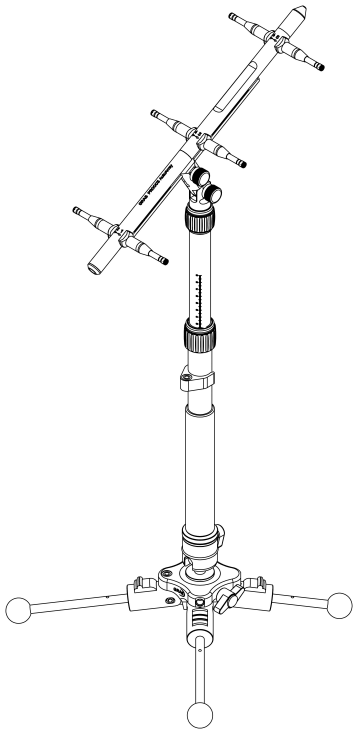
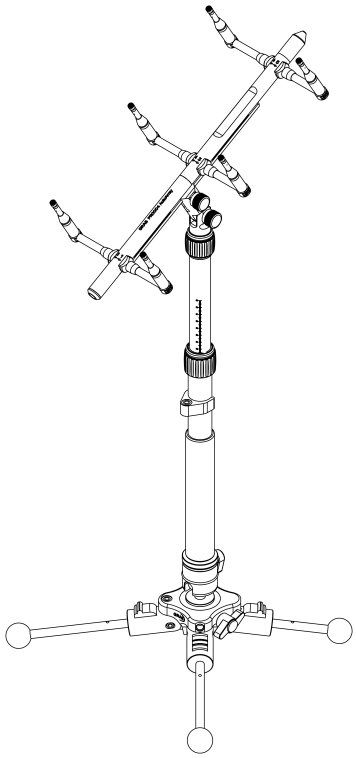
Instruction Manual

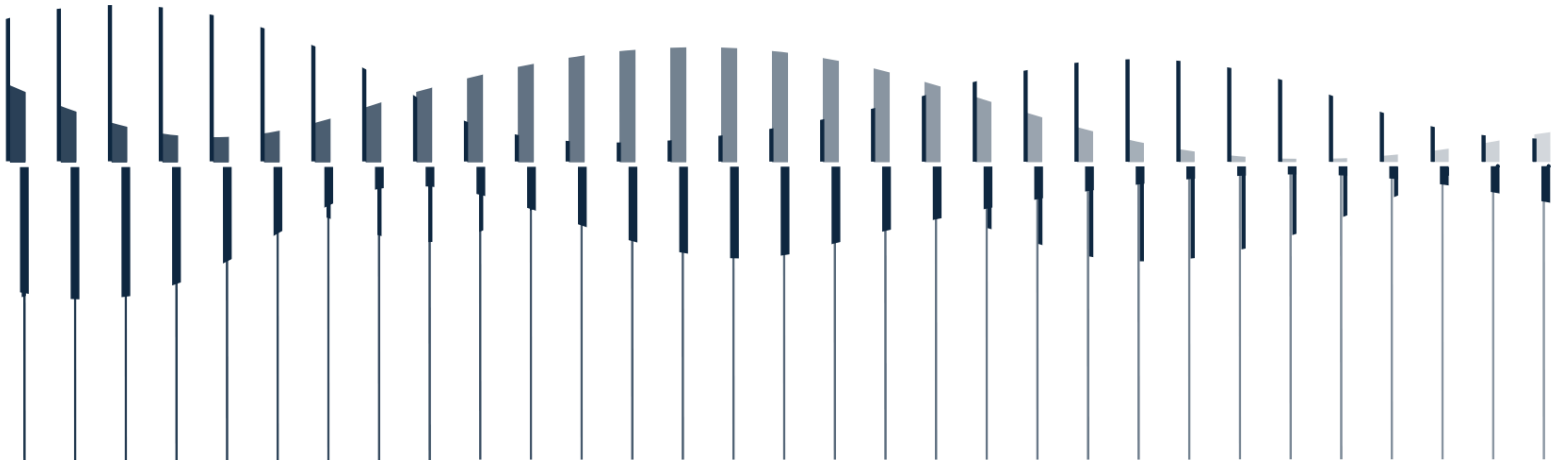
GRAS PR0003 & PR0004 AutoArrays



Cross Configuration



AES Configuration



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GRAS

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Revision History

Any feedback or questions about this document are welcome at **marketing@grasacoustics.com**.

Revision	Date	Description
1	2025-07-08	First edition

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Contents

Introduction

The GRAS PR0003 and PR0004 AutoArrays are precision-engineered, six-microphone arrays designed for robust, repeatable in-cabin acoustic measurements. Both models feature seat-mounted configurations that ensure consistent positioning, enabling high-fidelity sound capture within vehicle interiors.

The PR0003 AutoArray, known as the "Cross" configuration, adheres to established methodologies employed by industry leaders such as Harman. In contrast, the PR0004 AutoArray follows the "AES" configuration, aligning with the guidelines defined by the AES Technical Committee on Automotive Audio (TC-AA).

Together, these arrays empower automotive OEMs and audio engineers to conduct high-resolution spatial characterization of car cabins—providing the critical data needed to quantify, analyze, and optimize vehicle soundscapes.

Design

The GRAS PR0003 and PR0004 AutoArrays are engineered to deliver quick, reliable, and repeatable in-cabin acoustic test results. Their structural design, seat-mount integration, and positioning tools are purpose-built to streamline setup and ensure consistent microphone placement.

Listener-Head Representation

Each array features six 1/4" measurement microphones arranged to emulate the spatial region around a listener's head. The microphones are positioned in three ear-like pairs, simulating the ears of individuals of varying heights. This configuration represents not just fixed listener locations but also the area in which a listener might naturally move their head—critical for capturing an accurate in-cabin sound field.

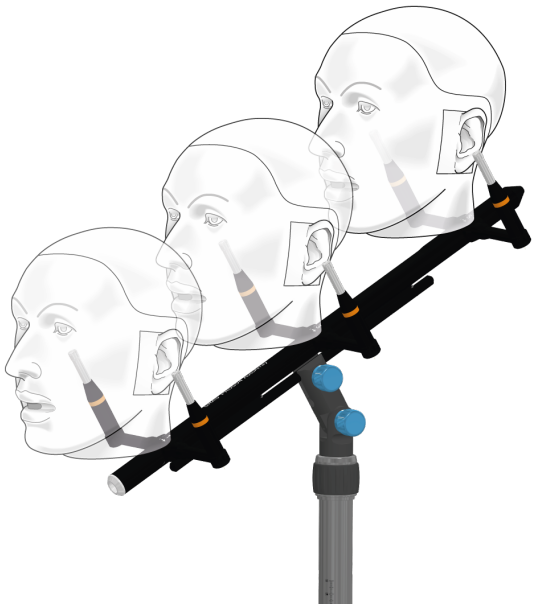

Fig. 1. *AutoArray microphones are positioned in three ear-like pairs, simulating the ears of individuals of varying heights and the spatial region around a listener's head.*

Research-Inspired Microphone Placement

The design is based on established principles from automotive interior acoustics. Most vehicles follow an "eye ellipse" concept—an area that encompasses the expected field of view for occupants. In 1986, researchers Henry Blind and Earl Geddes extended this to an "ear ellipse," proposing a method for acoustic measurement using 18 microphone positions representing the 5th, 50th, and 95th percentile head locations.

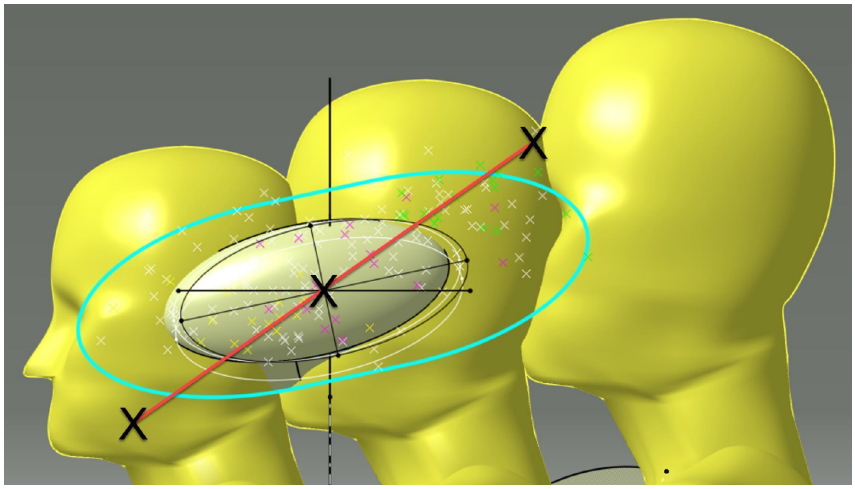

Fig. 2. *Side view of the proposed microphone array superimposed on the eye ellipse of a human subject. The microphone array is represented by a red line with "X" markers indicating microphone positions. The illustrated eye ellipse has a pitch angle of 12°, while the microphone array is shown at a pitch angle of 30°. Image extracted from the AES TC-AA recommendation, courtesy of Jonatan Ewald.*

Their research demonstrated that using only *six* microphones in carefully selected positions could provide results nearly as accurate as the full 18-point setup. The GRAS PR0003 and PR0004 AutoArrays adopt this efficient configuration, offering high spatial resolution with minimal complexity.

