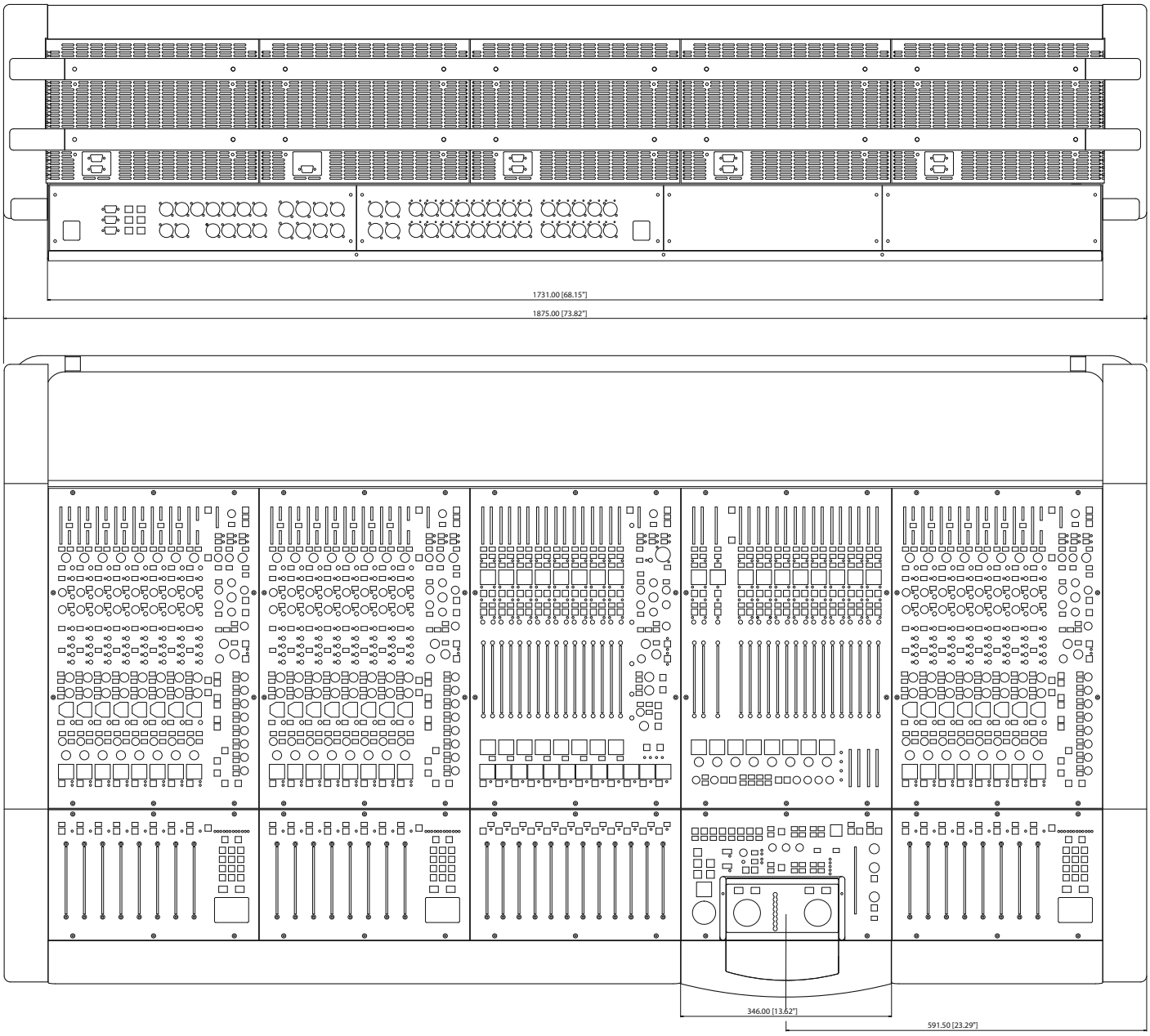
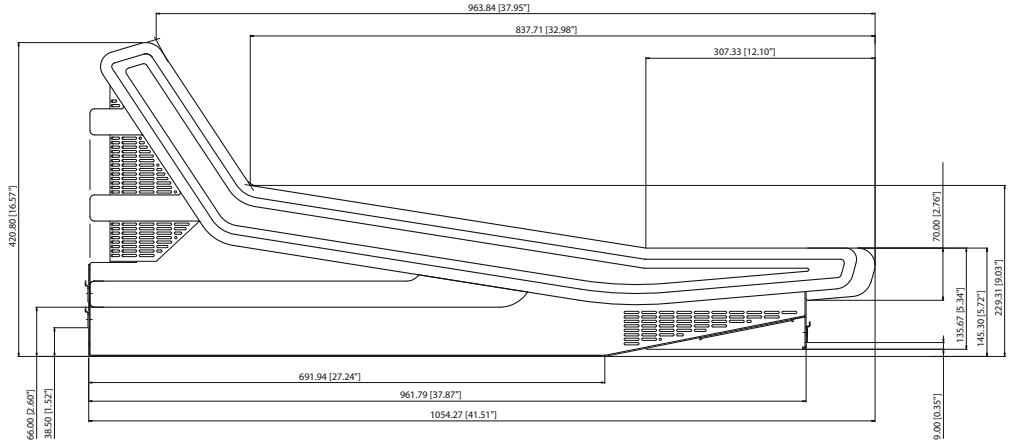
XL8 Control Centre Dimensions:





Please Note:
The depth of all 19 inch rack units are 410mm/ 16.14" including rear rack ears or 378mm/ 14.88" without rear rack ears.

