source.

The most important point to remember is that the Input Procamps only make adjustments to individual inputs, and the Output Procamps change the way all inputs look.

The Input Procamps can also be used to correct for errors in the source signals that remain even when the external source's test patterns appear correct, or simply to increase 'impact' by increasing color (increase color Saturation control), and contrast (increase Contrast control, and typically reduce the Input Black Level slightly).

*Note that this menu is not available when DVI is the current input and **Link In** is the selected DVI*

This function allows the black level (brightness) of the selected source to be adjusted.

Level mV	-150	150	0	0.5
units	min	max	default	steps

Contrast (U)

This function allows the contrast (gain) of the selected source to be adjusted.

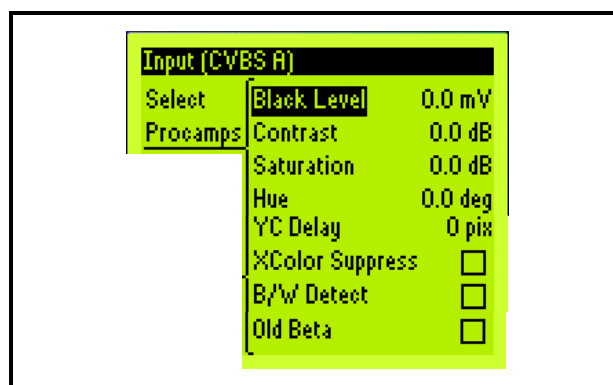
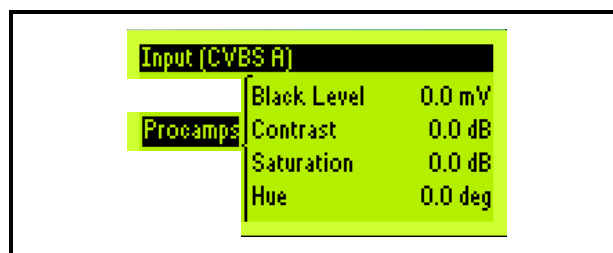
Value dB	-3	6	0	0.1
units	min	max	default	steps

Saturation (U)

This function allows the color level (saturation) of the selected source to be adjusted.

Value dB	-3	3	0	0.1
units	min	max	default	steps

Note that this function is not available for PC inputs.



Hue (U)

This function allows the tint (hue) of the selected source to be adjusted.

Value degrees	-30.8	30.8	0	1.4
units	min	max	default	steps

Note that this function is only available for composite (CVBS and Y/C) inputs.

Y/C delay (E)

This control allows the relative timing between the luminance and the chrominance signals of the selected source to be adjusted.

Clock pulses	-4	4	0	1
units	min	max	default	steps

Note that this function is only available for video inputs.

Procamps (continued)**XColor Suppress (E)**

By selecting this mode some reduction of cross color can be achieved in addition to suppression of Hanover bars. This mode could be used where the picture content has a lot of high frequency diagonal luminance. e.g. Small graphics, captions, scrolling titles, checkered patterning etc.

Note that this function is only available for video inputs.

B/W Detect (E)

This is only available for composite (CVBS and YC) inputs.

When enabled, black and white detection (AKA color killer) will remove all traces of color from a genuine black and white picture.

Old Beta (S)

This control normalizes the unit for old BetaCam™ VTRs that output traditional BetaCam™ levels, rather than standard SMPTE/EBU N10 levels.

These levels might also appear on dub interfaces and direct camera outputs. The normalization is provided on all interfaces, so those signals that have been poorly transcoded can be easily corrected, regardless of when or where the problem was generated.

Blanking (E)

This function allows the picture to be blanked from the display using four controls for each side of the picture.

Note that this function is not available when DVI is the current input and Link In is the selected DVI function.

Left (E)

pixels	0	640	0	1
units	min	max	default	step

Right (E)

pixels	0	640	0	1
units	min	max	default	step

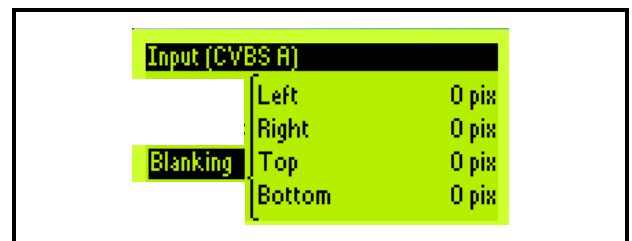
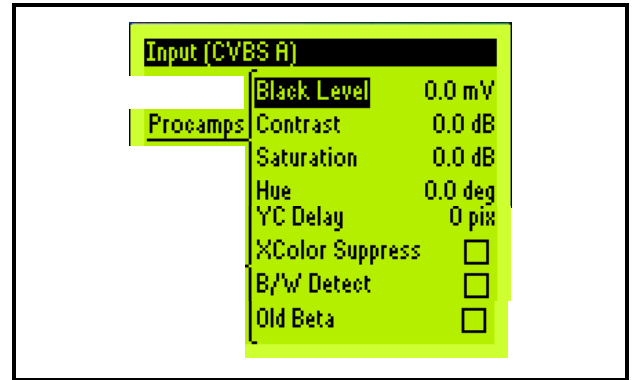
Top (E)

pixels	0	512	0	1
units	min	max	default	step

Bottom (E)

pixels	0	512	0	1
units	min	max	default	step

Note that these ranges will depend on the resolution of the input.



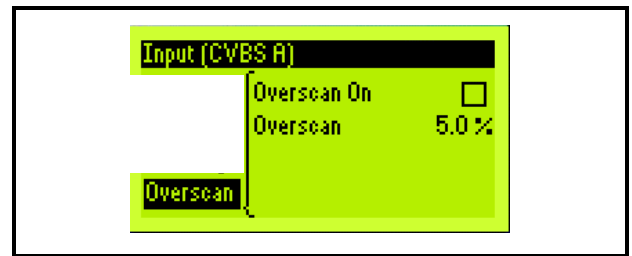
Overscan (E)

Note that this menu is not available when DVI is the current input and Link In is the selected DVI function.

Overscan On (E)

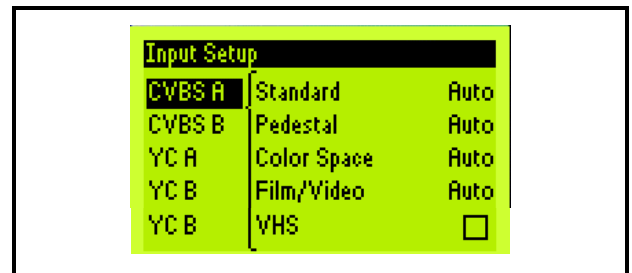
When enabled this allows the picture to overscan the display area by a set amount.

Amount %	-2	12	7	0.1
units	min	max	default	steps

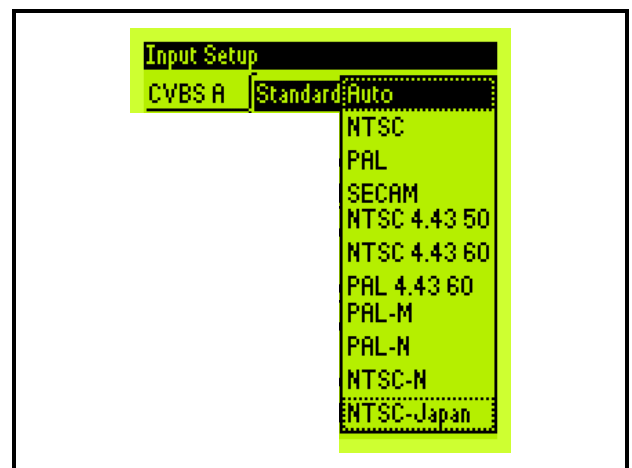
**Input Setup (E)**

This allows various settings for each of the inputs to be made.

Note that the options available will depend on the type of input signal selected.

**CVBS A, CVBS B, YC A, YC B Options (E)****Standard (E)**

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

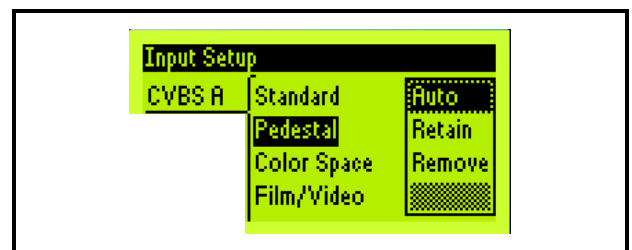
**Pedestal (E)****Auto**

When selected the pedestal processing will conform to the standard of the selected input.

When **Remove** is selected any pedestal (black level set-up) will be removed from the signal.

Retain

When **Retain** is selected any pedestal (black level set-up) in the input signal will be retained in the output signal.



Color Space (S)

The unit may be forced to accept the color standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Film/Video selection. (E)

This item is only available for a non-VHS source. (A VHS source is always processed as video). This control can be used to ensure that the Supervisor LH will process incoming video material correctly with respect for and film (3:2/2:2) content.

Auto (E)

Supervisor LH automatically analyzes incoming video and make the appropriate film/video processing decisions.

Film (E)

Incoming video will always be assumed to be 3:2/2:2.

Video

Incoming video is assumed to have no 3:2/2:2 content.

VHS (E)

When checked the unit will be optimized to deal with VHS type signals.

Comp'nt (Component) Inputs (E)

Source (E)

The unit may be forced to accept the source selected from the list. When **Auto** is selected the unit will automatically detect the input source.

Analog SD (U)

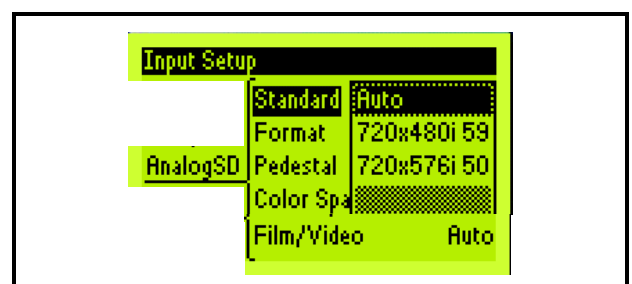
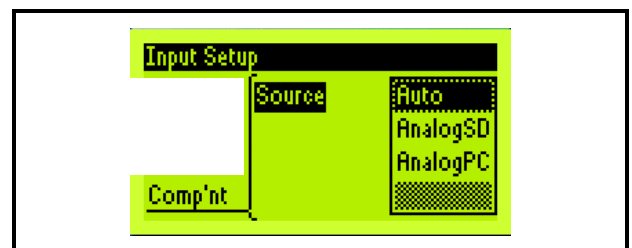
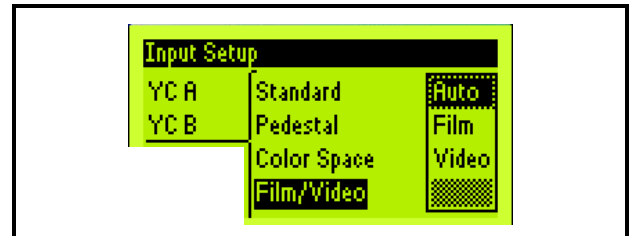
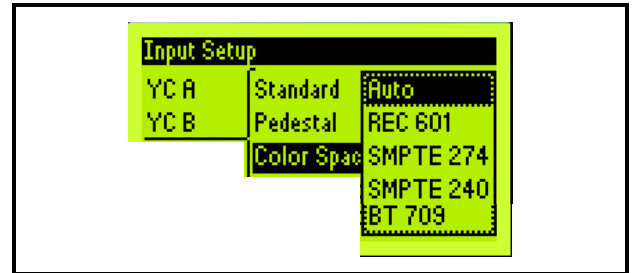
Standard (E)

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the signal in that standard.

Format (U)

The unit may be forced to accept the format selected from the list. When (RGB/YPbPr) **Auto** is selected the unit will automatically detect the signal in that format.

*Note that at user level only the **Auto** items are available; at engineering level all items are available.*

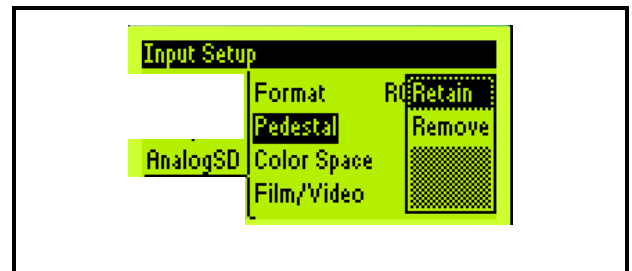


Pedestal (E)**Retain**

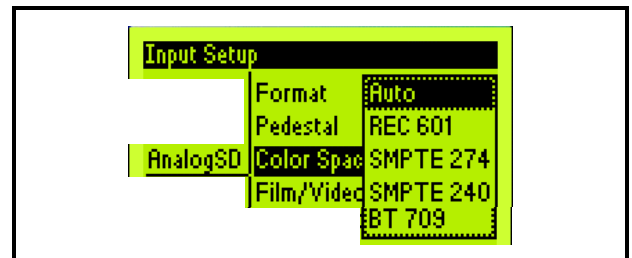
When this is selected any pedestal (black level set-up) in the input signal will be retained in the output signal.

Remove (E)

When this is selected any pedestal (black level set-up) will be removed from the signal.

**Color Space (S)**

The unit may be forced to accept the color standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

**Film/Video (E)**

This item is only available for a non-VHS source. (A VHS source is always processed as video). This control can be used to ensure that the Supervisor LH will process incoming video material correctly with respect for and film (3:2/2:2) content.

Auto (E)

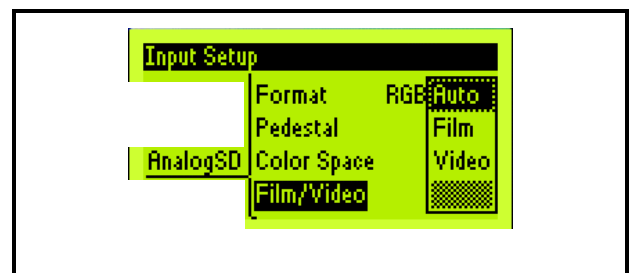
Supervisor LH automatically analyzes incoming video and make the appropriate film/video processing decisions.

Film (E)

Incoming video will always be assumed to be 3:2/2:2.

Video (E)

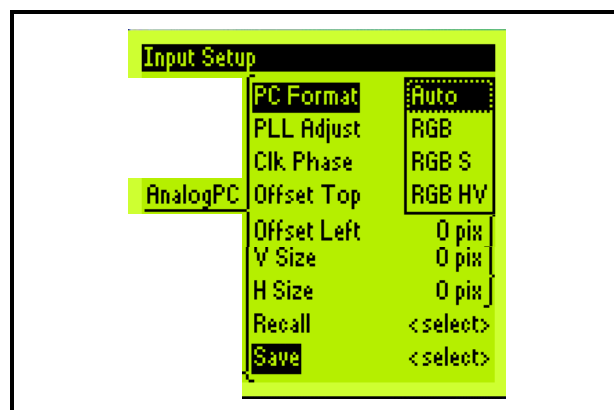
Incoming video is assumed to have no 3:2/2:2 content.



Analog PC (E)**PC Format (E)**

This item allows the format of the PC signal input to be set. When set to Auto the unit will automatically accept any of the three formats.

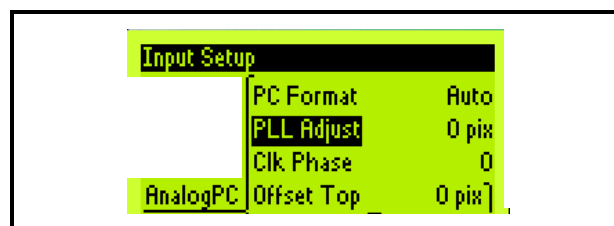
These controls are used for PC Calibration as described on page 4.19.

**PLL Adjust (E)**

pixels	-100	100	0	1
units	min	max	default	step

Clk Phase (E)

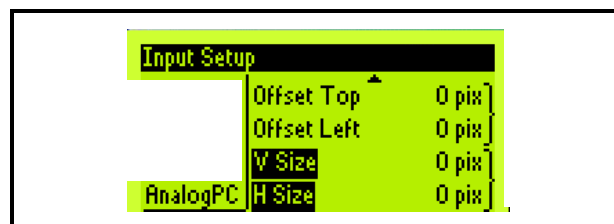
degrees	-180	180	0	11.25
units	min	max	default	step

**Offset Top (E)**

pixels	-100	100	0	1
units	min	max	default	step

Offset Left (E)

pixels	-100	100	0	1
units	min	max	default	step

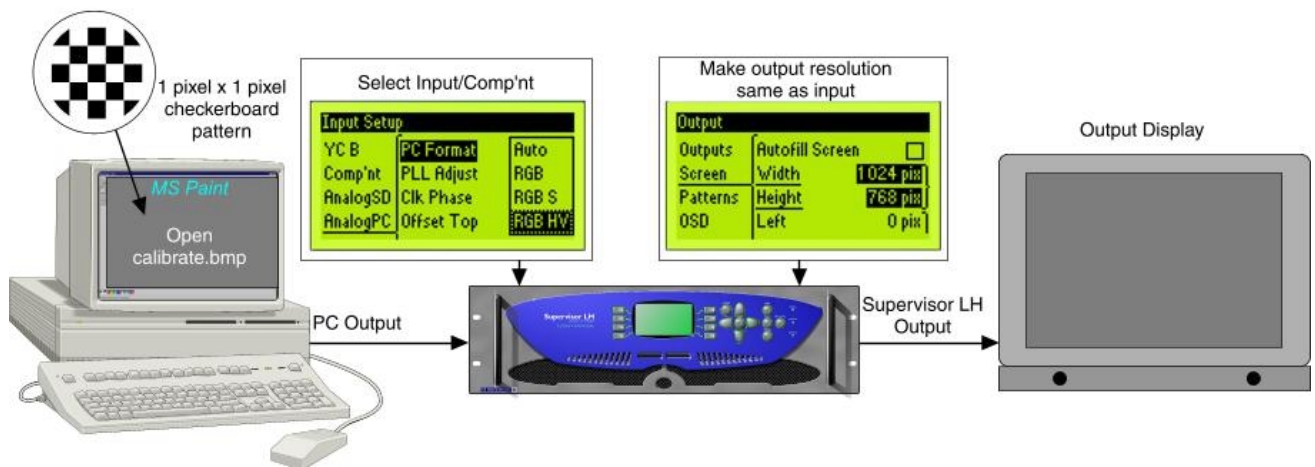
**V Size (E)**

pixels	-500	1500	0	1
units	min	max	default	step

H Size (E)

pixels	-500	1500	0	1
units	min	max	default	step

PC Calibration

**Setup (at engineering level or above)**

Connect the output of the PC to the component input (RGB, RGBS or RGB HV) of the Supervisor.

Select Input **Comp'nt**.

(Check a picture appears at the Supervisor output)

Using MS Paint, open **calibrate** file at the appropriate resolution (640 x 480, 800 x 600 etc.)
(These files may be found on the installation CD.)

In the View/Zoom menu of MS Paint check that Normal View is grayed out (if it isn't then select it)

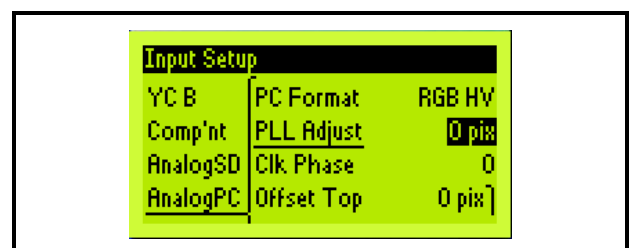
Procedure

If the PLL Divide Rate is wrong then the pattern (which should be black-white pixel checkerboard) will have a number of static vertical black bars on it. The number of bars indicates how much the PLL divide ratio is in error.

Access the **Input Setup/AnalogPC/PLL Adjust** item.

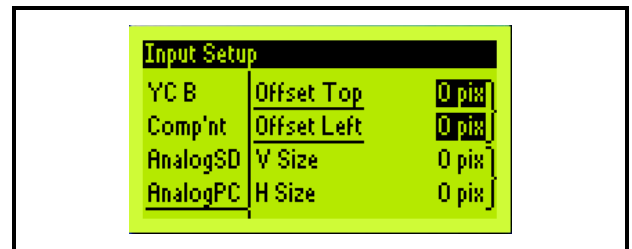
Adjust the PLL divide ratio up or down depending on which direction begins to reduce the number of bars. Stop when the bars have gone (the picture may still be suffering from a lot of noise – this will be dealt with when we adjust the clock phase).

Note that if the PLL divide ratio is reduced below a certain point (this will vary in each particular case) then the video will freeze and the adjustment will stop having an effect. This is because the PLL divide ratio is too close to the H size adjustment. To continue reducing the PLL divide ratio it would be necessary to reduce the H size as well.

**PLL Adjust**

pixels	-100	100	0	1
units	min	max	default	step

When the PLL divide ratio appears satisfactory, adjust the offset top and left and the H size and V size to ensure that the whole of the PC picture is visible.



