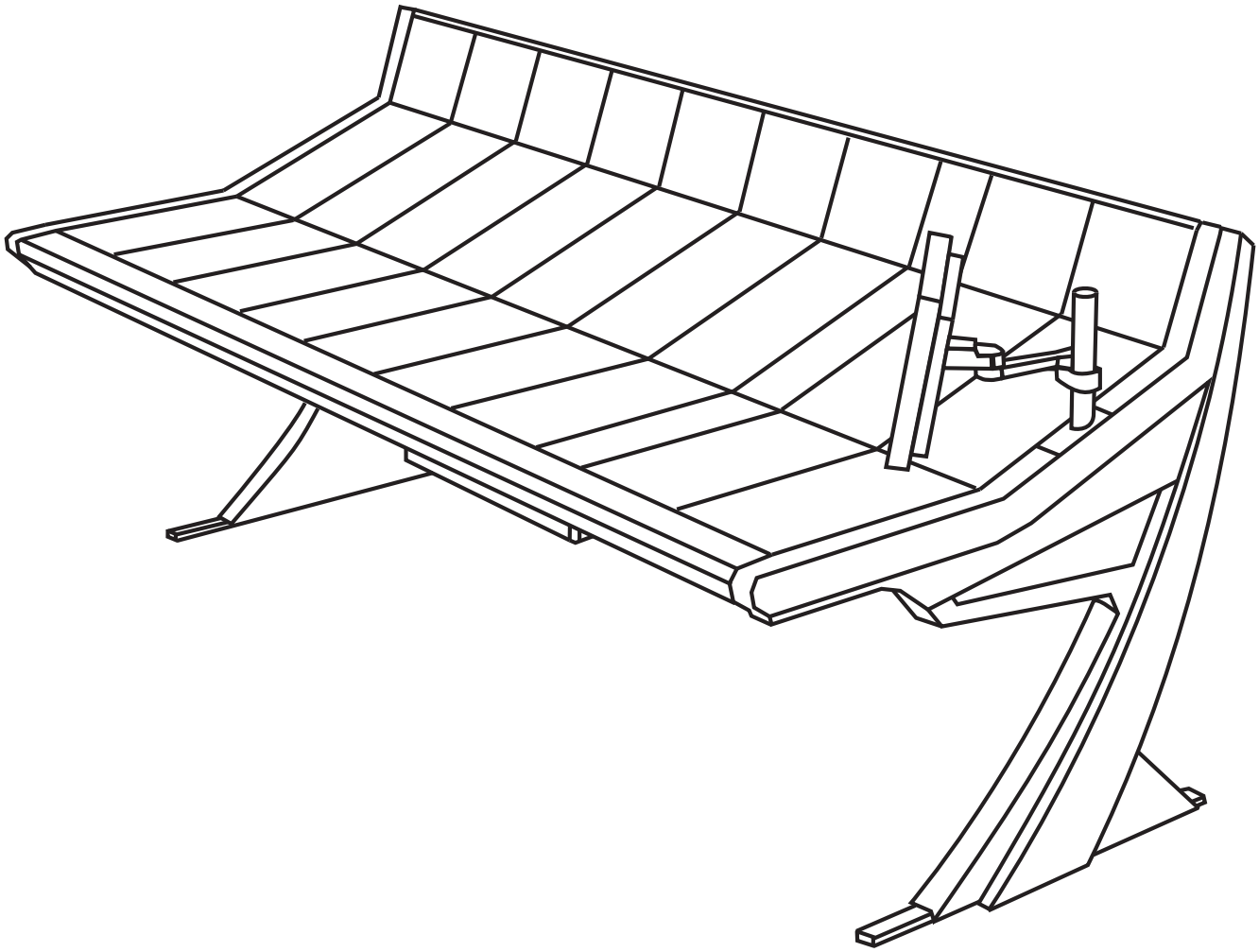
APOLLO DATASHEETS (provisional)



Digital Broadcast Production Console

CALREC

Putting Sound in the Picture

calrec.com

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IMPORTANT INFORMATION

After Sales Modifications
Please be aware that any modifications other than those made or approved by Calrec Audio Limited or their agents, may invalidate the console's warranty. This includes changes to cabling provided by Calrec and variations to the recommended installation as detailed in Calrec documentation.

Modifications to this equipment by any party other than Calrec Audio Limited may invalidate EMC and safety features designed into this equipment. Calrec Audio Limited can not be liable for any legal proceedings or problems that may arise relating to such modifications.

If in doubt, please contact Calrec Audio Limited for guidance prior to commencing any modification work.

Third Party Equipment
Integrating third party equipment into a Calrec system may compromise the product's ability to comply with the Class B radiated emission limits set in the EMC (Electro Magnetic Compatibility) standard EN55022.

Calrec Audio Limited can not be responsible for any non-conformities due to use of third party equipment. If in doubt, please contact Calrec Audio Limited for guidance prior to integrating any third party equipment.

ESD (Static) Handling Procedures
In its completed form, this equipment has been designed to have a high level of immunity to static discharges. However, when handling individual boards and modules, many highly static sensitive parts are exposed. In order to protect these devices from damage and to protect your warranty, please observe static handling procedures, for example, use an appropriately grounded anti-static wrist band. Calrec will supply an electrostatic cord and wrist strap with all of it's digital products.

All modules and cards should be returned to Calrec Audio Limited in anti-static wrapping. Calrec Audio Limited can supply these items upon request, should you require assistance.

This applies particularly to digital products due to the types of devices and very small geometries used in their fabrication, analog parts can however still be affected.

ROHS Legislation
In order to comply with European RoHS (Reduction of Hazardous Substances) legislation, Calrec PCB and cable assemblies are produced with lead-free (tin/copper/silver) solder instead of tin/lead solder. See Figure 1.

FIGURE 1 - LEAD FREE

In the unlikely event of a customer having to carry out any re-soldering on such assemblies, it is imperative that the correct type of solder is used; not doing so is likely to have an adverse effect on the long-term reliability of the product. Circuit boards assembled with lead-free solder can be identified (in accordance with IPC/JEDEC standards) by a small oval sticker placed on the top-side of the circuit board near the PCB reference number (8xx-xxx). See Figure 2.

FIGURE 2 - LEAD FREE STICKER

The same sticker is used on the connectors of soldered cable assemblies. The absence of a sticker indicates that tin/lead solder has been used.

If in doubt, please check with a Calrec customer support engineer before carrying out any form of re-soldering.

ISO 9001 and RAB Registered
Calrec Audio Ltd has been issued the ISO9001: 2000 standard by the Governing Board of ISOQAR.

The award, for both UKAS (Figure 3) and RAB (Figure 4) registration, is the most comprehensive of the ISO9000 international standards. Granted in recognition of excellence across design, development, manufacture and after-sales support, the certification follows a rigorous and thorough review of Calrec's internal and external communication and business procedures.

FIGURE 3 - UKAS REGISTRATION

FIGURE 4 - RAB REGISTRATION

HEALTH AND SAFETY

Please observe the following

- This equipment must be EARTHED
- Only suitably trained personnel should service this equipment
- Please read and take note of all warning and informative labels
- Before starting any servicing operation, equipment must be isolated from the AC supply (mains)
- Fuses should only be replaced with ones of the same type and rating as that indicated
- Operate only in a clean, dry and pollutant-free environment
- Do not operate in an explosive atmosphere
- Do not allow any liquid or solid objects to enter the equipment. Should this accidentally occur then immediately switch off the unit and contact your service agent
- Do not allow ventilation slots to be blocked
- Do not leave the equipment powered up with the dust cover fitted
- The rack mounting parts of this equipment must be fitted into an enclosure which complies with local regulations

Cleaning

For cleaning the front panels of the equipment we recommend anti-static screen cleaner sprayed onto a soft cloth to dampen it only.

Explanation of Warning Symbols

Triangular warning symbols contain a black symbol on a yellow background, surrounded by a black border.

The lightning flash with arrow head symbol within an equilateral triangle, as shown in Figure 1, is intended to alert the user to the presence of dangerous voltages and energy levels within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock or injury.

The exclamation mark within an equilateral triangle, as shown in Figure 2, is intended to prompt the user to refer to important operating or maintenance (servicing) instructions in the documentation supplied with the product.

Earthing

This is a Class I product. An Earth connection **MUST** be provided in each AC power cord.

The Earth Bolt connection at the rear of the console should be connected to Earth using Earth cable at least 6mm^2 in cross section (10 AWG).

FIGURE 1 - DANGEROUS VOLTAGES

FIGURE 2 - IMPORTANT INSTRUCTIONS

TECHNICAL SUPPORT

Should you require any technical assistance with your Calrec product then please contact your local distributor, if outside the U.K. and Ireland. For a list of Worldwide distributors please see the Calrec Web site at www.calrec.com or contact Calrec UK.

For technical assistance within the UK and Ireland, please contact the Customer Support Team using the information in Figure 1.

We can deal with all technical after sales issues, such as :

- Arrange repairs
- Supply of replacement or loan units while repairs are being carried out
- Service / commissioning site visits
- Operational training courses
- Maintenance training courses
- Supply of replacement components
- Supply of documentation
- Technical advice by telephone

Customer Support Hours

Factory based customer support engineers can be contacted by telephone during normal office hours (Monday - Friday 9:00a.m - 5:30p.m). Outside these hours, a message can be left on the answering machine, all messages are dealt with promptly on the next working day. Alternatively a message can be sent to them by email.

Product Warranty

A full list of our conditions & warranties relating to Goods & Services is contained in the Company's standard Terms and Conditions. A copy of this is available on request.

FIGURE 1 - CONTACT INFORMATION

Address	Customer Support Calrec Audio Ltd Nutclough Mill Hebden Bridge HX7 8EZ England UK
Telephone	+44 (0) 1422 842159
Fax	+44 (0) 1422 845244
Email	support@calrec.com
Website	www.calrec.com

Repairs

If you need to return goods to Calrec, for whatever reason, please contact the company beforehand in order that you can receive advice on the best method of returning the goods, and that a repair order reference number can be issued.

Standard of Service

Ensuring high standards is a priority, if you have any comments on the level of service, product quality or documentation offered to you by Calrec, then the Customer Support team would be pleased to receive your comments through any of the normal contact numbers, email or on the User registration form located at the end of this manual. If you have any other issues regarding your Calrec purchase, then please contact us and we will do our best to help. Calrec welcomes all Customer feedback.

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491-122 CONFIGURATION PC

The 491-122 Configuration PC is located inside the surface. It receives all power and data connections internally and is used for setting up the system and providing diagnostic information.

For a more detailed description of the functionality and connectivity of this unit, please refer to the 'Configuration PC' section of the Apollo Installation Manual.

