Xone:24 User Guide

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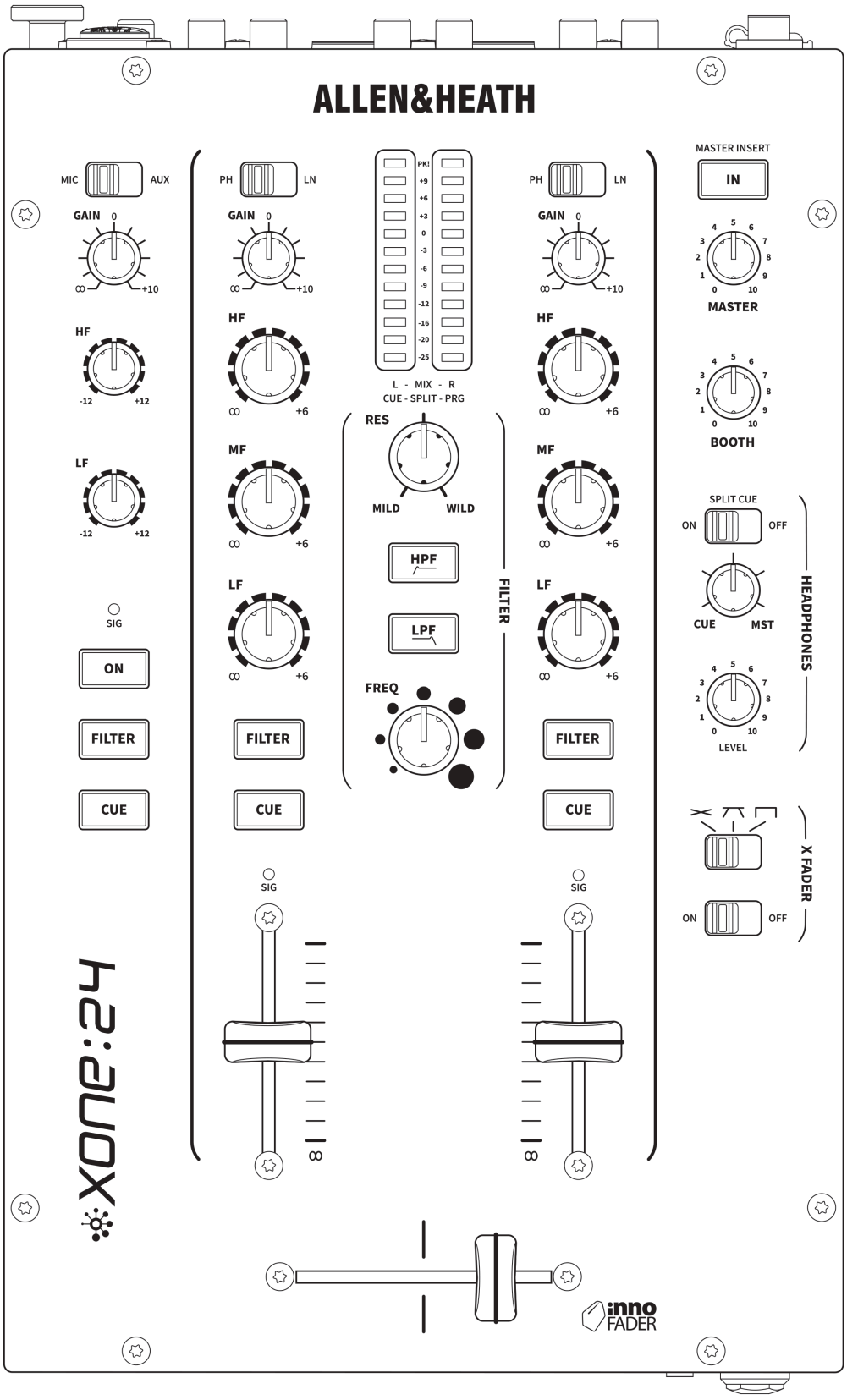
INTRODUCTION

Xone:24 is a compact 2+1 channel all analogue mixer designed for DJs who value professional sound and hands-on control in smaller setups.

Whether you're spinning vinyl, playing from digital media players, or simply looking for high-quality analogue performance, Xone:24 offers club-grade sound in an easy-to-use package.

PACKED ITEMS

Xone:24 mixer



DC Power Supply and IEC cable

QR Card

Follow the QR link access the latest resources for the unit.

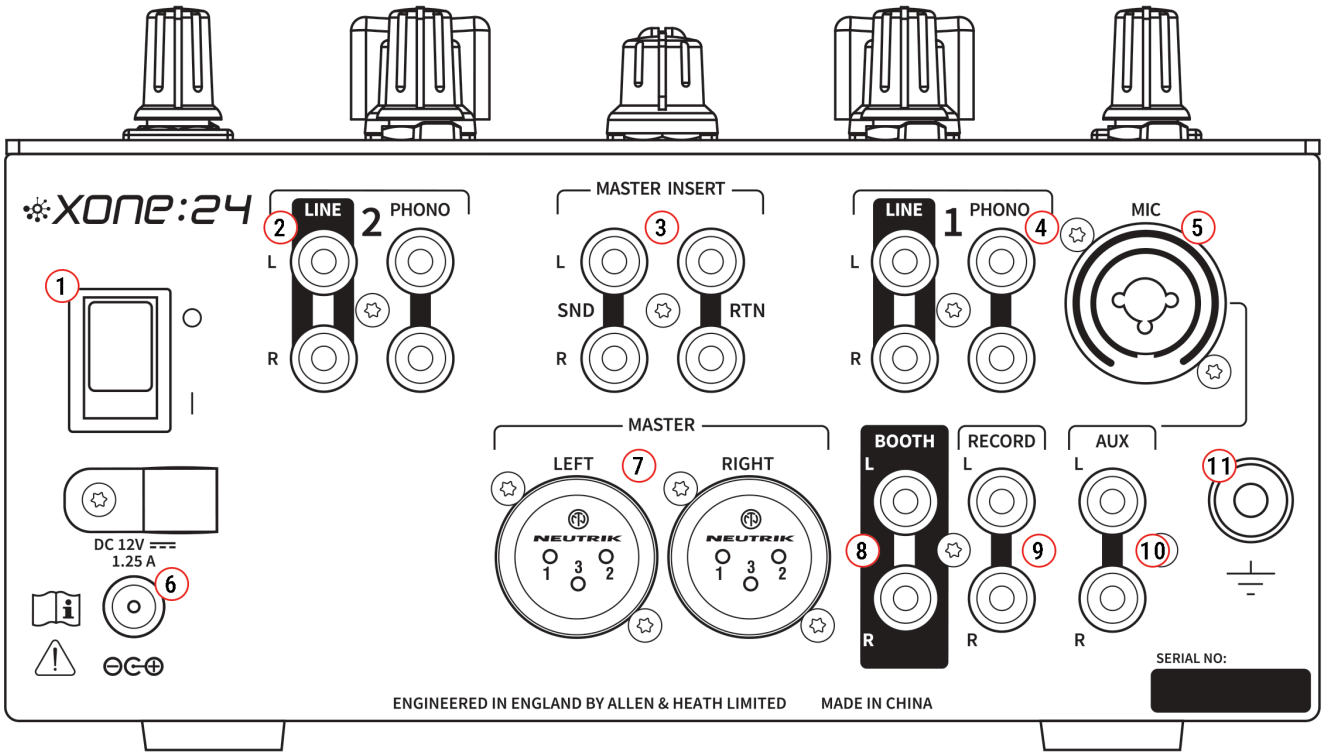


Safety and Regulatory Information Booklet

Contains important safety information and should be read before use.



