Solid State Logic

SOUND || VISION

AWS δelta

916-924-948

OWNER'S MANUAL

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Additional notes to sections TR and Automation (G)
Revised Nuendo console layout (H)

As research and development is a continual process, Solid State Logic reserves the right to change the features and specifications described herein without notice or obligation.
E&OE

IMPORTANT INFORMATION

This section contains definitions, warnings, and practical information necessary to ensure a safe working environment. Please take time to read this section before installing or using your AWS δelta. Please do not dispose of these instructions.

Graphic Symbols

The following symbols may be used in this section and elsewhere in this manual:


General Hazard (refer to User or Service Instructions for details)


Electrical Hazard

General Safety

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Do not expose this apparatus to rain or moisture.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- Ensure that this apparatus is positioned on a secure level surface.
- Ensure that no strain is placed on the cables connecting to this apparatus. Ensure also that such cables are not placed where they can be stepped on, pinched, pulled or tripped over in any way.
- Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
- Adjustments or alterations to this apparatus may affect the performance such that safety and/or international compliance standards may no longer be met.
- This apparatus is equipped with a headphone socket – excessive sound pressure from earphones and headphones can cause hearing loss.
- This apparatus is designed for use solely by engineers and competent operators skilled in the use of professional audio equipment.

Caution


The AWS δelta console is too heavy for one person to lift. If covers or panels are removed for any reason, sharp edges may be present on exposed metalwork.


To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.


To reduce the risk of electric shock do not perform any servicing unless you are qualified to do so.


To reduce the risk of fire replace internal fuses only with ones of identical type and rating.

Power Safety

- This apparatus includes a universal power supply approved and certified for operation in this apparatus.
- An external disconnect device is required for this apparatus. The appliance coupler is a suitable disconnect device.
- The appliance coupler shall remain readily operable.
- Use only the Solid State Logic provided power cords. Use of any other power cord is not covered by your warranty and may cause fire or explosion.
- The power cord must be earthed and precautions should be made so that the grounding is not defeated.
- Do not defeat the safety purpose of the polarised or grounding-type plugs fitted to the power cords. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- To ensure safe operation of this apparatus, connect only to an ac. power source that contains a protective earthing (PE) conductor. This apparatus is designed for connection to single phase supplies with the neutral conductor at earth potential – category TN or TT – and is fitted with a protective fuse in the live conductor only. This apparatus is not designed for use with live and neutral connections reversed or where the neutral conductor is not at earth potential (IT supplies). This apparatus should not be connected to a power system that switches open the return (neutral) lead when the return lead also functions as the protective earth (PE).
- An external over-current protection device is required to protect the wiring to this apparatus which must be installed according to current wiring regulations. In certain countries this function is supplied by use of a fused plug. In other cases a fused spur or circuit breaker should be used according to local practice.

  The current requirement for this apparatus can be found in Appendix A of this manual.
- If an extension power cable or adaptor is used ensure that the total power rating of the power cable and/or adaptor is not exceeded.
- The power cord must be kept in good condition. If the cable shows any sign of damage or if either connector becomes loose, feels warm or appears discoloured then the power cord assembly should be replaced.
- Unplug this apparatus during an electrical storm or when unused for long periods of time.
- Do not operate this apparatus whilst it is covered or boxed in any way.
- To reduce the risk of electric shock do not perform any servicing unless you are qualified to do so.
- Disconnect the power cord before removing any panels. The power switch alone does not provide adequate isolation for service access.
- Do not permit anyone to remove panels or covers from this apparatus other than qualified service personnel.
- Do not permit anyone other than qualified service personnel to operate this apparatus unless all panels and covers are in place.



When installing or servicing any item of SSL equipment with power applied, when cover panels are removed:

HAZARDOUS CONDITIONS CAN EXIST

These hazards include:

- High energy stored in capacitors
- High currents available from DC power busses
- Hot component surfaces
- High voltages

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is used in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Standards Conformance

CE

This apparatus fully conforms with the current protection requirements of the European community council directives on EMC and LVD.

Disposal of WEEE by Users in the European Union



The symbol shown here is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

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MANUAL CONTENTS

INTRODUCTION

Important Information III
- General Safety III
- Caution III
- Power Safety IV

Manual Contents VII

Reading this Manual XIV

Introduction to the AWS XIV

Contacting Solid State Logic XV

Manual Index XVI

SECTION 1: INSTALLATION & SETUP

Pre-Installation Requirements 1-1
- Console Control Surface 1-1
- Air Conditioning 1-1
- Cable Ducting 1-1
- Grounding 1-1
- Unpacking the Console 1-3
- Attaching the Legs 1-3
- Removing the Trim 1-3

Studio Integration 1-5
- Audio Connections 1-5
- Connecting a Patchbay 1-5
- Patchbay Guidelines 1-6

Connecting your DAW 1-7
- Overview 1-7
- Installing the ipMIDI driver and AWS Remote 1-7
- Make and Configure the Network Connection 1-8
- Network Connection using DHCP 1-11
- Enabling ipMIDI on your AWS 1-12
- Setting Your Workstation(s) to Communicate via ipMIDI 1-13
- Pro Tools 1-14
- Network Troubleshooting 1-15
- Larger Networks 1-16
- Assigning the AWS IP Address 1-17
- Using Physical MIDI Ports to Connect your DAW 1-18
- Other Connections 1-18

SECTION 2A: AWS 916-924 TUTORIAL

Studio Configurations 2a-1
Focus Modes 2a-2

Channel Strip 2a-3
Input configuration 2a-3
Signal Processing 2a-3
Routing 2a-3
Panning, Width and Balance 2a-4
Level, cuts and solos 2a-4

Centre Section 2a-5
Adjusting the Mix and Record busses 2a-5
Creating a Monitor Mix 2a-5
Creating Foldback Mixes 2a-5
Using the FX Returns 2a-5
Using Talkback 2a-5
'In-line' Recording 2a-5

SECTION 2B: AWS 948 TUTORIAL

Focus Modes 2b-1

Channel Modes 2b-3
Basic Tracking Configuration 2b-4
Analogue-style In-Line Tracking Configuration 2b-5
Mixing Configurations 2b-6
Mode Selection 2b-8

Channel Strip 2b-9
Input configuration 2b-9
Signal Processing 2b-9
Routing 2b-9
Panning, Width and Balance 2b-10
Channel level, cut and solo 2b-10

Centre Section 2b-11
Adjusting the Mix and Record busses 2b-11
Creating a Monitor Mix 2b-11
Creating Foldback Mixes 2b-11
Using the FX Returns 2b-11
Using Talkback 2b-11

Section 3: Analogue Operations

Introduction 3-1
- Focus Modes 3-1
- The TFT Screen 3-2

Channel Modes (948 only) 3-3
- Channel Configuration (AWS 948 only) 3-4

Channel Strip 3-7
- Overview 3-7
- Input configuration 3-8
- Channel Meters 3-8
- Dynamics 3-8
- Filter 3-9
- Equalizer 3-9
- Insert Point 3-10
- Signal Processing Order 3-10
- Cue, FX and EFX Sends 3-11
- Direct Output 3-12
- Track Bus Routing 3-12
- REC and MIX Bus Routing 3-13
- Panning, Width and Balance 3-13
- Scribble Strips 3-14
- Channel Selection 3-14
- Cut and Solo Switches 3-14
- Level Control 3-15

Centre Section 3-17
- Introduction 3-17
- Function Keys 3-17
- Monitoring 3-18
- SOLO Configuration 3-22
- Mix and Rec Bus Controls 3-23
- Dynamics Operation 3-24
- Track Bus Master Controls 3-25
- Cue/FX Send Master Controls 3-25
- Foldback Headphone Outputs 3-26
- Stereo FX Returns 3-26
- Oscillator 3-28
- Centre Section Metering 3-29
- Console Setup Menu 3-30

SECTION 4: DAW CONTROL

Introduction **4-1**
Focus Modes 4-2

Configuring DAW Layers **4-3**
DAW Layers 4-3

Communication with your DAW **4-4**

HUI and MCU common Features **4-7**
V-Pots 4-7

The Master Control Panel **4-6**

Pro Tools HUI Control Guide **4-7**

Channel Functions **4-9**

Channel Solo and Cut Tile **4-10**

Channel SEL Button – Track Arming/Edit/Select **4-11**

Record Ready Mode **4-11**
Edit Mode 4-11
Select Mode 4-12

Working with the Channel V-pots **4-12**
Setting Sends Pre/Post Fader 4-13
Muting a Send Output 4-13
Flipping Send Levels to the Faders 4-13

Input, Output and Send Routing **4-14**

Motion Control Panel **4-15**

HUI Plug-in Control 4-19
Plug-In Editor 4-19
Plug-In Display Modes 4-20
Editing Plug-In Parameters (Parameter Mode) 4-21

Additional HUI Displays **4-23**
Timecode/Bars & Beats/Samples Display 4-23
DAW Status Display 4-23
Soft Key Display 4-23

HUI Automation **4-27**

MCU (Mackie Control) Emulation **4-29**
Mackie Control Emulation Advantages 4-29

Section 5: Projects and the Remote Browser

Introduction 5-1
- Working with Projects and Titles 5-1
- AWS Remote 5-1
- MIDI SysEx data 5-1

Connecting the Remote to the Console 5-3

The Projects Tab 5-5
- Copying Titles, Total Recall and Mix data between Projects 5-6
- Renaming Projects, Titles, Mixes or Total Recall Setups 5-6
- Backing up a Project 5-6
- Restoring a Project 5-6

The Mixes Tab 5-7

The Total Recall Tab 5-9

The Channels Tab 5-11

The Externals Tab 5-13

The About Tab 5-15

Section 6: Total Recall

Overview 6-1
- Accessing Total Recall 6-1

Selecting TR Setups 6-3
- Changing the selected setup 6-3

Matching the Console to the TR 6-5
- Display Overview 6-5
- The Channel Display 6-6
- Centre section displays 6-7

Additional TR Functions 6-9
- Storing setups 6-9
- Deleting Setups 6-9
- Restoring Legacy MIDI Setups from a Mac or PC 6-9

Total Recall via Logictivity 6-11

SECTION 7: AUTOMATION

δ-Control Automation

Overview	7-1
The δ-Control Advantage	7-1
Console Basics	7-2
δ-Control Basics	7-3
δ-Ctrl 24 Plugin vs δ-Ctrl Single Plugin	7-3
The δ-Ctrl Plugin	7-4
Workstation Setup – Pro Tools	7-5
Workstation Setup – Logic	7-5
The δ-Ctrl Single Plugin GUI	7-6
The δ-Ctrl 24 Plugin GUI	7-7
Mix Setup Workflow δ-Ctrl Single Plugin	7-8
Mix Setup Workflow δ-Ctrl 24 Plugin	7-9
Mix Set Up	7-10
Writing Fader Mix data	7-10
Fader Links	7-13
Switch Automation	7-13
Write to Start, End or All	7-15

Legacy Console Automation

Activating the Automation System	7-20
List Mix Menu	7-20
Creating A New Mix Pass	7-21
Discard	7-24
Updating a Mix Pass	7-24
Cut Automation	7-25
Summary of fader status and FSM functions:	7-27
Trim	7-28
TLock	7-29
Motors Off	7-29
Snap Mode	7-30
AutoTakeover	7-30
Copy and Swap	7-30
Deleting Mix Passes from the Console	7-30

APPENDICES

A Specifications A-1

B Connector Details A-3

C Connector Pinouts A-5

D Environmental Specification A-7

E MIDI Implementation Chart A-9

F Service & Warranty Information A-11

- Introduction A-11

G Troubleshooting A-13

- Introduction A-13
- Locating Problems A-13
- Audio Faults A-13
- Control Faults A-14
- Replacing Modules A-15
- The Channel Strip (629921X1 / 629994X1 / X2) A-16
- The Channel Fader (629924X1) A-17
- The Channel Meter Panel (629923X1 / X2) A-18
- Centre Section Cards A-19
- Troubleshooting Chart – Channel bays A-20
- Troubleshooting Chart – Centre section A-20

H Glossary Of Terms A-23

I Link Options A-25

J AFADA A-26

K Block Diagrams A-27

READING THIS MANUAL

INTRODUCTION TO THE SECTIONS

Following this section, there is a section describing the console's installation and setup. The rest of the manual presumes that installation has been completed. Two tutorials follow next – one for the AWS δelta 916/924 and one for the AWS δelta 948. There are then detailed descriptions of the analogue operations (Section 3), DAW operations (Section 4), projects and the Remote (Section5), Total Recall (Section 6) and the automation system (Section 7).

MANUAL CONVENTIONS

Where channel quantities differ between the AWS δelta 924 and the AWS δelta 916, the value relating to the AWS δelta 916 will be appended in parentheses. eg. *'24(16) inputs'*

Where AWS δelta 916-924 and 948 descriptions differ, the 916-924 information will be detailed on the left and the 948 on the right.

AWS 9--
Model-specific descriptions are boxed by a thin blue line.

Labelling from the control surface, TFT screen or Remote Browser appear in **Bold**.

Notes, tips and other useful information is indicated like this.

INTRODUCTION TO THE AWS δELTA

Launched in 2004, the AWS (Analogue Workstation System) reinvented the professional production console by combining classic SSL Superanalogue™ console technology with comprehensive DAW control hardware in a single work surface. Approaching 1000 consoles later, the AWS is now used by leading international recording artists, producers and engineers and has shaped expectations for session workflow within today's and indeed tomorrow's production environments.

Designed for mid scale commercial recording and production facilities, the AWS δelta is available in 16 input (AWS δelta 916), 24 input (AWS δelta 924) or 48 input (AWS δelta 948) variants within a compact 24 fader frame. Both models deliver pristine SuperAnalogue™ mixing, 24(16) ultra-clean SSL SuperAnalogue mic pre's, classic SSL dual curve EQ on every channel, two assignable SSL Dynamics, legendary Stereo Buss Compressor, TotalRecall™ and full 5.1 monitoring. In addition to on board classic SSL Automation, both models also feature the revolutionary new A-FADA mode where motorised analogue faders follow DAW Automation data.

AWS δelta 924 & 948 also feature Ethernet connectivity for streamlined hardware control of your Digital Audio Workstation, delivering elegant, ergonomic physical control over your entire studio environment with dedicated heavy duty DAW transport, V-Pot multifunction encoders with position indicating LED's, Digital Scribble Strips, DAW fader mode, global and channel routing control and built-in TFT display for advanced plug-in editing. Project Session Management is kept simple through SSL's proprietary Logictivity interface.

The AWS δelta is an SSL SuperAnalogue™ console, featuring the audio performance specifications that have established the benchmarks by which other manufacturers are measured. Exceptionally low THD, noise floor & crosstalk levels keep your audio absolutely pristine, while our legendary headroom carries every nuance of your audio and allows engineers to mix 'hotter' without distortion.

While the AWS δelta offers a powerful large format analogue console feature set within a compact console design, it also goes further than any other analogue console by integrating seamlessly into a DAW-based facility by incorporating hands-on control of important recording, routing, mixing, and editing functions in all major DAW applications including Pro Tools™, Nuendo™, Ableton Live, Sonar™ and many others.

Key Features

- Combination of Superanalogue™ console and advanced DAW controller
- SSL SuperAnalogue™ mix bus provides pristine audio foundations
- SSL SuperAnalogue™ mic pre's provide transparent record path
- Innovative Dual Path Channel with three versatile operating modes (948 only)
- 48 inputs on AWS 948:
    - IN-LINE TRACKING = 1 mic + 1 monitor input per channel
    - IN-LINE MIX = 2 x mono line inputs per channel
    - STEREO MIX = 1 x stereo line input per channel
- Comprehensive metering of all inputs and outputs
- VU and Phase meter with source selector
- δ-Ctrl DAW plug-in
- Versatile 4 band channel EQ, assignable Dynamics and SSL Master Bus Compressor
- 4-Band EQ design with independent E/G curve switching on selected bands
- 5.1 Surround monitoring and Monitor calibration including Bass management
- MIDI over Ethernet multi layer DAW workstation control
- Contigious Digital Scribble Strips for console and DAW data
- Elegant project setup via SSL Logictivity Remote Browser
- SSL's unique trademarked Total Recall™ system with 'TR Autoscan'
- Responsible 'green' manufacturing and reduced power consumption
- Compact 24 fader frame ideal for small control rooms

AWS δelta 916

The most affordable price of entry in to the AWS range.

> *AWS 916 frames are fully wired so can be upgraded to AWS 924 specification at any time.*

AWS δelta 924

The AWS 924 continues the classic design of the AWS 900.

AWS δelta 948

The AWS 948 maintains the same 24 fader footprint as the AWS 924 (and classic AWS 900) and achieves its 48 input count via a unique Dual Path Channel Strip design where each channel has a single Mic Amp and two line level inputs, a new Stereo EQ and Stereo Insert. This new channel enables three different operating modes: STEREO MIX, IN LINE MIX and IN-LINE TRACKING. These differing modes offer a wealth of workflow options that enhance today's versatile production environments.

Contacting Solid State Logic

If you cannot find the information you need on the pages of this manual, please see the AWS support pages at http://www.solidstatelogic.com

Manual Index

Ø switch 3-8
0dB Function key 3-17
1 / 2 switches 3-8
10db Function key 3-29
48V switch 3-8
80Hz Function Key 3-20
85dB Function Key 3-22

A

A2B Function Key 3-20
About tab (Remote) 5-15
AC Function Key 3-21
AFL Function Key 3-22
Air Conditioning 1-1
AL Function Key 3-21
ALF Function Key 3-21
ALL Function key 3-3, 3-17
ALS Function Key 3-21
ALT Function Key 3-22
ALT/EFX SEL 3-11, 3-12
Anl Function key 3-29
AR Function Key 3-21
ARS Function Key 3-21
Attaching the legs 1-3
Audio Connections 1-5
Auto Scan (TR) 6-5
AUTO-M 3-4
Automation (HUI) 4-29
Automation (console) 7-1
AutoTakeover (Automation) 7-30
AWS Remote 5-1

B

balance 3-13
BASS Function Key 3-20
Bass Management 3-20
BMA Function Key 3-20
BMB Function Key 3-20
BMN Function Key 3-20
bus inject 3-25

C

C-ST MONO 3-4, 3-5
Cable Ducting 1-1
CAL Function Key 3-21
Centre Section 3-17
CH PAN 3-4, 3-7
Chan (TR) 6-5
Channel Banking 4-7
Channel Display 3-14
Channel Fader (HUI) 4-11
Channel Modes (948) 2b-3, 3-3
Channel Output 3-12
Channel Selection 3-14
Channels tab (Remote) 5-11
Chinagraph 3-14
CHOP EFX 3-4, 3-11
CHOP PRE/EFX 3-11, 3-12
CmFb (TR) 6-5
Communications 3-27
Compressor 3-8, 3-23, 3-24
Connectors A-3
Console Setup Menu 3-30
Cubase 4-36
CUE A / B 3-11
CUE F-CH 3-4, 3-13
CUE ST pan pot 3-4, 3-13
Cue 3-11, 3-25
CUT (channel) 3-14
CUT (monitoring) 3-18
CUT (DAW) 4-12

D

D-Type A-3, A-5
DAW Connection 1-7
DAW Controller 4-1
Daw Function key 3-29
DAW Layers 4-3
DAW1 / 2 Function keys 4-3
DF 1 / 2 (A-FADA) Function keys 4-5
Digital Displays 4-13
Digital Performer 4-42
DIM switch 3-18
DIN 5-Pin A-3
Direct Output 3-12
DIRECT PRE/EFX 3-11, 3-12
Downloads 5-15
DOWNMIX 3-18
Dynamics 3-8, 3-24
DynB (TR) 6-5

E

EFX 3-11, 3-12
EFXC Function key 3-11, 3-17
EFX CHOP 3-4, 3-7
EQ IN switch 3-9
Equalizer 3-9
Ethernet 1-8
Execute (Automation) 7-21
EXT A / B 3-19
EXT T/B button 3-27
External Source Selectors 3-19
External sources 5-13
Externals tab (Remote) 5-13

F

Fader Links 7-13
fader 3-15, 3-23
FAQ's 5-15
faults A-13
Filter 3-9
FLIP switch 3-6
Focus Modes 3-1, 4-2
Foldback 3-26
FSM 7-26, 7-27
Function Keys 3-17
FX busses 3-11, 3-25
FX Returns 3-26

G

G-EQ switch 3-9
Grounding 1-1

H

Headphones 3-26
HLD Function key 3-29
HPF pot 3-9
HUI 4-9

I

Input configuration 3-8
INS Function Key 3-19
insert (channel) 3-10
INST switch 3-8
Installation 1-1
IP address 1-19
IP switch 3-8
ipMIDI 1-7, 1-12
ISO Function Key 3-22

J

Join (Automation) 7-11

L

layers (DAW) 4-3
LF0 Function Key 3-20
LFG Function Key 3-21
LINE pot 3-8
LNSL Function key 3-17
Logic 4-34
Logic Handshaking 4-3
LØ switch 3-8
LRA Function Key 3-19
LS SELECT buttons 3-18

M

M-CHOP PRE 3-4, 3-7
Maintenance A-i
Master Control Panel (DAW) 4-8, 4-33
Master Fader 3-23
MCU 4-32
Metering (Centre Section) 3-29
meters (channel) 3-6
METERS Function keys 3-29
MIC pot 3-8
MIDI SysEx 5-1, 7-20
MIDI 1-7, 1-20, A-9
MISC Function key 4-3, 4-5, 7-13
MISC LEVELS switches 3-18
Mix bus 3-13, 3-23
Mix Enabled (Automation) 7-27
Mixes Tab (Remote) 5-7, 7-19
Modifier Buttons (HUI) 4-10
Moff (Automation) 7-29
MOM Function Key 3-22
MON INS 3-4,3-7
MON PAN 3-4, 3-7
MON SRC buttons 3-18
Monitor Calibration 3-21
MONITOR LEVEL pot 3-18
MONITOR MUTE/SOLO buttons 3-18
Monitor Options Function Keys 3-19
Monitoring 3-18
Motion Control Panel 4-17

N

Navigation Mode (HUI) 4-20
network 1-8
Nuendo 4-37

O

OP switch 3-8
OSC ON 3-21, 3-28
Oscillator 3-28

P

PAD switch 3-8
PAN switch 3-12
pan 3-13
Patchbay 1-5
PFL Function Key 3-22
PFM Function Key 3-19
phantom power 3-8
PHONES buttons 3-18
PINK ON button 3-21, 3-28
PK Function key 3-29
Plug-In Editor (HUI) 4-21
POST switch 3-11
Power Supply Indicators 3-17
PRE switch 3-12
Pre-Installation Requirements 1-1
Projects 5-1, 5-5
Protection (Automation) 7-21

R

REC/MIX LED 3-11
Record bus 3-13, 3-23
RED LIGHT 3-27
Registration 5-15
Remote Browser 5-1
Remote 1-7
Removing the trim 1-3
RETURN switch 3-3
Revise (Automation) 7-24
RØ switch 3-8

S

S-CUE 3-4
Scan (TR) 6-5
screen 3-2
Scribble Strip 3-14, 4-13
SEL button 3-14, 4-14
Service & Warranty A-11
SET Function key 3-3, 3-15
setup menu 3-31
Shuttle/Scrub Wheel 4-20
SIF Function Key 3-22
Signal Processing Order 3-10
SLATE button 3-27
SLNK Function key 7-32
Snap (Automation) 7-11
Snap Function Key 4-5
SOLO (monitoring) 3-18
SOLO CLEAR button 3-18
SOLO Configuration 3-22
Solo switch 3-14, 4-13
Sonar 4-39
Specifications A-1, A-7
SRA Function Key 3-19
ST Function key 3-3, 3-17
stereo cue 3-9, 3-25
stereo FX Returns 3-24
StRt (TR) 6-5
Studio Integration 1-5
SUM Function Key 3-19
Support 5-17
SysEx 5-1

T

talkback 3-27
TB ALL 3-27
TB to Foldback pot 3-27
TFT screen 3-2
Thermal Considerations 1-1
Titles 5-1
TLock (Automation) 7-29
Total Recall 6-1
Total Recall tab (Remote) 5-9, 6-11
TR (Total Recall) 5-9, 6-1
track busses 3-12, 3-25
Trim (Automation) 7-11, 7-28
TRK Function key 3-3, 3-17
Troubleshooting A-13
Two DAW Layers 4-3

U

Unpacking The Console 1-3
Utility Buttons (HUI) 4-9

V

V-Pots 3-15, 4-8, 4-13, 4-15
VU Function key 3-29

W

Warranty A-11
width (pan) 3-13
Window Buttons (HUI) 4-9

Z

Zoom Mode (HUI) 4-19

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AWS δelta

916-924-948

OWNER'S MANUAL

SECTION 1
INSTALLATION & SETUP

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SECTION CONTENTS

Pre-Installation Requirements **1-1**

Console Control Surface 1-1
Power Connections 1-1
Service Access 1-1
Thermal Considerations 1-1
Air Conditioning 1-1
Cable Ducting 1-1
Grounding 1-1
Unpacking the Console 1-3
Attaching the Legs 1-3
Removing the Trim 1-3
Front Buffer 1-3
End Trim 1-3
Top Trim 1-3

Studio Integration **1-5**

Audio Connections 1-5
Connecting a Patchbay 1-5
AWS δelta 916-924 Patchbay Layout Example: 1-5
Patchbay Guidelines 1-6
Instrument Inputs (916 and 924 Only) 1-6
Mic Inputs 1-6

Connecting your DAW **1-7**

Overview 1-7
Installing the ipMIDI driver and AWS Remote 1-7
Software Installation (Macintosh) 1-7
Software Installation (PC) 1-8
Make and Configure the Network Connection 1-8
Direct Network Connection (Macintosh) 1-8
Direct Network Connection (PC) 1-10
Network Connection using DHCP 1-11
DHCP Settings (Mackintosh) 1-11
DHCP Settings (Windows) 1-11
Enabling ipMIDI on your AWS 1-12
Finding the Console on the AWS Remote Application 1-12
Setting Your Workstation(s) to Communicate via ipMIDI 1-13
Pro Tools 1-14
Network Troubleshooting 1-15
Larger Networks 1-16
Assigning the AWS IP Address 1-17
Using DHCP 1-17
Changing the Static IP Address 1-17
Using Physical MIDI Ports to Connect your DAW 1-18
Other Connections 1-18

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INSTALLATION

Pre-Installation Requirements

Console Control Surface

The AWS δelta console is a self contained system; there are no remote power supplies or I/O racks. The frame is not fitted with cooling fans.

See the appendices for the console footprint diagram.

Power Connections

The console is fitted with auto-sensing power supplies which will function at any voltage from 100 to 230 volts ±10% without adjustment.

Three IEC mains power-leads are supplied: one with a UK 3-pin fused plug fitted, one with US-style 3-pin mains plug fitted and one with a european 3-pin plug. Please select the appropriate lead for the local power outlets.

Service Access

Access to all electronic assemblies within the frame is from the front of the console. Note however, that each of the console's modules is retained by a screw through its rear panel. It is necessary therefore, to have access to the rear of the console.

Thermal Considerations

The console is cooled by convection from the front inlet (in the knee panels) to the exit at the top of the rear panels. It is very important that these ventilation grills are not obstructed in any way.

> ⚠ *The heatsink fins on the console rear panels can reach temperatures of approximately 30 degrees Celsius above the ambient room temperature.*

Air Conditioning

It is unlikely that additional air conditioning will be required after installing your AWS δelta (maximum dissipation of 430W for AWS 916, 550W for the AWS 924 and 650W for the AWS 948). It is possible however, that when all the studio equipment is taken into consideration, particularly if additional lighting is being installed, the combined heat output could be sufficient to cause the temperature to rise to uncomfortable levels. The appendix section contains environmental specifications for SSL equipment.

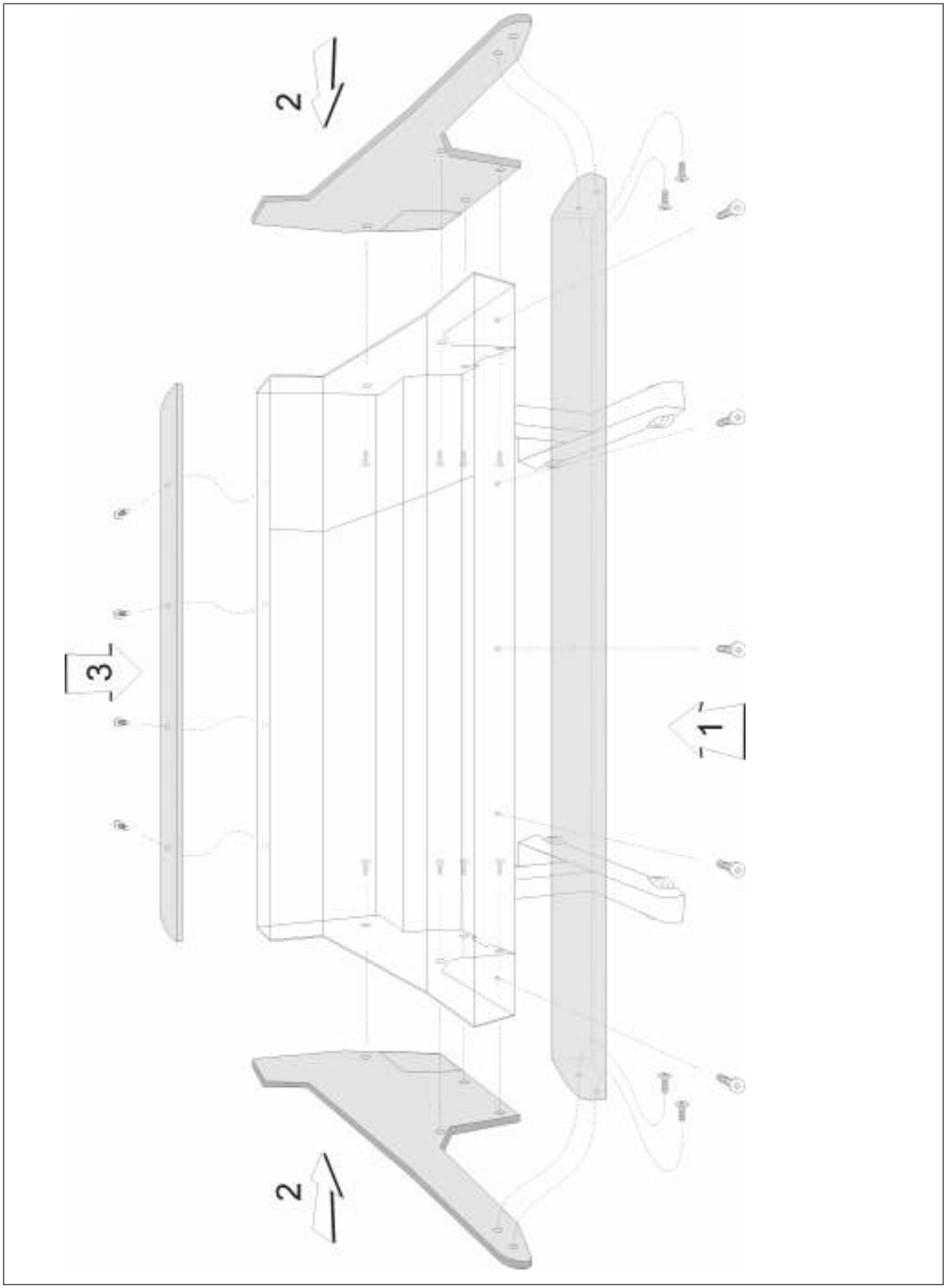
Cable Ducting

Cable ducting may be required between the console and any outboard racks and the recording areas. If a full remote patchbay is being provided then the ducting will need to be sufficiently large enough to accommodate 24-circuit multicore cables – typically 10 cables for the AWS δelta 916, 12 for the '924 and 16 for the '948.

Grounding

A standard system should not require any additional grounding over and above that provided by a correctly installed mains supply. The console's chassis is permanently bonded to mains earth.

> ⚠ *The mains input ground wire MUST be connected to the supply earth.*


2
3
1
2

Unpacking the Console

The AWS consoles are supplied in a wooden crate without the legs fitted. The legs, manuals and anciliaries are located in a tray at the base of the crate.

> ⚠ *The weight of the console is approximately 100kg. It is recommended that at least four people are available before attempting to manoeuvre the console.*

Using a large screwdriver or pry-bar carefully open the crate containing the console. The crate is not designed to be reusable so does not have to be removed intact. Once the top and sides of the crate have been removed there will be sufficient space for four people to lift the console clear from the base.

> ⚠ *The console is shipped with its trim already fitted, avoid using any of the trim as a lifting point. Do not lift the front of the console by using the buffer alone.*

Attaching the Legs

Again, it is recommended that four people are available to perform this operation.

The bolts required to attach the legs can be found in the ancillaries bag in the base of the transit crate. A 6mm hex-key is provided to secure the leg bolts.

- The console should first be rolled onto its back. Ensure that ample padding is provided – such as blankets or bubble-wrap – to support the rear panels (the PSU heatsink fins protrude from the rear of the console, and care must be taken not to damage them).
- Position the legs on the console beam and attach the M10 bolts using the 6mm hex-key supplied. There are four bolts per leg.
- Using four people, the console may now be tipped forward onto its feet. Once the console is in position, a limited amount of adjustment is available to compensate for an uneven floor. Do not unscrew the feet inserts by more than about 15mm.

Removing the Trim

If it is necessary to remove the trim panels – to adjoin existing furniture – then please refer to the following information and the illustration shown on the facing page.

Note that it is not necessary to remove any of the audio modules to gain access to the trim fixing screws.

Front Buffer

The front buffer [1] is secured by nine pan-head screws – five in the front beam and two in each end trim. These are all visible from beneath the buffer.

End Trim

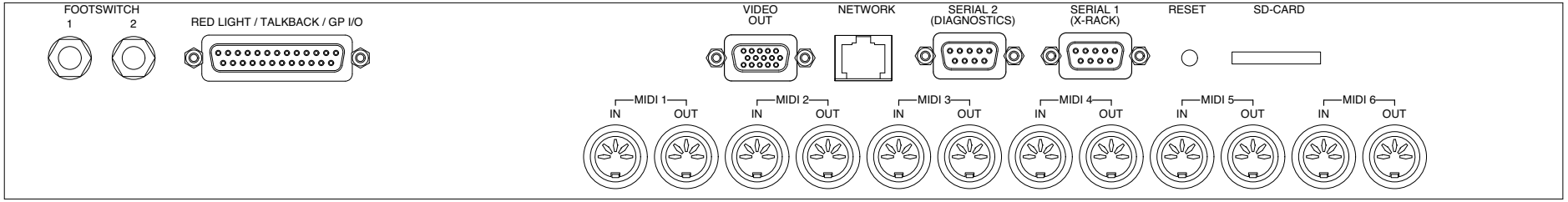
Each of the end trims [2] is secured by four countersunk Posi-head screws through the profile (one is located in the knee-panel area, two more are found either side of the main beam and the fourth is located on the bottom corner of the outside profile), as well as two pan-head screws through the front buffer (visible from beneath the buffer).

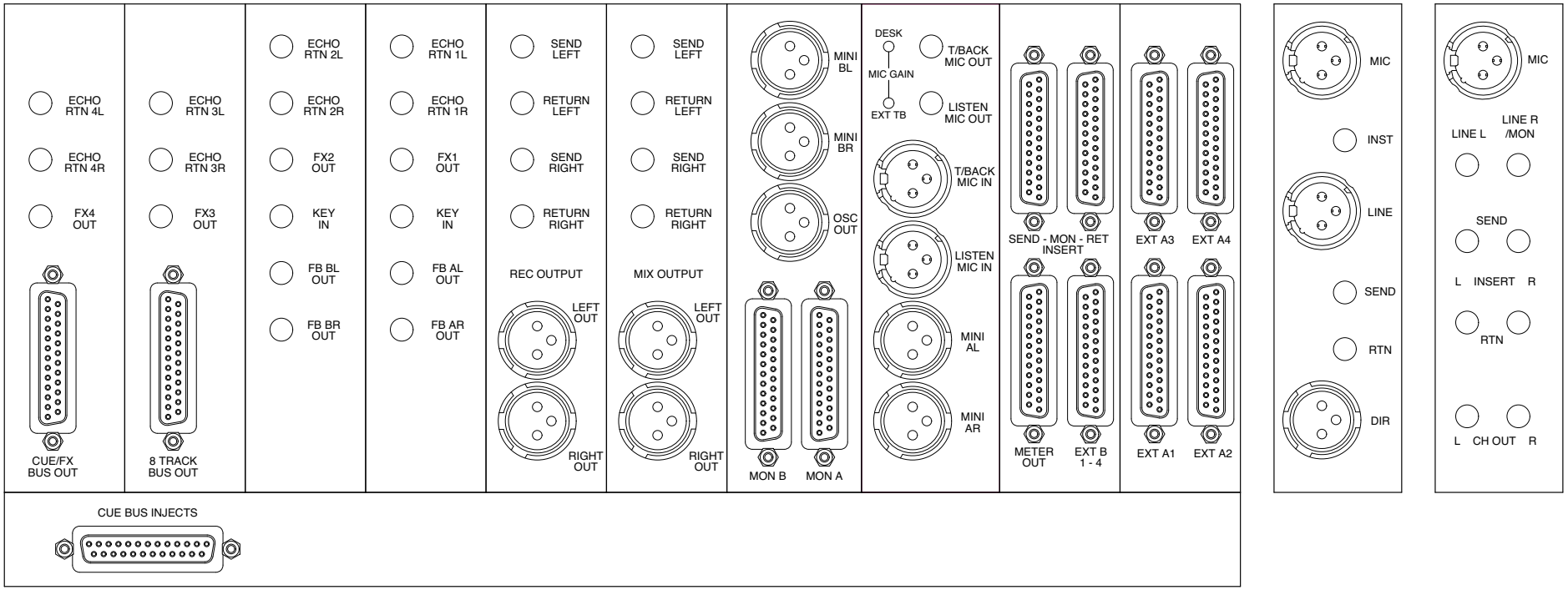
Top Trim

The top trim [3] is clipped over the front of the meter panels and secured onto the back panels by four M3 screws.

GP IO

Processor Interface and MIDI





Master Section

Mono Channels *(916 and 924)*

Stereo Channels *(948)*

Studio Integration

Audio Connections

All connections to the AWS – apart from the two headphone jacks – are located on the rear panels of the console. The headphone sockets are located on the Centre Section knee panel.

The console rear panel is fitted with a label which identifies all the connections on the connector panel, and provides the pinout for each one (the detail is shown opposite). This information is also provided in the Appendices section of this manual.

All connections are balanced.

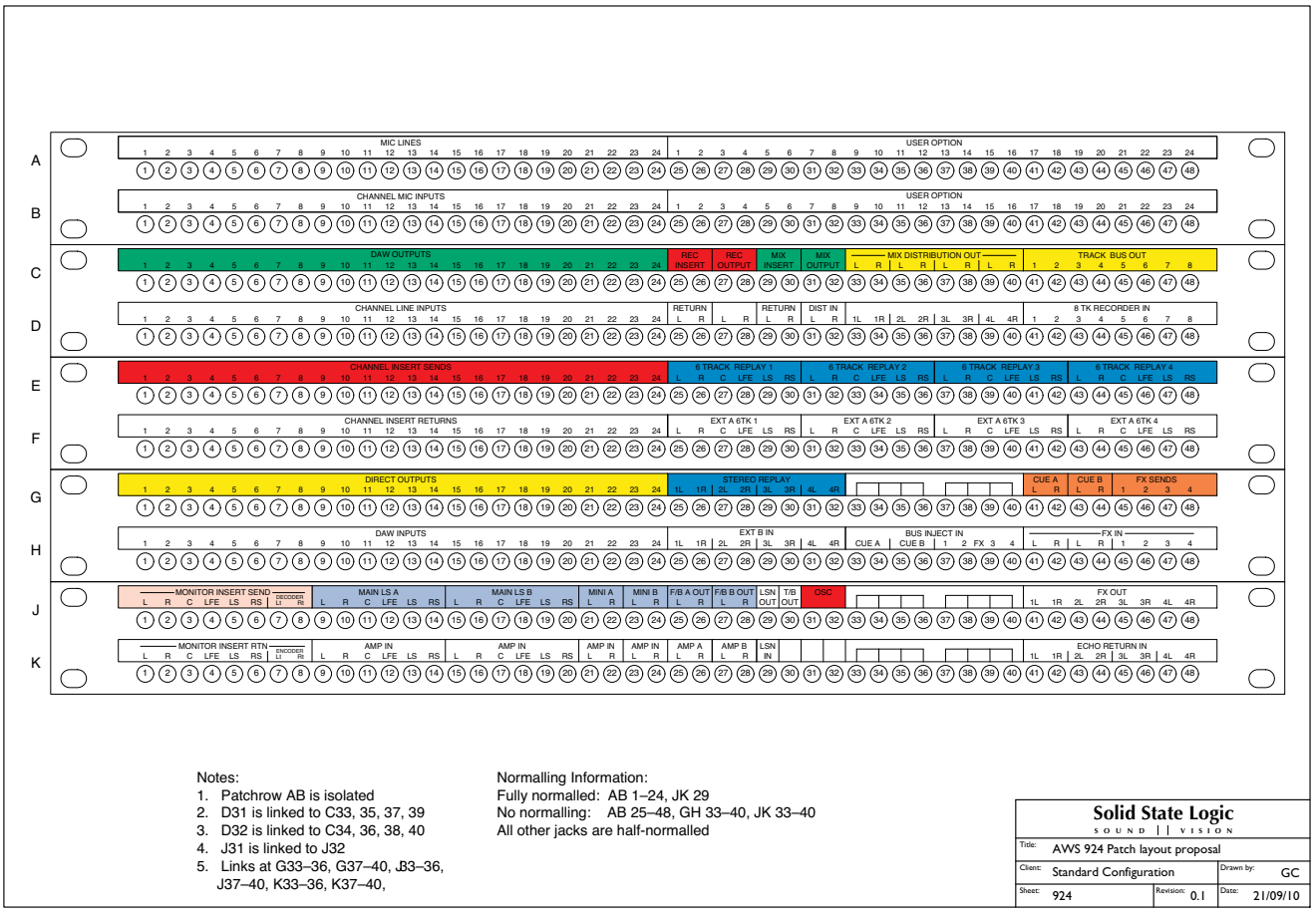
All 25-way D-type connectors use screw pillars that utilise the UNC-440 thread.

See the appendices for the pinouts of all audio connectors.

Connecting a Patchbay

The AWS may, of course, be fully or partially integrated to an external patchbay. 3rd party options are available and SSL can provide patchbay solutions as cost options – contact your local SSL distributor for further information.

AWS δelta 916-924 Patchbay Layout Example:



Notes:
1. Patchrow AB is isolated
2. D31 is linked to C33, 35, 37, 39
3. D32 is linked to C34, 36, 38, 40
4. J31 is linked to J32
5. Links at G33–36, G37–40, J33–36, J37–40, K33–36, K37–40,

Normalling Information:
Fully normalled: AB 1–24, JK 29
No normalling: AB 25–48, GH 33–40, JK 33–40
All other jacks are half-normalled

Solid State Logic
SOUND | | VISION

Title:	AWS 924 Patch layout proposal		
Client:	Standard Configuration	Drawn by:	GC
Sheet:	924	Revision: 0.1	Date: 21/09/10

It is recommended that the above 24-channel layout is also used for AWS 916 consoles; doing so will greatly simplify a future upgrade to an AWS 924 console.

PATCHBAY GUIDELINES

INSTRUMENT INPUTS (916 AND 924 ONLY)

It is not recommended that the '*Instrument*' inputs are broken out to a patchbay. These inputs are unbalanced and have a high input impedance. Accordingly, to help avoid the pickup of noise and interference, cables should be kept at short as possible.

LINE LEVEL INPUT/OUTPUTS

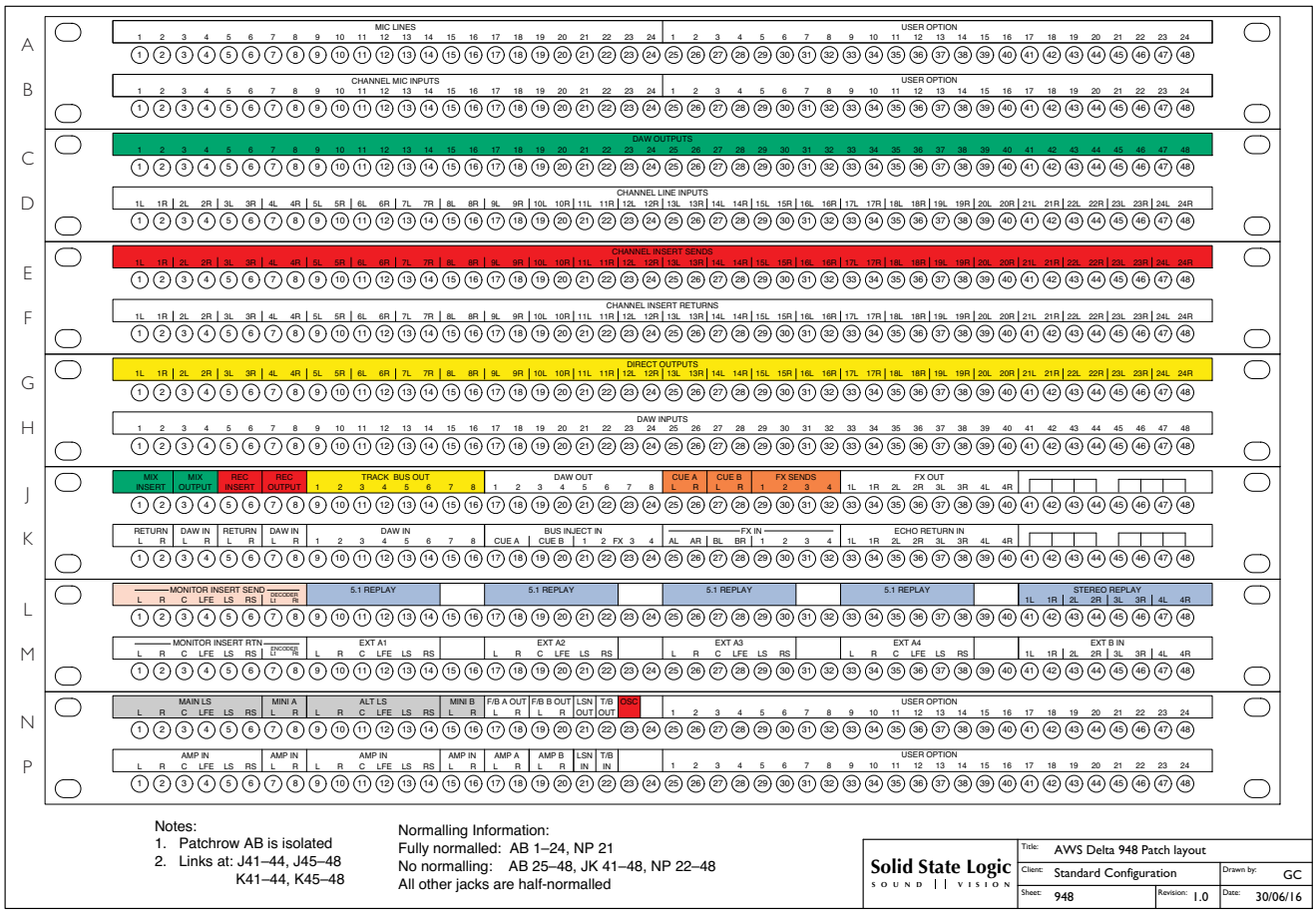
All other analogue inputs and outputs can be connected via a patchbay. It is recommended that the cable shield is connected at the console end and disconnected at the patch row to avoid ground loops. Wiring to the installation should normally have the shield connected to the patch row. The shield connection of all jacks should be linked together (note that patch rows with solid metal front panels will automatically do this) and then linked to a common star point on the patchbay. This starpoint can then be returned – via a thick grounding cable (6mm sq. or greater) – to the chassis stud on the rear of the AWS console. This will reduce the risk of earth loops within the installation.

The screen pins of all analogue inputs and outputs – with the exception of the microphone inputs – are connected directly to the chassis of the AWS console.

MIC INPUTS

If Microphone inputs are to be connected via a patchbay, the type of patch-row used should be of the *insulated* variety where the jack screens are not connected to the main body of the patch-row – there are commercially available patch-rows that meet this requirement. The ground connection from each microphone must be linked through the patch jacks to the XLR on the back of the console without interruption.

AWS δELTA 948 PATCHBAY LAYOUT EXAMPLE:



Notes:
1. Patchrow AB is isolated
2. Links at: J41–44, J45–48
   K41–44, K45–48

Normalling Information:
Fully normalled: AB 1–24, NP 21
No normalling: AB 25–48, JK 41–48, NP 22–48
All other jacks are half-normalled

Solid State Logic SOUND | | VISION

Title:	AWS Delta 948 Patch layout		
Client:	Standard Configuration	Drawn by:	GC
Sheet: 948	Revision: 1.0	Date:	30/06/16

Connecting your DAW

The AWS console communicates with a DAW directly via Ethernet or via three MIDI ports. To use the Ethernet option a third party ipMIDI software driver must be installed on the DAW computer. Registered owners can download this from the SSL website: www.update.solidstatelogic.com. Using these methods of communication allows the AWS to be used with a wide variety of DAW applications on a wide variety of platforms. The AWS uses Mackie control or a 'HUI' compatible protocol, and so any DAW program that can be configured to use three HUI devices can access the full power of the AWS.

Please refer to your DAW manual for details on how to configure the DAW application for AWS under Mackie or HUI control.

Overview

In normal operation the AWS uses an Ethernet connection for DAW control and the SSL AWS Remote for session management. The next section describes how to download and install the ipMIDI driver and AWS Remote on Macintosh and PC.

Optionally the AWS can use a standard MIDI connection between the AWS console and your DAW using a multi port MIDI interface. In this mode only one DAW layer can be configured. The console communicates with the DAW via the MIDI ports located on the rear of the console – details are provided at the end of this section.

Installing the ipMIDI driver and AWS Remote

Download on to your workstation computer either the AWS924-948_Mac_Support.dmg disk image (Macintosh) or the AWS924-948_Win_Support.zip file (Windows). These contain the AWS Remote and ipMIDI applications and the latest version of the installation instructions:

http://update.solid-state-logic.com/update/public/index.jsp

System Requirements for your workstation computer: AWS Remote is a Java application. It will run under Java Version 5 or higher. ipMIDI is compatible with Windows 2000 (maximum 9 MIDI ports), XP, Vista and Windows 7, and Macintosh OS X 10.4 upwards.

Software Installation (Macintosh)

Mount the AWS924-948_Mac_Support.dmg disk image and open it.

AWS Remote: Double-click on the AWS Remote application to install.

ipMIDI: Double click on the ipMIDI.pkg file to run the installation program. Note that you will be asked to log out and in again once you have completed the installation. Once you have logged back in open Audio MIDI Setup, select the MIDI tab and double click on the ipMIDI icon. Set the number of MIDI ports to 10 in the resulting pop-up.

If you are upgrading an older copy of ipMIDI you must uninstall it before running the installer. To uninstall ipMIDI simply delete: </Library/Audio/MIDI Drivers/ipMIDIDriver.bundle>. You should empty the Trash after deleting the bundle file before running the installer.

The drivers mentioned above are also suitable for the AWS 916 console

Software Installation (PC)

Open the AWS924-948_Win_Support.zip archive.

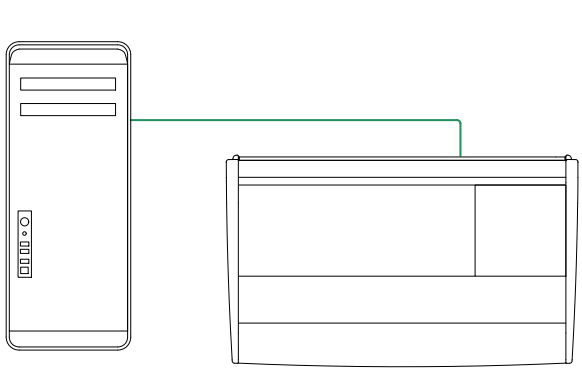
AWS Remote: Double click on AWS924-948Remote.exe to install the program.

ipMIDI: Run the setupipmidi_1.8.exe application (note that the last part of the name may change depending on the version you are installing) by double clicking on it. Note that you will have to restart the computer at the end of the setup process. Once the computer has restarted right click on the ipMIDI icon in the task bar and set the number of MIDI ports to 10 in the resulting pop-up.

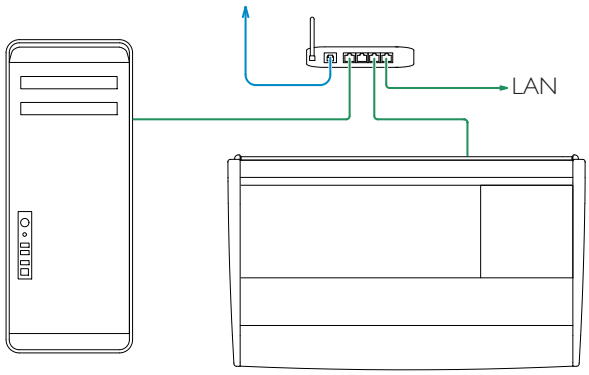
If you are upgrading an older copy of ipMIDI you must uninstall it (using Add/Remove programs) before running the installer.

Make and Configure the Network Connection

The AWS Remote software is designed to communicate with your workstation over Ethernet using the ipMIDI driver to emulate a multiport MIDI interface. The ipMIDI driver enables your workstation to send and receive MIDI control data via a network connection. Using Ethernet ensures the fastest possible communication between your workstation computer and AWS. The standard direct connection uses an RJ45 crossover network cable (not supplied) to connect the console's network connector directly to the network port on your workstation computer using the console's default fixed IP address of 192.168.1.2. *Note that many computer adaptor cards will autosense a direct connection negating the need for a crossover cable. If you are unsure whether your workstation computer's network adapter has this functionality, please use a crossover rather than a pin to pin cable.*



Direct Connection



Connection via DHCP Router

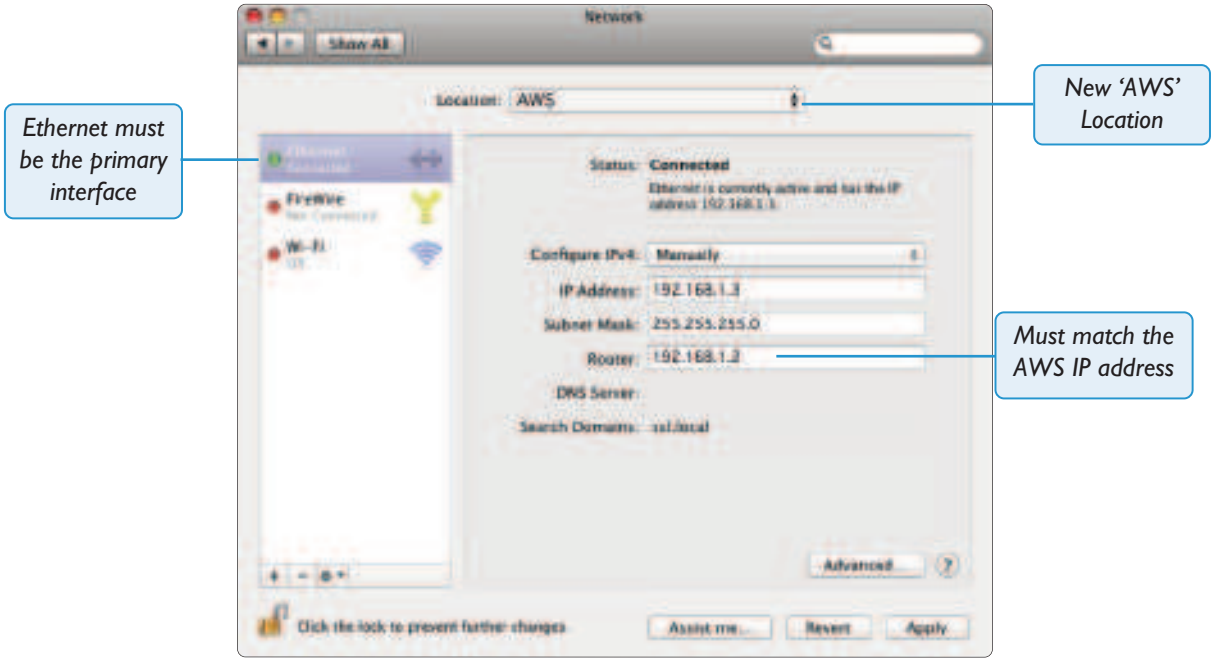
It is possible to connect AWS to a larger network which incorporates multiple computers and to enable dynamic (DHCP) addressing. These configurations need special consideration. Please see the notes at the end of these instructions for details.

