

CX12T



The CX12T amplifier is ideal for use in any permanently installed sound system. Designed to meet the specialized needs of high power, high quality audio systems, the CX12T offers the features requested most by contractors and installers from around the world. The CX12T resides in a rugged three rack-space steel chassis approximately 17.9 inches deep. With high quality internal isolation transformers, the CX12T features built-in capability for driving 25, 70 or 100 volt distributed sound systems as well as direct output voice coil loads. Versatile design allows

a 25, 70 or 100 volt connection on one channel and a direct connection on the other channel. For maximum flexibility, you can even drive a distributed line and a low impedance load on the same channel at the same time! The CX12T features a built-in 45 Hz subsonic filter that reduces saturation of speaker transformers caused by excessively low frequencies. High output power, versatile loading options, high thermal capacity and rugged reliability make the CX amplifiers ideal for any high quality sound system installation.

Toroidal Output Transformers—
Provide Full Electrical Isolation and Meet Worldwide Safety Agency Approval

Automatic Two-Speed, High Efficiency Fan Cooling—For Quiet Normal Operation with Maximum Cooling on Demand

Rear-to-Front Air Flow—Keeps Equipment Racks Cool

Front Panel Status LED's—Indicate Clip, Protect, Power and Signal Presence

Rear Panel Detented Gain Controls—For Security and Resetability

Open Input Architecture™—Flexible Input Options

Detachable Euro-Style Barrier Strip Input—Easy and Economical Connections

Stereo, Bridge, or Parallel Operating Modes—Switch Selectable

Double Thickness Rack Ears—For Extra Strength

Covered Barrier Strip Output Connections—Meets Safety Agency Requirements

Simple Barrier Strip Connection Determines Output Mode—25 V, 70 V, 100 V and Direct Outputs Available Simultaneously

Built-in 45 Hz Subsonic Filter—Prevents Speaker Transformer Saturation With Minimal Effect on Program Material

LOAD	OUTPUT POWER (Direct Outputs)		OUTPUT POWER (Isolated Outputs)
	45Hz-20kHz, 0.1% THD	1kHz, 1% THD	1 kHz, 0.1% THD
Stereo (W/Ch)			
8Ω	400 watts	475 watts	
4Ω	600 watts	700 watts	
2Ω		900 watts*	
25 volts			400 watts
70 volts			500 watts
100 volts			500 watts
Mono-Bridged			
16Ω	800 watts	950 watts	
8Ω	1200 watts	1400 watts	
4Ω		1800 watts*	
50 volts			800 watts
140 volts			1000 watts
200 volts			1000 watts

*typical



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POWER OUTPUT

Direct output, watts per channel, both channels driven	
8 Ω , 45 Hz-20 kHz, 0.1% THD	400
8 Ω , 1 kHz, 1% THD	475
4 Ω , 45 Hz-20 kHz, 0.1% THD	600
4 Ω , 1 kHz, 1% THD	700
2 Ω , 1 kHz, 1% THD*	900
Isolated outputs, watts per channel, both channels driven	
70V or 100V, 1 kHz, 0.1% THD	500
25V, 1 kHz, 0.1% THD	400
Direct Outputs, bridged mono	
8 Ω , 45 Hz-20 kHz, 0.1% THD	1200
4 Ω , 1 kHz, 1% THD*	1800
Isolated outputs, bridged mono	
50V, 1 kHz, 0.1% THD	800
140V, 1 kHz, 0.1% THD	1000
200V, 1 kHz, 0.1% THD	1000

DISTORTION SMPTE-IM, less than 0.05%, direct outputs

FREQUENCY RESPONSE

Direct outputs:	-3 dB @ 45 Hz*, -0.2 dB @ 20 kHz
Isolated outputs:	45 Hz*-16 kHz, +0, -3 dB
* Low frequency response on "T" versions is limited by 18 dB/octave 45-Hz high-pass filter.	

DAMPING FACTOR 200 (@ direct outputs)

OUTPUT REGULATION 100V-1.1 dB; 70V-1.2 dB; 25V-2.0 dB

NOISE 100 dB below rated output (20 Hz to 20 kHz)

VOLTAGE GAIN
@ direct outputs 56.5x (35 dB)

INPUT SENSITIVITY, VRMS
for rated power, 8 Ω 1.00

INPUT IMPEDANCE 10K unbalanced, 20K balanced

CONTROLS

Front: AC Switch
Rear: Parallel/Stereo/Bridge Switch,
Ch.1 and Ch. 2 Attenuator Knobs (11 detents: 0, -2, -4, -6, -8, -10, -12, -14, -18, -24, off)

FRONT PANEL/INDICATORS (per channel)

PROTECT:	Red LED
CLIP:	Red LED
SIGNAL:	Yellow LED
POWER:	Green LED

REAR PANEL/CONNECTORS (each channel)

Input:	Euro-style detachable header
Output:	Covered barrier strips

COOLING 2-speed fan, with back-to-front air flow

AMPLIFIER PROTECTION

Output Averaging™ short circuit protection, open circuit, ultrasonic, RF, thermal muting
Stable into reactive or mismatched loads