REAR CONNECTORS



1. Mains Power switch

Turns the mains DC power supply to the mixer ON (I) and OFF (O)
Ensure the DC connector plug is pressed fully into the rear panel socket **before** switching ON.

ⓘ It is standard practice to turn connected power amplifiers, or active speakers, *down* or OFF *before* switching mains power to the mixer ON or OFF to prevent any potential damage to speaker systems due to switch-on transients.

2. LINE Inputs, CH 1 & 2

Unbalanced (RCA). Connect stereo LINE level media players or other audio sources in to the LINE input.
You can also connect other unbalanced LINE level sources using RCA adapters.

ⓘ **Do not** connect turntables requiring RIAA equalisation. And avoid using low grade cables such as those often supplied with domestic equipment as these can impact on the signal path quality and quickly prove unreliable in use.

3. MASTER INSERT

Unbalanced (RCA). Connect the **inputs** of your external effects hardware to MASTER INSERT **SND** and its **outputs** to MASTER INSERT **RTN**.
Use the MASTER INSERT **IN** button on the top panel to send audio to your external effects or dynamics processing device.

Alternatively, you can also use the MASTER INSERT to connect dynamics hardware, such as signal limiters or graphics equalisers etc, for inline signal processing before the main mix output stage.

ⓘ **MASTER INSERT** jumpers, connected between **MASTER INSERT SND L** / **RTN L** and **MASTER INSERT SND R** / **RTN R**, maintain the continuity of the master signal path when the **MASTER INSERT IN** switch is enabled but no external hardware is connected. This prevents unintended audio interruption in the main output.

4. PHONO Inputs, CH 1 & 2

Unbalanced (RCA). Plug in turntables with magnetic cartridges requiring RIAA equalisation.
Plug non-RIAA turntables into LINE inputs.

NOTE: **Do not** plug in LINE level sources to the PHONO Inputs as these will overload the preamp and cause severe, high level, signal distortion.

5. MIC Input, Auxiliary channel

Balanced Combi (XLR or 1/4" TRS Jack). Use a good quality low impedance dynamic microphone.
The XLR connection is wired; Pin1=*Ground,* Pin2=*Hot*(+), Pin3=*Cold*(-)
TRS Jack connection is wired; Tip=*Hot*(+), Ring=*Cold*(-), Sleeve=*Ground*

ⓘ **Do not** use high impedance, or condenser microphones that require phantom power. And avoid unbalanced mics wherever possible.

6. DC Mains Input

Connect the (supplied) DC power supply unit to power the mixer.

Check the correct IEC cable with moulded plug compatible to local AC mains supply has been provided with your mixer.
The external power supply unit accepts mains voltages within the range 100-240V without changing any fuses or settings.

7. MASTER Outputs

Balanced (XLR). The main stereo LR MIX outputs that feeds the club PA system, or balanced active speakers. Wired; Pin1=*Ground*, Pin2=*Hot*(+), Pin3=*Cold*(-).

8. BOOTH Outputs

Unbalanced (RCA). LINE level stereo output feed with a dedicated level control to the DJ's local monitor.

9. RECORD Outputs

Unbalanced (RCA).
Pre-MASTER level, LR MIX output for connection to external hardware recording devices.

10. LINE Inputs, Auxiliary channel

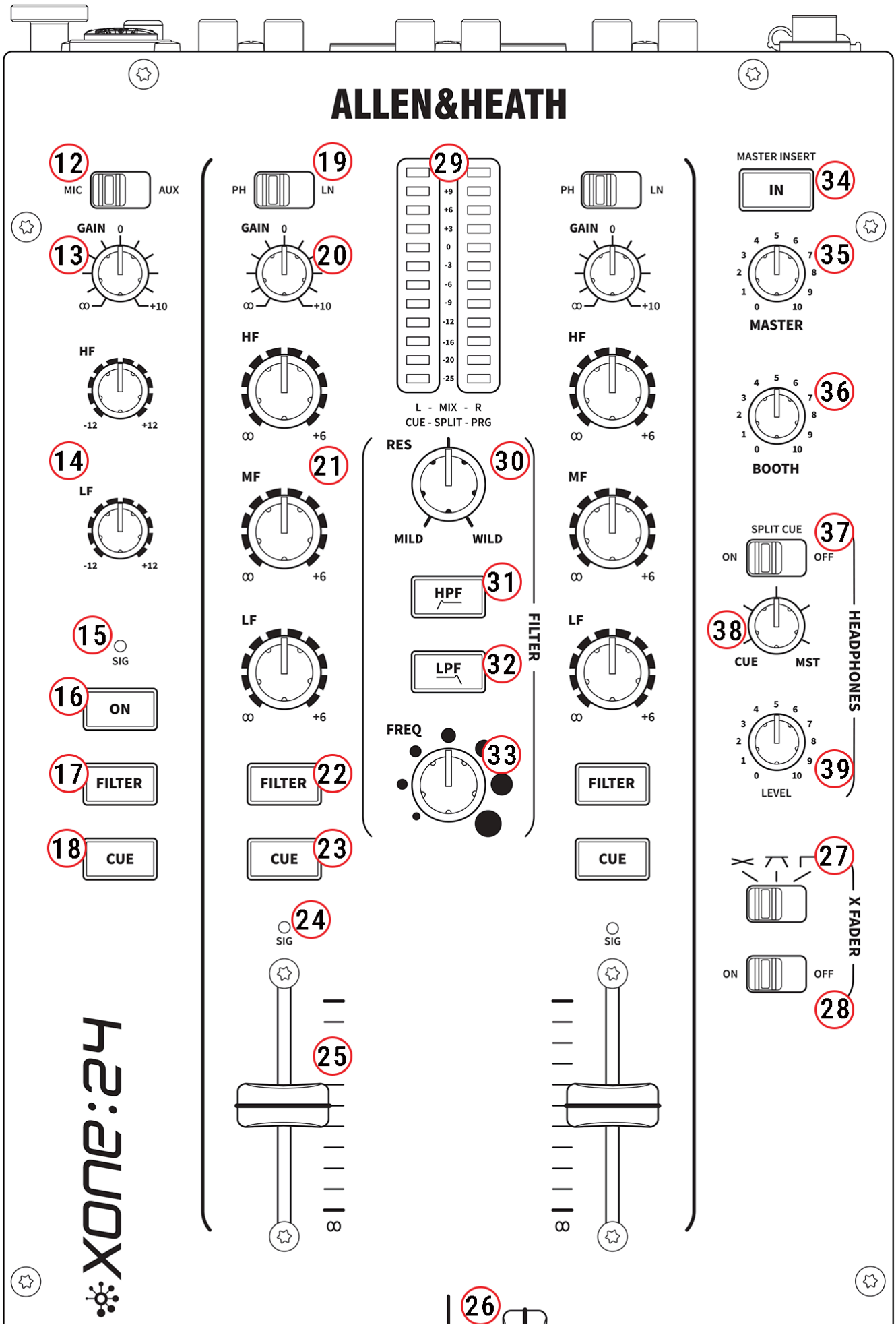
Unbalanced (RCA). Connect auxiliary stereo LINE level audio sources to the AUX input.

