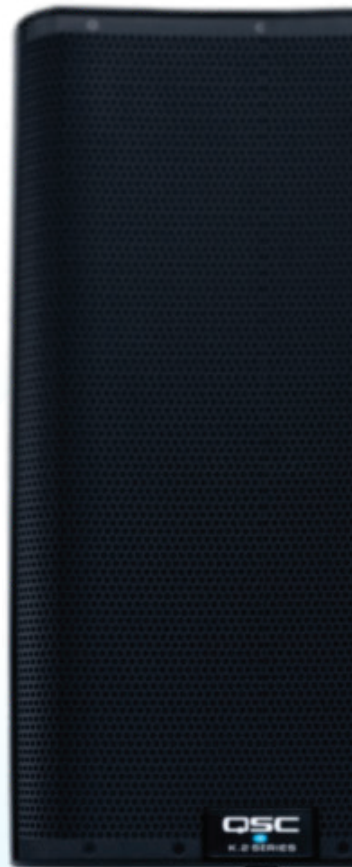# QSC

application guide

Rental/Production

AET Application Engineering Team

WORLD of K

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 AV RENTAL AND PRODUCTION 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.

ONE FINAL NOTE: DON'T FORGET TO REGISTER YOUR K.2 SERIES ONLINE AT QSC.COM TO RECEIVE OUR FREE GLOBAL 6-YEAR EXTENDED WARRANTY. WHILE YOU'LL PROBABLY NEVER USE IT, IT ADDS AN ADDITIONAL LEVEL OF CONFIDENCE THAT YOUR PURCHASE WILL DELIVER LASTING PERFORMANCE NIGHT AFTER NIGHT, YEAR AFTER YEAR.

6 YEAR WARRANTY | with Product Registration

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 original 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 presets so you can quickly dial in a collection of settings tailored to a certain application.
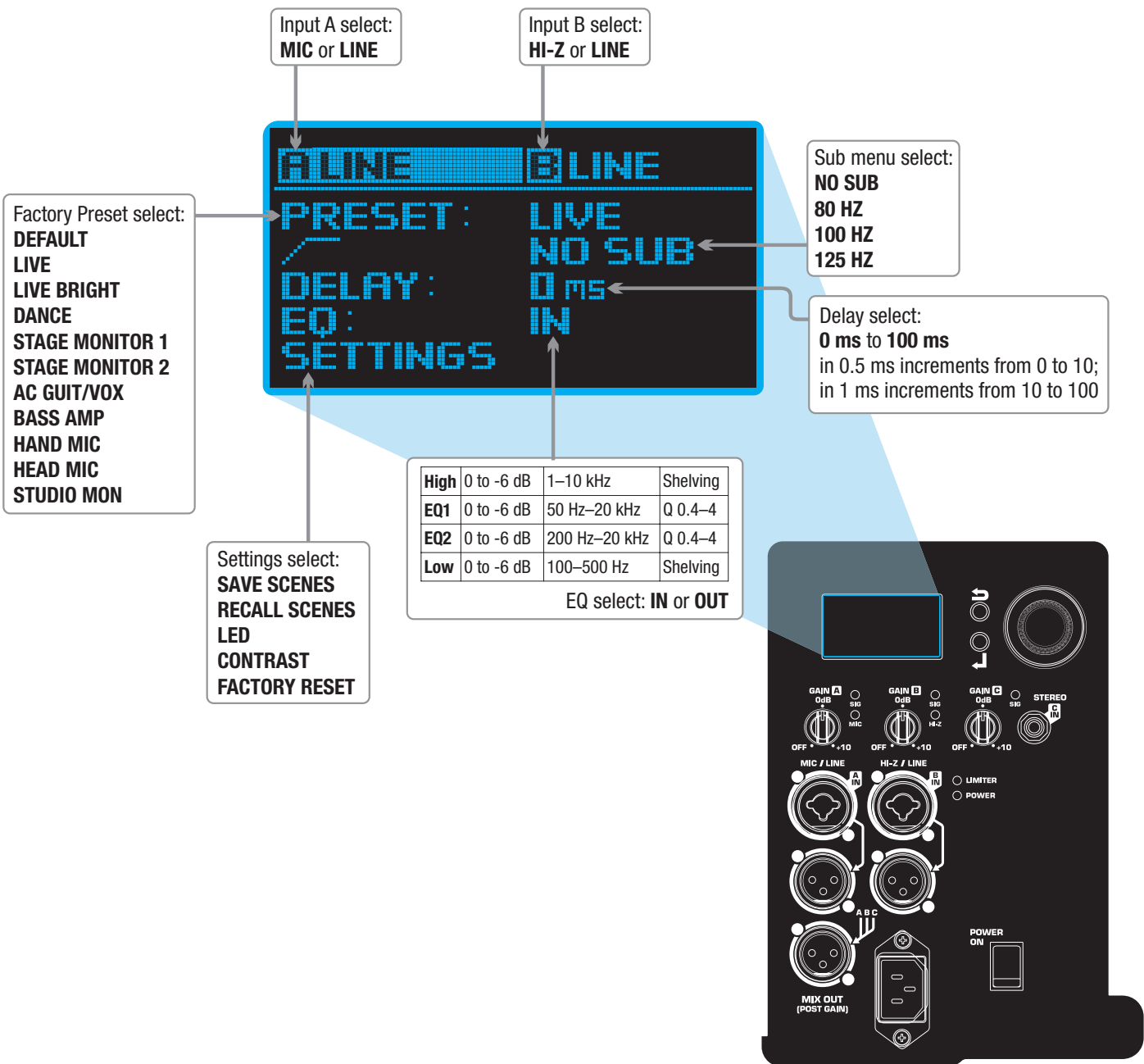
DEFAULT	The standard voicing of the K.2 speaker
* LIVE	A voicing for live music reinforcement that lowers and balances frequencies that can be prone to feedback in a live mix.
LIVE BRIGHT	A voicing for live music reinforcement that offers slightly more high end than the "Live" voicing.
DANCE	A voicing 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

