Legend 3000

live sound

installation

audio visual

broadcast

Midas has been designing and manufacturing live performance mixing consoles for the world's most demanding sound engineers, performers and production rental companies since the early 1970s.

The evolution of Midas consoles throughout the 35-year history of this classic marque has always paralleled, and often led, increasingly sophisticated audio innovations for the world-wide entertainment technology industry. Raising the standards of sonic quality through continual research and development has always been - and still remains - our overall aim.

Equally important to us is the design and implementation of many new areas of control functionality and user-friendly desk operation to anticipate and accommodate the rapidly changing and expanding needs of audio professionals who specify Midas consoles for their major tours, festivals, international events, broadcast projects and prestigious fixed installations.

The Midas design pedigree has, since our birth, been founded upon a track record of achieving a unique symbiosis with working sound engineers around the planet - engineers who respect and endorse our proven technology in the light of their responsibilities to their internationally-based clients who are themselves the leading lights of our industry.

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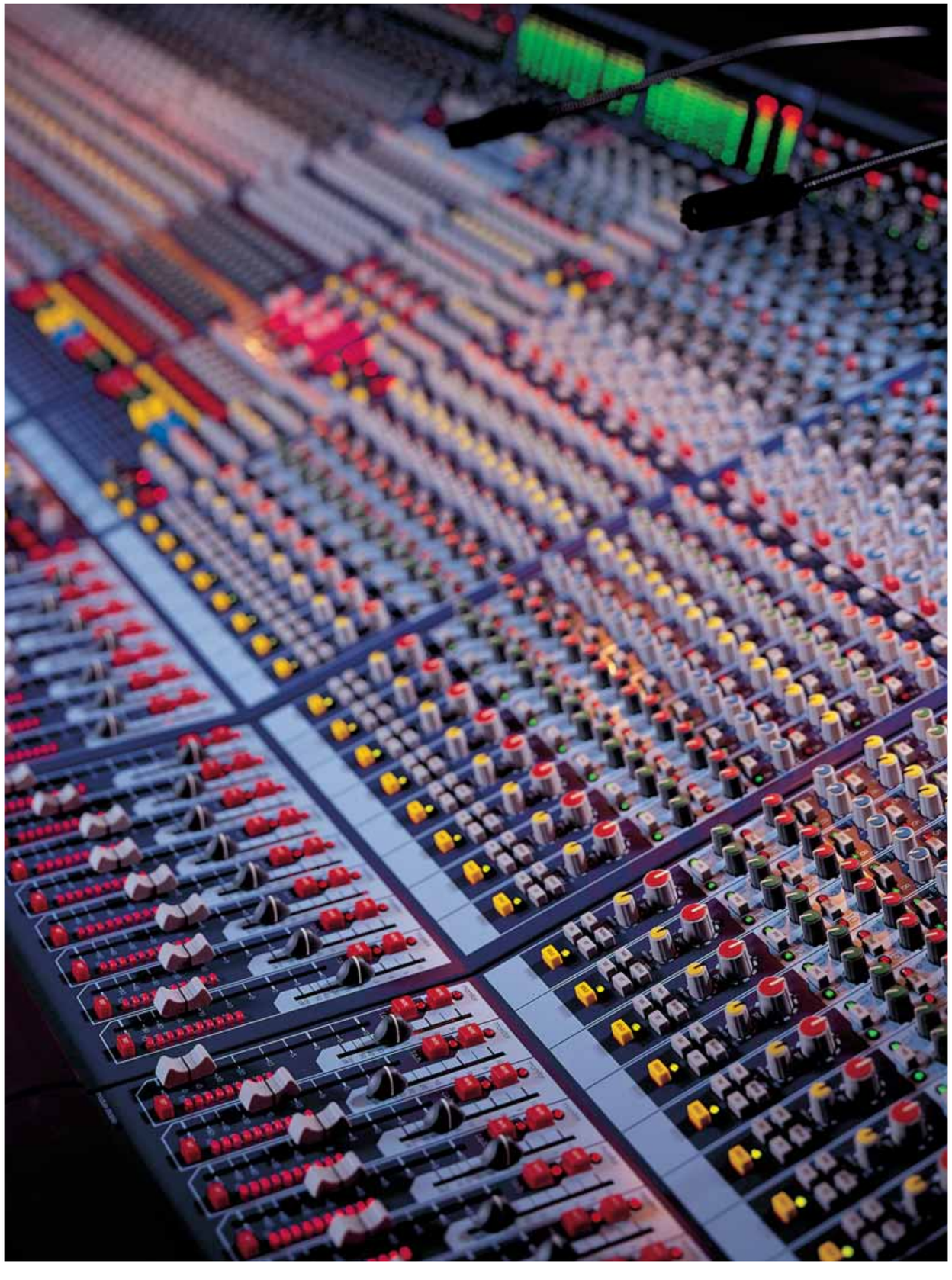


Introduction

The Midas Legend console combines the 'Midas' sound and reliability with unprecedented affordability for a console of its calibre. It is designed for the tour operator, hire company or installer who cannot justify the cost of a Midas Heritage yet who are reluctant to buy a 'second division' console. Legend includes the XL4's high performance preamps plus the XL3 EQ to deliver the trademark Midas sound, and it uses the same snapshot automation system as its larger cousins.. However there are also some innovative new features that make the console particularly attractive.

