TBS180, TBS180AV
TBS180TX, TBS180AVTX
TBS185, TBS185AV
TBS185TX, TBS185AVTX

Advanced Time Base Correctors

Operator's Manual

www.snellwilcox.com

Snell & Wilcox Ltd., Southleigh Park House, Eastleigh Road, Havant, Hants, PO9 2PE, United Kingdom.
For General Enquiry's contact: Tel: +44 (0) 2392 489000 Fax: +44 (0)23 9245 1411
For Technical assistance contact: Tel: +44 (0) 2392 489058 Fax: +44 (0) 2392 489057
Web: http://www.snellwilcox.com/support Ftp: ftp://ftp.snellwilcox.com/support

Explanation of Safety Symbols

GB

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

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

Safety Warnings

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

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.

Légende :

F

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

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

Précaution d'emploi :

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

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

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

Câble secteur de pays autres que les Etats-Unis

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

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

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

Erklärung der Sicherheitssymbole

D

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

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

Sicherheits-Warnhinweise

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

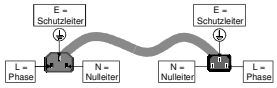
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation.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

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

Netzanschluss in anderen Ländern als der USA

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

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



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

Explicación de los Símbolos de Seguridad

ESP

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

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

Advertencias de Seguridad

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

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

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

Conexión de alimentación en otros países que no sean USA

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

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

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

Simboli di sicurezza: (I)

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

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

Attenzione:

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

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

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

Connessione elettrica nei paesi diversi dagli Stati Uniti

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

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

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

Forklaring på sikkerhedssymboler (DK)

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

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

Sikkerhedsadvarsler

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

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

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

Nettilslutning i andre lande end USA

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

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

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

Förklaring av Säkerhetssymboler (S)

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

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

Säkerhetsvarningar

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

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

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

Strömkontakter i länder utanför USA

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

GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)
BLÅ ledning ansluten till N (Neutral ledare)
BRUN ledning ansluten till L (Fas ledare)

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

Turvamerkkien selitys (FI)

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

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

Turvaohjeita

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

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

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

Sähkökytkentä

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

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

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

Símbolos de Segurança (P)

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

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

Avisos de Segurança

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

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

Ligação da alimentação noutros países que não os EUA

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

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

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

Επεξήγηση των Συμβόλων Ασφαλείας (G)

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

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

Προειδοποίηση Ασφαλείας

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

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

Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

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

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

ΜΠΛΕ καλώδιο συνδέεται στο N
(Ουδέτερο Αγωγό)

ΚΑΦΕ καλώδιο συνδέεται στο L (Αγωγό Φάσης)

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

Products employing Lithium batteries

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

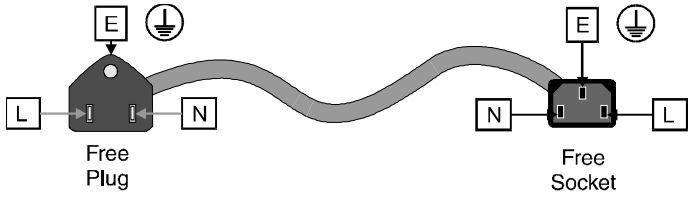
Power cable supplied for the USA

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

GREEN lead connected to E (Protective Earth Conductor)

BLACK lead connected to L (Live Conductor)

WHITE lead connected to N (Neutral Conductor)



For products with more than one power supply inlet

Caution: To reduce the risk of electric shock plug each power supply cord into separate branch circuits employing separate service grounds.

Rack Mounting the Enclosure

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

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

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

Safety Standard

This unit conforms to the following standards:

BS EN60950:1992 *Specification for safety of information technology equipment, including electrical business equipment*

cULus Listed Professional Video Equipment File No. E193966

EMC Standards

This unit conforms to the following standards:

BS EN 55103-1 : 1997
Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1. Emission

BS EN 55103-2 : 1997
Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

Federal Communications Commission Rules Part 15, Class A :1998

EMC Environment

The product(s) described in this manual conform to the EMC requirements for, and are intended for use in,
either
The commercial and light industrial environment (including, for example, theatres) E2
or
The controlled EMC environment (for example purpose-built broadcasting or recording studios), and the rural outdoor environment (far away from railways, transmitters, overhead power lines, etc.) E4

The applicable environment is stated in the Technical Profile section of the product operation manual under *"EMC Performance Information/Environment."*

EMC Performance Information

Please refer to the *Technical Profile/Specifications* section of the product operation manual.

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.

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.

About this Manual

This manual covers the following products:

- TBS180, TBS180AV TBS180TX, TBS180AVTX TBS185, TBS185AV, TBS185TX, TBS185AVTX advanced timebase correctors

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 unauthorised 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:

- Power cable.
- 4 BNC to BNC cables (AV versions only)
- Operator's Manual for each module fitted.
- Slot 4 will be fitted with an all-BNC rear panel connector rear panel.
- Balanced (25 way D) I/O audio rear panel

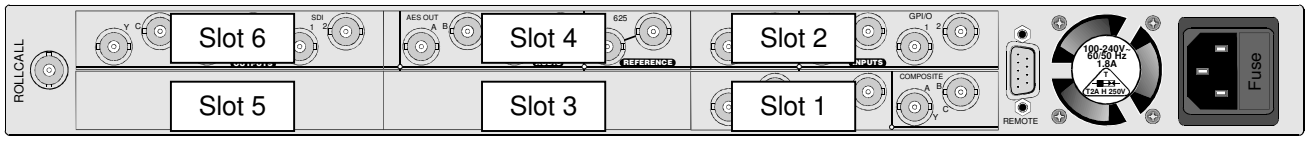
Rear Panels

Cards fitted into the various mainframes and their associated rear panels are as indicated below:

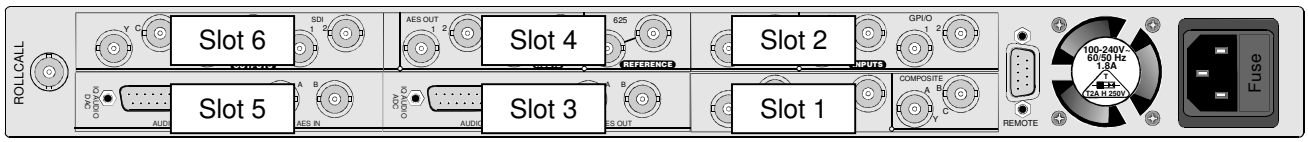
	Slot 1	Slot 2	Slot 3	Slot 5
TBS180		TBS180	Blank Panel	Blank Panel
TBS180TX		TBS180	Blank Panel	Blank Panel
TBS180AV		TBS180	IQBADCD-1K-N 4 Channel audio ADC (No Delay)	IQBDACD-1K-N 4 Channel audio DAC (No Delay)
TBS180AVTX		TBS180	IQBADCD-1K-N 4 Channel audio ADC (No Delay)	IQBDACD-1K-N 4 Channel audio DAC (No Delay)
TBS185	IQDAMDD	TBS185	Blank Panel	Blank Panel
TBS185TX	IQDAMDD	TBS185	Blank Panel	Blank Panel
TBS185AV	IQDAMDD	TBS185	IQBADCD-1K-N 4 Channel audio ADC (No Delay)	IQBDACD-1K-N 4 Channel audio DAC (No Delay)
TBS185AVTX	IQDAMDD	TBS185	IQBADCD-1K-N 4 Channel audio ADC (No Delay)	IQBDACD-1K-N 4 Channel audio DAC (No Delay)

Slot 4 will be fitted with an all-BNC rear panel connector rear panel. A balanced (25 way D) I/O audio rear panel (supplied) may be fitted in this slot.

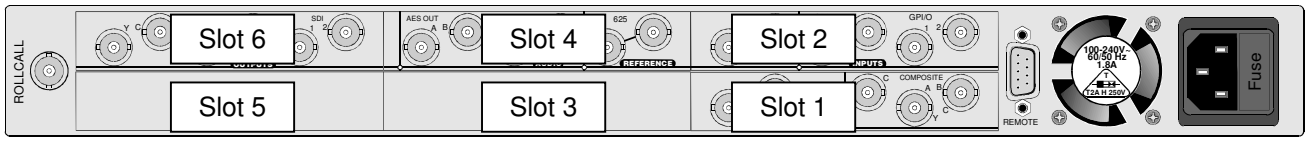
TBS180, TBS180TX



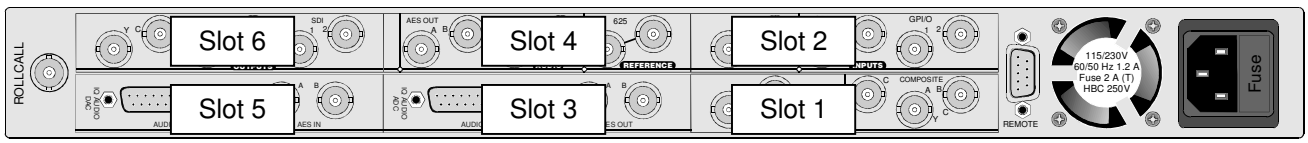
TBS180AV TBS180AVTX



TBS185, TBS185TX



TBS185AV, TBS185AVTX



Software Version Amendments

Notes about Versions Fitted

Software. The TBS180 is shipped with Version 6.3. .8 of the software.
The TBS180TX is shipped with Version 6.3. .8 of the software.
The TBS180AV is shipped with Version 6.3. .8 of the software.
The TBS180AVTX is shipped with Version 6.3. .8 of the software.
The TBS185 is shipped with Version 6.5. .8 of the software.
The TBS185TX is shipped with Version 6.5. .8 of the software.
The TBS185AV is shipped with Version 6.5. .8 of the software.
The TBS185AVTX is shipped with Version 6.5. .8 of the software.

Manufacturers Notice

Table of Contents

SECTION

Product Support Procedure

If you experience any technical or operational difficulties with a Snell & Wilcox product please do not hesitate to contact us or utilize our online form to request assistance.

There is a lot of information you can give us that will enable us to diagnose your problem swiftly. Please read the following guidelines, as these suggestions will help us to help you.

Basic Information

For Units ..... Please provide the exact product Model, unit Serial Number and Software Version information.

For Cards or Modules . Please provide the Sub-Assembly Number, card Serial Number and the Software Version information.

Basic Application

Inputs ..... Please provide full details of the Input Signals being used including any references etc. and where they are being generated.

Outputs ..... Please provide full details of the Output Signals required and how they are being monitored.

System ..... Please provide a brief description of the system in which your S&W equipment is currently being used.

Basic Tests

Preset Unit ..... Please use the Preset Unit function to return the settings back to the factory default.

RollCall ..... Is your unit currently connected to a RollCall capable PC? This software is obtainable for free and provides a very user friendly GUI for virtually all S&W equipment - perfect for complex products, large systems or those with passive front panels.

Card Edge Info. ..... What is the status of the card edge LEDs or display? These can often provide information such as power status and input detection conditions.

Internal TPG ..... Many S&W products have an internal test pattern/tone generator. Please activate this to assist you with your problem analysis.

In addition to the above, please do not forget to provide us with all of the necessary contact information:

- Names
- Telephone & Fax numbers
- e-mail addresses
- Business address

A form has been provided for this information and will be found on the next page or an on-line form is available on the Snell & Wilcox website at:

http://www.snellwilcox.com/support/request

Product Support Request Form

Name: *		
Company:		
Address Details: *		
Post/ZIP Code:		
Country: *		
Telephone: *		
Fax:		
Email: *		
Local S&W Center: *		
Product Name: *		
Product Type: *	Switchers (i.e. Magic DaVE, Switchpack, Kahuna)	
	File & Data Transfer Products (i.e. RollCall, Memphis & Asteroid)	
	Video Products (i.e. Modular, Kudos Plus and Alchemist)	
Unit Serial Number: *		
Fault/Spare Part Information: * (please advise us how many units show this fault and the system layout showing all other manufacturers' products)		
*** Preferred Method of Contact:**	e-mail	
	Phone	

- **Item is required.**

Please mail to:	Snell & Wilcox Ltd., Southleigh Park House, Eastleigh Road, Havant, Hants, PO9 2PE. United Kingdom.	**Service Contact Information:** Tel: +44 (0) 2392 489058 Fax: +44 (0) 2392 489057 http://www.snellwilcox.com/support ftp://ftp.snellwilcox.com/support

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
180602	1	1		First issue released
211002	1	2	To all sections for new software	Complete new manual issued
030703	1	3	Multilingual safety data and mounting warning added to section 00, 03, opening the front panel data added to section 03. UL Listed mark added section 00	Complete new manual issued
070803	1	4	Data for installing enclosed balanced audio I/O rear added.	Complete new manual issued
050405	1	5	New logo added	Complete new manual issued

Description-TBS180/TBS180TX/TBS180AV/TBS180AVTX

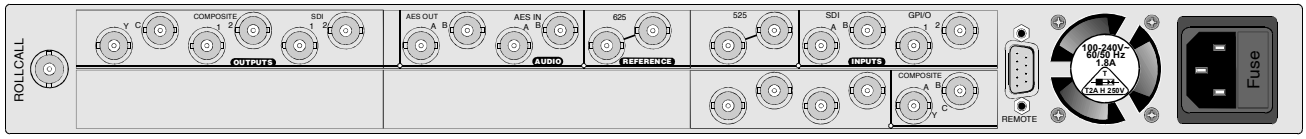
The TBS180 provides multi-standard Y/C, Composite and SDI timebase correction and synchronization. The Composite input automatically detects PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM, and is sampled and decoded using an adaptive comb filter to ensure optimum decoding performance. The signal correction features include luminance and chrominance gain, black level, NTSC hue, vertical and horizontal enhancers, RGB gamut legalizer, Y-C horizontal timing and picture position. Rugged sync and clock recovery ensures reliable operation with unstable and noisy inputs. In addition a powerful frame recursive noise reducer automatically eliminates much background noise providing much improved performance over adaptive technology. A sophisticated motion detector seamlessly switches off the noise reduction in moving picture areas.

The broadcast quality 12-bit output encoder is fully genlockable to a composite reference and supports PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM. The TBS180 will also operate as a transcoder between any of the available standards of the same line rate. Serial digital component outputs are available simultaneously on the TBS180.

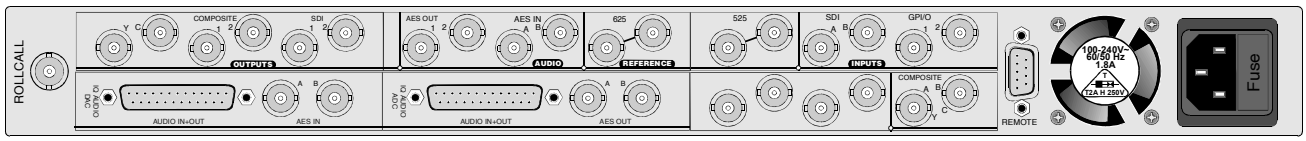
The TBS180 has two separate AES inputs that can be embedded into any of the eight pairs of the SDI output. Individual channel routing is also provided, along with two AES outputs.

Other features include freeze, pattern generation, and GPI control / audio delay flag output. Full RollCall remote control is available including RollTrack for audio delay tracking.
The TBS180AV versions have an analog audio I/O interface and the TX versions have a blank front panel with RollCall only control.

TBS180, TBS180TX



TBS180AV, TBS180AVTX



Features- TBS180/TBS180TX/TBS180AV/TBS180AVTX

- 4:2:2 frame synchronizer / timebase corrector
- Synchronizes up to 4 channels of audio
- Analog audio I/O option (TBS180AV)
- Linear horizontal and vertical enhancer
- Broadcast quality 12-bit encoder
- AES sub-frame routing and audio shuffling
- Remote control only version (TBS180TX)
- Input standards - PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM
- Output standards - PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM
- Auto standards detection
- Y-C and Composite input and output
- Spare slots for S & W IQ modules (e.g. Component ADC or DAC) with front panel control of additional modules
- Handles VHS tape-playback including trick play modes
- Genlockable SPG with phasing adjustments
- Adaptive comb decoder
- PAL Hanover bar suppression
- Gamut legalization to RGB color space
- Motion adaptive recursive noise reducer with automatic noise floor measurement
- Test signal generator (100/75% color bars, multi-burst, black)
- VITS insertion on composite / YC outputs
- PAL Line 23 and NTSC Line 21/283, pass video, pass data and blank
- Selectable Automatic Gain Control.
- Selectable ACC referenced to color burst
- Adjustment of luma gain, black level, chroma gain, NTSC Hue and horizontal timing
- Frame freeze on signal loss
- Black or pattern option for lost input signal
- Vertical information passed or blanked on either composite/YC or SDI outputs
- Delay Flag (GPI port) output and RollTrack™ for audio tracking
- 2 programmable GPI ports
- 8 programmable memories
- Full RollCall remote control (including RollTrack for audio delay)

Description-TBS185/TBS185TX/TBS185AV/TBS185AVTX

The TBS185 provides multi-standard Composite and SDI timebase correction and synchronization. The unit provides multi-standard digital decoding of PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM composite video using enhanced 3D Golden Gate technology. The composite input is sampled with 12-bit resolution and decoded using adaptive 3D frame comb filter techniques to ensure optimum picture sharpness. Signal correction features include luminance and chrominance gain, black level, NTSC hue, RGB gamut legalizer, picture position and Y/C horizontal timing.

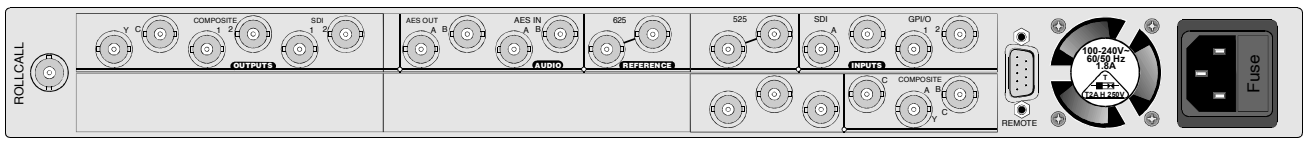
A powerful frame recursive noise reducer is able to automatically eliminate much background noise. A sophisticated motion detection circuit seamlessly switches off the noise reduction in moving picture areas.

The 12-bit broadcast quality encoder is fully genlockable to a composite reference and supports PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM. The TBS185 will also operate as a transcoder between any of the available standards of the same line rate. Serial digital component outputs are available simultaneously.

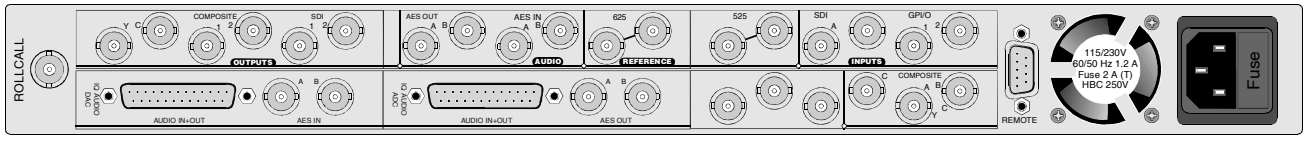
The TBS185 has two separate AES inputs that can be embedded into any of the 8 pairs in the SDI output. Individual channel routing is also provided, along with two AES outputs.

Other features include freeze, pattern generation, and GPI control / audio delay flag output. Full RollCall remote control is available including RollTrack for audio delay tracking.
The TBS185AV versions have an analog audio I/O interface and the TX versions have a blank front panel with RollCall only control.

TBS185, TBS185TX



TBS185AV, TBS185AVTX



Features- TBS185/TBS185TX/TBS185AV/TBS185AVTX

- 4:2:2 frame synchronizer / timebase corrector
- Synchronizes up to 4 channels of audio
- Uses enhanced 12-bit Golden Gate decoding technology using an adaptive 3D (frame) digital comb filter (Composite C input)
- Analog audio I/O option (TBS185AV)
- Linear horizontal and vertical enhancer
- Motion adaptive recursive noise reducer with automatic noise floor measurement
- Broadcast quality 12 bit encoder
- AES sub-frame routing and audio shuffling
- Remote control only version (TBS185TX)
- Input standards - PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM
- Output standards - PAL, NTSC, NTSC-J, PAL-N, PAL-M, N4.43 and SECAM
- Auto standards detection
- Y-C and Composite input and output
- Spare slots for S & W IQ modules (e.g. Component ADC or DAC) with front panel control of additional modules
- Handles VHS tape-playback including trick play modes (Composite A & B inputs)
- Genlockable SPG with phasing adjustments
- PAL Hanover bar suppression
- Gamut legalization to RGB color space
- Test signal generator (100/75% color bars, multi-burst, black)
- VITS insertion on composite / YC outputs
- PAL Line 23 and NTSC Line 21/283, pass video, pass data and blank
- Selectable Automatic Gain Control.
- Selectable ACC referenced to color burst
- Adjustment of luma gain, black level, chroma gain, NTSC Hue and horizontal timing
- Black or pattern option for lost input signal
- Vertical information passed or blanked on either composite/YC or SDI outputs
- Delay Flag (GPI port) output and RollTrack™ for audio tracking
- 2 programmable GPI ports
- 8 programmable memories
- Full RollCall remote control (including RollTrack for audio delay)

Technical Profile TBS180

Features

Signal Inputs

SDI	2 via BNC connectors - SMPTE 259M –1997 and embedded audio SMPTE 272M level A
Composite	2 via BNC connectors
Y/C	1 via 2 BNC connectors
AES/EBU Audio	2 x BNC; Unbalanced, 25-100kHz asynchronous or 48kHz synchronous to input video – SMPTE 276M-1995
Reference (525)	1 via Loop-Through BNC connectors
Reference (625)	1 via Loop-Through BNC connectors

Signal Outputs

Composite	2 program outputs via BNC connectors
Y/C	1 program output via 2 x BNC connectors
Serial Digital Component (SDI)	2 outputs via BNC connectors
AES/EBU Audio	2 x BNC; Unbalanced, 48KHz synchronous to output video

Control Interface

GPI I/O	2 via BNC connectors Closing contact Input/Output
RollCall	Via BNC connector
Remote	S & W RollCall RS485 or RS422 @ 38 kB via 9 way D connector

Front Panel Controls

Input Select	Composite A/B, SDI A/B, Y/C
Audio	
Freeze	On / Off
Pattern / Black	On / Off
Y Gain	
C Gain	
Black Level	
Hue	
Noise Reduction	On / Off
Enhance	On / Off
Memories	8 locations
Genlock	On / Off
Browse	
Setup	

Audio Controls

Gain L & R	Separate L & R controls for each embedder ± 6dB in 0.25dB steps
Invert L & R	Separate L & R controls for each embedder On / Off
Mute L & R	Separate L & R controls for each embedder On / Off
Disable	Separate controls for each embedder On / Off
Default Output	Separate controls for each embedder Tone, Silence, Disable
Audio delay	1 – 160 ms
Tone Setup:	
Amplitude	-30dBFS to 0dBFS in 1dB steps
Frequency	100Hz to 10kHz in 100Hz steps
Right Channel Ident	Pulse interruption every ~2s

Indicators

	Input Loss
	Reference Loss

Information Readback

Audio	Embedded channel data present, AES inputs present
EDH	present : error minute : error hour
Delay	
Software Version	
Serial Number	
Unit temperature	OK, Near Limit, and Overheating

Additional RollCall™ Functions

Logging	Reference, Input, Output Standard, EDH, AES Inputs,
RollTrack	Set up to 8 unit destinations for Input Loss, Input restore or Delay information

System Parameters

Internal Processing	4:2:2 with 10 bit or greater data paths

Encoder

Composite Encoding	12 bit
Y Frequency Response	5.5 MHz ± 0.05 dB
U/I/Db & V/Q/Dr Frequency Response	1.3 MHz <-3 dB, 4.0MHz <-20dB
Differential Gain	Better than 0.2%
Differential Phase	Better than 0.2°
SCH Phase	0 ± 2°
Composite Output Return Loss	Better than 35 dB to 5.8 MHz
Free run frequency error	< 10ppm
Genlock SC jitter	< 0.5 deg

Decoder

Standards	NTSC, PAL, PALM, PALN, NTSC-J, N443, SECAM
Y Frequency Response	5.5 MHz +0 -0.5dB (NTSC, PAL)
Signal/Noise Ratio	Better than 61dB Weighted (NTSC, PAL)
PbPr Frequency Response	1.5 MHz -3dB (NTSC, PAL)
2T Pulse-Shape K-rating	Better than 1% (NTSC, PAL)
Y non-linearity Error	Better than 2%
Differential Gain	Better than 2%
Differential Phase	Better than 1deg.
Subcarrier Rejection	Better than 46dB (NTSC, PAL) (Test signal Modulated Staircase)

Encoder Controls

Composite Output Standard	625 – PAL, PALN, SECAM 525 – NTSC, NTSC-J, PAL-M, N443
Minimum Blanking	On / Off for 625 and 525 outputs
PAL-I Blanking	On / Off for PAL output
VITS insert	On / Off for 625 and 525 outputs
Pass Vertical Data	On / Off
SECAM Bottles	On / Off
SECAM Notch	On / Off
SECAM Carrier	On / Off
SECAM Chroma Prefilter	On / Off

Decoder Controls

Input Standard	Auto / Manual - PAL, NTSC, NTSC-J, PALM, PALN, N443, SECAM
ACC	On / Off
AGC	On / Off
NTSC Hue	±30°
VBI Pass	Selectable pass or blank for each vertical interval line

Noise Reducer Controls

Y Noise Reduction Level	Off / Low / Medium / High
C Noise Reduction Level	Off / Low / Medium / High
Sparkle Filter	On / Off
Median Filter	On / Off
Recursive Threshold Level	Auto + 8 manual levels
Split Screen	Off, Left-Right, Top-Bottom
Logging	Reference Loss, Input Loss, Input & Output Standard, Decoder lock

Specifications

Return Loss: Inputs	better than 35 dB to 5.0 MHz
Return Loss: Outputs	better than 30 dB to 5.0 MHz
Return Loss SDI Inputs	better than 15 dB at 270 MHz
Return Loss SDI Outputs	better than 15 dB at 270 MHz

Power

Mains Supply	115/230V 60/50 Hz 1.2 A
Power Consumption	140 W max

Mechanical

Temperature Range	0° to 40° C operating
Cooling	Axial fan
Case Type	1RU Rack Mounting
Dimensions	Overall 483 x 440 x 45 mm. (w x d x h). Depth from mounting face (including unmated connectors) 415 mm.
Weight	9.75 kg
EMC Environment	This unit is intended for use in the commercial and light industrial environment E2.

