

AUDIOPHILE ACOUSTICS



B2®

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# MANI SERIES

## USER MANUAL

PRODUCT ID:  
PRODUCT ID:

MANI 6004DF21  
MANI 600021

[WWW.B2AUDIO.COM](http://WWW.B2AUDIO.COM) / [WWW.FACEBOOK.COM/B2AUDIO](http://WWW.FACEBOOK.COM/B2AUDIO)



## INTRODUCTION

There are times when you need to make a statement, such as raising the bar & going beyond what has become the standard. For nearly a decade this has become synonymous with B2 audio. Whether it being product like subwoofers & amplifiers or even various competition formats in car audio, we have continuously set our standards higher. At times it might not be the most financially wise decision, but we are more than product and profits, we are first and foremost passionate about what we do, thus we want to implement our soul into each product.

### MANI

The name is also used for our 3 way reference speakers, but what does it actually mean? In Norse mythology Mani was the person who drove the chariot that carried the Moon across the sky. In relation to our products, it reflects looking to the sky as the limit while letting the product shine. These new amplifiers are as compact as we've ever done, but the performance follows the creedence of the Mani line up. Redefine, Refine & Redeem. Starting out with a 4ch and a matching mono, both of which are equally versatile, we are excited to present the Mani 600.4 and the Mani 650. Where there's sufficient amounts of power, performance & authority, spiced up with the keystones of B2 audio, The Mani amplifiers will provide you with numerous hours of joy and sweetness.

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## AUDIOPHILE ACOUSTICS

IS THE DNA OF B2 AUDIO, ANY PRODUCT IS DEVELOPED BY ADDING THE UNIQUENESS AND THOUGHT OF EVOLUTION IN THE SPECIFIC APPLICATION OF THE PRODUCT'S DESIGN.

KEEP IN MIND THAT CONTINUOUS EXPOSURE TO SPL ABOVE 100 DB CAN SERIOUSLY DAMAGE YOUR HEARING. TODAY'S HIGH POWER AUTO SOUND SYSTEMS CAN EASILY PRODUCE SPL ABOVE 140 DB. ENJOY YOUR PASSION WITH SENSE AND RESPECT FOR THE ENVIRONMENT.

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## DESIGN FEATURES

### CIRCUIT CONFIGURATION:

### FREQUENCY RESPONSE:

### SIGNAL TO NOISE RATIO:

### INPUT SENSITIVITY:

### CROSSOVER CIRCUIT:

### LOW PASS CROSSOVER:

### HIGH PASS CROSSOVER:

### SUBSONIC CROSSOVER:

### BANDPASS CROSSOVER:

### DAMPING FACTOR:

### HIGH LEVEL INPUT:

### POWER TERMINAL GAUGE:

### FUSE RATING:

### DIMENSIONS:

## MANI 600

### HI-EF CLASS D MONO

10 HZ ~ 500 HZ

> 90 DB

5 V ~ 0.35 V

24 DB / OCT

50 HZ ~ 500 HZ

40 HZ ~ 5 KHZ

5 HZ ~ 40 HZ

N.A.

> 400



6 GA

70 A

26.9 X 16.4 X 5.8 CM / 10.6 X 6.45 X 2.28"

## MANI 600.4

### HI-EF CLASS D FULLRANGE

10 HZ ~ 40 KHZ

> 90 DB

5 V ~ 0.35 V

24 DB / OCT

50 HZ ~ 5 KHZ

20 HZ ~ 4 KHZ

N.A.

20 HZ ~ 5 KHZ

> 400



6 GA

70 A

26.9 X 16.4 X 5.8 CM / 10.6 X 6.45 X 2.28"

All features are subject to change in the continuing effort to improve the products without notice.

## CONTINUOUS OUTPUT POWER (RMS)

### MANI 600

14.4 V < 1% THD

OUTPUT POWER @ 4 Ω:

1 X 450 W

OUTPUT POWER @ 2 Ω:

1 X 600 W

OUTPUT POWER @ 1 Ω:

N.A.

### MANI 600.4

14.4 V < 1% THD

OUTPUT POWER @ 4 Ω:

4 X 100 W

OUTPUT POWER @ 2 Ω:

4 X 150 W

BRIDGED POWER @ 4 Ω:

2 X 300 W

## DESCRIPTION OF SPECIFICATIONS

Operation below minimum impedance will stress the amplifier & void the warranty.

Excessive heat will also appear at a faster rate and the amplifier will go into thermal protection.

