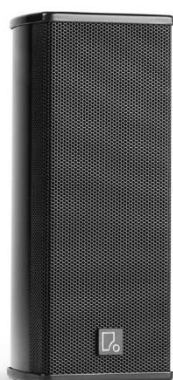


User manual PoE series





Content

1. Important safety information	3
1.1 Explanation of terms	3
1.2 General safety instructions	3
1.3 Acoustic safety instructions	3
1.4 Electrical safety instructions	4
1.5 Connections and wiring	4
1.6 Operating conditions	4
1.7 Storage and transportation	5
2. The Product	6
2.1 Product introduction	6
2.2 Scope of supply	6
3. Setup and operation	6
3.1 Installation and mounting	6
3.1.1 Secondary backup	6
3.1.2 Slot nut mounting	6
3.1.4 Rotating the logo	6
3.1.3 CC-S (BP0056) & CC-L (BP0057)	7
3.2 Connections and status display	9
3.3 setup and configuration	9
3.4 Network configuration	10
3.4.1 IP address	10
3.4.2 Reset IP address	11
3.4.3 Fohhn-Net ID	11
3.5. Audio configuration	12
3.5.1 Dante Routing	12
3.5.2 Fohhn Audio Soft	13
3.6 Integration in media control systems	13
4. Technical data	14
5. Servicing and repair	16
6. Disposal	16
7. EU declaration of conformity	16
8. Contact address	16

1. Important safety information

Please read and follow these safety instructions and any other instructions given for your Fohhn products before using or installing them. Always keep the instructions near the devices. Reading them does not replace the need for awareness of and compliance with currently applicable national safety regulations and standards, or the observance of safe on-site working methods. All information published here is based on data that was available at the time of publication. We expressly reserve the right to make any changes.

This document is intended exclusively for qualified specialist personnel or people with appropriate technical training. The information contained herein is intended for the installation, maintenance and repair of this product and requires a thorough understanding of the technical aspects and applicable safety standards. By using this product, you agree that you have the necessary professional competence to install, maintain or repair it safely and properly. Any actions outside your scope of authority may pose risks and are not recommended. If you have any doubts or questions, please contact our technical support or contact authorized specialist retailers. The information presented here is intended as ancillary advice and does not affect the user's ultimate responsibility to ensure safe operation on site.

1.1 Explanation of terms

	Danger!	This signal word indicates a hazard with a high risk level, which, if not avoided, could result in death or serious injury.
	Warning!	This signal word indicates a hazard with a medium risk level, which, if not avoided, could result in death or serious injury.
	Caution!	This signal word indicates a hazard with a lower risk level, which, if not avoided, could result in minor or moderate injury.

1.2 General safety instructions

All components required for the mounting or suspension of a Fohhn system have been designed and constructed in accordance and compliance with the following regulations that are applicable in Germany: DGUV V17 (formerly BGV-C1), DGUV I215-313 (formerly BGI 810-3), DIN EN 1993-1-1 and DIN EN 1999-1-1.

	Danger!	To avoid danger to life or limb, please ensure that all personnel involved in installing or deconstructing such a system have read and understood the contents of this user manual. All personnel should be aware of local regulations concerning workplace safety. It is strongly recommended to wear suitable personal protective equipment during installation.
	Warning!	To prevent injury caused by a collapsing or falling system, • this device must be securely mounted in accordance with the rigging instructions and current safety guidelines. Only use the specified and original Fohhn mounting accessories and never exceed their maximum load capacity. • the load limit of any component that will be used for system suspension (including shackles, chains and hoists) must not be exceeded. To comply with local safety regulations, these load limits may, in certain circumstances due to underlying safety factors (operating ratios), need to be recalculated and, if necessary, reduced. • the device must be regularly inspected for any signs of wear or loosening of the rigging connections. • it is necessary to ensure that the mounting points on a building, scaffolding or truss structure have sufficient load-bearing capacity and are structurally viable. • all components of a hung/"flown" device must be visually inspected before installation. Any component showing missing parts, deformations, cracks, corrosion, fractured welds or other signs of wear must not be used under any circumstances. • it is strongly recommended that a flown (loudspeaker) system should be landed and dismantled if local wind intensity is equal or greater than 6 Bft (Beaufort Scale).
	Warning!	To prevent injury through accidents, the stability of the entire system (e.g. during assembly, in a vertical stack or when using a pole-mounted flange) must be guaranteed. Make sure that the system cannot topple over (e.g. as the result of a sloping surface or wind) and that it is protected against being hit from people or vehicles, for example.
	Caution!	To avoid injury, • the device must be stored, installed and operated well away from children. • no one must climb on either flown or stacked loudspeaker systems. • the device must be taken out of operation, marked appropriately and protected against accidental use if it shows visible signs of damage, appears to contain loose parts, is not working correctly or has been subjected to poor transportation conditions (e.g. with unsuitable packaging). If necessary, please contact your Fohhn retailer and the transportation company immediately.

1.3 Acoustic safety instructions

	Warning!	Fohhn systems are capable of generating very high sound pressure levels that can cause irreparable hearing damage. To avoid potential damage to your hearing, never stand in the immediate vicinity of the system when
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		it is in use. Keep more than 5 metres away from powerful Fohhn systems, but also at least 1 metre away from smaller ones for the near field or smaller interior spaces. To prevent both hearing impairment and damage to the device, avoid the following while the device is in operation: • acoustic feedback • high powered, permanently distorted signals • impulse noises, which may occur when some other device in the signal chain is switched on or off, connected or disconnected from the system (e.g. a mixing desk, audio matrix or controller).
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1.4 Electrical safety instructions

All Fohhn products that are or contain Fohhn power amplifiers are protection class 1 appliances. They are built and certified in accordance with the VDE safety measures for electronic devices and, safety-wise, leave our factory in perfect condition. The devices comply with all currently applicable EMC directives: Confirmed by the attached CE marking.