Direct Network Connection (Macintosh)

Please note that currently OS X does not allow two ports to be used for IP traffic. As such, the connection to your main network will not be available while the AWS is connected.

To simplify the process of switching between networks, it is recommended that you create a new network Location for the AWS in network preferences. Another Location ('internet' for example) could be created to enable connection to the internet. This would use the network settings provided by your Internet Service Provider or network administrator. You can easily switch between network Locations by going to the Apple Menu and scrolling down to Location.

- Using an RJ45 cable, make a direct network connection between the network port on your AWS to a network port on your workstation computer and check that the IP address is set to **FIXED** in the console's **SSL** > **MISC** > **NET** menu.
- Open System Preferences and click on Network. Create a new location by clicking where it says Location, scroll down to Edit Locations and click the '+' sign. Name the new location AWS.
- Next, select the Ethernet port which is connected your AWS and configure as shown below:



- If your Macintosh features multiple network ports, you should set the priority of these so that the Ethernet port connected to your AWS is at the top of the list.
- Alternatively, if you have already created a separate Location for your existing network you can simply delete the unused ports (Airport, Firewire) from the AWS location so that only the network port connected to AWS is remaining.

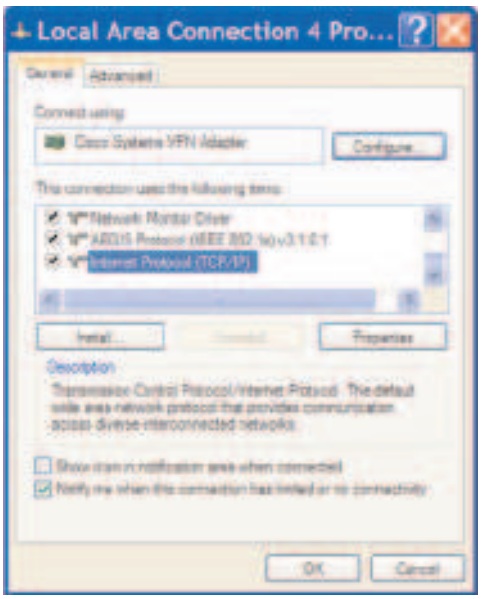
Please note that currently OS X does not allow two ports to be used for IP traffic. As such, the connection to your main network will not be available while the AWS is connected.

Note also that if your workstation computer is a Mac, you should ensure that your Mac Airport is switched off. We strongly recommend this as Airport is known to cause conflicts with ipMIDI data. If you wish to use the internet, we suggest you configure AWS with a Router/Switch (see Connection Using DHCP).

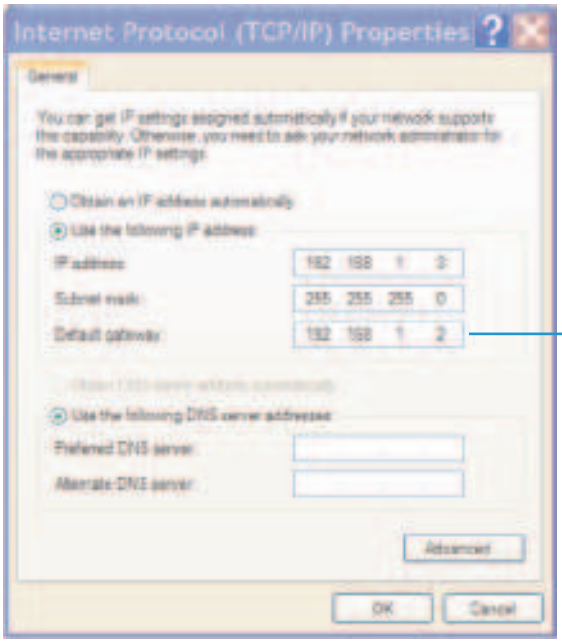
Direct Network Connection (PC)

To set up the connection:

- Double click on Network Connections in Start/Control Panel. Right click on the network adapter connected to your AWS (likely to be called "Local Area Connection"). Select Properties.



- Select Internet Protocol (TCP/IP) and Properties.
- Next, configure the adapter as shown below:



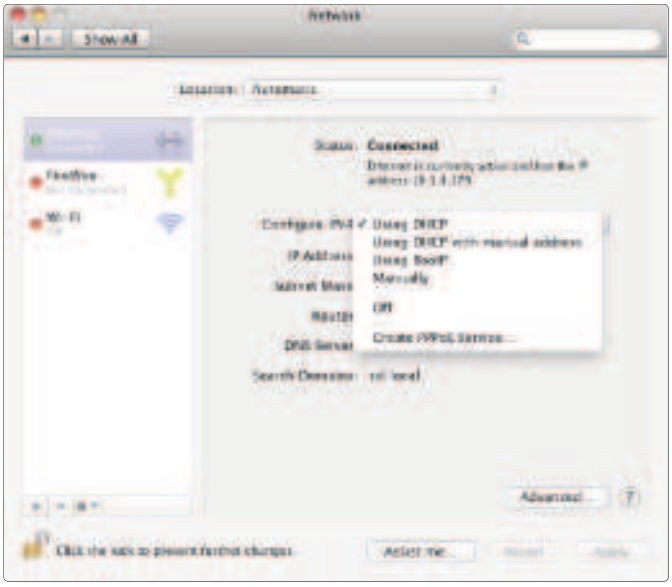
- Click on OK on both windows to save. Back in your network connection list, right click on your adaptor and ensure that it is enabled. If it is disabled, the enable option will appear in the list. Click on enable.

Network Connection using DHCP

If the AWS is being connected to the DAW workstation via a Local Area Network (LAN), a DHCP enabled router with at least 3 Ethernet ports will be required. The principle behind this method is that your Internet router acts as a DHCP server, dynamically assigning IP addresses to all the devices on your network. The simplest configuration would be as shown above.

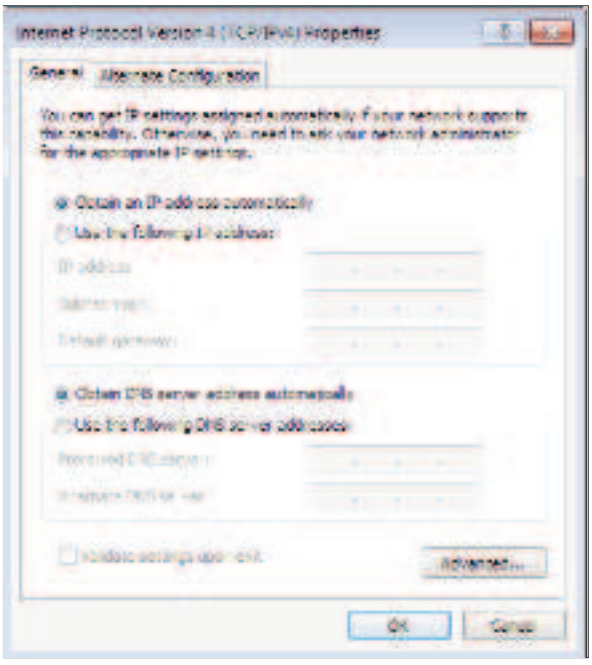
DHCP Settings (Mackintosh)

- On the Mac, go to System Preferences and click on the Network icon.
- Set Configure IPv4 to ***Using DHCP***.



DHCP Settings (Windows)

- Go to Network and go into Local Area Connection Properties.
- Open up the option Internet Protocol version 4 (TCP/IPv4).
- Choose the option Obtain an IP address automatically.



Enabling ipMIDI on your AWS

In the **SSL > MISC > SETUP** menu, toggle the '**MIDI connects via:**' setting to '**Network**'. Your console will now communicate with your workstation via Ethernet. With 'MIDI connects via:' set to 'MIDI ports', AWS will communicate with your workstation via the conventional MIDI connectors on the rear of your console.

You will need to reboot the console after changing this option.

Also in the **SSL > MISC > SETUP** menu, ensure that the 'DAW' option (workstation layer 1) and DAW2 (workstation layer 2) are set to match your workstation or workstations if you are using the second layer. Please note that you will need to restart the console after making a change to the DAW layer options.

Finding the Console on the AWS Remote Application

Launch AWS Remote on your workstation. If you only have one AWS console on the network, AWS Remote will automatically locate the console and the message '**AWS 948-924 SN xxxxx is online**' (where xxxxx is the ID of the console) will be shown in green text in the bottom left hand corner of the browser:



If you have multiple AWS consoles on the network or the AWS Remote browser did not automatically locate your console '**No AWS 924-948 connected**' will be shown in red text. In this instance, click on the find icon . If the list is empty, click on **Find**, select the console you wish to connect to and click on select.



If your console does not appear in the list, it suggests you have a network related issue. Please follow the steps in the network trouble shooting section at the end of this document to resolve the issue.

Once you have made this selection, the AWS Remote will automatically connect to the selected console and display the '**AWS 948-924 SN xxxxx is online**' message. To connect to a different console, click on the find icon  and change your selection.

SETTING YOUR WORKSTATION(S) TO COMMUNICATE VIA IPMIDI

The AWS software uses 10 virtual MIDI ports which are pre-assigned as follows:

Port	Layer	Assignment	Port	Layer	Assignment
1	1	Faders 1–8	7	–	MTC/MMC input *
2	1	Faders 9–16	8	–	SysEx
3	1	Faders 17–24	9	–	AWS MIDI Port 1
4	2	Faders 1–8	10	–	AWS MIDI Port 2
5	2	Faders 9–16			
6	2	Faders 17–24			

** Note that MIDI port 4 **or** ipMiDI port 7 can be used for MTC input thereby allowing MTC to be connected from systems (such as RADAR) that do not support the ipMIDI driver. MTC should only be routed to one port at a time.*

- Note that there are now two switchable workstation layers allowing independent workstations to be interfaced. Once configured, you can switch between the two layers using the console's **SSL > DAW** menu. Port 7: This port is used for the timecode display with δ-Control automation and as the reference input with legacy automation.
- Port 8: Used for the import of legacy SysEx TR and SSL automation data saved under earlier software versions.
- Port 9-10: Mapped to the conventional MIDI connectors on the rear of the console allowing connection of a keyboard or other MIDI device to your DAW via ipMIDI .

To select which DAW is assigned to each layer go to ***SSL > MISC > SETUP*** on your console and select the following:

DAW 1: select from ***Protools HUI / Nuendo / Digital Performer / Sonar***

DAW 2: select from ***Protools HUI / Nuendo / Digital Performer / Sonar / None***

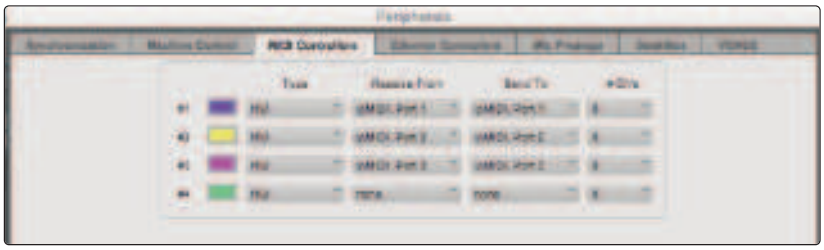
After making these changes the console should be restarted.

To enable control of your workstation via HUI or MCU your workstation(s) must be configured to match the appropriate layer in the list above. This is done using the MIDI Controller configuration page of your workstation.

The following page shows an example using Pro Tools.

PRO TOOLS

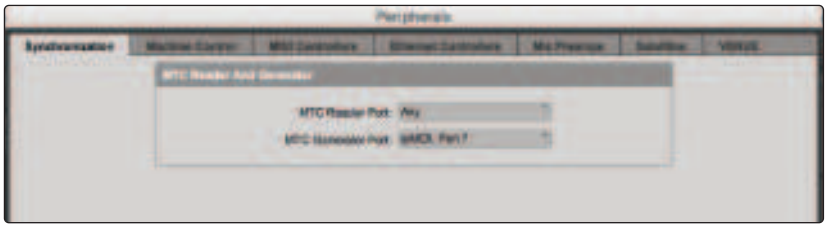
In the Setup menu, click on Peripherals and select the MIDI Controllers tab. Using MIDI controllers 1, 2 (916) and 3 (924-948), select HUI as the MIDI controller Type and assign the MIDI ports for this layer's DAW to the two MIDI controllers, as listed in the table above. If Pro Tools has been assigned to Layer 1, the MIDI Controllers window should look like this:



To use the timecode display in δ-Control or to run legacy automtion, set the MTC generator port in the Synchronization tab to ipMIDI port 7 (or AWS MIDI port 4 if you are using the console MIDI ports):



Also, set the MMC MIDI port in the Machine Control tab to ipMIDI port 7 (or AWS MIDI port 4 if you are using the console MIDI ports):



Enable the two options shown above to ensure that the desk MTC reader shows the correct position following a Pro Tools locate or scrub operation.

The legacy automation system automatically detects the timecode standard from the incoming MTC messages but will quite happily attempt to play out stored mix data to incoming timecode with a different frame rate. This will result in small but potentially annoying timing errors in automation playback as well as missing data if 25 frame timecode is used to play back a Mix recorded with 30 frame timecode.

To make Pro Tools behave like a tape machine for SSL Legacy Automation enable the following in the Pro Tools ***Setup*** / ***Preferences*** / ***Operation*** menu :

1. Timeline Insertion/Play Start Marker Follows Playback
2. Edit Insertion Follows Scrub/Shuttle



Network Troubleshooting

Most Ethernet adaptor cards have two LEDs associated with each port. The one indicates that the link is connected and the other indicates network traffic. Please note that some Macintosh computers do not have external LEDs to indicate status. Instead the link status is shown in the System Preferences/Network menu.

On your host workstation computer, confirm that the link LED is permanently illuminated. If it is not permanently illuminated, it suggests you have a cabling error. In this instance please check the following:

- The RJ45 network connector on the console and on your workstation are fully inserted.
- If you are using a pin-pin cable to make a direct connection between your console and workstation, try replacing it with a crossover cable.
- Try replacing the network cable.
- If you are not using a direct connection between your console and workstation using the default fixed IP address on the console, please try this simple configuration to rule out issues with external routers and network switches. If the link LED is illuminated, the next step is to confirm that the activity LED is illuminating periodically to show network traffic. If it does not illuminate periodically check the following:
- If your workstation is not connected directly to your console using a crossover RJ45 cable and fixed IP addressing, follow the installation instructions to configure this simple network configuration to rule out issues with any external routers or network switches.
- Using the fixed default IP address on the console, check that the workstation has basic communications using 'ping':

  Windows:

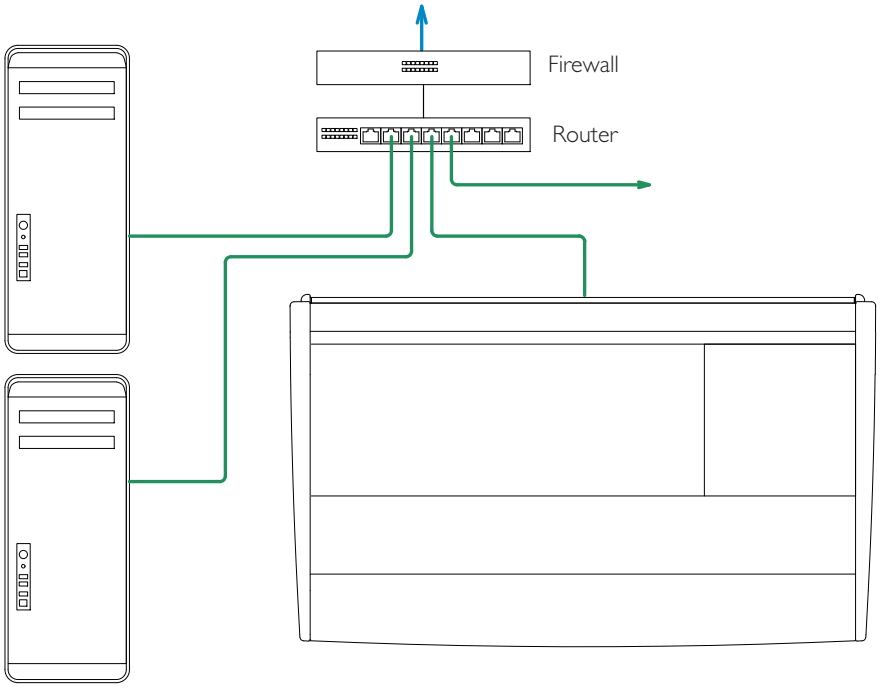
  Select ***Run*** under the ***Start*** menu. In the resulting window enter ***cmd*** to launch the command prompt. In the command prompt window type ***ping 192.168.1.2***

  Macintosh OSX:

  Open a Finder window, select Applications, then Utilities, and double-click on ***Terminal***. In the terminal window enter ***ping –c4 192.168.1.2***

  In both cases your host computer will try to establish communications with your console. In the resultant terminal text, check that the console responded to every message sent by your workstation.

Larger Networks



To ensure minimum latency the ipMIDI driver uses broadcast UDP rather than TCP/IP. This means that:

- The network connection should be as short as possible and should only use routers that can support high data transfer rates. Problems have been experienced with some domestic routers, particularly when used with Pro Tools.
- Because ipMIDI uses broadcast UDP packets, messages between one computer and AWS will be received by all other computers on the network, potentially causing problems in installations with more than one AWS. The UDP packets can be blocked by using a firewall router and connecting the main network to the WAN connector. The firewall can then be configured to allow all traffic apart from UDP ports 21928 through 21947 which are used by ipMIDI and (optionally) port 50081 which is used by the AWS Remote application. Most systems can be easily configured with a direct connection between AWS and the controlling computer.

Assigning the AWS IP Address

When shipped from the factory, the AWS uses a fixed IP address of 192.168.1.2.

Using DHCP

Alternatively, dynamic (DHCP) address can be selected via the ***SSL > MISC > NET*** menu. The currently assigned address is also shown in the ***MISC > ABOUT > NET*** menu. If your AWS is connected to the computer via a network switch or router, it should be assigned a DHCP IP address; otherwise the fixed option should be used. If you have altered the IP mode, you will need to restart your AWS for the change to take effect. A software restart option is available in the ***SSL > MISC > NET*** menu.

Changing the Static IP Address

The default fixed IP address can be altered using the console diagnostic port. This should only be necessary where the default address is already in use at an installation.

You will need a PC or Mac running terminal emulator software. Connect your computer's serial port to the rear of the console using a 9 way 'D' type extension cable. The pin out for the console's 9 way 'D' type serial connector is shown below:

Pin	Description
1	Carrier (linked to 0V)
2	Tx
3	Rx
4	DTR (linked to DSR)
5	0V
6	DSR (linked to DTR)
7	RTS (linked to CTS)
8	CTS (linked to RTS)
9	RI (linked to 0V

A standard male – female pin-to-pin 9-way D-type lead can be used for serial connection.

Set the terminal as follows: Baud rate 19200, 8 data bits, No parity, No start bit, 1 stop bit, Flow control Xon/Xoff

Press the 'Return' key (<CR>) and the terminal window should echo a '>' if communication is established.

To set the IP address type the following *(note that the spaces are required between the number groups)*:

`ip<CR>`

`setip nnn nnn nnn nnn<CR>` *where 'nnn...' is the required IP address.*

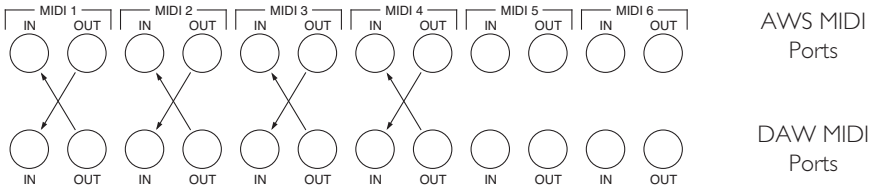
`setmask 255 255 255 0<CR>` *Note that this number should match other devices local to the console.*

`setgate nnn nnn nnn nnn<CR>` *where 'nnn...' is the gateway address e.g. '10 1 1 1'*

USING PHYSICAL MIDI PORTS TO CONNECT YOUR DAW

Optionally the AWS can use a standard MIDI connection between the AWS console and your DAW using a multi port MIDI interface. In this mode only one DAW layer can be configured. To select this mode navigate to the ***SSL > Misc > Setup*** menu and set ***MIDI communicates via: MIDI Ports***.

The console communicates with the DAW via the MIDI ports located on the rear of the console:



MIDI ports should be connected to your DAW MIDI interface unit – three available ports are required (one port includes an IN and OUT socket). To connect a port, the output of the MIDI interface unit port 1 should connect to the MIDI 1 input port of the AWS and the MIDI output of the AWS port 1 should connect to the input of your MIDI interface unit port 1. Repeat for the other ports using the diagram above as a guide. Port 4 is used both for archiving Total Recall and Automation data and to receive MIDI Timecode (MTC).

Follow the instructions on configuring your workstation but use the physical MIDI ports rather than the virtual MIDI ports when selecting MIDI ports.

Ports 5 and 6 are currently not implemented and are reserved for future expansion.

The recommended maximum length of MIDI cables is 15 meters.

OTHER CONNECTIONS

Serial 1 – X-Rack control data. Refer to X-Rack installation manual.

Serial 2 – Diagnostics (SSL Service use)

GP IO – Talkback, Red Light, CUT and DIM trigger inputs. Refer to Appendix C for details.

VGA – 640 x 480 (60Hz) External monitor output.

Solid State Logic
SOUND || VISION

AWS δelta

916-924-948

Owner's Manual

SECTION 2

2A – AWS 916 & 924 Tutorial
2B – AWS 948 Tutorial

Section Contents

Introduction **2a-iv**

δELTA 916-924 Tutorial **2a-1**

Studio Configurations 2a-1
Smaller Systems *2a-1*
Larger Systems *2a-1*
Focus Modes 2a-2

916-924 Channel Strip **2a-3**

Input configuration 2a-3
Signal Processing 2a-3
Dynamics *2a-3*
Filter and EQ *2a-3*
Insert Point *2a-3*
Routing 2a-3
Cue, FX and EFX Sends *2a-3*
Bus Routing *2a-4*
Panning, Width and Balance 2a-4
Level, Cuts and Solos 2a-4

Centre Section **2a-5**

Adjusting the Mix and Record Busses 2a-5
Creating a Monitor Mix 2a-5
Creating Foldback Mixes 2a-5
Using the FX Returns 2a-5
Using Talkback 2a-5
'In-line' Recording 2a-5

δELTA 948 Tutorial 2b-1

Focus Modes 2b-1

Channel Modes 2b-3

Basic Tracking Configuration 2b-4
Mono Configuration *2b-4*
Stereo Configuration *2b-4*
Analogue-Style In-Line Tracking Configuration 2b-5
Band Tracking Mode *2b-5*
Overdub/Playback Tracking Mode *2b-5*
Mixing Configurations 2b-6
Basic Stereo Mixdown *2b-6*
Additional Send Mixing *2b-6*
Additional Return Mixing *2b-7*
Mode Selection 2b-8

948 Channel Strip 2b-9

Input configuration 2b-9
Signal Processing 2b-9
Dynamics *2b-9*
Filter and EQ *2b-9*
Inserts *2b-9*
Routing 2b-9
Cue and FX Sends *2b-9*
Bus Routing *2b-10*
Panning, Width and Balance 2b-10
Channel Level, Cut and Solo 2b-10

Centre Section 2b-11

Adjusting the Mix and Record Busses 2b-11
Creating a Monitor Mix 2b-11
Creating Foldback Mixes 2b-11
Using the FX Returns 2b-11
Using Talkback 2b-11

INTRODUCTION

These tutorials aim to provide an operational overview of AWS δelta consoles, highlighting the ways in which it is different from other consoles with which operators may be familiar.

Each tutorial provides an overview of typical studio configurations, mode selection and both the channel strip and Centre Section controls.

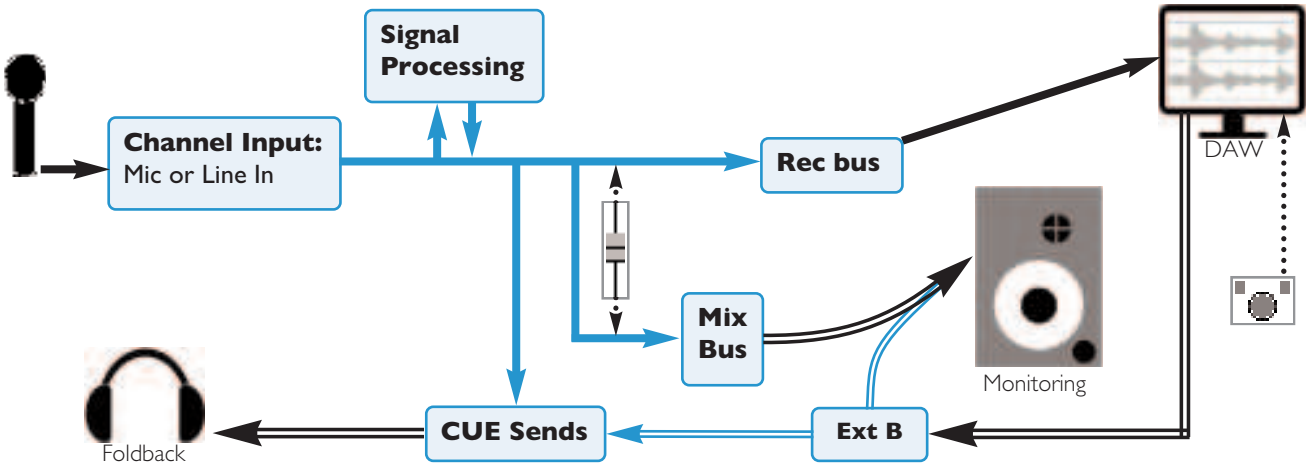
This section does not cover operation in depth – more detailed information will be found in section 3.

δELTA 916-924 TUTORIAL

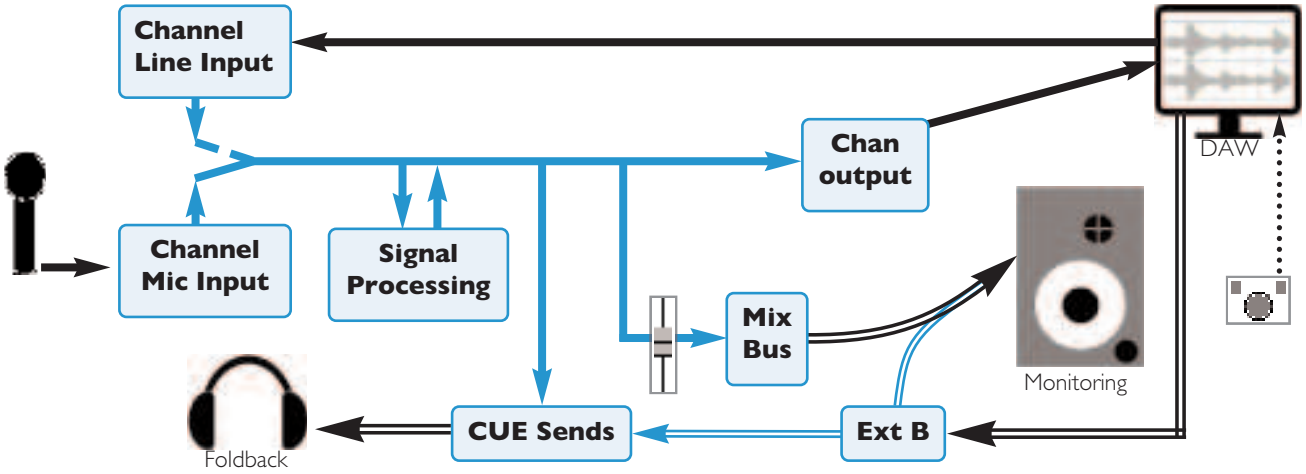
Studio Configurations

There are a number of ways the AWS δelta 924(916) can function within your studio environment, depending on how you intend to use it and how much DAW IO is available to you. Two basic 'serving suggestions' are outlined below.

Smaller Systems



Larger Systems



Focus Modes



In order to allow console controls to be used for controlling either analogue signals or an external DAW, SSL created 'Focus modes' as a way of allowing the AWS to 'focus' on one or other domain. To switch between modes, press the Focus switch, towards the bottom of the console centre section (shown right). The button is lit for Analogue Focus, and unlit for DAW Focus. Focus mode can also be quickly checked by looking at the channel meters: the bottom LEDs stay lit when the console is in Analogue Focus.

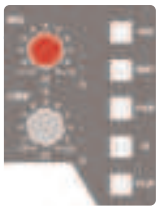
While a number of controls always retain the same role (such as analogue signal processing, routing and monitoring, or DAW transport control), the roles of the following controls are different in each Focus mode:

Console Element	**Analogue Focus** *(Button lit)*	**DAW Focus** *(Button unlit)*
Channel fader, plus its cut and solo	Analogue signal in channel	DAW channel level
Channel V-pot, plus its cut and solo	Available for DAW parameters *(see notes below)*	Available for DAW parameters or analogue signal control *(see notes below)*
Channel **SEL** switch	Assigns analogue channel to Master Section	Controls DAW Record, Select highlights DAW channel or plugin focus, depending on mode
Channel meters	Displays channel's analogue signal level *(see notes below)*	Displays DAW channel level *(see notes below)*

*When the console is in DAW Focus mode, analogue level control can be assigned to the V-pots by pressing the **CHANNEL** button, to the left of the Focus button. This allows 'In-Line'-style signal control but with the monitor mix being created using the DAW digital mixer. Pressing the V-pot will then reverse the functions of the V-pot and fader.*

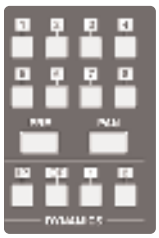
*Channel meters can be locked to either Focus mode by entering the Function Keys' **Meters** menu and selecting either **DAW** or **Anl**.*

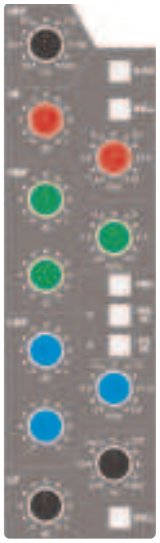
916-924 Channel Strip



Input Configuration

Select the Mic or Line input by pressing **FLIP** and adjust the input gain using the appropriate gain pot. The signal level is shown in the meter bridge above the channel.





Signal Processing

Dynamics

Any channel can make use of the two compressor/gate modules housed within the AWS centre section. Press the **1** or **2** button at the bottom of the meter bridge to insert one of them into the channel path.

Dynamics cannot be assigned if they are already being used by another channel.

The **IN** button at the bottom of the compressor/gate module switches it into circuit.



Filter and EQ

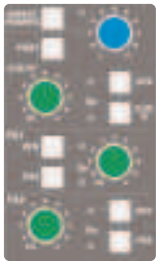
The filter and EQ are both switched in using the **EQ IN** switch. Turn the **HPF** pot up from minimum to activate the filter – the **EQ IN** goes from red to green to indicate that the filter is active.

The EQ has four bands, each with a gain control pot labelled 'dB' and frequency control, and the mid bands have Q control. Press the HF and LF bands' **BELL** buttons to switch from shelf to bell shape.

Insert Point

To switch the channel insert into circuit, press the **INS IN** switch in the centre of the EQ section. Press **PRE** to place it before the EQ in the processing chain.

Routing



Cue, FX and EFX Sends

To activate the Cue or FX sends, press on its gain pot and turn up the gain. The Stereo Cue signal is normally sourced pre-fader – to move it to after the fader, press **POST**. The stereo cue also has a pan control.

There are two stereo cue busses and four FX busses. Each channel can feed one of the stereo cue busses and two of the FX busses (FX1 or 3, FX2 or 4). Any send can instead control the EFX system, which uses auxiliary sends to control the level of the channel's feed to the track busses or direct output – use the **CUE B**, **FX3**, **FX4** and **EFX** switches to select between sends.



Bus Routing

To route channels to the Record and Mix busses, press the **REC** and/or **MIX** switch to the right of the channel pan pot.

Use the eight numbered switches immediately underneath the channel meters (shown above right) to route to the track busses. By default, signals are sent post-fader. To source the send pre-fader or post pan-control, press the **PRE** or **PAN** switches beneath the track bus selection switches.

Panning

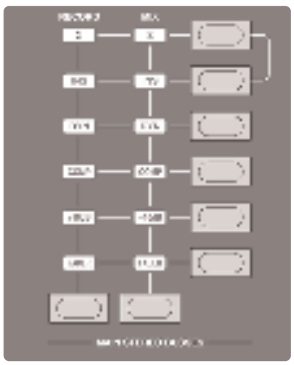
The pan pot towards the bottom of the channel strip is used to adjust the stereo position of signals being sent to the Record and Mix busses, as well as to the Track busses when they are functioning in stereo.

Level, Cuts and Solos

The channel fader controls the channel send to the Rec and Mix busses, as well as any other sends which are operating post-fader. Use the **CUT** and **SOLO** switches below the digital display to mute or solo the signal assigned to the fader.

Centre Section

Adjusting the Mix and Record Busses



To assign control of the Record and/or Mix busses to the master fader, hold down the button at the base of the **RECORD** or **MIX** columns of the bussing matrix next to the fader, and press the button in the row labelled **FADER**. Now move the master fader to adjust the bus level.

Creating a Monitor Mix

Press **MIX** in the **MON SRC** buttons monitor source buttons on the Monitor Control Panel and ensure that the **CUT** button is inactive. Adjust the monitor level using the main monitor level pot.



Creating Foldback Mixes

Foldback mixes can be quickly created using the Foldback section of the centre section.

Select sources using the buttons down the right-hand side. The **MIX** pots control level for the sources to their right. There is also an overall **LEVEL** control.

Using the FX Returns

External FX processing such as reverbs and delays can be connected to the console's four FX send busses. FX unit outputs can be returned back into the AWS via the four Stereo Return inputs in the console centre section. These can be routed to either of the foldback mixers, and to the record and mix busses.

Using Talkback



The talkback controls are located to the right of the shuttle wheel. Press **SLATE** to send talkback to the Mix, Rec and Track busses, press **FB A** or **B** to send it to the foldbacks, or press **TB ALL** to send it to all outputs. The black pots above the TFT screen control communications levels.

'In-line' Recording

Selecting **CHANNEL** on the Master Control Panel while in DAW Focus will allow you to control the input levels from the channel rotary encoders and the DAW mix from the channel faders. Pushing the Channel Rotary Encoder will swap the encoder and fader, which allows some faders to control input level and others to control the DAW monitor mix, mimicking the operation of an in-line console. See Section 4 for more details.

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δELTA 948 TUTORIAL

Focus Modes



In order to allow console controls to be used for controlling either analogue signals or an external DAW, SSL created 'Focus modes' as a way of allowing the AWS to 'focus' on one or other domain. To switch between modes, press the Focus switch, towards the bottom of the console centre section (shown right). The button is lit for Analogue Focus, and unlit for DAW Focus. Focus mode can also be quickly checked by looking at the channel meters: The bottom LEDs stay lit when the console is in Analogue Focus.

While a number of controls always retain the same role (such as analogue signal processing, routing and monitoring, or DAW transport control), the roles of the following controls are different in each Focus mode:

Console Element	**Analogue Focus** *(Button lit)*	**DAW Focus** *(Button unlit)*
Channel faders, plus its cuts and solos	Analogue signal in channel	DAW channel level
Channel V-pots, plus its cuts and solos	In-line: Secondary path level; Stereo: Balance Or DAW params *(see notes below)*	Available for DAW parameters or analogue signal control *(see notes below)*
Channel **SEL** switch	Assigns analogue channel to Master Section	Selects DAW Record, Select or channel plugin depending on mode
Channel meters	Displays channel's analogue signal level *(see notes below)*	Displays DAW channel level *(see notes below)*

*When the console is in DAW Focus mode, analogue level control of stereo channels can be assigned to the V-pots by pressing the **CHANNEL** button, to the left of the Focus button. This allows 'In-Line'-style signal control but with the monitor mix being created using the DAW digital mixer. Pressing the V-pot will then reverse the functions of the V-pot and fader.*

*Channel meters can be locked to either Focus mode by entering the Function Keys' **Meters** menu and selecting either **DAW** or **Anl**.*

In In-line Channel Modes, the V-pot adjusts the secondary channel path's level, as explained on Page 2b-5.

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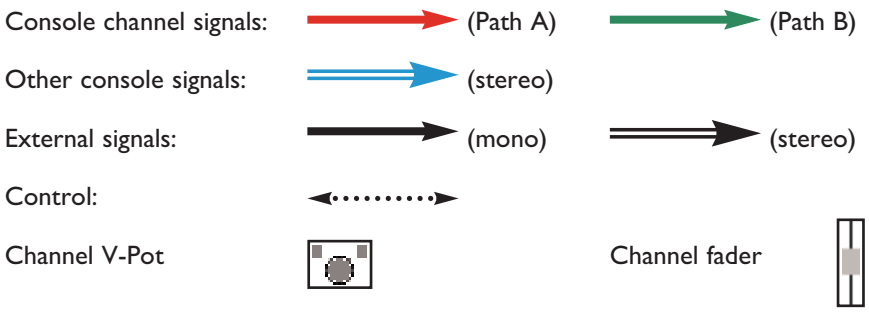
Channel Modes

When in Analogue Focus mode, the AWS δelta 948 channel strips can operate within a number of different Channel Modes, suiting a variety of operational contexts. The two channel paths within the channel strips may control any of the following:

1. A mono or stereo input signal, for basic tracking
2. An input signal and monitor return from the DAW, for more advanced ('in-line') recording and overdubbing
3. An input signal plus additional FX sends, for mixing sessions with complex effects configurations
4. Two independent input signals, for mixing up to 48 signals

Each channel strip is independently configurable, allowing for a number of modes to be present on the control surface at once.

Over the following pages are more detailed introductions to each the console's operation modes. The diagrams use the following key:



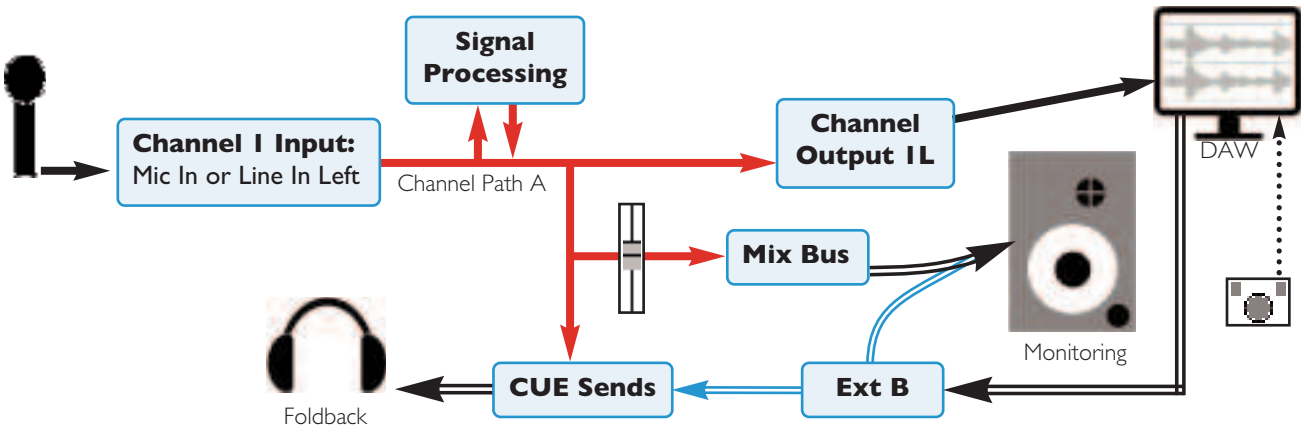
Basic Tracking Configuration

For basic tracking, channels can be a mixture of stereo and mono. The signal processing, cue and FX sends are available within both channel configurations. Sends to the DAW can be sourced either from the Channel Outputs or from the Track Busses, and the stereo master return from the DAW might be brought back into the console via either the External inputs or a stereo channel. The EFX system can be employed to provide independent level to the DAW send. Mono-configured channels use In-Line Mix with the secondary channel path left inactive.

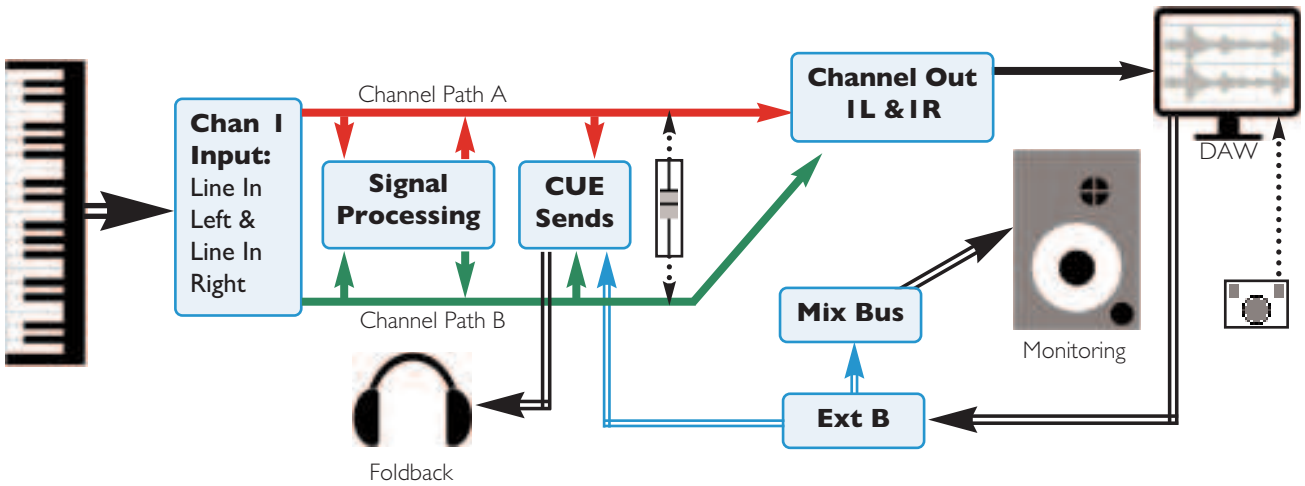
Below are examples of how mono and stereo channels might be configured in basic mode. The stereo master return from the DAW may be brought back into the console using an **EXT B** input (as shown for the mono configuration) or a spare stereo channel (as shown for the stereo configuration). The monitors can be fed by a sum of the mix bus and the DAW return (as shown for the mono configuration) or by just the DAW (as shown for the stereo configuration).

EFX is described in Section 3.

Mono Configuration



Stereo Configuration

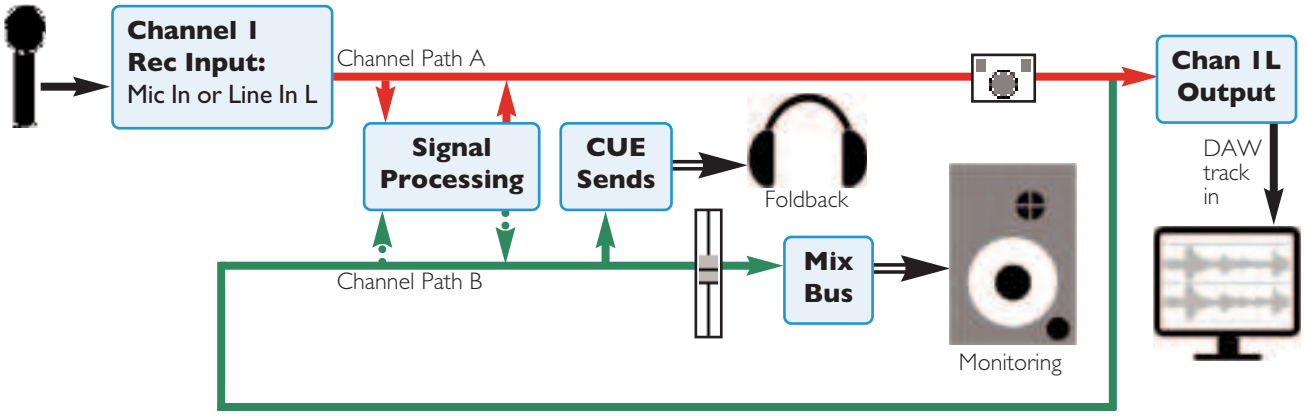


Analogue-Style In-Line Tracking Configuration

In In-Line Tracking mode, Channel Paths A and B are used for tracking and monitoring respectively. The V-Pot functions as the 'small fader', controlling Path A's record path to the DAW via the channel outputs. The main faders control the monitor level (Path B). The **RETURN** switch near the pan pot in the channel strip controls whether the monitor path is sourced from DAW send from the record path or from the DAW return:

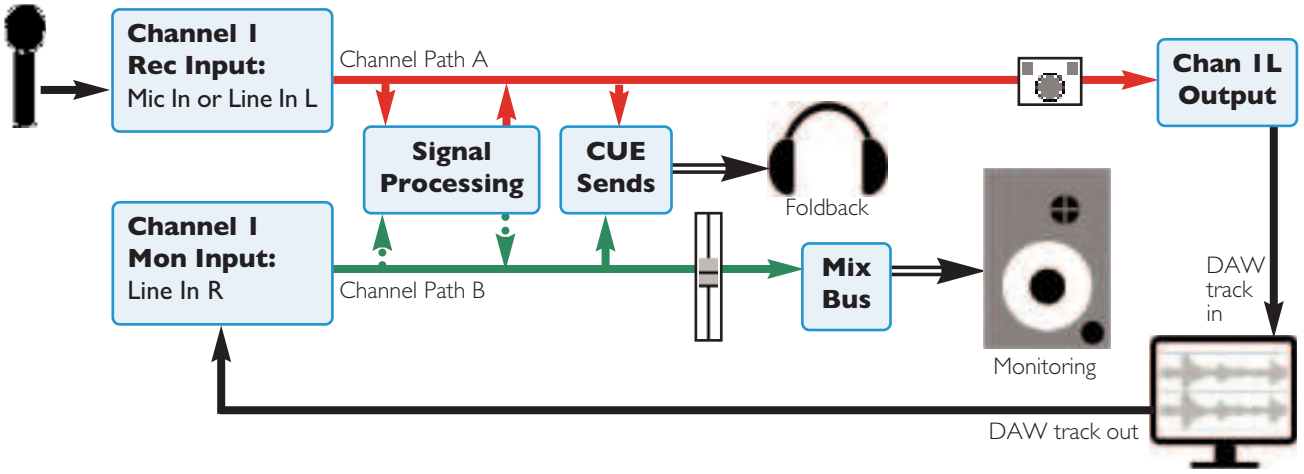
Band Tracking Mode

For multi-instrumentalist tracking, leave the **RETURN** switches unselected. The monitor path will therefore be fed from the channel output, ensuring that everything is heard, regardless of the DAW's record status. Signal Processing can be assigned to either path, allowing it to be committed to 'tape' or restricted to the monitoring. Sends to the DAW can be sourced either from the Channel Outputs or from the Track Busses.



Overdub/Playback Tracking Mode

For overdubbing, pressing the **RETURN** switches will switch the monitor path to be fed from the DAW return, allowing recorded tracks to be auditioned. The channel outputs should feed the DAW and the DAW channels should be returned to the monitoring paths in the channel from which they are sourced.



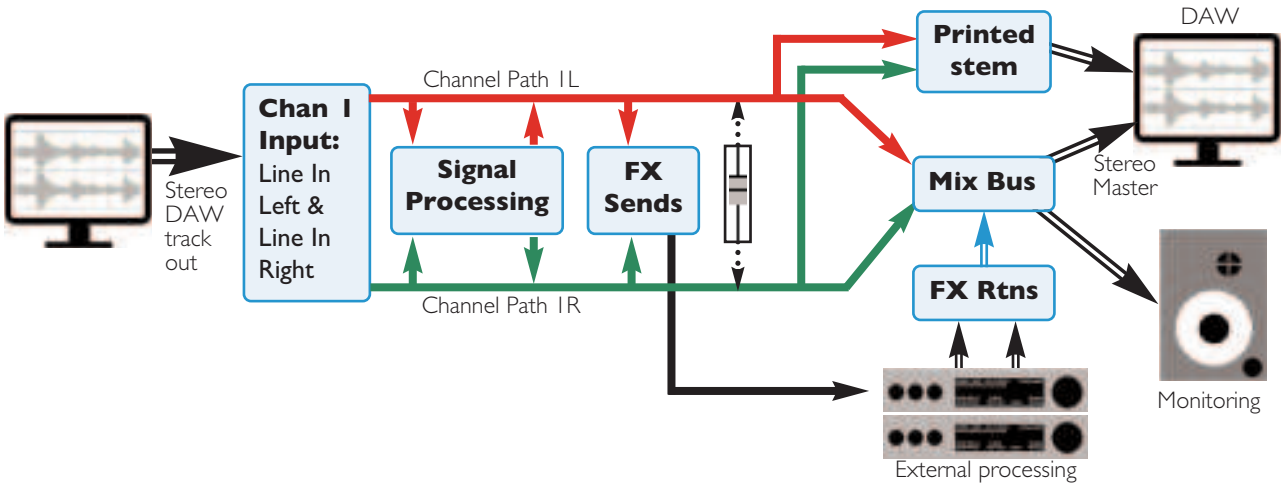
M-AUTO and **S-CUE** use the transport status to automatically control the send and return routing to the monitoring and headphone feeds, as described in Section 3.

Mixing Configurations

When mixing in In-line mode, the secondary channel path can be employed either as an additional send from the channel, as the right input of a stereo signal, or as an independent additional input path, allowing up to 48 signals to be mixed on the console. Because channels are independently configurable, additional inputs might be assigned to channels not requiring extra sends, allowing those signals that do require the extra send to take advantage of both channel paths.

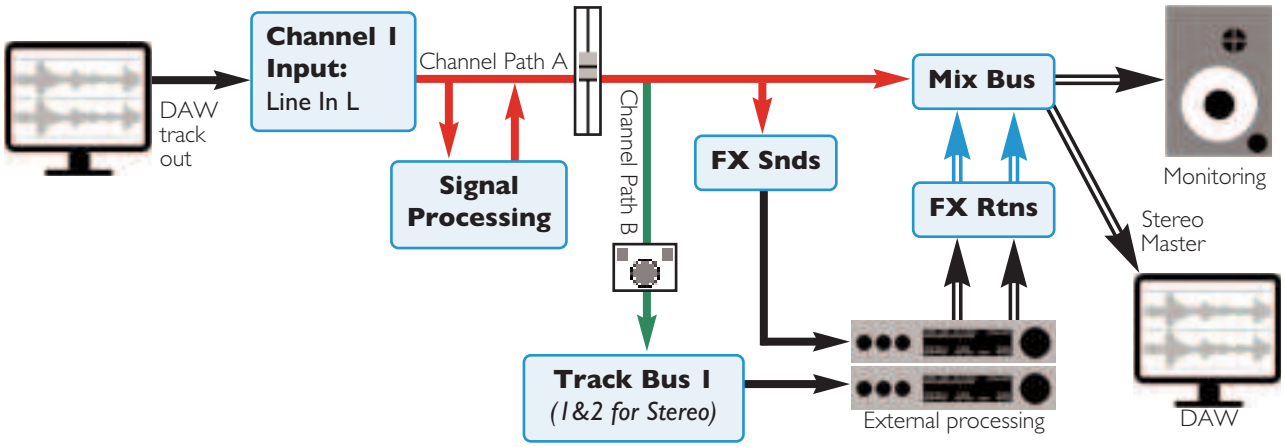
Basic Stereo Mixdown

Basic stereo mixdown uses the channel in Stereo mode:



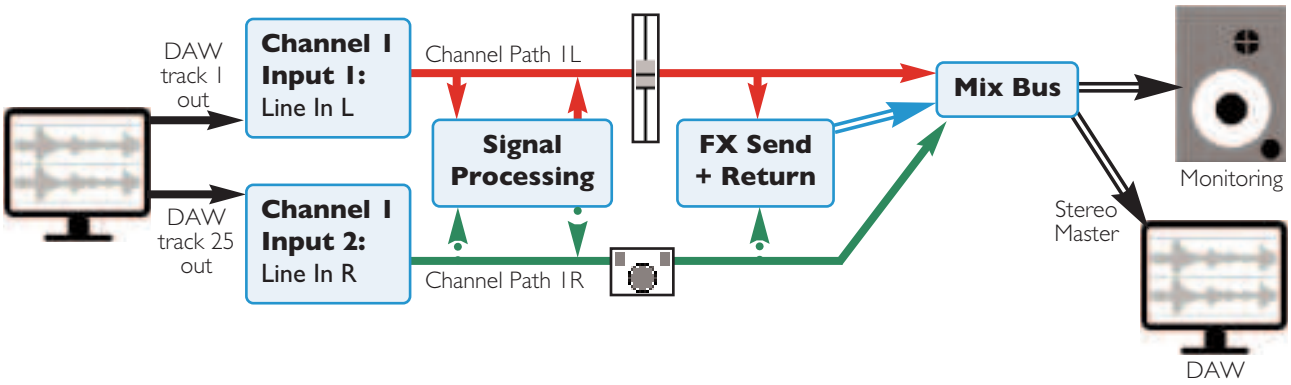
Additional Send Mixing

In the Additional Send configuration (In-line Mix mode with the in-channel **RETURN** switch unselected), the second channel path can be sourced pre- or post-fader, and each of the sends can be switched between them. This allows for a high level of flexibility of send leveling and automation. The channel's signal processing is applied to both channel paths. The V-pot controls the additional send level and the fader the main channel contribution to the Mix and/or Record busses.



Additional Return Mixing

In the Additional Return configuration (In-line Mix mode with the in-channel **RETURN** switch selected), the two channel paths can function entirely independently, with signal processing and FX sends switchable between channel paths. The insert points can be switched and routed separately for each path. The V-pot and channel fader provide independent level control to each signal.

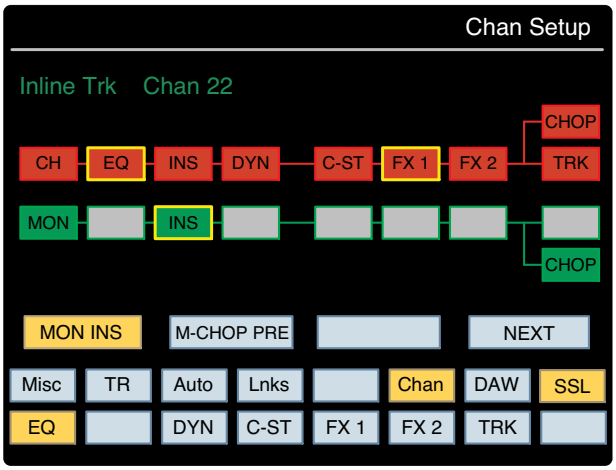


Mode Selection

Modes are selected using the Function keys in the left-hand side of the centre section (shown right). The channel mode options are displayed in the bottom row of softkeys when none of the top row of switches are selected.



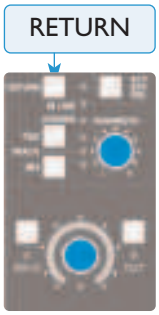
The channels to be configured are selected by pressing one or more channel strip **SEL** keys, or globally using the **ALL** Function key.



The default mode is In-line Mix. Press **TRK** to activate In-line Track mode. Press **ST** to activate Stereo mode. The switches light to indicate In-line Track and Stereo mode. Note that the **TRK** and **ST** buttons are inter-cancelling.

To use a mono channel configuration for basic tracking, simply return to In-line Mix mode and ignore the secondary channel path.

When in either In-Line modes, the **RETURN** switches (near the pan pots in the channel strips) are unselected, meaning that the secondary path is sourced from the primary path. Press **RETURN** to switch the monitor path to the external signal. The **RETURN** LED lights to indicate it is active.