Protection can also be caused by the following

\* Speaker overload

\* Short circuit

\* Input Voltage - RCA & Power Supply

The PCB is a HI-EF Class D design. THE HI-EF circuit optimizes efficiency & improves performance even at low voltages.

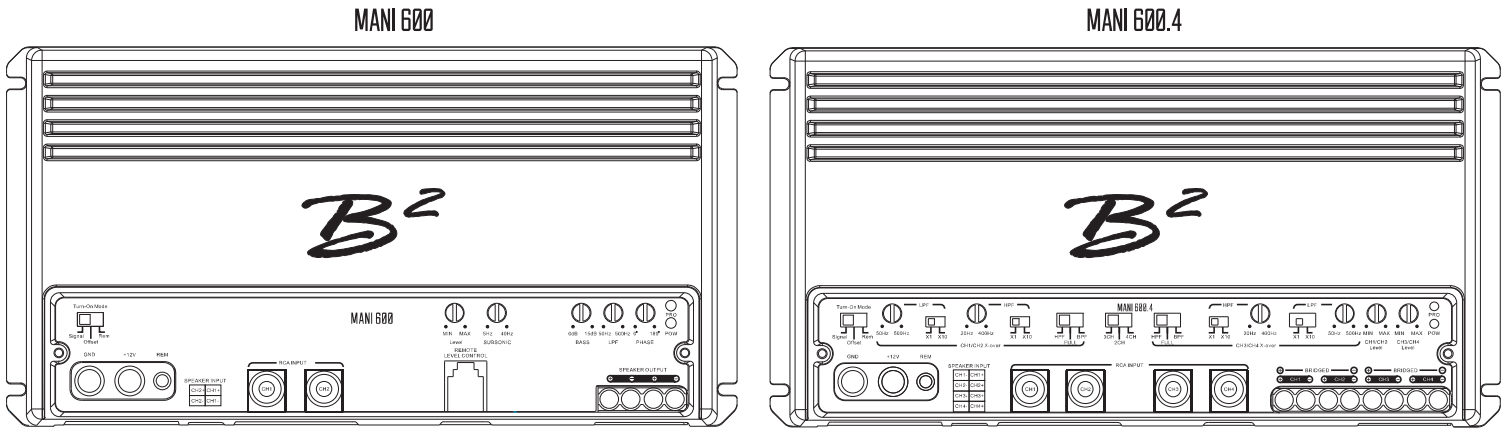
Operational voltage 10V ~16V.

Operational voltage will also be affected by the load of the amplifier.

\*In order to get the full power output of the amplifier, it is crucial that your electrical system is correctly (over)dimensioned.

A minimum of a dedicated D31 AGM battery, or the equivalent to a 10 Ah LifePo4 is needed to achieve the full potential of the amplifier.

## PANEL LAYOUT



## TURN ON MODE

The amplifiers can be powered up by using either of:

1. Signal input from RCA, 2. Offset voltage from speaker inputs, 3. Ordinary switched (12V) remote.

## POWER INPUTS

GND (GROUND CONNECTION) 6 GA

Connects to vehicle's chassis. Keep as short as possible (<20" / 50 cm).

+12V (POWER CONNECTION) 6 GA

Connects to the positive terminal of the battery. Fuses shall be placed within 8" / 20 cm of the battery.

## REM (REMOTE CONNECTION)

Run a remote turn on cable from a switched +12V source.

**SPEAKER INPUT**

High level input from the vehicle's loudspeaker wires. This option is preferred in OEM installs where no RCA inputs are available.

## RCA INPUT

RCA signal input for L+R (Mani 600) or CH 1 ~ CH 4 (Mani 600.4).

0.35 V ~ 5 V is the operational input voltage. Voltages beyond may cause errors or damages to the input selection.

## REMOTE LEVEL CONTROL PORT

### Connection of external signal level control.

Use with caution, it is not a volume knob and shall be adjusted in accordance with the amplifiers gain level.

## GAIN

Adjusts signal input voltage from the input source to match the amplifiers input stage. 0.35V ~ 5V is the operational voltage.

## SUBSONIC

Variable subsonic setting from 5 Hz to 40 Hz

It is highly recommended to set it according to the tuning of your subwoofer enclosure to avoid unnecessary strain to your sound system.

### BASS (0 DB -15 DB)

Adjustable bass level at 45 Hz with up to 15 dB.

Use with caution, as it can easily introduce clipping into the signal, which can damage your speakers.

**LPF (50 - 500 HZ / 5 KHZ) LOW PASS FILTER**

Adjustable crossover point for lpf with a 24 dB slope.

