

GRAS PR0004

AutoArray AES Configuration



The GRAS PR0004 AutoArray is a rugged, six-microphone array purpose-built for accurate and repeatable in-cabin acoustic measurements. It features an "AES" configuration, aligned with the AES TC-AA (Audio Engineering Society Technical Committee on Automotive Audio) guidelines. This array enables high-resolution spatial analysis of vehicle interiors, giving automotive OEMs and audio engineers the tools to quantify and enhance cabin soundscapes.

Microphones are sold separately

Introduction

Today's drivers expect more than just horsepower—they demand a quiet ride, free from intrusive noise, and an immersive audio experience. Whether it's an internal combustion engine vehicle or an EV, in-cabin acoustic quality has become a key differentiator in automotive design. From benchmarking sound systems to tuning them for optimal listening and minimizing unwanted noise for improved NVH performance, precise and repeatable measurements are essential.

With the GRAS AutoArray, automotive manufacturers gain the precision, consistency, and ease of use needed to deliver world-class in-cabin audio experiences.

The 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.

Each array can be configured with 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.

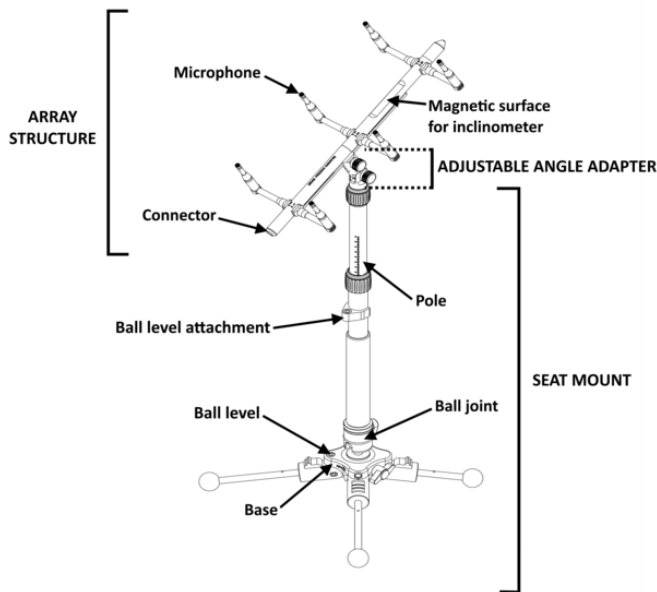


Typical Applications and Use

Designed specifically for in-cabin acoustic testing, the GRAS AutoArrays are ideal for:

- 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 & Harshness) measurements

They can also be deployed in any acoustic testing scenario that benefits from multi-microphone array setups.



Key Features

- **Test-ready configuration:** Conforms to AES TC-AA in-car acoustic measurement recommendations.
- **Optimized for 1/4" microphones**
- **Single-cable convenience:** Internally wired, all six microphone signals are routed through a single 7-pin LEMO connector, reducing clutter and setup time.
- **Flexible pitch adjustment:** Fix the angle at 30° or adjust freely; includes a magnetic inclinometer for precise angle measurement
- **Precision positioning tools:** Height-adjustable seat mount, integrated ruler system, ball levels, and a base-mounted ball joint enable exact placement and repeatability.
- **Durable, lab-grade construction**

Compatibility

The AutoArray is compatible with any 1/4" CCP microphone featuring a microdot connector but optimized for use with GRAS high-sensitivity models like the **46BL-1 pressure microphone** and the **46BC multifield microphone**, which offer ideal

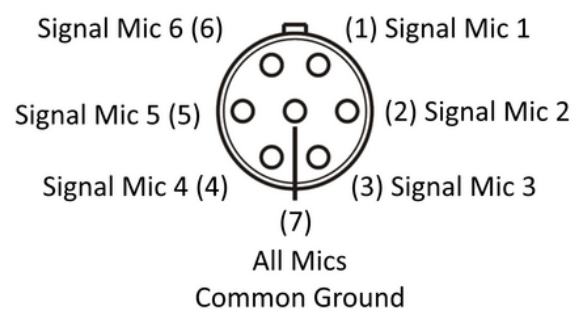
frequency responses for complex cabin environments. Other GRAS microphones that can be used with AutoArray are the GRAS 46BD 1/4" CCP pressure microphone and 46BE 1/4" CCP free-field microphone.

For more comprehensive information regarding microphone compatibility, check the AutoArray product manual.

The AutoArray is delivered with a 3m 7-pin LEMO to 7-pin extension cable and a 40cm 7-pin LEMO to 6x BNC splitter cable. Therefore, the array can be connected directly to any signal conditioner, analyzer or data acquisition system (DAQ) with CCP/ICP/IEPE microphone power supply that has BNC inputs.

