



ONE CABLE POWER & SIGNAL

Activo One System

one cable active speakers DSP on board

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Release 2.1

Activo One System

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

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

- It works by using one 2-wire cable on which run both audio signal and mains for the speakers (P.o.S. POWER over SIGNAL).
- All speakers Vertical Activo series have DSP on board, it is possible to digitally adjust power, equalization and delay.
- The system provides excellent speech intelligibility and a good 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 attention to details is very high, decreasing more and more the 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 Activo 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 the cases): each speaker, in fact, will manage its own area with the correct pressure-equalization-delay.



• How it works

The Activo One System 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 ALL-ONE, 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 ALL-ONE, 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 common 2-wire cable. At the end of the line cable the signal will find the speakers of VERTICAL ACTIVO series.

Inside VERTICAL ACTIVO speakers are placed the electronics DIGITAL ACTIVO with DSP, built-in amplifier and **ONE-PoS** technology, that can split the audio signal from the "demux" power signal. At this point DIGITAL ACTIVO 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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• Advantages

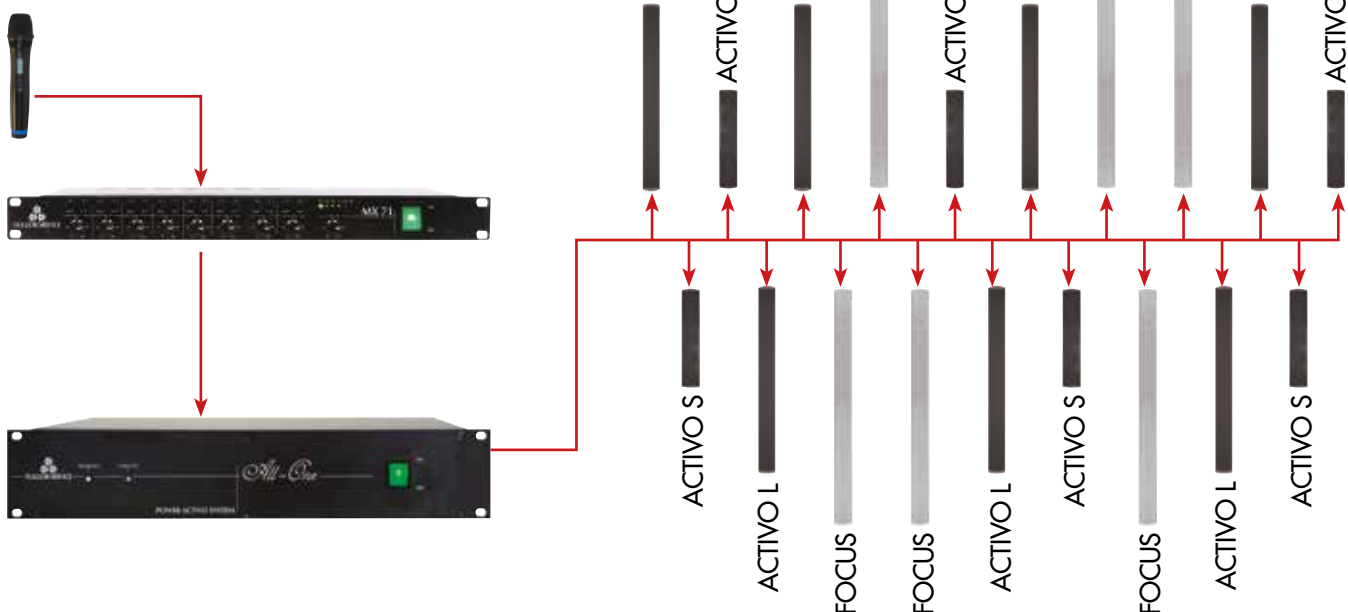
- The installations will be fast, simple and highly performing, even using the existing 2-wire cable.
- VERTICAL ACTIVO speakers series with DSP on board will be efficient; thanks to the technical characteristics of each speaker (dedicated line array - volume, equalization and delay control) the entire 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 ACTIVO ONE SYSTEM 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 ACTIVO ONE SYSTEM. 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.