A LINE   **B LINE**
PRESET: LIVE
/   NO SUB
DELAY: 0 ms
EQ: IN
SETTINGS

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

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 MIC OFF +10
GAIN B 0dB SIG HI-Z OFF +10
GAIN C 0dB SIG OFF +10
STEREO C IN
MIC / LINE A IN
HI-Z / LINE B IN
LIMITER
POWER
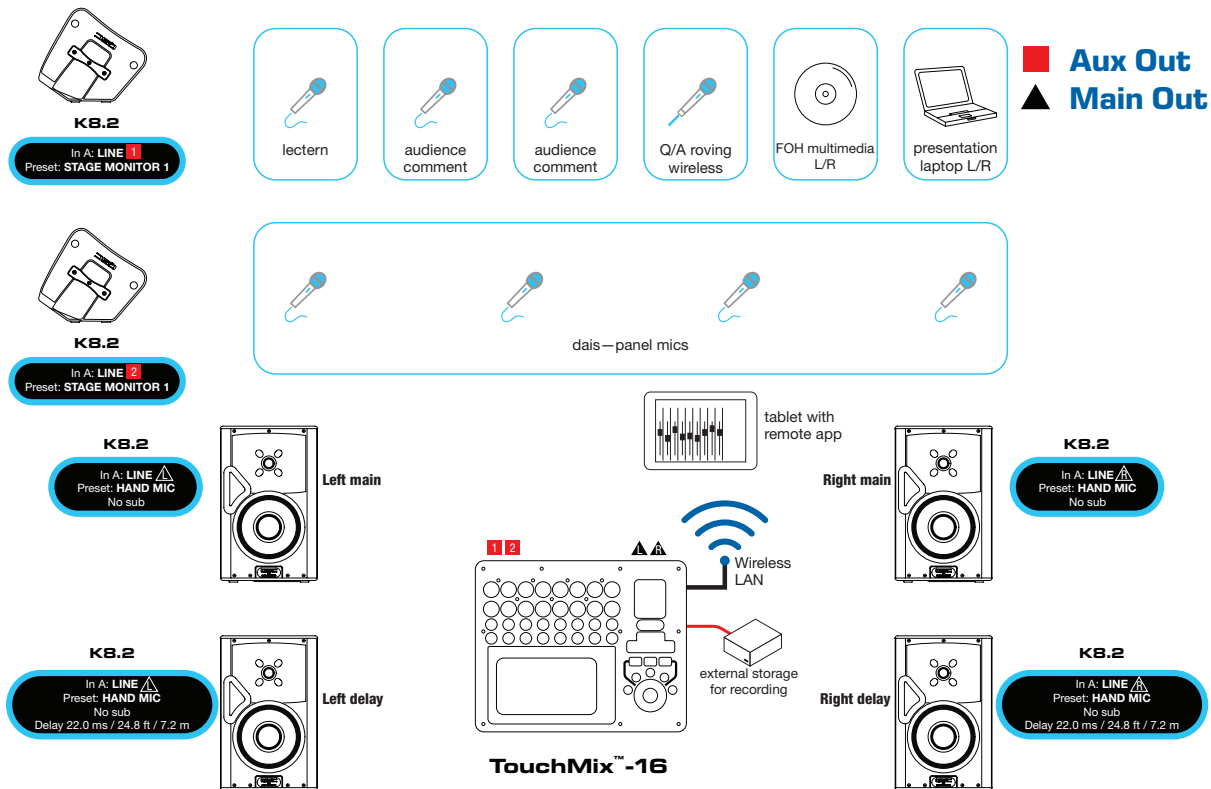A B C
MIX OUT (POST GAIN)
POWER ON

