

# MASSIVE<sup>®</sup>

NANO EDGE AMPLIFIER

E2 / E3 / E4

EX2 / EX5

EX44 / EX46 / EX48



# INTRODUCTION

## **Congratulations!**

And thank you for purchasing a "Massive Audio" Nano Edge amplifier for your car audio system. You now own an amplifier of uncompromising design and engineering incorporating the latest advances in micro topology. This handcrafted amplifier is designed to deliver the demands of serious sound competitors. You will soon discover that "Nano Edge" amplifiers display a fine balance between high quality, performance and reliability; all proven qualities of "Massive Audio" products.

"Massive Audio" amplifiers are the result of American Craftsmanship using only the highest quality components and quality control standards. In order to provide you with many years of listening pleasure, we recommend you to have your new amplifier installed by an Authorized "Massive Audio Dealer." This will ensure the proper installation of your product, and will also increase the length of your warranty to **ONE YEAR**.

(Please see the warranty section of this manual for more details.)

Please take a moment to thoroughly read this manual to ensure that you get the maximum benefit from this new addition to your car audio system. When installed properly, this unit will provide years of trouble-free performance.

Should your amplifier ever need service or replacement due to theft, please record the following information, which will help protect your investment.

Model #: \_\_\_\_\_

Dealer's Name: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Installation Shop and Date: \_\_\_\_\_

# DESIGN FEATURES

- ✓ EXTREME POWER IN A SMALL FOOTPRINT
- ✓ 1 OHM STABLE DESIGN (MONO AMPS)
- ✓ MIL SPEC DOUBLE SIDED PCB DESIGN WITH SMD PARTS
- ✓ BUILT-IN NOISE REDUCTION CIRCUITRY
- ✓ FULL MOSFET WITH HIGH GRADE SWITCHING DEVICES
- ✓ MCU POWER MANAGEMENT (EX46/EX48)
- ✓ REGULATED POWER SUPPLY CIRCUIT AND DUAL OUTPUT VOLTAGE (EX46/EX48)
- ✓ BUILT-IN AUTO SENSING TURN ON FUNCTION (HI-INPUTS)
- ✓ 12V REMOTE OUTPUT FOR EXTERNAL DEVICES (HI-INPUTS)
- ✓ 0~12DB VARIABLE BASS BOOST (EXCEPT EX2)
- ✓ NEXT GENERATION ADVANCED 5 WAY PROTECTION CIRCUITRY
- ✓ WORLD WIDE STANDARDS COMPLIANT.  
(ROHS,E-MARK,CEA-2006,CE)

**NANO EDGE**  
NANO EDGE



# AMPLIFIER FUNCTIONS

## 1. SPEAKERS

CONNECT SPEAKERS/SUBWOOFERS TO THESE TERMINALS. BE SURE TO CHECK WIRE FOR PROPER POLARITY. NEVER CONNECT THE SPEAKER CABLES TO CHASSIS GROUND.

## 2. +12 VOLT POWER

CONNECT THIS TERMINAL THROUGH A FUSE OR CIRCUIT BREAKER TO THE POSITIVE TERMINAL OF THE VEHICLE BATTERY OR THE POSITIVE TERMINAL OF AN ISOLATED AUDIO SYSTEM BATTERY.

## 3. AUTO SENSING TURN ON FUNCTION / REM OUT(HI-INPUTS)

WHEN USE HI-INPUT, THE AMP CAN DETECT THE DC OFFSET FROM THE HIGH LEVEL INPUT SIGNAL TO AUTO TURN ON/OFF. WHEN THE AMP TURNS ON, THE REM TERMINAL WILL OUTPUT +12V DC TO CONTROL THE OTHER DEVICE TURN ON/OFF.

REM IN: WHEN USE LOW LEVEL INPUT, THE AMP REM IN SHOULD BE CONNECTED TO THE REM OUT OF THE SOURCE UNIT. THE HEAD UNIT CONTROLS THE AMP TURN ON/OFF.

## 4. GND

CONNECT THIS CABLE DIRECTLY TO THE FRAME OF THE VEHICLE. MAKE SURE THE METAL FRAME HAS BEEN STRIPPED OF ALL PAINT DOWN TO THE BARE METAL.

USE THE SHORTEST DISTANCE POSSIBLE. IT IS ALWAYS A GOOD IDEA TO REPLACE THE FACTORY GROUND AT THIS TIME WITH A LARGER CABLE EQUAL TO THE NEW DIRECTLY TO THE VEHICLE BATTERY GROUND TERMINAL OR ANY OTHER FACTORY GROUND POINTS.

## 5. RCA INPUT/AUTO HI-LOW LINE CONVERTOR

THESE RCA INPUT JACKS CONNECT WITH YOUR SOURCE UNIT RCA LOW LEVEL OUTPUTS OR VIA OPTIONAL ADAPTER WITH YOUR SOURCE UNIT SPEAKER HIGH LEVEL OUTPUTS. THE USE OF HIGH QUALITY TWISTED PAIR CAR AUDIO CABLES IS RECOMMENDED TO MIND POSSIBILITY OF DISTURBANCE THE AUDIO SIGNAL.

