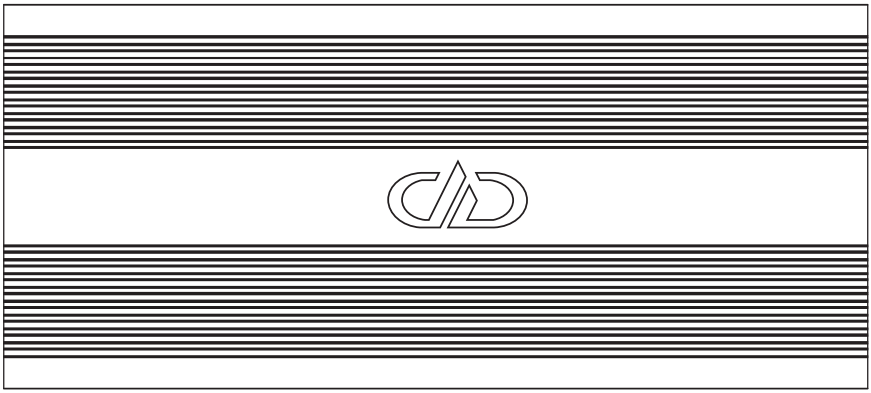
REDLINE SA SERIES AMPLIFIERS

SA500.1 and SA300.4

OWNER'S MANUAL

INTRODUCTION



Thank you for purchasing a DD AUDIO® amplifier. All of our products are proudly developed at our headquarters in Oklahoma City, USA where day in and day out we dedicate ourselves to the mission of providing our customers with products that meet or exceed our stringent standards of reliability and performance. All of our products are painstakingly designed to provide years of listening pleasure. To help ensure your satisfaction and the longevity of your equipment, it is highly recommended that you read this Owner's Manual and familiarize yourself with the many features of your amplifier. To achieve optimum performance we suggest you have your amplifier installed by an Authorized DD AUDIO Dealer.

We hope you enjoy using this DD AUDIO product, and if you have any questions regarding setup or installation after reading this manual, please contact the DD AUDIO technical support team.

WARNING

DD AUDIO amps are built to push speakers to extremely high volumes beyond what your ears can safely handle for extended periods of time. Prolonged exposure to excessively high volume can cause permanent damage to your hearing. In addition, 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. You may also find your state or city has laws governing the volume of an audio system in a motor vehicle. So, be smart and behave yourself…As much as possible.

REDLINE SA SERIES DESIGN FEATURES:

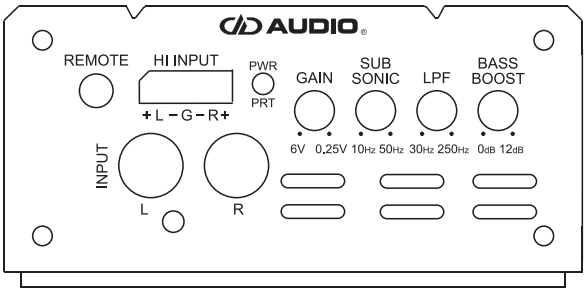
- **MOSFET POWER SUPPLY AMPLIFIER**
- **4 GAUGE SET SCREW POWER TERMINALS**
- **12 GAUGE SET SCREW SPEAKER TERMINALS**
- **VARIABLE 12DB/OCT CROSSOVERS**
- **REMOTE SUBWOOFER CONTROL (SA500.1)**
- **5-WAY PROTECTION: SPEAKER SHORT, THERMAL, OVERLOAD, HI/LOW VOLTAGE, DC OFFSET**

TECHNICAL SPECIFICATIONS

	SA500.1	SA300.4
Operating Voltage	10 - 16	10 - 16
Test Voltage	14.4	14.4
Output Channels	1	4
Cont Wattage @ 4 Ohm	250	4x65 / 2x120
Cont Wattage @ 2 Ohm	390	4x75
Cont Wattage @ 1 Ohm	500	NA
Dynamic Wattage	1000	600
Max Current Draw - Amps	50	30
RCA Input Sensitivity - Volts	6 - 2.5	6 - 2.5
High Level Sensitivity - Volts	20 - 1.1	20 - 1.1
Frequency Response - Hz	10 - 250	10 - 30000
S/N Ratio - dB	>85	>85
Damping Factor	>70	>70
THD	<0.1%	<0.1%
Boost Level	12dB @ 45Hz	NA
High Pass Filter - Hz	NA	35 - 250
Subsonic Filter - Hz	10 - 50	NA
Low Pass Filter - Hz	30 - 250	35 - 250
Remote Subwoofer Control	Yes	NA
Power Wire Gauge - In	4	4
Speaker Wire Gauge - Out	12	12
Dimensions - in	7 x 3.8 x 1.69	7 x 3.8 x 1.69
Dimensions - mm	180 x 96 x 43	180 x 96 x 43

CONTROL AND CONNECTIONS FOR REDLINE SA SERIES AMPLIFIERS

RL-SA500.1 CONTROL PANEL



REMOTE:
Use this port to connect the included remote level control knob.