CONFERENCE PANEL DISCUSSION

The scenario: A panel discussion at a conference with four panelists, plus a moderator. A video screen plus stereo audio feed for presentations from a laptop at the lectern. There is a seating area for the audience with mics on stands in the center aisle, and a roving hand-held wireless mic, for audience interaction. A K8.2 monitor in front of the lectern and another in front of the panelists' table allows the presenters to hear audio, especially from their computer presentations, from the audience mics, and from the room multimedia source. The two mains up front also are K8.2 loudspeakers.
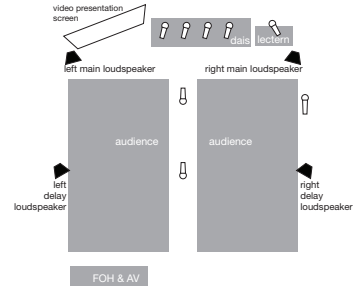
Because of the depth of the room, a second pair of delayed K8.2 loudspeakers are deployed part way back on either side of the audience seating area; for this situation the system engineer has determined that the proper amount of delay to dial in on these is 22 ms (24.8 ft or 7.2 m). Up to 100 ms of delay is available in each K.2 loudspeaker.

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

lectern

audience comment

audience comment

Q/A roving wireless

FOH multimedia L/R

presentation laptop L/R

■ **Aux Out**
▲ **Main Out**

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

dais—panel mics

K8.2
In A: **LINE** ⚠
Preset: **HAND MIC**
No sub

Left main

tablet with remote app

Right main

K8.2
In A: **LINE** ⚠
Preset: **HAND MIC**
No sub

K8.2
In A: **LINE** ⚠
Preset: **HAND MIC**
No sub
Delay 22.0 ms / 24.8 ft / 7.2 m

Left delay

1 2   ▲ ⚠

Wireless LAN

external storage for recording

Right delay

K8.2
In A: **LINE** ⚠
Preset: **HAND MIC**
No sub
Delay 22.0 ms / 24.8 ft / 7.2 m

TouchMix™-16

TECH REQUIREMENTS:

Lectern mic; four panelists' mics on the dais; two mics on stands plus a wireless for the audience
Stereo audio from the lectern for presentations from a laptop; stereo audio from multimedia player