Microphone Type and Visibility

Both arrays are designed for use with 1/4" measurement microphones equipped with Microdot connectors. Compared to larger 1/2" microphones, the smaller size minimizes disturbance to the sound field. Each microphone holder includes a colored ring, improving visibility in low-light or enclosed testing environments like vehicle cabins. Additionally, the microphone or channel number is clearly engraved on the array structure, allowing for quick identification and simplified channel assignment during setup. The channel numbering convention follows the system recommended by the AES Technical Committee on Automotive Audio (AES TC-AA).

Orientation Configurations

- **PR0003 AutoArray:** Features side-facing microphones, following the methodology popularized by Harman and widely adopted in the automotive industry.
- **PR0004 AutoArray:** Features upward-facing microphones, as recommended by the AES Technical Committee on Automotive Audio (TC-AA).

To ensure test repeatability and comparability, users should select one configuration and maintain it throughout all measurements.

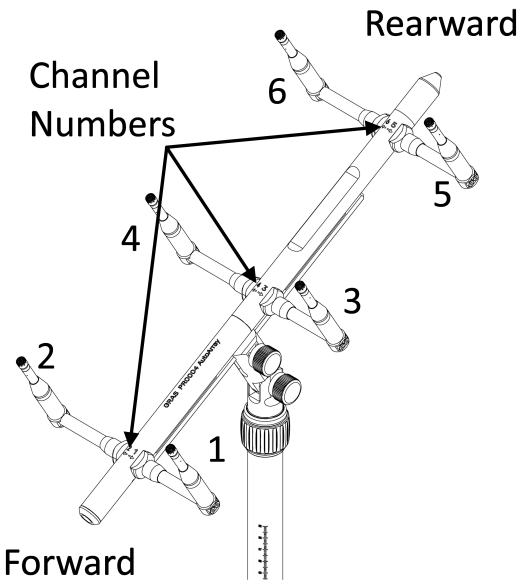

Fig. 3. *The channel numbering convention for both PR0003 and PR0004 follows the system recommended by the AES TC-AA.*

Integrated Cable Management

The array structure includes internal cabling, housing all six microphone cables within the body and terminating in a 7-pin LEMO connector. This integrated approach allows for a single multipin cable to carry all microphone signals and ground, greatly simplifying test setups, reducing cable clutter, and improving maneuverability—especially within tight spaces like vehicle interiors. The AutoArray is supplied with a splitter cable that converts the single 7-pin connection into six individual coaxial cables, each terminated with a BNC male connector, enabling straightforward integration with a wide range of data acquisition systems.

Precision Positioning Tools

Atop the array structure is a flat magnetic surface designed for attaching an inclinometer. This enables precise pitch angle measurement, aiding in setup repeatability. The array also connects to an adjustable angle adapter that allows both pitch adjustment and vertical sliding. A built-in ruler along the sliding track helps users document the array's vertical position for consistent test replication.

Adjustable Seat Mount

The array is supported by a robust seat mount, consisting of a height-adjustable central pole connected to a four-legged base via a ball joint. This joint allows full-range positioning of the array within a vehicle cabin.

Both the pole and base include ball levels, ensuring the entire structure can be leveled with high precision—critical for maintaining measurement accuracy across different test sessions.

Applications

The GRAS PR0003 and PR0004 AutoArrays are precision-engineered 6-microphone arrays optimized for in-cabin automotive acoustic measurements, yet versatile enough to support a wide range of other acoustic testing scenarios where spatial microphone placement is required.

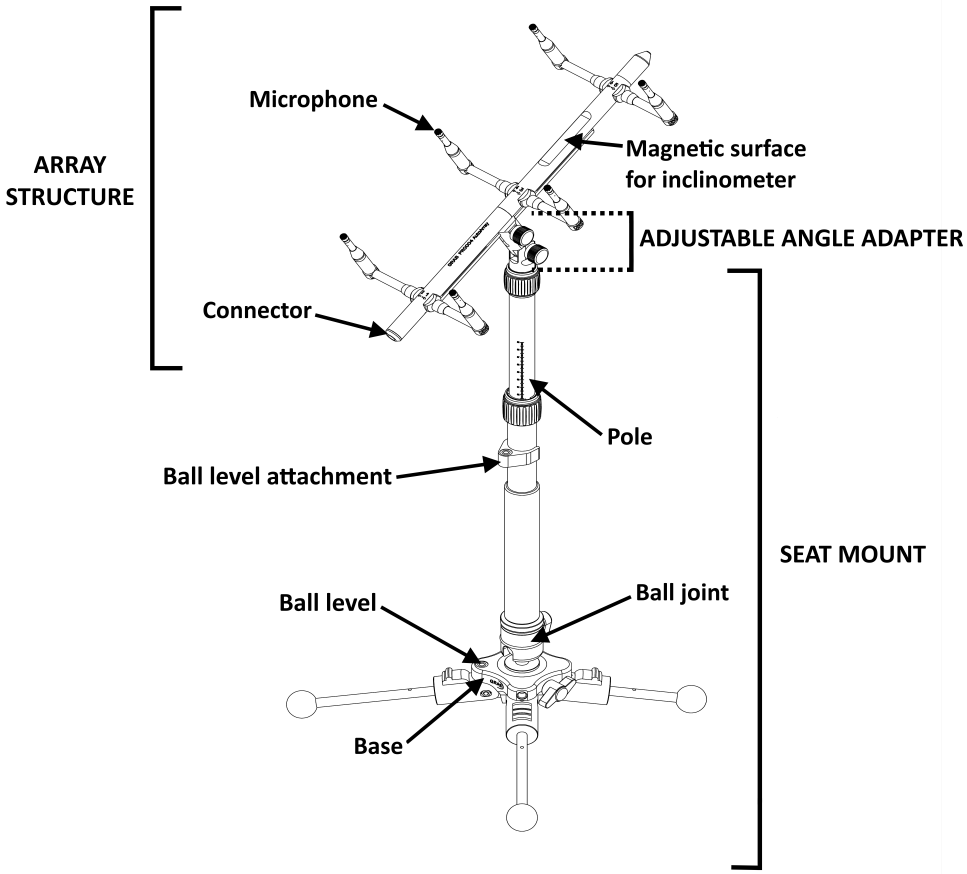

Fig. 4. *Labeled diagram of the PR0004 AutoArray system highlighting its key components. This diagram is also valid for the PR0003 AutoArray configuration as well.*

Primary Automotive Use Cases

Within vehicle interiors, these arrays enable accurate and repeatable measurements for various testing and development tasks, including:

- Audio system performance testing and characterization
- Audio system tuning and optimization
- Cabin acoustic benchmarking and comparison
- Sound field mapping and analysis
- In-cabin NVH (Noise, Vibration, and Harshness) measurements

These applications support automotive OEMs and audio engineers in evaluating and refining the acoustic experience within car cabins, contributing to both performance and comfort enhancements.

Usage Recommendations

For in-cabin deployments, the AutoArrays are best suited for static vehicle conditions or dynamometer testing environments. Use in highly dynamic scenarios—such as test tracks or road testing involving excessive motion and vibration—is not recommended, as the array is not designed to withstand such operational stresses.

Low-Level Noise Applications

In scenarios requiring the measurement of very low sound pressure levels (below 40 dBA), such as interior noise floor evaluations or electric vehicle cabin studies, it is advised to equip the arrays with high-sensitivity 1/4" microphones, such as the GRAS 46BC or GRAS 46BL-1. These microphones enhance the ability to detect subtle acoustic variations while maintaining signal integrity.

The AES TC-AA Recommendation for In-cabin Measurements

In 2023, the Technical Committee on Automotive Audio (TC-AA) of the Audio Engineering Society (AES) released the first formal recommendation for in-cabin acoustic measurements. This milestone initiative was developed by a cross-disciplinary panel of experts—including representatives from automotive manufacturers, test laboratories, audio analysis hardware and software companies, and the measurement microphone industry.

Addressing a Lack of Standardization

The recommendation emerged from a widespread recognition within the industry: there has been no unified method for measuring key audio system attributes in vehicle cabins. Due to inconsistent methodologies across different organizations and laboratories, direct comparison of systems—even within the same vehicle segment—has historically been extremely difficult.

