

KT Square One Splitter Microphone splitter



This active mic splitter, from Klark Teknik's Square One series, is designed to maintain uncompromised sonic performance whilst offering some unexpected additional facilities.

Mike Crofts

The Square One Splitter is an eight-channel active microphone splitter for use in live-sound applications, and provides up to 24 individual outputs derived from eight original inputs. It is housed in an extremely solid metal enclosure, which occupies just 2U of rack space. I tried out the Square One Dynamics (eight channels of excellent compression) last year and was extremely taken with it, so I was looking forward to playing with another unit from the same range.

The Square One Splitter has eight inputs, arranged as two sets in parallel — one set of XLRs is on the front panel and the second set is round

the back — and every individual channel has two preamps and three balanced outputs.

A closer look

For each of the Square One Splitter's eight channels, there are two input sockets, which are directly wired in parallel and have (switched, per channel) 48V phantom power applied to both. The input is split into two signal paths, leading to two high-quality preamps, which are based on the same design as those in the KT DL431 mic splitter, as used in the front end of the Midas XL8 live performance system.

The first preamp drives a pair of rear-panel outputs — the 'main' outputs — which are electronically balanced, identical parallel outs controlled by the front-panel channel controls. The output of this preamp circuit is monitored and displayed on a four-segment LED ladder, which functions as a peak-reading meter and indicates from -15dBu to +21dBu, which represents the onset of clipping. The second preamp drives a third output, which appears on a front panel XLR. This output is transformer-isolated and balanced, and is derived directly from the input signal without passing through any kind of gain adjustment or filtering (it's unaffected by the channel controls).

Each channel has a rotary detented Gain control, which covers a 40dB range in 5dB steps, a 48V phantom switch, a low-cut filter button and a Solo button. Soloed channels are locally

monitored from the headphone output over on the right-hand end of the front panel, and the phones amplifier is powerful enough to be effective even when the guys on stage are really going for it a few feet away.

The 30Hz filter, Solo button and phantom power switch all have LEDs which indicate their respective operations, but the phantom power circuit offers a bit extra. Its LED not only indicates if the local 48V supply is engaged, but also lights up if phantom power (from an external device) is detected at either or both of the rear-panel XLR outputs — in which case, the clever old Square One Splitter automatically applies its own 48V supply to that channel's input XLR, even if phantom power is switched off. After carrying out a couple of bench tests, I confirmed that the Square One Splitter doesn't simply pass through the externally detected voltage, but applies its own internal supply. And when I reduced the external 'sensed' phantom voltage, I got it right down to a pathetic 5V before it stopped sensing. So it's a phantom power restorer as well!

Split function

Splitters are deployed whenever a mic-level signal is required to be fed to more than one system or sub-system, preferably without any degradation of the original signal. The most obvious application is where stage mics must be routed to a monitor desk and to the front-of-house board, where each requires an

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unprocessed raw input exactly as produced from the mic itself, but without presenting an adverse load impedance.

The Square One is an active splitter, and therefore not only offers fully independent multiple outputs (three per channel, in this case), but also pumps up the mic signal to line level, thereby virtually eliminating the unwanted effects of long analogue cables. A further advantage with the Square One Splitter is its ability to deliver per-channel phantom power as described above, which, especially in smaller setups, is likely to be a better-quality supply than from the desk itself, and is completely independent of the desk and associated multicore and so on.

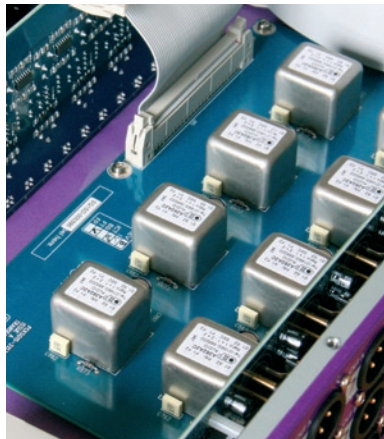
Essentially, that's all a splitter does, although the Square One Splitter can also function in 'media split' mode, where the input to channel eight is fed simultaneously to all 16 outputs and controlled by the channel eight preamp — effectively a one-into-16 distribution amplifier. And in this mode it's worth noting that the transformer-isolated outputs will remain in operation (any sources connected to channels one through seven are still available at these outputs). Media split operation is turned on by means of a single well-recessed switch on the rear panel, and either front or rear inputs to channel eight can be used.

Driving the line

I rigged up a test setup with two mixers, just to see how easy the Square One Splitter was to get up and running, and it's quick and utterly straightforward. The minimal controls are easy to set: the gain is a detented rotary, which seems to act in a linear way across its range, and all I had to do was remember to knock back my mixer input settings to line level.

The unit is, as far as I can tell, completely sonically transparent (so basically the sound you get will be what your desk sounds like), and it just doesn't seem to exhibit any vices at all. I didn't suffer any ground-loop problems, but the Square One Splitter includes a ground-lift switch for each of the two main banks of outputs in case the possible distance from monitor to front-of-house desk were an issue. As I didn't have any live sound tasks that called for a separate monitor desk, I employed the Square One Splitter as an in-line signal booster on a couple of gigs, and I reckon a couple of these in a stage-side rack would be a useful addition to my analogue rig for this purpose alone. Loading on every microphone is optimised, which maintains frequency response, and drive to the mixer is free from noise and interference.

The Square One Splitter also does double duty as an active stage box in its own right, and the additional parallel input could prove to be very useful as a fault-tracing test point when trying to troubleshoot a signal break after all the stage cabling has been laid.



▲ The finish and details of the circuit boards and internal wiring is first class.

The transformer-coupled outputs would be used, for example, to provide a broadcast or recording feed — and being completely isolated (except in audio terms) from the 'main' system, there should be no problems with mismatching, loading and so on.

Conclusion

The Square One Splitter might be a simple, single-purpose device, but its audio performance is first class and it has all the main practical bases covered. Its build quality is excellent — I took the top off and was impressed by the finish and detail of circuit boards and internal wiring — and it looks and feels as if it should stand years of road travel. It's a good bit of kit, this, whether you like purple or not. ■ PM

Tech Spec

Square One Splitter

- Eight mic/line XLR inputs (pin 2 hot).
- 24 XLR outputs; 16 electronically balanced, 8 transformer isolated and balanced (pin 2 hot).
- Maximum input level: +22dBu.
- Input impedance: 5k Ω .
- Common mode rejection ratio (CMRR): -80dB @ 1kHz (typical), unity gain (0dB); -100dB @ 1kHz (typical), maximum gain (+40dB).
- Maximum output level: +22dBu.
- Signal drive capacity: <600 Ω .
- Frequency response: 20Hz to 20kHz (± 0.5 dB input to output).
- Distortion: <0.02 percent @ 1kHz, 0dBu at unity gain.
- Dynamic range: >122dB (electronically balanced outputs); >140dB (transformer isolated outputs).
- Noise floor: unity gain <-100dBu; mic EIN @ +40dB gain <-128dBu.
- High-pass filter frequency: -3dB @ 30Hz.
- High-pass filter slope: 12dB per octave.
- Dimensions (WDH): 482 x 200 x 88mm.
- Weight: 4.5kg

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Performing Musician, Media House, Trafalgar Way, Bar Hill, Cambridge, CB23 8SQ, United Kingdom

Email: subscribe@performing-musician.com

Tel: +44 (0) 1954 789888 Fax: +44 (0) 1954 789895

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