6. Connecting dSNAKE Remote Audio

The Qu mixer provides local sockets on its rear panel for all audio inputs and outputs. It can also work with remote audio by connecting over a single cable 'digital snake' to an Allen & Heath AudioRack, or to the Allen & Heath ME Personal Mixing System.

6.1 Connecting to a remote AudioRack

The Qu can connect to an Allen & Heath AudioRack so that the audio can be plugged into a rack on stage and routed to the mixer over a single Cat5 cable 'digital snake' plugged into its dSNAKE port.

dSNAKE carries:

- Up to 38 remote input signals
- Up to 16 remote output signals
- 40 personal mixing sends
- Preamp control – Gain, Pad, 48V

The 'digital snake' – dSNAKE provides a convenient, single Cat5 cable alternative to the typical heavy analogue copper multicore to connect many inputs and outputs on stage. One cable carries multiple channels of audio in both directions together with remote control of the preamps.

Cat5 cable – Use STP (shielded twisted pair) Cat5e or higher cables. Those with both foil and braided screens provide shielding from interference and are generally more rugged. Stranded core cables are less prone to damage when kinked or repeatedly coiled.

The Qu mixer provides a locking Neutrik EtherCon socket to protect the connections and ensure suitability for touring. Use a touring grade cable fitted with locking EtherCon plugs.

Maximum cable length = 120m (396') depending on cable type. Recommended maximum length = 100m (330').

Remote Inputs - dSNAKE inputs are mapped one-to-one to the Qu input channels. They are not patchable.

ⓘ dSNAKE does not add channels to the mixer. Choose either Local (rear panel) or dSNK (remote) input for each channel.

Remote Outputs - Qu outputs can be patched to the output sockets on the remote racks. These duplicate the outputs on the Qu rear panel.

Connecting Qu to the AudioRack – Plug one end of your Cat5 'digital snake' into the Qu mixer dSNAKE port. Plug the other end into the dSNAKE port of the AudioRack.

Connecting a second AudioRack – The AR2412 and AB168 AudioRacks include an EXPANDER port. You can use this to connect to an AR84 or AB168 AudioRack.

ⓘ The AR2412 AudioRack cannot be used as an expander in a Qu system.

ⓘ You can connect up to two AudioRacks in a Qu system. This includes the main rack and one expander rack.

Once connected and powered up, the Qu touch screen should display the 'dS' icon in its toolbar to show that one or more dSNAKE devices are recognised by the system.
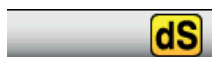
Qu-16 16 Mic/Line

Qu-24 24 Mic/Line in

24 out, 22 in USB audio streaming

32 out, 30 in USB audio streaming

4 Group out

Matrix out

Qu-32 32 Mic/Line in

32 out, 32 in USB audio streaming

8 Group out

Matrix out

AudioRacks - All models are compatible with the optional Allen & Heath AB168, AR2412 and AR84 AudioRacks. These provide remote mic inputs and line outputs that connect to the mixer using a Cat5 'digital snake' cable up to 100m long. You can connect up to two AudioRacks the second as an expander to the first.

ⓘ The AR2412 AudioRack cannot be used as an expander in a Qu system.

Scene, Library and Show memories - All Qu mixer memories are compatible. Files created on one model can be transferred via USB key and loaded on another. The extra features of the bigger models will be ignored when their file is loaded on a Qu-16. The extra features of the bigger models will be reset to factory default when a Qu-16 file is loaded.

ⓘ To be compatible, ensure all your Qu mixers are loaded with the same version of firmware. Check the Allen & Heath web site for the latest firmware available.

USB Audio - A USB hard drive formatted on one model can be used on the other. Stereo and multitrack Qu-Drive recordings are compatible. USB B audio streaming is compatible, but note that the Qu-16 is 24out/22in, the Qu-24 is 32out/30in, and the Qu-32 and Qu-Pac are 32out/32in.

