

MEMPHIS
with
MOLE™ and Ph.C
(also covers the MPEG Mastering unit)

Installation Manual

© July 2006

www.snellwilcox.com

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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



Service 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 \oplus 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 :



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 \oplus , ainsi qu'une liaison « neutre » identifiable.
- La prise électrique qui alimente l'appareil doit être proche de celle-ci et accessible.

Câble secteur de pays autres que les Etats-Unis

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

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

Le fil VERT/JAUNE est connecté à T (Terre)

Le fil BLEU est connecté à N (Neutre)

Le fil MARRON est connecté à P (Phase)



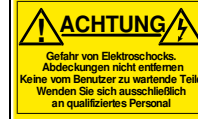
- ⚠ Attention si l'appareil a 2 alimentations, s'assurer que les cordons soient branchés sur la même phase.

Erklärung der Sicherheitssymbole

(D)

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

Sicherheits-Warnhinweise



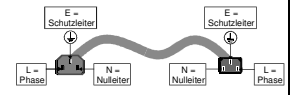
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines lektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch eschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation. 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 \oplus Schutzleiter angeschlossen werden und einen zuverlässig identifizierbaren Nulleiter haben.
- Die Netzsteckdose sollte nahe beim Gerät und einfach zugänglich sein.

Netzanschluss in anderen Ländern als der USA

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

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



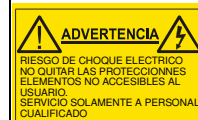
- ⚠ Achtung: Wenn das Gerät zwei Anschlussbuchsen hat, stellen Sie bitte sicher, dass beide Netzkabel mit der selben Phase in die Netzsteckdose gesteckt werden.

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



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 \oplus 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.

Installation

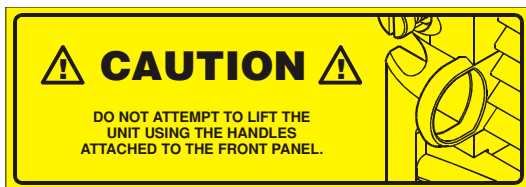
UNPACKING MEMPHIS

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

MEMPHIS unit
2 Power cables
1 Operating Manual
1 Installation Manual

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

Warning! MEMPHIS is heavy. Appropriate manual handling precautions should be taken when lifting the unit.

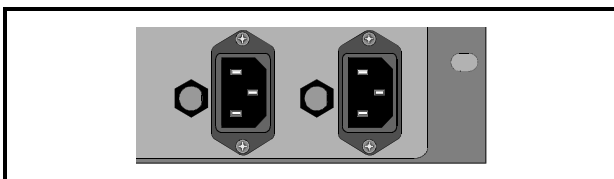


CONNECTING POWER TO MEMPHIS

Note: before connecting power to the unit please refer to the safety warnings on page 0.2

Power Inlets

Mains power is supplied to the unit via two filtered IEC connectors. The right hand IEC connector (as viewed from the rear of the unit) powers the lower PSU.



The rated current for the unit is 5.5A at 100 V and 2 A at 250 V.

Standby Switches

The standby switches are located on the left-hand side of the front panel.

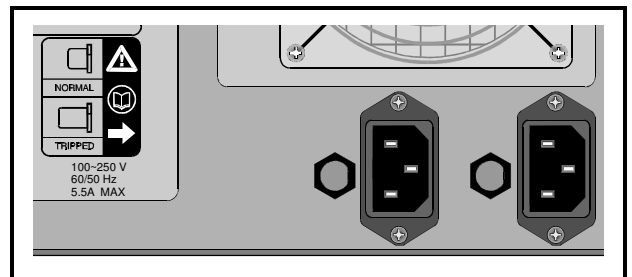
MEMPHIS can support dual power supplies for redundancy. However this is an option, therefore a second PSU may not be fitted

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

Supply Voltage

The unit automatically senses the nominal supply voltage and sets itself up accordingly. No voltage adjustment procedure is required.

