

DS18 FX Series Flush Or Surface Mount Class-D Amplifier



DS18 FX Series Flush Or Surface Mount Class-D Amplifier Owner's Manual

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DS18 FX Series Flush Or Surface Mount Class-D Amplifier



Product Information

Specifications

- Model: FX1 / FX4 / FX6
- Type: Class-D Amplifier
- Mounting: Flush or Surface Mount
- Channels: 1 CH / 4 CH / 6 CH
- Input Gain Adjustment Range: 0.25V to 6V
- Crossover Frequency Range: 40Hz to 2KHz
- Power Input: +12V
- Recommended Wire: 4AWG Tinned OFC wire

Product Usage Instructions

1. Remote Level Control

Connect the remote level control to adjust the subwoofer level remotely in the vehicle.

2. Filter Mode and Frequency Control

Choose between Low Pass, Full Range, or High Pass modes and adjust the crossover frequency from 40Hz to 2KHz for precise control over the frequencies played on each channel.

3. X-OVER Selector

Select between HPF (high pass), LPF (low pass), or FLAT (full range) modes for front or rear channels.

4. Input Gain Adjustment

Use the SENS knob to adjust the input gain ranging from 0.25V to 6V for optimal performance.

5. Power Connection

Connect the power terminal to the positive terminal of the battery using a 4AWG Tinned OFC wire for proper

operation. Ensure a secure connection to avoid noise interference.

6. Remote Terminal

Apply 12 volts to the remote terminal to turn on the amplifier, typically supplied by a wire from the source unit marked remote or power antenna.

7. Ground Terminal

Connect the ground terminal to the negative terminal of the battery using a 4AWG Tinned OFC wire for proper operation. Ensure a secure connection to prevent noise interference.

8. Input Mode Selection

In 2-channel position, use one input signal on channels 1&2 to drive both 1&2 and 3&4 outputs simultaneously.

In 4-channel position, inputs are separated and output to their respective channels.

Frequently Asked Questions (FAQ)

- **Q: Can I change the crossover frequency on this amplifier?**

A: Yes, you can tune the crossover frequency from 40Hz to 2KHz using the controls provided on the amplifier.

- **Q: What type of wire is recommended for power connection?**

A: We recommend using 4AWG Tinned OFC wire for the power connection to ensure optimal performance and minimize interference.

OWNER'S MANUAL

MANUAL DEL USUARIO

FX1 / FX4 / FX6

FLUSH OR SURFACE MOUNT CLASS-D AMPLIFIER

AMPLIFICADOR CLASE D PARA MONTAJE EMPOTRADO O EN SUPERFICIE

1 CH / 4 CH / 6 CH

FX1 / FX4 / FX6

FLUSH OR SURFACE MOUNT CLASS-D AMPLIFIER

AMPLIFICADOR CLASE D PARA MONTAJE EMPOTRADO O EN SUPERFICIE

1 CH / 4 CH / 6 CH

INTRODUCTION

Congratulations on the purchase of your FX Series Amplifier from DS18. Designed and manufactured for professional car audio applications that require a high-quality, powerful amplifier with small footprint for easy installation.

Unlike standard amplifiers with one method of installation, DS18's FX Series Amplifiers come equipped with a surface mode adapter allowing it to be installed in flat and flush applications. This addition offers flexibility in positioning the amplifier, making it perfect for custom car audio builds and guarantees optimal performance without compromising on space or aesthetics. This innovative adapter is also integrated with mesmerizing LED lights. These built-in LED lights add a touch of style and flair to your car audio setup, creating an eye-catching focal point that complements the amplifier's exceptional performance.

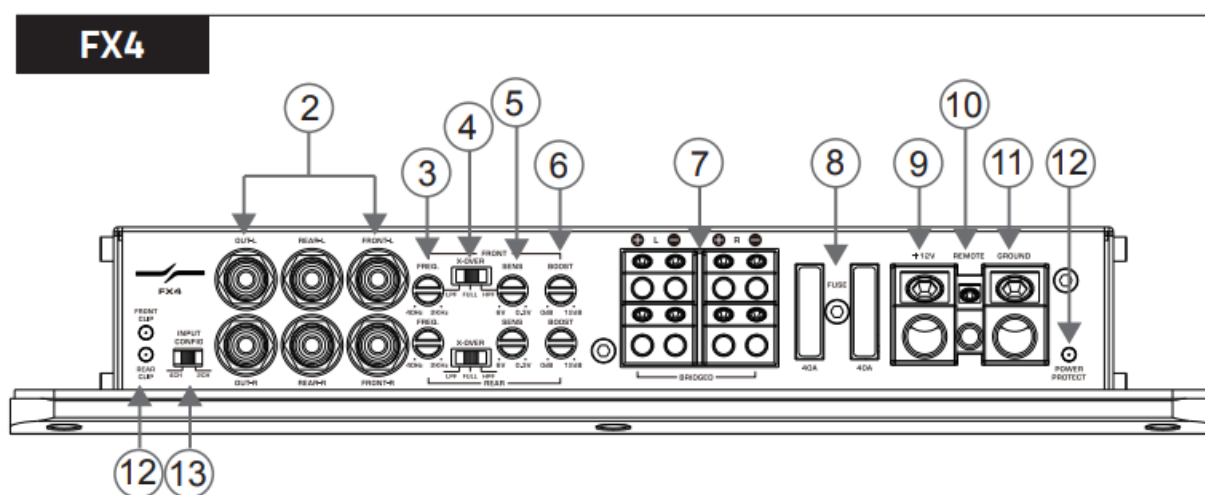
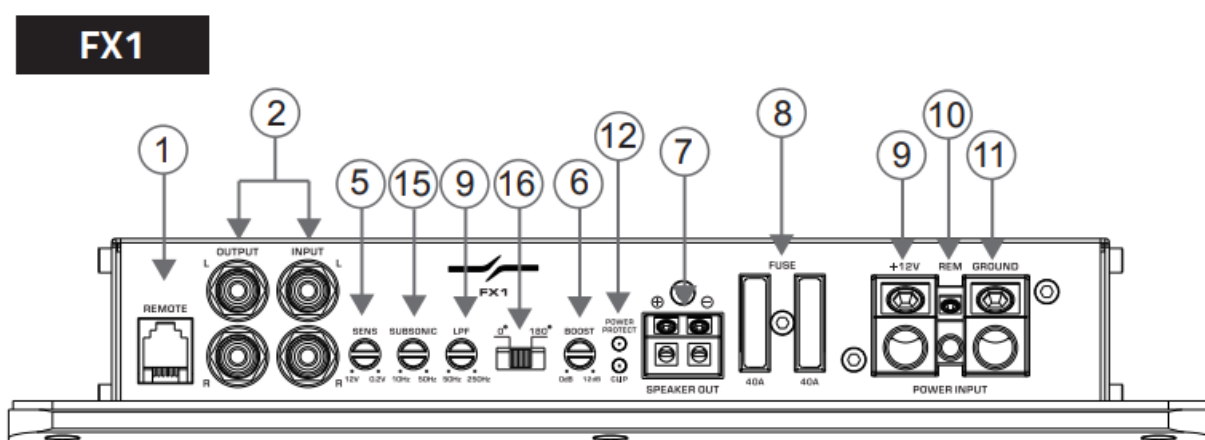
Compared to other digital class amplifiers, DS18's FX Series Amplifiers provide the best performance at a very low operating temperature, making it perfect for car audio applications. Get ready to experience powerful and crystal-clear sound like never before as the FX Series Amplifier takes your car audio system to places unthought of.