## 6. REMOTE(MONO BLOCKS)

CONNECT THE REMOTE CONTROLLER TO CONTROL THE SUBWOOFER AMPLIFIER VOLUME FROM THE DRIVER SEAT LOCATION, FOR EASE OF ADJUSTMENT DURING PLAYING.

## 7. GAIN CONTROL

THE GAIN CONTROL WILL MATCH THE AMPLIFIERS SENSITIVITY TO THE SOURCE UNITS SIGNAL VOLTAGE. THE OPERATING RANGE IS 10V TO 400MV. THIS IS NOT A VOLUME CONTROL!

## 8. LOW PASS FILTER CONTROL(MONO BLOCK)

THIS CONTROL IS USED TO SELECT THE DESIRED LOW PASS X-OVER FREQUENCY. THE FREQUENCY CAN BE ADJUSTED FROM 60HZ TO 220HZ FOR ALL BASS MONO MODELS.

## 9. SUBSONIC FILTER CONTROL(MONO BLOCK)

THIS CONTROL CAN FILTERED OUT UNWANTED LOW FREQUENCY FROM 0HZ(OFF) TO 60HZ. THIS FUNCTION WILL INCREASE THE POWER HANDLING OF YOUR WOOFERS.

## 10. BASS BOOST LEVEL KNOB(MONO BLOCK)

THIS CONTROL ADJUST THE BOOST LEVEL OF THE BASSBOOST CENTER FREQUENCY. IT CAN BE ADJUSTED FROM 0 TO 12DB. COMBINING WITH BASSBOOST FREQUENCY, YOU CAN ACCURATELY MATCH THE AMPLIFIER PERFORMANCE TO WOOFER RESPONSE.

## 11. BASS BOOST FREQ KNOB(MONO BLOCK)

THIS CONTROL THE BOOSTED CENTER FREQUENCY. THE FREQUENCY CAN BE ADJUSTED FROM 30HZ TO 120HZ ACCORDING TO YOUR CAR AUDIO SYSTEM PERFORMANCE. (EG. WHEN YOU ADJUST THIS KNOB TO 50HZ, AMPLIFIER WILL BOOST THE FREQUENCY AROUND 50HZ.) THIS FUNCTION SHOULD BE ADJUSTED COMBINING WITH BASSBOOST LEVEL TUNING.

## 12. X-OVER MODE (FULL RANGE)

THIS SWITCH WORKS TOGETHER WITH THE FREQ TO ADJUST THE OPERATING FREQUENCY RANGE OF THE AMP. WHEN SWITCH TO LPF OR HPF, THE CORRESPONDING FILTER CAN ADJUST THE OPERATING FREQUENCY RANGE BETWEEN 10HZ TO 300HZ (OR 100HZ TO 3KHZ). WHEN PUSHING THE SUBWOOFER, PLEASE SWITCH TO LPF MODE; WHEN PUSHING SMALL CALIBER FULL FREQUENCY SPEAKER, MIDDLE AND HIGH FREQUENCY LOUDSPEAKER, PLEASE SWITCH TO HPF MODE. WHEN

PUSHING LARGE CALIBER FULL FREQUENCY SPEAKER, PLEASE SWITCH TO FULL MODE. WHEN SWITCH TO FULL MODE, THE FILTERS WILL NOT FUNCTION.

IF EX44/EX46/EX48 REAR SOUND FIELD NEED TO CHOOSE FULL MODE, THE X-OVER SHOULD SWITCH TO HPF STATUS, FREQ SHOULD ADJUST REVERSELY TO 10HZ AND THE X1/X10 SWITCH SHOULD BE AT X1.

WARNING: USE BUTTONS AND HPF KNOB CORRECTLY TO PREVENT LOW FREQUENCY DAMAGE TO TWEETERS.

**13. FREQUENCY CONTROL (FULL RANGE)**

THIS SWITCH WORKS TOGETHER WITH X-OVER X1 / X10 FOR HIGH PASS FREQUENCY CROSSOVER, WHEN THIS BUTTON IS SET AT THE "X10" POSITION THE HPF RANGE ADJUSTMENTS ARE 100HZ ~ 3KHZ. WHEN THIS BUTTON IN SET AT THE "X1" THE HPF RANGE IS FROM 10HZ ~ 300HZ.

WARNING: USE BUTTONS AND HPF KNOB CORRECTLY TO PREVENT LOW FREQUENCY DAMAGE TO TWEETERS.

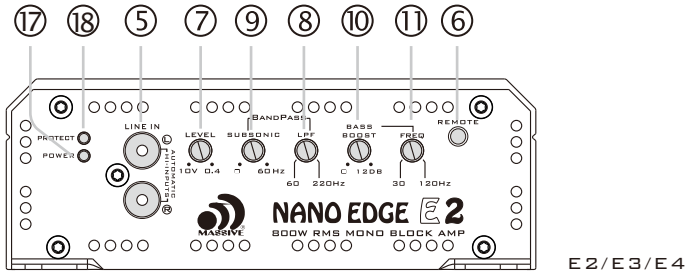
X1 / X10 LOW PASS FREQUENCY CROSSOVER, WHEN THIS BUTTON IS SET TO THE "X10" POSITION THE LPF RANGE ADJUSTMENTS ARE 10HZ ~ 300HZ. WHEN THIS BUTTON IS SET TO "X1" THE LPF RANGE IS FROM 100HZ~3KHZ.

