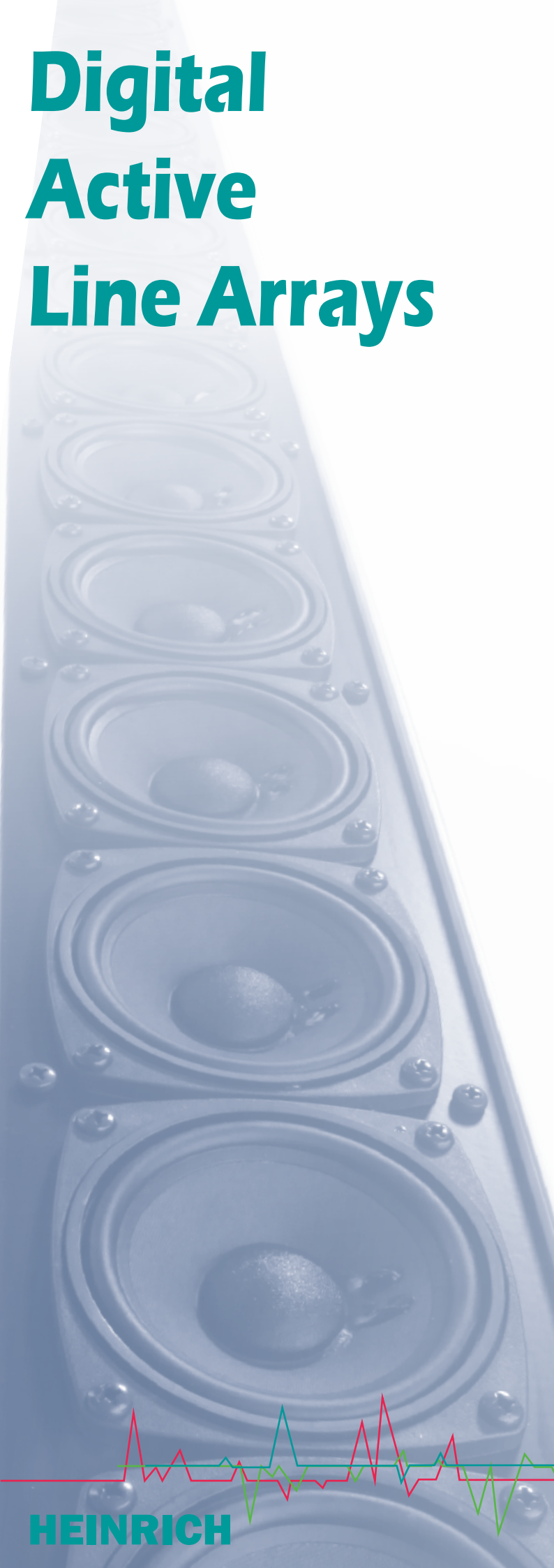


Digital Active Line Arrays

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Digital Active Line Array Loud Speaker

Thanks to the development of new technologies it has been possible to design an innovative audio distribution system, efficient, reliable, quick and easy installation and, above all, highly performing.

Active One System is the only system worldwide with these features:

- It works by using one single 2-wire cable on which runs both audio signal and mains for the speakers (P.o.S. POWER over SIGNAL).
- All speakers Vertical Active series have DSP on board, it is possible to digitally adjust power, equalization and delay.
- The system provides excellent speech intelligibility and a good overall sound quality.
- When replacing the old sound system, a new cabling infrastructure IS NOT necessary.

Clients guide designers and architects to renovate or design environments where the overall attention to details is very high, decreasing more and more audio distribution points. With traditional systems it is essential to create delay lines between the various audio fronts (for phase alignment) and this involves the use of digital matrix, multi-channel power units, and above all the running of many cables or the installation of even more expensive systems and technologies, with the constraint of feed 220Vac for each speaker, even bringing the audio signal through a dedicated ethernet network, or via shielded low frequency signal.

