

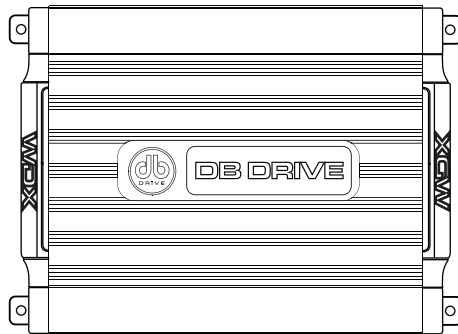


# WDX<sup>TM</sup>

## MOTO AMPLIFIERS

MOTO 1000/1  
MOTO 2000/1

MOTO 400/4  
MOTO 800/4



## User's Manual

Due to continuous improvement of the product the specifications are subject to change without notice.

## Introduction

Congratulations on your purchase of a WDX MOTO state-of-the-art amplifier. Your selection of a WDX MOTO product indicates a true appreciation of fine musical reproduction. Whether adding to an existing system or including your WDX MOTO amplifier in a new system, you are certain to notice immediate performance benefits.

### Product Commitment

DB's engineering professionals harnessed years of expertise, experience and passion, coupled with exhaustive testing and creative design to develop the optimal product and performance for your musical enjoyment. This is our commitment to you. It's what you deserve and have come to expect from DB DRIVE. We appreciate the confidence and look forward to your positive experience.

### Keep Your Sales Receipt

Take this time to attach your sales receipt to the manual and put in a safe place. In case of any unforeseen reason this product may need warranty service, your receipt will be necessary to establish purchase date.

### Recommendation

A power amplifier's performance is only as good as its installation. Proper installation will maximize the system's overall performance. It is recommended that you have our product installed by an authorized DB Drive retailer. However, if you decide to install it yourself, please carefully read through this manual and take your time to do a quality installation.

### Optimal Product Choice

To get the Maximum performance out of your stereo system, we recommend using 100% authentic DB Drive electronics and DB LINK wiring and accessories. Matching DB Drive amplifiers and speakers with your state-of the art electronics purchase is critical to optimize your system's performance. Wiring is the lifeblood of a system, make sure your audio system has the adequate current and signal transfer it deserves and needs. DB Link has it all, from wiring rolls; speaker power ground, remote to amplifier kits, RCAs, fuse holders, distribution blocks and battery connectors. Insist on getting the best, DB LINK. It's what you deserve to get the optimum performance from your audio system.

## IMPORTANT!

Before making any connections, disconnect the car's battery until the installation is completed to avoid possible damage to the electrical system.

## WARNING!

Exposure to a high power sound system can cause hearing loss or damage. Listening to your system at loud levels while driving will impair your ability to hear traffic sounds and emergency vehicles. Use common sense when listening to your system.

Serial # \_\_\_\_\_ Model # \_\_\_\_\_



## 1. MOTO AMPLIFIER'S SPECIFICATION

### 1-1. MOTO monoblock amplifiers

Load	Voltage & THD	MOTO1000/1	MOTO2000/1
4ohm	14.4 volts & 1%	1 X 250 Watts	1 X 500 Watts
2ohm	14.4 volts & 1%	1 X 500 Watts	1 X 1000 Watts
1ohm	14.4 volts & 1%	1 X 1000 Watts	1 X 2000 Watts

Working Voltage	12~15 Volts
Low Level Input	6V ~ 0.2V
Low Pass Filter ( @ 12dB Slope )	Variable 40Hz ~ 10KHz
Bass Boost	Variable 0 ~ 12dB
High Pass Filter ( @ 12dB slope )	Variable 15Hz ~ 1KHz
Remote Level Control	Yes
Minimum working impedance	1 ohm

\*MOTO Mono Amplifiers are not recommended to run under 1 ohm. Running them below recommended value could cause serious damage to internal components and would void warranty.