Firmware – The same version but different firmware is needed for each model. Choose either the Qu-16, Qu-24 or Qu-32 file when downloading firmware from the Allen & Heath web site. The procedure for updating firmware is the same for all models.

Qu-Pad and Qu-You apps - These apps are compatible with all Qu mixers. They identify the model and load the appropriate controls when you log in. Qu-Pad is available for iOS devices. Qu-You is available for iOS and Android devices.

ⓘ Make sure the app version and mixer firmware versions are compatible.

Available AudioRacks:

**AB168**   16 Mic/Line in, 8 Line out - Floor, shelf or rack mount

The AB168 AudioRack can be used as a stage box on the floor or a surface, or mounted in a 19" rack using the optional rack ears.

**EXPANDER** – To connect to a second AB168 to add more input and output sockets. Also compatible with the Allen & Heath ME personal mixing system.

dSNAKE – To connect to the Qu mixer using a Cat5 digital snake.

AR2412   24 Mic/Line in, 12 Line out - Rack mount
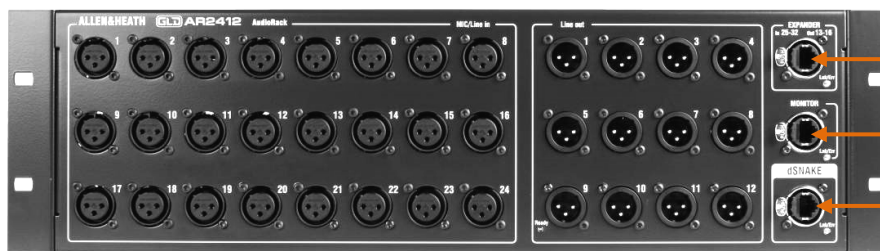
EXPANDER – To connect to an AR84 or AB168 to add more input and output sockets.

MONITOR – To connect to the Allen & Heath ME personal mixing system.

dSNAKE – To connect to the Qu mixer using a Cat5 digital snake.

AR84   8 Mic/Line in, 4 Line out - Rack mount

EXPANDER – To connect to the Expander port of the AR2412, or connect directly to the Qu mixer via its dSNAKE port.
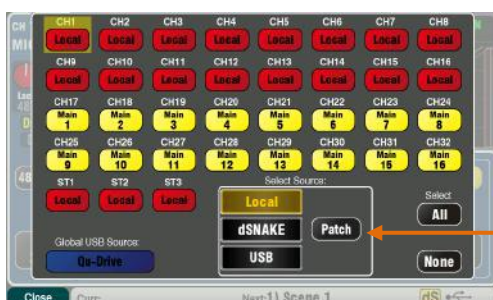
Inputs – Use the **Preamp** screen **Fn** key **Source** page to choose either the local (rear panel) socket or a remote (dSNAKE) socket for each channel source. Red buttons show local sources selected, yellow buttons show dSNAKE sources.

Any dSNAKE input socket can be patched to any channel using the **Setup / I/O Patch / dSNAKE In** screen. Sockets can be patched to more than one channel.

The **Qu-16, 24, 32** reset default is one-to-one mapping of local sockets to the channels.

The **Qu-Pac** reset default is one-to one mapping of local sockets to CH1-16, and dSNAKE 1-16 sockets to CH17-32.

ⓘ Adding an AudioRack does not expand the number of Qu channels available.

Outputs – The Qu mixer outputs will appear simultaneously at its rear panel sockets and also at the sockets on the remote rack. AudioRack output sockets are patchable. Qu outputs can be patched to the rack sockets using the **Setup / I/O Patch / dSNAKE Out** screen.

11.14   I/O Patch Setup – Surface

Use this screen to patch signals to the rear panel Alt Out and AES outputs. Touch a box to open up the list of available options. Changes are applied instantly. You can also touch outside the list to exit.

Alt Out – Choose the source for the rear panel stereo Alt Out jacks.

