



Owner's manual

Gothic Series

OV2-300 / OV2-400 / OV2-520 / OV2-820
OV2-1200 / OV2-1600 / OV4-600 / OV4-800



INTRODUCTION

Amplifiers provide high-performance sound reinforcement for your mobile audio equipment. Its versatility enables compatibility with optional Equalizers, Frequency Dividing Network Crossovers, and other audio processors in a customized system. The Multi-Mode bridging capabilities allow flexibility in hosting several different speaker configurations.

To achieve optimum performance, it is highly recommended that you read this Owners Manual before beginning installation.

FEATURES

- THERMAL / SHORT / OVER LOAD PROTECTION
- PEARL SILVER FINISH
- 2 OHM STEREO / 4 OHM MONO
- P.W.M MOSFET POWER SUPPLY
- POWER & DISTRESS INDICATOR
- SELECTABLE X-OVER HPF / FULL / LPF
- 18 dB. BASS BOOST WITH SWITCH SUB (45Hz)
- VARIABLE HI-PASS AND LOW PASS (40Hz~250Hz)
- GOLD PLATED TERMINAL STRIPS / RCA JACKS
- HEAVY DUTY HEAT SINK
- ADJUSTABLE INPUT SENSITIVITY
- SOFT DELAYED REMOTE TURN-ON
- LOW LEVEL INPUTS
- PHANTOM CHANNEL FOR POWERING CENTER SPEAKER OR SUBWOOFER

WARNING

High powered audio systems in a vehicle are capable of generating "Live Concert" high levels of sound pressure. Continued exposure to excessively high volume sound levels may cause hearing loss or damage. Also, operation of a motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds such as: horns, warning signals, or emergency vehicles, thus constituting a potential traffic hazard. In the interest of safety, Consumer Electronics recommends listening at lower volume levels while driving.

PLANNING YOUR SYSTEM

Before beginning the installation, consider the following:

- a. If you plan to expand your system by adding other components sometime in the future, ensure adequate space is left, and cooling requirements are met.
- b. Should you use high or low inputs?

Your Amplifier has been designed to accept either High-Level (speaker outputs from your radio) or Low-Level (Pre-Amp outputs from your radio) signal source.

If your radio/source is equipped with Pre-Amp outputs, it is possible to utilize them to drive the Amplifier and connecting (Amplifier) to the 2 rear speakers. Then, use the built-in power of your radio to drive the 2 front speakers.

NOTE:

DISTORTION LEVEL IS CONSIDERABLY LOWER FROM PRE-AMP (LOW LEVEL) OUTPUTS, THAN SPEAKER (HIGH LEVEL) OUTPUTS.

- c. Are your components matched? The peak power rating of your speakers must be equal or greater than the Amplifier's. They also must be 2-8 Ohms impedance (This information is normally printed on the speaker magnet).
- d. Consider both the length of your leads, and routing when determining the mounting location. Pre-Amp input Jacks require a length of high quality shielded male to male RCA patch cord.

MOUNTING YOUR AMPLIFIER

The mounting position of your Amplifier will have a great effect on its ability to dissipate the heat generated during normal operation. It has ample heat sink for heat dissipation, and also designed with a thermal shut-down (for heat protection) circuit, making air to be directed over the cooling fins will improve heat dissipation dramatically. DO NOT enclose the amplifier in a small box or cover it so that air cannot flow around fins.

Temperatures in car trunks have been measured as high as 175°F(80°C) in the summer time. Since the thermal shut-down point for the Amplifier is 185°F(85°C) it is easy to see that it must be mounted for maximum cooling capability. To achieve maximum advantage of convection air flow in an enclosed trunk, mount the amplifier in a vertical position, on a vertical surface.

Cooling requirements are considerably relaxed when mounting inside the passenger compartment since the driver will not often allow temperatures to reach a critical point. Floor mounting under the seat is usually satisfactory as long as there is at least 1 inch(2cm) above the Amplifier's fins for ventilation.

- a. Select a suitable location that is convenient for mounting, is accessible for wiring, and has ample room for air circulation and cooling.
- b. Use the amplifier as a template to mark the mounting holes. Remove the Amplifier and drill 4 holes. Use extreme caution, inspect underneath surface before drilling.
- c. Secure the Amplifier using the screws provided.

WIRING CONNECTIONS

A. CONNECTING THE POWER (Fig. 1)

CAUTION:

AS A PRECAUTION, IT IS ADVISABLE TO DISCONNECT THE VEHICLE'S BATTERY BEFORE MAKING CONNECTION TO THE +12 VOLTS SUPPLY WIRING.

