ALLEN&HEATH





USER GUIDE

Publication AP8509

Limited One Year Warranty

This product is warranted to be free from defects in materials or workmanship for period of one year from the date of purchase by the original owner.

To ensure a high level of performance and reliability for which this equipment has been designed and manufactured, read this User Guide before operating. In the event of a failure, notify and return the defective unit to ALLEN & HEATH Limited or its authorised agent as soon as possible for repair under warranty subject to the following conditions

Conditions Of Warranty

The equipment has been installed and operated in accordance with the instructions in this User Guide.

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.

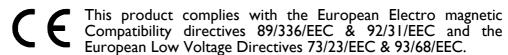
Any necessary adjustment, alteration or repair has been carried out by ALLEN & HEATH or its authorised agent.

This warranty does not cover fader wear and tear.

The defective unit is to be returned carriage prepaid to ALLEN & HEATH or its authorised agent with proof of purchase.

Units returned should be packed to avoid transit damage.

In certain territories the terms may vary. Check with your ALLEN & HEATH agent for any additional warranty which may apply.



This product has been tested to EN55103 Parts I & 2 1996 for use in Environments EI, E2, E3, and E4 to demonstrate compliance with the protection requirements in the European EMC directive 89/336/EEC. During some tests the specified performance figures of the product were affected. This is considered permissible and the product has been passed as acceptable for its intended use. Allen & Heath has a strict policy of ensuring all products are tested to the latest safety and EMC standards. Customers requiring more information about EMC and safety issues can contact Allen & Heath.

XONE:K2 User Guide AP8509

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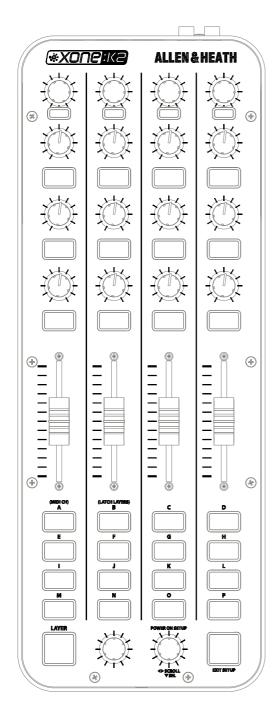
Allen & Heath Limited

Kernick Industrial Estate, Penryn, Cornwall, TR10 9LU, UK

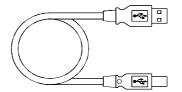
http://www.allen-heath.com http://www.xone.co.uk

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PACKED ITEMS



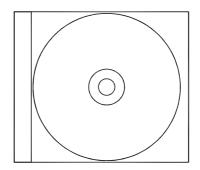
Xone:K2 Software Controller



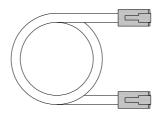
Type A-B USB Lead
To connect the Xone:K2 to your computer.



Xone:K2 Carry Case



Xone:K2 CD-ROM



RJ45 patch lead for connecting to other X:LINK enabled products

CONTENTS

Congratulations on purchasing the Allen & Heath Xone:K2 software controller and audio interface. To ensure that you get the maximum benefit from the unit please spare a few minutes familiarizing yourself with the controls and setup procedures outlined in this user guide. For further information please refer to the additional information available on our web site, or contact our technical support team.

To register your Xone product please visit www.allen-heath.co.uk and, in the 'Support' tab, follow the 'Register Your Product' link.

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PRODUCT OVERVIEW

The XONE:K2 is a software controller and audio interface designed to work with all DAW applications that implement MIDI. The main features of the Xone:K2 are:

- 52 hardware controls providing up to 171 MIDI control commands across three layers
- Customisable Latching Layers system
- Back lit switches with individually accessible tri-colour LED illumination
- Four-channel 48kHz 16-bit internal soundcard
- Carry case that doubles as a stand is included with the product
- USB Bus Powered
- X:LINK
- Light plastic base with steel front panel
- Flat board construction but still employing A&H 'nutted pots' construction principle

MIDI Interface

The MIDI interface of the Xone:K2 can be customised by the user. The unit can be left in 'Open Architecture (Latching Layers Off) Mode' or set to 'Latching Layers Mode'. The blocks of control surface components that are linked to the Latching Layers can be configured by the user.

Audio Interface

The Xone:K2 has an internal four-channel16-bit soundcard that can operate at 44.1 and 48kHz. All four channels run from the PC to the Xone:K2 and are configured as follows (the labelling is from the perspective of a DAW):

Soundcard Output 1 - Headphones Left Soundcard Output 2 - Headphones Right Soundcard Output 3 - Master Out Left

Soundcard Output 4 - Master Out Right

X:LINK

It is possible to link two Xone:K2 units together using the X:LINK protocol. The provided RJ45 cable is used for power and data transfer from one unit to another—this releases one USB port if a second Xone:K2 is being used for control only.

X:LINK does not transfer audio between the units, so if units are to have their audio aggregated then two USB ports will be necessary.

