



Public Address - Voice Alarm

IPVA - Intercom

Commercial Audio

Intelligent Acoustic Solutions

Loudspeakers

CATALOGUE
2011

Intelligent
Acoustic
Solutions



DELIVERING YOUR MESSAGE

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Dear Friends,

Following the new PAVA catalogue, once again we proudly present to you our new section, covering;

Intelligent Acoustic Solutions

This new impressive portfolio has been compiled in a whole new format showing you our vision on product designs and product innovation. As you go through the pages, you will discover that our portfolio has undergone many changes compared to our previous edition.

This range of loudspeakers are designed to meet the high industrial demands as well as to fight the difficult acoustic conditions caused by modern architecture using hard and reflecting materials. The new EN 54-16 standards are also dominating the design of speakers. For the passive loudspeakers, the EN54-24 is covering the demands. Active speakers are not covered by this section. We decided to take our active speakers as standalone systems and have them covered under the EN54-16.

Please take your time to study this collection of valuable information and ensure yourself that ATEIS delivers the right products and the best flexible solutions you have been looking for.

Take the opportunity to share your thoughts with us and we will provide you the solution!

We are looking forward to your business!

Team ATEIS is

DELIVERING YOUR MESSAGE!





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LINE ARRAYS

ATEIS introduces here next generation range of line-arrays that are fully redesigned to meet the current and future demands within the Voice-Alarm industry, Commercial Audio and Pro-sound.

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LCS70T / Industrial Low Ceiling Horn

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SMARTVOX-MA12

Passive Loudspeaker Line Array



SMARTVOX-MA12 / 50 W/100 V

SMARTVOX-MA12 is a vertical loudspeaker array that uses a linear spaced speaker arrangement in combination with passive phase shifting, passive power shading and filtering, to obtain a constant directivity index for multiple frequencies (Concept is based on the MESSENGER linear spaced line-arrays with patent algorithm). The fixed Azimuth angle of -12 degrees, allows for the unit to be placed vertical against any surface, resulting in more clarity, lower reverberant field and therefor a much higher 'direct-to-reverb' ratio, leading to a higher intelligibility figure (STI).

Ordinary line-arrays radiates a cylindrical wave front that moves in a straight line from its source. Due to this a normal colum needs to be tilted forward to obtain good coverage of the listening area (figure 1).

This is needed to focus the soundwaves in forward direction into the audience area trying to avoid annoying reflections from other surfaces. Loudspeakers in general are not only producing sound forwards but also backwards especially for the lower frequencies. These soundwaves are reflected by the backwall to which the array is fixed.

These waves are mirrored according to the mounting angle of the array and will fill the environment with un-wanted artificial reverberation energy, leading to lower direct-to-reverb ratio and to a poor intelligibility.

By "aiming" the beam of a loudspeaker electronically using passive phase-shifting, power-shading and filtering technique for constant directivity, you can keep the column perfectly vertical position against its surface (figure 2), reducing any additional attributed energy to the reverberant field, resulting in more clarity and a much higher intelligibility.

The SMARTVOX-MA12 distinguishes itself through its precise sound direction pattern in the vertical plane, independent of the frequency. Due to constant sound pressure over long distances fewer columns are needed, which makes the installation far more simple and effective.

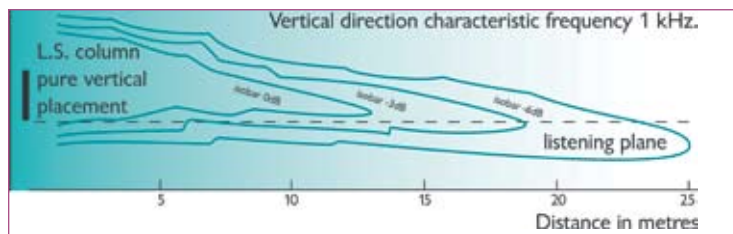
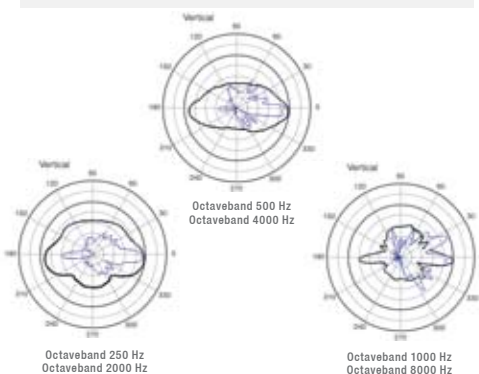
SMARTVOX-MA12 CHARACTERISTICS

- Maximum power rating: 50 Watt.
- Operating voltage: 50 / 70 / 100 Volt.
- Frequency respond: 250 Hz - 12 kHz.
- Horizontal coverage: 120 degrees.
- Q-factor / Di: 14.1 / 11.5 dB.
- SPL @ 1kHz, 1W/ 1M: 93.5 dB.
- Standard color: RAL 9010.
- Dimensions:
560 mm Height, 90 mm Width, 110 mm Depth.