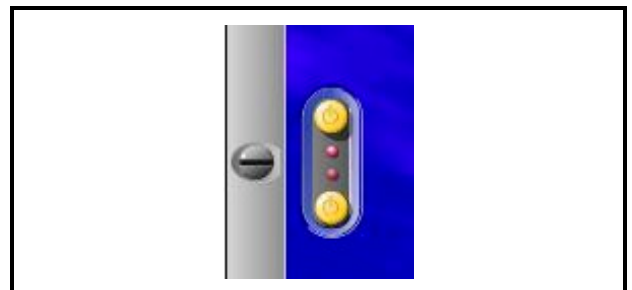
Circuit Breakers



MEMPHIS has a circuit breaker on each mains input.

In the event of a fault a plunger will pop out and protrude from the rear of the breaker. To reset remove power from the unit, press the plunger back in and then restore power to the unit.

Warning! If the breaker continually trips disconnect the unit and consult your dealer or service agent.



Installing/Removing Power Supplies

MEMPHIS is provided with one PSU as standard. There is an option for installing a second PSU to allow dual redundant operation. This may be a factory fitted option or can be done as an upgrade.

Installing PSU

- 1) Remove front panel
- 2) Remove blanking plate
- 3) Ensure the power supply's orientation
- 4) Slide power supply in and push home firmly
- 5) Tighten securing screws
- 6) Refit the front panel

See diagram:

Warning! When a single PSU is used the second PSU slot must always have the blanking plate fitted. Operating the equipment without this may result in damage to the equipment.

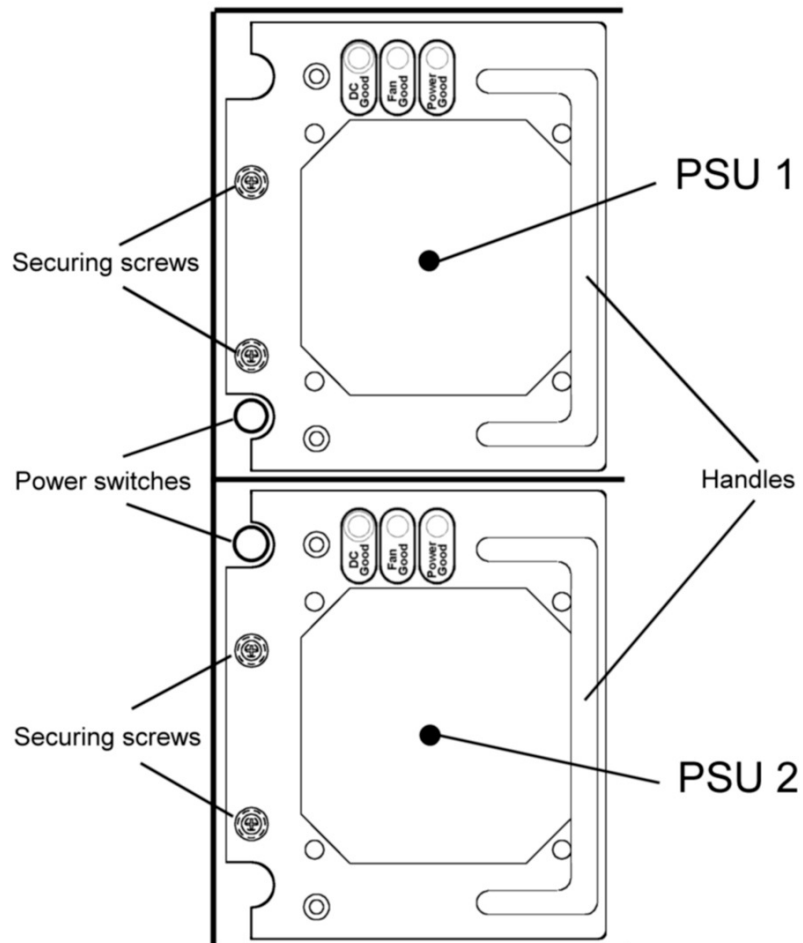
When installing a second PSU ensure that the blanking plate is kept in a safe place should it be required in the future.

Removing PSU

- 1) Remove front panel
- 2) Undo securing screws
- 3) Pull handle firmly
- 4) Fit new PSU or blanking plate
- 5) Refit front panel

See diagram on next page:

Warning! When a single PSU is used the second PSU slot should always have the blanking panel fitted. Operating the equipment without this may result in damage to the equipment.