Offset Top

pixels	-100	100	0	1
units	min	max	default	step

Offset Left

pixels	-100	100	0	1
units	min	max	default	step

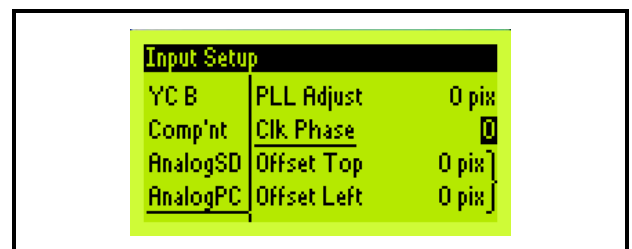
V Size

pixels	-500	1500	0	1
units	min	max	default	step

H Size

pixels	-500	1500	0	1
units	min	max	default	step

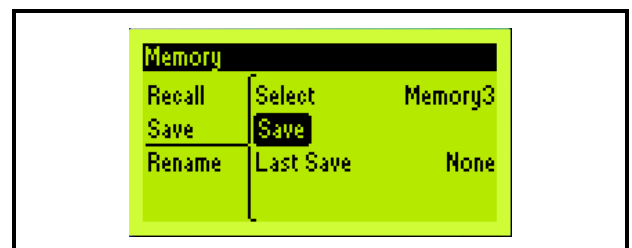
Finally, if the picture is suffering from noise, adjust the clock phase until the picture is clean.



Clk Phase

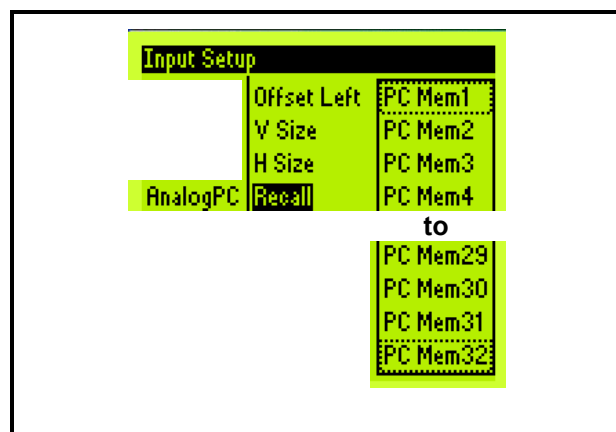
degrees	-180	180	0	11.25
units	min	max	default	step

To ensure that these settings are saved and this process doesn't have to be repeated, save the PC settings in one of the 32 PC memories. These should be automatically recalled whenever the PC is detected but a manual recall is still possible if required.

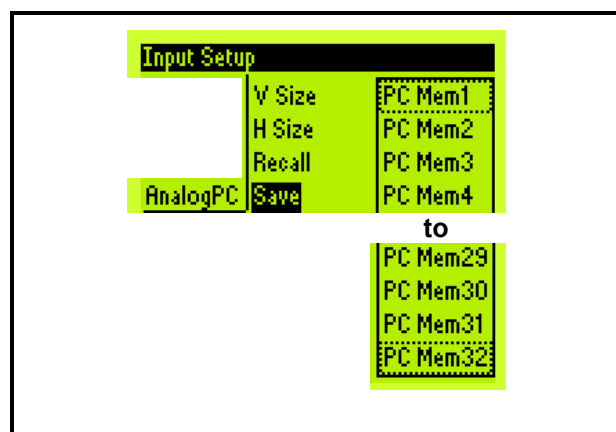


Recall (E)

To recall a particular PC setup from a memory location, select the desired memory location.

**Save (E)**

To save a particular PC setup to a memory location, select the desired memory location.



SDI A, SDI B (E)**Standard (E)**

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Input Setup		
SDI A	Standard	Auto
SDI B	Color Space	Auto
	Film/Video	Auto

Color Space (S)

The unit may be forced to accept the color standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Input Setup		
SDI A	Standard	Auto
		720x480i 59
		720x576i 50
		1280x720p 59
		1920x1035i 60
		1920x1035i 59
		1920x1080i 60
		1920x1080i 59
		1920x1080i 50
		1920x1080s 30
		1920x1080s 29
		1920x1080s 25
		1920x1080s 24
		1920x1080s 23

Film/Video selection. (E)

This item is only available for a non-VHS source. (A VHS source is always processed as video). This control can be used to ensure that the Supervisor LH will process incoming video material correctly with respect for and film (3:2/2:2) content.

Input Setup		
SDI A	Standard	Auto
SDI B	Color Space	REC 601
	Film/Video	SMPTE 274
		SMPTE 240
		BT 709

Auto (E)

Supervisor LH automatically analyze incoming video and make the appropriate film/video processing decisions.

Fil (E)

Incoming video will always be assumed to be 3:2/2:2.

Input Setup		
SDI A	Standard	Auto
SDI B	Color Space	Film
	Film/Video	Video

Vide (E)

Incoming video is assumed to have no 3:2/2:2 content.

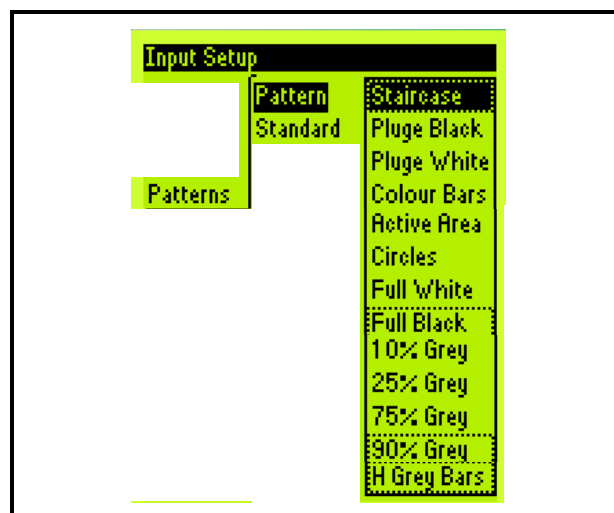
Input Setup		
DVI	Source	PC
		Link In

DVI (E)

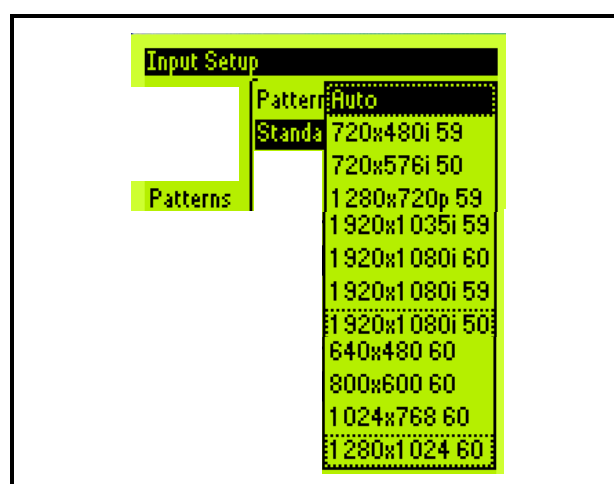
The signal at the PCIN/(LINK IN) connector may be either a DVI signal from, for example a PC or from another Supervisor type unit. This function allows either of the signal formats to be selected.

Patterns (U)

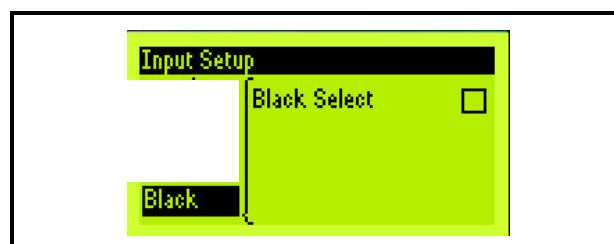
These items allow a pattern to be selected. This pattern signal is used as an input selection in the Input Select menu.

**Standard (E)**

This item allows the standard of the pattern to be selected.

**Black (E)**

When **Black Select** is checked this will select a black signal at the input standard.



Picture (U)**Zoom (U)**

This function allows the size of the picture to be changed.

Note that these ranges will depend on the resolution of the input.

V Zoom (U)

%	33	300	100	0.1
units	min	max	default	step

H Zoom (U)

%	33	300	100	0.1
units	min	max	default	step

Lock Aspect Ratio (E)

When checked the Vertical and Horizontal Zoom functions will be locked together so that the aspect ratio is maintained.

Origin (E)

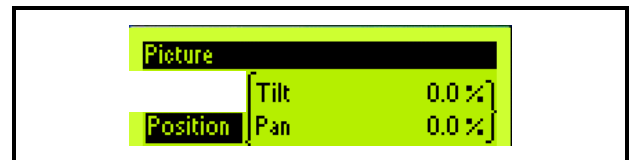
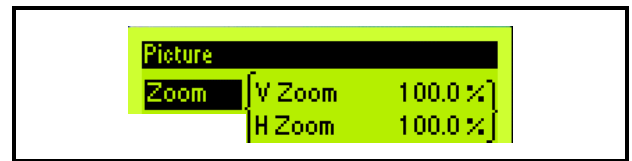
The origin (the stationary point from where all changes are made) is with respect to the input active area. It may be chosen as either the **Top Left** or the **Center**.

Position (U)**Tilt (U)**

%	-75	75	0	0.1
units	min	max	default	step

Pan (U)

%	-75	75	0	0.1
units	min	max	default	step



Enhance (U)

This function allows horizontal and vertical enhancement to the picture.

V Enhance (U)

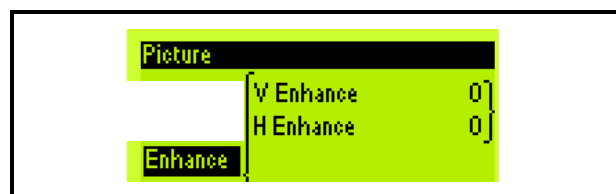
This function applies vertical aperture correction (VAC) to the source signal and effects the vertical resolution of the picture.

Value	-2	3	0	1
units	min	max	default	steps

H Enhance (U)

This function applies horizontal aperture correction to the source signal and is effective in the higher frequency bands of the signal.

Value dB	-2	3	0	1
units	min	max	default	steps

**Effects (E)****Monochrome (E)**

When checked the output picture will become monochrome.

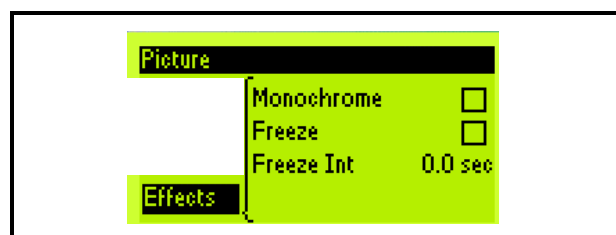
Freeze (E)

When checked the output picture will become frozen.

Freeze Int (E)

This is the freeze interval time. Setting it to anything other than zero will cause a strobe effect freeze.

seconds	0	3	0	0.1
units	min	max	default	step



Output (U)

This menu allows various options to be selected for the output signal.

Outputs

DVI and VGA(E)

This allows the DVI and the VGA outputs to be selected as either the Main or the Preview signal.

Preview (E)

The Preview output may be selected as Scaler, Color Wash, O/P Pattern, Main, or OSD only.

Syncs (U)

The default value is dependent on the output resolution. VGA Mode: Active Low / SVGA Mode: Active High / XGA Mode: Active Low / SXGA Mode: Active High.

Screen (U)

The screen settings define a 'virtual' output active area. Output blanking is automatically calculated so that video can never appear outside of the virtual active area.

Note that this setting will be stored for each output resolution (not frame rate).

Note also that these ranges will depend on the resolution of the input.

Width

pixels	128	1280	1280	1
units	min	max	default	step

Height

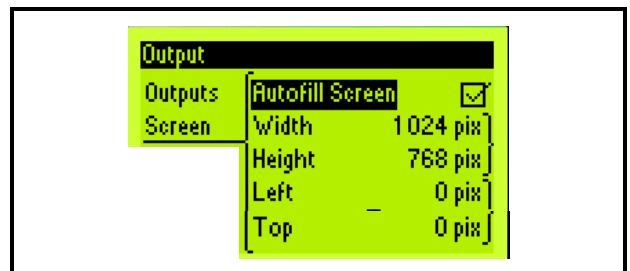
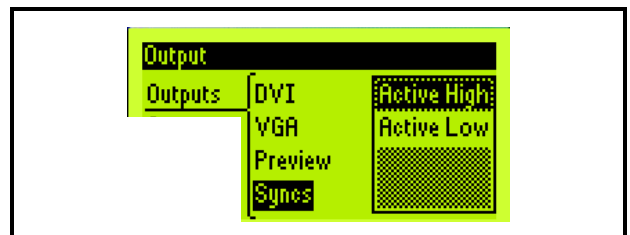
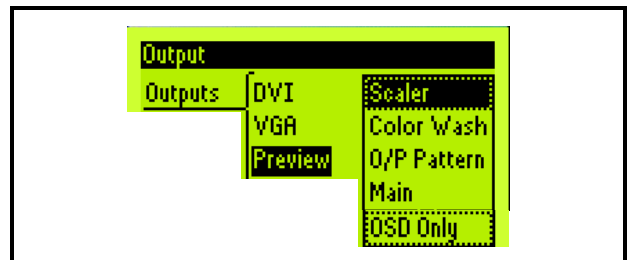
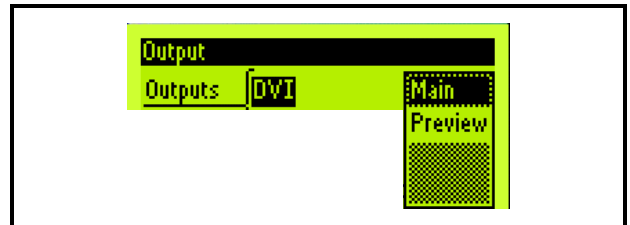
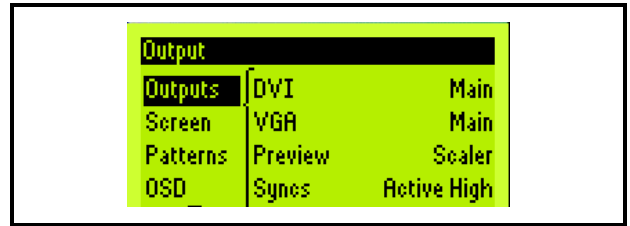
pixels	96	1024	1024	1
units	min	max	default	step

Left

pixels	0	1280	0	1
units	min	max	default	step

Top

pixels	0	1024	0	1
units	min	max	default	step

**Autofill Screen (U)**

When Autofill Screen is enabled, video and test patterns will automatically be scaled and positioned to fit inside the output window. But remember that there are practical limits to the amount of down-sampling that can be applied to a signal and still achieve an output of acceptable quality. Thus if the screen size is set too small, it may not be possible to fit the video or test pattern completely inside it.

Patterns

This allows a pattern to be selected as the output.

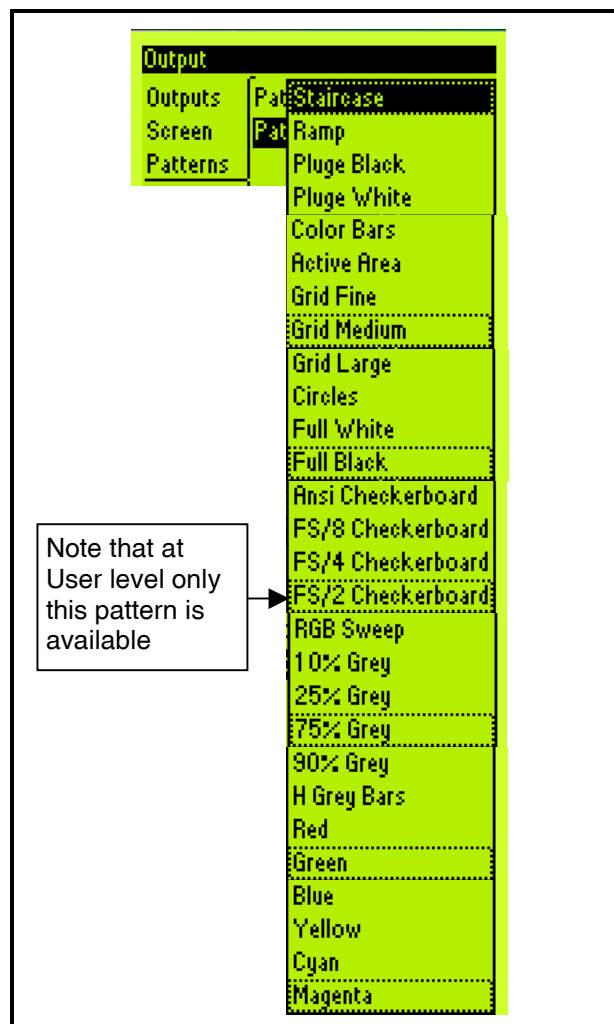
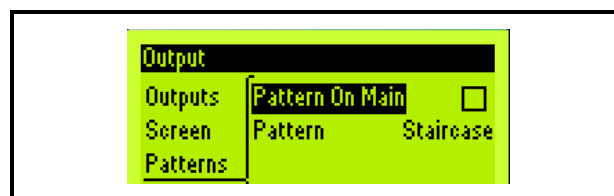
Pattern On Main

When enabled the selected pattern will become the output.

Pattern

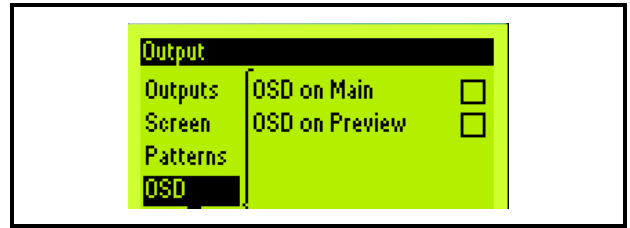
A pattern may be selected from the list.

Note that at User level only the FS/2 Checkerboard pattern is available; at Engineering and Supervisor levels all patterns are available.



OSD (On Screen Display) (E)

This function allows a picture of the front panel display to be overlaid over the output picture.

**(E)**

When added to the Main Output (**OSD on Main** checked) the text will appear white on a 50% transparent background.



OSD on Main Output

(E)

When added to the Preview **Output (OSD on Preview** checked) the text will appear yellow on a 50% transparent background.



OSD on Preview Output

When nothing is checked the function is disabled.



OSD Disabled

Wash (E)

The default screen color may be set with this item.

Wash On Main (E)

When checked the main output will become the color set by the Red, Green and the Wash item.
When unchecked the main output will display the normal output picture.

Red, Green, Blue (E)

This allows the color to be changed.

Color	min	max	default	step
R	0	255	0	1
G	0	255	128	1
B	0	255	163	1

Standard (U)

This function allows the output standard to be set.

Resolution (U)

This function allows the output resolution to be set.

LX Emulation (S)

Note that the 1280x1024 option is not available for LX Emulation.

When enabled, this option causes the unit to mimic the output resolution of the Supervisor LX. It only applies to 640x480, 800x600 and 1024x768 options.

Frequency (U)

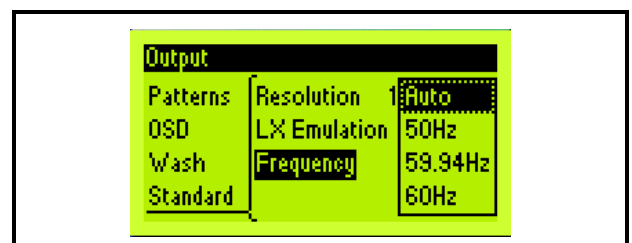
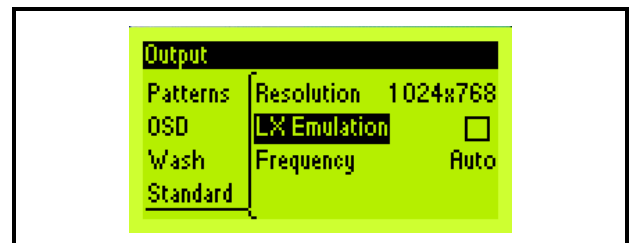
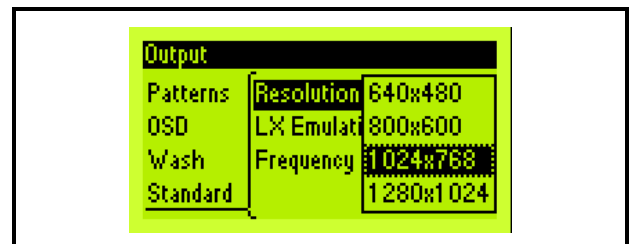
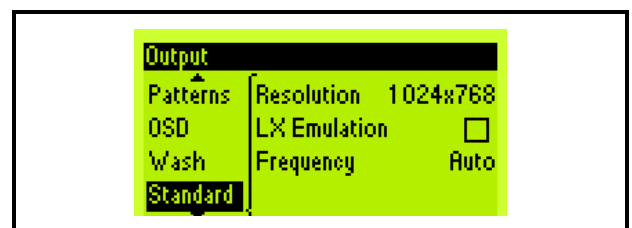
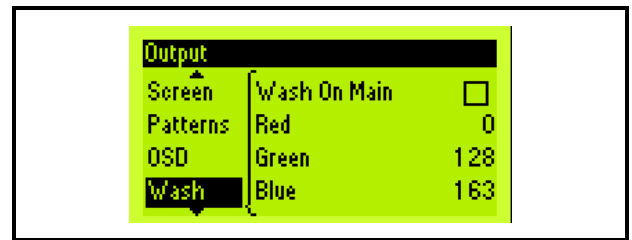
Selecting any of 50, 59.94 or 60 Hz, guarantees that the output frequency will always be as selected. Selecting auto allows the unit to determine the optimum output frequency for the current reference source. For both Internal and Input reference sources, the output frequency is derived from the input frequency.

If the input is video then the output frequency is determined by whether the input frequency belongs to a 50, 59.94 or 60Hz family.

For a PC input, the output frequency is determined by whether the input frequency is closest to 50, 59.94 or 60Hz.

