ALLEN&HEATH

SQ-Rack

Getting Started Guide | Issue 1

ⓘ Before starting, please check www.allen-heath.com for the latest firmware and documentation.

Limited One Year Manufacturer's Warranty

Allen & Heath warrants this Allen &Heath -branded hardware product and accessories contained in the original packaging ("**Allen & Heath Product**") against defects in materials and workmanship when used in accordance with Allen & Heath's user manuals, technical specifications and other Allen & Heath product published guidelines for a period of ONE (1) YEAR from the date of original purchase by the end-user purchaser ("**Warranty Period**").

This warranty does not apply to any non-Allen & Heath branded hardware products or any software, even if packaged or sold with Allen & Heath hardware.

Please refer to the licensing agreement accompanying the software for details of your rights with respect to the use of software/firmware ("EULA").

Details of the EULA, warranty policy and other useful information can be found on the Allen & Heath website: www.allen-heath.com/legal.

Repair or replacement under the terms of the warranty does not provide right to extension or renewal of the warranty period. Repair or direct replacement of the product under the terms of this warranty may be fulfilled with functionally equivalent service exchange units.

This warranty is not transferable. This warranty will be the purchaser's sole and exclusive remedy and neither Allen & Heath nor its approved service centres shall be liable for any incidental or consequential damages or breach of any express or implied warranty of this product.

Conditions Of Warranty

The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by Allen & Heath.

Any necessary adjustment, alteration or repair has been carried out by an authorised Allen & Heath distributor or agent.

The defective unit is to be returned carriage prepaid to the place of purchase, an authorised Allen & Heath distributor or agent with proof of purchase. Please discuss this with the distributor or the agent before shipping. Units returned should be packed in the original carton to avoid transit damage.

DISCLAIMER: Allen & Heath shall not be liable for the loss of any saved/stored data in products that are either repaired or replaced.

Check with your Allen & Heath distributor or agent for any additional warranty information which may apply. If further assistance is required, please contact Allen & Heath Ltd.

SQ-Rack Getting Started Guide Issue 1

ALLEN & HEATH

Allen & Heath Limited, Kernick Industrial Estate, Penryn, Cornwall, TR10 9LU, UK

http://www.allen-heath.com

IMPORTANT - Read before starting

Safety instructions

Before starting, read the **Important Safety Instructions** supplied with the equipment. For your own safety and that of the operator, technical crew and performers, follow all instructions and heed all warnings printed on the sheet and on the equipment panels.

System operating firmware

The function of this product is determined by the firmware (operating software) that runs it. Firmware is updated regularly as new features are added and improvements made.

ⓘ Check www.allen-heath.com for the latest version of firmware.

Software licence agreement

By using this Allen & Heath product and the software within it you agree to be bound by the terms of the relevant **End User Licence Agreement** (EULA), a copy of which can be found at www.allen-heath.com/legal. You agree to be bound by the terms of the EULA by installing, copying, or using the software.

Further information

Please refer to the **Allen & Heath website** for further information, knowledgebase and technical support.

ⓘ Check for the latest version of this Getting Started Guide.

General precautions

- Protect the equipment from damage through liquid or dust contamination.
- If the equipment has been stored in sub-zero temperatures allow time for it to reach normal operating temperature before use at the venue.
- Avoid using the equipment in extreme heat and direct sunlight. Make sure the ventilation slots are not obstructed and that there is adequate air movement around the equipment.
- Clean the equipment with a soft brush and dry lint-free cloth. Do not use chemicals, abrasives or solvents.
- It is recommended that servicing is carried out only by an authorised Allen & Heath agent. Contact details for your local distributor can be found on the Allen & Heath website. Allen & Heath do not accept liability for damage caused by maintenance, repair or modification by unauthorised personnel.

Register your product

Register your product online via www.allen-heath.com/register.

Packed items

Check you have received the following:

- SQ-Rack Digital Audio Mixer
- 2x Rack Ears
- 6x Rack Ear Fixings
- 4x Push fit feet
- QR Code Card
- Safety booklet
- IEC mains lead

Contents

1. Introduction

SQ-Rack is part of the SQ range of digital audio mixers, which also includes the SQ-5, SQ-6 and SQ-7.

Designed for applications where high-quality audio mixing and processing is required in a compact and reliable unit, and built on an Allen & Heath XCVI core, the SQ series of digital mixers feature 96kHz, variable bit-depth processing and ultra-low latency.

All SQ models can be used standalone or expanded with a range of expanders and option cards. They can also be customised with additional processing 'Add-on' options.

