

GRAS 45BB-5

用于耳机和头戴式耳机测试的头和躯干，2 通道 LEMO



连接方式：传统电源 (200 V/LEMO)

通道：2

ANSI 标准 S3.36, S3.25

IEC 标准：60318-4

ITU-T 建议书 P.57 3.3 型，基于 ITU-T 建议书 P.58

45BB-5 KEMAR 头戴式耳机和耳机测试用 2-Ch LEMO 是一种声学研究工具，内置耳模拟器，可模拟声波通过人的头部和躯干时发生的变化 KEMAR 装有耳廓模拟器、耳道扩展装置和 IEC 60318-4 耳模拟器，可模拟人耳的声阻抗。其对应的 CCP 相当于 [GRAS 45BB-6 KEMAR](#) 用于耳机和头戴式耳机测试的头和躯干，2 通道 CCP

引言

KEMAR 头部和躯干模拟器由 Knowles 公司于1972年推出，并迅速成为助听器制造商和听力学研究人员行业标准（可访问 KEMAR.us 阅读完整历史）。它的设计基于全球男性和女性头部的平均尺寸。该产品符合 ANSI S3.36/ASA58-2012 和 IEC 60318-7:2011 标准的要求。

现今的 KEMAR 头部和躯干模拟器与初代 KEMAR 具有相同的尺寸和声学特性，但经过 GRAS 的进一步开发，以满足行业对助听器、头戴式耳机和耳麦进行逼真测量的需求。它能提供与真人头躯干周围相似的声衍射，无论是在近场还是远场环境中。

由于所有预配置的 45BB KEMAR 都是由同一个基础的 45BBKEMAR 未配置版) 外加一套特定应用的配件组成，因此，要获取某一特定 KEMAR 配置的完整信息，需要将 45BB KEMAR 未配置版) 的信息与本文档中相应配置版本的信息相结合。您可在[此处](#)阅读关于未配置版 KEMAR 的信息。

设计

45BB-5 是一款用于双通道耳机和头戴式耳机测试的 KEMAR 头部和躯干模拟器，配备外极化仿真耳和邵氏硬度为 55 Shore 00 的大尺寸耳廓。

该产品交付时已完全配置、独立校准且即刻可用。除系统校准证书外，还附带一个存有模拟数据的 USB 闪存盘。

45BB-5 的主要配置特定组件是符合 IEC 60318-4 标准的 GRAS RA0045 仿真耳以及 KB0065/KB0066 大尺寸耳廓。

IEC 60318-4 仿真耳

RA0045 仿真耳的声输入阻抗与人耳高度相似，因此，它加载声源的方式也与人耳非常接近。

它符合 IEC 60318-4 标准，并根据 ITU-T P.57 标准进行测量和校准。其内部包含多个精心设计的腔体，这些腔体通过定义明确且经过精密调谐的阻尼缝隙相连。在一个等效电路中，电容代表腔体容积，而电感和电阻则分别代表阻尼缝隙内的空气质量和气流阻尼。

可在此处阅读关于 RA0045 的更多信息。

Read more about RA0045 [here](#).

KB0065/KB0066 耳廓

KB0065 和 KB0066 是与直耳道延伸管配合使用的大尺寸直耳廓，其硬度为 55 Shore 00 符合 IEC 和 ITU-T 的建议。

该配置的其他特定配件在“订购信息”选项卡中列出。

性能与质保

KEMAR 由我们标准产品组合中的组件制成，所有组件均采用高品质材料和品牌部件，其选择和加工工艺确保了产品的终身稳定性和坚固性。因此，我们能够提供2年质保，涵盖材料和工艺缺陷。

例外情况 KEMAR 中包含的传声器适用我们常规的5年质保。线材的保修期为6个月。

Connector type		7-pin LEMO (FGG.1B.307)
Set sensitivity @ 250 Hz (± 2 dB)	mV/Pa	12.5
Set sensitivity @ 250 Hz (± 2 dB)	dB re 1V/Pa	-38.5
Theoretical dynamic range lower limit with GRAS preamplifier	dB(A)	25
Theoretical dynamic range upper limit with GRAS preamplifier @ +28 V / ± 14 V power supply	dB	151
Theoretical dynamic range upper limit with GRAS preamplifier @ +120 V / ± 60 V power supply	dB	163
Resonance frequency	kHz	13.5
Temperature range, operation	$^{\circ}\text{C}$ / $^{\circ}\text{F}$	-30 to 60 / -22 to 140
Temperature range, storage	$^{\circ}\text{C}$ / $^{\circ}\text{F}$	-40 to 65 / -40 to 149
Humidity range non condensing	% RH	0 to 95%
ANSI standard		S3.36, S3.25
IEC standard		60318-4 (former 60711), 60318-7 (former 60959)
ITU-T recommendations		P.380
Weight	g / oz	11.45 k / 404

