



FULGOR SERVICE

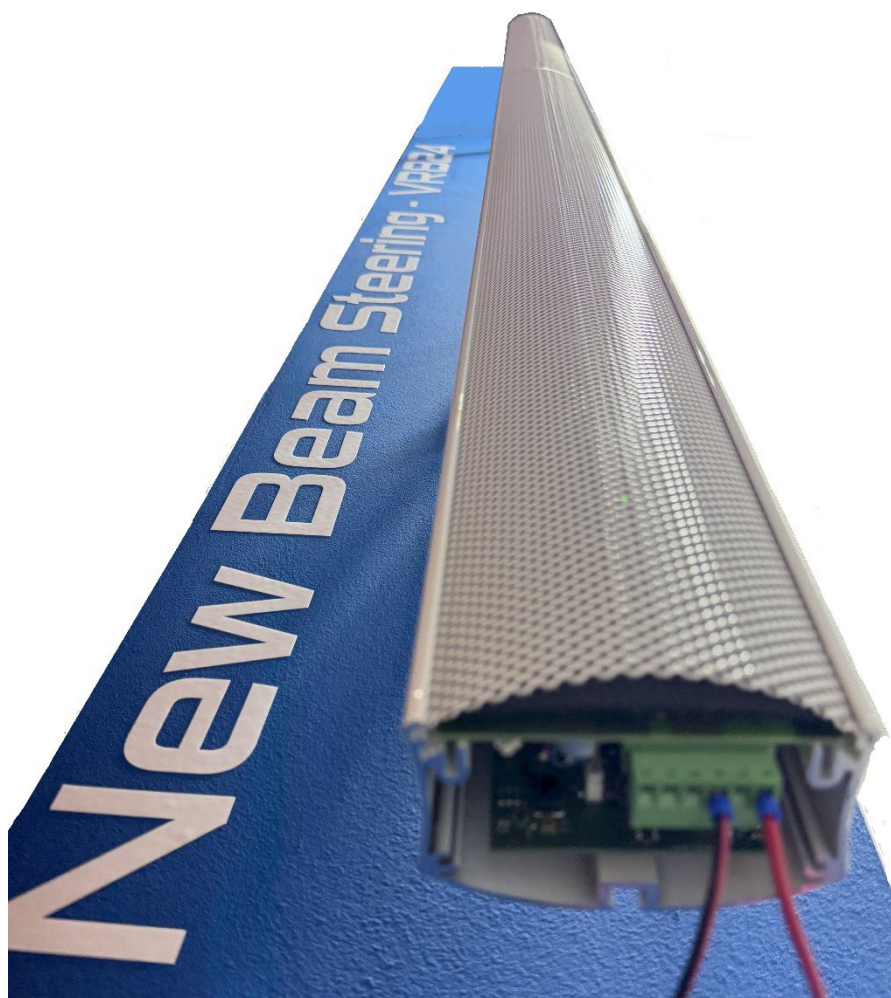
SISTEMI DI AMPLIFICAZIONE

VR 816
VR 824

Active Line Source Speakers with Beam Steering

Firmware 1.1.1.1
Software 1.0.0.14

USER
AND INSTALLATION MANUAL



VR824 – Detail of the input connector and integrated electronics.

VR 816 / VR 824

Active Line Source Speakers with DSP and Beam Steering

ACTIVO Line ONE P.o.S. Technology (Power over Signal)



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1. Precautions for use

Carefully read the following safety instructions before operating the system and keep this manual for future reference.

1.1 Warning levels

Three warning levels are used in this manual, with the following meanings:



DANGER – High risk

Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.



WARNING – Medium risk

Indicates a hazard with a medium level of risk which, if not avoided, could result in serious injury.



CAUTION – Low risk

Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

1.2 General safety instructions



Risk of electric shock

Never remove the speaker's cover or front grille. There are no user-serviceable parts inside. In case of failure, contact qualified technical personnel or Fulgor Service exclusively.



Risk of fire and electric shock

Do not expose the device to rain or moisture. Do not place containers filled with liquids on top of the device. Do not cover the ventilation grilles.



Damage to the device

Do not connect the VR speaker to power supplies other than the ALLONE or ALLONE LIGHT V2 system. Do not apply input signals that do not comply with the technical specifications given in this manual.



1.3 Installation and mounting

- ▶ **All personnel involved in installing or dismantling the system must read and understand the contents of this manual.**
- ▶ The system must be mounted securely in accordance with the assembly instructions and applicable safety regulations.
- ▶ Use only the Fulgor Service mounting accessories specified in the manual.
- ▶ Regularly inspect the system for any signs of wear or loosening of load-bearing connections.
- ▶ Ensure that the anchor points to the structure have sufficient load-bearing capacity.
- ▶ Do not install the system in particularly damp locations or those exposed to direct heat sources.
- ▶ Keep the system out of the reach of children.

1.4 Electrical safety

- ▶ Connect the speaker only to a two-wire line connected to ALLONE or ALLONE LIGHT V2, and make sure the power supply is connected exclusively to a verified earthed socket.
- ▶ Never defeat the ground connection of the power plug.
- ▶ Check that the local mains voltage matches the values indicated on the power supply.
- ▶ During thunderstorms or in case of prolonged non-use, unplug the power supply from the socket.

1.5 Acoustic safety



Risk of hearing damage

VR816 and VR824 systems are capable of generating very high sound pressure levels. Do not stand in close proximity (less than 1 metre) to the speaker while it is operating. Avoid prolonged exposure to high volumes.

1.6 Cleaning and maintenance

- ▶ Clean the system only with a dry or slightly damp cloth.
- ▶ Do not use solvents, alcohol, thinners or aggressive detergents.
- ▶ Do not attempt to repair the system yourself. Contact Fulgor Service for any issue that cannot be resolved using this manual.