With Active One System this is no longer necessary, since it is enough only one power supply and a minimum number of speakers connected between themselves with just a 2-wire cable (even if already existing, as in most of cases): each speaker, in fact, will manage its own area with the correct pressure-equalization-delay.



• How it works

The DAL is the innovation and the future of audio distribution and diffusion, in modern and old structures, big or small, acoustically good or reverberant.

Its functioning is extremely simple despite its design complexity; starting from a source (for example an audio mixer), the signal is processed by EN54, which is the system power supply and has the task to feed and distribute the audio signal to all the installed speakers.

The power supply EN54 thanks to ONE-PoS technology, creates and generates a composite signal named "enmux"; the main feature of this signal is that it can be transported through a 2-wire cable. At the end of the line cable the signal will find the speakers of Digital Active line Array series.

Inside DAL speakers are placed electronics DAL with DSP, built-in amplifier and ONE-PoS technology, that can split the audio signal from the "demux" power signal. At this point DAL is powered and the signal is processed by DSP, amplified and spread thanks to the efficiency of the dedicated line array.

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Digital Active Line Array

• Advantages

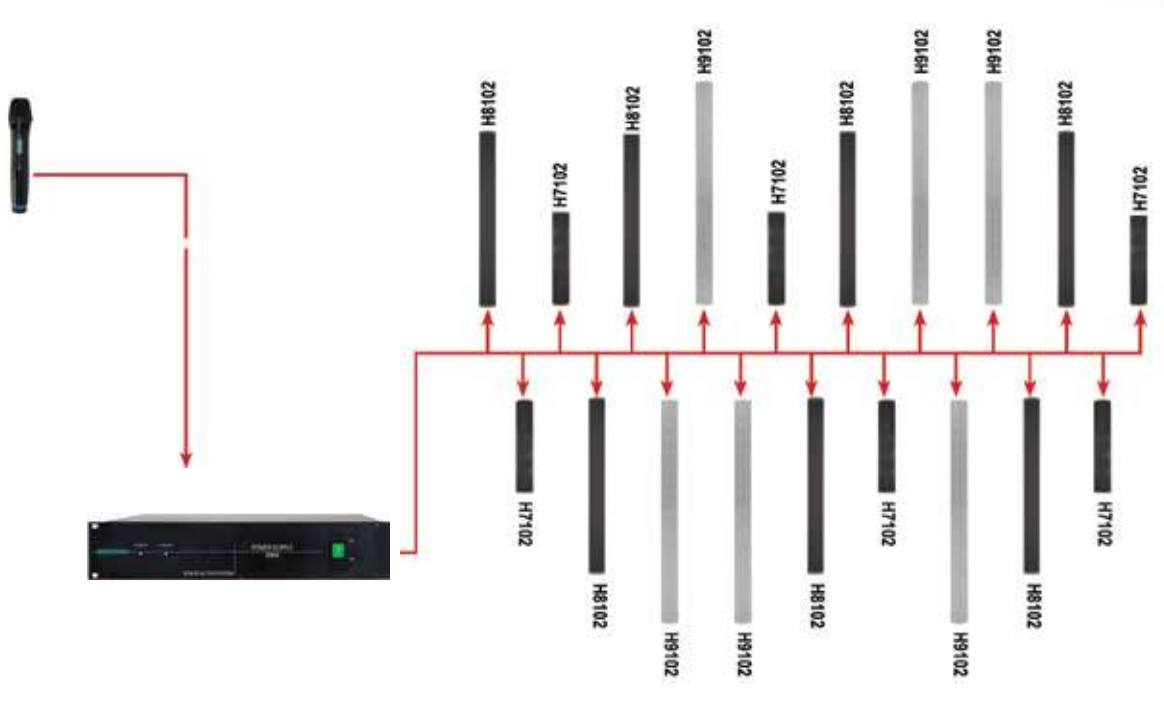
- The installations will be fast, simple, highly performing, even using the existing 2-wire cable.
- DIGITAL ACTIVE speakers series with DSP on board will be efficient; thanks to the technical characteristics of each speaker (dedicated line array - volume, equalization and delay control) the entire audio system will benefit, because it will be possible to hear a clean and homogeneous sound, aligning the phases of all diffusion points.
- The technical characteristics of the whole system and its low cost make DIGITAL ACTIVE profitable and performing at the same time.
- The slim and elegant design of the speakers ensures easy location even in sophisticated environments.

