

Activo One System

one cable active speakers DSP on board

Data Sheet - Release 4.2



ONE CABLE POWER & SIGNAL

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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.**
- **With Activo System a new cabling infrastructure IS NOT necessary.**

The clients bind designers and architects to restructure or design environments where the general attention to detail is very high, increasingly reducing the points of audio diffusion. 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 matrices, multi-channel power units and above all the laying of many lines, or the installation of even more expensive systems and technologies, with the constraint of powering each speaker at 220Vac, also carrying the audio signal, through a dedicated ethernet network, or through a low frequency shielded signal.

With Activo One System this is no longer necessary, since it is enough only one power supply and the 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 or ALLONE-ONE LIGHT V2, 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, create and generate 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 the electronics DIGITAL ACTIVO with DSP, built-in amplifier and **ONE-PoS** technology, that can split the audio signal from the "demux" power signal are placed. 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 have an excellent efficiency, in fact 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

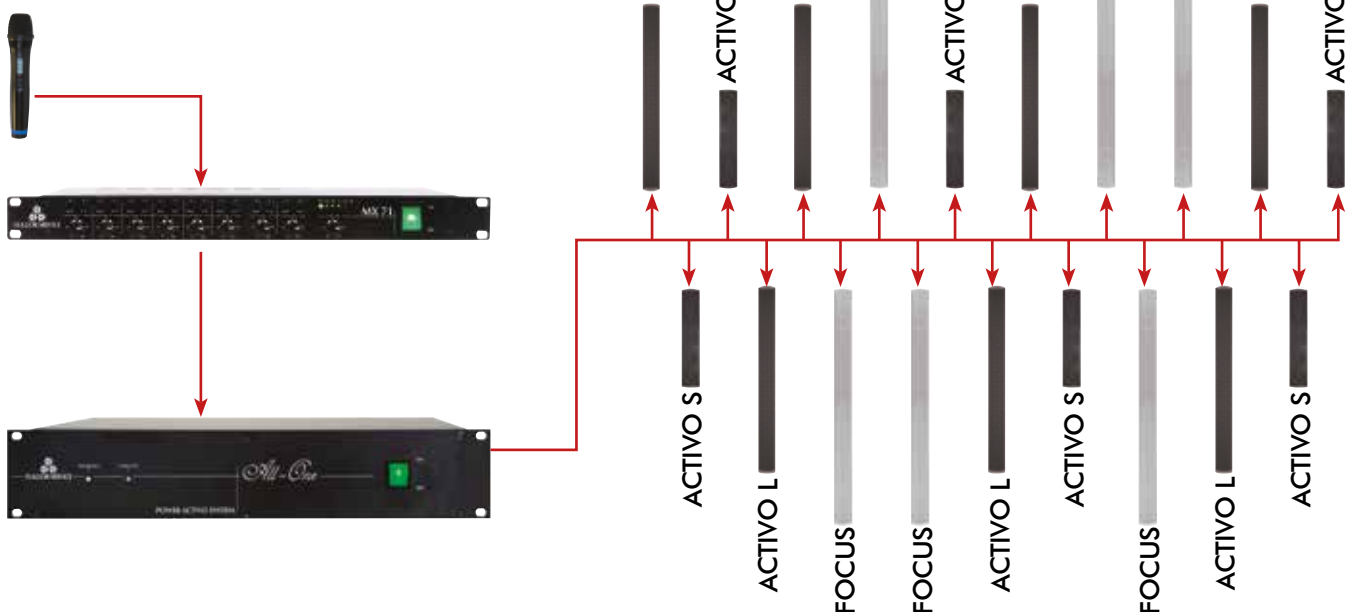
There are no limits to the use of the ACTIVO ONE SYSTEM. We list some structures where you can install the system:

- 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 powers VERTICAL ACTIVO Speakers series



ALL-ONE LIGHT V2

- Power supply unit dedicated to **ONE-PoS** technology, 1 unit rack and remote control which powers VERTICAL ACTIVO Speakers series



CONTROLLER

- Programming user interface



CONTROLLER WI-FI

- Dongle for creating a WI-FI network



APP ACTIVO SYSTEM

- IOS and Android programming user interface



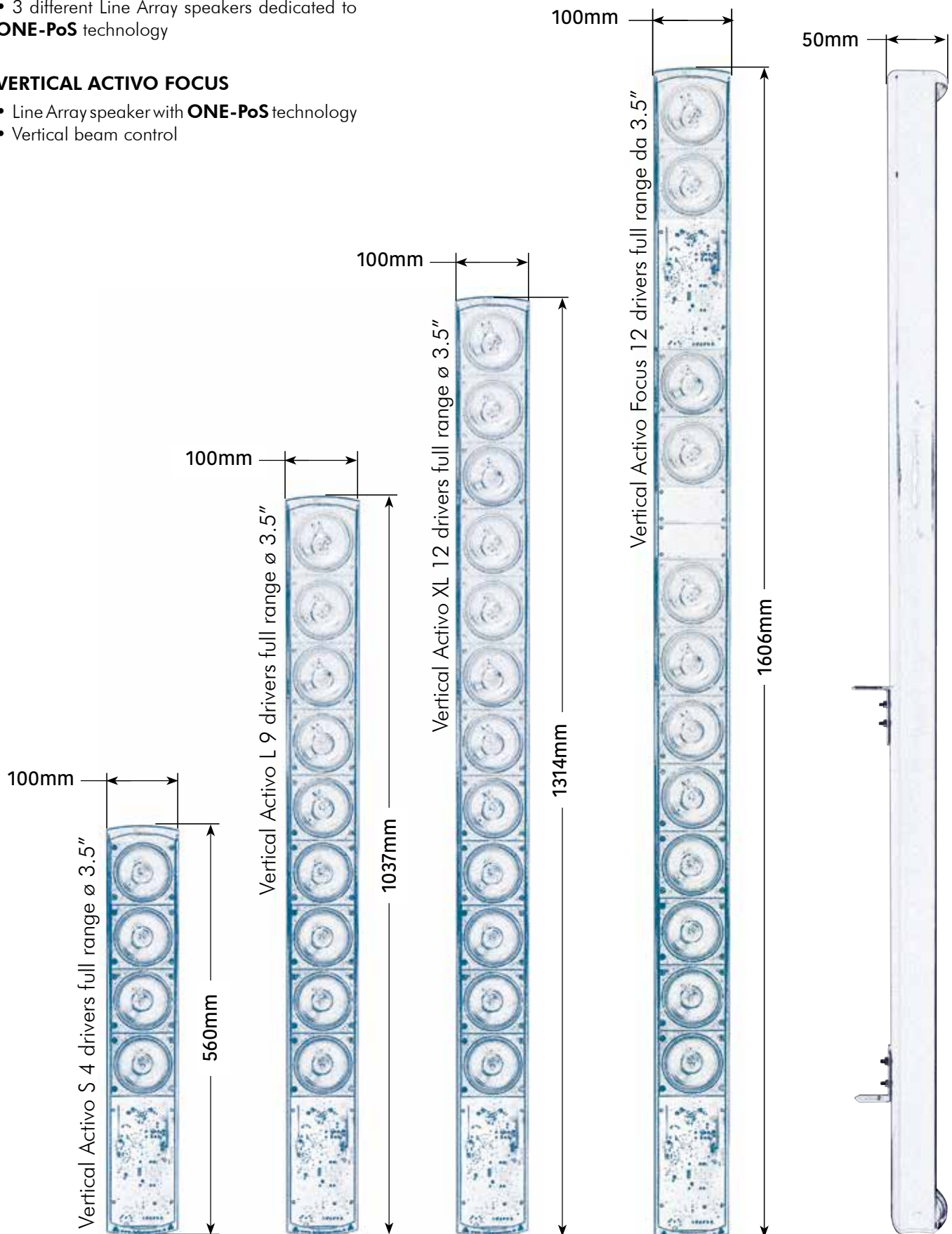
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VERTICAL ACTIVO