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XL8

LIVE PERFORMANCE SYSTEM

An Introduction



MIDAS
DESIGNED FOR A PURE PERFORMANCE

Introduction: a new standard for live mixing.

[***Revolutionary*** *- rev·o·lu·tion·ar·y* ***adv.***
adj *: markedly new or introducing radical change;*]

The XL8 live performance system is truly revolutionary and heralds Midas' entry into the digital mixing realm. However, this is not merely another digital mixing console. XL8 offers an incomparable design combining exemplary sound quality, flexibility and reliability with an ease and familiarity of use unrivalled by other digital control surfaces. XL8 is the first of a new generation of open-architecture, cross-platform, integrated audio control and distribution systems, which brings control of not only audio, but other aspects of a live performance to a single, intuitive control centre.

As well as offering classic Midas audio quality and superb reliability, XL8 actually improves upon the performance of the analogue consoles, which have established Midas as the number one choice of sound engineers the world over. XL8 represents a new generation of networked systems, requiring only mics, amps and speakers to provide a complete audio system.

The XL8's open architecture ensures that both third-party hardware and software, including "plug-ins" can be easily integrated into the system. The very latest in high-speed networking technology ensures that XL8 will conform to all the classic Midas brand values of sound quality, reliability and longevity; it will not be obsolete in a few years.

XL8 Live Performance System Overview

- Failure-tolerant of any single failure of hardware or software
- Proven, stable, Linux operating system
- Dual redundant master control processors
- Five individual bay control processors
- 24/7 global telephone support
- Midas customer service and support centres in Minneapolis (USA), Kidderminster (UK), Hong Kong, Japan and Singapore
- Three year factory warranty
- Rugged design, tolerant of physical abuse!


Channels 1 - 8
Kick
Channels 9 - 16
Keys
Bass
Bass
Sax
Trum
Cowbell
Rhythm
Lead
Keys
MIDAS
DL411
master

XL8 Control Centre: don't change the way you think.

As can be expected from the design team at Midas, the XL8 has been painstakingly designed to address the way in which sound engineers approach the task of mixing. The control centre can be operated from scratch quickly and easily – even by engineers new to digital control surfaces.

XL8 has been designed so the engineer does not have to think in terms of numbers, pages or layers. Users navigate the system and identify channels by colours and groupings, which they themselves create. This method allows an individualised approach to mixing, rather than working within hardware-dictated numerical limitations. This reassuringly familiar way of working is central to the XL8 and ensures that engineers do not have to change their way of thinking to feel comfortable with the new system.

Each of the five bays of the console is a discrete hardware module, which is independent of its neighbour and incorporates its own power supply, surface processor, GUI processor and screen. The only common connection is via a single Ethernet link to the network.

The standard 5-bay control surface comprises a total of five of the following three modules:

- 3 x Input module
- 1 x Mix module
- 1 x Output module.

In addition to placing engineers in a familiar comfort zone, which allows them to get on with the job of making great audio without worrying about the rigours of new technology, the XL8 also comes complete with a range of features unique in the world of live mixing.

Control Centre Overview

- Dedicated motor faders on outputs
- Paged controls do not change function (e.g. a gain knob is always a gain knob – never a frequency knob!)
- Silky smooth, high accuracy rotary controls
- Dedicated discrete hardware remote control for onboard Graphic EQs with the Klark Teknik Rapide
- Modular control surface with multiple input areas - easily accommodates multiple operators
- Two routers in the control centre in addition to the two DL461 Audio System Signal Routers
- Daylight visible DVI TFT display screens
- Three way KVM (keyboard, video, mouse) remote control of any 'Mac ' or 'PC ' from the control centre
- White LED lighting of the control centre surface
- 63 discrete 20-segment LED meters
- Discrete LED meters for dynamics and direct outs
- "All the meters all the time" master status screen
- Simple, visible hardware routing to master outputs


MIDAS
XL8

XL8 Input Module:

The input module consists of an 8-channel "fast zone", where an operator will find the "must have now" controls, a detailed channel strip which is the interface with all of the selected channel's control parameters and a display screen. A standard 5-bay frame has three input modules, which allow easy access for multiple operators.