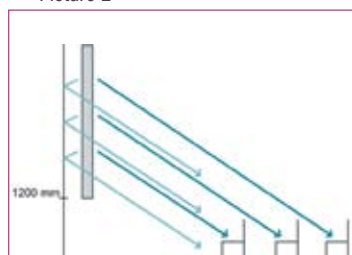


SMARTVOX-MA12 Features

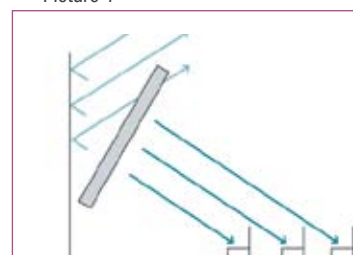
- Filtering based on Messenger Patent algorithm concept.
- Wide dispersion.
- Linear spaces speakers.
- Constant sound level.
- Lower reverberant field.



Picture 2



Picture 1



MESSENGER

MESSENGER2

Vertical Active DSP Array System

ATEIS introduces here next generation range of steerable line-arrays that are fully redesigned to meet the current and future demands for the Voice-Alarm industry, commercial audio and Pro-sound. The MESSENGER2 is a through 'next generation' design where we have focused on an improvement on the lobe-controls and the overall technical specifications, we can now say that the MESSENGER2 provides broadcast S/N ratio, music quality frequency response and a pro-sound power handling with more advanced pre-processing abilities.

New generation ATEIS Voice-Alarm and audio processors are equipped with remote control facilities by LAN or WAN and have a variety of networking and control cards. To meet our future standards, the MESSENGER2 has been equipped with equal networking facilities. The input section has been redesigned and upgraded to broadcast standards and has now 2 fully controllable audio inputs and outputs with override functions and hardware bypass function. The output to the slave unit carries either the pre-processed mixed signal of the input mix and thus provides easier room control as equalization and feedback filtering or the original 'floor'- signal.

Additional input-cards can be provided to have a digital link between MESSENGERS or to interface with an ATEIS network based on the M-Net™ or ATEIS-NET™ and can be controlled using the new ATEIS STUDIO™ system designer and controller software. An optional MESSENGER-rack-controller (MRC), half size 1U/19 inch rackframe, facilitates 2 fully controllable audio inputs and two slave outputs, TCP-IP connection, RS485 and the digital networking M-Net™ to digital interface with the MESSENGERS. The external interface is also ready to receive the instructions of the new ATEIS STUDIO™ remote Control software.

The MESSENGER2 is designed to meet with the modern standards for Voice Evacuation and equipped with a dual-mode redundant power supply and redundant link between the MESSENGER2 and the optional external MESSENGER2 controller (MRC). M-Net™ MESSENGER nodes can be placed up to 100 m away. For longer distances a fiber-optic converter is available.

Each MESSENGER2 array has a very tightly controlled beam, which can be shaped as required for specific applications or environments requiring symmetrical or asymmetrical, single, dual or triple lobe designs. The availability of high power audio DSP's such as the analogue devices makes it possible to provide 24 channels of powerful processing that lead to precise beam control and even signal pattern that stays within 3 dB over a distance of 100 m.



MESSENGER2 Features

- Equipped to meet the modern Voice Evacuation standards.
- 24 VDC input for battery backup, 20 kHz Input surveillance. Internal HF carrier loudspeaker surveillance.
- Fully digital sidelobe-free speakerarray. Triple-lobe feature for the ultimate accuracy in lobe design.
- Features the latest technology based on a patented algorithmic technique.
- Specially designed for high quality speech and background music applications in reverberant acoustic environments where it is difficult to meet contractual speech intelligibility requirements.
- More flexible than earlier array technology because of the 'Linear-Spacing' technique and easy to install without a direct need for lobe fine tuning.
- Tightly controlled beam, from 25 up to 3 degrees, which can be shaped in nine steps to meet each specific application or environment.
- A-symmetrical and Symmetrical arrangement by means of software control.
- Integrated DSP control with 7 band parametric EQ, noise gate, delay rooms, peak limiter, VOX-control and contact control on the audio inputs and level raising microphone for ambient noise sensing.
- Adaptable ACOUSTIC centre. Acoustic centre can be freely moved over the array to match lobe shape with the listening area.
- Lobe switching: provides quick coverage change by applying a contact. This offers the possibility to integrate or exclude a certain section of the audience area by simply adding a second lobe.
- Consistently high sound quality across the coverage area.
- Comes standard with ambient noise sensor, temperature sensor with active frost protection on the drivers.
- RS485 data bus for full detailed status report and PC based remote setup (up to 32 Messengers on the bus).
- Ethernet connectivity for remote access via WAN.
- EASE DLL & CATT DLL, for advanced room acoustic simulations.



