

OPERATING INSTRUCTIONS

BEFORE OPERATING THE UNITS, PLEASE READ THIS MANUAL
THOROUGHLY AND RETAIN IT FOR FUTURE REFERENCE



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Class D Amplifier

MD - series

-
- | | |
|------------|-------------|
| ■ MD-60.4 | ■ MD-600.1 |
| ■ MD-200.4 | ■ MD-1500.1 |
| ■ MD-400.2 | |



INTRODUCTION

SPL DYNAMICS MD-series amplifiers provide high performance sound reinforcement for your car audio equipment. Its versatility enables compatibility with optional Equalizers, Active Crossovers and Digital Signal Processors in a customized system. Its built-in very wide range bandpass crossovers allow you to make all the cut-offs of a full active system with amplifier's filters.

To achieve optimum performance, it is highly recommended that you read this Owners Manual before beginning installation. Check also our webpages to have more information about different system configurations.

FEATURES

Mono

- Variable LPF : 40Hz - 180Hz
- Variable Subsonic 17 - 50Hz
- Variable Bass Freq 30 - 80Hz
- Variable Phase Control 0-180 degrees
- Bass Boost Centered 0dB 6dB 12dB
- Remote Level Control
- Soft-On / Turn-Off Circuit
- Overheat and Short Circuit Protection
- MOS-FET Pulse Modulated Power Supply
- Upright Easy Access Speaker and Power Terminals
- Power ON and Protection LED Indicator

2/4 Channel

- Variable LPF : 50Hz - 4KHz
- Variable HPF : 15Hz - 600Hz (x1), 150Hz - 6KHz (x10)
- Frequency Multiplier Switch Control
- Crossover Band-Pass Control
- Soft-On / Turn-Off Circuit
- Overheat and Short Circuit Protection
- MOS-FET Pulse Modulated Power Supply
- Upright Easy Access Speaker and Power Terminals
- Power ON and Protection LED Indicator

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 to 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. There has to be pre-amp outputs on your headunit.
SPL Dynamics Class D amplifiers has been designed to accept only Low-Level signal source. So there has to be pre-amp outputs on your headunit.

NOTE :

Use always low-level input if there is pre-amp outputs in your headunit. Distortion level is considerably lower from pre-amp(Low Level) outputs.

- c. Are your components matched? The RMS power rating of your speakers must be equal or greater than the amplifier's. They also must be 1 - 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 an ample heat sink for heat dissipation, and also designed with a thermal shut-down(for heat protection) circuit, making it reasonably tolerant of mounting variations. Any configuration which allows moving 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(79.5°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 VOLT SUPPLY WIRING.

50/33/20 mm² depending from the model(Thicker if planning for additional Amplifiers) wire is recommended for 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 measures, 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.

MD - 60.4 : 40A x 1

MD - 200.4 : 35A x 3

MD - 400.2 : 35A x 3

MD -600.1 : 30A x 2

MD -1500.1 : NO

(3) Remote Turn-On 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 a +12 Volt output lead when the radio is turned ON, the "RMT" terminal on the Amplifier can be connected to vehicle's accessory circuit that is live when the key is "ON".

Model : MD-60.4

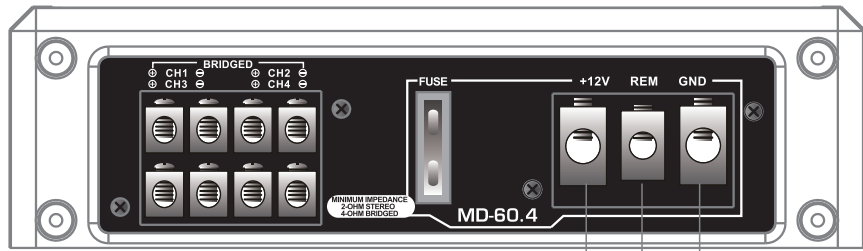
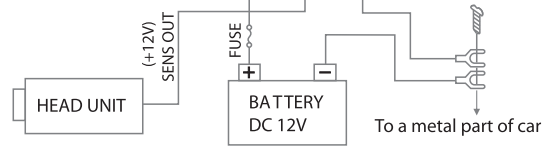


