μ DiMENSiON

Mobile Acoustic Amplifiers

OWNER'S MANUAL

Pro Series

2 Ohm Stable,
Full MOSFET Stereo Amplifier

Model μ-Pro3.2x

Model μ-Pro7.2x

Model μ-Pro3.4x

1 Ohm Stable,
Class-D Mono Block Amplifier
for Subwoofer Speaker

Model μ-Pro8.1xd

FEATURES

- 2 Ohm Stable Stereo Power Amplifier for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- 1 Ohm Stable Class-D Mono Block Amplifier for μ-Pro8.1xd
- Full MOSFET Amplifier for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- Tri-Mode Speaker Operation for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- Bridging Capability for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- Protection Circuitry against Thermal, Overload, Short Circuit and DC Offset
- Glass Epoxy Double Sided P.C Board
- Gold Plated Terminals for Speaker Output and Power Input
- Gold Plated RCA Jacks for Line Input and Bypass Output
- Display output (Power Supply Voltage)
- Variable Crossover Built-in (50Hz to 250Hz)
- LPF and HPF Selection Switch for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- Sub-sonic Filter for μ-Pro8.1xd (15Hz to 40Hz)
- Phase Control Switch for μ-Pro8.1xd (0° - 180°)
- Remote μ-Bass Controller for μ-Pro8.1xd
- Speaker A / B Switch for μ-Pro3.2x and μ-Pro7.2x
- 2Ch/4Ch Input Changeover Switch for μ-Pro3.2x / μ-Pro3.4x
- LED Indicator of Power / Protection for μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x
- LED Indicator of Power / Protection / Clip for μ-Pro8.1xd

INSTRUCTION

Congratulations on purchasing a μ-Dimension amplifier.

For the audiophile, these amplifiers will deliver the sonic excellence that you both expect and demand. For those whose primary interest is sheer "Ground-pounding" output, the μ-Dimension amplifiers will deliver the power you need!

This range of amplifiers is designed with flexibility in mind to allow you to customize your system as you wish. All μ-Dimension series amplifiers have Low level inputs and are protected against Thermal, Overload and Short Circuit conditions.

INSTALLATION

The quality of the installation will affect the system performance and reliability. If you realize the complexity of the installation, you may wish to contact your local authorized dealer. The amplifier is generally mounted in the rear trunk area, but they can be mounted other convenient areas such as beneath a seat.

Please be sure to locate this unit in areas with reasonable air circulation and protection from unusual hazards. When deciding the mounting location, it should be considered to minimize the power supply wires and speaker wires. Minimizing the wires will provide higher audio output from the system. It is important to ensure that the cooling fins of the heat sink are not against a panel or surface preventing air circulation.

Mark the locations for the mounting screw holes by using the amplifier as a template and marking the location of the four mounting holes. Drill 3.5MM diameter holes at the marked locations and install the unit on the floor or the chassis using the supplied tapping screws. (Refer to Fig. 1 below)

CAUTION

Before drilling or cutting any holes, investigate the layout of your automobile thoroughly.
Use caution when working near the gas lines or hydraulic lines and electrical wiring.
Do not use the power amplifier unmounted, attach the amplifier securely to the vehicle.

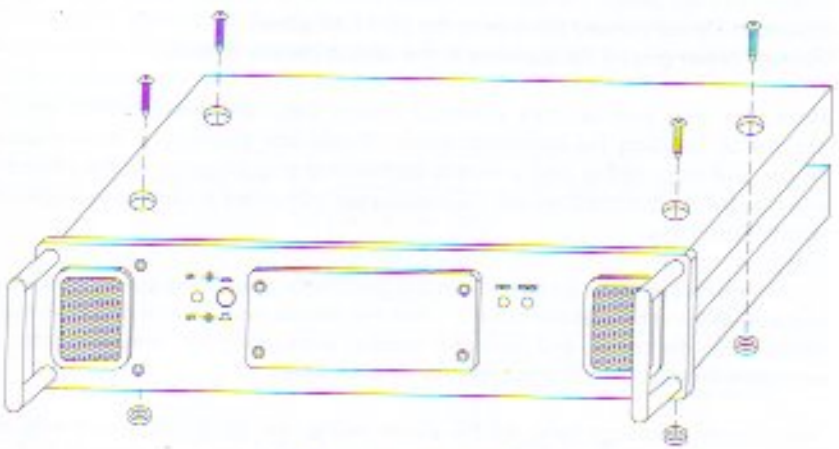


Fig. 1. Installation

POWER SUPPLY CONNECTIONS

All power connections are made via a gold plated terminal strip at one end of the amplifier chassis. It is highly recommended that you read the following precautions and contact your nearest authorized μ-Dimension dealer if you are unsure of any details.