• Installation diagram example



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•Components

ALL-ONE

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

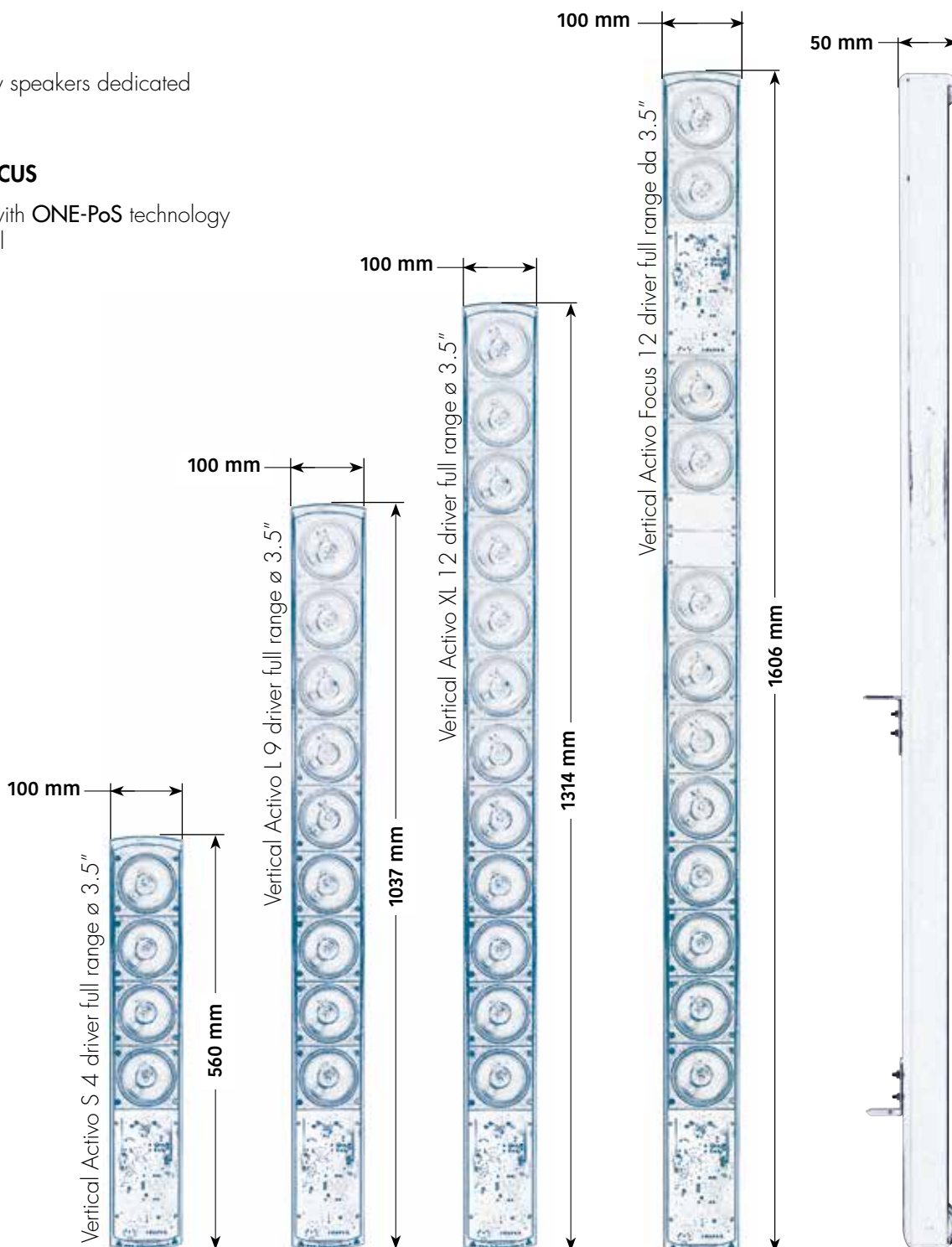


VERTICAL ACTIVO

- 3 different Line Array speakers dedicated to **ONE-PoS** tech

VERTICAL ACTIVO FOCUS

- Line Array speaker with **ONE-PoS** technology
- Vertical beam control



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All-One



Front view



Rear view

• General description

ALL-ONE is the power supply unit for ACTIVO ONE SYSTEM and its task is 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 ALL-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, that is **P.o.S. POWER over SIGNAL**.

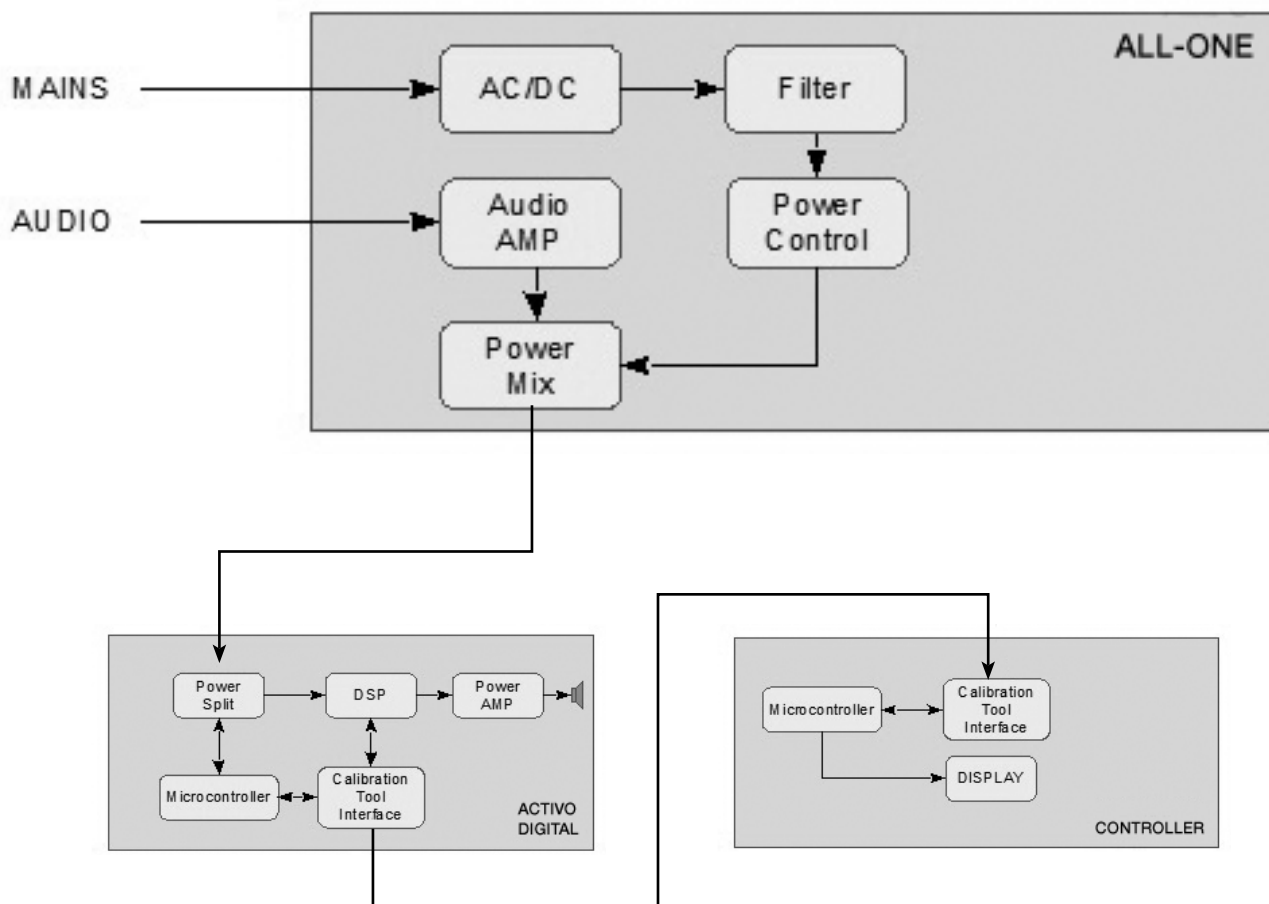
The ALL-ONE power module consists of an AC-DC switching 650 watt with output voltage to the loudspeakers at 43Vdc, specially filtered.