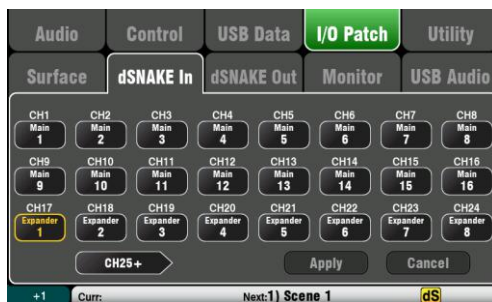**AES Out** – Choose the source for the rear panel AES digital output.

The reset default for both is LR post-fade.

Group and Matrix outputs are not available on the Qu-16.

The Alt Out and AES Out are not provided on Qu-SB.

11.15   I/O Patch – dSNAKE In

Use this screen to patch AudioRack input sockets to the Qu input channels. You can connect up to two AudioRacks via the dSNAKE Cat5 digital snake.

The button code indicates dSNAKE device:

N/C = No AudioRack is connected

Main = First AudioRack

Expander = Second AudioRack (expander)

Touch a Channel box and turn the screen rotary to scroll through the dSNAKE socket numbers. These relate to the AudioRacks currently connected, or to the dSNAKE channels if no AudioRack is found.

Any AudioRack socket can be patched to any channel. A socket can be patched to more than one channel. A channel can only have one socket patched to it.

Touch **Apply** to confirm changes.

The reset default for the Qu-16, Qu-24 and Qu-32 models is one-to-one mapping of sockets to channels.

The reset default for Qu-SB and Qu-Pac is:

CH1-16 = Local 1-16,
CH17-32 = dSNAKE 1-16

This is because Qu-Pac and Qu-SB can be used as a stage rack with their 16 local inputs as the source to CH1-16. One AudioRack connected to the dSNAKE port could feed CH17-32 to provide the full 32 channels.

Input patching is stored in Scene memories.

11.16 I/O Patch Setup – dSNAKE Out

This screen presents the patching for the dSNAKE remote audio outputs. These outputs can be mapped from any combination of Qu mixer output sources.

The Qu mixer detects which AudioRack type is connected. A Qu system can have up to two AudioRacks connected. These are shown as:

dSNAKE – The first (main) AudioRack connected.

Expander – The second (expander) AudioRack.

dSNAKE outputs can be patched with or without physical AudioRacks connected.

The following sources can be patched:

X	Unassigned
Grp	Group post-fader
Mix	Mix 1-10 post-fader
LR pre	LR mix – pre-fader
LR post	LR mix – post-fader
L+R pre	LR mono sum – pre-fader
L+R	LR mono sum – post-fader
MTX	Matrix post-fader
PAFL	Stereo PAFL monitor

All Qu mixer patching is stored in Scene memories. The Reset Mix Settings defaults are shown below:

Qu-16 Reset dSNAKE Patch

dSNAKE	Qu out	Ch	Qu out	Exp	Qu out
1	Mix 1	9	Mix 9	1	none
2	Mix 2	10	Mix 10	2	none
3	Mix 3	11	L	3	none
4	Mix 4	12	R	4	none
5	Mix 5			5	none
6	Mix 6			6	none
7	Mix 7			7	none
8	Mix 8			8	none

Qu-24, Qu-32, Qu-Pac, Qu-SB Reset dSNAKE Patch

dSNAKE	Qu out	Ch	Qu out	Exp	Qu out
1	Mix 1	9	Mix 9	1	MTX1 L
2	Mix 2	10	Mix 10	2	MTX2 R
3	Mix 3	11	L	3	MTX3 L
4	Mix 4	12	R	4	MTX4 R
5	Mix 5			5	Grp1 L
6	Mix 6			6	Grp2 R
7	Mix 7			7	Grp3 L
8	Mix 8			8	Grp4 R