**14. 2/4 OHM SWITCH (EX46 / EX48)**

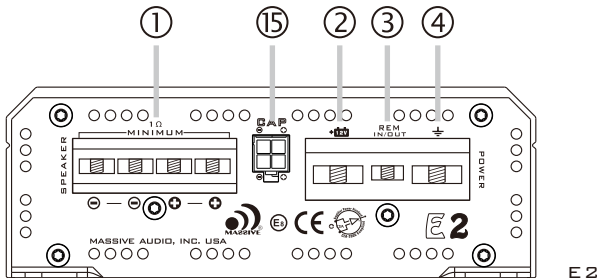
THIS AMP HAS REGULATED POWER SUPPLY CIRCUIT TO OFFER DUAL OUTPUT POWER. WHEN USE 2OHM/4OHM BTL SPEAKER OUTPUT, PLEASE CHOOSE 2OHM OPTION. WHEN USE 4OHM SPEAKER OUTPUT, PLEASE CHOOSE 4OHM OPTION.

# PANEL LAYOUT

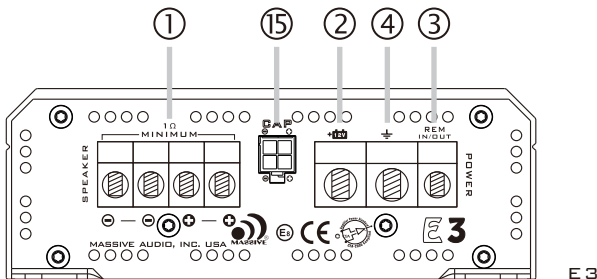
FIG 1. MONO AMPLIFIER PANEL LAYOUT



E2/E3/E4



E2



E3/E4

## 15. EXTERNAL CAPACITOR INPUT

FOR CONNECTING AN OPTIONAL (SOLD SEPARATELY) EXTERNAL HI-VOLTAGE CAPACITOR. THIS WILL HELP STABILIZING THE AMPLIFIERS NEEDED VOLTAGE DURING OPERATION WHILE IMPROVING FIDELITY AND MAXIMIZING HEAD ROOM.

## 16. WOOFER CHANNEL SIGNAL SELECTOR (EX5)

THE BUTTON SELECT THE SIGNAL SOURCE FOR SUBWOOFER CHANNEL . WHEN THE BUTTON IS UP, SUBWOOFER SIGNAL SWITCHED TO THE SUBWOOFER CHANNEL'S RCA INPUT JACK. WHEN THE BUTTON IS DOWN, IT MIX UP 4X FULL FREQUENCY CHANNEL'S BASS SIGNAL AND PASS TO SUBWOOFER CHANNEL.

## 17. POWER INDICATOR

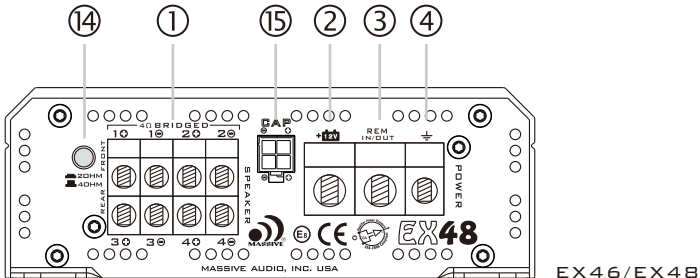
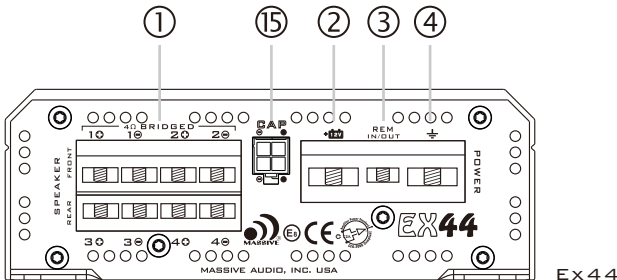
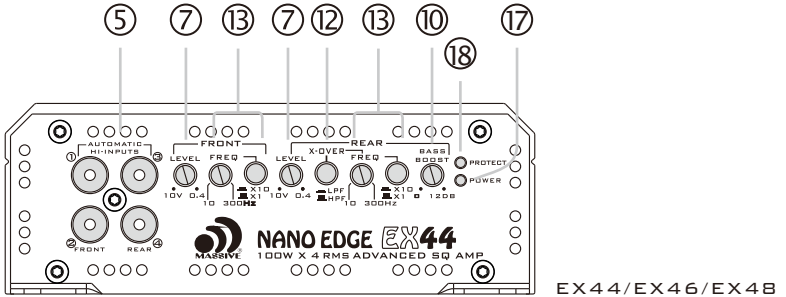
THIS LED WILL LIGHT UP WHEN AMPLIFIER WORKS PROPERLY.