	Warning!	To minimize the risk of electric shock, • the mains plug grounding pin must never be separated. • the device must only be connected to a professionally tested shockproof socket or mains connections with a certified protective conductor. • the device enclosure must never be opened. It does not contain any components that can be repaired by the user. In the case of a defect, please consult qualified service personnel and/or the Fohhn dealer. Please also ensure that the local mains supply voltage matches the power supply voltage specified on the device. To minimize the risk of an electric shock or fire, • the device may only be used in accordance with its specified IP code. • ventilation slots must not be covered with objects (e.g. protective rain covers).
	Caution!	To avoid damaging the device, do not leave the power cable plugged in if the device is not going to be used for a while. Remove the plug from the mains socket to completely disconnect the device.

1.5 Connections and wiring

	Warning!	Please note the following when wiring up your system: • Wiring of loudspeakers systems should only be carried out by suitably qualified personnel. • Only use cabling- and connector materials that meet professional standards and are working faultlessly. • Only use properly shielded plugs and cables with a sufficient cross section. • Only use power cables with a fully intact earthing. • Protect any laid cables from unnecessary traction. • Never use any signal or power cables for mounting, hoisting or securing a system. • Note the respective pin assignment of audio and data cabling.
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1.6 Operating conditions

	Warning!	The device should be immediately inspected by a Fohhn approved service partner if • the mains power socket is damaged, • a foreign body or liquid has got into the interior of the device, • the device is not working normally i.e. it is showing marked differences in performance, • the device is damaged (e.g. after a fall).
	Caution!	Please note the following when operating your Fohhn system: • The permitted ambient temperature of the device during operation ranges from 0 °C to +40 °C. A short period of use outside this temperature range is possible, but not advisable. • The device is intended for use in a dry environment with normal levels of dust and humidity in the air. Please observe the IP code. • Never expose the device to any aggressive chemical fluids or vapours. • Always make sure that heat can be dissipated via the rear surface of the device enclosure. Maintain these gaps: left/right side >5 cm, back >10 cm, top >10 cm. • Always make sure that the device is well ventilated. • To clean your Fohhn product, use a dry or slightly damp but well-wrung cloth. Ensure that the device is disconnected from the power supply when cleaning.

Information on abnormal operation: If the permissible operating temperature of a powered Fohhn device (active loudspeaker system or amplifier) is too high (over 75 °C), the device will shut down automatically to protect itself. As soon as the temperature returns to within the normal operating range, the device will automatically power up again. The temperature of the Fohhn system



can be monitored in Fohhn Audio Soft. Shutdown is getting more likely if the product is exposed to direct sunlight or very high environmental temperatures.

1.7 Storage and transportation

Please note the following:

- The device should only be transported in its dedicated transport case.
- Store the device in a dry environment with a constant ambient temperature to avoid condensation.
- The permitted ambient temperature range for storing the device is -10 °C to +70 °C.
- Due to fluctuations in temperature during transportation and storage, condensation may start to build up on the surface of the device. Before operating the device, examine its surface for any signs of moisture. If this is the case, allow the unpacked device to acclimatise for two hours in the environmental temperature before using it.



2. The Product

2.1 Product introduction

The PoE series is a universal loudspeaker system with an ultra-compact design. The PoE+ products allow easy installation using a single network cable to control the integrated Fohhn DSP and transmit audio via Dante. The system can be precisely monitored and customised to the acoustic environment.

2.2 Scope of supply

Every Fohhn product is examined to the highest quality and safety standards before despatch. Please examine your new product carefully for any signs of damage that may have occurred during transportation and, if necessary, inform your Fohhn retailer and the transport company immediately. Please also check that the packaging includes all components belonging to the product. If anything is missing, please let your Fohhn retailer know immediately.

Your PoE series contains the following components:

- 1 × Fohhn PoE+ loudspeaker system
- 2 × screws and 2 × sliding blocks for fastening to mounting bracket
- 1 × user manual (or available online at www.fohhn.com)

3. Setup and operation

3.1 Installation and mounting

All PoE series loudspeakers have a continuous T-slot on the rear of the cabinet. Along this T-slot, cables can be routed, stand, wall and ceiling brackets can be installed, or additional accessories such as safety brackets and flying adapters can be mounted. The loudspeaker can be attached using the slot nuts and screws that are included.

3.1.1 Secondary backup

Only Fohhn Safety Brackets SB-S and SB-L may be used as slings for the secondary securing of a loudspeaker from the LXP series. The maximum permissible load of the Safety Brackets and all securing elements used (safety ropes, quick links, etc.) must not be exceeded at any time.

Slings and safety elements (such as safety ropes) must always be attached in such a way that they do not allow any fall path. If the loudspeaker has to be subsequently aligned, the maximum fall path of 20 cm must not be exceeded - regardless of the type of attachment.

3.1.2 Slot nut mounting

Inserting the slot nut is described in the following steps.

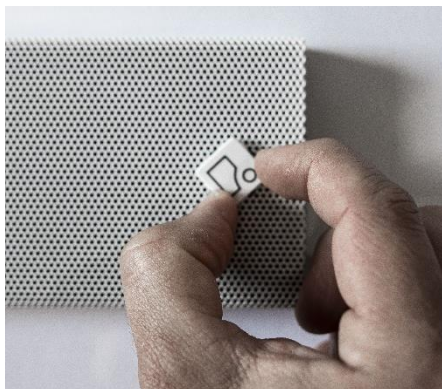
- Insert the slot nut into the T-slot.



- Press the slot nut into the T-slot with slight pressure.
- Align the slot nut correctly so that a screw can be screwed in. A screwdriver or an Allen key can be used for this purpose.