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

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 ACTIVO ONE SYSTEM power supply and has the task of feeding and distributing the audio signal to all the speakers in the system.

The audio signal coming, for example, from the output of a mixer is connected to ALL-ONE, which processes the signal with the technology called ONE. This technology combines power to the audio signal, in a composite signal called "enmux", now capable of being transported via a common bipolar cable to a group of speakers.

All this is **P.o.S.**, i.e. **Power over Signal**.

The ALL-ONE power supply module consists of a 650 Watt AC-DC switching with 43Vdc output voltage towards the speakers, specially filtered.

The management part of the audio signal of ALL-ONE consists of a digital module that simultaneously monitors the power supply and transforms the low frequency signal into the enmux signal suitable for being routed (together with the power supply) to the output via the adapter transformer.

The ALL-ONE electronics are contained in a standard 2U rack cabinet with XLR audio input connections, and euroblock for the output to the speakers.

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All-One Light V2



front view



rear view

• General description

ALL-ONE LIGHT V2 is the smallest power supply of ACTIVO ONE SYSTEM and has the task of feeding and distributing the audio signal to all the speakers of the system.

The audio signal coming, for example, from the output of a mixer is connected to ALL-ONE LIGHT V2, which processes the signal with technology called ONE. This technology combines power to the audio signal, in a composite signal called "enmux", now capable of being transported via a common bipolar cable to a group of speakers.

All this is **P.o.S.**, i.e. **Power over Signal**.

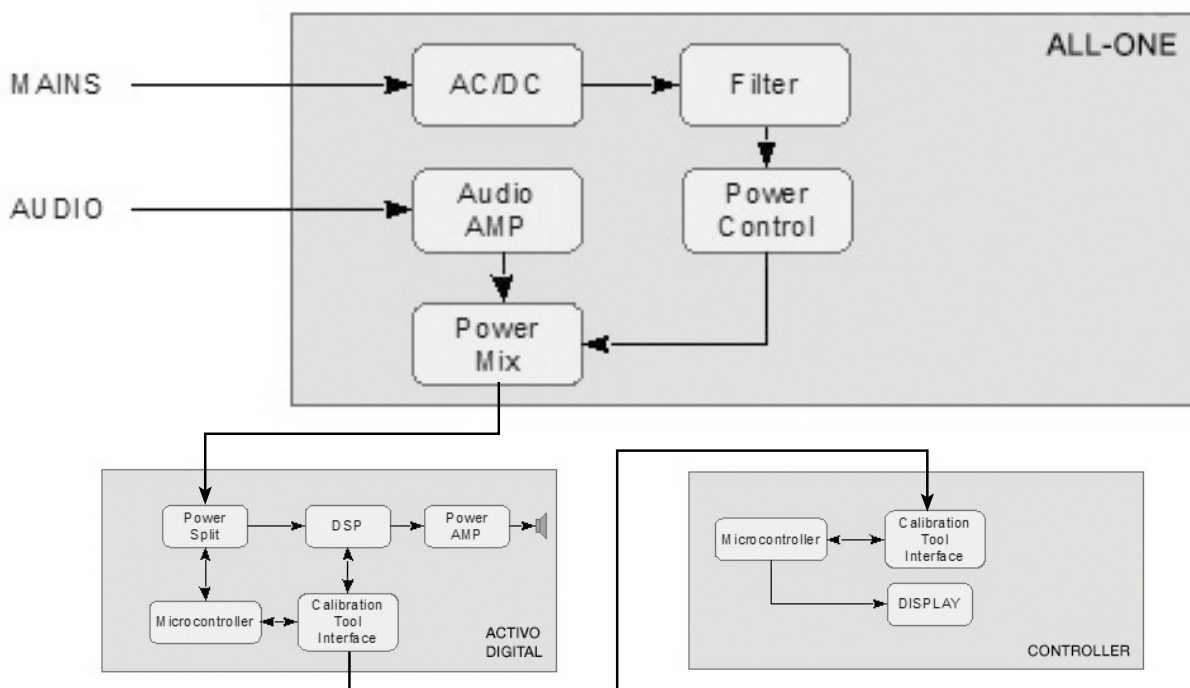
The ALL-ONE LIGHT V2 power supply module consists of a 400 Watt AC-DC switching with 45Vdc output voltage towards the speakers, specially filtered.

The management part of the audio signal of ALL-ONE LIGHT V2 consists of a digital module that simultaneously monitors the power supply and transforms the low frequency signal into the enmux signal suitable for being routed (together with the power supply) to the output via the transformer-adapter.