Technical Profile TBS185

Features

Signal Inputs

SDI	1 via BNC connector - SMPTE 259M –1997 and embedded audio SMPTE 272M level A
Composite	3 via BNC connectors
Y/C	1 via 2 BNC connectors
AES/EBU Audio	2 x BNC; Unbalanced, 25-100kHz asynchronous or 48kHz synchronous to input video – SMPTE 276M-1995
Reference (525)	1 via Loop-Through BNC connectors
Reference (625)	1 via Loop-Through BNC connectors

Signal Outputs

Composite	2 program outputs via BNC connectors
Y/C	1 program output via 2 x BNC connectors
Serial Digital Component (SDI)	2 outputs via BNC connectors
AES/EBU Audio	2 x BNC; Unbalanced, 48KHz synchronous to output video

Control Interface

GPI I/O	2 via BNC connectors Closing contact Input/Output
RollCall	Via BNC connector
Remote	S & W RollCall RS485 or RS422 @ 38 kB via 9 way D connector

Front Panel Controls

Input Select	Composite A/B/C, SDI A, Y/C
Audio	
Freeze	On / Off
Pattern / Black	On / Off
Y Gain	
C Gain	
Black Level	
Hue	
Noise Reduction	On / Off
Enhance	On / Off
Memories	8 locations
Genlock	On / Off
Browse	
Setup	

Audio Controls

Gain L & R	Separate L & R controls for each embedder
	± 6dB in 0.25dB steps
Invert L & R	Separate L & R controls for each embedder On / Off
Mute L & R	Separate L & R controls for each embedder On / Off
Disable	Separate controls for each embedder On / Off
Default Output	Separate controls for each embedder
	Tone, Silence, Disable
Audio delay	1 – 160 ms
Tone Setup:	
Amplitude	-30dBFS to 0dBFS in 1dB steps
Frequency	100Hz to 10kHz in 100Hz steps
Right Channel Ident	Pulse interruption every ~2s

Indicators

	Input Loss
	Reference Loss

Information Readback

Audio	Embedded channel data present, AES inputs present
EDH	present : error minute : error hour
Delay	
Software Version	
Serial Number	
Unit temperature	OK, Near Limit, and Overheating

Additional RollCall™ Functions

Logging	Reference, Input, Output Standard, EDH, AES Inputs,
RollTrack	Set up to 8 unit destinations for Input Loss, Input restore or Delay information

System Parameters

Internal Processing	4:2:2 with 10 bit or greater data paths

Encoder

Composite Encoding	12 bit
Y Frequency Response	5.5 MHz ± 0.05 dB
U/I/Db & V/Q/Dr Frequency Response	1.3 MHz <-3 dB, 4.0MHz <-20dB
Differential Gain	Better than 0.2%
Differential Phase	Better than 0.2°
SCH Phase	0 ± 2°
Composite Output Return Loss	Better than 35 dB to 5.8 MHz
Free run frequency error	< 10ppm
Genlock SC jitter	< 0.5 deg

Decoder	Composite C input with Golden Gate Technology (see TBS180 for Composite A & B inputs)
Standards	PAL, NTSC, NTSC-J, PALM, PALN, N443, SECAM
Y Frequency Response	5.75MHz ±0.1dB
Signal/Noise Ratio	Better than –65dB (Weighted, Ramp)
2T Pulse-Shape K-rating	Better than 0.5%
PbPr Frequency Response	1.5MHz –3dB
Y non-linearity	Better than 0.5%
Differential Gain	Better than 0.5%
Differential Phase	Less than 0.5deg (5 step modulated staircase)

Encoder Controls

Composite Output Standard	625 – PAL, PALN, SECAM 525 – NTSC, NTSC-J, PAL-M, N443
Minimum Blanking	On / Off for 625 and 525 outputs
PAL-I Blanking	On / Off for PAL output
VITS insert	On / Off for 625 and 525 outputs
Pass Vertical Data	On / Off
SECAM Bottles	On / Off
SECAM Notch	On / Off
SECAM Carrier	On / Off
SECAM Chroma Prefilter	On / Off

Decoder Controls

Input Standard	Auto / Manual PAL, NTSC, NTSC-J, PALM, PALN, N443, SECAM
ACC	On / Off
AGC	On / Off
NTSC Hue	±30°
VBI Pass	Selectable pass or blank for each vertical interval line

Noise Reducer Controls

Y Noise Reduction Level	Off / Low / Medium / High
C Noise Reduction Level	Off / Low / Medium / High
Sparkle Filter	On / Off
Median Filter	On / Off
Recursive Threshold Level	Auto + 8 manual levels
Split Screen	Off, Left-Right, Top-Bottom
Logging	Reference Loss, Input Loss, Input & Output Standard, Decoder lock

Specifications

Return Loss: Inputs	better than 35 dB to 5.0 MHz
Return Loss: Outputs	better than 30 dB to 5.0 MHz
Return Loss SDI Inputs	better than 15 dB at 270 MHz
Return Loss SDI Outputs	better than 15 dB at 270 MHz

Power

Mains Supply	115/230V 60/50 Hz 1.2 A
Power Consumption	140 W max

Mechanical

Temperature Range	0° to 40° C operating
Cooling	Axial fan
Case Type	1RU Rack Mounting
Dimensions	Overall 483 x 440 x 45 mm. (w x d x h). Depth from mounting face (including unmated connectors) 415 mm.
Weight	9.75 kg

EMC Environment	This unit is intended for use in the commercial and light industrial environment E2.

Installation

Unpacking the TBS180/TBS185

The unit is packed in a single carton. The contents of the flight case are as follows:

1 TBS180/TBS185 unit
1 Power cable
4 BNC to BNC cables (AV versions only)
Operator's manual for each module fitted
1 Balanced (25 way D) I/O audio rear panel

Unpack the carton carefully and check for any shortages or shipping damage. Immediately report any shortages or damage to Snell and Wilcox Limited.

POWER CONNECTIONS

Power Supply

Mains power is supplied to the unit via a filtered IEC connector.

The mains power fuse rating is 2 A (T) HBC and the rated current for the unit is 1.2 A.

The power supply ON/OFF switch is located on the front of the power supply inside the front panel.

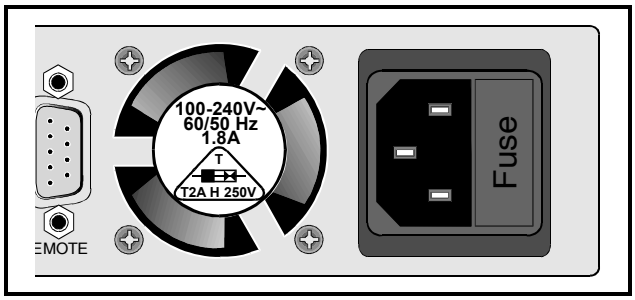
CAUTION: THE VENTILATION HOLES AT THE SIDES OF THE UNIT AND THE FAN EXIT AREA MUST NOT BE OBSCURED.

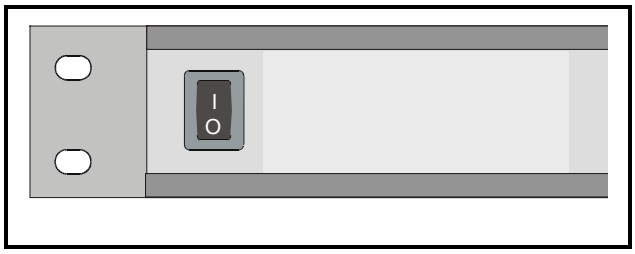
Supply Voltage

The power supplies are auto switching for input voltages in the ranges of 100 V to 250 V nominal.

No voltage adjustment procedure is required.

CAUTION: THIS UNIT MUST NOT BE OPERATED WITHOUT AN EARTH CONNECTION.





Rack Mounting the 1U Enclosure

The product must not be rack mounted using only the front rack mounting ears. When installing the product in a rack one of the following methods must be used: -

- Place the unit on a suitably specified, and installed rack shelf and secure the product to the rack via the front rack ears
- Alternatively fit the unit using additional rear rack mounts

A suitable mounting kit is available for purchase from Snell & Wilcox by quoting the order code:

FGACK RACK-MNT-KIT

Note: The rear mounting brackets must be attached using the two M3 threaded inserts on both sides of the product; the maximum length of screw that can be used is M3 x 6mm. Ensure that the product is secured to the rack in all four corners.

Removing and fitting a rear connecting panel

Warning: **Remove power from the unit when performing these operations**

Removing a rear connecting panel

1. At the rear of the enclosure remove the screws securing the rear panel to the mainframe.
2. Remove the rear panel by pulling the rear panel away from the mainframe in a straight line.

Fitting a rear connecting panel

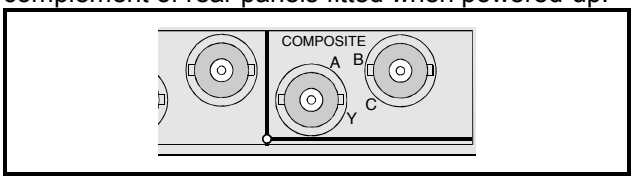
1. Ensuring correct panel orientation and correct alignment of the multi-way connector fit the rear connecting panel to the rear of the enclosure by inserting the panel into the mainframe in a straight line.
2. Secure the panel with the fixing screws.

Warning: The rear of the enclosure must have a full complement of rear panels fitted when powered-up.

INPUT CONNECTIONS

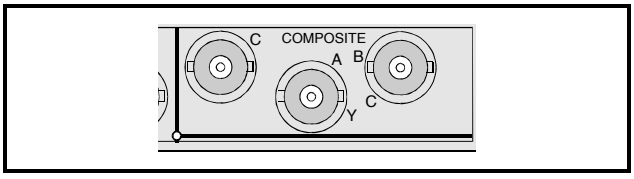
Composite A and B

These are the 2 Composite video inputs to the decoder module via BNC connectors. Nominal input level is 1 V p-p terminated in 75 Ohms.



Composite C (TBS185) Golden gate Technology

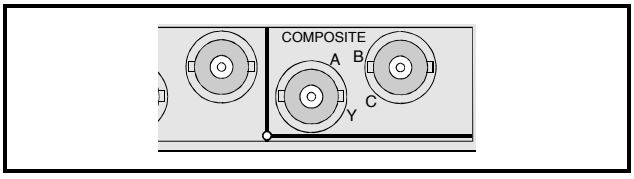
This is the third Composite video input to the decoder module via a BNC connector. Nominal input level is 1 V p-p terminated in 75 Ohms.



Separated Y C

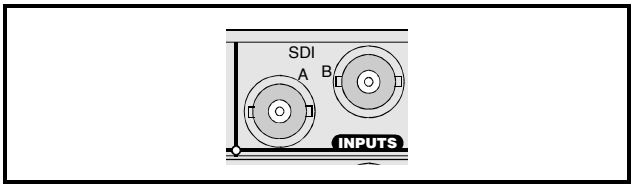
A Y-C (S-VHS, Hi-8 etc.) input signal may be connected to the unit via 2 BNC connectors.
Y should be connected to Composite A and C to Composite B.

Y input level is a nominal 1V p-p into 75 Ohms.
C input is nominal colour burst level into 75 Ohms.



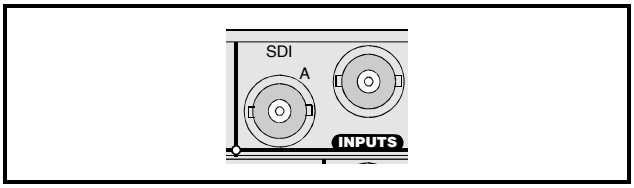
SDI A & B

These are the 2 SDI inputs to the unit via BNC connectors.



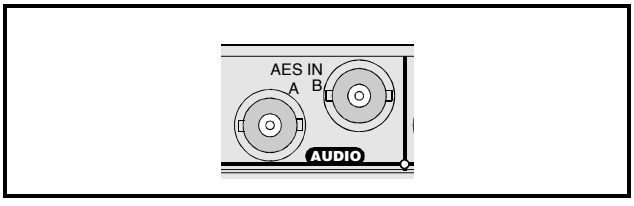
SDI A (TBS185)

This is the SDI input to the unit via a BNC connector.



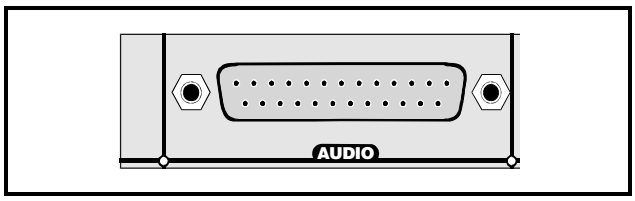
AES A & B (BNC Rear Panel)

These are the 2 unbalanced AES/EBU Audio inputs to the unit via BNC connectors. Nominal input level is 1 V p-p terminated in 75 Ohms.



AES A & B (25 way D Rear Panel)

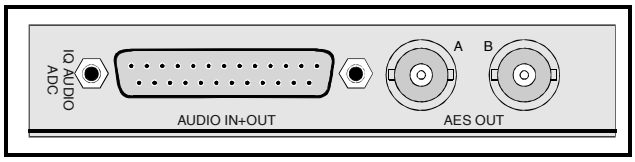
All balanced audio connections are made via the 25 way D Connector.



25 Way D Connection Details

25 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
1		1	CHASSIS
14	AES IN A Gnd	2	GND1
2	AES IN A +	3	1+
15	AES IN A -	4	1-
3	AES IN B +	5	2+
16	AES IN B -	6	2-
4	AES IN B Gnd	7	GND2
17	Unused	8	GND3
5	Unused	9	3+
18	Unused	10	3-
6	Unused	11	4+
19	Unused	12	4-
7	Unused	13	GND4 (CH)
20	Unused	14	GND5
8	Unused	15	5+
21	Unused	16	5-
9	AES OUT A +	17	6+
22	AES OUT A -	18	6-
10	AES OUT A Gnd	19	GND6
23	AES OUT B Gnd	20	GND7
11	AES OUT B +	21	7+
24	AES OUT B -	22	7-
12	Unused	23	8+
25	Unused	24	8-

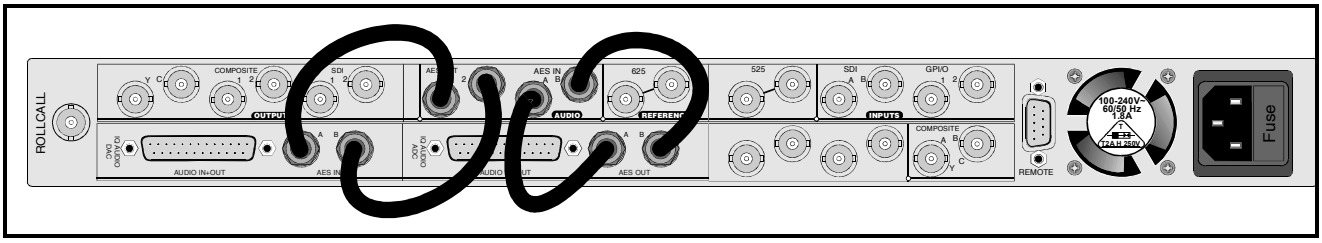
Analog Audio In (AV only)



Analog audio in is via the IQAUDIO-ADC using the 25 way D-type connector labeled AUDIO IN+OUT.

To use the analog inputs, the two AES out connectors must be connected to the TBS180/185AV audio inputs using two of the BNC cables provided (see diagram below).

Connection Details



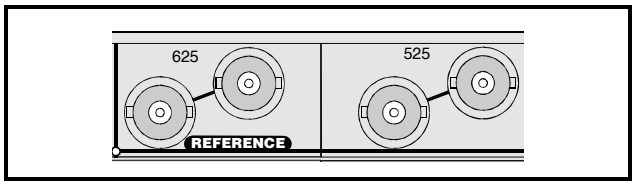
25 Way D Connection Details

25 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
1		1	CHASSIS
14	ANALOG AUDIO IN 1 LEFT GND	2	GND1
2	ANALOG AUDIO IN 1+ LEFT	3	1+
15	ANALOG AUDIO IN 1- LEFT	4	1-
3	ANALOG AUDIO IN 1+RIGHT	5	2+
16	ANALOG AUDIO IN 1- RIGHT	6	2-
4	ANALOG AUDIO IN 1 RIGHT GND	7	GND2
17	ANALOG AUDIO IN 2 LEFT GND	8	GND3
5	ANALOG AUDIO IN 2+ LEFT	9	3+
18	ANALOG AUDIO IN 2- LEFT	10	3-
6	ANALOG AUDIO IN 2+ RIGHT	11	4+
19	ANALOG AUDIO IN 2- RIGHT	12	4-
7	ANALOG AUDIO IN 2 RIGHT GND	13	GND4 (CH)
20		14	GND5
8		15	5+
21		16	5-
9	AES AUDIO OUT 1 +	17	6+
22	AES AUDIO OUT 1 -	18	6-
10	AES AUDIO OUT 1 GND	19	GND6
23	AES AUDIO OUT 2 GND	20	GND7
11	AES AUDIO OUT 2 +	21	7+
24	AES AUDIO OUT 2 -	22	7-
12	AES AUDIO REF IN +	23	8+
25	AES AUDIO REF IN -	24	8-
13	AES AUDIO REF GND	25	GND8

Reference Inputs

525 and 625

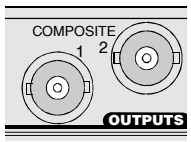
When suitable signals are connected to these inputs, the video output of the unit will be fully synchronised to the relevant signal source when the genlock function is selected. There are separate inputs for 525 and 625 line standard signals. If no signal is present the unit will automatically revert to internal free-running operation.
BNC loop-through connectors are provided and the signal may be black burst or composite video at standard level.



OUTPUT CONNECTIONS

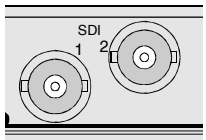
Composite Outputs 1 & 2

Two isolated composite outputs are available from these BNC connectors.
Output level is standard 1V p-p into 75 Ohms.



SDI 1 & 2

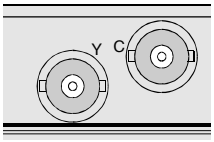
These are the 2 SDI outputs of the unit via BNC connectors.



Y-C Separated Output

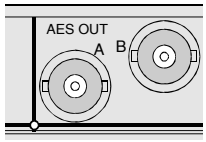
A Y-C (S-VHS/Hi-8) output signal is available via these 2 BNC connectors marked Y and C.

Y output level is a nominal 1 V p-p into 75 Ohms.
C output is a nominal colour burst level into 75 Ohms.



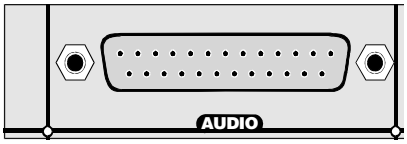
AES A & B (BNC Rear Panel)

The unbalanced audio outputs can be configured to be AES input A/B, embedded audio or internally generated test tone.



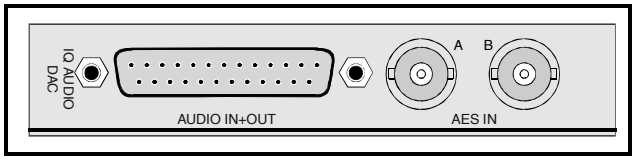
AES A & B (25 way D Rear Panel)

All balanced audio connections are made via the 25 way D Connector.
For connection details please see previous page, ***25 Way D Connection Details*.**



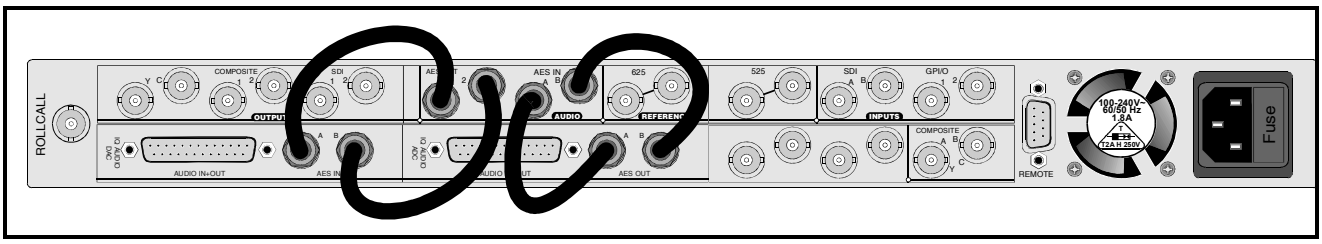
Analog Audio Out (AV only)

Analog audio out is via the IQAUDIO-DAC using the 25 way D-type connector labeled AUDIO IN+OUT.



To use the analog outputs, the two AES in connectors must be connected to the TBS180/185AV audio outputs using two of the BNC cables provided (see diagram below).

Connection Details



25 Way D Connection Details

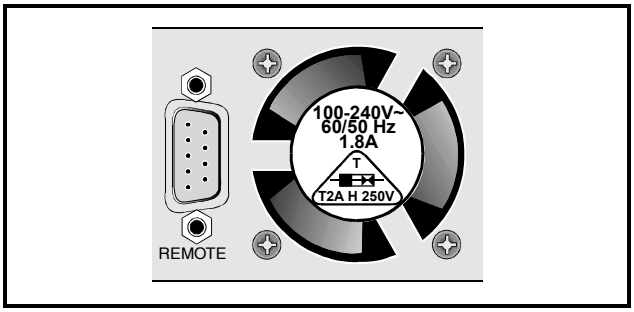
25 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
1		1	CHASSIS
14	ANALOG OUT 1 Left Gnd	2	GND1
2	ANALOG OUT 1 Left+	3	1+
15	ANALOG OUT 1 Left-	4	1-
3	ANALOG OUT 1 Right+	5	2+
16	ANALOG OUT 1 Right-	6	2-
4	ANALOG OUT 1 Right Gnd	7	GND2
17	ANALOG OUT 2 Left Gnd	8	GND3
5	ANALOG OUT 2 Left+	9	3+
18	ANALOG OUT 2 Left-	10	3-
6	ANALOG OUT 2 Right+	11	4+
19	ANALOG OUT 2 Right-	12	4-
7	ANALOG OUT 2 Right Gnd	13	GND4 (CH)
20		14	GND5
8		15	5+
21		16	5-
9	DIGITAL IN 1+	17	6+
22	DIGITAL IN 1-	18	6-
10	DIGITAL IN 1 Gnd	19	GND6
23	DIGITAL IN 2 Gnd	20	GND7
11	DIGITAL IN 2+	21	7+
24	DIGITAL IN 2-	22	7-
12		23	8+
25		24	8-
13		25	GND8

Note: When assembling cables connect pin 13 of the D-Type to pin 7 of the D-Type to ensure the signal ground and chassis ground are connected.

COMMUNICATIONS CONNECTORS

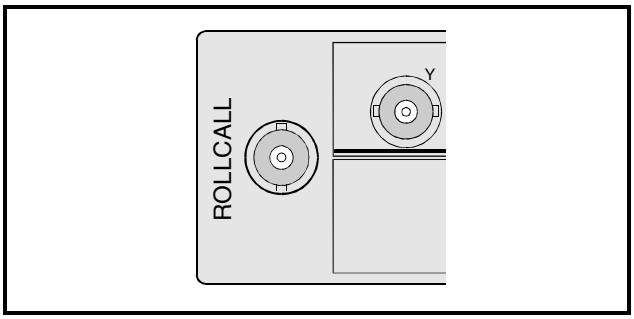
Remote

This 9 pin `D' connector on the rear panel allows the unit to be connected to the RollCall 485 network communications system. This connector may also be used as a RS422 port. For more information see Section 5 ***Modes of Operation.***



RollCall

This single BNC connector allows the unit to be connected to the RollCall network communications system.

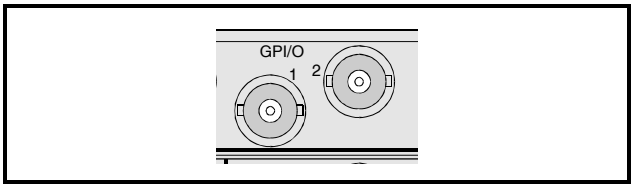


GPI I/O 1 and 2

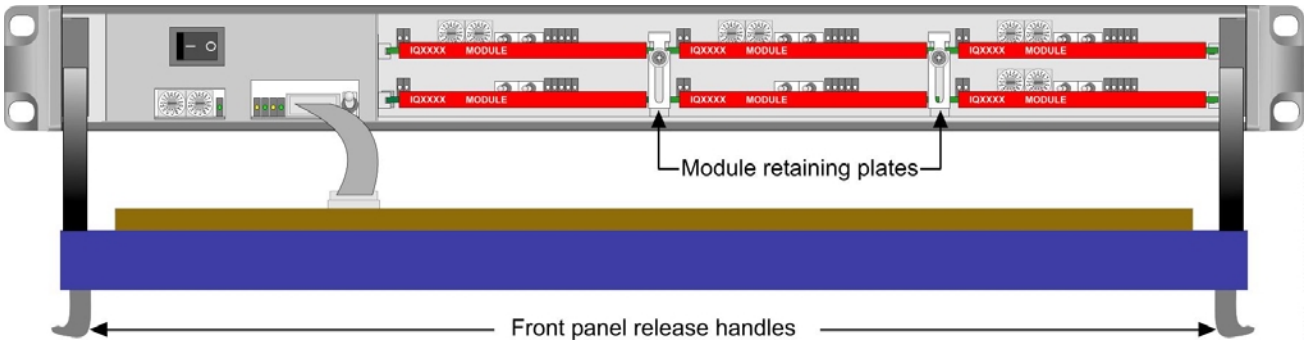
These BNC connectors provide GPI input and output control for the module.

Both GPI1 and GPI2 may be configured as inputs that will allow memory locations to be recalled.

GPI2 may be configured as an output and will provide an audio delay flag representing the video delay through the unit.



OPENING AND CLOSING THE FRONT PANEL

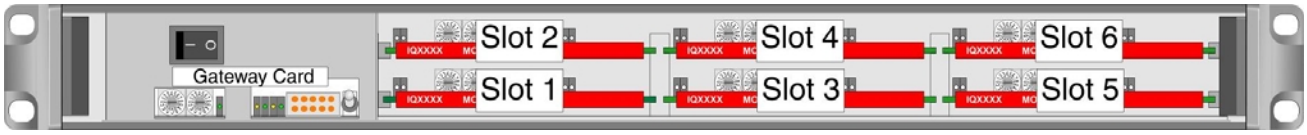


To Open
Release the front panel by pulling the front panel forward and downwards using the release handles on either side of the front panel.

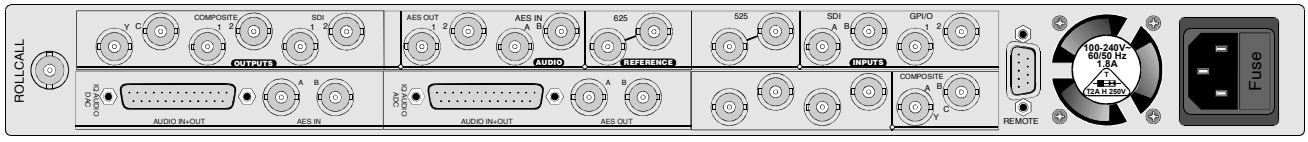
To Close
Replace the front panel by pushing the front panel rearwards and upwards using the release handles on either side of the front panel. Ensure that the panel is fully seated in the case.

INSTALLING/REMOVING A MODULE

Internal View of Mainframe.



Rear of Mainframe



Warning
Before installing a new module into the enclosure the *Configuration Rules* given below must be followed.

The rear of the enclosure must have a full complement of rear panels. Any vacant slots must have a blank rear panel fitted

Configuration Rules

These rules limit the total power dissipation of modules that can be installed in the box. Use the module power ratings to calculate the total power dissipated in the enclosure.

Module Power Rating

The power rating for each module is given in its associated operation manual.

Available Power

The Enclosure has 60 W of available power. The power ratings of each module should be added together and the total should not exceed 60 W.

The table opposite may be used for this calculation.

Warning
The sum of the module power ratings (calculated using the method above) in the enclosure must not exceed 60 W.

REFER TO USER MANUAL BEFORE INSTALLING MODULES

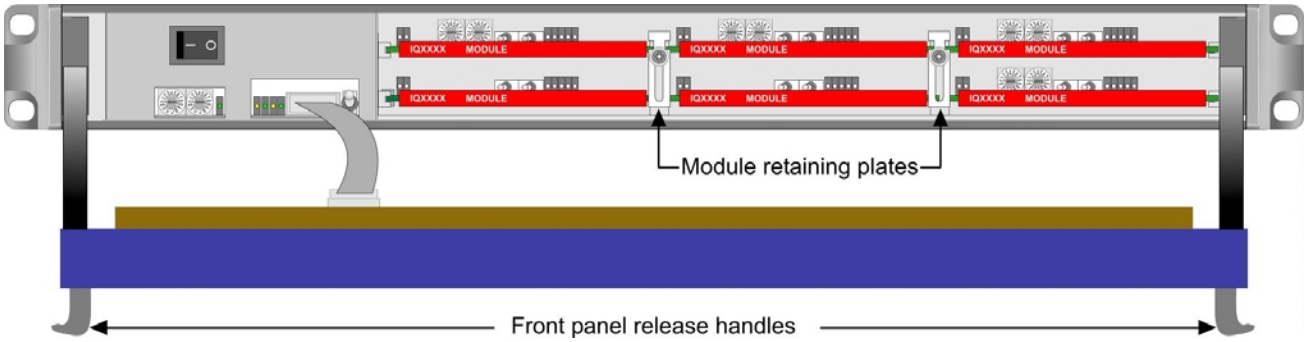
Power Rating Table

Slot Position	Module Name	Power Rating
1		
2	**TBS180/185**	**12.9/14.5W**
3		
4		
5		
6		
Total Power (Watts) (60 W Maximum)		

Installing a New Module

Warning Ensure that the power supply is switched OFF and the mains power connection at the rear of the unit is removed before these operations are attempted.

