QSC

application guide

Live Bands AET Application Engineering Team

SINCE THEIR INTRODUCTION IN 2009, K FAMILY LOUDSPEAKERS HAVE BECOME THE GO-TO FAVORITE PRODUCT FOR PROFESSIONAL AUDIO USERS MORE THAN A MILLION TIMES OVER. CONTINUING THAT TRADITION, THE QSC K.2 SERIES IS QUITE SIMPLY THE "NEXT STANDARD" IN POWERED LOUDSPEAKERS.

THIS APPLICATION GUIDE IS DESIGNED TO OFFER YOU A FEW EXAMPLES OF HOW TO UTILIZE THE K.2 SERIES IN COMMON MUSICIAN AND BAND SITUATIONS. WHILE EACH INDIVIDUAL OR GROUP'S NEEDS MAY VARY, THIS GUIDE SHOULD SERVE AS A GOOD STARTING POINT ON HOW TO CONFIGURE AND DEPLOY THESE PRODUCTS IN YOUR APPLICATION. THERE ARE ALSO MANY OTHER ASSETS AVAILABLE TO YOU ONLINE AT QSC.COM INCLUDING VIDEOS, TECHNICAL DOCUMENTS AND MORE TO HELP YOU GET THE MOST FROM YOUR QSC PURCHASE. WE HOPE YOU TAKE ADVANTAGE OF EVERYTHING AVAILABLE AND WISH YOU A MOST SUCCESSFUL AND ENJOYABLE EXPERIENCE WITH YOUR K.2 SERIES.

WHAT'S NEW

Let's look at the inputs on the K.2 loudspeakers. They're still somewhat familiar to the K user, but updated a bit. As with the legacy K series, Input A again can be mic or line level, but Input B now can be either a line level input or a high-Z one suitable for musical instruments that have passive magnetic or piezo pickups. That's right—the K.2 Series loudspeakers can be used as guitar or bass combo amp, and they won't load down the instrument like a regular mic or line input would. Input C is a stereo-summed-to mono channel with a 3.5 mm stereo jack, suitable for playback from portable digital audio devices such as phones, MP3 players, etc.

The three inputs each have their own gain knob and get mixed down to provide signal for the digital signal processing (DSP) and class D amplification stages. A line-level summed output provides a means to send the mixed signal on to other loudspeakers or other devices.

The biggest advance is in the DSP capabilities of the K.2 loudspeakers. In addition to voicing and protection duties, the K.2 Series DSP offers an array of user-configurable parameters that include EQ, delay, and presets. Yes, presets.

K.2 loudspeakers have 11 factory presets so you can quickly dial in a collection of settings tailored to a certain application.

