



DD1-1300S

Mono-Bloc Digital Power Amplifier

500 Watts RMS- 4 Ω

900 Watts RMS- 2 Ω

1300 Watts RMS- 1 Ω



Ultimate Sound, Inc

163 University Parkway

Pomona, California

Phone: 909-594-2604

Fax: 909-594-0191

e-mail

technicalsupport@ultimate-sound.com

Ultimate Europe AB

Flojelbergsgatan 7A

SE 431 37

Molndal, Sweden

Phone: 46-31 87 64 50

Fax: 46-31 87 20 04

europesupport@ultimate-europe.com

INTRODUCTION

I. Description

This device is a high power, audio amplifier. Use it responsibly. Very loud music can cause permanent hearing loss. This amplifier is intended for installation in vehicles with a 12 Volt, negative ground electrical system. Attempting to connect or operate the amplifier in another type of electrical system may cause damage to the amplifier or the electrical system.

II. About This Manual

Read the Instructions-

Be sure that you have read all operating instructions and understand all safety precautions before installing and operating the amplifier. We recommend that you have your **Digitalis** amplifier installed by a specialist.

Follow the Instructions-

The instructions are intended to help you safely obtain the best performance from the amplifier. Carefully follow all installation and operating instructions.

Save the Operating Manual-

Keep the manual in a safe place after installing the amplifier. You may have questions later.

Text Conventions used in this Manual-

Bold-

Headings and important information.

Bold, Underlined-

Very important information.

"Bold"-

As labeled on the amplifier, or quoted from elsewhere in this manual.

III. Safety and Operating Precautions-

Caution!

This symbol warns the user of a potential risk or hazard if instructions are not followed.

This arrow symbol points to a specific instruction for avoiding a potential hazard.

1. Installation

1.1 Installation- Mounting the Amplifier

Step 1- Disconnect the negative (-) battery cable before mounting the amplifier or making any connections. Check the battery and alternator ground (-) connections. Make sure they are properly connected and free of corrosion

Step 2- Choose a mounting location for your amplifier. Find a location on a flat surface away from heat and moisture. Be sure the mounting location and the drilling of pilot holes for mounting will not present a hazard to any wires, control cables, fuel lines, fuel tanks, hydraulic lines, or other vehicle systems or components. Common mounting locations are under the front passenger seat, or in the trunk area. Choose a location with unimpaired air circulation. The amplifier will dissipate heat more efficiently if mounted vertically.

Step 3- Place the amplifier in the mounting location, and mark the positions of the holes with a marker, pen or pencil. Carefully drill the mounting holes in the marked positions.

Caution!

Check carefully before drilling any pilot holes.

Step 4- Use the supplied mounting screws to securely fasten the amplifier to the mounting surface. Wrap the screw driver shaft with electrical tape to avoid marring the area around the mounting holes.

1.2 Installation- Power Connections

Step 1- Run a power cable from the battery to the amplifier mounting location. Use rubber grommets to protect the cable anywhere it has to go through metal. Use #4 AWG or larger power and ground cable.

Step 2- Connect one end of an in-line fuse holder to the power cable. Connect the other end of the fuse holder to the positive battery post with 20 cm (or less) of the same cable. This fuse location will protect the system and the vehicle against the possibility of a short circuit in the power cable. Be sure to use a fuse and fuse holder adequate for the application. Do not place a fuse in the holder at this time.

The maximum fuse rating for the **Digitalis DD1-1300S** is:
3 X 40 Amps

Caution!

Bridging fuses or replacing a fuse with one of a higher rating may cause damage to the amplifier and the vehicle's electrical system.

Step 3- Run a remote turn on cable from the switched +12V source you will be using to turn on the system components. This may be a toggle switch, a relay, or your source unit's remote trigger wire, or power antenna trigger wire. Run this lead to the amplifier mounting location. Use #18 AWG wire or larger.

Step 4- Locate a secure grounding connection as close to the amplifier as possible. Make sure the location is clean and provides a direct electrical connection to the frame of the vehicle. Connect one end of a short piece of the same size cable as the power cable to the grounding point. Run the other end of the cable to the amplifier mounting location.

Step 5- connect the ground cable to the screw terminal labeled **"POWER, GND"**.

Step 6- Connect the power cable to the amplifier at the screw terminal labeled **"POWER, BATT"**.

Step 7- Connect the remote turn on cable to the screw terminal labeled **"POWER, REM"**.

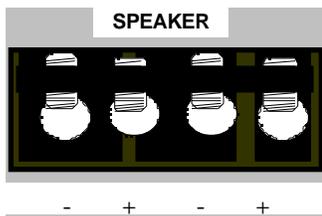
1.3 Installation- Speaker Connections

Step 1- Run #14 AWG or larger connecting wire from your speakers to the amplifier mounting location. Keep speaker wires away from power cables and amplifier input cables. Use grommets anywhere the wires have to pass through holes in the metal frame or sheet metal. Connect to the speakers according to the type of terminals on each speaker.