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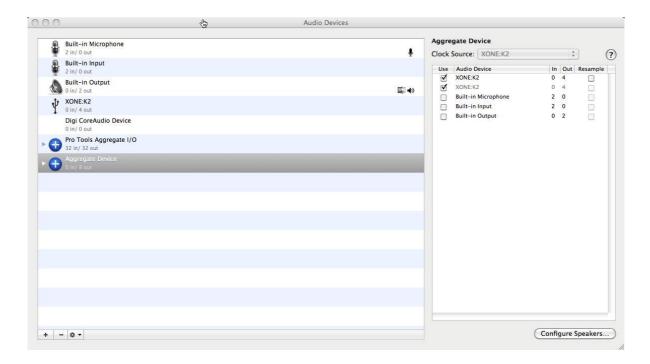
SOFTWARE INSTALLATION MAC

The Xone:K2 is class compliant and enumerates as a MIDI device and four-channel audio device on a Mac.



AGGREGATE AUDIO

To aggregate two Xone:K2 units together, click the '+' button in the bottom left of the audio devices window to create a new aggregate audio device. Next, in the right hand side of the window, select both instances of the K2 and you will essentially create one device with eight outputs.



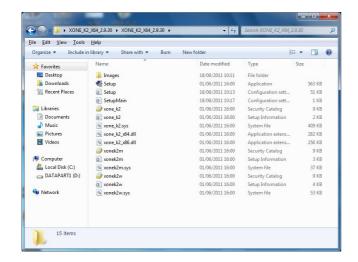
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SOFTWARE INSTALLATION PC

The Xone:K2 is class compliant and enumerates as a MIDI device and two-channel audio device on a PC. To benefit from the full four-channels of audio provided, the Xone:K2 ASIO Driver must be installed.

Software Installation (Windows 2000, XP, Vista and Windows 7)

Follow the procedure described below to install the USB audio and MIDI drivers:



I—Open the Drivers folder and run **Setup.exe**

0K

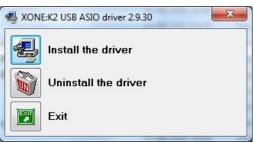
Cancel

_ - X

XONE:K2 USB ASIO driver 2.9.30

Please choose your language below:

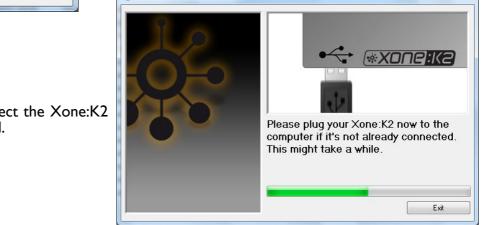
2— Select your preferred language



3— Select Install the driver

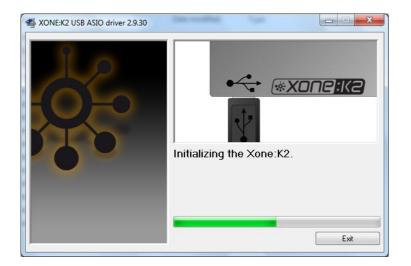
English

SONE:K2 USB ASIO driver 2.9.30



4— When prompted, connect the Xone:K2 to the PC with the USB lead.

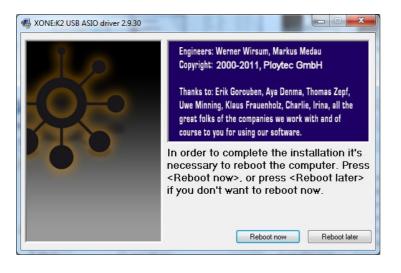
SOFTWARE INSTALLATION PC



The Xone:K2 will now initialise.

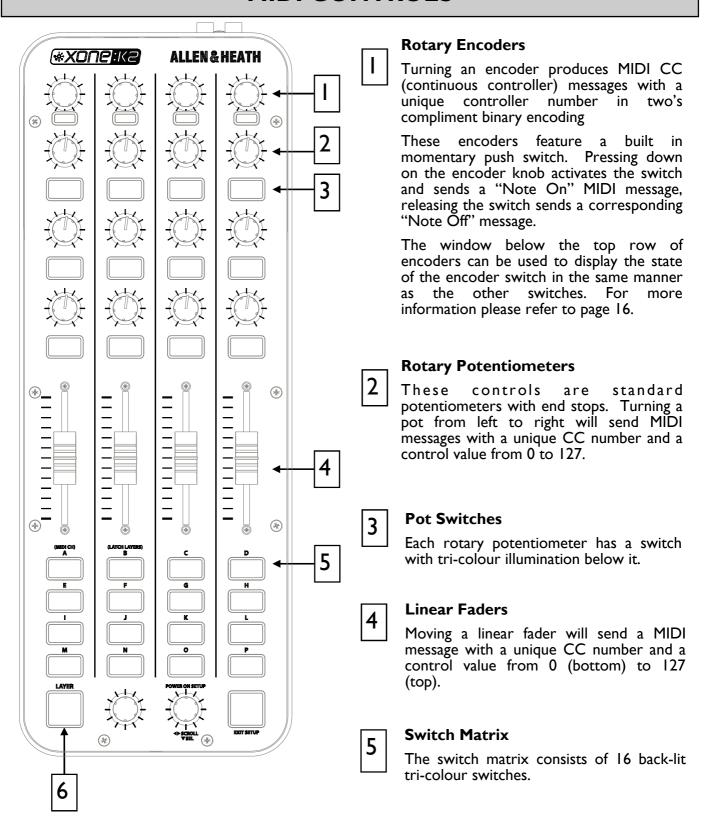


The USB drivers will now initialise.