If the input is test pattern but not in auto standard, then the output frequency is determined by whether the test pattern frequency belongs to a 50, 59.94 or 60Hz family.

Note that 60Hz is not available for LX Emulation mode.



ColTemp (E)

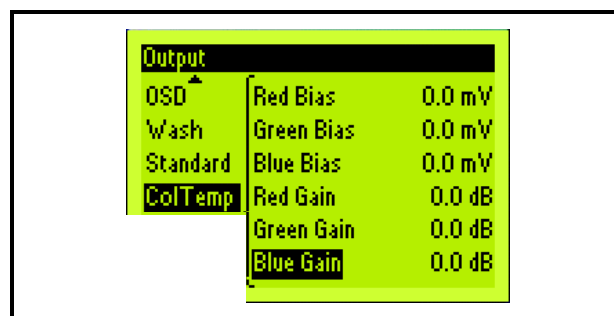
This menu allows the color temperature of the PC picture to be adjusted.

Red, Green, Blue Bias (E)

Value mV	-50	50	0	0.1
units	min	max	default	step

Red, Green, Blue Gain

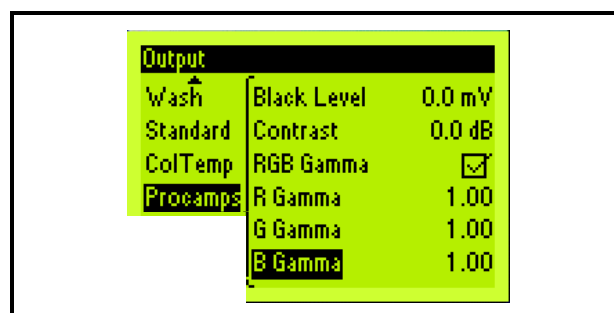
Value dB	-2	2	0	0.1
units	min	max	default	step

**Procamps (E)**

Black Level (E)

This function allows the black level (brightness) of the display picture to be adjusted.

Level mV	-150	150	0	0.5
units	min	max	default	steps



Contrast (E)

This function allows the contrast (gain) of the display picture to be adjusted.

Value dB	-2	2	0	0.1
units	min	max	default	steps

RGB Gamma (S)

When checked the RGB values of Gamma will be locked together.

R Gamma, G Gamma, B gamma (S)

These items adjust the Red, Green and Blue gamma curves.

Gamma	0.1	3	1	0.05
units	min	max	default	step

Border (E)

This allows a border around the output picture to be created.

Border On/Off (E)

Checking this item will enable the border.

Red, Green and Blue (E)

These functions allow the color of the border to be set.

Note also that these ranges will depend on the resolution of the output.

Left (E)

pixels	0	1280	0	1
units	min	max	default	step

Right (E)

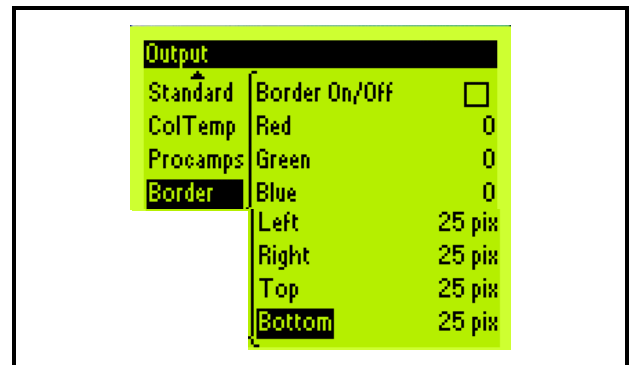
pixels	0	1280	0	1
units	min	max	default	step

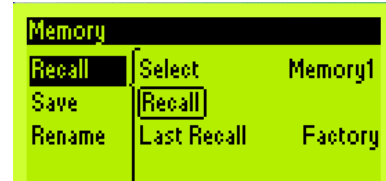
Top(E)

pixels	0	1024	0	1
units	min	max	default	step

Bottom (E)

pixels	0	1024	0	1
units	min	max	default	step



Memory (U)**Recall (U)**

Select (U)

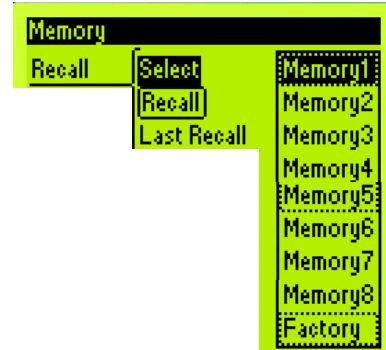
This allows the memory location to be highlighted.

The **Factory** item will recall the factory settings.

When selected the settings in the highlighted memory location will be recalled.

Last Recall (U)

This is a read only value that reports the last memory that was recalled. It is initially blank.

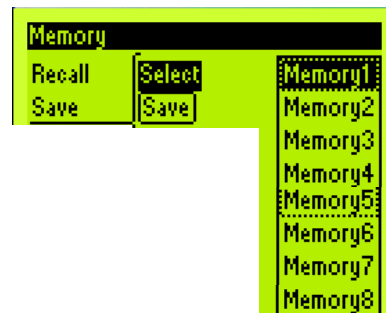
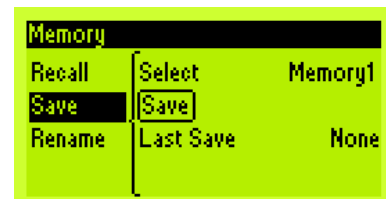
**Save (U)**

Select (U)

This allows the memory location to be highlighted.

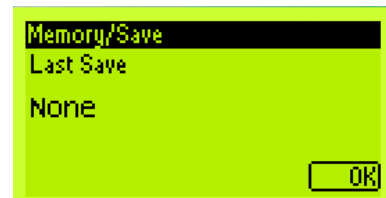
When selected the current settings will be saved in the highlighted memory location.

Note that the user may only save memory 1, 2, 3 and 4 locations.



Last Save (U)

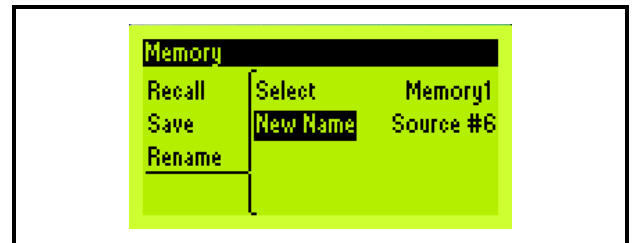
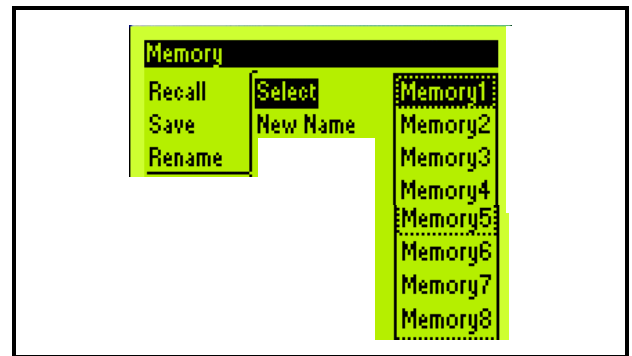
This is a read only value that reports the last memory that was saved. It is initially blank.



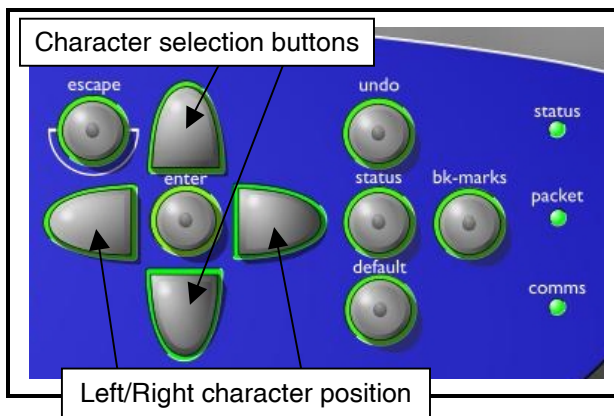
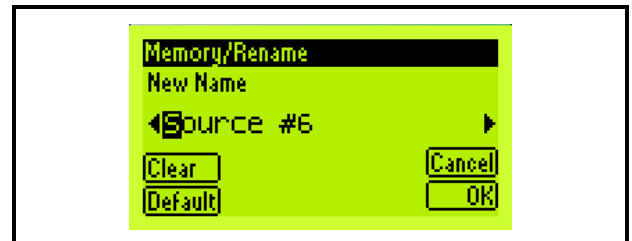
Rename (U)**Select (U)**

This allows the memory location to be highlighted.

Note that the user may only select memory 1, 2, 3 and 4 locations.

**New Name (U)**

The selected memory location may be renamed by selecting the old name and editing it using the scroll buttons. The character will be highlighted and its position selected using the left/right buttons. The character may be changed using the up/down buttons.



Selecting **Clear** will clear the character.

Selecting **Default** will clear the name to the default name.

Selecting **OK** will save the new name.

Selecting **Cancel** will cancel any changes made to the name and return to the previous menu.

Reference (E)

This allows the genlock functions to be setup.

Source (E)

This allows the source of the reference signal to be selected.

Internal (E)

This sets the unit into free run.

Ext Auto (E)

The unit will look first for a reference signal on **Ext Analog**. If none is found or lock cannot be achieved, the unit will look for a reference signal on **Ext Digital**.

Ext Analog (E)

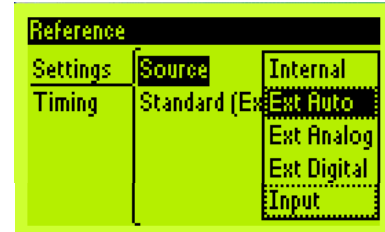
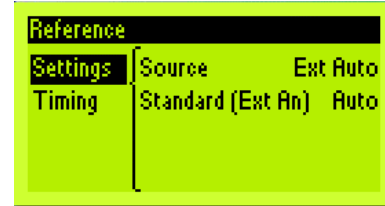
The unit will attempt to lock to the external analog reference signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the reference source signal is from an incompatible family.

Ext Digital (E)

The unit will attempt to lock to the external digital reference signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the reference source signal is from an incompatible family.

Input (E)

The unit will attempt to lock to the current live input signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the current live input signal is from an incompatible family. Note also that the unit will be forced into free run if the current live input is PC or VHS.



Standard (E)

This allows the standard of the reference signal to be chosen.

If **Auto** is selected the unit will automatically lock to a valid reference signal.

Reference		
Settings	Source	Internal
Timing	Standard (Ext An)	Auto

Reference		
Settings	Source	Auto
Timing	Standards	720x480i 59 720x576i 50 1280x720p 59 1920x1035i 59 1920x1080i 59 1920x1080i 50 1920x1080s 29 1920x1080s 25 1920x1080s 23

Timings (S)

Note that the timing adjustments will have no effect when the selected reference source is internal.

V Timing (S)

pixels	-2000	2000	0	1
units	min	max	default	step

H Timing (S)

pixels	-3000	3000	0	1
units	min	max	default	step

Note that the above ranges will depend on the selected standard.

Reference		
Settings	H Timing	0 pix
Timing	V Timing	0 lines

GPI/O (E)

For more details please refer to Section 5 Appendix 1.

Setup (E)

Enable (E)

When checked all GPI ports will be enabled. When unchecked all ports will be disabled.

Mode (E)

This allows the GPI mode of operation to be selected.

Normal (E)

In this mode each of the GPI inputs will operate independently. The operation will be as configured by the **Function** item.

Binary In (E)

In this mode, the four GPI inputs are configured to receive a four-bit binary code that allows the input signal to be selected..

Note that in this mode the Function, Action and Trigger items will not be available and will be grayed out.

Overview

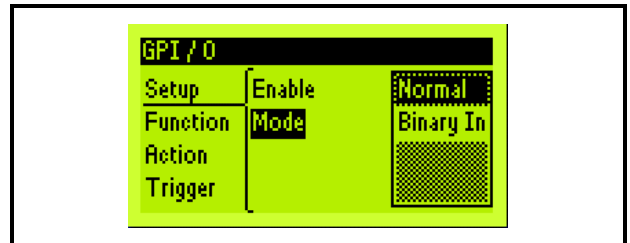
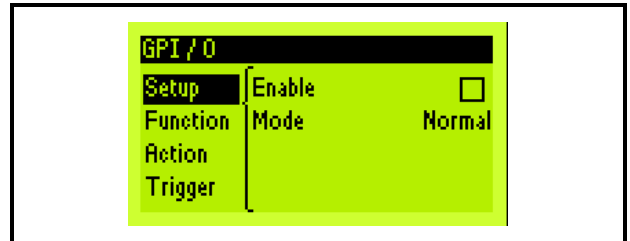
In this mode, the binary value presented on the GPI/O will control the input selection.

The GPI/O input ports are 'active low':

A low or negative voltage difference, or closed circuit results in an internal logic 1, or Active state.

A high or positive voltage difference, or open circuit results in an internal logic 0, or 'Inactive' state.

A transition to value 0 will select the CVBS A input, a transition to value 1 will select CVBS B input and so on up to value 9 which will select Pattern input. Values from 10 to 15 are unused, and a transition to any of these values will not affect the current selection. The binary value is de-bounced: the same value must be present for 100 ms to become valid.

**GPI Binary Input Function**

GPI Binary Port				Selected Input
4	3	2	1	
0	0	0	0	CVBS A
0	0	0	1	CVBS B
0	0	1	0	YC A
0	0	1	1	YC B
0	1	0	0	Component/PC
0	1	0	1	SDI A
0	1	1	0	SDI B
0	1	1	1	DVI
1	0	0	0	Black
1	0	0	1	Pattern
1	0	1	0	(no effect)
1	0	1	1	(no effect)
1	1	0	0	(no effect)
1	1	0	1	(no effect)
1	1	1	0	(no effect)
1	1	1	1	(no effect)

Note: GPI/O 1 is LSB, GPI/O 4 is the MSB.

Function Ports 1, 2, 3, and 4 (E)

For more details please refer to Section 6 Appendix 2.

This allows GPI ports 1, 2, 3, and 4 to be configured.

GPI / 0		
Setup	Port 1	Input
Function	Port 2	Output
Action	Port 3	Unused
Trigger	Port 4	Unused

Unused (E)

When selected the port is inactive.

Input (E)

When selected the port is configured as an input.

Output (E)

When selected the port is configured as an output.

Tally (E)

When selected the port is configured to produce a tally output to drive lamps etc.

GPI / 0		
Setup	Port 1	Unused
Function	Port 2	Input
Action	Port 3	Output
Trigger	Port 4	Tally

Action Ports 1, 2, 3, and 4 (E)

When the GPI port is configured as an input and it receives a valid input the settings contained in the selected memory location will be recalled.

GPI / 0		
Setup	Port 1	Memory1
Function	Port 2	Memory2
Action	Port 3	Memory3
	Port 4	Memory4
		Memory5
		Memory6
		Memory7
		Memory8

Trigger Ports 1, 2, 3, and 4 (E)

When the GPI port is configured as an output the port will become a closed contact when triggered by the selected item e.g. if an Input Error occurs.

GPI / 0		
Setup	Port 1	Input OK
Function	Port 2	Input Error
Action	Port 3	Ref OK
Trigger	Port 4	Ref Error
	Port 4	Booted

System (U)

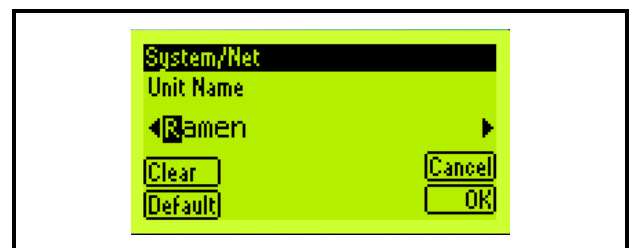
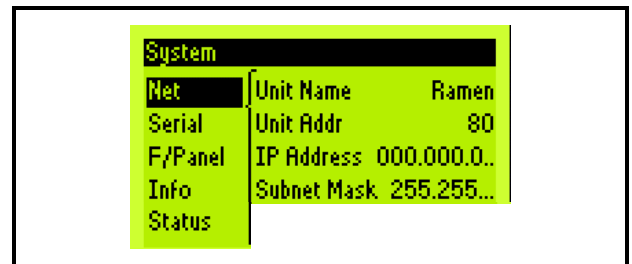
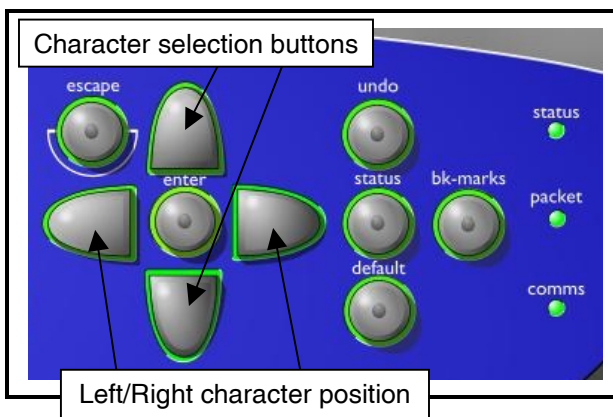
This function displays information that is used on the RollCall network.

Net (S)

This allows the units communication system to be configured.

Unit Name (S)

The name of the unit (as seen on the RollCall network) may be renamed by selecting the old name and editing it using the scroll buttons. The character will be highlighted its position selected using the left/right buttons. The character may be changed using the up/down buttons.



Selecting **Clear** will clear the character.

Selecting **Default** will clear the name to the default name.

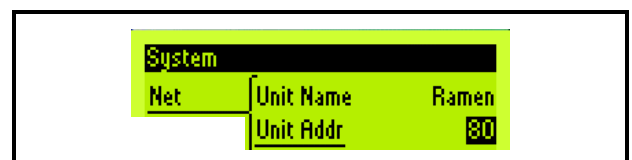
Selecting **OK** will save the new name.

Selecting **Cancel** will cancel any changes made to the name and return to the previous menu.

Unit Addr (S)

The unit RollCall address may be selected here using the buttons as described above.

Address	17	255	255	1
units	min	max	default	step



IP Address (S)

The unit IP address may be entered here using the buttons as described above.

Warning!

IP address, sub net mask and Default Gateway IP address should be set to addresses as required by the local IT manager and should not be altered except by qualified personnel.

As supplied the IP address will be **192.168.151.1**

Subnet Mask (S)

This item may be changed using the buttons as described above.

As supplied the address will be **255.255.0.0**

Gateway Address

This item may be changed using the buttons as described above.

As supplied the address will be **255.255.0.0**

Serial (S)

This allows the speed of the RS422A, RS232A, RS232B and RS422/485 ports to be set.

RS485

When checked the RS422/485 port will become an RS485 port; when unchecked it will be an RS422 port.

F/Panel (E)

The appearance of the front panel LCD display area may be changed with these controls.

LCD Bright(ness) (S)

Brightness	0	8	8	1
units	min	max	default	step

LCD Contr(ast) (S)

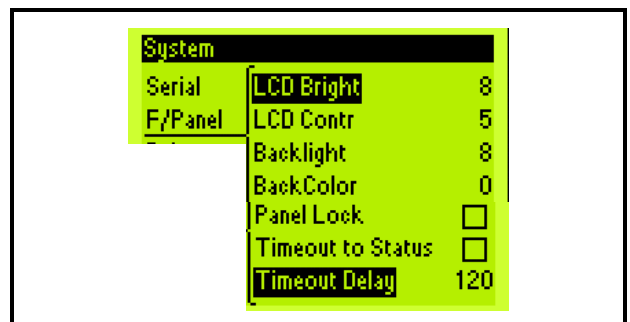
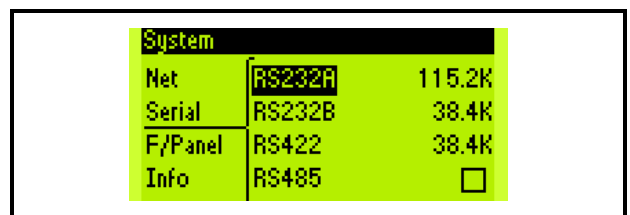
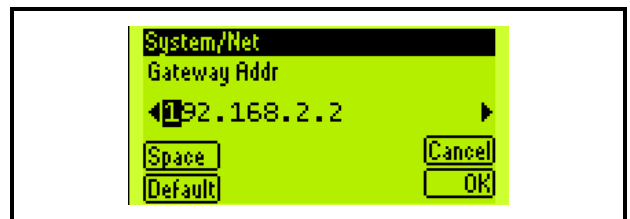
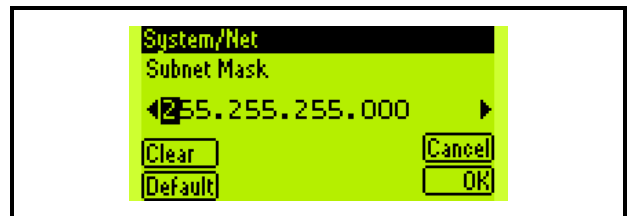
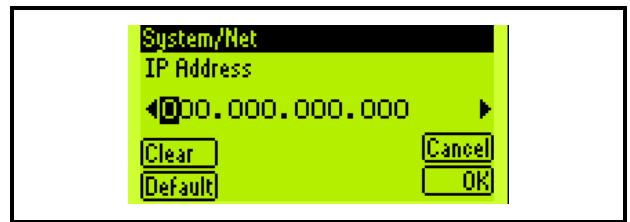
Contrast	0	8	5	1
units	min	max	default	step

Backlight (S)

Backlight	0	8	8	1
units	min	max	default	step

BackColor (S)

Backcolour	0	8	0	1
units	min	max	default	step



Panel Lock (E)

When checked, it will not be possible to control functions via the front panel.

