# X2 OPERATOR MANUAL

**Digital Broadcast Production Console for Radio** 



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# X2 CONTENTS

Important Information	4
Health and Safety	5
Technical Support	6
Overview	7
	0
	0
Principal Features	9
System Overview	10
System Redundancy	11
System Specification	12
Panels	13
Fader Panel	14
Monitor Panel	15
Reset Panel	16
Rack Equipment	17
DSP & Digital I/O Rack	18
Power Supply Unit	19
Console Processing Unit	20

Screen Interface
Setup Application
Setup Application
Setup Application
Front End User Interface
Screen Layout
Error Messages (AWACS)
Assigning Sources
Channel Control
Direct Outputs
Clean Feeds
Inserts
EQ & Filters
Dynamics
Aux Master
Main Dynamics
Main Direct Inputs
User Memories
Memory Backup And Restore
Operational Modes

#### **Tech Screens Buss Output Patching** Clean Feed Output Patching Direct Output Patching **Direct Input Patching** Insert Send Patching Insert Return Patching GPIO - GPI GPIO - GPO GPIO - TX/REH Misc - Synchronisation Misc - Reference Level Misc - Oscillator Misc - Serial Interface Misc - Serial Interface Misc - Serial Interface Monitor Panel Setup Monitor Settings Talkback Monitor Inputs External Meter Inputs Metering Port Lists Source Setup Fader Colour System Monitor Wilds

# **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.

# 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 (**R**eduction **of H**azardous **S**ubstances) legislation, from the second week in April 2006 the vast majority of Calrec PCB and cable assemblies will have been produced with lead-free (tin/copper/silver) solder instead of tin/lead solder.



This means that for a period of time after April 2006 delivered consoles will contain a mixture of assemblies produced with different types of solder. This is unavoidable due to the fact that circuit boards are built in batches and allocated to consoles on a 'first in, first out' basis (hence the need to change the process well in advance of the legislation coming into force). 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).



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.

# **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**

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 unit please do not remove the blanking plates which are fitted to the unused output connectors. The maximum potential between the terminals exceeds 60 volts, the blanking plates are fitted to avoid the risk of electric shock.

# **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 at :-

Customer Support Calrec Audio Ltd Nutclough Mill Hebden Bridge HX7 8EZ England UK

Tel: +44 (0) 1422 842159 Fax: +44 (0) 1422 845244 Email: support@calrec.com Website: www.calrec.com

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.

#### 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.

# Operator and Installation Manual PDFs

This manual can be found in pdf format on your console's CD Handbook.

You can also access this manual on your console's PC from the Start menu, under the Calrec X2 group.

# **X2 OVERVIEW**



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# **INTRODUCTION**

The Calrec X2 is a digital radio console designed for on-air operation. A simple control surface is employed to allow easy use by non-technical presenters while more complex functions are available to technical users.

### **Robust Design**

Being a broadcast desk the X2 has to be more robust and fault tolerant than a music or post production desk. The control system is based on that used on all previous Calrec assignable desks which have proved very reliable over the last 15 years. In the unlikely event of a failure of the control system the programme output will not be effected and a control surface re-boot takes approximately 6 seconds.

A remote rack houses the desk's electronics, including input cards, output cards and processing.

#### **Flexible Control**

The X2 control surface is available with 6, 12, 18 or 24 fully assignable faders, so that a custom layout can be created.

The flexibility offered by computer software has been harnessed to provide greater functionality and ease of use.

All settings, for all channels and outputs except the positions of the channel faders, can be stored in the memories and recalled at a later date. This level of assignability makes the X2 ideal for use in situations where the same equipment is used by multiple operators, each of whom may have their own preferred desk layouts and settings.

#### **Multi-Purpose Operation**

The X2 has been designed to allow presenter operated programmes to be

made easily with all essential controls being present as part of the desk's hardware.

For more complex programmes, perhaps with an engineer or technical operator using the desk, the central screen provides access to the more advanced functions. These include routing, memories (including save and load from disc), fader labelling and processing such as EQ and dynamics. An assign button above each fader calls the screen to that channel allowing instant access to the various settings and options.

It is intended that all set-up procedures and configuration may be carried out and maintained by an engineer or technical operator, as it is not necessary for the presenters themselves to understand the desk's underlying configuration. It is for this reason that the X2 software has two operational modes - "Engineer" mode, in which access to all of the PC interface screens is permitted and "Self-Op" mode, in which access only to the screens enabled by the engineer in "Engineer" mode is permitted. The option for the engineer to disable the unnecessary PC interface screens reduces complexity, and prevents accidental changes being made.

Bi-directional communication to external scheduling/play-out systems is available.

# **Custom Layouts and Furniture**

The X2 control surface hardware consists of drop in panels individually cabled back to the control rack. This permits a wide variety of layouts to suit different operating practices.

Technical furniture can be user supplied hence no woodwork or stand is provided as part of an X2 system. However custom furniture and control panels can be designed on request.

#### 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 and RAB 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.



Certificate number 3205/02



Certificate number 3205/02

# **PRINCIPAL FEATURES**

### FORMAT

- 6, 12, 18 or 24 stereo channels
- 4 stereo auxiliaries with aux master level controls
- 2 stereo mains with limiters and gain reduction metering
- 30 source based mono clean feed outputs with talkback facility from a selectable talkback source
- 1 stereo metering direct input
- 2 main direct inputs each with separate routing and gain controls for the contribution to each main bus
- 48 source based stereo inserts
- 30 source based direct outputs
- 1 Stereo PFL
- 1 Stereo Control Room (Cubicle) LS
  output
- 1 Stereo Operator's Headphones
  output
- 1 Stereo Studio LS output
- 4 on-screen PPM meters with peak indication and selectable AB/MS
- Comprehensive GPIO System

# **CHANNEL FACILITIES**

- Input Selection
- Input Trim
- Phase Reverse
- Left to both, Right to both
- 4-band EQ
- 2 Filters
- Compressor/limiter and expander/ gate
- Insert (pre/post fader)
- PFL
- Level controls to auxiliary mix busses (pre/post fader)
- Channel Fader
- Pan
- Routing to mains and auxiliaries
- Clean Feed Output Level Control and pre/post selection
- Direct output gain control and pre/ post selection
- Auxiliary send (pre/post fader)
- 6 character label
- Assignable WILD button, display and rotary control
- Assign button
- Machine Control buttons and tally LED's

#### **MICROPHONE INPUT FACILITIES**

- Input Coarse Gain
- Phantom Power On/Off

#### **SYSTEM**

- On board Flash ROM memory system allows 99 full console snaphot or partial memories.
- PC backup allows an unlimited number of memories.
- Independent DSP operation ensures audio continuity even during PC or control reset.
- Console and racks boot from power on in less than 15 seconds.
- Full control system reset in less than 6 seconds.
- Last settings fully restored on powerup or reset.
- All cards and modules are designed to be Hot Plugged.
  - All cards and modules are designed to initialise upon insertion.

# **SYSTEM OVERVIEW**



### Hardware

The modular control panels and PC screen can be built into almost any style of operator furniture. There are 3 types of panel available:

- Channel Fader Panel (up to 4).
- Optional monitor panel.
- 5-way balanced stereo mixer/reset panel.

A 2U console processing unit, containing the control processing for the console, and the PC hardware on which the front end application runs.

A 7U DSP & Digital I/O rack, housing DSP, audio I/O, GPIO and control cards

# **Inputs and Outputs**

Audio signals enter and leave the X2 system through the rack-mounted input and output cards. It is possible to request a custom input/output card combination to suit almost any installation. No audio passes through the modular control panels. These control the DSP, input/ output cards and monitoring via the digital control system. The console can be provided with any combination of internal and external sources.

# Processing

Audio is processed within the system by the DSP & Digital I/O rack, using Bluefin HDSP.

# **Front End Operation**

Controls such as channel controls, routing, EQ, filter and dynamics settings, mix buss output levels & clean feed selection can be accessed via the front end application. Parameter changes can be made from the control screens, as well as the ability to save & recall console-wide settings.

# Power Up

When power is supplied to the X2 system, the console boots up in its most recent configuration, to the point of passing audio and providing control in about 6 seconds.

The front end takes slightly longer to boot up, as the PC hardware first has to load Windows. Once booted, the front end application synchronises itself with the console so that operation from the PC screens may begin. The front end can be restarted at any time without interrupting the audio.

# Earthing

The DSP/Digital I/O rack is provided with chassis earth studs. These must be connected to a common earth buss before any AC power is applied to the system. The power supply and console processing unit are earthed via their AC power inlets.

# AC (Mains) Power

AC (Mains) Power inlets are IEC type. The Multi-Rail power supply unit has two inlets, and the console processing unit has one inlet.

The whole system must be powered from the same phase of the AC power supply. All modules, cards and cables are designed to permit hot plugging.

# SYSTEM REDUNDANCY

#### **Power System Redundancy**

The X2 system is supplied with full power supply redundancy. The 2U console processing unit, which powers the user interface panels, the configuration computer and the control interface to the DSP/Audio I/O rack, contains 2 multi-rail power supplies, either of which are independently capable of running the unit, and attached panels.

The DSP/Audio I/O rack is powered by a 1U rack mounted unit, which contains 2 multi-rail power supplies, either of which are independently capable of running the unit.

If the primary supply fails, the secondary supply will automatically take over, with no audio interruption. This takeover will be reported to the front end via AWACS.

During operation, the console settings (apart from channel fader levels) are saved at frequent intervals (approximately every 5 seconds). Therefore, after a power failure, the console will re-boot in its most recently saved configuration, to the point of passing audio and providing control in about 3.5 seconds. The front end will have to re-boot in the same way as for initial power on, as it first has to load Windows. Once booted, the application synchronises itself with the console so that operation from the screens may continue.

Calrec recommend that the system is fed via an on-line UPS (un-interruptable power supply).

#### **Control System Crashes**

In the unlikely event of a control system crash, the system will continue to process audio. The control system can then be reset by activating the console reset on the reset panel or console processing unit. When the reset is activated, the system will continue to process audio. This means that in the event that the control system crashes, the system may be reset without interrupting audio.

#### **Front End Crashes**

If the front end application crashes, it may be restarted without resetting the console, using the PC reset button on the front of the console processing unit. Once booted, the PC program synchronises itself with the console so that operation from the PC screens may continue.

### **Card Failures**

The system is designed such that, if an audio card is removed, the other audio cards will still work. The facilities lost will only depend on the functions of the removed card. As cards are designed to be hot-pluggable, replaced cards will synchronise upon insertion.

# SYSTEM SPECIFICATION

DIGITAL INPUTS		
Word Length	24-Bit	
Formats Supported	AES/EBU (AES3) Also suitable for use with SPDIE (IECO59	3 Type 2) signals
Interface	110 Ohm transformer balanced, 5V Pk-Pl 75 Ohm unbalanced (BNC), 1V Pk-Pk	K
Sample Rate Conversion	24-Bit switchable on all digital inputs	
SRC THD+N	-117dB @ 1kHz, 0.00014%	
Word Length	24-Bit	
Formats Supported	AES/EBU (AES3)	
Interface	Transformer balanced 4V Pk-Pk (nominal Unbalanced 1V Pk-Pk (nominal) into 75 (	) into 110 Ohm load Dhm load (BNC)
ANALOGUE INPUTS		
Analogue - Digital Conversion	24-Bit	
Input Balance/CMR	Electronically Balanced - Better than -700	dB (Typically -80dB)
Input Impedance	>1k Ohms for Mic gains (1K2 Nominal) 10k Ohms for Line gains	
Sensitivity	+18 / -78dB	
Equivalent Input Noise	-125dB (150 Ohm source, 22Hz-22kHz	bandwidth)
Distortion	-1dBFS @ 1kHz - Better than 0.003% -20dBFS @ 1kHz - Better than 0.004% -60dBFS @ 1kHz - Better than 0.3%	
Frequency Response	20Hz to 20kHz +/- 0.25dB	
Crosstalk	20Hz to 20kHz >-86dB	
Delay	0.3ms	
ANALOGUE OUTPUTS		
Digital - Analogue Conversion	24-Bit	
Output Balance	Electronically Balanced, 20Hz to 20kHz, I	Better than -45dB, typically -55dB
Output Impedance	<40 Ohms	
Distortion	-1dBFS @ 1kHz - Better than 0.003% -20dBFS @ 1kHz - Better than 0.006% -60dBFS @ 1kHz - Better than 0.5%	
Frequency Response	20Hz to 20kHz +/- 0.25dB	
Crosstalk	20Hz to 20kHz >-90dB	
Delay	0.22ms	
PERFORMANCE		
Digital to Digital (AES/EBU) Distortion	-1dBFS, 20Hz to 10kHz - Better than 0.0	002%
Digital to Digital (with SRC) Distortion	-1dBFS, 20Hz to 10kHz - Better than 0.0	002%
Frequency Response (Analogue Input to Output)	20Hz to 20kHz +/- 0.5dB	
SYNCHRONISATION	 	
48kHz synchronisation from	NTSC/PAL Video Internal Crystal Reference TTL Wordclock AES/EBU Digital Input	
ENVIRONMENTAL CONSIDER	ATIONS	
	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

Analog input for OdBFS can be pre-set globally to +28, +24, +22, +20, +18 or +15 dBu

Pre-fader headroom on analog inputs is adjustable globally from +24 to +36dB in 2dB steps Analog output for 0dBFS Matches input setting into >1kOhms (+24dBu max into 600 Ohms)

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.

# X2 PANELS



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# **FADER PANEL**

The console is can have up to 4 fader control panels, giving a maximum of 24 channel faders. Each fader panel provides a simple but powerful set of controls for six channels.

# (1) Display

Each fader has an LCD display for up to two lines of six characters. The displays are used to indicate fader labels, wild control functions and wild control parameter values. Each source can be set up individually to display in either amber or green. This can be useful to provide an "at a glance" indication of source labels on the fader panels.

The display shows the source label on the top row. If any wild functions are enabled, the bottom row of the display will show a representation of the wild function, and a short scale of its value.

When the wild control is adjusted, the top row of the display will show the value of the wild function.

