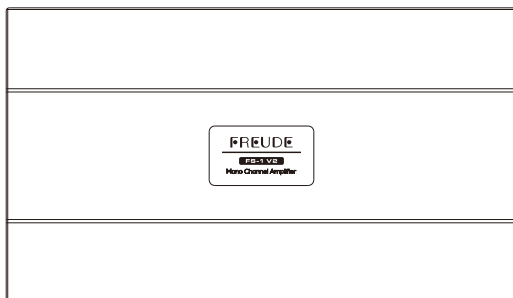


FREUDE

OWNER'S MANUAL

用户手册



FS-1 V2

Mono Channel Amplifier

单路D类功放

⚠ WARNING / 注意

PLEASE READ CAREFULLY BEFORE INSTALLING OR OPERATING THIS UNIT!

使用本产品前，请仔细阅读说明书，并保存好说明书，以备查阅！

Precautions

- Before making holes, check the mounting space with supplied template.
- To prevent noise keep the wiring away from motors, high-voltage leads and other potential noise sources.
- To prevent a short-circuit, keep all wiring away from moving parts and sharp edges.
- Make sure you carefully read and understand the installation instructions before installing the system in vehicle.

Features

- Full MOSFET DC-DC PWM Power Supply.
- Double Sided FR-4 PC Board.
- SMD Technology.
- Adjustable Low-Pass.
- Protections: Overload/Thermal/OverCurrent/Over Voltage/Low Voltage/DC

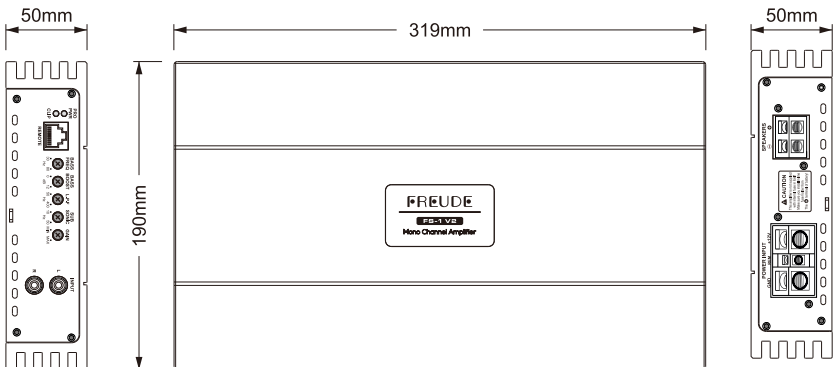
⚠ CAUTION ⚠

Continuous listening to high volume(>110dB) voice may jeopardize hearing ability. listening to voice over 130dB may causes permanent damage to hearing

Product Specifications

Model:	FS-1 V2	Type:	Class D Mono Channel Amplifier	
Max Power @ 1Ω:	1 x 2600W	Rated Power @ 1Ω:	1 x 2500W	
Max Power @ 2Ω:	1 x 2250W	Rated Power @ 2Ω:	1 x 1500W	
Max Power @ 4Ω:	1 x 1350W	Rated Power @ 4Ω:	1 x 900W	
Freq. Resp.:	10Hz - 400Hz	SNR.:	≥100 dB	
T.H.D:	0.02%	Bass Boost:	0-12 dB	
Input Sensitivity:	0.283V,0.87V,7.3V	Input Impedance:	20kΩ	
Ultra-low Freq. Cut-off Range:	10Hz - 400Hz	Low-pass Freq. Adju. Range:	50Hz - 400Hz	
REM Response Time:	5.6s	Fuse:	—	
Weight:	3.97KG	Product Size(LxWxH):	319(L) *190(W) *50(H)mm	

