



**M80**

**M1a**

**M3**

# Owner's Manual

MONOBLOCK SUBWOOFER AMPLIFIER

Thanks you for purchasing Digital Designs amplifiers for your car audio systems and competitions.

Digital Designs has introduced our M series line of the products

These products are single purpose designs with the sole goal of being the best tool for the job.

No cutbacks and No wimps

The M series lines of amplifiers feature two distinct approaches .

One amp designed for the highest possible efficiency and highest total output.

In this way, Digital Designs introduces new M series

The M series makes good amounts of power from the stock electrical systems

It is designed to make the most sound quality

The high efficiency comes from paying close attention to every stage through the amplifiers' circuit.

High speed controller chipsets, efficient power devices, precise thermal management and best engineering are the key to the M series design.

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## 1. FEATURES

Digital Monoblock 1 ohm stable Amplifier

Frequency Response	: 20Hz ~ 250Hz
Signal to Noise Ratio	: 100dB
Low Pass Crossover	: 24dB / Oct
Low Pass Crossover Range	: 20Hz ~ 200Hz
Subsonic Crossover Range	: 10Hz ~ 50Hz @ 24dB/ Oct
Input Sensitivity	: 8V ~ 0.2V
Output Master / Input Slave	: YES
Working Voltage	: 8.5V ~ 15V
Efficiency at 4 ohm	: 84%
Damping Factor	: 150<
Fuse Rating	: M80 : 30A x 3 ( Linked : 180A ) : M1a : 40A x 3 ( Linked : 240A ) : M3 : 250A ( Linked : 500A )

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

### M series Output Power

	POWER @ 4OHM	POWER @ 1 OHM	MAX POWER @ 1OHM
M80	350W x 1	820W x 1	1640W x 1
M1a	510W x 1	1200W x 1	2000W x 1
M3	770W x 1	2800W x 1	3800W x 1

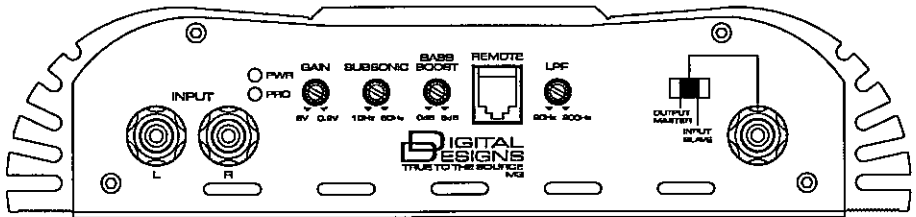
## 2. DESIGN FEATURES

- ★ M series amplifiers are working fully stable down to 4/2/1 ohm as single unit. Daisy Chain connection makes it fully stable down to 2 ohm.
- ★ M series amplifiers have the possible highest efficiency and sufficient amount of the parts to maximize the performance.
- ★ M series amplifiers have 4 ways of accurate protection circuit, as speaker short, DC offset, voltage, thermal protection which are the most safe-guard.
- ★ M series are designed in double sided board and use high current mosfet switching devices.
- ★ M series have 24dB/Oct slope of crossover, Low Pass Filter and Subsonic Filter as fully adjustable.

- ★ M series amplifiers have dash mount remote level control which allows very convenient level control from the driver seat
- ★ M series amplifiers have daisy chain connection which makes 2 units of M series amplifiers bridged into 2 ohm and produce the highest output power.

### 3. CONTROL & CONNECTION

#### 3-1. CONTROL & CONNECTION



#### INPUT

Connect preamp signal cables from the headunit to M series amplifier to RCA Input.

#### POWER & PROTECTION INDICATOR

Power LED, Green-lit shows correct operation of M series.

Protect LED, RED-lits shows general malfunction, faulty connection and thermal protection

#### GAIN

Matching the output voltage of the headunit's RCA line-outs to M series input section. Its range is 8V to 0.2V.