The AES TC-AA recommendation addresses this gap by proposing a common foundation for system-level acoustic measurements. It is intended to promote greater consistency, repeatability, and comparability across various automotive platforms and suppliers.

Focus and Intended Use

This initial version focuses on basic system-level audio performance attributes, which can serve as reference points for:

- Benchmarking and comparing different automotive platforms
- Aligning measurement protocols between vehicle OEMs and Tier 1 audio system suppliers
- Supporting research, development, and validation of in-cabin acoustic experiences

It is important to note that the current recommendation does not include specific performance thresholds or pass/fail criteria. It is not yet intended as a certification or quality grading tool (e.g., to define systems as "good" or "bad"). Instead, it is a starting point—one that is expected to evolve with industry feedback and potentially lead to a formalized standard in the future.

Recommended Test Configuration

The AES TC-AA recommendation specifies the use of a 6-microphone array, featuring 1/4" measurement microphones, deployed across different seating positions in the vehicle cabin. The objective is to capture core acoustic metrics with high spatial fidelity and repeatability.

The recommendation outlines procedures for measuring:

- Frequency Response
- Maximum Sound Pressure Level (Max SPL)
- Impulsive Distortion

These measurements are performed using:

- Pink Noise for Frequency Response and Max SPL evaluations
- Logarithmic Sine Sweep for Impulsive Distortion assessments

This methodology provides a balanced, practical framework for assessing in-cabin acoustic performance and supports ongoing collaboration across the automotive audio ecosystem.

Delivered Items

The following components are included with the delivery of the PR0003 and PR0004 AutoArrays. Please note that the only difference between the two versions is the design of the array structure itself; all other delivered items are identical across both models.

PR0003 AutoArray Cross Configuration	PR0004 AutoArray AES Configuration
Array Structure (AES)	Array Structure (Cross)

Tab. 1. *PR0003 and PR0004 delivered items.*

Common Accessories for PR0003 and PR0004 AutoArrays	GRAS number
AutoArray seat mount (w/ AL0039 Ball level attachment)	AL0036
Adjustable angle adapter	AL0037
Inclinometer	AL0038
3 m LEMO 7-pin – LEMO 7-pin extension cable	AA0008
AutoArray splitter cable to 6x BNC	AC0026

Tab. 2. *PR0003 and PR0004 delivered common items*

Packaging

The GRAS PR0003 and PR0004 AutoArrays are shipped in protective packaging designed to ensure safe transport and convenient storage—whether delivered with or without the seat mount.

Standard Packaging Options

- **With Seat Mount:** The array is delivered partially disassembled in a standard cardboard box to facilitate safe shipping and minimize volume.
- **Without Seat Mount:** The array is delivered in a more compact cardboard box, sized appropriately for the stand-alone array structure.

Optional Flight Case

A robust flight case (KM0112) is available as an optional accessory. It is strongly recommended for long-term storage or when the array will be transported frequently—especially for air travel or movement between test facilities. The flight case enhances durability and protection against shock, vibration, and environmental exposure.

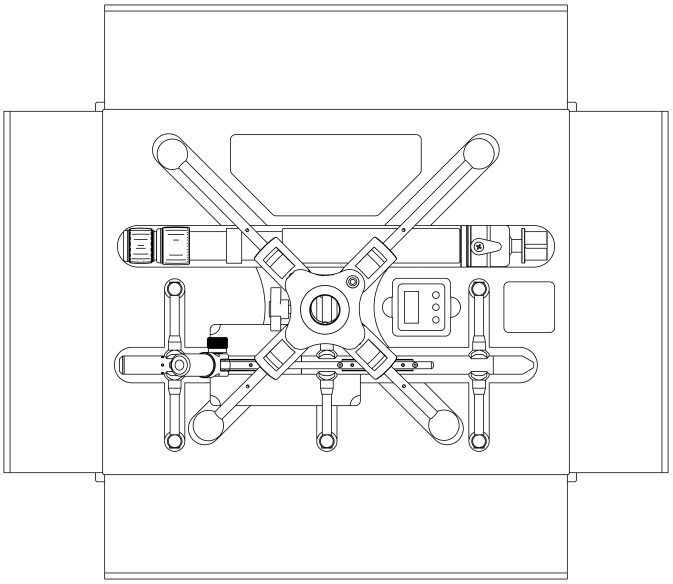

Fig. 5. *AutoArray with its seat mount and accessories inside its packaging*

Microphone Storage and Protection

The packaging includes dedicated slots for six 1/4" measurement microphones, allowing users to store the microphones securely within the same case as the array. This eliminates the need for transporting separate microphone boxes.

When storing microphones in the dedicated foam slots inside the packaging, it is essential to use the supplied foam top cover to protect the microphone capsules from dust, impact, and accidental drops.

Although the array can also be packed with the microphones mounted, this configuration offers less protection during transport. While convenient for short-distance handling, it is strongly recommended to remove the microphones and store them individually in their designated slots for high-risk conditions—such as long-distance shipping or frequent relocation—where enhanced protection is required.

Additional Storage Features

The packaging includes a dedicated compartment for a USB drive, enabling users to securely store microphone calibration files alongside the array hardware. This ensures that all critical components and documentation remain together and easily accessible during test setup and deployment. The AutoArray packaging also features a dedicated compartment within the foam insert for storing cables and accessories, such as a sound calibrator, calibration adapters, and other essential items.

Assembly

To assemble the array, carefully remove all components from the packaging and follow the detailed assembly instructions provided in the next section. Proper handling and assembly will ensure long-term reliability and performance.

Assembling the AutoArrays

This section provides step-by-step instructions for assembling the complete AutoArray system, including the array structure, seat mount, and microphones.

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1. Assemble the Seat Mount

- **Extend and secure the base:**
  Ensure that all four legs of the seat mount base are fully extended and firmly fastened for maximum stability.
- **Attach the ball level:**
  Confirm that the ball level attachment is correctly mounted on the vertical pole to assist with precise leveling.
- **Install the pole:**
  Mount the height-adjustable pole onto the base using the ball-joint connector.
- **Mount the height-adjustable pole onto the base using the ball-joint connector.**
  Secure the ball-joint and base levers to prevent unwanted movement.

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2. Mount the Array Structure

- Attach the array structure (with the adjustable angle adapter) to the top of the pole and tighten the mounting interface securely.
- Adjust the vertical position using the sliding mechanism on the adjustable angle adapter, guided by the integrated ruler to ensure precise and repeatable placement. The inclinometer can be attached to the magnetic surface on the array structure to measure the pitch angle.

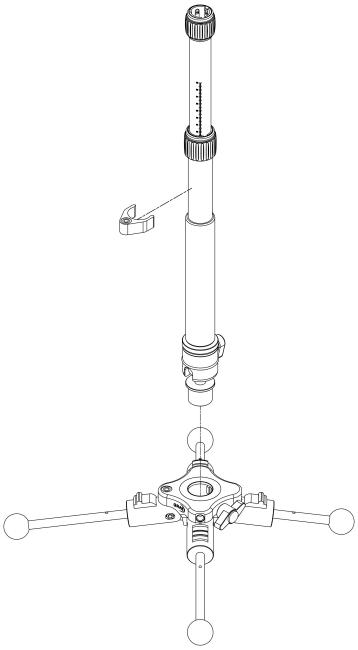

Fig. 6. *Assembling the AL0036 AutoArray seat mount (w/ AL0039 Ball level attachment).*

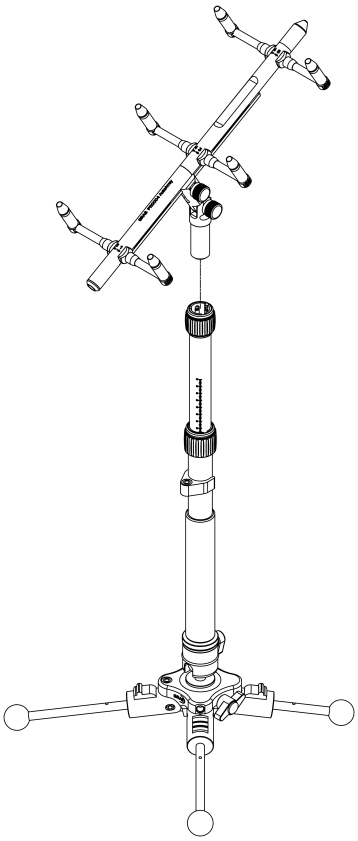

Fig. 7. *Mounting the array structure with AL0037 adjustable angle adapter on the AL0036 seat mount. Shown with the PR0004 AutoArray AES configuration, but also valid for PR0003 Cross configuration.*