## 18. PROTECTION INDICATOR

THIS RED LED WILL LIGHT UP AND WILL BE FLASHING IF THERE IS A FAULT PRESENTED TO THE AMPLIFIER. PLEASE DISCONNECT THE AMPLIFIER AND RESOLVE THE FAULT BEFORE RECONNECTING THE AMPLIFIER.

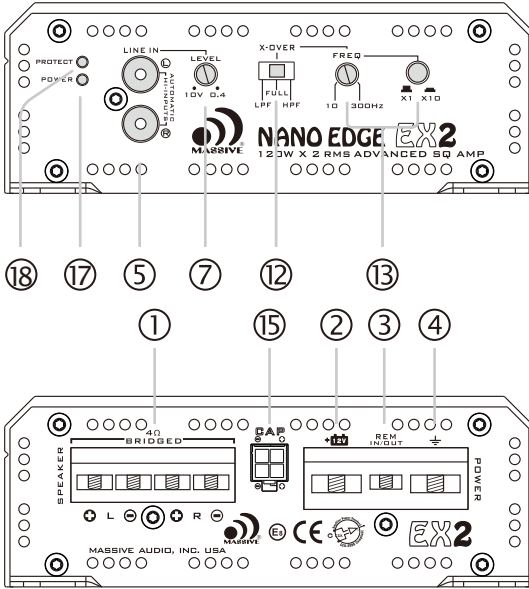
# PANEL LAYOUT

FIG 2. 4-CH AMPLIFIER PANEL LAYOUT



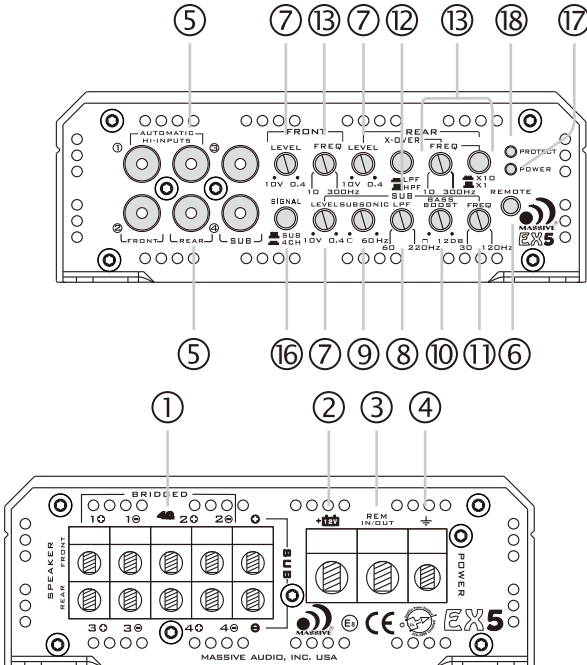
# PANEL LAYOUT

FIG 3. 2-CH AMPLIFIER PANEL LAYOUT



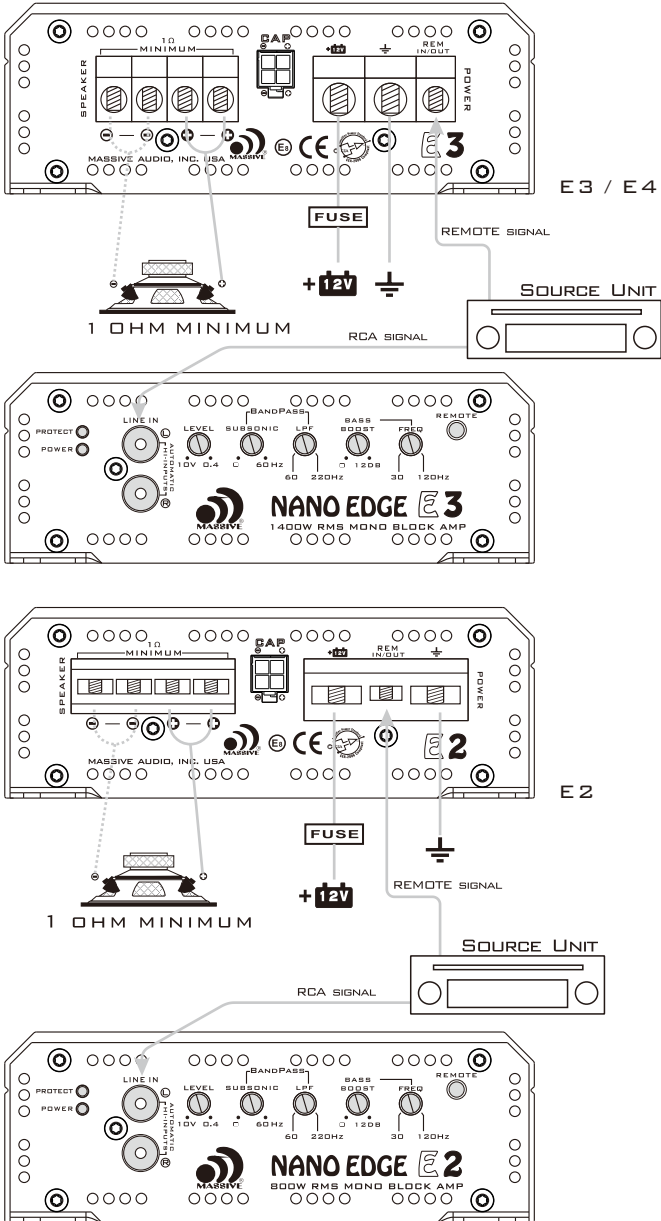
# PANEL LAYOUT

FIG 4. 5-CH AMPLIFIER PANEL LAYOUT



# WIRING DIAGRAM

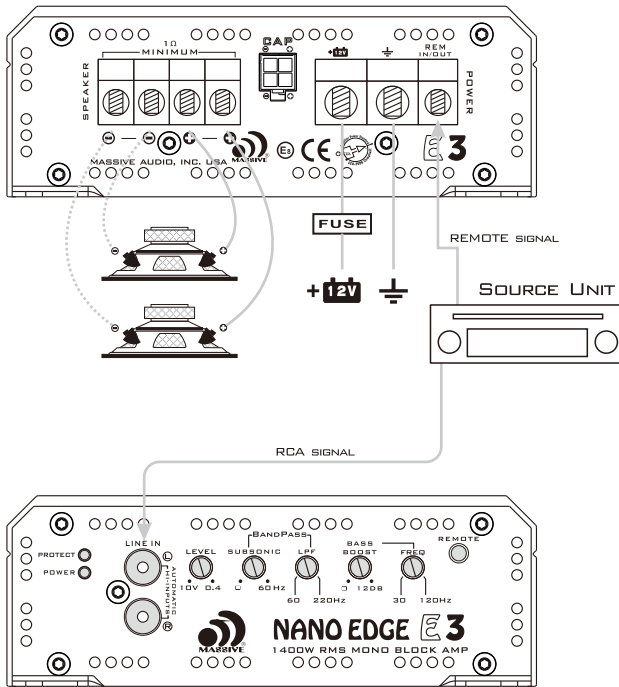