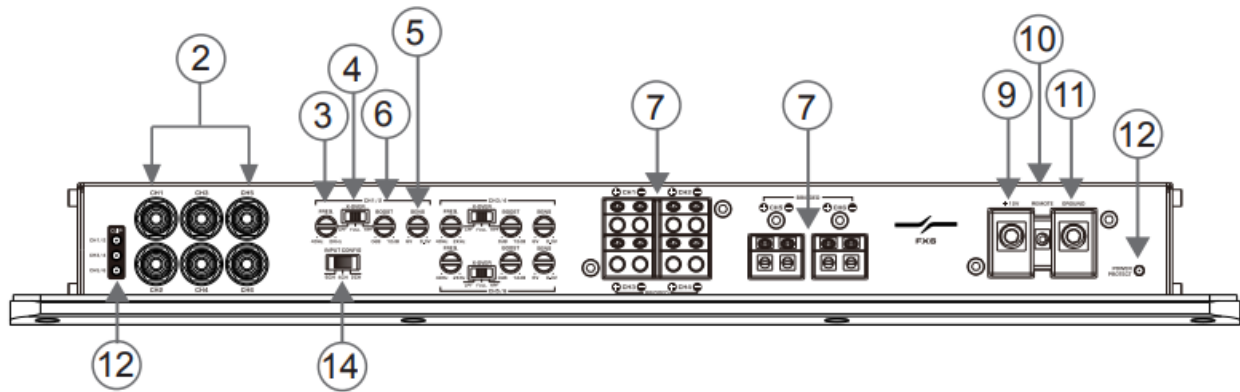
Thank you for choosing DS18! We're confident you'll be satisfied with your purchase for years to come.

FEATURES

- IPX5 Water Resistant with Coated 4 layers PCB for Prevent Corrosion.
- Flush or Surface Installation Mode Designed for Easy and Clean Install on ATV/RV Roofs, Boat Walls, Car Audio Panels or Racks.
- Stable and Reliable Class D Circuit Design.
- LED Clipping Indicator for Easier Adjustment.
- Selectable/Variable Crossovers.
- Surface Mode Adapter with LED Digital Chasing Lights.
- Direct Insert Power and Speaker Terminals.
- Easy Installation.