ALL-ONE 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-adaptor.

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

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• Block diagram



• Technical specifications

• technology:	ONE-PoS
• main out:	43 / 44 Vdc
• maximum output power:	15 A max (645 W max)
• maximum load:	max. 15 speakers total, ACTIVO S, L or XL
• 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

Vertical Activo

• General description

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

- Vertical Activo XL 12 drivers full range 3.5"
- Vertical Activo L 9 drivers full range 3.5"
- Vertical Activo S 4 drivers full range 3.5"

VERTICAL ACTIVO Line Array consists of 3.5" high efficiency drivers mounted on self-supporting basket that ensures to 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 audio features without creating acoustic intersections.

VERTICAL ACTIVO series, thanks to its design, is able to fit discreetly in each structure. The standard colors are white RAL 9010 and 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 empty/full 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 PCB is equipped with built-in amplifier and DSP that lets you control each speaker independently.



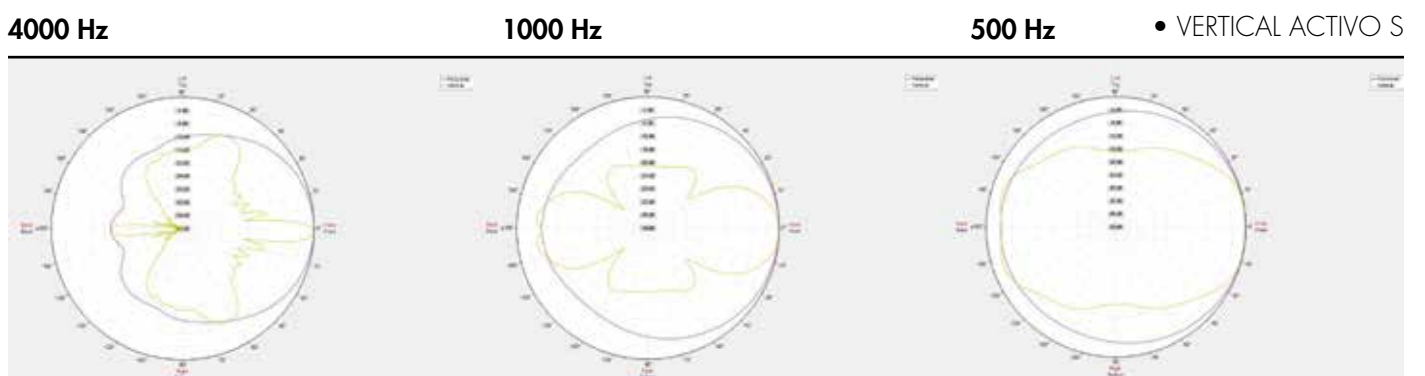
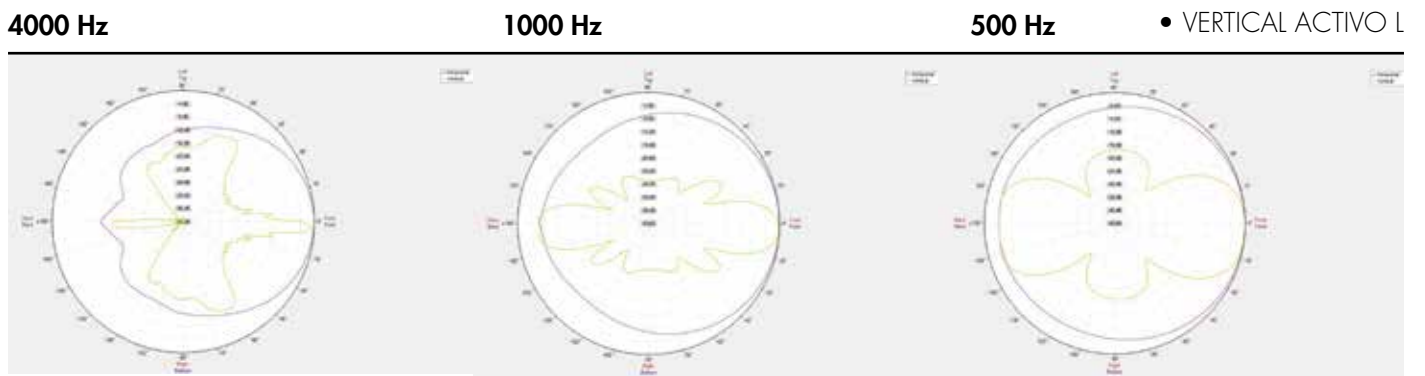
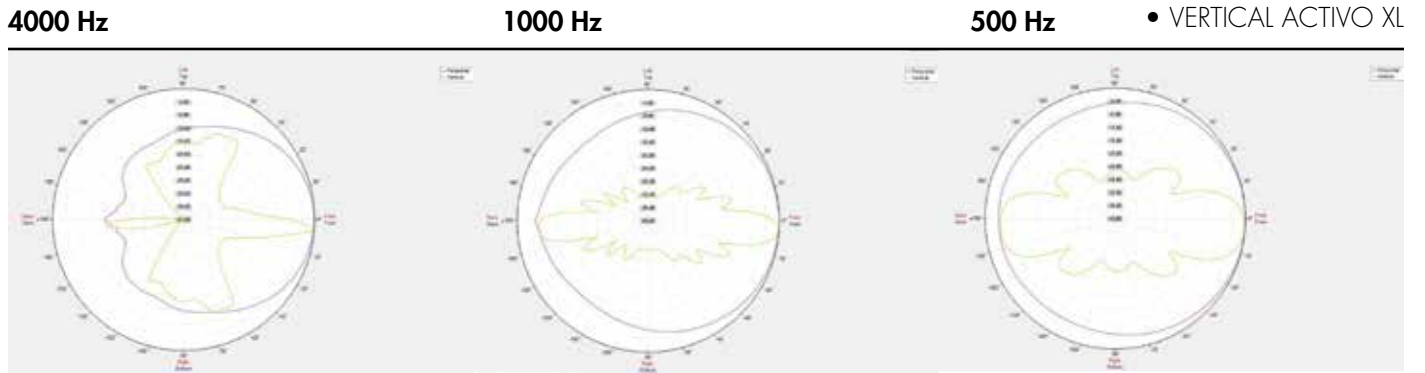
Changeable parameters are:

- Gain from -20dB up to +6dB
- Delay (in meters) from 0 up to 64 meters
- 4 Preset EQ: Flat, Voice, Ambient, Focus

Release 2.1

• Array specifications

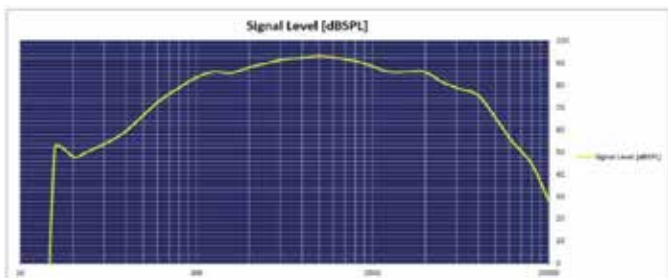
Polar diagram horizontal and vertical axes



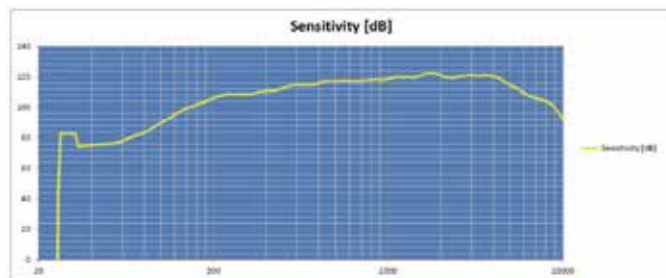
Release 2.1

• Vertical Activo XL

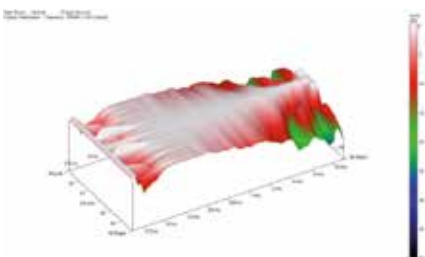
Maximum SP



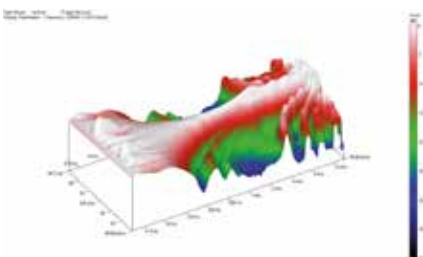
Sensitivity



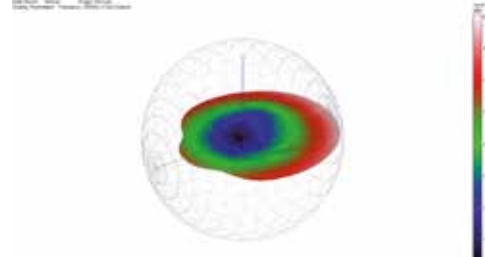
Horizontal scattering



Vertical scattering



Baloon at 2000 Hz



• Technical specifications

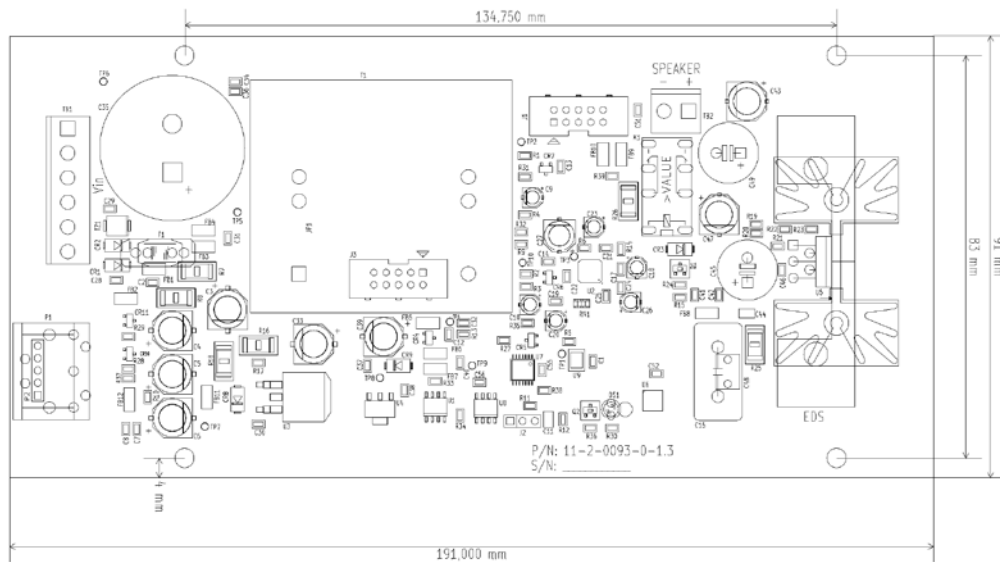
Technical Details VERTICAL ACTIVO S - L - XL

• 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:	4 Preset EQ: Flat, Voice, Ambient, Focus
• 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
• main:	dedicated ALL-ONE power supply with technology ONE-PoS
• maximum consuption:	900 mA
• voltage regulation:	local linear technology