Mains:
Two K8.2 loudspeakers [preset Hand Mic; no sub]
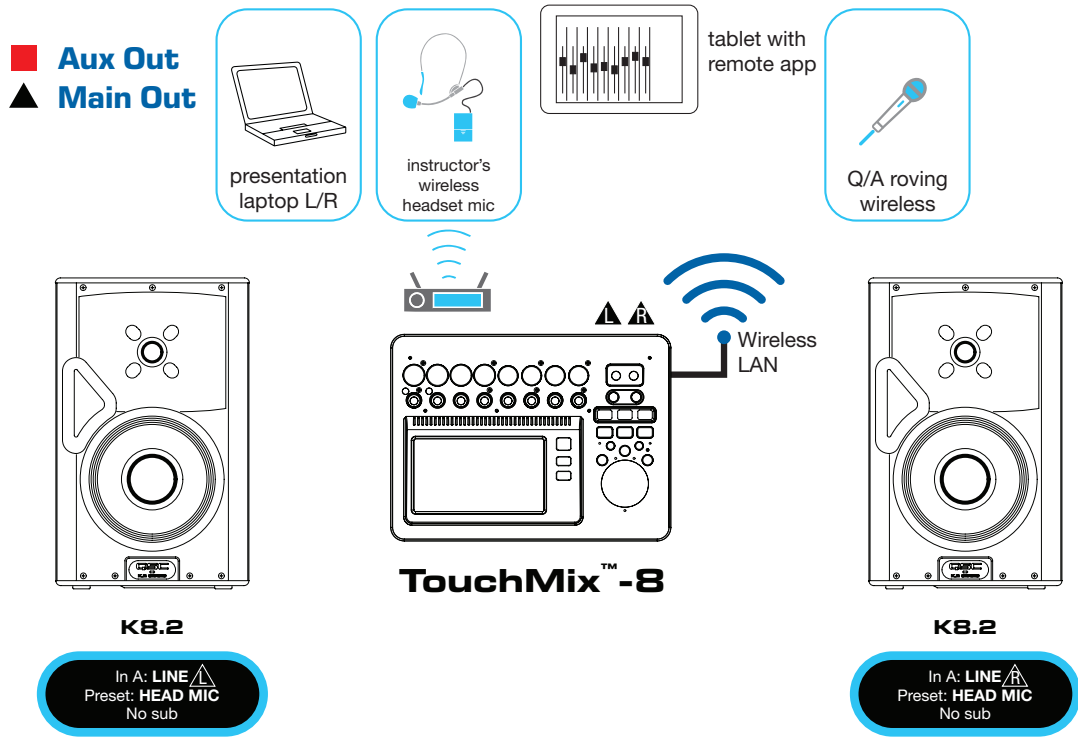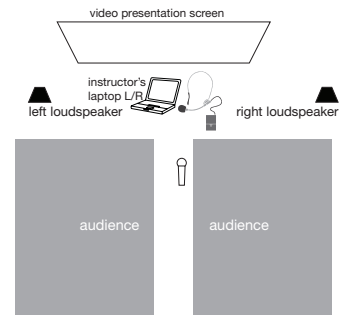
Delays:
Two K8.2 loudspeakers [preset Hand Mic; no sub]

Monitors:
Two K8.2 loudspeakers [preset Stage Monitor 1]

TRAINING BREAKOUT ROOM

This scenario is a training session with an instructor wearing a lightweight headset mic and wireless body pack. She runs her course from a laptop, which provides a stereo feed to the mixer. A roving wireless hand-held mic allows audience questions. The instructor operates the TouchMix-8 mixer remotely through a wireless LAN connection from a tablet running the TouchMix app. The mains are K8.2 loudspeakers, chosen for their small size and very wide dispersion.

