Instruction Manual

GRAS 48LA and 48LX-1 UTP Microphones

Mounting and In-Situ Verification

GRAS Sound & Vibration
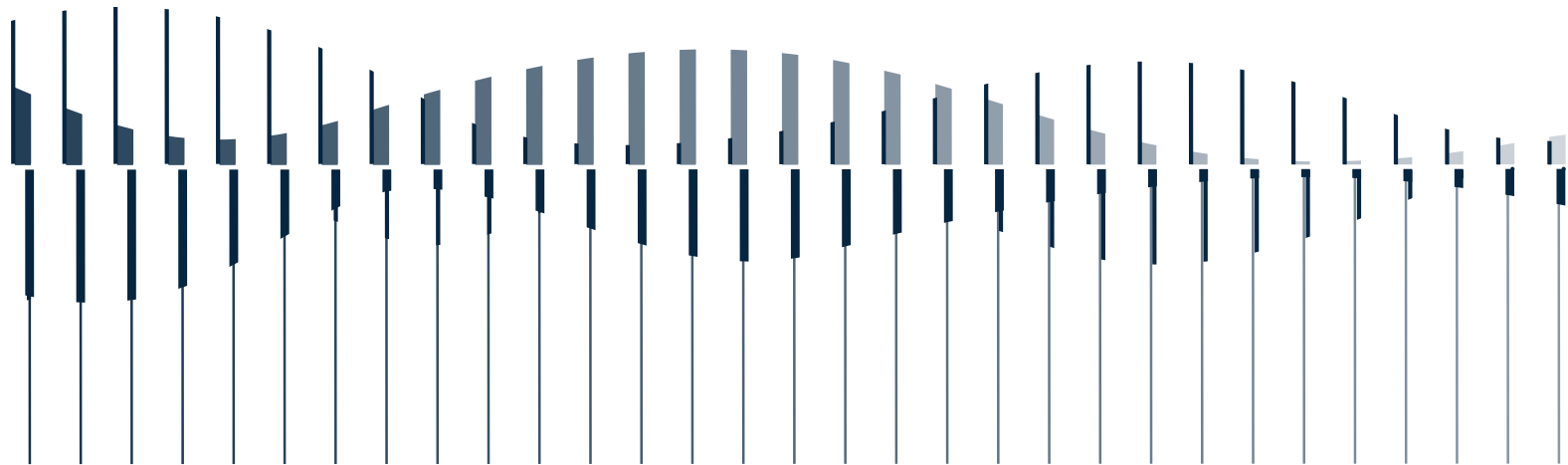
Revision History

Revision	Date	Description
1	2 November 2020	First edition

Do not touch the diaphragm

Contents

Introduction

Our primary design goal with the UTP microphones has been to create a very thin microphone with all the benefits of the traditional measurement microphone.

But ease of use when preparing for measurements has also been a primary design goal. This is why we offer mounting solutions based on fairings and self-adhesive tape, and this is also the reason why we have developed a method for fast in-situ verification.
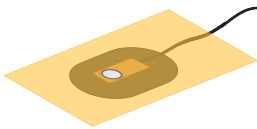
Mounting

Mounting the 48LA and 48LX-1 microphones is fairly straightforward. Four mounting methods are described here. The top-mounted tape can easily be cut to different shapes if needed.
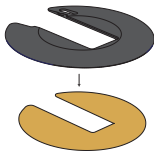
Mounting with Hard Fairing
This mounting method can be used on plain structures. The hard fairing can be used as a mechanical docking station which allows for easy insertion and removal. The fairing has an aerodynamical design with angle of 7.5 degrees and a height of 1 mm.
See page 5.