FIG 4. MONO AMPLIFIER WIRING  
(SINGLE WOOFER LOAD)





# WIRING DIAGRAM

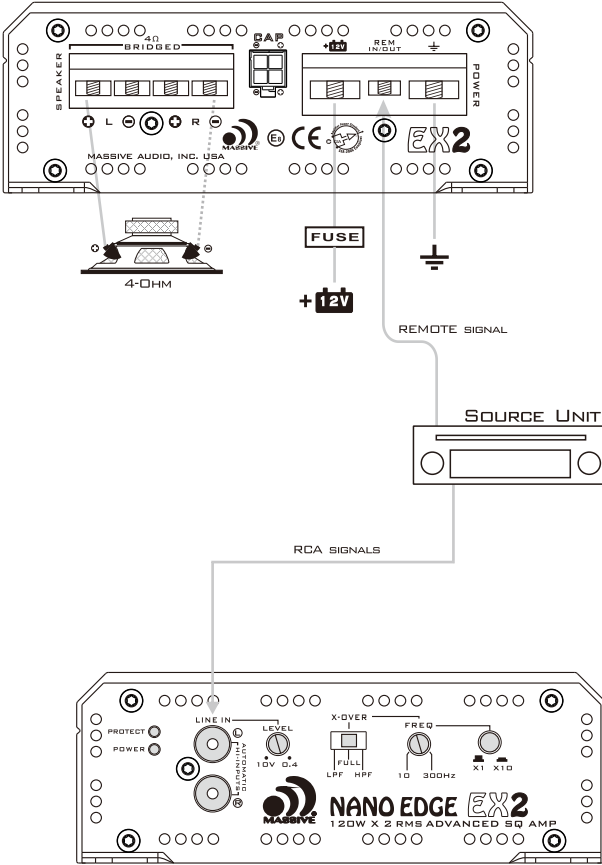
FIG 5. MONO AMPLIFIER WIRING  
(MULTI-WOOFER LOAD)



\*EQUIVALENT PARALLEL WOOFER LOADS CANNOT BE LESS THAN THE MINIMUM STABLE LOAD RATED IN THIS MANUAL. THE TWO NEGATIVE AND TWO POSITIVE SPEAKER TERMINALS ARE WIRED INTERNALLY INSIDE EACH AMPLIFIER. ONLY ONE NEGATIVE AND ONE POSITIVE ARE NEEDED WHEN WIRING TO THE AMPLIFIER. THESE ARE MONO-BLOCK AMPLIFIERS AND NOT MULTI-CHANNEL AMPLIFIERS. THE MINIMUM LOAD FOR ALL " NANO EDGE " (MONOBLOCK) AMPLIFIERS ARE ONE OHM.