In addition, ALL-ONE LIGHT V2 compared to its predecessor, has the REMOTE function, which gives the possibility of being inserted in a system with P.o.S. technology so as to lengthen the line up to where it is needed.

The ALL-ONE LIGHT V2 electronics are contained in a 1 unit standard rack, the brackets are included in the package to be placed side by side with two devices in a standard rack unit. All connections are the same as its predecessor, with XLR audio input, and Euroblock for the output to the speakers.

• All-One and All-One Light V2 block diagrams



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• All-One Technical specifications

• technology:	ONE-PoS
• main out:	43/44 Vdc
• maximum output power:	15 A max (645W max)
• maximum load:	max. 15 speakers total, ACTIVO S, L, or XL
• protections:	1 on output signal, 1 on reverse polarity, 1 on short circuit
• anti-bump circuit:	1 on and 1 off
• switching on:	soft start
• bandwidth:	50 ÷ 18000Hz
• 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:	8,50Kg
• dimensions:	Standard rack 2 U: 88x482x300mm

• All-One Light V2 Technical specifications

• technology:	ONE-PoS
• main out:	45 Vdc
• maximum output power:	6.6 A max (320W max)
• maximum load:	max. 7 speakers total, ACTIVO S, L, or XL max. 3 speakers total ACTIVO FOCUS Example: 2 Focus, 1 Activo S (7 total)
• protections:	1 on output signal, 1 on reverse polarity, 1 on short circuit
• anti-bump circuit:	1 on and 1 off
• switching on:	soft start
• bandwidth:	50 ÷ 18000Hz
• amplifier harmonic distortion:	<0,1%
• cooling:	forced circulation with thermostated fans
• voltage regulation:	local linear technology
• power input:	230Vac
• input audio signal:	balanced line 0,775mv.
• weight:	3,2Kg
• dimensions:	1 standard rack: 45x482x225mm

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Vertical Activo

• General description

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

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

Inside each speaker there is an insulation consisting of 3 sound-absorbing materials to avoid rear dispersions or retro reflections.

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 makes you control each speaker independently.

Changeable parameters are:

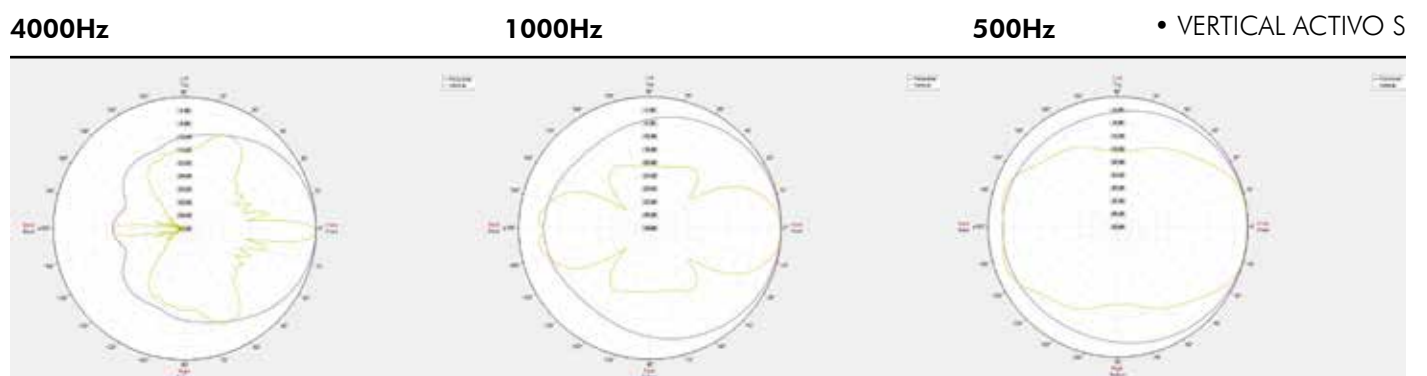
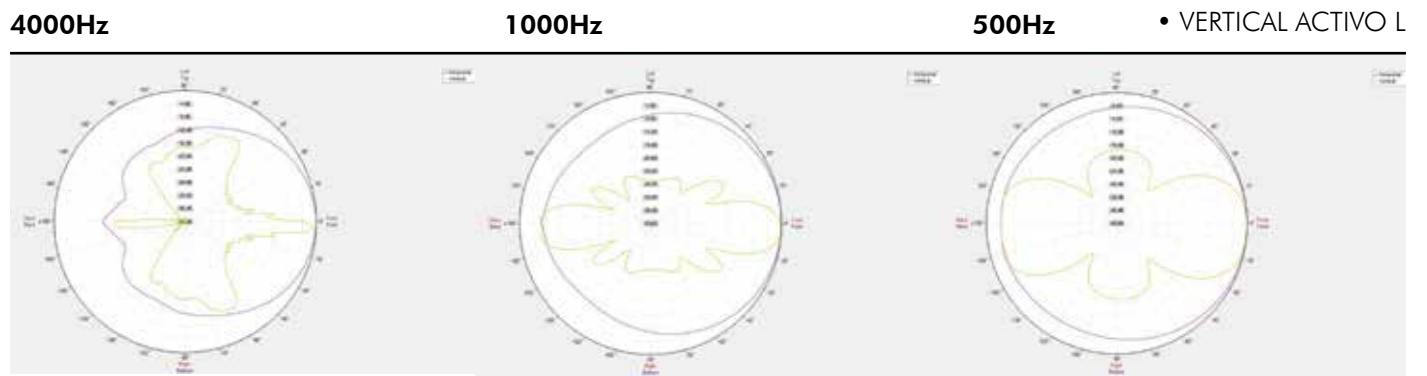
- Gain from -20dB up to +6dB
- Delay (in meters) from 0 up to 64 meters
- 4 Preset EQ: Flat, Voice, Ambient, Focus



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- Array specifications

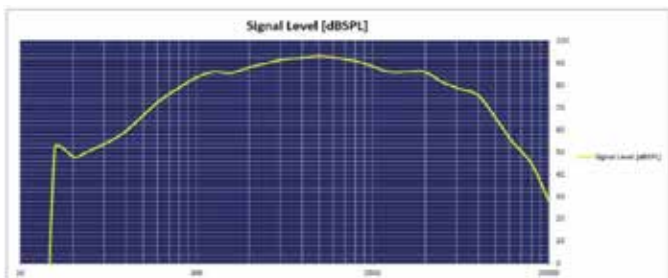
Polar diagram horizontal and vertical axes