GRAS Sound & Vibration 保留更改规格和配件的权利，恕不另行通知。

标配

GRAS 45BB	KEMAR Head & Torso, Non-configured
GRAS KB0065	KEMAR Large Right Ear 55 Shore 00
GRAS KB0066	KEMAR Large Left Ear 55 Shore 00
GRAS RA0237	Straight Ear Canal Extension Kit (2 pcs)
GRAS RA0045	IEC 60318-4 Ear Simulator (2 pcs)
GRAS GR0408	Exterior Ear Canal (2 pcs)
GRAS GR0409	Union Nut (2 pcs)
GRAS 26AS-S3	1/4" Preamplifier, Short version with 0.4 m Cable (2 pcs)
GRAS GR0010	Adapter for 1/2" Microphone and 1/4" Preamplifier (2 pcs)
GRAS AA0008	LEMO 7-pin - LEMO 7-pin Cable, 3 m (2 pcs)

选配

用于外极化仿真耳和传声器的电源模块

GRAS 12AK	1-Channel Power Module with gain, filters and SysCheck generator
GRAS 12AD	1-Channel Power Module
GRAS 12AA	2-Channel Power Module with gain, filters and SysCheck generator
GRAS 12AR	2-Channel Power Module
GRAS 12AQ	2-Channel Universal Power Module with signal conditioning and PC interface

用于仿真耳校准

GRAS 42AP	Intelligent Pistonphone (250 Hz or 251.2 Hz, 114 dB +/- 0.05 dB)
GRAS 42AA	Pistonphone (250 Hz, 114 dB +/- 0.08 dB)
GRAS RA0157	1/2" Calibration Adapter for KEMAR Pinna

耳廓模拟器

GRAS KB0060	KEMAR Small Right Ear 55 Shore 00
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GRAS KB0061	KEMAR Small Left Ear 55 Shore 00
GRAS KB0065	KEMAR Large Right Ear 55 Shore 00
GRAS KB0066	KEMAR Large Left Ear 55 Shore 00
GRAS KB1060	KEMAR Small Right Ear, 35 Shore 00
GRAS KB1061	KEMAR Small Left Ear 35 Shore 00
GRAS KB1065	KEMAR Large Right Ear 35 Shore 00
GRAS KB1066	KEMAR Large Left Ear 35 Shore 00
GRAS KB0090	KEMAR Large Right Ear (VA-Style/SQ) 55 Shore 00
GRAS KB0091	KEMAR Large Left Ear (VA-Style/SQ) 55 Shore 00
GRAS KB1090	KEMAR Large Right Ear (VA-Style) 35 Shore 00
GRAS KB1091	KEMAR Large Left Ear (VA-Style) 35 Shore 00
GRAS KB5000	KEMAR Large Right Anthropometric Pinna 35 Shore 00
GRAS KB5001	KEMAR Large Left Anthropometric Pinna 35 Shore 00

耳模模拟器

GRAS KB0110	Ear Mould Simulator for 2 mm Inner diameter tubing
GRAS KB0111	Ear Mould Simulator for 3 mm Inner diameter tubing

耳道延伸管和传声器支架套件 (套件含2件及O型圈)

GRAS RA0237	Straight Ear Canal Extension Kit for KEMAR
GRAS RA0238	VA-tapered Ear Canal Extension Kit for KEMAR
GRAS RA0239	Ear canal Extension Kit w. silicone lining for KEMAR
GRAS RA0240	Holder for long 1/2" microphone Kit for KEMAR
GRAS RA0241	Holder for short 1/2" microphone Kit for KEMAR
GRAS RA0243	Holder for 1/2" microphone Kit for KEMAR
GRAS RA0244	O-ring kit for KEMAR, 2 pcs.
GRAS RA0249	Straight Ear Canal Extension Kit for KEMAR, made of POM, for binaural hearing aid test
GRAS RA0250	Tapered Ear Canal Extension Kit for KEMAR, made of POM, for binaural hearing aid test

KEMAR 双耳助听器测试改装套件

[GRAS RA0251](#)

KEMAR Retrofit Kit for Binaural Hearing Aid Test:
The Kit includes Ear Holder Plates, mounting bolts and the RA0249 and RA0250 Ear Canal Extension Kits. Included items are made of POM, Nylon and Teflon.

KEMAR 人形耳甲和耳道耳廓改装套件

[GRAS RA0311](#)

KEMAR Retrofit Kit for Anthropometric Concha and Canal Pinna.
The Kit includes Ear Simulator Holder, 2 finger screws and a 3 mm Allen Key.

延长线材

[GRAS AA0008](#)

LEMO 7-pin - LEMO 7-pin Cable, 3 m

[GRAS AA0009](#)

LEMO 7-pin - LEMO 7-pin Cable, 10 m

航空箱

GRAS KM0094

PELI Case for KEMAR

KEMAR 仿真模型

GRAS KB3000

Simulation Model of KEMAR with large pinnae

GRAS KB3001

Simulation Model of KEMAR with small pinnae

KEMAR 支架

GRAS AL0026

Loudspeaker stand for KEMAR, Ø 35 mm

其他

GRAS KB0000

KEMAR Handbook

GRAS KB0010

T-Shirt for KEMAR

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About GRAS Sound & Vibration

GRAS is a worldwide leader in the sound and vibration industry. We develop and manufacture state-of-the-art measurement microphones to industries where acoustic measuring accuracy and repeatability is of utmost importance in R&D, QA and production. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, and consumer electronics. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect and trust.

GRAS Sound & Vibration is represented through subsidiaries and distributors in more than 40 countries and is part of Axiometrix Solutions, a leading test solutions provider comprised of globally recognized measurement brands. Read more at www.GRASacoustics.com

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