Qu

THE SHAPE OF THINGS TO COME

MOVING FADERS — TOTAL RECALL

ANALOGIQ — RECALLABLE PREAMP

MULTITRACK RECORD/PLAY — Qu-Drive

800X480 TOUCHSCREEN — TOUCH CONTROL

iLive FX

SNAKE — REMOTE AUDIO

ME PERSONAL MIXING SYSTEM

iPAD APP — Qu-Pad

ALLEN&HEATH ®

Introducing the New Compact
Digital Mixers from Allen & Heath

We have been creating high end mixing consoles for some of the most discerning ears in the business since 1969. We're not a software house, we don't make stomp boxes or cable testers – creating excellent mixers is, has been and always will be our great passion. Qu-16 and Qu-24 have been designed by our in-house research and development team in Cornwall, Great Britain, and are directly descended from the GLD and iLive digital mixing systems that have earned the industry's respect night after night on tour and in live venues across the globe – so you can be confident that you're standing behind a premium mixer that looks, feels, and sounds like a pro.

Qu-16 and Qu-24 harness the full potential of digital mixing technology, with total recall of settings (including the all-important fader position and preamp gain), convenient recording and playback solutions, iPad control, personal monitoring options and the choice of local or remote Cat5 I/O.

Qu-24

24 MIC INPUTS	**3** STEREO INPUTS	**20** MIX OUTPUTS
25 MOTOR FADERS	**2** STEREO MATRIX OUTS	**2** STEREO GROUPS	**4** MUTE GROUPS
4 FX ENGINES	**4** FX SENDS / RETURNS	**10** SOFT KEYS
USB AUDIO STREAMING	**DAW** MIDI CONTROL	**AES** DIGITAL OUT

AnalogiQ™ Preamps

Our AnalogiQ™ total recall preamps feature zero crossing detection and an advanced padless 1dB step gain stage, closely allied to the DSP for optimal gain accuracy and audio transparency. The analogue signal is captured by high class, low latency 24bit analogue to digital converters matched to high quality 24bit digital to analogue converters to deliver the required outputs. The AnalogiQ™ design has been refined to offer superb transparency, minimal distortion and an ultra-low noise floor, with a warm, musical sound that is missing from some digital consoles.

The Mixing Experience

Having massive processing power and advanced functionality is great, but it counts for nothing if you can't access the controls you need in a heartbeat. Once you start using a Qu you'll sense the years of research into ergonomics and the hands-on mixing experience that our team has drawn upon to deliver a wonderfully natural layout and workflow. It's not about recreating an analogue interface, it's about creating an experience that's fluid, comfortable and intuitive for novices, digital natives and old school road warriors alike, making all the benefits of digital mixing technology readily accessible to all.

Qu-16

16 MONO INPUTS	**3** STEREO INPUTS	**12** MIX OUTPUTS
17 MOTOR FADERS	**19"** RACK MOUNTABLE	**4** MUTE GROUPS
4 FX ENGINES	**4** STEREO FX RETURNS	**4** SOFTKEYS
USB AUDIO STREAMING	**DAW** MIDI CONTROL	**AES** DIGITAL OUT

Touch Control

The 800 x 480, sixteen million colour Touchscreen and its dedicated data encoder form the heart of the Qu interface, providing super-fast, easy access to all settings. The user-friendly interface has been designed with clarity in mind. Dedicated keys and screen tabs quickly guide you to meter and RTA views, FX racks, channel processing, USB audio control, scenes, setup menus and much more.

The SuperStrip

All your key processing tools are presented in a clean layout on the SuperStrip, with 1 function per physical control. The SuperStrip is complemented by an onscreen Touch Channel for intuitive access to full processing parameters without clutter or complex menu structures. Processing for Mono and Stereo inputs includes trim, polarity, HPF, gate, insert, 4 band PEQ, compressor and delay. All mixes including LR provide Insert, 4 band PEQ, 1/3 octave GEQ, compressor and delay.

Fader Automation

Moving faders started as an expensive option in the studio desks of the 80s, and later became the norm with the advent of digital technology. Nevertheless some entry-level digital mixers lack this precious commodity which is a fundamental part of the Total Recall approach. Fader automation is essential for rapid mixing, especially when you're dealing with multiple monitor mixes – just press a mix key and the faders immediately fly to the send levels for that mix.