• Where to use

Only the imagination can set limits to the use of DIGITAL ACTIVE. We list some structures where you can install it:

• Houses of Worship

- Waiting and transit rooms of medium and large dimensions
- Convention centers
- Courts
- Conference rooms
- Board rooms
- Auditorium
- In modern or ancient structures, where it is required an audio system composed by several speakers that “reproduce” the signal in a homogeneous and faithful way on the whole surface, ensuring a higher intelligibility of the speech than a traditional system
- In structures with already existing audio system, where the buyer wants to modernize the system on a modest budget
- In environments where it is necessary to decrease the diffusion points without rewire the site.
- In structures protected by Fine Arts and UNESCO Heritage, which require an effective strengthening of the audio system, as well as an aesthetic improvement, being the speakers just 10cm wide.



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Digital Active Line Array

Components

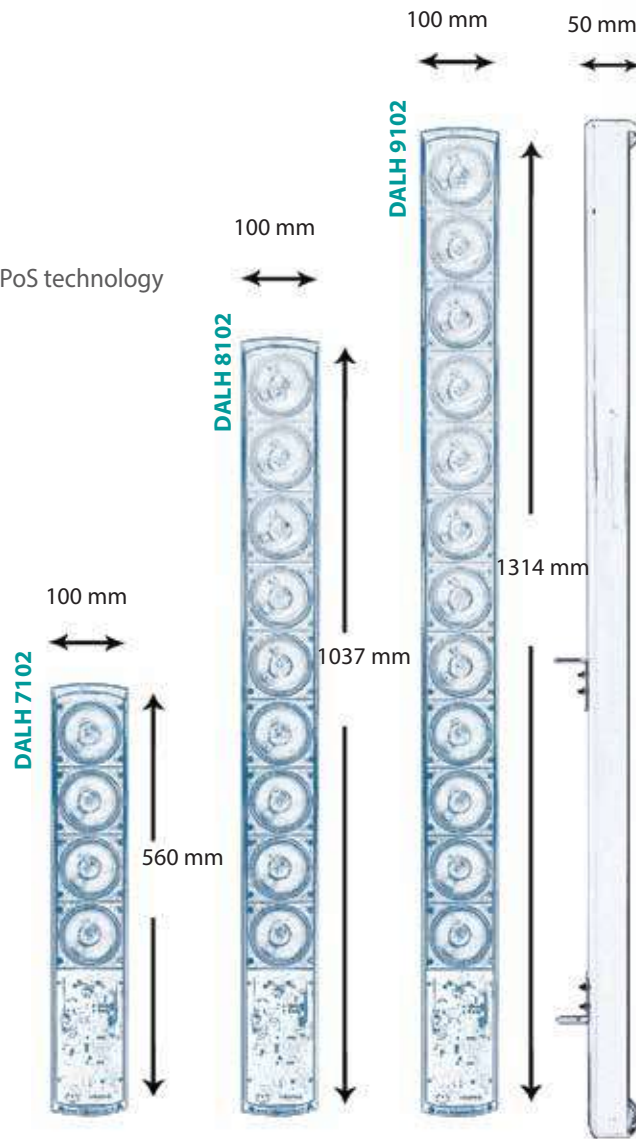
DAL

- Power supply unit dedicated to ONE-PoS technology which feeds VERTICAL ACTIVO Speakers series



DIGITAL ACTIVE

- 3 different Line Array speakers dedicated to ONE-PoS technology



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EN54



Front view



Rear view

General description

EN54 is the power supply unit for DAL and its task is to power and distribute the audio signal to all the speakers of the system.