Having the same processing core means all models have the same processing, routing, connectivity and external control capabilities. The differences between models are as follows:

SQ Model	SQ-Rack	SQ-5	SQ-6	SQ-7
Faders	-	16+Mix	24+Mix	32+Mix
Faders Screen	✓	-	-	-
CQ-Control Screen	✓	-	-	-
Built-in Preamps	16+Talkback	16+Talkback	24+Talkback	32+Talkback
XLR Outputs	12	12	14	16
SoftKeys	8	8	16	16
SoftRotaries	4	-	4	8

1.1 SQ-Rack Features

- Rack-mountable 4U digital mixer for Live, Studio and Installation use
- 48x Input Channels
- 16x Local Mic/Line Inputs (XLR)
- 2x ¼" Stereo Inputs (TRS)
- 1x 3.5mm Stereo Input
- 36x Total Busses
- 12x Stereo Mix (Aux or Group) + Main
- PAFL Bus
- 14x Assignable Local Analogue Outputs (12x XLR + 2x ¼" TRS)
- AES Digital Output
- Dedicated Talkback mic input (XLR)
- ¼" TRS Stereo Headphone out with dedicated control
- SLink EtherCON connection for remote audio using dSnake/ME, DX or GigaACE/GX protocol (128x128 channels)
- I/O Port for Option Card (including 3rd party protocols – Dante/Waves/MADI)
- 8x Mute Groups
- 8x DCA Groups
- 8x Stereo FX with dedicated FX Returns
- DEEP Processing Ready
- RackExtraFX Effects suite
- 7" capacitive touchscreen
- 8x Assignable SoftKeys
- 4x Assignable SoftRotaries
- 6x Layers for 96 assignable Channel Strips across Fader, Processing and Routing screens
- Dedicated Faders screen
- Dedicated SQ-Control screen
- Single/Dual Footswitch Control
- Input channel pairs switchable mono/stereo
- Patchable Insert points
- Input processing – Trim, HPF, Gate, PEQ, Compressor, Delay
- Output processing – Graphic EQ, PEQ, Compressor, Delay
- DEEP Automatic Mic Mixing
- 2x 31/61 Band Real Time Analysers
- Quick copy/paste/reset for parameters
- User Permissions to restrict operator access
- 300x Scene memories per Show
- Channel Safes, Global and per Scene Recall Filters
- FX, processing and channel Libraries
- SQ-Drive for stereo and multitrack recording/playback direct to USB drive
- USB transfer of Scenes, Libraries, Shows
- 32x32 channel, class compliant USB-B audio interface
- A&H MIDI Control driver for MIDI control via USB or TCP/IP
- Remote mixing apps for iPad, Android, Mac and PC
- Compatible with ME personal monitoring range

2. Fitting Rack Ears

The SQ-Rack is supplied with 2x 4U rack ears which can be fitted to the unit in multiple ways using the supplied fixings. This enables the unit to be used freestanding or fixed to a flat surface, or to be mounted in different orientations and angles in a standard 19" rack.

ⓘ If mounting in a rack, the feet should not be fitted to the unit.

2.1 Attaching the ears to the SQ-Rack

- Hold the first ear to the unit in roughly the position it will be attached (see Mounting Options)
- Align and fit the centre fixing, but do not fully tighten
- Rotate the ear to align the other two fixing holes
- Fit the outer fixings and tighten fully
- Tighten the centre fixing
- Repeat the process for the second ear, matching orientation and angle

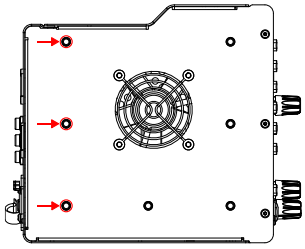
2.2 Freestanding (desktop stand) use

When using the rack ears affixed to the bottom edge of the unit for freestanding use, the 4 'push fit' feet supplied with the SQ-Rack can be fitted to the small holes in the rack ears instead of the unit itself.
As the ears are identical, when fitted for freestanding use, they can be angled out (as when rack mounting) or angled in (under the unit).

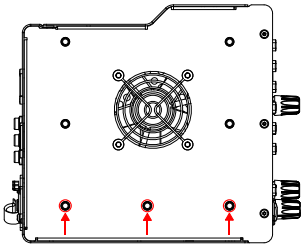
2.3 Mounting options

Front, rear or freestanding options are decided by which fixing holes on the SQ-Rack are used.

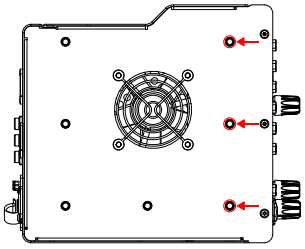
Rear



Freestanding



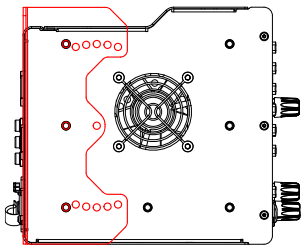
Front



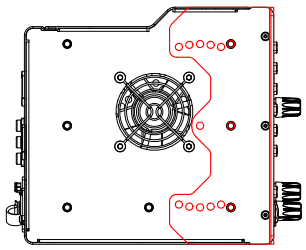
Flush or recessed positions are available when mounting straight (0°), with the rack strip or surface parallel to the front, rear or base of the SQ-Rack.

ⓘ In the front recessed position, the tops of rotary controls are parallel with the rack strip.

