# ON TEST QSC K.2-Series Active Loudspeakers

Sound engineer Simon Allen assesses the second generation of QSC's popular K-Series of loudspeakers . . .



### ABOUT THE EXPERT SIMON ALLEN

Simon Allen is an internationally recognised freelance engineer/ producer and pro audio professional with over a decade of experience. Working mostly in music, his reputation as a FOH and studio mix engineer continues to reach new heights.

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The release of this second generation K-Series from QSC highlighted to me how long the original K-Series has been in service. I still remember when these were launched and were met with mixed feelings. Some professional friends of mine were dubious about a 1,000W active speaker

> which claimed to have intelligent DSP processing, not to mention the plastic enclosure. However, when compared to alternative solutions on the market they ended up being responsible for setting a new standard.

Five years on, and the now-legacy K-Series is still holding its ground. 1,000W topboxes are commonplace in the industry, with DSP management and control becoming the norm. As for the plastic enclosures, the K-Series may as well have come from Germany. They have proved themselves as reliable and durable speakers, which can take abuse week-in, week-out. I've always been really pleased to see a K-Series product on my travels, knowing exactly what to expect from them. These smart boxes from across the pond have just been given a re-vamp and I was keen to see what QSC has done. This is my closer look at the flagship K12.2 model . . .

## POWER PLAY

Let's cut straight to the chase, one of the main areas QSC's marketing has been focusing on around the release of these K.2s is the 'increased power'. I've put that in inverted commas as I think this ought to be clarified. While there have been some major improvements to the power module - and in-turn the output from these speakers - there has also been some misplayed information.

The original K-Series had a 1,000W amplifier built-in, with a 2,000W peak rating. Most of the marketing and even the labels on the new K.2s indicate a 2kW 'power module' - the new American term for a builtin amp. This is also the total peak rating for these new units, so I went hunting for

more information . . . Speaking to Mark Bailey from

QSC, he explained that: "legacy K-Series amplifiers deliver 500W +500W output when measured on a test bench at optimal impedance. In contrast, the K.2 LF amplifier offers 900W into the LF driver when measured in-system. A distribution of 1,800W/225W peak power in the K.2 Series provides

← Front and rear view of the flagship K12.2



almost twice the power to the LF driver than the calculated 1,000W peak power of the LF channel in the legacy K-Series. This smarter redistribution of power gives the K.2 Series greater headroom, and therefore lower distortion, resulting in improved clarity at high levels."

Obviously, power ratings are only half the story. I haven't been able to ascertain much information about new drivers or any other components, but it's fairly safe to assume QSC hasn't just increased the power and left it at that. To prove this, they are offering a six-year warranty, demonstrating their confidence in the reliability of all the components used. Mark was also keen to explain another focus of QSC's was to keep distortion levels as low as possible.

When testing the speakers, which included a setup as FOH speakers for a medium-sized event, these figures and explanations fell into place. As mentioned earlier, I've used K-Series speakers many times before, and although I didn't have a pair of legacy speakers to make a direct comparison, I certainly had my own expectations. Although they proved very capable, my attention wasn't necessarily drawn to their output level, but the integrity of the sound at high levels. We all know that using a system with slightly more power than you need often yields the best results, and this is the feeling the K.2s gave me at this particular event. The units felt like they could 'breathe' well, holding a clear sonic image even when pushed. There's certainly an apparent lack of distortion that similar specified systems would typically inhibit, resulting in a more pleasant listening experience. "QSC has taken the already successful K-Series and matured its sonic performance in a professional manner. The versatility of these units as great multi-purpose loudspeakers shouldn't be under-appreciated."

## THE DEVIL IS IN THE DETAIL

As with any hardware revision, there are always several small changes aimed at bettering an existing product. Some can be really useful, fixing major issues that may have been a known fault, or additions for future-proofing. Some updates can, of course, feel like one step forward and two steps back, but - thankfully - I didn't find anything like that here. The K.2s are complete with their own set of small improvements which I found reasonably predictable, but that's not always a bad thing.