5— Once the driver installation is complete you will be prompted to reboot your computer.

MIDI CONTROLS



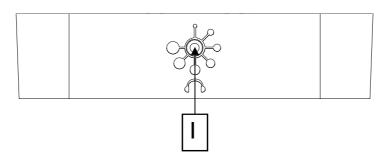
Layer Button

6

The Layer button is completely user assignable but can also function as an embedded layer button. For more information please refer to page 12.

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FRONT AND REAR PANEL CONNECTORS

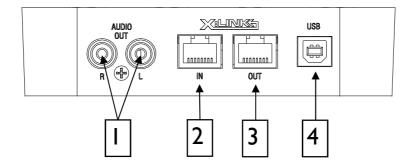


| | Headphones Output

Stereo 3.5mm mini-jack. Plug in good quality stereo headphones intended for DJ monitoring. Use closed-ear headphones that provide maximum acoustic isolation when cueing your sources. We recommend that you use high quality headphones rated between 30 to 100 ohms impedance. 8 ohm headphones are not recommended.

Warning! To avoid damage to your hearing do not operate the headphones or sound system at excessively high volume. Continued exposure to high volume sound can cause frequency selective or wide range hearing loss.

Ensure that the headphone level in your DAW is turned to an appropriately low level before connecting headphones.



I Audio Connectors

RCA Phono connectors for connecting to an external device such as a mixer or amplifier.

2 X:LINK In Socket

RJ45 socket for proprietary connection to another X:LINK enabled Xone device.

3 X:LINK Out Socket

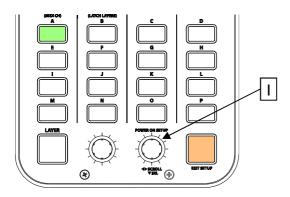
RJ45 socket for proprietary connection to another X:LINK enabled Xone device.

4 USB Connector Socket for connecting the Xone:K2 to the PC/Mac.

MIDI CHANNEL NUMBER

By default the MIDI Channel number is set to 15 to prevent control interaction with Xone DB series mixers which default to channel 16.

To change the MIDI channel number on your XONE:K2, you must first enter setup mode.



Setup Mode

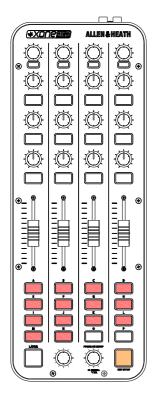
To enter setup mode, press and hold down the encoder [I] then power up by plugging the USB cable to your PC/Mac, (or RJ45 lead if powered from X-LINK). The switch matrix LED's will flash RED three times to indicate that the K2 has entered setup mode.



The display will default as above, with Switch 'A' (the MIDI CHANNEL setup option) being illuminated.

Press the setup encoder [1] to display the current MIDI channel number; see below.

Setting MIDI Channel Number



The channel number is represented by the number of illuminated switches; in this case MIDI Channel 14.

To change the MIDI Channel number, rotate the Setup encoder.

Once the desired MIDI Channel Number has been chosen, press the Setup Encoder [I] to store it and return to the setup mode.

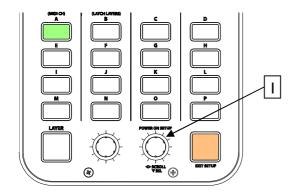
Press the amber switch to exit setup mode and the switch matrix LED's will flash RED three times.

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LATCHING LAYERS

Latching Layers' provide embedded layer control via the 'LAYER' button on the Xone:K2. If Latching Layers are on, the LAYER switch is used to toggle between the RED, AMBER then GREEN layers. From this, if the LAYER switch is RED, any switch used on this layer will illuminate RED; if the layer switch is AMBER, then any switch used on this layer will illuminate AMBER etc.

To change the Latching Layers system on your XONE:K2, you must first enter setup mode.

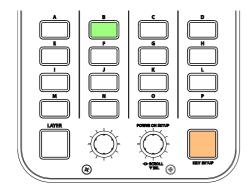


Setup Mode

To enter setup mode, press and hold down the encoder [I] then power up by plugging the USB cable to your PC/Mac, (or RJ45 lead if powered from X-LINK). The switch matrix LED's will flash RED three times to indicate that the K2 has entered setup mode.

The display will default as above, with switch 'A' (the MIDI CHANNEL setup option) being illuminated.

Rotate the setup encoder [1] clockwise to illuminate switch 'B'; see below.

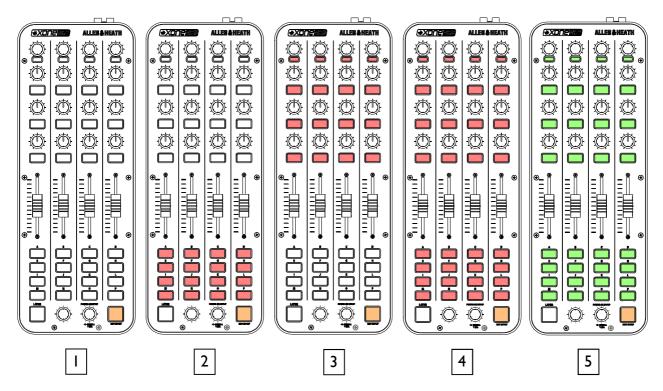




Once switch 'B' (the LATCHING LAYERS setup option) is illuminated, press the setup encoder [I] to display which components are attached to the latching layers; see overleaf.