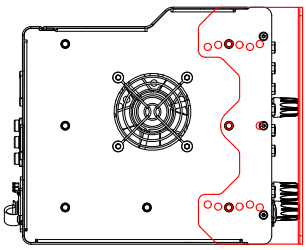
Rear, flush



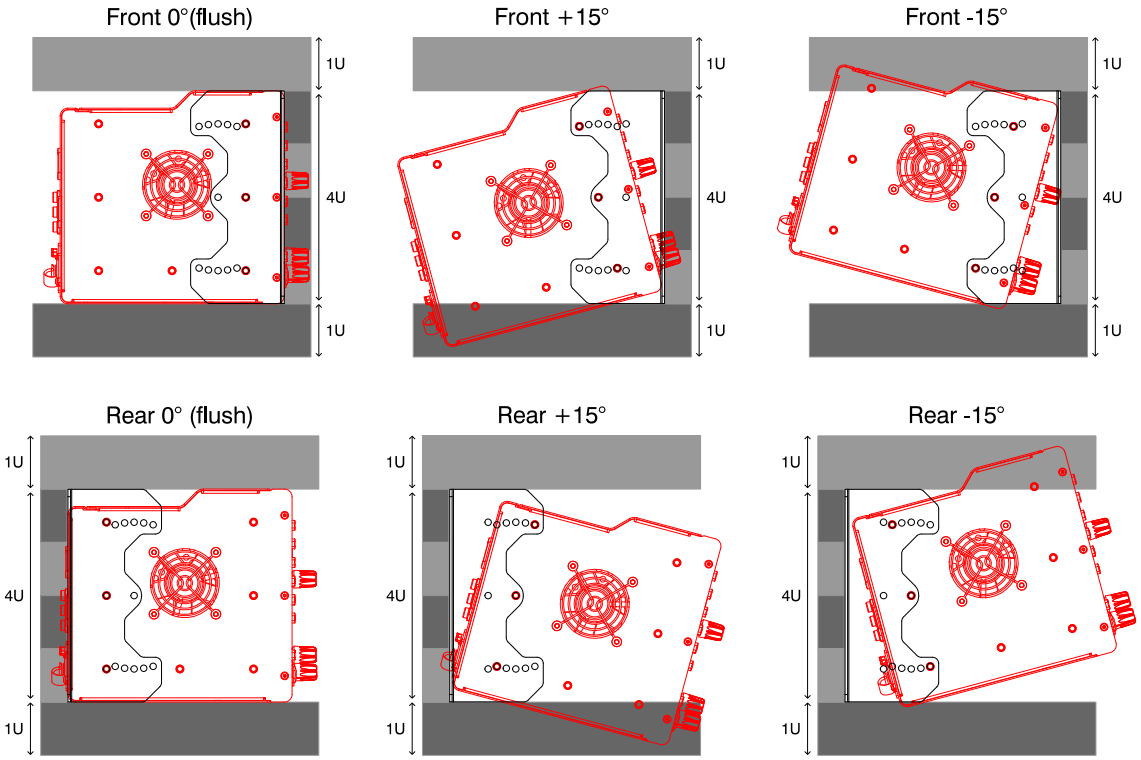
Front, flush



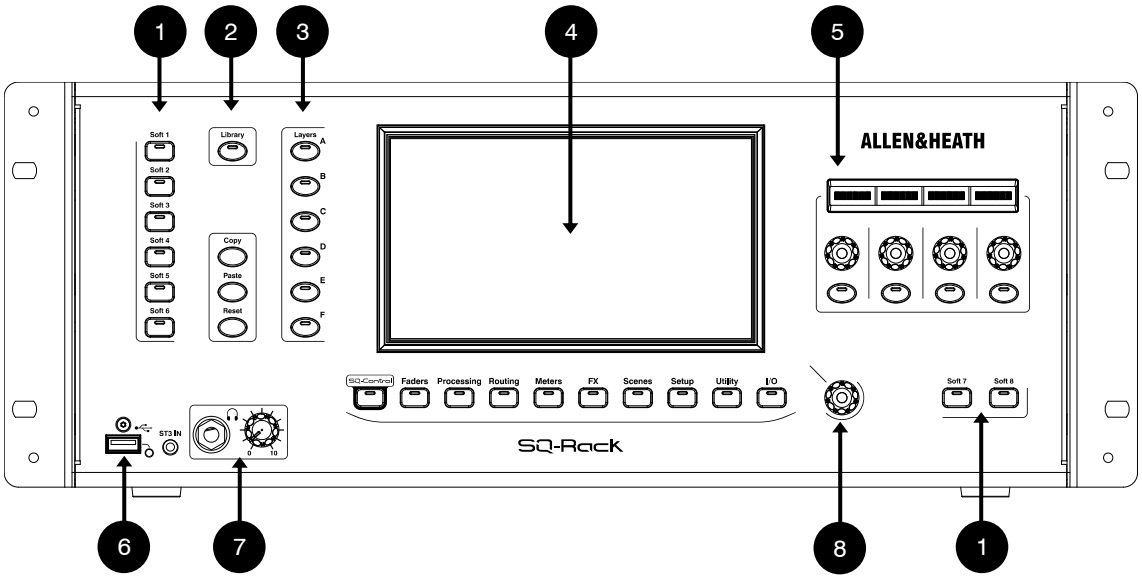
Front, recessed



The entire unit can be angled by ±7.5° or ±15° by turning the ears about the centre fixing. Note that when mounting at an angle in a rack, more that 4U space may be required.



