

PRM1

RTA Measurement Microphone

Owner's Manual



Introduction

Thank you for purchasing the PreSonus® PRM1 RTA Microphone. This omnidirectional microphone has been designed to provide an accurate reproduction of a room's sound characteristics for use with audio-analysis tools, such as real-time analyzers and spectrographs. Delivering a flat frequency response from 20 Hz to 20 kHz and featuring a 1/4", pre-polarized, electret condenser capsule, the PRM1 is an excellent companion to the Virtual StudioLive™ Smaart® System Check Wizards and other analysis systems.

We appreciate the support you have shown us through the purchase of this product.

Features

- 1/4", pre-polarized, electret condenser capsule
- Flat frequency response from 20 Hz to 20 kHz
- Low noise, low distortion
- Ideally suited for system analysis and measurement
- All-metal chassis

Precautions

- Mute audio system output prior to connecting or disconnecting the PRM1 or engaging/disengaging phantom power.
- When operating in outdoor environments, cover capsule with foam windscreen to reduce wind noise.
- Attach to a mic stand when analyzing sound systems to ensure accurate measurements.

What's in the Box

- PRM1 RTA Microphone
- PRM1 Hard Case
- PRM1 Shock Mount
- PRM1 Foam Windscreen

About This Microphone

The PRM1 is a condenser microphone with a flat frequency response and an omnidirectional polar pattern. Let's briefly define these terms.

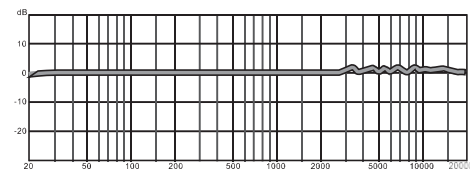
Condenser Microphones

Condenser microphones such as the PRM1 require a power source, which can be provided by an external power supply or using phantom power, which is usually provided by a mixer, preamplifier, or direct box. Phantom power is sent over the same mic cable that carries the audio signal; the term derives from the fact that there is no visible power cable, and the voltage is not perceptible in the audio path.

PreSonus StudioLive-series mixers provide phantom power to every mic input, including the talkback input utilized by the Smart System Check Wizards in VSL.

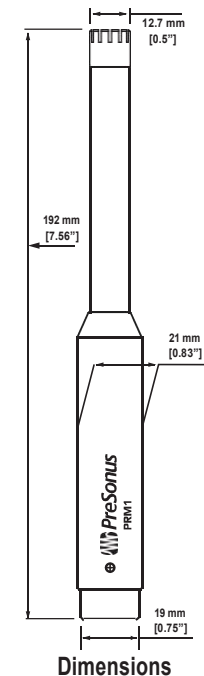
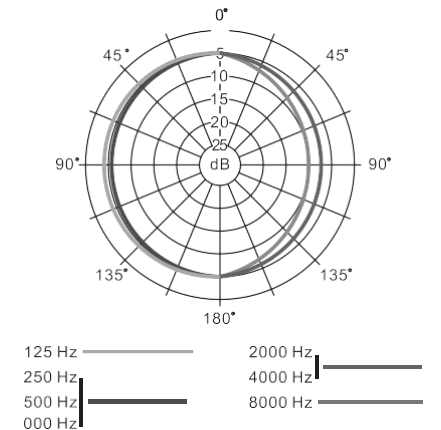
Flat Frequency Response

A microphone with a flat frequency response captures all frequencies equally within its specified response range, neither boosting nor cutting frequencies, so it accurately reproduces the incoming signal. While this makes it ideal for measuring what a room or speaker is doing to the outgoing signal in a sound system, it is not necessarily the best choice for recording specific instruments.



Omnidirectional

The PRM1 has an omnidirectional polar pattern, meaning it is equally sensitive in all directions. This allows the microphone to measure reflections, as well as direct signals, providing an accurate depiction of the room.