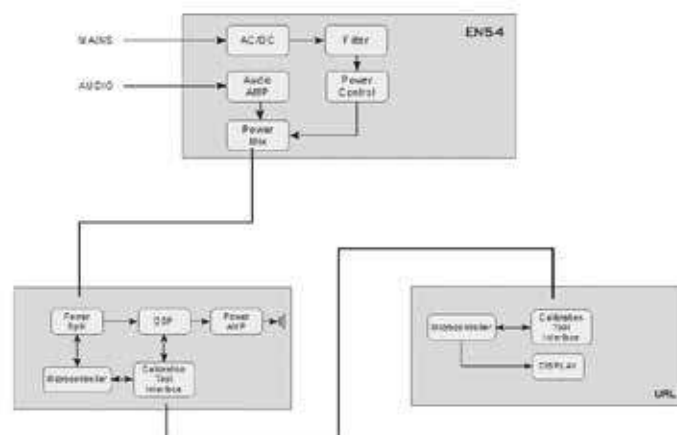
The audio signal, for example, from a mixer output is connected to EN54ALL-ONE, which processes the signal using the technology named ONE. This technology combines the power to the audio signal, in a composite signal named enmux, now capable of being transported through a common 2-wire cable to a group of speakers. This is P.o.S. POWER over SIGNAL

The EN54 power module consists of an AC-DC switching 600W with output voltage to the loudspeakers at 43Vdc, specially filtered.

EN54 audio signal management consists of a digital module that simultaneously monitors the power supply and provides to transform the low frequency signal in enmux signal suitable to be routed (with power supply) to the output via the transformer adapter.

EN54 devices are housed in a 2U standard rack with XLR connections for audio input, and euro-block for output to the speakers.

• Block diagram

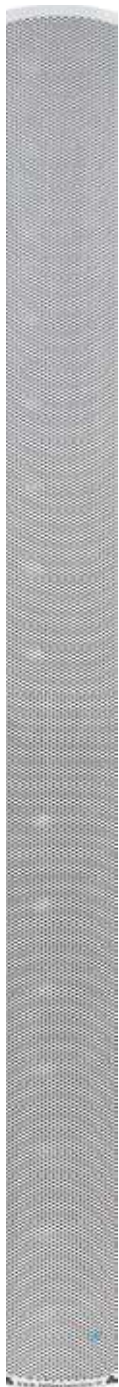


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Technical specifications

Technology:	ONE-PoS
Mains:	43 / 44 Vdc
Maximum output power:	15 A max (645 W max)
Maximum load:	max.15 speakers
Protections:	1 on output signal, 1 reverse polarity, 1 on short circuit
Anti-bump circuit:	1 on and 1 off
Switching on:	soft start
Bandwidth:	50 ÷ 18000 Hz
Amplifier Harmonic Distortion:	<0,1%
Cooling:	Forced circulation fan
Voltage Regulation:	Local linear technology
Power Input:	230Vac
Input Audio Signal:	Balanced line 0,775mv.
Weight:	8,50 Kg
Dimensions:	Standard rack 2U (HxWxD) 88x482x300mm

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DAL

General description

3 Different line array speakers dedicated to ONE-PoS technology:

- DALH7102 drivers full range 3.5" total 9 drivers
- DALH8102 drivers full range 3.5" total 16 drivers
- DALH9102 drivers full range 3.5" total 18 drivers

DAL Line Array consists of 3.5" drivers at high efficiency mounted on self-supporting basket that ensures the entire array the audio desired accuracy both in the vertical and horizontal axes. The robust mechanical structure, obtained from an extruded aluminum, is designed to have the best compromise between design and pursued audio features without creating acoustic intersections.

DAL series, thanks to its design, is able to fit discreetly in each structure. The standard colors are white RAL 9010 and the volcano RAL 7006. The speakers can be produced in any RAL colors on request. The speaker is isolated by 3 absorbing materials which avoid rear dispersion and reflection.