Support contact

FULGOR SERVICE – Via Caduti del Lavoro 58, 19021 Arcola (La Spezia) Tel. +39 0187 954488 www.fulgorservice.it info@fulgorservice.it



2. Package contents and accessories

2.1 Package contents

Each VR 816 or VR 824 speaker is supplied with the following contents:

Quantity	Description
1 x	VR 816 or VR 824 speaker (according to the model ordered)
1 x	Quick installation guide
1 x	Technical documentation
1 x	Kit of 4 adjustable 90° brackets with hardware

Carefully check the package contents upon receipt. In case of transport damage, immediately inform the carrier and the dealer. Keep the original packaging for any future returns or shipments.

2.2 Available accessories

The following accessories are available separately for the VR 816 and VR 824 speakers:

Accessory	Description
ALLONE	System power supply with ONE-PoS technology – 650 W – up to 5 VR units
ALLONE LIGHT V2	Compact 1U power supply with ONE-PoS technology – 400 W – up to 2 VR units
FULGOR NET Router	Preconfigured Wi-Fi router for control via VR8 software
Kit of 4 straight brackets	Available on request with hardware, to optimize distance and tilt, RAL 9010 or RAL 7006 colours, or any RAL colour on request.



2.3 Tools required for installation and setup

The following tools are required for the installation and wiring of the VR 816 or VR 824 speakers:

Accessory	Use
10 mm hex socket wrench	For fastening the mounting brackets
Phillips-head screwdriver	For opening the connection compartment
Flat-blade screwdriver	For the terminal connectors (two-wire line cable)
Scissors / wire strippers	For preparing the ends of the two-wire cable
Level	To check the verticality of the installed speaker (essential for Beam Steering)
Multimeter	To check the line voltage (43–45 V DC)
Windows PC, version 7 SP1 or later	For configuration via VR8 software
FULGOR NET Router	Preconfigured Wi-Fi router for control via VR8 software
ALLONE or ALLONE LIGHT V2	Power supply with ONE-PoS technology
VR8	Free management and configuration software for Windows PC (download from www.fulgorservice.it)
Laser measuring tape	For time alignment (Delay calculation) with other speakers

3. System Description – Activo ONE System

The VR 816 and VR 824 speakers are part of Fulgor Service's ACTIVO ONE SYSTEM, the professional audio solution that has revolutionized the concept of sound distribution in large, complex environments.



ONE – P.o.S. (Power over Signal) Technology

Unique in the world

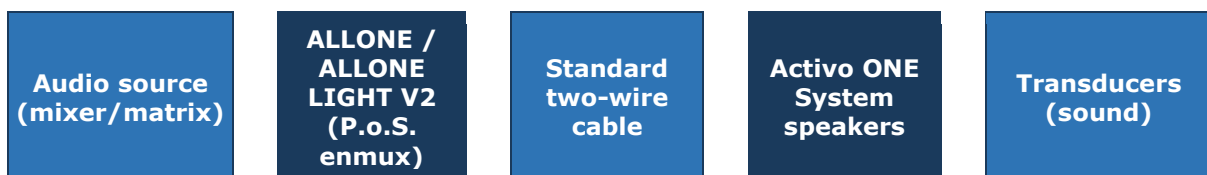
A single standard two-wire cable simultaneously carries the power supply and the audio signal for all speakers. It is also compatible with pre-existing wiring, eliminating the need for new infrastructure. No other system in the world offers this combination of advanced performance with such simple wiring.

3.1 How it works

The audio signal from a source (mixer, matrix, etc.) is processed by the ALLONE or ALLONE LIGHT V2 power supply, which, using ONE-PoS technology, generates a composite signal called "enmux", containing both the audio and the power supply. This signal is carried over a standard two-wire cable to the Activo line speakers. Inside each Activo line speaker, integrated electronics separate ("demux") the audio signal from the power supply. The extracted power feeds the internal circuits, while the audio signal is processed by the DSP, with all the resulting benefits. The VR 816 and VR 824 speakers feature a more powerful DSP with 8 Class D output stages, using a different algorithm for each array type to control Beam Steering.

3.2 System block diagram

The signal flow follows this path:



3.3 System advantages

- **Reusable existing wiring: no new infrastructure required.**
- **A single ALLONE or ALLONE LIGHT V2 power supply for all speakers in the Vertical Activo series.**
- **Any speaker in the Vertical Activo series (VERTICAL S, L, XL, VR 816, VR 824) operates on the same two-wire line powered by a single power supply.**
- **The DSP built into each speaker enables independent control of volume, equalization and delay; the VR units also feature Beam Steering.**



- The Activo ONE System integrates discreetly into any environment, including those protected by heritage authorities or with strict architectural constraints.
- Individual configuration of control parameters for each speaker, with adjustment of the VR units via software, through a dedicated Wi-Fi network used exclusively during the tuning phase.
- The refined design of the Activo ONE System speakers is slim and easily adaptable to elegant environments.

3.4 Applications

The Activo ONE System with VR speakers is ideal for any application requiring a discreet appearance, high efficiency and maximum control over speech intelligibility at the same time. Thanks to precise Beam Steering, the acoustic focus is directed exclusively at the listening areas, avoiding excitation of structural surfaces that generate unwanted reflections and compromise speech comprehension.

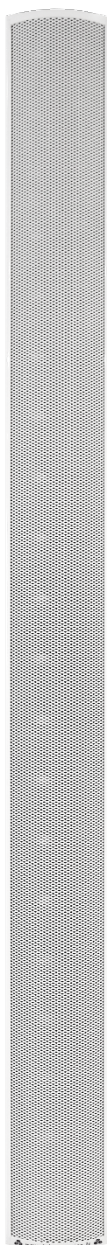
- **Places of worship:** Churches, Cathedrals, Basilicas, Sanctuaries where maximum intelligibility and aesthetic integration of the installation are essential.
- **Conferences/Congresses:** Meeting rooms, Convention centres, for uniform coverage thanks to precise Beam Steering.
- **Culture/Education:** Theatres, Auditoriums, Universities, ensuring directivity control in reverberant environments.
- **UNESCO Heritage or Fine Arts sites:** Protected environments, museums with few diffusion points and low-impact RAL colours on request.
- **Transport:** Airports, Railway Stations, thanks to the high speech intelligibility offered by the system.
- **Professional service:** Mobile and fixed applications with a single two-wire cable and fast setup.