Input Module Overview

- Three discrete Midas mic pre amps per mic input (e.g. FOH, Monitor, Broadcast) - no gain sharing
- Analogue and digital gain controls for optimisation of preamp performance and channel gain structure
- Midas EQ sound quality and "control feel"
- Midas dynamics with choice of four styles (including Vintage)
- Midas quality input and output CMRR and drive capability
- Unique Muscle Memory friendly E-Zone layout for EQ
- Unique Muscle Memory friendly D-Zone layout for dynamics
- Fast Zone for instant access to key channel parameters
- Eight channels of key data and single channel full detail on each input screen
- Area A and area B free assignment
- External video in and out - enables an operator to view external computers / video on each input screen

Each of the 96 full-function input channels has:

- Analogue and digital gain
- Phase reverse switch
- Phantom power
- Input delay
- Swept high pass filter with choice of two filter slopes
- Swept low pass filter with choice of two filter slopes
- Frequency-conscious compressor with choice of 4 compression styles
- Frequency-conscious noise gate with external sidechain
- Insert point
- Treble EQ filter with choice of four filter types
- Parametric hi-mid EQ filter
- Parametric lo-mid EQ filter
- Bass EQ filter with choice of four filter types
- Routing via level controls to 32 AUX mix busses and 16 Matrix busses (FOH mode) or 48 foldback mixes (Stage Monitor mode)
- Routing via pan control to left and right master busses
- Routing to mono master buss
- Pan pot (SIS™)
- Direct output

Each of the 16 auxiliary inputs has:

- Input gain
- Source from internal FX or external pool input
- Fader
- Pan pot (SIS™)
- Routing via level controls to the 16 matrix busses
- Routing via pan control to the Left, Right and Mono master busses


Kick
Channels 9 - 16
Keys
Bass
Bass
Sax
Trum
Cowbell
Rhythm
Lead
Keys
MIDAS
DL481
input

XL8 Mix Module:

The mix module features the aux masters, mix masters, VCA faders, POP group select buttons, mix group select buttons, mix buss detail panel and a display screen. A standard 5-bay frame has one mix module.

Mix Module Overview
- 12 VCA (Variable Control Association) groups
- 8 POP (population) groups
- External video in and out

Each of the 32 auxiliary mix busses has:
- Subgroup, Auxiliary or Mix minus modes
- Dual mono or stereo pair modes
- 6-band parametric EQ
- Optional 31 band GEQ (replaces PEQ)
- Frequency-conscious compressor with soft clip limiter and choice of 5 compression styles
- Insert point
- Routing via level controls to the 16 matrix busses
- Routing via pan control to the Left, Right and Mono master busses
- Direct input

XL8 Output Module:

The output module features the main (matrix) mix masters, automation control, dual trackball control panel, slide-out keyboard, communications panel, monitoring control and a display screen. A KVM (keyboard, video and mouse) switch is incorporated into this bay, to enable an operator to view and control up to three external computers from the control surface. A standard 5-bay frame has one output module.

Output Module Overview
- Full capability theatre style scene automation
- Snapshot scene automation has cross-scene global edit capability
- System can operate with show files written on earlier and later versions of firmware
- Separate automation scope screens for scene store and recall
- KVM (keyboard, video and mouse) switching on control surface allows the operation of any 'Mac' or 'PC' based third party software from the XL8
- Discrete dual solo systems
- 8 user assignable controls

Each of the 16 matrix busses has:
- 6-band parametric EQ
- Optional 31 band GEQ (replaces PEQ)
- 5-mode frequency-conscious compressor with soft clip limiter and external sidechain
- Insert point
- Direct input
- Mix minus mode

Each of the master output busses has:
- 6-band parametric EQ
- Optional 31 band GEQ (replaces PEQ)
- 5-mode frequency-conscious compressor soft clip limiter and with external sidechain
- Insert point
- Direct input


Keys
Rhythm
Lead
Keys
AuxS16
side chain
stereo
mono
master
master
left
right
mono
matrix
MIDAS

XL8 Audio System Signal Processor (DL471)



The DL471 is a 1U 19" rack unit, which forms part of the modular DSP engine. It features its own discrete power supply, AES50 and Ethernet interfaces, as well as a dual, ultra high-speed, contra-rotating data loop for direct processor to processor communications. Each XL8 system includes ten DL471 units of which one is a redundant spare (n+1 resilience model).

DSP Engine Overview

- 10 DL471s included in a XL8 live performance system
- New minimum harmonic disruption filters
- Classic XL4 EQ filters
- RMS, Peak, Linear and Vintage compressor algorithms
- 16 mono Klark Teknik graphic EQs which can be patched into any output and 4 in Monitor section
- 16 assignable stereo effects processors can be freely chosen from:
  - Klark Teknik DN780 reverb
  - Klark Teknik stereo graphic EQ (usable as dual mono)
  - Stereo delay
  - Stereo flanger
  - Stereo phaser
  - Auto pan
  - Chorus

XL8 Audio System Signal Router (DL461)



The DL461 is a 3U 19" rack unit, which performs the stage-to-console link using a single Cat6 cable (under 100 metres) or fibre-optic link (up to 500 metres). In addition to audio and control connections to the ten DSP modules. It features ten fully dual redundant AES50 connections for local I/O, as well as BNC and AES3 word clock interfaces and Ethernet tunnel. Dual redundant DL461's are supplied with each XL8 system.