LOAD PROTECTION Turn-on/turn-off muting, DC-fault load grounding relay with internal fault fuses

OUTPUT CIRCUIT TYPE Class H complementary linear stage, with 2-step high-efficiency circuit

POWER REQUIREMENTS: 100, 120, 220-240 VAC, 50/60 Hz

POWER CONSUMPTION

Normal operation: 1/8 power @ 4 Ω per channel
Worst case continuous program: 1/3 power @ 2 Ω per channel
Maximum: full power @ 2 Ω per channel
Multiply current by 0.5 for 220-240 VAC operation

Channel Load	AC Current, Full Power	AC Current, 1/3 Power	AC Current, 1/8 Power	AC Current, Idle
8 Ω + 8 Ω	14.7 A	8.4 A	4.5 A	0.8 A
4 Ω + 4 Ω	23 A	12.4 A	6.1 A	0.8 A
2 Ω + 2 Ω	33 A	16.5 A	8.0 A	0.8 A
25V, 70V, 100V	21 A	10.9 A	5.7 A	0.8 A

DIMENSIONS

Faceplate Width	Standard 19" (48.3 cm) Rack Mounting
Chassis Depth	17.9" (45.5 cm) deep (to rear support ears)
Faceplate Height	5.25" (13.3 cm)

WEIGHT Shipping-75 lb; 34 kg; Net-67 lb; 30.4 kg

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. Overall electrical efficiency, with four or eight-ohm loads, shall exceed 40% at 1/3 power and 30% at 1/8 power. The amplifier shall operate from 50-60 Hz AC power, with internal taps for selecting voltages 100, 120, or 220-240 VAC. The amplifier shall operate from a normal household AC outlet, drawing less than 750 VA when driven with random program material at 1/8 rated power into four ohm loads. The amplifier shall be supplied with a single molded AC cord having an appropriate AC plug for the intended operating voltage.

The amplifier shall employ forced-air cooling with a two 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 necessary between amplifiers for ventilation. The amplifier shall be capable of continuous operation at 1/8 power, into four-ohm loads, for ambient temperatures up to 104 F (40 C).

The amplifier shall contain two independent channels, with separate AC transformer secondaries, power supplies, and protection systems. All protection systems shall be self resetting upon removal of fault, and the remaining channel shall continue to operate. Each channel shall have independent protective circuitry against open circuit, short circuit, or mismatched loads. Each channel shall monitor temperature of its heat sink and power transformer, and shall trigger fan speed boost, and if necessary, signal muting to prevent excessive temperature rise. Each channel shall have 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 load-grounding relay with fault fusing to interrupt power. Fault fuses shall be adequately large to prevent nuisance blowing at any output power the amplifier is capable of delivering.

Each channel shall have the following controls and displays: A rear panel Gain control and Bridge/Stereo/Parallel mode switch, front panel displays consist of a green LED power-on indicator; one yellow LED signal indicator, triggering at -30 dB; a red LED showing true amplifier clipping; and a red LED which indicates muting when illuminated. The output connectors for each channel shall be shrouded barrier strip connectors. The input connector shall be mounted on a removable panel to permit upgrades. The standard input panel shall provide detachable Euro-style header connections for each channel. 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. The standard input panel shall contain switches for mono-bridging and parallel inputs, and solder patterns for input isolation transformers, gain reduction resistors, and first-order high and low pass filters.

The input panel shall have enough space behind it to contain a circuit board measuring up to 5.9" wide by 4.1" deep. The multi-pin connector to the amplifier circuitry shall supply positive and negative DC supply currents, and for each channel, balanced input signals, output signal, and clip/protect signal. Optional XLR and 1/4" RTS input connectors may be installed in place of a standard blank panel, mounted above the standard input panel.

Internally-mounted toroidal output transformers shall provide electrically isolated output taps for 25, 70, and 100 volt distributed lines. The direct amplifier output shall also be available to drive voice coil loads. The use of voice coil and distributed line operation is independent on each channel. It is possible to use both the direct and isolated outputs simultaneously on a single channel, as long as the total power rating of the amplifier is not exceeded. A built-in 45 Hz, third-order subsonic filter shall be provided to reduce saturation of speaker transformers, due to excessive low frequency program material. The filter is non-defeatable and affects all outputs.

Each channel shall be capable of meeting the following performance criteria with both channels driven: Sine-wave output power of 400 watts into eight ohms, and 600 watts into four ohms, 45 Hz to 20 kHz, with less than 0.1% THD. Frequency response at 3 dB below rated power shall be -3 dB at 45 Hz and -0.2 dB at 20 kHz. The voltage gain shall be 56.5, equivalent to 35 dB, and the input sensitivity shall be 1.00 Vrms. The signal to noise ratio over the range of 20 Hz to 20 kHz shall exceed 100 dB. IHF damping factor shall exceed 200 for the direct outputs. Output regulation, of the isolated outputs, shall not exceed 1.1 dB at 100 volts, 1.2 dB at 70 volts and 2.0 dB at 25 volts.

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 75 lbs. (34 kg). The amplifier shall be the QSC Audio Products Model CX 12T.