

7100

Two-Channel Power Amplifier



- Space-saving, single-rack-space chassis (1.75-in. chassis height)
- Convection cooled for zero fan noise
- Front-mounted gain controls and headphone jack for easy access
- Octal sockets accept EV crossover and equalizer modules for easy system expansion
- 3-year warranty

SPECIFICATIONS

Conditions:

1. 0 dBu = 0.775 V rms
2. Dual-mode ratings are for each channel
3. Both channels operating at rated output power unless noted
4. 120-volt ac line input voltage maintained for all tests unless noted

Continuous Rated Output Power (20-20,000 Hz at less than 0.1% THD, both channels driven per EIA RS-490),

Dual Mode, 4 Ohms:

100 watts

Bridge Mode, 8 Ohms:

200 watts

Dual Mode, 8 Ohms:

75 watts

Bridge Mode, 16 Ohms:

150 watts

Continuous Rated Output Power to Subwoofer (20-20,000 Hz at less than 0.1% THD, both channels driven per EIA RS-490),

Dual Mode, 4 Ohms:

130 watts

Bridge Mode, 8 Ohms:

260 watts

Dual Mode, 8 Ohms:

95 watts

Bridge Mode, 16 Ohms:

180 watts

Continuous Rated Output Power (1 kHz, 1% THD, both channels driven per EIA RS-490),

120 volts ac Line Voltage,

Dual Mode, 4 Ohms: > 145 watts

Bridge Mode, 8 Ohms: > 270 watts

Dual Mode, 8 Ohms: > 100 watts

Bridge Mode, 16 Ohms: > 200 watts

108 volts ac (10% sag),

Dual Mode, 4 Ohms: > 115 watts

Bridge Mode, 8 Ohms: > 220 watts

Dual Mode, 8 Ohms: > 80 watts

Bridge Mode, 16 Ohms: > 155 watts

100 volts ac (17% sag),

Dual Mode, 4 Ohms: > 95 watts

Bridge Mode, 8 Ohms: > 185 watts

Dual Mode, 8 Ohms: > 70 watts

Bridge Mode, 16 Ohms: > 135 watts

Headroom, Single Channel Mode

(before clip, at 1 kHz, 1% THD):

≥ 1 dB

Power Bandwidth (at 1 kHz, +0/-1 dB, where dBr equals rated output power in any mode):

20-20,000 Hz

Frequency Response (at 1 kHz, 1 watt output, +0/-3 dB):

10-50,000 Hz

Voltage Gain (at 1 kHz),

Dual Mode, 4 Ohms:

28 dB

Dual Mode, 8 Ohms:

30 dB

Bridge Mode, 8 Ohms:

34 dB

Bridge Mode, 16 Ohms:

36 dB

Input Sensitivity for Rated Output Power (at 1 kHz, ±0.5 dB),

Dual Mode, 4 Ohms:

0 dBu (0.774 V rms)

Bridge Mode, 8 Ohms:

-0.25 dBu (0.752 V rms)

Dual Mode, 8 Ohms:

+0.5 dBu (0.869 V rms)

Bridge Mode, 16 Ohms:

+0.5 dBu (0.869 V rms)

Maximum Input Level (reference 1 kHz):

+20 dBu (7.75 V rms)

Input Impedance (reference 1 kHz),

Balanced:

> 30 kilohms

Unbalanced:

> 15 kilohms

Phase Response (at rated output power, any mode),

at 20 Hz:

< +25°

at 20,000 Hz:

> -25°

THD (any mode, 30 kHz measurement bandwidth):

< 0.1% (Typ. < 0.05%)

IMD [SMPTE 4:1] (Any mode):

< 0.1% (Typ. < 0.01%)

Slew Rate (at rated output power),

Dual Mode, 4 or 8 Ohms:

> 19 V/μsec

Bridge Mode, 8 or 16 Ohms:

> 37 V/μsec

Damping Factor, Dual Mode, 8 Ohms,

1 kHz:

> 100

Noise (below rated output power,

A-weighting filter, any mode,

50/60-Hz ac line frequency):

> 100 dB

Amplifier Protection:

Shortened output terminals

Over temperature

rf interference

Load Protection:

Startup/shutdown transients

DC faults

Infrasonic signals

Cooling:

Convection (thermally equalized 3/16-inch

black anodized aluminum heatsink)

Output Topology:

True complementary symmetry

7100 SPECIFICATION GRAPHICS

FIGURE 1 — 7100 Dimensions

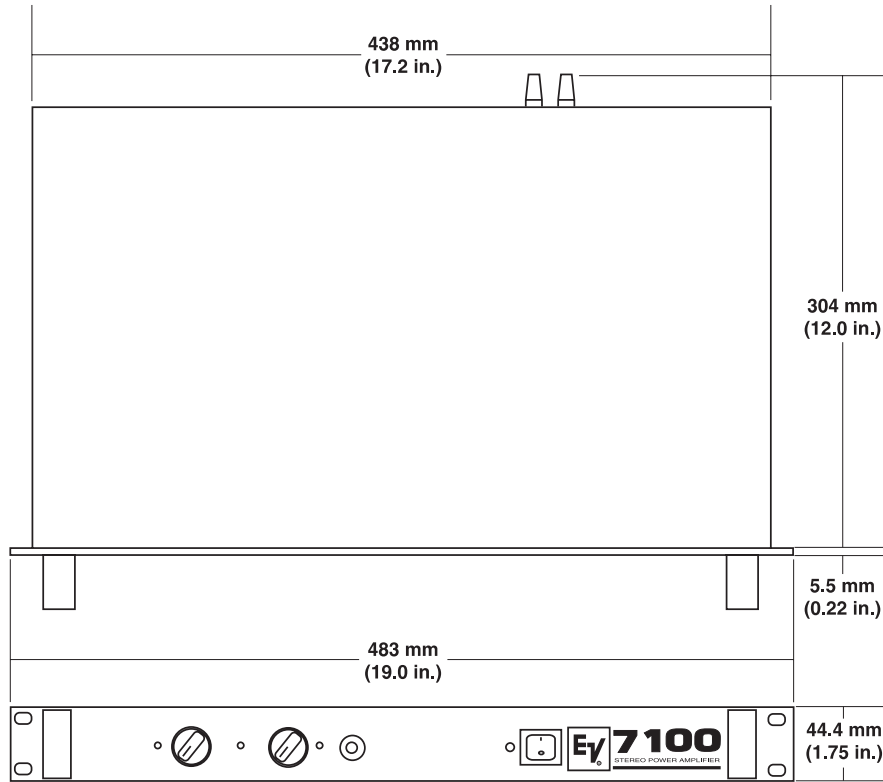


FIGURE 2 — Front and Back Panels

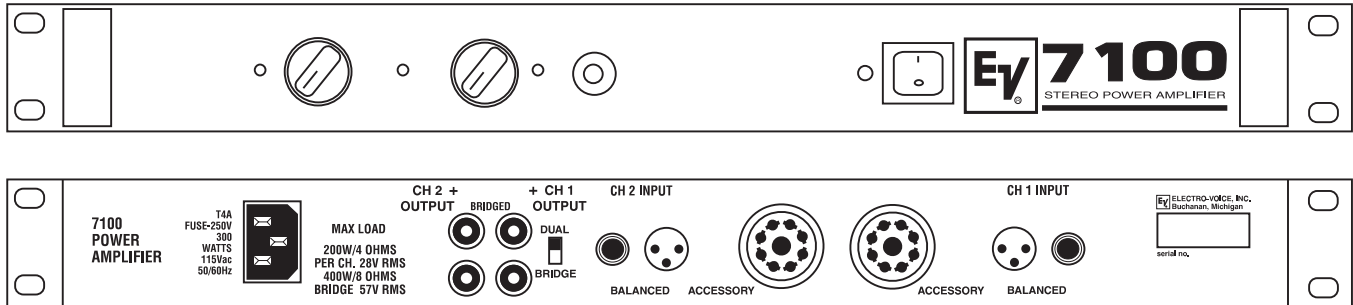


FIGURE 3 — 7100 Typical Input Connections

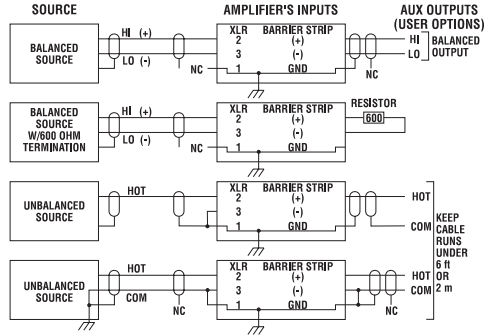
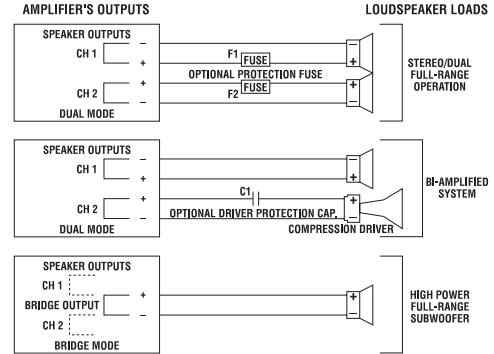