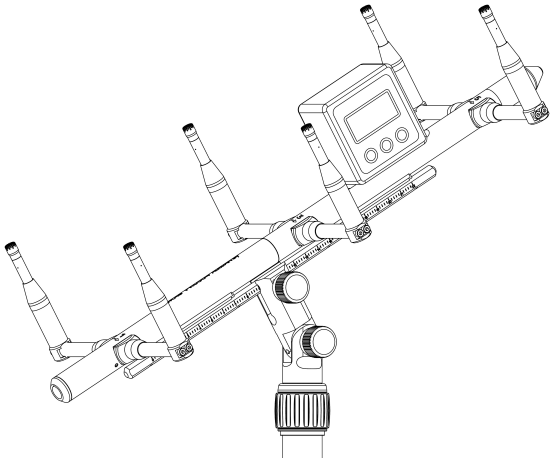

Fig. 8. *Check or adjust the pitch angle using the provided inclinometer mounted magnetically on the array structure. The sliding mechanism with ruler can be used to fine tune the position of the array.*

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3. Mount the Microphones

The PR0003 and PR0004 AutoArrays are designed for 1/4" measurement microphones with the following recommended specifications:

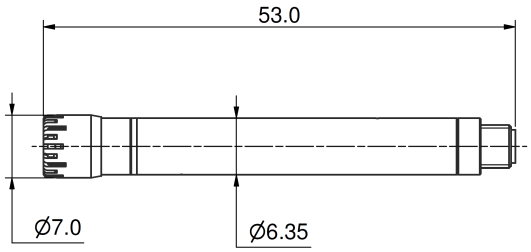

Fig. 9. *Recommended dimensions for 1/4" microphones to be used with PR0003 and PR0004 AutoArrays*

- **Connector:** Microdot 10-32 female
- **Diameter:** 6.35 mm (1/4")
- **Minimum preamplifier length:** 27 mm (including connector)

While microphones of other lengths may be used if they meet these dimensions, it is strongly recommended to use microphones with the specified length to ensure proper diaphragm alignment with the array design.

Mounting Instructions:

- Insert each microphone into its designated holder on the array.
- Align and gently push the microphone inward until the array's Microdot 10-32 male connector mates with the microphone's female connector.
- Thread the microphone clockwise until securely fastened.
  ⚠ *Do not overtighten.*
- To remove, rotate the microphone counterclockwise and pull it out gently.

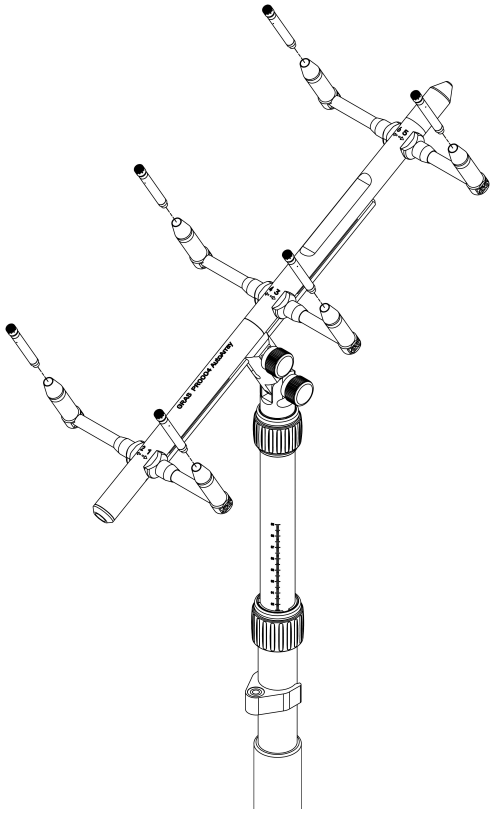

Fig. 10. *Mounting the 1/4" measurement microphones on the array structure. Shown on the PR0004, but also valid for PR0003.*

4. Recommended GRAS Microphone Sets

The following GRAS 1/4" CCP microphone sets are compatible with both PR0003 and PR0004 AutoArrays:

- **GRAS 46BC** – Multifield, high-sensitivity
- **GRAS 46BL-1** – Pressure, high-sensitivity
- **GRAS 46BD** – Pressure
- **GRAS 46BE** – Free-field

Microphone Selection Guidelines:

- Use high-sensitivity microphones such as the 46BC or 46BL-1 when a wider dynamic range is needed, particularly for low-level measurements. Their small diaphragm size also minimizes influence on the sound field.
- Choose the 46BD or 46BE for high-frequency measurements (above 20 kHz) or for very high SPL conditions (greater than 145 dB).
- The GRAS 46BC Multifield is particularly well-suited for in-cabin automotive measurements, as it is optimized for non-ideal acoustic fields, such as those inside vehicle cabins. Unlike standard free-field or pressure microphones, the 46BC helps reduce measurement uncertainty and avoids misrepresentation of actual sound pressure levels.

5. Cable the Microphone Array

The AutoArrays feature internally routed cabling. All six microphone signals and the signal ground are pre-wired to a 7-pin LEMO 1B female connector located at one end of the array.

Included cabling options:

- **GRAS AA0008 Extension Cable:** A 3-meter 7-pin LEMO 1B male to LEMO 1B female cable for connecting the array to external equipment.
- **AC0026 AutoArray splitter cable to 6x BNC:** A 7-pin LEMO 1B female to 6× BNC male connectors cable is also included for direct signal breakout.

These connections simplify test setups and ensure efficient signal routing while reducing cable clutter inside the cabin.

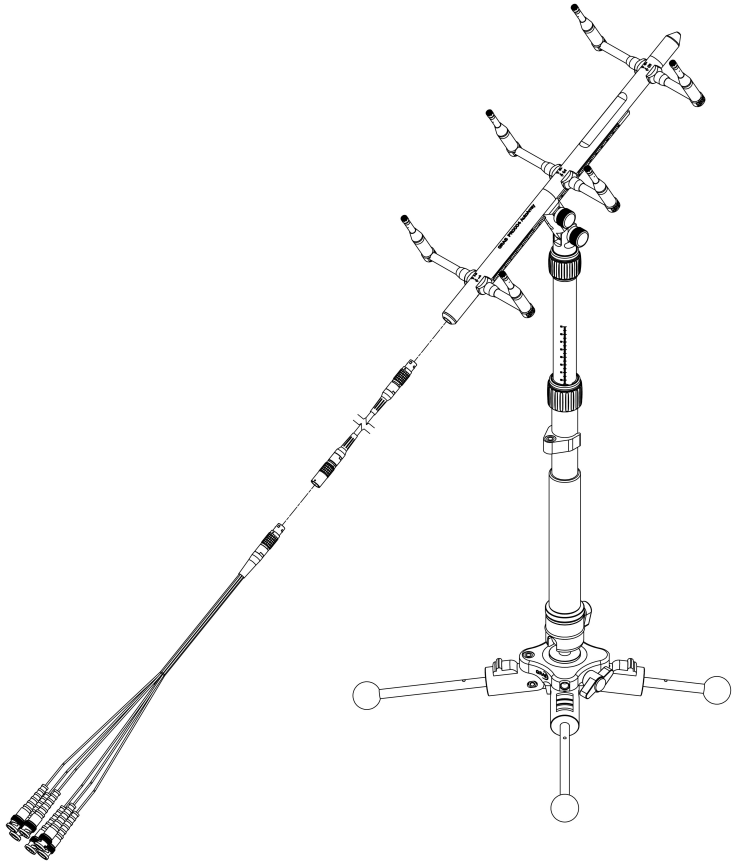

Fig. 11. *Mounting the extension cable and splitter cable on the AutoArray.*

Driving the Microphones on the Array

The GRAS PR0003 and PR0004 AutoArrays are compatible exclusively with CCP (Constant Current Power) 1/4" measurement microphone sets. CCP is a widely adopted powering standard for prepolarized microphones and preamplifiers.

Compatible Powering Standards

CCP-compatible systems may also be referred to under other industry-standard names, including:

- **ICP®** (Integrated Circuit Piezoelectric)
- **IEPE** (Integrated Electronics Piezoelectric)
- **CCLD** (Constant Current Line Drive)

All of these technologies are functionally equivalent to CCP. Therefore, if your data acquisition system (DAQ), analyzer, or signal conditioner provides ICP, IEPE, or CCLD power, the microphones will operate correctly without any additional modifications.

Phantom Power Operation

All GRAS CCP microphones are also compatible with +48 V phantom power when used in conjunction with an appropriate adapter, such as the GRAS AG0003. This adapter:

- Converts BNC female to XLR male
- Enables connection to audio interfaces or preamps with XLR inputs that supply +48 V phantom power

The AG0003 adapter can be used in combination with the supplied splitter cable (7-pin LEMO to 6×BNC male) to drive the full 6-microphone array using standard professional audio equipment.

Test Setup Examples

The following examples illustrate typical test setups for the PR0003 and PR0004 AutoArrays. The exact configuration will depend on the capabilities of the device used at the core of the system—such as a DAQ, audio analyzer, audio interface, or sound card.