Mounting with Soft Fairing
The soft fairing can be used for mounting on slightly curved surfaces. The microphone and fairing is secured with top-mounted masking tape. The soft fairing has an angle of 6.5 degrees and a height of 1 mm.
See page 6.
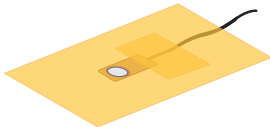
Mounting using Tape Only
Using one of the fairings has the advantage of introducing a well-defined angle between the structure and the diaphragm of the microphone. If such a well-defined angle is not necessary, the microphone can be mounted directly using only the masking tape.
See page 7.
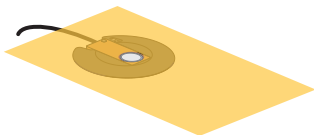
Mounting with Hard Fairing and Top Tape
This method can be used to further smoothen a mounting with the hard fairing.
See page 7.

Mounting with Hard Fairing

The fairing for 48LA and 48LX-1 is made from hard plastic. It has a recess for holding the microphone. Once mounted, the fairing can be used as a dock in which the microphone can be inserted and removed without affecting the measurement position which can be retained for future use.

While mounted in the fairing, a tap keeps the microphone locked in its position.
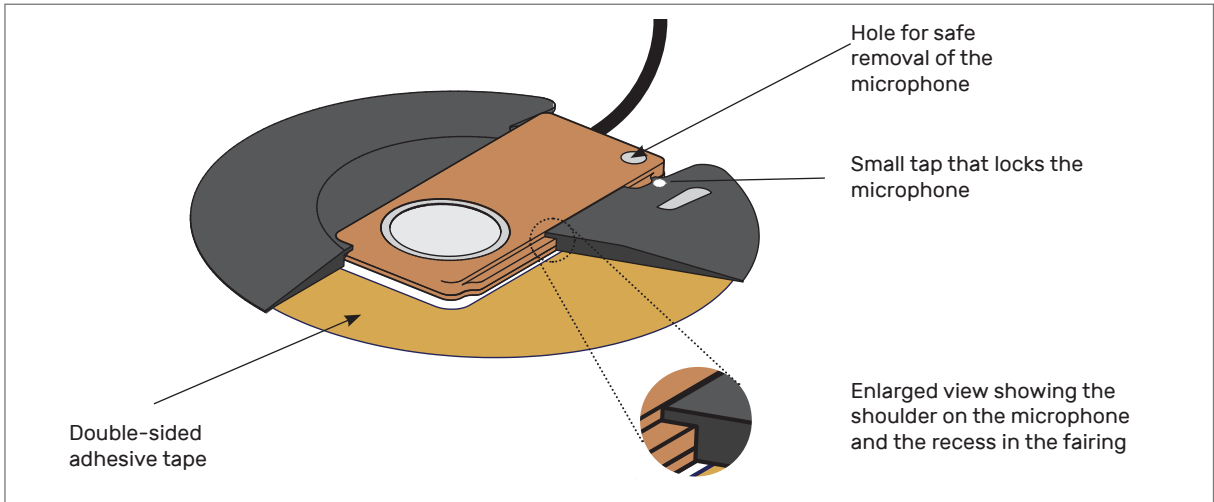
Fig. 1. The fairing is designed to be used as a dock in which the microphone can be inserted and removed.

1. Clean the surface where the fairing will be mounted.

2. Peel off the protective liner from the underside of the tape and attach the tape to the structure.

3. Peel off the protective liner from the top side and mount the fairing onto the tape.

Important. When removing the microphone, use a small tool to pull it out. Do NOT pull at the cable as this will damage the connection.

Fig. 2. The microphone is pushed into the fairing. When pushed all the way, it will be locked in the fairing.

Mounting with Soft Fairing

The soft fairing comes mounted on a precut piece of masking tape for top-mounting of the fairing and microphone. As shown below, the sticky side of the masking tape must point upwards when mounting microphone and cable in the fairing.