Product Dimensions



Power Connections

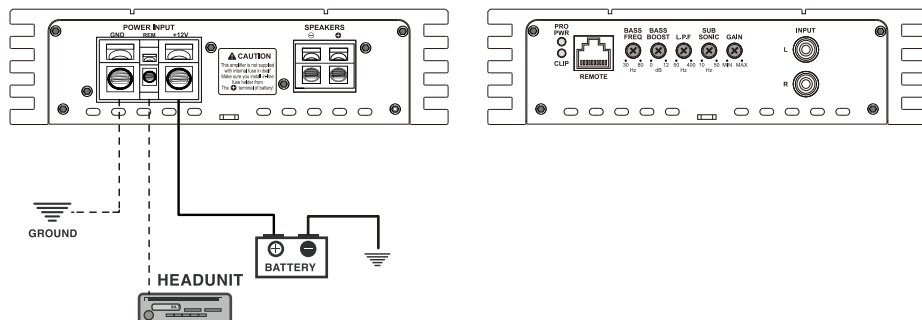
POWER CONNECTION = The battery terminal (+12V) must be connected to the fuse block before connecting to the positive terminal of the vehicle battery to provide an adequate voltage source and minimize noise. Use only #10 gauge or thicker (smaller gauge #) wire for this lead and connect it to the terminal of the battery after all other wiring is completed.

GROUND CONNECTION = The ground terminal (GND) connection is also critical to the correct operation of the amplifier. Use a wire of the same gauge as the power connection (#10 or thicker) and connect it between the ground terminal (GND) of the amplifier and a metal part of the vehicle close to the mounting location. This wire should be as short as possible and any paint or rust at the grounding point should be scraped away to provide a clean metal surface to which the end of the ground wire can be bolted.

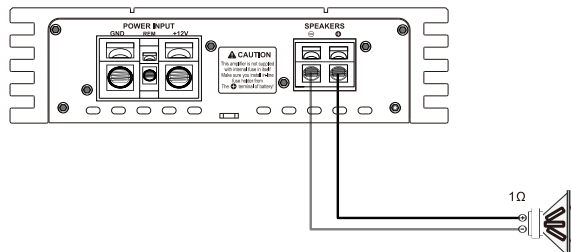
REMOTE TURN-ON CONNECTION = The amplifier is turned on by applying +12V to the remote turn-on terminal (REM). The Wire lead to this terminal should be connected to the "Auto-Antenna" lead from the car stereo which will provide the +12V only when the car stereo is turned on. If the car stereo does not provide an Auto-Antenna lead, the remote turn-on lead may be wired to an "Accessory" or "Radio" terminal in the car's fuse block. This will turn the amplifier on and off with the ignition key, regardless of whether the car stereo is on or off. The remote turn-on lead does not carry large currents. So #20 gauge wire may be used for this application.

SPEAKER CONNECTIONS = Depending on the type and number of speakers used with the amplifier, wire them to the speaker terminals as per the appropriate wiring diagram. For most applications #16 gauge wire should be used for the speaker leads but in no case thinner than #18 gauge. For leads in excess of 3 meters #14 gauge is recommended. When wiring the speakers, pay careful attention to the polarity of the terminals on the speakers and make certain they correspond to the polarity of the corresponding terminals on the amplifier. Do not ground any speaker leads to the chassis of the vehicle.

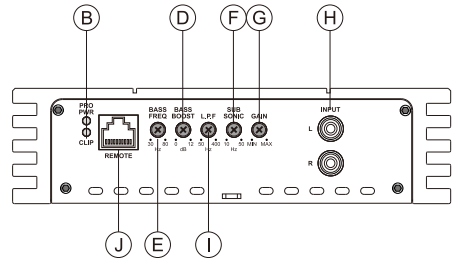
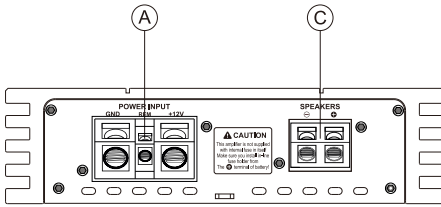
Power Connection



Speaker Out Connection



Functions



- A. Power Input Terminal
- B. PRO/PWR Light
- C. Speaker Output Terminal
- D. Bass Boost Adjustable 0-12 dB
- E. Bass Boost Freq Control
- F. Subsonic Crossover 10-50Hz
- G. GAIN: Gain Control
- H. INPUT RCA
- I. Low Pass Filter 52-400Hz(12db/Oct)
- J. REMOTE: Bass Remote control input

Mounting Your Amplifier

Choosing the best mounting location for your amplifier is crucial. The amplifier should be mounted to any wood, metal, or carpeted surface. The heat sink can be mounted directly to the chassis of the car, or isolated for best performance. It needs proper ventilation, so avoid mounting the amp under seats, in the engine bay, or any other area that moisture might accumulate. Be sure the mounting screws do not penetrate the fuel tank, brake lines, or any other crucial fluid lines. Never mount the amplifier to a subwoofer enclosure, as excessive vibrations can cause damage.