Firstly, a significant cost saving has been achieved by designing the Legend around blocks of eight channels, yet the clever design means that servicing is still very straightforward. Furthermore, acknowledging that many of the Legend's potential customers need on occasions to provide a monitor mix from the FOH position, each Legend input channel provides independent FOH and Monitor controls with dedicated EQ and faders. There are 12 highly flexible auxiliary sends, which may be used individually as foldback or FOH effects sends, and the user has complete freedom in how these are assigned. In the Legend, we can truly say that the only material compromise is on price.

Mono Input Module

The input module features XL4's monitor and front of house high performance preamps plus the XL3 EQ and has 12 fully configurable Aux sends. The channel features the Legend's unique topography whereby both the monitor and FOH controls are presented within the same channel strip and both sets of faders are located at the bottom of the strip for ease of use. A HI PASS filter is available pre- the insert point after which the signal path splits to feed both the FOH and MON paths.

Both the monitor and FOH signal paths can benefit from a XL3-derived 4-band equaliser, which features two fully parametric mid range sections and two variable frequency, shelving equalisers at the extremes. Each frequency section of the equaliser can be independently removed from the monitor signal path if desired and uniquely two additional sections of EQ are dedicated for monitor use only.

The insert point is normally pre EQ and acts on both signal paths but it can be switched to post - the front of house EQ where it will not affect the monitor signals.

12 AUX controls are provided and each can be globally assigned to derive signals from the FOH signal path or the MON signal path. The AUX PRE switches change the signal sent to the Aux busses from post fader to pre fader.

SIS: When the Spatial Imaging System is active, the mix can be configured for a three speaker system, a two speaker system or a blend of the two, so that the optimum degree of centre image focus and loudspeaker power sharing can be obtained. When the image control and Pan control are both set centrally, the channel signal will be routed equally to all three speakers.

The SOLO switch sends the input channel monitor signals to the MON PFL/AFL busses and also sends input channel front of house signals to the FOH PFL/AFL stereo busses. If the switch is pressed for a short time it will latch on or off, but, if it is held on for more than 1 second, the latching is disabled. By default, the Solo system is auto cancelling, though the SOLO ADD mode switch on the Master Module defeats the auto cancelling to allow multiple channel Solo monitoring. If the Master Module SOLO SIS is enabled, the front of house Solo busses will switch to LCR operation.

Separate MON MUTE and FOH MUTE switches are fitted and may be accessed via the snapshot automation. Independent MON and FOH FADERS provide independent adjustment of the monitor and front of house input channel levels and 10 ASSIGN LEDs display the status of the FOH VCA, MON VCA, and AUDIO Group assignments.

Mix Output Module

TALK BACK SECTION
The talkback section includes the expected monitor and talkback features, plus a brightness control for the console Littlites and LEDs. A TAPE input routes to the stereo and/or mono master busses.

The test oscillator is continuously adjustable over the range 50Hz to 5K while activating the integral pink noise switch overrides the oscillator. The signal generator output may be routed to the console's internal talk busses and to the talk external output XLR.

An on-board mic amp with phantom power accommodates all standard talkback mics and a number of routing options are available for the talk/signal generator signal where it can feed the external output, Groups 1,2,3 and 4 busses, Groups 5,6,7 and 8 busses or all the matrix busses.

There's also an inbuilt ambience mic preamp with phantom power and the Talk section includes a 4-band semi-parametric equaliser with swept mid controls. The meters can display levels from the Monitor Group, Stereo Return or Matrix signals.

MIX SECTION
The Mix section provides metering for the peak signal level at the post fader mix outputs while the MON switch acts globally across a single mix buss to reconfigure the input module and stereo Aux return module sends so that they derive their signal from the monitor signal path in place of the front of house signal path.

The Ambience level control enables an external microphone to feed the mix buss. The control provides continuous adjustment over the range +6dB to off.

The equaliser in this section is the full 4-band design used in the input channels and the EQ switch inserts the equaliser into the mix output signal path. Phase switch, Mute and Solo facilities are provided where the Mute may also be controlled via the snapshot automation system. SOLO sends the input mix signals to the MON PFL/AFL busses and to the FOH PFL/AFL stereo busses. Solo on/off latching is as per the input section.