3.1.4 Rotating the logo

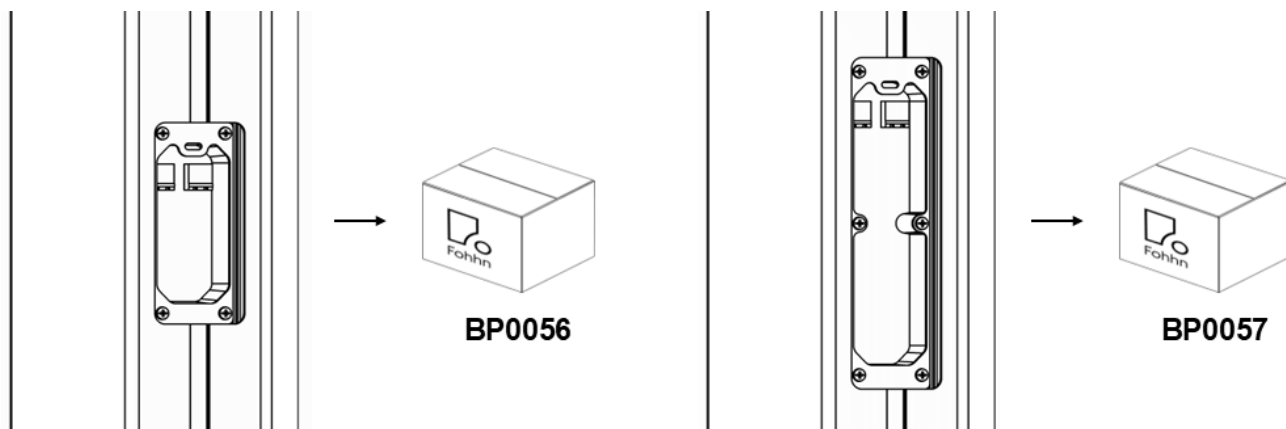
The loudspeaker logo can be rotated if it is not positioned correctly. To rotate a rotary logo 90 degrees, hold it with two fingers and turn it firmly until it locks into place. Then check the alignment and release.



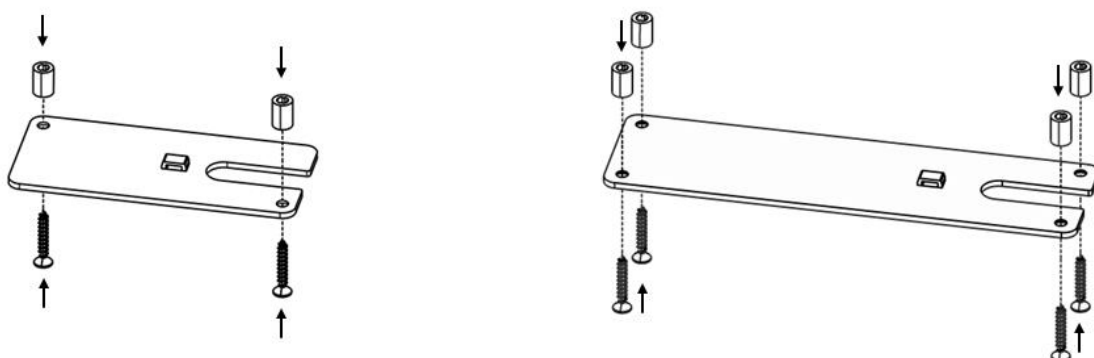
3.1.3 CC-S (BP0056) & CC-L (BP0057)



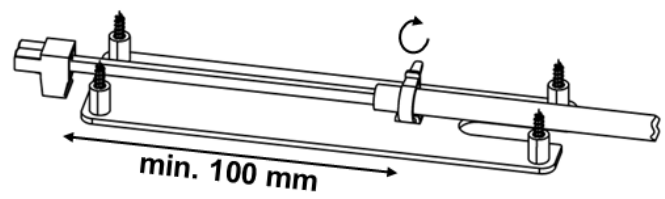
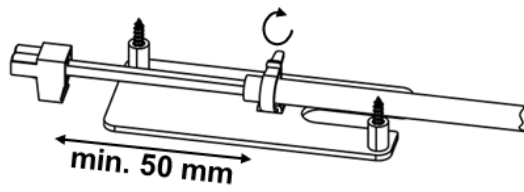
1.



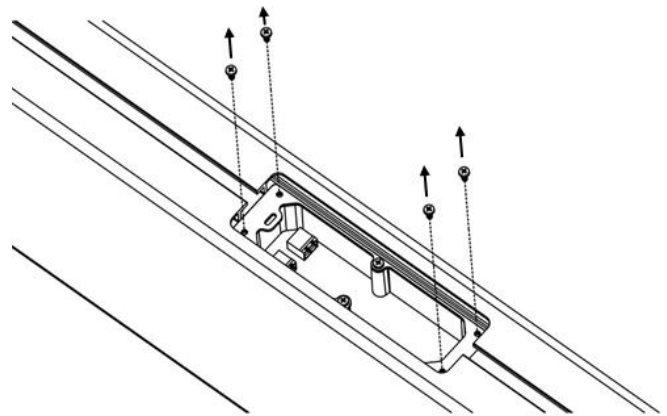
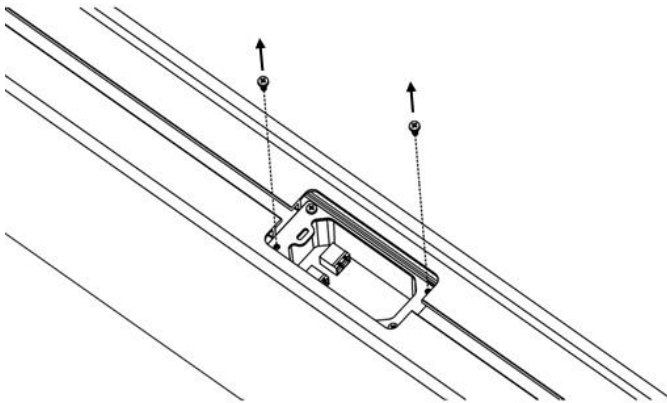
2.