• weight Activo XL:	8,50 Kg
• weight Activo L:	6,90 Kg
• weigh Activo S:	3,50 Kg
• dimensions Activo XL:	(HxWxD) 1314x100x50 mm
• dimensions Activo L:	(HxWxD) 1037x100x50 mm
• dimensions Activo S:	(HxWxD) 560x100x50 mm

The appropriate CONTROLLER is required to set the DSP mounted on the board DIGITAL ACTIVO

Release 2.1

Digital Activo



• General description

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

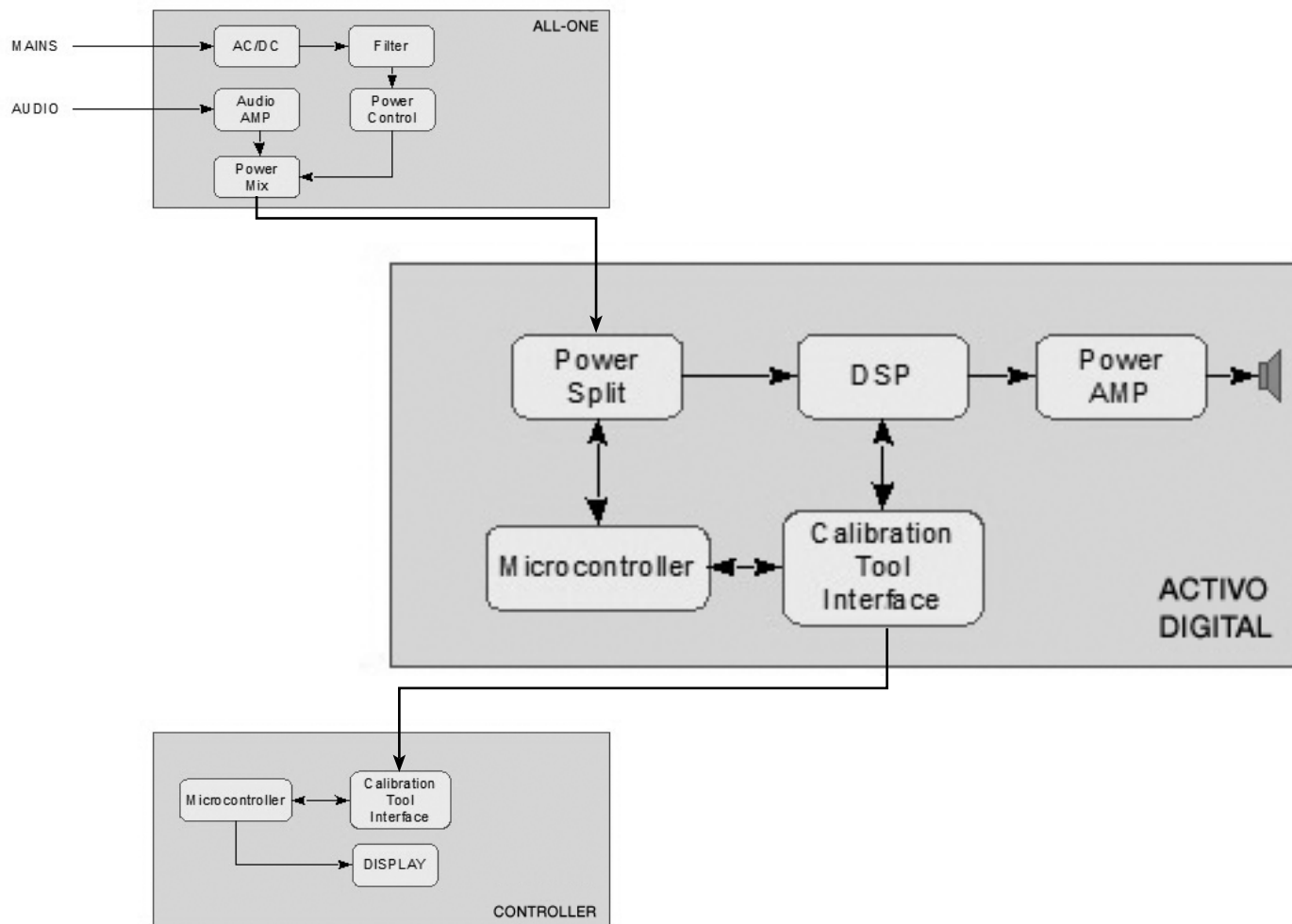
1. Input module **ONE-PoS** technology: it provides to decode "demux" and split the composite signal generated by ALL-ONE, powering the following modules and providing the audio signal.
2. Processing module: the audio signal is handled by the DSP and circuit control, ready to be directed towards the 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 and compact PCB which perfectly finds its place in the extruded of the speaker in the same encumbrances provided for the drivers.