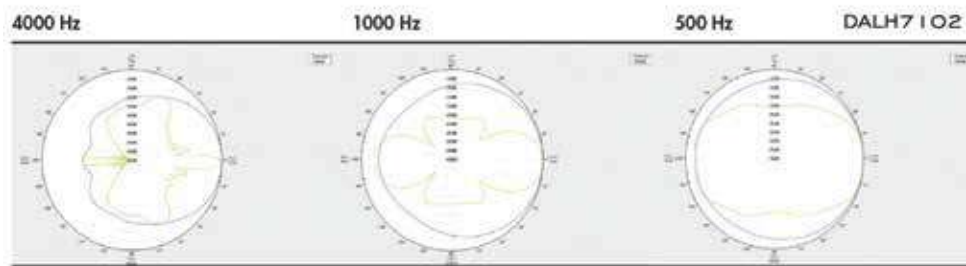
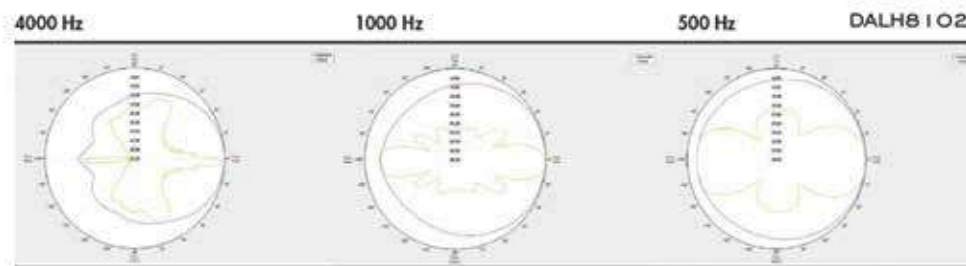
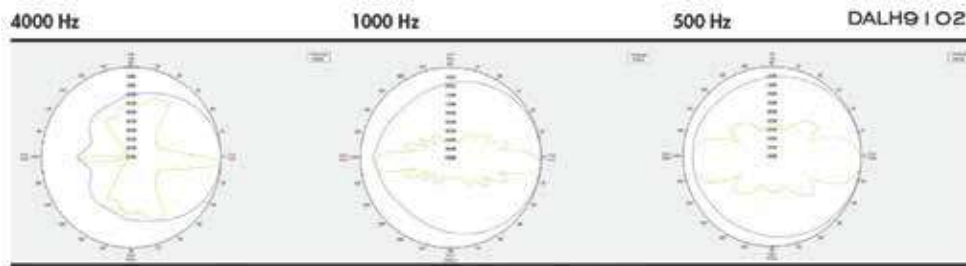
The slightly curved acoustic grid (with a sidecut angle identical to the lateral shaping which makes the final look more harmonic) is designed to have the lowest noise impact without interfering on the audio spectrum, thanks to the open area ratio. Each model contains the control electronics DIGITAL ACTIVO equipped with ONE-PoS technology, that can split the audio signal from the power "demux" signal. In addition, the board is equipped with built-in amplifier and DSP that lets you control each speaker independently.