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LATCHING LAYERS



If Latching Layers are 'on' (states [2], [3], [4] and [5]), the LAYER switch is used to toggle between the three layers.

LATCHING LAYER OPTIONS

Use the rotary action of the Setup encoder to select between the Latching Layer options. The Latching Layer states shown above are described as follows:

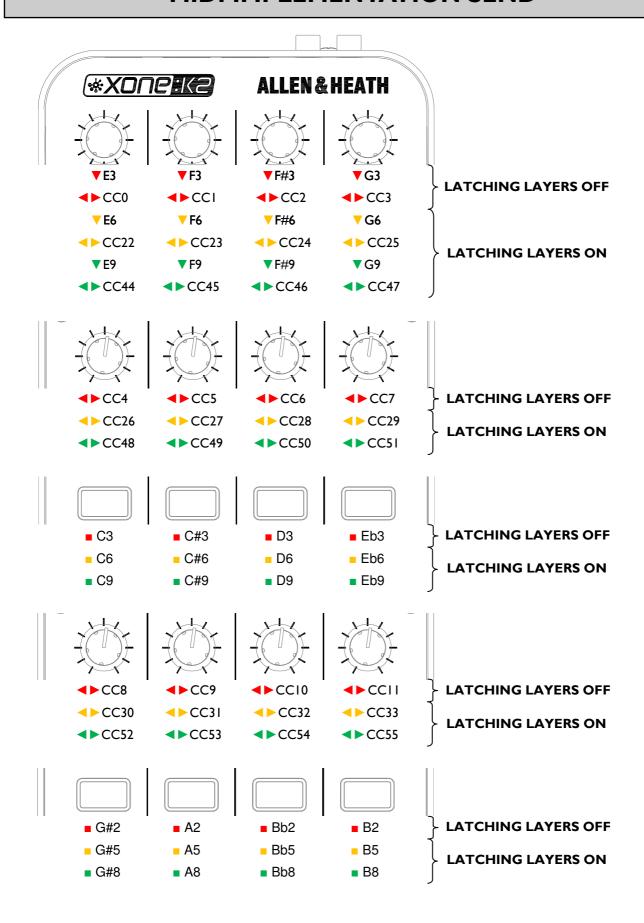
- LATCHING LAYERS OFF In this state, Latching Layers are disabled and the 'Layer' button is available for user configuration.
- 2 SWITCH MATRIX In this state, the 16 switches in the Switch Matrix are linked to Latching Layers.
- POT SWITCHES In this state, the switches under the pots and the top row encoder switches are linked to Latching layers.
- 4 ALL SWITCHES In this state, all switches on the surface are linked to Latching Layers.
- ALL CONTROLS In this state, all controls on the surface are linked to Latching Layers. The faders and pots have an embedded soft pick up algorithm to provide seamless integration across layers.

Once the desired controls are linked to the Latching Layers, press the setup encoder to store and return to the setup mode. Press the amber switch to exit setup mode and the switch matrix LED's will flash RED three times.

If controls have been added to the latching layers system, the LAYER switch will be illuminated RED (layer I) once the unit has exited setup mode.

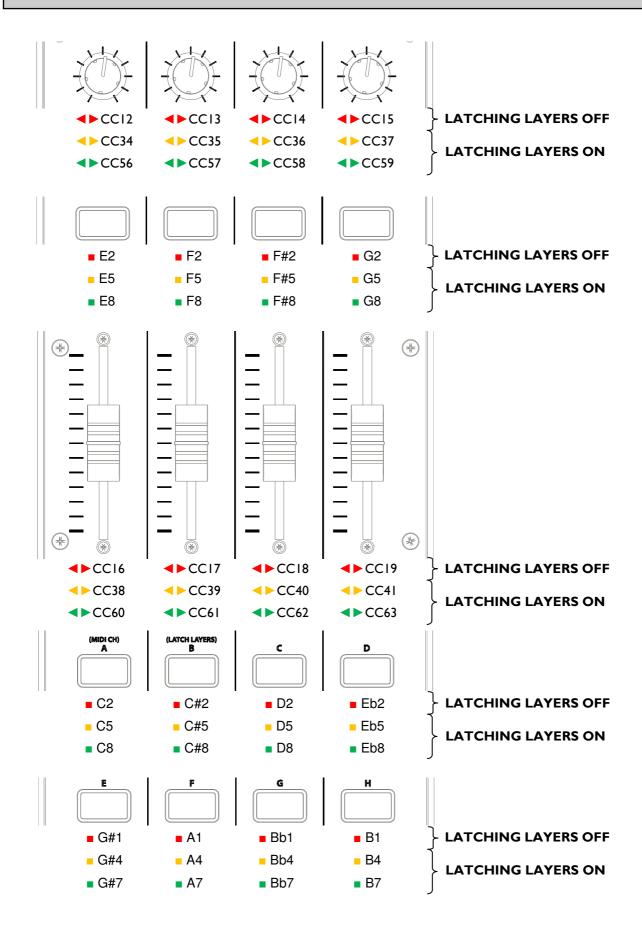
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MIDI IMPLEMENTATION SEND



