

Microphone Calibration System 90CA

Product Data

The G.R.A.S. 90CA 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.

Main Features

- Highly automated and computer-controlled calibration process
- Accurate calibration hardware
- Ready-to-use software and hardware
- Preinstalled test parameters for G.R.A.S. microphones and microphone sets
- Optional software for test of preamplifiers
- Easily changeable test conditions
- Highly reproducible calibration method
- Auto-generated, customized documentation for printing and archiving

Typical Applications

Calibration of

- All types of IEC 61094 standardized $\frac{1}{4}$ ", $\frac{1}{2}$ ", and 1" measurement microphones from G.R.A.S. and other manufacturers
- G.R.A.S. 46xx series microphone sets
- G.R.A.S. preamplifiers
- Calibration up to 92 kHz



Fig. 1 A typical setup for the Microphone Calibration System 90CA

Microphone Calibration in Four Easy Steps

The 90CA Microphone Calibration System is designed to eliminate the risk of operator error during calibration. This makes the workflow simple and straight-forward. The four basic steps are:



Microphone Calibration System 90CA

Step 1: Microphone Registration

Meteorological data (test conditions) and microphone parameters (sensitivity, frequency response, tolerances, etc.) are entered into the system. For G.R.A.S. microphones, the system features a built-in database containing calibration parameters (sensitivity, frequency response, tolerances, etc.) The database can easily be extended to include microphone types of other manufacturers.

Step 2: Level Calibration

Using a pistonphone and an insert-voltage preamplifier, the open-circuit sensitivity of the microphone is determined at 250 Hz, 114 dB.

The open-circuit sensitivity is displayed in [dB re 1 V/Pa] and [mV/Pa]

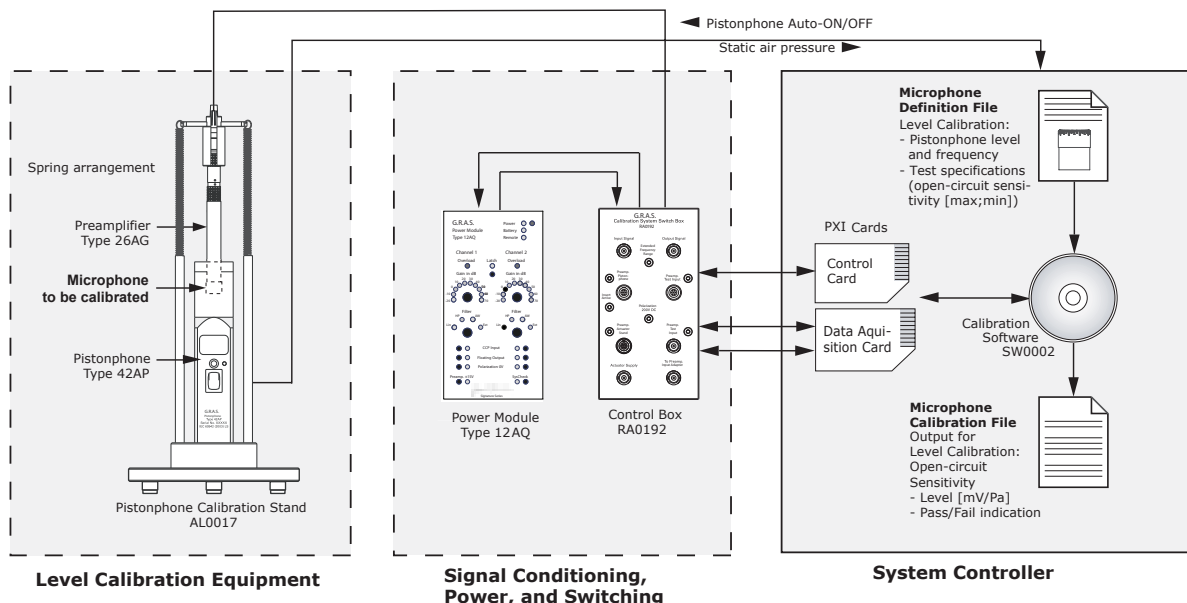


Fig. 2 The setup for the level calibration with the pistonphone and an insert-voltage preamplifier

Step 3: Frequency Calibration

The default frequency range is set individually for each type of microphone (range 200 Hz to 92 kHz). The default relative frequency step size is 1/6 octave with no minimum relative step size. The magnitude response for each calibration frequency has an accuracy of 0.003 dB. The frequency range and steps are customizable.