To unlock the panel press any key and follow the on screen instructions.

Timeout to Status

If checked panel reverts to last viewed status screen after the **Timeout Delay**.

Timeout Delay

This can be set between 0 and 300 seconds; default is to 120 seconds.

Info (U)

This provides basic information about the unit.

Note that the information displayed will depend on the access level.

Export Versions (E)

When selected the unit will generate a file containing the version number etc. This can be used as a debugging aid for remote servicing.

Please contact Snell & Wilcox technical assistance for more information.

Status (U)

This shows the status of the current setup of the unit.

System	
Serial	Serial No. 123456789
F/Panel	Product Id FGAX 390..
Info	Product Version #1
	Software Version 1.0.0
	MAC Address 00:00:00..
	[Export Versions]

System	
Serial	Input LOSS
F/Panel	Loss Action No Act.
Info	Input Std NTSC*
Status	Input Format
	Live Input CVBS A
	Comp'nt Source
	Reference LOCKED
	Color Lock FAIL
	Ref. Standard 720x48..
	Ext Analog LOSS
	Ext Digital LOSS
	Output Freq. 59.94Hz*
	Film/Video *
	Input Select CVBS A
	Output Resolution 102..
	Zoom Factor H x7.25 ..
	Product Name Supervis..
	Unit Address 2C
	Unit Name Supervisor 1
	IP Address 192.168.1...

System/Status	
Input	
LOSS	
[OK]	

System/Status	
Loss Action	
No Act.	
[OK]	

RollCall PC Control Panel screens for the Supervisor LH**Operating Levels**

There are 3 levels of complexity of operation and depend on the access level. These are User, Engineering & Supervisor levels.

User Level

This is a very simple level of operation and all non-user controls will be hidden from view but will retain the values set at Engineering or Supervisor levels.

Engineering Level

This is an intermediate level of operation and all non-user/engineering controls will be hidden from view but will retain the values set at Supervisor level.

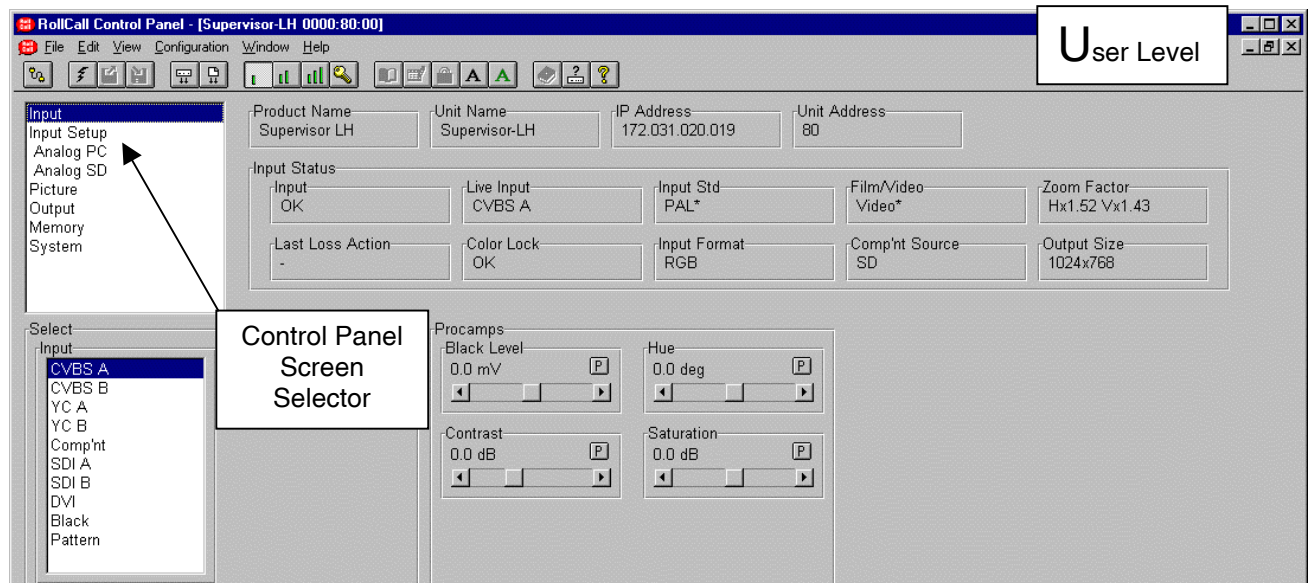
Supervisor Level

Full access to all controls is provided.

*Note that recalling the **Factory** memory item only resets currently available controls to their default settings but leaving higher level control settings unchanged.*

RollCall PC Control Panel Screens for the Supervisor LH (User level)

Input



For this and other screens the following applies:

Selecting the **P** symbol will return the item to its default value.

Selecting the **→** symbol will save the new value.

The following format is used to give the range, the default value and the incremental steps of a control function.

Value	0.5	10	3	0.5
units	min	max	default	steps

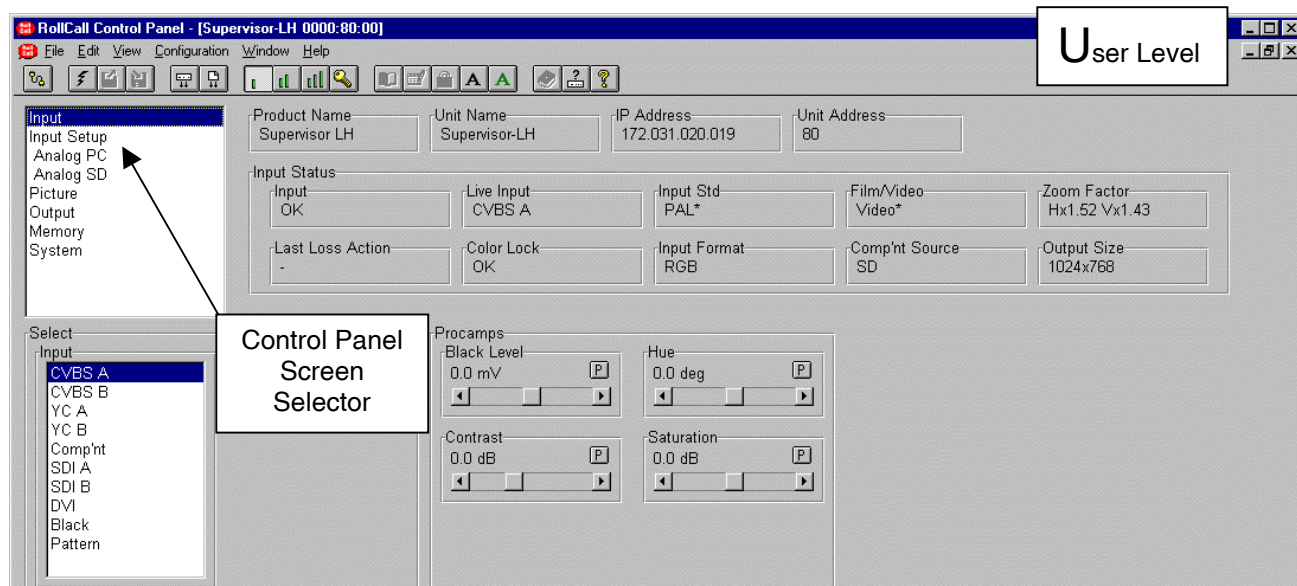
Select/Input list

This allows the signal input for the unit to be selected. Selections are as follows:

CVBS A	Composite A
CVBS B	Composite B
YC A	Separated A
YC B	Separated B
Comp'nt	Analog SD Video (Component Y,Pb,Pr / YUV, or GBR), or Analog PC
SDI A	Serial Digital A SD or HD
SDI B	Serial Digital B SD or HD
DVI	Digital Video Interface
Black	Black picture
Pattern	A selected pattern

Note that any control adjusted in the Select box acts upon the currently selected input, and is recalled per input.

Input (continued)



Procamps

They are stored for each input source. This provides various adjustments to allow the input signal to be normalized. These would normally only be adjusted after the display device settings, and Output Procamps have been adjusted. They are stored for each input source.

The most important point to remember is that the Input Procamps only make adjustments to individual inputs, and the Output Procamps change the way all inputs look.

The Input Procamps can also be used to correct for errors in the source signals that remain even when the external source's test patterns appear correct, or simply to increase 'impact' by increasing color (increase color Saturation control), and contrast (increase Contrast control, and typically reduce the Input Black Level slightly).

*Note that this menu is not available when DVI is the current input and **Link In** is the selected DVI function.*

Black Level

This function allows the black level (brightness) of the selected source to be adjusted.

Level mV	-150	150	0	0.5
units	min	max	default	steps

Contrast

This function allows the contrast (gain) of the selected source to be adjusted.

Value dB	-3	6	0	0.1
units	min	max	default	steps

Saturation

This function allows the color level (saturation) of the selected source to be adjusted.

Value dB	-3	3	0	0.1
units	min	max	default	steps

Note that this function is not available for PC inputs.

Hue

This function allows the tint (hue) of the selected source to be adjusted.

Value degrees	-30.8	30.8	0	1.4
units	min	max	default	steps

Note that this function is only available for video inputs.

Input Setup

RollCall Control Panel - [Supervisor-LH 0000:80:00]

File Edit View Configuration Window Help

User Level

Input Setup

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Input Status

Input: OK	Live Input: CVBS A	Input Std: PAL*	Film/Video: Video*	Zoom Factor: Hx1.52 Vx1.43
Last Loss Action: -	Color Lock: OK	Input Format: RGB	Comp'nt Source: SD	Output Size: 1024x768

Patterns

Pattern

- Staircase
- Pluge Black
- Pluge White
- Colour Bars
- Active Area
- Circles

Patterns

This item allows a pattern and its format to be selected. This pattern signal is used as an input selection in the Input Select screen.

Analog PC

RollCall Control Panel - [Supervisor-LH 0000:80:00]

File Edit View Configuration Window Help

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Input Status

Input: OK	Live Input: CVBS A	Input Std: PAL*	Film/Video: Video*	Zoom Factor: Hx1.52 Vx1.43
Last Loss Action: -	Color Lock: OK	Input Format: RGB	Comp'nt Source: SD	Output Size: 1024x768

Analog PC

PC Format

PC Format

This screen has no function at user level.

Analog SD

RollCall Control Panel - [Supervisor-LH 0000:00:00]

File Edit View Configuration Window Help

User Level

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Input Status

Input: OK	Live Input: CVBS A	Input Std: PAL*	Film/Video: Video*	Zoom Factor: Hx1.52 Vx1.43
Last Loss Action: -	Color Lock: OK	Input Format: RGB	Comp't Source: SD	Output Size: 1024x768

Analog SD

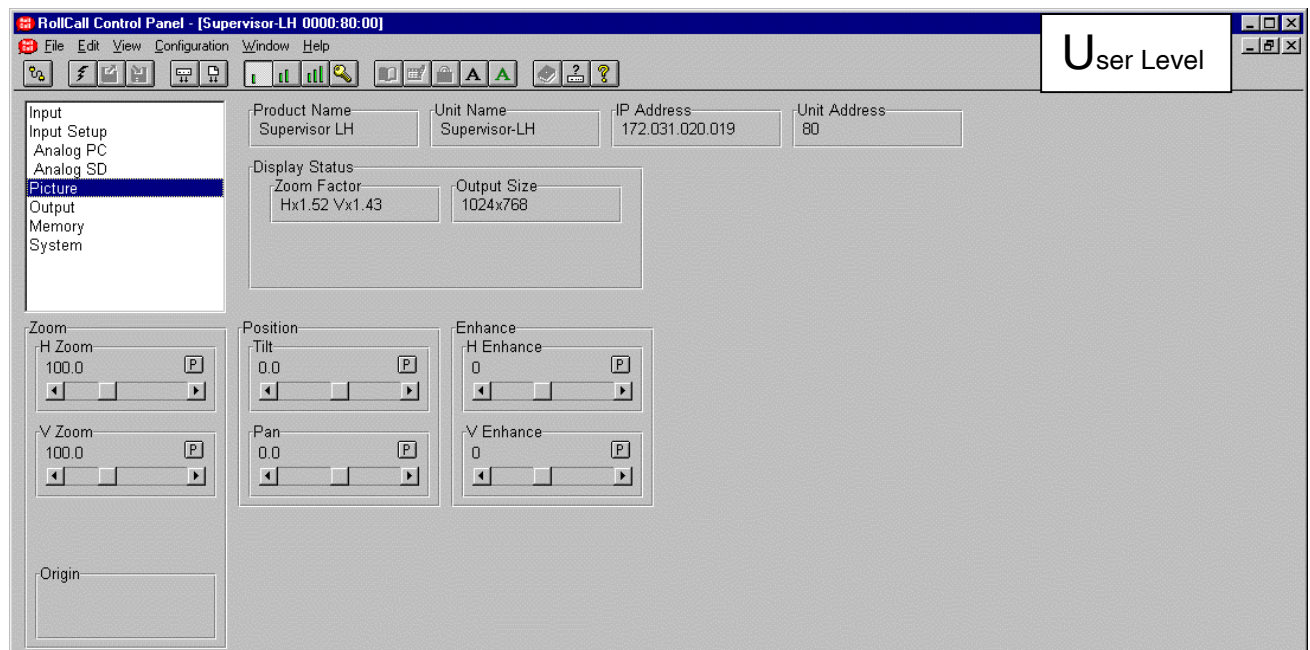
SD Format

- RGB (Auto)
- YPbPr (Auto)

SD Format

The unit may be forced to accept the format selected from the list. When (xxx) **Auto** is selected the unit will automatically detect the signal in that format.

Picture



Zoom

This function allows the size of the picture to be changed.

V Zoom

%	33	300	100	0.1
units	min	max	default	step

H Zoom

%	33	300	100	0.1
units	min	max	default	step

Position

This moves the scaled picture within the output window, allowing repositioning of part of an input picture that has been Zoomed.

The controls can be used in conjunction with the Zoom controls to center on an area of interest within the source, so that subsequent Zooms maintain that point in the center of the output.

Tilt

%	-75	75	0	0.1
units	min	max	default	step

Pan

%	-75	75	0	0.1
units	min	max	default	step

Enhance

This function allows horizontal and vertical enhancement to the picture.

V Enhance

This function applies vertical aperture correction (VAC) to the source signal and effects the vertical resolution of the picture.

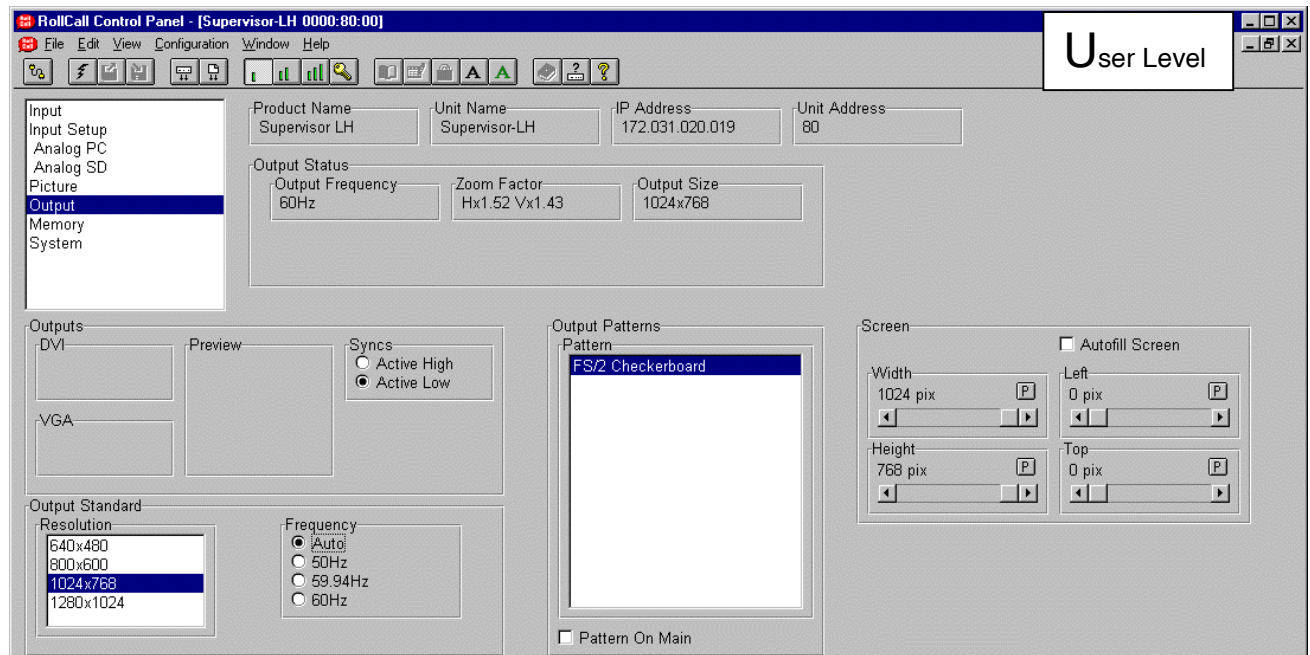
Value	-2	3	0	1
units	min	max	default	steps

H Enhance

This function applies horizontal aperture correction to the source signal and is effective in the higher frequency bands of the signal.

Value	-2	3	0	1
units	min	max	default	steps

Output



Output Standard

This function allows the output standard to be set.

Resolution

This function allows the output resolution to be set.

Note that the 1280x1024 option is not available for LX Emulation.

Frequency

Selecting any of 50, 59.94 or 60 Hz, guarantees that the output frequency will always be as selected. Selecting auto allows the unit to determine the optimum output frequency for the current reference source. For both Internal and Input reference sources, the output frequency is derived from the input frequency.

If the input is video then the output frequency is determined by whether the input frequency belongs to a 50, 59.94 or 60Hz family.

For a PC input, the output frequency is determined by whether the input frequency is closest to 50, 59.94 or 60Hz.

If the input is test pattern but not in auto standard, then the output frequency is determined by whether the test pattern frequency belongs to a 50, 59.94 or 60Hz family. Note that 60Hz is not available for LX Emulation mode.

Syncs

The default value is dependent on the output resolution. VGA Mode: Active Low / SVGA Mode: Active High / XGA Mode: Active Low / SXGA Mode: Active High /

Output Patterns

This allows a pattern to be selected as the output.

Pattern On Main

When enabled the selected pattern will become the output.

Note that at User access level, selection of Output Test Patterns is restricted to FS/2 Checkerboard. If another pattern has been selected at a higher level, this will also appear in the list (and will function), but will be disappear from the list once FS/2 Checkerboard has been selected.

Output (continued)**Screen**

The screen settings define a 'virtual' output active area. Output blanking is automatically calculated so that video can never appear outside of the virtual active area.

Note that this setting will be stored for each output resolution (not frame rate).

Note that these ranges will depend on the resolution of the output.

Left

pixels	0	1280	0	1
units	min	max	default	step

Width

pixels	128	1280	1280	1
units	min	max	default	step

Top

pixels	0	1024	0	1
units	min	max	default	step

Height

pixels	96	1024	1024	1
units	min	max	default	step

Autofill Screen

When Autofill Screen is enabled, video and test patterns will automatically be scaled and positioned to fit inside the output window. But remember that there are practical limits to the amount of down-sampling that can be applied to a signal and still achieve an output of acceptable quality. Thus if the screen size is set too small, it may not be possible to fit the video or test pattern completely inside it.

Memory

Recall

Select

This allows the memory location to be highlighted.

The **Factory** item will recall the factory settings.

Recall

When selected the settings in the highlighted memory location will be recalled.

Last Recall

This is a read only value that reports the last memory that was recalled. It is initially blank.

Save

Note that the user may only save memory 1, 2, 3 and 4 locations.

Select

This allows the memory location to be highlighted.

Save

When selected the current settings will be saved in the highlighted memory location.

Last Save

This is a read only value that reports the last memory that was saved. It is initially blank.

Rename

Note that the user may only save memory 1, 2, 3 and 4 locations.

Select

This allows the memory location to be highlighted.

New Name

A new name for the selected memory location may be typed into the text area.

Selecting the  symbol will save the new name.

Selecting the  symbol will return the name to its default value.

System

The screenshot displays the 'RollCall Control Panel' software interface for a 'Supervisor-LH' unit. The window title is 'RollCall Control Panel - [Supervisor-LH 0000:00:00]'. The menu bar includes File, Edit, View, Configuration, Window, and Help. The toolbar contains various icons for file operations and system functions. A 'User Level' box in the top right corner shows 'U'.

On the left is a vertical navigation menu with the following items: Input, Input Setup, Analog PC, Analog SD, Picture, Output, Memory, and **System** (which is highlighted).

The main configuration area is divided into several sections:

- Product Information:** Product Name (Supervisor LH), Unit Name (Supervisor-LH), IP Address (172.031.020.019), and Unit Address (80).
- Info:** A large text area containing the Software Version (LH20D15a 44).
- Status:** A grid of status indicators:
 - Input: OK
 - Live Input: CVBS A
 - Input Std: PAL*
 - Output Freq: 60Hz
 - Film/Video: Video*
 - Output Size: 1024x768
 - Last Loss Action: -
 - Color Lock: OK
 - Input Format: RGB
 - Comp'nt Source: SD
 - Zoom Factor: Hx1.52 Vx1.43
 - Reference: LOSS
 - Ref. Standard: *
 - Ext Analog: LOSS
 - Ext Digital: LOSS
- F/Panel:** A large empty rectangular area at the bottom.

