# ZETA 100

## INSTALLATION MANUAL

## ISSUE 5

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Whilst the Company takes the utmost care in ensuring that all details in this document are correct at the time of publication, we reserve the right to alter specifications & equipment without notice. Any changes we make will be reflected in subsequent issues of this document. The latest version will be available upon request.

This publication is for International usage.

Please observe the following:-

## After Sales Modifications.

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 such work.

## 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, analogue parts can however still be affected.

**CONTENTS**

*Continued...*

## IMPORTANT HEALTH AND SAFETY INFORMATION

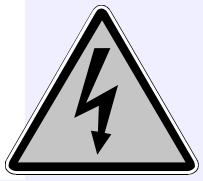
- **This equipment must be EARTHED.**
- **Only suitably trained personnel should service this equipment.**
- **Please read and take note of all warning and informative labels.**
- **Before starting any servicing operation, this equipment must be isolated from the AC supply (mains).**
- **Fuses should 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

The triangular warning symbols below contain a black symbol on a yellow background, surrounded by a black border.



The lightning flash with arrow head symbol within an equilateral triangle 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 is intended to prompt the user to refer to important operating or maintenance (servicing) instructions in the documentation supplied with the product.

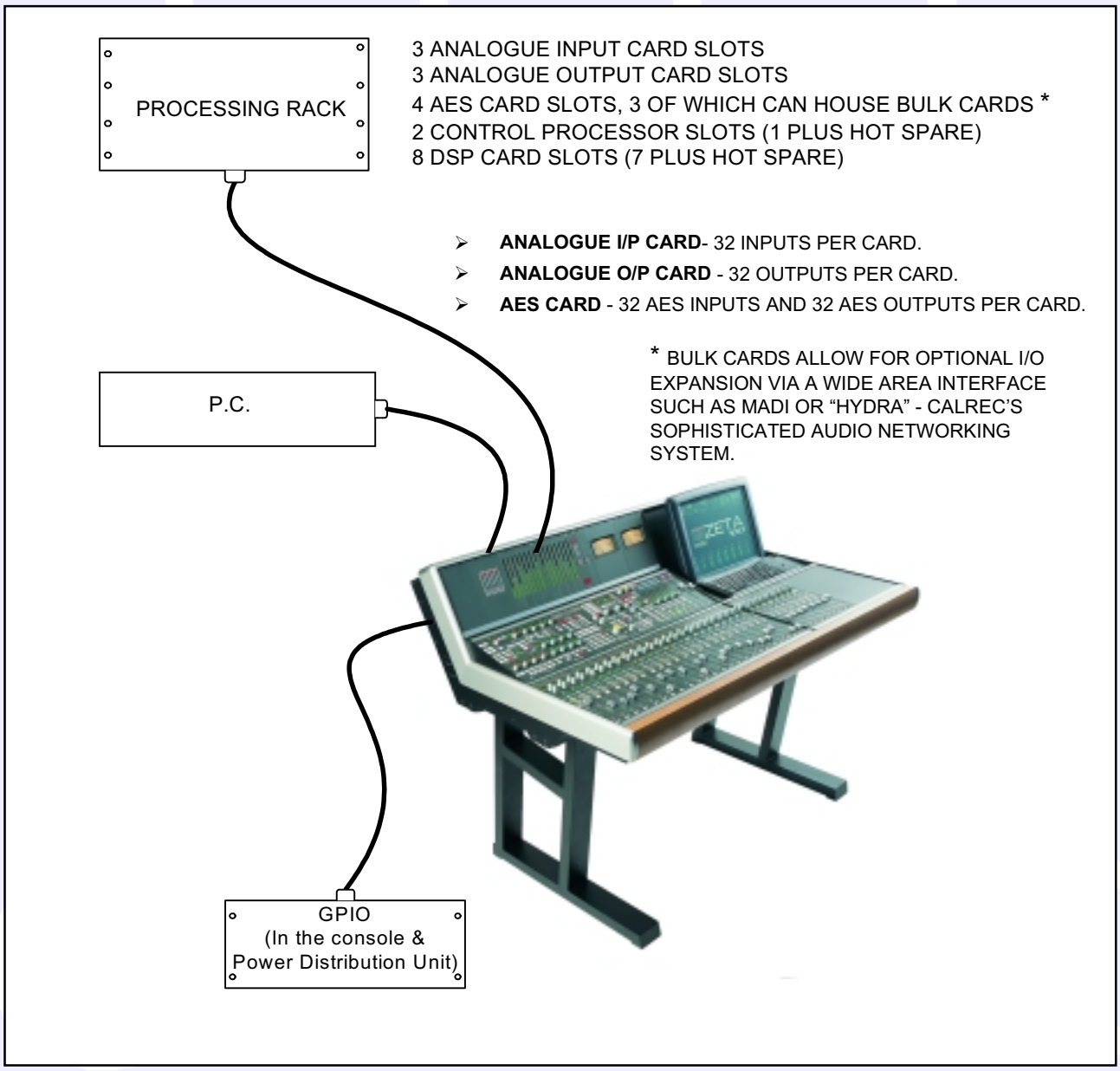
### Power Supply Blanking Plates (ZN4849-3 and ZN6020)

If you are in receipt of a ZN4849-3 or ZN6020 power supply you will notice that it is fitted with blanking plates which must not be removed. The maximum potential between the terminals exceeds 60 volts, therefore blanking plates must be fitted to all unused outputs to avoid the risk of electric shock.

# Overview

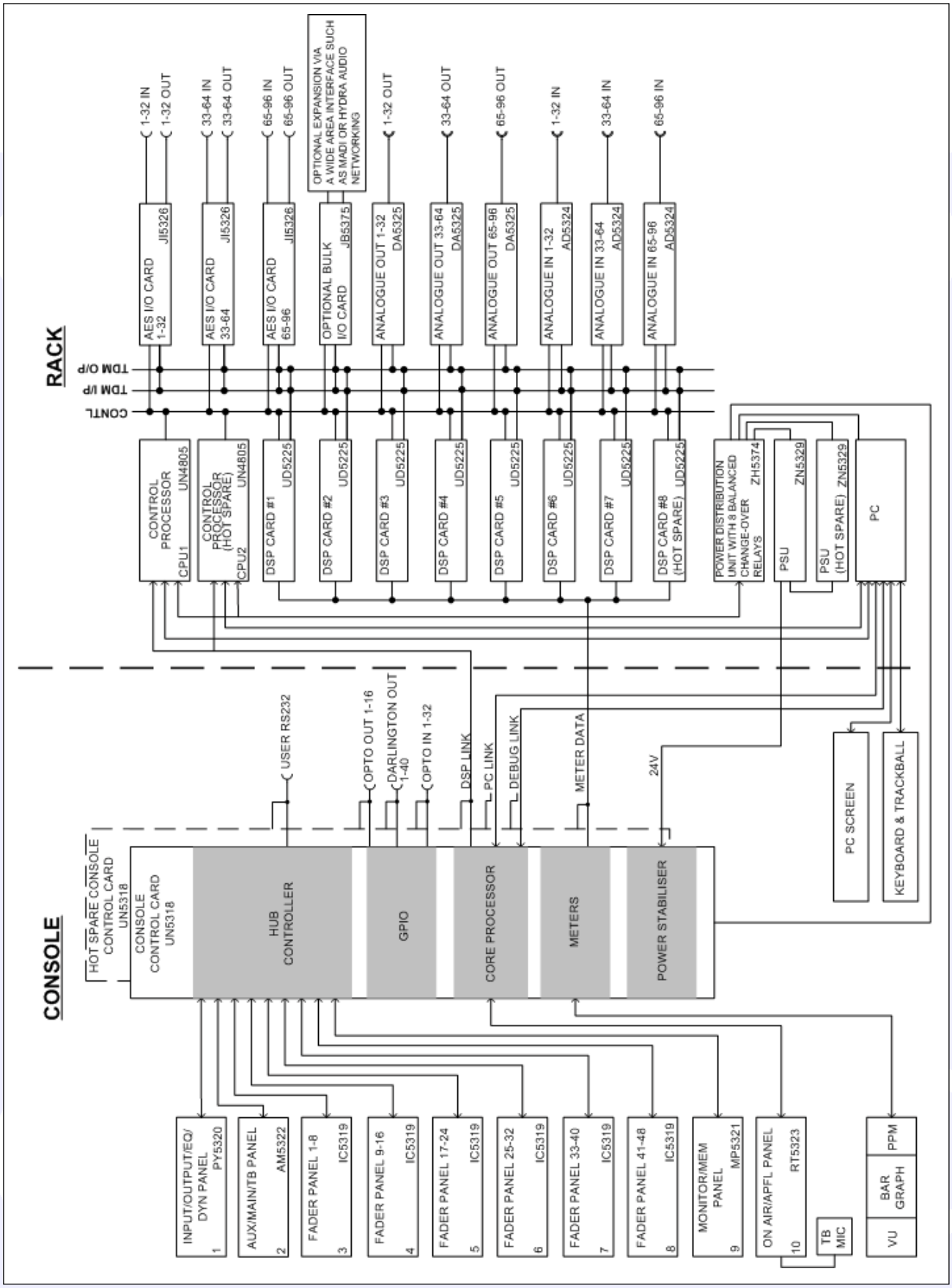
## SYSTEM OVERVIEW

- Available in three frame sizes, 24F 32F and 48F.
- 96 equivalent channels (up to 32 Stereo/Mono plus 24 Mono Channels, or 48 Stereo).
- Table-top or floor stand mounting.
- Desk operates independently of PC, and PC failure has no effect on audio or control.
- Independent DSP operation ensures audio continuity even during PC or control reset.
- Console & racks boot from power on in less than 20 seconds.
- Full control system reset in less than 15 seconds.
- Last settings fully restored on power-up or re-set.
- Automatic change over to hot spares for PSU's, Control cards and DSP cards.
- Hot plugging of every card and module.
- Hot plugged cards initialise upon insertion.



## TYPICAL SYSTEM DIAGRAM

The diagram below shows a typical Zeta 100 system.



## SYSTEM SPECIFICATION

| DIGITAL INPUTS | |
|---|---|
| Word Length | 24-Bit |
| Formats Supported | AES/EBU (AES3)<br>Also suitable for use with SPDIF (IEC958 Type 2) signals |
| Interface | 110 Ohm transformer balanced<br>75 Ohm unbalanced (BNC) |
| Sample Rate Conversion | 24-Bit switchable on all digital inputs |
| SRC THD+N | -117dB @ 1kHz, 0.00014% |
| **DIGITAL OUTPUTS** | |
| Word Lenght | 24-Bit |
| Formats Supported | AES/EBU (AES3) |
| Interface | Transformer balanced 4V Pk-Pk (nominal) into 110 Ohm load<br>Unbalanced 1V Pk-Pk (nominal) into 75 Ohm load (BNC) |

| ANALOGUE INPUTS | |
|---|---|
| Analogue - Digital Conversion | 24-Bit |
| Input Balance | Electronically Balanced - Better than -80dB |
| Input Impedance | >1kOhms for Mic gains, 10k Ohms for line gains |
| Sensitivity | +18 / -78dB |
| Equivalent Input Noise | -125dB (150 Ohm source, 22Hz-22kHz bandwidth) |
| Distortion | -1dBFS @ 1kHz - Better than 0.006%<br>-20dBFS @ 1kHz - Better than 0.004%<br>-60dBFS @ 1kHz - Better than 0.3% |
| Frequency Response | 20Hz to 20kHz +/- 0.5dB |
| **ANALOGUE OUTPUTS** | |
| Digital - Analogue Conversion | 24-Bit |
| Output Balance | Electronically Balanced, 20Hz to 20kHz, Better than -45dB, typically -55dB |
| Output Impedance | <40 Ohms |
| Distortion | -1dBFS @ 1kHz - Better than 0.003%<br>-20dBFS @ 1kHz - Better than 0.006%<br>-60dBFS @ 1kHz - Better than 0.5% |
| Frequency Response | 20Hz to 20kHz +/- 0.25dB |

- Analogue input for 0dBFS can be pre-set globally to +28, +24, +22, +20, +18 or +15 dBu
- Pre-fader headroom on analogue inputs is adjustable globally from +24 to +36dB in 2dB steps
- Analogue output for 0dBFS Matches input setting into >1kOhms (+24dBu max into 600 Ohms)

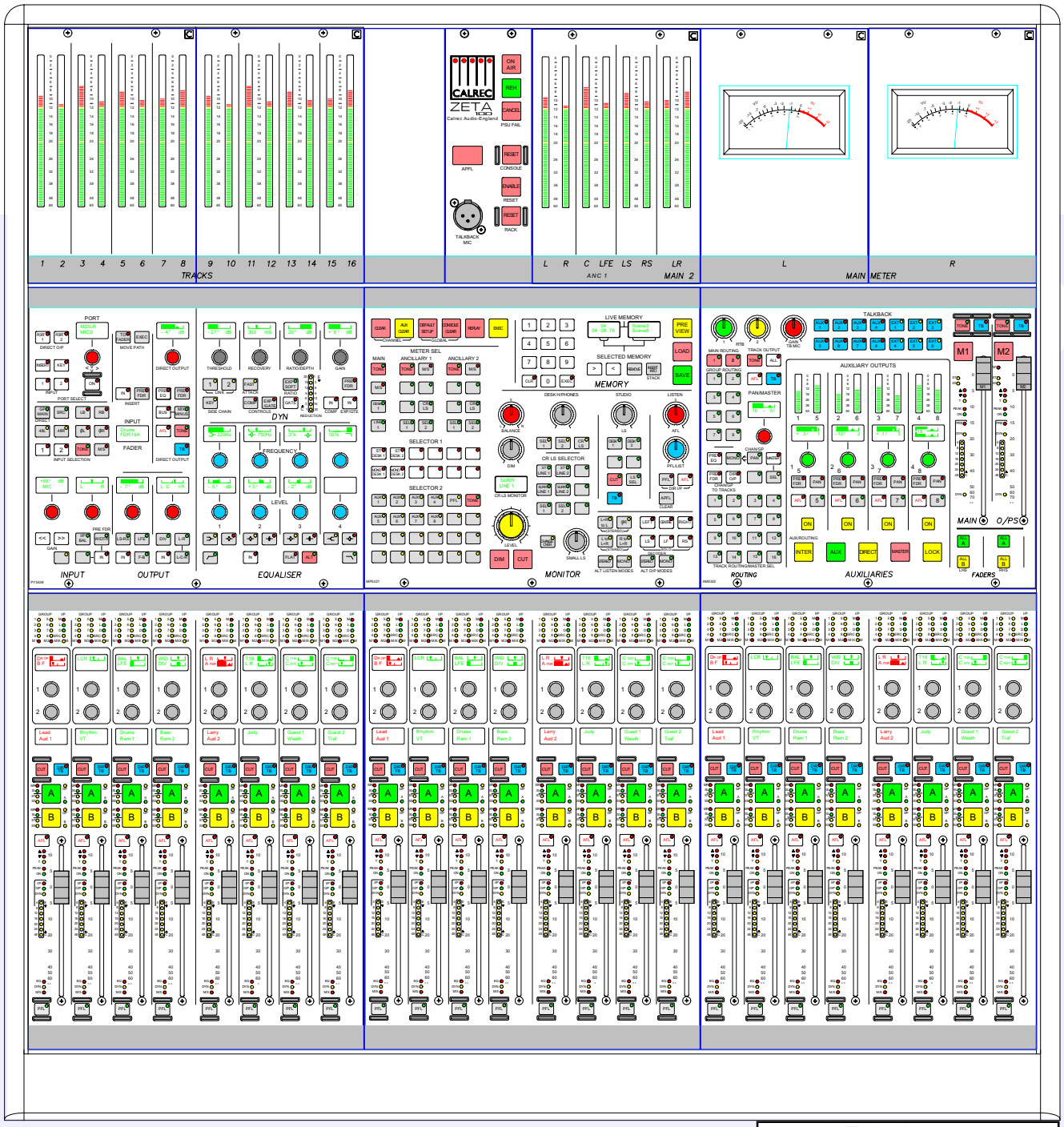
| PERFORMANCE | |
|---|---|
| Digital to Digital (AES/EBU) Distortion | -1dBFS, 20Hz to 10kHz - Better than 0.002% |
| Digital to Digital (with SRC) Distortion | -1dBFS, 20Hz to 10kHz - Better than 0.005% |
| Frequency Response (Analogue Input to Output) | 20Hz to 20kHz +/- 0.5dB |
| **SYNCHRONISATION** | |
| 48kHz synchronisation from | NTSC/PAL Video<br>Internal Crystal Reference<br>TTL Wordclock<br>AES/EBU Digital Input |

| ENVIRONMENTAL CONSIDERATIONS | | |
|---|---|---|
| | **Operating** | **Non-Operating** |
| Temperature Range | 0°C to +30°C (32°F to +86°F) | -20°C to +60°C (-4°F to +140°F) |
| Relative Humidity | 25% to 80% Non-condensing | 0% to 90% Non-condensing |
| Maximum Altitude | 2,000 Metres (6500ft)* | 15,000 Metres (49,000ft) |

* This is the limit to which the safety tests are valid

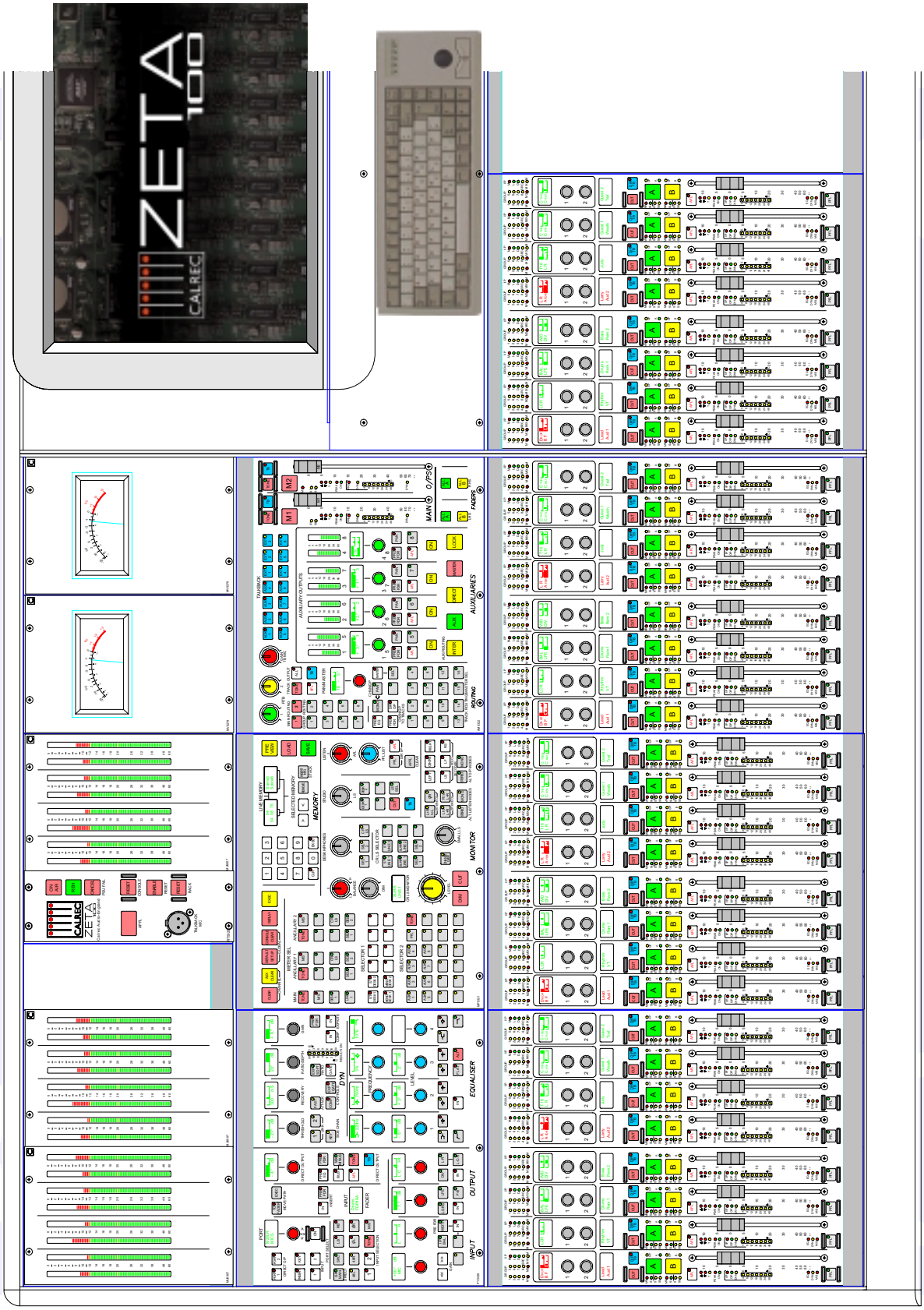
# Frame Options and Dimensions

## 24 FADER FRAME TYPICAL LAYOUT



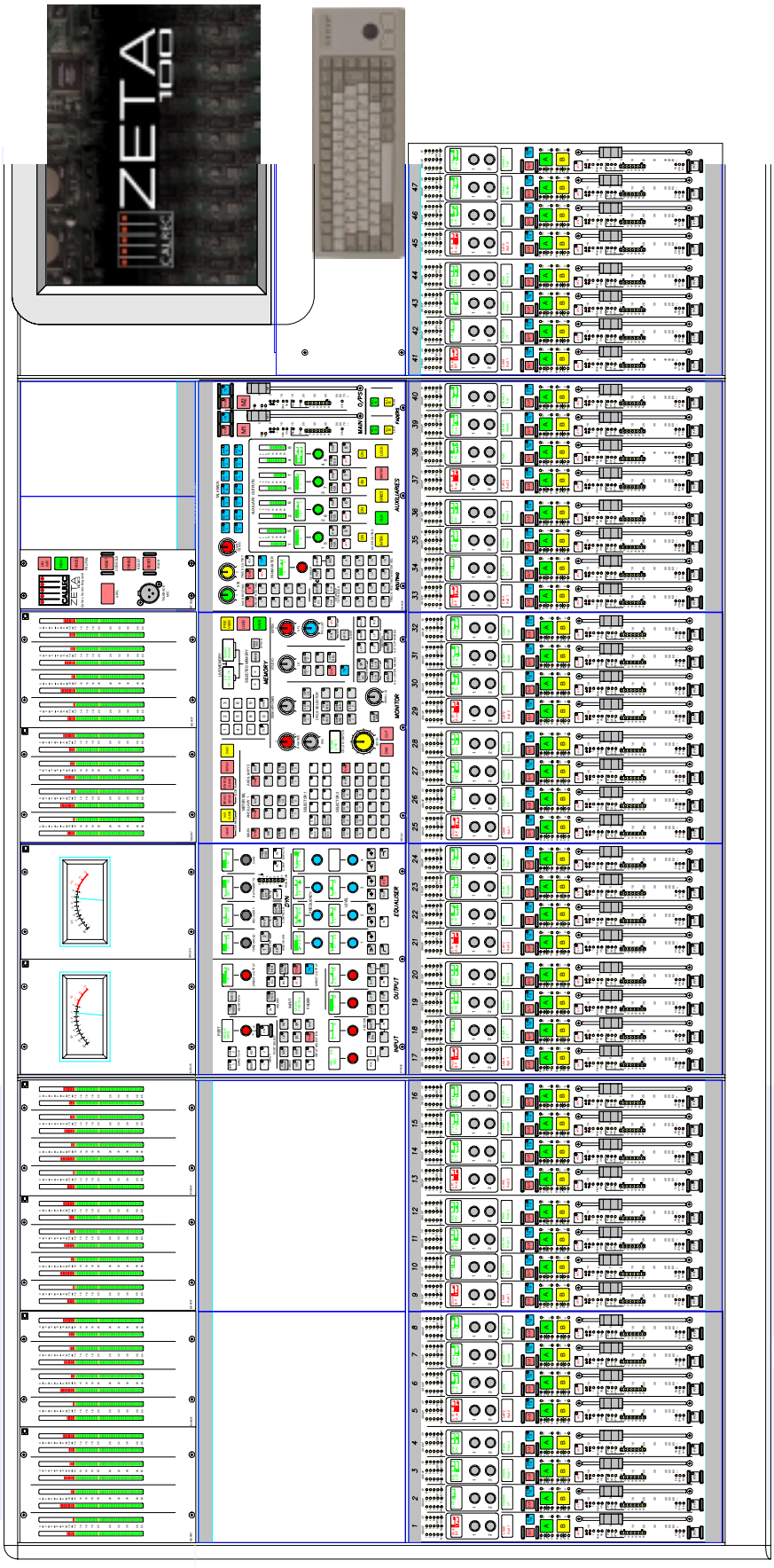

The smallest frame houses up to 24 faders, which allows up to 48 “Channel Faders” within a frame only 784mm (30.9 inches) wide. Due to it’s compact size, the colour touch screen, key-board and trackerball need to be housed seperately.