# (2) Wild Controls

The assignable wild button and rotary control can be used to control a number of parameters, including Input Trim and Pan. For each function, the rotary control and wild button perform different functions (see table below). Pressing the rotary control skips through the available functions. These controls may be set up on each channel independently. They may be programmed to provide access to the same controls, separate controls on each channel, or automatically change their function, depending on what control is selected on the Tech - Wilds screen.



# (3) Assign Button

The numbered Assign button selects the channel for viewing and control. The channel's fader number and label will be shown under "Current Fader Assignment" on the screen. The audio parameters for the channel are displayed on and controlled by the control screens

# (4) PFL

Pre Fade Listen button. The setup application allows the PFL switches on the fader modules to be set to operate momentarily, to latch, or auto. A tick box allows the setting of PFL to cancel when a fader is opened.

		rador lo oportoar
		ol Operation
T UNCUON		Wild Button
Pan/Balance	Pan/Balance	In/Out
Input Trim	Input Trim	-
EQ LF Level	LF Level	In/Out
EQ LMF Level	LMF Level	In/Out
EQ LMF Frequency	LMF Frequency	In/Out
EQ HMF Level	HMF Level	In/Out
EQ HMF Frequency	HMF Frequency	In/Out
EQ HF Level	HF Level	In/Out
Dynamics Threshold	Threshold Level	In/Out
Dynamics Make Up Gain	Make Up Gain	-
Direct Output Level	Direct Output Level	On/Off
Clean Feed Output Level	Clean Feed Output Level	On/Off
Aux 1-4 Send Level	Aux 1-4 Send Level	On(Post)/On (Pre)/Off (steps through)

# (5) Channel ON indicator

The fader's position controls the channel ON indicator. When the fader is down, the indicator is off and the channel cut. The channel ON indicator is illuminated when the fader is up.

# (6) Channel Fader

The channel fader operates the channel level.

# (7) Talkback

If a cleanfeed output is associated with the source on the currently assigned channel, the TB button switches talkback to it.

# (8) Machine Controls

Machine control relays can be set up on the Tech - GPIO TX REH - GPO screen so that the transition of the fader from "closed" to "open" operates a machine start, which can be used to trigger other equipment. The Start button enables the machine control, and must be pressed first to "arm" the fader.

General purpose inputs can be set on the Tech - GPIO TX REH - GPI screen to operate machine start or machine stop tally LEDs for any source. When fired, the GPI will light the green machine start LED or the red machine stop LED under the fader start button.

# **MONITOR PANEL**



# The monitor panel connects to the 2U console processing unit via a 36 way SCSI-style connector.

# (1) 16 Way Monitor Selector

The 16 buttons on the monitor panel act as a cancelling set, and allow up to 16 sources to be switched to the Control Room (cubicle) loudspeakers and operator's headphones. Each selector input may be driven by mains 1-2, record, auxiliary 1-4, external input, PFL, Tone, any direct output or any clean feed.

In engineer mode, sources are allocated to the buttons on this panel using the Tech - Monitor Panel screen.

#### (2) Main Loudspeaker Functions

The main loudspeaker output can have mono applied to both legs using MONO BOTH.

The left and right legs can be cut independently using CUT L and CUT R.

#### (3) Main Speaker Level & CUT/DIM

The level of the main speakers can be adjusted using the rotary control. The main speakers can be CUT and have a preset DIM level applied.

DIM level can be adjusted on the Tech

- Monitor Meter - Monitor Settings screen.

The CUT and DIM controls can be operated remotely in order to work with third party talkback systems, station intercoms etc. This is set via general purpose inputs on the Tech - GPIO TX REH - GPI screen under misc functions.

The main loudspeakers can be set to DIM when talkback to clean feed is active. This is set via condition switching on the Tech - GPIO TX REH - TX REH screen.

The main speakers can also be cut using a source location group. If any source belonging to the source location group is live and faded up, then the mute will be activated.

The setup application allows the user to specify a source location group to drive the mute.

Sources are allocated to source location groups on the Tech - Lists screen.

# PFL

When PFL, on a channel fader, is activated, the PFL signal will replace the selector output on the headphones and loudspeakers. A rotary control and CUT switch are provided to control the PFL speaker.

#### **Operator Headphones**

The level of the operator's headphones can be adjusted using the rotary control.

The setup application allows the operator's headphones to be given a mono, stereo or OFF setting for PFL, and can choose to include RTB Override and LS Sel stereo input.

The operator's headphones can be set to operate in split ear mode using the setup application, where the user to choose what is fed to each ear. For example, PFL could be set to feed one ear (one leg only), and RTB to feed the other.

# **Reverse Talkback**

RTB is normally set to replace both the selector output and the PFL signal on the headphones and loudspeakers. This can be altered in the setup application. A rotary control is provided to adjust its level.

# **RESET PANEL**

### **Console Reset**

A protected switch allows the console to be reset. Pressing the RESET button resets the Control System only. Independent DSP operation ensures audio continuity during console reset. The most recent console settings will be fully restored in less than 15 seconds.

### **Power Supply Monitoring**

The reset button on this panel will flash if any one PSU fails (the hot spare PSU would prevent the desk from being affected).

This button can be set to flash whenever an AWACS error or warning message is reported. This is done using a general purpose output, set up on the Tech - GPIO - GPO screen.

### **VI Mixer**

This panel acts as a 5 into 1 stereo line mixer which is used to combine up to 4 stereo sources together with the output from the console.

This can be used to mix audible cues to assist visually impaired operators. The cues are provided using a system called JAWS, which generates spoken messages in response to control inputs.

Each stereo input is balanced, with a nominal gain range of +10dB to -30dB.

Each stereo input can be cut individually, using the cut buttons.



# X2 RACK EQUIPMENT



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# **DSP & DIGITAL I/O RACK**

The 7U DSP/Digital I/O rack houses the system's DSP, input, output and control 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.

- 1 DSP card
- 1 control processor card
- 1 GPIO card
- 1 ADC (analog input) card
- 1 DAC (analog output) card
- Up to 2 AES input/output cards
- 1 Relay card

#### Mounting

The unit should always be mounted in a horizontal position, located into an equipment bay and secured into the front of the bay by the four fixing holes in each of the two front angles.

#### 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.

It is strongly recommended that all items of digital equipment connected digitally to the console, 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.

#### **External AES Sources**

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.

#### **TTL Wordclock Synchronisation**

A TTL Word Clock synchronisation input is provided on the rear of the Digital I/O Rack, on a  $75\Omega$  BNC connector.

#### **Frequency Variation**

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).



# **POWER SUPPLY UNIT**

Front





A 1U multi-rail power supply unit is used to power the DSP/Digital I/O Rack. This unit houses two multi-rail power supply units - one powering the rack, plus a second unit acting as a "hot spare" providing redundancy, in case the first unit fails.

Each PSU within the unit has an IEC inlet.

#### **Power Output Connections**

An 8 way connector for Analog power connects to the rear of the DSP/Digital I/O rack, providing power to its analog components.

A 5 way connector for 24V power connects to the rear of the DSP/Digital I/O rack, providing power to its digital components.

#### Mounting

This unit should be secured into the front of the bay by the two standard fixing holes in each of the two 1RU front angles. The unit should always be mounted in a horizontal position.

#### **PSU Fail Indication**

Should any of the fans slow down or stop, or any voltage rail fall outside specified

limits, a PSU Fail signal will be sent to the console and front end via relays, to warn the operator of a problem.

A 9 way D-type connector receives the fan status of the DSP/Digital I/O rack. A 36 way SCSI style connector provides the link back to the DSP/Digital I/O rack for the fan fail signal to be sent to the console's front end via AWACS.

#### **Rack Reset**

Pressing the RACK RESET button resets the DSP/Digital I/O rack only, the control surface is unaffected.

Please Note: Resetting the racks will result in a brief audio interruption.

#### **Fan Cooling**

The multi-rail power supply unit is fan cooled using low noise fans.

#### **Acoustic Noise Level**

The acoustic noise of the unit is 42dBA. This measurement was taken at 1 metre from the dominant noise source.

# **CONSOLE PROCESSING UNIT**

Front



#### Rea<u>r</u>



**Operating System** 

CPU

RAM

HDD

**Card Slots** 

USB 2 Ports

### This unit houses the console's control processing system, GPIO hardware and the PC hardware on which the front end application runs.

#### Mounting

This unit should be secured into the front of the bay by the two standard fixing holes in each of the two 1RU front angles. The unit should always be mounted in a horizontal position.

#### **User Interface Panels**

Connections for up to 6 user interface panels, are located on the rear of this unit. There can be up to 4 fader panels, a monitoring panel, and a Reset/VI mixer panel.

# **KVM Connections**

Connections for the touch screen, keyboard and mouse are found on the rear of this unit

#### **GPIO** Connections

This unit interfaces up to 32 general purpose outputs and 16 general purpose inputs via 36 way SCSI-style connectors. These inputs and outputs can be used to perform various operations. In engineer mode, GPIO functions are set on the Tech - GPIO - screens.

#### Fast Link

The unit interfaces to the DSP/Digital I/O rack is via a fast link connection.

#### **Console Reset**

A recessed switch allows the console to be reset. This button resets the control system only. Independent DSP operation ensures audio continuity during console reset. The most recent console settings will be fully restored in less than 15 seconds.

#### **Rack Reset**

A recessed switch allows the DSP/Digital I/O rack to be reset. Pressing this button resets the DSP/Digital I/O rack only, the control surface is unaffected.

Please Note: Resetting the racks will result in a brief audio interruption.

#### **PC Reset**

A recessed switch allows the PC inside the unit to be reset. As the console operates independently of the PC, rebooting or failure of the PC will affect neither the audio nor the operation of the console.

#### BNCS

A serial port provides connection to a BNCS system. This allows the console to use labels from an external router. In engineer mode, the serial interface and router label associations are set up using the Tech - Misc - Serial I/F screens.

#### **Acoustic Noise Level**

The acoustic noise of the unit is 24dBA. This measurement was taken at 1 metre from the dominant noise source.

#### **Remote Access**

Windows XP

1GB DDR2-533

40GB WD400UE

1 x PCI Slot

EPIA EN15000G (C7 1.5 GHz+)

1 x 10/100/1000 Fast Ethernet

4 (Rear of Unit), 2 (Front of Unit)

USB connectors are provided on both the front and rear of the unit 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.

#### **Local Network**

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.

#### **Software Supplied**

An OEM PC Operating System license is supplied with each console, and the operating system software is pre-installed. The console software is also pre-installed.

#### **3rd Party Software**

Calrec recommends that the unit is regarded as an integral control device for the console, and not as a general purpose PC. The installation of inappropriate software on the unit's PC may invalidate the console warranty.

### **Usernames and Passwords**

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

Username: CalrecAudio Password: (none)

This user can install and run programs, but cannot change PC hardware settings (i.e. install drivers. It is recommended that this user is used during normal operation.

Username: CalrecAudioAdmin Password: calrec

This user has full rights to the PC and can install and change PC hardware settings.

#### File Backup

The files in the table below are specific to each individual console. As such, a backup copy should be kept of these files in-case of PC or hard-drive failure.

Backup could be to a LAN or to a USB device which can be plugged into the front or rear of the unit.

FILENAME	DESCRIPTION
C:\X2\Cust1\Config.bin	This file should only be altered by an approved Calrec engineer using a specifically designed application. The file can be copied but any unauthorised changes made will render it inoperable, including changing the date stamp of the file (such as saving even if not edited). If the file needs to be e-mailed to Calrec for any reason it should always be zipped to protect the file time/date stamp. A new backup copy of this file should be made after a console upgrade.
C:\X2\Cust1\Setup.ini	This file is updated when changes to console settings are made and saved using the set-up application. It should not be altered by any means other than by using the set-up application. A new backup copy of this file should be made after such changes are made or after a software upgrade.
C:\X2\Cust1\Options\Options.bin	This file is updated and a new backup should be made when changes to any of the sub-pages of the TECH screen are made and the options are saved.
C:\X2\Cust1\memories	This is the default location for the user memories. The maintenance department should keep a backup of the important default memories, whilst operators should be encouraged to keep their own backups of their own memories and to update them whenever they make important changes to them. After a software upgrade the main set of memories will be upgraded and checked by the engineer carrying out the upgrade. A new backup should then be made of these memories.
C:\X2\Cust1\cfg	This is the default location for the user-definable port list configurations. It is important to keep a backup copy of the files in this folder.

# X2 SCREEN INTERFACE



calrec.com

Putting Sound in the Picture

# **SETUP APPLICATION**

# The setup application allows the console to be set up.

# Desk

A label for the console can be entered.

The number of clean feed and direct outputs can be set here. There can be a maximum of 30 of each in the system.

The PFL switches on the fader modules can be set to operate momentarily, to latch, or auto.

A tick box allows the setting of PFL to cancel when a fader is opened.

The analog level that OdBFS equates to can be set between +15dBu and +28dBu.

Line up (0) level can be set to a number of dB below 0dBFS.

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#### Racks - I/O Rack

Shows the card configuration.

Allows the redundancy option of a second DSP card to be set.

# **SETUP APPLICATION**

### This screen, and the output ports screen allow the user to pre-define labels, descriptions and graphical icons for all the input and output ports.

The rules imposed on labelling 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. 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 (-) and right (R) suffix to the label to distinguish the two halves of the pair, or an  ${}^{L}R$  suffix when the pair is used together.

The pairs can be used either for two mono signals or a stereo 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 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.

Calvec	32 Cord	igue adicesi					
	548	Port Positiant	Type	More/Stereo	Label	how	Description
	11	15L + 15R	Digital	2	095	0\$5	
	п	16L + 16R	Digital	R	056	0\$6	
	н	17L + 17R	Digital	B	HDI	0	Hexdul.
	п	18. + 191	Digital	B	HD 2	0	Headak.
	11	191 + 198	Digital	8	HD 3	0	Penduk
	11	201. + 2591	Digital	R	MD-4	0	Mestal
	н	211. + 21R	Digital	B	HD 5	0	Phraduk
	11	221 + 229	Digital	E	RadMan		Radunan
	-11	Z3L + 23R	Digital	R	Ani 23	RBS1	
	-11	24L + 24R	Digital	R	Aes 24	RBS2	
	н	251, + 25R	Digital	B	Ars 25	None	Patchbey #25
10 (p+8	11	25L + 25R	Deptal	8	Aei 25	None	Patchiny \$26
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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 of the source 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, outside source, 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 analog consoles.