The appropriate CONTROLLER is required to set the DSP mounted on DIGITAL ACTIVO.

Release 2.1

• Block diagram



• 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:	4 Preset EQ: Flat, Voice, Ambient, Focus
• 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
• maximum consumption:	900 mA
• input signal:	ONE enmux
• main:	dedicated ALL-ONE power supply with technology ONE-PoS
• voltage regulation:	local linear technology
• weight	700g
• dimensions	(WxDxH) 190x90x40 mm

Release 2.1

Activo Focus

• General description

New **Vertical Activo Focus** speaker is part of System One Activo series; it has two main features:

It works by using a common 2-wire 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 innovation of being able to control the "**Focus**" beam emitted. By connecting the new audio system Activo to an already existing wiring we could: adjust volume, give the delay, align the acoustic focus to the listeners.

Everyone knows that, when dealing with speech intelligibility, the sound must be as much as possible 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 help, achieving, thanks to the power of the DSP processors and class-D amplifiers, performances unthinkable until a few years ago, but with costs accessible to everyone now. Fulgor developed its own technology with its own algorithm to manage the "**Focus**" on the vertical axis, towards the listener, integrating it with its own well-proven Activo One System, obtaining a product or system widely used, easy to install, qualitatively performing with very interesting costs.

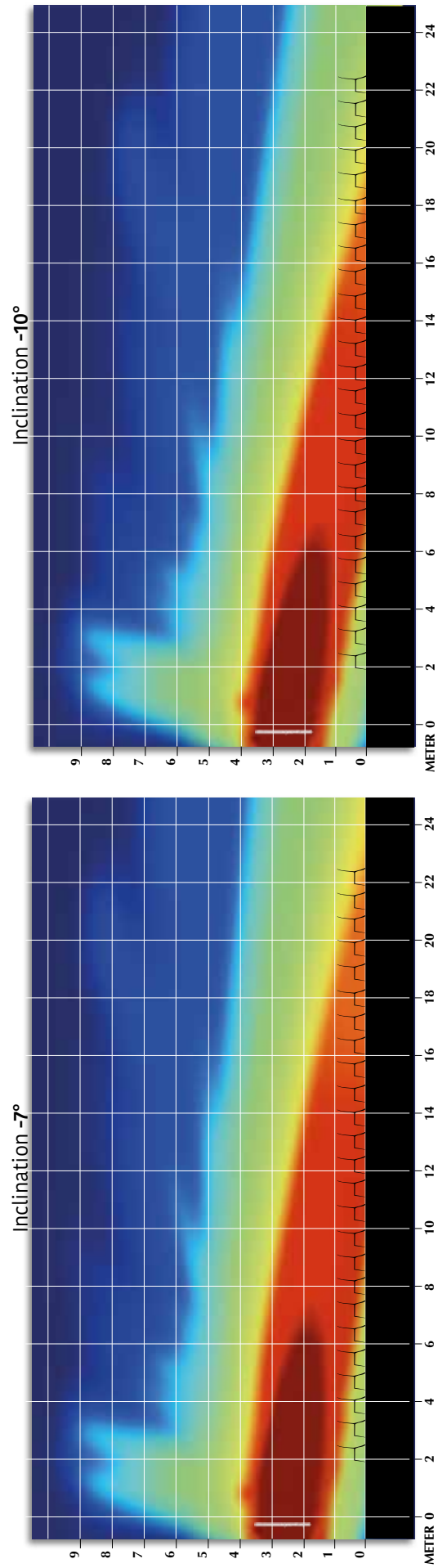
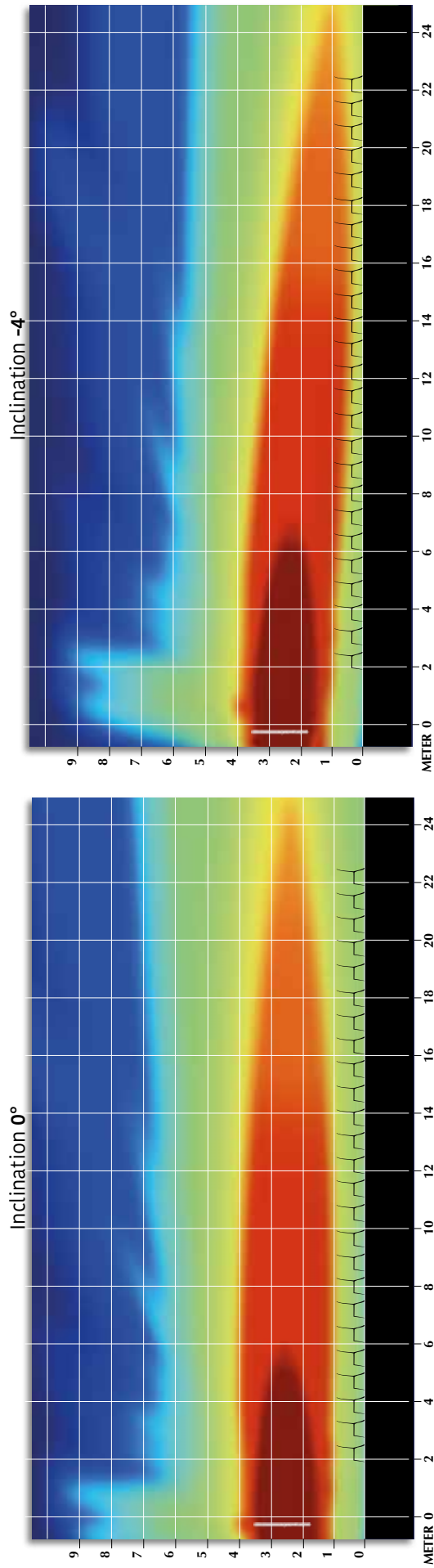
The technology used in **Activo Focus** is partially the one already used in Activo XL, L, S, able to decode the signal and the power sent through 2-wire cable line from ALL-ONE, which is the system's power supply. In each speaker you have the possibility to adjust volume, delay and equalization. Furthermore the new **Activo Focus** has a more powerful DSP on board and a 4-channels digital amplifier, which thanks to the algorithm specially designed directs the sound down. Each groups of speakers of **Activo Focus** are separately driven by DSP and by the amplifiers, the algorithm drives each group changing and combining the main parameters (level, bandwidth, delay), so as to create an homogeneous beam, controlled and accurate. The algorithm for Activo Focus setting is on board, thus facilitating the management for the technicians through the intuitive configuration controller.