## 32 FADER FRAME TYPICAL LAYOUT




The Medium sized frame houses up to 32 faders, which allows up to 64 “Channel Faders” within a frame only 1290mm (50.8 inches) wide.

## 48 FADER FRAME TYPICAL LAYOUT

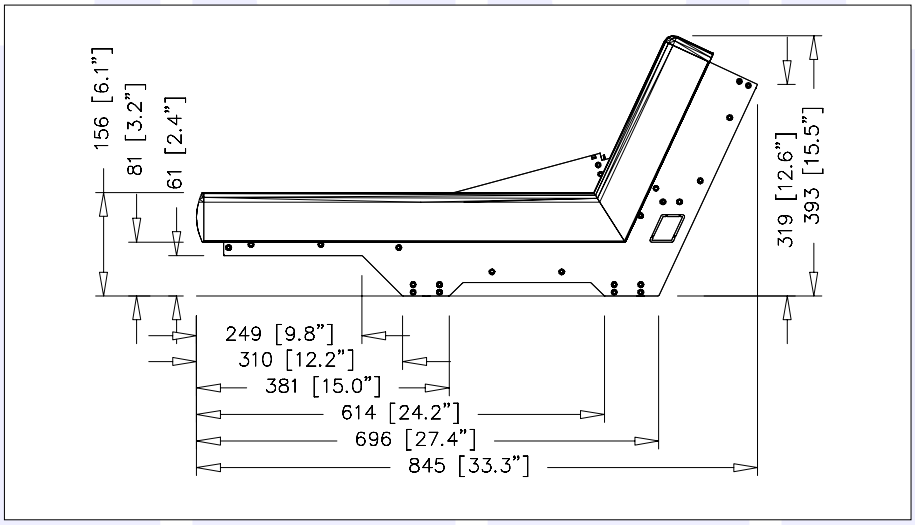


The largest frame houses up to 48 faders (the maximum number possible), which allows up to 96 “Channel Faders” within a frame only 1796mm (70.7 inches) wide.

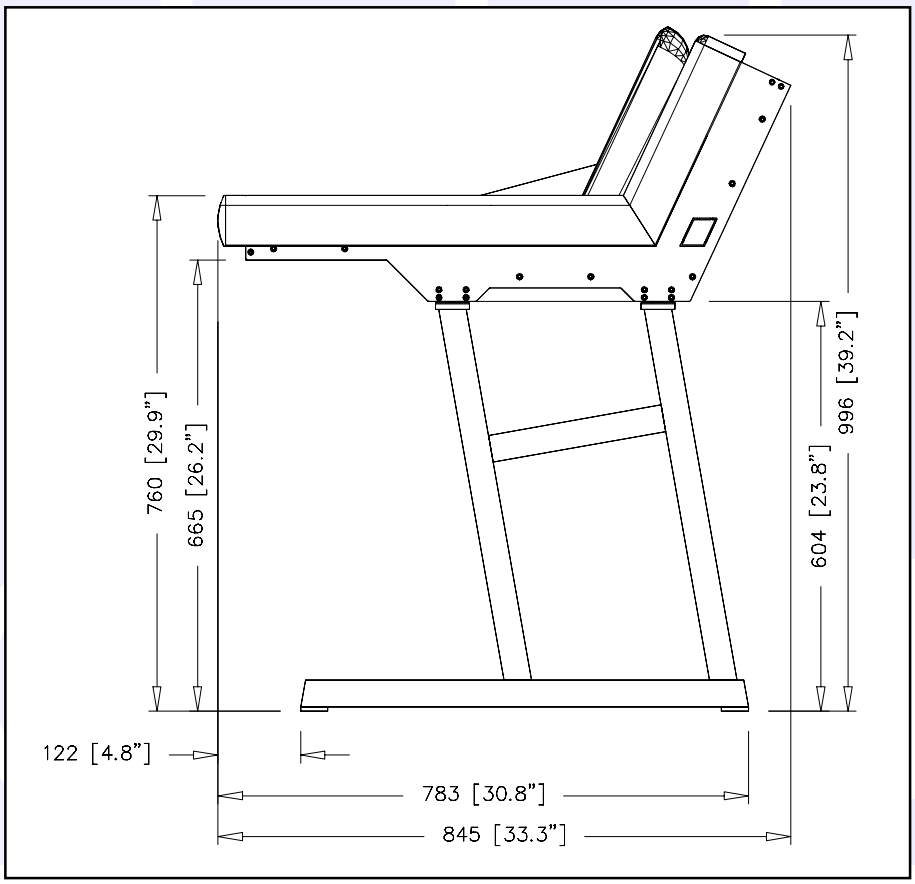
## CONSOLE PLAN DIMENSIONS

| Frame Size with average module population | Length | | Depth | |
|---|---|---|---|---|
| | inches | mm | inches | mm |
| 24 Fader Frame | 30.9 | 784 | 33.3 | 845 |
| 32 Fader Frame | 50.8 | 1290 | 33.3 | 845 |
| 48 Fader Frame | 70.7 | 1796 | 33.3 | 845 |

## END ELEVATION DIMENSIONS




The end profile is the same for all three frame sizes.

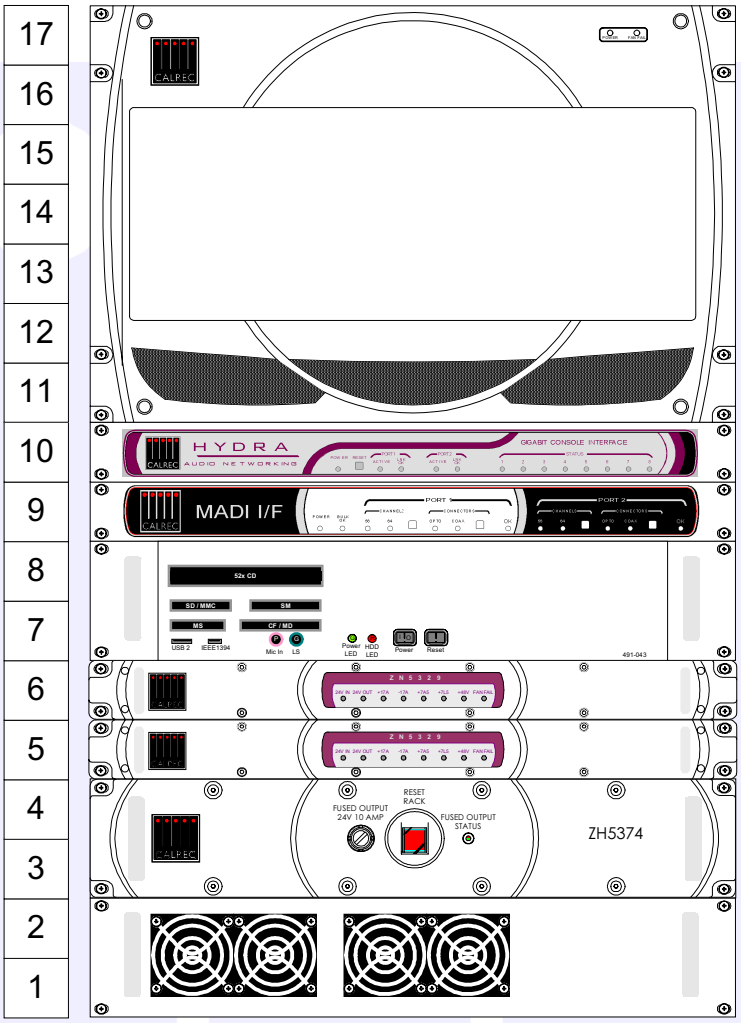



An optional floor stand is available.

# Equipment Installation Information

## RACK SPECIFICATIONS

The company recommends that all equipment over 8Kg (17.5 lbs) in weight, or over 150mm (6 inches) deep is mounted into equipment bays which offer mechanical supports under each of the units. This will allow units to be supported as they slide forward during removal for maintenance purposes.




PROCESSING RACK (CONTAINS ALL I-O, DSP AND CONTROL PROCESSING HARDWARE)

OPTIONAL HYDRA GIGABIT INTERFACE UNIT

OPTIONAL MADI INTERFACE UNIT

PC

MULTI-RAIL PSU #1

MULTI-RAIL PSU #2 (OPTIONAL HOT SPARE)

POWER MONITORING AND DISTRIBUTION UNIT

BULK PSU

(3048-21)

| Item | Height | Approx depth (incl. mating cons) | | Approx weight | | Approx Power Output (W) (full load) | Approx AC Power (VA) (full load) |
|---|---|---|---|---|---|---|---|
| | | inches | mm | lbs | kgs | | |
| Processing Rack (Unpopulated) | 7U | 19.7 | 500 | 29.5 | 13.4 | - | - |
| Processing Rack (Populated) | 7U | 19.7 | 500 | 53.2 | 24.2 | - | - |
| Bulk PSU rack with one PSU* | 2U | 18.5 | 470 | 17.5 | 8 | 1000 | 1250 |
| Multi-Rail PSU * (24V DC I/P - Fed from Bulk PSU) | 1U | 18.1 | 460 | 25 | 11.4 | - | - |
| Power for Hot spare (any type) | - | - | - | - | - | No extra | Less than 5% extra |
| PSU Monitor & Distribution box * | 2U | 19.1 | 485 | 11.5 | 5.2 | - | - |
| PC* | 2U | 23.7 | 600 | 27 | 12.2 | - | 400 |
| MADI Unit | 1U | 11.9 | 300 | 6.6 | 3 | - | - |
| Hydra Gigabit Interface Unit | 1U | 10.4 | 265 | 5.5 | 2.6 | - | - |

* Note: Unit has handles protruding approx 1.3” (32mm) from the surface of the front panel.

## 7U MAIN PROCESSING RACK

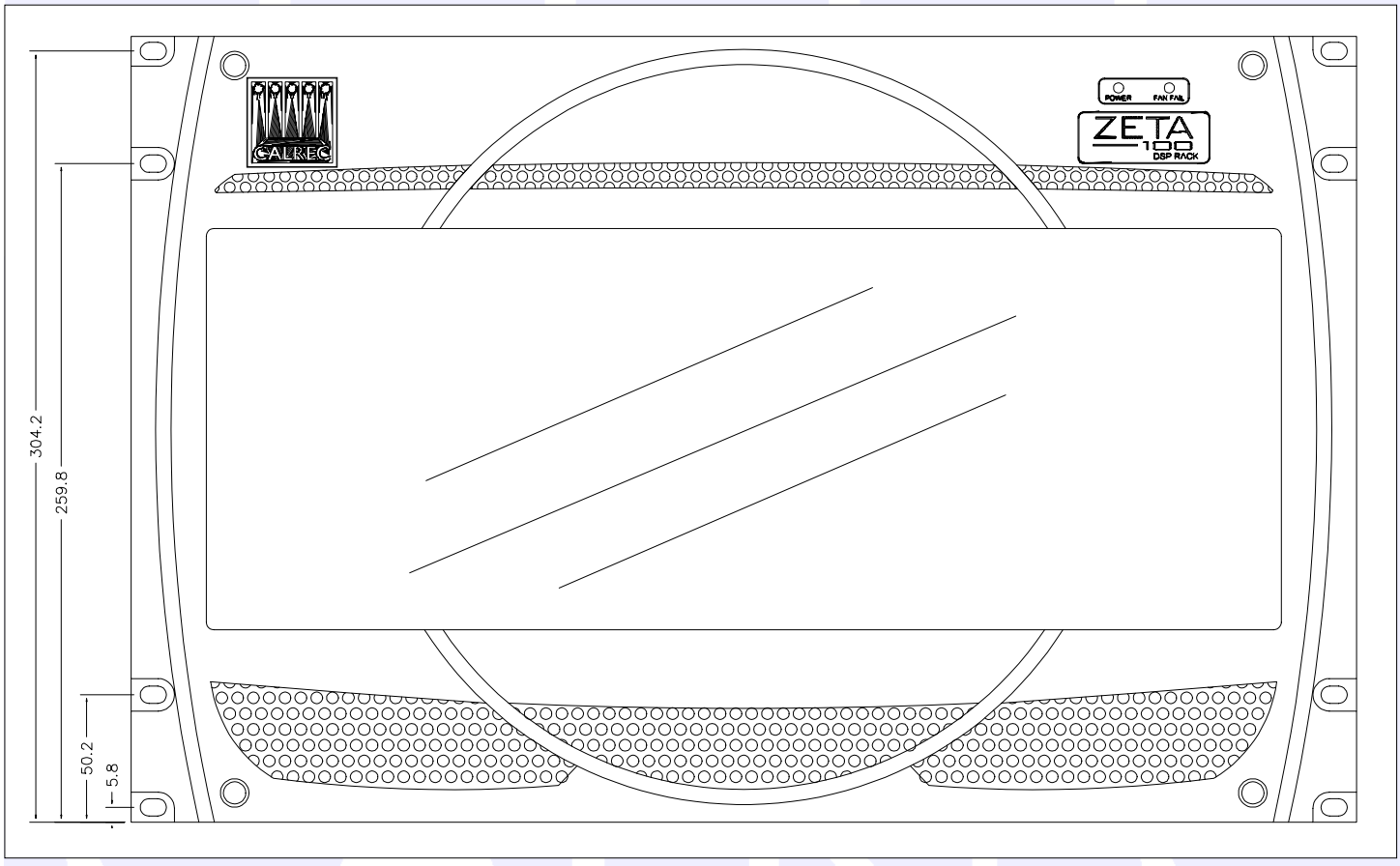
The Processing rack houses all the DSP, I/O and control cards for the Zeta 100 system. There are:

- 8 Slots for DSP Cards
- 2 Slots for Processor Cards
- 3 Slots for ADC (Analogue Input) Cards
- 3 slots for DAC (Analogue Output) Cards
- 4 Slots for either AES I/O cards or Wide Area Bulk Cards

Incorporated into the rack is a built-in low noise fan tray, situated above the processing area. The fan tray incorporates a baffle such that warm air is drawn out of the rack and out through the rear of the fan tray.

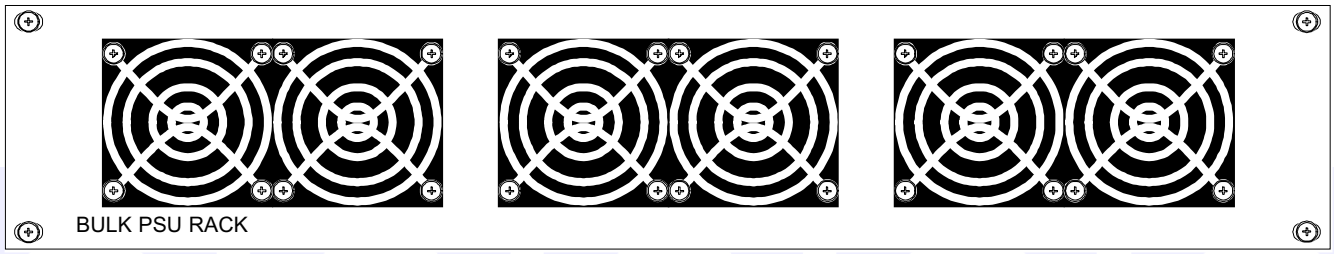
### Mounting Instructions

This unit/s should be secured into the front of the bay by the four fixing holes in each of the two front angles. The unit/s should always be mounted in a horizontal position. The unit must be located into an equipment bay which offers mechanical support underneath the unit. The rack must not be supported by the front flanges alone. A drawing showing the fixing hole positions is shown below.



## BULK PSU

All PSU's are rack mounting and are separate from the units they power, except for the PC which has its PSU built in. Diode feeding allows supplies of the same type to be parallelled together.




The Bulk PSU Rack is a 2U rack which can hold up to three identical plug-in PSU's. The rack has separate AC power inputs and DC outputs for each of the three PSU's. Any one PSU can be removed from the rack without disturbing the operation of the others in the rack. Generally, one PSU in this rack is sufficient to power the control surface and digital rack components in a standard system, an optional second PSU in the rack can act as a hot spare. The rack is fan cooled with fans mounted in the front of each PSU. The warm air is directed out of the rear of the rack. To ensure proper cooling, there must be a minimum clearance of two inches (50mm) from the fans and rear air outlets, and also any walls or other surfaces.

### Mounting

This power system should be mounted by means of the side brackets, each of which has two mounting holes. The power system rack should always be mounted in a horizontal position. The rear mounting brackets should be used when no support is provided under the rack assembly. The rack should not be supported by front flanges alone. The rear mounting brackets fix to the rear of the studio equipment bay. Extensions of the rack sides slot into these rear supports, allowing the PSU rack to be removed without removing the support.

### Cooling

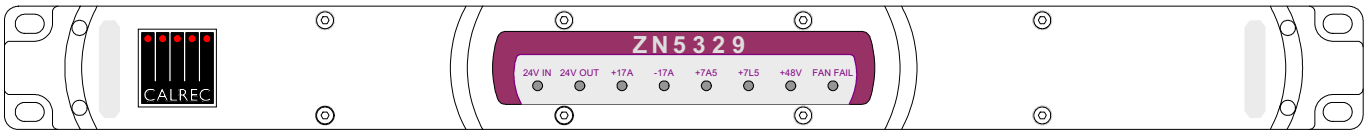
Each of the plug-in power modules has it's own cooling fan. To ensure proper cooling, the power system requires a minimum clearance of two inches (50mm) from the fans and rear air outlets, and also any walls or other surfaces.

### Input Power Connections

Three 3-wire safety AC outlet sockets should be located near the power system and should be easily accessible. Each line cord will provide mains power to one of the power supply modules. The AC line cord is the mains disconnect for each module. The AC line cords should have an IEC320 connector to plug into the rear of the power system chassis. Each line cord MUST be suitably rated and FUSED (or have an equivalently rated circuit breaker). For 230V mains, the rating is10A for the line cords and breakers. For 115V mains, the rating is 15A, (line cords are known as SVT or SJT type).

Do not remove the ground conductor. The ground conductor is connected to safety ground to minimize electrical shock hazard and ensure low EMI (electromagnetic interference). The grounding lug, located on the rear panel, is abonding for connection of the chassis to other system chassis assemblies. Safety grounding is provided via ground connections in the line cord entry receptacles.

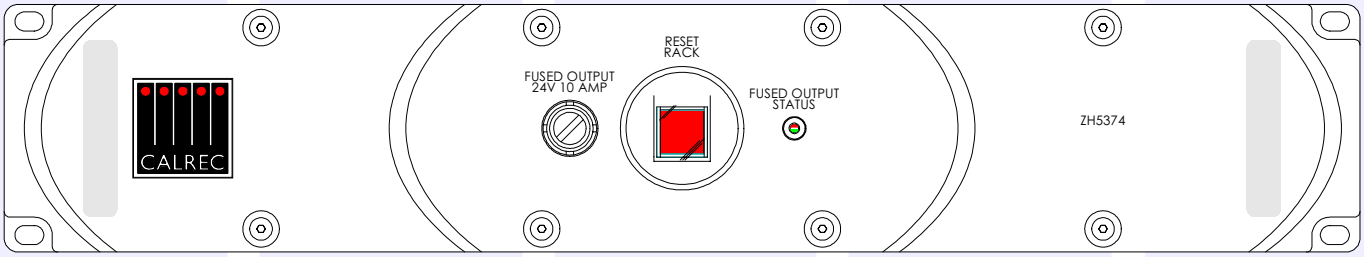
## MULTI-RAIL PSU




The analogue components in the system use a different 1U Multi-Rail PSU. The number of PSU's required will depend on the type of installation. The Multi-Rail PSU is also fan cooled but uses a very low noise fan, drawing air from side to side through the PSU instead of in from the front, to minimise noise. The Multi-Rail PSU's are fitted with rear flanges to allow the rear of the PSU to be bolted to the studio equipment bay. All hot spare PSU's are optional.

This unit should be secured into the front of the bay by the two standard fixing holes in each of the two 2RU front angles. The unit should always be mounted in a horizontal position. Rear flanges are fitted to allow the rear of the unit to be securely fastened to the back of the equipment bay. If rear fixing points are not available, the unit must be located into an equipment bay which offers mechanical support from underneath. The PSU must not be supported by the front flanges alone.

## PSU MONITORING AND DISTRIBUTION UNIT




The Power Monitoring and Distribution rack performs many functions. It monitors the power supplies for failures, and ensures "hot" changeover to the spare should there develop a fault. In addition to connections for power combining and distribution, the module includes:

- A front-mounted rack reset button.
- 8 x changeover relays intended for switching balanced talkback audio.
- 2 x RS422 to RS232 converters to interface the rack control processors to the PC.
- Opto-isolated fan fail and PSU fail inputs.