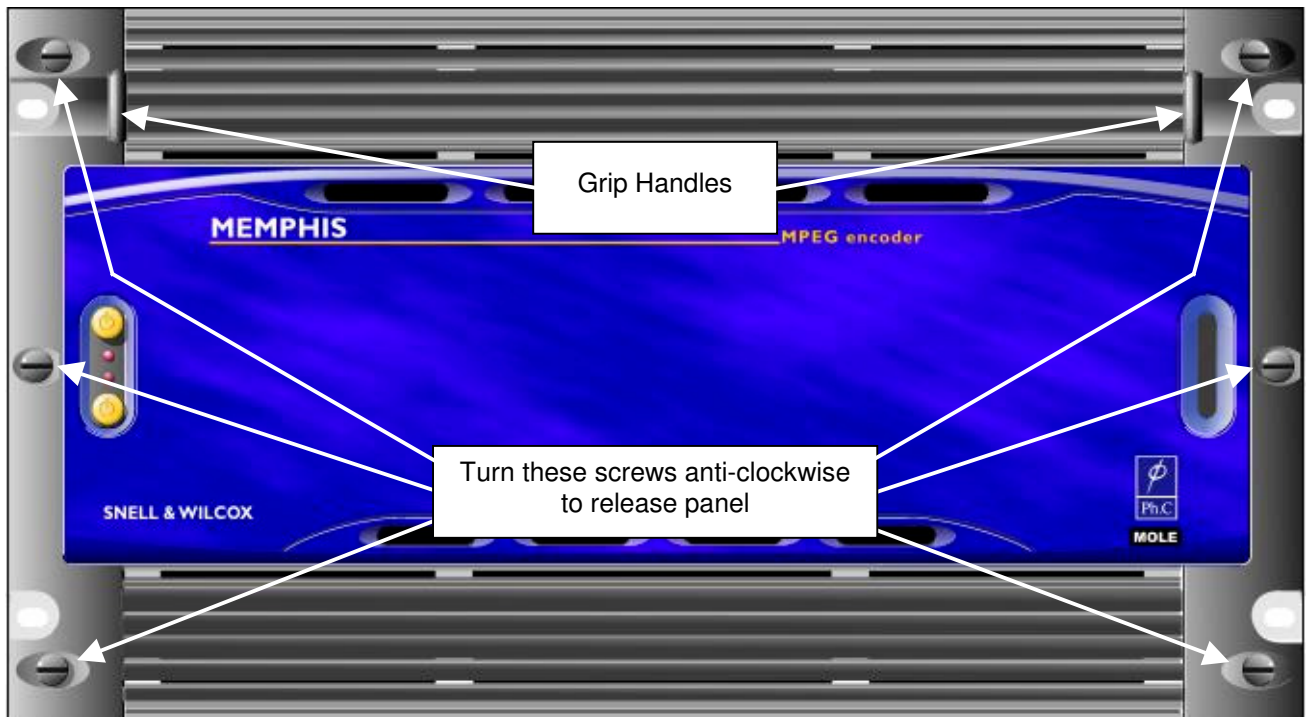


Opening the front panel

- 1) Use a tool to turn the six screws (three at either side) anti-clockwise to release the panel
- 2) Using both of the grip handles carefully pull the front panel forward and away from the top of the box.
The front panel is hinged and will pivot about the lower edge.
- 3) When fully open the front panel may be allowed to gently rest in a horizontal position.

Warning!

Do not place any objects on top of the open front panel.



Environment

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

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

If the unit is to be rack mounted, first open the front panel; details are given above. The fixing "ears" behind the panel will be revealed and the unit can be mounted in the rack.

Warning!

MEMPHIS weighs more than 18 kg. Appropriate manual handling precautions should be taken when lifting the unit.

Warning!

Under no circumstances should the grip handles be used to lift MEMPHIS.

When rack mounting the equipment support other than the rack mount ears must be provided.

Remote Control

The unit can be controlled via RollCall using the BNC connector.