Before installation, make sure the source unit (i.e., your radio in the vehicle) power switch is in the OFF position.

Disconnect the negative(-) lead at the battery before making any electrical connections.

When making connections, be sure that each connection is clean and secure. Insulate over your final connections with electrical tape or shrink tubing. Failure to do so may damage your equipment.

A secure, clean ground connection is critical to the performance of your μ-Dimension audio amplifier. Use the shortest ground wire possible to minimize resistance and avoid noise problems.

Connect the amplifier's positive(+) power lead via an external fuse directly to the battery, as close as possible to the positive(+) terminal. Use a rating that equals the total current consumption at full output of all amplifiers in the system. Adding an external fuse will protect the electrical system from short circuits that can cause a fire.
Important: Do not connect this wire to the car's fuse panel.
Caution: Never ground the speakers to the vehicle chassis or body.

Make sure that your vehicle's electrical system (i.e., alternator, battery, etc.) is capable of handling the additional load. If you are planning a multi-amplifier system, you may need to add a second battery and possibly upgrade the alternator with a higher output rated model. Consult your authorized μ-Dimension dealer for recommendations.

To avoid possible noise problems, run the amplifier's positive(+) power lead along one side of the vehicle to the battery. Run the remote turn-on wire and RCA audio cables down the center, and route the speaker wires along the remaining side. If wires must cross, run them perpendicular to each other.

When creating passage holes for the power wiring, use grommets to eliminate any sharp edges created during drilling. This will protect the wire from being nicked and causing a short circuit.

Extra cable can cause signal loss and act as an "antenna" for noise. Use only higher-quality RCA cables that are no longer than necessary to make a direct connection with the source unit or equalizer.

> CAUTION
>
> *To begin, make +12V wire connection, secondly the ground connection and finally the remote connection. Furthermore, the +12V wire must always be fused as the battery and for protection against possible damage. If you to replace the power fuse, replace it with a same value shown on the surface of the fuse. Using a fuse of a different type or rating may result a serious hazard.*

■ +12 Volts

+12V power cable must be connected directly to the positive terminal of the battery, not to the electrical system of the car (i.e., fuse block).

■ Ground

When making a connection to the vehicle chassis, use the proper size ring terminal to suit the ground cable and fasten it to the vehicle with a threaded bolt and nut.
The use of Self-Tapping screws is discouraged, as they do not provide a solid connection and tend to loosen with time.
Good grounding forms the basis for the audio quality of the entire system. The best solution is to connect the ground cables of all audio-components (Radio, Amplifier, Equalizer and/or etc.) in one common place of the vehicle's chassis.

■ Remote Turn on

.Connect this terminal to the source unit's power antenna or remote turn on output. Some source unit's power antenna output disengages when a source other than the tuner is selected. In this event, you must select a source unit's remote turn-on output or another switched +12V output.