Info

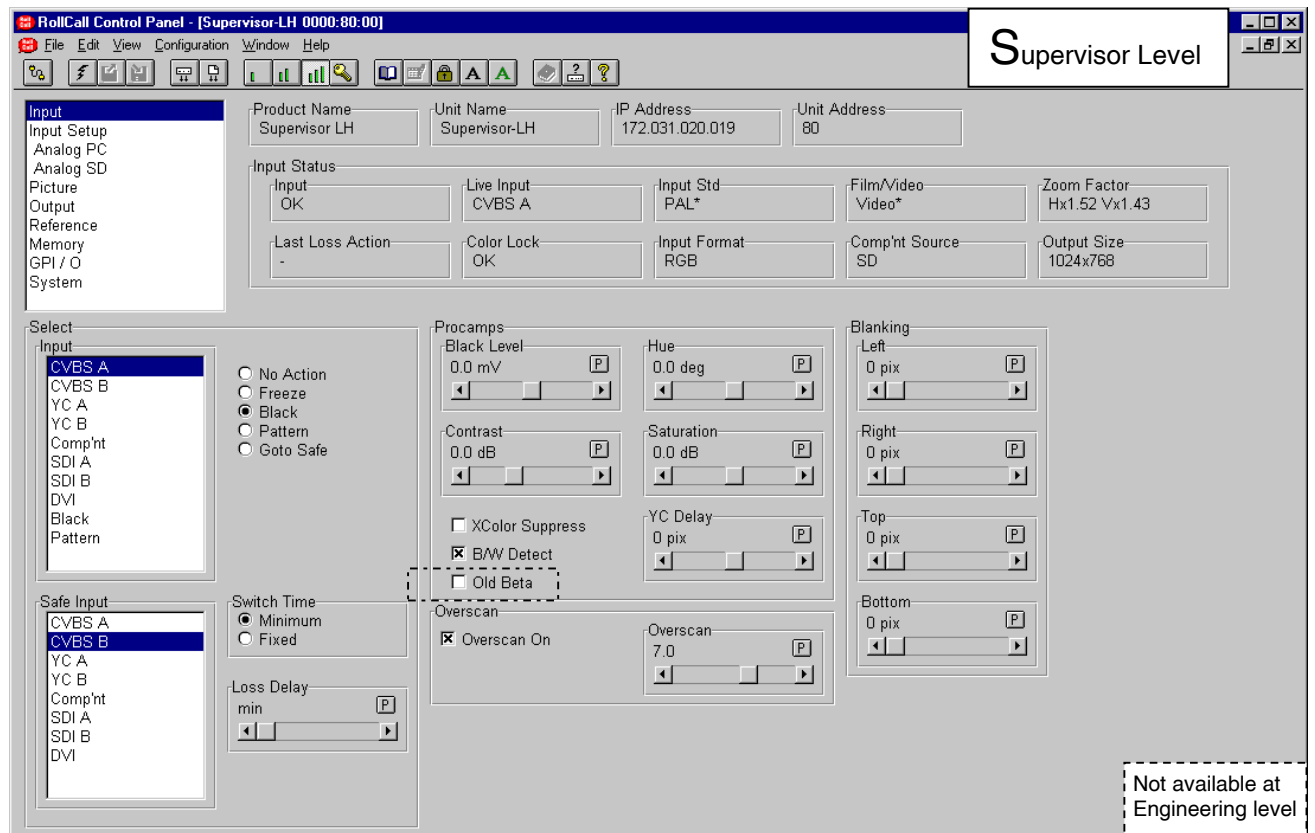
This provides basic information about the unit.

Status

This area provides shows the status of various items showing the current setup of the unit.

RollCall PC Control Panel Screens for the Supervisor LH (Supervisor level)

Input



Scroll Bars



For this and other screens the following applies:

Selecting the **P** symbol will return the item to its default value.

Selecting the **→** symbol will save the new value.

The following format is used to give the range, the default value and the incremental steps of a control function.

Value	0.5	10	3	0.5
units	min	max	default	steps

Select

This allows the input signal selection parameters to be setup.

Input

This allows the signal input for the unit to be selected.

Selections are as follows:

CVBS A	Composite A
CVBS B	Composite B
YC A	Separated A
YC B	Separated B
Comp't	Component Y, Pb, Pr or GBR
SDI A	Serial Digital A SD or HD
SDI B	Serial Digital B SD or HD
DVI	Digital Video Interface
Black	Black picture
Pattern	A selected pattern

Input (continued)**On Loss**

In the event of signal loss, one of the following actions may be taken.

The **Freeze** action will happen within one frame of a signal loss.

Goto Black, **Goto Pattern** and **Goto Safe** will happen after the specified Loss Delay. In the case of freeze, black and pattern, the picture will be restored if the input returns. In the case of Goto Safe, this does not happen because it changes the current input selection. If no action is selected the unit will do its best to provide a stable picture.

Procamps

This allows various adjustments to be made to the processed signal.

*Note that this menu is not available when DVI is the current input and **Link In** is the selected DVI function.*

Black Level

This function allows the black level (brightness) of the selected source to be adjusted.

Level mV	-150	150	0	0.5
units	min	max	default	steps

Contrast

This function allows the contrast (gain) of the selected source to be adjusted.

Value dB	-3	6	0	0.1
units	min	max	default	steps

Hue

This function allows the tint (hue) of the selected source to be adjusted.

Value degrees	-30.8	30.8	0	1.4
units	min	max	default	steps

Note that this function is only available for video inputs.

Saturation

This function allows the color level (saturation) of the selected source to be adjusted.

Value dB	-3	3	0	0.1
units	min	max	default	steps

Note that this function is not available for PC inputs.

XColor Suppress

By selecting this mode some reduction of cross color can be achieved in addition to suppression of Hanover bars.

This mode could be used where the picture content has a lot of high frequency diagonal luminance. e.g. Small graphics, captions, scrolling titles, checkered patterning etc.

Note that this function is only available for video inputs.

B/W Detect

This is only available for composite (CVBS and YC) inputs.

When enabled, black and white detection (AKA color killer) will remove all traces of color from a genuine black and white picture.

Old Beta

This control normalizes the unit for old BetaCam™ VTRs that output traditional BetaCam™ levels, rather than standard SMPTE/EBU N10 levels. These levels might also appear on dub interfaces and direct camera outputs. The normalization is provided on all interfaces, so those signals that have been poorly transcoded can be easily corrected, regardless of when or where the problem was generated.

Y/C delay

This control allows the relative timing between the luminance and the chrominance signals of the selected source to be adjusted.

Clock pulses	-4	4	0	1
units	min	max	default	steps

Note that this function is only available for video inputs.

Overscan

Note that this menu is not available when DVI is the current input and Link In is the selected DVI function.

Overscan On

When enabled this allows the picture to overscan the display area by a set amount.

Amount %	-2	12	5	0.1
units	min	max	default	steps

Blanking

This function allows the picture to be blanked from the display using four controls for each side of the picture.

Note that this function is not available when DVI is the current input and Link In is the selected DVI function.

Note that these ranges will depend on the resolution of the input.

Left

pixels	0	640	0	1
units	min	max	default	step

Right

pixels	0	640	0	1
units	min	max	default	step

Top

pixels	0	512	0	1
units	min	max	default	step

Bottom

pixels	0	512	0	1
units	min	max	default	step

Safe Input

This allows an input to be chosen as the signal that is used when the normal input is lost and the On Loss/Goto Safe item is selected.

Switch Time

The time taken to lock up to an input varies. Typically, analogue inputs are slower to lock than digital ones. Equal switch time introduces an artificial delay into the digital input switching so that switching time is constant across all inputs. Note that switch time is always minimum when changing to a safe input as a result of input loss.

Loss Delay

This specifies the amount of time, after a signal loss, that the unit should wait before taking an on loss action. Note that this does not apply to freeze.

Time sec	0.5	10	3	0.5
units	min	max	default	steps

Input Setup

RollCall Control Panel - [Supervisor-LH 0000:00:00]

File Edit View Configuration Window Help

Supervisor Level

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Input Status: Input OK Live Input CVBS A Input Std PAL* Film/Video Video* Zoom Factor Hx1.52 Vx1.42

Last Loss Action: Color Lock OK Input Format RGB Compht Source SD Output Size 1024x768

Not available at Engineering level

Patterns

Pattern: Staircase Plug Black Plug White Colour Bars Active Area Circles

Standard: Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 59 1920x1080i 60

Compht Source: Auto AnalogSD AnalogPC

DVI Source: PC Loop In

CVBS A

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

VHS

CVBS B

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

VHS

YC A

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

VHS

YC B

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

VHS

SDI A

Standard: Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 60 1920x1135i 59

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

SDI B

Standard: Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 60 1920x1135i 59

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

This screen allows various settings for each of the inputs to be made.

Patterns/Standard

These items allow a pattern and its' standard to be selected. This pattern signal is used as an input selection in the Input Select screen.

CVBS A, CVBS B, YC A, YC B

Standard

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Pedestal

Auto

When selected the pedestal processing will conform to the standard of the selected input.

When **Remove** is selected any pedestal (black level set-up) will be removed from the signal.

Retain

When **Retain** is selected any pedestal (black level set-up) in the input signal will be retained in the output signal.

Film/Video.

This item is only available for a non-VHS source. (A VHS source is always processed as video).

This control can be used to ensure that the Supervisor LH will process incoming video material correctly with respect for and film (3:2/2:2) content.

Auto

Supervisor LH automatically analyzes incoming video and make the appropriate film/video processing decisions.

Film

Incoming video will always be assumed to be 3:2/2:2.

Video

Incoming video is assumed to have no 3:2/2:2 content.

VHS

The unit will be optimized to deal with VHS type signals.

Input Setup (continued)

RollCall Control Panel - [Supervisor-LH 0000:80:00]

File Edit View Configuration Window Help

Supervisor Level

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Input Status: Input OK Live Input CVBS A Input Std PAL* Film/Video Video* Zoom Factor Hx1.52 Vx1.42

Last Loss Action: Color Lock OK Input Format RGB Comp't Source SD Output Size 1024x768

Not available at Engineering level

Patterns

Pattern: Staircase Pluge Black Pluge White Colour Bars Active Area Circles

Standard

Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 59 1920x1080i 60

Comp't Source

Auto AnalogSD AnalogPC

DVI

Source: PC Loop In

CVBS A

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709 VHS

CVBS B

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709 VHS

YC A

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709 VHS

YC B

Standard: Auto NTSC PAL SECAM NTSC 4.43 50 NTSC 4.43 60 PAL 4.43 60

Pedestal: Auto Remove Retain

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709 VHS

SDI A

Standard: Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 60 1920x1035i 59

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

SDI B

Standard: Auto 720x480i 59 720x576i 50 1280x720p 59 1920x1035i 60 1920x1035i 59

Film/Video: Auto Film Video

Color Space: Auto REC 601 SMPTE 274 SMPTE 240 BT 709

SDI A, SDI B

Standard

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Comp'nt

Standard

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

DVI

The signal at the PCIN/(LINK IN) connector may be either a DVI signal from, for example a PC or from another Supervisor type unit. This function allows either of the signal formats to be selected.

AnalogPC

PC Format

This item allows the format of the PC signal input to be set. When set to Auto the unit will automatically accept any of the three formats.

These controls are used for PC Calibration as described on page 4.19.

Offset Left

pixels	-100	100	0	1
units	min	max	default	step

Offset Top

pixels	-100	100	0	1
units	min	max	default	step

H Size

pixels	-500	1500	0	1
units	min	max	default	step

V Size

pixels	-500	1500	0	1
units	min	max	default	step

PLLAdjust

pixels	-100	100	0	1
units	min	max	default	step

Clk Phase

degrees	-180	180	0	11.25
units	min	max	default	step

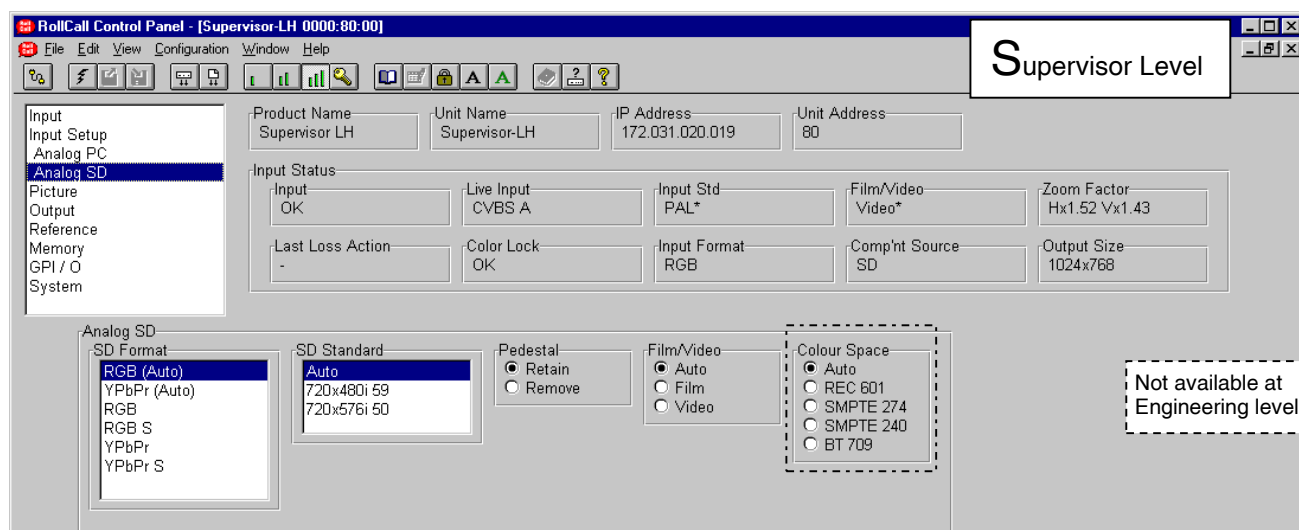
Save

To save a particular PC setup to a memory location, highlight the desired memory location.

Recall

To recall a particular PC setup from a memory location, highlight the desired memory location.

AnalogSD



SD Format

The unit may be forced to accept the format selected from the list. When (xxx) **Auto** is selected the unit will automatically detect the signal in that format.

SD Standard

The unit may be forced to accept the standard selected from the list. When **Auto** is selected the unit will automatically detect the signal in that standard.

Pedestal

Retain

When this is selected any pedestal (black level set-up) in the input signal will be retained in the output signal.

Remove

When this is selected any pedestal (black level set-up) will be removed from the signal.

Film/Video.

This item is only available for a non-VHS source. (A VHS source is always processed as video). This control can be used to ensure that the Supervisor LH will process incoming video material correctly with respect for and film (3:2/2:2) content.

Auto

Supervisor LH automatically analyzes incoming video and make the appropriate film/video processing decisions.

Film

Incoming video will always be assumed to be 3:2/2:2.

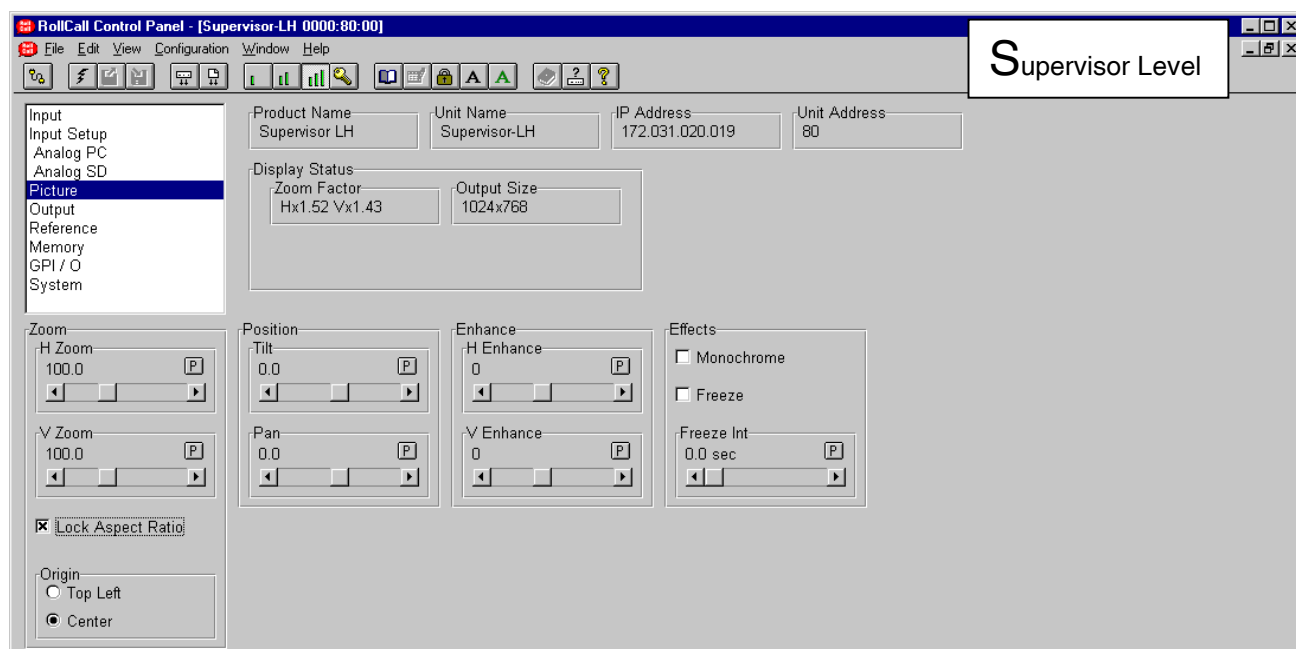
Video

Incoming video is assumed to have no 3:2/2:2 content.

Color Space (not available at Engineering level)

The unit may be forced to accept the color standard selected from the list. When **Auto** is selected the unit will automatically detect the input standard.

Picture



Zoom

This function allows the size of the picture to be changed.

Note that these ranges will depend on the resolution of the input.

V Zoom

%	33	300	100	0.1
units	min	max	default	step

H Zoom

%	33	300	100	0.1
units	min	max	default	step

Position

Tilt

%	-75	75	0	0.1
units	min	max	default	step

Pan

%	-75	75	0	0.1
units	min	max	default	step

Lock Aspect Ratio

When checked the Vertical and Horizontal Zoom functions will be locked together so that the aspect ratio is maintained.

Origin

The origin (the stationary point from where all changes are made) is with respect to the input active area. It may be chosen as either the **Top Left** or the **Center**.

Enhance

This function allows horizontal and vertical enhancement to the picture.

Positive values increase sharpness - this can be particularly useful for increasing 'impact' of an LED screen. Negative values soften the picture, which can be desirable for sources that are artificially sharp.

V Enhance

This function applies vertical aperture correction (VAC) to the source signal and effects the vertical resolution of the picture.

Value	-3	3	0	1
units	min	max	default	steps

H Enhance

This function applies horizontal aperture correction to the source signal and is effective in the higher frequency bands of the signal.

Value	-2	3	0	1
units	min	max	default	steps

Picture (continued)**Effects****Monochrome**

When checked the output picture will become monochrome.

Freeze

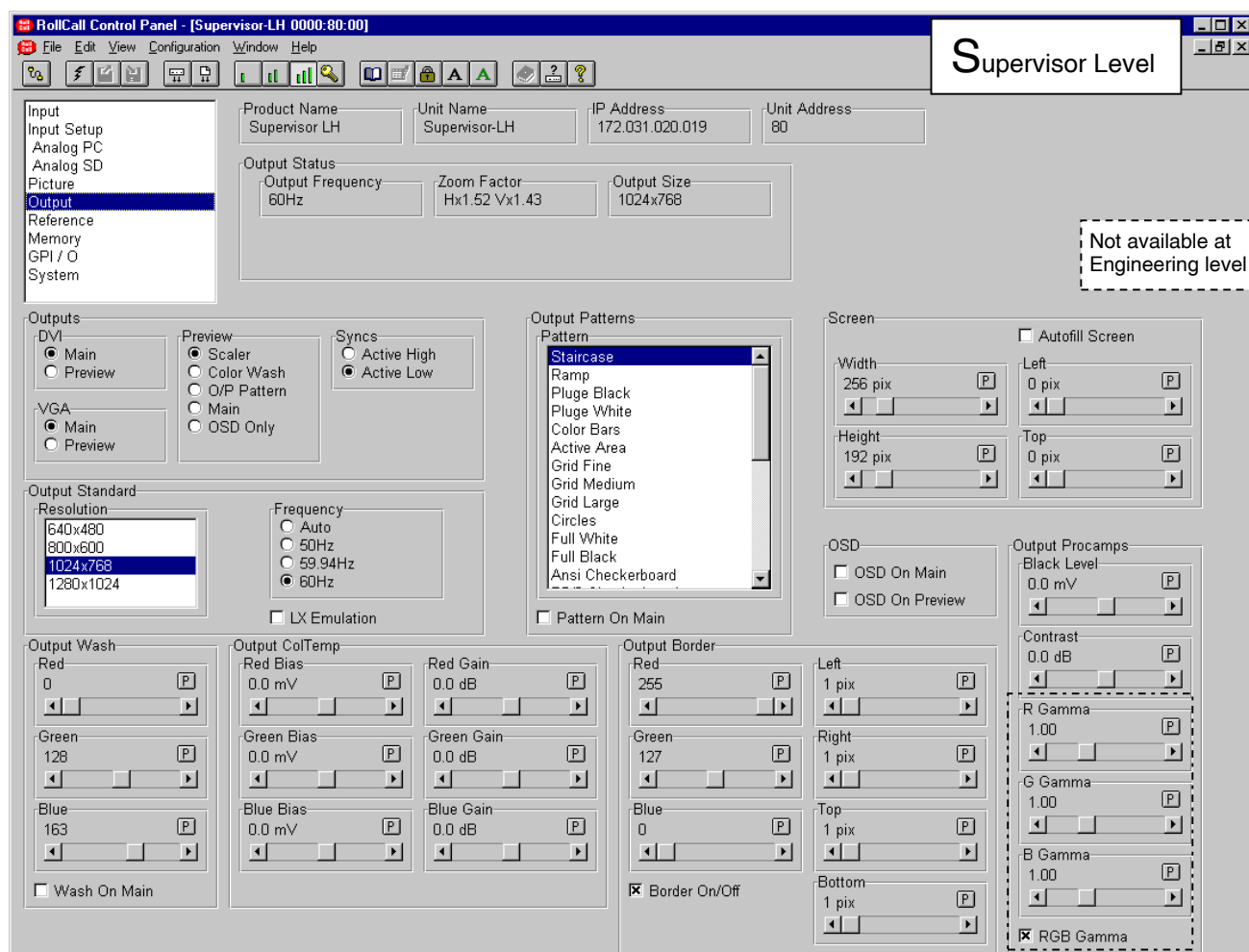
When checked the output picture will become frozen.