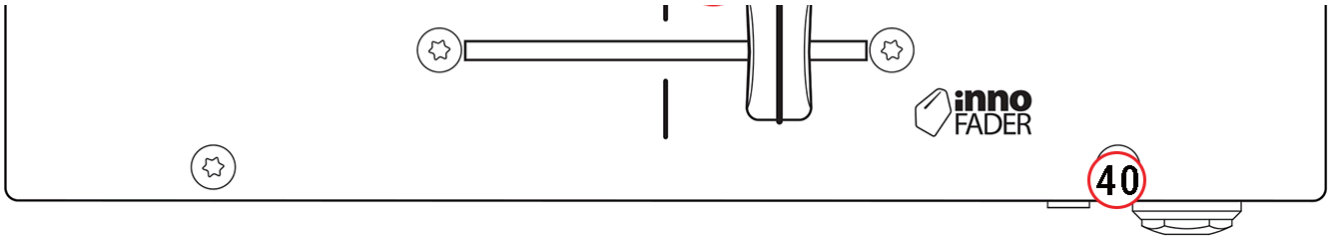
11. Chassis Earth Terminal

A robust ground screw terminal is provided for connecting the earth straps from turntables to prevent ground hum.

ⓘ Avoid ‘self-grounded’ turntables without a dedicated earth strap.

TOP PANEL


ALLEN&HEATH
12
MIC
AUX
GAIN
13
HF
14
LF
15
SIG
16
ON
17
FILTER
18
CUE
19
PH
LN
GAIN
20
HF
21
MF
LF
FILTER
22
CUE
23
24
SIG
25
29
+9
+6
+3
0
-3
-6
-9
-12
-16
-20
-25
L - MIX - R
CUE - SPLIT - PRG
RES
30
MILD
WILD
HPF
31
LPF
32
FREQ
33
FILTER
PH
LN
GAIN
HF
MF
LF
FILTER
CUE
SIG
MASTER INSERT
IN
34
35
MASTER
36
BOOTH
SPLIT CUE
37
ON
OFF
38
CUE
MST
HEADPHONES
LEVEL
39
27
X FADER
ON
OFF
28
XONE:24
26



MIC / AUX Inputs. Channel A

12. MIC / AUX Input Select Switch

Switches the auxiliary channel input between MIC, or AUX RCA Line level audio sources.

13. Channel GAIN Control

Adjusts the Channel input sensitivity to compensate for different audio signal source levels. -∞/+10dB.

14. Channel Equaliser

MIC/ AUX Channel A, is equipped with a 2 band shelving EQ, providing 12dB of cut or boost to the signal level on each band. Frequencies are set at:

HF Shelving: 4.4kHz - 3dB point (High Frequency, *treble*)
LF: 160Hz - 3dB point (Low Frequency, *bass)*

15. Input Signal Level LED

A tri-colour LED displays the source input level. Green indicates signal is present. Blue indicates signal level between unity (0dB) and +9. If the LED is illuminated RED continuously, turn the Channel GAIN level *down*.

16. Channel ON/OFF Switch

Turns the Channel's audio routed to the master LR MIX and REC outputs ON or OFF. Useful if an un-switched microphone is used to easily bring vocals in and out of a mix.

ⓘ This does not affect CH A signal output to CUE.

17. Channel FILTER Assign Switch

Press to route post-GAIN / post-EQ / post-FADER level Channel audio to the FILTER stage.
The switch illuminates BLUE when active.

18. Channel CUE Switch

Press to listen to the Channel's pre-LR MIX audio in the HEADPHONES monitor outputs and to view its level on the main (MIX) Meters. The switch illuminates RED when active. The default CUE setting is Non-Latching, where switches remain on until the button is pressed again or another CUE is selected.

ⓘ CUE switches are also used to configure Latching and Non-Latching CUE MODE options. Refer to the CUE MODES section below for information.

PH / LN INPUTS. CHANNELS 1 & 2

19. PH / LN Input Select Switch

Switches Channel 1 & 2 inputs between RCA PHONO, or RCA LINE level audio sources.

20. Channel GAIN Control

Adjusts the Channel input sensitivity to compensate for different audio signal source levels. -∞/+10dB.

21. Channel Equaliser

Each Channel is equipped with a powerful 3 band isolator EQ, providing a controlled +6dB boost when fully clockwise and 'Total Kill' full attenuation on each band when fully anticlockwise. Centre/cut-off frequencies are set at:

HF: 3.5kHz (High Frequency, *treble*)
MF: 1.1kHz (Mid Frequency)
LF: 500Hz (Low Frequency, *bass)*

22. Channel FILTER Assign Switch

Press to route post-GAIN / post-EQ / post-FADER level Channel audio to the FILTER stage. The switch illuminates BLUE when active.

23. Channel CUE Switch

Press to listen to the Channel's pre-LR MIX audio in the HEADPHONES monitor outputs and to view its level on the main (MIX) Meters. The switch illuminates RED when active. The default CUE setting is Non-Latching, where switches remain on until the button is pressed again or another CUE is selected.

ⓘ CUE switches are also used to configure Latching and Non-Latching CUE MODE options. Refer to the CUE MODES section below for information.

24. Channel SIG LED

A tri-colour LED indicates the Channel signal level.
Channel audio is metered post-GAIN / post-EQ and pre-FADER, to display the affect of adjusting EQ on input levels before routing audio to the LR MIX.

Channel GAIN controls should be set so the LED displays green, averaging about **0** on meters when cued, with peaks around **+6** to **+9**, displayed as **blue** on the LED. If the LED continuously displays red, turn the GAIN control *down*.

25. Channel Fader

A high quality, smooth travel, 45mm, dual-rail VCA fader adjusts the Channel signal level routing to the main MIX from fully off to fully on (unity).

CROSS FADER

26. X-FADER

The crossfader is a mini innoFADER® VCA (voltage controlled amplifier) control that also affects the level of signals routed via the Xone:VCF.

Fade between audio from Channel 1 assigned to the Left, & Channel 2 assigned to the Right side of the crossfader, typically to fade smoothly into a new music track, to creatively layer sounds, or for scratch and cut mixing.

ⓘ Channel 1 fader assignment is fixed to the left (**X)** side of the crossfader. Channel 2 fader assignment is fixed to the right (**Y**) side of the crossfader.

27. X-FADER Curve Switch

This switch selects the cross-fader response curve between Constant power, Transition, or Fast-cut to suit scratch or cut mixing styles.

28. X-FADER ON/OFF Switch

Turns the cross-fader ON or OFF.
When OFF, both Channel 1 and Channel 2 bypass the cross-fader

MAIN METERS AND FILTER

29. MIX / Monitor Meters

The main meters follow the selected monitor source. By default the meters display the main MIX level, which is overridden by input channel levels when any channel CUE switch is active.

If SPLIT cue mode is enabled, the left (L) MIX meter displays the CUE signal level and the right (R) MIX meter displays mix bus levels. Cued MIX audio level is pre-MASTER, to prevent mismatch due to position of the MASTER level control.

ⓘ The mixer should be operated with meters averaging around **0** and loudest peaks between **+6** and **+9**.