When planning the use and labelling of I/O, you should also bear in mind that the console 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 snap-shot memories.

# Port Lists

In addition to labelling, each port can be allocated to one of a number of lists in the main application, using the Tech - Lists screen.

# **SETUP APPLICATION**

### **Racks - Inserts**

The available inserts can be given a user label here. Double-click on the insert name to type over it.





#### Mon

Allows settings for the system's monitoring to be set. Using the selection buttons, each mute can be set to be driven by a source location group, allowing any source belonging to the source location group which is live and faded up, to activate the mute. This is enabled using condition switching on the Tech - GPIO - TX REH screen.

Sources are allocated to source location groups on the Tech - Lists screen.

The operator's headphones can be given a mono, stereo or OFF setting for PFL, and can choose to include RTB Override and LS Sel stereo input.

The user can choose what to feed to each ear of the operator's headphones. They can be set to operate in split ear mode - for example, PFL could be set to feed one ear (one leg only), and RTB to feed the other.

# FRONT END USER INTERFACE

#### **Touch Screen**

A range of SVGA screens such as TFT displays can be used with or without an integrated touch-screen controller. The X2 program runs in a fixed size window designed to fit an SVGA display and has a fixed resolution of 1024 x 768.

#### **User Interface**

A logical user interface provides easy and quick access to the functions and information on the touch screen. Failure of the console's PC has no effect on the operation of the control surface or the audio.

The Front End screens are divided into groups which are accessed using the buttons along the bottom of the display. Within each group there are a number of screens accessed by buttons up the left side of the display. On some screens, there are additional buttons to access subsets of the screen's function.

Along the top of each screen, the currently assigned fader and currently loaded memory are shown.

A status display at the bottom of the screen reports message information to the operator.

#### Meters

4 user-definable meters are shown on the right of the screen. In Engineer mode, the user can choose what to display on each meter, and change the colour of the bars using the Tech - Monitor Meter - Metering screen. Arrows at the top corner of the screen are used to toggle the meter view.

The LR button on each meter toggles the meter between A/B and M/S.

#### **Operational Modes**

The X2 has been designed to allow presenter-operated programmes to be broadcast easily, with all essential controls being present as part of the console's hardware. It is intended that all set-up procedures and configuration may be carried out and maintained by an engineer or technical operator. It is not necessary for the presenters themselves to understand the desk's underlying configuration, and it is for this reason that the X2 software has two operational modes, selected on the Tech - Op Mode screen.

ENGINEERING mode allows unrestricted access to all features of the system. This permits an authorised engineer to prepare the console for use by a non-technical operator.

OPERATOR mode allows access to only those controls enabled by the engineer. The option for the engineer to disable the unnecessary controls reduces complexity, and prevents accidental changes being made. Disabled controls will disappear from the control area, but the settings on them will still be active.

#### **Currently Assigned Fader**

The front end screens will adjust settings for the currently assigned fader. The currently assigned fader is chosen using the fader assign button.

Each screen has a "Change Fader" button, which, allows the user to change the currently assigned fader from the screen. When selected, a box appears from which the required fader can be selected.



#### Help

The user can access help information about a function, using the question mark icon on each screen. Simply select the question mark icon, then point to a function on the screen.

# **SCREEN LAYOUT**

A logical user interface provides easy and quick access to the functions and information on the touch screen. Failure of the screen's computer has no effect on the operation of the control surface or the audio.

The Front End screens are divided into groups which are accessed using the buttons along the bottom of the display. Within each group there are a number of screens accessed by buttons up the left side of the display. On some screens, there are additional buttons to access sub-sets of the screen's function.



MEMORY

The Assign screen allows sources to be allocated to the console's faders.

Screens for saving and loading up to 99 console memories, and restoring additional memories from backup.

Operational screens for setting channel functions, eq and

filter settings, dynamics, clean feed, direct output and



Control of the main direct inputs and dynamics, control of auxiliary outputs.



The Tech button allows entry to and control of passwordprotected operational modes for "Operators" and "Engineers". Engineers can access further screens under this button.

In Engineer mode, the Tech screens are used to pre-set the system to the studio's required settings. Includes set up and display of all I/O connections and port lists, set up of meters, monitor panel buttons, serial interface and label associations, GPIO and condition switching.

# **Console Options**

insert assignment.

Some of the Tech screens allow setting of console options. Options settings are not stored in the individual console memories but are saved and loaded separately using the buttons on each Options screen. This allows changes to be made without invalidating any saved memories. Changes to options take effect as soon as they are made, however if they are not saved, the next time the desk boots up the options will revert to their previous settings. Upon loading the options settings from the file on the hard disk, any changes made will be over-written unless they have been saved. This allows changes to be tried without losing the original settings and the original settings can be restored without having to re-boot the system.



The "EXIT" button at the bottom corner of the screen will exit the application. Next to this button is an indicator which shows the status of the control processor. During normal operation, this indicator will be green. When busy, the processor's indicator will be yellow, during which time, no changes can be made to the control screens (Although changes to the control panels can be made, and will take immediate effect).

# **ERROR MESSAGES (AWACS)**

Calrec A	udio - X2	2						_ # X
Memory :	Monda	ay Show 1		Fader : 2	Guest1	Change Fader	?	¥ #
Error	Warn	Info View Pending						
Read	Cat	Raised	Cleared	Source	1	Su	mmary	
	A	07-Jun-2007 11:25:10		Control Surface	PSU Error			
1	A	07-Jun-2007 11:25:10		Control Surface	PSU Error			
	A	07-Jun-2007 11:25:10		Control Surface	PSU Error			
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If a problem does develop, messages are delivered on the Automatic Warning and Correction System (AWACS) screen.



The AWACS button at the bottom of the screen will flash to alert the user that a message has been reported. Selection of this button will open the AWACS page, where messages can be viewed.

Selecting a message will reveal a more detailed description. Message history is saved to the PC's hard disk for future analysis.

Three types of messages are reported:



Information messages, eg "Control Surface UN4806 processor started successfully"



Warning messages, where the system back-up has taken over



Error messages, where the system cannot recover by itself (perhaps because the back-up is already in use)

As the system has many back-up features, it is possible to continue operating after errors are reported. If uncleared errors are still present, an icon will flash in the AWACS button. Selecting this button at any time will switch back to the AWACS screen. Information messages can be cleared by selecting them and then leaving the AWACS screen. Warning and Fatal Error messages can only be cleared by clearing the error and restoring the system to its normal operational state.

In engineer mode, it is possible to set the PSU Fail Indicator button on the reset panel, to flash when an error message is reported. This is set up on the Tech - GPIO screen.



# **ASSIGNING SOURCES**

This screen allows sources to be assigned to the console's channel faders. The icons and source labels shown here are defined during the set up of the console.



12 faders are shown across the width of the screen. If your console has more than 12 faders, the screen is navigated using the scrollbar along the bottom of the screen. All the available input sources are shown at the top of the screen.

# **Assigning Sources To Faders**

To assign a source to a channel fader, simply 'drag and drop' the icon, from the list of available input sources, to the space above the fader symbol. Once a source is assigned to a fader, it will be removed from the pool of available sources.

Once a channel fader has a source assigned, its source label will appear in the LCD display above the fader on the channel faders module.

A source can be de-assigned by dragging its source icon back to the available sources list.

To change a source, either drag and drop a new icon onto the fader (the original source will return to the list of available sources), or drag and drop an icon from another fader (the sources will swap over).

Channel settings are stored with sources. This means that when a source icon is dragged onto a fader, the input trim, dynamics, EQ, filter, pan, aux send and stereo function settings stored for the source are copied onto the channel controlled by that fader. Similarly, when the source icon is dragged off the fader, these settings are copied from the channel back to the source. Hence, a source will retain its settings when it is moved around on the control surface.

Selecting the fader symbols from the screen changes the currently assigned fader. A line beneath the fader's routing buttons indicates the currently assigned fader.



A red box around a screen fader indicates that the fader is open.

When live input protection is enabled on the Tech - Op Mode screen (in engineer mode), a source cannot be removed from or assigned to a fader when it is open. This prevents sources from accidental movement during use.

#### Machine Start/Stop

If a fader has machine controls associated with it, this will be indicated by a white ARM icon above the fader symbol. This icon will turn green if the source's fader start enable is active. The icon turns amber when the fader is opened.

In engineer mode, machine controls are set up using the Tech - GPIO TX REH - GPO screen.

# **CUT GPI**

If a source has a cut GPI input associated with it, this will be indicated by a red CUT icon above the fader symbol when the cut is active.

In engineer mode, cut GPIs are set up using the Tech - GPIO TX REH - GPI screen.

#### Routing

Channels can be routed to Main 1, Main 2, mix-minus, record or auxiliaries 1-4 using

the selection buttons below the faders. The routes selected are shown in bright colours.

If you left click (or touch) on the routing display, a small window appears which allows selection of destinations for the channel.

Alternatively, if you right click on one of the routing selection buttons, the route will be made directly.

# **CHANNEL CONTROL**

### This screen allows settings to be applied to the channel on the currently assigned fader.



The currently assigned fader is chosen either by selecting its fader assign button on the fader panel, or by selecting Change Fader from the screen (A box will appear from which the required fader can be selected). If there is no source on the fader selected, then the controls on this screen will be disabled.

This screen is always visible to the operator, although some of the controls here may be restricted using the Tech -Wilds screen. Restrictions can only be set up in engineer mode.

#### Input Trim

Input Trim is adjustable between -18dB and +18dB

#### **Mic Coarse Gain**

A coarse gain control for microphones is provided on this screen. Mic coarse gain is adjustable between -12 and +78dB

# **Stereo Functions**

Left To Both and Right To Both feed the left or right legs of the incoming signal to both the left and right legs of the stereo channel. Selecting both of these will feed L+R to both, which with a gain reduction of -3dB produces a mono signal.

Phase Reverse Left and Phase Reverse Right will reverse the phase of the left or right legs of the incoming signal.

### **Channel Pan**

The channel can be panned from left through centre, to right. The pan control can be switched In/Out using the button. A button sets the pan to centre.

#### **Auxiliary Send Control**

There are 4 stereo auxiliaries. The On/Off controls on this screen switch the currently assigned channel to that auxiliary mix. A screen fader allows level adjustment between Off (-60dB) and +10dB.

Buttons allow each auxiliary output to be pre or post the channel fader. The auxilliary outputs are controlled using the



Outputs - Aux Master screen.

#### Direct Output

If the source on the currently assigned channel has been designated as a direct output source on the Channel - Direct Output screen, controls on this screen allow its direct output to be switched On/Off, and to adjust its level. A button allows pre/post fader selection - this setting is shared by the channels's clean feed output (if assigned).

Direct outputs can also be switched On/ Off and adjusted on the Channel - Direct Output screen.

In engineer mode, ports for direct outputs are patched using the Tech - I/O Patching screen.

#### **Clean Feed**

If a clean feed output has been set up for the source allocated to the currently assigned fader on the Channel - Clean Feed screen, controls here allow it to be switched On/Off. Clean feed output level is adjustable between Off (-60dB) and +10dB using the screen fader.

The clean feed output is fed with all channels routed to the mix minus bus, minus this channel.

The clean feed shares the same pre/post fader setting as the channel's direct output.

Clean feed outputs can also be switched On/Off and adjusted on the Channel - Clean Feed screen.

In engineer mode, ports for clean feed outputs are patched using the Tech - I/O Patching screen.

#### EQ, Filter & Dynamics

EQ, filter and dynamics can be switched In/Out of the channel using the controls on this screen. Also, EQ and filters can be switched in and out of the dynamics here.

Settings for EQ and dynamics are adjusted on the Channel - EQ Dyn screens.

#### Insert

If an insert has been assigned to the source on the currently assigned channel on the Channel - Insert screen, controls on this screen allow the insert to be switched In/ Out, and for pre/post selection to be made.

In engineer mode, ports for insert sends and returns can be patched using the Tech - I/O Patching screens.

#### **Machine Start Indicator**

If machine controls have been allocated to the the currently assigned fader, a machine start indicator is provided on this screen to show the status of the machine start. Please note that this is for indication only, and does not control the machine start.

In engineer mode, machine controls are set up using the Tech - GPIO TX REH - GPO screen.

# **DIRECT OUTPUTS**



The system can have up to 30 direct outputs. Any input source can be designated as a direct output source.



To assign an input source to a direct output, simply drag its icon from the available source area to the required direct output fader.

The On/Off buttons activate the direct output.

Using the screen faders, gain can be adjusted between Off (-60dB) and 10dB for the contribution to the direct output

# Pre/Post Fader

Both clean feed and direct output share the same pre/post channel fader setting. This is set on the Channel - Chans screen.

# **Direct Output Port Patching**

In engineer mode, direct outputs are patched to output ports using the Tech - I/O Patching - Direct Outputs screen.

# Screen Visibility

# **CLEAN FEEDS**



This screen is used to control up to 30 mono clean feed outputs. Each clean feed is fed with all channels routed to the mix minus bus, minus the source it is feeding.



To allocate a clean feed output to a source, simply drag its icon from the available source area to the required clean feed output fader.

The screen is navigated using the scrollbar along the bottom of the screen.

The ON/OFF button activates and deactivates the clean feed output.

Gain can be adjusted between Off (-60dB) and +10dB.

Controls to adjust the clean feed for the currently assigned channel are also available on the Channel - Chans screen.

# **Pre/Post Fader**

Both clean feed and direct output share the same pre/post channel fader setting. This is set on the Channel - Chans screen.

#### **Clean Feed Output Port Patching**

In engineer mode, ports for clean feed outputs are patched using the Tech - I/O Patch screen.

#### **Talkback To Clean Feed**

In engineer mode, inputs for Talkback and Reverse Talkback are patched using the Tech - Monitor Meter - Talkback Mon IP screen.