#### SUBSONIC CROSSOVER FREQUENCY

Control the high Pass point for the speaker outputs to eliminate extreme low frequencies. Its range is 10~ 50 Hz @ 24dB/Oct slope

#### BASS BOOST

It boosts the Bass from 0 ~ 6dB @ 45Hz

#### REMOTE LEVEL CONTROL PORT

This port is for connecting turn-down remote level control. Remote level control adjusts the level

#### LPF CROSSOVER FREQUENCY

Controls the low pass point for the speaker outputs. The crossover range is 20~200Hz @ 24dB/Oct Slope

#### OUTPUT MASTER / INPUT SLAVE

OUTPUT MASTER / INPUT SLAVE connection makes all M series as daisy chain connection to 2 ohm.

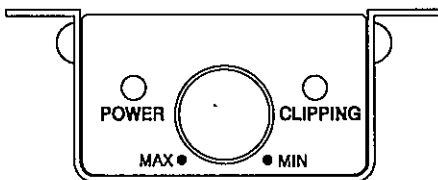
#### REMOTE

Remote control is Level turn down function.

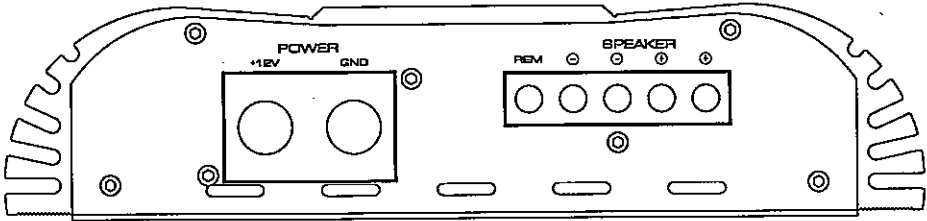
If you turn knob to clock-wise ( Min ), it reduces Level. Clipping LED shows the clipping point of M series amplifiers.

When M series are close to clipping point, Clipping LED is starting to clip. when Clipping LED is clipping faster, it is better to turn level down.

If Clipping LED is lit on, Amplifier is protected.



### 3-2. CONTROL & CONNECTION



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

It is connected to the Negative or ground cables of the Vehicle.  
Recommended cable is 0 or 4 gauge

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

This must be connected to the fuse positive terminal ( +12V ) of the battery.  
Recommended wire is 0 or 4 gauge

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

It is connected to switched +12V with a Trigger cable coming from the head unit

#### **SPEAKER OUTPUTS**

It connects amplifier to speakers.  
Minimum speaker cable is 12 gauge.  
Minimum impedance is 1 ohm.  
Minimum impedance at linked use is 2 ohm.

## 4. INSTALLATION

In case you install M series by yourself, please read owner's manual and follow your Installation steps very carefully.

Before you start your installation, please take all steps into consideration.

or, you can have Digital Designs authorized distributors to check installation and set your car audio systems

### 4-1. MOUNTING PREPARATION

Disconnect the negative ( - ) battery cable before mounting M series amplifiers or making any connections. Check the battery and alternator ground ( - ) connections. Make sure they are properly connected and Free of corrosion

Before selecting a mounting location for amplifier, Pls take some concerns into consideration with cooling efficiency and safety.

### 4-2. MOUNTING PREPARATION

M series amplifiers use heavy-duty and good heat radiation heatsink design for avoiding excessive heat from amplifier circuitry. But for better heat radiation performance, It is good to find the mounting location where you can install M series Amplifiers vertically with the heatsink fins and better air flow around M series amplifiers.

For the safety, you have to find dry and well ventilated location and make sure any cables and car equipment are not interfaced with mounting location. Be sure the mounting location and drilling of pilot cables for mounting will not present a hazard to any cables, control cables, fuel lines, Fuel tanks,hydraulic lines or other vehicle systems or components

#### **4-3. +12V, GND, REM CONNECTION**

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

Before mounting M amplifiers, disconnect the negative (—) wire from battery to protect any accidental damage to amplifier and audio system.

M series are designed to use 0 AWG or 4 AWG power and Ground connection.

Connect the power cables to power terminal labeled as + 12V

M80 and M1a are equipped with Fuses but M3 is not equipped with fuse so you have to install the fuses on the power cable for M3 as external Fuses

Connect one end of fuse holder to the power cable and the other end of fuse holder to positive battery within 20 cm 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 fuses and fuse holder adequate for the application

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

Locate a secure grounding connection as close to 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 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 screw terminal labeled as GND.