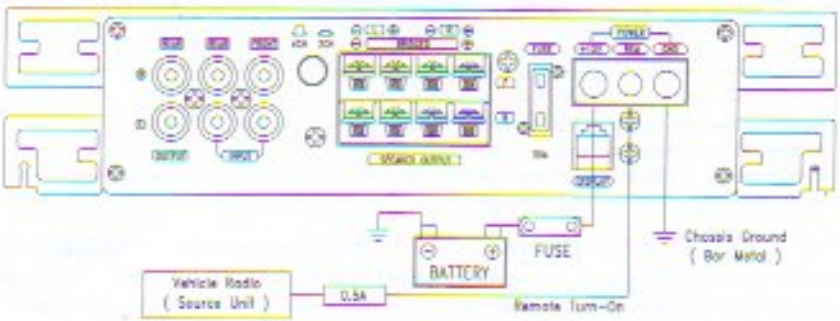


Fig. 2. Power Connections

SIGNAL INPUT CONNECTIONS

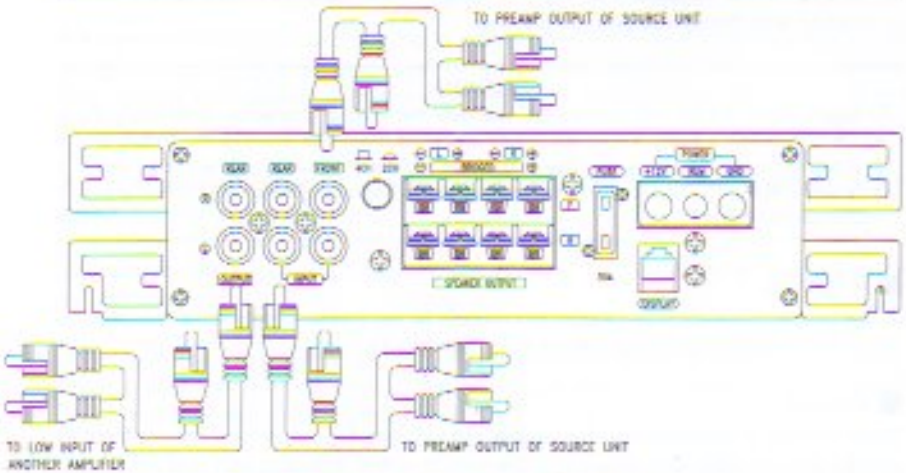


Fig. 3. Signal Input Connections

SPEAKER OUTPUT CONNECTIONS

The speaker wires should be connected to the speaker terminals on the amplifier. Notice that most speakers have a polarity marking such as a "+" or a dot on the speaker terminals and these markings denote the positive terminals of the speaker and are used as a guide to phase the speakers. Improper phasing causes a loss of bass response. For optimum performance, speaker impedance should 4 ohms, or greater, either bridging or mixed mono mode.

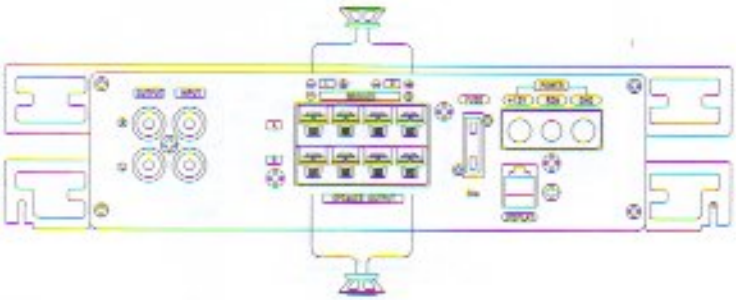
CAUTION

Never connect any speaker lead to the car chassis or any other lead. This can cause severe damage to your stereo system.
If you have an OHM Meter, please use it to check for short circuitry and speaker resistance.

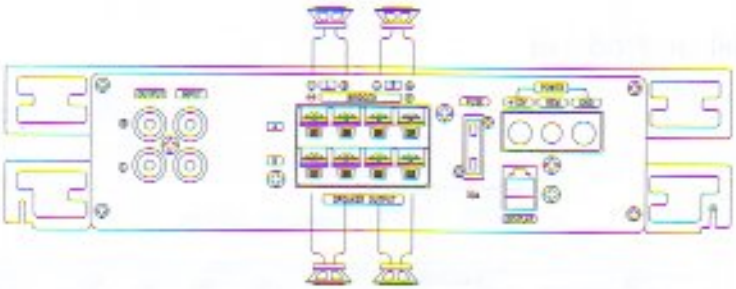
The μ-Pro3.2x, μ-Pro7.2x and μ-Pro3.4x amplifiers have the STEREO/BRIDGE switch in itself. There is no need to select the STEREO or BRIDGE. You can connect the speakers to each channel in STEREO mode and simultaneously you can connect one SUBWOOFER to the speaker terminal same as the BRIDGE mode.