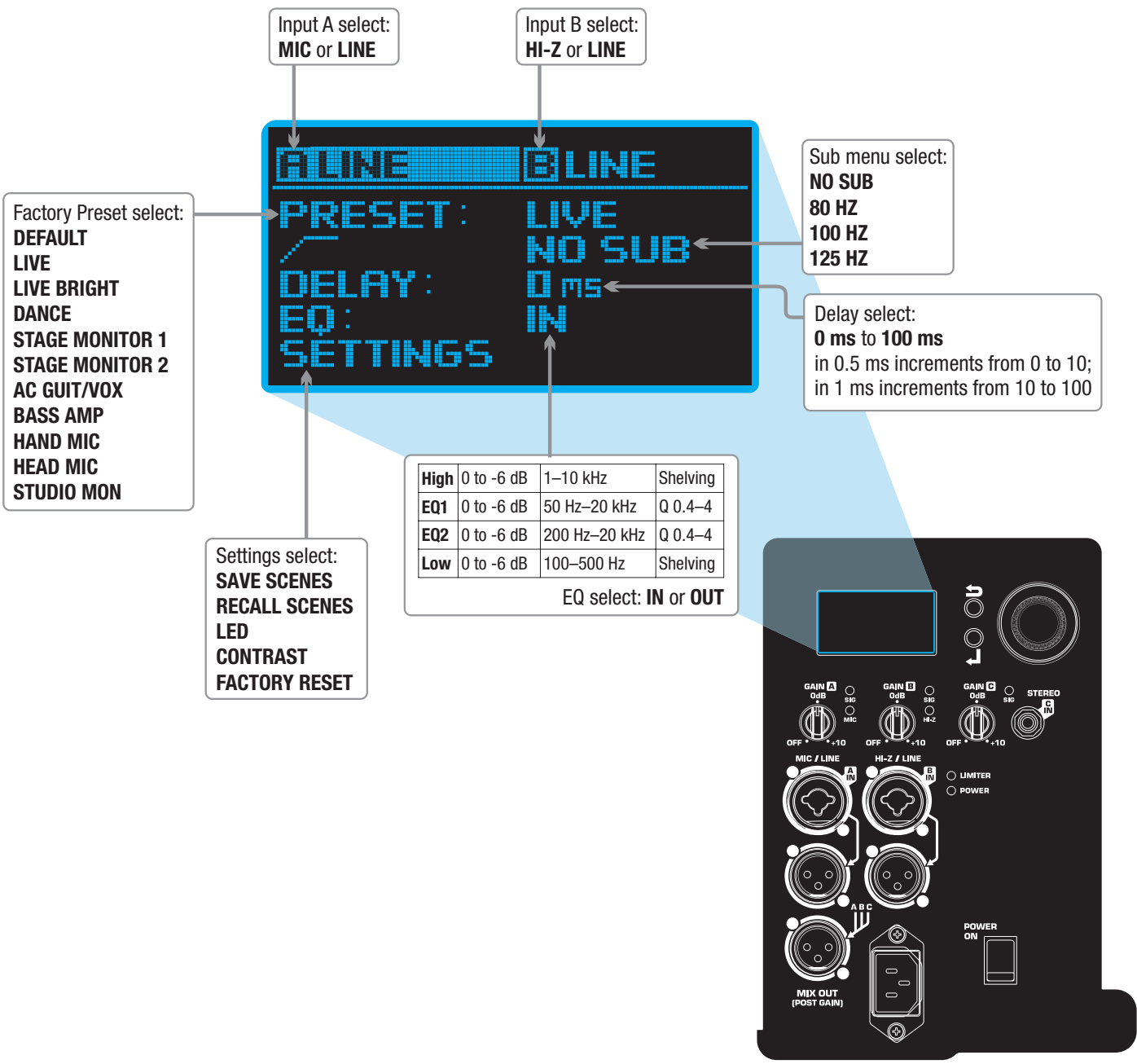|	
DEFAULT	The standard voicing of the K.2 speaker
* LIVE	A voicing for live music reinforcement that lowers and balances frequencies that can be prone to feedback in a live mix.
* LIVE BRIGHT	A voicing for live music reinforcement that offers slightly more high end than the "Live" voicing.
DANCE	A voicing that focuses on high-end clarity and low end extension, primarily for Dance/Pop/Hip Hop/etc music.
* STAGE MONITOR 1	A voicing for using a stage monitor with a microphone that lowers and balances frequencies that can be prone to feedback in a monitor mix.
* STAGE MONITOR 2	A voicing for using a stage monitor without a microphone (such as a drum or keyboard monitor) that offers more low frequency extension than Stage Monitor 1.
ACOUSTIC GUITAR/VOX	A voicing for a vocal mic plugged into input A, and an acoustic guitar plugged into channel B that lowers and balances frequencies prone to feedback between those two input sources.
* BASS AMP	A voicing optimized to provide performance similar to that of a combo bass amplifier.
HAND MIC	A voicing that lowers and balances frequencies that can be prone to feedback with common handheld dynamic microphones when used without a mixer.
HEAD MIC	A voicing that lowers and balances frequencies that can be prone to feedback with common headset microphones when used without a mixer.
STUDIO MON	A voicing that provides a more balanced overall speaker response with deeper extension to be used as a nearfield or studio monitor for mixing.

* PRESETS FEATURED IN THIS APP GUIDE

The K.2 Series loudspeakers also offer four bands of user-adjustable EQ:

HIGH	0 to -6 dB	1–10 kHz	Shelving
EQ1	0 to -6 dB	50 Hz–20 kHz	Q 0.4-4
EQ2	0 to -6 dB	200 Hz–20 kHz	Q 0.4-4
LOW	0 to -6 dB	100-500 Hz	Shelving

Up to 100 ms of delay.

80, 100, or 125 Hz high-pass filtering for use with a subwoofer.