Frequencies below set level will be attenuated in accordance with the crossover configuration.

## PHASE

Adjustable phase with 0 ~180°. Use it to align your subwoofer output with your front stage.

HPF (20 - 4 KHZ) HIGH PASS FILTER

Adjustable crossover point for hpf with a 24 dB slope.

The x10 multiplier present on the 600.4 applies to both LFP & HPF. The BPF switch enables both LFP & HPF filters, creating a band pass filter.

## CHANNEL SWITCH

The 600.4 can be used in a 2ch, 3ch or 4 ch config.

The channel switch will make the amplifier functional on all channels using 2, 3 or 4 RCA inputs.

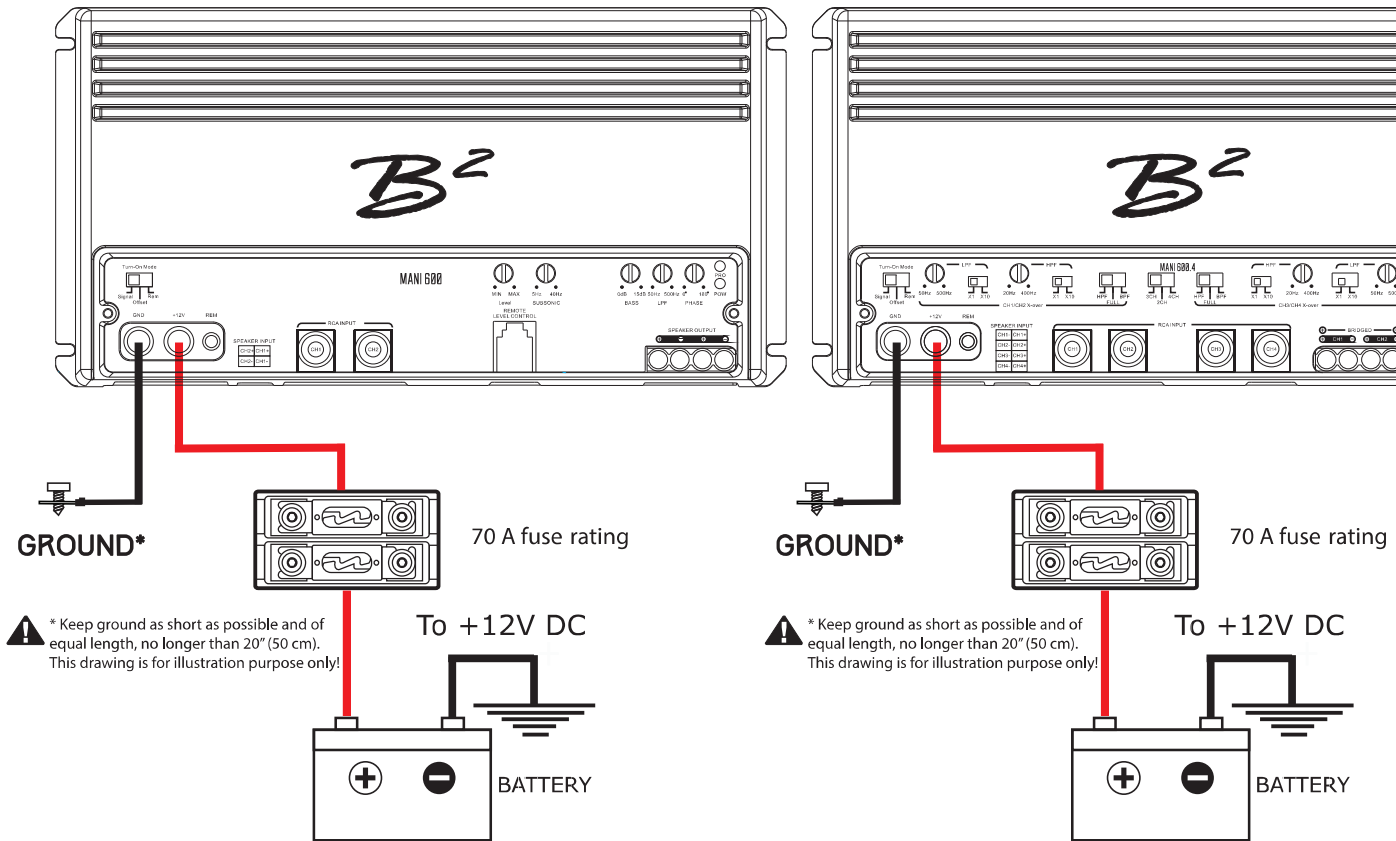
## SPEAKER OUTPUT

Connection of loudspeakers, the min ohm load is 2 ohm on the Mani 600 and 2 ohm in stereo mode on the Mani 600.4

## POWER TERMINALS

MANI 600

MANI 600.4



## POWER TERMINAL

### GND (GROUND CONNECTION)

Connects to the vehicle's chassis. Keep as short as possible (< 20" / 50 cm). Use minimum 6AWG cable for optimal operation.

