

AP2800

Dual-Channel Power Amplifier

- Independent channel selection for 8/4-ohm and/or 70-volt operation
- Ultraquiet and efficient cooling system
- Interchangeable input modules
- Illegal mode protection for mono output modes
- Linkable signal processing PCBs plug directly onto input modules
- InterActive Technology compatible

Description

The Electro-Voice AP2800 dual-channel power amplifier is designed for direct voice-coil drive and/or 70-volt distributed systems. Each channel can be independently configured for 70-volt line operation or 8/4-ohm systems. The two channels can be paralleled or bridged for driving a single load.

This amplifier features an ultraquiet, continuously variable cooling system which pulls air from front to rear in a directed fashion which focuses the air flow on the critical components. A removable air filter is incorporated into the front grille allowing easy access for cleaning or replacement.

The signal input module is removable and comes standard with both XLR and screw terminal connectors. Optional signal processing PCBs plug directly onto the input modules. Control module options provide compatibility and connection to EVI Audio's Interactive Technology network, allowing remote, centralized supervision and/or control of the amplifier.

Each channel is protected against load shorts, over temperature and output DC. Front-panel indicators provide a visual display of signal present, signal clip and stand by for each channel, as well as a power on indicator.

Architects' and Engineers' Specifications

The power amplifier shall be a three-rack space, dual-channel amplifier providing 100 watts per channel in dual channel mode. The amplifier will provide an incorporated means to independently configure each channel for either 8/4-ohm loads, or 70-volt line operation.

The amplifier shall have a switchable configuration between dual-channel, parallel mono and bridged mono mode. The amplifier will also provide a guard against illegal mode operation with a visual indicator as well as disabling operation until channel load configurations correspond to output configuration mode. Bridged mono output mode shall provide a differential balanced signal to the speaker load.

The amplifier will incorporate a directed air-flow cooling system utilizing an ultraquiet continuously variable cross-flow fan pulling air from the front and pushing air out the rear of the amplifier. The unit will provide a front-accessible air filter.

The amplifier shall incorporate interchangeable signal input modules which provide for signal processing PCBs to be directly connected to the module without replacement. Input modules will provide both XLR and screw terminal connectors in a parallel circuit. In-

put module pinouts shall be published information. The amplifier will provide for optional Interactive Technology control modules to be used.

The amplifier shall meet the following performance criteria. Rated power in dual-channel mode: 4-ohm = 500 watts, 8-ohm = 400 watts, 70-volt = 400 watts; rated power in parallel mono mode: 2-ohm = 1,000 watts, 4-ohm = 800 watts, 8-ohm = 400 watts, 70-volt = 800 watts; rated power in bridged mono mode: 8-ohm = 1,000 watts, 16-ohm = 800 watts, 70-volt = 800 watts, 140-volt = 800 watts.

The power amplifier shall be 482.6 mm (19 in.) wide by 425.5 mm (16.75 in.) deep by 133.4 mm (5.25 in.) high and weigh 24.4 kg (53.9 lb).

The power amplifier shall be the Electro-Voice AP2800.

Uniform Limited Warranty Statement

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

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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 EVI Audio Service or any of its authorized service representatives. **Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to EVI Au-

dio Service 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 EVI Audio Service at 600 Cecil Street, Buchanan, MI 49107 (800/234/6831 or FAX 616/695/4743). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer 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.

For warranty repair, service information, or a listing of the repair facilities nearest you, contact the service repair department at: 616/695-6831 or 800/685-2606.

For technical assistance, contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. Eastern Standard time.

Specifications subject to change without notice.

Input Card Pin Assignments

Pin #	Name	Function
1	VOUT_SENSE_CH1	0 to 5 V dc, load voltage channel one.
2	VOUT_SENSE_CH2	0 to 5 V dc, load voltage channel two.
3	IOUT_SENSE_CH1	0 to 5 V dc, load current channel one.
4	IOUT_SENSE_CH2	0 to 5 V dc, load current channel two.
5	TEMP_CH1	0 to 5 V dc, heat sink temperature channel one. scale is 25 to 100 °C.
6	TEMP_CH2	0 to 5 V dc, heat sink temperature channel two.
7	AUDIO_OUT_CH1	Channel one output scaled down for 0 dBu full scale. Can be used for monitoring or line out.
8	AUDIO_OUT_CH2	Channel two output scaled down for 0 dBu full scale. Can be used for monitoring or line out.
9	STANDBY_CH1	Control signal turns channel one power supply on by forcing pin to AGND. Normally connected to PIN 17.
10	+15V	15 V dc supply with 100 mA capacity.
11	STANDBY_CH2	Control signal turns channel two power supply on by forcing pin to AGND. Normally connected to PIN 17.