ELEMENTS DESCRIPTION

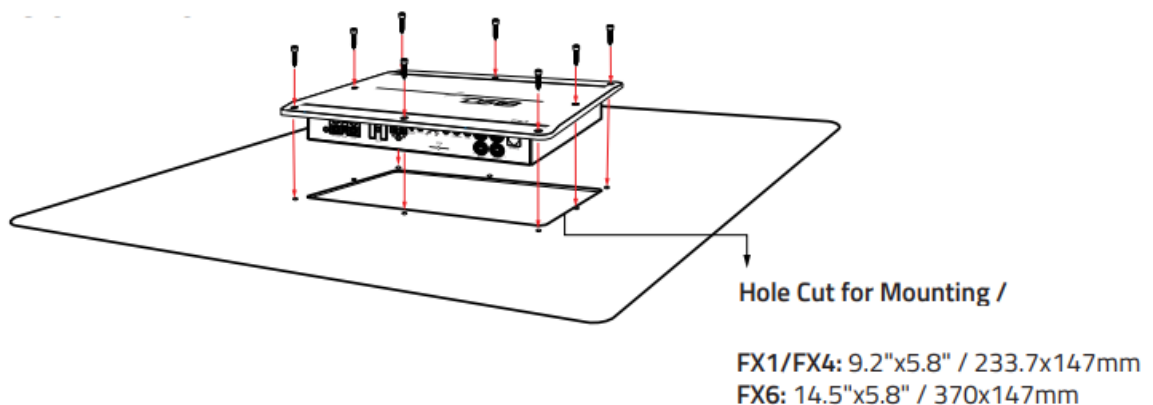




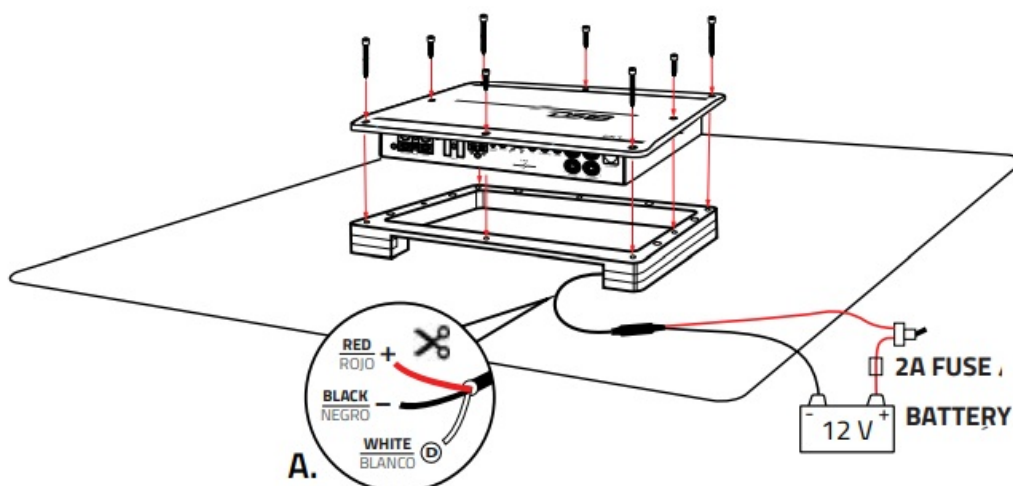
1. REMOTE – Connect the remote level control to this terminal. The remote level controls allows adjustment of the subwoofer level from a remote location in the vehicle.
2. RCA Inputs: These RCA inputs are designed to work seamlessly with source units featuring RCA or Line level outputs. To ensure optimal amplifier performance, it's important that your source unit provides a minimum output level of 100mV. We highly recommend the use of high-quality twisted marine cables (Tinned OFC) with these inputs. This choice not only enhances signal integrity but also helps reduce the risk of corrosion, a frequent issue in marine installations that can lead to failures over time. Invest in the best cables for a long-lasting, top-notch audio experience on the water.
3. FILTER – Mode and FREQ Control – These controls allow control over the frequencies played for the channels. There is an option for Low Pass, Full Range, or High Pass. In LPF or HPF mode, the crossover frequency can be tuned from 40Hz to 2KHz.
4. X-OVER – X-OVER selector for HPF (high pass) / LPF (low pass) / FLAT (full range) in front or rear channel.
5. SENS – Knob for input gain adjustment, this ranges from 0.25V to 6V input signal.
6. BASS BOOST – The variable bass boost control on the amplifier is designed to give you increased output, 0–12dB, at 45Hz. The setting for this control is subjective.
7. Speaker Terminals (+/-) – Connect your speakers to these terminals. Make sure to keep an eye on the speaker polarity throughout your system. Ignoring this can lead to a loss of bass response and a drop in the overall audio quality.
8. FUSE: standard automatic fuse, you must use the same power fuse if you need to change it.
9. Power Terminal (+12V) – This is the main power input for the amplifier and must be connected directly to the positive terminal of the watercraft's battery for proper operation. Use caution when installing (+12) power cable in the Boat. Avoid running this cable parallel with RCA cables, antennas, or other sensitive equipment due to massive currents that can induce noise into the audio system. It is also very important to have a tight, secure connection for maximum performance. We recommend using 4AWG Tinned OFC wire with the 4 ch amplifier.
10. Remote Terminal – The Amplifier can be turned on by applying 12 volts to this terminal. Typically this voltage is supplied by a wire from the source unit marked "remote" or "power antenna".
11. Ground Terminal – This is the main negative (-) input for the amplifier and must be connected directly to the negative terminal of the watercraft's battery for proper operation. Avoid running this cable parallel with RCA cables, antennas, or other sensitive equipment due to massive currents that can induce noise into the audio system. It is also very important to have a tight, secure connection for maximum performance. We recommend using 4AWG Tinned OFC wire with the 4 ch amplifier.

12. **POWER/PROTECT / CLIP LED Indicator:** The POWER LED lights up in green when the amp is turned on, indicating it's ready for action. If the amp encounters a short circuit or activates thermal protection, the PROTECT LED will illuminate, signaling a safety precaution. In such cases, it's essential to inspect the amplifier or allow it to cool down before restarting. The CLIP LED comes into play when the amplifier encounters clipping, a situation where it struggles to produce the required voltage for the input signal. Continuous or prolonged clipping can potentially harm your amplifier and speakers. If you observe clipping, we recommend adjusting the gain settings and your head unit's volume levels. For detailed instructions on setting your amplifier's gain levels correctly, please refer to section "1. Gain Control" on this page.
13. **INPUT MODE** – In 2-channel position the amplifier can use one input signal on the 1&2 channels to drive both 1&2 and 3&4 outputs simultaneously. In 4-channel position, the 1&2 and 3&4 inputs are separated and only output to their respective channels.
14. **PHASE** – The phase setting synchronizes the phase of your Subwoofer output to that of the other speakers in the car. Set your amp to 0 and listen to a track with some bass. Afterward, set the Phase setting to 180 degrees, and see if the bass output improves or becomes worse with the same track. Leave the switch set to whichever setting yields the best results.
15. **SUBSONIC FILTER** – Adjust the frequency setting of the subsonic crossover. The frequency range is 10Hz-50 Hz. Frequencies lower than the setting will be filtered out of the audio signal.
16. **LPF:** Low pass frequency adjusting knob, the frequency ranges from 50hz to 250Hz.

FLUSH MOUNT INSTALLATION



SURFACE MOUNT INSTALLATION



This frame has digital LEDs that work only with a digital light module (included) this module is connected directly to a 12 volt 2 amp capacity circuit with an on/off switch (do not use remote power from radio as which is not enough current for the lights and may damage the radio).

A. In case you want to use an existing module in your system or to manage the same sequence in several frames in your installation you can cut this included module and use the 3 wires directly from the lights that are (Red +), (Black -), (White Digital Input) and connect it to your existing digital lighting module.

AMPLIFIER INSTALLATION

Amplifiers are generally mounted in closed compartments of the vehicle or watercrafts. Select a location that will provide adequate ventilation for the amplifier. Avoid mounting the amplifier in exposed areas.

Secure the amplifier with the screws provided. Before securing the amplifier, inspect the mounting location carefully to ensure that you do not drill into or damage any electrical, hydraulic, fluid, or fuel lines.