### 1-2. MOTO 4 channel class D amplifiers

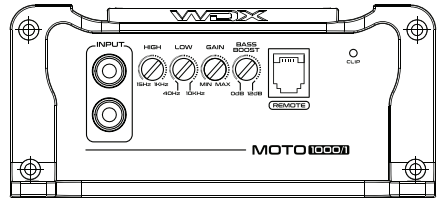
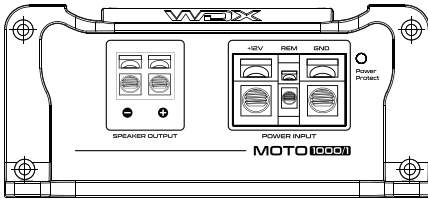
Load	Voltage & THD	MOTO400/4	MOTO800/4
4ohm	14.4 volts & 1%	4 X 150 Watts	4 X 300 Watts
2ohm	14.4 volts & 1%	4 X 200 Watts	4 X 400 Watts
4ohm bridged	14.4 volts & 1%	2 X 200 Watts	2 X 400 Watts

Working Voltage	12~15 Volts
Low Level Input	6V ~ 0.2V
High Pass Filter ( @ 12dB Slope )	Variable 40Hz ~ 3KHz
Crossover Selector	HP/F/LP
Low Pass Filter ( @ 12dB Slope )	Variable 40Hz ~ 3KHz
Minimum working impedance	2 ohm stereo or 4 ohm bridged

\*MOTO 4 Channel Amplifiers are not recommended to run under 2 ohm stereo or 4 ohm mono. Running them below recommended value could cause serious damage to internal components and would void warranty.

## 2. MOTO AMPLIFIER'S CONTROL & CONNECTION.

### 2-1. MOTO digital monoblock amplifiers



**GAIN ( 6V ~ 0.2V )** Matching the output voltage of the headunit's RCA line-outs to WDX MOTO amplifiers' input section.

**BASS BOOST ( 0~12dB @ 45Hz )**  
It boosts the bass 0 ~ 12dB

#### CLIP

The WDX MOTO series amplifiers feature a built-in clipping indicator LED. After installing the amplifier and adjusting the basic crossover settings, as you begin to adjust the input gain, watch for a red blinking light (this is the clipping indicator). If you see the light blinking on the clip indicator with heavy bass tracks .. this is indicating you're at the safe input gain limit. If the clip LED is constantly on .. turn it down this means your fully clipping (distorting) the outputs. The clipping indicator acts like an oscilloscope, but it gives you the ability to monitor the peaks in music in real time. If you are using an oscilloscope to set your gains you must factor in system changes. These changes could include head unit volume, battery voltage, music recording level, etc. If any of these factors change the amplifier's clipping point could change as well.

#### REMOTE LEVEL CONTROL PORT

This port is for connecting remote gain level control.

#### +12V ( POWER CONNECTION )

This must be connected to the fuse positive terminal ( +12V ) of the battery. \*

*Refer to chart below for recommended gauge values.*

#### GND ( GROUND CONNECTION )

It is connected to the Negative or ground cables of the Vehicle. \*Refer to chart below for recommended gauge values.

MODEL	GAUGE
MOTO1000/1	4
MOTO2000/1	4

#### REM ( REMOTE )

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

#### SPEAKER OUTPUTS

It connects amplifier's terminals to subwoofer speakers. Maximum speaker wire is 12 gauge. Minimum impedance is 1 ohm

#### FUSES

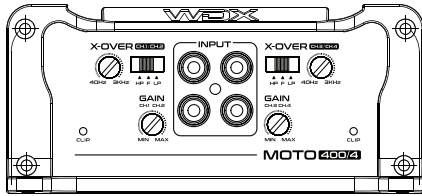
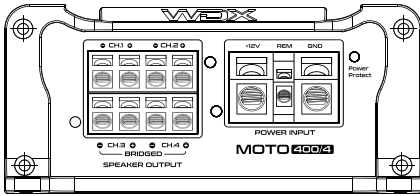
MOTO amplifiers require external fusing. Protect the amplifiers power supply from any shorts by externally fusing your amplifier. Any use of overvalued fuses will void all warranty.

*\*Refer to page 6 for recommended fuse values.*





## 2-2. MOTO 4 channel class D amplifiers



### GAIN ( 6V ~ 0.2V )

The gain control matches the voltage of the headunit's RCA line-outs to WDX MOTO amplifiers' input section.

### GND ( GROUND CONNECTION )

It is connected to the Negative or ground cables of the Vehicle. Refer to chart below for recommended gauge values.

### CLIP

The WDX MOTO series amplifiers feature a built-in clipping indicator LED. After installing the amplifier and adjusting the basic crossover settings, as you begin to adjust the input gain, watch for a red blinking light (this is the clipping indicator). If you see the light blinking on the clip indicator with heavy bass tracks .. this is indicating you're at the safe input gain limit. If the clip LED is constantly on .. turn it down this means your fully clipping (distorting) the outputs. The clipping indicator acts like an oscilloscope, but it gives you the ability to monitor the peaks in music in real time. If you are using an oscilloscope to set your gains you must factor in system changes. These changes could include head unit volume, battery voltage, music recording level, etc. If any of these factors change the amplifier's clipping point could change as well.