Warning

We highly recommend that an in-line fuse or circuit breaker be installed within 18" of the battery. Although your amplifier has adequate internal protection, it is possible a damaged wire between the component and the battery may result in a fire. The in-line fuse or circuit breaker should be installed in a location that is easy to access, and all wiring should be routed safely, following the below suggestions:

- Avoid placing wires near hot or moving objects
- Always use wire grommets when routing wire through the firewall or any other metal surfaces
- Avoid the potential for damaged wires by routing all wires away from moving hinges, seats, brake & gas pedals, hood and trunk hinges, etc.

Bass boost control

The monoblock amplifiers feature a variable bass boost control centered at 30~80Hz. You can adjust the amount of boost from 0dB to 12dB.

REM terminal

Connect the remote control cable of the head unit (antenna power output). If this function is not available, connect the key control ACC wire.

Trouble shooting

SYMPTOMS	CHECK	REMEDY
NO SOUND	Is the power LED illuminated? (NO)	Check all fuses to amplifier. Be sure turn-on lead is connected. Check signal leads. Check gain control. Check Tuner/Deck volume level. Clean contacts on fuse holders.
	Is the Diagnostic LED illuminated?(YES)	Check for speaker short or amplifier overheating.
AMP NOT SWITCHING ON	No power to power wire	Repair power wire or connections.
	No power to remotewire with receiver on	Check connections to radio.
	Burnt or broken fuse	Replace fuse.
NO SOUND	Check SpeakerLeads	Inspect for short circuit or an open connection.
	Check Audio Leads	Inspect RCA for short circuit or an open connection.
AMP TURNING OFF MEDIUM/ HIGH VOLUME	Check Speaker load impedance	Be sure proper speaker load impedance recommendations are observed. (If you use an ohmmeter to check speaker resistance, please remember that DC resistance and AC impedance may not be the same.)
PROTECTION LAMP ON	Shut down	Turn radio down Wait for AMP to cool
	Speaker wires shorted	Separate speaker wires and insulate

Warning

Investigate the layout of your vehicle before drilling or cutting any holes. Take care when you are working near the gas tank, brake lines, hydraulic lines, and electrical wiring. Do not use the amplifier without security mounting it, as the amp or vehicle may be damaged in the event of an accident. Do not mount the amplifier where the wire connections are unprotected or are subject to pinching or damage from other vehicle components. The 12V power wire must be fused within 18" of the battery. Ensure the source unit is powered off before making any wiring connections. If you need to replace the fuses, use only the same type and size. Using a fuse of a different type or rating may result in damage to the amplifier or vehicle, which will not be covered under the manufacturer's warranty.

注意事项

- 在安装钻孔之前，请检查安装的空间和使用安装模板。
- 为了防止噪音的增加，应使连接线远离发动机，高压引线和其他潜在的噪声源。
- 为了防止短路，把所有的连接线都远离边缘锋利的部件。
- 在您的车里安装这个音响系统之前，确保您仔细阅读和理解安装说明。

产品特性

- 全MOSFET DC-DC PWM电源设计
- 双面FR-4电路板
- 表面贴装技术（SMD）
- 可调低通滤波器
- 多重保护：过载/过热/过流/过压/低压/直流保护