The Reset button reboots the racks only, the control surface is unaffected.
**PLEASE NOTE:** Resetting the racks will result in a brief audio interruption.

This unit should be secured into the front of the bay by the two standard fixing holes in each of the two 2RU front angles. The unit/s should always be mounted in a horizontal position. It is recommended that the rack is not be supported by the front flanges alone.

## EARTHING & AC (MAINS) POWER

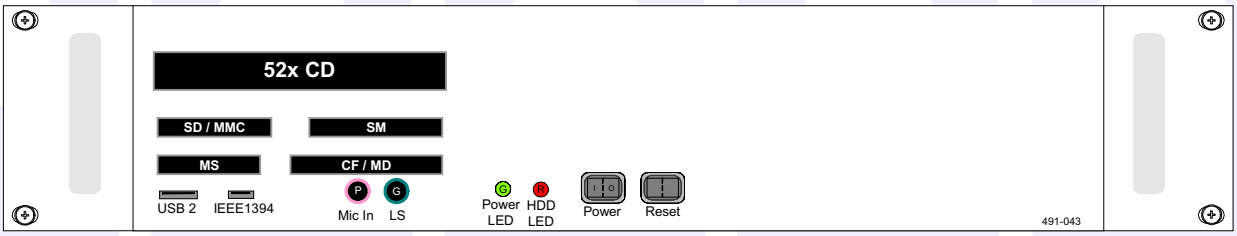
The Control Surface and Processing rack are provided with Chassis Earth studs. These must be connected to a common earth buss before any AC power is applied to the system. The system Power Supplies and PC are earthed via their AC power inlets.

AC (Mains) Power inlets are IEC type. Each PSU in the Bulk PSU racks has one inlet, the PC has one inlet, and there is one inlet on the rear of the control surface, for any AC powered equipment which needs to be housed within it. The whole system must be powered from the same phase of the AC power supply.

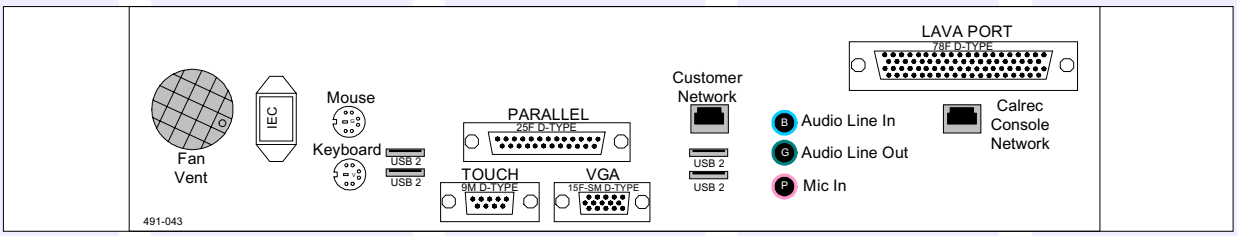
## PC INFORMATION

| | |
|---|---|
| **Operating System** | Windows 2000 |
| **CPU** | Intel Celeron Processor (2GHz) |
| **RAM** | 256 MB DDR RAM |
| **HDD** | 40GB |
| **CD ROM** | 52x |
| **Network Ports** | 2 x 10/100 |
| **Card Slots** | Compact Flash/Microdrive, SmartMedia, Memory Stick, Secure Digital/Multimedia Card |
| **USB 2 Ports** | 4 (Rear of Unit), 1 (Front of Unit) |
| **IEEE1394 Port** | 1 (Front of Unit) |
| **Additional Hardware** | Lava Octopus 8 Port Serial Card |
| **Additional Software** | PC Antywhere |

Front




Rear




### Mounting Instructions

The PC should be mounted by means of the side brackets, each of which has two mounting holes. The PC rack should always be mounted in a horizontal position. The sliders should be used when no support is provided under the PC assembly. The PCshould not be supported by front flanges alone. Failure to follow these instructions may invalidate the warranty. The PC is earthed via it's AC power inlet.

### Remote Access

USB connectors are provided on both the front & the rear of the PC for the option to add an external modem of your choice. If a modem is added, and a suitable telephone line installed, the console can be remotely accessed by Calrec Support Engineers to aid software upgrades and diagnostic work. This can greatly enhance the level of service and support we can provide. A dial-up facility must first be activated at the PC before this is possible, to ensure that connections are not made at inappropriate times or without the user's knowledge and consent.

### Network Ports

A network port is provided to enable the user to connect to their own LAN. Calrec will not be responsible for the configuration of this port or for any performance issues arising from its use.
A second Ethernet port is provided to enable the PC to be connected to a Calrec Hydra Audio Network, which is an option which can either be purchased with the console or in the future.

### Software Supplied

An OEM PC Operating System license is supplied with each console, and the operating system software is pre-installed. The Zeta 100 console software is also pre-installed, and supplied on a CD-ROM.

### 3rd Party Software

Calrec recommends that the PC is regarded as an integral control device for the console, and not as a general purpose PC. If 3rd party software is installed on the PC, care must always be taken to ensure that it does not interfere with the normal performance of the PC. The installation of inappropriate software on the PC may invalidate the console warranty.

### Usernames and Passwords

The PC will be set up with two sets of usernames and passwords:

| Username | Password | Description |
|---|---|---|
| CalrecAudio | (None) | This user can install and run programs, but not change PC hardware settings, (i.e. set-up network, install drivers). This user is intended to be used during normal operation of the PC. |
| CalrecAudioAdmin | calrec | This user has full rights to the PC, and can install and change PC hardware settings. This user is intended for use during re-configuration of the PC and to set up Hydra Audio Networking. |

### File Backup

A number of flash card slots are provided on the front of the PC for file backup. In addition, backup could also be to a customer's LAN or to a USB device which can be plugged into the front or rear of the PC. It is recommended that the following files are backed up in case of PC failure:

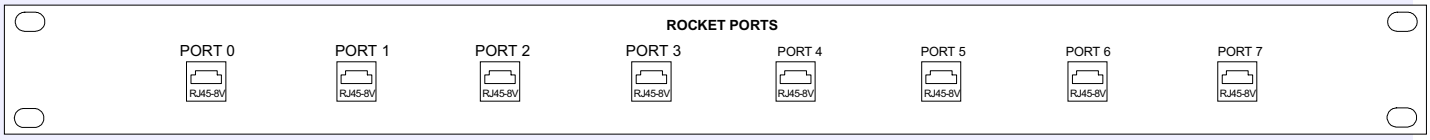
| File | Location |
|---|---|
| Config.ini | C:\Alpha 100\cust1 |
| Setup.ini | C:\Alpha 100\cust1 |
| a100fe1.ini | C:\Alpha 100\cust1 |
| Options.bin | C:\Alpha 100\cust1\options |
| Alphaprg.ini | C:\Alpha 100\alphaprg |

For Hydra Netork users, it is advisable to back up the Network folder, found on **c:alpha100/cust1.**

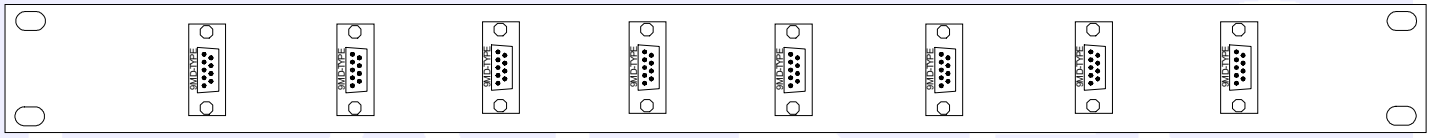
It is also advisable to back up any user memories (.mem) created and saved onto the PC's hard drive. These will be found on **c:alpha100/cust1/memories.**

### RS232/RS422 INTERFACE PANEL

Front



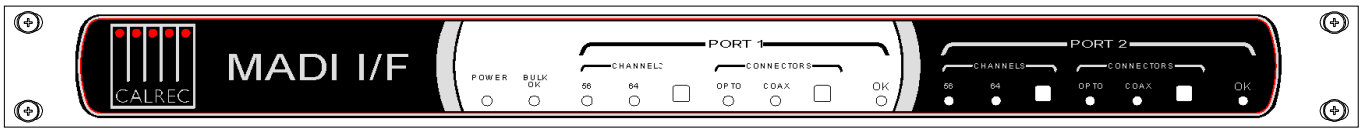

Rear




This unit/s should be secured into the rear of the bay by the two standard fixing holes in each of the two 1RU front angles.

## OPTIONAL WIDE AREA INTERFACES

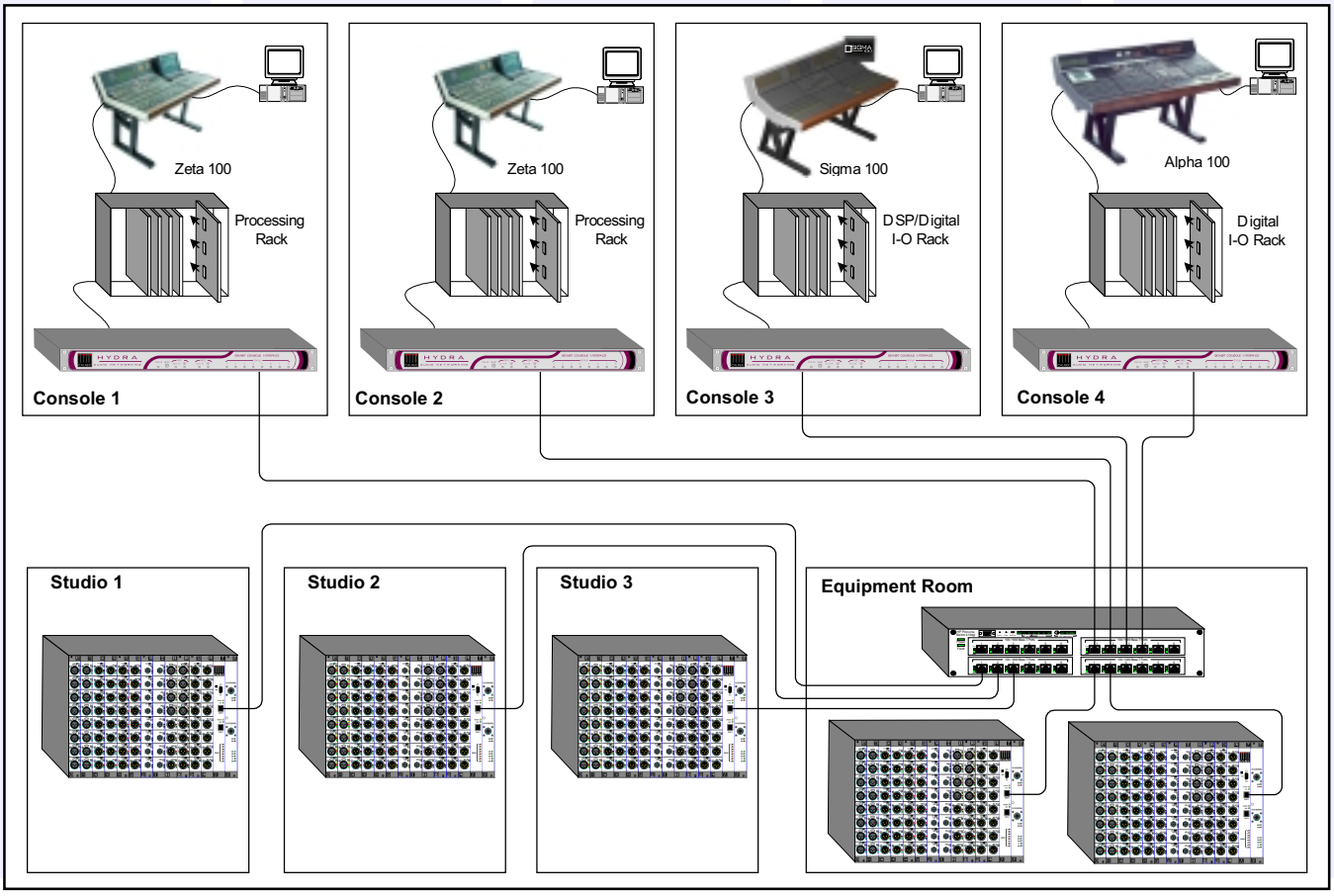
MADI




The rack mounted MADI Interface unit contains two independent, AES10 MADI compatible interfaces, and is available as an option. The two ports are interfaced to the Zeta 100 system via a Wide Area Bulk (WAB) card, which occupies one of the bulk card slots in the Processing Rack. Each MADI interface can operate in either 56 or 64 channel mode and can transmit over a coaxial AND optical medium and receive over a coaxial OR optical medium. A switch allows receiver selection. Sample Rate Conversion is not available on MADI inputs or outputs, therefore all equipment connected via MADI must be synchronised to the same source as the console.

HYDRA AUDIO NETWORKING

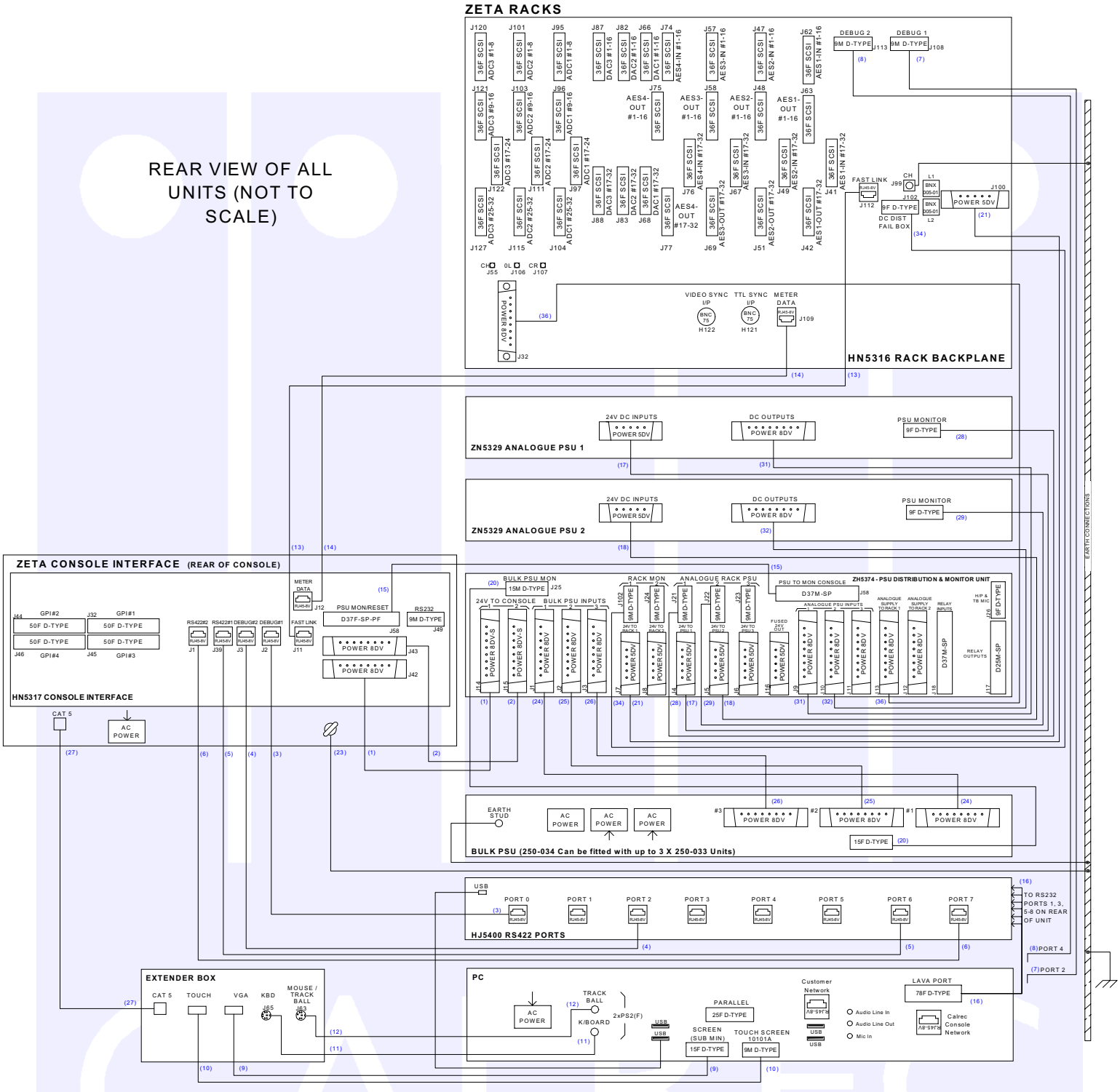

The Hydra Audio Networking System provides a powerful network for sharing of I/O resources and control data between Calrec digital consoles. Remote I/O units, with up to 96 inputs/outputs, analogue or digital, may be connected onto the network, providing remotely located sources and destinations that can be used by any or all mixing consoles. Gigabit ethernet fabric is used as it is by far the highest speed network fabric commonly available.



# Wiring and Cabling Information

## CONSOLE AND RACK WIRING DIAGRAM

This diagram shows the rear of all units and how they are connected together. Please refer to the wiring schedule and the maximum cable lengths table on the next page for connection details.



## CONSOLE AND RACK WIRING SCHEDULE

| CABLE No | FROM | CONN. | CONN. TYPE | TO | CONN. | CONN. TYPE | CIRCUIT |
|---|---|---|---|---|---|---|---|
| 1 | ZH52374 | J14 | 8way D (M) | HN5317 | J42 | 8way D(F) | Console DC pwr 1 |
| 2 | ZH52374 | J15 | 8way D (M) | HN5317 | J43 | 8way D(F) | Console DC pwr 2 |
| 3 | HJ5400 | PORT #0 | RJ45 | HN5317 | J2 | RJ45 | Console debug 1 |
| 4 | HJ5400 | PORT #2 | RJ45 | HN5317 | J3 | RJ45 | Console debug 2 |
| 5 | HJ5400 | PORT #6 | RJ45 | HN5317 | J39 | RJ45 | Console RS422-1 |
| 6 | HJ5400 | PORT #7 | RJ45 | HN5317 | J1 | RJ45 | Console RS422-2 |
| 7 | PC | LAVA PORT #2 | 9way D(F) | HN5316 | 9way D(F) | 420-746 | Rack debug 1 |
| 8 | PC | LAVA PORT #4 | 9way D(F) | HN5316 | 9way D(F) | 420-746 | Rack debug 2 |
| 9 | PC | SCREEN | 15way HDD(M) | Scrn Repeater | VGA | 15way HDD(M) | Console screen |
| 10 | PC | 10101A | 9way D(F) | Scrn Repeater | Touch | 9way D(M) | C.Touch Screen |
| 11 | PC | KBD | PS2 | Scrn Repeater | Keyboard | PS2 | Console keyboard |
| 12 | PC | MOUSE | PS2 | Scrn Repeater | Mouse | PS2 | Console trackball |
| 13 | HN5316 | J112 | RJ45 | HN5317 | J11 | RJ45 | C.RS422 FAST |
| 14 | HN5316 | J109 | RJ45 | HN5317 | J12 | RJ45 | C.Meter Data |
| 15 | ZH5374 | J58 | 37way D(M) | HN5317 | J58 | 37way D(F) | Console PSU fail |
| 16 | HJ5400 (REAR) | PORTS 1, 3, 5-8 | 6x9way D(M) | PC | LAVA PORT | 78way HDD(F) | LAVA PORT Lead |
| 17 | ZH52374 | J4 | 5way D(M) | ZN5329 #1 | 24V DC I/P | 5way D(F) | 24V To Analogue PSU1 |
| 18 | ZH52374 | J5 | 5way D(M) | ZN5329 #2 | 24V DC I/P | 5way D(F) | 24V To Analogue PSU2 |
| 19 (Not Shown) | ZH52374 | J6 | 5way D(M) | ZN5329 #3 | 24V DC I/P | 5way D(F) | 24V To Analogue PSU3 |
| 20 | Bulk PSU | D1 | 15way D(M) | ZH5374 | J25 | 15way D(F) | Racks PSU mon |
| 21 | ZH52374 | O/P 1 | 5way D(M) | HN5316 | J100 | 5way D(F) | 24V to Rack |
| 23 | Eqpt Bay | | | Console | | | System Earth |
| 24 | Bulk PSU | O/P 1 | 8way D(M) | ZH5374 | J1 | 8way D(F) | Bulk Output 1 |
| 25 | Bulk PSU | O/P 2 | 8way D(M) | ZH5374 | J2 | 8way D(F) | Bulk Output 2 |
| 26 | Bulk PSU | O/P 3 | 8way D(M) | ZH5374 | J3 | 8way D(F) | Bulk Output 3 |
| 27 | PC Extender | Cat 5 | RJ45 | PC Extender | Cat 5 | RJ45 | PC Extender CAT 5 |
| 28 | ZN5329 #1 | PSU MON | 9way D(M) | ZH5374 | J21 | 9way D(F) | PSU fail |
| 29 | ZN5329 #2 | PSU MON | 9way D(M) | ZH5374 | J22 | 9way D(F) | PSU fail |
| 30 (Not Shown) | ZN5329 #3 | PSU MON | 9way D(M) | ZH5374 | J23 | 9way D(F) | PSU fail |
| 31 | ZN5329 #1 | O/P 1 | 8way D(M) | ZH5374 | J9 | 8way D(F) | Analogue PSU1 |
| 32 | ZN5329 #2 | O/P 2 | 8way D(M) | ZH5374 | J10 | 8way D(F) | Analogue PSU2 |
| 33 (Not Shown) | ZN5329 #3 | O/P 3 | 8way D(M) | ZH5374 | J11 | 8way D(F) | Analogue PSU3 |
| 34 | HN5316 | J102 | 9way D(M) | ZH5374 | J102 | 9way D(F) | Rack DC Mon |
| 36 | ZH52374 | J13 | 8way D(M) | HN5316 | J32 | 8way D(F) | Analogue to rack |

For systems with just one multi-rail PSU, cables 18,19, 29,30,32 and 33 are not fitted.
For systems with two multi-rail PSUs, cables 19, 30 and 33 are not fitted.
For systems with three multi-rail PSUs, all cables in the table are fitted.