If the **PK!** indicator illuminates continuously, ensure GAIN or EQ settings are not clipping the channel SIG indicator and, if necessary, turn Channel GAIN, EQ, or FADERS *down* to prevent LR MIX meters clipping.
Refer to the **Operating Levels** section for more information.

30. RESONANCE Control

This produces the classic Xone:VCF filter sound by feeding some of the filter output back to its input. The control ranges from MILD, producing a very subtle effect, to WILD, producing a dramatic phase effect with feedback just short of oscillation.

31. HPF Switch

Turns on the High Pass Filter (bass cut) slope.
Refer to the **Filter Reference** section for more information.

32. LPF Switch

Turns on the Low Pass Filter (treble cut) slope.
Refer to the **Filter Reference** section for more information.

33. FREQ Frequency Sweep Control

The frequency sweep control sets the -3dB cut-off frequency of the Voltage Controlled Filter. It ranges from very low frequency (<20Hz) to very high frequency (>20kHz).
Refer to the **Filter Reference** section for more information.

MASTER & HEADPHONES SECTION

34. MASTER INSERT Switch

Switches external FX or other hardware, such as a limiter, compressor, or graphic equaliser, connected to the rear panel MASTER INSERT sockets IN or OUT of the MASTER mix output.

ⓘ By default, MASTER INSERT jumpers are connected between INSERT SND and RTN sockets. If no FX or processing hardware is connected, these must be left in place in order to prevent the main mix audio from cutting out if the MASTER INSERT switch is activated inadvertently.

35. MASTER Level Control

A rotary MASTER control adjusts the level of the main, MASTER 1 and MASTER 2, rear panel outputs feeding the house sound system.
This does not affect BOOTH output level or the meters.

36. BOOTH Level Control

Adjusts the level of the signal to the stereo BOOTH RCA output. This does not affect the headphones level.

The BOOTH output can be used for a DJ Booth monitor, or as an additional zone feed or recording output.

37. SPLIT CUE

Selects the way the CUE bus operates.
Normally, pressing a Channel CUE switch overrides both left and right monitor program signals with the active CUE signal. With SPLIT set ON, the CUE bus overrides just the left channel, leaving the program in the right channel.
L MIX meter displays CUE signal level and R MIX meter displays PRG (LR MIX level) signal. This is very useful when beat mixing using headphones.

38. CUE / MST Control

Allows the MASTER mix output (MST) to be blended with the CUE signal. Turned fully anticlockwise, only active CUE Channels are heard through the headphones outputs. Gradually turning clockwise introduces the MASTER mix output to the headphones, together with the active CUE.

ⓘ Switching SPLIT CUE, ON automatically overrides the control.

39. HEADPHONES Level Control

Adjusts the level of the audio in the stereo headphones.

ⓘ This does not affect the level of the local booth monitor.

40. Headphone Outputs

Stereo 1/4” TRS jack and 3.5mm mini-jack sockets are located on the front of the mixer.
Plug in good quality stereo headphones designed for DJ monitoring.
Use closed-ear headphones to provide maximum acoustic isolation when cueing your sources.
Refer to the **Operating Levels** section for more information.

CUE MODES

Two options are also available to configure how the CUE buttons can function:

- CUE MODE 1: Non-latching - Is the mixer's default setting, one CUE remains on until the button is pressed again or another channel CUE is selected.
- CUE MODE 2: Latching - Enables CUE switches to remain active when selecting another channel CUE. Any active CUE is deactivated by pressing the button again.

ⓘ CUE MODE options can be configured ‘on-the-fly’ while the mixer is on, using the red Channel 1 and Channel 2 CUE buttons following the POWERED-ON Setup method below.

POWERED-ON Setup

1. Press and hold down both Channel 1 and Channel 2 CUE buttons for 5s

2. The AUX channel’s CUE button blinks red rapidly to show that the mixer is in its setup state. And the flashing red Channel 1 or Channel 2 CUE button shows the current CUE MODE, described above.

3. Press the Channel 1 or Channel 2 CUE button for the required CUE MODE to change the CUE button function.

   CH 1 CUE = Non-latching CUEs
   CH 2 CUE = Latching CUEs

4. Press the AUX Channel CUE button to store the changes and exit the POWER-UP Setup process.

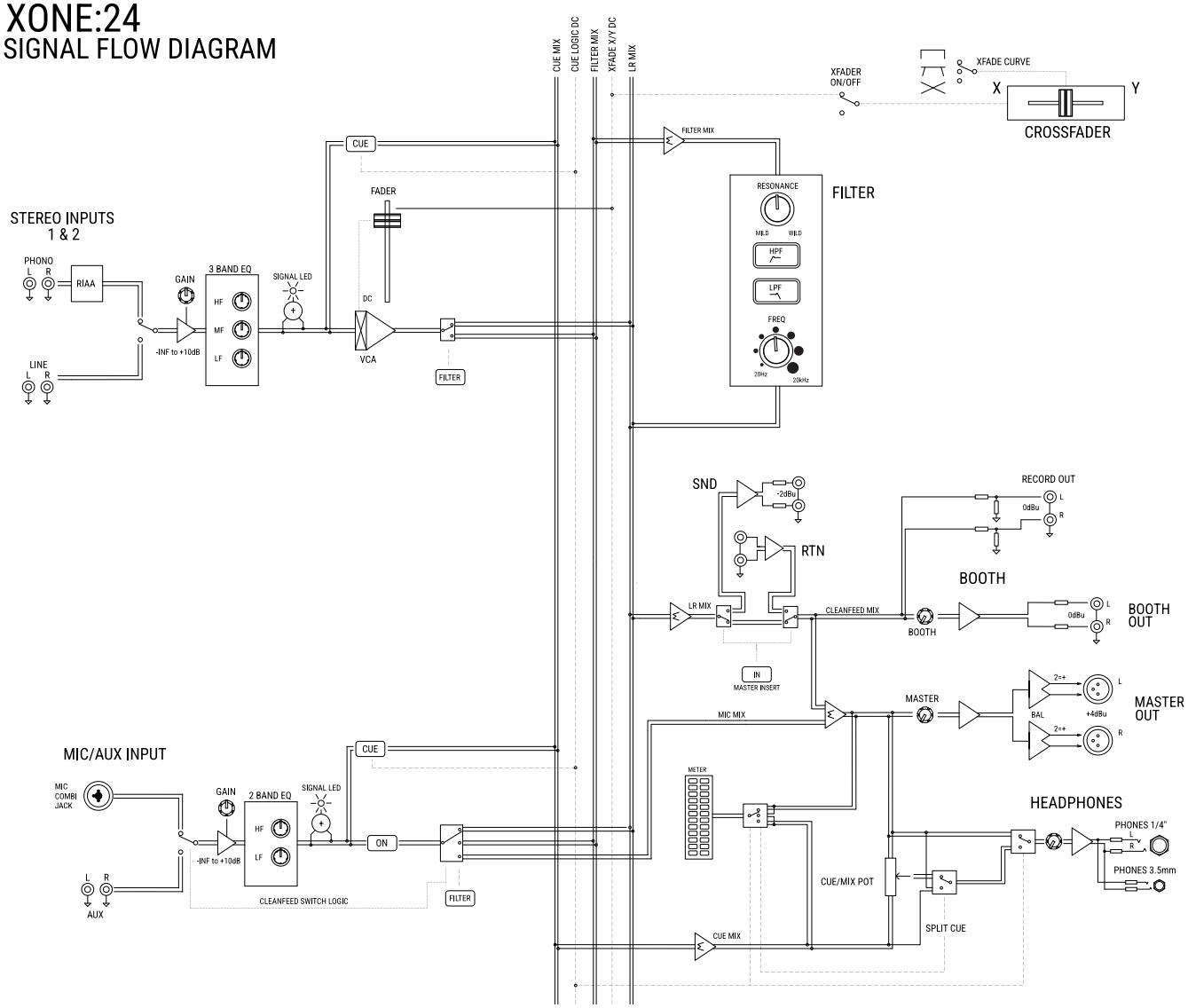
ⓘ When POWERED-ON Setup is active, the headphones output is muted. And restored on exiting the POWERED-ON Setup process.

