

PRELIMINARY

PowerLight 3.8X

F E A T U R E S



Designed specifically for bi-amp applications

1400 watts (Low Frequency) at 4Ω
2400 watts (Low Frequency) at 2Ω

450 watts (High Frequency) at 8Ω
800 watts (High Frequency) at 4Ω
(guaranteed minimum specs)

High efficiency, Class H, output circuit lowers AC current consumption and cooling requirements by 40% or more

Optional BusCard allows the addition of built-in accessories such as crossovers or equalizers

Advanced thermal management system

Clip Limiter (user defeatable)—reduces distortion, protects speakers

PowerWave™ Switching Technology—for improved audio performance

Detented gain controls with 2 dB steps for easy resetting

Comprehensive LED status arrays

Variable speed fan, for quiet operation

DC, sub audio, and thermal overload protection

Patented Output Averaging™ short-circuit protection

Neutrik "Combo" (XLR & 1/4") and barrier balanced input connectors

"Touchproof" binding post output connectors

Remote AC power control

Data Port for MultiSignal Processing

3 year warranty PLUS optional 3 year extended service contract

The **PowerLight™ 3.8X** is an advanced dual-power professional audio amplifier with uncompromised audio performance. Designed specifically for use with bi-amplified speaker systems, the power and performance of each channel is tailored for its intended load. An advanced high frequency power supply, utilizing QSC's **PowerWave™ Switching Technology**, has been combined with the rugged audio amplification circuits of traditional QSC amplifiers to produce an amplifier with superb audio performance, reliability and thermal capacity.

The low-frequency channel of the PowerLight 3.8X is rated at 900 watts into 8 ohms, 1400 watts into 4 ohms, and 2400 watts into 2 ohms, making it ideal for powering stage monitors and any high-power bi-amplified speaker systems. PowerWave™ Switching Technology increase power supply regulation, maintaining excellent low frequency response down to 20 Hz. Outstanding audio performance and reliability, networkability, and light weight make this amplifier ideal for all critical sound system applications.

LOAD	FTC CONTINUOUS AVERAGE	
	<i>20 Hz–20 kHz, 0.1% THD, except *where noted</i>	
(Both channels driven)	<i>LOW FREQ.</i>	<i>HIGH FREQ.</i>
8Ω	900 watts	450 watts
4Ω	1400 watts	800 watts
2Ω	2400 watts*	1400 watts*
(Single channel driven)	<i>LOW FREQ.</i>	<i>HIGH FREQ.</i>
8Ω	1000 watts	500 watts
4Ω	1500 watts	850 watts
2Ω	2500 watts*	1500 watts*

*1kHz, 1.0% THD



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PowerLight™

PowerLight 3.8^x Specifications

OUTPUT POWER (CH 1 LOW FREQUENCY)

8 ohms, 20 Hz to 20 kHz, 0.1% THD, 900 watts
 4 ohms, 20 Hz to 20 kHz, 0.1% THD, 1400 watts
 2 ohms, 1 kHz, 1.0% THD, 2400 watts

OUTPUT POWER (CH 2 HIGH FREQUENCY)

16 ohms, 20 Hz to 20 kHz, 0.1% THD, 240 watts
 8 ohms, 20 Hz to 20 kHz, 0.1% THD, 450 watts
 4 ohms, 20 Hz to 20 kHz, 0.1% THD, 800 watts
 2 ohms, 1 kHz, 1.0% THD, 1400 watts

DISTORTION (SMPTE-IM): less than 0.05%

DISTORTION (typical): less than 0.01% THD

4Ω to 8Ω
 20 Hz–20 kHz, 10 dB below rated power
 1.0 kHz and below, full rated power

FREQUENCY RESPONSE:

20 Hz to 20 kHz, ±0.15 dB
 5 Hz to 60 kHz, +0/-3 dB

DAMPING FACTOR:

Greater than 500

DYNAMIC HEADROOM: 1.9 dB at 4 ohms

NOISE: 105 dB below rated output (20 Hz to 20 kHz)

SENSITIVITY: CH 1: 1.08 Vrms (+2.9 dBu); CH 2: 1.24 Vrms (-4.1 dBu), for rated power (8 ohms)

CONTROLS:

Front: AC Switch, Ch 1 and Ch 2 Gain Knobs, Ch 1 and Ch 2 Clip Limiter Switches
 Back: Remote A.C. Power Control Terminal Strip

VOLTAGE GAIN: CH 1: 80x (38 dB); CH 2: 49x (34 dB)

INPUT IMPEDANCE: 10KΩ unbalanced, 20KΩ balanced

INDICATORS:

PROT:	Red LED	CLIP:	Red LED, 1 per channel
STANDBY:	Yellow LED	LEVEL -10:	Yellow LED, 1 per channel
PWR-ON:	Green LED	LEVEL -20:	Yellow LED, 1 per channel
		SIG-PRESENT:	Green LED, 1 per channel

CONNECTORS: (each channel)

Input: Barrier strip and Neutrik "Combo" XLR and 1/4" input
 Output: "Touch proof" binding posts
 Data Port: HD15 female

COOLING: Variable speed fan, rear-to-front air flow.

AMPLIFIER PROTECTION:

Full short circuit, open circuit, thermal, ultrasonic, and RF protection. Stable into reactive or mismatched loads.

LOAD PROTECTION:

On/off muting. DC-fault power supply shut down.

OUTPUT CIRCUIT TYPE:

CH 1: Complementary linear outputs. 3-step high efficiency circuit.
 CH 2: Complementary linear outputs. 2-step high efficiency circuit.