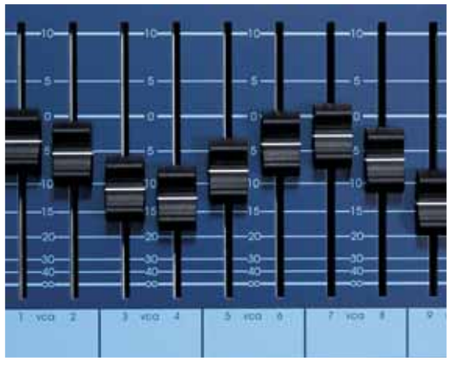
The MIX FADER provides continuous adjustment of mix levels from + 10dB to off.

VCA MASTER SECTION
The VCA Master section provides centralised control over the VCA functions of the Legend and includes the VCA MUTE switch, which acts on the pre and post fader signals of any input channels assigned to the VCA master. This function can also be controlled from snapshot automation.

A VCA SOLO switch monitors the VCA master fader by creating a mix on the Solo busses comprising all those input channels that are assigned to the VCA master. If a VCA Solo switch is pressed for a short time it will latch on or off, but if it is held on for more than 1 second the latching is disabled.

When the console is operating in SOLO ADD MODE, input channels have priority over VCA solos and will temporarily override them.

The VCA MASTER FADER controls the output level of any input channels assigned to the VCA master over the range +10dB to off



Master Module

GROUP SECTION
This section includes the Group Pan controls, which can be configured for either 2-speaker or 3-speaker panning. A MONO switch connects the post fader Group signal to the mono master buss while a ST switch routes the post fader Group signal to the master stereo buss via the Pan control. The Group MUTE switch function may also be controlled via snapshot automation.

The SOLO switch routes Group signals to the MON PFL/AFL busses and the FOH PFL/AFL stereo busses. Solo on/off latching is as per the input section.

MATRIX SECTION
This section includes metering for the Masters and Solo Monitors. Meter selection defaults to Master L, C, R and Ambient input, but when a Solo is active, the meters show FOH Solo L, C, R and Monitor Solo levels. If the Solo is monitored pre fade, the meters also follow this selection. Matrix metering is accommodated in the Mix output section.

MATRIX SEND controls (1 to 8) set the levels sent from the Group outputs to the matrix busses while the LEFT/RIGHT rotary controls provide continuous adjustment of the levels sent from left and right master outputs to the matrix busses. A CENTRE (mono) rotary control sets the levels sent from the mono master output to the matrix busses.

An EXT input is summed on to the matrix buss and has its own level control.

The MUTE switch mutes the matrix post level control signals and can be controlled from snapshot automation.

The SOLO switch sends matrix signals to the MON PFL/AFL busses and the FOH PFL/AFL stereo busses. Solo on/off latching is as per the input section.

MASTER SECTION
The BALANCE control functions as a buss left/right balance trim for the pre-insert left and right master signal paths. The stereo master MUTE switches (which are not linked to the snapshot system) cut the post fader output signals.

The mono master MUTE switch (which is not linked to the snapshot system) cuts the post fader output signal fader.

The two master FADERS control the output levels of the main mix over the range +10dB to off.

The master module includes the Aux Return master controls plus metering for the Group, Stereo Return or Matrix signals. Source selection is via the Meter Selector assign switches on the mix module. A 4-band, semi-parametric equaliser is available in the stereo effects return signal path.

AUX controls (1 to 12) provides continuous adjustment of the level sent from the corresponding stereo effects return to the Aux busses and Aux busses may be globally assigned to derive their signals from the FOH signal path or the MON signal path. The returns have level controls, pans and Mute switches and the MONO switch routes the post fader stereo effects return signal to the mono master buss. The ST switch routes the post fader stereo effects return signal to the master stereo buss via the Pan control.

The SOLO switch sends stereo effects return monitor channel signals to the MON PFL/AFL busses and sends front of house stereo effects return signals to the FOH PFL/AFL stereo busses. Solo on/off latching is as per the input section.

The FOH MUTE switch mutes the front of house stereo effects return signal path at all points and can be automated. The stereo effects return audio Group assignments are programmable while the central controller MODE switches and ASSIGN keys select the desired audio Group. SET switch toggles the stereo effects return buss feed on and off.

MONITOR SECTION
The MONO SOLO TRIM adjusts the incoming Solo level before sending it to the monitor output while the STEREO SOLO TRIM adjusts the incoming Solo level before sending it to the monitor output. The MONO Master switch routes the post fader mono Master Mix to the mono Local Monitor output.

The mono SOLO switch routes Soloed signals to the mono Local Monitor output and overrides any signals sent from the mono master.