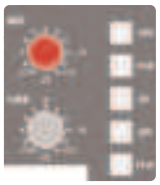


*When the **SET** Function key (next to the **ALL** Function key) is selected, pressing any in-channel non-latching switches (such as the **RETURN** switch) will cause that switch to activate in all selected channels*

The mode and its basic signal path are indicated in the console TFT screen when the **SSL** > **Chan** softkey is pressed. The LEDs below the in-channel **RETURN** switch also indicate the mode, as indicated in the summary table below:

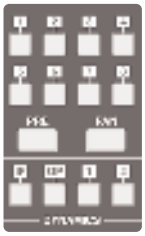
Mode	Activation	Indication	Path 1	Path 2
In-line Mix *extra send*	**TRK** and **ST** Function keys and Channel **Return** all off	Channel **IN LINE** LED is green, no Function keys light.	Mic / Line L	Extra send
In-line Mix *extra input*	**TRK** and **ST** Function keys off, press channel **Return** switch	Channel **IN LINE** and **RETURN** LEDs are green, no Function keys light.	Mic / Line L	Line R
In-line Track	Select **TRK** Function key (Channel **Return** switch off)	Channel **IN LINE** LED is red, **TRK** Function key lights.	Mic / Line L	Channel Output
In-line 'Playback'	Select **TRK** Function key and channel **Return** switch	**IN LINE** is red, **RETURN** is green, **TRK** Function key lights.	Input source	Line R/ Mon Return
Stereo	Press **ST** Function key	Channel **STEREO** LED is yellow, **ST** Function key lights.	Line L	Line R

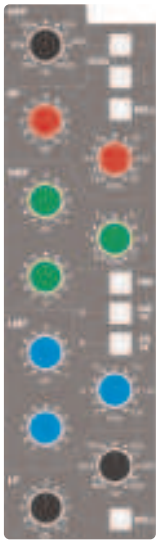
948 Channel Strip



Input Configuration

Line input is automatically selected in Stereo mode. In In-line mode, select the Mic or (left) Line input by pressing **FLIP** and adjust the input gain using the appropriate gain pot. The signal level is shown in the meter bridge above the channel.





Signal Processing

Dynamics

Any channel can make use of the two compressor/gate modules housed within the AWS centre section. In mono mode, press button **1** or **2** at the bottom of the meter bridge to insert one of them into the channel path; in stereo mode, press either button to assign both dynamics modules to the stereo channel.

Dynamics cannot be assigned if they are already being used by another channel.

The compressor/gate modules are located below the Track meters. The **IN** button at the bottom of each module switches it into circuit.



Filter and EQ

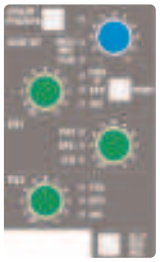
The filter and EQ are both switched in using the **EQ IN** switch. Turn the **HPF** pot up from minimum to activate the filter – the **EQ IN** LED goes from red to green to indicate that the filter is active.

The EQ has four bands, each with a gain control pot labelled 'dB' and frequency control, and the mid bands have Q control. Press the HF and LF bands' **BELL** buttons to switch from shelf to bell shape.

Inserts

To switch the channel insert into circuit, press the **INS IN** switch in the centre of the EQ section. Press **PRE** to place it before the EQ in the processing chain. The insert is stereo for stereo channels, and is available for either channel path in in-line modes, as explained in Section 3.

Routing

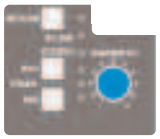


Cue and FX Sends

To activate the Cue or FX sends, press on its gain pot and turn up the gain. The Stereo Cue signal is normally sourced pre-fader – to move it to after the fader, press **POST**. The stereo cue pan control becomes a balance control on stereo signals. Note that the cue pan can be set to follow the channel pan, in which case the cue pan control becomes the secondary path's pan and the cue buss follows the channel pan control.

There are two stereo cue busses and four FX busses. Each channel can feed one of the stereo cue busses and two of the FX busses (FX1 or 3, FX2 or 4). Any send can instead feed the EFX system, which uses auxiliary sends to control the level sent to the track busses or direct output – hold **ALT/EFX SEL** and press the gain pot to select between sends and EFX.

Centre Section Cue and FX bus controls are located in the top right-hand corner of the console.



Bus Routing

To route channels to the Record and Mix busses, press the **REC** and/or **MIX** switch to the right of the channel pan pot. For in-line signals, the **REC** and **MIX** switches operate on the channel path assigned to the main fader. Press on the V-pot below the **REC** and **MIX** switches to switch the main fader and V-pot. The **REC** and **MIX** switches now control the routing of the secondary path.

Use the eight numbered switches immediately underneath the channel meters (shown above right) to route to the track busses. By default, signals are sent post-fader. To source the send pre-fader or post pan-control, press the **PRE** or **PAN** switches beneath the track bus selection switches. Centre section track bus controls are located in the top right-hand corner of the console.



Panning, Width and Balance

The pan pot towards the bottom of the channel strip is used to adjust the stereo position of signals being sent to the Record and Mix busses, as well as to the Track busses when they are functioning in stereo.

For stereo signals, the pan pot functions as a width controller. Stereo signal balance is controlled using the V-pot just above the channel's digital display.

In In-line Mix mode, the main channel pan pot operates on the primary channel path; in In-line Track mode it operates on the monitor path. By default, the **CUE ST** pan pot controls pan for the other channel path whenever it is routed to a stereo bus (as indicated by the **CUE** LED to the left of the **CUE ST** pan pot being unlit) and the Cue pan follows the main channel pan. Deselect **CUE F-CH** (Cue Follows CHannel pan) in the Channel Setup screen (See Page 2b-8) to switch the **CUE ST** pan pot from the channel path to the Cue send.

Channel Level, Cut and Solo

The channel fader controls the channel send to the Rec and Mix busses, as well as any other sends which are operating post-fader.

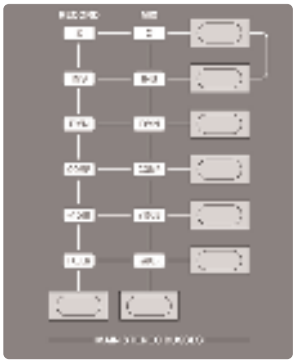
For In-line Track mode, the main fader controls the secondary channel path (monitor path), and the V-pot controls the primary channel path. In In-line Mix mode the channel fader controls the primary path and the V-pot the secondary path. Pressing the V-Pot will swap the paths assigned to fader and V-Pot.

Use the **CUT** and **SOLO** switches below the digital display to mute or solo the signal assigned to the fader.

*Note the **SEL** switch is used for assigning the channel to certain centre section configuration procedures, including the channel mode set-up in the TFT screen.*

Centre Section

Adjusting the Mix and Record Busses



To assign control of the Record and/or Mix busses to the master fader, hold down the button at the base of the **RECORD** or **MIX** columns of the bussing matrix next to the fader, and press the button in the row labelled **FADER**. Now move the master fader to adjust the bus level.

Creating a Monitor Mix

Press **MIX** in the **MON SRC** buttons monitor source buttons on the Monitor Control Panel and ensure that the **CUT** button is inactive. Adjust the monitor level using the main monitor level pot.



Creating Foldback Mixes

Foldback mixes can be quickly created using the Foldback section of the centre section.

Select sources using the buttons down the right-hand side. The **MIX** pots control level for the sources to their right. There is also an overall **LEVEL** control.

Using the FX Returns

External FX processing such as reverbs and delays can be connected to the console's four FX send busses. FX unit outputs can be returned back into the AWS via the four Stereo Return inputs in the console centre section. These can be routed to either of the foldback mixers, and to the record and mix busses.

Using Talkback



The talkback controls are located to the right of the shuttle wheel. Press **SLATE** to send talkback to the Mix, Rec and Track busses, press **FB A** or **B** to send it to the foldbacks, or press **TB ALL** to send to foldback A and B outputs. The black pots above the TFT screen control communications levels.

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AWS δelta

916-924-948

OWNER'S MANUAL

SECTION 3

ANALOGUE OPERATIONS

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Section Contents

Introduction **3-1**
- Focus Modes 3-1
- The TFT Screen 3-2

Channel Modes (948 Only) **3-3**
- Channel Configuration (AWS 948 Only) 3-4
  - *ST Channel* *3-4*
  - *In-Line Mix* *3-4*
  - *In-Line Track* *3-4*
  - *'NEXT' Menus* *3-5*

Channel Strip **3-7**
- Overview 3-7
- Input configuration 3-8
- Channel Meters 3-8
- Dynamics 3-8
- Filter 3-9
- Equalizer 3-9
- Insert Point 3-10
- Signal Processing Order 3-10
- Cue, FX and EFX Sends 3-11
- Direct Output 3-12
  - *Direct Outputs and EFX* *3-12*
- Track Bus Routing 3-12
  - *Track Busses and EFX:* *3-12*
- REC and MIX Bus Routing 3-13
- Panning, Width and Balance 3-13
- Scribble Strips 3-14
  - *Channel Display* *3-14*
  - *Chinagraph Scribble Strip* *3-14*
- Channel Selection 3-14
- Cut and Solo Switches 3-14
  - *Solo Isolates* *3-14*
- Level Control 3-15

Centre Section **3-17**
- Introduction 3-17
  - *Power Supply Indicators* *3-17*
- Function Keys 3-17
- Monitoring 3-18
  - *MON MODE buttons* *3-18*
  - *Monitor Configurations* *3-19*
  - *External Source Selectors* *3-19*
  - *Monitor Options* *3-19*
  - *Monitor Insert* *3-20*
  - *Bass Management* *3-20*
  - *Monitor Level Calibration* *3-21*
  - *Monitor Level Display and Calibrated listening level* *3-22*

SOLO Configuration	3-22
Mix and Rec Bus Controls	3-23
Adjusting a master level	*3-23*
Assigning Centre Section Dynamics	*3-23*
Assigning the Stereo Compressor	*3-23*
Activating bus inserts	*3-23*
Dynamics Operation	3-24
Compressor/Limiter Section	*3-24*
Gate/Expander Section	*3-24*
Track Bus Master Controls	3-25
Cue/FX Send Master Controls	3-25
Cue and FX bus injection	*3-25*
Foldback Headphone Outputs	3-26
Stereo FX Returns	3-26
Communications Setup Options	*3-28*
Oscillator	3-28
Centre Section Metering	3-29
Console Setup Menu	3-30
Automation	*3-31*
Talkback	*3-31*
Monitor section	*3-31*
Desk Setup	*3-31*
Desk settings	*3-31*
Automation	*3-32*

ANALOGUE OPERATIONS

Introduction

AWS δelta consoles combine SuperAnalogue™ technology from SSL's analogue consoles with powerful DAW control. Much of the control surface will be familiar to any recording engineer who has previously used our SL 4000 or SL/XL 9000 console ranges. Once recorded, signals can then be manipulated within the DAW via the AWS δelta control surface, and then either summed internally within the DAW or returned to the analogue domain for processing through the fader-strip EQ sections and assignable dynamics processors, and monitored in stereo or 5.1.

The AWS δelta 948's in-line architecture allows for a seamless interaction between input and DAW signals, in the vein of SSL's classic E and G series consoles.

Focus Modes



In order to allow console controls to be used for controlling either analogue signals or an external DAW, SSL created 'Focus modes' as a way of allowing the AWS to 'focus' on one or other domain. To switch between modes, press the Focus switch, towards the bottom of the console centre section (shown right). The button is lit for Analogue Focus, and unlit for DAW Focus. Focus mode can also be quickly checked by looking at the channel meters: the bottom LEDs stay lit when the console is in Analogue Focus.

While a number of controls always retain the same role (such as analogue signal processing, routing and monitoring, or DAW transport control), the roles of the following controls are different in each Focus mode:

Console Element	**Analogue Focus** *(Button lit)*	**DAW Focus** *(Button unlit)*
Channel faders, plus its cuts and solos	Analogue signal in channel	DAW channel level
Channel V-pots, plus its cuts and solos	In-line: Secondary path level; Stereo: Balance Or DAW params *(see notes below)*	Available for DAW parameters or analogue signal control *(see notes below)*
Channel **SEL** switch	Assigns analogue channel to Master Section	Highlights DAW channel, track arm or plug-in select
Channel meters	Displays channel's analogue signal level *(see notes below)*	Displays DAW channel level *(see notes below)*

*When the console is in DAW Focus mode, analogue level control of stereo channels can be assigned to the V-pots by pressing the **CHANNEL** switch, to the left of the Focus button. This allows 'In-Line'-style signal control but with the monitor mix being created using the DAW digital mixer. Pressing the V-pot will then cause the functions of the V-pot and fader to be swapped.*

***948:** In In-line Channel Modes, the V-pot adjusts the level for one of the channel paths, as explained on the following page. In Stereo mode, the V-pot becomes a balance control. The **CHANNEL** switch is still available for DAW control.*

*Channel meters can be locked to either Focus mode by entering the Function Keys' **Meters** menu and selecting either **DAW** or **Anl**.*

The TFT Screen

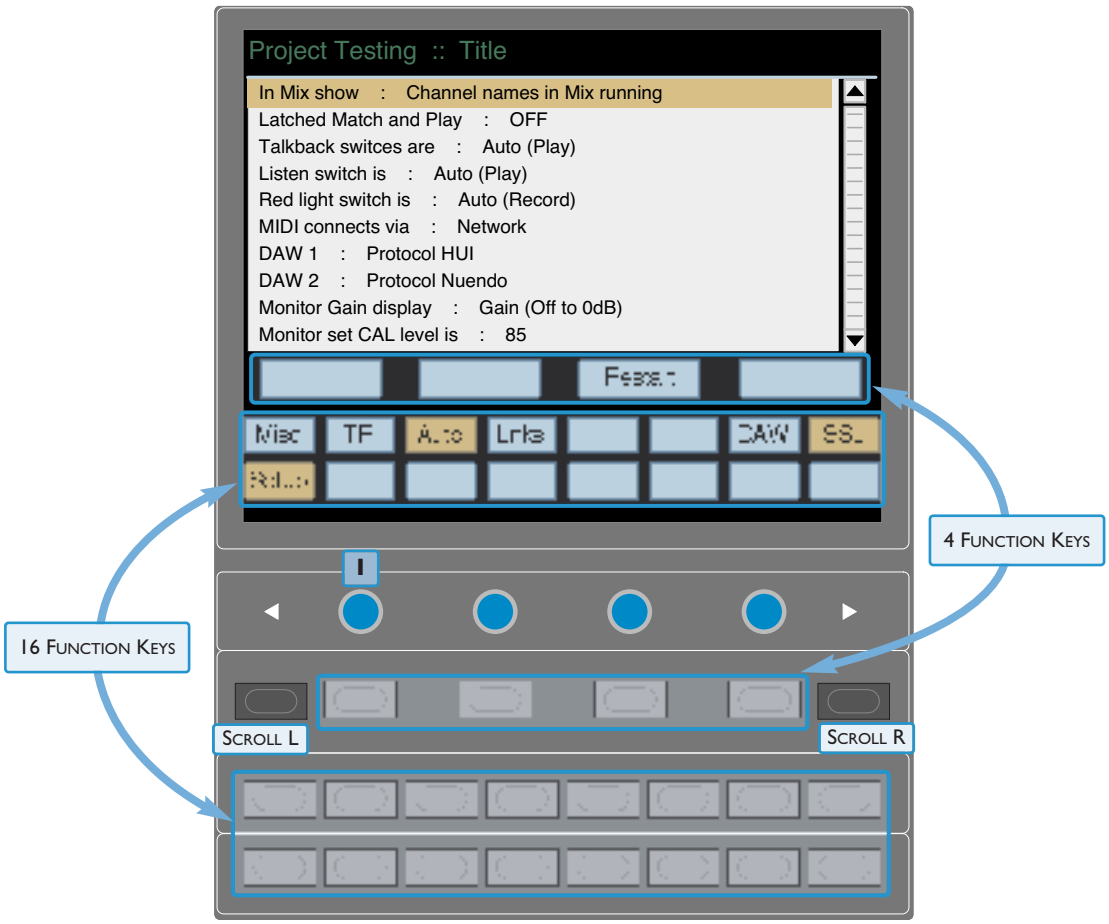
The centre section TFT screen provides access to a number of console configuration items, in addition to its primary role as plug-in editor.

The 16 boxes at the base of the screen indicate the functions assigned to the 16 buttons in two rows of eight below the screen.

The four boxes above them indicate the functions assigned to the central four buttons in the row of six. Note that the two outside buttons are used for scrolling left and right, where relevant.

The picture below provides example illustrations of how the screen and controls relate.

To change a setting: use the first V-pot [1] to select the item, then click the V-pot to enter adjustment mode. Turn the V-pot to the desired setting and click a second time to save the setting.



Note that a VGA output on the back of the console allows the console's screen to be displayed on an external monitor. See Section 1 for details.

CHANNEL MODES (948 ONLY)

When in Analogue Focus mode, the AWS 948 channel strips can operate within a number of different Channel Modes, suiting a variety of operational contexts. The two channel paths within the channel strips may control any of the following:

- A mono or stereo input signal, for basic tracking.
- An input signal and monitor return from the DAW, for more complex ('in-line') recording and overdubbing.
- An input signal plus additional FX sends, for mixing sessions with complex effects configurations.
- Two independent input signals, for mixing up to 48 stems.

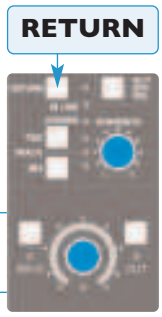
Modes are selected using the Function keys in the left-hand side of the centre section (shown right). The channel mode options are displayed in the bottom row of softkeys when none of the top row of switches are selected.



The channels to be configured are selected by pressing one or more channel strip **SEL** keys, or globally using the **ALL** Function key.

The default mode is In-line Mix. Press **TRK** to activate In-line Track mode. Press **ST** to activate Stereo mode. The switches light to indicate In-line Track and Stereo mode. Note that the **TRK** and **ST** buttons are inter-cancelling.

To use a mono channel configuration for basic tracking, simply return to In-line Mix mode and ignore the secondary channel path.



When in either In-Line modes, the **RETURN** switches (near the pan pots in the channel strips) are unselected, meaning that the secondary path is sourced from the primary path. Press **RETURN** to switch the monitor path to the external signal. The **RETURN** LED lights to indicate it is active.

> *When the **SET** Function key (next to the **ALL** Function key) is selected, pressing any in-channel non-latching switches (such as the **RETURN** switch) will cause that switch to activate in all selected channels*

The mode and its basic signal path are indicated in the console TFT screen when the **SSL** > **Chan** softkey is pressed. The LEDs below the in-channel **RETURN** switch also indicate the mode, as indicated in the summary table below:

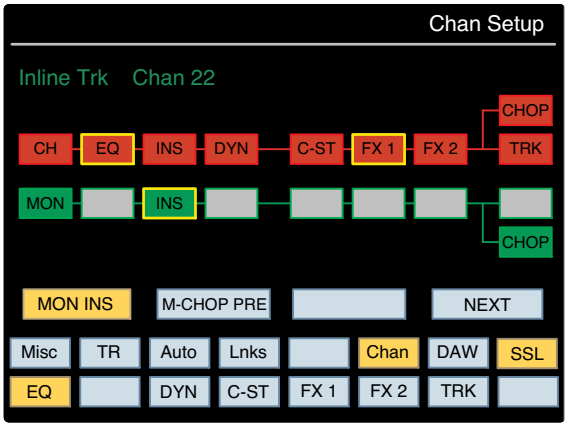
Mode	Activation	Indication	Path 1	Path 2
In-line Mix *extra send*	**TRK** and **ST** Function keys and Channel **Return** all off	Channel **IN LINE** LED is green, no Function keys light.	Channel return	Extra send
In-line Mix *extra input*	**TRK** and **ST** Function keys off, press channel **Return** switch	Channel **IN LINE** and **RETURN** LEDs are green, no Function keys light.	Line L/Mic	Line R
In-line Track	Select **TRK** Function key (Channel **Return** switch off)	Channel **IN LINE** LED is red, **TRK** Function key lights.	Line L/Mic	Channel Output
In-line 'Playback'	Select **TRK** Function key and channel **Return** switch	**IN LINE** is red, **RETURN** is green, **TRK** Function key lights.	Line L/Mic	Line R
Stereo	Press **ST** Function key	Channel **STEREO** LED is yellow, **ST** Function key lights.	Line L	Line R

Channel Configuration (AWS 948 Only)

There are a number of routing and processing options for any channel with an In-line mode, accessed using the TFT screen. The 16 boxes at the base of the screen indicate the function assigned to the 16 buttons in two rows of eight below the screen.

> *The VGA connector allows the console's screen to be displayed on an external monitor. See Section 1 for details.*

With the channel's **SEL** button enabled, activate the on-screen **SSL** button, followed by the on-screen **Chan** button. A basic graphic of the channels' signal chain will appear in the screen, with the primary channel path's chain displayed in red, and the secondary channel path's chain in green.



The components of the signal path – signal processing units, routing sources and destinations – are shown as coloured boxes along their respective chain graphic. If a component can be switched between paths, there will be a grey box in the other chain graphic, mirroring the position of the component within its current path. Use the bottom row of buttons to toggle these elements between paths.

A yellow box highlights signal processing units, insert points and FX sends when made active in the chain.



The left-hand box in each row indicates the currently selected input to that channel path. EFX assignments are indicated by the Track bus (**TRK**) coming off the side of the send assigned to EFX.

The Channel Setup screen provides further configuration options to specific Channel Modes:

ST Channel



EFX CHOP: When EFX has been enabled – ie., FX1, FX2 or CUE have been selected to the EFX mode on the channel strip – the **EFX CHOP** key is displayed. Activating this sends the selected EFX send to the channel outputs. In the case of an FX send, the same signal is then sent to both outputs.



C-ST MONO: If EFX-to-CHOP is ON and the Stereo CUE send is the selected EFX source, the **C-ST MONO** key is then shown. C-ST MONO will fold the stereo channel down to a mono signal and send this signal to both left and right direct outputs for that channel. *This is useful to provide additional mono FX sends for each channel (to be routed to a mono>stereo reverb unit, for example).*

In-Line Mix

CUE F-CH: In In-line Mix mode the **CUE ST** pan pot controls pan for the Monitor path whenever it is routed to a stereo bus, or to a track bus with Pan selected, and the Cue pan follows the main channel pan. Select **Cue F-Ch** (Cue Follows Channel pan) to force the Cue Pan to always follow the main Pan control.

EFX CHOP: (Only available when EFX is active) Switches the channel's EFX send from the Track bus to the Channel output. The **CHOP PRE/EFX** LED in the channel strip lights green to indicate that the channel output has been assigned to the EFX.

When in 'send' mode (with the in-channel **RETURN** switch not selected), the bottom-left button in the set of 4 toggles the source for the secondary channel path between **PRE** and **POST** fade – the default is **POST**.

In-Line Track

Auto-M takes control of the **RETURN** switch to provide automatic monitor source switching between channel paths, following the DAW transport status. The monitor path is heard in Play, and the input path is heard in Record or Stop.

S-Cue employs automatic cue send source switching between the channel paths, following the DAW transport status, to provide full zero latency drop-in and record monitoring, a sum of both paths is heard in Play and only the input is heard when in Record or Stop.

Cue F-Mon: In In-line Track mode the **CUE ST** pan pot controls pan for the Channel path whenever it is routed to a stereo bus, or a Track bus with Pan selected, and the Cue pan follows the main channel pan. Select **Cue F-Mon** (Cue Follows Monitor path) to force the **CUE ST** bus to always follow.

EFX CHOP: (Only available when EFX is active) Switches the channel's EFX send from the Track bus to the Channel output. The **CHOP PRE/EFX** LED in the channel strip lights green to indicate that the channel output is being fed by the EFX. (AWS δelta 924 EFX CHOP – See section 3.9).

In-Line Mix – RETURN OFF: PRE/POST toggles the pick-off point for the Monitor Path in RETURN Mode.



In-Line Mix – RETURN ON:



In-Line Track: CUE F-CH is the existing CUE follow CHANNEL PAN, which is activated automatically when the Monitor Path (In-Line Mix) or Channel Path (In-Line Track) is routed to console mix busses.



Auto-M and **S-Cue** are the existing Auto Monitor and SuperCue options.

'NEXT' Menus

NEXT selects the next page of Menu Key functions – there are two additional menu pages. *The NEXT button should also be ON if any option has been enabled in the secondary menus.*

Menu 1: In-Line Track and In-Line Mix – RETURN ON

MON INS activates the Insert point in the Monitor path (Channel R). The channel insert is controlled from the existing front panel INS switch.



M-CHOP PRE switches the Monitor path output (Channel R) to the Pre Fader signal. The channel path Pre Fader signal is controlled from the existing front panel PRE switch.

Menu 2: In-Line Mix

CH PAN* routes the Post Channel pan signal to the channel outputs.



MON PAN* routes the Post Monitor pan signal to the channel outputs.

**These two functions intercancel.*

RETURN takes you back to the default soft key function set.

If an EFX send has been enabled from the selected channel strip, the **EFX CHOP** key will be shown.



EFX CHOP routes the selected EFX send to the channel or Monitor path output depending on which path the send is assigned to. *This intercancels with CH PAN and MON PAN.*

If EFX CHOP is selected – and if the Stereo CUE is the active source – then a further option is available (replacing the CH PAN and MONITOR PAN buttons).

CUE PAN routes the stereo CUE Pan outputs to the Direct outputs. The CUE source will be whichever path is assigned to the CUE mix.



Note that if CUE-F CH is active it will be the ALT_PAN signal not the CUE_PAN.

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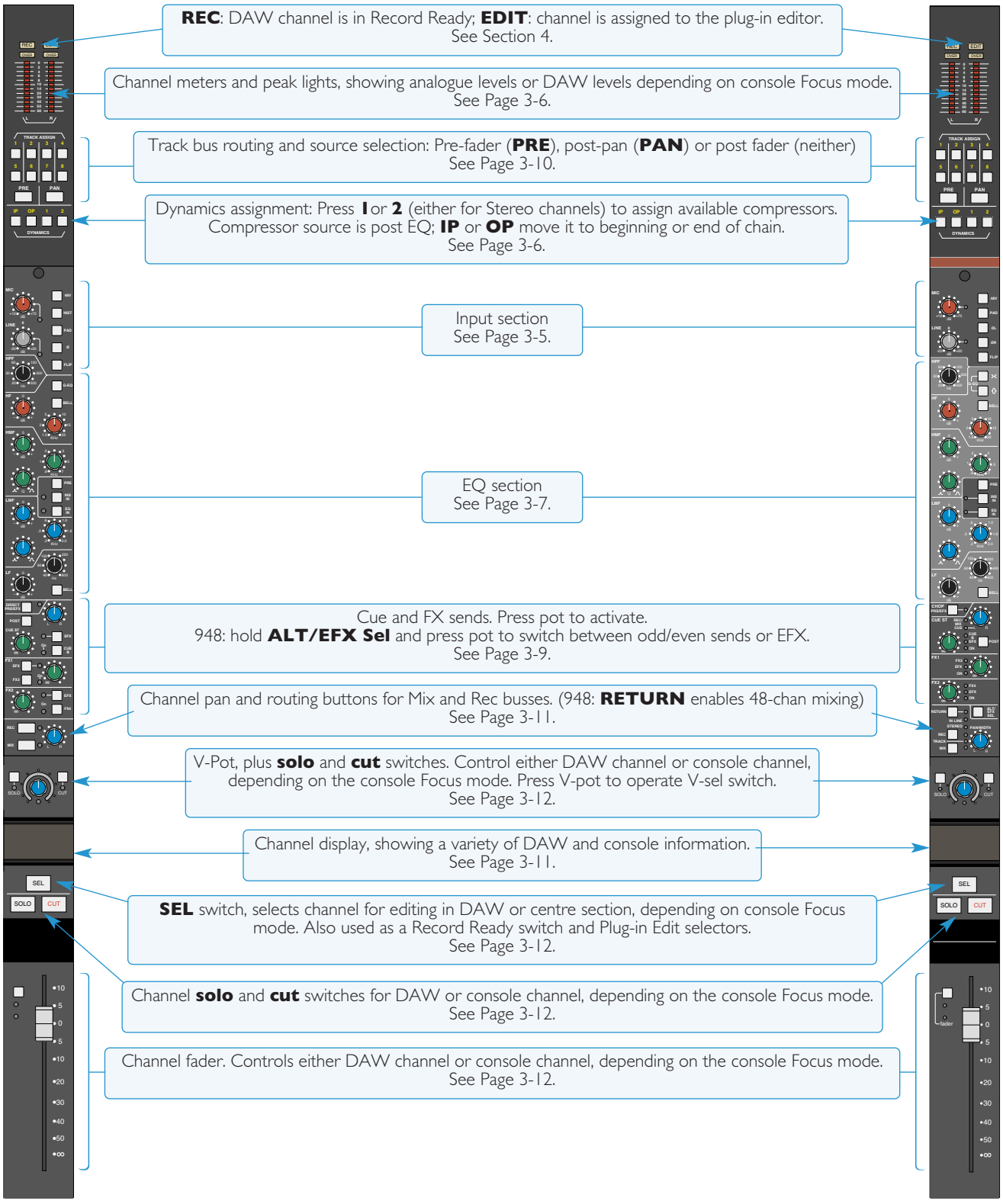
Channel Strip

Note that throughout this section, where the channels differ the 916-924 channel strip is shown on the left and the 948 on the right. Text specific to one model is framed in a blue box with the model name at the top.

Overview

AWS 916-924

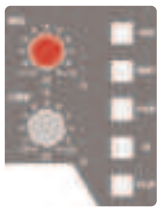
AWS 948



INPUT CONFIGURATION

AWS 916-924

Switch between the Mic and Line inputs by pressing **FLIP**. The LED next to each knob lights to indicate it is selected (red for Mic, green for Line). The **INST** switch selects a 1MΩ high impedance input (6.35mm jack), suitable for sources such as guitars.



924

Adjust the input level using the **MIC** (+12dB to +75dB) or **LINE** (±20dB, notched at 0dB) pot. The **INST** input is controlled via the **MIC** pot.

In addition there are switches for phase reverse (**Ø**), **48V** phantom power and a 20dB **PAD**.

AWS 948

Switch the primary channel path's input between Mic or Line by pressing **FLIP**. The LED next to each knob lights to indicate it is selected (red for Mic, green for Line). The right (or monitor) channel path's input has no input selection as it is always fed from the same connector when it is active. If Stereo mode is selected, the inputs are automatically set to Line.



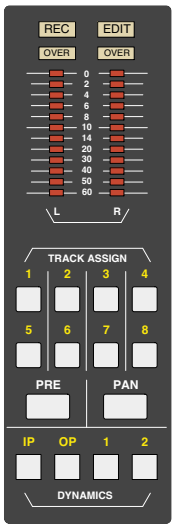
948

Adjust the input level using the **MIC** (+12dB to +75dB) or **LINE** (±20dB) pot. When in stereo mode, both legs of a stereo line input are adjusted by the **LINE** control. In in-line mode, the monitor path's input is always at unity gain.

There are switches for **48V** phantom power and a 20dB **PAD**. Inputs to both channel paths have phase reverse switches – **LØ** acting on the left or primary channel path input, and **RØ** acting on the right or monitor path.

CHANNEL METERS

The 12-segment peak meters at the top of the meter bridge indicate the post-input-trim signal level. Mono signals use the left hand bargraph. The OVER indicators light red when the level reaches +24dBu.



924 and 948

AWS 948

Stereo signals use both meters. In In-line modes, the primary channel path signal is shown on the left and the secondary on the right.

The bottom segment lights permanently in Analogue Focus mode, to provide clear indication that the analogue signal, not DAW information, is being displayed.

DYNAMICS

Any channel can make use of the two compressor/gate modules housed within the AWS centre section.

Press the **1** or **2** switch in the bottom right-hand corner of the meter bridge to insert one of the two centre section compressor/gate processors into the channel path. For stereo channels, pressing either button will insert both compressors. These are non-latching buttons that will only function if the selected processor is not already assigned.

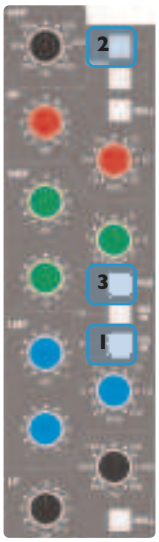
The dynamics are normally inserted post EQ, pre insert. Press the **IP** switch to place them at the start of the processing chain, or **OP** to place them at the end.

See Page 3-22 for details of how to operate the compressor/gate.

FILTER

The filter and EQ are both switched in using the **EQ IN** switch (1).

Turning the **HPF** pot up from minimum then activates the filter (18dB/Octave high pass). The **EQ IN** LED is off when inactive, lights red when the EQ is in circuit but the filter is inactive, and lights green when the filter is active.



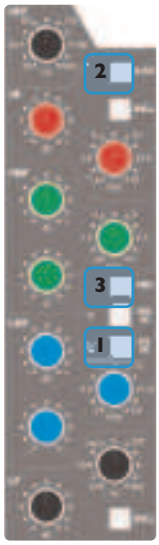
948

EQUALIZER

The EQ is activated using the **EQ IN** switch (1).

The **EQ IN** LED lights when the EQ is in circuit. Each band has a gain control pot labelled **dB** (±20dB of gain, notched at 0dB), and a frequency control with the following ranges:

LF:	40Hz	-	600Hz.
LMF:	200Hz	-	2kHz
HMF:	600Hz	-	7kHz
HF:	1.5kHz	-	22kHz



924

High (**HF**) and low (**LF**) bands default to a shelve shape. Press each band's **BELL** button to switch to a fixed Q parametric shape.

High-mid (**HMF**) and low-mid (**LMF**) bands are parametric, adjust the Q between 0.2 and 2 using each band's **Q** pot.

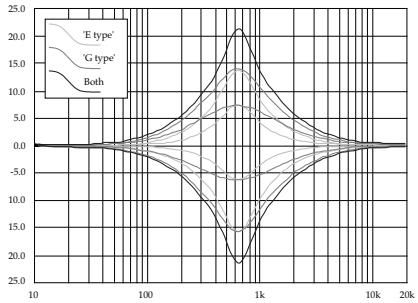
G-EQ (2) toggles the EQ shape between E-Series and G-Series EQ curves and control interaction.

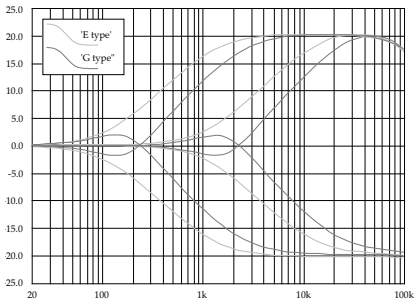
The difference between E-Series and G-Series EQ is as follows:

E Series The bell curves are steeper sided and there is no overshoot on the shelf curve. E Series EQ is more aggressive and is therefore better for removing problem frequencies.

G Series The bell curve has a more rounded shape at low gains and the shelf curve overshoots zero slightly at the base of the curve. G Series EQ is more subtle and is often considered particularly suited to acoustic instruments and vocals.

With the gain at maximum boost or cut both curves are identical.





AWS 948

The upper **G-EQ** switch operates on shelving bands and the lower on parametric bands, as indicated by the symbols to the right of the switches.

The EQ can be switched between channel paths in the Channel Setup screen described on Page 3-4.

INSERT POINT

To switch the channel insert into circuit, press the **INS IN** switch (3 in the pictures on the previous page) in the centre of the EQ section – the LED to its left lights yellow to indicate that it is active. Press **PRE** to place the insert immediately before the EQ in the processing chain.

AWS 948

When in Stereo channel mode, the insert send and return is stereo. In In-line modes, the left insert connections are used for the primary channel path and the right connections for the Monitor path – in this mode the 2nd insert point is switched from the Channel Setup screen *(as described on Page 3-4)*.

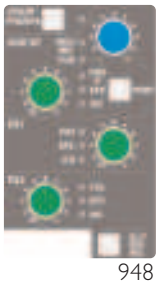
SIGNAL PROCESSING ORDER

The table below lists the processing order possibilities and the button combinations which accomplish them. The buttons involved are the **IP** and **OP** switch in the **DYNAMICS** area of the meter bridge, and the insert's **PRE** switch, located above the **INS IN** switch mid-way down the EQ section:

Processing Order					**Active Switches**
EQ	➤	Dynamics	➤	Insert	*No routing switches active*
Insert	➤	EQ	➤	Dynamics	**PRE**
Dynamics	➤	EQ	➤	Insert	**IP**
Dynamics	➤	Insert	➤	EQ	**IP + PRE**
EQ	➤	Insert	➤	Dynamics	**OP**
Insert	➤	Dynamics	➤	EQ	**OP + PRE (948)**
Insert	➤	EQ	➤	Dynamics	**OP + PRE (924)**

The processing order will be reflected in the Channel Setup screen

CUE, FX AND EFX SENDS


948

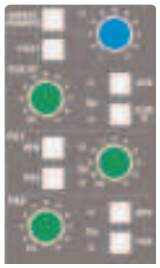
The area below the EQ controls the channel's send to the console's two stereo cue busses and four FX busses. Each channel can feed one of stereo cue busses and two of the FX busses (FX1 or 3, FX2 or 4). Alternatively, the send controls for one of the busses can be assigned to the EFX system, which enables greater routing flexibility from the AWS δelta channels by employing redundant auxiliary sends to control the level of the channel's feed to the track busses or direct output.

To activate the Cue or FX sends, press on its gain pot (the **ON** LED to the pot's right will light) and turn up the gain. The Stereo Cue signal is normally sourced pre-fader – to move it to after the fader, press **POST**.

AWS 916-924

The stereo cue's blue pan pot can be used to pan the channel send to the stereo cue bus.

By default, CUE A, FX1 and FX2 are active. To switch from CUE A to CUE B, FX1 to FX3 or FX2 to FX4, press the **CUE B**, **FX3** and **FX4** switches beside the relevant gain pot.



To use any bus send control to feed the EFX system, press the **EFX** button beside the relevant gain pot. That gain pot will now allow you to adjust the level being sent to any active track busses or, if the **EFXC** Function key is active, the channel direct output.

The **EFX** LED will light to indicate that EFX is active, and the **DIRECT PRE/EFX** LED lights green to indicate that the channel output has been assigned to the EFX.

EFX is only available if the selected channel has a send assigned to the EFX system.

AWS 948

The stereo cue's blue pan pot can be used to pan mono channel sends to the stereo cue bus. In stereo mode, it becomes a balance control. FX busses receive a mono sum of the signal from a stereo channel.

If the **CUE** LED is unlit, the stereo cue is following the main pan or the stereo cue pan pot is functioning as a pan control for the secondary channel path. The **REC/MIX** LED indicates the secondary path's routing to the REC and MIX busses, as described on Page 3-11. To return the pot to controlling the stereo cue pan, deselect **CUE F-CH** in the Channel Setup screen (as described on Page 3-4) or deassign the secondary path from both MIX and TRACK buses, if PAN is selected.

The **ALT/EFX SEL** switch below the FX controls allows you to cycle the Stereo Cue and FX sends between the main and alternative sends, and the EFX system:

By default, CUE A, FX1 and FX2 are active. To switch to the alternative sends (CUE B, FX3 or FX4 respectively) press and hold **ALT/EFX SEL** and press the relevant gain pot. The **CUE B**, **FX3** and **FX4** LEDs will light to indicate when they are active.

With **ALT/EFX SEL** still held, a second press on the pot will activate the EFX system. That gain pot will now allow you to adjust the level being sent to any active track busses or, if **EFX CHOP** is selected in the Channel Setup screen, the channel direct output.

The **EFX** LED will light to indicate that EFX is active. The **CHOP PRE/EFX** LED in the channel strip lights green to indicate that the EFX signal is feeding the channel output.

*When the **SET** Function key (next to the **ALL** Function key) is selected, pressing any in-channel non-latching switches (such as an FX activation switch) will cause that switch to activate in all selected channels*

Only one auxiliary send control from each channel may feed the EFX system.

Direct Output

By default, the channel direct output is sourced post-fader. To source it pre-fader, press the **DIRECT PRE/EFX** (948: **CHOP PRE/EFX**) switch, located above the **CUE ST** gain pot.

Direct Outputs and EFX

The EFX system allows redundant auxiliary send controls to be used to control the channel's send to the direct output. To employ EFX for any channel, select the auxiliary send control which is least likely to be needed in the channel (Stereo Cue, FX1 or FX2), and assign it to the EFX system:

AWS 916-924

Press the **EFX** button beside the send gain pot. The **EFX** LED will light and the selected gain pot will now control allow you to adjust the Channel output level.

In the Channel Setup screen, select **EFX CHOP** to switch the channel's EFX send from the Track bus to the Channel output. The **DIRECT PRE/EFX LED** in the channel strip lights green to indicate that the channel output has been assigned to the EFX once the **DIRECT PRE/EFX** switch is activated.

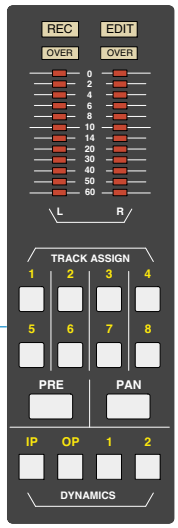
AWS 948

Press and hold the **ALT/EFX SEL** switch below the FX controls and press the relevant gain pot twice. The **EFX** LED will light and the selected gain pot will now control allow you to adjust the Channel output level.

In the Channel Setup screen, select **EFX CHOP** to switch the channel's EFX send from the Track bus to the Channel output. The **CHOP PRE/EFX** LED in the channel strip lights green to indicate that the channel output has been assigned to the EFX once the DIRECT PRE/EFX switch is activated..

Note also that only one auxiliary send control from each channel may feed the EFX system – if a second auxiliary send is assigned to EFX within the same channel, it will replace the originally assigned auxiliary.

Track Bus Routing



All Consoles

Channel signals can be routed to the track busses using the eight numbered switches immediately underneath the channel meters. By default, signals are sent post-fader. To source the send pre-fader or post pan-control, press the **PRE** or **PAN** switches beneath the track bus selection switches. When the source is post-pan, the odd-numbered track busses receive the left component, and the even-numbered busses receive the right component.

Note that the Track busses are designed for external tracking and not for internal sub-grouping – they cannot be routed to the Mix and Rec busses.

Track Busses and EFX:

The EFX system allows redundant auxiliary send controls to be used to control the channel's send to the Track busses. To employ EFX for any channel, select the auxiliary send control which is least likely to be needed in the channel (Stereo Cue, FX1 or FX2), and assign it to the EFX system:

AWS 916-924

Press the EFX button beside the gain pot. The **EFX** LED will light. Check that **EFX CHOP** in the Channel Setup screen is not selected, as this employs the EFX on the direct channel output, not the track busses.

AWS 948

Press and hold the **ALT/EFX SEL** switch below the FX controls and press the relevant gain pot twice. The **EFX** LED will light. Check that **EFX CHOP** in the Channel Setup screen is not selected, as this employs the EFX on the direct channel output, not the track busses.

The selected gain pot will now allow you to adjust the level being sent to any active track busses.

Note that only one auxiliary send control from each channel may feed the EFX system – if a second auxiliary send is assigned to EFX within the same channel, it will replace the originally assigned auxiliary.

REC AND MIX BUS ROUTING

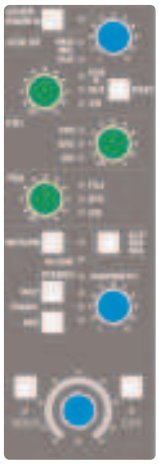

916-924

The Record and Mix busses are independent stereo busses which receive a post-pan, post-fader channel signal. To route channels to them, press the **REC** and/or **MIX** switch to the right of the channel pan pot (1). The **REC** and **MIX** LEDs light to indicate that the route has been made.

AWS 948

For in-line signals, the **REC** and **MIX** switches operate on the channel path assigned to the main fader. Press on the V-pot below the **REC** and **MIX** to switch the main fader and routing switches between channel paths.

The main **REC** and **MIX** LEDs indicate the routing for whichever path is normally assigned to the main fader in the current mode, and the **REC/MIX** LED next to the **CUE ST** pan pot (2) indicates the other channel path. The **REC/MIX** LED lights red to indicate Record bus routing, green to indicate Mix bus routing and amber to indicate both routes.


948

PANNING, WIDTH AND BALANCE

The pan pot towards the bottom of the channel strip is used to adjust the stereo position of signals being sent to the Record and Mix busses, as well as to the Track busses when they are functioning in stereo (as explained on Page 3-10).

AWS 948

For stereo signals the pan pot functions as a width controller with normal stereo image in the centre. When the pan pot is turned to the right an out-of-phase left component is introduced to the right signal, and vice versa, resulting in a widening of the signal's width beyond the speakers. When the pan pot is turned left in-phase components are introduced to the opposing component in a similar way, resulting in a narrowing of the width with fully left being mono.

Stereo signal balance is controlled using the V-pot just above the channel's digital display – pressing the V-Sel resets the balance to 0dB. Note that stereo mode is indicated by the **STEREO** LED to the left of the **PAN/WIDTH** label (1 in the image above-right).

For in-line signals, the main channel pan pot operates on the channel path normally assigned to the main fader in the current mode. When the Channel Setup screen **CUE F-CH** (Cue Follows Channel pan) button is active (See Page 3-4), or the sending path is feeding a stereo bus, the **CUE ST** pan pot becomes the pan control for the secondary channel path – as indicated by the **CUE** LED to the left of the **CUE ST** pan pot (2 in the image above-right) being unlit.

Scribble Strips

Channel Display

The channel display functions as a digital scribble strip. It displays the analogue channel name when in Analogue Focus mode, as defined in the Remote Browser. In DAW Focus mode, it displays the name of a DAW track, selected send, or I/O data according to the function currently assigned on the Master Control Panel.

AWS 948

When in an In-line mode, the upper row of the digital scribble strip displays any name associated with the channel path assigned to the V-pot, and the lower row displays any name associated with the channel path assigned to the channel fader.



924 and 948

See Section 4 for more information on DAW control, and Section 5 for more information on editing channel names in the Remote Browser.

Chinagraph Scribble Strip

The channel strip provides a traditional scribble strip – use it for scribbling on.

Channel Selection

The **SEL** button is used for assigning the channel to the centre section for certain set-up procedures.

A contiguous range of channels can be selected by pressing and holding the **SEL** button for the lowest channel in the range, then pressing the **SEL** button for the highest channel. To select all channels, use the **ALL** softkey which appears in the lower row of the Function keys when no upper Function key is selected.

When the **SET** Function key (next to the **ALL** Function key) is selected, pressing any in-channel non-latching switches (such as the FX activation switches and **RETURN** switch) will cause that switch to activate in all selected channels.

***SEL** buttons are also used for selecting channels in the DAW or for record-readying DAW tracks. See Section 4 for more details.*

Cut and Solo Switches

The **CUT** and **SOLO** switches below the digital display allow the signal assigned to the fader to be muted or soloed. Similarly, the **CUT** and **SOLO** switches above the digital display allow the signal assigned to the V-pot to be muted or soloed.

CUT switches work on all post-fader sends by default. However, it is possible to configure them to mute pre-fader sends as well. This is done using the **Input Cut Enable** option in the TFT screen's Console Setup menu, described on Page 3-28.

AWS 948

The solo-in-place function of the two channel paths can be linked together using the LNSL Function key, described on Page 3-15.

The solo function can be configured via the **AFL/PFL** Function keys, as described on Page 3-20.

Solo Isolates

To prevent any channels from being muted when a **SOLO** switch is pressed, select the **AFL/PFL** Function key followed by the **ISO** softkey which appears beneath it, then press any **SOLO** switches which you wish to isolate from the Solo function. Selected switches will flash (along with the **ISO** softkey). When all the required channels have been solo isolated, deselect the **ISO** softkey. See Page 3-20 for more details regarding **AFL/PFL** Function key operations.

Level Control

The 100mm fader at the bottom of the channel strip controls the channel send to the Rec and Mix busses, as well as any other sends which are operating post-fader.



924 and 948

> *Note that in DAW focus mode, this function can be assigned to the channel V-pot by pressing the* ***CHANNEL*** *button in the centre section.*

AWS 948

The channel fader controls both components of a stereo signal. The relative level of the components (the balance) can be adjusted using the V-pot.

For In-line Track mode, the main fader controls the secondary channel path (monitor path), and the V-pot controls the primary channel path. In In-line Mix mode the channel fader controls the primary path and the V-pot the secondary path. The controls can be flipped between channel paths by pressing on the V-pot.

Selected Faders can all be set to 0dB using the Function keys: with none of the upper row of buttons selected, press the **0dB** softkey in the bottom row.

The analogue faders can be automated using SSL's δ-Control automation system. When in DAW Focus, the fader is used to control the track fader within the DAW.

> *See Section 4 for more information on DAW control, and Section 7 for more information on SSL δ-Control automation.*


Bus Meter Panel
Oscillator and comms levels
TFT screen and controls
DAW control panel
Transport and motion controls
Dynamics and Aux/track bus masters
Foldback and Stereo Return controls
Function keys
Monitor panel
Master fader
Rec/Mix bus Functions
Comms controls
AWS 948 δelta
SOLID STATE LOGIC · OXFORD · ENGLAND

Centre Section

Introduction

The console's centre section is used to control the console busses, dynamics, monitoring and overall configuration. It also provides access to a number of DAW control elements which are covered in Section 4.

Power Supply Indicators

Beneath the VU meters, on the main control surface, you will find a row of four LEDs that display the current state of power rails within the console. The ±15 Volt and the +4 Volt supplies are for analogue audio and logic circuitry respectively. The +12 Volt supply provides power for the faders and some relays. All LEDs should be lit whenever the console is powered up. If any are unlit, please call your technical department! If you don't have one, please refer to the maintenance information in the appendices of this manual.

Function Keys

A number of console elements are configured using the Function keys, located in the top right quarter of the monitor panel. The top row of buttons assign a subset of softkeys to the lower row of buttons. The display indicates the function assigned to the lower row. Frequently, the lower softkeys are also submenus, opening up a further set of softkeys in the lower row of buttons.



When none of the upper row of keys are selected, the following functions are applied to the lower softkeys:

ALL Activates the **SEL** key on all channel strips.

SET Groups the controls of all channels with their **SEL** key activated. With **SET** enabled, pressing any momentary switch on any selected channel will cause the switch action to be replicated across all selected channels.

0dB Sets selected faders to 0dB

AWS 948

EFXC (Only available when EFX is active) Switches the channel's EFX send from the Track bus to the Channel output. The **DIRECT PRE/EFX** LED in the channel strip lights green to indicate that the channel output has been assigned to the EFX.

TRK Toggles all selected channels between In-Line Mix and In-Line Track mode.

ST Toggles all selected channels between mono and stereo configuration.

LNSL Links the solo-in-place functions of the two channel paths in In-line modes.

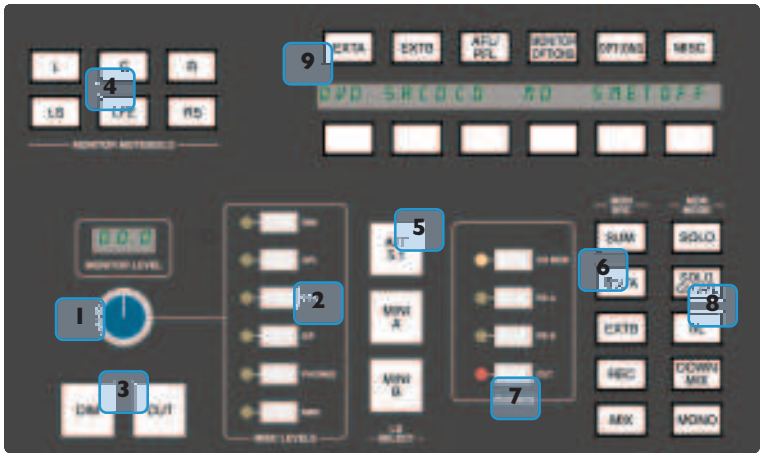
MONITORING

1 Turn the large blue pot below the **MONITOR LEVEL** to set the level of the main control room monitors. For fine level adjustments, push down on the monitor pot before turning. The display above it will display 'Fine' mode.

The monitor pot is also used to control other miscellaneous levels:

2 Press any of the column of six **MISC LEVELS** switches to the right of the monitor pot, and then use the monitor pot to adjust their level. Deselect the **MISC LEVELS** switch to return to main monitor control.

3 To immediately silence the monitors, press **CUT** (below the monitor pot).
To immediately reduce the monitoring level, press DIM. The amount of gain reduction is adjusted by pressing the DIM button at the top of MISC LEVELS and turning the monitor pot.
The DIM function is automatically activated by any of the following COMMUNICATIONS buttons: LISTEN, TB ALL, F/B A, F/B B, EXT T/B; or by the Oscillator's TRACK, REC or MIX buttons.



4 To solo or mute an individual component of the monitoring, use the **MONITOR MUTE/SOLO** buttons above the monitor pot. These buttons are cut switches by default. To use them as solo switches, select **SOLO** at the top of the **MON MODE** buttons 8 .

5 Select the speakers on which to monitor using the **LS SELECT** buttons: **ALT 5.1** ('Main B'), **MINI A** or **MINI B**. The Main 5.1 speakers ('Main A') are active when no others are selected. Control the relative level of the mini speaker outputs using the main monitor pot by selecting **MINI** in the **MISC LEVELS** buttons.

6 To select the monitoring source, use the **MON SRC** buttons. These include the Record (**REC**) and Mix bus (**MIX**), and two external source selectors, **EXT A** and **EXT B**. Sources will be intercancelling unless the **SUM** button is selected. All sources are stereo except those brought in via the **EXT A** monitor source selector (see next page).

7 To select what the control room headphones hear, press the **PHONES** buttons: The control room monitors (**CR MON**), the foldbacks (**FB A** or **FB B**), or nothing (**CUT**). This headphones level is set by pressing **PHONES** in the **MISC LEVELS** buttons and turning the monitor pot.

MON MODE BUTTONS 8

Ordinarily, the console monitoring is 5.1-enabled, connecting all six monitor busses to their respective monitor outputs. With **DOWNMIX** selected, 5.1 inputs are folded down to the monitor path via a 5-2 matrix and fed to left and right monitor outputs. The centre channel is reduced in level by 3dB and fed to both left and right in this mode. When a **MINI** speaker output is selected, **DOWNMIX** is automatically activated.

MONO sums the left and right monitor busses, feeding the result to the left and right monitor outputs. The **ØL** button reverses the phase of the left monitor feed, providing a quick way of checking for any phase anomalies in a stereo mix.

SOLO turns the monitor cut buttons (4) into monitor solo buttons.

The **SOLO CLEAR** button lights when a channel **SOLO** or centre section **AFL** is active. Press it to clear all solos.

Monitor Configurations

External Source Selectors

The **EXT A** and **EXT B** monitor source selectors in the monitor panel (6 in the picture on the previous page) can switch between a number of inputs.

EXT A has four external 5.1 inputs which may be fed by any source of six channels or less, with Track busses 1–6 providing a fifth input. **EXT B** has four external stereo inputs, plus a fifth encoder return input, selected via the **INS** button in the **MONITOR OPTIONS** Function key submenu. (see below)

Sources from both External selectors may be summed together; this is particularly useful for generating complex foldback mixes or when stem mixing, as it allows the recorded stems to be monitored together with the current mix.



To select the external sources feeding the monitor panel's source selectors press either the **EXT A** or **EXT B** Function key (shown right) and select a source from those which appear in the bottom row of the Function key display. To sum any external sources within each Selector press the **SUM** Function key before selecting sources. The source (or sources) can now be routed to the monitors using **EXT A** or **EXT B** in the **MON SRC** buttons 6.

*Selecting **LTR** in the **EXT B** Function Keys provides monitoring for an encoder's LtRt output - see next page.*

Note it is possible to rename the consoles 'External Sources'. Please see Section 5 for further information.

Monitor Options

A variety of monitoring options are accessed via the **MONITOR OPTIONS** Function keys:



INS This switches the encoder/decoder insert into the monitor path for use with 5.1 monitor sources selected via the **EXT A** monitor selector, or stereo sources via **EXT B**. (see above)

PFM This routes the PFL signal to the Mini A loudspeakers. In this mode the PFL level is controlled by the PFL level control only - the Monitor and Mini level controls have no effect.

SRA Both sets of Main speaker outputs are capable of handling six channels. If you are mixing in 5.1 and the client turns up with an alternative set of 'front' (LCR) speakers only, the surround feeds may be locked to the Main A outputs by selecting the **SRA** (Surround on A) function. This allows you to switch to the alternative LCR speakers, connected to the Main B output, and still maintain full surround monitoring. A further option (**A2B** – see next page) enables the subwoofer output to be included in this arrangement.

LRA Similar to the **SRA** function except that the LCR monitor feeds are locked to the Main A outputs but an alternative set of surround speakers may be selected by switching to the Main B output. This can be useful in rooms that work on both music, using full bandwidth separate surround speakers, and film using multiple lower powered surround speakers.