4/8 GAUGE (Thicker if planning for additional Amplifiers) wire is recommended both the power and ground wires. 12 Gauge, for the remote turn-on wire. Both types are available at most Mobile Audio Dealers or Installation Shops.

(1) GROUND: To Vehicle Chassis

To avoid unwanted ignition noise caused by ground loops, it is essential that the Amplifier be grounded to a clean, bare, metal surface of the vehicle's chassis.

NOTE:

GROUND WIRE SHOULD NOT BE EXTENDED MORE THAN 3 FT. (1 METER).

(2) +12 Volt (Fused) Constant Power: To Battery (+)

Due to the power requirements of the Amplifier, this connection should be made directly to the positive (+) terminal of battery. For safety measure, install an in-line Fuse Holder (not included) as close to the battery positive (+) terminal as possible with an amperage rating; not to exceed total value of fuses in Amp.

OV2-300:1.5A / OV2-400:2.5A / OV2-520:4.0A / OV2-820:2.5Ax2 / OV2-1200:3.0Ax2
OV2-1600:2.5Ax3 OV4-600:4.0A / OV4-800:2.5Ax2

(3) Remote Turn-One Input : To Power Antenna output of Car Stereo

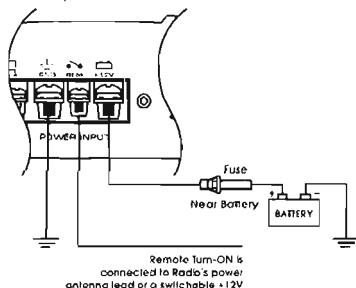
This Amplifier is turned "ON" remotely when the vehicle's stereo is turned "ON".

NOTE:

IF YOUR RADIO DOES NOT HAVE +12 VOLT OUTPUT LEAD WHEN THE RADIO IS TURNED ON,

THE "REM" TERMINAL ON THE AMPLIFIER CAN BE CONNECTED TO VEHICLE'S ACCESSORY CIRCUIT THAT IS LIVE WHEN THE KEY IS "ON"

OV2-300/ OV2-400/ OV2-520/ OV2-820
OV2-1200/ OV2-1600/ OV4-600/ OV4-800



B. VARIABLE LOW-PASS FILTER (40Hz-250Hz)

For use as a dedicated subwoofer channel, set filter switch to "LPF". Adjust variable crossover frequency with control as desired. The amplifier input circuit filters out everything above 40..... 250Hz (dependent on the adjustment of the frequency control), so only the deepest bass notes are amplified.

C. VARIABLE HIGH-PASS FILTER (40Hz-250Hz)

For use as a dedicated mid high rangd channel, set filter switch to "HPF". The input circuit filters out all frequencies below 40Hz....250Hz.

D. BASS BOOST

By using the bass boost function the deepest bass notes at 45Hz are emphasized.

E. CONNECTING HIGH LEVEL INPUTS (Fig.2)

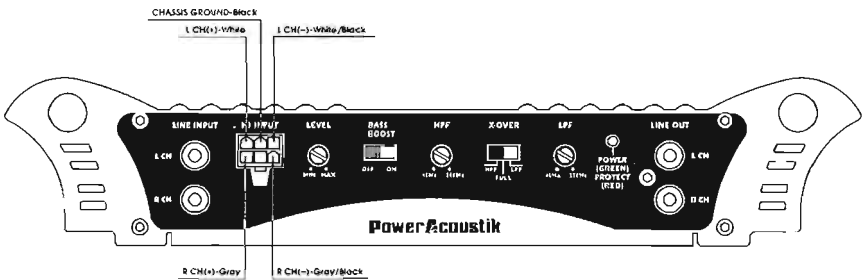
NOTE:

DO NOT CONNECT THESE HIGH LEVEL INPUT WIRES IF YOU ARE USING THE LOW LEVEL INPUT RCA JACKS.

