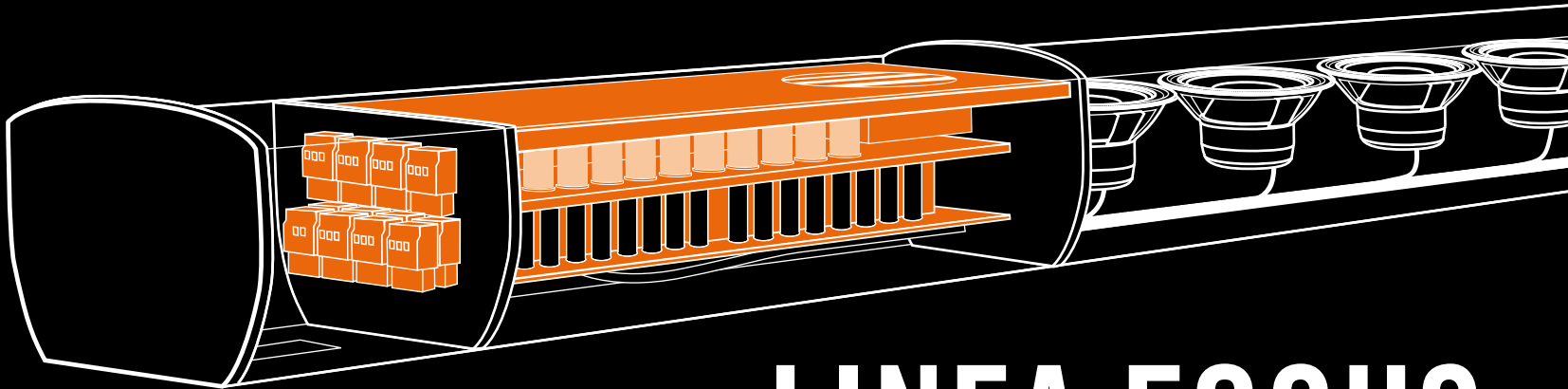


SOUNDS PERFECT. IS PERFECT.

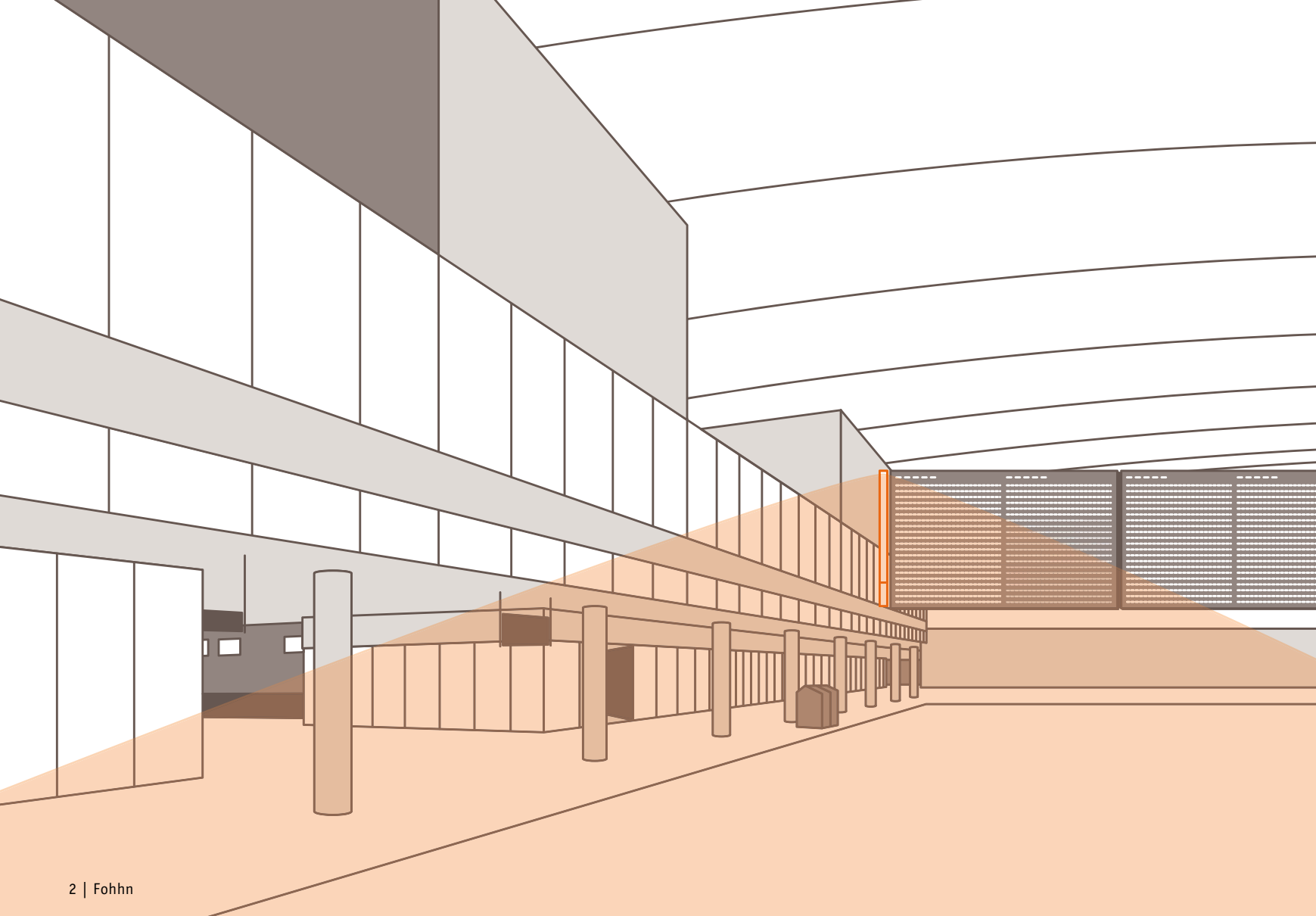


WWW.FOHN.COM



LINEA FOCUS

THE NEXT GENERATION OF
ELECTRONICALLY STEERABLE LINE ARRAY SYSTEMS.



FOHHN AUDIO SYSTEMS ARE MORE THAN IMPRESSIVE.



MUSIC TO YOUR EARS. PLEASING ON YOUR EYE. CLEAR IN YOUR MIND.

Dear Fohhn Partners, Audio Enthusiasts and Planners

Since the formation of the company, Fohhn's research and development has focussed on the field of high quality column speaker systems. Our aim has been to transport the main benefits from the large, modular line arrays into more compact, easy to use systems – and by doing so, achieve sonic perfection. In 2006, with the launch of the Fohhn Linea series, we achieved the first step in turning our vision into a reality. In 2009, with the Linea Focus electronically steerable systems, we succeeded in developing a premium class of loudspeaker. Today, in addition to further refinements, the series now has another advantage – its size. Linea Focus is now available in 1.2 m, 2.2 m, 3.5 m and 4.5 m lengths, designed for the ultimate experience in distance coverage.

Linea Focus introduces the next generation of live sound innovation. The development of new technologies that can be integrated into elegant, compact designs presents exciting opportunities for all

types of listening environment, particularly those with challenging acoustics. We invite you to become inspired by a new sound experience and to rediscover the highest levels of sound quality, letting your ears be the judge. Why not come and visit our Sound Lab where we will look forward to personally demonstrating the product range and answering any questions you may have. Linea Focus takes sound reproduction to the next level. Contact us today to arrange a demo.

A handwritten signature in blue ink that reads 'Jochen Schwarz'.

Jochen Schwarz, Qualified Engineer
Chief Executive Fohhn Audio AG

A handwritten signature in blue ink that reads 'U. Haug'.

Uli Haug, Qualified Media Representative
Board of Directors Fohhn Audio AG

**ENGINEERED FOR ARCHITECTURE
AND LIVE SOUND.**

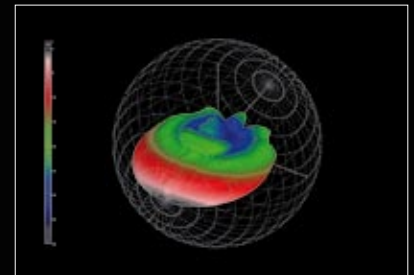
The next generation of electronically steerable line array systems.

4.5 m
Linea Focus LFI-450

3.5 m
Linea Focus LFI-350

2.2 m
Linea Focus LFI-220/LF-220

1.2 m
Linea Focus LFI-120/LF-120



Fohhn Linea Focus 3D Directivity Balloon

LINEA FOCUS – OUTSTANDING FOR 5 GOOD REASONS.

1.

SUPERB SOUND QUALITY, EVEN IN CHALLENGING ACOUSTIC ENVIRONMENTS

Linea Focus takes sound reproduction of both speech and music to the next level. The speakers' sound dispersion characteristics can be adjusted electronically to suit the room conditions, avoiding unwanted reflections and providing even coverage of all audience areas. Speech intelligibility is dramatically improved.

2.

REAL-TIME SOUND CONTROL

Perfect control equals perfect results. Fohhn's user-friendly software enables real-time control of the speakers' sound dispersion characteristics. This allows sound to be focussed quickly and accurately on each particular audience area, giving outstanding results with both fixed installations and live performance systems.



3.

EVEN SOUND DISTRIBUTION

With Linea Focus, even sound distribution is guaranteed throughout the venue, from warm, pleasant sound at the front, to clarity and detailed intelligibility right at the back. What's more, significantly fewer speakers are required to achieve perfect room coverage.

4.

OUTSTANDING REPRODUCTION OF SPEECH AND MUSIC

Linea Focus establishes a new benchmark for the reproduction of both speech and music. The high-powered speakers' exclusive development and innovative digital technology produces a dynamic, natural sound quality.

5.

INTEGRATION INTO ANY ARCHITECTURAL SETTING

Designed for perfection, the slim, elegant Linea Focus speakers integrate into any setting. Housings are available in all standard RAL colours. The speakers' electronic control functionality enables them either to be mounted flat against the wall, or installed directly in the wall to blend unobtrusively with the room interior. Only the most important things will be noticed: the room and the sound.

FOHNN. DRIVEN BY INNOVATION.

SCIENCE COMBINED WITH CREATIVE PRODUCT DESIGN,
BENEFITING BOTH PEOPLE AND ARCHITECTURE.

A love of music and a passion for sound, combined with logical and consistent development, have culminated in the innovative characteristics, features and advantages of the new generation Linea Focus. Science combined with creative product design, benefiting both people and architecture. At Fohhn, the latest amplifier technology and high-powered DSP processors are used to enable perfect control of the electronically inclinable columns.