Fig. 1



Model : MD - 200.4

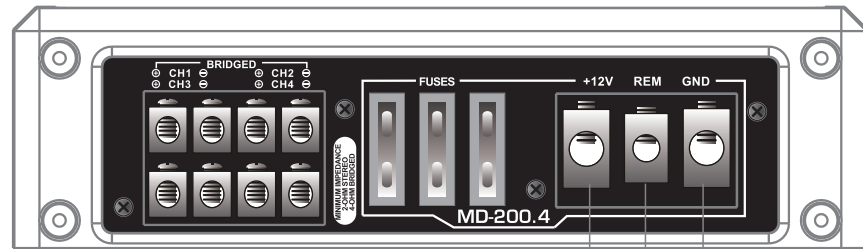
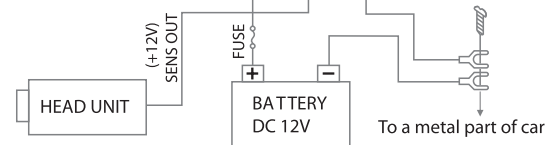


Fig. 1



Model : MD - 400.2

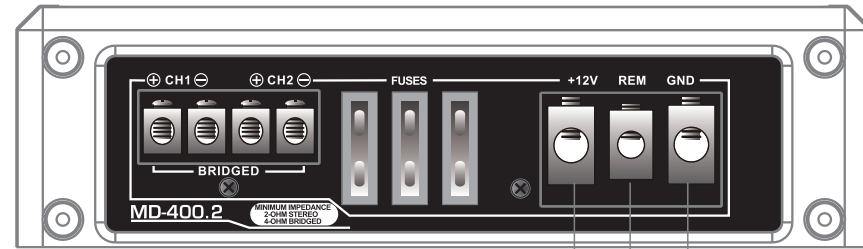
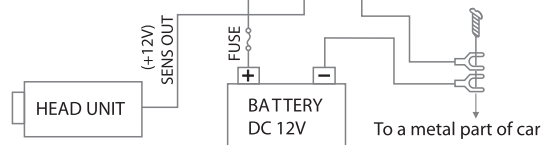


Fig. 1



5

Model : MD-600.1

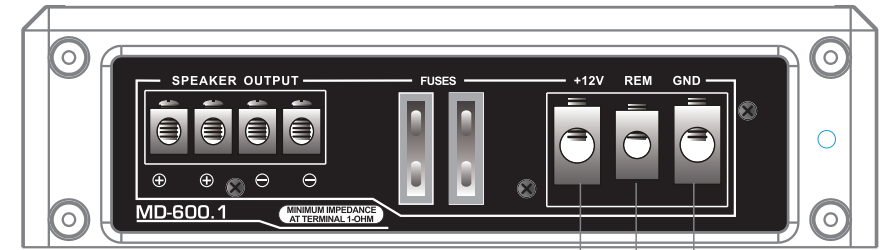
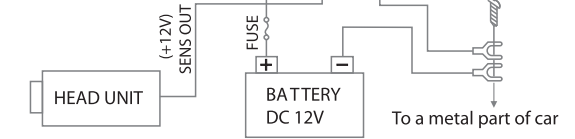


Fig. 1



Model : MD - 1500.1

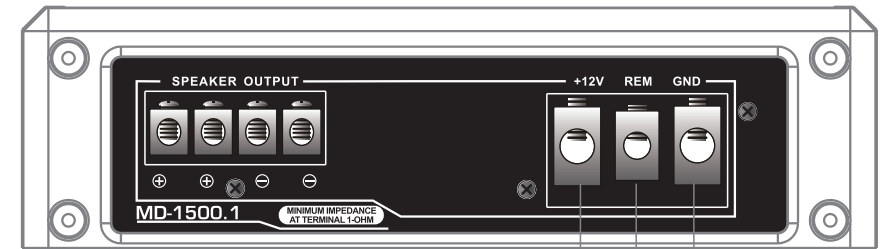
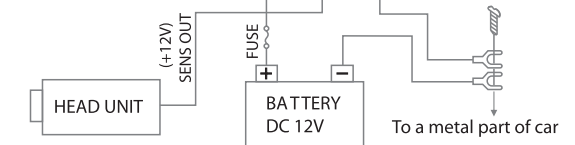


Fig. 1



B. VARIABLE "LPF" LOW-PASS FILTER

Mono:(40-180Hz)

2/4 Channel:(50-4KHz)

Low-Pass filter circuitry of SPL Dynamic Class D Amplifiers is always activated because these models are designed only to subwoofer use. Low-Pass filter allows frequencies below (40-180Hz/50-4KHz) to be amplified.