Qu-16 and Qu-24 feature 16 and 24 motorized ALPS faders respectively, arranged over 2 layers, allowing instant access to all channels and masters in a compact space, plus a dedicated master fader which dynamically follows the mix selection. A third, Custom layer is available for ad-hoc user strip layout, where any combination of Inputs, FX Sends, FX Returns, Mix masters and MIDI strips can be assigned.

iLive FX

Qu's dynamics and FX algorithms are derived from the FX used in our iLive pro touring series. Some of the world's most respected audio engineers have chosen to use iLive's FX on tour in preference to top-end plug-ins and external FX units. All Qu models boast 4 stereo iLive FX engines, featuring lovingly crafted emulations of legendary classic reverbs, gated reverbs, delays, modulators, flangers and more. The FX library has the ability to grow with future firmware releases. FX are returned to the mix on dedicated return channels, so you're not tying up your mono and stereo input channels. Each Stereo FX Return has a dedicated 4 band PEQ.

Total Recall

True digital mixing is about being able to save and recall scenes (snapshots) at the press of a button. Qu-16 and Qu-24 can store up to 100 full Scenes for recall at will. Channels and mixes can be made Safe from Scene recall. For example, if an instrument or mic gets swapped out after the soundcheck, the channel can be made safe to avoid settings being overridden by Scene recalls. Or if a broadcast feed or walk-in iPod is added last-minute before the show kicks off, that mix or channel can be made safe from any scene change. In addition, single parameter updates can be blocked using a Recall Filter. So if you tweak the graphic EQ to reflect the room response when the audience gets in, you can block this to prevent any overwriting at scene change.

Custom settings for each EQ, compressor or channel can be saved as Library presets. This lets you store your tried and tested setting for your favourite vocal mic or reverb pattern and apply it to other channels or shows. Libraries, Scenes and the complete Show configuration can be saved to a USB key, so you can carry the show with you, ready to use on another Qu mixer.

Qu-Drive

Forget soundcard drivers and software setup, Qu-16 and Qu-24 have an integrated multitrack USB recorder, providing 18 channels of 48kHz, 24bit recording and playback straight to / from your USB hard drive. Capturing multitrack recordings of your shows has never been so easy. Mixes and FX returns can be recorded alongside channels, and multitrack audio can be played back to the mixer for virtual sound-check applications.

An independent set of controls is provided for quick stereo recording of the main LR or other mix outputs, and a 2-track USB return can be routed to ST3 for playback of stereo WAV files such as walk-in music.

USB Audio Streaming

Qu's built-in interface streams multitrack audio to your Mac via a flexible patching system: all Input channels and the Main LR can be recorded at the same time, or you may choose to record something different such as FX returns or a pair of mixes.

The returns from the Mac can be assigned to the Input channels. The interface is class-compliant on Mac OS X – which means it's truly plug 'n play, with no need to install a driver. It will be recognized straightaway by any DAW supporting Core Audio, including Logic, Cubase, Reaper, and Pro Tools.

The Custom layer can be populated with MIDI strips for direct assignment or 'learning' of faders and Mute, Sel and PAFL keys in the DAW. Users can also download the free DAW Control app for Mac OS X, which translates the MIDI messages to popular HUI or Mackie Control protocols, for easier setup and bi-directional integration with the mixer.

Qu-16

RACKMOUNTABLE DIGITAL MIXER
FOR LIVE, STUDIO AND INSTALLATION

16 MONO INPUTS	3 STEREO INPUTS	12 MIX OUTPUTS
17 MOTOR FADERS	19" RACK MOUNTABLE	4 MUTE GROUPS
4 FX ENGINES	4 STEREO FX RETURNS	4 SOFTKEYS
USB AUDIO STREAMING	DAW MIDI CONTROL	AES DIGITAL OUT

With 24 sources to the mix including stereo inputs and returns, Qu-16 is the equivalent of a 30 channel analogue console with extensive outboard equipment (22 gates, 35 compressors, 12 graphic equalizers and 4 stereo effects)! Add the unique Qu-Drive recording facilities, dSNAKE connectivity and Total Recall scene system and you get a true **powerhouse in just 19 inches.**

1. Balanced Stereo Inputs
2. Ethernet network port for remote / wi-fi control
3. dSNAKE™ Remote Audio port for digital snake and personal monitoring
4. USB audio streaming, class-compliant on Mac

5. All 12 Mix outputs on XLR
6. 2TRK Out
7. Patchable Alt Out
8. AES digital stereo output
9. Dedicated Talkback preamp

Quickly access preamp gain, HPF frequency, PEQ settings, gate & compressor threshold, and PAN.

GEQ Flip toggles the faders to Graphic EQ sliders.

Copy, Paste or Reset any section of processing or a whole channel or mix. The Fn (Function) key brings up a popup **page relevant to the current screen.**

Fader strips with Mute, Select, PAFL switches, signal meter, and 100mm motorised fader. Access all the processing for each **strip with Sel.** The Peak indicators are multi-point – they are triggered by any signal clip in the channel path.