POWER REQUIREMENTS: 120, 230 VAC, 50-60 Hz

120V POWER CONSUMPTION:

LOAD	NORMAL PROGRAM 1/8 POWER*	MAX PROGRAM 1/3 POWER*	MAX SINEWAVE 1% CLIPPING
8 ohms	11.0 A	18.8 A	35.8 A
4 ohms	15.2 A	27.4 A	57.6 A
2 ohms	21.2 A	40.0 A	83.2 A

Multiply currents by 0.5 for 230V units. *Pink noise

DIMENSIONS:

19.0" (48.3 cm) rack mounting
 5.25" (13.3 cm) tall (3 spaces)
 17.9" (45.5 cm) deep (rear support ears)

WEIGHT: 30 lbs (13.6 kg) net, 36 lbs (16.3 kg) shipping

†Output Averaging™ short circuit protection (US Patent 4,321,554)
 SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.



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ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The amplifier shall contain all solid-state circuitry, using complementary silicon output devices. The higher-powered of the two channels shall use a three-step Class H configuration and shall exceed the efficiency of an ordinary class-B linear output circuit. The lower-powered channel shall use a two-step Class H configuration. The amplifier shall operate from 50-60 Hz AC power. The amplifier shall operate from a 30A 120V AC outlet, drawing less than 2550 VA when driven with random program material at 1/8 rated power into two ohm loads. The amplifier shall be supplied with a single molded AC cord having an appropriate AC plug for 120 V units; 220-240 V units shall be equipped with a 320-C19 16A IEC mains connector and a removable power cord. The amplifier shall comply with FCC part 15 class B requirements.



The amplifier shall employ forced-air cooling with a variable speed fan for minimum acoustic noise. Air flow shall be from rear to front to avoid temperature rise inside the rack. Rack mounting shall be possible without clearance between amplifiers for ventilation. The amplifier shall be capable of continuous operation at 1/3 power, into four-ohm loads, for ambient temperatures up to 104° F (40° C).

The amplifier shall contain two independent amplifier channels and a switching power supply. All amplifier protection systems shall be self-resetting upon removal of fault. Each channel shall have independent protective circuitry against short circuit or mismatched loads. Each channel shall monitor heat sink temperature and shall trigger fan speed boost, and if necessary, signal muting to prevent excessive temperature rise. Both channels shall have synchronized on-off muting, acting for three seconds after turn-on, and within 1/4 second after turn-off or loss of AC power. Each channel shall have DC fault protection for the load, consisting of a power supply shutdown. Each channel shall have a user-defeatable clip limiter.

The channels shall be configured for bi-amp usage, suitable for use with an external or internal active crossover. Channel 1 shall be designated the "low frequency" channel, and Channel 2 the "high frequency" channel.

The front panel shall contain the AC power switch; a green LED power-on indicator; a yellow LED standby indicator and a red protect mode indicator. Each channel shall have the following controls and displays: A front panel detented gain control, with 11 gain settings (Low Frequency channel: 38 dB, 36 dB, 34 dB, 32 dB, 30 dB, 28 dB, 26 dB, 24 dB, 20 dB, 16 dB, -∞; High Frequency channel: 34 dB, 32 dB, 30 dB, 28 dB, 26 dB, 24 dB, 20 dB, 18 dB, 14 dB, 12 dB, 10 dB, -∞); a recessed front panel clip limiter defeat switch; a green signal present LED triggering at -30 dB; two yellow LED output indicators, triggering at -20 dB and -10 dB; a red LED showing true amplifier clipping.

The output connectors for each channel shall be "touchproof" binding post, accepting banana plug or up to 7 AWG (4mm²) wire.

The rear panel input shall provide barrier strip and Neutrik "Combo" connectors for each channel. The XLR input shall be wired with pin 2 high, the 1/4" TRS input shall be wired with tip positive, ring negative, and sleeve grounded. Inputs shall be electronically balanced, with a minimum impedance of 10 kilohms per side, and a common mode rejection of at least 50 dB from 20 Hz to 20 kHz.

A High Density 15 Pin Data Port connector shall carry both audio and amplifier operational status signals to and from a QSC MultiSignal Processor.

A two-position barrier strip on the rear panel shall be used for remote Power Supply Enable; a contact closure shall place the both amplifier channels in standby mode, when the front panel power switch is in the on position. The front panel power switch shall function as a master switch that removes all AC power.

The channels shall be capable of meeting the following performance criteria with both channels driven: sine-wave output power of 900 watts (Low Frequency) and 450 watts (High Frequency) into 8 ohms, and 1400 watts (Low Frequency) and 800 watts (High Frequency) into 4 ohms, 20 Hz to 20 kHz, with less than 0.1% THD. Power into 2-ohm loads shall be 2400 watts (Low Frequency) and 1400 watts (High Frequency), at 1 kHz and no more than 1% THD. Frequency response at 3 dB below rated power shall be 20 Hz to 20 kHz within 0.15 dB. The voltage gain of the low frequency channel shall be 80, equivalent to 38 dB, and the input sensitivity shall be 1.08 Vrms. The voltage gain of the high frequency channel shall be 49, equivalent to 34 dB, and the input sensitivity shall be 1.24 Vrms. The signal to noise ratio over the range of 20 Hz to 20 kHz shall exceed 105 dB relative to full output. IHF damping factor shall exceed 500.

The amplifier chassis shall occupy three rack spaces, with provision for securing the rear corners. Depth from mounting surface to tips of rear supports shall be 17.9" (45.5 cm).

Weight shall not exceed 30 lbs. (13.6 kg). The amplifier shall be the QSC Audio Products PowerLight™ 3.8X.