***CAL** and **BASS** are described on the following pages.*

Monitor Insert

The External A selector (ie all 5.1 sources) output is automatically routed via a 5.1 insert point to which an encoder/decoder system may be interfaced; this insert may be switched in/out of circuit using the **INS** softkey in **MONITOR OPTIONS**. The insert point also has connections for the two channel output from the encoder and the input to the decoder. These allow monitoring of the encoder output ('LtRt') signals and provide automatic routing of the External B selector outputs to the decoder inputs for playing back encoded recordings through the decoder. The logic for this is as follows:

- With no sources selected on External B the encoder outputs are linked to the decoder inputs.
- Selecting any source on External B will route the External B outputs to the decoder inputs.
- Selecting **EXT A** and **INS** will monitor the insert return; if no source is selected on External B you will hear the External A signals through the encoder and decoder. If a source is selected then you will hear the decoded output of External B.
- Selecting **EXT B** and **INS** and selecting a source on External B will monitor External B.
- Selecting **EXT B** and **INS** with no source selected on External B will monitor the LtRt encoder outputs. The **LTR** soft key lights to show this. Note that LTR is selected by turning off all other External B sources.

Bass Management

Selecting the **BASS** softkey in **MONITOR OPTIONS** produces a layer of bass management options:



80H Inserts a 7th order, 80Hz, low pass filter into the LFE monitor bus, to deal with listening to 5.1 material that has a full range, unfiltered, LFE channel.

BMN Turns on the Bass Management system. This is designed to extend the low frequency response of the monitoring system, and to simulate the 5.1 monitoring systems in TV and domestic environments. It inserts 12dB per octave, 80Hz high pass filters in the L, C, R, LS, RS monitor outputs, and feeds a mono sum of these five outputs to an 80Hz, 24dB per octave, low pass filter, which is summed with the LFE monitor bus. Post this summing point, the combined signals feed via a 10Hz subsonic high pass filter before reaching the subwoofer monitor output. These are the default filter slopes. Internal links (see appendices for details) allow them to be set to 12dB or 24dB per octave and to select whether or not the surround channels are included.

Note that this option is stored separately for each set of speaker outputs (like the level calibration), so it is possible to have Bass Management enabled on one set of speakers and not on others.

LF0 Normally, the LFE bus level is increased by 10dB post the main monitor level control, as this is a requirement for DVD playback. If you are mixing for SACD, or any other format that requires unity gain on the LFE channel, select LF0 to restore the LFE bus level to unity gain.

Selecting **NEXT** produces a second layer of options:



A2B Retains use of the Main 5.1 subwoofer, even when you switch to the ALT 5.1 loudspeaker selection.

BMA Uses the Alt 5.1 subwoofer instead of the main subwoofer for bass management when MINI A is selected and BMN is on.

BMB Uses the Alt 5.1 subwoofer instead of the main subwoofer for bass management when MINI B is selected and BMN is on.

Pressing **RTRN** returns you to the top layer of the **MONITOR OPTIONS** selection.

Monitor Level Calibration

The monitor calibration system enables the level of any loudspeaker connected to the AWS to be trimmed by ±10dB. Note that with the monitor gain at maximum a trim level of +10dB corresponds to unity gain through the monitor section.

Do not attempt to carry out loudspeaker calibration unless you have accurately calibrated test equipment.



Locate the console oscillator (above the TFT screen), press **OSC ON** and select the **PINK ON** button; the default level for the console's pink noise output is +4dBu RMS. This calibrated level can be adjusted using the 'Pink' trim pot below the **Level** control.

Set the monitor level control to the position you wish to correspond to the calibrated level. A level of 8.5 will provide 10dB of additional gain in hand.

Now select the monitors to be calibrated using the **LS SELECT** buttons in the monitor panel.



Select **CAL** in the first layer of **MONITOR OPTIONS**. Pressing either **AL**, **AR** or **AC** will send pink noise to the Left, Right or Centre loudspeaker respectively.

Adjust the level for the required SPL (eg. 85dBa C weighting, slow response, on a suitably calibrated dB meter), by turning the main monitor pot left or right from its initial position.

Now work through the rest of the speakers (see below), checking before you calibrate the LFE output whether the **LFO** option (see previous page) is off or on.

> ***85dB*** *calibrated level – please see following page.*

Selecting **NEXT** produces a second layer of calibration options:



Selecting **ALS**, **ARS** or **ALF** allows you to trim the Left Surround, Right Surround or LFE channels respectively by ±10dB, using the method described above.

LFG (Low Frequency Gain) allows the gain of the contribution from the full bandwidth channels to the subwoofer output to be adjusted. Like all the speaker calibration settings it must be set for each set of speaker outputs (assuming bass management is in use):

Having lined up the six main speakers, select **LFG**. All speakers will initially be muted, and the six monitor cut buttons will light. Un-cut the left output and with the bass management turned on (note that the **BMN** selection in the **BASS** menu is duplicated in the **CAL** menu) adjust the **LFG** gain for a flat low end response. Cut the left output, un-cut the right output and check this has a flat low end response. Repeat for all channels. Depending on how well matched the monitors are you may have to adjust the **LFG** gain slightly.

Note that when **LFG** is on, the LFE monitor output is always cut. This does not mute the actual subwoofer output, only the LFE signals feeding it. This ensures that you are only measuring the contribution from the bass management system.

Monitor Level Display and Calibrated listening level

Further monitor calibration options are accessed via the TFT screen. The 16 boxes at the base of the screen indicate the functions assigned to the 16 buttons in two rows of eight below the screen. Press the **SSL** button, followed by **MISC** > **SETUP** and locate the following options in the list:

Monitor Gain Display: Music (Off to 11)
Film (Off to 95dB)
Gain (Off to 0dB)

Monitor Set CAL level is: 70 - 90

Furthermore it is possible to change the Monitor Level pot's resolution between 'Fine' and 'Large' in 'Music' or 'Gain' modes by pushing down on the pot. The display above it will show which mode it is in. 'Fine' mode makes adjustments in 0.1dB steps while 'Large' mode adjusts the value in 0.5dB steps.

When working in 'Film' mode pushing down on the Level pot will adjust the monitor volume to the user defined calibrated level selected in the **SSL** > **Misc** > **Setup** menu. Normal selection here would be the international recognized 85dB but it is possible to set a range from 70dB to 90dB. It is recommended that you use a SPL meter to calibrate your studio's monitoring level to match that displayed on your Monitor Level display.

The monitor gain that corresponds to +85dB SPL can be set by adjusting the main monitor level control to give an SPL of 85dB, then pressing the **85dB** switch in the first **CAL** page within the **MONITOR OPTIONS** Function keys.

Note that if you make a change to this value in the **Setup** menu while running in Calibrated mode this change will not be reflected until you come out of Calibrated mode and re-enter it. You can tell which mode you have switched into as it will display either **Cal** for calibrated or **UCal** for uncalibrated. Bear in mind that switching to a calibrated level of 85dB may cause a significant increase in listening volume so take care not to damage your hearing and of course your loudspeaker monitoring system.

The third **Monitor Gain Display** option, '**Gain**', displays the volume in decibels, with a maximum value of 0dB. All other values are reductions of this level through to '**OFF**'.

SOLO Configuration

The console's default Solo mode is a destructive solo-in-place – soloing a channel cuts all other channels. The alternative solo modes – AFL, PFL and Solo-in-front are selected via the Function keys. Press the **AFL/PFL** button above the display to produce the following options in the lower row of softkeys:



AFL Pressing a channel solo button routes the post pan signal, via the stereo AFL bus and the AFL level control, to the currently selected monitor speakers.

PFL Pressing a channel solo button routes a mono pre-fade signal, via the PFL bus and the PFL level control, to the left and right Main monitor speakers. Optionally, PFL signals may be fed to the Mini loudspeakers – see **PFM** on Page 3-17.

SIF (Solo In Front) Pressing a channel solo button routes a mix of the AFL signal and the selected left and right monitor sources to the monitor outputs. The **SIF** level control (see Page 3-16) adjusts the balance between AFL signal and desk output.

ISO This allows you to solo isolate selected channels.

ALT Makes channel solo buttons intercancel with each other, so that soloing one channel will clear any other solo selections.

MOM This option makes all the channel solo buttons momentary.

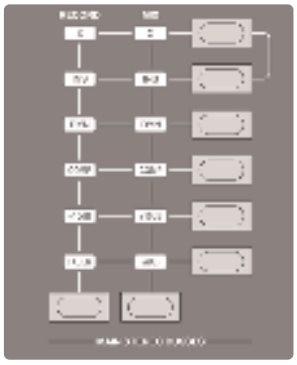
AWS 948

It is also possible to link the solo function in the two channel paths by pressing the **LNSL** Function Key, in the bottom right of the Function keys when none of the upper Function keys are selected.

Mix and Rec Bus Controls

The console's stereo Record and Mix busses are mainly controlled using the master fader and bussing matrix towards the bottom right-hand corner of the center section. The meters for the busses are located immediately to the right of the right VU meter. The VU meters can be set to display either bus via the **METERS** Function keys. See Page 3-27 for more details.

The matrix is used to activate and configure the bus inserts, dynamics and master fader. To access a matrix function:



Hold down the button at the base of the **RECORD** or **MIX** column; Press the required button from the right-hand button column. The function symbol in the appropriate bus column will light to indicate it is active. To all intents and purposes, the bus signal flows through these facilities from top to bottom.

Adjusting a master level



To adjust the master level of either bus, hold the appropriate bus button and press the button in the row labelled **FADER**. This assigns the bus to the master fader to its right, allowing the level to be adjusted. The fader can control the level of both Record and Mix busses simultaneously but can only set the level for one bus at a time. The fader uses a 36-bit, Hi-Resolution MDAC.

If required, a further 10dB of gain may be introduced by selecting the **+10dB** function on the main bus select matrix. When selected, use the right hand scale on the master fader.

Following the injection of talkback and tone, the main output busses feed XLRs on the centre section connector panel.

Assigning Centre Section Dynamics

To assign the centre section compressor/gate to one of the master busses, hold the appropriate bus button and press the button in the row labelled **DYN**. Both dynamics sections are employed – 1 for the left bus, 2 for the right. If the **DYN** symbol does not light, check that neither of the dynamics units is assigned to a channel. The dynamics sections are inserted after the insert point.

> *Dynamics operation is described on the following page.*

Assigning the Stereo Compressor



In addition to the dynamics section, the AWS δelta features a new version of SSL's legendary G Series compressor; it is located above and to the right of the TFT screen.

To assign the main stereo bus compressor to one of the master busses, hold the appropriate bus button and press the button in the row labelled **COMP**.

Press the **IN** button to switch the compressor into circuit – the **IN** LED lights to indicate it is active. The meter at the top of the compressor indicates gain reduction in dB.

Activating bus inserts

The Record and Mix busses have balanced pre fade insert points. To switch the inserts into circuit, hold the appropriate bus button and press the button in the row labelled **INS**.

The summing (∑) matrix buttons allow the insert return to be summed with the bus signal. This opens up a number of creative options - for example you can sum the output of another submixer or of your DAW with the console mix busses without using channels or you can process some signals via the Record bus, then sum the Record bus outputs with the Mix bus for further processing.

The insert point is pre fader and compressor.

Dynamics Operation

While the Stereo Bus Compressor controls are self explanatory, the two compressor/gate sections require a word or two of explanation:

The dynamics may be assigned singly or as a pair to any channel using the Dynamics **1** and **2** buttons on the channel meter panel. Alternatively, they may be assigned to the Record or Mix busses by means of the **DYN** function on the main bus select panel. In this case, Dynamics 1 is used for the left bus, Dynamics 2 for the right bus.

The dynamics sections are located below the track bus meters. The compressor makes up the top half of each section, and the gate makes up the bottom half. Both compressor and gate use the same gain element.

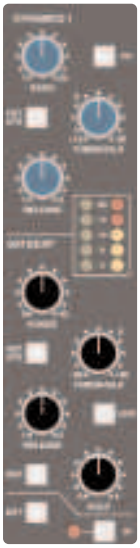
The **IN** button at the bottom of the gate switches the entire section in and out of circuit.

The yellow and red LEDs indicate the amount of gain reduction the compressor section is applying. The green LEDs indicate the amount of gain reduction applied by the Gate/Expander section.

The **LINK** button towards the base of the gate links the sidechain signal of that unit to the sidechain of the other dynamics section. The control voltages are then summed together, so that whichever section has the most gain reduction will control the other section. This is most useful when using both dynamics sections on a stereo signal.

The **KEY** button at the bottom of the gate enables a dynamics section to be controlled by an external source signal.

Compressor/Limiter Section



RATIO: When turned to 1:1, the compressor/limiter section is inactive. Turning the control clockwise increases the compression ratio, giving a true limiter when fully clockwise.

PK: The compressor normally has an 'over-easy' characteristic. Pressing **PK** switches this to peak sensing, and replaces the 'over-easy' characteristic with a hard knee.

THRESHOLD: This controls the level at which the compressor starts to act.

Automatic gain make-up is provided, to maintain a steady output level as you introduce more compression.

FST ATK: Normally the attack time is program dependent (3ms – 30ms). Press this button to select a fixed fast attack time (3ms for 20dB gain reduction).

RELEASE: Sets the time constant (speed) with which the compressor returns to normal gain settings once the signal has passed its maximum.

Gate/Expander Section

This section can act as an ∞:1 Gate, or as a 2:1 Expander when the **EXP** button is pressed.

RANGE: Determines the depth of gating or expansion. When turned to 0 the gate is inactive. When turned fully clockwise, a gate depth of 40dB can be obtained.

THRESHOLD: Determines the level at which the gate opens or below which gain reduction begins (**EXP** selected). Adjustable from +10dBu to -20dBu. Variable hysteresis is incorporated in the threshold circuitry to prevent spurious triggering of the gate when the signal is close to the threshold level. This means that the signal has to decay roughly 2dB below the threshold level before the gate will start to close.

FST ATK: Normally, a controlled linear attack time of 1.5ms per 40dB is provided. Press this button to select a fast attack time (100µs per 40dB). The attack time is the time taken for the Gate/Expander to 'recover' once the signal level is above the threshold. When gating signals with a steep rising edge, such as drums, a slow attack may effectively mask the initial THWACK, so you should be aware of this when selecting the appropriate attack time.

RELEASE: This determines the speed at which the Gate/Expander reduces the signal level once it has passed below the threshold, variable from 0.1 to 4 seconds. Note that this control interacts with the **RANGE** control.

HOLD: Determines the time after the signal has decayed below the threshold before the gate starts to close. Variable from 0 to 4 seconds.

Track Bus Master Controls



The master output level controls for the eight track busses are located in the top right of the centre section. The Track bus levels are displayed in the eight meters in the lower left-hand quarter of the LCD metering above the bus master controls.

The gain ranges from -∞ to +10dB and the pots are indented at the '12 o'clock' position, which corresponds to 0dB gain.

Following level control, the bus outputs can be injected with tone (using the Oscillator's **TRACK** switch – see Page 3-26) and talkback (using the talkback **SLATE** switch to the right of the shuttle wheel – see Page 3-25) before being fed to the connector panel.

An **AFL** function (post tone and talkback inject) is provided for each bus. Selecting **AFL** on a single track bus will route signal to both left and right AFL busses, whereas selecting it on odd and even numbered busses will route the odd numbered output to the left AFL bus and the even numbered output to the right AFL bus.

Cue/FX Send Master Controls

Each channel is fitted with one Cue Stereo and two mono FX controls for use as foldback or feeds to effects devices etc. The Cue Stereo controls in each channel may be routed to one of two busses – Cue Stereo A or Cue Stereo B. Similarly the FX1 controls can be routed to either the **FX 1** or **FX 3** bus, and the FX2 controls to the **FX 2** or **FX 4** bus.



The output level controls for the Cue and Aux busses are located in the top right of the centre section (see right). The bus levels are displayed in the eight meters in the lower right-hand quarter of the LCD metering above the bus master controls, with the cue bus components labelled **AL**, **AR**, **BL** and **BR**, and the FX busses labelled **1** to **4**.

The gain ranges from -∞ to +10dB and the pots are indented at the '12 o'clock' position, which corresponds to 0dB gain.

An **AFL** function is provided for each output. Selecting **AFL** on a single track bus will route signal to both left and right AFL busses, whereas selecting it on odd and even numbered busses will route the odd numbered output to the left AFL bus and the even numbered output to the right AFL bus.

Cue and FX bus injection

In order allow external signals (such as a stereo sum of additional DAW channels) to be added to the Cue and FX sends signal without using up desk channels, bus inject connections are provided on the console connector panel for each Cue and FX bus. Signals brought in on these connectors are simply added to the Cue and FX busses at unity-gain, before the AFL function and output level control.

Foldback Headphone Outputs

The console's Foldback A and B outputs can be used to feed studio floor headphone amplifiers. The **F/B A** and **F/B B** controls are located immediately to the right of the TFT screen.



At the bottom of each section there is a **LEVEL** control, plus **CUT** and **AFL** functions.

The six switches down the right-hand side of each foldback section activate the sources which can be fed to the Foldback outputs. Note that these switches are not inter-cancelling – all six sources can be active simultaneously.

The **MIX 1** pot is used to control the level of the first two: the Record bus (**REC**) and External source selector B (**EXT**). The **MIX 2** pot is used to control the level of the second pair of sources: the Mix bus (**MIX**) and External source selector B (**EXT**). The final two sources are the stereo downmix control room monitor signal (**ST MON**) and the Cue Stereo outputs (**ST A** or **ST B)**, with Cue A going to Foldback A, and Cue B to Foldback B.

Note that the Stereo Returns can also be added to the Foldbacks – see below.

The **F/B A** and **F/B B** buttons in the **COMMUNICATIONS** section add talkback to the foldback outputs.

Stereo FX Returns

The console's four stereo FX Returns are designed to be driven by the outputs of devices which have been fed from the corresponding mono FX busses.



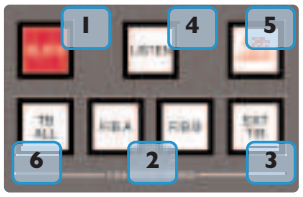
At the bottom of each section there is a **LEVEL** control and **AFL**. The left and right components of the signal can be cut individually using the **R CUT** and **L CUT** switches – useful for checking reverb returns, and to defeat unwanted signals on the 'open' input when using mono returns. Stereo returns can be routed to the record and mix busses using the **REC** and **MIX** switches.

The **MONO** switch sums the stereo return components together, routing a mono to all the destinations. Very useful when you are using a mono FX device, as it saves having to parallel return inputs.

When **MONO** is inactive, the **BALANCE** control provides balance between the left and right return signals, and the **WIDTH** pot controls the width, from full stereo to mono. When **MONO** is activated, the **BALANCE** control becomes a pan control.

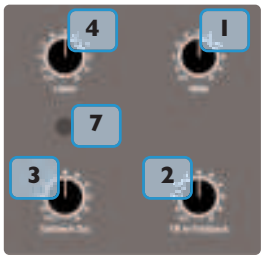
Stereo returns can also be routed to the foldbacks using the **FB A** and **FB B** switches, with independent level control provided by the **STUDIO** pot.

COMMUNICATIONS



The main communications controls (talkback etc.) are located to the right of the shuttle wheel at the bottom of the console (see left).

There is a built-in talkback microphone (7) located in the utilities section above the TFT screen.
Level controls for the communications are found here (see right).



Note that a gain control for the talkback mic preamp is provided on the connector panel adjacent to the external talkback output jack. An external talkback mic may be connected to the console's talkback distribution circuitry via an XLR on the connector panel. When using this facility, turn the console mic preamp gain to minimum unless you want the console mic to contribute to the talkback system.

1 The **SLATE** button interrupts the Record, Mix and Track bus outputs with talkback. The utilities section **Slate** pot controls the level of the talkback mic feed to these busses.

2 The **F/B A** and **F/B B** buttons inject talkback onto Foldback outputs A and B respectively, after the level and cut controls. The utilities section **TB to Foldback** pot controls the level of the talkback mic feed to the Foldbacks.

*Note that the **TB to FB** option in the Setup menu defines whether talkback sums with or replaces the normal foldback signal. (See below)*

3 The **EXT T/B** button injects talkback to the external talkback send, via a 6.35mm jack on the connector panel. **Talkback Out** controls this level.

4 An external 'listen' mic signal can be connected via an XLR on the centre section connector panel, and is usually placed in the recording area. The **LISTEN** button injects this mic signal onto the Mini A loudspeaker feeds, and dims the main loudspeakers. The **LISTEN** pot controls the mic level.

The circuitry features SSL's legendary listen mic compressor, the sound of which is much loved by many experienced SSL users, and so the connector panel provides a post compressor output jack – 'Listen Mic Out'.

*Note that the **SLATE** button cuts the monitors, and the other talkback buttons dim the monitors.*

5 **RED LIGHT** provides an isolated contact closure for hooking up to a studio red light via an external relay box. This function can be fired from a GPI input.

6 **TB ALL** feeds the talkback mic to the foldback sends and the external talkback output.

*Note: The talkback switch functions are all duplicated on the Talkback/GPIO connector on the rear of the console as are the monitor **CUT** and **DIM** switches. See Section 3 for more information.*

COMMUNICATIONS SETUP OPTIONS

Further Talkback, Listen and Red Light communication options are accessed via the TFT screen. The 16 boxes at the base of the screen indicate the functions assigned to the 16 buttons in two rows of eight below the screen. Press the **SSL** button, followed by **Misc** > **Setup** and locate the following options in the list:

Talkback switches are:	Select the operation of the talkback buttons: Momentary / Latching / Auto (Play) / Auto (Record).
Listen switch is:	Select the operation of the Listen buttons: Latching / Auto (Play) / Auto (Record).
Red light switch is:	Select the operation of the Red Light switch: Manual / Auto (Play) / Auto (Record).
TB switches disable Listen:	This allows the Listen function to be switched off when talkback is activated, thus avoiding feedback problems.
TB to FB:	(Sums / Replaces) When assigning talkback to foldbacks, this option defines whether talkback sums with or replaces the normal foldback signal.

The 'Auto' modes inhibit the Talkback and/or Listen switches when the transport Play or Record tally is lit. Selecting red light to one of 'Auto' modes makes it follow the Play or Record tally.

OSCILLATOR

The 'oscillator' is in fact a comprehensive tone and pink noise generator. It is located above the TFT screen, contains controls for frequency, level and routing of tone or pink noise to the Mix, Record and Track bus outputs and to the monitor outputs for use in monitor calibration.



OSC ON activates the oscillator output (surprise, surprise!). It's good practice to turn the oscillator off when recording, to prevent any accidental routing to desk outputs.

PINK ON switches the output from tone to pink noise. Note that the pink noise level can only be adjusted using the Pink 'Cal' preset.

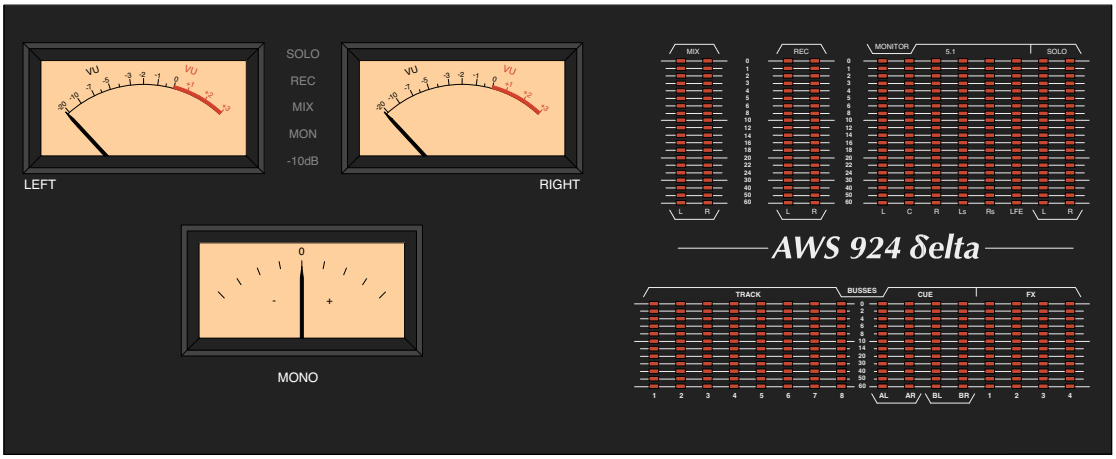
LEVEL This pot adjusts the level of the tone generator from -25dBu to +20dBu. When fully anticlockwise, a preset '**Cal**' level is selected which can be calibrated using the multi-turn presets located below the level control; a red LED lights to show when the level control is in the calibrated position.

FREQ This rotary switch provides six preset frequencies.

The oscillator may be routed to the **TRACK** busses, the **MIX** bus and the **REC** bus (individually or simultaneously) using the switches to the right of the **LEVEL** pot.. The oscillator output is also available on an XLR on the centre section connector panel.

Centre Section Metering

Fitted above the centre section is a meter panel for all of the console busses. On the left there are two VU meters and a phasemeter, which can display the outputs of the Record, Mix, Monitor or Solo busses. The indicators between the meters show the selected signal.



On the right there are a number of LCD bargraphs. The top row of bargraphs meter (from left to right) the stereo **MIX** and **REC** busses, followed by the 6 components of the monitor busses (L, C, R, LS, RS, LFE) and the stereo solo bus. The bottom row meter (from left to right) the eight track busses, the two stereo cue busses and the four mono FX busses. The standard scale is +24dB for 0dBFS (top of the scale); see below for alternative scale options.

The monitor and solo meter feeds are also available via a 25-way D-type connector on the centre section connector panel, for use with external metering/monitoring.

Meter options are provided by soft key selections in the Function keys. Select the **METERS** button to produce the following functions in the softkeys below the display:



Daw Locks the channel metering to the selected DAW layer.

Anl Locks the channel metering to the analogue layer.

If neither **DAW** or **Anl** is selected the channel metering follows the console's Focus switch.

VU This button cycles the source for the VU meters between the **REC** (record) bus, **MIX** bus or **MON** (monitor) bus, – the appropriate signal name will highlight in between the left and right VU meters to indicate what is being displayed. Note that the **SOLO** level is automatically displayed whenever a solo or AFL function is activated on the console.

10db This button introduces a 10dB reduction in the VU signal, for the purpose of metering high level signals. The red **-10dB** signal between the **LEFT** and **RIGHT** VUs lights to indicate this function is active.

PK Switches the meters to display a peak-hold segment; peak readings are held for 3 seconds.

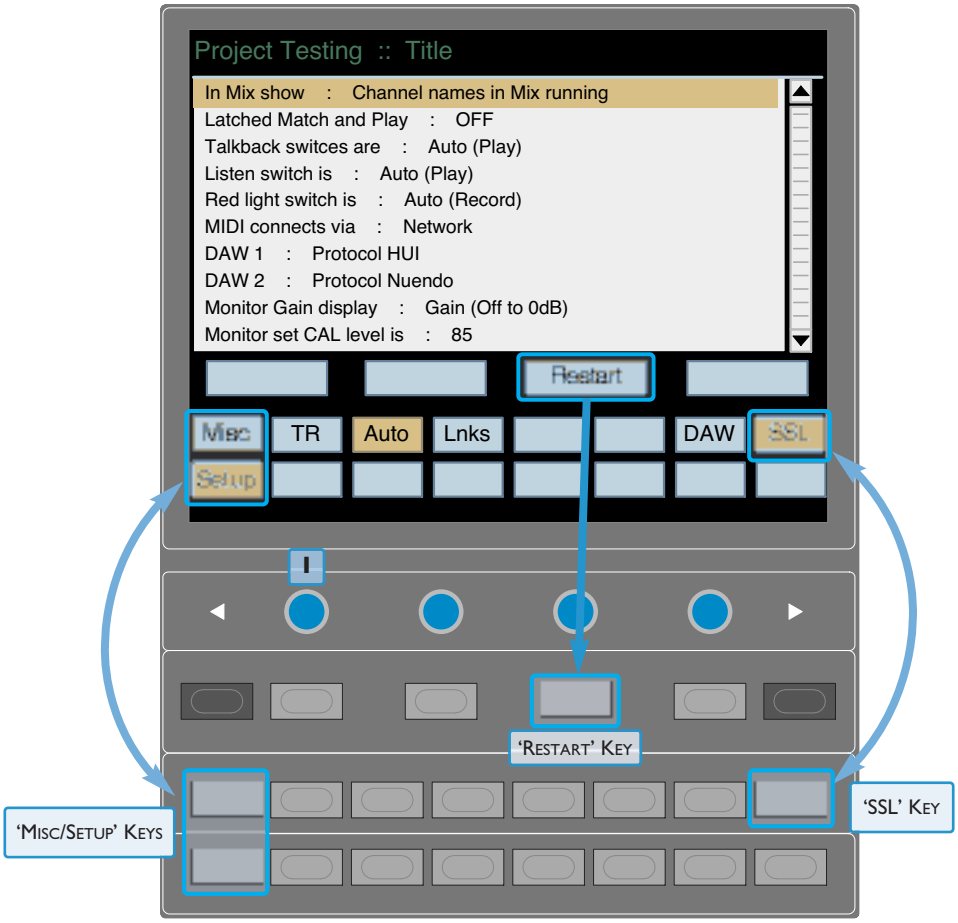
HLD Select this to hold the peak readings indefinitely. When active, press this button twice to clear the peaks.

Meter scaling options are accessed via the TFT screen. The 16 boxes at the base of the screen indicate the functions assigned to the 16 buttons in two rows of eight below the screen. Press the **SSL** button, followed by **Misc** > **Setup** and locate the meter scaling in the list:

Analogue Meter Scaling: 24 dBu = 0dBFS / 22 dBu = 0dBFS / 20 dBu = 0dBFS / 18 dBu = 0dBFS.

Console Setup Menu

The centre section TFT screen provides access to a setup menu that holds a number of useful console-related items. Select **SSL** followed by **Misc** and then **Setup**.



Note that a VGA connector on the back of the console allows the console's screen to be displayed on an external monitor. See Section 1 for details.

To change a setting, use the left hand V-pot ( ) to select the item, then press the V-pot to enter adjustment mode. Turn the V-pot to the desired setting and press again to save the setting.

The Setup options are described over the following pages.

AUTOMATION

Motors Off Mode: Touch sense can be enabled or disabled.

Show MTC Display: Turn the timecode display on or off.

TALKBACK

Talkback switches are: Select the operation of the talkback buttons: Momentary / Latching / Auto (Play) / Auto (Record).

Listen switch is: Select the operation of the Listen buttons: Latching / Auto (Play) / Auto (Record).

Red light switch is: Select the operation of the Red Light: Manual / Auto (Play) / Auto (Record).

TB switches disable Listen: This allows the Listen function to be switched off when talkback is activated, thus avoiding feedback problems.

TB to FB: (Sums / Replaces) When assigning talkback to foldbacks, this option defines whether talkback sums with or replaces the normal foldback signal.

*See **Communications** for more details of these options*

MONITOR SECTION

Monitor Gain Display: The calibration of the main monitor Gain pot and display can be set to one of three industry-standard monitoring modes: Music (Off to 11) / Film (Off to 95dB) / Gain (Off to 0dB)

Monitor Set CAL level: When in Film mode, adjust the calibrated listening level: 70 - 90 (dB).

*See **Monitor Level Display and Calibrated listening level** for more details of these options*

Solo Gain boost: Automatically increases the monitor level when a SOLO or AFL is activated (Range: 0-10dB).

Isolated channels AFL on solo: Set solo-isolated channels to automatically solo in AFL (ON/OFF).

DESK SETUP

Input Cut Enable: If set ON, the channel strip **CUT** button will cut prefade sends, ie. Aux and CHOP sends (ON / OFF).

Analogue Meter Scaling: Set the analogue level corresponding to 0dBfs on the console meters. (Range 18, 20, 22, 24 dBu).

DAW SETUP

DAW setup parameters can be found in section 4 of this manual; see page 4-3 for more details.

DESK SETTINGS

Scribble Strip Brightness: Use this to adjust the channel scribble strip brightness (range: 1-6)

Turn Off Display After: Shuts off the TFT display after a predetermined time: 30 mins to 5 hours in 30 minute increments.

The scribble-strip displays can be turned off by turning the control pot clockwise (beyond 8 or 6) to 'Off'.

On occasion, when changing the status of some of the above functions, you will be prompted to reboot your AWS δelta console. It is possible to do this without reaching the Power switch at the rear of the console through the addition of a soft menu **RESTART**. When you select this you will be prompted to **CONFIRM** and your console will reboot.

NOTE. The following menu options will only be available if the console is rebooted into Legacy Automation mode:

AUTOMATION

Glide frames: Sets the ramp time in frames for the automation SNAP mode. (range 0 - 255)

Rollback threshold frames: Sets the number of consecutive frames that the system needs to see to determine if a Rollback has taken place. The range is 2 - 10; the default is 2. Increase as required if a Rollback occurs when you stop the timecode master.

In Mix show: When using the automation, you have a choice of what is displayed on the console's channel scribble strips (and below the Group and Master fader levels in the Centre Section TFT screen). The choices are:

Automation Mode: displays the status of the faders – Auto, Safe or Manual;

Channel names in Mix running: displays the channel names once **Execute** is pressed in automation,

Channel names: displays the channels names regardless.

Latched Match and Play (ON/OFF) Normally Match and Play are automatically deselected after a Cut switch is operated. This option latches the Match or Play function until deselected manually.

Solid State Logic
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AWS δelta

916-924-948

OWNER'S MANUAL

SECTION 4
DAW CONTROL

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Section Contents

Section Contents 4-iii
Introduction 4-1
DAW Controller Features Summary *4-1*
Focus Modes 4-2

Configuring DAW Layers 4-3
DAW Layers 4-3
Communication with your DAW 4-4
Logic Handshaking *4-4*

HUI and MCU common Features 4-7
V-Pots 4-7
The Master Control Panel 4-8
Channel Banking Controls 4-8

Pro Tools HUI Control Guide 4-9
DAW Window Buttons 4-9
DAW Utility Buttons 4-9
Modifier Buttons 4-9
The Default Button 4-10
Resetting Pans *4-10*
Resetting Faders *4-10*
Resetting Sends *4-10*
Resetting Plug-ins *4-10*
Channel Functions 4-11
DAW Meters *4-11*
Status Indicators *4-11*
Multi-channel Metering (TDM Systems Only) *4-11*
Channel Fader *4-11*
Fader Grouping *4-11*
Channel Solo and Cut Tile 4-12
Solo Isolate *4-12*
Channel SEL Button – Track Arming/Edit/Select 4-13
Record Ready Mode 4-13
Record Safe *4-13*
Working with the Channel V-pots 4-14
Setting Sends Pre/Post Fader *4-15*
Muting a Send Output *4-15*
Flipping Send Levels to the Faders *4-15*
Input, Output and Send Routing 4-16
Viewing Input, Output and Send Routing *4-16*
Setting Input, Output and Send Routing *4-16*
Assigning Signals to Multiple Channels *4-16*
Assigning a Channel to Multiple Outputs *4-16*

Motion Control Panel 4-17
Transport Controls 4-17
Other useful transport modes 4-17
AWS Footswitch Control 4-18
Zoom, Navigation and Selection Modes 4-19
Navigation Mode (Neither Zoom nor Select lit) 4-19
Zoom Mode (Both Zoom and Select lit) 4-19
Select Mode (Both Zoom and Select Flashing) 4-19
Scrolling Within a Window 4-19
Shuttle/Scrub Wheel 4-20
Numeric Keypad 4-20
Working with Markers/Memory Locations 4-20

HUI PLUG-IN CONTROL 4-21
Plug-In Editor 4-21
Plug-In Editor Display 4-21
Plug-In Editor Controls 4-21
Paging Buttons 4-21
Selecting DAW Channels to Edit 4-21
Plug-In Display Modes 4-22
Viewing Current Inserts (Insert Mode) 4-22
Assigning a Plug-In or Hardware I/O (Insert Mode) 4-22
Editing Plug-In Parameters (Parameter Mode) 4-23
Selecting a Plug-In to Edit 4-23
Changing Plug-in Parameters 4-23
Hi-Resolution Parameter Display Mode 4-23
Comparing Your Changes 4-23
Bypassing Plug-ins 4-23
V-pot Sensitivity 4-23

ADDITIONAL HUI DISPLAYS 4-25
Timecode/Bars & Beats/Samples Display 4-25
DAW Status Display 4-25
Soft Key Display 4-25
1. Automation Enables 4-25
2. Automation Modes 4-25
3. Edit Tools Menu 4-26
4. Edit Modes Menu 4-26
5. Status/Group Menu 4-26
6. Function Keys 4-27
7. EDIT Menu 4-27
8. SSL Menu 4-27

HUI AUTOMATION 4-29
Automation Enables 4-29
Automation Modes 4-29
Automation Status Display 4-29
Suspending Automation 4-30
Writing Automation (Write to Start, End or All) 4-30
Automating Switches (eg. Cuts) 4-30
Automating Pans and Sends 4-30
Automating Plug-Ins 4-30
Automation Indication for Plug-In Parameters 4-30

MCU (MACKIE CONTROL) EMULATION 4-31
Mackie Control Emulation Advantages 4-31
Implementation 4-31
DAW Control Function Key Overview 4-33
The Logic Template 4-34
Logic Console Layout *4-34*
Transport Function Key Layout *4-35*
Logic Control screen *4-35*
Nuendo/Cubase Template 4-36
Nuendo Console Layout *4-37*
Nuendo Control screen *4-38*
The Sonar Template 4-39
Sonar Console Layout *4-40*
Sonar Control screen *4-41*
Digital Performer Template 4-42
Digital Performer Console Layout *4-42*
Digital Performer Control screen *4-43*

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DAW CONTROL

INTRODUCTION

AWS δelta communicates with connected DAWs using MIDI ports – either MIDI over Ethernet (ipMIDI) or the physical MIDI ports located on the rear of the console. Please refer to Section 1 of this manual "Installation and Setup" for informataion regarding MIDI connection, software installation and workstation configuration.

When connected to a Digital Audio Workstation which supports either the HUI or Mackie Control Universal (MCU) protocols, the AWS becomes a powerful digital work surface controller, giving direct access to the most important controls within the DAW. The console faders can be used to control the workstation faders and sends, the 24 channel V-pots can be used to control pans, sends and I/O functions and the Master Control Panel and plug-in controller provide easy access to a range of other parameters.

Provided the Logictivity option has been enabled the AWS can control two DAWs simultaneously from two virtual 'layers'.

For an up to date list of compatible DAW applications please go to the AWS support pages at http://www.solidstatelogic.com

- Pro Tools and a number of other DAWs support the HUI protocol.
  For further information (based on Pro Tools 11) see Pages 4-9 through 4-30.
- Many other DAWs, including Logic Audio, Sonar, Nuendo and Digital Performer, support the MCU protocol.
  For further information, see Page 4-31 onwards.

Please refer to the controller documentation that came with your DAW

DAW CONTROLLER FEATURES SUMMARY

- Direct access to all major DAW mixing, editing and automation parameters
- MIDI connections over Ethernet
- Direct control of plug-in settings
- Integral colour TFT display with dedicated control buttons
- High resolution rotary encoder (V-pot) on every channel provides control of DAW pans, sends and I/O routing, and for MCU compatible applications, Plug-ins and Instruments
- High quality motorised faders to write/replay level moves in your DAW
- Simple switching between console layer and DAW control layer
- Full remote control implementation
- Operation independent of platform or application

Focus Modes



In order to allow console controls to be used to control either analogue signals or an external DAW, SSL created 'Focus modes' as a way of allowing the AWS to 'focus' on one or other domain. To switch between modes, press the Focus switch, towards the bottom of the console centre section (shown right). The button is lit for Analogue Focus, and unlit for DAW Focus. Focus mode can also be quickly checked by looking at the channel meters: the bottom LEDs stay lit when the console is in Analogue Focus.

While a number of controls always retain the same role (such as analogue signal processing, routing and monitoring, or DAW transport control), the roles of the following controls are different in each Focus mode:

Console Element	**Analogue Focus** *(Button lit)*	**DAW Focus** *(Button unlit)*
Channel faders, plus its cuts and solos	Analogue signal in channel	DAW channel level
Channel V-pots, plus its cuts and solos	In-line: Secondary path level; Stereo: Balance Or DAW params *(see notes below)*	Available for DAW parameters or analogue signal control *(see notes below)*
Channel **SEL** switch	Assigns analogue channel to Master Section	Highlights DAW channel, track arm or plug-in select
Channel meters	Displays channel's analogue signal level *(see notes below)*	Displays DAW channel level *(see notes below)*

*When the console is in DAW Focus mode, analogue level control of stereo channels can be assigned to the V-pots by pressing the **CHANNEL** switch, to the left of the Focus button. This allows 'In-Line'-style signal control but with the monitor mix being created using the DAW digital mixer. Pressing the V-pot will then cause the functions of the V-pot and fader to be swapped.*

***948:** In In-line Channel Modes, the V-pot adjusts the level for one of the channel paths, as explained on the following page. In Stereo mode, the V-pot becomes a balance control. The **CHANNEL** switch is still available for DAW control.*

*Channel meters can be locked to either Focus mode by entering the Function Keys' **Meters** menu and selecting either **DAW** or **Anl**.*

This section of the manual assumes that the console is on DAW Focus mode.

CONFIGURING DAW LAYERS

DAW LAYERS

The AWS can connect to two DAWs simultaneously which are controlled from the two virtual 'layers'. Control operations performed on the AWS control surface will then affect whichever DAW is assigned to the currently selected layer. To select which DAW is assigned to each layer go to **SSL** > **Misc** > **Setup** on your console and select the following:

Transport lock layer*: Select the master DAW layer for transport control between DAW 1, DAW 2 or Off.

** Not displayed if* **MIDI connects via: MIDI Ports is selected**.

DAW 1 Jog wheel sends: Define the control data sent by the jog wheel for HUI DAWs. Normally the Jog Wheel has no action unless Scrub or Shuttle are enabled.The Nudge option allows the Jog Wheel to scroll through the session Timeline using the nudge (+/–) commands. Options are Jog / Nudge (40 / 20 / 13 / 10 / 8 / 6 / 5 per revolution). The Scroll action depends on the nudge value set in Pro Tools and the number of commands sent per a jog wheel revolution; adjust to taste. When DAW 2 is HUI, there is a **DAW 2 Jog wheel sends*:** menu entry.**MIDI Connects via:** Network. Note that only one DAW layer is available when using the standard MIDI ports.

DAW 1: Protools HUI / Logic / Logic Handshake / Nuendo / Digital Performer / Sonar

DAW 2: Protools HUI / Logic / Logic Handshake / Nuendo / Digital Performer / Sonar / None

*If '**None**' is selected for **DAW 2**, Menu entries related to DAW 2 will not appear.*

Transport lock layer: Select the master DAW layer for transport control between DAW 1, DAW 2 or Off.

First physical channel DAW 1: Select the console channel number that is controlling the first track number on DAW 1.
(When DAW 2 is assigned, there is a **First physical channel DAW 2:** menu entry.)

Channel Count DAW 1: Select the total number of channels dedicated to DAW control (8-24 in steps of 8).
(When DAW 2 is assigned, there is a **Channel Count DAW 2:** menu entry.)

Single Layer: Assign both DAWs to a single layer (ON/OFF).

Can only be set to ON if the two DAW layers are assigned to different channels.

After making these changes the console should be restarted.

Setup ipMIDI ports 1, 2 and 3 as the MIDI controller ports within the Primary DAW and ipMIDI ports 4, 5 and 6 as the MIDI controller ports within the Secondary DAW. See the end of Section 4 for more details as to the setup of each specific DAW.

When the desk is in DAW Focus, the console's controls will only affect the DAW on the current layer. There are two ways to select which DAW layer is being controlled:

- In the TFT screen, activate **SSL** then press **Daw** and choose either **DAW1** or **DAW2**.
- Press the **MISC** Function Key and choose either **DAW1** or **DAW2**.

*The transport controls can be locked to one layer using the Setup menu's **Transport lock layer** entry – see above.*

COMMUNICATION WITH YOUR DAW

The AWS connects to your chosen DAW via three MIDI ports at the rear of the console or via MIDI over Ethernet. Each AWS DAW layer emulates three HUI or MCU controllers. The HUI and Mackie Control (MCU) protocol are widely supported by DAW manufacturers.

> *Section 1 details the MIDI and/or network connections between console and computer and the installation of the ipMIDI driver software and how to configure Protools and Logic. Information relating to other DAW systems is included later in this section.*

Refer to your DAW manual for information on how to configure your software. Once configured and connected, communication with the DAW will be initialised, and the level of the AWS channel faders, rotary controls and master functions will be set to match the DAW controls (provided you are in DAW Focus mode and have the right DAW layer enabled).

When using your DAW without the AWS, you should remove the AWS from the MIDI controllers section of your DAW (please see the information specific to your DAW).

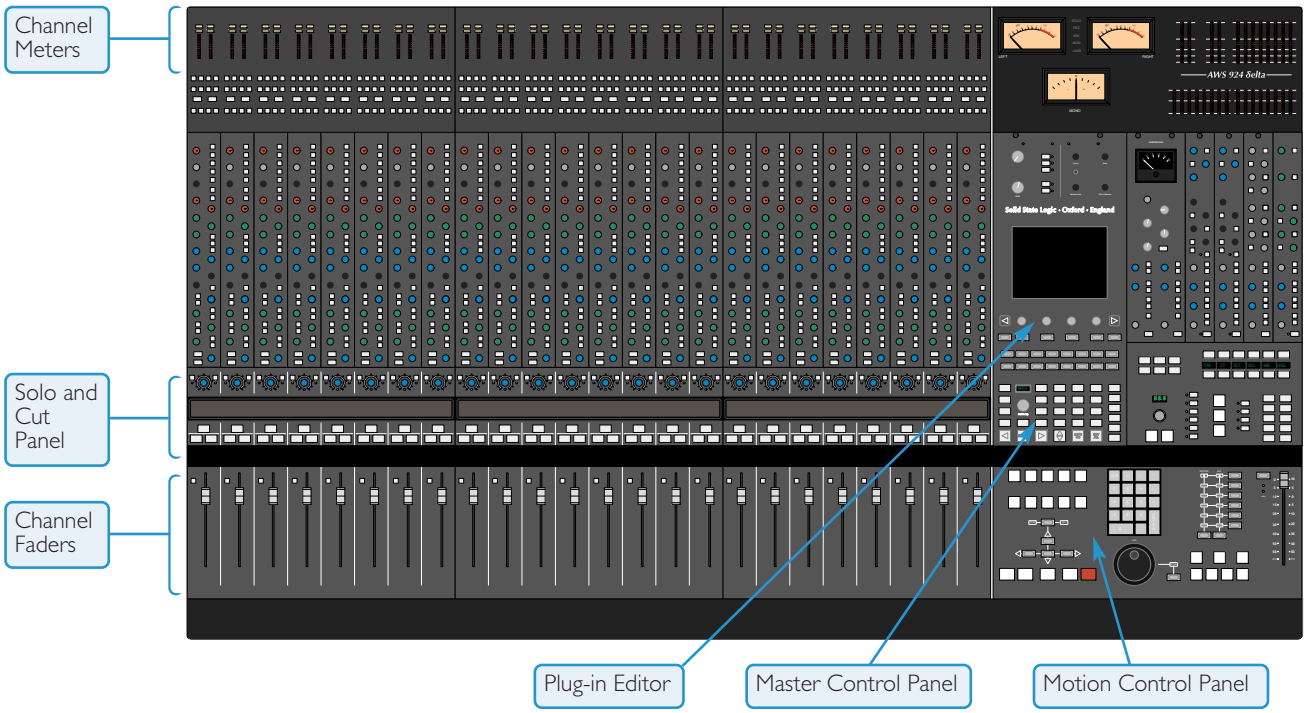
LOGIC HANDSHAKING

Logic Audio uses a challenge - response system to automatically detect connected controllers when it boots up. This feature can be enabled by selecting 'Logic Handshake' when choosing the protocol type in **SSL** > **Misc** > **Setup**. Selecting any other MCU protocol will disable this feature.

Additional details will found in section 1

HUI and MCU common Features

This section describes functions that are common to both HUI and MCU protocols.



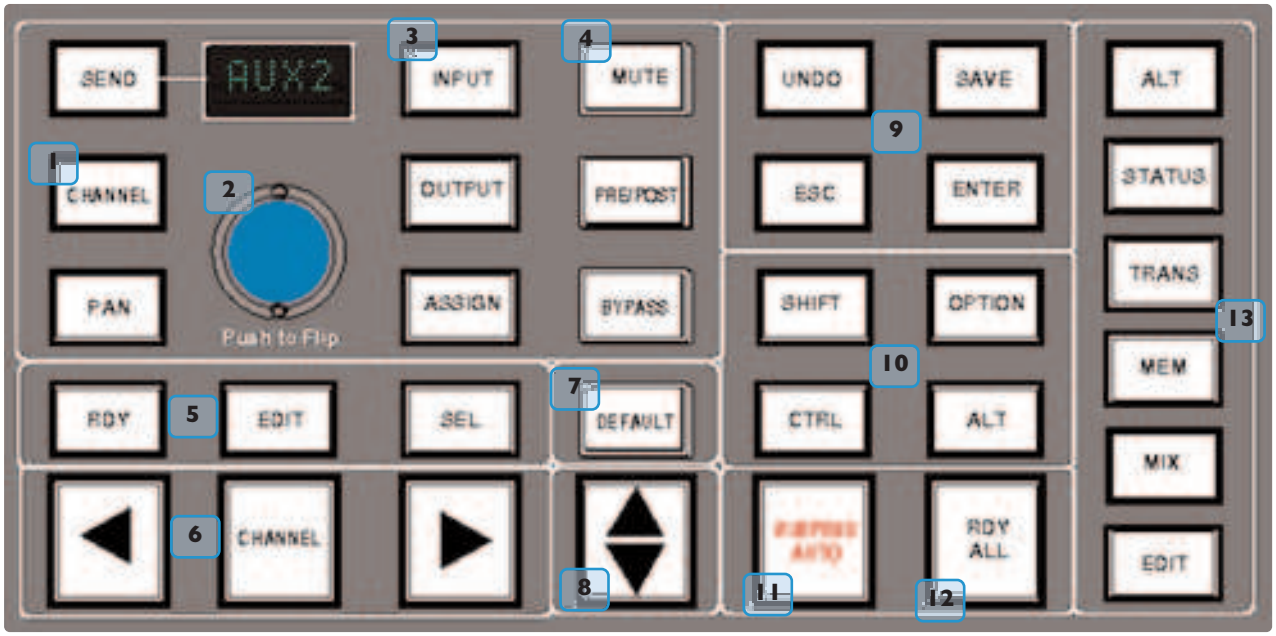
The AWS faders and Solos and Cuts panels can be switched between controlling the analogue audio signal path and the DAW using the Focus switch – see below. The Motion Control Panel, Master Control Panel and Plug-in Editor always control the DAW. The illustration above shows the DAW controller elements in 'DAW Focus Mode'. The greyed-out areas indicate analogue-only console elements.

V-Pots

Each channel contains a continuous rotary controller or 'V-Pot'. The Plug-in editor has four additional rotary controls for plug-in parameters.

The Master Control Panel

The Master Control Panel includes a mixture of master functions and modifier keys for control of a DAW. The layout shown below is for HUI. Alternative layouts for the various MCU implementations are given in Page 4-31 onwards.



6 Channel Banking Controls

The AWS console has 24 touch sensitive moving faders, however, if the DAW session has more faders than this, the AWS can 'bank flip' its faders to control any number of virtual faders within the DAW.

To flip the 24 console faders to the next set of 24 DAW faders, press the right bank button. To flip back to the previous 24 faders press the left bank button. Any number of virtual faders can be controlled from the AWS using the banking buttons.

To scroll the faders one at a time, press the **CHANNEL** button (located between the two banking arrow buttons) followed by the left or right banking buttons; the **CHANNEL** button will light to indicate it is in 'Channel' mode. Press the **CHANNEL** button once more to switch back to 'Bank' mode.

Pro Tools HUI Control Guide

This section describes functionality on Digidesign's Pro Tools 9 and above. The functionality of other packages will depend on their implementation of the Pro Tools HUI protocol.



13 DAW Window Buttons

This group of keys provides instant access to the various windows within the DAW. Press them once to display or hide the relevant menu.

ALT	Opens or closes the floating window for the currently selected plug-in.
STATUS	Opens or closes the Session Setup window.
TRANS	Opens or closes the Transport window.
MEM	Opens or closes the Memory Locations window.
MIX and **EDIT**	Brings the window to the foreground. The active window's button will light.

9 DAW Utility Buttons

This group of four buttons provide shortcuts to useful functions in the DAW.

SAVE will light when unsaved data is present. It flashes when pressed once – press again to Save the session, or press **ESC** to cancel.

The **UNDO** button will light if undo is available and flash if redo is available – press it to Undo the last function. Press **ALT**+ **SHIFT**+**UNDO** to Redo the last function.

ENTER duplicates the function of the Enter key on the computer keyboard.

ESC(ape) duplicates the function of the HUI F8 key and cancels on-screen dialogues.

10 Modifier Buttons

These buttons modify the function of other buttons. Their function is detailed in the relevant sections of the manual.

OPTION typically changes the function of a single button to affect all similar buttons. For example, holding it down and pressing a channel **CUT** button will cut all DAW channels. It is a direct equivalent of the Macintosh Command key.**SHIFT** allows selection of multiple objects or controls. It is a direct equivalent of the computer keyboard Shift key.

ALT increases the resolution of rotary controls and inverts switch selections when held down. It is a direct equivalent of the Macintosh keyboard Option key.

CTRL disengages grouping when held down. It is a direct equivalent of the Macintosh keyboard Ctrl key.

7 The Default Button

Faders, pans and sends can be reset to their default values using the **DEFAULT** button:

Resetting Pans

Select the **PAN** button on the Master Control Panel, and all 24 V-pots become pan controls. Hold the **DEFAULT** button while pressing the V-pot on the channel you wish to reset. Hold down **OPTION** and press **DEFAULT** to perform a reset across all pans.

Resetting Faders

Hold the **DEFAULT** button while pressing the **SEL** button on the channel you wish to reset. Hold down **OPTION** and press **DEFAULT** to perform a reset across all faders.

Resetting Sends

Select the **SEND** button on the Master Control Panel. Turn the Master V-pot to scroll through the list of available sends. Hold the **DEFAULT** button while pressing the channel V-pot on the channel you want to reset. Hold down **OPTION** and press **DEFAULT** to perform a reset across all sends.

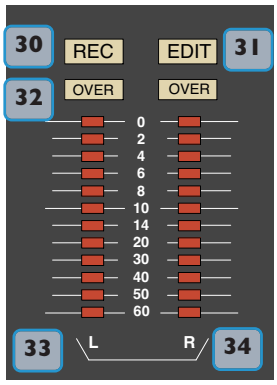
Resetting Plug-ins

Hold the **DEFAULT** button and press **COMPARE** (the Plug-In Editor function). The plug-in default value is either the factory setting or user setting determined within the DAW.

Channel Functions

In DAW focus mode the channel meters, faders and part or all of the Solo and Cuts tile control the DAW and display its status.

33 34 DAW Meters



When in DAW focus mode, the 24 stereo channel meters indicate the level of the DAW signal path. Mono tracks are displayed on the left meter only. When a signal reaches 0dBFs, the corresponding **OVER** tally 32 will light to indicate that the DAW signal level has clipped.

These meters duplicate the function of meters within your DAW, and show the same information. The meters also follow DAW pre or post fader meter settings, as set within the DAW.

> **OVER** *tallies can be reset using the F1 function in the Fkys softkey menu*

Status Indicators

The meter shows the status of the corresponding DAW track.

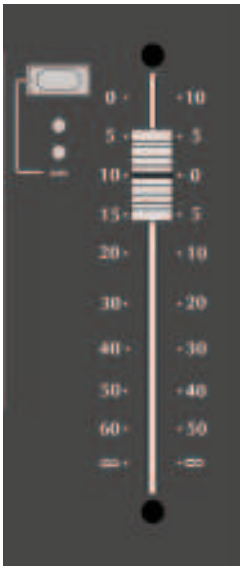
REC 30 flashes when the track is in record ready and lights when the track is in record.

EDIT 31 indicates that the track is selected for editing with the plug-in controller.

Multi-channel Metering (TDM Systems Only)

Multi-channel metering can be displayed by pressing **OPTION** + **SOLO** on a selected multi-channel track. The next two stereo meters are used to show the additional information. Normal metering functionality resumes after deselecting the Solo function.

Channel Fader



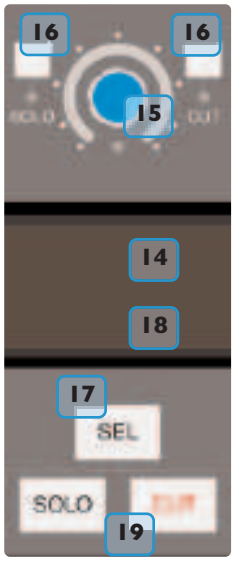
The channel fader can control any virtual DAW fader including Channel, Master, Auxiliary MIDI tracks or Instrument tracks. The calibration of the fader will depend upon the DAW (please refer to your DAW manual for more details). Pressing **ALT** will display the gain of the DAW fader on the fader scribble strip when you move the fader.