CAUTION

NOTE THAT ONLY POSITIVE (+) WIRES ARE USED. DO NOT CONNECT SPEAKER NEGATIVES

OV2-300/ OV2-400/ OV2-520/ OV2-820/ OV2-1200/ OV2-1600



OV4-600/ OV4-800

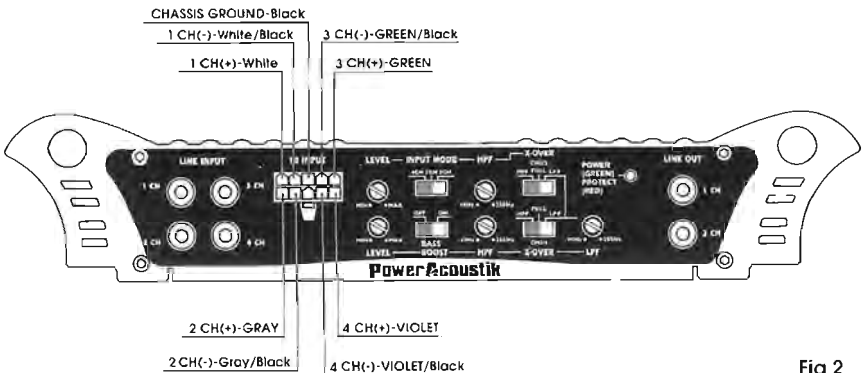


Fig 2

F. CONNECTING LOW LEVEL INPUTS (RCA Jacks)

NOTE:

DO NOT USE IN CONJUNCTION WITH HIGH LEVEL INPUT WIRES.

Wire routing is CRITICAL for NOISE FREE PERFORMANCE. Observe the following:

1. Always use high quality RCA type shielded cables.
2. Always use the shortest length possible, If the cable is too long, make an "S" type loop (not a coiled loop) in the center of the cable to take up any excess.
3. Never cut the shielded cable and re-splice it.
4. Never route any Amplifier input cables near or parallel to speaker outputs, high energy ignition wires, or near computer controlled ignition circuit units (Computer units may be found behind or under the dash panel in late model cars).

POWER INDICATOR LED

This METER LAMP will illuminate when the amplifier is turned "ON". If it fails to illuminate, check the power connections to the Amplifier and fuses.

PROTECTION CIRCUIT

Should the Amplifier be "SHORT CIRCUITED" overloaded or overheated, the protect circuit will "SHUT-DOWN" the Amplifier.

CAUTION

THIS AMPLIFIER IS DESIGNED TO OPERATE WITH A MINIMUM LOAD IMPEDANCE OF 2 OHMS IN STEREO, OR 4 OHMS IN MONO (BRIDGED, MULTI-MODE) CONFIGURATION.

SUBJECTING TO IMPEDANCE'S LOWER THAN RECOMMENDED, MAY CONSTITUTE TO POTENTIAL DAMAGE TO THE MOSFET POWER SUPPLY. FOLLOW INSTRUCTIONS ON SECTION, "WIRING CONNECTIONS" FOR FURTHER INFORMATION.

INPUT SENSITIVITY (LEVEL) CONTROL (Fig.3)

In order to achieve maximum signal-to-noise performance, this control adjusts the signal level from your Car Stereo/Source, to match the Amplifier's sensitivity. It is NOT a volume control.

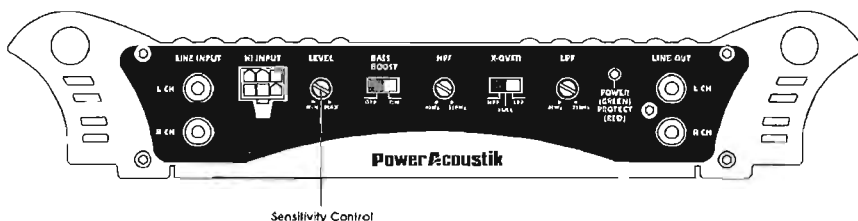
To adjust, proceed as follows:

- Set INPUT LEVEL Control at mid-point.
- Listen for audible distortion as you increase the Car Stereo VOLUME control. If none is heard, turn the adjustment level control toward to "MAX" in stages, until the onset of audible distortion is heard, then decrease to "MIN" level prior to the immediate point of audible distortion.
- If distortion is immediately heard, turn control to "MIN" until the sound is clear.

NOTE:

NOT PERFORMING ABOVE ADJUSTMENT PROCEDURE AND/OR SIMPLY SETTING THIS CONTROL AT OR NEAR "MAX" POSITION, MAY INDUCE ELECTRICAL AUDIO NOISE INTO THE SYSTEM.