4. Product Description

4.1 Overview

The Fulgor Service VR 816 and VR 824 speakers (VR = Vertical Resonant) represent the new generation of high-performance active line source systems in the ACTIVO Line. Designed for professional applications where precision, control and intelligibility are essential requirements, they combine advanced Beam Steering technology with the simple installation of the ONE P.o.S. system.



VR816 or VR824 speaker (white version with acoustic grille)

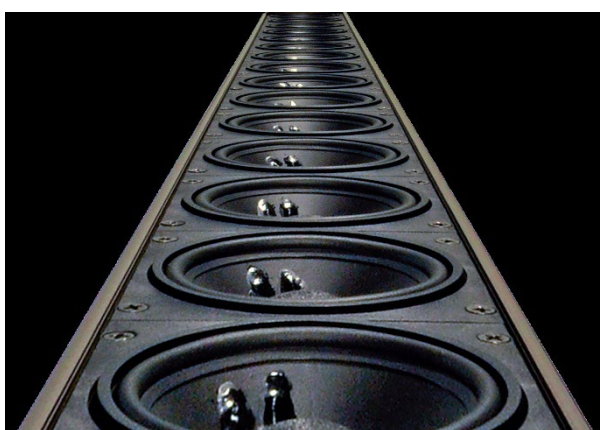


4.2 Main features

Parameter	Description
Advanced DSP	Latest-generation proprietary digital processor for precise performance control
8 Class D amplifiers	170W RMS total power, superior efficiency and audio quality
Digital Beam Steering	Positive or negative sound beam tilt control from +16° to -16° in 1° steps
ONE P.o.S. Technology	Power and audio signal on a SINGLE standard two-wire cable (including pre-existing ones)
FULGOR NET	Connection to the FULGOR NET Wi-Fi network for control and management of setup parameters via VR8 Software
VR8 Software	Complete PC interface for real-time configuration: volume, directivity control, EQ, delay, speaker status monitoring
Simplified installation	Offers the versatility of being installed at different heights and precisely aiming the directivity (focus) via software
Customized colours	Standard: white RAL 9010, vulcano RAL 7006. On request: any RAL colour

4.3 Beam Steering technology

The innovative heart of the VR series is Fulgor Service's proprietary Beam Steering technology, which enables real-time digital control of the vertical directivity of the sound via the VR8 software.



Internal view of the array: 3.5" long-excursion transducers with specific coating

This technology makes it possible to:

- Install the speaker perfectly vertical, very close to the wall, even at different heights, and manage the beam via software, with minimal visual impact.
- Adjust the sound beam tilt from -16° to $+16^{\circ}$ on the vertical axis in 1° increments or decrements.
- Modify directivity in real time, with no mechanical intervention on the speaker.
- Eliminate unwanted reflections from floors, ceilings and side surfaces.
- Achieve uniform coverage and speech intelligibility superior to any traditional PA system.
- Completely replace traditional physical speaker tilting with digital adjustment.

4.4 Differences between VR 816 and VR 824

The two models share the same electronic architecture and the same technology. The main difference concerns the number of transducers and the dimensions, resulting in different sound throw and low-frequency control:

Parameter	VR 816	VR 824
Transducers	16 × 3.5" full-range	24 × 3.5" full-range
Amplifiers	8 × Class D	8 × Class D
Total power	170W RMS	170W RMS
Length	1778 mm	2525 mm
Width × Depth	100 × 50 mm	100 × 50 mm
Weight	11.5 kg	15.4 kg
Minimum controllable directivity frequency, Array	94Hz	67Hz
Optimal coverage distance	20/25m	25/30m



Fundamental principle

The longer the array, the greater the ability to control vertical directivity, low frequencies and system throw. For very long environments with strong reverberation, the VR 824 offers superior performance.



5. Hardware Description

5.1 Mechanical structure

The mechanical structure of the VR 816 and VR 824 speakers is made from a high-strength extruded aluminium profile, designed to ensure the best compromise between design and acoustic characteristics, without creating acoustic interference between the transducers.

Parameter	Description
Profile	Anodized extruded aluminium: sturdy, lightweight, precise mechanical tolerances
Width	100 mm: blends discreetly even into prestigious environments
Front grille	Slightly curved, designed to minimize acoustic resistance
Internal insulation	3-material sound-absorbing lining to eliminate rear sound leakage and back-reflections
Standard finish	White RAL 9010 or Vulcano RAL 7006 (other RAL colours on request)
Mounting	Bracket housing running the full length of the speaker

5.2 Transducers

Each VR speaker integrates 3.5" long-excursion full-range transducers with a specific coating to ensure reliability and linear response under any operating condition:

- ▶ VR 816: 16 long-excursion 3.5" full-range transducers
- ▶ VR 824: 24 long-excursion 3.5" full-range transducers

The transducers are mounted on a self-supporting basket that ensures the mechanical and acoustic precision of the entire array, both vertically and horizontally.

5.3 Integrated electronics

Inside each VR speaker, high-efficiency electronics are integrated, consisting of three main modules:

ONE PoS module (input)

Receives the composite "enmux" signal from the two-wire cable and separates ("demux") it into audio signal and power. It powers the subsequent modules and supplies the processed audio signal.



8 Class D Amplifiers

Eight high-efficiency digital amplifiers, each dedicated to a specific group of transducers, for a total output of 170W RMS. Independent channel management is the foundation of Beam Steering: each amplifier can receive a signal with different timing and gain, allowing precise directivity control.

DSP with proprietary algorithm for Beam Steering control

Latest-generation digital signal processor with a proprietary algorithm developed by Fulgor Service. It manages in real time: Beam Steering (beam tilt, directivity, focus), speaker equalization with 7 parametric filters, delay up to 80 metres, volume, and device status monitoring.