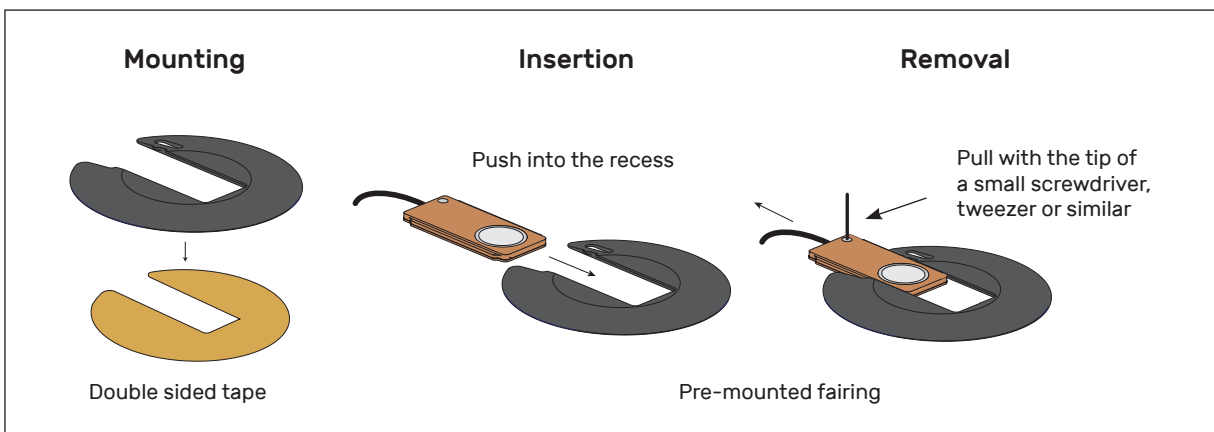1. Clean the surface where the fairing will be mounted.

2. With the sticky side upwards, remove the protective tape from the masking tape.

3. Push the microphone down into the fairing.

4. Press the cable gently onto the tape.

When the microphone has been placed in the fairing, microphone and cable will be secured by the adhesive tape.
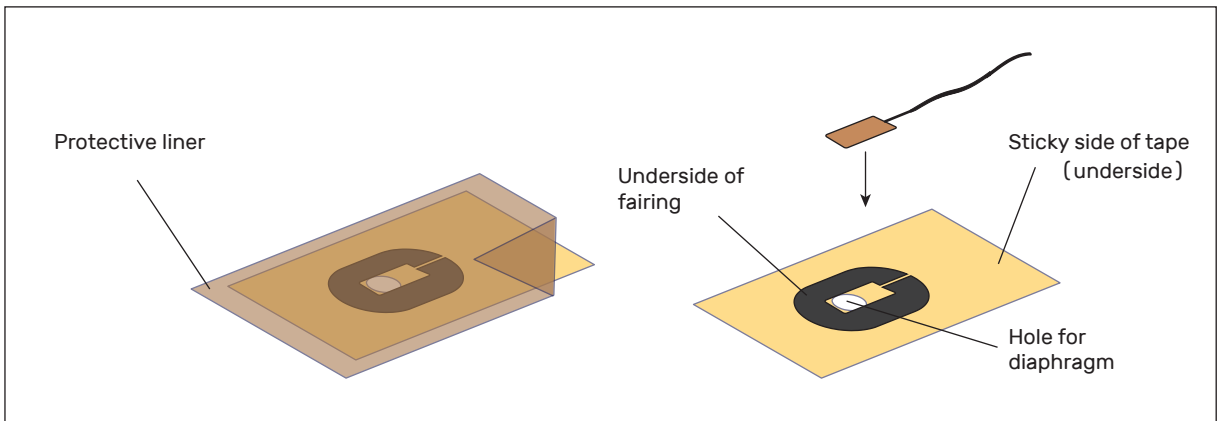

Fig. 3. Showing the pre mounted soft fairing with and without the protective liner.