There weren't really any major issues with the original series for QSC to fix, as these have always been such reliable units. The new generation is slightly larger in shape, but principally shares the same footprint and weight. The strong ABS enclosure is still employed, always being one of the K-Series' top selling points that makes these lightweight boxes ideal for life on the road. The grill now sports a foam lining, but it's not until you examine the rear panel that most of the changes become apparent.

→ K12.2 as a stage monitor



The rear panel has had a slight shuffle around and now includes a modern blue backlit LCD screen. The built-in input mixer has also been tweaked to offer more inputs suitable for the modern mobile musician, band or DJ. There are effectively more inputs in the form of A, B and C. A and B offer combo XLR and jack sockets for either mic, line or even instrument input, and input C is now a TRS 3.5mm jack socket. This changes the left and right phono inputs that the legacy units offered. This is clearly going to suit most instances where a stereo MP3 player needs to be connected, but it surprised me that Bluetooth connectivity hasn't yet been added.

With the revision doing away with the switches that the legacy product had, all settings and parameters are controlled via the LCD screen with a couple of push buttons. The input level controls are set via stepped rotary knobs which I like, but the crucial mic or line input setting is carried out via the screen. This, however, is indicated by a dedicated LED next to the XLR socket.

The LCD screen now also offers a series of new features, including a set of presets such as Default, Live, Dance, Stage Monitor and so on. This effectively replaces the dip switch on the legacy K-Series for flat or 'deep'. Listening to several of these presets highlighted how different they are. As you would expect, most engineers new to these units are likely to choose the Default mode, but I very quickly decided that this setting wasn't very 'flat'. In the end, I used the Live setting for the shows where I used these speakers.

Other new features found through the LCD screen include a delay setting which would obviously be useful in a multi-speaker setup. There's also a 4-band EQ for some basic tonal control. Interestingly, the EQ only allows you to cut frequencies rather than boost, which I really appreciated. This should help the less experienced user to avoid causing sudden feedback. I guess this is also intended for installation purposes, as any professional engineer will, of course, use a graphic EQ anyway. Finally, the menu on the screen K12.2 On-Axis Frequency Response also offers a selectable cross-over frequency for use with a subwoofer. All settings can be stored in a series of user-configurable scenes, making returning to a venue or particular application quick and easy. All these features add up to some significant improvements over the original units.

Features already found on the legacy K-Series still present themselves, such as rigging points and angled mounting cups. The speaker pole mounting cups were one of the innovations that the original K-Series brought to the market, where you could angle the unit with up to 7.5° down-tilt. This has always been a great feature which some other manufacturers now offer. On this latest model, however, instead of the moving cup there are two fixed cups, one at 0° and the other at 7.5°. Although slightly less adjustable, this is of course a more secure solution.

The K.2 Series still features the intelligent DSP that the original K-Series introduced. This is mainly comprised of QSC's own 'Intrinsic Correction', which is a series of factory set IIR and FIR filters to try and achieve the best response from the unit. The DSP also includes several safety features, which prevent the drivers or amplifiers being overdriven. This isn't a surprise, of course, but I think it's worth mentioning how well QSC has balanced the need to achieve a good response with an impressive performance, against any of the components working beyond their limits or inducing distortions.

Another K-Series trait that continues with this second generation is 'Directivity Matched Transition' (DMT). This is where QSC has chosen to match the coverage of the woofer and the tweeter at their cross-over frequency. This seems to work well, as when crossing in front of these speakers, there is comprehensive and coherent response that doesn't lose focus. Despite the



numbers on paper, I feel these speakers have a slightly narrower dispersion than some of the competitors. Most of the time, this can actually be quite useful in smaller venues where these units are likely to be mostly used. I also believe that this might be a conscious decision by QSC so that the speakers can be used as wedge monitors. Some wider dispersion units can need their horns rotating, which isn't always the most enjoyable task when setting up a small stage in a hurry. The K-Series has always been a very versatile product, and the second generation continues this vital duty. The K8.2 is now also able to be used as a stage monitor, which I think many customers will find really useful.

### LOOKING AHEAD

QSC has also announced a new subwoofer – the KS212C - that will be joining the K-Series. This will be a dual 12" active cardioid subwoofer, which will be very interesting to see at this end of the market. Coming later this year, I haven't heard this new subwoofer yet, but it's good to see QSC's efforts across the range.