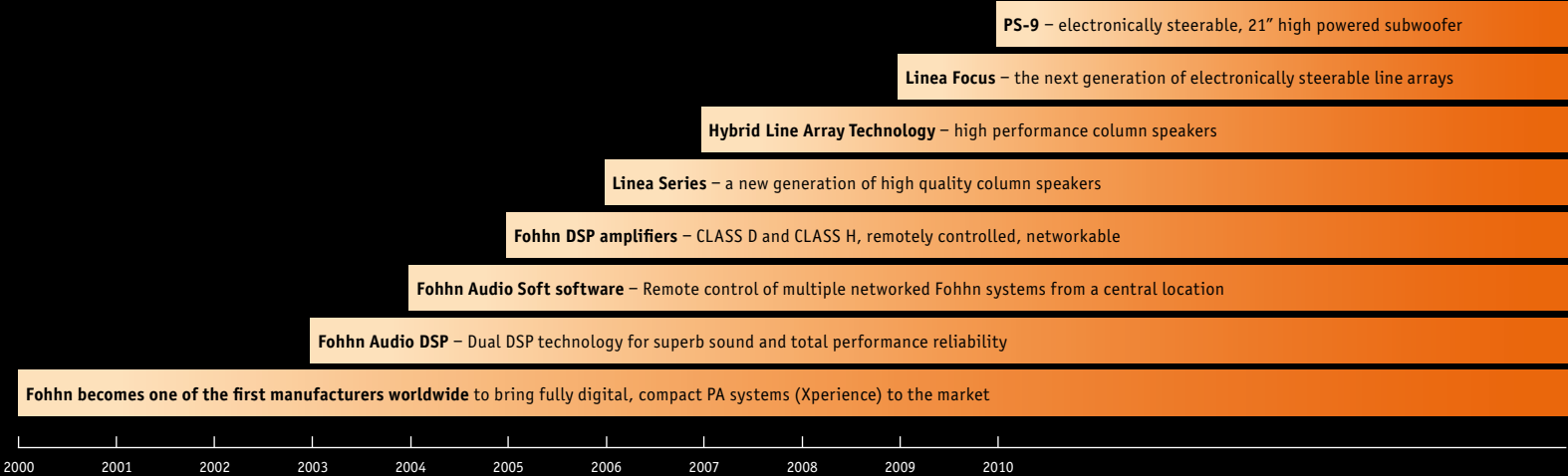
Decades of knowledge and experience in audio technology, room acoustics and electronics have been brought together in the Fohhn Sound Lab as part of a new interdisciplinary design process, in which

everyone involved is inspired by the same motivational force. The vision: to enhance the most important sense – hearing, to create new experiences, generate enthusiasm and offer high quality, reliable products that are both intuitive and easy to use.

No longer a “best kept secret”, Fohhn’s market-leading technology has now made the company a “first choice” following international recommendations from famous architectural sites, historical and cultural buildings, arenas and airports. A reputation the company plans to further develop with its proud claim: Engineered in Germany, made in Germany.

INTENSIVE RESEARCH AND SUSTAINED DEVELOPMENT – FOHNN'S ROUTE TO PERFECT SOUND QUALITY.

100%
KNOW-HOW



The last 10 years of innovative technology from Fohhn.

LOGICALLY INTELLIGENT. THE LINEA FOCUS FAMILY.

The innovative, finely tuned Linea Focus family differentiates itself from other products because of its column length. This is due to the number of integrated loudspeakers, amplifiers and DSP channels, which enable each individual speaker to be electronically controlled. The flagship LFI-450, for example, contains 32 integrated loudspeakers, 32 amplifiers and 32 DSP channels. The vertical sound inclination angle can be adjusted between $-40^{\circ}/+40^{\circ}$ and the vertical beam width between 0° to 90° . Using Fohhn's intuitive software, adjustments are made in unbelievably fine and precise 0.1° steps.

An outstanding feature of the Linea Focus series is Fohhn's "Two Beam Technology". This allows the speakers to generate two separate beams

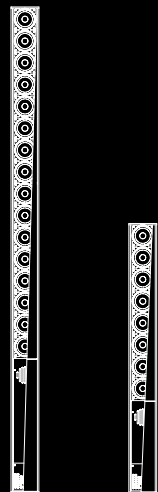
in their vertical dispersion range, providing simultaneous and focussed coverage of different audience areas, such as stalls and gallery. A further unique feature is Fohhn's new "Side Lobe Free Technology", a special algorithm developed in house to suppress the unwanted side lobes that will inevitably occur in the beam. This results in a more directional sound and significantly improved speech intelligibility.

The different lengths of the Linea Focus models determine their acoustic efficiency. The longer the line array, the longer its reach and also its effectiveness in the control of low frequencies. Multiple Linea Focus systems can be networked together to enable monitoring and control from a central location.

MOBILE SOUND

- * Remote control of vertical sound dispersion characteristics
- * Vertical sound inclination angle adjustment $-40^{\circ}/+40^{\circ}$, vertical beam width adjustment -0° to 90° via software in 0.1° steps.
- * Connection field on the speaker underside. Networkable.
- * Optional accessories for tripod use and traverse mounting.

More technical information on page 38. For questions about product selection, please contact our planning engineers who will be pleased to assist you: info@fohnhn.com



LF-220

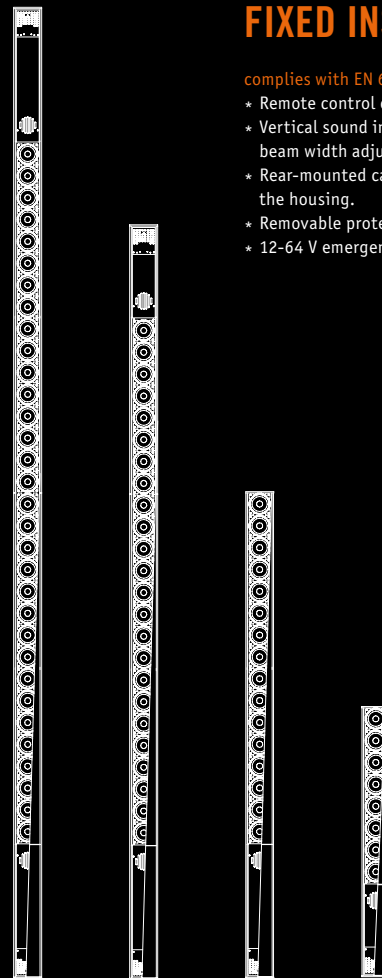
LF-120

LF-220

16 x 4" neodymium loudspeakers,
16 x CLASS D amplifiers,
16 x DSP processors, Length: 2.2 m
Weight: 15 kg

LF-120

8 x 4" neodymium loudspeakers,
8 x CLASS D amplifiers,
8 x DSP processors, Length: 1.2 m
Weight: 8 kg



LFI-450

LFI-350

LFI-220

LFI-120

FIXED INSTALLATION

complies with EN 60849 standard

- * Remote control of vertical sound dispersion characteristics
- * Vertical sound inclination angle adjustment $-40^{\circ}/+40^{\circ}$, vertical beam width adjustment -0° to 90° via software in 0.1° steps.
- * Rear-mounted cable outlet. Terminal connections inside the housing.
- * Removable protective front grid for general access
- * 12-64 V emergency power operation, fault message contact etc.

LFI-450

32 x 4" neodymium loudspeakers,
32 x CLASS D amplifiers,
32 x DSP processors, Length: 4.5 m

LFI-350

24 x 4" neodymium loudspeakers,
24 x CLASS D amplifiers,
24 x DSP processors, Length: 3.5 m

LFI-220

16 x 4" neodymium loudspeakers,
16 x CLASS D amplifiers,
16 x DSP processor, Length: 2.2 m

LFI-120

8 x 4" neodymium loudspeakers,
8 x CLASS D amplifiers,
8 x DSP processors, Length: 1.2 m

MOBILE APPLICATIONS.

PRESS CONFERENCES, WORSHIP SOUND, INDUSTRY EVENTS, BROADCAST AND TV SHOWS, GALAS, EXHIBITION STANDS, CONCERT TOURS, THEATRE PRODUCTIONS AND MORE.

With an emphasis on design, architecture and sound quality, Linea Focus systems are ideal for live use where it's important for loudspeakers to maintain a discreet, professional profile, rather than dominating the scene. Quick set-up is another important factor, along with the ability to function flawlessly, even in the most demanding acoustic conditions.