5. Turn over the assembly so that the sticky side points downwards. You can now mount it onto the test object.
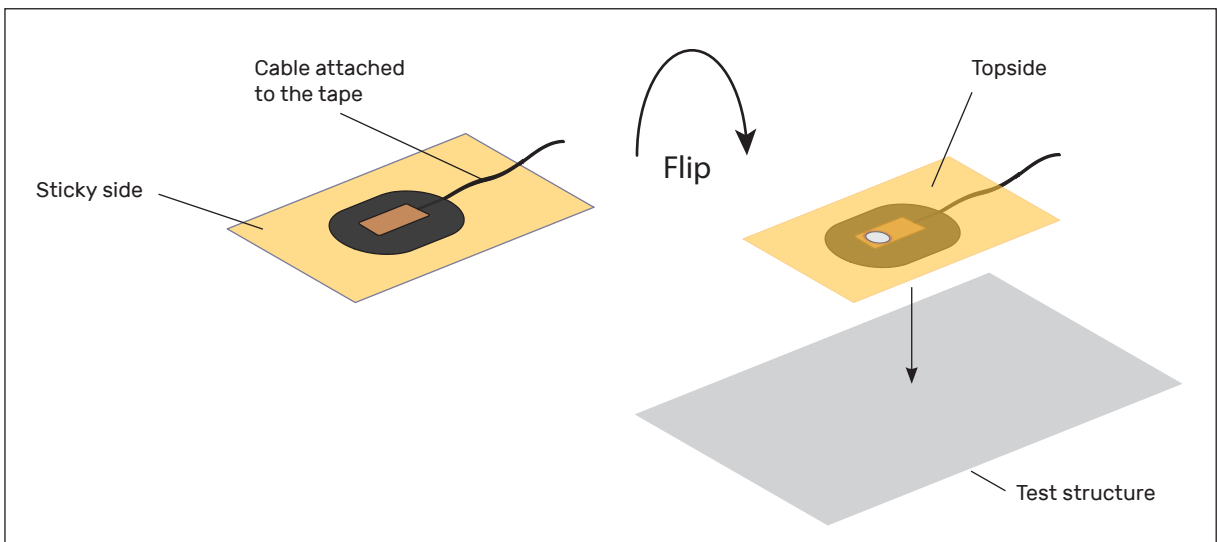

Fig. 4. Showing how to mount 48LA/LX-1 and the soft fairing onto a test structure.

Mounting without Fairing

The masking tape can also be used for top-mounting of the microphone without any of the fairings. The following procedure is recommended:

1. Clean the surface where the tape will be mounted.

2. Secure the microphone to the structure with a small piece of tape.

3. With the protective layer removed, place the top tape over the microphone as shown below.

4. Press gently onto the tape to ensure proper fixation.
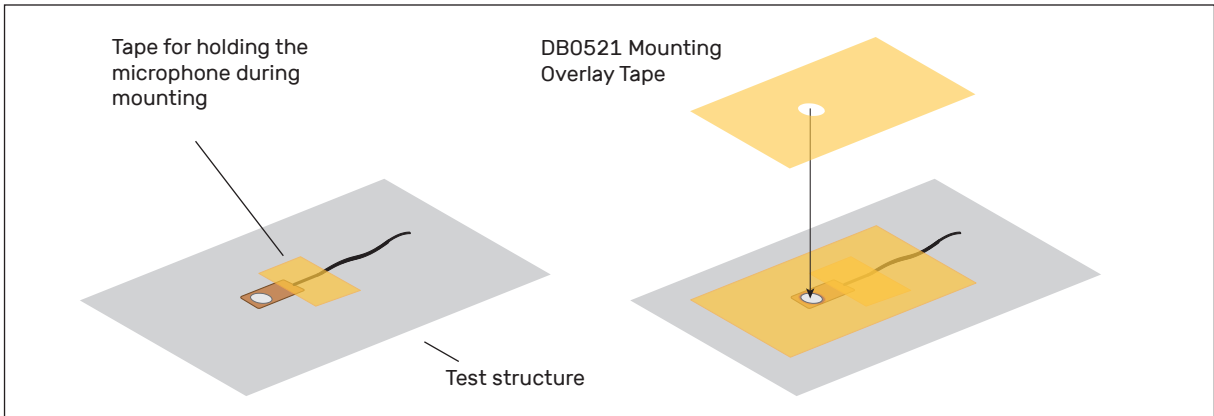
Fig. 5. *Mounting the microphone using tape only.*