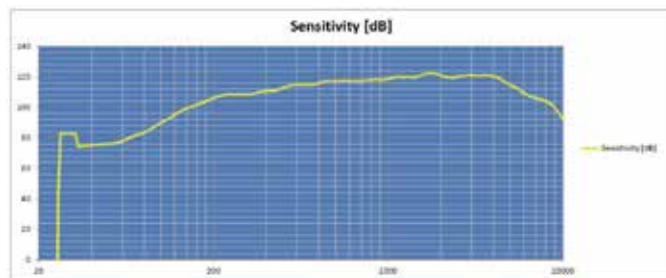
Versione 4.2

• Vertical Activo XL

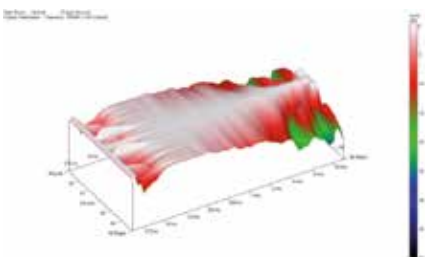
Maximum SPL



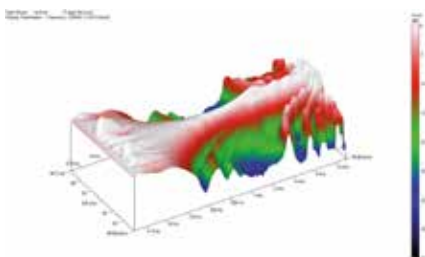
Sensitivity



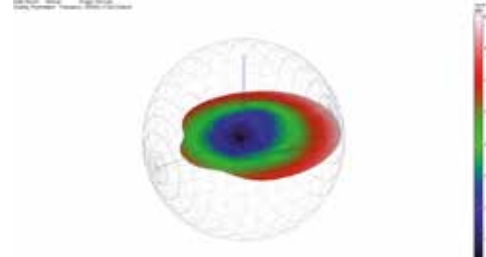
Horizontal scattering



Vertical scattering



Baloon at 2000Hz



• Technical specifications

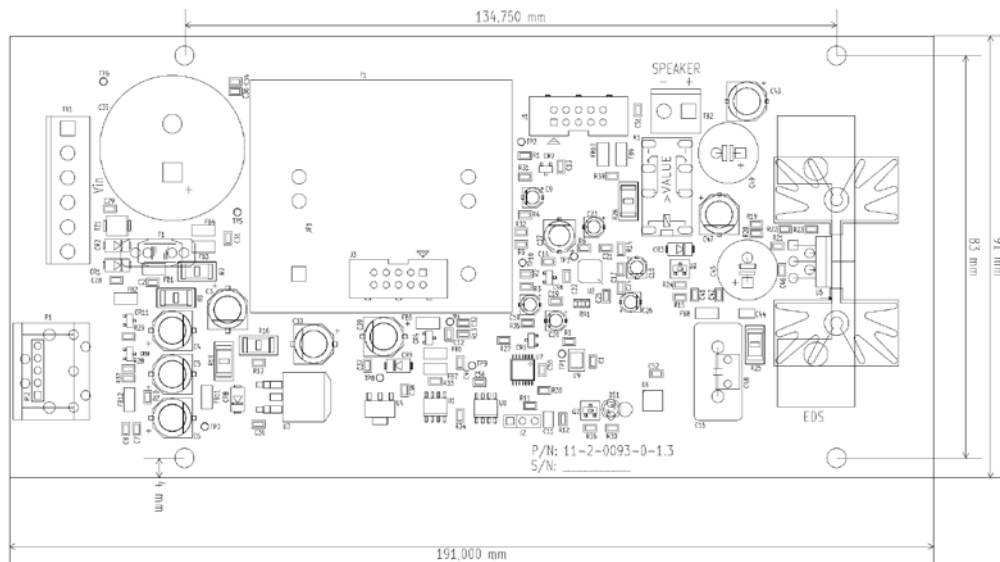
Technical details VERTICAL ACTIVO S - L - XL

• tecnologia:	DSP and ONE-PoS
• DSP:	on board 28/56 bit - fs 48KHz
• output power:	35W RMS (65W peak) at 8Ohm
• protections:	1 on output signal, 1 on reverse polarity, 1 on short circuit
• anti-bump circuit:	1 on and 1 off
• equalizations:	4 Preset EQ: Flat, Voice, Ambient, Focus
• bandwidth board:	50 ÷ 18000Hz
• s/n ratio:	better than 9dB; distorsion <0,3%
• cooling:	integral natural circulation
• input power:	43-45V DC
• input signal:	ONE enmux
• main:	dedicated ALL-ONE power supply with technology ONE-PoS
• maximum consuption:	900mA
• voltage regulation:	local linear technology
• Activo XL weight:	8,50Kg
• Activo L weight:	6,90Kg
• Activo S weight:	3,50Kg
• Activo XL dimensions:	1314x100x50mm
• Activo L dimensions:	1037x100x50mm
• Activo S dimensions:	560x100x50mm