C. VARIABLE SUBSONIC FILTER (17-50Hz FOR MONO)

"ON" activates the Subsonic filter circuitry, thus allowing frequencies above (17-50Hz) to be amplified.

D. CONNECTING LOW LEVEL INPUTS(RCA jacks)

NOTE : DO NOT use in conjunction with High Level input wires.

6

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 GREEN LED 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 1 Ohms in single amplifier use or 2 Ohms in two amplifiers bridged configurations. Subjecting to impedances 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.2)

In order to achieve maximum signal-to-noise performance "LEVEL" control adjusts the signal level from your headunit to match the Amplifier's sensitivity. IT IS NOT A VOLUME OR POWER CONTROL!!!

To adjust, proceed as follows:

- a. Set input "LEVEL" control to "MIN".
- b. Turn your headunit's volume to maximum level. If distortion is heard decrease headunit's volume until the sound is clear.
- c. Turn the "LEVEL" control toward "MAX" in stages, until the onset of audible distortion is heard. then decrease to level prior to the point of audible distortion

NOTE :

Not performing above adjustment procedure and/or simply setting "LEVEL" control at or near "MAX" position, may induce electrical audio noise into the system or break down of the amplifier because driving the amplifier to distortion.

Model : MD-60.4

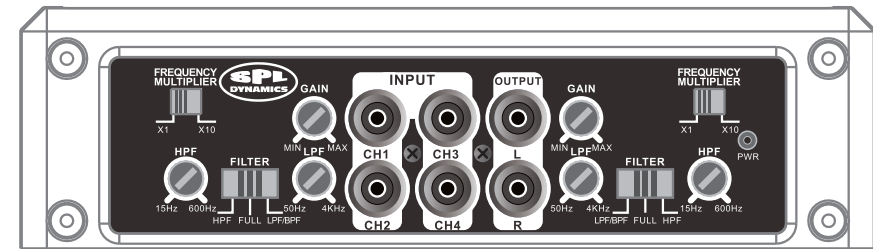


Fig. 2

Model : MD - 200.4

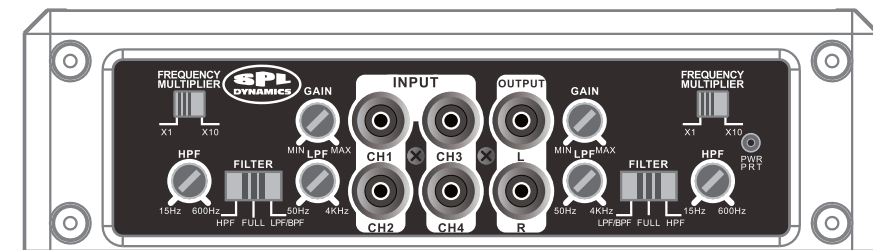


Fig. 2

Model : MD - 400.2

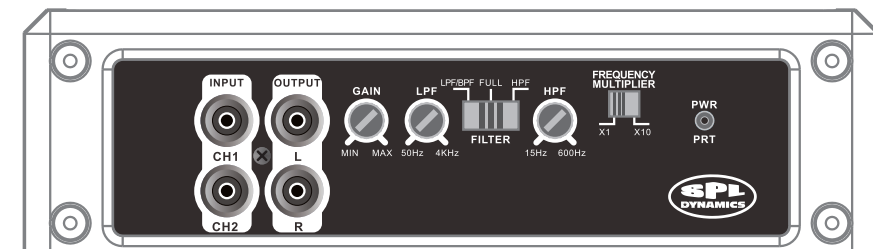


Fig. 2

Model : MD - 600.1 / MD - 1500.1

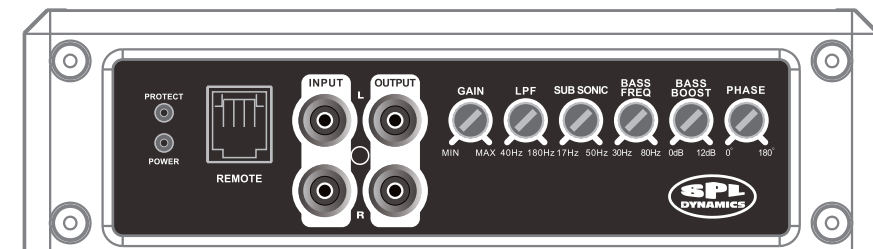
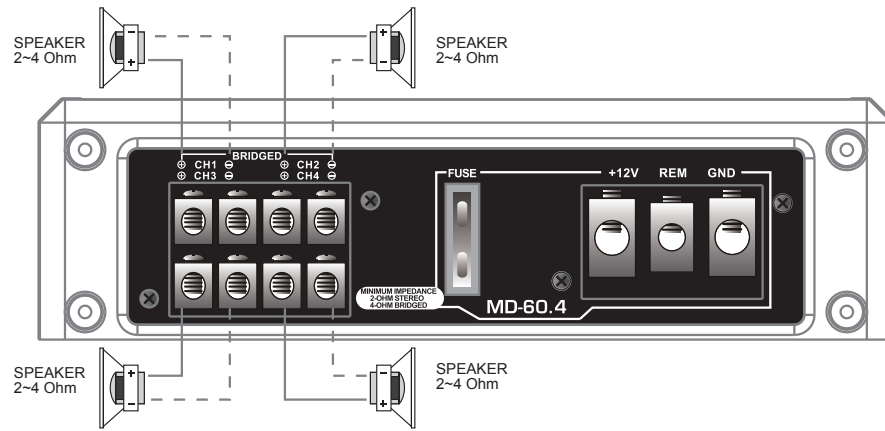