INPUT:
Used for connecting low level RCA signal cables from the source unit to the amplifier.

HI-INPUT:
Used for connecting high level speaker cables from the source unit to the amplifier when there is no low level RCA output available.

NOTE:*The middle wire in the HI-INPUT harness labeled G is a chassis ground wire only used for integrating with chassis ground speaker systems where only a positive signal wire is going to the speaker. Do not use it if your speaker has positive and negative speaker wires.*

PWR / PRT:
When illuminated green indicates the amplifier is grounded, receiving +12V and REM power, and the outputs are active. When illuminated red indicates a general malfunction due to speaker short, faulty connection or thermal protection.

GAIN:
Adjust to match the amplifier's input sensitivity to the output voltage of the source signal.

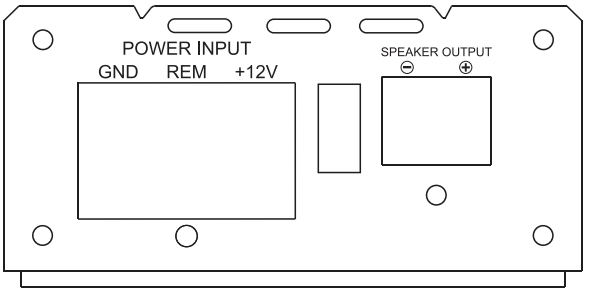
SUBSONIC:
Attenuates unwanted low frequencies by controlling the high frequency pass cutoff point for the speaker outputs. This helps to eliminate extremely low frequencies that are inaudible in the system and can waste amplifier power and cause damage to your subwoofers.

LPF:
Attenuates unwanted high frequencies by controlling the low pass frequency cutoff point for the speaker outputs.

BASS BOOST:
Used to increase the output in frequencies centered around 45Hz. Most commonly used when the source material doesn't contain high peak levels of bass. Setting the boost level too high can cause severe clipping and damage to the subwoofer and/or amplifier. Use in conjunction with the HPF and Subsonic filters to maximize the output of the subwoofer portion of the system.

CONTROL AND CONNECTIONS FOR REDLINE SA SERIES AMPLIFIERS

RL-SA500.1 CONNECTION PANEL



GND:
Connect to a ground wire going directly to the chassis of your vehicle. Minimum cable size is 4 gauge.

REM:
Connect to the speaker's + and **-** Connect to a switched +12V cable.

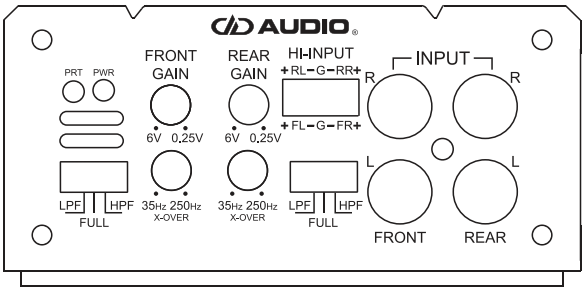
+12V:
Connect to a fused +12V cable from the battery. Minimum power cable size is 4 gauge.

REM:
Connect to a switched +12V cable.

SPEAKER OUTPUT:
Connect to the speakers + and **-** terminals. Minimum suggested speaker cable size is 16 gauge.

CONTROL AND CONNECTIONS FOR REDLINE SA SERIES AMPLIFIERS

RL-SA300.4 CONTROL PANEL



PRT:
When illuminated red indicates a general malfunction due to speaker short, faulty connection or thermal protection.

PWR:
When illuminated indicates the amplifier is grounded, receiving +12V and REM power, and the outputs are active.

GAIN:
Adjust to match the amplifier's input sensitivity to the output voltage of the source signal.

LPF/FULL/HPF SWITCH:
When set to **LPF** the preamp will attenuate unwanted high frequencies. Used for bass speakers.

When set to **FULL** all frequencies will pass without any attenuation.

When set to **HPF** the preamp will attenuate unwanted low frequencies. Used for mid and high frequency speakers.

