

**EV** Electro-Voice®

**Q Series**



**Professional Power Amplifiers**

English

# Q Series



## Electro-Voice Amplifiers

a heritage of power and performance

Each new generation of Electro-Voice amplifiers inherits more than 60 years of experience in amplifier design and manufacturing. From the beginning, Electro-Voice has always considered the audio quality of an amplifier to be as important as the output power and reliability. An EV amp will do more than just work through the toughest conditions; it will ensure your system sounds its best while running safely.

In the 1990s, EV launched its Precision Series amplifiers. The flagship P3000's success was built upon its groundbreaking headroom, accompanied by electrical and thermal stability under all load conditions. Failure was literally not an option with the P3000.

As a vital part of the X-Array concert sound system, the P3000's performance was proven on the biggest world tours of the time, including the Rolling Stones and AC/DC. Moving forward into the 21st century, the IRIS-Net-controlled P3000RL followed suit on the largest tours and events of the era: LIVE8, Live Earth, Metallica, Kenny Chesney, and Foo Fighters, to name a few.

As direct descendants of the legendary P3000, Q Series amps take Electro-Voice's unique amplifier design philosophy to a new level of performance, power, efficiency, and value.





## Innovative Class-H power

With Q Series' efficient Class-H design, the permanent voltage rail is designed to cover the average music signal, rather than permanently supplying the voltage for maximum output power. If dynamic peaks require a higher output voltage, the voltage rail is switched to the maximum. This process saves up to 50% of the power consumption found in conventional amplifier design, and results in a dramatic reduction in heat output. Q Series combines the sonic excellence and ruggedness of its Precision Series predecessors with Class-H innovation, all in a compact and affordable package.



### Q1212

With 2 x 1200W @ 4 Ohms / 2x 1800W @ 2 Ohms, the Q1212 offers the horsepower to challenge the legendary P3000. It provides the same power from a 2U case at modest weight, making it a perfect subwoofer or high-power top drive for Phoenix, Tour X, and ZX3/ ZX5 systems or system combinations.



### Q99

With 2 x 900 Watts @ 4 Ohms / 2x 1250W @ 2 Ohms, Q99 can seriously serve as combined top & sub drive for most club-sized systems, such as Tour X or QRx.



### Q66

A versatile workhorse, with 2 x 600W @ 4 Ohms / 2 x 900W @ 2 Ohms. Q66 has plenty of power to drive a huge variety of speaker systems, including Sx300, ZX4, Sb122, etc.



### Q44

The base model, providing 2 x 450 W @ 4 Ohms / 2 x 650W @ 2 Ohms. An excellent choice for small tops and utility loudspeakers, such as ZX1, Sx Series, or EVID Series.

# Q Series

## Audio Performance

While many people understand there are tremendous differences between professional loudspeakers, many also tend to think that amplifiers are only differentiated by the amount of output power they provide. Electro-Voice amplifiers serve to prove that there are also audible differences...

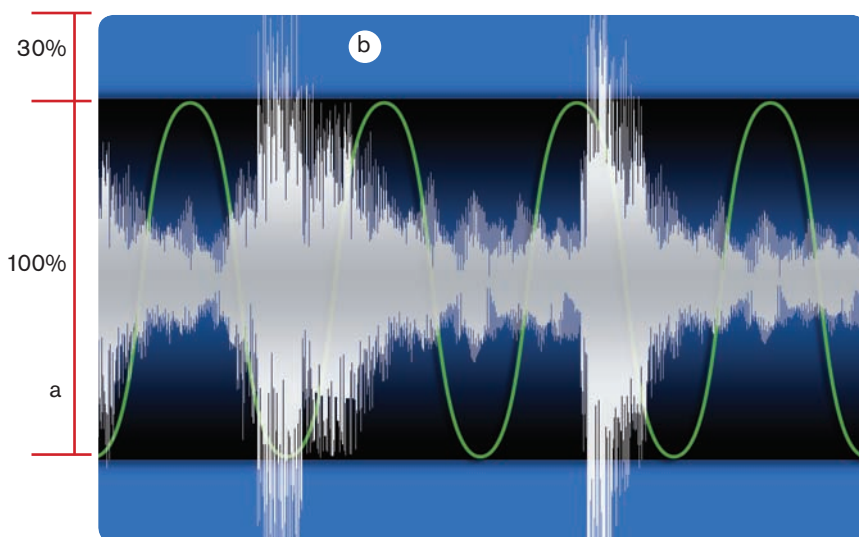
### Dynamic Headroom

Amplifier power and distortion figures are typically specified with sine wave signals. However, music signals are far more dynamic than sine waves, comprising a pulsed wideband spectrum.

