

16-32 MONO INPUTS	12-24 MIX OUTPUTS	STEREO MATRIX OUT	19" RACK MOUNTABLE
4 FX ENGINES	4 FX SENDS/RETURNS	4 DCA GROUPS	CHANNEL DUCKER
USB AUDIO STREAMING	4 STEREO GROUPS	4 MUTE GROUPS	DAW MIDI CONTROL

QU-SB

ULTRA COMPACT DIGITAL MIXER

FOR LIVE, STUDIO AND INSTALLATION

Qu-SB is a super-compact digital mixer designed for iPad control, freeing you to mix from anywhere in the venue and providing a smart, portable solution for bands, AV and installation. The companion Qu-Pad app is a beautifully elegant, intuitive mixing interface, giving easy access to the full wealth of Qu features and setup options.

On top of its 18 onboard inputs and 14 outputs, Qu-SB can be expanded up to 32 mono inputs and 24 outputs by connecting to one of our family of remote AudioRacks over a single Cat5 cable. Any of the mixer's 4 Groups can be used in Mix mode, allowing Qu-SB to offer up to 11 monitor mixes (4 mono + 7 stereo). Couple this with the Qu-You personal monitoring app for Android and iOS, plus the ME-1 personal mixers, and Qu-SB is a fantastic choice for bands looking for the same great monitor sound wherever they play.



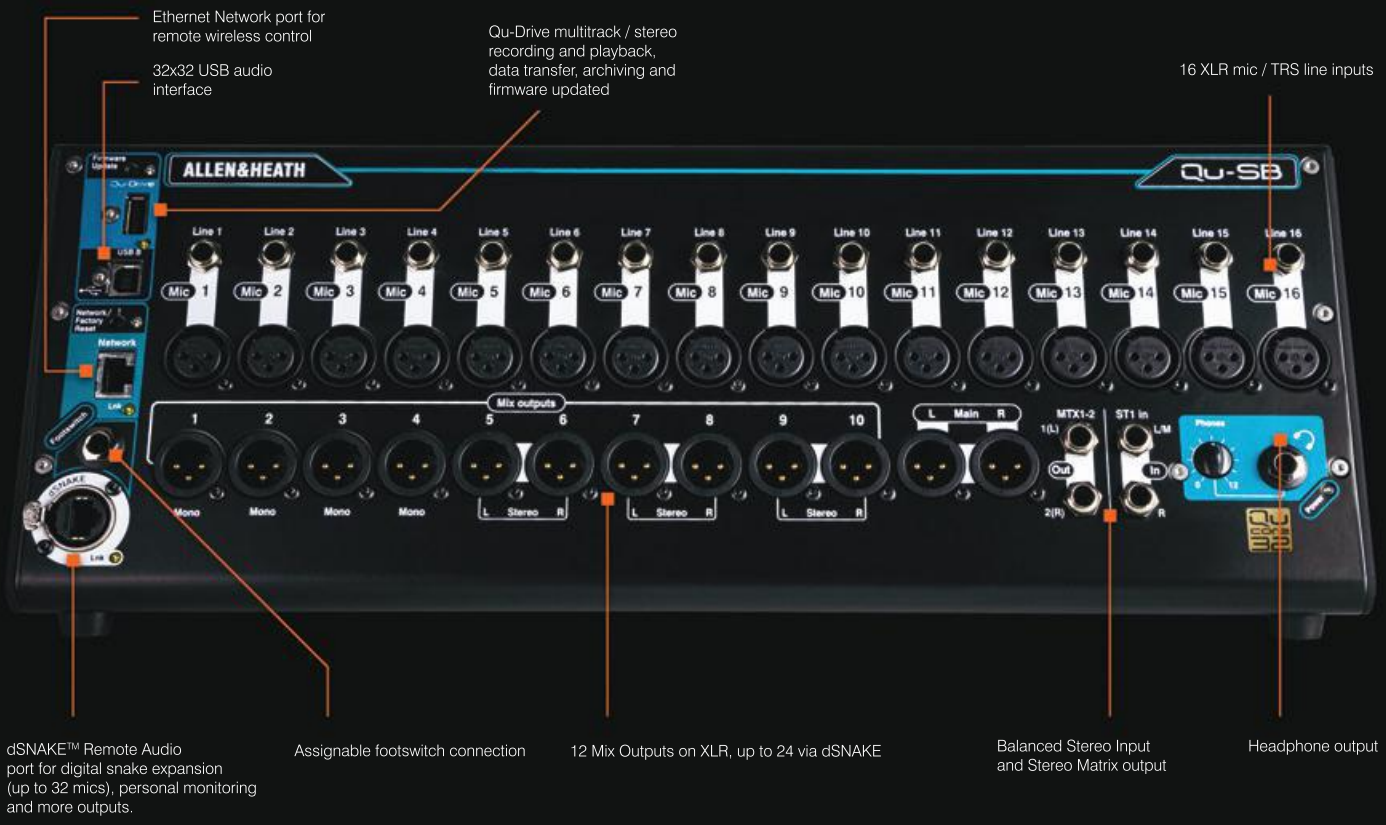
Qu-SB has 18 inputs and 14 outputs on the surface, but has the 'brains' of a Qu-32, allowing it to handle up to 38 inputs and 24 outputs, when connected to our family of AudioRacks over Cat5 cables up to 120m.