### REM (REMOTE CONNECTION)

Run a remote turn on cable from the switched +12V source.

This may be a toggle switch, a relay, the source unit's remote output cable or power antenna trigger cable. Connect the remote turn on cable to the power terminal labeled as REM.

### +12V (POWER CONNECTION)

Connects to the positive terminal of the battery. For specified performance 6AWG cable is required. Fuses shall be placed within 8" / 20 cm of the battery.

## ! CAUTION

### INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:

1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well.
2. Ensure the ground is appropriate, then connect it to the amplifier.
3. Connect the switched remote.
4. Reattach negative wire (ground) to the battery.
5. Operation over 16V will cause the amplifier to go into protect & can void the warranty!

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## **INSTALLATION**

### **INSTALLATION CONSIDERATIONS**

If you choose to install the amplifier by yourself, please read the entire owner's manual carefully. Before you start your installation, please take all steps into consideration. If in doubt, please go to [www.b2audio.com](http://www.b2audio.com) for authorized distributors / dealers that will be able to configure your set up & ensure the warranty of your amplifier.

### **PREPARATION**

Disconnect the negative (-) battery cable before mounting or making any connection. Check the battery & alternator ground (-) connection. Make sure they are properly connected/dimensioned & free of corrosion. Before selecting a mounting location for the amplifier, please take cooling & safety into consideration. Avoid areas with excessive vibration & up side down installation!

In order to avoid excessive heat from the amplifier, it is recommended to find a mounting location that allows for vertical positioning of the heatsink fins. For safety purposes, install the amplifier in a dry and well ventilated location and make sure no cables or other harness of the car is interfaced with the mounting location or will present a hazard to the car's cable, control cables, fuel lines/tanks, hydraulic lines or other components of the vehicle. Route the RCA cables away from high current wires, if possible run RCA, Power and Speaker cables individually and with a good distance from each other.

### **POWER CONNECTORS**

#### **12V (POWER CONNECTION)**

Before mounting the amplifier, disconnect the negative (-) wire from the battery to protect any accidental damage to the amplifier or the audio system. The amplifier is equipped with 6 AWG power & ground terminals. It is crucial that all terminals are used with the adequate cable to ensure correct operation. Connect the power cables to the power terminal labeled as +12V.

The amplifier is not equipped with fuses, so external fuses are required at both the battery and the amplifier. Connect one end of the fuse holder to the power cable and the other end of the fuse holder to the positive battery terminal within 8" / 20 cm of the same cable. The same shall be done at the other end of the cable that connects to the amplifier. The fuses will protect the system and the vehicle against the possibility of a short circuit in the power cable. Make sure that the fuses and the fuse holder is according to the system requirements.

#### **GND (GROUND CONNECTION)**

Locate a secure grounding connection as close as possible to the amplifier. Make sure the location is clean and provides a direct electrical connection to the chassis of the vehicle. Connect one end of an equal sized cable as the positive cable to the location of ground. It is important that the ground cable is as short as possible, but no longer than 20" / 50 cm at maximum. Run one end of the cable to the grounding point. Run the other end of the cable to the mounting location. Connect the ground cable to the terminals labeled as GND.

#### **REM ( REMOTE CONNECTION )**

Run a remote turn on cable from the switched +12 V source. This may be a toggle switch, a relay, the source unit's remote output cable or power antenna trigger cable. Connect the remote turn on cable to the power terminal labeled as REM. The REM out terminal is mainly intended for connection of another amplifier ran in a chain, but it can also be used for other units.