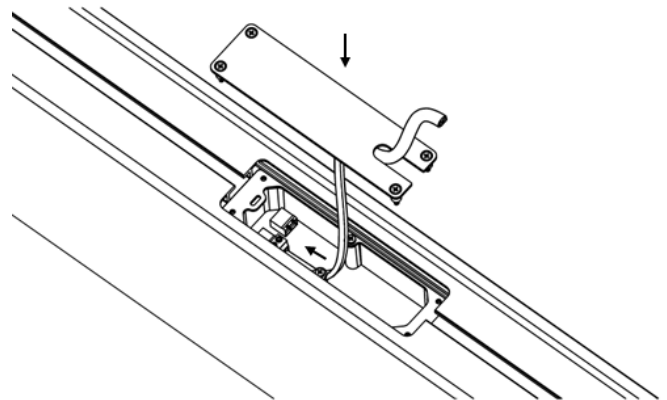
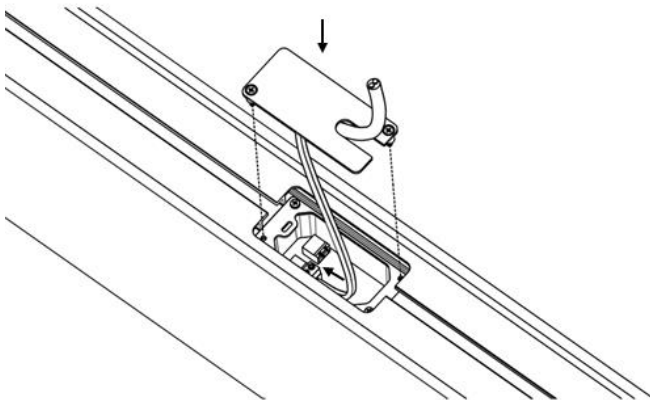
3.



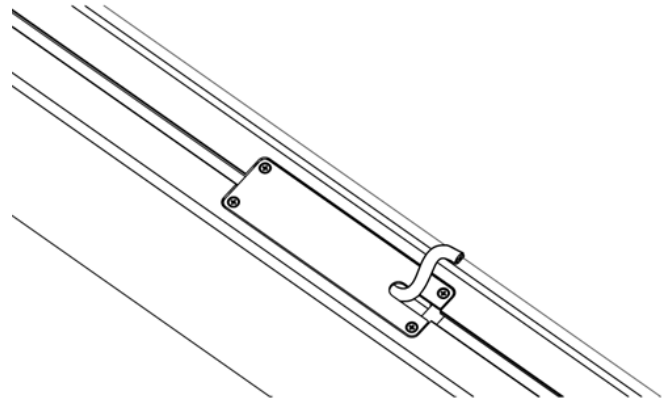
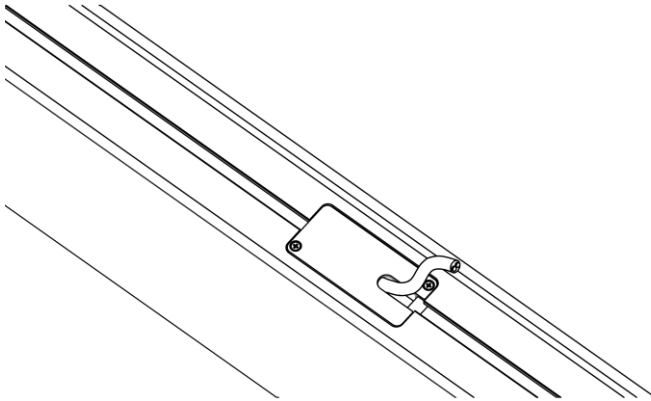
4.



5.



6.



3.2 Connections and status display

The cables must be connected by a specialist when the system is switched off.

Connections and status LEDs on the rear of the enclosure:



- (1) **RJ-45-socket**
- (2) **Link/Act:**
This LED flashes when communication with the network is established.
- (3) **Sync:**
This LED lights up when the loudspeaker is powered via PoE and/or the loudspeaker is connected to the network.

Status LEDs on the front:

Ready:

This LED lights up blue when the PoE loudspeaker is ready for use. The LED is visible on the front through the front grille and can be deactivated in Fohhn Audio Soft if required.

3.3 Setup and configuration

Once you have made the relevant connections described in the chapter 'Connections and status display', the PoE loudspeaker is ready for operation. However, if you want to change configurations such as routing, EQ or level, load a new preset or monitor the loudspeaker using software, you will need a Windows PC with the Fohhn Audio Soft control software installed (free download at www.fohnn.com).

Prerequisites

The following software must be installed in advance:

- **Dante Controller 4.14** or a newer version
<https://www.getdante.com/products/software-essentials/dante-controller/>
<https://www.getdante.com/>



Please read the separate operating instructions for the Dante Controller software in advance.

- **Fohhn Audio Soft 6.5.0** or a newer version
<https://www.fohhn.com/en/series/software>

Please read the separate operating instructions for Fohhn Audio Soft in advance.

A PoE+ Ethernet switch is required for the power supply (IEEE 802.3at). The 100Mbit Ethernet interface of the PoE loudspeaker system works according to the 100Base-TX standard.

The Ethernet network must fulfil all requirements for Dante Audio, further information can be found at Audinate.

<https://www.getdante.com/support/faq/networks-and-switches/>

<https://www.getdante.com/support/faq/what-features-are-important-when-purchasing-a-switch/>

Note:

The PoE loudspeaker system has an RJ-45 Ethernet network interface as the only connection option, which is used for power supply, control and audio.

The PoE loudspeaker systems can only be configured via the Ethernet interface.