The technician can manage the volume and delay of each speaker and adjust the vertical angulation of the beam from 0° to -10°.

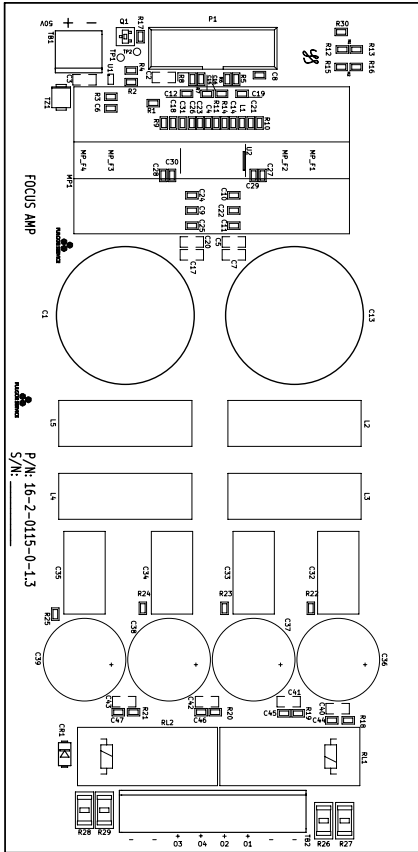


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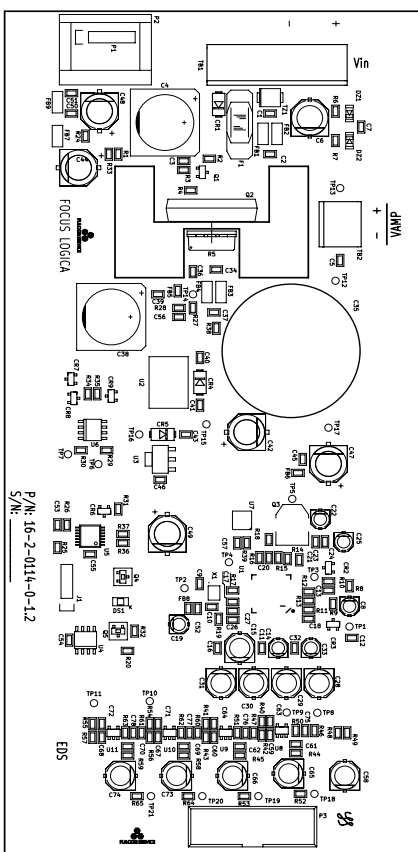
• Activo Focus specifications - vertical inclination angle variation in degrees



