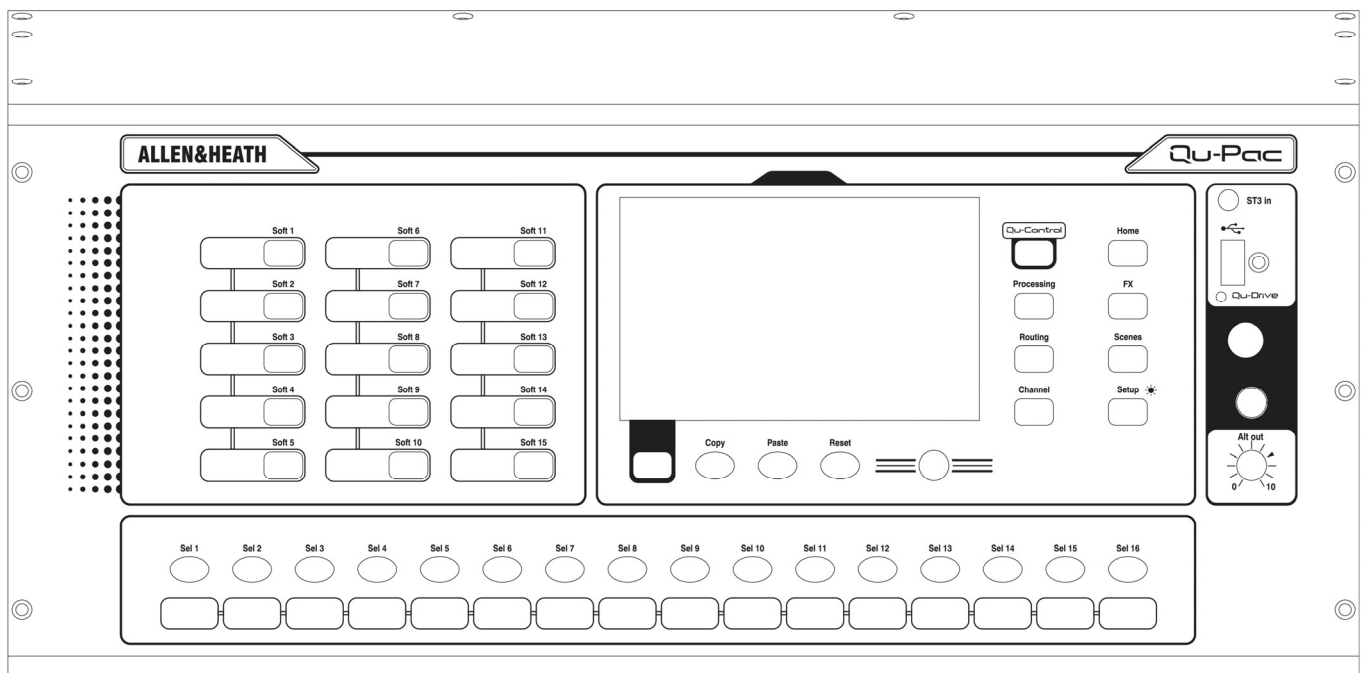
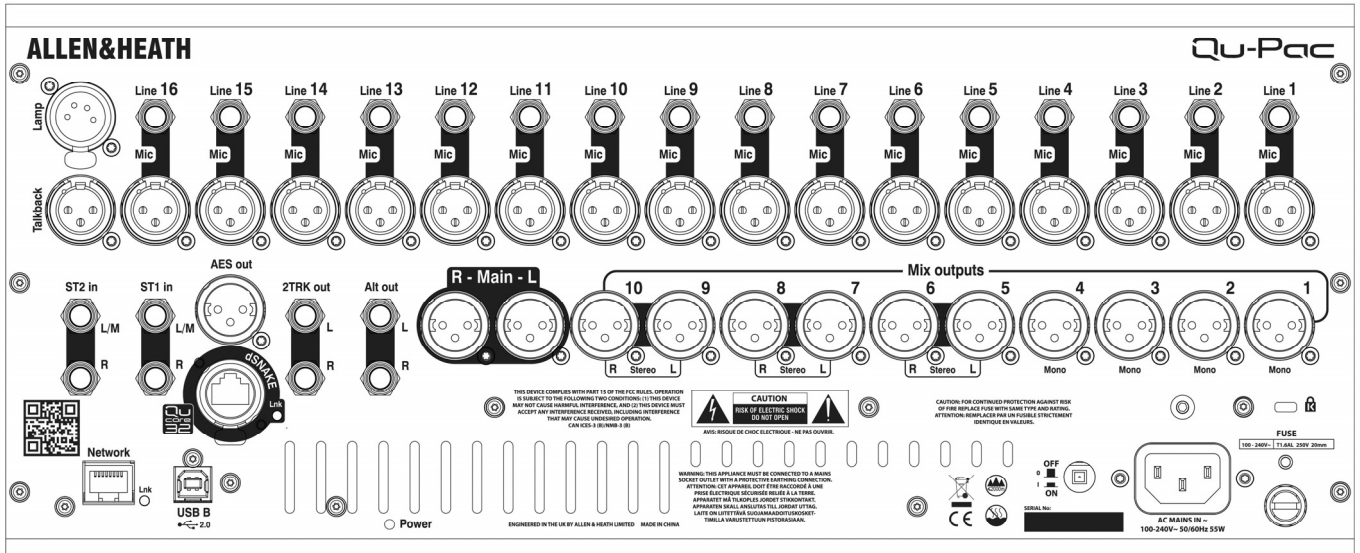