1. Before installing a new module consult the *"Installing/Removing a Module" section* to ensure there is adequate power available for the module to be added.
2. Release the front panel by pulling the front panel forward and downwards using the release handles on either side of the front panel.



3. Choose an empty slot position for the module.
4. Loosen the screw securing the appropriate module retaining plate.
5. Slide the module retaining plate upwards or downwards as appropriate to uncover the card entry slots.
6. At the rear of the enclosure remove the screws securing the blanking plate associated with the chosen slot position.
7. Store the blanking plate in a safe place for future use.
8. Ensuring correct orientation fit the rear connecting panel (supplied with the new module) to the rear of the enclosure in the vacant aperture and secure with the fixing screws provided.
9. At the front of the enclosure, (ensuring correct orientation) carefully slide in the new module until it fully mates with the rear connector panel.
10. Slide the module retaining plate upwards or downwards as appropriate to cover the card entry slots.
11. Tighten the screw securing the module retaining plate.
12. Replace the front panel ensuring that the panel is fully seated in the case.
13. Update the Power Rating table on previous page.

Removing a Module

1. Remove the front panel as previously described
2. Loosen the screw securing the appropriate module retaining plate.
3. Slide the module retaining plate upwards or downwards as appropriate to uncover the card entry slots.
4. Carefully slide out the desired module

If a different type of module is to be installed in this position proceed as in ***Installing a New Module*** item 1 and items 4 to 14.

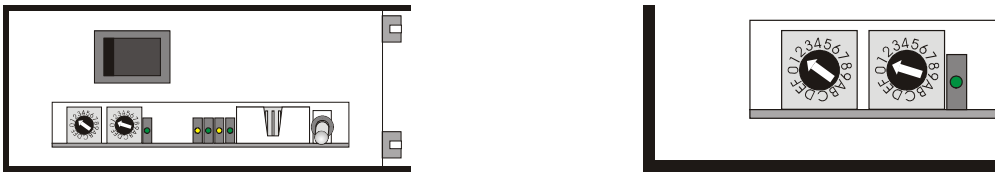
If the slot is to left vacant, proceed as follows:

1. Tighten the screw securing the module retaining plate.
2. Replace the front panel ensuring that the panel is fully seated in the case.
3. At the rear of the enclosure fit the blanking plate in the associated position using two screws.
4. Update the Power Rating table on previous page.

Matching the Front Panel to a Gateway Address

If the TBS180/185 is to be used on a RollCall network with other equipment, it may be necessary to change the unit address to that of a vacant network slot in order to avoid confusion between units.
If an address is already in use by the network the RollCall receive and transmit LEDs will flash alternately at a 1-second rate. In this event, the following steps must be taken to set a new unit address:

1. Select an unused network address for the unit.
2. Set the address using the two switches on the gateway card, which is located behind the front panel.



Note that this address will only be read at unit power up.

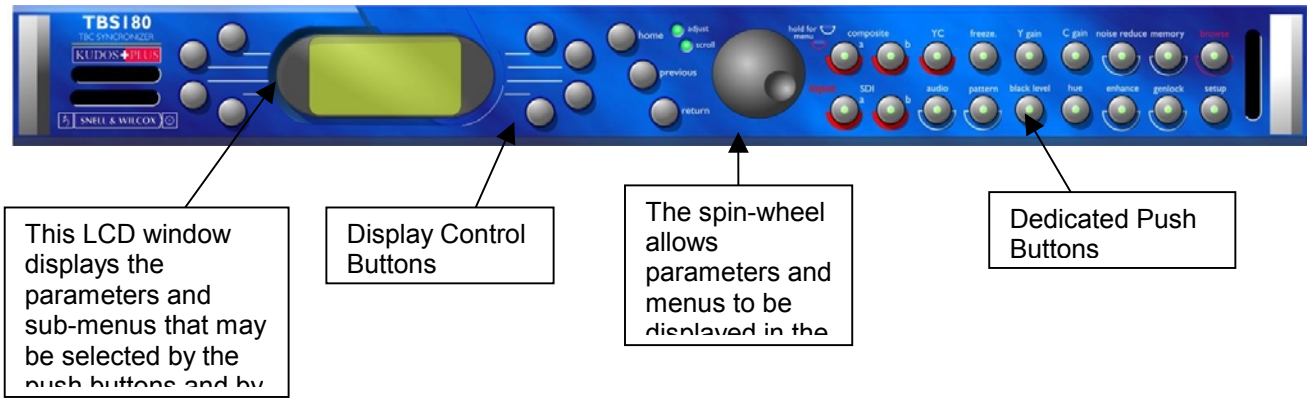
Position 0 on the left-hand switch will disable the RollCall function on the unit.
Addresses 00 to 0F are pre-arranged.
All other positions on these switches may be used to set the unit address in hex.

3. Restart the front panel by holding down the **Y Gain** and **Black Level** buttons together.
4. Select **Yes** to the front panel question **"Restart panel! Are you sure?"**
5. Hold down the **Y Gain** button to enter the setup mode.
6. When the message **"Setup mode"** is displayed, release the **Y Gain** button.
7. Momentarily press the **Y Gain** button.
8. Select **Auto-Connect**.
9. Ensure that the top two lines read
   Auto-Connect:00
   ?

   by selecting ↑ ► if necessary.
10. On the third line, change the middle two numbers
    0000 (35) 02
    to match the network address selected in step 2 above.
11. Restart the unit.

Operation

THE CONTROL PANEL



Operating the TBS180/185 using the Front Panel Buttons and the Menu System

USING THE FRONT PANEL PUSH BUTTONS

These buttons have two modes of operation depending on the length of time they are pressed.

A momentary push will select or deselect the named function.

Holding down a button underlined with a crescent shape  or  will reveal the menu associated with the chosen function.

Making a Direct Function Selection

A momentary push of the **COMPOSITE** A button will select Composite Input A.

Making a Direct Adjustment Selection

A momentary push of the **Y GAIN** button will reveal the Luminance Gain adjustment screen.

Turning a Function ON or OFF

A momentary push of the **Pattern** button will turn the pattern ON or OFF.

Accessing the Menus

Holding down a button underlined with a crescent shape will reveal the menu associated with the chosen function.

For example, holding down the **Pattern** button will reveal the Pattern selection menu.

Note that some buttons do not have an ON/OFF function e.g. SETUP; in this case a momentary push will reveal the associated menu.

USING THE MENU SYSTEM

The system may be considered structured as a set of menus and sub-menus that are displayed in the LCD window.

(See TBS180 and TBS185 Menu System drawings on pages 4.5 and 4.6)

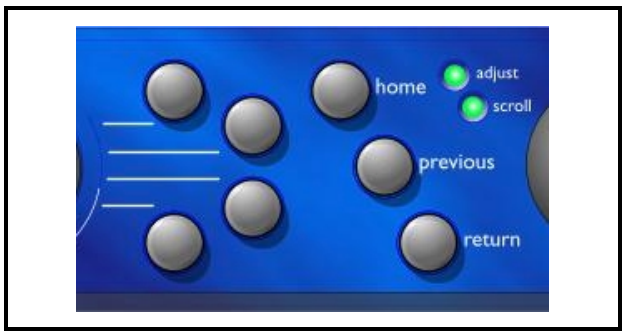
A new menu is selected by pressing the appropriate dedicated function button.

If necessary a sub-menu may then be selected by pressing the push button adjacent to the arrowhead in the text line of the menu name.

This sub-menu will then be displayed in the window and will have the option of selecting another sub-menu in the same manner, or allow the adjustment of a particular parameter. Parameters enabled will appear as highlighted reverse text (white text on a black background).

CONTROL PANEL - GENERAL INFORMATION

Pressing the **Home** button displays the home status screen in the display window from any position in the menu hierarchy.



The **Previous** button allows a return to the last menu item that was changed. Up to 20 changed menu items may be retraced using this function.

The **Return** button allows access to the previously selected menu or back to the home screen as appropriate.

When the **Scroll** LED is illuminated this indicates that a menu contains more than four text lines and the spinwheel may be used to scroll through the menu.

When the **Adjust** LED is illuminated this indicates that parameter values and alpha-numerics may be changed using the spinwheel.

If a menu title is followed by three dots

e.g. **Input Standards...**

this indicates that a further sub-menu is available for selection.

Display Window

The display window displays all selection menus sub-menus and unit status information.

The selection is made by pressing the button adjacent to the required item and will become highlighted (reversed text) when active.

The example opposite shows the Auto Gain Control function selected.

An example of the display showing the unit status is shown opposite.

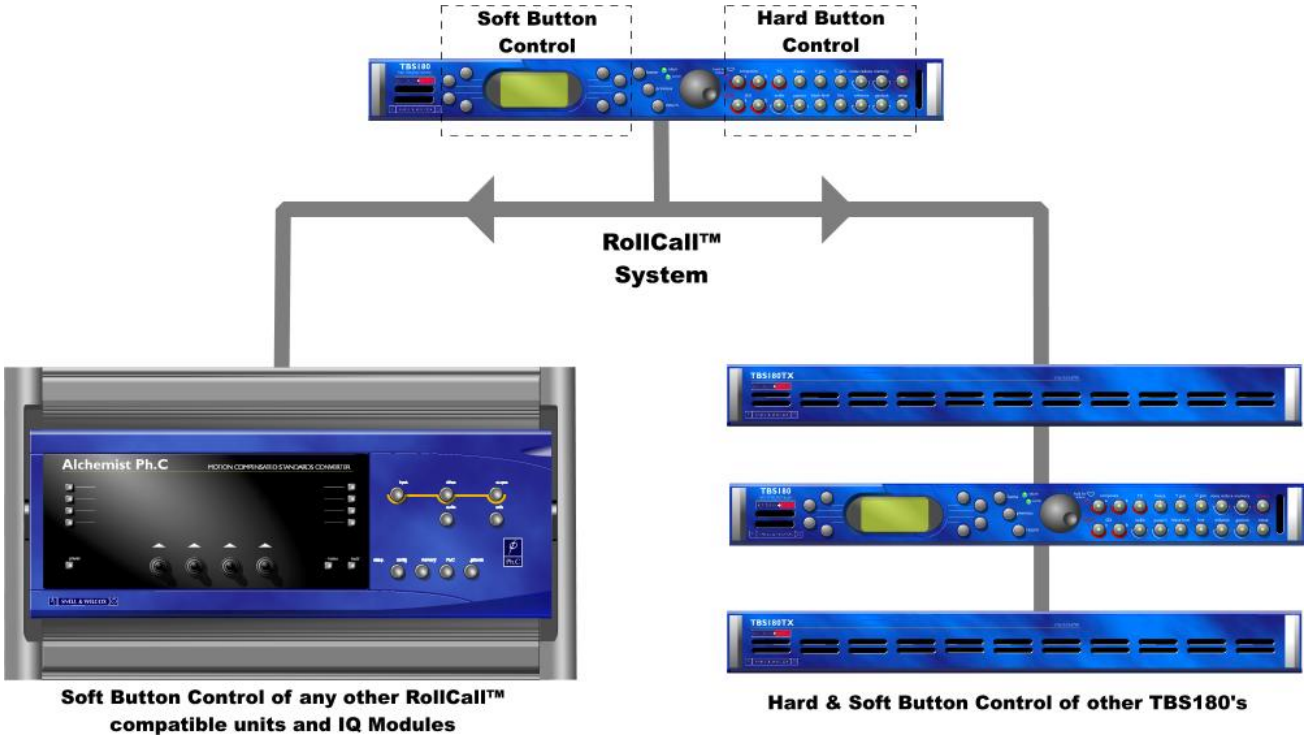
Note that the display window will automatically revert to the home page (as would be seen if the Home button was pressed) if a front panel control has not been operated for a period of 1 minute.

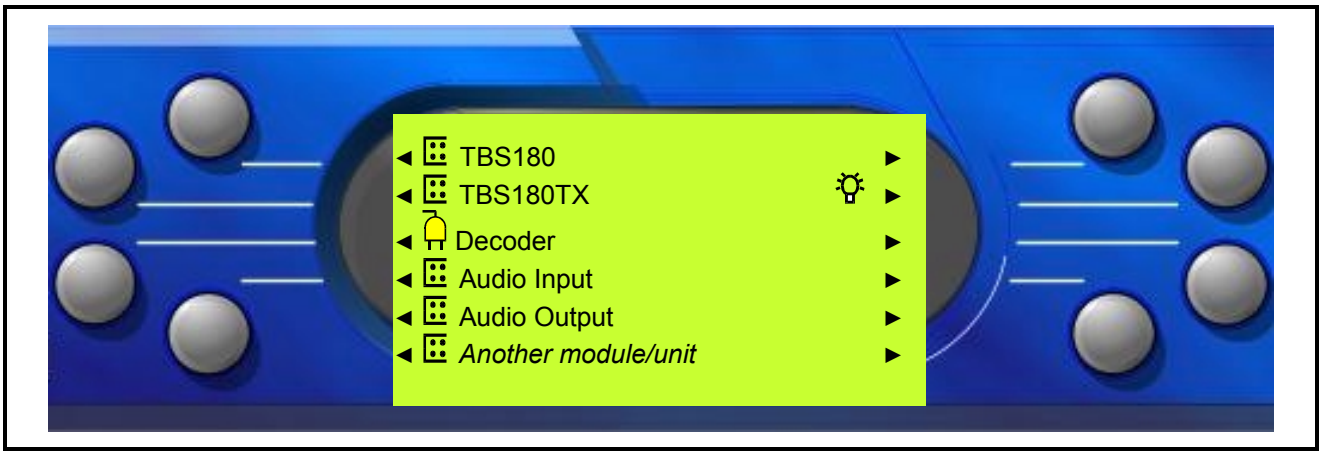
For details of the abbreviations used in this display please see page 4.47.

BROWSE

The Browse function is used to view a RollCall Network.

An example is shown below.





Pressing the Browse button will enable a display that shows the RollCall network.

Note the browse button will remain illuminated to indicate that the unit being controlled is not the default unit.

This allows connections to be made to other RollCall network addresses as demonstrated in this example.

Note that if the Browse button is held down the connection will return to the default condition (this unit).

Pressing the button adjacent to the required item allows a connection to be made.

◄ TBS180

A connection may be made to a TBS180 and then controlled from this unit's front panel (soft and hard button control).

◄ TBS180TX

A connection may be made to a TBS180TX and then controlled from this TBS180 front panel (soft and hard button control).

◄ Decoder

A connection may be made to the IQDAMDD decoder fitted into a TBS185 and then controlled from this unit's front panel (soft button control only). For details of this module please consult the operator's manual (supplied).

◄ Audio Input

A connection may be made to a IQBACD (an audio A to D converter) fitted into slot 3 of an AV version of the TBS180/185 and then controlled from this unit's front panel (soft button control only). For details of this module please consult the operator's manual (supplied).

◄ Audio Output

A connection may be made to a IQBDAC (an audio D to A converter) fitted into slot 5 of an AV version of the TBS180/185 and then controlled from this unit's front panel (soft button control only). For details of this module please consult the operator's manual (supplied).

◄ *Another module/unit*

Other modules or units on the network may be connected to in the same way.

For more details on the RollCall operating network please consult the operating manual for IQ Modular Shoebox.

The symbols used are shown below:

This symbol represents a gateway to a module.

This indicates that the unit is currently connected to this control panel. Pressing the adjacent button will disconnect the unit from the control panel.

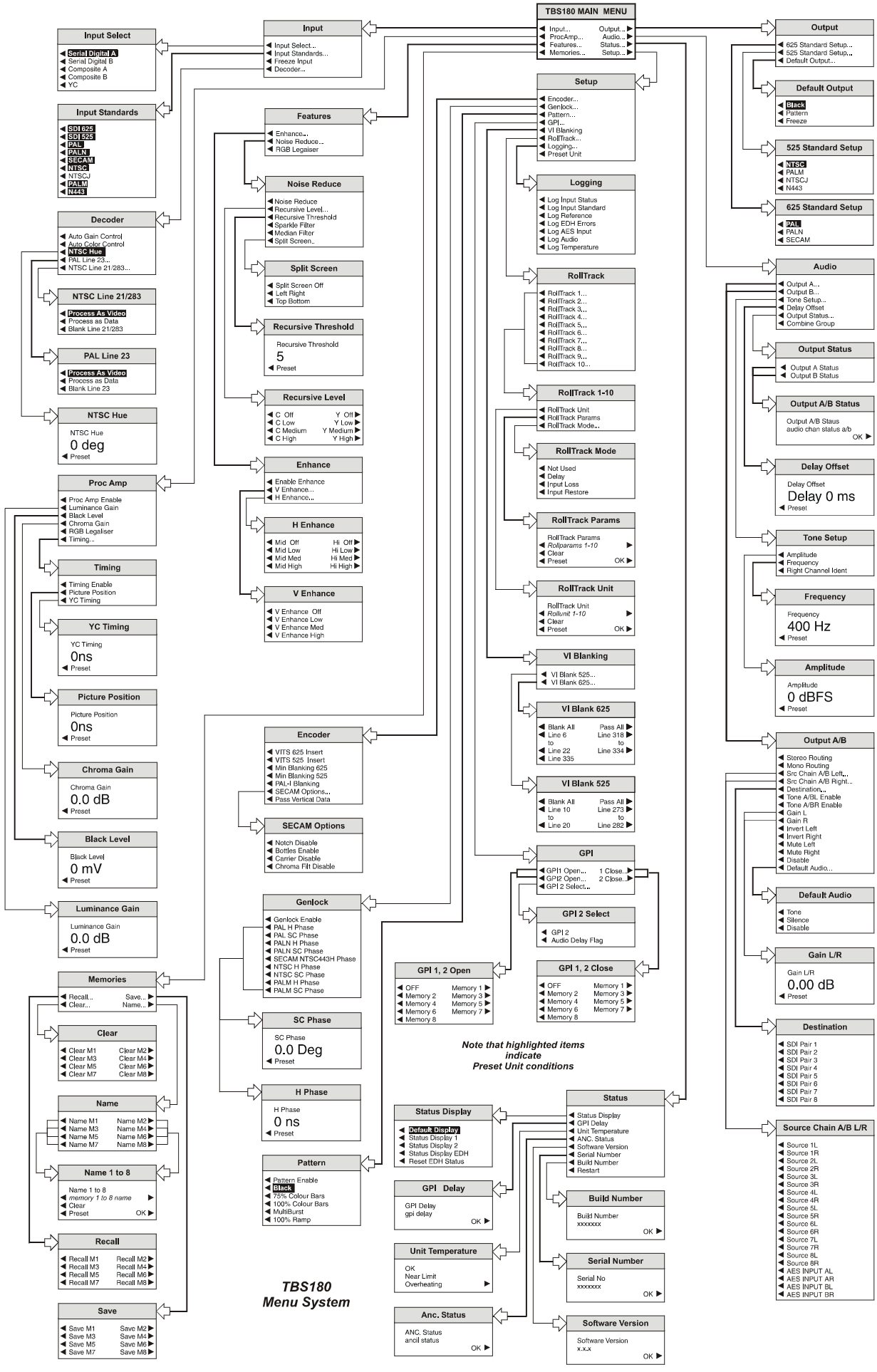
This indicates that this unit is currently connected to and locked by another control panel.

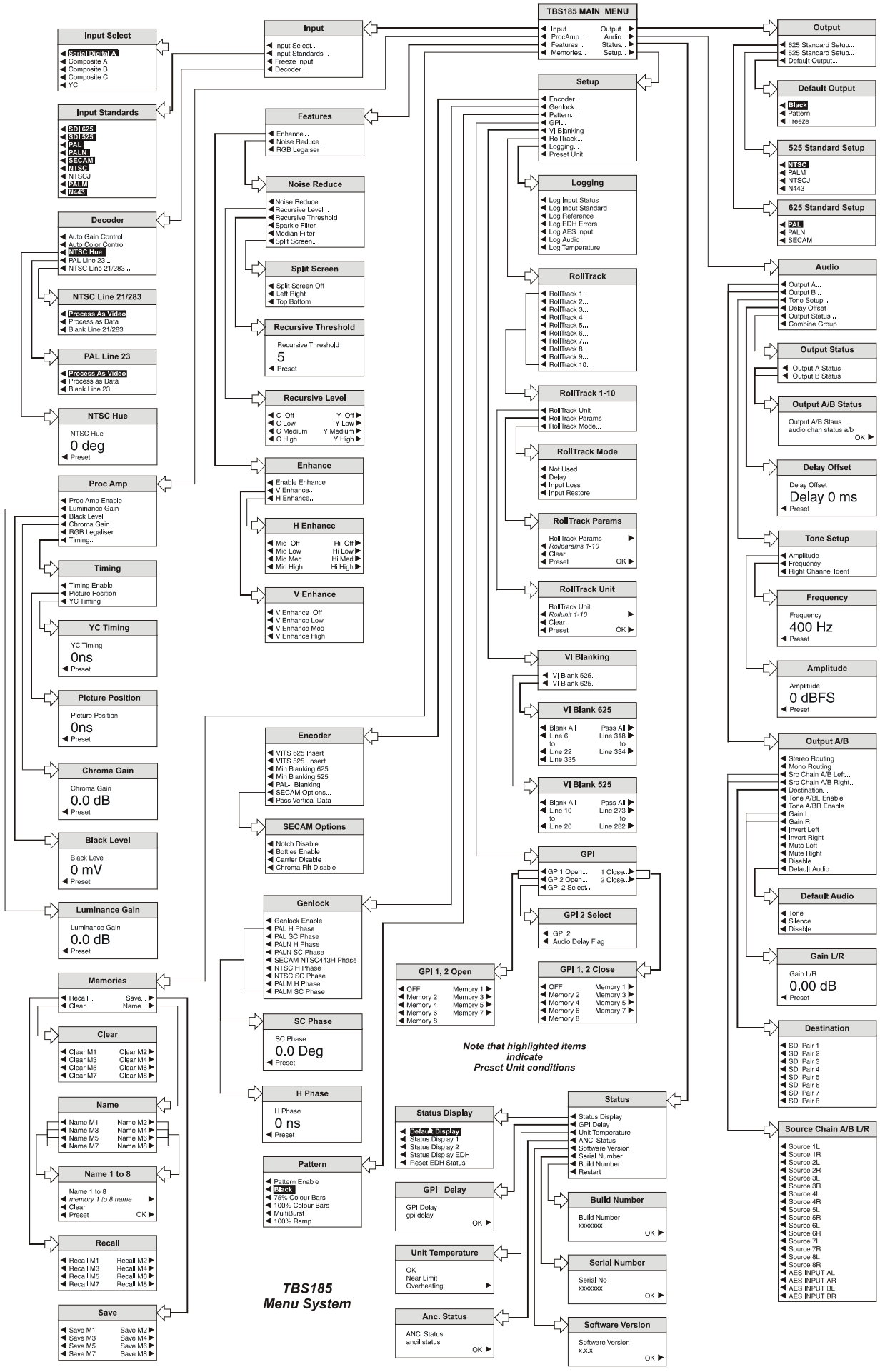
This shows that the unit is in the standby mode (i.e. currently not active but locked by this control panel).

This represents a bridge connection.

This indicates that a connection has been already made to this unit but the unit will still accept another connection.

The RollCall network may also be browsed by using the RollCall Control Templates as described on page 4.29.