X-OVER:
Used to set the frequency cutoff point for the speaker outputs when the LPF/FULL/HPF switch is set to LPF or HPF. When the switch is set to FULL the X-OVER setting will have no effect on the audio.

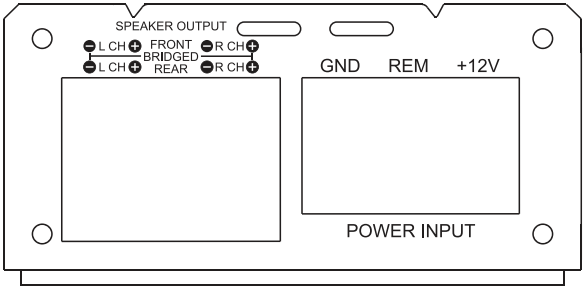
HI-INPUT:
Used for connecting high level speaker cables from the source unit to the amplifier when there is no low level RCA output available.

NOTE:*The middle wire in the HI-INPUT harness labeled G is a chassis ground wire only used for integrating with chassis ground speaker systems where only a positive signal wire is going to the speaker. Do not use it if your speaker has positive and negative speaker wires.*

INPUT:
Used for connecting low level RCA preamp signal cables from the source unit to the amplifier.

CONTROL AND CONNECTIONS FOR REDLINE SA SERIES AMPLIFIERS

RL-SA300.4 CONNECTION PANEL



SPEAKER OUTPUT:
Connect to the speakers + and - terminals. Minimum suggested speaker cable size is 16 gauge. When bridging the outputs connect the -L and the +R terminals to a 4ohm minimum load.

GND:
Connect to a ground wire going directly to the chassis of your vehicle. Minimum cable size is 4 gauge.

REM:
Connect to a switched +12V cable.

+12V:
Connect to a fused +12V cable from the battery. Minimum power cable size is 4 gauge.

MOUNTING YOUR AMPLIFIER

- Mount your amplifier in a dry, well-ventilated environment.
- Before mounting the amplifier be sure the mounting location and screw placement will not present a hazard to any cables, wiring, fuel lines, fuel tanks, hydraulic lines or other vehicle systems or components.
- Securely mount the amplifier using appropriate hardware so that it does not come loose in the event of a collision or a sudden jolt to the vehicle.
- Do not mount the amplifier to any area that may have excessive vibration (like the subwoofer box).
- Take into consideration your vehicle's safety equipment (air bags, seat belt systems, ABS brake systems, etc.) and avoid interfering with such equipment.

POWERING YOUR AMPLIFIER

Make sure your vehicle's charging system is adequate for the amplifier you're installing. Amplifiers don't make power, they simply convert the current and voltage you give them into wattage. If your charging system is insufficient, your amp will not produce its full rated output. If the current or voltage supply drops too low, even for milliseconds, damage can be caused resulting in amplifier failure. This type of failure is not considered a manufacturer's defect. The addition of even a small amplifier will increase the demand on your charging system. If you are unsure or have questions about your charging system, have it tested by a professional technician to determine its capability.

INSTALLATION

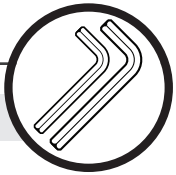
1. Disconnect the negative cable from the car battery.
2. Due to the power requirements of any aftermarket amplifier, the +12V connection should be made directly to the positive (+) terminal of the battery. For safety measures, install an in-line fuse (not included) as close to the battery's positive (+) terminal as possible. The fuse ampere rating should not exceed the total value of the amplifier's rated maximum current draw. If the fuse is further than 18 inches (wire length) from the battery you should re-evaluate the wire and fuse placement.

   Run the power wire from the battery to the amplifier's mounting location. To avoid a potential short to the body and a possible fire, this cable should never be run outside of the vehicle. You will also need to make sure no trim screws or sharp body metal will penetrate the power cable shielding. Don't install the fuse yet. This will be the last thing you do.
3. Connect a ground wire directly to the chassis of your vehicle. The grounding location should be made on metal as close to the amplifier as possible and should be no longer than 3 feet from your amplifier's mounting location. Remove all paint, sound deadener, etc. from the area of grounding connection. Do not use seat belt bolts for grounding. It is advisable to test the ground with an ohmmeter. Test between the grounding point and the negative battery cable to ensure a good low resistance connection (<0.5 Ohm).
4. Determine the proper turn on/off method for your installation. For some amplifiers REM will be the only option.
   - REM: If there is a Turn On Mode selector set it to REM then run an 18 gauge wire from an ignition controlled +12V source. This will be connected to the REM terminal on the amplifier and used to turn "ON/Off" the amplifier remotely. Generally this will connect to the REM output of your source unit.
   - DC Offset: Set the amplifier Turn On Mode to DC and proceed to step 5.
   - Signal Sense: Set the amplifier Turn On Mode to SE and proceed to step 5.
5. Run RCA signal cables from your signal source.
6. Run the speaker wire from the speakers to be powered to the amplifier's mounting location. It is advised that you leave some extra length of wire at this point to ensure there is enough wire to easily make your connections once the amp is mounted. You can "clean it up" later.
7. Connect the power and ground wires to the amplifier. Make sure the polarity (+ and -) is correct to avoid damaging the amplifier. Only after this step should you install the fuse at the battery.