Model μ-Pro3.2x / μ-Pro7.2x / μ-Pro3.4x

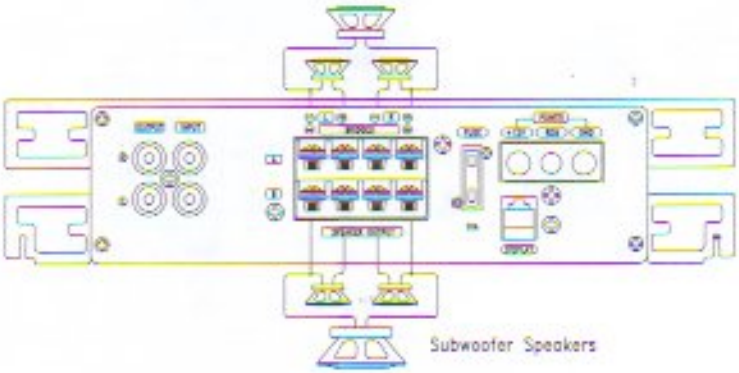
Mono Bridge Mode



Stereo Mode

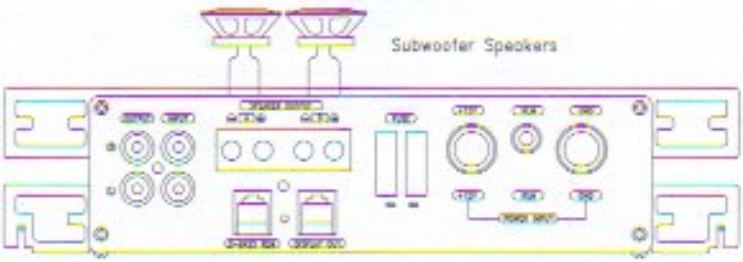


Tri-mode



"A" or "B" configuration is selectable from front panel of μ-Pro3.2x and μ-Pro7.2x while 2 channel or 4 channel mode is changeable from rear panel of μ-Pro3.4x.

Model μ-Pro8.1xd

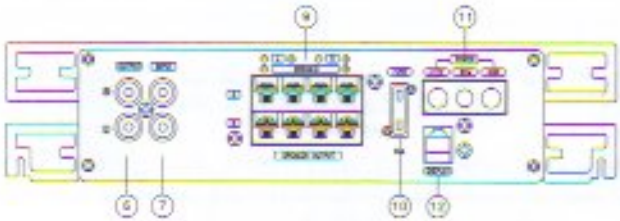


FEATURES AND CONTROLS

Model μ-Pro3.2x / μ-Pro7.2x

<Front>

<Rear>



Model μ-Pro3.4x

<Front>

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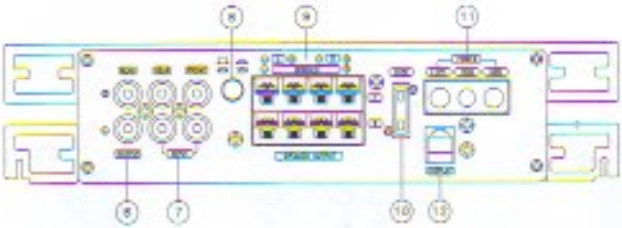

Model μ-Pro8.1xd

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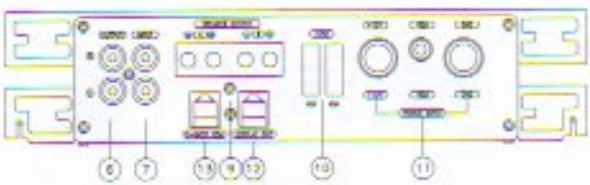

To use variable frequency adjustment, crossover selector and gain control, remove and keep the wrench screws on the badge by provided wrench driver.

1. Variable Frequency Adjustment

This is the variable crossover selector. Adjust frequency of HPF or LPF from 50Hz to 250Hz according to your selection of the above selection switch. This variable frequency adjustment depends on your selection of HPF or LPF with the above selection switch. The μ-Pro8.1xd has the LPF only. In 'Flat'(Full range) selection, this does not work.

2. Crossover Selector

The switch allows to select among Flat(all), High and Low Pass Filter modes. Use the modes as below. The μ-Pro8.1xd has no switch.

- **Flat Mode** : When using the Tri-mode speaker configuration
- **HPF Mode** : When using Mid-range and Tweeter speakers for high frequency
- **LPF Mode** : When using Woofer and Sub-woofer speakers for low frequency

3. Gain Control (Input Level Adjustment)

This input sensitivity adjustment is used to match the output signal from the radio or source unit to the input of the amplifier. The input section will handle a wide range of signal voltages from 150mV to 3V (In case of μ-Pro8.1xd, the range is from 300mV to 4V). Please note following explanation:

In the min. position (max. anti-clockwise), the amplifier is the least sensitive to input voltages, and as a result, requires a higher input voltage: 3V or 4V(for μ-Pro8.1xd).