Network Features

- 2 DL461s included in a XL8 live performance system
- Integrated open-architecture AES50 digital audio distribution
- Fully duplicated network for redundancy
- Up to 100 metres of dual redundant connectivity between hardware elements (copper); up to 500m using optical fibre
- Automatic integral delay management system - audio outputs time and phase coherent
- Flexible, expandable hardware system
- Ethernet TCP-IP and USB tunnelling for third parties

XL8 Audio System Modular I/O (DL451)



The DL451 is a 3U 19" rack unit, which provides a maximum of 24 audio inputs and 24 audio outputs. It has a user-configurable 3x8 XLR format, which can be configured as analogue mic/line in, analogue out, or digital in/out (AES/EBU). Midi in, out and through, and GPIO connections are supplied as standard. Digital audio interface is via dual-redundant AES50 connections.

DL461 Overview

- 5 DL451s included in a XL8 live performance system
- USB connections for USB tunnelling of third party data

XL8 Audio System Input Splitter (DL431)



The DL431 is a 6U 19" rack unit which provides 24 mic/line inputs. Each input feeds three separate preamps, two with separate remote and local gain controls, the third being fixed gain. The two preamps with gain controls feed separate ADCs which pass digital audio to the network. Four discrete AES50 outputs supply dual redundant digital audio to FOH and monitor XL8 systems and allow for easy routing to any third party AES50 device (eg HD recorder), via the DL461 routers.

Two balanced analogue splits (sourced post each mic amp) are provided on the rear panel. The third, fixed gain, preamp feeds a transformer isolated split on the front panel for recording or broadcast applications.

DL431 Overview

- 4 DL431s included in a XL8 live performance system
- Front-panel control and local monitoring (can be used as a stand alone unit)
- Integral headphone amplifier
- Dual Ethernet ports (e.g. for stand alone remote control)
- USB connections for USB tunnelling of third party serial data
- Dual integral power supplies
- Integrated three way analogue mic splits

Klark Teknik DN9331 Helix Rapide



The DN9331 is a 6U 19" rack unit and is a motorised fader remote control for the XL8's onboard Graphic EQs. It connects using a single Ethernet cable and provides instant real-time control of all onboard assignable graphic equalisers, via the Solo Tracking System (STS) .

DN9331 Overview

- 1 DN9331 is included in a XL8 live performance system
- 31 100mm console-grade motorised faders
- 4 banks of 32 channels each
- 4 user-configurable GEQ groups
- Global mode
- Rack mounting or free standing
- Simultaneous control of XL8 onboard and Klark Teknik Helix digital EQ units

XL8 Network Overview:

The XL8's MidasNET network uses the physical connectivity of Ethernet (Ethercon connectors and CAT5/6 cable), but NOT the data protocol, which is too slow for high-quality, low-latency audio distribution.

All digital audio is transmitted using the AES50 protocol (implemented as Sony SuperMac) and the Sony HyperMac high-capacity system. AES50 is an open-architecture protocol and HyperMAC is a standards candidate. These protocols benefit from extremely low latency, robust feed-forward error connection, and advanced system clocking. The use of this AES standard means simple, straightforward interfacing with ANY 3rd party hardware which feature this connection.

MidasNET connections carry digital audio, control data, and standard Ethernet traffic, bi-directionally, down a single cable. CAT5 for "local" (24 channel) connections, and a single CAT6 (or fibre-optic) for the digital "snake", which is the equivalent of a 384 channel analogue multicore!

The benefit of combining audio, control, clock and third party Ethernet data into one single network means the XL8 hardware interfaces on a single RJ45 connection.