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

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Digital Activo



• General description

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

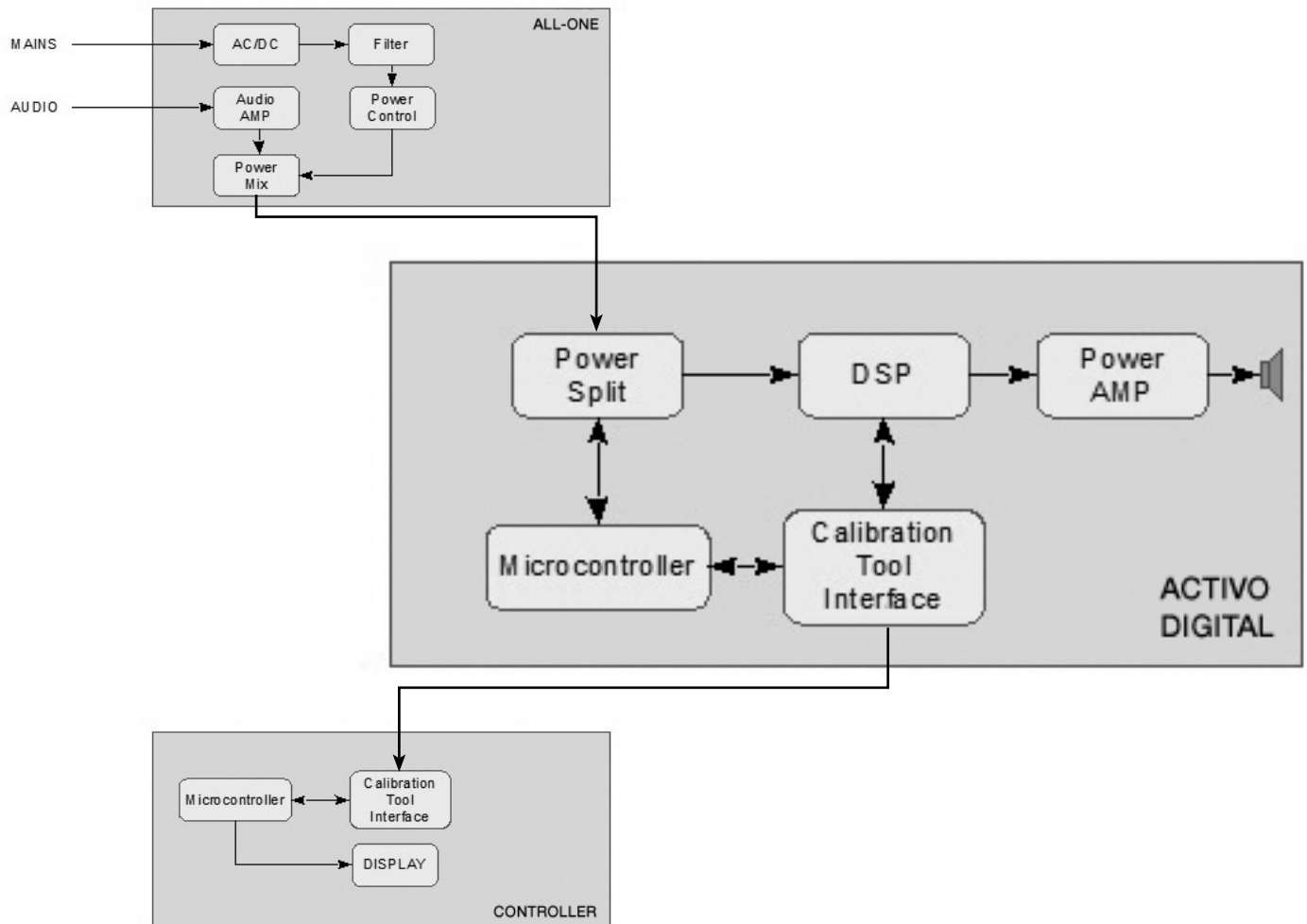
1. Input module with **ONE-PoS** technology: it provides to decode “demux” and split the composite signal generated by ALL-ONE, powering the following modules and providing the audio signal.
2. Processing module: the audio signal is handled by the DSP and circuit control, ready to be directed towards 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.

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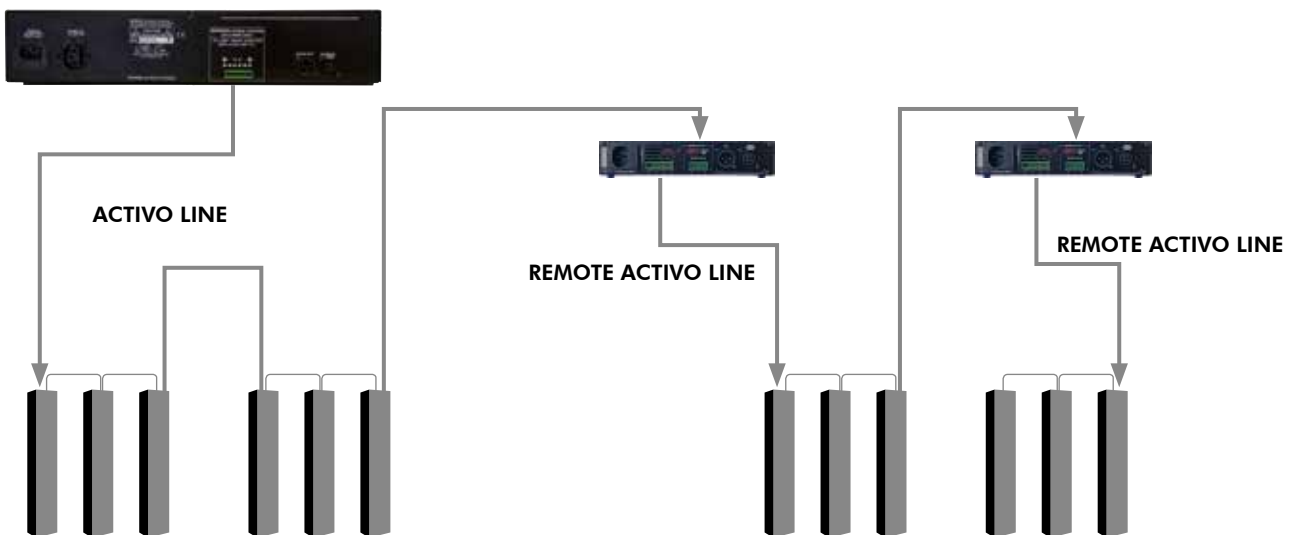
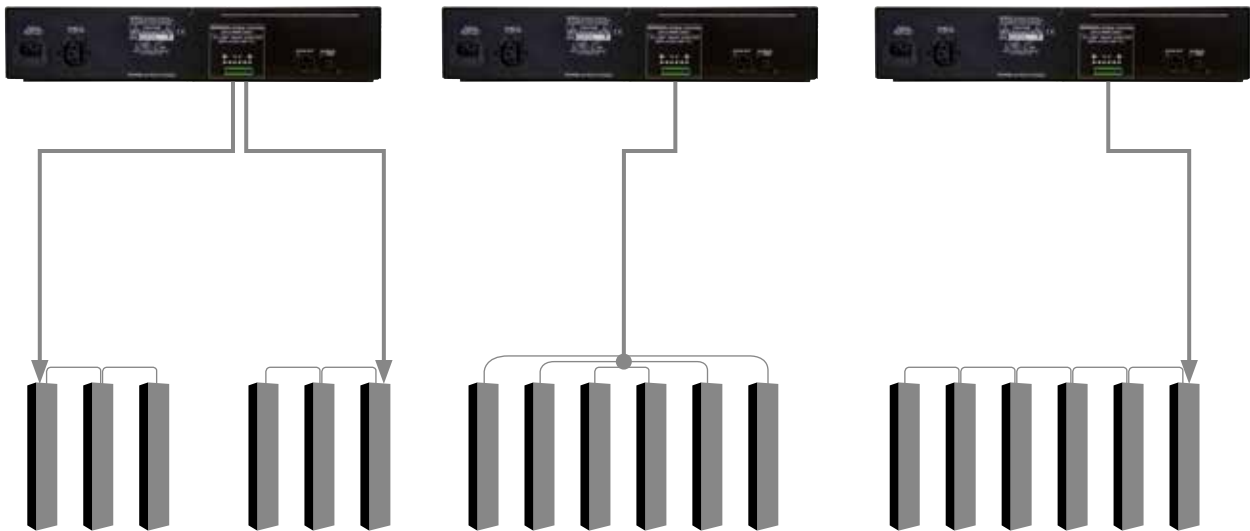
• Block diagram