Mounting with Hard Fairing and top-mounted Tape

The hard fairing has an aerodynamical design with an angle of 7.5 degrees. However, if you want to further optimize the mounting, top-tape can be used to smoothen the mounting even more as shown below. This method can be used to secure the cable, smoothen the surface and make the mounting more resilient. The illustration below assumes that the fairing and microphone have already been mounted as shown in Figure 2.

Important. When mounting and removing the tape, make sure that the cable and its connection to the microphone is not subjected to strain.

Fig. 6. *Optional top-mounted tape for smoothened mounting of fairing and cable.*

Verification

In-Situ Sensitivity Verification

The UTP family microphones can be verified without being demounted. When using the RA4800 Adapter for Sensitivity Verification of Flush/Surface Microphones, there is no need for dismounting the microphone.
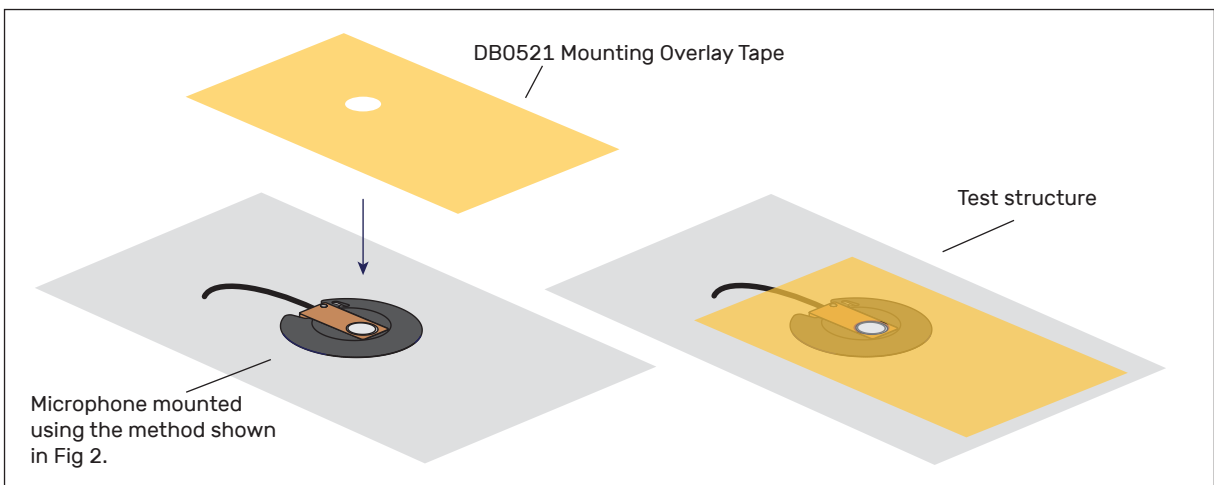
Proper calibration of sensitivity and frequency is covered by a separate manual.

The Adapter

For for in-situ verification of the UTP microphone series a special flexible adapter is available.

The adapter has three main features.

• It has a 1" stud/collar for fit with any GRAS calibrator fitted for use with an 1" adapter.

• It has a soft cushion similar to those found on circum-aural headphones. It creates a closed cavity over the microphone to be calibrated.