MESSENGER-M(G2)

12 Loudspeakers - 1345 mm
94 dB to 25 m.



MESSENGER-L(G2)

18 Loudspeakers - 2017 mm
94 dB to 30 m.



MESSENGER-XL(G2)

24 Loudspeakers - 2689 mm
94 dB to 40 m.



MESSENGER-Two-L(G2)

36 Loudspeakers - 4034 mm
94 dB to 60 m.



MESSENGER-Two-XL(G2)

48 Loudspeakers - 5378 mm
94 dB to 70 m.



MESSENGER2

Safety Requirements

MESSENGER2 SERIES CHARACTERISTICS

- 24 Class-D amplifier channels with 70 Watt each on ATEIS-NET communication bus.
- SPL coverage stays within 1dB variation.
- Variable acoustic centre.
- RS485 remote control bus.
- Lobe steering.
- Triple lobe control.
- TCP/IP networking.

TECHNICAL SPECIFICATIONS:

- Frequency range: 100 – 18000 Hz
- Max. SPL: 93 dB +/- 1dB
- Dual audio input: Music 0dB - Alarm 0 dB with contact
- DSP module: ADSP21369-400 2.4 Gflops 400 tabs/filter/ch 24-channels
- Speaker element: 4,25"-dual-cone with inverted surround - weatherproof - Aluminum

PRE-PROCESSING:

- Pre-delay: 1000 mS
- Equalizing: 7-band parametric
- Peak limiter: Level adjustable
- Mute: Audio on/off
- Signal indicators: Clipping/Audio/Limiter/Noise-gate
- Surveillance: amps, inputsignal, router, processor watchdog, active feedback on drivers (optional), emergency backup,
- Input line detection: 20 kHz 18 khz and 20 kHz standard on-board surveillance.
- Noise-sensing: on-board

MOUNTING POSITION:

- Flexible height: 1.5 - 4 m

POWER REQUIREMENTS:

- Mains: 230 VAC
- Emergency supply: 18 – 27 VDC
- Power supply : EN 54-4 compliant.

The MESSENGER2 range is completely software controlled, the variable acoustical centre can compensate for architectural requirements and can be easily adapted for specific types of application. Its flexible mounting height of between 1.2 and 4 m above ground level ensures the array can be securely positioned.

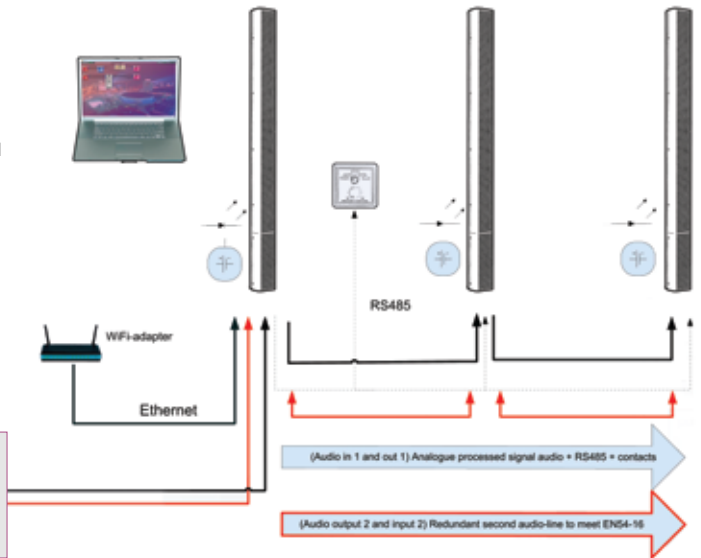
“The MESSENGER2 arrays are one of the only active array’s that can be used for Voice Evacuation applications where high intelligibility can be of live saving need.”