TBS180 MAIN MENU
Input... Output...
ProcAmp... Audio...
Features... Status...
Memories... Setup...
Input
Input Select...
Input Standards...
Freeze Input
Decoder...
Input Select
Serial Digital A
Serial Digital B
Composite A
Composite B
YC
Input Standards
SDI 625
SDI 525
PAL
PALN
SECAM
NTSC
NTSCJ
PALM
N443
Decoder
Auto Gain Control
Auto Color Control
NTSC Hue
PAL Line 23...
NTSC Line 21/283...
NTSC Line 21/283
Process As Video
Process as Data
Blank Line 21/283
PAL Line 23
Process As Video
Process as Data
Blank Line 23
NTSC Hue
NTSC Hue
0 deg
Preset
Proc Amp
Proc Amp Enable
Luminance Gain
Black Level
Chroma Gain
RGB Legaliser
Timing...
Timing
Timing Enable
Picture Position
YC Timing
YC Timing
YC Timing
0ns
Preset
Picture Position
Picture Position
0ns
Preset
Chroma Gain
Chroma Gain
0.0 dB
Preset
Black Level
Black Level
0 mV
Preset
Luminance Gain
Luminance Gain
0.0 dB
Preset
Memories
Recall... Save...
Clear... Name...
Clear
Clear M1 Clear M2
Clear M3 Clear M4
Clear M5 Clear M6
Clear M7 Clear M8
Name
Name M1 Name M2
Name M3 Name M4
Name M5 Name M6
Name M7 Name M8
Name 1 to 8
Name 1 to 8
memory 1 to 8 name
Clear
Preset OK
Recall
Recall M1 Recall M2
Recall M3 Recall M4
Recall M5 Recall M6
Recall M7 Recall M8
Save
Save M1 Save M2
Save M3 Save M4
Save M5 Save M6
Save M7 Save M8
Features
Enhance...
Noise Reduce...
RGB Legaliser
Noise Reduce
Noise Reduce
Recursive Level...
Recursive Threshold
Sparkle Filter
Median Filter
Split Screen..
Split Screen
Split Screen Off
Left Right
Top Bottom
Recursive Threshold
Recursive Threshold
5
Preset
Recursive Level
C Off Y Off
C Low Y Low
C Medium Y Medium
C High Y High
Enhance
Enable Enhance
V Enhance...
H Enhance...
H Enhance
Mid Off Hi Off
Mid Low Hi Low
Mid Med Hi Med
Mid High Hi High
V Enhance
V Enhance Off
V Enhance Low
V Enhance Med
V Enhance High
Encoder
VITS 625 Insert
VITS 525 Insert
Min Blanking 625
Min Blanking 525
PAL-I Blanking
SECAM Options...
Pass Vertical Data
SECAM Options
Notch Disable
Bottles Enable
Carrier Disable
Chroma Filt Disable
Genlock
Genlock Enable
PAL H Phase
PAL SC Phase
PALN H Phase
PALN SC Phase
SECAM NTSC443H Phase
NTSC H Phase
NTSC SC Phase
PALM H Phase
PALM SC Phase
SC Phase
SC Phase
0.0 Deg
Preset
H Phase
H Phase
0 ns
Preset
Pattern
Pattern Enable
Black
75% Colour Bars
100% Colour Bars
MultiBurst
100% Ramp
TBS180
Menu System
Setup
Encoder...
Genlock...
Pattern...
GPI...
VI Blanking
RollTrack...
Logging...
Preset Unit
Logging
Log Input Status
Log Input Standard
Log Reference
Log EDH Errors
Log AES Input
Log Audio
Log Temperature
RollTrack
RollTrack 1...
RollTrack 2...
RollTrack 3...
RollTrack 4...
RollTrack 5...
RollTrack 6...
RollTrack 7...
RollTrack 8...
RollTrack 9...
RollTrack 10...
RollTrack 1-10
RollTrack Unit
RollTrack Params
RollTrack Mode...
RollTrack Mode
Not Used
Delay
Input Loss
Input Restore
RollTrack Params
RollTrack Params
Rollparams 1-10
Clear
Preset OK
RollTrack Unit
RollTrack Unit
Rollunit 1-10
Clear
Preset OK
VI Blanking
VI Blank 525...
VI Blank 625...
VI Blank 625
Blank All Pass All
Line 6 Line 318
to to
Line 22 Line 334
Line 335
VI Blank 525
Blank All Pass All
Line 10 Line 273
to to
Line 20 Line 282
GPI
GPI1 Open... 1 Close...
GPI2 Open... 2 Close...
GPI 2 Select...
GPI 2 Select
GPI 2
Audio Delay Flag
GPI 1, 2 Open
OFF Memory 1
Memory 2 Memory 3
Memory 4 Memory 5
Memory 6 Memory 7
Memory 8
GPI 1, 2 Close
OFF Memory 1
Memory 2 Memory 3
Memory 4 Memory 5
Memory 6 Memory 7
Memory 8
Note that highlighted items indicate Preset Unit conditions
Status
Status Display
GPI Delay
Unit Temperature
ANC. Status
Software Version
Serial Number
Build Number
Restart
Status Display
Default Display
Status Display 1
Status Display 2
Status Display EDH
Reset EDH Status
GPI Delay
GPI Delay
gpi delay
OK
Unit Temperature
OK
Near Limit
Overheating
Anc. Status
ANC. Status
ancil status
OK
Build Number
Build Number
xxxxxxx
OK
Serial Number
Serial No
xxxxxxx
OK
Software Version
Software Version
x.x.x
OK
Output
625 Standard Setup...
525 Standard Setup...
Default Output...
Default Output
Black
Pattern
Freeze
525 Standard Setup
NTSC
PALM
NTSCJ
N443
625 Standard Setup
PAL
PALN
SECAM
Audio
Output A...
Output B...
Tone Setup...
Delay Offset
Output Status...
Combine Group
Output Status
Output A Status
Output B Status
Output A/B Status
Output A/B Staus
audio chan status a/b
OK
Delay Offset
Delay Offset
Delay 0 ms
Preset
Tone Setup
Amplitude
Frequency
Right Channel Ident
Frequency
Frequency
400 Hz
Preset
Amplitude
Amplitude
0 dBFS
Preset
Output A/B
Stereo Routing
Mono Routing
Src Chain A/B Left...
Src Chain A/B Right...
Destination...
Tone A/BL Enable
Tone A/BR Enable
Gain L
Gain R
Invert Left
Invert Right
Mute Left
Mute Right
Disable
Default Audio...
Default Audio
Tone
Silence
Disable
Gain L/R
Gain L/R
0.00 dB
Preset
Destination
SDI Pair 1
SDI Pair 2
SDI Pair 3
SDI Pair 4
SDI Pair 5
SDI Pair 6
SDI Pair 7
SDI Pair 8
Source Chain A/B L/R
Source 1L
Source 1R
Source 2L
Source 2R
Source 3L
Source 3R
Source 4L
Source 4R
Source 5L
Source 5R
Source 6L
Source 6R
Source 7L
Source 7R
Source 8L
Source 8R
AES INPUT AL
AES INPUT AR
AES INPUT BL
AES INPUT BR


TBS185 MAIN MENU
Input... Output...
ProcAmp... Audio...
Features... Status...
Memories... Setup...
Input
Input Select...
Input Standards...
Freeze Input
Decoder...
Input Select
Serial Digital A
Composite A
Composite B
Composite C
YC
Input Standards
SDI 625
SDI 525
PAL
PALN
SECAM
NTSC
NTSCJ
PALM
N443
Decoder
Auto Gain Control
Auto Color Control
NTSC Hue
PAL Line 23...
NTSC Line 21/283...
NTSC Line 21/283
Process As Video
Process as Data
Blank Line 21/283
PAL Line 23
Process As Video
Process as Data
Blank Line 23
NTSC Hue
NTSC Hue
0 deg
Preset
Proc Amp
Proc Amp Enable
Luminance Gain
Black Level
Chroma Gain
RGB Legaliser
Timing...
Timing
Timing Enable
Picture Position
YC Timing
YC Timing
YC Timing
0ns
Preset
Picture Position
Picture Position
0ns
Preset
Chroma Gain
Chroma Gain
0.0 dB
Preset
Black Level
Black Level
0 mV
Preset
Luminance Gain
Luminance Gain
0.0 dB
Preset
Memories
Recall... Save...
Clear... Name...
Clear
Clear M1 Clear M2
Clear M3 Clear M4
Clear M5 Clear M6
Clear M7 Clear M8
Name
Name M1 Name M2
Name M3 Name M4
Name M5 Name M6
Name M7 Name M8
Name 1 to 8
Name 1 to 8
memory 1 to 8 name
Clear
Preset OK
Recall
Recall M1 Recall M2
Recall M3 Recall M4
Recall M5 Recall M6
Recall M7 Recall M8
Save
Save M1 Save M2
Save M3 Save M4
Save M5 Save M6
Save M7 Save M8
Features
Enhance...
Noise Reduce...
RGB Legaliser
Noise Reduce
Noise Reduce
Recursive Level...
Recursive Threshold
Sparkle Filter
Median Filter
Split Screen..
Split Screen
Split Screen Off
Left Right
Top Bottom
Recursive Threshold
Recursive Threshold
5
Preset
Recursive Level
C Off Y Off
C Low Y Low
C Medium Y Medium
C High Y High
Enhance
Enable Enhance
V Enhance...
H Enhance...
H Enhance
Mid Off Hi Off
Mid Low Hi Low
Mid Med Hi Med
Mid High Hi High
V Enhance
V Enhance Off
V Enhance Low
V Enhance Med
V Enhance High
Encoder
VITS 625 Insert
VITS 525 Insert
Min Blanking 625
Min Blanking 625
PAL-I Blanking
SECAM Options...
Pass Vertical Data
SECAM Options
Notch Disable
Bottles Enable
Carrier Disable
Chroma Filt Disable
Genlock
Genlock Enable
PAL H Phase
PAL SC Phase
PALN H Phase
PALN SC Phase
SECAM NTSC443H Phase
NTSC H Phase
NTSC SC Phase
PALM H Phase
PALM SC Phase
SC Phase
SC Phase
0.0 Deg
Preset
H Phase
H Phase
0 ns
Preset
Pattern
Pattern Enable
Black
75% Colour Bars
100% Colour Bars
MultiBurst
100% Ramp
TBS185
Menu System
Setup
Encoder...
Genlock...
Pattern...
GPI...
VI Blanking
RollTrack...
Logging...
Preset Unit
Logging
Log Input Status
Log Input Standard
Log Reference
Log EDH Errors
Log AES Input
Log Audio
Log Temperature
RollTrack
RollTrack 1...
RollTrack 2...
RollTrack 3...
RollTrack 4...
RollTrack 5...
RollTrack 6...
RollTrack 7...
RollTrack 8...
RollTrack 9...
RollTrack 10...
RollTrack 1-10
RollTrack Unit
RollTrack Params
RollTrack Mode...
RollTrack Mode
Not Used
Delay
Input Loss
Input Restore
RollTrack Params
RollTrack Params
Rollparams 1-10
Clear
Preset OK
RollTrack Unit
RollTrack Unit
Rollunit 1-10
Clear
Preset OK
VI Blanking
VI Blank 525...
VI Blank 625...
VI Blank 625
Blank All Pass All
Line 6 Line 318
to to
Line 22 Line 334
Line 335
VI Blank 525
Blank All Pass All
Line 10 Line 273
to to
Line 20 Line 282
GPI
GPI1 Open... 1 Close...
GPI2 Open... 2 Close...
GPI 2 Select...
GPI 2 Select
GPI 2
Audio Delay Flag
GPI 1, 2 Open
OFF Memory 1
Memory 2 Memory 3
Memory 4 Memory 5
Memory 6 Memory 7
Memory 8
GPI 1, 2 Close
OFF Memory 1
Memory 2 Memory 3
Memory 4 Memory 5
Memory 6 Memory 7
Memory 8
Note that highlighted items indicate Preset Unit conditions
Status
Status Display
GPI Delay
Unit Temperature
ANC. Status
Software Version
Serial Number
Build Number
Restart
Status Display
Default Display
Status Display 1
Status Display 2
Status Display EDH
Reset EDH Status
GPI Delay
GPI Delay
gpi delay
OK
Unit Temperature
OK
Near Limit
Overheating
Anc. Status
ANC. Status
ancil status
OK
Build Number
Build Number
xxxxxxx
OK
Serial Number
Serial No
xxxxxxx
OK
Software Version
Software Version
x.x.x
OK
Output
625 Standard Setup...
525 Standard Setup...
Default Output...
Default Output
Black
Pattern
Freeze
525 Standard Setup
NTSC
PALM
NTSCJ
N443
625 Standard Setup
PAL
PALN
SECAM
Audio
Output A...
Output B...
Tone Setup...
Delay Offset
Output Status...
Combine Group
Output Status
Output A Status
Output B Status
Output A/B Status
Output A/B Staus
audio chan status a/b
OK
Delay Offset
Delay Offset
Delay 0 ms
Preset
Tone Setup
Amplitude
Frequency
Right Channel Ident
Frequency
Frequency
400 Hz
Preset
Amplitude
Amplitude
0 dBFS
Preset
Output A/B
Stereo Routing
Mono Routing
Src Chain A/B Left...
Src Chain A/B Right...
Destination...
Tone A/BL Enable
Tone A/BR Enable
Gain L
Gain R
Invert Left
Invert Right
Mute Left
Mute Right
Disable
Default Audio...
Default Audio
Tone
Silence
Disable
Gain L/R
Gain L/R
0.00 dB
Preset
Destination
SDI Pair 1
SDI Pair 2
SDI Pair 3
SDI Pair 4
SDI Pair 5
SDI Pair 6
SDI Pair 7
SDI Pair 8
Source Chain A/B L/R
Source 1L
Source 1R
Source 2L
Source 2R
Source 3L
Source 3R
Source 4L
Source 4R
Source 5L
Source 5R
Source 6L
Source 6R
Source 7L
Source 7R
Source 8L
Source 8R
AES INPUT AL
AES INPUT AR
AES INPUT BL
AES INPUT BR

FRONT PANEL CONTROLS

TBS180/TBS180AV

TBS185/TBS185AV

INPUT (Composite a, b, c, SDI a, b, and YC)

These buttons allow the input signal connected to the rear panel to be selected for processing.

A prolonged push of any of these buttons will reveal the Input Menu.

Note that these buttons are mutually exclusive and only one of the inputs may be selected.

◄ Input…

This function allows the input parameters to be set.

Input
◄ Input Select...
◄ Input Standards...
◄ Freeze Input
◄ Decoder...

◄ Input Select

This allows any of the 5 sources of video input signal to be selected for processing.

Composite a, b, SDI a, b, and YC

Input Select
◄ Serial Digital A
◄ Serial Digital B
◄ Composite A
◄ Composite B
◄ YC

TBS180

Composite a, b, c, SDI a, and YC

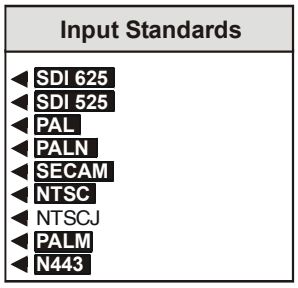
Input Select
◄ Serial Digital A
◄ Composite A
◄ Composite B
◄ Composite C
◄ YC

TBS185

◄ Input Standards

When Composite C is selected on the TBS185 please refer also to page 4.30 for more details.

The decoder employs an auto standard detection system. It will auto detect any of the standards that are checked in the list of standards.



In the example above it will auto detect all standards except NTSCJ. Any number (one or more) of standards may be selected. For example, in a given situation where it is known that only PAL and NTSC input signals are expected, only the PAL and NTSC standards should be checked.

The decoder will then only auto detect between PAL and NTSC standards. Other standards will not be decoded and will produce an unstable lock.

To force the unit to decode only one standard, check that standard and uncheck all others.

Note that at least one standard must be selected; if an attempt is made to uncheck all items the last standard selected will remain checked and become the only standard to be decoded.
For NTSC signals either NTSC ***or*** NTSCJ may be checked, but it is not possible to check both NTSC ***and*** NTSCJ.

The output ***line*** standard will be the same as the detected input standard. i.e. the output signal will be at a line rate of 625 if the detected input signal has a line rate of 625; similarly the output signal will be at a line rate of 525 if the detected input signal has a line rate of 525.

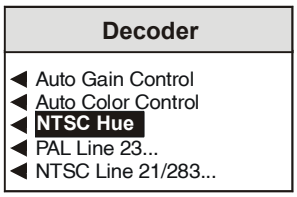
NTSCJ When this function is enabled the decoder will correctly process a NTSCJ signal (an NTSC signal without pedestal).

◄ Freeze Input

This function toggles between a normal picture and a frozen picture.

◄ Decoder

This function allows settings to be made to the decoder section.



◄ Auto Gain Control

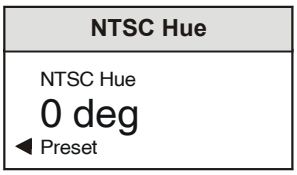
When this item is enabled the luminance gain will vary relative to the input peak white amplitude.
This will maintain the output signal at a normalized level even though the input signal level may be above or below standard level. The control will be effective over an input level range of +3 dB to -6 dB.

◄ Auto Color Control

When this item is enabled the chrominance gain will vary relative to the input burst amplitude. This will maintain correct color saturation regardless of changes in subcarrier amplitude.

◄ NTSC Hue

This selection reveals a numerical readout display for the Hue of NTSC signals. By using the scroll bar the Hue may be adjusted by ±30 ° in steps of 1°.



Selecting Preset returns the setting to the calibrated value of 0°.

◄ PAL Line 23

PAL Line 23
◄ **Process As Video**
◄ Process as Data
◄ Blank Line 23

This item allows various options to be applied to line 23 of the input signal.

◄ Process As Video

When enabled line 23 of the PAL input signal will be processed as active picture and the ProcAmp controls will effect line 23.

◄ Process as Data

When selected (text reversed) line 23 is passed unprocessed and the ProcAmp controls will not effect line 23.
The Chroma information will not be decoded from a Composite or Y/C source.

◄ Blank Line 23

When enabled line 23 of the PAL input signal will be blanked.

◄ NTSC Line 21/283

This item allows various options to be applied to line 21/283 of the input signal.

NTSC Line 21/283
◄ **Process As Video**
◄ Process as Data
◄ Blank Line 21/283

◄ Process As Video

When enabled line 21/283 of the input signal will be processed and the ProcAmp controls will effect Line 21/283.

◄ Process as Data

When selected (text reversed) lines 21/283 are passed unprocessed and the ProcAmp controls will not effect Line 21/283.
The Chroma information will not be decoded from a Composite or Y/C source.

◄ Blank Line 21/283

When enabled line 21/283 of the input signal will be blanked.

Composite Input C Processing

The IQDAMDD decoder has extra processing options for lines 21 /283 and line 23:

Line 23
◄ WSS Mode
◄ Blank Half
◄ Blank All
◄ Decode Luma
◄ Pass Luma

Line 21
◄ Picture
◄ Blank All
◄ Closed Caption

Line 283
◄ Blank Half
◄ Blank All
◄ Closed Caption

For information on the IQDAMDD line 21/283 and line 23 processing, please refer to the operator's manual.

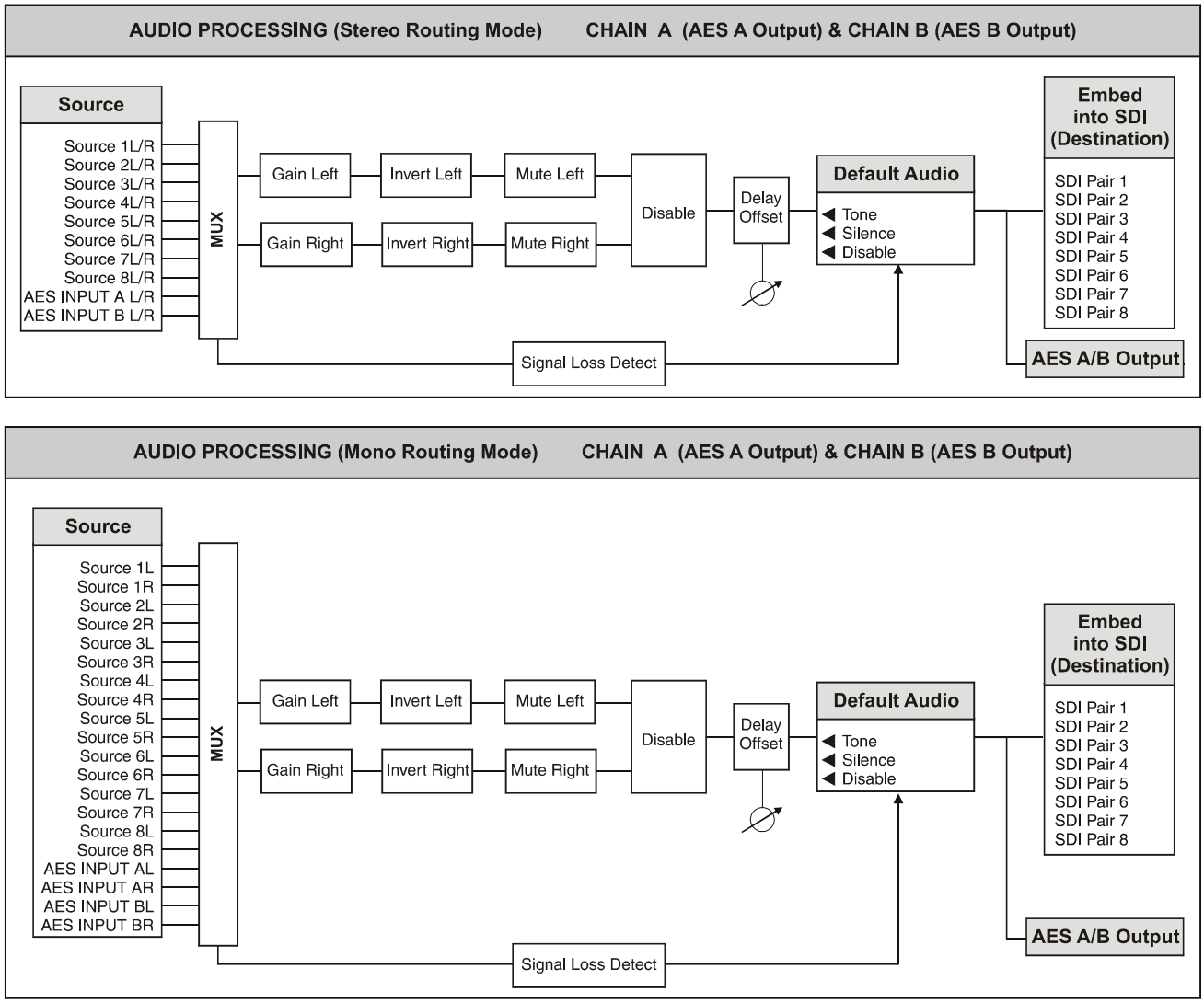
When line 21/283 and line 23 settings are modified on the TBS185, the IQDAMDD settings are automatically updated to match.

The IQDAMDD settings may also be modified independently of the TBS185, using the browse function as described on page 4.3.

Note that the composite C input is processed by the TBS185 after the IQDAMDD decoder.

Audio

There are 2 separate identical audio processing chains in the TBS180/TBS185, Chain A and Chain B. The chain may be set to either stereo or mono source routing mode.



Source Selection

Audio pairs can be routed using stereo mode or alternatively each audio channel (subframe) can be determined individually using mono routing mode as shown above.

Processing

Gain — Left and right separately adjustable by ±6 dB.

Invert — Left and right separately to normal or invert polarity signal.

Mute — Left and right separately to mute or pass signal.

Disable — Left and right signals will both be disabled.

Default Audio

If the audio source selected by the MUX is absent the output will automatically default to the signal selected in the Default Audio menu:

Tone — The output will be the tone as set by the *Tone Setup* function.

Silence — The output will become Audio silence.

Disable — The Default Audio function will be disabled.

Destination

This allows the processed signal to be embedded into any of the 8 pairs of the SDI signal.

A separate AES output is also provided.

AV AUDIO OPERATION

In order to support analog audio, the TBS180/185AV is supplied fitted with the following audio modules:

IQBADCD-1K-N
IQBDACD-1K-N

To use the analog audio inputs/outputs, the TBS180/185 AV must be set up as described in section 3 page 3.4.

The audio modules are supplied configured for use in the TBS. In usual operation it is recommended that audio is set up using the TBS180/185 audio controls as described below. When using the analog audio inputs, Audio A source is set to AES input A and Audio B source is set to AES input B.

For more advanced functions, e.g. channel status naming, the audio modules may be controlled directly using the browse feature of the TBS180/185 (see page 4.3). Please consult the appropriate module manual for more details.

Important Note

When using the TBS180/185AV analog audio output, the IQBDACD-N input source must be set to unbalanced 1 and unbalanced 2.

Audio ►

This menu allows various audio functions to be set up.

Audio
◄ Output A...
◄ Output B...
◄ Tone Setup...
◄ Delay Offset
◄ Output Status...
◄ Combine Group

◄ Output A and Output B

This allows audio processing adjustments of chain A and B to be made for outputs A and B.

Output A/B
◄ Stereo Routing
◄ Mono Routing
◄ Src Chain A/B Left...
◄ Src Chain A/B Right...
◄ Destination...
◄ Tone A/BL Enable
◄ Tone A/BR Enable
◄ Gain L
◄ Gain R
◄ Invert Left
◄ Invert Right
◄ Mute Left
◄ Mute Right
◄ Disable
◄ Default Audio...

◄ Stereo Routing

When this item is selected a stereo *pair* may be selected for routing through the audio processing chain.
For example, if Source 3L is selected in Src Chain A Right menu then automatically the Src Chain A Left will be changed to Source 3R. i.e. Chain A would be sourced from pair 3 with a stereo inversion.

◄ Mono Routing

When this item is selected a single channel may be selected for routing through the audio processing chain.
For example, if source 5L is selected in Src Chain A Right then the Src Chain A Left is not changed.
i.e. each channel is selected independently.

Note that if the routing mode is changed the Mux selection will not actually change until a new input source chain selection is made.

◄ Source Chain A/B Left/Right

This menu allows any of the input audio sources to be selected for processing.

Source Chain A/B Left
◄ Source 1L
◄ Source 1R
◄ Source 2L
◄ Source 2R
◄ Source 3L
◄ Source 3R
◄ Source 4L
◄ Source 4R
◄ Source 5L
◄ Source 5R
◄ Source 6L
◄ Source 6R
◄ Source 7L
◄ Source 7R
◄ Source 8L
◄ Source 8R
◄ AES INPUT AL
◄ AES INPUT AR
◄ AES INPUT BL
◄ AES INPUT BR

Source Chain A/B Right
◄ Source 1L
◄ Source 1R
◄ Source 2L
◄ Source 2R
◄ Source 3L
◄ Source 3R
◄ Source 4L
◄ Source 4R
◄ Source 5L
◄ Source 5R
◄ Source 6L
◄ Source 6R
◄ Source 7L
◄ Source 7R
◄ Source 8L
◄ Source 8R
◄ AES INPUT AL
◄ AES INPUT AR
◄ AES INPUT BL
◄ AES INPUT BR

◄ Destination

Selecting items in this menu allows the processed signal to be embedded into any one of the 8 pairs of the SDI signal. Chain A has priority so if destinations are identical it is Chain A that is embedded.

Destination
◄ SDI Pair 1
◄ SDI Pair 2
◄ SDI Pair 3
◄ SDI Pair 4
◄ SDI Pair 5
◄ SDI Pair 6
◄ SDI Pair 7
◄ SDI Pair 8

◄ Tone A/B Enable

This will enable the internal tone as set by the ***Tone Setup*** function.

◄ Gain L and Gain R

This function allows the gain of the left and right channels to be adjusted independently.

Gain L/R
Gain L/R
0.00 dB
◄ Preset

The range of adjustment is ±6 dB in 0.25 dB steps.

Preset is to 0.00 dB.

◄ Invert Left and Invert Right

When enabled these functions will invert the selected audio signal channel.

Preset is to not inverted.

◄ Mute Left and Mute Right

When enabled these functions will mute the selected audio signal channel.

Preset is to not muted.

◄ Disable

Selecting this item will disable the embedded output signal (not the AES output).

Preset is to not disabled.

◄ Default Audio

If the audio signal is absent the output will be set to this default signal.

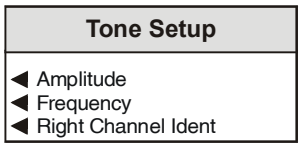
Default Audio
◄ Tone
◄ Silence
◄ Disable

This menu function defines what the output signal will become under these conditions. It can be either an internally generated **Tone** or **Silence** or to **Disable** (no signal is embedded).

Preset is to Disable.

◄ Tone Setup

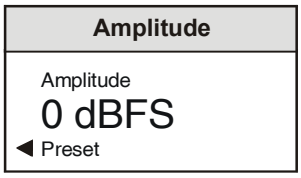
This allows the characteristics of the tone used in the Default Audio function, to be set.



The frequency and amplitude settings are active on both left and right channels.

◄ Amplitude

This allows the amplitude of the tone signal to be set.



The range of adjustment is from -30 dBFS to 0 dBFS in steps of 1 dBFS.
(dBFS = decibels Full Scale).

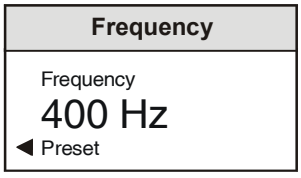
Preset is to -20 dBFS.

◄ Right Channel Ident

When enabled the right channel will be identified by the signal being muted for 0.5 second every 2.5 seconds.

◄ Frequency

This allows the frequency of the tone signal to be set.

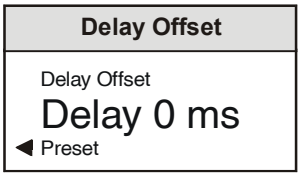


The range of adjustment is from 100 Hz to 10 000 Hz in steps of 100 Hz.

Preset is to 400 Hz.

◄ Delay Offset

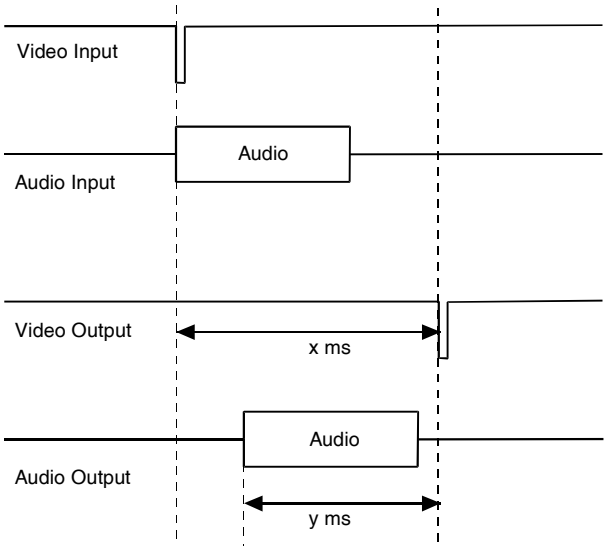
In addition to the delay compensating for the video path through the system, an extra audio delay period can be added to compensate for any video delay introduced elsewhere in the system.



The range of adjustment is from –40 ms to +160 ms in steps of 1 ms.

Preset is to 0 ms.