Technical Datasheet

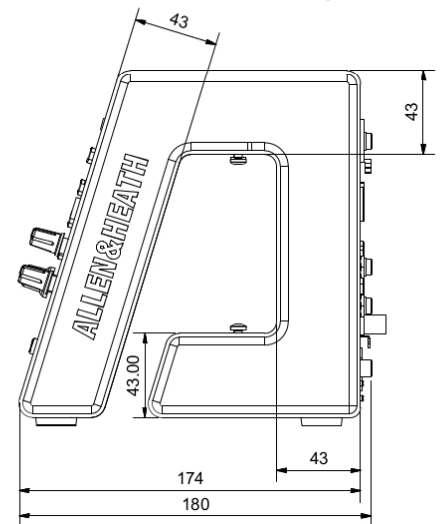
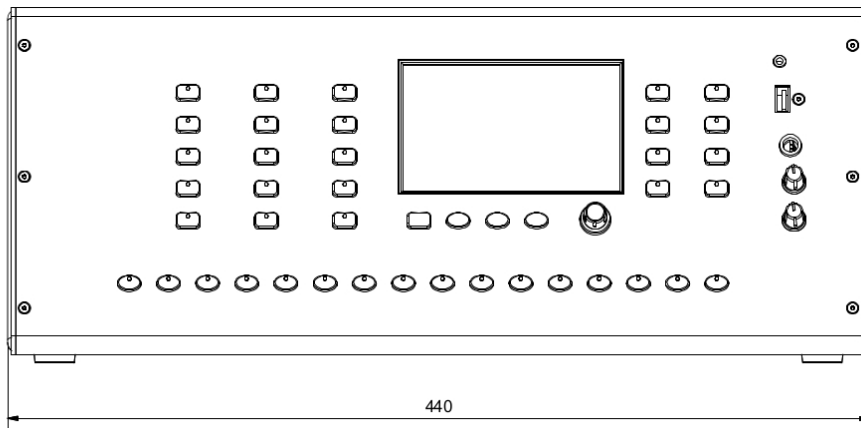
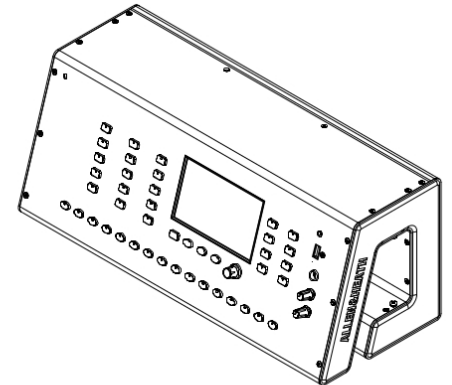
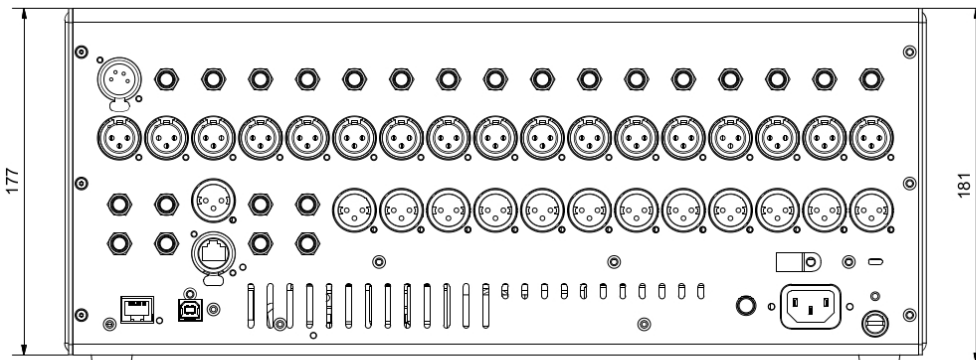
Overview