Fader Grouping

Channel faders will follow any grouping enabled within your DAW. Faders can be disengaged from a fader group simply by holding down the **CTRL** button or by touching one fader in a group while adjusting another fader's level. Relative fader levels are maintained upon release of the fader.

Channel Solo and Cut Tile

15 Channel V-pot



Each channel has a continuous controller (the V-pot). This can be used to control Send levels and Panning, and to assign Input, Output and Send routing. See Page 4-16 for more details.

The V-pot includes a push switch that is used (depending on the centre section mode) to select sends to be pre or post fade, to mute sends and to confirm I/O selections. See Page 4-15 for more details.

16 19 Solo and Cut Switches

Two sets of **SOLO** and **CUT** buttons are provided on each channel. The upper set is associated with the signal path controlled by the channel V-pot and the lower set with the signal path under fader control. Thus in Analogue Focus mode and with **CHANNEL** mode selected the lower set of buttons control the analogue path and the upper the DAW channels. Changing to DAW Focus reverses this.

When a DAW solo is active the cut buttons on the other channels flash.

Holding down **OPTION** and pressing a channel **SOLO**/**CUT** button will select/deselect that function across all channels. If channels are already soloed then this will turn off all solo buttons, making this a quick way to clear solos.

Solo Isolate

Holding down **ALT** and pressing a channel **SOLO** will put a channel into Solo Isolate mode. This mode prevents that channel from being cut when a **SOLO** is activated on another channel. This is particularly useful for FX return tracks.

17 Channel Select Button

The channel **SEL** button can function as a channel select button, a track record enable or a plug-in edit enable button, depending on the mode selected on the Master Control panel (5 , as shown on Page 4-6).

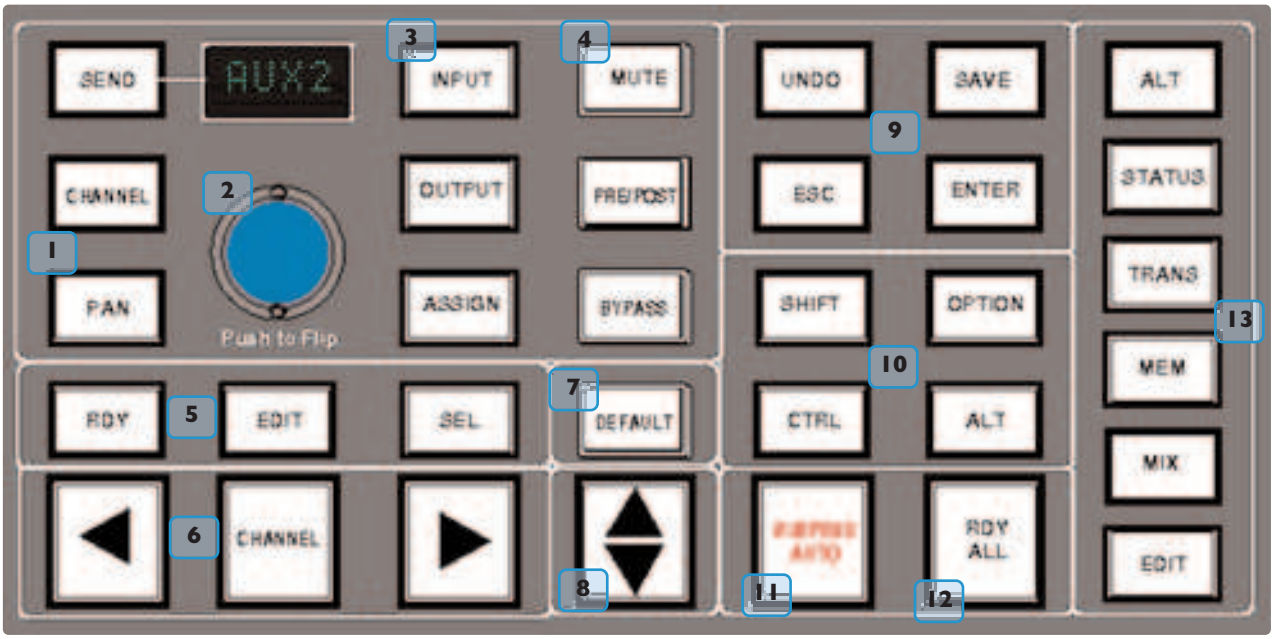
14 18 Scribble Strip Displays

When an AWS channel fader is controlling a DAW fader level, the channel scribble strip will indicate a four character version of the DAW channel name. When controlling the analogue channel it displays the number of the fader, eg 'Fader 23'.

The scribble strip can also display other information such as: Automation status, Grouping information, Monitor information, Input/Output routing, Send routing, Send Pre/Post information, fader level display and Pan position.

The V-pot scribble strip displays the DAW channel name or analogue fader number in **CHANNEL** mode or the selected function (Pan, ASGN etc) in other modes.

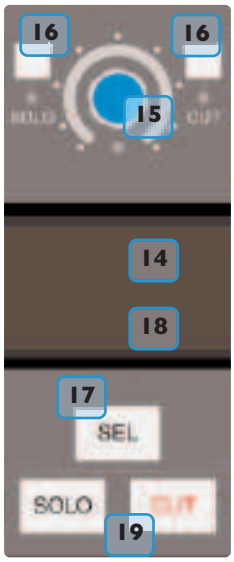
Channel SEL Button – Track Arming/Edit/Select



The function of the channel **SEL** (17) button depends on the mode selected on the centre section **RDY**, **EDIT** and **SEL** keys on the Master Control Panel.

5 Record Ready Mode

If **RDY** is selected all 24 channel **SEL** buttons become Record Ready buttons. Pressing a channel **SEL** button puts the DAW track into Record Ready (provided that the DAW track has an input routed). The **REC** tally above the meter flashes to show that the track is in ready.



12 Ready All

Track arming can be set or cleared across all channels by using the master **RDY ALL** button. This button flashes if any DAW tracks are in Record Ready. Pressing this switch while it is flashing will clear all track arming.

Record Safe

To put a DAW track into Record Safe (so it cannot be put in to Ready) hold down **ALT** and press the channel **SEL** button. Hold down **ALT+OPTION** then press any **SEL** button to set all tracks to Record Safe.

5 Edit Mode

With **EDIT** mode selected the channel **SEL** button can have a number of functions:

This function will only work for the first 8 DAW channels in Pro Tools V6.4 and above.

Provided **BYPASS** (4) is off pressing one of the channel **SEL** buttons assigns the plug-in editor to that channel. The **EDIT** tally on that channel will light to confirm that this is the edit channel.

A double press on the **SEL** button will select the first plug-in in that channel for editing. Successive double presses will select the next plug-in in that channel.

Selecting **BYPASS** (4) on the Master Control Panel changes the channel **SEL** buttons to Bypass buttons. Pressing a channel **SEL** switch will bypass all plug-ins on that channel. The channel **EDIT** flag will light to show that all plug-ins are bypassed.

5 Select Mode

All 24 channel **SEL** buttons become track select buttons. They perform the same function as clicking with the mouse on a channel in the DAW.

A double click on a **SEL** button will open the channel naming pop-up for that channel.

Multiple channels can be selected by holding down the **SHIFT** button while selecting further **SEL** buttons or by holding down the first **SEL** button you pressed while you select more channels. Note that this last method only works within blocks of channels corresponding to a single HUI interface.

Hold down **OPTION** and press any **SEL** button to select all channels.

Hold down **ALT** and press any **SEL** button to invert the state of all select buttons.

Working with the Channel V-pots

The channel V-pots can control DAW channel pan, Send (Aux) levels and pan, routing assignment and analogue audio levels. Each V-pot also has a switch which is activated by pushing down on the V-pot.

The channel V-pot function is selected on the Master Control Panel by the Master Send V-pot (2) and six associated buttons (1 3).

The scribble strip above the channel V-pots shows which function is currently selected. A further two buttons (**PRE/POST** and **MUTE**, 4) change the function of the V-pot push switches.

1 Pan Mode

Select **PAN** mode and the channel V-pots become pan controls for the DAW. The V-pot scribble strip displays 'Pan'.

Pressing the **PAN** button on the Master Control Panel a second time (it flashes in this mode) allows you to access a second pan control for stereo channels according to your DAW configuration. The V-pot scribble strip displays 'Pan R' in this mode.

Press the **PAN** button again to return to normal pan mode.

When panned centrally a red LED appears just beneath the channel V-pot.

Holding down **ALT** displays a pan's numeric value on the channel scribble strip when you adjust the control.

1 Channel Mode

Select **CHANNEL** mode and the channel V-pots control the analogue gain of the channel strip. The V-pot scribble strip will display the analogue fader number (eg 'Fader 12').

Switching to Analogue Focus mode will swap the analogue gain and the DAW gain between V-pot and channel fader. Individual channels can be swapped by pressing the channel V-pot.

1 Send Mode

Select SEND mode on the Master Control Panel and the V-pots become level controls for any sends or aux send levels within the DAW.

The Master Send V-pot (2) selects which of the available sends (A-E or 1-5) is being controlled by the channel V-pots. The selected send is shown in the display window above the Master Send V-pot (and on the channel V-pot scribble strip).

The channel V-pot scribble strips show the name of the currently selected send. Turning a channel V-pot will alter the level of the selected send from that channel. Holding down the **ALT** button allows you to make fine adjustments to the gain.

Setting Sends Pre/Post Fader

When working with sends it is useful to be able to flip a send between pre and post fader.

If necessary select the **PRE/POST** button (4) on the Master Control Panel.

Pushing a channel V-pot will now switch the selected send on that channel between pre and post.

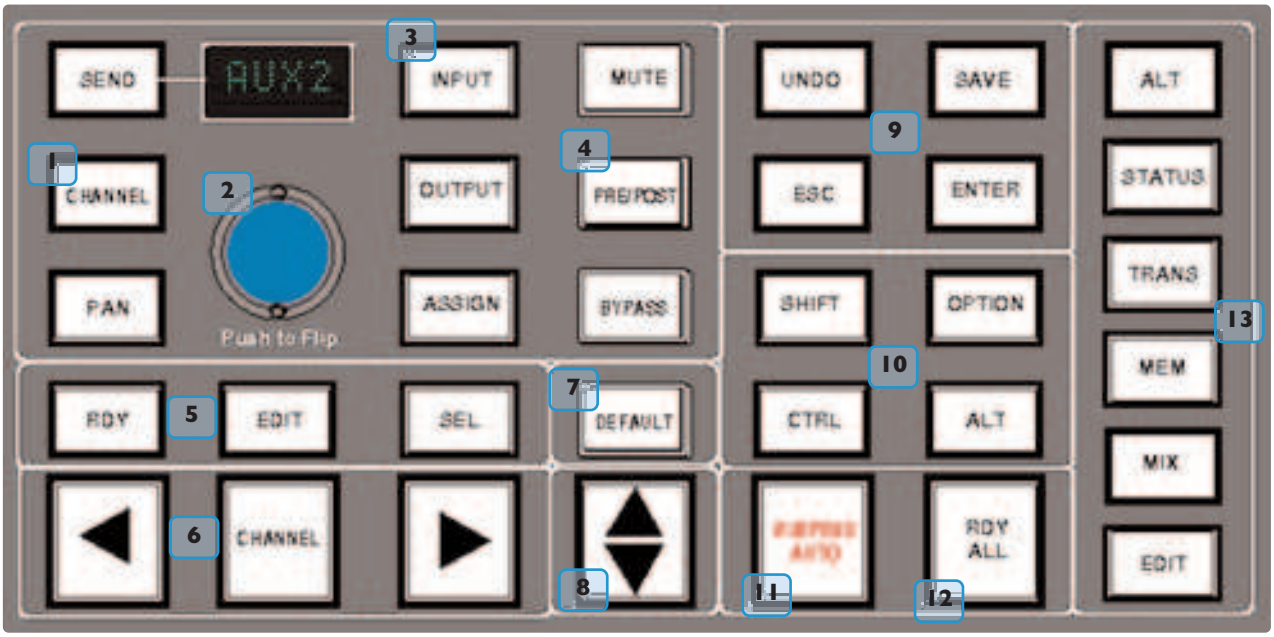
The red LED below the V-pot lights to show PRE is selected.

To change mode on all channels press and hold the **OPTION** button then press any channel V-pot. All channels will switch to Pre or Post.

Muting a Send Output

To mute a send output select the **MUTE** button (4) on the Master Control Panel and push the channel V-pot. The red LED below the channel V-pot will light to show the channel is muted.

To mute or un-mute all channels press and hold the **OPTION** button then press any channel V-pot. All channels will mute or un-mute.



Flipping Send Levels to the Faders

To flip Send levels from the V-pots to the channel faders, press the Master Send V-pot (2) marked '**Push to Flip**'.

The channel faders now control the send levels and the fader **CUT** button will mute the send.

The channel V-pot controls panning on stereo sends.

In this mode **PRE/POST** mode is automatically selected for the V-pot switches, so pushing a V-pot will toggle the Send pre/post selection on that channel. The red LED below the V-pot lights to show PRE is selected.

The fader **SOLO** button will solo the channel, not the send.

Input, Output and Send Routing

The channel V-pots can also be used to assign signals to inputs, outputs and aux sends of your DAW mixer:

Viewing Input, Output and Send Routing

The Input, Output or Send routing for all DAW channels can be displayed on the channel scribble strip by holding down the **INPUT**, **OUTPUT** or **SEND** button (3) on the Master Control Panel. The Master Send V-pot can be used to select which of the available sends you wish to display.

Setting Input, Output and Send Routing

To make or change an Input, Output or Send assignment:

1. Select **ASSIGN**+ **INPUT** / **OUTPUT** or **SEND** on the Master Control Panel.

   When using **SEND**, *select which send you wish to change from the available send slots using the Master Send V-pot..*

2. The V-pot scribble strip will now read **ASGN** and the fader scribble strip will indicate the current routing for the DAW channel.
3. Turn a channel V-pot to scroll through a list of available DAW inputs or outputs (names are derived from the DAW I/O settings not the AWS). The list will appear in the channel scribble strip. The red LED below the V-pot will flash.
4. Push the V-pot knob to select the current assignment; the red LED will become solid and a '>' symbol will appear in front of the assigned signal (for example, '>Out3-4').
5. Press the **ASSIGN** button once more to exit assign mode. This will also commit any changes made that have not been confirmed by pressing the V-pot.
6. Pressing **ESC** at any time will abort the assignment process.

Assigning Signals to Multiple Channels

Holding down **OPTION** then pressing any channel V-pot will assign that channel's input to all channels.

Holding down **SHIFT**+**OPTION** will assign that channel's input to all selected channels. Select **SEL** mode on the Master Control Panel then press the **SEL** buttons on the channels you wish to route to.

Holding down **OPTION** and **ALT** then pressing a channel V-pot will incrementally route that channel's input to all channels. For example, selecting input 1 as the input to channel 9, then holding down **OPTION** and **ALT** before pressing the channel 9 V-pot will route input 1 to channel 9, input 2 to channel 10, input 3 to channel 11 and so on across the entire DAW.

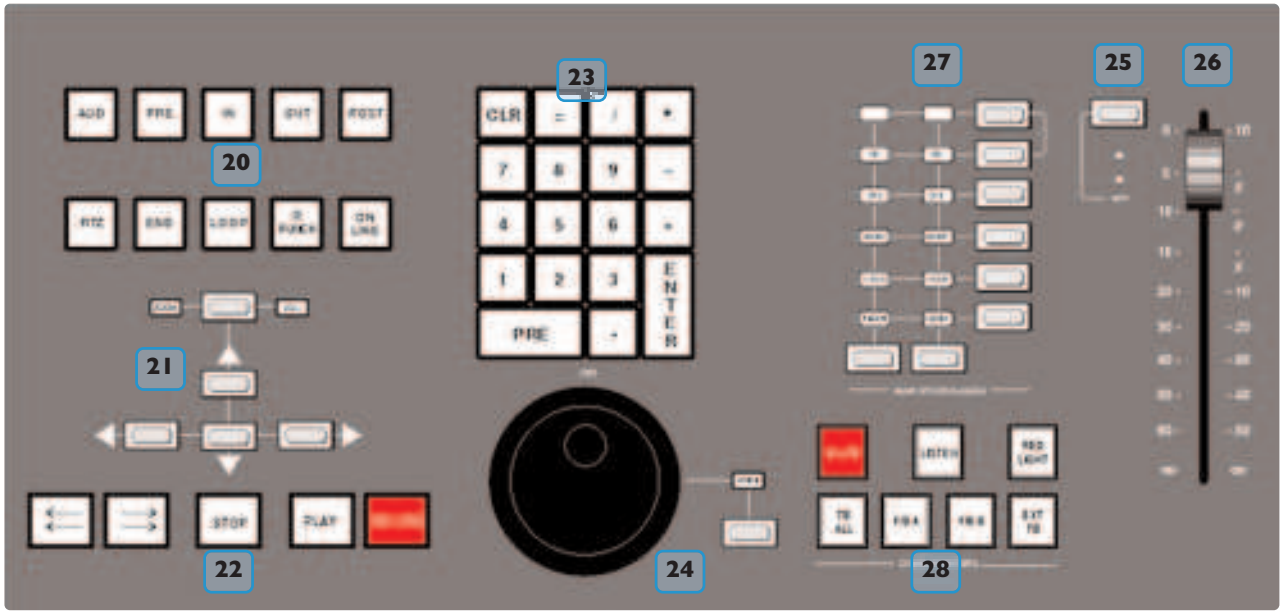
Holding down **SHIFT**+**OPTION**+**ALT** will incrementally route that channel's input to all selected channels. Select **SEL** mode on the Master Control Panel then press the **SEL** buttons on the channels you wish to route to.

Assigning a Channel to Multiple Outputs

Hold the **CTRL** button and select another output. The currently assigned output will have a '>' symbol before it (for example, '>Out3-4'), and other added outputs will have a '+' (for example '+Out5-6') until you assign it.

In the scribble strip, an '@' symbol indicates that an item is inactive (ie routed but muted). The '$' symbol indicates that more than one output is assigned, and at least one of those is inactive.

Motion Control Panel



20 22 Transport Controls

Dedicated transport controls are provided for direct control over Pro Tools:

ON LINE*	Puts the DAW on line for synchronisation.
LOOP*	Toggles Loop mode on/off (hold down **CTRL** for Loop Record mode).
Q PUNCH*	Toggles Quickpunch recording status on/off for your DAW.
PRE*	Toggles the pre-roll function for your DAW. See next page for setting Pre roll time.
POST*	Toggles the post -roll function for your DAW. See next page for setting Post roll time.

**The status of these functions is shown in the transport section of the TFT screen.*

IN	Captures the current DAW position as the Start edit time.
OUT	Captures the current DAW position as the End edit time.
RTZ (Return-To-Zero)	Returns the playback cursor to the Session start time.
END	Moves the playback cursor to the end of the Session.
REWIND	Holding down this button will rewind the DAW (increment depends upon Display mode).
FAST FORWARD	Holding down this button will fast forward the DAW.
STOP	Stops playback or recording.
PLAY	Depending on the HUI DAW settings commences playback from the current cursor position or the last locate point, depending on DAW settings.
RECORD	Engages DAW recording for currently armed tracks.

Other useful transport modes

Half-speed Playback	**SHIFT** + **PLAY**
Abort Current Record Pass	**SHIFT** + **STOP**
Cycle through Record Modes (Normal, Quickpunch, TrackPunch, Loop)	**CTRL** + **RECORD**
Cycle through Machine Control Masters (accessible via the transport window)	**CTRL** + **ONLINE**
Link or Unlink the Edit and Timelines	**SHIFT** + Back slash (/)

20 Setting Pre and Post Roll

Hold down **ALT** and press the **PRE** or **POST** button to highlight the left hand numeric field of the pre-roll or post-roll time window. The time is displayed on the console TFT screen in place of the DAW position. The selected numeric field will flash. Use the navigation left/right arrow keys to select a different numeric field if required, then enter a value on the numeric keypad or use the Up/Down arrow keys to increase or decrease the selected field.

Press **ENTER** to confirm the time.

The **CLR** button on the numeric keypad can be used to clear the selected time.

20 Setting start (In) and end (Out) Times

Hold down **ALT** and press the **IN** or **OUT** button to highlight the left hand numeric field of the start or end time window. The time is displayed on the AWS TFT screen in place of the DAW position. The selected numeric field will flash. Use the navigation left/right arrow keys to select a different numeric field if required, then enter a value on the numeric keypad or use the Up/Down arrow keys to increase or decrease the selected field.

Press **ENTER** to confirm the time.

The **CLR** button on the numeric keypad can be used to clear the selected time.

20 Audition

This function allows the **IN**, **OUT**, **PRE** and **POST** points to be checked.

Select the **AUD** button then press either the **PRE**, **IN**, **OUT**, or **POST** button. Press the **AUD** button again to cancel the function.

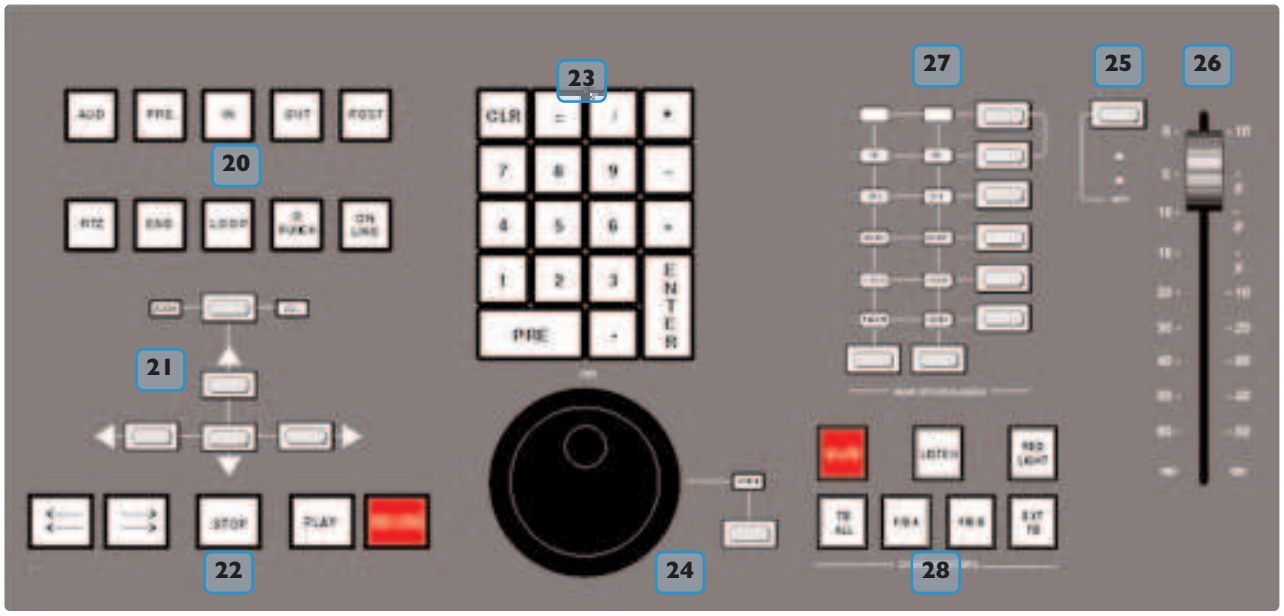
When Audition mode is selected the transport section of the TFT screen displays audition in place of the Pre and Post indicators.

PRE	Plays from the pre-roll point to the selection start point
IN	Plays from the selection start point for the post-roll time
OUT	Plays from the end point less the pre-roll time to the end point
POST	Plays from the selection end point for the post-roll time
ALT+OPTION+PRE or **IN**	Plays from the selection start point less the pre-roll time to the selection start time plus the post-roll time
ALT+OPTION+POST or **OUT**	Plays from the selection end point to the selection end point plus post-roll time.

AWS Footswitch Control

The AWS has two 6.35mm jack footswitch connectors on the rear of the console (see Section 3). These are intended for hands-free access to essential transport functions:

Footswitch Control One:	Either plays or stops the DAW. Holding down **SHIFT** will abort a recording if in record, or initiate half-speed playback if stopped.
Footswitch Control Two:	Used to activate or deactivate Record mode. Holding **CTRL** while pressing the foot switch will cycle through record modes.



21 Zoom, Navigation and Selection Modes

The Motion Control panel has a section with four arrow keys and a ZOOM/**SEL** button that toggles the selection of three available modes: Navigation Edit, Zoom and Select.

Navigation Mode (Neither Zoom nor Select lit)

In this mode the arrow keys can be used to select a region or regions in certain DAWs.

The left and right arrows will snap to region/clip boundaries. The up/down arrow keys move the cursor to the track above or below respectively. Holding down the **SHIFT** modifier button will allow a selection to be extended in any direction. Holding the **OPTION** button allows the current selection point to be centred on the screen.

Holding **CTRL**+ Up/Down/Left/Right arrow button allows you to change and extend the region/clip selection. Holding **SHIFT** also includes either the previous or next region.

Zoom Mode (Both Zoom and Select lit)

The arrow keys now become horizontal and vertical zoom controls for the edit/arrange window on your DAW.

Fixed edit/arrange zoom settings can be saved or recalled from the AWS numeric keypad:
To save a zoom setting – press **SHIFT** + numeric keypad number
To recall a zoom setting – press **OPTION** + numeric keypad number

Select Mode (Both Zoom and Select Flashing)

Currently this function is not supported in Pro Tools.

Scrolling Within a Window

To page scroll within a currently selected window (ie. Mix/Mixer or Edit/Arrange) press **ALT**+ Left/Right/Up/Down arrow button to scroll one page in either direction. Holding down **OPTION** and **ALT** scrolls to the window boundary.

24 Shuttle/Scrub Wheel

The dual-concentric Shuttle/Scrub wheel has a spring-loaded outer ring and a continuously variable inner wheel for controlling DAW scrub and shuttle functions and for general timeline/clip navigation.

Navigation Mode

When the inner wheel is rotated, a stream of Nudge Commands are sent to the DAW according to rotation direction and speed*. The playhead will step through the session timeline according the current nudge value. If a clip or MIDI note is selected, its position can be nudged via the wheel.

> * *Provided that the Nudge option has been enabled from the SSL Set Up Menu 'DAW Joq Wheel Sends' (see page 4-3) otherwise the inner wheel does nothing.*

Shuttle Mode

When the DAW is stopped, turning the outer rim activates shuttle mode. The outer rim will step through seven fixed shuttle speeds, while the inner controller provides continuously variable control of shuttle speed.

Scrub Mode

Select a region to scrub within your DAW. Press the **SCRUB** button next to the wheel. The inner wheel now becomes an analogue tape machine style scrub wheel for the DAW.

Using the Numeric Keypad to Shuttle

In Pro Tools, the numeric keypad can be used to control shuttle speed and direction (this requires the numeric keypad *Shuttle* option to have been enabled in the Pro Tools Preferences/Operation tab). Engage Shuttle Mode via the outer rim. Hold down the **CTRL** button followed by a number on the numeric keypad that represents the shuttle speed. The +/- buttons control the direction of shuttle.

Exit from Scrub/Shuttle Mode

To exit from shuttle mode press either the **STOP** or **ESC** button. To exit from Scrub mode, deselect the **SCRUB** Key or press either the **STOP** or **ESC** button.

Notes on Scrub and Shuttle Modes (PRO TOOLS HUI ONLY)

The position at which the scrub/shuttle starts is derived from the current selection or timeline position. Scrub/Shuttle mode can commence from the selection end point by holding down the **OPTION** button before you grab the shuttle wheel.

Holding down the **ALT** button will increase the resolution of the scrub/shuttle wheel.

When scrub or shuttle is active, many DAW functions are suspended until you exit from scrub/shuttle mode.

The following functions are available:

- Fader control, solo and cut buttons
- Scrub/Shuttle wheel functions
- Transport controls
- Enter button (to create marker/cue events)

23 Numeric Keypad

The console's numeric keypad replicates the numeric keypad on your DAW keyboard. The primary use for this keypad is for saving and recalling Memory Locates and entering data values (please refer to your DAW manual for more details on keypad uses).

Working with Markers/Memory Locations

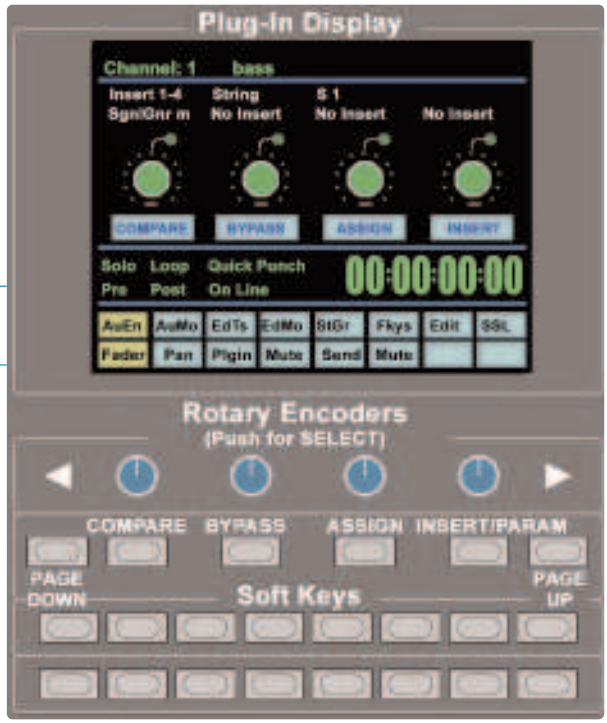
To Enter a Marker/Cue point – press **ENTER**.

To Recall a Marker/Cue point – press a number followed by the decimal point button (Numeric Keypad in Classic mode) or a decimal point followed by a number followed by the decimal point button (Numeric Keypad in Transport mode).

HUI Plug-in Control

Plug-In Editor

AWS consoles come with a powerful Plug-in Editor located in the console centre section. From here, plug-ins and hardware inserts can be assigned, and plug-in parameters can be edited.



Plug-In Editor Display

The Plug-In Editor uses a high resolution TFT display, four V-pots and four soft buttons to control the parameters of any plug-in.

> *The display is also used to show the position and status of the DAW and to provide access to a range of paged menus.*

The currently selected **EDIT** channel name is displayed at the top of the screen. Next are the plug-in control displays. Just below this are the transport status displays and timecode display.

The bottom section is used for soft key menu selection.

Plug-In Editor Controls

The controls for the display are located just below the screen area. The four V-pots and associated soft keys map to the corresponding controls on the display. The V-pots also have push-push select switches which perform various functions.

The display also shows information from the DAW at the top of the editor display.

Paging Buttons

The left/right paging buttons page through either available insert slots in **INSERT** mode, or plug-in parameters in **PARAMETER** mode (see following page).

Selecting DAW Channels to Edit

Select **EDIT** mode on the Master Control Panel then use the channel **SEL** buttons to choose the channel you wish to edit. The **EDIT** flag in the channel meter will light. The DAW will highlight the selected channel and currently selected plug-in. Press **ALT** to display the plug-in window.



Alternatively, select a channel by double clicking on one of the insert points in the Mix window. Note that from V6.4 and above it will be necessary to move channels 9-16, 17-24 into bay 1 channels 1-8.

> *Bank switching channels leaves the Plug-In Editor with the channel assigned to it. The channel **EDIT** tally will show this.*

Plug-In Display Modes

There are three display modes, Insert, Parameter and Assign, which are selected with the **ASSIGN** and **INSERT/PARAM** buttons below the V-pots.

Viewing Current Inserts (Insert Mode)

Press the **INSERT/PARAM** button till the **INSERT/PARAM** box reads **INSERT**; the plug-in editor is in Insert mode. In this mode the four V-pots represent four insert points on the selected channel. The currently assigned plug-ins are displayed above each V-pot. The name of the currently active plug-in will flash.

Additional insert points can be displayed using the paging buttons.

The four V-pot push switches can be used to select an insert slot for editing or for plug-in assignment - see below.

Assigning a Plug-In or Hardware I/O (Insert Mode)

Note: Some DAW applications will not allow assignments to be made during playback, or recording.

To Assign a Plug-in to a Channel Insert Point:

1. Press the **ASSIGN** soft button to enter assign mode; the on-screen box flashes to confirm this.
2. Press the V-pot corresponding to the insert slot which you wish to route to a plug-in (use the paging buttons if necessary) then use the V-pot to scroll through a list of plug-ins and I/O slots. The names that are displayed are derived from the DAW.
3. To confirm the assignment either:
    a) Press the **ASSIGN** button a second time. This will exit **INSERT** mode and switch the Plug-In Editor to **PARAMETER** mode for editing of the last selected insert.
    b) Press the V-pot used to make the assignment. This will confirm the assignment and leave you in Assign mode so you can make further assignments.

Assigning the Same Plug-in to All Channels

Follow steps 1 and 2 above to select a plug-in, then hold down the **OPTION** button before pressing the V-pot switch to assign a plug-in to all channels.

Assigning The Same Plug-in to Selected Channels

To assign a plug-in to selected channels select **SEL** mode on the Master Control Panel then choose the channels you wish to assign to by holding down **SHIFT** and pressing the channel **SEL** keys.

Follow steps 1 and 2 above to select a plug-in, then hold down **OPTION**+ **SHIFT** before pressing the V-pot switch to assign the plug-in to the selected channels.

Editing Plug-In Parameters (Parameter Mode)

Selecting a Plug-In to Edit

In Insert or Assign mode press the plug-in V-pot for the insert you wish to edit or in Insert mode select Parameter mode by pressing the **INSERT/PARAM** soft button.

To exit from Parameter mode press the **PARAM** soft key (if you want to edit a different plug-in) or the **ASSIGN** soft key (if you want to change assignment).



Changing Plug-in Parameters

Once you have selected a channel and a plug-in for editing, the four V-pots and their switches control the on screen parameters derived from the DAW plug-in. The names of the currently selected controls and their values are shown above the on-screen V-pots.

The **PAGE UP** and **PAGE DOWN** buttons can be used to access all the plug-in controls.

Hi-Resolution Parameter Display Mode

Holding down the **OPTION** button while editing a plug-in parameter will show a 9-character version of the parameter value at the top of the Plug-In Editor display.:

*The **ALT** button can be used to open or close the plug-in/pop-up window at any time.*

Comparing Your Changes

Pressing the **COMPARE** button allows you to compare any changes made to plug-in parameters with the values stored before editing.

As soon as you change any parameter the **COMPARE** box will turn yellow.

Pressing the **COMPARE** button toggles between the settings when you starting editing parameters and the current settings.

The plug-in window must be opened before this function becomes available.

Bypassing Plug-ins

The **BYPASS** button allows a plug-In to be toggled in/out of the signal path in **PARAM** mode. In **INSERT** mode, individual plug-ins can be bypassed by holding down **BYPASS** and pushing the V-pot that corresponds to the insert you want to bypass.

The channel **SEL** switch can be used to bypass all the plug-ins on a channel.

V-pot Sensitivity

The V-pots for the Plug-in Editor can be set to one of two modes: Fixed or Velocity-sensitive. In Fixed mode, turning a knob will range through the whole list of available parameters. This makes it very quick to search through long lists. Holding down the **ALT** button will enable a finer resolution scroll.

In Velocity-sensitive mode the speed of scrolling is dependent upon how quickly you turn the V-pot. To toggle between the two modes press the F5 button in the Fkys menu.

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Additional HUI Displays

Timecode/Bars & Beats/Samples Display

The on-screen time readout can be assigned to display either Timecode (SMPTE/EBU), Feet/Frames, Bars/Beats or samples. This display will follow the setting selection made within your DAW. Please refer to your DAW manual for further details.

DAW Status Display

To the left of the timecode display is the DAW status display. This shows the following flags:

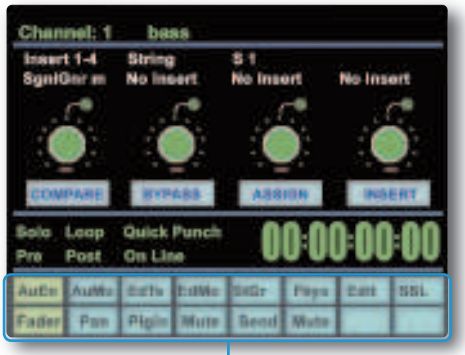
Solo	DAW has a Solo active
Loop	DAW has Loop enabled
QPunch	DAW has QuickPunch selected
Pre	DAW transport has pre-roll enabled
Post	DAW transport has post-roll enabled
Solo	DAW has a Solo active
Audition	DAW is in Audition mode. This is displayed in place of the Pre and Post flags

Soft Key Display

The Plug-In Editor includes an 8x8 matrix of soft buttons which map to the 16 boxes at the bottom of the plug-in display:

The top row (buttons 1-8) allow selection of the labelled function. Once pressed, a sub-menu will appear for the second row of soft key buttons (9-16).

The menus are ordered as follows:



Soft Key Display

1. Automation Enables



Automation Enable modes (**AuEn**) globally engage or disengage automation for various items. See Page 4-29.

2. Automation Modes



Automation Modes (**AuMo**) sets the update mode for each channel or group of channels. See Page 4-29.

3. Edit Tools Menu



Edit Tools (**EdTs**) displays a list of available tools used by your DAW system. For example, in Pro Tools you can select the Zoom, Trim, Select, Grabber, Smart Tool, Scrub and Pencil tools.

4. Edit Modes Menu



Edit Modes (**EdMo**) displays a list of available edit modes used by your DAW system. Within Pro Tools you can select Shuffle, Slip, Spot and Grid modes.

5. Status/Group Menu



The Status/Group (**StGr**) menu contains several useful functions including:

Auto	Shows the Automation status of all channel faders on the channel fader scribble strips.
Mon	Shows the monitor status of all 24 focused channels on the fader scribble strip. The labelling is as follows:
Auto	Auto input mode
Inpt	Input mode only
Aux	Auxiliary input channel
MIDI	MIDI channel
Mstr	Master Fader
Phase	Not implemented
Group	Shows the grouping status of all 24 focused channels on the console.
Creat	To create a fader group for your DAW, select **SEL** mode on the Master Control Panel then hold down the **SHIFT** button and press the **SEL** buttons on any channels you wish to group. Finally press the **Creat** button and a new group will be created.
Suspe	Fader/Mix groups can be suspended at any time by selecting **Suspe**; they are now disengaged from their respective grouping arrangements. Pressing **Suspe** a second time re-enables the groups.

6. Function Keys



The F-Keys (**Fkys**) menu gives access to the DAW function keys. The use of the function (F) keys can vary between DAW applications. A standard configuration for Pro Tools is :

F1 Peak Hold Clear for the AWS channel meters

F5 Cycles Fixed or Velocity-sensitive modes for the V-pots

F8 Escape

7. EDIT Menu



The Edit (**Edit**) menu provides quick access to frequently used editing functions including Capture, Separate, Cut, Copy, Paste and Delete.

8. SSL Menu

This menu is used to access additional optional AWS features such as Console Setup, Automation and Total Recall. Information regarding these features will be found in the following sections of this manual.

- Console Setup Menu: Section 3
- Total Recall: Section 6
- Automation: Section 7

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HUI Automation

The AWS's touch sensitive moving faders can be used to write automation for the DAW fader. Most automation functions can be enabled from the soft key matrix below the console's display screen. Within this are menus for Automation Enables, Automation Modes, Grouping and Editing functions.

Note: Automation data can usually only be written when the DAW is in Play, Half-Speed Play or Record.

Automation Enables



Automation Enable modes (**AuEn**) globally engage or disengage automation for the following items: Faders, Pans, Plug-Ins, Cuts (**Mute**), Sends and Send Muting (**SnMute**). Holding down the **OPTION** button then pressing any of the sub menu buttons will toggle automation on or off for all controls.

The **Pan** automation enable includes both Channel and Send Pan.

Automation Modes

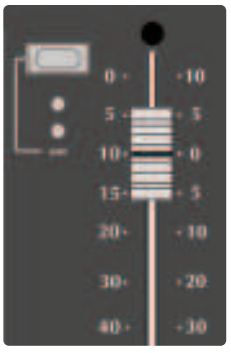


There are several Automation Modes (**AuMo**) available including: Write, Touch, Latch, Trim, Read and Off. To change automation mode on a channel select an automation mode from the soft key menu and press the auto button on a channel fader. Holding down **OPTION** then selecting an automation mode from below the TFT screen will change automation modes on all channels. Changes within the DAW will be reflected on the console.

Refer to your DAW manual for more information on its specific automation features.

Automation Status Display

Pressing and holding the auto button to the left of a channel fader will display the current automation mode for that channel in the channel scribble strip display. To display the automation mode on all channels select the Status Group (StGr) soft menu, and press Auto.



The automation LED indications are as follows:

No LED	Automation off
Green LED	Read automation mode
Red Flashing LED	DAW is ready to write automation in write, touch or latch modes.
Red solid LED	Writing automation data
Red and Green LEDs	Trim automation mode

Suspending Automation

To suspend all automation writing and playback for the entire project/session, press the SUSPEND AUTO button. The button will flash red to indicate that the suspend function is active.

Writing Automation (Write to Start, End or All)

In some DAW applications you can write automation data to the start, end or whole part of a track/selection in any automation mode. To perform these functions from the AWS use the following:

CTRL+RTZ	Will write automation data from the current position to the start of the track/selection.
CTRL+END	Will write automation data from the current position to the end of the track/selection.
CTRL+SHIFT+ (**END** or **RTZ**)	Will write automation data from the start to the end of the track/selection.

Automating Switches (eg. Cuts)

As the console's **CUT** buttons have no touch sense, automation will start being written when the button is first pressed. In Touch mode it will return to the underlying mix pass as soon as the DAW timeline reaches the next switch change.Thus pressing and holding a **CUT** button will write data for as long as the button is held, overwriting any underlying automation. To continue to write data until you stop select Write or Latch mode.

This also applies to plug-in buttons.

Automating Pans and Sends

As the channel V-pots have no touch sense, automation data starts being written as soon as the control is moved. In Touch mode the system will stop writing automation and return to the previous level when you stop moving the control.

Your DAW may have a Touch-Timeout period which provides a time limit that allows for a certain time to continue writing automation data, after which the value of the parameter returns to the value of the underlying automation pass.

Alternatively to continue to write data until you stop select Write or Latch mode.

Automating Plug-Ins

Plug-in parameters can be automated just like other V-pots and buttons. The only difference is that some DAW applications require the controls to be armed using the on-screen menus within your DAW. Choose the automation button in the plug-in window and enable the plug-in controls to be automated.

When automating a plug-in parameter, there is no touch sense information for the V-pot or push-push switch so in Touch mode data will be written for as long as the control is being moved or pressed.

Using Write or Latch mode for automating plug-ins will continue writing automation data until the DAW stops.

Automation Indication for Plug-In Parameters

If a plug-in parameter is enabled for automation the red 'LED' below the on-screen V-pot will flash. When writing automation data, the 'LED' will light continuously.

Refer to your DAW manual for more information on all aspects of its automation system

MCU (Mackie Control) Emulation

The AWS expands available DAW control options by emulating the Mackie Control MIDI protocol as an alternative to the HUI protocol emulation. The AWS software includes dedicated front panel function key mappings for Logic, Nuendo, Sonar and Digital Performer.

The Mackie Control Protocol originates from the Mackie Control Universal MIDI controller and the companion eight fader extender unit. The main control unit is functionally very similar to a HUI unit supporting 8 channel faders and associated controls, a master fader, transport controls and jog wheel, cursor keys together with dedicated function key groups for workstation control. Fader resolution is 10bit (1024 steps), identical to the HUI implementation. The Mackie Control Unit is supplied with overlay templates for different DAW packages, which label the various function key groups specifically for each supported DAW. In addition the default Logic grouping is supported by a number of workstations, which do not have dedicated overlays. These include amongst others Live, Sequoia, Final Cut Studio and Soundtrack Pro.

Mackie Control Emulation Advantages

- Supported by a large number of Workstation manufacturers including Apple, Sony and Steinberg.
- Plug-Ins and Virtual Instruments are controlled from the Channel V-pots and can be flipped onto the Faders, a feature previously reserved for Pro Tools and Digidesign proprietary control surface solutions.
- Channel meters use far less MIDI bandwidth.
- 6 Character Labels for Track/Channel Names and parameter information.
- Master Fader control.

Implementation

In Mackie Control mode the AWS emulates a Mackie Control Master Console plus two Mackie Extender sections. For all supported workstations, the AWS should be configured in the relevant Control Surface set up menu, as two extenders plus a main Mackie Control unit. The set up layout should assign the extenders as channels 9-24 and a Mackie Control unit as channels 1-8. Plug-Ins and Instruments will have their parameters assigned left justified on to the AWS channel V-pots.

The console Master section DAW control keys map to the workstation functions according to the active control template. This is selected from **SSL**>**MISC**>**SETUP** menu.



Four dedicated DAW templates are supported, Logic, Nuendo (also used for Cubase), Sonar and Digital Performer. The Logic template can also be used as a generic interface for Live, Final Cut Pro and other software that supports the standard Mackie Control surface function key grouping. The AWS includes the additional key caps to support the four function templates. The software also allows simultaneous control of two independent Digital Audio Workstations. They can be assigned in the **SSL**>**MISC**>**SETUP** menu.

The active DAW is selected on the SSL>DAW menu (shown above). Note that DAW layer 1 uses ipMIDI ports 1–3 and DAW layer 2 uses ipMIDI ports 4–6.

The majority of DAW functions are controlled via dedicated AWS front panel switches – less reliance is placed on the 8x8 soft key matrix located beneath the TFT screen than with the HUI protocol.

All Plug-In editing is via the channel V-pots. The four encoders together with the six switches below the centre section monitor screen are not used with the Mackie Control protocol.

On the channel fader strips, the Auto key and associated status LEDs are also not implemented by the protocol. All other controls, the V-pot and associated encoder switch, DAW channel Solo and Cut plus the Select and Ready functions, are fully supported.

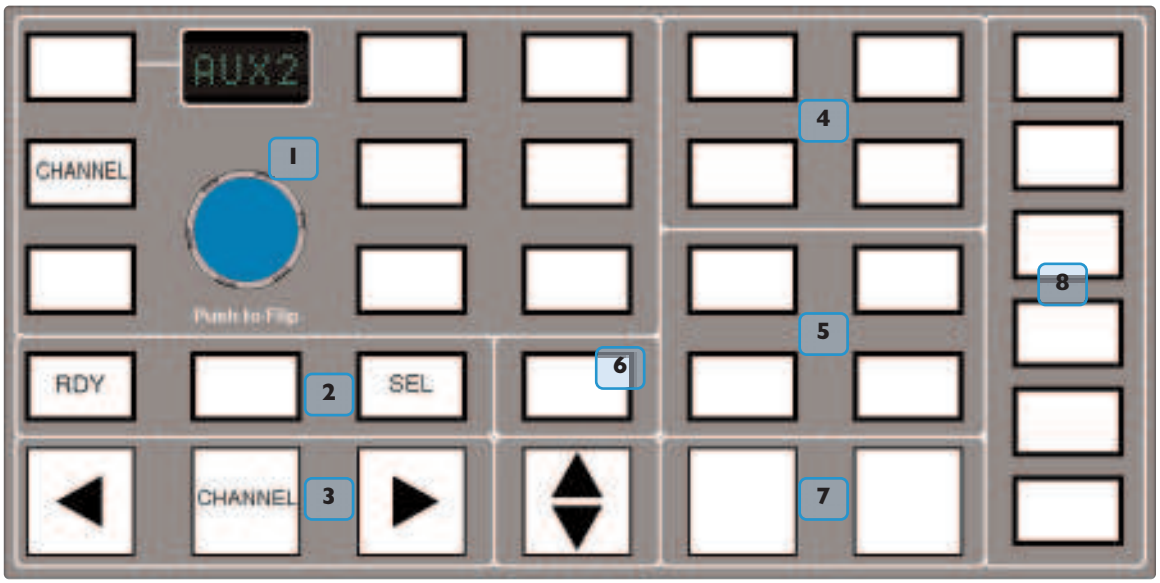
Only mono metering information is returned from the workstation. On stereo channels the maximum value of the left or right channel is displayed. The master fader is also included in the DAW layer when a Mackie Control template is active.

The ten keys located above master transport keys provide different related motion control functions according to the active template. When required tallies for these keys will be displayed on the TFT display in the area next to the DAW timeline counter.

The Jog Wheel together with the Scrub function key, and the Cursor keys and Cursor mode switch are active in all templates. The outer Jog Wheel is not supported, neither is the numeric keypad. However the 1-8 keys replicate F1 - F8 Function keys in certain templates.

DAW Control Function Key Overview

As far as possible all function key templates use key groupings and layouts which follow the original Mackie Control surface groupings to simplify moving from one DAW platform to another.



1 Channel V-pot Functions and Display options. The Encoder switch flips V-pot Parameters on to the channel faders. The encoder itself is not used in any of the Mackie Control templates. **CHANNEL** has the same functions as in the HUI Mode and assigns either the Console or DAW channel level control to the V-pot according to the state of the Master Console Focus control.

2 As with the HUI protocol, the **RDY** and **SEL** keys determine the function of the Channel strip **SEL** key. Default is the **SEL**(ECT) function, **RDY** accesses DAW track arming from the channel strip via the **SEL** key. The centre key is used as a discrete function key in some of the templates and corresponds to the **EDIT**/GLOBAL key located next to the FLIP key on a Mackie Control Unit.

3 Channel and Control surface banking – identical to the HUI Mode.

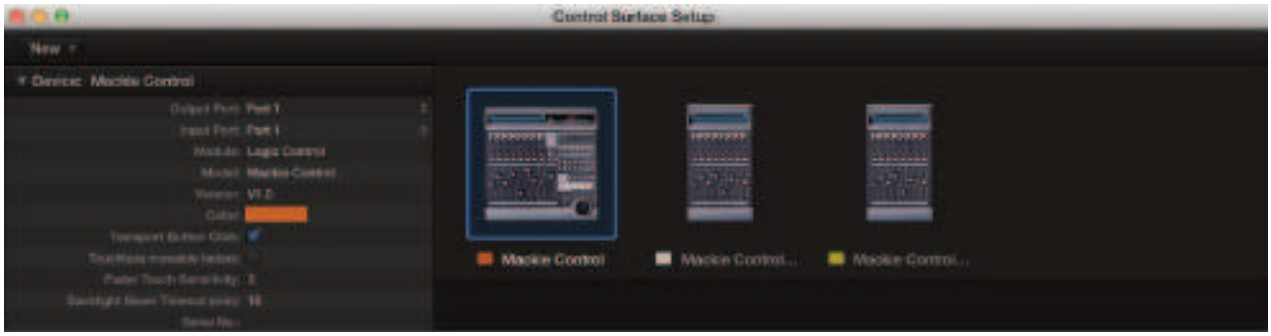
4 Project/Menu Keys – Similar style functions to HUI mode but template specific.

5 Modifier keys – Layout and Name template specific.

6 **7** **8** Dedicated Function(s) – Template specific.

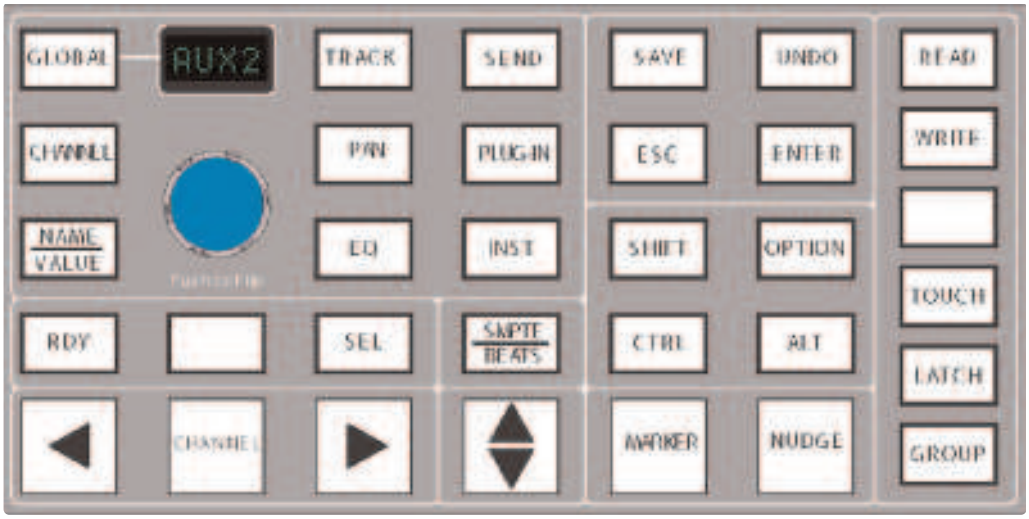
The Logic Template

The AWS emulates a Mackie Control plus two* Mackie XT fader expanders. The Logic Control Surface set up should be configured as shown below in the Logic Preferences menu.



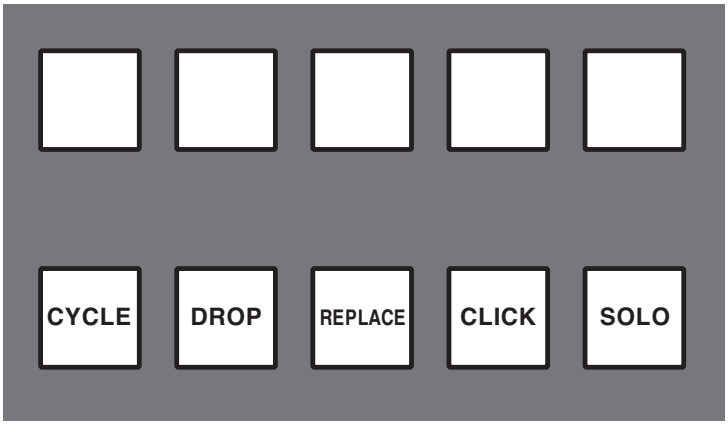
**AWS 916 consoles will only need to configure one XT Fader Expander*

Logic Console Layout



Major changes compared to the HUI front panel are Automation modes replacing the Screen display select keys and the inclusion of the **MARKER** and **NUDGE** functions. **GLOBAL** uses the 8x8 matrix keys to select the different view options. **CHANNEL** is unchanged and assigns the AWS channel gain element to the V-pot. The Encoder switch is used to 'flip' parameters on to the fader but the encoder itself has no function. The Display indicates V-pot mode with a two-character label. Plug-ins are controlled from the channel V-pots so there is no longer an 'EDIT' select mode for the channel **SEL** key.

Transport Function Key Layout

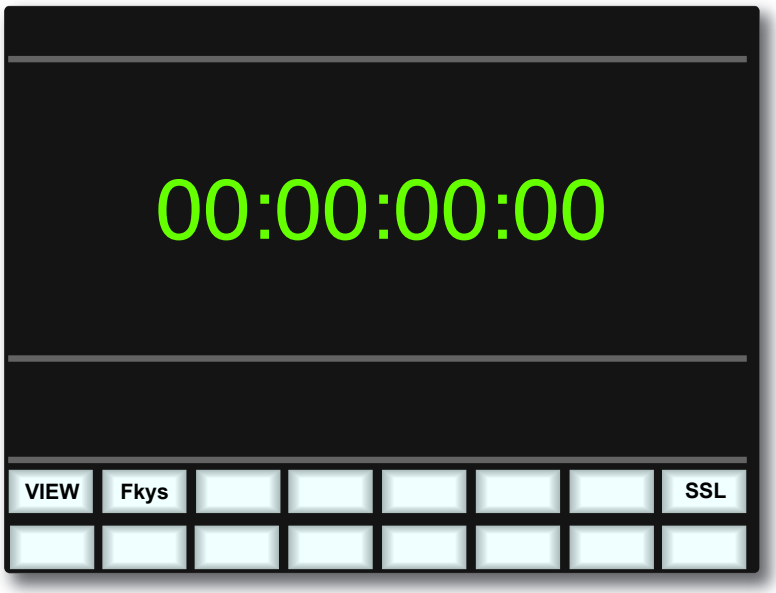


Only five of the ten keys above the Motion controls are assigned. These have on screen tallies in the status area of the TFT display.

Full operational documentation for using Logic with Mackie Control and Extender units can be found in Logic Pro 9 Dedicated Control Surface Support (Manual) which can be downloaded from:

http://www.apple.com/support/manuals/logicpro/

Logic Control screen



VIEW is selected automatically by the **GLOBAL** key to access the eight Global View select keys. It can also be selected manually if required. There are no tallies for the selected view. **VIEW** is an AWS function and not part of the MCU protocol.