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Part# 820-PRM0022-B

PRM1

RTA Measurement

Microphone

全指向高精度声学测试电容

麦克风

Owner's Manual 用户手册



7257 Florida Boulevard • Baton Rouge,
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www.presonus.com

Introduction

介绍

Thank you for purchasing the PreSonus® PRM1 RTA Microphone. This omnidirectional microphone has been designed to provide an accurate reproduction of a room's sound characteristics for use with audio-analysis tools, such as real-time analyzers and spectrographs. Delivering a flat frequency response from 20 Hz to 20 kHz and featuring a 1/4", pre-polarized, electret condenser capsule, the PRM1 is an excellent companion to the Virtual StudioLive™ Smart® System Check Wizards and other analysis systems. We appreciate the support you have shown us through the purchase of this product.

感谢你购买 PreSonus PRM1 RTA 麦克风。这种全向麦克风的设计是为了准确再现房间的声音特性，以便与音频分析工具（如实时分析仪和光谱仪）一起使用。PRM1 在20 Hz 到20kHz之间，提供平坦的频率响应，并具有1/4英寸、预偏振、驻极体电容麦克风头，是 Virtual StudioLive™ Smart® 系统检查向导和其他分析系统的最佳伴侣。我们感谢你，通过购买该产品对我们的支持。

Features

特点简介

- 1/4", pre-polarized, electret condenser capsule
- Flat frequency response from 20 Hz to 20 kHz
- Low noise, low distortion
- Ideally suited for system analysis and measurement
- All-metal chassis

- 1/4", 预偏振，驻极体电容麦克风头
- 20 Hz至20 kHz的平坦频率响应
- 低噪音，低失真
- 非常适用于系统分析和测量
- 全金属底座

Precautions

预防措施

- Mute audio system output prior to connecting or disconnecting the PRM1 or engaging/disengaging phantom power.
- When operating in outdoor environments, cover capsule with foam windscreen to reduce wind noise.
- Attach to a mic stand when analyzing sound systems to ensure accurate measurements.

- 在连接或断开PRM1或使用/解除幻象电源之前，请将音频系统输出静音。
- 在户外环境中操作时，用泡棉防风罩覆盖麦克风头以减少

风噪。

- 在分析音响系统时，应将其安装在话筒架上，以确保测量准确。

What's in the Box

包装里都有什么？

- PRM1 RTA Microphone 麦克风
- PRM1 Hard Case 硬质外壳
- PRM1 Shock Mount 避震装置
- PRM1 Foam Windscreen 泡棉防风罩

About This Microphone

关于此款麦克风

The PRM1 is a condenser microphone with a flat frequency response and an omnidirectional polar pattern. Let's briefly define these terms.

PRM1是一个具有平坦频率响应和全指向高精度声学测试麦克风。让我们简单地定义一下这些术语。

Condenser Microphones

电容式麦克风

Condenser microphones such as the PRM1 require a power source, which can be provided by an external power supply or using phantom power, which is usually provided by a mixer, preamplifier, or direct box. Phantom power is sent over the same mic cable that carries the audio signal; the term derives from the fact that there is no visible power cable, and the voltage is not perceptible in the audio path.

像PRM1这样的电容式麦克风需要一个电源，可以由外部电源提供，也可以使用幻象电源，这通常由调音台、前置放大器或引导盒提供。幻象电源是通过传输音频信号的同一根麦克风电缆发送的；实际这个术语是，即没有可见的电源电缆，而且电压在音频路径中，也是无法感知的。

PreSonus StudioLive-series mixers provide phantom power to every mic input, including the talkback input utilized by the Smart System Check Wizards in VSL.

PreSonus StudioLive系列调音台为每个麦克风输入提供幻象电源，包括VSL中Smart系统检查向导所使用的对讲输入。

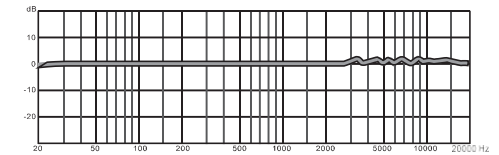
Flat Frequency Response

平坦的频率响应

A microphone with a flat frequency response captures all frequencies equally within its specified response range, neither boosting nor cutting frequencies, so it accurately reproduces the incoming signal. While this makes it ideal for measuring what a room or speaker is doing to the outgoing signal in a

sound system, it is not necessarily the best choice for recording specific instruments.