If the analog inputs of the selected device do not provide microphone power (e.g., CCP/IEPE supply), an external microphone power module will be required to supply the necessary excitation voltage for the microphones to operate correctly.

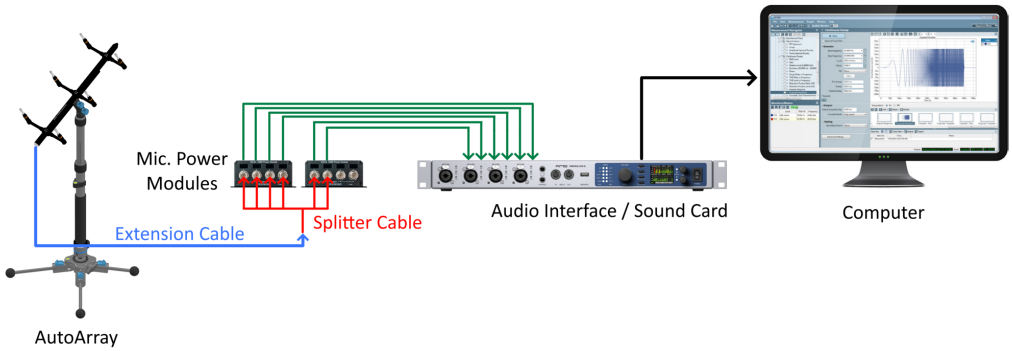

Fig. 12. *Wiring example of PR0004 AutoArray using 2x GRAS 12BB CCP Microphone Power Modules connected to a multi-channel audio interface. Microphone power modules are needed when the analog inputs of the used system don't provide microphone power supplies.*

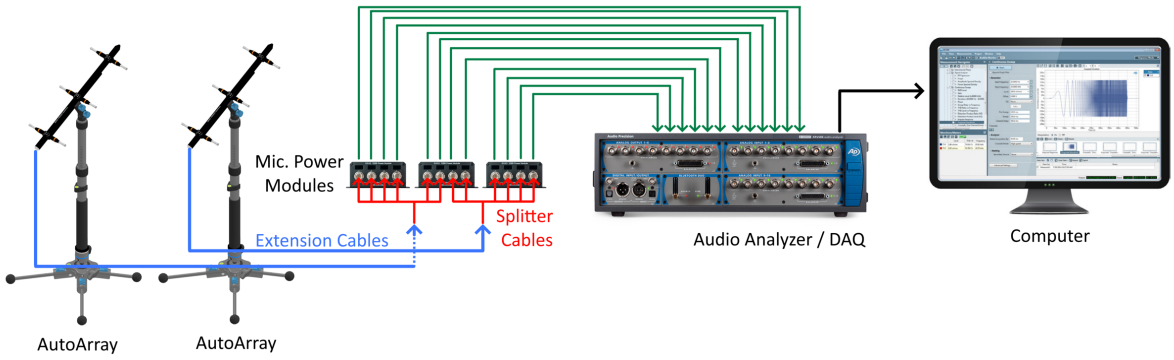

Fig. 13. *Wiring example of 2x PR0003 AutoArrays using 3x 12BB CCP Microphone Power Modules connected to a multi-channel audio analyzer. Microphone power modules are needed when the analog inputs of the used system don't provide microphone power supplies.*

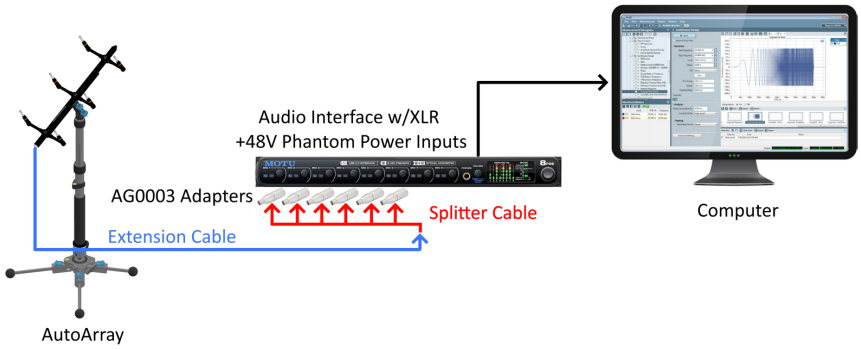

Fig. 14. *Wiring example of PR0004 AutoArray using an audio interface with at least 6x XLR analog inputs that can provide +48V Phantom Power as microphone power supply. GRAS CCP microphones can also be driven with +48V Phantom Power when using an adapter like the GRAS AG0003.*

Calibration

To ensure the highest measurement accuracy, it is strongly recommended to perform an acoustic calibration of the microphones once they are mounted in the AutoArray—even if calibration charts or TEDS (Transducer Electronic Data Sheet) data are available.

While electronic sensitivity values can be read from TEDS or manufacturer-provided calibration charts, only an acoustic calibration using a sound calibrator or pistonphone reflects the true in-situ sensitivity of the entire measurement chain. This includes the influence of:

- Microphone mounting
- Cabling and connectors
- Environmental conditions (e.g., temperature, humidity)
- Signal conditioning and DAQ systems

Recommended Calibration Method

A sound calibrator, such as the GRAS 42AG, is ideal for this process. For best results:

- Use a reference signal of 250 Hz at 114 dB SPL

- Ensure the calibrator includes a 1/4” adapter (standard with GRAS calibrators and pistonphones)

The GRAS 42AG is lightweight and can be mounted directly onto the microphone while it is installed in the array.

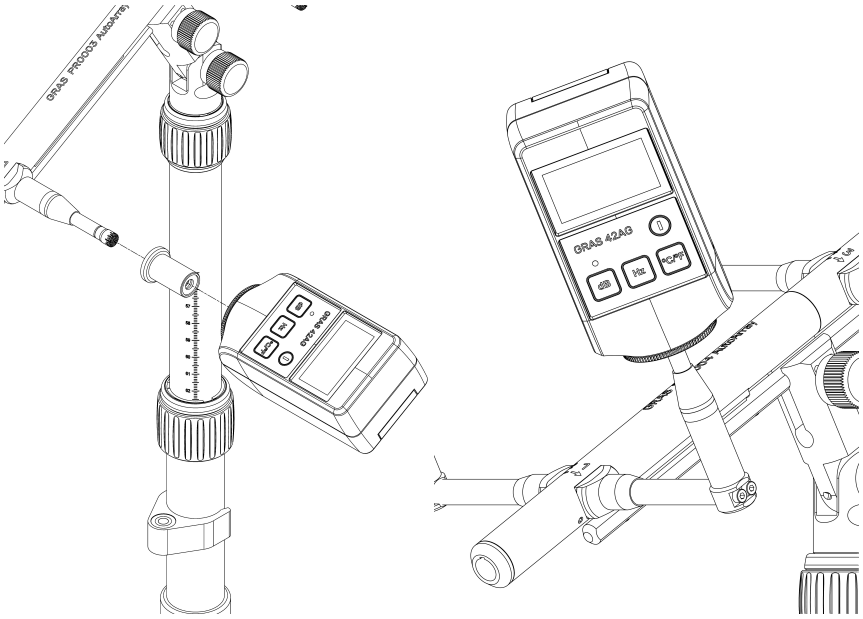

Fig. 15. *LEFT: Mounting a 42AG sound calibrator on PR0003. RIGHT: Mounting a 42AG sound calibrator on PR0004. For both array versions, it is necessary to use a 1/4” adapter for the sound calibrator.*

Calibration Procedure

1. **Secure the array setup:** If the array is mounted on the adjustable angle adapter and seat mount, ensure all components are properly tightened to prevent movement during calibration.
2. **Position the sound calibrator:** Attach the 1/4” adapter to the calibrator and align it with the microphone.
3. **Mount the calibrator:** Gently push the calibrator onto the microphone until it is fully seated and properly coupled.
4. **Activate the calibrator:** Power it on and set the reference signal to 114 dB @ 250 Hz (recommended).
5. **Run the calibration in your analyzer software:** Follow the software’s standard calibration routine.
    - Ensure the calculated sensitivity value is within reasonable range of the microphone’s known sensitivity.
    - Expect small variations between:
        - **Nominal sensitivity** (e.g., 20 mV/Pa for a GRAS 46BC)
        - **Calibration chart value** (e.g., 19.5 mV/Pa)
        - **Measured value during acoustic calibration** (e.g., 19.1 mV/Pa)

These differences reflect real-world operating conditions—including array mounting, signal chain loading, and environmental factors—and are expected. Acoustic calibration helps capture these variances to deliver more accurate measurement results.

Using the Autoarray Inside the Car Cabin

The GRAS PR0003 and PR0004 AutoArrays are specifically designed for in-cabin acoustic measurements, providing a practical and repeatable setup for testing in real vehicle environments. The arrays can be mounted on any seat within the car cabin, enabling flexible testing across different listening positions.