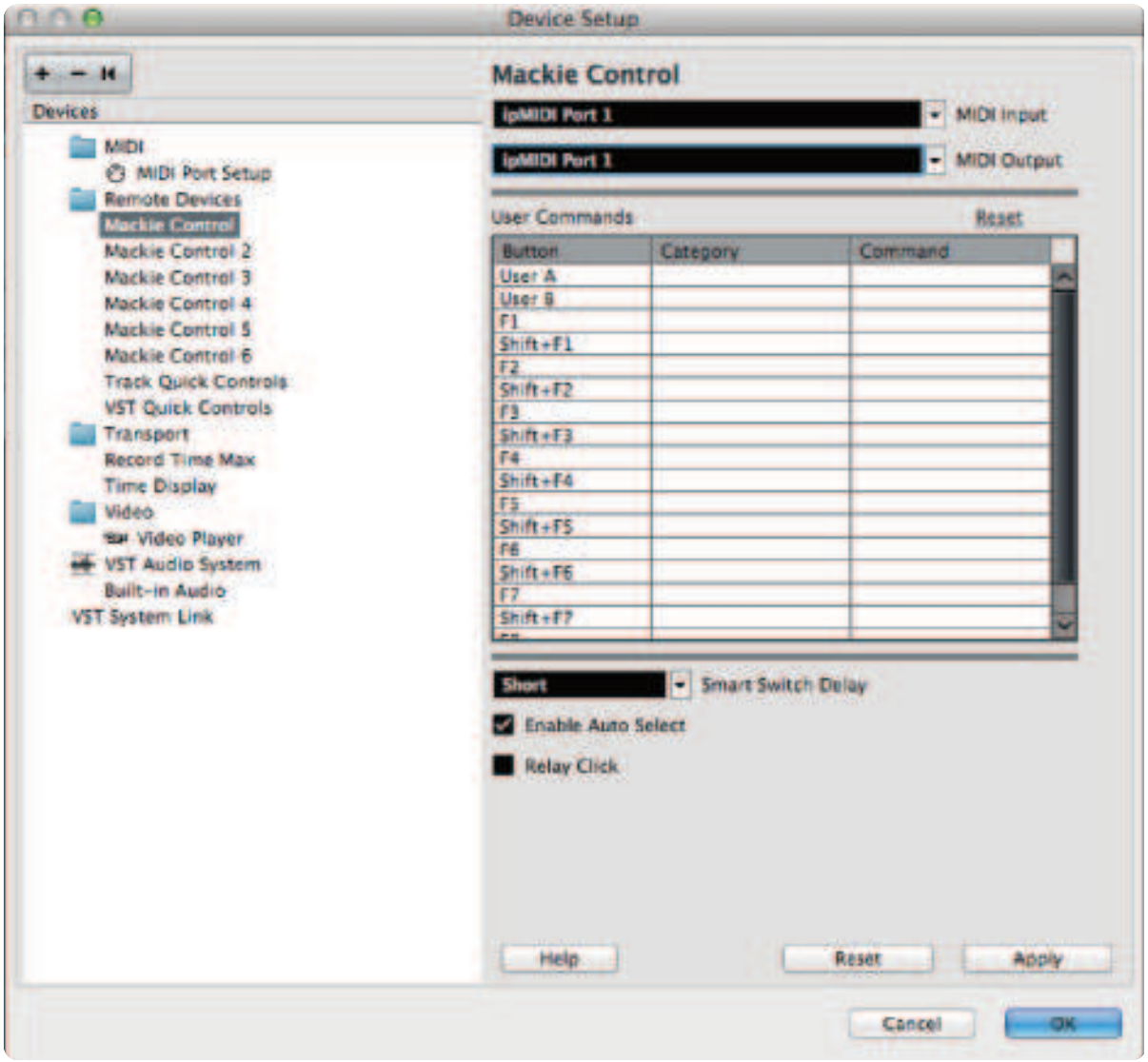


Fkys are the eight functions keys as on the HUI interface. These are also permanently mapped to the numeric keypad, which is not supported in the Mackie Control protocol.

A Solo tally is displayed in the on-screen Status area. This corresponds to the front panel LED on a MCU.

NUENDO/CUBASE TEMPLATE

As with the other templates the AWS emulates a Mackie Control Main unit plus two Mackie Control Extenders. MIDI Control surface assignment is set up in the Remote Device list. Nuendo does not have separate profiles for the Mackie Extender, so three *(two for the AWS 916)* Mackie Control units are entered in to the device list with the top most unit corresponding to AWS channels 17-24 and the other units mapped to the remaining channels in descending order.



NUENDO CONSOLE LAYOUT



The majority of Nuendo or Cubase functions are controlled via dedicated keys with virtually no reliance on the 8x8 key matrix located beneath the screen. Full details are available in the Mackie Control and Nuendo document available from the Nuendo download page.

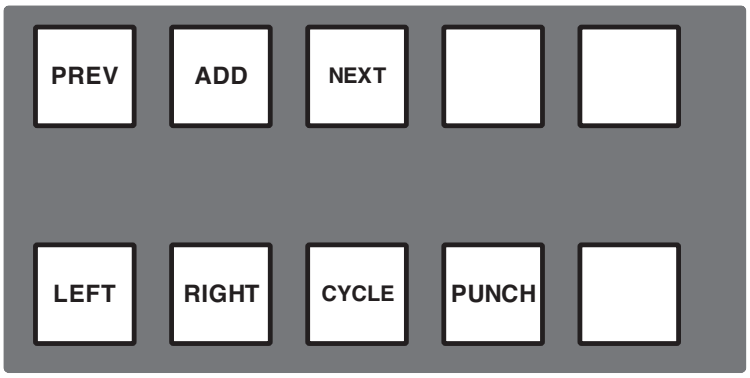
Major changes compared to the HUI front panel are the new control set for assigning processing parameters to the V-pots.

Up and down page keys for V-pot parameters are located with the Shift key block. The rotary encoder will also output the page up/down commands when turned left or right.

RDY and **SEL** control the function of the Channel **SEL** key as in the HUI interface. The **EDIT** key is used to open editing windows in Nuendo or Cubase for the current selection. **EDIT** together with **SHIFT** will close an active window.

CHANNEL is unchanged and assigns the AWS channel gain element or DAW channel to the V-pot according to the state of the Console Focus key. The Encoder switch is used to 'flip' parameters on to the faders as before but now includes all processing parameters not just send levels.

The Keys above the Motion controls are assigned to related transport functions as on the HUI interface.



The Cycle and Punch tallies are displayed in the status area of the TFT display.

Nuendo Control screen



Fkys are the eight functions keys. These are also mapped to the numeric keypad, which is not supported in Logic Control.



Grps are the eight Fader Group keys.



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916-924-948

OWNER'S MANUAL

SECTION 5
PROJECTS AND THE REMOTE BROWSER

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Section Contents

Section Contents 5-iii
Introduction 5-1

Configuring the AWS Remote 5-1
Installing the Application 5-1
A Note On Java 5-1

Connecting the Remote to the Console 5-2

Projects Tab 5-3
Project and Title Notes 5-3
Managing Projects 5-4
Creating a New Project *5-4*
Project Options Menu 5-4
New Title *5-4*
Duplicate *5-4*
Rename *5-4*
Deleting a Project *5-4*
Backing Up a Project *5-4*
Restoring a Project *5-4*
Managing Titles 5-5
Creating a Title *5-5*
Title Options Menu 5-5
Opening a Current Title *5-5*
Duplicating and Copying a Title *5-5*
Rename *5-6*
Deleting a Title *5-6*

The Mixes Tab 5-7

The Total Recall Tab 5-8

The Channels Tab 5-9

The Externals Tab 5-10

The About Tab 5-11

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PROJECTS AND THE REMOTE BROWSER

INTRODUCTION

The AWS Remote Browser is used to manage Projects and their associated files. It also allows renaming of mixes, TR setups, channel scribble strips and monitor external sources, and includes space for session notes.

The Remote software is a Java application that runs on both Mac and PC. Section 1 describes how to install the application and how to configure the network connection to the console.

Note that the network connection can also be used to connect MIDI data between console and computer, as also described in Section 1.

> *MIDI SysEx data. Mixes and TR Setups saved as MIDI SysEx dumps using earlier versions of software can be uploaded using either ipMIDI port 8 or MIDI port 4 (dependent on which MIDI system is enabled in the desk MISC>SETUP menu), then saved off as part of a new Project.*

CONFIGURING THE AWS REMOTE

First, download and install the AWS Remote application to the Mac or PC from which you intend to manage your AWS δelta.

Installing the Application

If you do not yet have the AWS Remote application for AWS δelta, you can download it from the SSL website here: AWS Downloads

> *Note that you must be registered to enter this area.*

The files are listed under **AWS Java Applications**. There are separate files for PC and Macintosh computers – the PC version is a .zip archive, so simply double click to unzip it; the Macintosh version is a .dmg file, which can be extracted by double clicking also.

A Note On Java

The AWS Remote application is Java based and compatible with Mac OS 10.4 and above and Windows 2000, XP and above.

If you do not have Java on your computer then please visit and download it from: www.java.com

The Remote requires Java Runtime Environment Version 5.0, or above.

The above URL will also verify your computer's currently installed Java environment.

The console normally expects to obtain an IP Address from a DHCP server. The computer and console should therefore be connected to a network with a DHCP server. If you wish to use a fixed IP address, go to **SSL** / **Misc** / **Net** and select the **Fixed** softkey. The fixed address can be changed using the terminal diagnostic port on the rear of the console. See Section 1 for details.

CONNECTING THE REMOTE TO THE CONSOLE

Double click on the Remote icon to run the software.

When the Remote first opens, it searches for an AWS console to control. If it finds one, it will automatically link to that console. This will be indicated by the **Status** at the bottom of the Remote window displaying a green '**AWS 924-948 SN XXXXX is online**' message (where SN XXX is the ID of the console).

The first time you run the software the status bar will display the message '**No AWS Found, click on Find**' in red. If the Remote cannot find the console it usually connects to, it will display '**AWS 924-948 SN XXXXX is offline**'.

- If this happens, check your connections and press  (in the bottom left corner of the Remote window) to bring up the **Find** pop-up and press the **Find** button in the top right-hand corner to rescan for consoles.
- When the Remote finds any consoles, they will appear in the pop-up. Check the **Select** box for the required console and click on **OK**.



The above screen images, and the ones on the following pages, are all also relevant to the AWS 916 console.

Once a connection has been made to the console, the green '**AWS 924-948 SN XXXXX is online**' message will appear in the **Status** field:



Once you have successfully connected to the console, the Remote pages will become populated with the current data stored on the console.

The tabs which will be visible allow you to do the following:

- **Projects** Change Project and Title names, add or edit info, and manage session data.
- **Mixes** Rename and delete Mix passes
- **Total Recall** Rename and delete Total Recall setups
- **Channels** Rename channel scribble strip displays
- **Externals** Rename EXT A and EXT B source names
- **About** Shows current software version of console and remote, links to the SSL website

PROJECTS TAB

After launching AWS δelta Remote the ***Projects*** tab will appear. All Projects are listed in the left ***Projects*** pane:



Clicking on the '**+**' (or '▶') sign to the left of any folder will expand the folder to show its contents. (Double-clicking on any folder name will also expand or collapse that folder). The folders are organised into sub-folders as follows:

- The top-level ***Projects*** folder contains all the individual *Projects* folders
  - Each individual ***Project folder*** may contain any number of *Title* folders
    - Each ***Title folder*** will contain TR data and Mix passes folders:
      - ***Total Recall***
      - ***Mix Passes***

Note that the projects list can be viewed either by Name or by Creation date.

PROJECT AND TITLE NOTES

The ***Notes*** area on the right-hand side of the ***Projects*** tab allows you to record your own data related to a particular session, including personnel and any other information. The top half records information related to the Project as a whole, whereas the bottom half records information related specifically to the Title currently loaded from that Project.

Any information typed here will be automatically saved as part of the Project and Title files. Renaming Projects and Titles overwrites any names you gave them using the ***Rename*** button. If you leave the Project and Title name boxes blank, the Remote will create its own names. The default naming system for a Project is simply '***Project n***' where '***n***' is the lowest number not used in this way. Similarly, Titles are simply named '***Title n***' where '***n***' is the lowest unused number within that Project folder.

When you have made your changes in the ***Notes*** area, press ***Save*** to save your changes.

Managing Projects

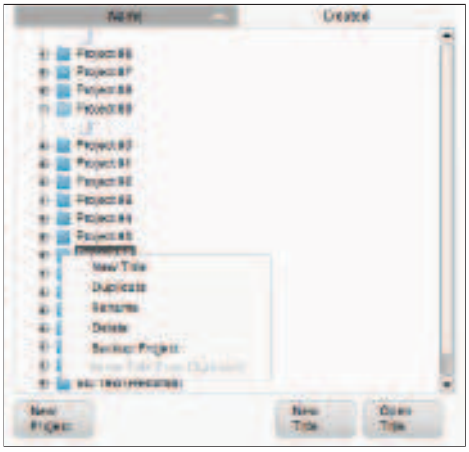
Creating a New Project



To create a new Project, simply press the ***New Project*** button in the bottom left-hand corner of the window.

The following window will appear asking you to name the Project and the first Title within that project.

Project Options Menu



With a project name highlighted, a right-click (or ctrl-click) will bring up the project options menu as shown:

New Title

This will create a new Title in the currently selected Project. Alternatively, simply press the ***New Title*** button beneath the Projects window.

Duplicate

A duplicate of the project, including any enclosed Titles, will appear beneath the Project, with a bracketed number e.g. (1) appended to the name. Subsequent duplicates will incrementally increase the bracketed number.

Rename



This option can be used to change the name of any Project, even if it is not the one that is currently open. Selecting ***Rename*** will produce the ***New Name*** pop-up. Type the new Project name, and click ***OK***.

For the currently open Project (and Title), you can always edit the names and other details in the ***Notes*** area in the right hand side of the AWS Remote window. Once you have finished, press ***Save*** (at the bottom of the window) to save your changes.

Pressing ***Undo*** will cancel any changes made and revert all entries to to their previous details.

Deleting a Project

To delete a Project, select ***Delete*** from the options list. Click ***OK*** in the confirmation pop-up to delete the Project.

Backing Up a Project

To back up a Project or export it for use in another AWS Remote, right-click (or ctrl-click) on the Project you wish to back up and select ***Backup Project***. In the pop-up which appears, edit the name and destination of the file, if necessary, and press ***Save***. Your Project will be exported as a ZIP file.

Restoring a Project



To restore a Project from back-up or import a Project created in another Duality Remote, right-click on the top-level Projects folder and select Restore Project. In the pop-up which appears, locate the Project zip file you wish to restore and press Open. The restored Project will appear in the main Projects folder, with its filename appended with '(Restored)' to distinguish it from any parent Project of the same name. You can now rename the Project as described below.

Please be aware that this action cannot be undone.

Managing Titles

Creating a Title

To create a new Title, simply press the ***New Title*** button and a new Title pop-up window will appear. This will create a new Title in the currently selected Project.

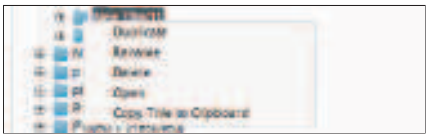


To create a new Title in a different Project, first open an existing Title in the desired Project using ***Open Title***, then click ***New Title***.



Title Options Menu

With a Title name highlighted, a right-click (or ctrl-click) will bring up the title options menu as shown:



Opening a Current Title

When Duality is turned on, it will automatically open the last loaded Title. To load a different Title onto Duality (and therefore into the rest of the Remote), highlight the required Title folder and press the ***Open Title*** button or select ***Open*** from the menu list.

The Current Title and its Project is displayed in the ***Notes*** pane of the ***Projects*** tab – and in the top and bottom banners of the Remote window. (It is also displayed in the soft key area of the console, when the ***SSL*** menu set is selected without any menus active.)

Once the Title is loaded, the Duality console will assume the channel names associated with that Title. You can now also edit session notes, and recall the Title's Total Recall snapshots, as described in the rest of this chapter.

> *Note that loading a song title into the Remote does not automatically recall a Total Recall snapshot onto the Duality control surface.*

Duplicating and Copying a Title

To copy the current title, select ***Duplicate***. A duplicate of the Title, including its Title Eyeconix icons, mix passes and Total Recall folders, will appear at the bottom of the same Project folder, with a bracketed number e.g. (1) appended to the Title Name indicating it is a duplicate. Subsequent duplicates will incrementally increase the bracketed number.

To copy a Title to a different Project simply drag the Title into the destination Project folder and click ***OK*** in the ***Confirm Copy*** pop-up. Alternatively, right-click (Mac: ctrl+click) on the Title folder and choose ***Copy Title to Clipboard***. Right-click on the destination Project folder and choose ***Paste (Title name) from clipboard***.



Title folders can be moved into other Project folders by dragging them onto the name of the Project to which you wish to move them. Press ***OK*** in the ***Confirm Copy*** pop-up which appears and a copy of the Title will appear in the new folder.



> ***Total Recall*** *files can be dragged and dropped into the* ***Total Recall*** *folders of other Titles, in which case they are automatically renamed '****TR n****' where '****n****' is the lowest unused TR number in the* ***Total Recall*** *folder.*

Rename

This option can be used to change the name of any Title, even if it is not the one that is currently open. Selecting ***Rename*** will produce the ***New Name*** pop-up. Type the new Title name, and click ***OK***.



For the currently open Title (and Project), you can always edit the names, and other details, in the ***Notes*** area in the right hand side of the AWS Remote window. Once you have finished, press ***Save*** (at the bottom of the window) to save your changes.



Pressing ***Undo*** will cancel any changes made and revert all entries to to their previous details.To name a Title, select the Title which you wish to rename, and make it the Current Title. You can now edit Title name and other details in the ***Notes*** area in the right hand side of the window. Once you have finished, press ***Save Notes*** (located below the ***Title*** area) to save your changes.

Deleting a Title

To delete a title, right-click (Mac: ctrl-click) on the Title folder and select ***Delete*** from the drop-down menu. Click ***OK*** in the ***Confirm Delete pop-up*** to delete the title.



Please be aware that this action cannot be undone.

AWS 948 TRANSFER COMPATABILITY

Note that when loading Titles created on an AWS 900 or 916-924 onto a 948, the automation is applied to both sides of a stereo channel. In In-Line modes, automation is applied to the primary channel path, and the secondary channel path drops into Manual.

Total Recall Auto Scan will not work on these titles as it will find uncorrectable mismatches between setups.

The Mixes Tab



The **Mixes** tab will show you a list of all current mix passes associated with your current project.

> *The Mixes tab refers to Legacy mixes only, δ-Control mixes are saved in the DAW.*

To rename one of your Mix passes, highlight the one which you would wish to change and press the **Rename Mix** button. Type a new name in the pop-up which appears and press **OK**.

To delete a Mix Pass, highlight the one which you would like to delete and press the **Delete Mix** button, then click **OK** in the warning pop-up which appears.

> *Note that ranges of entries can be selected for renaming or deleting together – select the first entry, then hold shift and select the last entry. Rename or delete confirmation pop-ups will appear for each entry in turn.*

THE TOTAL RECALL TAB



The **Total Recall** tab will show you all Total Recall setups for your current project.

If you would like to rename one of your Total Recall setups, highlight the one which you would wish to change and press the **Rename Setup** button.

If you would like to delete a Total Recall set up, highlight the one which you would like to delete and press the **Delete Setup** button.

> *Note that ranges of entries can be selected for renaming or deleting together – select the first entry, then hold shift and select the last entry. Rename or delete confirmation pop-ups will appear for each entry in turn.*

THE CHANNELS TAB



The **Channels** tab allows you to enter names for the AWS console channel scribble strips.

> *AWS 916 and the AWS 924 consoles will only display one row of channel labels in the **Channels** tab.*

To change a Channel name, click on the desired field and type the desired name (to a maximum of 8 characters).

It is also possible to clear all channel names by pressing the **Clear Names** button. You can reset them to the default numbered layout by pressing the **Reset Names** button.

Furthermore you can use your computer keyboard's 'TAB', 'SHIFT' and navigation arrows to move within and between the fields.

The channel names are stored as part of each project, so loading a different project will automatically reset the channel scribble strips to the stored set of names.

THE EXTERNALS TAB



The **Externals** tab allows you to rename the External sources (Ext A + Ext B). These will appear on your console's monitor section.

To rename a source simply click on the desired field and enter your prefered name (to a maximum of 4 characters).

Furthermore you can use your computer keyboard's 'TAB', 'SHIFT' and navigation arrows to browse the fields.

> *External names are stored in the console in non-volatile RAM so they are retained after restarting or powering off. Also note that External names are not project-specific*

The About Tab



The **About** tab shows the current software versions of both console and browser and provides links to the SSL Support, FAQ's, Downloads and Registration areas of the SSL website.

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916-924-948

OWNER'S MANUAL

SECTION 6
TOTAL RECALL

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Section Contents

Section Contents **6-III**

Overview 6-1

Accessing Total Recall 6-1

Selecting TR Setups **6-3**

Changing the selected setup 6-3

Matching the Console to the TR **6-5**

Display Overview 6-5

Correcting controls *6-5*

Auto Scan *6-5*

The Channel Display 6-6

Setting soft switches *6-6*

Copying and Swapping settings between channels *6-6*

Centre section displays 6-7

Compressor and Foldback *6-7*

Dynamics and Bus Masters *6-7*

Stereo Returns *6-7*

Additional TR Functions **6-9**

Storing setups 6-9

Deleting Setups 6-9

Restoring Legacy MIDI Setups from a Mac or PC 6-9

Total Recall via Logictivity **6-11**

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TOTAL RECALL

Overview

The AWS Total Recall system uses the inboard TFT screen to give a graphical display of current and stored control settings of all rotary controls, faders and switches on the AWS channel and centre section modules. Controls that are in different positions from the stored values are highlighted in white (faders and rotary controls) or yellow (switches). To provide maximum clarity rotary controls are shown as horizontal sliders and switches as boxes.

Electronically latched switches ('soft' switches) in the channel strips, such as routing, EQ, Insert, Dynamics and Cut switches, can be reset to match the stored setup with a double-press on the **fader** switch.

Stored setups can be copied or swapped between channels by holding down the **fader** switch on the source channel then pressing the **fader** switch on the destination channel. If the **Copy** switch is selected the source channel settings are copied to the destination channel: if not the source and destination channel settings are swapped. See Page 6-6.

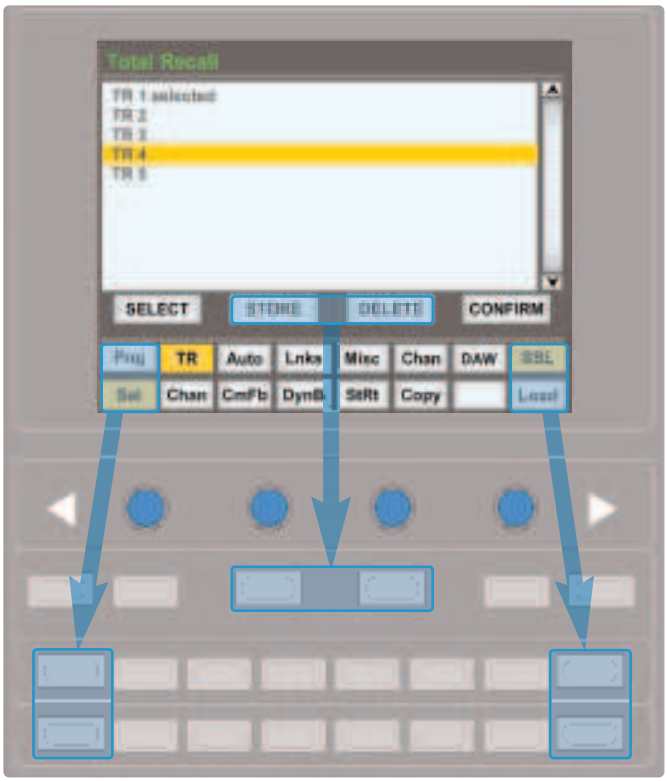
For legacy purposes, data saved as a MIDI SysEx file can also be loaded to the AWS by playing through a MIDI SysEx track. See Page 6-9 for more details.

> *Please Note: When enabling Total Recall to recall a snapshot, we advise disabling Delta Control automation on the console. This can be done from the **SSL MENU** > **AUTO** option, ensuring **ENABLE** is not illuminated.*

Accessing Total Recall

Total Recall is accessed using the TFT screen and the soft keys beneath it. The 16 boxes at the base of the screen indicate the functions assigned to the 16 buttons in two rows of eight below the screen. The four boxes above them indicate the functions assigned to the central four buttons in the row of six. Note that the two outside buttons are used for scrolling left and right, where relevant.

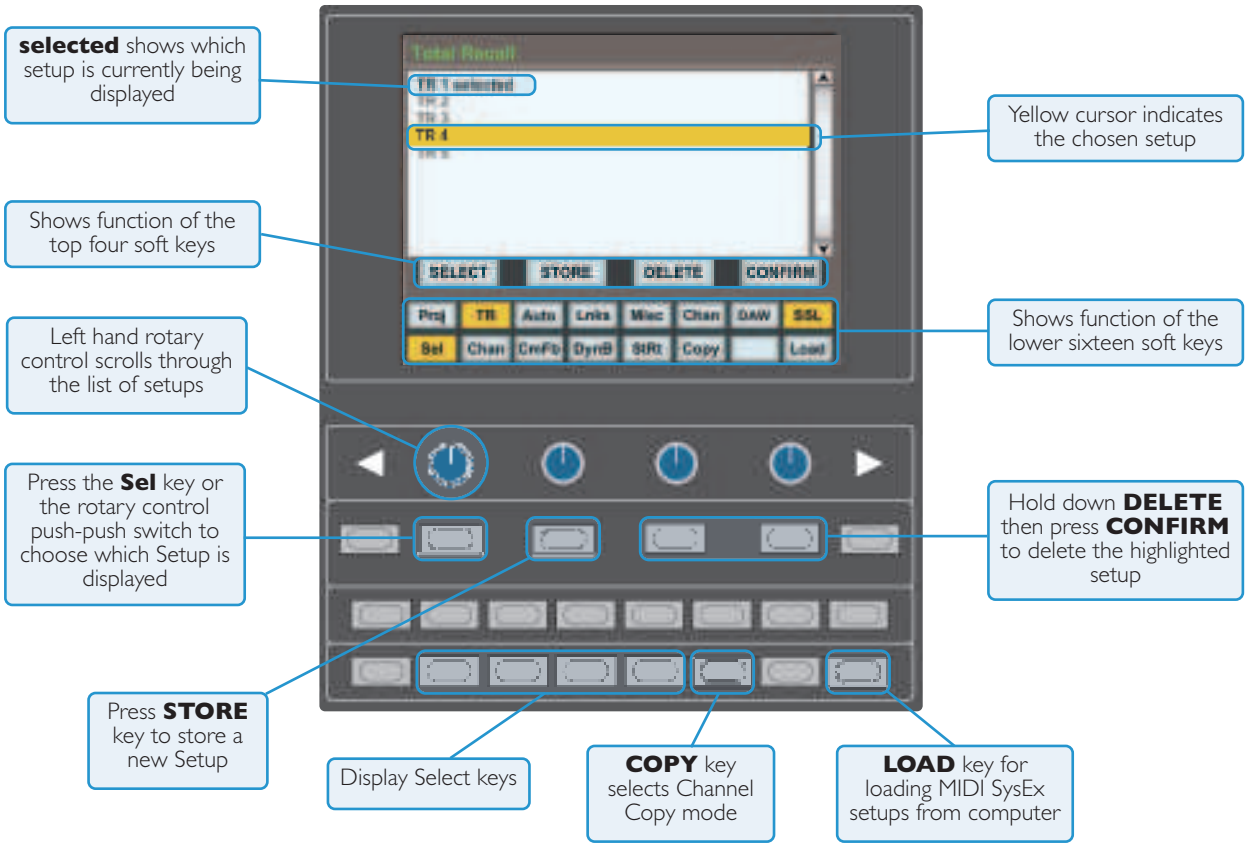
Use the soft keys to select **SSL** then **TR** to access the main Total Recall menu.



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SELECTING TR SETUPS

The **Sel** menu is the main file menu for the Total Recall system. The main window shows a list of stored setups. The setup which is being displayed has the word 'selected' next to it.



CHANGING THE SELECTED SETUP

The left hand rotary control can be used to scroll through the list of TR setups. A yellow cursor indicates which setup is currently chosen to be modified. Either the **SELECT** soft key or the rotary encoder's push-push switch can be used to select the highlighted setup for display. The 'selected' message will appear next to the setup to indicate that it is being displayed.

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Matching the Console to the TR

Display Overview

There are four Total Recall display pages. These are selected using the four soft keys to the right of the **Sel** button: **Chan** for the channel strips, **CmFb** for the bus compressor, foldback busses and main faders, **DynB** for the dynamics, track busses and cue/FX busses, and **StRt** for the stereo returns.

In each screen, the controls within each section match the layout and colour scheme of the controls on the console. A small amount of trial and error may be involved in familiarising yourself with the layout of the displays.

Controls that are in different positions from the stored values are highlighted in white (faders and rotary controls) or yellow (switches). To provide maximum clarity rotary controls are shown as horizontal sliders and switches as boxes.

> *The VGA output on the back of the console allows the displays to be viewed on a larger external monitor, making them easier to discern. See Section 1 for details.*

Correcting Controls

While all soft controls can be reset automatically within the procedure, all latching switches and pots must be reset manually. Pots are corrected by moving the control until its white line in the display matches its corresponding coloured line in the display.

> *Not usable with the SEL menu selected.*

Auto Scan

Pressing the **Scan** soft key will scan all channels, starting with Channel 1 and moving right, until a discrepancy is found. The red **fader** LED on the channel with the discrepancies will light and its channel controls will be displayed in the TFT screen.

Once the control positions have been corrected, the **fader** LED will go green and the scan will continue until it finds another channel with discrepancies, moving on to the centre section displays. When the display returns to Channel 1, the auto scan is complete.

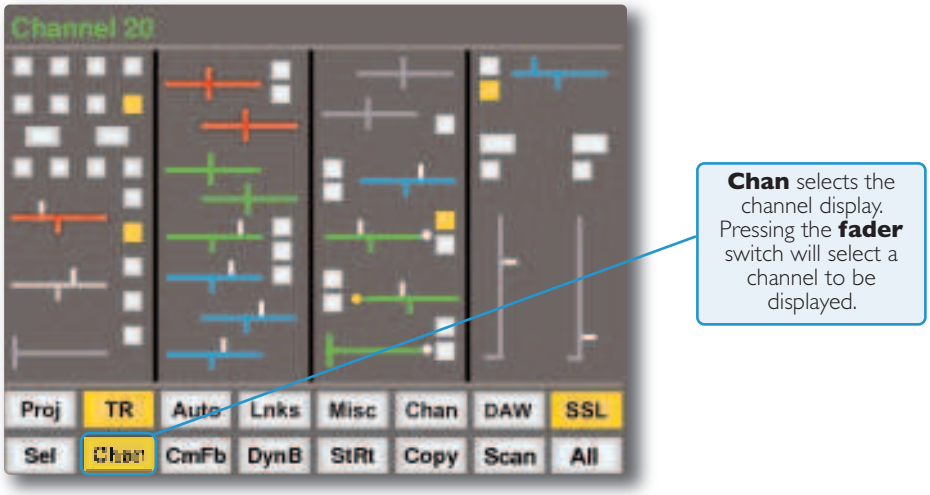
> *The console must be in Analogue Focus mode (Focus key illuminated) when resetting a TR.*

> *Not usable with the SEL menu selected.*

> *Note also that when importing older AWS projects, TR elements which cannot be matched will prevent Auto Scan from working properly.*

The Channel Display

The **Chan** page presents a graphical display all of the controls within the channel.



The large switch above each fader (bottom right-hand corner) refers to the status of the channel's cut button, and the smaller switch refers to the solo-isolate function.

AWS 948

The two fader displays refer to the two channel paths. In Mix In-line mode, the primary channel path is on the left and the secondary path on the right, regardless of whether or not the fader and V-pot have been swapped. In Track In-line mode, the fader displays are always the other way round.

Setting soft switches

A double press on the **fader** switch (beside the channel fader) will reset all the non-latching switches in the channel strip. These are:

- Track bus routing switches
- Dynamics assignment and routing switches
- Mic/line selection
- EQ and Insert IN switches
- Aux on/off and EFX reassign switches
- REC and MIX bus assignment
- Cut switches
- Solo Isolate
- Fader position

AWS 948

In addition:

- The V-pot position (see above)
- Processing and Aux assignments
- CUE
- The Return switch and the Channel Mode (In-line Mix, In-line Track or Stereo)

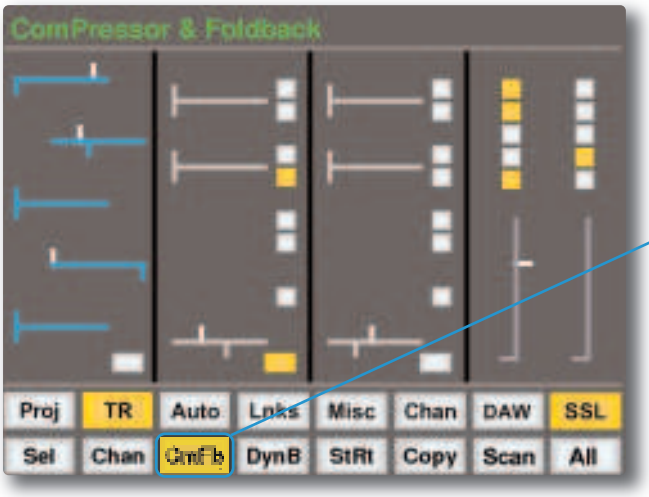
If you are confident that all of the soft switches in all of the channels can be reset to the TR position, double-tap on the **All** softkey.

Copying and Swapping settings between channels

Stored setups can be copied or swapped between channels by holding down the **fader** switch on the source channel then pressing the **fader** switch on the destination channel. If the **Copy** soft key is selected the source channel settings are copied to the destination channel: if not, the source and destination channel settings are swapped.

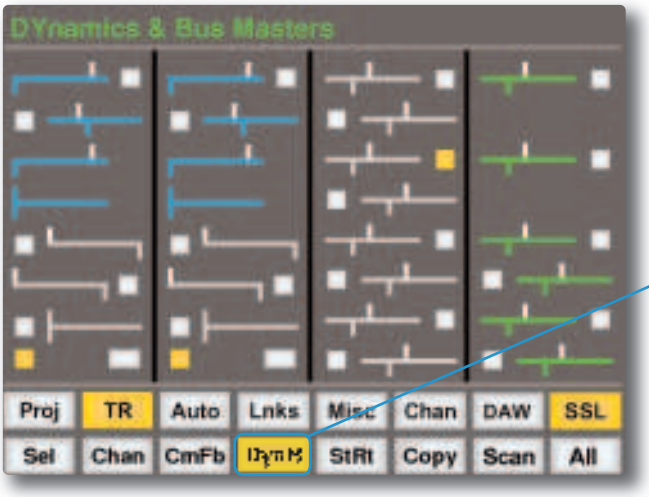
Centre Section Displays

Compressor and Foldback



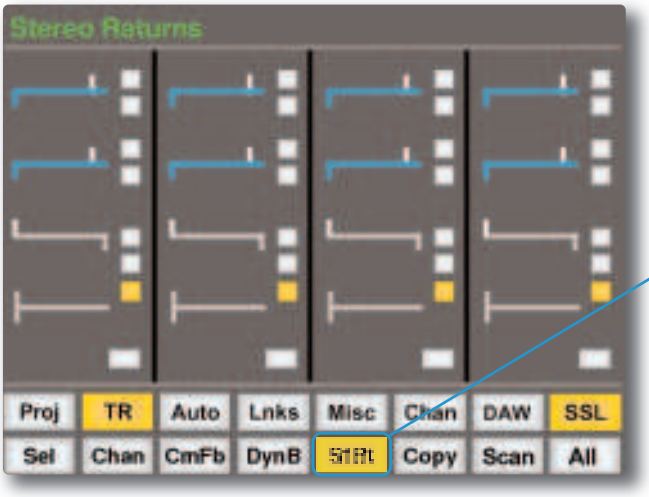
Pressing **CmFb** or pressing the master fader switch will display the centre section compressor, the master fader and foldback sections.
A double press on the fader switch will reset the REC and MIX fader positions and the REC and MIX processing switches.

Dynamics and Bus Masters



DynB displays the mono dynamics sections and the track and bus masters.

Stereo Returns



StRt displays the four stereo returns.

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Additional TR Functions

Storing setups

Setups can be stored at any time using the **STORE** soft key. This saves the current desk setup to the current title on the SD memory card.

> *Setups can be renamed from the AWS Remote – see page 6-11*

New setups are numbered starting at '1'. If a setup is deleted (see below) then its number will not be re-used. The only exception to this is if all setups are deleted. The numbering will then restart from '1'.

Deleting Setups

Setups can be deleted from memory by highlighting the setup up you wish to delete, holding down the **DELETE** soft key and pressing the **CONFIRM** soft key.

Restoring Legacy MIDI Setups from a Mac or PC

For legacy purposes, it is possible to load setups which have been saved via a MIDI SysEx dump. The AWS uses MIDI port 4, or ipMIDI port 8, for loading mixes.

- Locate the DAW to just before the SysEx data containing the setups you wish to load.
- Press the **Load** soft key.
- Play through the SysEx block of data. As soon as the AWS detects the start of valid data it will delete all the current setups and replace them with the stored ones from the MIDI track.
- The restored Setups can now be saved as part of a console Project using the AWS Remote - see Section 5 for more details.

> *Because the Load process replaces your current setups with the ones stored on your Mac or PC you should check you have saved any setups you wish to keep before loading new ones.*

> *Note that when importing older AWS projects, TR elements which cannot be matched will prevent Auto Scan from working properly.*

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TOTAL RECALL VIA LOGICTIVITY



Refer to Section 5 for further details on the Logictivity browser.

The **Total Recall** tab will show you all Total Recall setups for your current project.

If you would like to rename one of your Total Recall setups, highlight the one which you would wish to change and press the **Rename Setup** button.

If you would like to delete a Total Recall set up, highlight the one which you would like to delete and press the **Delete Setup** button.

Note that ranges of entries can be selected for renaming or deleting together – select the first entry, then hold shift and select the last entry. Rename or delete confirmation pop-ups will appear for each entry in turn.

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Solid State Logic

SOUND || VISION

AWS δelta

916-924-948

OWNER'S MANUAL

SECTION 7
AUTOMATION

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Section Contents

δ-Control Automation

Overview 7-1
The δ-Control Advantage 7-1
Console Basics 7-2
δ-Control Basics 7-3
δ-Ctrl 24 Plugin vs δ-Ctrl Single Plugin 7-3
The δ-Ctrl Plugin 7-4
Installing the δ-Ctrl Plugin (Macintosh) 7-4
Installing the δ-Ctrl Plugin (Windows) 7-4
Workstation Setup – Pro Tools 7-5
Workstation Setup – Logic 7-5
The δ-Ctrl Single Plugin GUI 7-6
The δ-Ctrl 24 Plugin GUI 7-7
Mix Setup Workflow δ-Ctrl Single Plugin 7-8
Mix Setup Workflow δ-Ctrl 24 Plugin 7-9
Mix Set Up 7-10
Writing Fader Mix data 7-10
Revise and Join 7-11
SNAP 7-11
TRIM 7-11
Fader Links 7-13
Viewing Links 7-13
Suspending Links 7-13
Deleting Links 7-13
Switch Automation 7-13
Write to Start, End or All 7-15

Legacy Console Automation

Key features 7-17
Quick Guides 7-17
Activating the Automation System 7-20
List Mix Menu 7-20
Creating A New Mix Pass 7-21
Discard 7-24
Updating a Mix Pass 7-24
Cut Automation 7-25
Summary of fader status and FSM functions: 7-27
Trim 7-28
TLock 7-29
Motors Off 7-29
Snap Mode 7-30
AutoTakeover 7-30
Copy and Swap 7-30
Deleting Mix Passes from the Console 7-30

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δ-Control Automation

Overview

δ-Ctrl is a native AAX/RTAS/VST/VST3/AU plugin that allows the user to automate their AWS console, as if it were a DAW plugin.

The automation engine in the DAW is used to record and playback control data from the faders and switches on the console replacing the internal time-code based automation system. The δ-Ctrl plugin is inserted into a DAW mixer channel, which then receives and sends control data from an assigned AWS channel or master fader via a high-speed network connection. Any associated audio on the track is unaffected and passes through the plugin slot unprocessed.

The fader, mutes and other channel switched functions are represented as plugin parameters and will have automation data saved in the associated plugin track automation playlist. Desk object data together with associated automation record enable commands are streamed via the same network connection that carries ipMidi and the Logictivity Browser messages using the proprietary SSL Logictivity Network protocol. The plugin decodes the messages and converts them to conventional plugin parameter values, which can be saved as automation streams in the DAW track. In Automation Playback the plugin routes the stored automation data from the DAW automation playlists back to the console via the Logictivity Network connection.

These automation playlists can be viewed and edited as normal plugin data in the DAW tracks and will be saved alongside the rest of the session data. The plugin's data values are expressed in dB units for faders or as text for switches, which relate directly to the parameter being controlled when automation moves are viewed in the track automation lanes for editing. The AWS fader Absolute and Trim values are saved using the same dB law as Pro Tools Fader automation so that the 'Paste Special' command can be used to copy existing Pro Tools fader data into the plugin. *(This feature is DAW specific and may not necessarily be available with other systems.)*

> *Please Note: When enabling Total Recall to recall a snapshot, we advise disabling Delta Control automation on the console. This can be done from the* ***SSL MENU*** *>* ***AUTO*** *option, ensuring* ***ENABLE*** *is not illuminated.*

The δ-Control Advantage

- All fader moves are captured and played with the same accuracy as any other DAW automation parameter – moves are no longer quantised to Timecode frames and subframes
- True 10-bit fader resolution
- TCP/IP Network based control protocol – not embedded MIDI messages
- Console Automation data automatically tracks all DAW audio editing operations
- DAW editing tools can be used to draw and edit console fader and switch automation data
- Console automated objects are automatically reset when a DAW project is loaded
- All Trim moves are relative to a fixed Null point matching Pro Tools HD workflow
- Fader Trim automation does not require the purchase of HD software or hardware
- Full implementation of SSL Signature Mix System features such as JOIN, REVISE, MOTORS OFF and SNAP Override bypassing having to use the DAW automation menu
- MOTORS OFF mode offers the full non moving-fader SSL VCA-style mix experience as preferred by key industry re-mixers
- New MOTORS OFF, Touch Write mode emulates the SSL G-Series Mix system Immediate Pickup (IP) option
- Automatic null Fader positioning when Trim mode enabled regardless of MOTORS ON/OFF Mode
- On screen display of the DAW timeline counter in the centre section δ-Control automation menu
- Channel and Master Fader level bargraph displays on automation display screen

In AWS δelta the following channel parameters are automated:

- Channel level Absolute *(plus secondary path on AWS δelta 948)*
- Channel level Trim *(plus secondary path on AWS δelta 948)*
- Channel Mute *(plus secondary path on AWS δelta 948)*
- EQ In/Out
- INSERT In/Out, FX 1 & 2 On/Off
- STEREO CUE On/Off
- Mix and Record Master faders can also be automated via the plugin

Console Basics

With AWS V5 software, δ-Control is now the default automation option. The original timecode-based automation system is still included and can be re-enabled via the ***Misc*** / ***Setup*** menu, if required – but note that the console will require a restart. AFADA automation, although still supported, is unlikely to be used given the additional flexibility offered by δ-Control. Existing AFADA mixes can easily be converted into δ-Control data – see Appendix 1 for additional information.

As with the original SSL automation system, the channel fader Status keys and fader touch-sense still activate the Pro Tools Automation Write function via the plugin, with the red and green Status LEDs indicating whether the main Volume (absolute) or Trim automation playlists are in Write mode.

When the ***SSL*** / ***Auto*** menu has been selected, the channel fader and master fader levels are displayed on the small screen in the centre section above the softkey labels.

The small screen ***Console*** / ***Auto*** menu contains the user controls for the δ-Control mix system as well as a large MIDI timecode display. This can be enabled or disabled from the ***Misc*** / ***Setup*** menu and receives MTC and MMC messages via ipMIDI channel 7.

Two of the four large keys below the screen are used to enable automation and to preselect the New Mix mode. The other two large keys activate the ***JOIN*** and ***REVISE*** functions when available.

A further five keys in the lower row of the 8x8 soft key matrix select the various automation mode functions. Most of these replicate the standard SSL mix system functionality from the original timecode based system, such as SNAP, TRIM and MOTORS OFF.

δ-Control Basics

δ-Control is optimized to work with the Pro Tools Automation *Touch* mode or similar DAW variant. Other update modes, such as *Latch*, can be emulated with δ-Control without having to change the DAW automation mode. Additionally, there are equivalents to certain global HD-only automation features such as capture/punch without having to use the Pro Tools automation menus.

δ-Control also offers a Trim playlist for the console faders even without Pro Tools HD.

A plugin channel can be 'dropped' into Write mode either from the desk fader automation status keys or by using the fader touch sensor – this is indicated by the Automation Status LED illuminating red for Absolute data and green for Trim data. (These indications are independent of the actual automation status of the track into which the plugin has been inserted and may not reflect actual write status until the preferred Pro Tools automation mode, Touch, has been selected.)

> *It is feasible to use the Pro Tools Write and Latch modes but desk fader status indicators will indicate only that the fader has been touched or the write status command to the plugin is active.*

δ-Ctrl 24 Plugin vs δ-Ctrl Single Plugin

δ-Ctrl single plugin is the original plugin designed for Duality and AWS automation systems; an individual plugin for each channel of the console.

δ-Ctrl 24 plugin was designed to contain automation for all 48 faders (24 channel, 24 monitor), trim, and switch parameters for AWS within one plugin instance.

Benefits of δ-Ctrl single plugin

- The ability to enable/disable automation modes on individual channels of AWS (when you write to one channel, the other channel can be in read/off mode).
- Easy to switch plugin to automate Sigma/Duality channels

Benefits of δ-Ctrl 24 plugin

- Quicker to set up your session for automation
- Works within the control parameters set by Logic Pro software
- Simpler workflow based around DAW automation system

The δ-Ctrl 24 plugin has a separate installer to the 'Single' plugin – both of which can be found in your SSL account under **My Products** > **AWS 'Downloads**. Run the installer of your preferred plugin (or both) and follow the process described in the next chapter.

> *The δ-Ctrl 24 plugin and the δ-Ctrl Single plugin both work with the same 'SSL Delta Plugin' iLok license.*

The δ-Ctrl Plugin

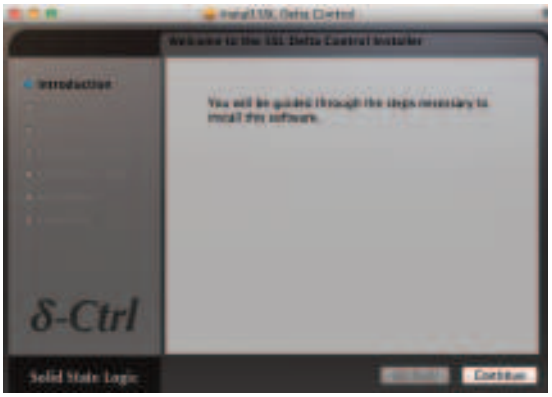
Before mixing with δ-Control the δ-Ctrl plugin will need to be installed onto your workstation computer.

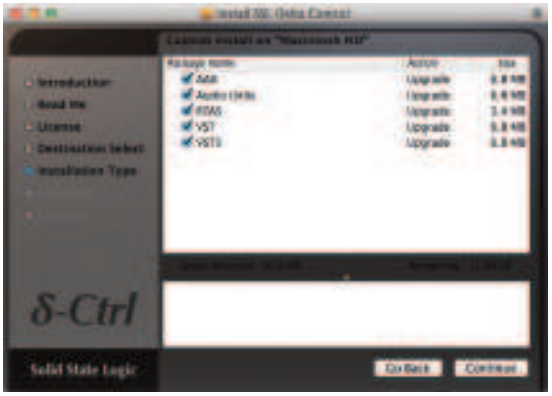
Download on to your workstation computer either the *SSL Delta Control.dmg* disk image (Macintosh) or the *SSL Delta Control Setup.zip* file (Windows).

These files can be downloaded from your SSL account on the website: www.solidstatelogic.com

Installing the δ-Ctrl Plugin (Macintosh)

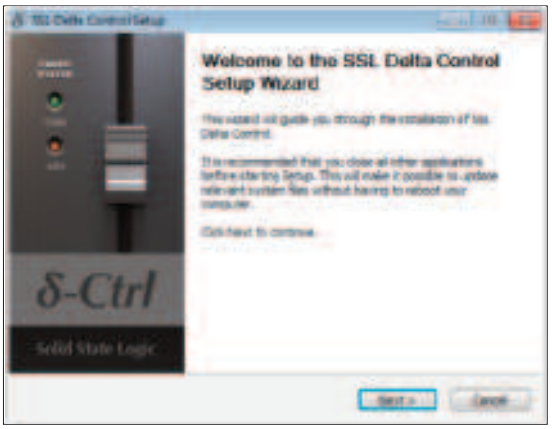
Open the disk image and mount the *SSL Delta Control Plug-in.pkg*; follow the installation steps as shown below.

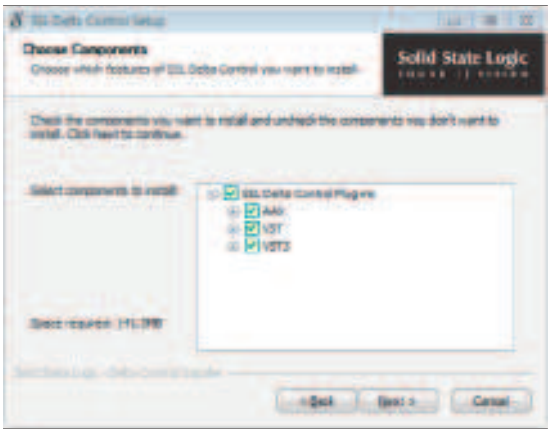




Installing the δ-Ctrl Plugin (Windows)

Open the zip file and run the *SSL Delta Control Setup.exe* file; follow the installation steps as shown below.





Workstation Setup – Pro Tools

Before mixing with the plugin the following options should be enabled in the Pro Tools ***Setup*** / ***Preferences*** / ***Mixing*** menu :

1. Plugin Controls Default to ***Auto-Enabled*** – *Otherwise the parameters will need to be manually enabled for automation from each individual plugin window either manually or using the Command-Option-Control-click (MAC) or Control-Alt-Start-click (PC) short cut.*
2. Latching Behaviour for Switch Controls in ***Touch*** – *This ensure that console switch automation is recorded correctly when the track automation mode is set to Touch.*
3. Set the SSL δ-Ctrl plugin as a ***Favourite*** by Command-click (Mac) or Control-click (PC) the ***Insert Selector*** and then selecting the SSL plugin from the ***Other*** category. It will then appear at the top of the Insert Selector pop-up menu for fast access.

If the desk small screen timecode display is required:

1. In the ***Setup*** / ***Peripherals*** / ***Synchronization*** menu set ***MTC Generator port*** to ipMIDI channel ***7***
2. In the ***Setup*** / ***Peripherals*** / ***Machine Control*** menu enable ***MIDI Machine Control(Master)*** and set the port to ipMIDI channel ***7***.

For the MMC Locate message to update the desk timecode readout the following options should be enabled in the Pro Tools ***Setup*** / ***Preferences*** / ***Synchronization*** menu:

1. Machine Chases Memory Location.
2. Machine follows Edit Insertion/Scrub.

Workstation Setup – Logic

Before mixing with the plugin, the following options should be enabled in the Logic Pro X>Preferences>Automation menu.

1. ***Write automation for:*** the plugin option should be ticked. *This enables all parameters of the delta plugin for automation.*

2. If using Logic 10.1 or over, go to ***Logic Pro X*** / ***Preferences*** / ***Plug-in Manager***. Locate the δ-Ctrl plugin under ***Manufacturers*** in the left hand pane. Drag and drop the δ-Ctrl plugin on the ***Top Level*** item in the left hand pane. When you go to enter an Audio FX unit on a track, the plugin will appear at the top of the list for quicker entry.

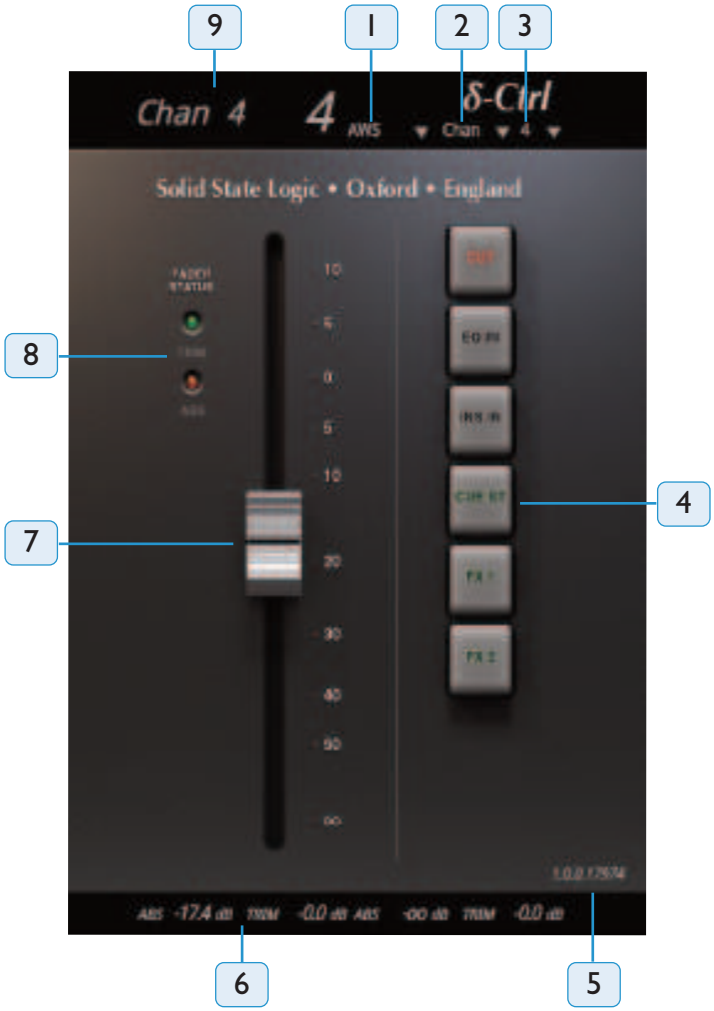
If the desk small screen timecode is required:

1. In the ***File*** / ***Project Settings*** / ***Synchronisation*** / ***MIDI*** menu, enable ***Transmit MTC***, and set the port to 'ipMIDI port 7'.