16 faders in 3 layers give access to all channels and masters in a compact space. Assign any combination of **Inputs, FX sends, FX** returns and Mix masters to the Custom layer.

5" 800x480 colour touchscreen with dedicated navigation keys and rotary encoder.

ST3 Mini-jack stereo input for portable devices.

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

Access mix sends on faders with the dedicated Mix keys.

4 user-assignable SoftKeys for scene recall, mutes, tap tempo and more.

MOVING FADERS
TOTAL RECALL

Motorised faders provide total recall of mix levels, giving full benefit from the scene recall system and ensuring the fader is always in the right position even when swapping between the layers.

AnaLOGIQ
RECALLABLE PREAMP

Qu features crystal clear AnaLOGIQ total recall pad-less preamps, optimised for transparency and low harmonic distortion.

Qu-Drive
MULTITRACK RECORD/PLAY

Qu-Drive is an integrated USB recorder, allowing multitrack recording and playback to/from an external USB drive.

TOUCH CONTROL
800X480 TOUCHSCREEN

Qu's high resolution, full colour Touchscreen and the intuitive Touch Channel interface provide easy access to channel processing, the FX racks and all setup and system management controls.

iLive FX

Qu features a library of FX emulations taken from the iLive pro touring series, including classic reverbs, gated reverbs, delays and modulators.

dSNAKE REMOTE AUDIO

Allen & Heath's proprietary dSNAKE low latency audio connection enables Cat5 connection to a remote audio rack, or to the ME personal mixing system.

ME PERSONAL MIXING SYSTEM

Qu is compatible with Allen & Heath's ME Personal Mixing System – so you can add ME-1 personal mixers to your setup to allow performers to control their own monitor mixes.

Qu-Pad
IPAD APP

A free iPad app gives instant wireless control of the mixer, so you can tweak the PA, adjust the monitors on stage, and even mix the show from the audience.

Qu-24

COMPACT DIGITAL MIXER
FOR LIVE, STUDIO AND INSTALLATION

24 MIC INPUTS	3 STEREO INPUTS	20 MIX OUTPUTS
25 MOTOR FADERS	2 STEREO MATRIX OUTS	2 STEREO GROUPS	4 MUTE GROUPS
	4 FX ENGINES	4 FX SENDS / RETURNS	10 SOFT KEYS
USB AUDIO STREAMING	DAW MIDI CONTROL	AES DIGITAL OUT

With 32 sources to the mix including stereo inputs and returns, Qu-24 is the equivalent of a 38 channel analogue console with extensive outboard equipment (30 gates, 50 compressors, 20 graphic equalizers and 4 stereo effects)! On top of this Qu-24 adds extra SoftKeys, a complete Matrix system and two stereo Groups.

Top panel annotations

iPad Shelf.

Groups 1-4 are typically used as subgroups to LR for level masters and/or processing, for example to compress a drum kit or to tame multiple lavalier microphones with a single graphic equalizer.

Quickly access preamp gain, HPF frequency, PEQ settings, gate & compressor threshold, and PAN. The Source key toggles between analogue inputs or USB.

Welcome to the Matrix – 2 additional stereo outputs equipped with full processing add to the extensive I/O of the Qu-24. It is a 'mixer within a mixer' fed from any combination of Group 1-4, Mix 1-10, and main LR. It can be used to provide a broadcast feed, a recording mix, or duplicate the main outputs for delay stacks and fill / zone speakers where independent GEQ and delay is applied.

ST3 Mini-jack stereo input for portable devices.

Bottom panel annotations

Fader strips with Mute, Select, PAFL switches, signal meter, and 100mm motorised fader. Access all the processing for each strip with Sel. The Peak indicators are multi-point – they are triggered by any signal clip in the channel path.

24 faders in 3 layers give access to all channels and masters in a compact space. Assign any combination of Inputs, FX sends, FX returns, Groups, Mix and Matrix masters to the Custom layer.

GEQ Flip toggles the faders to Graphic EQ sliders.

Copy, Paste or Reset any section of processing or a whole channel or mix. The Fn (Function) key brings up a popup page relevant to the current screen.

5" 800x480 colour touchscreen with dedicated navigation keys and rotary encoder.

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

Access mix sends on faders with the dedicated Mix keys.

Qu-24 packs 10 SoftKeys for more user-assignable functions such as Mute Groups, Tap Tempo, Scene navigation or PAFL Clear.

Feature icons

MOVING FADERS — TOTAL RECALL
Motorised faders provide total recall of mix levels, giving full benefit from the scene recall system and ensuring the fader is always in the right position even when swapping between the layers.