具有平坦频率响应的传声器，在其指定的响应范围内平等地捕捉所有频率，既不提升也不削减频率，因此它准确地再现了传入信号。虽然这使它成为测量房间或扬声器，对音响系统中传出信号的理想选择，但它不一定是录制特定乐器的最佳选择。

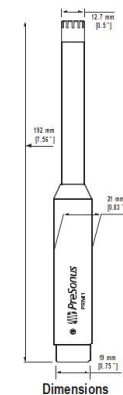
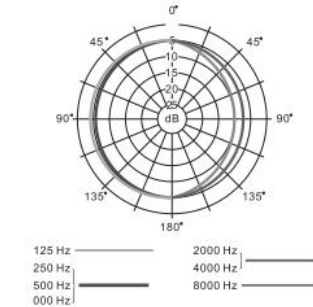


Omnidirectional

全指向性

The PRM1 has an omnidirectional polar pattern, meaning it is equally sensitive in all directions. This allows the microphone to measure reflections, as well as direct signals, providing an accurate depiction of the room.

PRM1有一个全向的极性模式，这意味着它在所有方向上都同样敏感。这使传声器能够测量反射以及直接信号，提供一个准确的房间描述。



Mic Position and Room Analysis

Improper mic placement when analyzing a sound system can result in the system appearing to have problems that don't actually exist. Below is a quick reference for proper mic placement.

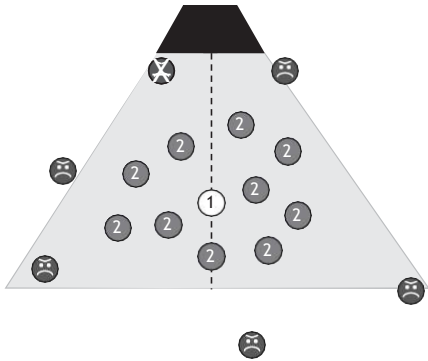
Primary Mic Position

This is the main reference point for a speaker and can be used as a single, "representative" position. Your goal in setting the primary mic position is to find a point that puts the microphone in the center (on axis) of a speaker's throw, within the listening area. In other words, you want to put the microphone smack dab in the middle of where your speaker sounds its best.

Secondary Mic Position

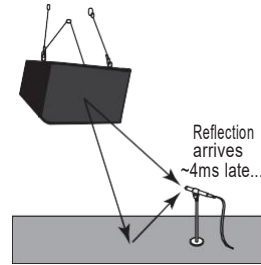
Secondary mic positions provide your system analysis with more information to get a more "three-dimensional" view of your system. These can be on- or off-axis measurements of a speaker within the listening area. Avoid using locations outside the core coverage area of your system, or on the edges.

With any mic position, avoid creating position-dependent anomalies.



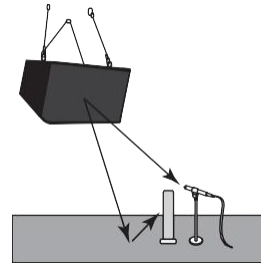
Ground Bounce

Ground reflections, or "ground bounce," become an issue when a speaker is flown and angled down. The proper mic position, in this case, will also catch the reflection of the signal off the floor.

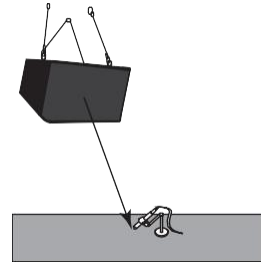


In this case, you can choose from three options:

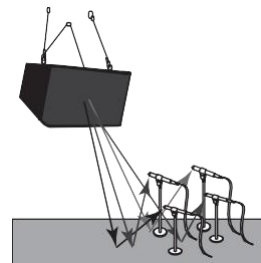
- Block the reflection with a baffle.