OV2-300/ OV2-400/ OV2-520/ OV2-820/ OV2-1200/ OV2-1600



OV4-600/ OV4-800

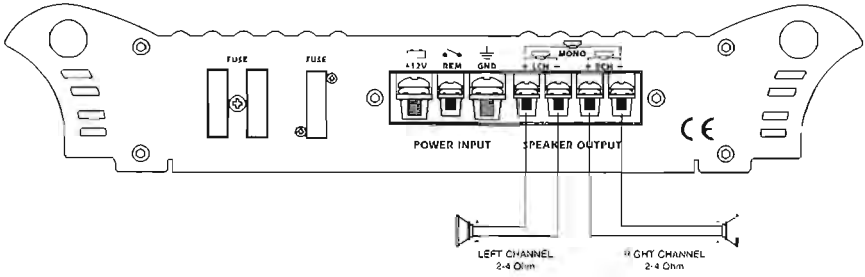


Fig 3

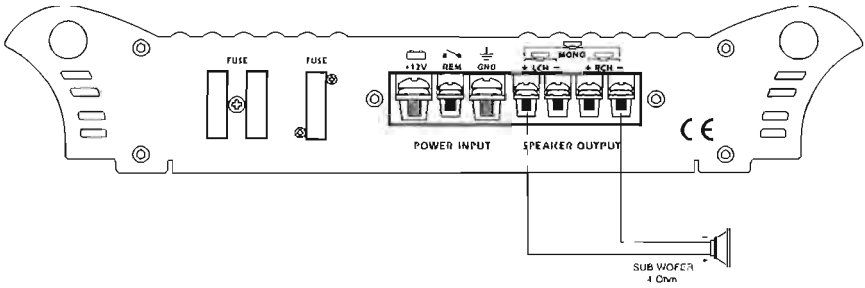
CONNECTING THE SPEAKERS

OV2-300/ OV2-400/ OV2-520/ OV2-820/ OV2-1200/ OV2-1600

(A) STEREO MODE



(B) MONO MODE



(C) TRI MODE

TRI MODE OPERATIONAL OUTPUT allows a Crossover (Subwoofer) to be operated in MONO mode while the main speakers are playing in Stereo.

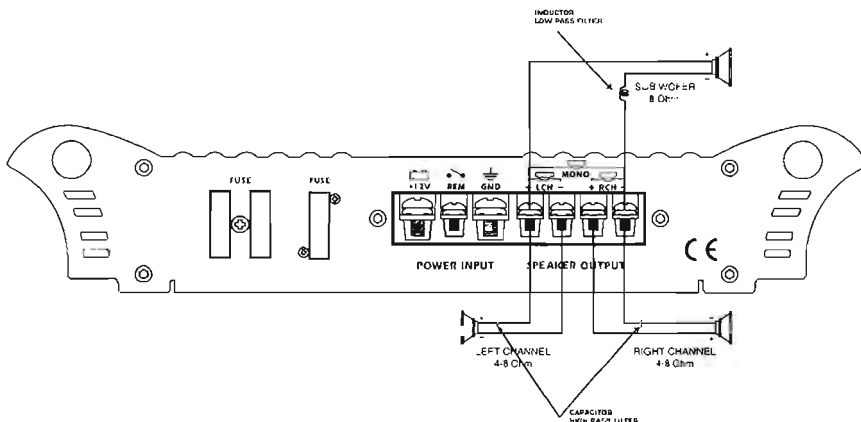
Leave the Crossover (Subwoofer) switch on "Full" position.

Use a 100 Volt, non-polar capacitor for a high pass crossover and a wire coil (inductor) to block high frequencies from the Crossover (Subwoofer) as shown in the figure below.

Capacitor and inductor values as written in the below determine the crossover frequencies.

The front and rear channels of this amplifier get this capability.

Only the rear left and right channels are shown below.