AB168
Optional Audio Rack



Qu-SB



Ethernet Network port for remote wireless control
32x32 USB audio interface

Qu-Drive multitrack / stereo recording and playback, data transfer, archiving and firmware updated

16 XLR mic / TRS line inputs

dSNAKE™ Remote Audio port for digital snake expansion (up to 32 mics), personal monitoring and more outputs.

Assignable footswitch connection

12 Mix Outputs on XLR, up to 24 via dSNAKE

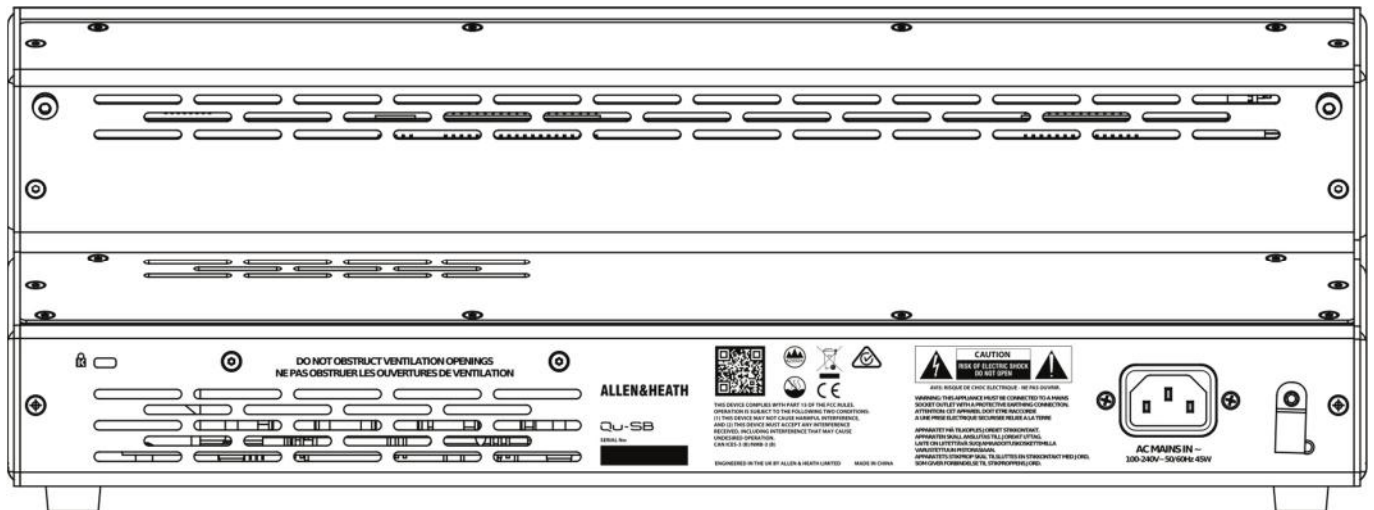
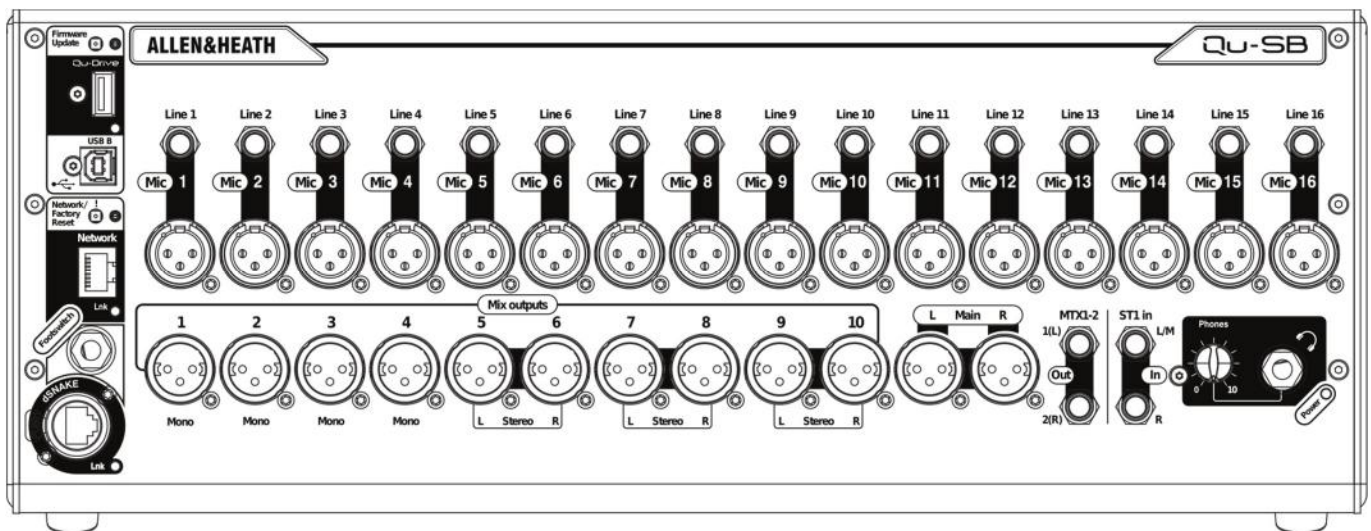
Balanced Stereo Input and Stereo Matrix output