FIGURE 1 - 491-122 - CONFIGURATION PC

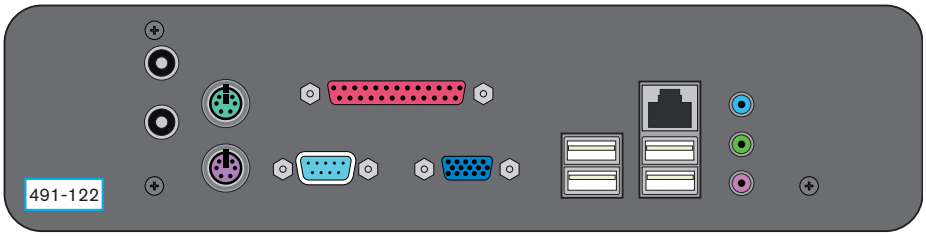


FIGURE 2 - CONNECTOR FUNCTION

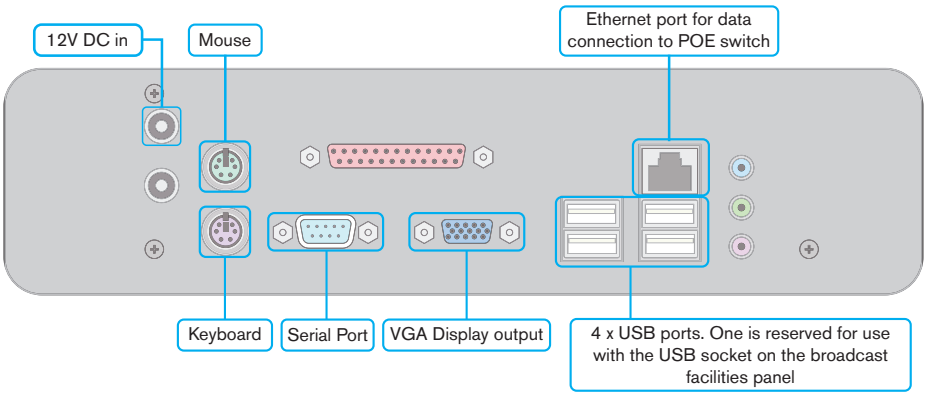


FIGURE 3 - PC SPECIFICATION

Unit dimensions (d/h/w)	224 x 232 x 57mm (8.82 x 9.13 x 2.24")
Unit construction	Aluminium and steel (typically >70% recycled materials)
System heat sink	Aluminium with custom heat pipe cooling system (TranCool3)
CPU	64 bit ready Intel Atom 330 (1.6GHz) Dual Core with HT
Chipset	Intel 82945GC Northbridge + ICH7 Southbridge
Graphics	Intel Extreme (GMA950)
Memory	1GB DDR2 667MHz
HDD	2.5" SATA (3GBs) 120GB capacity
Front panel	Power switch and Power / HDD activity LEDs
Rear panel	12V DC power in / 4x USB2.0 / 10.100.1000 LAN / Audio In / Audio Out / Mic In / RS232 / Parallel / PS2 (K&M) / VGA
Weight	4Kg
Power supply	12V DC from Configuration PC Power Supply Converter
Working temp	Maximum 48°C ambient
Power consumption	approx 28W
Acoustics	17dBA

491-179 USB ETHERNET ADAPTER

USB Ethernet Adaptor to allow the Configuration PC to connect to the internet via its surface mounted USB port. An internet connection allows remote updates and diagnostics to be performed by Calrec.

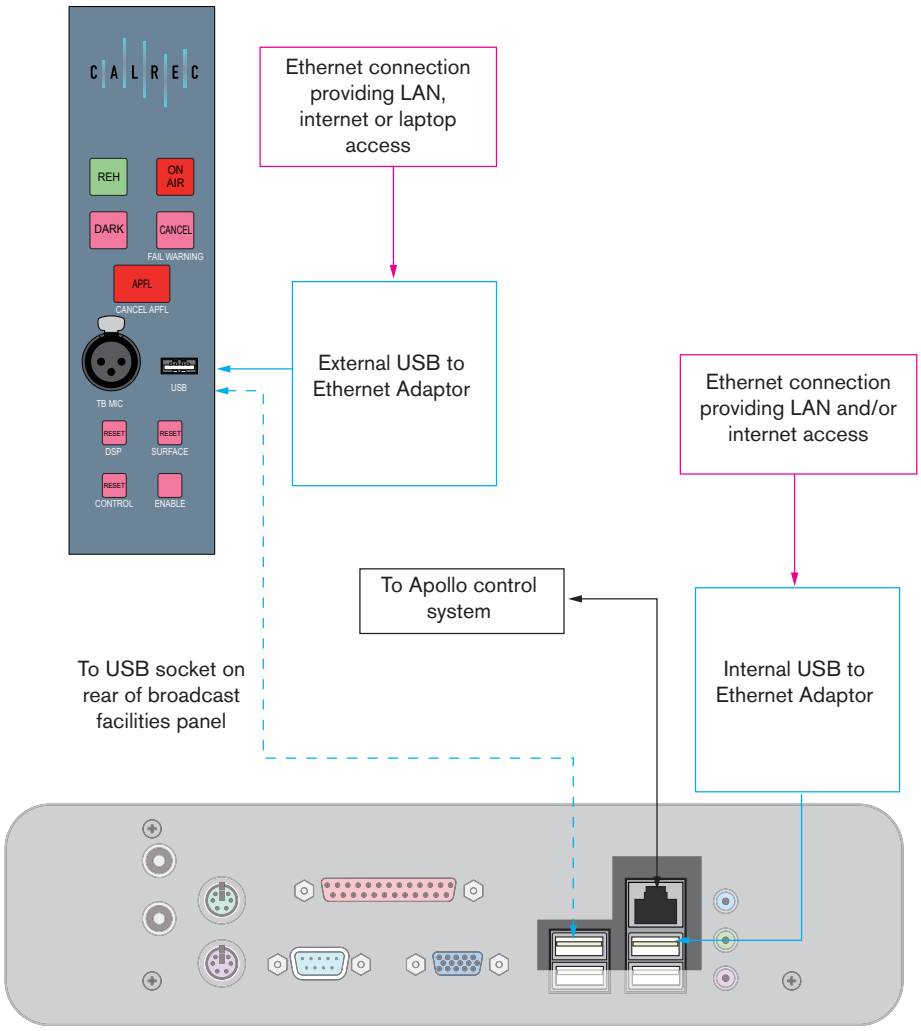
The USB cable on the adaptor should be connected to the USB socket on the Apollo Broadcast Facilities Panel. An Ethernet cable providing an internet connection should be plugged into the RJ45 socket on the other end of the adaptor. Alternatively, an adaptor can be mounted inside the surface to provide a permanent LAN connection.

These connections are shown in Figure 2.

Calrec will connect with the system through a secure SSL connection. Updates and diagnostics should be possible as long as the available internet connection allows browsing of secure websites (HTTPS), regardless of whether a firewall is in place or not.

FIGURE 1 - USB TO ETHERNET ADAPTOR

FIGURE 2 - CONNECTION DIAGRAM



CA5700 WILD ASSIGN PANEL

The CA5700 (Wild/assign panel) is located in the surface and is used to display and interact with console controls.

The panel consists of:

- One touch enabled TFT display
- 24 control cells, each comprising an OLED display, two multi-color illuminating rotary controls and two multi-color illuminating buttons
- 8 button cells, each comprising of an OLED display and four multi-color illuminating buttons

Connectors

Connections to this panel are provided at the rear of the unit as illustrated in Figure 3. The following connections are provided:

- MSE: A PS/2 connection provides mouse input to the panel for Calrec approved service engineers.
- KBD: A PS/2 connection for keyboard input to the panel for Calrec approved service engineers.
- OLED VGA: Provides a VGA output from the panel. Not currently used.
- TFT VGA: Provides a VGA output from the panel. Not currently used.
- CTRL SYSTEM: RJ45 connector for power and data connection to a POE switch.

FIGURE 1 - CA5700 - WILD/ASSIGN PANEL

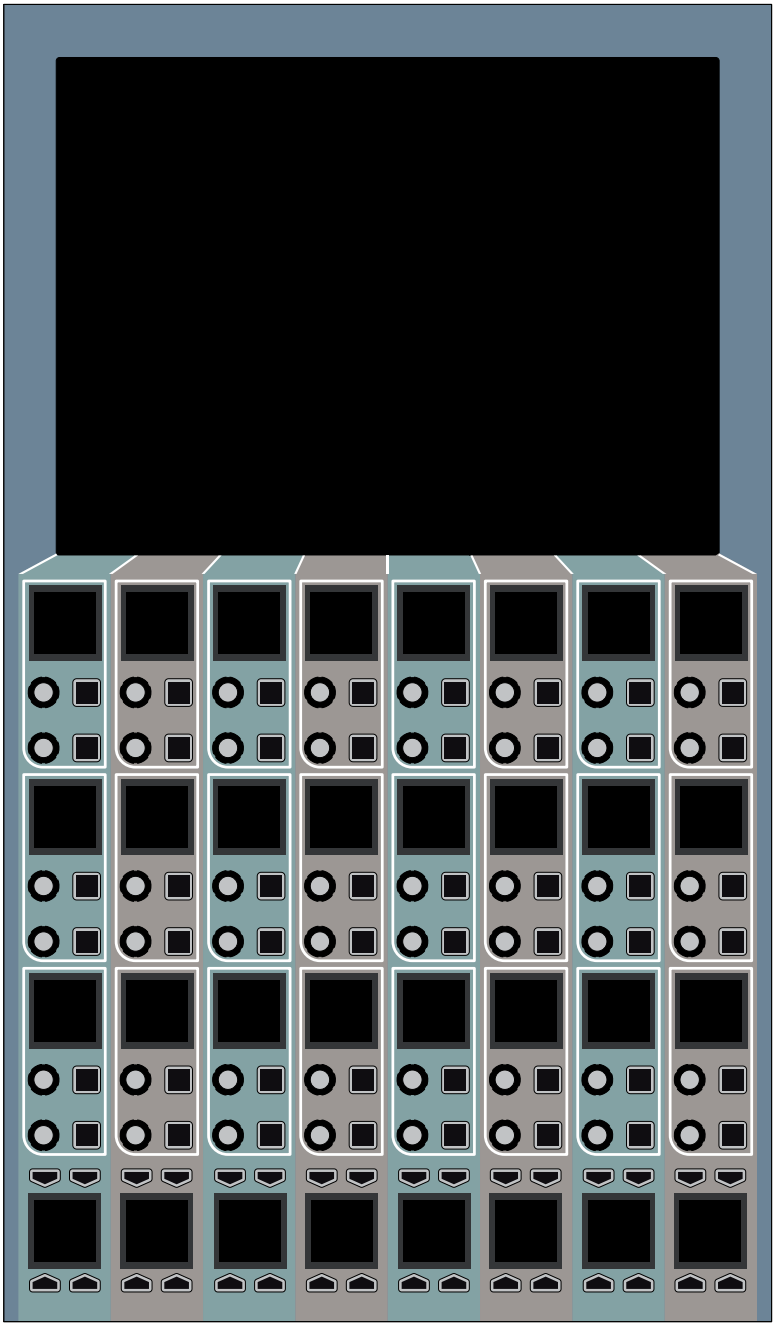
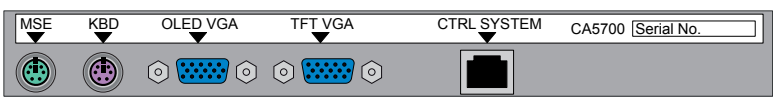


FIGURE 2 - CA5700 - WILD/ASSIGN PANEL



ED5708 RACK ENCLOSURE

The ED5708 is the rack enclosure which contains all DSP, power, Control Processor, Router and I/O expander modules (all shown in Figure 1). It contains the sync inputs and provides system reset buttons.