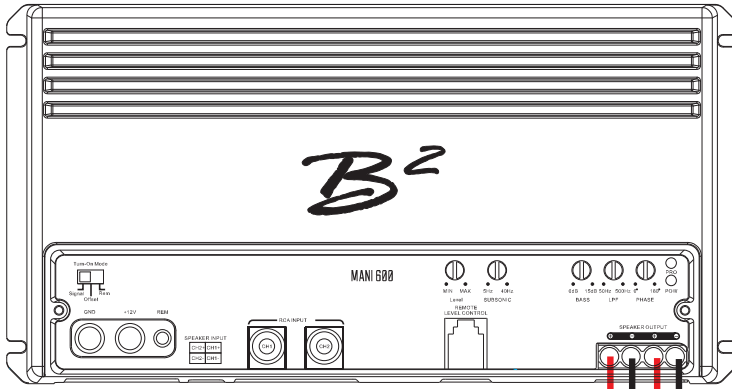
#### **INPUT (RCA CABLE)**

Run the RCA cables away from the high current cables / speaker cables and connect to the amplifier. Use high quality cables with a secure grounding point to avoid amplifier malfunction and / or alternator whine.

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## SPEAKER CONNECTION

### MANI 600

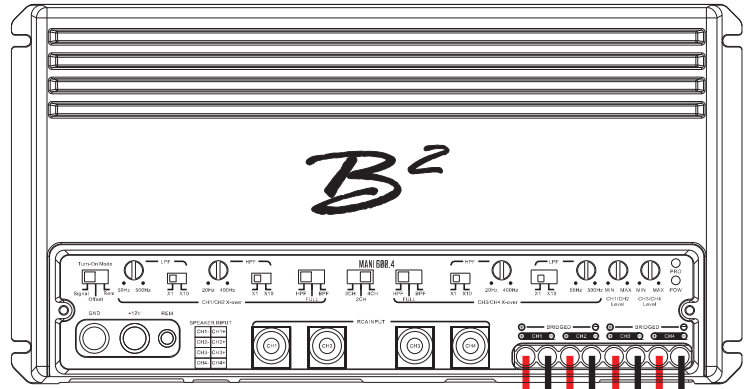


#### SPEAKER IMPEDANCE 2 OHM - 8 OHM

Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Impedance load under 2 ohm is not warranted!**

### MANI 600.4



#### SPEAKER IMPEDANCE 2 OHM - 8 OHM

Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Impedance load under 2 ohm is not warranted!**

We recommend using minimum 12 Ga speaker cables to acquire the intended performance & efficiency.

Run the speaker cables from your speakers to the amplifier's mounting location.

Ensure these are ran separately and away from high current cables and if possible the RCA cables as well.

In all cases where cables are penetrating the vehicle's chassis use grommets to protect the cable.

Connect the speaker wires according to the terminals on the speaker(s). Strip 3/8" / 1 cm of insulation of the end of each cable and twist the cable strands together tightly. Make sure there are no stray strands that could touch other cables or terminals as it can cause a short circuit. Crimp spade plugs over the end of the cable, or tin the ends with solder to provide a solid terminal. Connect the cable ends to the amplifier as shown in the diagram.

Bridged speaker connection will add the 2 channels to a single channel. If all channels are bridged, the Mani 600.4 will then become a 2 channel amplifier. If only one pair is bridged, then the amplifier will become a 3 channel.

Setting the CH switch accordingly to the speaker configuration mode, provides a signal output to all channels from a pair of RCA inputs. Bridged load is minimum 4 ohm for the Mani 600.4.

## ⚠ CAUTION

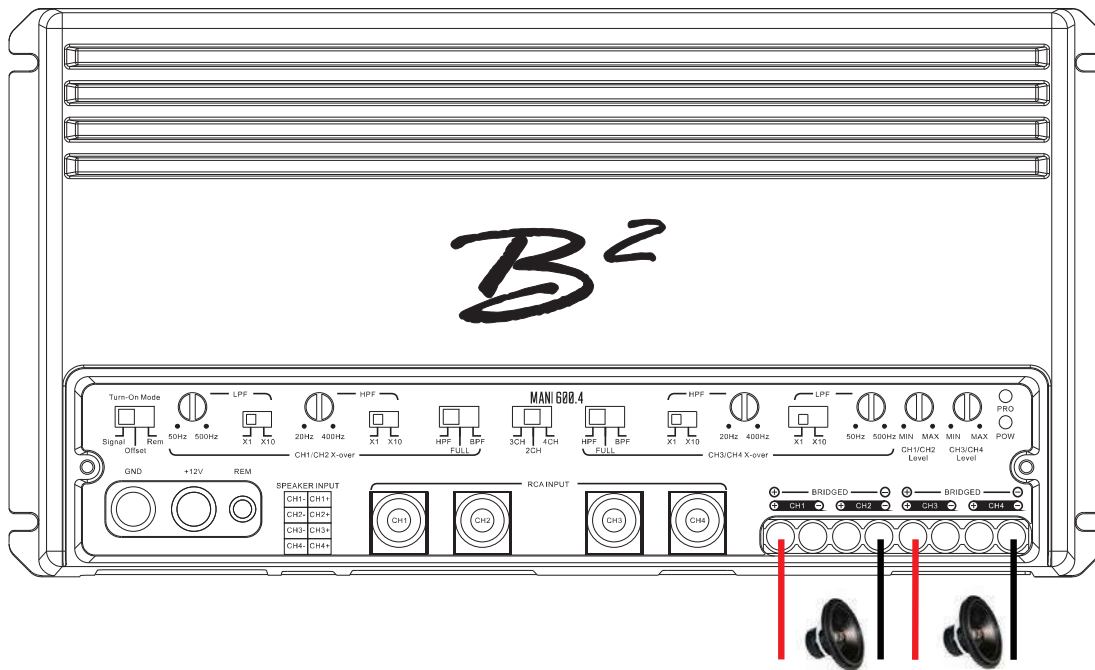
### INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:

1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well.
2. Ensure the ground is appropriate, then connect it to the amplifier.
3. Connect the switched remote.
4. Reattach negative wire (ground) to the battery.
5. Operation over **16 V** will cause the amplifier to go into protect & can void the warranty!

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## SPEAKER CONNECTION

### MANI 600.4- BRIDGE MODE



#### SPEAKER IMPEDANCE 4 OHM - 8 OHM

Loads under what is specified will cause excessive heat & the amplifier will reach thermal at a faster rate & will eventually go into protect.

**Impedance load under 4 ohm is not warranted!**

We recommend using minimum 12 Ga speaker cables to acquire the intended performance & efficiency. Run the speaker cables from your speakers to the amplifier's mounting location.

Ensure these are ran separately and away from high current cables and if possible the RCA cables as well.

In all cases where cables are penetrating the vehicle's chassis use grommets to protect the cable.

Connect the speaker wires according to the terminals on the speaker(s). Strip 3/8" / 1 cm of insulation of the end of each cable and twist the cable strands together tightly. Make sure there are no stray strands that could touch other cables or terminals as it can cause a short circuit.

Crimp spade plugs over the end of the cable or tin the ends with solder to provide a solid terminal.

Connect the cable ends to the amplifier as shown in the diagram. Bridged speaker connection will add the channels together. Bridged speaker connection impedance is 4 ohm only!

## ⚠ CAUTION

### INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:

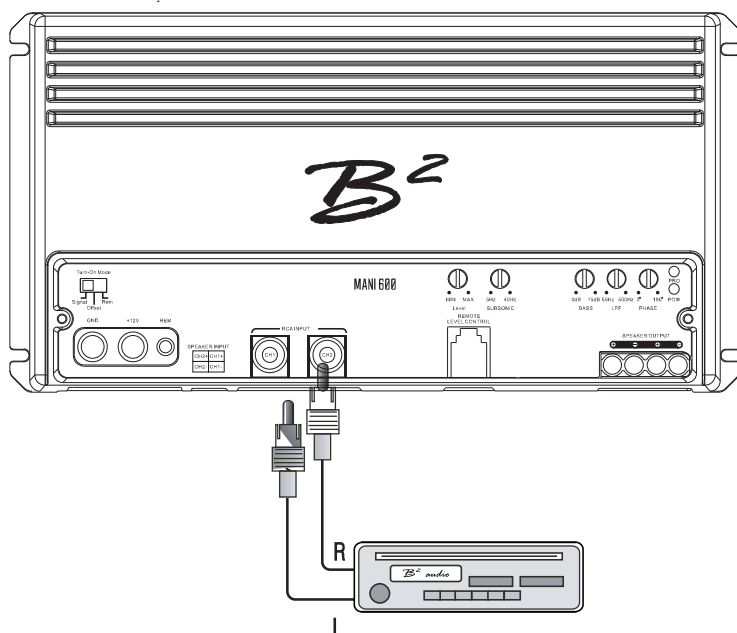
1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well.
2. Ensure the ground is appropriate, then connect it to the amplifier.
3. Connect the switched remote.
4. Reattach negative wire (ground) to the battery.
5. Operation over **16 V** will cause the amplifier to go into protect & can void the warranty!