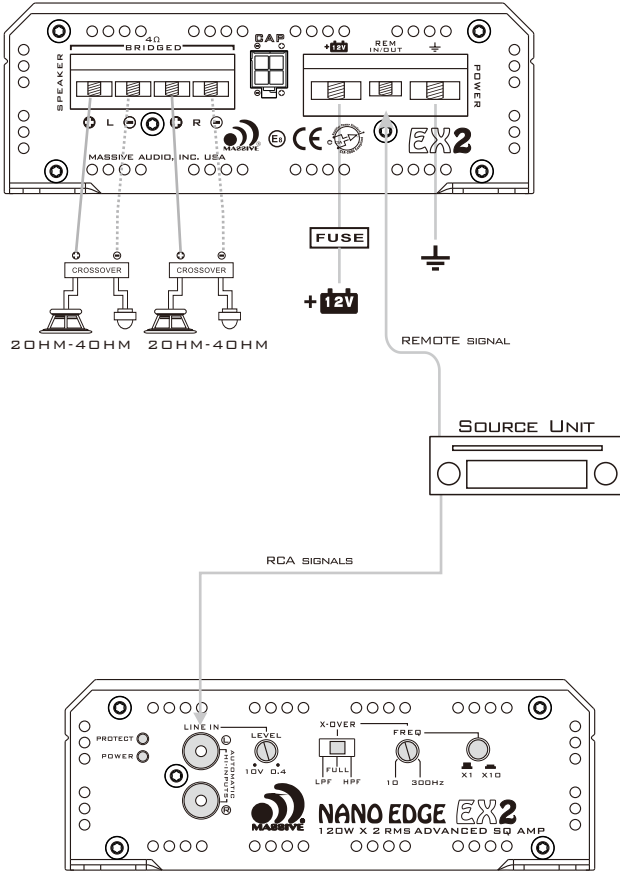
# WIRING DIAGRAM

FIG 6. Ex2 AMPLIFIER WIRING  
(1-CHANNEL MODE)



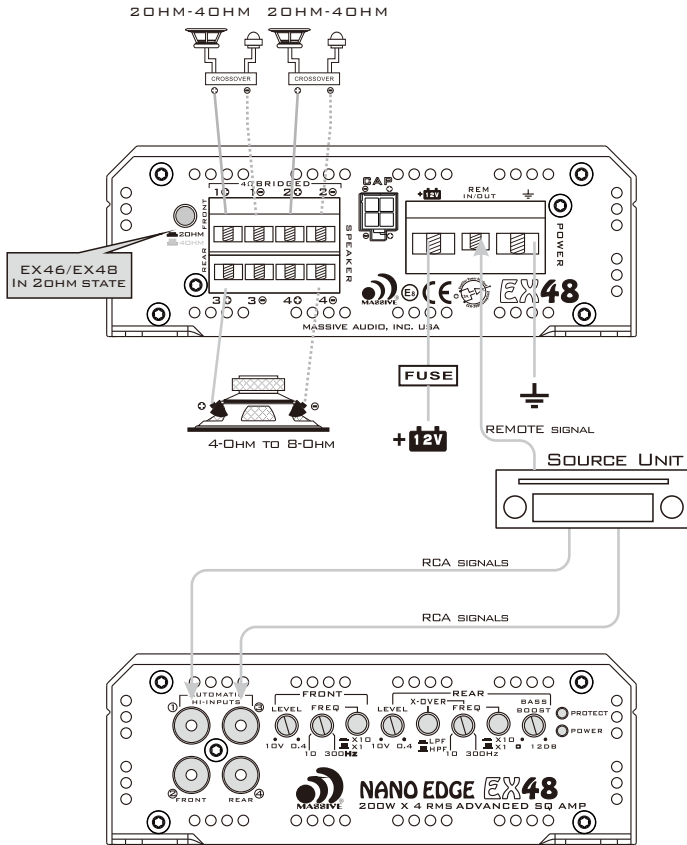
# WIRING DIAGRAM

FIG 7. EX2 AMPLIFIER WIRING  
(2-CHANNEL MODE)



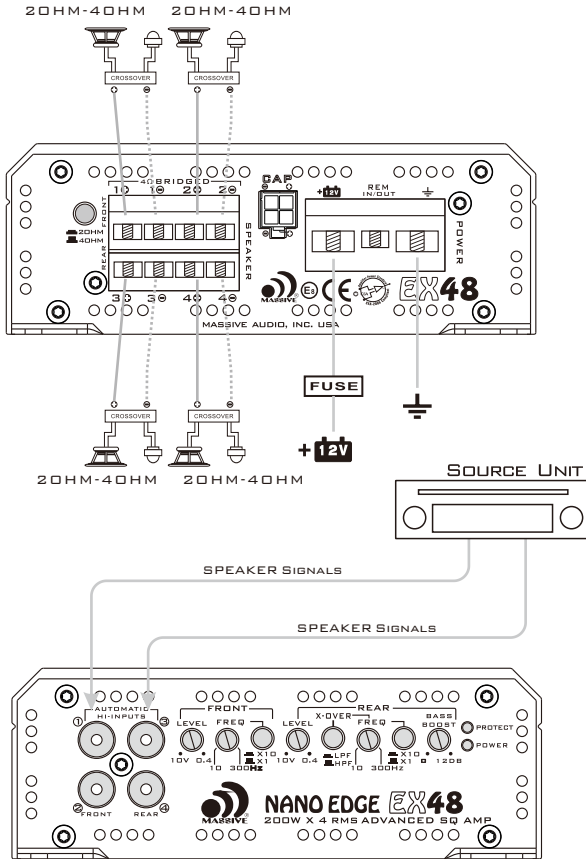
# WIRING DIAGRAM

FIG 8. Ex44 / Ex46 / Ex48 AMPLIFIER WIRING (3-CHANNEL MODE)