Headphone output

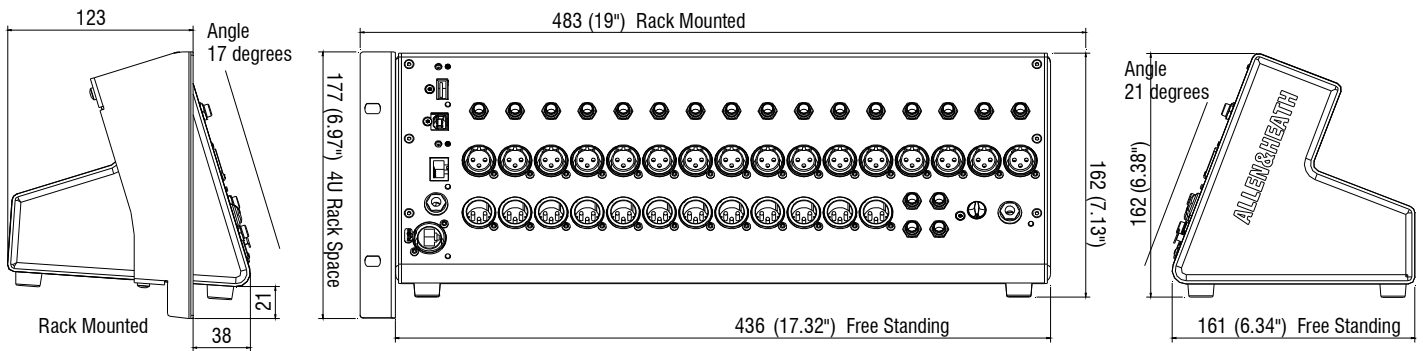
Technical Datasheet

Overview

- Rack-mountable Digital Mixer for Live, Studio and Installation
- 16-32 Mono Inputs (TRS + XLR)
- AnaLOGIQ™ total recall analogue preamps
- 1 Stereo Input (TRS)
- 12-24 Mix Outputs (XLR)
- Stereo Matrix Out
- 4 stereo FX with dedicated Sends and Returns
- 4 Stereo Groups
- 4 Mute Groups
- 4 DCA Groups
- dSNAKE over Cat5 for remote audio
- Compatible with Allen & Heath ME personal mixing system
- Effects ported from the flagship iLive console
- Automatic Mic Mixing
- Qu-Pad engineer's mixing wireless remote app for iPad
- User Permissions to restrict operator access
- Master strip for quick access to mix levels and processing
- Input channel linking for stereo sources
- Input Preamp, HPF, Gate, PEQ, Compressor, Delay processing
- Output PEQ, Graphic EQ, Compressor, Delay processing
- 31 Band Real Time Analysis
- Quick copy and reset of processing, mixes and scenes
- Channel Safes, Global and per Scene Recall Filters
- FX, processing and channel User Libraries
- 100 Scene memories
- USB transfer of Scenes, Libraries, Shows
- Qu-Drive for stereo and 18-track recording/playback to USB devices
- USB streaming to/from an Apple® Mac or Windows™ PC computer
- MIDI DAW Control driver for Mac (converts to HUI or Mackie Control)
- Qu-You personal mixing app for iPhone, iPad, iPod Touch
- Optimised fan-less airflow design for silent operation



Dimensions



A&E Specifications

The mixer shall be a compact, rack-mountable digital mixing solution without physical fader strips, but shall include 16 mono and 1 stereo line input channels mixing to 12 mix outputs, 4 stereo FX engines, 4 DCA groups and 4 Mute groups.

It shall provide a Fast Ethernet (100 Mbit/s) port for Cat5 connection to a wireless router or access point for MIDI over TCP/IP control of mixer parameters via Apple iOS touchscreen devices for live mixing control.

The entire mix system including Pre/Post fader routing assignments, Signal Processing, Mix and FX sends, DCA and Mute Groups shall be accessed and adjusted using application software on Apple touchscreen devices connecting via a wireless network router (access point) to the Ethernet LAN port.

There shall be a screen in the application software providing faders for Input Channels, FX, Groups, Mixes, DCA and Mute Groups and control of level, mute, pan and PAFL for the selected channel.

The application software shall allow control of functions including preamp gain, phantom power, mix buss levels and shall have a graphical representation of physical controls, indicators and signal processing parameters and provide control of channel processing including Parametric EQ, Graphic EQ, Compressor and Delay.