## MAXIMUM CABLE LENGTHS

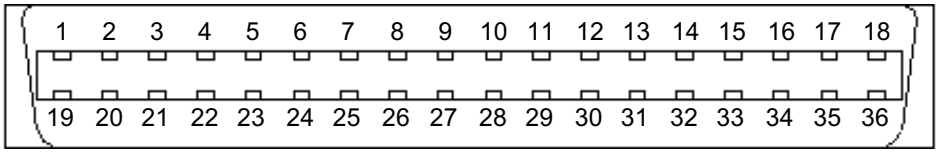
| Cables from | To | Maximum Length | |
|---|---|---|---|
| | | Feet | Metres |
| Control surface | PC | 500 | 150 |
| Control surface | Processing Rack | 500 | 150 |
| Control Surface * | Power Monitoring & Distribution Unit | 100 | 30 |
| Power Supplies | Power Monitoring & Distribution Unit | 16.5 | 5 |
| Processing Rack | Power Monitoring & Distribution Unit | 16.5 | 5 |
| Processing Rack | PC | 100 | 30 |
| Processing Rack | BNC/XLR I/O Interface Panels | 9.8 | 3 |
| Processing Rack | EDAC I/O Interface Panels | 9.8 | 3 |
| Processing Rack | MADI Unit | 16.5 | 5 |
| Processing Rack | Hydra Gigabit Interface Unit | 16.5 | 5 |

* For longer distances, the control surface requires a local power supply.

## SPECIFICATION FOR 36W SCSI STYLE CABLING

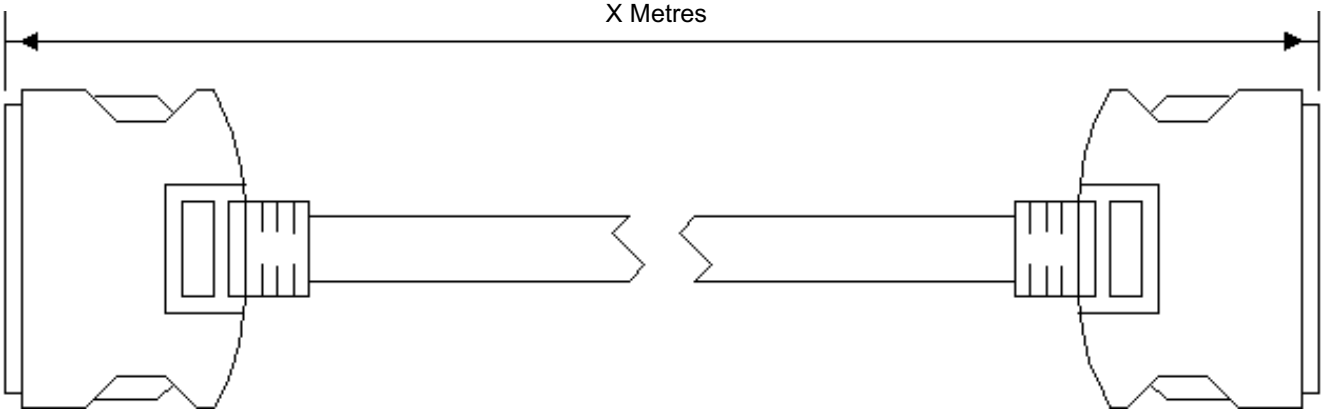
| CABLE PAIRS WIRED AS: |
|---|
| 1 . 19 |
| 2 . 20 |
| 3 . 21 |
| 4 . 22 |
| 5 . 23 |
| 6 . 24 |
| 7 . 25 |
| 8 . 26 |
| 9 . 27 |
| 10 . 28 |
| 11 . 29 |
| 12 . 30 |
| 13 . 31 |
| 14 . 32 |
| 15 . 33 |
| 16 . 34 |
| 17 . 35 |
| 18 . 36 |

FRONT VIEW OF MATING CONNECTOR




EITHER 3M 10236-55G3VC R/A THROUGH HOLE,
OR 3M 10236-2200VE VERTICAL SMT,
OR EQUIVALENTS

- ν 18 PAIR 28 AWG CABLE
- ν UL APPROVED MATERIALS
- ν FULLY SCREENED




36W MDR PLUG
3M10136-6000EL
OR EQUIVALENT

36W SHIELDED COVER
3M 103336-3210-00
OR EQUIVALENT

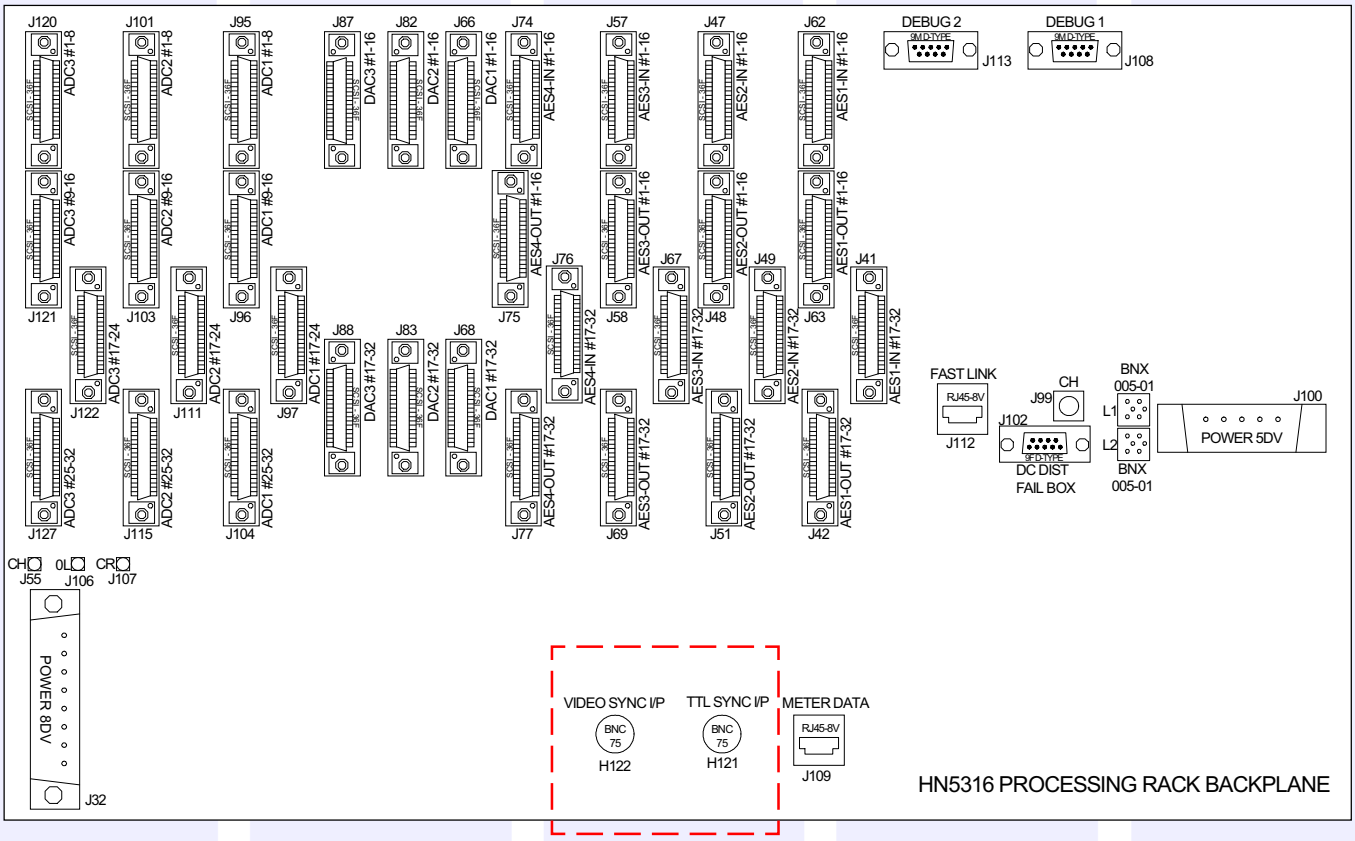
STOCK CODES

| | |
|---|---|
| 312-079 | 1M |
| 312-078 | 3M |
| 312-077 | 5M |

# External Connections

## SYNCHRONISATION

The system can be pre-set with up to five external sync sources, plus internal, such that if the 1st source fails, it will automatically switch to the 2nd, and so on. Please note that the facility for locking to external AES sources is restricted to the first six inputs of each AES card in the console. One of the external sources can be Video, (PAL or NTSC). TTL Wordclock is another possible external source. Synchronisation inputs for Video Sync (PAL or NTSC) and TTL Wordclock are provided on the rear of the Processing rack, on 75Ω BNC connectors.



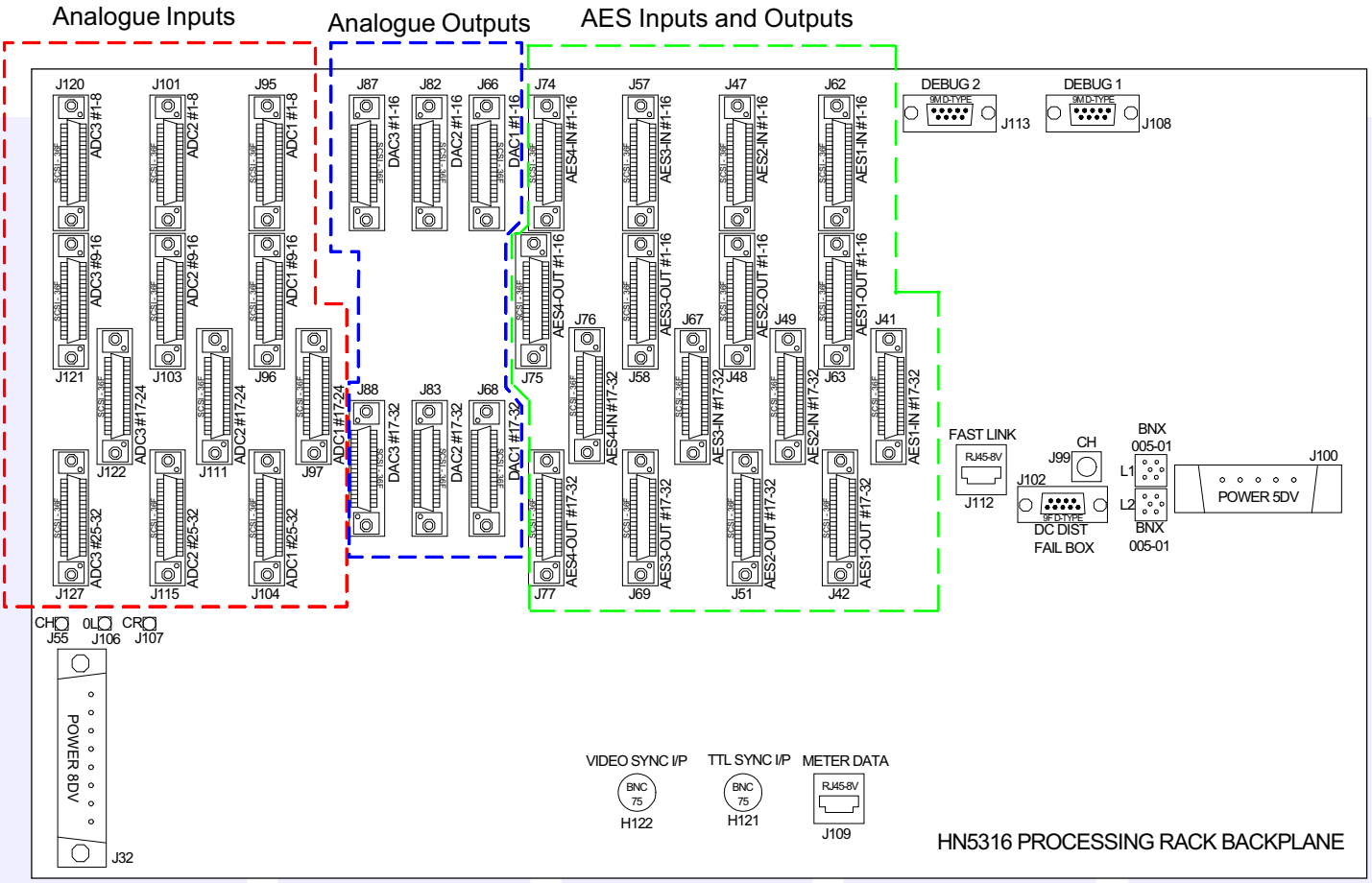

When using a digital input or wordclock as a source, the system will tolerate a variation of up to +/- 100 Hz in the frequency of the source. The console may also be synchronised from its internal crystal oscillator (48 kHz).

It is strongly recommended that all items of digital equipment connected digitally to the Zeta 100, are synchronised to the same sync signal.

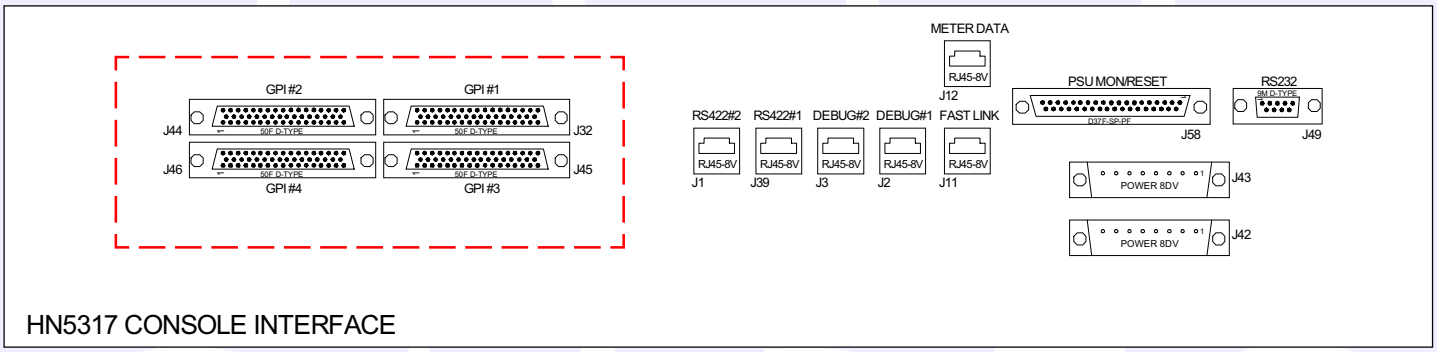
If the console's internal sync is to be the master, other digital equipment should be synchronised to the digital outputs of the console.

## AUDIO INPUTS AND OUTPUTS

All inputs and outputs are provided on 36 way female SCSI connectors on the rear of the Processing Rack. There are 4 pairs of analogue inputs per connector, and 8 pairs of analogue outputs per connector. There are 16 AES pairs of inputs or outputs per connector.




## GPIO




Connections to the GPIO are provided on 50 way female D-Type connectors on the rear of the console. 32 Opto inputs, 16 Opto outputs and 40 Darlington outputs are available.

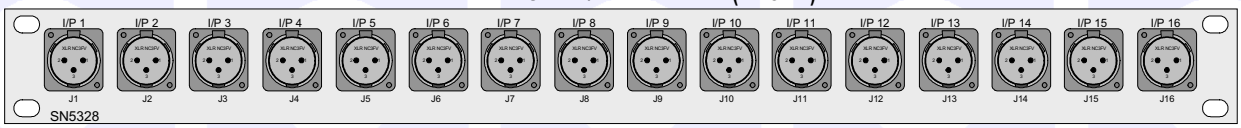
8 change over relays are also available on the rear of the Power Monitoring and Distribution Unit.

## INTERFACE CONNECTOR PANELS

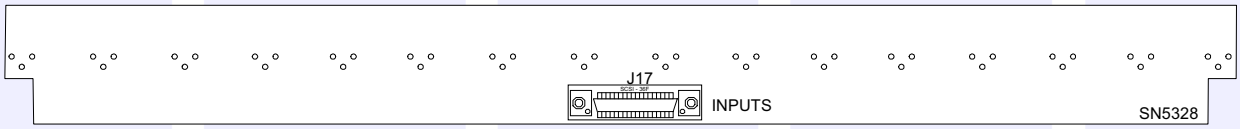
It is possible to interface directly to the Zeta 100 using 36 way SCSI mating connectors. Optionally, break out connector panels and cabling can be provided. Please note that interface panels must be fitted within 1m (3.2ft) of the backplane they connect to.

- For Digital I/O, either XLR (16 male or female, on a 1U panel) or BNC (32 on a 1U panel).

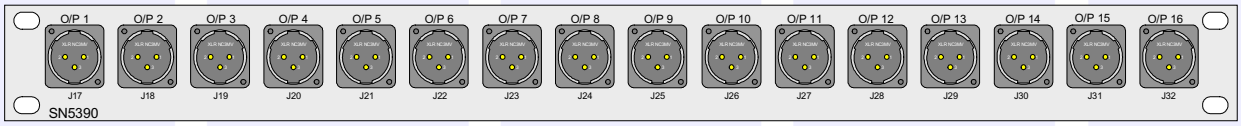
XLR INPUT I/F PANEL (FRONT)



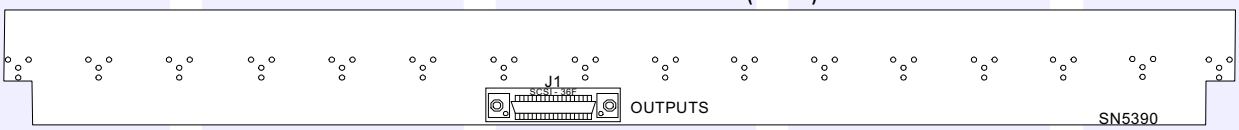

XLR INPUT I/F PANEL (REAR)



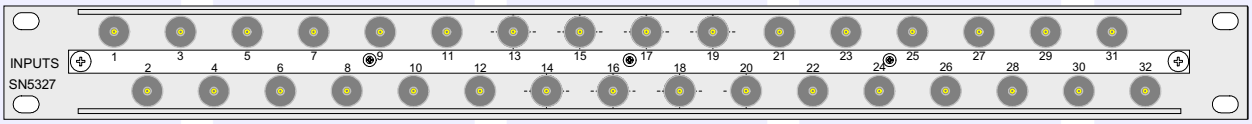

XLR OUTPUT I/F PANEL (FRONT)



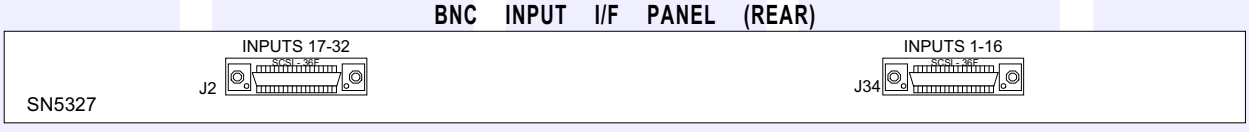

XLR OUTPUT I/F PANEL (REAR)



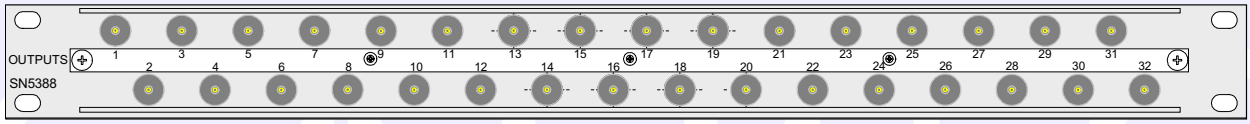

BNC INPUT I/F PANEL (FRONT)



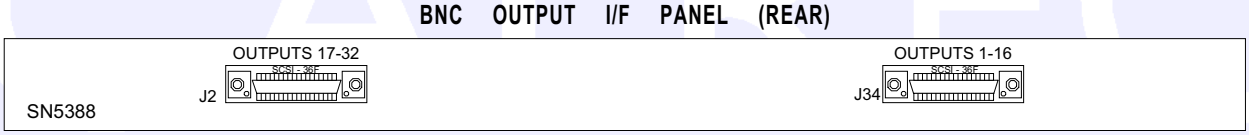

BNC INPUT I/F PANEL (REAR)




BNC OUTPUT I/F PANEL (FRONT)




BNC OUTPUT I/F PANEL (REAR)



ν For Analogue I/O, 8 or 12 way EDAC connector 2U panels are available in one of the following styles:

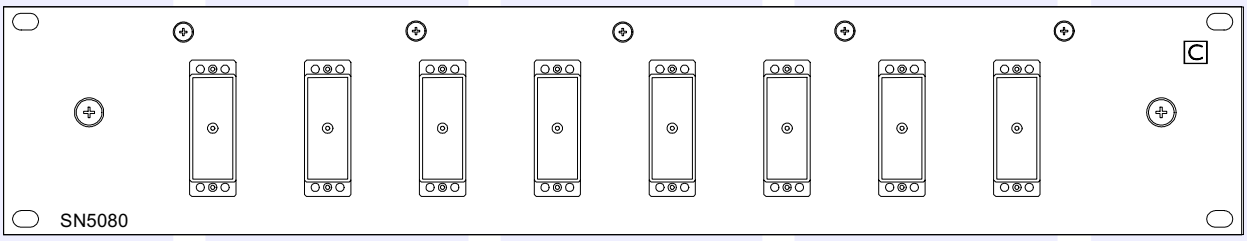
| | Style 1 | Style 2 |
|---|---|---|
| Mic/Line or Line I/P's | 4 pairs per EDAC | 6 pairs per EDAC |
| Line only I/P's | 8 pairs per EDAC | 6 pairs per EDAC |
| Line O/P's | 8 pairs per EDAC | 6 pairs per EDAC |

The choice of style will depend on the installation requirements. Limiting factors to be considered are:

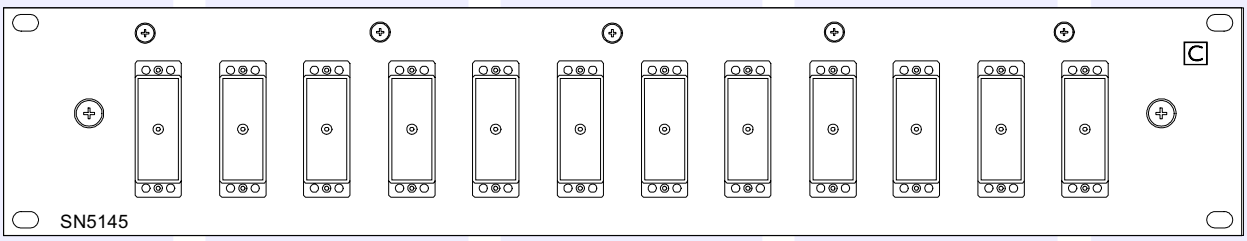
- ν The number of connections available in the external cabling
- ν Restricted amount of interface space available within 1m(3.2ft) of the backplane.

The different styles are achieved using different interface cards which attach to the rear of the 2U panels to provide different combinations of SCSI connectors per varicon ( Except in the case of Mic/Line inputs where a custom cable is provided).