Firmware update

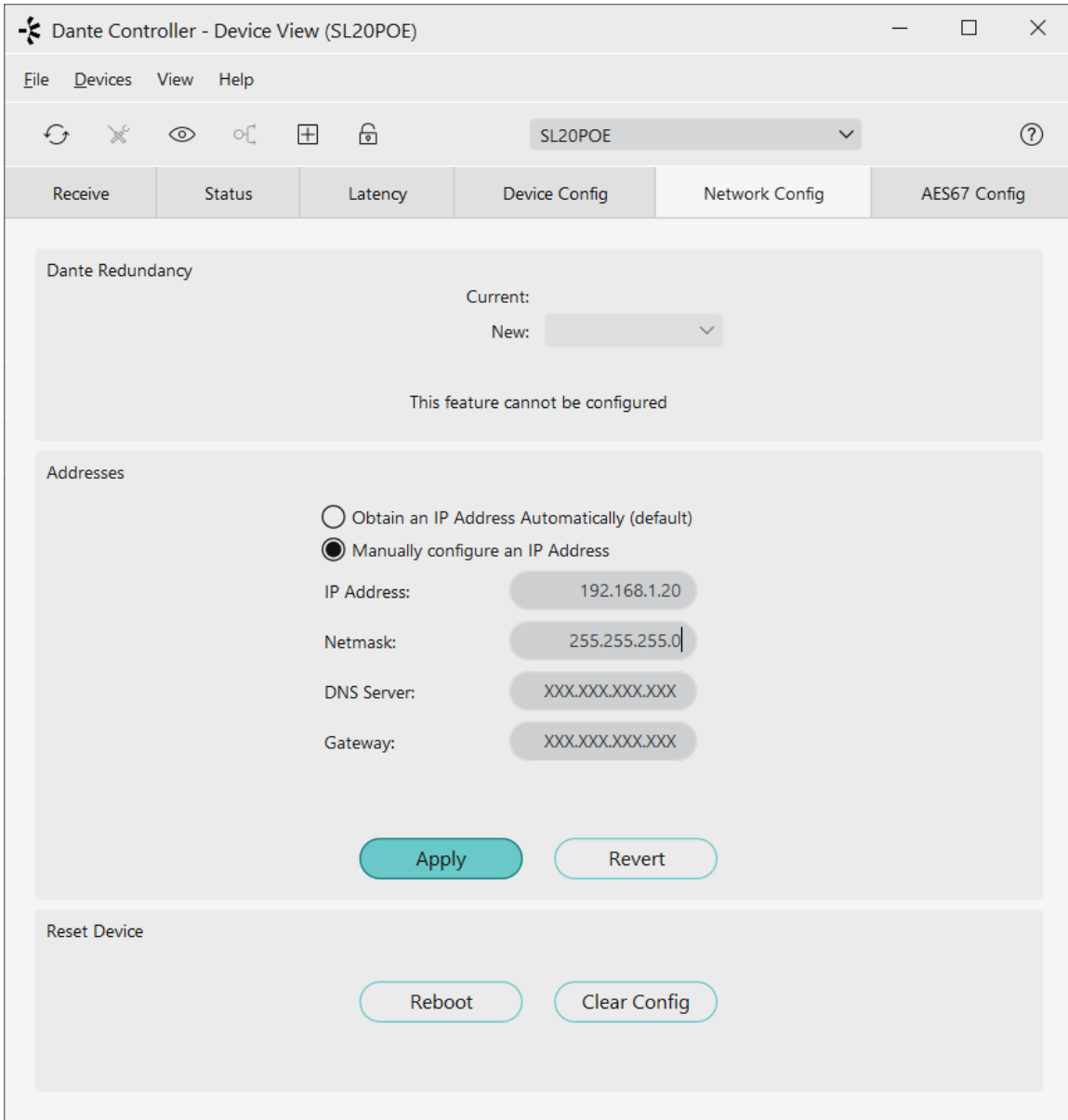
The PoE loudspeaker systems can receive two different firmware updates. The Dante firmware is updated via the Dante Controller software. Fohhn Audio Soft must be used for the Fohhn DSP firmware.

3.4 Network configuration

3.4.1 IP address

On delivery, the PoE loudspeaker obtains its IP address from a DHCP server or assigns itself a link-local IP address if no DHCP server is available.

The IP configuration must be changed in the Dante Controller software.



Note: Dante Audio and Fohhn-Net are controlled via the same IP address.