5.4 Connections

The VR speaker is connected via a two-wire line cable (minimum recommended cross-section 1.5 mm²) coming from the ALLONE or ALLONE LIGHT V2 power supply. The input connector is located at the bottom of the speaker; remove the cap (see photo, point [9.3](#)).



Observe polarity

Always connect the positive pole (+) to positive and the negative pole (–) to negative on the two-wire cable. Reverse polarity is protected by the electronics but may cause a temporary malfunction.

5.5 Absorption draw table and load calculation

Use the table below to calculate the maximum number of speakers that can be connected to a single power supply:

Parameter	Value
VR 816 – Absorption	Average Volume 320mA, Maximum 1600mA
VR 824 – Absorption	Average Volume 350mA, Maximum 1800mA
ALLONE – Max current	15A (650W)
ALLONE LIGHT V2 – Max current	9A (400W)



Load calculation

Example: with ALLONE (15A) and an absorption of X A per speaker. Example with ALLONE (15A) and VR 816 speakers (max 1.6A): $N = 15 / 1.6 = 9$ speakers max. CAUTION: Also take into account the current draw of the two-wire cable itself.



6. Technical Specifications

6.1 Acoustic and electronic specifications

Parameter	VR 816	VR 824
Technology	DSP + ONE-PoS + Beam Steering	DSP + ONE-PoS + Beam Steering
Transducers	16 × 3.5" full-range (coated)	24 × 3.5" full-range (coated)
Integrated amplifiers	8 × Class D	8 × Class D
Total power	170W RMS	170W RMS
DSP sampling rate	48 kHz	48 kHz
Frequency response	200 Hz – 18,000 Hz	200 Hz – 18,000 Hz
Max SPL (1m)	109 dB	112 dB
Sensitivity	98 dB	100 dB
S/N ratio	> 98 dB	> 98 dB
THD	< 0.3%	< 0.3%
Beam Steering (vertical)	–16° ÷ +16° (1° steps)	–16° ÷ +16° (1° steps)
Parametric EQ filters	7 configurable filters	7 configurable filters
Delay	0 – 80m	0 – 80m
Input power	43–45 V DC (ONE enmux P.o.S.)	43–45 V DC (ONE enmux P.o.S.)
Maximum current	1.6A	1.8A
Ventilation	Thermostatically controlled fans	Thermostatically controlled fans
Operating temp.	–8°C ÷ 45°C	–8°C ÷ 45°C
Storage temp.	–20°C ÷ 60°C	–20°C ÷ 60°C

6.2 Physical characteristics

Parameter	VR 816	VR 824
Dimensions (W × H × D)	1778 × 100 × 50 mm	2525 × 100 × 50 mm
Weight	11.5 kg	15.4 kg
Structure	Extruded aluminium	Extruded aluminium
Front grille	Curved acoustic grille	Curved acoustic grille
Standard RAL colours	White 9010 Vulcano 7006	White 9010 Vulcano 7006
Colours on request	Any RAL colour	Any RAL colour
Recommended wiring	2×1.5 mm ² two-wire cable (never go below 2x1 mm ²)	2×1.5 mm ² two-wire cable (never go below 2x1 mm ²)
Certifications	CE	CE
Country of manufacture	Italy	Italy

7. Installation and Implementation

7.1 Prerequisites for line verification

- ▶ Check that the two-wire line has a minimum cross-section of 1mm² and is in good condition.
- ▶ Check for the absence of improper joints or unsafe contacts along the line.
- ▶ Check that no other loads (constant-impedance or 100V passive speakers) are connected along the line.
- ▶ Check that, with all speakers disconnected, the line is "open" (infinite resistance).
- ▶ Identify and clearly mark the positive (+) and negative (-) poles at every point and insulate any unused points.

7.2 Recommended installation heights

For best acoustic performance, install the speakers at the following minimum heights from the listeners' floor (measured at the lowest transducer of the speaker):

Parameter	Value
VR 816 speaker height 1778mm	Recommended minimum height: 2 metres from the listeners' floor
VR 824 speaker height 2525mm	Recommended minimum height: 2 metres from the listeners' floor



Beam Steering flexibility

Thanks to Beam Steering technology, the installation height can be varied according to the specific needs of the environment. The sound beam is digitally directed towards the listening area, compensating for any non-optimal heights.

7.3 Installation procedure

Step 1 – Line check

- ▶ Check the cross-section, condition and continuity of the two-wire line.
- ▶ Measure the no-load line resistance (it must be infinite with speakers disconnected).
- ▶ Identify and mark the polarity of the line (+ and -).

Step 2 – Mechanical mounting

- ▶ Install the support brackets in the desired position, ensuring structural solidity.
- ▶ Hook the VR speaker onto the brackets, making sure it is perfectly vertical (check with a spirit level).
- ▶ Verticality is essential for the correct operation of Beam Steering.



Step 3 – Electrical connection

- Prepare the ends of the two-wire cable (strip 8–10 mm on each side).
- Connect the two-wire cable to the speaker connector, observing the + and – polarity
- Connect the other end of the cable to the output of the ALLONE or ALLONE LIGHT V2 power supply.
- VR speakers are connected in parallel on the same two-wire line.

Step 4 – First start-up and verification

- Connect and power up the ALLONE or ALLONE LIGHT V2.
- Check that the voltage is 43–45 V DC at every installation point. At the most distant points: minimum 41–42 V DC.
- Turn off the power, connect all VR speakers, then switch back on.
- Start the VR8 software (see point [9.3](#)) and check that all fault LEDs are off in the Status section.