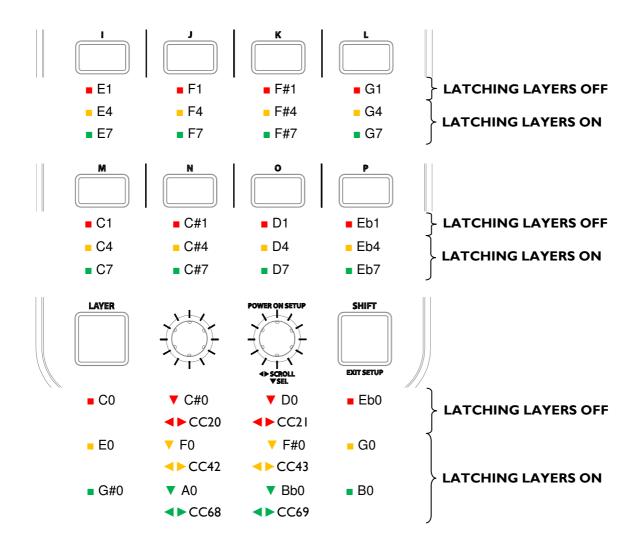
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MIDI IMPLEMENTATION SEND

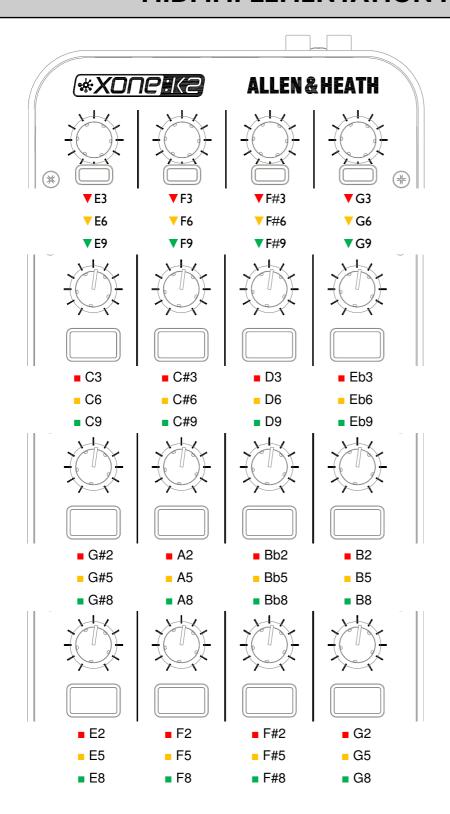


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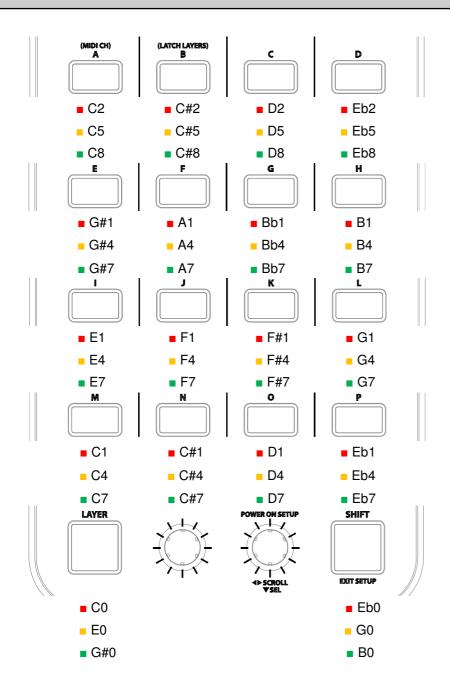
MIDI IMPLEMENTATION SEND



MIDI IMPLEMENTATION RETURN



MIDI IMPLEMENTATION RETURN



MIDI NOTE IMPLEMENTATION TABLE

		1
DECIMAL	HEX	NOTE
0	00	C-I
I	01	C#-1
2	02	D-I
3	03	Eb-I
4	04	E-I
5	05	F-I
6	06	F#- I
7	07	G-I
8	08	G#-I
9	09	A-I
10	0A	Bb-I
11	0B	B-I
12	0	C0
13	0D	C#0
14	0E	D0
15	0F	Eb0
16	10	E0
17	11	F0
18	12	F#0
19	13	G0
20	14	G#0
21	15	A0
22	16	Bb0
23	17	В0

DECIMAL	HEX	NOTE
24	18	CI
25	19	C#I
26	IA	DI
27	IB	Ebl
28	IC	EI
29	ID	FI
30	ΙE	F#1
31	IF	GI
32	20	G#I
33	21	ΑI
34	22	BbI
35	23	ВІ
36	24	C2
37	25	C#2
38	26	D2
39	27	Eb2
40	28	E2
41	29	F2
42	2A	F#2
43	2B	G2
44	2C	G#2
45	2D	A2
46	2E	Bb2
47	2F	B2

DECIMAL	HEX	NOTE
48	30	C3
49	31	C#3
50	32	D3
51	33	Eb3
52	34	E3
53	35	F3
54	36	F#3
55	37	G3
56	38	G#3
57	39	A3
58	3A	Bb3
59	3B	В3
60	3C	C4
61	3D	C#4
62	3E	D4
63	3F	Eb4
64	40	E4
65	41	F4
66	42	F#4
67	43	G4
68	44	G#4
69	45	A4
70	46	Bb4
71	47	B4