The SIS switch routes Solo signals to the mono and stereo Local Monitor outputs with full left, centre, right imaging overriding signals from other sources whenever a Solo is active.

The stereo SOLO switch routes Solo signals to the stereo Local Monitor outputs whenever a Solo is active on the console, overriding any signals sent from the Mono Master, Stereo Master or Tape Input.

The MONO Master switch routes the post fader mono Master Mix to the stereo Local Monitor outputs while the ST Master switch routes the post fader stereo Master Mix to the stereo Local Monitor outputs.

A TAPE switch routes the stereo tape input to the stereo Local Monitor outputs and the MON switch reconfigures the local monitor signals to be derived from the MON signal paths. FOH signals are monitored as a default.

Master Module

The Local Monitor level control gives continuous adjustment of all three Local Monitor output levels. The Local Monitor outputs are fitted with Mute switches.

A PHONES output is available where operating the SOLO PFL switch sends the mono PFL Solo buss signals to the headphones and causes the AFL signals to be replaced by the Local Monitor outputs. This also changes the Solo meters to monitor PFL Solo buss signals.

The SOLO ADD MODE allows multiple channel access to the Solo busses. When the Solo Add mode is off, the action of pressing a Solo switch will cancel any previously active Solo. When the Solo add mode is on, the auto cancelling is defeated, which allows multiple channel or output soloing. When the SOLO ON/CLEAR switch is pressed it clears any active Solo switches.

AUTOMATION CENTRAL CONTROL SECTION
This section provides access to the automated features of the Legend and follows the same paradigm as the Heritage and XL4 consoles.

The interlocking FOH VCA, MON VCA, Group and Aux switches determine the current assignment/display mode for the input module assign LEDs. If they are pressed down for more than 0.5 second, the interlock is removed. This function is used for 'clear mode'.

The ASSIGN KEYS are used to change the settings for input VCA FOH, VCA MON, audio Group or Aux assignment in conjunction with the SET switch on each channel. The mode switches can be used to select which assignments are cleared; pressing VCA mode clears the VCA routing, pressing Group mode clears the Group routing and so on. Press the mode switch (long press) to engage more modes for simultaneous clearing.

SNAPSHOT AUTOMATION SYSTEM
The console is fitted with a powerful Snapshot automation system capable of storing and recalling up to 500 snapshots. A snapshot stores the settings of the channel mutes controls, the routing assignments and VCA assignments.

When the LOCK switch is illuminated, all assignment changes are disabled and virtual fader operation is locked (either on or off). The console automatically reverts to a locked state if no assignment controls are operated within a 90 second period.

When Solo In Place is selected, any input Solo that is pressed causes all the other channels to be muted. This switch must be pressed for 3 seconds before it will operate as a precaution against accidental operation

An A/B switch selects which of two micro cards is controlling the console assignment and automation systems. For reliability, the entire assignment and automation systems are duplicated and the console can operate on either of the systems. All snapshots are stored to BOTH systems. Operating the STORE key will store the current console assignments and settings to the current snapshot.

Snapshots can also be programmed to generate MIDI information so that when a snapshot is recalled, these messages are sent via the console's MIDI Out.

The system menu includes the LOCK function, which selects from four possible levels of console operation: -

TOTL All automation and assignment functions are disabled
RCAL Only recall and assignment functions are available.
STOR Scene storage/editing, recall and assignment are operational
SYST All functions are available.

The CHECK switch provides a preview of the mute status on the console surface WITHOUT recalling the snap shot settings. While in check mode, the ACT/ SCENE C/O, and UP/DOWN switches may be used to step through the snapshots. Snapshots can be stored in the automation system as either ACTs or SCENEs where scenes are simply subsets within acts.

The LAST, NOW and NEXT switches recall snapshots to the console surface.

Helix

Helix, the revolutionary digital EQ device from Klark Teknik, offers the ability to link to all Midas consoles in the Heritage, Legend and Siena range via the solo tracking system. This means that when you press any solo key on the console, the EQ for that input or output (outputs only on a Siena) is instantly displayed on the Helix master unit, or as an option on a wireless PC, ready for immediate control. Naturally you have complete access to all the Helix functions allocated to that input or output. A RS-232 connection is supplied on the rear panel of Helix for this purpose, and up to 64 channels of Helix can be interconnected using standard microphone cables. It's all the EQ you will ever need, as fast as you need it.

Options & Features

CAN Bus
CAN was originally used as the communication device for engine management systems in the automotive industry. Due to its rugged and reliable nature it is the perfect system to allow Legend and Heritage consoles to communicate with each other. Any mixture of Legend or Heritage series console may be linked in this manner. When linked, one console becomes the master and all the other linked consoles become slaves. Linked functions include all automation systems including scene recall and VCA and Solo logic.