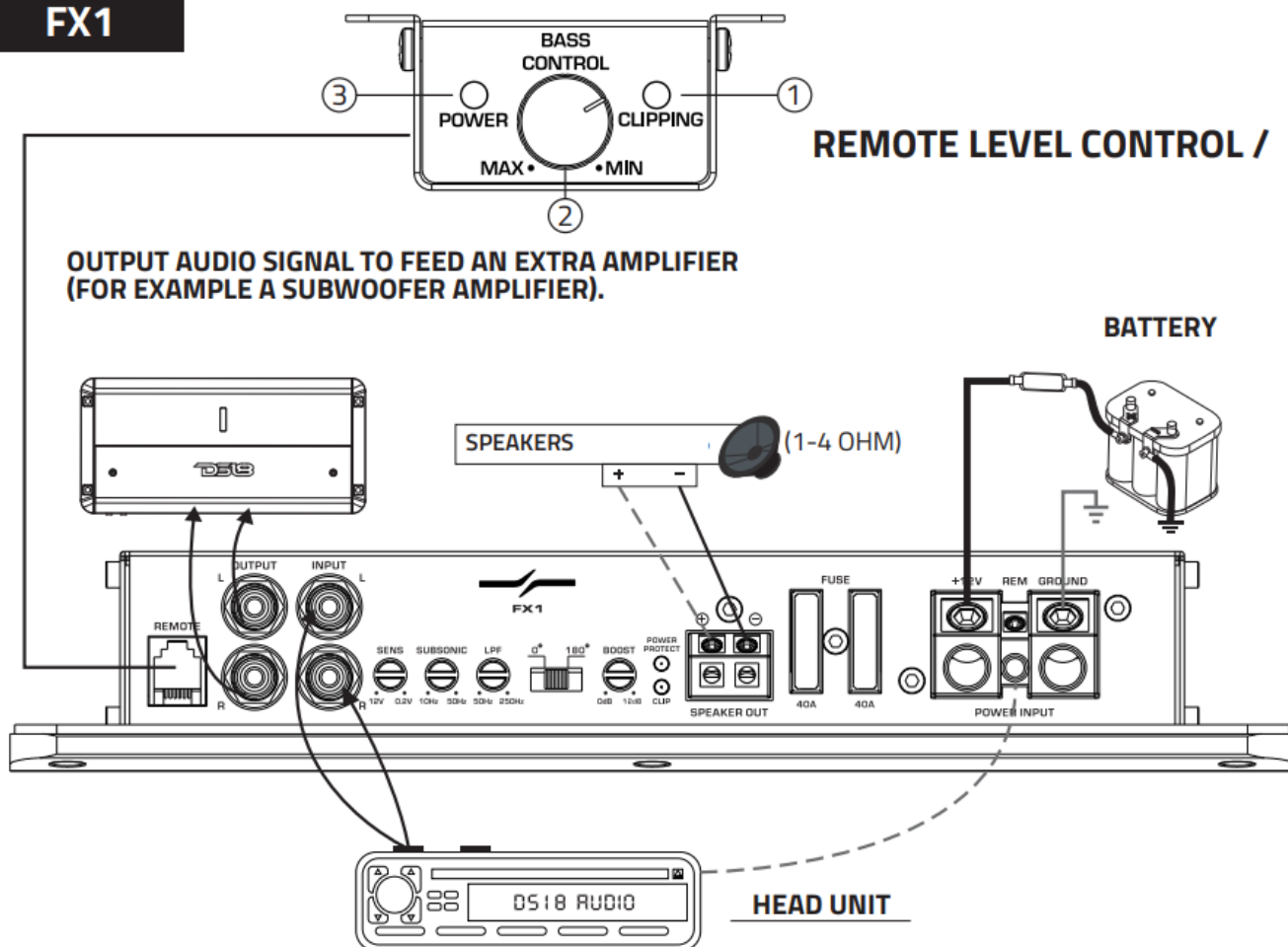
1. Before you start, disconnect the negative cable from the battery, tape up the end so it is isolated from the battery.
2. Run an appropriate gauge wire from the battery to the amplifier. Plan this part of the installation carefully. this cable will carry very high current. If it should short to the body and it is not properly fused, it could catch fire.
3. Connect the power (+) wire to the positive post of the battery using a marine grade fuse holder capable of the total current load of all amplifiers connected and locate it as close as possible to the battery.
4. Connect the Ground (-) wire to the negative post of the battery.
5. Run the speaker wire to the speakers. It is advised that you leave some extra wire at this point. You can fix it later. This amplifier is a multi-channel amplifier design, meaning it has more than one channel of speaker outputs. Connect this carefully and neatly; strip your wire back and twist the exposed leads. If the wires ever contact each other the amplifier will go into protection mode.
6. Connect the speaker wires to the amplifier and speakers (make sure the amp is off first). Make sure the polarity (+) and (-) is correct.
7. Connect the remote wire and the RCA audio signal from the Head Unit to the amplifier.
8. If you haven't done so already, mount the amplifier now. Only after this step – you should connect back the negative cable at the battery.
9. Now is a good time to turn on the amp for the first time. Your FX Series amplifier offers a comprehensive set of controls, including crossover and gain adjustments, to fine-tune your speaker system. Now, it's time to harness the full potential of these controls to achieve exceptional sound quality.

WARNING

Professional installation by an authorized DS18 amps dealer is highly recommended! Otherwise, the performance of your new gear may not be satisfactory. In the event that you decide to do your own installation, please read and follow this manual very carefully. Failure to do so may compromise the integrity of this product, your vehicle, and possibly void the product warranty.