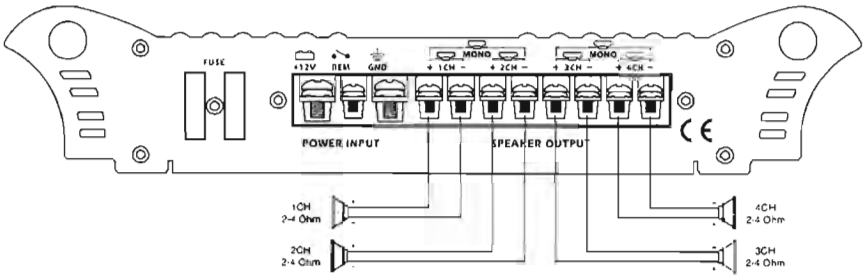


COMPONENT VALUES FOR 6dB PASSIVE CROSSOVER

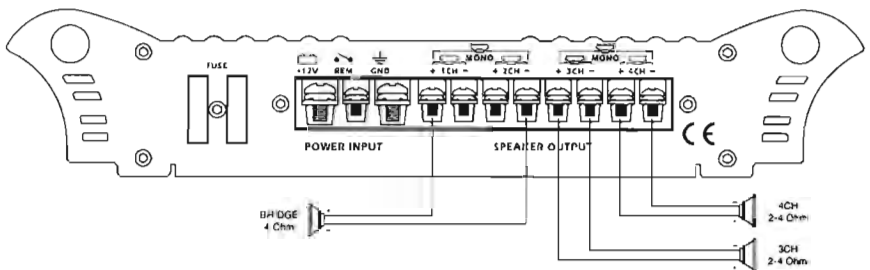
FREQUENCY	INDUCTOR	CAPACITOR
80 Hz	7.5 mH	470 uF
100 Hz	6.5 mH	330 uF
120 Hz	5.5 mH	330 uF
150 Hz	4 mH	220 uF

Model: OV4-600 /OV4-800

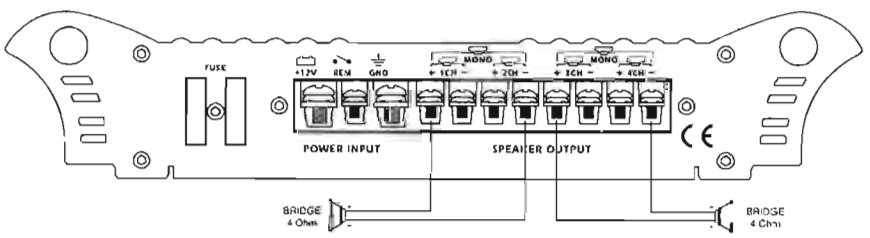
(A) 4 CHANNEL MODE



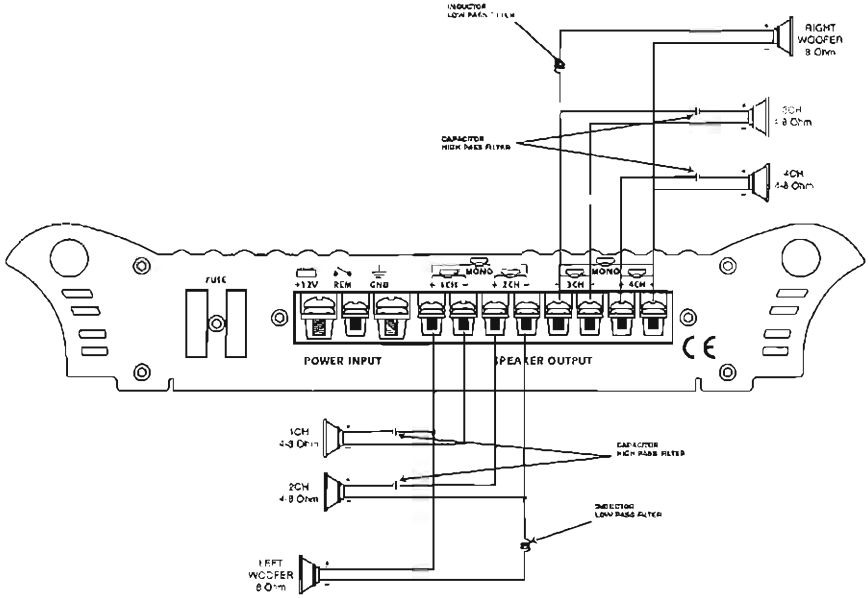
(B) 3 CHANNEL MODE



(C) 2 CHANNEL MODE



(D) 6 CHANNEL MODE



COMPONENT VALUES FOR 6dB PASSIVE CROSSOVER

FREQUENCY	INDUCTOR	CAPACITOR
80 Hz	7.5 mH	470 uF
100 Hz	6.5 mH	330 uF
120 Hz	5.5 mH	330 uF
150 Hz	4 mH	220 uF

