
IP SERIES DUAL CHANNEL POWER AMPLIFIERS



IP-300D

300W/ch. @ 4Ω

200W/ch. @ 8Ω

600W Bridged Mono @ 8Ω

IP-450D

450W/ch. @ 4Ω

300W/ch. @ 8Ω

900W Bridged Mono @ 8Ω

IP-600D

600W/ch. @ 4Ω

400W/ch. @ 8Ω

1200W Bridged Mono @ 8Ω

DESCRIPTION

The IP-Series Dual Channel Amplifiers represent TOA's continuing commitment to providing exceptional sound products of uncompromised value and reliability. These compact, lightweight amplifiers are ideal for commercial and professional audio systems applications such as meeting halls, hotel ballrooms, sports facilities, houses of worship, and theatres.

The IP-Series Models IP-300D, IP-450D, and IP-600D deliver 300W, 450W, and 600W per channel respectively at 4Ω. These versatile amplifiers allow Stereo, Bridged, or Parallel operation with independent adjustment of each channel in Parallel mode.

TOA uses high quality components such as "Alps" brand stepped attenuators which allow precise gain adjustment and are recessable to prevent accidental setting changes; included attenuator security covers provide an additional level of security. Quiet, ball-bearing-loaded, variable-speed fans ensure efficient cooling. Removable front panel dust filters simplify maintenance.

Advanced protection circuitry continually monitors operating parameters to minimize potential damage from overload, short circuit, DC offset or overheating with front panel LED's to provide instantly recognizable "at-a-glance" status indication. In-rush current limiting prevents AC breaker overload during simultaneous power-up of multiple amplifiers in large systems.

The amplifiers also include front rack mount brackets, rear rack supports and detachable handles for problem-free installation in standard 19" racks. Optional constant-voltage output transformers are available for commercial distributed speaker systems.

FEATURES

- ▼ Clean, reliable, affordable power you can depend on.
- ▼ Compact, lightweight design.
- ▼ Remarkably quiet operation, extremely low noise floor.
- ▼ Occupies only two rack units to conserve rack space.
- ▼ Stereo, Bridged, and Parallel switch-selectable output modes with independent adjustment of each channel in Parallel mode.
- ▼ Electronically balanced screw-terminal and ¼" TRS phone jack input connectors. Optional input transformer available, model LT-101.
- ▼ Large dual screw-terminal barrier strip accepts two sets of #10 AWG speaker cable conductors for each output channel.
- ▼ High quality "Alps" brand stepped attenuators for precise gain adjustments, recessable to prevent accidental setting changes.
- ▼ Attenuator security covers included to provide an additional level of security.
- ▼ Signal Presence, Peak, Protect, and Attenuator Bypass LED's for instantly recognizable status indication.
- ▼ Temperature-controlled, variable-speed fan for efficient cooling.
- ▼ Removable front panel dust filters simplify maintenance.
- ▼ Advanced protection circuitry monitors voltage, current and thermal levels and disables output to minimize potential damage from overloads, short circuit, DC offset or overheating.
- ▼ In-rush current limiter prevents AC breaker overload during system turn-on of multiple amplifiers.
- ▼ Front rack mount brackets and rear rack supports.
- ▼ Detachable front handles for mounting in door-equipped racks.
- ▼ Optional DACsys II interface unit, model DI-1616, for remote control and monitoring via built-in I/O control ports.
- ▼ Optional constant voltage transformers available for commercial distributed speaker systems.
- ▼ Five year "No Questions Asked" warranty.



SPECIFICATIONS*

IP-300D Dual Channel Power Amplifier

Model Number IP-300D

Power Requirements	115V, $\pm 10\%$, 50/60 Hz
Power Consumption	430 VA (Based on UL/CSA standards) 1200 VA (1040 W) (rated output 4 Ω + 4 Ω)
Input	2 Circuits 10k Ω (electronically-balanced) +2.2 dB (1V) ± 0.5 dB (input level control in maximum position) Balanced phone jack, screw-terminal barrier strip
Output	Stereo: 300W + 300W (4 Ω), 200W + 200W (8 Ω) Bridged: 600W (8 Ω) Screw Terminal (M4) Solderless terminal of 5.5-4 or 5.5 -5 usable or #10 AWG bare wire.
Frequency Response	20Hz-20kHz (+0dB-0.5dB)
Total Harmonic	0.01% (8 Ω , 1kHz)
Distortion	0.1% (8 Ω , 20Hz- 20kHz)
Intermodulation Distortion	0.3% @ 8 Ω (60Hz: 7kHz @ 4:1 ratio)
Voltage Gain	32 dB
Protection Circuit	Protection against excessive current flow due to overload, short circuit (under 0.5 Ω), unusual DC voltage output, and heat sink temperature rise over 230°F (110°C)
Dynamic Range	108dB @ 26dB gain, 103dB @ 32dB gain (20Hz- 20kHz)
Cooling System	Forced air cooling under 104°F (40°C): Stop 104°-167°F (40°-75°C): Low to high speed (variable) over 167°F (75°C): High speed
Finish	Panel: Zinc diecasting, black Case: Colored steel plate, black
Dimensions	19" (482mm) W x 18 5/8" (473.5mm) D x 4" (102.4mm) H w/feet or 3 3/8" (86.4mm) w/o feet
Weight	28.6 lbs (13 kg)
Accessories	1 Power Cord 2 Rubber Attenuator Covers 4 Screws M4 x 20