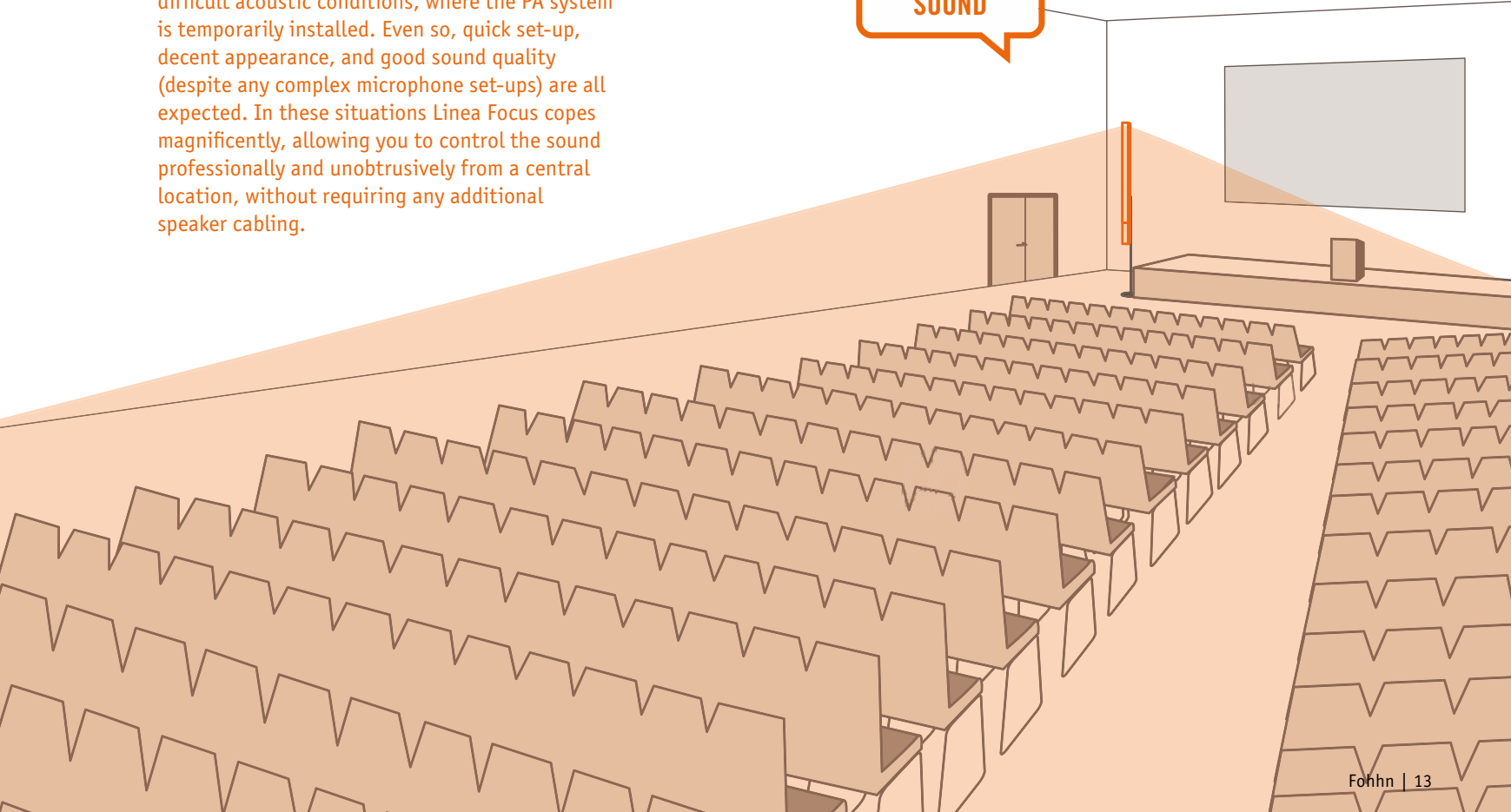
Larger modular line array systems often require flying points and expensive coupling devices, but Linea Focus simply requires a loudspeaker tripod, or a mounting point on a traverse. Due to its array length, Linea Focus provides excellent reach and coverage. The speakers' slim, unobtrusive design allows an unrestricted view of the stage and won't interfere with any camera work. An ability to control the sound direction also avoids potential conflict with any complex microphone set-ups.

Linea Focus systems are light and compact, convenient for both transportation and storage.

- * Low weight (LF-120: 8 kg; LF-220: 15 kg)
- * Elegant design (width: only 13 cm)
- * Connection plates on the underside of the box for quick and easy access
- * Networkable – up to 256 systems

Industry events often take place in venues with difficult acoustic conditions, where the PA system is temporarily installed. Even so, quick set-up, decent appearance, and good sound quality (despite any complex microphone set-ups) are all expected. In these situations Linea Focus copes magnificently, allowing you to control the sound professionally and unobtrusively from a central location, without requiring any additional speaker cabling.

100%
SOUND



FIXED INSTALLATIONS.

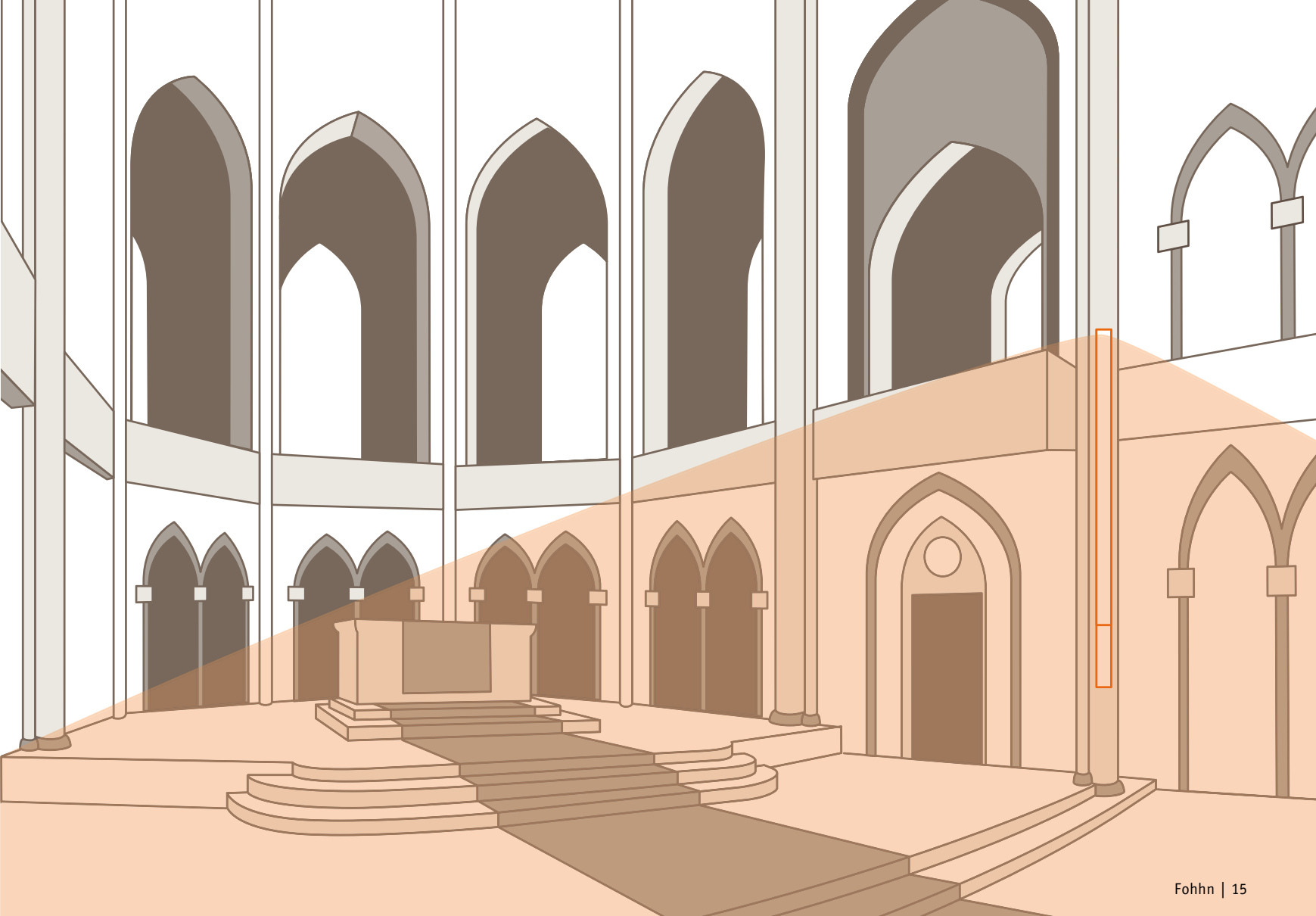
AIRPORTS, CHURCHES, RAILWAY STATIONS, CONFERENCE CENTRES, THEATRES,
TV STUDIOS, UNIVERSITY LECTURE ROOMS, EXHIBITION HALLS, MUSEUMS ETC.

The Linea Focus LFI series has been specially developed for venues that demand both powerful sound reproduction and visual integration. The new 4.5 m length is a recent innovation – rarely seen on the market. Its numerous speakers generate superb coverage over impressive distances. In reverberant acoustic conditions, excellent results can be achieved by focussing the speaker sound to avoid “exciting” the room acoustic, guaranteeing superb speech intelligibility. The electronically steerable capabilities of the new systems allow them either be mounted flat on the wall, or installed directly in the wall.

An international study by Prof. Dr.-Ing. Jürgen W. Meyer (Physikalisch-Technische Bundesanstalt, Germany) has revealed that historical churches often have long reverberation times in the particular frequency range relevant to speech. Strong reverb considerably reduces speech intelligibility. Here however, Linea Focus proves a real problem solver. By targeting the sound directly towards the audience, speech intelligibility is significantly improved.

System integration in accordance with EN 60849 (emergency and fire evacuation)

- * Two independent line inputs with symmetrical transformers
- * Fault message contact
- * 12-64 V emergency power operation
- * Monitoring of all important device parameters
- * Intelligent evaluation

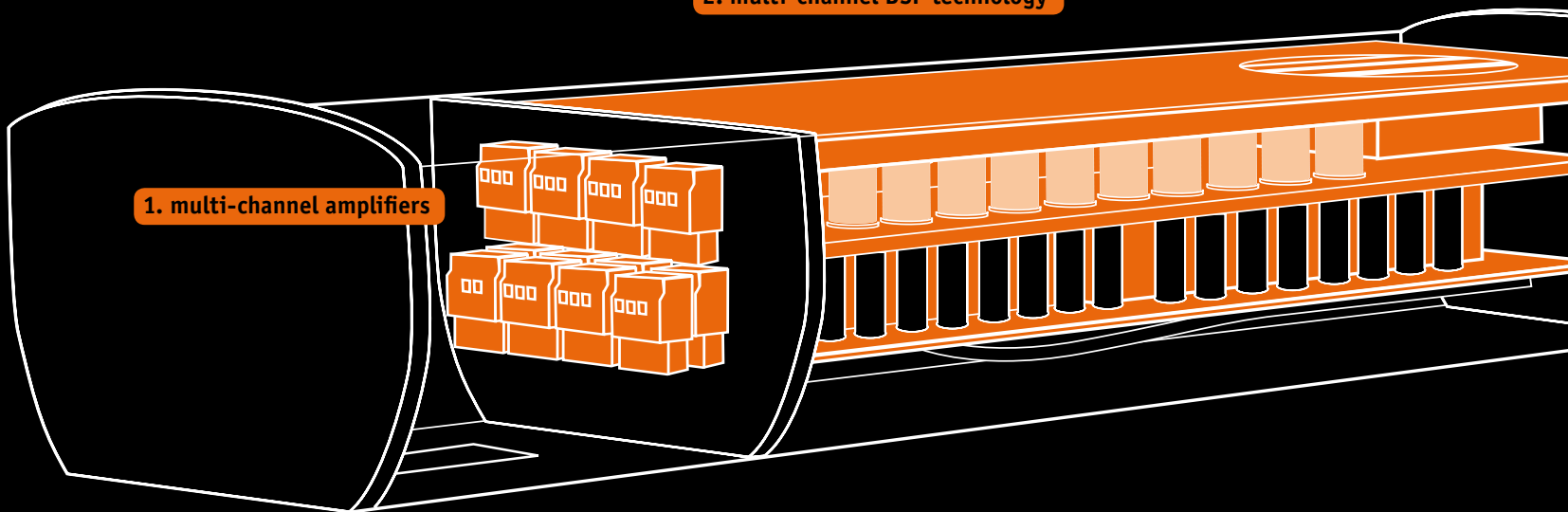


INSIDE LINEA FOCUS.