6.2 Qu Systems

The Qu mixer has sockets for all its inputs and outputs on its rear panel and can therefore be used without any additional rack. However, if you wish to use a digital snake to connect remote stage audio to the mixer using a single Cat5 cable then there are several rack options available. The following diagrams show suggested combinations:
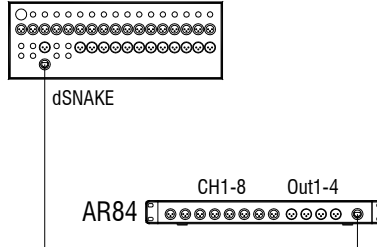
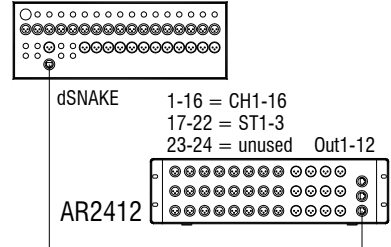**Qu-16** – All inputs and outputs are available locally. Use on stage or with an analogue snake.

Qu-16
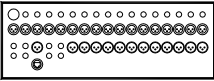
Qu-16+AR84 – 8 remote inputs. Provides 4 outputs, ideal for feeding a stereo PA and two monitors.

Qu-16

dSNAKE

AR84   CH1-8   Out1-4

Qu-16+AR2412 – Access all inputs and outputs near the stage. ST1-3 provide stereo mic inputs.

Qu-16

dSNAKE   1-16 = CH1-16
17-22 = ST1-3
23-24 = unused   Out1-12

AR2412

Qu-16+AB168 – Provides a rugged digital snake and stage box for all 16 mic inputs and up to 8 returns.
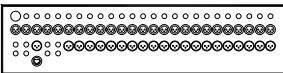
Qu-16

dSNAKE

AB168   CH1-16   Out1-8
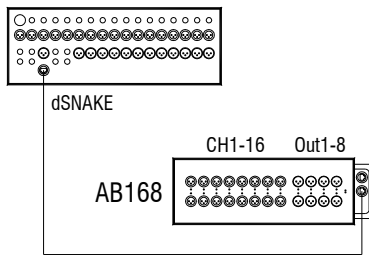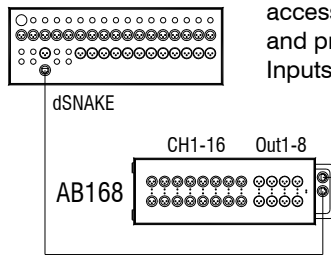
Qu-16+2x AB168 – A second stage box expands the first to access ST1-3 on its first 6 inputs and provides more outputs. Inputs 7-16 are not used.
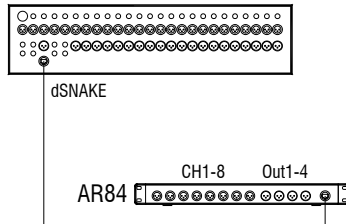
Qu-16

dSNAKE

AB168   CH1-16   Out1-8

1-6 = ST1-3
7-16 = unused   Out9-16

EXPANDER
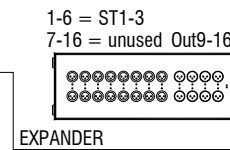
Qu-24 – All inputs and outputs are available locally.

Qu-24

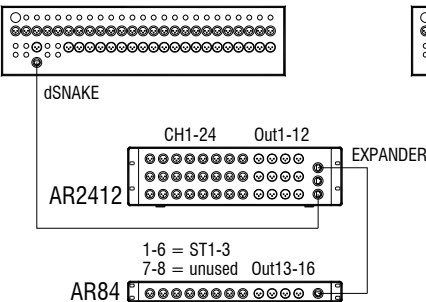**Qu-24+AR84** – 8 remote inputs. Provides 4 outputs

Qu-24

dSNAKE

AR84   CH1-8   Out1-4

Qu-24+AR2412 – Access all 24 mic inputs near the stage.