FIGURE 4 — 7100 Typical Output Connections



AWG (GA)	DCR/ft (W/ft)	Power Loss/ft (watts/ft)	Cable Cross-Sectional area (mm ²)	DCR/meter (W/m)	Power Loss/meter (watts/m)
6	0.00081	0.0126	13.30	0.00264	0.0412
8	0.00121	0.0189	8.36	0.00421	0.0657
10	0.00204	0.0318	5.26	0.00669	0.1044
12	0.00324	0.0506	3.31	0.01063	0.1658
14	0.00515	0.0804	2.08	0.01691	0.2636
16	0.00819	0.1278	1.31	0.02685	0.4181
18	0.01302	0.2031	0.82	0.04289	0.6665
20	0.02070	0.3226	0.52	0.06764	1.0480
22	0.03292	0.5122	0.33	0.10658	1.6434

TABLE 1 — 7100 Power Losses in Two-Wire Speaker Cable

Output Type,

Dual Mode: Unbalanced, each channel

Bridge Mode: Balanced

Output Devices (4 devices),

Pd_{max}: 130 watts

Ic: 15 A dc

Vceo: 180 V dc

Tj_{max}: 150 °C

Controls and Switches:

Mode switch—rear

Input Level Controls (two)—front

Power switch—front

Front-Panel Indicators:

Power LED

Clip LEDs (two)

Protect LEDs (two)

Connections,

Input:

1/4-inch phone (two)

Female XLR-type connectors (two)

Octal accessory sockets (two)

(powered with ±15 volts dc at 25 mA)

Output:

Five-way binding posts

Power:

1.83 m (6 ft), three-wire, 16 GA power cord with NEMA 5-15 plug/IEC

Fuse Type:

T 4.0 A/250 V Slo-Blo® or equivalent (for 120 V ac use)

Power Requirements:

120 V ac, 50/60 Hz, 400 watts

(configurable to 220/240 V ac)

100 V ac, 50/60 Hz model available

Power Consumption/Heat Produced (both channels operating, dual mode, with 1 kHz sinewave input signal at stated output power into 4 ohm loads),

Idle:

30 watts/0.238 kBTU/hr

One-Eighth Maximum Midband Power:

270 watts/1.364 kBTU/hr

One-Third Maximum Midband Power:

390 watts/2.047 kBTU/hr

Rated Output Power:

600 watts/3.070 kBTU/hr

Maximum Midband Power:

730 watts/3.309 kBTU/hr

Operating Temperature Range:

Up to 50 °C (122 °F) ambient

Dimensions,

Height: 44.4 mm (1.75 in.)

Width: 482.6 mm (19.0 in.)

Depth: 325.1 mm (12.8 in.)

Color:

Gray and black

Enclosure:

Rack mount chassis

16-GA steel

3/16-inch 5052 aluminum alloy front panel

Shipping Weight:

9.97 kg (22.0 lb)

Net Weight:

8.16 kg (18.2 lb)

Supplied Items:

Operating instructions and service manual;

four "U" jumper plugs for octal sockets; one

2-A/250-V fuse for 220/240-V ac use

Optional Plug-In Accessory Modules:

APX 24-dB-per-octave Linkwitz-Riley crossover, switch selectable on ISO one-third-octave center frequencies from 50-10,000 Hz; APX-2 crossover, as APX but with external high-pass output for other amplifiers; APX-200 dual-channel equalizer for FR200 speaker system.

DESCRIPTION

The Electro-Voice 7100 stereo power amplifier utilizes proven design concepts to provide an ultra-reliable amplifier with virtually unmatched performance characteristics. It achieves this success without increased complexity or cost, making it a real value.