8X38W EDAC PANEL

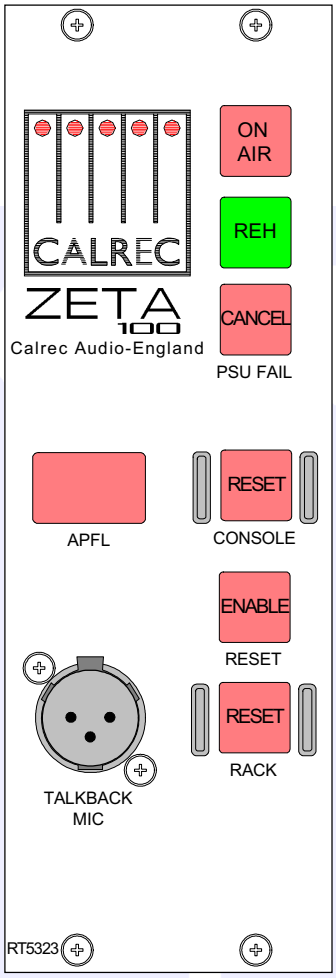



12X38W EDAC PANEL

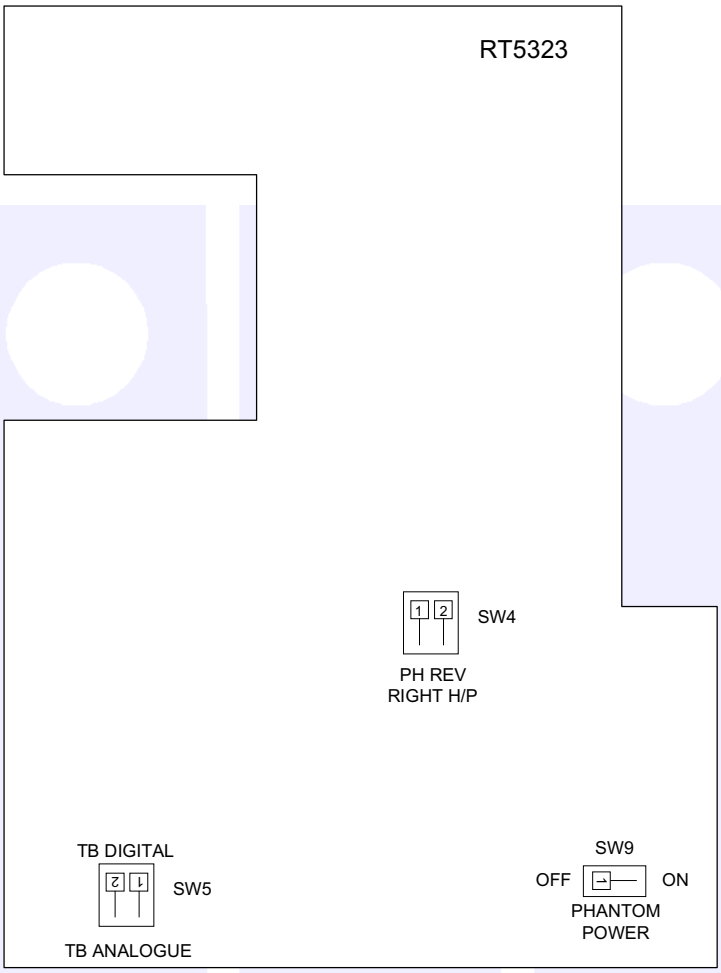


## TALKBACK MICROPHONE & HEADPHONE SIGNAL FORMAT & CONNECTIONS

### Front Panel




### DIL Switches




The talkback and headphone signals are carried between the console backplane and the power monitoring and distribution unit using a multi-core cable with a 37-way D-type connector at each end.

- The headphone signal is AES only
- The talkback microphone signal can be AES or analogue

### Talkback Mic Connections

The talkback microphone connects to the console via the XLR connector on the reset panel. The reset panel contains the following talkback microphone circuitry:

- Talkback microphone pre-amplifier
- Internal preset resistor to adjust the gain from 18dB to 48dB
- Internal switch to enable the 16V phantom power to the talkback microphone (SW9)
- Talkback microphone ADC
- Internal switch to set the talkback output signal format to AES or analogue (SW5)

## Headphone Connections

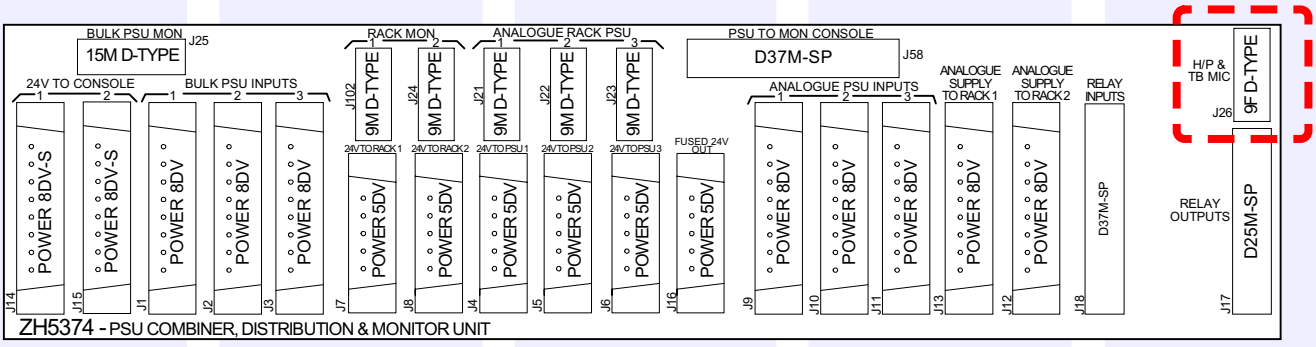
On consoles with a screen section the headphone jack is located in the well next to the screen. On single section consoles the headphone jack is located on the interface plate next to the console backplane. The headphone output is driven by circuitry on the reset panel. The reset panel contains the following headphone circuitry:

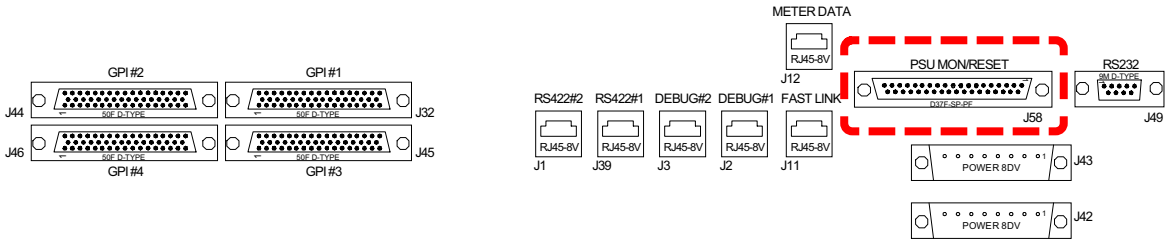
- Headphone DAC
- Headphone amplifier
- An internal DIL switch to reverse the phase of the right leg of headphone audio (SW4)

Installations that do not use an external talkback system can obtain the headphone signal from an AES output via an XLR, BNC or EDAC digital interface panel. The talkback signal will feed an analogue or AES input via the appropriate XLR, BNC or EDAC interface panel depending on the format selected using the DIL switch inside the reset panel (SW5).

If the talkback output is required to feed an external talkback system the desk talkback output will feed the external talkback system via a cable from the power monitoring and distribution unit, or via an extra cable wired into the 37-way D-type on the console backplane, depending on which is nearer.

If the headphone feed is to come from external equipment the connection will either be via a cable to the D-type on the power monitoring and distribution unit, or via an extra cable wired into the 37-way D-type on the console backplane depending on which is nearer. Please note that this can be an AES signal only.

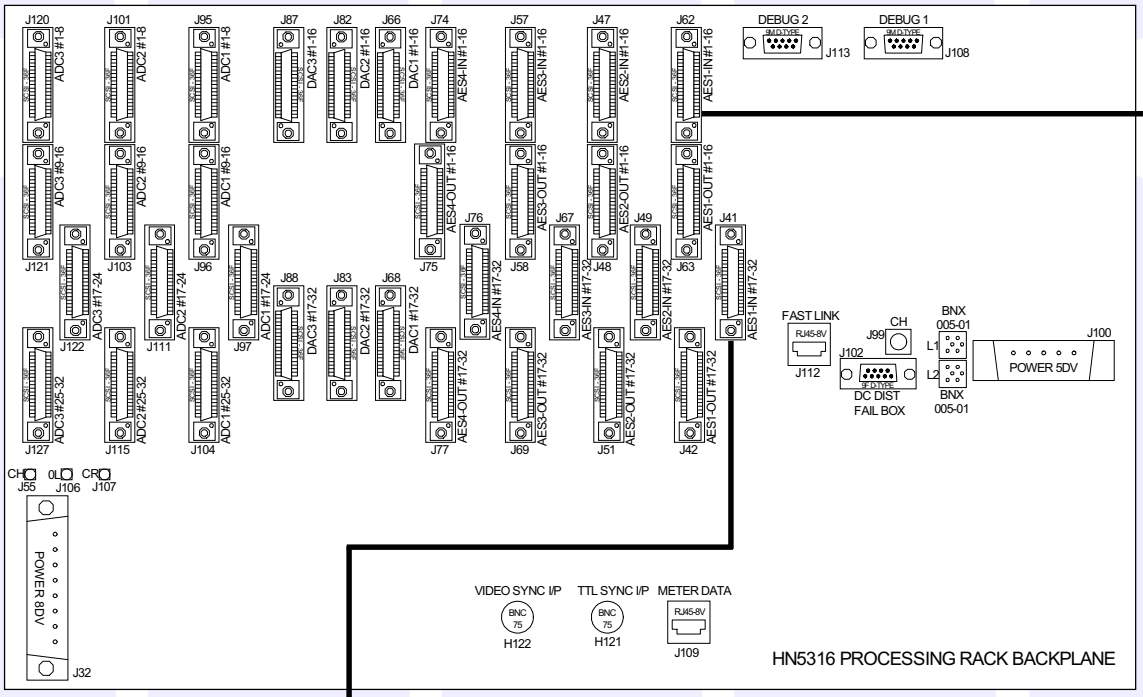


# Connector Pin-Out Information

## AES INPUTS - BNC INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-IN SCSI style connectors on the rear of the Processing Rack allow AES inputs to be connected to the system. There are 8 AES-IN connectors (2 per AES card), each of which carries 16 mono or 8 stereo inputs. The diagram below shows how BNC interface panels are connected to the AES-IN connectors on the rear of the rack via SCSI-style cabling. The BNC interface panels must be located within 1m (3.2ft) of the Processing Rack. Each panel can interface 32 AES inputs. Therefore if all AES inputs are used, 4 panels would be needed. For clarity, connections from an interface panel to the inputs on just 1 AES card is shown here.

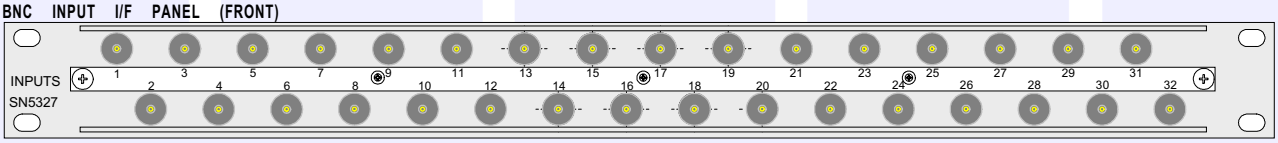



CABLE 2
Digital Inputs 17-32

CABLE 1
Digital Inputs 1-16

**BNC INPUT I/F PANEL (REAR)**


**BNC INPUT I/F PANEL (FRONT)**




**CABLE 1**
**Digital Inputs 1-16**

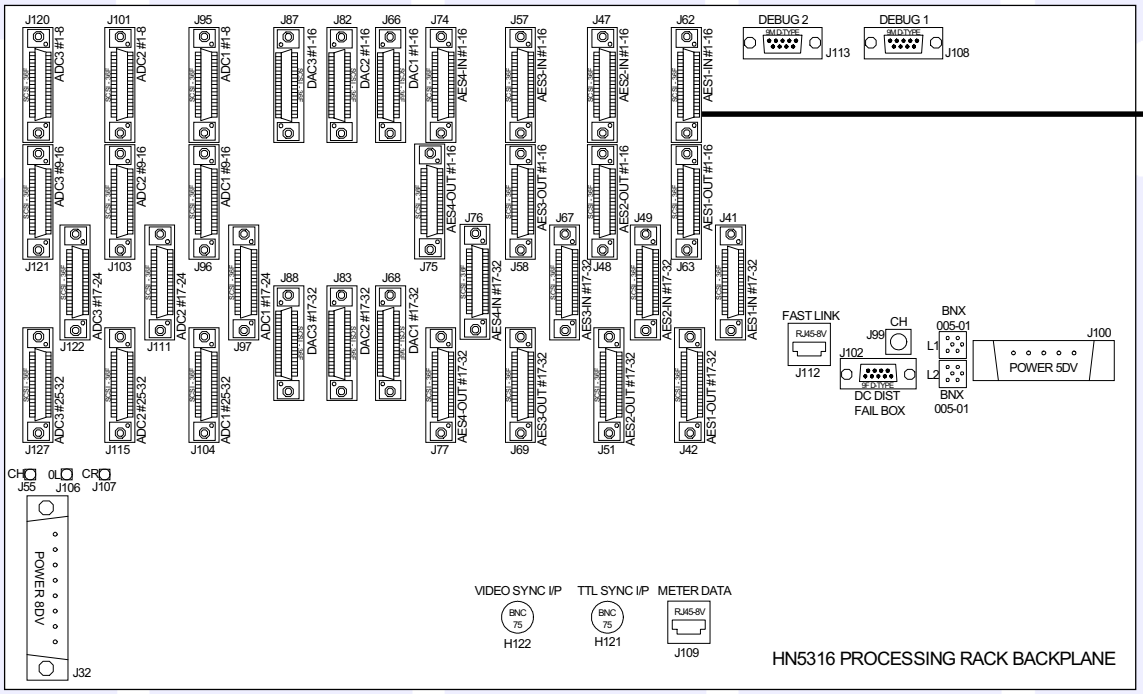
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

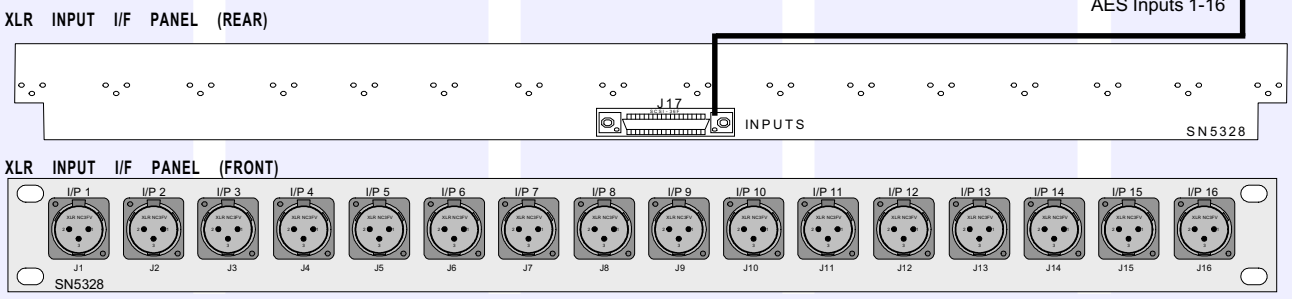
**CABLE 2**
**Digital Inputs 17-32**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 17 |
| 3 . 21 | 18 |
| 4 . 22 | 19 |
| 5 . 23 | 20 |
| 6 . 24 | 21 |
| 7 . 25 | 22 |
| 8 . 26 | 23 |
| 9 . 27 | 24 |
| 10 . 28 | 25 |
| 11 . 29 | 26 |
| 12 . 30 | 27 |
| 13 . 31 | 28 |
| 14 . 32 | 29 |
| 15 . 33 | 30 |
| 16 . 34 | 31 |
| 17 . 35 | 32 |
| 18 . 36 | Chassis |

## AES INPUTS - XLR INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-IN SCSI style connectors on the rear of the Processing Rack allow AES inputs to be connected to the system. There are 8 AES-IN connectors (2 per AES card), each of which carries 16 mono or 8 stereo inputs. The diagram below shows how XLR Digital Input Interface panels are connected to the AES-IN connectors on the rear of the rack via SCSI cabling. The XLR Digital Input Interface panels must be located within 1m (3.2ft) of the Rack. Each panel can interface 16 AES inputs. Therefore if all AES inputs are used, 8 panels would be needed. For clarity, connections from an interface panel to just half the inputs on one AES card is shown here.



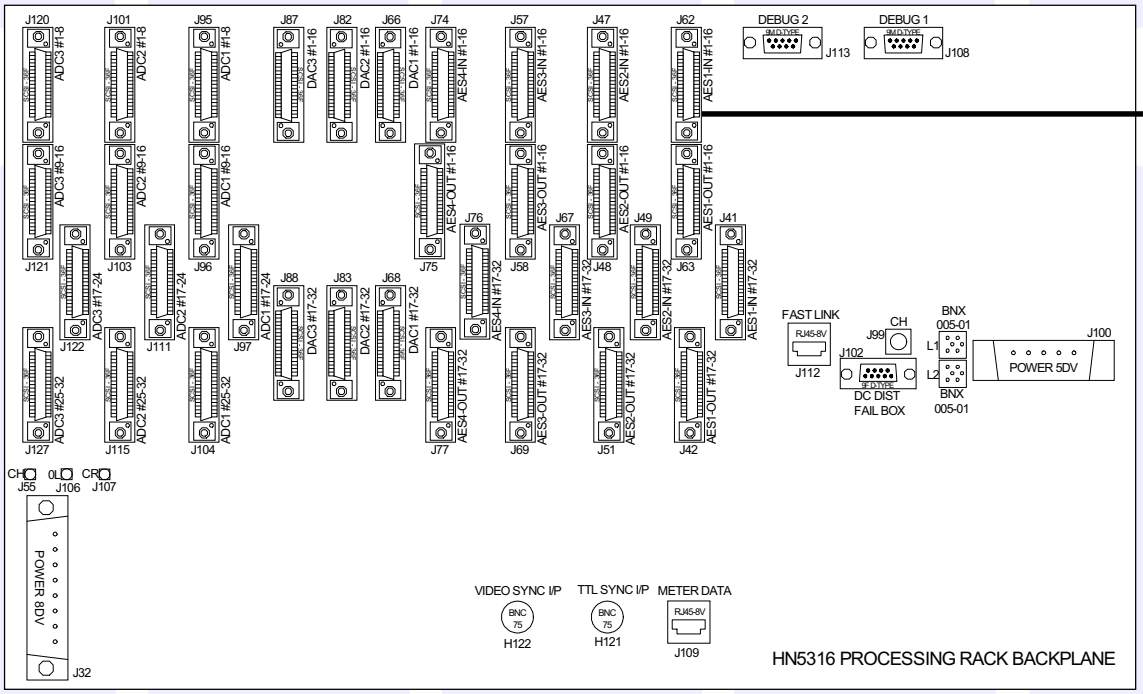




**CABLE 1**
**AES Inputs 1-16**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

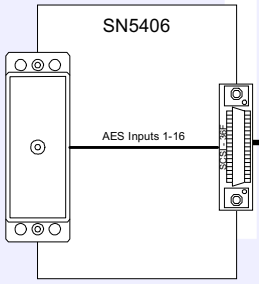
## AES INPUTS - EDAC INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-IN SCSI style connectors on the rear of the Processing Rack allow AES inputs to be connected to the system. There are 8 AES-IN connectors (2 per AES card), each of which carries 16 mono or 8 stereo inputs. The diagram below shows how 8 way EDAC Input Interface panels are connected to the AES-IN connectors on the rear of the rack via SCSI cabling. The EDAC Input Interface panels must be located within 1m (3.2ft) of the Rack. Each connector on the panel can interface 16 AES inputs. Therefore if all AES inputs are used, all 8 connectors on the panel would be needed. For clarity, connections from one EDAC connector on the interface panel to just half the inputs on one AES card is shown here.




Via SN5406 SCSI to 38W Varicon converter card - Rear of Interface Panel

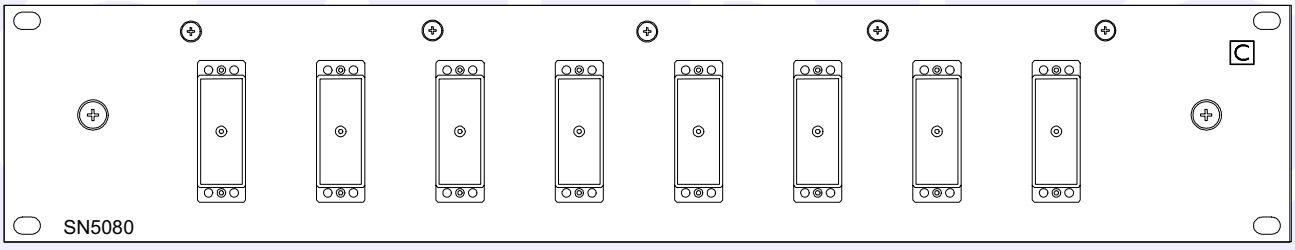
| | |
|---|---|
| A.B | Line IP 1L |
| C.D | Line IP 1R |
| E.F | Line IP 2L |
| J.K | Line IP 2R |
| L.M | Line IP 3L |
| N.P | Line IP 3R |
| R.S | Line IP 4L |
| T.U | Line IP 4R |
| Z.AA | Line IP 5L |
| BB.CC | Line IP 5R |
| DD.EE | Line IP 6L |
| FF.HH | Line IP 6R |
| JJ.KK | Line IP 7L |
| MM.NN | Line IP 7R |
| PP.RR | Line IP 8L |
| SS.TT | Line IP 8R |
| H.LL | Chassis |




CABLE 1
AES Inputs 1-16

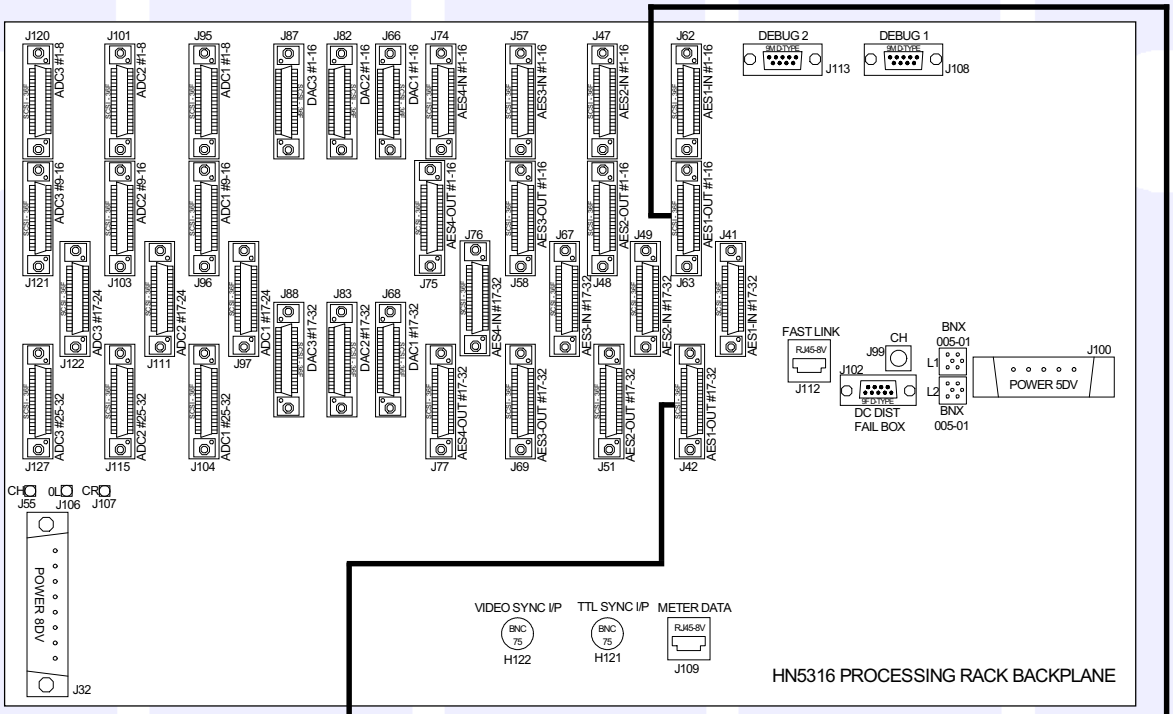
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

8 WAY EDAC INTERFACE PANEL



## AES OUTPUTS - BNC INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-OUT SCSI style connectors on the rear of the Rack allow AES outputs to be connected to the system. There are 8 AES-OUT connectors (2 per AES card), each of which carries 16 mono or 8 stereo outputs. The diagram below shows how BNC interface panels are connected to the AES-OUT connectors on the rear of the rack via SCSI cabling. The BNC interface panels must be located within 1m (3.2ft) of the Processing Rack. Each panel can interface 32 AES outputs. Therefore if all AES outputs are used, 4 panels would be needed. For clarity, connections from the outputs on just 1 AES card to an interface panel is shown here.