The application shall also provide Routing assignments and level adjustments of input signals to all output mix busses, processing and signal metering and indication including a Real Time Audio Analyser.

4 Stereo Audio Groups shall be available for sub mixing and the combined processing of selected input channels. These Audio Groups shall be switchable to function as additional Send Mixes when required.

The application software shall include select keys and indicators, giving access to any combination of user-defined input or output channels, FX sends and returns or Main mix and also assignable SoftKeys to access DCA mutes, MIDI control, Tap Tempo, Instant Scene Recall/Navigation or PAFL Clear.

The name and number of the selected channel or mix shall always be identified on screen when in the processing or routing screens.

A global source option for the direct out of each input channel shall be provided in the routing screen. The tap-off point shall be selected from the following positions in the signal processing path: post Preamp, post HPF, post Gate, post Insert return, post PEQ, post Compressor, and post Delay. There shall be further global options for Follow Fader, and Follow Mute.

There shall be a local "dSNAKE" audio expansion port on the mixer with locking Ethercon connector, providing up to 38 input signals, 20 output signals and Remote Preamp control to an Allen & Heath AudioRacks, plus 40 dedicated sends to Allen & Heath ME Personal Mixing Systems to be connected via a single Cat5 'digital snake' cable.

Direct outputs shall be assignable via the application's soft patch bay to any physical output socket interface channel or ME monitoring channel.

A default Mains to PAFL sub-mix and a stereo quarter-inch jack socket for PAFL headphones output shall be provided, with an analogue output level control.

A Talkback facility with the ability to send to any output mix with on screen status indication and an option to enable talkback latching and HPF shall be provided.

A signal generator shall be available, with on-screen assignment and the ability to send a variable level signal of the following types to any output mix: Sine, White Noise, Pink Noise, and Band-Pass. Comprehensive input, output, and FX channel and RTA metering shall be provided on-screen.

A Channel Ducker shall be provided to reduce the level of selected channels when a designated channel is in use. This channel priority shall be available across all mono and stereo input channels and also channel groups.