Freeze Int

This is the freeze interval time. Setting it to anything other than zero will cause a strobe effect freeze.

seconds	0	3	0	0.1
units	min	max	default	step

Output



Outputs

DVI and VGA

This allows the DVI and the VGA outputs to be selected as either the Main or the Preview signal.

Preview

The Preview output may be selected as Scaler, Color Wash, O/P Pattern Main, or OSD only.

Syncs

The default value is dependent on the output resolution. VGA Mode: Active Low / SVGA Mode: Active High / XGA Mode: Active Low / SXGA Mode: Active High.

Output Standard

This function allows the output standard to be set.

Resolution

This function allows the output resolution to be set.
Note that LX Emulation option is not available for the 1280x1024 resolution or 60 Hz output frequencies.

Frequency

Selecting any of 50, 59.94 or 60 Hz, guarantees that the output frequency will always be as selected. Selecting auto allows the unit to determine the optimum output frequency for the current reference source. For both Internal and Input reference sources, the output frequency is derived from the input frequency.

If the input is video then the output frequency is determined by whether the input frequency belongs to a 50, 59.94 or 60Hz family.

For a PC input, the output frequency is determined by whether the input frequency is closest to 50, 59.94 or 60Hz.

If the input is test pattern but not in auto standard, then the output frequency is determined by whether the test pattern frequency belongs to a 50, 59.94 or 60Hz family.

Note that 60Hz is not available for LX Emulation mode.

Output (continued)**LX Emulation**

When enabled, this option causes the unit to mimic the output resolution of the Supervisor LX. It only applies to 640x480, 800x600 and 1024x768 options.

Output Patterns

This allows a pattern to be selected as the output.

Pattern On Main

When enabled the selected pattern will become the main output.

Screen

The screen settings define a 'virtual' output active area. Output blanking is automatically calculated so that video can never appear outside of the virtual active area.

Note that this setting will be stored for each output resolution (not frame rate).

Note also that these ranges will depend on the resolution of the input.

Left

pixels	0	1280	0	1
units	min	max	default	step

Width

pixels	128	1280	1280	1
units	min	max	default	step

Top

pixels	0	1024	0	1
units	min	max	default	step

Height

pixels	96	1024	1024	1
units	min	max	default	step

Autofill Screen

When Autofill Screen is enabled, video and test patterns will automatically be scaled and positioned to fit inside the output window. But remember that there are practical limits to the amount of down-sampling that can be applied to a signal and still achieve an output of acceptable quality. Thus if the screen size is set too small, it may not be possible to fit the video or test pattern completely inside it.

Output Wash

The default screen color may be set with this item.

Red, Green, Blue

These scroll bars allow the color to be changed.

Selecting the  symbol will return the value to the default value.

Color	min	max	default	step
R	0	255	0	1
G	0	255	128	1
B	0	255	163	1

Wash On Main

When checked the main output will become the color set by the Red, Green and the Wash item. When unchecked the main output will display the normal output picture.

Output ColTemp

This menu allows the color temperature of the PC picture to be adjusted.

Red, Green, Blue Bias

Value mV	-50	50	0	0.1
units	min	max	default	step

Red, Green, Blue Gain

Value dB	-2	2	0	0.1
units	min	max	default	step

Output (continued)**OSD (On Screen Display)**

This function allows a picture of the front panel display to be overlaid over the output picture.

When added to the Main Output (**OSD on Main** checked) the text will appear white on a 50% transparent background.



OSD on Main Output

When added to the Preview **Output (OSD on Preview** checked) the text will appear yellow on a 50% transparent background.



OSD on Preview Output

When nothing is checked the function is disabled.



OSD Disabled

Output (continued)**Output Border**

This allows a border around the output picture to be created.

Note that these ranges will depend on the resolution of the output.

Left

pixels	0	1280	0	1
units	min	max	default	step

Right

pixels	0	1280	0	1
units	min	max	default	step

Top

pixels	0	1024	0	1
units	min	max	default	step

Bottom

pixels	0	1024	0	1
units	min	max	default	step

Red, Green and Blue

These functions allow the color of the border to be set.

Border On/Off

Checking this item will enable the border.

Output Procamps

Black Level

This function allows the black level (brightness) of the display picture to be adjusted.

Level mV	-150	150	0	0.5
units	min	max	default	steps

Contrast

This function allows the contrast (gain) of the display picture to be adjusted.

Value dB	-2	2	0	0.1
units	min	max	default	steps

R Gamma, G Gamma, B gamma
(not available at Engineering level)

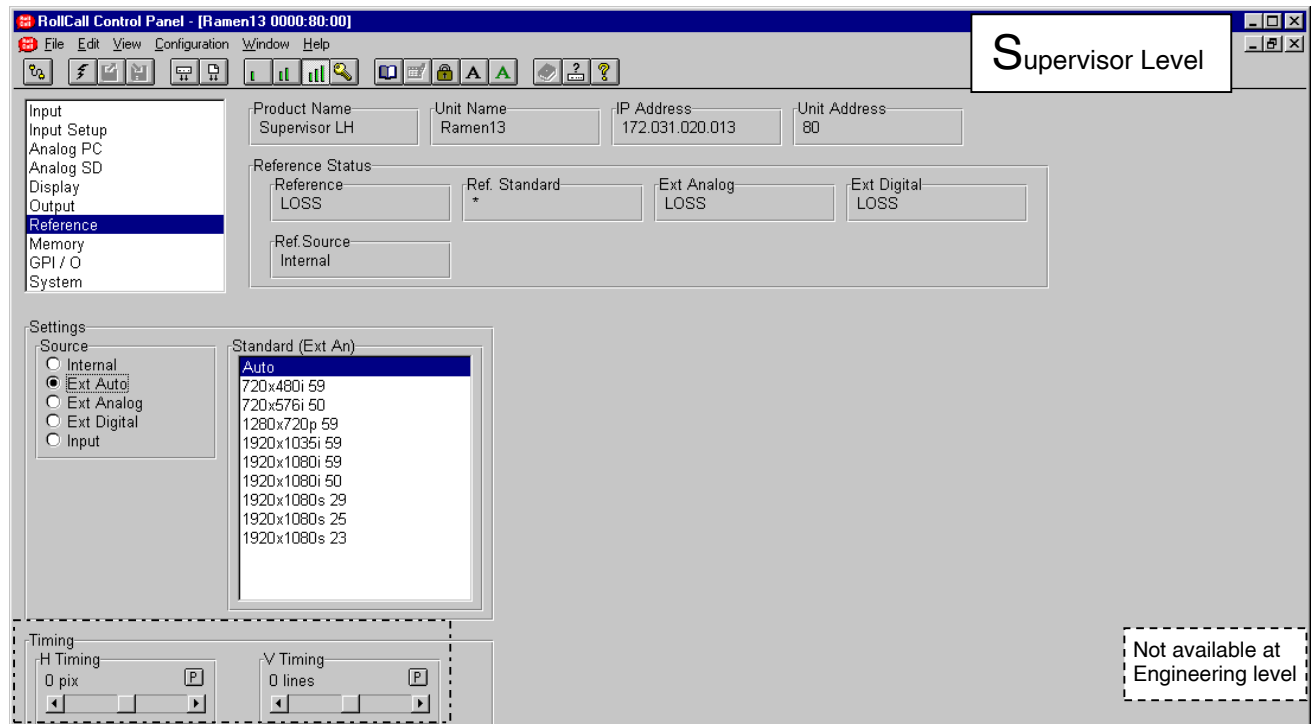
These items adjust the Red, Green and Blue gamma curves.

Gamma	0.1	3	1	0.05
units	min	max	default	step

RGB Gamma (not available at Engineering level)

When checked the RGB values of Gamma will be locked together.

Reference



Settings

Source

This allows the source of the reference signal to be selected.

Internal

This sets the unit into free run.

Ext Auto

The unit will look first for a reference signal **on Ext Analog**. If none is found or lock cannot be achieved, the unit will look for a reference signal on **Ext Digital**.

Ext Analog

The unit will attempt to lock to the external analog reference signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the reference source signal is from an incompatible family.

Ext Digital

The unit will attempt to lock to the external digital reference signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the reference source signal is from an incompatible family.

The unit will attempt to lock to the current live input signal. If no signal is present the unit will be forced into free run. Note that the unit will be forced into free run if, in the output standard menu, the frequency is not auto and the current live input signal is from an incompatible family. Note also that the unit will be forced into free run if the current live input is PC or VHS.

Standard

This allows the standard of the reference signal to be chosen. If **Auto** is selected the unit will automatically lock to a valid reference signal.

Timings (not available at Engineering level)

Note that the timing adjustments will have no effect when the selected reference source is internal.

Note also that these ranges will depend on the resolution of the output.

V Timing

pixels	-2000	2000	0	1
units	min	max	default	step

H Timing

pixels	-3000	3000	0	1
units	min	max	default	step

Memory

Recall

Select

This allows the memory location to be highlighted.

The **Factory** item will recall the factory settings.

Recall

When selected the settings in the highlighted memory location will be recalled.

Last Recall

This is a read only value that reports the last memory that was recalled. It is initially blank.

Save

Note that the user may only save memory 1, 2, 3 and 4 locations.

Select

This allows the memory location to be highlighted.

Save

When selected the current settings will be saved in the highlighted memory location.

Last Save

This is a read only value that reports the last memory that was saved. It is initially blank.

Rename

Note that the user may only save memory 1, 2, 3 and 4 locations.

Select

This allows the memory location to be highlighted.

New Name

A new name for the selected memory location may be typed into the text area.

Selecting the  symbol will save the new name.

Selecting the  symbol will return the name to its default value.

GPI / O

Function (Ports 1, 2, 3, and 4)

For more details please refer to Section 6 Appendix 2.

This allows GPI ports 1, 2, 3, and 4 to be configured.

Unused

When selected the port is inactive.

Input

When selected the port is configured as an input.

Output

When selected the port is configured as an output.

Tally

When selected the port is configured to produce a tally output to drive lamps etc.

Setup

For more details please refer to Section 5 Appendix 1.

Enable

When checked all GPI ports will be enabled. When unchecked all ports will be disabled.

GPI /O (continued)**Mode**

This allows the GPI mode of operation to be selected.

Normal

In this mode each of the GPI inputs will operate independently. The operation will be as configured by the **Function** item.

Binary In

In this mode, the four GPI inputs are configured to receive a four-bit binary code that allows the input signal to be selected..

Note that in this mode the Function, Action and Trigger items will not be available and will be grayed out.

Overview

In this mode, the binary value presented on the GPI/O will control the input selection.

The GPI/O input ports are 'active low':

A low or negative voltage difference, or closed circuit results in an internal logic 1, or Active state.

A high or positive voltage difference, or open circuit results in an internal logic 0, or 'Inactive' state.

A transition to value 0 will select the CVBS A input, a transition to value 1 will select CVBS B input and so on up to value 9 which will select Pattern input. Values from 10 to 15 are unused, and a transition to any of these values will not affect the current selection. The binary value is de-bounced: the same value must be present for 100 ms to become valid.

Action (Ports 1, 2, 3, and 4)

When the GPI port is configured as an input and it receives a valid input the settings contained in the selected memory location will be recalled.

Trigger (Ports 1, 2, 3, and 4)

When the GPI port is configured as an output the port will become a closed contact when triggered by the selected item e.g. if an Input Error occurs.

GPI Binary Input Function

GPI Binary Port				Selected Input
4	3	2	1	
0	0	0	0	CVBS A
0	0	0	1	CVBS B
0	0	1	0	YC A
0	0	1	1	YC B
0	1	0	0	Component/PC
0	1	0	1	SDI A
0	1	1	0	SDI B
0	1	1	1	DVI
1	0	0	0	Black
1	0	0	1	Pattern
1	0	1	0	(no effect)
1	0	1	1	(no effect)
1	1	0	0	(no effect)
1	1	0	1	(no effect)
1	1	1	0	(no effect)
1	1	1	1	(no effect)

Note: GPI/O 1 is LSB, GPI/O 4 is the MSB.

System

RollCall Control Panel - [Supervisor-LH 0000:00:00]

File Edit View Configuration Window Help

Supervisor Level

Input: Input Setup, Analog PC, Analog SD, Picture, Output, Reference, Memory, GPI / O, **System**

Product Name: Supervisor LH Unit Name: Supervisor-LH IP Address: 172.031.020.019 Unit Address: 80

Info:

Serial No.: 123456789 MAC Address: 00:05:81:00:04:20 Product Id: FGAX 3908000X

Product Version: 1 Software Version: LH20D15a 44 Export Versions

Status:

Input: OK Live Input: CVBS A Input Std: PAL* Output Freq.: 60Hz Film/Video: Video* Output Size: 1024x768

Last Loss Action: - Color Lock: OK Input Format: RGB Comp't Source: SD Zoom Factor: Hx1.52 Vx1.43

Reference: LOSS Ref. Standard: * Ext Analog: LOSS Ext Digital: LOSS Ref. Source: Internal

F/Panel:

☐ Local Lock ☐ Remote Lock

LCD Bright: 8 LCD Contr: 5

Backlight: 8 BackColor: 0

☐ Timeout to Status Timeout Delay: 120

Serial:

RS232A: 9600, 19.2K, 38.4K, 57.6K, 115.2K

RS232B: 2400, 4800, 9600, 19.2K, 38.4K

RS422: 2400, 4800, 9600, 19.2K, 38.4K

RS485: ☐

Net:

Unit Name: Supervisor-LH Unit Addr: 128 Gateway Addr: 172.031.001.001

IP Address (Warning!): 172.031.020.019 Subnet Mask: 255.255.000.000

Not available at Engineering level

Info

This provides basic information about the unit.

Note that the information displayed will depend on the access level.

Status

This area provides shows the status of various items showing the current setup of the unit.

Export Versions

When selected the unit will generate a file containing the version number etc. This can be used as a debugging aid for remote servicing. Please contact Snell & Wilcox technical assistance for more information.

F/Panel

Local Lock

When checked, it will not be possible to control functions via the front panel.

Remote Lock (not available at Engineering level)

When checked, it will not be possible to control functions via the RollCall PC Control Panel Screens.

Timeout to Status

If checked panel reverts to last viewed status screen after the **Timeout Delay**.

Timeout Delay

This can be set between 0 and 300 seconds; default is to 120 seconds.

The appearance of the front panel LCD display area may be changed with these controls.
(not available at Engineering level)

LCD Bright(ness)

Brightness	0	8	8	1
units	min	max	default	step

LCD Contr(ast)

Contrast	0	8	5	1
units	min	max	default	step

Backlight

Backlight	0	8	8	1
units	min	max	default	step

BackColor

Backcolor	0	8	0	1
units	min	max	default	step

System (continued)**Serial** (not available at Engineering level)

This allows the speed of the RS422A, RS232A and RS422/485 ports to be set.

RS485

When checked the RS422/485 port will become an RS485 port; when unchecked it will be an RS422 port.

Net

This allows the units communication system to be configured.

For these items the following applies:

The new text should be typed into the text box.

Selecting the  symbol will save the new text.

Selecting the  symbol will return the text to the default text.

Unit Name

The name of the unit (as seen on the RollCall network) may be renamed by selecting the old name and editing it by typing in the new name.

IP Address

The unit IP address may be entered here by typing in the text box.

Warning!

IP address, sub net mask and Default Gateway
IP address should be set to addresses as required by the local IT manager and should not be altered except by qualified personnel.

As supplied the IP address will be 192.168.151.1

Unit Addr

The unit address may be selected here.

Address	17	255	255	1
units	min	max	default	step

Gateway Addr

The gateway address may be entered here by typing in the text box.

As supplied this address will be 192.168.2.2

Subnet Mask

The Subnet mask may be entered here by typing in the text box.

As supplied the address will be 255.255.0.0

APPENDIX 1 - GPIO APPLICATIONS

MONITORING (Input only)

Externally applied Voltage

The GPIO interface may be used to directly monitor the status of an externally applied voltage, in terms of defined logic levels.

The polarity of the applied voltage should be observed: A reversal of polarity will be seen as logic 0 at the GPIO interface, but will cause no damage.

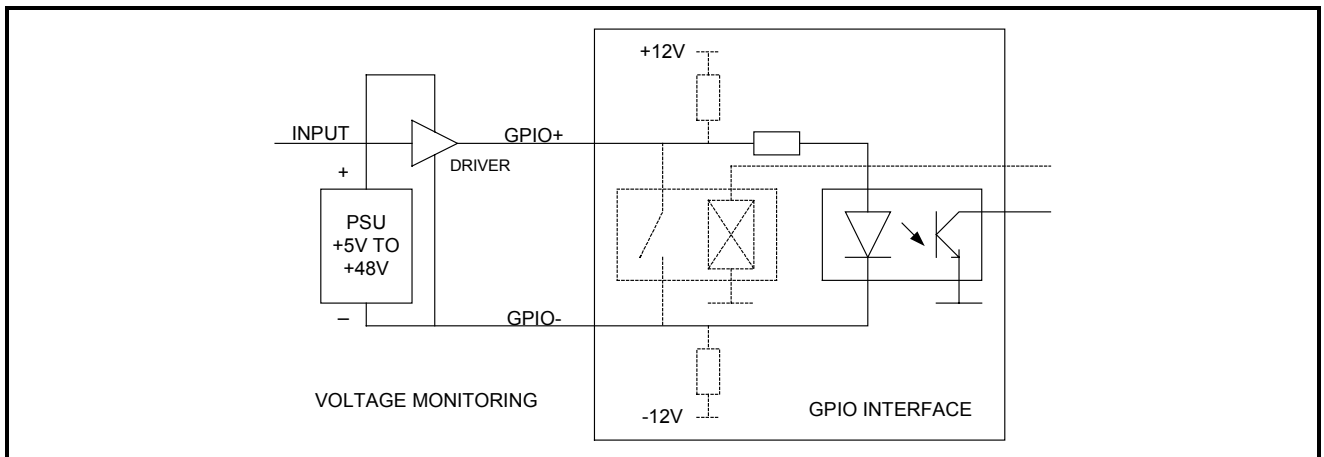
At the GPIO interface;

-48 V to +1 V = Logic 1 Active

+4 V to +48 V = Logic 0 Inactive

Note: In general, it is recommended that the externally applied voltage is current limited to <1 A but will be required to source a current of >1 mA through the approximate 5 k Ohm load of the GPIO interface.

In the application shown below; when the driver presents a voltage of >+4 V, the GPIO interface will assume a logic 1. When the driver presents a voltage of <+1 V, the GPIO interface will assume a logic 0. With appropriate interface level capability, the control input for the driver may be from a TTL logic gate or similar device.



Switch Contact

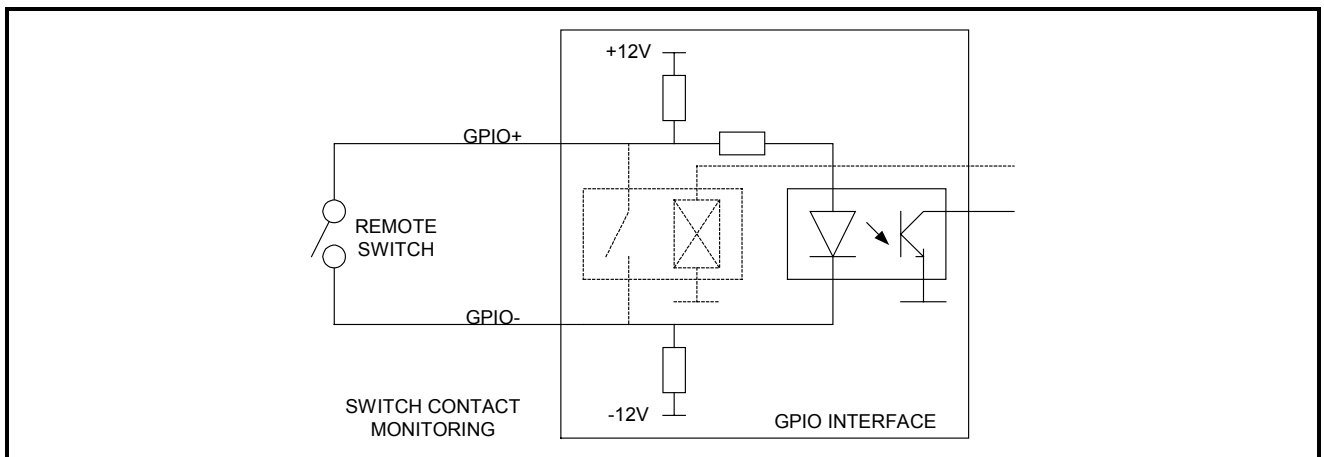
The GPIO interface may be used to directly monitor the status of an externally applied impedance, in terms of defined logic states.