- Rack-mountable Digital Mixer for Live, Studio and Installation
- 5" (800x480 pixel) colour touch screen for quick control
- 16-32 Mono Inputs (TRS + XLR)
- 3 Stereo Inputs (TRS)
- 4 stereo FX with dedicated Sends and Returns
- 12-24 Mix Outputs (XLR)
- 4 Stereo Groups
- 2 Stereo Matrix Outs
- Customizable Qu-Control screen
- 15 SoftKeys
- Extra stereo outputs – AES digital, Alt Out, 2TRK out
- Talkback mic input
- dSNAKE Cat5 snake for remote audio using AR2412, AR84 or AB168
- 4 Mute Groups
- 4 DCA Groups
- AnaLOGIQ™ total recall analogue preamps
- Effects ported from the flagship iLive console
- Dedicated stereo FX return channels
- Master strip for quick access to mix levels and processing
- Input channel linking for stereo sources
- Input processing – Preamp, HPF, Gate, PEQ, Compressor, Delay
- Output processing – PEQ, Graphic EQ, Compressor, Delay
- Quick copy and reset of processing, mixes and scenes
- 100 Scene memories
- Channel Safes, Global and per Scene Recall Filters
- FX, processing and channel User Libraries
- Qu-Drive for stereo and 18-track recording/playback to USB hard drive
- USB streaming to/from an Apple® Mac or Windows™ PC computer
- MIDI DAW Control driver for Mac (converts to HUI or Mackie Control)
- USB transfer of Scenes, Libraries, Shows
- User assignable Custom Layer
- Qu-Pad engineer's mixing wireless remote app for iPad
- Qu-You personal monitoring app for iPhone, iPad, iPod Touch
- Compatible with the Allen & Heath ME personal mixing system
- User Permissions to restrict operator access





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 3 stereo line input channels mixing to 12 mix outputs and 4 stereo rack FX engines, 4 DCA groups and 4 Mute groups. All output mix channels shall contain Insert, Parametric EQ, Graphic EQ, Compressor, and Delay. Signal delays in the system shall be adjustable in Milliseconds.

Pre/Post fader routing and assignments, processing of signals, level sends, FX sends, DCA and Mute Groups shall be accessed and adjusted via a 5-inch colour touchscreen provided on front panel of the mixer or from Apple iOS touchscreen devices.

There shall be a Channel page on the touch screen replacing physical fader strips with different tabs providing access to Input Channels, FX, Groups, Mixes, DCA and Mute Groups and control of level, mute, pan and PAFL for the selected channel and a fully-customizable page giving access to channels and settings tailored to the user and the specified application. Several 'widgets' shall be assigned to this page, these shall include channel levels, mutes and assignment on/off switches and shall be arranged to suit the user requirement.

The front panel of the mixer shall include 16 custom select keys and indicators, giving access to any combination of user defined input channels, output channel mixes, FX sends, FX returns or Main mix and also 15 assignable SoftKeys giving access to DCA mute masters and MIDI control as well as Tap Tempo, Instant Scene Recall/Navigation or PAFL Clear.

There shall also be dedicated keys for quick Copy/Paste/Reset of mixes and processing parameters.

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

The mixing system shall include application software for Apple iOS touchscreen devices connecting via a wireless network router to an Ethernet LAN port.

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

Routing assignments and level adjustments of input signals to all mixes and bus shall be provided and the application software shall provide signal metering and processing threshold indication when online including the Real Time Analyser.

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 adjusted to the following positions in the 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. Direct outputs shall be assignable via the mixer soft patch bay to any physical output socket interface channel or ME monitoring channel.

A signal generator shall be provided with the ability to send a variable level signal to any output mix with visual assignment status on-screen. The following types of signals shall be available: 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.