Pin #	Name	Function
12	-15V	-15 V dc supply with 100 mA capacity.
13	CLIP_CH1	0 to 8 volt signal indicating channel one clip by going high (> 4 volts).
14	+6V	6 V dc supply with 800 mA capacity reference only to DGND.
15	CLIP_CH2	0 to 8 volt signal indicating channel two clip by going high (> 4 volts).
16	DGND	Reference for 6 V dc supply (PIN 14).
17	FAULT_CH1	Normally connected to PIN 9. Indicates channel one critical temp, over-current, output DC or shorted output by going high (> 5 volts). Signal norm is low (< 1 volt). Referenced to AGND.
18	DGND	Reference for 6 V dc supply (PIN 14).
19	FAULT_CH2	Normally connected to PIN 9. Indicates channel two critical temp, over-current, output DC or shorted output by going high (> 5 volts). Signal norm is low (< 1 volt). Referenced to AGND.
20	DGND	Reference for 6 V dc supply (PIN 14).

Pin #	Name	Function
21	POWER_CTL	Shorting this pin to DGND will power down entire amplifier with exception of 6 V dc supply.
22	AGND	Analog, fault and +15-volt supply ground reference.
23	AUDIO_IN_CH2	Unbalanced channel two input to amplifier referenced to AGND. Sensitivity=0.775 Vrms.
24	AGND	Analog, fault and +15-volt supply ground reference.
25	AGND	Analog, fault and +15-volt supply ground reference.
26	AGND	Analog, fault and +15-volt supply ground reference.
27	AUDIO_IN_CH1	Unbalanced channel one input to amplifier referenced to AGND. Sensitivity=0.775 Vrms.
28	AGND	Analog, fault and +15-volt supply ground reference.
29	CHASSISGND	Connects to chassis ground inside amplifier.
30	CHASSISGND	Connects to chassis ground inside amplifier.

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Figure 1—AP2800 Rear Panel Diagram