MADE IN GERMANY. MADE BY FOHNN.

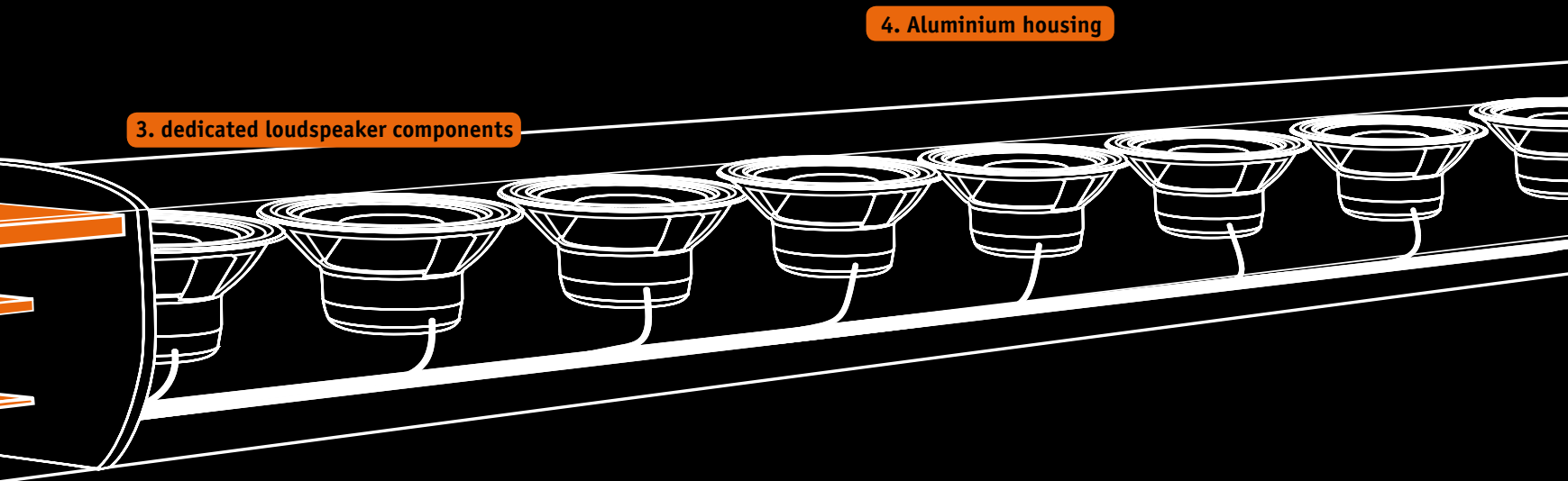
2. multi-channel DSP technology

1. multi-channel amplifiers



① Fohhn CLASS D multi-channel amplifiers

State-of-the-art digital amplifier technology – made in Germany. Equipped with 8/16/24/32 separate amplifier channels and specially developed to allow individual control of each loudspeaker chassis. 100 W path power per channel. Superb sound characteristics and extremely high efficiency levels. Minimum heat generation. Maximum operating reliability.



3. dedicated loudspeaker components

2 Fohhn multi-channel DSP technology

Up to 32 separate DSP channels enabling individual loudspeaker control. Latest DSP processors: 24-Bit AD converter, filter depth 56 Bit, sampling rate / fine tilt control, 96 kHz, latency 0.6 ms. Ultra-fine, precise control in 0.1° steps up to 15 kHz. Integrated, freely-configurable audio devices including parametric EQ, dynamics, delay, noise gate, hi pass / low pass, status monitoring. All settings can be saved as presets.

4. Aluminium housing

3 Fohhn dedicated loudspeaker components

Manufactured especially for Fohhn. Extremely high-performance 4" loudspeakers equipped with the latest neodymium drivers and plastic coated membranes. Excellent reproduction in all frequency ranges – bass, mid and high. Exceptionally powerful top end performance, not normally possible with conventional high-frequency drivers.

4 Aluminium housing

Fohhn's high quality aluminium housing is extremely elegant and robust, offering optimum protection for all internal components. Black anodized housing is supplied as standard. Other RAL colours are available on request.

LINEA FOCUS – AN OVERVIEW OF THE MAIN OPERATING PRINCIPLE.

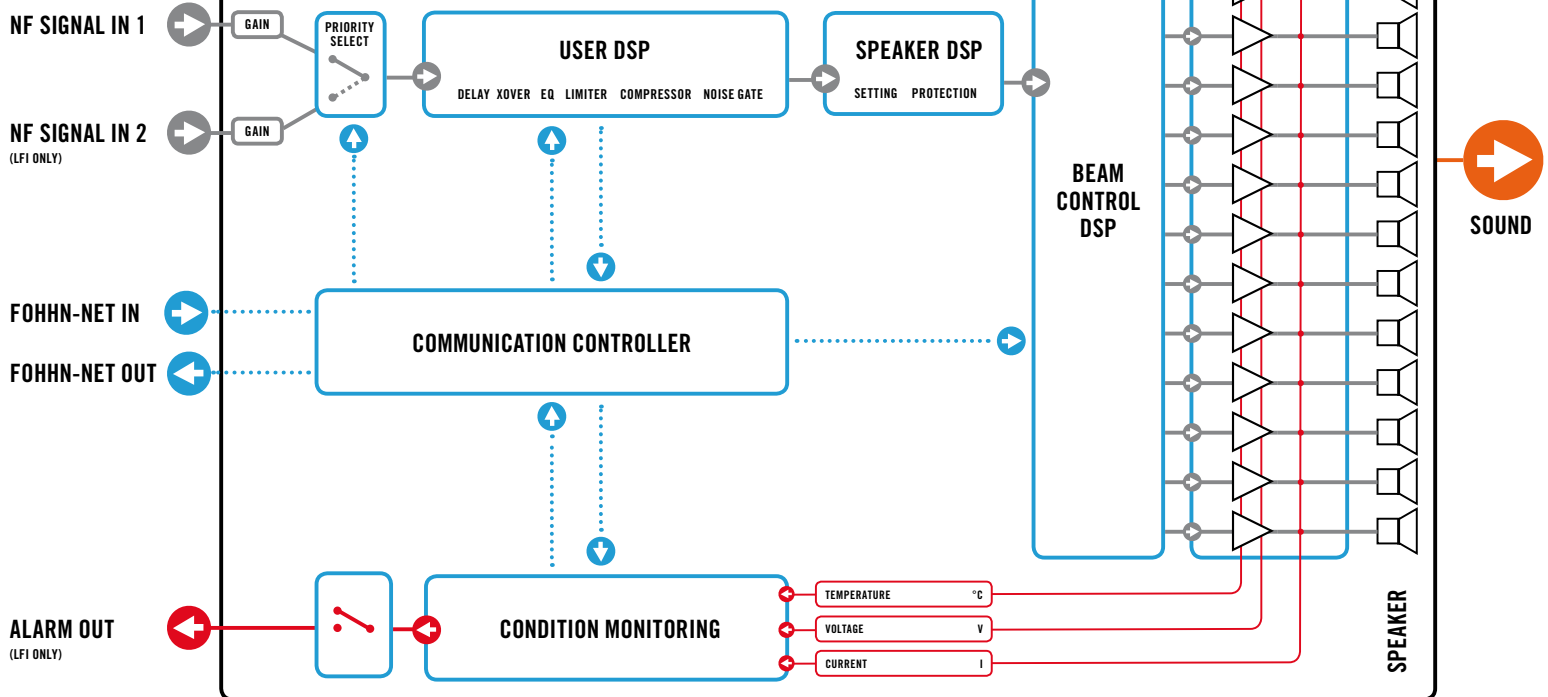
OPERATING A LINEA FOCUS SYSTEM IS EASY, EVEN THOUGH THERE ARE HIGHLY COMPLEX PROCESSES INTEGRATED INTO BOTH THE TECHNOLOGY AND THE SOFTWARE.

The diagram on page 19 gives more experienced readers an overview of the functionality. An input signal initially passes through the input section. This has a priority logic that is activated if an evacuation announcement is necessary for example, ensuring maximum safety in any kind of emergency. The input signal also passes through a digital signal processor, which offers a range of opportunities for real-time processing. This is done easily and intuitively using Fohhn Audio Soft software. The “Speaker Setting and Protection DSP” section includes all the necessary acoustic protection mechanisms, such as a finely tuned multiband limiter. Equalizer settings, for the array correction for example, can also be stored.

The system is continually optimized to deliver excellent acoustic results and maximum operating reliability, even under difficult conditions. At the heart of the Linea Focus system is the “Beam Control DSP” display, which includes all the algorithms for calculating the beam characteristics. Any parameter changes made by the user in the software are then sent to the Beam Control DSP, which calculates the data and relays the appropriate information to each separate speaker.

Each chassis is controlled via an individually calculated signal from its own Class D power amplifier. Constant monitoring of the state of each individual output signal and component, such as temperature, current and load, means that the present operating status is always displayed and can be read by the user.

FOHHN® LINEA FOCUS



ONE PIECE OF SOFTWARE FOR TOTAL CONTROL – FOHHN AUDIO SOFT V3.

INTUITIVE, REAL-TIME CONTROL. ALL SETTINGS CAN BE SAVED AS PRESETS.