EN 54-16 Requirements

- Battery back-up using an EN 54-4 compliant charger
- General Fault contact
- Redundant audio-link with line detection
- Line surveillance, 18 – 20kHz (Adjustable)
- Sleep-mode for power saving on battery mode
- Event-logging with date and time
- Fault and Quiescent indicators on the unit hardware by-pass on system-fault.

MESSENGER2 - EN 54-16

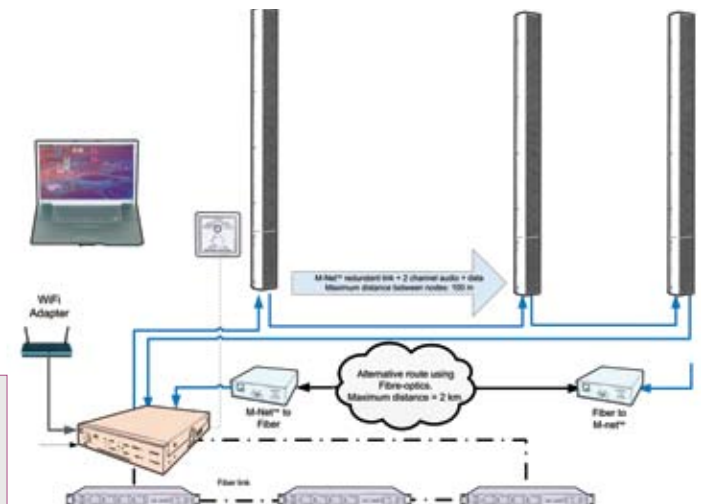
- On-board audio processing (All-in-one-version)
- Full flexibility due to on-board DSP
- Remote access by TCP/IP interface
- RS485 link
- RS485 link, extracted from the TCP/IP connection, for WiFi-remote control
- Dual mode power supply + battery backup (24 VDC)
- Level-raising amplification with NSM
- Pre-processing (As standard with G1)
- URC-Controller for level and Pre-set control (Lobe-switching, eq, etc)



- 2 x Audio input
- 2 x Audio output
- Fault and input contacts
- Networking, TCP/IP
- Datalink, RS485

MESSENGER2 Digital Link

- M-Net™ audio and data transmission + optional Fiber-optic converters.
- Centralized audio-pre-processing.
- Full flexibility due to on-board DSP, (All-in-one-version).
- Remote access by TCP/IP interface / WiFi.
- Dual mode powersupply + battery backup (24 VDC).
- Level-raising amplification with NSM on MRC or individual units.
- Pre-processing (As standard with G1).
- URC-Controller for level and Pre-set control (Lobe-switching-eq, etc).
- Complex zone-paging.
- Interfacing with LAPG2 with optional ATEIS-NET card.



- MESSENGER2 MRC:
- 2 x Audio input
 - 2 x Audio output
 - Fault and input contacts
 - Networking, TCP/IP
 - Datalink, RS485
 - M-Net™ interface
 - ATEIS-NET convertor

MESSENGER

MESSENGER2

M-Control Lobe Assembler Software

Software controlled Lobe Shaping with the MESSENGER2's Lobe Assembly program.

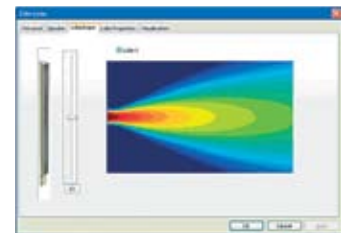
The MESSENGER2 series has a unique feature, which has great installation and application benefits. The acoustical centre can be moved over the array to match and compensate in relation to the required installation, mounting height and environmental need.

Each driver is separately powered and processed, therefore all lobe shape variations between a Symmetrical and an Asymmetrical arrangement can be made with the simple push of a button.

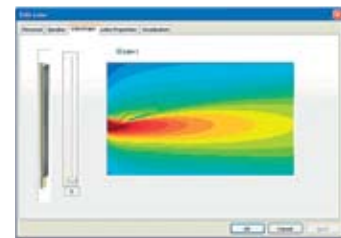
This beneficial feature separates the MESSENGER2 from other line-array speakers, making it one of the most flexible options available with its unique software controlled directivity pattern with the MESSENGER2's Lobe Assembly program.

Variable Acoustic Centre.

In nine-steps from Asymmetrical to Symmetrical.