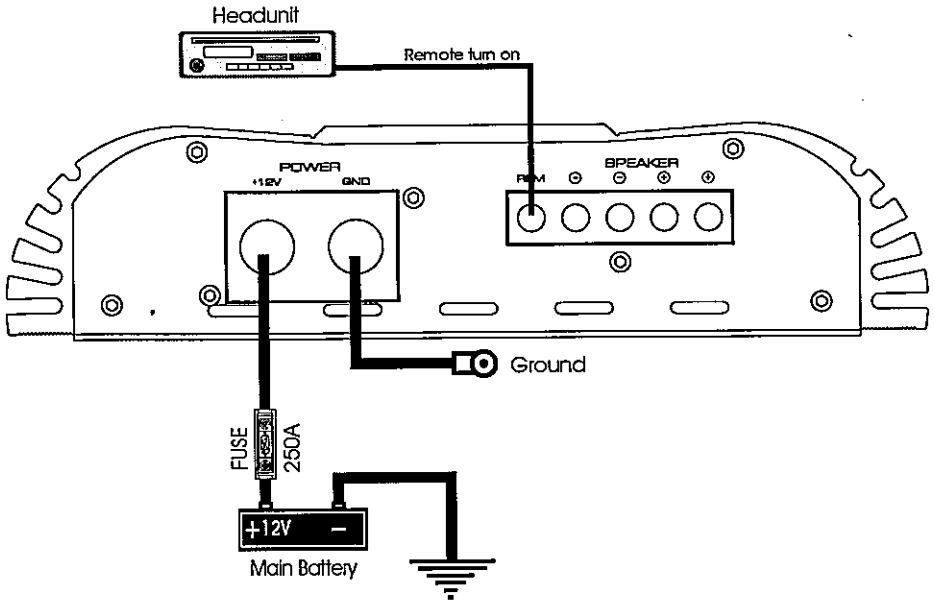
##### **REM ( REMOTE CONNECTION )**

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 cables, or power antenna trigger cable

Connect the remote turn on cable to the power terminal labeled as REM.

## +12V, GND, REM CONNECTION DIAGRAM



### 4-4. SPEAKER CONNECTION

M series amplifiers are recommended to use 12 AWG speaker connecting cables. Run 12 AWG speaker connecting cables from your speakers to M series amplifiers' mounting location.

Keep speaker cables away from power cables and M series amplifier's input cables.

Use grommets anywhere the cables have to pass through the holes in the metal frame or sheet metal.

Connect to the speakers according to the type of the terminals on each speaker. Strip 3/8" of insulation from the end of each cable and twist the cables strands together tightly.