Reset

The reset buttons at the top of the rack allow various components of the Apollo system to be reset in the event of a failure. The three systems that can be reset are:

- Control system
- Hydra Router/Expander
- DSP

To reset a component in the system, hold the ENABLE button then press the relevant component button.

The surface may also be reset which is achieved using reset buttons on the surface itself. These are detailed in the Apollo Operator Manual.

Be extremely cautious when resetting the Hydra2 Router/Expander system. If any other consoles on the same network are accessing signals on your system, they will experience signal loss during the reset period.

Sync Inputs

External synchronization signals can be patched into Apollo via the four BNC connections at the top of the rack. The system can receive AES, Video (Analog, Tri-Level) and word clock sources. More

FIGURE 1 - ED5708 - RACK ENCLOSURE

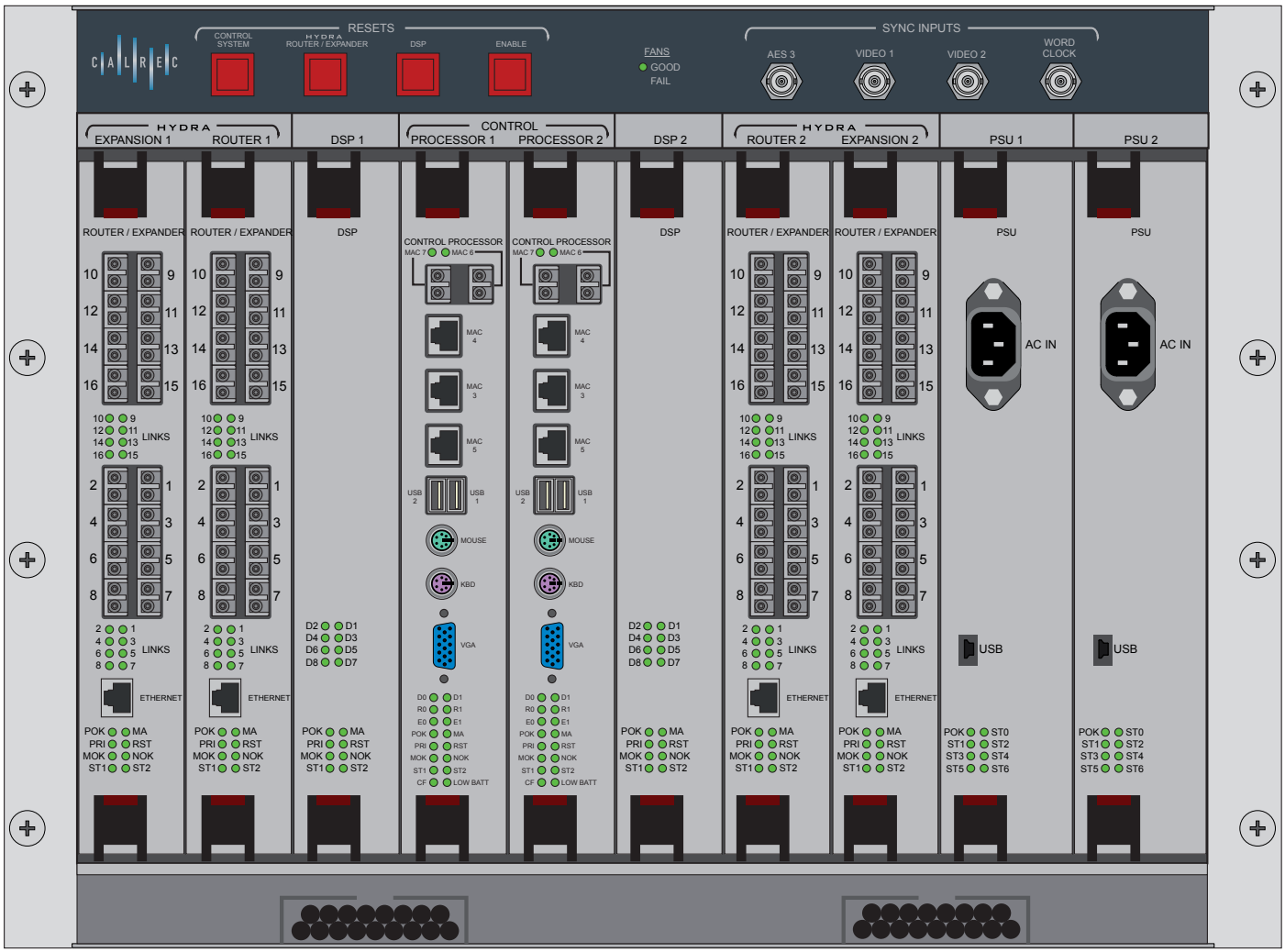


FIGURE 2 - RESET BUTTONS

FIGURE 3 - FAN STATUS LEDS

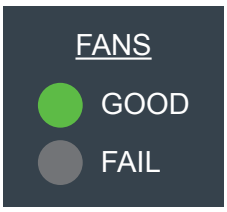
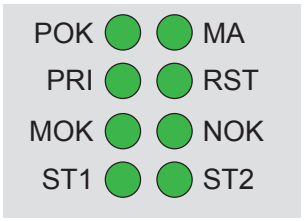


FIGURE 4 - COMMON STATUS LEDS



detail is provided in the Synchronization section of the Apollo Installation Manual.

Fans and airflow
There are six fans at the top of the rack enclosure. Air enters the enclosure through the space beneath the modules and is drawn up through the modules by the fans. Air exits via the exhausts at the top of the rear of the enclosure. It is important that these airways are not obstructed in any way.

Figure 3 shows the fan status LEDs. If one of the fans in the rack is not performing correctly, the FAIL LED will illuminate.

Noise
A fully populated rack has been measured to produce <40dB acoustic noise (A-weighted at 1 metre from front).

Status LEDs
The DSP, Control Processor and Router/ Expander modules all include the same array of status LEDs. These are shown in detail in Figure 4. They indicate the following properties:

- POK - Power OK. Indicates that the module is receiving the required power input.
- MOK - Module OK. Indicates that the module is functioning correctly but is not necessarily the active primary module. Should always be on for both modules in good state.
- NOK - Neighbor OK. Indicates that the duplicate version of the same card is functioning correctly. If both DSP cards were functioning correctly, both would have the NOK LED illuminated.
- MA - Module Active. Indicates which is the active of a pair of modules.
- PRI - Indicates whether the module is inserted into slot 1 of the two available for each module. For example DSP 1 rather than DSP 2.
- RST - Reset. Indicates that the module is currently being reset.

Any time the abbreviation ST is used, it indicates that the LED is reserved for future use.

Cable tidies
There are two cable tidies in the space beneath the modules. Ensure all cables that pass through this space are contained within these conduits. Failure to do so may impede airflow to the modules above.

Installing and removing modules
To remove a module from the rack, take hold of the handles at the top and bottom of the module. Push in the red latch on each handle and pull the handles out and apart. Carefully pull the module out from the rack.

To install a module in the rack, again take hold of each of the handles and depress the red latch. Insert the module into the correct slot, gently locate it into the rear connectors and then move the handles towards each other while pushing to seat the connection.. A click should be heard when the module is seated fully.

Be sure to depress the red latches when removing or installing modules. Failure to do so may result in damage to the latching mechanism.

IC5701 FADER PANEL

The IC5701 is the standard Apollo fader panel containing eight faders across its width.

The panel consists of:

- Eight fader areas, details of these areas is given in Figure 2
- Eight control cells, each consisting of an OLED display, two multi-color illuminating rotary controls and two multi-color illuminating buttons
- Eight button cells, each consisting of an OLED display and four multi-color illuminating buttons
- Two OLED rows, each consisting of eight OLED displays.

Connectors

Connections to this panel are provided at the rear of the unit as illustrated in Figure 3. The following connections are provided:

- CTRL SYSTEM: RJ45 connector for power and data connection to a POE switch.
- VGA: Provides a VGA output form the panel. Not currently used.
- MOUSE: A PS/2 connection provides mouse input to the panel for Calrec approved service engineers
- TFT METER: A DVI type connector provides meter data from the fader panel to a TFT meter. This is not a true DVI signal and as such should NOT be connected to any DVI equipment.