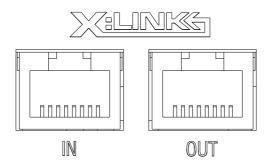
MIDI NOTE IMPLEMENTATION TABLE

DECIMAL	HEX	NOTE
72	48	C5
73	49	C#5
74	4A	D5
75	4B	Eb5
76	4C	E5
77	4D	F5
78	4E	F#5
79	4F	G5
80	50	G#5
81	51	A5
82	52	Bb5
83	53	B5
84	54	C6
85	55	C#6
86	56	D6
87	57	Eb6
88	58	E6
89	59	F6
90	5A	F#6
91	5B	G6
92	5C	G#6
93	5D	A6
94	5E	Bb6
95	5F	В6

DECIMAL	HEX	NOTE
96	60	C7
97	61	C#7
98	62	D7
99	63	Eb7
100	64	E7
101	65	F7
102	66	F#7
103	67	G 7
104	68	G#7
105	69	A7
106	6A	Bb7
107	6B	В7
108	6C	C8
109	6D	C#8
110	6E	D8
111	6F	Eb8
112	70	E8
113	71	F8
114	72	F#8
115	73	G8
116	74	G#8
117	75	A8
118	76	Bb8
119	77	В8

DECIMAL	HEX	NOTE
120	78	C9
121	79	C#9
122	7A	D9
123	7B	Eb9
124	7C	E9
125	7D	F9
126	7E	F#9
127	7F	G9

THE X:LINK PROTOCOL



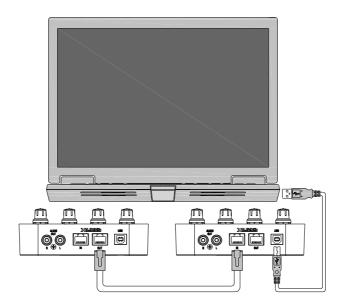
The X:LINK protocol is a proprietary Allen and Heath protocol for connection between X:LINK enabled products.

XONE:K2 X:LINK

In the case of the XONE:K2, X:LINK provides power and MIDI data transfer between two units.

NOTE: X:LINK does not include the transfer of audio.

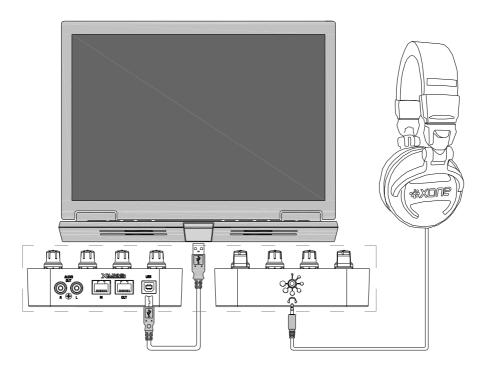
Use the provided RJ45 cable to link the OUT connection on one unit to the IN connection of the other. The unit wired to the IN connection should be the unit that is connected to the PC/Mac (see below).



In order for the units to work independently of each other, the MIDI channel numbers must be different. For information on setting the MIDI channel number please see Page 11.

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SINGLE SETUP (PHONES ONLY)



The above diagram shows a basic setup using one Xone:K2 (front and rear panels are both shown). In this application the XONE:K2 is being used with headphones only.

PC DRIVER TYPE

In this particular application, as only the headphones are in use, it is possible to use the WDM (Windows Device Manager) driver or the supplied ASIO driver. The WDM driver will default to Soundcard Output I-2 which feeds the headphones.

MAC

The XONE:K2 will appear as a device with four outputs. iTunes will default to Soundcard Outputs I-2 which feeds the headphones.

SOUNDCARD MAPPING

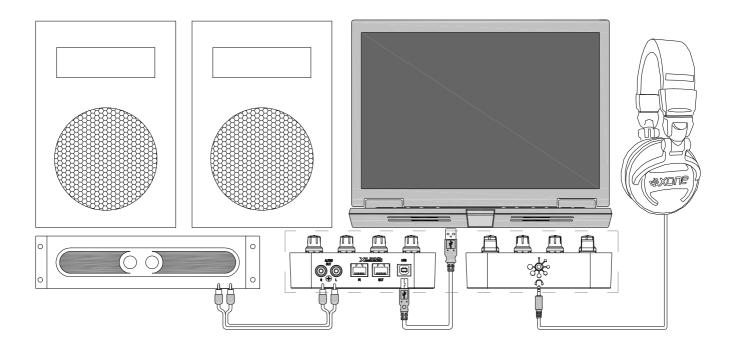
PC WDM: In DAW application, set Master Output to Soundcard Output I-2

PC ASIO: In DAW application, set Master Output to Soundcard Output 1-2

MAC: In DAW application, set Master Output to Soundcard Output 1-2

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SINGLE SETUP (PHONES AND MIX)



The above diagram shows a basic setup using one Xone:K2 (front and rear panels are both shown). In this application, the XONE:K2 Master output is wired to a speaker system.

PC DRIVER TYPE

In this particular application, as the Master Output and the headphones are in use, the ASIO driver must be employed.