3. Front Panel



1. SoftKeys

SoftKeys can be assigned custom functions by the user and their function can be changed on a Scene-by-scene basis. For the full list of available functions, refer to the latest firmware reference guide.

2. Library and Copy/Paste/Reset keys

The Library Key illuminates when a library is available for the screen being viewed and is used to store or recall settings and parameters.

The Copy, Paste and Reset Keys are used in conjunction with the touchscreen to copy and paste settings and parameters from one channel to another or to reset parameters to their default value.

3. Layer keys

Layer Keys work alongside the Faders, Processing and Routing screens to navigate through channels and make changes. Each of the 6 layers can include up to 16 channel strips.

4. Touchscreen and Screen keys

The touchscreen displays, and allows adjustment of, all mixer settings and parameters. Use the Screen Keys and on-screen tabs to navigate, then touch to select parameters and use the touchscreen rotary control (8) to adjust them.

5. Soft Rotaries

Like SoftKeys, the Soft Rotaries can be assigned custom functions by the user and their function can be changed on a Scene-by-scene basis. For the full list of available functions, refer to the latest firmware reference guide.

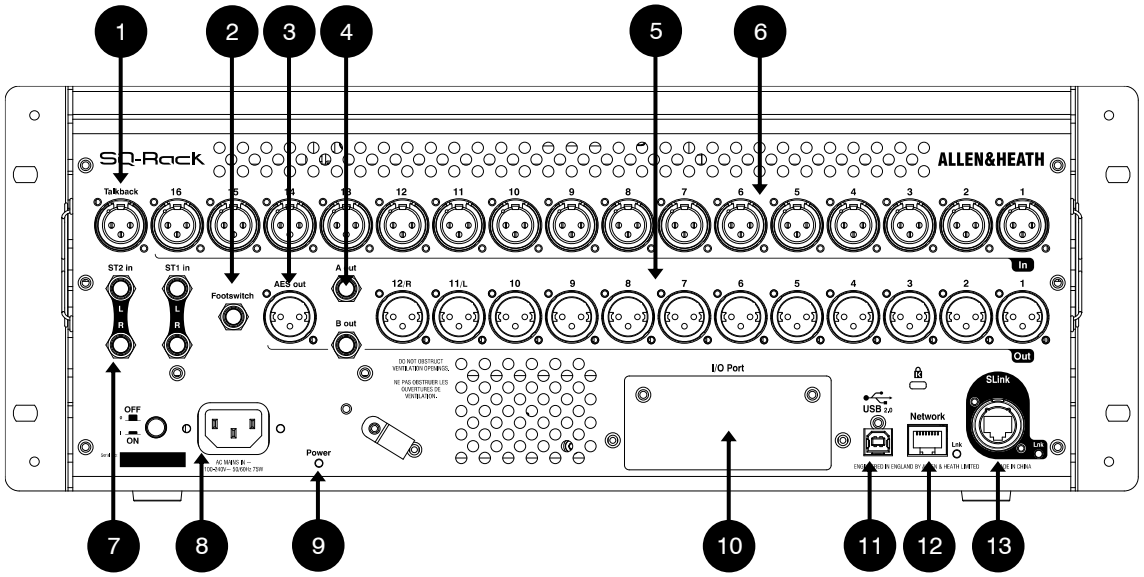
6. SQ-Drive port

The SQ-Drive (USB-A) port can be used to record/play audio direct to/from a USB drive, transfer Show/Scene/Library data and update SQ firmware.

7. Headphone output and headphone level control

8. Touchscreen rotary control

4. Rear Panel



1. **Talkback microphone input**
2. **Dual footswitch connection**

   For connection of a single or dual footswitch, compatible with momentary or latching types. Like SoftKeys, a footswitch can be assigned custom functions by the user and their function can be changed on a Scene-by-scene basis. For the full list of available functions, refer to the latest firmware reference guide.

3. **AES3 digital stereo output**
4. **Local Outputs - TRS line level**
5. **Local Outputs – XLR line level**
6. **Local Inputs – XLR mic/line level**
7. **Local Inputs – TRS line level**
8. **Mains power inlet and switch**
9. **Power LED**

   Illuminated only when powered on and all voltage rails are good.

10. **I/O Port**

    For digital expansion or system integration using SQ option cards, including Dante, Waves, MADI or SLink.

11. **USB-B port**

    Class compliant USB audio/MIDI interface for multichannel recording and playback and MIDI communication.

12. **Network port**

    For connection to a dedicated (recommended) or existing network for remote wired or wireless control of the mixer.

13. **SLink port**

    Intelligent digital audio port with up to 128x128 channels supported (SLink). Enables connection to the Allen & Heath 'Everything I/O' ecosystem of 48kHz or 96kHz expanders, system-to-system connections and personal monitoring devices.

5. Digital Audio I/O and Expansion

The SQ-Rack has built-in 'local' input and output sockets. Local inputs include mic/line inputs on XLR with associated preamp and ADC and line level TRS connections with ADC. Local outputs include both XLR and TRS line level analogue outputs with associated DAC, as well as a stereo digital AES3 output on XLR.