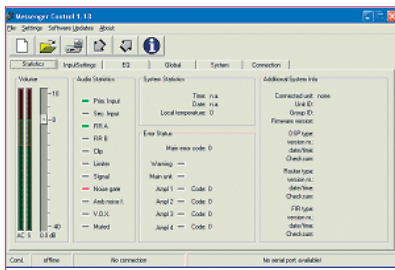


Symmetrical lobe

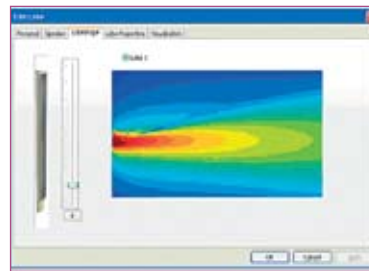


Asymmetrical lobe

Windows based PC Setup

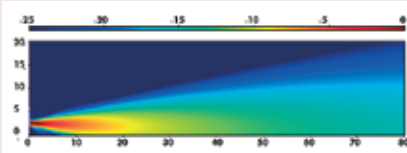


M-Control

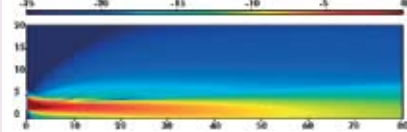


Lobe assembler

Variable vertical dispersion from 20 down to 5 degrees

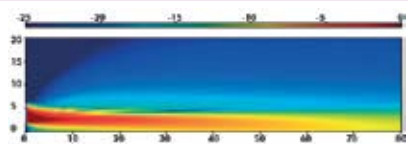


Symmetrical lobe with 20 degrees opening angle

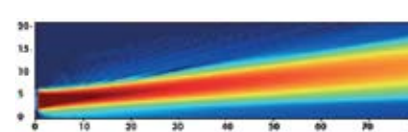


Asymmetrical lobe with 5 degrees opening angle

Multiple lobes up to 3 simultaneous lobes

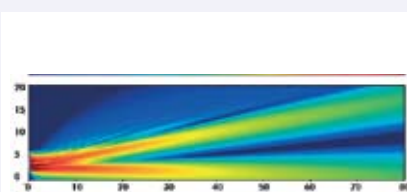


Symmetrical lobe serving groundfloor audience area

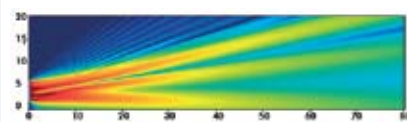


Symmetrical lobe steered upwards

Beam steering

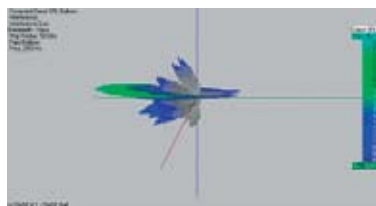


Dual lobe, serving groundfloor and balcony

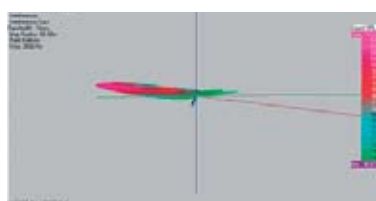


Triple lobe serving groundfloor and 2 balconies

Side lobe suppression



Conventional arrays



MESSENGER2 lobe with side-lobe suppression

LOBE-CONTROL:

- Symmetrical lobe is centered in the middle. The Asymmetrical lobe is centered at the bottom or the top of the array.
- Any other position of the acoustical centre between the middle and the bottom of the array is fading the lobe-shape from a purely Symmetrical shape to an Asymmetrical shape.
- Symmetrical lobes are often used for field coverage in combination with an Asymmetrical lobe for the near field area. The combination allows for individual level control for near and for field. Symmetrical lobes are also ideal to address high raised balcony seating areas.
- Asymmetrical lobes are used for mounting heights between 2.5 and 4 m from the floor and results in a lobe that starts at 5 m distance from the array at ear level and ends in a sharp lobe at 60 m and further.
- The Asymmetrical lobe has the ability to keep the sound deviation within 3 dB from 5 to 100 m. Its mounting height is NOT critical and therefore it is the most used system solution. The vertical opening angle can be adjusted in steps from 3 to 25 degrees.



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Intelligent Acoustic Solutions

Loudspeakers

ORBIT

ORBIT

Omni-Directional Active DSP Array System



ORBIT Features

- Specially designed for high quality speech and background music applications in reverberant acoustic environments where it is difficult to meet contractual speech intelligibility requirements.
- Tightly controlled beam, up to 3 degrees, which can be shaped in nine steps to meet each specific application or environment.
- A-symmetrical and Symmetrical arrangement by means of software control.
- Integrated DSP control with 7 band parametric EQ, noise gate, delay rooms, peak limiter, VOX-control on priority input and level raising microphone for ambient noise sensing.
- Adaptable ACOUSTIC centre. Acoustic centre can be freely moved over the array to match lobe shape with the listening area.
- Equipped for Voice evacuation applications.
- 24 VDC input for battery back-up, 20 kHz Input surveillance.
- Internal HF carrier loudspeaker surveillance.
- Ambient noise sensor. Temperature sensor with frost protection.
- Battery surveillance. Fault report contacts.
- TCP/IP remote link and RS485 data bus for full detailed status report and PC based remote setup (up to 32 Messengers on the bus).
- EASE DLL & CATT DLL, for advanced room acoustic simulations.
- SPL stays within +/- 2 dB variation over a distance of at least 60 m.