Otherwise, it can also be connected to a sound card or audio interface with XLR inputs with +48V Phantom Power to drive the GRAS CCP microphones on the array. To do this, the 6x BNC connectors from the splitter cable need to be connected to the XLR inputs using 6x GRAS AG0003 adapters.

Connector



Array's structure 7-pin LEMO plug 1B female (external view)

The KM0112K Flight Case is an optional transport enclosure compatible with the PR0003 and PR0004 AutoArray systems. It provides a robust and reliable solution for the secure handling and transportation

of the AutoArray, particularly when air freight or frequent relocation between test facilities is required. Constructed from high-strength materials and fitted with precision-cut internal padding, the KM0112 ensures **superior mechanical protection** for the AutoArray instrumentation and associated accessories compared to the standard cardboard packaging supplied with the unit. The flight case minimizes the risk of impact damage, vibration, and environmental exposure during transit, thereby extending equipment service life and maintaining calibration integrity.



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

Quality & Warranty

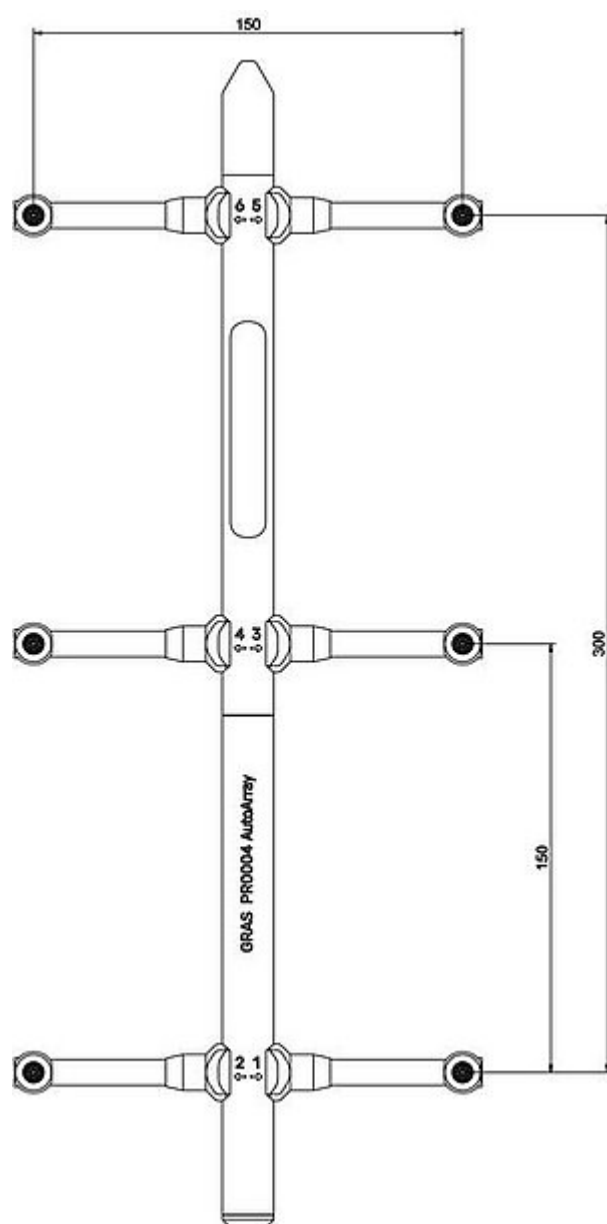
GRAS products are made of components from our proven standard portfolio and are all manufactured with high-quality materials and branded parts that were chosen and processed to ensure life-long stability and robustness.