IP-450D Dual Channel Power Amplifier

Model Number IP-450D

Power Requirements	115V, $\pm 10\%$, 50/60 Hz
Power Consumption	660 VA (Based on UL/CSA standards) 1800 VA (1650 W) (rated output 4 Ω + 4 Ω)
Input	2 Circuits 10k Ω (electronically-balanced) +4.0 dB (1.23V) ± 0.5 dB (input level control in maximum position) Balanced phone jack, screw-terminal barrier strip
Output	Stereo: 450W + 450W (4 Ω), 300W + 300W (8 Ω) Bridged: 900W (8 Ω) Screw Terminal (M4) Solderless terminal of 5.5-4 or 5.5 -5 usable or #10 AWG bare wire.
Frequency Response	20Hz-20kHz (+0dB-0.5dB)
Total Harmonic	0.01% (8 Ω , 1 kHz)
Distortion	0.1% (8 Ω , 20Hz- 20kHz)
Intermodulation Distortion	0.3% @ 8 Ω (60Hz: 7kHz @ 4:1 ratio)
Voltage Gain	32 dB
Protection Circuit	Protection against excessive current flow due to overload, short circuit (under 0.5 Ω), unusual DC voltage output, and heat sink temperature rise over 203°F (95°C)
Dynamic Range	110 dB @26dB gain, 105 dB @32dB gain (20Hz- 20kHz)
Cooling System	Forced air cooling under 104°F (40°C): Stop 104-167°F (40-75°C): Low to high speed (variable) over 167°F (75°C): High speed
Finish	Panel: Zinc diecasting, black Case: Colored steel plate, black
Dimensions	19" (482mm) W x 18 5/8" (473.5mm) D x 4" (102.4mm) H w/feet or 3 3/8" (86.4mm) w/o feet
Weight	28.6 lbs (13 kg)
Accessories	1 Power Cord 2 Rubber Attenuator Covers

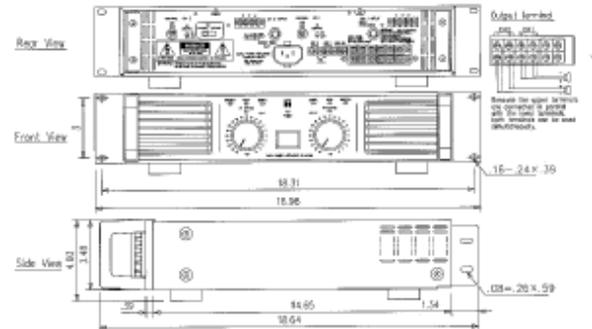
IP-600D Dual Channel Power Amplifier

Model Number IP-600D

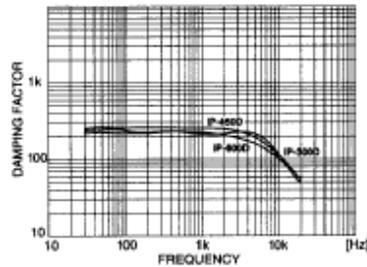
Power Requirements	115V, $\pm 10\%$, 50/60 Hz
Power Consumption	940 VA (Based on UL/CSA standards) 2400VA (2080 W) (rated output 4 Ω + 4 Ω)
Input	2 Circuits 10k Ω (electronically-balanced) +5.3 dB (1.42V) ± 0.5 dB (input level control in maximum position) Balanced phone jack, screw-terminal barrier strip
Output	Stereo: 600W + 600W (4 Ω), 400W + 400W (8 Ω) Bridged: 1200W (8 Ω) Screw Terminal (M4) Solderless terminal of 5.5-4 or 5.5 -5 usable or #10 AWG bare wire.
Frequency Response	20Hz-20kHz (+0dB-0.5dB)
Total Harmonic	0.01% (8 Ω , 1kHz)
Distortion	0.1% (8 Ω , 20Hz- 20kHz)
Intermodulation Distortion	0.3% @ 8 Ω (60Hz + 7kHz @ 4:1 ratio)
Voltage Gain	32 dB
Protection Circuit	Protection against excessive current flow due to overload, short circuit (under 0.5 Ω), unusual DC voltage output, and heat sink temperature rise over 203°F (95°C)
Dynamic Range	112dB @ 26dB gain, 107dB @ 32dB gain (20Hz- 20kHz)
Cooling System	Forced air cooling under 104°F (40°C): Stop 104°-167°F (40°-75°C): Low to high speed (variable) over 167°F (75°C): High speed
Finish	Panel: Zinc diecasting, black Case: Colored steel plate, black
Dimensions	19" (482mm) W x 18 5/8" (473.5mm) D x 4" (102.4mm) H w/feet or 3 3/8" (86.4mm) w/o feet
Weight	39.7 lbs (18kg)
Accessories	1 Power Cord 2 Rubber Attenuator Covers 4 Screws M4 x 20

*Specifications subject to change

APPEARANCE AND DIMENSIONAL DIAGRAM



IP-300D/IP-450D/IP-600D Damping Factor vs. Frequency



ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The amplifier shall be a dual-channel model incorporating all solid state circuitry. Power output with both channels driven shall be a minimum of 300/450/600 watts per channel with a 4-ohm load, 200/300/400 with an 8-ohm load, and 600/900/1200 watts mono-bridged into an 8-ohm load.