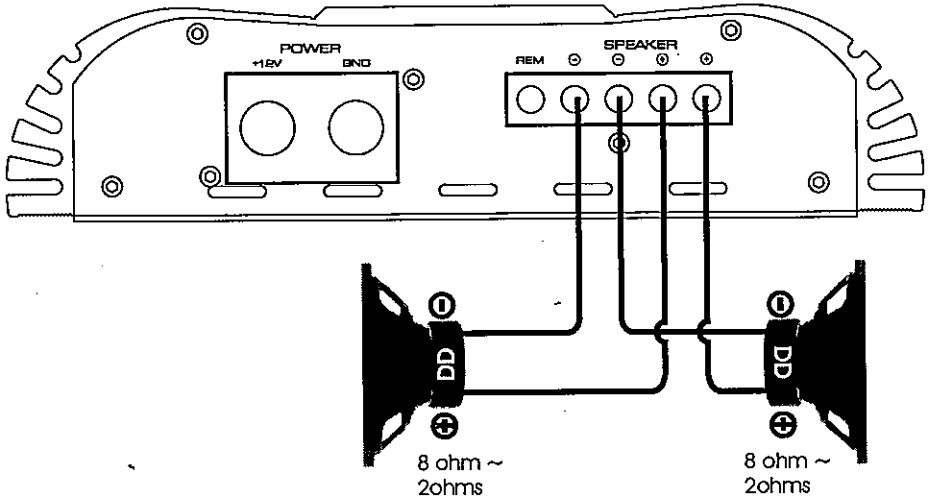
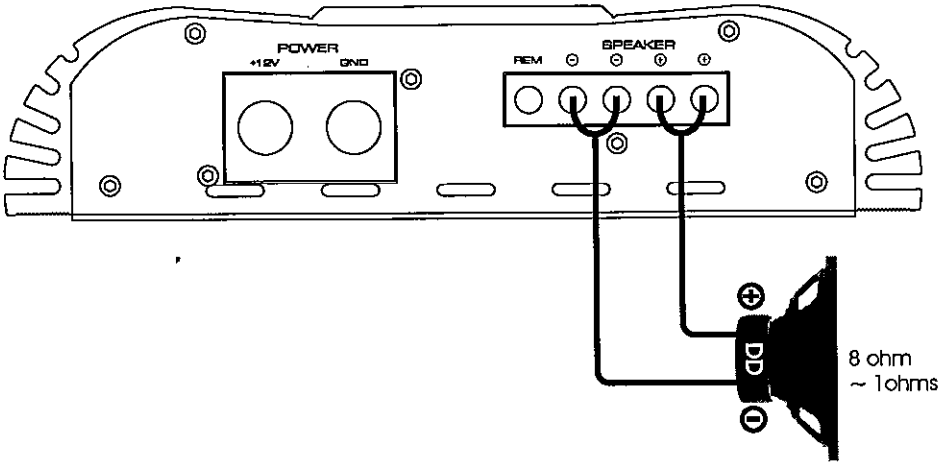
Make sure there insulation from the end of each cable and twist the cables together tightly.

Make sure there are no stray strands that might touch other cables or terminals and cause a short circuit.

Crimp spade lugs over the cable ends or tin the ends with solder to provide a secure termination

Connect the cable ends to M series amplifiers as speaker system diagram

# SPEAKER CONNECTION DIAGRAM



**⚠ CAUTION**

*All M series minimum impedance is 1 ohm.  
or  
Linked minimum impedance is 2 ohm*



## 4-5. DAISY CHAIN CONNECTION

Daisy chain connection makes 2pcs of M series amplifiers linkable .  
Please read the following connection and diagram carefully to make correct connection.

Connect the master M series amplifier to the head-unit and set its output master and input slave switch to output master position.

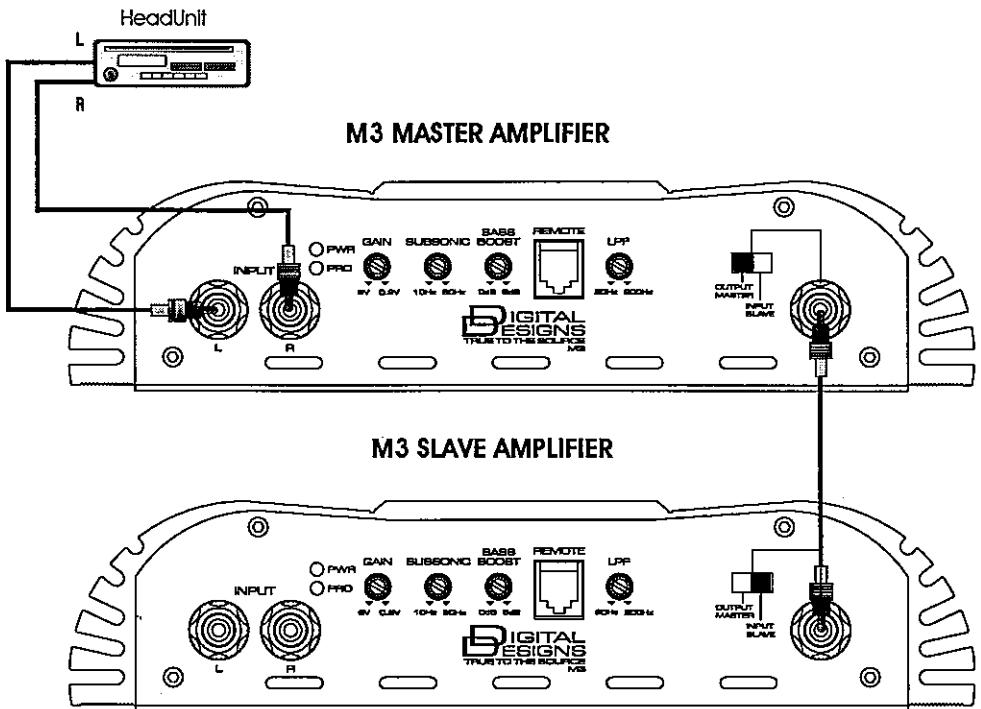
Connect the master and slave M series amplifier as daisy chain Rca jack as diagram.  
Set slave M series amplifier output master & input slave switch to slave input position.