An Automatic Mic Mixer shall be provided for automatic level control of up to 16 microphones using a constant gain sharing algorithm to dynamically adjust the gain for each mic in spoken word applications.

The mixer shall include stereo and 18-track recording/playback to optional USB hard drives. The format shall be 48 kHz/ 24 bit WAV. The mixer shall also play back stereo WAV files at 44.1 or 48 kHz and have a USB Type-A connector on the surface for recording, playback, data-transfer, archiving, and firmware updates to USB drive.

There shall be a Type-B USB connection on the front panel following the high-speed USB 2.0 standard for multi-channel, bi-directional audio streaming of 32 out / 32 in and MIDI DAW control between the mixer and a computer.

DAW transport control using popular DAW control protocols for computer shall be available via the touch-screen application software.

The mixer shall provide the facility to save 100 scenes of the settings of the mixing system and these scenes shall be nameable via the application software. A comprehensive table of Scene Safes shall be provided to prevent selected items from being changed from their state when the safe was enabled. A comprehensive scene filter shall be provided per scene to Allow / Block each parameter saved in a scene from being changed as that scene is recalled.

An option shall be provided for password protection in the application software for log-in of several users with different levels of system access and permissions. A particular scene may be chosen to be recalled per change of user-login if desired.

The mixing system shall periodically record all current settings and return the mixer to that state after reboot following a power-cycle.

The mixer shall have a built in power supply accepting AC mains voltages of 100~240V, 50/60 Hz, 55W max via an earthed 3-pin IEC male connector mounted on the rear chassis.

The mixer shall have an optimised fan-less airflow design for silent operation.

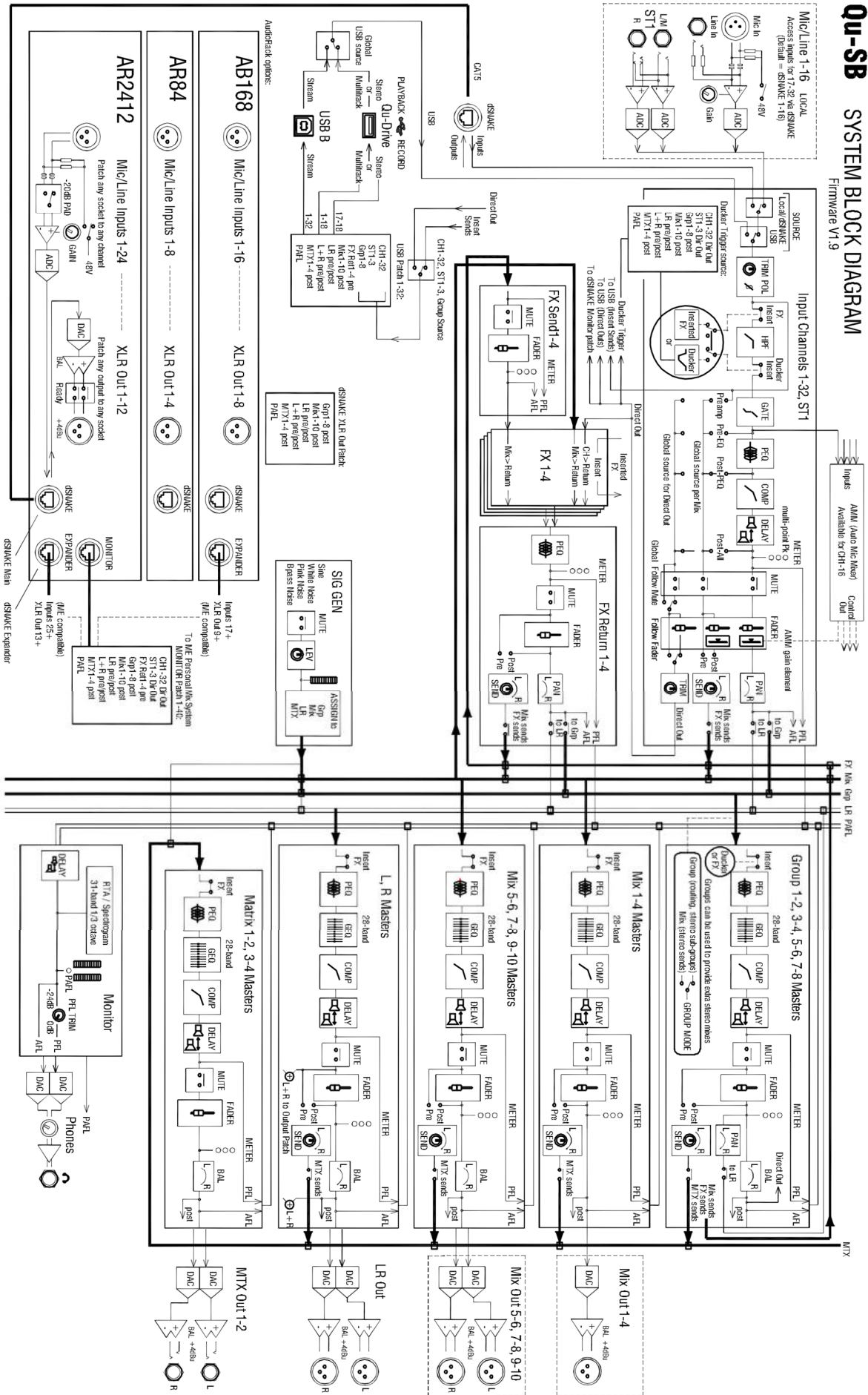
Recommended operating temperature for the mixer shall be 5 to 35 degrees Celsius.