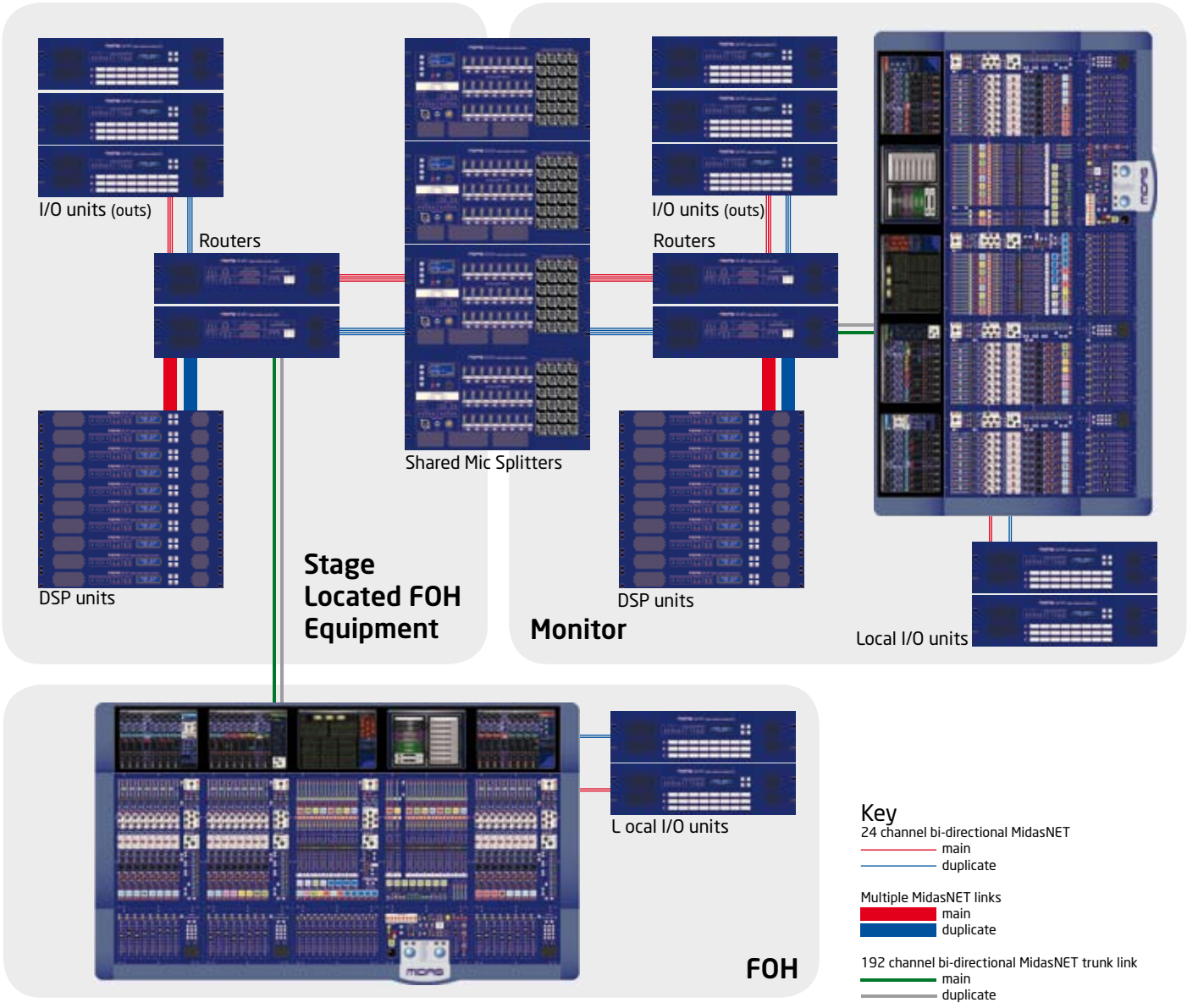
The XL8 also runs self diagnostic software in the background in real time measuring important hardware performance such as processor temperatures, error correction rates and connection integrity. Any unusual variances are instantly notified to the user before any audible issues occur.

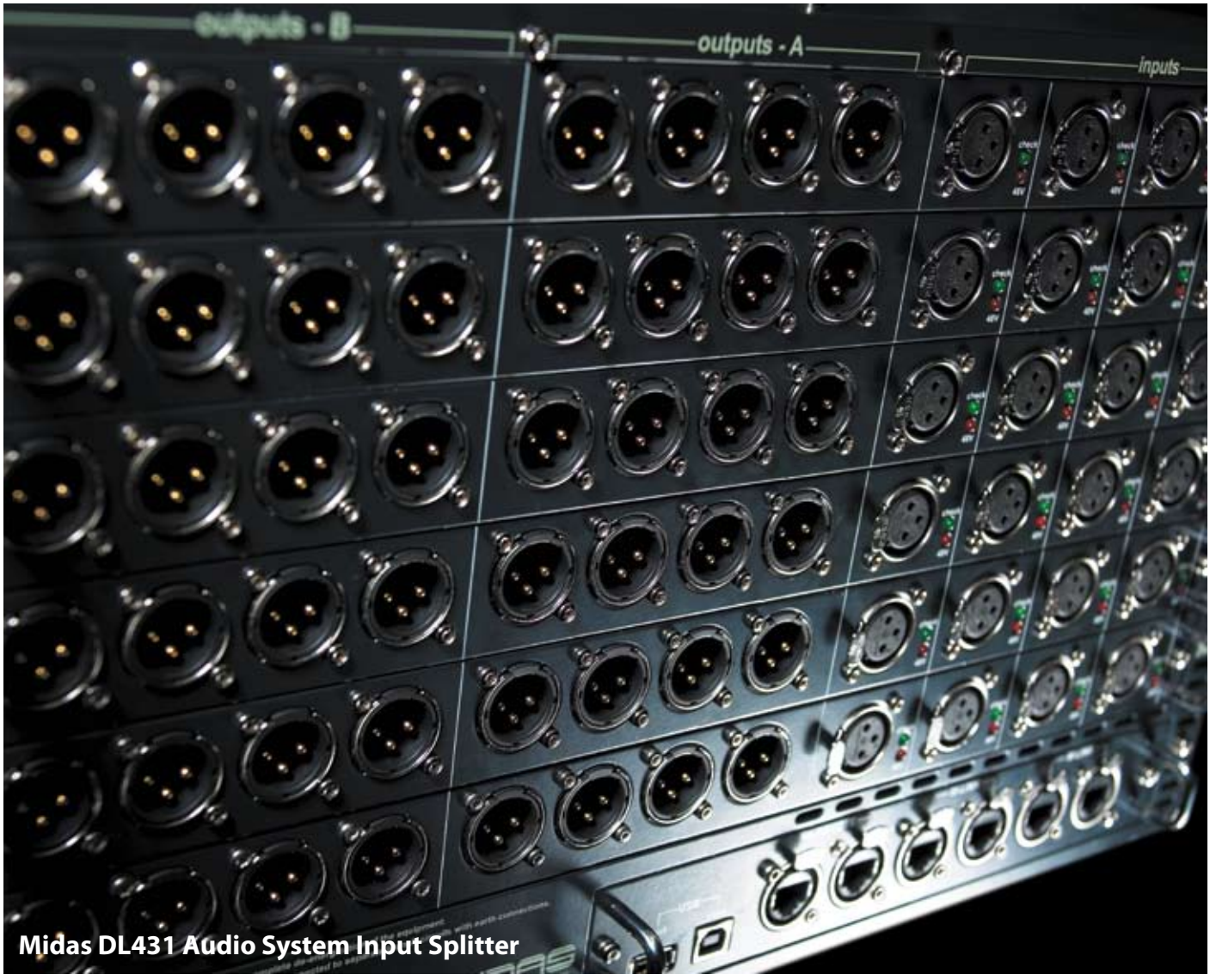
All network connections are duplicated for full dual-redundancy.