In practice, this could be the contacts of a manual pushbutton switch, relay or sensor, signaling a change of state.

At the GPIO interface;
Logic 0 = <10 Ohms (closed circuit)
Logic 1 = >10 K Ohms (open circuit)

Within the GPIO interface, detection of change in applied impedance is accomplished by connecting a $\pm 12\text{ V}$ supply, current limited by $2 \times 10\text{ k}\Omega$ series resistors.

With the remote switch contacts open, the applied voltage seen at these contacts will only be approximately 4 V due to the loading effect of the internal GPIO monitor detection circuitry. With the remote switch contacts closed, the current passing through the contacts will be 1.2 mA.



CONTROL (Output only)

The GPIO interface may be used to directly control the energization of an externally applied load in series with a power supply, by means of an internal relay contact. This relay contact is controlled by defined logic states.

At the GPIO interface;
Logic 0 = <0.5 Ohm (closed circuit)
Logic 1 = >5 k Ohms (open circuit)

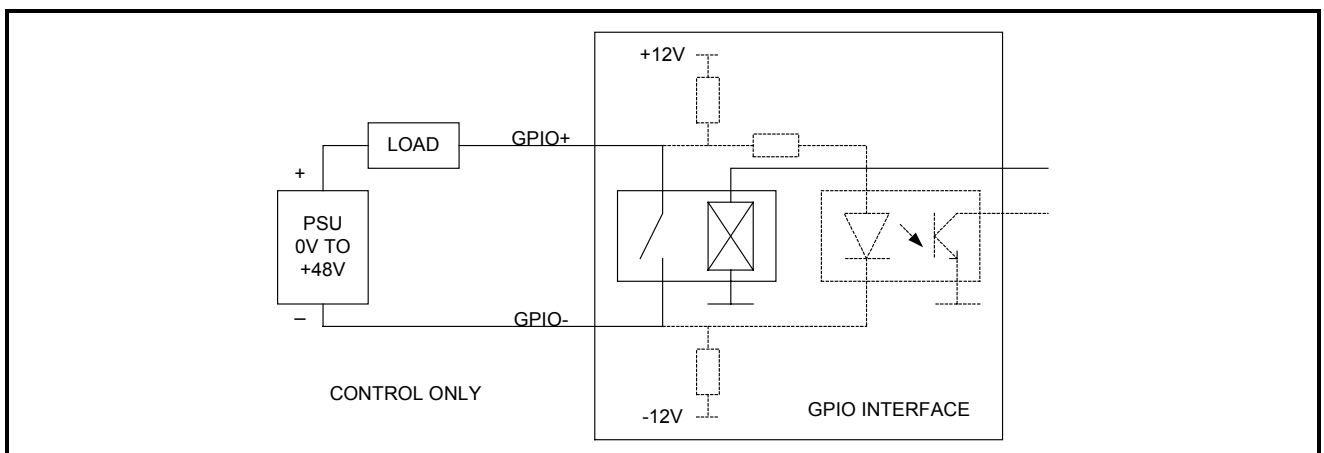
The external load may be a light source, relay coil, or actuator.

External power supply maximum voltage is +48 V (GPIO relay contact open).

Maximum load current is 1 A (GPIO relay contact closed).

The polarity of the applied voltage should be observed, if only because GPIO monitoring will be ineffective: A reversal of polarity will still be connected by the relay contacts and will cause no damage.

Note that this output is not a voltage/current source, but merely a relay contact, whereby power for the external load has also to be provided externally.



COMBINED (Input/output)

The GPIO interface may be used as a combination of the above input monitoring (external voltage or switch contact) and output control (by means of relay contact). This combination allows the monitoring of GPIO interface status and then to respond by overriding that status. Obviously, once the external source of the status has been overridden, then it will not be possible to monitor the external source. To externally signal a reverse change of state, a separate route of control must be used.

Single channel

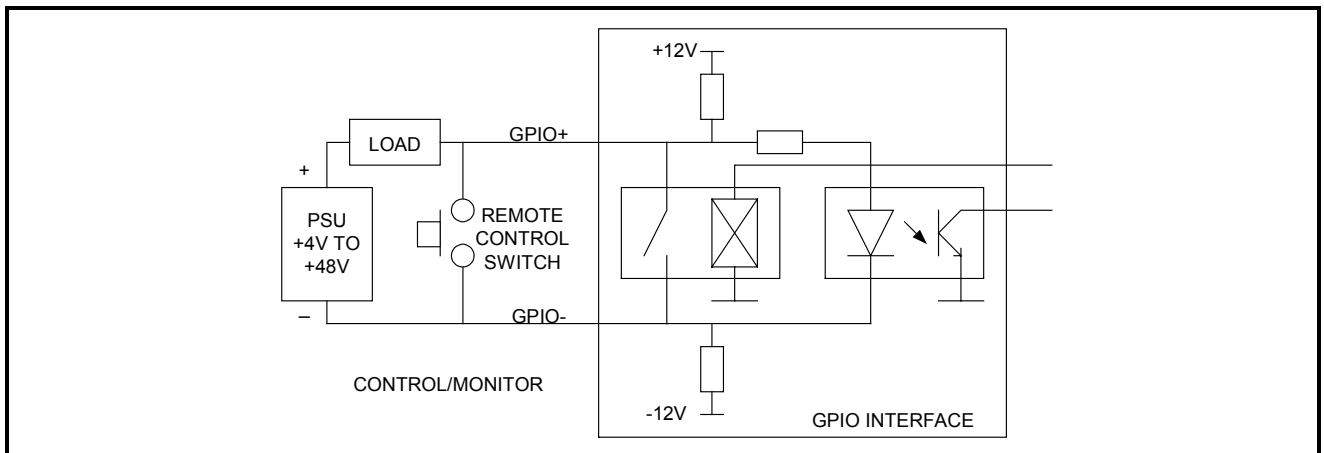
A possible application of a single GPIO interface channel would be a remote control switch in series with a power supply, associated status light (and possible load), to initiate the enabling of a function.

Initially the remote switch will be open circuit, therefore the power supply voltage will be presented via the status light/load to the GPIO interface. This will be signaled as logic 1 and presented to the appropriate software.

Once the remote switch is depressed, a continuous circuit will allow the status light and load to energize, while shorting the GPIO interface. This will be signaled as logic 0 and presented to the appropriate software.

The software will now energize the relay at the output of the GPIO interface, thus reinforcing and maintaining the closed circuit condition even when the remote switch has been released.

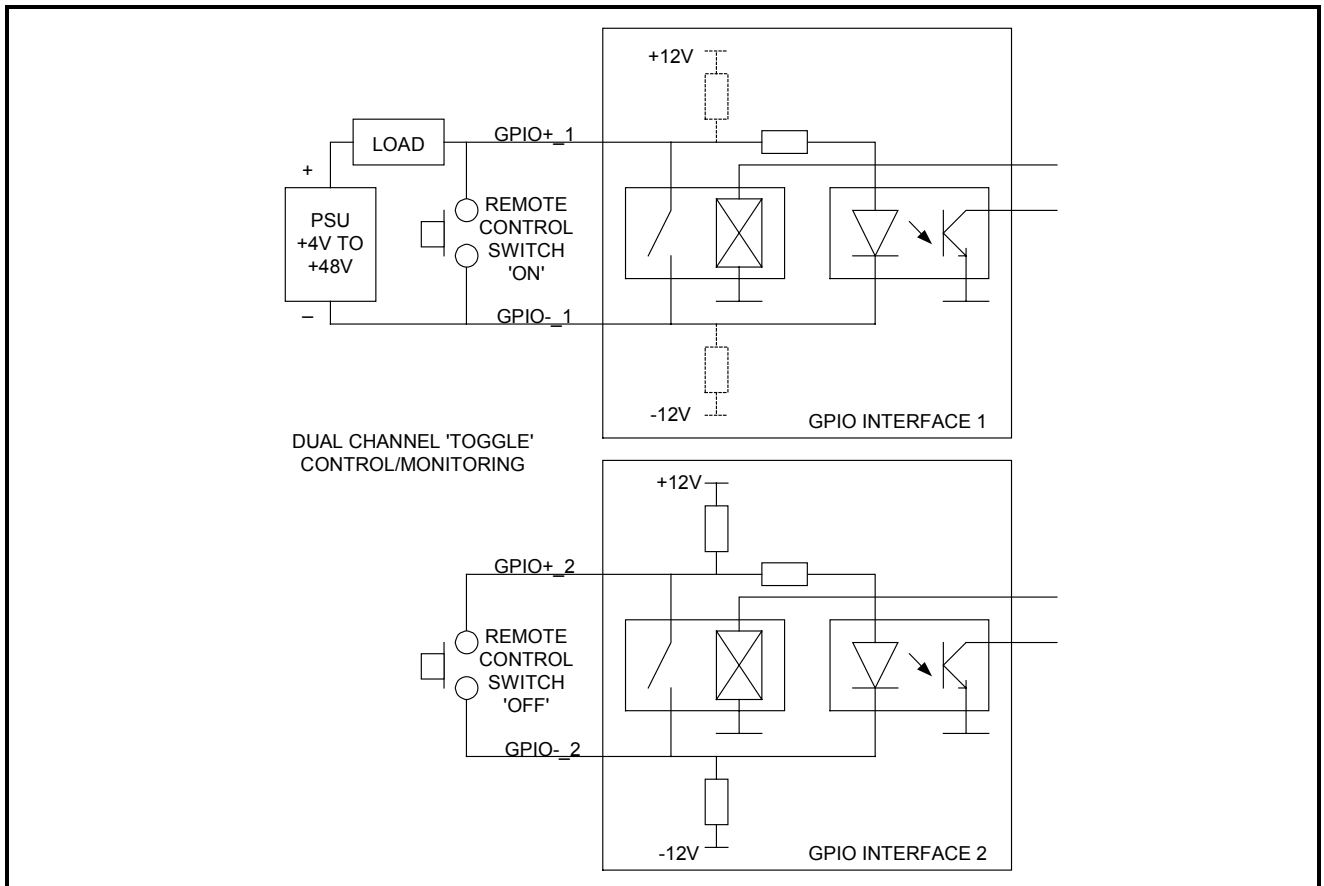
The status light and load will remain energized until some other route signals the software to release the GPIO interface control relay.



Toggle

This application is essentially an extension of the one above, where now a second momentary pushbutton is connected to a second channel. The first pushbutton initiates a change of state (ON), while the second pushbutton signals the software to return to the initial state (OFF).

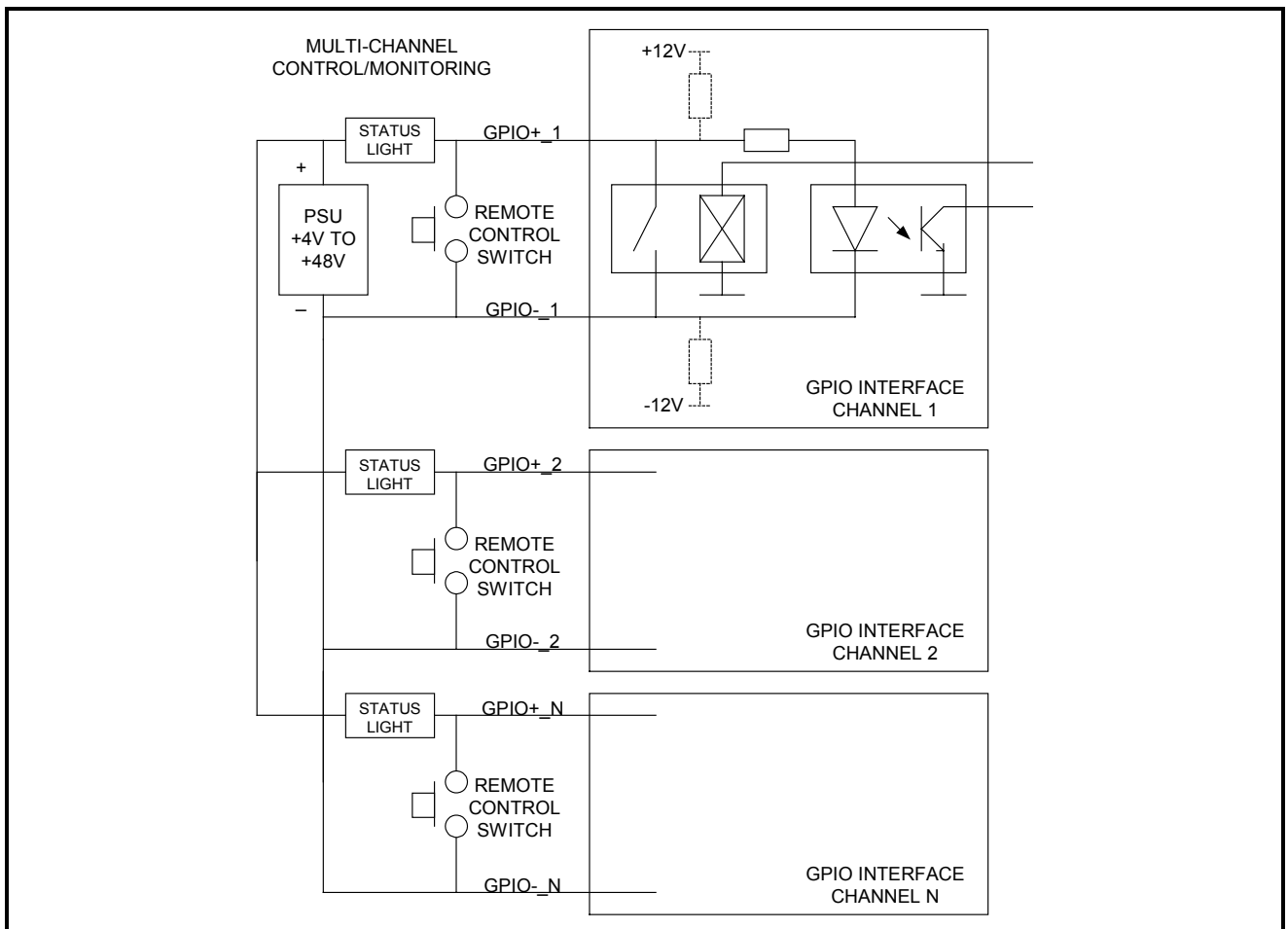
In this example, the ON pushbutton signals to the GPIO interface by a change of applied voltage, where the OFF pushbutton signals with a change of impedance. With the OFF pushbutton released, the GPIO interface is allowed to assume a logic 1 by action of the internal $\pm 12\text{ V}$ switch contact source. However, when the OFF pushbutton is depressed, the GPIO interface will be shorted. This will be signaled as logic 0 and presented to the appropriate software.



Tally

A further extension of the above is to have a multitude of GPIO interface channels, each with a momentary pushbutton, status light and optional load.

Pressing one of the momentary switches immediately connects the status light/load and signals the appropriate software to latch the shorting of that channel while releasing any previously latched shorted channels. In this way several momentary pushbuttons may be electronically latched one at a time, producing a travelling enable.



General Note

An attempt has been made to make the GPIO interface floating by use of opto-coupled interfaces. However, due to the need to stimulate an external switch contact with a current limited voltage source, a loose symmetrical coupling of around 5 k Ohms, effectively about signal 0 V, is a consequence.

APPENDIX 2 - API Specification for Supervisor LH

Serial Remote control:

This unit can be remotely controlled via its RS-422/485 or RS-232B ports. These use 9 pin female 'D' Female connectors with the following pin configurations:

RS-422A/485:

9-way Connector	FUNCTION
1	Frame Ground
2	Transmit A (Tx-)
3	Receive B (Rx+)
4	Receive Common
5	[No connection]
6	Transmit Common
7	Transmit B (Tx+)
8	Receive A (Rx-)
9	Frame Ground

The following serial baud rates shall be supported: 1200, 2400, 9600, 19200, 38400, 57600, 115200

The default settings for the RS-422A/485 port are as follows:

- Baud rate : 38400
- Data Bits : 8
- Stop Bits : 1
- Parity : None
- Handshake : None

RS-232B:

9-way Connector	FUNCTION
1	[No connection]
2	Transmit Data
3	Receive Data
4	[No connection]
5	Signal Ground
6	[No connection]
7	[No connection]
8	[No connection]
9	[No connection]

The default settings for the RS-232B port are as follows:

- Baud rate : 38400
- Data Bits : 8
- Stop Bits : 1
- Parity : None
- Handshake : None

These serial communication ports use Snell & Wilcox's proprietary binary protocol called RollCall™ - see below.

RollCall™

This is Snell & Wilcox's proprietary communications protocol. It is used to remotely control S&W Equipment. Rollcall™ operates in binary computer mode. A start of packet (STX), end of packet (ETX) and control characters are used for binary transfers to the Supervisor LH. Whenever the Supervisor LH receives an STX character, the following data is treated as pure binary data until the reception of an ETX character. The reply from the unit will also be in binary mode for each command.

Char	Definition	Description
0x02	STX	Start of packet
0x03	ETX	End of packet
0x1B	ESC	Escape character for STX, ETX and ESC

An escape sequence is used if the start, end or escape control code values are required in the body of the packet.

The escape character is inserted, and the desired character has its MSB inverted.

The table below shows the 2 byte replacements.

Value required in Packet.	Sequence of bytes to be sent
0x02	0x1B, 0x82
0x03	0x1B, 0x83
0x1B	0x1B, 0x9B

Rollcall™ Packet Types

The packet types of interest for Supervisor LH control are:

SetParam (SP_SETPARAM)

GetParam (SP_GETFSTAT)

RetParam (SP_RETFSTAT)

SetParam packets are sent to the Supervisor LH from the control software and are used to set new values for commands eg. set Chan X Input Bias to 0.

GetParam packets are sent to the Supervisor LH from the control software and are used to request the current values of commands eg. What is the current Chan X Input Select?

RetParam packets are returned from the Supervisor LH in response to both SetParam and GetParam packets. They serve two purposes. Firstly they are used for flow control ie. when a RetParam is received by the control software it means that the Supervisor LH is ready to receive another command. Secondly the RetParam packet is used to return the current value of the command specified in the previous Set or GetParam packet.

Rollcall™ Packet Formats

Each packet shares the same header structure.

Header						
0x02	Start Packet (STX)					
0	Net Address	FULLADDRESS_STR This is the address of the Supervisor LH.	RSHEADER_STR			
0						
0x80						
0x00						
0	Port Address					
0						
0	Dest Index					
0						
0	User Index					
1						
	Packet Length (= number of following bytes excepting ESC, ETX and Checksum)					

****NOTE:** The value of the unit address should be the same as the value of the Unit Addr item in the System>Net submenu of the Supervisor LH. As shipped, the value is 0x80.

The header is followed by the body of the specific packet type.

Note: All fields are MSB (Most Significant Byte) first.

SetParam		
0x10	SetParam packet type	ROLLHEADER_STR
0	Extra Info	
	Command number	FUNCSTATUS_STR
0	Data mode (0x11 to set default value)	
0x01		
	Value	
0	Checksum (zero to ignore)	
0x03	End Packet (ETX)	

Note: if the value of Data Mode is set to 0x11 then the Value field is ignored and the parameter is set to its factory default value.

RetParam		
0x0C	RetParam packet type	ROLLHEADER_STR
0	Extra Info	
	Command number	FUNCSTATUS_STR
0	Data mode: 01 = Numeric value only	
0x01/03	03 = Numeric value + String value	
	Numeric Value (Always present)	
	String Value (if Data Mode = 03) n bytes long	
0x00	Null string terminator	
**	Checksum (ignore)	
0x03	End Packet (ETX)	

GetParam		
0x0B	GetParam packet type	ROLLHEADER_STR
0	Extra Info	
	Command number	GETFSTAT_STR
0	Checksum (zero to ignore)	
0x03	End Packet (ETX)	

Example Rollcall™ Packets

Note: all values are in hex.

Example 1: How to get the current values for Chan X Input Bias, Chan X Input Gain, Chan X Input Chroma and Hue.

(Assume that they are all currently set to their default values of zero).