3.4.2 Reset IP address

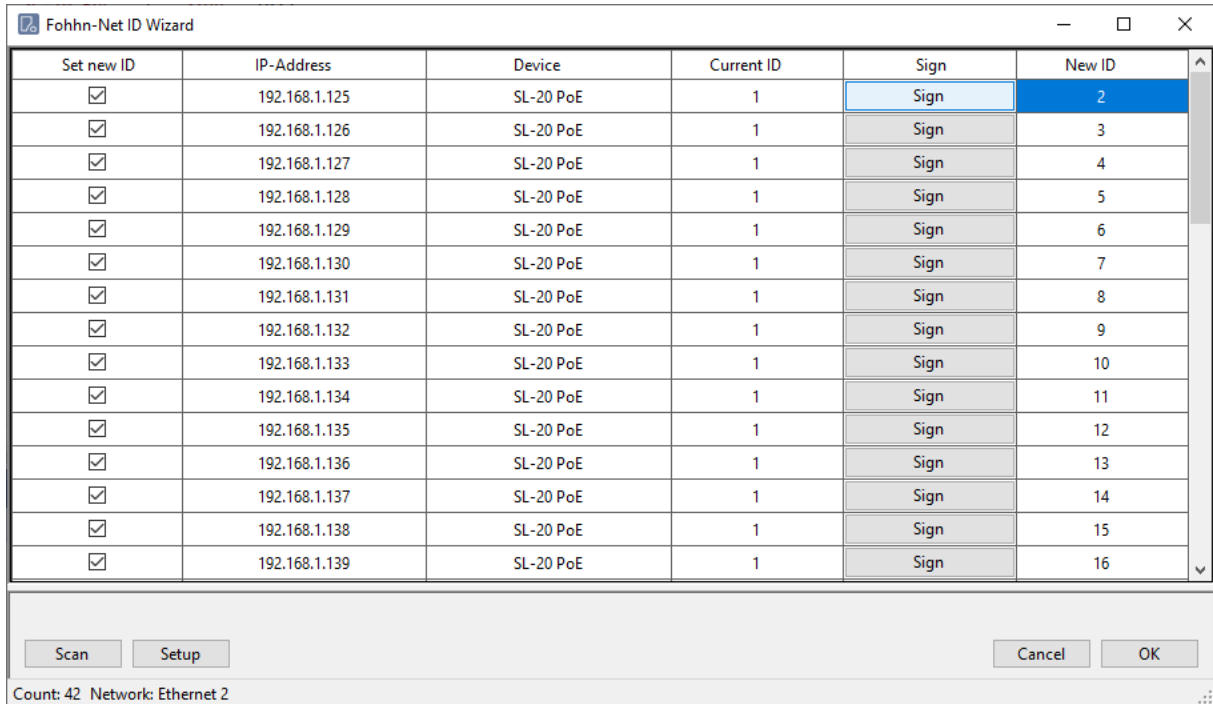
If the PoE loudspeaker is configured to a static IP address that you do not know, you can find instructions on how to reset it here:

<https://www.getdante.com/support/faq/how-can-i-locate-a-dante-device-with-a-static-ip-address-in-an-unknown-subnet/>

3.4.3 Fohhn-Net ID

The Fohhn-Net ID is a unique identifier for Fohhn devices, regardless of which interface is used to access the devices. It is a number from 1 to 254 and is independent of the IP address. By default, all Fohhn devices have the ID 1.

To display all devices in Fohhn Audio Soft, each PoE loudspeaker requires a different Fohhn-Net ID. To set the Fohhn-Net ID quickly and automatically on many PoE loudspeakers, you can use the Fohhn ID Wizard. Start it either via the Windows Start menu or in the Fohhn Audio Soft via the *Extras* menu item.



Set new ID	IP-Address	Device	Current ID	Sign	New ID
☒	192.168.1.125	SL-20 PoE	1	Sign	2
☒	192.168.1.126	SL-20 PoE	1	Sign	3
☒	192.168.1.127	SL-20 PoE	1	Sign	4
☒	192.168.1.128	SL-20 PoE	1	Sign	5
☒	192.168.1.129	SL-20 PoE	1	Sign	6
☒	192.168.1.130	SL-20 PoE	1	Sign	7
☒	192.168.1.131	SL-20 PoE	1	Sign	8
☒	192.168.1.132	SL-20 PoE	1	Sign	9
☒	192.168.1.133	SL-20 PoE	1	Sign	10
☒	192.168.1.134	SL-20 PoE	1	Sign	11
☒	192.168.1.135	SL-20 PoE	1	Sign	12
☒	192.168.1.136	SL-20 PoE	1	Sign	13
☒	192.168.1.137	SL-20 PoE	1	Sign	14
☒	192.168.1.138	SL-20 PoE	1	Sign	15
☒	192.168.1.139	SL-20 PoE	1	Sign	16

Count: 42 Network: Ethernet 2

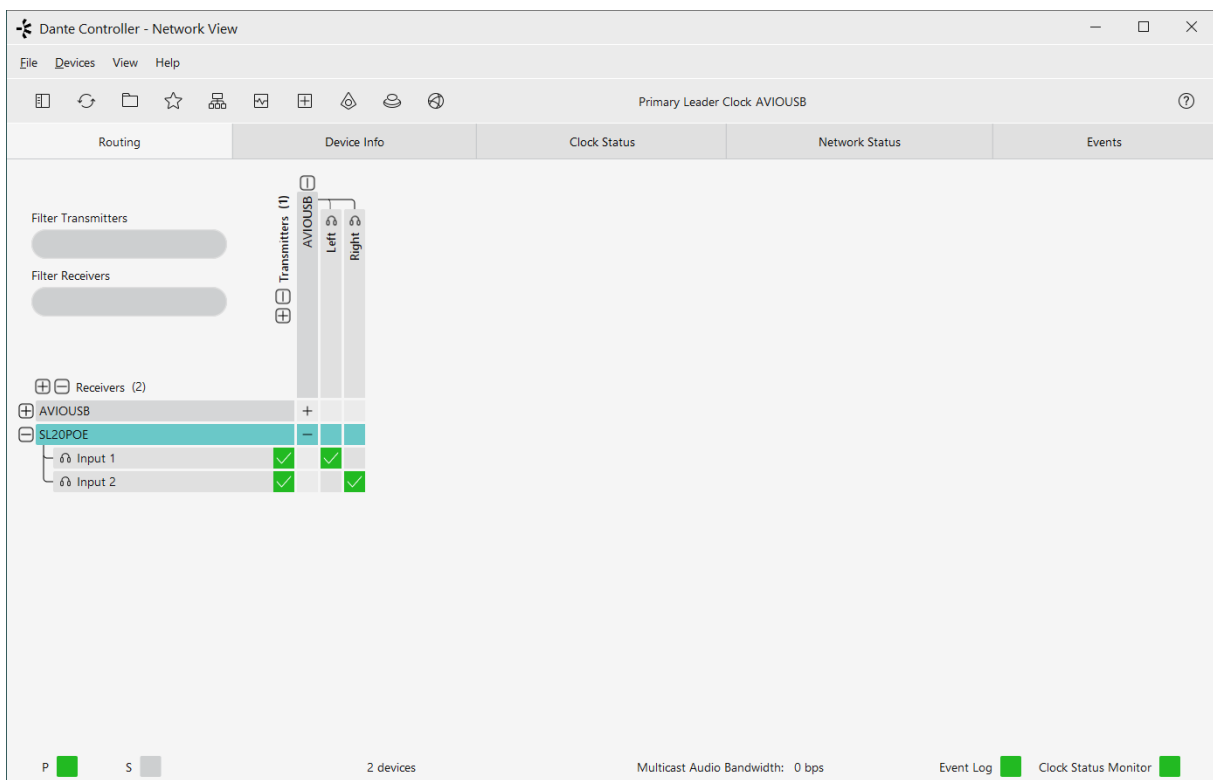
With the *Sign* function, you can make the blue LED in the PoE loudspeaker flash.