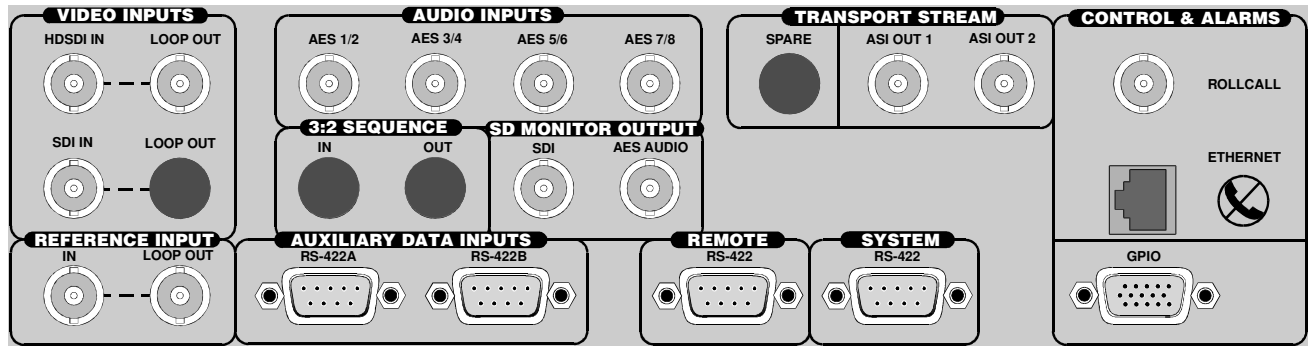
The RollCall system should be connected using 75 Ohm "T" pieces in a similar manner to an "Ethernet" system. Both extremities of the system must be terminated in 75 Ohms.

Note that in a RollCall™segment, all units must have different unit address codes. For more information see RollCall™ section.

Note: The coaxial link is bi-directional and therefore must not be passed through signal switching networks. Also, to allow hum and noise cancellation the screen of the coaxial connection must not be earthed.

For details of the menu system see Section 4 page 4.15 of the Operator's manual, and for details of the RollCall system consult the Modular System Operation manual.

CONNECTIONS

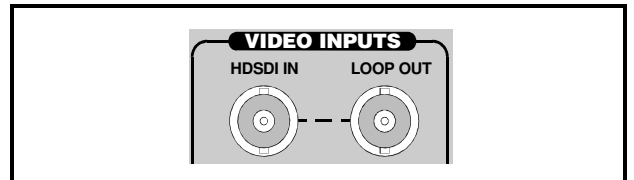


All the connectors are mounted on the rear panel of the unit and are appropriately annotated.

VIDEO INPUTS

HDSDI IN (Option)

This is the SMPTE 292 serial digital input to the unit made via a BNC connector, which is terminated at 75 Ohms within the unit.

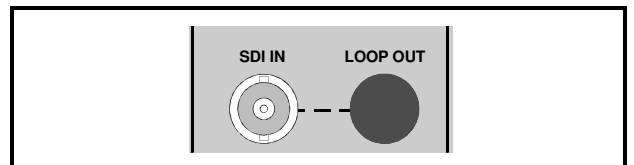


LOOP OUT

This is the SMPTE 292 serial digital output from the unit made via BNC connector. Re-clocked copy of the HD-SDI input. Requires 75 Ohm termination at the receiving equipment's input.

SDI IN

This is the SMPTE 259 serial digital input to the unit made via BNC connector, which is terminated at 75 Ohms within the unit.

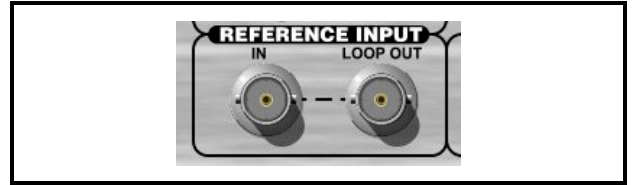


LOOP OUT

This function is not utilized on this product.