MIDI
Legend 3000 allows you to fire four different MIDI messages per scene thus allowing you to control outboard devices with the MIDI standard. The console may also be configured to recall scenes triggered by MIDI messages.
This is simply programmed via a menu in the automation section of the console.

RS-232 Legend Utilities Software
The Legend Utilities software (available from www.midasconsoles.com) is Windows software that will allow you to download new operating code into the console. It will also allow you to down and upload memories to and from the console and store them as PC files.

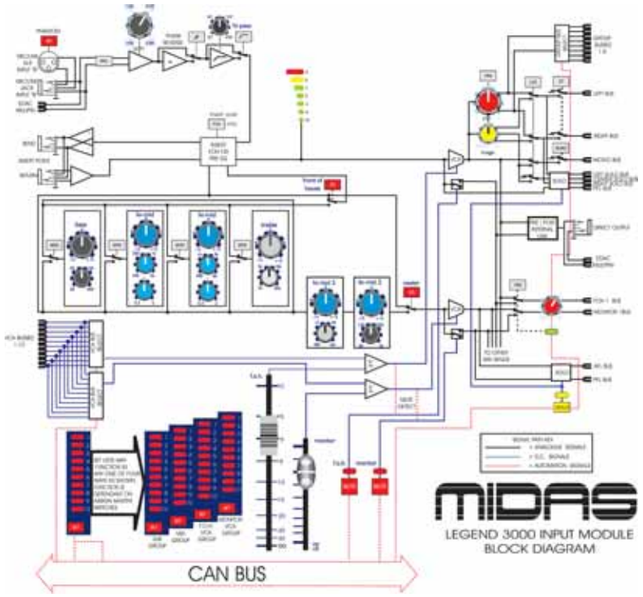
L3750 Power supply unit
A smaller, lighter, cooler and quieter design. There are two PSUs in this 2U rack mountable unit. The unit is capable of hot swapping the individual supplies and there is also the added benefit of rail indication on the console.

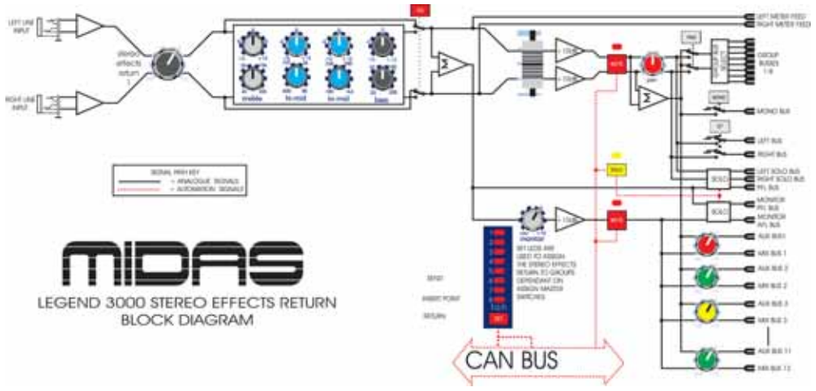
Dimensions and Weight.
Width 482.6mm (19")
Height 90 mm (3.54")
Depth 343mm (13.5")
Depth inc connectors 389mm (15.31")
Weight 13Kg (28.6lbs)

Packages
The Legend 3000 can be specified in two "turnkey" packages to suite your application. There is a touring package that consists of a Legend 3000, a L3750 power supply, Littlites, dust cover and flight case. The install package is similar to the touring package however a crate replaces the flightcase.

Warranty
When you purchase a Legend 3000, or in fact any Midas console, you will get an extra peace of mind with yet another industry first a 3-year warranty to guard against any possible problems arising from the desk or power supplies.

Block Diagrams





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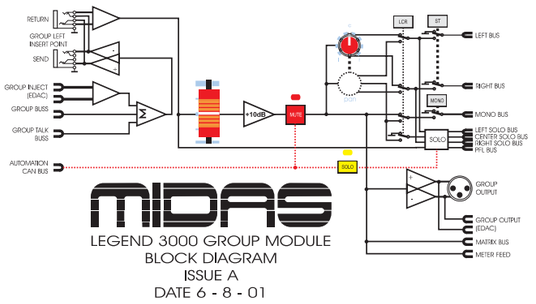