#### **Screen Visibility**

# **INSERTS**

mory :	Monday	Show 1				Fader : 2	Guest1		Change Fader	?	Hidden		¥
											M	aln 1	Mair
ŕ	walable liput	Sources	VOV	NOV	VEV	NOV	NUV	107	NEV	VIC			
	CD1	CD2	CD3	CD4	CDS	CD6	CD7	CD8	CD9	CD10			
	0	1	1	T	T	1	OF	DE	OF	OF	_		
	DECK	ISON1	ISDN2	ISDN3	ISDN4	15DN5	MD 1	MD 2	MD 3	MD 4		<b>n</b> )	
	0-	051	052	053	054	055	056					2-	
	MDS	061	062	000	084	000	000	Radian	TARE 1	TARE 2	20-		
	mo s	001	0.52	055	054	033	036	Plata the t	TAPE 1	INCE		10-	
ſ	0	0.	0		<b>a</b> •	1		4.00			· · · · · · · · · · · · · · · · · · ·		
	~	~	7		~			i I	_			R	LF
	Pres	Guest	L 6	uest2	Guest3	No Source Associated	No Sourc Associat	ed As	Source No sociated As	Source sociated	No Sou A		CR.
											4		4
											12-		12-
											18-	Π	10-
											-		
T												11	
5	ĴĻ,	ĴĻ		ĴĻ,	ĴĻ,	ĴĻ,	JL	•	tι -	ĴĻ,	_]   »-		38-
	Insert 1	Insert 2	1	nsert 3	Insert 4	Indert S	insert (	•	- <b>-</b> + 0	sGete1	BssGe 20		10
												LR	1

The system can have up to 48 inserts. Each insert can be allocated for use to one source using this screen.



If an insert is assigned to the source on the currently assigned channel, controls on the Channel - Chans screen allow it to be switched In/Out, and allow pre/post fader send selection.

# Insert Send/Return Patching

In engineer mode, ports for the insert sends and returns are patched using the Tech - I/O Patch screens.

All input patching is saved and loaded in the User Memories, this includes insert return patching.

All output patching is retained in the console's "hidden" memory which is not affected by loading user memories, this includes Insert Send patching.

When a user memory is loaded, the insert

send patches saved in that memory will be restored, but the return patches will not.

# Screen Visibility

# **EQ & FILTERS**



This screen controls EQ and Filters on the currently assigned channel. The user can view and manipulate the EQ and filter response curves, using the touch screen.



The required band is selected from the left side of the screen. When selected, that band's response curve is shown in the Editable Response window, with the adjustable area highlighted in blue.

Frequencies are adjusted using the touch screen, by selecting the crosshair and moving it around within the editable area. As it moves, the frequency and level values of the selected path will change.

Nudge buttons to the right of the editable response window can also be used to make adjustments.

EQ and Filters are switched in and out of

the signal path using the IN buttons. EQ and Filters can also be switched In/Out on the Channel - Chans screen.

The overall response window shows the overall response curve for the selected path. The curve itself is only visible if EQ is switched into the path.

#### Filters

- LF 12dB/octave plus notch, 20Hz to 330Hz
- HF 12dB/octave plus notch, 3.3kHz to 20kHz

#### Equaliser

- LF 30Hz to 470Hz, shelf or bell (Q of 1)
- LMF 160Hz to 2.4kHz, Q of 1 or 3 HMF 500Hz to 7.5kHz, Q of 1 or 3
- HF 1kHz to 16kHz, shelf or bell (Q of 1)

EQ level controls are adjustable by ±15dB. Excessive control ranges are deliberately avoided to simplify operation.

# EQ Flat

EQ FLAT will clear any EQ settings to flat. A confirmation box must be accepted before this action is carried out, this prevents against accidental flattening of settings.

# Side Chain EQ

A similar screen exists to adjust the EQ in the dynamics.



# **Screen Visibility**

# **DYNAMICS**



This screen controls the compressor/ limiter and expander/gate on the currently assigned channel.



The dynamics are adjusted using the touch screen, by selecting the crosshair and moving it around within the editable area. As it moves, the values of the selected path will change.

Nudge buttons to the right of the editable response window can also be used to make adjustments.

The compressor and expander/gate are switched in and out of the signal path using the IN buttons. Dynamics can also be switched In/Out using buttons on the Channel - Chans screen.

The overall response window shows the overall response curve for the selected

path. The curve itself is only visible if dynamics are switched into the path.

#### Compressor

Threshold +20dB to -20dB Recovery 75ms to 4 sec + AUTO Ratio 1 to 50 Attack 50µs to 30ms Sidechain Listen

#### **Side Chain Listen**

The sidechain listen facility allows the user to listen to the signal driving the compressor sidechain. This allows the effect of the EQ settings in the dynamic's side chain to be heard on the PFL bus.

Make up gain is adjustable from 0dB to +20dB.

#### Expander

Threshold +10dB to -40dB Recovery 75ms to 4 sec Depth 0dB to 40dB Fast attack 300µs (normal 16ms) Ratio 2/1 and VAR (variable - according to level)

# Gate

Threshold 0dB to -40dB Recovery 75ms to 4 sec + AUTO Depth 0dB to 40dB Fast attack 300µs (normal 16ms) Gate delay 0 to 1 sec in addition to 6dB hysteresis

#### **Dynamics Linking**

It is possible to have the dynamics of many channels linked by assigning them to one of four available link busses. This is useful for when the same dynamics settings need to be applied to more than one channel. Link buttons 1, 2, 3 and 4 assign the channel to the link busses. An OFF button removes the channel from a link bus.

# Pre EQ or Pre Fader

Buttons allow the dynamics to be applied pre EQ or pre fader.

#### **Screen Visibility**

# **AUX MASTER**

Colrec A	Monday Show 1		Fader: 2 Gu	est1	Change Fader	? Visible	.#X
		Aux 1	Aux Z	Ашк З	Aux 4		
		+10 +6	+10 +5	+10 +5	+10 +5		
		-5 -10	-10	-5	-5 -10		
		-20 -30	-20 -30	-20 -30	-20 -30		
		-40 -80 off	-40 -60 off	-40 -60 off	-40 -60- off		
Aux Matter		0	-3	On	0 On Off		
Main Dyn							
Main Dir Inp	ASSION MEMORY	CHANNEL OUTPUTS 1	ECH AWACS	Enisted Mesons Jacob			EXIT O

The master send levels and On/Off switching for the 4 stereo auxiliary outputs are available on this screen.



Each stereo auxiliary output's level can be adjusted between Off (-60dB) and +10dB using the screen faders.

Channels are routed to Auxilliaries in the area below the relevant fader icon on the Assign screen.

Aux send controls are available on the Channel - Chans screen.

#### **Screen Visibility**

# MAIN DYNAMICS



### This screen controls the compressor/ limiter and expander/gate on main outputs 1, 2 and record



The dynamics are adjusted using the touch screen, by selecting the crosshair and moving it around within the editable area. As it moves, the values of the selected path will change.

Nudge buttons to the right of the editable response window can also be used to make adjustments.

The compressor and expander/gate are switched in and out of the signal path using the IN buttons. Dynamics can also be switched In/Out using buttons on the Channel - Chans screen.

The overall response window shows the overall response curve for the selected

path. The curve itself is only visible if dynamics are switched into the path.

# Compressor

Threshold +20dB to -20dB Recovery 75ms to 4 sec + AUTO Ratio 1 to 50 Attack 50µs to 30ms Sidechain Listen

The sidechain listen facility allows the user to listen to the signal driving the compressor sidechain. This allows the effect of sidechain EQ to be "previewed".

Make up gain is adjustable from OdB to +20dB.

# Expander

Threshold +10dB to -40dB Recovery 75ms to 4 sec Depth 0dB to 40dB Fast attack 300µs (normal 16ms) Ratio 2/1 and VAR (variable - according to level)

# Gate

Threshold 0dB to -40dB Recovery 75ms to 4 sec + AUTO Depth 0dB to 40dB Fast attack 300µs (normal 16ms) Gate delay 0 to 1 sec in addition to 6dB hysteresis

#### **Dynamics Linking**

It is possible to have the dynamics of many channels linked by assigning them to one of four available link busses. This is useful for when the same dynamics settings need to be applied to more than one channel. Link buttons 1, 2, 3 and 4 assign the channel to the link busses. An OFF button removes the channel from a link bus.

# Pre EQ or Pre Fader

Buttons allow the dynamics to be applied pre EQ or pre fader.

# **Screen Visibility**

# **MAIN DIRECT INPUTS**

nory: 1	Memory 1	Fader	: 2 cd1LR	Change Fader	? Hidden	¥. 4
		Main 1	Main 2	Record		
		+5	+5	+5		
		-10	-5 -10	-5 -10		
		-20 -30	-20 -30	-20 -30		
		-40 -60 off	-40 -60 off	-40 -80 off		
		-6 	On Off	n		
9	ASSIGN MEMORY CHAN	NEL OUTPUTS TECH A	wacs			EXIT

The direct input levels and On/Off switching for main 1, main 2 and record are controlled using this screen.



Each direct input's level can be adjusted between Off (-60dB) and +10dB using the screen faders.

Buttons allow the direct input to be switched On/Off.

In engineer mode, input ports for main 1, main 2 and record direct inputs can be set up using the Tech - I/O Patch - Direct Inputs screen.

# **Screen Visibility**

In engineer mode, a user can hide this screen, so that it will not be visible in operator mode.

# **USER MEMORIES**

nory:	Monday Show 1	Fader : 2 Gue	st1 Change Fader ?
	Search		
	Description	Backup time	Live Memory
	Monday Show 1 Monday Show 2	050507 22:32	Monday Show 1
	Monday Show 3	04/06/07 22:32	Last Saved 12-7-7- 12-7
	Monday Show 4	04/06/07 22:32	
	Tuesday Show 1	04/06/07 22:32	
	Tuesday Show 2	04/06/07 22:33	Save Load Clear
	Tuesday Show 3	04.06.07 22:33	
	Tuesday Show 4	04.06.07 22:33	
			Aux 1
			0
			4
4			
		-	Default Memory

The memory system allows the user to save different console arrangements. This can be useful when many different operators use the same console, or when the console is used to broadcast many different weekly productions. The Memory - Load Save screen is used to load and save memories,



Up to 99 memories can be available for use at any time. In addition, the console will back up an unlimited number of memories, which are easily recalled using the Mem-Restore screen. Memories can also be stored to removable media if desired.

# **Memory List**

All the available memories (Up to 99) are listed on the memories screen. Memories will be shown as empty if they have not yet been used.

#### **Creating A New Memory**

To create a new memory, select an empty memory from the list. When SAVE is

selected, the console's current settings are saved, and the new memory can be given a description. The memory will be automatically backed up to the console's hard drive.

#### **Loading Memories**

To load a memory, select it from the list and select Load.

When a stored memory is loaded, the system checks that the current desk configuration matches that of the stored memory. If there are discrepancies, a warning message is reported.

#### Saving and Recalling I/O Patches

All input patching is saved and loaded with the user memories.

All output patching is retained in the console's "hidden" memory which is not affected by loading user memories.

#### **Searching For Memories**

Typing the name of a memory into the search box above the memory list allows the user to locate previously saved memories in the list.

#### **Clear Memory**

To clear a memory, select it from the list and select "Clear Memory". This removes the memory from the console memory list. A confirmation box must be accepted before the clear is executed to prevent memories from being accidentally cleared.

A cleared memory can still be restored from the console back up, using the Mem - Restore screen.

#### **Default Memory**

Recalls the default configuration for the console, replacing all settings.

The default memory will usually be created upon installation of the console, and is saved in engineer mode using the button on the Tech-Op Mode screen. This is a default memory, which could contain the fixed port set-ups which match the studio wiring, and any other settings which hardly ever change. It could have all channel settings OFF or flat, with no routes made, and would be available as a start up memory, from which more specific memories could be created.

# **MEMORY BACKUP AND RESTORE**

nory:	Tuesday Show 4	Fader :	6	guest3LR	Change Fader	?		4	F.
[	Backup Memories			Consol	e Memory L	ist	Mair	11 N	tain
	Search			Search			0	40 - 0-	
	Description			To Restore	Curr	ect	1.1	1 .	1
	all closed channels in order	_	_		the start of the start		-	ψ-	
	basic situp	>>			Monday Show 1				
	cd1 on path 1				Monday Show 2	6. 	14	14-	
	cd1 on path3				Monday Show 3	-	10	10-	
	chan 0.8.1 swap all closed	<<			Monday Show 4	2	22	- 2-	
	dave	-	-		Tuesday Show 1	2	32-	10 - 32-	1
	fdt closed cdt				Tuesday Show 2				H
	fdr1 closed cd2				Tuesday Show 3	1. I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I.I			
	Jana mem	Clear			Tuesday Show 4	8	LR		. R
	Memory 1	List					CRL	8	CF
	Monday Show 1		-				8		-
	Monday Show 2								
	Monday Show 3						6		
	Monday Show 4						10	- 10	
	Tuesday Show 1						14	- 14	
	Tuesday Show 2						10	- 10	
	Tuesday Show 3						22-		
	Tuesday Show 4	( entrain							
id in		Restor					-		
=									
016	-							8	
									-

In addition to the 99 memories which can be held in the Flash ROM for different console arrangements, the PC back-up can allow an unlimited number of memories, which are easily recalled using this screen.



The "Backup Memories" list shows all the memories which are backed up onto the console's hard drive.

All the memories which the console is currently using are listed in the "Console Memory List" on the right of the screen.

The arrow buttons allow memories to be moved between the backup memories list and a "To Restore" list. When the user has moved all the required memories from the "Backup Memories" list to the restore list, the "Begin Restore" button will execute the memory restore, transferring any memories moved to the "To Restore" list to the console memory list.

Single memories or groups of memories can be moved to the "To Restore" list by selecting and dragging them across.

The clear list button will clear the "To Restore" list.

If a memory is cleared from the console memory list using the Mem - Load Save screen, it is still possible to restore it from the PC backup here.

# **OPERATIONAL MODES**

Calrec (	Audio - X2					
Memory :	Monday Show 1	Fader : 6	guest3LR	Change Fader	?	¥ ±
	Change User Mode					
	Engineer	Operator				
	Change Password					
VO Patsh						
OPIO						
Dynen	Engineer Operations					
Mitte	Caus Durfault Mamonu	1 martine				
Manitar Meter	Restore Default Memory	Protected				
Liste						
Setup						
Debug						
1014						
OP Mede						
	ASSION MEMORY CHANNEL OU	TPUTS TECH AWACS	Finished Memor	y Load	•	EXIT 🔴

The console can be in one of two operational modes, "Operator", or "Engineer". Operation of certain screen functions is only available in "Engineer" mode, which is password protected to add an extra layer of security. The Tech - OP Mode screen is used to log in and out of different modes.