TROUBLE SHOOTING GUIDE

SYMPTOMS	CHECK POINTS	CURE
NO SOUND	In the power METER LAMP illuminated?	Check fuses in amplifier. Be sure Turn-on lead is connected Check signal leads. Check gain control. Check Tuner/Deck volume level. Clean contacts on fuse holders.
	Is the Diagnostic LED illuminated?	Check for speaker short or amplifier overheating.
AMP NOT SWITCHING ON	No power to power wire	Repair power wire or connections.
	No power to remote wire with receiver on	Check connections to radio.
	Fuse broken	Check fuse
NO SOUND IN ONE CHANNEL	Check Speaker Leads	Inspect for short circuit or an open connection.
	Check Audio Leads	Reverse Left and Right RCA inputs to determine if it is occurring before the amp.
AMP TURNING OFF MEDIUM/HIGH VOLUME	Check speaker load impedance	Be sure proper speaker load impedance recommendations are observed. (If you use an ohmmeter to check speaker resistance, please remember that DC resistance and AC impedance may not be the same.)
PROTECTION LAMP ON	Temperature shutdown	Turn radio down
	Speaker wires short circuit	Separate speaker wires and insulate

WARNING

Investigate the layout of your automobile thoroughly before drilling or cutting any holes. Take care when you work near the tanks, lines, or hydraulic lines, and electrical wiring. Don't mount this system so that the wire connections are unprotected and are subject to pinching or damage from nearby objects.

The +12V DC power wire must be fused at the battery positive terminal connection. Before making or breaking power connections at this system power terminals, disconnect the +12V wire at the battery end.

Confirm your radio/cassette player and/or other equipment is turned off while connecting the input jacks and speaker terminals.

If you need to replace the power fuse, replace it only with a fuse identical to that supplied with the system. Using a fuse of different type or rating may result in damage to this system which isn't covered by the warranty.

SPECIFICATIONS

Gothic Series

MODEL NO	OV2-300	OV2-400	OV2-520	OV2-820	OV2-1200
MAX Power @2 Ohm	300W	400W	520W	820W	1200W
RMS @2 Ohm	85W x 2CH	105W x 2CH	150W x 2CH	230W x 2CH	300W x 2CH
THD @2 Ohm	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%
RMS @4 Ohm	70W x 2CH	85W x 2CH	125W x 2CH	180W x 2CH	250W x 2CH
THD @4 Ohm	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%
RMS Bridged Power	170W	210W	300W	460W	600W
THD @ 4Ohm	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%
Signal/Noise Ratio	>97dB	>97dB	>97dB	>97dB	>97dB
Channel Separation	>55dB	>55dB	>55dB	>55dB	>55dB
Frequency Response \pm 1.0dB	20Hz-20KHz	20Hz-20KHz	20Hz-20KHz	20Hz-20KHz	20Hz-20KHz
HPF	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz
LPF	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz
Adjustable Sensitivity Range	0.2-1V	0.2-1V	0.2-1V	0.2-1V	0.2-1V
Input	10K Ohms	10K Ohms	10K Ohms	10K Ohms	10K Ohms
Impedance	100 Ohms	100 Ohms	100 Ohms	100 Ohms	100 Ohms
Fuse	15A	25A	40A	25A x 2	30A x 2
Dimension (W x H x L) Inch	7.25 x 11.25 x 2.25	8.5 x 11.25 x 2.25	11.25 x 11.25 x 2.25	14 x 11.25 x 2.25	20.5 x 11.25 x 2.25

FEATURES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

SPECIFICATIONS

Clothie Series

MODEL NO	OV2-1600	OV4-600	OV4-800
MAX Power @2 Ohm	1600W	600W	800W
RMS @2 Ohm	370W x 2CH	85W x 4CH	105W x 4CH
THD @2 Ohm	<0.02%	<0.02%	<0.02%
RMS @4 Ohm	310W x 2CH	70W x 4CH	85W x 4CH
THD @4 Ohm	<0.02%	<0.02%	<0.02%
RMS Bridged Power	740W	170W x 2	210W x 2
THD @ 4Ohm	<0.02%	<0.02%	<0.02%
Signal/Noise Ratio	>97dB	>97dB	>97dB
Channel Separation	>55dB	>55dB	>55dB
Frequency Response \pm 1.0dB	20Hz-20KHz	20Hz-20KHz	20Hz-20KHz
HPF	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz
LPF	40Hz-250Hz	40Hz-250Hz	40Hz-250Hz
Adjustable Sensitivity Range	0.2-1V	0.2-1V	0.2V-1V
Input	10K Ohms	10K Ohms	10K Ohms
Impedance	100 Ohms	100 Ohms	100 Ohms
Fuse	25A x 3	40A	25A x 2
Dimension (W x H x L) . Inch	22 x 11.25 x 2.25	11.25 x 11.25 x 2.25	14 x 11.25 x 2.25

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