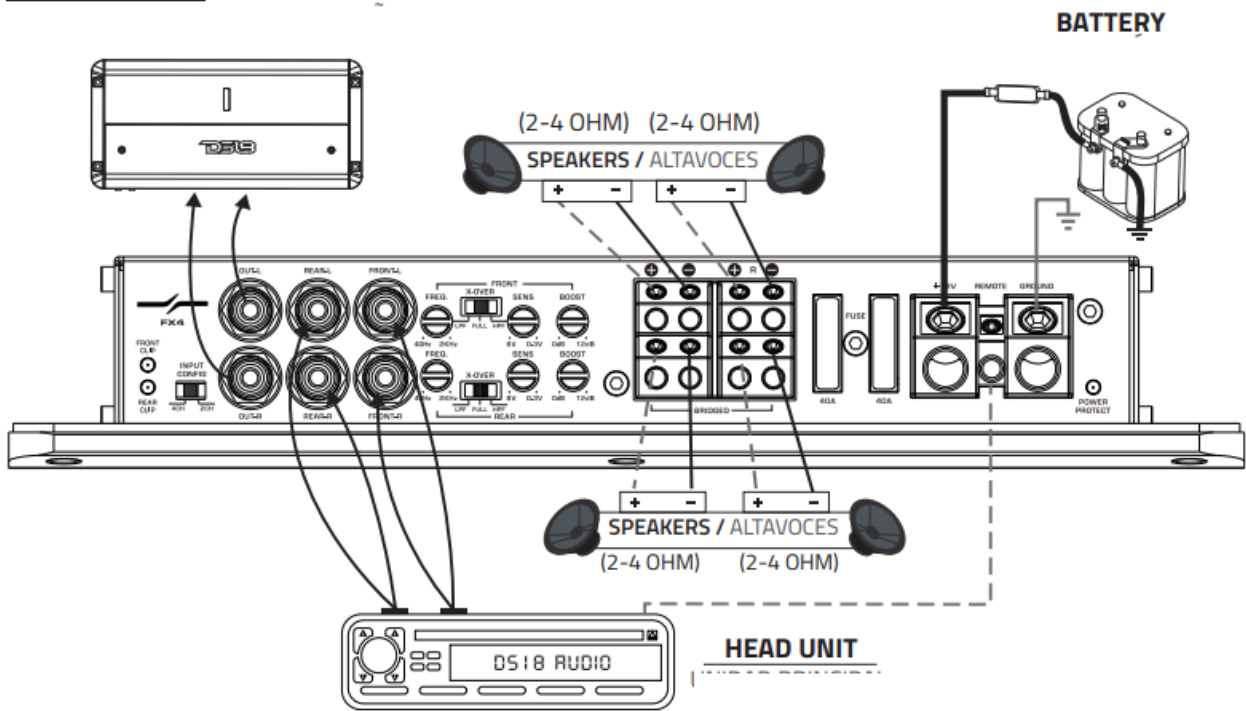
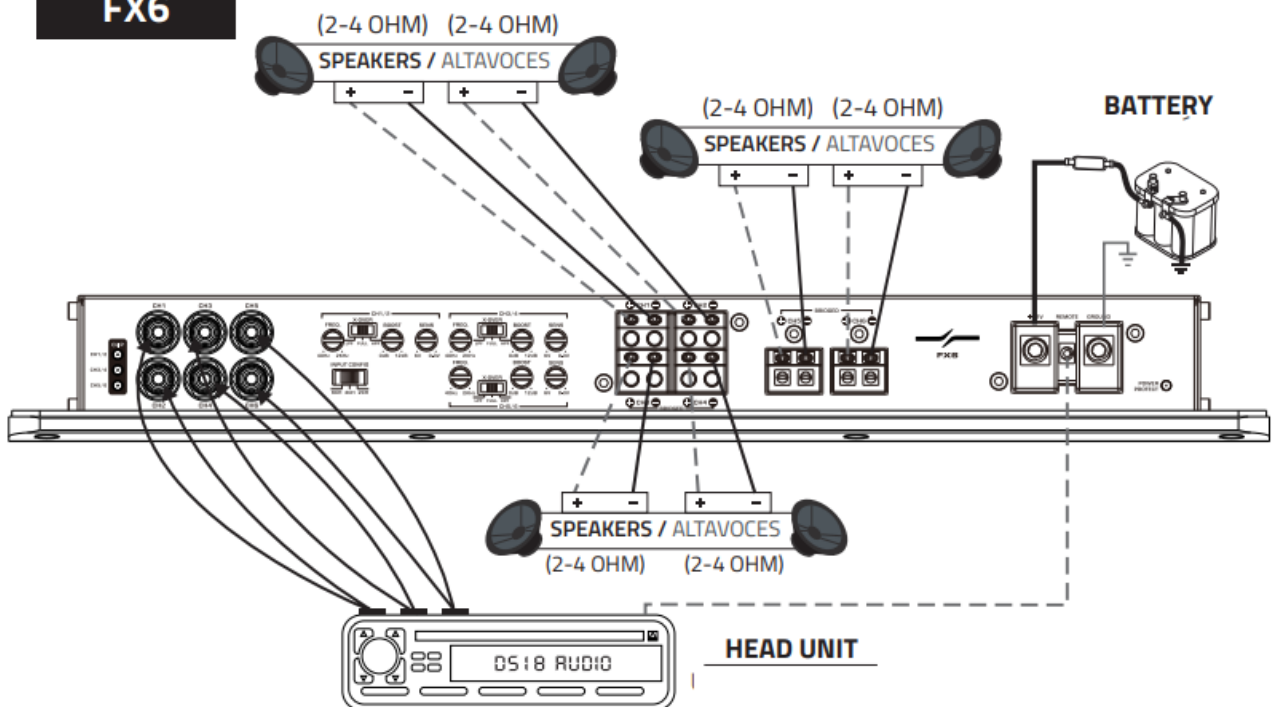
WIRING

MONO LOW LEVEL (RCA)

FX1

1. CLIP LED Indicator for Output Clipping: Keep an eye on the CLIP LED indicator located on the remote Level knob. To prevent distortion and ensure your audio remains clear and undistorted, promptly turn down the Gain control.
2. GAIN: adjust the output level.
3. POWER: Blue Light = Amplifier is ON.

STEREO LOW LEVEL (RCA)

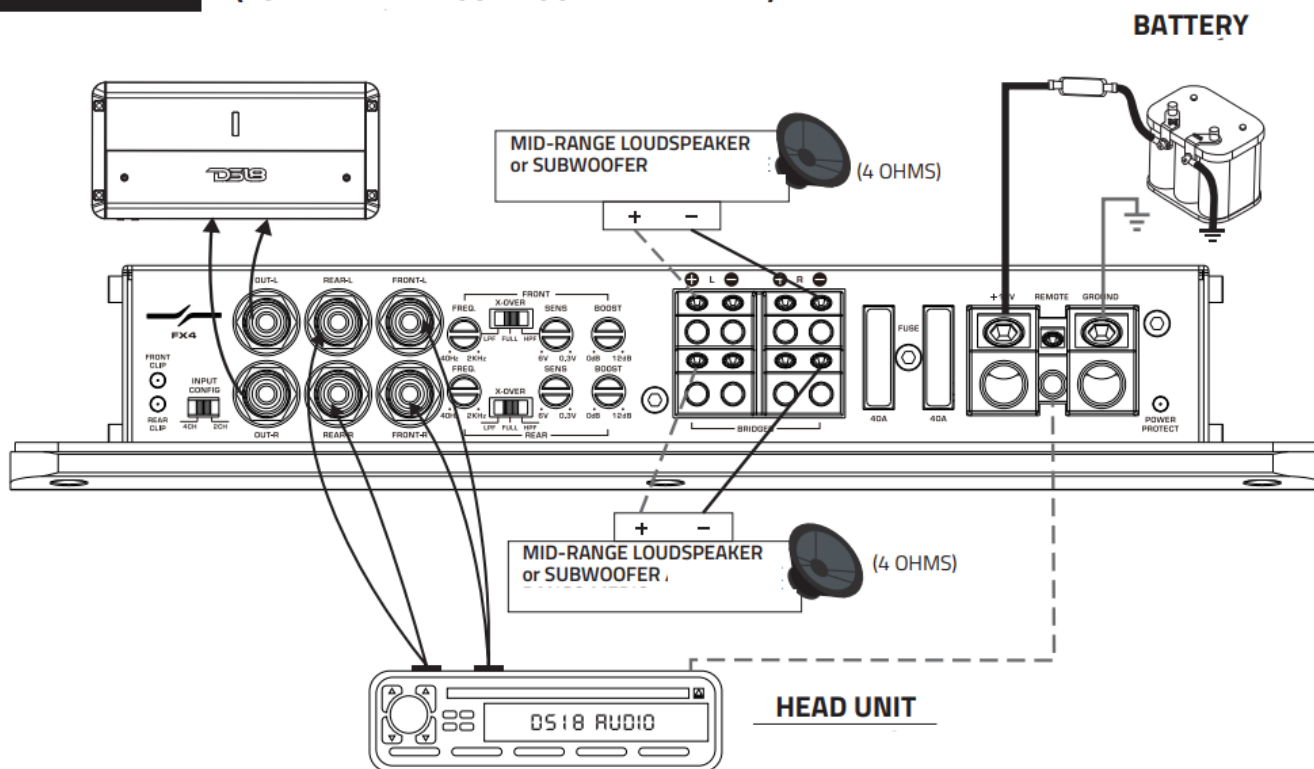
FX4**OUTPUT AUDIO SIGNAL TO FEED AN EXTRA AMPLIFIER
(FOR EXAMPLE A SUBWOOFER AMPLIFIER).****STEREO LOW LEVEL (RCA)****FX6**