In the max. position (max. clockwise), the opposite applies and the amplifier is at it's most sensitive: 150mV or 300mV(for μ-Pro8.1xd).

Therefore, if your radio has a low level signal output of 1V, the input level adjustment would be closer to the max. position than the min. position. This is because a 1V signal is low so the amplifier sensitivity must be fairly high. The aim is to have the input level set to as close to the min. position as possible, and therefore reduce unwanted noise while maintaining the correct rated output.

It is important to remember that this adjustment is not a volume control. If the sensitivity is set needlessly high, system and engine noise, blown speakers and damage to the amplifier may result. μ-Pro3.2x and μ-Pro7.2x can control separately the gain with "L" and "R" channel while μ-Pro3.4x can control the gain with "Front" and "Rear" channel and μ-Pro8.1xd can control the gain with mono channel.

■ Turn the Level adjustment to their minimum position (max. anti-clockwise). Also set any HPF, LPF settings to Flat.

■ Turn the vehicle's ignition switch to the ON position. Then turn the source unit ON and ensure that all Bass, Treble, Tone or Equalizer adjustments are set to their 'Flat' positions and that any Loudness switch is in it's OFF position.
Play a CD or Tape and set the volume to approx. 75% of the maximum setting.

■ Verify that the Blue light of power indicator on the amplifier comes on.

Note : If an additional external equalizer is also fitted, set its frequency controls to flat.

■ Set the Fader control (if fitted) on the source unit to its front position. Slowly increase the Level adjustment on the front channel amplifiers until the audio just becomes slightly distorted. Set the Fader control on the source unit to its Rear position and repeat this step for the rear channel amplifiers, using their appropriate Level adjustment. Otherwise set the Level according to all amplified channels simultaneously if your installation is either without a Fader control or is 2 x channel only.

4. Power / Protection / Clip LED
During the unit is operated normally, Blue light is turned on. If any protection by thermal, overload or short circuit is started, Red light is blinked and the unit is stopped till abnormal status of the unit is released. For μ-Pro8.1xd amplifier, whenever the output power is in the highest status against amplifier's capability, another Red light is lit to warn the clipping status.

5. Speaker selection Switch and Indicators
The μ-Pro3.2x and μ-Pro7.2x amplifiers provide a toggle switch to select the speakers "A" configuration or "B" configuration such as inside or outside of the car. Please note that the μ-Pro3.4x and μ-Pro8.1xd are not available with this switch.

6. Bypass Output
The amplifiers provide an output that is parallel with the input, enabling further amplifiers to be linked together without using RCA Y-adaptors or other splitting methods.
Note: The signal obtained from the bypass output is not filtered or altered in any way by the amplifier's HPF or LPF.

7. Inputs (Low Level)
These are the Low Level signal inputs and are connected to the source unit (Radio,

Crossover or Equalizer). The amplifier has gold plated RCA jacks to make contact with cinch(RCA) cables, which are connected, to the "line-output" or "pre-amplifier-output" of the radio. For the μ-Pro3.2x, μ-Pro7.2x and μ-Pro8.1xd, there are two signal inputs of left(L) and Right(R) channel while μ-Pro3.4x has front and rear signal inputs. See above "Signal Input Connections".

Note: In case that you secure only one RCA output from your sound source for μ-Pro8.1xd, it is recommendable, for better performance of μ-Pro8.1xd, to add an "Y" type RCA adapter in between the sound source and the μ-Pro8.1xd.

8. 2Ch / 4Ch Input Changeover Switch

The μ-Pro3.4x amplifier provides a toggle switch to make the changeover of 2 channel or 4 channel mode selection.

9. Speaker

See above "Speaker Output Connections".

10. Fuse

Protects the amplifier and electrical system if there is a fault. A replacement fuse forms a part of the amplifier range of products. *Never bridge fuses or exchange types with a higher rating!* In addition, you must install an additional fuse directly by the battery, and not by the equipment on the other end of the power cable. Remember, the fuse also has to protect the vehicle against possible electrical fires caused by short circuits.

11. Power

See above "Power Supply Connections".