If all PoE loudspeakers that are to be configured simultaneously have their own ID, confirm with *OK*.

Note: The Fohhn-Net ID can also be changed directly in Fohhn Audio Soft, but Fohhn Audio Soft will not display multiple devices with the same ID.

3.5. Audio configuration

3.5.1 Dante Routing



Primary Leader Clock AVIOUSB

Routing	Device Info	Clock Status	Network Status	Events
Filter Transmitters	Transmitters (1)			
Filter Receivers	Receivers (2)			
AVIOUSB	+			
SL20POE	-			
Input 1	✓	✓		
Input 2	✓	✓		

P S 2 devices Multicast Audio Bandwidth: 0 bps Event Log Clock Status Monitor



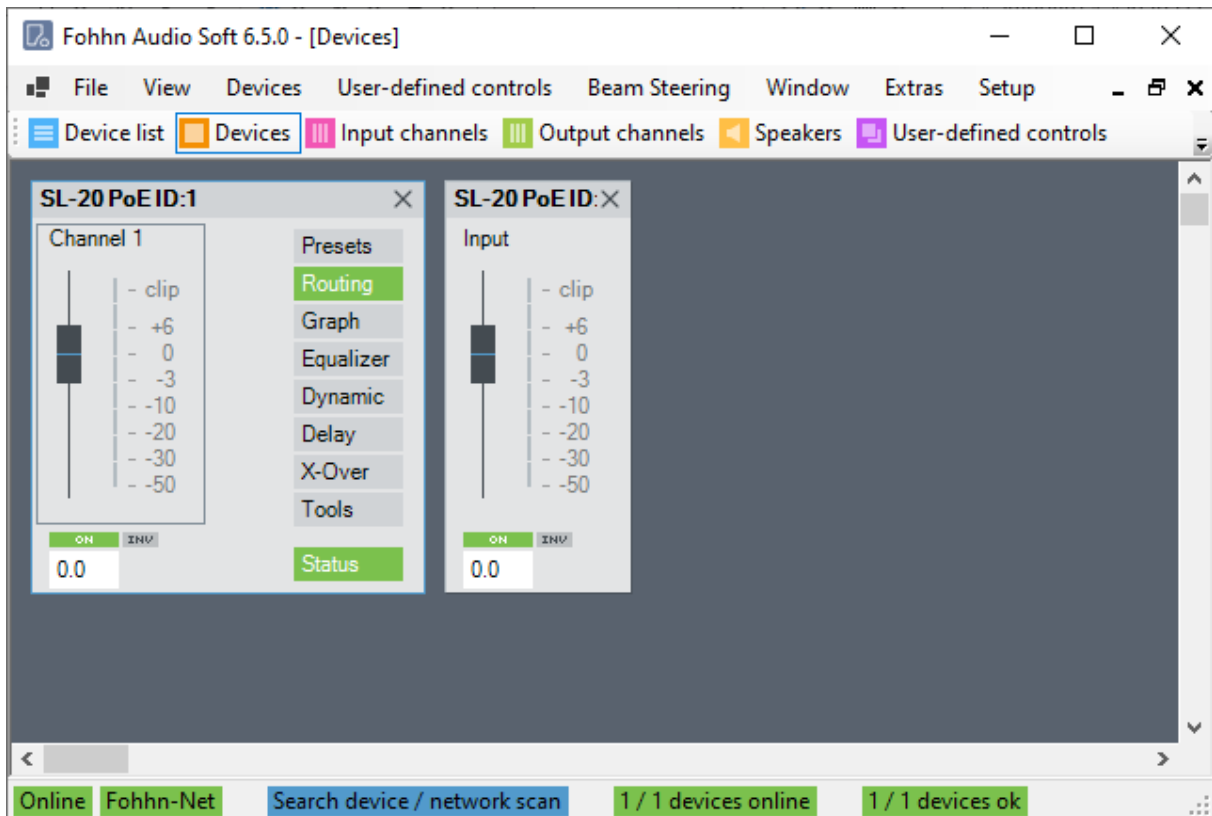
You have the option of routing up to two Dante signals to the PoE loudspeaker system. Both signals are mixed 1:1, so a mono sum can be created from a stereo signal.

Note: Further information on the Dante Controller software can be found in the separate operating instructions for the Dante Controller.

Note: Make sure that your source is very quiet or muted before setting the routing points. Alternatively, you can reduce the volume on the PoE loudspeaker system itself in the Fohhn Audio Soft beforehand.

3.5.2 Fohhn Audio Soft

You can configure all DSP functions in Fohhn Audio Soft. This includes speaker presets for different applications, equaliser, limiter, delay and volume.



The mix of Dante Input 1 + Dante Input 2 is connected to the input of the PoE loudspeaker system.

Note: Further information on Fohhn Audio Soft can be found in the separate Fohhn Audio Soft user manual.

3.6 Integration in media control systems

The PoE loudspeaker systems can be controlled and monitored via **UDP on port 2101**. The loudspeaker systems accept the Fohhn-Net protocol or text commands.