AnaLOGIQ RECALLABLE PREAMP
Qu features crystal clear AnaLOGIQ total recall pad-less preamps, optimised for transparency and low harmonic distortion.

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Qu-Drive is an integrated USB recorder, allowing multitrack recording and playback to/from an external USB drive.

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Qu's high resolution, full colour Touchscreen and the intuitive Touch Channel interface provide easy access to channel processing, the FX racks and all setup and system management controls.

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ME PERSONAL MIXING SYSTEM
Qu is compatible with Allen & Heath's ME Personal Mixing System – so you can add ME-1 personal mixers to your setup to allow performers to control their own monitor mixes.

IPAD APP Qu-Pad
A free iPad app gives instant wireless control of the mixer, so you can tweak the PA, adjust the monitors on stage, and even mix the show from the audience.

Rear panel annotations

1. Balanced Stereo Inputs
2. Ethernet network port for remote / wi-fi control
3. dSNAKE™ Remote Audio port for digital snake and personal monitoring
4. USB audio streaming, class-compliant on Mac
5. All 20 Mix outputs on XLR
6. 2TRK Out
7. Patchable Alt Out
8. AES digital stereo output
9. Dedicated Talkback preamp

Qu-Pad

Add the Qu-Pad iPad app to your Qu setup and you're free to adjust the monitors on stage, roam around the venue whilst tweaking the PA, and then mix the show from the heart of the audience. Qu-Pad connects to the mixer over Wi-Fi* and gives instant access to all live mixing parameters and settings.

*Requires the connection of a Wi-Fi router or access point to the Qu-16 or Qu-24 Network port..

ME Personal Mixing System

Qu-16 and Qu-24 are fully compatible with our ME Personal Mixing System. Any number of ME-1 personal mixers can be chained from the dSNAKE™ port (or from an AR2412 Stagebox if you've got one connected to the dSNAKE™ port). Each performer can be given tailored control over their own mix, leaving the engineer free to focus on the audience experience. Find out more at allen-heath.com/ME

dSNAKE™

Qu-16 and Qu-24 are self-contained mixers, so if you've already got the analogue cables you're good to go. If you're thinking of trading in the copper multicore for a Cat5 digital snake, Qu's dSNAKE™ port has you future-proofed, allowing connection to a remote AR2412 or AR84 AudioRack.

dSNAKE™ is our proprietary networking solution, boasting a transport latency of only 105us over cable runs of up to 120m / 390'. So if you're mixing FoH you can place your I/O on the stage and run a single Cat5 cable back to the Qu mixer in the mix position.
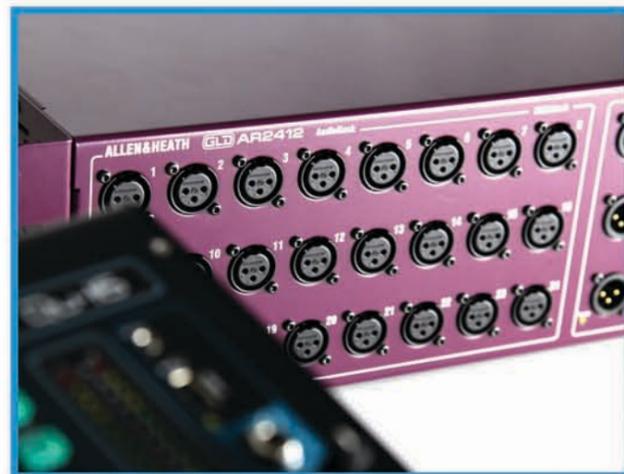
Accessories

AR2412 – 24 inputs, 12 outputs AudioRack with dSNAKE connection and expansion port for personal monitoring.
AR84 – 8 inputs, 4 outputs AudioRack with dSNAKE connection.
AH7000 – 80m drum of Neutrik EtherFlex Cat5 with locking connectors.
LEDLamp – Variable brightness 18" gooseneck lamp.
QU-16-RK19 – Rack mounting kit for Qu-16.
AP9262 – Dust cover for Qu-16.
AP9458 – Dust cover for Qu-24.

ARMed to the Hilt

Qu mixers are equipped with 5 cores of high efficiency ARM core processing, with dedicated ARM cores running the touchscreen display and surface, USB streaming, Qu-Drive multi-channel USB recording / playback, Ethernet and fader automation. Between them the ARM cores provide state-of-the-art processing, working in parallel to deliver extensive control, instant-on operation, and lightning-fast response.

The mixer's DSP farm exploits next generation dual core DSPs. With plenty of DSP power under the hood the channel processing is only using a fraction of capacity, so Qu is future-proofed, with ample room for updates and extra functionality.