A possible expectation some might have had for the K.2 Series announcement, was a 15" model. I asked Mark about the decision to stick with the K12.2 as the flagship model of this range, to which he replied: "In recent years, we have seen intelligent amplifier/transducer/DSP design that has enabled much, much better LF output from smaller and smaller drivers. While physics will always place its limits, in practical terms it now means a good 12" will often keep up with - or out-perform - many of the older design 15" speakers. The LF output from the 12" is normally more than enough, and the extra from the 15" is no longer the positive that it once was."

Sonically, I found the K12.2 to hold a healthy low end response, until of course, the extreme lows. On paper, the low-end frequency response values at -6dB are: 59Hz for the K8.2, 56Hz for the K10.2 and 50Hz for the K12.2. This feels about right to me when considering the K12.2s that I heard.

Whilst there are many small updates included in this second generation, there are a couple of areas which I was surprised not to see. The original K-Series is known for contributing to the development of today's active speakers. They introduced a successful product that offered a powerful amplifier and smart DSP, all in a rugged and lightweight enclosure. With so much influence on the market, I was expecting some features in this second generation that would have 'futureproofed' the K-Series moving forward.

The updates from a user point of view - as opposed to the performance aspects - feel in-line with current expectations. The user interface and LCD screen have brought the K-Series up-to-date with some useful additions. However, they've steered away from adding Bluetooth connectivity or any wireless control. Other manufacturers have added these features to benefit gigging musicians and mobile DJs. Perhaps QSC intends to retain a professional reputation with the K-Series and doesn't see these types of features as necessary.

As the K-Series units are lightweight and priced suitably for these types of customer, as well as the PA and sound hire companies, not having any of these features is

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## QSC K12.2 SERIES TECH SPEC

#### FEATURES

- Multi-purpose, 2-way powered loudspeaker
- 2,000W Class-D amplifier module
- 12" (305mm), cone
- Frequency Response: 50Hz - 20kHz
- Nominal Coverage Angle: 75° Axisymetric
- Dimensions (HxWxD): 602 x 356 x 350mm
- Net Weight: 17.7kg (39lbs)
- Attachment Points: 2 x M10 threaded inserts plus pull-back
- Maximum Rated SPL: 132dB
  (a) 1m, peak 126dB (a) 1m, continuous
- AC Power Input: Universal power supply 100 – 240 VAC, 50 – 60Hz
- 6 Year Warranty

an interesting decision. We already know QSC has these types of technologies available with its small digital mixers. Another route they may have chosen to venture down, or even pioneer further, could be intelligent systems integration or automatic room calibration. It just doesn't feel like there is anything other than the performance of these speakers that will keep the lead QSC has on the competition.

Of course, these types of modern tech could be considered 'gimmicky' by some, which hopefully demonstrates that QSC has spent the money in the right places. Perhaps not adding these types of modern connectivity or complete system integration ideas that we are starting to see from other brands highlights that these are pro pieces of kit. There are mixed views around the K-Series, particularly in the UK at least, perhaps due to the initial release five years ago being quite DSP heavy and 'modern'. However, especially considering the new power modules inside the K.2s, the new series is proving to be a very professional product offering, which I'm really pleased about.

### CONCLUSION

The K-Series of products were already great speakers, and due to the technically advanced

approach they gave us five years ago, they still don't really feel out-of-date. However, the improvements in this update strengthen what was already a great product. The new power modules inside these boxes are clearly the biggest talking point, and really do the K-Series justice. These are very powerful units which don't show signs of strain, even when pushed. In order to achieve a clearer sonic image that's lower in distortion, we need units to be extremely capable at reproducing all the content they're given at any level. The K.2s do just that.

There are no breakthrough features to speak of here, but that's not what this release is all about. QSC has taken the already successful K-Series and matured its sonic performance in a professional manner. The versatility of these units as great multi-purpose loudspeakers shouldn't be under-appreciated. These are ideal for the gigging musicians, mobile DJs and hire companies, whilst also providing perfect stock for any production company that might need a stage monitor one night and a compact PA system the next. Here's to the next five years. ●

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