• It has four spacers that ensure (when the cushion is depressed) that the cavity is well-defined and will be the same from one calibration to the next.
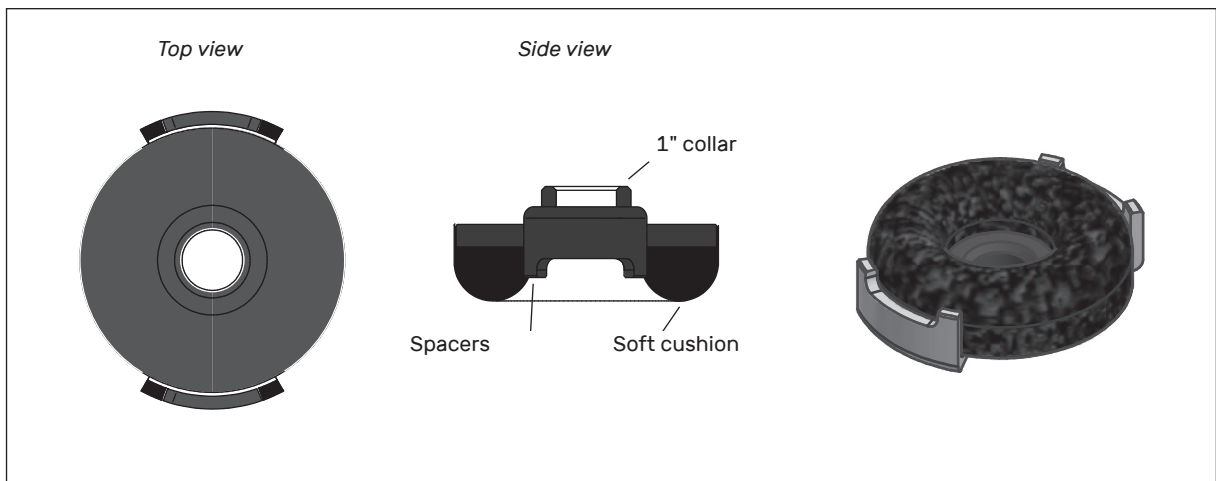

Fig. 7. *The RA4800 adapter/field verification set for level calibration.*

Procedure

Important. Before verification, you must ensure that the microphones to be verified are properly connected. A 48LA/48LX-1 needs a warm-up period of about 3 minutes to obtain stable sensitivity.

Fig. 8. *In-situ verification using 42AG and RA4800.*

Place the calibrator over the microphone and press it down until stopped by the four distance spacers. You must keep it still in this position during the calibration.

When you have turned on the calibrator and pressed it down over the microphone, you must keep it there until the reading on the analyzer is stable.

However, if you do not need the verification to be very accurate, this is not critical and the verification can be done quite quickly.

Correction Factors

Frequency	Correction Factor	Accuracy
250 Hz	–0.8 dB	± 0.2 dB
1 kHz	–3.0 dB	± 0.2 dB

Refer to the manual for 42AG for further information about how to operate the calibrator.

Sensitivity Calibration with 42AG Multifunction Sound Calibrator

For more accurate calibration/verification, the RA4801 Adapter for sensitivity calibration of 48LA/48LX-1 can be used in combination with the 42AG Multifunction Sound Calibrator