The DSP architecture employs varied bit depths, tailored to specific algorithms, with 48 bits on critical EQ functions and a 56 bit accumulator on the mix bus where it really counts, allowing every nuance of the audio to be captured in the final mix.

The Shape of Things to Come

Made from 18 gauge, cold-rolled Zintec steel, Qu's distinctive frame is designed for strength and rigidity. We've done unspeakable things to that chassis in the lab and it's taken everything we've thrown at it – even being stomped on by our resident ex-tank commander.

Silence is a precious commodity in the live or studio environment, which is why nobody wants those moments of stillness ruined by the whirring of fans coming from the mix position. Qu's sleek profile generates optimal airflow through the mixer, eliminating the need for any fans.

The shape has some unexpected benefits too. When we started taking Qu out to gigs we soon found the space beneath it incredibly useful for keeping our USB drive, talkback mic, cue sheet and other clutter tucked out of the way. We've even had engineers hanging the mixer from a handy scaffold bar and mixing vertically.
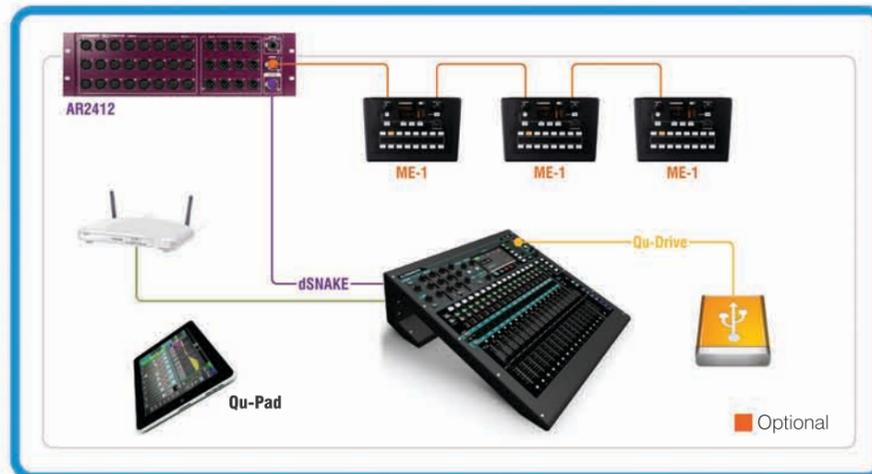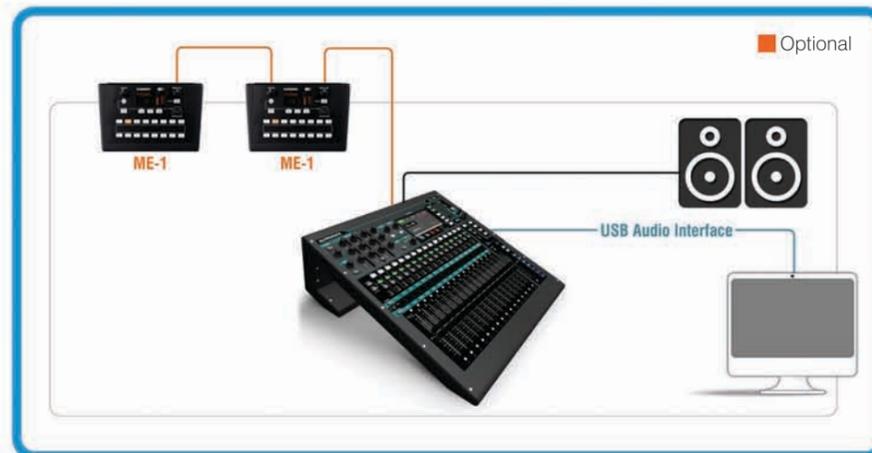
Example Applications

Live

Qu-24 with traditional analogue multicore from stage and direct recording on USB media.