Audio Delay Timing

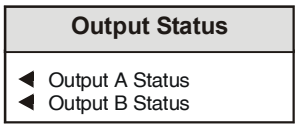


In the above diagram, the delay through the TBS180/185 is x ms. The timing of the audio output is set using the delay offset control. A negative audio delay will advance the audio by up to –x ms. The delay offset in the above diagram is –y ms.

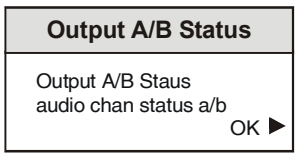
Note that the absolute audio delay will be shown in the GPI section of the status display. (see page 4.28, GPI Delay).

◄ Output Status

This function allows the status of output A and output B to be displayed.



The status of the selected output will be shown in the window.



Examples of messages are as follows:

Muted pair 2

Default disable

Default tone 2

Default mute 2

◄ Combine Group

Two pairs in the same group can be presented in two valid but different ways in the Ancillary data (combined or not combined).

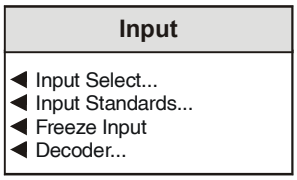
The **Combine Group** function allows the user to specify which one of these two alternatives the TBS180/185 will use to embed the audio.

When the text is highlighted the group will be combined; when the text is normal the group will not be combined.
Default is to ON (Combine Group).

This control should be used if equipment downstream of the TBS180/185 is only able to recognize an uncombined group.

FREEZE

The Freeze button allows the output picture to be frozen. The green LED will be illuminated to indicate the function is activated.



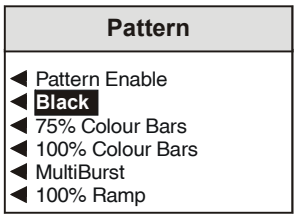
◄ Freeze Input

This function toggles between a normal picture and a frozen picture.

PATTERN

A momentary push of this button will toggle the Pattern function ON or OFF i.e. the output will be either the selected pattern or the processed picture.

A prolonged push of this button will reveal a menu that allows various patterns to be selected and used as the output signal.



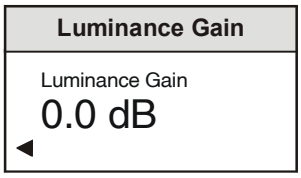
◄ Pattern Enable

When this item is selected (text highlighted) the selected pattern will become the output signal.

Y GAIN (Luminance Gain)

Pressing this button will reveal a numerical readout display for the gain of the luminance signal.

By rotating the spinwheel the gain may be adjusted by ±3 dB in steps of 0.1 dB.

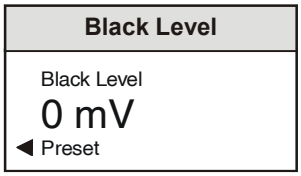


Selecting Preset returns the setting to the calibrated value of 0.

BLACK LEVEL

This selection reveals a numerical readout display for the Y pedestal or black level.

By rotating the spinwheel the pedestal may be adjusted by ±100 mV in steps of 1 mV.

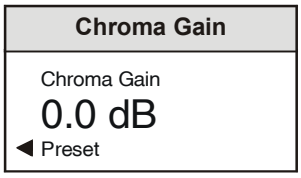


Selecting Preset returns the setting to the calibrated value of 0.

C GAIN (Chrominance Gain)

Pressing this button will reveal a numerical readout display for the gain of the chrominance signal.

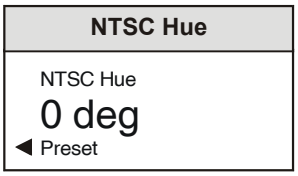
By rotating the spinwheel the gain may be adjusted by ±3 dB in steps of 0.1 dB.



Selecting Preset returns the setting to the calibrated value of 0.

HUE

Pressing this button will reveal a numerical readout display for the Hue of NTSC signals. By using the scroll bar the Hue may be adjusted by ±30 ° in steps of 1°.

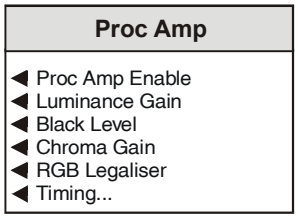


Selecting Preset returns the setting to the calibrated value of 0°.

*Note that if the Proc Amp is enabled and settings are not at their preset values the text **UnCal** will be in the default display.*

Y Gain, C Gain, Black Level or Hue

A prolonged push of any of the above buttons will reveal the Proc Amp menu.



◀ Proc Amp Enable

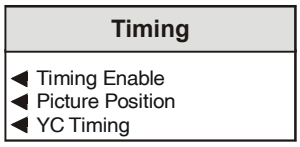
Selecting the Proc Amp Enable function will enable the settings of the Luma Gain, Black Level and Chroma Gain functions.

Selecting Preset returns the setting of Proc Amp Enable to ON.

◀ RGB Legaliser

When selected this will enable the RGB Gamut legalizer. This will prevent the unit from producing RGB signals greater than 101%.

◀ Timing

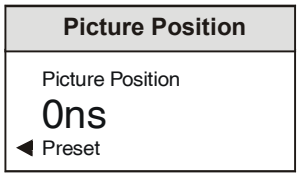


◀ Timing Enable

When this item is selected (text highlighted) the timing values will be enabled.

◀ Picture Position

Selecting this item will reveal a display showing the timing of the picture position relative to the normal value, in nanoseconds. Rotating the spin-wheel will adjust this value.

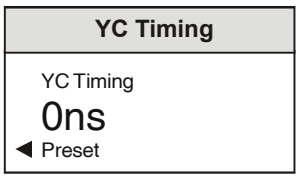


Range is from ±592 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value of 0.

◀ YC Timing

Selecting this item will reveal a display showing the timing of the chrominance signal relative to the luminance signal, (i.e. Y to Cb/Cr timing) in nanoseconds. Rotating the spin-wheel will adjust this value.



Range is from ±444 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value of 0.

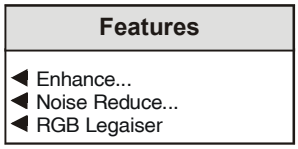
NOISE REDUCE

This item allows Recursive noise reduction with automatic threshold to be applied to the Luminance and Chrominance channels.

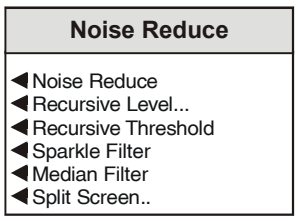
A momentary push of this button will toggle the Noise Reducer function ON or OFF.

Holding down this button will reveal a menu that allows various forms of noise reduction to be applied to the signal.

◄ Features…



◄ Noise Reduce…

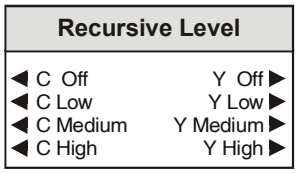


◄ Noise Reduce

Selecting this item will enable the noise reduction function.

◄ Recursive Level

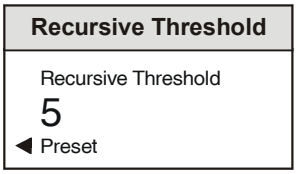
This item allows Recursive noise reduction to be applied to the luminance and chrominance channels.



The range of adjustment is off, low, medium and high. Defaults settings are C Medium and Y Medium.

◄ Recursive Threshold

This sets the noise reduction threshold of the recursive filters.



The range of adjustment is from Auto (0) to 7 units. Preset is to Auto (0).

Note that applying a high threshold level may assist with extremely noisy images; however this may result in plain areas appearing flat.

◄ Sparkle Filter

This item allows a sparkle filter to be applied to the signal, reducing the effect of sparkle noise associated with edge-of-reception signals from satellite feeds, impulse noise or drop-outs from tape-recorded signals.

◄ Median Filter

Note that this function is only active when the Sparkle filter is enabled.

When selected, sparkle concealment is enabled that employs a threshold controlled 3-dimensional median filter. This permits the removal of picture disturbances that the normal sparkle detection algorithm may miss. For example low-level sparkles will be concealed. The Median filter is particularly effective on very noisy sources. Note that some loss of resolution may be observed depending on the source material.

◄ Split Screen

This function allows the effects of noise reduction to be easily seen by splitting the screen in half. One half will show the picture with noise reduction and the other half without noise reduction.

Split Screen
◄ Split Screen Off
◄ Left Right
◄ Top Bottom

◄ Off This disables the split screen function.

◄ Left/Right

When enabled, the screen will be split into two equal sections separated by a vertical white line. The processed picture will occupy the left hand section of the screen and the unprocessed picture will occupy the right hand side section.

◄ Top/Bottom

When enabled, the screen will be split into two equal sections separated by a horizontal white line. The processed picture will occupy the bottom section of the screen and the unprocessed picture will occupy the top section.

MEMORY

◄ Memories

This function allows a number of setups of the TBS180/185 to be saved, recalled, cleared and renamed. There are 8 memory locations available.

Note that on the TBS185 the settings of the IQDAMDD decoder will also be stored and recalled by the memory functions.

Memories	
◄ Recall...	Save... ►
◄ Clear...	Name... ►

◄ Recall…

This will reveal a list of the memory locations.

Recall	
◄ Recall M1	Recall M2 ►
◄ Recall M3	Recall M4 ►
◄ Recall M5	Recall M6 ►
◄ Recall M7	Recall M8 ►

Selecting a memory location will recall the settings stored in the selected memory location and apply them to the unit.

Save…►

This will reveal a list of the memory locations.

Save	
◄ Save M1	Save M2 ►
◄ Save M3	Save M4 ►
◄ Save M5	Save M6 ►
◄ Save M7	Save M8 ►

Selecting a memory location will save the settings and store them in the selected memory location.

◄ Clear…

This will reveal a list of the memory locations.

Clear	
◄ Clear M1	Clear M2 ►
◄ Clear M3	Clear M4 ►
◄ Clear M5	Clear M6 ►
◄ Clear M7	Clear M8 ►

Selecting a memory location will clear the settings stored in the selected memory location and return them to the factory default settings.

Name…►

This will reveal a list of the memory locations and allow the naming of the selected memory location.

Name	
◄ Name M1	Name M2 ►
◄ Name M3	Name M4 ►
◄ Name M5	Name M6 ►
◄ Name M7	Name M8 ►

Name 1 to 8	
Name 1 to 8	
◄ *memory 1 to 8 name*	►
◄ Clear	
◄ Preset	OK ►

To edit the text the right ► and left ◄ buttons adjacent to the upper text line in the menu should be used to select the position in the text and the spinwheel used to select the character.

The ◄ **Clear** function blanks the selected character.

The ◄ **Preset** function loads the default text, for example, Memory 1.

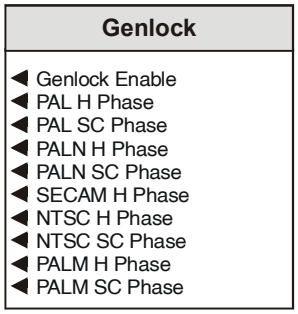
O.K. ► saves the caption text and returns to the main menu.

GENLOCK

A momentary push of this button will toggle the Genlock function ON or OFF.

When enabled the unit will lock to an incoming reference signal.
When not enabled the output signal will be free running. In this mode the frequency accuracy will be ±10 ppm.

A prolonged push of this button will reveal a menu that allows various genlock phase adjustments to be made.

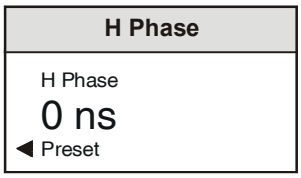


◀ Genlock Enable

When this item is selected (text highlighted) the genlock function will be enabled.

◀ (PAL/PALN/SECAM/NTSC/PALM) H Phase

Selecting this item reveals a display showing the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds. Rotating the spin-wheel will adjust this value.



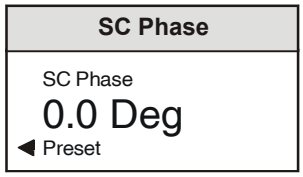
The range is ±113 µs in steps of one cycle of subcarrier this ensures the correct SC/H timing is maintained.

Selecting Preset returns the setting to zero (output coincident with reference).

Note that the Preset Unit function in the Setup menu will not change this setting.

◀ (PAL/PALN/SECAM/NTSC/PALM) SC Phase

This function allows the relative phasing between the reference subcarrier and the output signal subcarrier to be adjusted. Rotating the spin-wheel will adjust this value and the numerical display shows the phasing in degrees.



The range of adjustment is 359.9° (continuously adjustable) in steps of 0.1°. The preset value is 0° (output coincident with reference).

Note that the Preset Unit function in the Setup menu will not change this setting.

ENHANCE

A momentary push of this button will toggle the Enhance function ON or OFF.

A prolonged push of this button will reveal the enhance menu.

◄ Enhance…

Enhance
◄ Enable Enhance
◄ V Enhance...
◄ H Enhance...

◄ Enable Enhance

Selecting this item will enable the Vertical and Horizontal enhance functions.

◄ V Enhance

This allows Vertical enhancement to be applied to the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

V Enhance
◄ V Enhance Off
◄ V Enhance Low
◄ V Enhance Med
◄ V Enhance High

The amount of enhancement may be selected as Off (None), Low, Medium and High.

◄ H Enhance

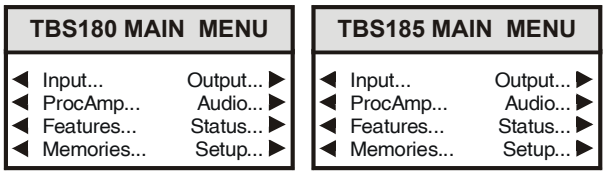
This allows Horizontal High Frequency and Horizontal Medium Frequency enhancement to be applied to the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

H Enhance	
◄ Mid Off	Hi Off ►
◄ Mid Low	Hi Low ►
◄ Mid Med	Hi Med ►
◄ Mid High	Hi High ►

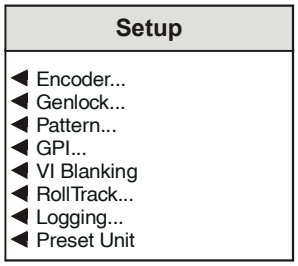
The amount of enhancement may be selected as Off (None), Low, Medium and High for both medium and high frequency bands.

SETUP

Pressing this button will reveal the TBS180/185 main menu that allows other functions to be accessed.

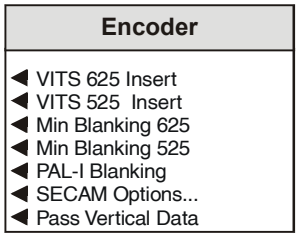


Setup ►



◄ Encoder

This menu allows various parameters of the encoding section to be set up.



◄ VITS 625 Insert (on analog outputs only)

When this function is selected the 625 standard VITS lines are inserted in the vertical interval.
Note that this insertion takes priority over the **Pass Vertical Data** function.

◄ VITS 525 Insert (on analog outputs only)

When this function is selected the 525 standard VITS lines are inserted in the vertical interval.
Note that this insertion takes priority over the **Pass Vertical Data** function.

◄ Min Blanking 625

When selected the blanking width will be reduced to the minimum allowed by CCIR 624 for the 625 standard.

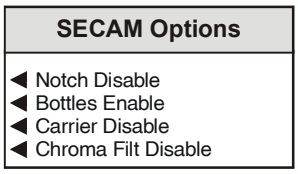
◄ Min Blanking 525

When selected the blanking width will be reduced to the minimum allowed by CCIR 624 for the 525 standard.

◄ PAL-I Blanking

When this item is enabled blanking will conform to the PAL System-I standard.

◄ SECAM Options



◄ Notch Disable

When selected (text highlighted) the SECAM luminance notch filter will be disabled.

Preset Unit sets Notch Disable to OFF.

◄ Bottles Enable

This function allows the SECAM-V colour ident signal (Bottles) to be switched ON (text highlighted) or OFF.

Preset Unit sets Bottles Enable to OFF.

◄ Carrier Disable

This function allows the chrominance carrier to be switched ON or OFF (text highlighted).

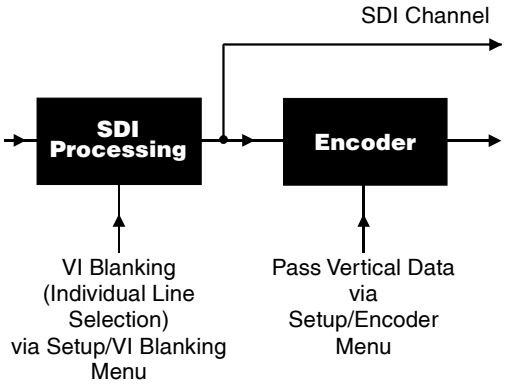
Preset Unit sets Carrier Disable to OFF.

◄ Chroma Filt Disable

This function allows the chrominance filter to be switched OFF (text highlighted) or ON.

Preset Unit sets Chroma Filt Disable to OFF.

◄ Pass Vertical Data (active on analog outputs)



When selected input vertical data is passed on a line-by-line basis (as selected by the VBI function) into the analog signals. When not selected the vertical blanking in the analog outputs are blanked without effecting the SDI channel.

◄ Genlock

For details see page 4.19.

◄ Pattern

For details see page 4.14.

◄ GPI

This menu allows the 2 GPI inputs to be configured.

GPI	
◄ GPI1 Open...	1 Close..►
◄ GPI2 Open...	2 Close..►
◄ GPI 2 Select...	

◄ GPI 1 and GPI 2 Open

This function determines what happens when the selected GPI input condition changes from closed to open.

GPI 1, 2 Open	
◄ OFF	Memory 1 ►
◄ Memory 2	Memory 3 ►
◄ Memory 4	Memory 5 ►
◄ Memory 6	Memory 7 ►
◄ Memory 8	

◄ OFF No response.

◄ Memory 1 to 8 The unit will revert to the setup stored in the selected memory location.

◄ 1 Close (GPI 1 Close) and 2 Close (GPI 2 Close)

This function determines what happens when the selected GPI input condition changes from open to closed.

GPI 1, 2 Close	
◄ OFF	Memory 1 ►
◄ Memory 2	Memory 3 ►
◄ Memory 4	Memory 5 ►
◄ Memory 6	Memory 7 ►
◄ Memory 8	

◄ OFF No response.

◄ Memory 1 to 8 The unit will revert to the setup stored in the selected memory location.

◄ GPI 2 Select

This item allows the function of GPI 2 input to be changed.

GPI 2 Select
◄ GPI 2
◄ Audio Delay Flag

◄ GPI 2

When selected GPI 2 will function normally in the same manner as the GPI 1 input.

◄ Audio Delay Flag

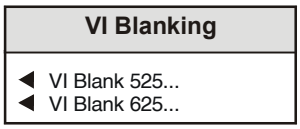
When this is selected GPI 2 will provide an ***output*** signal that remains high for a duration corresponding to the total audio delay through the unit.

The audio delay is comprised of the measured input to output system delay plus the amount of Audio Delay Offset. The minimum is 1 ms.

This signal may be used by other equipment to compensate for the video delay introduced by the TBS180/185.

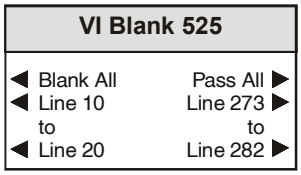
◄ VI Blanking

This function is used to select which lines of the Vertical Blanking Interval are to be blanked and which ones are to be passed through unprocessed.



◄ VI Blank 525

This function reveals a menu that allows individual 525 standard vertical interval lines to be selected.



◄ Blank All

When selected all VBI data lines will be blanked.

Pass All ►

When selected all VBI data lines will be passed.

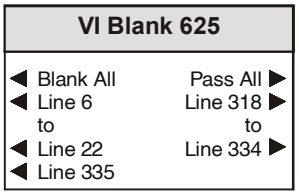
◄ Line 10 to 20 Line 273 to 262 ►

Selecting lines from this list will blank the VBI data on that line.
If the line is unselected the VBI data on that line will be passed through unprocessed.

For the line 21/283 controls see page 4.9.

◄ VI Blank 625

This function reveals a menu that allows individual 625 standard vertical interval lines to be selected.



◄ Blank All

When selected all VBI data lines will be blanked.

Pass All ►

When selected all VBI data lines will be passed.

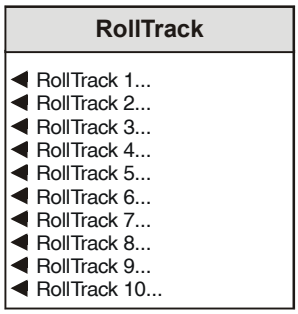
◄ Line 6 to 22 & 335 Line 318 to 334 ►

Selecting lines from this list will blank the VBI data on that line.
If the line is unselected the VBI data on that line will be passed through unprocessed.

For the line 23 controls see page 4.9.

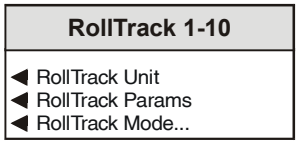
◄ **RollTrack**

This function allows information about the status of the unit to be communicated to other RollTrack compatible modules connected to the network. This message can then be used to cause another unit to perform a specific action. Up to 10 RollTrack communication channels to compatible modules may be selected from the following menu:



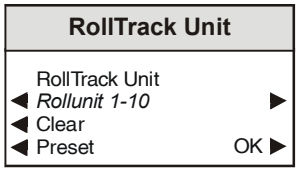
◄ RollTrack 1 to 10

Selecting a RollTrack communication channel reveals the following menu.



◄ RollTrack Unit

This item allows the address of the destination unit to be set.



To edit the text the right ► and left ◄ buttons adjacent to the upper text line in the menu should be used to select the position in the text and the spinwheel used to select the character.

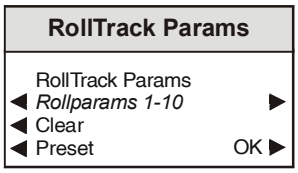
To save the new text, press the OK button. It should be noted that this is the only way to save the new text as any other button function will return to the previous menu without modifying the original text.

The **Preset** button sets the text line to the default value.

The **Clear** function sets the text line to all zeros.

◄ RollTrack Params

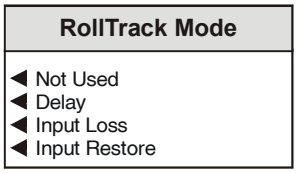
To make the destination unit perform a particular function a RollCall command number must be entered using this function.



For details of the RollCall command numbers for specific units please contact your local Snell & Wilcox agent.

◄ RollTrack Mode

This sub-menu allows the unit to provide the following information about the status of the unit to the connected RollTrack Unit. The destination unit will then perform a specific action in response to this information.



◄ Not used — Function is not used.

◄ Delay — The measured Video delay through the unit.

◄ Input Loss — The input signal has been lost.

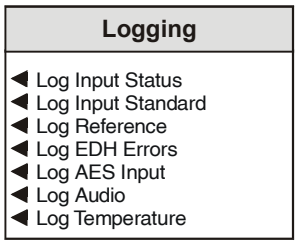
◄ Input Restore — The input signal has been restored.

For more information please see page 4.40 RollTrack setup.

◄ Logging

Information about various parameters can be made available to a logging device that is attached to the RollCall™ network.

Selecting this item shows the seven parameters that are available for logging.



◄ Log Input Status

When activated, a presence or loss of input signal condition will be available for the logging device.

◄ Log Input Standard

When activated, the input line standard will be available for the logging device.

◄ Log Reference

When activated a presence or loss of reference signal condition will be notified to any logging device.

◄ Log EDH Errors

When activated EDH error data will be notified to any logging device.

◄ Log AES Input

When activated, AES input status condition will be available for the logging device.

◄ Log Audio

Data about the embedded audio presence will be available for the logging device.

◄ Log Temperature

Data about the internal temperature will be available for the logging device.

◄ Preset Unit

Selecting this item sets all functions that are available at user level to their factory default values. e.g. this function will not change any genlock phase adjustment settings.

Note also that this is a momentary action and the text will not become reversed.

Output ►

The output line standard will always be the same as the detected input line standard.
This menu allows the encoded formats for 625 or 525 line standards to be selected.

Output
◄ 625 Standard Setup...
◄ 525 Standard Setup...
◄ Default Output...

◄ 625 Standard Setup

625 Standard Setup
◄ **PAL**
◄ PALN
◄ SECAM

This allows the 625-line composite standard to be selected when operating in the 625-line output standard.

◄ 525 Standard Setup

525 Standard Setup
◄ **NTSC**
◄ PALM
◄ NTSCJ
◄ N443

This allows the 525-line composite standard to be selected when operating in the 525-line output standard.

When the NTSCJ is selected the encoder will produce an NTSCJ signal (an NTSC signal without a pedestal).

◄ Default Output

If the input signal fails the output may be configured to become one of the items in this menu.

Default Output
◄ **Black**
◄ Pattern
◄ Freeze

◄ Black

The output will become a black picture.

◄ Pattern

The output will become the test pattern as selected from the Setup/Pattern menu.

◄ Freeze

The output will become a frozen picture of the last frame.

Status ►

This menu allows information about the status of the unit to be displayed.

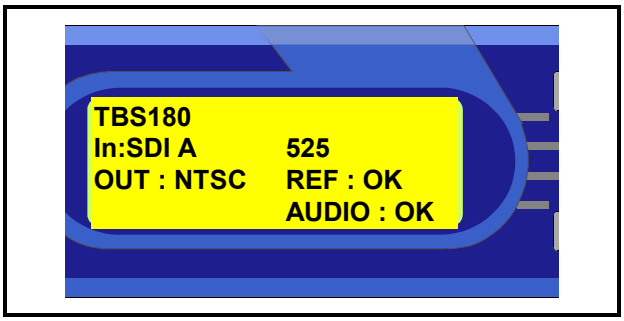
Status
◄ Status Display
◄ GPI Delay
◄ Unit Temperature
◄ ANC. Status
◄ Software Version
◄ Serial Number
◄ Build Number
◄ Restart

◄ Status Display

Status Display
◄ **Default Display**
◄ Status Display 1
◄ Status Display 2
◄ Status Display EDH
◄ Reset EDH Status

◄ Default Display

When this item is selected the display window shows details about the Input Signal, Reference signal and the output as shown in the example below.



The first line shows the name of the unit.

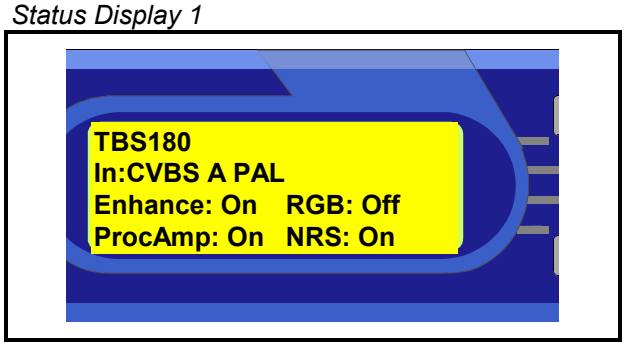
The second line shows which input has been selected and the detected standard of the input signal.
The third line shows the standard of the output signal and the genlock status.
The fourth line shows the status of the output signal, audio status and the state of the ProcAmp controls. The output signal status may be nothing, (output is processed picture), **Pattern** or **Freeze**.
Note that if Pattern, Black or Freeze has been forced because of an input signal failure the words will be prefixed by an asterisk.
e.g. ***Pattern, *Black** or ***Freeze**.

If the proc amp controls are not preset then **UnCal** appears in the display.

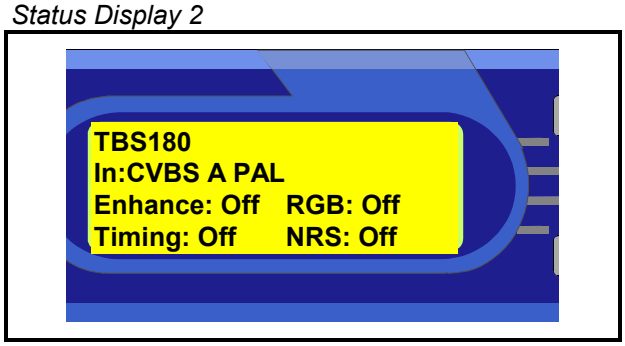
◄ Status Display 1, 2

When these are selected the display window will be as shown in the examples below.