Input A select:
MIC or **LINE**

Input B select:
HI-Z or **LINE**

Sub menu select:
NO SUB
80 HZ
100 HZ
125 HZ

Factory Preset select:
DEFAULT
LIVE
LIVE BRIGHT
DANCE
STAGE MONITOR 1
STAGE MONITOR 2
AC GUIT/VOX
BASS AMP
HAND MIC
HEAD MIC
STUDIO MON

Delay select:
0 ms to **100 ms**
in 0.5 ms increments from 0 to 10;
in 1 ms increments from 10 to 100

Settings select:
SAVE SCENES
RECALL SCENES
LED
CONTRAST
FACTORY RESET

A LINE   B LINE

PRESET: LIVE
          NO SUB
DELAY: 0 ms
EQ: IN
SETTINGS

High	0 to -6 dB	1–10 kHz	Shelving
EQ1	0 to -6 dB	50 Hz–20 kHz	Q 0.4–4
EQ2	0 to -6 dB	200 Hz–20 kHz	Q 0.4–4
Low	0 to -6 dB	100–500 Hz	Shelving

EQ select: **IN** or **OUT**

GAIN A 0dB   SIG   GAIN B 0dB   SIG   GAIN C 0dB   SIG   STEREO
              MIC   HI-Z   C IN
OFF +10   OFF +10   OFF +10

MIC / LINE   HI-Z / LINE
A IN   B IN   LIMITER
                            POWER

A B C

MIX OUT
(POST GAIN)   POWER ON

SMALL ACOUSTIC BAND

A four-piece folk/acoustic band utilizes all K8.2 loudspeakers for their PA mains and monitors. Elbow room is at a premium on the shallow stages they often play on, so the bass player goes direct into the digital mixer. The front wedge is set to the Stage Monitor 1 preset to reduce the likelihood of feedback. The bassist and conga player don't have vocal mics and therefore their wedge uses the Stage Monitor 2 preset.

TouchMix™-8

■ **Aux Out**
▲ **Main Out**

K8.2
Preset:
STAGE MONITOR 2
In A: **LINE** 1

K8.2
Preset: **LIVE**
IN A: **LINE** ⚠

K8.2
Preset:
STAGE MONITOR 1
In A: **LINE** 2

K8.2
Preset: **LIVE**
IN A: **LINE** ⚠
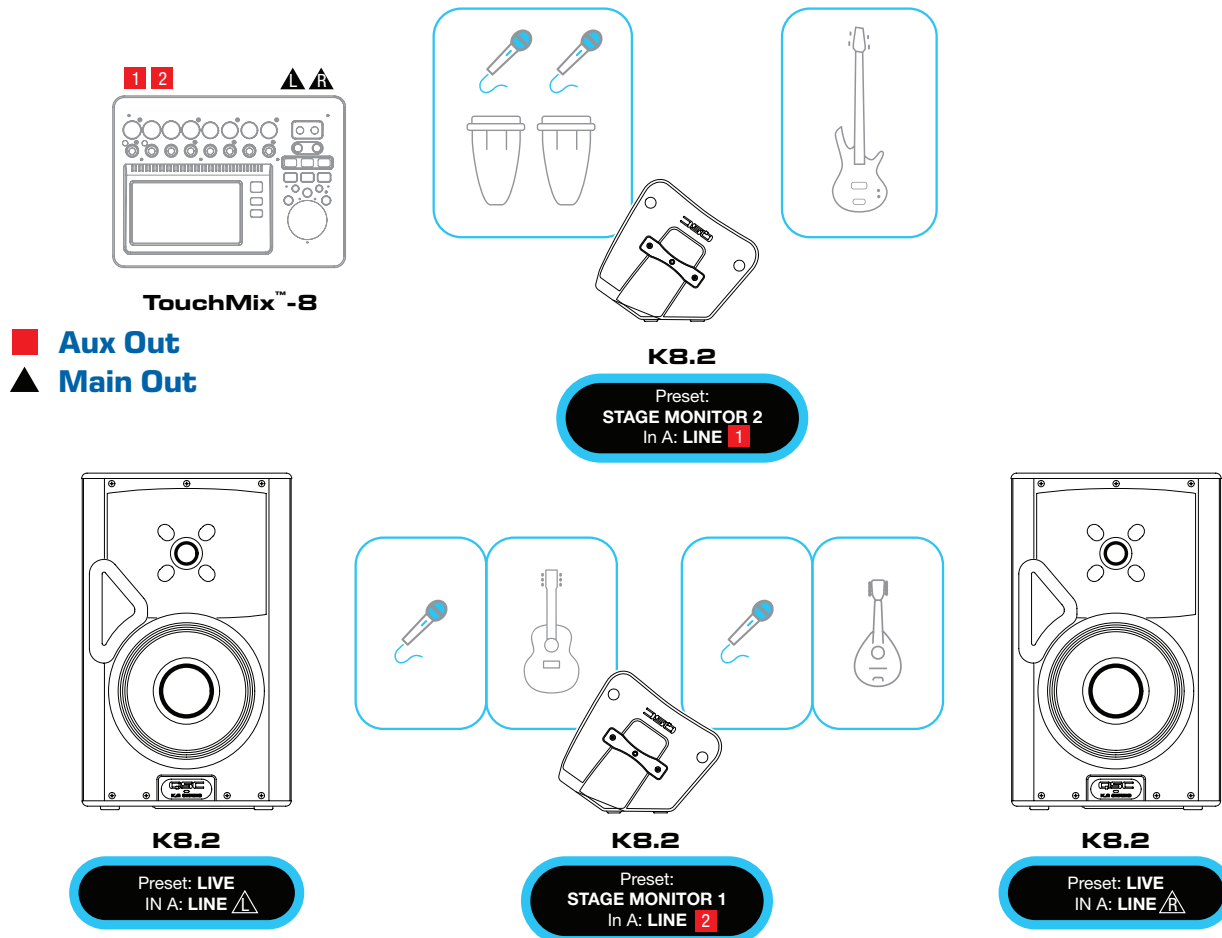
TECH REQUIREMENTS:

Two vocals—one male, one female
Two acoustic guitars (direct in), electric bass (direct line out from bass amp), high and low congas (both miked)

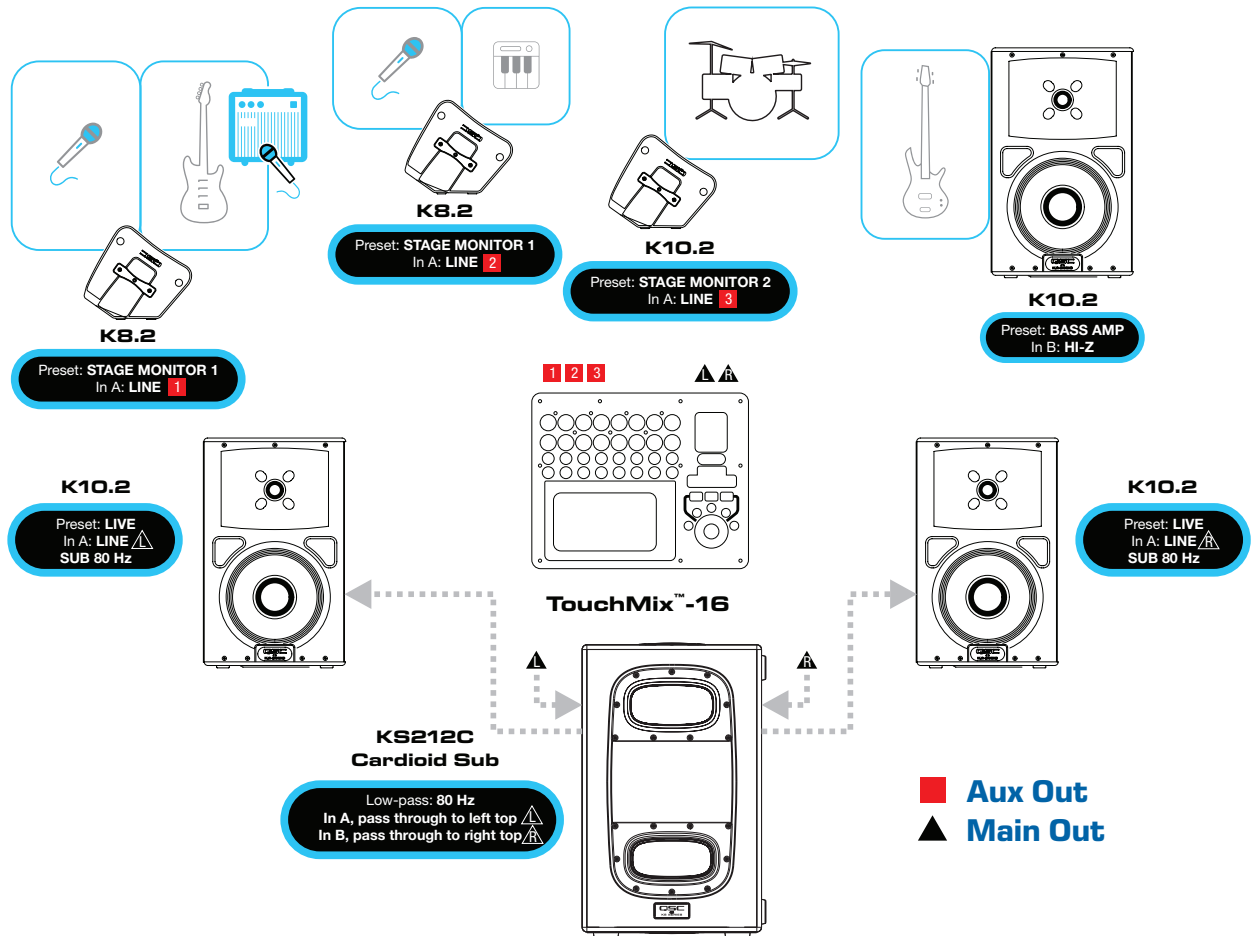Mains:
Two K8.2 loudspeakers [preset Live; no sub]