Studio

Qu-16 as tracking mixer, soundcard, DAW controller and monitor router, plus optional ME-1s for personal cue foldback to recording room.
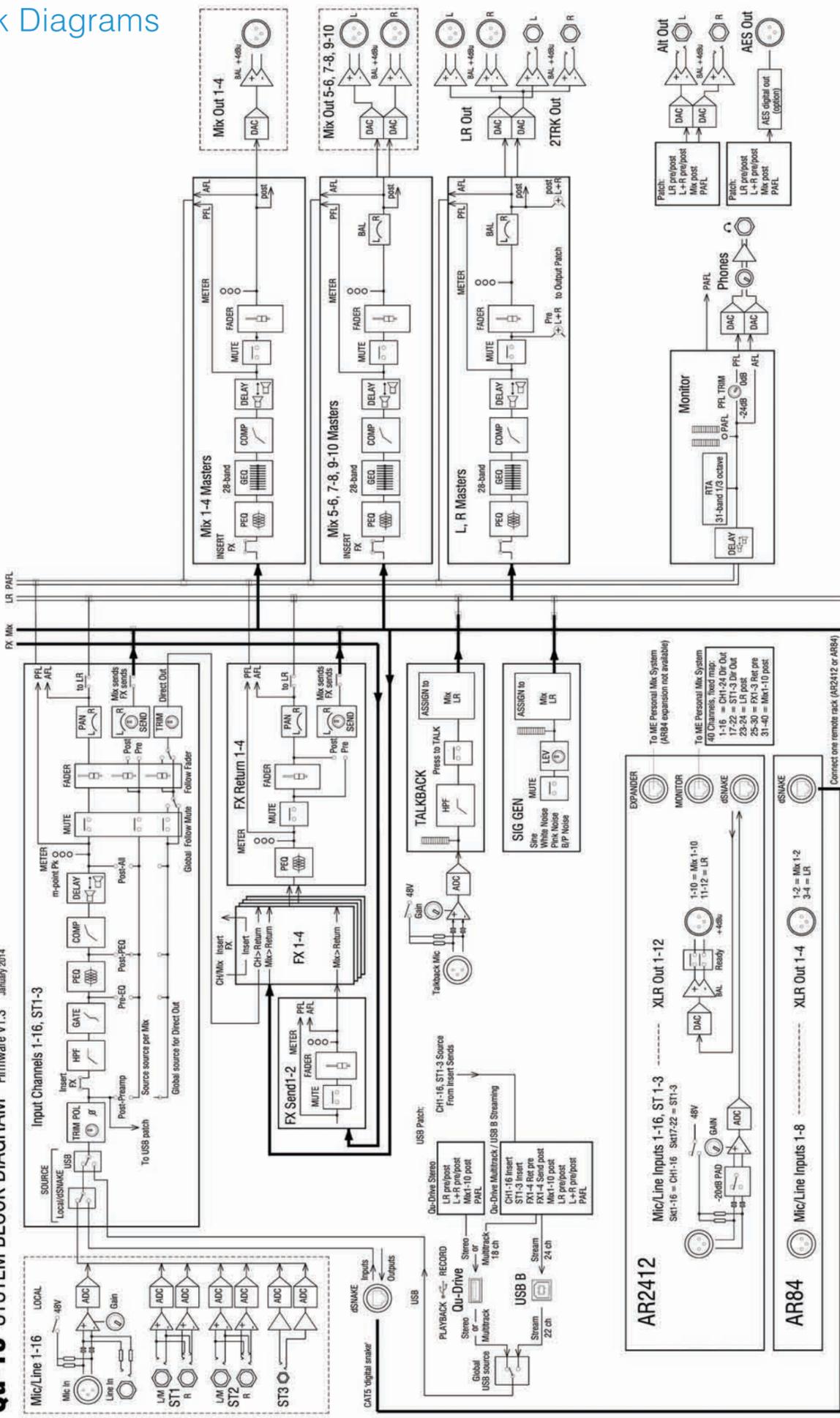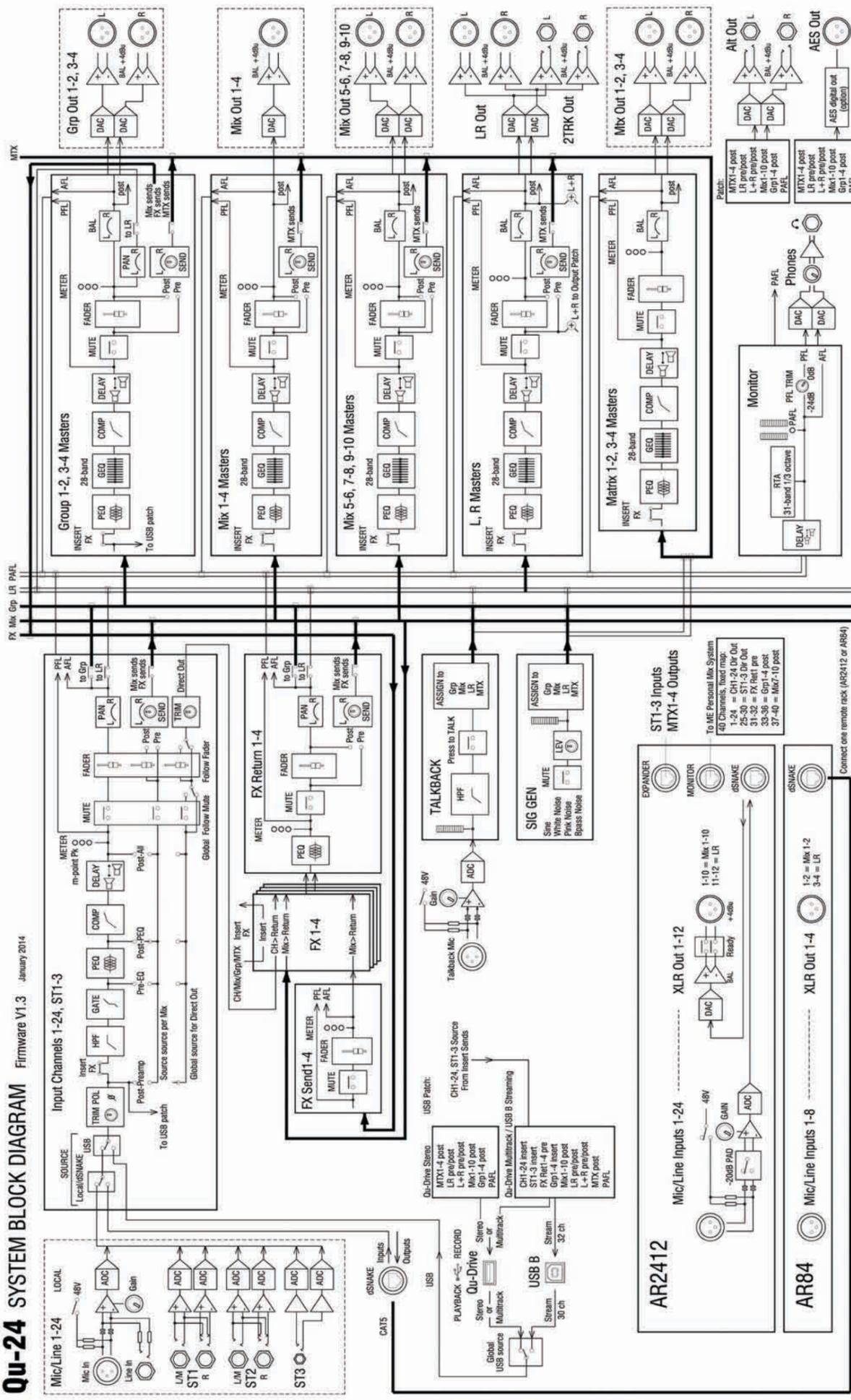