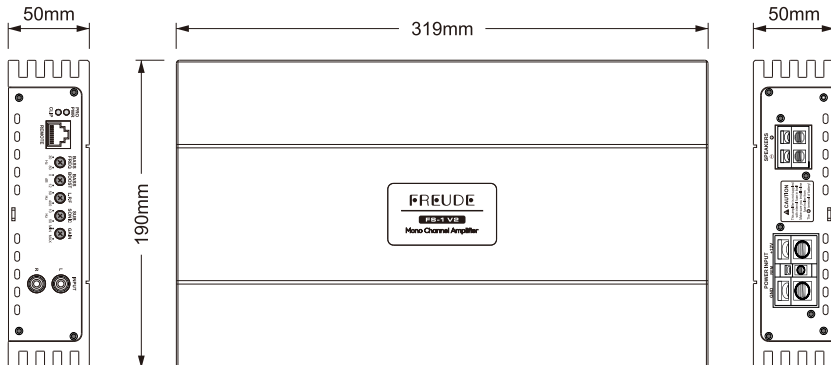
⚠ 注意事项 ⚠

在高音量(高于110dB) 的情况下连续聆听可能持续地损害听力，超过130dB可能会永久损坏您的听力。

产品规格

型号:	FS-1 V2	类型:	单路D类功放
峰值功率 @ 1Ω:	1 x 2600W	额定功率 @ 1Ω:	1 x 2500W
峰值功率 @ 2Ω:	1 x 2250W	额定功率 @ 2Ω:	1 x 1500W
峰值功率 @ 4Ω:	1 x 1350W	额定功率 @ 4Ω:	1 x 900W
频率响应:	10Hz - 400Hz	信噪比:	≥100 dB
失真度:	0.02%	低音增强:	0-12 dB
输入灵敏度:	0.283V,0.87V,7.3V	输入阻抗:	20kΩ
超低频截止范围:	10Hz - 400Hz	低通频点调节范围:	50Hz - 400Hz
REM响应时间:	5.6s	保险丝:	—
重量:	3.97KG	产品尺寸(长x宽x高):	319(L) *190(W) *50(H)mm

产品尺寸



电源连接

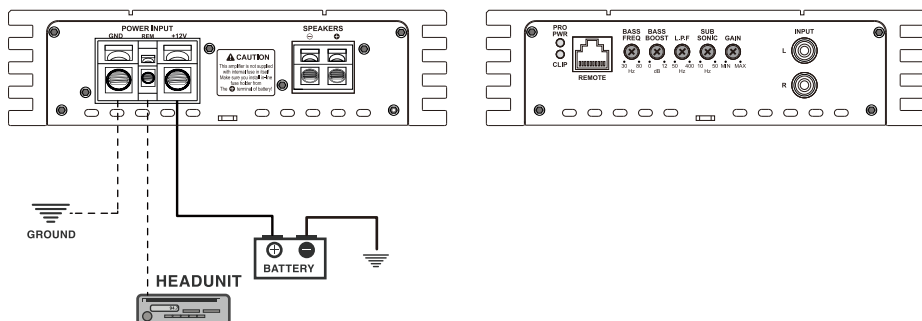
电源接线电池 = +12V正极必须通过保险丝座连接到汽车电池的正极，以为其提供足够的电压且噪音最小。请只使用10号或更粗(号数更低)的线材，当所有接线完成后才将线材接到电池的端子上。

地线连接 = 地线连接对于功放机的正常工作同样非常关键。请使用同电源线一样大小的线材(10号或更粗的)，将它连接在功放地线和靠近功放机的汽车金属部位之间。这条线要尽可能短，如果接地点有任何油漆或铁锈，请把它刮去，为接地提供一个干净金属接触面，地线的末端可用螺栓固定。

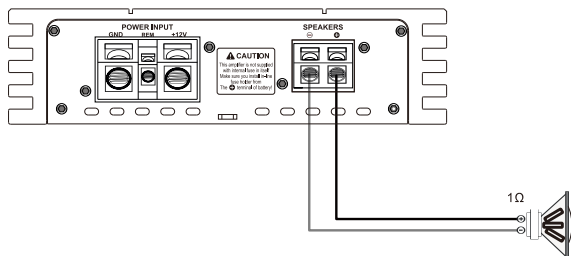
线控开机连接 = 功放机通过线控端子接收到+12伏特电压时自动开启，可以用汽车主机里的“自动天线”。如果汽车主机没有提供“自动天线”引线，线控开机线可以连到汽车保险盒中的“配件”或“收音”处。这样不管汽车主机是开或关，都可以通过打火器钥匙开启功放。线控开机线不需要承载大电流，所以这里用20号线就可以了。