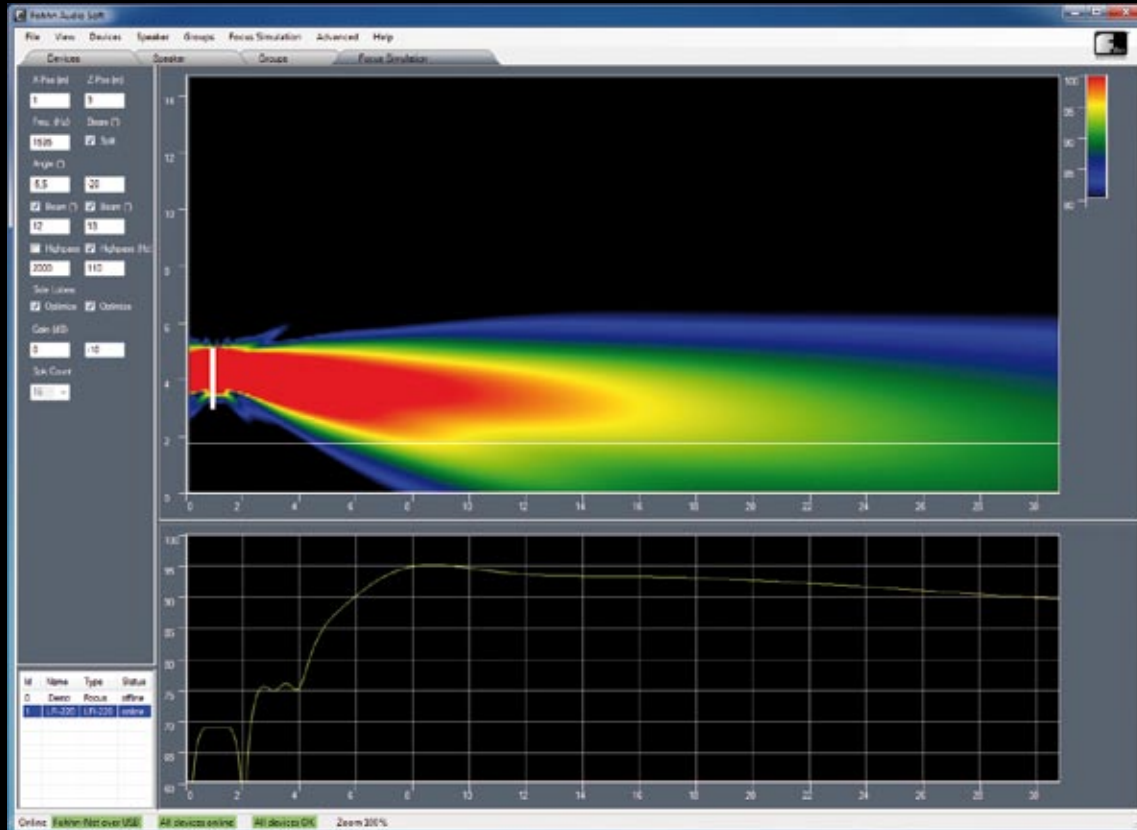
Innovative technology and its related software have been developed in tandem by Fohhn's engineering team. No other software program is needed. Everything can be controlled from a single application – Fohhn Audio Soft V3 – running on a laptop. The software can be downloaded free of charge from: www.fohhn.com.

The transparent, graphic user interface allows quick access to the connected audio devices, sound presets and the Linea Focus simulation. All settings can be saved as presets. Signal processing is always done in real time. Operating status, time and temperature can also be controlled via the software. The system components and laptop can either be linked via Fohhn USB adapter or Fohhn Ethernet adapter. Up to 256 devices can be networked together.

ALL INTEGRATED: AUDIO TOOLS, SOUND PRESETS AND THE LINEA FOCUS SOFTWARE SIMULATION.



INTUITIVE BEAM CONTROL IN REAL TIME.
ALL SETTINGS CAN BE SAVED AS PRESETS.



LINEA FOCUS SOFTWARE SIMULATION.

AT THE HEART OF FOHNN AUDIO SOFT V3.



At the heart of Fohhn Audio Soft V3 is the Linea Focus Simulation. The unique integration of control and simulation allows the immediate transfer of parameter settings to the connected devices. All parameter changes made in the simulation window are transferred to the devices in real time. Changes to the sound inclination angle or beam width are instantly audible. The vertical sound inclination angle can be adjusted between $+40^{\circ}/-40^{\circ}$ and the vertical beam width between 0° to 90° .

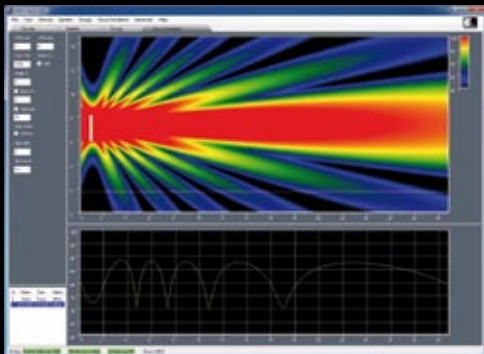
The simulation of the line array's sound dispersion characteristics lies within a frequency range of 50 Hz – 20 kHz. The spatial distribution of the sound pressure level is displayed in graded colours. The frequency response at any given position, and the sound pressure level for any area of the audience, can be displayed on a graph. Optimizing the sound dispersion characteristics can always be done in real time. Using a laptop with WLAN lets the user move around, quickly assess and optimize the sound in each part of the room, before comparing it again with the simulation.

1. SUPERB SOUND QUALITY IN CHALLENGING ACOUSTIC ENVIRONMENTS.

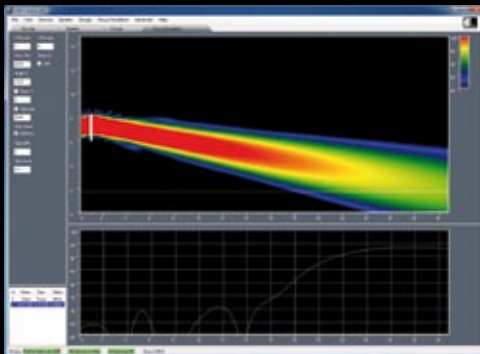
Linea Focus takes sound reproduction of both speech and music to the next level. The speakers' sound dispersion characteristics can be adjusted to suit the room conditions, avoiding unwanted reflections and providing even coverage of all audience areas. Because of this, it's possible to achieve superb speech intelligibility and a clear cohesive image, even in the most demanding acoustic conditions.

In comparison: Conventional PA systems have more permanently defined sound dispersion characteristics. These are usually either too wide, or they lack cohesion and cannot be specifically adjusted to suit

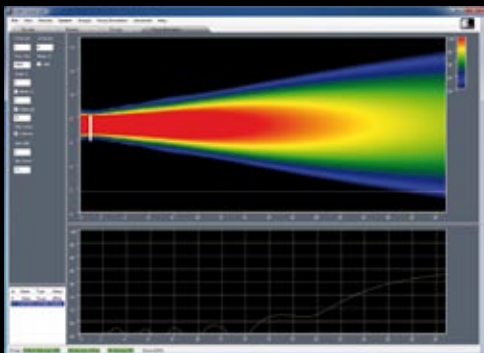
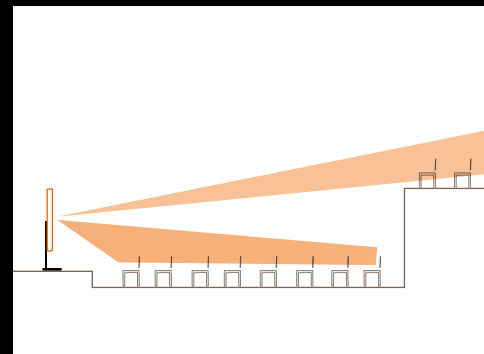
particular room conditions. It's also unnecessary for sound to be focussed in places where there is no audience. This sound often reflects off areas like the ceiling, causing a delay on its return. To the listener, this kind of reflection can make the sound appear "washy" or "roomy", with a noticeable deterioration in speech intelligibility. In this respect, the Linea Focus series is revolutionary: Specifically targeting the sound means that unwanted room reflections can be avoided.



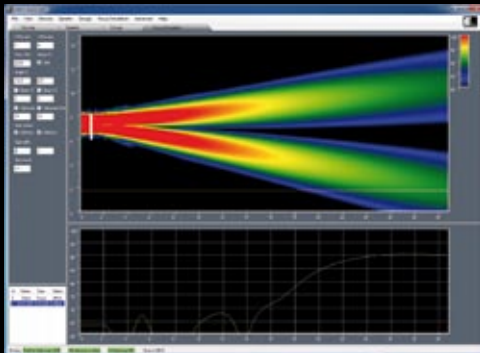
Without Side Lobe Free Technology



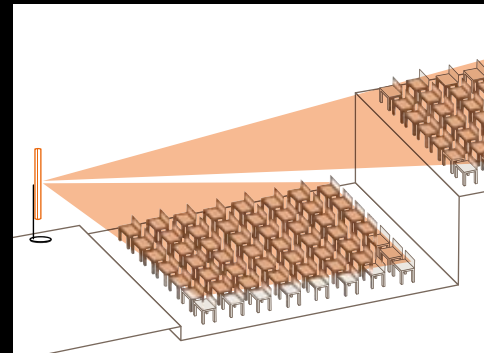
A single beam



With Side Lobe Free Technology



Two separate beams



Using the two unique control tools – “Side Lobe Free Technology” and “Two Beam Technology” – developed by Fohhn engineers, different audience areas can be simultaneously targeted, avoiding unwanted room reflections.

SIDE LOBE FREE TECHNOLOGY

This specially developed algorithm can suppress unwanted side lobes. Superb speech intelligibility is achieved due to the reduced room reflections.

TWO BEAM TECHNOLOGY

This innovative Fohhn development enables two separate beams to be generated in the vertical dispersion range, allowing specific audience areas such as stalls and gallery to be targeted by the same speaker

2. REAL-TIME SOUND CONTROL.



Control via computer keyboard or mouse

Perfect control equals perfect results. Fohhn's user-friendly software enables real-time control of the speakers' sound dispersion characteristics. This allows sound to be focussed quickly and accurately on each particular audience area, giving outstanding results with both fixed installations and live performance systems.

With most sound projects, time is often a decisive factor in determining their eventual success or failure. Because the loudspeaker system is invariably installed at the end of a construction project, or live set-up, time may be limited to quick and rudimentary adjustments and sound checks. Being able to control the sound dispersion in real-time makes the set-up considerably easier.