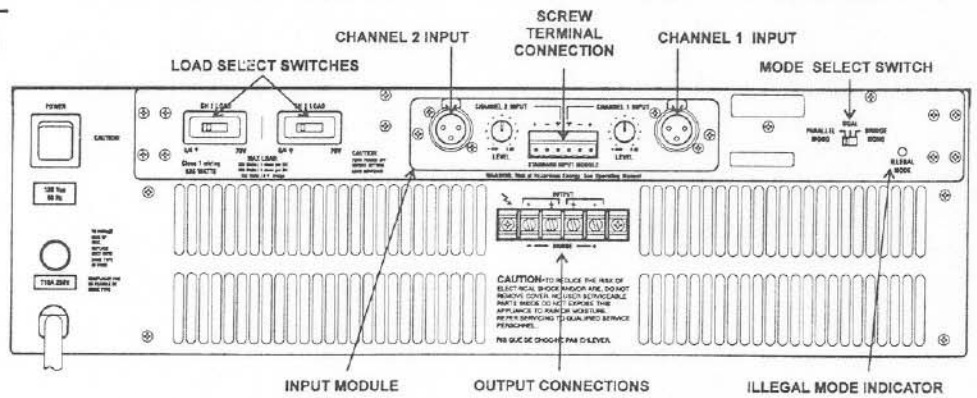
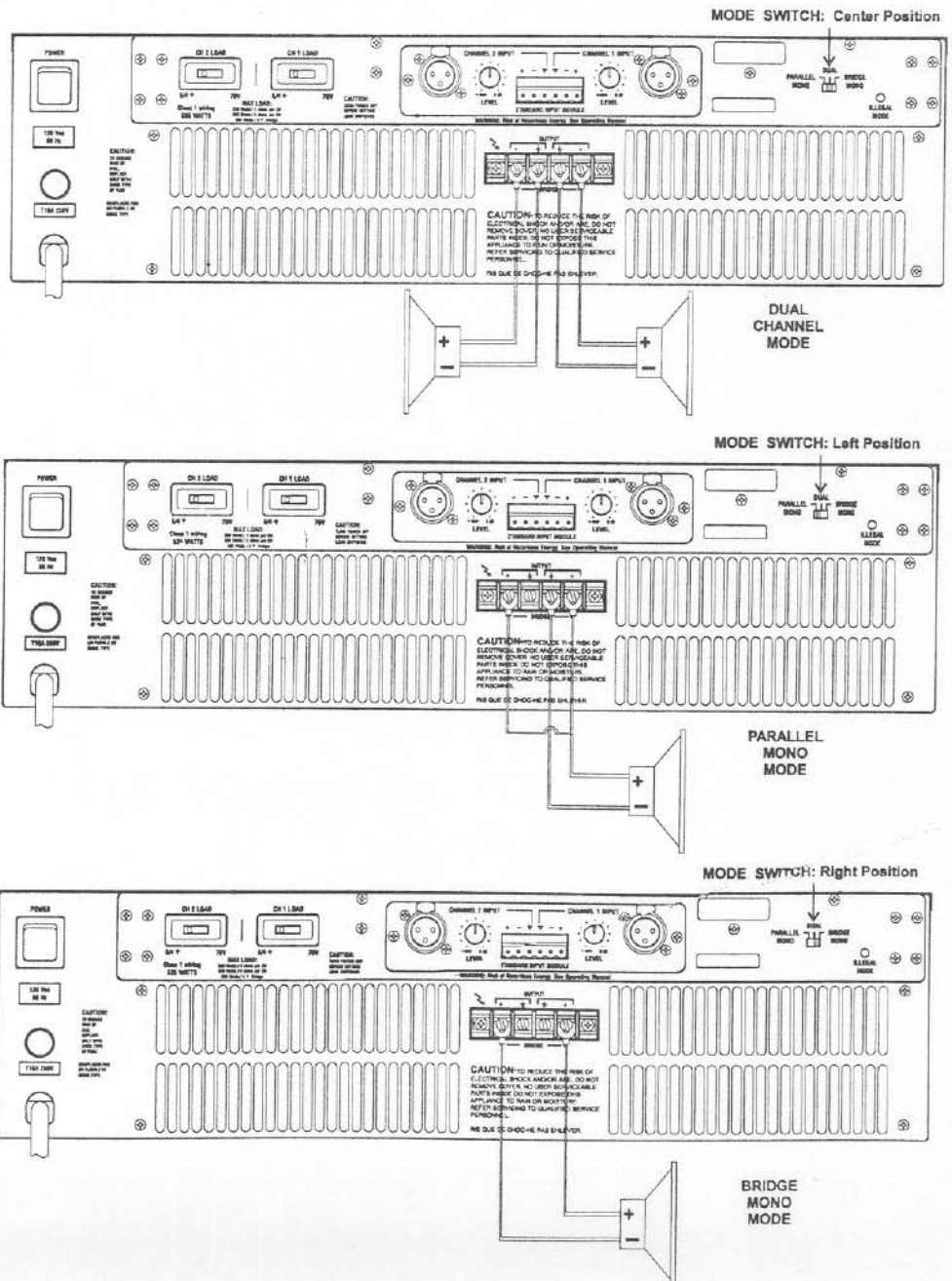


Figure 2—Output Configurations



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Specifications

All output power specifications are for 120 V ac input power unless otherwise stated.

Full Power, 0.1% THD, 1 kHz
(30 kHz measurement bandwidth),
both channels driven, 120 V ac
input power,

Dual Mode:

4 ohm	548 watts
8 ohm	437 watts
70 volt	460 watts

Parallel Mono Mode:

2 ohm	1,060 watts
70 volt	915 watts

Bridged Mono Mode

8 ohm	1,120 watts
140 volt	910 watts

Frequency Response:

10 Hz to 80 kHz
(ref. 1 kHz, 1 watt output, +0/-3 dB)

Power Bandwidth:

20 Hz to 20 kHz
(ref. 1 kHz, +0/-0.5 dB where 0 dB =
rated output power in any mode)

Voltage Gain (ref. 1 kHz):

Dual Mode

4/8 ohm	37.2 dBu
70 volt	39.2 dBu

Parallel Mono Mode

2/4/8/ ohm	37.2 dBu
70 volt	39.2 dBu

Bridged Mono Mode

8/16 ohm	43.2 dBu
140 volt	45.2 dBu

Signal to Noise: >100 dB (A weighted)
measured below rated output

Rated Power THD: <0.1% 20 - 20 kHz
(any mode, 30 kHz measurement
bandwidth)

Sensitivity,

8 ohm/70 volt/140 volt:
0 dBu (0.775 V RMS)

4/2 ohm:

-2 dBu (0.616 V RMS)

Input Impedance: 20 k ohms

Source Impedance: 0.032 ohms

Cross Talk: < -70 dB at 1 kHz

DC Offset: < 5 mV

Slew Rate: 15 V/ μ S

Damping Factor: >300 (1 kHz, 8-ohm)

AC Power: 120 V ac/60 Hz

Minimum AC Voltage:

95 V ac/60 Hz

Power Consumption:

See Table 1 (below)

Dimensions:

Height: 133.4 mm (5.25 in.)