4 user-assignable effect racks shall be provided with a library of factory preset FX emulations. The FX racks shall be individually configurable as send/return from a channel or FX/Mix, or inserted into input or output channels.

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 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.

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. On the rear panel there shall be a Type-B USB connection 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.

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

There shall be a local "dSNAKE" Cat5 Ethernet audio expansion port with locking Ethercon connector, providing up to 38 input signals and 20 output signals, plus 40 personal mixing sends to be connected over a single cable 'digital snake' and allowing Remote Preamp control to an Allen & Heath AudioRack, or Allen & Heath ME Personal Mixing Systems.

Input and output channel processing and parameters in the mixer shall be saved on demand as a user library item for recall in other channels. Individual processing sections shall be save-able on demand as user library items for that type. All library items shall be stored on board and archived with the show-file. Library items shall be transferrable to USB drive as portable data to be used in other systems. The mixer shall provide the facility to save 100 scenes of the settings of the mixing system and these scenes shall be nameable. 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.

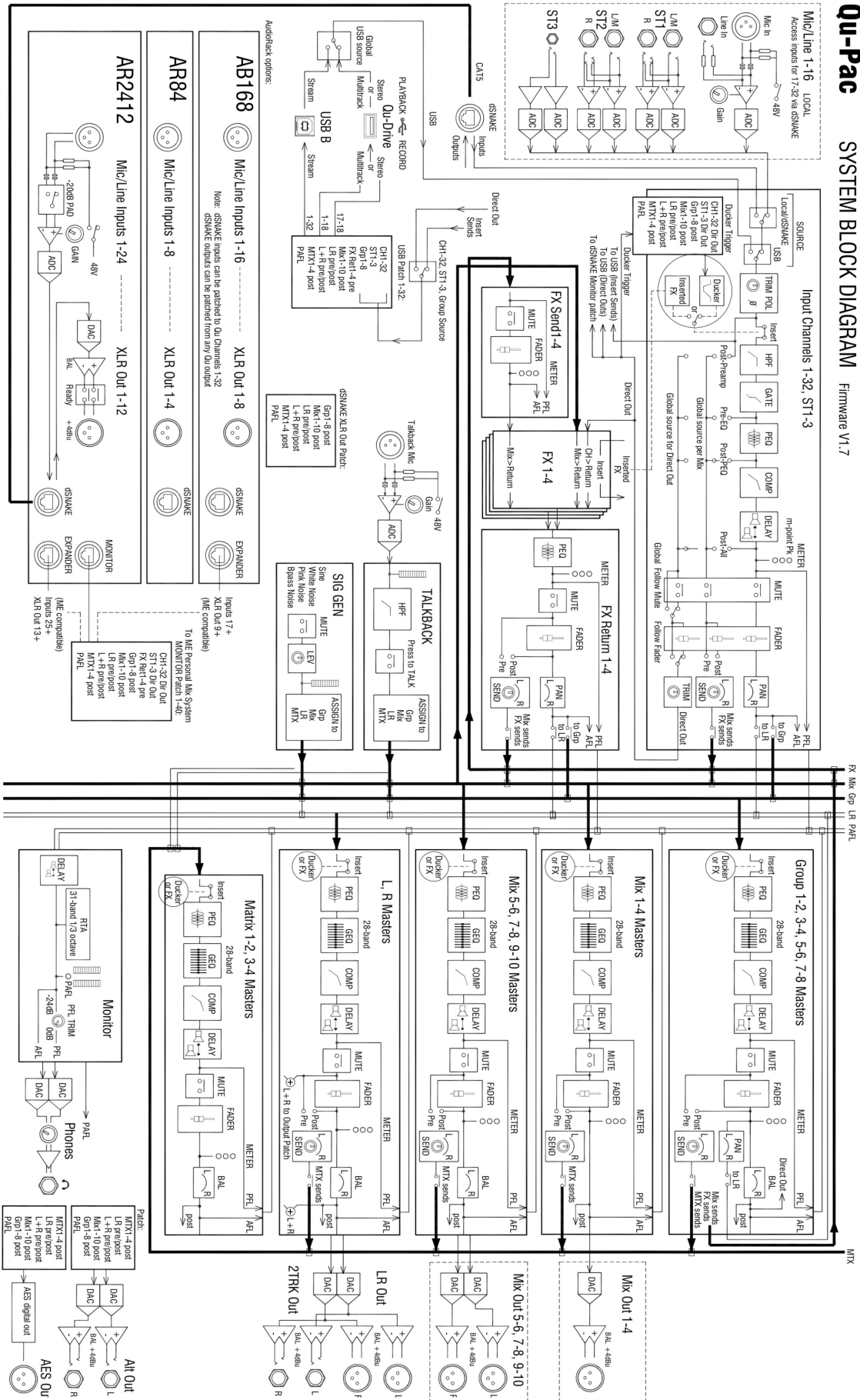
An option shall be provided for password protection for log-in of several users with different levels of system access and permissions. A particular scene may be chosen to be recalled per change of user-login if desired.