In addition to the Local I/O, SQ features multiple digital I/O connections. These are presented to the user in the same way as the local sockets and can also be used in the same way, as sources for input channels and destinations for outputs, or for insert points and tie lines.

5.1 USB-B and SQ-Drive

SQ features a built-in, class compliant audio/MIDI USB-B interface which can be used without drivers on any device/OS that supports class compliant audio/MIDI devices.

For improved performance, software compatibility and enhanced system options, a Windows driver can be downloaded from https://www.allen-heath.com.

The USB-B audio interface is bidirectional with 32 inputs and 32 outputs running at either 48kHz or 96kHz. It can be used with all leading DAW's and professional audio software for multichannel recording and playback.

The SQ-Drive connection is USB-A and can be used with USB storage directly to either record or playback up to 16 channels at 96kHz or up to 32 channels at 48kHz.

ⓘ Record and playback patching for USB-B and SQ-Drive is presented as simply 'USB' in the SQ. Playback can only be from either USB-B *or* SQ-Drive at any one time.

5.2 SLink Port

The SLink Port is used to connect to the Everything I/O range of A&H digital stageboxes/expanders (https://www.allen-heath.com/everything-i-o/) for bidirectional multichannel audio and, where possible, control preamp and SRC options. It can also be used to connect directly to another SLink port or GigaACE option card in a mixer to transmit and receive multichannel audio.

SLink is not a protocol itself, but an intelligent port which switches mode depending on the first device connected and can run one of three protocols at one time. It carries out Sample Rate Conversion when required as the SQ always runs at 96kHz internally for all processing and mixing.

For more information and examples of possible SLink configurations, refer to the 'SLink Connections' document available to download from https://www.allen-heath.com/.

Protocol	Sample Rate	Total Possible Inputs	Total Possible Outputs
dSnake (+ME)	48kHz	40	20 (+40 ME)
DX	96kHz	32	32
GigaACE/GX	96kHz	128	128

ⓘ Expanders do not alter the number of processing channels available in the mixer core but increase the number of input and output sockets available for use in the system.

ⓘ Control of preamps in an expander is always from the mixer the expander is connected to. Unless using Dante DT expanders, where multiple mixers can control the same preamp.

ⓘ For all digital audio connections using network connections, use CAT5e (or higher specification) STP cables up to 100m long.

ⓘ Refer to https://www.allen-heath.com/ for cable requirements, recommendations, and a list of CAT cables available to order.

5.3 I/O Port

The I/O Port enables the fitting of an SQ option card for 3rd party protocols or an additional SLink port.

Available option cards include:

- **SLink**
  Provides a secondary SLink port with independent SRC to connect up to 128x128 channels at 96kHz. Can be used to run two different A&H protocols with a single SQ and/or to connect to expanders at the same time as other mixers.
- **Dante 32x32**
  Provides a 32x32 channel connection to a Dante network at either 48kHz or 96kHz. Can also be used for connection of DT expanders.
- **Dante 64x64**
  Provides a 64x64 channel connection to a Dante network at either 48kHz or 96kHz. Can also be used for connection of DT expanders.
- **Waves**
  Provides a 64x64 channel connection to a Waves SoundGrid network at either 48kHz or 96kHz. Can be used with Waves hardware and software (e.g. Waves SoundGrid Server and SuperRack).
- **MADI**
  Provides two MADI I/O pairs on BNC for 48kHz (64 channel with redundancy options) or 96kHz (32x32 on each pair) operation. Includes switchable (In/Out) BNC Wordclock connection.

6. Control of the mixer

The audio processing core is controlled by the 'control layer' comprising local 'surface' control, network control and MIDI control.

With all Allen & Heath digital mixers, the audio core and control layer are kept somewhat separate to prevent any issue with the control network from having an impact on audio.

Changes to the core are made from the control layer and any changes to the core are reflected back to the control layer. In this way the current state of the mixer core is always visible and accurate.

6.1 Local 'Surface' control

The front panel of the SQ-Rack features a touchscreen with surrounding screen selection keys, layer keys and a rotary control. Select a screen using the screen keys and choose a layer if using Fader, Processing or Routing screens, then touch on screen to navigate and action any on screen buttons. Select parameters on screen which have a value bar, and the touchscreen rotary will illuminate to show it can be used for adjustment.

Copy, Paste and Reset keys are provided which can be held when touching channels, processing parameters or scenes on the screen for easy duplication or resetting of parameters and data. The dedicated Library key illuminates whenever viewing a screen that has an accompanying Library. This allows storing of user data and recall of factory and user data.

SoftKeys and Soft Rotaries can be set to control specific functions and parameters, including options for control of the currently selected channel. Their functions can be changed on a scene-by-scene basis if required.

The headphone level is an analogue control for the headphone amplifier.

ⓘ Refer to the relevant firmware reference guide available from https://www.allen-heath.com/ for more information on the navigation and features of the installed firmware.