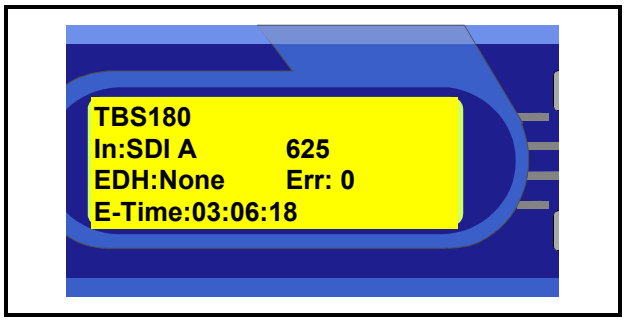
Status Display 1



Status Display 2



◄ Status Display EDH



When selected the information area will display the number of errors from the time the function was enabled. The elapsed time in hours, minutes and seconds is also displayed. Meanings are as follows:

EDH: This is the state of the input error detection handler.
None No EDH information present.
OK No EDH errors.
Err An EDH error has occurred.

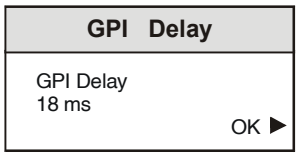
Err: The number of EDH errors that have occurred since the last EDH reset.

E-Time: This is time since EDH was reset in Hours:Minutes:Seconds.

◄ Reset EDH Status

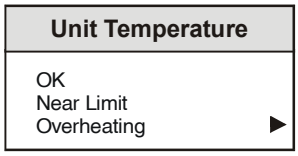
This will reset the EDH error count and the timer shown in the information window to zero.

◄ GPI Delay



This function will display the total audio delay through the unit in milliseconds.
It is comprised of the Audio Delay Offset and the measured video delay.

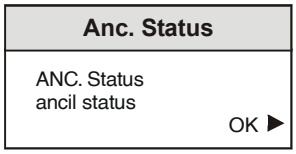
◄ Unit Temperature



The internal temperature of the unit is continuously monitored. This item will display one of the above messages with the following meanings:

OK	Internal temperature within design limits.
Near Limit	Internal temperature approaching the upper design limit.
Overheating	Internal temperature is above the upper design limit. The cause should be investigated and rectified.

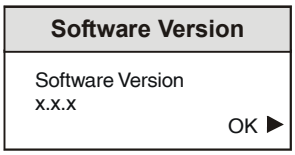
◄ Anc Status



This will display the status of the audio auxiliary data. e.g. 1- 2- - - - - 5- - - 7- - A - -

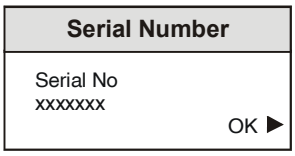
Each number corresponds to an embedded audio input pairs presence in the selected SDI. The presence of the letters A, B, corresponds to the AES inputs.

◄ Software Version



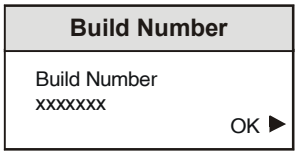
Selecting this item reveals a display showing the version of the software fitted in the module. Select OK to return to the Status Menu.

◄ Serial Number



Selecting this item reveals a display showing the serial number of the module. Select OK to return to the Status Menu.

◄ Build Number



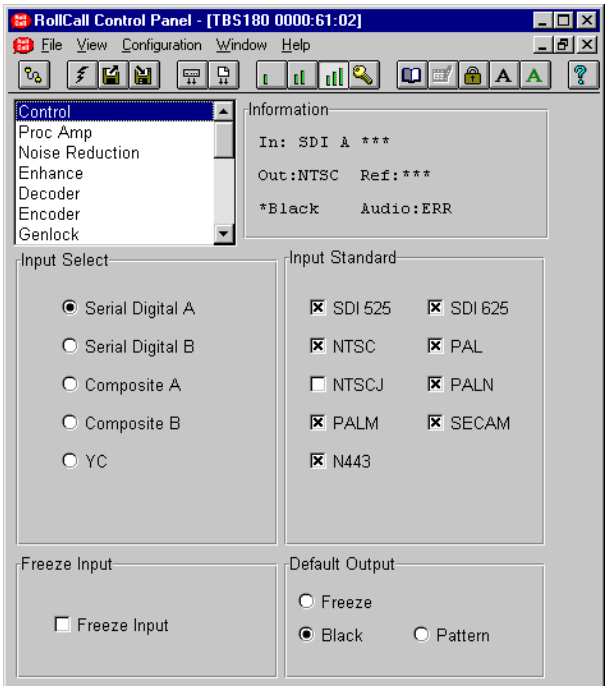
This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes. Select OK to return to the Status Menu.

◄ Restart

This function restarts the unit, restoring all power up settings. This is equivalent to switching the mains power off and on.

RollCall Control Templates for the TBS180 and TBS185

CONTROL(TBS180)



Input Select

This allows any of the 5 sources of video input signal to be selected for processing.

Input Standard

The decoder employs an auto standard detection system. It will auto detect any of the composite or SDI standards that are checked in the list of Input Standards.
In the example shown it will auto detect all standards (including the SDI standards) except NTSCJ. Any number (greater than one) of standards may be selected.
For example, in a given situation where it is known that only PAL and NTSC input signals are expected, only the PAL and NTSC standards should be checked.

The decoder will then only auto detect between PAL and NTSC standards. Other standards will not be decoded and will produce an unstable lock.
To force the unit to decode only one standard, check that standard and uncheck all others.

Note that at least one standard must be selected; if an attempt is made to uncheck all items the last standard selected will remain checked and become the only standard to be decoded.
Note also that for NTSC signals either NTSC ***or*** NTSCJ may be checked but not NTSC ***and*** NTSC Format J.

NTSC Format J

When this function is enabled the decoder will correctly process a NTSCJ signal (an NTSC signal without pedestal).

Freeze Input

When enabled the input signal will be frozen.

Default Output

If the input signal fails the output may be configured to become one of the following:

Freeze

The output will become a frozen picture of the last frame.

Black

The output will become a black picture.

Pattern

The output will become the test pattern as selected from the Setup/Pattern menu.

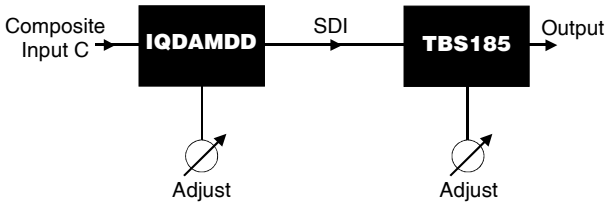
CONTROL(TBS185)

Input Select

This allows any of the five sources of video input to be selected for processing.

When the Composite C input is selected, the signal is decoded by the IQDAMDD module before being passed on to the TBS185.

Composite Input C Processing



As illustrated above the Composite C signal is processed by both the IQDAMDD and the TBS185. This allows adjustments to be made by both units.

For full details of IQDAMDD operation, please consult the operator's manual (included).

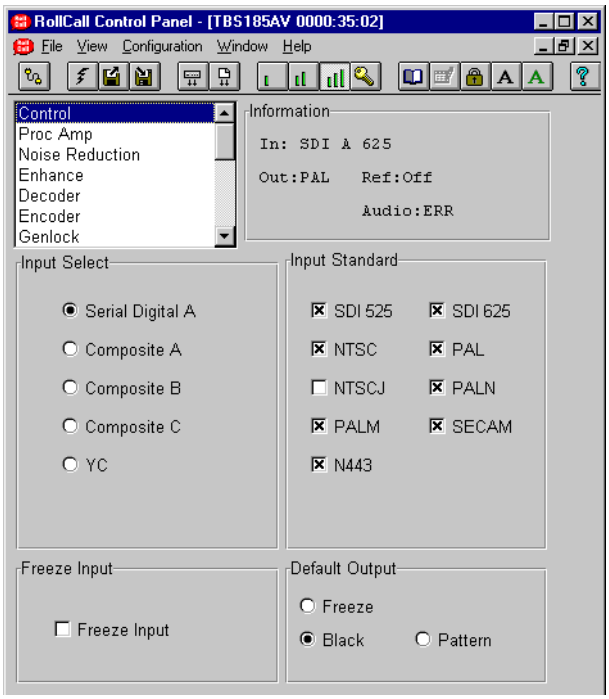
For ease of operation of the unit, various functions of the IQDAMDD are set up when the TBS185 is preset.

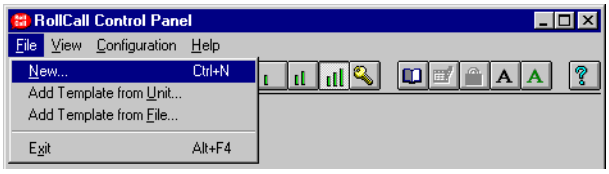
Note that the first three RollTracks on the IQDAMDD have been set up to convey information about the status of the IQDAMDD to the TBS185 and should not be modified. The Preset Unit function of the TBS185 will restore these settings.

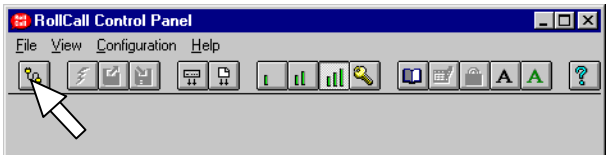
Input Standard

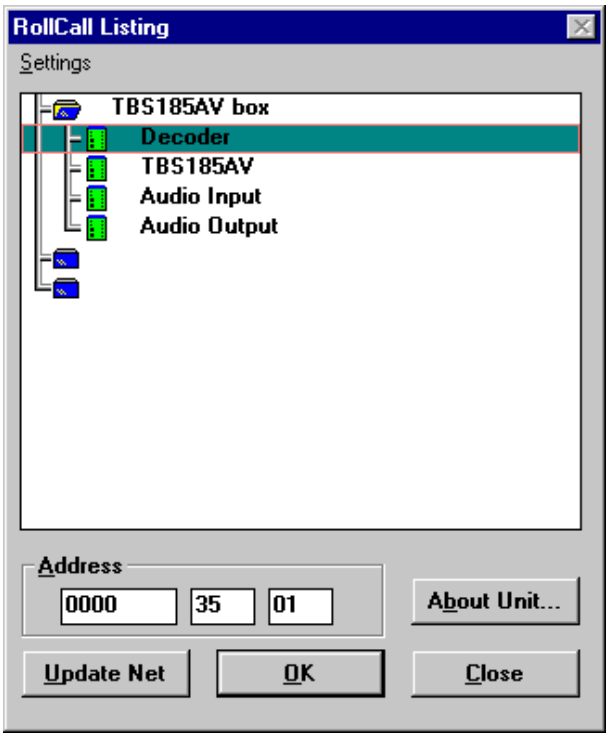
The Composite C input standard should be set using the IQDAMDD **Input/Video/Input Std** function (see IQDAMDD operator's manual).
For other input selections the inputs standard is set using the TBS180/185 controls.

The IQDAMDD decoder may be accessed via the RollCall Listing item of the RollCall Control panel as shown opposite.









Proc Amp

Note that for this and other screens the following applies:

The P symbol represents the Preset function and will return the function to the default setting.

The ◀ and ▶ symbols at the ends of the scroll bar allow the value to be adjusted in discrete steps.

The numerical value will be shown above the scroll bars and selecting Preset P will return the setting to the calibrated value of 0 for items on this screen.

This screen will allow the settings of the Chroma Gain, Black Level, NTSC Hue, Luma Gain, Y/C Timing and Picture position to be adjusted. AGC and ACC may also be enabled.

*Note that if the Proc Amp is enabled and settings are not at their preset values the text **UnCal** will be displayed in the Status display window.*

Proc Amp Enable

Selecting the **Proc Amp Enable** function will enable the settings of the Luma Gain, Black Level and Chroma Gain functions.

Luminance Gain

By using the scroll bar the gain may be adjusted by ±6 dB in steps of 0.1 dB.

Selecting Preset returns the setting to the calibrated value of 0.

Black Level

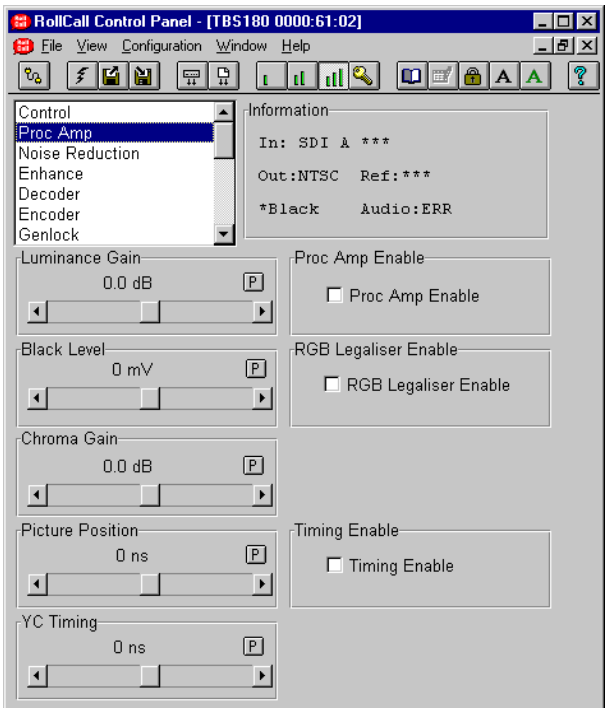
By using the scroll bar the pedestal may be adjusted by ±100 mV in steps of 1 mV.

Selecting Preset returns the setting to the calibrated value of 0.

Chroma Gain

By using the scroll bar the gain may be adjusted by ±3 dB in steps of 0.1 dB.

Selecting Preset returns the setting to the calibrated value of 0.



RGB Legalizer Enable

When selected this will enable the RGB Gamut legalizer. This will prevent the unit from producing RGB signals greater than 101%.

Timing Enable

Selecting the **Timing Enable** function will enable the settings of the Picture Position and YC Timing functions.

Picture Position

This item allows the timing of the picture position relative to the normal value, to be adjusted by using the scroll bar.

Range is from ±592 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value of 0.

YC Timing

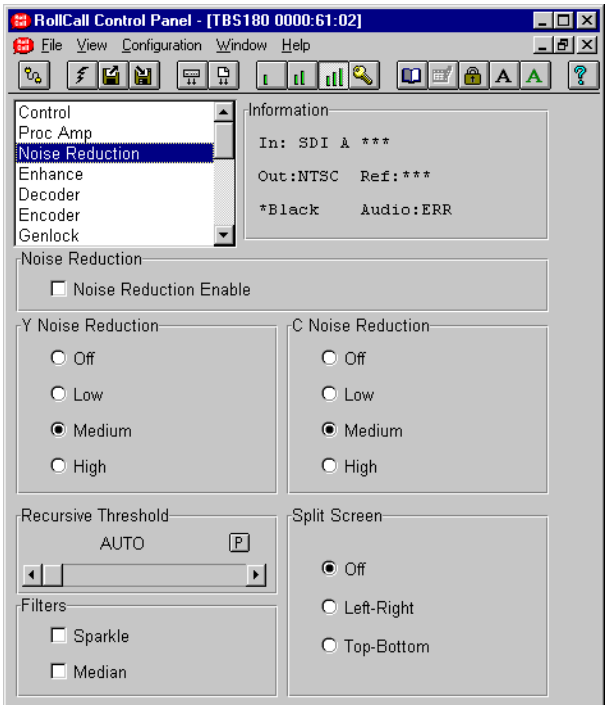
This item allows the timing of the chrominance signal relative to the luminance signal, (i.e. Y to Cb/Cr timing) to be adjusted by using the scroll bar.

Range is from ±444 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value of 0.

Noise Reduction

This screen allows various forms of noise reduction to be applied to the signal.



Noise Reduction

Noise Reduction Enable

When enabled the noise reduction system will be active. Default is to Off

Y Noise Reduction

This item allows Recursive noise reduction to be applied to the luminance channel.

The range of adjustment is off, low, medium and high. Default is to Medium.

C Noise Reduction

This item allows Recursive noise reduction to be applied to the chrominance channel.

The range of adjustment is off, low, medium and high. Default is to Medium.

Recursive Threshold

This control sets the noise reduction threshold of the recursive filters.

The range of adjustment is from Auto (0) to 7 units. Preset is to Auto (0).

Note that applying a high threshold level may assist with extremely noisy images; however this may result in plain areas appearing flat.

Filters

Sparkle

Enabling this item applies a sparkle filter to the signal, reducing the effect of sparkle noise associated with edge-of-reception signals from satellite feeds, impulse noise or drop-outs from tape-recorded signals.

Median

When selected sparkle concealment is enabled that employs a threshold controlled 3-dimensional median filter. This permits the removal of picture disturbances that the normal sparkle detection algorithm may miss. For example low-level sparkles will be concealed. The Median filter is particularly effective on very noisy sources. Note that some loss of resolution may be observed depending on the source material.

Split Screen

This function allows the effects of noise reduction to be easily seen by splitting the screen in half. One half will show the picture with noise reduction and the other half without noise reduction.

Off

This disables the split screen function.

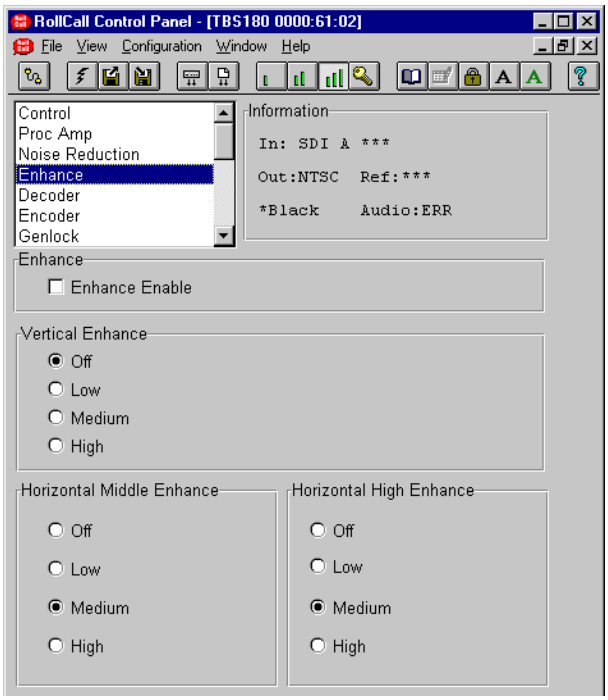
Left-Right

When enabled, the screen will be split into two equal sections separated by a vertical white line. The processed picture will occupy the left hand section of the screen and the unprocessed picture will occupy the right hand side section.

Top-Bottom

When enabled, the screen will be split into two equal sections separated by a horizontal white line. The processed picture will occupy the bottom section of the screen and the unprocessed picture will occupy the top section.

Enhance



Linear Enhance

Selecting **Enhance Enable** will enable the settings of the Vertical and Horizontal enhance functions.

Vertical Enhance

This allows Vertical enhancement to be applied to the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

The amount of enhancement may be set to Off (None), Low, Medium or High.

Horizontal Middle Enhance

This allows Horizontal enhancement to be applied to middle frequencies of the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

The amount of enhancement may be set to Off (None), Low, Medium or High.

Horizontal High Enhance

This allows Horizontal enhancement to be applied to high frequencies of the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

The amount of enhancement may be set to Off (None), Low, Medium or High.

Decoder

This function allows settings to be made to the color decoding section of the decoder.

Auto Gain Control

When this item is enabled the luminance gain will vary relative to the input peak white amplitude.
This will maintain the output signal at a normalised level even though the input signal level may be above or below standard level.
The control will be effective over an input level range of +1 dB to –6 dB.

Auto Color Control

When this item is enabled the chrominance gain will vary relative to the input burst amplitude. This will maintain correct color saturation regardless of changes in subcarrier amplitude.

NTSC Hue

This selection displays a numerical readout display for the Hue of NTSC signals. By using the scroll bar the Hue may be adjusted by ±30 ° in steps of 1°.

Selecting Preset returns the setting to the calibrated value of 0°.

PAL Line 23

Process As Video

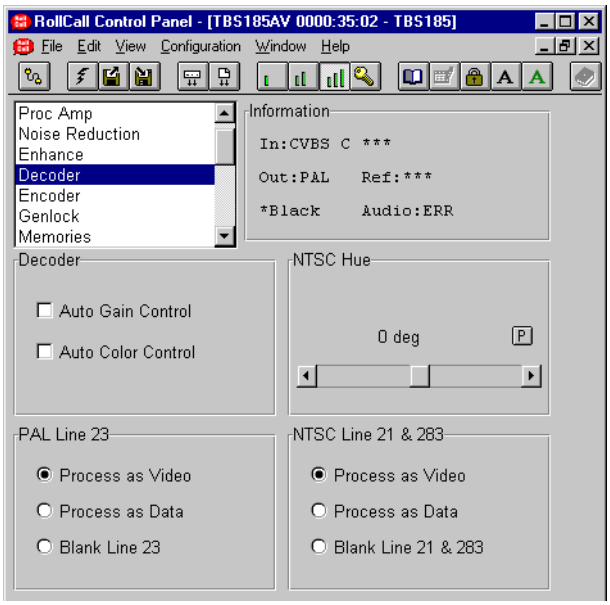
When enabled line 23 of the PAL input signal will be processed as active picture and the ProcAmp controls will effect Line 23.

Process as Data

When selected line 23 is passed unprocessed and the ProcAmp controls will not effect Line 23.
The Chroma information will not be decoded from a Composite or Y/C source.

Blank Line 23

When enabled line 23 of the PAL input signal will be blanked.



NTSC Line 21 & 283

This item allows various options to be applied to line 21 and line 283 of an NTSC signal.

Process As Video

When enabled line 21/283 of the NTSC input signal will be processed and the ProcAmp controls will effect Line 21/283.

Process as Data

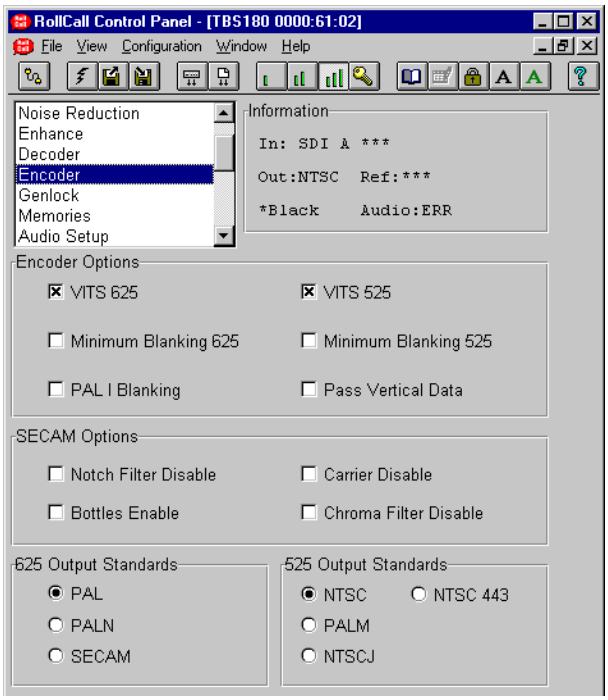
When selected lines 21/283 are passed unprocessed and the ProcAmp controls will not effect Line 21/283.
The Chroma information will not be decoded from a Composite or Y/C source.

Blank Line 21 & 283

When enabled line 21 & 283 of the NTSC input signal will be blanked.

Encoder

This screen allows various parameters of the encoding section to be set up.



Encoder Options

VITS 625 (on analog outputs only)

When this function is selected the 625 standard VITS lines are inserted in the vertical interval.

Minimum Blanking 625

When selected the blanking width will be reduced to the minimum allowed by CCIR 624 for the 625 standard.

PAL-I Blanking

When this item is enabled blanking will conform to the PAL System-I standard.

Pass Vertical Data

When selected input vertical data is passed on a line-by-line basis (as selected by the VBI function) into the analog signals.

VITS 525 (on analog outputs only)

When this function is selected the 525 standard VITS lines are inserted in the vertical interval.

Minimum Blanking 525

When selected the blanking width will be reduced to the minimum allowed by CCIR 624 for the 525 standard.

SECAM Options

Notch Filter Disable

When selected the SECAM luminance notch filter will be disabled.

Preset Unit is to notch filter OFF.

Bottles Enable

This function allows the SECAM-V colour ident signal (Bottles) to be switched ON or to OFF.

Preset Unit is to Bottles OFF.

Carrier Disable

This function allows the chrominance carrier to be switched ON or OFF.

Preset Unit is to OFF.

Chroma Filter Disable

This function allows the chrominance filter to be switched ON or OFF.

Preset Unit is to OFF.

625 Output Standards

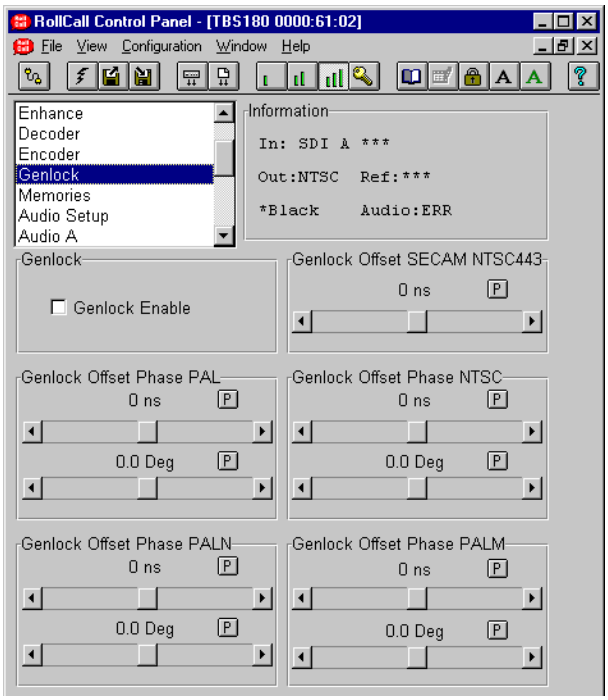
This selects the 625-line composite standard to be used when operating in the 625-line output line standard.

525 Output Standards

This selects the 525-line composite standard to be used when operating in the 525-line output line standard.

When the NTSCJ is enabled the encoder will produce an NTSCJ signal (an NTSC signal without pedestal).

Genlock



This function allows various modes of genlock to be enabled.

Genlock

Genlock Enable

When selected the unit will lock to an incoming reference signal.
When not selected the output signal will be free-running.
In this mode the frequency accuracy will be ±10 ppm.

Genlock Offset SECAM NTSC443 (ns Scroll Bar)

These items allow adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.

The range is ±1.9 lines in steps of one cycle of subcarrier.

Genlock Offset Phase PAL (ns Scroll Bar) (also PALN/NTSC/PALM)

These items allow adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.

The range is ±1.9 lines in steps of one cycle of subcarrier (this ensures the correct SC/H timing is maintained).

Selecting Preset returns the setting to zero (output coincident with reference).

Genlock Offset Phase PAL (Deg Scroll Bar) (also PALN/NTSC/PALM)

This function allows the relative phasing between the reference subcarrier and the output signal subcarrier to be adjusted.

The range of adjustment is 359.9° (continuously adjustable) in steps of 0.1°. The preset value is 0° (output coincident with reference).

Memories

This function allows a number of particular setups of the TBS180/185 to be saved and recalled. There are 8 memory locations available.

Note that on the TBS185 the settings of the IQDAMDD decoder will also be stored and recalled by the memory functions.

To change the memory name, type the new name in the text area and then select  (return).

Selecting Preset  will return the text to the default name.

This function clears the memory location and returns to the default (preset) setting.