7.4 Beam Steering optimization

Follow this procedure to optimize the sound beam for each installed speaker:

- Connect the PC and the speaker to the FULGOR NET network and start the VR8 software, point [9.3](#).
- Set the volume of all speakers to -20 dB and mute them except for the one currently being configured.
- Connect an audio source (preferably spoken voice, with a 250 Hz high-pass filter).
- Physically move to the centre of the listening area and sit down.
- Adjust the Focus value in the software until the sound is perfectly directed and intelligible.
- Stand up and sit down repeatedly to check the uniformity of coverage across the whole area.
- Move around the entire listening area, checking the uniformity of the sound level.
- Set the Delay based on the distance (in metres) from the previous speaker along the longitudinal axis.
- Click STORE to permanently save the configuration.
- Use COPY and PASTE to replicate the configuration on the other speakers in the same line.



Delay principle

Delay must be set in metres and corresponds to the physical distance between a speaker and the previous one along the axis of the environment. The system time-aligns the sound from all speakers towards the listeners, eliminating unwanted echo and overlap.



8. FULGOR NET Router Manual

8.1 General description

The FULGOR NET router (*optional*) is a preconfigured Wi-Fi router that generates a dedicated network named "FULGOR NET". It allows you to easily connect the PC to the VR816 and VR824 speakers via the VR8 software, with no need for any manual network configuration.



FULGOR NET network – instant access, no password

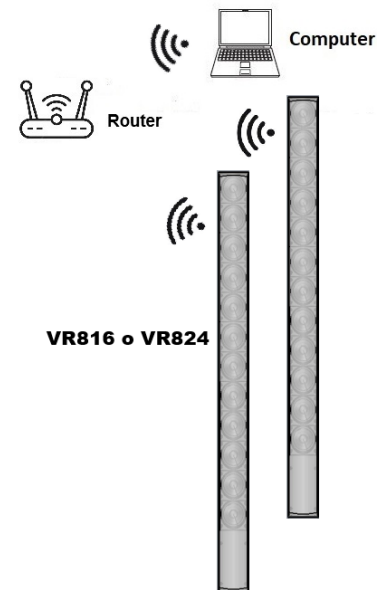
Wi-Fi network name: FULGOR NET

PC configuration: set the Wi-Fi adapter to DHCP mode

8.2 Connection diagram

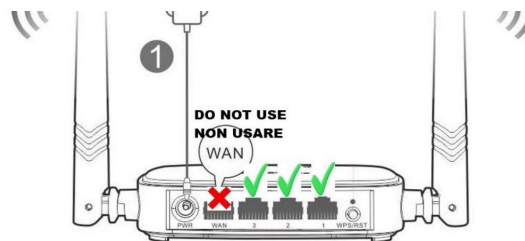
The FULGOR NET router is the device used for the Wi-Fi connection between the PC and the VR816 or VR824 speakers; it is essential for setting up the speakers in the VR line.

Wi-Fi connection diagram between PC and VR



Once the PC and the Activo VR line speakers are connected to the FULGOR NET Router, the VR8 software can be launched to configure each individual speaker.

8.3 Router rear panel – connections



FULGOR NET router rear panel: WAN port, NOT to be used (X), LAN ports 1-2-3 to be used (✓)



Port	Description and use
PWR	Router power supply
WAN X	DO NOT USE – this port is not supported in this system
LAN 1 / 2 / 3 ☒	Use these ports exclusively to connect the PC via RJ-45 network cable to other Fulgor Service compatible devices.



Do not use the WAN port

NEVER connect the network cable to the WAN port of the FULGOR NET router. Use only the LAN ports (1, 2 or 3). Connecting to the WAN port causes network malfunctions and may prevent communication with the VR speakers.

8.4 Wi-Fi connection procedure

- ▶ Power up the FULGOR NET Router.
- ▶ Set the PC's network adapter to DHCP mode: the Router will automatically assign an IP address to the devices.
- ▶ On the PC, enable the Wi-Fi connection and select the "FULGOR NET" network (see point 9.3).
- ▶ Start the VR8 software and click "Scan devices" to detect the speakers on the network.



"Internet not available" notice

If the device reports that Internet is not available after connecting to the FULGOR NET network, this is normal: it is a local network dedicated solely to speaker control, with no Internet access.



9. VR8 Software Manual

9.1 Introduction

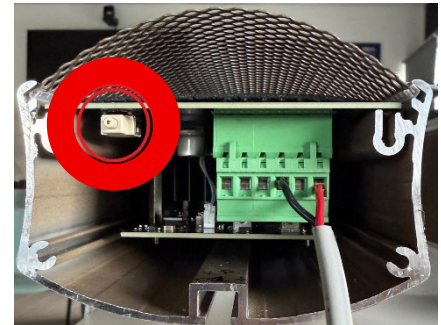
VR8 software is the complete configuration and management interface for the VR 816 and VR 824 speakers. It runs on a Windows PC and connects to the speakers via Wi-Fi (FULGOR NET ecosystem). It allows real-time control of all speaker parameters: Beam Steering, volume, delay, equalization, status monitoring.

9.2 System requirements

Parameter	Description
Operating system	Windows 7 SP1 / 8 / 10 / 11 (32 or 64 bit)
Network connection	Wi-Fi via FULGOR NET router
PC IP	DHCP
Firmware version	1.1.1.1
Software version	VR8 v1.0.0.14

9.3 First connection – network configuration

- ▶ Make sure the Router and the speaker are powered on.
- ▶ Connect the PC to the FULGOR NET Router (see point [8.4](#)).
- ▶ Now pair the speaker with the router by pressing the button highlighted in red in the figure shown here, ***Press the button shown in the figure: when the blue and green LEDs remain steadily lit, the VR is connected to the Router***