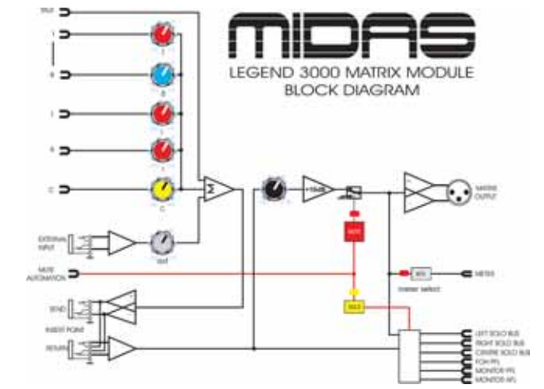

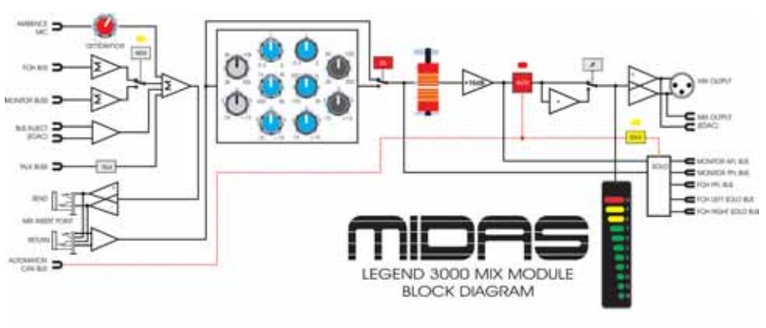

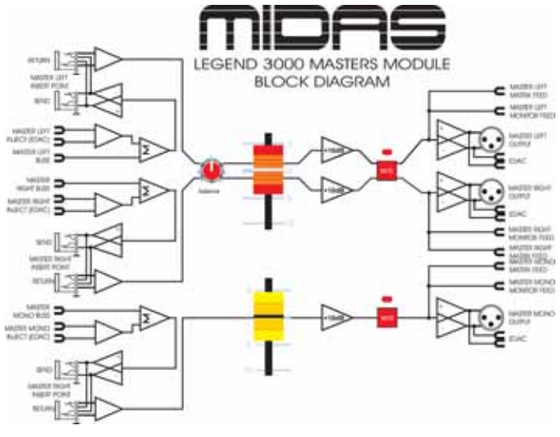

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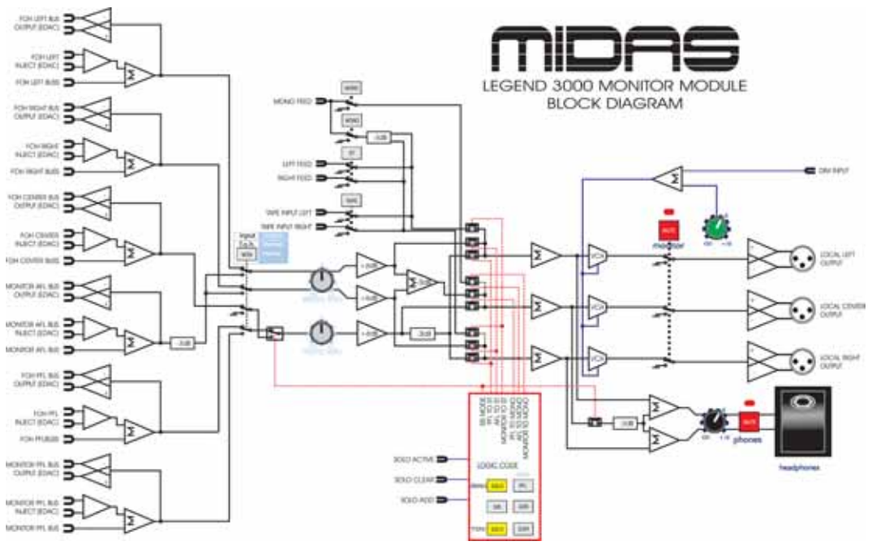
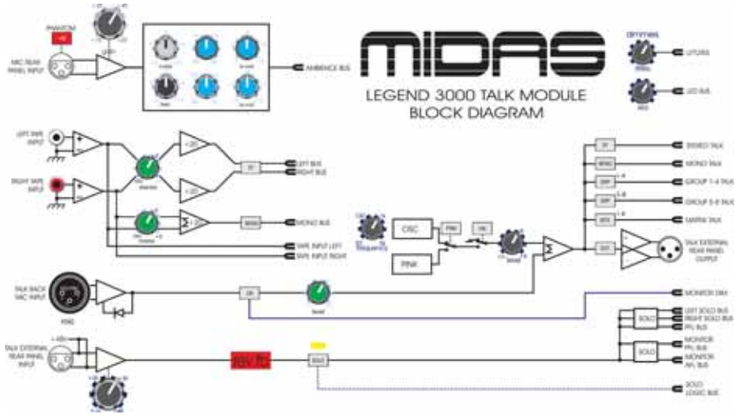
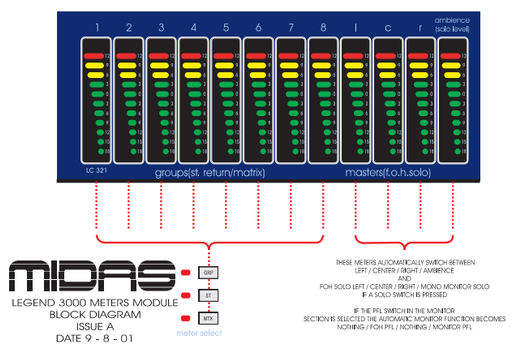