12. Display output Jack

The amplifiers provide an output jack to use power source through amplifier to access easily to different applications such as voltage display meter or temperature display meter. These applications are not provided with the amplifiers.

13. Remote Variable μ-Bass Controller

The μ-Pro8.1xd amplifier has a μ-Bass Controller for subwoofer systems. The level of this amplification can be varied from 0 to +12dB by Up or Down switches, independent of all other adjustments. This controller can be conveniently mounted on or under the dashboard of your car.

Note: Care must be taken when high levels of μ-Bass are used, to avoid damaging your subwoofer drivers.

14. Phase Control

The μ-Pro8.1xd amplifier has a phase control switch in 0° or 180° .

15. Sub-Sonic Adjustment

The high-pass subsonic filter is continuously adjustable between 15-40Hz and has a slope of 18dB per octave. This allows for the attenuation of frequencies that are mostly inaudible and cause unnecessary strain on the amplifier.

TROUBLESHOOTING

■ Amplifier does not power-up or the Power LED does not light up

Check for good ground connection. Check that remote input (trun-on). Check that there is battery power on the + terminal. Check the battery voltage. Check all fuses. Check that protection LED is not lit. If it is lit, shut off amplifier briefly and then re-power it.

■ The Protection LED flashes

Check that the speaker impedance is suitable. Check for short circuits on speaker leads. Turn down the volume control on the head unit to prevent overdriving. Remove speaker leads, and reset the amplifier. If the protection LED still comes on, then the amplifier is faulty.

■ No Output

Check that all fuses are OK. Check that amplifier is properly grounded. Check that remote input (turn-on). Check that RCA patch cords are plugged into correct inputs. Check speaker wiring.

■ The sound is too low

Reset low level control. Check the crossover control settings.

■ Only one channel works

Check the RCA interconnect cables. Check speaker wiring.

■ High hiss in speakers

Disconnect all RCA inputs to the amplifier - if hiss disappears, then plug in the component driving the amplifier and unplug its inputs. If hiss disappears, go on until the faulty/noisy component is found. It is best to set the amplifier's input level as insensitive as possible. The best subjective S/N ratio is obtainable this way. Try to drive as high a signal level from the head unit as possible.

■ High Squeal noise from speakers

This is almost always caused by a poorly-grounded RCA interconnect.

■ Distorted Sound

Check that the level control is set to match the signal level of the head unit. Always begin at the lowest setting. Check that all crossover frequencies have been properly set. Check for short circuits on the speaker leads.

■ Amplifier gets very hot

Check that the minimum speaker impedance for that model is correct. Check that there is good airflow around the amplifier. In some applications, an external cooling fan may be required.

■ Static engine noise

Primarily poor quality RCA cables picking up radiated noise cause this. Route all RCA cables away from power wires, and use only the best quality cables.

■ Alternator engine noise

Check that the speaker leads are not shorted to the vehicle chassis. Check that the RCA grounds are not shorted to the vehicle chassis. Check that the head unit is correctly grounded.

SPECIFICATIONS

Model	μ-Pro3.2x	μ-Pro7.2x	μ-Pro3.4x	μ-Pro8.1xd
• Output (RMS)				
4 Ohm	35W x 2	75W x 2	35W x 4	300W Mono
4 Ohm Bridge	105W x 1	225W x 1	105W x 2	N/A
2 Ohm	55W x 2	120W x 2	55W x 4	500W Mono
2 Ohm Bridge	N/A	N/A	N/A	N/A
1 Ohm	N/A	N/A	N/A	800W Mono
• T.H.D.	0.05%	0.05%	0.05%	0.5%
• S/N Ratio	95dB	95dB	95dB	70dB
• CH. Separation	60dB	60dB	60dB	N/A
• Freq. Response	20Hz-50KHz	20Hz-50KHz	20Hz-50KHz	5Hz-250Hz
• Input Sensitivity	150mV - 3V	150mV - 3V	150mV - 3V	300mV - 4V
• Input Impedance	10K ohm	10K ohm	10K ohm	10K ohm
• Fuse Rating	20A x 1	30A x 1	30A x 1	40A x 2
• Dimensions				
Depth	230mm	280mm	280mm	360mm
Width	270mm	270mm	270mm	270mm
Height	60mm	60mm	60mm	60mm