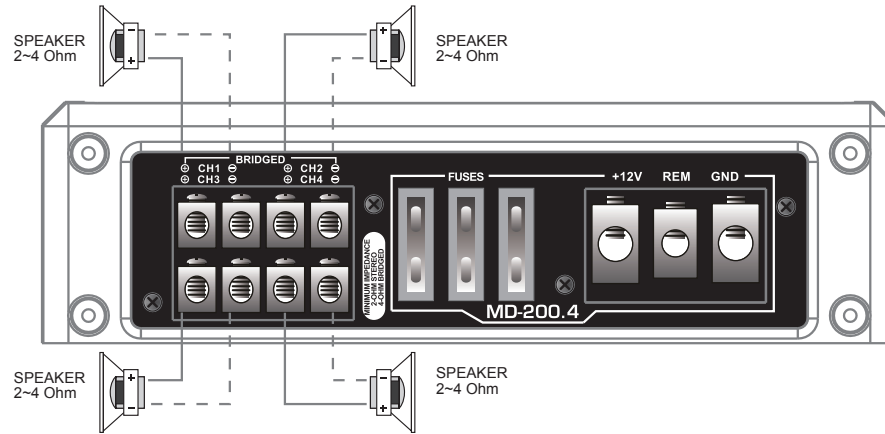
Fig. 2

CONNECTING THE SPEAKERS

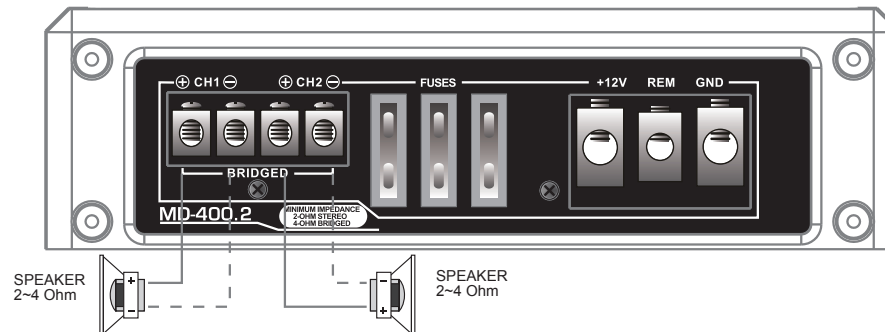
Model : MD-60.4



Model : MD - 200.4

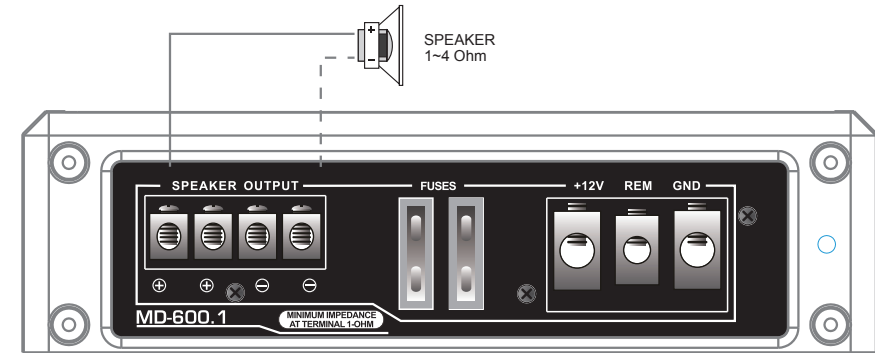


Model : MD - 400.2

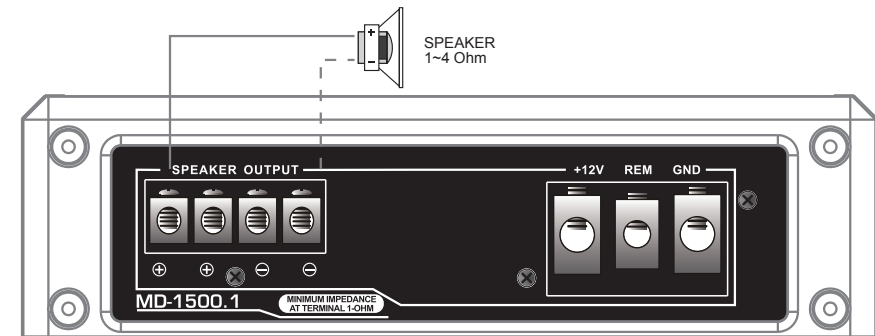


9

Model : MD-600.1

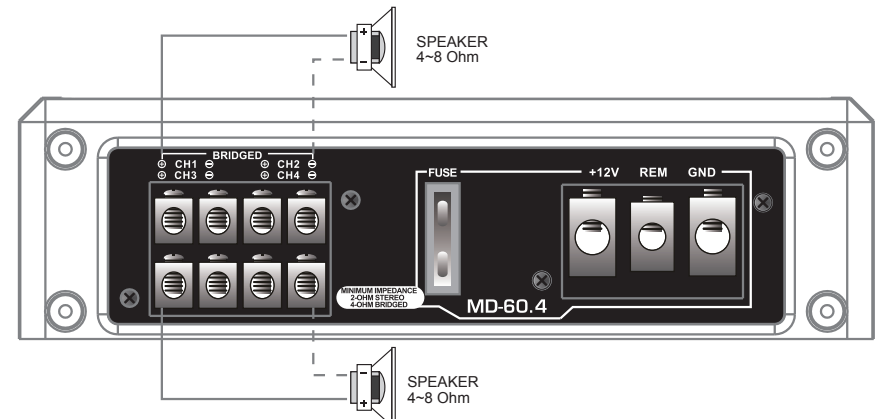


Model : MD - 1500.1



BRIDGED MODE

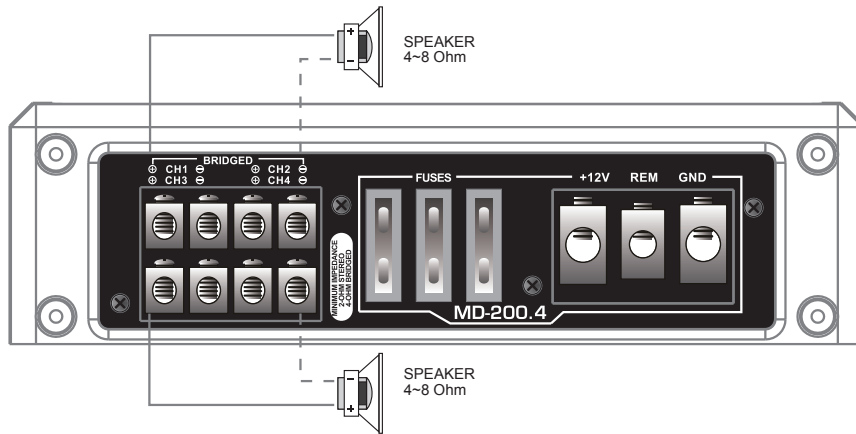
Model : MD-60.4



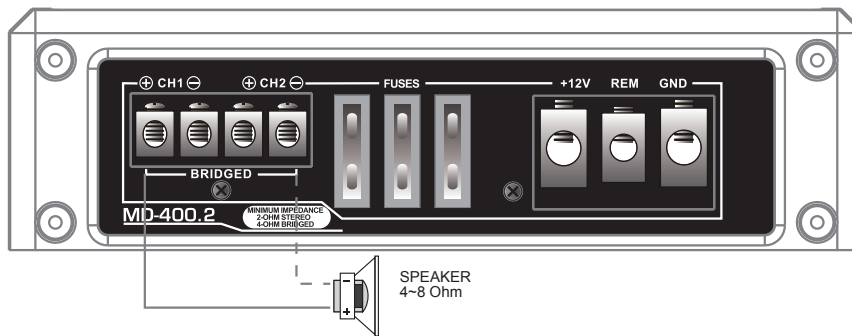
10

BRIDGED MODE

Model : MD - 200.4



Model : MD - 400.2



WARNINGS

Investigate the layout of your automobile thoroughly before drilling or cutting any holes. Take care when you work near the gas tanks, lines, or hydraulic lines, and electrical wiring. Don't use power amplifier unmounted, Attach this system securely to the automobile to prevent damage, particularly in the event of an accident. Don't mount this system so that the wire connections