# **Operator Mode**

In operator mode, the only Tech screens which are visible are Tech - Op Mode and Tech - Wilds. This prevents accidental changes to the set up being made.

# **Engineer Mode**

It is intended that all set-up procedures and configuration may be carried out and maintained by an engineer or technical operator. Engineer mode allows unrestricted access to all features of the system, permitting an authorised engineer to prepare the console for use.

# Restricting Screens and Screen Functions

In addition, an engineer can hide further screens, using the buttons on each screen.

An engineer can restrict access to certain screen functions, using the Tech - Wilds screen, so that the screen is still visible to the operator, but some of its functions will not be available.

When the system is in Engineer mode, the TECH icon at the bottom of the screen will flash.

The first time engineer mode is selected, the user will be asked to set up a password. This password will then be required each time engineer mode is entered.

#### **Default Memory**

In engineer mode, a user can save and load a console default memory, using the save and load buttons on this screen. It is recommended that a default memory is created upon installation of the console. This default memory could contain the input port set-ups which match the studio wiring, and settings for GPIO, and running levels. It could have all channel settings off or flat, with no routes made, and could be available as a start up memory, from which more specific memories could be created.

#### **Protect Live Inputs**

When live input protection is enabled, sources cannot be removed from or moved between faders when the fader is open.

# X2 TECH SCREENS



calrec.com

# **BUSS OUTPUT PATCHING**

mory:	Monday	Show 1			Fader : 2	Guest1		Chan	ge Fader	?			¥
	Direct Inputs	Output	3	3	Port Conn	Port Conn	Type	Port	Port	O-	O-		LINE
1	Insert Raturn	Main 1	-	R	11-201	R	AES	11-20 L 11-21 L	R	Main 1 L Main 2 L	Main 1 R Main 2 R	-	AES
-	Treasure						AES	11-22 L	R	Record L	Record R		CF
	Output	Main 2	1	R	11-211	R	AES	11-23 L	R	Aux1L	Aux 1 R		
6			M	110			AES	11-24 L	R	Aux 2L	Aux 2 R		DIR O
	Direct	Record	L	R	11-221	R	AES	11-25 L	R	AUX 3L	Aux 3 R		
			M			6	AES	11-26 L	R	Aux 41.	Aux 4 R		
/0 #24	East	Aure 1	1	R	11-231	R	AES	11-27 L	R				
	1000	Aury 2		R	11.241	R	AES	11-20 L	R				
PID	Send	Aux 3	1	R	11.251	R	AES	11-29 L	R				
Reh	Chilling	Aury A		P	11.261	R	AES	11-30 L	R				
		My Mrsin		14		-	AES	11-31 L	R				
-		Main LS	1	P	15.001	10	AES	11-32 L	R	2			
		Desk Headphones	10	R	1.000	-							
12.00		Pre-facto Speaker	1	R	-	1							
eller		I S Pre	1	R	1	1	-11						
		TDM	-	101		-							
		Osc				-							
Alger .		oac				_							
Fader													
stem												•	
nitor										view		_	_
								Stereo		Mono	Diag		Des
											Petching		
OP.										1000	Remove		Move

The Tech - I/O Patch - Buss Output screen allows patching of console output signals to output ports for mains 1 and 2, record, auxiliary, mix minus, monitor, talkback and oscillator outputs. This screen is only visible in engineer mode.



# **Output Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the right of this screen, ready to have signals patched to them from the left. Different lists are accessed using the selection buttons.

# **Viewing Options**

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths), or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

# Patching

To make an assignment, select an output signal from the list on the left, and an output port from the list on the right, and select Patch.



Output signals can be patched to any number of output ports by repeating this procedure. (If paths are set to be mono, only the left output will have a signal on it).

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# Multiple Patching

It is possible to patch output signals to many output ports in one operation:

- From the list on the left, select the output signals by using the mouse to drag (click and hold) down the column.
- Select the port in the list on the right where you want the patching to begin.
- Select Patch.

# **CLEAN FEED OUTPUT PATCHING**

lamone -	Monday	Show 1		Ender: 2 Guest			Chan	oe Fader	2			
iennory.	Direct	Output	a de la companya de l	Port Connection	Туре		Port	Port	0-	0-		LINE
1	Insert	Clearing 1		(11)	AES	CF1 CF2	L	R	Cleanfeed 2 M		-	AES
	Resum	Cleanfeed 1		CE2L	AES	CF3	L	R	Cleanfeed 3 M			CF
	Buss	Cleanteed 3		CEN	AES	CF4	L	R	Clearifeed 4 M			
1	Cranging	Cleanteed 4		CEAL	AES	CFS	L	R	Cleanfeed 5 M			DIR OF
	Direct	Cleavierd 5		CESI	AES	CF6	L	R	Cleanfeed 6 M			
	CORPOR	Classiani 6	11	CEEL	AES	CF7	L	R	Cleanfeed 7 M			
01	Clean	Classford 7		CETI	AES	CFO	L	R	Cleanfeed 8 M			
ten	Leed	Clearleed P		CERT	-							
PID	Insert	Ceanteed 9	M	Croc.								
Reh	Olina	Cleanteed 10	M		-1							
		Cleanfeed 11	м		-							
ien I		Cleandard 12		-								
		· · · · · · · · · · · · · · · · · · ·										
onitor												
eter												
ists												
-												
(Fader etup												
stem					-				Views		•	ł.
augor .						-						-
Alda		0				Ste	reo		Mono	Diag		Desc
										Patching		
OP.									Patch	Remove		Move From
0.04						-	_					

The Tech - I/O Patch - Clean Feed screen allows patching of clean feed outputs to output ports. This screen is only visible in engineer mode.



Clean feed outputs are controlled using the Channel - Clean Feed screen, where sources are allocated, and gain and On/Off are applied.

Controls for the currently assigned channel's clean feed are also available on the Channel - Chans screen.

# **Output Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the right of this screen, ready to have signals patched to them from the left. Different lists are accessed using the selection buttons.

# Viewing Options

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths), or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

#### Patching

To make an assignment, select a clean feed from the list on the left, and an output port from the list on the right, and select Patch.



(If paths are set to be mono, only the left output will have a signal on it).

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# **Multiple Patching**

It is possible to patch output signals to many output ports in one operation:

- From the list on the left, select the output signals by using the mouse to drag (click and hold) down the column.
- Select the port in the list on the right where you want the patching to begin.
- Select Patch.

# **DIRECT OUTPUT PATCHING**

lemory :	Monday	Show 1			Fader : 2	Guest1		Chan	ge Fader	?			¥
[	Direct Inputs	Direct Output			L	R	Туре	Port	Port	O-	O-		UNE
1	Insert	and the second s	-				AES	DiRop1 L	R	Direct OP 1 L	Direct OP 1 R	-	AES
	Return	Direct OP 1	-	R	Diffeop1 L	R	AES	Different L	R	Direct OP 2 L	Deect OP 2 R		CF
	Buss	Direct OP 2	-		DRop21	P	APS	DiRond I	R	Direct OP 4 1	Direct OP 4 R		
	Output	Direct OP 3			Denopo L	<u>_</u>	APS	DiBoo51	R	Direct OP 5 1	Deect OP 5 R		DIR O
1	Direct	Direct OP 4	-	R	DProp4 L.	R	AFS	DRoof L	R	Drect OP 6 L	Direct OP 6 R		
	Output	Direct OP 5	-	H	Lineops L	R	APS	DRop71	R	Direct OP 7 L	Direct OP 7 R		
ing	Clean	Direct OP 6	-	K	Dirtops L	R	AES	DiRop0 L	R	Direct OP 6 L	Direct OP 6 R		
atch	Feed	Direct OP 7	-	R	DiRop7 L	R	-			MARKAND AND ADD	C utoban Balliona	1	
	insert	Direct OP 8	-	R	DIRop8 L	R	-11						
PIO	Send	Direct OP 9	1	R			-1						
		Direct OP 10	L	R									
		Direct OP 11	-	R			-						
ties		Direct OP 12	L	R			-						
Lists													
/Fader ietup													
onitor										Views		-	-
		0						Stereo		Mono	Diag		Desc
										-	Patching	-	
										Pate	h Remove		From
OP. lođe													

The Tech - I/O Patch - Direct Output screen allows patching of direct output signals to output ports. This screen is only visible in engineer mode.



The direct outputs can then be controlled using the Channel - Direct Output screen, where sources are allocated, and gain and On/Off are applied.

Controls for the currently assigned channel's direct output are also available on the Channel - Chans screen.

# **Output Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the right of this screen, ready to have signals patched to them from the left. Different lists are accessed using the selection buttons.

# **Viewing Options**

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths), or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

#### Patching

To make an assignment, select a direct output signal, and an output port, and select Patch.



Output signals can be patched to any number of output ports by repeating this procedure.

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# **Multiple Patching**

It is possible to patch direct outputs to many output ports in one operation:

- From the list on the left, select the direct outputs by using the mouse to drag (click and hold) down the column.
- Select the port in the list on the right where you want the patching to begin.
- Select Patch.

# **DIRECT INPUT PATCHING**

Lairec A	udio - XZ	-						1				-121
Memory :	Monday	Show	1				Fader: 2 G	Jest1	Change Fader		۷	
	Direct Inputs	Туре		5		SRCS	O-	0	- Input Name	Port Conn	Port Con	n
1	Insert	12.014		9	-	AES	Aes 23 L	R	Main 1	1	R	
	Return	AES	Aes 23 L	R	-	1	Aes 24L	R	Main 2	L	R	
1	Buss	AES	Aes 24 L	R		co	Aes 25 L	R	Record	L	R	
	Output	AES	Aes 25 L	ĸ		MIC	Ars 26 L	R	PFL	j.	R	
1	Direct	AES	Area year.	-		-						
	Output	ALS	ARS 27 L	0		EXT						
10	Clean	APE	Act 201	8			7.					
Patch	Feed	APC	Are 301	8								
	insert	AIS	AAE 21 L	R								
OPIO	Send	AFS	Aes 321	R								
Nu.e.		111100										
Miss												
lonitor												
Meter												
Lists												
et/Fader												
Setup												
System												
Monitor												
Wilds					Ŧ		10				Datching	
				Views						( Constant	raway [	-
OP		Stor	PO Mor	Dia		Desc				Patch	Remove From	ve m
Mode						100000						
	ASSIG	N M	EMORY CHA	NNEL OUTP	UTS	TECH	awaco I				1 ENT	-
					202	100000	100000	Phylophysid Managers 1			and and a	

The Tech - I/O Patch - Direct Input screen allows patching of input ports to main, record and PFL direct inputs. This screen is only visible in engineer mode.



Main direct inputs are controlled using the Outputs - Main Dir IP screen

# **Input Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the left of this screen, ready to be patched to inputs on the right. Different lists are accessed using the selection buttons.

# **Viewing Options**

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths),

or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

#### Patching

To make an assignment, select an input port, and a direct input, and select Patch.



(If paths are set to be mono, only the left output will have a signal on it).

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# **Multiple Patching**

It is possible to patch input ports to many direct inputs in one operation:

- From the list on the left, select the input ports by using the mouse to drag (click and hold) down the column.
- Select the direct input in the list on the right where you want the patching to begin.
- Select Patch.

# **INSERT SEND PATCHING**

emory :	Monday	Show 1				Fader :	2 Guest1			Chan	ge Fader	?			¥
1	Direct Inputs	Return Port	Return Port	3	3	Send Port	Send Port	Γ	Туре	Port	Port	0-	O-		UNE
1	Insert	4		9	-	15.101	10.00		LN	15-05 L	R			-	AES
1	Heturn	Aes 231	R	Inster 1 L	R .	15-10 L	15-10 R	-	LN	15-07 L	R				CF
	Buss			Insert 3L	R	in the second se	10°TTN		LN	15-08 L	R	Main LS L	Main LS R		
5	Direct			Insert 4 L	R				LN	15-09 L	R	Concercore			DIR C
	Output			Incert 5 L	R				LN	15-10 L	R	noert 1 L	Insert 1 R		
in li	Clean			Incert 6 L	R	1			LN	15-11 L	R	Insert 21.	Insert 2 R		
atch	Feed			L	R		1		LN	15-12 L	R				
	Insert			BssGat	R				LN	15-13 L	R				
PID	Send			BasGet	R	1			UN	15-14 L	R				
Reh				TCL L	R				LP4	15-15 L	0				
				SPX990	R				-	10-10-6	n				
ties				Graphic	R	-									
ists															
/Fader etup															
stem onitor												View			
rida										Stereo		Mono	Diag		Des
DP. ode												Pat	Patching th Remove		Move From

The Tech - I/O Patch - Insert Send screen allows patching of insert send signals to output ports. This screen is only visible in engineer mode.



Return ports for each insert are patched using the Tech - I/O Patch - Insert Return screen.

Once an insert has send and return ports patched, it can then be allocated for use to one source using the Channel - Insert screen.

If an insert is assigned to the source on the currently assigned channel, controls on the Channel - Chans screen allow it to be switched In/Out, and select a pre-post fader setting.

# **Output Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the right of this screen, ready to have signals patched to them from the left. Different lists are accessed using the selection buttons.

# **Viewing Options**

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths), or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

# Patching

To make an assignment, select an insert send and an output port, and select Patch.



Output signals can be patched to any number of output ports by repeating this procedure.

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# **Multiple Patching**

It is possible to patch insert sends to many outputs in one operation:

- From the list on the left, select the insert sends by using the mouse to drag (click and hold) down the column.
- Select the port in the list on the right where you want the patching to begin.
- Select Patch.

# Saving and Recalling Insert Patches

All input patching is saved and loaded with the user memories, this includes insert return patching.

All output patching is retained in the console's "hidden" memory which is not affected by loading user memories, this includes Insert Send patching.

When a user memory is loaded, the insert send patches saved in that memory will be restored, but the return patches will not.