FIGURE 1 - IC5701 - FADER PANEL

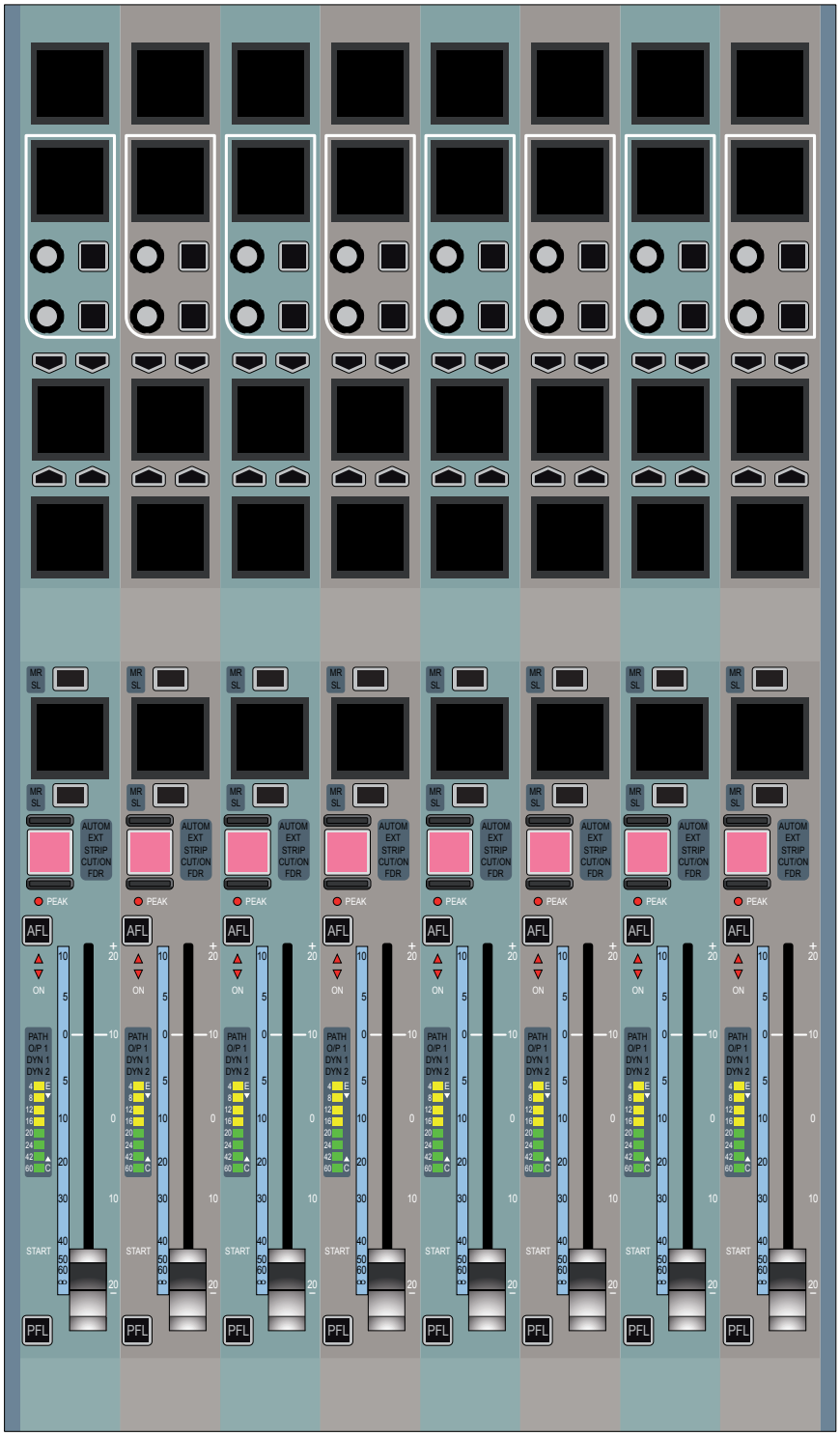


FIGURE 2 - PANEL DETAILS

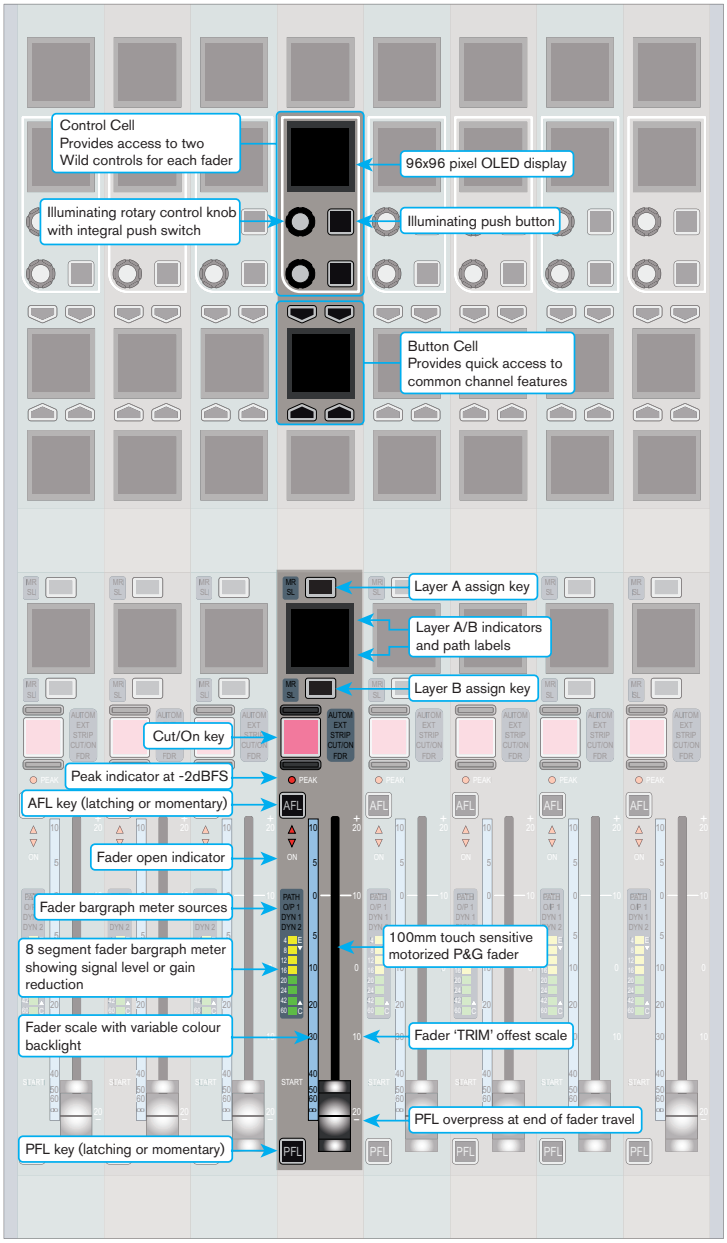
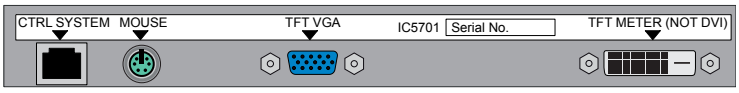


FIGURE 3 - CONNECTORS



IC5717 DUAL FADER PANEL

The IC5717 is the dual fader panel which contains one row of 100mm faders, and a secondary row of shorter travel 60mm faders.

This module is the same in functionality as the IC5701 module, but replaces the button cells and control cells with eight extra fader areas, each containing a short throw 60mm touch sensitive motorized fader. This allows both A and B layers to be accessible on physical faders at the same time.

Connectors

Connections to this panel are provided at the rear of the unit as illustrated in Figure 3. The following connections are provided:

- CTRL SYSTEM: RJ45 connector for power and data connection to a POE switch.
- AUX POWER: The panel requires a secondary power connection from a POE switch AP outlet. A second RJ45 socket is provided for this purpose.
- TFT METER: A DVI type connector provides meter data from the fader panel to a TFT meter. This is not a true DVI signal and as such should NOT be connected to any DVI equipment.

FIGURE 1 - IC5717 - DUAL FADER PANEL

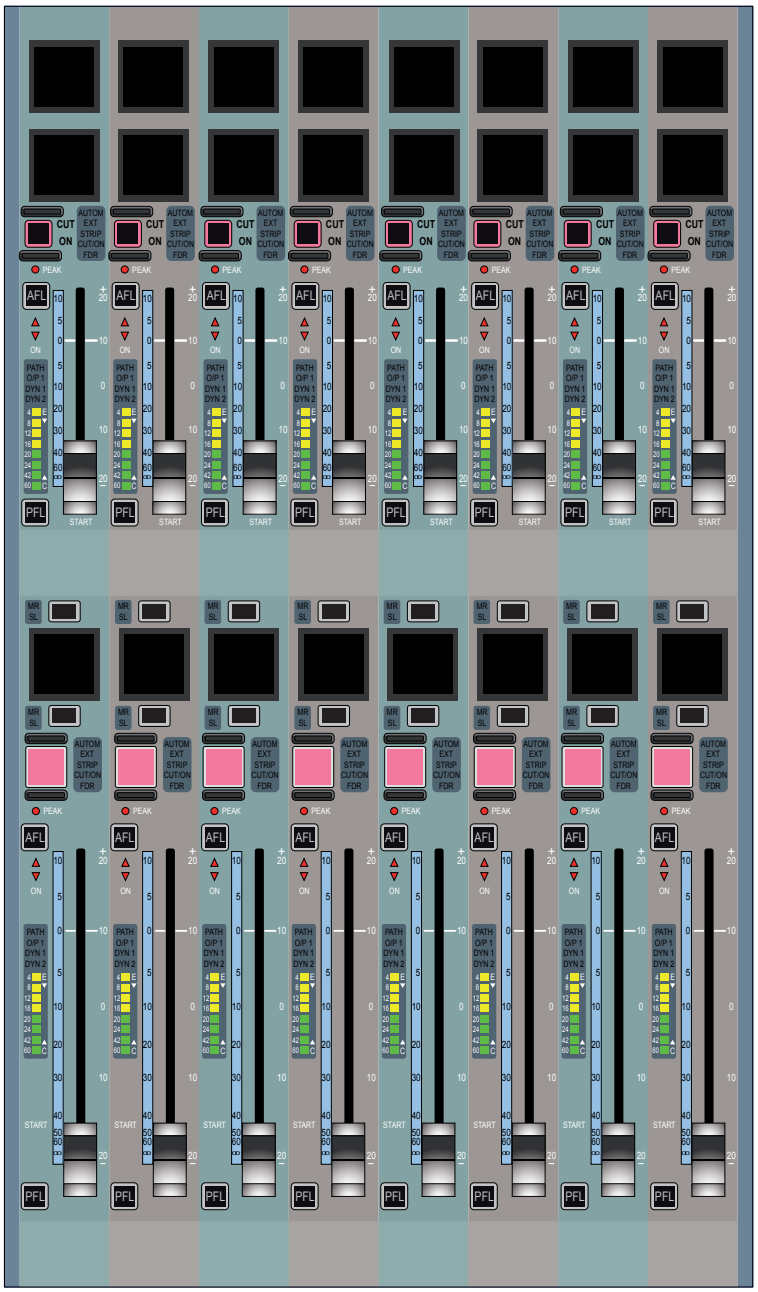
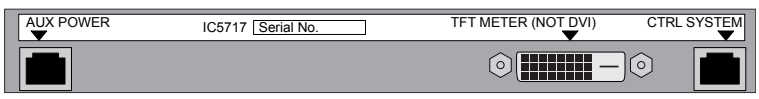


FIGURE 2 - CONNECTORS



IM5705 MONITOR PANEL

The IM5705 contains dedicated monitor controls and a fader area which can be set to control main, spill or downmix controls.