Specifications

Input Impedance	Mic	2k Balanced	
	Line	20k Balanced	
Input Gain	Mic	Continuously variable	all faders at 0dB + 15dB to + 60dB
	Mic + Pad	Continuously variable	- 15dB to + 30dB
	Line Level Inputs	0dB	
Maximum Input Level	Mic	+6dBu	
	Mic + Pad	+31dBu	
	Line Level Inputs	+21dBu	
CMR at 1kHz	Mic (gain + 40dB)	80dB	
	Mic +Pad (gain 0dB)	50dB	
Frequency Response (20 to 20kHz)	Mic to Mix (gain + 40dB)	+0dB to -1dB	
Noise (20 to 20kHz)	Mic EIN ref.150 Ohms (gain + 60dB)	-128dBu	
System Noise (20 to 20kHz)	Summing Noise (48 channels routed with faders down)	-80dB	
	Line to Mix Noise (48 channels routed at 0dB, pan centre)	-75dB	
Distortion @ 1kHz	Mic to Mix (+ 40dB gain, 0dBu output)	0.05%	
Crosstalk @ 1kHz	Channel to Channel	-90dB	
	Channel to Mix	-90dB	
	Maximum Fader attenuation	80dB	
Output Impedance	All Line Outputs	50 Ohms Balanced Source to drive 600 Ohms	
	Headphones	to drive 100 Ohms	
Maximum Output Level	All Line Outputs	+21dBu	
	Headphones	+21dBu	
Nominal Signal Level	Mic	-60dBu to +10dBu	
	Line	0dBu	
	Headphones	+10dBu	
Equaliser			
FOH & MON input	Hi pass Slope		12dB / Oct
	Hi pass Frequency	Continuously variable	-3dB point from 20Hz to 400Hz
FOH input & MON output	Treble Gain	Continuously variable	+15 dB to -5dB Centre detent = 0dB
	Treble Shelving Freq.	Continuously variable	-3dB point from 1k to 20k
	Hi Mid Gain	Continuously variable	+15dB to -15dB Centre detent = 0dB
	Hi Mid Freq.	Continuously variable	centre from 400Hz to 8k
	Hi Mid Bandwidth	Continuously variable	0.1 Oct. to 2 Oct Centre detent = 0.5 Oct
	Lo Mid Gain	Continuously variable	+15 dB to -15 dB Centre detent = 0dB
	Lo Mid Freq	Continuously variable	centre from 100Hz to 2k
	Lo Mid Bandwidth	Continuously variable	0.1 Oct. to 2 Oct Centre detent = 0.5 Oct
	Bass Gain	Continuously variable	+15dB to -15dB Centre detent = 0dB
	Bass Shelving Freq	Continuously variable	- 3dB point from 20Hz to 400Hz
MON input	Hi Mid Gain	Continuously variable	+15dB to -15dB Centre detent = 0dB
	Hi Mid Freq.	Continuously variable	centre from 400Hz to 16k
	Lo Mid Gain	Continuously variable	+15 dB to -15 dB Centre detent = 0dB
	Lo Mid Freq	Continuously variable	centre from 50Hz to 2k

Overview and Statistics

The 52 Channel Legend 3000 is a 28 buss console with an additional 12 x 6 output matrix.

The busses are	8 audio groups	= 8
	12 mono aux	= 12
	1 stereo master	= 2
	1 mono master	= 1
	1 stereo AFL	= 2
	1 mono PFL	= 1
	1 monitor AFL	= 1
	1 monitor PFL	= 1
	TOTAL	= 28

10 VCA sub groups which include VCA sub group muting

A total XLR output count of 33 are:
8 audio group outputs
12 aux outputs
6 matrix outputs
3 master outputs
3 local outputs
1 talk external output

2060 automated switch functions are:
576 input channel aux virtual assign switches
1344 input channel VCA sub group virtual assign switches
96 input channel mute switches
8 audio sub group mute switches
12 aux mute switches
10 VCA master mute switches
6 matrix mute switches
8 stereo effects mute switches

A total XLR input count of 51 are:
48 channel mic inputs
2 talk mic input
1 ambient mic input

A total of 264 balanced 1/4 inch jacks for inserts are:
48 input channel insert sends
48 input channel insert returns
8 audio group insert sends
8 audio group insert returns
12 aux insert sends
12 aux insert returns
6 matrix insert sends
6 matrix insert returns
3 master insert sends
3 master insert returns
(48 channel line inputs)
(8 stereo effects inputs)
(6 matrix external inputs)
(48 direct channel outputs)

60 long throw faders for mix control:
72 short throw faders
There are a total of 72 peak programme meters with 11LED segments on all outputs and 7 LED segments on input channels.