The control commands must be sent to the IP address configured in the Dante Controller with the correct Fohhn-Net ID.

Further information can be found in the manual: *Fohhn-Net Technical Manual*

You can find programming examples and plugins for media controllers on the Fohhn Github profile.

<https://github.com/Fohhn>

The PoE loudspeaker systems are compatible with the Fohhn Q-SYS Dante Device Plugin.

<https://github.com/Fohhn/Fohhn-Q-SYS-Dante-Device-Plugin>

4. Technical data

	Scale-1 PoE+	SL-20 PoE+
electroacoustic features		
acoustic design	compact active 2-way loudspeaker with extended bass response	ultra-compact active 2-way nearfield loudspeaker
components	4" woofer 0.75" dome tweeter Fohhn Sub Extension	2 x 2,5" woofer 0.75" dome tweeter
maximum SPL [1]	100 dB	100 dB
operating mode	Power over Ethernet (PoE+ IEEE 802.3at), active, 2 x DSP amplifier, Class-D	
amplifier channels	2	
frequency range [2]	44 Hz – 20 kHz	86 Hz – 20 kHz
nominal dispersion (h x v) [3]	140° x 90°	160° x 80°
physical features		
enclosure	aluminium enclosure, powder coated	
front design	front grille in enclosure colour	
protection grille	ball impact resistant steel grille, powder coated, backed by acoustically transparent 3D mesh	steel grille, powder coated, backed with acoustically transparent 3D mesh
mounting points	continuous T-slot at the rear	
connectors	RJ45 for Dante Audio and control with 100Base-TX Ethernet with PoE+	
standard colours	black or white, powder coated	
optional colours	RAL Classic / NCS / Pantone on request, Fohhn Texture Design	RAL Classic / NCS / Pantone on request, Fohhn Texture Design
dimensions ca. (w x h x d)	133 x 355 x 128 mm	85 x 215 x 90 mm
weight, ca. [4]	2.9 kg	1.1 kg
IP code	IP 42	
electronic features		
amplifier type	Class D - Pure Path Digital PWM	
supports AES67	yes	
DSP channels, Fohhn Audio DSP	2	
amplifier power (1 kHz, THD+N < 1%)	2 x 70 W Peak	
frequency response	20 Hz – 20 kHz	
input sensitivity	0 dBFS	
signal/noise ratio	> 103 dB (A-weighted)	
dynamic range	> 120 dB	
system latency	Dante + 1.8 ms	
THD+N	0.08 % (1 kHz, 8 Ω, 3 dB under clipping level)	
Auto Power Save	yes, time adjustable 1 s to 12 h, or never active	
password protection	yes	
protective circuit	overvoltage protection, overcurrent protection, overtemperature protection, short circuit protection, DC protection, power-on delay, soft start and inrush current limitation	
power supply	Power over Ethernet up to 30 W (PoE+)	
power consumption: maximum / idle / standby & Auto Power Save	30 W / 5.5W / 3.3W	
operating temperature	0 – 40 °C	
storage temperature	-10 – 70°C	
relative humidity	max. 90 %, non-condensing	
cooling	fanless, passive	
controller and DSP		
gain	-80 dB – +12 dB	
volume	-80 dB – +12 dB	
EQ input	10 fully parametric filters each, gain +/-12 dB, frequency 10 – 20 kHz, Q 0.1 – 100	
EQ output	10 fully parametric filters each, gain +/-12 dB, frequency 10 – 20 kHz, Q 0.1 – 100	
selective 9-band limiting	Bass / mid / high for sum, tweeter and woofer each	
limiter / compressor	yes	
noise gate	yes	
input delay	0 – 200 ms (0 – 70 m)	
output delay	0 – 375 ms (0 – 130 m)	
X-over	yes	
user presets	100	
system latency	Dante + 1.2 ms	
band specific time constants	yes	
filter technology	80-bit double precision	



	Scale-1 PoE+	SL-20 PoE+
connections and controls		
inputs & control	1 × 100Base-TX Ethernet (RJ-45) for Dante Audio, Power over Ethernet (PoE+ IEEE 802.3at) and control	
remote control and monitoring		
remote control	Fohhn Audio Soft, Fohhn Net over IP	
remote monitoring	temperature, protect, signals, power supply, Fohhn Net, Fohhn Audio Soft, impedance- / loudspeaker monitoring	
integration in media control	UDP text protocol, Q-SYS plugin available, Fohhn Gateway	
optional features		
special colour	RAL Classic / NCS / Pantone on request, Fohhn Texture Design	

[1] Peak, 20 ms with bandpass filtered pink noise signal according to IEC 60268-2 at one octave above the lower limit of the frequency range, with speaker preset

[2] -10 dB under anechoic half space-conditions, with speaker preset

[3] horizontal × vertical at -6 dB

[4] net weight without optional equipment



5. Servicing and repair

Servicing and/or repair should only be carried out by qualified personnel who have been trained by Fohhn. Do not carry out any servicing or repairs on the device yourself. To find the nearest Fohhn service centre, please contact us at the address given in this document. Keep the packaging of the devices so that, in the event of any damage, it can be returned in its original packaging. This minimises the risk of transport damage.

6. Disposal

Please note that this product must not be disposed of with household waste but must be taken to a disposal point for electrical/electronic waste. Observe all applicable national or local legal regulations. For more information, please contact your local city office, your local waste transfer station or your local distributor.



7. EU declaration of conformity

We hereby certify that this product complies with the currently applicable standards of the EMC Act and that the CE mark shown here is therefore affixed to the product.

The EU declaration of conformity for this product can be downloaded from the Fohhn website www.fohhn.com under the respective product.



8. Contact address

Fohhn Audio AG
Großer Forst 15
72622 Nürtingen
Deutschland
Tel. +49 7022 93323-0
Fax +49 7022 93324-0
www.fohhn.com
info@fohhn.com