Monitors:
Vox duo + acoustic guitars: K8.2 [preset Stage Monitor 1]
Bass + congas: K8.2 [preset Stage Monitor 2]

ROCK QUARTET

Guitar, bass, drums, and keys are a popular band format. The lead guitarist also handles most of the lead vocals, with the bassist and keyboardist helping on background and occasional lead. They rely on two K10.2 tops and a KS212C Cardioid Sub for the mains. The guitarist and keyboardist are both vocalists as well and use K8.2 wedge monitors set to the Stage Monitor 1 preset. The drummer uses a K10.2 as a wedge monitor with the Stage Monitor 2 preset, and on the backline the bassist uses a K10.2 as a stage amp.

K8.2
Preset: **STAGE MONITOR 1**
In A: **LINE** 2

K10.2
Preset: **STAGE MONITOR 2**
In A: **LINE** 3

K10.2
Preset: **BASS AMP**
In B: **HI-Z**

K8.2
Preset: **STAGE MONITOR 1**
In A: **LINE** 1

K10.2
Preset: **LIVE**
In A: **LINE** ⚠
SUB 80 Hz

1 2 3

TouchMix™-16

K10.2
Preset: **LIVE**
In A: **LINE** ⚠
SUB 80 Hz

KS212C
Cardioid Sub

Low-pass: **80 Hz**
In A, pass through to left top ⚠
In B, pass through to right top ⚠

🟥 **Aux Out**
▲ **Main Out**

TECH REQUIREMENTS:

Lead guitarist/vocalist
Lead guitarist's amp is miked
Bassist/background vocalist
Electronic keyboardist (direct in) /background vocalist
Full drum kit, fully miked.

Mains:
Two K10.2 loudspeakers [preset Live; sub 80 Hz]
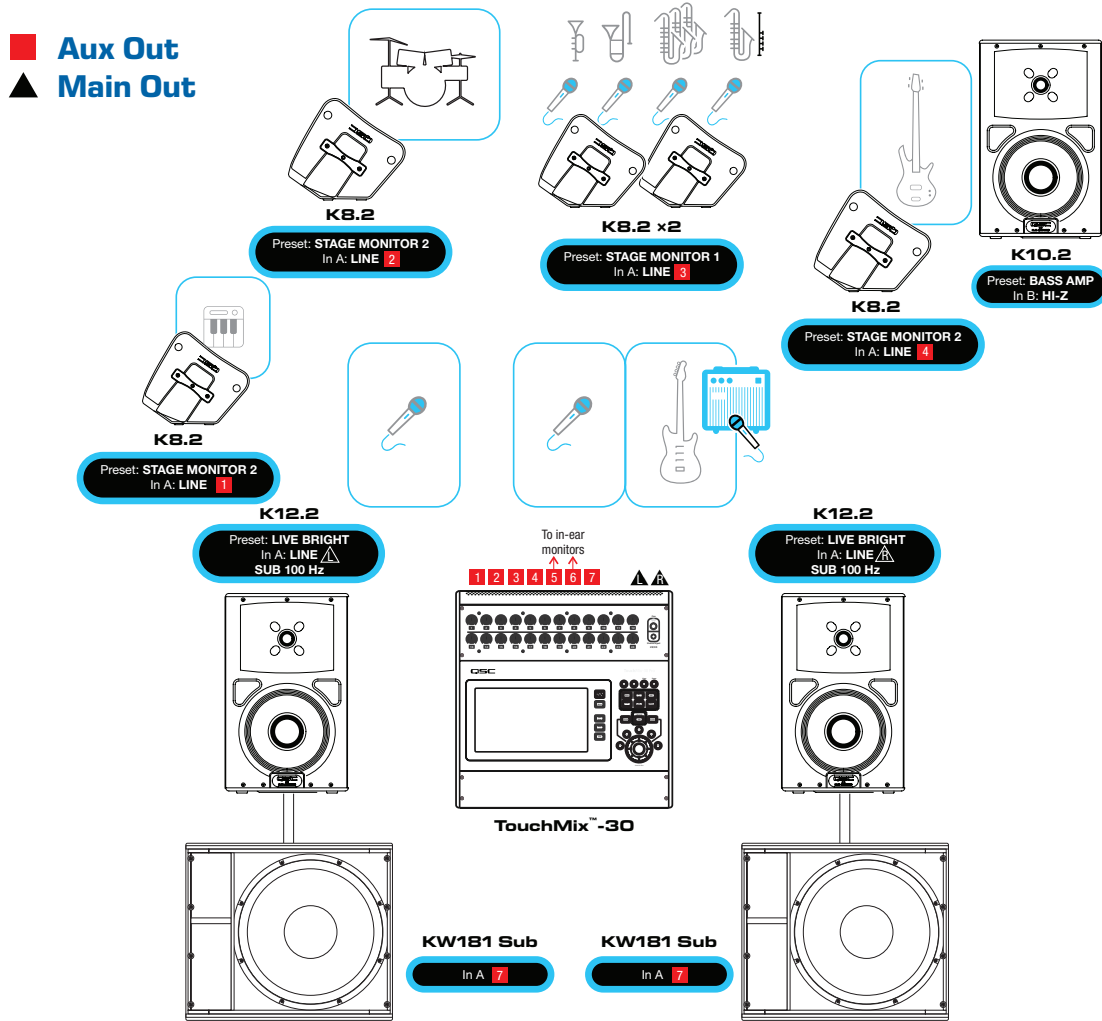KS212C Cardioid Sub [low-pass 80 Hz]