The panel consists of:

- Four short fader areas, details of these areas is given in Figure 3. The faders may control downmix levels, main paths or spill paths.
- An area of dedicated monitor controls
- Eight multi-color illuminating assignable buttons

Connectors

Connections to this panel are provided at the rear of the unit as illustrated in Figure 3. The following connections are provided:

- CTRL SYSTEM: RJ45 connector for power and data connection to a POE switch.

For connection details, please refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - IM5705 - MONITOR PANEL

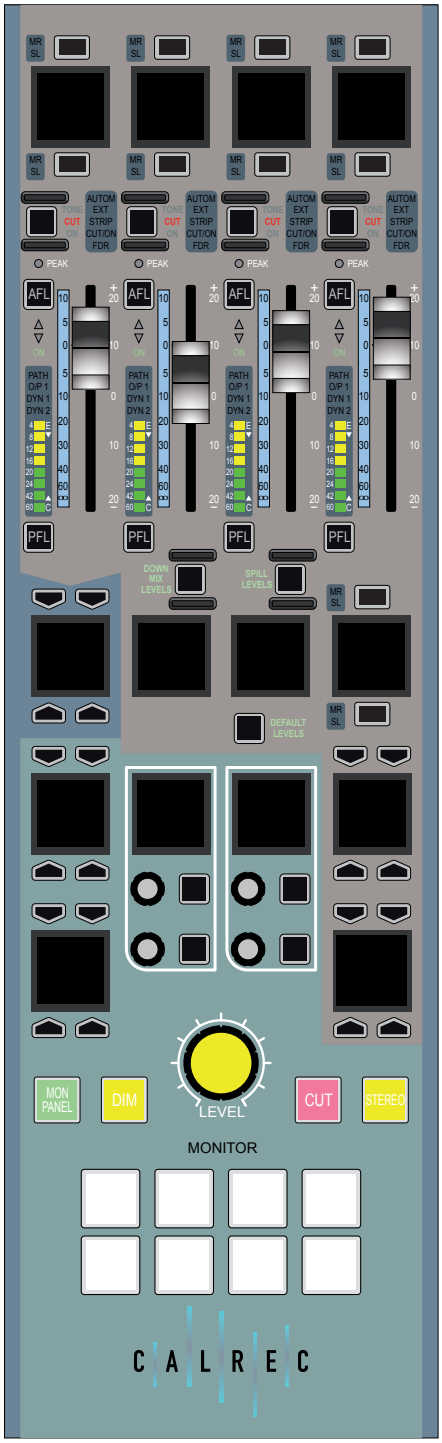


FIGURE 3 - MAIN FEATURES

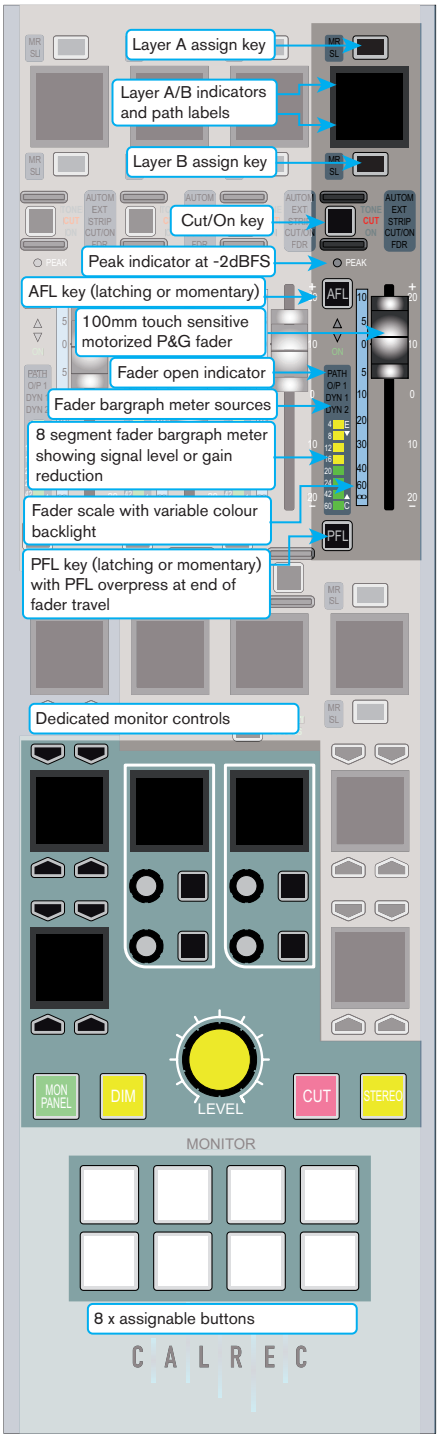
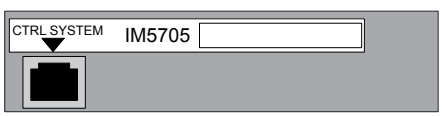


FIGURE 2 - CONNECTORS



LS5903 4 INPUT SPEAKER PANEL

The LS5903 has similar front panel facilities to the LS5906 but is supplied complete with a housing to allow it to be used externally to the console.

The front panel is shown in Figure 1 and consists of:

- a loudspeaker and amplifier
- four input mixer
- individual level and cut controls.

Connectors

Connections to this panel are provided at the rear of the unit. The following connections are provided:

- RJ45 connector for power from a POE switch.
- DB25 female connector for audio and control inputs.

The pin out for the DB25 audio and control connector is shown in Figure 2. The cut and dim functions are activated by applying a logic low (ground) to the panel input.

The degree of DIM can be varied between -10 and -30 dB using the internally accessed PCB mounted preset VR1.

For further connection details, refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - LS5903 - MONITOR PANEL

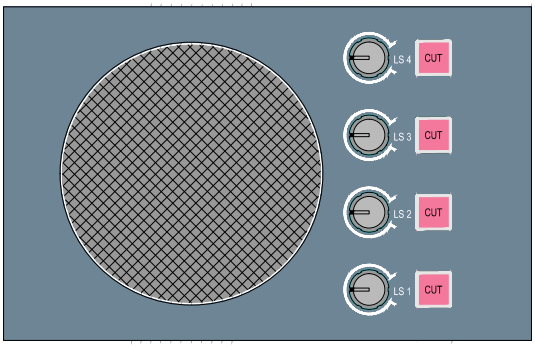
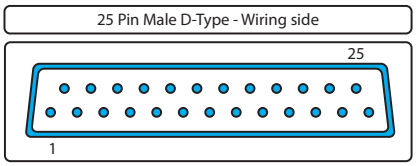


FIGURE 2 - CONNECTOR INFORMATION



Function		Pin
In 1	+	2
	-	15
	Ground	3
In 2	+	4
	-	17
	Ground	5
In 3	+	6
	-	19
	Ground	7
In 4	+	8
	-	21
	Ground	9
Cut		11
Dim		24
Ground		12, 13, 25

LS5906 4 INPUT SPEAKER PANEL

The LS5906 is intended to be mounted within the assign area of the console.

The panel is shown in Figure 1 and consists of:

- a loudspeaker and amplifier
- four input mixer
- individual level and cut controls.

Connectors

Connections to this panel are provided at the rear of the unit. The following connections are provided:

- RJ45 connector for power from a POE switch.
- DB25 female connector for audio and control inputs.

The pin out is shown in Figure 2. The cut and dim functions are activated by applying a logic low (ground) to the panel input.

The degree of DIM can be varied between -10 and -30 dB using the internally accessed PCB mounted preset VR1.

For further connection details, refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - LS5906 - MONITOR PANEL

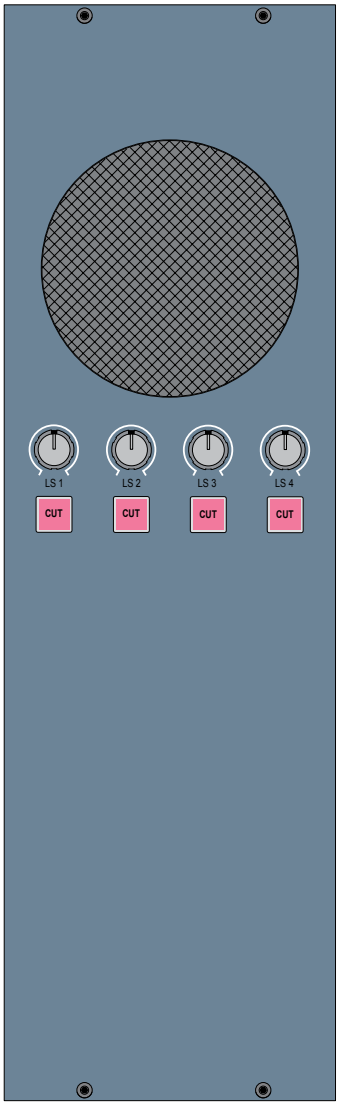
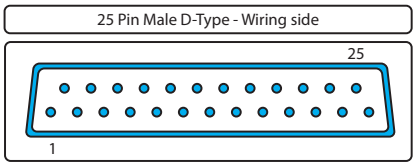


FIGURE 2 - CONNECTOR INFORMATION



Function		Pin
In 1	+	2
	-	15
	Ground	3
In 2	+	4
	-	17
	Ground	5
In 3	+	6
	-	19
	Ground	7
In 4	+	8
	-	21
	Ground	9
Cut		11
Dim		24
Ground		12, 13, 25

MD5702 TFT METER PANEL

The MD5702 contains one TFT meter. This meter can be customized to display a wide range of information in meters of differing sizes.

The module can be mounted in the surface upstand and must be linked to a fader panel in order to receive its information. It can display up to 48 individual meter cells in a configuration specified by the user.