Each channel delivers over 75 watts of continuous average power into 8 ohms or over 100 watts into 4 ohms over the full audio frequency range. In the bridge mode, the amplifier can deliver more than 200 watts into an 8-ohm load at less than 0.10% THD. The maximum midband output power is 100 watts per channel into 8 ohms and 145 watts per channel into 4 ohms at less than 1% THD. Four output devices are utilized for a total device power dissipation of 520 watts. Because the large heatsink area allows more than adequate dissipation, the amplifier is convection cooled and performs in total silence.

The single rackspace (1.75 in.) chassis height makes for convenient installation. Each channel is independently protected against excessive output voltage, excessive phase shift, radio-frequency interference, shorted loads and overtemperature.

The load is protected against startup and shutdown transients, DC faults, low ac voltage and subsonic signals.

A unique current-limiting circuit was designed specifically for the amplifier. It features a vari-

able current limit which is a function of the output signal voltage. As a result, the amplifier can deliver the rated currents into rated loads, but substantially limits the current into low impedance or shorted loads (shorted output terminals). Once the short is removed, however, the amplifier will resume normal operation.

The amplifier has "protect" LEDs for each channel which illuminate if the amplifier goes into thermal protection or if an internal circuit fault develops. The amplifier has octal accessory sockets which will accommodate a variety of crossover and equalizer modules, simplifying system hookup and decreasing cost. These electronic modules are powered from a bipolar 15-volt supply in the amplifier.

The amplifier has a 31-position detented gain control and separate "clip" and "protect" LEDs for each channel.

The amplifier will operate at 120 or 240 volts 50/60 Hz. A separate model is available for 100-volt, 50/60-Hz operation.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The power amplifier shall be a dual-channel model of solid-state design employing true complementary-symmetry output circuitry and capable of operating from a 100/120/200/220/240-V, 50/60-Hz ac line. The amplifier shall contain sensing circuitry to provide protection for the output transistors against over-temperature, excessive output voltage, radio-frequency interference, shorted loads and excessive output phase shift. The load shall similarly be protected against infrasonic signals, startup/shutdown transients, low ac line voltage, and dc.

Rear-mounted panel controls shall include a two-position mode switch for selecting between the dual monophonic mode or the bridged monophonic mode. Input connections for each channel shall include an octal socket for use with optional electronic accessory modules, a 3-pin female XLR-type connector and 1/4-inch phone jack. Output connectors shall be 5-way binding posts.

Front panel indicators shall include an illuminated power on/off indicator, individually illuminated protection-circuit-activation indicators (Protect) and clipping indicators (Clip). Front panel controls shall include a 31-detent gain control for each channel and an on/off switch.

The power amplifier shall meet the following performance criteria: Maximum input voltage: 7.75 V rms. Input voltage for rated output power into 4 ohms: 0.775 rms. Rated output power per channel: greater than 100 watts into 4 ohms from 20 Hz to 20 kHz at less than 0.10% THD; greater than 75 watts per channel into 8 ohms from 20 Hz to 20 kHz at less than 0.05% THD; greater than 200 watts into an 8-ohm bridged load from 20 Hz to 20 kHz at less than 0.10% THD with one channel driven. Voltage amplification in dual mode: 28 dB. Hum and noise: greater than 100 dB (A weighted) below rated output power. Frequency response: 10 Hz to 50 kHz, +0/-3 dB at any output power up to rated

output power. Damping factor: greater than 100 at any frequency up to 1 kHz in dual mode with 8-ohm load.

Intermodulation distortion (SMPTE): less than 0.1% in any mode into 8 ohms. Crosstalk: less than 70 dB below rated output power. Operating temperature: up to 50 °C (122 °F) ambient. Dimensions (H x W x D): 1.75 in. x 19.0 in. x 12.8 in. (44.4 mm x 482.6 mm x 325.1 mm). Net weight: 18.0 lbs (8.16 kg). Color: gray front panel with black top, bottom, sides and rear with white nomenclature.

The power amplifier shall be the Electro-Voice 7100.

UNIFORM LIMITED WARRANTY

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The

product will be returned to the customer prepaid. **Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than Electro-Voice or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to Electro-Voice or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from Electro-Voice at 600 Cecil Street, Buchanan, MI 49107 (616/695-6831 or 800/234-6831). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the cus-

tomers are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Electro-Voice Electronics are guaranteed against malfunction due to defects in materials or workmanship for a period of three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (616/695-6831 or 800/234-6831).

Specifications subject to change without notice.



ELECTRO-VOICE a MARK IV company 600 Cecil Street, Buchanan, Michigan 49107

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