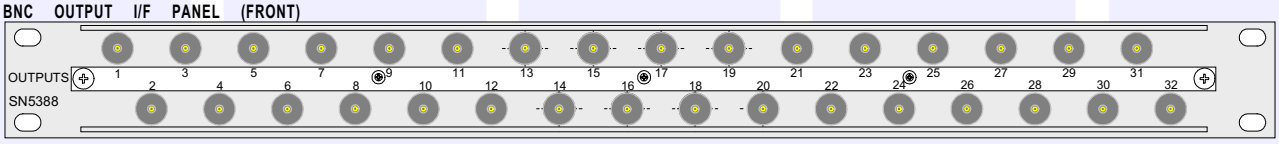



CABLE 2
AES Outputs 17-32

CABLE 1
AES Outputs 1-16

**BNC OUTPUT I/F PANEL (REAR)**


**BNC OUTPUT I/F PANEL (FRONT)**




**CABLE 1**
**Digital Outputs 1-16**

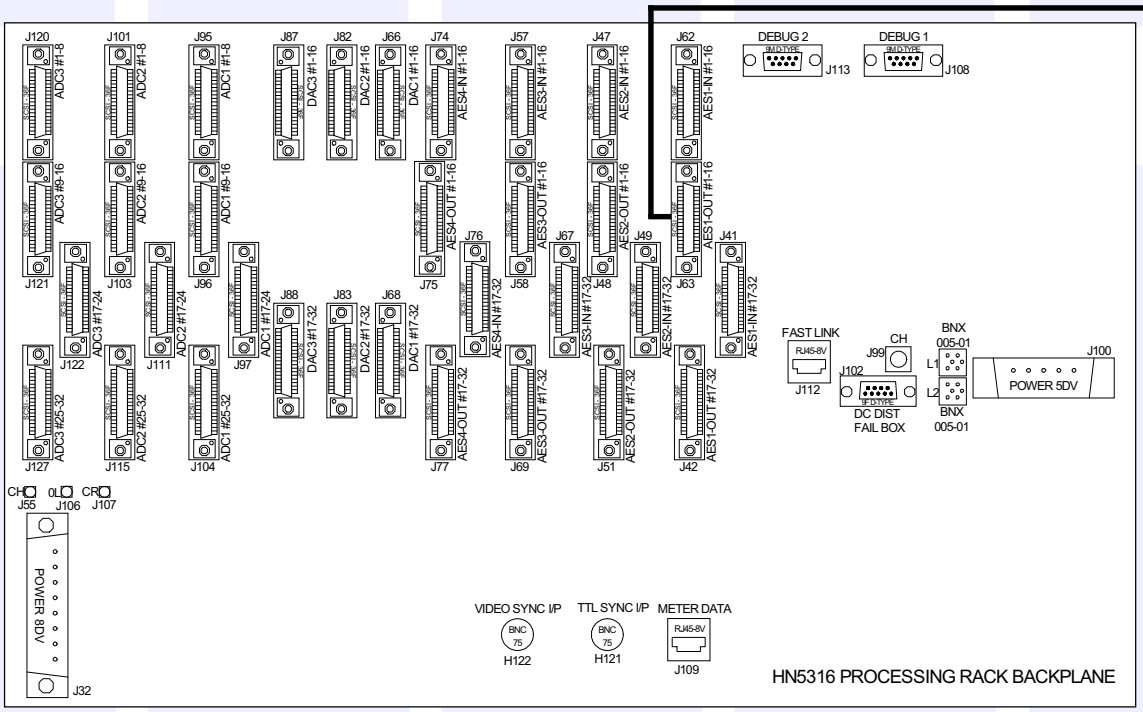
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

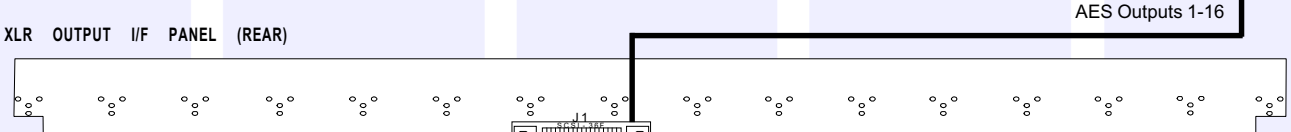
**CABLE 2**
**Digital Outputs 17-32**

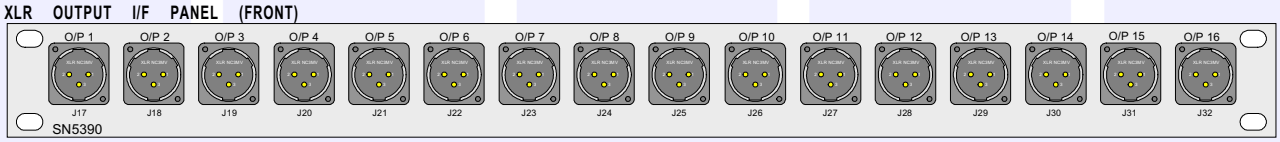
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 17 |
| 3 . 21 | 18 |
| 4 . 22 | 19 |
| 5 . 23 | 20 |
| 6 . 24 | 21 |
| 7 . 25 | 22 |
| 8 . 26 | 23 |
| 9 . 27 | 24 |
| 10 . 28 | 25 |
| 11 . 29 | 26 |
| 12 . 30 | 27 |
| 13 . 31 | 28 |
| 14 . 32 | 29 |
| 15 . 33 | 30 |
| 16 . 34 | 31 |
| 17 . 35 | 32 |
| 18 . 36 | Chassis |

## AES OUTPUTS - XLR INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-OUT SCSI style connectors on the rear of the Rack allow AES outputs to be connected to the system. There are 8 AES-OUT connectors (2 per AES card), each of which carries 16 mono or 8 stereo outputs. The diagram below shows how XLR Digital Output Interface panels are connected to the AES-OUT connectors on the rear of the rack via SCSI cabling. The XLR Digital Output Interface panels must be located within 1m (3.2ft) of the Rack. Each panel can interface 16 AES outputs. Therefore if all AES outputs are used, 4 panels would be needed. For clarity, connections from an interface panel to just half the outputs on one AES card is shown here.



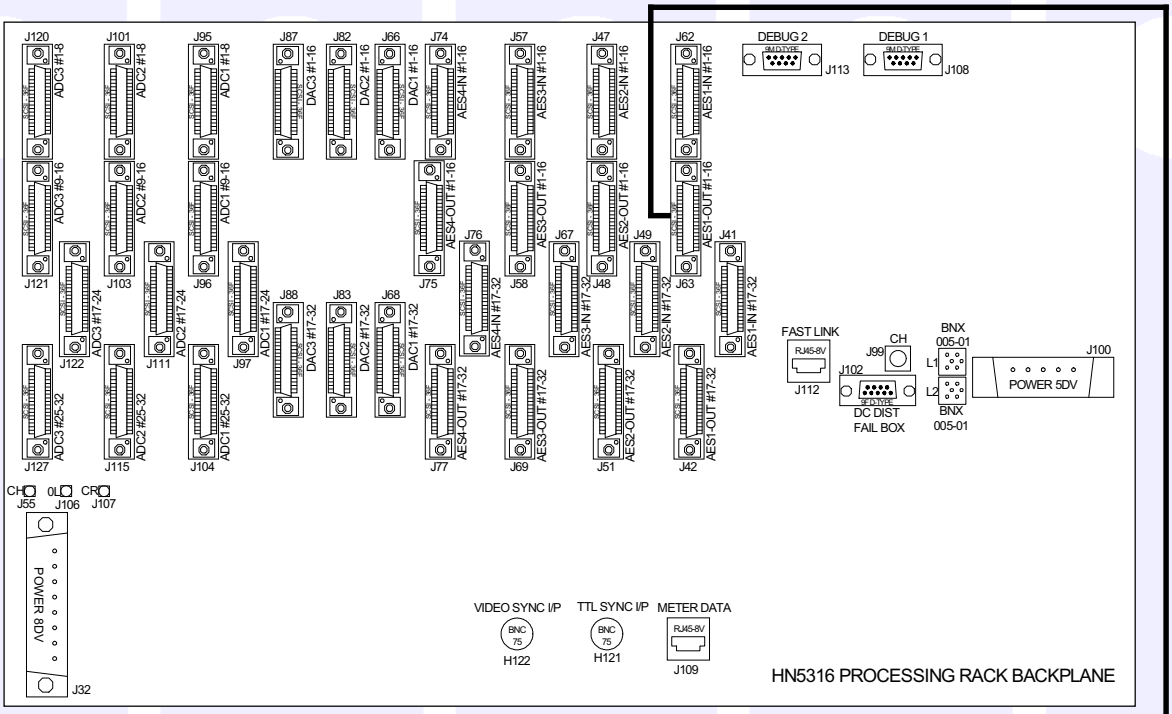




**CABLE 1**
**AES Outputs 1-16**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

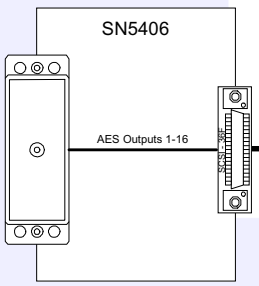
## AES OUTPUTS - EDAC INTERFACE

4 AES card slots exist within the Zeta 100 Processing Rack, which house AES I/O cards, each providing 32 AES inputs and 32 AES outputs. If I/O expansion is incorporated in the system (such as MADI or Gigabit Ethernet), then a wide area bulk card must occupy one of these slots. The AES-OUT SCSI style connectors on the rear of the Rack allow AES outputs to be connected to the system. There are 8 AES-OUT connectors (2 per AES card), each of which carries 16 mono or 8 stereo outputs. The diagram below shows how EDAC Output Interface panels are connected to the AES-OUT connectors on the rear of the rack via SCSI cabling. The EDAC Output Interface panels must be located within 1m (3.2ft) of the Rack. Each panel can interface 16 AES outputs. Therefore if all AES outputs are used, all 8 connectors on the panel would be needed. For clarity, connections from one EDAC connector on the interface panel to just half the outputs on one AES card is shown here.




Via SN5406 SCSI to 38W Varicon converter card - Rear of Interface Panel

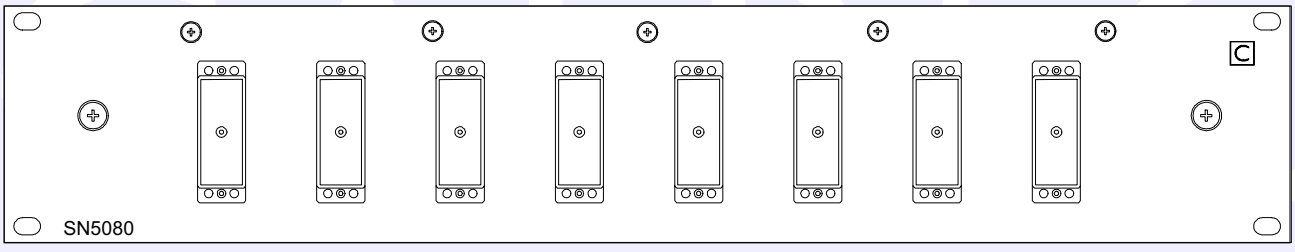
| | |
|---|---|
| A.B | Line IP 1L |
| C.D | Line IP 1R |
| E.F | Line IP 2L |
| J.K | Line IP 2R |
| L.M | Line IP 3L |
| N.P | Line IP 3R |
| R.S | Line IP 4L |
| T.U | Line IP 4R |
| Z.AA | Line IP 5L |
| BB.CC | Line IP 5R |
| DD.EE | Line IP 6L |
| FF.HH | Line IP 6R |
| JJ.KK | Line IP 7L |
| MM.NN | Line IP 7R |
| PP.RR | Line IP 8L |
| SS.TT | Line IP 8R |
| H.LL | Chassis |




CABLE 1
AES Outputs 1-16

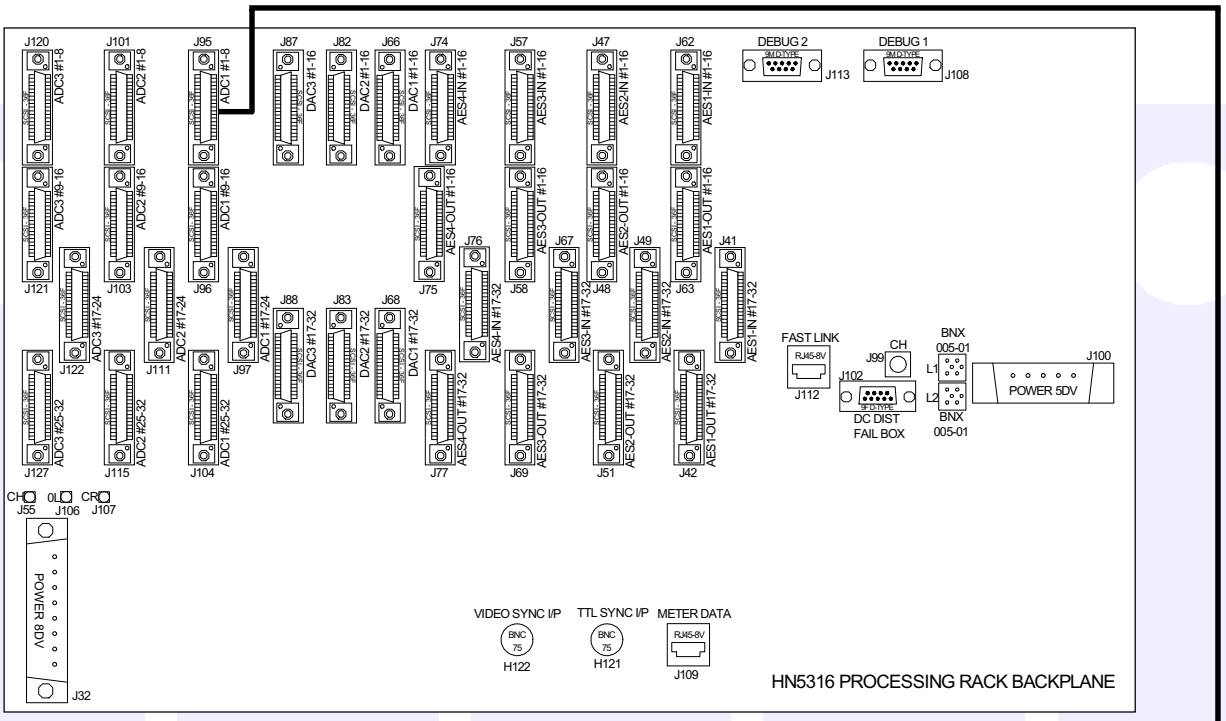
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1 |
| 3 . 21 | 2 |
| 4 . 22 | 3 |
| 5 . 23 | 4 |
| 6 . 24 | 5 |
| 7 . 25 | 6 |
| 8 . 26 | 7 |
| 9 . 27 | 8 |
| 10 . 28 | 9 |
| 11 . 29 | 10 |
| 12 . 30 | 11 |
| 13 . 31 | 12 |
| 14 . 32 | 13 |
| 15 . 33 | 14 |
| 16 . 34 | 15 |
| 17 . 35 | 16 |
| 18 . 36 | Chassis |

8 WAY EDAC INTERFACE PANEL



## ANALOGUE MIC/LINE INPUTS (FOR MIC/LINE OR LINE ADC CARDS) - STYLE 1

Up to 3 analogue input cards can be fitted into Zeta 100 Processing Rack, each providing 32 inputs. The ADC SCSI style connectors on the rear of the Rack allow mic or line inputs to be connected to the system. Each of the 12 ADC connectors (4 per ADC card) carries 8 mono or 4 stereo mic or line inputs. The diagram below shows how 8 or 12 way EDAC Input Interface panels are connected to the ADC connectors on the rear of the rack via Calrec custom cabling to achieve Style 1 as mentioned earlier (4 pairs per Varicon).




Calrec Custom Cabling (312-113)

**Wired into Varicon - Rear of Interface Panel**

| | |
|---|---|
| A.E (B) | Mic/Line IP 1L (screen) |
| D.K (C) | Mic/Line IP 1R (screen) |
| L.R (M) | Mic/Line IP 2L (screen) |
| P.U (N) | Mic/Line IP 2R (screen) |
| Z.DD (AA) | Mic/Line IP 3L (screen) |
| CC.HH (BB) | Mic/Line IP 3R (screen) |
| JJ.PP (KK) | Mic/Line IP 4L (screen) |
| NN.TT (MM) | Mic/Line IP 4R (screen) |
| F.J.S.T.H.LL EE.FF.RR.SS | Chassis |

*Style 1 - 4 pairs per 38 way Varicon*

Stereo I/Ps 1-4

**CABLE 1 STEREO I/Ps 1-4**

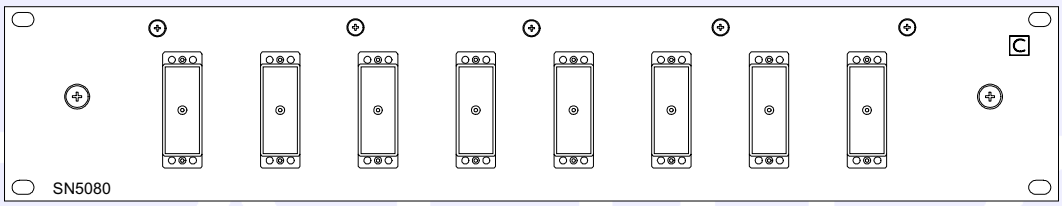
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | Chassis |
| 4 . 22 | 1R |
| 5 . 23 | Chassis |
| 6 . 24 | 2L |
| 7 . 25 | Chassis |
| 8 . 26 | 2R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 3L |
| 12 . 30 | Chassis |
| 13 . 31 | 3R |
| 14 . 32 | Chassis |
| 15 . 33 | 4L |
| 16 . 34 | Chassis |
| 17 . 35 | 4R |
| 18 . 36 | Chassis |

**CABLE 2 STEREO I/Ps 5-8 (NOT SHOWN)**

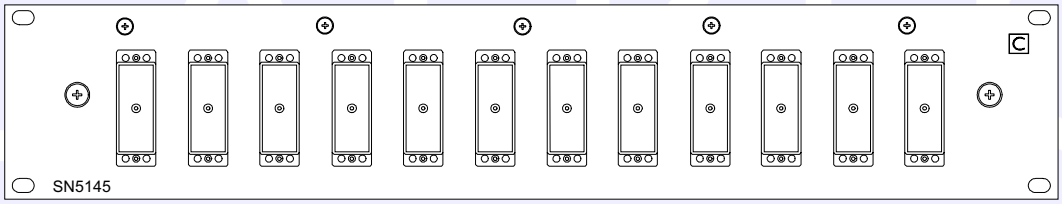
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 5L |
| 3 . 21 | Chassis |
| 4 . 22 | 5R |
| 5 . 23 | Chassis |
| 6 . 24 | 6L |
| 7 . 25 | Chassis |
| 8 . 26 | 6R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 7L |
| 12 . 30 | Chassis |
| 13 . 31 | 7R |
| 14 . 32 | Chassis |
| 15 . 33 | 8L |
| 16 . 34 | Chassis |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

4 Cables for each ADC card fitted - 4 Stereo Inputs on each cable (Just one shown here). The EDAC Input Interface panels must be located within 1m (3.2ft) of the Rack.