Monitors:
Guitarist/Lead vocalist: K8.2 [preset Stage Monitor 1]
Drums: K10.2 [preset Stage Monitor 2]
Keyboards/BG vocals: K8.2 [preset Stage Monitor 1]

Backline:
Bass: K10.2 [preset Bass Amp]; Mix Out to mixer, for mains and monitors

LARGE BAND

This band comprises a lead vocalist accompanied by guitar, bass, keyboards, drums, and a four-piece horn section. For mains they use two K12.2 tops fed from the mixer's left and right main outputs plus two KW181 subwoofers fed from a mixer aux output; to give the horns more punch the mains are set to the Live Bright preset. The lead vocalist and guitarist use in-ear monitors but the rest of the band use K8.2 loudspeakers as wedges; the keyboardist's, bassist's, and drummer's monitors use the Stage Monitor 2 preset, while the horn section use Stage Monitor 1 to reduce the risk of feedback.

■ Aux Out
▲ Main Out

K8.2
Preset: **STAGE MONITOR 2**
In A: **LINE** 2

K8.2 ×2
Preset: **STAGE MONITOR 1**
In A: **LINE** 3

K10.2
Preset: **BASS AMP**
In B: **HI-Z**

K8.2
Preset: **STAGE MONITOR 2**
In A: **LINE** 4

K8.2
Preset: **STAGE MONITOR 2**
In A: **LINE** 1

K12.2
Preset: **LIVE BRIGHT**
In A: **LINE** ⚠
SUB 100 Hz

To in-ear monitors

1 2 3 4 5 6 7 ⚠ ⚠

K12.2
Preset: **LIVE BRIGHT**
In A: **LINE** ⚠
SUB 100 Hz

TouchMix™-30

KW181 Sub
In A 7

KW181 Sub
In A 7

TECH REQUIREMENTS:

Lead vocal plus lead guitarist/vocalist, both on in-ears
Lead guitarist's amp is miked
Electronic keyboards, direct in
Full drum kit, fully miked.
Trumpet
Trombone
Saxes and flute
Saxes

Mains:

Two K12.2 loudspeakers [preset Live Bright; sub 100 Hz]
Two KW181 subwoofers [built-in low-pass at 100 Hz]

Monitors:

Drums: K8.2 [preset Stage Monitor 2]
Keyboards: K8.2 [preset Stage Monitor 2]
Trumpet + Trombone: K8.2 [preset Stage Monitor 1]
Reeds 1 + Reeds 2: K8.2 [preset Stage Monitor 1]
Bass: K8.2 [preset Stage Monitor 2]

Backline:

Bass: K10.2 [preset Bass Amp]; Mix Out to mixer, for mains and monitors

QSC

WORLD of **K**   qsc.com