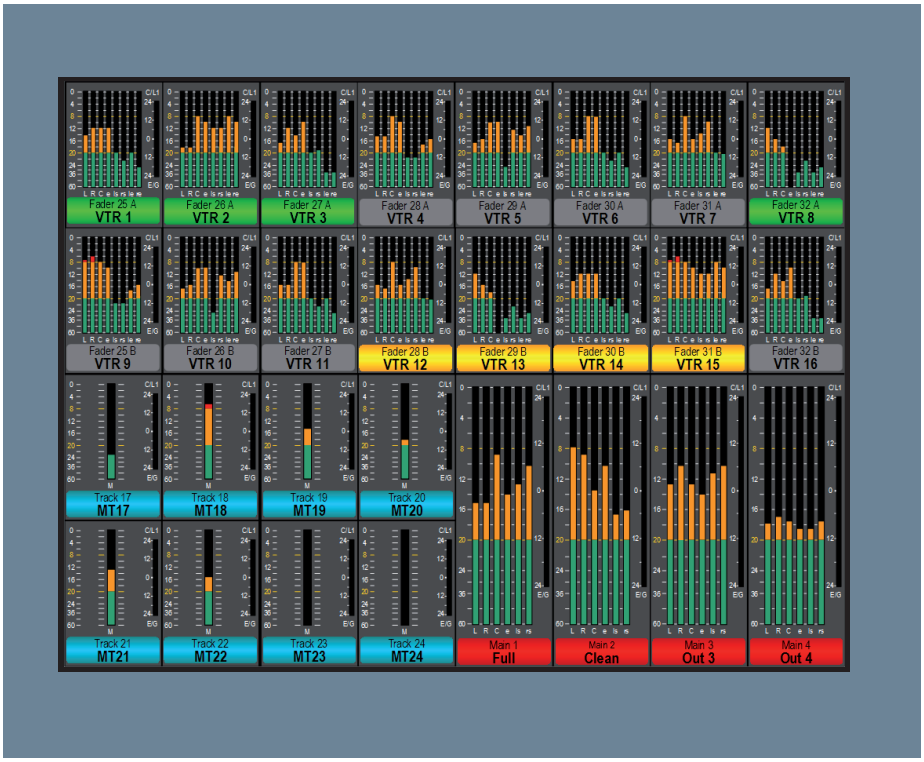
Connections

The meter panel has one connection on the rear which uses a DVI type socket. This receives meter data and power from a fader panel.

Note that this is not a true DVI connection and should not be connected to any DVI equipment.

For detailed connection and configuration details, please refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - MD5702 - TFT METER PANEL



MU5775 MOVING COIL TWIN PPM

The MD5775 contains one stereo moving coil PPM meter (Red/Green, A/B).

Connections

The panel has one connection on the rear, to which the audio signal to be metered should be connected. This is a 9 pin female D-type connector and the pin out is shown in Figure 2.

The meter has both AES and analog inputs but only one should be driven with audio at any one time.

For detailed connection and configuration details, please refer to the 'Metering' section of the Apollo Installation Manual.

FIGURE 1 - MU5775 - STEREO PPM METER

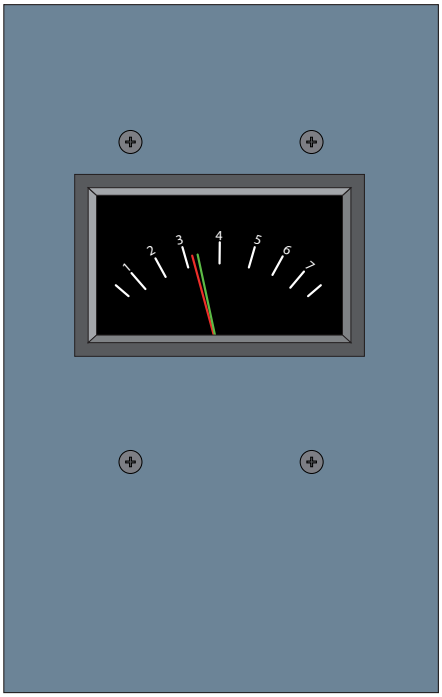
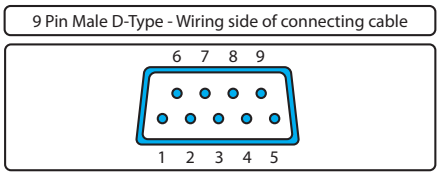


FIGURE 2 - CONNECTOR INFORMATION



Analog Input

Signal	Pin
Analog In Left +	1
Analog In Left -	6
Analog In Right +	2
Analog In Right -	7
Screen	3
Screen	5

Balanced AES input (110 Ohm)

Signal	Pin
AES +	4
AES -	9
Screen	5

Unbalanced AES input (75 Ohm)

Signal	Pin
AES signal	8 + 4
Screen	9 + 5

MU5776 RTW 10600 PANEL

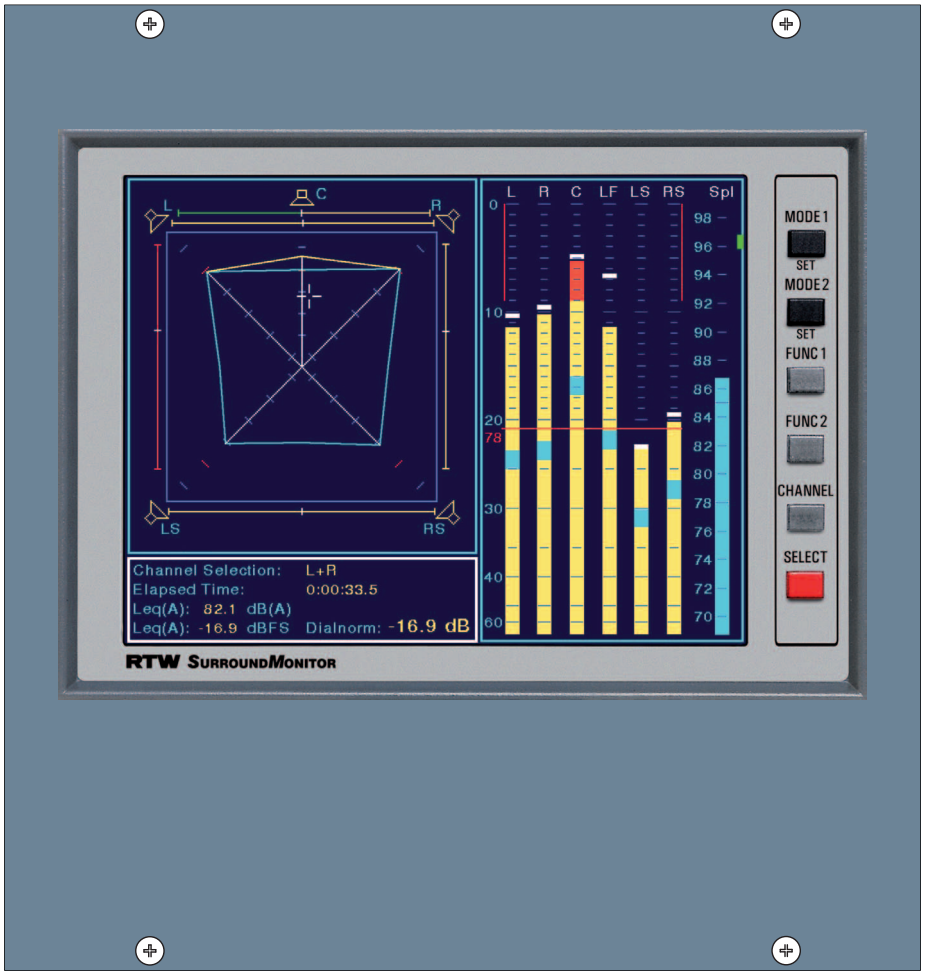
The MU5776 panel is a mounting for the RTW 10600 series meters. It can be placed in the surface meter upstand.

RTW meters are fed signals from a Hydra2 output port.

Depending on the configuration of the meter purchased the pin assignments and connector types may vary. For connection and wiring information please refer to the supplied RTW documentation, or customer specific information provided by your Calrec project engineer.

The RTW meter is shown for illustration purposes only must be ordered separately.

FIGURE 1 - MU5776 - RTW 10600 SERIES PANEL



MU5799 DK MSD600M PANEL

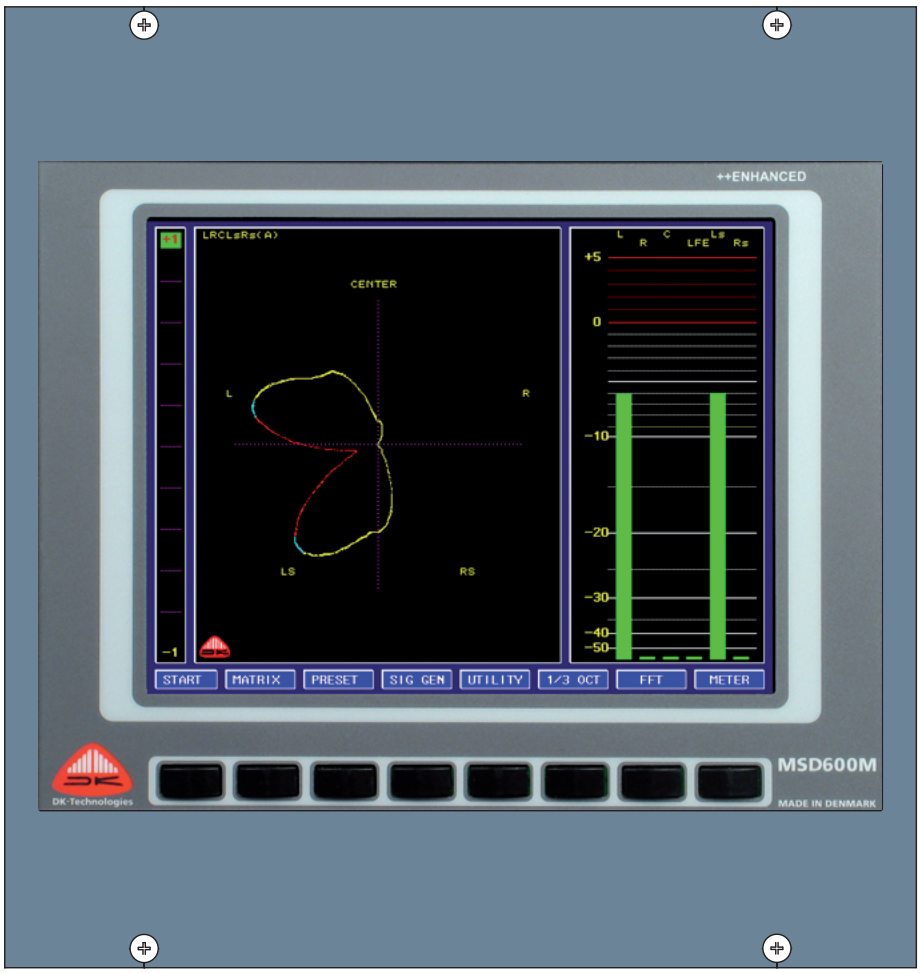
The MU5799 panel is a mounting for the DK MSD600M meters. It can be placed in the surface meter upstand.

DK meters are fed signals from a Hydra2 output port.

Depending on the configuration of the meter purchased the pin assignments and connector types may vary. For connection and wiring information please refer to the supplied DK documentation, or customer specific information provided by your Calrec project engineer.

The DK meter is shown for illustration purposes only must be ordered separately.

FIGURE 1 - MU5799 - DK MSD600M PANEL



PC5787 CONFIGURATION PC INTERFACE

The PC5787 acts as a data interface between the rest of the Apollo system and the Configuration PC. It also provides power to the PC and connects it to a reset switch. A headphone amplifier is also contained in the unit providing up to three stereo headphone feeds.