9

BRIDGE LOW LEVEL INPUT (RCA)

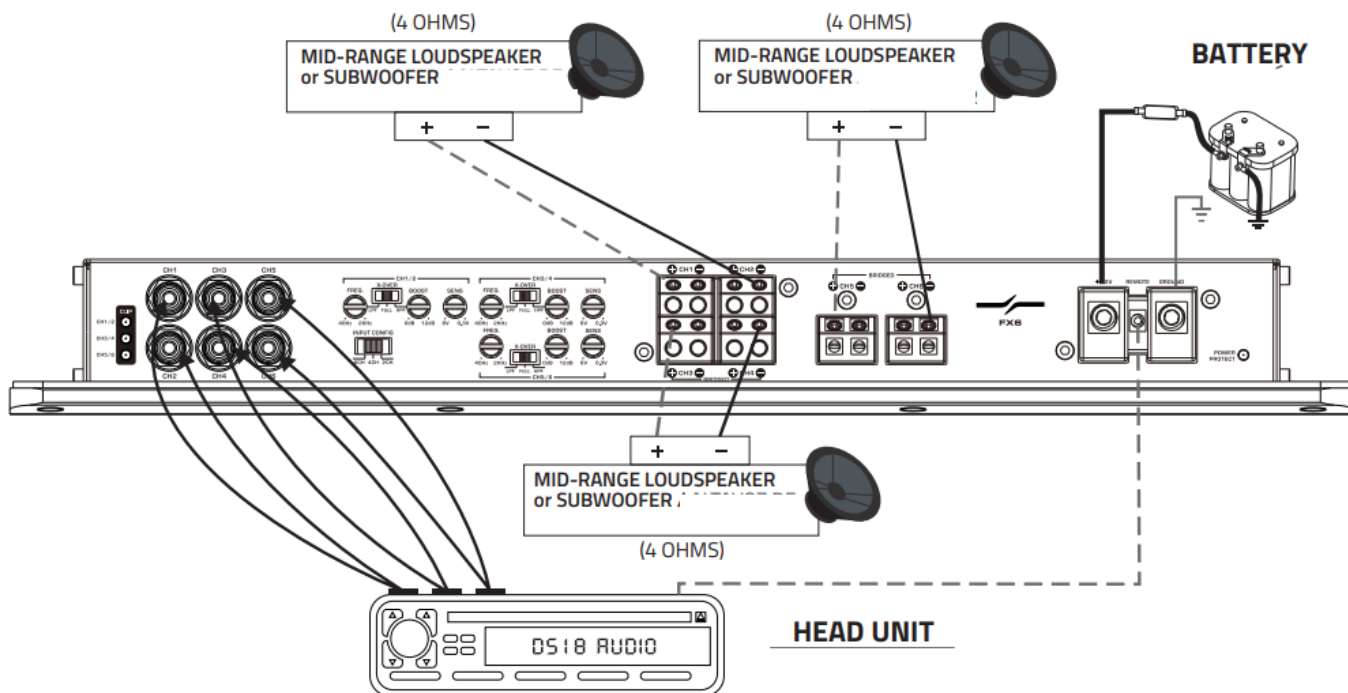
FX4

OUTPUT AUDIO SIGNAL TO FEED AN EXTRA AMPLIFIER
(FOR EXAMPLE A SUBWOOFER AMPLIFIER).



BRIDGE LOW LEVEL INPUT (RCA)

FX6



SPECIFICATIONS

POWER

- Total Watts (Peak) 2700W

- RMS Power @ 4 ohm400W
- RMS Power @ 2 ohm650W
- RMS Power @ 1 ohm900W

AUDIO

- Frequency Response 15-250Hz
- Signal to Noise Ratio.....
92dB
- Efficiency @ 4 ohm
.....82%
- Damping Factor75
- Input Impedance30Kohms
- Total Harmonic Distortion (THD) 0.08%
- Low Level Input Range0.2V-12V
- Selectable X-Over Fixed
LPF
- X-Over Filter Range 50-250Hz
- Bass Boost Range 0~12dB
- Bass Boost Frequency 50Hz
- Infrasonic Filter
.....10-50Hz
- Phase Selector
.....0/180°

FEATURES

- Amplifier Class Digital (D)
- Amplifier Type..... Monoblock
- Number of Channels 1 Channel
- Minimum Impedance 1
ohm
- Led Indicator Power
- Power Input Terminal Size4 Ga
- Fuse Size80A
(2x40A)
- Remote Level Control Yes
- Thermal Protection
Yes
- Over-Load Protection..... Yes
- DC Output Protection Yes
- Short Circuit Output Protection..... Yes
- Voltage Input Protection..... Yes (8.8-15.9V)
- Clipping Protection Yes

- Remote Level Control with Clip Indicator and Metal Case..... Yes
(Included)

