

7180A

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 Altec Lansing 7180A 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 Mark IV 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. Input 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 Altec Lansing 7180A.

Uniform Limited Warranty Statement

Altec Lansing 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

7180A Dual-Channel Power Amplifier

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 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 Audio 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 10500 W. Reno Avenue, Oklahoma City, OK 73127 (800-845-8727 or FAX 405-577-3274). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to

the customer. Altec Lansing 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.

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

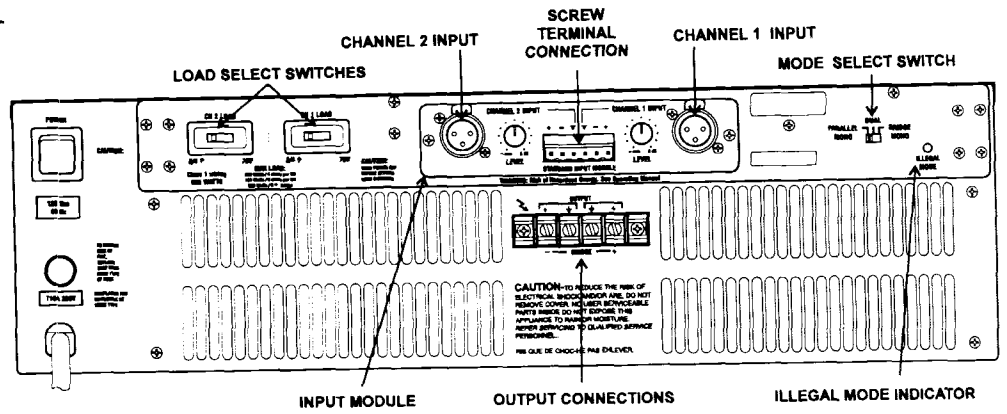
| Pin # | Name | Function |
|-------|----------------|--|
| 1 | VOUT_SENSE_CH1 | 0 to 5 V dc, load voltage channel one. |
| 2 | VOUT_SENSE_CH2 | 0 to 5 V dc, load voltage channel two. |
| 3 | IOUT_SENSE_CH1 | 0 to 5 V dc, load current channel one. |
| 4 | IOUT_SENSE_CH2 | 0 to 5 V dc, load current channel 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. |

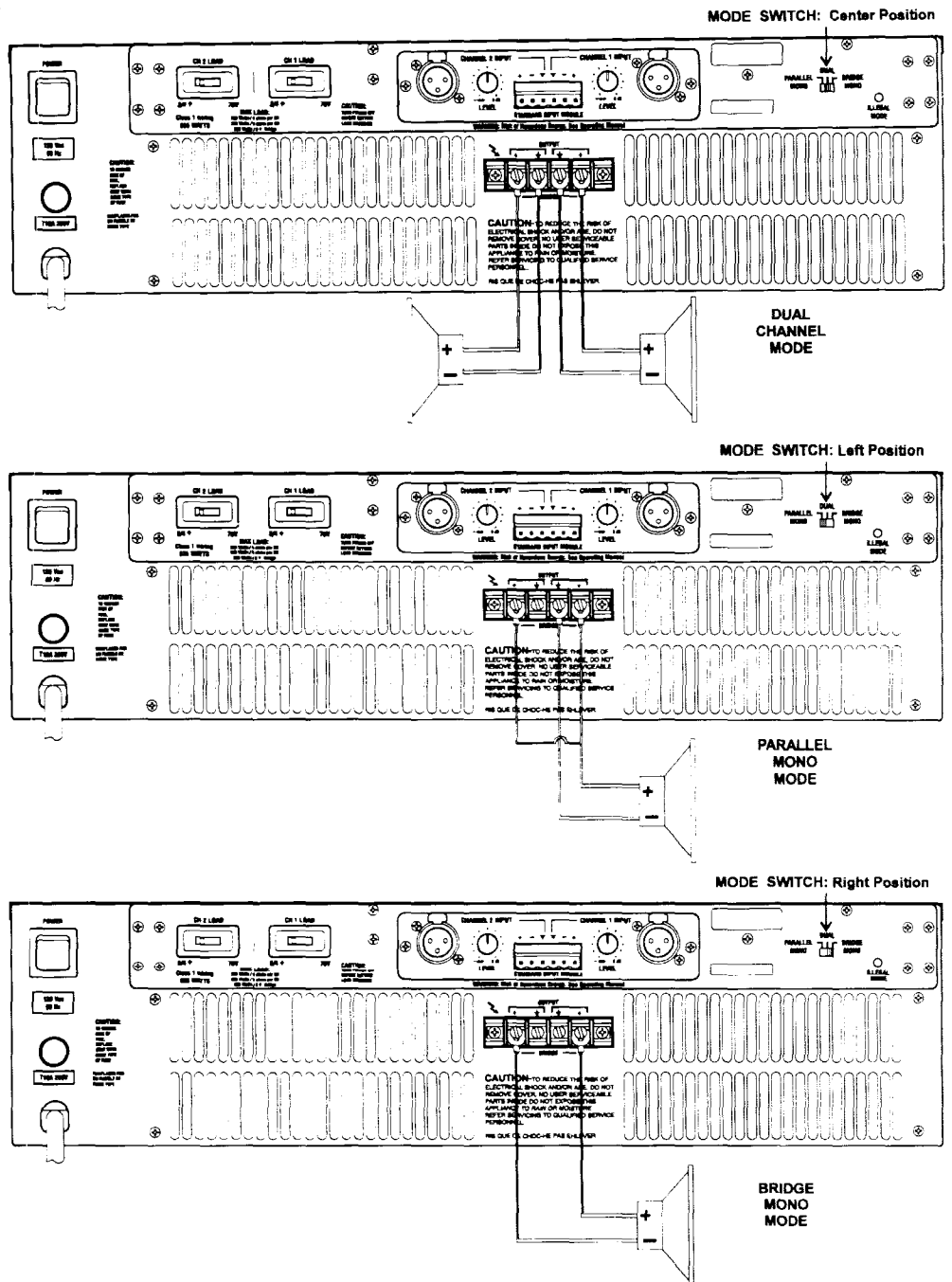
7180A Dual-Channel Power Amplifier

Figure 1—7180A Rear Panel Diagram



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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 dBr)

Power Bandwidth:

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

Voltage Gain (ref. 1 kHz):

Dual Mode

| | |
|---------|----------|
| 4/8 ohm | 37.2 dBr |
| 70 volt | 39.2 dBr |

Parallel Mono Mode

| | |
|------------|----------|
| 2/4/8/ ohm | 37.2 dBr |
| 70 volt | 39.2 dBr |

Bridged Mono Mode

| | |
|----------|----------|
| 8/16 ohm | 43.2 dBr |
| 140 volt | 45.2 dBr |

Signal to Noise: >100 dBr (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 dBr (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/μs

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 — 7180A 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 dBr.

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

Dynamic: The amplifier is operating with a dynamic input signal such as motion-picture sound track or classical music. Loud 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 | 588 | 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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