The mixer shall be the Allen & Heath Qu-SB Digital Mixer.

QU-SB SYSTEM BLOCK DIAGRAM

38 channel x 26 bus x 20 mix + 4FX DSP Engine

Firmware V1.9



Mixer Specification

Inputs

Mic/Line Inputs

Input Sensitivity (XLR / TRS)	Balanced, XLR and 1/4" TRS jack, fully recallable -60 to +5dBu / -50 to +15dBu
Analogue Gain	-5 to +60dB, 1dB steps
Maximum Input Level (XLR / TRS)	+19dBu / +29dBu
Input Impedance (XLR / TRS)	>5k Ω / >10 k Ω
THD+N, Unity gain 0dB	0.0005% -89 dBu (20-20kHz, Direct Out @0dBu 1kHz)
THD+N, Mid gain +30dB	0.001% -83dBu (20-20kHz, Direct Out @0dBu 1kHz)

Stereo Line Inputs

ST1, connector	Balanced, 1/4" TRS jack, half normalised
Input Sensitivity (ST1, ST2 / ST3)	Nominal +4dBu / 0dBu
Trim	+/-24dB
Maximum Input Level (ST1,ST2 / ST3)	+22dBu / +18dBu
Input Impedance	>7k Ω

Outputs

Mix1-10 and LR Out

	Balanced, XLR
Output Impedance	<75 Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-90 dBu (muted, 20-20kHz)

Mtx 1-2

Source (Alt Output / 2Trk Output)	Balanced, 1/4" TRS jack Patchable / LR post-fade
Output Impedance	<75 Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-90 dBu (muted, 20-20kHz)

dSNAKE

Inputs

Outputs

Remote source for CH1-32, ST1, ST2, ST3
Patchable from Mix1-10, LR, Grp1-8, MTX1-4
Compatible with AudioRacks AR2412, AR84, AB168
Compatible with ME personal mixing system

System

Dynamic Range	Measured balanced XLR in to XLR out, 0dB gain, 0dBu input 112 dB
Frequency Response	+0/-0.5dB 20Hz to 20kHz
Headroom	+18dB
Internal operating Level	0dBu +18dBu = 0dBFS (+22dBu at XLR output)
dBFS Alignment	0dB meter = -18dBFS (+4dBu at XLR out)
Meter Calibration	-3dBFS (+19dBu at XLR out), multi-point sensing
Meter Peak indication	
Meter Signal indication	-48dBFS (-26dBu at XLR out)
Meter Type	Fast (peak) response
Sampling Rate	48kHz +/-100PPM
ADC, DAC	24-bit Delta-Sigma

Control

SoftKeys	10
Mute Groups	4
DCA Groups	4
Network	TCP/IP Ethernet for MIDI and iPad app