Live with Remote Audio

Qu-16 with dSNAKE™ Cat5 digital snake connection to an AR2412 Audio Rack, direct recording on USB media, iPad wireless control and optional ME-1s for personal monitoring on stage.

Block Diagrams

Qu-16 SYSTEM BLOCK DIAGRAM Firmware V1.3 January 2014

Qu-24 SYSTEM BLOCK DIAGRAM Firmware V1.3 January 2014

Technical Specifications

Inputs

Mic/Line Inputs 1-16 (Qu-16) 1-24 (Qu-24)	Balanced, XLR and 1/4" TRS jack, fully recallable	
Input Sensitivity (XLR / TRS)	-60 to +10dBu / -50 to +20dBu	
Analogue Gain	-10 to +60dB, 1dB steps	
Maximum Input Level (XLR / TRS)	+19dBu / +29dBu	
Input Impedance (XLR / TRS)	>5kΩ / >10 kΩ	
THD+N, Unity gain 0dB	0.0005% -89dBu (20-20kHz, Direct Out @0dBu 1kHz)	
THD+N, Mid gain +30dB	0.001% -83dBu (20-20kHz, Direct Out @0dBu 1kHz)	

Stereo Line Inputs	
ST1, ST2 connector	Balanced, 1/4" TRS jack, half normalled
ST3 connector	Unbalanced, 3.5mm Mini Jack
Input Sensitivity (ST1, ST2 / ST3)	Nominal +4dBu / 0dBu
Trim	+/-24dB
Maximum Input Level (ST1, ST2 / ST3)	+22dBu / +18dBu
Input Impedance	>7kΩ

Outputs

Qu-16: Mix1-10, LR Out.	Balanced, XLR
Qu-24: Mix1-10, GRP 1-4, MTX 1-4, LR Out.	Balanced, XLR
Output Impedance	<75Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-90 C31dBu (muted, 20-20kHz)

Stereo Alt Output & 2Trk Output	Balanced, 1/4" TRS jack
Source (Alt Output / 2Trk Output)	Patchable / LR post-fade
Output Impedance	<75Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-91 dBu (muted, 20-20kHz)

