PowerAcoustik

# Owner's manual

## Gothic Series

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

CE

## INTRODUCTION

Amplifier provide high-performance sound reinforcement for you mobile audio equipment. It's 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 defore 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 moter 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 to a potential traffic hazard. In the interest of safety, Consumer Electronics recommends listening at lower vilume 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 somtime 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 limpedance (This information os 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 requir 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 of 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 als 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 ture-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 vehicles chassis.
NOTE:
GROUND WIRE SHOULD NOT BE EXTENDED MORE THAN 3 FT.(1 METER).

(2) +12Volt(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 ampere rating; not to exceed total value of fuses in Amp.

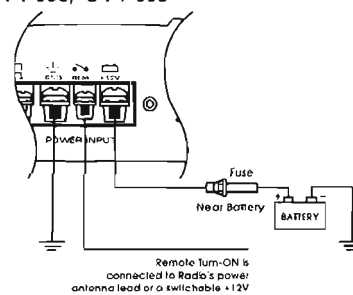
OV2-300:15A /OV2-400:25A/OV2-520:40A/OV2-820:25Ax2/OV2-1200:30Ax2
OV2-1600:25AX3 OV4-600:40A/ OV4-800:25Ax2

(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.

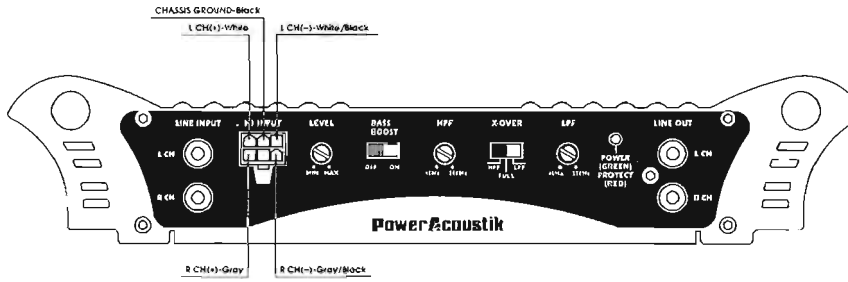
D. BASS BOOST

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**

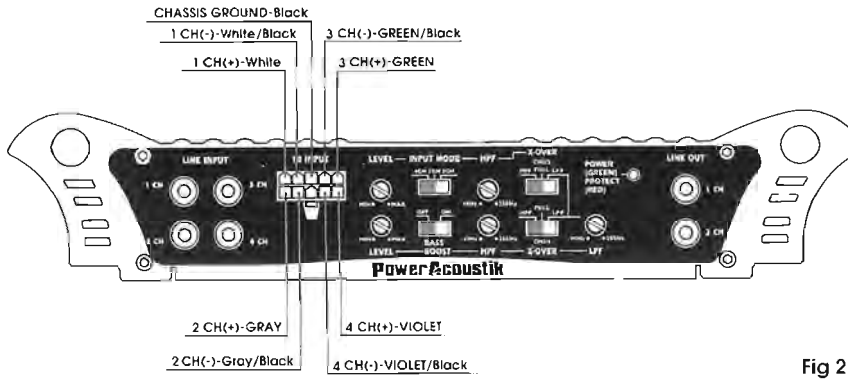



Fig 2

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 lenght 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 MINIMUMLOAD 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:

a. Set INPUT LEVEL Control at mid-point.

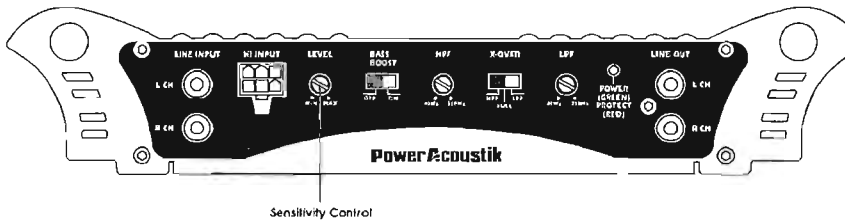
b. Listen for audible distortion as you increase the Car Stereo VOLUME control. If none is heard, turn the adjustment level control toward to "MAX" in stages, until the onset of audible distortion is heard, then decrease to "MIN" level prior to the immediate point of audible distortion.