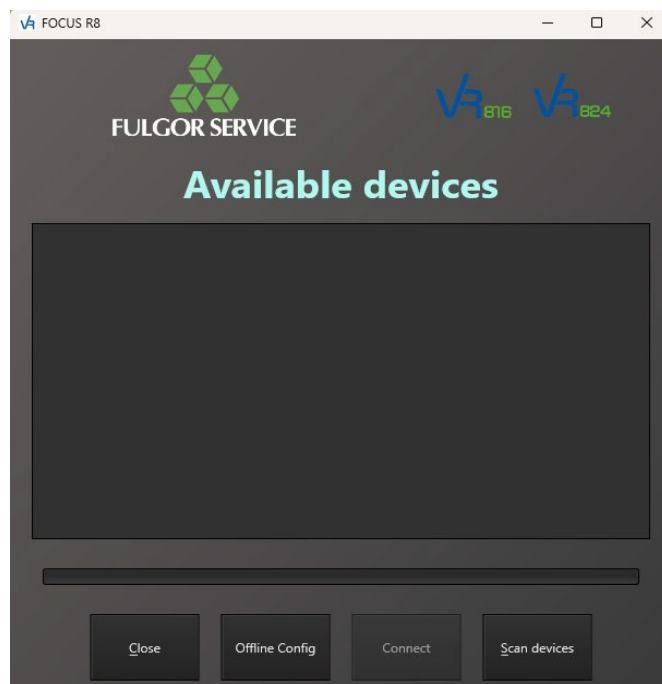


- ▶ Start the VR8 software.
- ▶ On the "Available devices" screen, click "Scan devices" to search for speakers on the network.
- ▶ Select the detected device(s) and click "Connect".

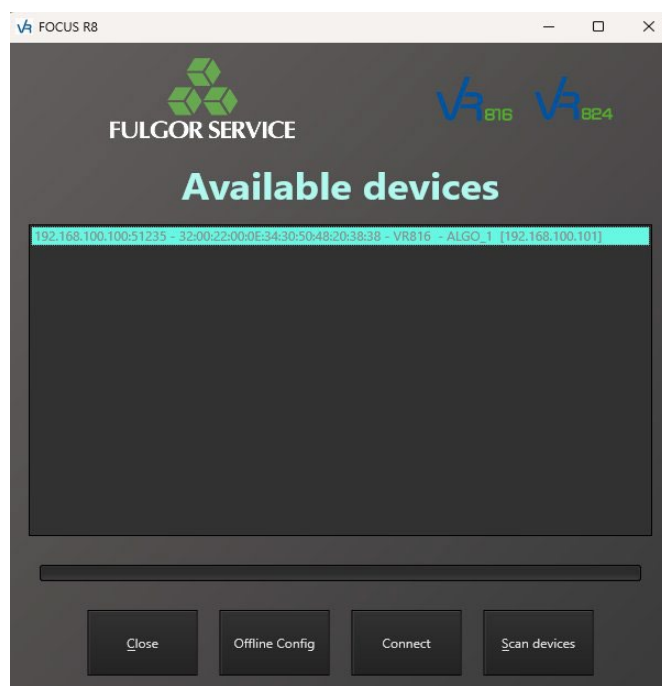


The procedure takes about one minute.

9.4 Available Devices screen



Initial screen: no devices detected. Click "Scan devices" to start the search.



VR816 device detected on the network (IP 192.168.100.101, model ALGO_1). Select it and click "Connect".



For each detected device, the screen shows: IP address and port, MAC address, model (VR816 or VR824), and the name assigned to the speaker. The "Offline Config" button allows configuration without an active connection to the device.

9.5 Main Control Panel



VR816 or VR824 main panel: Status, Volume, Focus (Beam Steering), Delay sections and control buttons.

Status Section – real-time monitoring

Parameter	Description
V Supply	Input supply voltage (V DC)
V Amp.	Voltage at the amplifiers (V DC)
Temp. Brd Bot.	PCB temperature, bottom side (°C)
Temp. Brd Top	PCB temperature, top side (°C)
Fan speed	Cooling fan speed (%)
General FAIL	Red LED: general system fault
Fan Fail	Red LED: cooling fan failure
Tmp. Mis. Fail	Red LED: temperature sensor error
VIN Fail	Red LED: input voltage fault
Amp. Fail	Red LED: amplifier failure
Amp. Pwr. Fail	Red LED: amplifier power supply failure
Over temp	LED: overheating in progress

Volume Section

The Volume fader, located between the IN and OUT VU meters, adjusts the output volume level expressed in dB. The VU meters show the real-time signal levels during operation (from -25dB to +6dB).

Focus Section – Beam Steering

The Focus fader adjusts the vertical tilt angle of the sound beam from -16° to +16° in 1° increments. The change is immediate and applies in real time to the connected speaker, with no physical intervention on the installation.

Delay Section

The Delay [m] field sets the signal delay, expressed in metres, for time alignment between multiple speakers installed along the same listening area. The value in metres is automatically converted to milliseconds by the system.



Control buttons

Parameter	Description
MUTE	Mutes the speaker's audio output without changing the settings
PHASE	Inverts the signal phase by 180°
LOAD	Loads a previously saved configuration from a file
SAVE	Saves the current configuration as a file on the PC
CLOSE	Closes the connection to the device
COPY	Copies the current configuration to memory
PASTE	Pastes the copied configuration to the currently connected device
STORE	Permanently saves the configuration in the speaker's memory



WARNING

STORE vs SAVE – key difference

SAVE saves the configuration as a file on the PC. STORE writes the configuration to the speaker's permanent memory: only after STORE are the parameters retained after power-off and power-on. Always perform STORE at the end of configuration.

9.6 Filter Editor – Parametric Equalizer



Filter Editor: 7 independent parametric filters with a real-time frequency response graph.



The Filter Editor is accessible from the main panel and allows up to 7 independent parametric filters to be configured on the speaker input. The graph shows the resulting response curve in real time (X axis: 20 Hz–20 kHz; Y axis: -30 dB÷+15dB).