• Technical specifications

• technology:	DSP and ONE-PoS
• DSP:	on board 28/56 bit - fs 48KHz
• output power:	35W RMS (65W peak) 8Ohm
• protections:	1 on output signal, 1 on reverse polarity, 1 on short circuit
• anti-bump circuit:	1 on and 1 off
• equalization:	4 Preset EQ: Flat, Voice, Ambient, Focus.
• bandwidth board:	50 ÷ 18000Hz
• s/n ratio:	better than 98dB; distortion <0,3%
• cooling:	integral natural circulation
• input power:	43-45V DC
• maximum consumption:	900mA
• input signal:	ONE enmux
• main:	dedicated ALL-ONE power supply with technology ONE-PoS
• voltage regulation:	local linear technology
• weight:	700g
• dimensions:	190x90x40mm

Connection diagrams to the Activo System



Activo speakers can be connected in parallel, above some examples of possible connections between speakers and power supplies.

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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.

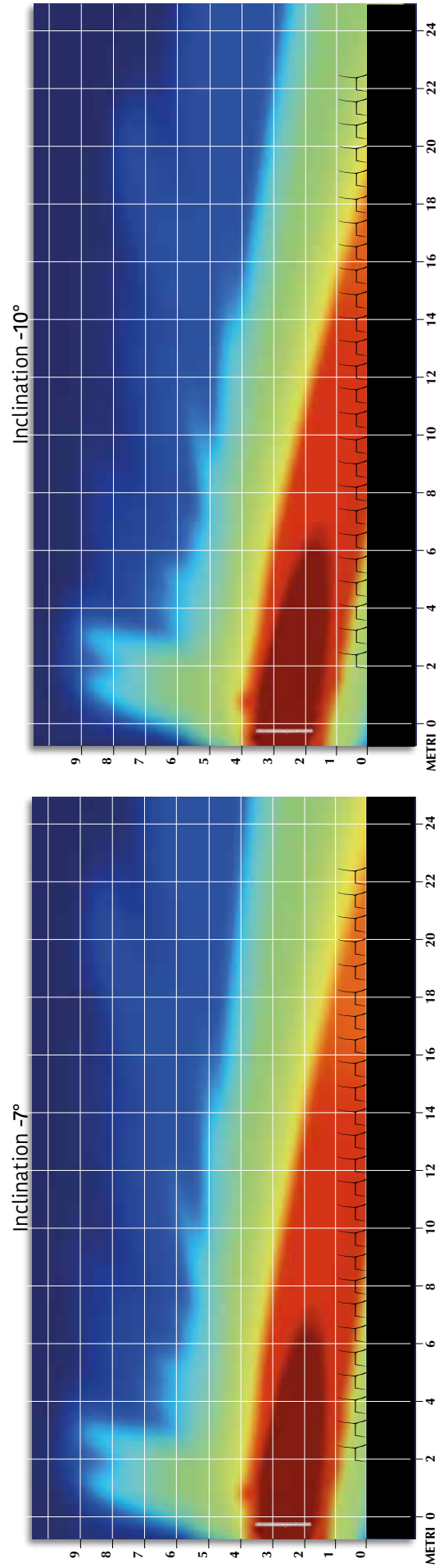
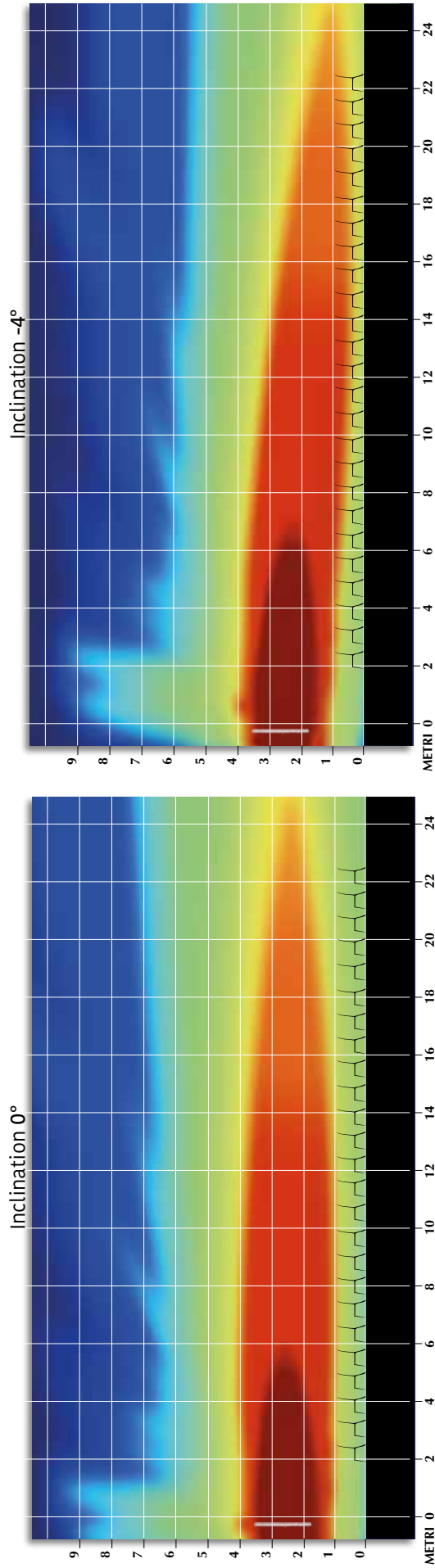
The technology used in **Activo Focus** is partially the one already used in Activo XL, L, S, able to decode the signal and the power sent through 2-wire cable line from ALL-ONE, which is the system's power supply. In each speaker you have the possibility to adjust volume, delay and equalization. Furthermore 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°.