MAC

The XONE:K2 is Class Compliant and does not need a specific driver.

SOUNDCARD MAPPING

PC ASIO: In DAW application, set Monitor (or Cue) Output to Soundcard Output I-2 and

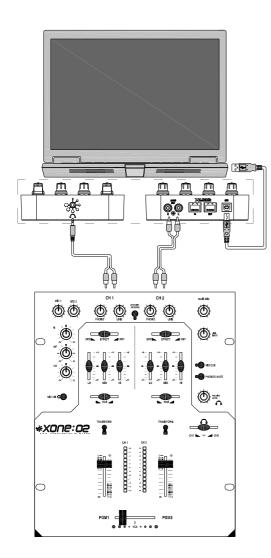
Master (Mix) Output to Soundcard Output 3-4

MAC: In DAW application, set Monitor (or Cue) Output to Soundcard Output 1-2 and

Master

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SINGLE SETUP (EXTERNAL MIXER)



The diagram shows a setup using one XONE:K2 and a two-channel analogue mixer. The front and rear panels of the XONE:K2 are shown, joined by the dashed line.

In this configuration, the XONE:K2 Master Output is connected to one channel on the mixer using RCA cables.

The XONE:K2 Headphone Output is connected to the other channel on the mixer using a 3.5mm jack to dual RCA lead.

PC DRIVER TYPE

In this particular application both Master and Headphone outputs are required so the ASIO driver must be used.

MAC

The XONE:K2 is Class Compliant and does not need a specific driver.

SOUNDCARD MAPPING

Your chosen DAW needs to be set to External Mixing Mode to allow for individual deck outputs. Selection of this mode will differ depending upon the DAW used. Please refer to the Help files within your DAW for setup information.

PC ASIO: In DAW application, set one Deck Output to Soundcard Output 1-2 and the other

Deck Output to Soundcard Output 3-4

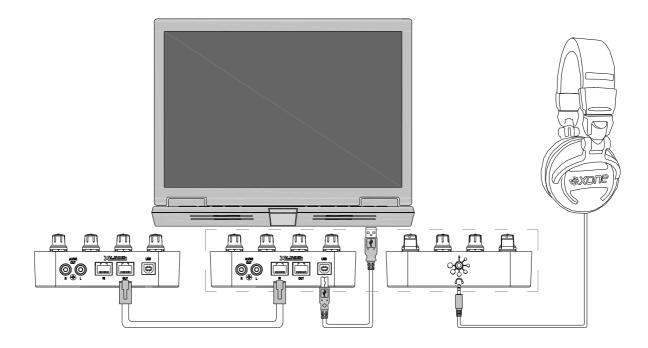
MAC: In DAW application, set one Deck Output to Soundcard Output 1-2 and the other

Deck Output to Soundcard Output 3-4

MIXER CONNECTIONS

The mixer will drive the main PA system and headphones.

DUAL SETUP (PHONES ONLY)



The above diagram shows a setup using two Xone:K2s. The front and rear panels are shown on the 'Master' unit, joined by the dashed line.

In this configuration, the XONE:K2's are linked together using the X:LINK bus. This gives twice the amount of control but still only utilises one USB port.

For more information on the X:LINK setup see THE X:LINK PROTOCOL on Page 18.

PC DRIVER TYPE

In this particular application, as only the headphones are in use, it is possible to use the WDM (Windows Device Manager) driver or the supplied ASIO driver. The WDM driver will default to Soundcard Output 1-2 which feeds the headphones.

MAC

The XONE:K2 will appear as a device with four outputs. iTunes will default to Soundcard Outputs I-2 which feeds the headphones.

SOUNDCARD MAPPING

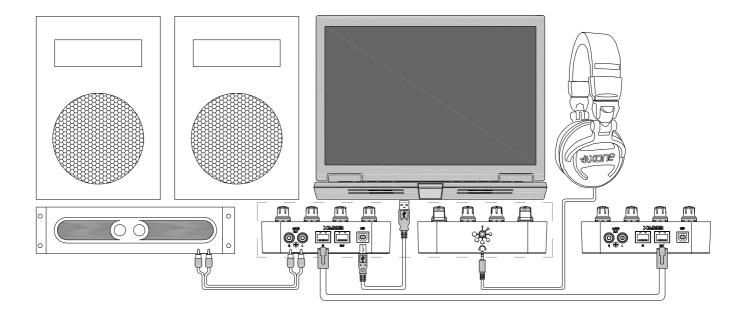
PC WDM: In DAW application, set Master Output to Soundcard Output 1-2

PC ASIO: In DAW application, set Master Output to Soundcard Output 1-2

MAC: In DAW application, set Master Output to Soundcard Output 1-2

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DUAL SETUP (PHONES AND MIX)



The above diagram shows a setup using two Xone:K2s. The front and rear panels are shown on the 'Master' unit, joined by the dashed line.

In this configuration, the XONE:K2's are linked together using the X:LINK bus. This gives twice the amount of control but still only utilises one USB port.

The XONE:K2 Master output is wired to a speaker system.

For more information on the X:LINK setup see THE X:LINK PROTOCOL on Page 18.

PC DRIVER TYPE

In this particular application, as the Master Output and the headphones are in use, the ASIO driver must be used.