3. EVEN SOUND DISTRIBUTION.

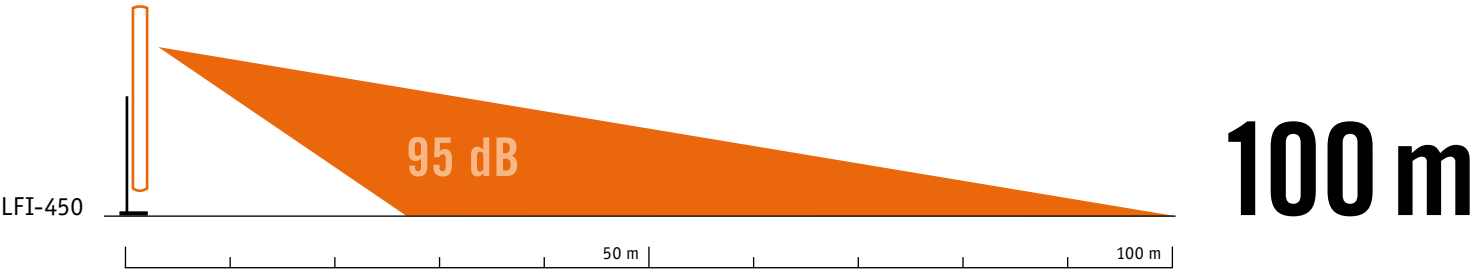
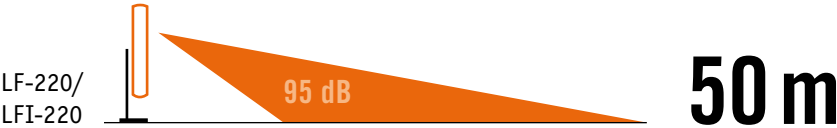
With Linea Focus, even sound distribution is guaranteed throughout the venue, from warm, pleasant sound at the front, to clarity and detailed intelligibility right at the back. What's more, significantly fewer speakers are required to achieve perfect room coverage. As a true line array system, Linea Focus produces its sound in the form of a cylindrical wave. Unlike conventional systems, the sound pressure

level within the cylindrical wave only decreases by 3 dB, instead of 6 dB, as the distance doubles. This groundbreaking feature, combined with the ability to electronically control the speakers' sound dispersion, has set new standards in sound quality.

For planning ingenieurs we offer a plugin (DLL) of Fohhn Audio Soft for EASE acoustic simulation program.



SIZE MATTERS.



Range at 95 dB SPL.

4. OUTSTANDING REPRODUCTION OF SPEECH AND MUSIC.

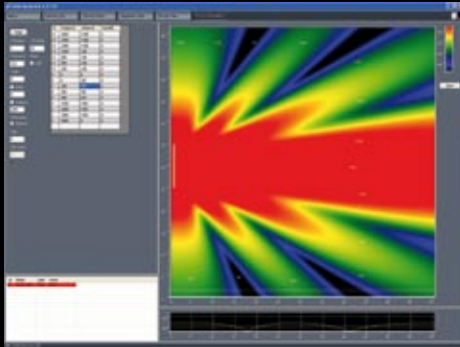
Linea Focus also establishes a new benchmark for the reproduction of speech and music. The high-powered speakers' exclusive development and innovative digital technology produces a dynamic, natural sound quality. Speech, AV productions and live music are all superbly reproduced with Linea Focus systems. Each separate loudspeaker is individually equipped with one of the latest generation CLASS D DSP amplifiers, producing 100 W path power per channel. A Linea Focus LFI-450 system, for example, has 3200 W of available amplifier power.

If higher bass sound pressure levels are called for, the Linea Focus system can easily be combined with a Fohhn active or passive subwoofer. To target sound more effectively in the low frequency

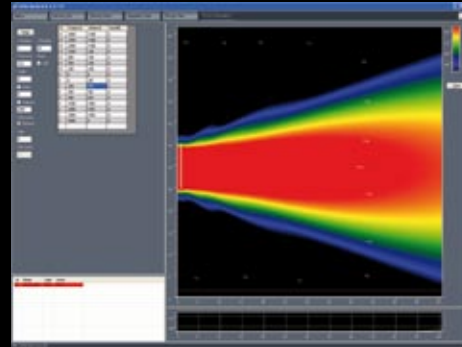
range, it's also possible to create a bass array by combining several subwoofers and their related DSP technology.

The Linea Focus systems' extraordinary electronic control capabilities also allow the speakers to be used in combination with Fohhn subwoofer systems. Electronically steering each separate DSP-controlled subwoofer enables more precise control of its sound dispersion characteristics. This in turn gives a more even reproduction of low frequencies, which significantly improves the overall sound image. For further information, please contact our planning engineers on info@fohnn.com.

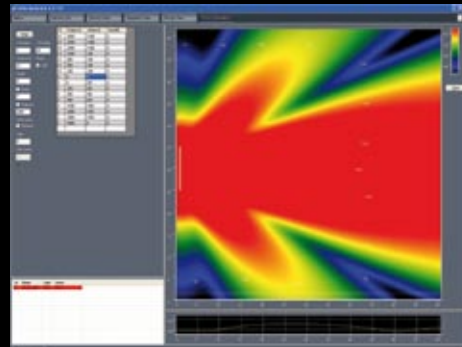
ELEKTRONICALLY STEERABLE BASS ARRAYS. OPTIMUM LOW-END SOUND QUALITY.



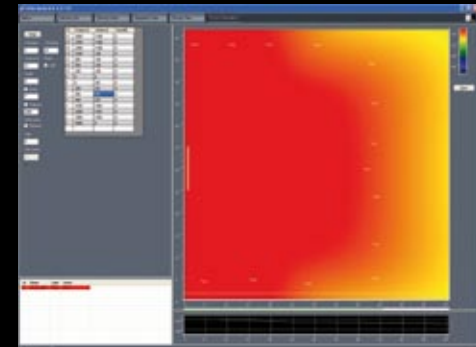
Bass transmission at 125 Hz with Side Lobes
(standard, without correction)



Bass transmission at 125 Hz without Side Lobes
(with correction)



Bass transmission at 72 Hz without correction



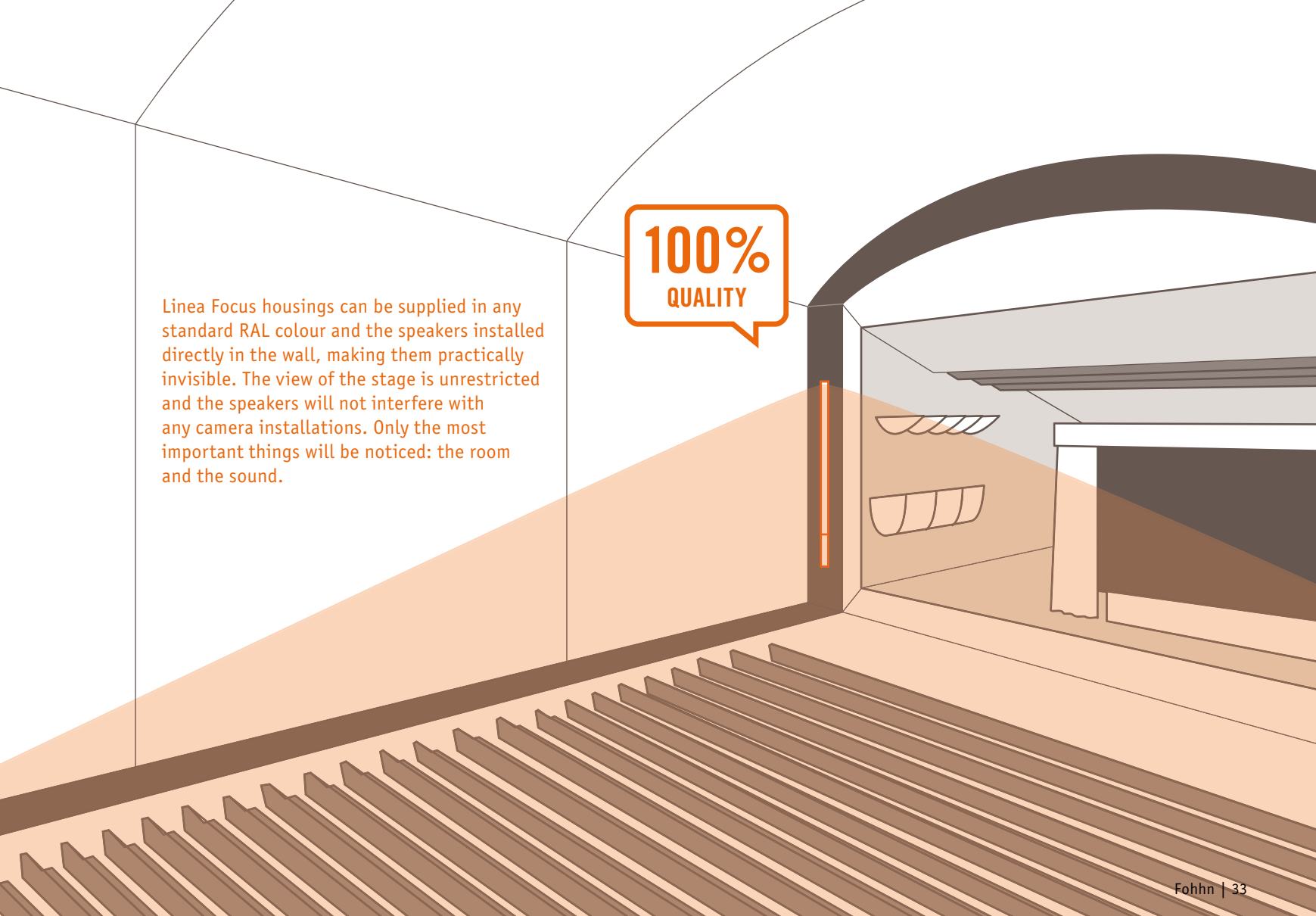
Bass transmission at 72 Hz with correction



Bass Array consisting of 8 active Fohhn DSP subwoofers.

5. INTEGRATION INTO ANY ARCHITECTURAL SETTING.

Designed for perfection, Linea Focus speakers integrate into any setting, with their distinctive linear form a particular feature. The elegant aluminium housing is a mere 13 cm wide and 12 cm deep and can be supplied in all standard RAL colours. The speakers' electronic control functionality enables them either to be mounted flat against the wall, or installed directly in the wall to blend unobtrusively with the room interior. Only the most important things will be noticed: the room and the sound.



Linea Focus housings can be supplied in any standard RAL colour and the speakers installed directly in the wall, making them practically invisible. The view of the stage is unrestricted and the speakers will not interfere with any camera installations. Only the most important things will be noticed: the room and the sound.