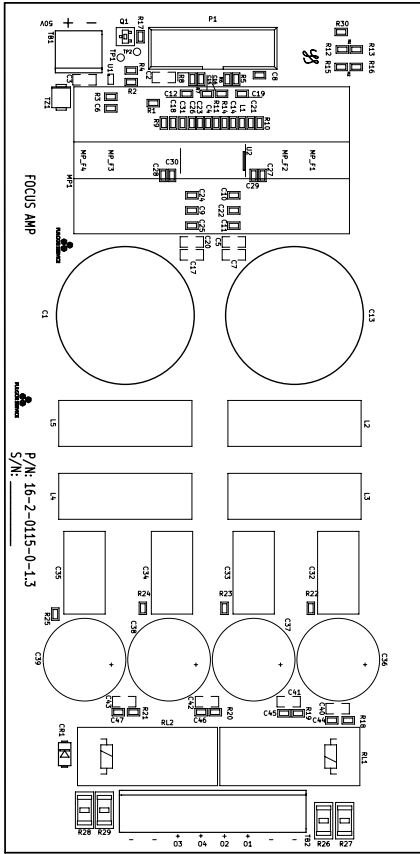
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• Activo Focus Specifications – Variations in vertical inclination angle in degrees

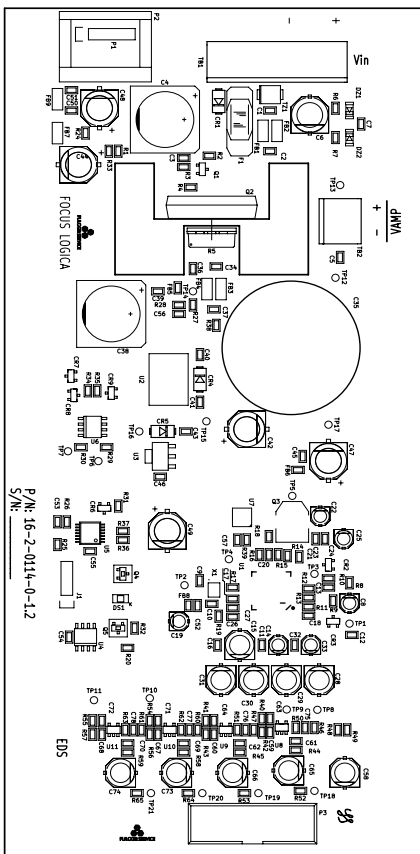


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Electronics



AMP PCB



Logic PCB



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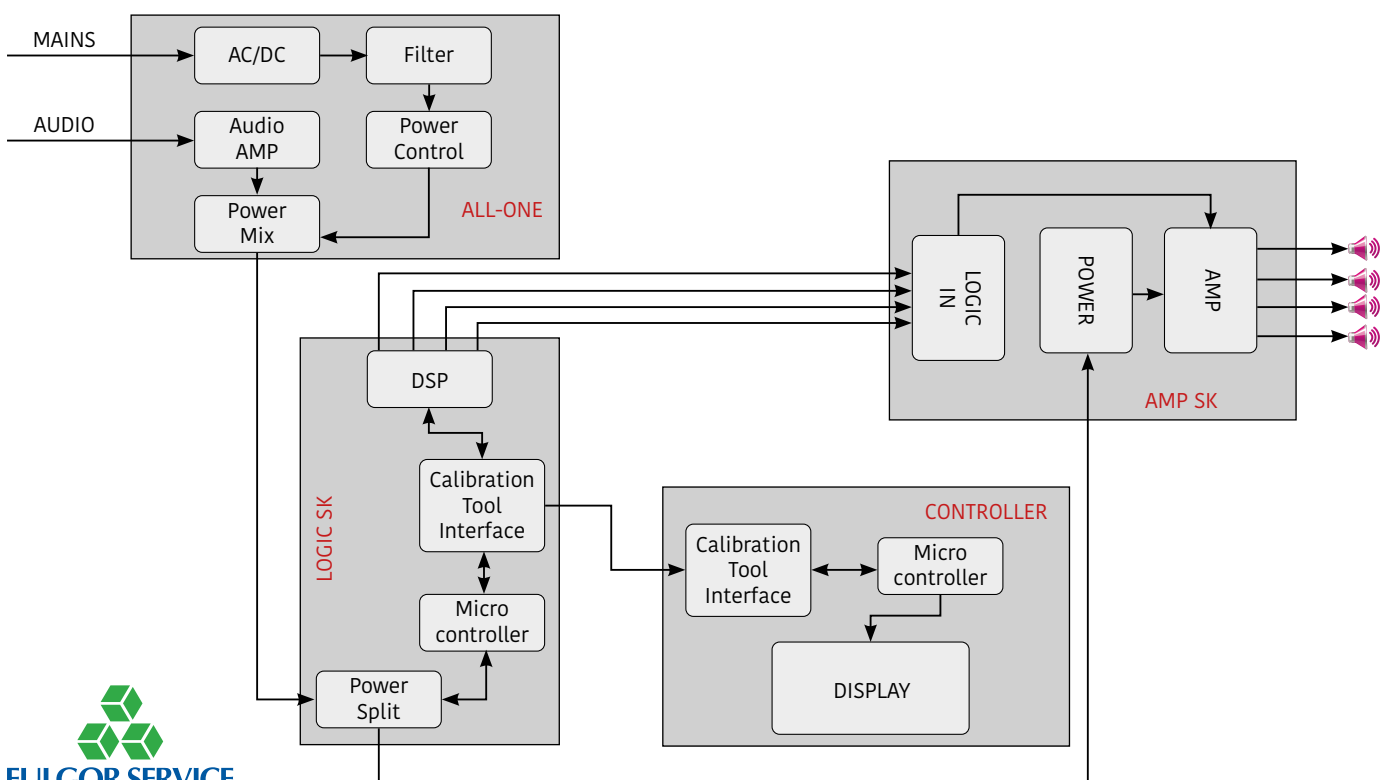
• Technical specifications