喇叭连接 = 这取决于要连到这台功放机上的扬声器的数量和种类，根据接线图把喇叭端子接起来。大多数情况下，可以用16号线，但是无论如何不能使用比18号线更细的线材。对于超过3米的引线，建议使用14号线。在连接喇叭端子的时候，请注意端子的极性，确保它们被接到功放机对应的极性端子上。不要将喇叭线对接汽车底板地线。

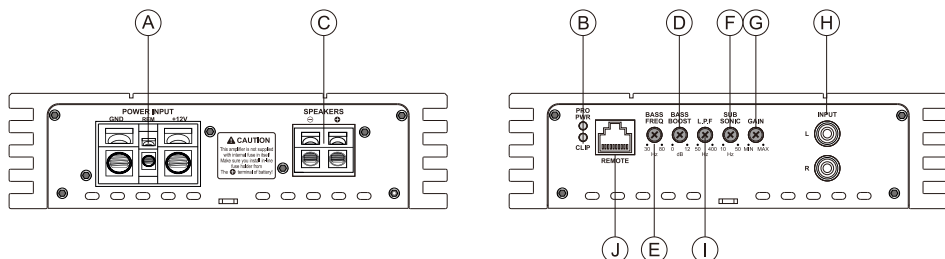
电源连接



喇叭接线



功能说明



A. 电源输入端子

B. PRO/PWR灯

C. 扬声器输出端子

D. 低音增强可调0-12分贝

E. 低音增强频率调整

F. 超低频率截止调节 10-50HZ

G. 增益控制调整

H. 输入RCA

I. 低通滤波器50-400Hz (12分贝/倍频程)

J. 低音线控

安装您的放大器

为您的放大器选择最佳安装位置至关重要。放大器应安装在任何木材、金属或地毯表面上。散热器可以直接安装在汽车的底盘上，或者为了最佳性能而隔离。它需要适当的通风，因此避免将放大器安装在座椅下方、发动机舱内或任何可能积聚湿气的区域。确保安装螺钉不穿透燃油箱、制动线或任何其他关键液体管线。绝对不要将放大器安装在低音炮外壳上，因为过度的振动会导致损坏。

警告

我们强烈建议在电池18英寸范围内安装线式保险丝或断路器。虽然您的放大器具有足够的内部保护，但组件和电池之间的损坏电线可能会导致火灾。线式保险丝或断路器应安装在易于访问的位置，所有布线都应安全地布线，遵循以下建议：

避免将电线放在热源或移动物体附近在通过防火墙或任何其他金属表面布线时，始终使用金属线夹将所有电线远离活动铰链、座椅、刹车和油门踏板、引擎盖和后备箱铰链等，以避免电线损坏的可能性。

低音增强

本机型配备30~80Hz中心频率的低音增强功能，调节范围：0dB至12dB。

REM端子

连接主机遥控线（天线电源输出）。若无此功能，请接钥匙控制的ACC线。

故障排查

现象	检查步骤	解决方案
无声	电源指示灯是否亮? (否)	检查功放保险丝/开机信号线 音频信号线/增益控制 音源音量/清洁保险丝触点
	诊断灯是否亮?(是)	检查喇叭短路或功放过热
功放不开机	电源线无电	修复电源线或连接
	主机开启时远程线无电	检查主机连接
	保险丝熔断/损坏	更换保险丝
无声	检查喇叭线	排除短路或断路
	检查音频线	排除RCA线短路或断路
高音量时 功放关机	检查喇叭阻抗	确保符合推荐阻抗 (注意:直流电阻 $\neq$ 交流阻抗)
保护灯亮	功放过热	降低音量等待冷却
	喇叭线短路	分离并绝缘喇叭线

安全警告

钻孔或切割前请确认车辆结构。避免靠近油箱、刹车管、液压管及电路。
未固定功放可能导致设备或车辆损坏。勿将功放安装在易受挤压或接触活动部件的位置。
电源线需在电池15英寸内加装保险丝。接线前关闭设备电源。更换保险丝时请使用相同规格型号。

FREUDE

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Specifications shown on packaging and user manuals may reflect earlier technical versions.
In the event of any discrepancies in technical parameters or illustrations caused by typesetting or proofreading errors in printed materials, technical specifications are governed by the physical product.