c. 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

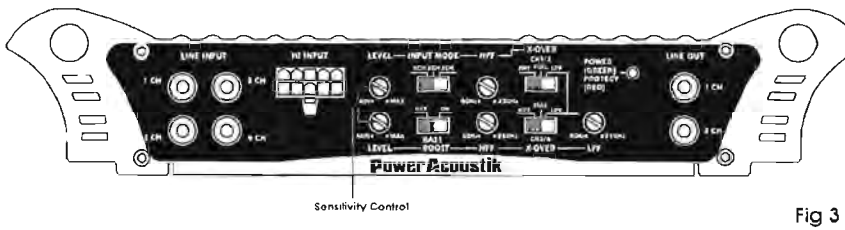
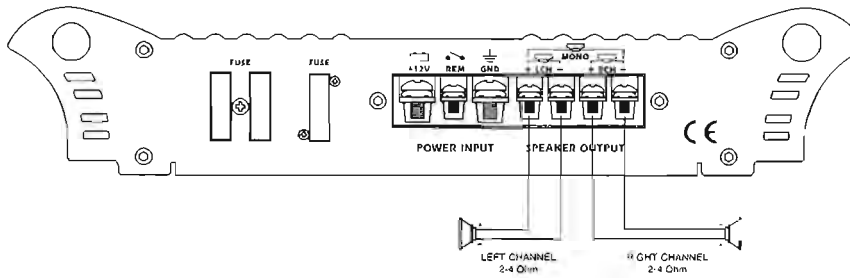



Fig 3

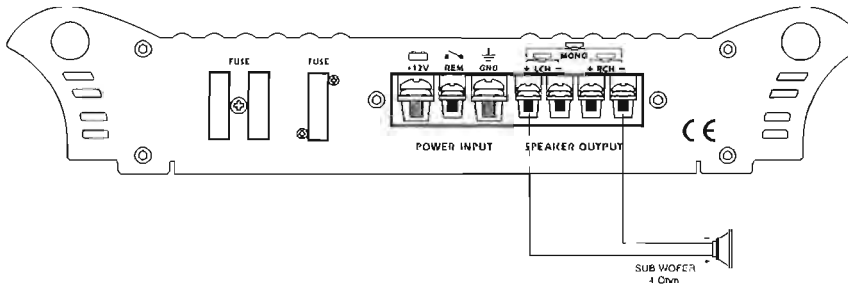
## CONNECTING THE SPEAKERS

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

(A) STEREO MODE

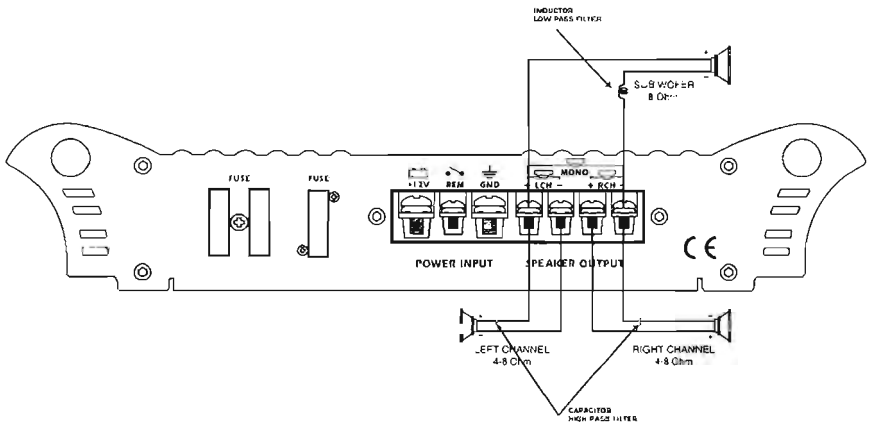



(B) MONO MODE



(C) TRI MODE

TRI MODE OPEATIONAL 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.