6.2 Network control

There are 3 remote control apps available for the SQ series:

- **SQ-MixPad – for the engineer**
  Provides control over almost all parameters and settings of the mixer, including many setup functions. Can also be used in Offline mode as an editor.
- **SQ4You – for the performer**
  Provides easy to use control over a single mix, allowing control of monitoring levels without the risk of affecting other performers' mixes.
- **SQ-Control – for simplified control**
  5 tabs with up to 48 widgets in each can be setup by the Admin user to provide simplified access to key parameters including levels, mutes and SoftKeys.

These all require that the device running the app and the SQ itself are clients on the same network and in the same address range.

The SQ's network port can be connected to a LAN port on a router, access point or switch, or directly to the device. By default, the SQ is set to receive an address via DHCP. If no address is assigned, it will assign itself an address automatically. It is also possible to set a static address for the SQ.

Devices running apps can then be connected to the same network and their addresses set within the same range.

ⓘ A total of 8 remote apps can be connected to an SQ at one time, with up to 3 of these being SQ-MixPad.

ⓘ All SQ Network settings can be found in the **Setup > Network Setup** screen.

ⓘ For more information on app connection and functionality, please refer to the in-app help document and firmware reference guide.

6.3 MIDI control

MIDI (Musical Instrument Digital Interface) is a standardised communication protocol that enables digital devices to communicate and allows one piece of equipment to control another.

The SQ sends and receives MIDI over USB (via the USB-B port) as well as over ethernet (using MIDI over TCP/IP via the network port).

Messaging can be broken down into two sets of bi-directional messages. Those that are used with SQ mixing parameters (i.e. level control of SQ audio channels), and those used to control external software or equipment (i.e. to control a DAW).

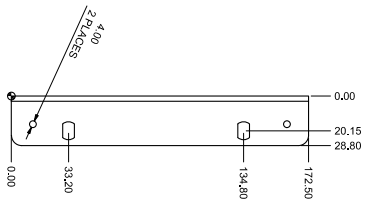
When connected to a device using the USB-B port, the SQ will appear as a class compliant MIDI input and output device. This can be used with software directly or through use of the Allen & Heath MIDI Control application.

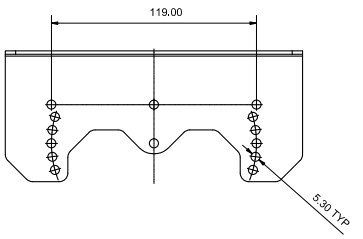
To connect a device to the SQ over a network, Allen & Heath MIDI Control can be used. All other clients used for network communication should be configured to send messages to the SQ's IP address and use port 51325.

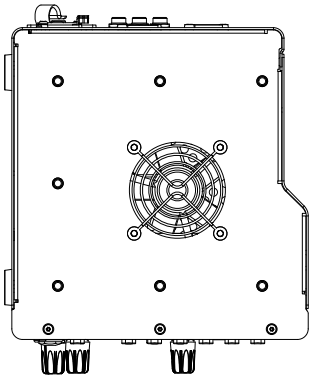
Refer to the SQ MIDI Protocol document available from https://www.allen-heath.com for full details on MIDI messaging for the SQ series.

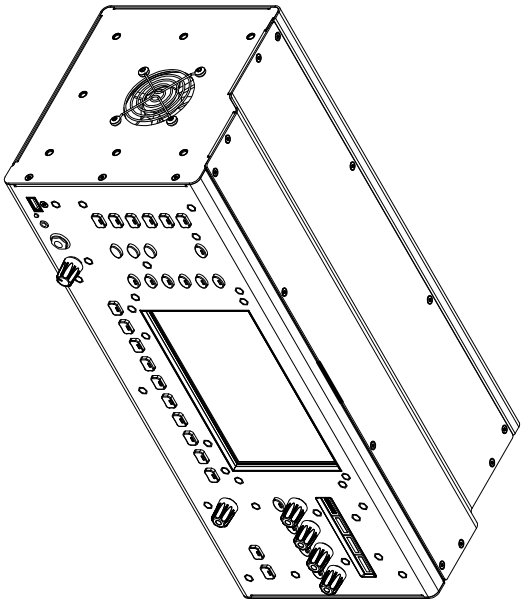
Download the most recent version of the Allen & Heath MIDI Control app from https://www.allen-heath.com and refer to the associated help document for information on installation, setup and use.