REFERENCE INPUT**IN**

This is a 75-Ohm impedance input which accepts both SD "black-and-burst" composite video sync and HD "tri-sync" video sync signals, both at standard levels. It is recommended that this input is not used unless the source connected to the SDI or HD-SDI video input (see above) fails to provide a perfectly stable and reliable signal. This means it is only worth using the reference input if a reference sync source is available which is more stable and reliable than the SDI or HD-SDI video source. Furthermore, if the reference input is used then it is recommended that audio is connected to MEMPHIS via the AES/EBU BNC inputs (see below) rather than as embedded audio on the video input. This is because if the SDI or HD-SDI video source is not dependable then it should not be relied on to carry audio.

**LOOP OUT**

This is a passive loop-through connection for the reference input.

Note that if a reference signal is connected to the IN connector and the loop-through facility is not used the LOOP-OUT BNC socket must be fitted with a 75 Ohm terminator.

Allowable Reference Signal/Operating Standard Combinations

Operating Standard	SD Reference Signal		Tri-sync HD Reference Signal							
	525i	625i	1125(1080)/30i	1125(1080)/29i	1125(1080)/25i	1125(1080)/23sF	1125(1080)/24sF	750(720)/60P	750(720)/59P	750(720)/50P
525(480)/29i	OK			OK						
625(576)/25i		OK			OK					
1125(1080)/30i			OK							
1125(1080)/29i				OK						
1125(1080)/25i					OK					
1125(1080)/23sF						OK				
1125(1080)/24sF							OK			
750(720)/60P								OK		
750(720)/59P									OK	
750(720)/50P										OK

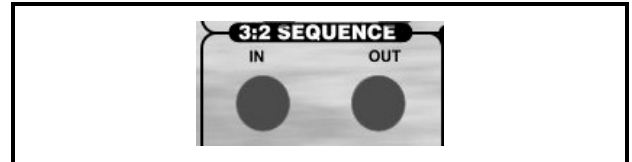
Note that only 'OK' combinations are allowed.

AUDIO INPUTS

These are the four Unbalanced AES/EBU serial digital audio inputs to the unit via BNC connectors. Each of these inputs is terminated at 75 Ohms within the unit.

**3:2 SEQUENCE**

This function is not utilized on this product.

**SD MONITOR OUTPUT****SDI**

This provides an ITU Rec.656/601 Monitor confidence output of the selected source with down-converted output from HD-SDI input when HD used.

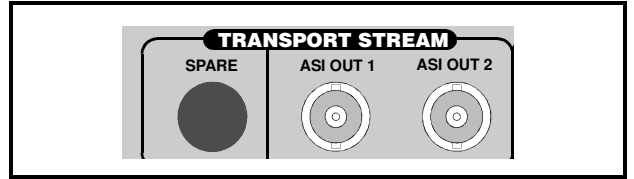
**AES AUDIO**

This is unbalanced an AES/EBU serial digital audio output from the unit via a BNC connector. Requires 75 Ohm termination at the receiving equipment's input.

TRANSPORT STREAM

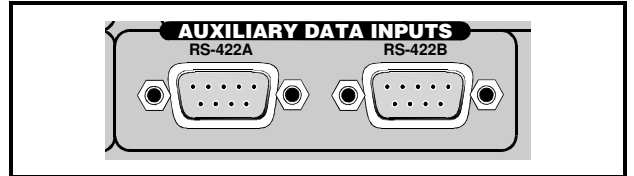
ASI OUT 1 and 2

There are two independent ASI outputs from the unit via these BNC connectors. Each output requires 75 Ohm termination at the receiving equipment's input.



AUXILIARY DATA INPUTS

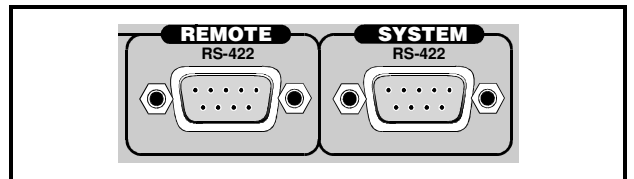
These connectors have no function in the current release and connections should not be made to them.



REMOTE

This 9 pin 'D' connector on the rear panel allows the unit to be connected to the RollCall 485 network communications system.