100%
QUALITY

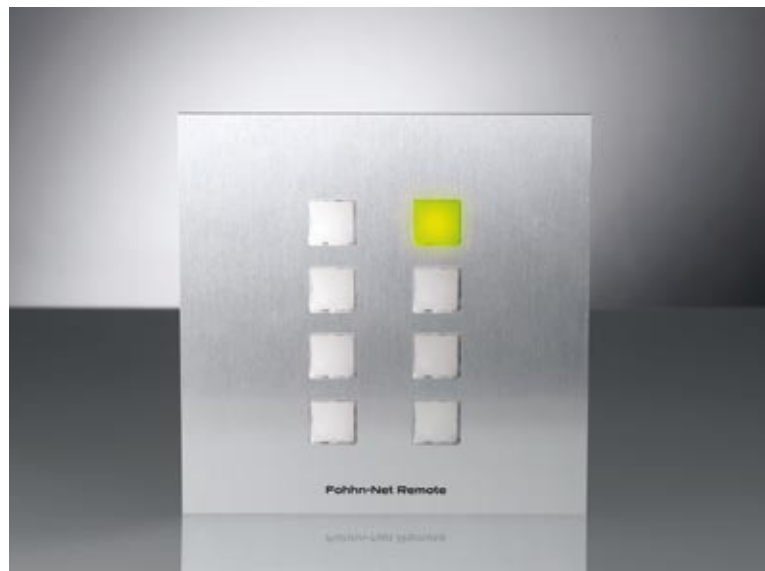
REMOTE CONTROL. NETWORKS.

REMOTELY CONTROLLING LINEA FOCUS SYSTEMS IS A PIECE OF CAKE! MULTIPLE SYSTEMS CAN BE NETWORKED TOGETHER. CONTROL AND MONITORING CAN BE CARRIED OUT FROM A CENTRAL LOCATION.



FR-10 Fohhn-Net Remote

8 programmable buttons can be configured to control the overall volume of a system, the volume in different zones, or presets for different room effects, for example. The system also has a special function that confirms whether all commands have been executed successfully. The buttons indicate this by changing to either red or green shortly after they are pressed. The wall panel is easy to configure with the intuitive Fohhn-Net Remote Control Software.

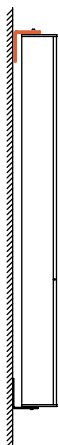


FR-20 Fohhn-Net Remote

Operation via 8 make contacts or RS-485 protocol. Compatible with media control systems. All end devices with integrated Fohhn audio DSPs can be operated by media control units via the FR-20. Quick configuration with Fohhn-Net Remote Control Software.

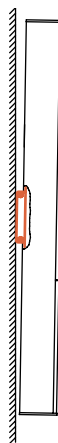
ACCESSORIES.

A FIRST-CLASS RANGE OF ACCESSORIES GUARANTEES BOTH SAFETY AND RELIABILITY IN ANY PROFESSIONAL WORKING SITUATION.



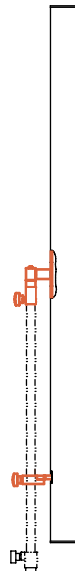
WAL-1

L-shaped swivel brackets for Linea LFI-120/220/350/450. Suitable for mounting on walls and other flat surfaces.



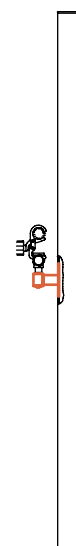
WLF-1

Wall brackets for Linea LFI-120/220 and LF-120/220, non-swivel. For LFI-350/450, two WLF-1s are required per system.



SA-9

36 mm tripod adapter with spacer for LFI-120/220. Available in black. Ideal for mobile PA systems or temporary installations.



SA-10

Flying adapter with pre-drilled holes for M10 screws. For flown systems / traverse mounting, with optional LC-50 clamp and TV spigot. Suitable for Linea LFI-120/220 and Linea LF-120/220 systems.

THE FOHNN® SOUND LAB.

FOHNN'S NEW SOUND LAB OFFERS A GREAT OPPORTUNITY TO CARRY OUT FUNDAMENTAL AUDIO RESEARCH AND TO DEVELOP LEADING-EDGE TECHNOLOGY.

In the Nürtingen factory premises, Fohhn's new Sound Lab offers a great opportunity to carry out fundamental audio research and to develop, measure and test leading-edge technology. Engineers from a range of different backgrounds work closely together to push the boundaries of audio technology.

The Fohhn Sound Lab also provides customers with an excellent venue for thorough testing of the capabilities of Fohhn audio systems. New paths to tread, better solutions to develop and the highest technical levels to aim for – that's the mantra of Fohhn's R&D division. The same goal-driven, scientific approach is applied in all areas of development from electronics and software to acoustics and mechanics. Creative concepts for new loudspeakers are quickly translated into theory, based on extensive calculations. Numerous computer simulations and prototyping phases follow, in which each parameter – frequency response, dispersion characteristics, dynamics, distortion, large signal response – is recorded, adjusted and optimized. The next stage involves specifically optimizing the amplifier electronics, digital signal

processors (DSP) and remote control/networking technology for the loudspeaker. Each development phase, from the mechanics through to the software, is carried out at Fohhn.

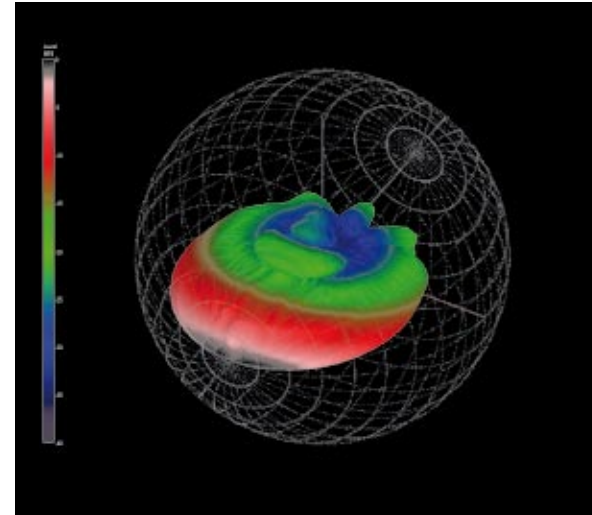
At the end of the development process, all newly created products undergo lengthy and rigorous practical tests; both at Fohhn and in live situations. "Practical testing" at Fohhn includes everyone involved in the development process. Fohhn engineers, marketing and distribution personnel, who all have experience as live sound engineers, musicians or DJs. This way, each new product can also be carefully scrutinized from a user's viewpoint. The result is a perfect loudspeaker system that combines optimum sound characteristics with total operating reliability. A system that is simple and safe to use, ready to give maximum performance and real listening pleasure.

Optimum Research and Test Conditions

With a floor area of 24 meters x 14 meters and a height of 6.5 meters, the Fohhn Sound Lab is one of Germany's largest and best equipped



Customers attend a demo in the Fohhn Sound Lab



Fohhn's 2-Axis Measurement Robot enables continuous 360° measurement



audio measurement facilities. It enables developers to measure each loudspeaker parameter very precisely and to assess the relevance of the captured data while listening. Only under such specialist conditions can a loudspeaker's performance be optimized to the highest level. A combination of room size and highly developed FFT measuring systems enable reflection free measurements to be obtained down to 100 Hz – something that is usually difficult to achieve.

The amount of wall clearance means that dampening the room to achieve an "anechoic chamber" effect has not been necessary. Instead, at great expense, absorbers and diffusers have been used to convert the former warehouse into a dedicated listening space with superb acoustics. With a natural room reverb of approx 0.4 seconds, Fohhn's new Sound Lab offers top testing conditions.

Fohhn's 2-Axis Measurement Robot

Another technical highlight of the Fohhn Sound Lab! This impressive device gives us the opportunity to measure very large loudspeaker systems. The robot has been specifically developed by Fohhn for this purpose, and is able to pan through both speaker axes at 360°, with a positioning accuracy of 0.3°. The device enables the speaker's directional characteristics to be assessed and optimized during each development stage – from the speaker chassis to the finished prototype. The polar pattern data obtained by running Fohhn loudspeakers through room simulation programs such as EASE or ULYSSES, can also be analyzed and optimized. This is achieved by making several hundred individual measurements, with the robot positioning itself at a different angle each time. A series of measurements for a single system can take 12 hours or more to complete.

TECHNICAL SPECIFICATIONS LF-120

electro-acoustical features	
acoustic design	electronically steerable line array speaker
components [*]	8x 4" impreg. speaker membranes (fully neodymium)
operating mode	active, 8-channel DSP amplifier, class D
sensitivity [4]	106 dB
power rating (peak) [3]	124 dB
frequency range [5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0°- 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features	
enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	6x M6 thread
standard colours	black anodizes or matt white painted
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 1250 x 120 mm
weight [7]	8 kg

optional features	
optional colours	all RAL-colours

controls	
power on/ off button illuminated (standby)	
green = on, red = standby, red flashing = fault	
network control	receive/ send remote control LED
Fohhn-Net connector socket	2x in/ thru
mains	1x Powercon mains jacks
audio input	1x XLR
audio output	1x XLR

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

electronic performance	
amplifier output	8x 100 W
amplifier type	Pure Path Digital PWM
audio input	1x XLR
audio output	1x XLR
DSP channels, Fohhn Audio DSP	8
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 4A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 5 W, max 400 W
low power	Green Power Standby Mode
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 2 kg

remote control, remote monitoring and simulation	
remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring	temperature, protect, signals, power supply Fohhn-Net, Fohhn Audio Soft
Simulation Beam	Fohhn-Net, Fohhn Audio Soft

CAAD simulation data	
simulation data	EASE, Fohhn Linea Focus Plug-In

controller	
digital signal processors	2
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100
limiter compressor	
noise gate	
X-Over	Linkwitz-Riley 4. order 24 dB/ octave high pass 10 Hz - 20 kHz low pass 10 Hz - 20 kHz
delay	0,01 - 350 ms, oder 3,4 mm - 120 m

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

TECHNICAL SPECIFICATIONS LF-220

electro-acoustical features

acoustic design	electronically steerable line array speaker
components [*]	16x 4" impreg. speaker membranes (fully neodymium)
operating mode	active, 16-channel DSP amplifier, class D
sensitivity [4]	112 dB
power rating (peak) [3]	130 dB
frequency range [5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0°- 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features

enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	6x M6 thread
standard colours	black or white powder coating
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 2250 x 120 mm
weight [7]	15 kg

optional features

optional colours	all RAL-colours
------------------	-----------------

controls

power on/ off button illuminated (standby)	
green = on, red = standby, red flashing = fault	
network control	receive/ send remote control LED
Fohhn-Net connector socket	2x in/ thru
mains	1x Powercon mains jacks
audio input	1x XLR
audio output	1x XLR

electronic performance

amplifier output	16x 100 W
amplifier type	Pure Path Digital PWM
audio input	1x XLR
audio output	1x XLR
DSP channels, Fohhn Audio DSP	16
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 4A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 5 W, max 800 W
low power	Green Power Standby Mode
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 3 kg

remote control, remote monitoring and simulation

remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring	temperature, protect, signals, power supply Fohhn-Net, Fohhn Audio Soft
Simulation Beam	Fohhn-Net, Fohhn Audio Soft