Width: 482.6 mm (19 in.)

Depth: 425.5 mm (16.75 in.)

Weight:

22.45 kg (49.5 lb)

Shipping Weight:

24.42 kg (53.87 lb)

Table 1 — AP2800 Line Current, Power Consumption, Thermal Dissipation and Power Output for Selected Applications

The following table provides guidelines for estimating heat dissipation of each amplifier, given its intended application. This data is based on the following equation:

$$P_{dis} = P_{ac} - P_{ld}$$

where:

P_{dis} = Power dissipated in watts

P_{ac} = True ac mains power in watts consumed

P_{ld} = Total average power delivered to the load

Measurement Conditions:

Line = 120 V ac, both channels driven equally and with equal loads for dual mode measurements.

The application definitions are as follows:

Idle: The amplifier is on with no signal present.

Paging/Background Music: The amplifier is operating with one second announcements (at full power) every 15 seconds or background music which is attenuated -32 dB.

Continuous Speech: The amplifier is operating with continuous speech that is attenuated -23 dB.

Dynamic: The amplifier is operating with a dynamic input signal such as motion-picture sound track or classical music.

Load passages are at full power, soft passages are equivalent to continuous speech.

Full Music Power: The amplifier is operating with continuous music input at rated output to the load with only occasional clipping.

Application: Idle

LOAD	LINE CURRENT (A)	P_{ac} (W)	P_{ld} (W)	P_{dis} (W)	BTU/HR	KCAL/HR
2-ohm parallel	1.11	43	0	43	148	37
4-ohm dual	1.09	42	0	42	144	36
8-ohm dual	1.15	48	0	48	165	41
8-ohm bridged	1.13	47	0	47	161	40
70-V dual	1.19	53	0	53	182	45
70-V parallel	1.11	46	0	46	158	39
140-V bridged	1.13	48	0	48	165	41

Application: Paging/Background Music

LOAD	LINE CURRENT (A)	P_{ac} (W)	P_{ld} (W)	P_{dis} (W)	BTU/HR	KCAL/HR
2-ohm parallel	1.66	104	0.91	104	356	88
4-ohm dual	1.68	110	0.91	109.09	374	93
8-ohm dual	1.43	83	0.73	82.27	282	70
8-ohm bridged	1.68	110	0.91	109.09	374	93
70-V dual	1.48	90	0.73	89.27	306	76
70-V parallel	1.44	84	0.73	83.27	286	71
140-V bridged	1.48	90	0.73	89.27	306	76

Application: Continuous Speech

LOAD	LINE CURRENT (A)	P_{ac} (W)	P_{ld} (W)	P_{dis} (W)	BTU/HR	KCAL/HR
2-ohm parallel	3.26	261	10	251	860	213
4-ohm dual	3.31	264	10	254	870	215
8-ohm dual	2.46	183	8	175	600	149
8-ohm bridged	3.25	259	10	249	853	211
70-V dual	2.47	185	8	177	606	150
70-V parallel	2.45	180	8	172	589	146
140-V bridged	2.48	185	8	177	606	150

Application: Dynamic

LOAD	LINE CURRENT (A)	P_{ac} (W)	P_{ld} (W)	P_{dis} (W)	BTU/HR	KCAL/HR
2-ohm parallel	6.72	592	65	527	1804	446
4-ohm dual	6.81	597	65	532	1822	451
8-ohm dual	4.68	394	52	342	1171	290
8-ohm bridged	6.71	589	65	524	1794	444
70-V dual	4.69	392	52	340	1164	288
70-V parallel	4.82	400	52	348	1192	295
140-V bridged	4.75	394	52	342	1171	290

Application: Full Music Power

LOAD	LINE CURRENT (A)	P_{ac} (W)	P_{ld} (W)	P_{dis} (W)	BTU/HR	KCAL/HR
2-ohm parallel	9.73	893	160	733	2510	621
4-ohm dual	9.8	901	160	741	2537	627
8-ohm dual	6.71	508	128	460	1575	390
8-ohm bridged	9.7	890	160	730	2499	618
70-V dual	6.71	582	128	454	1555	385
70-V parallel	6.93	597	128	469	1606	397
140-V bridged	6.77	586	128	458	1568	388

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