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

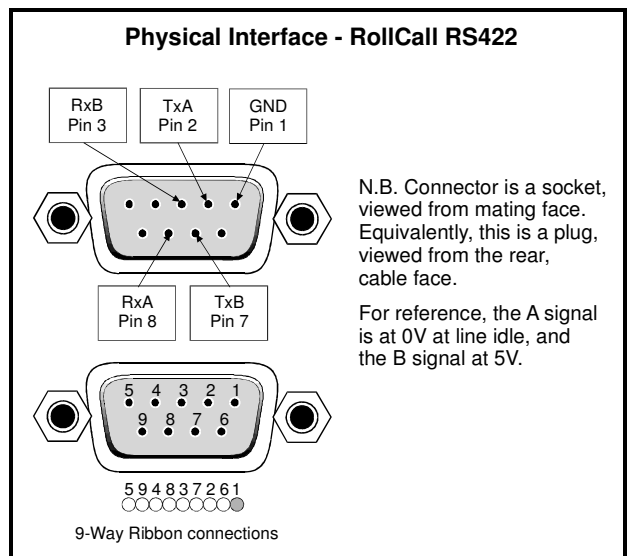


This would normally be connected to an edit controller running the standard Sony VTR protocol.

This connector may also be used as a RS422 port.

RS-422 Port

Pin	Function	Direction
1	Ground	
6	Tx signal common	
2	Transmit A	MEMP → Remote
7	Transmit B	MEMP → Remote
3	Receive B	MEMP ← Remote
8	Receive A	MEMP ← Remote
4	Rx signal common	
9	Ground	
5	Spare	



Where MMU = MEMPHIS

SYSTEM

This is used for the RS422 RollCall connection.

CONTROL & ALARMS

ROLLCALL

The unit can be controlled via RollCall using the BNC connector or the REMOTE RS-422 9-way D-type connector.

The RollCall BNC system should be connected using 75 Ohm "T" pieces in a similar manner to an "Ethernet" system. Both extremities of the system must be terminated in 75 Ohms.

Hex Switches (located behind the LED's)

A unique address for each unit on the RollCall system must be set by two Hex switches (SW2, SW3) on the printed circuit board fitted in the uppermost slot. The addresses 00 and FF are reserved and must not be used.

SW2 sets the most significant nibble and SW3 the least significant. Both switches face upwards on the PCB rather than forwards, which means that the board needs withdrawing part-way out of the box for access.


Please refer to the Installation Manual Section 1 page 3 for instructions of how to open the front panel.



Notes: In a RollCall™ segment, all units must have different unit address codes. For more information see RollCall™ section.

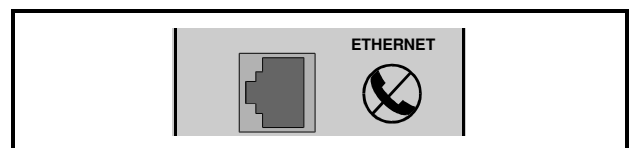
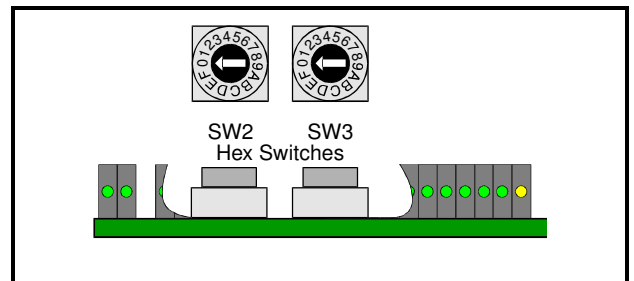
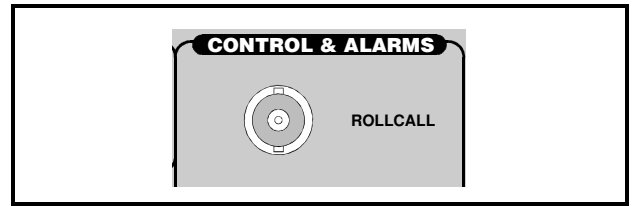
The coaxial link is bi-directional and therefore must not be passed through signal switching networks. Also, to allow hum and noise cancellation the screen of the coaxial connection must not be earthed.

Ethernet

This RJ45 connector socket allows the unit to be connected to a LAN.