Send a GetParam for Chan X Input Bias														
Header	02	00	00	80	00	00	00	00	01	00	04			
Body	0B	00	1B	9B	62	00	03							
Receive a RetParam for Chan X Input Bias														
Header	02	00	00	80	00	00	00	00	01	00	0A			
Body	0C	00	1B	9B	62	00	01	00	00	00	00	**	03	

Send a GetParam for Chan X Input Gain														
Header	02	00	00	80	00	00	00	00	01	00	04			
Body	0B	00	1B	9B	63	00	03							
Receive a RetParam for Chan X Input Gain														
Header	02	00	00	80	00	00	00	00	01	00	0A			
Body	0C	00	1B	9B	63	00	01	00	00	00	00	**	03	

Send a GetParam for Chan X Input Chroma														
Header	02	00	00	80	00	00	00	00	01	00	04			
Body	0B	00	1B	9B	64	00	03							
Receive a RetParam for Chan X Input Chroma														
Header	02	00	00	80	00	00	00	00	01	00	0A			
Body	0C	00	1B	9B	64	00	01	00	00	00	00	**	03	

Send a GetParam for Chan X Input Hue														
Header	02	00	00	80	00	00	00	00	01	00	04			
Body	0B	00	1B	9B	65	00	03							
Receive a RetParam for Chan X Input Hue														
Header	02	00	00	80	00	00	00	00	01	00	0A			
Body	0C	00	1B	9B	65	00	01	00	00	00	00	**	03	

Note the use of the escape sequence in the command numbers. The command number for Chan X Input Bias for example, is 1B62 but because 1B is the Rollcall escape character, it is necessary to substitute 1B9B.

Example 2: How to change to component input

Send a SetParam for Chan X Input Select													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	10	00	1B	9B	58	00	01	00	00	00	06	00	03
Receive a RetParam for Chan X Input Select													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	0C	00	1B	9B	58	00	01	00	00	00	06	**	03

In this example, we send a command number of 1B 58 which is Chan X Input Select and a value of 00 00 00 06 which is the component input.

Example 3: How to recall Memory number 4

Send a SetParam for Memory Recall Select													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	10	00	18	9C	00	01	00	00	00	04	00	03	
Receive a RetParam for Memory Recall Select													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	0C	00	18	9C	00	01	00	00	00	04	**	03	

Send a SetParam for Memory Recall													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	10	00	18	9D	00	01	00	00	00	01	00	03	
Receive a RetParam for Memory Recall													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	0C	00	18	9D	00	01	00	00	00	00	**	03	

In this example, we need to send two commands to recall the desired memory. First we send Memory Recall Select command, 18 9C with a value of 00 00 00 04 which is the memory number. Then we send a Memory Recall command with a value of 00 00 00 01 to action the recall. The return value is 00 00 00 00 which indicates that the action has been done.

Example 4: Set Chan X Display Vert Stretch to its default value

Send a SetParam for Chan X Display Vert Stretch													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	10	00	1B	9B	80	00	11	00	00	00	00	00	03
Receive a RetParam for Chan X Display Vert Stretch													
Header	02	00	00	80	00	00	00	00	01	00	0A		
Body	0C	00	1B	9B	80	00	01	00	00	1B	83	E8	** 03

In the above example, the Data Mode field of the Setparam is set to 0011. This instructs the Supervisor LH to ignore the value field and set the factory default value for the parameter. The return value is 1B 83 E8. Remembering that 1B is the escape character, this translates to 03E8 which is 1000 (decimal). The default value for Chan X Display Vert Stretch is 100.0%.

Supervisor LH Commands

User Level

Command No. Dec	Hex	Command Name	Values
6001	1771	Output Resolution	0=640x480 1=800x600 2=1024x768 3=1280x1024
6002	1772	Output Frequency	0=Auto 1=50Hz 2=59.94Hz 3=60Hz
6003	1773	Output Compatible	
6004	1774	Output VGA Sync Polarity	0=Active High 1=Active Low
6020	1784	Output Pattern Select	26=FS/2 Checkerboard
6022	1786	Output Pattern Enabled	min=0 max=1 pre=0
6030	178E	Output Window Width	min=92 max=92 pre=1024 step=1
6031	178F	Output Window Height	min=69 max=69 pre=768 step=1
6032	1790	Output Window Top	min=0 max=0 pre=0 step=1
6033	1791	Output Window Left	min=0 max=0 pre=0 step=1
6034	1792	Output Window Tracking Enabled	min=0 max=1 pre=1
6070	17B6	Output Blanking Left	min=0 max=0 pre=0 step=1
6071	17B7	Output Blanking Right	min=0 max=0 pre=0 step=1
6072	17B8	Output Blanking Top	min=0 max=0 pre=0 step=1
6073	17B9	Output Blanking Bottom	min=0 max=0 pre=0 step=1
6220	184C	Input Pattern Select	0=Staircase 2=Pluge Black 3=Pluge White 27=Colour Bars 4=Active Area 8=Circles 9=Full White 10=Full Black 13=10% Grey 14=25% Grey 15=75% Grey 16=90% Grey 17=H Grey Bars
6300	189C	Memory Recall Select	1=Memory1 2=Memory2 3=Memory3 4=Memory4 5=Memory5 6=Memory6 7=Memory7 8=Memory8 0=Factory button
6301	189D	Memory Recall	display
6302	189E	Memory Last Recalled	display
6306	18A2	Memory Rename Select	1=Memory1 2=Memory2 3=Memory3 4=Memory4
6307	18A3	Memory Rename	
6310	18A6	Memory Save Select	1=Memory1 2=Memory2 3=Memory3 4=Memory4
6311	18A7	Memory Save	button
6312	18A8	Memory Last Saved	display
6444	192C	System Software Version	display
6446	192E	System Product Name	display
6950	1B26	Status Input Loss	display
6951	1B27	Status Input Standard	display
6952	1B28	Status Auto Component Source	display
6953	1B29	Status Reference Loss	display
6954	1B2A	Status Input Colour Lock	display
6955	1B2B	Status Reference Standard	display
6956	1B2C	Status Ext Analog Reference	display
6957	1B2D	Status Ext Digital Reference	display
6958	1B2E	Status Output Frequency	display
6959	1B2F	Status Process Mode	display
6960	1B30	Status Input Format	display
6961	1B31	Status Live Input	display
6962	1B32	Status Input Loss Action	display
6963	1B33	Status Zoom Factor	display
6964	1B34	Status Input Select	display
6965	1B35	Status Output Resolution	display
6966	1B36	Status Unit Gateway Address	display
6967	1B37	Status Unit Name	display
6968	1B38	Status Ip Address	display
6969	1B39	Status Window Size	display
6970	1B3A	Status User Level	display
7000	1B58	Chan X Input Select	2=CVBS A 3=CVBS B 4=YC A 5=YC B 6=Comp'nt 7=SDI A 8=SDI B 9=DVI 0=Black 1=Pattern
7010	1B62	Chan X Input Bias	min=-1500 max=-1500 pre=0 step=5
7011	1B63	Chan X Input Gain	min=-30 max=-30 pre=0 step=1
7012	1B64	Chan X Input Chroma	min=-30 max=-30 pre=0 step=1
7013	1B65	Chan X Input Hue	min=-308 max=-308 pre=0 step=14
7024	1B70	Chan X Pattern Select	min=0 max=1 pre=0
7025	1B71	Chan X Black Select	min=0 max=1 pre=0
7040	1B80	Chan X Display Vert Stretch	min=50 max=50 pre=1000 step=1
7041	1B81	Chan X Display Horiz Stretch	min=50 max=50 pre=1000 step=1
7043	1B83	Chan X Display Tilt	min=-750 max=-750 pre=0 step=1
7044	1B84	Chan X Display Pan	min=-750 max=-750 pre=0 step=1
7050	1B8A	Chan X Display Vert Enhance	min=-2 max=-2 pre=0 step=1
7051	1B8B	Chan X Display Horiz Enhance	min=-2 max=-2 pre=0 step=1
8420	20E4	Component A Video Format	0=RGB (Auto) 1=YCbPr (Auto)

Engineering Level

Command No. Dec	Hex	Command Name	Values
6010	177A	Output Select DVI Out	0=Main 1=Preview
6011	177B	Output Select VGA Out	0=Main 1=Preview
6012	177C	Output Preview Options	0=Scaler 1=Color Wash 2=O/P Pattern 3=Main 4=OSD Only
6015	177F	OSD On Main Enabled	min=0 max=1 pre=0
6016	1780	OSD On Preview Enabled	min=0 max=1 pre=0
6025	1789	Output Colour Wash Enabled	min=0 max=1 pre=0
6026	178A	Output Colour Wash Red	min=0 max=0 pre=0 step=1
6027	178B	Output Colour Wash Green	min=0 max=0 pre=128 step=1
6028	178C	Output Colour Wash Blue	min=0 max=0 pre=163 step=1
6040	1798	Output Bias	min=-1500 max=-1500 pre=0 step=5
6041	1799	Output Red Bias	min=-500 max=-500 pre=0 step=1
6042	179A	Output Green Bias	min=-500 max=-500 pre=0 step=1
6043	179B	Output Blue Bias	min=-500 max=-500 pre=0 step=1
6050	17A2	Output Gain	min=-20 max=-20 pre=0 step=1
6051	17A3	Output Red Gain	min=-20 max=-20 pre=0 step=1
6052	17A4	Output Green Gain	min=-20 max=-20 pre=0 step=1
6053	17A5	Output Blue Gain	min=-20 max=-20 pre=0 step=1
6080	17C0	Output Border Enabled	min=0 max=1 pre=0
6081	17C1	Output Border Red	min=0 max=0 pre=255 step=1
6082	17C2	Output Border Green	min=0 max=0 pre=127 step=1
6083	17C3	Output Border Blue	min=0 max=0 pre=0 step=1
6084	17C4	Output Border Left	min=0 max=0 pre=1 step=1
6085	17C5	Output Border Right	min=0 max=0 pre=1 step=1
6086	17C6	Output Border Top	min=0 max=0 pre=1 step=1
6087	17C7	Output Border Bottom	min=0 max=0 pre=1 step=1
6200	1838	Input Select Delay	0=Minimum 1=Fixed
6201	1839	Input Loss Action	0=No Action 1=Freeze 2=Black 3=Pattern 4=Goto Safe
6202	183A	Input Loss Delay	min=0 max=0 pre=0 step=5
6203	183B	Input Safe Channel	2=CVBS A 3=CVBS B 4=YC A 5=YC B 6=Comp'nt 7=SDI A 8=SDI B 9=DVI
6210	1842	Component A Function	0=Auto 1=AnalogSD 2=AnalogPC
6214	1846	DVI A Function	0=PC 1=Link In
6221	184D	Input Pattern Standard	0=Auto 19=720x480i 59 20=720x576i 50 17=1280x720p 59 2=1920x1035i 59 6=1920x1080i 60 7=1920x1080i 59 8=1920x1080i 50 4142=640x480 60 4143=800x600 60 4144=1024x768 60 4146=1280x1024 60
6250	186A	Reference Source	0=Internal 1=Ext Auto 2=Ext Analog 3=Ext Digital 4=Input
6251	186B	Reference Standard	0=Auto 19=720x480i 59 20=720x576i 50 17=1280x720p 59 2=1920x1035i 59 7=1920x1080i 59 8=1920x1080i 50 35=1920x1080s 29 36=1920x1080s 25 24=1920x1080s 23
6350	18CE	GPI Enable	min=0 max=1 pre=0
6351	18CF	GPI Assign Port1	0=Unused 1=Input 2=Output 3=Tally
6352	18D0	GPI Assign Port2	0=Unused 1=Input 2=Output 3=Tally
6353	18D1	GPI Assign Port3	0=Unused 1=Input 2=Output 3=Tally
6354	18D2	GPI Assign Port4	0=Unused 1=Input 2=Output 3=Tally
6355	18D3	GPI Mode	0=Normal 1=Binary In
6361	18D9	GPI Action Port1	1=Memory1 2=Memory2 3=Memory3 4=Memory4 5=Memory5 6=Memory6 7=Memory7 8=Memory8
6362	18DA	GPI Action Port2	1=Memory1 2=Memory2 3=Memory3 4=Memory4 5=Memory5 6=Memory6 7=Memory7 8=Memory8
6363	18DB	GPI Action Port3	1=Memory1 2=Memory2 3=Memory3 4=Memory4 5=Memory5 6=Memory6 7=Memory7 8=Memory8
6364	18DC	GPI Action Port4	1=Memory1 2=Memory2 3=Memory3 4=Memory4 5=Memory5 6=Memory6 7=Memory7 8=Memory8
6371	18E3	GPI Trigger Port1	0=Input OK 1=Input Error 2=Ref OK 3=Ref Error 4=Booted
6372	18E4	GPI Trigger Port2	0=Input OK 1=Input Error 2=Ref OK 3=Ref Error 4=Booted
6373	18E5	GPI Trigger Port3	0=Input OK 1=Input Error 2=Ref OK 3=Ref Error 4=Booted
6374	18E6	GPI Trigger Port4	0=Input OK 1=Input Error 2=Ref OK 3=Ref Error 4=Booted
6434	1922	System SoftLock	min=0 max=1 pre=0
6440	1928	System Chassis Serial Number	display
6441	1929	System Product Id	display
6442	192A	System Product Version	display
6443	192B	System MAC Address	display
6445	192D	System Dump Versions	button
7014	1B66	Chan X Input YC Delay	min=-4 max=-4 pre=0 step=1
7015	1B67	Chan X Input XColour Suppress	min=0 max=1 pre=0
7016	1B68	Chan X Input Colour Killer	min=0 max=1 pre=1

Engineering Level (continued)

Command No. Dec	Hex	Command Name	Values
7017	1B69	Chan X Input Blank Left	min=0 max=0 pre=0 step=1
7018	1B6A	Chan X Input Blank Right	min=0 max=0 pre=0 step=1
7019	1B6B	Chan X Input Blank Top	min=0 max=0 pre=0 step=1
7020	1B6C	Chan X Input Blank Bottom	min=0 max=0 pre=0 step=1
7021	1B6D	Chan X Input Overscan Enabled	min=0 max=1 pre=1
7022	1B6E	Chan X Input Overscan	min=-20 max=-20 pre=70 step=1
7042	1B82	Chan X Display Display Origin	0=Top Left 1=Center
7045	1B85	Chan X Lock Aspect Ratio	min=0 max=1 pre=0
7060	1B94	Chan X Display Monochrome	min=0 max=1 pre=0
7061	1B95	Chan X Display Freeze	min=0 max=1 pre=0
7062	1B96	Chan X Display Freeze Interval	min=0 max=0 pre=0 step=1
8000	1F40	CVBS A Standard	0=Auto 1=NTSC 2=PAL 3=SECAM 4=NTSC 4.43 50 7=NTSC 4.43 60 8=PAL 4.43 60 5=PAL-M 6=PAL-N 9=NTSC-N 10=NTSC-Japan
8001	1F41	CVBS A Pedestal	0=Auto 1=Retain 2=Remove
8003	1F43	CVBS A Film Mode	0=Auto 1=Film 2=Video
8004	1F44	CVBS A VHS	min=0 max=1 pre=0
8100	1FA4	CVBS B Standard	0=Auto 1=NTSC 2=PAL 3=SECAM 4=NTSC 4.43 50 7=NTSC 4.43 60 8=PAL 4.43 60 5=PAL-M 6=PAL-N 9=NTSC-N 10=NTSC-Japan
8101	1FA5	CVBS B Pedestal	0=Auto 1=Retain 2=Remove
8103	1FA7	CVBS B Film Mode	0=Auto 1=Film 2=Video
8104	1FA8	CVBS B VHS	min=0 max=1 pre=0
8200	2008	YC A Standard	0=Auto 1=NTSC 2=PAL 3=SECAM 4=NTSC 4.43 50 7=NTSC 4.43 60 8=PAL 4.43 60 5=PAL-M 6=PAL-N 9=NTSC-N 10=NTSC-Japan
8201	2009	YC A Pedestal	0=Auto 1=Retain 2=Remove
8203	200B	YC A Film Mode	0=Auto 1=Film 2=Video
8204	200C	YC A VHS	min=0 max=1 pre=0
8300	206C	YC B Standard	0=Auto 1=NTSC 2=PAL 3=SECAM 4=NTSC 4.43 50 7=NTSC 4.43 60 8=PAL 4.43 60 5=PAL-M 6=PAL-N 9=NTSC-N 10=NTSC-Japan
8301	206D	YC B Pedestal	0=Auto 1=Retain 2=Remove
8303	206F	YC B Film Mode	0=Auto 1=Film 2=Video
8304	2070	YC B VHS	min=0 max=1 pre=0
8400	20D0	Component A Video Standard	0=Auto 19=720x480i 59 20=720x576i 50
8401	20D1	Component A Video Pedestal	1=Retain 2=Remove
8403	20D3	Component A Video Film Mode	0=Auto 1=Film 2=Video
8421	20E5	Component A PC Format	0=Auto 1=RGB 2=RGB S 3=RGB HV
8431	20EF	Component A PC Calibrate	button
8432	20F0	Component A PC Frequency	min=0 max=0 pre=0 step=1
8433	20F1	Component A PC Phase	min=-16 max=-16 pre=0 step=1
8434	20F2	Component A PC Top	min=-100 max=-100 pre=0 step=1
8435	20F3	Component A PC Left	min=-100 max=-100 pre=0 step=1
8436	20F4	Component A PC Vert Size	min=0 max=0 pre=0 step=1
8437	20F5	Component A PC Horiz Size	min=0 max=0 pre=0 step=8
8438	20F6	Component A PC Recall Memory	1=PC Mem1 2=PC Mem2 3=PC Mem3 4=PC Mem4 5=PC Mem5 6=PC Mem6 7=PC Mem7 8=PC Mem8 9=PC Mem9 10=PC Mem10 11=PC Mem11 12=PC Mem12 13=PC Mem13 14=PC Mem14 15=PC Mem15 16=PC Mem16 17=PC Mem17 18=PC Mem18 19=PC Mem19 20=PC Mem20 21=PC Mem21 22=PC Mem22 23=PC Mem23 24=PC Mem24 25=PC Mem25 26=PC Mem26 27=PC Mem27 28=PC Mem28 29=PC Mem29 30=PC Mem30 31=PC Mem31 32=PC Mem32
8439	20F7	Component A PC Save Memory	1=PC Mem1 2=PC Mem2 3=PC Mem3 4=PC Mem4 5=PC Mem5 6=PC Mem6 7=PC Mem7 8=PC Mem8 9=PC Mem9 10=PC Mem10 11=PC Mem11 12=PC Mem12 13=PC Mem13 14=PC Mem14 15=PC Mem15 16=PC Mem16 17=PC Mem17 18=PC Mem18 19=PC Mem19 20=PC Mem20 21=PC Mem21 22=PC Mem22 23=PC Mem23 24=PC Mem24 25=PC Mem25 26=PC Mem26 27=PC Mem27 28=PC Mem28 29=PC Mem29 30=PC Mem30 31=PC Mem31 32=PC Mem32
8600	2198	SDI A Standard	0=Auto 19=720x480i 59 20=720x576i 50 17=1280x720p 59 1=1920x1035i 60 2=1920x1035i 59 6=1920x1080i 60 7=1920x1080i 59 8=1920x1080i 50 34=1920x1080s 30 35=1920x1080s 29 36=1920x1080s 25 23=1920x1080s 24 24=1920x1080s 23
8603	219B	SDI A Film Mode	0=Auto 1=Film 2=Video
8700	21FC	SDI B Standard	0=Auto 19=720x480i 59 20=720x576i 50 17=1280x720p 59 1=1920x1035i 60 2=1920x1035i 59 6=1920x1080i 60 7=1920x1080i 59 8=1920x1080i 50 34=1920x1080s 30 35=1920x1080s 29 36=1920x1080s 25 23=1920x1080s 24 24=1920x1080s 23
8703	21FF	SDI B Film Mode	0=Auto 1=Film 2=Video

Supervisor Level

Command No.		Command Name	Values			
Dec	Hex					
6060	17AC	Output Gamma	min=0	max=1	pre=1	
6061	17AD	Output Gamma Red	min=10	max=10	pre=100	step=5
6062	17AE	Output Gamma Green	min=10	max=10	pre=100	step=5
6063	17AF	Output Gamma Blue	min=10	max=10	pre=100	step=5
6252	186C	Reference Horizontal Timing	min=-3000	max=-3000	pre=0	step=1
6253	186D	Reference Vertical Timing	min=-2000	max=-2000	pre=0	step=1
6400	1900	System Unit Name				
6401	1901	System Unit Gateway Address	min=17	max=17	pre=128	step=1
6420	1914	System IP Address				
6421	1915	System Subnet Mask				
6422	1916	System IP Gateway Address				
6423	1917	System Baud Rate for RS232A	0=1200 1=2400 2=4800 3=9600 4=19.2K 5=38.4K 6=57.6K 7=115.2K			
6424	1918	System Baud Rate for RS232B	0=1200 1=2400 2=4800 3=9600 4=19.2K 5=38.4K 6=57.6K 7=115.2K			
6425	1919	System Baud Rate for RS422	0=1200 1=2400 2=4800 3=9600 4=19.2K 5=38.4K 6=57.6K 7=115.2K			
6426	191A	System Select RS485	min=0	max=1	pre=0	
6430	191E	System LCD Brightness	min=0	max=0	pre=8	step=1
6431	191F	System LCD Contrast	min=0	max=0	pre=5	step=1
6432	1920	System Backlight Level	min=0	max=0	pre=8	step=1
6433	1921	System Backlight Colour	min=0	max=0	pre=0	step=1
6435	1923	System HardLock	min=0	max=1	pre=0	
6436	1924	System Timeout to Status	min=0	max=1	pre=0	
6437	1925	System Timeout Delay	min=0	max=0	pre=120	step=5
7023	1B6F	Chan X Betacam Levels	min=0	max=1	pre=0	
8002	1F42	CVBS A Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8102	1FA6	CVBS B Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8202	200A	YC A Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8302	206E	YC B Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8402	20D2	Component A Video Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8602	219A	SDI A Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			
8702	21FE	SDI B Colour Space	0=Auto 1=REC 601 2=SMPTE 274 3=SMPTE 240 4=BT 709			