**8 WAY EDAC INTERFACE PANEL**

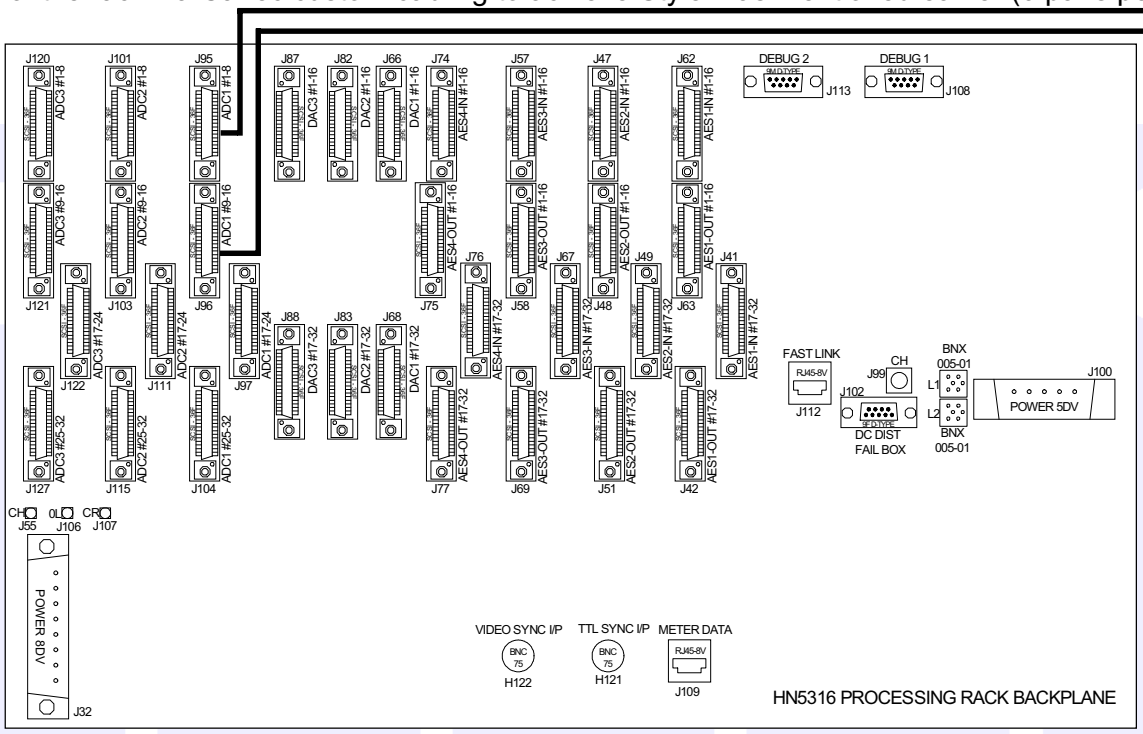



**12 WAY EDAC INTERFACE PANEL**



## ANALOGUE MIC/LINE INPUTS (FOR MIC/LINE OR LINE ADC CARDS) - STYLE 2

Up to 3 analogue input cards can be fitted into Zeta 100 Processing Rack, each providing 32 inputs. The ADC SCSI style connectors on the rear of the Rack allow mic or line inputs to be connected to the system. Each of the 12 ADC connectors (4 per ADC card) carries 8 mono or 4 stereo mic or line inputs. The diagram below shows how 8 or 12 way EDAC Input Interface panels are connected to the ADC connectors on the rear of the rack via Calrec custom cabling to achieve Style 2 as mentioned earlier (6 pairs per Varicon).




**Wired into Varicon - Rear of Interface Panel**

| | |
|---|---|
| A.B (E) | Mic/Line IP 1L |
| C.D (K) | Mic/Line IP 1R |
| L.M (F) | Mic/Line IP 2L |
| N.P (J) | Mic/Line IP 2R |
| R.S (V) | Mic/Line IP 3L |
| T.U (W) | Mic/Line IP 3R |
| Z.AA (X) | Mic/Line IP 4L |
| BB.CC (Y) | Mic/Line IP 4R |
| DD.EE (KK) | Mic/Line IP 5L |
| FF.HH (MM) | Mic/Line IP 5R |
| PP.RR (JJ) | Mic/Line IP 6L |
| SS.TT (NN) | Mic/Line IP 6R |
| H.LL | Chassis |

*Style 2 - 6 pairs per 38 way Varicon*

Calrec Custom Cabling (312-113)

Stereo IPs 1-4

Stereo IPs 5-6

Stereo IPs 7-8 To Next Varicon

**CABLE 1 STEREO I/Ps 1-4**

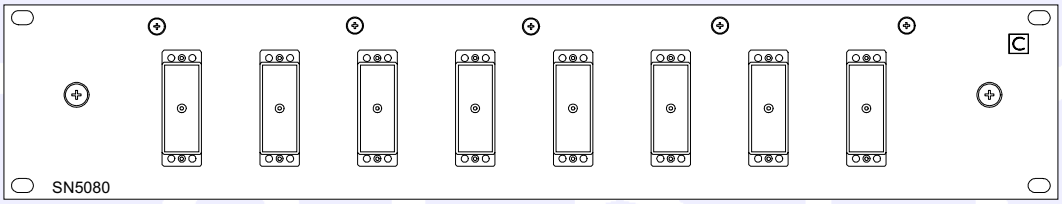
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | Chassis |
| 4 . 22 | 1R |
| 5 . 23 | Chassis |
| 6 . 24 | 2L |
| 7 . 25 | Chassis |
| 8 . 26 | 2R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 3L |
| 12 . 30 | Chassis |
| 13 . 31 | 3R |
| 14 . 32 | Chassis |
| 15 . 33 | 4L |
| 16 . 34 | Chassis |
| 17 . 35 | 4R |
| 18 . 36 | Chassis |

**CABLE 2 STEREO I/Ps 5-8**

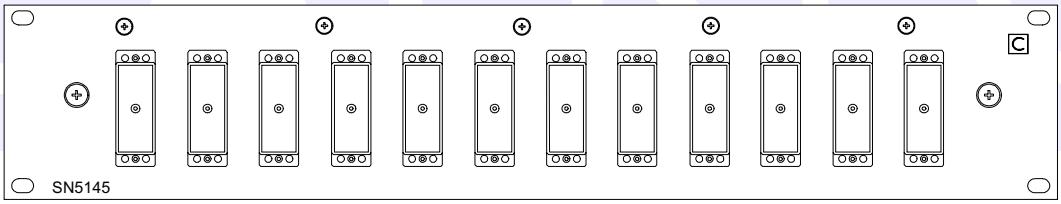
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 5L |
| 3 . 21 | Chassis |
| 4 . 22 | 5R |
| 5 . 23 | Chassis |
| 6 . 24 | 6L |
| 7 . 25 | Chassis |
| 8 . 26 | 6R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 7L |
| 12 . 30 | Chassis |
| 13 . 31 | 7R |
| 14 . 32 | Chassis |
| 15 . 33 | 8L |
| 16 . 34 | Chassis |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

4 Cables are required for each ADC card fitted. Cable 2 wires into the first varicon to provide circuits 5 and 6. Please Note that cables can be no longer than 1m (3.2ft).

**8 WAY EDAC INTERFACE PANEL**

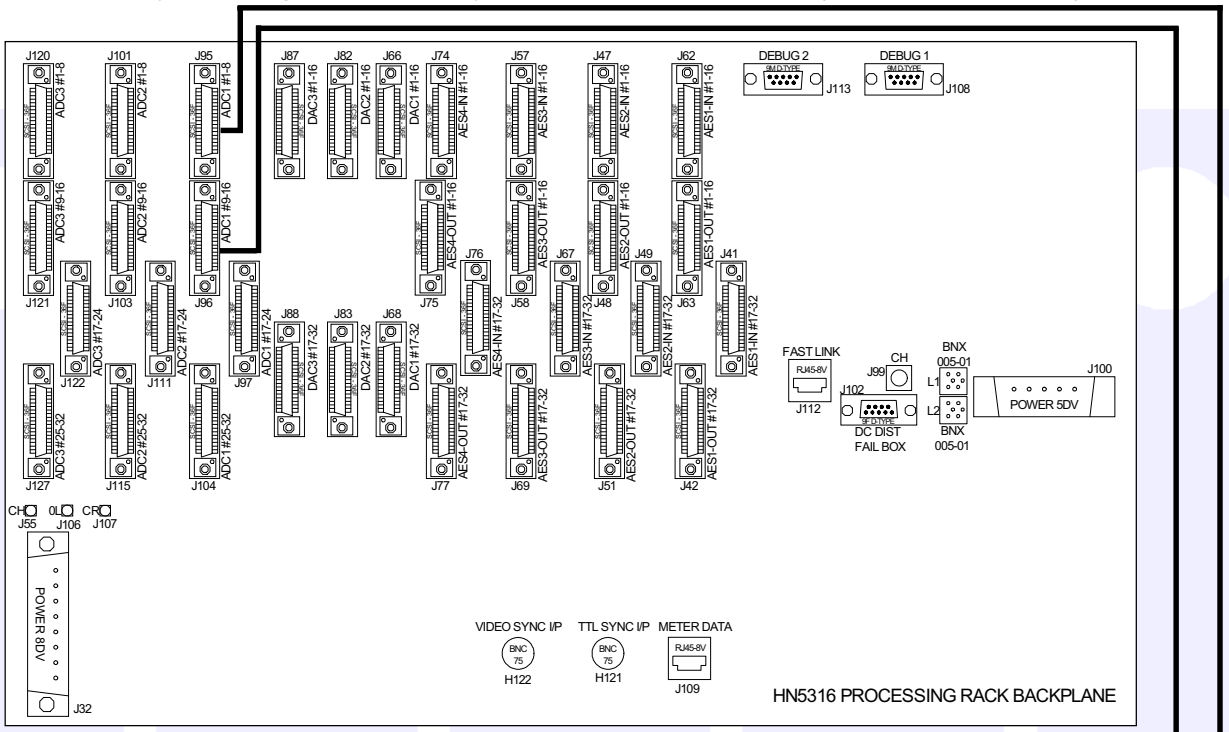



**12 WAY EDAC INTERFACE PANEL**



## ANALOGUE LINE ONLY INPUTS (FOR LINE ADC CARDS ONLY) - STYLE 1

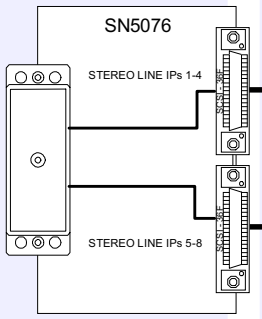
Up to 3 Analogue Input Cards can be fitted into Zeta 100 Rack, each providing 32 inputs. The ADC SCSI style connectors on the rear of the Rack allow mic or line inputs to be connected to the system. Each of the 12 ADC connectors (4 per ADC card) carries 8 mono or 4 stereo mic or line inputs. The diagram below shows how 8 or 12 way EDAC Input Interface panels are connected to the ADC connectors on the rear of the rack via SCSI style cabling to achieve Style 1 as mentioned earlier (8 pairs per Varicon).




**Via SN5076 SCSI to 38W Varicon converter card - Rear of Interface Panel**

| | |
|---|---|
| A.B | Line IP 1L |
| C.D | Line IP 1R |
| E.F | Line IP 2L |
| J.K | Line IP 2R |
| L.M | Line IP 3L |
| N.P | Line IP 3R |
| R.S | Line IP 4L |
| T.U | Line IP 4R |
| Z.AA | Line IP 5L |
| BB.CC | Line IP 5R |
| DD.EE | Line IP 6L |
| FF.HH | Line IP 6R |
| JJ.KK | Line IP 7L |
| MM.NN | Line IP 7R |
| PP.RR | Line IP 8L |
| SS.TT | Line IP 8R |
| H.LL | Chassis |

*Style 1 - 8 pairs per 38 way Varicon*




Stereo IPs 1-4

Stereo IPs 5-8

4 Cables for each ADC card fitted - 4 Stereo Inputs on each cable. Please Note that cables can be no longer than 1m (3.2ft).

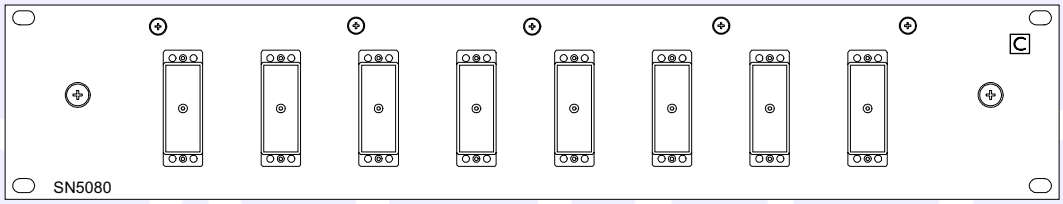
**CABLE 1 STEREO I/Ps 1-4**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | Chassis |
| 4 . 22 | 1R |
| 5 . 23 | Chassis |
| 6 . 24 | 2L |
| 7 . 25 | Chassis |
| 8 . 26 | 2R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 3L |
| 12 . 30 | Chassis |
| 13 . 31 | 3R |
| 14 . 32 | Chassis |
| 15 . 33 | 4L |
| 16 . 34 | Chassis |
| 17 . 35 | 4R |
| 18 . 36 | Chassis |

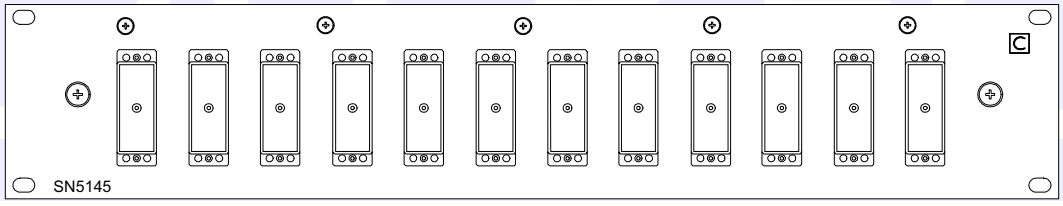
**CABLE 2 STEREO I/Ps 5-8**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 5L |
| 3 . 21 | Chassis |
| 4 . 22 | 5R |
| 5 . 23 | Chassis |
| 6 . 24 | 6L |
| 7 . 25 | Chassis |
| 8 . 26 | 6R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 7L |
| 12 . 30 | Chassis |
| 13 . 31 | 7R |
| 14 . 32 | Chassis |
| 15 . 33 | 8L |
| 16 . 34 | Chassis |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

**8 WAY EDAC INTERFACE PANEL**

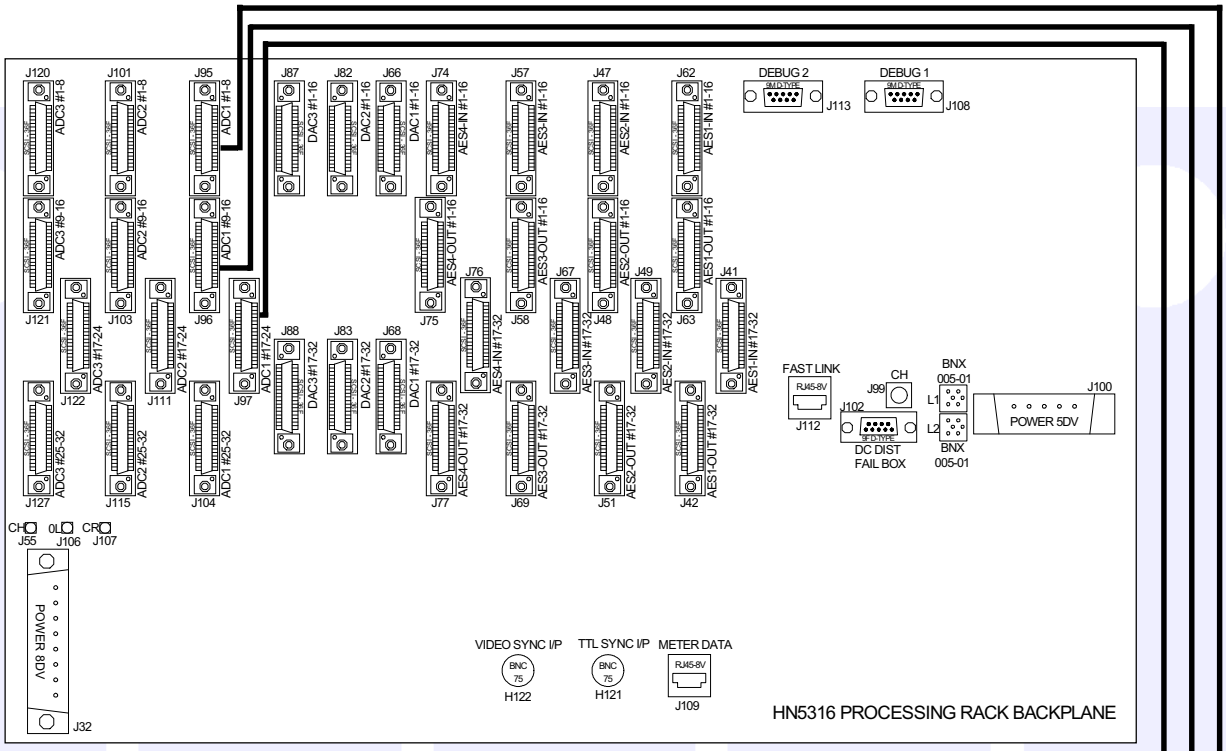



**12 WAY EDAC INTERFACE PANEL**



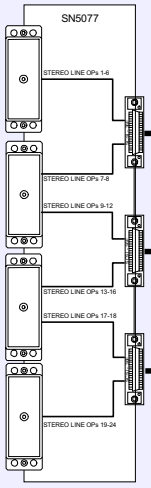
## ANALOGUE LINE ONLY INPUTS (FOR LINE ADC CARDS ONLY) - STYLE 2

Up to 3 Analogue Input Cards can be fitted into Zeta 100 Rack, each providing 32 inputs. The ADC SCSI style connectors on the rear of the Rack allow mic or line inputs to be connected to the system. Each of the 12 ADC connectors (4 per ADC card) carries 8 mono or 4 stereo mic or line inputs. The diagram below shows how 8 way EDAC Input Interface panels are connected to the ADC connectors on the rear of the rack via SCSI style cabling to achieve Style 2 as mentioned earlier (6 pairs/Varicon).




**Via SN5078 SCSI to 38W Varicon converter card - Rear of Interface Panel**

| | |
|---|---|
| A.B | Line IP 1L |
| C.D | Line IP 1R |
| L.M | Line IP 2L |
| N.P | Line IP 2R |
| R.S | Line IP 3L |
| T.U | Line IP 3R |
| Z.AA | Line IP 4L |
| BB.CC | Line IP 4R |
| DD.EE | Line IP 5L |
| FF.HH | Line IP 5R |
| PP.RR | Line IP 6L |
| SS.TT | Line IP 6R |
| H.LL | Chassis |




Stereo IPs 1-4

Stereo IPs 5-8

Stereo IPs 9-12

*Style 2 - 6 pairs per 38 way Varicon*

**CABLE 1 STEREO I/Ps 1-4**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | Chassis |
| 4 . 22 | 1R |
| 5 . 23 | Chassis |
| 6 . 24 | 2L |
| 7 . 25 | Chassis |
| 8 . 26 | 2R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 3L |
| 12 . 30 | Chassis |
| 13 . 31 | 3R |
| 14 . 32 | Chassis |
| 15 . 33 | 4L |
| 16 . 34 | Chassis |
| 17 . 35 | 4R |
| 18 . 36 | Chassis |

**CABLE 2 STEREO I/Ps 5-8**

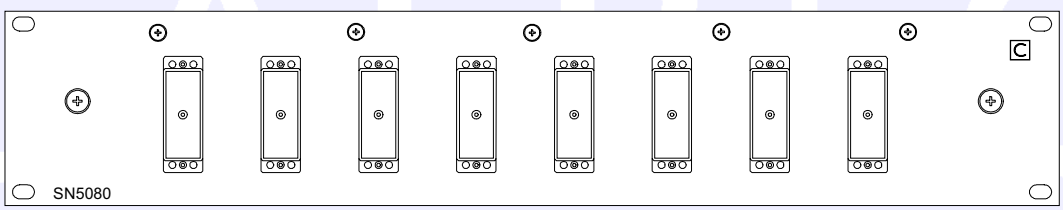
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 5L |
| 3 . 21 | Chassis |
| 4 . 22 | 5R |
| 5 . 23 | Chassis |
| 6 . 24 | 6L |
| 7 . 25 | Chassis |
| 8 . 26 | 6R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 7L |
| 12 . 30 | Chassis |
| 13 . 31 | 7R |
| 14 . 32 | Chassis |
| 15 . 33 | 8L |
| 16 . 34 | Chassis |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

**CABLE 3 STEREO I/Ps 9-12**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 9L |
| 3 . 21 | Chassis |
| 4 . 22 | 9R |
| 5 . 23 | Chassis |
| 6 . 24 | 10L |
| 7 . 25 | Chassis |
| 8 . 26 | 10R |
| 9 . 27 | Chassis |
| 10 . 28 | Chassis |
| 11 . 29 | 11L |
| 12 . 30 | Chassis |
| 13 . 31 | 11R |
| 14 . 32 | Chassis |
| 15 . 33 | 12L |
| 16 . 34 | Chassis |
| 17 . 35 | 12R |
| 18 . 36 | Chassis |

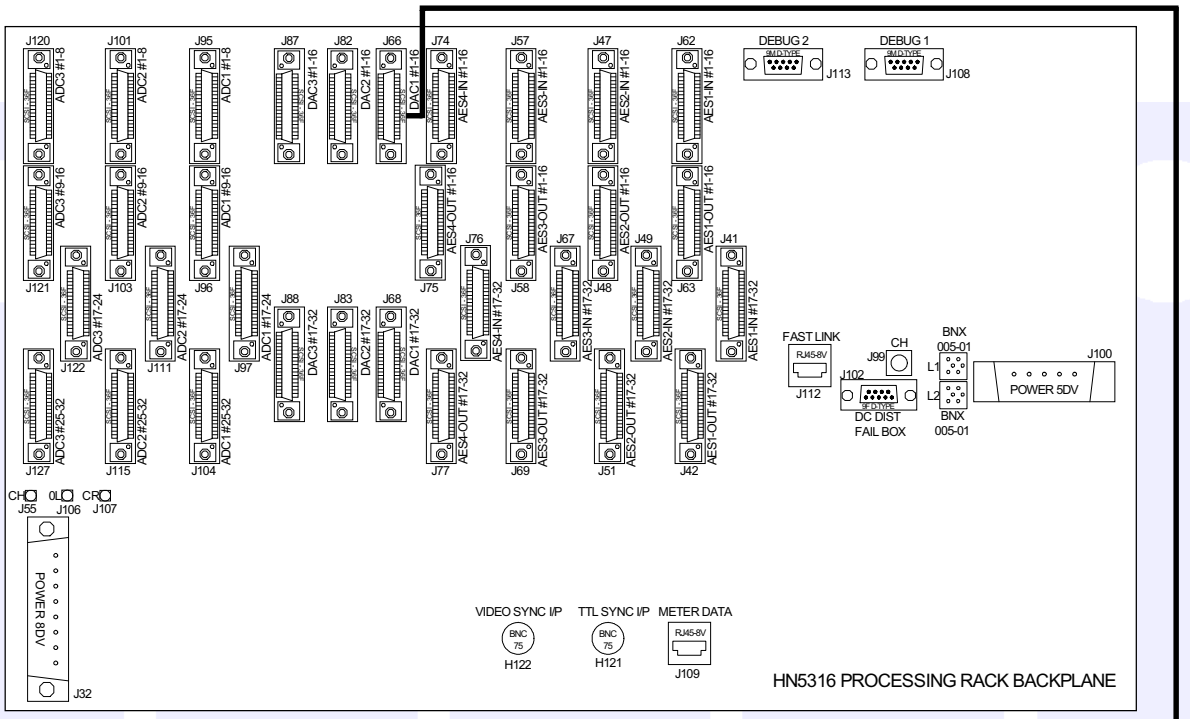
4 Cables for each ADC card fitted - 4 Stereo Inputs on each cable. Please Note that cables can be no longer than 1m (3.2ft).