Parameter	Description
Type	Allowed filter type: Equ (parametric), HighPass, LowPass.
Gain	Gain/attenuation in dB (range: ± 12 dB)
Freq.	Centre frequency of the filter in Hz
Q	Q factor: bandwidth of the filter (0.1–2.0)
Reset ALL	Resets all filters, returning to a flat response
Ok	Confirms and applies all changes to the speaker
Cancel	Cancels the changes without applying them

9.7 Recommended configuration procedure

- ▶ Connect the speaker to the FULGOR NET network, see point [9.3](#)
- ▶ Connect the PC to FULGOR NET and start the VR8 software, see point [8.4](#)
- ▶ Click "Scan devices" to detect the VR speakers on the network.
- ▶ Select the desired device and click "Connect".
- ▶ Check in the Status section that all fault LEDs are off.
- ▶ Adjust the Volume to the desired levels.
- ▶ Set the Focus (Beam Steering): start from 0° and adjust towards the listening area.
- ▶ Set any Delay, expressed in metres, relative to the previous speaker along the longitudinal axis.
- ▶ If necessary, open the Filter Editor to optimize the frequency response.
- ▶ Make final adjustments to the Volume at the desired levels along with aiming and EQ.
- ▶ Click STORE to permanently save the configuration in the speaker.
- ▶ Use COPY and PASTE to replicate the configuration on the other speakers in the same line.



COPY/PASTE between different models

Do not perform COPY and PASTE between a VR 816 and a VR 824.



10. Maintenance

10.1 Cleaning

The VR816 and VR824 speakers do not require routine maintenance. For cleaning:

- Use only a dry cloth or one slightly dampened with water.
- Do not use solvents, alcohol, paint thinners, aggressive detergents or abrasive products.
- To remove dust from the acoustic grille, use very low-pressure compressed air.
- Never wet the connectors or the electronics compartment.

10.2 Periodic inspection

It is recommended to periodically carry out the following checks, especially for permanent fixed installations:

- Check the tightness of the mounting bracket and connector screws.
- Visually check the condition of the two-wire cable, especially at routing and fastening points.
- Use VR8 to check that the temperature parameters in the Status panel are within nominal ranges.
- Check that the speaker's ventilation is not obstructed by objects, dust or panelling.

10.3 Firmware update

Fulgor Service periodically releases firmware updates for the VR816 and VR824 speakers, which may introduce performance improvements and new features. For information on available updates and the update procedure, contact:



Fulgor Service technical support

Toll-free number: 800-804067

Monday–Friday: 8:00 AM–12:30 PM and 2:00 PM–5:00 PM (winter) / 7:00 AM–1:00 PM (July–August)

Web: www.fulgorservice.it | Email: info@fulgorservice.it

10.4 Operations not permitted to the user



No self-repair

There are no user-serviceable parts inside the speaker. Any attempt to open, modify or repair the unit independently voids the warranty and may cause permanent damage to the device. Always contact Fulgor Service for any servicing.



11. Troubleshooting

The table below describes the most common problems, possible causes and suggested remedies. If the problem is not listed, or is not resolved by applying the indicated remedies, contact Fulgor Service support.

Problem	Possible cause	Remedy
No sound from the speaker	The speaker is not receiving power from the two-wire line	Check the two-wire cable connection and correct polarity. Check that the ALLONE power supply is on and working.
No sound from the speaker	Insufficient line voltage (< 41 V DC)	Check the voltage with a multimeter at the points farthest from the power supply. Check the cable cross-section (min. 1mm ²).
No sound from the speaker	The speaker is muted via software	Check with the VR8 software that the MUTE button is not active (highlighted).
Audio distortion	Volume too high relative to the input signal	Reduce the input gain from the source or lower the fader in the VR8 software.
The speaker is not detected by the software	Wi-Fi adapter IP addresses, or PC too far from the router.	Check that the PC's Wi-Fi adapter is in DHCP mode. Reduce the distance between the PC and the router.
The speaker does not connect to the router.	The VR has not been paired with the Router. PC too far from the VR/router.	See point 9.3. Reduce the distance between the PC and the router.
Configuration lost after power-off	SAVE was used instead of STORE	After each configuration, always click STORE (not just SAVE) to permanently store the parameters in the speaker.

Fault LED (red) lit on the VR8 software	Overheating of the speaker's boards above 65°	Check that ventilation is not obstructed. Check the ambient temperature (max 45°C). If the problem persists, contact Fulgor Service.
Sound beam not uniform across the listening area	Focus (Beam Steering) value not optimized	Perform the Beam Steering optimization procedure described in point 7.4. Check that the speaker is installed vertically (check with a spirit level).
Echo or audio overlap	Delay not configured or not optimized	Set the Delay in the VR8 software to the value corresponding to the distance in metres between successive speakers. Perform STORE after the change.
VR8 software does not open	PC not compatible or missing network drivers	Check that the PC is running Windows 7 SP1 or later. Update the network adapter drivers. Reinstall VR8.



Technical support

If the problem is not listed or is not resolved, contact:

FULGOR SERVICE s.n.c.

Tel. 800-804067 – www.fulgorservice.it - info@fulgorservice.it



12. Glossary

The main technical terms used in this manual are listed below.

Term	Definition
ALLONE	Power supply for the Activo ONE System. Powers the speakers and distributes the audio signal via ONE PoS technology over a two-wire cable. Available in standard version (650 W) and LIGHT V2 version (400 W).
Beam Steering	Technology that enables electronic and digital control of the vertical directivity of the sound beam of a line source speaker. In the VR 816 and VR 824 systems, the tilt angle is adjustable from -16° to $+16^{\circ}$ in 1° increments.
Class D	Type of high-efficiency switching digital amplifier. VR speakers integrate 8 Class D amplifiers that ensure low heat dissipation and high sound output.
Delay	Time delay applied to the audio signal, expressed in metres. Used to time-align the sound of multiple speakers, reducing echo and unwanted overlap.
Demux	Operation that separates the composite "enmux" signal: the VR speaker's electronics separate the audio signal from the electrical power received via the two-wire cable.
DSP (Digital Signal Processor)	Digital signal processor integrated into each VR speaker. Manages in real time: Beam Steering, parametric equalization, delay, status monitoring and protections.
Enmux	Fulgor Service proprietary composite signal that combines the audio signal and electrical power into a single signal that can be carried over a standard two-wire cable.
FULGOR NET	Fulgor Service's dedicated Wi-Fi network ecosystem. Allows remote control and monitoring of VR speakers via the VR8 software. Includes the preconfigured FULGOR NET router.
Line Source	Sound diffusion system made up of a vertical array of transducers. Unlike point-source speakers, a line source offers controlled vertical dispersion and greater sound throw, with a decay of only 3 dB per doubling of distance (vs 6 dB for point-source systems).
ONE – P.o.S. (Power over Signal)	Fulgor Service's proprietary technology that allows the simultaneous transmission of electrical power and audio signal over a single standard two-wire cable. Eliminates the need for separate wiring to power the speakers.
Preset	Complete configuration of a speaker's parameters (Focus, Volume, Beam Steering, Delay, EQ) that can be saved and