 **Warning** Crossover CAT 5 Ethernet cable must be used for this connection.

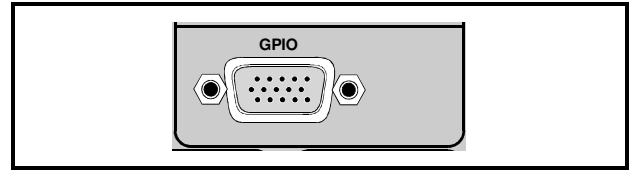
  **Warning** This connector is not intended for direct connection to a telecommunications network.



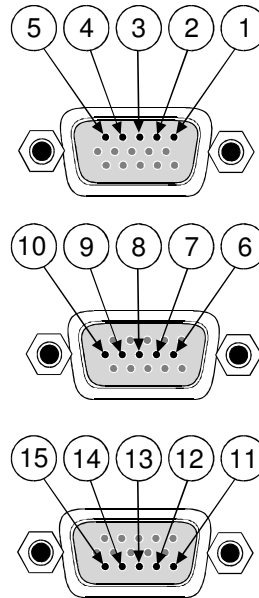
GPIO

The General Purpose Interface is accessed via a 15 way 3-row D type female connector. In the table GPI refers to inputs and GPO refers to outputs.

There are 2 GPI inputs, 2 GPO outputs and 3 GPIO bi-directional ports. Each one is a pair of semiconductor relay contacts, labelled + and -.



Pin	Function
	Inputs
1	GPI 0 Signal +
6	GPI 0 Signal -
2	GPI 1 Signal +
7	GPI 1 Signal -
3	GPI 2 Signal +
	Bi-directional (Inputs/Outputs)
8	GPIO 2 Signal -
4	GPIO 3 Signal +
9	GPIO 3 Signal -
5	GPIO 4 Signal +
10	GPIO 4 Signal -
	Outputs
11	GPO 0 Signal -
12	GPO 0 Signal +
13	GPO 1 Signal -
14	GPO 1 Signal +
15	Ground



The output (GPO) characteristics are as follows:

Operating Voltage Range	0 to ± 60 V (DC/AC peak)
Maximum Load current	1.0 A (AC/DC)
Maximum On-State Resistance @ Tamb = +25°C	500 mOhm
Minimum Off-State Resistance @ Tamb = +25°C, V = ± 48 V	100 MOhm

Specifications

Features

Signal inputs

Serial Digital Video	SDI to ITU-R Rec.656/Rec.601(SMPTE259M) with MOLE™ (SMPTE319M)
High Definition Serial Digital Video	HD-SDI to SMPTE292
AES/EBU Serial x 4	Unbalanced AES/EBU Serial Digital Audio Outputs –IEC-958
Analog Reference.....	SD (Black and Burst composite) and HD (Tri-Sync) are both supported, at standard levels.
Auxiliary Data RS-422 x 2...	Not used in the current release.
3:2 Sequence	Indicates repeated field

Signal outputs

ASI 1 and 2	ASI (270 Mbit/s) single-program transport stream (SPTS) via BNC connector, to CENELEC 50083-9.
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Specifications

Compressed Video.....	MPEG-2 only. 4:2:2 Profile@ML, MP@ML, MP@HL, 422P@HL
Serial Input Return Loss.....	Better than -15 dB to 1GHz
Video Standards.....	SD:To ITU-R Rec.656/Rec.601 (SMPTE259M) with MOLE™ (SMPTE319M) – HD: To SMPTE292M
Signal Output Level.....	800 mV ±10%
Output Return Loss	Better than -15 dB to 270 MHz
Output Jitter.....	< 0.2UI

SD Monitor SDI	SDI to ITU-R Rec.656/Rec.601(SMPTE259M)
SD Monitor AES audio	Unbalanced AES/EBU Serial Digital Audio Outputs –IEC-958

Control signals

RollCall.....	ArcNet/RS422/Ethernet
Ethernet	10/100 Mbit RJ45
GPIO	9-way SUB D carrying: 2 x IN, 2 x OUT, 2 x IN-OUT Not implemented in the current release.
System	RS-422 RollCall
Remote	RS-422 Sony protocol

Additional Controls via RollCall™ Remote Control System

Logging	On/Off
Memories	1..8