Important. Before calibration, the microphone must be connected to the analyzer to warm up to obtain stable polarization, and consequently, stable sensitivity. About three minutes are required.
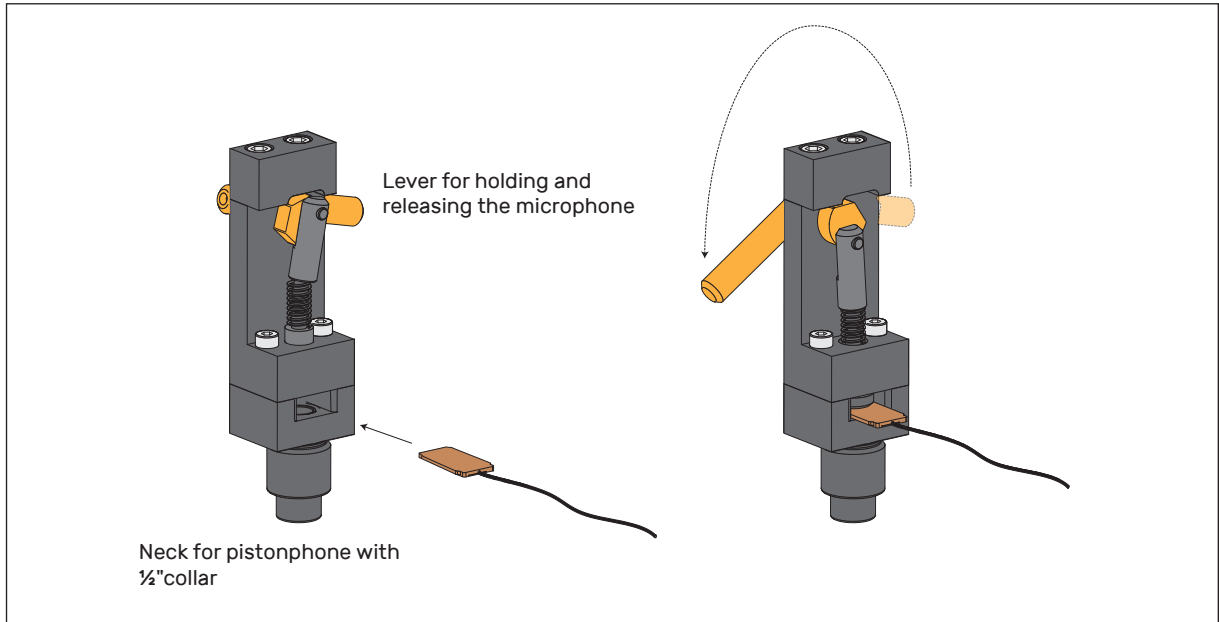

Fig. 9. Mounting a UTP microphone in the RA4801 Adapter for sensitivity calibration of 48LA/48LX-1.

1. Insert the neck into the 42AG's collar and tighten the collar.

2. Place the 42AG upright on a table.

3. While holding the calibrator–adapter assembly at the top with one hand, insert the microphone into the slot with the backside turned upwards, as shown in Fig. 9.

4. Turn the lever to lock the microphone.

5. Connect the microphone to the analyzer and let the microphone warm up for at least 3 minutes.

6. Turn on the calibrator.

7. Read the sensitivity after at least 30 seconds.

Correction Factors

Frequency	Correction Factor	Accuracy
250 Hz	–0.3 dB	± 0.2 dB
1 kHz	–1 dB	± 0.2 dB

Refer to the manual for 42AG for further information about how to operate the calibrator.

Ordering Information

Verification Items

42AG	Multifunction Sound Calibrator
RA4800	Adapter for Sensitivity Verification of Flush/Surface Microphones
RA4801	Adapter for Sensitivity Calibration of 48LA/48LX-1

Mounting Accessories

RA4810	Hard Fairing for 48LA/48LX-1 with Clickmount
RA4810-10	Hard Fairing for 48LA/48LX-1 with Clickmount, 50 pcs.
RA4810-2	Hard Fairing for 48LA/48LX-1 with Clickmount, 10 pcs.
RA4811	Soft Fairing Mounting Kit for UTP Microphone Sets
RA4811-2	Soft Fairing Mounting Kit for UTP Microphone Sets, 10 pcs.
RA4812	Mounting Overlay Tape for UTP Fairings
RA4812-2	Mounting Overlay Tape for UTP Fairings , 10 pcs.
MI0031	Cleaning Tissue

Warranty, Service and Repair

Warranty, Service and Repairs

GRAS products are made of components from our proven standard portfolio and are all manu-factured of high-quality material and branded parts that were chosen and processed to ensure life-long stability and robustness.

The warranty does not cover products that are damaged due to negligent use, an incorrect power supply, or an incorrect connection to the equipment.

Further information about warranty and our repair service can be found at

grasacoustics.com/repair-center

Manufactured to conform with:

CE marking directive:
93/68/EEC

WEEE directive:
2002/96/EC

RoHS directive:
2002/95/EC

GRAS Sound & Vibration continually strives to improve the quality of our products for our customers; therefore, the specifications and accessories are subject to change.