# **INSERT RETURN PATCHING**

Calrec A	udio - X2										-		-181
Memory :	Monday	Show	1			1	Fader: 2 Gue	st1	Cha	nge Fader	?	¥	1
	Direct Inputs	Туре	1	4		SRCS	O-	Return Port	Insert Name	Insert Name	Send Port	Send Port	
1	Insert	10 GUL	or.	a		AES	Aes 231.	R	insert 1 L	R	15-10 L	15-10 R	-
	Return	AES	Ant 231	R	-		Aec 24 L	R	Insert 21,	R	15-11 L	15-11 R	
1	Buss	AES	Aet 24L	R					Insert 3 L	R			
	Output	AED	AND 20 L			MIC	1		Insert 4 L	R			_
1	Direct	APS	Aer 271	R					Insert 5 L	R	2		
	Output	AES	AAS 201	R		EXT		_	Insert 6 L	R			_
UO	Clean	AES	Are 20 L	R					L	R			_
Patch	Feed	AES	Aes 30 L	R					BasGate1 L	R			
and a second	insert	AES	Aes 31 L	R			-	_	DssGate2 L	R			_
OPIO Tu/Reh	Send	AES	Aes 32 L	R					TCL L	R	-		
22000		1.1.1.1.1	and the second						SPX990 L	R	2		_
									Graphic1 L	R			_
Lists													
rc/Fader Setup													
System Monitor													
Wilds				Views	Ŧ							Patching	
OP		Stor	eo Mor	10	Diag	Desc					Patch	Remove Mo	ve

The Tech - I/O Patch - Insert Return screen allows patching of input ports to insert return signals. This screen is only visible in engineer mode.



Send ports for each insert are patched using the Tech - I/O Patch - Insert Send screen.

Once an insert has send and return ports patched, it can then be allocated for use to one source using the Channel - Insert screen.

If an insert is assigned to the source on the currently assigned channel, controls on the Channel - Chans screen allow it to be switched In/Out, and select a pre-post fader setting.

# **Input Port Lists**

All of the available ports can be grouped into suitable lists using the Tech - Lists screen. These lists can then be displayed on the left of this screen, ready to be patched to insert returns on the right. Different lists are accessed using the selection buttons.

# Viewing Options

The ports can be viewed as pairs (for patching from stereo or surround paths), individual (for patching from mono paths), or individual with the actual rack number, card slot and output shown (for diagnostic purposes).

#### Patching

To make an assignment, select an input port, and an insert return, and select Patch.



(If paths are set to be mono, only the left output will have a signal on it).

Patches can be removed from selected output ports using the REMOVE button. Connections can be moved between ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

# **Multiple Patching**

It is possible to patch input ports to many insert returns in one operation:

- From the list on the left, select the input ports by using the mouse to drag (click and hold) down the column.
- Select the insert return in the list on the right where you want the patching to begin.
- Select Patch.

# Saving and Recalling Insert Patches

All input patching is saved and loaded with the user memories, this includes insert return patching.

All output patching is retained in the console's "hidden" memory which is not affected by loading user memories, this includes Insert Send patching.

When a user memory is loaded, the insert send patches saved in that memory will be restored, but the return patches will not.

# GPIO – GPI

mory	Monday	Show 1		Fader: 2 Guest		Change Fader	?					¥	1
	Reck	Position	Sig. Req.	Console Function Connected	Type	Function	Bac	k Pos	Sia	1		1	
	Desk	1	Latch	Guesti Remote Cut	Exter	nal PFL Enable	Desi	5	Latch				Ġ₽
	Desk	2	Latch	Guest2 Remote Cut	RTD	Enable	Desi	6	Latch				
	Desk	3	Latch	Guest3 Remote Cut	toote	le On Air Mode	Dest	7	Letch		-		
			Latch	CD1 L Remote Cut	Enabl	le Rehearse Mode		1	Latch	11.02			OP
	Desk	*	Latch	CD2 L Remote Cut	CRL	S cut			Latch				
	Desk	5	Latch	External PFL Enable	CRL	Sdim			Latch				T
	Desk	6	Latch	RTB Enable	PFLL	Scut			Letch				Re
	Desk	7	Latch	Enable On Air Mode	Clear	vieed 1 talkback			Latch		_	-	
ton	Desk	8		Received and the second	Clear	feed 2 talkback			Latch				
	Desk	9			Clear	vleed 3 talkback			Latch				
10	Detk	10			Clear	vfeed 4 talkback			Latch				
Reth	Detk	11			Clear	vieed Stalkback			Latch				
	Deck	12			Clear	nfeed 6 talkback			Latch				
	Desk	13	1		Clear	vieed 7 talkback			Latch				
	Desk	14	-		Clear	nfeed 8 talkback			Latch				
in	Deck	15			Clear	nteed 9 talkback			Latch				
der	Dask	10	-		Clear	vfeed 10 takback			Latch				
	Desk	10			Clear	nteed 11 talkback		1	Latch				
	14				Clear	nfeed 12 talkback			Letch				
-	14	2	-		_								
	14	p			_					-			
ader	14	4					Views			-			
wije .	14	5			_		1.61.6			1			
	14	8	_		Misc.	Remote	Machine	N	lachine	Re	mote		
nitor	14	7	1		Funcs	Cut	Start		Stop	P	FL		
	14	8					Contraction of the		( mild				
Ide		1	Pater	nina.		SAVE		1.0/	D				
		(	Patch	Nove From		Sets default of	options for	optic	n <b>rs</b> pheset				

The Tech - GPIO TX/REH - GPI screen allows the system's 32 opto-isolated general purpose inputs to be set up. This screen is only visible in engineer mode.



Different views allow different operations to be assigned.

#### **Misc Functions**

Each general purpose input be assigned to operate up to 10 console functions. These include the console's transmit, rehearse or neither state, allowing condition switching options to be set on the Tech - GPIO TX REH - TX REH screen.

#### **Remote Cut**

Each general purpose input can be set to cut up to 10 input sources.

#### Machine Start/Stop Tally LEDs

General purpose inputs can be set to

operate machine start or machine stop tally LEDs for any source. When fired, the GPI will light the green machine start LED or the red machine stop LED under the START button on the source's fader.

#### **Remote PFL**

General purpose inputs can be set to operate PFL for any source. When fired the PFL will activate as normal, and the PFL button on the fader will light.

#### Patching

To make an assignment, select a general purpose input, and a function, and select Patch.

Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

#### Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# GPIO – GPO

lemory :	Mo	nday Show 1					Fader :	2 Gue	st1		Change Fader	?		۷	1
	Туре	Function	Card	Relay		Cours.	Card	Circuit	Type		Function App	sled	Mode		
1		On eir light	Desk	1		Contraction of the	Desk	1	Relay	On air lig	11		Latch		OPI
		Rehearce light	Desk	2			Desk	2	Relay	Rehears	e light		Letch		_
	-	Fire alarm mute	Desk	6			Desk	3	Relay	Fire alors	m mute		Latch		ope
		PSU fail alarm	Desk	4		1	Desk	4	Relay	PSU fail	alarm		Occult		
		PFL YON	Deak	5			Desk	5	Relay	PFL 'ON'			Letch		100
		Mc. open one 'ON'	-	1		-	Desk	6	Relay	_					Tx
	-	Mic open two YOM	-				Desk	7	Relay	_					
vo		Mic open 3 YOM	-	-		-	Desk	8	Relay	_					
aton	-	Mic over 4 VAL					Desk	9	Relay	_					
1000		Mic onto five VAR	-	-			Desk	10	Relay	_					
PIO	-	Mic. open rive On	-	-			Desk	11	Relay						
in en	-	NER Association (Marring	-				Desk	12	Relay	-					
ien	-	PTL Open one ON	-	-			Desk	13	Relay						
	-	PFL Open two ON	+	-			Desk	14	Relay	-			-		
	PFL Open 3 ON			-			Desk	15	Relay	-					
nitor	_	PFL Open 4 ON	-	-			Desk	16	Kelay	-			_		
eter	_	PFL Open five ON					Desk	1/	riesay	-					
	_	Any Fader Open	-	-			Desk	10	Relay						
ists		CleanFeed Talkback 1	-	-			Desk	19	Relay	-			-		
		CleanFeed Talkback 2					Desk	20	Cetter				-		
		CleanFeed Talkback 3	-	-			Liesk.	41	Preiay						
etup		CleanFeed Talkback 4					Desk	22	Fieldy				_		
		CleanFeed Takback 5					Desk	23	Relati	-				-	
stem		CleanFeed Talkback 6	_	-						Puice	Put		Pulse		
onitor		CleanFeed Talkback 7			1		1	atch		On	0	ff -	Both		
		CleanFeed Talkback 0	1	1	٠		-		-					- 2	
filds		Course Cours	ews				1		Patching	1	SJ	IVE Some	LOAD		
OP tode	fund	C Open Active	Live	S	tart	Stop		(F)(C)()	Remove	Fri	pm Sets de	fault options fo	rbootup/reset		
-		ASSION MEMORY	CHANN	FL OL	TRU		Witte			_			1	-	

The GPO screen allows the system's 48 relay-isolated general purpose outputs to be set up. This screen is only visible in engineer mode.



Different views allow them to be assigned to different operations.

# **Misc Functions**

The general purpose outputs can be set to operate when various console functions occur. Console functions can be assigned to more than one output.

# Source Open

General purpose outputs can be set to operate when a source is allocated to a fader, and that fader is opened.

#### **Cut Active**

General purpose outputs can be set to operate when a source is cut.

#### Source Live

General purpose outputs can be set to

operate when a source is live.

# Machine Start/Stop

General purpose outputs can be set to operate when the fader is armed (by enabling the start button), and the fader is opened

#### Latch or Pulse

The relay can be set to latch or pulse for 100 ms, when the console function is activated. When setting the relay to pulse, there are three different options.

- Pulse On sets the relay to pulse when the function is activated.
- Pulse Off sets the relay to pulse when the function is deactivated.
- Pulse Both sets the relay is set to pulse once when the function is activated, and again when the function is deactivated.

# Patching

To make an assignment, select a function, and a general purpose output, and select Patch.



Patches can be removed from selected output ports using the REMOVE button.

Connections can be moved between output ports when selected using the MOVE FROM button. The PATCH, REMOVE and MOVE FROM buttons will be replaced with MOVE TO and CANCEL. Upon selection of a new patch point, pressing MOVE TO will move the connection. CANCEL will cancel the operation.

#### **Save and Load Options**

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **GPIO – TX/REH**

Memory:	Monday Show 1	Fader : 2 (	Guest1		Change Fader	?	¥	
F		Function	Tx (on air)	Reh	Nether		1	
		Cleanfeed TB inhibit						OP1
		Mic, open one cuts Desk Headphones						-
		Mic. open two cuts Pre-fade Speaker					1	
		Mic. open five cuts Control Room LS						OPO
		Cleanfeed TB dims CR LS						-
		Red light relay 'ON'						Tx
		Fire alarm mute relay 'ON'						Reh
1100		PFL open one cuts Desk Headphones					19	-
Patch		PFL open two cuts Pre-fade Speaker						
		FFL open five cuts Control Room LS						
Monifor Meter								
Lists Sec/Fader Setup								
Lists SetuFader Setup System Monitor								
Lists Set/Fader Setup System Monitor Wilds						SAVE	OAD	
Lists Src/Fader Setup System Monitor Wilds OP Mode						SAVE options Sets default options for bo	OAD ptions objekteset	

This screen provides a mechanism for the system's condition switching to be set up. This screen is only visible in engineer mode.



There are three modes which the system can be in: Transmit (TX or On Air),

Rehearse, or Neither. These are controlled from opto-isolated general purpose inputs set up on the Tech - GPIO TX REH - GPI screen under misc functions.

Each function can be set to be active, or not, in any of the three states.

# Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons. Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **MISC - SYNCHRONISATION**

emory:	Monday Show 1		Fader :	2 Guest	1 Ch	ange Fader ?		¥ 1
	Available Sources		Synchronisation S	ources				18
	Source	Rack - Slot - Input	Current	Order	Connection	8.5.1	Sample Rate	Syne
	Video NTSC	Rear of Dig. VO		1.1	Internal		40	
	TTL Wordclock	Rear of Dig. I/O	100	and	cut LR	1-12-1LR	48 +/- 100 Hz	Ref
	Internal			3rd	Internal		48	Leve
	odt LR	1-12-1 UR		405	Internal		40	
01	cd2LR	1-12-2LR		Sth	Internal.		48	Ose
atsh	cd3 LR	1-12-3UR		6th	Internal		48	
	COM LR	1 - 12 - 4 LR						240
PIO	cd5LR	1-12-5LR						UT
	081 LR	1 - 12 - 6 LR						
nuc initor eter					Patch To R	eset to 1st		ᅴ
anitar leter					Patch To Fit	eset to 1st		
initor eter Jots Fader eter					Patch To Ro	eset to 1st		-1
initar eter Jata Fader Hug					Patch To R	eset to 1st		
nito Inter Inter Lists AF ader etup abug					Patch To Ro	eset to 1st	LOAD	
nitor eter isks Fader fug Ilds	NTSC PAL				Patch To Ro SAV option Sets default option	eset to Int	LOAD options	

The Misc - Sync screen allows the system's synchronisation sources to be set. This screen is only visible in engineer mode.



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. One of the external sources can be Video, (PAL or NTSC). TTL wordclock is another possible external source.

AES inputs on the console can also be used as an external source. 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. 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.

# **Assigning Synchronisation Sources**

Synchronisation sources are assigned by selecting an available source from the list on the left side of the screen, then selecting one of the five places in the priority list on the right side of the screen, and selecting Patch To.

#### Reset to 1st

If the first source has failed, and the system is running on any of the selections 2 to 6, when the first source becomes available again, the system can be RESET TO 1ST during any convenient off-air period.

#### Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings. When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **MISC - REFERENCE LEVEL**



The Misc-Ref Level Screen allows the following console functions to be set. This screen is only visible in engineer mode.



#### **Mic Input Headroom**

This area allows the channel mic input headroom to be set. This is the headroom available above the input gain setting, up to the channel fader.

For example, if the input gain is set to 40 dB and the mic input headroom is 36 dB, then the channel will handle up to -4 dB up to the fader which can be backed off to avoid clipping of the programme output. Obviously, any pre-fader insert or pre-fader feeds to auxes, tracks, or direct outputs will not handle this level and so these should not be used where this headroom is needed.

Headroom can be adjusted between 20dB and 36dB. Please be aware that selecting a high headroom value will compromise the noise specification slightly but this should not be noticeable in practice.