Control Remoto

- RCA Low Level Output Yes
- Tiffany RCA Connector Yes
- Very High Efficiency Digital Circuit Design Yes
- PCB with Anti-Corrosion Protection Coating..... Yes
- Surface Mount Component Technology Yes
- Quality Control Verification using Audio Precision Instruments
..... Yes
- Surface Mounting with Digital Chasing LED Adapter
..... Yes
- Waterproof Rating IPX5 (Flush Mounting)
- Body ColorBlack Aluminum

MEASUREMENTS

- Body Length9" /
228mm
- Body Width4.7" /
120mm
- Overall
Height.....1.85" /
47mm
- Heatsink Length 10.8" / 275mm
- Heatsink Width7.2" / 182mm
- Mounting Hole9.2"x5.8" / 233.7x147mm
- Mounting Depth1.5" / 39mm
- Gross Single Unit Weight..... 2.8Kg

POWER

- Total Watts (Peak).....
3000W
- RMS Power @ 4 ohm4 x 180W
- RMS Power @ 2 ohm4 x 250W
- RMS Power @ 4 ohm Bridge2 x 500W

AUDIO

- Frequency Response 20Hz-20KHz
- Signal to Noise Ratio

87dB

- Efficiency @ 4 ohm 79%
- Damping Factor80
- Input Impedance
28Kohms
- Channel Separation60dB
- Total Harmonic Distortion (THD) 0.15%
- Low Level Input Range 0.3-6V
- Selectable X-OverLPF/HPF/FULL
- X-Over Filter Range40Hz-2KHz
- Bass Boost Range..... 0~12dB
- Bass Boost Frequency50Hz

FEATURES

- Amplifier ClassDigital (D)
- Amplifier TypeStereo Full Range
- Number of Channels 4 Channels / 4
Canales
- Minimum Impedance..... 2 ohm (Stereo) / 4 ohm (Bridge)
- Led Indicator Power
- Power Input Terminal Size4 Ga
- Fuse Size..... 80A
(2x40A)
- Remote Level ControlNo
- Thermal Protection
Yes
- Over-Load Protection Yes
- DC Output Protection Yes
- Short Circuit Output Protection Yes
- Voltage Input ProtectionYes / Si (8.8-15.9V)
- Clipping Protection Yes
- Input Channel SelectableYes (2/4 Channels) / Si (2/4 Canales)
- RCA Low Level Output Yes
- Tiffany RCA Connector Yes
- Very High Efficiency Digital Circuit Design Yes
- PCB with Anti-Corrosion Protection Coating Yes
- Surface Mount Component Technology Yes
- Quality Control Verification using Audio Precision Instruments
..... Yes
- Surface Mounting with Digital Chasing LED Adapter

..... Yes / Si

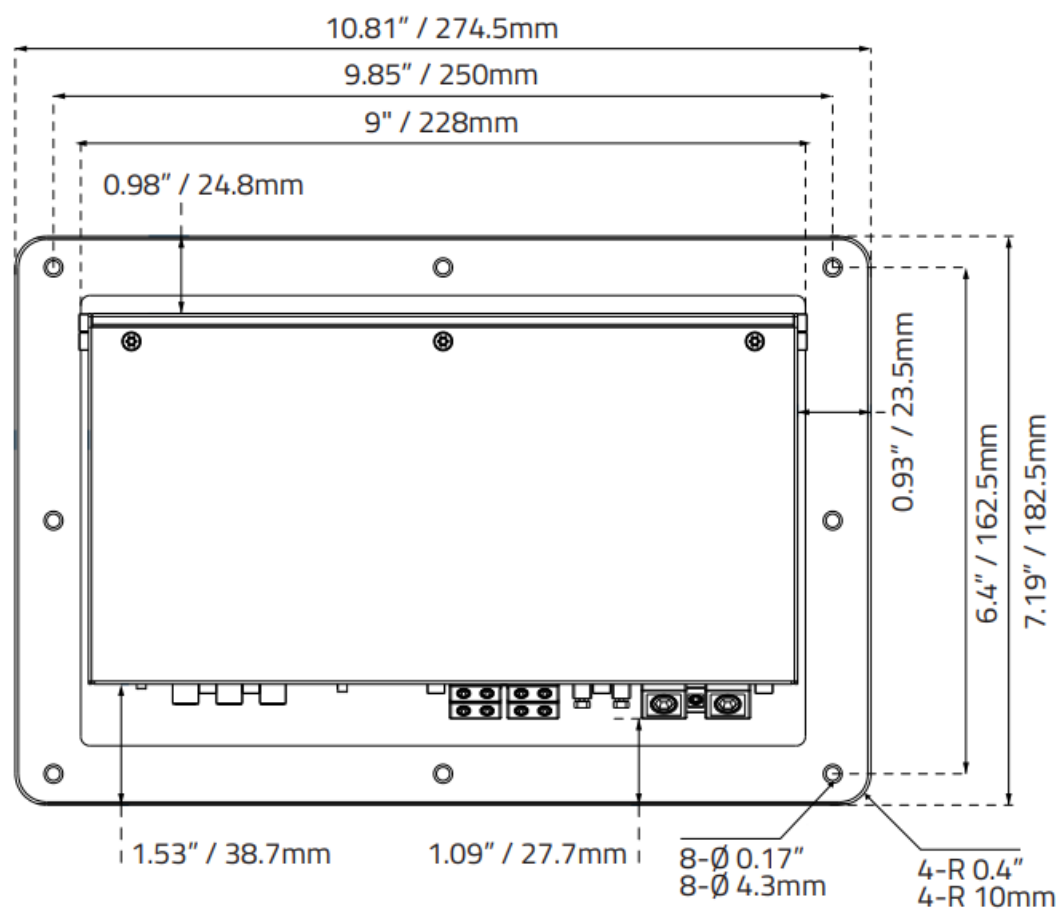
Montaje en superficie con adaptador LED digital