ⓘ If a CUE button is active when you enter the POWERED-ON Setup process, the same state is retained on exiting POWERED-ON Setup, and the changed CUE MODE is available following the next CUE button press.

ⓘ The last selected CUE mode remains stored in the mixer when powered off, and are recalled when the mixer is next switched on until subsequent changes are made.

BLOCK DIAGRAM

XONE:24
SIGNAL FLOW DIAGRAM



SPECIFICATIONS

Technical Specification

Model	Xone:24
Type	Analogue
Channels	2 + 1
CH1&CH2	Phono/Line
AUX CH	Mic/Line
Line Inputs	3 x RCA (CH 1 & 2 + Aux CH)
Phono Inputs	2 x RCA (CH 1& 2)

RIAA Gain	+42dB @ 1kHz, 6mV RMS= 0VU @ 1kHz
Mic Input	1 x Combi (XLR + TRS)
Mic Gain	+40dB, EIN = -115dB @ 40dB gain with 150R source
Master Output	1 x XLR (Balanced)
Level	+4dBu (Nominal), +22dBu (Max)
Residual Noise	-93dBu
Mix Noise	-83dBu
Booth Output	1 x RCA (Un-balanced)
Level	0dBu (Nominal), +18dBu (Max)
Residual Noise	-93dBu
Mix Noise	-83dBu
Record Output	1 x RCA (Un-balanced)
Level	-10dBV (Nominal), +8dBV (Max)
Mix Noise	-83dBu
Stereo Master Insert	2 x RCA MASTER INSERT Send
	2 x RCA MASTER INSERT Return
Level	-2dBu (Nominal), +18dBu (Max)
Headphones	1 x 1/4", 1x 3.5mm
	Split Cue Monitoring
Frequency response	+/-0.5dB from 20Hz to 30kHz (Line In -> Master Out)
Internal headroom	+18dB
Distortion	Typically 0.01% @ 1kHz 0dBu
Crosstalk	< -85dB inter-channel @ 1kHz +10dBu
EQ (CH1&CH2)	3-band, +6dBu / Total Kill
HF (Shelving)	> 3.5kHz
MF	1.1kHz
LF (Shelving)	< 500Hz
	Total Kill attenuation: -75dB
EQ (AUX CH)	2-band, +/- 12dB
HF (Shelving)	4.4kHz (3dB point)
LF (Shelving)	160Hz (3dB point)
Analogue Filter	1 x Voltage Controlled Filter
	HPF / LPF
	Adjustable Frequency & Resonance
	Assignable CH 1 & 2 + Aux CH
Channel Faders	45mm Voltage Controlled Amplifier

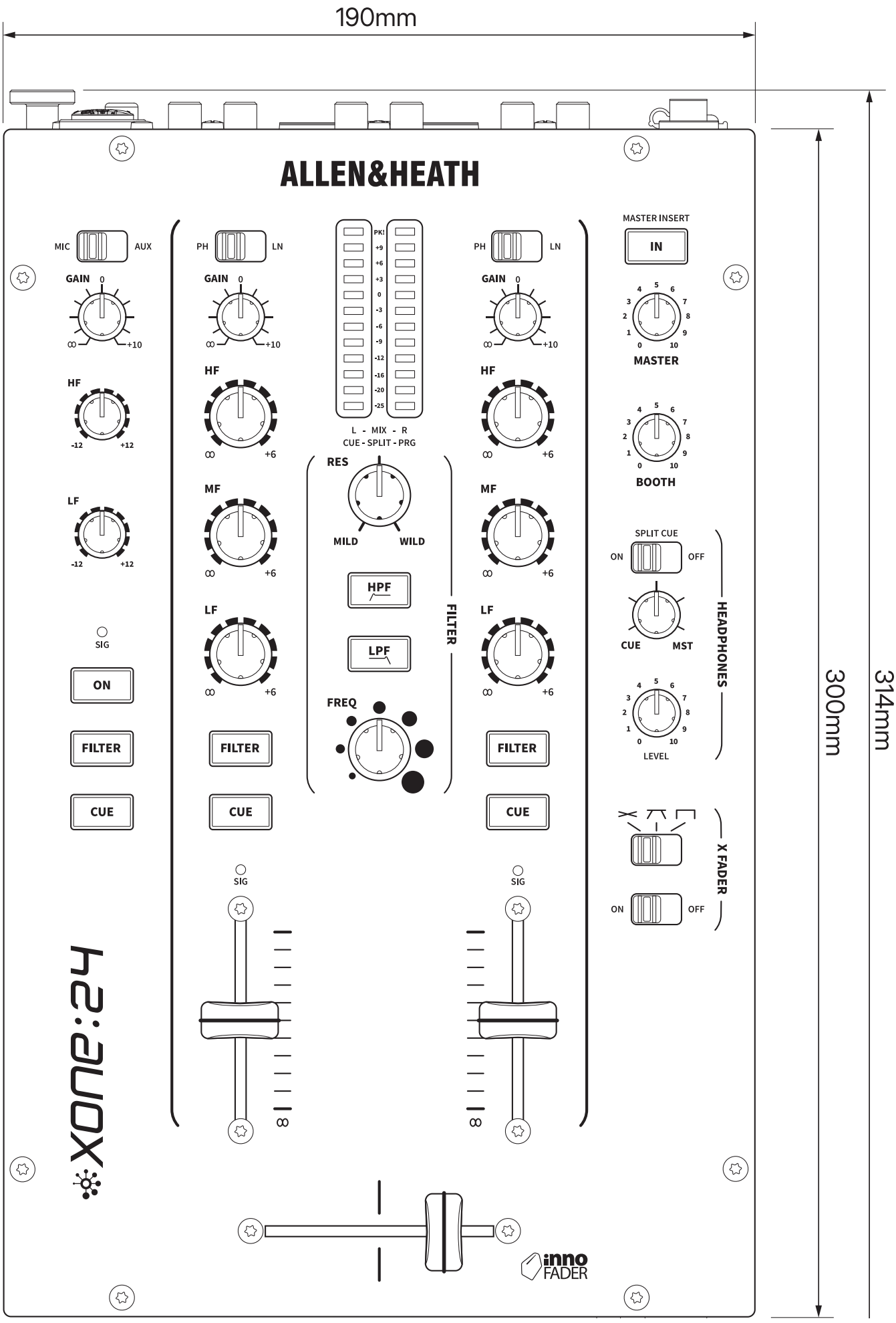
Channel Fader Cut Off	< -90dB @ 1kHz +10dBu
X-Fader	45mm VCA mini innoFADER®
X-Fader Curve Settings	3 Types (Constant power, Transition, Fast-cut)
X-Fader Cut Off	< -90dB @ 1kHz +10dBu
Earth Ground Terminals	x 1
Headroom	+18dB
Mix Meters	12 LED (-25dBu to +12dBu)
Chanel Meters	Single tri-colour LED
GREEN	-25dBu to 0dBu
BLUE	> 0dBu to +12dBu
RED	> 12dBu
DC Mains	100 to 240V
	AC 50/60Hz
	Consumption 35W max
Mains Adaptor	2 pin DC socket with cable clamp