#### Mic/Line Input Impedance

The point at which the mic/line input impedance changes can be adjusted between 18dB and 24dB.

# Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# MISC - OSCILLATOR

Calrec	Audio - X2					262
Memory :	Monday Show 1		Fader: 2 Guest	Change Fader	?	¥ 4
NO Padah OPIO Tu/Rah Mito Manitar Meter Liste		EXTERNAL MONO STEREO SURR	1.0KH2 FREQUENCY FREQUENCY FREQUENCY FREQUENCY FREQUENCY SWEEP TONE INTERRUPT L UNLY 1=L 2=R	-J2.0FS -4,0dBu LEVEL REF LEV		Syne Ref Level Oto Secial UF
inc/Fader Setup Debug			TONE CLEAR			
Wilds OP Mode	ASSION MEMORY	CHANNEL OUTPUTS	TECH AWACS Option	s Saved		EXIT 0

This screen provides controls for the oscillator, which is used to generate test tones for alignment and testing. This screen is only visible in engineer mode.



#### Frequency

The frequency of the tone can be adjusted from 20Hz to 20KHz in incremental steps using the nudge buttons, or set to 1KHz using the 1K button. Alternatively, the sweep button will set the oscillator to sweep through all frequencies.

#### Level

The level of the test tone can be adjusted from -60dBFS to 0dBFS using the nudge buttons, or set to the reference level using the REF LEV button.

#### **Tone Interrupt**

The Tone Interrupt buttons are useful for testing stereo monitoring and metering. It

allows the tone to be interrupted on the left side only, or on the left and right sides in an alternating pattern.

### **Clearing Oscillator Routes**

TONE CLEAR clears all oscillator routes made, providing an easy way of removing test tones from signal paths.

#### **External Input**

The External buttons replace the tone with an external source of your choice. This allows for external oscillators to be used if preferred. The ports for this are set up on the Tech - Monitor Meter - Talkback Monitor Inputs screen.

#### **Enable Indicator**

The Enable indicator shows that the oscillator controls are enabled.

# **MISC - SERIAL INTERFACE**

Memory :	Mond	lay Sh	ow 1			Fa	ider : 2	Gues	t1	Change Fader	?	V	
	Serial Pr	orts Settin	g#								Serial Interface Functions		
	Port No	Hub ID	Serial Function	User Ref.	Baud Rate	Dota Bits	Stop Bits	Parity	Flow_Control	Status	Enabled Functions		Syna
	1	1	BNCS	BNCS	38400	8	1	NONE	OFF	DNCS	Labels from BNCS	- 1	Ref
													Ose
VO Paten													Seria UF
OPIO Tx/Reh													
Mise													
Monitor Meter													
Lists													
re/Fader Setup													
System Monitor	Note -									1			
Wilds	The Us	er Ref. is erial Port	used on the Rout	er Labels Setup Ro	uter Labels	lify the serie	Ro	uter Labe	H	SAVE	LOAD		
				<u> </u>	accep			a a runnin		ets default options for boo	tup/reset		
OP. Mode													

The console has a serial interface port on the rear of the console processing unit to allow the console to be connected to a BNCS (Broadcast network Control System). The Misc - Serial I/F screens provide controls to set up the console's serial port and any router label associations. This screen is only visible in engineer mode.



#### **Serial Port Settings Screen**

The Serial Port Settings screen is used to tell the system what information it should receive from the serial interface port, by allocating a function to it from a drop down box in the Serial Function column.

Serial Ports Settings

Only the serial functions which are enabled

for the console will be available for selection.

The function can be given a name by typing up to six characters in the USER REF column.

The status indicator flashes when a valid message is received from the serial port.

#### **Save and Load Options**

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **MISC - SERIAL INTERFACE**

Memory :	Monday	Show 1		Fader : 2	Guest1	CI	hange Fader	?	¥	
T	Labels From F	louters	0-2						[	
	Label No	User Desc.	Router Port Id	Serial Port	Interface	H	Notes		-12	Syn
	1	11-01		<b>DNCS</b>	· UNASS	1	The User Ref	is used on the Router Labels		
	2	11.02		BNCS			Associations The Label ID :	screen to identify the label.	. 1	
	3	11-03		BNCS	DIACO		the serial stre	Information the deca being services		Len
	4	11-04		ENCS	DIV.a		The Serial Po	rt can be set for several labels at		-
ND	5	11.05		BNCS			once by selei	ting them and then pressing the ferface is floor		-
Pateh	6						oppropriate a	terrace batton.		OR
	7									
OPIO	8						1			Set
DyReh	9									14
	10									
Mise	11									
	12									
10000	13									
Meter	14									
	15									
and a	16									
Lists	17									
Second and										
	18									
IC/Fader	18									
o/Fader Setup	18 19 20									
ic/Fader Setup	18 19 20 21									
IC/F ader Setup Debug	18 19 20 21 22									
Ic/Fader Sebup Debug	18 19 20 21 22 23									
ic/Fader Setup Debug	18 19 20 21 22 23 24									
IC/Fader Sebup Debug Wilds	18 19 20 21 22 23 24	1	Rouffer Labels	Ro	-		SAME	1045		
ic/Fader Setup Debug Wilds	18 19 20 21 22 23 24 Serial F	forts Gellings	Router Labels Solup	Roi	viter Label lociabons		SAVE	LOAD	1	
CIF ader Sebup Debug Wilds OF	18 19 20 21 22 23 24 Serial 7	Ports Gettings	Router Labels Setup	Ros	viter Label lociabons	Sets derfeut	SAVE options	LOAD options		
irc/Fader Setup Debug Wilds OF Mode	18 19 20 21 22 23 24 Serial F	Ports Gettings	Router Labels Setup	Roi Aos	Afer Label ociabons	Sets default	SAVE options options for boo	LOAD options tup/reset		

#### Some Routers incorporate a label interface which is used for the transmission of source (input) and destination (output) descriptions between itself and other equipment.

When an audio signal from a Router is connected to the console, its associated label is transmitted to the console via the serial interface. The console can use these labels as input names, and they can then be displayed and used on the control surface and front end application.

The console can support up to 256 Router labels. The Tech - Misc - Serial I/F - Router Labels Setup screen allows the link between messages from the router to be associated with one of the console's 256 labels.



The serial port function previously set up on the Serial Port Settings screen will now have a selection button on this screen. To associate labels to the interface, select the label, or region of labels, and select the serial port function button. The serial port column tells the user which serial port function the label is linked to. The UNASSIGN button when selected will remove any assignment from the selected label(s).

A Router uses a reference code to define each of its output ports The user must enter these reference codes into the Label ID column for each label.

The User Reference column allows the user to give the label a friendly name of up to six characters.

#### Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon

as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **MISC – SERIAL INTERFACE**



The Tech - Misc - Serial I/F - Router Labels Associations screen allows each of the defined labels to be associated with one of the console's input ports.



The input ports are shown down the left hand side of the screen, and the Router labels are shown along the bottom of the screen. This forms a grid, and associations are made by selecting the intersecting cell between input port and router label. Each leg of the input ports is always presented as if it were a mono port.

When an association is made, the cell will turn yellow. Associations can be unmade by selecting the cell again, whereby its colour will change back to grey. The +1 button is used to automatically move diagonally down the grid to the next association cell and toggle its condition. The action occurs out of sight even if you go beyond the viewed section of the screen.

Once an input port is associated with a Router label, the labels will be visible on the fader label column on the I/O - Input screen on whichever channel the port is patched. If a new fader label is entered on the I/O - Input screen, it overrides the router label. The router label will also be displayed on the channel display on the fader module.

If the Router fails to communicate for longer than ten seconds then the Router label text is cleared and the fader labels revert back to displaying the input port label.

#### **Save and Load Options**

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not

saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **MONITOR PANEL SETUP**

Memory :	Monday Sh	iow 1			Fader : 2 Guest1 Change Fader ?	¥
					Oet Settings from Desk	Settings Monitor Desk Panel
					Cleanfeed 1 Cleanfeed 2	Monitor Bettings
NO Patsh					Cleanfeed 3 Cleanfeed 4	Talkback Mon IP
OPIO TivReh	CF 1	CF 2	CF 3	CF 4	Cleanfeed 5 Cleanfeed 6 Cleanfeed 7	Ed
Mire	061	0S 2	063	OS 4	Cleanfeed 8 Direct Output 1	Metering
Manitor Meter	Aux 1 STEREO	Aux 2 STEREO	Aux 3 STEREO	Aux 4 STEREO	Direct Output 2 Direct Output 3 Direct Output 4	
IC/Fader Setup	Main 1 STEREO	Main 2 STEREO	Record STEREO	PFL	Direct Output 5 Direct Output 6 Direct Output 7	
Debug		MONIT	ction OR SEL	_	Direct Output 8 PTL	
Wilds					Allocate	
OP Mede						
C'A L R E	ASSION		HANNEL OUT		AWACS Options Saved	• Ext

This screen allows all the available monitor sources to be allocated to the 16 selection buttons on the monitor panel. This screen is only visible in engineer mode.



The left side of the screen shows a representation of the monitor selection buttons. The right side of the screen lists all the available monitor sources. Monitor sources are allocated to the 16 selection buttons as follows:

- Select the button to which you want to assign a source (screen button will flash)
- Select a monitor source from the list
- Select "Allocate"



For external sources, a pop up window allows the user to enter a suitable label for the button, and define the source as mono, stereo or surround.

#### Send Settings To Desk

Changes to the monitor configuration on this screen will not take effect on the monitor panel until "Send Settings To Desk" is selected. If changes are made on the screen, but are not sent to the desk, this button will be red.



#### Get Settings From Desk

The "Get Settings From Desk" button retrieves the setting that the panel is currently using and displays it on the screen.



# **MONITOR SETTINGS**



This screen allows some monitor settings to be adjusted. This screen is only visible in engineer mode.



# PFL & RTB

PFL and RTB can be set to feed the operator's headphones or the control room loudspeakers. Selecting the PFL or RTB buttons on the screen will toggle between them.

# Phase Right

The phase of the right leg of the signal can be inverted here.

# **Dim Level**

The control room loudspeaker's Dim Level can be adjusted using the screen fader.

# Balance

A balance control for the control room loudspeakers is provided.

# **TALKBACK MONITOR INPUTS**

Memory	: Mo	nday Show	w 1				Fader : 🚺	Pres		Char	nge Fader	?	
	Туре		-25		uting	Talkback	c Patching						Monitor Panel
	AFC	Aer 731			wing2	1			_				
	AFC	Acr 241			Contu		Type	Tað	back	MIC Up PH	DIG Up SRC	Analogue Gain	Monitor
	AFS	841 251	R			essist L	ML	TB		ON	OFF	0.0 dB	Seange
	AFS	Ann 261	R					RTB		OFF	OFF	0.0 dB	Taliback
	AFC	Acr 271	R			External M	Ionitor Input P	atching					Mon IP
-	AFS	Aet 201	R			F		1	T		0	0	
1/0 Paten	AFS	Ares 291	R				Input	Witth			0-	()-	Ed
Paten	AFS	Art 301						Charles			A		IP
and a	AES	Aet 31 L	R			eod 1		stereo	P	IC .	Aes 23 L		
OPIO Tulkeh	AFS	Art 32L	R										Metering
22001	AFS	CD1 L	R										
Miss	AES	CD2 L	R										10
	AFS	CD3 L	R										
	AES	CD4 L	R										
Monitor.	AES	CD5 L	R										
Melar	AES	CDG L	R										
-	AES	CD7 L	R										
Lists	AFS	CD8 L	R										
	AES	CD9 L	R										
	AFS	CD10 L	R										
Setup	ML	DECK L	R										
	ML	Guett											
System	ML	Guest2											
Monitor	ML	Guest3											
and and a second second	ML	ISONT L	R										
Wilde	ML	ISDN2 L	R							to the second	-		1
	-		Value		t)		Patching			SAVE		LOAD	
			THETE	-		Patch	Remove	Move	3	options de defeid order		options	
OP Mode	ş	tereo	mono		diag			From	Ľ	ers official opic	to tor bootupre	30	

The input sources for Talkback, Reverse Talkback and the external monitor input are patched on this screen. This screen is only visible in engineer mode.



#### **Source Lists**

Talkback input ports can be any kind of port, selected from the list on the left of the screen. Different lists are accessed using the selection buttons.

The sources can be viewed as pairs (for patching to stereo or surround paths), individual (for patching to mono paths), or individual with the actual rack number, card slot and input shown (for diagnostic purposes).

#### Patching

The Talkback inputs are listed in the main section of the screen. Assignment is made by selecting a source and an input, and selecting Patch.

#### **Parameters**

The parameter buttons provide controls for analog gain control (coarse), Phantom Power (mic/line) and SRC switching for the input (AES). When selecting analog gain, a box will appear where the gain can be selected. Selecting Mic i/p PH will turn phantom power on for mic/line inputs. Dig I/P SRC will switch SRC on for AES inputs.

#### **External Monitor Input**

Ports for the external monitor input can also be patched on this screen.

#### **Save and Load Options**

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and

if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **EXTERNAL METER INPUTS**

Memory :	Mone	day Show 1				Fader :	6 guest	BLR	4	Change i	Fader ?		¥
	Туре				SRCS	Meter No	Latani (Echation)	Width			O-	O	Monitor
	and and	a contraction of the second se	4		Other	Meter 1	EXT 01	Stereo	L	R	ost L	R	
	AES	od16 L	R	-		Meter 2	EXT 02	Stereo	L	R	0121.	R	Monitor
	AES	cd L	R			Meter 3	EXT 03	Stereo	L	R	053L	R	Settings
	AES	det2 L	R			Meter 4	EXT 04	Stereo	L	R	os4 L	R	
VO	AES	dat) L	R			Meter 5	EXT 05	Stereo	L	R	0551.	R	Talkback
Patch Al	AES	dal4 L	R			Meter 6	EXT 06	Stereo	L	R	OSE L	R	Mon IP
	AES	dat5 L	R			Meter 7	EXT 07	Stereo	L	R	1		1
OPIO	AES	datG L	R			Meter 8	EXT 08	Stereo	L	R			EX
DoReh	AES	effect L	R			Meter 9	EXT 09	Stereo	L	R			IP
	ML	guesti L	R			Meter 10	EXT 10	Stereo	L	R			E
Mile	ML	guest2 L	R			Meter 11	EXT 11	Stereo	L	R			Metering
	MA	guest3 L	R			Meter 12	EXT 12	Stereo	L	R			1
	AES	mdi L	R			Meter 13	EXT 13	Stereo	L	R			
Meter	AES	md2 L	R			Motor 14	EXT 14	Stereo	L	R			
	AES	md3 L	R			Meter 15	EXT 15	Stereo	1	R			
Para	AES	md4 L	R			Meter 16	EXT 16	Stereo	5	R			
Lists	AES	ost L	R						-		-		10
_	AES	on2 L	R										
IC/Fader	AES	os3 L											
Sebup	AES	014 L	R										
_	AES	os5 L	R										
Debus	AES	056 L											
1020	ML	pres											
í.	ML	rman L	R			1							1
Wilds	ML	tape1 L	R	-			Batching	1				1010	T.
			Views				Factoring			option	-	options	
OF	st	ereo	mono	0	sag	Patch	Remove	From	Set	ts default	options for boo	tup/reset	

The input sources for external meters can be patched on this screen. There can be up to 16 mono or stereo external meter inputs. This screen is only visible in engineer mode.