ORBIT / The 360° First Steerable Line Array

ATEIS introduces a new generation range of steerable line-arrays, the ORBIT, that have an Omni-directional and steerable radiation pattern, fully redesigned to meet the highest architectural demands and equipped to handle current and upcoming requirements for the Voice-Alarm industry, Commercial Audio and Pro-Sound.

Each ORBIT Omni-directional array has a very tightly controlled beam, which can be shaped as required for specific applications or environments requiring symmetrical or asymmetrical, single, dual or triple lobe designs where the ORBIT can be placed free-hanging from the middle of the venue.

The availability of high power audio DSP's such as the analogue devices makes it possible to provide 24 channels of powerful processing that lead to precise beam control and even signal pattern that stays within 3 dB over a distance of 100 m radius in a 360 degrees wave!



ORBIT L

3 rows of 18 loudspeakers – 1390 mm
90 dB to 15 m.

ORBIT XL

3 rows of 24 loudspeakers - 1790 mm
90 dB to 25 m.

ORBIT 2L

3 rows of 36 loudspeakers – 2720 mm
90dB to 35 m.

BASS ARRAY

BASS ARRAY

Active DSP LF-Array System



BASSRACK-08

It is one of the latest technical creations of ATEIS that fits perfectly in the 'Intelligent audio solution' range of products and has proven to be a real add-on to the third generation MESSENGER® line arrays.

The combination of MESSENGER line arrays and a BASS-ARRAY offers the perfect solution for speech and musical performance in any difficult acoustic environment.

By applying the same patent MESSENGER® technology to the BASS-ARRAY, makes it the first array of its kind that carries bass frequencies over long distances and keep the signal deviation within 2 dB over 100 m.

The technology:

The BASS-ARRAY is based on the MESSENGER® patent algorithm that was introduced in 1999 by Johan van der Werff and is now owned by ATEIS.

Using a controlled power and frequency shading model, full directivity control and side-lobe suppression can be obtained. Upper and lower frequencies of this controlled directivity concept are defined by means of extending the total length for the lower frequencies by having multiple sources of which their acoustic centres are within ½ distance of the upper frequencies spaced. With a total length of 14 meter and only 8 cabinets, lobe steering and directivity control can be achieved down to 35 Hz up to 400 Hz.

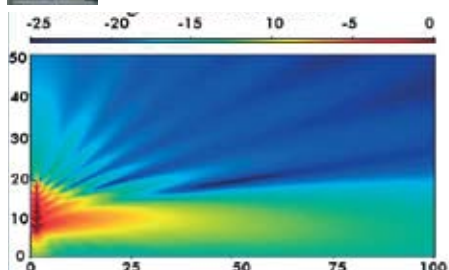
With the use of the powerful MESSENGER® LOBE-ASSEMBLER software you can built and shape the BASS-ARRAY-Lobe to fit perfectly in the acoustic difficult environment. Use a dual or triple lobe and the BASS-ARRAY-Lobe can cover both ground level and balcony with the highest directivity possible and with the lowest signal deviation. Variable opening angles for variable throws and symmetrical and/or asymmetrical lobes can be constructed. By changing the ½ distance, the BASS-ARRAY can be adapted to fit with required cross-over frequencies with any mid-high tone array available in the market.

The bass cabinets used in the BASS-ARRAY can be of any brand and any size. The lobe assembler software can be easily adapted to any size and brand. For this we can adapt the Lobe Assembler software to meet the 3rd part brand specifications. The processor for the Bass-Array is delivered as 19-inch rack mount frame that provides analogue as well as AES interfacing with the self-powered third party Bass-cabinets.



LOBE ASSEMBLER for BASS-ARRAY

In this example we have constructed a 14 m Array with 8 bass-cabinets. The Δ-spacing is set to 2 m. The lowest cabinet is positioned at a height of 4 m above ear level. The lobe has an asymmetrical base-FIR that is centred at speaker no. 3. With an opening angle of 7 degrees and an azimuth of -2 degrees, this lobe has only 2 db variation from 5 to 100 m, measured at a listening height of 1.80 m. This would result in an SPL@100 m of 94 dB at 120 Hz. The signal that reach the ceiling at a height of 30 m is more than 10 dB down from the signal level at listening plane.