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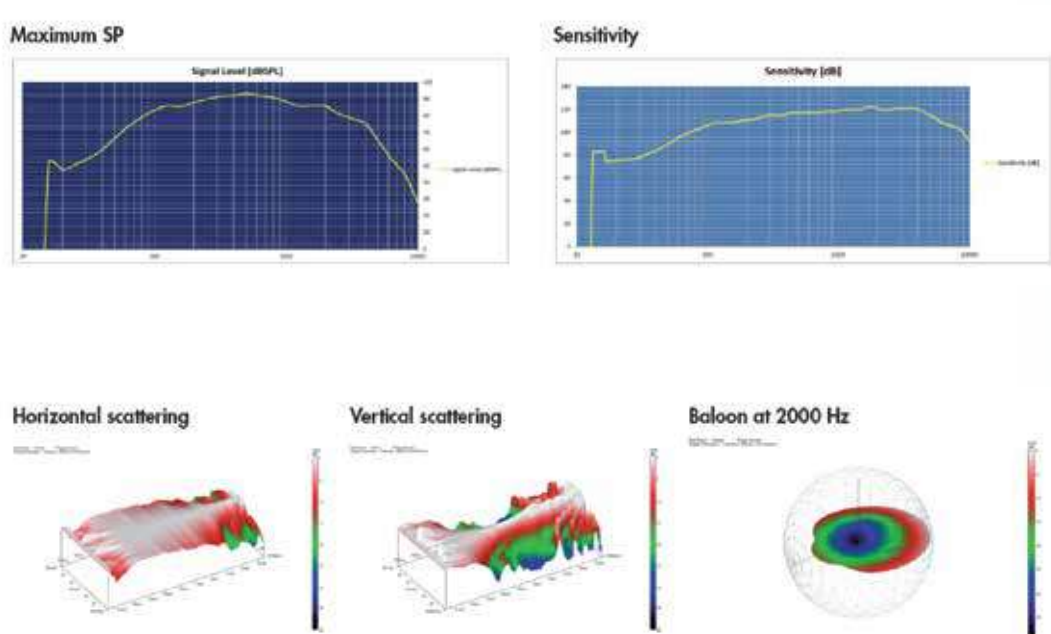
Array specification

Polar diagram horizontal and vertical axes



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DALH 9102



Technical specifications DALH 7102 - 8102 - 9102

Technology:	DSP and ONE-PoS
DSP:	on board 28/56 bit - fs 48KHz
Output power:	35 W RMS (65 W peak) at 8 Ohm
Protections:	1 on output signal, 1 reverse polarity, 1 on short circuit
Anti-bump circuit:	1 on and 1 off
Equalization:	3 Preset EQ: Flat, Voice, Ambient.
Board band width :	50 - 18000 Hz
S/n ratio:	better than 98 dB; distortion <0,3%
Cooling:	integral natural circulation
Input power:	43 V DC
Input signal:	ONE enmux
Mains:	dedicated ALL-ONE power supply with technology ONE-PoS
Beam Steering	25 degree to 60 degree
Weight DALH9102:	8,50 Kg
Weight DALH8102:	6,90 Kg
Weight DALH7102:	3,50 Kg
Dimensions DALH9102:	(HxWxD) 1314x100x50 mm
Dimensions DALH8102:	(HxWxD) 1037x100x50 mm
Dimensions DALH7102:	(HxWxD) 560x100x50 mm

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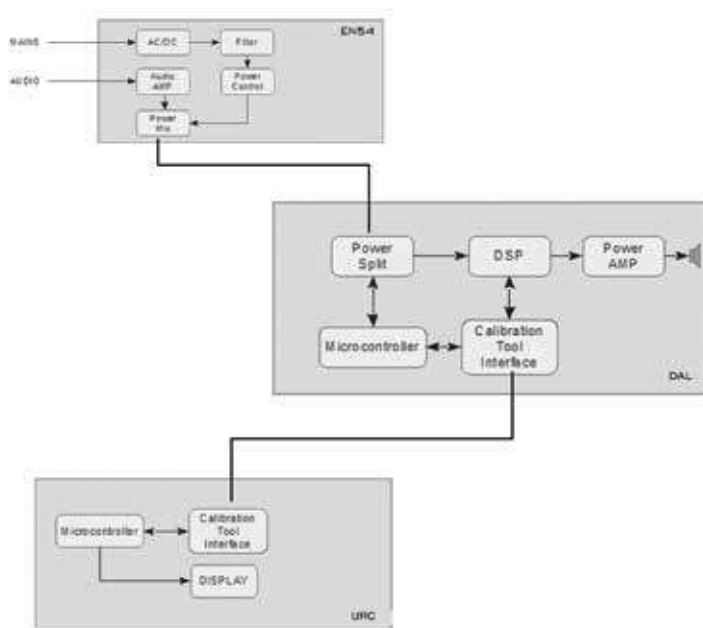
DAL