Total harmonic distortion (THD) shall be less than 0.01% at 1 kHz with an 8-ohm load. Intermodulation distortion (IMD) shall be less than 0.3% using the SMPTE standard of 60 Hz and 7 kHz in a 4:1 ratio respectively with an 8-ohm load.

Frequency response, referenced to 1 kHz, shall be from 20 Hz to 20 kHz (+0 dB, - 0.5 dB) at any level up to the rated output. Hum and noise below rated output from 20Hz-20kHz shall be 103/105/107 (32dB gain) and 108/110/112 (26dB gain).

Input sensitivity shall be 2.2 dBu/4.0 dBu/5.3 dBu (+/- 0.5 dB) which provides 32 dB of gain for the model's rated output power. Input impedance shall be 10 k-ohms for each side of an electronically balanced input circuit. A rear-panel mode switch shall provide three modes of input operation: Stereo, Bridged, and Parallel. In the Parallel mode, each channel's level shall be independently adjustable.

Rear panel input connectors shall be a 3-circuit balanced 1/4" phone jack and screw-terminal barrier strip. Rear panel output connectors shall be a screw-terminal barrier strip with eight connections for two sets of spade lugs or two sets of up to #10 AWG bare wire circuits per channel. The rear panel shall also have two "VR Control" switches that bypass the front panel attenuators and enable the remote control and monitoring I/O ports, which shall be rear panel mounted as well. The rear panel shall also have a removable chassis and signal ground jumper.

The front panel shall have a recessed AC power switch to prevent accidental turn-off. The front-panel attenuators shall be recessed to

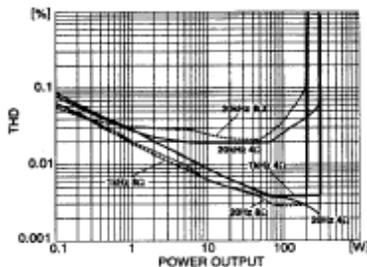
prevent accidental level changes and may be removed and replaced by included rubber covers once levels have been properly set. Two "VR Bypass" LED indicators, located above each attenuator, illuminate when the "VR Bypass" switch on the rear panel has been activated. The front panel shall have two sets of three LED indicators for signal presence, peak clipping, and protection circuit activation. The front panel shall also have removable air filters that may be cleaned and reinstalled without removing the amplifier from a rack.

The amplifier shall be forced air variable-speed, fan cooled with fan speed as follows: OFF < 104°F (40°C), VARIABLE 104°-167°F (40° to 75°C), and HIGH > 167°F (75°C). Built-in protection circuitry shall monitor voltage and current levels to minimize potential damage from overloads, and disable output during shorts, DC offset, or excessive operating temperatures over 167°F (110° C) via a relay for each channel. The relay shall also delay amplifier connection to the load during turn-on for four seconds while the protection circuitry analyzes the load. In-rush current limiting shall minimize turn-on current surges when multiple units are powered-up remotely to prevent AC breaker overload.

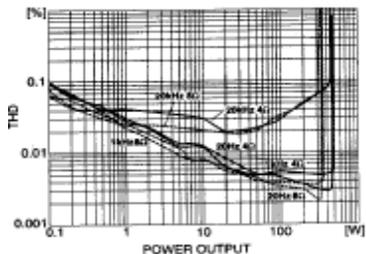
Current draw shall be no more than 430/660/940 VA according to the UL/CSA standard and rated power shall be no more than 1200/1800/2400 VA.

The amplifier shall have front panel carrying handles that are easily removed to accommodate shallow rack doors. It shall be supplied with four removable rubber feet for free-standing use. It shall use only two EIA standard rack-spaces or 3-1/2" (88.9mm) and its dimensions shall be 19" (482mm) W x 18-5/8" (473.5mm) D x 4" (102.4mm) H with feet, or 3-3/8" (86.4mm) H without feet. Front panel finish shall be zinc die cast in black and case finish shall be sheet steel in black. Weight shall be 28.6 lbs. (13 kg)/28.6 lbs. (13 kg)/28.6 lbs./39.7 lbs. (18 kg), respectively. The amplifier shall be TOA model IP-300D /IP-450D /IP-600D.

IP-300D Total Harmonic Distortion (Both Channels Driven)



IP-450D Total Harmonic Distortion (Both Channels Driven)



IP-600D Total Harmonic Distortion (Both Channels Driven)