video presentation screen

instructor's
laptop L/R
left loudspeaker   right loudspeaker

audience   audience

■ **Aux Out**
▲ **Main Out**

presentation laptop L/R

instructor's wireless headset mic

tablet with remote app

Q/A roving wireless

Wireless LAN

TouchMix™-8

K8.2

In A: **LINE** ⚠
Preset: **HEAD MIC**
No sub

K8.2

In A: **LINE** ⚠
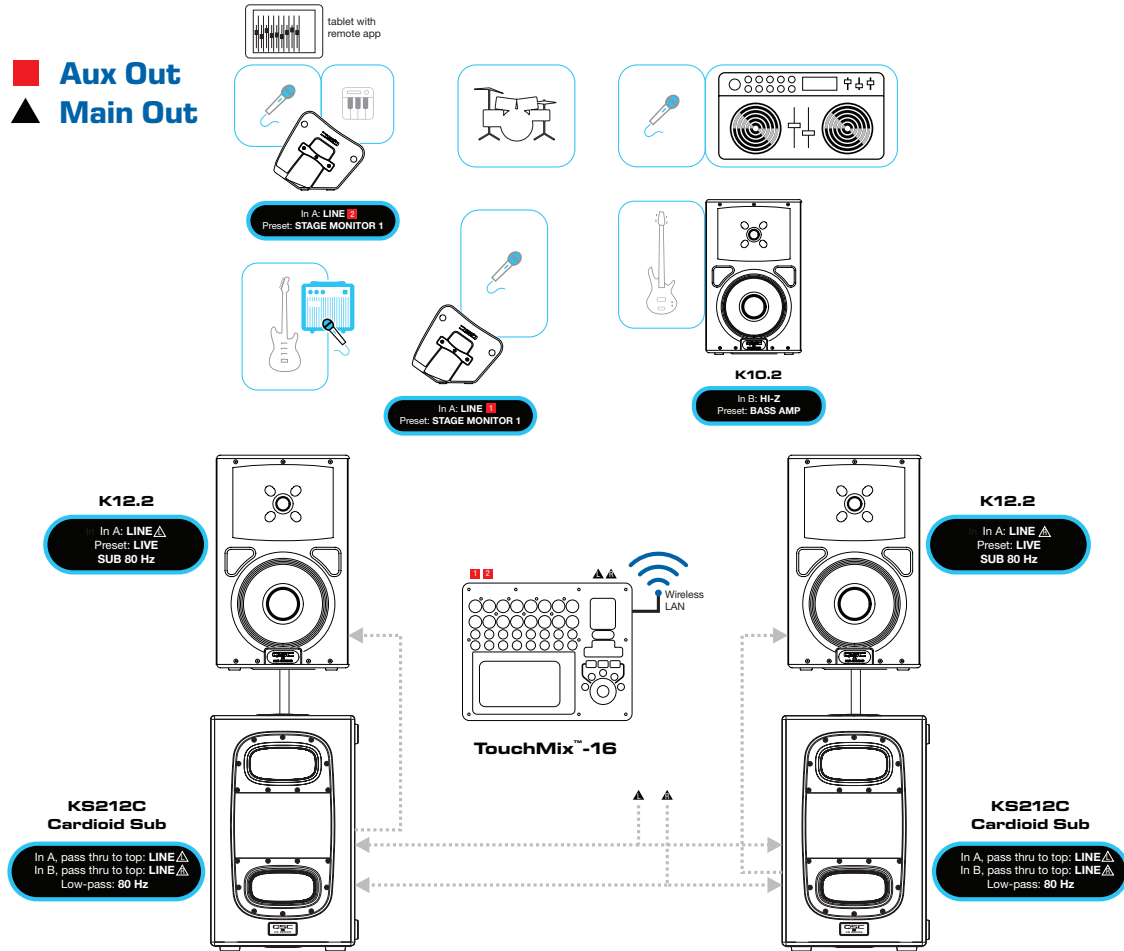Preset: **HEAD MIC**
No sub

TECH REQUIREMENTS:

Wireless headset mic; roving wireless mic for the audience
Stereo audio from a laptop

Mains:

Two K8.2 loudspeakers [preset Head Mic; no sub]

OUTDOOR EVENT—MAIN TENT

This features a small band and a DJ on a small outdoor stage, like a gazebo or porch. The lead vocal mic doubles as an announce mic for the festivities. This could be an informal wedding reception, a company picnic or a similar occasion. The mains are a pair of K12.2 tops over a pair of KS212C cardioid subwoofers. Two K10.2 loudspeakers serve as monitor wedges, and the bass player uses a K10.2 as a stage amplifier.

■ **Aux Out**
▲ **Main Out**

tablet with remote app

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

In A: **LINE** 1
Preset: **STAGE MONITOR 1**

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

K12.2
In A: **LINE** ▲
Preset: **LIVE**
SUB 80 Hz

K12.2
In A: **LINE** ▲
Preset: **LIVE**
SUB 80 Hz

Wireless LAN

TouchMix™-16

KS212C
Cardioid Sub
In A, pass thru to top: **LINE** ▲
In B, pass thru to top: **LINE** ▲
Low-pass: **80 Hz**

KS212C
Cardioid Sub
In A, pass thru to top: **LINE** ▲
In B, pass thru to top: **LINE** ▲
Low-pass: **80 Hz**

TECH REQUIREMENTS:

Lead vocal mic; background vocal mic for keyboardist; DJ vocal mic
Lead guitarist's amp is miked
Electronic keyboards, direct in
Full drum kit, fully miked
Stereo audio from DJ rig

Mains:
Two K12.2 loudspeakers [preset Live; sub 80 Hz]
Two KS212C Cardioid Subs [low-pass 80 Hz]

Monitors:
Lead vocal: K10.2 [preset Stage Monitor 1]
Keyboards: K10.2 [preset Stage Monitor 2]

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

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6 YEAR WARRANTY | with Product Registration