The XL8 and MidasNET run at 96kHz sample rate. Each network link has a latency of only 70µS. Typical total system latencies are 2mS. Comprehensive management of delays are provided, including automatic compensation for insert points.

XL8 System Interconnections:

This diagram illustrates how compact a front of house and stage monitor XL8 system set up is, including both main and back up networks.





Midas DL431 Audio System Input Splitter

Statistics:

The audio physical connections i.e. audio XLR count

Dedicated XLR connections:
96 x mic/line inputs via DL431 mic splitter
2 x 96 analogue mic splits with variable gain
1 x 96 transformer isolated analogue "broadcast" mic split – fixed gain

Configurable audio XLR connections:
An XL8 is supplied with 5 DL451 I/O units, which can be freely located at FOH or on stage. Each DL451 has three plug-in modules with 8 XLR's on each. Three types of plug-in module are currently available:
8 analogue mic/line in
8 analogue out
8 AES/EBU XLRs (giving 8 digital inputs and 8 digital outputs per module)

The total audio XLR count for a standard XL8 is 504.

The standard XL8 has a total (configurable) audio connection count of between 120 and 240 depending on the mix of analogue and digital I/O. (NB this excludes the non-configurable 96 Mic inputs on DL431).

Typical configuration would be:
16 Mic/line auxiliary inputs (giving a total of 112 mic inputs as standard!)
32 aux/group buss outputs
16 matrix (main) outputs
1 stereo main output
1 mono main output
2 stereo local monitor outputs

This totals 71 audio connections leaving a further 169 (if everything is digital) or 49 (if everything is analogue) audio connections. These can be used for insert sends, insert returns, direct outputs, buss direct inputs and side chain connections.

The maximum count of any one type of connection is:
96 input insert sends
96 input insert returns
96 input compressor external sidechain connections
96 input noise gate external sidechain connections
96 input direct outputs
51 mix buss insert sends
51 mix buss insert returns
51 mix buss direct inputs
1 talk MIC input

However the XL8 can have much more than the standard connectivity by adding DL451 I/O units! There are NINE spare AES50 connections (fully redundant) available. This means that potentially another 432 audio connections can be achieved (subject to other system limits).

This gives a maximum XLR count of 720 for XL8.

Due to the company policy of continual improvement we reserve the right to change the specifications of any Midas product without prior notice.

Midas XL8 Live Performance System:
Quick mix guide

Fast zone and detail panel areas
The input module is divided into two areas, the "fast zone" (the eight channel strips to the left on the input bay), where all of the "must have now" controls are located, and the detailed channel strip (the vertically orientated channel on the right on the input bay), which gives more comprehensive control. Visual feedback for both areas is provided from the screen above. Scroll the input modules' view using scroll buttons above the keypad, until the desired channels appear on the screen.

Digital signal path and input routing
Once the digital network is configured, the default state of the system is for input 1 on mic box 1 to be routed to channel 1 on the control surface. This follows through to channel 24, at which point input 1 on mic box 2 routes to channel 25, through to 48, etc.

Setting the input gains
The XL8 has two input gains, one is the remote analogue gain for the mic box, the other is a digital trim. Both are set from the common gain rotary, using the "gain swap" button to select analogue gain or digital trim. Select the analogue gain, and set input level for desired preference. Once this is achieved, select digital trim and set for preferred gain structure. The gain rotary in the detail area always controls the alternative "swap" to the fast zone.