For connection details, please refer to the 'Headphones' and the 'Internal Surface Components' sections of the Apollo Installation Manual.

Pinouts for the connectors are shown in Figures 2, 3 and 4.

FIGURE 1 - PC5787 - CONFIG PC SURFACE INTERFACE AND HEADPHONE AMPLIFIER

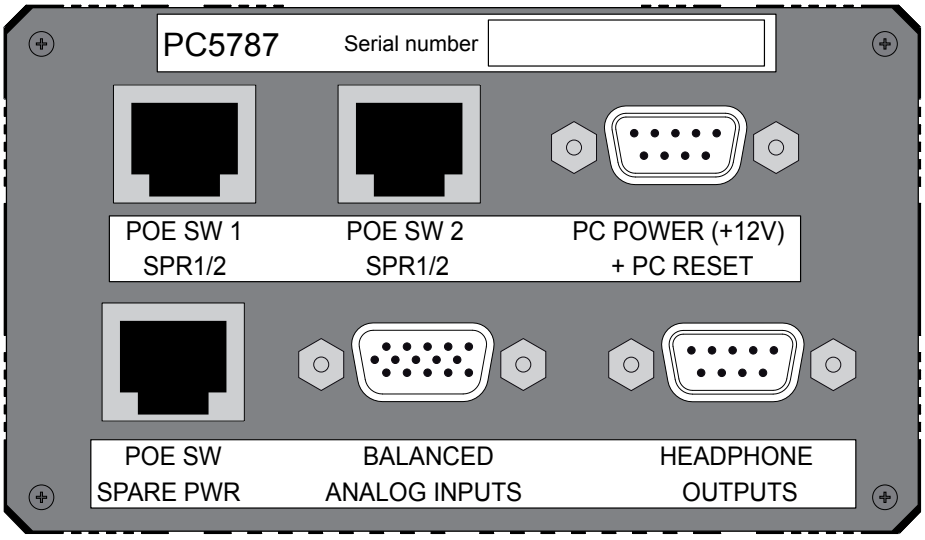
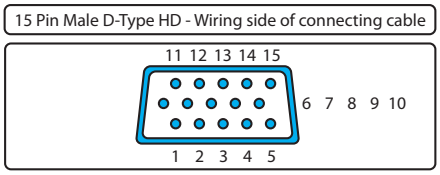
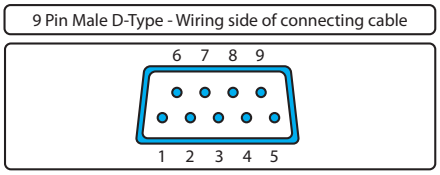


FIGURE 2 - HEADPHONE INPUT PIN ASSIGNMENT



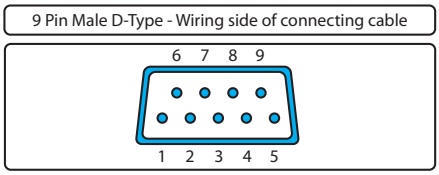
Signal		Pin
Input 1	Left +	14
	Left -	15
	Right +	10
	Right -	5
	Earth	4
Input 2	Left +	9
	Left -	13
	Right +	8
	Right -	3
	Earth	12
Input 3	Left +	2
	Left -	7
	Right +	1
	Right -	11
	Earth	6

FIGURE 3 - HEADPHONE OUTPUT PIN ASSIGNMENT



Signal		Pin
Output 1	Left	1
	Right	6
	Common	2
Output 2	Left	7
	Right	3
	Common	8
Output 3	Left	4
	Right	9
	Common	5

FIGURE 4 - PC POWER + PC RESET PIN ASSIGNMENT



Signal	Pin
+12V	1
	6
	2
	7
0V	3
	8
	4
	9
PC Reset Switch	5

RT5707 FACILITIES PANEL

The RT5707 is the Broadcast Facilities Panel for the Apollo system.

It contains individual reset switches for the DSP, Control and Surface areas of the Apollo system. It also provides talkback microphone input and a USB connection to the Configuration PC.

Rehearse (REH) and On Air buttons are provided to switch conditional operating settings of the system.

The fail warning indicator illuminates in the unlikely event that faults are detected, and doubles as a cancel button to acknowledge the warning.

The APFL indicator illuminates at the presence of APFL activity and doubles as an APFL cancelation button.

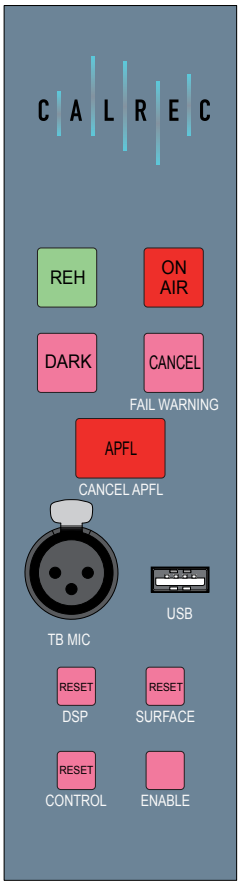
Connectors

Connections to this panel are provided at the rear of the unit as illustrated in Figure 2. The following connections are provided:

- CTRL SYS: RJ45 connector for power and data connection to a POE switch.
- RESET: RJ45 connector for reset circuit connection to a POE switch
- TB MIC: The microphone signal received by the front mounted female connector is passed through to the rear mounted male XLR. This socket should be connected to a Hydra2 input port.
- USB EXT: The rear mounted socket should be connected to a spare USB port on the Configuration PC. The USB socket on the front of the panel is linked to the socket on the rear of the panel and as such provides a convenient way to access the Configuration PC via USB.

XLR connection details are shown in Figure 3.

FIGURE 1 - RT5707 - BROADCAST FACILITIES PANEL



For connection details, please refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 2 - CONNECTIONS

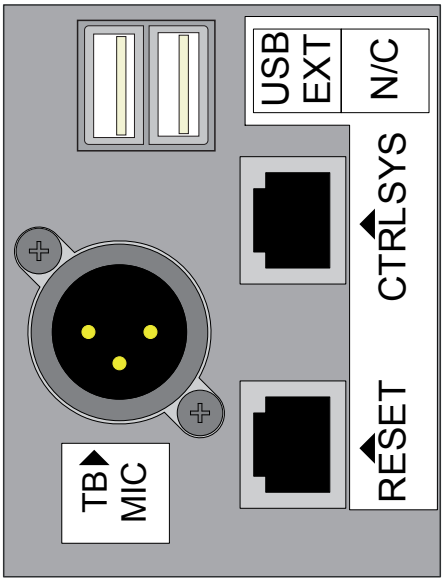
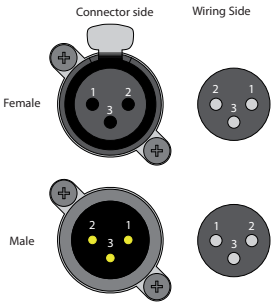


FIGURE 3 - XLR CONNECTORS



Function	Pin
Positive	2
Negative	3
Ground	1

RY5710 ROUTER AND IO EXPANDER

The RY5710 is both the Router and I/O Expander Module. It installs into the ED5708 in the Router 1, Router 2, Expansion 1 or Expansion 2 slots depending on its function.

When used in either of the Router slots, it provide the system with its routing functionality and connectivity for up to 16 Hydra2 I/O boxes.

When used in the Expansion slots (in addition to having a module in the Router slots) the module does not offer an expansion to the routing capability of the system, but provides connectivity for an additional 16 Hydra2 I/O boxes.

For a more detailed description of the functionality of this module, please refer to the 'Rack' section of the Apollo Installation Manual.

Connections

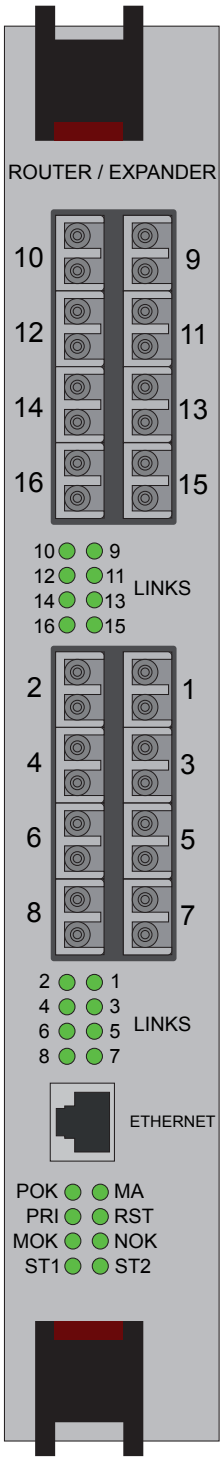
The module provides 16 SFP slots for connections to Hydra2 I/O boxes over copper or fiber, each with a status LED to indicate an active connection.

An Ethernet socket is reserved for future use.

Status LEDs

- POK - Power OK. Indicates that the module is receiving the required power input.
- MOK - Module OK. Indicates that the module is functioning correctly but is not necessarily the active primary module. Should always be on for both modules in good state.
- NOK - Neighbor OK. Indicates that the duplicate version of the same card is functioning correctly. If both DSP cards were functioning correctly, both would have the NOK LED illuminated.
- MA - Module Active. Indicates which is the active of a pair of modules.

FIGURE 1 - RY5710 - ROUTER AND I/O EXPANDER MODULE



- PRI - Indicates whether the module is inserted into slot 1 of the two available for each module. For example DSP 1 rather than DSP 2.
- ST1 and ST2 are reserved for future use.
- The LINKS 0-16 LEDs illuminate to confirm an active Hydra2 link.

UD5709 DSP MODULE

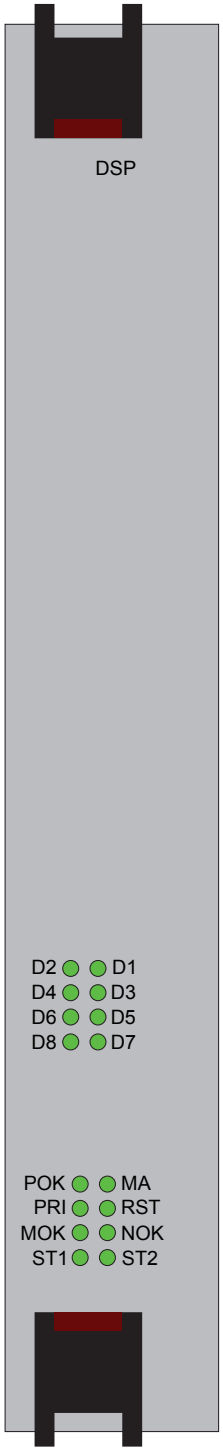
The UD5709 module provides all DSP for the Apollo system. It is installed in the ED5708 rack in the DSP 1 slot, or the DSP 2 slot for redundancy.