BASS ARRAY Features

- Controlled directivity.
- Low and Sub-Low steering.
- Variable opening angles.
- Controlled freq. 25 - 400 Hz.
- Signal decay, ± 1dB @ 100 m.
- Long throw.
- High SPL, 97 dB @ 100 m.
- High clarity.
- Effective size: 7 to 14 m.

BASS ARRAY SERIES CHARACTERISTICS

- Power rating: 8 x 500 Watt. Self powered.
- Max SPL@125 Hz: 95 dB@ 5-100 m ±2 dB.
- 3rd party engine: 15" long excursion cone driver, ferrofluid cooled. Cabinet resonance <45 Hz.

LENGTH 700 cm:

- Frequency respond: 50-340 Hz, Delta - spacing Δ 100 cm.
- Width: 43.6 cm.
- Steering: 10 - 25°.

LENGTH 1400 cm:

- Frequency respond: 35-200 Hz, Delta - spacing: Δ 200 cm.
- Width: 43.6 cm.
- Steering: ± 10°.
- Vertical opening: 5°- 25°.



LCS70T

Industrial Low Ceiling Horn



LCS70T Features

- Boundary effect, low-spill.
- Increased repeating distance.
- Long-horn, straight patterns.
- 2-inch compression driver.
- High-SPL.
- High-directivity.
- High intelligibility (STIPA).
- SPL: 104 dBa @ 20 m.

LCS70T / Industrial Low Ceiling Horn

The LCS70T is one of the latest products from ATEIS and especially designed for the voice-evacuation market. The LCS70T is a typical exponential horn that is designed to be used in placed with restricted ceiling heights and where far throws are requested.

The LCS70T is made of reinforced fibre/epoxy and equipped with a strong and powerful 2" compression driver, capable of producing a fabulous 117 dB. The shape and structure allow for use in highly demanding environments like traffic tunnels and car parks. Also train tubes that need to be addressed during voice-evacuations are typical examples where the LCS70T would fit perfectly.

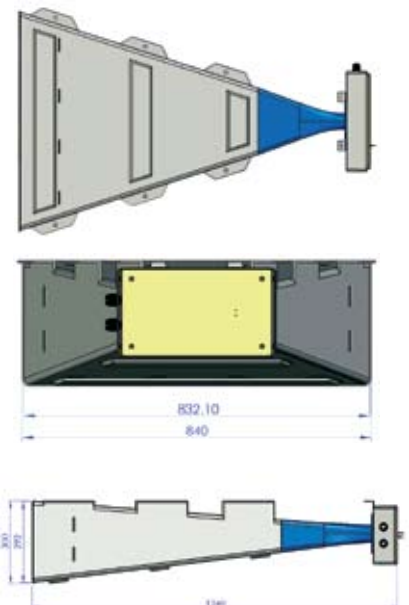
output level and evenness of frequency response, and is what makes this horn design simple and effective.

The LCS70T should be fixed against a large and flat surface that acts as a waveguide and mirror. The small horizontal opening angle of only 30 degrees guarantees that the sound will stay unaffected by lateral distortion and so will increase the in-between distance of the horns.

Due to its dimensions, its throw can reach from 40 up to 70 m, reducing amplifiers and delay lines when compared to conventional distributed sound systems for tunnels. This will bring the total costs down and due to a lower number of horns, it will bring the Q-factor up and so the intelligibility of the overall evacuation system.

The LCS70T has an extended frequency range that runs up to 8 kHz allowing for high-fidelity speech messages in situation where the acoustics are limited and therefore the demands on the soundsystem high. Highly directional horns will result in a bigger in between, repeating distance, reduced soundpoints and so reduced number of amplifiers and delay-lines and so, resulting in a better overall price performance.

The LCS70T is a typical symmetrical exponential horn (= where the horn length is exponentially related to the horn area) that uses the mounting surface as wave guide. This way a "half cell" construction can be used, reducing its mouth height that is important when used in environment with height restrictions. Once in the proper band pass region for a given size, an exponential horn presents a fairly consistent acoustical load to its driver. This helps both



Mechanical drawing with 8 x 12 mm fixation holes and vertical-ribs for extra stability



LCS70T

Polar Plots

LCS70T CHARACTERISTICS

ELECTRICAL SPECIFICATIONS

- 100/70/50 Volt line transformer maximum power: 70 Watt rms - Dual ceramic connector blocks with M20 PG12 glands.