Step 2- Strip 3/8" of insulation from the end of each wire and twist the wire strands together tightly. Make sure there are no stray strands that might touch other wires or terminals and cause a short circuit.

Step 3- If possible, tin the wire ends with solder to provide a secure termination.

Step 4- Connect the wire ends to your amplifier as follows:



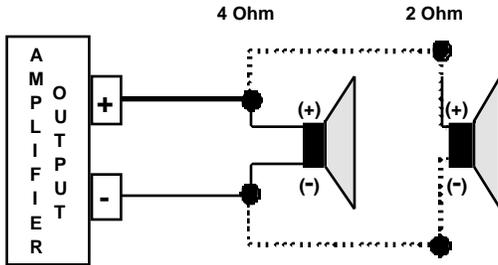
SPEAKER TERMINALS

Follow the (+) (-) polarity markings, making sure they match the polarity of the connections at the speakers. There are 2 sets of (+) and (-) terminals for convenience in connecting multiple subwoofers.

MULTIPLE SPEAKER CONNECTION

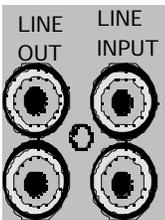
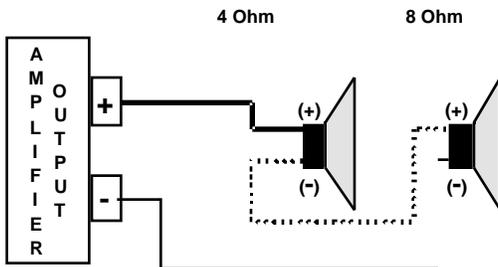
PARALLEL- Each additional speaker decreases the load impedance for the amplifier. The amplifier delivers more current and works harder.

PARALLEL CONNECTION USING 4 OHM SPEAKERS



SERIES- Each additional speaker increases the load impedance for the amplifier. Impedances higher than 8 ohms are rarely used for car audio.

SERIES CONNECTION USING 4 OHM SPEAKERS



1.5 Installation- Input Connections

Low Level, High Impedance, Gold Plated RCA Input and Output Jacks-

Connect the input jacks to a source providing preamp level outputs. Use heavy duty RCA patch cords designed for mobile applications. Run the patch cables carefully,

maintaining as much distance as possible from power, speaker, and accessory wiring. Make sure the RCA plugs fit tightly for a secure connection.

Connect the output jacks to any component that can accept preamp level inputs.

1.6 Installation- Check all Connections

Recheck all connections before reconnecting the negative(-) battery cable. Insert the correct value fuse in the fuse holder at the battery before attempting to turn on the system.

2. Operation

2.1 Operation- Input Level adjustments



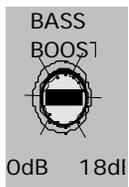
Adjust the control marked “LEVEL” to control the input sensitivity of the **DD1-1300S**. Turn clockwise to increase the level, counter clockwise to decrease. Amplifiers will run cooler and produce less system noise at lower level settings.

Consult an experienced installation specialist for assistance in balancing the levels in multi-amplifier systems, or systems with signal processing accessories.

2.2 Operation- Variable Subsonic Filter

The subsonic filter protects your subwoofers from over excursion at frequencies that might damage your subwoofers. The frequency is variable from 15Hz to 50Hz, and the slope is 24dB/Octave

2.3 Operation- Bass Boost, Remote Bass Boost-



Turning the “**BOOST**” control clockwise increases the level of frequencies around 45Hz by up to 18dB when fully clockwise. Plugging in the remote control module overrides the on-board control for remote operation and adjustment. The remote plug –in jack is located next to the speaker terminal block. You can mount the remote control on any flat surface, but it is most commonly secured under the dash, or in the center console of the vehicle. Use the supplied screws to mount the remote control housing.

2.4 Operation- Built-in Crossover

The **Digitalis DD1-1300S** has a built-in crossover filter for low-pass operation. The filter slope is 24 dB/Octave.



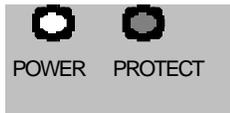
FREQUENCY ADJUSTMENT

Adjust the low pass frequency by turning the control marked “**FREQ, 50Hz – 250Hz**”. Turn clockwise to set to a higher frequency, counter clockwise to set to a lower frequency.

2.5 Operation- Phase Control

The “**PHASE**” switch changes the phase of the output 180 degrees when switched on. This allows quick phase adjustment to match the phase of subwoofers to the main speakers for better stereo imaging and bass response.

2.6 Operation- Protection Circuits and L.E.D. Indicators



L.E.D. INDICATOR- The green LED lights to provide a visual indication that the amplifier is turned on. The red LED lights to indicate that a problem exists and the protection circuitry has

protected the amplifier by shutting it down. Turn the system off and correct the problem before turning the system on.