- Do a ground-plane measurement.



- Do a multi-point measurement to randomize the effect of the floor bounce.



Technical Specifications

Typ	Black electret condenser
Element	Pressure, FET preamplifier
Polar Pattern	Omnidirectional
Frequency Response	20 Hz to 20 kHz
Sensitivity (@ 1 kHz open-circuit voltage)	-37 dB/Pa (14 mV/Pa) 1 Pa=94 dB SPL
Rated Impedance	200Ω
Minimum Load Impedance	1,000Ω
EIN (A-weighted)	26 dB
Max. SPL (1 kΩ load)	132 dB SPL (THD ≤ 1%, 1 kHz)
Dynamic Range (1 kΩ load)	106 dB
S/N Ratio	70 dB
Power	9-52V Phantom
Current Consumption	2 mA
Polarity	Pin 2 output positive voltage (relative to Pin 3) when diaphragm receives positive pressure (moves inward)
Connector	3 pin XLR Male
Finish	Metal, matte black
Environmental Conditions	10-50° C, humidity 0-95%
Weight	150g (5.3 oz)
Dimensions (LxW)	7.56" x 0.83" (192 mm x 21 mm)

EU Directives on the Protection of the Environment

RoHS This product is compliant with the EU Directive 2011/65/EU for the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment. No lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr+6), PBB or PBDE is intentionally added to this device. Any traces of impurities of these substances contained in the parts are below the RoHS specified threshold levels.

REACH This product is compliant with the European Union Directive EC 1907/2006 for the Registration, Evaluation, Authorization, and Restriction of chemicals (REACH) and contains none or less than 0.1% of the chemicals listed as hazardous chemicals in the REACH regulation.

WEEE This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

PreSonus Limited Warranty

- PreSonus Audio Electronics Inc. warrants this product to be free of defects in material and workmanship for a period of one year from the date of original retail purchase.
- This warranty is enforceable only by the original retail purchaser. To be protected by this warranty, the purchaser should register the product on line at www.presonus.com within 14 days of purchase.
- For warranty information in all other countries except the USA, please refer to your local distributor.
- During the warranty period PreSonus shall, at its sole and absolute option, either repair or replace, free of charge, PRM1 headphones that prove to be defective on inspection by PreSonus or its authorized service representative.
- A warranty claim is deemed valid if:
 - Purchase of the product took place within the last 12 months (or extended period if required by law) and purchased legitimately through a dealer.
 - The failure description and/or the visual appearance do not indicate physical abuse by the customer and the factory-applied serial number has not been altered or removed or tampered with in any way.
- The Limited Warranty does not cover:
 - Improper handling or neglect
 - Products returned without proof of purchase
 - Products where serial number, ID numbers or logos have been tampered with
 - Products that have been modified from original design.
 - Damages incurred in transit, where the carrier needs to be notified to handle the claim
 - Damages incurred by unauthorized repairs
 - Physical abuse
 - Natural disasters such as fire, flood, lightning, earthquake
 - Liquid contamination
 - Excessive high or low temperature or humidity
 - Inappropriate storage
 - Physically damaged connectors
- To obtain warranty service, the purchaser must first call or write PreSonus at the address and telephone number printed **ON THE FRONT OF THIS MANUAL** to obtain a Return Authorization Number and instructions of where to return the unit for service. All inquiries must be accompanied by a description of the problem.
- All authorized returns must be sent to the PreSonus repair facility postage prepaid, insured and properly packaged. PreSonus reserves the right to update any unit returned for repair.
- PreSonus reserves the right to change or improve the design of the product at any time without prior notice. This warranty does not cover claims for damage due to abuse, neglect, alteration, or attempted repair by unauthorized personnel and is limited to failures arising during normal use that are due to defects in material or workmanship in the product. Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. In no event will PreSonus be liable for incidental, consequential, or other damages resulting from the breach of any express or implied warranty, including, among other things, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This warranty only applies to products sold and used in the United States of America. For warranty information in all other countries except the USA, please refer to your local distributor.