2. Enable the ***Transmit MMC*** option.

3. Go to the ***MIDI Sync Preferences***, and ensure the ***MMC uses*** option is set to ***MMC Standard Messages***.

The δ-Ctrl Single Plugin GUI



1 ***Console Type*** (Drop-down menu)

2 ***Console Object*** (Drop-down menu): Channel, Group or Bus

3 ***Console Object Number*** (Drop-down menu). Control Click to enable/disable the Auto Increment feature. *Object number is greyed out when active*

4 ***Assigned Console Object Switches*** – Indicates the current switch state. Click on the switch to toggle console state and to write automation

5 ***plugin software revision***

6 ***Fader Levels*** for ABS and Trim in dB

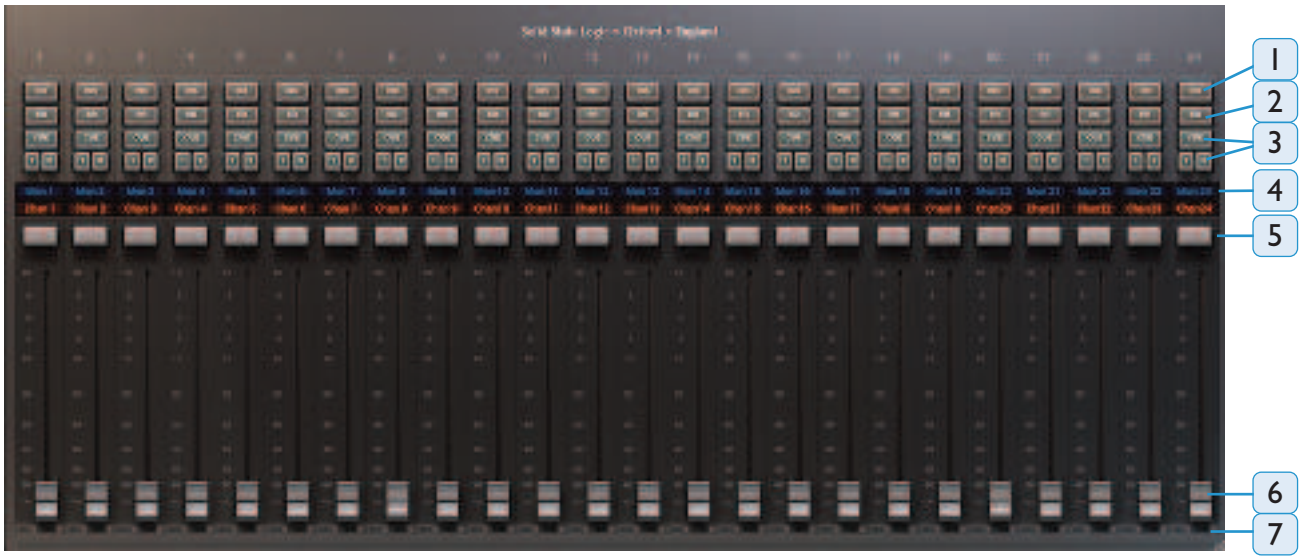
7 ***Fader*** – Click on Fader to change level. Double click to set to 0dB. Fader knob will change to gold if Trim mode has been enabled

8 ***Fader Status*** – Indicates status of corresponding LEDs on the console fader strips

9 ***Channel label*** – as displayed on the console scribble strips

The main function of the plugin GUI is to assign the console channel object to the plugin. Mixing with δ-Control does not normally require use of the GUI. It is primarily for object status display.

The δ-Ctrl 24 Plugin GUI



1 ***Insert Switch*** – Indicates the channel insert switch position. Click on switch to toggle.

Note for 948 users: when using In-line modes, this switch will alternate between Chan INS and Mon INS depending on the focus of the hardware fader (long fader and short fader).

2 ***EQ Switch*** – Indicates channel EQ switch position. Click on switch to toggle.

3 ***Cue*** and ***FX Send Switches*** – Indicates Cue stereo, FX1 and FX2 (or FX3/4) on/off positions. Click on switches to toggle.

4 ***Channel Label*** – names as displayed on the console; blue text indicates the Monitor path, orange text represents the Channel path. These displays will 'light up' when a parameter is automated, and switch to show dB values when faders are moved.

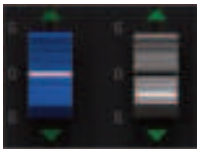
5 ***Cut Switch*** – Indicates the Cut switch state. Click on the switch to toggle.

Note for 948 users: when using In-line modes, this switch will alternate between Chan cut and Mon cut depending on the focus of the hardware fader (long fader and short fader).

6 ***Fader*** – click on fader to change level. Double click to set to 0dB.



Trim modes: When automating trim level on a channel, two arrows will appear above and below the fader.



948 users: When using in-line modes, this fader cap will alternate between white (channel level) and blue (monitor level) depending on the focus of the hardware fader (long fader and short fader). This fader cap change also applies when automating trim on either path (as shown left).

7 ***Fader Write Status*** – activated by clicking on the fader, or when a fader on the AWS has been touched.



When automating the fader level (absolute automation), the red status light next to 'ABS' turns on. When automating the trim, the green status light next to 'TRIM' turns on.

Mix Setup Workflow δ-Ctrl Single Plugin

For each console channel or Bus master that will be automated, an associated δ-Ctrl plugin needs to be inserted into a track in the Pro Tools session. In the case of channels, the plugin would normally be inserted in the track feeding the channel input as this means that all console automation will follow any subsequent track edits. For Bus Masters, dedicated additional Aux tracks that contain multiple plugins could be used.

> *! Please note that the AU single plugin will only appear as a mix bus fader in Logic Pro due to the control parameters set by Logic software.*

Once a plugin has been inserted into a track, it needs to be assigned to a desk object. This is done from the three drop down menu lists at the top of the plugin.



1. The first menu selects the console type
2. The second menu is the Desk Object type: Channel or Bus (Masters)
3. The third list contains Object Numbers, or Letters in the case of AWS Master buses

To simplify this process the plugin has an auto increment channel number feature (*auto-inc*). This is enabled by a control-click on the drop down object number list.



With *auto-inc* enabled, after the first plugin has been assigned to a channel, subsequent plugins are automatically inserted into the next higher channel number in the list. (The Object Number drop down list selector will be greyed out when *auto-inc* is active. The feature is turned off with a second control-click command.) The plugin connects to the console when Automation is enabled from the small screen ***SSL*** / ***Auto*** menu using the large ***ENABLE*** key. This is indicated in the plugin GUI by the desk channel name being displayed to left of the channel number – additionally, the channel number and console type will no longer be greyed-out.



> *! Please note that the Pro Tools ALT-Drag short cut to copy a plugin from one track to another should NOT be used as this causes communication errors between the plugin and the desk because the plugins will have the same object information. To insert plugins on multiple tracks use only the 'auto-inc' feature described above.*

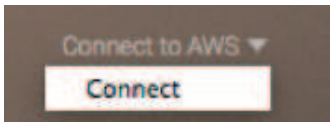
The default state of the plugin is: all switches off, the absolute value of the fader at ∞ and the trim gain at 0 dB.

These are the initial breakpoints stored in the track automation playlists in Pro Tools. When the δ-Control mix system is enabled channels assigned to plugins will be reset to the values stored in the playlists, which if no mix data has been saved, will be the default settings.

> ***Tip: A quick way to add multiple δelta plugins:***
>
> *1 Shift-select the range of DAW channels you wish to add δelta plugins to.*
> *2. ALT-click on an insert that is empty in each of these DAW channels, and select the SSL δelta Control plugin from the drop-down list.*
> *3. Go back to the first δelta Control plugin and assign to Channel 1, then CTRL-click on the channel number assignment menu (activates auto-increment feature).*
> *4. Simply click on each δelta Control plugin insert with the mouse and each plugin will become active.*

Mix Setup Workflow δ-Ctrl 24 Plugin

Insert the δ-Ctrl 24 plugin on any track in the DAW session. Enable δelta automation on the console from the **SSL** > **Auto** menu. Pressing 'New Mix' followed by 'Enable' will push all fader levels and switch statuses from the console into the DAW. Pressing 'Enable' will pull all fader levels and switch statuses from the DAW to the console. Once the console has been enabled for automation, click on the 'Connect to AWS' dropdown menu in the left corner of the plugin GUI, and click on 'Connect' – the text will disappear once connected to the console. AWS channel names will be pulled from the console to the δ-Ctrl plugin.



The default state of the plugin is with all switches off and the absolute value of the fader at ∞, these are the initial breakpoints stored in the track automation playlists in the DAW. When the δelta-Ctrl mix system is enabled channels assigned to plugins will be reset to the values stored in the playlists, which if no mix data has been saved, will be the default settings. Double clicking the plugin Fader will reset the channel level back to 0dB, alternatively, the Remote app 0dB button can be used.

The δ-Ctrl 24 plugin is for channel automation only. If you wish to automate the Mix busses, add a 'Single' plugin to the session and set the console object to one of the mix busses. *In Logic Pro, the AU single plugin will only appear as a mix bus fader, due to the control parameters set by Logic software.*

! Note: Setting up the 24 plugin and a Single plugin to control channels in the same session can cause performance issues. Only use both plugins when controlling different objects in each plugin.

*The **ENABLE** key must be deselected before the **NEW MIX** mode can be turned off but needs to re-enabled to write subsequent automation data into the playlists.*

MIXING WITH δ-Control

Mix Set Up

Two approaches are envisaged, using the ***NEW MIX*** option a basic mix is created on the console with the mix system off and then δ-Control automation enabled to add dynamic moves. Alternatively a mix is built up from scratch with the mix system enabled from the start. In the case of the latter approach, even with the Pro Tools tracks in Read mode, the desk settings will be saved in the Pro Tools project automatically as the initial plugin automation playlist breakpoints are updated following any changes to the static mix. When a project is reloaded, enabling the desk automation will automatically reset the channels to the settings saved in the Pro Tools project.

To ensure that this occurs seamlessly, when the Automation **Enable** key is operated, the SNAP Update mode is automatically selected as well so that playlists are correctly updated with the new levels when a fader is released.

The SNAP update mode is described in detail on page 7-12

In both cases, the δ-Ctrl plugins need to be added to the Pro Tools session. It is not necessary for the Pro Tools session to be opened on a computer connected to the console, plugins can be added offline and will be automatically activated when the session is opened on the computer linked to the desk and the Automation ENABLE function selected. If linking the desk channel automation to existing audio tracks is not a priority, then importing track templates with the plugin's already loaded using the Pro Tools Session Import features is another option.

Writing Fader Mix data

Once the Touch mode has been enabled on the relevant session tracks, and with Pro Tools in Play, a console fader will start writing automation data either when it is touched or if the fader Status switch operated. In both cases this is indicated by the red Status LED illuminating on the fader strip and in the plugin GUI. *(Note that in the case of the Status switch, this can be operated with Pro Tools in Stop to pre-arm the track which will drop into write on entering Play)*

If SNAP mode is still active, then releasing a fader initiates an AutoMatch ramp to the existing playlist level. However deselecting the SNAP function means that any tracks dropped into Write via the fader will remain in Write even when the fader is released allowing a '*Latch*' style mode of operation without needing to change the Pro Tools track automation mode. This also follows standard SSL automation system conventions and is the key to using SSL's signature REVISE and JOIN functions to selectively return faders to Write. *(Note that with SNAP mode off, touching the fader with Pro Tools in Stop will also pre arm the track which will drop into write on entering Play.)*

If Tracks have been enabled for Write whilst in Stop, when Play is activated and the Pro Tools Pre Roll function is enabled with a suitable value (one to two seconds for example), Pro Tools will start playback from the selected playback location (a marker or the last play position for example) minus the pre roll time and then drop into writing automation at the playback start point.

Individual Tracks can be dropped out of Write using the channel fader Status switch or globally using the dedicated **ALL REPLAY** function key or its small screen equivalent. Faders dropped out of Write will ramp back to the level stored in the automation playlist. The ramp time is the AutoMatch Time that can found in Pro Tools ***Setup*** / ***Preferences*** / ***Mixing*** menu. Exiting the Pro Tools Play mode via Stop or another timeline operation will also cancel all channels currently writing automation data but without a timed ramp.

Revise and Join

If any channels were in Write when Stop was activated, the JOIN and REVISE mode labels will be shown on the small screen larger soft-keys and the dedicated front panel keys will also illuminate. The **REVISE** key can then be used to return all the active channels in Write at the stop point back into Write and the **JOIN** key can then be used to return all the active channels in Write at the stop point back into Write but at the levels that they were at the Stop Position. REVISE is a snapshot of the fader Write status at the Stop position and JOIN is a snapshot of the fader levels and Write status at the Stop position.

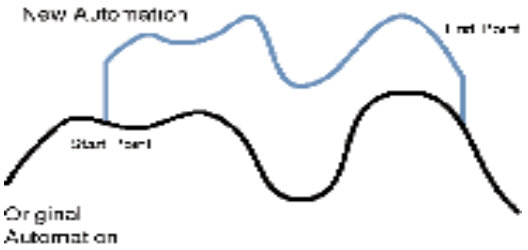
REVISE and JOIN can be fired either in Play or Stop to return channels into Write or to '*punch*' the '*captured*' levels back into the mix. If REVISE and JOIN are used in Stop, then automation starts writing when Play is entered. JOIN offers a very comfortable approach to building a mix pass by allowing the engineer to refine the balance of each section in real time and then return to the start of the section and apply that balance with a single key press.

> *The REVISE and JOIN memories remain active until used. If required, they can be cleared by the use of the* **ALL REPLAY** *key and are automatically updated if faders are manually dropped into Write whilst Play is active.*

Updating Fader Mix Data

Once the basic mix has been established δ-Control offers a number of hands-on tools for fine tuning the mix. These include a SNAP mode for fader updates and an additional real-time fader TRIM option.

SNAP

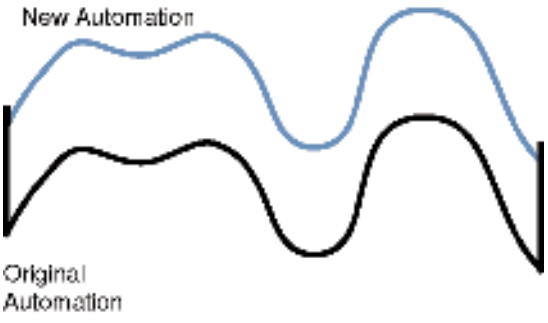


Snap mode is enabled via the small screen ***SNAP*** soft key or via the dedicated **SNAP** key. Once active, releasing a fader drops the fader out of writing automation data and initiates a timed ramp back to the previously stored value in the automation playlist. *The ramp time is* ***AutoMatch Time*** *located in Pro Tools Setup / Preferences / Mixing menu.*

The fader status key can be used to override Snap so that a fader stays writing when released even though Snap mode is On. If the associated fader status key is operated whilst holding the fader then the Snap Override mode is activated, which is indicated by the status LED flashing. When the fader is released it will stay writing at the current position until either playback is stopped or the desk ALL REPLAY function is used at which point it will 'AutoMatch' back to the original playlist value.

> ***For Logic Pro users****: Due to the functionality of switch parameter automation in Logic Pro, we advise automating Cut, Cue, and FX switches using the Latch plugin automation status in Logic Pro. When writing fader automation, setting the plugin automation status to Touch and using the SNAP option in the console AUTO menu to toggle touch and latching style automation will function as expected.*

TRIM



δ-Control supports SSL style TRIM automation for the faders without requiring Pro Tools HD software. As well as the Fader Volume automation playlist there is a separate Trim Automation playlist. Trim data is added to the Volume data and the resultant dB level is what controls the desk channel level. The Trim playlist always contains an initial breakpoint at 0 dB (unity gain). All trim automation data is relative to the unity gain position. This follows the same convention as the Pro Tools HD Trim feature and matches how many engineers use the Trim function with the original SSL Automation system by having a defined null position to return to.

Trim... *continued*

To enable the TRIM mode for faders, activate the master **TRIM** prime function either from small screen softkeys or the dedicated function switch on AWS. Once active, the fader status keys prime the individual faders for writing Trim data, and this is indicated by the green Trim Status led flashing as well as the fader automatically being positioned at the 0dB point (or at the current trim level if the playlist contains existing trim data). A second operation of the Status key will return the fader to controlling the channel volume and the fader will motor back to the current channel volume level. Once the required channels have been primed to write trim data the **TRIM** prime key is then deselected. The TRIM key indicator flashes whenever the master TRIM prime function is active.

The small screen ***ALL*** soft-key will toggle all channels into Trim if activated whilst the TRIM prime function is active. As with the other automation mode functions, AWS has a dedicated front panel ALL key. The ALL key stays lit if all the console channels have been primed for trim. Toggling one or more channels back to writing absolute volume data will turn off the ALL key tally indication. Deselecting the master TRIM prime key will also clear the ALL tally.

Any fader primed for the Trim will write trim level data when touched or if the fader Status switch is activated. This will be indicated by the green Status LED illuminating. When a fader is writing trim automation the current trim value is displayed on the desk scribble strip above the fader replacing the channel name. Unless SNAP is enabled, in which case releasing the fader drops the channel out of Write, trim data will be written until the fader is dropped out of Write by the channel Status switch or if the ALL REPLAY command is used. The current AutoMatch time will ramp the trim data back to the 0 dB default if no previous trim data exists or to the previous trim value save in the automation playlist. Stopping Playback will have the same effect but without the ramp.

The Trim level is displayed on the scribble strip regardless of whether the fader is actually in Write. This allows a preset trim value to be set whilst the DAW is stopped by activating the Status switch and setting the fader to the required level. This value will be immediately written when the DAW resumes playing.

*Note that the Fader knob in the plugin GUI changes to gold when **Trim** has been selected on a channel.*

Unlike the original AWS automation system, there is no interlock between the Volume (Absolute) and Trim automation, and Volume automation can be freely updated without affecting any existing Trim automation data. However, it is not possible (or desirable!) to write Volume and Trim automation simultaneously. If the Trim mode is selected on a Fader currently writing Volume data it is automatically dropped out of Write.

Fader Links

Fader Links are a useful method of ganging channels without the complexity of a Master/Slave style grouping system. With a Fader Link, any fader or non-latching switch operation can be applied to all the channels in the link.

Faders retain any existing level offsets, provided no fader in the link reaches the upper or lower extremes of the fader scale. If any member of a link reaches the end of its physical travel, no member of the link can move beyond this point. To access Fader Links, press the ***Lnks*** soft key next to the ***Auto*** key.

Note: Links are not available in 'MOTORS OFF' mode.



While the **CUT** and **SOLO** switches are always included in Fader Linking along with the Fader, it is possible to exclude the remaining automated channel switches from the Link: with a fader link highlighted in the ***Lnks*** page, press the ***ChSws*** softkey. When switches are included in the Link, **switches linked** is displayed after the fader link name on the screen.

To set up a new Link, scroll to **New Link** and press the V-pot push switch. This will create a new entry in the list suffixed with a number. This entry will be automatically highlighted and faders can be added (or removed from the Link) by pressing the fader auto switch. Link numbers are shown in the scribble strip above the fader and the read fader status LEDS will indicate the faders in the currently selected Link.

To adjust the Link balance, hold one fader whilst moving another. This automatically isolates the second fader from the Link whilst the remaining faders continue to track the first fader touched or used.

As far as the SSL automation system is concerned, operating one fader places all the faders in the Link in write. Links can be dissolved at any time and all the automation data will still play out correctly.

To edit existing Links, scroll to the Link using the pot. Channels can be added or removed by pressing their **auto** switches.

Viewing Links

To view links without entering the Links page, press the **MISC** Function key followed by the **SLNK** key which appears beneath it.

Suspending Links

Links can be globally or individually suspended at anytime. A link which is suspended will allow the user to move all faders independently.

If a Link is highlighted, then the **SuspdSel** key will deactivate the selected Link and 'suspended' will be shown next to the link number.

SuspdAll will suspend all links in the list. **Moff** automatically activates the SuspdAll function. Touching two faders in the same link group will suspend all faders within that group.

Deleting Links

To delete a Link highlight the Link, then use the **Delete** and **Confirm** keys.

Switch Automation

Provided that the Latching Behaviour for Switch Controls in "Touch" option has been selected In the Pro Tools ***Setup*** / ***Preferences*** / ***Mixing*** menu, the channel switches follow standard Pro Tools Latch Mode operation as far as automation is concerned. The initial state of the console switches are saved as the first breakpoint in the switch automation playlists. Once the Touch Mode has been enabled on a track, any changes in state of the channel switches are saved as additional breakpoints.

Editing switch automation is via the standard Pro Tools Automation editing tools.

MOTORS OFF

Many engineers prefer not to be distracted by seeing faders moving around in front of them as they play through a mix pass. They prefer to hear the moves rather than see them. δ-Control MOTORS OFF mode complies precisely with that requirement. Enabling MOTORS OFF disengages the motors and leaves the faders as the mix level input device with the channel high resolution digitally controlled attenuators (DCA) as the active gain element. The channel level bargraphs in the TFT meter screen also shows the current fader playback level when the ***SSL*** / ***Auto*** menu is active. A mix can be built up in exactly the same way as when working on a standard VCA-based SSL console. With MOTORS OFF, the fader always remains positioned at the level being written to the track when playback was stopped. Locating back to a point earlier in the mix and activating Write via the **Fader Status** switch, either in Play or whilst stopped, writes the actual fader position into the automation playlist, effectively providing a local individual fader JOIN mode. The global **JOIN** and **REVISE** keys are still active in MOTORS OFF but because the faders always retain their position when the mix pass was stopped they have the same function.

Trim automation data can also be entered in MOTORS OFF mode with the added benefit of not needing to manually position the fader at the 0dB point. When a fader is enabled for writing trim moves, the motor is temporarily engaged to automatically position the fader at 0 dB position, or at the actual trim level if the playlist already contains trim data. After that the fader can be moved manually to the required trim level which will be indicated in the channel level display above the fader and write activated via the fader status switch. As the fader always stays at the selected trim value, multiple operation of the fader status switch are equivalent to the TRIM LOK function in the original AWS automation system.

In the ***SSL*** / ***Misc*** / ***Setup*** menu an option is available to activate fader touch sense in Motors Off Mode. With Touch Sense Active, touching the fader will initiate the Write function, and if SNAP is also enabled, releasing the fader will initiate an 'AutoMatch' back to the data stored in the playlist but with the fader staying at its last position prior to being released. This is similar to the IP (immediate pickup) mode that was a feature of the original SSL automation system but without the need to actually move the fader to start writing automation data.

De-selecting **MOTORS OFF** repositions all the faders at their underlying channel levels regardless of the current state of the mix system.

USING THE PRO TOOLS EDITING TOOLS

As the δ-Ctrl plugin creates standard Pro Tools automation playlists, all the Pro Tools editing tools are available for use with the saved automation. These are comprehensively described in the Pro Tools Setup Notes on page 5-31.

One of the immediate benefits of δ-Control is that the saved AWS automation will, by default, follow all audio edits made in the workstation ensuring that all the DAW workflow editing options are available at any stage in the mix process – even though the fader automation is playing back on an external console.

A second very powerful feature is that the plugin store its volume and trim data in the playlists using the same dB law as the Pro Tools fader volume and trim data. This means that the Pro Tools edit command "Paste Special – To Current Automation Type" can be used to copy Pro Tools fader automation into the δ-Ctrl plugin volume playlist to play out on the AWS channels with an accuracy better than 0.2 dB.

Write to Start, End or All

Using the front panel HUI control keys, you can write automation data to the start, end or whole part of a track/selection for all tracks actively writing automation. These short cuts work equally well with switch states as well as fader automation.

CTRL + RTZ – will write automation data from the current position to the start of the track/selection

CTRL + END – will write automation data from the current position to the end of the track/selection

CTRL + SHIFT + (END or RTZ) – will write automation data from the start to the end of the track/selection

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LEGACY CONSOLE AUTOMATION

OVERVIEW

AWS δelta's integral console timecode-based system was developed from SSL's renowned G and K Series Ultimation systems, designed specifically for AWS. MTC (MIDI Time Code) serves as the mix timeline reference, together with support for MMC (MIDI Machine Control) locate commands to follow non-play speed positional changes from the DAW. Mix data is saved to the internal flash memory as part of AWS δelta's Project system, but may be backed up on your computer via the AWS δelta Browser.

NOTE. With the V4 AWS software, δ-Control is now the default automation option. Timecode based automation can still be re-enabled from the ***Misc*** */* ***Setup*** *menu if required but will require a console restart.*

AWS consoles include a fully featured automation package, developed from SSL's renowned G and K Series Ultimation systems, but with a feature set designed specifically for the AWS. SSL automation utilises the classic SSL look and feel, familiar to thousands of engineers worldwide, to add dynamic fader and cut automation to the console. MTC (MIDI Time Code) serves as the mix timeline reference together with support for MMC (MIDI Machine Control) locate commands to follow non-play speed positional changes from the DAW. Automation Mix data is normally stored via Logictivity using the AWS remote. Legacy systems make use of System Exclusive MIDI data transfer allows mixes to be saved to a DAW workstation or SysEx librarian.

Key features

- Frame accurate fader and cut automation data
- Moving and non moving fader modes
- Trim updates
- Fader links
- Mix Pass history
- AutoTakeover
- Variable glide times
- Fader safe mode
- Match and Play Cut automation updates
- Mixes and Fader Links are saved together with Total Recall data (if applicable)

Quick Guides

For quick, simple guides of how to use your SSL automation, please visit the SSL website for AWS tutorials here:

AWS Tutorials

Working with Projects and Titles

At least one Project and Title must be present before you can store an automated Mix. Select **SSL** followed by **Proj**. Now select **New Proj** and the system will create a new Project and Title; logically these will be named Project 1 and Title 1 (if no previous projects exist).



If Projects have been previously created, when you press the **Proj** key, the screen will display a list of existing Projects. Use the left-hand encoder to scroll through the list and when you find the Project you require, press the encoder switch (or soft key below the encoder) that represents the **Select** function. This makes that Project current (as indicated by the entry being highlighted in yellow, with the word **selected** after its name) and reveals the Titles in that Project. To create a new Title in a Project, select **New Title**. Titles and Projects are automatically numbered in sequence of creation. Select **Copy Title** to copy the selected Title.

Note that the top line of the display always indicates the current Project and current Title. Use the **Select** rotary control to scroll through lists of Projects, Titles, etc., and the encoder switch to select them. To return at any time to the Project list, press the **Back** softkey.

AWS 948 TRANSFER COMPATABILITY

Note that when loading Titles created on AWS 900, 916 or 924 onto a 948, the automation is applied to both sides of a stereo channel. In In-Line modes, automation is applied to the primary channel path, and the secondary channel path drops into Manual.

Automation Management via the Remote

The **Mixes** tab in the AWS Remote Browser will show you a list of all current mix passes associated with your current project.



To rename one of your Mix passes, highlight the one which you would wish to change and press the **Rename Mix** button.

To delete a Mix Pass, highlight the one which you would like to delete and press the **Delete Mix** button.

> *Please see Section 5 for further details on the browser.*

OPERATION

Activating the Automation System

Use the softkeys below the centre section TFT to select **SSL** then **Auto**. This calls up the main automation display with its associated soft key menu (see next page).

List Mix Menu

The List Mix menu is the main file menu for the automation system, and shows a list of stored Mix Passes.



New Mix Passes are auto-numbered starting at '1'. If a Mix Pass is deleted (see below) then its number will not be re-used. The only exception to this is if all Mix Passes are deleted. The numbering will then restart from '1'. Mix Passes can be renamed from the AWS Remote — see Renaming Mix Passes.

Changing the selected Mix Pass

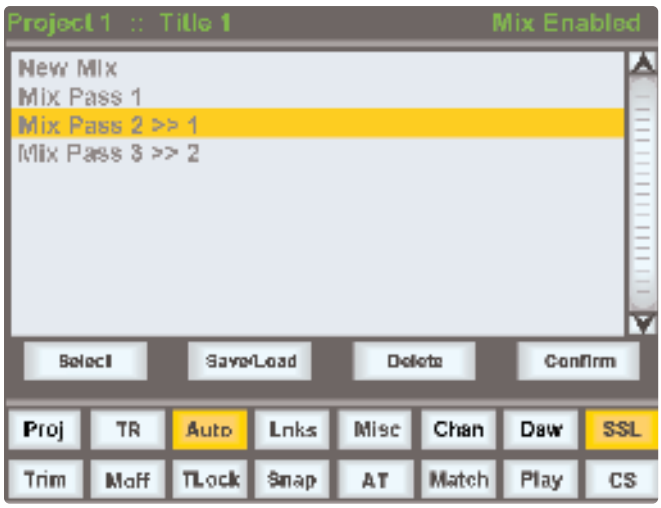
The left-hand encoder can be used to scroll through the list of Mix Passes. A yellow cursor band indicates which Mix Pass is currently selected for modification. The encoder's push-push switch can be used to either start a New Mix, or select a previous Mix Pass. Note that once a Mix is selected, the Mix may take a moment to load.

Deleting Mix Passes

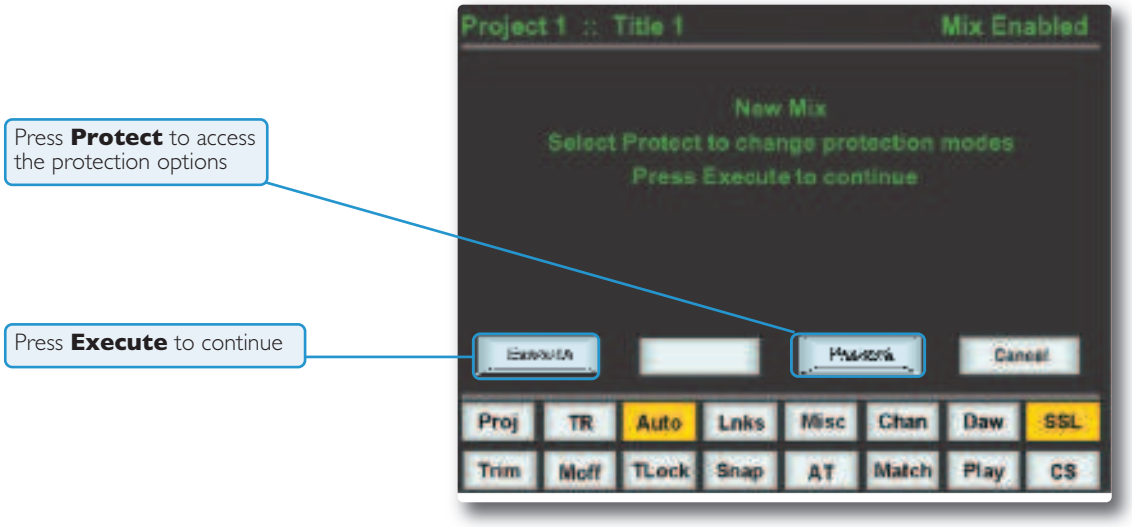
Mix Passes can be deleted by selecting the Mix Pass you wish to delete, holding down the **Delete** soft key and pressing the **Confirm** soft key.

Creating A New Mix Pass

To create a new automated Mix Pass, enter the List Mix menu (shown below) and use the left-hand encoder to highlight the **New Mix** entry.



Now press the encoder switch or the **Select** soft key to select the New Mix Setup page.



All the channel faders will enter Absolute mode, as indicated by a red LED next to each fader. Depending on the **Show channel names** option selected in the **SSL / Misc / Setup** menu (see Automation Setup Options), the current automation status for each fader may be displayed in the scribble strip above the fader, replacing the standard scribble label.

Pressing the **CANCEL** button twice quickly will return you to the List Mix page.

Select **Protect** to disconnect controls from the automation system - see Page 7-10 for more details.

To start a mix, press **Execute**. The screen switches to show level bargraphs for the 24 *(16 for AWS 916)* channel faders and the two main faders, (for the **MIX** and **REC** busses).



The system saves a Global Static reference mix of the fader levels and cut status at their positions when the **Execute** key is pressed. This is useful because it allows you to locate before the start of the mix and recover your original levels (i.e.reference mix). Also, if you are writing automation in a section that had no previous mix data, when you drop out of write the faders go back to their original levels.

Mix Running

Press Play on the DAW to move forward and as soon as the Mix system has locked to the MIDI timecode (MTC), the Mix Status display will indicate '**Mix Running**'. Simply move the faders and press the cut switches to write your mix automation, and the fader moves and cut data will be recorded. The DAW may be toggled freely between Stop and Play and if Fast Forward is used or the DAW is located forward, the automation data will be extended to the new position and returned to play.

AWS 948

You can write automation to the fader for either channel path by pressing the V-pot and switching the main fader's path assignment. Automation can not be written on the V-pot - the path must be flipped to the fader. The bargraph colour will change from light grey to green when the secondary path is flipped to the fader, as shown for faders 18 and 19 above:

Automation can be written on both cut switches.

Mix Review

At any time you can rewind the system, and as soon as the DAW is located to an earlier time and valid MTC or a MMC locate position command is received, the mix system enters 'Mix Review'. All faders will switch to Replay status (all LEDs are off). This operation is known as a rollback.



Indicates how many times you have rolled back. Every time the Mix Review number will increase by 1.

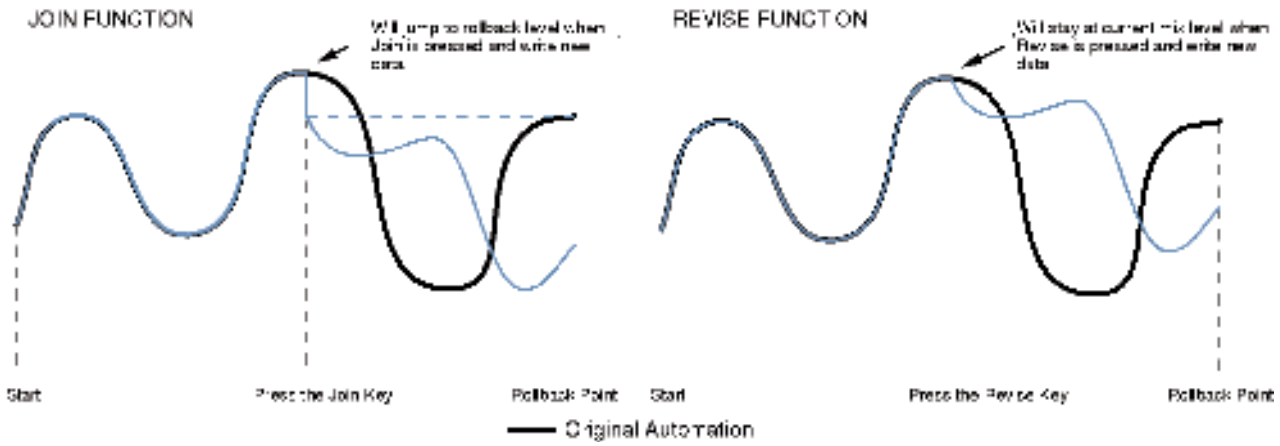
Mix Running Status
Displayed while writing new automation data;

Mix Review Status
Displayed when rolled back and playing previous automation data.

When the DAW returns to Play, previously written automation data is replayed. If no faders are returned to write, all faders in write at the start of the mix will drop back into write at the point where the DAW was rewound (the 'rollback point', and the Mix status will return to Mix Running. Whilst in Mix Review you may rollback as many times as required to allow the mix to be built up fader by fader. Each time a rollback takes place, the rollback counter in the mix status display increments. Faders in write at a rollback point will automatically switch to write when the system plays through the rollback point.

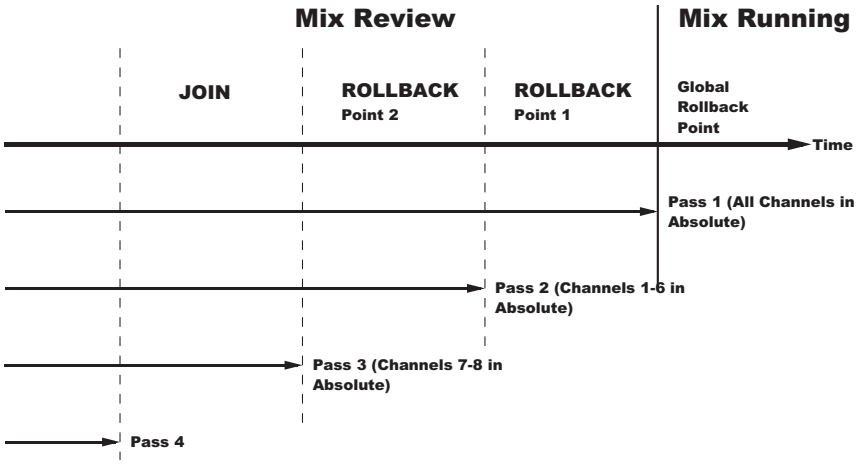
JOIN AND REVISE

At any time during Mix Review, the Join key can be used to switch all channels originally in write at the last rollback point back to write at the levels or state they were at the rollback point. This is useful, for example, when balancing a chorus level. When you have achieved this balance, you can rollback, hit Join and the levels will punch in at the balance set before rollback, and all channels immediately return to write.The Revise key has a similar action except that all channels in write at the Rollback point are returned to write at their current mix position. This is useful if you have been automating a section, but made a small mistake. Just rollback prior to the mistake, hit Revise and the channels will immediately go into write at the current fader level, allowing you to overwrite the mistake.



Multiple Rollback memories are supported so that successive operations of Join or Revise return different sets of faders back to the write state, if multiple Rollback operations have taken place.

To return all faders to Absolute, press the **Join** or **Revise** keys until the Global Rollback memory is reached, at which point all faders return to write either at the current position, via the Revise function, or at the balance at the Global Rollback point, via the Join function.



Discard

If the system is in play or stopped following a Rollback operation with any faders or cuts in Absolute mode, **Discard** clears any data made since the start of the Rollback pass and forces all channels in Absolute back to Replay. The **Discard** label is only shown when there is Mix data to discard.

Updating a Mix Pass

To update a Mix Pass, select the desired Mix Pass from the list on the **List Mix** menu by turning the left V-pot and press the V-pot switch. '**Updating Mix Pass**' will be displayed and the selected mix will now be the reference mix.

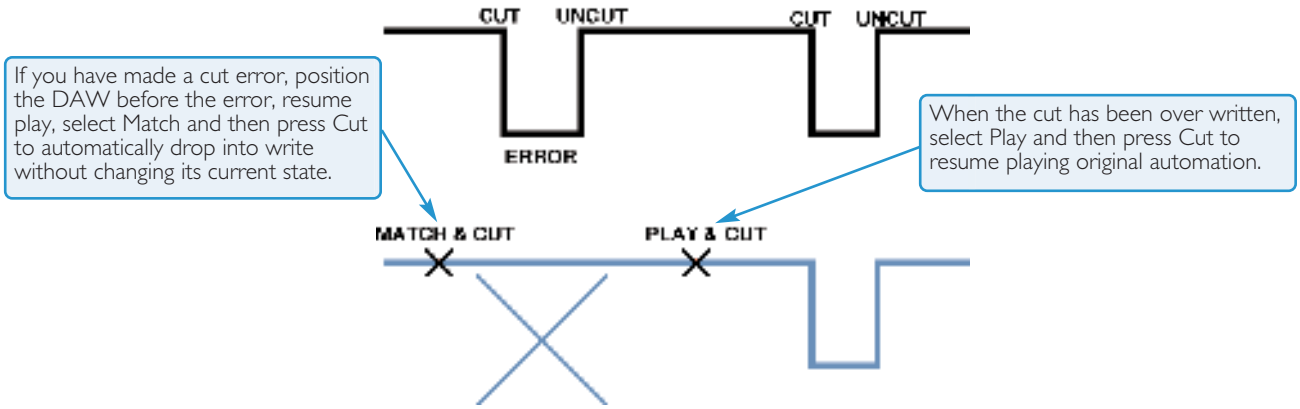
Cut Automation

Pressing a **Cut** switch will toggle its state and automatically start writing data. It can be returned to replay either by rolling back or by selecting the soft **Play** key, then pressing the cut switch.

The state of the channel **Cut** switch is stored separately from the fader data. Cut data is stored regardless of the current fader status unless channel Safe mode is selected. Whenever the **Cut** switch is in write, a '*' symbol is displayed in the scribble strip above the fader.

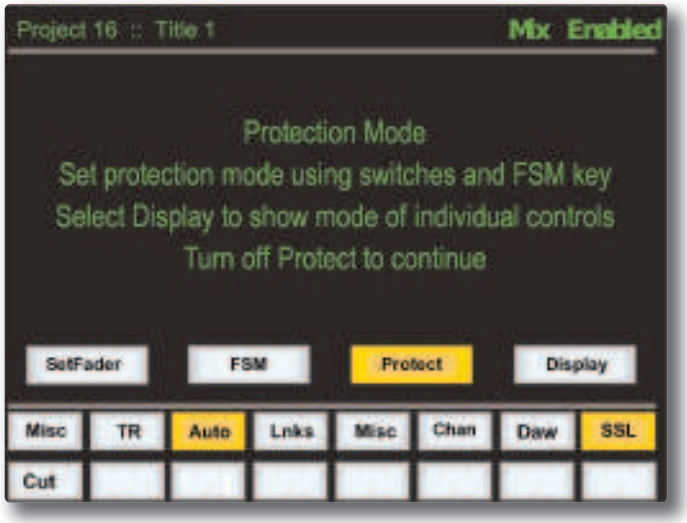
Match followed by the **Cut** switch drops the channel into Write without changing the current state of the Channel Cut. Match and Play are mutually exclusive. If one is active, selecting the alternate function cancels the first one.

Match and Play are automatically deselected after each operation unless the Latching option is enabled in the Setup Menu.



SELECTING PROTECTION

Each component which is included in the automation can be protected globally, on a per-channel basis, or individually. This is done in the **Protection Mode** page, accessed by pressing the **Protect** softkey.



When you update a previously stored Mix, three different data protection modes become available: **Auto**, **Safe** and **Manual**.

Auto (Red fader status LED) Automation data is replayed and can be over-written, either using the fader touch sensor (motor faders on), or by pressing the **fader** status button.

Safe (Green fader status LED) Existing fader and switch automation data can be protected with the **Safe** option. When channels are in **Safe**, automation data is replayed but no data can be written to these channels.

Manual (No fader status LED) Existing automation data is protected but not played back. The fader and switches affect the audio in the normal way but movements will not be written to the automation.

*Safe mode is **not** available in a new mix.*

When the **Protect** screen is active, the lower row of softkeys become selection softkeys for the automated **CUT** switches and the top left softkey now displays **SetFader** (as shown above). These two softkeys select which controls will be affected by the **FSM** softkey and the **fader** status buttons which are used to cycle through the available Protection Modes, on a global basis (**FSM** softkey) or on a per-channel basis (the **fader** status buttons). In either case all the selected controls in the channel will be set to the displayed mode. The protection mode is applied to the channel path which is currently assigned to the channel fader.

For example, to set all of the main channel faders to **Safe** mode, activate only the **SetFader** softkey and use the **FSM** softkey to cycle the Scribble Strip to **Safe**. Alternatively, to set the **CUT** switch on channel 1 to **Auto** mode, activate only the ***CUT*** softkey and press Channel 1's **fader** status button to cycle the Scribble Strip to Auto.

When the **Protect** screen is active, all automated controls can be reset to the same mode by pressing and holding the **FSM** softkey.

To display which controls are in each mode, press the **Display** softkey – the three Protection Modes will be shown in the lower left-hand softkeys. Pressing one of these mode softkeys will cause the LEDs for all controls which are in that mode become lit. (The fader status LED now lights to indicate when the fader's current mode is selected, regardless of whether or not that mode is **Auto**.) Pressing any individual controls (or in the case of the fader, the fader status button) will cause them to be assigned to that mode, and the new mode will be shown on the Scribble Strip display.

For example,if the **Manual** mode softkey is pressed, pressing a channel **CUT** switch will cause that switch to be put into Manual mode, and the Scribble Strip for that channel will display **CutC M**. Note that channel faders are shown as FdrC, monitor faders as FdrM, channel cut switches as CutC, monitor cuts switches as CutM.

Summary of fader status and FSM functions:

Note that the fader status buttons and LEDs and the **FSM** softkey fill a variety of functions:

- When in Mix Enabled, a red LED indicates Write, a green LED indicates Trim (see below) and no LEDs indicates Replay. The **FSM** softkey and fader status buttons switch any faders and switches in Auto-mode between Write and Replay (or, if Trim is active, between Trim and Replay).

- When the **Protect** screen is active, a red LED indicates **Auto**, a green LED indicates **Safe** and no LED indicates **Manual** Protection mode. The **FSM** softkey and fader status buttons switch any faders and switches which have been selected in the screen between Protection modes.

- When in **Protect** / **Display**, a lit LED (red for **Auto** or **Manual**, green for **Safe**) indicates that the channel fader is in the Protection mode which is currently displayed. The fader status buttons can be used to add faders to the currently displayed mode.

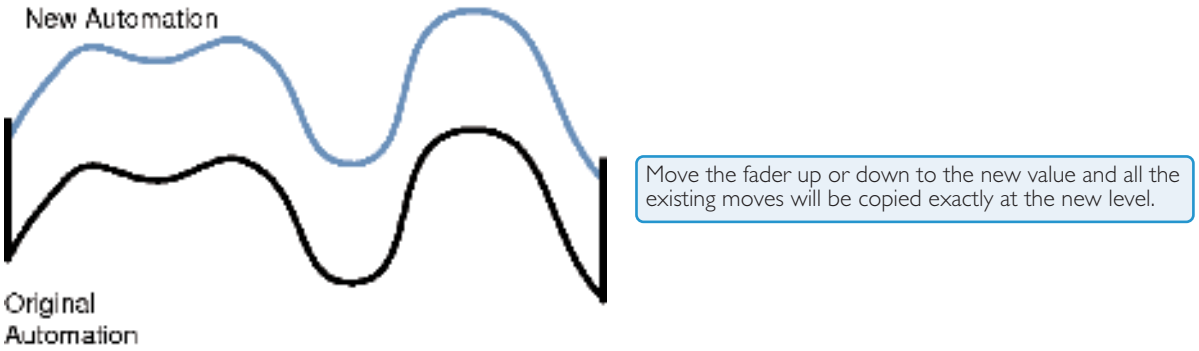
Automation Options

Trim

A method of updating fader data is to Trim the previous Mix Pass data. Trim mode originates from VCA (non-moving fader) automation systems and uses the fader to add or subtract level from the existing moves. It achieved this by setting up a 'null' fader position and then any subsequent moves trim the existing data by the amount of positive or negative change from the null point. Trim is useful, for example, when you have a complex automated vocal line which needs raising by 2dB. Rather than trying to re-write the complex moves, simply rollback, hit **Trim** and move the fader by +2dB. Locate to the end of the vocal line that needs this level increase, and press the **End** soft key to commit the trim to a Mix Pass.

The Trim mode is enabled by pressing the **Trim** key. Once active, faders can write in Trim, at anytime except during the first pass of a new mix, during Mix Running or in Mix Review. Trim is indicated by the green status LED next to the fader. When Trim is available at the start of the Mix, the **FSM** key will toggle all faders between Replay and Trim.

Trim can be used with the fader motors On or Off. If the motors are On, the null point will be the fader position prior to selecting the trim auto switch or touching the fader. If the motors are Off, the fader can be positioned at a suitable reference point on the scale before entering the Trim update status by pressing the fader switch. SSL's automation features an 'auto-nulling' feature so that each time Trim is re-enabled a new null point is set. When writing a Trim move, the dB trim value is displayed in the scribble strip above the fader.



Both Autotakeover and Snap functions (see below) used in conjunction with a Trim update allows a seamless or smooth return to the stored mix data.

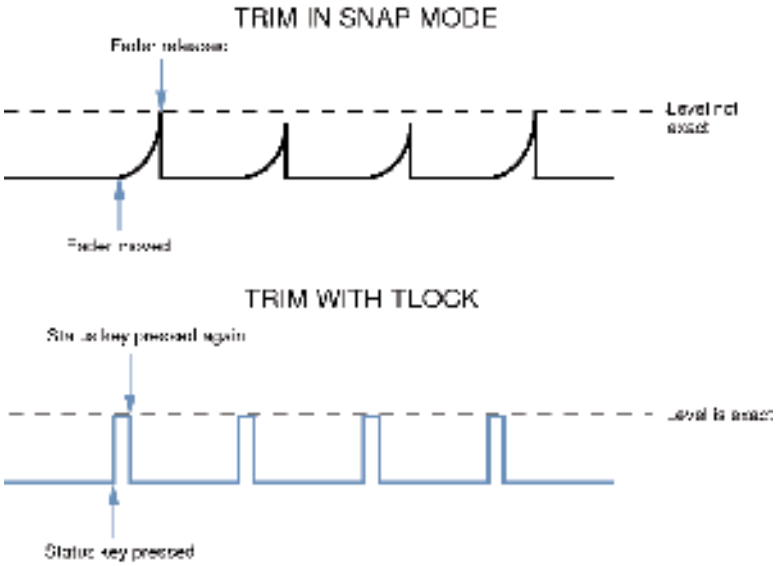
When Join is used with faders in Trim at the Rollback point, any Trim offset will be retained and written from the point that the **Join** key is operated. **Revise** returns any fader in Trim at the Rollback point back to write but with a new null point to avoid a level jump.

TLock

TLock (Trim Lock) defeats the auto nulling feature of the standard Trim function and 'locks' the null point to the position that the fader was in when Trim was first enabled in the current Mix Pass. This enables a defined trim offset to be repeatedly punched in and out throughout the subsequent Mix Pass. Deselecting **TLock** clears any stored nulled points. AutoTakeover can be used when TLock is active, however Snap and TLock are mutually exclusive; selecting one deselects the other and vice versa.

An example of TLock would be bringing up the levels of guitar licks in a track.

If Trim is used in Snap mode, the fader can be raised and let go repeatedly, returning to the previous level. However it is difficult to have an identical increase in level each time when using manually. If we use TLock, the reference value will be set, and the fader will be moved to the correct raised level. Every time you press the fader status key it will jump to that level, and when pressed again, it will return to the reference value. There will be no glide times and the value will be identical.



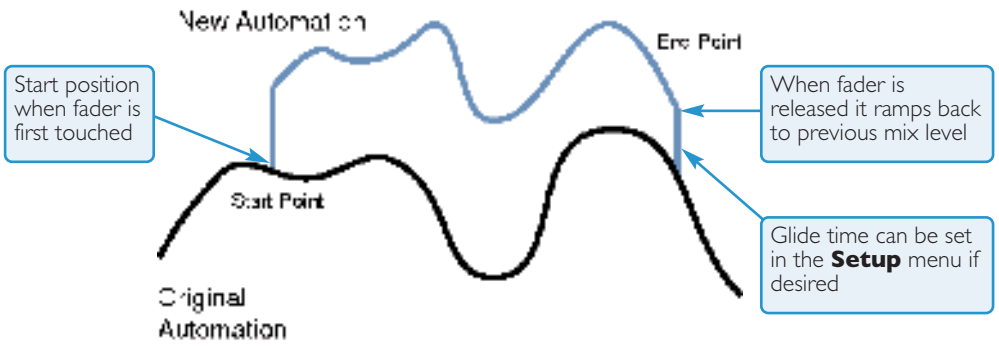
Note: This feature is only available with Motors OFF

Motors Off

Moff (Motors Off) this mode suspends the motorised playback of Mix data via the moving faders. In this mode it will emulate a VCA automation system. **Moff** automatically activates the fader SuspdAll Links function (see Page 7-19).

Snap Mode

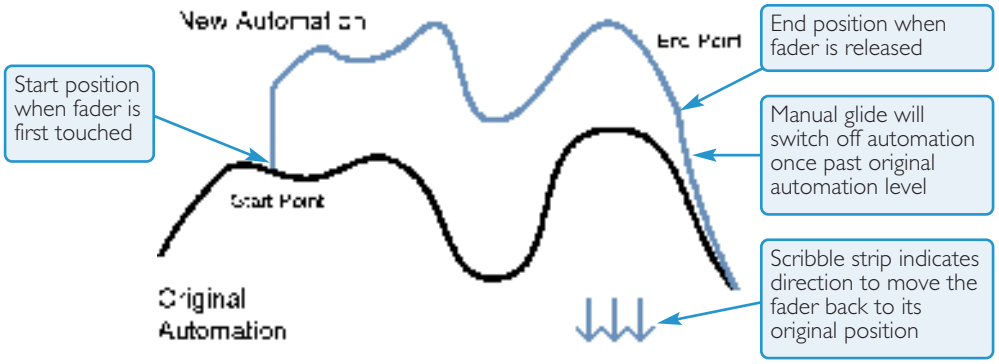
Snap mode uses the fader touch sensor to control both the start and end of a fader update for fast hands on changes to mix levels. When the fader is released it ramps back to the previous mix level at a user determined rate, then returns to replay.



This feature is only available with Motors ON

AutoTakeover

To avoid a level jump when dropping out of write, AutoTakeover introduces nulling indicators in the scribble strip to display the direction to move the fader to match the underlying mix level. When the fader crosses the current mix level, it is automatically returned to replay and disconnected from the audio gain element. The fader returns to following the mix data as soon as it is physically released.



Copy and Swap

CS (Copy and Swap) are used to interchange or transfer mix data between channels. The required function is selected by pressing the **CS** key to toggle through modes. Copy is displayed as a highlighted **Cpy**, Swap as an **Swp**. Select the function required then hold down the source channel auto switch then press the destination channel using its auto switch. Whilst the auto switches are active, 'src' and 'dest' will be displayed in the scribble strips above the fader. To Copy or Swap automation data the system must be in Mix Running or Mix Review.

Copy is to a single channel only. To copy to multiple channels, repeat the Copy operation as many times as required.

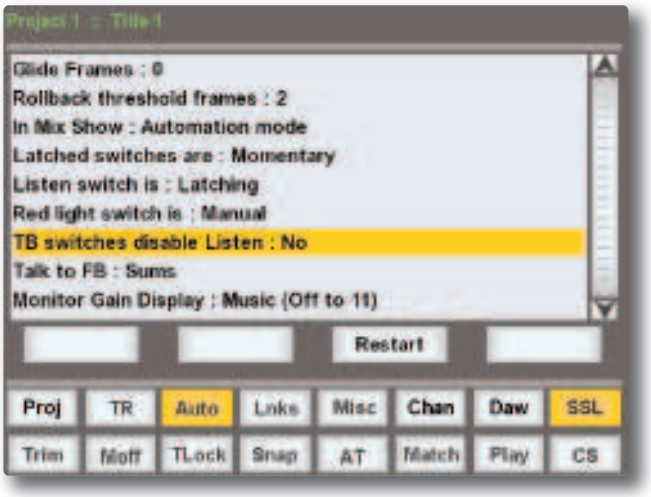
The new Mix data is not saved until the subsequent Mix Pass is Ended.

Deleting Mix Passes from the Console

Mix Passes can be deleted from memory by highlighting the Mix Pass you wish to delete in the TFT screen, holding down the **Delete** soft key and pressing the **Confirm** soft key. Mixes can also be deleted from the AWS Remote.

AUTOMATION SETUP OPTIONS

The **SSL>MISC>SETUP** contains various options for the mix system. Scroll to the option to be edited and select using the Left V-pot push switch. Once the option is active, the left V-pot will increment/decrement a numerical value as it is turned or page through the various option states. Press the V-pot push switch a second time to complete the setup operation.



Glide Frames — Sets the ramp time in frames for Snap mode. The range is from 0 (no glide) to 255 (10 second glide).

Rollback Threshold frames — Sets the number of consecutive descending frames that the system needs to see to determine if a rollback has taken place. The range is 2-10 and the default is 2 frames. Increase as required if a rollback occurs on stopping the timecode master.

Latched Match & Play — Normally Match and Play are automatically deselected after a Cut switch is operated. This option latches the Match or Play function until deselected manually.

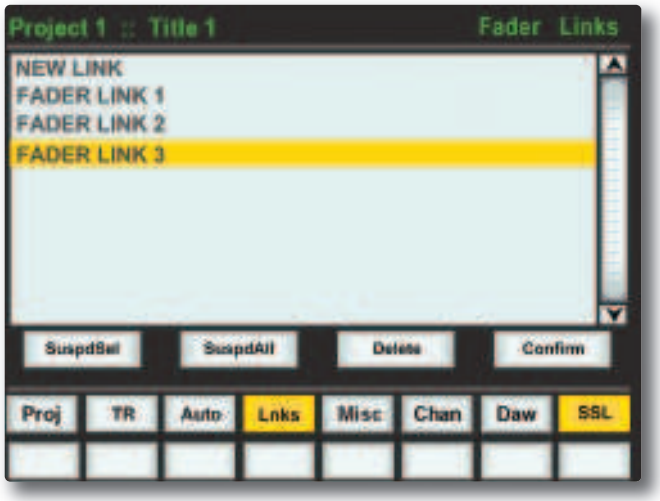
In Mix Show — This determines what is displayed on the channels scribble strips when using automation. Choices are:

- **Automation Mode** - shows **Manual**, **Safe** or **Auto**
- **Channel names in mix running** - After pressing **Execute** will display channel names
- **Channel names** - will always display channel names

FADER LINKS

Fader Links are a useful method of ganging channels without the complexity of a Master/Slave style grouping system. In a Fader Link, operating any Fader, Cut, Solo or Status switch will apply the same action to all the channels in the Link. Fader retain any level offsets provided no fader in the Link reaches the upper or lower extremes of the fader scale. If any member of a link reaches the end of its physical travel all members of the link will not move beyond this point. To access Fader Links, press the **Lnks** soft key next to the **Auto** key.

Note: In Legacy Automation, Links are not available in 'MOTORS OFF' mode.



To set up a new Link, scroll to **New Link** and press the V-pot push switch. This will create a new entry in the list suffixed with a number. This entry will be automatically highlighted and faders can be added (or removed from the Link) by pressing the fader auto switch. Link numbers are shown in the scribble strip above the fader and the read fader status LEDS will indicate the faders in the currently selected Link.

To adjust the Link balance, hold one fader whilst moving another. This automatically isolates the second fader from the Link whilst the remaining faders continue to track the first fader touched or used.

As far as the SSL automation system is concerned, operating one fader places all the faders in the Link in write. Links can be dissolved at any time and all the automation data will still play out correctly.