CAAD simulation data

simulation data	EASE, Fohhn Linea Focus Plug-In
-----------------	---------------------------------

controller

digital signal processors	2
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100
limiter compressor	
noise gate	
X-Over	Linkwitz-Riley 4. order 24 dB/ octave high pass 10 Hz - 20 kHz low pass 10 Hz - 20 kHz
delay	0,01 - 350 ms, oder 3,4 mm - 120 m

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

TECHNICAL SPECIFICATIONS LFI-120

electro-acoustical features	
acoustic design	electronically steerable line array speaker
components [*]	8x 4" impreg. speaker membranes (neodymium)
operating mode	active, 8-channel DSP amplifier, class D
sensitivity[4]	106 dB
power rating (peak)[3]	124 dB
frequency range[5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0°- 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features	
enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	7x M6 thread
standard colours	black or white powder coating
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 1250 x 120 mm
weight [7]	8 kg
optional features	
optional colours	all RAL-colours

controls (built-in Phoenix terminals)	
Fohhn-Net	2x in/ thru Phoenix terminals
mains connections	2 pol Phoenix terminal, grounding screwed
emergency current	24 V /16 A
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x link
fault contact	relay 2x alter, link

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

electronic performance	
amplifier output	8x 100 W
amplifier type	Pure Path Digital PWM
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x links
DSP channels, Fohhn Audio DSP	8
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 4A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 5 W, max 400 W
low power	Green Power Standby Mode
emergency power operation possible	24 V / 16 A 12..64 volts external, with external voltage transformer, built-in fuse
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 2 kg

indicate LEDs (built-in)	
power on/ off (standby)	green = on, red = standby red flashing = fault
network control	receive/ send remote control LED

CAAD simulation data	
simulation data	EASE, Fohhn Linea Focus Plug-In

remote control, remote monitoring and simulation	
remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring	temperature, protect, signals, power supply Fohhn-Net, Fohhn Audio Soft
fault message contact	relay 2x alter
simulation beam	Fohhn-Net, Fohhn Audio Soft

controller	
digital signal processors	2
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100

limiter compressor, noise gate	
X-Over	Linkwitz-Riley 4. order, 24 dB/ octave high pass/lowpass 10 Hz - 20 kHz
delay	0,01 - 350 ms, or 3,4 mm - 120 m

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

TECHNICAL SPECIFICATIONS LFI-220

electro-acoustical features	
acoustic design	electronically steerable line array speaker
components [*]	16x 4" impreg. speaker membranes (fully neodymium)
operating mode	active, 16-channel DSP amplifier, class D
sensitivity[4]	112 dB
power rating (peak)[3]	130 dB
frequency range[5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0°- 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features	
enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	7x M6 thread
standard colours	black or white powder coating
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 2250 x 120 mm
weight [7]	15 kg
optional features	
optional colours	all RAL-colours

controls (built-in Phoenix terminals)	
Fohhn-Net	2x in/ thru Phoenix terminals
mains connections	2 pol Phoenix terminal, grounding screwed
emergency current	24 V / 16 A
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x link
fault contact	relay 2x alter, link

electronic performance	
amplifier output	16x 100 W
amplifier type	Pure Path Digital PWM
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x links
DSP channels, Fohhn Audio DSP	16
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 4A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 5 W, max 800 W
low power	Green Power Standby Mode
emergency power operation possible	24 V / 16 A 12..64 volts external, with external voltage transformer, built-in fuse
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 3 kg

indicate LEDs (built-in)	
power on/ off (standby)	green = on, red = standby red flashing = fault
network control	receive/ send remote control LED

CAAD simulation data	
simulation data	EASE, Fohhn Linea Focus Plug-In

remote control, remote monitoring and simulation	
remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring temperature, protect, signals, power supply	Fohhn-Net, Fohhn Audio Soft
fault message contact	relay 2x alter
simulation beam	Fohhn-Net, Fohhn Audio Soft

controller	
digital signal processors	2
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100

limiter compressor, noise gate	
X-Over	Linkwitz-Riley 4. order, 24 dB/ octave high pass/low pass 10 Hz - 20 kHz
delay	0,01 - 350 ms, or 3,4 mm - 120 m

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

TECHNICAL SPECIFICATIONS LFI-350

electro-acoustical features	
acoustic design	electronically steerable line array speaker
components [*]	24x 4" impreg. speaker membranes (fully neodymium)
operating mode	active, 24-channel DSP amplifier, class D
sensitivity[4]	115,5 dB
power rating (peak)[3]	133,5 dB
frequency range[5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0°- 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features	
enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	10x M6 thread
standard colours	black or white powder coating
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 3490 x 120 mm
weight [7]	25 kg
optional features	
optional colours	all RAL-colours

controls (built-in Phoenix terminals)	
Fohhn-Net	2x in/ thru Phoenix terminals
mains connections	2 pol Phoenix terminal, grounding screwed
emergency current	24 V /16 A
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x link
fault contact	relay 2x alter, link

electronic performance	
amplifier output	24x 100 W
amplifier type	Pure Path Digital PWM
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x links
DSP channels, Fohhn Audio DSP	24
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 8A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 10 W, max 1200 W
low power	Green Power Standby Mode
emergency power operation possible	24 V / 32 A 12..64 volts external, with external voltage transformer, built-in fuse
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 5 kg

indicate LEDs (built-in)	
power on/ off (standby)	green = on, red = standby red flashing = fault
network control	receive/ send remote control LED

CAAD simulation data	
simulation data	EASE, Fohhn Linea Focus Plug-In

remote control, remote monitoring and simulation	
remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring	temperature, protect, signals, power supply Fohhn-Net, Fohhn Audio Soft
fault message contact	relay 2x alter
simulation beam	Fohhn-Net, Fohhn Audio Soft
controller	
digital signal processors	4
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100
limiter compressor, noise gate	
X-Over	Linkwitz-Riley 4. order, 24 dB/ octave high pass/low pass 10 Hz - 20 kHz
delay	0,01 - 350 ms, or 3,4 mm - 120 m

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.

TECHNICAL SPECIFICATIONS LFI-450

electro-acoustical features	
acoustic design	electronically steerable line array speaker
components [*]	32x 4" impreg. speaker membranes (fully neodymium)
operating mode	active, 32-channel DSP amplifier, class D
sensitivity[4]	118 dB
power rating (peak)[3]	136 dB
frequency range[5]	60 Hz - 17 kHz
nominal dispersion [6] horizontal	110°
vertical dispersion, electronically steerable	0° - 90°
vertical sound inclination angle, electronically steerable	-40° - +40°

features	
enclosure	Aluminium design
protection grille	ball impact resistant metal, powder coating
suspension points	10x M6 thread
standard colours	black or white powder coating
front design	metal grille in enclosure colour
dimensions (W x H x D)	130 x 4490 x 120 mm
weight [7]	32 kg
optional features	
optional colours	all RAL-colours

controls (built-in Phoenix terminals)	
Fohhn-Net	2x in/ thru Phoenix terminals
mains connections	2 pol Phoenix terminal, grounding screwed
emergency current	24 V /16 A
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x link
fault contact	relay 2x alter, link

electronic performance	
amplifier output	32x 100 W
amplifier type	Pure Path Digital PWM
audio inputs	2 independent line inputs with automatic priority, symmetrical transformers
audio outputs	2x links
DSP channels, Fohhn Audio DSP	32
amplification	25 dB
input sensitivity	1,4 V
frequency response	20 Hz - 20 kHz
S/N Ratio	>105 dB/A
protective circuit	soft start, temperature monitoring, short-circuit protection, overload
power supply	100 V - 240 V AC 8A 50/60 Hz power supply with Power Factor Correction
current consumption	standby 10 W, max 1600 W
low power	Green Power Standby Mode
emergency power operation possible	24 V / 32 A 12..64 volts external, with external voltage transformer, built-in fuse
temperature range	0 - 40°C
cooling	temperature-controlled fan
weight electronic	ca. 6 kg

indicate LEDs (built-in)	
power on/ off (standby)	green = on, red = standby red flashing = fault
network control	receive/ send remote control LED

CAAD simulation data	
simulation data	EASE, Fohhn Linea Focus Plug-In

remote control, remote monitoring and simulation	
remote control	Fohhn-Net, Fohhn Audio Soft
remote monitoring	temperature, protect, signals, power supply Fohhn-Net, Fohhn Audio Soft
fault message contact	relay 2x alter
simulation beam	Fohhn-Net, Fohhn Audio Soft

controller	
digital signal processors	4
independent limiters	4
selektive 3-band limiting	bass/ mid/ high
band specific time constants	
filter technology	56-bit double precision
AD	24 bit/ 96 kHz
FIR filters	
gain	-80 dB - +12 dB
volume	-80 dB - +12 dB
EQ	10-band parametric EQ gain +/-12 dB frequency range 10 - 20 kHz Q 0,1 - 100

limiter compressor, noise gate	
X-Over	Linkwitz-Riley 4. order, 24 dB/ octave high pass/low pass 10 Hz - 20 kHz
delay	0,01 - 350 ms, or 3,4 mm - 120 m

[3] 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

[4] 2,83 V at 8 ohms (2 V at 4 ohms, 4 V at 16 ohms) at a distance of 1 meter under anechoic fullspace conditions

[5] -10 dB under anechoic halfspace-conditions

[6] horizontal x vertical at -6 dB

[7] net weight without optional equipment

The manufacturer reserves the right to make technical modifications according to legal regulations stipulating the continual improvement of product features.



WWW.FOHHN.COM

Fohhn Audio AG • Hohes Gestade 3-7 • 72622 Nürtingen / Germany • Tel. +49 7022 93323-0
Fax +49 7022 93324-0 • info@fohhn.com • www.fohhn.com

The attention to detail continues here: www.fohhn.com

On our website www.fohhn.com you will find: detailed product descriptions, technical specifications, accessories, detailed data sheets for download, 360°-view product demonstrations, manuals, PDF catalogues, CAD drafts, 2D and 3D DWG-files, Fohhn software, firmware updates, EASE and Ulysses simulation data, references and much more. Visit our website!

Dealer address:

We reserve the right to alter the design or technology. 2010 © by Fohhn®