WEIGHTS & DIMENSIONS

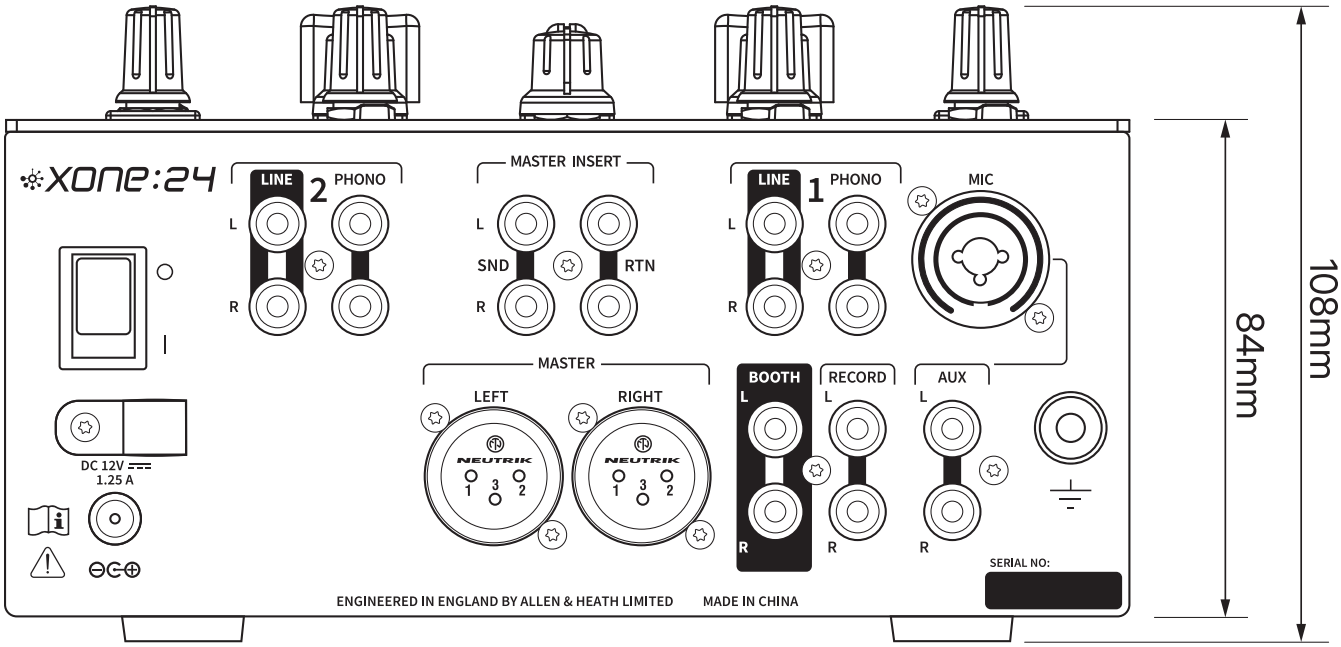
XONE:24	**UN-PACKED**		**PACKED**	
Height	108mm	4.25”	210mm	8.25”
Width	190mm	7.48”	310mm	12.25”
Depth	314mm	12.36”	400mm	15.75”
Weight	2.7kg	5.95lbs	4kg	8.8 lbs

PANEL DRAWINGS

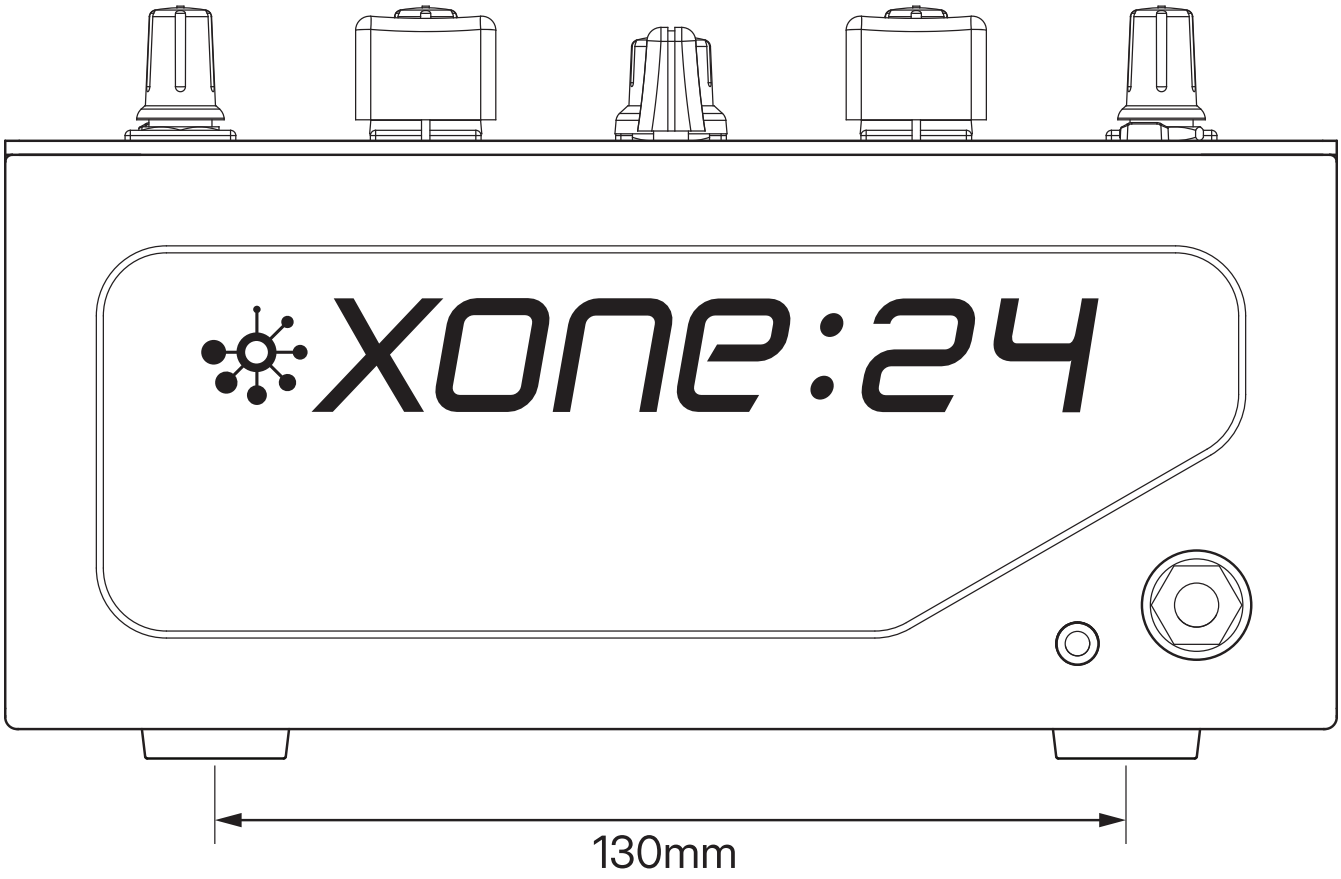
Top panel


190mm
314mm
300mm
ALLEN&HEATH
MIC
AUX
PH
LN
GAIN
HF
MF
LF
SIG
ON
FILTER
CUE
L - MIX - R
CUE - SPLIT - PRG
RES
MILD
WILD
HPF
LPF
FREQ
MASTER INSERT
IN
MASTER
BOOTH
SPLIT CUE
HEADPHONES
LEVEL
X FADER
XONE:24
inno FADER