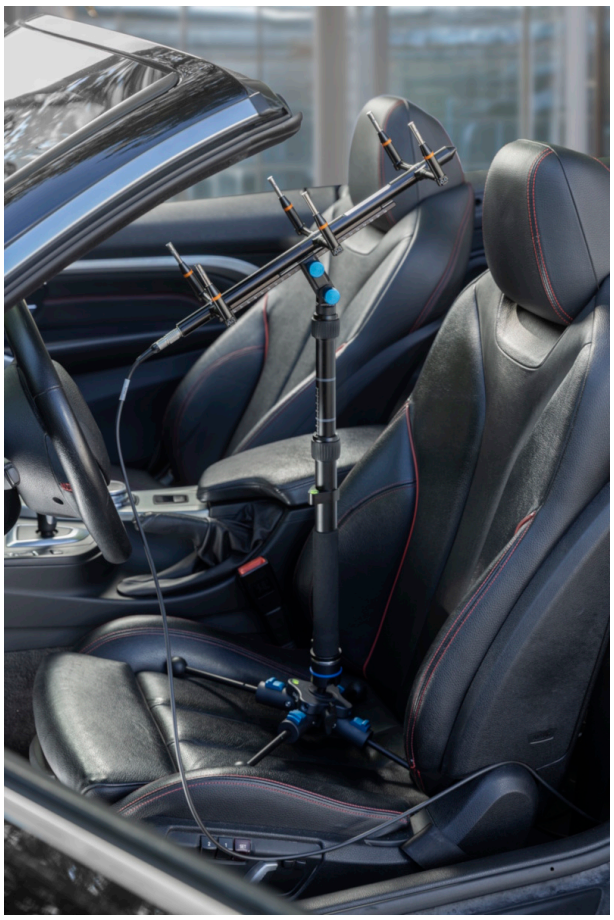

Fig. 16. *Example of the finalized setup of PR0004 AutoArray AES configuration mounted on the driver's seat position and using the extension cable to carry the 6 microphone signals.*

Mounting Procedure

Follow the steps below to safely and effectively position the AutoArray inside the vehicle:

1. **Pre-assemble the array outside the car**
   Assemble the AutoArray together with the seat mount outside the vehicle.
   Ensure all components—especially the adjustable angle adapter, base, and vertical pole—are properly fastened to prevent movement during transport.
2. **Minimize the array's height**
   Fully retract the seat mount's central pole to its shortest length.
   ⚠ *Do not connect any cables yet; wiring should be done after the array is in position.*
3. **Move the assembled unit into the vehicle**
   Carefully carry the full assembly into the car and place it on the seat to be tested.
   In most cases, the four legs of the base should be fully extended, but minor adjustments may be

needed to accommodate uniquely contoured seats.

4. **Orient the seat mount properly**
   Position the shorter legs of the base against the seat back and the longer legs toward the front edge of the seat.
5. **Align the seat mount pole**
   Use the ball level attachment on the vertical pole to ensure it is positioned vertically straight.
   Note: In some protocols, the pole may be intentionally tilted—but for most standard applications, it should remain upright.
   Also, since car seats are rarely perfectly flat, the spirit level on the base may not show level even when the pole is correctly aligned.
6. **Adjust the height of the array**
   Adjust the vertical pole by extending or retracting it to position the array at the desired listening height. The appropriate height will depend on whether the user has access to precise occupant head location data for the specific vehicle under test.
   Regardless of the available data, it is best practice to document the array's position relative to fixed interior reference points—such as the steering wheel, gas pedal, B- pillar, or seatback. Doing so ensures that the setup can be replicated consistently across multiple test sessions or vehicles.
   If head location data is available—typically in the form of "eye ellipse" or "ear ellipse" coordinates—the center of the array should be aligned with the median head position corresponding to the seating position being tested.
   In cases where such data is unavailable, the AES recommendation suggests a practical alternative: position the center of the array at the approximate ear height of a median adult occupant seated comfortably—commonly defined as 168.5 cm (5'6") from the floor, as illustrated in the example image below.

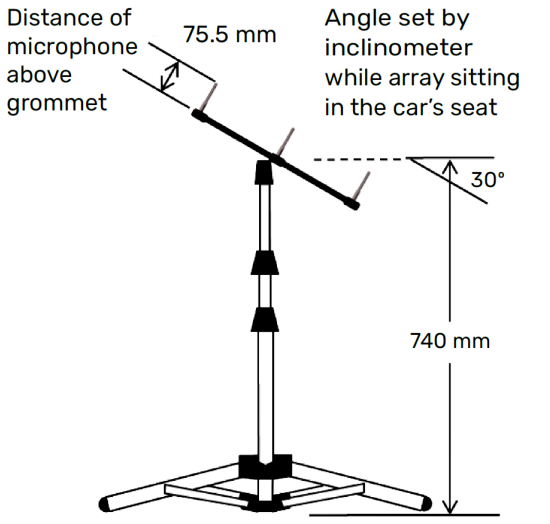

Fig. 17. *Setting the pitch angle and height of the AutoArray according to AES TC-AA recommendation. Image extracted from AES TC-AA recommendation, courtesy of JJR Acoustics.*

7. **Set the pitch angle of the array**
   Adjust the array's pitch angle using the adjustable angle adapter mechanism located at the mounting point. For accurate angle measurement, place an inclinometer on the magnetic flat surface at the top of the array structure.

The typical recommended pitch angle is 30°, although the adjustable angle adapter allows for a full adjustment range of ±90°, enabling flexibility to meet specific test protocol requirements.
⚠ *To ensure the inclinometer reading is accurate, confirm that the vertical pole is properly aligned and upright (see Step 5), as an inclined pole will compromise the pitch angle reference.*

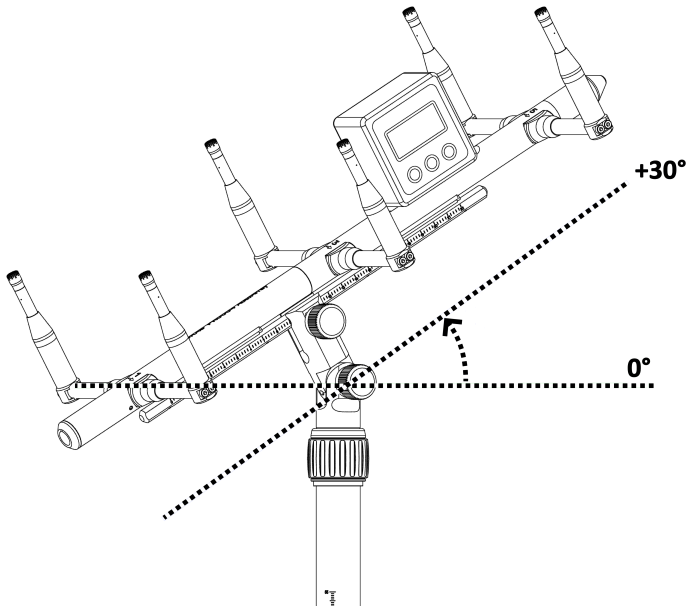

Fig. 18. *AutoArray Adjustable Angle Adapter angled at 30° from its 0°reference angle. The Adjustable Angled Adapter can rotate up to ±90°.*

8. **Secure all components before wiring**
   Confirm that all fasteners are tightened, and the array is stable.
   As an additional precaution, consider using the seat belt's lap section to loosely secure the array and prevent it from falling in case of accidental cable pulls.
9. **Connect the signal cable**
   Attach the 7-pin LEMO extension cable to the array's connector. Ensure a secure connection before proceeding.
10. **Perform acoustic calibration (optional but recommended)**
    At this stage, you may calibrate the microphones using a sound calibrator or pistonphone (see Calibration section).
    After calibration, double-check the array's positioning before initiating measurements.

For detailed guidance on setting up the AutoArray in accordance with the AES recommendation for in-cabin acoustic measurements, please visit the AES Technical Committee on Automotive Audio website, where the full recommendation is available for download.