Sources are selected from the available lists on the left of the screen. Different lists are accessed using the selection buttons. The sources can be viewed as pairs (for patching to stereo or surround paths), individual (for patching to mono paths), or individual with the actual rack number, card slot and input shown (for diagnostic purposes).

Assignment is made by selecting an input source and a meter, and selecting Patch.

# Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **METERING**



This screen allows the user to change settings for the 4 screen based meters. This screen is only visible in engineer mode.



# **Change Meter**

Select a meter position (its background will turn blue) and select CHANGE METER.



A dialogue box will appear which allows the meter source to be chosen. Select the required source from mains 1-2, Record, aux 1-4, Select, PFL, CRLS, Mix Minus or External 1-16. Each meter can be stereo, m/s or stereo phase (except mix minus, which is mono only).

# **Change Scale**

Each meter can be PPM or VU.



The scale type can be selected individually for each meter. Scales available to the user can be restricted in the Set-up Application.

💁 Change Scale	
Selected Scale:Calrec PPM (-10,-	18)
Calrec VU (-8,-20)	
Calrec VU (-20)	
Calrec VU (-12,-20)	
Calrec PPM (-9,-15)	
Calrec PPM (-8,-20)	
Calrec PPM (-10,-18)	
Apply to Selected to Row	Cancel

#### Clear All

"Clear All" resets all the meter positions, clearing all settings on all meters in the upstand. A confirmation box must be accepted before this action is carried out, this is to prevent against accidental changes.



#### Bar colours

The user can select the colours for the top/middle/bottom colours for each leg of the signal can be selected independently. Select the meter position, then select the colours from the palette. The selected colours for each signal are shown at the bottom of the screen and are used for all 4 meters.

#### Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons.

Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **PORT LISTS**

All of the available input and output ports can be grouped into lists using the Tech Lists screens. These lists are then selectable on the patching screens. This screen is only visible in engineer mode.



The buttons at the bottom right corner of the screen switch between input port lists and output port lists. There can be up to 5 lists for inputs and 5 lists for outputs.

#### **Allocating Ports To Lists**

To create a new list, select the required port from the Port Name column (multiple ports can be selected by dragging down the column) and select "Create New List". A window will appear for the user to enter a name for the list.

"Move to List" will move any selected ports to existing lists. A window will appear for the user to choose which list to move the port to.

"Remove List" allows the user to delete lists from the configuration

"Modify List" allows the user to change the name of a list.

#### **Port Description**

Each port can be given a long description by typing directly into the description column. This description could describe the port's use, or it could be some information on where to find the connection within the installation, for example, its location on a patchfield.

These descriptions appear on the I/O patching screens under the "DESC" button.

#### **Source Location Groups**

Each input port can be assigned to a source location group, such that it will operate the mic open circuit when that source is faded up and routed to the programme output.

Memory	: Monday	Sho	w1		ader: 2 Guest1	Charge Fader	?			
	Reset Config						Get Settings from Desk	Gand Date	nan.	
	Fort V Name		Mic Open	List	Desc	N	de RSP	Tipe		
	Arc 23.		OFF / OFF	AES		0	1.11.4546	AES	-	
	A#124.	R	OFT / OFF	AES		0	1.11.4748	AES		
	Art 25.		OFF / OFF	AES	Patcheay #25	0	11149/50	AES		
11	Ars 26		OFFICEF	AES	Patchillary H26	0	1115162	AES		
10	Aes 27L		OFFIOFF	AES	Palchiny H27	0	1.11.53/54	AES		
Patrick	Art 28.		OFF / OFF	AES	Patchillery X25	0	1.11.55/56	AES		
	Ars 28.		OFF / OFF	AES	Palitikey K29	0	1.11.57.58	AES		
610	Ars 33.		OFF / OFF	AES	Palchboy #30	0	1111500	AES		
Tuffet	Art 31L		OFF / OFF	AES	Patchboy K31	0	1.11.01.62	AES		
_	Aet 22.		OFFICEF	AES	Petrtley H23	0	1116364	AES		
Max	C01 L		1 JOFF	00	Jangles 1	0	111.10	AES		
-	CD2 L	R	2/OFF	0	Jingles 2	0	1.11.34	AES		
and a	CD0 L		3/0FF	0	News	0	11158	AES		
Mater	CD4 L		4/OFF	0	Vieather	0	1.11.7/0	AES		
CONCEPTION OF	CD6 L		STOPF	00		0	1.11.910	AES		
221	CDE L		SJOFF	00		0	3.11.11.12	AES		
Line	CD7 L		OFF / OFF	(CD		0	1.11.13/14	AES		
	CDB L		OFF / OFF	00		0	3.11.15/16	AES		
Int alter	CD9 L		OFF / OFF	0	1.	0	5.15.17/18	ARS		
Selay	CD10 L		OFFICEF	0		0	1.11.1900	AES		
-	DECK L	*	OFF / OFF	SRCS		0	5.98.31/02	MI.		
Sydiam.	Ouestt		OFF	MC		0	5.18.5	MI,		
1000	Ouest2		017	3MC		0	5.187	ML	•	
-			Source Group Location	Change Name	Move to List	Madify	SAVE	LOAD	1	input
OP Mode	OFF			3 4	5 Create New	Ramove	Sets default options	for book givene	5	Output
	A55	ы. "А	MEMORY CHANNEL	OUTPUTS TECH	Annes Frished Memory Lond			-	ENT	•

First select the input from the list and then select the required source location group button. Each source location group can be given a user friendly name, by selecting "Change Name"

The source location group number will appear in the "Mic Open" column (There will be two digits if both legs of a pair of inputs are assigned to a source location group). The source will operate the group to which the left of the pair is assigned.

In the setup application, a source location group can be set to automatically cut the control room loudspeaker output., by allocating it to the mute function. The function is then enabled via condition switching on the Tech - GPIO - TX/REH screen.

Source location groups can also be set to fire a relay. These are set on the and Tech - GPIO - GPO screens.

#### Save and Load Options

Settings on this screen are not stored in the individual console memories but are saved and loaded separately using the Save and Load options buttons. Changes to options take effect as soon as they are made, but, if they are not saved, the next time the desk boots up the options will revert to their previous settings.

When changes are made to this screen, the Save button will change colour, and if the user leaves the screen without saving the options, the system will ask whether to save the changes.

# **SOURCE SETUP**

© Calree	Audio - X2	1	A REAL PROPERTY AND A REAL			110 10			- 8 >
Memory	: Mono	lay Sho	w 1	Fader: 2 Guest1		Change Fader ?			
	SRCS	ALS	CD MIC EXT						Source
	Port Name	Type	Description	Mic Coarse Gain	Label Colour	Phantom Power	Sample Rate Converter		54000
	DECK	ML.		0:6		ino l			Fader
	MD 1	AES	Minidisk				in.		Connar
	MD 2	AES	Mnidisk				n.		
	MD 3	AES	Miniclisk				h		
	MD 4	AES	Minidiak				<b>N</b>		
VO	MD 5	AES	Mnidisk	E			n		
Patch	Pres	ML.		Bu0		Off	and the second se		
SALAN-	RedMan	ABS	Redomen				n.		
0PIO Tu/Keh	TAPE 1	ML		OdB		011	1		
SHORE!	TAPE 2	ML.		OdB		Off	6		
and the	TAPE 3	ML.		0dB		Off			
Miss	TAPE 4	ML.		0dB		Ott			
	assist	ML.		OdB		Off			
Monitor	bckup1	MI.		OdB		Ott			
Meter	bckup2	ML		0:08		Off	12		
	bckup3	ML		Oute		011	A		
Lints	bckup4	ML.		OdB.		Off			
	spore1	ML		Gob		Ott			
Sn:/Fader Setup									
System Monitor									
Wilds									
OP Mode								-	
C A L	1 E C	ission	MEMORY CHANNEL OUTPUTS	TECH AWACS Finished M	lemory Load		•	EXIT	0.0

This screen allows the user to set the following functions for each input source. This screen is only visible in engineer mode.



# Mic Coarse Gain

A pop up box allows the mic coarse gain for the input to be set between -12dB and +78dB. When a mic input is assigned to a fader mic coarse gain control is also provided on the Channel - Chans screen

# Label Colour

The colour of the display label on the source's fader can be set to green or amber here.

# **Phantom Power**

Selecting a cell in this column will switch phantom power On/Off for mic/line inputs.

# Sample Rate Converter

Selecting a cell in this column will switch sample rate conversion In/Out for AES inputs.

# **FADER COLOUR**

Aemory :	Monday Show 1		Fader : 1	Pres	Change Fader	?	¥
			Fader	Colour			Seu
		1			-		Sat
		2					
		3					Fad
		-					
		2			-		
		7					
-		8					
atch		9					
		10					
PID		11					
uReh		12					
		13					
ties		14					
		15					
		16					
leter		17					
005058		18					
-		19					
CORE .		20					
_		21					
/Fades		22					
remp		23					
and and		24					
fonitor							
Concession in the local division in the loca							
Wilder							
Mode							
		and an exception		1			
	ASSION MEMORY C	HANNEL OUTPUTS	TECH AWACS	Participant I want			EXIT

This screen allows the user to change the colour of each screen fader. This makes them easier to distinguish. This screen is only visible in engineer mode.



Selecting the cell in the colour column allows the colour to be chosen from a new window. A choice of four colours is available.

# SYSTEM MONITOR

Calrec A	udio - X2					-10	X
Memory:	Monday Show 1	R	ader: 2 Guest1	Change Fader		•	1
	Enable Programming Prog	isable remming	Time 08:22:47 Date 08:00:07 Loaded UpdaSng PC sel meterwith function 5 UNABLE TO CONNECT - ST INS RET UNABLE TO CONNECT - ST INS RET Time 08:77 40 Date 08:00 70 Loaded	memory: 56 : 56 6 PORTS 144 146 ALREADY IN USE PORTS 146 147 ALREADY IN USE memory: 56	-	FE Mag	2
vo	Send Command:	Send	Updating PC sel meterwith function 6 Invalid start flag 0x0 Invalid start flag 0x0 Invalid start flag 0x0 Invalid start flag 0x0	6		Rac	
oPIO TwReh							
Miss	Mpdate All Components						
Monitor Meter	Update Config Update Consple						
Lints	Update Rack Update Hub						
Sec/Fader Setup	0%						
System Monitor							
Wilde							
OP Mode							
CALR		TECH	AWACS		-	т (	0.0

This screen logs system messages, allows debugging and system updates to be carried out. They allow a Calrec support engineer to update and troubleshoot your system. This screen is only visible in engineer mode.



When Enable Programming is selected, the system will ask again for the engineer's password.

# WILDS

: Monday Show 1		Fader: 2 Guest1	Change Fader	3
Auto Wild Enabled Disabled	Current Wild Control.	hput Gein Apply Io All Faders		Main 1 h
Vild	Assign	Operator	Engineer	
🗟 🗁 Misc				Q
Channel Pan	Assign			10 9- 10-
hput Trim	Assign			
🗈 hput Gan	Assign			
Clean Feed	Assign			20
Direct Output	Assign			L R
E Channel EQ				Aux 1
🗉 🗀 Dyn EQ Enable				
🗉 🗀 Dynamics Enable				l
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ASSIGN MEMORY CHANN	EL OUTPUTS TECH	AWACS		EXI

This screen allows the user to allocate functions to the faders' wild controls, and for studio engineer to restrict access to certain screens when in Operator mode.



# **Allocating Wild Controls**

The Assign buttons in the list of functions will set the currently assigned fader's wild control to that function.

Apply to All Faders will apply the current wild control to all the console's faders.

# Auto-Wild

Auto-wild mode for the currently assigned channel can be enabled or disabled using the buttons on this screen. In auto-wild mode, any screen control which is operated will be copied to the wild control on the currently selected channel (provided that the control is among those available for wild assignment). It can then be adjusted from the currently assigned fader's wild control in addition to the screen control.

#### **Screen Function Restrictions**

In engineer mode, the user can restrict access to certain screen functions, so that the screen is still visible to the operator, but some of its functions will not be available.

To allow or restrict screen functions, place or remove the ticks to and from the relevant column on the screen. If a function has been restricted, it will not be available as a wild control.

Screen restrictions are saved	a with	the
user memory.		

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Function	Wild Control Operation			
FUNCTION	Rotary Control	Wild Button		
Pan/Balance	Pan/Balance	In/Out		
Input Trim	Input Trim	-		
EQ LF Level	LF Level	In/Out		
EQ LMF Level	LMF Level	In/Out		
EQ LMF Frequency	LMF Frequency	In/Out		
EQ HMF Level	HMF Level	In/Out		
EQ HMF Frequency	HMF Frequency	In/Out		
EQ HF Level	HF Level	In/Out		
Dynamics Threshold	Threshold Level	In/Out		
Dynamics Make Up Gain	Make Up Gain	-		
Direct Output Level	Direct Output Level	On/Off		
Clean Feed Output Level	Clean Feed Output Level	On/Off		
Aux 1-4 Send Level	Aux 1-4 Send Level	On(Post)/On (Pre)/Off (steps through)		

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