MODEL	GAUGE
MOTO400/4	4
MOTO800/4	4

### REM ( REMOTE )

Connected to switched +12V remote cable from the head unit.

### +12V ( POWER CONNECTION )

This must be connected to a fused positive terminal ( +12V ) of the battery.

Refer to chart above for recommended gauge values.

### SPEAKER OUTPUTS

The maximum recommended speaker wire is 12 gauge. The minimum impedance is 2 ohm stereo or 4 ohm mono.

### FUSES

MOTO amplifiers require external fusing. Protect the amplifiers power supply from any shorts by externally fusing your amplifier. Any use of overvalued fuses will void all warranty.

\*Refer to page 6 for recommended fuse values.



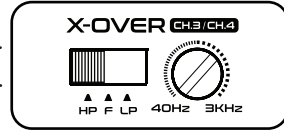
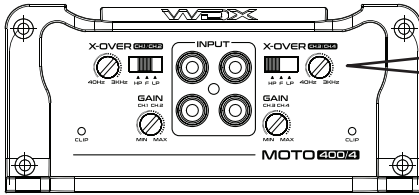


## 2-3. ADAPTIVE CROSSOVER TECHNOLOGY

### 4 Channel Amplifiers

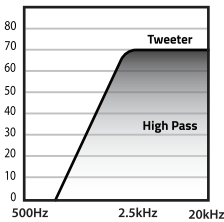
#### A) Settings for high-frequency speakers

Channel 1/2 & Channel 3/4



Crossover Selection to Variable HPF

40Hz - 3KHz



#### HIGH PASS FILTER

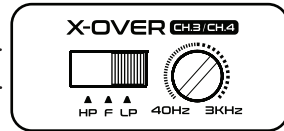
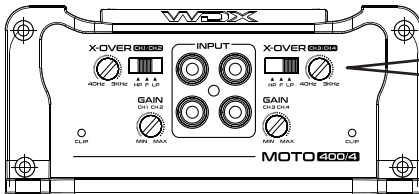
12dB/Oct  
40Hz - 3KHz  
Controls the high pass point  
for the speaker outputs.

*\*Refer to section 2-3A for more details.*

### 4 Channel Amplifiers

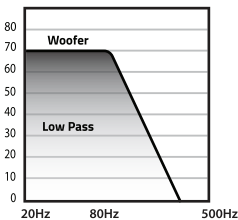
#### B) Settings for subwoofers

Channel 1/2 & Channel 3/4



Crossover Selection to Variable LP

40Hz - 3KHz



#### LOW PASS FILTER

12dB/Oct  
40Hz - 3KHz  
Controls the low pass x-over point  
for the speaker outputs.

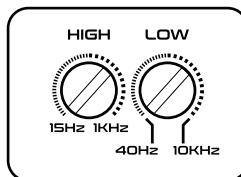
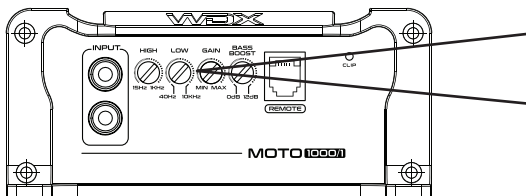
*\*Refer to section 2-3B for more details.*



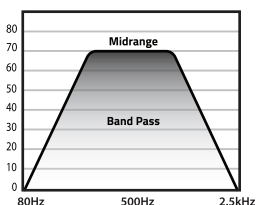
## 2-3. ADAPTIVE CROSSOVER TECHNOLOGY

### Monoblock Amplifiers “Band Pass Funtion”

#### C) Settings for Mid-Range Speakers



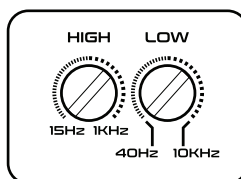
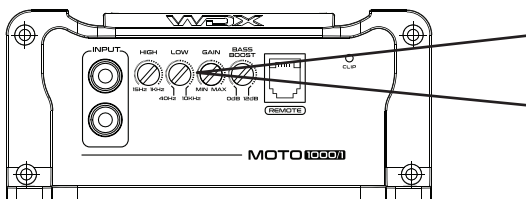
Variable Crossover HPF: 15Hz - 1KHz  
 Variable Crossover LPF: 40Hz - 10KHz  
 Variable Crossover BPF: 15Hz - 10KHz



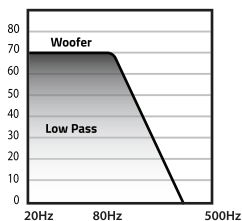
**BAND PASS FILTER**  
 12dB/Oct  
 15Hz - 10KHz  
 Controls the Band pass point  
 for the speaker outputs.