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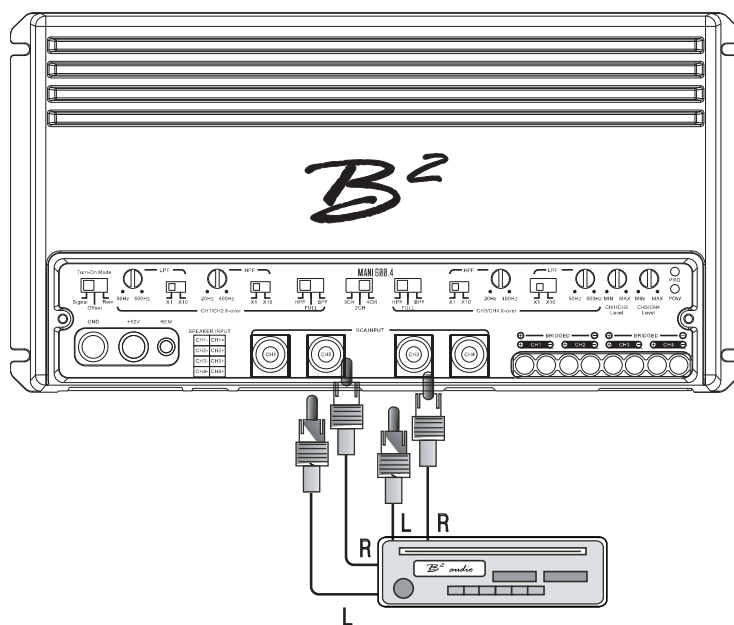
## INPUT SIGNAL

### RCA LINE CONNECTION

MANI 600



MANI 600.4



RCA line input from a Head-Unit, DSP or any source with RCA will be possible to use. The signal shall not exceed 5V and has to be at least 0.35V from the source. Using the wrong signal, can damage the input section or require excessive gain, which can lead to distortion.

**Caution:** Don't use the high and low level input at the same time!

## ⚠ CAUTION

### INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:

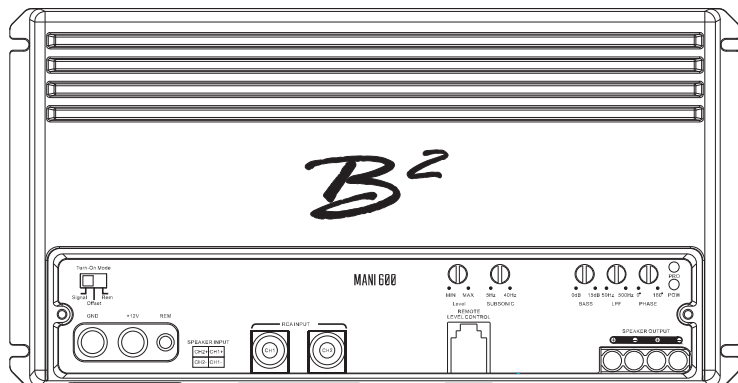
1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well.
2. Ensure the ground is appropriate, then connect it to the amplifier.
3. Connect the switched remote.
4. Reattach negative wire (ground) to the battery.
5. Operation over **16 V** will cause the amplifier to go into protect & can void the warranty!

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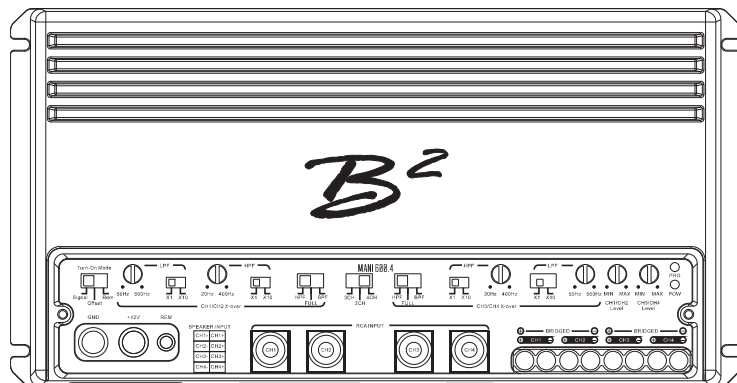
## INPUT SIGNAL

### HIGH LEVEL CONNECTION

MANI 600



MANI 600.4



High level input from loudspeaker wires, this option is only preferred if there is no RCA connection available. This will provide a signal input from the oem wire harness in the car. The provided adapter cable can then be spliced and connected with the car's harness.

**Caution:** Don't use the high and low level input at the same time!

Do check if the vehicle has an active (amplified) system, as it may not be compatible with an aftermarket amplifier, without modification.