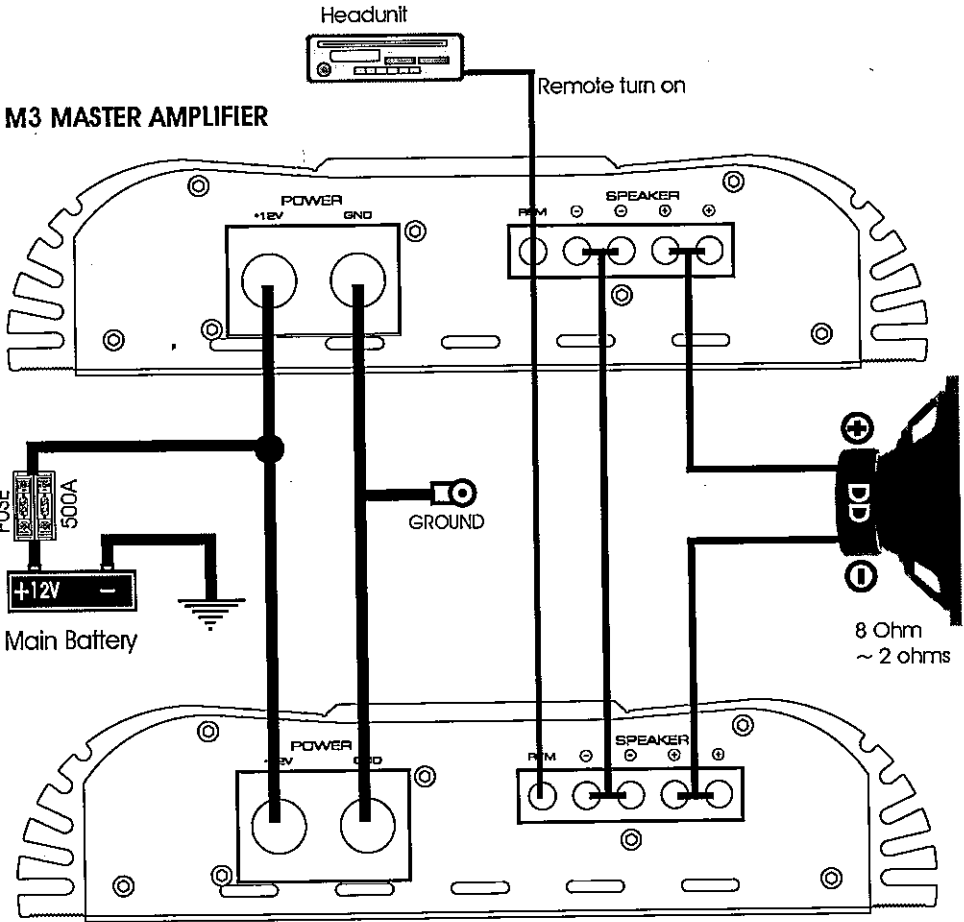
Connect speaker cable ( + ) on master M series amplifier to subwoofer ( + )

Connect speaker cable ( + ) on slave M series amplifier to subwoofer ( - )

Connect speaker cable ( - ) on master M series amplifier to speaker cable ( - ) on slave amplifier

**Minimum daisy chain connection impedance is 2 ohm**  
**Do not use daisy chain connection as 1 ohm**





**M3 SLAVE AMPLIFIER**

**CAUTION**

Minimum daisy chain connection impedance is 2 ohm  
 Do not use daisy chain connection as 1 ohm

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