- Electrical performance SPL-MAX: 132 dBA @ 70 Watt.

- Frequency range: 300 Hz – 8 kHz.

- Horizontal opening angle @ 1 kHz: 15 degrees.

- Sensitivity 1 W / 1 M:

112 dB @ 500 Hz
120 dB @ 1 kHz
116 dB @ 2 kHz
108 dB @ 8 kHz

- Q-factor @ 1 kHz:

250 Hz	= 7.3
500 Hz	= 14
1 kHz	= 30.5
2 kHz	= 38
4 kHz	= 38
8 kHz	= 38

- External high-pass filter requirements: 250 Hz, 2nd order (filter not included).

MECHANICAL SPECIFICATIONS

- Material: Glass fibre reinforced epoxy flame-retardant polyester.

- IP rating: IP56.

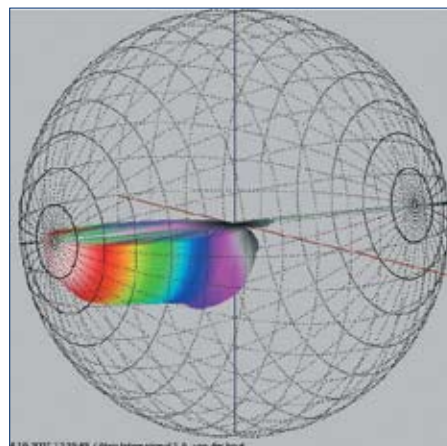
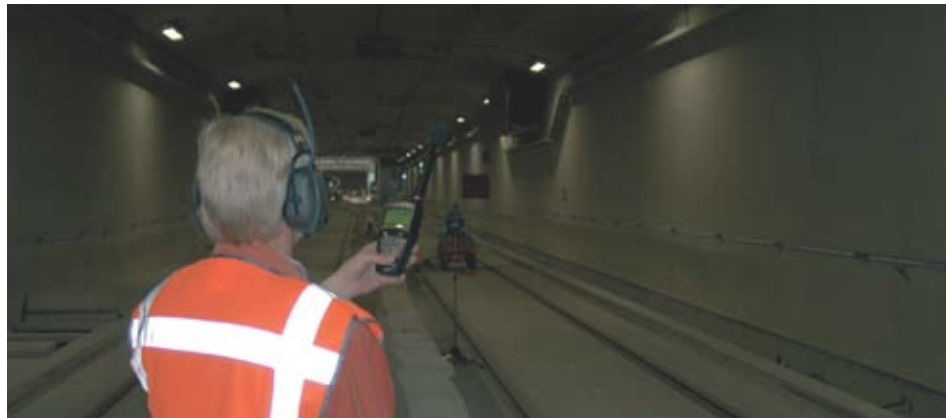
- Color: RAL7004 (dark grey).

- Dimensions: Length: 1340 mm - Width: 840 mm (flare side) - Height: 300 mm.

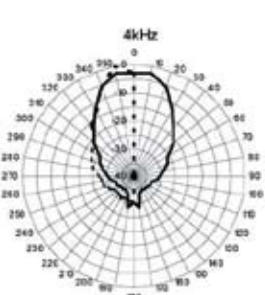
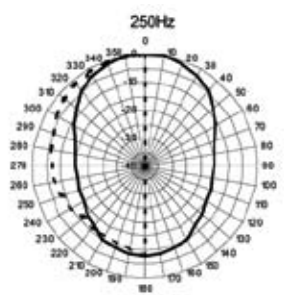
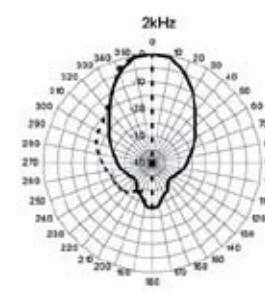
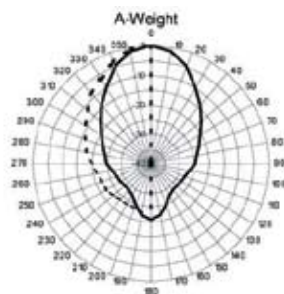
- Weight: 35 kg approximately.

- Mounting type: 8 x M12 spacings.

- Spay water protection on mouth: Stainless steel mesh grill.



Polar plots 250 Hz, 2 kHz, 4 kHz and A-weight





Public Address - Voice Alarm
 IPVA - Intercom
 Commercial Audio
 Intelligent Acoustic Solutions
 Loudspeakers



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