AES Digital Output	2 channel, 48kHz sampling rate, XLR output
	2.5Vpp balanced terminated 110Ω

dSNAKE

Inputs	Remote source for CH1-24, ST1, ST2, ST3
Outputs	Remote outputs for Mix1-10, LR
	Compatible with AudioRacks AR2412, AR84
	Compatible with ME personal mixing system

System

	Measured balanced XLR in to XLR out, 0dB gain, 0dBu input
Dynamic Range	112dB
Frequency Response	+0/-0.5dB 20Hz to 20kHz
Headroom	+18dB
Internal operating Level	0dBu
dBFS Alignment	+18dBu = 0dBFS (+22dBu at XLR output)
Meter Calibration	0dB meter = -18dBFS (+4dBu at XLR out)
Meter Peak indication	-3dBFS (+19dBu at XLR out), multi-point sensing
Meter Signal indication	-48dBFS (-26dBu at XLR out)
Meter Type	Fast (peak) response
Sampling Rate	48kHz +/-100PPM
ADC, DAC	24-bit Delta-Sigma
Latency	1.2 ms (local XLR in to XLR out)
	0.7 ms (local XLR in to AES out)
Operating Temperature Range	0 deg C to 35 deg C (32 deg F to 95 deg F)
Mains Power	Qu-16: 100-240V AC, 50/60Hz, 82W max
	Qu-24: 100-240V AC, 50/60Hz, 120W max

USB Audio

Qu-Drive	USB A
Device	USB hard drive recommended for all recording
	USB hard drive must be used for Multitrack
Stereo Record	2 channel, WAV, 48kHz, 24-bit, patchable
Stereo Playback	2 channel, WAV, 44.1 or 48kHz, 16 or 24-bit, to ST3
Multitrack Record	18 channel, WAV, 48kHz, 24-bit, patchable
Multitrack Playback	18 channel, WAV, 48kHz, 24-bit, CH1-16, ST1

USB Interface	USB B, Core Audio compliant
Send (upstream)	Qu-16: 24CH. WAV, 48kHz, 24-bit
	Qu-24: 32CH. WAV, 48kHz, 24-bit
Return (downstream)	Qu-16: 22CH. WAV, 48kHz, 24-bit
	Qu-24: 30CH. WAV, 48kHz, 24-bit

Dimensions & Weights

Qu-16 Mixer	Width x Depth x Height
Desk mounted	440 x 500 x 186 mm (17.4" x 19.7" x 7.4")
Rack mounted	11U, 483 x 486 x 190 mm (19" x 19.1" x 7.5")
Packed in shipping box	610 x 680 x 350 mm (24" x 27" x 13.8")
Unpacked weight	10 kg (22 lbs)
Packed weight	13.5 kg (30 lbs)

Qu-24 Mixer	Width x Depth x Height
Desk mounted	632 x 500 x 186 mm (24.9" x 19.7" x 7.4")
Packed in shipping box	670 x 790 x 350 mm (26.4" x 31.1" x 13.8")
Unpacked weight	14 kg (31 lbs)
Packed weight	18 kg (40 lbs)

Control

Faders	100mm motorised
Touch Screen	5" TFT, 800x480 resolution
SoftKeys	Qu-16: 4
	Qu-24: 10
Mute Groups	4
Network	TCP/IP Ethernet for MIDI comms and iPad app

Input Processing

Source	
Qu-16: CH1-16	Local, dSNAKE or USB
Qu-24: CH1-24	Local, dSNAKE or USB
ST1, ST2	Local, dSNAKE or USB
ST3	Local, dSNAKE or USB

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

Polarity	Normal/Reverse

High Pass Filter	12dB/octave 20Hz – 2kHz
Insert	Assign FX into Input channels
Delay	Up to 85ms

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

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

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

Channel Direct Out to USB	Follow Fader, follow Mute (global options)
Source select (global)	Post-Preamp, Pre-EQ, Post-EQ, Post-Delay

Mix Processing

Insert	Assign FX into Mix channels
Delay	Up to 170ms
GEQ	Constant 1/3 oct, 28 bands 31Hz-16kHz, +/-12dB Gain

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

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

FX

Internal FX	4x RackFX engine, Send>Return or Inserted
Types	Reverbs, Delays, Gated Reverb, ADT
	Chorus, Symphonic Chorus, Phaser, Flanger
4 dedicated Stereo FX returns	Fader, Pan, Mute, Routing to Mix/LR, 4-Band PEQ

Audio Tools

PAFL	PFL or stereo in-place AFL, 0 to -24dB Trim, 85ms Delay
Talkback	Assignable to any mix, 12dB/oct HPF
Signal Generator	Assignable to any mix, Sine / White/Pink/Bandpass Noise
RTA	31-Bands 1/3 octave 20-20kHz, follows PAFL source