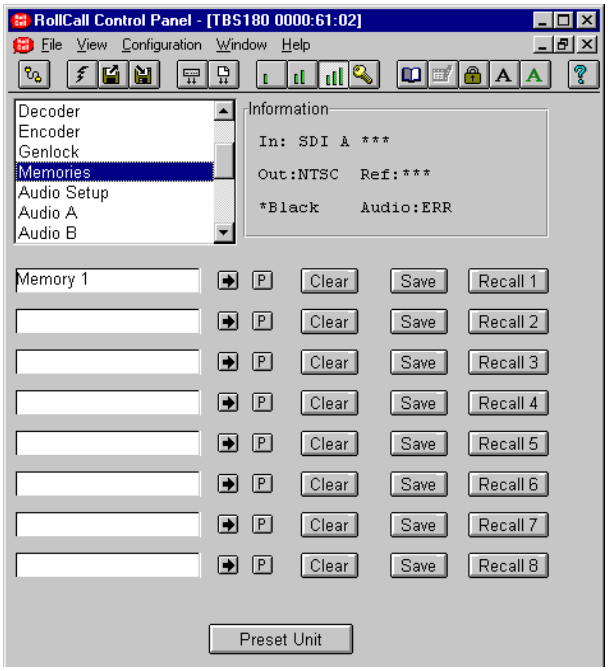
This function saves the current settings of all items at a memory location.

This function recalls the settings saved at a memory location.

Note that all the above functions are momentary actions.

Selecting this item sets all functions that are available at user level to their factory default values. e.g. this function will not change any genlock phase adjustment settings.

Note that this is a momentary action.



AV AUDIO OPERATION

In order to support analog audio, the TBS180/185AV is supplied fitted with the following audio modules:

IQBADCD-1K-N
IQBDACD-1K-N

To use the analog audio inputs/outputs, the TBS180/185 AV must be set up as described in section 3 page 3.4.

The audio modules are supplied configured for use in the TBS. In usual operation it is recommended that audio is set up using the TBS180/185 audio controls as described below. When using the analog audio inputs, Audio A source is set to AES input A and Audio B source is set to AES input B.

For more advanced functions, e.g. channel status naming, the audio modules may be controlled directly using the browse feature of the TBS180/185 (see page 4.3). Please consult the appropriate module manual for more details.

Important Note

When using the TBS180/185AV analog audio output, the IQBDACD-N input source must be set to unbalanced 1 and unbalanced 2.

Audio Setup

Tone Frequency

This allows the frequency of the tone signal to be set.

The range of adjustment is from 100 Hz to 10 000 Hz in steps of 100 Hz. Preset is to 400 Hz.

Tone Level

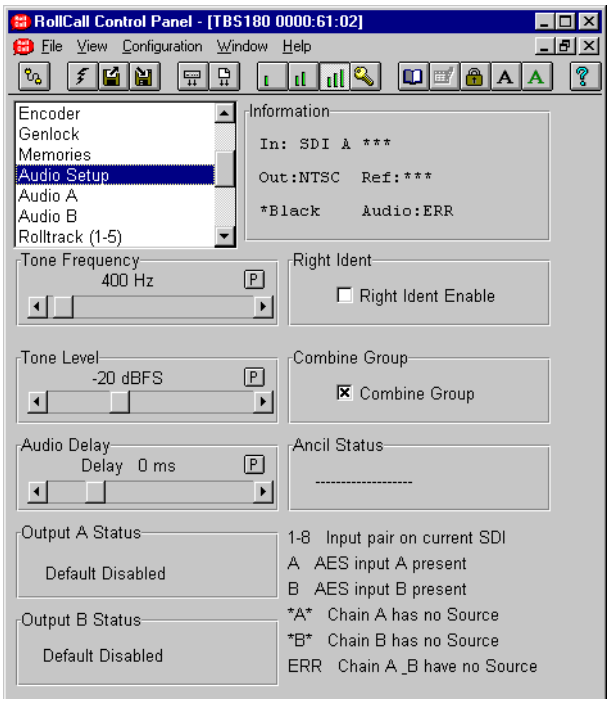
This allows the amplitude of the tone signal to be set.

The range of adjustment is from -30 dBFS to 0 dBFS in steps of 1dBFS. Preset is to -20 dBFS.

Audio Delay

In addition to the delay compensating for the video path through the system, an extra audio delay period can be added to compensate for any video delay introduced elsewhere in the system.

The range of adjustment is from –40 ms to +160 ms in steps of 1 ms. Preset is to 0 ms.



Right Ident

When enabled the right channel will be identified by the signal being muted for 0.5 second every 2.5 seconds.

Combine Group

Two pairs in the same group can be presented in two valid but different ways in the Ancillary data (combined or not combined).

The **Combine Group** function allows the user to specify which one of these two alternatives the TBS180/185 will use to embed the audio.

When ticked the group will be combined; when cleared the group will not be combined.
Preset is to enabled (combine group).

This control should only be used if equipment downstream of the TBS180/185 were only able to recognize an uncombined group.

Ancil Status

This will display the status of the audio auxiliary data. e.g. 1 - 2 - - - - - - - - - - - - A - B

Output A Status/Output B Status

This function displays the status of output A and output B.

Audio A and Audio B

These items allow various audio functions to be set up for the 2 audio processing chains.

Audio A (B) Destination

Selecting items in this menu allows the processed signal to be embedded into any one of the 8 pairs of the SDI signal.

Routing Style

This function allows either Stereo or Mono routing to be selected for the audio processing chain.

Stereo Routing

When this item is selected a stereo *pair* may be selected for routing through the audio processing chain.
For example, if Source 3L is selected in Audio A Source Right menu then automatically the Audio A Source A Left will be changed to Source 3R. i.e. Chain A would be sourced from pair 3 with a stereo inversion.

Mono Routing

When this item is selected a single channel may be selected for routing through the audio processing chain.
For example, if source 5L is selected in Src Chain A Right then the Src Chain A Left is not changed.
i.e. each channel is selected independently.

Note that if the routing mode is changed the Mux selection will not actually change until a new input source chain selection is made.

Audio A (B) Source Left/Right

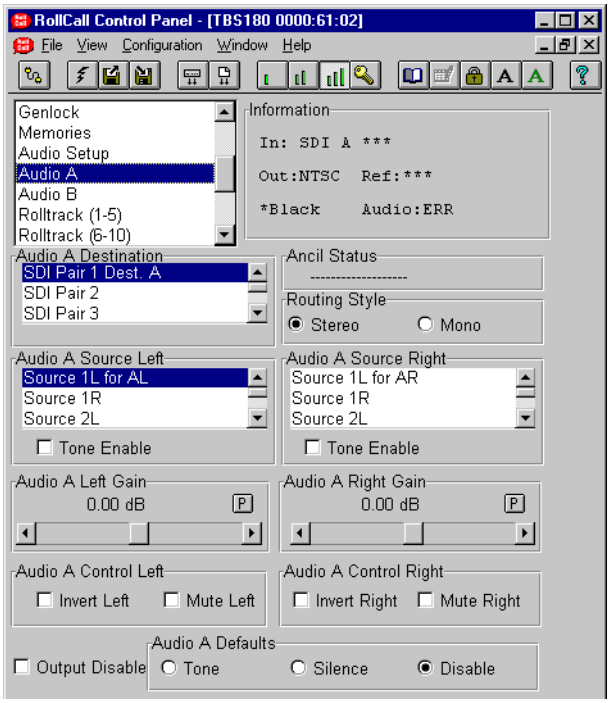
This menu allows any of the input audio sources to be selected for processing.

Tone Enable

This will enable the internal tone as set by the *Tone Frequency and Tone Amplitude* function in the **Audio Setup** screen.

Audio A (B) Left Gain

This function allows the gain of the left channel to be adjusted by ±6 dB.
Preset is to 0 dB.



Audio A (B) Right Gain

This function allows the gain of the right channel to be adjusted by ±6 dB.
Preset is to 0 dB.

Audio A (B) Control Left/Right

Invert Left and Invert Right

When enabled these functions will invert the selected audio signal channel.

Preset is to not inverted.

Mute Left and Mute Right

When enabled these functions will mute the selected audio signal channel.

Preset is to not muted.

Audio A (B) Defaults

If the audio signal is absent the output may be set to this default signal.

This function defines what the output signal will become under these conditions. It can be an internally generated **Tone** or **Silence,** or **Disable** when no signal is embedded.
Preset is to Disable.

Output Disable

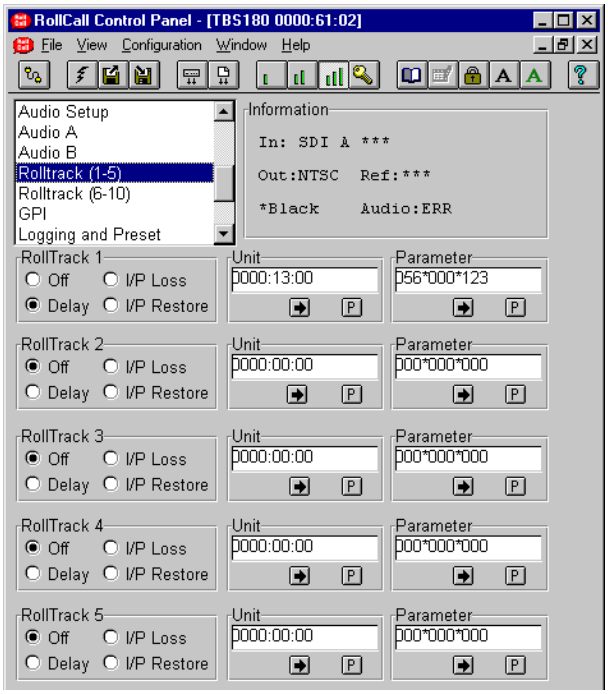
Checking this item will disable the embedded output signal (not the AES output).

RollTrack 1-5
RollTrack 6-10

This function allows information about the status of the unit to be communicated to other RollTrack compatible modules connected to the network. This message can then be used to cause another unit to perform a specific action. Up to 10 RollTrack communication channels to compatible modules may be selected from the RollTrack 1-5 and 6-10 screens.

Each of the RollTrack channels may be set to the following modes:

Off	Function is not used.
Delay	Video delay through the unit.
I/P Loss	The input signal has been lost.
I/P Restore	The input signal has been restored.



Unit

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

To change the address, type the new destination in the text area and then select (return).

P (Preset) returns to the default destination.

For details of the RollCall command numbers for specific units please contact your local Snell & Wilcox agent.

The unit address has three sets of numbers.

For example: 0000:35:02

The first set (0000) is the network segment code number

The second set (35) is the number identifying the (enclosure/mainframe) unit.

The third set (02) is the slot number in the unit

Parameter

To make the destination unit perform a particular function a RollCall command number must be entered using this function.

To add/change the number type the number in the text area and then select (return).

P (Preset) returns to the default number.

The Parameter has three sets of numbers. e.g. 100*001*000 (command 100 is memory recall and parameter 001 means recall memory 1 on a TBS180/185).

The first set (100) is the command or channel number.

Note that only channel numbers 14, 15, 16 & 17 should be used for audio delay cards.

The second set represents the parameter. For delay it is automatically inserted by the TBS180/185 and represents the delay through the unit that is communicated to an audio delay card.

The third set is the RollCall unit ID and it identifies the board type. When the third set is not (000) the RollCall ID has to match at the correct RollCall address otherwise no action will take place.

GPI

This screen allows the 2 GPI inputs to be configured.

GPI 1 and GPI 2 Open

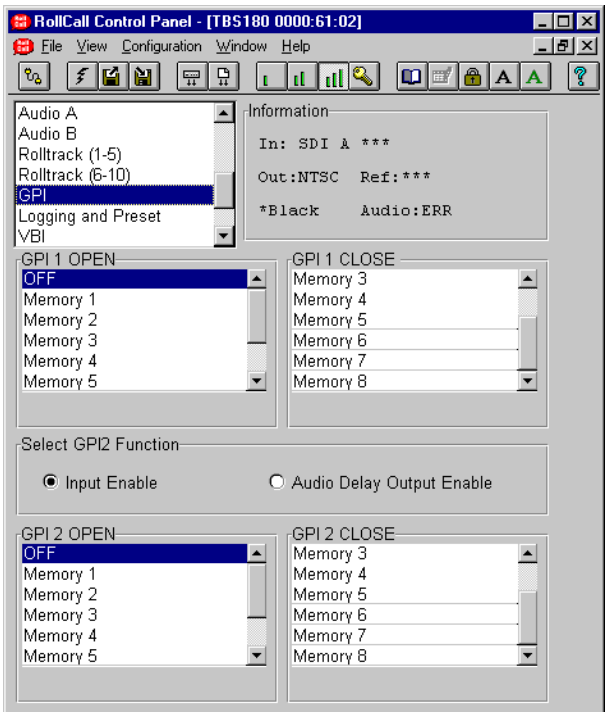
This function determines what happens when the selected GPI input condition changes from closed to open.

OFF	No response.
Memory 1 to 8	The unit will revert to the setup stored in the selected memory location.

GPI 1 and GPI 2 Close

This function determines that happens when the selected GPI input condition changes from open to closed.

OFF	No response.
Memory 1 to 8	The unit will revert to the setup stored in the selected memory location.



Select GPI 2 Function

This item allows the function of GPI 2 input to be changed.

Input Enable

When selected GPI 2 will function normally in the same manner as the GPI 1 input.

Audio Delay Output Enable

When selected GPI 2 will provide an ***output*** signal that remains high for a duration corresponding to the total audio delay through the unit.

The audio delay is comprised of the measured input to output system delay plus the amount of Audio Delay Offset. The minimum is 1 ms.

This signal may be used by other equipment to compensate for the video delay introduced by the TBS180/185.

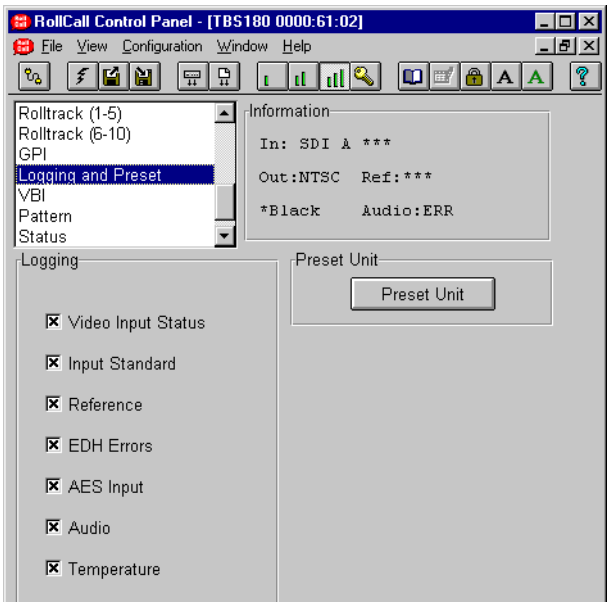
Logging And Preset

Logging

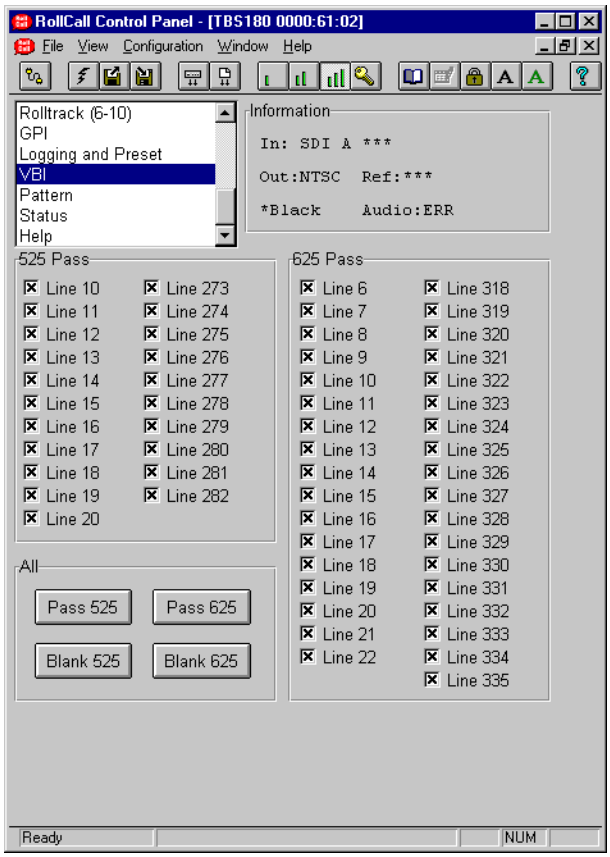
Information about 7 parameters can be made available to a logging device that is attached to the RollCall™ network.

Preset Unit

Selecting this item sets all functions that are available at user level to their factory default values. e.g. this function will not change any genlock phase adjustment settings.



VBI



This function allows the user to select which vertical interval lines to pass through to the output and which lines to blank.

525 Pass

This section allows lines 10 to 20 and lines 273 to 282 of 525 line signals to be selected and passed through to the output by checking the appropriate box.

For line 21/283 controls see page 4.34

625 Pass

This section allows lines 6 to 22 and lines 318 to 335 of 625 line signals to be selected and passed through to the output by checking the appropriate box.

For line 23 controls see page 4.34

All

This section allows all vertical interval lines to be selected and either passed to or blanked from the output signal.

Pass 525

Selecting this item will select all vertical interval lines in the 525 line list and allow them to be passed through to the output.

Pass 625

Selecting this item will select all vertical interval lines in the 625 line list and allow them to be passed through to the output.

Blank 525

Selecting this item will select all vertical interval lines in the 525 line list and blank them from the output.

Blank 625

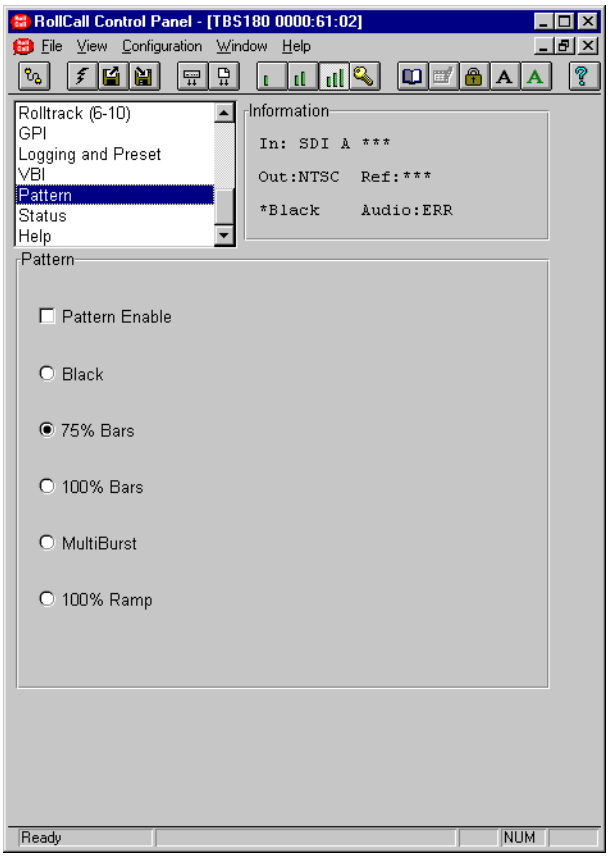
Selecting this item will select all vertical interval lines in the 625 line list and blank them from the output.

Pattern

This function allows various patterns to be used as the output signal.

Pattern Enable

When this item is active a pattern, selected from the list, will become the output signal.



Status

This screen displays information about the unit.

Unit Temperature

The internal temperature of the unit is continuously monitored. This item will display one of the following messages.

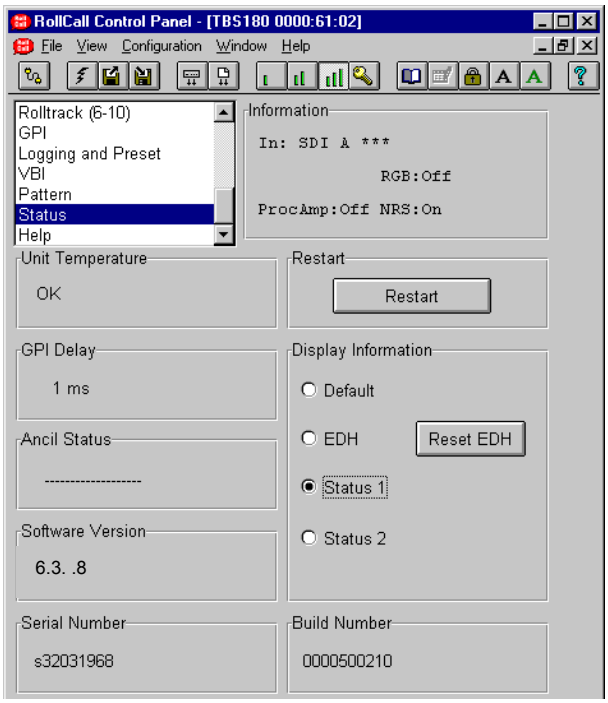
OK	Internal temperature within design limits.
Near Limit	Internal temperature approaching the upper design limit.
Overheating	Internal temperature is above the upper design limit. The cause should be investigated and rectified.

GPI Delay

This displays the total audio delay through the unit in milliseconds. It is comprised of the Audio Delay Offset and the measured video delay.

Ancil Status

This will display the status of the audio auxiliary data.
e.g. – 2- 4 - - - - - - - - - - - A - B



Software Version

This item shows the version of the software fitted in the TBS180/185.

Serial Number

This item shows the serial number of the TBS180/185.

Build Number

This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

Restart

This function restarts the unit, restoring all power up settings. This is equivalent to switching the mains power off and on.

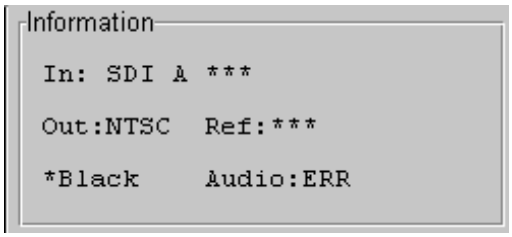
Status (Display Information)

Display Information

This item allows the type of data that is displayed in the Information area to be chosen.

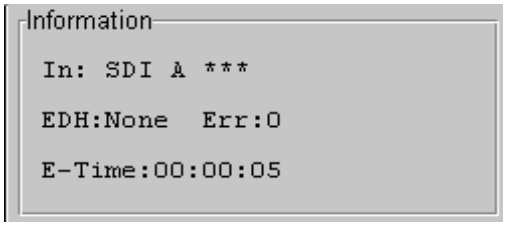
Default

When this item is selected the display window will show details about the Input Signal, Reference signal and the output as shown in the example below.



EDH

When enabled the information area will display the number of errors from the time EDH was reset. The elapsed time in hours, minutes and seconds is also displayed.



The **In:** data will be as in the default screen.

Meanings are as follows:

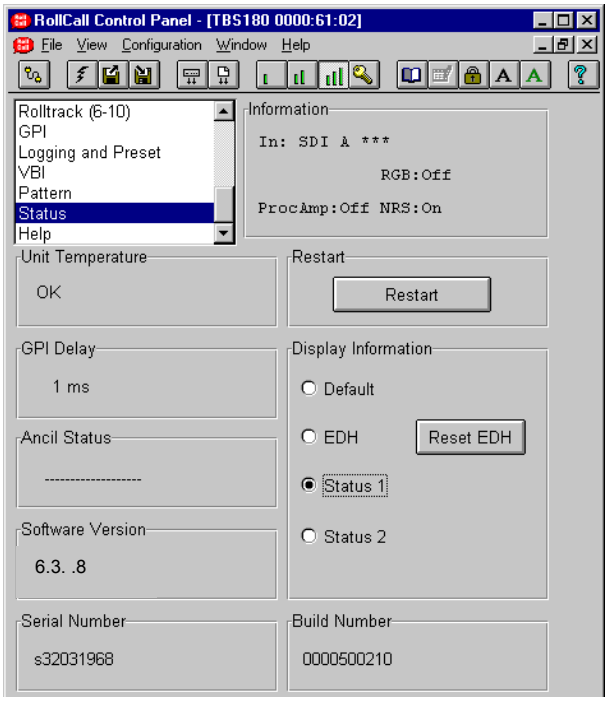
EDH: This is the state of the input error detection handler.
- **None** No EDH information present.
- **OK** No EDH errors.
- **Err** An EDH error has occurred.

Err: The number of EDH errors that have occurred since the last EDH reset.

E-Time: This is time since EDH was reset in Hours:Minutes:Seconds.

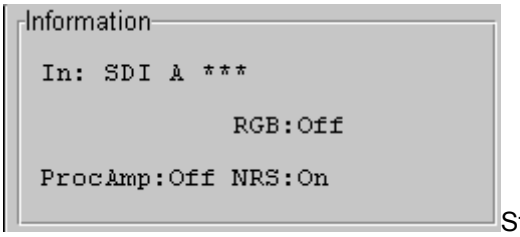
Preset EDH Stats

This will reset the EDH error count and the timer shown in the information window to zero.

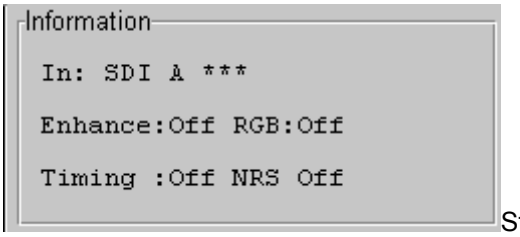


Status 1, Status 2

When either of these items are selected the display window will show details about the Input Signal and some of the processing controls as shown in the example below.



Status 1



Status 2

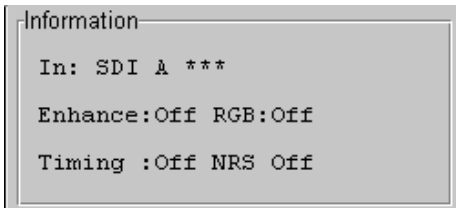
Selecting this item will reset the EDH error count and the timer shown in the information window, to zero.

See the Help section on the next page for details of the abbreviations used in the information area.

Help

Information Window Definitions

This area shows abbreviated data about the status of the unit.



Examples of abbreviations used are as follows:

First Line

Item 1: **In** (Input Selection)

CVBS A	Composite input A selected.
CVBS B	Composite input B selected.
CVBS C	Composite input C selected. (TBS185).
SDI A	SDI input A selected.
SDI B	SDI input B selected. (TBS180).

Item 2*: (Detected input signal standard)*

***	No input or invalid signal detected.
525	Input is a 525 line SDI signal.
625	Input is a 625 line SDI signal.
PAL	Input is a PAL composite signal.
PALN	Input is a PALN composite signal.
SECAM	Input is a SECAM composite signal.
NTSC	Input is a NTSC composite signal.
NTSCJ	Input is a NTSCJ composite signal.
PALM	Input is a PAL-M composite signal.

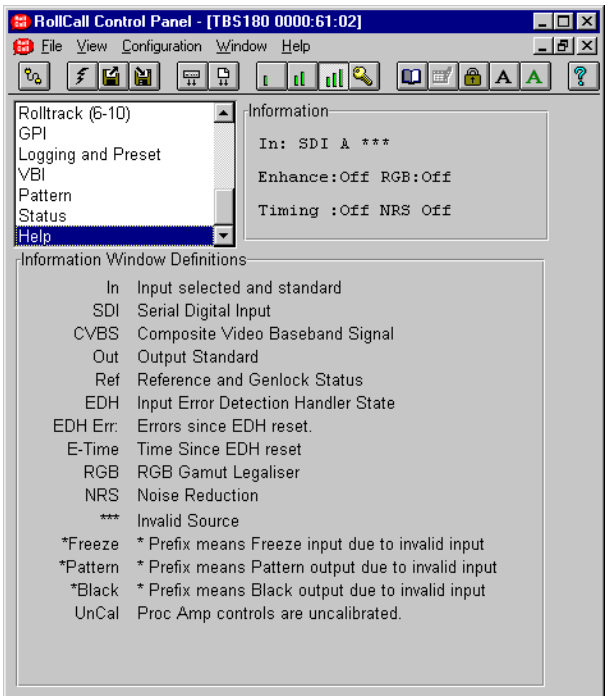
Second Line

Item 1 **Out:** *(Encoder output signal standard)*

PAL	Output is a PAL composite signal.
PALN	Output is a PALN composite signal.
SECAM	Output is a SECAM composite signal.
NTSC	Output is a NTSC composite signal.
NTSCJ	Output is a NTSCJ composite signal.
PALM	Output is a PAL-M composite signal.