Qu-24

dSNAKE

CH1-24   Out1-12
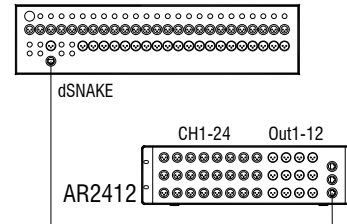
AR2412

Qu-24+AR2412+AR84 – Adds the ST1-3 stereo mic inputs near the stage.

Qu-24

dSNAKE

CH1-24   Out1-12   EXPANDER

AR2412

1-6 = ST1-3
7-8 = unused   Out13-16

AR84

Qu-24+AB168 – Digital snake for 16 mic inputs on stage.

Qu-24

dSNAKE

AB168   CH1-16   Out1-8
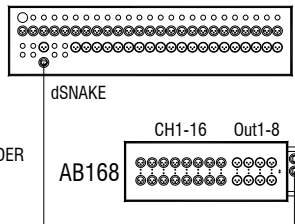
Qu-24+2x AB168 – Expands with a second stage box to access all inputs.

Qu-24

dSNAKE

AB168   CH1-16   Out1-8

1-8 = CH17-24
9-14 = ST1-3
15-16 = unused   Out9-16

EXPANDER
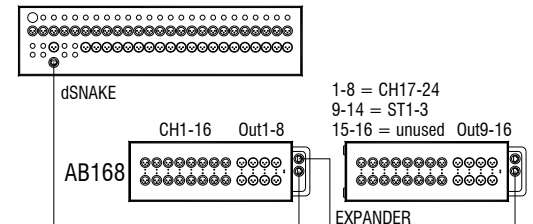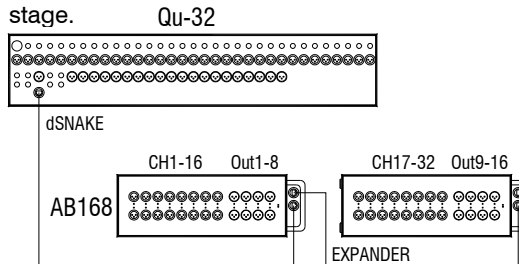
Qu-32 – All inputs and outputs are available locally.

Qu-32

Qu-Pac – Same engine as Qu-32 but has 16 inputs and same outputs as Qu-16 available locally. Use dSNAKE to access the others.
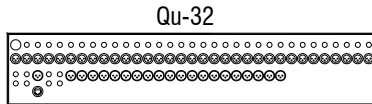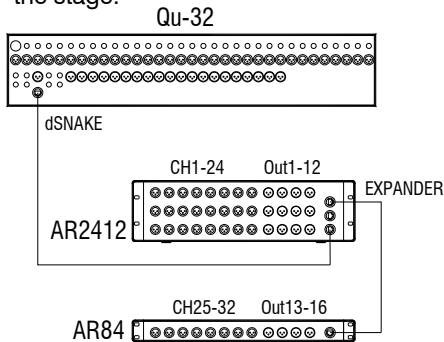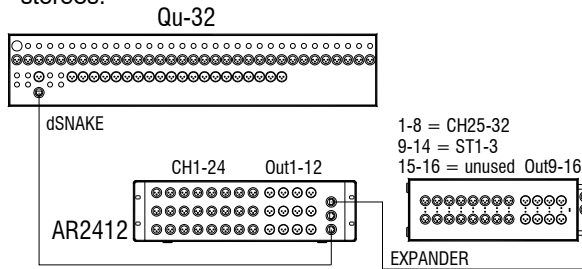
Qu-32+AR84 – 8 remote inputs. Provides 4 outputs

Qu-32

dSNAKE

AR84   CH1-8   Out1-4
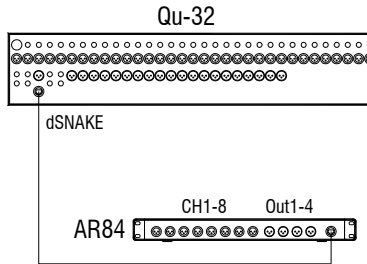
Qu-32+AR2412 – Access to 24 mic inputs near the stage.