Technical Specifications

Description	Unit	Value
Number of channels		6
Microphone compatibility		1/4" CCP (WS3F/P/Multi-field)
+48V Phantom Power Compatible		YES (with AG0003 adapter)
Microphone Connector type		Microdot 10-32
Array Connector type		7-pin LEMO 1B
EMC tested		YES
Weight (Array structure only w/Adjustable angle adapter. No seat mount. No mics)	g / oz	PR0003: 394 / 14 PR0004: 479 / 17
Weight (Seat mount only)	g / oz	1478/52
CE/RoHS compliant/WEEE registered		YES/YES/YES
Temperature range, operation	°C/ °F	-30 to 85 / -22 to 185
Spread angle of the base legs	° (deg.)	22, 52, 82
Pole's ball joint pan rotation	° (deg.)	360
Adjustable angle adapter rotation angles	° (deg.)	±90

Dimensions

Cross Configuration

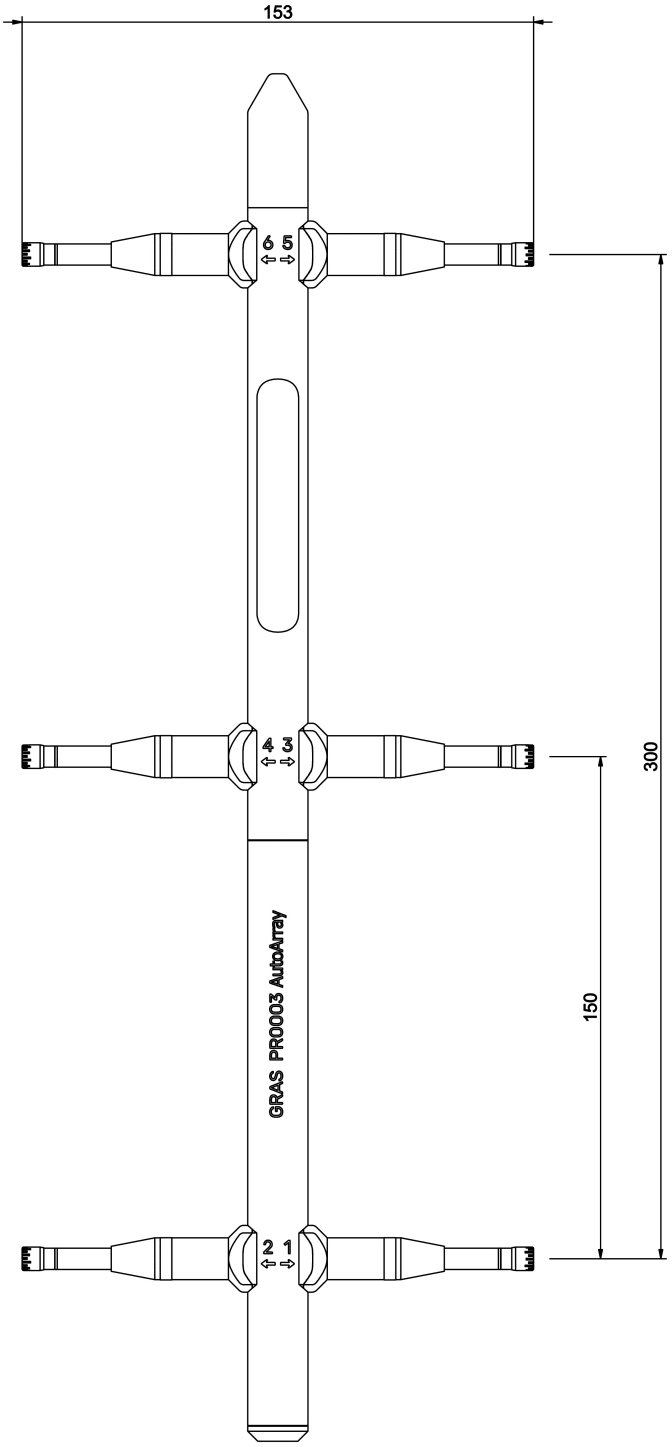

Fig. 19. *PR0003 array structure: basic dimensions in millimeters.*

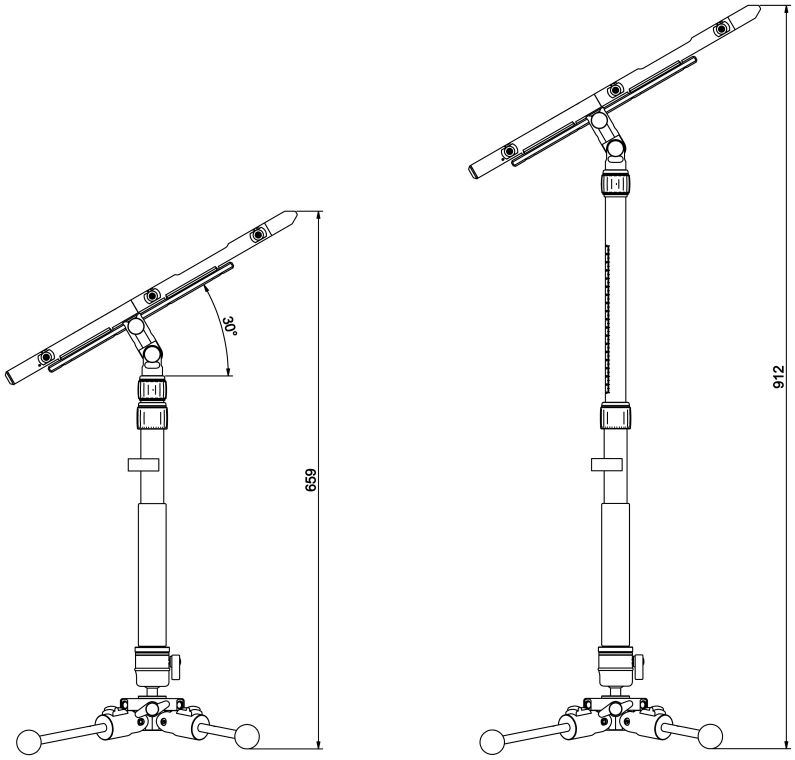

Fig. 20. *PR0003 AutoArray – basic dimensions in millimeters.*

AES Configuration

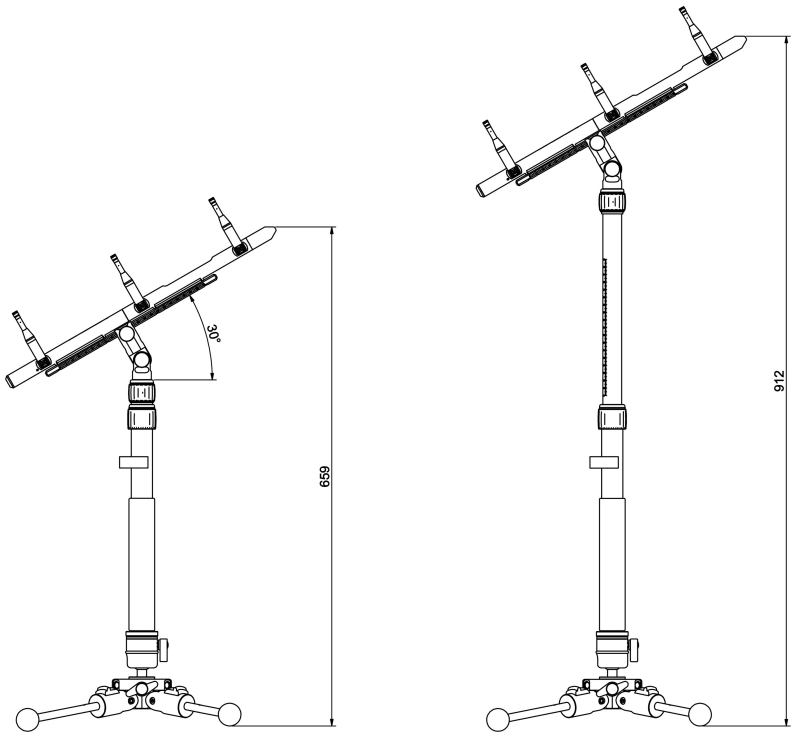

Fig. 21. *PR0004 AutoArray – basic dimensions in millimeters.*

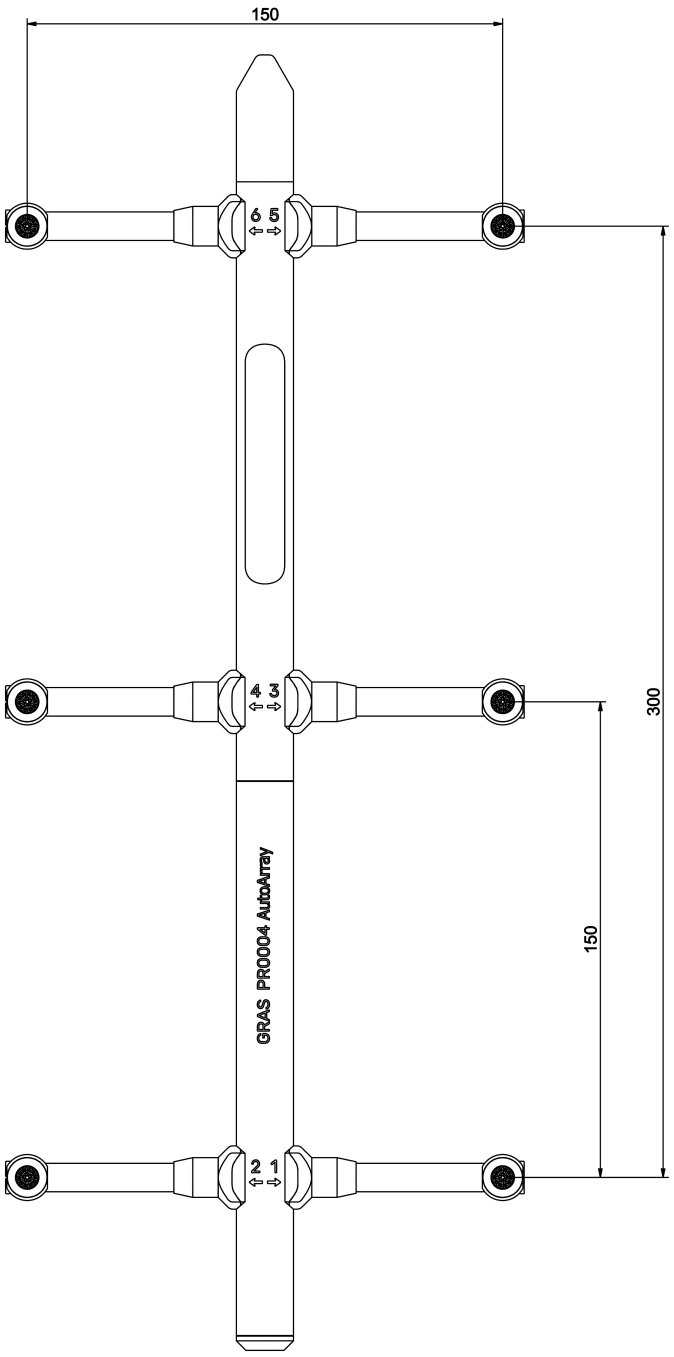

Fig. 22. *PR0004 array structure: basic dimensions in millimeters.*

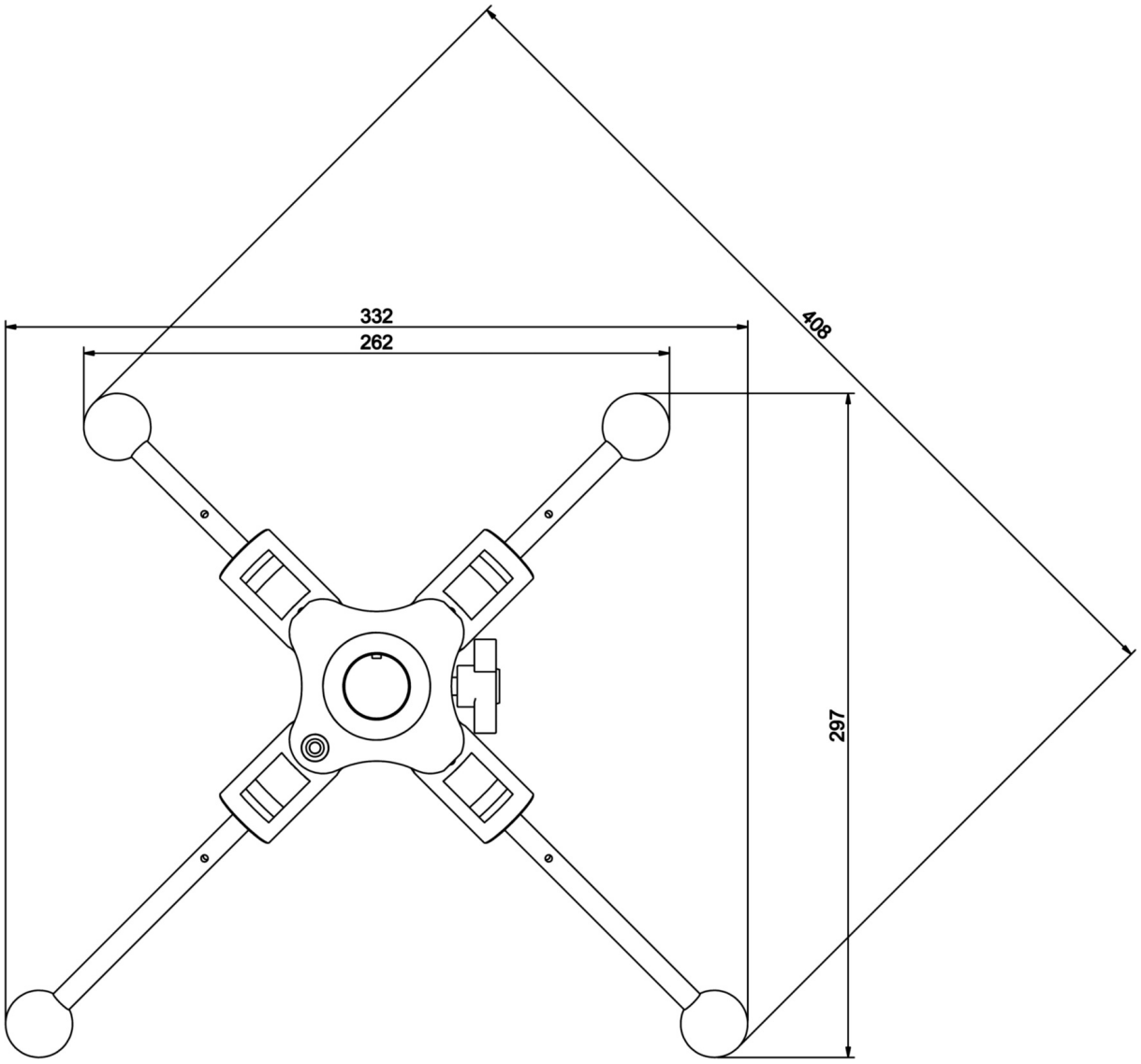

Fig. 23. *Base dimensions of PR0003 and PR0004 in millimeters.*

Ordering Information

Included Items

PR0003 AutoArray Cross Configuration	GRAS number
6-mic array structure CROSS configuration	-
AutoArray seat mount (w/ AL0039 Ball level attachment)	AL0036
Adjustable angle adapter for AutoArray	AL0037
Inclinometer	AL0038
3 m LEMO 7-pin – LEMO 7-pin extension cable extension cable	AA0008
AutoArray splitter cable to 6x BNC	AC0026

Microphones are not included and should be purchased separately.

PR0004 AutoArray AES Configuration	GRAS number
6-mic array structure AES configuration	-
AutoArray seat mount (w/ AL0039 Ball level attachment)	AL0036
Adjustable angle adapter for AutoArray	AL0037
Inclinometer	AL0038
3 m LEMO 7-pin – LEMO 7-pin extension cable extension cable	AA0008
AutoArray splitter cable to 6x BNC	AC0026

Microphones are not included and should be purchased separately.

Optional Items

Accessories	GRAS Number
1/4” CCP Multifield Microphone Set, High Sensitivity	46BC
1/4” CCP Pressure Microphone Set, High Sensitivity	46BL-1