We at EV believe that, above all figures, the tonal performance of live music counts most; therefore, all of our amplifiers are designed for dynamic headroom. This means that each and every EV amp has at least 30% more output capability for short-term signals, when compared to a long-term sine wave value. This additional headroom results in an amp that will, for example, allow for short term signal peaks of at least 780W when spec'd 600W.

While dynamic headroom is audible when playing music through a sound system, another specification indicator is to observe the increase in output power from an 8 Ohm load to 4 Ohms, and then down to 2 Ohms. The higher the increase in output power, the more headroom has been designed into the amp. Of course, all Electro-Voice amplifiers are designed to be absolutely stable into loads of 2 Ohms.

Sine wave and music signal on the output of an amplifier.



a Specified output power, measured with sine wave signal.

b The dynamic headroom designed into Electro-Voice amplifiers allows maximum dynamic response from music signals, providing more punch and power than other equally spec'd amps

### Transient Response

When processing dynamic signals, other important criteria are signal speed and dynamic distortion. For example, kick drum signals carry pulses of many frequencies as an overlay spectrum. Therefore, and in contrast to many other manufacturers, EV specifies a lot more information on their amplifiers' dynamic behavior than just "slew rate" figures. Important tests referring to the amp's ability regarding multitone signal pulses are expressed by IMD-SMPTE measurements at high power levels. And, while IMD tests show the Intermodulation Distortion behaviour (how much "sound" is added by the amplifier), DIM30 is the real spec for speed in an amplifier. All these tests are carried out in EV labs during an amplifier's design phase, to ensure maximum sonic performance. While these technical explanations appear very complex, they are clearly audible. Take a Q Series amplifier and crank it up – you'll hear the difference immediately!

## Protection Package & Dynamic Limiter

There are many good-sounding amplifiers available; however, for an amp to be considered the world's best requires unparalleled reliability in real-world applications.

Q Series amplifiers benefit from decades of professional amplifier design, and all the expertise that has made EV amps the concert/touring standard is built into Q Series. Our complete protection package includes sophisticated circuits against overheating, short circuit, DC output voltage, HF oscillation, back EMF (Electromotive Force), and destructive peak current.

Furthermore, Q Series amps also protect your valuable loudspeakers with built-in dynamic limiters, preventing dangerous output clipping. The limiters immediately reduce amp gain when dynamic headroom is pushed to the limits at maximum output, keeping distortion below 1% in a situation that can otherwise cause a signal to clip, which is often fatal for woofers and drivers.

### Maximum amp output signal



Unclipped Signal

Clipped Signal

Dynamic Limiter Signal

Maximum output signal - input signal at input sensitivity, THD <math>\leq 0.1\%</math>

Input signal 10dB above input sensitivity - clipping output can destroy loudspeakers

Same 10dB above input sensitivity input signal - the dynamic limiter keeps the THD to 1% max, thus preventing the speakers from damage.

## Q-Series Amplifiers & Connectivity

Whatever application you choose, you can be sure your Q Series amp is prepared:

- Both inputs have a paralleled loop thru XLR output to route signal to other amp inputs
- Besides the usual channel A & B outputs via Speakon connectors (on pin 1 +/1-), output A carries the signal of channel B as well (on pin 2+ / 2-), providing an easy drive option for biamped speakers
- Parallel & Bridge Mode option switches provide additional functionality with minimized cabling requirements
- An additional switchable LPN (Low-Pass Notch) filter provides extra tonal fundament and kick, with protective Low-Cut for using smaller passive 12" or 15" cabinets without additional subwoofers





# Q Series

## Amplifiers & Speaker Systems



# Recommended System Setups

Speakers	Q 44	Q 66	Q 99	Q1212
Sx80	<input type="checkbox"/>			
Sx100+	<input type="checkbox"/>			
Sx250	<input type="checkbox"/>			
Sx300		<input type="checkbox"/>		
Sb122		<input type="checkbox"/>		
ZX1	<input type="checkbox"/>			
ZX1 + Sb122		<input type="checkbox"/>		
ZX3				<input type="checkbox"/>
ZX4			<input type="checkbox"/>	
ZX5				<input type="checkbox"/>
TX1122FM			<input type="checkbox"/>	
TX1122+Tx1181			<input type="checkbox"/>	
TX1152FM			<input type="checkbox"/>	
TX1152+Tx1181				<input type="checkbox"/>
TX2152			<input type="checkbox"/>	
TX2181 <b>DC</b>				<input type="checkbox"/>
PX2152 <b>DC</b>				<input type="checkbox"/>
PX2152 (LF/HF) <b>DC</b>			<input type="checkbox"/> High Freq.	<input type="checkbox"/> Low Freq.
Px2122 (LF/HF) <b>DC</b>			<input type="checkbox"/> High Freq.	<input type="checkbox"/> Low Freq.
PX2181 <b>DC</b>				<input type="checkbox"/>
PX1122M				<input type="checkbox"/>
PX1152M				<input type="checkbox"/>
(Q)Rx112		<input type="checkbox"/>		
(Q)Rx115			<input type="checkbox"/>	
(Q)Rx118S <b>DC</b>				<input type="checkbox"/>
(Q)Rx212			<input type="checkbox"/>	
QRx153 (LF/MH) <b>DC</b>		<input type="checkbox"/> Mid/High Freq	<input type="checkbox"/> Low Freq.	
(Q)Rx218S <b>DC</b>				<input type="checkbox"/>

**DC** requires DC-One Signal Processor

The above recommendations are for typical use, also depending upon cabling, number of cabinets used, etc.

