

User Manual

FL-MR80S

3" Midrange Set

Part Nr. 280230

Please read installation manual carefully before beginning installation!



rainbow

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Dear Music Lover

Congratulations on your purchase of our superior product! We sincerely thank you for placing your trust in Rainbow Audio. With over 30 years of engineering expertise in car audio speakers and a commitment to the principles of the **golden ratio** for product design, Rainbow has developed a wide range of products that deliver life-like sound, capturing every detail and emotion.

Rainbow guarantees exceptional quality, and we wish you countless hours of enjoyment with your favorite music, brought to life by our high-performance products. This installation manual has been carefully prepared, considering various mechanical and acoustical factors, to help you better understand and operate Rainbow products.

We welcome your questions, feedback, and suggestions. Please feel free to send them to info@rainbow-audio.de.

Best regards,

The Rainbow Team

Safety Instructions

Attention

Please read all warnings in this manual carefully. These instructions are included to inform you about potential risks of personal injury or property damage. Rainbow products are designed for car audio enthusiasts seeking unparalleled sound performance in vehicles. Always comply with the relevant safety regulations for vehicle components, internal safety standards, and those specified by authorized vehicle manufacturers.

Hearing Protection

Continuous exposure to sound pressure levels above **85 dB** can result in permanent hearing loss. High-powered audio systems may exceed **130 dB**, posing a serious risk to your hearing. Use common sense and avoid prolonged exposure to high volume levels.

Volume and Driver Awareness

Using audio systems while driving can impair your ability to hear essential traffic sounds, posing a potential safety hazard. Rainbow Audio accepts no liability for hearing loss, injury, or property damage caused by the use or misuse of this product.

Installation Notice

1. Secure Installation

Ensure all components of the speaker system are firmly secured to prevent them from becoming hazardous projectiles in the event of sudden stops or accidents.

2. Inspect Before Drilling

Avoid damaging fuel lines, brake lines, electrical cables, or oil lines when drilling or driving screws into the vehicle. Inspect the area thoroughly before proceeding.

3. Disconnect the Battery

Disconnect the car battery before starting installation. Check with your car dealer to confirm whether this is feasible without triggering system issues.

4. Trim Panel Removal

Exercise care when removing interior trim panels to prevent damage to fastening devices used by the manufacturer.

5. Sheet Metal Alterations

If cutting or removing sheet metal is necessary, consult your authorized dealer to ensure vehicle safety certification remains valid.

Shock Hazard

Avoid touching connectors while the system is operational.

Choosing the Mounting Location

For optimal performance and precise sound staging, carefully select the mounting location for the FL-MR80S midrange driver.

The FL-MR80S is designed for dedicated midrange applications and should be installed in locations that enhance vocal clarity and imaging, such as:

- A-pillar
- Dashboard
- Factory midrange positions
- Custom door pods (upper section recommended)

Using existing factory midrange locations is recommended whenever possible, as this ensures proper fitment, minimizes modification, and maintains a clean, OEM-integrated appearance.

For vehicles without factory midrange positions, custom mounting pods or enclosures may be required. Ensure the driver is securely mounted on a rigid surface to prevent vibration and resonance, which can negatively affect midrange accuracy.

Avoid installing the FL-MR80S in low door positions or locations intended for midbass drivers, as this may compromise midrange clarity and soundstage height.

System Testing

Gradually increase the volume to test for distortion. Adjust the balance control to verify sound uniformity across both speakers. Recheck all connections if any abnormalities occur.

Warranty Policy

Warranty Period: One year from the date of purchase by the original buyer.

Exclusions:

- Mechanical damage during installation or use of incompatible components.
- Electrical defects due to overload or distortion.
- Wear and tear, improper enclosures, or extreme volume levels.

Note: Warranty becomes void if the product is transferred or modified by unauthorized personnel.