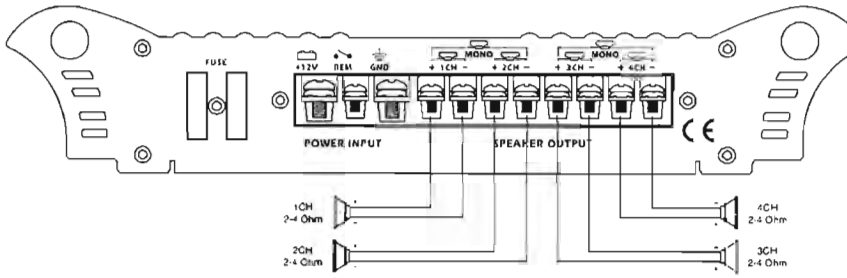



COMPONENT VALUES FOR 6dB PASSIVE CROSSOVER

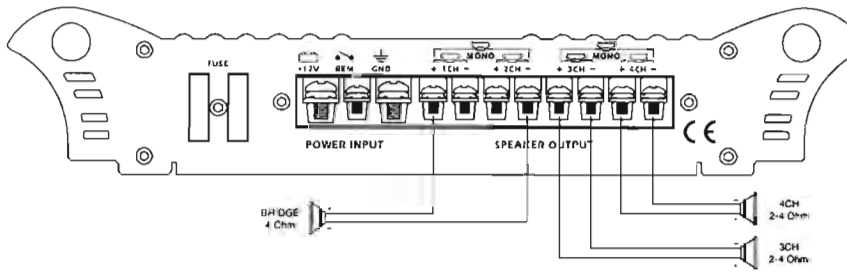
| FREQUENCY | INDUCTOR | CAPACITOR |
|---|---|---|
| 80 Hz | 7.5 mH | 470 uF |
| 100 Hz | 6.5 mH | 330 uF |
| 120 Hz | 5.5 mH | 330 uF |
| 150 Hz | 4 mH | 220 uF |

**Model: OV4-600 /OV4-800**

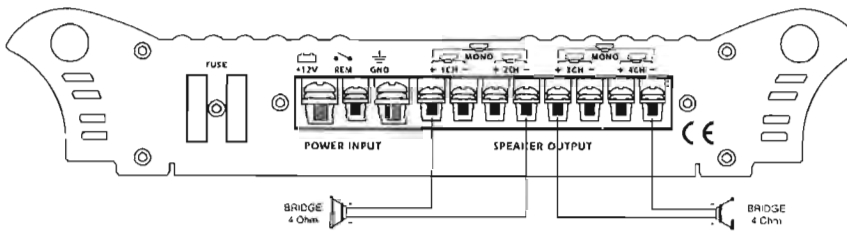
(A) 4 CHANNEL MODE



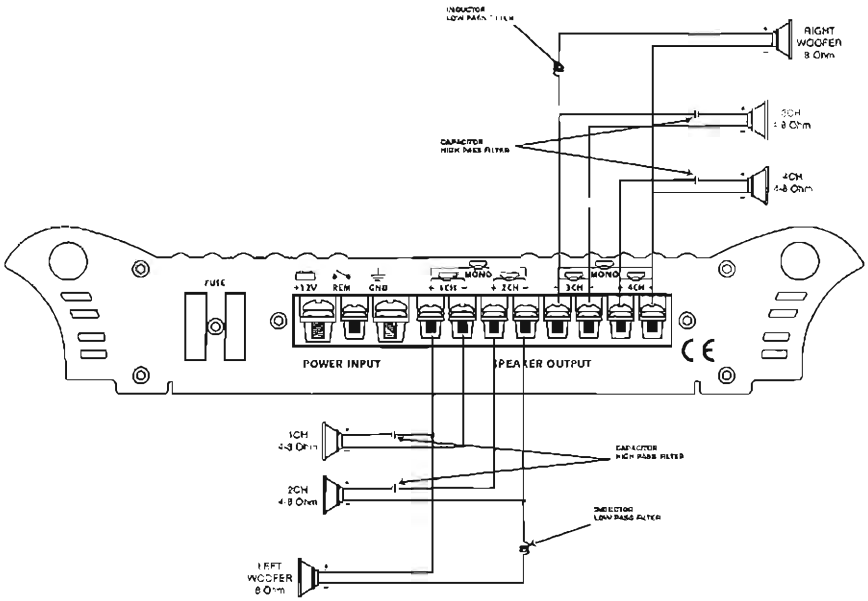

(B) 3 CHANNEL MODE




(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 Diagnosic 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.<br><br>(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 layour of you automobile thoroughly before drilling or cutting any holes.
Take care when you work near the thanks, lines, or hydraulic lines, and electrical wiring.
Don't mount this system so that the wire connections ate unprotected are subjectto 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 ststem power terminals, disconnect the +12 V wire at the battery end.
Confirm your radio/cassette player and/or other equip 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.

| 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 ± 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 Impedance | Low Level | 10K Ohms | 10K Ohms | 10K Ohms | 10K Ohms | 10K Ohms |
| | High Level | 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 x2.25 | 14 x 11.25 x 2.25 | 20.5 x 11.25 x2.25 |

FEATURES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

| 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 ± 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 | Low Level | 10K Ohms | 10K Ohms | 10K Ohms |
| Impedance | High Level | 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 |

FEATURES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.