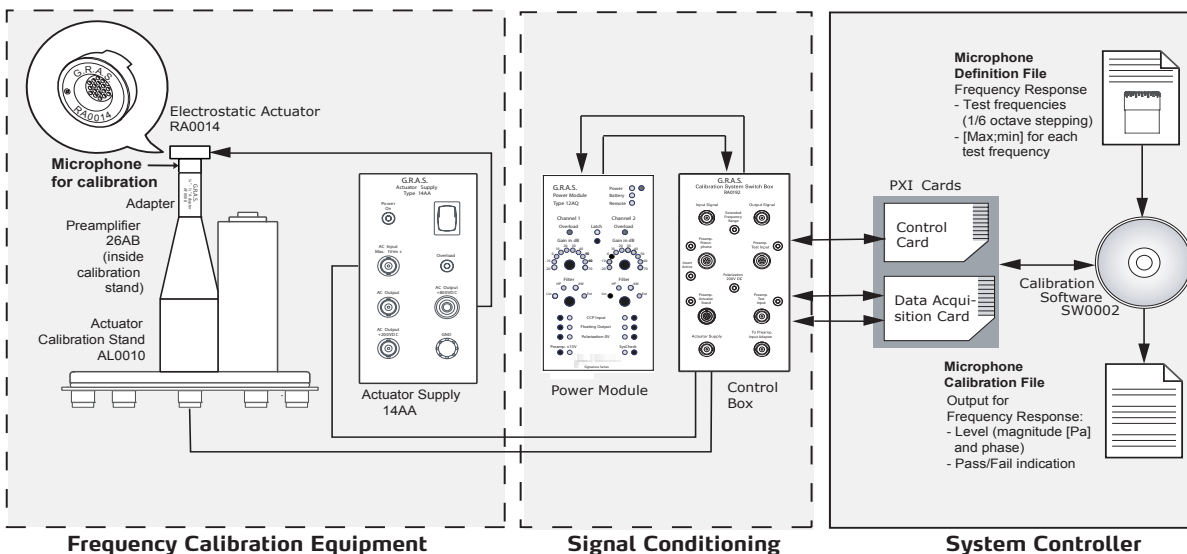


Fig. 3 The setup for the frequency calibration

Step 4: Calibration Certificate

All the calibration data is saved as a text file; it contains results for both the level and the frequency calibrations. The system generates a calibration certificate that can be saved as a PDF file for archiving and printing. You can fully customize the certificate with your company layout, text, and logo, as well as which data to display.