For a more detailed description of the functionality of this module, please refer to the 'Rack' section of the Apollo Installation Manual.

Status LEDs

- POK - Power OK. Indicates that the module is receiving the required power input.
- MOK - Module OK. Indicates that the module is functioning correctly but is not necessarily the active primary module. Should always be on for both modules in good state.
- NOK - Neighbor OK. Indicates that the duplicate version of the same card is functioning correctly. If both DSP cards were functioning correctly, both would have the NOK LED illuminated.
- MA - Module Active. Indicates which is the active of a pair of modules.
- PRI - Indicates whether the module is inserted into slot 1 of the two available for each module. For example DSP 1 rather than DSP 2.
- ST1, ST2 and D1-8 are reserved for future use.

FIGURE 1 - UD5709 - DSP MODULE



UN5713 CONTROL PROCESSOR

The UN5713 module provides the link between the surface and the rest of the Apollo system. It is installed into the ED5708 rack in the Control 1 slot or Control 2 slot for redundancy.

For a more detailed description of the functionality of this module, please refer to the 'Rack' section of the Apollo Installation Manual.

Connections

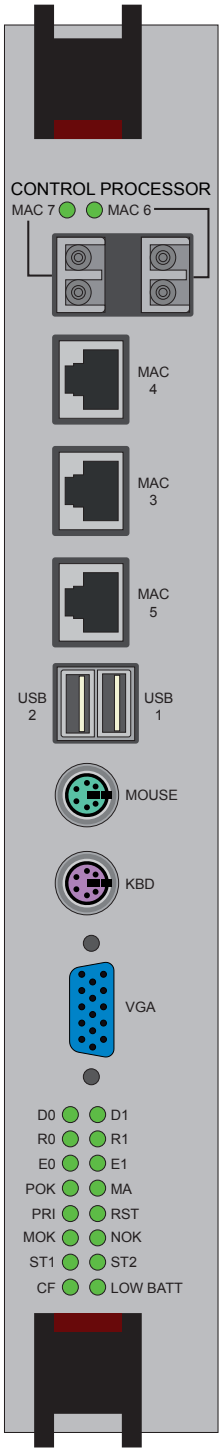
The Control Processor module includes the following connections:

- Two SFP sockets (MAC 7 and MAC 6) which are used to connect Apollo surfaces to the Apollo rack. MAC 7 is used for the primary surface section, MAC 6 is used for the secondary surface section. These sockets do not provide redundant connections for a single surface section. For this, connections should also be made to the secondary Control Processor module.
- The three Ethernet sockets and two USB sockets are reserved for future use.
- The Keyboard, mouse and VGA connectors are for Calrec approved service engineer use.

Status LEDs

- D0 & D1- Indicate that the primary and secondary DSP modules are present and functioning correctly.
- R0 & R1- Indicate that the primary and secondary Router modules are present and functioning correctly.
- E0 & E1- Indicate that the primary and secondary Expansion modules are present and functioning correctly.
- POK - Power OK. Indicates that the module is receiving the required power input.
- MOK - Module OK. Indicates that the module is functioning correctly but is not necessarily the active primary module. Should always be on for both modules in good state.
- NOK - Neighbor OK. Indicates that the duplicate version of the same card is functioning correctly. If both DSP cards were functioning correctly, both would have the NOK LED illuminated.
- MA - Module Active. Indicates which is the active of a pair of modules.
- PRI - Indicates whether the module is inserted into slot 1 of the two available for each module. For example DSP 1 rather than DSP 2.
- RST - Reset. Indicates that the module is currently being reset.
- CF - Indicates that the compact flash memory in the module is functioning correctly.
- LOW BATT - Illuminates in the event that the battery in the module is running low.
- ST1 and ST2 are reserved for future use.

FIGURE 1 - UN5713 - CONTROL PROCESSOR MODULE



YZ5706 POE SWITCH

The YZ5706 POE Switch receives AC power and distributes it to all connected panels via Power over Ethernet (POE). It also communicates data between surface panels and the rack via the surface switches.

The POE Switch features two IEC inlets for AC power redundancy. These should be fed from the IEC distribution blocks inside the surface.

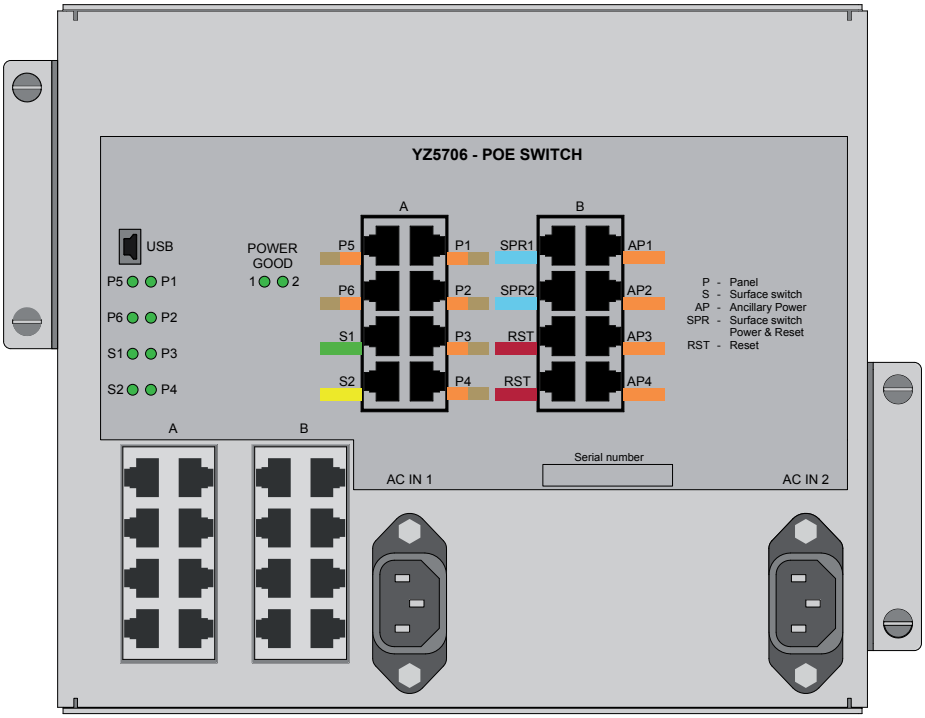
The collection of Ethernet ports marked ‘A’ provide connectivity between surface panels and the surface switches. Ports marked S1 and S2 connect to surface switches 1 and 2 respectively.

The collection of Ethernet ports marked ‘B’ provide power and reset message connectivity. The AP1-4 ports provide ancillary power to panels which may require it. The dual fader panel, for example, requires a secondary power connection form one of these AP ports to drive the second row of faders.

The mini USB port is reserved for future use.

For a more detailed description of the functionality and connectivity of this unit, please refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - YZ5706 - POE SWITCH



YZ5716 SURFACE SWITCH

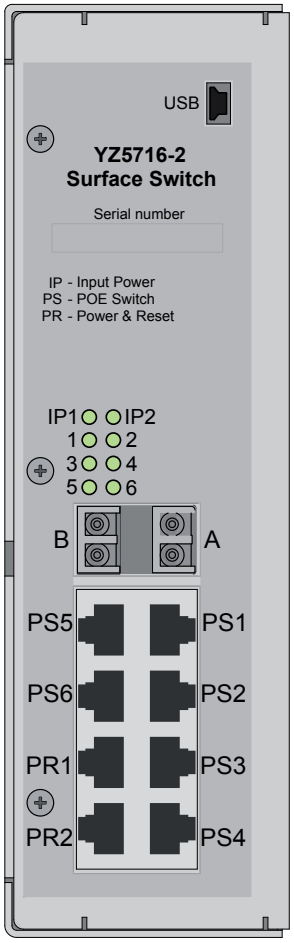
The YZ5716 Surface Switch located in the Apollo surface communicates data between the rack and the POE switches.

The SFP connection marked 'A' provides the link to the Control Processor module in the Apollo rack. The PS Ethernet sockets provide the links to the POE switches in the surface. The PR Ethernet sockets connect to POE switches to provide power to the Surface Swtich.

The mini USB port is reserved for future use.

For a more detailed description of the functionality and connectivity of this unit, please refer to the 'Internal Surface Components' section of the Apollo Installation Manual.

FIGURE 1 - YZ5716 - SURFACE SWITCH



ZN5714 PSU

The ZN5714 PSU module receives AC input and distributes power to the rack and all modules installed in it. It is installed in the PSU 1slot or additionally in the PSU 2 slot for redundancy.

For a more detailed description of the functionality of this module, please refer to the 'Rack' section of the Apollo Installation Manual.

Connections

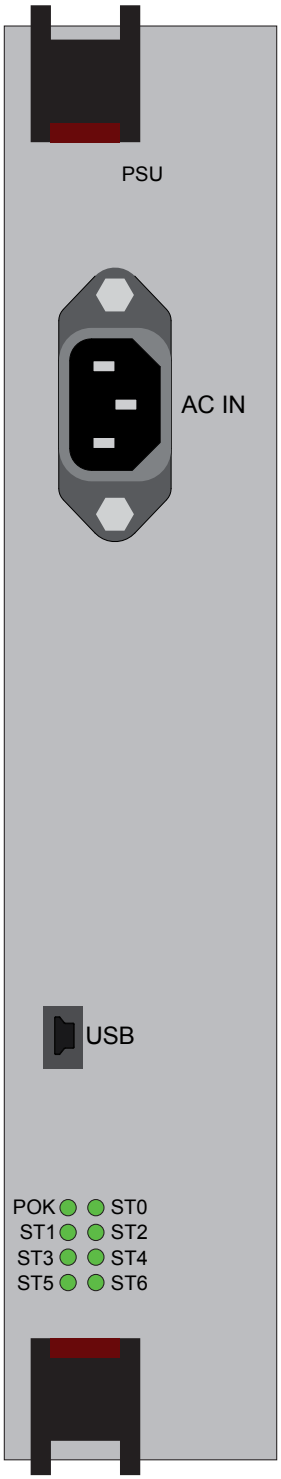
The PSU module includes the following connections:

- One IEC AC inlet for powering the module and rack.
- Mini USB socket - Reserved for future use.

Status LEDs

- POK - Power OK. Indicates that the module is receiving the required power input.
- ST0-ST1 - Reserved for future use.

FIGURE 1 - ZN5714 - PSU MODULE



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