Input Processing

Source

CH1-32	Local, dSNAKE, or USB
ST1	Local, dSNAKE, or USB
ST2, ST3	dSNAKE, or USB Stereo
USB Global Source	Qu-Drive or USB B Streaming

Stereo Linking

Parameters linked	Odd/even input pairs EQ, dynamics, insert, delay, assignments, sends Preamp, polarity, sidechains, fader/mute, pan
Link options	

Polarity

High Pass Filter	Normal/Reverse
Insert	12dB/octave 20Hz – 2kHz
Delay	Assign FX1-4 into Input channels Up to 85ms

Gate

Threshold / Depth	Self-key Sidechain -72dBu to +18dBu / 0 to 60dB
Attack / Hold / Release	50us to 300ms / 10ms to 5s / 10ms to 1s

PEQ

Band 1	4-Band fully parametric, 20-20kHz, +/- 15dB
Band 2, Band 3	Selectable LF Shelving (Baxandall), Bell
Band 4	Bell
Bell Width	Selectable HF Shelving (Baxandall), Bell Non-constant Q, variable, 1.5 to 1/9th octave

Compressor

Threshold / Ratio	Self-key Sidechain -46dBu to 18dBu / 1:1 to infinity
Attack / Release	300us – 300ms / 100ms - 2s
Knee	Soft/Hard
Types	Peak Manual, RMS Manual, SlowOpto, PunchBag

Mix Processing

Channel Direct Out to USB

Follow Fader, follow Mute (global options)
Post-Preamp, Pre-EQ, Post-EQ, Post-Delay

Insert

Delay

GEQ

PEQ

Assign FX into Mix channels	
Up to 170ms	
Constant 1/3 oct, 28 bands 31Hz-16kHz, +/-12dB Gain	
4-Band fully parametric, 20-20kHz, +/- 15dB	
Selectable LF Shelving (Baxandall), Bell	
Bell	
Selectable HF Shelving (Baxandall), Bell	
Non-constant Q, variable, 1.5 to 1/9th octave	
Bell Width	

Latency	1.2 ms (local XLR in to XLR out) 0.7 ms (local XLR in to AES out)	Compressor	Self-key Sidechain
		Threshold / Ratio	-46dBu to 18dBu / 1:1 to infinity
		Attack / Release	300us – 300ms / 100ms - 2s
Operating Temperature Range	0 deg C to 35 deg C (32 deg F to 95 deg F)	Knee	Soft/Hard
Mains Power	100-240V AC, 50/60Hz	Types	Peak Manual, RMS Manual, SlowOpto, PunchBag
Maximum Power Consumption	150W		
USB Audio		FX	
Qu-Drive	USB A	Internal FX	4x RackFX engine, Send>Return or Inserted
Stereo Record	2 channel, WAV, 48kHz, 24-bit, patchable		
Stereo Playback	2 channel, WAV, 44.1 or 48kHz, 16 or 24-bit, to ST3	Audio Tools	
Multitrack Record	18 channel, WAV, 48kHz, 24-bit, patchable	Types	Reverbs, Delays, Gated Reverb, ADT Chorus, Symphonic Chorus, Phaser, Flanger
Multitrack Playback	18 channel, WAV, 48kHz, 24-bit	4 dedicated Stereo FX returns	Fader, Pan, Mute, Routing to Mix/LR, 4-Band PEQ
USB Audio Streaming	USB B, Core Audio compliant		PFL or stereo in-place AFL, 0 to -24dB Trim, 85ms Delay
Send (upstream)	32 channel, WAV, 48kHz, 24-bit	PAFL	Assignable to any mix, 12dB/oct HPF
Return (downstream)	32 channel, WAV, 48kHz, 24-bit	Talkback	Assignable to any mix, Sine / White/Pink/Band-pass Noise
		Signal Generator	31-Bands 1/3 octave 20-20kHz, follows PAFL source
Dimensions & Weights		RTA	
	Width x Depth x Height		
Desk mounted/stagebox use	435.5 x 174.5 x 161 mm (17.2" x 6.9" x 6.4")		
Rack mounted	483 x 135.4 x 177 mm (19" x 6.9" x 7") 4U		
Packed in shipping box	550 x 270 x 270 mm (21.7" x 10.6" x 10.6")		
Unpacked weight	5.7 kg (12.7 lbs)		