# WIRING DIAGRAM

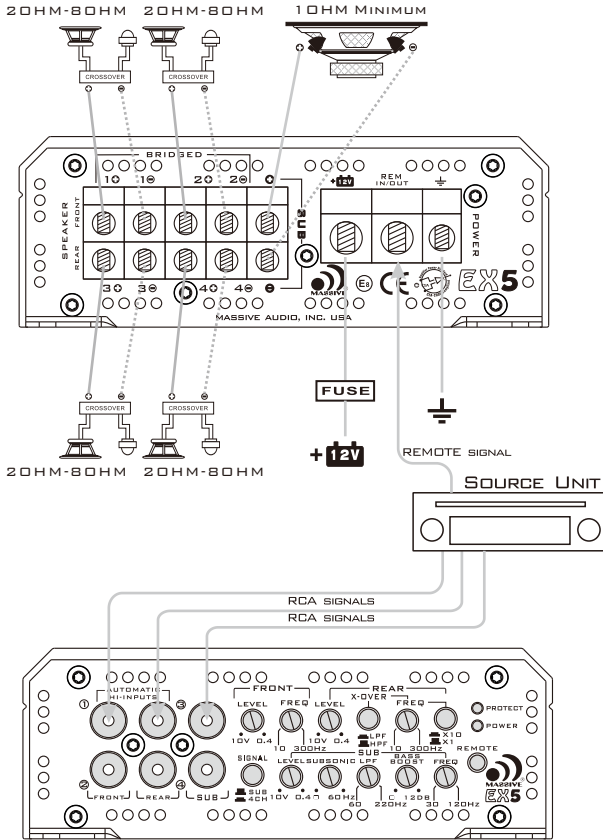
FIG 9. Ex44 / Ex46 / Ex48 AMPLIFIER WIRING  
(4-CHANNEL MODE)



**EXPLAIN:** EX46/ EX48 HAS REGULATED POWER SUPPLY CIRCUIT TO OFFER DUAL OUTPUT POWER. WHEN USE 20HM/40HM BTL SPEAKER OUTPUT, PLEASE CHOOSE 20HM OPTION. WHEN USE 40HM SPEAKER OUTPUT, PLEASE CHOOSE 40HM OPTION.

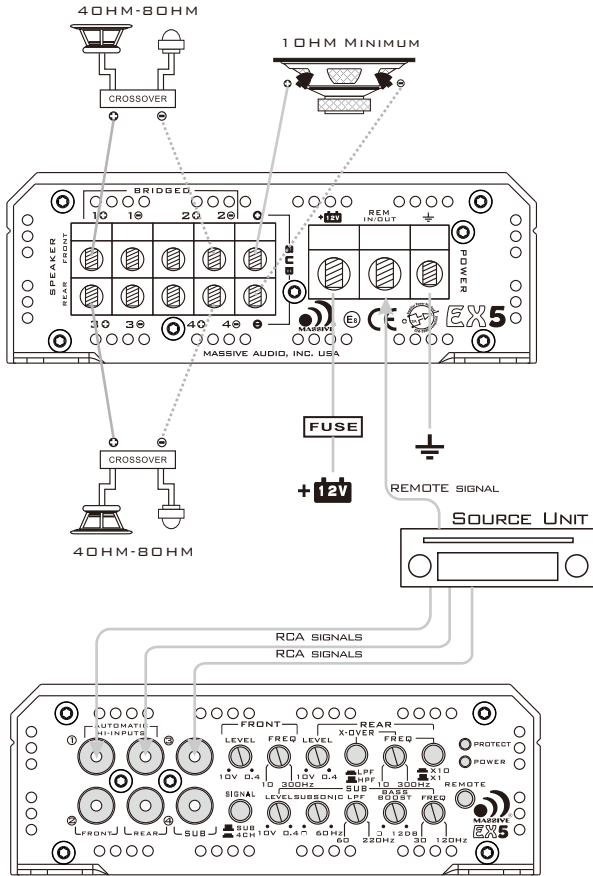
# WIRING DIAGRAM

FIG 10. EX5 AMPLIFIER WIRING  
(5-CHANNEL MODE)



# WIRING DIAGRAM

FIG 11. EX5 AMPLIFIER WIRING  
(3-CHANNEL MODE)