Technical details **VERTICAL ACTIVO FOCUS** speakers

• technology:	DSP and ONE-PoS
• DSP:	on board 28/56 bit - 48KHz
• focus control:	250 ÷ 18000Hz
• 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:	50W RMS (100W peak) of 8Ohm
• protections:	1 on the input signal, 1 on reverse polarity 1 of short-circuiting
• circuito anti-bump:	1 on and 1 off
• bandwidth board:	80 ÷ 18000Hz
• s/n ratio:	better than 9dB; distortion <0.3%
• cooling:	integral natural circulation
• input power:	43V DC
• input signal:	ONE enmux
• main:	specific power supply ALL-ONE with Technology ONE-PoS
• maximum consumption:	2500mA
• voltage regulation:	local linear technology
• weight:	10,50kg
• dimensions:	1606x100x50mm

For settings you need the appropriate CONTROLLER.

• Block diagram



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Controller



• Description

It is used to program the DSP which is inside all the speakers of the ACTIVO series; it is the technician's user interface.

Through the small multifunction display of the controller, it integrates 3 buttons (upper button, central button, lower button).

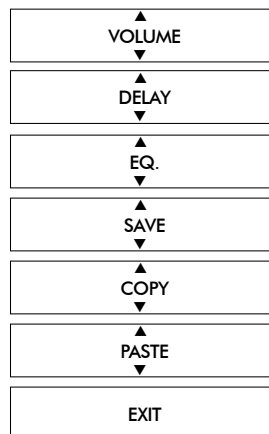
The controller is powered by the speaker boards of the ACTIVO line simply by connecting the controller cable that ends with the 5-pole DIN to the appropriate socket on the DIGITAL ACTIVO or FOCUS LOGIC boards.

Once the plug has been inserted, the controller display lights up with the welcome message "FULGOR SERVICE" and at the same time, the blue LED of the DIGITAL ACTIVO or FOCUS LOGIC board goes off.

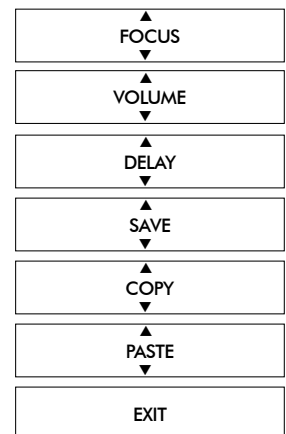
• ACTIVO S - L - XL

- VOLUME: allows you to change the volume from -20dB to +6dB
- allows you to set the delay from a speaker to another to avoid overlaps, adjustable from 0 to 60 meters
- EQ: has 4 preset:
 - Eq. Ambient (suitable for music in medium reverberant environments)
 - Eq. Voice (suitable for voice in medium reverberant environments)
 - Eq.Flat (flat response for all audio band)
 - Eq.Focus (suitable for V.ACTIVO FOCUS)
- SAVE: Save the changes and settings made
- COPY: Allows you to copy the setting of a speaker
- PASTE: Program the settings previously copied to the controller on the new speaker
- EXIT: Turn off the device

Menu Vertical Activo



Menu Vertical Focus



Controller Wi-Fi (dongle)



• ACTIVO FOCUS

- FOCUS: allows the BEAM to be sloped from 0° to 10°
- VOLUME: allows you to change the volume from -20dB to +6dB
- DELAY: allows you to set the delay from a speaker to another to avoid overlaps, adjustable from 0 to 60 meters
- SAVE: Save the changes and settings made
- COPY: Allows you to copy the setting of a speaker
- PASTE: Program the settings previously copied to the controller on the new speaker
- EXIT: Turn off the device

• Description

This device creates a Wi-Fi network and allows you to use all the same functions of the controller, by programming the DSP that is inside all the speakers in the series via the ACTIVO SYSTEM APP. The wireless controller is powered by the speaker boards of the ACTIVO line by simply connecting the cable with the 5-pole DIN to the appropriate socket on the DIGITAL ACTIVO or FOCUS LOGIC boards. Once the plug has been inserted, the controller LED lights up and at the same time, the blue LED of the DIGITAL ACTIVO or FOCUS LOGIC board goes off. The Dongle then enters active mode and is ready to function as a Wi-Fi network dedicated to the Activo series.

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ACTIVO SYSTEM APP



• Description

On the mobile device (smartphone, tablet) it is necessary to install the free APP "Fulgor Activo One" available for both Android platform (Play Store) and IOS Apple (Apple Store).

Once the APP is installed and the Dongle is connected, the WiFi network must be activated on the mobile device and look for the one that starts with FULGOR followed by a numerical sequence; the device will warn that the internet is not available. You will be asked for the default password, which is supplied with the device (note: it is requested only the first time you connect).

At this point, by launching the APP it is possible to modify all the speaker parameters.



• ACTIVO SYSTEM APP SCREEN (Android and IOS)

After installing the APP and connecting the Dongle to an ACTIVO speaker, the WiFi network must be activated on the mobile device.

Only the first time it will be necessary to search for the network that starts with FULGOR followed by a numerical sequence, select it, and the request to enter the password will appear.

On some devices the screen that the internet is not available will appear, it is normal because ours is a network only for setting the speakers.

• Examples of screens following the opening of the Activo System APP

Vertical Activo S-L-XL loudspeaker operating menus



From this menu it is possible to change the volume level and the Delay.



By clicking on the EQU drop-down menu you can choose the "ambient" - "voice" - "focus" or "flat" presets.

Vertical Activo FOCUS loudspeaker operating menus



From this menu you can change the beam, the volume level and any delay.



Example of pointing setting at -10 °.