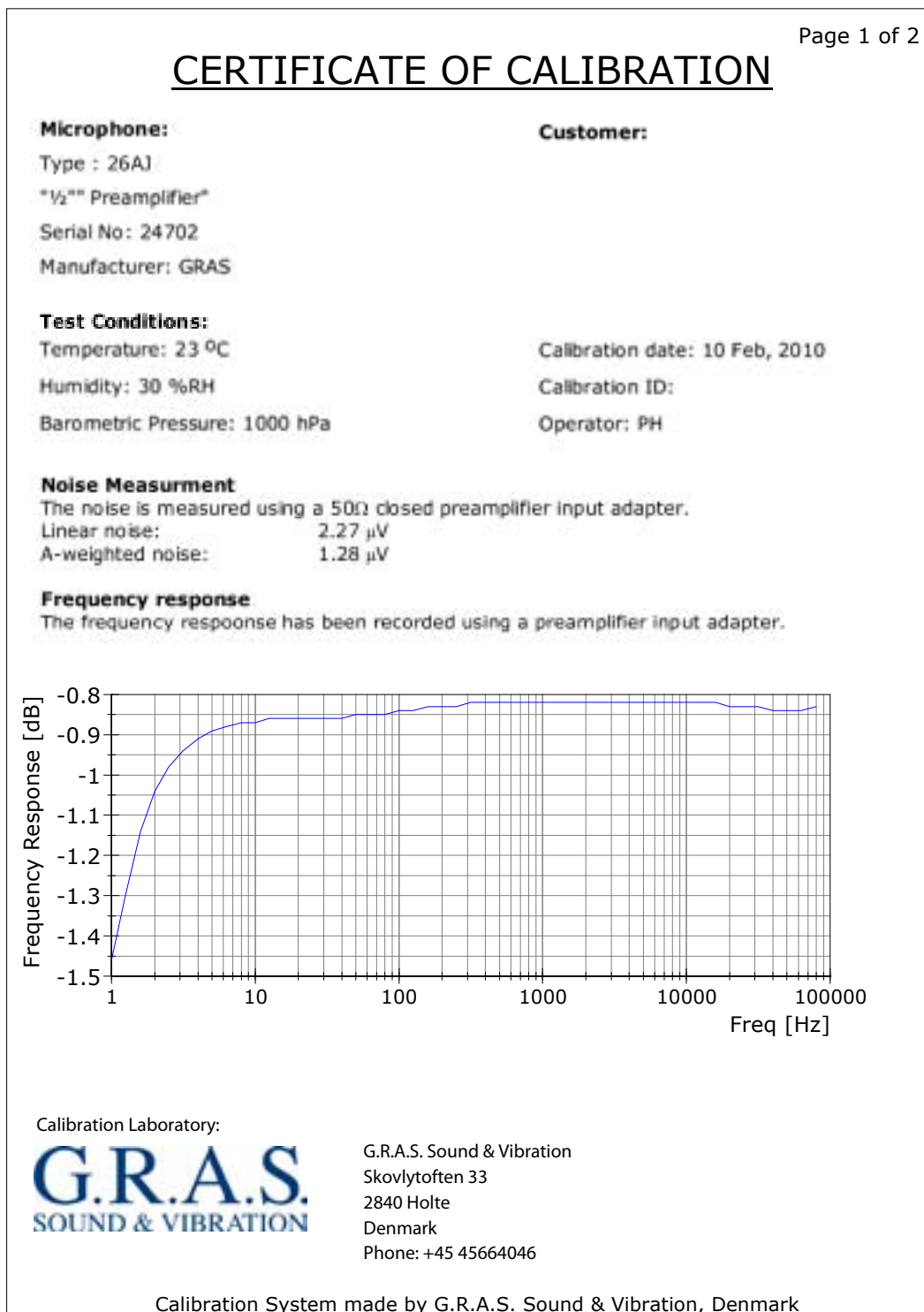


Fig. 4 Typical G.R.A.S. calibration certificate

Ordering Information

The 90CA microphone calibration system is sold as a complete package. Special options are available for specific types of calibration, accredited calibration, and training. The contents of the 90CA package are listed here for your convenience.

The Microphone Calibration System 90CA Package

Instruments

- Pistonphone including control cable
- ¼" Preamplifier (including adapter for ½" microphones)
- ½" Insert Voltage Preamplifier
- ½" Preamplifier (for non-G.R.A.S. ½" microphones)
- ¼" Insert Voltage Preamplifier
- Power Module (incl. 12 V DC adapter)
- Actuator Amplifier (incl. 230 V AC power cable)

Parts

- Actuator Calibration Stand
- Pistonphone Calibration Stand
- Calibration System Switch Box
- Electrostatic actuator ½", ¼", ⅛"
- Adapter for ½" microphone and ¼" preamplifier
- Adapter for ⅛" microphone and ¼" preamplifier
- Special gripping tools for ½", ¼", and ⅛" microphones
- Cable pack for 90CA

System Reference

- ½" Pressure Microphone

System Controller

The system controller can be either PXI-based or PCI-based. It is delivered with cards and software preinstalled.

- Calibration system software for 90CA
- PXI-based version with boards for mounting in an NI PXI Express chassis
or
- PCI-based version with boards for use in a PC

Options

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 LEMO extension cable for preamplifier
- 3 m microphone cable, SMB-BNC connector
- 1 m Cable BNC 50 ohm
- Test program for preamplifier

OP0021: Calibration of 1" Microphone Option

- Adapter for 1" microphone and ½" preamplifier
- 1" Electrostatic actuator

OP0022: Accredited Calibration of Reference Units

- DANAK calibration of reference microphone, reference preamplifier, and pistonphone (contact your G.R.A.S. representative for details)

TRO01: Training

- Contact your G.R.A.S. representative for details

Mains Voltage

110 – 240 V AC

Standards

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

System Integration

Before leaving the factory, the calibration system has been integrated and tested by G.R.A.S.; the individual test certificate is included.