# Q Series

## Q-Series Amplifier Specifications

	Q44	Q66	Q99	Q1212
Maximum Midband Output Power THD = 1%, 1 kHz, Dual Channel	650W/ 2 Ω 450 W/4 Ω 270 W 8 Ω	900W/ 2 Ω 600W/ 4 Ω 380W/ 8 Ω	1250W/ 2 Ω 900W/ 4 Ω 550W/ 8 Ω	1800W/ 2 Ω 1200W/ 4 Ω 750W/ 8 Ω
Rated Output Power THD < 0.1%, 20 Hz...20 kHz	400 W/4 Ω 200 W 8 Ω	500 W/4 Ω 250 W/8 Ω	800 W/4 Ω 400 W/8 Ω	1100 W/ 4 Ω 550 W/ 8 Ω
Maximum Single Channel Output Power Dynamic-Headroom, IHF-A	1150W/ 2 Ω 660W/ 4 Ω 350W/ 8 Ω	1700 W/ 2 Ω 950 W/ 4 Ω 480 W/ 8 Ω	2450 W/ 2 Ω 1400 W/ 4 Ω 700 W/ 8 Ω	3400 W/ 2 Ω 1800 W/ 4 Ω 950 W/ 8 Ω
Maximum Single Channel Output Power Continuous, 1 kHz	850 W/ 2 Ω 540 W/ 4 Ω 310 W/ 8 Ω	1200 W/ 2 Ω 750 W/ 4 Ω 420 W/ 8 Ω	1700 W/ 2 Ω 1100 W/ 4 Ω 630 W/ 8 Ω	2400 W/ 2 Ω 1500 W/ 4 Ω 850 W/ 8 Ω
Maximum Bridged Output Power THD = 1%, 1 kHz	1300 W/ 4 Ω 900 W/ 8 Ω	1800 W/ 4 Ω 1200 W/ 8 Ω	2800 W/ 4 Ω 1800 W/ 8 Ω	3600 W/ 4 Ω 2400 W/ 8 Ω
Maximum RMS Voltage Swing THD = 1%, 1 kHz	55.3 V	65.1 V	78.8 V	90.6 V
Power Bandwidth THD = 1%, ref. 1 kHz, half power @ 4 Ω	10 Hz...30 kHz	10 Hz...30 kHz	10 Hz...30 kHz	10 Hz...30 kHz
Voltage Gain, ref. 1 kHz	32.0 dB	32.0 dB	32.0 dB	32.0 dB
Input Sensitivity, rated power @ 8 Ω, 1 kHz	+2.2 dBu	+3.1 dBu	+5.1 dBu	+6.6 dBu
THD at rated output power, MBW = 80 kHz, 1 kHz	< 0.03%			
IMD-SMPTE, 60 Hz, 7 kHz	< 0.1%			
DIM30, 3.15 kHz, 15 kHz	< 0.05%			
Maximum Input Level	+21 dBu (8.69 Vrms)			
Crosstalk, ref. 1 kHz, at rated output power	< -80 dB			
Frequency Response, ref. 1 kHz	10 Hz...40 kHz (±1 dB)			
Input Impedance, active balanced	20 kΩ			
Damping Factor, 1 kHz	> 300			
Slew Rate	25 V/μs	26 V/μs	27 V/μs	30 V/μs
Signal to Noise Ratio Amplifier, A-weighted	> 106 dB	> 107 dB	> 109 dB	> 110 dB
Output Noise, A-weighted	< -71 dBu			
Output Stage Topology	Class AB	Class AB	Class H	Class H
Power Consumption 1/8 maximum output power @ 4 Ω	550 W	700 W	700 W	850 W
Power Requirements	240 V, 230 V, 120 V or 100 V; 50 Hz...60 Hz (factory configured)			
Protection	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay			
Cooling	Front-to-rear, 3-stage-fans			
Ambient Temperature Limits	+5 °C...+40 °C (40 °F...105 °F)			
Signal Processing	LPN, switchable			
Safety Class	I			
Dimensions (W x H x D), mm	483 x 88.1 x 421.5			
Weight	12.6 kg (27.8 lbs)	14.8 kg (32.6 lbs)	16.3 kg (35.9 lbs)	17.7 kg (39.0 lbs)

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