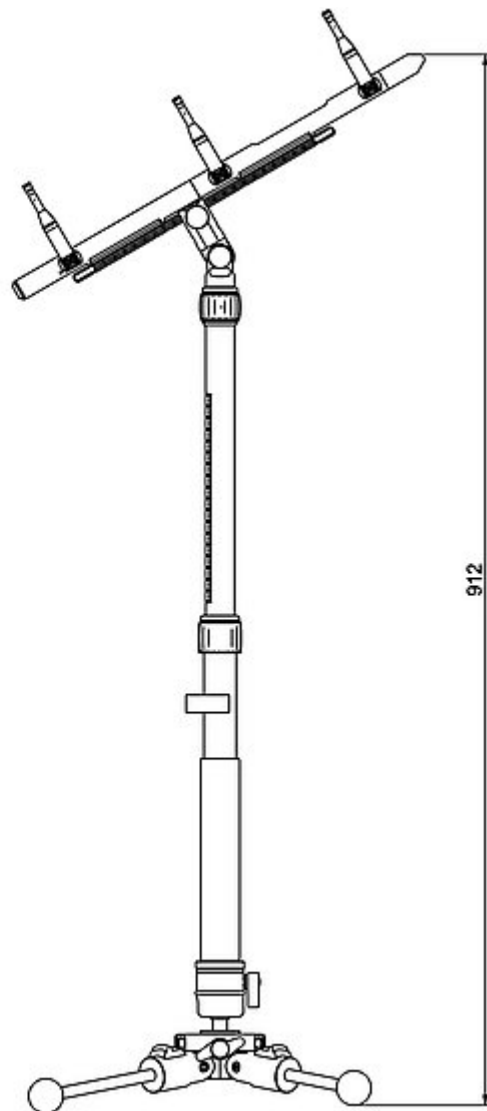
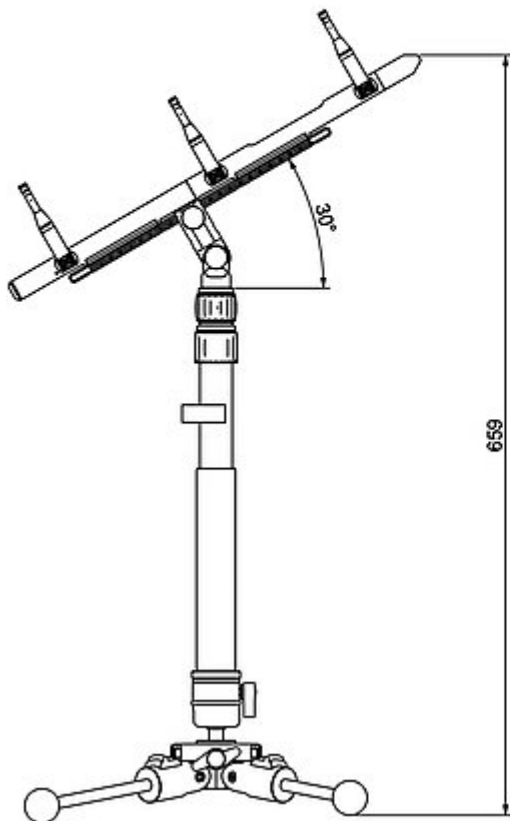
Thanks to the high-quality materials and assembly, our warranty against defective materials and workmanship is **2 years**.

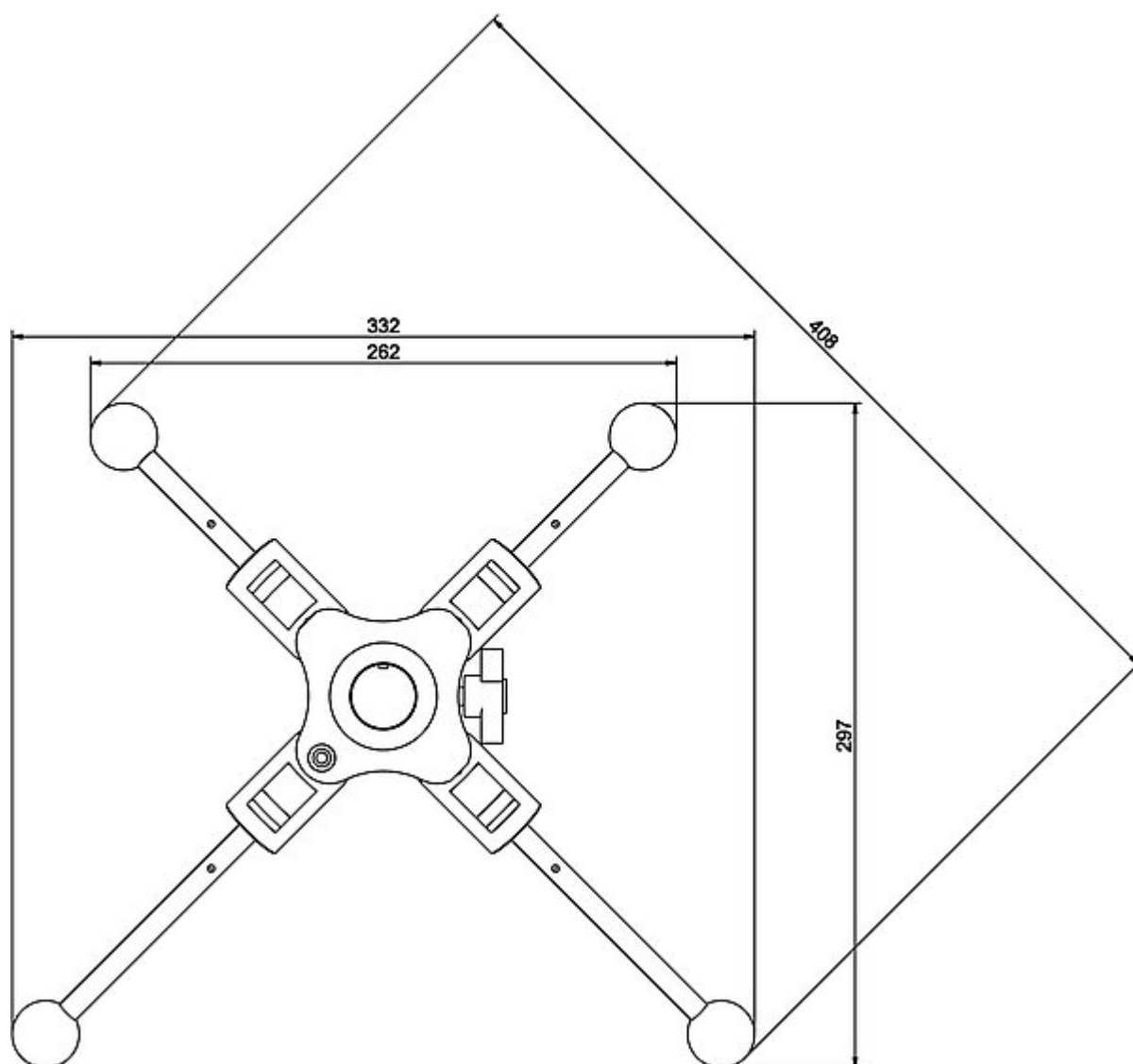
Exceptions: Even though this PR0004 AutoArray is meant to be used with measurement microphones, these are sold separately. GRAS measurement