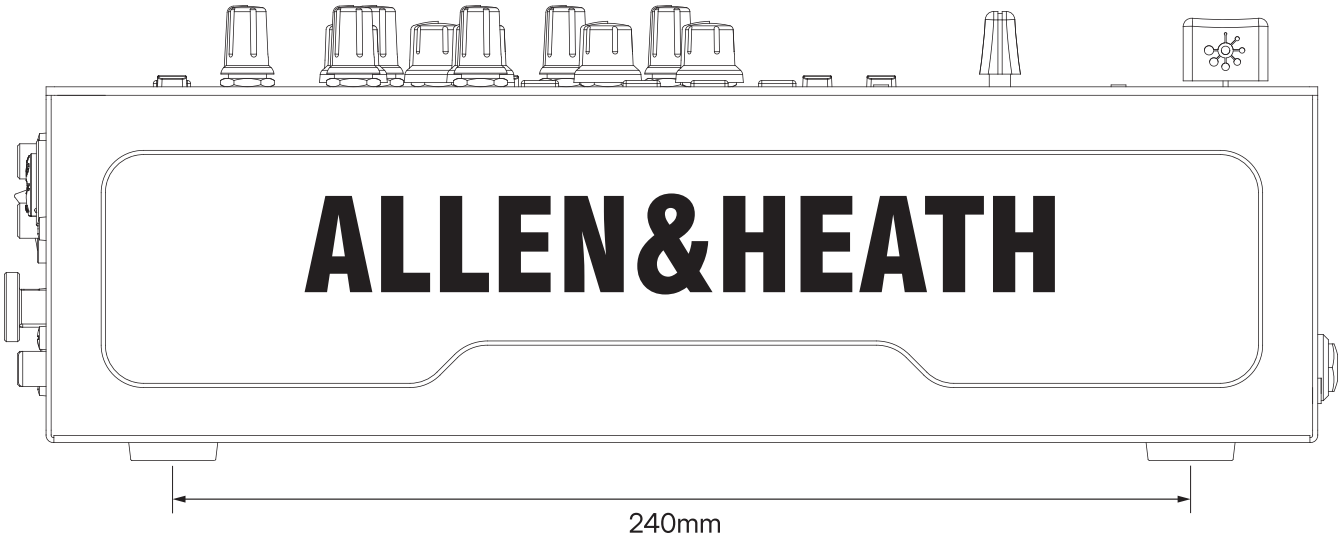
Rear panel



Front panel



Side panel [left]



FILTER REFERENCE

The Xone:VCF Voltage Controlled Filter

A Voltage Controlled Filter is an audio filter where the cut-off frequency is altered by a DC control voltage rather than a variable resistor. This produces a much wider operating range and more control over the filter response to create unlimited combinations of dynamic tonal effects

Filter Type Select

The filter is ‘state variable' providing two responses: high-pass (HPF) and low-pass LPF). Two large, illuminated switches select which type is active. Pressing one switch automatically deselects the other.

The switches implement analogue soft-switching, ensuring the MIX output is unaffected by audible electronic artefacts when selecting different Filter Types and assigning channels to the FILTER.

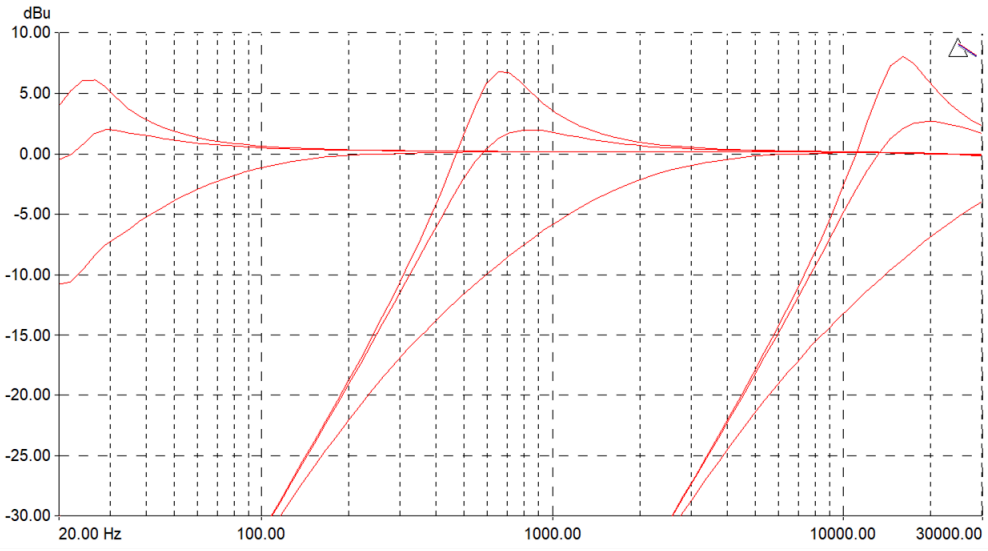
ⓘ The filter response defaults to HPF output and channel FILTER assignments are set OFF when mains power to the mixer is turned OFF.

The graphs below show typical effects on audio frequency response for the two filter types.

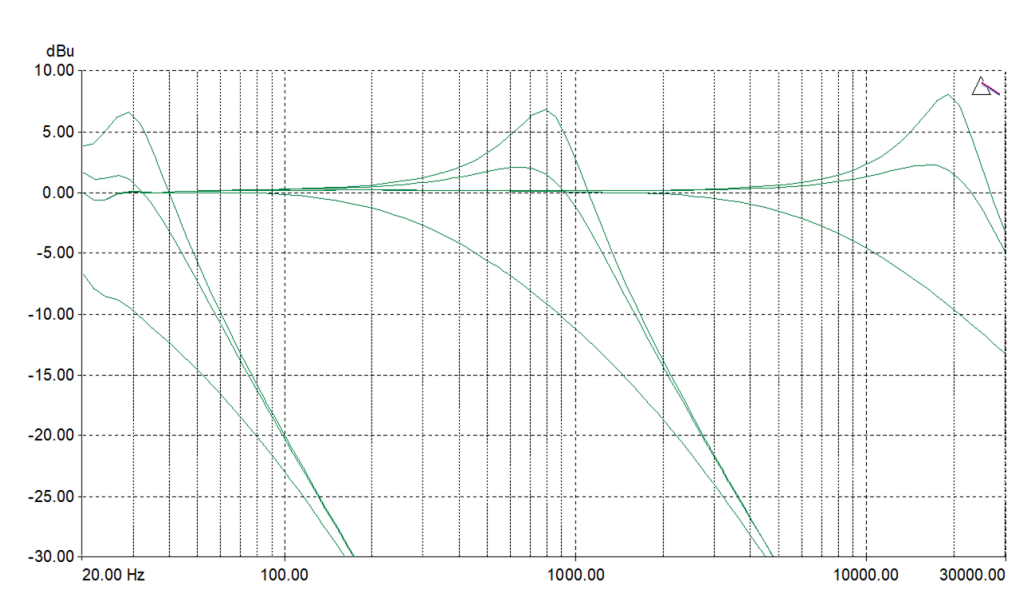
The range of sweep from low to high frequency is shown together with the effect of adjusting together with the effect of adjusting the filter resonance to MILD, WILD and centred positions: one frequency with RES and FREQ set to minimum, 12 o’clock, and max.