Routing to master stereo outputs
Press the "stereo" button above the "image" rotary on the fast zone, check nothing is muted and the master faders are up, you will have audio!

Input equalisation (E-zone)
Switch the EQ section in using the button on the fast zone. Select desired filter using fast zone navigation buttons, or E-zone nudge buttons (found in the detail panel). Use filter controls in E-zone to apply EQ. The "mode" switch selects the filter types for the high and low shelving filters individually. Variable high and low pass filters are located next to the mic gain in the detail area, both feature a choice of two filter slopes. Visual feedback for EQ is provided from the screen, a graphical representation of the filters is shown above the detail area.

Input dynamics processing (D-zone)
Switch dynamics processors in using the buttons on the fast zone. Select desired process (Comp or gate) using fast zone navigation buttons, or D-zone nudge buttons (found in the detail panel). Use controls in D-zone to apply processing. Mode switch selects from a choice of four compressor styles, visual feedback for both comp and gate is provided from the fast zone hardware meters, the dashboard meters, and the screen above the appropriate input.

VCA-centric mixing and POPulation (POP) groups
The VCA-centric method of mixing was conceived around the way engineers use visual recognition to navigate around a desk, rather than memorising channels in numerical sequences. XL8 has been designed so the engineer doesn't have to think in terms of numbers, pages or layers. Users navigate the system and identify channels by colours and groupings, which they themselves create. VCA-centric mixing allows an individualised approach to the system, rather than working within hardware-dictated numerical limitations. This reassuringly familiar way of operating is central to the console, and ensures that engineers don't have to change their mindset to be able to mix on the XL8.

Assigning to VCAs (variable control association)
Press and hold desired VCA select button. Press channel select buttons to assign to VCA. Release VCA select button to confirm selections. The assigned input channels will adopt the VCA's (user defined) colour as a default (this can be edited).

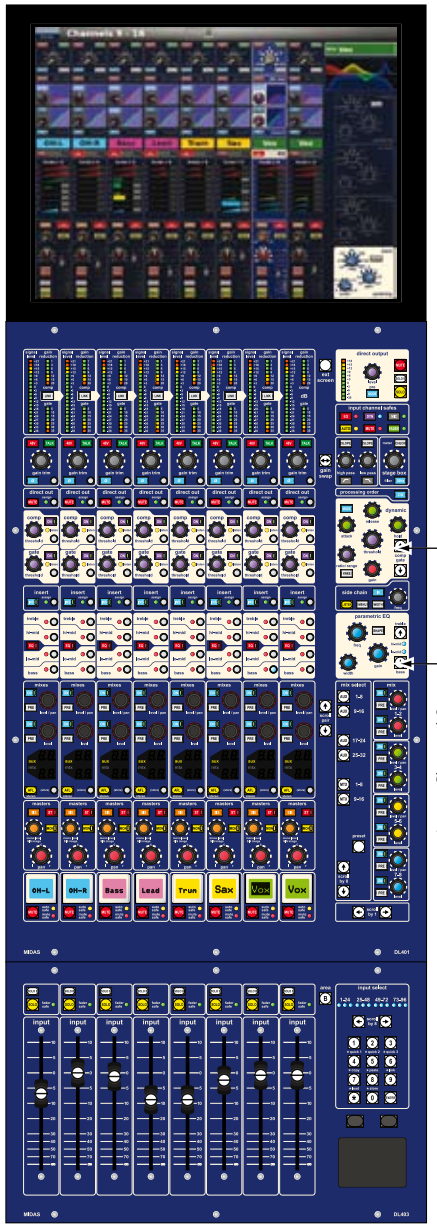
Assigning to POP (population) **groups**
Population groups are created to bring a user-configured group of input channels to a desired area of the control centre, for viewing or adjustment. Press and hold desired POP group select button. Press channel select buttons to assign to POP group. Release POP group select button to confirm selections. The assigned input channels will adopt the POP groups (user defined) colour as a default (this can be edited).

Setting an AUX preset
Aux presets are created to enable an operator to "lock" the most relevant pair of aux or matrix sends to each channel, on a scene-by-scene basis.
Press and hold the "preset" button in the detail panel. Scroll through the 48 mix busses using the "scroll pair" buttons in the aux assign area. Press the aux select button in the fast zone when the required pair of mixes appears at each channel. Release the "preset" button to confirm selections. The preset will be displayed whenever the preset button is pressed. Mix send rotary controls will display the default colour of the selected busses.