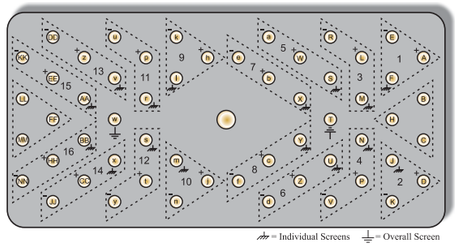
Input EDAC per channel are:
8 x Pre insert direct output
8 x Mic/Line inputs

Mix and Master EDACs are:
12 mix outputs
12 mix bus injects
3 master outputs
3 master bus injects

Group and solo EDACs are:
8 group outputs
8 group bus outputs
6 solo bus outputs
6 solo bus injects

Lamps:
6 on a 52 channel

EDAC Wiring Diagram



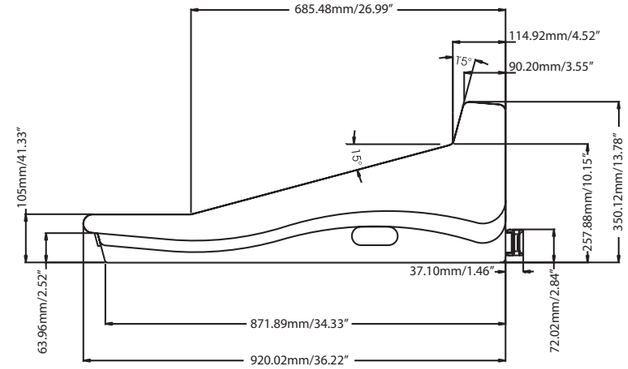
INPUTS	MIX & MASTERS Mix Out & Mix Bus Injects Master Out & Master Bus Injects	GROUP & SOLO Group Out & Group Bus Injects Solo Out & Solo Bus Injects
1 Mic In1	1 Mix 1	1 Group 1
2 Mic In 2	2 Mix 9	2 FOH L
3 Mic In 3	3 Mix 2	3 Group 2
4 Mic In 4	4 Mix 10	4 FOH C
5 Mic In 5	5 Mix 3	5 Group 3
6 Mic In 6	6 Mix 11	6 FOH R
7 Mic In 7	7 Mix 4	7 Group 4
8 Mic In 8	8 Mix 12	8 MON AFL
9 Direct Out 1	9 Mix 5	9 Group 5
10 Direct Out 2	10 Master L	10 FOH PFL
11 Direct Out 3	11 Mix 6	11 Group 6
12 Direct Out 4	12 Master C	12 MON PFL
13 Direct Out 5	13 Mix 7	13 Group 7
14 Direct Out 6	14 Master R	14 Chassis
15 Direct Out 7	15 Mix 8	15 Group 8
16 Direct Out 8	16 Chassis	16 Chassis

Weights: (out of flight case)

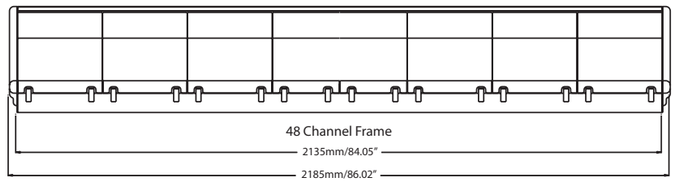
28 channel	24 mono/4 stereo	71kg	156.5lbs
36 channel	32 mono/4 stereo	85kg	187.4lbs
44 channel	40 mono/4 stereo	100kg	220.5lbs
52 channel	48 mono/4 stereo	114kg	251.3lbs

These weights are approximate.

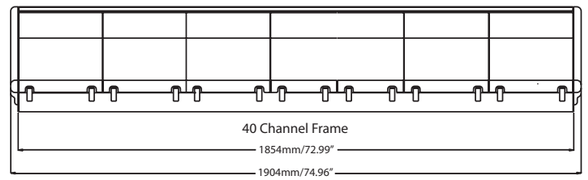
Frame Sizes



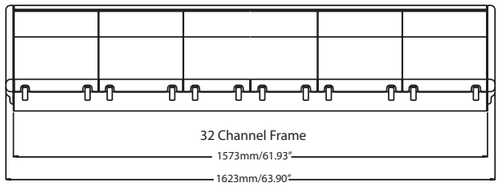
52 Channel (48 mono/4stereo)



44 Channel (40 mono/4stereo)



36 Channel (32 mono/4stereo)



28 Channel (24 mono/4stereo)