General description

DAL board with DSP, built-in amplifier and ONE-PoS technology is basically made up of three main modules:

1. Input module ONE-PoS technology: it provides to decode "demux" and split the composite signal generated by EN54, powering the following modules and providing the audio signal.
2. Processing module: the audio signal is handled by the DSP and circuit control, ready to be directed towards the final module of the board.
3. Output module: the signal is amplified and it is ready to drive the array speakers connected to it. The engineering has allowed to obtain a robust, compact board which perfectly finds its place in the extruded of the speaker in the usual encumbrances provided for the drivers. The appropriate URC is required to set the DSP mounted on DAL.



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Technical specifications

Technology:	DSP and ONE-PoS
DSP:	on board 28/56 bit - fs 48KHz
Output power:	35 W RMS (65 W peak) 8 Ohm
Protections:	1 on output signal, 1 reverse polarity, 1 on short circuit
Anti-bump circuit:	1 on and 1 off
Equalization:	3 Preset EQ: Flat, Voice, Ambient.
Board band width :	50-18000 Hz
S/n ratio:	better than 98 dB; distorsion <0,3%
Cooling:	integral natural circulation
Input power:	43 V DC
Input signal:	ONE enmux
Mains:	dedicated ALL-ONE power supply with technology ONE-PoS
Voltage regulation:	local linear technology
Weight	700g
Dimensions (WxDxH)	190x90x40 mm

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URC



Description

The URC is an handy, fast and intuitive device to configure DAL speakers. Once it's connected to the DAL board, the data stream will start and then each speaker programming. On the URCa display-button allows to enter the simple programming menu.

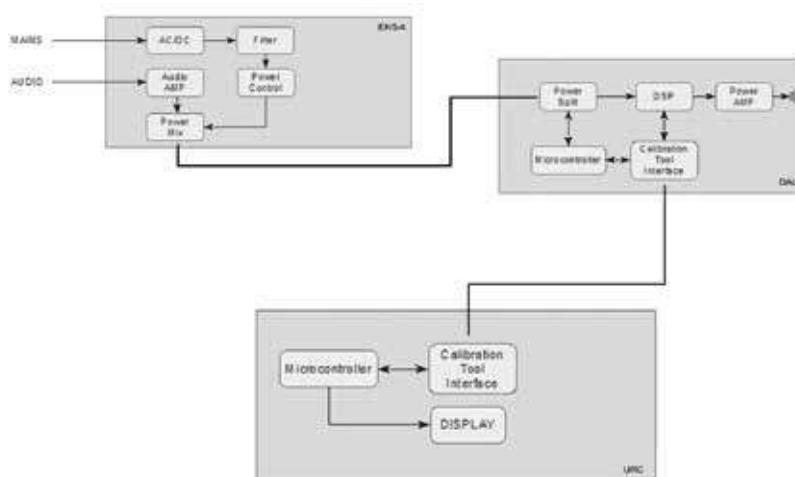
Menu

Volume from -20dB up to +6dB

- Delay (in meters) from 0 up to 60 meters
- Equalization
- Flat
- Voice
- Ambient
- Copy
- Paste
- Save
- Esc

Copy and paste commands have been added to speed and simplify the calibration, allowing the installer to quickly configure the VERTICAL ACTIVO speakers.