The vertical scale shows the amount of cut or boost around the normal 0dB operating level. The horizontal scale shows the change in frequency from low (bass) to high (treble).

HPF response



LPF Response



OPERATING LEVELS

It is most important that the system level settings are correctly set. It is well known that many DJs push the level to maximum with meters peaking hard in the belief that they are getting the best from the system. **THIS IS NOT THE CASE !**

The best can only be achieved if the system levels are set within the normal operating range and not allowed to peak.

Peaking simply results in signal distortion, not more volume.

It is the specification of the amplifier / speaker system that sets the maximum volume that can be achieved, not the console.

The human ear too can fool the operator into believing that more volume is needed.
Be careful as this is in fact a warning that hearing damage will result if high listening levels are maintained.

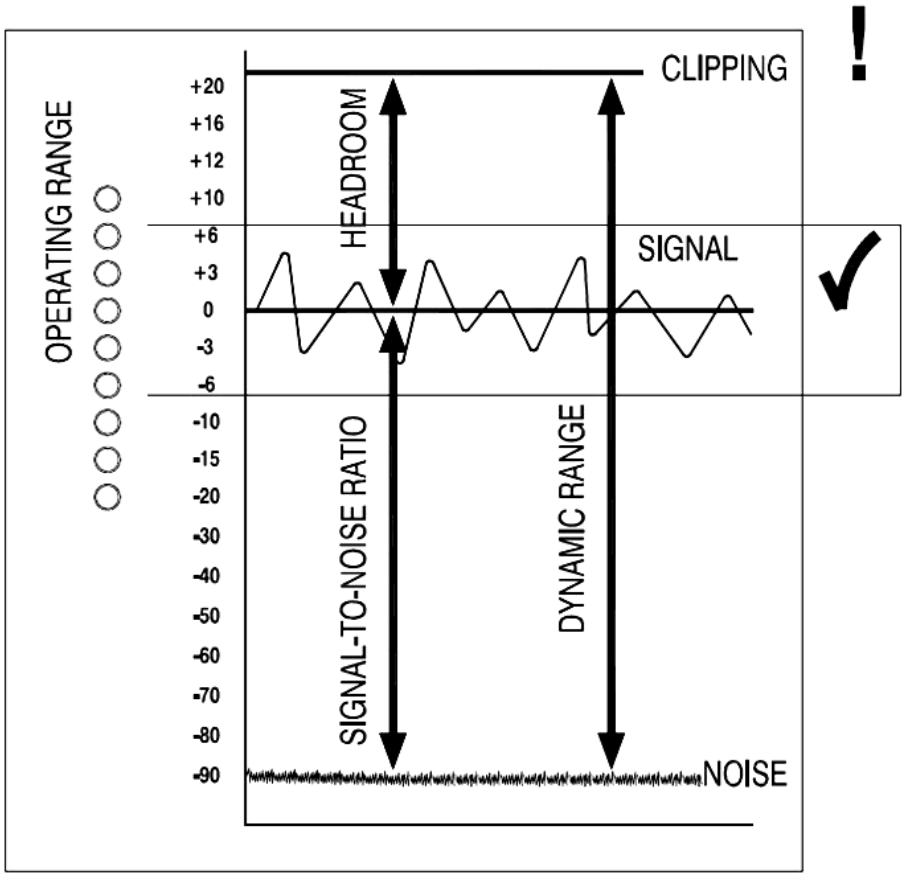
Remember that it is the QUALITY of the sound that pleases the ear, not the VOLUME.

The diagram below illustrates the operating range of the audio signal.

NORMAL OPERATING RANGE - For normal music the signal should range between -6 and +6 on the master mix meters with average around 0dB. This allows enough **HEADROOM** for unexpected peaks before the signal hits its maximum **CLIPPING** voltage and distorts.

It also achieves the best **SIGNAL-TO-NOISE-RATIO** by keeping the signal well above the residual **NOISE FLOOR** (system hiss).

The **DYNAMIC RANGE** is the maximum signal swing available between the residual noise floor and clipping.



ⓘ **An important note …**

The human ear is a remarkable organ with the ability to compress or ‘shut down’ when sound levels become too high. Do not interpret this natural response as a reason to turn the system volume up further!
As the session wears on ear fatigue may set in, and the speaker cones may become hot so reducing the effectiveness of the system and listeners to gain any benefit from increased volume.

EARTHING

The connection to earth (ground) in an audio system is important for two reasons:

SAFETY - To protect the operator from high voltage electric shock, and

AUDIO PERFORMANCE - To minimise the effect of earth (ground) loops which result in audible hum and buzz, and to shield the audio signals from interference.

For safety it is important that all equipment earths are connected to mains earth so that exposed metal parts are prevented from carrying high voltage which can injure or even kill the operator. It is recommended that a qualified system engineer check the continuity of the safety earth from all points in the system including microphone bodies, turntable chassis, equipment cases, and so on.

The same earth is also used to shield audio cables from external interference such as the hum fields associated with power transformers, lighting dimmer buzz, and computer radiation. Problems arise when the signal sees more than one path to mains earth. An ‘earth loop’ (ground loop) results causing current to flow between the different earth paths. This condition is usually detected as a mains frequency audible hum or buzz.

To ensure safe and trouble-free operation we recommend the following:

Have your mains system checked by a qualified electrician. If the supply earthing is solid to start with you are less likely to experience problems.

Do not remove the earth connection from the console mains plug. The console chassis is connected to mains earth through the power cable to ensure your safety. Audio 0V is connected to the console chassis internally. If problems are encountered with earth loops operate the audio ‘ground lift’ switches on connected equipment accordingly, or disconnect the cable screens at one end, usually at the destination.

Make sure that turntables are correctly earthed. A chassis earth terminal is provided on the console rear panel to connect to turntable earth straps.

Use low impedance sources such as microphones and line level equipment rated at 200 ohms or less to reduce susceptibility to interference. The console outputs are designed to operate at very low impedance to minimise interference problems.

Use balanced connections for microphones and mix output as these provide further immunity by cancelling out interference that may be picked up on long cable runs. To connect an unbalanced source to a balanced console input, link the cold input (XLR pin 3 or jack ring) to 0V earth (XLR pin 1 or jack sleeve) at the console. To connect a balanced XLR output to unbalanced equipment, link the cold output to 0V earth at the console.

Use good quality cables and connectors and check for correct wiring and reliable solder joints. Allow sufficient cable loop to prevent damage through stretching.

If you are not sure ...
Contact your service agent or local Allen & Heath dealer for advice.

Was this article helpful?

Yes | No

0 out of 0 found this helpful

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