### Monoblock Amplifiers

#### D) Settings for Subwoofers



Variable Crossover HPF: 15Hz - 1KHz  
 Adjust HP Filter for Subsonic setting as Desired,  
 or to choose no subsonic filter leave at 15Hz  
 Variable Crossover LPF: 40Hz - 10KHz  
 Variable Crossover BPF: 15Hz - 10KHz



**LOW PASS FILTER**  
 12dB/Oct  
 40Hz - 10KHz  
 Controls the low pass x-over point  
 for the speaker outputs

### 3. INSTALLATION

In case you install the MOTO amplifiers by yourself, please read owner's manual very carefully. Before you start your installation, please take all steps into consideration, or you can have a DB Drive or DB Research's authorized dealer check the installation and help install your car audio systems.

#### 3-1. MOUNTING PREPARATION

Disconnect the negative ( - ) battery cable before mounting your MOTO amplifier 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. Please also take into consideration cooling efficiency and safety.

#### 3-2. MOUNTING PREPARATION

##### COLLECTIVE HEAT MANAGEMENT

The MOTO amplifier uses a specially designed heat radiation heatsink to avoid excessive heat from MOTO circuitry. But for better heat disipation, it is recommended to find the mounting location where you can install MOTO where the heatsink fins have better air flow. For safety, you have to find a dry well ventilated location. Before mounting, be sure the location and drilling of pilot cables will not present a hazard to any cables, control cables, fuel lines, fuel tanks, hydraulic lines or other vehicle systems or components.

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

##### A) 12V ( POWER CONNECTION )

Before mounting MOTO amplifiers, disconnect the negative (-) wire from battery to protect any accidental damage to the amplifier and the audio system. The **MOTO400/4** and **MOTO800/4** are designed to use, at a minimum, 4 gauge power and ground cables **MOTO1000/1** and **MOTO2000/1** are designed to use, at a minimum, 4 gauge cables. Connect the power cables to power terminal labeled as + 12V. MOTO amplifiers are not equipped with fuses so you need to install external fuses.

MODEL	FUSE
MOTO400/4	80A
MOTO800/4	100A
MOTO1000/1	60A
MOTO2000/1	100A

##### RECOMMENDED FUSE VALUES

In order to install external fuses, connect one end of the fuse holder to the power cable and the other end of fuse holder within 18in of the positive battery terminal, using the same cable gauge. 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 current draw application.

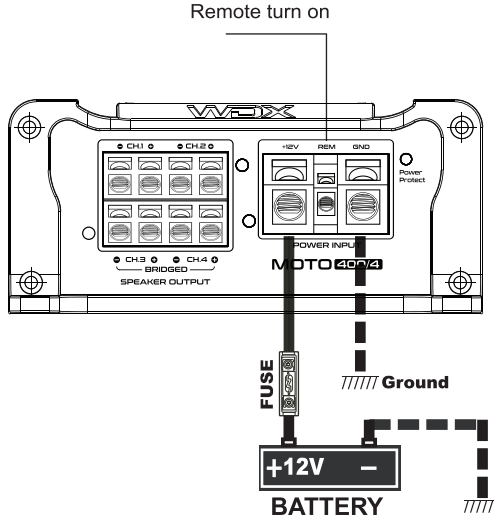
##### B) GND ( GROUND CONNECTION )

Locate a secure grounding connection as close to MOTO amplifiers 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 gauge 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.

### C) REM ( REMOTE CONNECTION )

Run a remote turn on cable from the head units remote switched + 12V output.

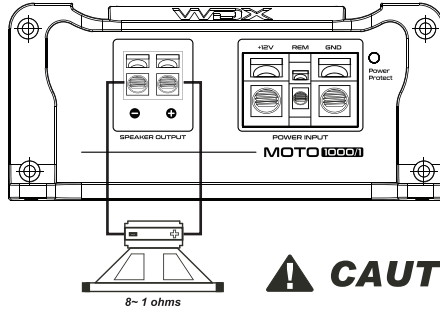
### 3-3. MOTO +12V, GROUND, REMOTE CONNECTION DIAGRAM



### 3-4. SPEAKER CONNECTION

DB Drive recommends to use a maximum of 12 gauge speaker connecting cables. Run 12 gauge speaker connecting cables from your speakers to MOTO amplifier's mounting location. Keep speaker cables away from power cables and MOTO 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 are no stray strands that might touch other cables or terminals causing a short. Crimp spade lugs over the cable ends or tin the ends with solder to provide a secure termination. Connect the cable ends to MOTO amplifiers as shown on speaker system diagrams.