Item 2 **Ref:** *(Reference signal information)*

OK	Reference signal is valid and the unit is genlocked.
***	A reference signal error or no reference has been detected while trying to genlock.
wl	Waiting lock.
Off	Genlock is Off.



Third Line

The third line will show the status of the output signal or the state of the ProcAmp controls.

Item 1 *(Output Signal)*

(Nothing)	Output is processed picture.
Pattern	Output is a pattern.
Freeze	Output is a frozen picture.

Note that if Pattern or Freeze has been forced because of an input signal failure the words will be prefixed by an asterisk e.g ****Pattern*** *or* ****Freeze****.*

Item 2 **Audio:** *(Audio chains status)*

This will show the state of the Audio processing.

OK	Both audio processing chains are enabled and valid.
Err	Both audio processing chains are in error.
OFF	Both chains are disabled.
A	Chain A is in error.
*AL	Chain A Left Channel is in error.
*AR	Chain A Right Channel is in error.
B	Chain B is in error.
*BL	Chain B Left Channel is in error.
*BR	Chain B Right Channel is in error.

Modes of Operation

The unit may be operated and controlled by three different methods.

1. Via the dedicated front panel buttons

(The TBS180/185 is supplied in this mode)

Various selections may be made directly by a single push of a button. e. g. INPUT Source.

Pressing the button again deactivates the function and the button LED will turn off.

Holding down a button will reveal an appropriate menu in the display window. e.g. PATTERN.

2. Via the RollCall menu Structure

Menus may be selected by the push buttons adjacent to the display and further menu selections made by rotating a spinwheel and pressing the adjacent push button.
The spinwheel also allows continuously variable parameters, e.g. Gain, to be adjusted and the setting to be seen in the LCD window.

3. Via a PC using the RollCall Templates

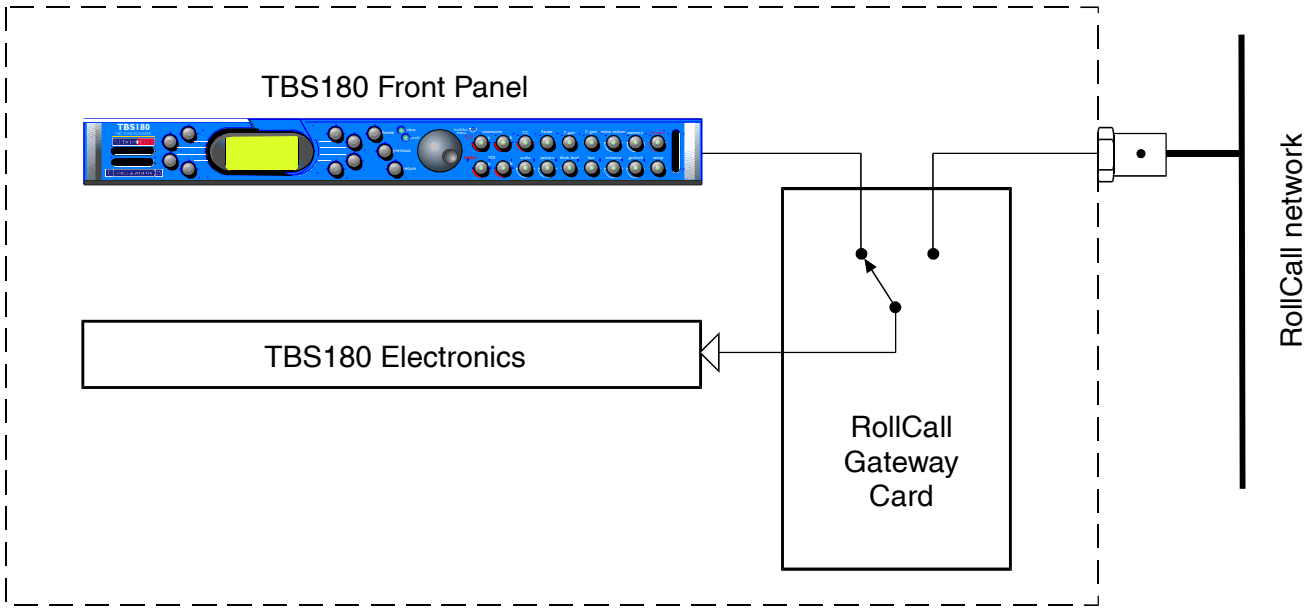
All operational parameters and selections may be made on the RollCall system via a PC.

Selecting the Mode of Operation

1 & 2 Via the dedicated front panel buttons and the RollCall menu Structure

As supplied, the TBS180 is controlled from the front panel via the internal Gateway card and using the push buttons and menus in the LCD window.

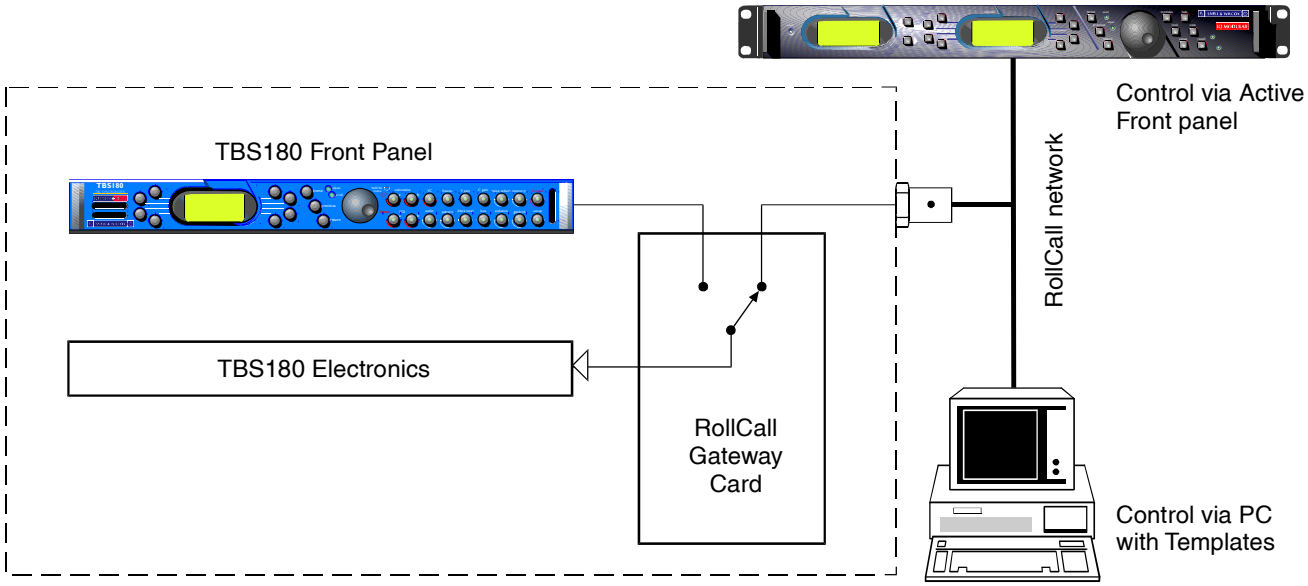
This configuration is shown below:



3. Via a PC using the RollCall Templates

The TBS180 may be controlled from a suitable RollCall compatible unit connected to the RollCall network.

This configuration is shown below:



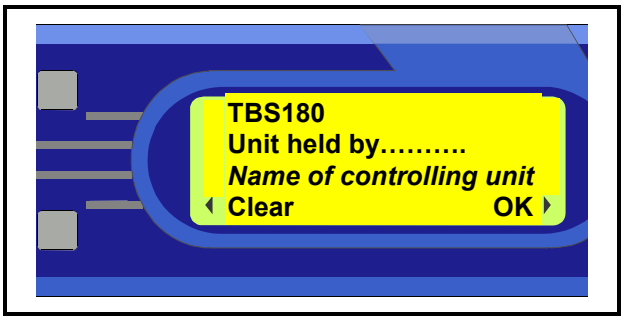
Note that only one of these configurations may be used at a time.

The following methods may be used to disconnect the front panel:

A. Using the Controlling Unit
The new controlling unit (PC, Active Front Panel etc.) in ***Supervisor Mode*** may be used to disconnect the control from the TBS180 front panel. *For details of this operation please consult the Operating manual for the controlling unit.*

B. Using the TBS180 to reconnect the front panel or disconnect from a remote session
Hold down the Y Gain and Black Level buttons.

This will reveal the following display:



Select **Clear** and the front panel, the name of the controlling unit as in line 3 above, will be disconnected.

RollCall Control via a PC

For full details please see the operator's manual for the IQSPCR, ***RollCall™ Software Installation Guide & Operational Overview***

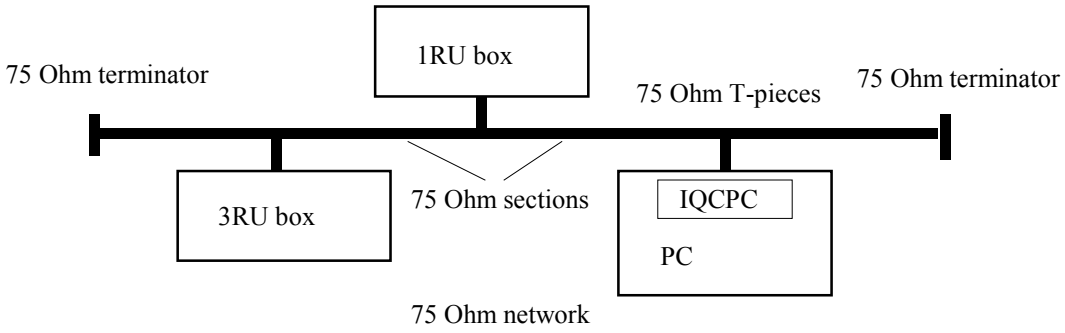
IQSPCR is a PC application that runs under Windows 3.1x or 95. It allows full remote control of RollCall for this and other compatible units.

SOFTWARE INSTALLATION GUIDE

System Requirements

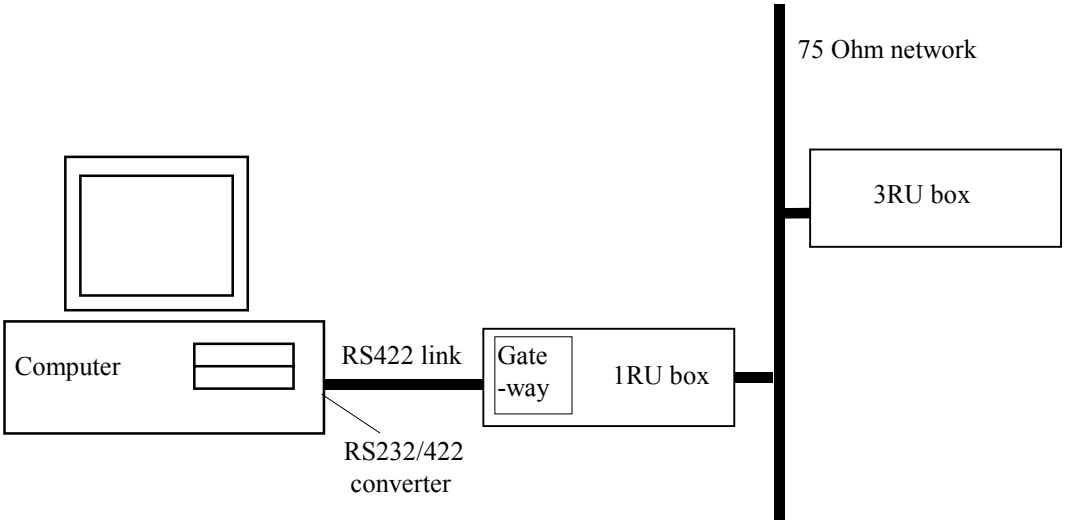
The minimum requirement for installing the RollCall software is:
RollCall PC Control Software (IQSPCR).
IQ Modular 1RU or 3RU rack with Gateway card installed.
PC running Microsoft Windows 3.1x or Windows '95 .
Either a RollCall PC card (IQCPC) or a RS232 to RS422 9 way converter fitted to the PC.

Connecting the hardware:
There are two choices for connecting the PC to the Modular IQ System:
1. 75 Ohm co-axial cable BNC for box-to-box connections running at 2.5 Mbs.



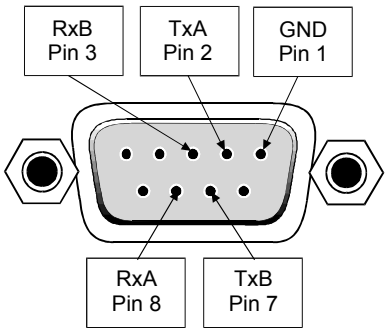
Each unit is physically joined via a T-piece connector. Each T-piece is connected by 75 Ohm co-ax cable to create a section. Each section of cable can be up to 400m. Each end of the network is terminated by a 75 Ohm terminator.

2. RS422 running at 38.4 kbs asynchronous:



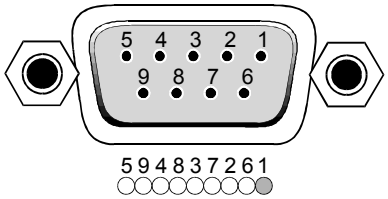
Connect the RS232/RS422 converter to COM1 or COM2 of the PC and connect this via RS422 cable to the 9 pin 'D' on the IQ modular unit. This interface is specifically designed for third party connections into the system. This allows PC's or any other serial device access to any of the units within the system. Every active 1RU or 3RU box has one of these ports.

Physical Interface - RollCall RS422



N.B. Connector is a socket, viewed from mating face. Equivalently, this is a plug, viewed from the rear, cable face.

For reference, the A signal is at 0V at line idle, and the B signal at 5V.

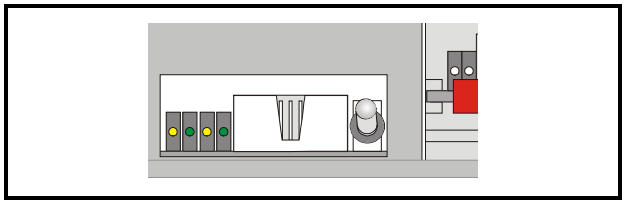


9-Way Ribbon connections

Standard Connections

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

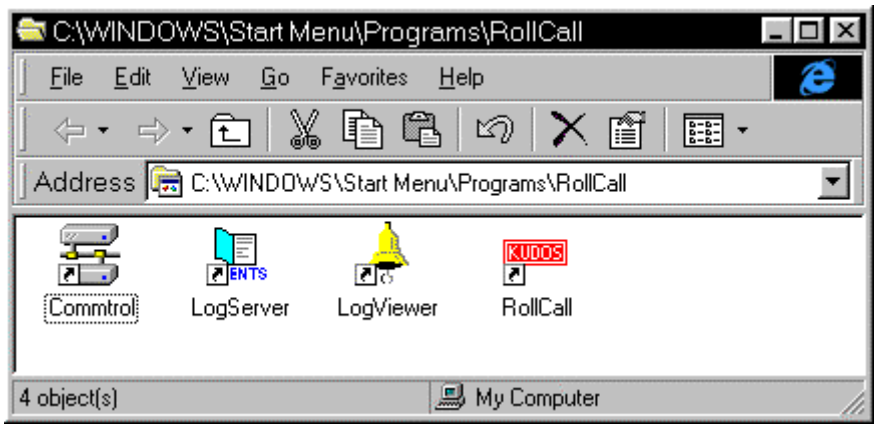
N.B. The D connector on the Gateway card could also be configured as RS485.
Selection of the interface format is by a switch on the card.
Note that RS485 interconnections should be pin to pin and only be used for Snell & Wilcox RollNet applications.
DOWN i.e. towards the PCB selects RS422
UP i.e. away from the PCB selects RS485



Switch set to RS485

Software Installation

Run SETUP.EXE from the installation diskette to install the suite of Rollcall programs. Product code IQSPCR contains the Rollcall Remote Control (rollcall.exe) and communications driver (commtrol.exe) programs. Product code IQSPCD contains the Rollcall Remote Control (rollcall.exe), communications driver (commtrol.exe), logserver (rolllog.exe) and logviewer (rollview.exe) programs.
On startup, the setup program prompts for an installation directory. The default installation directory is C:\ROLLCALL. The set-up procedure will copy all the necessary files to this directory. Set-up will also create a Windows Group called RollCall.
Depending on the product code of the diskette, Either two icons (RollCall and Commtrol for IQSPCR) or four icons (RollCall, Commtrol, LogServer and LogViewer for IQSPCD) will appear in the group.



Overview

ROLLCALL.EXE:
This program allows control of RollCall compatible units. (IQ Modules, Supervisor, other S&W units with RollCall gateway). Each unit has a 'control template' window for control of that device. The user can configure the program for USER, ENGINEER or SUPERVISOR access levels with password protection. It can install "template" files from new units automatically or by user request.

ROLLLOG.EXE:
This is the Log Server application that collects logging information from units on the network. Keeps a running log file of every event received. Writes a current status file for configured units and allows the LogViewer program to display the information.

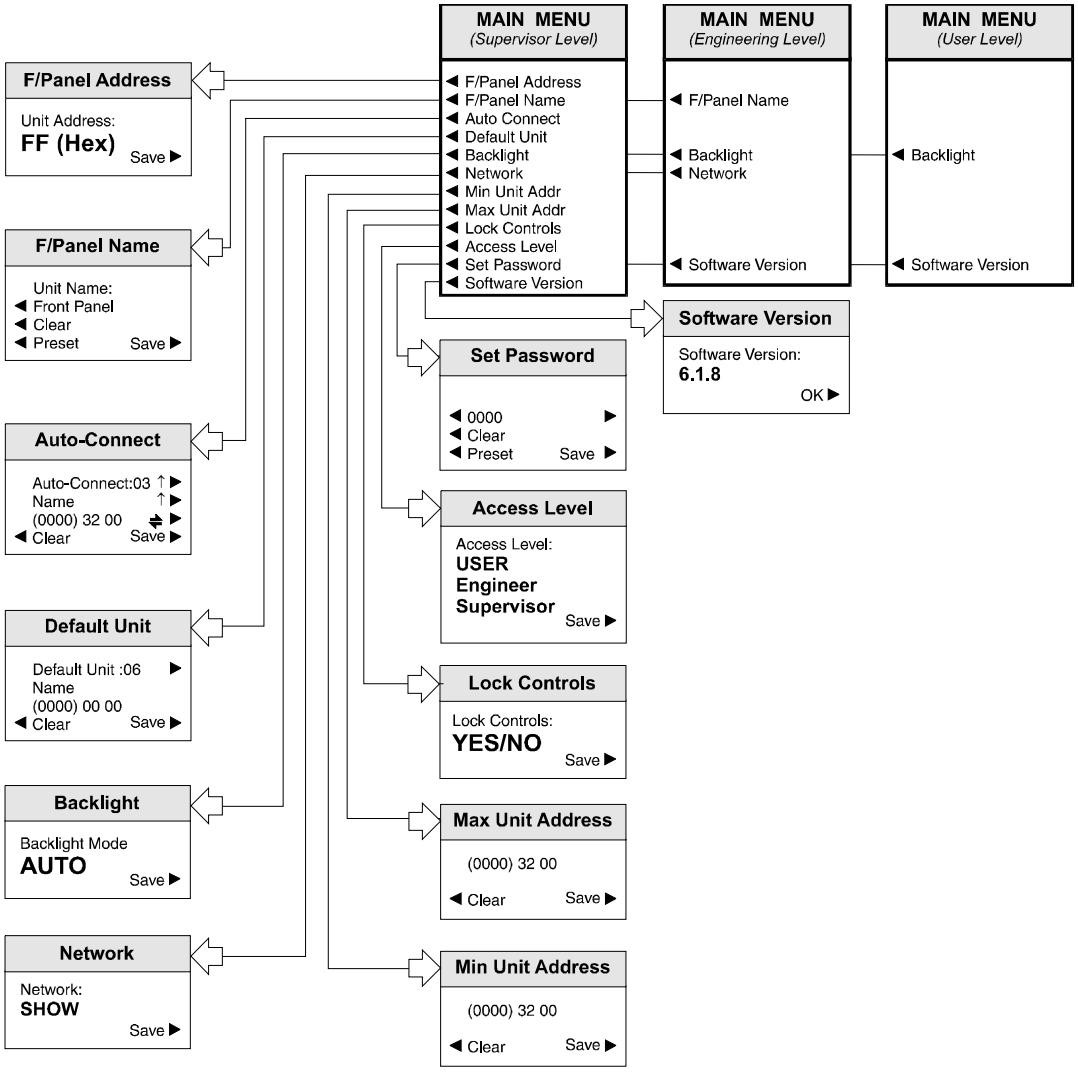
ROLLVIEW.EXE:
This program displays the current status file written by ROLLLOG.EXE in a tabulated form. Coloured conditions highlight warning and failure states. Can be configured for network access for remote monitoring using share information from the LogServer program.

COMMTROL.EXE:
This program is called automatically by ROLLCALL.EXE or ROLLLOG.EXE and normally runs minimized. Usually, there is no need to run this program by itself. This program provides the basic communications with the PC card, serial comms ports or TCP/IP protocols. It also has monitoring facilities for data analysis.

For more details see the operator's manual for the IQSPCR Section 3

Advanced Front Panel Controls

1. Restart the front panel by holding down the **Y Gain** and **Black Level** buttons together.
2. Select **Yes** to the front panel question **"Restart panel! Are you sure?"**
3. Hold down the **Y Gain** button to enter the setup mode.
4. When the message **"Setup mode"** is displayed, release the **Y Gain** button.
5. Momentarily press the **Y Gain** button.
6. The menu structure of the front panel is shown below.



Setup Menu System
(Software Version 6.1.8 onwards)

SETUP Sub-Menus

These are selected by pressing the button adjacent to the desired function.

Note that all these sub-menus include a SAVE function which is used to save particular settings. If the changed settings do not need to be saved use the RETURN function to return to the previous menu; this action will abandon any changes and revert to the previously saved settings.

F/Panel Address

The address of this control panel will be displayed as a 2-digit hexadecimal code.

Note that the code 0,0 effectively switches the unit off from the network. The codes 0,1 to 0,F inclusive are reserved for bridge addresses. Codes 1,0 to F,F inclusive are available to the user.

The address code is user defined in the range 1,0 to F,F and is set by rotating the spinwheel to the desired code and selecting the SAVE function.

F/Panel Name

The control panel may be given a name using this function (e.g. Edit Suite, Studio 2 etc.) The maximum number of characters, including spaces, is 19 and may consist of letters and numbers (ASCII Characters)
To edit the name press either the left or right hand button adjacent to the arrows for the centre text line until the character to be changed is flashing.
Using the spinwheel, scroll through to the character required and then, using the left and right hand buttons, select the next character; the other characters may be changed in the same way.

When the name has been set to that required press the SAVE function to save the name. Note that to remove a character and leave a clear space in the text line the **Clear** function (above Preset) should be used. The **Preset** function returns the text to the original data.

Auto Connect

The Auto Connect menu allows a number of units to be automatically connected to the control panel at power-up.

Up to 16 units may be designated in this way by assigning a number to them (00 to 15).

Note that these numbers are also used to assign the default unit.

The units in this list are (on power-up) in the standby mode and although not currently active are locked to this control panel and may not be controlled by any other panel.

The unit name (second text line of the control window display) may be displayed by scrolling through the list using the button adjacent to the ì arrow.

The network address of the unit is shown in the third text line as three sets of hexadecimal codes.

The first set is the network address, the second set is the physical unit address and the third set is the port address. Each set of these codes may be selected (the set will be shown enclosed in brackets) by pressing the button adjacent to this line.

The code may then be changed using the spinwheel.

The code may be reset to 0000 00 00 by pressing the clear button. This action also removes the unit name from the display and inserts a ? symbol indicating that no unit will be connected to this session.

The Auto Connect set-up may be saved by pressing either the dedicated front panel Save button or by pressing the button adjacent to the Save display text.

Default Unit

On power-up the default unit will be automatically connected, its menus retrieved and will be ready for active control.

To define the default unit select Default Unit. Press the button adjacent to the default text arrowhead until the desired number is reached. (This number is the number assigned to a particular unit in the Auto Connect set-up) The name of this unit will appear in the second line of text.

Select Save to save this setting.

The Clear selection sets the default unit to `None'.

Note that if no units have been assigned numbers in the Auto Connect set-up a ? will appear in the second line of text. Also when the numbers are selected (in rotation) the word `None' will appear after Default Unit when the number 15 is exceeded. This confirms that no units have been assigned a number.

Note that only one unit may designated as the default unit.

BackLight

Selecting this function allows the backlighting of the display windows to set, by rotating the spinwheel, to the following modes:

OFF

Backlight always Off. Use this mode where ambient light level is high.

ON

Backlight always On. Use this mode where ambient light level is low to improve text visibility.

AUTO

Backlight will normally be On but will default to Off after 2 minutes. The backlight will return to Auto On whenever any front panel control is operated.

Press the button adjacent to the Save text to save the backlight mode.

Network

This function allows the front panel to be `hidden' from the network system. In the Hide mode this front panel will not appear in the Module List displayed on other control panels in the system.

SHOW

This front panel will appear in the Module List of other control panels.

HIDE

This front panel will not appear in the Module List of other control panels.

Min/Max Unit Addr

The front panel can only hold a maximum of 200 addresses. The Min and Max Unit Addr (Address) function allows a range of addresses to be configured for partial use of the network.

The **Min Unit Addr** selection sets the minimum address.

The **Max Unit Addr** selection sets the maximum address.

The overall range of addresses is from 1 to 255.

Lock Controls

This item allows the front panel to be locked-out such that it is inoperative. This function can only be entered in the Supervisor access mode.

To set this function, enter at Supervisor level, select the **Lock Controls** item to reveal the dialogue box.

Select either YES or NO and save.

The function is now set.

Note that if this function is set to

Lock Controls: YES

and the unit is powered-up, the message

Front Panel Locked by Supervisor!

will appear.

Access Level

The setup of the active front panel may be accessed at various levels. At the highest level (Supervisor) access is allowed to all functions. This level may only be accessed by entering a password. At lower levels (User and Engineer) access is only allowed to a limited number of functions.

As supplied the unit will be in a temporary Supervisor mode with no password protected access levels.

From the main menu select **Set Password**

To enter the Supervisor level and set up a password proceed as follows:

1. Power-down the unit
2. Hold down the **YC** button and power-up the unit. Continue to hold down the button for a few seconds while powering-up.
3. From the main menu select **Access Level**
4. Using the spinwheel, select **Supervisor** and press **Save**
5. From the main menu select **Set Password**
6. The default password will be 0000. To change the password select the line for digits 1, 2, 3 and 4, and using the spinwheel to select the desired characters. Press **Save.**

The password has now been set.

Selection levels are:

USER	Provides access to basic user controls.
ENGINEER	Provides access to more controls than at user level but less than at supervisor level.
SUPERVISOR	Provides access to all available control functions.

To set up this function, rotate the spinwheel to the desired level and select Save.

Note that the number of control functions available at the various levels are set by the software/hardware of the module and are not user-adjustable.

Version

This shows the Software version number. Press OK to return to the previous menu.