Mic Position and Room Analysis 麦克风位置和房间分析

Improper mic placement when analyzing a sound system can result in the system appearing to have problems that don't actually exist. Below is a quick reference for proper mic placement.

在分析音响系统时，不正确的麦克风放置会导致系统看起来有问题，但实际上并不存在。下面是正确放置麦克风的快速参考。

Primary Mic Position 主要麦克风位置

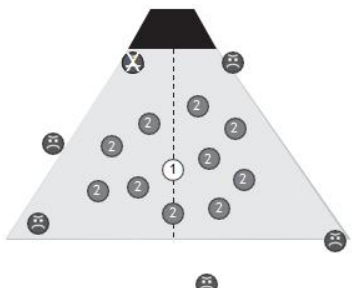
This is the main reference point for a speaker and can be used as a single, "representative" position. Your goal in setting the primary mic position is to find a point that puts the microphone in the center (on axis) of a speaker's throw, within the listening area. In other words, you want to put the microphone smack dab in the middle of where your speaker sounds its best.

这是一个扬声器的主要参考点，可以作为一个单一的"代表"位置。设置主麦克风位置的目标是找到一个点，将麦克风放在扬声器投射的中心（轴上），在聆听区域内。换句话说，你要把麦克风放在扬声器声音最好的地方的中间。

Secondary Mic Position 次要麦克风位置

Secondary mic positions provide your system analysis with more information to get a more "three-dimensional" view of your system. These can be on- or off-axis measurements of a speaker within the listening area. Avoid using locations outside the core coverage area of your system, or on the edges. With any mic position, avoid creating position-dependent anomalies.

辅助麦克风位置为你的系统分析提供了更多的信息，以获得你的系统的更多"三维"视图。这些可以是聆听区域内扬声器的轴上或轴外测量。避免使用系统核心覆盖区域以外的位置，或者边缘的位置。对于任何麦克风的位置，都要避免产生与位置有关的异常情况。

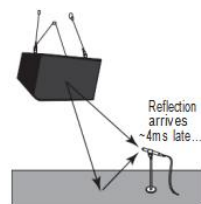


Ground Bounce 地面反射

Ground reflections, or "ground bounce," become an issue when a speaker is flown and angled down. The proper mic position, in this case, will also catch the reflection of the signal off the floor.

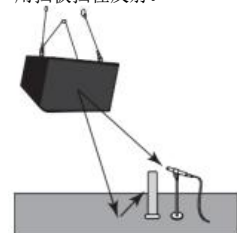
地面反射，或称"地面反弹"，当一个扬声器吊起来并向下倾斜时就成了一个問題。在这种情况下，合理的麦克风位置也会捕捉到地面上的信号反射。

(Reflection arrive ~4ms late. 反射到达有4毫秒延迟)

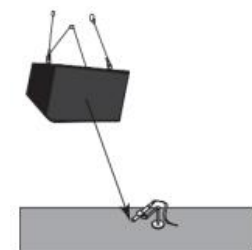


In this case, you can choose from three options: 在这种情况下，你可以从三个选项中选择：

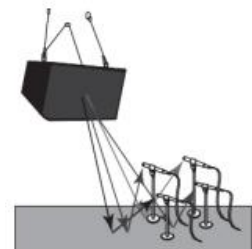
- Block the reflection with a baffle. 用挡板挡住反射。



- Do a ground-plane measurement. 做一个地平面的测量



- Do a multi-point measurement to randomize the effect of the floor bounce. 做一个多点测量，使地板反弹的影响随机化。



