

# PowerLight 4.0

## F E A T U R E S



The PowerLight™ 4.0 is an advanced professional audio amplifier featuring uncompromised audio performance and light weight. A new 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 incredible reliability, thermal capacity and audio performance. The PowerLight 4.0 is rated at 1000

watts/channel into 8 ohms, 1600 watts/channel into 4 ohms, and 2000 watts/channel into 2 ohms, making it ideal for powering subwoofers and high power, passive full-range speaker systems. Increased power supply regulation to maintain excellent low impedance performance. Outstanding audio performance and reliability, high efficiency design, networkability, and light weight make this amplifier ideal for all critical sound system applications.

2000 watts per channel at 2 ohms  
1600 watts per channel at 4 ohms  
(guaranteed minimum spec)

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

High efficiency, 3-step output circuit for improved thermal performance and lower AC current consumption

Variable speed fan, for quiet operation

DC, subsonic audio, and thermal overload protection

Patented Output Averaging™ short-circuit protection

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

Stereo/bridging/parallel input switch

"Touch proof" binding post output connectors

Remote AC power control

Data port for MultiSignal Processing

3 year warranty PLUS optional 3 year extended service contract

LOAD	FTC CONTINUOUS AVERAGE	EIA WATTS
	20Hz-20kHz, 0.1% THD	1kHz, 1% THD
Stereo (W/Ch)		
8Ω	900 watts	1000 watts
4Ω	1400 watts	1600 watts
2Ω		2000 watts
Bridged-Mono		
16Ω	1800 watts	2000 watts
8Ω	2800 watts	3200 watts
4Ω		4000 watts



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PowerLight™

## OUTPUT POWER (per channel)

8 ohms, 20 Hz to 20 kHz,	0.1%	THD,	900 watts
8 ohms, 1kHz,	1%	THD,	1000 watts
4 ohms, 20 Hz to 20 kHz,	0.1%	THD,	1400 watts
4 ohms, 1 kHz,	1%	THD,	1600 watts
2 ohms, 1 kHz,	1%	THD,	2000 watts

## OUTPUT POWER (bridged mono)

8 ohms, 20 Hz to 20 kHz,	0.1%	THD,	2800 watts
4 ohms, 1 kHz,	1%	THD,	4000 watts

## DISTORTION (SMPTE-IM): less than 0.05%

## DISTORTION (typical): less than 0.01% THD

4Ω to 8Ω:	
20Hz-20kHz, 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: 108 dB below rated output (20 Hz to 20 kHz)

## SENSITIVITY: 1.06 Vrms for rated power (8 ohms)

## VOLTAGE GAIN: 80 (38 dB)

## INPUT IMPEDANCE: 10K unbalanced, 20K balanced

## CONTROLS:

Front: AC Switch, Ch 1 and Ch 2 Gain Knobs, Ch1 and Ch2 Clip Limiter Defeat Switches  
Back: Parallel/Stereo/Bridge Switch, Remote Power Supply Enable Terminal

## 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.  
Speakers: "Touch proof" binding posts.  
Data port: HD 15 female

## COOLING: Continuously variable speed fan, rear-to-front air flow.

## AMPLIFIER PROTECTION:

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

## LOAD PROTECTION:

On/off muting. DC-fault protection.

## OUTPUT CIRCUIT TYPE:

Complementary linear outputs. 3-step high efficiency circuit.

## POWER REQUIREMENTS: 120, 230 Vac, 50-60 Hz

## 120V CURRENT CONSUMPTION:

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

*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

<sup>1</sup>Output Averaging™ short circuit protection (US Patent 4,321,554)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

## ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The amplifier shall contain all solid-state circuitry, using complementary silicon output devices. The amplifier shall exceed the efficiency of an ordinary class-B linear output circuit. 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, in ambient temperatures up to 104 F (40 C).

The amplifier shall contain two independent amplifier channels on separate printed circuit boards, each with separate and synchronized switching power supplies. All amplifier protection systems shall be synchronized and self-resetting upon removal of fault. Each channel shall have protective circuitry against short circuit or mismatched loads. Each channel shall independently 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 synchronized shutdown of each amplifier channel's power supply.

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: 38 dB, 36 dB, 34 dB, 32 dB, 30 dB, 28 dB, 26 dB, 24 dB, 20 dB, 16 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 include a "touch proof" binding post, accepting banana plug or up to 7 AWG (4mm) wire. Connector terminals are arranged to allow bridge mono connection.

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" RTS 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.

Switches shall be provided for stereo-bridging and parallel inputs. 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.

Each channel shall be capable of meeting the following performance criteria with both channels driven: Sine-wave output power of 900 watts into eight ohms, and 1400 watts into four ohms, 20 Hz to 20 kHz, with less than 0.1% THD. Frequency response at 3 dB below rated power shall be 20 Hz to 20 kHz within 0.15 dB. The voltage gain shall be 80, equivalent to 38 dB, and the input sensitivity shall be 1.06 Vrms. The signal to noise ratio over the range of 20 Hz to 20 kHz shall exceed 108 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 4.0.



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