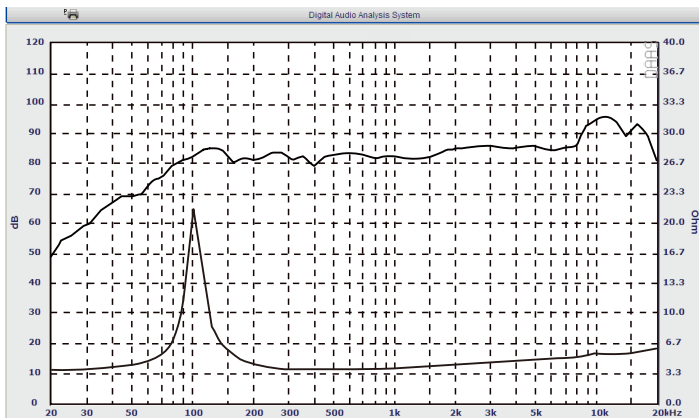
Box Content

3" midrange driver	× 2
screw kit	× 1
user manual	× 1

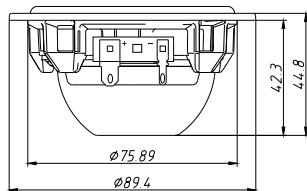
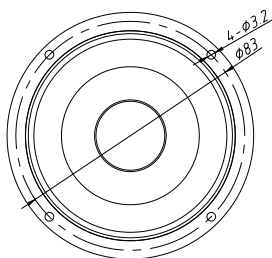
TECHNICAL DATA

FL-MR80S

Impedance vs Frequency Response



Dimension Illustration



T/S Parameters	
Cone	aluminum
Sensitivity	83 dB/W/m
Nominal Power	35 W
Peak Power	70 W
Nominal Impedance	4 Ohm
Re	3.5 Ohm
Fs	105 Hz
Fr	105 Hz - 20 kHz
Qms	7.88
Qes	0.96
Qts	0.85
Mms	3.2 g
Cms	0.73 μ M/N
Sd	30.2 cm ²
Vas	0.94 L
BL	2.8 Tm
Magnet Dimension	19 * 7 mm N45
Voice Coil Diameter	20.4 mm
Voice Coil Height	5.9 mm

亲爱的音乐爱好者：

祝贺您购买了我们的优质产品，感谢您对彩虹的信任。彩虹拥有超过30年的汽车音响产品开发技术和生产经验，并遵循拥有两千多年历史的黄金分割率，制造出富有音乐感、声音自然动听的音响器材。彩虹汽车音响音质卓越，性能优良，让您尽情享受音乐之美。我们结合了不同的机械和汽车声学特点编写了这本安装手册，帮助您更好地了解和使用彩虹产品。如您有任何疑问、反馈和改善建议，请发邮件至 info@rainbow-audio.de，我们将不胜感激。