MAC

The XONE:K2 is Class Compliant and does not need a specific driver.

SOUNDCARD MAPPING

PC ASIO: In DAW application, set Monitor (or Cue) Output to Soundcard Output I-2 and

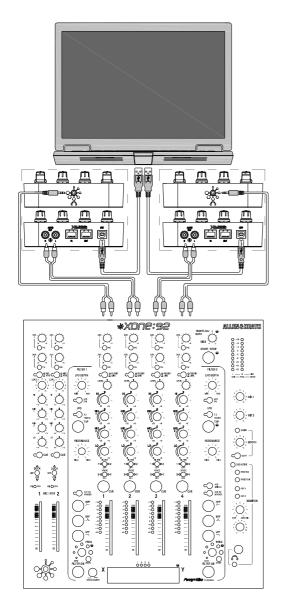
Master (Mix) Output to Soundcard Output 3-4

MAC: In DAW application, set Monitor (or Cue) Output to Soundcard Output I-2 and

Master (Mix) Output to Soundcard Output 3-4

Allen & Heath 26 XONE:K2 User Guide

DUAL SETUP (EXTERNAL MIXER)



The diagram shows a setup using two Xone:K2s and a four-channel analogue mixer. The front and rear panels of the XONE:K2's are shown, joined by the dashed line.

In this configuration, the first XONE:K2 Headphone Output is connected to channel one on the mixer using a 3.5mm jack to dual RCA lead. The Master Output of this XONE:K2 is connected to channel two on the mixer using RCA cables.

The Master Output on the second XONE:K2 is connected to channel three on the mixer using RCA cables. The Headphone Output of this XONE:K2 is connected to channel four on the mixer using a 3.5mm jack to dual RCA lead.

PC DRIVER TYPE

In this particular application both Master and Headphone outputs are required so the ASIO driver must be used.

MAC

The XONE:K2 is Class Compliant and does not need a specific driver.

AGGRERATING AUDIO DEVICES

This application uses two XONE:K2's which BOTH need to be plugged to the Mac/PC via USB. In order for the DAW application to see 8 (four stereo) outputs, the soundcards of the two XONE:K2's must be 'joined' together.

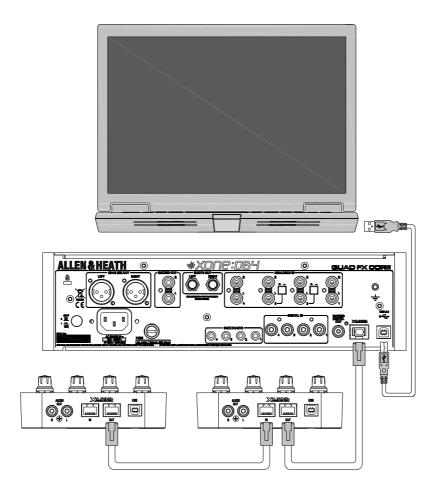
PC: To do this on a PC, a third-party application such as ASIO4ALL must be used.

MAC: The joining of the two XONE:K2's on a Mac can be achieved by using the in-built Aggregate Device Editor—see Page 6.

SOUNDCARD MAPPING

Your chosen DAW needs to be set to External Mixing Mode to allow for individual deck outputs. In the DAW application route Deck Outputs to Soundcard Outputs accordingly. This may involve some trial and error to determine which outputs are coming from which XONE:K2.

CONNECTING TO A DB SERIES MIXER



The diagram shows a setup using two Xone:K2s and a XONE DB Series mixer.

In this configuration, the XONE:K2 units are connected via their X:LINK sockets. The OUT connection of the K2 on the left is connected to the IN connection of the K2 on the right. The OUT connection of the K2 on the right is connected to the X:LINK socket on the XONE DB Series mixer.

In this configuration, power to the two Xone K2 units is supplied over X:LINK. The DB Series mixer acts as a MIDI hub for the two Xone K2 units and hence their MIDI Channel numbers must be different to each other AND the mixer.

The Xone K2 units will not be seen in software as MIDI devices in their own right, and so they will need to be addressed through the DM mixer using channel numbers to separate the messages they send and receive.

SPECIFICATIONS

Dimensions and Weights

	<u>Width</u>	Height	Depth	Weight
Xone:K2	135 mm(5.3")	30 mm(1.2")	358 mm(14")	1.0kg (2.2lbs)
Carry Case	170 mm(6.7")	70 mm(2.8")	392 mm(15.4")	0.4kg (0.9lbs)
Packed	185 mm(7.3")	78 mm(3")	426 mm(16.8")	1.5kg (3.3lbs)

Frequency Response 44.1 kHz 20Hz to 20kHz +0/–0.4 dB

THD + N 0.01% typical

Maximum Output Level +6 dBu

Dynamic Range Output 96 dB

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Thank you for buying the Allen & Heath Xone:K2 software controller and audio interface. We hope that you are happy with it and that you enjoy many years of faithful service with it.

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<u> </u>	f 1
Mhy did you choose this console?	ı
Which other products did you you consider before choosing A&H?	I
s there any thing you would like to improve on this mixer?	ľ
What audio magazines do you read?	1
f you were going to design a mixer for your work, what are the 6 most mportant features it should have (in order of importance)	1
4	1
5	1
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