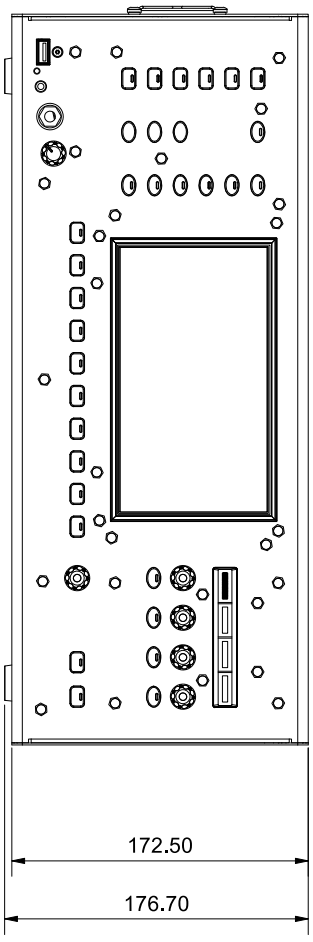
7. Dimensions

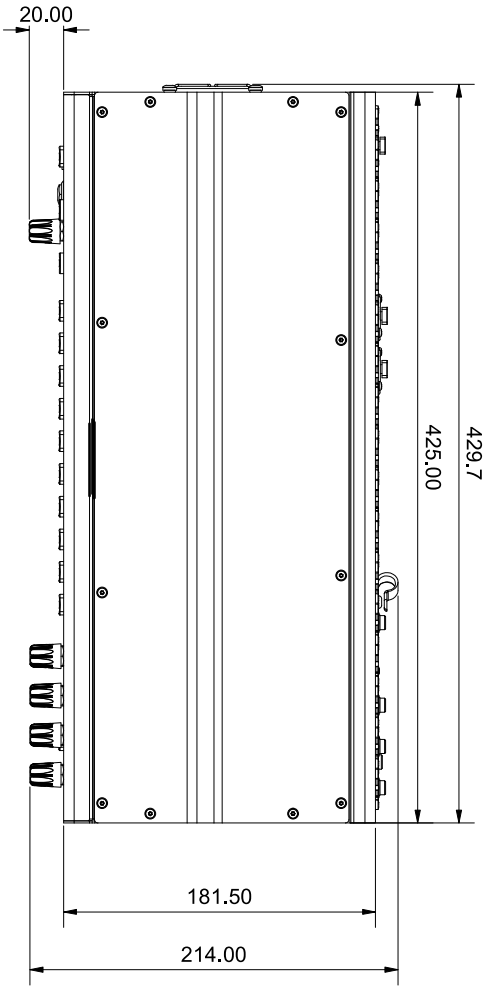












8. Technical Specifications

Inputs	**Mic/Line Inputs**	Balanced XLR, fully recallable
	Input Sensitivity	-60 to +0dBu
	Switchable Pad	-20dB
	Analogue Gain	0dB to +60dB, 1dB steps
	Maximum Input Level	+30dBu
	Input Impedance	>5kΩ
	THD+N, Unity gain 0dB	0.002% -92dBu (20Hz-20kHz, AES Direct Out, @0dBu 1kHz)
	THD+N, Mid gain +30dB	0.003% -91dBu (20Hz-20kHz, AES Direct Out, @-30dBu INPUT 1kHz)
	Phantom Power	+48V (+3V / -2V)
	Stereo Line Inputs	
	ST1, ST2 connectors	Balanced, 1/4" TRS jack
	ST3 connector	Unbalanced, stereo 3.5mm Mini Jack
	Input Sensitivity (ST1, ST2 / ST3)	Nominal +4dBu ST1, ST2 / 0dBu ST3
	Trim	+/-24dB
	Maximum Input Level (ST1,ST2 / ST3)	+22dBu / +18dBu
	Input Impedance	>7kΩ
Outputs	**XLR Outputs**	Balanced, XLR
	Outputs A and B	Balanced 1/4" TRS Jack
	Source	Patchable
	Output Impedance	<75Ω
	Nominal Output	+4dBu = 0dB meter reading
	Maximum Output Level	+22dBu
	Residual Output Noise	-90dBu (muted, 20Hz-20kHz)
	AES Digital Output	Balanced XLR 2 channel, 96kHz sampling rate (Default with SRC Bypassed) Switchable output sample rates,44.1kHz/ 48kHz/ 88.2kHz/ (96kHz) 2.5Vpp balanced terminated 110Ω
SLink	**Connection**	Neutrik EtherCON (RJ45)
	dSnake mode	40 input 20+40(ME) output channels, 48kHz
	DX mode	32 input 32 output channels, 96kHz
	GigaACE/GX	128 input 128 output channels, 96kHz
	Inputs	Fully Patchable
	Outputs	Fully Patchable
	Sync/SRC	Assignable as audio clock source, 48kHz<>96kHz SRC
I/O Port		Multi-channel I/O option module
	Inputs	Fully Patchable
	Outputs	Fully Patchable
	Sync/SRC	Assignable as audio clock source, SRC on option card
System		Measured balanced XLR in to XLR out, 0dB gain, 0dBu input
	Dynamic Range	112 dB
	Frequency Response	+0/-0.5dB 20Hz to 20kHz
	Headroom	+18dB
	Internal operating Level	0dBu
	THD+N, Mic/Line routed to Main L/R Out	Unity gain faders@0dB, 0.006%, -84dBu (20 - 20kHz)
	dBFS Alignment	+18dBu = 0dBFS (+22dBu at XLR output)
	Meter Calibration	0dB meter = -18dBFS (+4dBu at XLR out)
	Main Meter Type	2 x 12 segment, fast (peak) response
	Channel Meter Type	Chromatic Channel Metering, fully programmable colour/brightness
	Peak Indication	-3dBFS (+19dBu at XLR out), multi-point sensing
	Sampling Rate	96kHz
	Bit Depth	Uses XCVI core custom bit widths in algorithms, up to 96bits
	Latency	<0.7mS, Local Mic Input to Main L/R
	Operating Temperature Range	0 deg C to 40 deg C (32 deg F to 104 deg F)
	Mains Power	100-240V AC, 50/60Hz
	Max Power Consumption	75W
Dimensions & Weights		Width x Depth x Height
	Unit only (rack ears not fitted)	430 x 214 x 173 mm (16.9" x 8.4" x 6.8")
	Packed in shipping box	545 x 350 x 265 mm (21.5" x 13.8" x 10.5")
	Unpacked weight	5.8 kg (12.8 lbs)
	Packed weight	8 kg (17.7 lbs)
Control	Touch Screen	7" Capacitive, 800 x 480 resolution, 24 bit RGB
	SoftKeys	8
	SoftRotarys	4
	Mute Groups / DCA Groups	8 / 8
	Network	TCP/IP Ethernet for MIDI and Control
	MIDI	TCP/IP and USB-B
	Footswitch	Single or Dual, Momentary or Latching