Qu-32

dSNAKE

AR2412   CH1-24   Out1-12

Qu-32+AB168 – Digital snake for 16 mics on stage.

Qu-32

dSNAKE

AB168   CH1-16   Out1-8
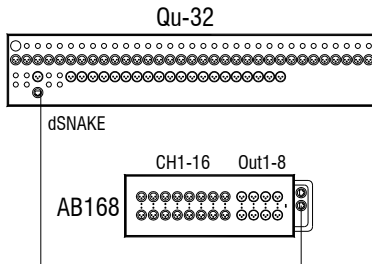
Qu-32+2x AB168 – Add a second AB168 for 32 mics on stage.

Qu-32

dSNAKE

AB168   CH1-16   Out1-8   CH17-32   Out9-16

EXPANDER

Qu-32+AR2412+AR84 – Provides all 32 mic inputs near the stage.

Qu-32

dSNAKE

AR2412   CH1-24   Out1-12   EXPANDER

AR84   CH25-32   Out13-16

Qu-32+AR2412+AB168 – Access to all inputs including stereos.

Qu-32

dSNAKE

AR2412   CH1-24   Out1-12

1-8 = CH25-32
9-14 = ST1-3
15-16 = unused   Out9-16

EXPANDER

ME Personal Mixing System
– The Qu system can interface directly or via the ME-U hub to ME-1 personal mixers using any available dSNAKE, EXPANDER or MONITOR port.

Qu Mixer

dSNAKE

ME System

Qu Mixer

dSNAKE

AR2412   MONITOR

ME System

Qu Mixer

dSNAKE

AB168   EXPANDER

ME System

Qu Mixer

dSNAKE

AB168   EXPANDER   EXPANDER

ME System
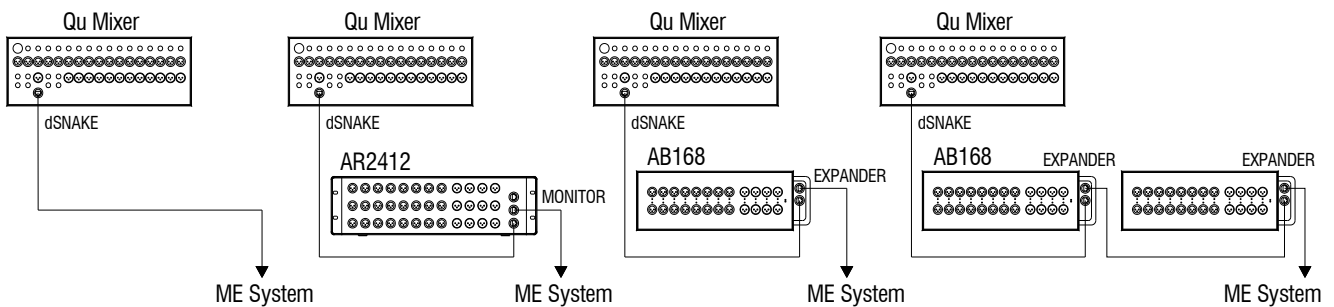
Parallel connection

Use the ME-U hub or a standard PoE hub to power and connect to several ME-1 mixers using individual Cat5 cables.

ME-U hub   ME-D

PoE

ME-1

ME-1   PSU   PSU   PSU
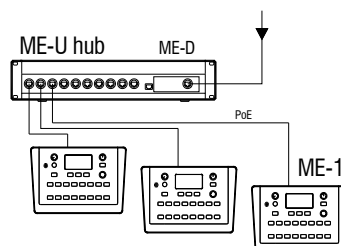
Daisy chain connection

Connect to Link In of the first ME-1 mixer. Connect its Link Out to daisy chain to the next. Use the power units provided with each ME-1 mixer.