## ⚠ CAUTION

### INSTALLATION OF THE AMPLIFIER SHALL BE DONE IN THE FOLLOWING STEPS:

1. Connect the +12V wire, keep in mind this wire has to be fused at the battery as well.
2. Ensure the ground is appropriate, then connect it to the amplifier.
3. Connect the switched remote.
4. Reattach negative wire (ground) to the battery.
5. Operation over **16 V** will cause the amplifier to go into protect & can void the warranty!

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## **TROUBLESHOOTING**

The protection circuits of the amplifier prevents severe damages from faulty conditions & improper use. The protection indicator will switch on due to short circuit connection & speaker overload, thus the amplifier will be turned off. Prior to inspecting the occurred problem, turn all levels down & all power off, then carefully check the installation for wiring mistakes, shorts or faulty ground (GND). If the amplifier shuts down due to excessive heat, the protection indicator will light up; please allow time for the unit to be cooled off. Before removing your amplifier, refer to the list below and follow the suggested procedures step by step. If not at ease, contact an authorized installer which can assist you.

### **AMPLIFIER DOESN'T TURN ON**

- Measure voltage on the +12V terminal.
- Ensure that the remote terminal has min. 13.8 V DC remote connection.
- Recheck the ground (GND) connection. Inspect the in-line fuses.
- Check the protection LED is not on.

### **PROTECTION LED IS LIT ONCE THE AMPLIFIER IS TURNED ON**

- Check shorts on speaker wires & the connected load / impedance. Check power cables & GND.
- Disconnect the speaker cables and reset the amplifier.
- High / Low voltage, operation voltage is 10V ~ 16 V. Voltages below / beyond this will cause the amplifier to go into protect.

### **FUSE BLOWING**

- Measure the speaker impedance & that it is in accordance with the configuration.
- Inspect the power cable for shorts along with vehicle chassis.

### **OVERHEATING**

- Measure the speaker impedance & that it is in accordance with the configuration.
- Check speaker shorts.
- Ensure airflow around the amplifier is sufficient & that the amplifier is not installed in areas of excessive vibration & upside down!

### **AUDIO OUTPUT INSUFFICIENT - DISTORTED SOUND**

- Ensure that the gain settings on the amplifier is matched with the output level of the head unit.
- Adjust the head unit volume.
- Check speaker shorts.
- Adjust the crossover frequencies in accordance with the setup.
- If no output at all, check the RCA connections & the cable itself.

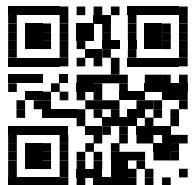
### **TURN ON THUMP**

- Disconnect the signal input to the amplifier, then turn it on and off.
  - a) If the noise is cancelled, then connect a delay turn on module on the REM wire running from the source unit to the amplifier.
  - b) Use another 12V source for REM lead to the amplifier. If the noise is cancelled, use a relay to isolate the amplifier from the turn on thump.

### **HIGH HISS-ENGINE NOISE IN SPEAKERS**

- Ensure that all signal transferring wires (RCA, speaker cables etc) are kept separately / away from the power and the ground wires.
- Bypass all electrical components between the Head unit and the amplifier.  
Connect the Head unit directly to the amplifier's input. If the noise is eliminated, the unit bypassed is the one causing the noise.
- Remove the existing ground wires for all electrical components installed. Ensure that the point of ground is 100% metal which has been grinded free of rust, paint etc.
- Replace the ground cable from the OEM battery / alternator and ensure it is grounded accordingly.
- Test the battery and alternator load (can be carried out by a professional).  
Ensure that the vehicle's electrical system is in a good condition, this includes distributor, alternator, spark plugs / wires, voltage regulators etc.

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#### LIMITED WARRANTY INFORMATION

B2 audio offers a limited warranty under the following terms:

The product is to be free of defects in material & workmanship under normal use for a period of 1 year from the date of the original purchase, when installed by an authorized dealer. Items not installed by authorized dealers will be warrantied for 30 days from the original purchase. Original sales receipts must be accompanied with all returns. The warranty applies to the original purchaser of the product & it being sold by authorized B2 audio dealers.

- The warranty does **not** cover:
1. Damage caused by accident, abuse, misuse, improper operation, water / solvents & shipping.
  2. Product modification, neglect, failure to follow installation instructions & misrepresentation by the seller.
  3. Products used for competition purposes or are of such a character 4. Any product that has been opened.
  5. Products that has had the serial number defaced, altered or removed.
  6. The cost of shipping the product back for repair to an authorized repair centre & cost of return of non-defective items.