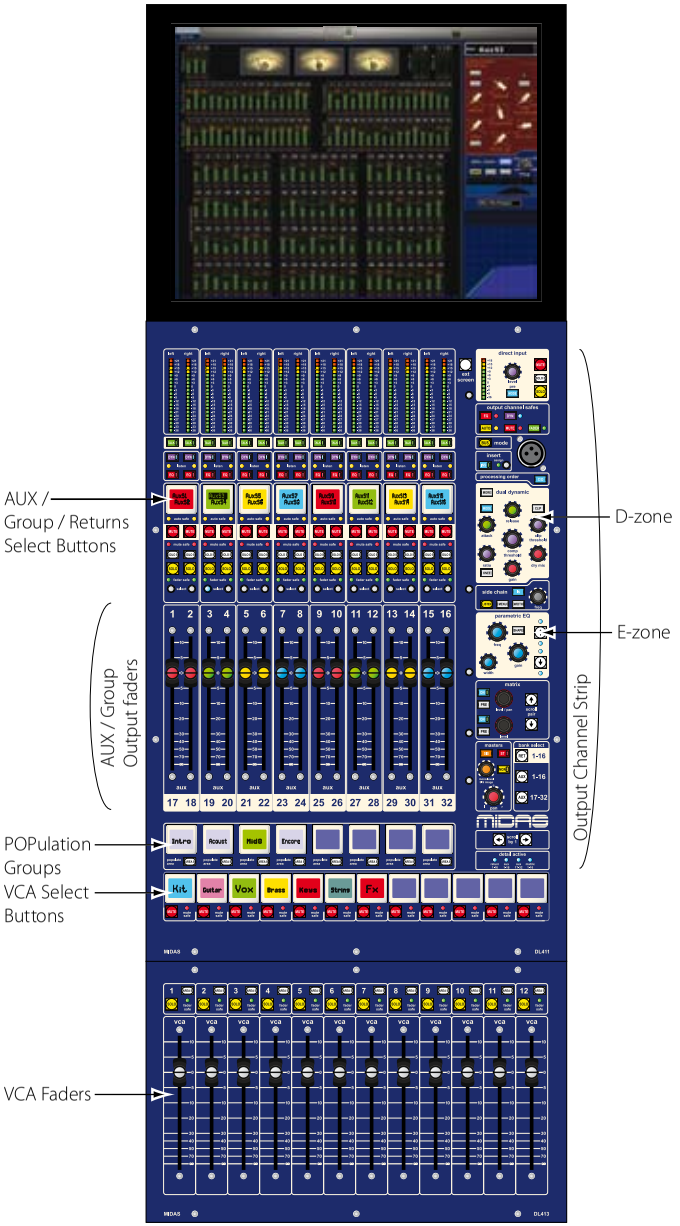
Building the FX rack
Press the "effects" button on the trackball area (output module). You will be presented with an empty 19" rack on the screen above. Using the right-hand trackball, click on one of the blank rack panels, click on the "change device type" button at the top of the blank rack panel. Select your desired effects processor from the menu, then click the "ok" button to load it into your effects rack. Click on the front panel of your effect to open a processor for editing, use the buttons and rotary controls immediately below the matrix output faders for parameter entry. You need to look no further than the XL8 effects rack for the best in performance enhancing creative processing.



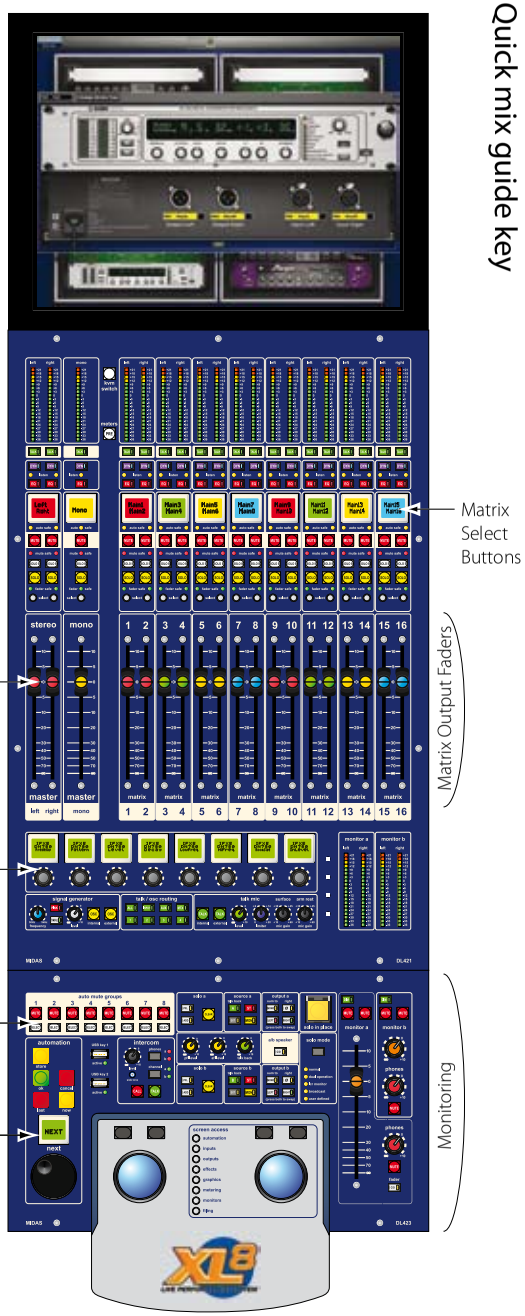
Quick mix guide key



INPUT BAY (3 per XL8)



MIX BAY



OUTPUT BAY