**8 WAY EDAC INTERFACE PANEL**



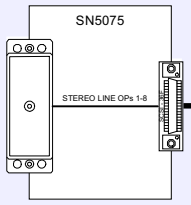
## ANALOGUE LINE OUTPUTS (FOR DAC CARDS ONLY) - STYLE 1

Up to 3 Analogue Output (DAC) Cards can be fitted into the Zeta 100 Rack, each providing 32 outputs. The 12 DAC SCSI style connectors on the rear of the Rack (4 per DAC card) each carry 16 mono or 8 stereo line outputs. The diagram below shows how 8 way EDAC Output Interface panels are connected to the DAC connectors on the rear of the rack via SCSI style cabling to achieve Style 1 as mentioned earlier (8 pairs per Varicon).




**Via SN5075 SCSI to 38W Varicon converter card - Rear of Interface Panel**

| | |
|---|---|
| A.B | Line OP 1L |
| C.D | Line OP 1R |
| E.F | Line OP 2L |
| J.K | Line OP 2R |
| L.M | Line OP 3L |
| N.P | Line OP 3R |
| R.S | Line OP 4L |
| T.U | Line OP 4R |
| Z.AA | Line OP 5L |
| BB.CC | Line OP 5R |
| DD.EE | Line OP 6L |
| FF.HH | Line OP 6R |
| JJ.KK | Line OP 7L |
| MM.NN | Line OP 7R |
| PP.RR | Line OP 8L |
| SS.TT | Line OP 8R |
| H.LL | Chassis |




*Style 1 - 8 pairs per 38 way Varicon*

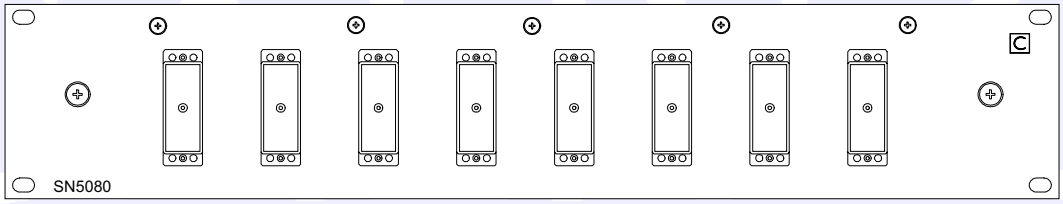
Stereo O/Ps 1-8

**CABLE 1**
**STEREO O/Ps 1-8**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | 1R |
| 4 . 22 | 2L |
| 5 . 23 | 2R |
| 6 . 24 | 3L |
| 7 . 25 | 3R |
| 8 . 26 | 4L |
| 9 . 27 | 4R |
| 10 . 28 | 5L |
| 11 . 29 | 5R |
| 12 . 30 | 6L |
| 13 . 31 | 6R |
| 14 . 32 | 7L |
| 15 . 33 | 7R |
| 16 . 34 | 8L |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

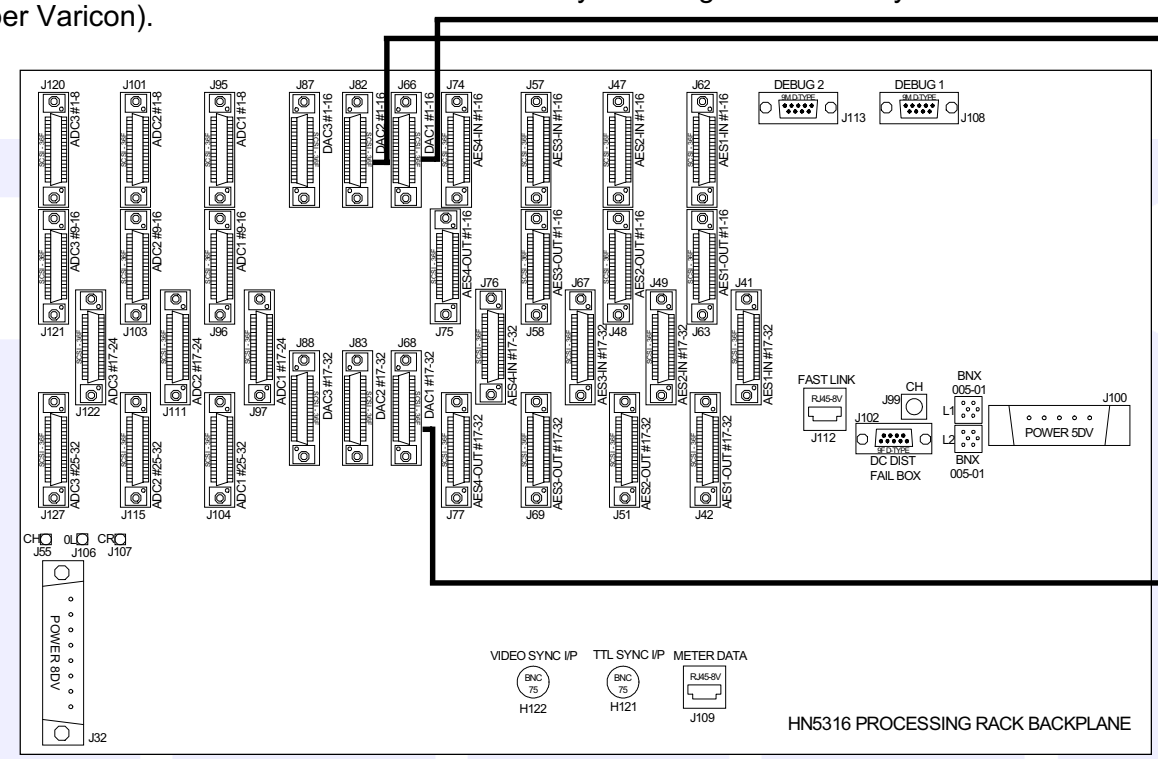
2 Cables for each DAC card fitted - 8 Stereo Outputs on each cable.
Please Note that cables can be no longer than 1m (3.2ft).

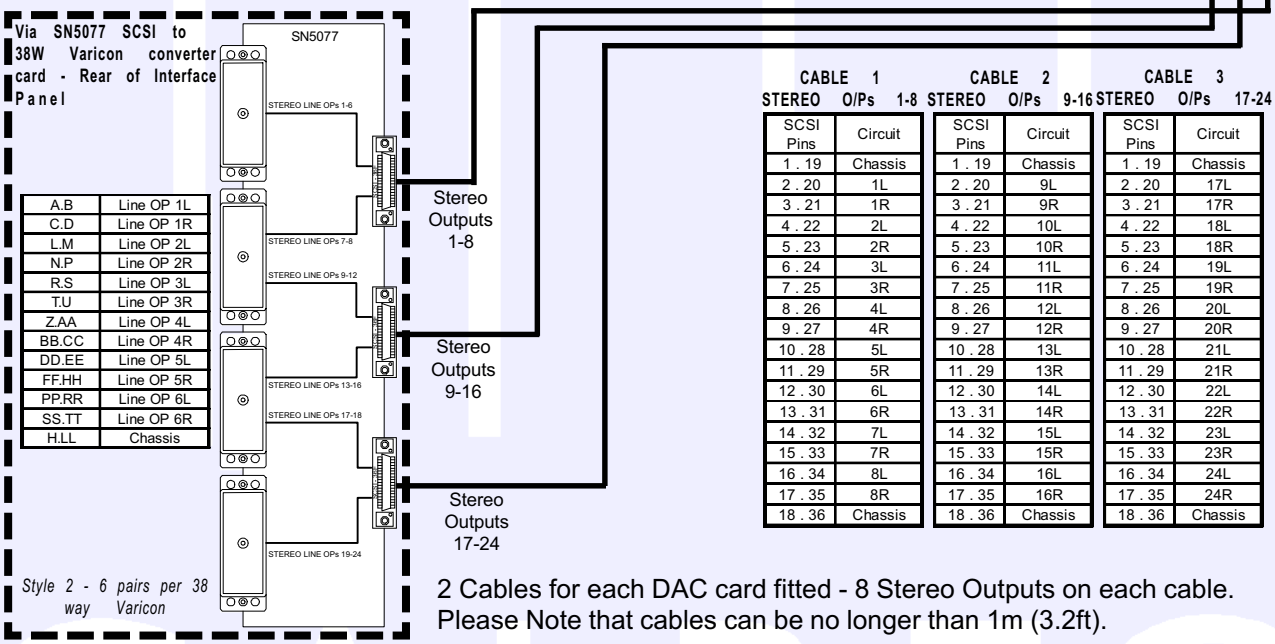
**8 WAY EDAC INTERFACE PANEL**



## ANALOGUE LINE OUTPUTS (FOR DAC CARDS ONLY) - STYLE 2

Up to 3 Analogue Output (DAC) Cards can be fitted into the Zeta 100 Rack, each providing 32 outputs. The 12 DAC SCSI style connectors on the rear of the Rack (4 per DAC card) each carry 16 mono or 8 stereo line outputs. The diagram below shows how 8 way EDAC Output Interface panels are connected to the DAC connectors on the rear of the rack via SCSI style cabling to achieve Style 2 as mentioned earlier (6 pairs per Varicon).




**CABLE 1 STEREO O/Ps 1-8**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 1L |
| 3 . 21 | 1R |
| 4 . 22 | 2L |
| 5 . 23 | 2R |
| 6 . 24 | 3L |
| 7 . 25 | 3R |
| 8 . 26 | 4L |
| 9 . 27 | 4R |
| 10 . 28 | 5L |
| 11 . 29 | 5R |
| 12 . 30 | 6L |
| 13 . 31 | 6R |
| 14 . 32 | 7L |
| 15 . 33 | 7R |
| 16 . 34 | 8L |
| 17 . 35 | 8R |
| 18 . 36 | Chassis |

**CABLE 2 STEREO O/Ps 9-16**

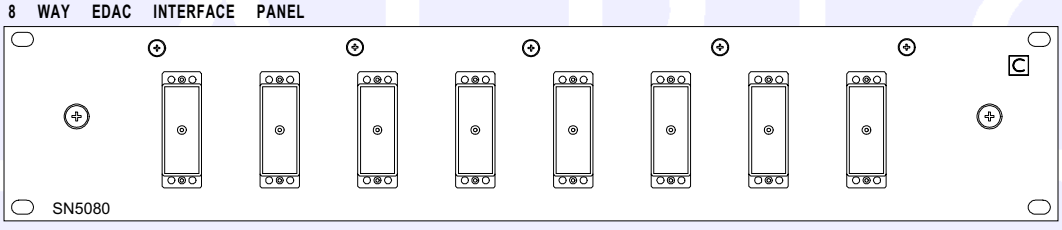
| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 9L |
| 3 . 21 | 9R |
| 4 . 22 | 10L |
| 5 . 23 | 10R |
| 6 . 24 | 11L |
| 7 . 25 | 11R |
| 8 . 26 | 12L |
| 9 . 27 | 12R |
| 10 . 28 | 13L |
| 11 . 29 | 13R |
| 12 . 30 | 14L |
| 13 . 31 | 14R |
| 14 . 32 | 15L |
| 15 . 33 | 15R |
| 16 . 34 | 16L |
| 17 . 35 | 16R |
| 18 . 36 | Chassis |

**CABLE 3 STEREO O/Ps 17-24**

| SCSI Pins | Circuit |
|---|---|
| 1 . 19 | Chassis |
| 2 . 20 | 17L |
| 3 . 21 | 17R |
| 4 . 22 | 18L |
| 5 . 23 | 18R |
| 6 . 24 | 19L |
| 7 . 25 | 19R |
| 8 . 26 | 20L |
| 9 . 27 | 20R |
| 10 . 28 | 21L |
| 11 . 29 | 21R |
| 12 . 30 | 22L |
| 13 . 31 | 22R |
| 14 . 32 | 23L |
| 15 . 33 | 23R |
| 16 . 34 | 24L |
| 17 . 35 | 24R |
| 18 . 36 | Chassis |

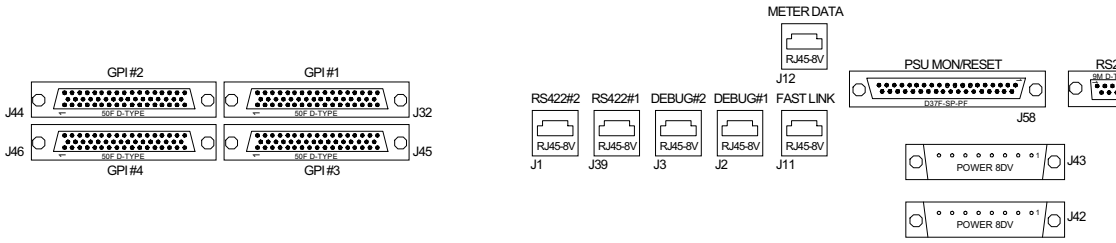
2 Cables for each DAC card fitted - 8 Stereo Outputs on each cable. Please Note that cables can be no longer than 1m (3.2ft).

**8 WAY EDAC INTERFACE PANEL**



## GPIO CONNECTIONS

Connections to the opto and relay isolated inputs and outputs are provided on 50 way female D-Type connectors on the rear of the console. 32 Opto Inputs, 16 Opto Outputs and 40 Darlington outputs are available.




HN5317 CONSOLE INTERFACE

### GPI #1

| Pins | Circuit |
|---|---|
| 1 . 18 | 5L |
| 34 . 2 | Opto 1 IN |
| 19 . 35 | Opto 2 IN |
| 3. 20 | Opto 3 IN |
| 36 . 4 | Opto 4 IN |
| 21 . 37 | Opto 5 IN |
| 5 . 22 | Opto 6 IN |
| 38 . 6 | Opto 7 IN |
| 23 . 39 | Opto 8 IN |
| 7 . 24 | 0L |
| 40 . 8 | 5L |
| 25 . 41 | Opto 1 OUT |
| 9 . 26 | Opto 2 OUT |
| 42 . 10 | Opto 3 OUT |
| 27 . 43 | Opto 4 OUT |
| 11 . 28 | 0L |
| 44 . 12 | 5L |
| 29 . 45 | D OUT 1/2 |
| 13 . 30 | D OUT 3/4 |
| 46 . 14 | D OUT 5/6 |
| 31 . 47 | D OUT 7/8 |
| 15 . 32 | D OUT 9/10 |
| 48 . 16 | NC |
| 33 . 49 | 0L |
| 17 . 50 | CHASSIS |

### GPI #2

| Pins | Circuit |
|---|---|
| 1 . 18 | 5L |
| 34 . 2 | Opto 9 IN |
| 19 . 35 | Opto 10 IN |
| 3. 20 | Opto 11 IN |
| 36 . 4 | Opto 12 IN |
| 21 . 37 | Opto 13 IN |
| 5 . 22 | Opto 14 IN |
| 38 . 6 | Opto 15 IN |
| 23 . 39 | Opto 16 IN |
| 7 . 24 | 0L |
| 40 . 8 | 5L |
| 25 . 41 | Opto 5 OUT |
| 9 . 26 | Opto 6 OUT |
| 42 . 10 | Opto 7 OUT |
| 27 . 43 | Opto 8 OUT |
| 11 . 28 | 0L |
| 44 . 12 | 5L |
| 29 . 45 | D OUT 11/12 |
| 13 . 30 | D OUT 13/14 |
| 46 . 14 | D OUT 15/16 |
| 31 . 47 | D OUT 17/18 |
| 15 . 32 | D OUT 19/20 |
| 48 . 16 | NC |
| 33 . 49 | 0L |
| 17 . 50 | CHASSIS |

### GPI #3

| Pins | Circuit |
|---|---|
| 1 . 18 | 5L |
| 34 . 2 | Opto 17 IN |
| 19 . 35 | Opto 18 IN |
| 3. 20 | Opto 19 IN |
| 36 . 4 | Opto 20 IN |
| 21 . 37 | Opto 21 IN |
| 5 . 22 | Opto 22 IN |
| 38 . 6 | Opto 23 IN |
| 23 . 39 | Opto 24 IN |
| 7 . 24 | 0L |
| 40 . 8 | 5L |
| 25 . 41 | Opto 9 OUT |
| 9 . 26 | Opto 10 OUT |
| 42 . 10 | Opto 11 OUT |
| 27 . 43 | Opto 12 OUT |
| 11 . 28 | 0L |
| 44 . 12 | 5L |
| 29 . 45 | D OUT 21/22 |
| 13 . 30 | D OUT 23/24 |
| 46 . 14 | D OUT 25/26 |
| 31 . 47 | D OUT 27/28 |
| 15 . 32 | D OUT 29/30 |
| 48 . 16 | NC |
| 33 . 49 | 0L |
| 17 . 50 | CHASSIS |

### GPI #4

| Pins | Circuit |
|---|---|
| 1 . 18 | 5L |
| 34 . 2 | Opto 25 IN |
| 19 . 35 | Opto 26 IN |
| 3. 20 | Opto 27 IN |
| 36 . 4 | Opto 28 IN |
| 21 . 37 | Opto 29 IN |
| 5 . 22 | Opto 30 IN |
| 38 . 6 | Opto 31 IN |
| 23 . 39 | Opto 32 IN |
| 7 . 24 | 0L |
| 40 . 8 | 5L |
| 25 . 41 | Opto 13 OUT |
| 9 . 26 | Opto 14 OUT |
| 42 . 10 | Opto 15 OUT |
| 27 . 43 | Opto 16 OUT |
| 11 . 28 | 0L |
| 44 . 12 | 5L |
| 29 . 45 | D OUT 31/32 |
| 13 . 30 | D OUT 33/34 |
| 46 . 14 | D OUT 35/36 |
| 31 . 47 | D OUT 37/38 |
| 15 . 32 | D OUT 39/40 |
| 48 . 16 | NC |
| 33 . 49 | 0L |
| 17 . 50 | CHASSIS |

8 change over relays are also available on the rear of the Power Monitoring and Distribution Unit.

# Planning the Use and Labelling of Inputs and Outputs

## INPUT/OUTPUT PORT LABELLING

The system allows the user to pre-define labels for all the I/O. The only rules imposed on this are:

- The I/O must be labelled in pairs.
- The label must be no more than six characters.
- No two inputs can have the same label, but an input can have the same label as an output.

I/O is labelled in pairs to make it easier to use with any type of signal; Mono, Stereo or Surround. In addition to this, Digital I/O is wired in pairs and it makes sense to deal with all the I/O in the same way.

The input port label is used as the default name for the channel input and will be shown on the display above the fader.

The system automatically adds a left (L) and right (R) suffix to the label to distinguish the two halves of the pair, or an LR suffix when the pair is used together.

The pairs can be used either for two mono signals, a stereo signal, or parts of a surround signal.

**One exception to these rules is allowed:**

When I/O is dedicated to mono signals only, (e.g phone lines, mono reverbs, mono distribution feeds) it can be marked as being mono in which case the two halves of the pair have separate labels and the L & R suffixes are not applied.

**Note that I/O marked in this way cannot be connected in pairs to stereo paths from the I/O Matrix panel on the control surface.**

A Stereo channel input can only be connected to the L - R of a pair of ports, or to one mono port in which case the mono signal will be fed to both L & R of the channel.

A Stereo channel direct output can only be connected to the L - R of a pair of ports.

A Mono channel input or direct output can be connected to any of: The L or R of a pair of ports, or any mono port.

**Mono ports should therefore be considered as unusual. If there is any doubt as to the use of ports, they should be treated as a pair.**

## SUITABLE LABELS

Generally, I/O Ports should be labelled with the name which appears at the other end of the cable, which is connected to the port.

Ideally, the port will be connected directly to a device (Mic splitter box, Video Tape Recorder, Echo unit, Transmission Control Suite, etc).

Alternatively, some I/O may be wired to a patch. This will be done, for example, to allow for hired devices to be connected and may also be done to aid maintenance and operator familiarity with analogue consoles.

When planning the use and labelling of I/O, you should also bear in mind that the Zeta 100 includes an internal electronic Input Patch and Output Patch. These allow ports to be used for different purposes on different shows and also, the patch connections are stored with the snapshot memories.

## INPUT/OUTPUT LABELLING SHEETS

### AES Inputs

AES Card 1 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J62 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J41 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

AES Card 2 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J47 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J49 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### AES Inputs

AES Card 3 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J57 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J67 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

AES Card 4 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J74 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J76 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### AES Outputs

AES Card 1 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J63 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J42 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

AES Card 2 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J48 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J51 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### AES Outputs

AES Card 3 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J58 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J69 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

AES Card 4 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J75 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J77 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### Analogue Inputs

ADC Card 1 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J95 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| J96 | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J97 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| J104 | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

ADC Card 2 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J101 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| J103 | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J111 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| J115 | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### Analogue Inputs

ADC Card 3 Inputs 1-32

| Connector No | Input | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J95 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| J96 | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J97 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| J104 | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### Analogue Outputs

DAC Card 1 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J66 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J68 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

DAC Card 2 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J82 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J83 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

## INPUT/OUTPUT LABELLING SHEETS

### Analogue Outputs

DAC Card 3 Outputs 1-32

| Connector No | Output | Label for LR pair (or 1st of 2 mono) 6 characters | | | | | | | Circuit Description | 2nd Label (only if pair dedicated to 2 mono signals) |
|---|---|---|---|---|---|---|---|---|---|---|
| J87 | 1L + 1R | | | | | | | L R | | |
| | 2L + 2R | | | | | | | L R | | |
| | 3L + 3R | | | | | | | L R | | |
| | 4L + 4R | | | | | | | L R | | |
| | 5L + 5R | | | | | | | L R | | |
| | 6L + 6R | | | | | | | L R | | |
| | 7L + 7R | | | | | | | L R | | |
| | 8L + 8R | | | | | | | L R | | |
| J88 | 9L + 9R | | | | | | | L R | | |
| | 10L + 10R | | | | | | | L R | | |
| | 11L + 11R | | | | | | | L R | | |
| | 12L + 12R | | | | | | | L R | | |
| | 13L + 13R | | | | | | | L R | | |
| | 14L + 14R | | | | | | | L R | | |
| | 15L + 15R | | | | | | | L R | | |
| | 16L + 16R | | | | | | | L R | | |

Notes

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