Electronics



AMP PCB



Logic PCB



Release 2.1

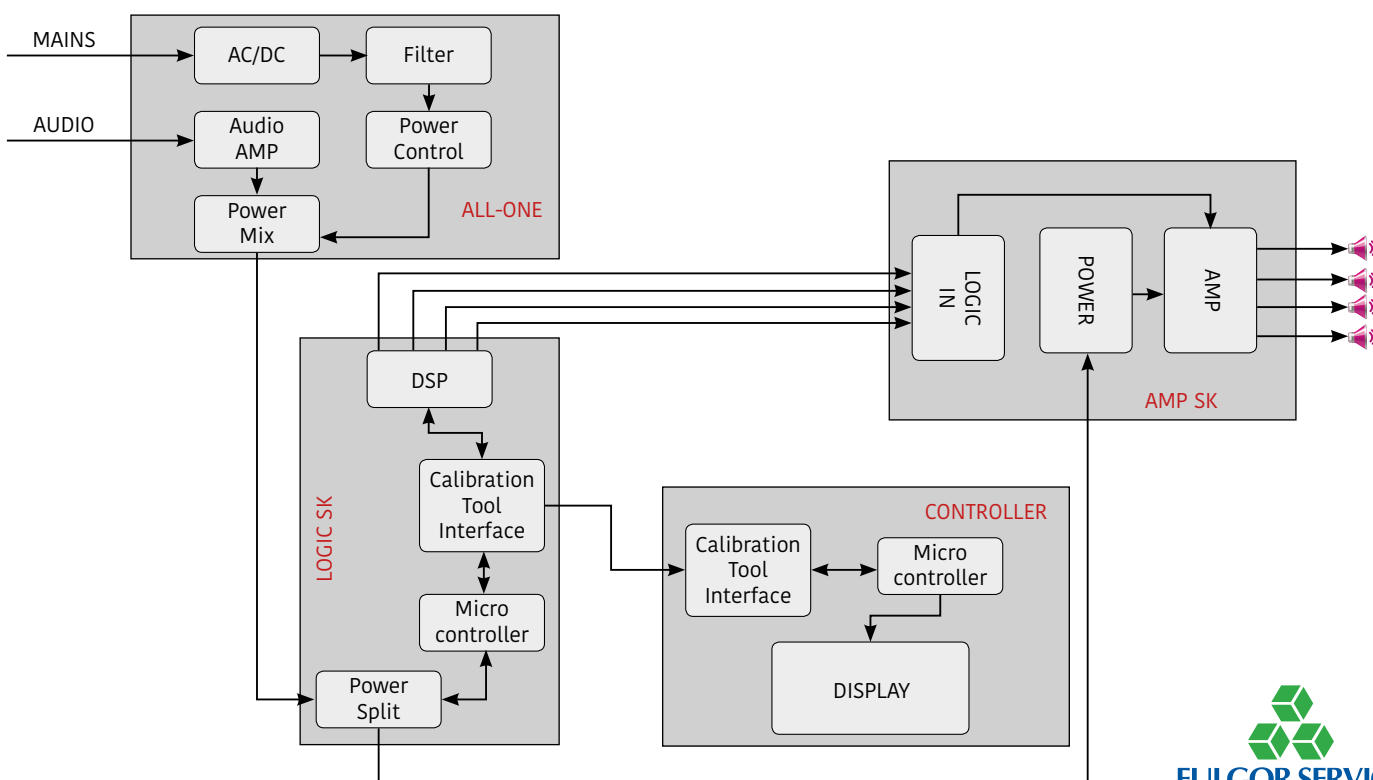
• Technical specifications

Specifications **VERTICAL FOCUS ACTIVO** speakers

• 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
• use distance for short message:	intelligibility up to 30 meters
• constant use distance:	intelligibility 20/22 meters
• pointing angles:	0° -1° -2° -3° -4° -5° -6° -7° -8° -9° -10°
• integrated amplifiers:	4 class-D
• power on each amplifier:	50 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
• 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
• maximum consumption:	2500 mA
• 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	(HxVxD) 1606x100x50 mm

For settings you need the appropriate Controller.

• Block diagram



Controller



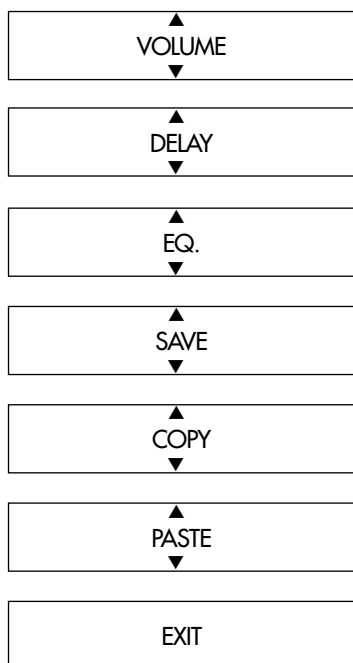
• Description

The CONTROLLER is an handy, fast and intuitive device to configure VERTICAL ACTIVO and VERTICAL ACTIVO FOCUS speakers.

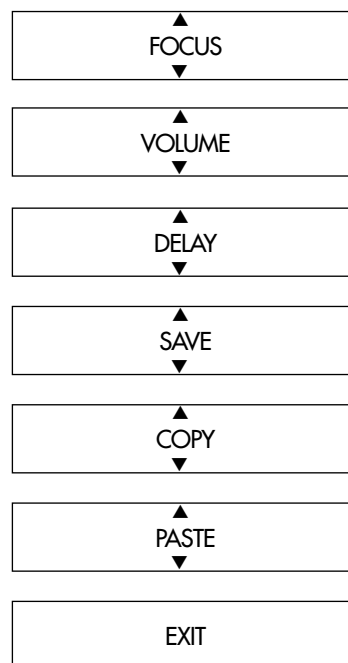
Once it's connected, the data stream will start and the DSP of each speaker can be programmed.

On the CONTROLLER a display/button allows to enter the simple programming menu, which automatically knows if the speaker is VERTICAL ACTIVO or VERTICAL ACTIVO FOCUS.

Vertical Activo Menu



Vertical Focus Menu



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