# TROUBLE SHOOTING

Symptom	Possible Remedy
<b>Amplifier will not power up</b>	Check to make sure you have a good ground connection. Check that there is battery power on the (+)terminal . Check all fuses, replace if necessary . Make sure that the Protection LED is not illuminated.
<b>Protection LED Comes on</b>	Check for short circuits on speaker leads. Check that the speaker load is not beyond the minimum load. Remove speaker lead, and reset the amplifier. If the protection LED still comes on, then the amplifier is faulty and needs servicing .
<b>No output</b>	Check that the RCA audio cables are plugged into the proper inputs. Check all speakers wiring. Check the headunit output and the amplifier level setting.
<b>Low output</b>	Reset the level Control. Check the Crossover Control settings.
<b>High hiss in The speakers</b>	Check the RCA cable is not shorted to power ground at amplifier side. Check the amplifier grounding.
<b>Distorted sound</b>	Check that the Input level control is set to match the signal level of the head unit. Always try to set the Input level as low as possible. Check that all crossover frequencies are properly set. Check for short circuits on the speaker leads
<b>Amplifier gets Very hot</b>	Check that the minimum load impedance for the amplifier model is correct. Check that there is good air circulation around the amplifier. In some applications, It may be necessary to add an external cooling fan. Do not mount amplifier upside down.



# SPECIFICATIONS

MODEL	E2	E3	E4	EX2	EX44	EX46	EX48	EX5
DESCRIPTION	1600W MAX MONO	2800W MAX MONO	4000W MAX MONO	1x480W MAX	2x400W MAX	2x600W MAX	2x800W MAX	2x480W +1600W MAX
<b>RMS POWER AT 14.4V</b>								
1 OHM LOAD	800W	1400W	2000W	N/A	N/A	N/A	N/A	N/A+800W
2 OHM LOAD	400W	700W	1000W	2x240W	4x200W	4x150W	4x200W	4x240W+400W
4 OHM LOAD	200W	450W	650W	2x120W	4x100W	4x150W	4x200W	4x120W+200W
4 OHM BRIDGED	N/A	N/A	N/A	1x480W	2x400W	2x600W	2x800W	2x480W+200W
<b>FEATURES</b>								
INPUT LEVEL	0.4~10V (HI INPUTS OR LOW INPUTS)							
FREQUENCY RESPONSE	10~220HZ			10HZ~25KHZ				20HZ~25KHZ
LPF	60~220HZ			10HZ~300HZ / 100HZ~3KHZ				60HZ~220HZ
SUBSONIC FILTER(HPF)	0~60HZ			10HZ~300HZ / 100HZ~3KHZ				10HZ~60HZ
THD AT 40HM LOAD 30% RATED POWER	<0.3%			<0.05%				
S/N RATIO	>80dB				>90dB	>95dB	>95dB	>89dB
BASSBOOST LEVEL	0 ~ 12dB			N/A	0 ~ 12dB (REAR CHANNEL)			0~12dB (WOOFER CHANNEL)
BASSBOOST FREQ.	30~120HZ			N/A	FIXED			30~120HZ
BEST EFFICIECY @ 40HM	>80%			>60%	>60%	>80%		>63% 4CH/WOOFER CHANNEL >82%
MINIMUM LOAD	1OHM			2OHM			2OHM	
OPTIONAL REMOTE	YES			N/A				YES
AUTO TURN ON	YES(HI-INPUTS)							
LOW VOLTAGE PROTECTION	YES, PROTECT < 8V							
SHORTCIRCUIT TEST @ MAX POWER	PASS							
RECOMMENDED EXTERNAL FUSE	60A	120A	200A	40A	40A	60A	80A	100A
OVERHEAT PROTECT TEMPERATURE	PROTECT AT 80C / 176F							
COMPONENTS & PCB	SMD PARTS / DOUBLE SIDE FR-4 PCB							
<b>DIMENSION(INCHES)</b>								
HEIGHT	2.1"							
WIDTH	5.9"							
LENGTH	8.0"	11.1"	14.3"	7.3"	9.5"	9.1"	9.1"	15"

# WARRANTY

- Massive Audio, Inc. warrants all manufactured amplifier products to be free from defect in material and workmanship for a period not to exceed **ONE YEAR\*** from the date of original purchase when installed by an authorized “Massive Audio” dealer. Units that are not installed by an authorized “Massive Audio” dealer maintain a warranty not to exceed 90 days from the original purchase date by the original purchaser.

**Products that display abuse such as power deficiency, over driving the amplifier or clipping the input require purchase of a new PCB for replacement.**

“Massive Audio” obligations under this warranty are limited to repairing or replacing, at its own sole option, any such defective products. This warranty does not apply to equipment that has been damaged by accident, negligence, or misapplication or has been altered or modified in anyway. This warranty applies only to the original purchaser who must have properly registered the product within 30 days of purchase.

***Except as provided herein, Massive Audio, Inc. makes no warranties or representations, express or implied, including any warranty implied by law, whether for merchantability or fitness for a particular purpose and shall be effective only for the period that this express warranty is effective. SEE THE WARRANTY REGISTRATION CARD TO ADDITIONAL INFORMATION.***

\*DUE TO CONSTANT IMPROVEMENT PRICES AND SPECS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTIFICATION.





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