Technical Specifications 技术规格

Type 类型	Black electret condenser
Element 元件	Pressure, FET preamplifier
Polar Pattern 极性模式 全指向性	Omnidirectional
Frequency Response 频率响应	20 Hz to 20 kHz
Sensitivity 灵敏度 @ 1 kHz open-circuit voltage	-37 dB/Pa (14 mV/Pa) 1 Pa=94 dB SPL
Rated Impedance 额定阻抗	200 Ω
Minimum Load Impedance 最小负载阻抗	1,000 Ω
EN (A-weighted)	26 dB
Max. SPL (1 kΩ load) 最大声压级	132 dB SPL (THD ≤1%, 1 kHz)
Dynamic Range (1 kΩ load) 动态范围	106 dB
S/N Ratio 信噪比	70 dB
Power 电源	9-52V Phantom
Current Consumption 电流消耗	2 mA
Polarity 极性	Pin 2 output positive voltage (relative to Pin 3) when diaphragm receives positive pressure (moves inward)
Connector 连接器	3 pin XL R Male
Finish 表面处理 金属 黑色亚光	Metal, matte black
Environmental Conditions 环境条件	10-50° C, humidity 0-95%
Weight 重量	150g (5.3 oz)
Dimensions (LxW) 尺寸	7.56"x0.83"(192 mm x 21 mm)

EU Directives on the Protection of the Environment 欧盟关于保护环境的各项指令

RoHS This product is compliant with the EU Directive 2011/65/EU for the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment. No lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr+6), PBB or PBDE is intentionally added to this device. Any traces of impurities of these substances contained in the parts are below the RoHS specified threshold levels.

REACH This product is compliant with the European Union Directive EC1907/206 for the Registration, Evaluation, Authorization, and Restriction of chemicals (REACH) and contains none or less than 0.1% of the chemicals listed as hazardous chemicals in the REACH regulation.

RoHS 本产品符合欧盟关于限制在电气和电子设备中，使用某些有害物质2011/65/EU的指令。本设备中没有故意添加铅（Pb）、镉（Cd）、汞（Hg）、六价铬（Cr+6）、多溴联苯或多溴联苯醚。部件中含有的任何微量的这些物质的杂质都低于RoHS规定的阈值水平。

REACH 本产品符合欧盟关于化学品注册、评估、授权和限制（REACH）的EC1907/206的指令，不含或少于0.1%的REACH法规中所列的危险化学品。

WEEE This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The



separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

WEEE 该产品或其包装上的标志表明，该产品不得与其他废物一起处理。相反，你有责任将你的废旧设备交给指定的废旧电气和电子设备回收点进行处理。在处置时，单独收集和回收你的废旧设备，将有助于保护自然资源，并确保以保护人类健康和环境的方式进行回收。关于可以把你的废旧设备放在哪里进行回收的更多信息，请联系你当地的城市回收办公室，或你购买产品的经销商。

PreSonus Limited Warranty PreSonus 有限保修

1. PreSonus Audio Electronics Inc. warrants this product to be free of defects in material and workmanship for a period of one year from the date of original retail purchase.

PreSonus Audio Electronics Inc. 公司保证本产品自原始零售购买之日起，一年内无材料和工艺上的缺陷。

2. This warranty is enforceable only by the original retail purchaser. To be protected by this warranty, the purchaser should register the product on line at www.presonus.com within 14 days of purchase. 本保证书仅由原始零售购买者执行。为了得到本保证书的保护，购买者应在购买后14天内，在 www.presonus.com 网上注册产品。

3. For warranty information in all other countries except the USA, please refer to your local distributor. 除美国以外，关于所有其他国家的保修信息，请参考当地的经销商。

4. During the warranty period PreSonus shall, at its sole and absolute option, either repair or replace, free of charge, PRM1 headphones that prove to be defective on inspection by PreSonus or its authorized service representative. 在保修期内，如果PreSonus或其授权的服务代表在检查时发现PRM1耳机有缺陷，PreSonus将自行选择免费维修或更换。

5. A warranty claim is deemed valid if: 在以下情况下，保修索赔被视为有效：
a. Purchase of the product took place within the last 12 months (or extended period if required by law) and purchased legitimately through a dealer.

b. The failure description and/or the visual appearance do not indicate physical abuse by the customer and the factory-applied serial number has not been altered or removed or tampered with in any way.

a. 在过去12个月内（或法律规定的延长期）购买的产品，并且是通过经销商合法购买的。

b. 故障描述和/或视觉外观不表明客户有个人行为上的滥用，且工厂的序列号没有被改变或移除或以任何方式篡改。

6.The Limited Warranty does not cover :