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	479 / 17
Weight (Seat mount only)	g / oz	1478 / 52
CE/RoHS compliant/WEEE registered		Yes/Yes/Yes
Temperature operation	°C / F	-30 to 85 / -22 to 185
Spread angle of the leg connections	° (deg.)	22, 52, 82
Pole's ball joint pan rotation	° (deg.)	360
Adjustable angle adapter rotation angles	° (deg.)	±90

Dimensions in mm







Included items

-	6-mic array structure Cross configuration
GRAS AL0036	AutoArray seat mount (w/ AL0039 Ball level attachment)
GRAS AL0037	Adjustable angle adapter for AutoArray
GRAS AL0038	Inclinometer
GRAS AA0008	3 m LEMO 7-pin – LEMO 7-pin extension cable
GRAS AC0026	40 cm AutoArray splitter cable to 6x BNC

Microphones are not included and should be purchased separately.

Optional items

GRAS 46BC	1/4" CCP Multifield Microphone Set, High Sensitivity
GRAS 46BL-1	1/4" CCP Pressure Microphone Set, High Sensitivity
GRAS 46BE	1/4" CCP Free-field Standard Microphone Set
GRAS 46BD	1/4" CCP Pressure Standard Microphone Set
GRAS 42AG	Multifunction Sound Calibrator
GRAS KM0112K	Optional Flight Case for PR0003/PR0004 AutoArray
GRAS AA0011	1 m LEMO 7-pin – LEMO 7-pin extension cable
GRAS AA0008	3 m LEMO 7-pin – LEMO 7-pin extension cable
GRAS AA0009	10 m LEMO 7-pin – LEMO 7-pin extension cable
GRAS AA0012	30m LEMO 7-pin – LEMO 7-pin extension cable
GRAS AG0003	Adapter for CCP preamp. to 48V phantom power (BNC to XLR)
GRAS AL0039	Ball level attachment for AL0036
GRAS SW0046	USB with microphone calibration data (to use when ordering microphones)

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



GRAS Worldwide

Subsidiaries and distributors in more
than 40 countries

HEAD OFFICE, DENMARK
GRAS SOUND & VIBRATION
Skovlytoften 33
2840 Holte
Denmark
Tel: +45 4566 4046
www.GRASacoustics.com
gras@grasacoustics.com

USA
GRAS SOUND & VIBRATION
9290 SW Nimbus Avenue
Beaverton, OR 97008
Tel: 503-627-0832
Toll Free: 800-231-7350
www.GRASacoustics.com
sales-usa@grasacoustics.com

UK
GRAS SOUND & VIBRATION
Unit 115, Gibson House,
Ermine Business Park, Huntingdon,
Cambridgeshire, PE29 6XU
Tel: +44 (0) 7762 584 202
www.GRASacoustics.com
sales-uk@grasacoustics.com

CHINA
GRAS SOUND & VIBRATION
Room 315, RuiBo Center(T1)
Lane683, Shenhong Rd,
Minhang District,
Shanghai, China, 201107
Tel: +86 21 64203370
www.GRASacoustics.cn
cnsales@grasacoustics.com



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

grasacoustics.com

GRAS
An Axiometrix Solutions Brand