

# LS12Q

## 4 Channel DSP Network Amplifier



### LS12Q Amplifier

- 4 Channel Touring-grade amplifiers, 2u package
- Manufactured in Italy by Powersoft for Logic System
- Two models: LS8Q 4x2000W, LS21Q 4x2700W
- Powerful DSP processing
- Dante® and AES67 Audio
- Ethernet control via Armonia Plus
- Supplied pre-loaded with Logic System presets

Logic System loudspeaker products are designed to be used with the LS8Q and LS12Q four channel power amplifiers. Made for Logic System by Powersoft, they feature sophisticated power supplies, powerful DSP processing and Dante® as standard, in a 2u package. The rugged construction and Neutrik® connectors, allow use in touring or installation applications.

The PFC (Power Factor Corrected) power supply allows operation on standard mains voltages, anywhere in the world. Powersoft's SRM (Smart Rails Management) technology ensures electrical efficiency by only delivering the full rail voltage when the signal requires it to, which also reduces power draw (and heat dissipation) to less than 34W when idling.

The powerful DSP can work with a 48 or 96kHz sampling rate, via an internal sample rate converter. Low and high pass filters up to 48dB/octave, plus parametric, all-pass and shelving type IIR filters are available, as well as up to 2048 tap FIR filters on each channel. In addition, Raised Cosine filters are also implemented, which are particularly useful for system tuning, due to their wide and narrow band equalisation flexibility.

Audio inputs are provided by analogue, AES3, Dante® and AES67. The integrated gigabit Ethernet switch allows connection via star or daisy-chain wiring. Control of the LS amplifiers via Armonia+ can also be performed over the same Ethernet network. Usefully, the LS amplifiers can be used as an "on ramp" for converting analogue or AES3 input signals to Dante® or AES67 for audio distribution over a wired Ethernet network.

LS amplifiers can be operated directly from the front panel, via the large colour touchscreen display, or over wired Ethernet, via the Armonia+ application. The amplifiers come pre-loaded with Logic System presets, for plug and play operation.

The LS8Q can deliver peak output voltages up to +/-155V, with the more powerful LS12Q able to deliver an even greater +/-180V to maximise system headroom, when driving Logic System loudspeakers. Power output for both models is shown in the table below for a variety of symmetric/asymmetric loads, plus bridging options.

### Application:

- Club and KTV
- Small to medium scale touring systems
- Arenas & concert halls
- Stadiums & open-air events
- Multi-zone venues & live clubs



# LS12Q

## 4 Channel DSP Network Amplifier

### Channel Handling

**Outputs**.....4 x Speakon NL4  
 .....4 Dante/AES67 TX (from local input or DSP)

### Inputs

Analog.....4 XLR female  
 .....4 XLR male (LINK)  
 Digital AES3.....2 XLR female (4 x audio channels)  
 .....2 XLR male (LINK)  
 Digital Dante/AES67.....2 XLR Ethercon (4 x audio channels)

### Audio

Input sensitivity @ 8 Ω.....3.22 Vrms with Gain 32dB  
 S/N (20Hz-20kHz @ 8 Ω).....110 Typ.  
 Max input level .....24 dBu  
 Frequency Response @ 8 Ω load.....20Hz-20kHz +/- 1.0 dB  
 Crosstalk (1 kHz).....-75 dB typ.  
 Input impedance.....20 kΩ Balanced  
 CMRR.....65 dB typ.  
 THD+N (from 0.1 W to Half Power)..... < 0.1% (typical < 0.05%)  
 SMPTE IMD (from 0.1 W to Half Power)..... < 0.1% (typical < 0.05%)  
 Output impedance at 100 Hz.....30 mΩ

### DSP

AD converters.....24 Bit Tandem™ @ 48 kHz  
 .....125 dB-A Dynamic Range - 0.005 % THD+N  
 DA converters.....24 Bit Tandem™ @ 48 kHz  
 .....117 dB-A Dynamic Range - 0.003 % THD+N  
 Sample rate converter.....24 Bit @ 96 kHz  
 .....140 dB Dynamic Range - 0.0001 % THD+N  
 Internal precision.....32 bit floating point  
 Latency.....2.5 ms fixed latency architecture  
 Memory/Presets .....50 amplifier snapshots, virtually unlimited speaker presets  
 Delay.....2 s (input) + 100 ms (output) for time alignment  
 Equalizer.....Raised-cosine, custom FIR, parametric IIR: peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass  
 Crossover.....linear phase (FIR), Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR)  
 Limiters.....TruePower™, RMS voltage, RMS current, Peak limiter  
 Damping control.....Active DampingControl™ and LiveImpedance™ measurement

### Display Specs

Resolution.....480x272, 4.3" diagonal  
 Brightness.....600 nit  
 Control.....Multitouch capacitive. Rotary encoder 20 steps/turn with push button

### Output Satge

Max output power  
 per channel @ 8 Ω (symmetrical)\*.....1800 W  
 per channel @ 4 Ω (symmetrical)\*.....2700 W  
 per channel @ 2 Ω (symmetrical)\*.....2000 W  
 per channel @ 8 Ω (asymmetrical)\*\*.....1900 W  
 per channel @ 4 Ω (asymmetrical)\*\*.....3000 W  
 per channel @ 2 Ω (asymmetrical)\*\*.....2000 W  
 @ 8 Ω bridged.....5400 W  
 @ 4 Ω bridged.....4000 W  
 Maximum unclipped output voltage.....180 Vpeak  
 Maximum output current.....>55 Apeak  
 \*All channels driven and loaded symmetrically  
 \*\*All channels driven, but channels 2 and 4 at -6dB

### Power & Thermal

@ 100V  
 Standby Power.....15.8 W  
 Idle Power.....33.7 W  
 1/8 Power @ 4 Ω Power.....1570 W  
 1/8 Power @ 4 Ω Current Draw.....16.5 A<sub>rms</sub>  
 1/8 Power @ 4 Ω Thermal Loss.....1670 BTU/h  
 @ 240V  
 Standby Power.....17.2 W  
 Idle Power.....33.5 W  
 1/8 Power @ 4 Ω Power.....1940 W  
 1/8 Power @ 4 Ω Current Draw.....8.9 A<sub>rms</sub>  
 1/8 Power @ 4 Ω Thermal Loss.....2000 BTU/h  
 Power supply.....Universal regulated switch mode with PFC, SRM  
 Nominal voltage (±10%) .....100-240 VAC @ 50-60Hz  
 Operating voltage .....90-264 VAC @ 50/60Hz  
 AC Mains connector.....IEC C20 inlet (20 A max)

### Networking

Connectivity.....Two Gigabit Ethernet ports, integrated switch, Ethercon connectors  
 Supported topologies.....Star, Daisy Chain  
 Remote interface.....ArmoniaPlus or other preferred software

### Construction

Dimensions.....483 x 381 x 88.9 mm (19 x 15 x 3.5 in)  
 Weight.....11.3 kg (24.91lb)

