

GRAS 90CA-S2

Microphone Calibration System Equipment, PXI



The GRAS 90CA-S2 Microphone Calibration System provides for automated and reliable level and frequency response calibration of measurement microphones. The implemented calibration methods conform with relevant standards as listed in the specifications.

Introduction

The GRAS 90CA-S2 Microphone Calibration System provides for automated and reliable level and frequency response calibration of measurement microphones. The implemented calibration methods conform with these standards:

- IEC Standard 61094
- ANSI S1.10 – 1966 (R1976)
- IEC Standard 60942
- TEDS Standard IEEE 1451.4

The 90CA-S2 is based on National Instruments' PXI architecture: NI PXIe-8101 Embedded Controller, including: National Instruments PXIe1071 4-Slot 3U PXI Express Chassis and PXI cards for Control and Data Acquisition.

Features

- Ready-to-use software and hardware
- Accurate calibration hardware
- Automated and computer-controlled calibration process
- Highly reproducible calibration method
- Pre-installed test parameters for GRAS microphones
- Test conditions easily changable
- Auto-generated, customized documentation to print and archive

Applications

- All types of IEC 61094 standardized 1", 1/2", 1/4", and 1/8" measurement microphones from GRAS and other manufacturers
- GRAS 46xx series standard microphone sets
- GRAS 47xx series flush-mount microphone sets (optional)
- GRAS preamplifiers
- Calibration up to 92 kHz (optional up to 200 kHz)

The system is described in more detail in the [Instruction Manual](#).

| | | |
|---|-------------------------------|-------------------|
| IEC standard | | 61094-5 & 61094-6 |
| Sensitivity Calibration | | |
| Method | Pistonphone, class 0 | |
| Frequency | 250 Hz | |
| Uncertainty | 0.07 dB | |
| Frequency Calibration | | |
| Method | Electrostatic actuator | |
| Frequency | 20 to 92 kHz (20 to 200 kHz)* | |
| Uncertainty | 0.3 dB | |
| *With HP34410a (or similar) multimeter, not included. | | |

GRAS Sound & Vibration reserves the right to change specifications and accessories without notice.

Included items

| | |
|--|---|
| GRAS HW1002 | PXI: NI PXIe-8821 Embedded Controller, including National Instruments PXIe1071 4-Slot 3U PXI Express Chassis NI Dynamic Signal Acquisition Board PXI-4461, and National Instruments Digital I/O PXI-6509 |
| GRAS SW0013 | National Instruments software Diadem version 2017 (or later), Base Edition |
| GRAS SW0002 | Calibration System Software for 90CA |
| GRAS SW0012 | National Instruments Sound and Vibration Analysis SW Run-Time License 779875-01 |
| For Level Calibration | |
| GRAS AL0017 | Pistonphone Calibration Stand |
| GRAS 42AP | Intelligent Pistonphone, including RS-232 control cable |
| GRAS 26AN | ¼" LEMO Insert Voltage Preamplifier |
| GRAS 26AG | ½" LEMO Insert Voltage Preamplifier |
| For Frequency Calibration | |
| GRAS 26AB | ¼" LEMO Preamplifier with Inline Barrel Adapter AF0008 for ¼" preamplifier and ½" microphone |
| GRAS 26AK | ½" LEMO preamplifier (for use with most non-GRAS microphones) |
| GRAS RA0014 | ½" Electrostatic actuator (includes ¼" microphone adapter RA0017) |
| GRAS AL0010 | Actuator Calibration Stand |
| GRAS AL0021 | Microphone Set Calibration Stand |
| GRAS 14AA | Electrostatic Actuator Amplifier, including 230 V AC power cable |
| For Power, Signal Conditioning and Switching | |
| GRAS 12AQ | 2-Channel CCP/LEMO Power Module with Signal Conditioning and Computer Interface |
| GRAS RA0192 | Control box (no cables included in the box) |
| GRAS 40AG | ½" Pressure microphone for reference |
| Cables, Connectors, Adapters and Tools | |
| GRAS AA2006 | National Instruments Cable 180524-10 (50-position ribbon cable) |
| GRAS AA0033 | 1 m BNC cable (5 pcs) |

| | |
|-----------------------------|--|
| GRAS AA0074 | 1 m LEMO extension cable (2 pcs) |
| AC0021 | BNC T-connector |
| GRAS RA0003 | Straight adapter for ½" microphone and ¼" preamplifier |
| GRAS RA0063 | ⅜ microphone and ¼" preamplifier adapter |
| RA0081 | ½" microphone tool |
| RA0200 | ¼" microphone tool |
| RA0210 | ⅛" microphone tool |
| Documents | |
| - | GRAS license for SW0002 |
| LI0028 | 90CA Instruction Manual |
| - | Instruction manuals for 42AP, 12AQ and 14AA |

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Available Options

Special options are available for specific types of calibration, accredited calibration, and training.

GRAS OP0020

- Preamplifier Calibration Option
- ½" Pressure microphone, prepolarized
- ¼" Preamplifier with 3 m cable
- ½" CCP preamplifier
- ¼" CCP preamplifier with 3 m cable (Microdot connector)
- 20pF Input adapter for ½" preamplifiers
- 3 m microphone cable, SMB-BNC connector
- 1 m Cable BNC 50 ohm
- Test program for preamplifier

GRAS OP0021

- Calibration of 1" Microphone Option
- Adapter for 1" microphone and ½" preamplifier
- 1" Electrostatic actuator

GRAS OP0022

- Accredited Calibration of Reference Units
- DANAK calibration of reference microphone, reference preamplifier, and pistonphone

[GRAS OP0023](#)

- Kit for sensitivity calibration of Flush-mount microphone Sets

[GRAS OP0024](#)

- Kit for frequency calibration of Flush-mount microphone Sets

[GRAS OP0025](#)

- Kit for sensitivity calibration of Surface microphone Sets

[GRAS OP0026](#)

- Kit for frequency calibration of Surface microphone Sets

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than 40 countries

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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 and related equipment for industries where acoustic measuring accuracy and repeatability are of the utmost importance. This includes applications and solutions for customers within the fields of aerospace, automotive, audiology, consumer electronics and other highly demanding industries. GRAS microphones are designed to live up to the high quality, durability and accuracy that our customers have come to expect, trust and require.

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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