• Block diagram

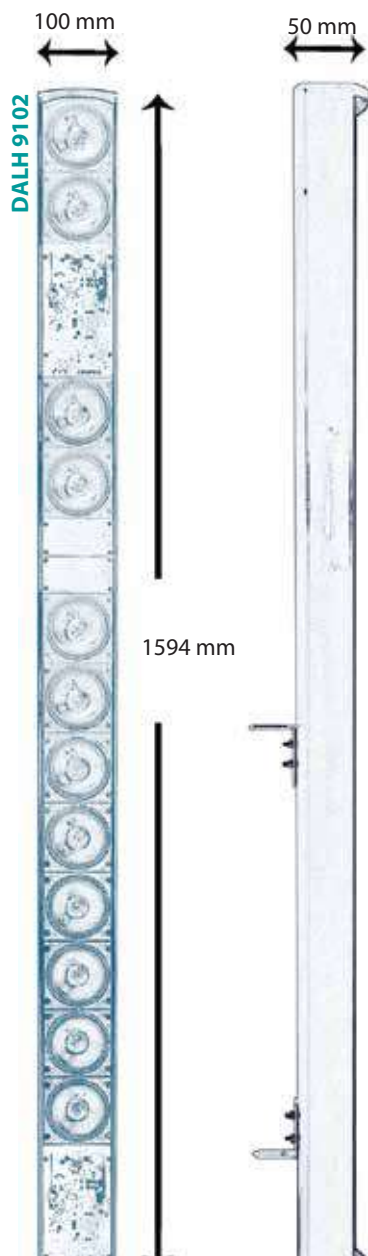


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DAL

General description

- New DAL Focus speaker is part of System One Activo line; It has two main features:
- It works by using a common 2-wires cable on which both Signal and Power with ONE-PoS (Power over Signal) technology run.
- It can control the vertical directivity to drive better the sound towards the listener.



Activo Focus, being part of Activo One System line, has all the potentialities and the characteristics of the system already produced for years, with the newness of being able to control the "Focus" beam emitted. By connecting the new audio system Activo to an already existing wiring harness we could: adjust volume, delay, equalize, align the acoustic focus to the listeners.

Everyone knows that, when dealing with speech intelligibility, the sound must be direct and the reflected sound from the ceiling or from the walls or from untreated surfaces is harmful to understanding function.

In recent years, the technology has come to the assistance, achieving thanks to the power of the DSP processors and the class-D amplifiers performances unthinkable until a few years ago, but with costs accessible to everyone now. Fulgor took advantage and developed its own technology with its own algorithm to manage the "Focus" on the vertical axis, towards the listener, integrating it all with its own well-proven Activo One System, obtaining a product or system widely used, easy to install, qualitatively performing at very interesting costs.

The technology used in DAL is partially the one already used in DAL 9102, 8102, 7102 able to decode the signal and the power sent through 2-wire cable line from EN54, which is the system's power supply. In each speaker you have the possibility to adjust, volume, delay and equalization. Furthermore the new DAL has a more powerful DSP on board and a 4-channels digital amplifier, which thanks to the algorithm specially designed focus directs the sound down. How? Each groups of speakers of DAL are separately driven by DSP and by the amplifiers, the algorithm on each group changes amplification, frequency, phase, and delay, so as to create homogeneous beam, controlled and sound adjustable. The algorithm for Activo setting Focus is located on board, thus facilitating the management for the technicians using the intuitive configuration controller

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Technical specifications

technology:	DSP e ONE-PoS
DSP:	on board 28/56 bit - fs 48KHz fs
focus control:	250 ÷ 18000 Hz
acoustic beam distance:	controlled up to 20/22 meters
tracking angles:	0° -1° -2° -3° -4°
integrated amplifiers:	4 class-D
power on each amplifier:	80 W RMS (100 W peak) of 8 Ohm
protections:	1 on the input signal, 1 of reverse polarity 1 of short-circuiting
anti-bump circuit:	1 in switching on and off in 1
EQ: 3 preset Equalization:	Flat, Voice, Ambient
board bandwidth:	80 to 18000 Hz
s/n ratio:	Better than 98 dB; distortion <0.3%
cooling:	integral natural circulation
Input power:	43 V DC
Input signal:	ONE enmux
power:	specific power supply ALL-ONE with ONE-PoS Technology
voltage regulation:	local linear technology
Focus Activo weight	10,50 kg
Focus dimensions (HxWxD)	1594x100x50 mm

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