are unprotected or are subject to pinching or damage from nearby objects, The +12VDC 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 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.

SPECIFICATION

SPECIFICATION	MD-60.4	MD-200.4	MD-400.2	MD-600.1	MD-1500.1
Total Channel @ 1 Ohms	—	—	—	610W x 1CH	1600W x 1CH
Total Channel @ 2 Ohms	85W x 4CH	300W x 4CH	600W x 2CH	420W x 1CH	1000W x 1CH
Total Channel @ 4 Ohms	60W x 4CH	200W x 4CH	400W x 2CH	300W x 1CH	1600W x 1CH
Bridged @ 4 Ohms	170W x 2CH	600W x 2CH	1150W x 1CH	—	—
THD @ 1 Ohms	0.2%	0.2%	0.2%	0.2%	0.2%
Frequency Respones ± 1.0dB	10Hz-20KHz	10Hz-20KHz	10Hz-20KHz	10Hz-160KHz	10Hz-160KHz
Subsonic Filter	—	—	—	17Hz-50Hz	17Hz-50Hz
Phase Control	—	—	—	0-180 Degree	0-180 Degree
LPF: Low Pass Filter	50Hz-4KHz	50Hz-4KHz	50Hz-4KHz	40Hz-180Hz	40Hz-180Hz
HPPF: High Pass Filter(x1)	15Hz-600Hz	15Hz-600Hz	15Hz-600Hz	—	—