有限保证不包括:

- a.Improper handling or neglect
- b.Products returned without proof of purchase
- c.Products where serial number, ID numbers or logos have been tampered with
- d.Products that have been modified from original design.
- e.Damages incurred in transit, where the carrier needs to be notified to handle the claim
- f.Damages incurred by unauthorized repairs
- g.Physical abuse
- h.Natural disasters such as fire, flood, lightning, earthquake
- i.Liquid contamination
- j.Excessive high or low temperature or humidity
- k.Inappropriate storage
- l.Physically damaged connectors
- m.Connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used
- n.Damages/defects caused by force majeure or any other condition that is beyond the control of PreSonus Audio Electronics

- a.不适当的处理或忽视
- b.没有购买证明的产品退回
- c.序列号、ID号或标志被篡改的产品
- d.对原设计进行修改的产品。
- e.运输过程中发生的损坏，需要通知承运人处理索赔。
- f.未经授权的维修造成的损坏
- g.个人行为滥用
- h.自然灾害，如火灾、洪水、雷电、地震等。
- i.液体污染
- j.过高或过低的温度或湿度
- k.不适当的储存
- l.连接器的物理损坏
- m.以任何不符合产品使用国的技术或安全规定的方式连接或操作设备
- n.因不可抗力或任何其他超出 PreSonus Audio Electronics 控制范围的情况，而造成的损坏/缺陷。

7.To obtain warranty service, the purchaser must first call or write PreSonus at the address and telephone number printed **ONTHE FRONT OF THIS MANUAL** to obtain a Return Authorization Number and instructions of where to return the unit for service. All inquiries must be accompanied by a description of the problem.

7.要获得保修服务，购买者必须首先打电话或写信给 PreSonus，地址和电话号码印在本手册的正面，可获取一个退货授权号码和说明在哪里返回设备进行维修。所有的询问必须附有问题的描述。

8.All authorized returns must be sent to the PreSonus repair facility postage prepaid, insured and properly packaged. PreSonus reserves the right to update any unit returned for repair.

8.所有授权的退货，必须寄给 PreSonus 的维修机构，并预付邮费、投保和妥善包装。PreSonus保留更新任何返回维修设备的权利。

9.PreSonus reserves the right to change or improve the design of the product at any time without prior notice. This warranty does not cover claims for damage due to abuse, neglect, alteration, or attempted repair by unauthorized personnel and is limited to failures arising during normal use that are due to defects in material or workmanship in the product. Any implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. In no event will PreSonus be liable for incidental, consequential, or other damages resulting from the breach of any express or implied warranty, including, among other things, damage to property, damage based on inconvenience or on loss of use of the product, and, to the extent permitted by law, damages for personal injury. Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This warranty only applies to products sold and used in the United States of America. For warranty information in all other countries except the USA, please refer to your local distributor.

PreSonus 公司保留在任何时候改变或改进产品的设计的权利，无需事先通知。本保证书不包括因滥用、疏忽、改变或未经授权人员试图修理而造成的损坏的索赔，并且仅限于在正常使用期间，因产品的材料或工艺缺陷而产生的故障。任何隐含的保证，包括隐含的

适销性和特定目的的适用性的保证，在时间上都限于本有限保证的长度。有些州不允许限制隐含保证的持续时间，因此上述限制可能不适用于你。在任何情况下，PreSonus 都不对因违反任何明示或暗示的保证而造成的附带的、后果性的或其他的损害负责，包括，除其以外的。财产损失、基于不便或产品使用损失的损害，以及在法律允许的范围内，个人行为的损害。有些州不允许排除对附带或间接损害的限制，因此，上述限制或排除可能不适用于你。本保证给予你特定的法律权利，你也可能有其他权利，这些权利因州而异。本保证只适用于在美国境内销售和使用的产品。关于除美国以外的所有其他国家的保修信息，请咨询当地的经销商。