最美好的祝愿

彩虹团队

安全指南

注意

请仔细阅读用户手册中的警示，我们在此注明并强调这些信息是为提醒您免受潜在的人身伤害或设备损坏。

如您想要升级汽车音响系统、乐享旅程，彩虹产品一定是您的不二之选。汽车零部件相关安全守则，车内安全守则和授权汽车生产商相关守则都须严格遵守。

听力保护

长时间聆听高于85分贝音量的声音可能会造成永久性听觉损失。而大功率音响系统产生的声音高于130分贝，可能会损伤听力。请合理调节系统音量及聆听时间，避免以上风险。

音量和安全驾驶

驾驶时，使用音响系统可能会让你听不清周围的交通声，进而引发交通事故。

彩虹对因产品使用不当引起的听力损伤、人身伤害或财产损失概不负责。

安装须知

1、安全安装

确保音响系统的所有组件均牢固固定，以防在车辆急刹或发生事故时成为危险的抛射物。

2、钻孔前检查

在车辆上钻孔或拧入螺丝前，务必仔细检查，避免损坏燃油管路、制动管路、电缆或机油管路。

3、断开电池

在开始安装前，请先断开汽车电池。建议咨询您的汽车经销商，确认此操作是否可行，确保不会引发系统问题。

4、拆卸内饰板

拆卸车内饰面板时，请小心操作，以免损坏制造商使用的固定装置。

5、钣金改动

如需切割或移除车身钣金，请咨询授权经销商，以确保车辆安全认证仍然有效。

触电危险！

音响系统运行时，不要触摸接线端口。

机械安装

选择安装位置

为获得最佳性能和精准的声场定位，请谨慎选择FL-MR80S中扬声器的安装位置。FL-MR80S专为中频应用设计，应安装在能提升人声清晰度与结像度的位置，例如：

- A柱
- 仪表台
- 原厂中音位置
- 定制门板扬声器罩（建议选择上门板区域）

在条件允许时，优先推荐使用原厂中音安装位。这能确保契合度、减少改装工程量，并保持原厂的集成分外观。若车辆无原厂中音安装位，则需定制安装座。请确保将扬声器牢固安装在刚性表面上，以防振动与共振，避免影响中频准确性。避免将FL-MR80S安装在车门低位或专为中低音扬声器设计的位置，此类安装可能损害中频清晰度与声场高度。

系统测试

逐步增加音量以测试是否存在失真。调整平衡控制，确保两侧扬声器的声音均匀。如果出现任何异常情况，请重新检查所有连接。

保修政策

保修期限：自原始购买者购买之日起一年。

保修范围不包括以下情况：

- 安装过程中造成的机械损坏或使用了不兼容的组件。
- 由于过载或失真导致的电气故障。
- 正常磨损、不当安装或极端音量使用。

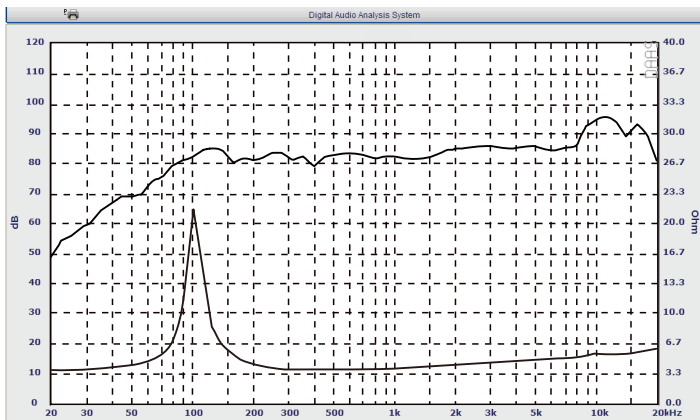
注意：若产品被转让或未经授权人员改动，保修将失效。

装箱清单

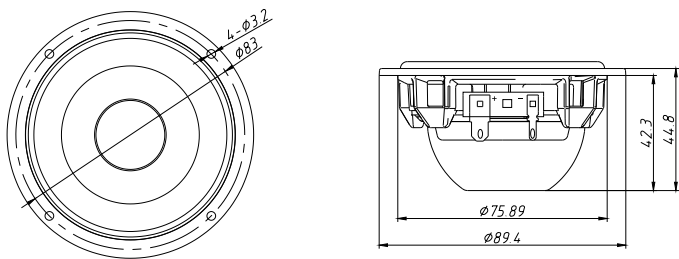
3寸中音喇叭	x2
螺丝包	x1
用户手册	x1

FL-MR80S

阻抗/频率响应



尺寸图示



T/S参数	
振膜	铝膜
灵敏度	83 dB/W/m
额定功率	35 W
峰值功率	70 W
额定阻抗	4 Ohm
直流阻抗	3.5 Ohm
谐振频率	105 Hz
频率响应	105 Hz - 20 kHz
机械品质因数	7.88
电声品质因数	0.96
总品质因数	0.85
振动质量	3.2 g
力顺	0.73 μ M/N
振动面积	30.2 cm ²
等效容积	0.94 L
力系数	2.8 Tm
磁铁尺寸	19 * 7 mm N45
音圈直径	20.4 mm
音圈高度	5.9 mm