HPPF: High Pass Filter(x10)	150Hz-6KHz	150Hz-6KHz	150Hz-6KHz	—	—
Adjustment Sensitivity Range	0.2mV-6V	0.2mV-6V	0.2mV-6V	150mV-6V	150mV-6V
Input Impedance	20K Ohms	20K Ohms	20K Ohms	20K Ohms	20K Ohms
Low Level	20K Ohms	20K Ohms	20K Ohms	20K Ohms	20K Ohms
Fuse	40A x 1	35A x 3	35A x 3	30A x 2	—
Dimensions (W x H x D)mm	170x53x198mm	170x53x312mm	170x53x312mm	170x53x282mm	170x53x392mm

NOTICE :

- DUE TO VARIABLE FACTORS, POWER RATING MARGIN OF ERROR ± 10% IS ALLOWED.
- ALL POWER RATINGS ARE TESTED AT 14.4VDC
- WHEN VEHICLE'S ENGINE IS STOPPED ITS BATTERY'S VOLTAGE DROPS NORMALLY LOWERING RATING INDICATED WITH THIS UNIT.
- WE FOLLOW A POLICY OF CONTINUOUS PRODUCT IMPROVEMENTS AND MODIFICATIONS. DUE TO THIS REASON SPECIFICATIONS, WARRANTIES, FEATURES, PRICES, CONFIGURATIONS AND AVAILABILITIES ARE WITH NO GUARANTY AND SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.



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