	recalled. Allows previously configured settings to be quickly stored and restored.
SPL (Sound Pressure Level)	Sound pressure level, expressed in dB. The maximum SPL value indicates the maximum sound level the speaker can generate at a distance of 1 metre.
STORE	VR8 software function that permanently writes the configuration to the speaker's internal memory. The parameters are retained even after power-off. (Different from SAVE, which only saves to the PC).
THD (Total Harmonic Distortion)	Total harmonic distortion, expressed as a percentage. Indicates audio reproduction quality: low values (< 0.3%) indicate high sound fidelity.
VR8	Configuration and management software for the VR 816 and VR 824 speakers. Runs on Windows PC and allows real-time control of all parameters: Beam Steering, Volume, Delay, EQ, status monitoring.
VR 816 / VR 824	Fulgor Service active line source speakers from the ACTIVO Line. VR = Vertical Resonant. The number indicates the number of integrated transducers (16 or 24). Both integrate simultaneous 8-channel DSP control, 8 Class D amplifiers and Beam Steering technology.

13. Compliance and Environmental Information

13.1 CE Declaration of Conformity

The VR 816 and VR 824 speakers comply with the applicable European directives and bear the CE marking. The product complies with the requirements of the Electromagnetic Compatibility Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU.

13.2 User responsibility

Fulgor Service s.n.c. accepts no liability in the event of:

- Installation not carried out in accordance with the instructions in this manual.
- Use in unsuitable environmental conditions (humidity, excessive temperature, exposure to weather agents).
- Modifications or tampering with the product or the serial number.
- Connection to voltages other than those indicated in the technical specifications.
- Damage caused by liquid ingress, fire, electrostatic discharge or lightning.

13.3 End-of-life product disposal

The crossed-out wheeled bin symbol indicates that the product must not be disposed of with household waste at the end of its life cycle. Hand the product over to the distributor/dealer or to the collection points designated by local authorities. Penalties apply for illegal disposal.

13.4 Packaging disposal – Legislative Decree 116/2020

Material	Disposal
Corrugated cardboard box	Paper PAP 20 – Separate Collection (Paper)
Non-corrugated cardboard box	Paper PAP 21 – Separate Collection (Paper)
Plastic bags	Polyethylene LDPE 4 – Separate Collection (Plastic)
Polystyrene packaging	Polyethylene PP 5 – Separate Collection (Plastic)
Booklets and documents	Paper PAP 22 – Separate Collection (Paper)



14. Warranty Certificate

Dear Customer,

We are pleased to inform you that an EU directive on the sale and warranty of consumer goods has been implemented into Italian law by Legislative Decree No. 24 of 2 February 2002.

FULGOR SERVICE, on account of the quality of its products, applies a warranty period of 24 months from the date of purchase.

14.1 Warranty management

Any defects found within the warranty period, attributable to faulty materials or manufacturing defects, must be promptly reported to your dealer or distributor, together with documentation of the purchase date and a description of the defect found.

FULGOR SERVICE has set up the toll-free number **800-804067**. Active: Monday–Friday (excluding public holidays) 8:00 AM–12:30 PM and 2:00 PM–5:00 PM (winter) / 7:00 AM–1:00 PM (summer: July–August).

14.2 Warranty terms

The warranty **DOES NOT** apply in the event of:

- Damage caused by negligence, or use or installation not carried out in accordance with the instructions provided.
- Tampering with or modification of the product or the serial number.
- Damage due to accidental causes or negligence on the part of the purchaser.
- Faults resulting from connection to incorrect voltages.
- Faults caused by liquid ingress, fire, inductive/electrostatic discharge or lightning.
- Wear parts: cables, connectors, external plastic parts free of manufacturing defects.
- Periodic checks, firmware updates, settings, maintenance.

The warranty is provided by: FULGOR SERVICE s.n.c., Via Caduti del Lavoro 58, 19021 Arcola (La Spezia). The Court of La Spezia shall have exclusive jurisdiction over any dispute.



14.3 Consumer Data

Surname _____		First name _____	
Organisation / Company / Parish _____			
Address _____			
Postcode _____	City _____	Province _____	
Tax code / VAT number _____			

14.4 Product Data

MODEL _____	SERIAL NUMBER _____
PURCHASE DATE __ / __ / ____	INVOICE NO. _____
DEALER _____	

15. Personal Data Processing

Notice under Legislative Decree No. 196 of 2003 (Personal Data Protection Code).

Dear Customer, please be advised that FULGOR SERVICE, pursuant to EU Regulation 2016/679 (GDPR) and Legislative Decree 196/2003 as amended by Legislative Decree 101/2018, will process the data you provide in compliance with personal data protection regulations. Personal data is collected and processed exclusively for purposes related to the performance of the service and the management of product repair and return.

Your data will not be disclosed or sold to third parties, except to companies involved in repair and return. The Data Controller is the legal representative of FULGOR SERVICE s.n.c., Via Caduti del Lavoro 58, 19021 Arcola – La Spezia. www.fulgor-service.it

Date _____ Signature _____ Dealer's stamp and signature

www.fulgor-service.it

FULGOR SERVICE s.n.c. | Via Caduti del Lavoro 58 | 19021 Arcola (La Spezia) | Tel. 800-804067