Input Processing	**Source**	
	CH1-48	Fully patchable
	USB Global Source	SQ-Drive or USB-B Streaming (Auto Switching)
	Polarity	Normal/Invert
	Trim	-24 to +24dB
	High Pass Filter	12/18/24dB per octave 20Hz – 2kHz
	Insert (Pre EQ/Comp)	Fully Patchable
	Delay	Up to 341ms
	Gate	Patchable Sidechain
	Sidechain filter	Hi-pass (20-5k), band-pass (120-10k), Lo-pass (120-20k)
	Threshold / Depth	-72dBu to +18dBu / 0 to 60dB
	Attack / Hold / Release	50µs to 300ms / 10ms to 5s / 10ms to 1s
	PEQ	4-Band fully parametric, 20-20kHz, +/-15dB
	Band 1, Band 4	Selectable Shelving (Baxandall), Bell, HPF/LPF 12dB/octave
	Band 2, Band 3	Bell
	Bell Width	Variable Q, 1.5 to 1/9th octave
	Compressor	Patchable Sidechain, DEEP options
	Sidechain filter	Hi-pass (20-5k), band-pass (120-10k), Lo-pass (120-20k), Q=1
	Threshold / Ratio	-46dBu to 18dBu / 1:1 to infinity
	Attack / Release	30µs to 300ms / 50ms to 2s
	Knee	Soft/Hard
	Detector response	Peak/RMS switchable
	Parallel Path Compression	dry/wet -inf to 0dB
	Channel Direct Out	Follow Fader, Mute, Mute Group, DCA (global all ch)
	Source select	Post-Preamp, Post-HPF, Post-Gate, Insert Return, Post-PEQ, Post-Comp, Post-Delay
		trim -inf to 10dB per channel
Mix Processing	**Insert** (Pre EQ/Comp)	Fully Patchable
	Delay	Up to 682ms
	GEQ	28 bands 31Hz-16kHz, +/-12dB Gain, Constant 1/3 oct, DEEP options
	PEQ	As Input PEQ
	Compressor	As Input Compressor
FX	Internal FX	8 x RackFX engine, Send>Return or Inserted (4 dedicated FX bus)
	Types	SMR Reverb, Stereo Tap Delay, Gated Reverb, ADT, Blue Chorus Symphonic Chorus, Flanger, Phaser
	8 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, PAFL Delay Up to 682ms
	Talkback	Dedicated input, Assignable to any mix, Gain, Pad, 48V, 12dB/oct HPF
	Signal Generator	Assignable to any input or mix, Sine/White/Pink/Bandpass Noise
	RTA's	2x 31-Band 1/3 octave (Stereo) or 61-Band 1/6 octave (Mono) 20-20kHz. PAFL/Selected Channel or Fixed Source
USB Audio	**SQ-Drive**	USB-A
	Stereo Record	2 channel, WAV, 96kHz, 24-bit, source fully patchable
	Stereo Playback	1/2 channel, WAV, 44.1, 48, 96kHz 16,24-bit, source fully patchable
	Multitrack Record	1-16 channel 96kHz, 1-32 channel 48kHz, 24-bit, WAV, fully patchable
	Multitrack Playback	1-16 channel 96kHz, 1-32 channel 48kHz, 24-bit, WAV, fully patchable
	USB Audio Streaming	USB-B, Core Audio compliant, ASIO/WDM for Windows
	Send (upstream)	32 channel, 48/96kHz, 24-bit
	Return (downstream)	32 channel, 48/96kHz, 24-bit
AMMs	Configuration	2x 24ch or 1x 48ch, freely assignable
	Type	Gain Sharing
	Sidechain Filter HPF / LPF	12dB/octave 20Hz – 5kHz / 120Hz - 20kHz
	Priority	-15dB to +15dB per channel
Add-ons	DEEP Preamps	Tube Stage
	DEEP Compressors	Opto, 16T, 16VU, PeakLimiter76, Mighty, OptTronik, Bus
	DEEP GEQ's	Proportional-Q, DiGi-GEQ, Hybrid
	RackFX units	De-Esser, DynEQ4, MultiBD3, MultiBD4, Bucket Brigade, Echo, Hypabass