THERMAL PROTECTION- The amplifier will shut down if its temperature exceeds a safe operating level. The amplifier will remain off until it cools to a safe operating temperature. Exercise care, the exterior of the amplifier may get uncomfortably hot to the touch before shutting down.

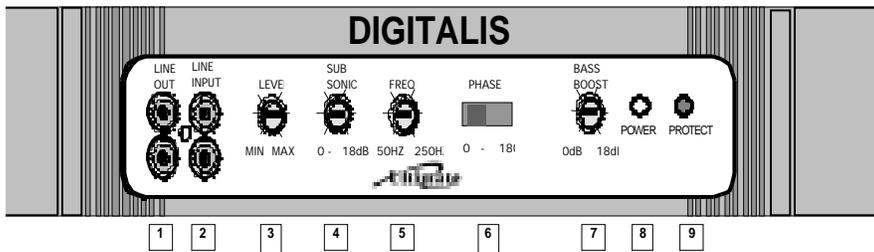
OVERLOAD AND SHORT CIRCUIT PROTECTION- The amplifier will shut down if a short circuit condition exists, or if electrical current demands exceed safe levels.



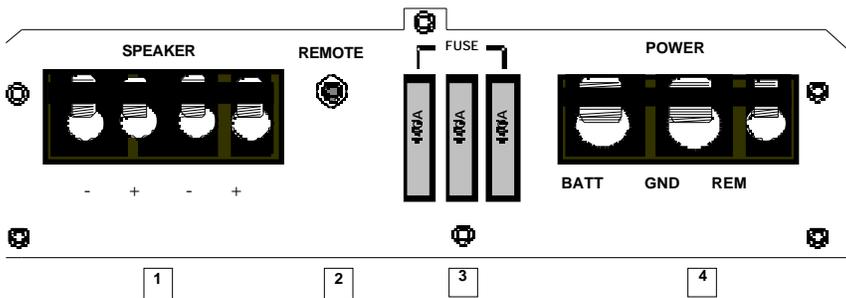
FUSE PROTECTION- A blown fuse indicates a problem that should be corrected before the fuse is replaced. Always replace with the same value fuse. Never substitute a larger value fuse.

2.4 Operation- Location of Terminals, Controls and LED indicators

- | | | |
|--------------------|---------------------|-----------------------|
| 1. RCA input jacks | 2. RCA output jacks | 3. Input level adjust |
| 4. Subsonic freq. | 5. Low pass freq. | 6. Phase switch |
| 7. Bass Boost | 8. Power LED | 9. Protect LED |



- | | | |
|----------------------|----------------|------------|
| 1. Speaker terminals | 2. Remote Jack | 3. Fuse(s) |
| 4. Power terminals | | |



Features and Specifications:

DD1-1300S	
1Ω Stable	Yes
Mono-bloc	Yes
Terminals	Gold plated RCA jacks, speaker and power terminals
Soft Start	Yes
Inputs	RCA line level inputs
Crossover	Low Pass, 24dB/Octave, 50Hz – 250Hz
Subsonic Filter	15Hz – 50Hz, 24dB/Octave
Bass Boost	Variable, Remote, 0 to 18dB @ 45Hz
Protection	Thermal, short-circuit, DC offset, fuse
Power Supply	Pulse Width Modulated, MOSFET power supply, +12V/Negative Ground
Power, 4Ω,	500 Watts RMS <0.1% THD
Power, 2Ω,	900 Watts RMS <0.3% THD
Power, 1Ω	1300Watts RMS <0.3% THD
Signal to Noise Ratio	>90dBA
Frequency Response	20Hz – 250Hz
Input Sensitivity	200mV – 4V
Fuse	3 X 40A

These specifications are subject to change in the continuing effort to improve the product.

Troubleshooting:

Condition	Possible Cause	Possible Solution
No sound	Low or no remote turn on voltage, or no remote turn on connection	Check the remote turn on connection and the voltage at the amplifier and source unit
	Blown fuse(s)	Check all system fuses
	Wiring problems	Recheck all connections Check for short circuits
	Blown speakers	Check speakers on another amplifier
Amplifier shut down	Protection circuit protecting against overheating or overload	Check for adequate ventilation Check load impedance Check speaker wiring for short to the vehicle chassis Reduce input level
Distortion	Input level not properly adjusted Speaker damage	Readjust amplifier input level Check speakers on another amplifier
Poor bass response	Speakers out of phase	Recheck speaker wiring Reverse polarity of one speaker
Ticking noise	Radiated noise from spark plug wires	Reroute amplifier input wiring Install a noise filter
Whining noise	Alternator noise caused by poor grounding of amplifier, source, other component, battery, or alternator	Check all ground connections Install a noise filter on the source unit's power cable Install a coupling transformer in the signal path to improve ground isolation for the signal path