INSTALLATION *(continued)*

8. Connect the remote wire to the amplifier. At this time you should turn on the amp and make sure it turns on properly.
9. Turn the amplifier off and connect the speaker wires to the amp. Pay attention to the polarity (+ and -). If hooked up incorrectly it can cause poor sound due to phasing issues.
10. Connect the RCA or high level signal cables to the RCA or high level input. Some amplifiers with differential RCA inputs can accept high level signals with the use of a speaker wire to RCA adapter (sold separately). Review your amplifier's features to verify what type of signal inputs it has.
11. Double check the amplifier's crossover controls to verify they are roughly set for your system application. E.g. subwoofer, tweeters, midrange.
12. Now you can turn on the system and begin the fine tuning process. Turn the amp gain all the way down. Turn the head unit volume to somewhere around 75%. While playing a musical track, similar to the content that will most commonly be played on the system, turn the GAIN or SENS up until you see the corresponding clipping indicator on the amplifier or the remote gain knob begin to flash on the music.
13. Take your time and make only one adjustment at a time. It may take some time to get the system fully adjusted. During this time the amp is drawing current from the battery. You should check the battery voltage from time to time and re-charge it if it gets low. Low battery voltage can affect the way the amplifier performs.
14. If installing the amplifier with new speakers you may notice a slight change in your sound due to the natural breaking in of your speakers. At this time you may want to do some slight re-tuning to optimize your systems performance.

TROUBLESHOOTING:



NO POWER

- Check GND connection.
- Check voltage at the amplifier's +12V and REM terminals.
- Check fuses.

NO SOUND (NO OUTPUT)

- Check the signal cables and speaker outputs with a test tone, 50Hz (sub amps) or 1kHz (full range), and AC Voltmeter to see if there is voltage present at the output of the signal cables.
- Check all cable routing for shorts or faulty connections.
- Check speakers to verify they are in proper operating condition.

PROTECTION (MOST COMMON CAUSES)

- SPEAKER SHORT: A connected speaker has a shorted or damaged speaker lead or voice coil.
- THERMAL: The amplifier overheated. The amplifier will automatically return to normal operation once its temperature drops below the thermal shutoff temperature. Make sure there is proper airflow with no obstructions around the amplifier to avoid further issues. In some applications an external fan may be required to keep the amplifier temperature below the thermal protection level.
- OVERLOAD: The connected speaker/s has too low of an impedance.
- HI/LOW VOLTAGE: The power input voltage has gone outside the voltage range of 9V-16V.
- DC Offset: There is a damaged transistor in the output section.

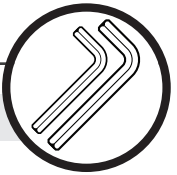
DISTORTION

- Make sure the input gain level is set appropriately. Also check the speaker quality when playing on another amplifier.

POOR BASS RESPONSE

- Check the crossover sections for incorrect settings and check the speaker cables for reversed polarity connections.

TROUBLESHOOTING *(continued)*:



BUZZING SOUND

- Check the amplifier and source unit ground connections.
- Check RCA cable connections and possibly replace RCA cables with a better shielded cable or reroute RCA cables away from power cables.

ALTERNATOR / ENGINE NOISE

- This type of noise is caused by grounding issues. This can be related to the amplifier, source unit, signal processor, battery or alternator. If you can remove the signal cables from the amplifier and the noise goes away the sound is not being generated by your amplifier, but by an external grounding issue. If you can feed a signal into the amp from an external source unit and the noise is not present the sound is not being generated by your amplifier.

If you have any questions regarding setup, installation or warranty please contact the DD AUDIO® technical support team by email at **service@ddaudio.com** or by phone at **(405) 239-2800**.

DD AUDIO TRUE TO THE SOURCE®

4025 NW 36th St., Oklahoma City, OK 73112 • (405) 239-2800

DDAUDIO.COM