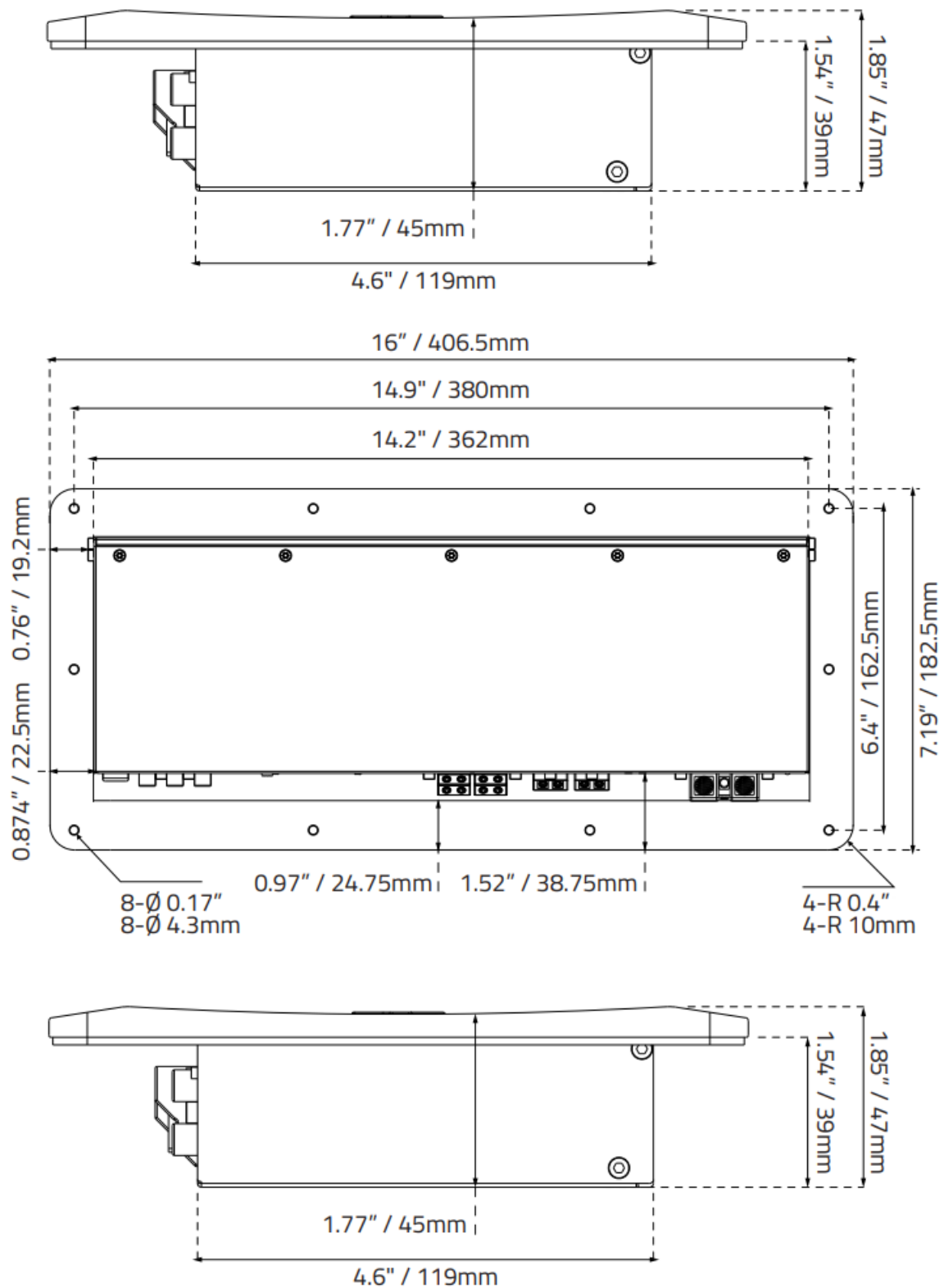
- Waterproof Rating IPX5 (Flush Mounting)
- Body Color | FinishBlack Aluminum

MEASUREMENTS

- Body Length9" / 228mm
- Body Width 4.7" / 120mm
- Overall Height 1.85" / 47mm
- Heatsink Length 10.8" / 275mm
- Heatsink Width 7.2" / 182mm
- Mounting Hole9.2"x5.8" / 233.7x147mm
- Mounting Depth1.5" / 39mm
- Gross Single Unit Weight2.75Kg

DIMENSIONS





TROUBLESHOOTING

Before removing your amplifier refer to the list below and follow the suggested procedures. Always test the speakers and their wires first.

AMPLIFIER WON'T POWER UP

- Check for good ground connection.
- Check that remote DC terminal has at least 10V DC.
- Check that there is battery power on the + terminal.

- Check all FUSES.
- Check that Protection LED is not lit. IF it is lit, shut off amplifier briefly and then re-power it.

HIGH HISS OR ENGINE NOISE (ALTERNATOR WHINE) IN SPEAKERS

Disconnect all RCA inputs to the amplifier, if hiss noise disappears, then plug in the component driving the amplifier and unplug its inputs. If hiss noise disappears, go on until the faulty/noisy component is found. It is best to set the amplifier input level as insensitive as possible. "The best subjective S/N ratio is obtainable this way. Try to drive as high a signal level from the head unit as possible.

PROTECTION LED COMES ON WHEN THE AMPLIFIER IS POWERED UP

Check for shorts on speaker leads. Check that volume control on the head unit is turned down low. Remove speaker leads, and reset the amplifier if the Protection LED still comes on, then the amplifier is faulty. The amplifier will shut down automatically when the unit's temperature goes up to 85°C. This will protect the units from damage.

AMPLIFIER GETS VERY HOT

Check that the minimum speaker impedance for that model is correct. Check for speaker shorts. Check that there is good airflow around the amplifier. In some applications, an external cooling fan may be required.

DISTORTED SOUND

Check that the Level controls are set to match the signal level of the head unit. Check that all crossover frequencies have been properly set. Check for shorts on the speaker leads.

HIGH SQUEAL NOISE FROM SPEAKERS

This is always caused by a poorly grounded RCA wire.

WARRANTY

Please visit our website DS18.com for more information on our warranty policy. We reserve the right to change products and specifications at any time without notice. Images may or may not include optional equipment.

WARNING

Cancer and Reproductive Harm. www.P65Warning.ca.gov

Documents / Resources



[DS18 FX Series Flush Or Surface Mount Class-D Amplifier](#) [pdf] Owner's Manual
FX1, FX4, FX6, FX Series Flush Or Surface Mount Class-D Amplifier, FX Series, Flush Or Surface Mount Class-D Amplifier, Surface Mount Class-D Amplifier, Mount Class-D Amplifier, Class-D Amplifier, Amplifier

References

- [Official DS18 Pro Audio Store - Speakers, Subwoofers, Amps & More!](#)
- [User Manual](#)

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