1/4” CCP Free-field Standard Microphone Set	46BE
1/4” CCP Pressure Standard Microphone Set	46BD
Multifunction Sound Calibrator	42AG
Flight case for AutoArray	KM0112
1 m LEMO 7-pin – LEMO 7-pin extension cable	AA0011
3 m LEMO 7-pin – LEMO 7-pin extension cable	AA0008
10 m LEMO 7-pin – LEMO 7-pin extension cable	AA0009
30m LEMO 7-pin – LEMO 7-pin extension cable	AA0012
Adapter for CCP preamp. to 48V phantom power (BNC to XLR)	AG0003
Ball level attachment for AL0036	AL0039
USB with microphone calibration data (to use when ordering microphones)	SW0046

Tab. 3. *Accessories available for AutoArray*

Warranty, Service and Repair

Product Verification

Before leaving the factory, all GRAS products are calibrated in a controlled laboratory environment using traceable calibration equipment. If during use or calibration of the microphones mounted on PR0003/PR0004 there is indication of equipment malfunction, refer to your GRAS contact for service and repair information. We recommend calibration prior to each use to ensure the accuracy of your measurements.

Warranty

PR0003 and PR0004 are made of components from our standard portfolio and are all manufactured of high-quality material and branded parts that were chosen and processed to ensure life-long stability and robustness. This enables us to offer 2 years warranty against defective materials and workmanship.

Exceptions:

Even though this PR0003 and PR0004 are meant to be used with measurement microphones, these are sold separately. GRAS measurement microphones like 46BC, 46BL-1, 46BE and 46BD are included in GRAS' regular measurement microphone warranty scheme of 5 years.

The warranty for cables is 6 months

Service and Repairs

All repairs are made at GRAS International Support Center located in Denmark. Our Support Center is equipped with the newest test equipment and staffed with dedicated and highly skilled engineers. Upon request, we make cost estimates based on fixed repair categories.

If a product covered by warranty is sent for service, it is repaired free of charge, unless the damage is the result of negligent use or other violations of the warranty.

Manufactured to conform with:

CE marking directive: 93/68/EEC

CE marking directive: 2002/96/EC

CE marking 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.