To edit existing Links, scroll to the Link using the pot. Channels can be added or removed by pressing their **auto** switches.

Viewing Links

To view links without entering the Links page, press the **MISC** Function key followed by the **SLNK** key which appears beneath it.

Suspending Links

Links can be globally or individually suspended at anytime. A link which is suspended will allow the user to move all faders independently.

If a Link is highlighted, then the **SuspdSel** key will deactivate the selected Link and 'suspended' will be shown next to the link number.

SuspdAll will suspend all links in the list. **Moff** automatically activates the SuspdAll function. Touching two faders in the same link group will suspend all faders within that group.

Deleting Links

To delete a Link highlight the Link, then use the **Delete** and **Confirm** keys.

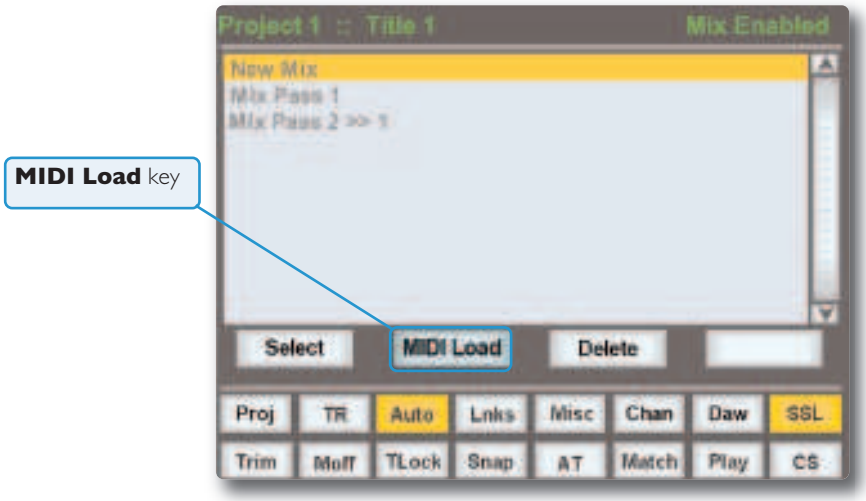
MIDI SysEx Load

For legacy purposes, it is possible to load Automation setups which have been saved via a MIDI SysEx dump. The AWS uses MIDI port 4 for loading mixes.

Note that MIDI port 4 is also used for MTC. SysEx data will interfere with MTC transmission, so ensure these tracks are muted while mixing.

- Locate the DAW to just before the SysEx data containing the Mix Passes you wish to load.
- Press the **MIDI Load** soft key.
- Press the **Load** soft key.
- Play through the SysEx block of data. As soon as the AWS detects the start of valid data it will delete all the current Mix Passes and replace them with the stored ones from the MIDI track.

Because the Load process replaces your current Mix Passes with the ones stored on your Mac or PC you should check you have saved any Mix Passes you wish to keep before loading new ones.



Solid State Logic

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AWS δelta

916-924-948

OWNER'S MANUAL

TECHNICAL APPENDICES

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Section Contents

A Specifications **A-1**
- *Console Dimensions* *A-2*
- *1/4" TRS Jack* *A-3*
- *DIN 5-Pin 180°* *A-3*
- *XLR 3-Pin* *A-3*

B Connector Details **A-3**

C Connector Pinouts **A-5**

D Environmental Specification **A-7**
- Notes Relating to Console Location and Air Conditioning A-7

E MIDI (HUI) Implementation Chart **A-9**

F Service & Warranty Information **A-11**
- Introduction A-11
  - *Warranty* *A-11*
  - *Out of Warranty Repairs* *A-11*
  - *Website Support* *A-11*
  - *Out-of-hours Support* *A-11*

G Troubleshooting **A-13**
- Introduction A-13
- Locating Problems A-13
- Audio Faults A-13
- Control Faults A-14
- Replacing Modules A-15
- The Channel Strip (629921X1 - 629994X1/X2) A-16
- The Channel Fader (629924X1) A-17
- The Channel Meter Panel (629923X1 / X2) A-18
- Centre Section Cards A-19
- Troubleshooting Chart – Channel bays A-20
- Troubleshooting Chart – Centre section A-20

H Glossary Of Terms **A-23**

I Link Options **A-25**

J AFADA **A-26**

SNAP *A-26*
Converting AFADA Mixes *A-26*
AFADA Setup Guidelines *A-27*

K Block Diagrams **A-28**

APPENDICES

A SPECIFICATIONS

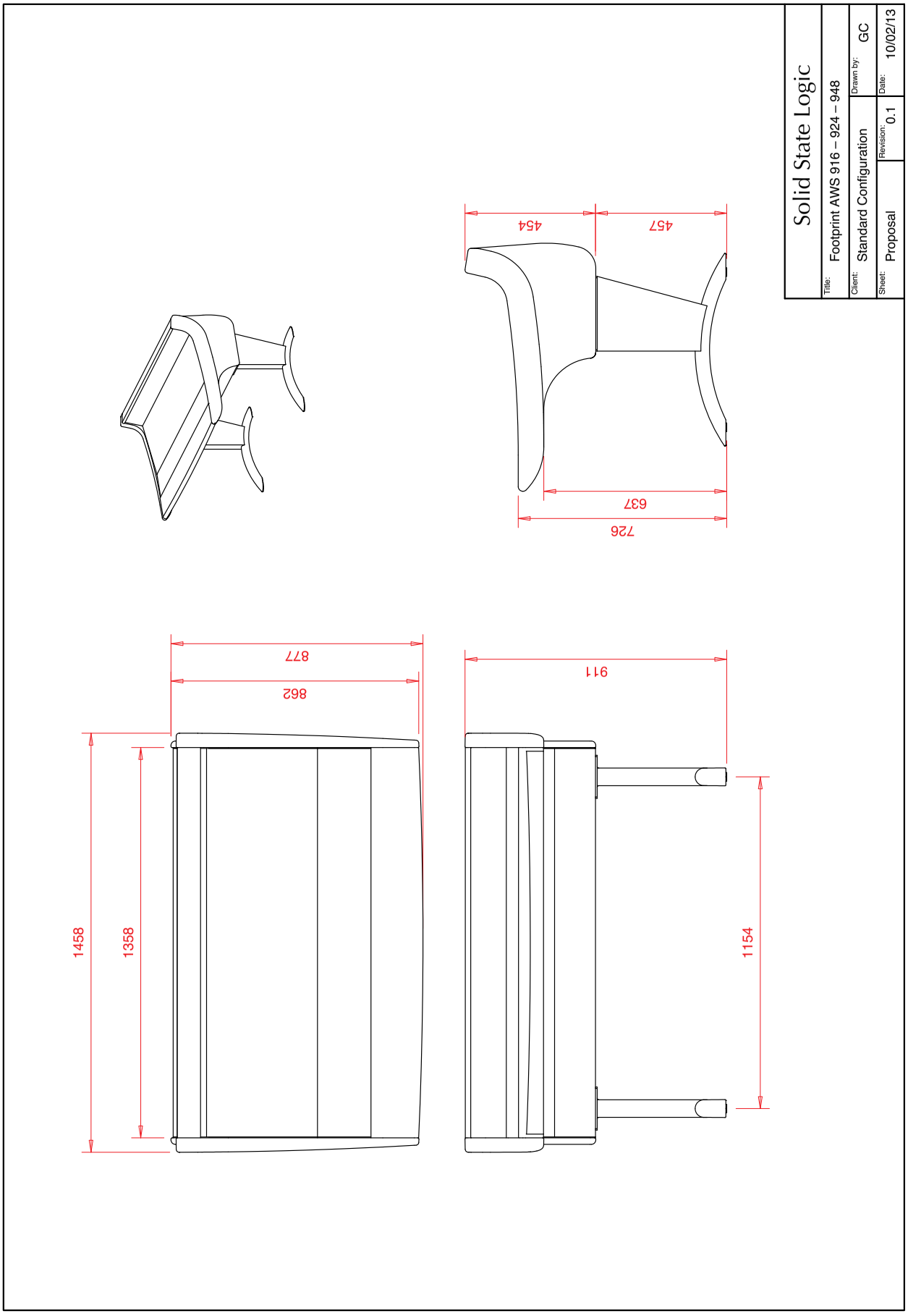
AWS Performance Specifications

Parameter	*Path*	*Value*	*Notes*
Headroom		>+26dBu	*Onset of clipping*
Frequency Response	Microphone input – Insert Send	20Hz–20kHz ±0.2dB	*0dB applied, Mic gain at minimum*
	Line input – Direct out	20Hz–20kHz ±0.1dB	*0dB applied, Line gain at detent (unity gain)*
	Line input – Track / Aux Bus out	20Hz–20kHz ±0.1dB	" "
	Line input – Mix / Rec out	20Hz–20kHz ±0.1dB	" "
Noise	Microphone input – Insert Send	<-127dBu	*Typical EIN. Max mic gain, 20Hz–20kHz filter*
	Line input – Direct out	<-89dBu	*20Hz–20kHz filter*
	Line input – Track / Aux Bus out	<-89dBu	*No channels routed, 20Hz–20kHz filter*
		<-88dBu	*One channel routed, 20Hz–20kHz filter*
		<-77.5dBu	*All channels routed, 20Hz–20kHz filter*
	Line input – Mix / Rec out	<-91dBu	*No channels routed, 20Hz–20kHz filter*
		<-88dBu	*One channel routed, 20Hz–20kHz filter*
		<-77.5dBu	*All channels routed, 20Hz–20kHz filter*
THD	Line input – Direct out	<0.002%	*+20dBu, 1kHz, 20Hz–80kHz Filter*
	Line input – Track / Aux Bus out	<0.005%	" "
	Line input – Mix / Rec out	<0.005%	" "

AWS Physical Specifications

Parameter	*Condition*	*Value*	*Unit*	*Notes*
Height	To top of meter trim	925	mm	
Height adjustment		-0 +20	mm	
Width		1,445	mm	
Depth		873	mm	
Weight	Including both legs	108	Kg	
	Each leg	4	Kg	
Heat dissipation:	AWS δelta 916	430	W	
	AWS δelta 924	550	W	
	AWS δelta 948	650	W	
Voltage	Input range	100 – 230	V	*±10%*
Current		7.5 – 3.1	A	
Inrush Current	Initial	4.6	A	
	After 5 seconds	4.6	A	
Power factor		0.95		
Fusing	None			
Noise	Fanless			
Connectors:	Mains input	IEC male		
	Serial	9-way D-type female		
	VGA Out	HD 15-way D-Type (640 x 480 60Hz)		

Console Dimensions



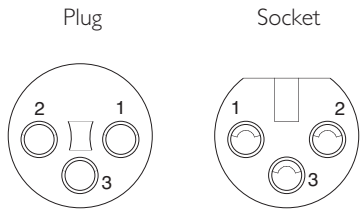
B Connector Details

XLR 3-Pin

Dimensions: 19 x 60mm (approx)
Cable Dia: 4mm - 8mm (typical)

Pinout for balanced audio:

Pin 1 Screen
Pin 2 Hot (+ve)
Pin 3 Cold (–ve)

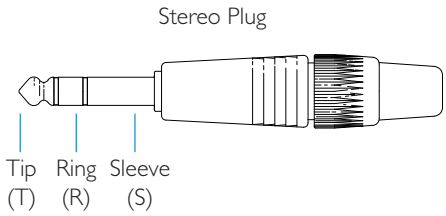


Connectors Viewed From Wiring Side

1/4" TRS Jack

Pinout for balanced audio inputs and outputs:

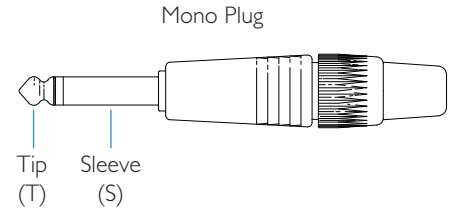
Tip Hot (+ve)
Ring Cold (-ve)
Sleeve Screen



Pinout for Instrument / Footswitch* inputs:

Tip Signal Hot (+ve) / switch
Sleeve Screen / 0V

**Connect Tip to Sleeve to trigger input*

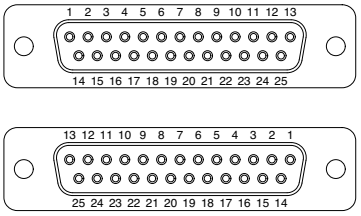


D-Type Multipin

25-way

Dimensions: 55 x 15mm (approx)
Cable Dia: 8mm (typical)

Connectors Viewed From Wiring Side

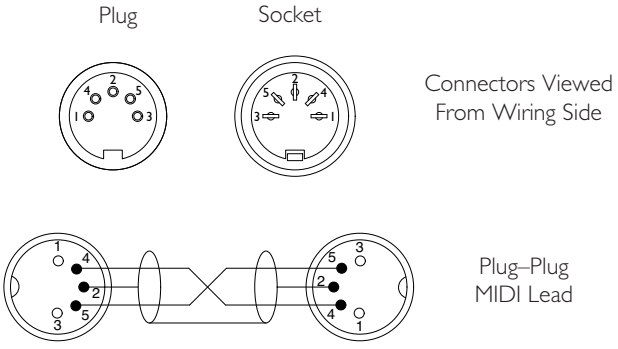


DIN 5-Pin 180°

Dimensions: 15mm dia.
Cable Dia: 4mm - 7mm (typical)

Pinout used for MIDI signals:

Pin 1 n/c
Pin 2 Screen
Pin 3 n/c
Pin 4 Midi +
Pin 5 Midi -

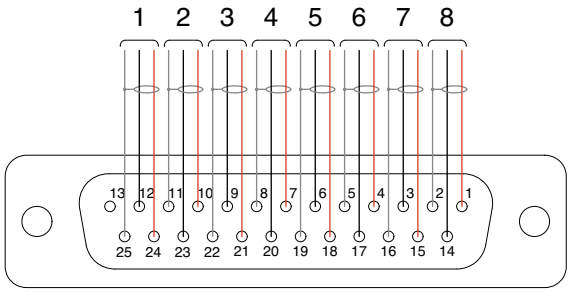


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C Connector Pinouts

Ext A 1–4 / Ext B / Meter Out / Monitor Insert								
Location:	Center section rear panel							
Connector Type:	25-way D-type female							
Cct	Hot	Cold	Screen	**Ext A In 1–4**	**Ext B input**	**Meter Output**	**Mon Ins Send**	**Mon Ins Ret**
1	24	12	25	Left	1-Left	Left	Left	Left
2	10	23	11	Right	1-Right	Right	Right	Right
3	21	9	22	Centre	2-Left	Centre	Centre	Centre
4	7	20	8	LFE	2-Right	LFE	LFE	LFE
5	18	6	19	Surr' Left	3-Left	Surr' Left	Surr' Left	Surr' Left
6	4	17	5	Surr' Right	3-Right	Surr' Right	Surr' Right	Surr' Right
7	15	3	16	–	4-Left	Solo Left	Lt to Decoder	Lt from Enc
8	1	14	2	–	4-Right	Solo Right	Rt to Decoder	Rt from Enc

Mon A / Mon B / 8 Track Bus Out / Cue FX Bus Out / Bus Inject								
Location:	Center section rear panel							
Connector Type:	25-way D-type female							
Cct	Hot	Cold	Screen	**Mon A**	**Mon B**	**8 Track Out**	**CUE/FX Out**	**Cue Bus Inj**
1	24	12	25	Main A Left	Main B Left	Bus 1	St Cue AL	St Cue in AL
2	10	23	11	Main A Right	Main B Right	Bus 2	St Cue AR	St Cue in AR
3	21	9	22	Main A Centre	Main B Centre	Bus 3	St Cue BL	St Cue in BL
4	7	20	8	Main A LFE	Main B LFE	Bus 4	St Cue BR	St Cue in BR
5	18	6	19	Main A Ls	Main B Ls	Bus 5	FX 1	FX 1 in
6	4	17	5	Main A Rs	Main B Rs	Bus 6	FX 2	FX 2 in
7	15	3	16	Mini A Left	Mini B Left	Bus 7	FX 3	FX 3 in
8	1	14	2	Mini A Right	Mini B Right	Bus 8	FX 4	FX 4 in



Signal arrangement for 8-circuit 25-way D-type connectors

Connector Pinouts . . . continued

Red Light / Talkback / GP IO		
Location:	Centre Section Top Rear Panel	
Connector Type:	25-way D-type female	
Pin	*Description*	*Notes:*
1	Red Light Relay contact 'A'	*Normally open – follows Red Light switch. See Note below.*
14	Red Light Relay contact 'B'	" " " "
2	0V	
15	GP Input 1 (not used)	
3	GP Input 2 (not used)	
16	Monitor Cut	
4	Monitor Dim	
17	Slate Switch	
5	Listen Switch	
18	Red Light Switch	
6	TB All Switch	
19	FB A Switch	
7	FB B Switch	
20	Ext TB Switch	
8	+4V	*Max 200mA*
21	Slate Tally	
9	Listen Tally	
22	Red Light Tally	
10	TB All Tally	
23	FB A Tally	
11	FB B Tally	
24	Ext TB Tally	
12	-	
25	-	
13	-	

NOTES:

- All switch inputs are active low (ie. connect to 0V to trigger). Inputs are pulled up internally to +4V via a 3K9 resistor. Inputs are also diode clamped to 0V and +4V to protect the input circuitry.
- All tallies are open collector pull-down using a 47R series resistor.
- Red Light tally contacts are via DIL relay. Contact rating is 100Vdc, 125Vac, 100mA max.

  ⚠ *Do not use the output contacts to directly switch capacitive or reactive loads; always use an external relay with a suitable contact rating.*

PINOUTS NOT SHOWN:

- Serial ports 1 and 2 are for specific SSL equipment and their pinouts are therefore not included.
- The VGA connector follows the standard VGA pinout.

D ENVIRONMENTAL SPECIFICATION

Temperature	Operating:	5 to 30 Deg. C
	Non-operating:	-20 to 50 Deg. C
	Max. Gradient:	15 Deg. C/Hour
Relative Humidity	Operating:	30 to 80 %
	Non-operating:	5 to 90 %
	Max. Wet bulb:	29 Deg. C (non-condensing)
Vibration	Operating:	< 0.2 G (3 - 100Hz.)
	Non-operating, power off:	< 0.4 G (3 - 100Hz.)
Shock	Operating:	< 2 G (10mSec. Max.)
	Non-operating:	< 10 G (10mSec. Max.)
Altitude (Above sea level)	Operating:	0 to 3,000 m
	Non-operating:	0 to 12,000 m

NOTES RELATING TO CONSOLE LOCATION AND AIR CONDITIONING

- Any item of electronic equipment can be affected by electrostatic discharge. It is considered good practice to avoid using fully insulating floor coverings in technical areas.
- Air conditioning may sometimes be required; note however, that a cool and dry atmosphere can significantly increase the likelihood of a build-up of static charge. It is recommended that air conditioning systems are designed such that the relative humidity does not fall below 30% during periods of operation.

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E MIDI (HUI) IMPLEMENTATION CHART

Function		Transmitted	Recognised	Remarks
Basic Channel	Default Changed	x	x	Channel 1 only
Mode	Default Messages Altered	0 0 0	0 0 0	Not Applicable
Note Number	True Voice	x 0	0 x	90 00 7F Echoed – Sent 90 00 00 active sensing only
Velocity	Note ON Note OFF	0	0	
After–touch	Keys Channels	0 0	x 0	Meters
Pitch Bend		0	0	
Control Change		00–07 Faders (20–27) 08-0B Ctrl Pots 0D Jog wheel 0F (2F) Switches 40–4C V–Pots	0C (2C) LEDs Servo Faders Relays Clicker Tone Touch Off	Fixed specification Fader resolution (00–08 MSB) (20-27 LSB)
Program Change	True number	0	0	
System Exclusive		0	x	Character displays. System Parameters
System Common	Song Pos Song Sel Tune	0 0 0	0 0 0	
System Real–time	Clock (F8) Commands MTC Local on/Off	0 0 0 0	0 0 0 0	
Aux Messages	All Notes Off Active Sensing System Reset	0 0 0	0 0 0	

Mode 1:Omni On, Poly Mode 2: Omni On, Mono x: Yes

Mode 3:Omni Off, Poly Mode 4: Omni Off, Mono 0: No

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F Service & Warranty Information

Introduction

Service will be primarily by on-site board exchange.

The AWS contains a mix of analogue and digital boards. All use SMT (Surface Mount Technology) extensively and it is not possible to carry out field repair to component level, although electro-mechanical parts such as pots and switches can be replaced by a suitably trained technician. Replacing the entire console is unlikely to be an option due to the size of the console and the availability of a replacement.

Many of the assemblies in the AWS are designed to be replaced by a technically aware person. The quickest way to resolve a problem is for your local distributor to supply you with a replacement part for you to fit. The ***Troubleshooting*** section of this manual (on page A-13) lists those assemblies that may be changed by untrained staff and gives instructions on how to change these items.

Warranty

All systems include 13 months on-site warranty from date of shipment from SSL. The warranty covers all parts and labour but does not include travel and accommodation expenses if an engineer has to travel more than 50 miles (80 kilometres) to your facility.

Consumable items such as lamps, accidental damage and damage caused by operation of the equipment outside of Solid State Logic's recommended operating conditions, as outlined in Sections 1 and 3 of this manual, are not covered by this warranty. Further details may be found in Solid State Logic's Conditions of Trading *(printed on the reverse of all Solid State Logic invoices)*.

Note that service visits to remedy problems found to be caused by a fault in third party equipment will be charged for at Solid State Logic's current service rate.

Out of Warranty Repairs

Replacement assemblies will be charged at Solid State Logic's current service exchange price for the faulty part plus shipping costs. Service visits will be charged at Solid State Logic's current service rate.

What to do if you have a problem

Follow the instructions in the ***Troubleshooting*** section (on page A-13) to confirm that the fault lies within the AWS system. If this suggests there is a fault with the AWS, then contact your local distributor who will either supply a replacement assembly or arrange for a visit from an engineer to resolve the problem.

Website Support

Solid State Logic's website (www.solidstatelogic.com) includes fault finding tips, downloads of the latest AWS documentation and an extensive Q&A knowledge base system.

Out-of-hours Support

AWS consoles are not covered by Solid State Logic's out-of-hours support service.

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G TROUBLESHOOTING

INTRODUCTION

The following pages are not intended to teach you how to repair any fault on your AWS console, they are merely designed to guide you through the basic principles of locating and, where possible, working around faults until a replacement part can be obtained. The AWS console has been designed with a very modular approach to hardware which ensures that maintenance is quick and simple. The vast majority of components that make up the console are 'plug in' cassettes that simply require the removal of three screws to enable their replacement.

LOCATING PROBLEMS

You should always check external equipment first (unless the fault is obviously within the console – such as loss of signal when the EQ is switched in). The AWS spends the majority of its life in a stationary position, whereas microphones, their cables and effects devices etc. are constantly on the move, and hence are much more likely to incur damage.

Once you have established that the problem lies within the console, you need to determine whether the problem is due to an operational error, or hardware failure. The most common, and easiest to solve, problems are operational errors, and you should eliminate these first. Refer to the relevant section in this manual, and ensure that you have followed the correct procedure.

If you have confirmed that the problem is due neither to external equipment nor operational error, then you may have a hardware fault. Check the troubleshooting tables (on Pages 20-21) for guidance. If your particular problem is not highlighted then you will have to diagnose the fault yourself, using the guidelines given below. Ensure that you read the paragraphs on ***Replacing Modules*** (Page A-15) before attempting any maintenance.

In most cases, a fault can be located in minutes, with little technical knowledge. The key to correctly diagnosing a hardware fault is understanding the console's signal flow. Block diagrams detailing analogue signal flow, digital control bus structure and power wiring, can be found at the end of this section.

Hardware faults can be defined as one of three types: Audio, Control, or Power. Power faults, with the exception of a poorly seated connector or blown fuse, are probably best left to your distributor. If you wish to know more about the AWS power supply, you can download information from our website. Fault finding Audio and Control problems, however, is well within the capability of all users.

AUDIO FAULTS

Audio faults will most likely manifest themselves as partial, or total, signal loss, or distortion of the audio signal. Referring to the Channel and Centre section block diagrams, you can see that there are many possible signal paths through the console. Logical routing, and monitoring of signals at different points, will enable you to easily locate the faulty module.

To give an example of an audio fault, examine the following problem. By working through this example you will see the basic principles of fault finding at work. You have Channel 24 routed to Track Busses 1 and 2 pre-fader. When monitoring the Track Busses you notice that the audio can only be heard on the left monitor output.

Your first step is to refer to the AWS Centre Section block schematic. From this you will see that the channel's output passes through five different modules before reaching the monitors. We can halve the problem by checking the signal path halfway through the chain. The monitor meters are fed from the output of the 629951 module. Do the meters show the same level on left and right? If the meters show the same level then the problem is post the 629951 card on either the 629952, 629953 or 629954 card. If the meters show different levels, then the problem is either on the channel's output, the 629919X1 card or the 629951 card.

For the sake of this example we will assume that the level shown on the meters was different. Using the same principle we will try to eliminate modules from the signal path. Again referring to the AWS block schematics you can see that the Track Bus metering is taken post the 629919X1 card's output, but pre the 629951 module's input. Do the Track Bus meters show the same signal level? If they do, then the problem is on the 629951 card; if not then the problem lies with the channel strip or the 629919 module.

Again for the sake of the example, we will assume that the level on the Track Bus meters was different. Halving the signal path again, de-assign Channel 24 from the Track Busses, route the same signal to Channel 23 and assign it to Track Busses 1 and 2. Can signal be heard on the right monitor? If it can then you have identified in a matter of minutes that Channel 24 has a faulty Track Bus output stage. If audio cannot be heard, then you have identified that the 629919X1 Track Bus card is faulty.

The next step in either case would be to follow the module removal instructions below and re-seat the module in its slot to ensure that a valid connection is made. Once re-seated, test the signal path again. If there is no change, a replacement will be required.

CONTROL FAULTS

Control faults will typically result in either the corruption of display information, or the failure of encoders and switches. The majority of the console's display and control functions are performed by the 629645X1 CPU, which is located behind Bay 3's Meter Panel. The CPU uses two methods of control. These are Multidrop Bus and Live Bus. Both busses are bidirectional and carry control data, such as switch presses, to the CPU as well as display data, such as LED illumination commands, to the displays.

Multidrop Bus data is used to control all of the console's audio processing modules, these are the 629921X1 Channel Strips, 629651X1 6-Track Select, 629652X1 2-Track Select, 626653X1 Gain and MDAC Control, 620654X1 Monitor Outputs, 629918X1/2 Dynamics, 629918X1/2 8-Track and Aux Bus, and the 629928X1 Compressor. All other panels are controlled by the Live Bus. Referring to the AWS Control Block Schematic you will see that four Multidrop busses, one per bay are used. The Multidrop data from the CPU is connected to each of the channel backplanes and the centre buscard using a 20-pin IDC ribbon connector. The audio processing card then sit on this bus, sending or receiving data as required.

The following problem highlights a Multidrop Bus fault and explains how the fault might be located. After powering on the console you notice that all of Bay 2's channel strip LEDs are extinguished, and the switches do not respond; all other bays are working correctly.

Once again refer to the AWS Control Block Schematic. From the diagram you can see that Multidrop Bus data for Bay 2 is connected to socket PL2 on the 629645X1 CPU. Power down the console and remove the channel meter from Bay 3 (refer to **Replacing Modules** on the following page). Located behind the channel meter is the CPU. Remove the metal screen which surrounds the CPU and locate connector PL2. Remove and then reinsert the connector to ensure that a sound connection is made. Re-assemble the console and check the condition of the fault.

For the sake of the example we will assume that this did not resolve the problem. The next step would then be to inspect the other end of the Multidrop Bus connection. The diagram shows that the data ribbon connects to the CPUA socket on the 629640X1 Channel Backplane. Power down the console and remove Channels 15 and 16 as instructed in **Replacing Modules** (on the following page). Locate the CPUA connector and re-seat, then reassemble the desk and check the fault.

Again we will assume that in this instance this did not resolve the problem. This leaves three possible causes. The first is that the channel backplane has developed a fault. The second is that one of the channel strips in Bay 2 has failed in such a way as to corrupt the data on the Multidrop Bus. The third is that the CPU card has developed a fault with the hardware that processes Multidrop Bus 2.

The first cause is highly unlikely. The channel backplane contains no active components, only copper tracks, and as such can be discounted. The second cause is possible – to determine this, remove the channel strips from Bay 2, one by one, ensuring you power down the console each time, and check the condition of the fault. If, after removing a module, the remaining channel strips start to function, then you have located the problem. If you reach the last module and the fault still occurs, don't forget to swap the remaining module with one of the others to ensure it is not the cause of the problem. If the fault still persists then the cause must be the CPU. Once again, through a simple process of elimination, the cause of the fault has been located.

Unlike the Multidrop Bus which allows modules to be added and removed from the bus without effecting its integrity, the Live Bus passes through one module to the next. Therefore the removal of a Live Bus module may potentially disrupt other modules, depending on its position in the data chain.

When fault finding Live Bus problems the same principles can be applied, as the following example shows. During a mix you suddenly notice that the channel meters in Bay 1 are all showing random patterns of illumination.

As always the first step is to refer to the AWS Control Block Schematic. From the diagram you can see that Live Bus data from the CPU passes through Bay 2 and 3's Channel Meter Panels before reaching the Meter Panel in Bay 1. As the channel meters in Bay 2 are functioning correctly, you can rule out the CPU and Bay 3's Meter Panel as potential causes of the problem. This leaves three potential causes. The first is that the data ribbon connection between the two panels is not seated correctly. The second is that the input stage to Bay 1's Meter Panel is faulty. The third is that Bay 2's Meter Panel has a faulty output stage.

To eliminate the first possibility, power down the console and re-seat the 16-pin IDC connector between the two panels. Re-power the console and check the condition of the fault. As in previous examples, we will assume that this did not resolve the problem. The next possibility to eliminate is that one of the Meter Panels is faulty. Power down the console and swap Meter Panels between Bays 1 and 2. Re-power the console. If the panel originally in Bay 1 was faulty, then neither Bay 1 or 2's metering will now function. In this cause you should revert to the original configuration and replace the faulty panel. If, however, the problem was due to the failure of Bay 2's Meter Panel output stage, then you should find that all your meters are now functioning correctly. As Bay 1 is not required to buffer data onto another panel, this fault will not effect the operation of the console and can be left in this position allowing you continue working unhindered.



IMPORTANT SAFETY WARNING

The console's AC Line Power unit is mains powered and is not transformer isolated. This unit generates DC voltages up to 360V. This voltage is sufficient to be lethal. Always confirm that the power cord is physically removed from the power inlet before attempting any maintenance.

Replacing Modules

Having identified the source of the problem, you are now in a position to replace the faulty part. If you purchased an AWS spares kit, then locate the relevant assembly and follow the replacement instructions below. If, however, you do not have a replacement card to hand, you should contact your local SSL distributor who will be able to supply you with a replacement.

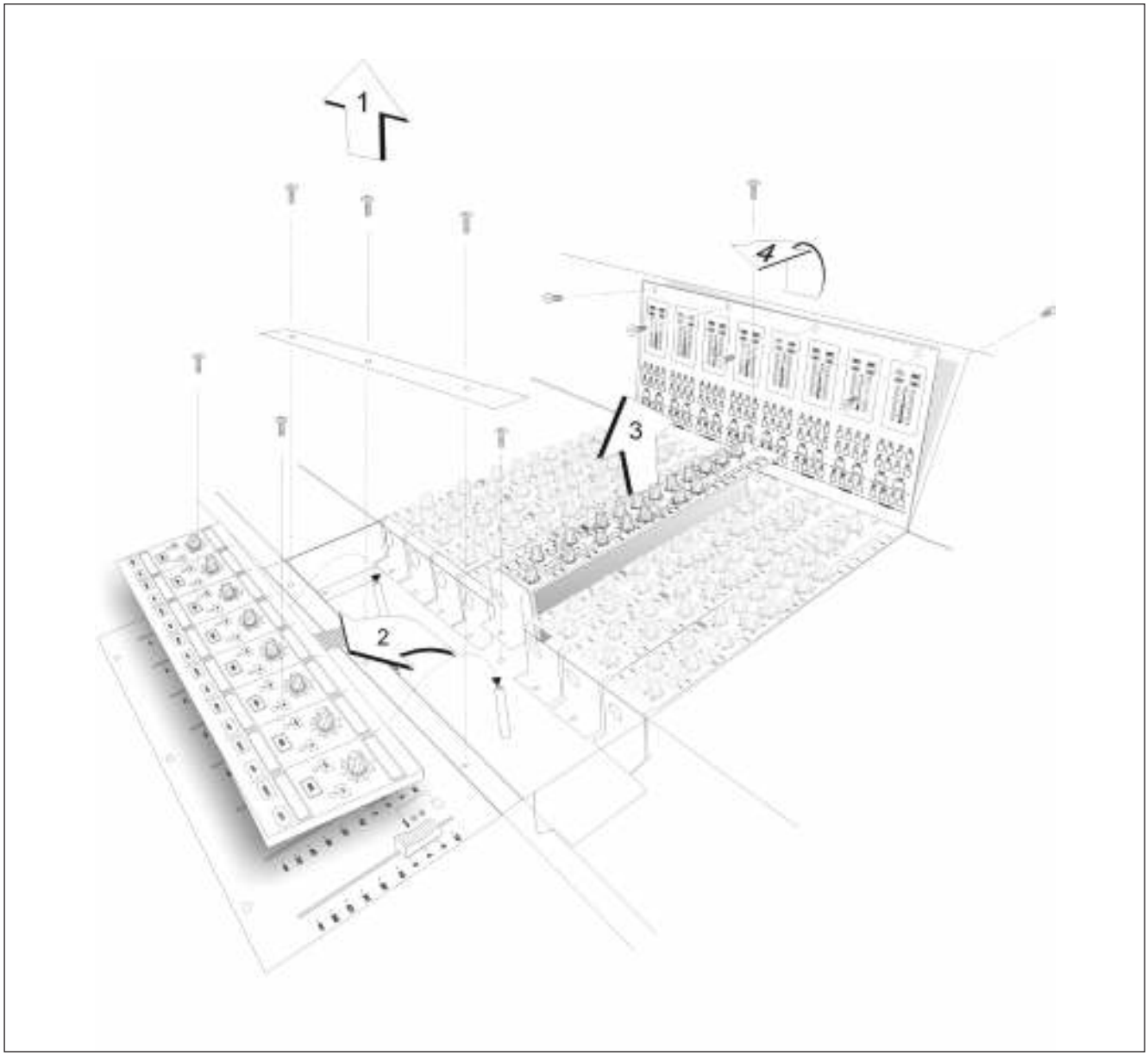
Removal of modules while power is applied to the console will almost certainly result in component failure.

The channel and centre section modules can easily be removed from the console for replacement, but first you must disconnect the console from its AC power source. Before turning off the power, make sure that you switch off, or overpatch, all monitor sends. If you power down the console with any of these connected, the DC thump generated could potentially damage your monitors.

The Channel Strip (629921X1 - 629994X1/X2)

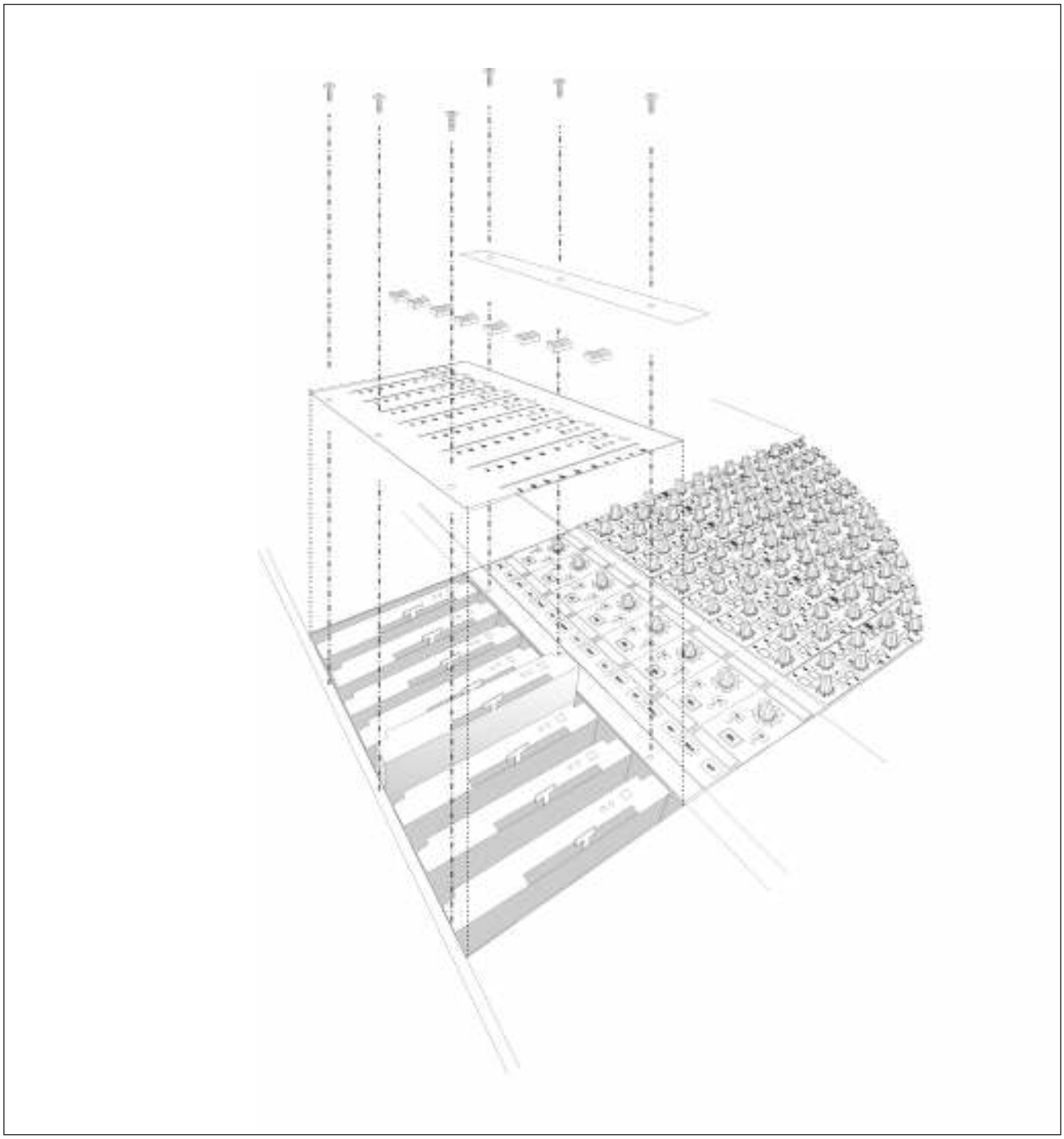
First, remove the scribble strip (three screws). Now remove the Solos and Cuts Panel (629922X1) that fits across the bottom of each bay of eight channels; remove the two countersunk screws, then carefully lift the panel clear onto a piece of foam or bubble-wrap. Disconnect the ribbon and put the panel to one side.

Each channel strip is connected to the frame of the console by three screws – one at the top next to the meters, one at the bottom (revealed when the Solo and Cuts Panel has been removed) and one at the rear of the console just above the channel's XLR connectors (you will have to look carefully to find this one). When the screws have been removed, screw the module puller into the top hole. Using both the puller, and the finger hole next to the bottom screw, pull the channel strip clear from its edge connectors.



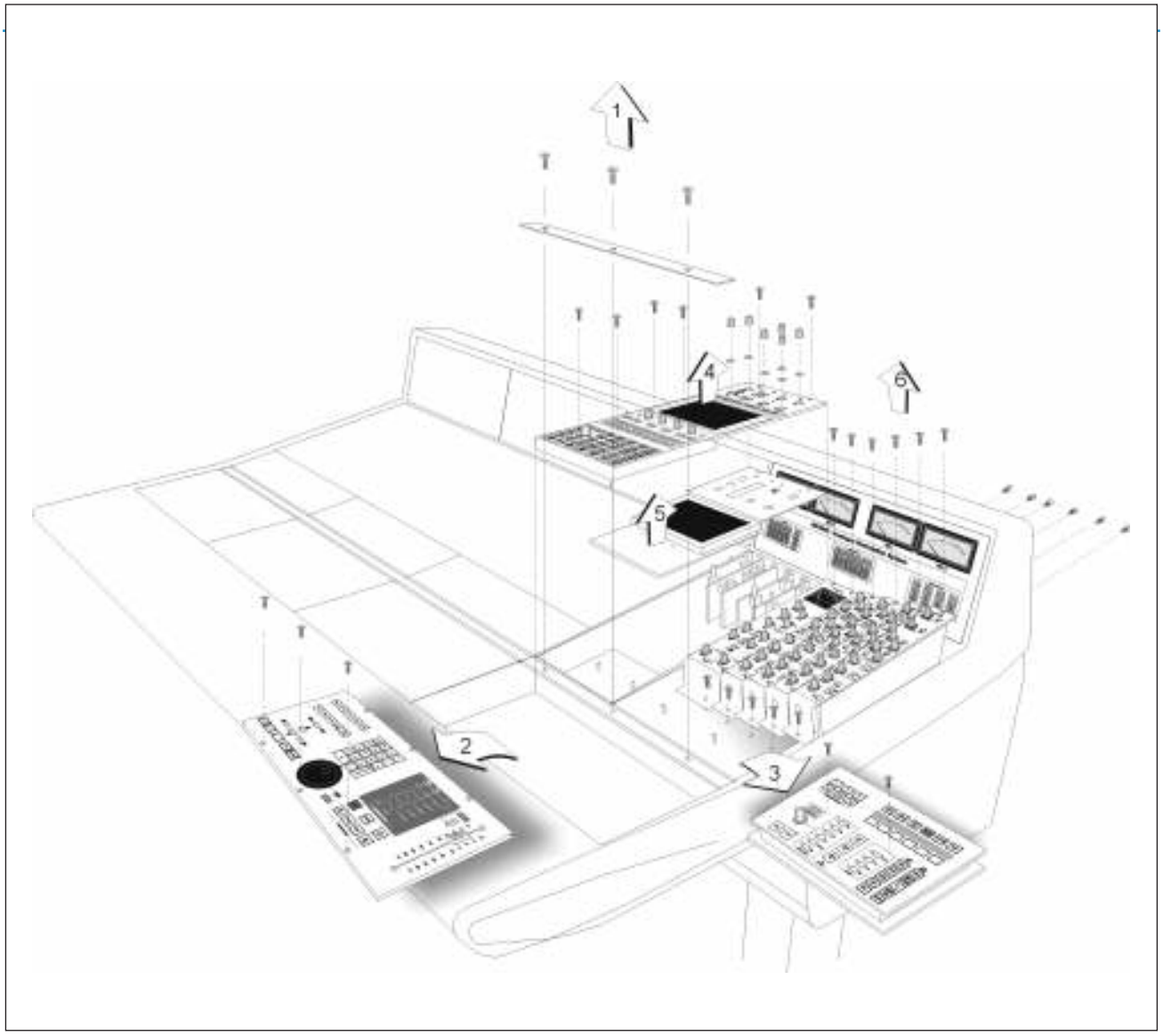
The Channel Fader (629924X1)

First remove all of the fader knobs from the faders in that bay. Do this by simply pulling firmly on each one until it separates from the fader tang. Then, unscrew the six countersunk screws and remove the top plate. Each fader can then be lifted clear from its connector on the bus card. When reassembling, the top plate has locating pins that locate into each fader to ensure its correct positioning.



THE CHANNEL METER PANEL (629923X1 / X2)

First remove the top trim by unscrewing the five screws that secure it to the console frame, and lift it clear. Now refer to the illustration on Page A-16. Each meter panel is secured by four screws across the top. Remove these and lift the meter panel clear, taking care to disconnect the ribbon connectors.



Centre Section Cards

Four centre section cards are located beneath the large panel that contains the Talkback and Oscillator controls, LCD display, and DAW soft keys. These are:

- 629651X3 6-Track Select
- 629652X3 2-Track Select & Monitor Inserts
- 629653X4 Gain and MDAC control/ Talkback and Listen
- 629654X4 Monitor Outputs

To access these cards, first remove the knob caps from the six rotary controls in the oscillator, listen mics etc. area. Now remove the four screws from the panel. Lift this panel onto its side, taking care not to damage the ribbon connecting it to the Motion Control panel. Beneath the panel is the metalwork containing the LCD screen. Unscrew the two screws at the bottom of this and lift it to one side. The cards are in numerical order from left to right: 651, 652, 653, 654.

The remaining five audio cards can be removed in a similar way to the channel strips. In order, from left to right, they are:

- 629928X2 Centre Section Compressor/Mix/Rec/Foldback
- 629918X1 Dynamics 1
- 629918X2 Dynamics 2
- 629919X1 8-Track / Echo Returns
- 629919X2 Aux Bus / Echo Returns

Note: The two Dynamics cards (629918X1 and X2) are electronically identical. Three links (LK1, LK2 and LK3) are fitted to Dynamics 1 to differentiate between the two modules. For fault finding purposes the two Dynamics cards (629918X1 and X2) may be swapped with each other. When exchanging the two modules ensure that only the module fitted in the Dynamics 1 slot has links LK1, LK2 and LK3 fitted.

TROUBLESHOOTING CHART – CHANNEL BAYS

Problem Problem	Check Check	Solution Solution
Channel Meter Panels do not function correctly.	Are the ribbon connectors in the rear of the Meter Panels seated correctly?	If no, re-seat as required.
	Swap Meter Panels 1 and 3. Do the meters in Bays 2 and 3 now work? Note: Channel Meter information from the CPU is buffered through Bay 3's Meter to Bay 2 and then on to Bay 1.	If yes, replace the Meter Panel in Bay 1.
	Remove the Meter Panel in Bay 3. Remove the screening can fitted around the processor. Check the ribbon connection in socket PL6.	if no, re-seat as required.
Solo and Cuts Panel in one bay does not function.	Is the ribbon connector on the rear of the panel seated correctly?	If no, re-seat as required.
	Check fuse FS1_4V on the 626630X1 Fader Buscard.	Replace as required – replacement fuses are supplied with the console.
	Swap the problem panel with a working panel from another bay. Does the problem stay in the same bay?	If not, replace the Solo and Cuts Panel.
	Are the ribbon connections to the fader bus card in the bay displaying the fault seated correctly?	Re-seat as required.
	Swap the fader bus card in the faulty bay with a known working bus card from an alternate bay. Does the problem stay in the same bay?	If no, replace the fader bus card.
Raising the Channel Fader gives no increase in channel gain.	Swap the fader with one from an adjacent channel. Does the problem follow the fader?	If yes, replace the fader.
	Swap the channel strip with an adjacent channel. Does the problem follow the channel strip?	If yes, replace the channel strip.
All channel strips in one bay do not function.	Refering to Control Overview diagram, ensure that the Multidrop Bus connector between the Channel Backplane and the CPU is seated correctly.	Re-seat as required.

TROUBLESHOOTING CHART – CENTRE SECTION

Problem	Check	Solution
Motion Control Panel does not function.	Is the connector labelled IN on the Motion Control Panel seated correctly?	If no, re-seat as required.
Workstation Panel does not function.	Is the connector labelled WSINOUT on the Motion Control Panel seated correctly?	If no, re-seat as required.
	Is the connector labelled MONINOUT on the Monitor Control Panel seated correctly?	If no, re-seat as required.
Monitor Panel does not function.	Is the connector labelled MONINOUT on the Motion Control Panel seated correctly?	If no, re-seat as required.
	Is the connector labelled MONINOUT on the Monitor Panel seated correctly?	If no, re-seat as required.
GPIO port does not function.	Is the connector labelled PL2 on the Motion Control Panel seated correctly?	If no, re-seat as required.
	Is the connector labelled MONINOUT on the Motion Control Panel seated correctly?	If no, re-seat as required.
	Is the connector labelled MONINOUT on the Monitor Panel seated correctly?	If no, re-seat as required.
Video Display does not function.	Remove Workstation Panel. Remove display panel. Is the 30–pin ribbon connector seated correctly?	If no, re-seat as required.
	Is the connector labelled DVIDEO2 on the CPU card seated correctly?	If no, re-seat as required.
Centre Section meter does not function.	Is the connector labelled IN on the Meter Panel seated correctly?	If no, re-seat as required.
	Is the connector labelled PL11 on the CPU seated correctly?	If no, re-seat as required.

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H GLOSSARY OF TERMS

Analogue Focus Mode	Channel faders control the channel audio; channel meters show analogue input levels. Channel Rotary Encoders control DAW parameters.
Bass Management	A system designed to ensure that all the bass recorded on your DAW tracks is reproduced correctly on the monitor speakers. Put simply, bass content below the cutoff frequency of the main monitors is combined and fed to a subwoofer, thereby effectively extending the response of the main outputs.
Channel V-Pot	The rotary controls on the channel Solos and Cuts panels.
Console Focus Button	The button on the Master Control Panel that looks like this:  It selects Analogue or DAW Focus Mode.
DAW Focus Mode	Channel faders control DAW fader levels. Channel meters show DAW meter levels. Channel Rotary Encoders are available for other DAW functions such as pan or send controls.
Master Control Panel	The panel below the screen and soft key area.
Master Send V-Pot	The only knob on the Master Control panel – used to cycle through available sends. Also incorporates a 'push to flip' function used to flip send levels from the rotary encoders to the channel faders,
Plug-in Editor V-Pots	The four rotary encoders below the TFT screen.
Track Busses	Eight console-wide mono busses that can be used as feeds to your DAW inputs, as FX sends, or pretty much anything else you can think of.

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I LINK OPTIONS

There are a number of internal link options that may require adjustment. Refer to page A-14, 15 for information on accessing the relevant PCB.

629653X1/2 S/A GAIN & MDAC CONTROL / TB & LISTEN

Link	Position	Default	Function
LK6	Fitted	•	0V to 0VA
LK1	A	•	Ext TB Mic input has 48V phantom power
	B	-	Ext TB Mic input has no phantom power
	C	-	Ext TB Mic has 1.5V phantom (for electret microphones)
LK2	1-2 (Left)	•	Ext TB Input balanced
	2-3 (Right)	-	Ext TB Input pin 3 grounded (for use with electret mic)
LK3	A	•	Listen Mic input has 48V phantom power
	B	-	Listen Mic input has no phantom power
LK4/5	1-2 (Right)	-	LFE 80Hz hi-pass filter rolls off at 12dB/octave
	2-3 (Left)	•	LFE 80Hz hi-pass filter rolls off at 24dB/octave
629653X2 only			
LK10*	1-2	•	Surround feeds LFE when Bass Management is On
	2-3		Surround does not feed LFE

*Use in conjunction with LK12 on 629654X2 card

629654X1/2 S/A MON OUTPUTS

Link	Position	Default	Function
LK7	Fitted	•	0V to 0VA
LK1/2	A	•	Left 80Hz lo-pass filter rolls off at 12dB/octave
	B	-	Left 80Hz lo-pass filter rolls off at 24dB/octave
LK3/4	A	•	Right 80Hz lo-pass filter rolls off at 12dB/octave
	B	-	Right 80Hz lo-pass filter rolls off at 24dB/octave
LK5/6	A	•	Centre 80Hz lo-pass filter rolls off at 12dB/octave
	B	-	Centre 80Hz lo-pass filter rolls off at 24dB/octave
LK8/10	A	•	Left Surround 80Hz lo-pass filter rolls off at 12dB/octave
	B	-	Left Surround 80Hz lo-pass filter rolls off at 24dB/octave
LK9/11	A	•	Right Surround 80Hz lo-pass filter rolls off at 12dB/octave
	B	-	Right Surround 80Hz lo-pass filter rolls off at 24dB/octave
629654X2 only			
LK12*	Fitted	•	Bass management switches Hi Pass filters in to surround
	Not fitted		Surround Hi Pass filters disabled

*Use in conjunction with LK10 on 629653X2 card

J AFADA

A-FADA (Analogue Fader Accesses DAW Automation) utilizes the automation system of a DAW to control the analogue channel levels by linking the DAW fader and mute data to the console's channel level and cut functions. It has been superseded by δ-Control which offers far more flexibility and operational benefits than A-FADA without any of the limitations such as being limited to 32 console channels (Pro Tools HUI) and having to use only the standard DAW mix commands available from a MIDI connected hardware control surface.

The descriptions below are for information only as the A-FADA command keys can still be found in the **SSL** / **DAW** menu together with the DAW 1 and DAW 2 select keys.

A-FADA is enabled in the TFT screen by selecting **SSL** / **DAW**, and then selecting **DF 1** or **DF 2** (control from DAW Layer 1 or Layer 2). If you then play the DAW automation or move an on-screen fader, you will see the analogue faders move – these movements are affecting the analogue signal levels within Duality.

> *If only one DAW option is available, you have only set-up one DAW layer in the SSL > Misc > Setup menu.*

The console's analogue faders are controlled by the automation information from the DAW tracks assigned to channels 1-32 (or up to 48 if MCU control is used). The automation data is applied to the signal path assigned to the channel fader, regardless of the DAW channel formats.

> *If Single Layer is selected in the SSL > Misc > Setup menu, placing both DAW layers on the control surface at once, the SSL > Daw > DF 1 and DF 2 are linked together – either switch will activate A-FADA for both DAWs. A-FADA will follow the channel counts assigned to each DAW (also configured in the SSL > Misc > Setup menu).*

Once A-FADA mode has been enabled, the console faders will control the corresponding DAW faders, and the fader position signal from the DAW will control the console fader positions and analogue gain, regardless of the selected Focus mode.

In Analogue Focus the channel cut switches control the analogue cuts directly, while in DAW Focus they are routed via the DAW and will be recorded as mute automation. Analogue Focus mode allows channels to be muted as far as monitoring the mix is concerned, without writing mute automation or needing to change automation modes.

The console solo switches are connected to the analogue signal path in both Focus modes.

In order to lock console channels to the same DAW track (and thus its automation), Channel/Bank scrolling is disabled in A-FADA mode.

SNAP

The snap function, located in the TFT screen's DAW menu, fires a snapshot of the console analogue fader positions, automatically stored when A-FADA mode is enabled. When A-FADA mode is enabled, the console faders will move to match the current DAW fader positions. Pressing the snap switch will move the faders back to the previously stored positions, allowing the analogue balance to be restored and written in to the DAW automation. Mix Conversion

Converting AFADA Mixes

δ-Control automation replaces the AFADA automation option that was included in the Duality V4 software. To convert a mix that used AFADA simply add a δ-Ctrl plug-In to each track in the session that was controlling a Duality channel and use the *Cut and Paste Special* edit commands to transfer the track volume automation data to the plug-in volume automation lane.

AFADA Setup Guidelines

When moving the faders, there is a good chance that you will be affecting the track output from the DAW and the channel output within the AWS simultaneously, thus duplicating all of the level changes – an effect which is probably unwanted.

There are a number of potential solutions to this duplication:

1: Use pre-fade outputs

Route DAW tracks from pre-fader to the appropriate analogue outputs. In Pro Tools this can be done using a prefader aux send and setting the aux gain to 0dB. In Logic route an aux send to a different bus on each channel then route the aux sends to the appropriate analogue outputs. De-assign the track outputs to avoid summing pre and post fade signals. Within the DAW, fader movements will now only affect the Master bus and any other post-fader sends.

This also allows the creation of post fade aux sends within both the AWS and the DAW, providing some interesting creative options.

2: Create additional DAW tracks

Create 24(16) blank DAW tracks, and bank to appear on console channels 1–24(16). If you have automation you wish to re-use, copy it from the audio tracks and paste it to the blank tracks you have just created. You will then need to either disable or delete the automation from the original tracks.

If the automation is deleted rather than disabled, micro-automation (such as the removal of undesirable transients) can be performed on the original audio tracks within the DAW by temporarily disabling automation and scrolling to those tracks.

3: Use a dedicated DAW for analogue automation

Use two DAW layers, one for your audio and one for your automation. This will require you to have two DAWs running on either the same or two separate computers, and to enable both DAW layers within the console screen's **SSL** > **Misc** > **Setup** menu.

A variation on this is possible with Logic, which allows two (or more) controllers to be configured. This allows one layer to be used as a normal DAW controller and the second to be locked to 24(16) dedicated automation tracks.

Micro-automation (such as the removal of undesirable transients) could be performed on the original audio tracks within the DAW by entering DAW Focus mode and scrolling to those tracks.

K BLOCK DIAGRAMS

Following this page you should find four block diagrams. Two show signal flow in the AWS channel strip and centre section; two cover the power and control circuits. If any drawing is missing, please contact your local SSL distributor for a replacement.