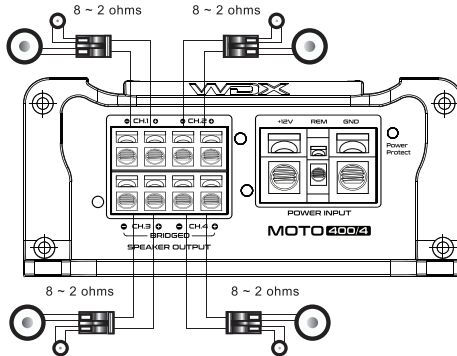
**MOTO MONOBLOCK AMPLIFIERS' SPEAKER CONNECTION DIAGRAM 1.**



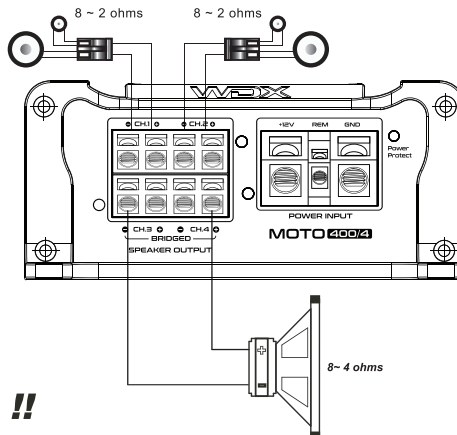
**⚠ CAUTION !!**

*MOTO1000/1 and MOTO2000/1 amplifiers minimum impedance is 1 ohms.*

**MOTO 4 CHANNEL AMPLIFIERS' SPEAKER CONNECTION DIAGRAM 1.**



**MOTO 4 CHANNEL AMPLIFIERS' SPEAKER CONNECTION DIAGRAM 2.**



**⚠ CAUTION !!**

*MOTO400/4 and MOTO800/4 amplifiers minimum impedance is 2 ohms stereo or 4 ohm bridged*

## 4. TROUBLE SHOOTING

### NO SOUND ( NO OUTPUT )

- 1) Check all connections, cables' routing, short and voltage at MOTO amplifiers and headunit.
- 2) Check external fuses. If any are blown, replace with new one.
- 3) Check whether speakers work well. You can test speakers by connecting to another amplifier.

### PROTECTION

- 1) Please check overload, overheat ( thermal ), short, voltage and DC offset.
- 2) Minimum working impedance for 4 channel amplifiers is 2 ohm stereo or 4 ohm mono Minimum working impedance for all Class D mono amplifiers is 1 ohm for single unit and 2 ohm for linked operation.
- 3) If MOTO amplifier shuts down due to overheat, Reset by turning off the remote input and allowing time to cool down. Please make sure there are no airflow obstructions around the MOTO amplifiers to prevent thermal protection.
- 4) **MOTO1000/1, MOTO2000/1** have voltage operation of 8.5V~16V If Voltage is out of range of above, MOTO amplifiers will be protected.

### POOR BASS RESPONSE

- 1) Please check speaker polarities.

### WHINING NOISE

- 1) Engine noise is caused by poor grounding of MOTO amplifiers, headunit, other components, battery or alternator, so please check all grounding connection.

## LIMITED WARRANTY

DB Drive™ warrants any MOTO amplifiers purchased in the USA from an authorized MOTO dealer. All MOTO amplifiers are warranted to be free from defects in material and workmanship under normal use and service for a period of one (1) year when the unit is installed by an authorized dealer. Non-authorized dealers installed amplifiers carry one (1) year parts and labor limited warranty. This warranty applies to original purchase only, non-transferable

DB Drive™ will either repair or replace (as its option) any unit that has been found to be defective and under warranty.

This limited warranty does not extend to units that have been subjected to misuse, abuse, neglect, accident, or defaced. Products that in DB Drive™'s judgment show evidence of having been altered, modified, abused or serviced without DB Drive™'s authorization, will be ineligible under this warranty.

The original sales invoice must be presented at the time any product will be inspected before any warranty agreement is issued.

To obtain warranty services please contact your local retailer or DB Research directly or visit our website [www.dbdrive.net](http://www.dbdrive.net) for more details.



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