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. A Two Pole Push-Button switch shall be provided near the mains input. Recommended operating temperature for the mixer shall be 5 to 35 degrees Celsius.

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

Qu-Pac SYSTEM BLOCK DIAGRAM Firmware V1.7



Mixer Specification

| | | | |
|--------------------------------------|---|----------------------------------|--|
| Inputs | Balanced, XLR and 1/4" TRS jack, fully recallable | Control | |
| Mic/Line Inputs | | Touch Screen | 5" TFT, 800x480 resolution |
| Input Sensitivity (XLR / TRS) | -60 to +5dBu / -50 to +15dBu | SoftKeys | 10 |
| Analogue Gain | -5 to +60dB, 1dB steps | Mute Groups | 4 |
| Maximum Input Level (XLR / TRS) | +19dBu / +29dBu | DCA Groups | 4 |
| Input Impedance (XLR / TRS) | >5k Ω / >10 k Ω | Network | TCP/IP Ethernet for MIDI and iPad app |
| THD+N, Unity gain 0dB | 0.0005% -89 dBu (20-20kHz, Direct Out @0dBu 1kHz) | Input Processing | |
| THD+N, Mid gain +30dB | 0.001% -83dBu (20-20kHz, Direct Out @0dBu 1kHz) | Source | |
| Stereo Line Inputs | | CH1-32 | Local, dSNAKE, or USB |
| ST1, ST2 connector | Balanced, 1/4" TRS jack, half normalised | ST1, ST2 | Local, dSNAKE, or USB |
| ST3 connector | Unbalanced, stereo 3.5mm Mini Jack | ST3 | Local, dSNAKE, or USB Stereo |
| Input Sensitivity (ST1, ST2 / ST3) | Nominal +4dBu / 0dBu | USB Global Source | Qu-Drive or USB B Streaming |
| Trim | +/-24dB | Stereo Linking | |
| Maximum Input Level (ST1,ST2 / ST3) | +22dBu / +18dBu | Parameters linked | Odd/even input pairs EQ, dynamics, insert, delay, assignments, sends |
| Input Impedance | >7k Ω | Link options | Preamp, polarity, sidechains, fader/mute, pan |
| Outputs | | Polarity | Normal/Reverse |
| Mix1-10 and LR Out | Balanced, XLR | High Pass Filter | 12dB/octave 20Hz – 2kHz |
| Group and Matrix Out | | Insert | Assign FX1-4 into Input channels |
| Output Impedance | <75 Ω | Delay | Up to 85ms |
| Nominal Output | +4dBu = 0dB meter reading | Gate | |
| Maximum Output Level | +22dBu | Threshold / Depth | Self-key Sidechain -72dBu to +18dBu / 0 to 60dB |
| Residual Output Noise | -90 dBu (muted, 20-20kHz) | Attack / Hold / Release | 50us to 300ms / 10ms to 5s / 10ms to 1s |
| Stereo Alt Out & 2Trk Out | Balanced, 1/4" TRS jack | PEQ | |
| Source (Alt Output / 2Trk Output) | Patchable / LR post-fade | Band 1 | 4-Band fully parametric, 20-20kHz, +/- 15dB |
| Output Impedance | <75 Ω | Band 2, Band 3 | Selectable LF Shelving (Baxandall), Bell |
| Nominal Output | +4dBu = 0dB meter reading | Band 4 | Selectable HF Shelving (Baxandall), Bell |
| Maximum Output Level | +22dBu | Bell Width | Non-constant Q, variable, 1.5 to 1/9th octave |
| Residual Output Noise | -90 dBu (muted, 20-20kHz) | Compressor | |
| AES Digital Output | 2 channel, 48kHz sampling rate, XLR 2.5Vpp balanced terminated 110 Ω | Threshold / Ratio | Self-key Sidechain -46dBu to 18dBu / 1:1 to infinity |
| dSNAKE | | Attack / Release | 300us – 300ms / 100ms - 2s |
| Inputs | Remote source for CH1-32, ST1, ST2, ST3 | Knee | Soft/Hard |
| Outputs | Patchable from Mix1-10, LR, Grp1-8, MTX1-4 Compatible with AudioRacks AR2412, AR84, AB168 Compatible with ME personal mixing system | Types | Peak Manual, RMS Manual, SlowOpto, PunchBag |
| System | Measured balanced XLR in to XLR out, 0dB gain, 0dBu input | Mix Processing | |
| Dynamic Range | 112 dB | Channel Direct Out to USB | Follow Fader, follow Mute (global options) Post-Preamp, Pre-EQ, Post-EQ, Post-Delay |
| Frequency Response | +0/-0.5dB 20Hz to 20kHz | Source select (global) | |
| Headroom | +18dB | Insert | Assign FX into Mix channels |
| Internal operating Level | 0dBu +18dBu = 0dBFS (+22dBu at XLR output) | Delay | Up to 170ms |
| dBFS Alignment | 0dB meter = -18dBFS (+4dBu at XLR out) | GEQ | |
| Meter Calibration | -3dBFS (+19dBu at XLR out), multi-point sensing | | Constant 1/3 oct, 28 bands 31Hz-16kHz, +/-12dB Gain |
| Meter Peak indication | -48dBFS (-26dBu at XLR out) | | |
| Meter Signal indication | | | |

| | | | |
|---------------------------------|--|-------------------------------|--|
| Meter Type | Fast (peak) response | PEQ | 4-Band fully parametric, 20-20kHz, +/- 15dB |
| Sampling Rate | 48kHz +/-100PPM | Band 1 | Selectable LF Shelving (Baxandall), Bell |
| ADC, DAC | 24-bit Delta-Sigma | Band 2, Band 3 | Bell |
| Latency | 1.2 ms (local XLR in to XLR out) 0.7 ms (local XLR in to AES out) | Band 4 | Selectable HF Shelving (Baxandall), Bell |
| Operating Temperature Range | 0 deg C to 35 deg C (32 deg F to 95 deg F) | Bell Width | Non-constant Q, variable, 1.5 to 1/9th octave |
| Mains Power | 100-240V AC, 50/60Hz | Compressor | Self-key Sidechain |
| Maximum Power Consumption | 150W | Threshold / Ratio | -46dBu to 18dBu / 1:1 to infinity |
| USB Audio | | Attack / Release | 300us – 300ms / 100ms - 2s |
| Qu-Drive | USB A | Knee | Soft/Hard |
| Stereo Record | 2 channel, WAV, 48kHz, 24-bit, patchable | Types | Peak Manual, RMS Manual, SlowOpto, PunchBag |
| Stereo Playback | 2 channel, WAV, 44.1 or 48kHz, 16 or 24-bit, to ST3 | FX | |
| Multitrack Record | 18 channel, WAV, 48kHz, 24-bit, patchable | Internal FX | 4x RackFX engine, Send>Return or Inserted |
| Multitrack Playback | 18 channel, WAV, 48kHz, 24-bit | Audio Tools | |
| USB Audio Streaming | USB B, Core Audio compliant | Types | Reverbs, Delays, Gated Reverb, ADT Chorus, Symphonic Chorus, Phaser, Flanger |
| Send (upstream) | 32 channel, WAV, 48kHz, 24-bit | 4 dedicated Stereo FX returns | Fader, Pan, Mute, Routing to Mix/LR, 4-Band PEQ |
| Return (downstream) | 32 channel, WAV, 48kHz, 24-bit | PAFL | PFL or stereo in-place AFL, 0 to -24dB Trim, 85ms Delay |
| Dimensions & Weights | | Talkback | Assignable to any mix, 12dB/oct HPF |
| | Width x Depth x Height | Signal Generator | Assignable to any mix, Sine / White/Pink/Band-pass Noise |
| Desk mounted | 440 x 180 x 181 mm (17.3" x 7" x 7") | RTA | 31-Bands 1/3 octave 20-20kHz, follows PAFL source |
| Rack mounted | 483 x 174 x 181 mm (19" x 6.9" x 7") 4U | | |
| Packed in shipping box | 620 x 310 x 310 mm (24.4" x 12.2" x 12.2") | | |
| Unpacked weight | 6.6 kg (14.5 lbs) | | |